芜湖赢诺液压科技有限公司
WUHU INNO HYDRAULICS TECHNOLOGY CO.,LTD.

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VALZOOM® 珐隽 Screw-in Cartridge Valves
液压螺纹插装阀

BEGIN WITH INNOVATION

千里之行，始于创新

芜湖赢诺液压科技有限公司致力于高性能THREAD插装阀（VALZOOM®）的研发和制造，立志成为具有核心能力的液压元件领军企业。公司的历史可以追溯到2014年在上海成立的插装阀研发部，于2018年在安徽省芜湖市湾沚区正式注册成立法人实体。公司占地45亩，一期拥有10,000平方米的现代化厂房，国际领先的进口加工及检测设备，经验丰富的研发设计团队，技工占比车间总人数达70%以上，具备全系列THREAD插装阀的研发与制造能力。

千里之行，始于创新。我们追求以创新推动公司的可持续发展，不断推进研发设计创新，工艺创新和管理创新。在毛刺检测、可靠性、清洁度以及泄漏量等关键性能指标上不断超越，达到国内国际领先水平。公司秉承全面领先的战略导向，以应用痛点为始，以解决方案为终，提供更精密，更可靠，更节能的螺纹插装阀，广泛应用于工程机械、农业机械、工业设备、航空航天等领域。

合作共赢，一诺千金。我们相信万物互联共生，合作是通往共赢的必由之路；我们始终将诚信铭记在心，一旦承诺则必然践诺。

承载赢诺价值观的每一颗插装阀将会使您的工作更简单！

Wuhu Inno Hydraulic Technology Co.,Ltd. is committed to researching, developing and manufacturing high-performance screw-in cartridge valves (VALZOOM®). We are determined to become a leading company with core competency specialized in hydraulic components. Our history can be traced back to the establishment of cartridge valve R&D department in Shanghai, 2014. And the legal entity is formed in Wanzhi District, Wuhu City, Anhui Province in 2018. Our site covers an area of 29,970m^2. We have a state-of-the-art workshop of 11,000m2 in the first phase, advanced imported processing and testing equipment, experienced R&D engineers, especially, skilled technicians account for more than 70% of the total staff in the workshop. Now we are able to provide a full range of screw-in cartridge valves.

A journey of a thousand miles begins with innovation. We pursue the sustainable development through innovation, and continue to drive innovation from different aspects ranging from design, technology, process, and management. In terms of key performance indicator, deburring, reliability, cleanliness and leakage, we keep improving and have achieved leading position at home and abroad. Since the establishment we adhere to the comprehensive leading strategy, starting with pain points in application and ending up with the total solution, to provide more precise, more reliable, more energy-saving screw-in cartridge valve, widely used in construction machinery, agricultural equipment, industrial equipment, and aviation industry and so on.

We consider everything as interconnected, collaboration is only way to win-win; we print integrity in our hearts, we commit and deliver. Each VALZOOM® valve conveying such values makes your job easier!

关于 About VALZOOM® 珐隽

Zoom In

聚焦于液压插装阀领域，为客户创造价值。

Zoom in on screw-in cartridge valve, create value for customers.

Zoom Ratio

丰富的产品系列，覆盖不同的流量、压力、功率域，持续推出新的品类以满足客户需求。

Wide range product series covering different flow, pressure and power domains,
constantly launch new product to meet customer demand.

Zoom Control

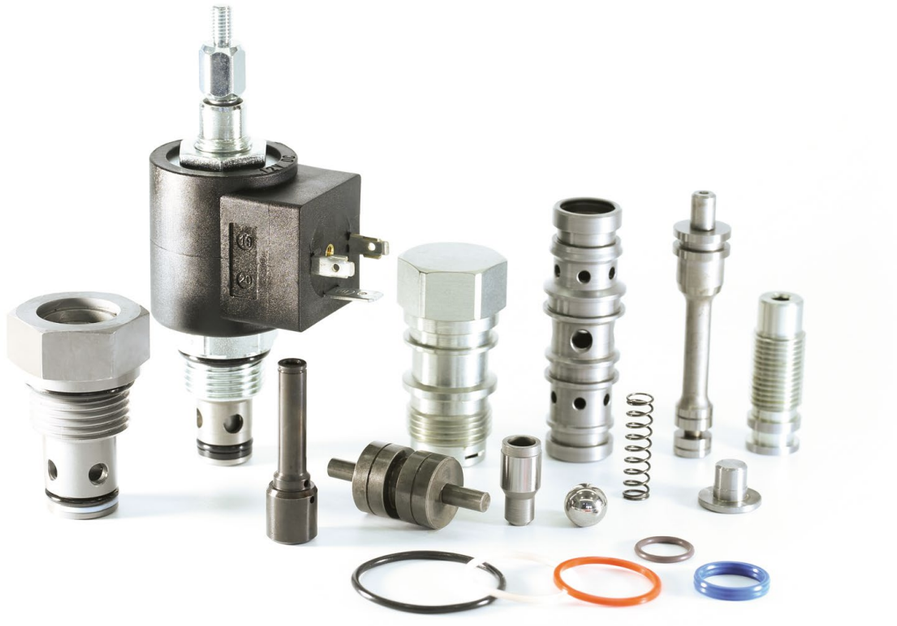
配备丰富的组件选项，能帮助客户实现精准化控制。

Provide variety of options of accessories, assist customers to realize accurate control.

VALZOOM® 珐隽 液压螺纹插装阀的显著特点

更精密 **更可靠** **更节能**

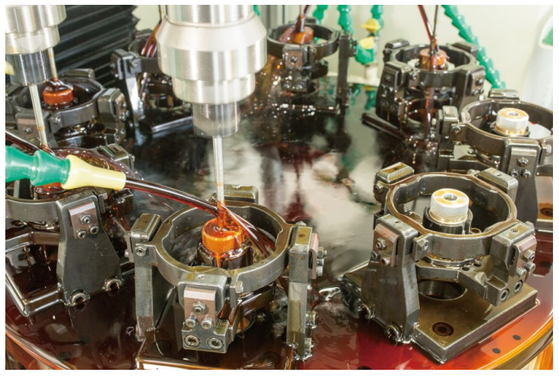
More Precise More Reliable More Energy-saving



更精密

经过液阻理论精确计算阀的动态阻尼，提升阀的稳定性。
The dynamic damping of the valve is accurately calculated by the hydraulic resistance theory to improve the stability of the valve.

多道工序深度加工，深度清洗，达到更高的产品精度。
Multi-processinng and deep cleaning to achieve higher degree of precision.



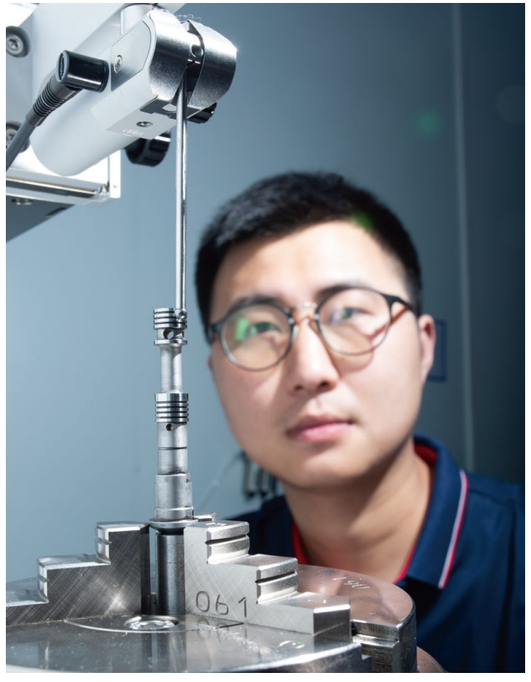
更可靠

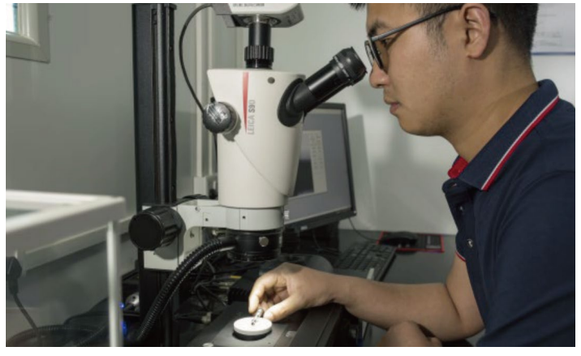
NAS 7级控制，确保出厂清洁度。
NAS 7 control ensures the cleanliness compliance upon delivery.

批量检测和百万次测试，保证阀产品在不同工况下表现一致。
Batch testing and one million times of cycle testing to ensure consistent performance and reliability under different working conditions.

进口钢材和特殊的热处理工艺，更耐高、低温，更耐高压。
Imported steel and special heat treatment process to ensure the better performance in high/low temperature, and high pressure as well.

采用10倍工显毛刺检验标准。
Burr inspection conducted under 10 maganification by an industrial microscope.





更节能

优化设计流通面积，在 7bar 压力下，通流能力更强。
Optimizing design to achieve the higher flow capacity under the pressure of 7 bar.

采用先进的无泄漏座阀密封技术，低泄漏。
Adopting advanced sealing technology to guanrantee low leakage.

优化线圈设计，改善电磁阀功率域。
Optimizing the coil design to impove the power domain of solenoid valve.

WORKING ENVIRONMENT REQUIREMENTS FOR HYDRAULIC SCREW-IN CARTRIDGE VALVE

1、INNO recommends using the hydraulic oil with the following viscosity: 2.8 to 380cSt or 35 to 2000 SSU, which will help us to maximize the performance of the valve products provided to customers, reduce the occurrence of faults and prolong the service life as much as possible。

2、Cleanliness of hydraulic oil: according to NAS 1638,
INNO controls the valve products according to the NAS7 factory cleanliness standard,
Accordingly, INNO recommends:
The filtering accuracy of the user's hydraulic system using INNO products shall not be lower than NAS9.

3、Ambient temperature of seal
The seals of INNO’s products have superior sealing performance. For the same valve product,
INNO can also provide seals of different rubber materials for customers to choose from.
In order to prolong the service life of seals, customers are recommended to order appropriate valve products with reference to the ambient temperature in the table below.
Please make a selection in "TO ORDER" on the product page.

SEAL MATERIAL	SEAL TYPE	AMBIENT TEMPERATURE
BUNA-N	O-RING	-30 ～ 90°C（-30 ～ 200° F）
FLUOROCARBON	O-RING	-12 ～120°C（-10 ～ 120° F）
POLYURETHANE	D-TYPE RING	-30 ～ 90°C（-30 ～ 200° F）

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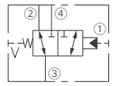
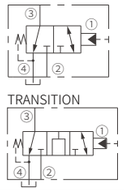
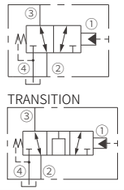
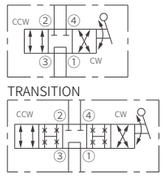
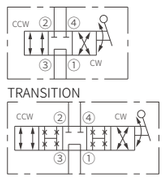
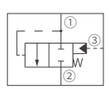
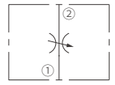
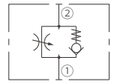
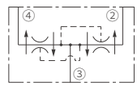
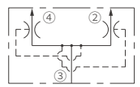
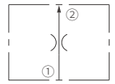
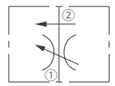
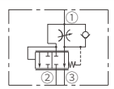
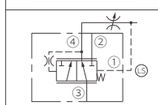
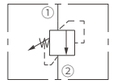
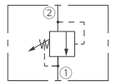
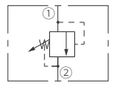
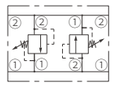
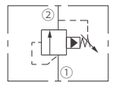
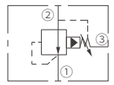
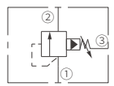
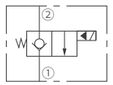
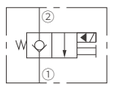
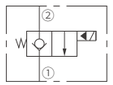
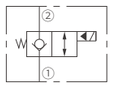
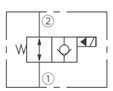
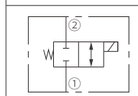
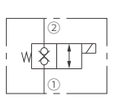
DIRECTIONAL VALVE						
SYMBOL	MODEL	TYPE	FLOW [lpm]	PRE. [bar]	CAVITY	PAGE
	IPD10-40	PILOTED 3-WAY SPOOL VALVE	37.9	240	IVC10-4	066
	IPD10-41	PILOTED 3-WAY SPOOL VALVE	45.4	240	IVC10-4	068
	IPD10-42	PILOTED 3-WAY SPOOL VALVE	37.9	240	IVC10-4	070
	IMR10-47A	MANUAL DIRECTIONAL VALVE	11.4	240	IVC10-4	072
	IMR10-47B	MANUAL DIRECTIONAL VALVE	11.4	240	IVC10-4	074
	IEP08-35	PILOTED LOGIC ELEMENT VALVE	37.9	345	IVC08-3	076
	IEP10-S35	PILOTED LOGIC ELEMENT VALVE	75.8	350	IVC10-S3	078
	IEP12-S35	PILOTED LOGIC ELEMENT VALVE	151.4	350	IVC12-S3	080

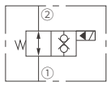
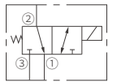
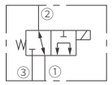
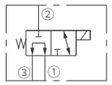
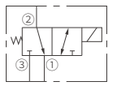
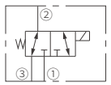
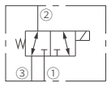
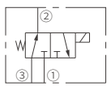
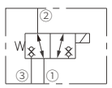
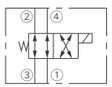
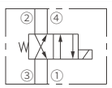
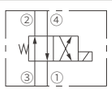
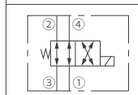
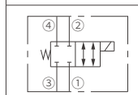
FLOW CONTROL VALVE						
SYMBOL	MODEL	TYPE	FLOW [lpm]	PRE. [bar]	CAVITY	PAGE
	INV08-20A	NEEDLE VALVE	16	240	IVC08-2	084
	INV08-20	NEEDLE VALVE	34	240	IVC08-2	086
	INV10-20	NEEDLE VALVE	45	240	IVC10-2	088
	INV12-20	NEEDLE VALVE	113.6	240	IVC12-2	090
	INV08-21	NEEDLE VALVE	55	240	IVC08-2	092
	INV10-22	NEEDLE VALVE	57	240	IVC10-2	094
	IFC08-20F	RESTRICTOR CHECK VALVE	45	240	IVC08-2	096
	IFC10-20	RESTRICTOR CHECK VALVE	45	240	IVC10-2	098
	IFD50-45	FLOW DIVIDER/COMBINER	15/22/34/45	345	IVC10-4	100
	IFD52-45	FLOW DIVIDER/COMBINER	60/90	345	IVC12-4	102
	IFD56-45	FLOW DIVIDER/COMBINER	98/128/167/197	345	IVC16-4	104
	IFR08-20F	FLOW FREGULATOR PRESSURE-COMPENSATED	0-0.4,0-7.5	240	IVC08-2	106
	IFRA10	FLOW FREGULATOR PRESSURE-COMPENSATED	0-7.6,0--15.1	240	IVC10-2	108
	IFR10-39	FLOW FREGULATOR PRESSURE-COMPENSATED	0-38,0-34	240	IVC10-3	110
	IFR12-33	FLOW FREGULATOR PRESSURE-COMPENSATED	0-68,0-45	240	IVC12-3	112
	IEC10-42	PRIOIRTY FLOWFREGULATOR	60	240	IVC10-4	114

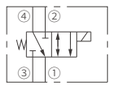
PRESSURE CONTROL VALVE

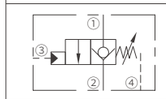
SYMBOL	MODEL	TYPE	FLOW [lpm]	PRE. [bar]	CAVITY	PAGE
	IRV08-20	RELIEF VALVE DIRECT-ACTING POPPET	30	350	IVC08-2	118
	IRV08-B20	RELIEF VALVE DIRECT-ACTING POPPET	80	350	IVC08-2A	120
	IRV09-20	RELIEF VALVE DIRECT-ACTING POPPET	40	350	IVC09-2	122
	IRV10-20	RELIEF VALVE DIRECT-ACTING POPPET	50	350	IVC10-2	124
	IRV10-B20	RELIEF VALVE DIRECT-ACTING POPPET	80	350	IVC10-2	126
	IRV08-22	RELIEF VALVE DIFFERENTIAL AREA POPPET	50	350	IVC08-2	128
	IRV10-22	RELIEF VALVE DIFFERENTIAL AREA POPPET	120	350	IVC08-2	130
	IRV10-26	RELIEF VALVE PILOT-OPERATED SPOOL	113	340	IVC10-2	132
	IRV12-26	RELIEF VALVE PILOT-OPERATED SPOOL	200	420	IVC12-2	134
	IRV16-26	RELIEF VALVE PILOT-OPERATED SPOOL	300	420	IVC16-2	136
	ICRV10-28	RELIEF VALVE BI-DIRECTIONAL	56	240	IVC10-2	138
	IRPEE	RELIEF VALVE PILOT-OPERATED SPOOL	95	350	IT-10A	140
	IRPGE	RELIEF VALVE PILOT-OPERATED SPOOL	200	350	IT-3A	142
	IPBBB	REDUCING VALVE PILOT-OPERATED SPOOL	20	350	IT-163A	144
	IRSDC-LBN	SEQUENCE VALVE	60	350	IT-11A	146

SOLENOID VALVE

SYMBOL	MODEL	TYPE	FLOW [lpm]	PRE. [bar]	CAVITY	PAGE
	ISV08-20	POPPET, 2-WAY, N.C. (STANDARD)	30.2	207	IVC08-2	150
	ISV08-B20	POPPET, 2-WAY, N.C. (HIGH PERFORMANCE)	18.9	207	IVC08-2	152
	ISV08-20J	POPPET, 2-WAY, N.C. PULL-ONLY MANUAL OVERRIDE	26.6	207	IVC08-2	154
	ISV38-20J	POPPET, 2-WAY, N.C.	22.7	207	IVC08-2	156
	ISV10-20	POPPET, 2-WAY, N.C.	56.8	207	IVC10-2	158
	ISV10-B20	POPPET, 2-WAY, N.C. (HIGH PRESSURE)	56.8	350	IVC10-2	160
	ISV12-20	POPPET, 2-WAY, N.C.	113.6	240	IVC12-2	162
	ISV12-B20	POPPET, 2-WAY, N.C. (HIGH PRESSURE)	113.6	350	IVC12-2	164
	ISV16-20	POPPET, 2-WAY, N.C.	151.4	207	IVC16-2	166
	ISV16-B20	POPPET, 2-WAY, N.C. (HIGH PRESSURE)	151.4	350	IVC16-2	168
	ISV08-21	POPPET, 2-WAY, N.O.	33	207	IVC08-2	170
	ISV10-21	POPPET, 2-WAY, N.O.	68.1	207	IVC10-2	172
	ISV12-21	POPPET, 2-WAY, N.O.	113.6	240	IVC12-2	174
	ISV16-21	POPPET, 2-WAY, N.O.	151.4	207	IVC16-2	176
	ISV08-22	POPPET, 2-WAY, N.C.	30.2	207	IVC08-2	178
	ISV10-22	POPPET, 2-WAY, N.C.	56.8	207	IVC10-2	180
	ISV12-22	POPPET, 2-WAY, N.C.	113.6	240	IVC12-2	182
	ISV16-22	POPPET, 2-WAY, N.C.	151.4	207	IVC16-2	184
	ISV08-23	POPPET, 2-WAY, N.O.	30.2	207	IVC08-2	186
	ISV10-23	POPPET, 2-WAY, N.O.	68.1	207	IVC10-2	188
	ISV12-23	POPPET, 2-WAY, N.O.	113.6	240	IVC12-2	190
	ISV16-23	POPPET, 2-WAY, N.O.	151.4	207	IVC16-2	192
	ISV08-24	SPOOL, 2-WAY, N.C.	17	207	IVC08-2	194
	ISV10-24	SPOOL, 2-WAY, N.C.	37	207	IVC10-2	196
	ISV08-28	POPPET, 2-WAY, N.C. BI-DIRECTIONAL BLOCKING	30.2	207	IVC08-2	198
	ISV38-28	POPPET, 2-WAY, N.C. BI-DIRECTIONAL BLOCKING	18.9	207	IVC08-2	200
	ISV10-28	POPPET, 2-WAY, N.C. BI-DIRECTIONAL BLOCKING	75.7	240	IVC10-2	202
	ISV12-28	POPPET, 2-WAY, N.C. BI-DIRECTIONAL BLOCKING	113.6	240	IVC12-2	204

SOLENOID VALVE						
SYMBOL	MODEL	TYPE	FLOW [lpm]	PRE. [bar]	CAVITY	PAGE
	ISV10-29	POPPET, 2-WAY, N.O. BI-DIRECTIONAL BLOCKING	75	240	IVC10-2	206
	ISV12-29	POPPET, 2-WAY, N.O. BI-DIRECTIONAL BLOCKINGE	113.6	240	IVC12-2	208
	ISV08-30	SPOOL, 3-WAY, 2-POSITION	15	207	IVC08-3	210
	ISV10-30	SPOOL, 3-WAY, 2-POSITION	50	250	IVC10-3	212
	ISV08-31	SPOOL, 3-WAY, 2-POSITION	11.4	207	IVC08-3	214
	ISV08-B31	SPOOL, 3-WAY, 2-POSITION	11.4	350	IVC08-3	216
	ISV08-33	SPOOL, 3-WAY, 2-POSITION	11.4	207	IVC08-3	218
	ISV08-B34	SPOOL, 3-WAY, 2-POSITION	30	350	IVC08-3	220
	ISV10-34	SPOOL, 3-WAY, 2-POSITION	22.7	207	IVC10-3	222
	ISV08-35	SPOOL, 3-WAY, 2-POSITION	20	207	IVC08-3	224
	ISV08-B35	SPOOL, 3-WAY, 2-POSITION (HIGH PRESSURE)	20	250	IVC08-3	226
	ISV38-38	SPOOL, 3-WAY, 2-POSITION, N.C. BI-DIRECTIONAL BLOCKING	7.6	207	IVC08-3	228
	ISV10-38	SPOOL, 3-WAY, 2-POSITION	25	250	IVC10-3	230
	ISV08-40	SPOOL, 4-WAY, 2-POSITION	11.4	207	IVC08-4	232
	ISV08-40R	SPOOL, 4-WAY, 2-POSITION	20	350	IVC08-4	234
	ISV08-B40	SPOOL, 4-WAY, 2-POSITION	30	350	IVC08-4	236
	ISV10-40	SPOOL, 4-WAY, 2-POSITION	23	207	IVC10-4	238
	ISV08-41	SPOOL, 4-WAY, 2-POSITION	13.5	207	IVC08-4	240
	ISV10-41	SPOOL, 4-WAY, 2-POSITION	26	207	IVC10-4	242

SOLENOID VALVE						
SYMBOL	MODEL	TYPE	FLOW [lpm]	PRE. [bar]	CAVITY	PAGE
	ISV08-43	SPOOL, 4-WAY, 2-POSITION	11.4	207	IVC08-4	244
	ISV10-43	SPOOL, 4-WAY, 2-POSITION	22.5	207	IVC10-4	246
	ISV08-44	SPOOL, 4-WAY, 2-POSITION	11.4	207	IVC08-4	248
	ISV10-44	SPOOL, 4-WAY, 2-POSITION	22.7	207	IVC10-4	250

COUNTERBALANCE VALVE						
SYMBOL	MODEL	TYPE	FLOW [lpm]	PRE. [bar]	CAVITY	PAGE
	ICBBA-LHN	RESTRICTIVE (280 BAR MAXIMUM SETTING)	15	280	IT-11A	254
	ICBBG-LHN	RESTRICTIVE (350 BAR MAXIMUM SETTING)	15	350	IT-11A	256
	ICBCA-LJN	STANDARD (280 BAR MAXIMUM SETTING)	60	280	IT-11A	258
	ICBCG-LJN	STANDARD (350 BAR MAXIMUM SETTING)	60	350	IT-11A	260
	ICBCH-LJN	STANDARD (350 BAR MAXIMUM SETTING)	60	300	IT-11A	262
	ICBEA-LHN	STANDARD (280 BAR MAXIMUM SETTING)	120	280	IT-2A	264
	ICBEG-LJN	STANDARD (350 BAR MAXIMUM SETTING)	120	350	IT-2A	266
	ICBGG-LJN	STANDARD (350 BAR MAXIMUM SETTING)	240	350	IT-17A	268
	ICBIG-LJN	STANDARD (350 BAR MAXIMUM SETTING)	480	350	IT-19A	270
	I1CPBD120F2P	COUNTERBALANCE VALVE	180	400	IVC30-4	272
	I1CPBD300F2P	COUNTERBALANCE VALVE	300	400	IVC50-4	274

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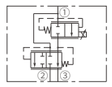
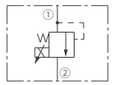
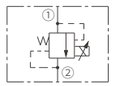
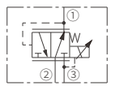
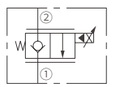
ELECTRO-PROPORTIONAL CONTROL VALVE						
SYMBOL	MODEL	TYPE	FLOW [lpm]	PRE. [bar]	CAVITY	PAGE
	IPV70-30	PROPORTIONAL FLOW CONTROL VALVE	30	240	IVC10-3	278
	IPV72-30	PROPORTIONAL FLOW CONTROL VALVE	57	240	IVC12-3	280
	ITS10-26	PILOTED RELIEF VALVE W/ INTERNALLY PILOTED SPOOL	94.6	241	IVC10-2	282
	ITS10-27	PILOTED RELIEF VALVE	75.7	241	IVC10-2	284
	ITS10-36	REDUCING/RELIEVING VALVE W/ INTERNALLY PILOTED SPOOL	56.8	241	IVC10-3	286
	ISP08-20	POPPET VALVE, 2-WAY, N.C.	22	250	IVC08-2	288

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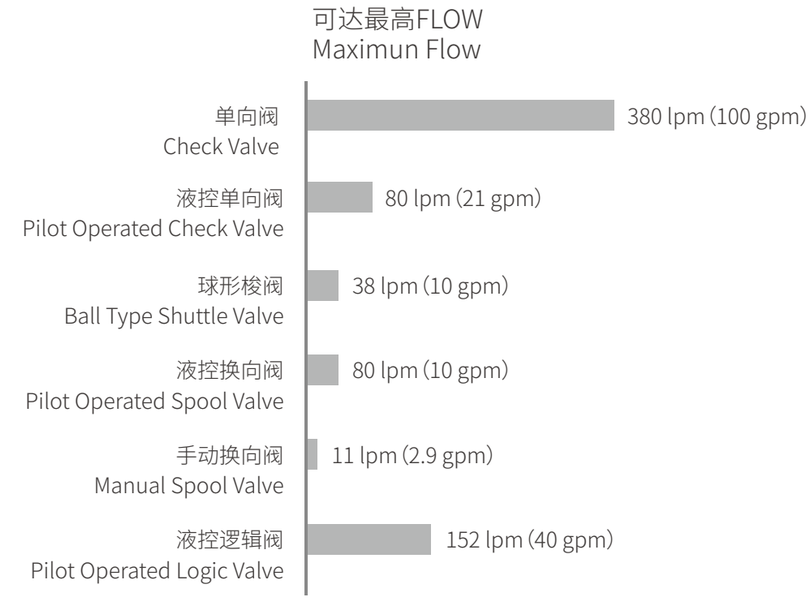
DIRECTIONAL VALVE

VALZOOM® 珐隽 THE DIRECTIONAL VALVE SERIES INCLUDES CHECK VALVE, SHUTTLE VALVE, SPOOL VALVE, POPPET VALVE, PILOT SPOOL VALVE, ETC. TO MEET DIFFERENT PRESSURE-FLOW REQUIREMENTS AND APPLICATIONS.



DIRECTIONAL VALVE

ICV2500-G18
SCREW-IN CHECK VALVE

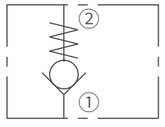
DESCRIPTION
A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION
The ICV2500-G18 allows flow from① to② once the port① pressure exceeds the crack pressure, while normally blocking oil flow in the opposite direction.

FEATURES
1. Hardened seat for long life.
2. Low leakage.
3. Compact size.

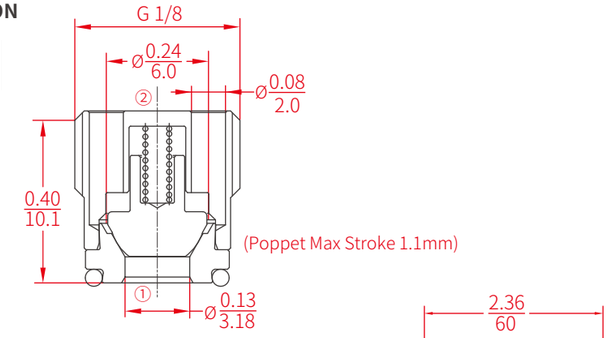
RATINGS
Operating Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/minute (3 drops/minute) max. at 350 bar (5100 psi)
Crack Pressure: 1 bar (14 psi)
Temperature: -40°Cto 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: As below figure

SYMBOL

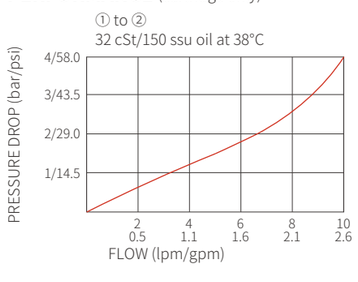


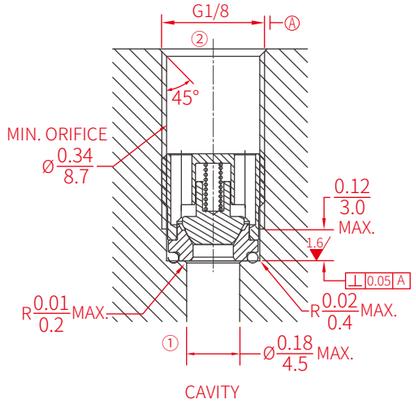
DIMENSION

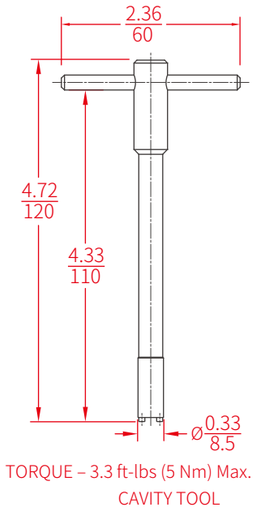
INCH / MM



PERFORMANCE (cartridge only)







DIRECTIONAL VALVE

ICV2000-G14
SCREW-IN CHECK VALVE

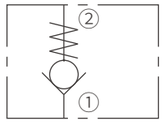
DESCRIPTION
A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION
The ICV2000-G14 allows flow from ① to ②, while normally blocking oil flow in the opposite direction. The cartridge has a fully guided check which is spring-biased closed until sufficient pressure is applied at ① to open to ②.

FEATURES
1. Hardened seat for long life and low leakage.
2. Miniature size.
3. Fast closing and seating.

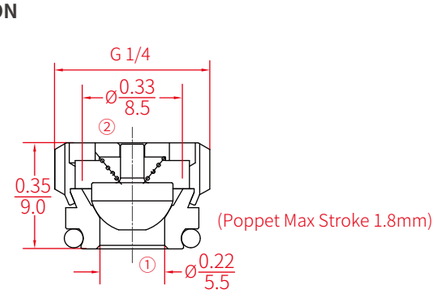
RATINGS
Operating Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 0.10 ml/minute (2 drops/minute) max. at 350 bar (5100 psi)
Crack Pressure Defined: Gauge bar (psi) evident at① at 16.4 ml/min. (1 cu. in./minute) attained
Standard Bias Springs at Crack: 0.5 bar (7.3 psi)
Temperature: -40°Cto 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: As below figure

SYMBOL

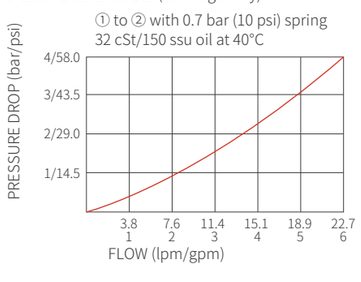


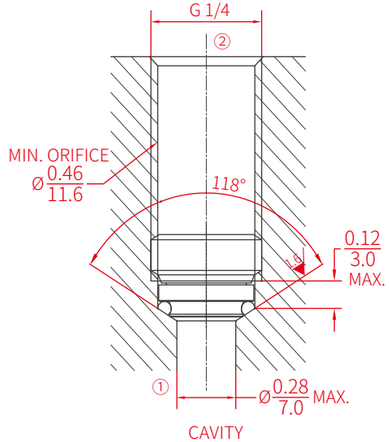
DIMENSION

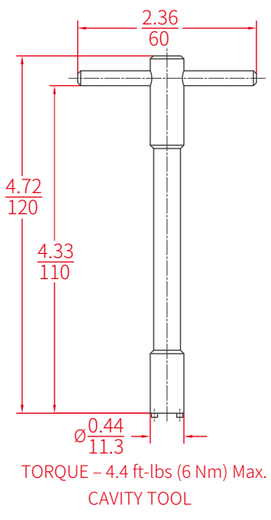
INCH / MM



PERFORMANCE (cartridge only)







DIRECTIONAL VALVE

ICV2000-G38
SCREW-IN CHECK VALVE

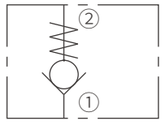
DESCRIPTION
A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION
The ICV2000-G38 allows flow from ① to ②, while normally blocking oil flow in the opposite direction. The cartridge has a fully guided check which is spring-bi-ased closed until sufficient pressure is applied at ① to open to ②.

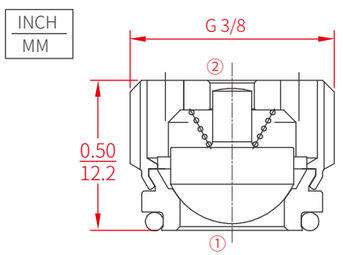
FEATURES
1. Hardened seat for long life and low leakage.
2. Miniature size.
3. Fast closing and seating.

RATINGS
Operating Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 0.10 ml/minute (2 drops/minute) max. at 350 bar (5100 psi)
Crack Pressure Defined: Gauge bar (psi) evident at① at 16.4 ml/min. (1 cu. in./minute) attained
Standard Bias Springs at Crack: 0.5 bar (7.3 psi)
Temperature: -40°Cto 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: As below figure

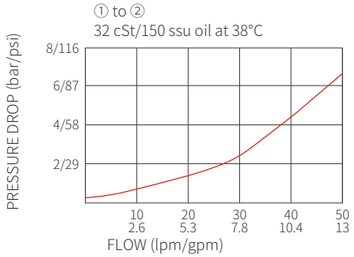
SYMBOL

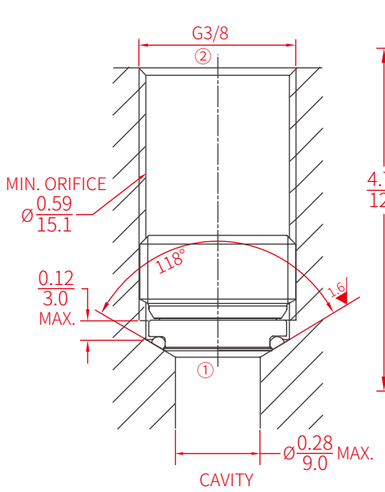


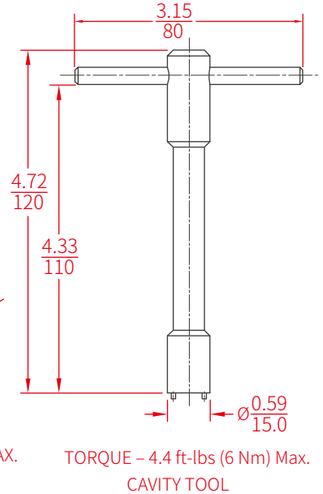
DIMENSION



PERFORMANCE (cartridge only)







DIRECTIONAL VALVE

ICV2000-G12
SCREW-IN CHECK VALVE

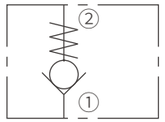
DESCRIPTION
A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION
The ICV2000-G12 allows flow from ① to ② once the port ① pressure exceeds the crack pressure, while normally blocking oil flow in the opposite direction.

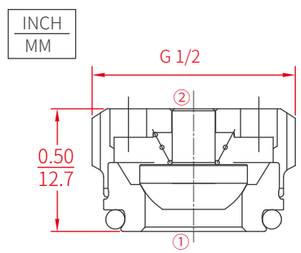
FEATURES
1. Hardened seat for long life.
2. Low leakage.
3. Compact size.

RATINGS
Operating Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/minute (3 drops/minute) max. at 350 bar (5100 psi)
Standard Bias Springs at Crack: < 0.5 bar (7.3 psi)
Temperature: -40°Cto 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: As below figure

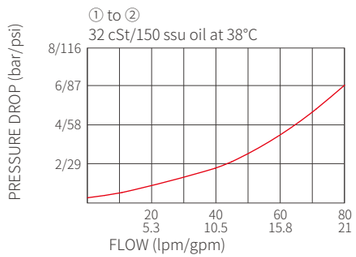
SYMBOL

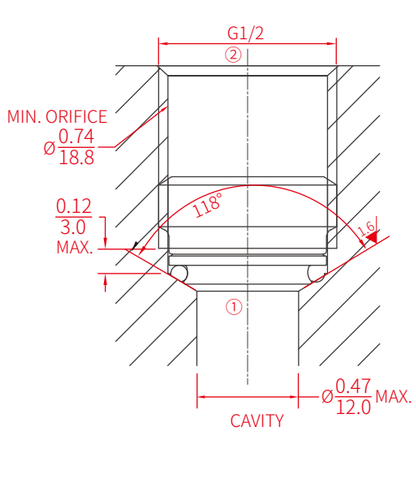


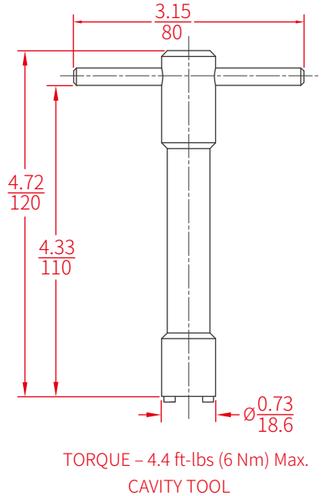
DIMENSION



PERFORMANCE(cartridge only)



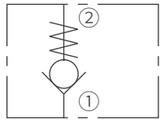




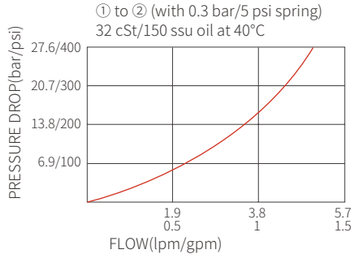
DIRECTIONAL VALVE

ICV04-20 BALL VALVE, CHECK VALVE
ICV04-B20 BALL VALVE, CHECK VALVE (DOWN-HOLE TYPE)

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION

A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device. Available in conventional surface mount or convenient "down-hole" versions.

OPERATION

The ICV04-20 and ICV04-B20 allow flow passage from ① to ②, while normally blocking oil flow in the opposite direction. The cartridge has a fully guided check which is spring-biased closed until sufficient pressure is applied at ① to open ②.

FEATURES

1. Hardened seat for long life and low leakage.
2. Optional bias springs for back-pressure application flexibility.
3. Fully guided check assembly.
4. Miniature size.
5. Fast closing and seating.

RATINGS

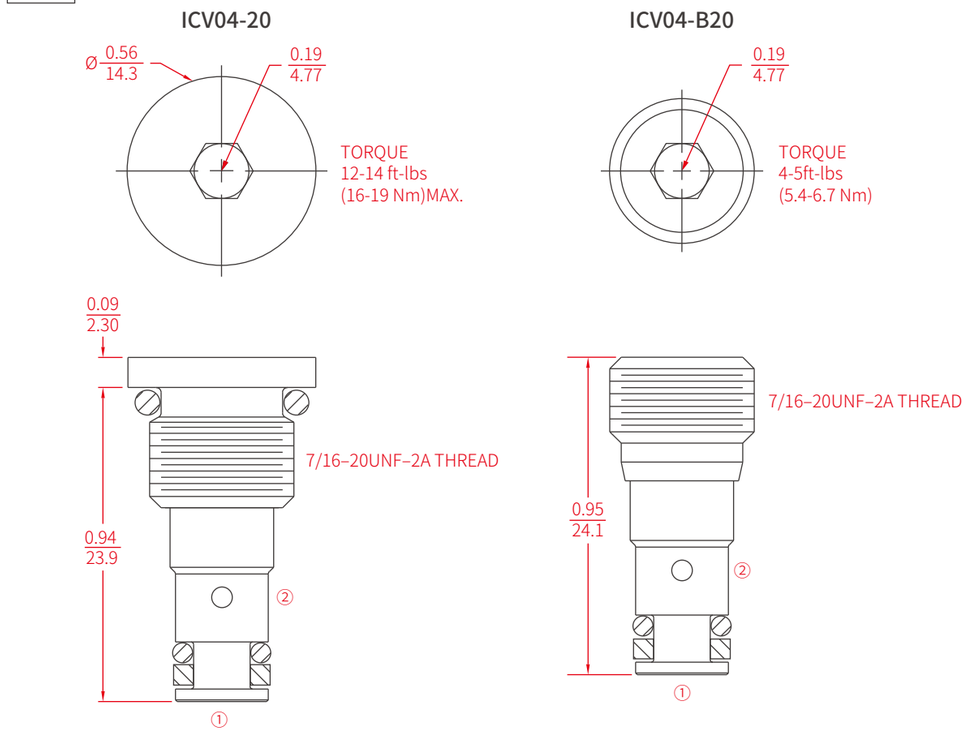
Operating Pressure: 240 bar (3500 psi)
Flow: See Performance Chart
Internal Leakage: 0.10 ml/min. (2 drops/minute) max. at 210 bar (3000 psi)
Crack Pressure Defined: Gauge bar (psi) evident at ① at 16.4 ml/min. (1 cu. in./minute) attained
Standard Bias Springs at Crack: 0.34 bar (5 psi)
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC04-2/B2; See page 296

MATERIAL

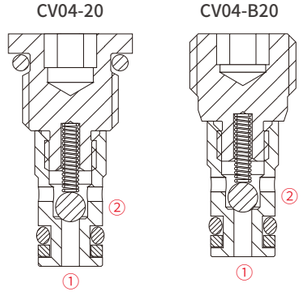
Cartridge: Weight: 0.05 kg. (0.12 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: Buna-N O-rings and back-up rings (standard).

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

ICV04 - ___ 20 - 0 - ___ - ___

Mounting
BLANK Surface Mount
B Down-Hole Mount

Porting
0 Cartridge Only

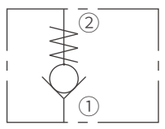
Seals
N Buna-N (Std.)
V Fluorocarbon

Bias Spring Value
5 0.34 bar(5 psi)

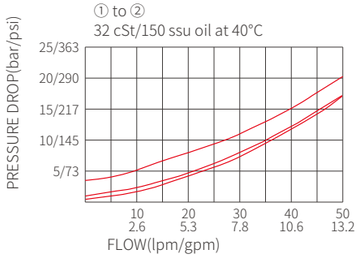
DIRECTIONAL VALVE

ICV08-20
POPPET VALVE, CHECK VALVE
(HIGH PRESSURE)

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION

A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION

The ICV08-20 allows flow passage from ① to ②, while normally blocking oil flow in the opposite direction. The cartridge has a fully guided check which is spring-biased closed until sufficient pressure is applied at ① to open to ②.

FEATURES

1. Hardened seat for long life and low leakage.
2. Optional bias springs for back-pressure application flexibility.
3. Fully guided check assembly.
4. Miniature size.
5. Fast closing and seating.

RATINGS

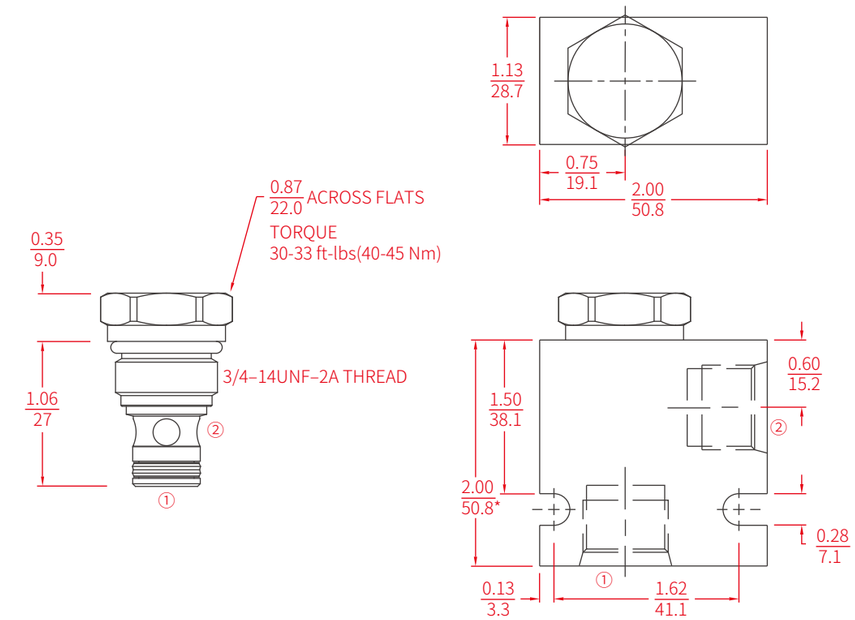
Operating Pressure: 420 bar (6100 psi)
Flow: See Performance Chart
Internal Leakage: 0.10 ml/min. (2 drops/minute) max. at 420 bar (6100 psi)
Crack Pressure Defined: Gauge bar (psi) evident at ① at 16.4 ml/min. (1 cu. in./minute) attained
Standard Bias Springs at Crack: 0.5 bar (7.3 psi); 1.0 bar (14.5 psi); 2.5 bar (36.3 psi); 3.0 bar (43.5psi); 5.0 bar (72.5 psi); 8.0 bar (116 psi);9.0 bar (130.5 psi); 15.0 bar (217.5 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-2; See page 297

MATERIAL

Cartridge: Weight: 0.06 kg. (0.13 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces. Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized highstrength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi). Ductile iron and steel bodies available; dimensions may differ. Consult Inno.

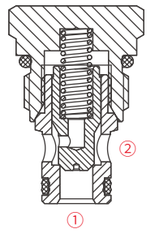
DIMENSION

INCH / MM



*BSP BODY -55.9MM

SECTIONAL DRAWING



TO ORDER

ICV08 - 20 - ___ - ___ - ___

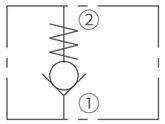
Porting		Bias Spring Value	
Cartridge Only	**0**	**7**	0.5 bar (7.3 psi)
SAE 4	**4T**	**14**	1.0 bar (14.5 psi)
SAE 6	**6T**	**36**	2.5 bar (36.3 psi)
SAE 8	**8T**	**43**	3.0 bar (43.5 psi)
1/4 INCH BSP	**2B**	**72**	5.0 bar (72.5 psi)
3/8 INCH BSP	**3B**	**116**	8.0 bar (116 psi)
1/2 INCH BSP	**4B**	**130**	9.0 bar (130.5 psi)
		217	15.0 bar (217.5 psi)

Seals
N Buna-N (Std.)
V Fluorocarbon

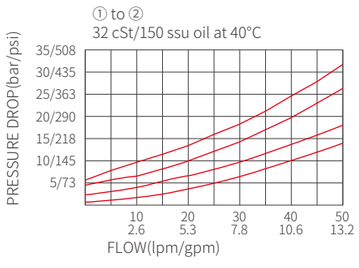
DIRECTIONAL VALVE

ICV08-B20
BALL VALVE, CHECK VALVE
(HIGH PRESSURE)

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION
A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION
The ICV08-B20 allows flow passage from ① to ②, while normally blocking oil flow in the opposite direction. The cartridge has a fully guided check which is spring-biased closed until sufficient pressure is applied at ① to open to ②.

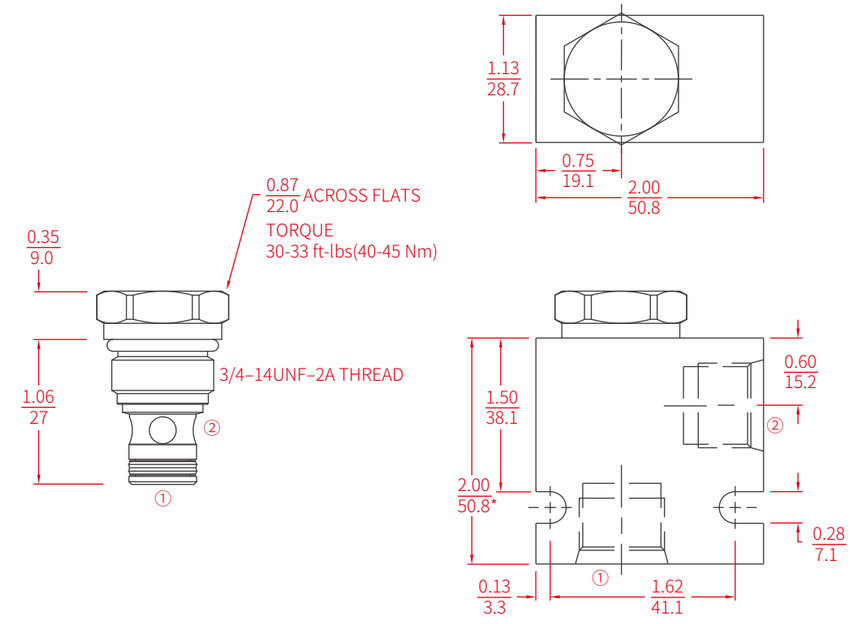
FEATURES
1. Hardened seat for long life and low leakage.
2. Optional bias springs for back-pressure application flexibility.
3. Fully guided check assembly.
4. Miniature size.
5. Fast closing and seating.

RATINGS
Operating Pressure: 420 bar (6100 psi)
Flow: See Performance Chart
Internal Leakage: 0.10 ml/min. (2 drops/minute) max. at 420 bar (6100 psi)
Crack Pressure Defined: Gauge bar (psi) evident at ① at 16.4 ml/min. (1 cu. in./minute) attained
Standard Bias Springs at Crack: 0.5 bar (7 psi); 1.5 bar (22 psi); 2 bar (29 psi); 4.5 bar (65 psi); 6 bar (87 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-2; See page 297

MATERIAL
Cartridge: Weight: 0.06 kg. (0.13 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized highstrength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

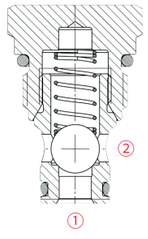
DIMENSION

INCH
MM



*BSP BODY-55.9MM

SECTIONAL DRAWING



TO ORDER

ICV08 - B20 - ___ ___ ___ - ___ - ___ ___ ___

Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

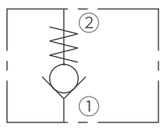
Seals
N Buna-N (Std.)
V Fluorocarbon

Bias Spring Value
7 0.5 bar (7 psi)
22 1.5 bar (22 psi)
29 2.0 bar (29 psi)
65 4.5 bar (65 psi)
87 6.0 bar (87 psi)

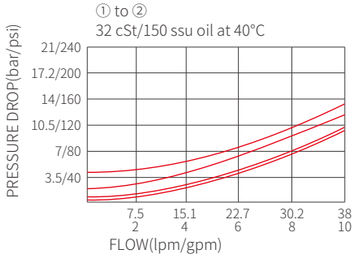
DIRECTIONAL VALVE

ICV08-C20
BALL VALVE, CHECK VALVE
(ZINC-NICKEL-PLATED SURFACES)

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION
A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION
The ICV08-C20 allows flow passage from ① to ②, while normally blocking oil flow in the opposite direction. The cartridge has a fully guided check which is spring-biased closed until sufficient pressure is applied at ① to open to ②.

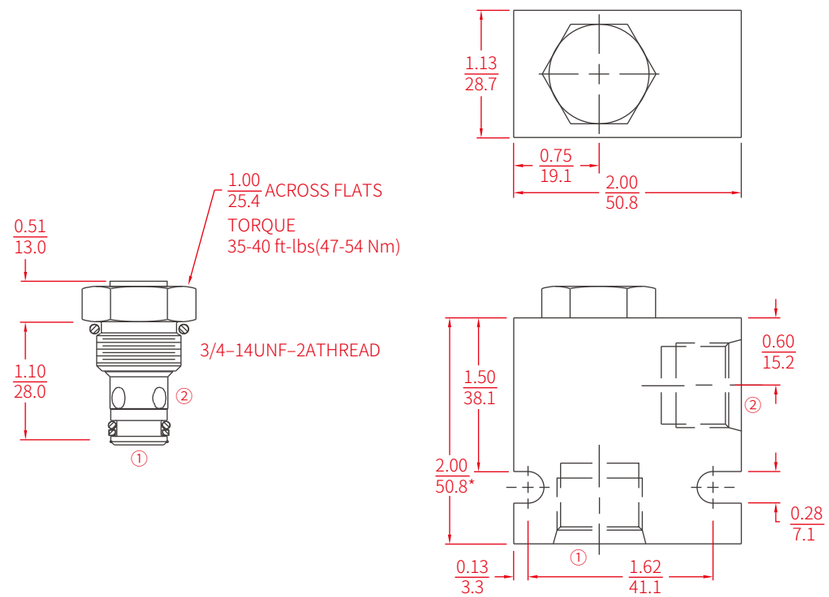
FEATURES
1. Hardened seat for long life and low leakage.
2. Optional bias springs for back-pressure application flexibility.
3. Fully guided check assembly.
4. Miniature size.
5. Fast closing and seating.

RATINGS
Operating Pressure: 350 bar (5100 psi)
Proof Pressure: 525 bar (7500 psi)
Flow: See Performance Chart
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. at 350 bar (5100 psi)
Crack Pressure Defined: Gauge bar (psi) evident at ① at 16.4ml/min. (1 cu. in./minute) attained
Standard Bias Springs at Crack: 0.34 bar (5 psi); 0.7 bar (10 psi); 1.7 bar (25psi); 3.4 bar (50 psi); 45 bar (650 psi)
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-2; See page 297

MATERIAL
Cartridge: Weight: 0.12 kg. (0.26 lbs.); Steel with hardened work surfaces.
Zinc-Nickel-plated exposed surfaces.
Seal: Buna-N O-rings and back-up rings (standard).
Standard Ported Body: Weight: 0.14 kg. (0.31 lbs.); Anodized highstrength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.

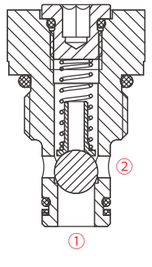
DIMENSION

INCH
MM



*BSP BODY-55.9MM

SECTIONAL DRAWING



TO ORDER

ICV08 - C20 - ___ - ___ - ___

Porting	
Cartridge Only	**0**
SAE 8	**8T**
3/8 INCH BSP	**3B**

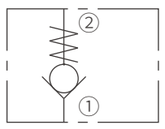
Seals	
Buna-N (Std.)	**N**
Fluorocarbon	**V**

Bias Spring (Crack)	
5	0.34 bar (5 psi)
10	0.7 bar (10 psi)
25	1.7 bar (25 psi)
50	3.4 bar (50 psi)
650	45 bar (650 psi)

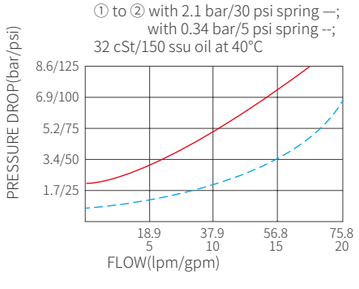
DIRECTIONAL VALVE

ICV10-20
BALL VALVE, CHECK VALVE

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION

A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION

The ICV10-20 allows flow passage from ① to②, while normally blocking oil flow in the opposite direction. The cartridge has a fully guided check which is spring-biased closed until sufficient pressure is applied at ① to open to ②.

FEATURES

1. Hardened seat for long life and low leakage.
2. Optional bias springs for back-pressure application flexibility.
3. Fully guided check assembly.
4. Industry common cavity.

RATINGS

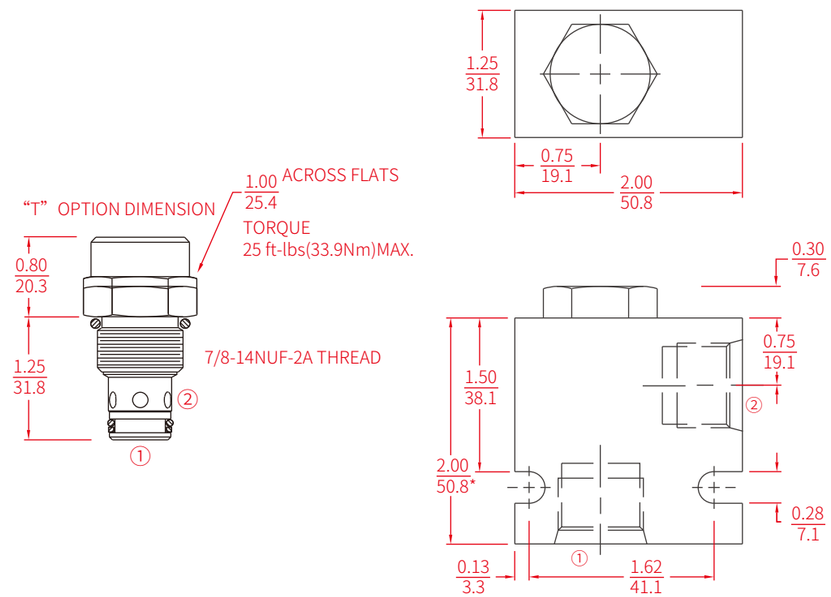
Operating Pressure: 240 bar (3500 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 0.10 ml/min. (2 drops/minute) max. at 240 bar (3500 psi)
Crack Pressure Defined: Gauge bar (psi) evident at ① at 16.4 ml/min. (1 cu. in./minute) attained
Standard Bias Springs at Crack: 0.34 bar (5 psi); 1 bar (15 psi); 2.1 bar (30 psi); 2.8 bar (40 psi); 4.8 bar (70 psi); 6.9 bar (100 psi); 13.6 bar (200 psi); 20.4 bar (300 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-2; See page 300

MATERIAL

Cartridge: Weight: 0.08 kg. (0.17 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal ring.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized highstrength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

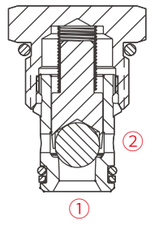
DIMENSION

INCH / MM



*BSP BODY-55.9MM

SECTIONAL DRAWING



TO ORDER

ICV10 - 20 ___ - ___ ___ - ___ - ___ ___ ___

Option
None **BLANK**
"T" Option **T**
Required for 300 psi Spring

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

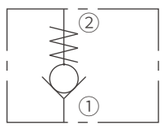
Seals
N Buna-N (Std.)
V Fluorocarbon

Bias Spring Value
5 0.34 bar (5 psi)
15 1 bar (15 psi)
30 2.1 bar (30 psi)
40 2.8 bar (40 psi)
70 4.8 bar (70 psi)
100 6.9 bar (100 psi)
200 13.6 bar (200 psi)
300 20.4 bar (300 psi)*
*Requires "T" Option

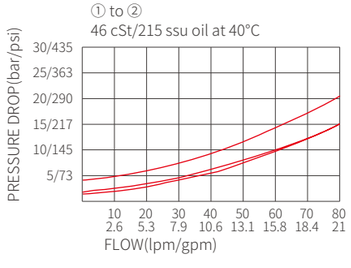
DIRECTIONAL VALVE

ICV10-B20
POPPET VALVE, CHECK VALVE
(HIGH PRESSURE)

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION

A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION

The ICV10-B20 allows flow passage from ① to ②, while normally blocking oil flow in the opposite direction. The cartridge has a fully guided check which is spring-biased closed until sufficient pressure is applied at ①to open to ②.

FEATURES

1. Hardened seat for long life and low leakage.
2. Optional bias springs for back-pressure application flexibility.
3. Fully guided check assembly.
4. Industry common cavity.

RATINGS

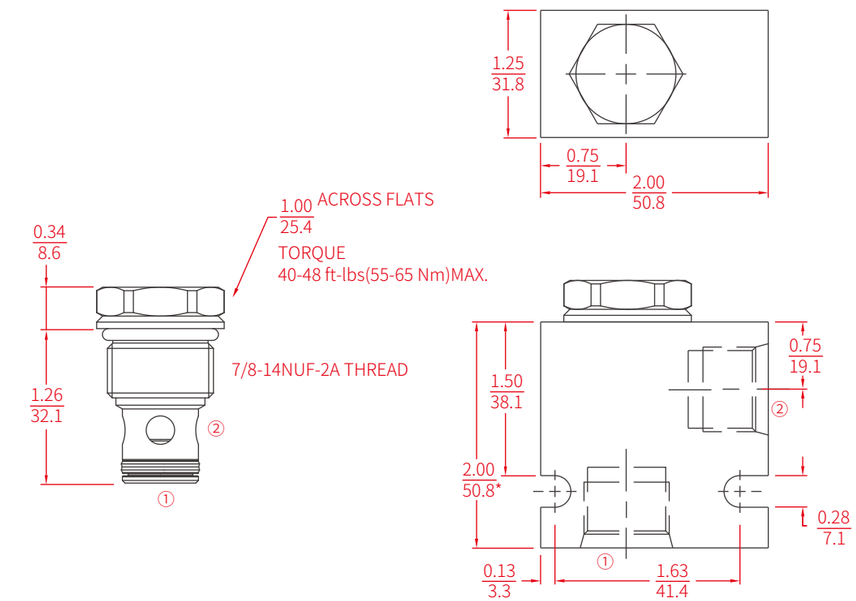
Operating Pressure: 420 bar (6100 psi)
Flow: 80 lpm Max.
Internal Leakage: 0.10 ml/min. (2 drops/minute) max. at 420 bar (6100 psi)
Crack Pressure Defined: Gauge bar (psi) evident at ① at 16.4 ml/min. (1 cu. in./minute) attained
Standard Bias Springs at Crack: 0.34 bar (5 psi); 1 bar (15 psi); 2.1 bar (30 psi); 4.8 bar (70 psi); 6.9 bar (100 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-2; See page 300

MATERIAL

Cartridge: Weight: 0.08 kg. (0.17 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal ring.
Standard Ported Body: Weight: 0.43 kg. (0.95 lbs.); Anodized highstrength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

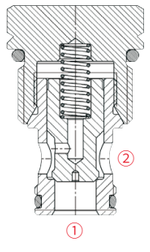
DIMENSION

INCH / MM



*BSP BODY-55.9MM

SECTIONAL DRAWING



TO ORDER

ICV10 - B20 ___ - ___ - ___ - ___

Option
None **BLANK**
"T" Option **T**
Required for 300 psi Spring

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

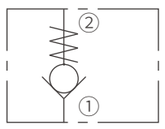
Seals
N Buna-N (Std.)
V Fluorocarbon

Bias Spring Value
7 0.5 bar (7.3 psi)
15 1 bar (15 psi)
36 2.5 bar (36 psi)
44 3 bar (44 psi)
73 5 bar (73 psi)
116 8 bar (116 psi)
131 9 bar (131 psi)

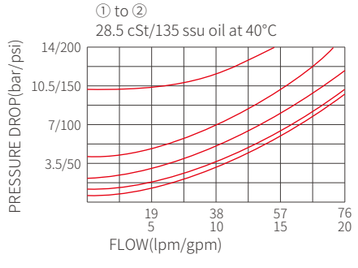
DIRECTIONAL VALVE

ICV10-C20
BALL VALVE, CHECK VALVE
(ZINC-NICKEL-PLATED SURFACES)

SYMBOL



PERFORMANCE(cartridge only)



DESCRIPTION

A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION

The ICV10-C20 allows flow passage from ① to②, while normally blocking oil flow in the opposite direction. The cartridge has a fully guided check which is spring-biased closed until sufficient pressure is applied at ① to open to ②.

FEATURES

1. Hardened seat for long life and low leakage.
2. Optional bias springs for back-pressure application flexibility.
3. Fully guided check assembly.
4. Miniature size.
5. Fast closing and seating.

RATINGS

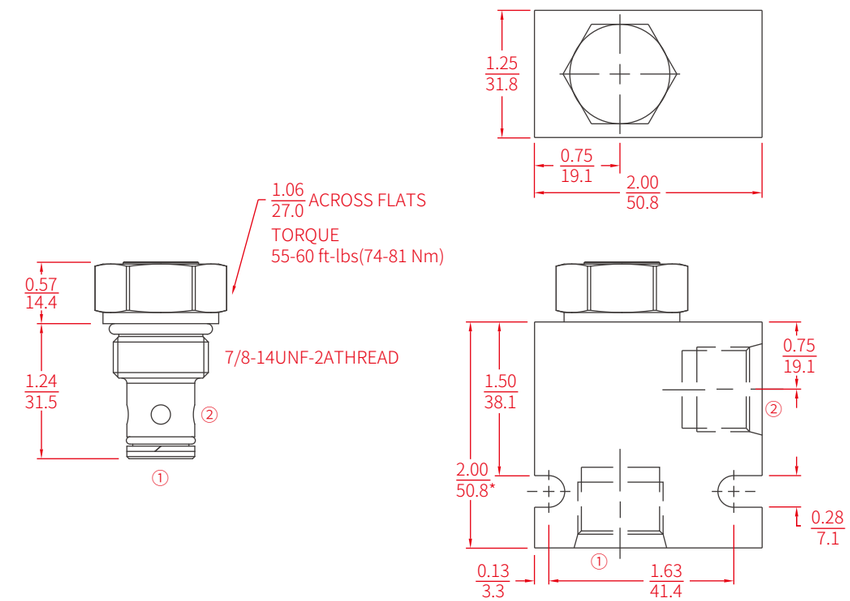
Operating Pressure: 350 bar (5100 psi)
Proof Pressure: 525 bar (7500 psi)
Flow: See Performance Chart
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. at 350 bar (5100 psi)
Crack Pressure Defined: Gauge bar (psi) evident at ① at 16.4 ml/min. (1 cu. in./minute) attained
Standard Bias Springs at Crack: 0.34 bar (5 psi); 1 bar (15 psi); 2.07 bar (30psi); 4.1 bar (60 psi); 8.3 bar (120 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-2; See page 300

MATERIAL

Cartridge: Weight: 0.12 kg. (0.25 lbs.); Steel with hardened work surfaces.
Zinc-Nickel-plated exposed surfaces.
Seal: D type seal ring.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized highstrength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

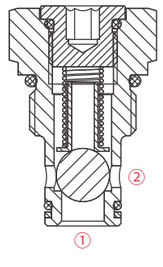
DIMENSION

INCH / MM



*BSP BODY-55.9MM

SECTIONAL DRAWING



TO ORDER

ICV10 - C20 - ___ - ___ - ___

Porting	
Cartridge Only	**0**
SAE 10	**10T**
SAE 12	**12T**

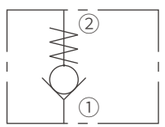
Seals	
Buna-N (Std.)	**N**
Fluorocarbon	**V**

Bias Spring Value	
5	0.34 bar (5 psi)
15	1 bar (15 psi)
30	2.07 bar (30 psi)
60	4.1 bar (60 psi)
120	8.3 bar (120 psi)

DIRECTIONAL VALVE

ICV10-D20
BALL VALVE, CHECK VALVE

SYMBOL



DESCRIPTION
A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

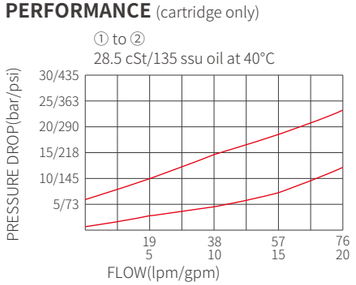
OPERATION
The ICV10-D20 allows flow passage from ① to ②, while normally blocking oil flow in the opposite direction. The cartridge has a fully guided check which is spring-biased closed until sufficient pressure is applied at ① to open to ②.

FEATURES
1. Hardened seat for long life and low leakage.
2. Optional bias springs for back-pressure application flexibility.
3. Fully guided check assembly.
4. Fast closing and seating.

RATINGS
Operating Pressure: 420 bar (6100 psi)
Flow: See Performance Chart
Internal Leakage: 0.10 ml/min. (2 drops/minute) max. at 420 bar (6100 psi)
Crack Pressure Defined: Gauge bar (psi) evident at ① at 16.4 ml/min. (1 cu. in./minute) attained
Standard Bias Springs at Crack: <0.5 bar (7 psi); 7 bar (100 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-2; See page 300

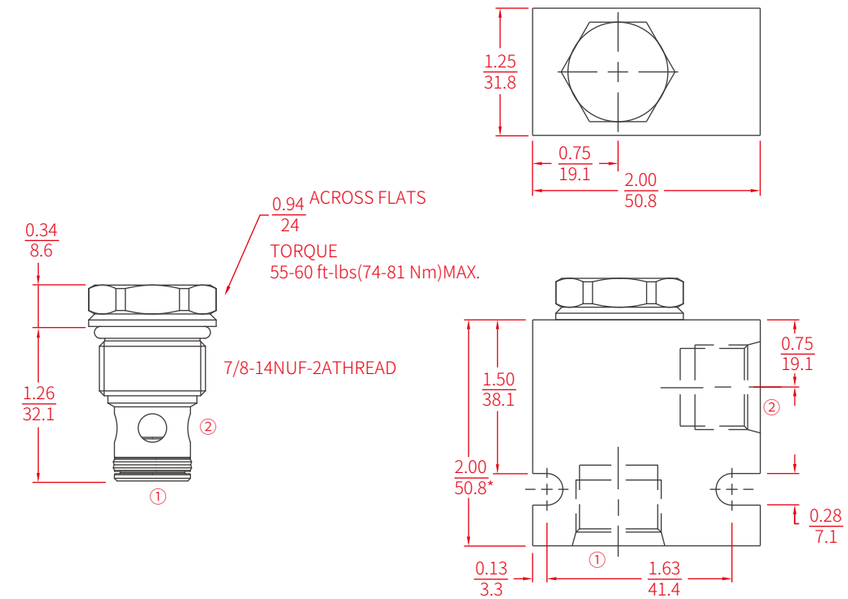
MATERIAL
Cartridge: Weight: 0.08 kg. (0.17 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal ring.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized highstrength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

PERFORMANCE (cartridge only)

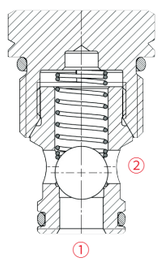


DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

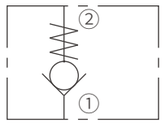
ICV10 - D20 - ___ - ___ - ___

Porting		Seals		Bias Spring Value	
Cartridge Only	**0**	Buna-N (Std.)	**N**	**7**	<0.5 bar (7 psi)
1/4 INCH BSP	**2B**	Fluorocarbon	**V**	**100**	7 bar (100 psi)
3/8 INCH BSP	**3B**				
1/2 INCH BSP	**4B**				

DIRECTIONAL VALVE

ICV12-20
BALL VALVE, CHECK VALVE

SYMBOL



DESCRIPTION

A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION

The ICV12-20 allows flow passage from ① to ②, while normally blocking oil flow in the opposite direction. The cartridge has a fully guided check which is spring-biased closed until sufficient pressure is applied at ① to open to ②.

FEATURES

1. Hardened seat for long life and low leakage.
2. Optional bias springs for back-pressure application flexibility.
3. Fully guided check assembly.
4. Cost-effective cavity.

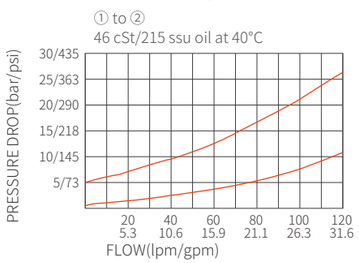
RATINGS

Operating Pressure: 420 bar (6100 psi)
Flow: See Performance Chart
Internal Leakage: 0.10 ml/min. (2 drops/minute) max. at 420 bar (6100 psi)
Crack Pressure Defined: Gauge bar (psi) evident at ① at 16.4 ml/min. (1 cu. in./minute) attained
Standard Bias Springs at Crack: 0.5 bar (7.3 psi); 1 bar (15 psi); 3 bar (44 psi); 5 bar (73 psi); 8 bar (116 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC12-2; See page 302

MATERIAL

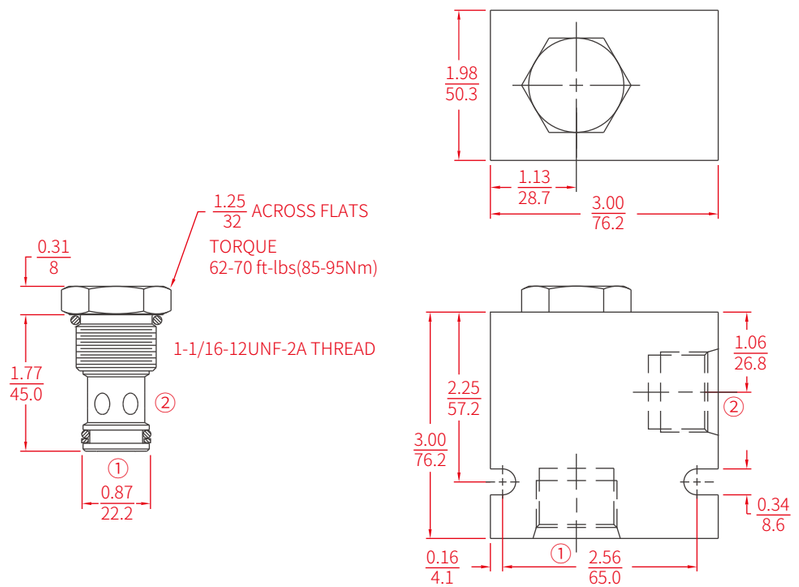
Cartridge: Weight: 0.16 kg. (0.35 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal ring.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized highstrength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

PERFORMANCE (cartridge only)

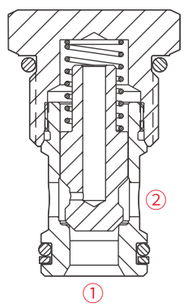


DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

ICV12 - 20 - ___ ___ ___ - ___ - ___ ___

Porting
Cartridge Only **0**
SAE 1 **10T**
SAE 12 **12T**
SAE 16 **16T**

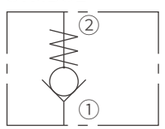
Seals
N Buna-N (Std.)
V Fluorocarbon

Bias Spring Value*
7 0.5 bar (7.3 psi)
15 1 bar (15 psi)
44 3 bar (44 psi)
73 5 bar (73 psi)
116 8 bar (116 psi)

DIRECTIONAL VALVE

ICV16-20
POPPET, CHECK VALVE

SYMBOL



DESCRIPTION

A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION

The ICV16-20 allows flow passage from ① to ②, while normally blocking oil flow in the opposite direction. The cartridge has a fully guided check which is spring-biased closed until sufficient pressure is applied at ① to open to ②.

FEATURES

1. Hardened seat for long life and low leakage.
2. Optional bias springs for back-pressure application flexibility.
3. Industry common cavity.

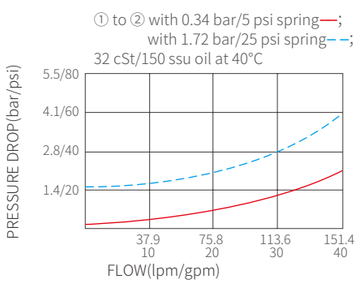
RATINGS

Operating Pressure: 240 bar (3500 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. at 240 bar (3500 psi)
Crack Pressure Defined: Gauge bar (psi) evident at ① at 16.4 ml/min. (1 cu. in./minute) attained
Standard Bias Springs at Crack: 0.34 bar (5 psi); 1.7 bar(25 psi); 4.1 bar (60 psi); 6.9 bar(100 psi)
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC16-2; See page 305

MATERIAL

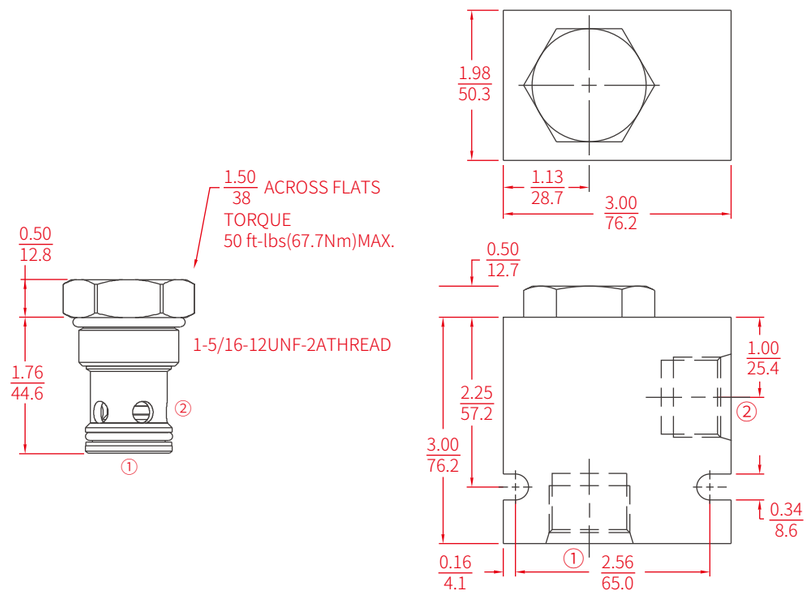
Cartridge: Weight: 0.29kg. (0.63 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized highstrength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

PERFORMANCE (cartridge only)

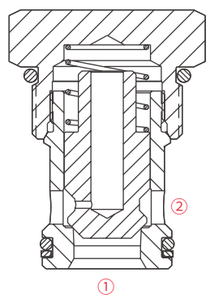


DIMENSION

INCH
MM



SECTIONAL DRAWING



TO ORDER

ICV16 - 20 - ___ ___ ___ - ___ - ___ ___

Porting

Cartridge Only	**0**
SAE 12	**12T**
SAE16	**16T**
3/4 INCH BSP	**6B**
1 INCH BSP	**8B**

Seals

N	Buna-N (Std.)
V	Fluorocarbon

Bias Spring Value

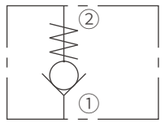
5	0.34 bar (5 psi)
25	1.7 bar (25 psi)
60	4.1 bar (60 psi)
100	6.9 bar (100 psi) *

*Requires "T" Option

DIRECTIONAL VALVE

ICV42-M20
POPPET, CHECK VALVE

SYMBOL



DESCRIPTION

A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION

The ICV42-M20 allows flow passage from ① to ②, while normally blocking oil flow in the opposite direction. The cartridge has a fully guided check which is spring-biased closed until sufficient pressure is applied at ① to open ②.

FEATURES

1. Hardened seat for long life and low leakage.
2. Optional bias springs for back-pressure application flexibility.
3. Conforms to ISO 7789 cavity.

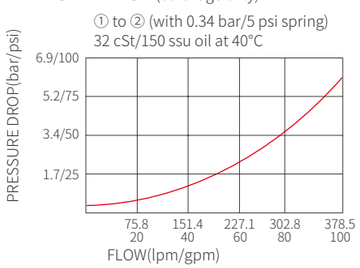
RATINGS

Operating Pressure: 240 bar (3500 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. at 240 bar (3500 psi)
Crack Pressure Defined: Gauge bar (psi) evident at ① at 16.4 ml/min. (1 cu. in./minute) attained
Standard Bias Springs at Crack: 0.34 bar (5 psi); 1 bar (15 psi); 1.7 bar (25 psi); 2.1 bar (30 psi); 4.1 bar (60 psi); 6.9 bar (100 psi)
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC42-2M; See page 306

MATERIAL

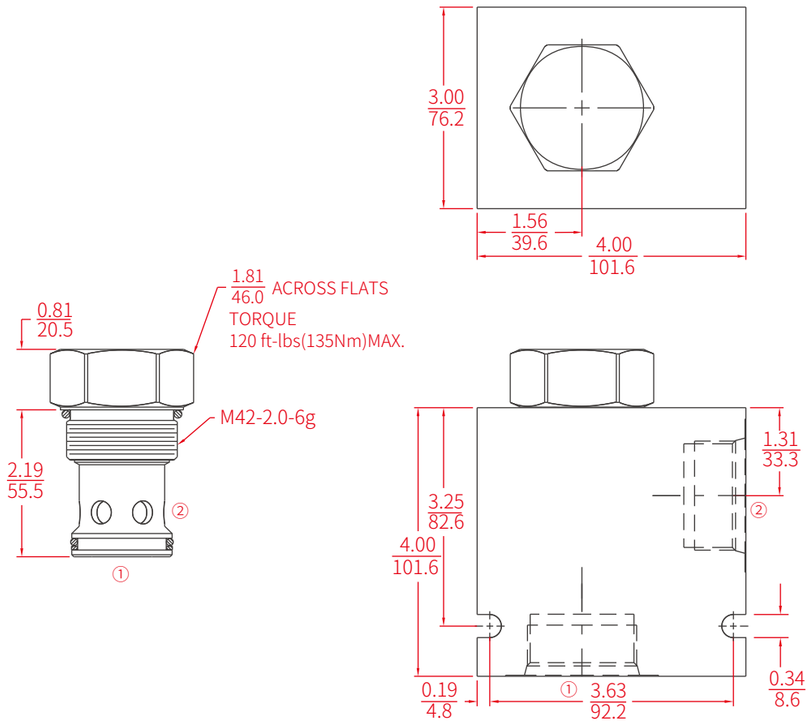
Cartridge: Weight: 0.43kg. (0.95 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.
Standard Ported Body: Weight: 1.63 kg. (3.60 lbs.); Anodized highstrength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel b**odies available; dimensions may differ.**
Consult Inno.

PERFORMANCE (cartridge only)

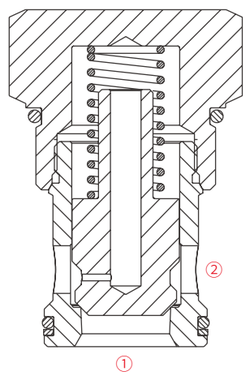


DIMENSION

INCH
MM



SECTIONAL DRAWING



TO ORDER

ICV42 - M20 - ___ ___ ___ - ___ - ___ ___

Porting
Cartridge Only **0**
SAE 20 **20T**

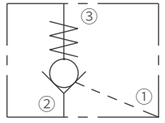
Seals
N Buna-N (Std.)
V Fluorocarbon

Bias Spring Value*
5 0.34 bar (5 psi)
25 1.7 bar (25 psi)
30 2.1 bar (30 psi)
60 4.1 bar (60 psi)
100 6.9 bar (100 psi)

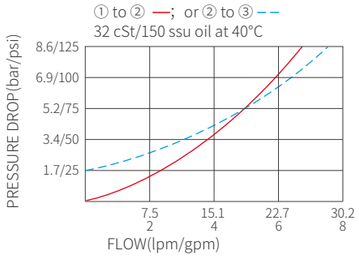
DIRECTIONAL VALVE

IPC08-30
CHECK VALVE
PILOT-TO-OPEN

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION

A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION

The IPC08-30 allows flow from ②to ③, while normally blocking flow from ③ to②.
The flow will be allowed from ③ to ② when sufficient pressure is applied at ①.
The cartridge has a 3:1 pilot ratio, meaning that at least one-third of the load pressure held at ③ is required at ① to open the valve.
The check is spring-biased to assure holding in static or no-load conditions.
A sealed pilot piston option is available.

FEATURES

1. Hardened seat for long life and low leakage.
2. Optional sealed piston.
3. Optional spring ranges.
4. Compact size.

RATINGS

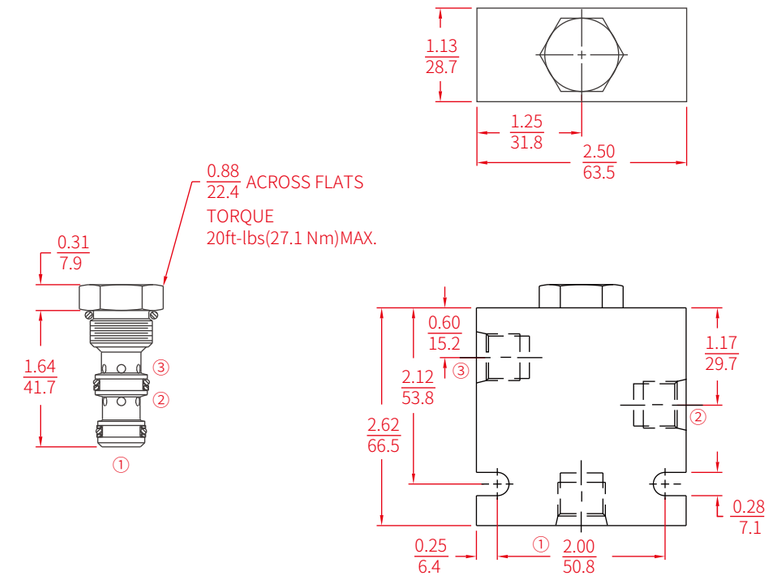
Operating Pressure: 240 bar (3500 psi)
Flow: See Performance Chart
Internal Leakageat 240 bar (3500 psi):
③ to ② : 0.25 ml/min. max (2 drops/minute)
② to ① without sealed piston: 115 ml/min. max (7 cu. in./minute)
② to ① with sealed piston: Zero leakage
Pilot Ratio: 3 : 1
Check Spring Bias: 1.72 bar (25 psi), Standard
With Sealed Piston Option: 6.2 bar (90 psi) minimum
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-3; See page 298

MATERIAL

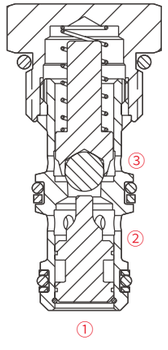
Cartridge: Weight: 0.08kg. (0.18 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal ring.
Standard Ported Body: Weight: 0.27 kg. (0.60 lbs.); Anodized highstrength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

IPC08 - 30 - ___ ___ ___ - ___ - ___ ___ ___

Porting

Cartridge Only	**0**
SAE 6	**6T**
3/8 INCH BSP	**3B**

Bias Spring Value

0	1.72 bar (25 psi)
70	4.8 bar (70 psi)
90	6.2 bar (90 psi)
120	8.2 bar (120 psi)
270	18.3 bar (270 psi)

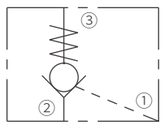
Seals

N	Buna-N (Std.)
NS	Buna-N (With Sealed Piston) 6.2 bar (90 psi) minimum spring
V	Fluorocarbon
VS	Fluorocarbon (With Sealed Piston) 6.2 bar (90 psi) minimum spring

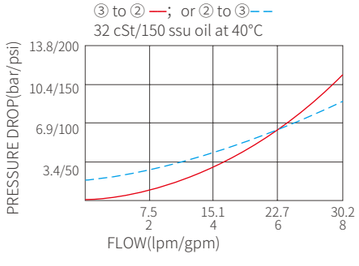
DIRECTIONAL VALVE

IPC10-32
CHECK VALVE
PILOT-TO-OPEN

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION
A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION
The IPC10-32 allows flow from ②to ③, while normally blocking oil flow in the opposite direction. The flow will be allowed from ③ to ② when sufficient pressure is applied at ①. The cartridge has a 2:1 pilot ratio, meaning that at least one-half of the load pressure held at ③ is required at ① to open the valve.
The check is spring-biased to assure holding in static or no-load conditions.

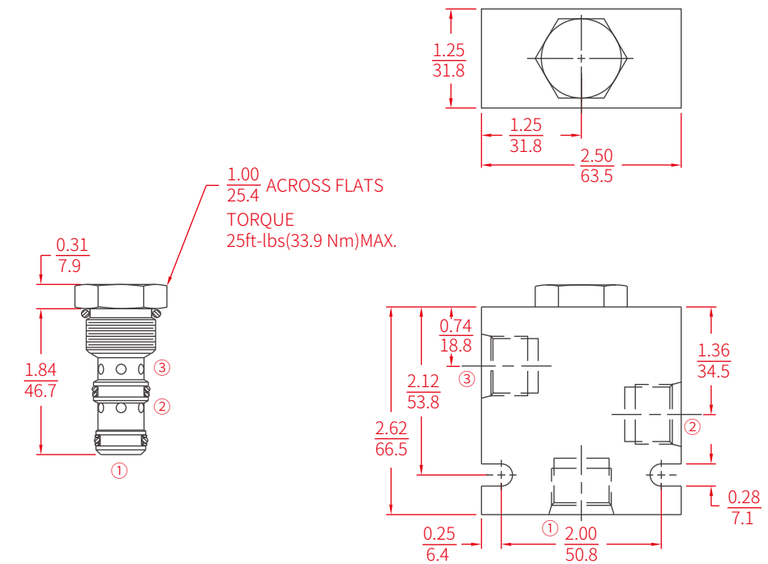
FEATURES
1. Hardened seat for long life and low leakage.
2. Optional sealed piston.
3. Industry common cavity.

RATINGS
Operating Pressure: 240 bar (3500 psi)
Flow: See Performance Chart
Internal Leakageat 240 bar (3500 psi):
③ to ② : 0.25 ml/min. max (5 drops/minute)
② to ① without sealed piston: 115 ml/min. max (7 cu. in./minute)
Pilot Ratio: 2 : 1
Check Spring Bias: 2.07 bar (30 psi)
With Sealed Piston Option: 6.2 bar (90 psi) minimum
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-3; See page 300

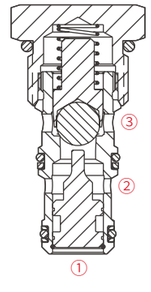
MATERIAL
Cartridge: Weight: 0.09kg. (0.20 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal ring.
Standard Ported Body: Weight: 0.36 kg. (0.80 lbs.); Anodized highstrength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

DIMENSION

INCH / MM ORIFICE DISCS MAY NOT BE USED WITH THIS PRODUCT.



SECTIONAL DRAWING



TO ORDER

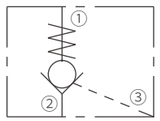
IPC10 - 32 - ___ ___ ___ - ___

Porting		Seals	
Cartridge Only	**0**	**N**	Buna-N (Std.) 2.07 bar (30 psi) minimum spring
SAE 6	**6T**	**NS**	Buna-N (With Sealed Piston) 6.2 bar (90 psi) minimum spring
SAE8	**8T**	**V**	Fluorocarbon 2.07 bar (30 psi) minimum spring
1/4 INCH BSP	**2B**	**VS**	Fluorocarbon (With Sealed Piston) 6.2 bar (90 psi) minimum spring
3/8 INCH BSP	**3B**		

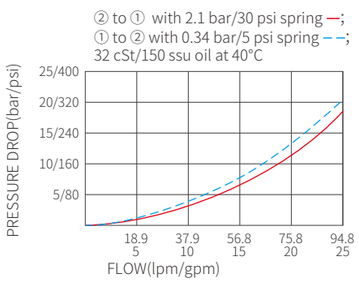
DIRECTIONAL VALVE

IPC12-30
CHECK VALVE, PILOT-TO-OPEN
(DUAL-PILOT-OPERATED)

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION

A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device. The pressure reducing function is locked in a controllable range to reduce the problems of high energy consumption in the high-pressure control oil circuit and large hydraulic impact when the check valve is reversely connected.

OPERATION

The IPC12-30 allows flow from② to①, while normally blocking oil flow in the opposite direction. A small amount of flow will pass from① to② when sufficient pressure is applied at③, to reduce the load pressure at port①, and the required pilot pressure to unlock the main stage will decrease with the reduction of load pressure, which allows the flow from①to② completely with sufficient pilot pressure.
The flow will be allowed from ③ to ② when sufficient pressure is applied at ①.
The cartridge has a 25:1 pressure reducing ratio and a 3:1 pilot ratio. The check is spring-biased to assure holding in static or no-load conditions.
Note: The pilot pressure will 1:1 increase upon the back pressure on port② during calculating.

FEATURES

1. Hardened seat for long life and low leakage.
2. Quick reducing hydraulic noise impact by pressure reducing.
3. Compact size.

RATINGS

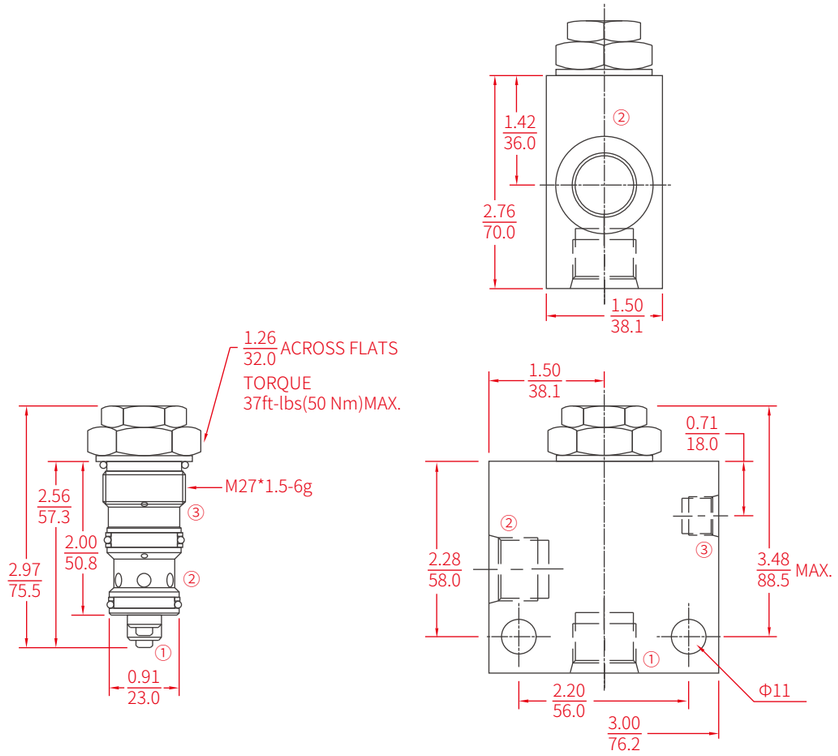
Maximum Pressure: 420 bar (6000 psi) at port ①;
350 bar (5100 psi) at port ②&③
Flow: 90 lpm (24 USGPM)
Internal Leakageat: 0.25 ml/min. max. (5 drops/minute) at 207 bar (3000 psi)
Pilot Ratio: Pressure reducing: 25:1; Free flow: 3:1
Standard Bias Springs at Crack: 4.65 bar (65 psi)
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC12-3A; See page 303

MATERIAL

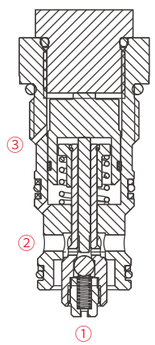
Cartridge: Weight: 0.243kg. (0.54 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

IPC12-30 - ___ ___ ___ - ___

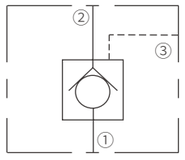
Seals
N Buna-N (Std.)
V Fluorocarbon

Porting
0 Cartridge Only
4W 1/2 BSP.1/4 BSP Pilot
8T 1/2 SAE.1/4 SAE Pilot

DIRECTIONAL VALVE

ICKBB
CHECK VALVE
PILOT-TO-OPEN

SYMBOL



DESCRIPTION

A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION

The ICKBB allows flow from ② to ①, while normally blocking oil flow in the opposite direction. The flow will be allowed from ① to ②when sufficient pressure is applied at ③.
The check is spring-biased to assure holding in static or no-load conditions.

FEATURES

1. Hardened seat for long life and low leakage.
2. Optional sealed piston.
3. Optional spring ranges.
4. Compact size.

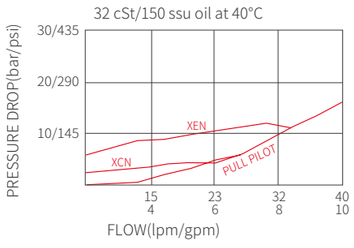
RATINGS

Operating Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakageat: ① to ② : 0.10 ml/min. max (1 drops/minute) at 207 bar (3000 psi)
Pilot Ratio: 3:1
Check Spring Bias: 2 bar (29psi) Standard
With Sealed Piston Option: 6.2 bar (90 psi) minimum
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IT-163A; See page 310

MATERIAL

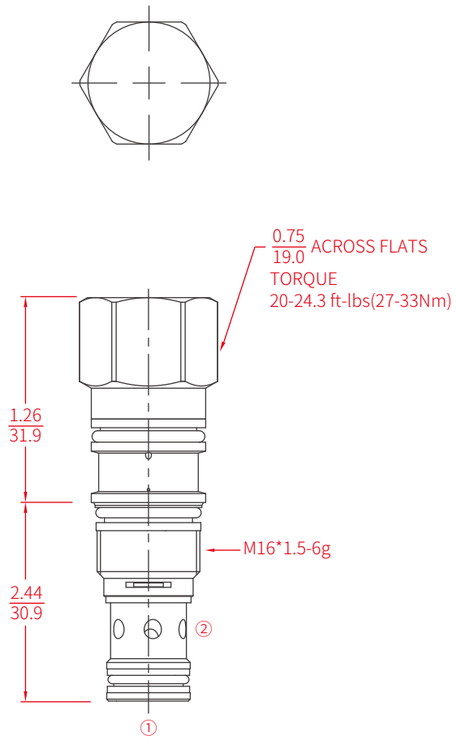
Cartridge: Weight: 0.10kg. (0.22 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.

PERFORMANCE (Cartridge Only)

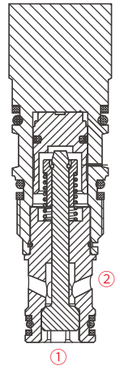


DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

ICKB___ - ___ ___

Crac Pressure
- **A** 0.3 bar
- **B** 1.0 bar
- **C** 2.0 bar
- **D** 3.5 bar
- **E** 5.0 bar
- **F** 7.0 bar

Seals
- **N** Buna-N (Std.)
- **V** Fluorocarbon

Control
- **X** Standard Pilot
- **L** Manual Load Release
- **B** 1/4" BSPP External Pilot Port 3 Blocked
- **E** SAE-4 External Pilot Port 3 Blocked
- **P** 1/4" NPTF External Pilot Port 3 Blocked

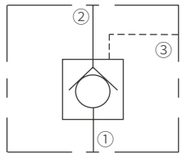
Pilot Type
- **B** Bleed Through Pilot
- **D** Sealed Pilot Piston

FLOW
- **B** 30L/min

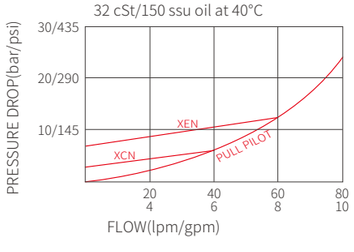
DIRECTIONAL VALVE

ICKCB / ICKCD
CHECK VALVE
PILOT-TO-OPEN

SYMBOL



PERFORMANCE(Cartridge Only)



DESCRIPTION

A screw-in, cartridge-style, hydraulic check valve for use as a blocking or load-holding device.

OPERATION

The ICKCB /ICKCD allows flow from ② to ①, while normally blocking oil flow in the opposite direction. The flow will be allowed from ① to ② when sufficient pressure is applied at ③.
The check is spring-biased to assure holding in static or no-load conditions.

FEATURES

1. Hardened seat for long life and low leakage.
2. Optional sealed piston.
3. Optional spring ranges.
4. Compact size.

RATINGS

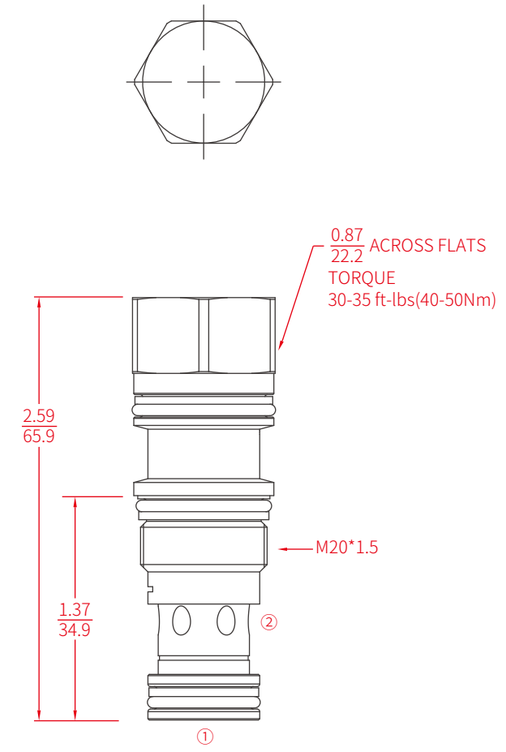
Operating Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakageat: ① to② : 0.10 ml/min. max (2 drops/minute) at 350 bar (5100 psi)
Pilot Ratio: 3:1
Check Spring Bias: 2 bar (29psi) Standard
With Sealed Piston Option: 6.2 bar (90 psi) minimum
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IT-11A; See page 309

MATERIAL

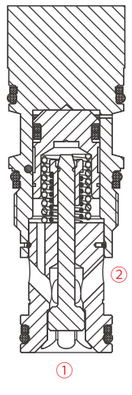
Cartridge: Weight: 0.13kg. (0.29 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.

DIMENSION

INCH
MM



SECTIONAL DRAWING



TO ORDER

ICKC___ - ___ ___ ___

Crack Pressure
A 0.3 bar
B 1.0 bar
C 2.0 bar
D 3.5 bar
E 5.0 bar
F 7.0 bar

Seals
N Buna-N (Std.)
V Fluorocarbon

Pilot Type
B Bleed Through Pilot
D Sealed Pilot Piston

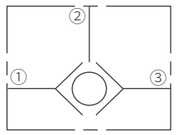
Control
X Standard Pilot
L Manual Load Release
B 1/4” BSPP External Pilot Port 3 Blocked
E SAE-4 External Pilot Port 3 Blocked
P 1/4” NPTF External Pilot Port 3 Blocked

FLOW
C 60L/min

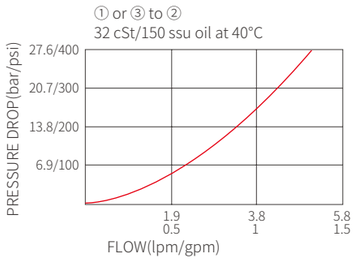
DIRECTIONAL VALVE

ILS04-B30
BALL VALVE
LOAD SHUTTLE

SYMBOL



PERFORMANCE (Cartridge Only)



DESCRIPTION

A load-shuttling, screw-in, cartridge-style hydraulic check valve, for use in blocking circuits where a priority of flow direction is given to a higher pressure circuit over a lower one.

OPERATION

The ILS04-B30 will allow flow from the higher pressure port ① or ③ to the port ②. The valve is commonly used to direct oil from the high-pressure side of a bidirectional hydraulic motor to a pressure-released hydraulic brake. The valve can be used as a load sensor valve as well.

FEATURES

1. Rapid response to load direction changes.
2. Compact size.

RATINGS

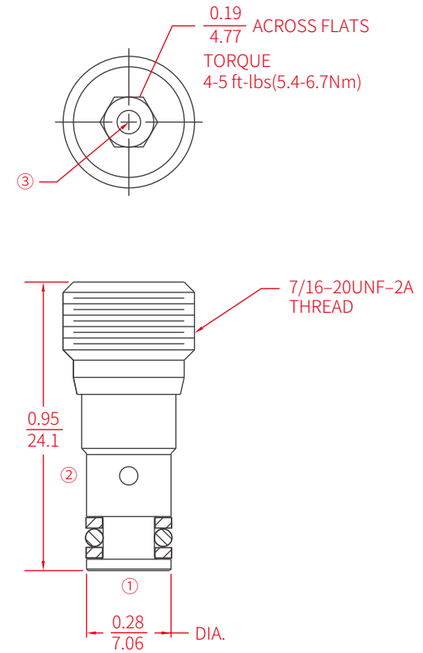
Operating Pressure: 240 bar (3500 psi)
Flow: See Performance Chart
Internal Leakageat: 0.25 ml/min. max (5 drops/minute) at 207 bar (3000 psi)
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC04-B3; See page 297

MATERIAL

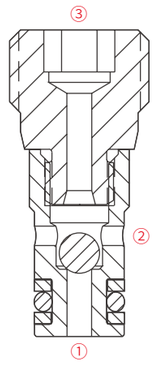
Cartridge: Weight: 0.08kg. (0.17 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.

DIMENSION

INCH
MM



SECTIONAL DRAWING



TO ORDER

ILS04 - B30 - 0 ___

Seals
N Buna-N (Std.)
V Fluorocarbon

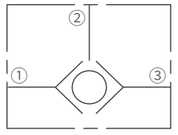
Porting
0 Cartridge Only

Mounting
B Below the Surface

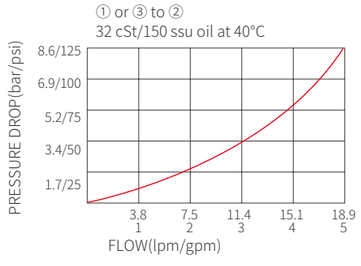
DIRECTIONAL VALVE

ILS08-30
BALL VALVE
LOAD SHUTTLE

SYMBOL



PERFORMANCE (Cartridge Only)



DESCRIPTION
A load-shuttling, screw-in, cartridge-style hydraulic check valve, for use in blocking circuits where a priority of flow direction is given to a higher pressure circuit over a lower one.

OPERATION
The ILS08-30 will allow flow from the higher pressure port ①or ③to the port ②. The valve is commonly used to direct oil from the high-pressure side of a bidirectional hydraulic motor to a pressure-released hydraulic brake.

FEATURES
1. Rapid response to load direction changes.
2. Compact size.

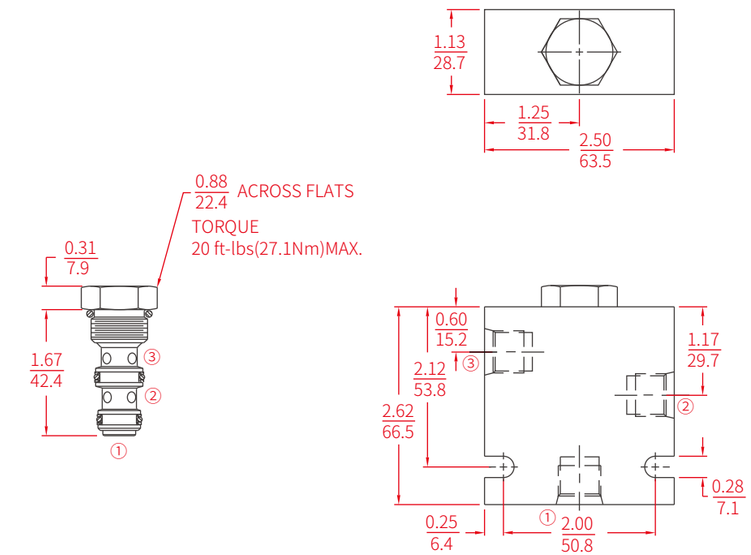
RATINGS
Operating Pressure: 240 bar (3500 psi)
Proof Pressure: 390 bar (5700 psi)
Flow: See Performance Chart
Internal Leakageat: 0.25 ml/min. max (5 drops/minute) at 207 bar (3000 psi)
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-3; See page 298

MATERIAL
Cartridge: Weight: 0.08 kg. (0.17 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.
Standard Ported Body: Weight: 0.27 kg. (0.6 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

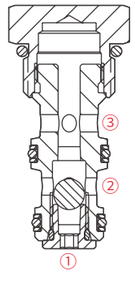
DIMENSION

INCH / MM

ORIFICE DISCS MAY NOT BE USED WITH THIS PRODUCT.



SECTIONAL DRAWING



TO ORDER

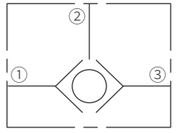
ILS08 - 30 - ___ ___ ___ - ___

Porting		Seals	
Cartridge Only	**0**	**N**	Buna-N (Std.)
SAE4	**4T**	**V**	Fluorocarbon
SAE6	**6T**		
1/4 INCH BSP	**2B**		
3/8 INCH BSP	**3B**		

DIRECTIONAL VALVE

ILS08-B30
BALL VALVE, LOAD SHUTTLE
(HIGH PRESSURE)

SYMBOL



DESCRIPTION

A load-shuttling, screw-in, cartridge-style hydraulic check valve, for use in blocking circuits where a priority of flow direction is given to a higher pressure circuit over a lower one.

OPERATION

The ILS08-B30 will allow flow from the higher pressure port ① or ③ to the port ②. The valve is commonly used to direct oil from the high-pressure side of a bidirectional hydraulic motor to a pressure-released hydraulic brake.

FEATURES

1. Rapid response to load direction changes.
2. Compact size.

RATINGS

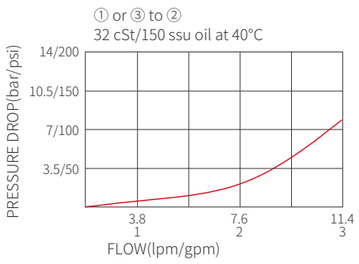
Operating Pressure: 350 bar (5100 psi)
Proof Pressure: 525 bar (7600 psi)
Flow: See Performance Chart
Internal Leakageat: 0.25 ml/min. max (5 drops/minute) at 350 bar (5100 psi)
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-3; See page 298

MATERIAL

Cartridge: Weight: 0.09kg. (0.20 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.

Standard Ported Body: Weight: 0.27 kg. (0.60 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

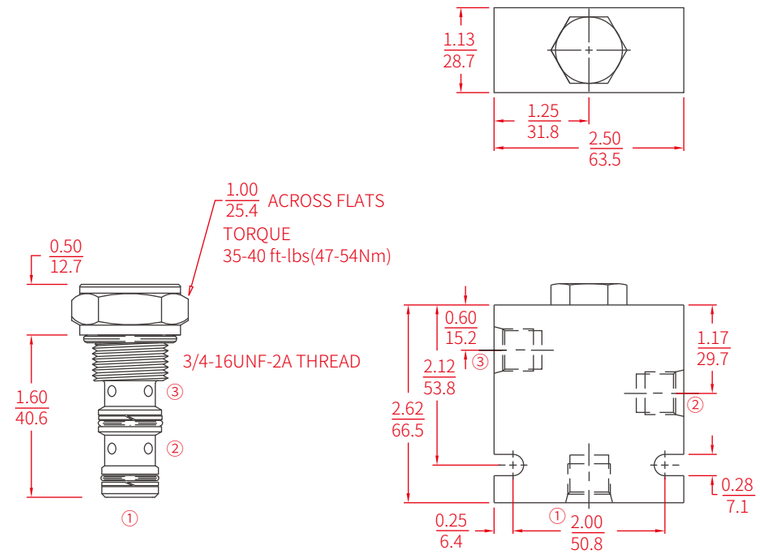
PERFORMANCE (Cartridge Only)



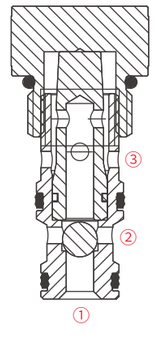
DIMENSION

INCH / MM

ORIFICE DISCS MAY NOT BE USED WITH THIS PRODUCT.



SECTIONAL DRAWING



TO ORDER

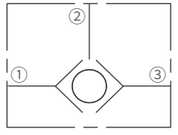
ILS08 - B30 - ___ ___ ___ - ___

Porting		Seals	
Cartridge Only	**0**	**N**	Buna-N (Std.)
SAE4	**4T**	**V**	Fluorocarbon
SAE6	**6T**		
1/4 INCH BSP	**2B**		
3/8 INCH BSP	**3B**		

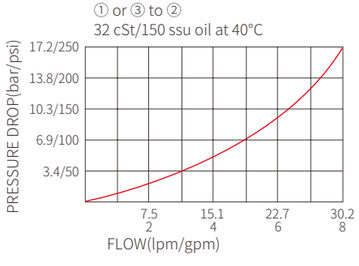
DIRECTIONAL VALVE

ILS10-30
BALL VALVE
LOAD SHUTTLE

SYMBOL



PERFORMANCE (Cartridge Only)



DESCRIPTION
A load-shuttling, screw-in, cartridge-style hydraulic check valve, for use in blocking circuits where a priority of flow direction is given to a higher pressure circuit over a lower one.

OPERATION
The ILS10-30 will allow flow from the higher pressure port ① or ③ to the port ②. The valve is commonly used to direct oil from the high-pressure side of a bidirectional hydraulic motor to a pressure-released hydraulic brake.

FEATURES
1. Rapid response to load direction changes.
2. Industry common cavity.

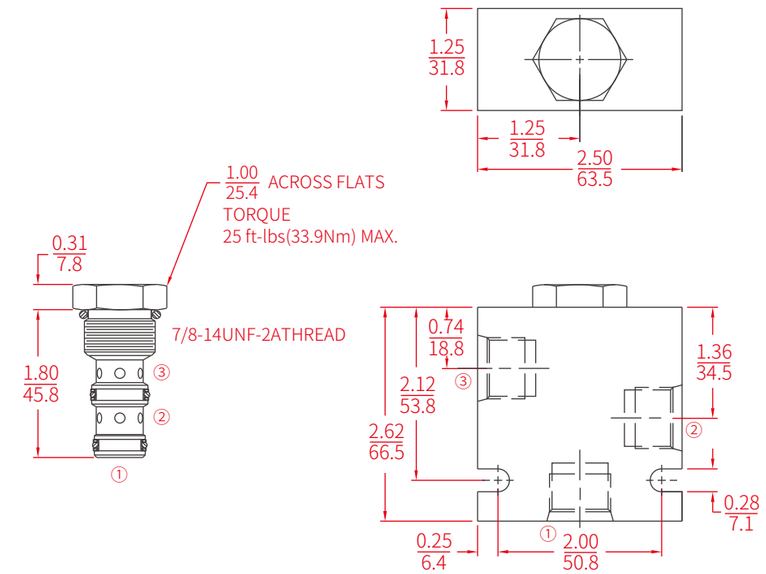
RATINGS
Operating Pressure: 240 bar (3500 psi)
Proof Pressure: 390 bar (5700 psi)
Flow: See Performance Chart
Internal Leakageat: 0.25 ml/min. max (5 drops/minute) at 207 bar (3000 psi)
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-3; See page 300

MATERIAL
Cartridge: Weight: 0.08kg. (0.17 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces. Seal: D type seal ring.
Standard Ported Body: Weight: 0.36 kg. (0.80 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi). Ductile iron and steel bodies available; dimensions may differ. Consult Inno.

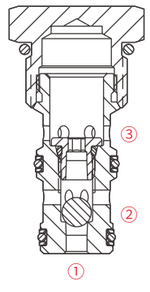
DIMENSION

INCH / MM

ORIFICE DISCS MAY NOT BE USED WITH THIS PRODUCT.



SECTIONAL DRAWING



TO ORDER

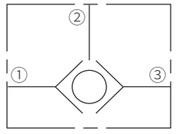
ILS10 - 30 - ___ ___ ___ - ___

Porting		Seals	
Cartridge Only	**0**	**N**	Buna-N (Std.)
SAE4	**4T**	**V**	Fluorocarbon
SAE6	**6T**		
1/4 INCH BSP	**2B**		
3/8 INCH BSP	**3B**		

DIRECTIONAL VALVE

ILS10-B30
BALL VALVE, LOAD SHUTTLE
(HIGH PRESSURE)

SYMBOL



DESCRIPTION
A load-shuttling, screw-in, cartridge-style hydraulic check valve, for use in blocking circuits where a priority of flow/direction is given to a higher pressure circuit over a lower one.

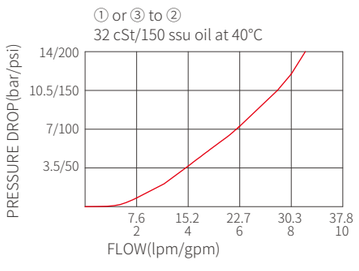
OPERATION
The ILS10-B30 will allow flow from the higher pressure port ① or ③ to the port ②. The valve is commonly used to direct oil from the high-pressure side of a bidirectional hydraulic motor to a pressure-released hydraulic brake.

FEATURES
1. Rapid response to load direction changes.
2. Industry common cavity.

RATINGS
Operating Pressure: 350 bar (5100 psi)
Proof Pressure: 525 bar (7600 psi)
Flow: See Performance Chart
Internal Leakageat: 0.25 ml/min. max (5 drops/minute) at 350 bar (5100 psi)
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-3; See page 300

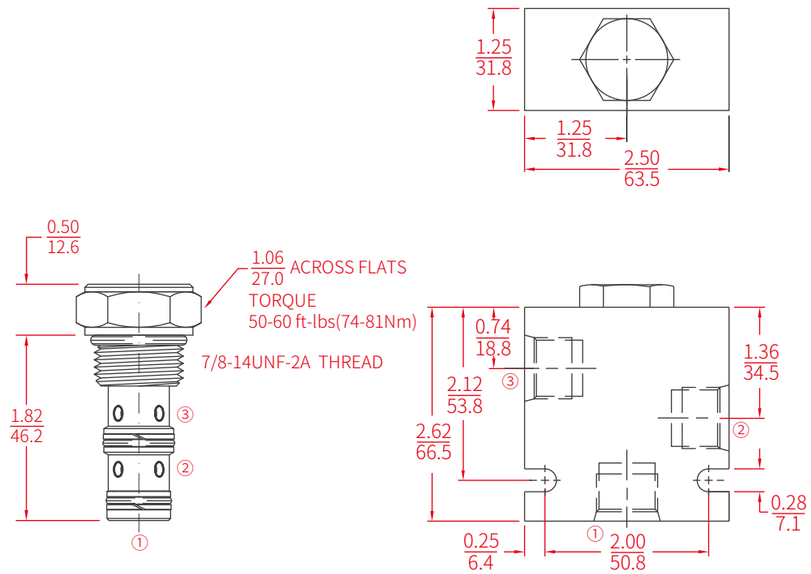
MATERIAL
Cartridge: Weight: 0.08kg. (0.17 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: Buna-N O-rings and back-up rings (standard).
Standard Ported Body: Weight: 0.36 kg. (0.80 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

PERFORMANCE (Cartridge Only)

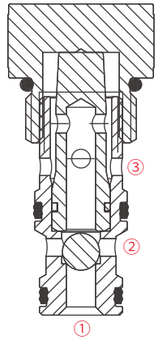


DIMENSION

INCH / MM ORIFICE DISCS MAY NOT BE USED WITH THIS PRODUCT.



SECTIONAL DRAWING



TO ORDER

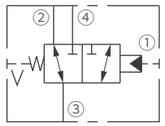
ILS10 - B30 - ___ ___ ___ - ___

Porting		**Seals**	
Cartridge Only	**0**	**N**	Buna-N (Std.)
SAE4	**4T**	**V**	Fluorocarbon
SAE6	**6T**		
1/4 INCH BSP	**2B**		
3/8 INCH BSP	**3B**		

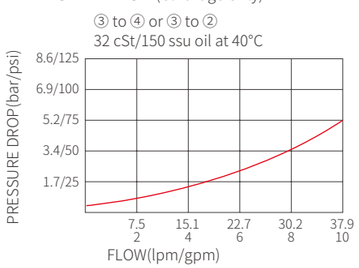
DIRECTIONAL VALVE

IPD10-40
PILOTED 3-WAY SPOOL VALVE

SYMBOL



PERFORMANCE (Cartridge Only)



DESCRIPTION

A screw-in, cartridge-style, pilot-operated, spool-type, hydraulic directional valve for three-way circuits requiring remote pilot actuation.

OPERATION

In a neutral position (unpiloted), the IPD10-40 allows flow from ③ to ② bidirectionally, while the flow is blocked at ④. V is a spring chamber vent-to-atmosphere, which is internally O-ring sealed to avoid oil flowing from the cartridge flow paths. On remote pilot signal at ①, the valve shifts to open from ③ to ④, while blocking flow at ②. Because of the spring chamber drain, the cartridge may be fully pressurized at any port without affecting the required pilot pressure.

FEATURES

1. Hardened spool and cage for long life.
2. Industry common cavity.

RATINGS

Operating Pressure: 240 bar (3500 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakageat: 82 ml/min. max (5 cu. in./minute) at 207 bar (3000 psi)
Pilot Pressure Required: To Spool Crossover: 7.6 bar (110 psi);
To Full Spool Shift: 8.6 bar (125 psi)
Oil Volume Required to Full Shift: 0.65 ml (0.04 cu. in.)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-4; See page 302

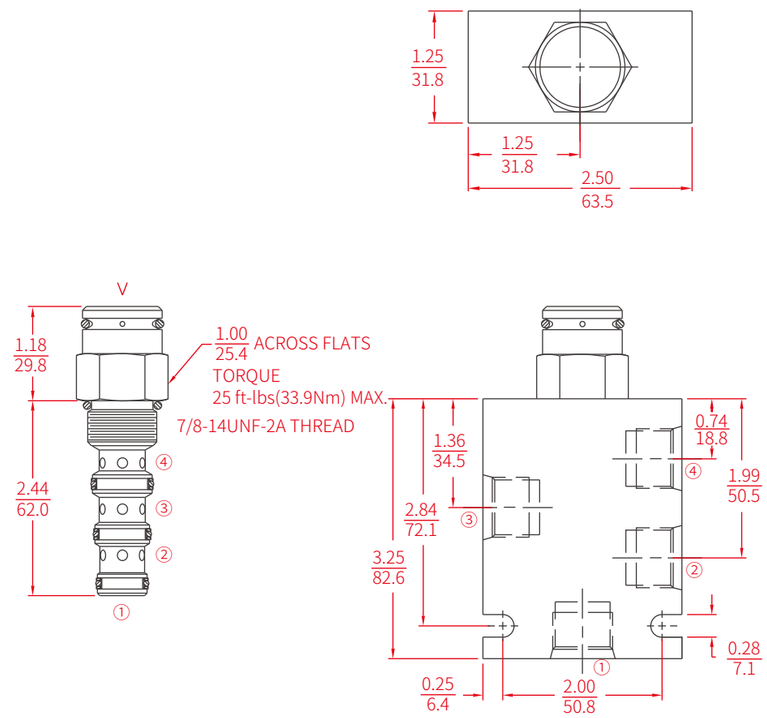
Note: This valve is designed with a dynamic oil-to-atmosphere seal in the vent section. Ambient conditions will cause this vent seal to degrade which will reduce the valve' s cycle life. If this could cause a problem, we suggest that a non-vented model be selected, or special seal be used. Consult Inno for assistance.

MATERIAL

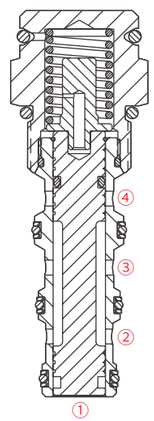
Cartridge: Weight: 0.16kg. (0.35 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal ring.
Standard Ported Body: Weight: 0.34 kg. (0.75 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

IPD10 - 40 ___ - ___ ___ - ___ - ___

Options

None	**BLANK**
Open Transition	**N**
Tall Cap	**T**

Porting

Cartridge Only	**0**
SAE 6	**6T**
SAE8	**8T**
1/4 INCH BSP	**2B**
3/8 INCH BSP	**3B**

Bias Spring

40	2.8 bar (40 psi)
60	4.1 bar (60 psi)
110	7.6 bar (110 psi)
130	9.1 bar (130 psi)
170	11.7 bar (170 psi)
M5.0	5.0 bar (73 psi)
‡ **M14.0**	4 bar (203 psi)
‡ **M15.0**	5 bar (217 psi)

‡ T option required.
Cap Height: 2.21" (56.1 mm)
Note: 110 psi bias spring is the minimum required for use with sealed spool.

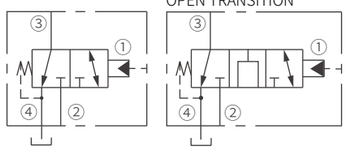
Seals

N	Buna-N (Std.)
NS	Buna-N with Sealed Spool (110 psi spring minimum required)
V	Fluorocarbon
VS	Fluorocarbon with Sealed Spool (110 psi spring minimum required)

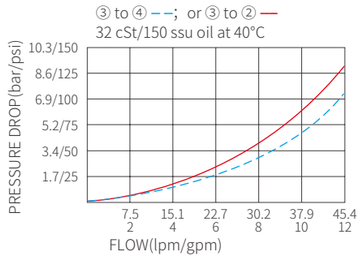
DIRECTIONAL VALVE

IPD10-41
PILOTED 3-WAY SPOOL VALVE

SYMBOL



PERFORMANCE (Cartridge Only)



DESCRIPTION

A screw-in, cartridge-style, pilot-operated, spool-type, hydraulic directional valve for three-way circuits requiring remote pilot actuation.

OPERATION

In a neutral position (unpiloted), the IPD10-41 allows flow from ③ to ④, while the flow is blocked at ②. On remote pilot signal at ①, the valve shifts to open from ③ to ②, while blocking flow to ④. Since ④ is connected to the spring chamber, pressure on ④ will directly (1:1) affect the pilot pressure required, and must always be added to the bias spring value.
Note: Consult Inno for applications where bi-directional flow is required when the valve is in the normal or spring-offset position.

FEATURES

1. Hardened spool and cage for long life.
2. Industry common cavity.

RATINGS

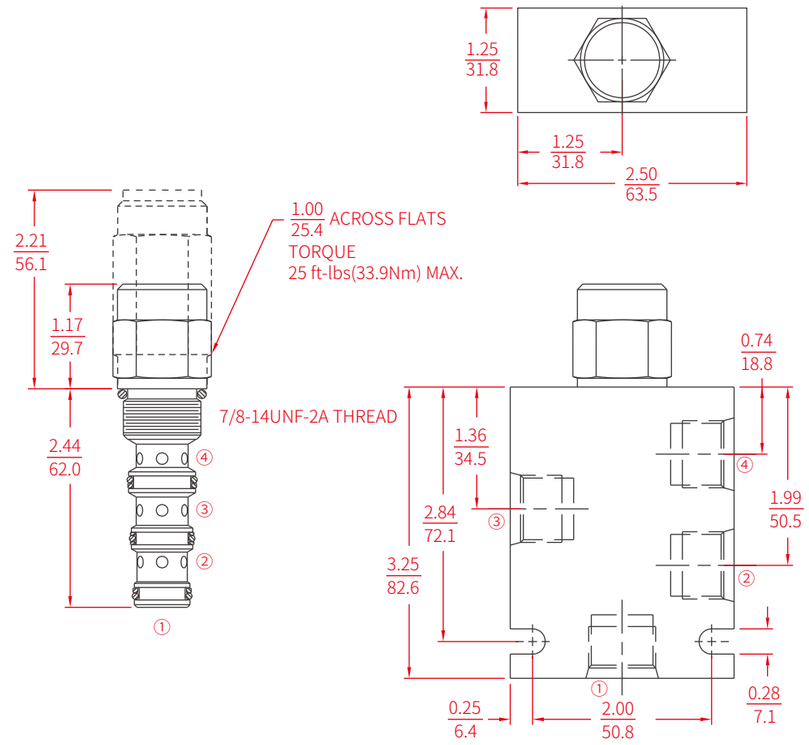
Operating Pressure: 240 bar (3500 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakageat: 82 ml/min. max (5 cu. in./minute) at 207 bar (3000 psi)
Pilot Pressure Required:
To Spool Crossover: 4.1 bar (60 psi) Spring: 4.7 bar (68.2 psi);
7.6 bar (110 psi) Spring: 7.6 bar (110 psi);
To Full Spool Shift: 4.1 bar (60 psi) Spring: 5.2 bar (75 psi);
7.6 bar (110 psi) Spring: 8.6 bar (125 psi)
Oil Volume Required to Full Shift: 0.65 ml (0.04 cu. in.)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-4; See page 302

MATERIAL

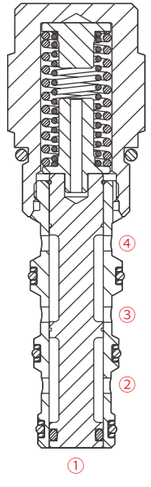
Cartridge: Weight: 0.16kg. (0.35 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal ring.
Standard Ported Body: Weight: 0.34 kg. (0.75 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

IPD10 - 41 ___ - ___ - ___ - ___

Options
None **BLANK**
Open Transition **N**
Tall Cap **T**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

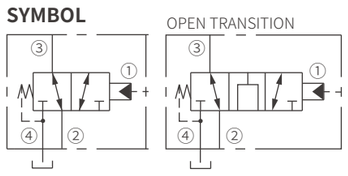
Seals
N Buna-N (Std.)
NS Buna-N with Sealed Spool
V Fluorocarbon
VS Fluorocarbon with Sealed Spool

Bias Spring‡
60 4.1 bar (60 psi)
110 7.6 bar (110 psi)
170 11.7 bar (170 psi)
***200** 14 bar (203 psi)
*Note: "T" option required for 203 psi bias spring
Note: 110 psi bias spring is the minimum required for use with sealed spool.

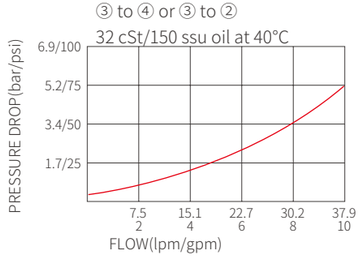
DIRECTIONAL VALVE

IPD10-42
PILOTED 3-WAY SPOOL VALVE

SYMBOL



PERFORMANCE (Cartridge Only)



DESCRIPTION

A screw-in, cartridge-style, pilot-operated, spool-type, hydraulic directional valve for three-way circuits requiring remote pilot actuation.

OPERATION

In a neutral position (unpiloted), the IPD12-42 allows flow from ③ to ② bidirectionally, while the flow is blocked at ④. On remote pilot signal at ①, the valve shifts to open from ③ to ④, while blocking flow to ②. Since ④ is connected to the spring chamber, pressure on ④ will directly (1:1) affect the pilot pressure required, and must always be added to the bias spring value.
Note: Consult Inno for applications where bi-directional flow is required when the valve is in the normal or spring-offset position.

FEATURES

1. Hardened spool and cage for long life.
2. Industry common cavity.

RATINGS

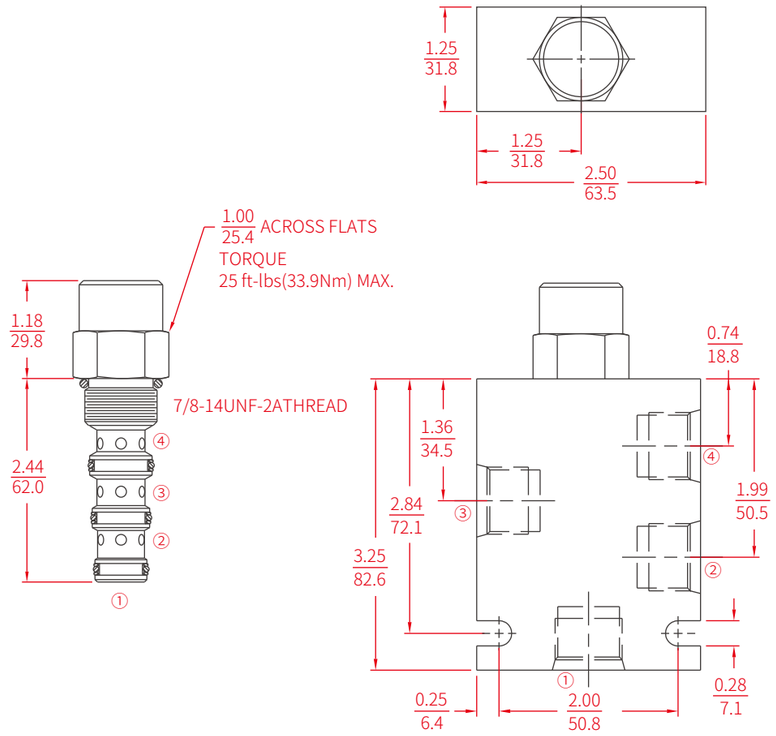
Operating Pressure: 240 bar (3500 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakageat: 82 ml/min. max (5 cu. in./minute) at 207 bar (3000 psi)
Pilot Pressure Required:
To Spool Crossover: 4.1 bar (60 psi) Spring: 4.7 bar (68.2 psi);
7.6 bar (110 psi) Spring: 7.6 bar (110 psi);
To Full Spool Shift: 4.1 bar (60 psi) Spring: 5.2 bar (75 psi);
7.6 bar (110 psi) Spring: 8.6 bar (125 psi)
Oil Volume Required to Full Shift: 0.65 ml (0.04 cu. in.)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-4; See page 302

MATERIAL

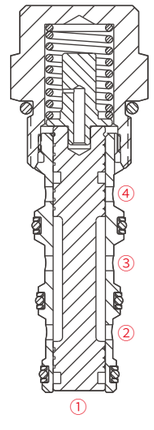
Cartridge: Weight: 0.16kg. (0.35 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal ring.
Standard Ported Body: Weight: 0.34 kg. (0.75 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

IPD10 - 42 ___ - ___ ___ - ___ - ___ ___ ___

Options
None **BLANK**
Open Transition **N**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
N Buna-N (Std.)
NS Buna-N with Sealed Spool
V Fluorocarbon
VS Fluorocarbon with Sealed Spool

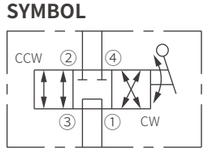
Bias Spring‡
60 4.1 bar (60 psi)
110 7.6 bar (110 psi)
170 11.7 bar (170 psi)

* Note: 110 psi bias spring is the minimum required for use with sealed spool.

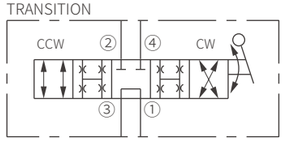
DIRECTIONAL VALVE

IMR10-47A
MANUAL DIRECTIONAL VALVE

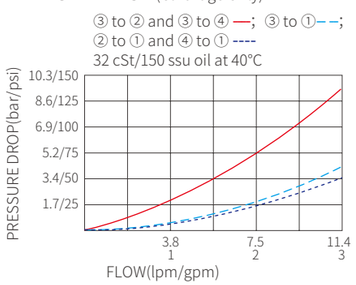
SYMBOL



TRANSITION



PERFORMANCE (Cartridge Only)



DESCRIPTION

Manually operated four-way, three-position directional valve, with adaptability to a variety of adjustment operators (ordered separately), in a variety of spool configurations.

OPERATION

Three positions: centered, 45° counterclockwise, and 45° clockwise. In the center position, ports ① and ③ are open while ports ② and ④ are closed. In the 45° counterclockwise from the center position, ports ① and ④ are open while ports ② and ③ are open. In the 45° clockwise from the center position, ports ① and ② are open while ports ③ and ④are open. All ports are partially open in transition.

FEATURES

1. Three-position detent, friction lock (with detented neutral), or spring return operators may be ordered separately.
2. May be fully pressurized at all ports.
3. Optional lock-down bracket.
4. Heavy-duty construction.
5. Industry common cavity.

RATINGS

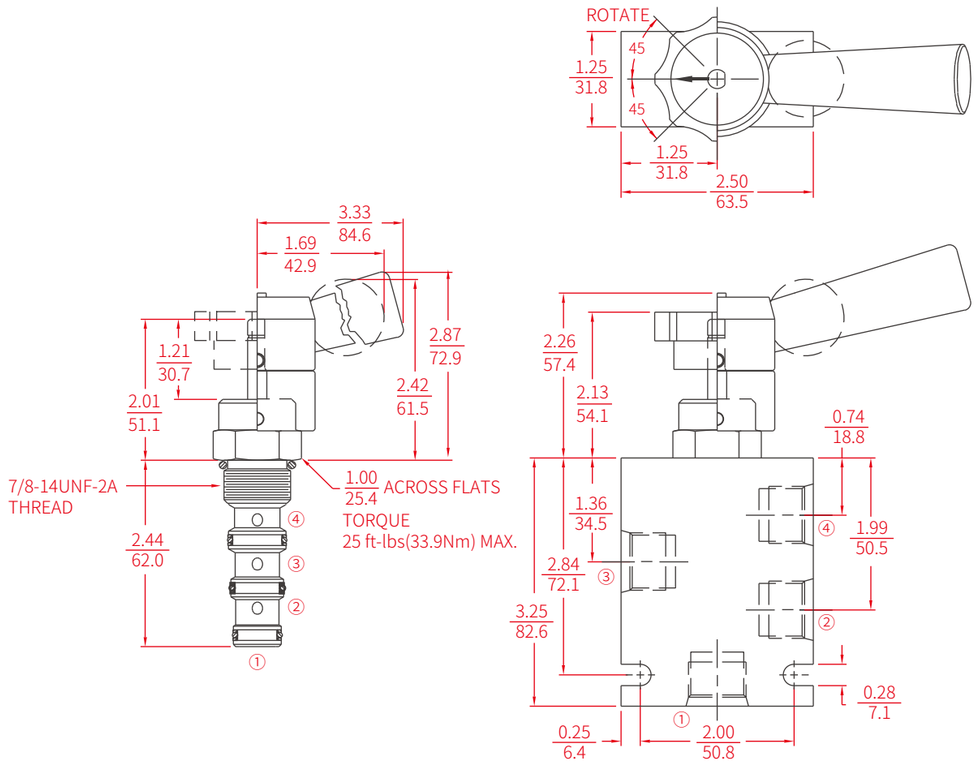
Operating Pressure: 240 bar (3500 psi)
Flow: See Performance Chart
Internal Leakageat: 164 ml/min. max (10 cu. in./minute) at 207 bar (3000 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-4; See page 302

MATERIAL

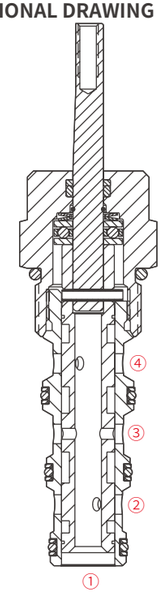
Cartridge: Weight: 0.13kg. (0.29 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal ring.
Standard Ported Body: Weight: 0.34 kg. (0.75 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Lever-Type Handle: (Sold Separately): Weight: 0.18 kg. (0.38 lbs.);
Steel with hardened work surfaces. Zinc-plated exposed surfaces.
Plastic lever arm.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

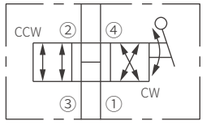
IMR10 - 47A - ___ ___ ___ - ___

Porting		Seals	
Cartridge Only	**0**	**N**	Buna-N (Std.)
SAE 6	**6T**	**V**	Fluorocarbon
SAE 8	**8T**		
SAE 8，with Lock-Down Bracket	**8TL**		
1/4 INCH BSP	**2B**		
3/8 INCH BSP	**3B**		

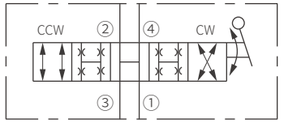
DIRECTIONAL VALVE

IMR10-47B
MANUAL DIRECTIONAL VALVE

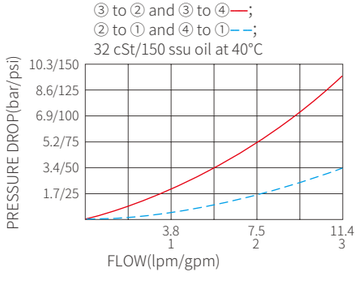
SYMBOL



TRANSITION



PERFORMANCE (Cartridge Only)



DESCRIPTION

Manually operated four-way, three-position directional valve, with adaptability to a variety of adjustment operators (ordered separately), in a variety of spool configurations.

OPERATION

Three positions: centered, 45° counterclockwise, and 45° clockwise. In the center position, all ports are open. In the 45° counterclockwise from the center position, ports ① and ④are open while ports ②and ③are open. In the 45° clockwise from the center position, ports ① and ② are open while ports ③ and ④are open. All ports are partially open in transition.

FEATURES

1. Three-position detent, friction lock (with detented neutral), or spring return operators may be ordered separately.
2. May be fully pressurized at all ports.
3. Optional lock-down bracket.
4. Heavy-duty construction.
5. Industry common cavity.

RATINGS

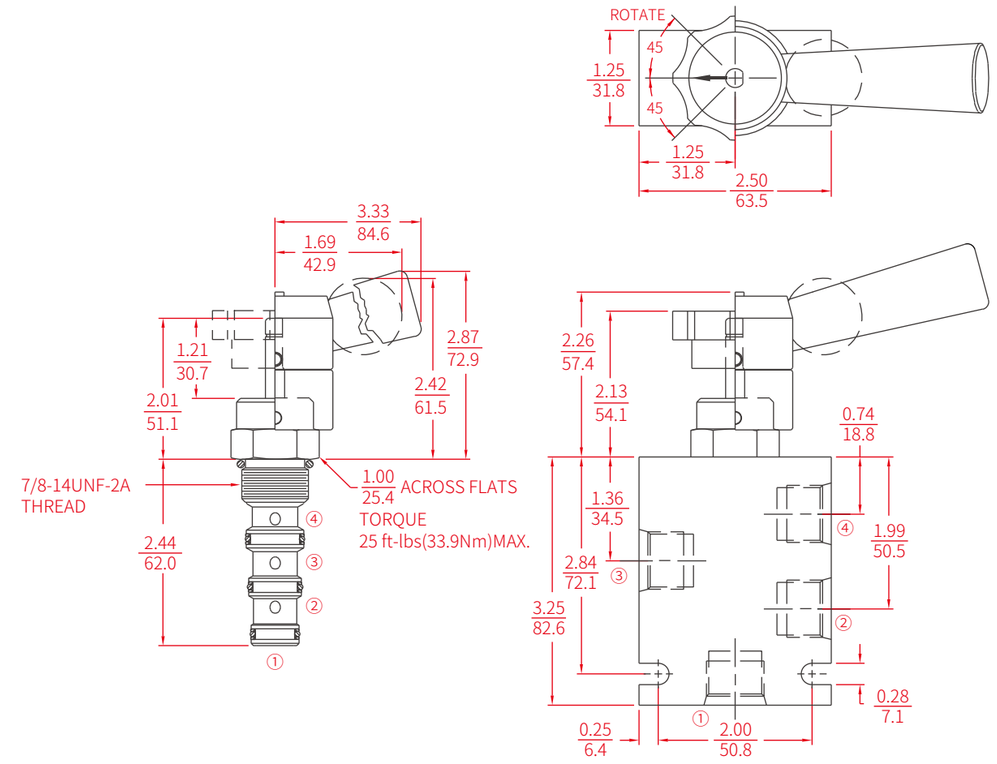
Operating Pressure: 240 bar (3500 psi)
Flow: See Performance Chart
Internal Leakageat: 164 ml/min. max (10 cu. in./minute) at 240 bar (3500 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-4; See page 302

MATERIAL

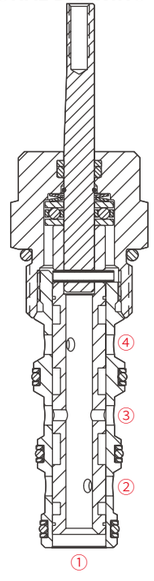
Cartridge: Weight: 0.13kg. (0.29 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal ring.
Standard Ported Body: Weight: 0.34 kg. (0.75 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Lever-Type Handle: (Sold Separately): Weight: 0.18 kg. (0.38 lbs.);
Steel with hardened work surfaces. Zinc-plated exposed surfaces.
Plastic lever arm.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

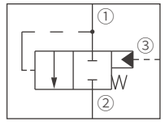
IMR10 - 47B - ___ ___ ___ - ___

Porting		Seals	
Cartridge Only	**0**	**N**	Buna-N (Std.)
SAE 6	**6T**	**V**	Fluorocarbon
SAE 8	**8T**		
SAE 8，with Lock-Down Bracket	**8TL**		
1/4 INCH BSP	**2B**		
3/8 INCH BSP	**3B**		

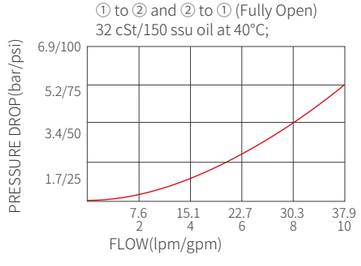
DIRECTIONAL VALVE

IEP08-35
PILOTED LOGIC ELEMENT VALVE

SYMBOL



PERFORMANCE (Cartridge Only)



DESCRIPTION

A spool-type, screw-in, cartridge-style, hydraulic directional element, with multifunction potential when used with other directional, pressure, or flow control devices.

OPERATION

The IEP08-35 is a spring-biased blocking valve that spool will shift to allow full flow from ① to ② only when the pressure at ① exceeds the cumulative pressure of ③, plus the bias spring pressure value. IEP08-35 is a pilot-to-close directional valve.
With no pressure at ③, the flow will be allowed from ① to ② once the bias spring force is overcome with pressure at ①.

FEATURES

1. Multiple function/Application potential.
2. Low pressure drop.
3. Industry common cavity.
4. Compact size.

RATINGS

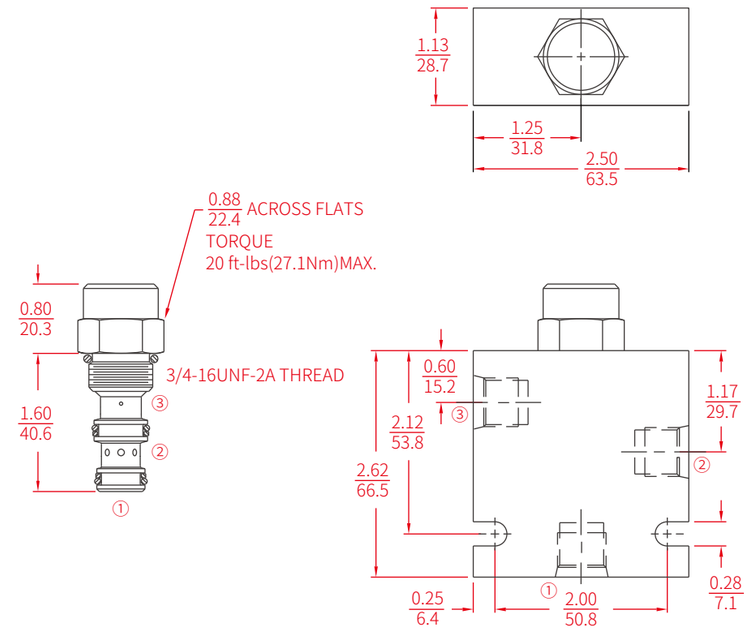
Operating Pressure: 240 bar (3500 psi)
Flow: See Performance Chart
Internal Leakage: 115 ml/min. max (7 cu. in./minute) at 345 bar (5000 psi)
Bias Springs: See the Ordering code on the right
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 o 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-3; See page 298

MATERIAL

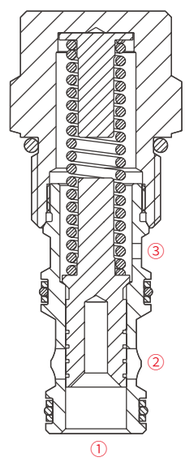
Cartridge: Weight: 0.11kg. (0.25 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal ring.
Ported Body: Weight: 0.64 kg. (1.4 lbs.); Steel with zinc-plated exposed surfaces (code "S");
Or Ductile Iron (code "D") standard; rated to 345 bar(5000 psi).
Ported Body: Weight: 0.36 kg. (0.80 lbs.); Anodized highstrength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

IEP08 - 35 - ___ - ___ - ___

Porting	
Cartridge Only	**0**
SAE 6 (Ductile)	**6TD**
SAE 6 (Steel)	**6TS**
SAE 6 (Alum.)	**6T**

Note: Aluminum body rated for 240 bar (3500 psi) max.

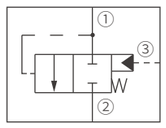
Seals	
N	Buna-N (Std.)
V	Fluorocarbon

Bias Spring	
10	0.7 bar (10 psi)
40	2.8 bar (40 psi)
80	5.5 bar (80 psi)
110	7.6 bar (110 psi)
150	10.3 bar (150 psi)

DIRECTIONAL VALVE

IEP10-S35
PILOTED LOGIC ELEMENT VALVE

SYMBOL



DESCRIPTION

A spool-type, screw-in, cartridge-style, hydraulic directional element, with multifunction potential when used with other directional, pressure, or flow control devices.

OPERATION

The IEP10-S35 is a spring-biased blocking valve that spool will shift to allow full flow from ① to ② only when the pressure at ① exceeds the cumulative pressure of ③, plus the bias spring pressure value. IEP10-S35 is a pilot-to-close directional valve.
With no pressure at ③, the flow will be allowed from ① to ② once the bias spring force is overcome with pressure at ①.

FEATURES

1. Multiple function/Application potential.
2. Low pressure drop.
3. Industry common cavity.

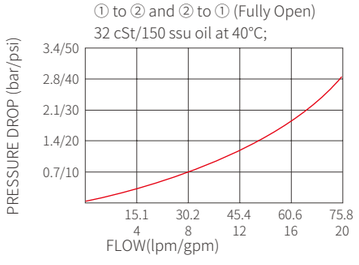
RATINGS

Operating Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 164 ml/min. max (10 cu. in./minute) at 207 bar (3000 psi)
Bias Springs: See the Ordering code on the right
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-S3; See page 304

MATERIALS

Cartridge: Weight: 0.15kg. (0.32 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal ring.
Standard Ported Body: Weight: 0.32 kg. (0.70 lbs.); Anodized highstrength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron (8TD) and Steel (8TS) bodies are available for pressures up to 350 bar (5000 psi); Weight and dimensions may differ.
Consult Inno.

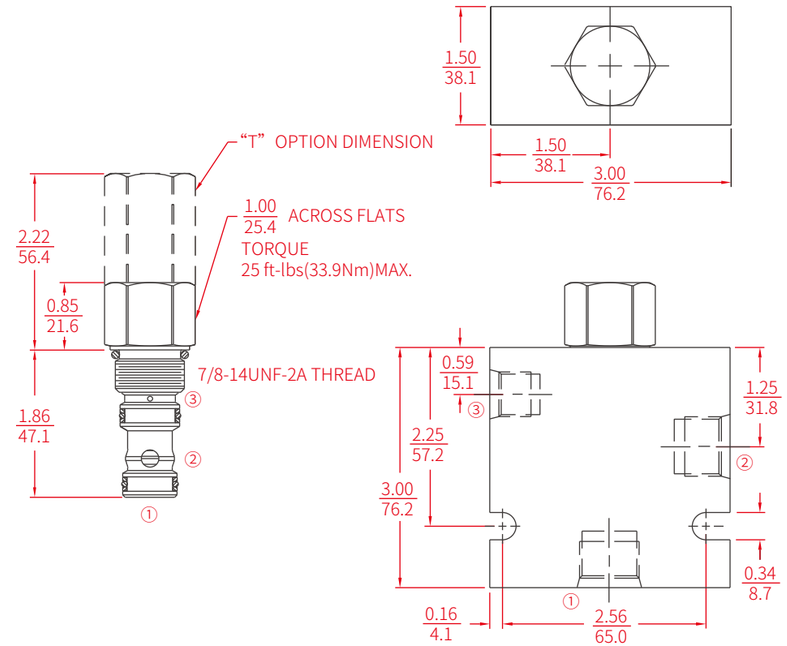
PERFORMANCE (cartridge only)



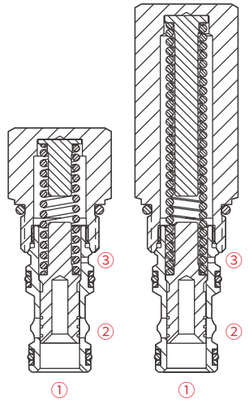
DIMENSION

INCH / MM

ORIFICE DISC CANNOT BE USED WITH THIS PRODUCT



SECTIONAL DRAWING



TO ORDER

IEP10 - S35 ___ - ___ ___ ___ - ___ - ___ ___ ___

Options
None **BLANK**
Tall Cap **T**

Porting
Cartridge Only **0**
SAE 8* **8T**
Steel SAE 8* **8TS**
Ductile Cast Iron SAE 8* **8TD**
SAE 10* **10T**
SAE 12* **12T**

*SAE 6 pilot port
Ductile iron (8TD) and Steel (8TS) bodies are available for pressures up to 350 bar (5000 psi).

Seals
N Buna-N (Std.)
V Fluorocarbon

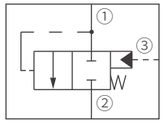
Bias Spring
10 0.7 bar (10 psi)
40 2.8 bar (40 psi)
80 5.52 bar (80 psi)
110 7.6 bar (110 psi)
‡ **160** 11.0 bar (160 psi)
‡ **230** 15.9 bar (230 psi)

‡ Note: "T" option required
Note: 110 psi bias spring is the minimum required for use with sealed spool.

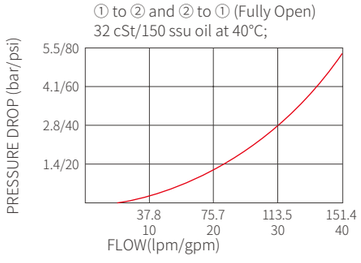
DIRECTIONAL VALVE

IEP12-S35
PILOTED LOGIC ELEMENT VALVE

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION

A spool-type, screw-in, cartridge-style, hydraulic directional element, with multifunction potential when used with other directional, pressure, or flow control devices.

OPERATION

The IEP12-S35 is a spring-biased blocking valve that spool will shift to allow full flow from ① to ② only when the pressure at ① exceeds the cumulative pressure of ③, plus the bias spring pressure value. IEP12-S35 is a pilot-to-close directional valve.
With no pressure at ③, the flow will be allowed from ① to ② once the bias spring force is overcome with pressure at ①.

FEATURES

1. Multiple function/ Application potential.
2. Low pressure drop.
3. Industry common cavity.
4. Manual override option available with 80 psi spring only.

RATINGS

Operating Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 131 ml/min. max (8 cu. in./minute) at 350 bar (5100 psi)
Bias Springs: See the Ordering code on the right
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-S3; See page 304

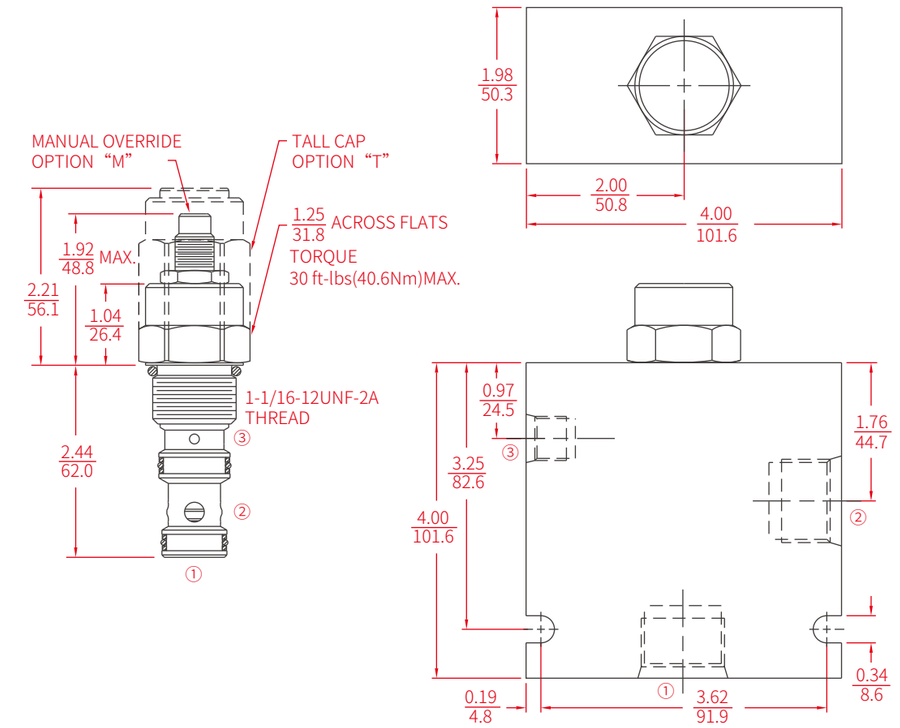
MATERIALS

Cartridge: Weight: 0.23kg. (0.5 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal ring.
Standard Ported Body: Weight: 1.13 kg. (2.50 lbs.); Anodized highstrength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi.
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

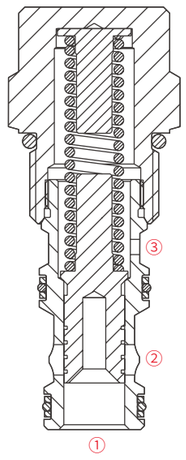
DIMENSION

INCH / MM

ORIFICE DISC CANNOT BE USED WITH THIS PRODUCT



SECTIONAL DRAWING



TO ORDER

IEP12 - S35 ___ - ___ ___ ___ - ___ - ___ ___ ___

Options
None **BLANK**
Tall Cap **T**
Manual Override **M**
Manual override only available for 80 psi springs.

Porting
Cartridge Only **0**
SAE 12* **12T**
*SAE 6 pilot port

Seals
N Buna-N (Std.)
V Fluorocarbon

Bias Spring
10 0.7 bar (10 psi)
80 5.52 bar (80 psi)
100 7 bar (100 psi)
‡ **160** 11.0 bar (160 psi)
‡ **240** 16.5 bar (240 psi)
‡ Note: "T" option required

流量控制阀
Flow Control Valve

FLOW CONTROL VALVE

VALZOOM® 珐隽 FLOW CONTROL VALVE SERIES INCLUDES NEEDLE VALVE, FLOW CONTROL VALVE, PRESSURE COMPENSATED FLOW REGULATOR, FLOW DIVIDER/COMBINER, ETC.

FLOW CONTROL VALVE HAVE POSITIVE-BLOCKING AND LINEAR REGULATION, AND PROVIDES MODELS WITH FLOW UP TO 129 LPM (34 GPM).

NEEDLE VALVE HAS MANUAL OVERRIDE OPTIONS TO REALIZE POSITIVE-BLOCKING AND LINEAR REGULATION, AND PROVIDE MODELS WITH FLOW UP TO 113 LPM (30 GPM).

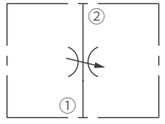
PRESSURE COMPENSATED FLOW REGULATOR CAN REALIZE THE ACCURATE CONTROL FROM ZERO FLOW TO THE MAXIMUM FULL FLOW OF 80 LPM (21 GPM).

FLOW DIVERTER / COMBINER CAN MAINTAIN THE PROPORTION OF FLOW CIRCUIT REGARDLESS OF WORKING PRESSURE IN SYSTEM. IT CAN PROVIDE MODELS WITH FLOW UP TO 150 LPM (40 GPM).

FLOW CONTROL VALVE

INV08-20A
NEEDLE VALVE

SYMBOL



DESCRIPTION
A screw-in, cartridge-style, variable orifice, hydraulic flow restrictor valve.

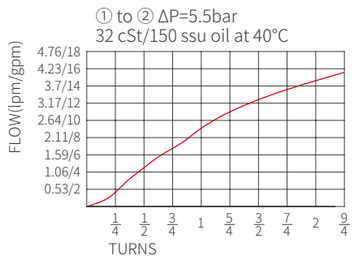
OPERATION
The INV08-20A increases its orifice value from fully closed to fully open with counterclockwise adjustment rotation.

FEATURES
1. Adjustments cannot be backed out of the valve.
2. Hardened parts for long life.
3. Aluminum knob option.
4. Positive shut-off.
5. Linear adjustment.
6. Compact size.

RATINGS
Operating Pressure: 250 bar (3600 psi)
Flow: 42 lpm (11 gpm) nominal at 7 bar (100 psi) differential at full open 3.5turns
Internal Leakage: Zero leakage at shut-off
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-2; See page 297

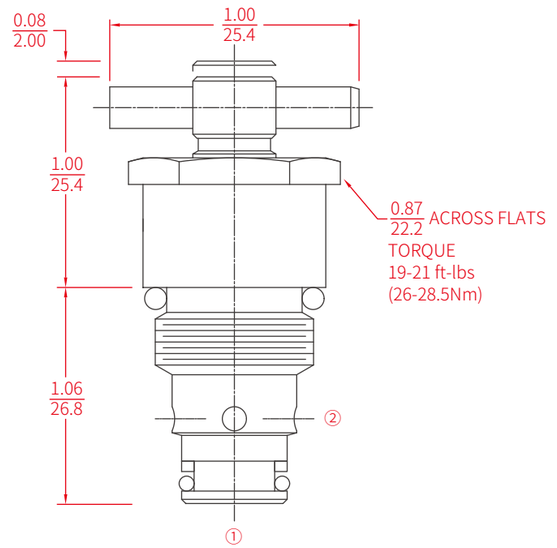
MATERIALS
Cartridge: Weight: 0.10 kg. (0.23 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings; Anodized aluminum knobs.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

PERFORMANCE (cartridge only)

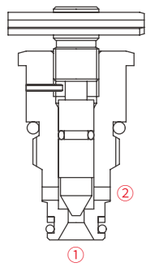


DIMENSION

INCH
MM



SECTIONAL DRAWING



TO ORDER

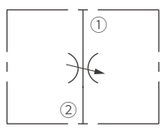
INV08 - 20A - ___ ___ ___ - ___

Porting		**Seals**	
Cartridge Only	**0**	**N**	Buna-N (Std.)
SAE4	**4T**	**V**	Fluorocarbon
SAE6	**6T**		
G1/4	**2G**		
G3/8	**3G**		

FLOW CONTROL VALVE

INV08-20
NEEDLE VALVE

SYMBOL



DESCRIPTION
A screw-in, cartridge-style, variable orifice, hydraulic flow restrictor valve.

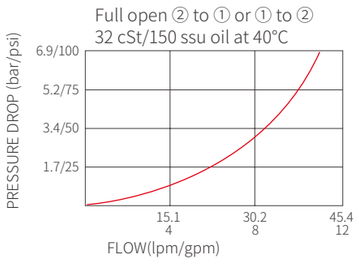
OPERATION
The INV08-20 increases its orifice value from fully closed to fully open with counterclockwise adjustment rotation.

FEATURES
1. Adjustments cannot be backed out of the valve.
2. Desired settings may be locked down.
3. Hardened parts for long life.
4. Aluminum knob option.
5. Positive shut-off.
6. Linear adjustment.
7. Compact size.

RATINGS
Operating Pressure: 250 bar (3600 psi)
Flow: 42 lpm (11 gpm) nominal at 7 bar (100 psi) differential at full open 3.5turns
Internal Leakage: 0.25 ml/min. (5 drop/minute) max. at shut-off
Adjustment Torque Required: 0.56 Nm (5 inch-pounds) at 7 bar (100 psi);
5.41 Nm (48 inch-pounds) at 207 bar (3000 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-2; See page 297

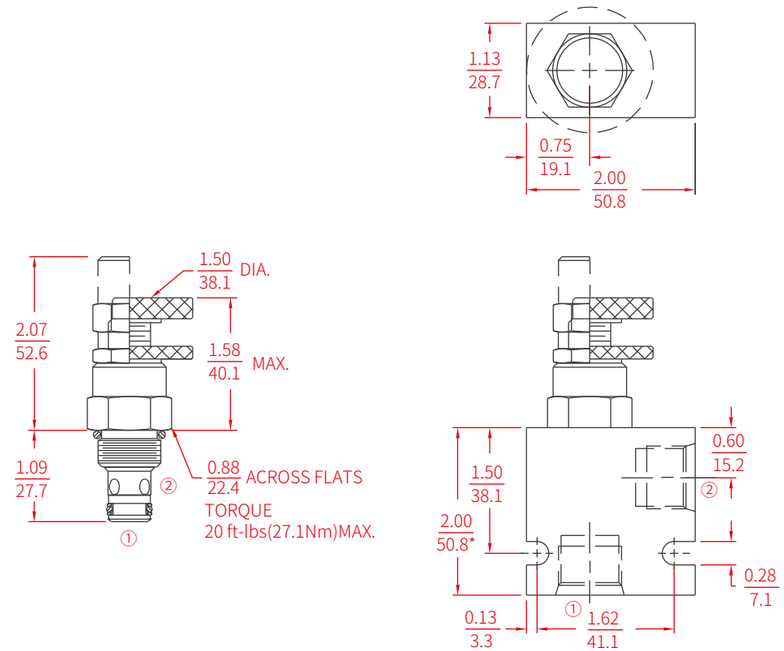
MATERIALS
Cartridge: Weight: 0.10 kg. (0.23 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings; Anodized aluminum knobs.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

PERFORMANCE (cartridge only)
Full open ② to ① or ① to ②
32 cSt/150 ssu oil at 40°C



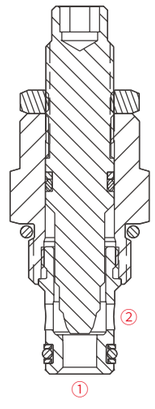
DIMENSION

INCH
MM



*BSP BODY-55.9

SECTIONAL DRAWING



TO ORDER

INV08 - 20 ___ - ___ ___ ___ - ___

Seals
N Buna-N (Std.)
V Fluorocarbon

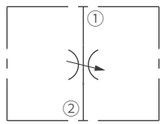
Porting
0 Cartridge Only
4T SAE4
6T SAE6
8T SAE8
2B 1/4 INCH BSP
3B 3/8 INCH BSP
4B 1/2 INCH BSP

Adjustment Option
A 1/4 in. Hex Allen Head
B 1-1/2 in. Dia. Alum. Knob
C Option A with Cover Cap
D Top Knob with Lock Nut
E Top Knob Only
L Lockwire Holes (Option A)

FLOW CONTROL VALVE

INV10-20
NEEDLE VALVE

SYMBOL



DESCRIPTION

A screw-in, cartridge-style, variable orifice, hydraulic flow restrictor valve.

OPERATION

The INV10-20 increases its orifice value from fully closed to fully open with counterclockwise adjustment rotation.

FEATURES

1. Adjustments cannot be backed out of the valve.
2. Desired settings may be locked down.
3. Hardened parts for long life.
4. Industry common cavity.
5. Aluminum knob option.
6. Positive shut-off.
7. Linear adjustment.

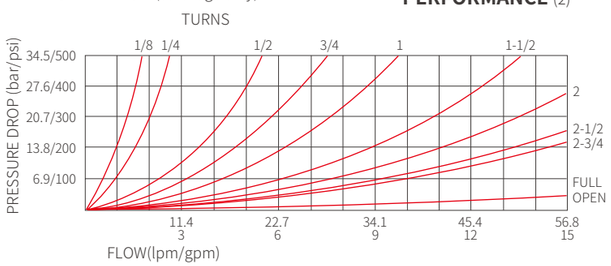
RATINGS

Operating Pressure: 250 bar (3600 psi)
Flow: 45 lpm (12 gpm) nominal at 7 bar (100 psi) differential at full open 3.5turns
Internal Leakage: 0.25 ml/min. (5 drop/minute) max. at shut-off
Adjustment Torque Required: 0.56 Nm (5 inch-pounds) at 7 bar (100 psi);
5.41 Nm (48 inch-pounds) at 207 bar (3000 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-2; See page 300

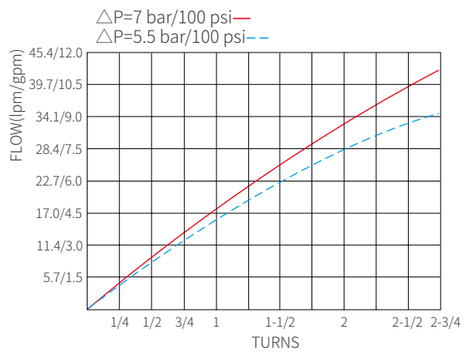
MATERIALS:

Cartridge: Weight: 0.15 kg. (0.33 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings; Anodized aluminum knobs.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

PERFORMANCE (cartridge only)

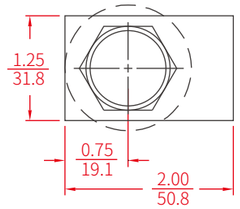


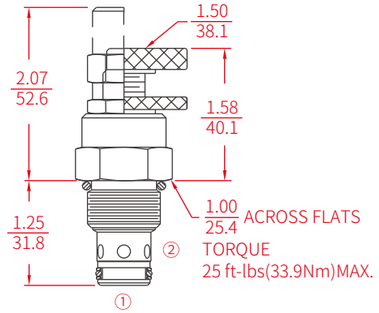
PERFORMANCE (2)

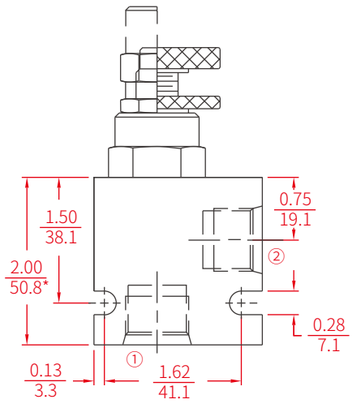


DIMENSION

INCH
MM

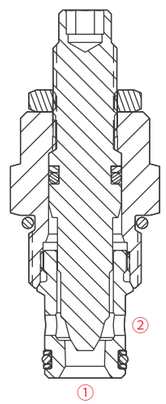






*BSP BODY-55.9

SECTIONAL DRAWING



TO ORDER

INV10 - 20 ___ - ___ ___ ___ - ___

Seals
N Buna-N (Std.)
V Fluorocarbon

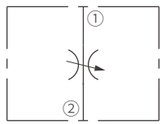
Porting
0 Cartridge Only
6T SAE6
8T SAE8
2B 1/4 INCH BSP
3B 3/8 INCH BSP
4B 1/2 INCH BSP

Adjustment Option
A 1/4 in. Hex Allen Head
B 1-1/2 in. Dia. Alum. Knob
C Option A with Cover Cap
D Top Knob with Lock Nut
E Top Knob Only
L Lockwire Holes (Option C)

FLOW CONTROL VALVE

INV12-20
NEEDLE VALVE

SYMBOL



DESCRIPTION
A screw-in, cartridge-style, variable orifice, hydraulic flow restrictor valve.

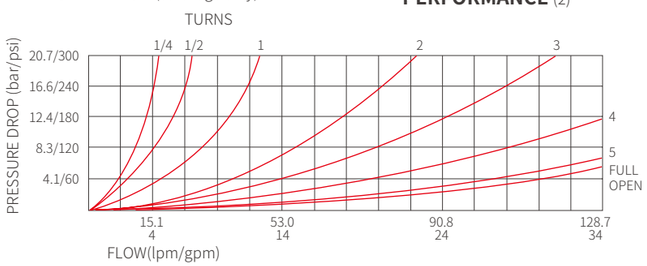
OPERATION
The INV12-20 increases its orifice value from fully closed to fully open with counter-clockwise adjustment rotation.

FEATURES
1. Adjustments cannot be backed out of the valve.
2. Desired settings may be locked down.
3. Hardened parts for long life.
4. Industry common cavity.
5. Aluminum knob option.
6. Positive shut-off.
7. Linear adjustment.

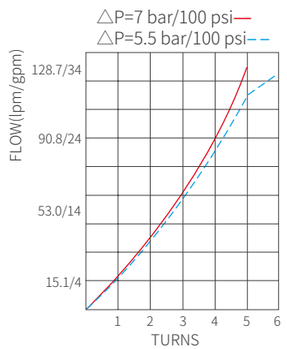
RATINGS
Operating Pressure: 250 bar (3600 psi)
Flow: 113.6 lpm (30 gpm) nominal at 7 bar (100 psi) differential at full open
4.5 turns
Internal Leakage: 0.15 ml/min. (3 drop/minute) max. at shut-off
Adjustment Torque Required: 0.17 Nm (1.5 inch-pounds) at 7 bar (100 psi);
16.9 Nm (150 inch-pounds) at 207 bar (3000 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC12-2; See page 302

MATERIALS
Cartridge: Weight: 0.20 kg. (0.45 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings; Anodized aluminum knobs.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

PERFORMANCE (cartridge only)

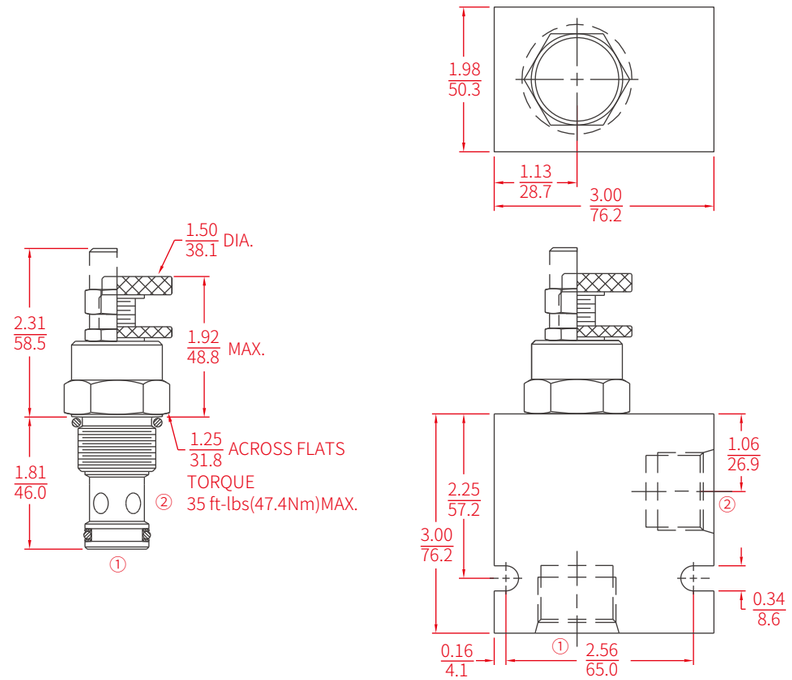


PERFORMANCE (2)

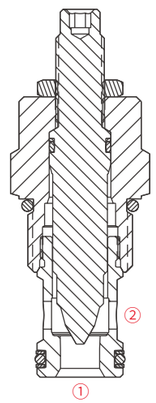


DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

INV10 - 20 ___ - ___ ___ ___ - ___

Seals
N Buna-N (Std.)
V Fluorocarbon

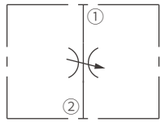
Porting
0 Cartridge Only
10T SAE10
12T SAE12
4B 1/2 INCH BSP
6B 3/4 INCH BSP
8B 1 INCH BSP

Adjustment Option
A 1/4 in. Hex Allen Head
B 1-1/2 in. Dia. Alum. Knob
C Option A with Cover Cap
D Top Knob with Lock Nut
E Top Knob Only

FLOW CONTROL VALVE

INV08-21
NEEDLE VALVE

SYMBOL



DESCRIPTION
A screw-in, cartridge-style, variable orifice, hydraulic flow restrictor valve. It is intended for applications requiring fine adjustment over multiple turns.

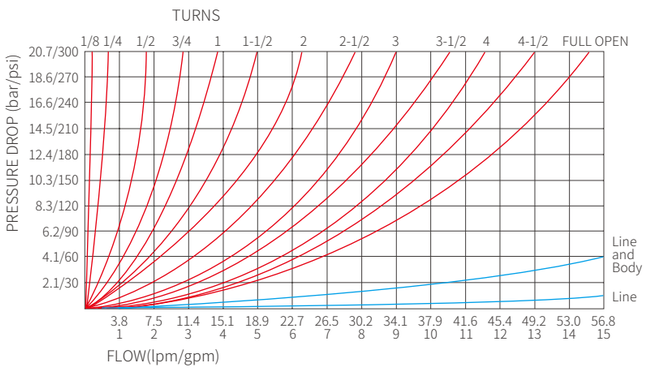
OPERATION
The INV08-21 increases its orifice value from fully closed to fully open with adjustment rotation in the counterclockwise direction. Effective adjustment is linear to eight turns.
Note: This is intended as a low-effort adjustment suitable for operation through linkage. It may be unsuitable in environments where vibration is present.

FEATURES
1. Adjustments cannot be backed out of the valve.
2. Hardened parts for long life.
3. Industry common cavity.
4. Fine/low effort adjustment.
5. Positive shut-off.
6. Linear adjustment.

RATINGS
Operating Pressure: 240 bar (3500 psi)
Flow: See Performance Chart
Internal Leakage: 0.25 ml/min. (5 drop/minute) max. at shut-off
Adjustment Torque Required: 0.34 Nm (3 inch-pounds) at 7 bar (100 psi);
0.68 Nm (6 inch-pounds) at 207 bar (3000 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-2; See page 297

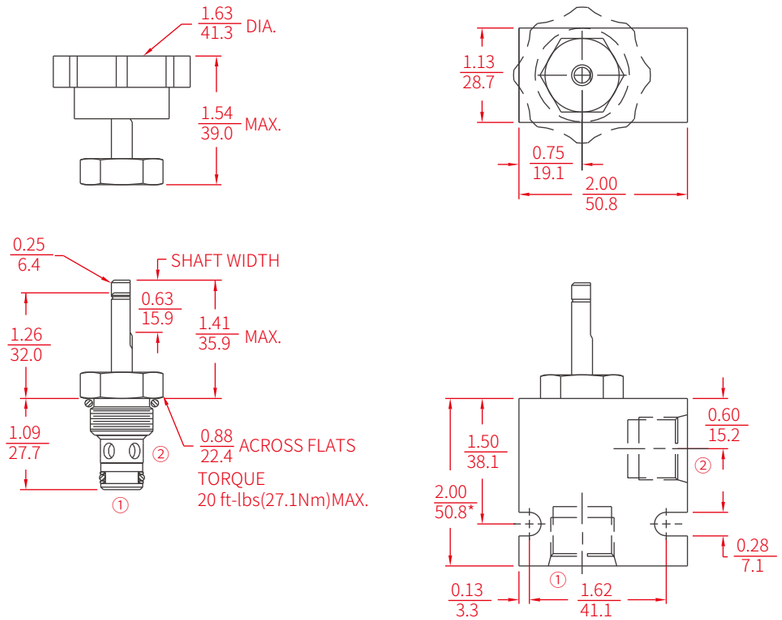
MATERIALS
Cartridge: Weight: 0.15 kg. (0.33 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings; Anodized aluminum knobs.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.

PERFORMANCE (cartridge only)



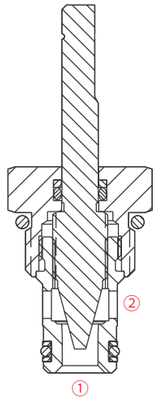
DIMENSION

INCH / MM



*BSP BODY-55.9

SECTIONAL DRAWING



TO ORDER

INV08 - 21 ___ - ___ ___ ___ - ___

Adjustment Option
Extended Shaft Only **T**
Plastic Knob **E**

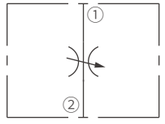
Porting
0 Cartridge Only
4T SAE 4
6T SAE 6
8T SAE 8
2B 1/4 INCH BSP
3B 3/8 INCH BSP
4B 1/2 INCH BSP

Seals
N Buna-N (Std.)
V Fluorocarbon

FLOW CONTROL VALVE

INV10-22
NEEDLE VALVE

SYMBOL



DESCRIPTION
A screw-in, cartridge-style, variable orifice, hydraulic flow restrictor valve that requires only 5-1/2 turns for full adjustment.

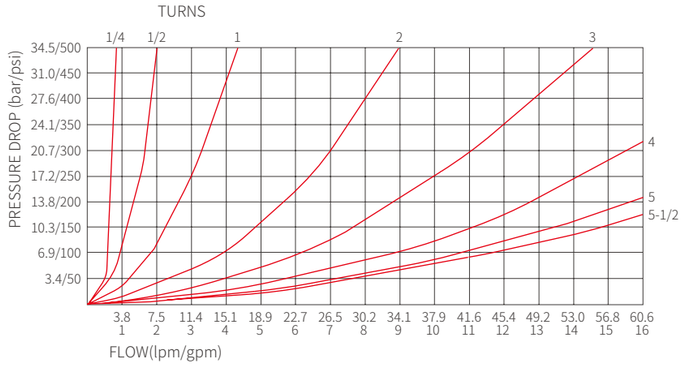
OPERATION
The INV10-22 increases its orifice value from fully closed to fully open with counterclockwise adjustment rotation. Effective adjustment is linear over the 5-1/2 turn adjustment range. Settings are lockable in any position.

FEATURES
1. Adjustments cannot be backed out of the valve.
2. Desired setting may be locked down.
3. Hardened parts for long life.
4. Industry common cavity.
5. Positive shut-off.
6. Linear adjustment.

RATINGS
Operating Pressure: 240 bar (3500 psi)
Flow: 57 lpm (15 gpm) nominal at 11 bar (160 psi) at full open 5.5 turns
Internal Leakage: 0.05 ml/min. (1 drop/minute) max. at shut-off
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-2; See page 300

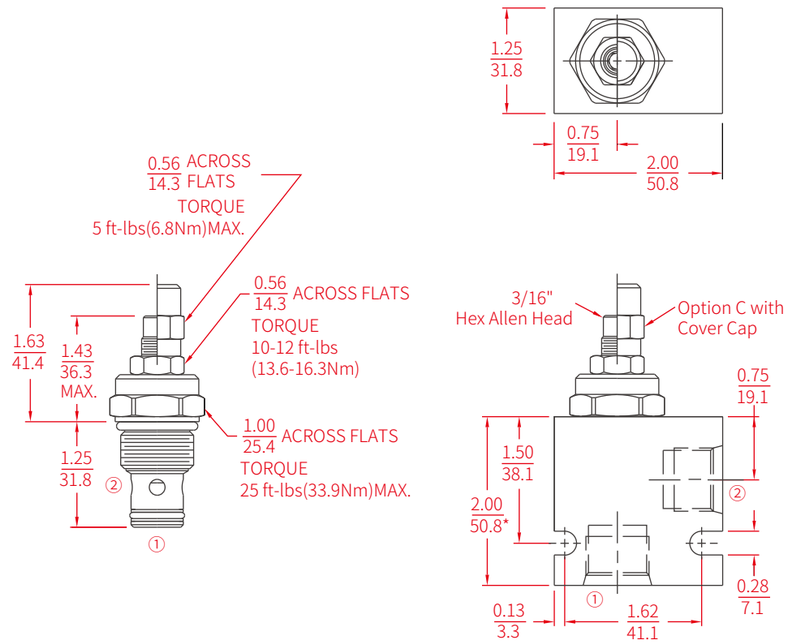
MATERIALS
Cartridge: Weight: 0.15 kg. (0.33 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings; Anodized aluminum knobs.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

PERFORMANCE (cartridge only)



DIMENSION

INCH
MM



*BSP BODY-55.9

SECTIONAL DRAWING

TO ORDER

INV12 - 22 ___ - ___ ___ ___ - ___

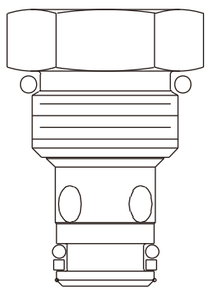
Seals
N Buna-N (Std.)
V Fluorocarbon

Porting
0 Cartridge Only
6T SAE6
8T SAE8
2B 1/4 INCH BSP
3B 3/8 INCH BSP

Adjustment Option
A 3/16 in. Hex Allen Head
C Option A with Cover Cap

FLOW CONTROL VALVE

IFC08-20F
RESTRICTOR CHECK VALVE



DESCRIPTION
A screw-in, cartridge-style, restrictor check valve.

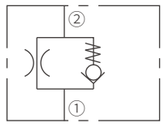
OPERATION
The IFC08-20F acts as a restrictor in the ② to ① direction. As a check valve it provides free flow from ① to ②.

FEATURES
1. Hardened spool and cage for long life.
2. Industry-common cavity.

RATINGS
Operating Pressure: 240 bar (3500 psi)
Flow: See Performance Chart
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-2; See page 297

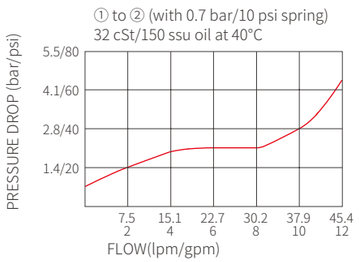
MATERIALS
Cartridge: Weight: 0.10 kg. (0.23 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings; Anodized aluminum knobs.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

SYMBOL



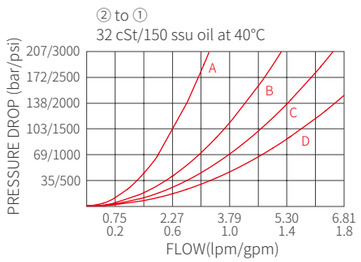
PERFORMANCE (cartridge only)

① to ② (with 0.7 bar/10 psi spring)
32 cSt/150 ssu oil at 40°C



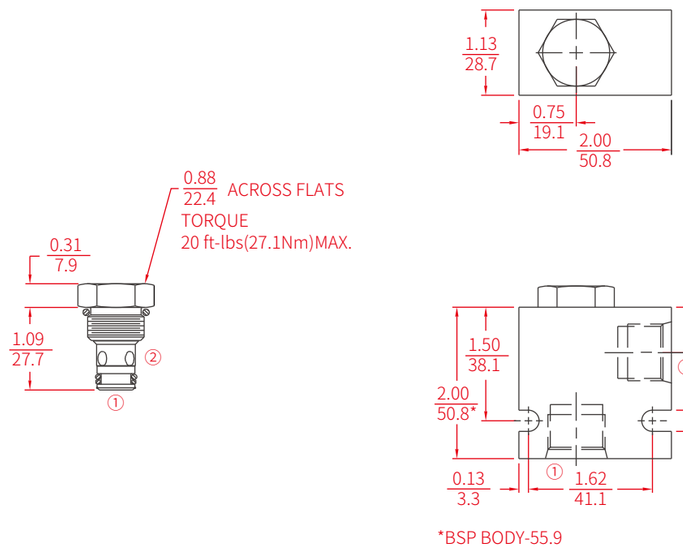
PERFORMANCE (2)

② to ①
32 cSt/150 ssu oil at 40°C



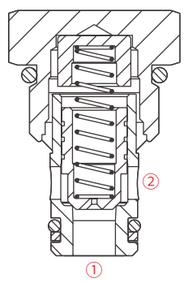
DIMENSION

INCH
MM



*BSP BODY-55.9

SECTIONAL DRAWING



TO ORDER

IFC08 - 20F - ___ ___ - ___ - ___ - ___

Porting	
Cartridge Only	**0**
SAE 4	**4T**
SAE 6	**6T**
SAE 8	**8T**
1/4 INCH BSP	**2B**
3/8 INCH BSP	**3B**
1/2 INCH BSP	**4B**

Seals	
Buna-N (Std.)	**N**
Fluorocarbon	**V**

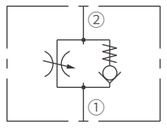
Equivalent Orifice Size	
A	0.025 INCH
B	0.033 INCH
C	0.036 INCH
D	0.040 INCH
E	0.053 INCH
F	0.056 INCH
G	0.047 INCH

Bias Spring
10 0.7 bar (10 psi), Std.
Optional Bias Springs considered on OEM request.

FLOW CONTROL VALVE

IFC10-20
RESTRICTOR CHECK VALVE

SYMBOL



DESCRIPTION

A screw-in, cartridge-style, variable orifice, hydraulic flow control valve with reverse flow check.

OPERATION

The IFC10-20 increases its orifice value from fully closed to fully open with counterclockwise adjustment rotation.

FEATURES

1. Adjustments cannot be backed out of the valve.
2. Desired setting may be locked down.
3. Hardened parts for long life.
4. Industry common cavity.
5. Aluminum knob option.
6. Positive shut-off.
7. Linear adjustment.

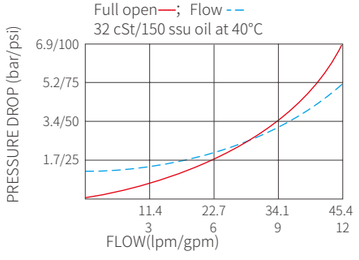
RATINGS

Operating Pressure: 240 bar (3500 psi)
Flow: 45 lpm (12 gpm) nominal at 7 bar (100 psi) at full open 3 turns
Internal Leakage: 0.50 ml/min. (10 drop/minute) max. at shut-off
Adjustment Torque Required: 0.34 Nm (3 inch-pounds) at 7 bar (100 psi);
4.50 Nm (40 inch-pounds) at 207 bar (3000 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-2; See page 300

MATERIALS

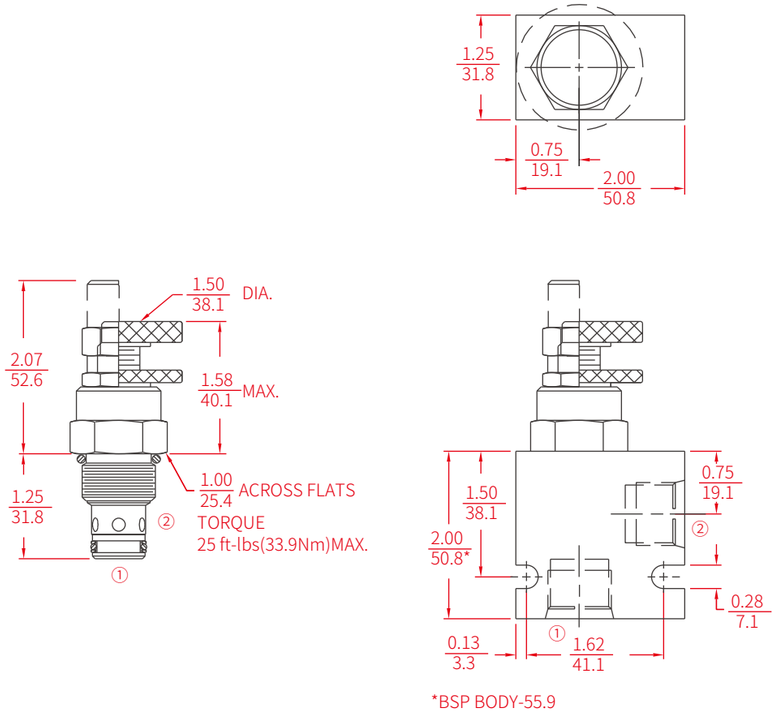
Cartridge: Weight: 0.17 kg. (0.37 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings; Anodized aluminum knobs.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

PERFORMANCE (cartridge only)



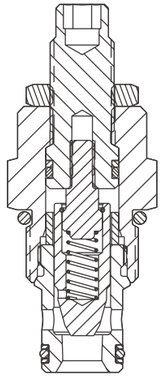
DIMENSION

INCH
MM



*BSP BODY-55.9

SECTIONAL DRAWING



TO ORDER

IFC10 - 20 - ___ - ___ ___ ___ - ___

Seals
N Buna-N (Std.)
V Fluorocarbon

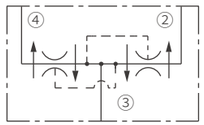
Porting
0 Cartridge Only
6T SAE6
8T SAE8
2B 1/4 INCH BSP
3B 3/8 INCH BSP
4B 1/2 INCH BSP

Adjustment Option
A 1/4 in. Hex Allen Head
B 1-1/2 in. Dia. Alum. Knob
C Option A with Cover Cap
D Top Knob with Lock Nut
E Top Knob Only

FLOW CONTROL VALVE

IFD50-45
FLOW DIVIDER/COMBINER

SYMBOL



DESCRIPTION

A heavy duty, multifunction, screw-in, cartridge-style, spool-type flow divider/-combiner.

OPERATION

In the dividing mode, the IFD50-45 will divert input flow from port ③ to ports ② and ④, based on the ratio specified, regardless of operating pressure. When the flow direction is reversed the valve will combine flows from ② and ④ to port ③. Synchronizing flow is provided in both the dividing and combining modes at "bottomed" conditions in cylinder applications and at "stalled" conditions in motor applications.

FEATURES

1. Hardened parts for long life.
2. Quiet, modulated response.
3. Wide operating flow range.
4. Synchronizing in dividing and combining modes.
5. Floating cage — High installation torque.
6. Industry common cavity.

RATINGS

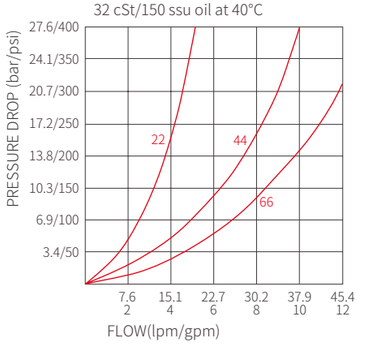
Operating Pressure: 345 bar (5000 psi)
Flow: See the ordering code in the right
Flow Accuracy: 10% from 25 to 100% of maximum rated flow
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-4; See page 302

MATERIALS

Cartridge: Weight: 0.10 kg. (0.23 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Special Ported Body: Weight: 0.34 kg. (0.75 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Note: Ductile iron and steel bodies are required for operation over 240 bar (3500 psi).
Dimensions may differ; Consult Inno.

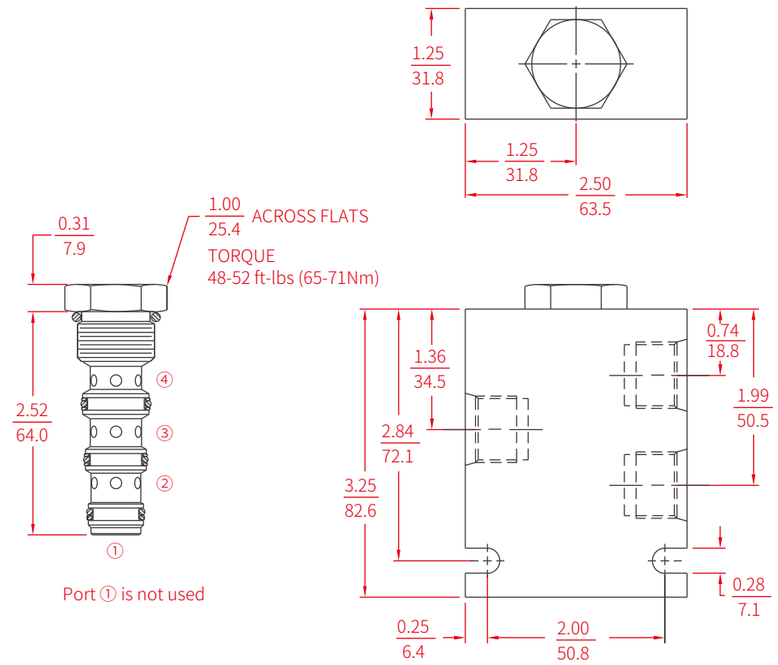
PERFORMANCE (cartridge only)

Pressure drop VS. Inlet flow ③ to ② and ④
32 cSt/150 ssu oil at 40°C



DIMENSION

INCH / MM



SECTIONAL DRAWING

TO ORDER

IFD50 - 45 - ___ ___ ___ - ___ - ___ ___

Dividing/Combining Ratio 50:50
22 15.1 lpm (4 gpm)
33 22.7 lpm (6 gpm)
44 34.1 lpm (9 gpm)
66 45.4 lpm (12 gpm)
NOTE: Additional ratios or input flow sizings available for OEM applications. Consult Inno.

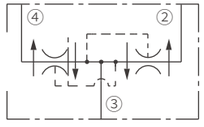
Seals
N Buna-N (Std.)
V Fluorocarbon

Special Ported Bodies
0 Cartridge Only
6T SAE 6 (all ports)
SAE 8 (port ③);
8D SAE 6 (ports ②&④)
2B 1/4 in. BSP (all ports)
3B 3/8 in. BSP (all ports)
1/2 in. BSP (port ③)
5B 3/8 in. BSP (ports ②&④)

FLOW CONTROL VALVE

IFD52-45
FLOW DIVIDER/COMBINER

SYMBOL



DESCRIPTION

A heavy duty, multifunction, screw-in, cartridge-style, spool-type flow divider/-combiner.

OPERATION

In the dividing mode, the IFD52-45 will divert input flow from port ③ to ports ② and ④, based on the ratio specified, regardless of operating pressure. When the flow direction is reversed the valve will combine flows from ② and ④ to port ③. Synchronizing flow is provided in both the dividing and combining modes at "bottomed" conditions in cylinder applications and at "stalled" conditions in motor applications.

FEATURES

1. Hardened parts for long life.
2. Quiet, modulated response.
3. Wide operating flow range.
4. Synchronizing in dividing and combining modes.
5. Floating cage — High installation torque.
6. Industry common cavity.

RATINGS

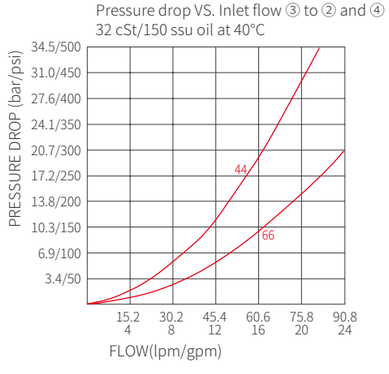
Operating Pressure: 345 bar (5000 psi)
Flow: See the ordering code in the right
Flow Accuracy: 10% from 25 to 100% of maximum rated flow
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC12-4; See page 304

MATERIALS

Cartridge: Weight: 0.28 kg. (0.61 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Special Ported Body: Weight: 1.50 kg. (3.30 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Note: Ductile iron and steel bodies are required for operation over 240 bar (3500 psi).
Dimensions may differ; Consult Inno.

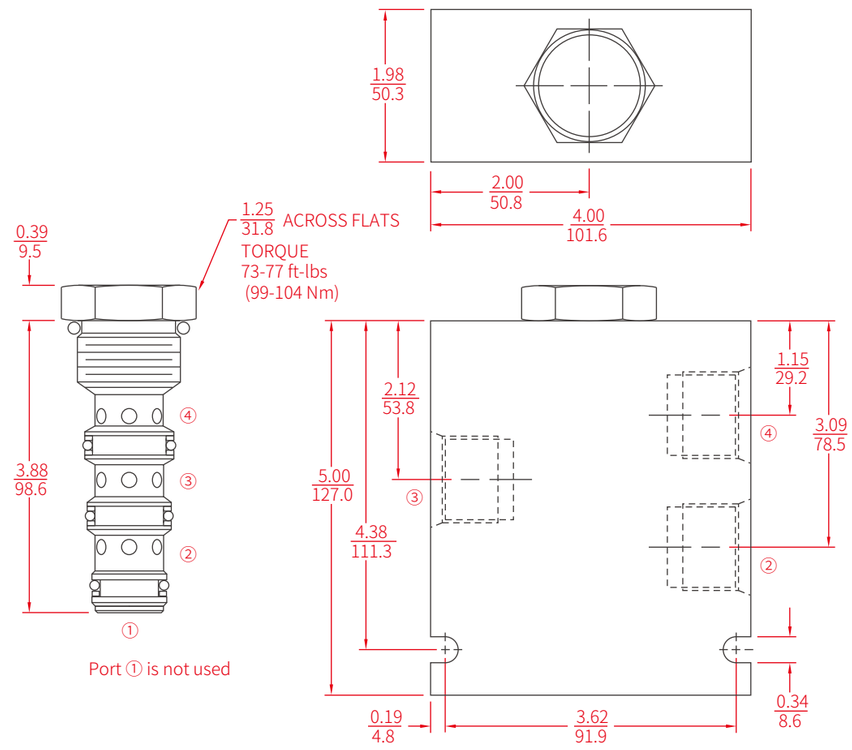
PERFORMANCE (cartridge only)

Pressure drop VS. Inlet flow ③ to ② and ④
32 cSt/150 ssu oil at 40°C



DIMENSION

INCH / MM



SECTIONAL DRAWING

TO ORDER

IFD52 - 45 - ___ ___ ___ - ___ - ___ ___

Special Porting Body
Cartridge Only **0**
SAE 10 **10T**
SAE 12 **12T**

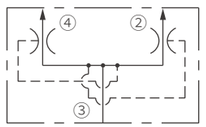
Dividing/Combining Ratio 50:50
44 34.1 lpm (9 gpm)
66 45.4 lpm (12 gpm)
NOTE: Additional ratios or input flow sizings available for OEM applications. Consult Inno.

Seals
N Buna-N (Std.)
V Fluorocarbon

FLOW CONTROL VALVE

IFD56-45
FLOW DIVIDER/COMBINER

SYMBOL



DESCRIPTION
A heavy duty, multifunction, screw-in, cartridge-style, spool-type flow divider/-combiner.

OPERATION
In the dividing mode, the IFD56-45 will divert input flow from port ③ to ports ② and ④, based on the ratio specified, regardless of operating pressure. When the flow direction is reversed the valve will combine flows from ② and ④ to port ③. Synchronizing flow is provided in both the dividing and combining modes at "bottomed" conditions in cylinder applications and at "stalled" conditions in motor applications.

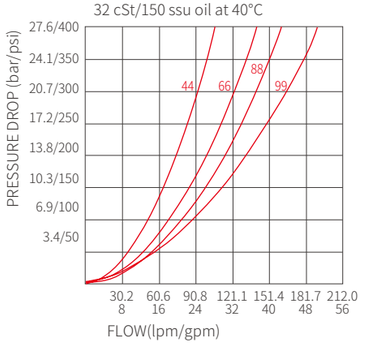
FEATURES
1. Hardened parts for long life.
2. Quiet, modulated response.
3. Wide operating flow range.
4. Synchronizing in dividing and combining modes.
5. Floating cage — High installation torque.
6. Industry common cavity.

RATINGS
Operating Pressure: 345 bar (5000 psi)
Flow: See the ordering code in the right
Flow Accuracy: 10% from 25 to 100% of maximum rated flow
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC16-4; See page 305

MATERIALS
Cartridge: Weight: 0.36 kg. (0.80 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.
Special Ported Body: Weight: 1.50 kg. (3.30 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Note: Ductile iron and steel bodies are required for operation over 240 bar (3500 psi).
Dimensions may differ; Consult Inno.

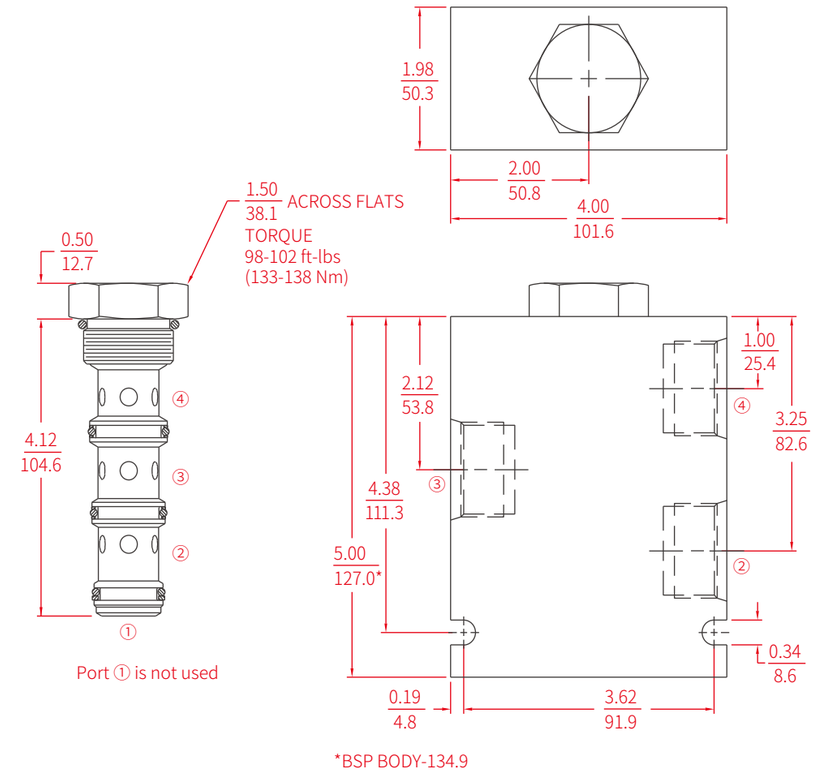
PERFORMANCE (cartridge only)

Pressure drop VS. Inlet flow ③ to ② and ④
32 cSt/150 ssu oil at 40°C



DIMENSION

INCH / MM



*BSP BODY-134.9

SECTIONAL DRAWING

TO ORDER

IFD56 - 45 - ___ ___ ___ - ___ - ___

Dividing/Combining Ratio 50:50
44 98.4 lpm (26 gpm)
66 128.7 lpm (34 gpm)
88 167 lpm (44 gpm)
99 197 lpm (52 gpm)
NOTE: Additional ratios or input flow sizings available for OEM applications. Consult Inno.

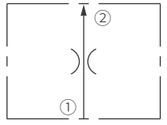
Special Ported Bodies
0 Cartridge Only
12T SAE 12 (all ports)
SAE 12 (port ②&④);
16D SAE 16 (ports ③)
16T SAE 16 (all ports)
6B 3/4 in. BSP (all ports)
3/4 in. BSP (port ②&④)
7B 1 in. BSP (port ③)
8B 1 in. BSP (all ports)

Seals
N Buna-N (Std.)
V Fluorocarbon

FLOW CONTROL VALVE

IFR08-20F
FLOW FREGULATOR
PRESSURE-COMPENSATED

SYMBOL



DESCRIPTION
A screw-in, cartridge-style, fixed orifice, pressure-compensated, hydraulic flow regulating valve (restrictive type).

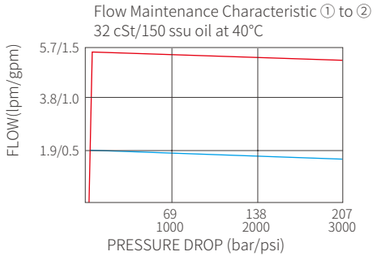
OPERATION
The IFR08-20F maintains a constant flow rate out of ② regardless of load pressure changes in the circuit downstream of ②. The fixed control orifice is factory preset to customer flow specification. The valve begins to respond to load changes when the flow through the valve creates a pressure differential across the control orifice greater than 5.5 bar (80 psi), with accurate flow maintenance from 7.6 to 240 bar (110 to 3500 psi). Reverse flow (from ② to ①) returns through the control orifice and is non-compensated.

FEATURES
1. Hardened parts for long life.
2. Quiet, modulated response.
3. Compact size.

RATINGS
Operating Pressure: 240 bar (3500 psi)
Flow: See the ordering code in the right
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-2; See page 297

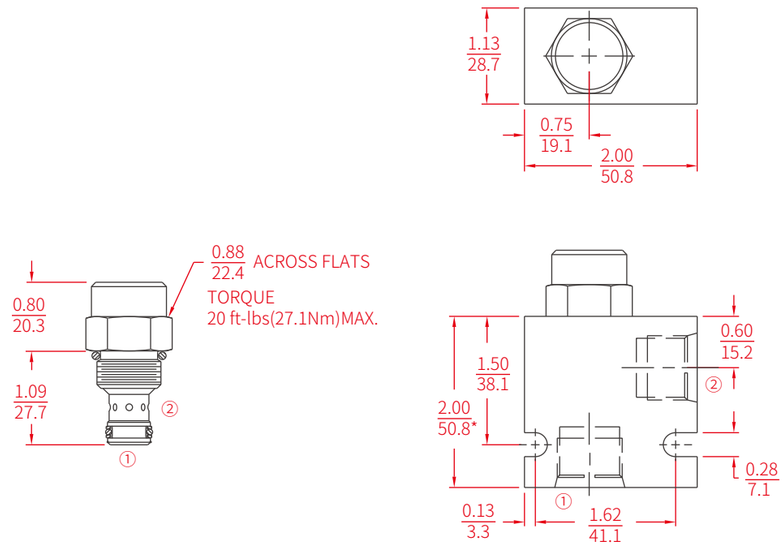
MATERIALS
Cartridge: Weight: 0.07 kg. (0.15 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

PERFORMANCE (cartridge only)



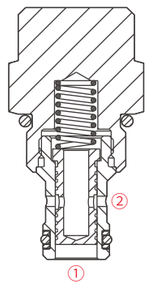
DIMENSION

INCH / MM ORIFICE DISC CANNOT BE USED WITH THIS PRODUCT



*BSP BODY-55.9

SECTIONAL DRAWING



TO ORDER

IFR08 - 20F - ___ ___ ___ - ___ - / ____

Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Priority Flow Setting in lpm
Range: 0.2 to 7.5 lpm;
Specify, for example:
M1.8 1.8 lpm
M5.0 5.0 lpm
etc.

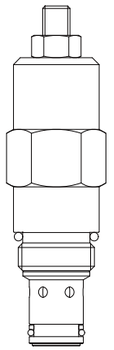
Priority Flow Setting in gpm
Range: 0.05 to 2.0 gpm;
Specify, for example:
1.3 1.3 gpm
2.0 2.0 gpm
etc.

Priority Flow Drill Size Method
In thousandths of an inch;
Specify, for example:
D030 0.030 in. control orifice hole
etc.
Note: Minimum drill diameter is 0.020 in.
For smaller orifice sizes consult Inno.

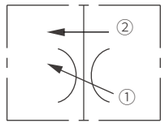
Note: Compensator spring values maybe varied for OEM application to provide various differential pressure/output flow relationships. Consult Inno.

FLOW CONTROL VALVE

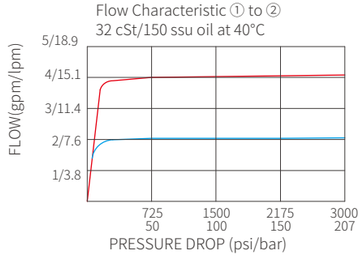
IFRA10
FLOW FREGULATOR
PRESSURE-COMPENSATED



SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION

A screw-in, cartridge-style, pressure-compensated, hydraulic flow regulating valve.

OPERATION

The IFRA10 maintains the flow rate out of② in an accurate range regardless of load pressure changes of①. The valve begins to respond to load changes through pressure compensation when the flow goes through the fixed control orifice, creating a pressure differential, with accurate flow maintenance in the rated range. Reverse flow (② to ①) is non-compensated.

FEATURES

1. Hardened parts for long life.
2. Quiet, modulated response.
3. Lockable adjustments.
4. Industry common cavity.

RATINGS

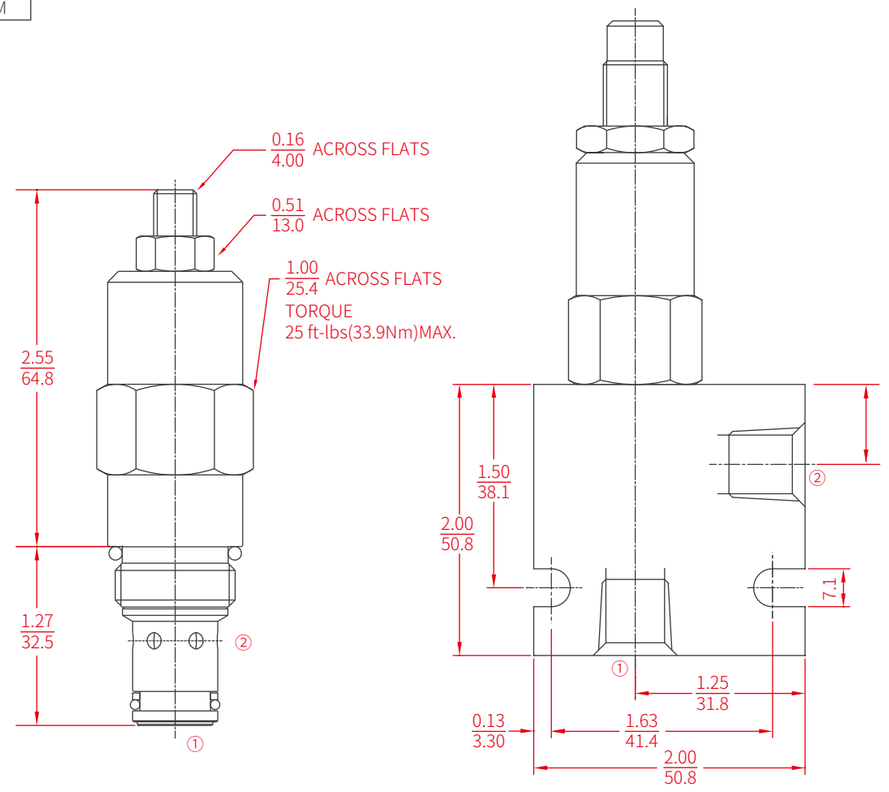
Operating Pressure: 240 bar (3500 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Flow Maintenance: ±15%
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-2; See page 300

MATERIALS

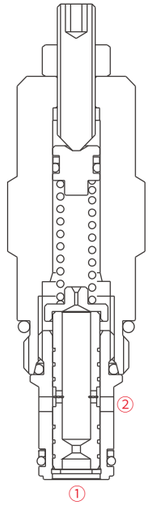
Cartridge: Weight: 0.19 kg. (0.42 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Anodized aluminum knobs.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

IFRA10 - ___ ___ - ___ ___ - ___

Seals
N Buna-N (Std.)
V Fluorocarbon

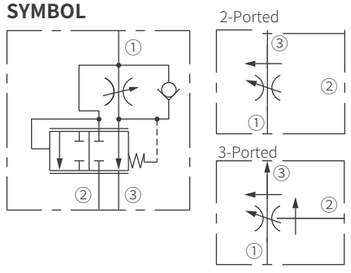
Porting
0 Cartridge
6T Only
8T SAE6
2B SAE8
3B 1/4 INCH BSP
3/8 INCH BSP

Flow Range (L/min.)
M4.6 3-10
M16 11-26

FLOW CONTROL VALVE

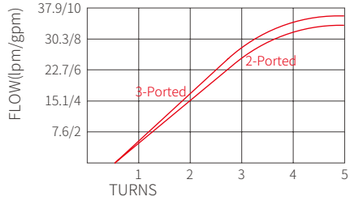
IFR10-39
FLOW FREGULATOR
PRESSURE-COMPENSATED

SYMBOL



PERFORMANCE (cartridge only)

Regulated Flow VS. Turns
103 bar/ 1500 psi at Port ③
2-Ported: at 123 bar/ 1800 psi inlet pressure
3-Ported: at 38 lpm/ 10 gpm inlet flow
32 cST/150 sus oil at 40°C



DESCRIPTION

A screw-in, cartridge-style, adjustable orifice, pressure-compensated, manually-operated, bypass-type hydraulic flow regulating valve. It can be used as a priority-type flow regulator or a restrictive-type 2-way flow regulator when the bypass port (port ②) is blocked.

OPERATION

The IFR10-39 maintains a constant flow rate from ③ regardless of load pressure changes in the system downstream of ③, or in the bypass leg at ②. Reverse flow (③ to ①) does not bypass the control orifice. The regulated flow increases from closed to fully open, with counter-clockwise rotation of the knob.
Note: When used as a bypass flow control in applications where the priority flow port will be blocked by external valving, the bypass pressure drop will increase unless a small amount of leakage is provided for the priority port. Consult Inno.

FEATURES

1. Bypass port ② may be fully pressurized.
2. Fine low-torque adjustment.
3. Hardened steel parts for long life.
4. Quiet, modulated response.
5. Industry common cavity.

RATINGS

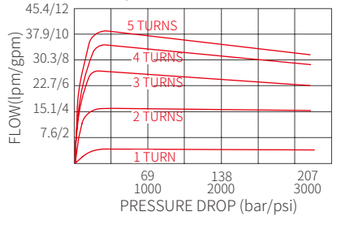
Operating Pressure: 240 bar (3500 psi)
Flow Rate: ③-ported regulated flow (Prority+Bypass): 0 to 38 lpm (0 to 10 gpm)
③-ported regulated flow (Bypass Blocked): 0 to 34 lpm (0 to 9 gpm)
Input Flow: (Prority+Bypass): 0 to 38 lpm (0 to 10 gpm) nominal; 0 to 57 lpm (0 to 15 gpm) max.
Internal Leakage: 33ml/min. at 207 bar (3000 psi)
Adjustment Torque Required: Required torque 1.7 Nm at 207 bar (3000 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-3; See page 300

MATERIALS

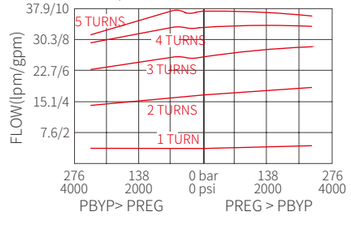
Cartridge: Weight: 0.30 kg. (0.68 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces; Seal: D type seal rings.
Standard Ported Body: Weight: 0.36 kg. (0.80 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi); Ductile iron and steel bodies available; dimensions may differ; Consult Inno.

PERFORMANCE (2)

2-Ported: Regulated Flow VS. Pressure
at 240 bar/ 3500 psi Inlet
32 cST/150 sus oil at 40°C

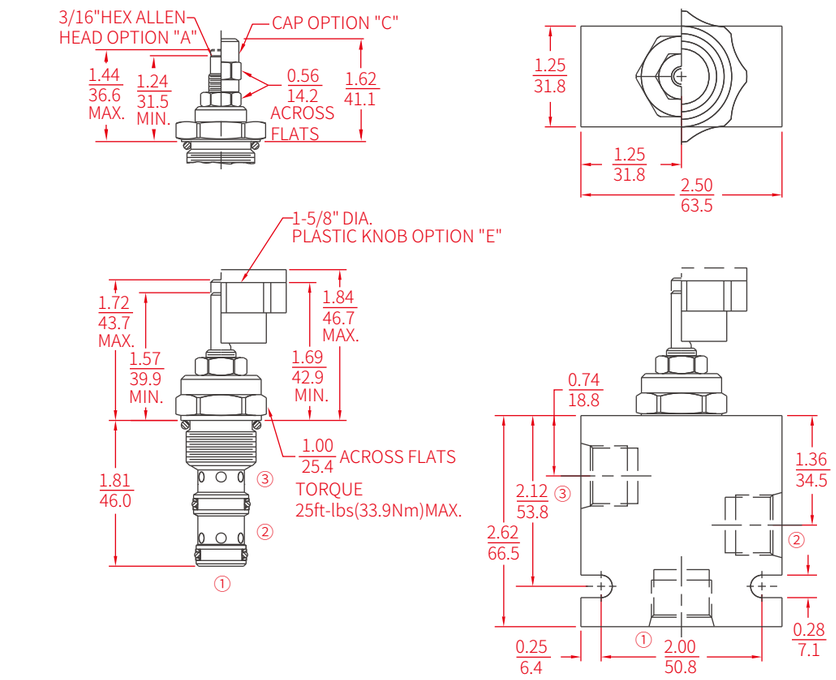


3-Ported: Regulated Flow VS. Load
at 38 lpm/ 10 gpm Inlet
32 cST/150 sus oil at 40°C



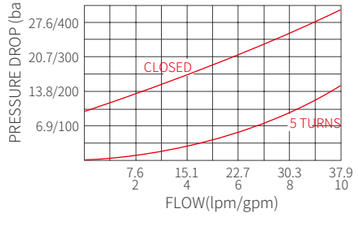
DIMENSION

INCH / MM

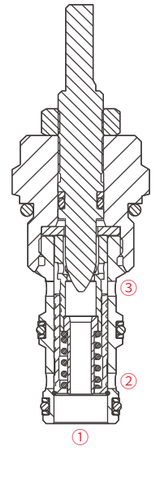


PERFORMANCE (3)

Pressure Drop VS. Reverse Flow (from③ to ①)
34.5 bar/ 500 psi Inlet Pressure
32 cST/150 ssu oil at 40°C



SECTIONAL DRAWING



TO ORDER

IFR10 - 39 ___ - ___ ___ ___ - ___

Seals
N Buna-N (Std.)
V Fluorocarbon

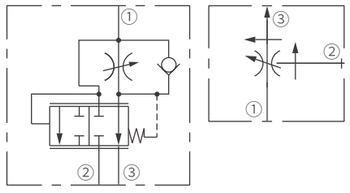
Porting
0 Cartridge Only
6T SAE 6
8T SAE 8
2B 1/4 INCH BSP
3B 3/8 INCH BSP

Adjustment Option
BLANK Extended Shaft Only
A 3/16 in. Hex Allen Head
C Option A with Cover Cap
E Plastic Knob

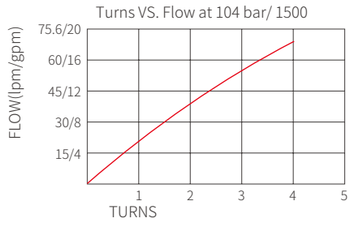
FLOW CONTROL VALVE

IFR12-33
FLOW FREGULATOR
PRESSURE-COMPENSATED

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION

A screw-in, cartridge-style, adjustable orifice, pressure-compensated, manually-operated, bypass-type hydraulic flow regulating valve. It can be used as a priority-type flow regulator or a restrictive-type 2-way flow regulator when the bypass port (port ②) is blocked.

OPERATION

The IFR12-33 maintains a constant flow rate from ③ regardless of load pressure changes in the system downstream of ③, or in the bypass leg at ②. Reverse flow (③ to ①) doesn't bypass the control orifice. The regulated flow increases from closed to fully open, with counter-clockwise rotation of the knob.
Note: When used as a bypass flow control in applications where the priority flow port will be blocked by external valving, the bypass pressure drop will increase unless a small amount of leakage is provided for the priority port. Consult Inno.

FEATURES

1. Bypass port ② may be fully pressurized.
2. Hardened steel parts for long life.
3. Quiet, modulated response.
4. Industry common cavity.

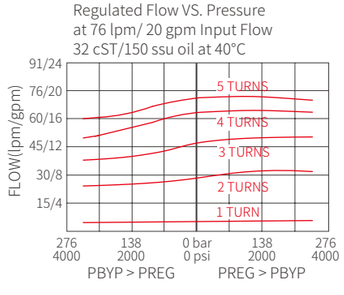
RATINGS

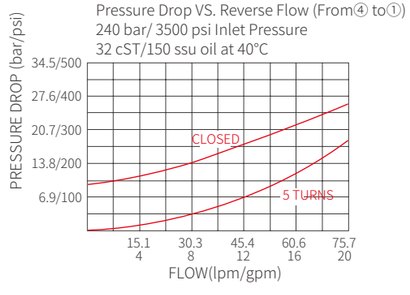
Operating Pressure: 240 bar (3500 psi)
Flow Rate: ③-ported regulated flow (Prority+Bypass): 0 to 68 lpm (0 to 18 gpm)
③-ported regulated flow (Bypass Blocked): 0 to 45 lpm (0 to 12 gpm)
Input Flow: (Prority+Bypass): 76 lpm (20 gpm) nominal; 114 lpm (30 gpm) max.
Internal Leakage: 100ml/min. at 207 bar (3000 psi)
Adjustment Torque Required: Required torque 1.7 Nm at 207 bar (3000 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC12-3; See page 303

MATERIALS

Cartridge: Weight: 0.34 kg. (0.70 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces; Seal: D type seal rings.
Standard Ported Body: Weight: 0.98 kg. (2.15 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi); Ductile iron and steel bodies available; dimensions may differ; Consult Inno.

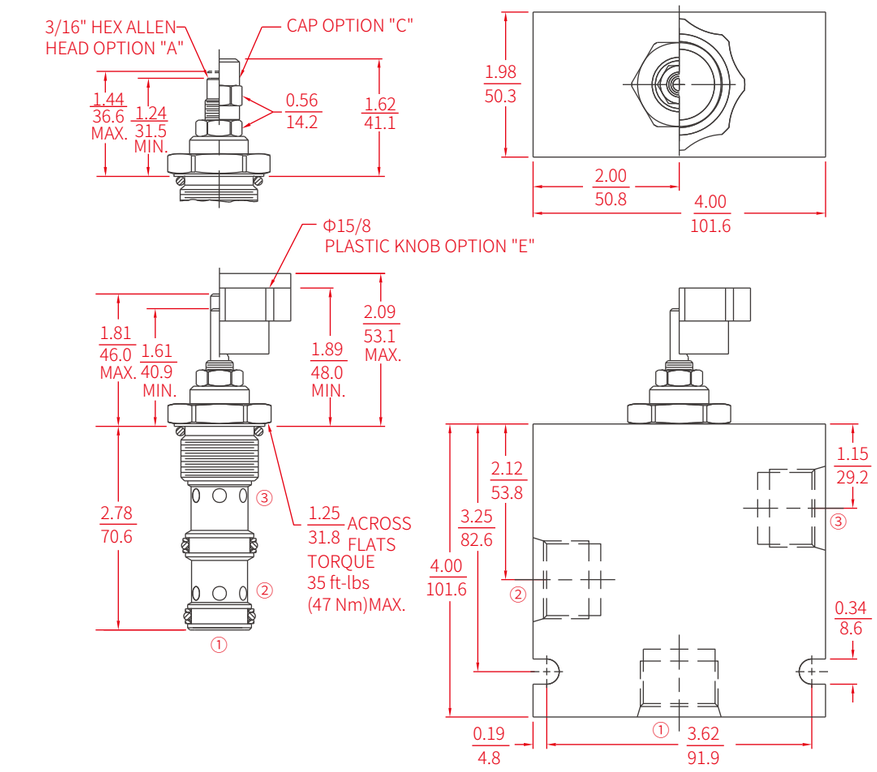
PERFORMANCE (2)



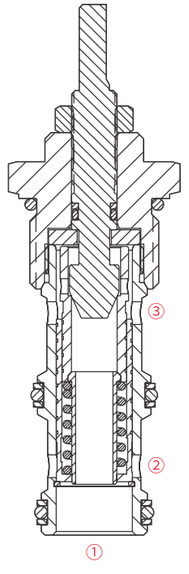


DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

IFR12 - 33 ___ - ___ ___ ___ - ___

Seals
N Buna-N (Std.)
V Fluorocarbon

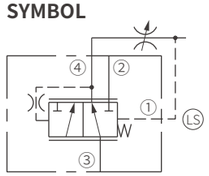
Porting
0 Cartridge Only
10T SAE10
12T SAE12
16T SAE16
4B 1/2 INCH BSP
6B 3/4 INCH BSP

Adjustment Option
BLANK Extended Shaft Only
A 3/16 in. Hex Allen Head
C Option A with Cover Cap
E Plastic Knob

FLOW CONTROL VALVE

IEC10-42
PRIOIRTY FLOW
FREGULATOR

SYMBOL



DESCRIPTION

A screw-in, cartridge-style, priority-on-demand, pressure-compensator with a static load sense, intended to provide priority flow in the required amount, while allowing excess flow to be used for auxiliary functions.

OPERATION

With inlet flow at ③, the IEC10-42 will deliver the required priority flow at ④, regardless of load pressure. Excess flow exits at ②. Port ① is the load sense port. All ports may be fully pressurized.

FEATURES

1. Hardened parts for long life.
2. Quiet, modulated response.
3. Industry common cavity.

RATINGS

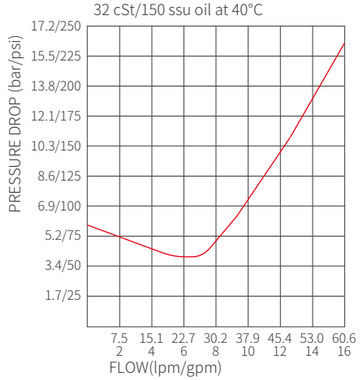
Operating Pressure: Inlet: 240 bar (3500 psi)
Maximum Regulated Flow: 37.9 lpm (10 gpm) with 10.3 bar (150 psi) compensator spring;
30.2 lpm (8.0 gpm) with 5.5 bar (80 psi) compensator spring
Flow Maintenance: See Performance Chart
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-4; See page 302

MATERIALS

Cartridge: Weight: 0.16 kg. (0.35 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.34 kg. (0.75 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; Dimensions may differ.
Consult Inno.

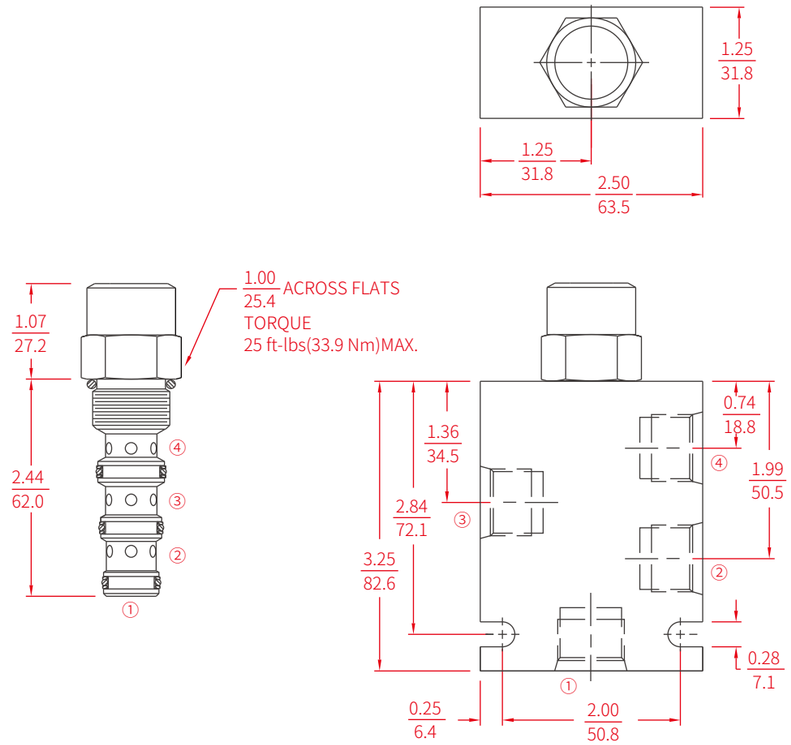
PERFORMANCE (cartridge only)

Pressure Drop VS. Inlet Flow
③ to ②; Port ④ closed; Port ② no load
150 psi Compensator Spring
32 cSt/150 ssu oil at 40°C



DIMENSION

INCH / MM



SECTIONAL DRAWING

TO ORDER

IEC10 - 42 - ___ - ___ - ___

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
N Buna-N (Std.)
V Fluorocarbon

Compensator Spring
80 5.5 bar (80 psid)
150 10.3 bar (150 psid)

压力控制阀
Pressure Control Valve

PRESSURE CONTROL VALVE

VALZOOM® 珐隽 PRESSURE CONTROL VALVE IS USED TO CONTROL THE PRESSURE IN THE CIRCUIT AND THE FORCE OF ACTUATOR - THE FORCE ACTING ON THE PISTON ROD OF THE HYDRAULIC CYLINDER OR THE TORQUE ACTING ON THE ROTATING SHAFT OF THE HYDRAULIC MOTOR.

PRESSURE CONTROL VALVE SERIES INCLUDES DIRECT ACTING / PILOT-TYPE RELIEF VALVE, PILOT-TYPE REDUCING VALVE, SEQUENCE VALVE, ETC.

ENHANCED DAMPING DIRECT ACTING RELIEF VALVE REDUCES THE PRESSURE INCREASE BY THE RELIEVING FUNCTION WITH THE VALVE SETTING VALUE.

PILOT RELIEF VALVE CAN QUICKLY RESPOND TO THE LOAD CHANGE OF THE HYDRAULIC CIRCUIT.

PILOT-TYPE REDUCING VALVE REGULATES THE PRESSURE IN THE SECONDARY CIRCUIT.

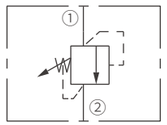
SEQUENCE VALVE CAN MEET THE LOGIC REQUIREMENTS OF A UNIQUE CIRCUIT.

ALL THE ABOVE MODELS ARE AVAILABLE WITH A PRESSURE VALUE OF 350 BAR (5100 PSI).

PRESSURE CONTROL VALVE

IRV08-20
RELIEF VALVE
DIRECT-ACTING POPPET

SYMBOL



DESCRIPTION
A screw-in, cartridge-style, direct-acting, poppet-type, hydraulic relief valve intended for lower flow circuits requiring low internal leakage.

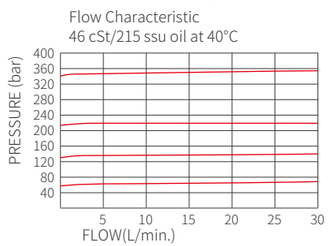
OPERATION
The IRV08-20 relieves the pressure to ② from ① once the pre-determined pressure was attained at ① , intended to reduce pressure.

FEATURES
1. Adjustments cannot be backed out of the valve.
2. Adjustments prohibit springs from going solid.
3. Optional spring ranges to 350 bar (5100 psi).
4. Fast, smooth response to pressure surges.
5. Compact size.

RATINGS
Operating Pressure: 350 bar (5100 psi)
Flow: The Performance Chart illustrates the flow handling capacity of different springs at maximum setting. Pressure rise will vary with setting due to spring and flow forces. Consult Inno for specific pressure-flow characteristic values.
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. to 80% of nominal setting
Reseat Pressure: Nominal 80% of crack pressure
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-2; See page 297

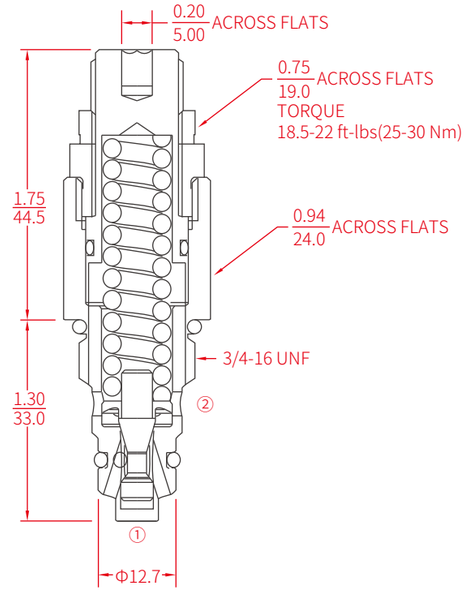
MATERIALS
Cartridge: Weight: 0.15 kg. (0.33 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Anodized aluminum knobs and caps.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

PERFORMANCE (cartridge only)

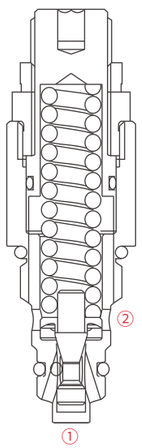


DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

IRV08 - 20 - 0 - ___ - ___ - ____

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Spring Range
15-60 bar(217-870 psi) **8**
25-135 bar(362-1958 psi) **19**
50-220 bar(725-3190 psi) **31**
120-350 bar(1740-5100 psi) **50**

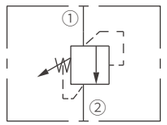
Setting in bar †
BLANK for Adjustable, or Specific pressure, for example:
M25 25 bar
M100 100 bar

Setting in psi †
BLANK for Adjustable or Specific pressure, for example:
9.0 900 psi
23.5 2350 psi

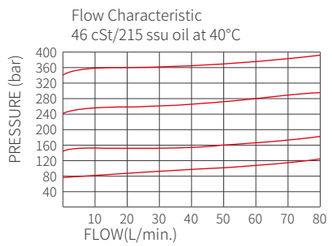
FLOW CONTROL VALVE

IRV08-B20
RELIEF VALVE
DIRECT-ACTING POPPET

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION
A screw-in, cartridge-style, direct-acting, poppet-type, hydraulic relief valve intended for lower flow circuits requiring low internal leakage.

OPERATION
The IRV08-B20 relieves the pressure to ② from ① once the pre-determined pressure was attained at ① , intended to reduce pressure.

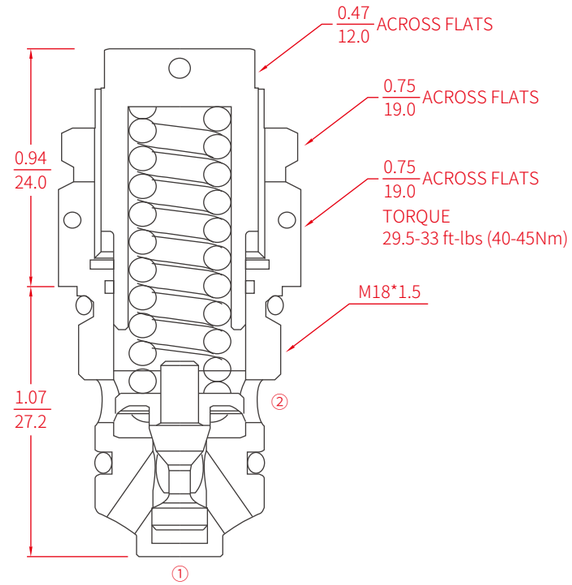
FEATURES
1. Adjustments cannot be backed out of the valve.
2. Adjustments prohibit springs from going solid.
3. Optional spring ranges to 350 bar (5100 psi).
4. Fast, smooth response to pressure surges.
5. Compact size.

RATINGS
Operating Pressure: 350 bar (5100 psi)
Flow: The Performance Chart illustrates the flow handling capacity of different springs at maximum setting. Pressure rise will vary with setting due to spring and flow forces. Consult Inno for specific pressure-flow characteristic values.
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. to 80% of nominal setting
Reseat Pressure: Nominal 90% of crack pressure
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-2A; See page 298

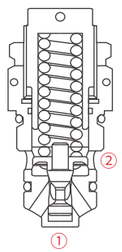
MATERIALS
Cartridge: Weight: 0.07 kg. (0.15 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Anodized aluminum knobs and caps.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

DIMENSION

INCH
MM



SECTIONAL DRAWING



TO ORDER

IRV08 - B20 - 0 - ___ - ___ - ___

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Spring Range
20-80 bar(290-1160 psi) **11**
81-150 bar(1160-2175 psi) **21**
151-250 bar(2175-3625 psi) **36**
252-350 bar(3625-5100 psi) **50**

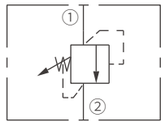
Setting in bar †
BLANK for Adjustable, or Specific pressure, for example:
M25 25 bar
M100 100 bar

Setting in psi †
BLANK for Adjustable or Specific pressure, for example:
9.0 900 psi
23.5 2350 psi

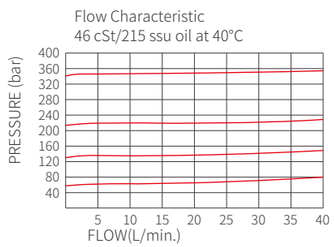
FLOW CONTROL VALVE

IRV09-20
RELIEF VALVE
DIRECT-ACTING POPPET

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION
A screw-in, cartridge-style, direct-acting, poppet-type, hydraulic relief valve intended for lower flow circuits requiring low internal leakage.

OPERATION
The IRV09-20 relieves the pressure to ② from ① once the pre-determined pressure was attained at ① , intended to reduce pressure.

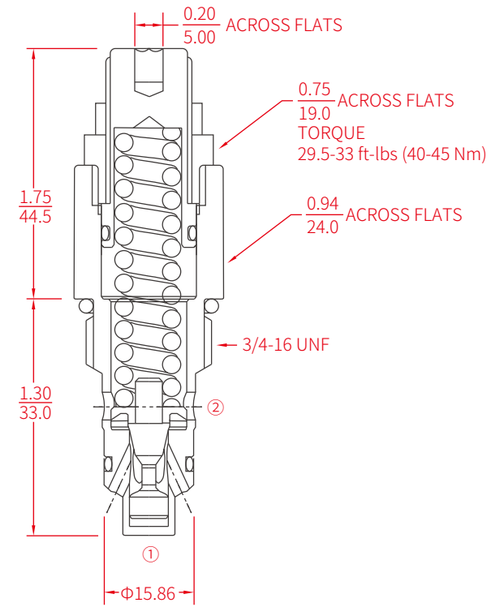
FEATURES
1. Adjustments cannot be backed out of the valve.
2. Adjustments prohibit springs from going solid.
3. Optional spring ranges to 350 bar (5100 psi).
4. Fast, smooth response to pressure surges.
5. Compact size.

RATINGS
Operating Pressure: 350 bar (5100 psi)
Flow: The Performance Chart illustrates the flow handling capacity of different springs at maximum setting. Pressure rise will vary with setting due to spring and flow forces. Consult Inno for specific pressure-flow characteristic values.
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. to 80% of nominal setting
Reseat Pressure: Nominal 80% of crack pressure
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC09-2; See page 299

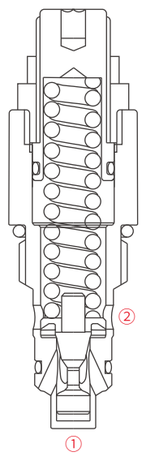
MATERIALS
Cartridge: Weight: 0.15 kg. (0.33 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Anodized aluminum knobs and caps.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

IRV09 - 20 - 0 - ___ - ___ - ___

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Spring Range
15-60 bar(217-870 psi) **8**
25-135 bar(362-1958 psi) **19**
50-220 bar(725-3190 psi) **31**
120-350 bar(1740-5100 psi) **50**

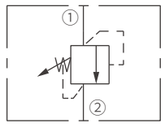
Setting in bar †
BLANK for Adjustable, or Specific pressure, for example:
M25 25 bar
M100 100 bar

Setting in psi †
BLANK for Adjustable or Specific pressure, for example:
9.0 900 psi
23.5 2350 psi

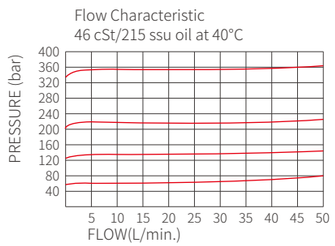
FLOW CONTROL VALVE

IRV10-20
RELIEF VALVE
DIRECT-ACTING POPPET

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION
A screw-in, cartridge-style, direct-acting, poppet-type, hydraulic relief valve intended for lower flow circuits requiring low internal leakage.

OPERATION
The IRV10-20 relieves the pressure to ② from ① once the pre-determined pressure was attained at ① , intended to reduce pressure.

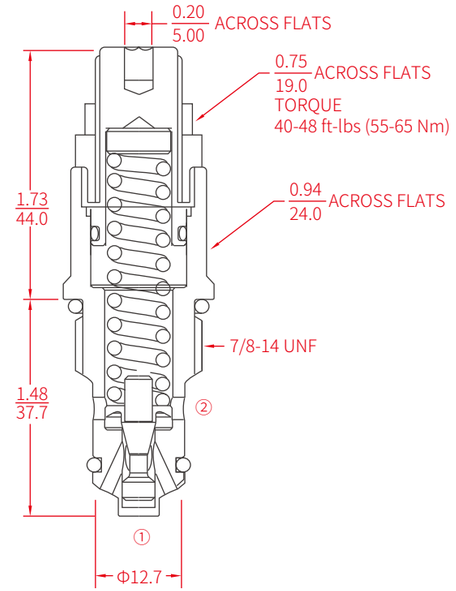
FEATURES
1. Adjustments cannot be backed out of the valve.
2. Adjustments prohibit springs from going solid.
3. Optional spring ranges to 350 bar (5100 psi).
4. Fast, smooth response to pressure surges.
5. Compact size.

RATINGS
Operating Pressure: 350 bar (5100 psi)
Flow: The Performance Chart illustrates the flow handling capacity of different springs at maximum setting. Pressure rise will vary with setting due to spring and flow forces. Consult Inno for specific pressure-flow characteristic values.
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. to 80% of nominal setting
Reseat Pressure: Nominal 80% of crack pressure
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-2; See page 300

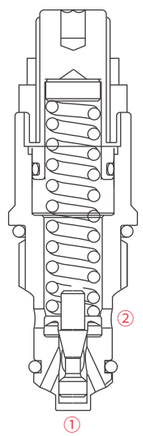
MATERIALS
Cartridge: Weight: 0.17 kg. (0.37 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Anodized aluminum knobs and caps.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

IRV10 - 20 - 0 - ___ - ___ - ____

Seals
N Buna-N (Std.)
V Fluorocarbon

Spring Range

15-60 bar(217-870 psi)	**8**
25-135 bar(362-1958 psi)	**19**
50-220 bar(725-3190 psi)	**31**
120-350 bar(1740-5100 psi)	**50**

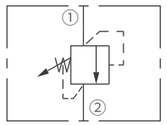
Setting in bar †
BLANK for Adjustable, or Specific pressure, for example:
M25 25 bar
M100 100 bar

Setting in psi †
BLANK for Adjustable, or Specific pressure, for example:
9.0 900 psi
23.5 2350 psi

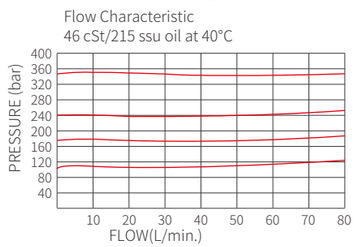
FLOW CONTROL VALVE

IRV10-B20
RELIEF VALVE
DIRECT-ACTING POPPET

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION
A screw-in, cartridge-style, direct-acting, poppet-type, hydraulic relief valve intended for lower flow circuits requiring low internal leakage.

OPERATION
The IRV10-B20 relieves the pressure to ② from ① once the pre-determined pressure was attained at ① , intended to reduce pressure.

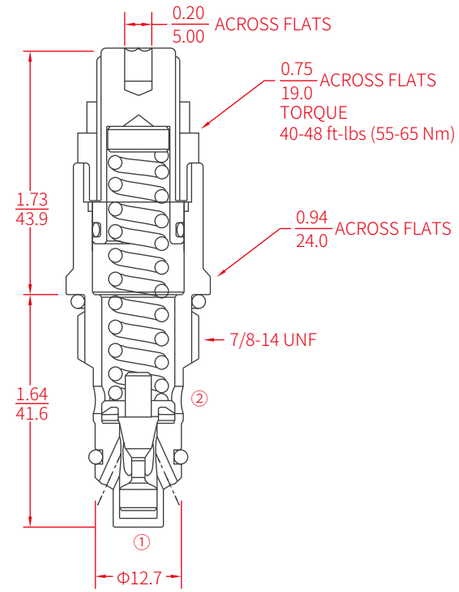
FEATURES
1. Adjustments cannot be backed out of the valve.
2. Adjustments prohibit springs from going solid.
3. Optional spring ranges to 350 bar (5100 psi).
4. Fast, smooth response to pressure surges.
5. Compact size.

RATINGS
Operating Pressure: 350 bar (5100 psi)
Flow: The Performance Chart illustrates the flow handling capacity of different springs at maximum setting. Pressure rise will vary with setting due to spring and flow forces. Consult Inno for specific pressure-flow characteristic values.
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. to 80% of nominal setting
Reseat Pressure: Nominal 80% of crack pressure
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-2; See page 300

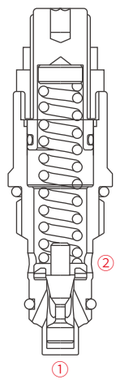
MATERIALS
Cartridge: Weight: 0.17 kg. (0.37 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Anodized aluminum knobs and caps.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

IRV10 - B20 - ___ - ___ - ___

Seals
N Buna-N (Std.)
V Fluorocarbon

Spring Range

5-110 bar(72-1595 psi)	**15**
10-180 bar(145-2610 psi)	**26**
10-240 bar(145-3480 psi)	**34**
50-350 bar(725-5100 psi)	**50**

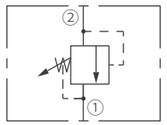
Setting in bar †
BLANK for Adjustable, or Specific pressure, for example:
M25 25 bar
M100 100 bar

Setting in psi †
BLANK for Adjustable, or Specific pressure, for example:
9.0 900 psi
23.5 2350 psi

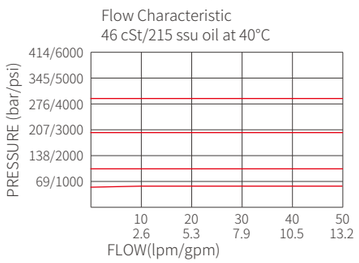
FLOW CONTROL VALVE

IRV08-22
RELIEF VALVE
DIFFERENTIAL AREA POPPET

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION

A screw-in, cartridge-style, differential area, poppet-type hydraulic relief valve for use as a pressure limiting device in more demanding hydraulic circuits, requiring low hysteresis and low internal leakage.

OPERATION

The IRV08-22 blocks flow from ② to ① until sufficient pressure is present at ② to force the poppet from its seat. The cartridge offers a smooth transition in response to load pressure changes in common hydraulic circuits.

FEATURES

1. Adjustments cannot be backed out of the valve.
2. Hardened poppet and cage for long life.
3. Optional spring ranges to 350 bar (5100 psi).
4. Fast, smooth response to pressure surges.
5. Industry common cavity.
6. Compact size.

RATINGS

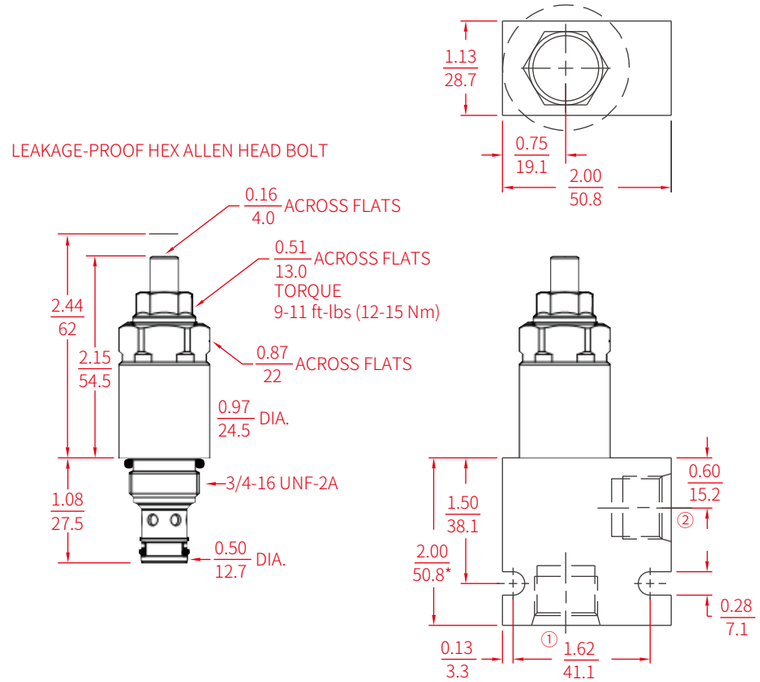
Operating Pressure: 350 bar (5100 psi)
Max Flow: 50L/min.
Internal Leakage: 0.75 ml/min. (15 drops/minute) max. to 80% of nominal setting
Reseat Pressure: Nominal 90% of crack pressure
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-2; See page 297

MATERIALS

Cartridge: Weight: 0.15 kg. (0.33 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Anodized aluminum knobs and caps.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

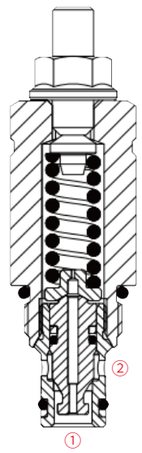
DIMENSION

INCH / MM



*BSP BODY-55.9

SECTIONAL DRAWING



TO ORDER

IRV08 - 22 - ___ - ___ - ___ - ___

Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

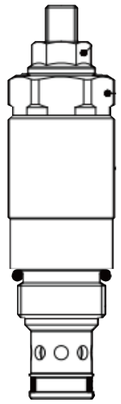
Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Spring Range
20 35-140 bar(500-2000 psi)
30 105-210 bar(1500-3000 psi)
45 175-315 bar(2500-4500 psi)

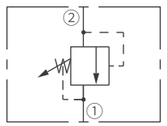
Setting in bar †
BLANK for Adjustable, or Specific pressure, for example:
M100 100 bar(1450 psi)
M200 200 bar(2900 psi)
M300 300 bar(4350 psi)

FLOW CONTROL VALVE

IRV10-22
RELIEF VALVE
DIFFERENTIAL AREA POPPET



SYMBOL



DESCRIPTION

A screw-in, cartridge-style, differential area, poppet-type hydraulic relief valve for use as a pressure limiting device in more demanding hydraulic circuits, requiring low hysteresis and low internal leakage.

OPERATION

The IRV10-22 blocks flow from ② to ① until sufficient pressure is present at ② to force the poppet from its seat. The cartridge offers a smooth transition in response to load pressure changes in common hydraulic circuits.

FEATURES

1. Adjustments cannot be backed out of the valve.
2. Hardened poppet and cage for long life.
3. Optional spring ranges to 350 bar (5100 psi).
4. Fast, smooth response to pressure surges.
5. Industry common cavity.
6. Compact size.

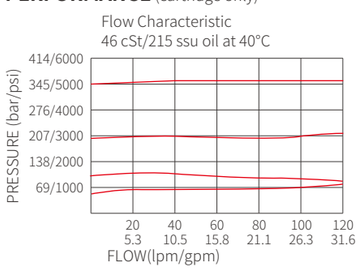
RATINGS

Operating Pressure: 350 bar (5100 psi)
Max Flow: 120L/min.
Internal Leakage: 0.75 ml/min. (15 drops/minute) max. to 80% of nominal setting
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-2; See page 300

MATERIALS

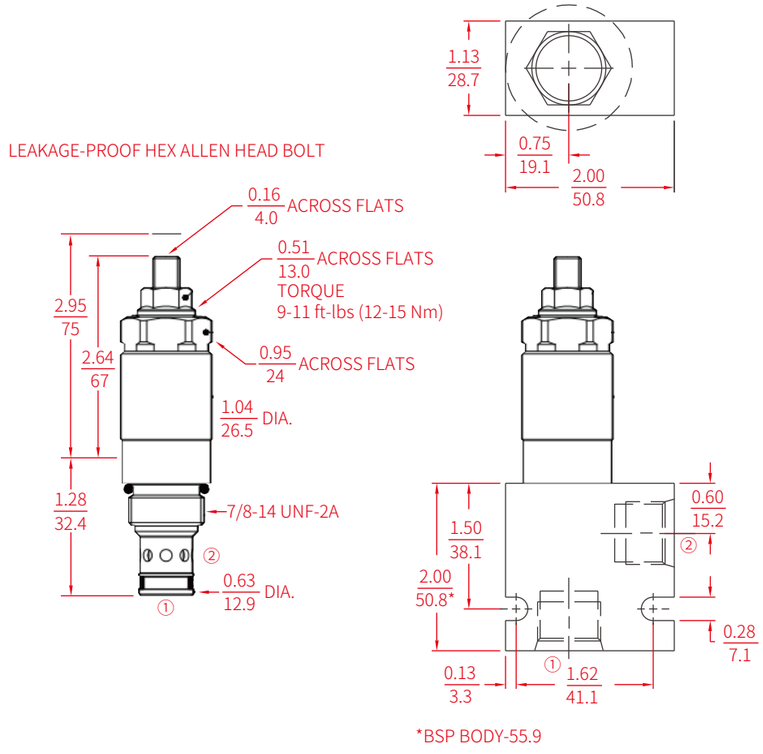
Cartridge: Weight: 0.15 kg. (0.33 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Anodized aluminum knobs and caps.
Standard Ported Body: Weight: 0.20 kg. (0.44 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

PERFORMANCE (cartridge only)



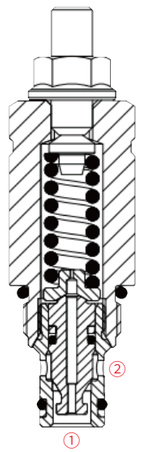
DIMENSION

INCH / MM



*BSP BODY-55.9

SECTIONAL DRAWING



TO ORDER

IRV10 - 22 - ___ - ___ - ___ - ___

Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

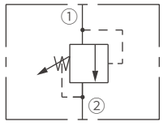
Spring Range
20 35-140 bar(500-2000 psi)
30 105-210 bar(1500-3000 psi)

Setting in bar †
BLANK for Adjustable, or Specific pressure, for example:
M100 100 bar(1450 psi)
M300 300 bar(4350 psi)

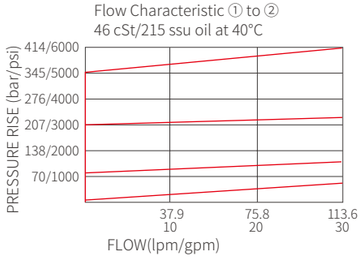
FLOW CONTROL VALVE

IRV10-26
RELIEF VALVE
PILOT-OPERATED SPOOL

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION

A screw-in, cartridge-style, pilot-operated (two-stage), spool-type hydraulic relief valve, intended for use as a pressure limiting device in demanding hydraulic circuits which require fast response and low hysteresis.

OPERATION

The IRV10-26 blocks flow from ① to ②until sufficient pressure is present at ① to force the piloting relief off its seat, allowing the main (second stage) spool to shift, opening ① to ②. The cartridge offers a fast response to load pressure changes in hydraulic circuits.
NOTE: The IRV10-26 cannot be used in crossover relief applications.

FEATURES

1. Adjustments cannot be backed out of the valve.
2. Adjustments prohibit springs from going solid.
3. Hardened spool and cage for long life.
4. Optional spring ranges to 210 bar (3000 psi).
5. Fast, smooth response to pressure surges.
6. Industry common cavity.

RATINGS

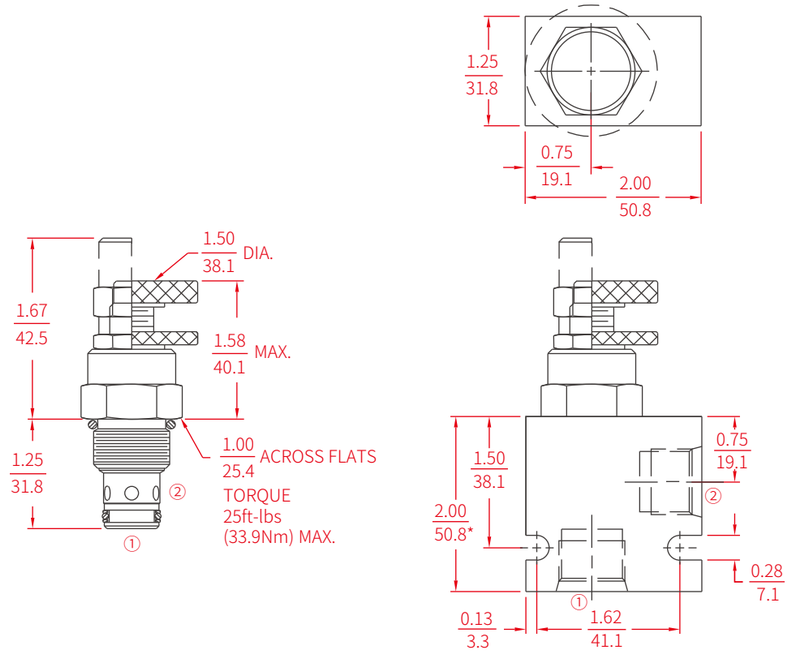
Operating Pressure: 420 bar (6000 psi)
Flow: The Performance Chart illustrates the flow handling capacity of different springs at maximum setting. Pressure rise will vary with setting due to spring and flow forces. Consult Inno for specific pressure-flow characteristic values.
Internal Leakage: 115 ml/min. (7 cu. in./minute) max. to 85% of nominal setting
Crack Pressure Defined: Gauge bar (psi) evident at 7.6 lpm (2.0 gpm) attained
Standard Spring Ranges: 35 to 140 bar (500 to 2000 psi) ;
70 to 280 bar (1000 to 4000 psi) ;
140 to 420 bar (2000 to 6000 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC12-2; See page 302

MATERIALS

Cartridge: Weight: 0.20 kg. (0.44 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Anodized aluminum knobs.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

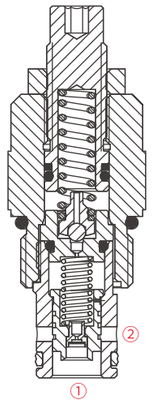
DIMENSION

INCH / MM



*BSP BODY - 55.9mm

SECTIONAL DRAWING



TO ORDER

IRV10 - 26 ___ - __ ___ ___ - ___ - __ ___ / ___ ___ ___ ___

Adjustment Option
1/4 in. Hex Allen Head **A**
1-1/2 in. Dia. **B**
(Aluminium Knob)
Option A with Cover Cap **C**
Inno Preset Non-Adj. **F**
Inno Preset Hidden **H**
Adj.Option C with Lockwire Holes **L**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Pressure on P Only:
N Buna-N (Std.)
V Fluorocarbon

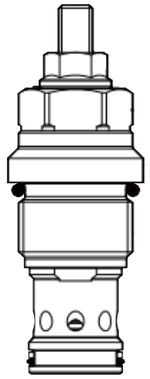
Spring Range
15 7 ~ 105 bar (100 ~ 1500 psi)
49 128 ~ 340 bar (1900 ~ 4900 psi)
Adjustable valves will be preset to approx. 50% of spring max. potential.

Setting in psi †
BLANK for Adjustable or Specific pressure, for example:
9.0 900 psi
23.5 2350 psi

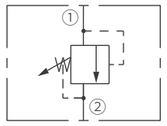
Setting in bar †
BLANK for Adjustable, or
M25 Specific pressure, for example: 25 bar
M100 100 bar

FLOW CONTROL VALVE

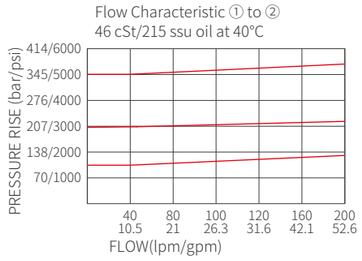
IRV12-26
RELIEF VALVE
PILOT-OPERATED SPOOL



SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION

A screw-in, cartridge-style, pilot-operated (two-stage), spool-type hydraulic relief valve, intended for use as a pressure limiting device in demanding hydraulic circuits which require fast response and low hysteresis.

OPERATION

The IRV12-26 blocks flow from ① to ②until sufficient pressure is present at ① to force the piloting relief off its seat, allowing the main (second stage) spool to shift, opening ① to ②. The cartridge offers a fast response to load pressure changes in hydraulic circuits.

NOTE: The IRV12-26 cannot be used in crossover relief applications.

FEATURES

1. Adjustments cannot be backed out of the valve.
2. Adjustments prohibit springs from going solid.
3. Hardened spool and cage for long life.
4. Optional spring ranges to 240 bar (3500 psi).
5. Fast, smooth response to pressure surges.
6. Cost-effective cavity.

RATINGS

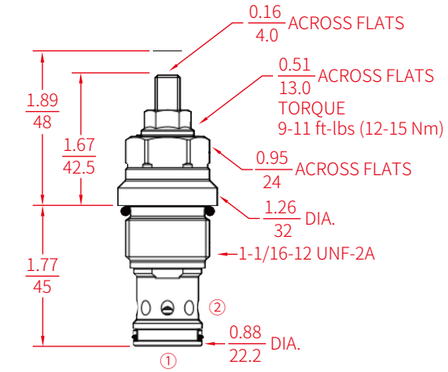
Operating Pressure: 240 bar (3500 psi)
Proof Pressure: 420 bar (6090 psi)
Internal Leakage: 350 ml/min. (21 cu. in./minute) max. to 85% of nominal setting
Reseat Pressure: Nominal 90% of crack pressure
Standard Spring Ranges: 35 to 140 bar (500 to 2000 psi) ;
70 to 280 bar (1000 to 4000 psi) ;
140 to 420 bar (2000 to 6000 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC12-2; See page 302

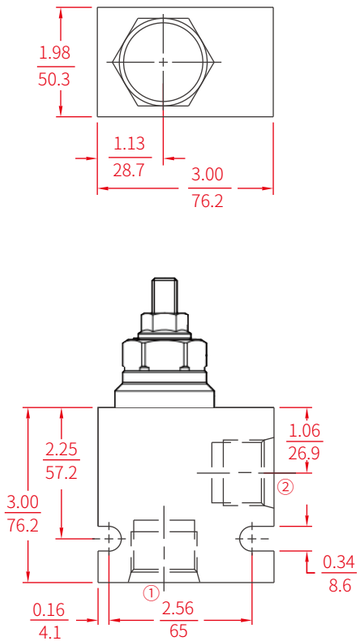
MATERIALS

Cartridge: Weight: 0.20 kg. (0.44 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.

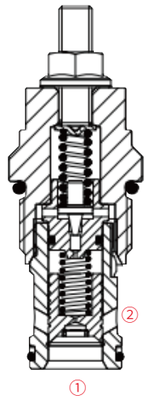
DIMENSION

INCH
MM





SECTIONAL DRAWING



TO ORDER

IRV12 - 26 - ___ - ___ - ___ - ___

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

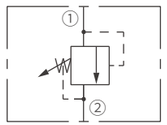
Spring Range
20 35-140 bar(500-2000 psi)
40 105-210 bar(1500-3000 psi)
60 175-315 bar(2500-4500 psi)

Setting in bar †
BLANK for Adjustable, or Specific pressure, for example:
M100 100 bar(1450 psi)
M200 200 bar(2900 psi)
M350 350 bar(5100 psi)

FLOW CONTROL VALVE

IRV16-26
RELIEF VALVE
PILOT-OPERATED SPOOL

SYMBOL



DESCRIPTION

A screw-in, cartridge-style, pilot-operated (two-stage), spool-type hydraulic relief valve, intended for use as a pressure limiting device in demanding hydraulic circuits which require fast response and low hysteresis.

OPERATION

The IRV16-26 blocks flow from ① to ② until sufficient pressure is present at ① to force the piloting relief off its seat, allowing the main (second stage) spool to shift, opening ① to ②. The cartridge offers a fast response to load pressure changes in hydraulic circuits.

NOTE: The IRV16-26 cannot be used in crossover relief applications.

FEATURES

1. Adjustments cannot be backed out of the valve.
2. Adjustments prohibit springs from going solid.
3. Hardened spool and cage for long life.
4. Optional spring ranges to 210 bar (3000 psi).
5. Fast, smooth response to pressure surges.

RATINGS

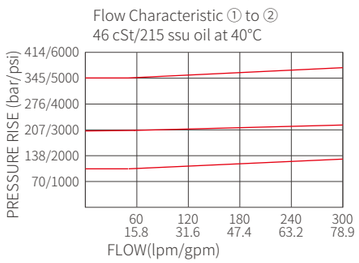
Operating Pressure: 420 bar (6000 psi)
Flow: 8-300 l/min.
Internal Leakage: 350 ml/min. (21 cu. in./minute) max. to 85% of nominal setting
Standard Spring Ranges: 35 to 140 bar (500 to 2000 psi) ;
70 to 280 bar (1000 to 4000 psi) ;
140 to 420 bar (2000 to 6000 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC16-2; See page 305

MATERIALS

Cartridge: Weight: 0.45 kg. (0.99 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings; Anodized aluminum knobs.

PERFORMANCE (cartridge only)

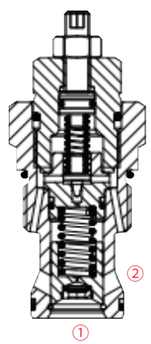
Flow Characteristic ① to ②
46 cSt/215 ssu oil at 40°C



DIMENSION

INCH
MM

SECTIONAL DRAWING



TO ORDER

IRV16 - 26 - ____ - ____ - ____ - ____

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

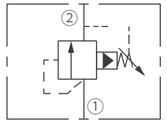
Spring Range
20 35-140 bar(500-2000 psi)
40 105-210 bar(1500-3000 psi)
60 175-315 bar(2500-4500 psi)

Setting in bar †
BLANK for Adjustable, or
Specific pressure, for example:
M100 100 bar(1450 psi)
M200 200 bar(2900 psi)
M350 350 bar(5100 psi)

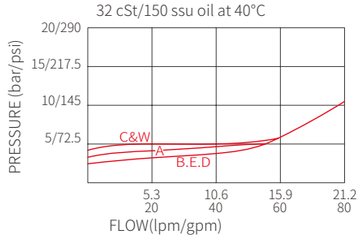
压力控制阀

IRPEE
RELIEF VALVE
PILOT-OPERATED SPOOL

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION
A screw-in, cartridge-style, fast-acting, pilot-operated, spool-type hydraulic relief valve, intended for protecting hydraulic components from pressure overloading transients, and keeping the system smoothness under the fast opening and closing.

OPERATION
The IRPEE blocks flow from ① to ②until sufficient pressure is present at ② to force the piloting relief off its seat, allowing the main (second stage) spool to shift, opening ① to ②, with restrictor to limit pressure rise. The cartridge offers a fast response to pressure.

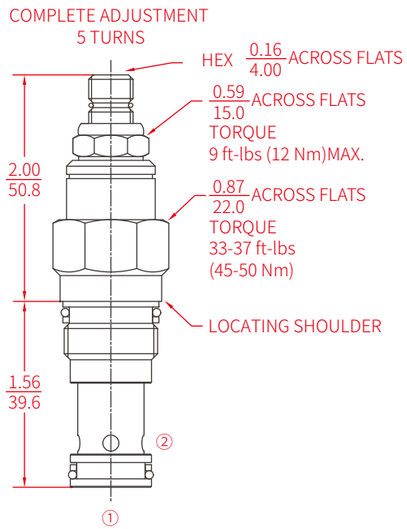
FEATURES
1. Fast response to pressure surges.
2. Suitable for use in cross port relief circuits. (If used in cross port relief circuits, consider spool leakage.)
3. Not suitable for use in load holding applications.
4. Back-pressure on port ② is directly additive to the valve setting at a 1:1 ratio.
5. Adjustments cannot be backed out of the valve.
6. Retaining ring on the adjusting rod limits the adjustment stroke to prohibit springs from going solid.
7. Hardened spool and cage for long life.
8. Compact structure for long life.
9. Industry common cavity.

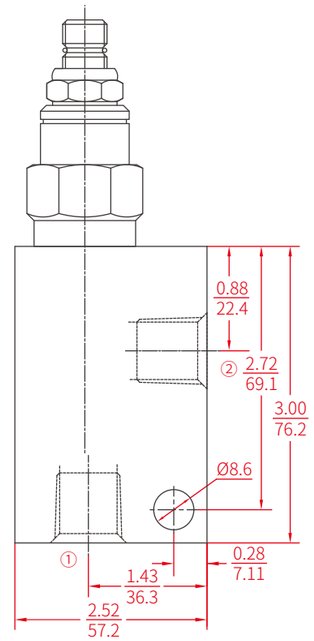
RATINGS
Operating Pressure: 350 bar(5075 psi)
Flow: See Performance Chart
Internal Leakage: 30 ml/min. max. at 70bars
Crack Pressure Defined: Gauge bar (psi) evident at 15L/min. attained
Response Time: 20ms
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IT-10A; See page 308

MATERIALS
Cartridge: Weight: 0.15 kg. (0.33 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.
Recommend to use polyurethane seal rings at the pressure over 240 bar (3500 psi).
Anodized aluminum knobs.

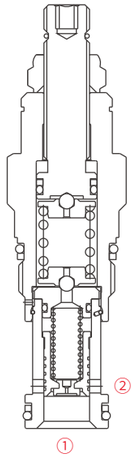
DIMENSION

INCH / MM





SECTIONAL DRAWING



TO ORDER

IPREE - ___ ___ ___ - ___ ___ ___

FLOW
E=95 L/min.

Control
L Screw stem
K Knob

Spring Range

A	100～3000 psi (7~210 bar)	preset：1000 psi (70 bar)
B	50～1500 psi (3.5~105 bar)	preset：1000 psi (70 bar)
C	150～6000 psi (10.5~420 bar)	preset：1000 psi (70 bar)
D	25～800 psi (1.7~55 bar)	preset：400 psi (30 bar)
E	25～400 psi (1.7~28 bar)	preset：200 psi (14 bar)
W	150～4500 psi (10.5~315 bar)	preset：1000 psi (70 bar)

Seals
N Buna-N (Std.)
V Fluorocarbon

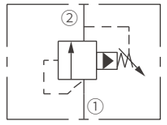
Porting

0	Cartridge Only
6T	SAE 6
8T	SAE 8
2B	1/4 INCH BSP
3B	3/8 INCH BSP

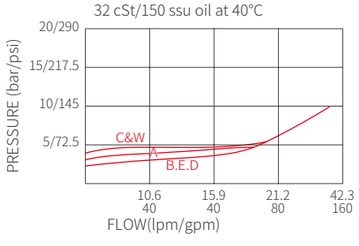
FLOW CONTROL VALVE

IRPGE
RELIEF VALVE
PILOT-OPERATED SPOOL

SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION
A screw-in, cartridge-style, pilot-operated (two-stage), spool-type hydraulic relief valve, intended for use as a pressure limiting device in demanding hydraulic circuits which require fast response and low hysteresis.

OPERATION
The IRPGE blocks flow from ① to ②until sufficient pressure is present at ① to force the piloting relief off its seat, allowing the main (second stage) spool to shift, opening ① to ②, with restrictor to limit pressure rise. The cartridge offers a fast response to pressure.

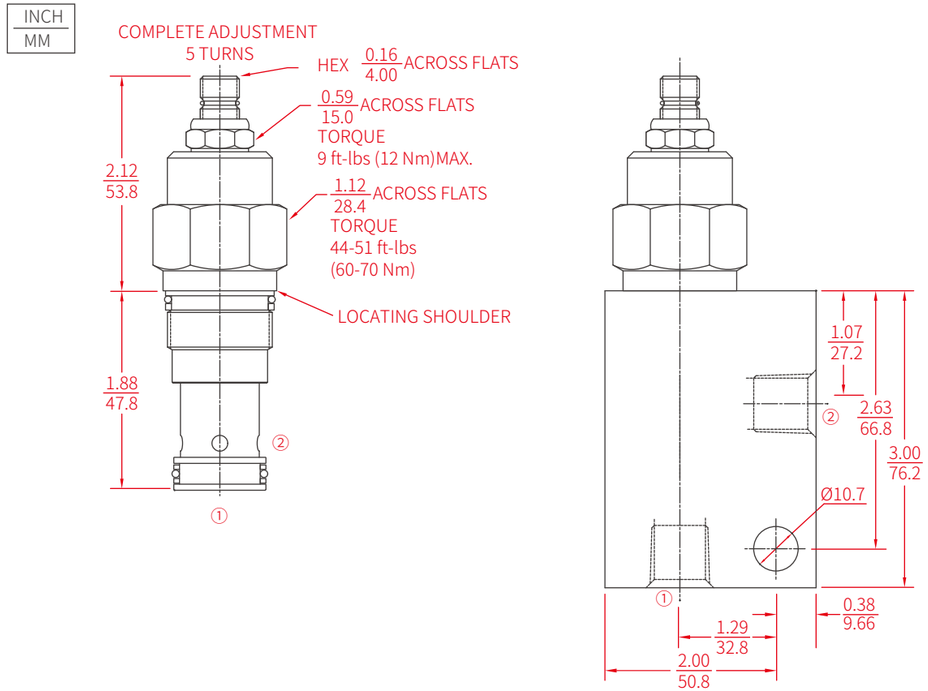
FEATURES
1. Suitable for use in cross port relief circuits. (If used in cross port relief circuits, consider spool leakage.)
2. Not suitable for use in load holding applications.
3. Back-pressure on port ② is directly additive to the valve setting at a 1:1 ratio.
4. Adjustments cannot be backed out of the valve.
5. Retaining ring on the adjusting rod limits the adjustment stroke to prohibit springs from going solid.
6. Hardened spool and cage for long life.
7. Compact structure for long life.
8. Industry common cavity.

RATINGS
Operating Pressure: 350 bar(5100 psi)
Flow: See Performance Chart
Internal Leakage: 50 ml/min. max. at 70bars
Crack Pressure Defined: Gauge bar (psi) evident at 15L/min. attained
Response Time: 20ms
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IT-3A; See page 308

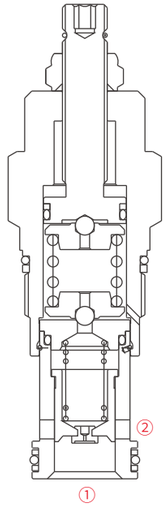
MATERIALS
Cartridge: Weight: 0.25 kg. (0.55 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.
Anodized aluminum knobs.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

IPRGE - ___ ___ ___ - ___ ___ ___

FLOW
E=200 L/min.

Control
L Screw stem
K Knob

Spring Range

A	100～3000 psi (7~210 bar)	preset：1000 psi (70 bar)
B	50～1500 psi (3.5~105 bar)	preset：1000 psi (70 bar)
C	150～6000 psi (10.5~420 bar)	preset：1000 psi (70 bar)
D	25～800 psi (1.7~55 bar)	preset：400 psi (30 bar)
E	25～400 psi (1.7~28 bar)	preset：200 psi (14 bar)
W	150～4500 psi (10.5~315 bar)	preset：1000 psi (70 bar)

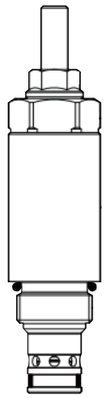
Seals
N Buna-N (Std.)
V Fluorocarbon

Porting

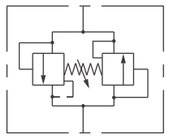
0	Cartridge Only
8T	SAE 8
10T	SAE 10
3B	3/8 INCH BSP
4B	1/2 INCH BSP

FLOW CONTROL VALVE

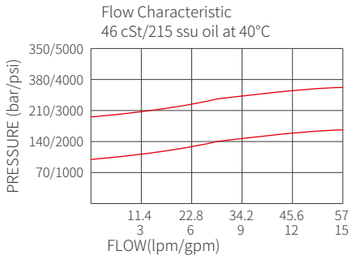
ICRV10-28
RELIEF VALVE BI-DIRECTIONAL



SYMBOL



PERFORMANCE (cartridge only)



DESCRIPTION

A screw-in, cartridge-style, direct-acting, differential area, poppet-type, bi-directional relief valve.

OPERATION

The ICRV10-28 is a direct-acting, dual cross-over relief valve in a single cartridge format. When the pressure at either port exceeds the nominal setting value, the flow will be transmitted to the opposite port. Back-pressure at either port will affect the nominal setting of the opposite port on a 1:1 basis.
For correlation purposes, the pre-set value will be measured at port ②. Pressure at port ① will not exceed ±150 psi from the port ② value.

FEATURES

1. Adjustments cannot be backed out of the valve.
2. Adjustments prohibit springs from going solid.
3. Hardened poppet and cage for long life.
4. Industry common cavity.
5. Compact size.

RATINGS

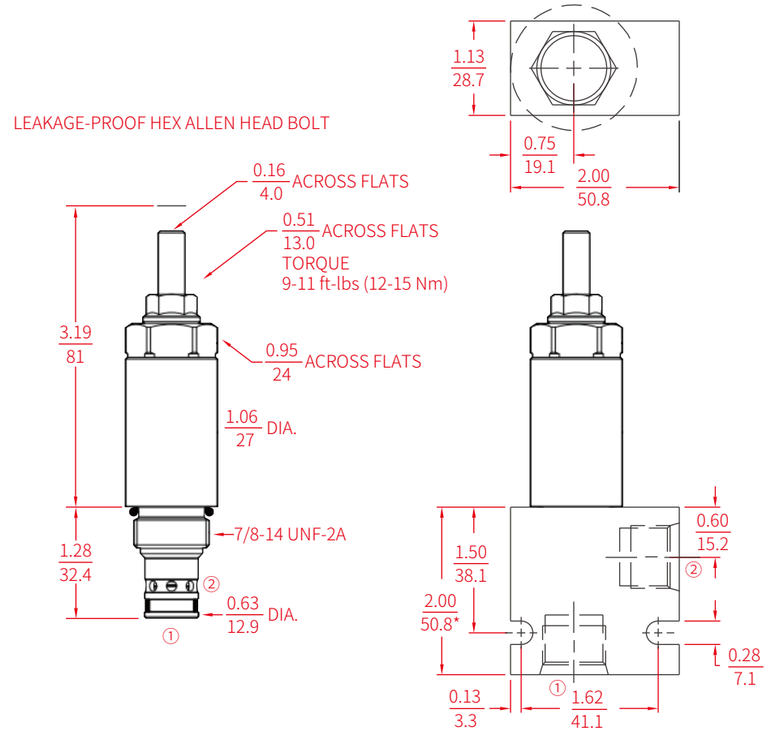
Operating Pressure: 240 bar(3500 psi)
Adjustable Pressure Range: 30 to 100 bar (450 to 1450 psi), 100 to 240 bar (1450 to 3500 psi) ; Two springs, Pressure is set at port ②
Flow: 56 l/min., See Performance Chart
Internal Leakage: 30 ml/min. max. when reseating to 80% of crack pressure
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-2; See page 300

MATERIALS

Cartridge: Weight: 0.25 kg. (0.55 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Anodized aluminum knobs and caps.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.

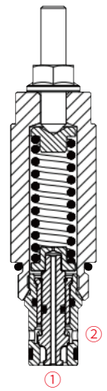
DIMENSION

INCH / MM



*BSP BODY-55.9

SECTIONAL DRAWING



TO ORDER

IRV10 - 28 - ___ - ___ - ___ - ___

Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

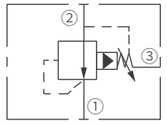
Spring Range
14 30-1040 bar(450-1450 psi)
35 100-240 bar(1450-3500 psi)

Setting in bar †
BLANK for Adjustable, or Specific pressure, for example:
M100 100 bar(1450 psi)
M200 200 bar(2900 psi)

FLOW CONTROL VALVE

IPBBB
REDUCING VALVE
PILOT-OPERATED SPOOL

SYMBOL



DESCRIPTION

A pilot-operated, spool-type, pressure-reducing valve reduces a high primary pressure at port ② to constant reduced pressure at port ①, allowing circuits with multiple pressure requirements.

OPERATION

The IPBBB allows the flow from ② to ① under constant state, while the oil drain from the spring chamber to port ③. The spool shifts to limit the oil flow at port ②once a preset pressure was attained at port ①, intend to adjust the pressure at ①. The IPBBB allows the flow to relieve from ① to ③ on this model.

FEATURES

1. Pressure at port ③ is directly additive to the valve setting value and should not exceed 350 bar (5000 psi).
2. Minimum setting is 5 bar (75 psi) for all spring ranges.
3. Industry common cavity.

RATINGS

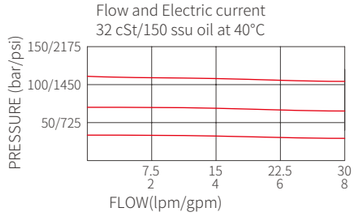
Operating Pressure: 350 bar(5100 psi)
Flow: See Performance Chart
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 o 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IT-163A; See page 310

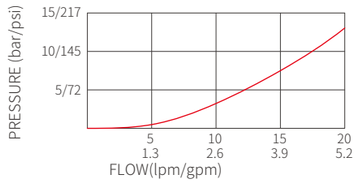
MATERIALS

Cartridge: Weight: 0.15 kg. (0.33 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.
Anodized aluminum knobs.

PERFORMANCE (cartridge only)

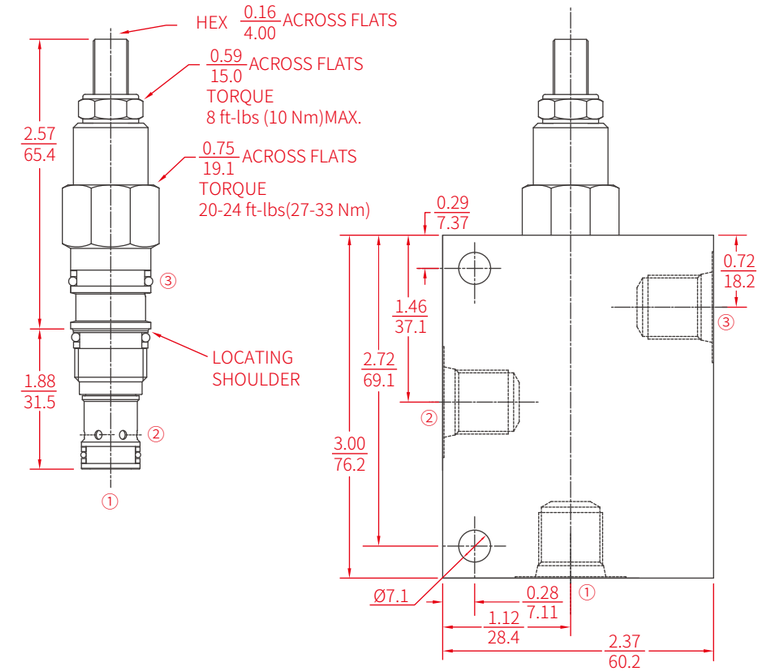
Flow and Electric current
32 cSt/150 ssu oil at 40°C



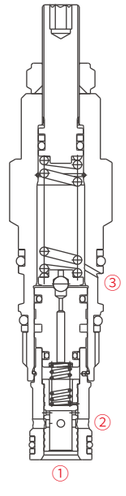


DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

IPBBB - ___ ___ ___ - ___ ___ ___

FLOW
B=20 L/min.

Control
L Screw stem
K Knob

Spring Range

A	75～3000 psi (5~210 bar)	preset：200 psi (14 bar)
B	75～1500 psi (5~105 bar)	preset：200 psi (14 bar)
N	75～800 psi (5~55 bar)	preset：200 psi (14 bar)
Q	75～400 psi (5~28 bar)	preset：200 psi (14 bar)
W	75～4500 psi (5~315 bar)	preset：200 psi (14 bar)

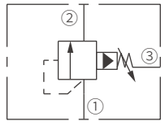
Seals
N Buna-N (Std.)
V Fluorocarbon

Porting
0 Cartridge Only
8T SAE 8
Other threaded ports available. Please consult Inno.

FLOW CONTROL VALVE

IRSDC-LBN
SEQUENCE VALVE

SYMBOL



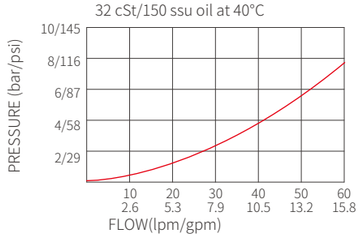
DESCRIPTION
A screw-in, cartridge-style, direct-acting, spool-type, hydraulic sequence valve with internal pilot and spring chamber drain.

OPERATION
The piloted sequence valve with balanced spool will supply oil to the secondary circuit once a preset pressure is attained on inlet ①. The setting of the sequence valve will control the pressure on port ① related to the pressure on the drain port ③. This type of valve is not sensitive until the back pressure on port ② (sequence port) rises to the preset pressure. If there is pressure in the circuit, it can be used to replace the relief valve of port ② to adjust the pressure.

FEATURES
1. On attainment of a preset pressure on port ① (inlet), which is related to the pressure on port ③ (drain), the pilot-flow increases.
2. The orifice of the main stage is protected by a 150μm stainless steel screen.
3. The pressure on port ③ will directly (1:1) affect the valve's setting value, and cannot exceed 5000 psi (350 bar).
4. Due to the leakage of spool, it is not suitable for use for load lock application.
5. The retaining ring on the adjusting rod limits the adjustment stroke to prohibit springs from going solid.
6. Hardened spool and cage for long life.
7. Compact structure for long life.

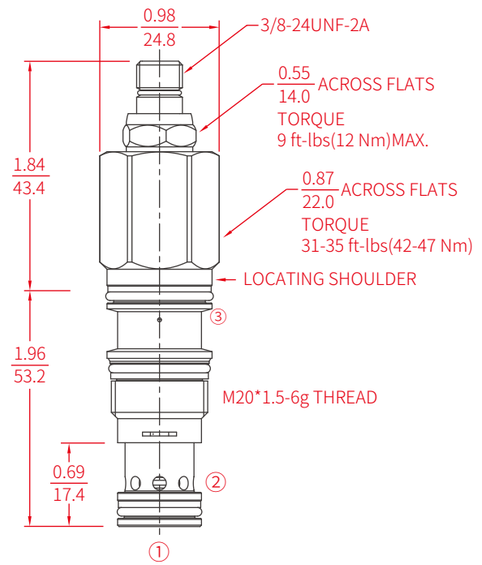
RATINGS
Operating Pressure: 350 bar(5100 psi)
Flow: See Performance Chart
Internal Leakage: 30 ml/min. max. at 70bars
Response Time: 10ms
Standard Spring Ranges: See Ordering code on the right
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IT-11A; See page 309

PERFORMANCE (cartridge only)

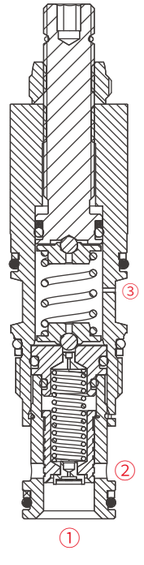


DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

IRSDC - ___ ___ ___

Seals
N Buna-N (Std.)
V Fluorocarbon

Control
L Screw stem
K Knob

Spring Range

A	100～3000 psi (7~210 bar)	preset：1000 psi (70 bar)
B	50～1500 psi (3.5~105 bar)	preset：1000 psi (70 bar)
C	150～6000 psi (10.5~420 bar)	preset：1000 psi (70 bar)
N	4～55 psi (1.7~3.8 bar)	preset：400 psi (30 bar)
Q	4～25 psi (0.3~1.7 bar)	preset：200 psi (14 bar)
W	150～4500 psi (10.5~315 bar)	preset：1000 psi (70 bar)

SOLENOID VALVE

VALZOOM® 珐隽 SOLENOID VALVE SERIES INCLUDES POPPET VALVE, SPOOL VALVE, BLOCKING / LOW FLOW VALVE, ETC.

POPET VALVE IS A TWO-WAY, NORMALLY OPEN OR NORMALLY CLOSED VALVE FOR LOW LEAKAGE BLOCKING AND LOAD HOLDING APPLICATIONS.

SPOOL VALVE IS A TWO-WAY, NORMALLY OPEN OR NORMALLY CLOSED, THREE-WAY, FOUR-WAY, THREE POSITION FOUR-WAY, ETC.

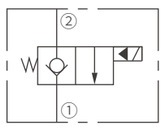
BLOCKING / LOW FLOW VALVE IS A TWO-WAY, NORMALLY CLOSED, LOAD HOLDING RELIEF VALVE AND A TWO POSITION THREE-WAY BLOCKING VALVE.

SPOOL VALVE IS DRIVEN BY DOUBLE COIL AND CONNECTED IN NEUTRAL.

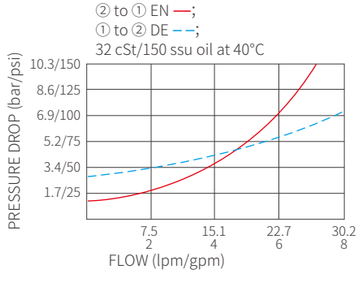
SOLENOID VALVE

ISV08-20
POPPET, 2-WAY, N.C. (STANDARD)

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, piloted poppet-type, screw-in hydraulic cartridge valve, intended to act as a blocking or load-holding device for low flow circuits.

OPERATION

When de-energized, the ISV08-20 acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.
When energized, the cartridge' s poppet lifts to open the ② to ① flow path.
In this mode, flow from ① to ② is severely restricted.
Operation of Manual Override Option: To override, push button in, twist counter-clockwise 180°, and release. In this position, the valve will remain open.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Cartridges are voltage interchangeable.
5. Unitized, molded coil design.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Industry common cavity.
9. Compact size.

RATINGS

Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 255 bar (3700 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 40 msec.; De-energized: 46 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.2 amps at 12 VDC;
0.13 amps at 115 VAC (full wave rectified).
E-Coil: 1.4 amps at 12 VDC; 0.7 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC08-2; See page 297

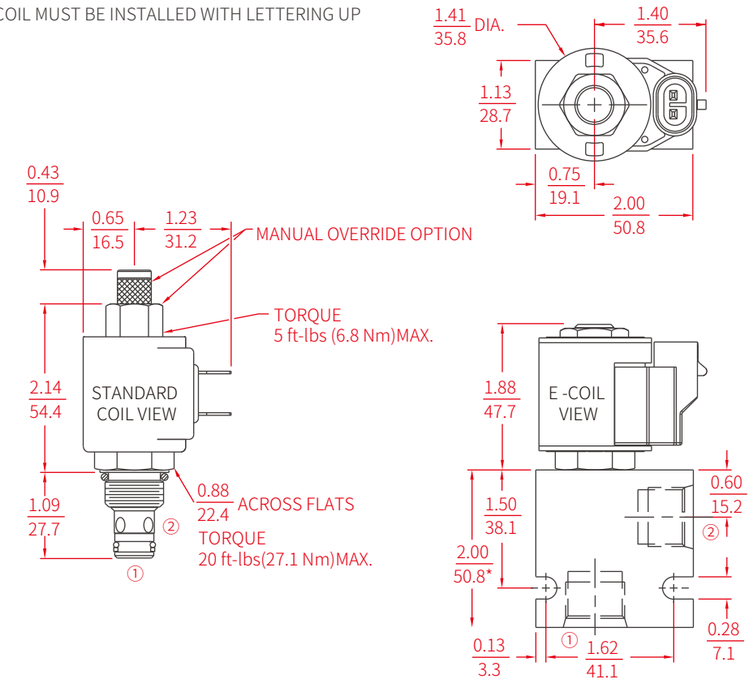
MATERIALS

Cartridge: Weight: 0.09 kg. (0.20 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.14 kg. (0.3 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

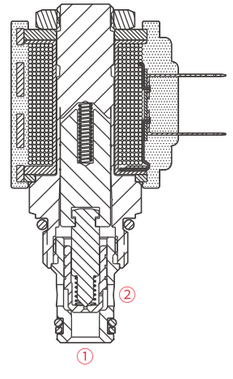
INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



*BSP BDOY-55.9MM

SECTIONAL DRAWING



TO ORDER

ISV08 - 20 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
150µ Screen **S**
Manual Override **M**

Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

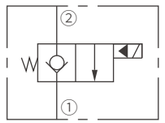
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

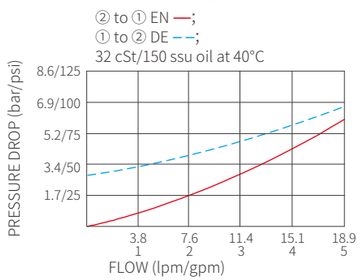
SOLENOID VALVE

ISV08-B20
POPPET, 2-WAY, N.C.
(HIGH PERFORMANCE)

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, piloted poppet-type, screw-in hydraulic cartridge valve, intended to act as a blocking or load-holding device for low flow circuits.

OPERATION

When de-energized, the ISV08-B20 acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.
When energized, the cartridge' s poppet lifts to open the ② to ① flow path.
Operation of Manual Override Option: To override, push button in, twist counterclockwise for 2 turns, and release. To return to normal operation, push button in, twist clockwise for 2 turns, and release.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Cartridges are voltage interchangeable.
5. Unitized, molded coil design.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Industry common cavity.
9. Compact size.

RATINGS

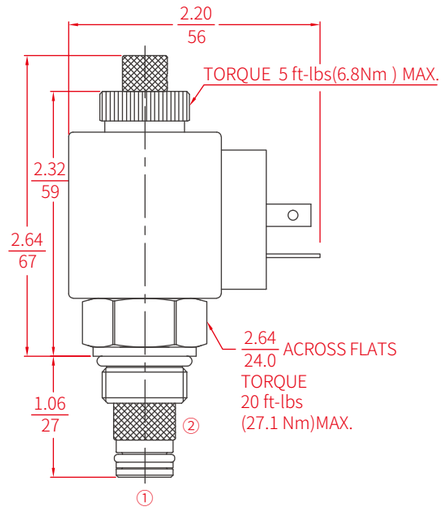
Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 310 bar (4500 psi)
Flow: See Performance Chart
Internal Leakage: 0.1 ml/min. (2 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC08-2; See page 297

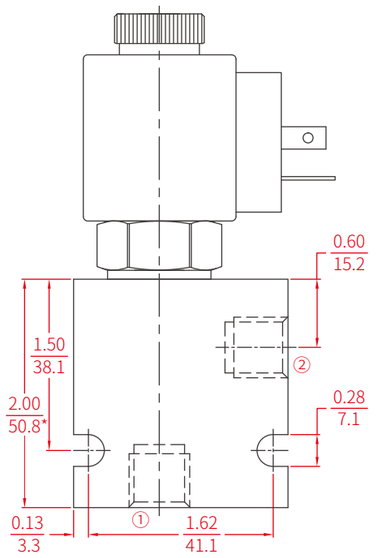
MATERIALS

Cartridge: Weight: 0.09 kg. (0.20 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces. Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi). Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.9 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

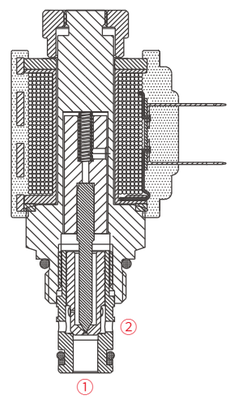
INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP





*BSP BODY-55.9MM

SECTIONAL DRAWING



TO ORDER

ISV08 - B20 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
150µ Screen **S**
Manual Override **M**

Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

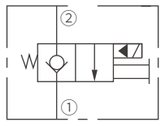
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EL Leadwires (2)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

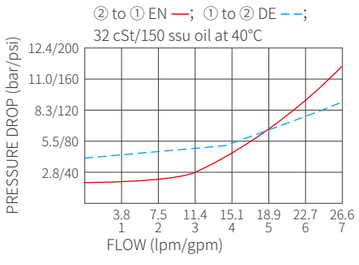
SOLENOID VALVE

ISV08-20J
POPPET, 2-WAY, N.C.
PULL-ONLY MANUAL OVERRIDE

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, piloted poppet-type, screw-in hydraulic cartridge valve, intended to act as a load holding or blocking device for low flow circuits having pull-only manual override requirements.

OPERATION

When de-energized, the ISV08-20J acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.
When energized, the cartridge' s poppet lifts to open the ② to ① flow path. In this mode, flow from ① to ② is severely restricted.
Operation of Manual Override Option: To manually override, pull and hold the knurled knob. This override is not detented. The pull force required is approximately 24 lbs. The "J" option includes a male 10-32 thread for a cable attachment. If a cable is used, the internal valve spring may not provide enough force to overcome internal cable friction. An external means of returning the cable must be provided by the user.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Optional waterproof E-Coils rated up to IP69K.
5. Manual override option.
6. Industry common cavity.
7. Compact size.

RATINGS

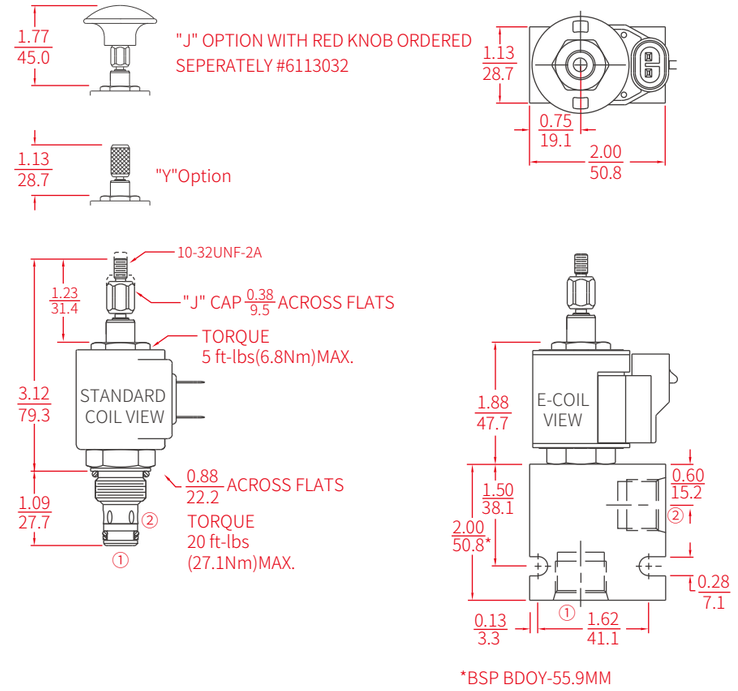
Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 255 bar (3700 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.2 amps at 12 VDC;
0.13 amps at 115 VAC (full wave rectified).
E-Coil: 1.4 amps at 12 VDC; 0.7 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 40°C; Drop Out at 5%
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC08-2; See page 297

MATERIALS

Cartridge: Weight: 0.15 kg. (0.33 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP



*BSP BDOY-55.9MM

SECTIONAL DRAWING

TO ORDER

ISV08 - 20J - ____ ____ - ____ - ____ ____ ____

Option
None **BLANK**
Cable Adapter **J**
Knurled Knob **Y**

Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

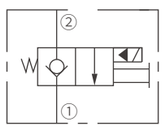
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

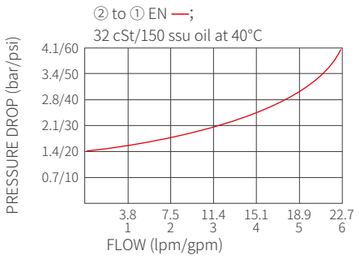
SOLENOID VALVE

ISV38-20J
POPPET, 2-WAY, N.C.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, piloted poppet-type, screw-in hydraulic cartridge valve, intended to act as a load holding or blocking device for low flow circuits having pull-only manual override requirements.

OPERATION

When de-energized, the ISV38-20J acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.
When energized, the cartridge' s poppet lifts to open the ② to ① flow path. In this mode, flow from ① to ② is severely restricted.
Operation of Manual Override Option: To manually override, pull and hold the knurled knob. This override is not detented. The pull force required is approximately 20 lbs. The "J" option includes a male 10-32 thread for a cable attachment. If a cable is used, the internal valve spring may not provide enough force to overcome internal cable friction. An external means of returning the cable must be provided by the user.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Cartridges are voltage interchangeable.
5. Unitized, molded coil design.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Industry common cavity.
9. Compact size.

RATINGS

Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 310 bar (4500 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC08-2; See page 297

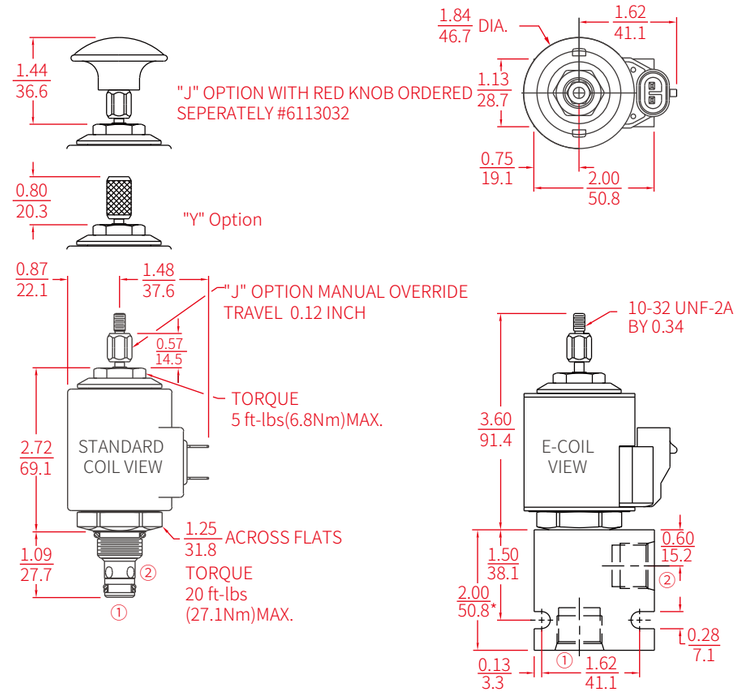
MATERIALS

Cartridge: Weight: 0.09 kg. (0.20 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

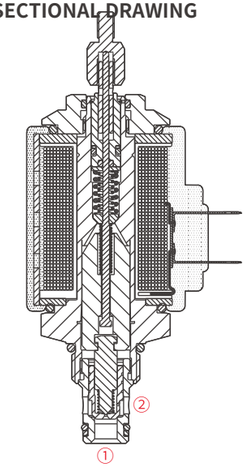
INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



*BSP BODY-55.9MM

SECTIONAL DRAWING



TO ORDER

ISV38 - 20J - ____ - ____ - ____

Option
None **BLANK**
Stanadrd **J**
150µ Screen **S**
Cable Adapter **Y**

Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

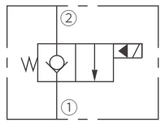
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

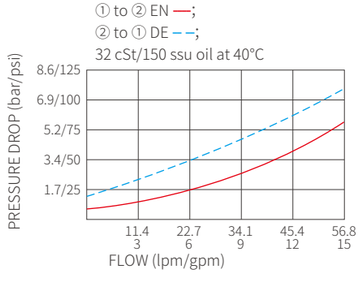
SOLENOID VALVE

ISV10-20
POPPET, 2-WAY, N.C.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION
A solenoid-operated, 2-way, normally closed, poppet-type, screw-in hydraulic cartridge valve, designed to function as a load holding or blocking valve in applications requiring low internal leakage.

OPERATION
When de-energized, the ISV10-20 acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.
When energized, the cartridge' s poppet lifts to open the ② to ① flow path.
In this mode, flow from ① to ② is severely restricted.
Operation of Manual Override Option: To override, push button in, twist counter-clockwise 180°, and release. In this position, the valve will remain open.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES
1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Industry common cavity.

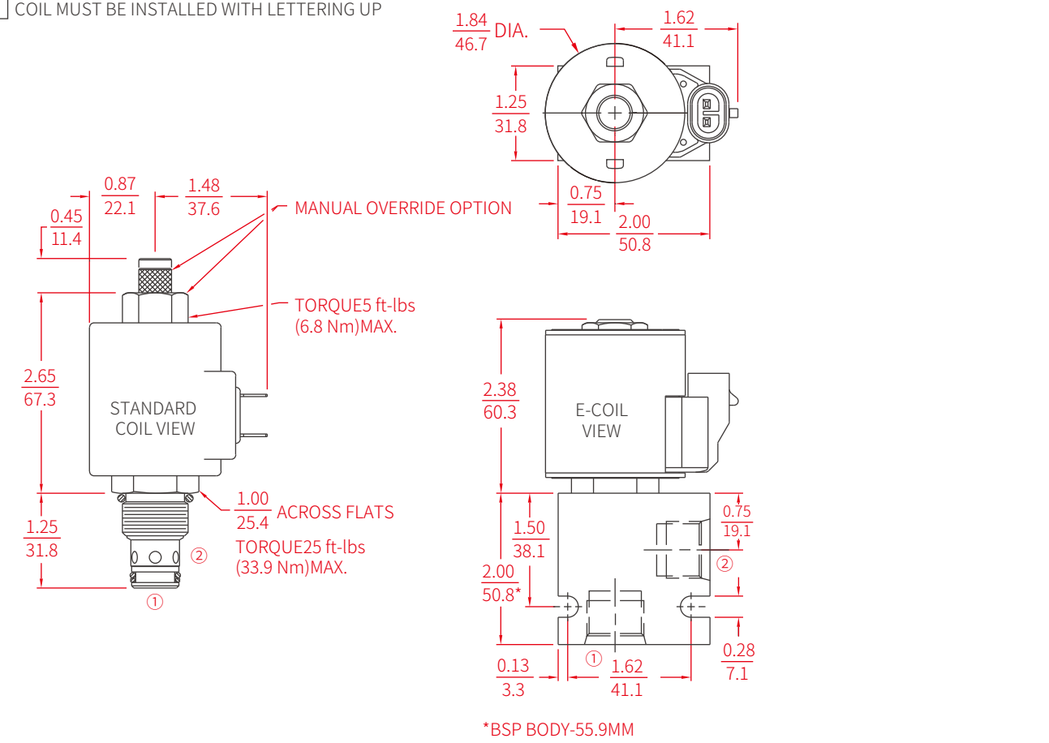
RATINGS
Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 40 msec.; De-energized: 32 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC10-2; See page 300

MATERIALS
Cartridge: Weight: 0.16 kg. (0.35 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

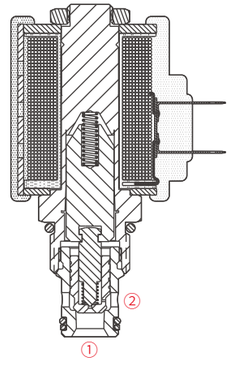
INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



*BSP BODY-55.9MM

SECTIONAL DRAWING



TO ORDER

ISV10 - 20 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
150µ Screen **S**
Manual Override **M**
Manual Override **Y**
Manual Override **J**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

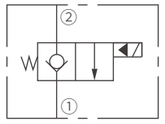
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

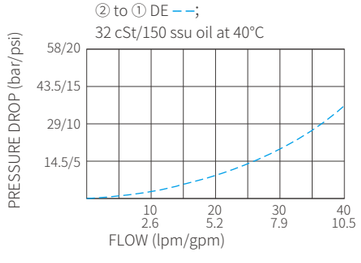
SOLENOID VALVE

ISV10-B20
POPPET, 2-WAY, N.C.
(HIGH PRESSURE)

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, poppet-type, screw-in hydraulic cartridge valve, designed to function as a load holding or blocking valve in applications requiring low internal leakage.

OPERATION

When de-energized, the ISV10-B20 acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.
When energized, the cartridge' s poppet lifts to open the ② to ① flow path.
In this mode, flow from ① to ② is severely restricted. If this path is required, see model ISV12-22.
Operation of Manual Override Option: To override, push button in, twist counterclockwise 180°, and release. In this position, the valve will remain open. To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Optional waterproof E-Coils rated up to IP69K.
7. Unitized, molded coil design.
8. Cost effective cavity.

RATINGS

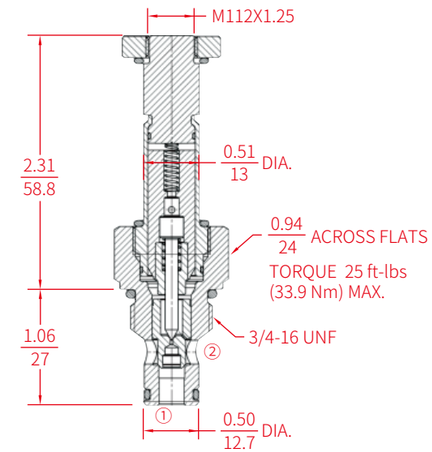
Operating Pressure: 350 bar (5100 psi)
Proof Pressure: 525 bar (7600 psi)
Flow: See Performance Chart
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. at 350 bar (5100 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 30 msec.; De-energized: 50 msec.
Minimum Pull-in Voltage: 85% of nominal at 350 bar (5100 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC10-2; See page 300

MATERIALS

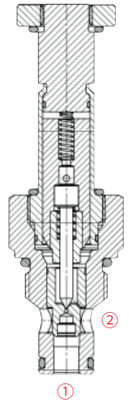
Cartridge: Weight: 0.11 kg. (0.25 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.9 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV10 - B20 - ____ - ____ - ____ ____ ____

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

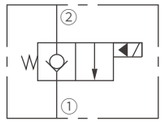
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

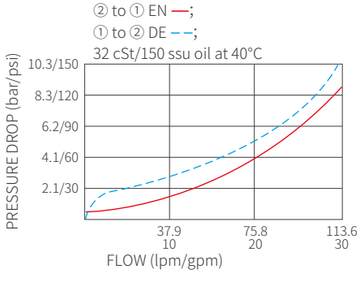
SOLENOID VALVE

ISV12-20
POPPET, 2-WAY, N.C.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, poppet-type, screw-in hydraulic cartridge valve, designed to function as a load holding or blocking valve in applications requiring low internal leakage.

OPERATION

When de-energized, the ISV12-20 acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.
When energized, the cartridge' s poppet lifts to open the ② to ① flow path.
In this mode, flow from ① to ② is severely restricted.
Operation of Manual Override Option: To override, push button in, twist counterclockwise 180°, and release. In this position, the valve will remain open. To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Cost effective cavity.

RATINGS

Operating Pressure: 240 bar (3500 psi)
Proof Pressure: 390 bar (5700 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 240 bar (3500 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 40 msec.; De-energized: 80 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC12-2; See page 302

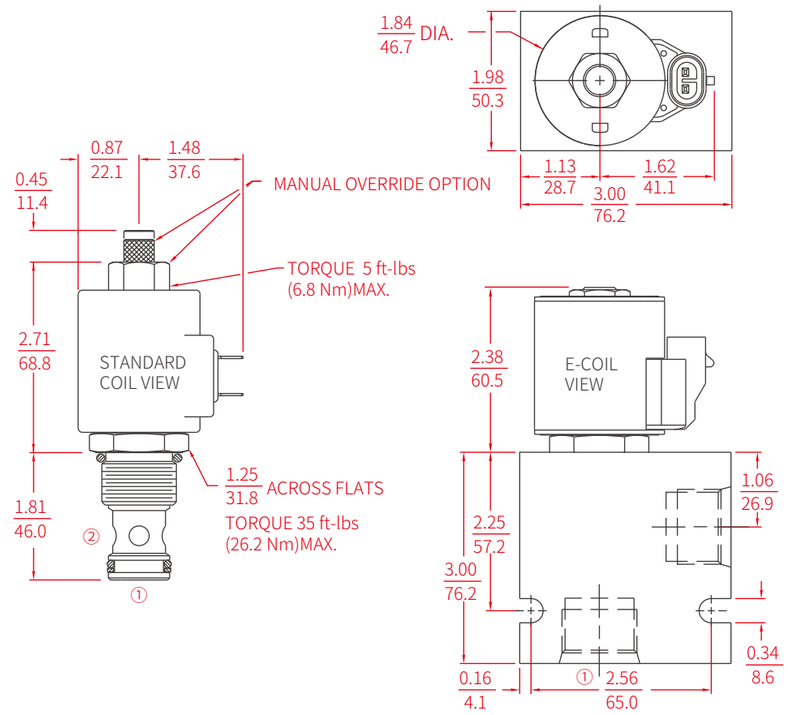
MATERIALS

Cartridge: Weight: 0.25 kg. (0.55 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.9 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

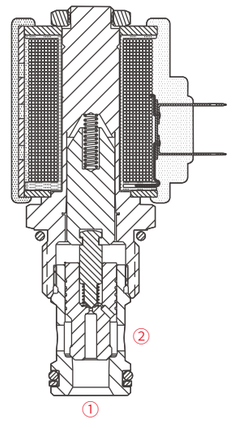
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV12 - 20 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option

None	**BLANK**
150µ Screen	**S**
Manual Override	**M**
Manual Override	**Y**
Manual Override	**J**

Porting

Cartridge Only	**0**
SAE 10	**10T**
SAE 12	**12T**
SAE 16	**16B**
3/4 INCH BSP	**6B**
1 INCH BSP	**8B**

Seals

Buna-N (Std.)	**N**
Fluorocarbon	**V**

Voltage Std. Coil

0	Less Coil**
10	10 VDC †
12	12 VDC
24	24 VDC
36	36 VDC
48	48 VDC
24	24 VAC
115	115 VAC
230	230 VAC

**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil

10	10 VDC
12	12 VDC
20	20 VDC
24	24 VDC

Termination (VDC) Std. Coil

DS	Dual Spades
DG	DIN 43650
DL	Leadwires (2)
DL/W	Leads, w/Weatherpak® Connectors
DR	Deutsch DT04-2P

Termination (VAC) Std. Coil

AG	DIN 43650
AP	1/2 in. Conduit

Termination (VDC) E-Coil

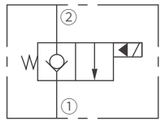
ER	Deutsch DT04-2P (IP69K Rated)
EY	Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

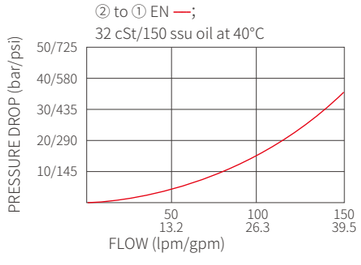
SOLENOID VALVE

ISV12-B20
POPPET, 2-WAY, N.C.
(HIGH PRESSURE)

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, poppet-type, screw-in hydraulic cartridge valve, designed to function as a load holding or blocking valve in applications requiring low internal leakage.

OPERATION

When de-energized, the ISV12-B20 acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.
When energized, the cartridge' s poppet lifts to open the ② to ① flow path.
In this mode, flow from ① to ② is severely restricted. If this path is required, see model I SV12-22.
Operation of Manual Override Option: To override, push button in, twist counter-clockwise 180°, and release. In this position, the valve will remain open.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Cost effective cavity.

RATINGS

Operating Pressure: 350 bar (5100 psi)
Proof Pressure: 525 bar (7600 psi)
Flow: See Performance Chart
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. at 350 bar (5100 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 40 msec.; De-energized: 90 msec.
Minimum Pull-in Voltage: 85% of nominal at 350 bar (5100 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC12-2; See page 302

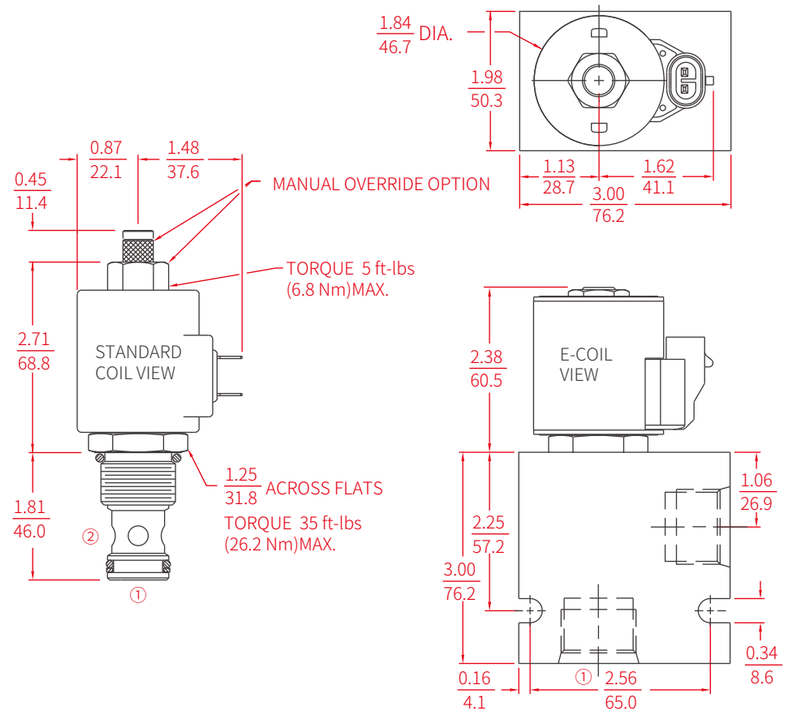
MATERIALS

Cartridge: Weight: 0.25 kg. (0.55 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.9 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

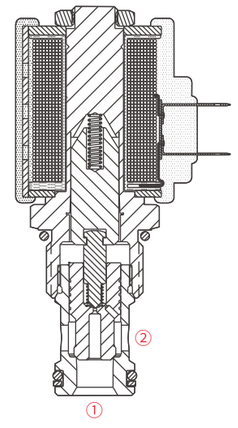
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV12 - B20 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
150µ Screen **S**
Manual Override **M**
Manual Override **Y**
Manual Override **J**

Porting
Cartridge Only **0**
SAE 10 **10T**
SAE 12 **12T**
SAE 16 **16B**
3/4 INCH BSP **6B**
1 INCH BSP **8B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

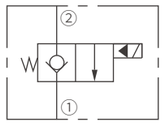
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

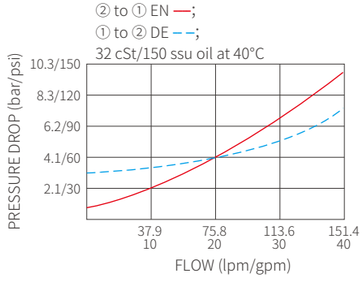
SOLENOID VALVE

ISV16-20
POPPET, 2-WAY, N.C.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, poppet-type, screw-in hydraulic cartridge valve, designed to function as a load holding or blocking valve in applications requiring low internal leakage.

OPERATION

When de-energized, the ISV16-20 acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.
When energized, the cartridge' s poppet lifts to open the ② to ① flow path.
In this mode, flow from ① to ② is severely restricted.
Operation of Manual Override Option: To override, push button in, twist counter-clockwise 180°, and release. In this position, the valve will remain open.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Cost effective cavity.

RATINGS

Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 390 bar (5700 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 120°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC16-2; See page 305

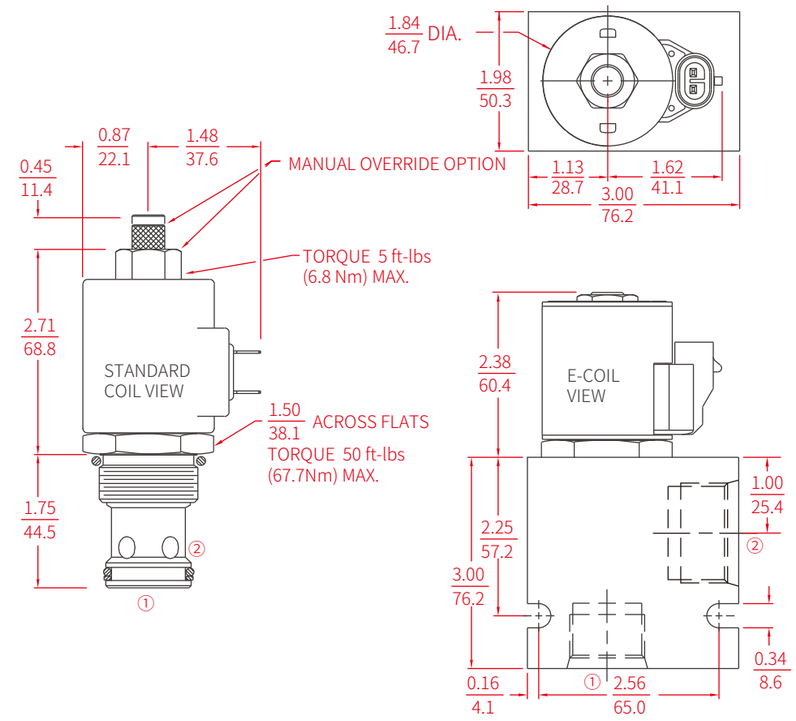
MATERIALS

Cartridge: Weight: 0.31 kg. (0.69 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

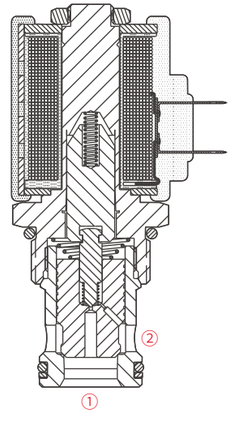
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV16 - 20 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**
Manual Override **Y**
Manual Override **J**

Porting
Cartridge Only **0**
SAE 12 **12T**
SAE 16 **16B**
3/4 INCH BSP **6B**
1 INCH BSP **8B**

Seals
Buna-N (Std.) **V**
Fluorocarbon **P**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

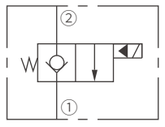
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

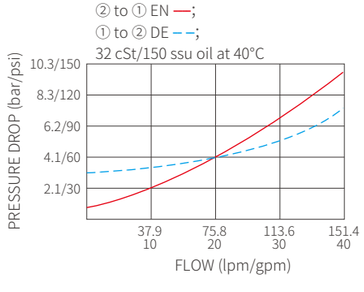
SOLENOID VALVE

ISV16-B20
POPPET, 2-WAY, N.C.
(HIGH PRESSURE)

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, poppet-type, screw-in hydraulic cartridge valve, designed to function as a load holding or blocking valve in applications requiring low internal leakage.

OPERATION

When de-energized, the ISV16-B20 acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.
When energized, the cartridge' s poppet lifts to open the ② to ① flow path.
In this mode, flow from ① to ② is severely restricted.
Operation of Manual Override Option: To override, push button in, twist counter-clockwise 180°, and release. In this position, the valve will remain open.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Cost effective cavity.

RATINGS

Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 390 bar (5700 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 120°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC16-2; See page 305

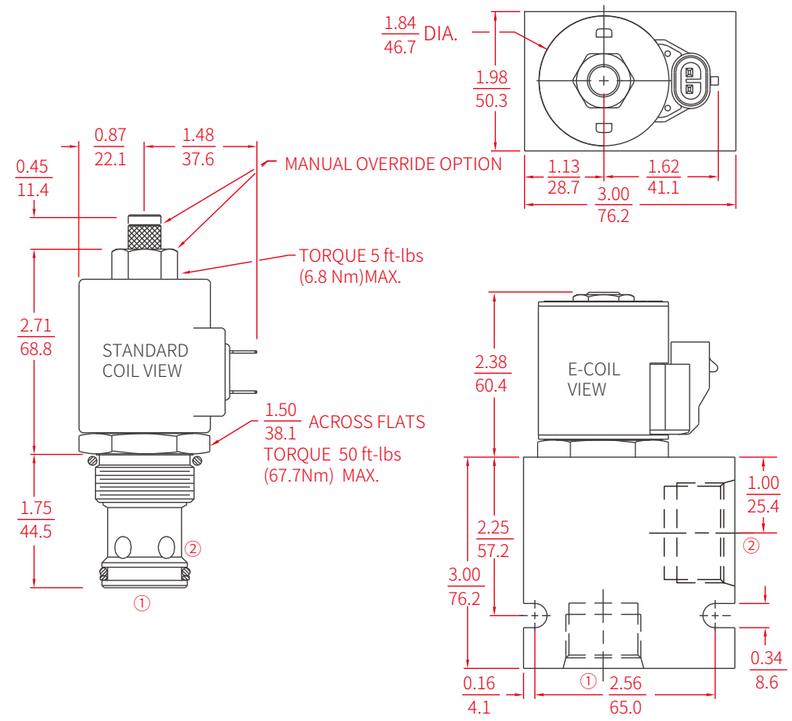
MATERIALS

Cartridge: Weight: 0.31 kg. (0.69 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

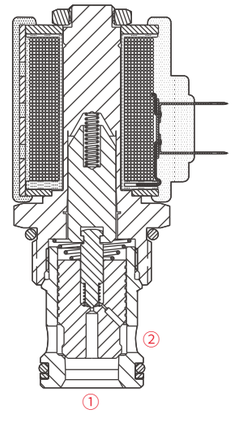
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV16 - B20 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**
Manual Override **Y**
Manual Override **J**

Porting
Cartridge Only **0**
SAE 12 **12T**
SAE 16 **16B**
3/4 INCH BSP **6B**
1 INCH BSP **8B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

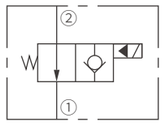
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

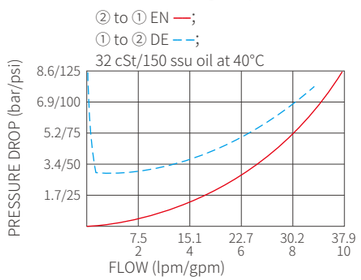
SOLENOID VALVE

ISV08-21
POPPET, 2-WAY, N.O.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally open, piloted poppet-type, screw-in, hydraulic cartridge valve, designed to function as a blocking or load holding valve in applications requiring low internal leakage.

OPERATION

When de-energized, the ISV08-21 allows flow from ② to ①. In this mode, flow from ① to ② is severely restricted.
When energized, the cartridge' s poppet closes on its seat, blocking flow from ② to ①. In this mode the cartridge will allow flow from ① to ② after overcoming the solenoid force (requires 3.4 to 10.3 bar / 50 to 150 psi).
Operation of Manual Override Option: To override, push and hold override button.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Unitized, molded coil design.
7. Manual override option.
8. Optional waterproof E-Coils rated up to IP69K.
9. Industry common cavity.
10. Compact size.

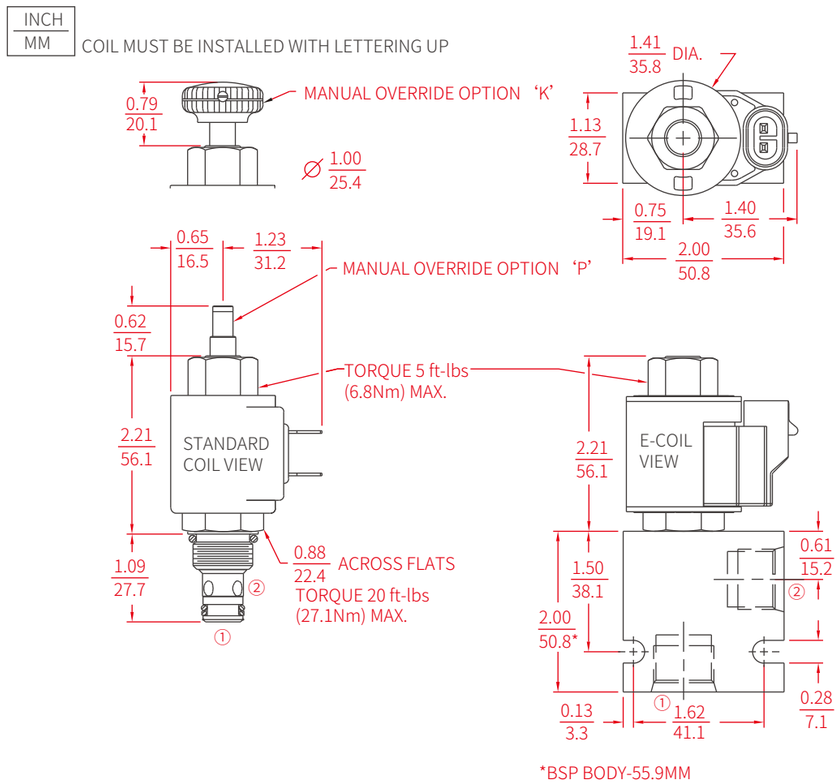
RATINGS

Operating Pressure: 207 bar (3000 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 50 msec.; De-energized: 16 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.2 amps at 12 VDC;
0.13 amps at 115 VAC (full wave rectified).
E-Coil: 1.4 amps at 12 VDC; 0.7 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC08-2; See page 297

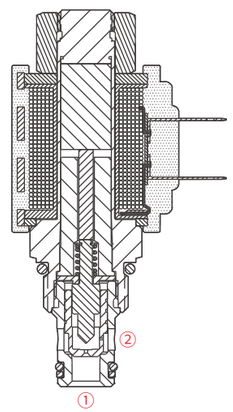
MATERIALS

Cartridge: Weight: 0.09 kg. (0.20 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION



SECTIONAL DRAWING



TO ORDER

ISV08 - 21 ___ - ___ ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override without Knob **P**
Manual Override with Knob **K**

Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

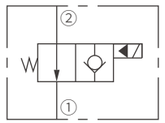
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

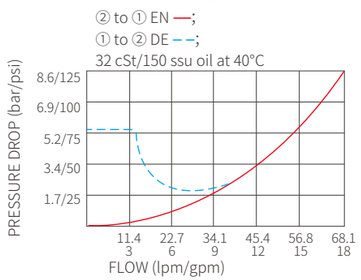
SOLENOID VALVE

ISV10-21
POPPET, 2-WAY, N.O.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally open, piloted poppet-type, screw-in, hydraulic cartridge valve, designed to function as a load holding or blocking valve in applications requiring low internal leakage.

OPERATION

When de-energized, the ISV10-21 allows flow from ② to ①. In this mode, flow from ① to ② is severely restricted.
When energized, the cartridge' s poppet closes on its seat, blocking flow from ② to ①. In this mode the cartridge will allow flow from ① to ② after overcoming the solenoid force (requires 3.4 to 10.3 bar / 50 to 150 psi).

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Unitized, molded coil design.
7. Manual override option.
8. Optional waterproof E-Coils rated up to IP69K.
9. Industry common cavity.

RATINGS

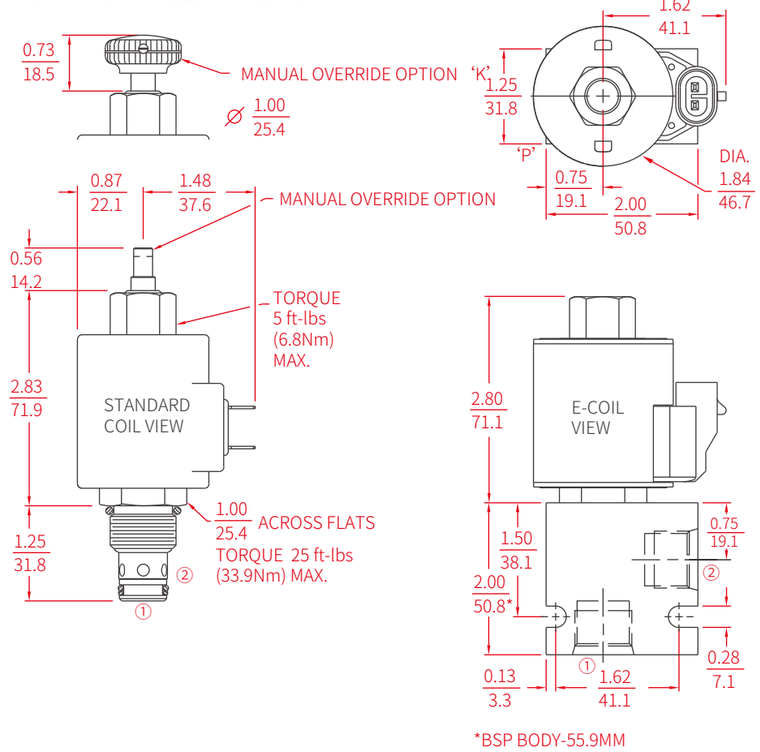
Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 345 bar (5000 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 80 msec.; De-energized: 30 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC10-2; See page 300

MATERIALS

Cartridge: Weight: 0.16 kg. (0.35 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

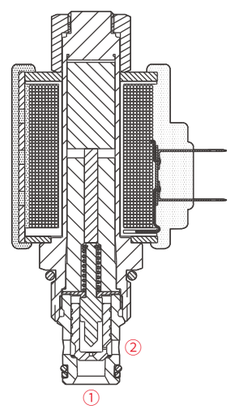
DIMENSION

INCH / MM



*BSP BODY-55.9MM

SECTIONAL DRAWING



TO ORDER

ISV10 - 21 ___ - ___ ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override without Knob **P**
Manual Override with Knob **K**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

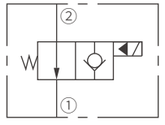
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

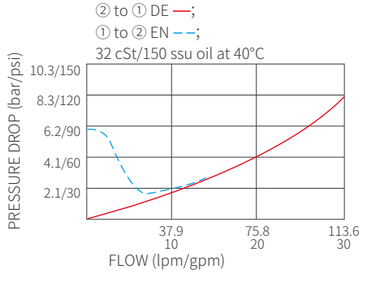
SOLENOID VALVE

ISV12-21
POPPET, 2-WAY, N.O.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally open, poppet-type, screw-in, hydraulic cartridge valve, designed to function as a blocking or load holding valve in applications requiring low internal leakage.

OPERATION

When energized, the ISV12-21 acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.
When de-energized, the cartridge' s poppet lifts to open the ② to ① flow path. In this mode, flow from ① to ② is severely restricted.
Operation of Manual Override Option: To override, push and hold override button.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Unitized, molded coil design.
7. Manual override option.
8. Optional waterproof E-Coils rated up to IP69K.
9. Cost effective cavity.

RATINGS

Operating Pressure: 240 bar (3500 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 240 bar (3500 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 110 msec.; De-energized: 40 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC12-2; See page 302

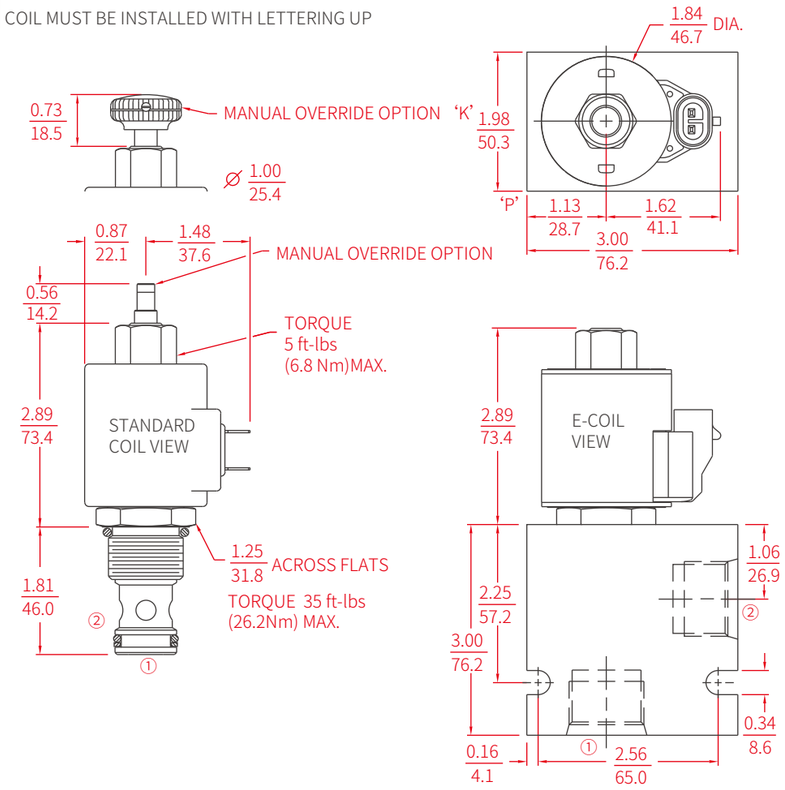
MATERIALS

Cartridge: Weight: 0.25 kg. (0.55 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

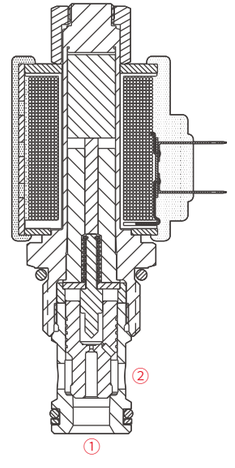
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV12 - 21 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override without Knob **P**
Manual Override with Knob **K**

Porting
Cartridge Only **0**
SAE 10 **10T**
SAE 12 **12T**
SAE 16 **16T**
3/4 INCH BSP **6B**
1 INCH BSP **8B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

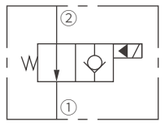
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

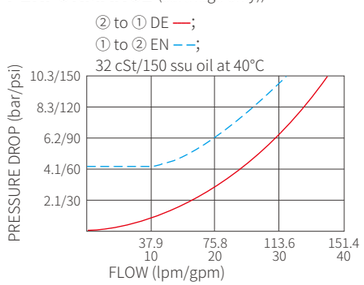
SOLENOID VALVE

ISV16-21
POPPET, 2-WAY, N.O.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally open, poppet-type, screw-in, hydraulic cartridge valve, designed to function as a blocking or load holding valve in applications requiring low internal leakage.

OPERATION

When de-energized, the ISV16-21 poppet lifts to allow flow from ② to ①.
In this mode, flow from ① to ② is severely restricted.
When energized, the flow patch from ② to ① is closed. In this mode, the cartridge acts as a check valve, allowing flow to pass from ① to ② after overcoming the solenoid force (requires 3.4 to 10.3 bar / 50 to 150 psi).
Operation of Manual Override Option: To override, push and hold override button.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Unitized, molded coil design.
7. Industry common cavity.
8. Manual override option.
9. Optional waterproof E-Coils rated up to IP69K.

RATINGS

Operating Pressure: 207 bar (3000 psi); Under certain operating conditions, this valve may be used at higher pressures; consult Inno.
Proof Pressure: 345 bar (5075 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 120°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC16-2; See page 305

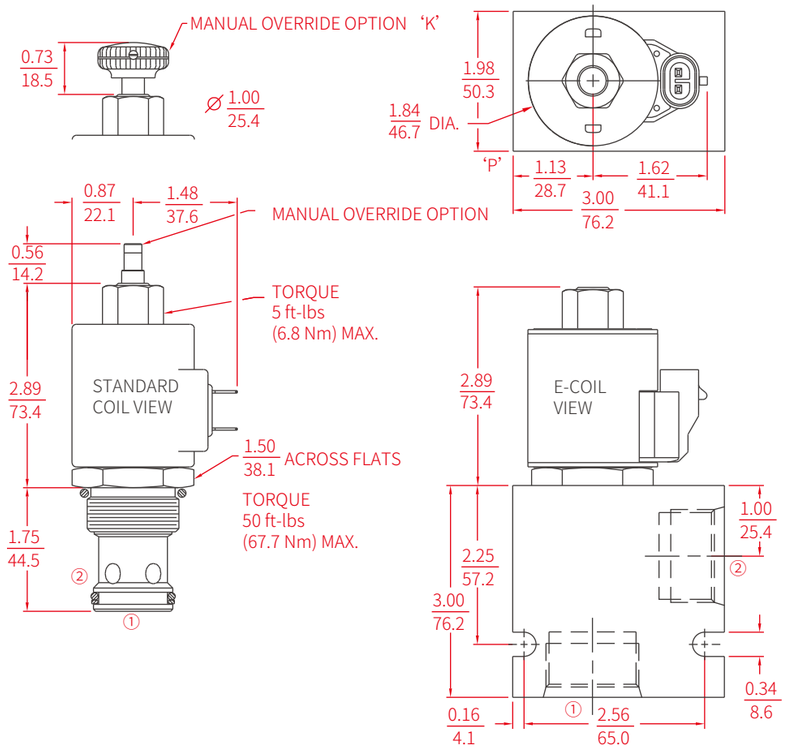
MATERIALS

Cartridge: Weight: 0.31 kg. (0.69 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

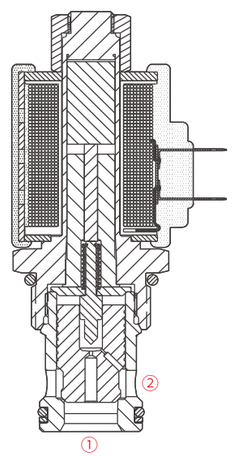
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV16 - 21 ___ - ___ ___ ___ - ___ - ___ ___ ___ ___ ___

Option
None **BLANK**
Manual Override without Knob **P**
Manual Override with Knob **K**

Porting
Cartridge Only **0**
SAE 12 **12T**
SAE 16 **16T**
3/4 INCH BSP **6B**
1 INCH BSP **8B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

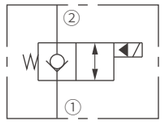
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

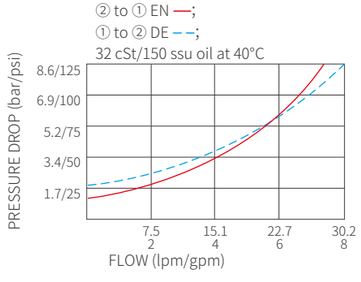
SOLENOID VALVE

ISV08-22
POPPET, 2-WAY, N.C.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, poppet-type, screw-in, hydraulic cartridge valve, designed to function as a load holding or blocking valve in applications requiring low internal leakage.

OPERATION

When de-energized, the ISV08-22 acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.
When energized, the cartridge' s poppet lifts to open the ② to ① flow path. In this mode, bidirectional flow is allowed.
Oeration of Manual Override Option: To override, push button in, twist counter-clockwise 180°, and release. In this position, the valve will remain open.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Industry common cavity.
10. Compact size.

RATINGS

Operating Pressure: 207 bar (3000 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C (Standard Polyurethane Seals)
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.2 amps at 12 VDC;
0.13 amps at 115 VAC (full wave rectified).
E-Coil: 1.4 amps at 12 VDC; 0.7 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC08-2; See page 297

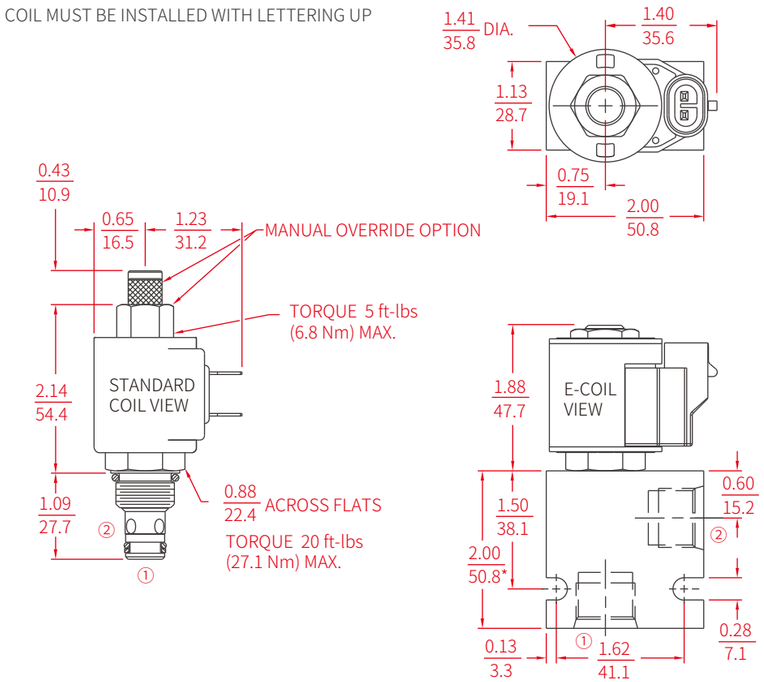
MATERIALS

Cartridge: Weight: 0.09 kg. (0.20 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

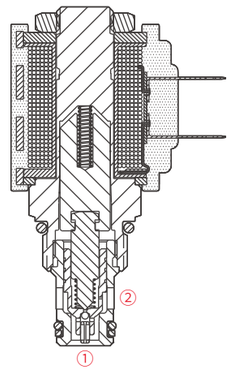
INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



*BSP BODY-55.9MM

SECTIONAL DRAWING



TO ORDER

ISV08 - 22 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Screen **S**
Manual Override **M**

Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

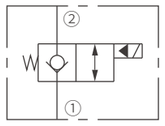
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

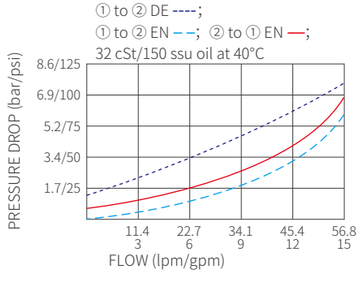
SOLENOID VALVE

ISV10-22
POPPET, 2-WAY, N.C.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION
A solenoid-operated, 2-way, normally closed, poppet-type, screw-in, hydraulic cartridge valve, designed to function as a load holding or blocking valve in applications requiring low internal leakage.

OPERATION
When de-energized, the ISV10-22 acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.
When energized, the cartridge' s poppet lifts to open the ② to ① flow path. In this mode, flow is also allowed from ① to ②.
Operation of Manual Override Option: To override, push button in, twist counterclockwise 180°, and release. In this position, the valve will remain open. To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

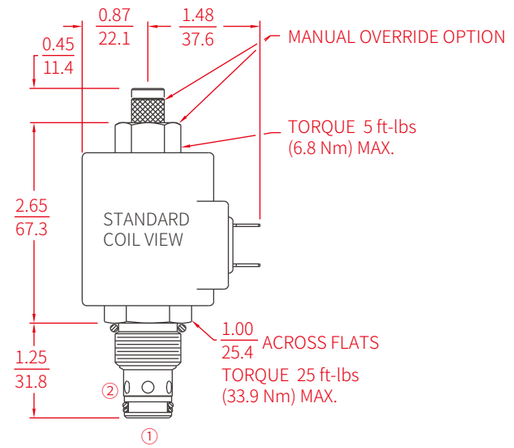
FEATURES
1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Industry common cavity.

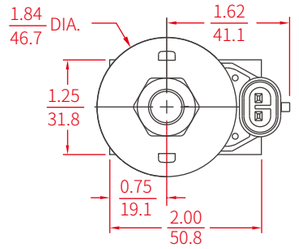
RATINGS
Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C (Standard Polyurethane Seals)
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 40 msec.; De-energized: 32 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC10-2; See page 300

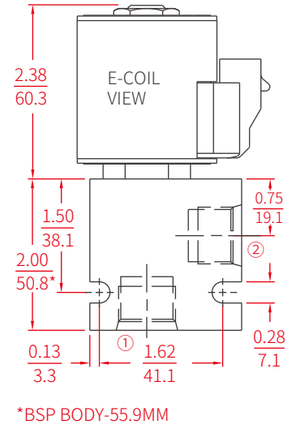
MATERIALS
Cartridge: Weight: 0.16 kg. (0.35 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP

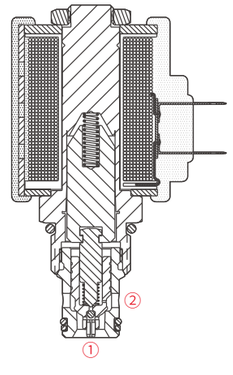






*BSP BODY-55.9MM

SECTIONAL DRAWING



TO ORDER

ISV10 - 22 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**
Manual Override **Y**
Manual Override **J**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

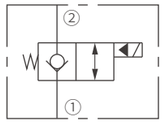
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

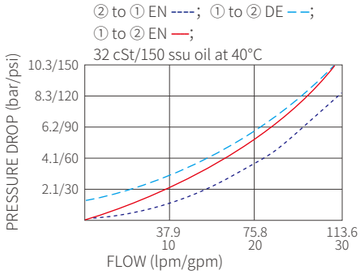
SOLENOID VALVE

ISV12-22
POPPET, 2-WAY, N.C.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, poppet-type, screw-in, hydraulic cartridge valve, designed to function as a load holding or blocking valve in applications requiring low internal leakage.

OPERATION

When de-energized, the ISV12-22 acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.
When energized, the cartridge' s poppet lifts to open the ② to ① flow path. In this mode, flow is also allowed from ① to ②.
Operation of Manual Override Option: To override, push button in, twist counterclockwise 180°, and release. In this position, the valve will remain open. To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Cost effective cavity.

RATINGS

Operating Pressure: 240 bar (3000 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 240 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 40 msec.; De-energized: 80 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC12-2; See page 302

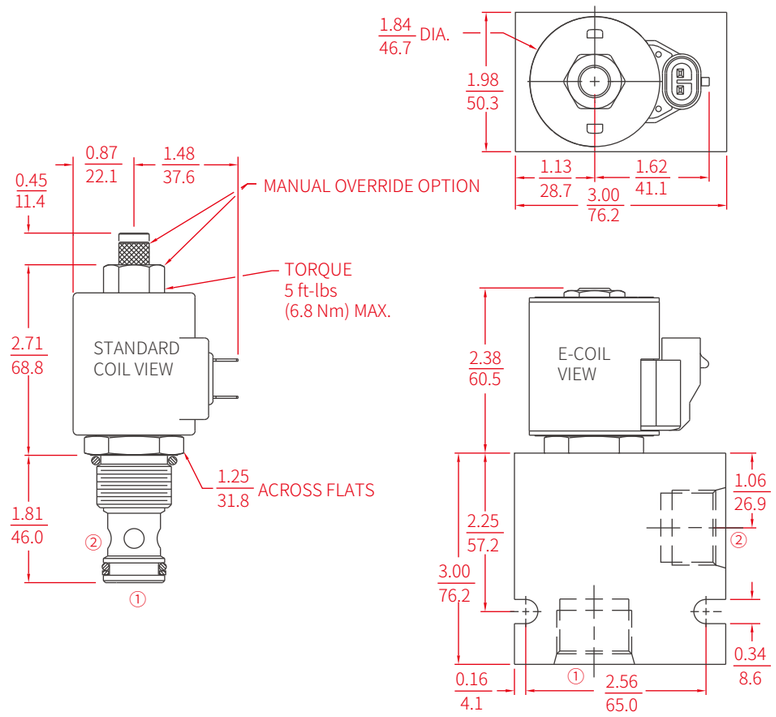
MATERIALS

Cartridge: Weight: 0.25 kg. (0.55 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

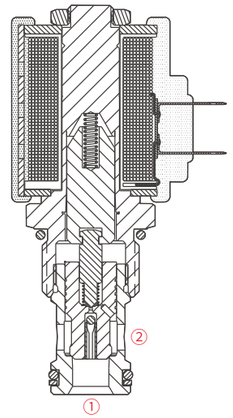
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV12 - 22 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option

None	**BLANK**
Manual Override	**M**
Manual Override	**Y**
Manual Override	**J**

Porting

Cartridge Only	**0**
SAE 10	**10T**
SAE 12	**12T**
SAE 16	**16B**
3/4 INCH BSP	**6B**
1 INCH BSP	**8B**

Seals

Buna-N (Std.)	**N**
Fluorocarbon	**V**

Voltage Std. Coil

0	Less Coil**
10	10 VDC †
12	12 VDC
24	24 VDC
36	36 VDC
48	48 VDC
24	24 VAC
115	115 VAC
230	230 VAC

**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil

10	10 VDC
12	12 VDC
20	20 VDC
24	24 VDC

Termination (VDC) Std. Coil

DS	Dual Spades
DG	DIN 43650
DL	Leadwires (2)
DL/W	Leads, w/Weatherpak® Connectors
DR	Deutsch DT04-2P

Termination (VAC) Std. Coil

AG	DIN 43650
AP	1/2 in. Conduit

Termination (VDC) E-Coil

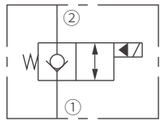
ER	Deutsch DT04-2P (IP69K Rated)
EY	Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

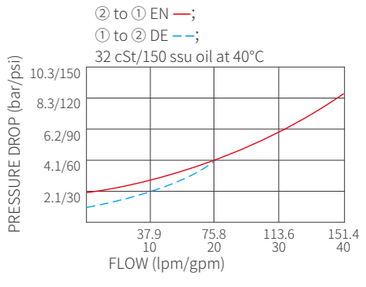
SOLENOID VALVE

ISV16-22
POPPET, 2-WAY, N.C.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, poppet-type, screw-in, hydraulic cartridge valve, designed to function as a load holding or blocking valve in applications requiring low internal leakage.

OPERATION

When de-energized, the ISV16-22 acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.
When energized, the cartridge' s poppet lifts to open the ② to ① flow path. In this mode, flow is also allowed from ① to ②.
Operation of Manual Override Option: To override, push button in, twist counterclockwise 180°, and release. In this position, the valve will remain open. To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Industry common cavity.

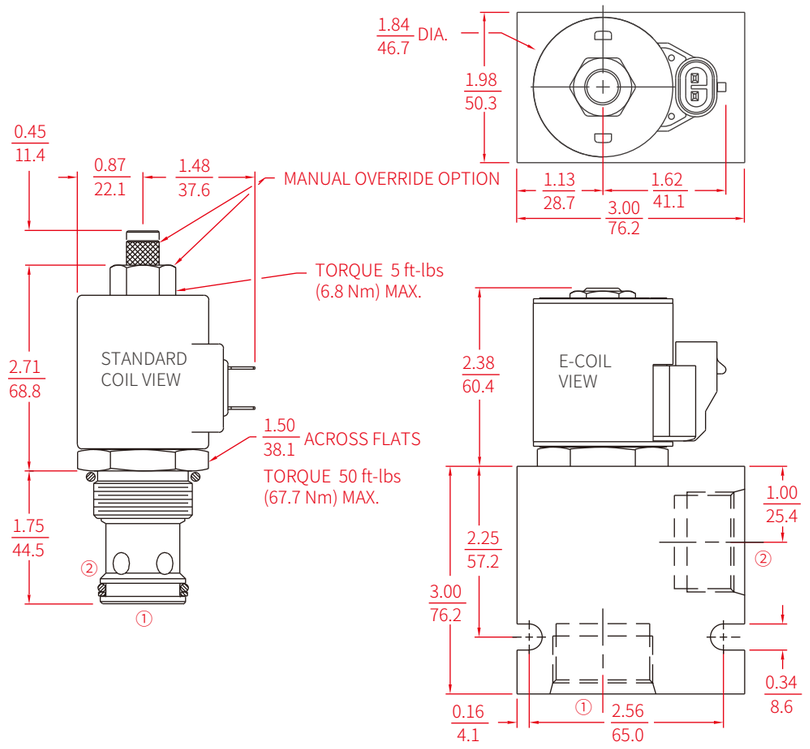
RATINGS

Operating Pressure: 207 bar (3000 psi); Under certain operating conditions, this valve may be used at higher pressures; consult Inno.
Proof Pressure: 390 bar (5700 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 240 bar (3500 psi)
Temperature: -40 to 120°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC16-2; See page 305

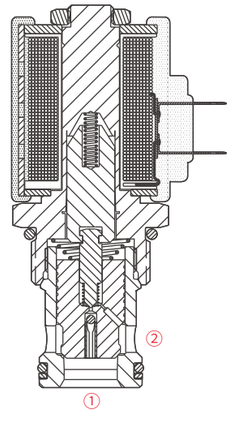
MATERIALS
Cartridge: Weight: 0.31 kg. (0.69 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV16 - 22 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**
Manual Override **Y**
Manual Override **J**

Porting
Cartridge Only **0**
SAE 12 **12T**
SAE 16 **16B**
3/4 INCH BSP **6B**
1 INCH BSP **8B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

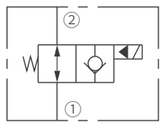
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

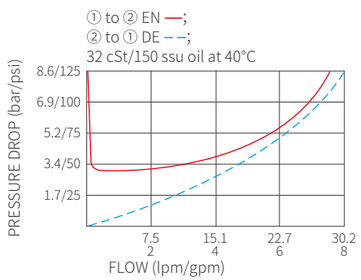
SOLENOID VALVE

ISV08-23
POPPET, 2-WAY, N.O.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally open, poppet-type, screw-in, hydraulic cartridge valve, designed to function as a blocking or load holding valve in applications requiring low internal leakage.

OPERATION

When de-energized, the ISV08-23 poppet lifts to open flow from ② to ①, while flow is also open from ① to ②.
When energized, the cartridge acts as a check valve, allowing flow to pass from ① to ②, while blocking flow from ② to ① after overcoming the solenoid force (requires 3.4 to 10.3 bar / 50 to 150 psi).
Operation of Manual Override Option: To override, push and hold override button.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Unitized, molded coil design.
7. Manual override option.
8. Optional waterproof E-Coils rated up to IP69K.
9. Industry common cavity.
10. Compact size.

RATINGS

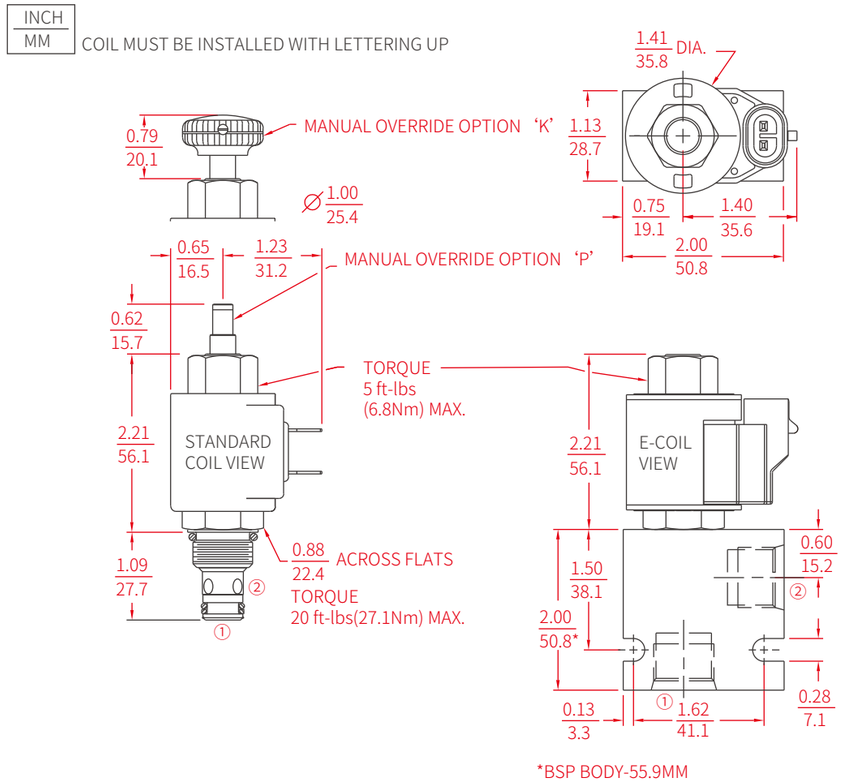
Operating Pressure: 207 bar (3000 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 30 msec.; De-energized: 60 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.2 amps at 12 VDC;
0.13 amps at 115 VAC (full wave rectified).
E-Coil: 1.4 amps at 12 VDC; 0.7 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC08-2; See page 297

MATERIALS

Cartridge: Weight: 0.09 kg. (0.20 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

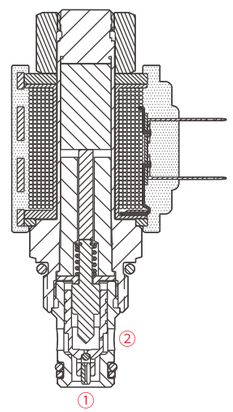
DIMENSION

INCH / MM



*BSP BODY-55.9MM

SECTIONAL DRAWING



TO ORDER

ISV08 - 23 ___ - ___ ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Screen **S**
Manual Override without Knob **P**
Manual Override with Knob **K**

Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

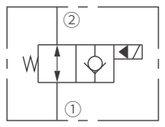
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

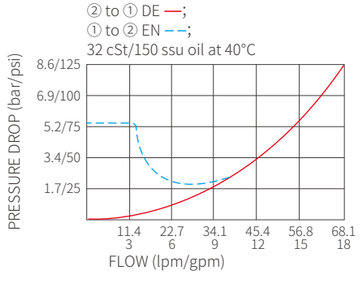
SOLENOID VALVE

ISV10-23
POPPET, 2-WAY, N.O.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally open, poppet-type, screw-in, hydraulic cartridge valve, designed to function as a blocking or load holding valve in applications requiring low internal leakage.

OPERATION

When de-energized, the ISV10-23 allows bidirectional flow from ② to ①.
When energized, the valve' s poppet closes to block flow from ② to ①. In this mode, the cartridge allows flow from ① to ② after overcoming the solenoid force (requires 3.4 to 10.3 bar / 50 to 150 psi).
Operation of Manual Override Option: To override, push and hold override button.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Industry common cavity.

RATINGS

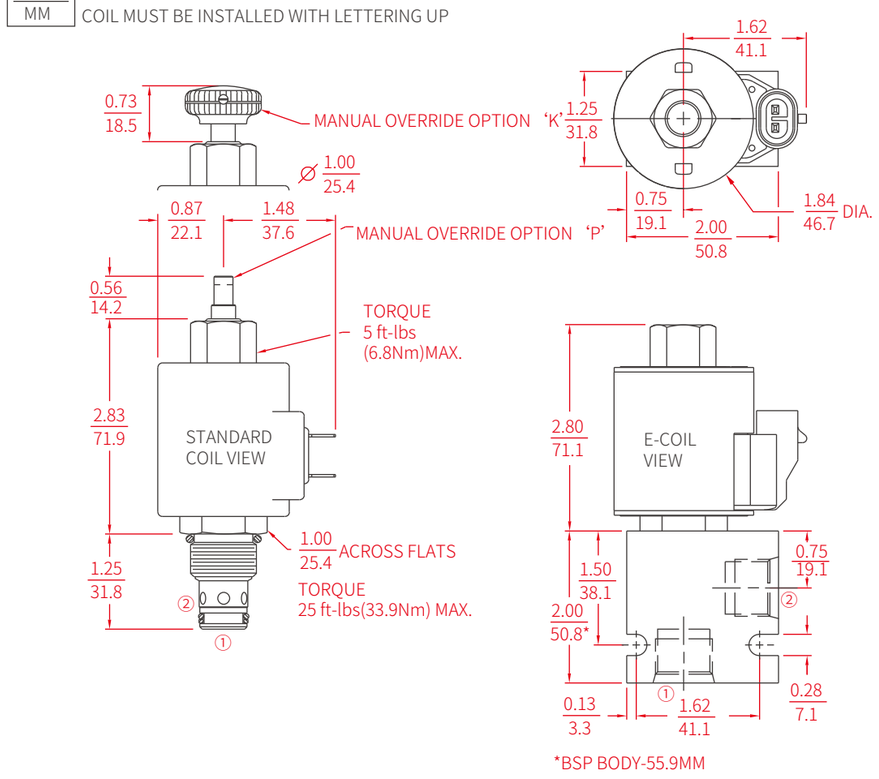
Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 345 bar (5075 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 80 msec.; De-energized: 30 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC10-2; See page 300

MATERIALS

Cartridge: Weight: 0.16 kg. (0.35 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

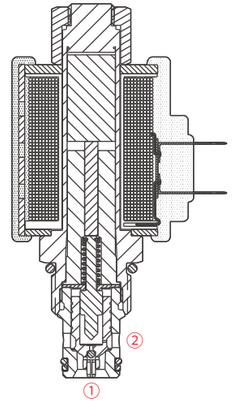
DIMENSION

INCH / MM



*BSP BODY-55.9MM

SECTIONAL DRAWING



TO ORDER

ISV10 - 23 ___ - ___ ___ - ___ - ___ ___ ___

Option
None **BLANK**
Screen **S**
Manual Override without Knob **P**
Manual Override with Knob **K**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

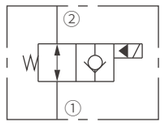
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

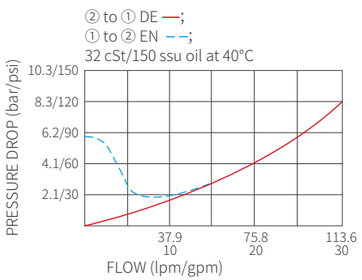
SOLENOID VALVE

ISV12-23
POPPET, 2-WAY, N.O.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally open, poppet-type, screw-in, hydraulic cartridge valve, designed to function as a blocking or load holding valve in applications requiring low internal leakage.

OPERATION

When de-energized, the ISV12-23 allows bidirectional flow from ② to ①.
When energized, the valve' s poppet closes to block flow from ② to ①. In this mode, the cartridge allows flow from ① to ② after overcoming the solenoid force (requires 3.4 to 10.3 bar / 50 to 150 psi).
Operation of Manual Override Option: To override, push and hold override button.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Cost effective cavity.

RATINGS

Operating Pressure: 240 bar (3500 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 240 bar (3500 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC12-2; See page 302

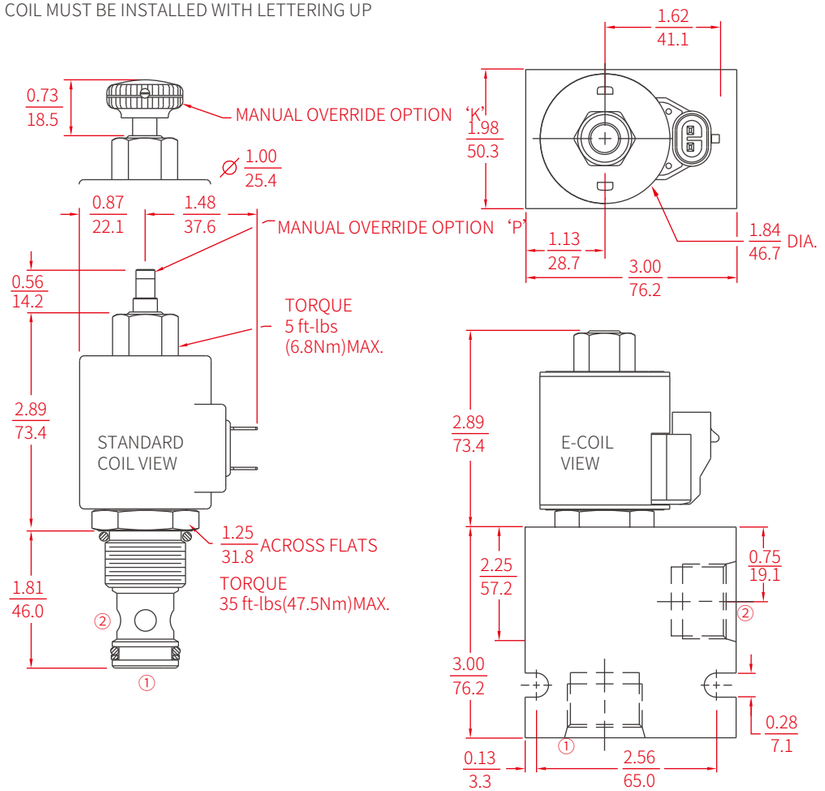
MATERIALS

Cartridge: Weight: 0.25 kg. (0.55 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

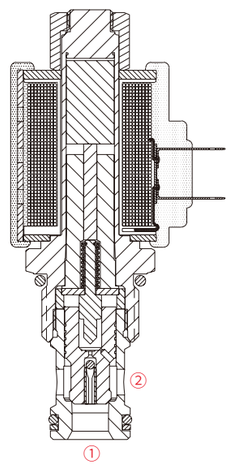
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV12 - 23 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override without Knob **P**
Manual Override with Knob **K**

Porting
Cartridge Only **0**
SAE 10 **10T**
SAE 12 **12T**
SAE 16 **16T**
3/4 INCH BSP **6B**
1 INCH BSP **8B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

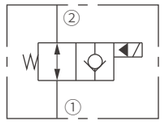
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

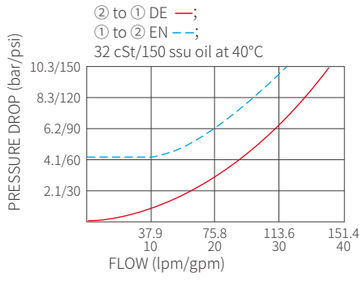
SOLENOID VALVE

ISV16-23
POPPET, 2-WAY, N.O.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally open, poppet-type, screw-in, hydraulic cartridge valve, designed to function as a blocking or load holding valve in applications requiring low internal leakage.

OPERATION

When de-energized, the ISV16-23 poppet lifts to open flow from ② to ①. In this model, flow is also open from ① to ②.
When energized, the cartridge acts as a check valve, allowing flow to pass from ① to②, while blocking flow from ② to ① after overcoming the solenoid force (requires 3.4 to 10.3 bar / 50 to 150 psi).
Operation of Manual Override Option: To override, push and hold override button.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Industry common cavity.

RATINGS

Operating Pressure: 207 bar (3000 psi); Under certain operating conditions, this valve may be used at higher pressures; consult Inno.
Proof Pressure: 390 bar (5700 psi)
Flow: See Performance Chart
Internal Leakage: 0.15 ml/min. (3 drops/minute) max. at 240 bar (3500 psi)
Temperature: -40 to 120°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC16-2; See page 305

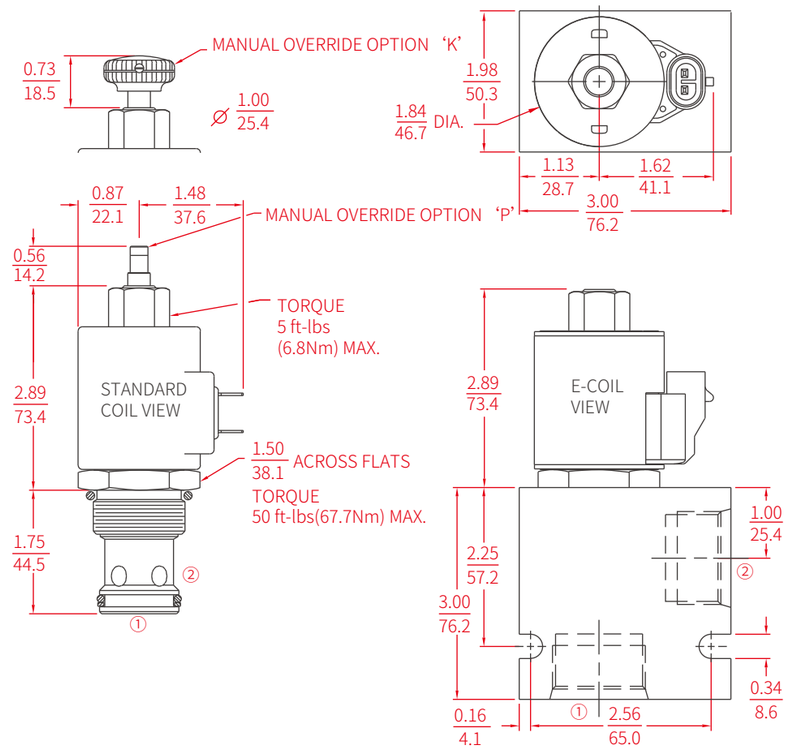
MATERIALS

Cartridge: Weight: 0.31 kg. (0.69 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.9 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

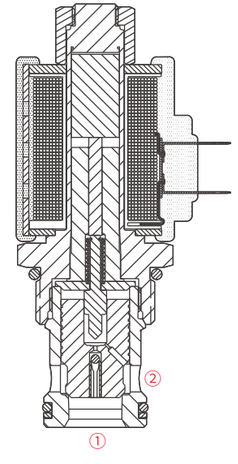
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV16 - 23 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override without Knob **P**
Manual Override with Knob **K**

Porting
Cartridge Only **0**
SAE 12 **12T**
SAE 16 **16T**
3/4 INCH BSP **6B**
1 INCH BSP **8B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

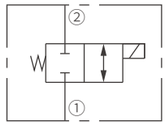
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

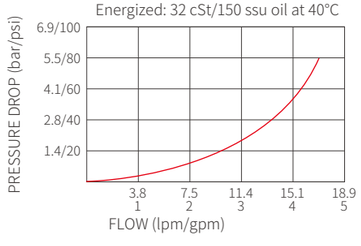
SOLENOID VALVE

ISV08-24
SPOOL, 2-WAY, N.C.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, direct-acting spool-type, screw-in hydraulic cartridge valve, designed to operate as a bidirectional blocking valve in low flow circuits.

OPERATION

When de-energized, the ISV08-24 blocks flow in both directions.
When energized, the cartridge' s spool shifts to open the bidirectional flow path.
Operation of Manual Override Option: To override, push button in, twist counter-clockwise 180°, and release. The internal spring will push the button out. In this position, the valve may be only partially shifted. To assure full override shift, pull the button out to its fullest extension and hold it in this position.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Both ports may be fully pressurized.
5. Efficient wet-armature construction.
6. Manual override option.
7. Cartridges are voltage interchangeable.
8. Optional waterproof E-Coils rated up to IP69K.
9. Unitized, molded coil design.
10. Industry common cavity.

RATINGS

Operating Pressure: 207 bar (3000 psi)
Flow: 17 lpm (4.5 gpm) max.
Internal Leakage: 82 ml/min. (5 cu. in./minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.2 amps at 12 VDC;
0.13 amps at 115 VAC (full wave rectified).
E-Coil: 1.4 amps at 12 VDC; 0.7 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC08-2; See page 297

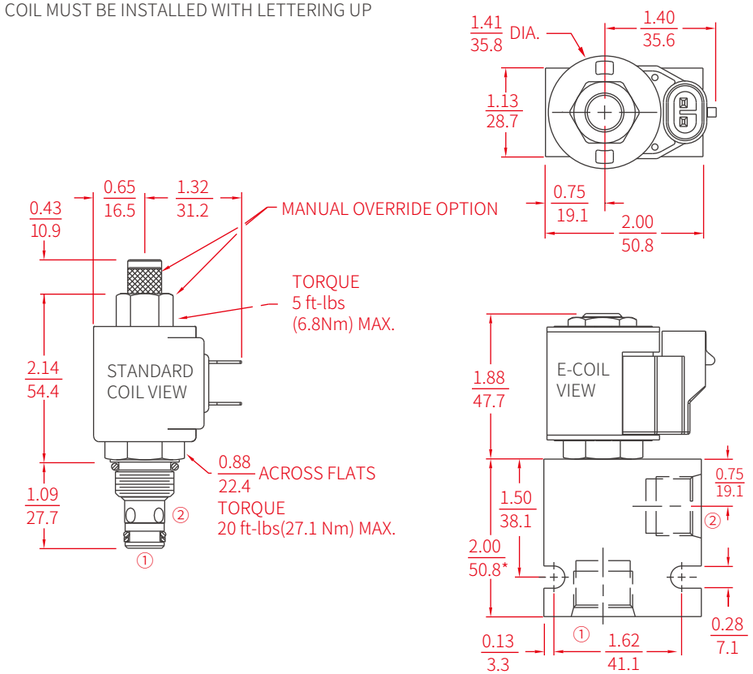
MATERIALS

Cartridge: Weight: 0.09 kg. (0.20 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

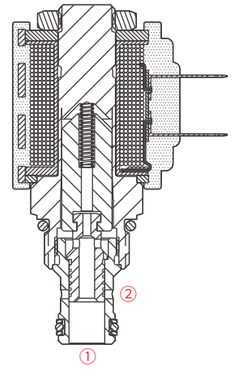
INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



*BSP BODY-55.9MM

SECTIONAL DRAWING



TO ORDER

ISV08 - 24 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**
Screen **S**

Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

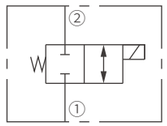
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

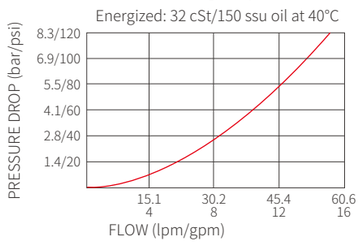
SOLENOID VALVE

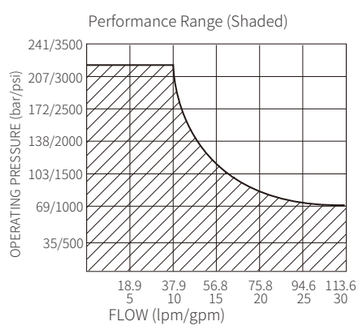
ISV10-24
SPOOL, 2-WAY, N.C.

SYMBOL



PERFORMANCE (cartridge only))





DESCRIPTION

A solenoid-operated, 2-way, normally closed, direct-acting spool-type, screw-in hydraulic cartridge valve, designed to operate as a bidirectional blocking valve.

OPERATION

When de-energized, the ISV10-24 blocks flow in both directions.
When energized, the cartridge' s spool shifts to open the bidirectional flow path.
Operation of Manual Override Option: To override, push button in, twist counter-clockwise 180°, and release. The internal spring will push the button out. In this position, the valve may be only partially shifted. To assure full override shift, pull the button out to its fullest extension and hold it in this position.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Both ports may be fully pressurized.
5. Efficient wet-armature construction.
6. Manual override option.
7. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Industry common cavity.

RATINGS

Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 82 ml/min. (5 cu. in./minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 30 msec.; De-energized: 25 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-2; See page 300

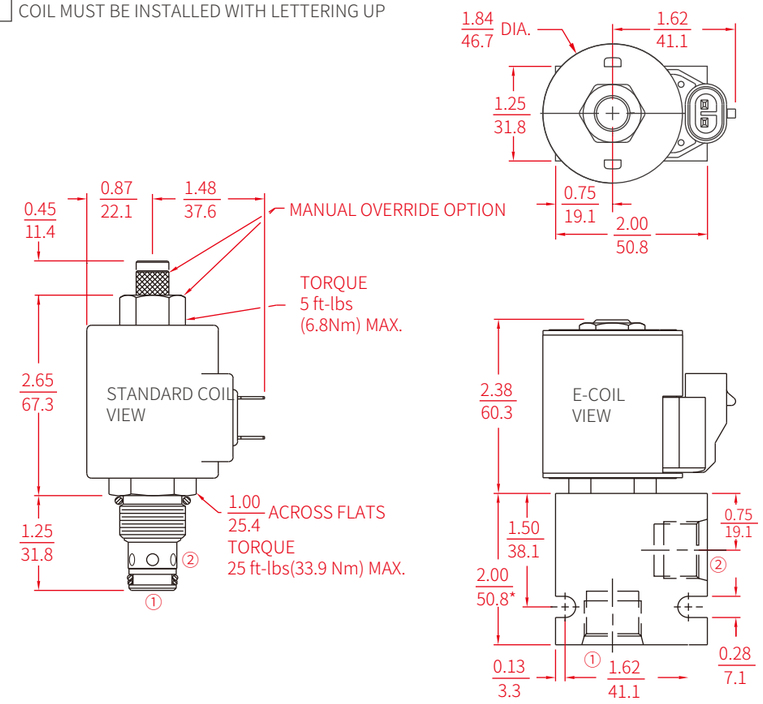
MATERIALS

Cartridge: Weight: 0.16 kg. (0.35 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

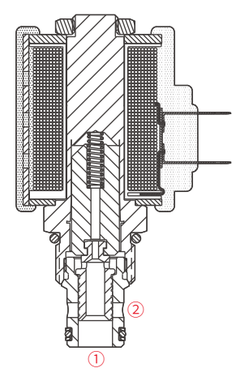
INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



*BSP BODY-55.9MM

SECTIONAL DRAWING



TO ORDER

ISV10 - 24 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**
Manual Override **Y**
Manual Override **J**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

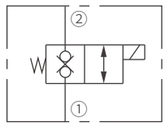
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

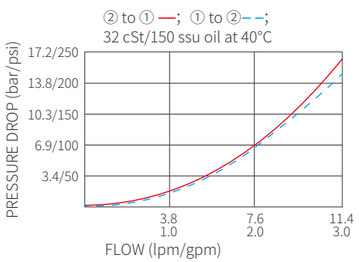
SOLENOID VALVE

ISV08-28
POPPET, 2-WAY, N.C.
BI-DIRECTIONAL BLOCKING

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, direct-acting, poppet-type, bidirectional blocking, screw-in hydraulic cartridge valve, designed for low leakage in load-holding applications.

OPERATION

When de-energized, the ISV08-28 blocks flow in both directions.
When energized, the cartridge' s poppet opens on its seat, allowing flow from ② to ① or from ① to ②.

FEATURES

1. Continuous-duty rated coil.
2. Optional coil voltages and terminations.
3. Cartridges are voltage interchangeable.
4. Optional waterproof E-Coils rated up to IP69K.
5. Hardened seat for long life and low leakage.
6. Manual override option.
7. Industry common cavity.

RATINGS

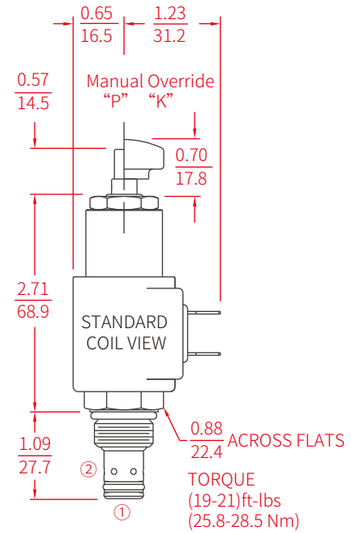
Operating Pressure: 207 bar (3000 psi)
Flow: See Performance Chart
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 50 msec.; De-energized: 16 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-2; See page 297

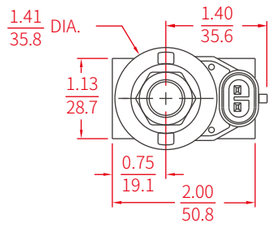
MATERIALS

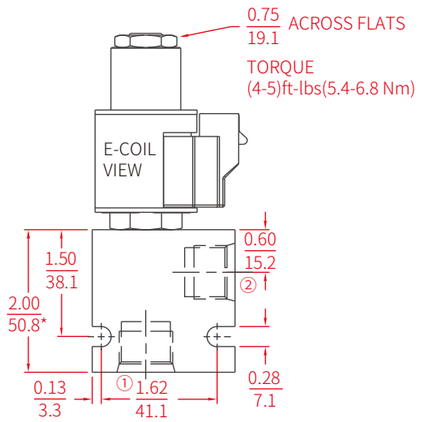
Cartridge: Weight: 0.18 kg. (0.40 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP







*BSP BODY-55.9MM

SECTIONAL DRAWING

TO ORDER

ISV08 - 28 ___ - ___ ___ ___ - ___ - ___ ___ ___ ___ ___

Option
None **BLANK**
Manual Override **P**
Manual Override **K**

Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

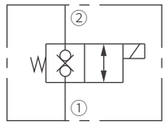
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EL Leadwires (2)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

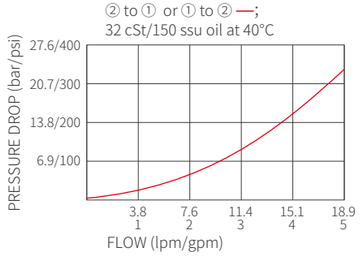
SOLENOID VALVE

ISV38-28
POPPET, 2-WAY, N.C.
BI-DIRECTIONAL BLOCKING

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, direct-acting, poppet-type, bidirectional blocking, screw-in hydraulic cartridge valve, designed for low leakage in load-holding applications.

OPERATION

When de-energized, the ISV38-28 blocks flow in both directions.
When energized, the cartridge' s poppet opens on its seat, allowing flow from ② to ① or from ① to ②.

FEATURES

1. Continuous-duty rated coil.
2. Optional coil voltages and terminations.
3. Cartridges are voltage interchangeable.
4. Efficient wet-armature construction.
5. Optional waterproof E-Coils rated up to IP69K.
6. Hardened seat for long life and low leakage.
7. Manual override option.
8. Industry common cavity.

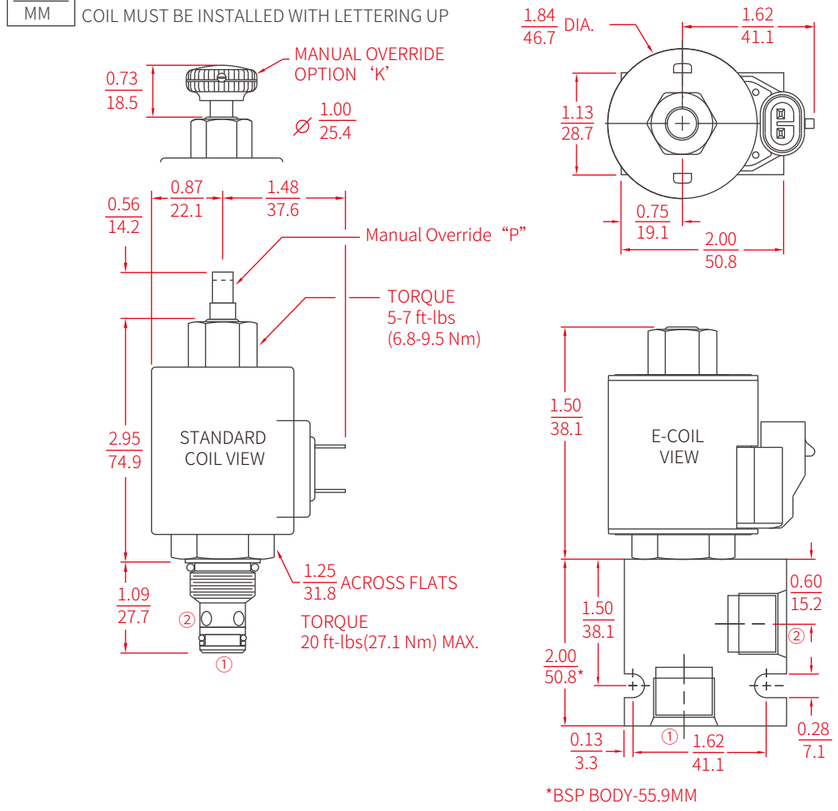
RATINGS

Operating Pressure: 207 bar (3000 psi)
Flow: See Performance Chart
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-2; See page 297

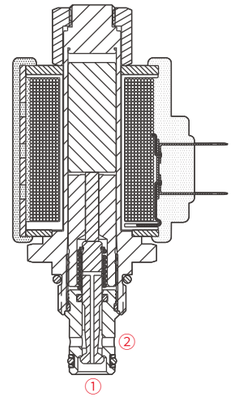
MATERIALS

Cartridge: Weight: 0.15 kg. (0.33 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION



SECTIONAL DRAWING



TO ORDER

ISV38 - 28 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Screen **S**
Manual Override without Knob **P**
Manual Override with Knob **K**

Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

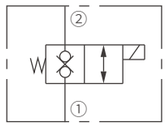
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

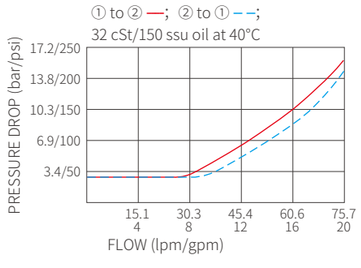
SOLENOID VALVE

ISV10-28
POPPET, 2-WAY, N.C.
BI-DIRECTIONAL BLOCKING

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, internally piloted, poppet-type, bidirectional blocking, screw-in hydraulic cartridge valve, designed for low leakage in load-holding applications.

OPERATION

When de-energized, the ISV10-28 blocks flow in both directions.
When energized, the cartridge' s poppet opens on its seat, allowing flow from ② to ① or from ① to ②.

FEATURES

1. Continuous-duty rated coil.
2. Optional coil voltages and terminations.
3. Cartridges are voltage interchangeable.
4. Optional waterproof E-Coils rated up to IP69K.
5. Hardened seat for long life and low leakage.
6. Manual override option.
7. Industry common cavity.

RATINGS

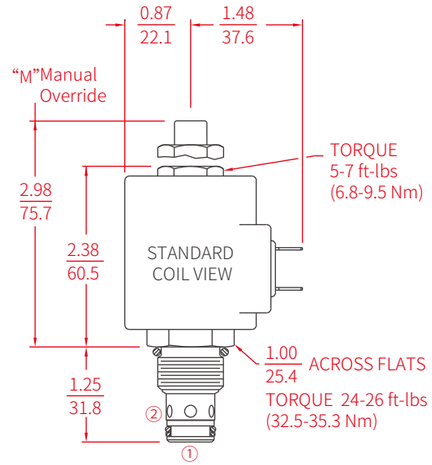
Operating Pressure: 240 bar (3500 psi)
Flow: 75.7 lpm (20 gpm)
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. at 240 bar (3500 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 40 msec.; De-energized: 32 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-2; See page 300

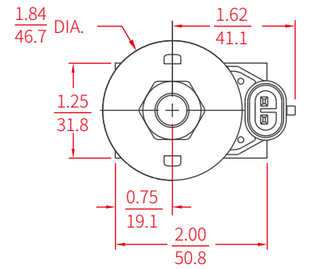
MATERIALS

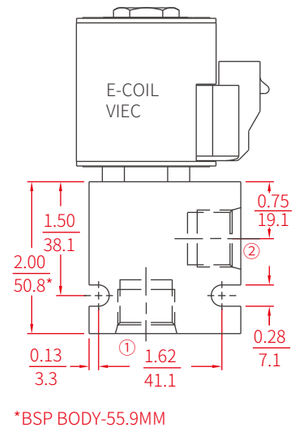
Cartridge: Weight: 0.16 kg. (0.35 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP







*BSP BODY-55.9MM

SECTIONAL DRAWING

TO ORDER

ISV10 - 28 ___ - ___ ___ ___ - ___ - ___ ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

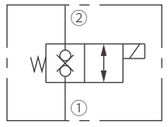
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

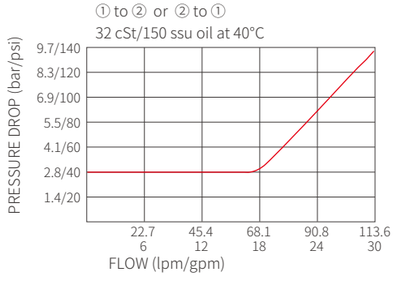
SOLENOID VALVE

ISV12-28
POPPET, 2-WAY, N.C.
BI-DIRECTIONAL BLOCKING

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally closed, internally piloted, poppet-type, bidirectional blocking, screw-in hydraulic cartridge valve, designed for low leakage in load-holding applications.

OPERATION

When de-energized, the ISV12-28 blocks flow in both directions.
When energized, the cartridge' s poppet opens on its seat, allowing flow from ② to ① or from ① to ②.

FEATURES

1. Continuous-duty rated coil.
2. Optional coil voltages and terminations.
3. Efficient wet-armature construction.
4. Manual override option.
5. Cartridges are voltage interchangeable.
6. Optional waterproof E-Coils rated up to IP69K.
7. Hardened seat for long life and low leakage.
8. Unitized, molded coil design.
9. Cost effective cavity.

RATINGS

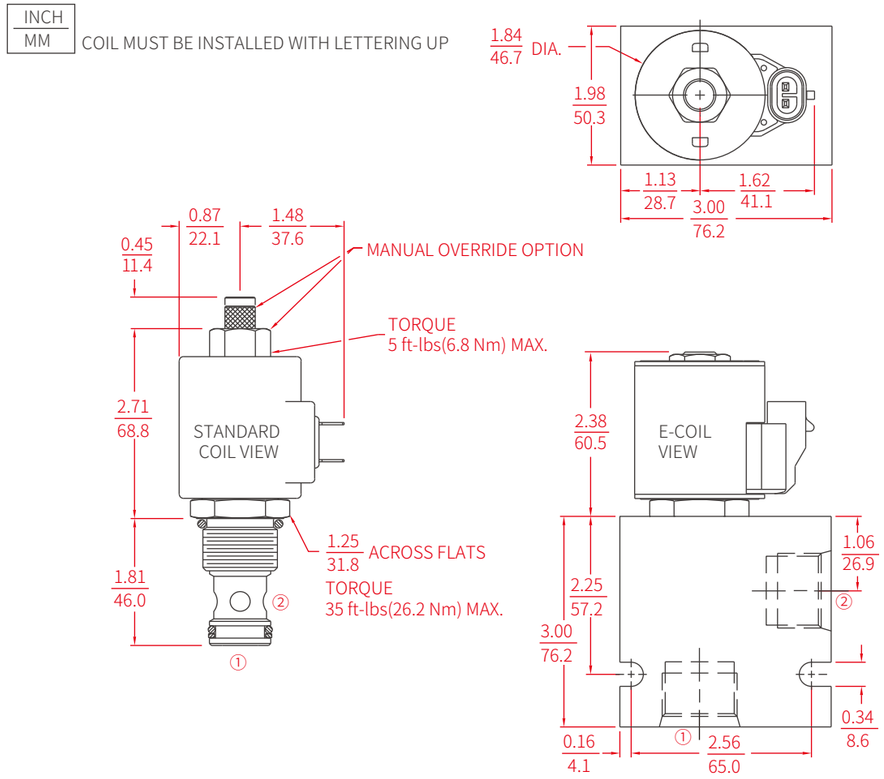
Operating Pressure: 240 bar (3500 psi)
Flow: 113.6 lpm (30 gpm)
Internal Leakage: 7 drops/minute max. at 240 bar (3500 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 40 msec.; De-energized: 32 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC12-2; See page 302

MATERIALS

Cartridge: Weight: 0.25 kg. (0.55 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM



SECTIONAL DRAWING

TO ORDER

ISV10 - 28 ___ - ___ ___ ___ - ___ - ___ ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**
Manual Override **Y**
Manual Override **J**

Porting
Cartridge Only **0**
SAE 10 **10T**
SAE 12 **12T**
SAE 16 **16B**
3/4 INCH BSP **6B**
1 INCH BSP **8B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

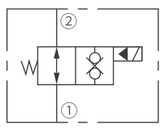
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

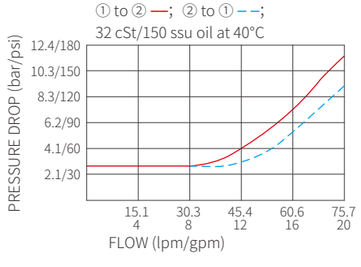
SOLENOID VALVE

ISV10-29
POPPET, 2-WAY, N.O.
BI-DIRECTIONAL BLOCKING

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally open, internally piloted, poppet-type, bidirectional blocking, screw-in hydraulic cartridge valve, designed for low leakage in load-holding applications.

OPERATION

When de-energized, the ISV10-29 allows flow in both directions.
When energized, the cartridge' s poppet closes on its seat, blocking flow from ② to ① or from ① to ②.

FEATURES

1. Continuous-duty rated coil.
2. Optional coil voltages and terminations.
3. Efficient wet-armature construction.
4. Cartridges are voltage interchangeable.
5. Optional waterproof E-Coils rated up to IP69K.
6. Hardened seat for long life and low leakage.
7. Manual override option.
8. Unitized, molded coil design.

RATINGS

Operating Pressure: 240 bar (3500 psi)
Proof Pressure: 345 bar (5075 psi)
Flow: 75.7 L/min.
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 40 msec.; De-energized: 32 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 240 bar (3500 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-2; See page 300

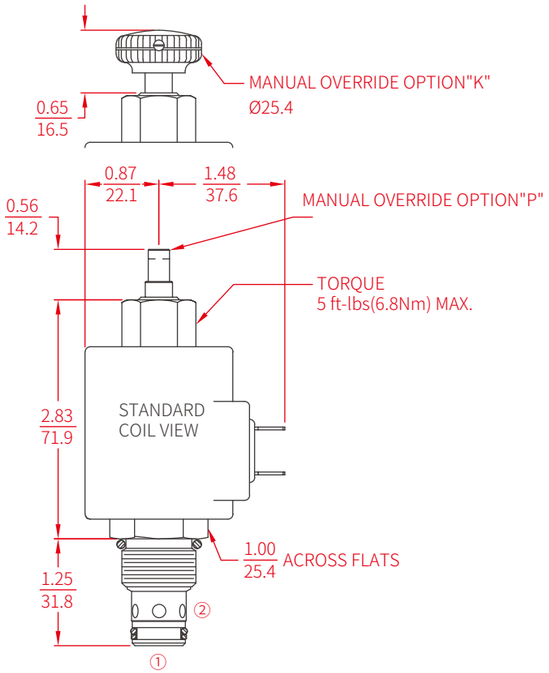
MATERIALS

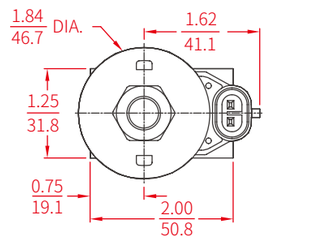
Cartridge: Weight: 0.18 kg. (0.40 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

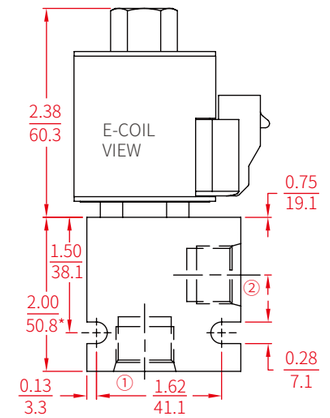
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP







*BSP BODY-55.9MM

SECTIONAL DRAWING

TO ORDER

ISV10 - 29 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override without Knob **P**
Manual Override with Knob **K**

Porting
Cartridge Only **0**
M14*1.5 **14**
M16*1.5 **16**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

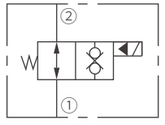
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EL Leadwires (2)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

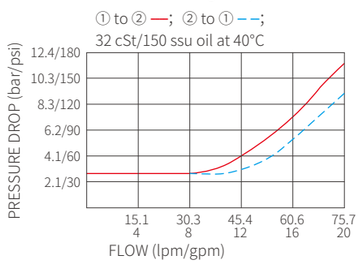
SOLENOID VALVE

ISV12-29
POPPET, 2-WAY, N.O.
BI-DIRECTIONAL BLOCKING

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 2-way, normally open, internally piloted, poppet-type, bidirectional blocking, screw-in hydraulic cartridge valve, designed for low leakage in load-holding applications.

OPERATION

When de-energized, the ISV12-29 allows flow in both directions.
When energized, the cartridge' s poppet closes on its seat, blocking flow from ② to ① or from ① to ②.

FEATURES

1. Continuous-duty rated coil.
2. Optional coil voltages and terminations.
3. Efficient wet-armature construction.
4. Cartridges are voltage interchangeable.
5. Optional waterproof E-Coils rated up to IP69K.
6. Hardened seat for long life and low leakage.
7. Manual override option.
8. Unitized, molded coil design.

RATINGS

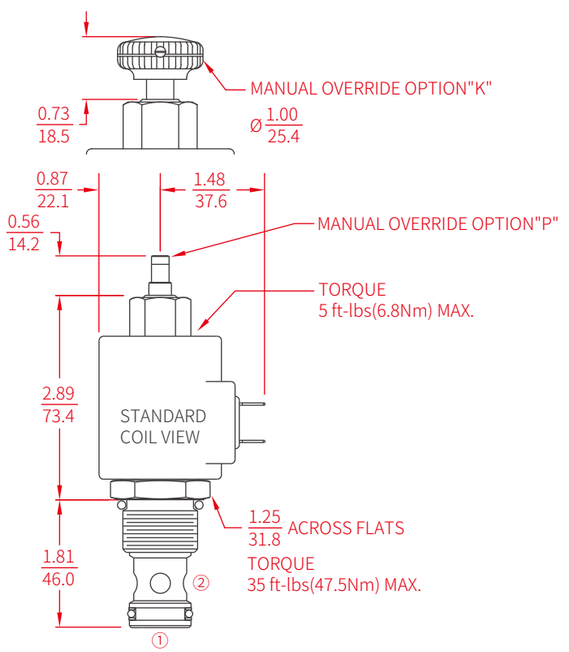
Operating Pressure: 240 bar (3500 psi)
Flow: 113.6 L/min. (30 gpm)
Internal Leakage: 0.35 ml/min. (7 drops/minute) max. at 240 bar (3500 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 60 msec.; De-energized: 15 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 240 bar (3500 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC12-2; See page 302

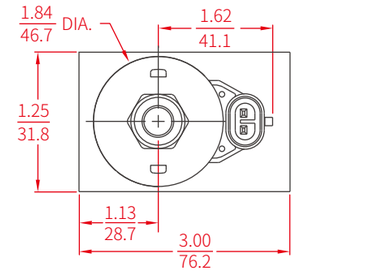
MATERIALS

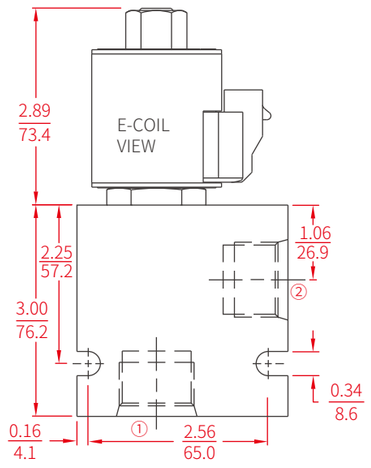
Cartridge: Weight: 0.27 kg. (0.60 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.57 kg. (1.25 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP







SECTIONAL DRAWING

TO ORDER

ISV12 - 29 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override without Knob **P**
Manual Override with Knob **K**

Porting
Cartridge Only **0**
SAE 10 **10**
SAE 12 **12**
SAE 16 **16**
3/4 INCH BSP **6B**
1 INCH BSP **8B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

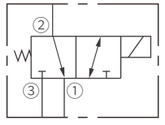
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

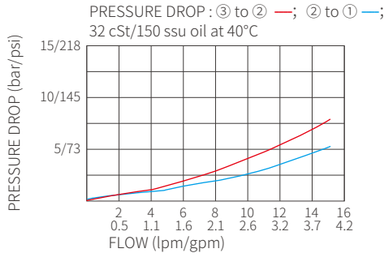
SOLENOID VALVE

ISV08-30
SPOOL, 3-WAY, 2-POSITION

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 3-way, 2-position, spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV08-30 allows flow from ② to ①.
When energized, the cartridge' s spool shifts to open the ③ to ② flow path.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life.
3. Optional coil voltages and terminations.
4. All ports may be fully pressurized.
5. Manual override option.
6. Heavy-duty waterproof E-Coils rated up to IP69K.

RATINGS

Operating Pressure: 207 bar(3000 psi) Max.
Flow: See Performance Chart
Internal Leakage: De-energized: 82 ml/min. at 207 bar;
Energized: 164 ml/min. at 207 bar
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-3; See page 298

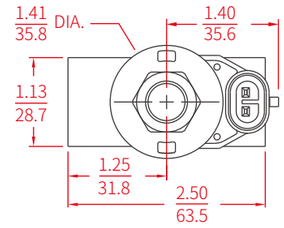
MATERIALS

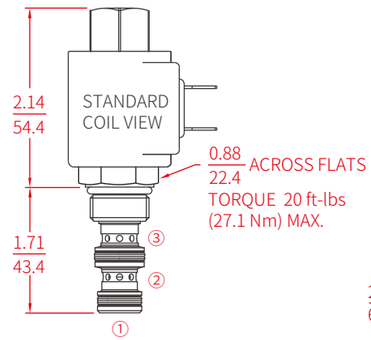
Cartridge: Weight: 0.13 kg. (0.28 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.27 kg. (0.60 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

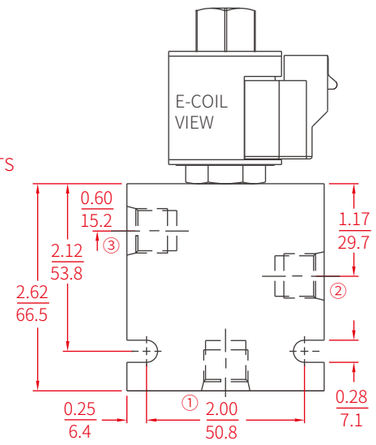
DIMENSION

INCH / MM

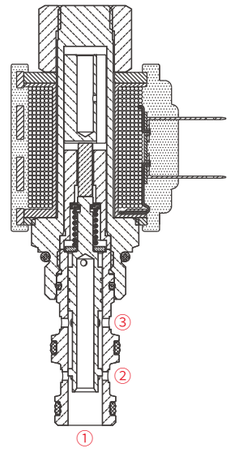
COIL MUST BE INSTALLED WITH LETTERING UP







SECTIONAL DRAWING



TO ORDER

ISV08 - 30 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**

Porting
Cartridge Only **0**
SAE 6 **6T**
1/4 INCH BSP **2B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

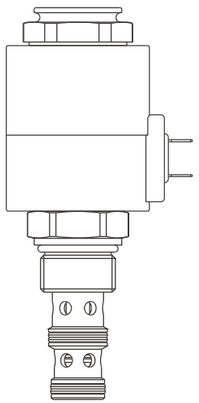
Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EL Leadwires (2)
EY Metri-Pack® 150 (IP69K Rated)

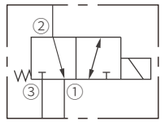
Coils with internal diode are available. Consult Inno.

SOLENOID VALVE

ISV10-30
SPOOL, 3-WAY, 2-POSITION



SYMBOL



DESCRIPTION

A solenoid-operated, 3-way, 2-position, spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV10-30 allows flow from ② to ①.
When energized, the cartridge' s spool shifts to open the ③ to ② flow path.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. All ports may be fully pressurized.
5. Heavy-duty waterproof E-Coils rated up to IP69K.

RATINGS

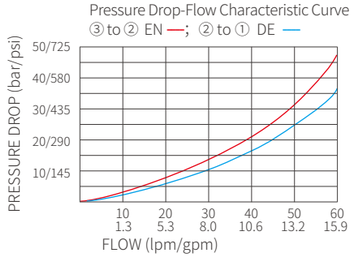
Operating Pressure: Light-loading type / High-performance type: Max. 250 bar (3600 psi) / 350 bar (5100 psi)
Flow: Light-loading type / High-performance type: Max. 50 L/min. (13.2 gpm) / 60 L/min. (15.9 gpm)
Internal Leakage: 80 ml/min. max. at 250 / 350 bar (3600 / 5100 psi)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-3; See page 300

MATERIALS

Cartridge: Weight: 0.24 / 0.31 kg. (0.53 / 0.68 lbs.); Steel with hardened work surfaces; Zinc-plated exposed surfaces.
Seal: D type seal rings.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

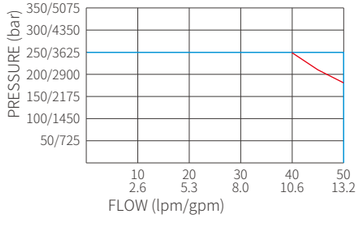
PERFORMANCE (cartridge only))

Pressure Drop-Flow Characteristic Curve
③ to ② EN —; ② to ① DE —

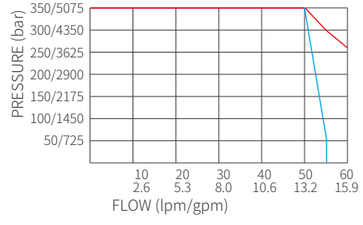


PERFORMANCE (2)

Working Limit Curve – Light-loading type
Test under v=32 mm2/s (156 SUS)
Oil at 60°C / Ambient temperature at 50°C
Voltage Un -10% (21.6VDC)
③ to ② EN —; ② to ① DE —



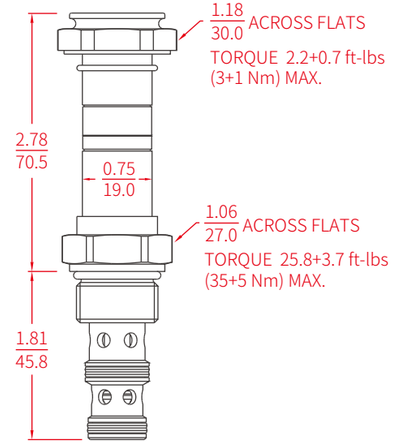
Working Limit Curve – High-performance type
Test under v=32 mm2/s (156 SUS)
Oil at 60°C / Ambient temperature at 50°C
Voltage Un -10% (21.6VDC)
③ to ② EN —; ② to ① DE —



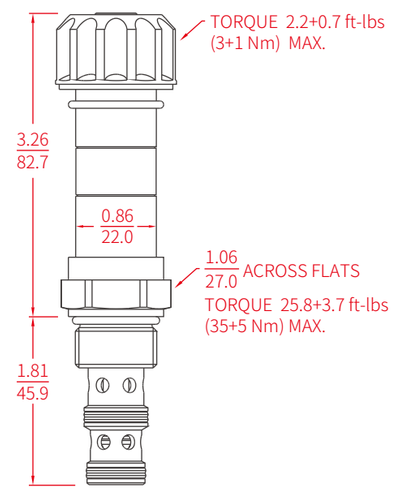
DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP

LIGHT-LOADING TYPE



HIGH-PERFORMANCE TYPE



SECTIONAL DRAWING

TO ORDER

ISV10 - ___ 30 - ___ ___ ___ - ___ - ___ ___ ___ ___ ___

Type
Light-loading **BLANK**
High-performance **B**

Porting
Cartridge Only **0**
SAE 10 **10T**
SAE 12 **12T**
SAE 16 **16B**
3/4 INCH BSP **6B**
1 INCH BSP **8B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
12 12 VDC
14 14 VDC
24 24 VDC
27 27 VDC

E-COIL
12 12 VDC
14 14 VDC
24 24 VDC
27 27 VDC

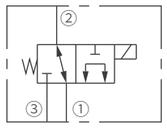
Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Coils with internal diode are available.
Consult Inno.

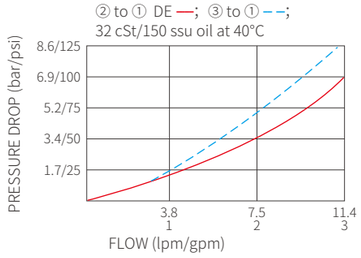
SOLENOID VALVE

ISV08-31
SPOOL, 3-WAY, 2-POSITION

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 3-way, 2-position, direct-acting spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV08-31 allows flow from ② to ①, while blocking flow at ③.
When energized, the cartridge' s spool shifts to open the ① to ③ flow path, while blocking flow at ②.
Operation of Manual Override Option: To override, push button in, twist counterclockwise 180°, and release. The internal spring will push the button out. In this position, the valve may be only partially shifted.
To assure full override shift, pull the button out to its fullest extension and hold it in this position.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. All ports may be fully pressurized.
7. Manual override option.
8. Optional waterproof E-Coils rated up to IP69K.
9. Unitized, molded coil design.
10. Compact size.

RATINGS

Operating Pressure: 207 bar (3000 psi)
Flow: See Performance Chart
Note: Under certain operating conditions this valve may be rated for higher flow. Consult Inno.
Internal Leakage: 82 ml/min. (5 cu. in./minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 30 msec.; De-energized: 25 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.2 amps at 12 VDC;
0.13 amps at 115 VAC (full wave rectified).
E-Coil: 1.4 amps at 12 VDC; 0.7 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-3; See page 298

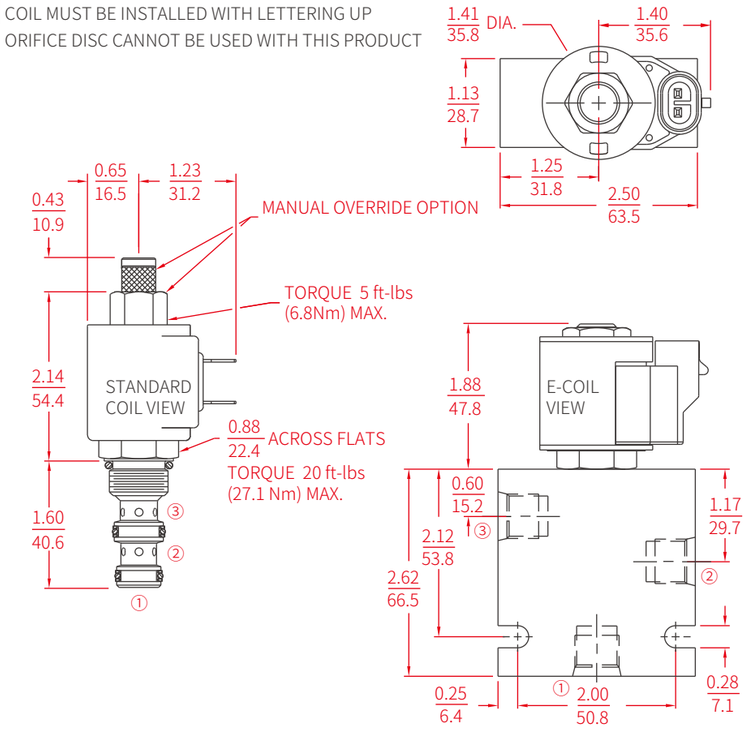
MATERIALS

Cartridge: Weight: 0.13 kg. (0.28 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces. Seal: D type seal rings.
Standard Ported Body: Weight: 0.27 kg. (0.60 lbs.); Anodized high-strength steel bodies; Ductile iron bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

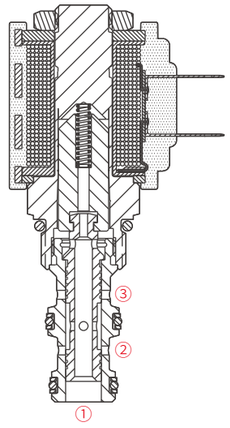
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP
ORIFICE DISC CANNOT BE USED WITH THIS PRODUCT



SECTIONAL DRAWING



TO ORDER

ISV08 - 31 ___ - ___ ___ ___ - ___ - ___ ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**

Porting
Cartridge Only **0**
SAE 6 **6T**
1/4 INCH BSP **2B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

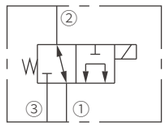
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

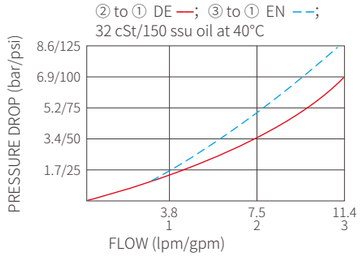
SOLENOID VALVE

ISV08-B31
SPOOL, 3-WAY, 2-POSITION

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 3-way, 2-position, direct-acting spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV08-B31 allows flow from ② to ①, while blocking flow at ③.
When energized, the cartridge' s spool shifts to open the ① to ③ flow path, while blocking flow at ②.
Operation of Manual Override Option: To override, push button in, twist counterclockwise 180°, and release. The internal spring will push the button out. In this position, the valve may be only partially shifted.
To assure full override shift, pull the button out to its fullest extension and hold it in this position.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. All ports may be fully pressurized.
7. Manual override option.
8. Optional waterproof E-Coils rated up to IP69K.
9. Unitized, molded coil design.
10. Compact size.

RATINGS

Operating Pressure: 207 bar (3000 psi)
Flow: See Performance Chart
Note: Under certain operating conditions this valve may be rated for higher flow. Consult Inno.
Internal Leakage: 82 ml/min. (5 cu. in./minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 30 msec.; De-energized: 25 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.2 amps at 12 VDC;
0.13 amps at 115 VAC (full wave rectified).
E-Coil: 1.4 amps at 12 VDC; 0.7 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-3; See page 298

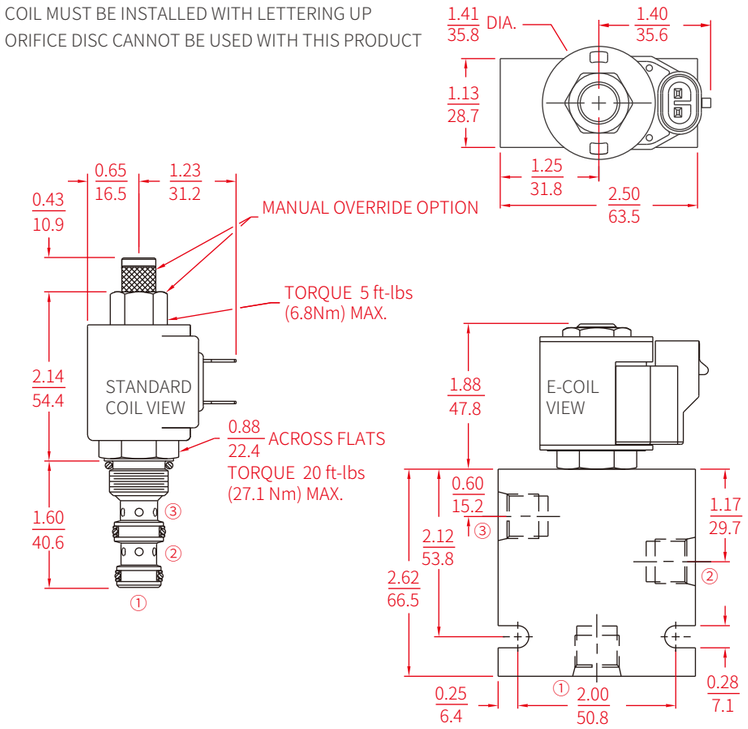
MATERIALS

Cartridge: Weight: 0.13 kg. (0.28 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.27 kg. (0.60 lbs.); Anodized high-strength steel bodies; Ductile iron bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

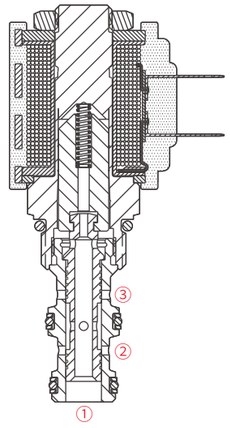
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP
ORIFICE DISC CANNOT BE USED WITH THIS PRODUCT



SECTIONAL DRAWING



TO ORDER

ISV08 - B31 ___ - ___ ___ ___ - ___ - ___ ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**

Porting
Cartridge Only **0**
SAE 6 **6T**
1/4 INCH BSP **2B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

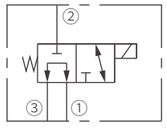
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

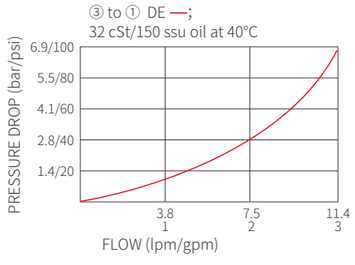
SOLENOID VALVE

ISV08-33
SPOOL, 3-WAY, 2-POSITION

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 3-way, 2-position, direct-acting spool-type, screw-in hydraulic directional valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV08-33 allows flow from ③ to ①, while blocking flow at ②.
When energized, the cartridge' s spool shifts to open the ② to ① flow path, while blocking flow at ③.
Operation of Manual Override Option: To override, push button in, twist counterclockwise 180°, and release. The internal spring will push the button out. In this position, the valve may be only partially shifted.
To assure full override shift, pull the button out to its fullest extension and hold it in this position.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. All ports may be fully pressurized.
7. Manual override option.
8. Optional waterproof E-Coils rated up to IP69K.
9. Unitized, molded coil design.
10. Compact size.

RATINGS

Operating Pressure: 207 bar (3000 psi)
Flow: See Performance Chart
Internal Leakage: 82 ml/min. (5 cu. in./minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.2 amps at 12 VDC;
0.13 amps at 115 VAC (full wave rectified).
E-Coil: 1.4 amps at 12 VDC; 0.7 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-3; See page 298

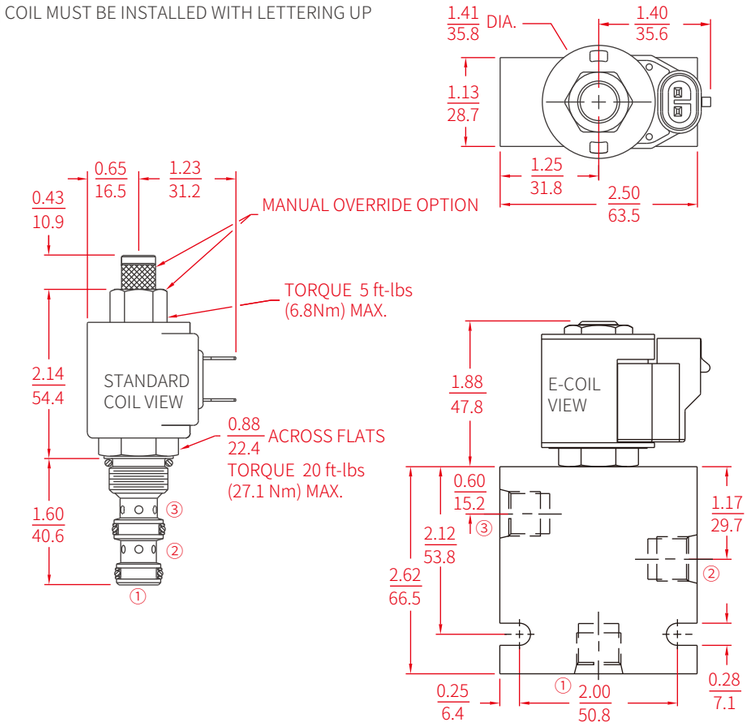
MATERIALS

Cartridge: Weight: 0.13 kg. (0.28 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.27 kg. (0.60 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

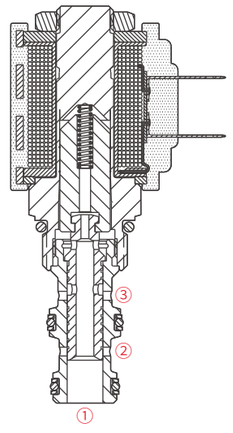
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV08 - 33 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**

Porting
Cartridge Only **0**
SAE 6 **6T**
1/4 INCH BSP **2B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

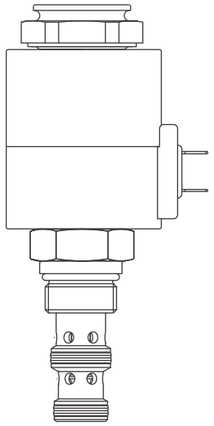
Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

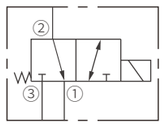
Coils with internal diode are available. Consult Inno.

SOLENOID VALVE

ISV08-B34
SPOOL, 3-WAY, 2-POSITION



SYMBOL



DESCRIPTION

A solenoid-operated, 3-way, 2-position, high-pressure spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV08-B34 allows flow from ② to ①.
When energized, the cartridge' s spool shifts to open the ③ to ② flow path.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. All ports may be fully pressurized.
5. Heavy-duty waterproof E-Coils rated up to IP69K.

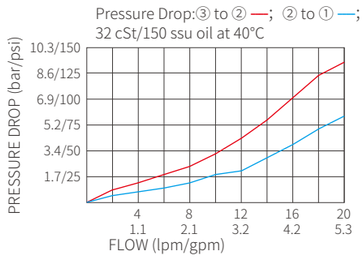
RATINGS

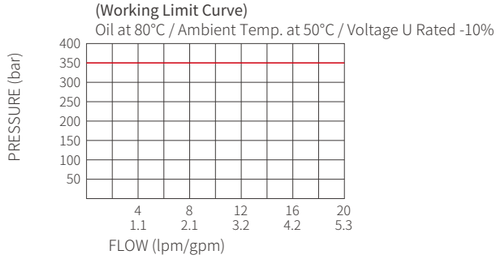
Operating Pressure: Max. 350 bar (5100 psi)
Flow: 20 L/min. (5 GPM)
Internal Leakage: 60 ml/min. max. at 100 bar (1450 psi)
Temperature: -40 to 100°C
Response Time: Pull-In: 100 msec.; Drop-Out: 100 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.46 amps at 14 VDC;
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-3; See page 298

MATERIALS

Cartridge: Weight: 0.20 kg. (0.44 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.27 kg. (0.60 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

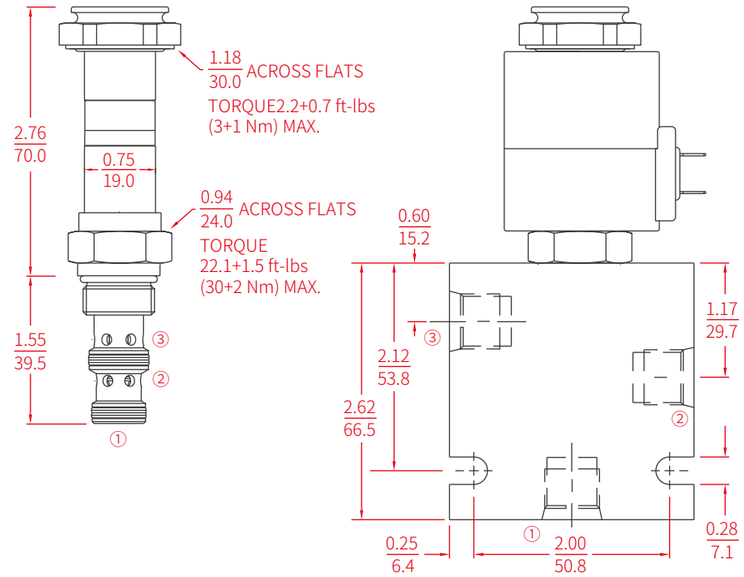
PERFORMANCE (cartridge only))





DIMENSION

INCH / MM COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING

TO ORDER

ISV08 - B34 - ___ - ___ - ___ ___ ___

Porting
Cartridge Only **0**
SAE 6 **6T**
1/4 INCH BSP **2B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
12 12 VDC
14 14 VDC
24 24 VDC
27 27 VDC

E-COIL
12 12 VDC
14 14 VDC
24 24 VDC
27 27 VDC

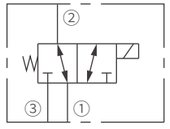
Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Coils with internal diode are available.
Consult Inno.

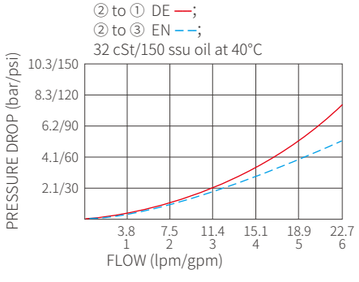
SOLENOID VALVE

ISV10-34
SPOOL, 3-WAY, 2-POSITION

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 3-way, 2-position, direct-acting spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV10-34 allows flow from ② to ①, while blocking flow at ③.
When energized, the cartridge' s spool shifts to open the ② to ③ flow path, while blocking flow at ①.
Operation of Manual Override Option: To override, push button in, twist counter-clockwise 180°, and release. The internal spring will push the button out. In this position, the valve may be only partially shifted.
To assure full override shift, pull the button out to its fullest extension and hold it in this position.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. All ports may be fully pressurized.
6. Cartridges are voltage interchangeable.
7. Manual override option.
8. Optional waterproof E-Coils rated up to IP69K.
9. Unitized, molded coil design.
10. Industry common cavity.

RATINGS

Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: Max. 22.7 lpm (6 gpm);
Note: Under certain operating conditions this valve may be rated for higher flow. Consult Inno.
Internal Leakage: 115 ml/min. (7 cu. in./minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Response Time: First indication of change of state with 100% voltage supplied at 80% of nominal flow rating:
Energized: 60 msec.; De-energized: 10 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-3; See page 300

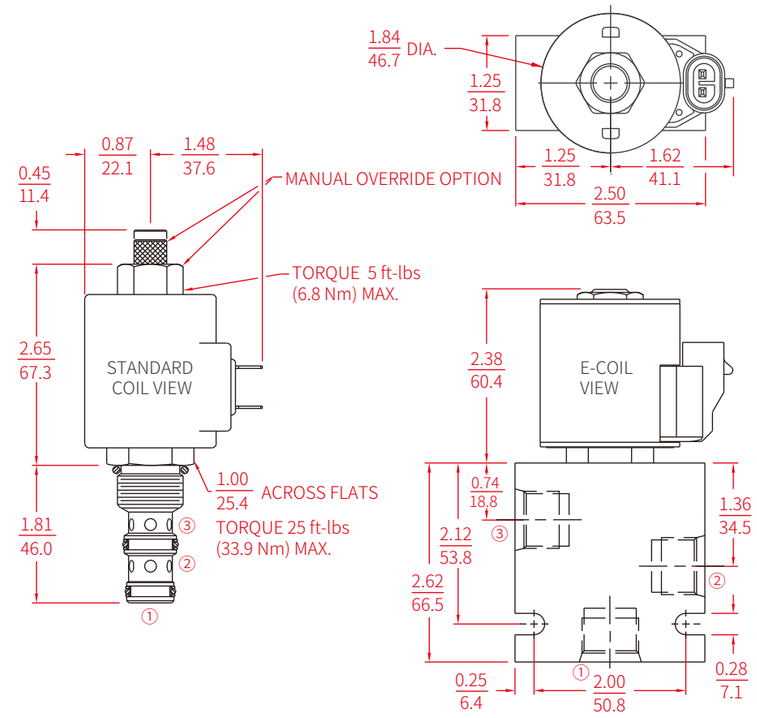
MATERIALS

Cartridge: Weight: 0.14 kg. (0.30 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.36 kg. (0.80 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

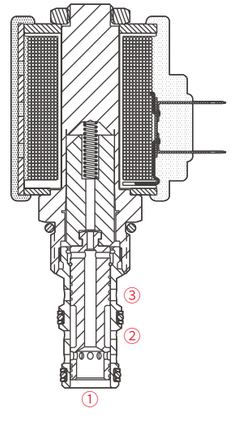
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV10 - 34 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**
Manual Override **Y**
Manual Override **J**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

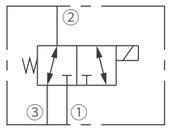
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

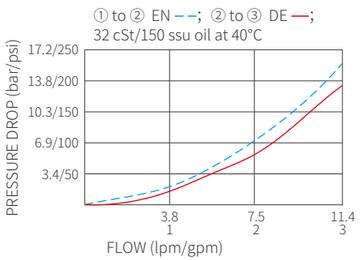
SOLENOID VALVE

ISV08-35
SPOOL, 3-WAY, 2-POSITION

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 3-way, 2-position, direct-acting spool-type, screw-in hydraulic directional valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV08-35 allows flow from ② to ③, while blocking flow at ①.
When energized, the cartridge' s spool shifts to open the ② to ① flow path, while blocking flow at ③.
Operation of Manual Override Option: To override, push button in, twist counterclockwise 180°, and release. The internal spring will push the button out. In this position, the valve may be only partially shifted.
To assure full override shift, pull the button out to its fullest extension and hold it in this position.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. All ports may be fully pressurized.
7. Manual override option.
8. Optional waterproof E-Coils rated up to IP69K.
9. Unitized, molded coil design.
10. Compact size.

RATINGS

Operating Pressure: 207 bar (3000 psi)
Flow: See Performance Chart
Internal Leakage: 82 ml/min. (5 cu. in./minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.2 amps at 12 VDC;
0.13 amps at 115 VAC (full wave rectified).
E-Coil: 1.4 amps at 12 VDC; 0.7 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-3; See page 298

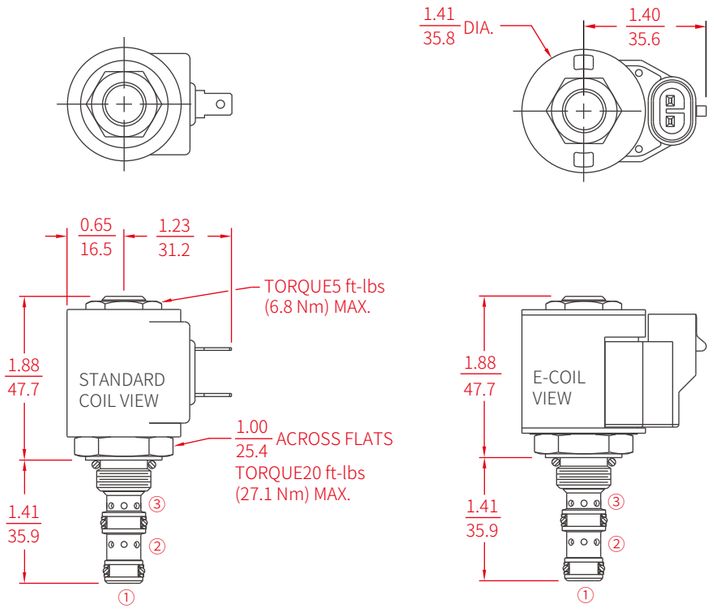
MATERIALS

Cartridge: Weight: 0.09 kg. (0.20 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces. Seal: D type seal rings.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING

TO ORDER

ISV08 - 35 ___ - ___ ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**

Porting
Cartridge Only **0**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-COIL
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

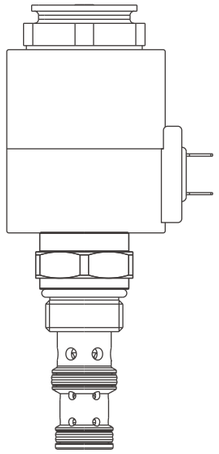
Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

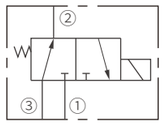
Coils with internal diode are available. Consult Inno.

SOLENOID VALVE

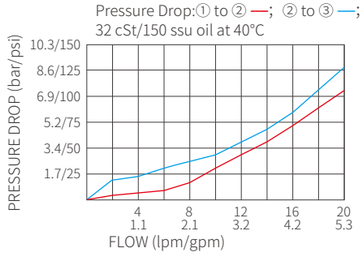
ISV08-B35
SPOOL, 3-WAY, 2-POSITION
(HIGH PRESSURE)

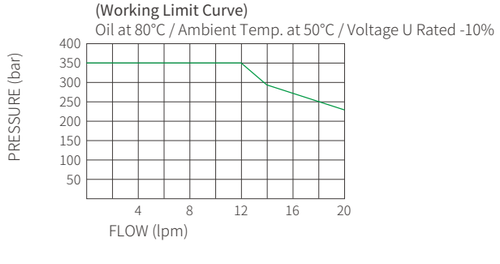


SYMBOL



PERFORMANCE (cartridge only))





DESCRIPTION

A solenoid-operated, 3-way, 2-position, high-pressure spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV08-B35 allows flow from ③ to ②.
When energized, the cartridge' s spool shifts to open the ② to ① flow path.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. All ports may be fully pressurized.
5. Heavy-duty waterproof E-Coils rated up to IP69K.

RATINGS

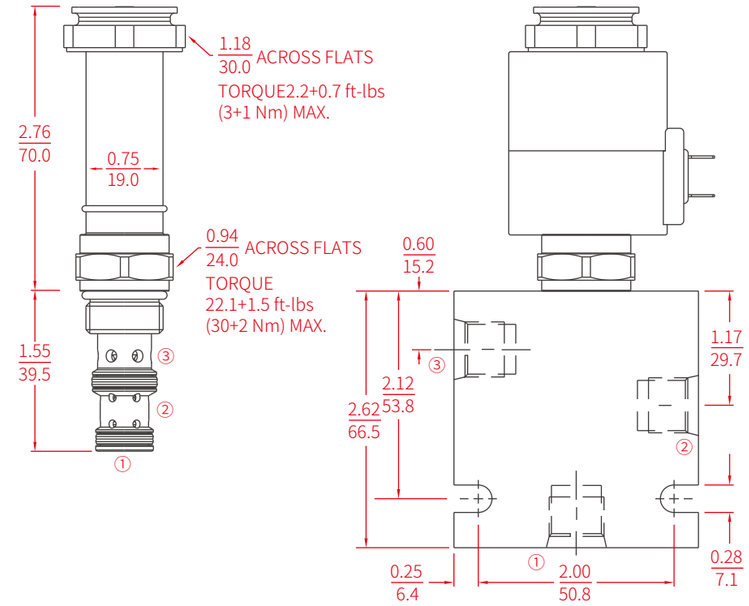
Operating Pressure: Max. 250 bar (3600 psi)
Flow: 20 L/min. (5 GPM)
Internal Leakage: 60 ml/min. max. at 100 bar (1450 psi)
Temperature: -40 to 100°C
Response Time: Pull-In: 100 msec.; Drop-Out: 100 msec.
Initial Coil Current Draw at 20°C:
Standard Coil: 1.46 amps at 14 VDC;
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-3; See page 298

MATERIALS

Cartridge: Weight: 0.22 kg. (0.48 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.27 kg. (0.60 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING

TO ORDER

ISV08 - B35 - ___ - ___ - ___ ___ ___

Porting
Cartridge Only **0**
SAE 6 **6T**
1/4 INCH BSP **2B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
12 12 VDC
14 14 VDC
24 24 VDC
27 27 VDC

E-COIL
12 12 VDC
14 14 VDC
24 24 VDC
27 27 VDC

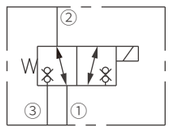
Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Coils with internal diode are available.
Consult Inno.

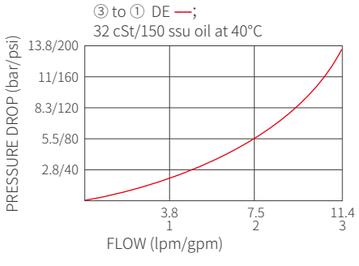
SOLENOID VALVE

ISV38-38
SPOOL, 3-WAY, 2-POSITION
N.C.

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 3-way, 2-position, bi-directional blocking, screw-in hydraulic cartridge valve, designed for low leakage in load-holding applications.

OPERATION

When de-energized, the ISV38-38 blocks flow from ① to ② or from ② to①.
When energized, the flow is allowed from ② to③ or from ③ to ②.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Cartridges are voltage interchangeable.
6. Optional waterproof E-Coils rated up to IP69K.
7. Unitized, molded coil design.
8. Industry common cavity.

RATINGS

Operating Pressure: 207 bar (3000 psi)
Flow: See Performance Chart
Internal Leakage: 0.25 ml/min. (5 drops/minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-3; See page 298

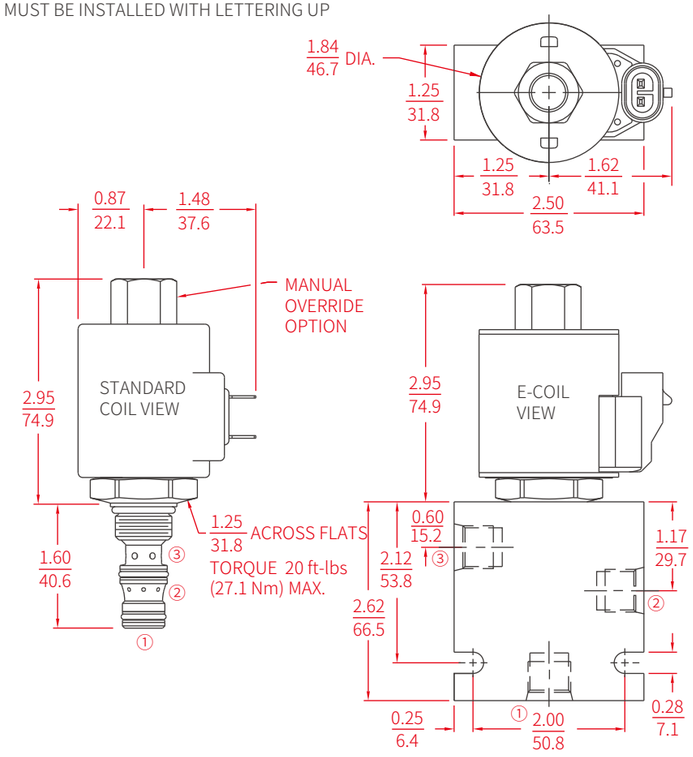
MATERIALS

Cartridge: Weight: 0.13 kg. (0.28 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.27 kg. (0.60 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING

TO ORDER

ISV38 - 38 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**

Porting
Cartridge Only **0**
SAE 6 **6T**
1/4 INCH BSP **2B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

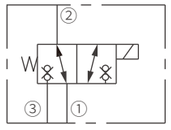
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

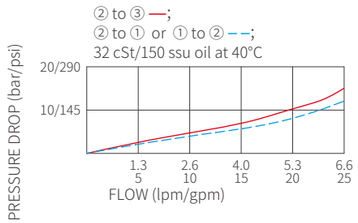
SOLENOID VALVE

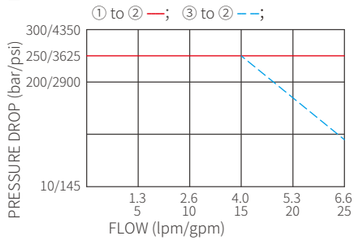
ISV10-38
SPOOL, 3-WAY, 2-POSITION

SYMBOL



PERFORMANCE (cartridge only))





DESCRIPTION

A solenoid-operated, 3-way, 2-position, bi-directional blocking, screw-in hydraulic cartridge valve, designed for low leakage in load-holding applications.

OPERATION

When de-energized, the ISV10-38 blocks flow from ① to ② or from ② to①.
When energized, the flow is blocked from ② to ③ or from ③ to ②.

FEATURES

1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. Optional waterproof E-Coils rated up to IP69K.
6. Unitized, molded coil design.
7. Industry common cavity.

RATINGS

Operating Pressure: 250 bar (3600 psi)
Flow: See Performance Chart
Internal Leakage: 0.05 ml/min. (1 drops/minute) at 250 bar (3600 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-3; See page 300

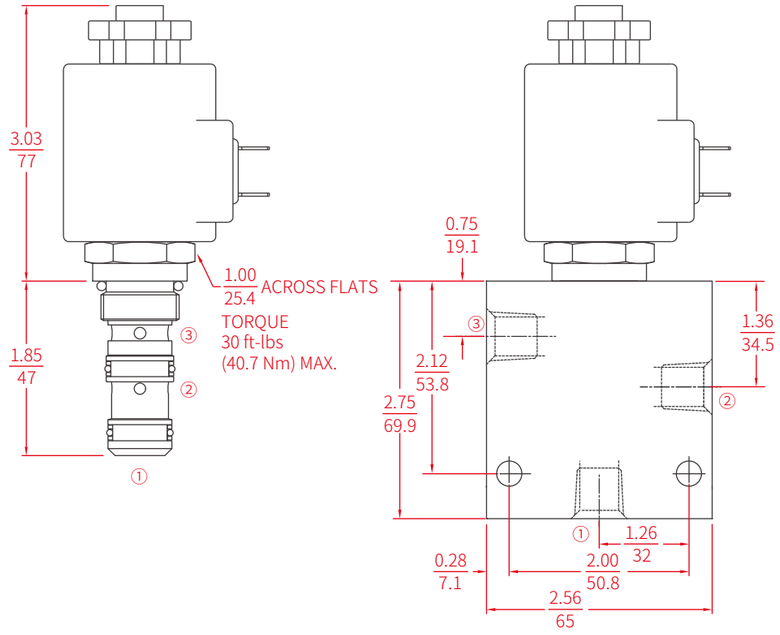
MATERIALS

Cartridge: Weight: 0.22 kg. (0.47 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.3 kg. (0.66 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING

TO ORDER

ISV10 - 38 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Unloading **P**

Porting
Cartridge Only **0**
SAE 6 **6T**
1/4 INCH BSP **2B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

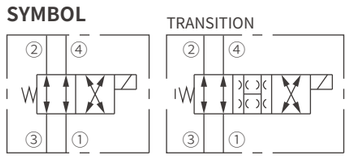
Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P
Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EL Leadwires (2)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

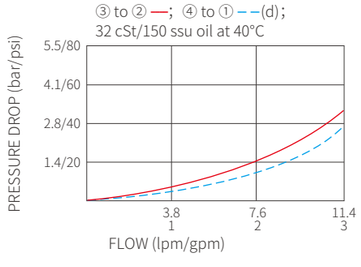
SOLENOID VALVE

ISV08-40
SPOOL, 4-WAY, 2-POSITION

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 4-way, 2-position, direct-acting spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV08-40 flow paths are ③ to ② and ④ to ①.
When energized, the cartridge' s spool shifts to open ③ to ④ and ② to①. All ports are open at cross-over.
Operation of Manual Override Option: To override, push button in, twist counterclockwise 180°, and release. The internal spring will push the button out. In this position, the valve may be only partially shifted.
To assure full override shift, pull the button out to its fullest extension and hold it in this position.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. All ports may be fully pressurized.
6. Cartridges are voltage interchangeable.
7. Manual override option.
8. Optional waterproof E-Coils rated up to IP69K.
9. Unitized, molded coil design.
10. Compact size.

RATINGS

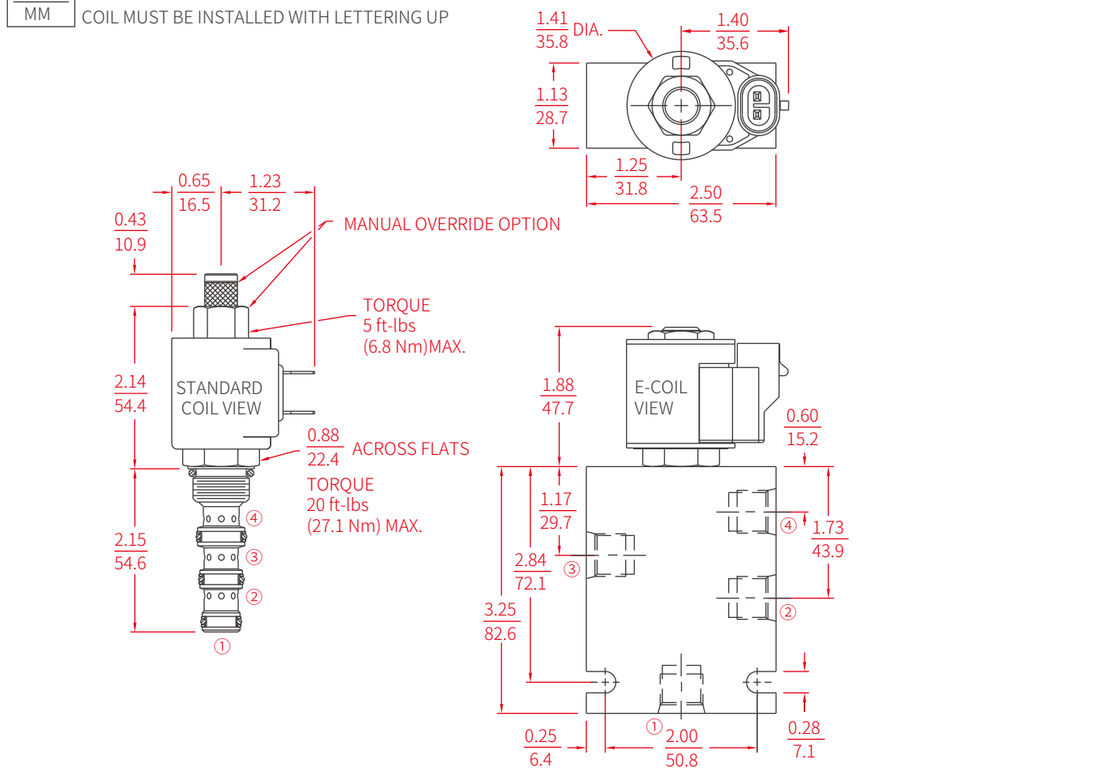
Operating Pressure: 207 bar (3000 psi)
Flow: See Performance Chart
Internal Leakage: 82 ml/min. (5 cu. in./minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.2 amps at 12 VDC;
0.13 amps at 115 VAC (full wave rectified).
E-Coil: 1.4 amps at 12 VDC; 0.7 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-4; See page 299

MATERIALS

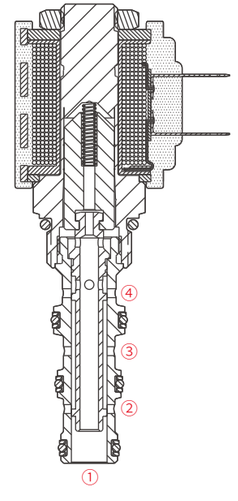
Cartridge: Weight: 0.13 kg. (0.28 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.27 kg. (0.60 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
With integral connectors.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

ISV08 - 40 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**

Porting
Cartridge Only **0**
SAE 6 **6T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

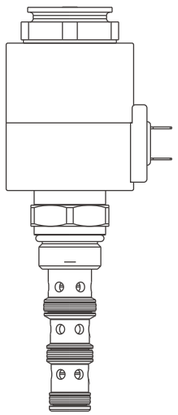
Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

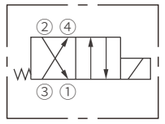
Coils with internal diode are available. Consult Inno.

SOLENOID VALVE

ISV08-40R
SPOOL, 4-WAY, 2-POSITION



SYMBOL



DESCRIPTION
A solenoid-operated, 4-way, 2-position, high-pressure spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

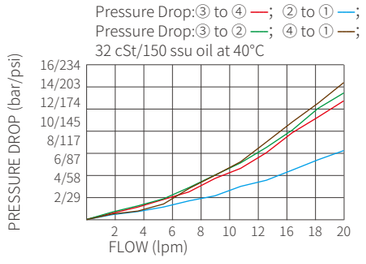
OPERATION
When de-energized, the ISV08-40R flow paths are ② to ① and ③ to ④.
When energized, the cartridge' s spool shifts to open ③ to ② and ④ to①.

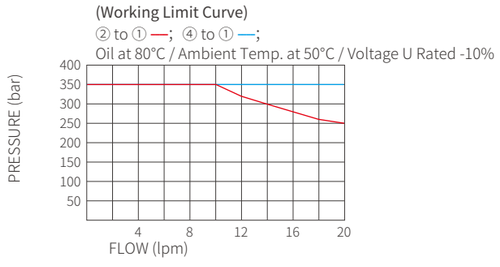
FEATURES
1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. All ports may be fully pressurized.
5. Heavy-duty waterproof E-Coils rated up to IP69K.

RATINGS
Operating Pressure: 350 bar (5100 psi)
Flow: 30 L/min. (8 GPM)
Internal Leakage: 82 ml/min. max. at 210 bar (5075 psi)
Temperature: -40 to 100°C
Response Time: Pull-In: 150 msec.; Drop-Out: 150 msec.
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-4; See page 299

MATERIALS
Cartridge: Weight: 0.23 kg. (0.51 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces.
Seal: D type seal rings.

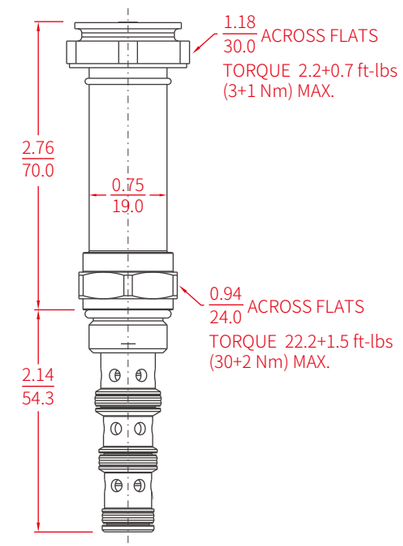
PERFORMANCE (cartridge only))





DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING

TO ORDER

ISV08 - 40R - _ _ _ - _ - _ _ _ _

Porting
Cartridge Only **0**
SAE 6 **6T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
12 12 VDC
14 14 VDC
24 24 VDC
27 27 VDC

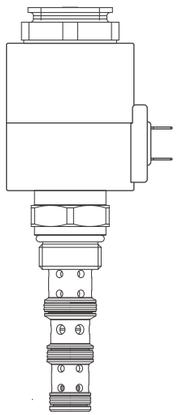
E-Coil
12 12 VDC
14 14 VDC
24 24 VDC
27 27 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

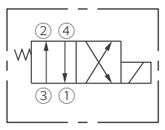
Coils with internal diode are available.
Consult Inno.

SOLENOID VALVE

ISV08-B40
SPOOL, 4-WAY, 2-POSITION



SYMBOL



DESCRIPTION

A solenoid-operated, 4-way, 2-position, high-pressure spool-type, screw-in hydraulic cartridge valve, bidirectional control valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV08-B40 flow paths are ③ to ② and ④ to ①.
When energized, the cartridge' s spool shifts to open ③ to ④ and ② to ①.

FEATURES

1. Continuous-duty rated coil.
2. Hardened seat for long life and low leakage.
3. Optional coil voltages and terminations.
4. All ports may be fully pressurized.
5. Heavy-duty waterproof E-Coils rated up to IP69K.

RATINGS

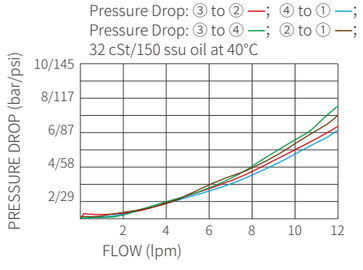
Operating Pressure: 350 bar (5100 psi)
Flow: 12 L/min.
Internal Leakage: 82 ml/min. max. at 350 bar (5100 psi)
Temperature: -40 to 100°C
Response Time: Pull-In: 150 msec.; Drop-Out: 150 msec.
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-4; See page 299

MATERIALS

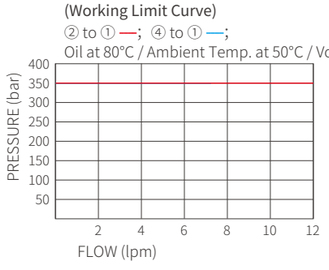
Cartridge: Weight: 0.33 kg. (0.51 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.

PERFORMANCE (cartridge only))

Pressure Drop: ③ to ② —; ④ to ① —;
Pressure Drop: ③ to ④ —; ② to ① —;
32 cSt/150 ssu oil at 40°C

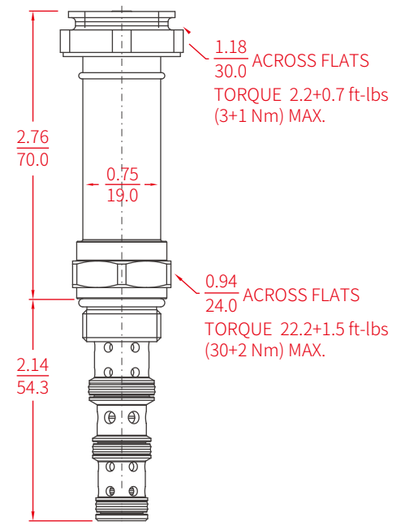


(Working Limit Curve)
② to ① —; ④ to ① —;
Oil at 80°C / Ambient Temp. at 50°C / Voltage U Rated -10%



DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING

TO ORDER

ISV08 - B40 - ___ ___ - ___ - ___ ___ ___ ___

Porting
Cartridge Only **0**
SAE 6 **6T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
12 12 VDC
14 14 VDC
24 24 VDC
27 27 VDC

E-Coil
12 12 VDC
14 14 VDC
24 24 VDC
27 27 VDC

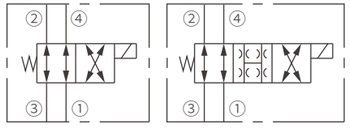
Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Coils with internal diode are available.
Consult Inno.

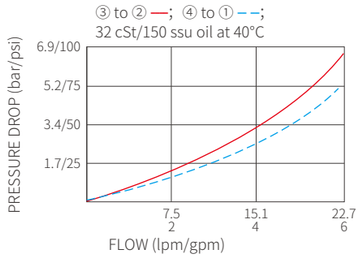
SOLENOID VALVE

ISV10-40
SPOOL, 4-WAY, 2-POSITION

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 4-way, 2-position, direct-acting spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV10-40 flow paths are ③ to ② and ④ to ①.
When energized, the cartridge' s spool shifts to open ③ to ④ and ② to ①.
Operation of Manual Override Option: To override, push button in, twist counterclockwise 180°, and release. The internal spring will push the button out. In this position, the valve may be only partially shifted.
To assure full override shift, pull the button out to its fullest extension and hold it in this position.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. All ports may be fully pressurized.
6. Cartridges are voltage interchangeable.
7. Manual override option.
8. Optional waterproof E-Coils rated up to IP69K.
9. Unitized, molded coil design.
10. Industry common cavity.

RATINGS

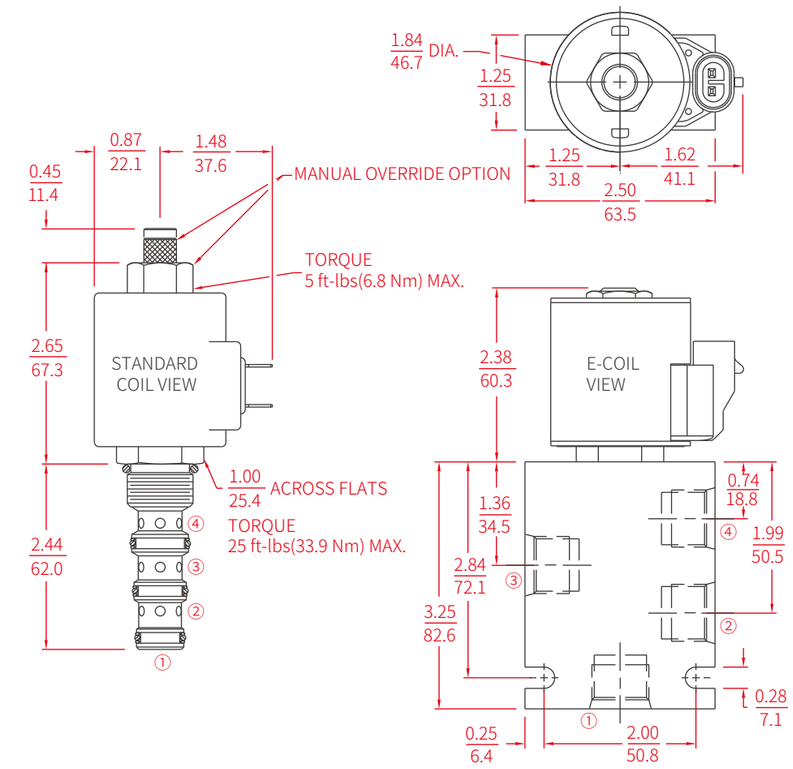
Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: Max. 23 lpm (6 gpm)
Internal Leakage: 82 ml/min. (5 cu. in./minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-4; See page 302

MATERIALS

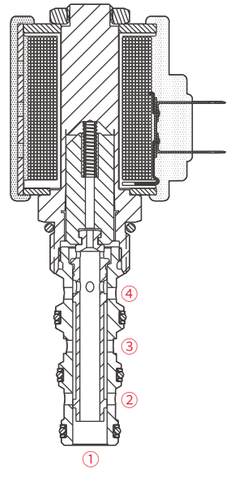
Cartridge: Weight: 0.20 kg. (0.45 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.36 kg. (0.80 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV10 - 40 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**
Manual Override **Y**
Manual Override **J**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

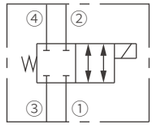
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

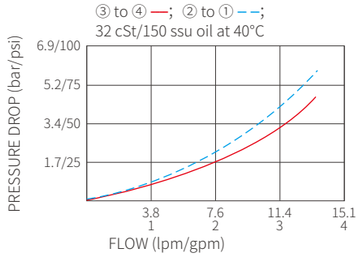
SOLENOID VALVE

ISV08-41
SPOOL, 4-WAY, 2-POSITION

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION
A solenoid-operated, 4-way, 2-position, direct-acting spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

OPERATION
When de-energized, the ISV08-41 blocks flow to all ports.
When energized, the cartridge' s spool shifts to open flow between to ④ and ② to ①.
Operation of Manual Override Option: To override, push button in, twist counterclockwise 180°, and release. The internal spring will push the button out. In this position, the valve may be only partially shifted.
To assure full override shift, pull the button out to its fullest extension and hold it in this position.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES
1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. All ports may be fully pressurized.
6. Cartridges are voltage interchangeable.
7. Manual override option.
8. Optional waterproof E-Coils rated up to IP69K.
9. Unitized, molded coil design.
10. Compact size.

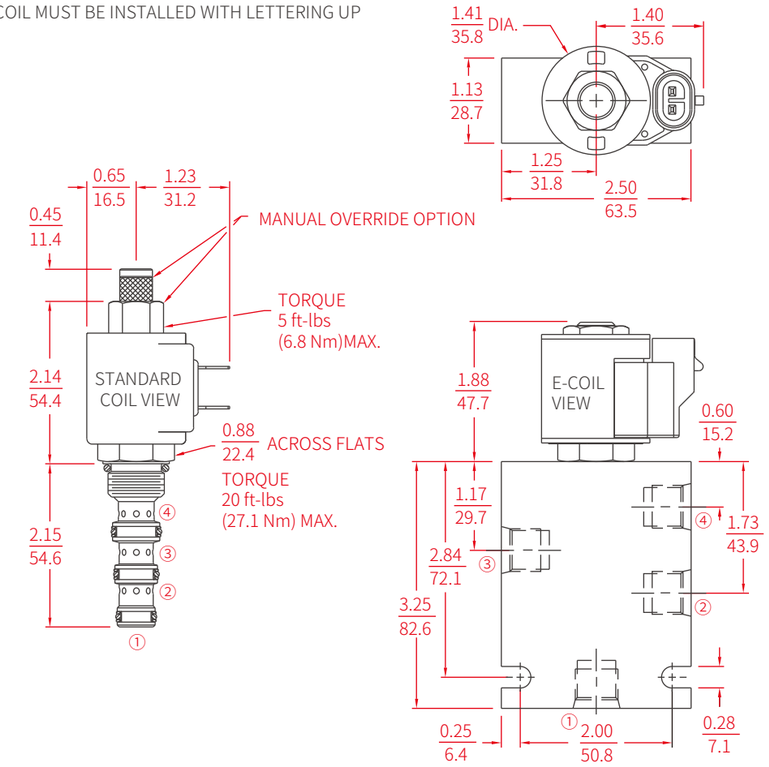
RATINGS
Operating Pressure: 207 bar (3000 psi)
Flow: See Performance Chart
Internal Leakage: 82 ml/min. (5 cu. in./minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.2 amps at 12 VDC;
0.13 amps at 115 VAC (full wave rectified).
E-Coil: 1.4 amps at 12 VDC; 0.7 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-4; See page 299

MATERIALS
Cartridge: Weight: 0.13 kg. (0.28 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.27 kg. (0.60 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

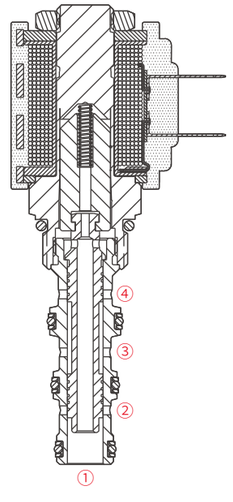
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV08 - 41 ___ - ___ ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**

Porting
Cartridge Only **0**
SAE 6 **6T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

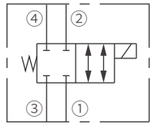
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

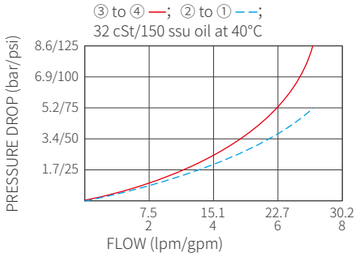
SOLENOID VALVE

ISV10-41
SPOOL, 4-WAY, 2-POSITION

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 4-way, 2-position, direct-acting spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV10-41 flow paths are ③ to ② and ④ to ①.
When energized, the cartridge' s spool shifts to open ③ to ④ and ② to ①.
Operation of Manual Override Option: To override, push button in, twist counterclockwise 180°, and release. The internal spring will push the button out. In this position, the valve may be only partially shifted.
To assure full override shift, pull the button out to its fullest extension and hold it in this position.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. All ports may be fully pressurized.
6. Cartridges are voltage interchangeable.
7. Manual override option.
8. Optional waterproof E-Coils rated up to IP69K.
9. Unitized, molded coil design.
10. Industry common cavity.

RATINGS

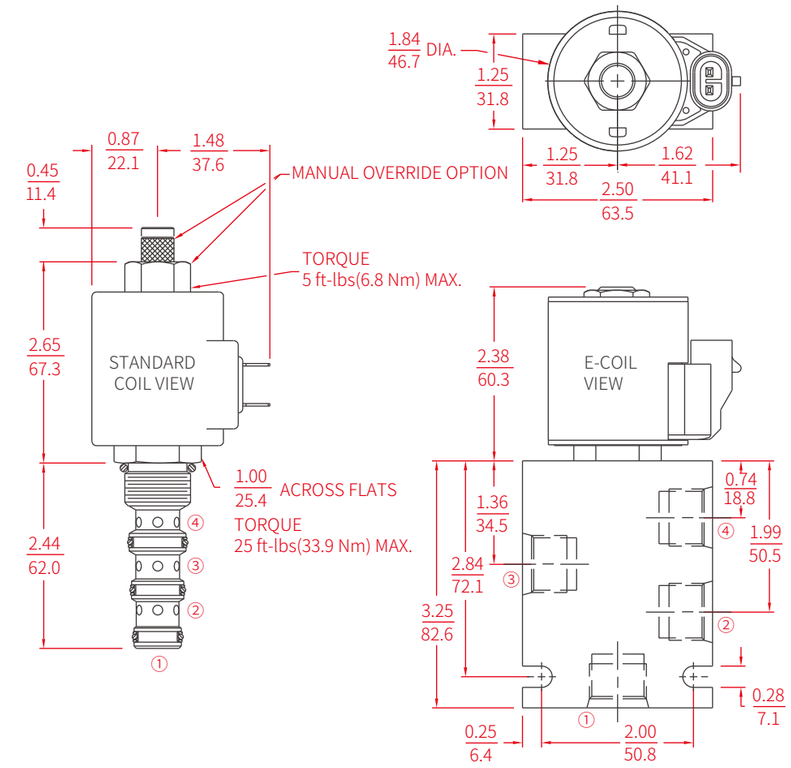
Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 82 ml/min. (5 cu. in./minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-4; See page 302

MATERIALS

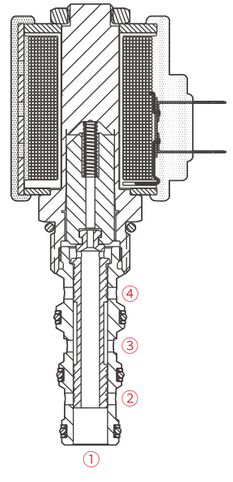
Cartridge: Weight: 0.20 kg. (0.45 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.36 kg. (0.80 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV10 - 41 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**
Manual Override **Y**
Manual Override **J**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

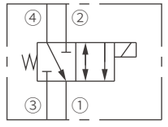
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

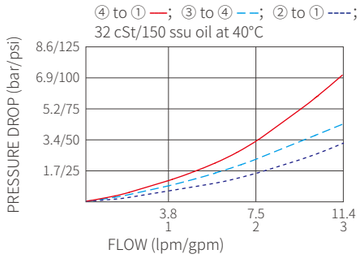
SOLENOID VALVE

ISV08-43
SPOOL, 4-WAY, 2-POSITION

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 4-way, 2-position, direct-acting spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV08-43 allows flow from ④ to ①, while blocking ③ and ②.
When energized, the cartridge' s spool shifts to open flow between ③ to ④ and ② to ①.

Note: While port① may be fully pressurized, it is not intended for use as the inlet.

FEATURES

1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. All ports may be fully pressurized.
6. Cartridges are voltage interchangeable.
7. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Industry common cavity.

RATINGS

Operating Pressure: 207 bar (3000 psi)
Flow: See Performance Chart
Internal Leakage: 82 ml/min. (5 cu. in./minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.2 amps at 12 VDC;
0.13 amps at 115 VAC (full wave rectified).
E-Coil: 1.4 amps at 12 VDC; 0.7 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-4; See page 299

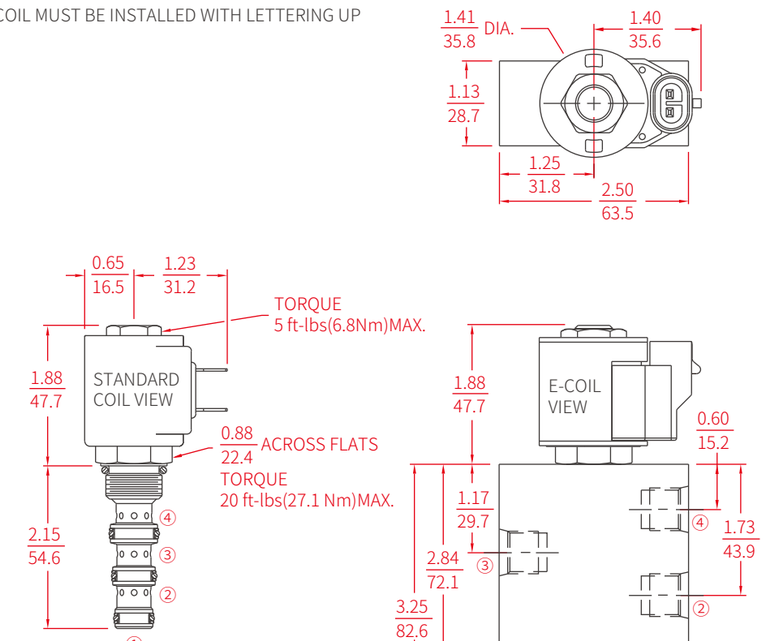
MATERIALS

Cartridge: Weight: 0.13 kg. (0.28 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.27 kg. (0.60 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ. Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

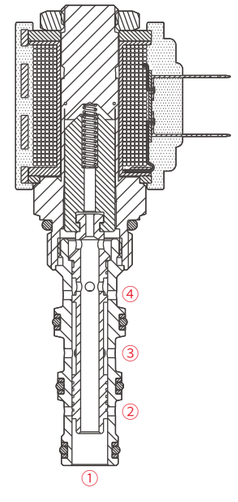
DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV08 - 43 ___ - ___ ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**

Porting
Cartridge Only **0**
SAE 6 **6T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

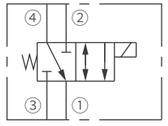
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

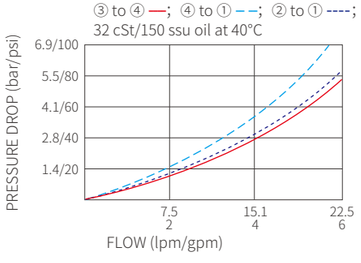
SOLENOID VALVE

ISV10-43
SPOOL, 4-WAY, 2-POSITION

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 4-way, 2-position, direct-acting spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV10-43 allows flow from ④ to ①, while blocking ③ and ②.
When energized, the cartridge' s spool shifts to open flow between ③ to ④ and ② to ①.

Note: While port① may be fully pressurized, it is not intended for use as the inlet.

Operation of Manual Override Option: To override, push button in, twist counter-clockwise 180°, and release. The internal spring will push the button out. In this position, the valve may be only partially shifted.
To assure full override shift, pull the button out to its fullest extension and hold it in this position.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. All ports may be fully pressurized.
6. Cartridges are voltage interchangeable.
7. Manual override option.
8. Optional waterproof E-Coils rated up to IP69K.
9. Unitized, molded coil design.
10. Industry common cavity.

RATINGS

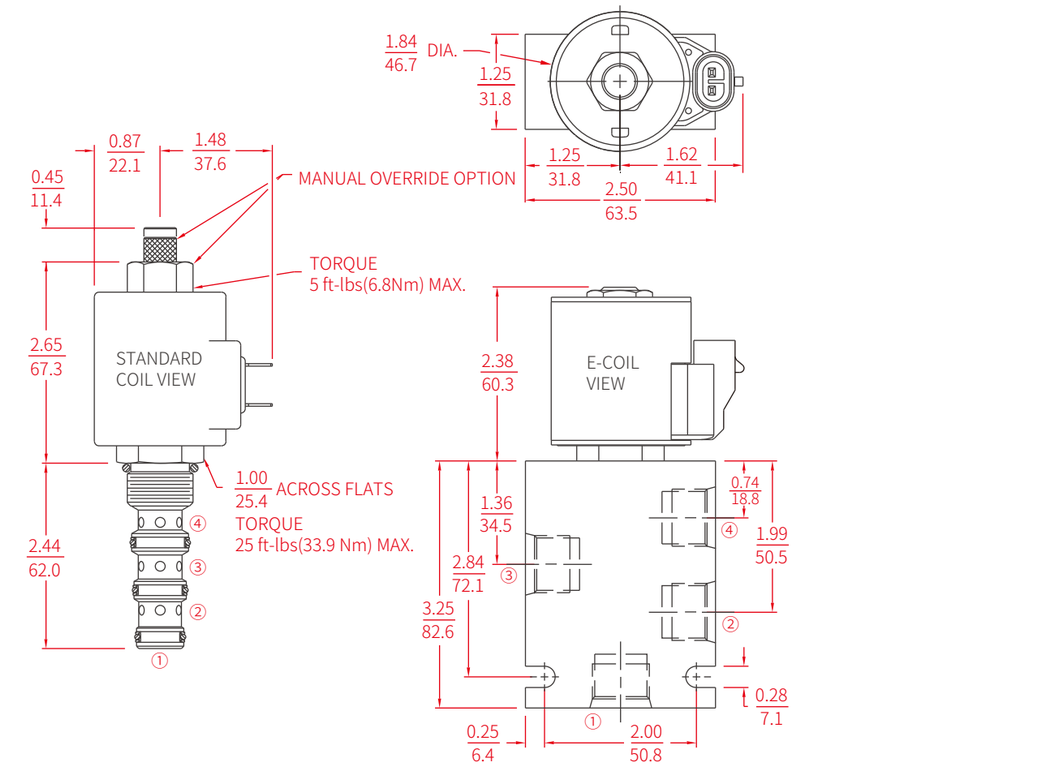
Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 82 ml/min. (5 cu. in./minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-4; See page 302

MATERIALS

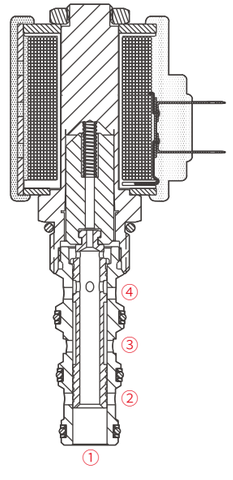
Cartridge: Weight: 0.20 kg. (0.45 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.36 kg. (0.80 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV10 - 43 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**
Manual Override **Y**
Manual Override **J**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

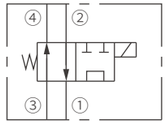
Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P
Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

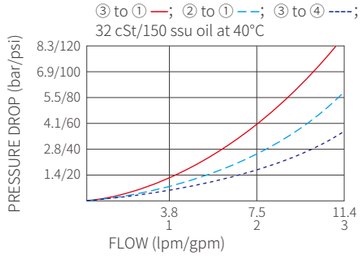
SOLENOID VALVE

ISV08-44
SPOOL, 4-WAY, 2-POSITION

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 4-way, 2-position, direct-acting spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV08-44 allows flow from ③ to ④, while blocking ② and ①.
When energized, the cartridge' s spool shifts to allow flow from ③ to ①, while blocking ② and ④.
Note: While port① may be fully pressurized, it is not intended for use as the inlet.
Operation of Manual Override Option: To override, push button in, twist counter-clockwise 180°, and release. The internal spring will push the button out. In this position, the valve may be only partially shifted.
To assure full override shift, pull the button out to its fullest extension and hold it in this position.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. All ports may be fully pressurized.
6. Cartridges are voltage interchangeable.
7. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Compact size.

RATINGS

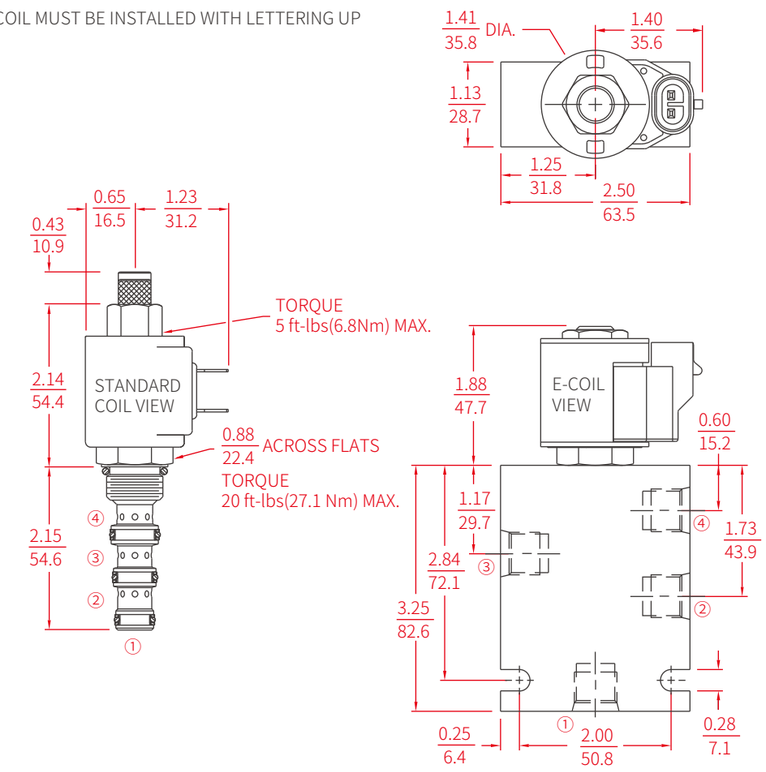
Operating Pressure: 207 bar (3000 psi)
Flow: See Performance Chart
Internal Leakage: 82 ml/min. (5 cu. in./minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.2 amps at 12 VDC;
0.13 amps at 115 VAC (full wave rectified).
E-Coil: 1.4 amps at 12 VDC; 0.7 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-4; See page 299

MATERIALS

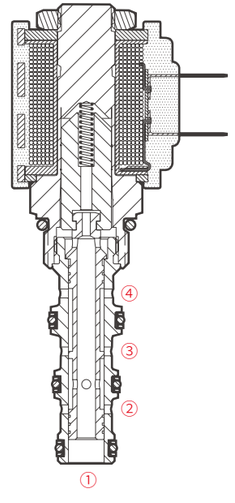
Cartridge: Weight: 0.13 kg. (0.28 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.27 kg. (0.60 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV08 - 44 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**

Porting
Cartridge Only **0**
SAE 6 **6T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

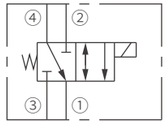
Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

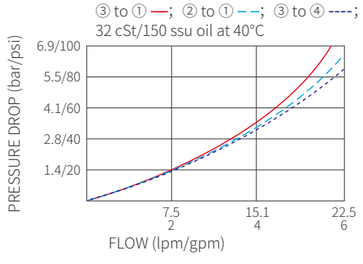
SOLENOID VALVE

ISV10-44
SPOOL, 4-WAY, 2-POSITION

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, 4-way, 2-position, direct-acting spool-type, screw-in hydraulic cartridge valve, designed to control flow direction of actuator.

OPERATION

When de-energized, the ISV10-44 allows flow from ④ to ①, while blocking ③ and ②.
When energized, the cartridge' s spool shifts to allow flow from ③ to ④ and from ② to ④.

Note: While port① may be fully pressurized, it is not intended for use as the inlet.

Operation of Manual Override Option: To override, push button in, twist counter-clockwise 180°, and release. The internal spring will push the button out. In this position, the valve may be only partially shifted.
To assure full override shift, pull the button out to its fullest extension and hold it in this position.
To return to normal operation, push button in, twist clockwise 180°, and release. Override will be detented in this position.

FEATURES

1. Continuous-duty rated coil.
2. Hardened precision spool and cage for long life.
3. Optional coil voltages and terminations.
4. Efficient wet-armature construction.
5. All ports may be fully pressurized.
6. Cartridges are voltage interchangeable.
7. Manual override option.
8. Optional waterproof E-Coils rated up to IP69K.
8. Unitized, molded coil design.
9. Industry common cavity.

RATINGS

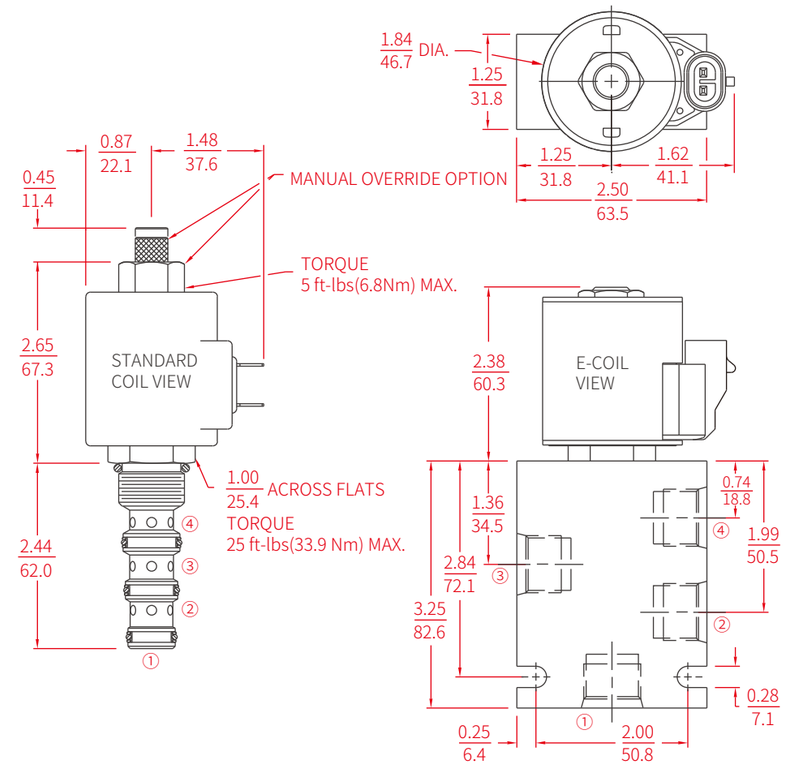
Operating Pressure: 207 bar (3000 psi)
Proof Pressure: 350 bar (5100 psi)
Flow: See Performance Chart
Internal Leakage: 82 ml/min. (5 cu. in./minute) max. at 207 bar (3000 psi)
Temperature: -40 to 100°C
Coil Duty Rating: Continuous from 85% to 115% of nominal voltage
Initial Coil Current Draw at 20°C:
Standard Coil: 1.67 amps at 12 VDC;
0.18 amps at 115 VAC (full wave rectified).
E-Coil: 1.7 amps at 12 VDC; 0.85 amps at 24 VDC
Minimum Pull-in Voltage: 85% of nominal at 207 bar (3000 psi)
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC10-4; See page 302

MATERIALS

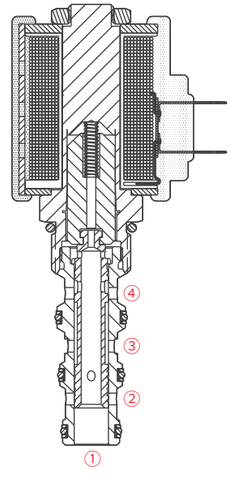
Cartridge: Weight: 0.20 kg. (0.45 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.
Standard Ported Body: Weight: 0.36 kg. (0.80 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi).
Ductile iron and steel bodies available; dimensions may differ.
Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.9 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING



TO ORDER

ISV10 - 44 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**
Manual Override **Y**
Manual Override **J**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
Buna-N (Std.) **V**
Fluorocarbon **P**

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
24 24 VDC
36 36 VDC
48 48 VDC
24 24 VAC
115 115 VAC
230 230 VAC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

E-Coil
10 10 VDC
12 12 VDC
20 20 VDC
24 24 VDC

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
AG DIN 43650
AP 1/2 in. Conduit

Termination (VDC) E-Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

Coils with internal diode are available. Consult Inno.

平衡阀
Counterbalance Valve

COUNTERBALANCE VALVE

VALZOOM® 珐隽 COUNTERBALANCE VALVE PROVIDES FLOW CONTROL RELATED TO PILOT-ASSITED VALVE OPENING. IT IS USED WITH REMOTE CONTROL SOURCE TO PROVIDE LOAD CONTROL AND MAINTENANCE FUNCTIONS.

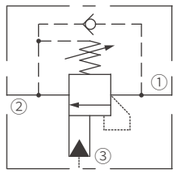
COUNTERBALANCE VALVE SERIES INCLUDES RESTRICTIVE TYPE AND STANDARD TYPE.

RESTRICTIVE TYPE AND STANDARD TYPE COUNTERBALANCE VALVES HAVE THE FUNCTIONS OF ONE-WAY, RELIEF AND PILOT-OPERATED RESTRICTION.

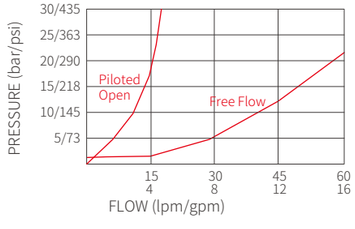
COUNTERBALANCE VALVE

ICBBA-LHN
RESTRICTIVE
280BAR MAXIMUM SETTING

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION
A screw-in, cartridge-style, three-port, poppet-type, counterbalance valve controls the oil flow back to the internal spring chamber.

OPERATION
One-way function: The ICBBA-LHN allows the flow from ② to ①, and blocks flow from ① to ② when the pressure of ① is lower than the check spring setting.
Relief valve function: The cartridge relieves flow from ① to ② when the pressure of ①exceeds the check spring setting.
Pilot-assisted restriction function: When there is pilot-assisted pressure at port ③, it could change the opening degree from ① to ② to achieve the restriction function.

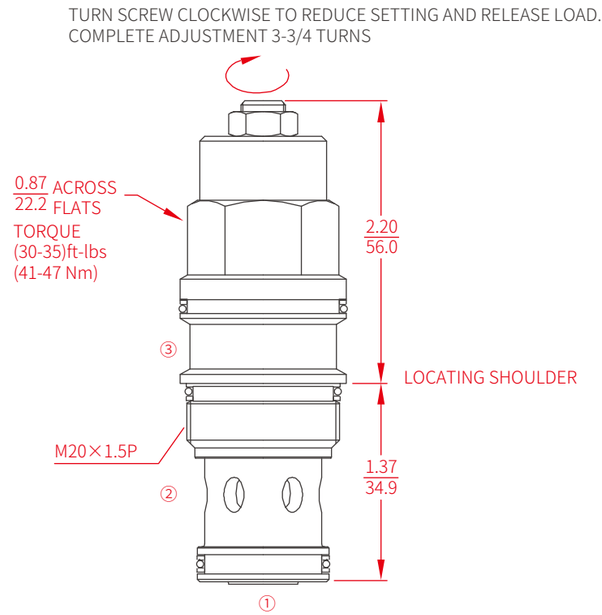
FEATURES
1. Max. setting pressure is at least 1.3 times max. load-induced pressure.
2. Backpressure at port 2 should be in the setting range.
3. Reseat pressure exceeds 85% of set pressure.

RATINGS
Operating Pressure: Loading pressure max. 215 bar when setting pressure at 280bar
Flow: See Performance Chart
Internal Leakage: Max. 0.4 ml/min. at Reseat
Reseat pressure > 85% of setting pressure
Factory pressure settings established at flow of 32.8 ml/min
Pilot Ratio: 3:1, max. setting should be equal to 1.3 times the load pressure
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IT-11A; See page 309

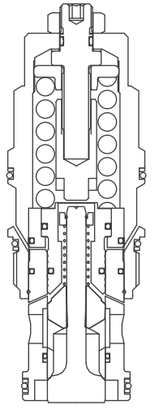
MATERIALS
Cartridge: Weight: 0.2 kg. (0.44 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

ICB **B** **A** - **L** **H** **N**

Seals
N Buna-N (Std.)
V Fluorocarbon

Pilot Ratio
3 : 1

Control
Standard Screw

Flow
15L/min

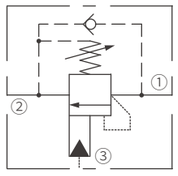
Adjustment Range
Check Spring 1.7bar
H=70-280bar

NOTE: Factory setting pressure 210 bar.
(Customer may specify setting pressure.)

COUNTERBALANCE VALVE

ICBBG-LJN
RESTRICTIVE
350BAR MAXIMUM SETTING

SYMBOL



DESCRIPTION
A screw-in, cartridge-style, three-port, poppet-type, counterbalance valve controls the oil flow back to the internal spring chamber.

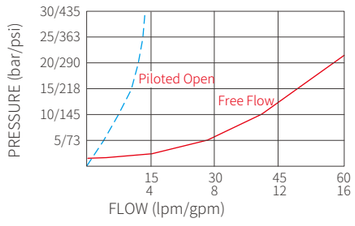
OPERATION
One-way function: The ICBBG-LJN allows the flow from ② to ①, and blocks flow from ① to ② when the pressure of ① is lower than the check spring setting.
Relief valve function: The cartridge relieves flow from ① to ② when the pressure of ①exceeds the check spring setting.
Pilot-assisted restriction function: When there is pilot-assisted pressure at port ③, it could change the opening degree from ① to ② to achieve the restriction function.

FEATURES
1. Max. setting pressure is at least 1.3 times max. load-induced pressure.
2. Backpressure at port 2 should be in the setting range.
3. Reseat pressure exceeds 85% of set pressure.

RATINGS
Operating Pressure: Loading pressure max. 270 bar when setting pressure at 350bar
Flow: See Performance Chart
Internal Leakage: Max. 0.4 ml/min. at Reseat
Reseat pressure > 85% of setting pressure
Factory pressure settings established at flow of 32.8 ml/min
Pilot Ratio: 4.5:1, max. setting should be equal to 1.3 times the load pressure
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IT-11A; See page 309

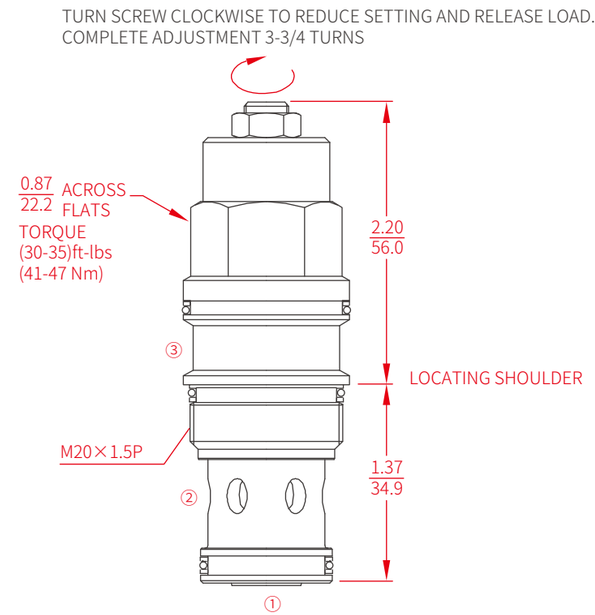
MATERIALS
Cartridge: Weight: 0.20 kg. (0.44 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.

PERFORMANCE (cartridge only))

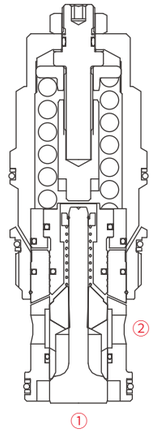


DIMENSION

INCH
MM



SECTIONAL DRAWING



TO ORDER

ICB **B** **G** - **L** **J** **N**

Seals
N Buna-N (Std.)
V Fluorocarbon

Pilot Ratio
4.5 : 1

Control
Standard Screw

Flow
15L/min

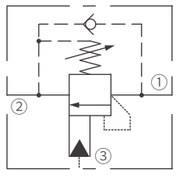
Adjustment Range
Check Spring 1.7bar
H=140-350bar

NOTE: Factory setting pressure 210 bar.
(Customer may specify setting pressure.)

COUNTERBALANCE VALVE

ICBCA-LHN
STANDARD
280BAR MAXIMUM SETTING

SYMBOL



DESCRIPTION
A screw-in, cartridge-style, three-port, poppet-type, counterbalance valve controls the oil flow back to the internal spring chamber.

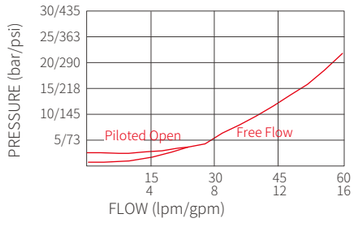
OPERATION
One-way function: The ICBCA-LHN allows the flow from ② to ①, and blocks flow from ① to ② when the pressure of ① is lower than the check spring setting.
Relief valve function: The cartridge relieves flow from ① to ② when the pressure of ①exceeds the check spring setting.
Pilot-assisted restriction function: When there is pilot-assisted pressure at port ③, it could change the opening degree from ① to ② to achieve the restriction function.

FEATURES
1. Max. setting pressure is at least 1.3 times max. load-induced pressure.
2. Backpressure at port 2 should be in the setting range.
3. Reseat pressure exceeds 85% of set pressure.

RATINGS
Operating Pressure: Loading pressure max. 215 bar when setting pressure at 280bar
Flow: See Performance Chart
Internal Leakage: Max. 0.4 ml/min. at Reseat
Reseat pressure > 85% of setting pressure
Factory pressure settings established at flow of 32.8 ml/min
Pilot Ratio: 3:1, max. setting should be equal to 1.3 times the load pressure
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IT-11A; See page 309

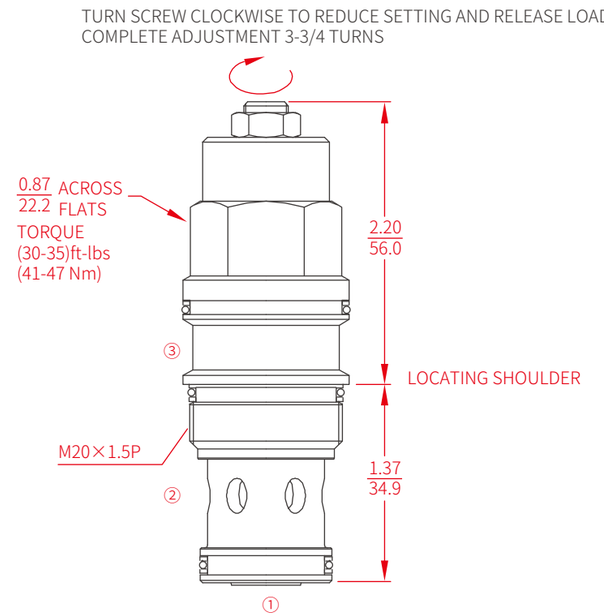
MATERIALS
Cartridge: Weight: 0.20 kg. (0.44 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.

PERFORMANCE (cartridge only))

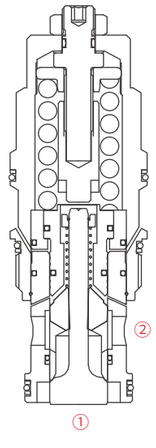


DIMENSION

INCH
MM



SECTIONAL DRAWING



TO ORDER

ICB **C** **A** - **L** **H** **N**

Seals
N Buna-N (Std.)
V Fluorocarbon

Pilot Ratio
3 : 1

Control
Standard Screw

Flow
60L/min

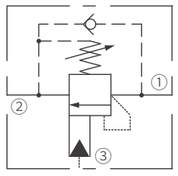
Adjustment Range
Check Spring 1.7bar
H=70-280bar

NOTE: Factory setting pressure 210 bar.
(Customer may specify setting pressure.)

COUNTERBALANCE VALVE

ICBCG-LJN
STANDARD
350BAR MAXIMUM SETTING

SYMBOL



DESCRIPTION
A screw-in, cartridge-style, three-port, poppet-type, counterbalance valve controls the oil flow back to the internal spring chamber.

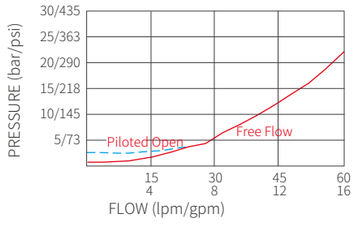
OPERATION
One-way function: The ICBCG-LJN allows the flow from ② to ①, and blocks flow from ① to ② when the pressure of ① is lower than the check spring setting.
Relief valve function: The cartridge relieves flow from ① to ② when the pressure of ① exceeds the check spring setting.
Pilot-assisted restriction function: When there is pilot-assisted pressure at port ③, it could change the opening degree from ① to ② to achieve the restriction function.

FEATURES
1. Max. setting pressure is at least 1.3 times max. load-induced pressure.
2. Backpressure at port 2 should be in the setting range.
3. Reseat pressure exceeds 85% of set pressure.

RATINGS
Operating Pressure: Loading pressure max. 270 bar when setting pressure at 350bar
Flow: See Performance Chart
Internal Leakage: Max. 0.4 ml/min. at Reseat
Reseat pressure > 85% of setting pressure
Factory pressure settings established at flow of 32.8 ml/min
Pilot Ratio: 4.5:1, max. setting should be equal to 1.3 times the load pressure
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IT-11A; See page 309

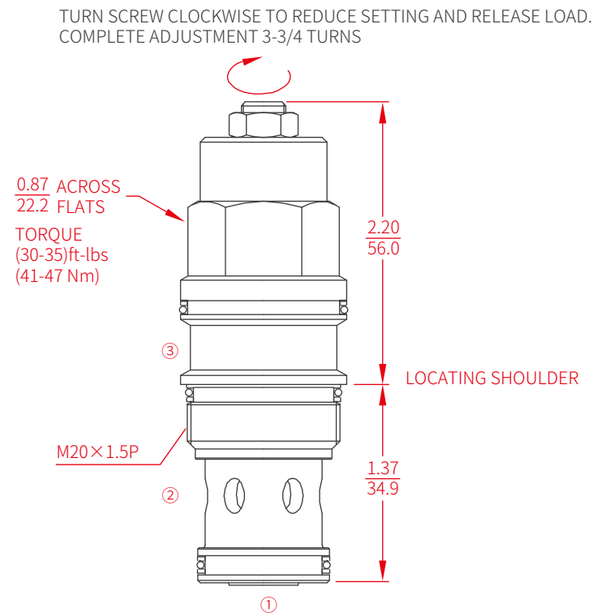
MATERIALS
Cartridge: Weight: 0.20 kg. (0.44 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.

PERFORMANCE (cartridge only))

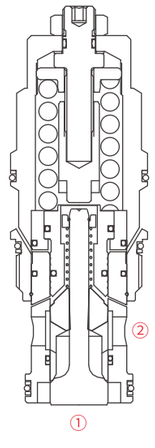


DIMENSION

INCH
MM



SECTIONAL DRAWING



TO ORDER

ICB C G - L J N

Seals
N Buna-N (Std.)
V Fluorocarbon

Pilot Ratio
4.5 : 1

Control
Standard Screw

Flow
15L/min

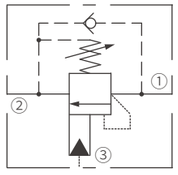
Adjustment Range
Check Spring 1.7bar
J=140-350bar

NOTE: Factory setting pressure 210 bar.
(Customer may specify setting pressure.)

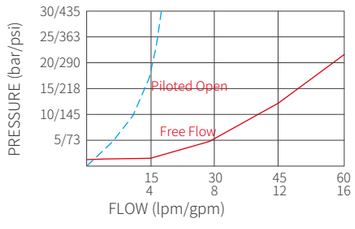
COUNTERBALANCE VALVE

ICBCH-LJN
STANDARD
350BAR MAXIMUM SETTING

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A screw-in, cartridge-style, three-port, poppet-type, counterbalance valve controls the oil flow back to the internal spring chamber.

OPERATION

One-way function: The ICBCH-LJN allows the flow from ② to ①, and blocks flow from ① to ② when the pressure of ① is lower than the check spring setting.
Relief valve function: The cartridge relieves flow from ① to ② when the pressure of ① exceeds the check spring setting.
Pilot-assisted restriction function: When there is pilot-assisted pressure at port ③, it could change the opening degree from ① to ② to achieve the restriction function.

FEATURES

1. Max. setting pressure is at least 1.3 times max. load-induced pressure.
2. Backpressure at port 2 should be in the setting range.
3. Reseat pressure exceeds 85% of set pressure.

RATINGS

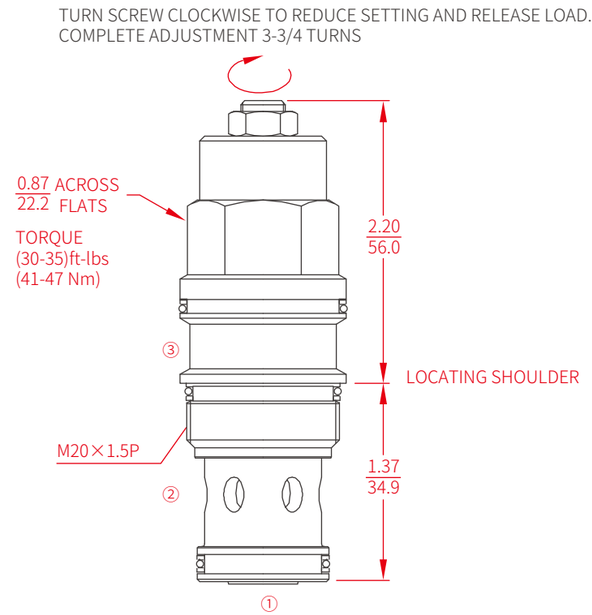
Operating Pressure: Loading pressure max. 270 bar when setting pressure at 350bar
Flow: See Performance Chart
Internal Leakage: Max. 0.4 ml/min. at Reseat
Reseat pressure > 85% of setting pressure
Factory pressure settings established at flow of 32.8 ml/min
Pilot Ratio: 10:1, max. setting should be equal to 1.3 times the load pressure
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IT-11A; See page 309

MATERIALS

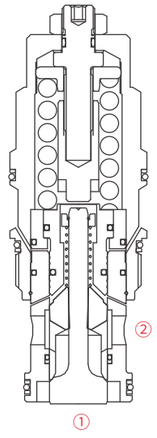
Cartridge: Weight: 0.20 kg. (0.44 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

ICB C H - L J N

Seals
N Buna-N (Std.)
V Fluorocarbon

Pilot Ratio
10 : 1

Control
Standard Screw

Flow
60L/min

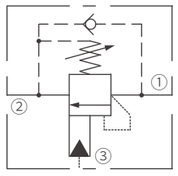
Adjustment Range
Check Spring 1.7bar
J=140-350bar

NOTE: Factory setting pressure 210 bar.
(Customer may specify setting pressure.)

COUNTERBALANCE VALVE

ICBEA-LHN
STANDARD
280BAR MAXIMUM SETTING

SYMBOL



DESCRIPTION
A screw-in, cartridge-style, three-port, poppet-type, counterbalance valve controls the oil flow back to the internal spring chamber.

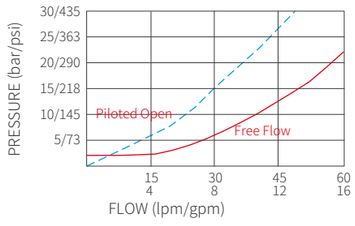
OPERATION
One-way function: The ICBEA-LHN allows the flow from ② to ①, and blocks flow from ① to ② when the pressure of ① is lower than the check spring setting.
Relief valve function: The cartridge relieves flow from ① to ② when the pressure of ① exceeds the check spring setting.
Pilot-assisted restriction function: When there is pilot-assisted pressure at port ③, it could change the opening degree from ① to ② to achieve the restriction function.

FEATURES
1. Max. setting pressure is at least 1.3 times max. load-induced pressure.
2. Backpressure at port 2 should be in the setting range.
3. Reseat pressure exceeds 85% of set pressure.

RATINGS
Operating Pressure: Loading pressure max. 215 bar when setting pressure at 280bar
Flow: See Performance Chart
Internal Leakage: Max. 0.4 ml/min. at Reseat
Reseat pressure > 85% of setting pressure
Factory pressure settings established at flow of 32.8 ml/min
Pilot Ratio: 3:1, max. setting should be equal to 1.3 times the load pressure
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IT-2A; See page 307

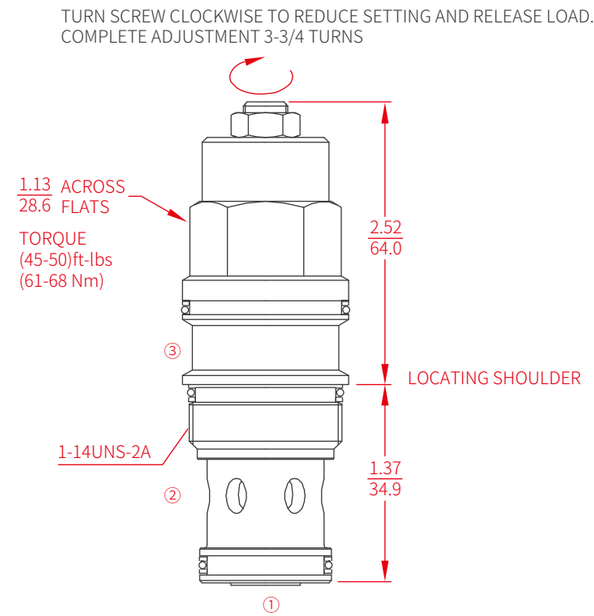
MATERIALS
Cartridge: Weight: 0.20 kg. (0.44 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.

PERFORMANCE (cartridge only))

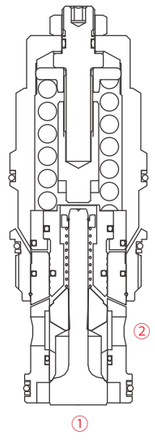


DIMENSION

INCH
MM



SECTIONAL DRAWING



TO ORDER

ICB **E** **A** - **L** **H** **N**

Seals
N Buna-N (Std.)
V Fluorocarbon

Pilot Ratio
3 : 1

Control
Standard Screw

Flow
120L/min

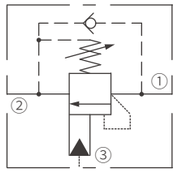
Adjustment Range
Check Spring 1.7bar
H=70-280bar

NOTE: Factory setting pressure 210 bar.
(Customer may specify setting pressure.)

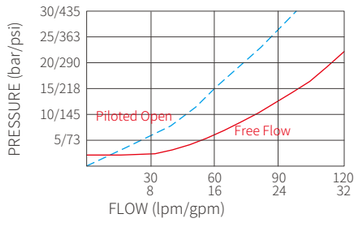
COUNTERBALANCE VALVE

ICBEG-LJN
STANDARD
350BAR MAXIMUM SETTING

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A screw-in, cartridge-style, three-port, poppet-type, counterbalance valve controls the oil flow back to the internal spring chamber.

OPERATION

One-way function: The ICBEG-LJN allows the flow from ② to ①, and blocks flow from ① to ② when the pressure of ① is lower than the check spring setting.
Relief valve function: The cartridge relieves flow from ① to ② when the pressure of ① exceeds the check spring setting.
Pilot-assisted restriction function: When there is pilot-assisted pressure at port ③, it could change the opening degree from ① to ② to achieve the restriction function.

FEATURES

1. Max. setting pressure is at least 1.3 times max. load-induced pressure.
2. Backpressure at port 2 should be in the setting range.
3. Reseat pressure exceeds 85% of set pressure.

RATINGS

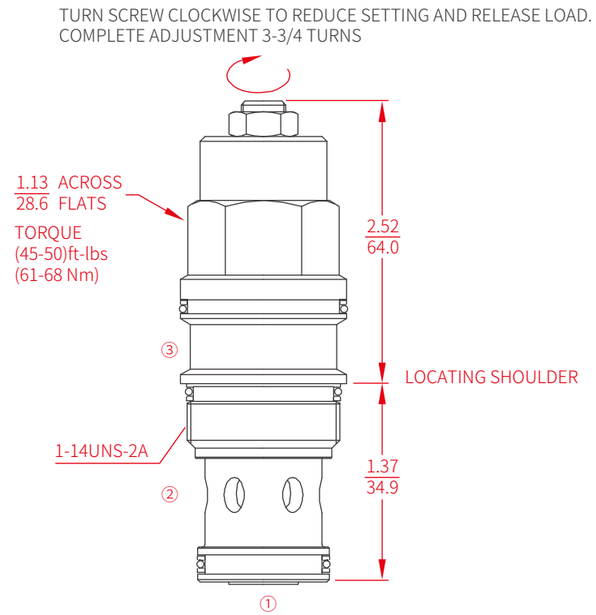
Operating Pressure: Loading pressure max. 270 bar when setting pressure at 350bar
Flow: See Performance Chart
Internal Leakage: Max. 0.4 ml/min. at Reseat
Reseat pressure > 85% of setting pressure
Factory pressure settings established at flow of 32.8 ml/min
Pilot Ratio: 4.5:1, max. setting should be equal to 1.3 times the load pressure
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IT-2A; See page 307

MATERIALS

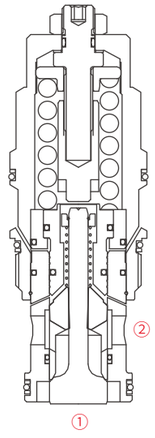
Cartridge: Weight: 0.30 kg. (0.66 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.

DIMENSION

INCH
MM



SECTIONAL DRAWING



TO ORDER

ICB E G - L J N

Seals
N Buna-N (Std.)
V Fluorocarbon

Pilot Ratio
4.5 : 1

Control
Standard Screw

Flow
120L/min

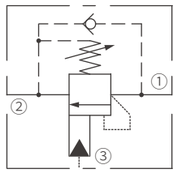
Adjustment Range
Check Spring 1.7bar
J=140-350bar

NOTE: Factory setting pressure 210 bar.
(Customer may specify setting pressure.)

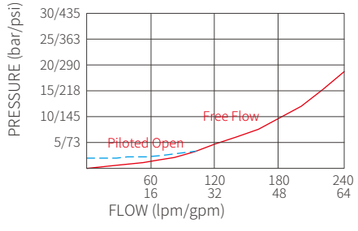
COUNTERBALANCE VALVE

ICBGG-LJN
STANDARD
350BAR MAXIMUM SETTING

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION
A screw-in, cartridge-style, three-port, poppet-type, counterbalance valve controls the oil flow back to the internal spring chamber.

OPERATION
One-way function: The ICBGG-LJN allows the flow from ② to ①, and blocks flow from ① to ② when the pressure of ① is lower than the check spring setting.
Relief valve function: The cartridge relieves flow from ① to ② when the pressure of ① exceeds the check spring setting.
Pilot-assisted restriction function: When there is pilot-assisted pressure at port ③, it could change the opening degree from ① to ② to achieve the restriction function.

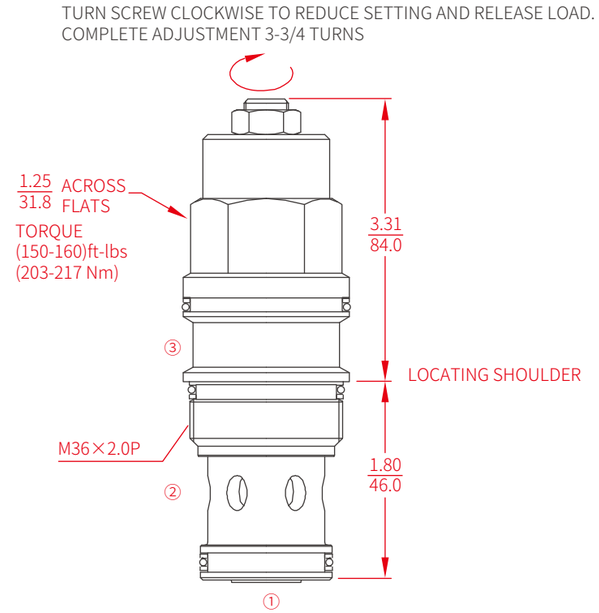
FEATURES
1. Max. setting pressure is at least 1.3 times max. load-induced pressure.
2. Backpressure at port ② should be in the setting range.
3. Reseat pressure exceeds 85% of set pressure.

RATINGS
Operating Pressure: Loading pressure max. 270 bar when setting pressure at 350bar
Flow: See Performance Chart
Internal Leakage: Max. 0.4 ml/min. at Reseat
Reseat pressure > 85% of setting pressure
Factory pressure settings established at flow of 32.8 ml/min
Pilot Ratio: 4.5:1, max. setting should be equal to 1.3 times the load pressure
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IT-17A; See page 309

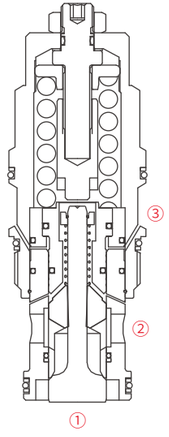
MATERIALS
Cartridge: Weight: 0.70 kg. (1.54 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.

DIMENSION

INCH / MM



SECTIONAL DRAWING



TO ORDER

ICB G G - L J N

Seals
N Buna-N (Std.)
V Fluorocarbon

Pilot Ratio
4.5 : 1

Control
Standard Screw

FLOW
240L/min

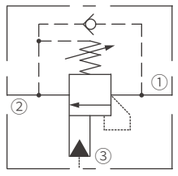
Adjustment Range
Check Spring 1.7bar
J=140-350bar

NOTE: Factory setting pressure 210 bar.
(Customer may specify setting pressure.)

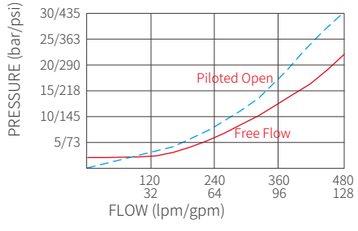
COUNTERBALANCE VALVE

ICBIG-LJN
STANDARD
350BAR MAXIMUM SETTING

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION
A screw-in, cartridge-style, three-port, poppet-type, counterbalance valve controls the oil flow back to the internal spring chamber.

OPERATION
One-way function: The ICBIG-LJN allows the flow from ② to ①, and blocks flow from ① to ② when the pressure of ① is lower than the check spring setting.
Relief valve function: The cartridge relieves flow from ① to ② when the pressure of ① exceeds the check spring setting.
Pilot-assisted restriction function: When there is pilot-assisted pressure at port ③, it could change the opening degree from ① to ② to achieve the restriction function.

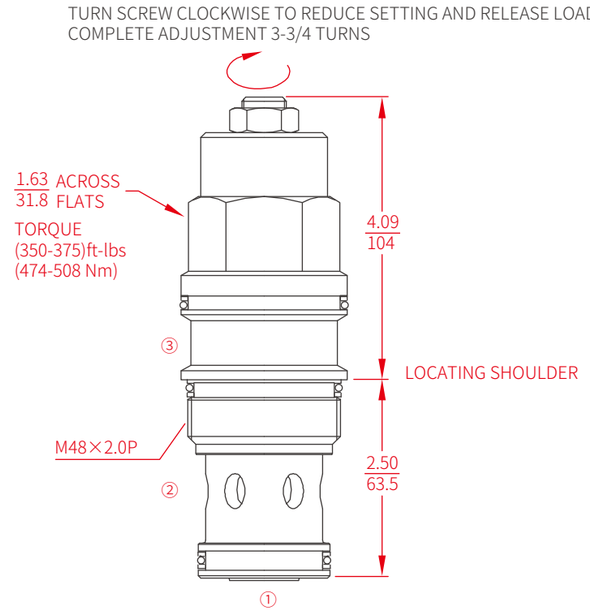
FEATURES
1. Max. setting pressure is at least 1.3 times max. load-induced pressure.
2. Backpressure at port ② should be in the setting range.
3. Reseat pressure exceeds 85% of set pressure.

RATINGS
Operating Pressure: Loading pressure max. 270 bar when setting pressure at 350bar
Flow: See Performance Chart
Internal Leakage: Max. 0.4 ml/min. at Reseat
Reseat pressure > 85% of setting pressure
Factory pressure settings established at flow of 32.8 ml/min
Pilot Ratio: 4.5:1, max. setting should be equal to 1.3 times the load pressure
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IT-19A; See page 310

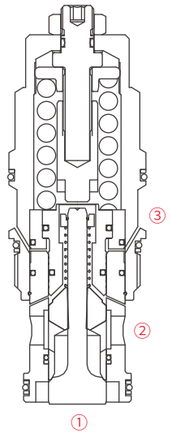
MATERIALS
Cartridge: Weight: 1.35 kg. (2.97 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: O-rings and back-up rings.

DIMENSION

INCH
MM



SECTIONAL DRAWING



TO ORDER

ICB I G - L J N

Seals
N Buna-N (Std.)
V Fluorocarbon

Pilot Ratio
4.5 : 1

Control
Standard Screw

FLOW
480L/min

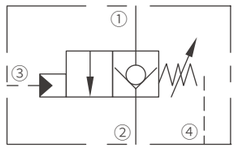
Adjustment Range
Check Spring 1.7bar
J=140-350bar

NOTE: Factory setting pressure 210 bar.
(Customer may specify setting pressure.)

COUNTERBALANCE VALVE

I1CPBD120F2P
COUNTERBALANCE VALVE

SYMBOL



DESCRIPTION

A screw-in, cartridge valve provides loading control and maintenance functions, implemented by flow adjustment, related to the pilot-assisted opening degree when used with a remote control source.

OPERATION

The I1CPBD120F2P allows the flow from ② to ①, while blocks flow from ① to ②; The pilot pressure at port ③ forces the main spool to shift upward, intended to open the ① to ② flow path. The cartridge' s flow characteristic is controlled by spring stiffness, angle of spring seat, and pilot pressure.

FEATURES

1. Hardened spool for long life.
2. Smooth response.
3. Industry common cavity.

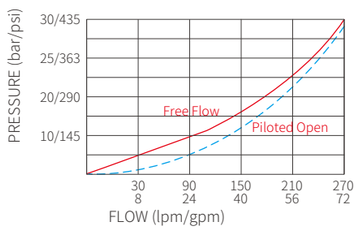
RATINGS

Operating Pressure: 400 bar (5800 psi)
Regulated Flow: Max. 180 lpm(47 gpm)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC30-4; See page 306

MATERIALS

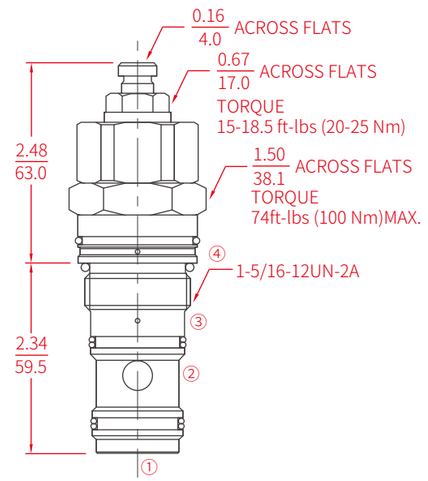
Cartridge: Weight: 0.59 kg. (1.30 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.

PERFORMANCE (cartridge only))

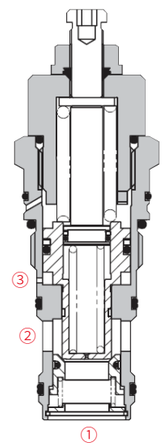


DIMENSION

INCH
MM



SECTIONAL DRAWING



TO ORDER

I1CPBD120 F 2 P

Seals
N Buna-N (Std.)
V Fluorocarbon

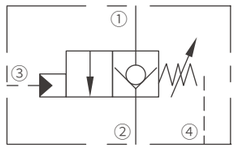
Control
Standard Screw

Adjustment Range
2=2-20bar
NOTE: Factory setting pressure 10 bar, 4.8 L/min.
(Customer may specify setting pressure.)

COUNTERBALANCE VALVE

I1CPBD300F2P
COUNTERBALANCE VALVE

SYMBOL



DESCRIPTION

A screw-in, cartridge valve provides loading control and maintenance functions, implemented by flow adjustment, related to the pilot-assisted opening degree when used with a remote control source.

OPERATION

The I1CPBD300F2P allows the flow from ② to ①, while blocks flow from ① to ②; The pilot pressure at port ③ forces the main spool to shift upward, intended to open the ① to ② flow path. The cartridge' s flow characteristic is controlled by spring stiffness, angle of spring seat, and pilot pressure.

FEATURES

1. Hardened spool for long life.
2. Smooth response.
3. Industry common cavity.

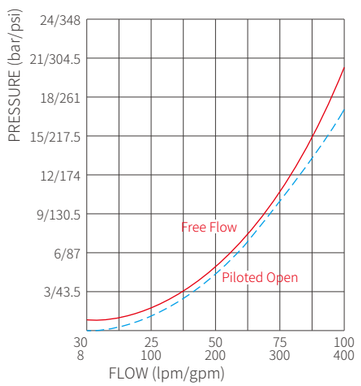
RATINGS

Operating Pressure: 400 bar (5800 psi)
Regulated Flow: Max. 300 lpm(80 gpm)
Temperature: -40 to 100°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC50-4; See page 307

MATERIALS

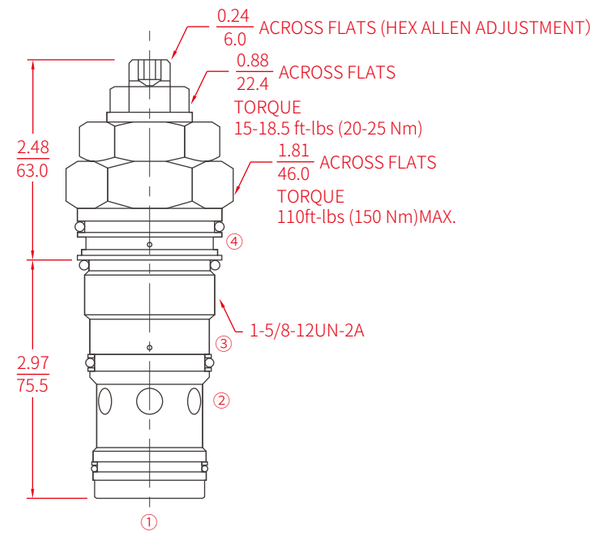
Cartridge: Weight: 0.91 kg. (2 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Seal: D type seal rings.

PERFORMANCE (cartridge only))

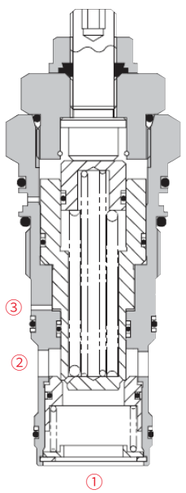


DIMENSION

INCH
MM



SECTIONAL DRAWING



TO ORDER

I1CPBD300 F 2 P

Seals
N Buna-N (Std.)
V Fluorocarbon

Control
Standard Screw

Adjustment Range
2=2-20bar
NOTE: Factory setting pressure 10 bar, 4.8 L/min.
(Customer may specify setting pressure.)

电比例阀
Electric Proportional Valve

ELECTRO-PROPORTIONAL VALVE

VALZOOM® 珐隽 ELECTRO-PROPORTIONAL VALVES ARE USED FOR BLOCKING OR LOAD HOLDING APPLICATIONS REQUIRING LOW LEAKAGE.

ELECTRO-PROPORTIONAL VALVE SERIES INCLUDES ELECTRO-PROPORTIONAL FLOW VALVE, ELECTRO PROPORTIONAL PILOTED RELIEF VALVE, ELECTRO-PROPORTIONAL PILOTED PRESSURE REDUCING / RELIEVING VALVE, ETC.

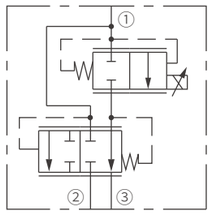
ELECTRO-PROPORTIONAL FLOW VALVE CAN BE USED AS A PRIORITY FLOW REGULATOR WITH PRESSURE COMPENSATED.

ELECTRO-PROPORTIONAL PILOT RELIEF VALVE CAN BE INFINITELY ADJUSTED ACROSS A PRESCRIBED RANGE USING A VARIABLE ELECTRIC INPUT, INTENDED FOR USE AS A PRESSURE LIMITING DEVICE.

ELECTRO-PROPORTIONAL

IPV70-30
PROPORTIONAL FLOW
CONTROL VALVE

SYMBOL



DESCRIPTION

A solenoid-operated, electrically-variable, three-port, pressure-compensated, spool-type, normally closed when de-energized, proportional flow control valve. It can be used as a priority-type flow regulator with pressure-compensated, regulated and bypass flow. It can also be used as a restrictive-type 2-way, pressure-compensated flow regulator when the bypass line (port ②) is blocked.

OPERATION

The IPV70-30 will regulate flow out of port③regardless of system working pressure. With an increasing current applied to the solenoid, the IPV70-30 will increase output flow.

Note: When used as a bypass flow control in applications where the priority flow port will be blocked by external valving, the bypass pressure drop will increase unless a small amount of leakage is provided for the priority port. Consult Inno.

Operation of Manual Override Option: To Engage: Turn clockwise approximately 1 turn to reach the start point. Continue another approximately 5 turns to full shift. To Disengage: Turn counterclockwise approximately 6 turns to positive stop.

FEATURES

1. Excellent linearity and hysteresis.
2. Hardened spool and cage for long life.
3. Optional coil voltages and terminations.
4. Efficient wet armature construction.

RATINGS

Operating Pressure: Port①: 240 bar (3500 psi); Ports②&③: 207 bar (3000 psi)
Regulated Flow Rate: Bypass Blocked, Range A: 26 lpm (7 gpm);
Bypass Blocked, Range B: 17 lpm (4.5 gpm)
Bypass Open, Range A: 30 lpm (8 gpm);
Bypass Open, Range B: 17 lpm (4.5 gpm)
Maximum Input Flow: Bypass Open, Range A: 50 lpm (13 gpm)
Bypass Open, Range B: 26 lpm (7 gpm)
Internal Leakage: 197 ml/min. (12 cu. in./min.) fully closed at 207 bar (3000 psi)
Electrical: 2 standard voltage ratings
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC10-3; See page 300

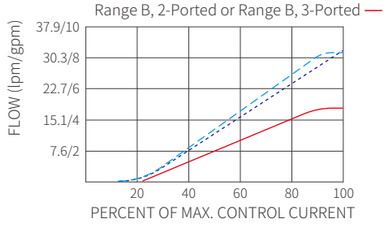
MATERIALS

Cartridge: Weight: 0.19 kg. (0.42 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces; Seal: O-rings and back-up rings.
Standard Ported Body: Weight: 0.36 kg. (0.80 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi); Ductile iron and steel bodies available; dimensions may differ; Consult Inno.
IPV70-Seires Coil: Weight: 0.32 kg. (0.7 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.

Coil Voltage	Threshold Current	Max. Control Current
12VDC	350±70 mA	1500±200 mA
24VDC	175±35 mA	750±100 mA

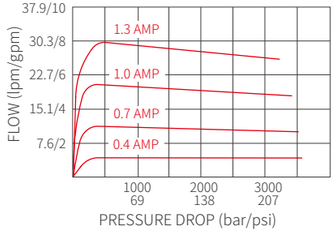
PERFORMANCE (cartridge only))

Flow VS. Current
207 bar/ 3000 psi; 12V Coil; 200 Hz PWM
32 cSt/150 sus oil at 40°C
Range A, 2-Ported ----;
Range A, 3-Ported – –,
Range B, 2-Ported or Range B, 3-Ported —

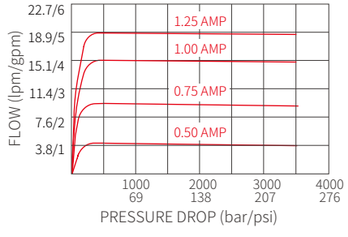


PERFORMANCE (2)

Regulated Flow VS. Pressure Drop
2-Ported; Flow Range A
240 bar/3500 psi Inlet 12V Coil
200 Hz PWM
32 cSt/150 sus oil at 40°C



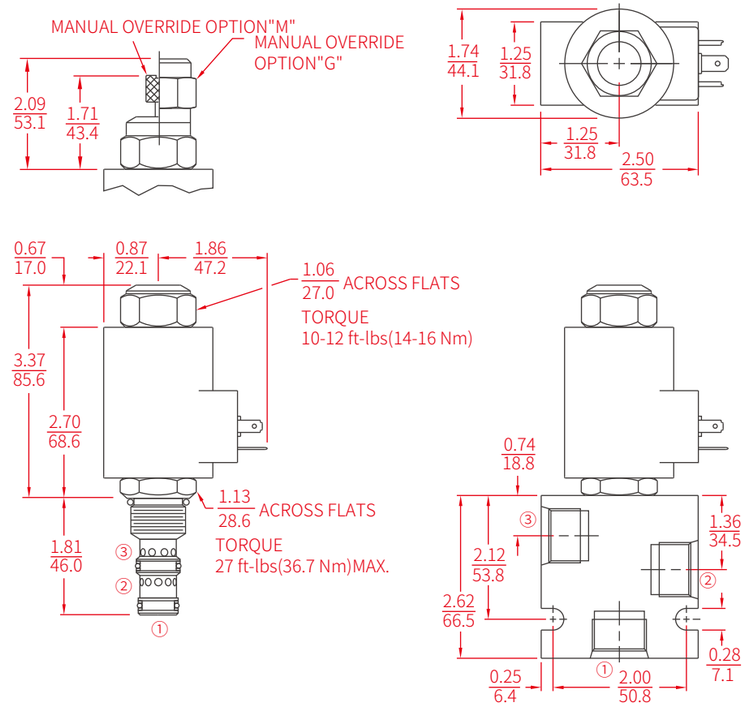
Regulated Flow VS. Pressure Drop
2-Ported; Flow Range B
240 bar/3500 psi Inlet 12V Coil
200 Hz PWM
32 cSt/150 sus oil at 40°C



DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING

TO ORDER

IPV70 - 30 ___ - ___ - ___ - ___

Flow Range (See Performance Curves)
A
B

Option
None **BLANK**
Manual Override **M**
Manual Override with Guard **G**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
N Buna-N (Std.)
V Fluorocarbon

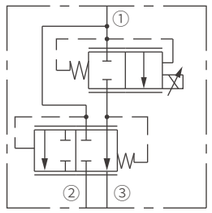
Voltage
Less Coil **0**
12 VDC **12**
24 VDC **24**

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads w/Weatherpak® Connectors
Termination (VAC) Std. Coil
ER Deutsch DT04-2P (IP69K Rated)

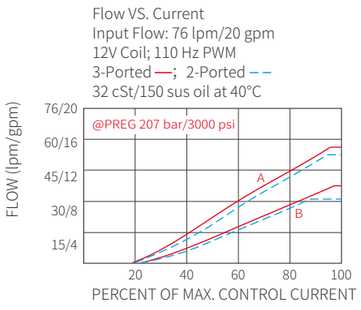
ELECTRO-PROPORTIONAL

IPV72-30
PROPORTIONAL FLOW
CONTROL VALVE

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A solenoid-operated, electrically-variable, three-port, pressure-compensated, spool-type, normally closed when de-energized, proportional flow control valve. It can be used as a priority-type flow regulator with pressure-compensated, regulated and bypass flow. It can also be used as a restrictive-type 2-way, pressure-compensated flow regulator when the bypass line (port ②) is blocked.

OPERATION

The IPV72-30 will regulate flow out of port③regardless of system working pressure. With an increasing current applied to the solenoid, the IPV72-30 will increase output flow.

Note: When used as a bypass flow control in applications where the priority flow port will be blocked by external valving, the bypass pressure drop will increase unless a small amount of leakage is provided for the priority port. Consult Inno.

Operation of Manual Override Option: To Engage: Turn clockwise approximately 1 turn to reach the start point. Continue another approximately 5 turns to full shift. To Disengage: Turn counterclockwise approximately 6 turns to positive stop.

FEATURES

1. Excellent linearity and hysteresis.
2. Hardened spool and cage for long life.
3. Efficient wet armature construction.
4. Optional coil voltages and terminations.
5. Cartridges voltage interchangeable.
6. Unitized, molded coil design.
7. Coil waterproofing standard.
8. Manual override option.

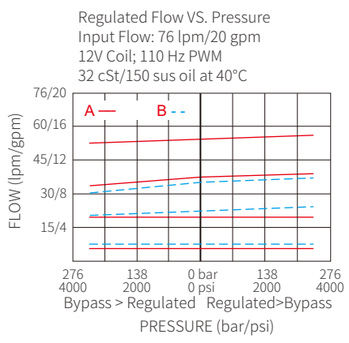
RATINGS

Operating Pressure: Port①: 240 bar (3500 psi); Ports②&③: 207 bar (3000 psi)
Regulated Flow Rate in 3-Port Mode: Range A: 57 lpm (15 gpm);
Range B: 38 lpm (10 gpm)
Maximum Input Flow in 3-Port Mode: Range A and B: 114 lpm (30 gpm)
Maximum Flow Rate in 2-Port Mode: Range A: 53 lpm (14 gpm);
Range B: 31 lpm (8 gpm)
Internal Leakage: 0.38 lpm (0.1 gpm) fully closed at 207 bar (3000 psi)
Electrical: 2 standard voltage ratings
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation: No restrictions
Cavity: IVC12-3; See page 303

MATERIALS

Cartridge: Weight: 0.36 kg. (0.8 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces; Seal: O-rings and back-up rings.
Standard Ported Body: Weight: 1.09 kg. (2.4 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi); Ductile iron and steel bodies available; dimensions may differ; Consult Inno.
Coil: Weight: 0.32 kg. (0.7 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.

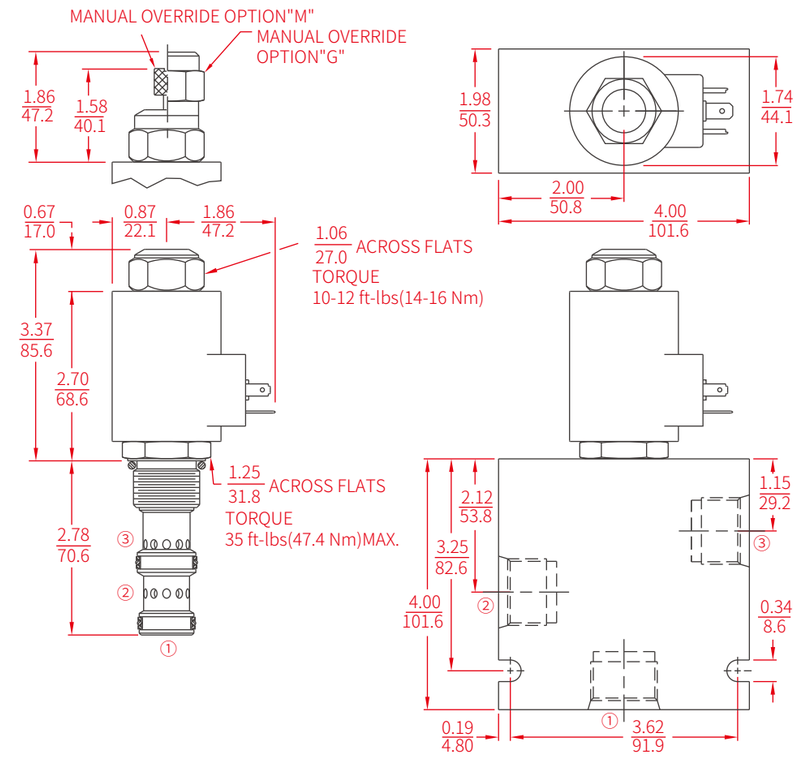
PERFORMANCE (2)



DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING

TO ORDER

IPV72 - 30 ___ - ___ ___ - ___ - ___ ___

Flow Range (See Performance Curves)
A
B

Option
None **BLANK**
Manual Override **M**
Manual Override with Guard **G**

Porting
Cartridge Only **0**
SAE 10 **10T**
SAE 12 **12T**
SAE 16 **16T**
1/2 INCH BSP **4B**
3/4 INCH BSP **6B**

Seals
N Buna-N (Std.)
V Fluorocarbon

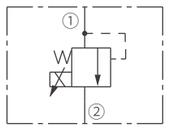
Voltage
Less Coil **0**
12 VDC **12**
24 VDC **24**

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads w/Weatherpak® Connectors
Termination (VAC) Std. Coil
ER Deutsch DT04-2P (IP69K Rated)

ELECTRO-PROPORTIONAL

ITS10-26
PILOTED RELIEF VALVE
(W/ INTERNALLY PILOTED SPOOL)

SYMBOL



DESCRIPTION
A screw-in, cartridge-style, pilot-operated, spool-type hydraulic relief valve, which can be infinitely adjusted across a prescribed range using a variable electric input. Pressure output is proportional to DC current input. This valve is intended for use as a pressure limiting device in demanding applications.

OPERATION
The ITS10-26 blocks flow from ① to ② until sufficient pressure is present at ① to open the pilot section by offsetting the electrically induced solenoid force. With no current applied to the solenoid, the valve will relieve at approximately 100 psi. The optional manual override allows the valve to be set when the electric supply is lost. The manual setting is added to the electric setting, so when using the manual override feature to establish a minimum setting, care is required to prevent the system from becoming over-pressurized.

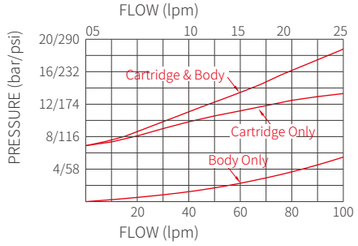
FEATURES
1. Optional Manual Override, with air release port.
2. Optional waterproof E-Coils rated up to IP69K.
3. 12 and 24 volt coils standard.
4. Industry common cavity.

RATINGS
Maximum Operating Pressure: 240 bar (3500 psi)
Maximum Control Current: 1.10 A for 12 VDC coil; 0.55 A for 24 VDC coil
Relief Pressure Range from Zero to Maximum Control Current:
A: 6.9 to 207 bar (100 to 3000 psi); B: 6.9 to 159 bar (100 to 2300 psi);
C: 6.9 to 117 bar (100 to 1700 psi)
Rated Flow: 94.6 lpm (25 gpm),DP=13.1 bar (190 psi), Cartridge only, ① to② coil de-energized
Maximum Pilot pressure: 0.76 lpm (0.2 gpm)
Hysteresis: Less than 3%
Flow Path: Free Flow:① to②coil de-energized; Relieving:① to②coil energized
Temperature: -40 to 120°C with standard Buna N seals
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation Recommendation: When possible, the valve should be mounted below the reservoir oil level. This will maintain oil in the armature preventing trapped air instability. If this is not feasible, mount the valve horizontally for best results.
Cavity: IVC10-2; See page 275

MATERIALS
Cartridge: Weight: 0.25 kg. (0.55 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces;
Seal:O-rings and back-up rings. Polyurethane seals recommended for pressures over 240 bar (3500 psi).
Standard Ported Body: Weight: 1.06 kg. (0.25 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi); Ductile iron and steel bodies available; dimensions may differ; Consult Inno.
Standard Coil: Weight: 0.32 kg. (0.70 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

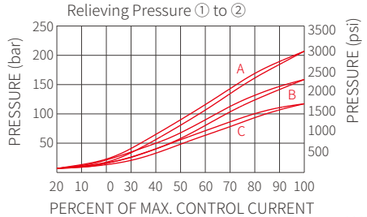
PERFORMANCE (cartridge only))

Pressure Drop VS. Flow Characteristic
For Flow ① to ② with Coil De-energized

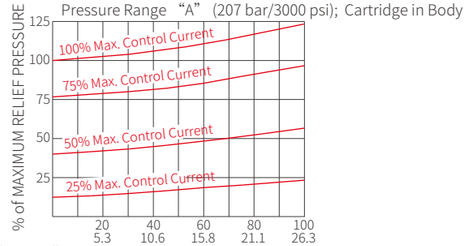


PERFORMANCE (2)

Relief Pressure VS.
Current (DC) Characteristic
200 Hz PWM
Relieving Pressure ① to ②

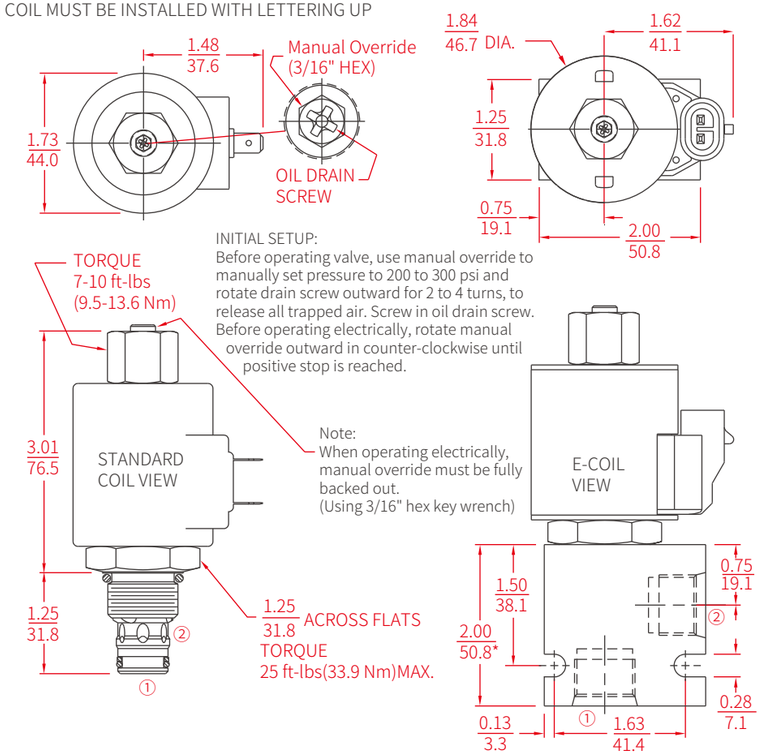


Typical Relief Pressure VS. Flow Characteristic
Typical Relieving Pressure ① to ②
at Various % of Maximum Control Current
Pressure Range "A" (207 bar/3000 psi); Cartridge in Body



DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP



*BSP BODY-55.9MM

SECTIONAL DRAWING

TO ORDER

ITS10 - 26 ___ - ___ - ___ - ___ ___ ___ ___

Maximum Relief Pressure
207 bar (3000 psi) **A**
159 bar (2300 psi) **B**
117 bar (1700 psi) **C**

Option
None **BLANK**
Manual Override **M**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

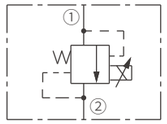
Coils with internal diode are available. Consult Inno.

Voltage
0 Less Coil
10 10 VDC (MAX.1.30A)
12 12 VDC (MAX.1.10A)
20 20 VDC (MAX.0.65A)
24 24 VDC (MAX.0.55A)

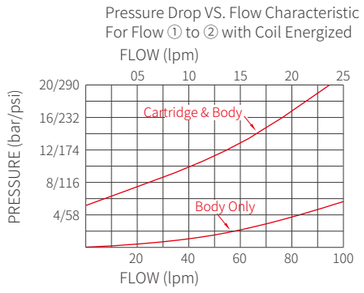
ELECTRO-PROPORTIONAL

ITS10-27
PILOTED RELIEF VALVE

SYMBOL



PERFORMANCE (cartridge only))



DESCRIPTION

A screw-in, cartridge-style, pilot-operated, spool-type hydraulic relief valve, which can be infinitely adjusted across a prescribed range using a variable electric input. Pressure output is proportional to DC current input. This valve is intended for use as a pressure limiting device in demanding applications.

OPERATION

The ITS10-27 blocks flow from① to② until sufficient pressure is present at① to open the valve by overcoming the preset-induced spring force. With no current applied, the valve will relieve at ±50 psi of the range maximum. Applying current to the coil decreases the induced spring force, thereby reducing the valve setting.
Note: This valve is ideal for hydraulic fan drive applications.

FEATURES

1. 12 and 24 volt coils standard.
2. Industry common cavity.
3. Optional waterproof E-Coils rated up to IP69K.

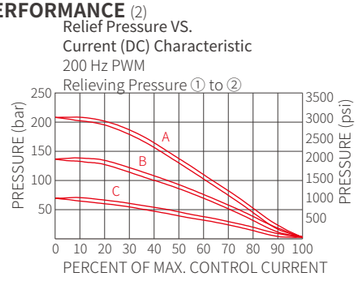
RATINGS

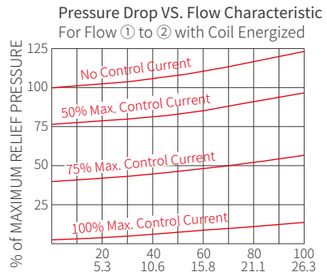
Maximum Operating Pressure: 240 bar (3500 psi)
Maximum Control Current: 1.10 A for 12 VDC coil; 0.55 A for 24 VDC coil
Relief Pressure Range from Zero to Maximum Control Current:
A: 207 to 10.3 bar (3000 to 150 psi); B: 138 to 10.3 bar (2000 to 150 psi); C: 69 to 10.3 bar (1000 to 150 psi)
Rated Flow: 75.7 lpm (20 gpm),DP=14.8 bar (215 psi), Cartridge only, ① to② coil energized
Maximum Pilot pressure: 0.76 lpm (0.2 gpm)
Hysteresis: Less than 3%
Flow Path: Free Flow:① to②coil energized; Relieving:① to②coil de-energized
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation Recommendation: When possible, the valve should be mounted below the reservoir oil level. This will maintain oil in the armature preventing trapped air instability. If this is not feasible, mount the valve horizontally for best results.
Cavity: IVC10-2; See page 275

MATERIALS

Cartridge: Weight: 0.18 kg. (0.4 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces;
Seal:O-rings and back-up rings. Polyurethane seals recommended for pressures over 240 bar (3500 psi).
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi); Ductile iron and steel bodies available; dimensions may differ; Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

PERFORMANCE (2)

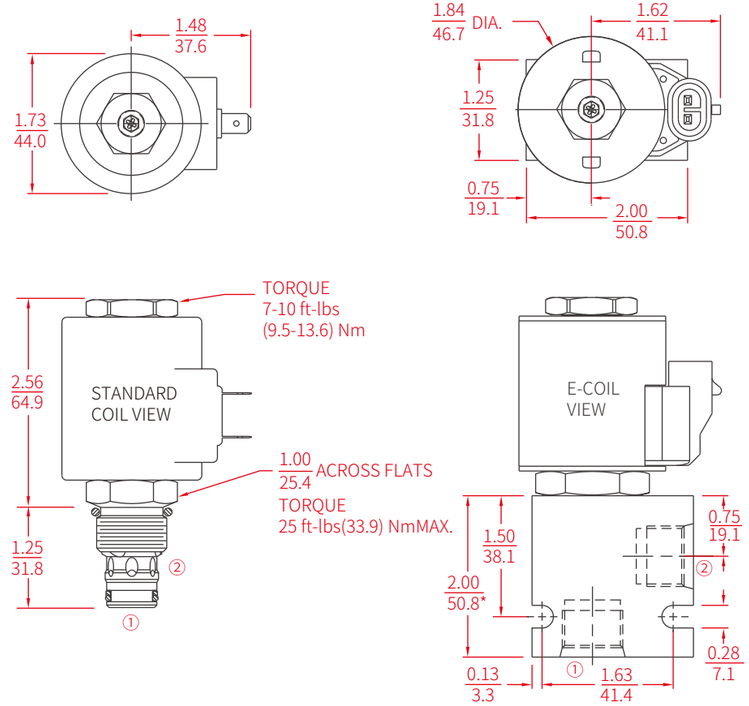




DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



*BSP BODY-55.9MM

SECTIONAL DRAWING

TO ORDER

ITS10 - 27 ___ ___ - ___ - ___ - ___ ___ ___ ___

Maximum Relief Pressure
207 bar (3000 psi) **A**
138 bar (2000 psi) **B**
69 bar (1000 psi) **C**

Option
None **BLANK**
Manual Override **M**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **N**
Fluorocarbon **V**

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

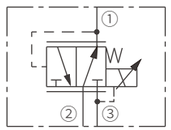
Coils with internal diode are available. Consult Inno.

Voltage
0 Less Coil
10 10 VDC (MAX.1.30A)
12 12 VDC (MAX.1.10A)
20 20 VDC (MAX.0.65A)
24 24 VDC (MAX.0.55A)

ELECTRO-PROPORTIONAL

ITS10-36
REDUCING/RELIEVING VALVE
(W/ INTERNALLY PILOTED SPOOL)

SYMBOL



DESCRIPTION

A screw-in, cartridge-style, pilot-operated, spool-type reducing/relieving valve, which can be infinitely adjusted across a prescribed range using a variable electric input. Pressure output is proportional to DC current input. This valve is intended for use as a pressure limiting device in demanding applications.

OPERATION

The ITS10-36 allowss flow from ① to ② until sufficient pressure is present at ① to open the pilot section by offsetting the electrically induced solenoid force. Increasing electric current will increase the control (reduced) pressure at ①. With no current applied to the solenoid, the valve will relieve pressure at ① at approximately 100 psi, regardless of pressure at ②.
The ITS10-36 has an optional manual override feature. This allows the valve to be set when the electric supply is lost. The manual setting is added to the electric setting, so when using the manual override feature to establish a minimum setting, care is required to prevent the system from becoming over-pressurized.

FEATURES

1. Manual override option.
2. Air Release option.
3. 12 and 24 volt coils standard.
4. Industry common cavity.
5. Optional waterproof E-Coils rated up to IP69K.

RATINGS

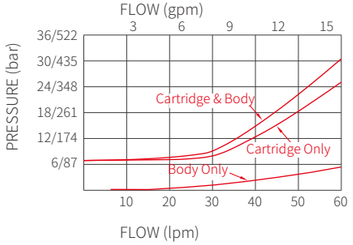
Maximum Operating Pressure: 240 bar (3500 psi)
Maximum Control Current: 1.10 A for 12 VDC coil; 0.55 A for 24 VDC coil
Relief Pressure Range from Zero to Maximum Control Current:
A: 6.9 to 207 bar (100 to 3000 psi); B: 6.9 to 159 bar (100 to 2300 psi); C: 6.9 to 117 bar (100 to 1700 psi)
Rated Flow: Coil de-energized, Cartridge only, DP=22.8 bar (330 psi), Rated flow from ① to ③ : 56.8 lpm (15 gpm)
Maximum Pilot pressure: 0.76 lpm (0.2 gpm)
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus)
Installation Recommendation: When possible, the valve should be mounted below the reservoir oil level. This will maintain oil in the armature preventing trapped air instability. If this is not feasible, mount the valve horizontally for best results.
Cavity: IVC10-3; See page 275

MATERIALS

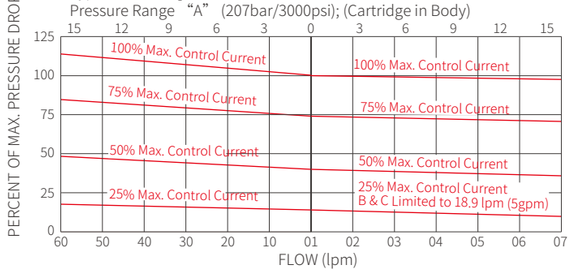
Cartridge: Weight: 0.25 kg. (0.55 lbs.); Steel with hardened work surfaces. Zinc-plated exposed surfaces;
Seal:O-rings and back-up rings. Polyurethane seals recommended for pressures over 240 bar (3500 psi).
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi); Ductile iron and steel bodies available; dimensions may differ; Consult Inno.
Standard Coil: Weight: 0.27 kg. (0.60 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.41 kg. (0.90 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

PERFORMANCE (cartridge only))

Pressure Drop VS. Flow Characteristic
For Flow ① to ③ with Coil De-energized

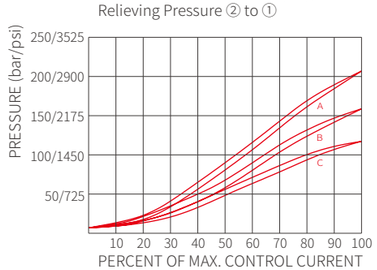


Typical Reducing / Relieving Pressure VS. Flow Characteristic
Typical Relieving Pressure at Various %' s of Maximum Control Current
Pressure Range "A" (207bar/3000psi); (Cartridge in Body)



PERFORMANCE (2)

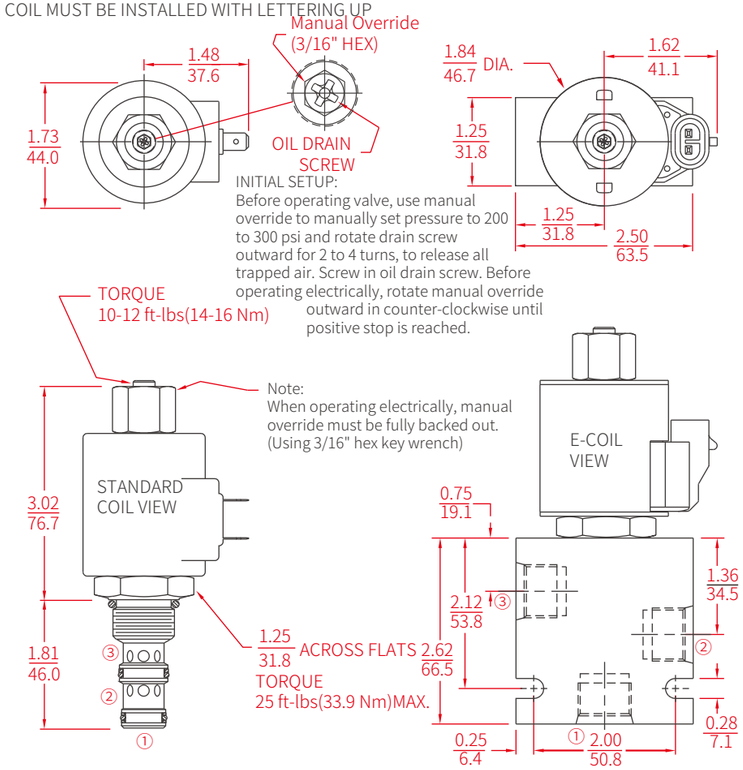
Relief Pressure VS. Current (DC), 200 Hz Dither
Relieving Pressure ② to ①



DIMENSION

INCH / MM

COIL MUST BE INSTALLED WITH LETTERING UP



SECTIONAL DRAWING

TO ORDER

ITS10 - 27 ___ ___ - ___ - ___ - ___ ___ ___ ___

Maximum Relief Pressure
207 bar (3000 psi) **A**
159 bar (2300 psi) **B**
117 bar (1700 psi) **C**

Option
None **BLANK**
Manual Override **M**

Porting
Cartridge Only **0**
SAE 6 **6T**
SAE 8 **8T**
3/8 INCH BSP **3B**
1/2 INCH BSP **4B**

Seals
Buna-N (Std.) **V**
Fluorocarbon **P**

Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads w/Weatherpak® Connectors
DR Deutsch DT04-2P

Termination (VAC) Std. Coil
ER Deutsch DT04-2P (IP69K Rated)
EY Metri-Pack® 150 (IP69K Rated)

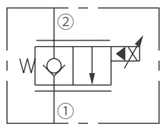
Coils with internal diode are available. Consult Inno.

Voltage
0 Less Coil
10 10 VDC (MAX.1.30A)
12 12 VDC (MAX.1.10A)
20 20 VDC (MAX.0.65A)
24 24 VDC (MAX.0.55A)

ELECTRO-PROPORTIONAL

ISP08-20
POPPET VALVE, 2-WAY, N.C.

SYMBOL



DESCRIPTION

A proportional solenoid-operated, two-way, normally closed, poppet-type, screw-in hydraulic cartridge valve for low-leakage blocking and load-holding applications.

OPERATION

When de-energized, the ISP08-20 acts as a check valve, allowing flow from ① to ②, and blocking flow from ② to ①.
When energized, the ② to ① flow path is opened. Flow is proportional to the current applied to the coil.
Flow varies with manual override.

FEATURES

1. Continuous-duty rated coils.
2. Efficient wet-armature construction.
3. Manual override options
4. Optional waterproof E-Coils rated up to IP69K.

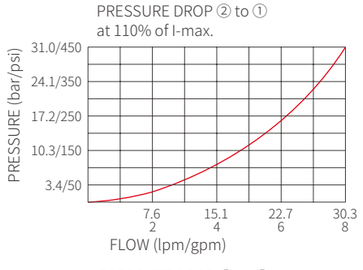
RATINGS

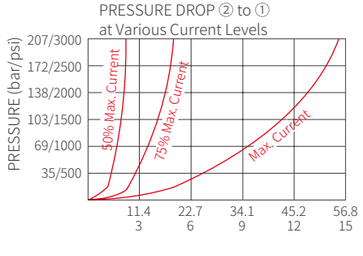
Operating Pressure: 250 bar (3600 psi)
Flow: 22 lpm (5.8 gpm) at 34.5 bar (500 psid) pressure drop
Minimum Operating Dither/Pulse Frequency: 70 Hz
Hysteresis: Less than 5% up to 85% of I-max.; Less than 10% above 85% of I-max.
Maximum Internal Leakage: 5 drops/min. at 250 bar (3600 psi)
Temperature: -40 to 120°C
Fluids: Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 ssu)
Installation: No restrictions
Cavity: IVC08-2; See page 275

MATERIALS

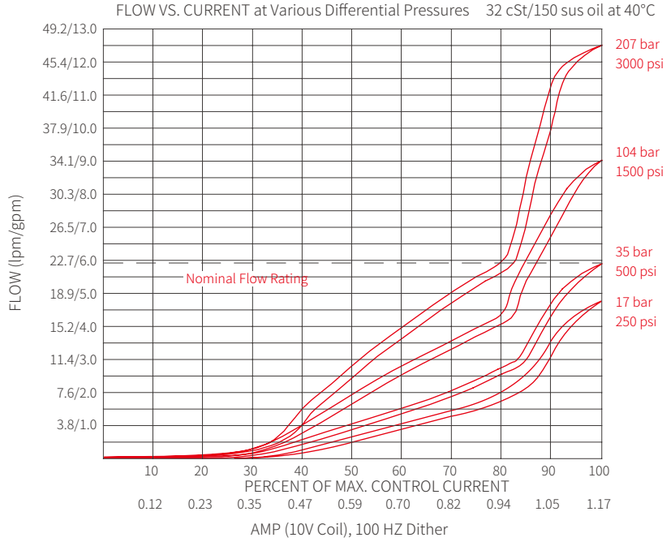
Cartridge: Weight: 0.09 kg. (0.20 lbs.); Steel with hardened work surfaces.
Zinc-plated exposed surfaces;
Seal:O-rings and back-up rings.
Standard Ported Body: Weight: 0.16 kg. (0.35 lbs.); Anodized high-strength 6061 T6 aluminum alloy, rated to 240 bar (3500 psi); Ductile iron and steel bodies available; dimensions may differ; Consult Inno.
Standard Coil: Weight: 0.11 kg. (0.25 lbs.); Unitized thermoplastic encapsulated, Class H high temperature magnetwire.
E-Coil: Weight: 0.14 kg. (0.30 lbs.); Perfect wound, fully encapsulated with rugged external metal shell; Rated up to IP69K with integral connectors.

PERFORMANCE (cartridge only))



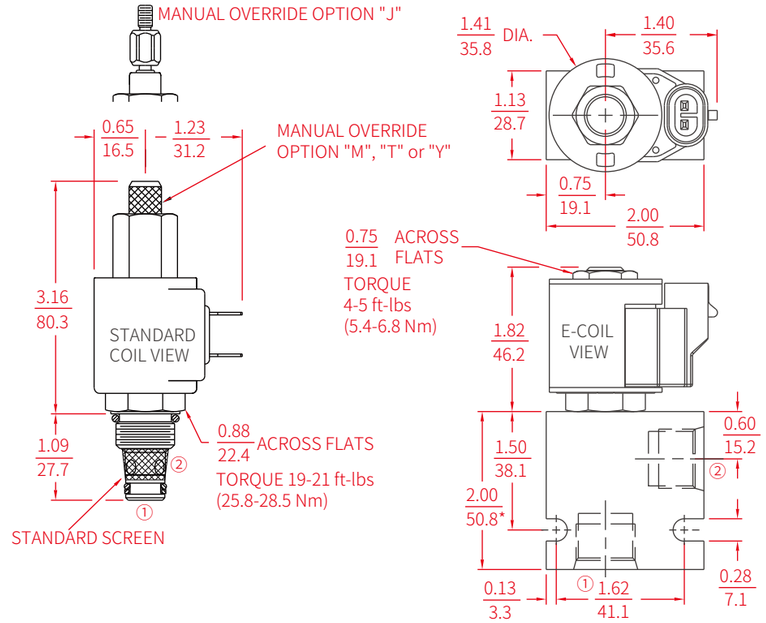


PERFORMANCE (2)



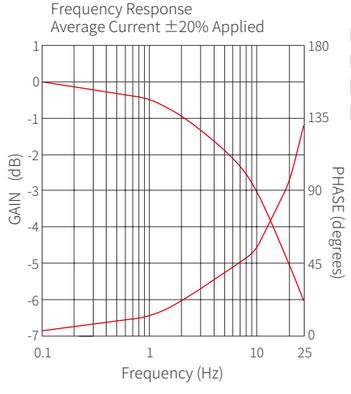
DIMENSION

INCH / MM — COIL MUST BE INSTALLED WITH LETTERING UP



*BSP BODY-55.9MM

PERFORMANCE (3)



TO ORDER

ISP08 - 20 ___ - ___ ___ - ___ - ___ ___ ___ ___

Option
None **BLANK**
Manual Override **M**
Manual Override **T**
Manual Override **Y**
Manual Override **J**

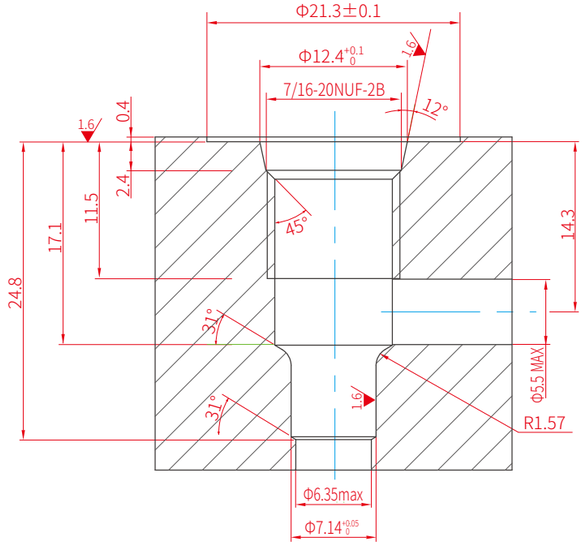
Porting
Cartridge Only **0**
SAE 4 **4T**
SAE 6 **6T**
SAE 8 **8T**
1/4 INCH BSP **2B**
3/8 INCH BSP **3B**

Seals
N Buna-N (Std.)
V Fluorocarbon

Voltage Std. Coil
0 Less Coil**
10 10 VDC †
12 12 VDC
20 20 VDC
24 24 VDC
**Includes Std. Coil Nut
† DS, DW or DL terminations only.

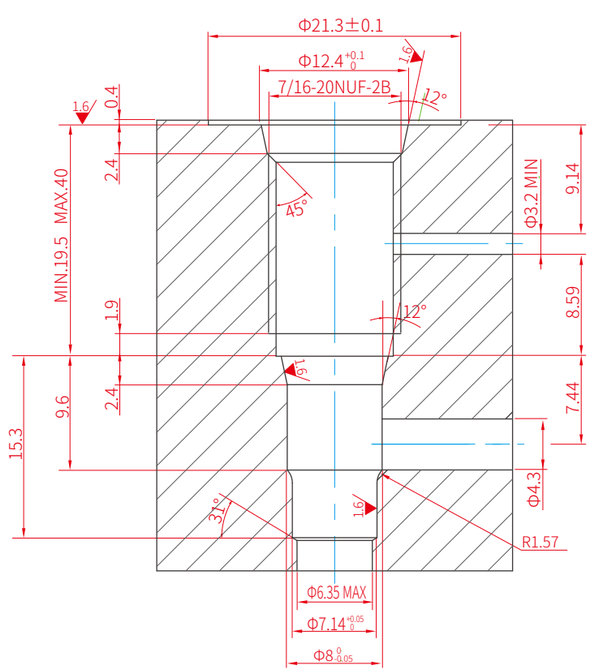
Termination (VDC) Std. Coil
DS Dual Spades
DG DIN 43650
DL Leadwires (2)
DL/W Leads, w/Weatherpak® Connectors
Deutsch DT04-2P
DR **Termination (VAC) Std. Coil**
DIN 43650
AG 1/2 in. Conduit
AP **Termination (VDC) E-Coil**
Deutsch DT04-2P
ER (IP69K Rated)
Leadwires (2)
EY Metri-Pack® 150
(IP69K Rated)
Coils with internal diode are available.
Consult Inno.

IVC04-2



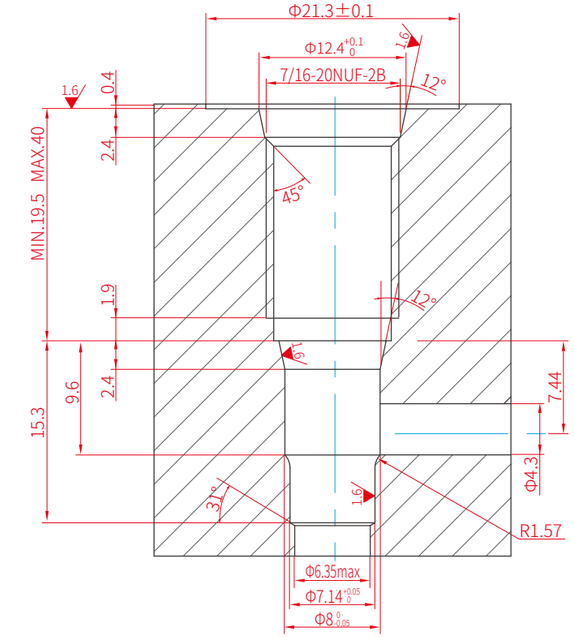
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC04-B2



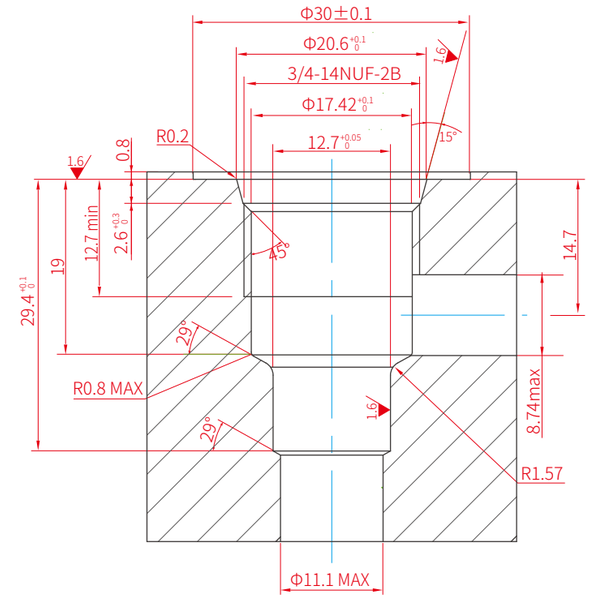
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC04-B3



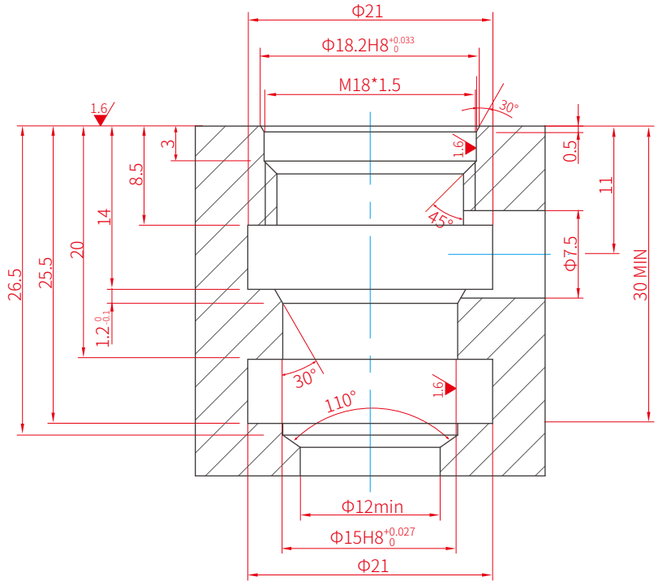
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC08-2



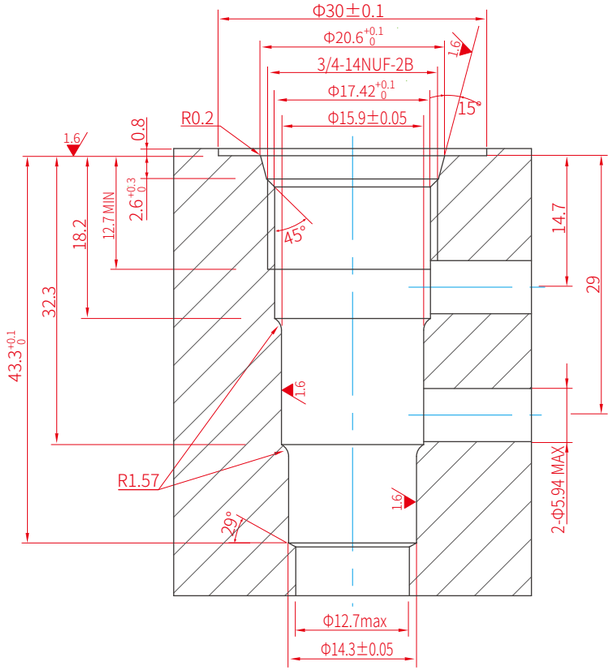
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC08-2A



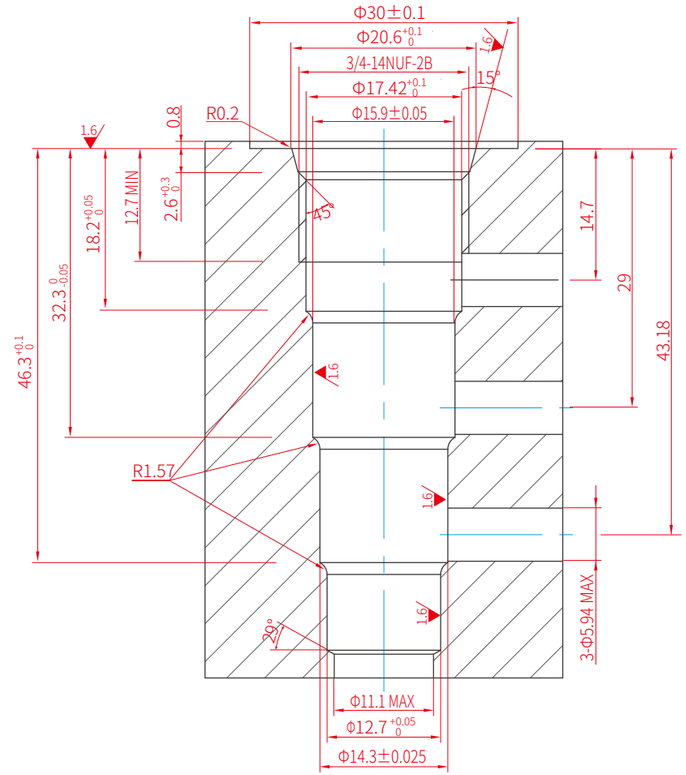
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC08-3



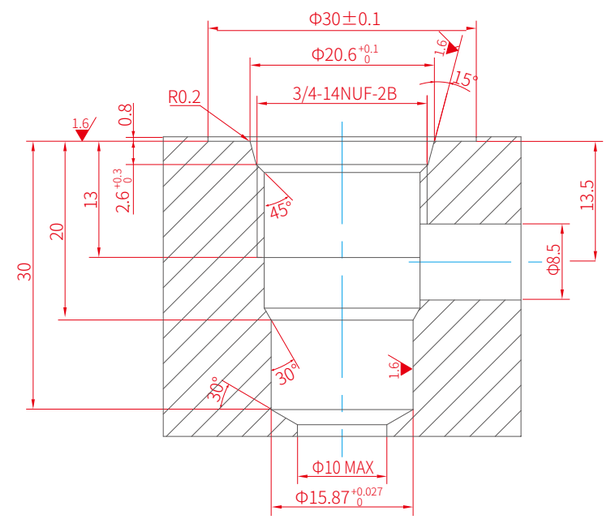
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC08-4



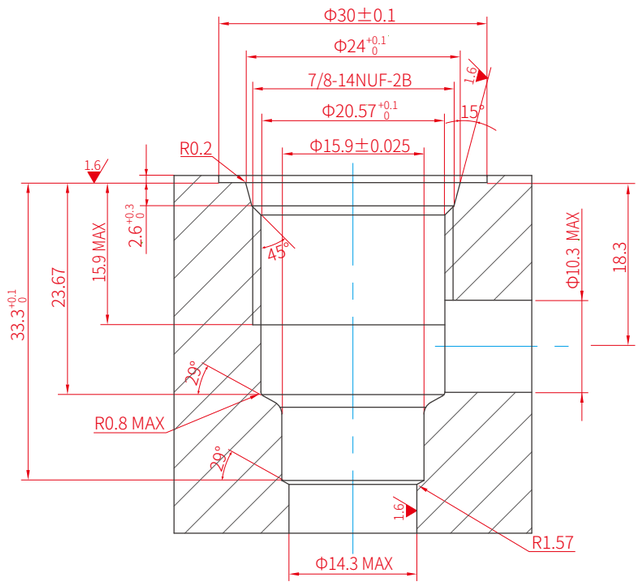
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC09-2



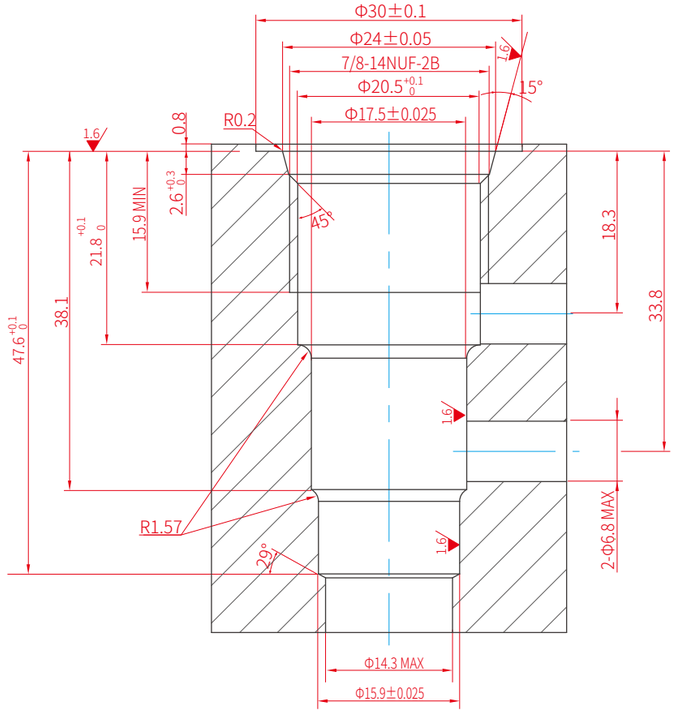
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC10-2



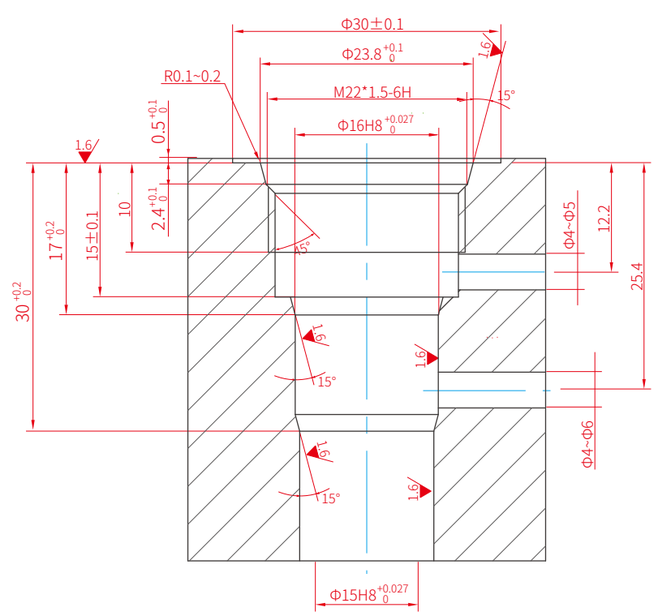
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC10-3



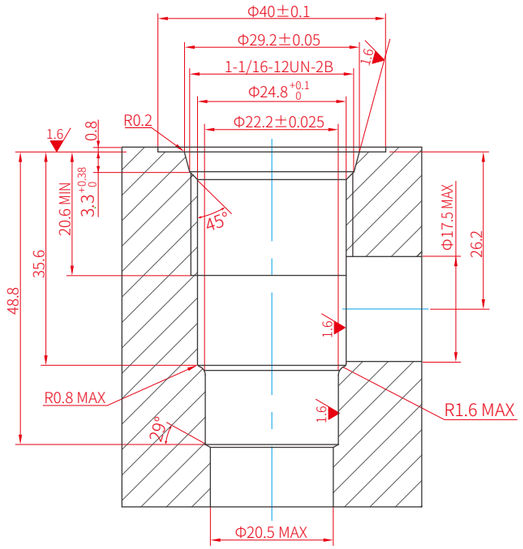
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC10-3A



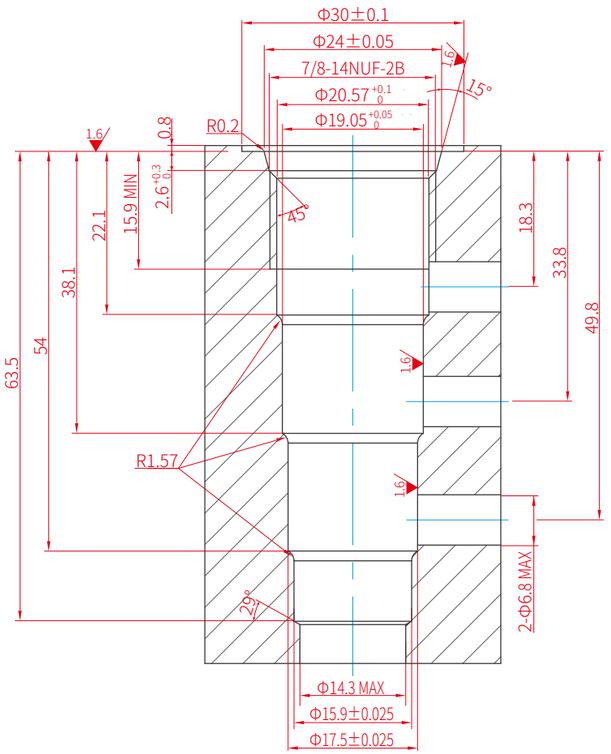
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC10-S3



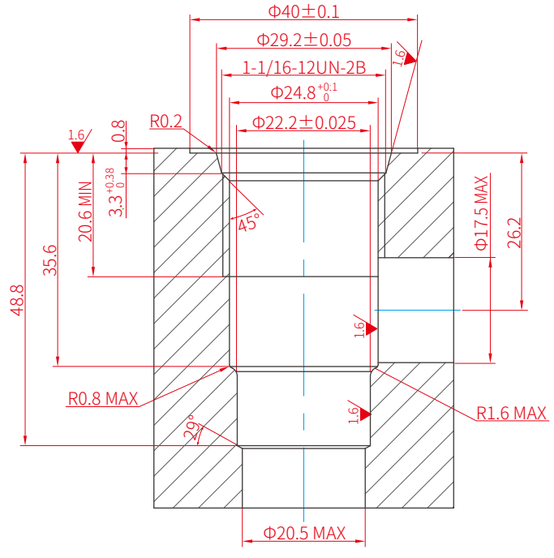
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC10-4



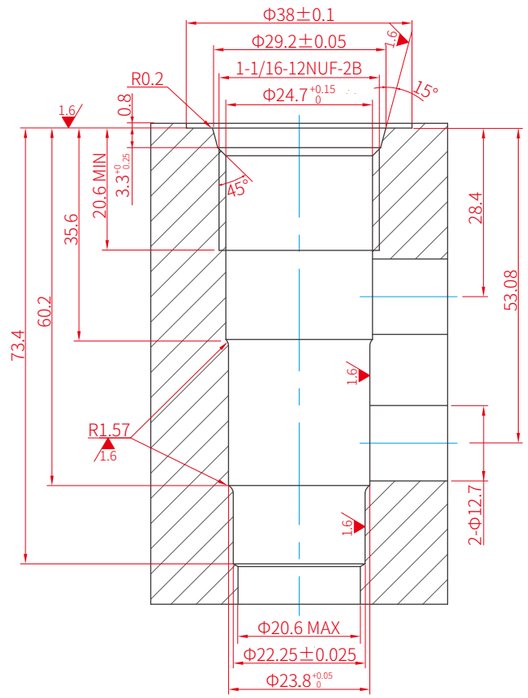
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC12-2



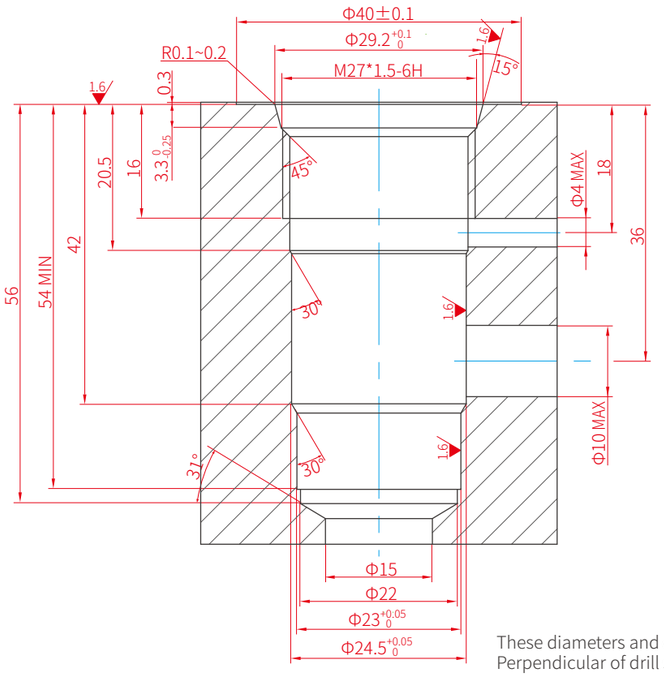
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC12-3



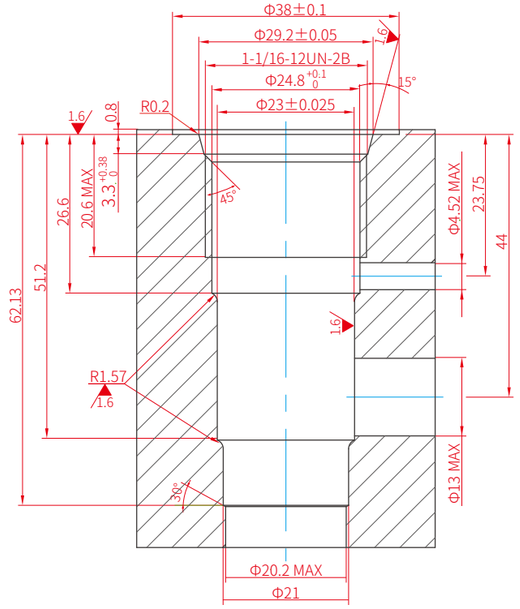
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC12-3A



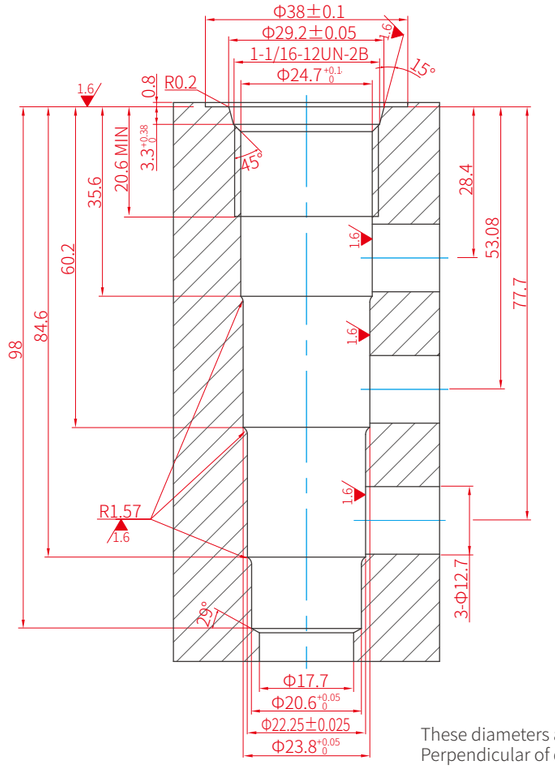
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC12-S3



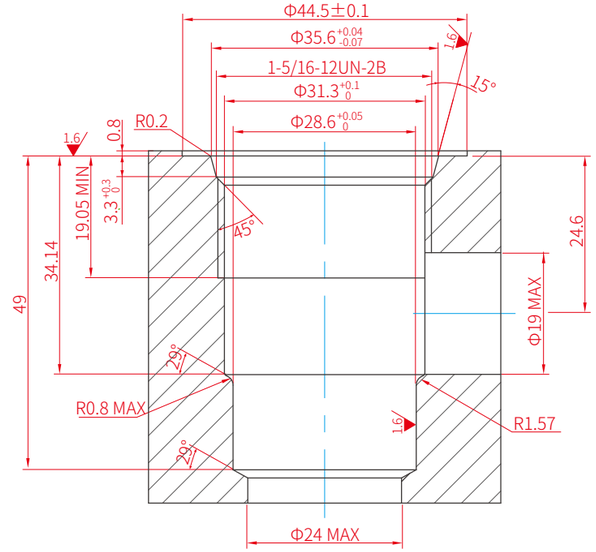
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC12-4



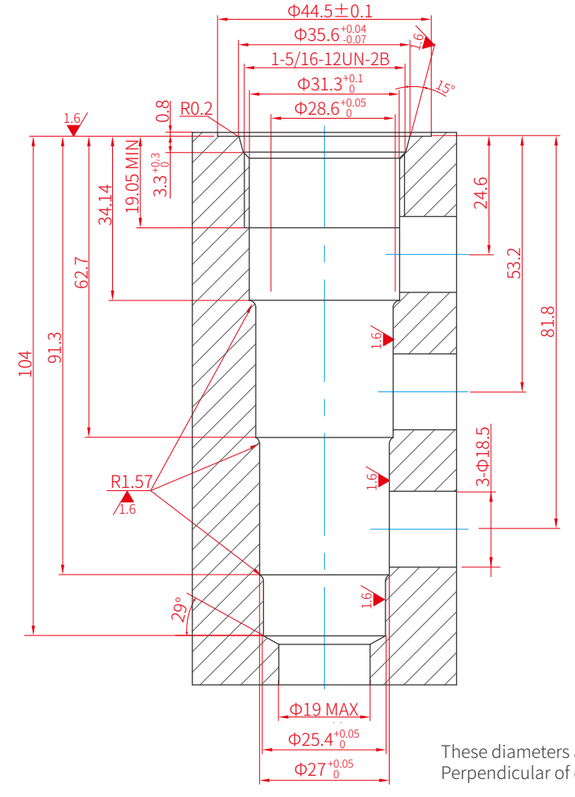
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC16-2



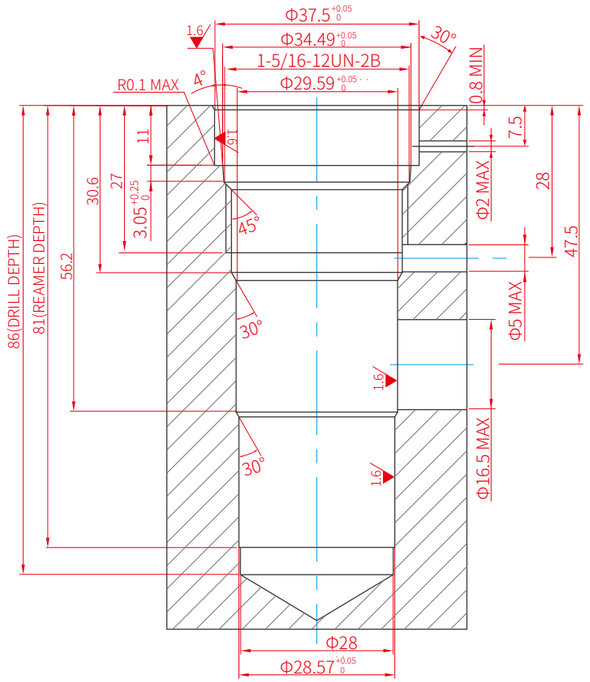
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC16-4



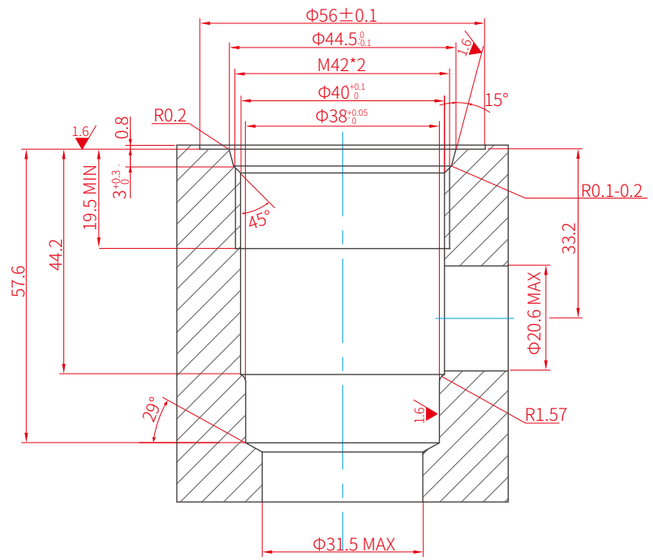
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC30-4



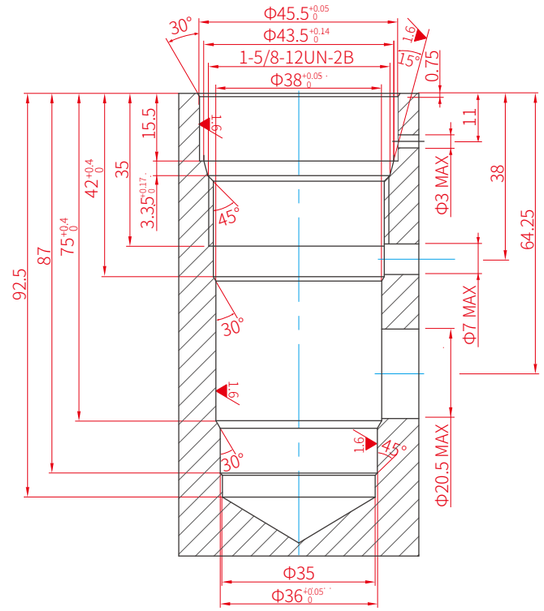
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC42-2M



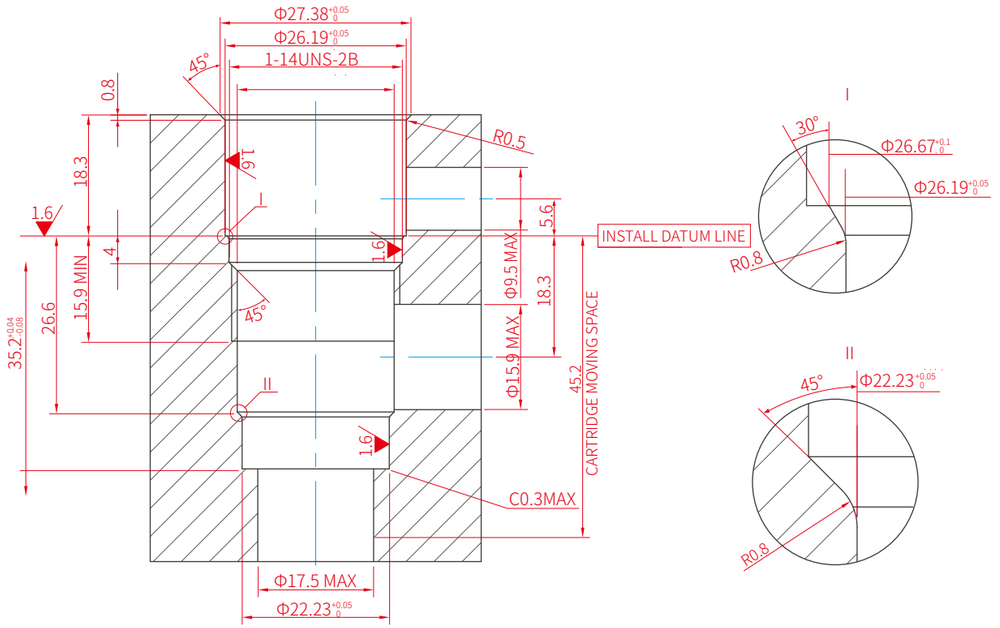
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IVC50-4



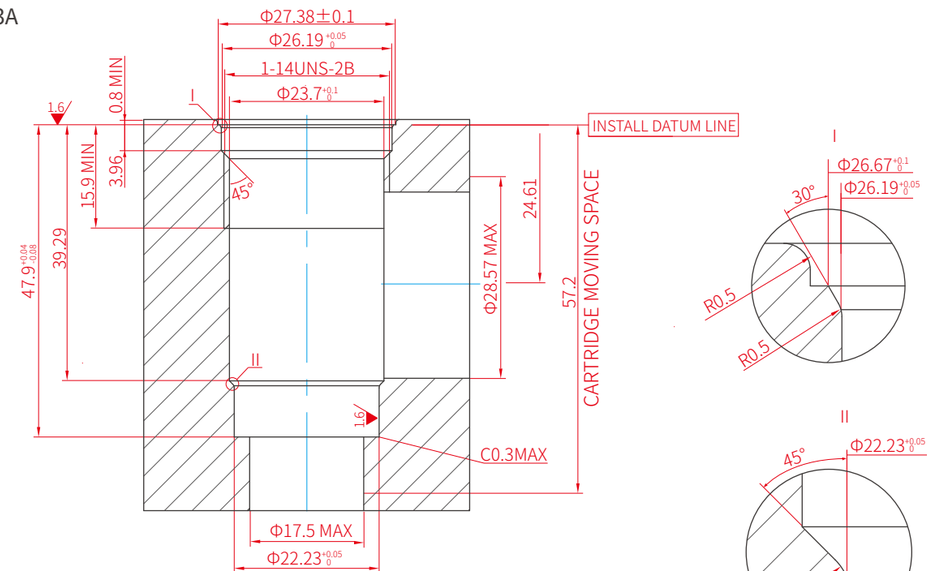
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IT-2A



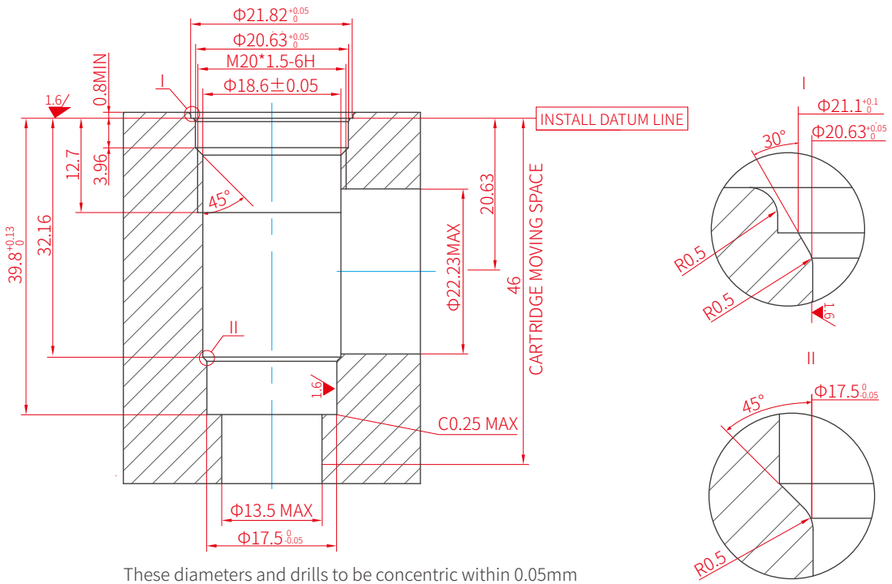
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IT-3A



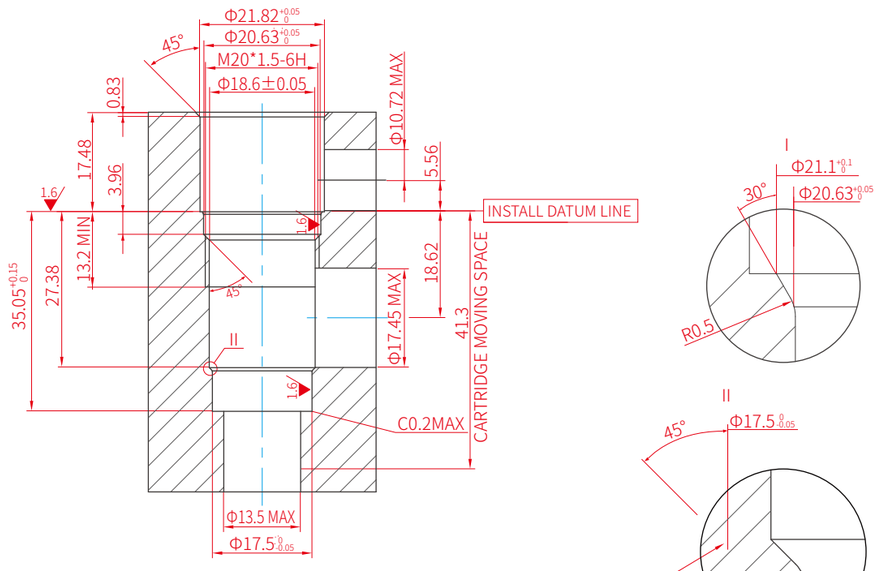
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IT-10A



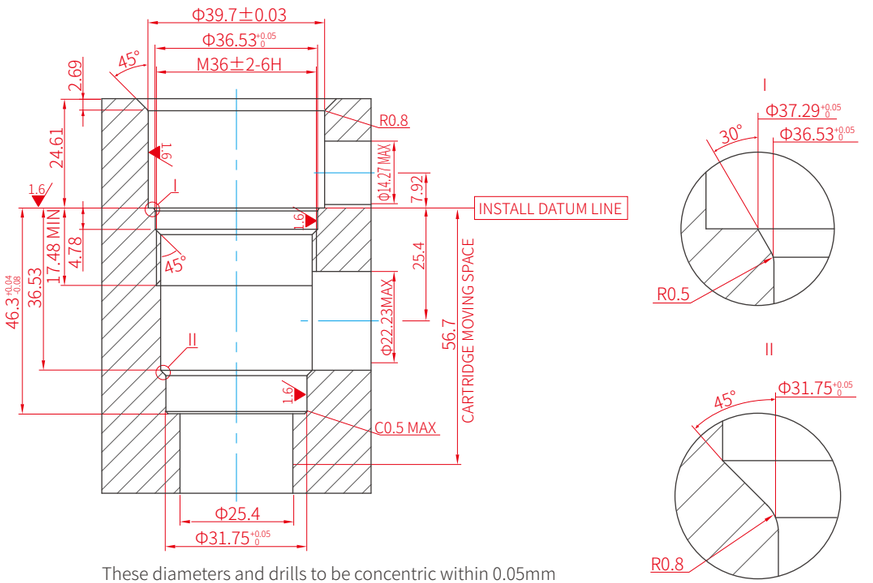
These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IT-11A



These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

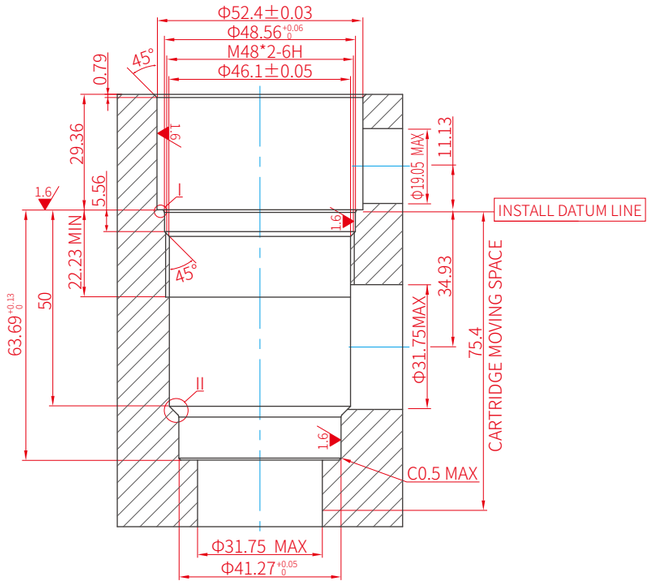
IT-17A

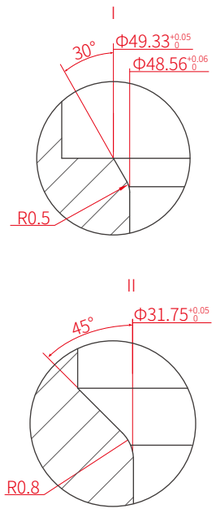


These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

CAVITY

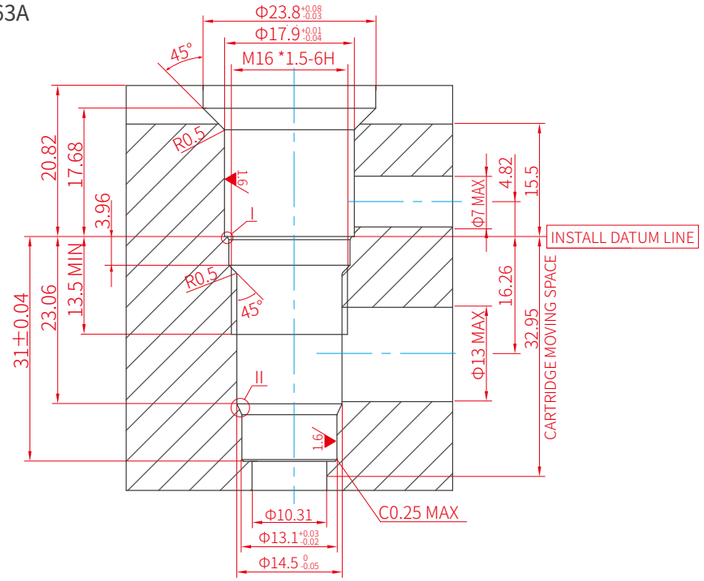
IT-19A

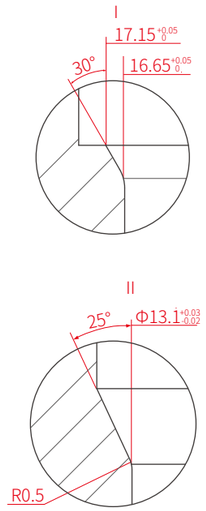




These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

IT-163A





These diameters and drills to be concentric within 0.05mm
Perpendicular of drill surface within 0.025mm

WARRANTY INFORMATION

1. We, the Wuhu Inno Hydraulic Technology Co., Ltd. (hereinafter as INNO or Inno Company), promise to provide warranty services to initial buyers, who purchased valve products from Inno company, within 12 months after the first installation of products, but not more than 24th months from the manufacture date marked on products, for the quality issues caused by any defects in materials, design and manufacturing process under the normal conditions of application field, service environment, flow, pressure and medium requirements specified in this document.

2. The warranty extends only to initial buyers of the products and cannot be transferred. The warranty period of repaired or replaced products shall be deducted from the previous warranty period of the original products.

3. O-rings, Back-up rings, D-type rings and other seals are explicitly excluded from the warranty.

4. The warranty terms do not apply to the ancillary products not manufactured by INNO used in the cartridge body system, including but not limited to:
Cartridge, Electronic connectors, Sensors, Controllers, Couplings, and Filters from other companies.

5. The warranty terms do not apply to the polluted products in the client' s hydraulic circuit, or the products improperly handled, installed, used, or modified/disassembled without the supervision or authorization of INNO.

Please order and apply INNO' s products refer to the technical parameters and recommended service environment, and keep the complete ordering credentials.

WARRANTY STATEMENT

1. The product technical parameters and information on INNO' s website and catalog are intended to be used by professional and trained users with further research. INNO' s products are not intended to be operated or used by users without professional training, appropriate technical and mechanical capabilities. The published information on INNO' s catalog or website is allowed for technical analysis only, but not allowed for the declaration of applicability for a certain application condition. Users will be responsible for the following situations for the products selected by their analysis and testing:

1.1 Final selection of INNO' s products.
1.2 Secure the safety of application conditions of INNO' s products, including the performance, durability, maintenance, safety, and other aspects of products to meet the requirements of safe application.
1.3 To decide whether INNO's products' specifications and parameters are appropriate and satisfied to the applications, and whether the application of products is reasonable and risk predictable.

2. INNO' s products will go through necessary inspection/test to meet the specifications and settings shown in the catalog, drawing and technical datasheet at the different manufacturing processes. Since INNO is committed to improving and optimizing the products continuously, the technical parameters and specifications of the products will be changed without notice.

3. INNO will not take responsibility for any test results performed by the third party, due to the various models and operating conditions for the equipment manufactured by customers. Therefore, in addition to complying with the special rules or standards applied to a specific system, the customer is also responsible for the final selection of products and necessary measures to guarantee the function and safety of the system.

4. Although Inno Company is committed to manufacturing high-quality products continuously, if the valve supplied by INNO is installed in the hydraulic system, and the hydraulic system has potential damage to the third party, and the cost of this damage is far more than the valve itself, the customer is responsible for taking all possible safety measures to avoid the damage.

5. Since the application of relevant information (including this article) of INNO' s products, and the actual application conditions of INNO' s products are uncontrollable, it is the responsibility of each INNO' s product user to carefully read and understand this statement and other information related to INNO' s products, and decide on the correct and safe methods for products installation, inspection, testing, operation, and maintenance.

APPLICATION RESTRICTIONS

Without the business written application license of INNO, no user shall apply INNO's products to the following occasions (including but not limited to):
1. Highway or railway’ s cargo or passenger vehicles or equipment, such as (but not limited to) control systems or braking systems;
2. Aircraft or spacecraft;
3. Military and nuclear equipment;
4. Medical and health products, including life support equipment or tools;
5. Mobile entertainment equipment;
6. Hydraulic fluid other than hydraulic oil medium;
7. Flammable, explosive and dangerous application environment.

Under no circumstances shall INNO be liable for:
1. Loss of profit and corresponding or special damage caused by any other accident;
2. The cost of dismantling and reassembling the product and the damage caused thereby;
3. Expenses related to repair or replacement, including losses caused by the temporary shutdown.