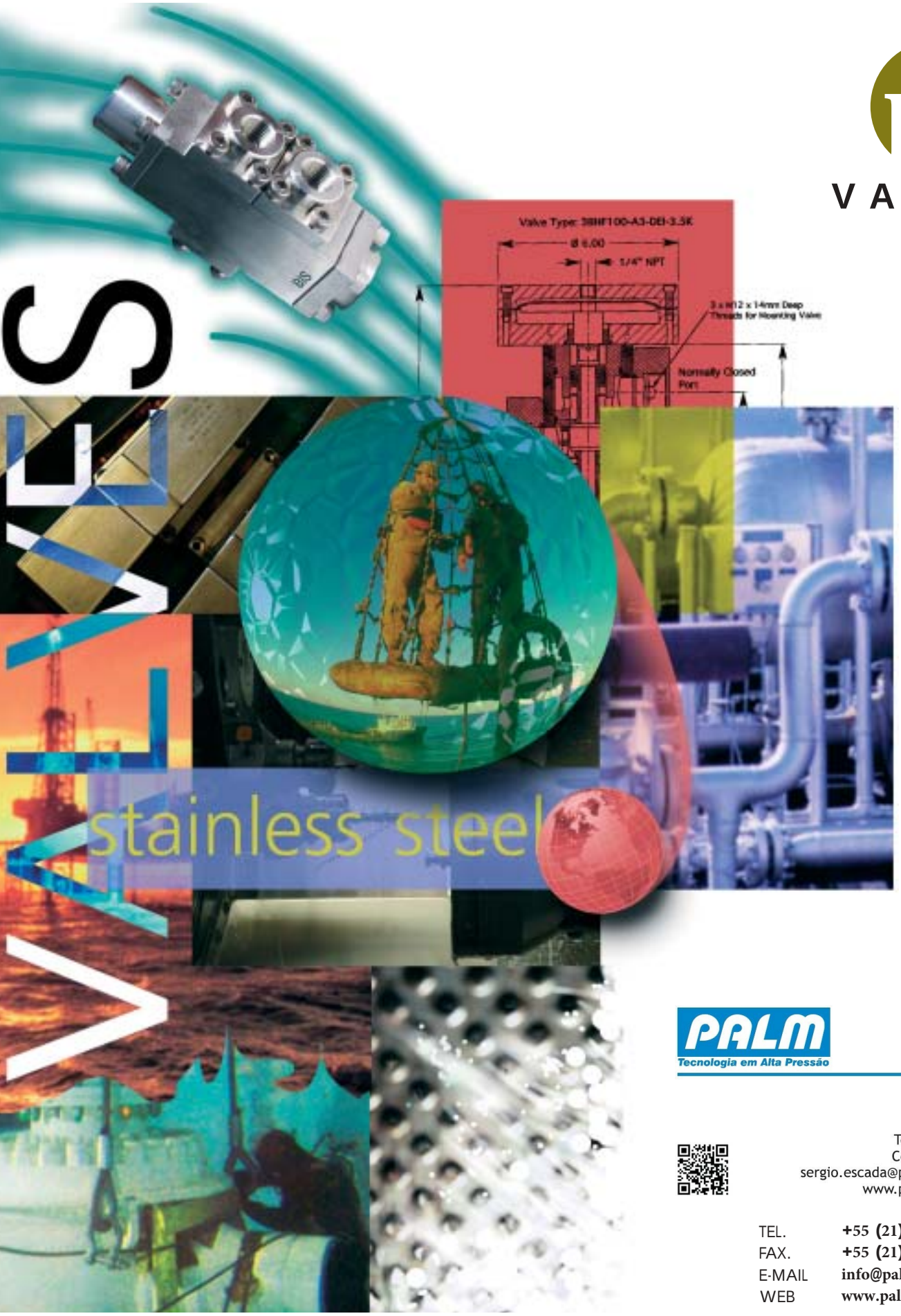

BS VALVES

PALM
Tecnologia em Alta Pressão

BS VALVES

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Baseefa

BVAA

BUREAU VERITAS

BVQI ISO 9001

UKAS QUALITY MANAGEMENT 008

COMPANY PROFILE

- Established for over 30 years situated on the south coast of England in the United Kingdom.
- Suppliers of "Pressure Control Equipment" for liquids and gases.
- Full design and manufacturing facilities using modern CAD and CNC equipment.
- Qualification Testing to meet customer requirements.
- Full "prototype / design" support service available to meet specific customer requirements.
- Oversea's agency representation in many countries worldwide.
- Approved to the ISO9001:2000 Quality Management System.
- Approved to the European ATEX Directive 94/9/EC.
- Approved to the European Pressure Equipment Directive (PED) 97/23/EC.

PRODUCT INFORMATION

- Manufacturer's and suppliers of a wide range of standard and non-standard equipment, including Directional Control Valves, Safety & Relief Valves, Check Valves, Filters .....
- All equipment available with either NPT or BSP connections / porting.
  High Pressure Thread & Cone (Autoclave/Butech type) porting available on request.
- Certificate(s) of Conformity & Test Certificate(s) supplied as standard.
- Special 'O' ring seal compounds available by request.
- Special Products available by request.

CUSTOMER SUPPORT / SERVICES

- Suppliers to the Oil and Gas Industry, Chemical & Process Industry & Commercial Industry.
- Extensive customer client base.
- Full "after-sales" technical support service.
- Reliable "spare parts service" and "in-house" repair facility.

Valves Ltd

CATALOGUE INTRODUCTION

This catalogue represents the full standard range of BiS Valves products. Each page illustrates the equipment complete with full technical specification. Certain types of valves have the option of being fitted with more than one type of actuator. In these instances the valve body is specified on one page and the actuator illustrated separately in **SECTION 12 ACTUATORS**. Illustrations with both valve body and actuator assembled are available upon request.

Should any of our standard products not match your specific requirements, BiS Valves is able to offer its full "Custom-Build" service incorporating both design and development.
Please contact our Technical Department with your details.

BiS Valves reserves the right to modify any part of the design of its products without prior notice. Dimensions shown on drawings in this catalogue are given as guidance only. For assembly / installation details of any piece of equipment where dimensions are considered critical it is recommended to contact our Technical Department for the latest details.

ORDERING PROCEDURE

BiS Valves manufactures the majority of its products in AISI 316 / 1.4404 Stainless Steel. The standard product material can be found under the general heading at the top of each page complete with options avaialable.
WHEN ORDERING A CODE IS NOT REQUIRED FOR STANDARD MATERIAL.
Non-Standard materials are treated as an option with its own Ordering Code.

Ordering information required for **ALL** standard equipment throughout the catalogue is shown in the typical example below:-

TECHNICAL SPECIFICATION			Ordering Example
Material Option (non-std)		**A** = Alum. Body (HE30) **C** = En1A/220M07 Mild Steel (E.N.P.)	—
Valve Type:		**3B25**	**3B25**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper) **M** = Manifold	**N**
Actuator Options	Low Press. Pilot:	Types: **H3** (44 to 300 psi)	**H3**
	High Press. Pilot:	Types: **H0** (400 to 3,500 psi), **H1** (1,400 to 10,000 psi)	
	Mechanical:	Types: **C0, C1, L, DL**	
Max. Working Press: Liquid/Gas		**10,000 psi**	**10K**

Select the relevant ordering codes shown in **"bold"** type from within the table to suit your own Technical Specification. This is illustrated in the column marked "Ordering Example".

Example: Valve **MODEL NUMBER** selected is a **3B25 N H3 ** 10K**

- Directional Control Valve (AISI 316) Type "3B25" (1/4" ports)
- NPT Ports
- Piston Hydraulic Actuator Type "H3"
- Ordering Code for **"non-standard"** options entered here.
  (consult factory for relevant information if required)
- Maximum Working Pressure of 10,000psi

For Spares Kits add "RK" (Repair Kit) or "SK" (Seal Kit) after the Valve Model Number.

Additional technical information relevant to the equipment but not covered by ordering options is tabulated below the **"bold"** outlined area on each catalogue page.

Valves Ltd

TECHNICAL DATA

- Dimensions on drawings/diagrams are stated in ***INCHES***
- Pressures are stated in ***psi.*** (pounds/sq.in)
- Weights are stated in ***kg.*** (kilogrammes)
- All equipment is manufactured externally in ***AISI 316*** / ***1.4404 Stainless Steel*** unless otherwise stated.
- All seals used are ***Fluorocarbon (Viton)*** unless otherwise stated.
  (other materials available upon request).
- All equipment is supplied with either ***BSP (Parallel)*** or ***NPT (Taper)*** threads.
- Proof Testing is carried out at ***1.5 times*** above the ***MAXIMUM WORKING PRESSURE.***
- Working Temperature Ranges are stated assuming optimum fluid compatibility to the elastomer and seal back up materials. Working temperature ranges should be confirmed for individual applications.

TECHNICAL FORMULA

- ***INCHES*** to ***MILLIMETRES*** multiply by..... 25.4
- ***KILOGRAMMES*** to ***POUNDS*** multiply by..... 2.2
- ***POUNDS/SQ.IN (psi)*** to ***BAR*** divide by..... 14.5
- ***US galls/min*** to ***IMPERIAL galls/min*** multiply by..... 0.83
- ***US galls/min*** to ***Litres/min*** multiply by..... 3.79
- ***SCFH (Standard Cubic Ft/Hr)*** to ***Nm^3/Hr (Normal Cubic Metres/Hour)*** multiply by 0.028
  Coefficent of Flow (CV) see below for details

FLOW FORMULA

For LIQUID:
Flow, U.S. gal/min $V = C_V \frac{\sqrt{P_1 - P_2}}{\sqrt{S_{GF}}}$

For GAS:

$$Q = 42.2\ C_V \frac{\sqrt{(P_1 - P_2) \times (P_1 + P_2)}}{\sqrt{S_G}}$$

$$Q = 42.2\ C_V \frac{0.87 \times P_1}{\sqrt{S_G}}$$

for $P_2 < 0.5\ P_1$

Specific Gravity (S_{GF})
Typical Liquids @ 68°F referred to water.

Hydraulic Oil..... 0.875
HW540 *..... 1.055
Water 1.000

* Water Glycol

Specific Gravity (S_G)
Typical Gases @ 68°F referred to air.

Acetylene..... 0.897
Air..... 1.000
Hydrogen..... 0.0695
Methane..... 0.553
Oxygen..... 1.103

FORMULA NOMENCLATURE

V = Flow, U.S. gallons per minute (GPM)
Q = Flow, standard cu.ft. per hr. (SCFH)
P_1 = Inlet Pressure, psia (14.7 + psig)
P_2 = Outlet Pressure, psia (14.7 + psig)
S_{GF} = Liquid Specific Gravity (water = 1.0)
S_G = Gas Specific Gravity (air = 1.0)
C_V = Valve Coefficient of Flow, full open.

Gas Flow Calculation: This method is only approximate and should only be used for rough calculations, the error increases the lower P2 is relative to P1.
If accurate pressure drop figures are required consult factory.

Valves Ltd

PRODUCT INDEX

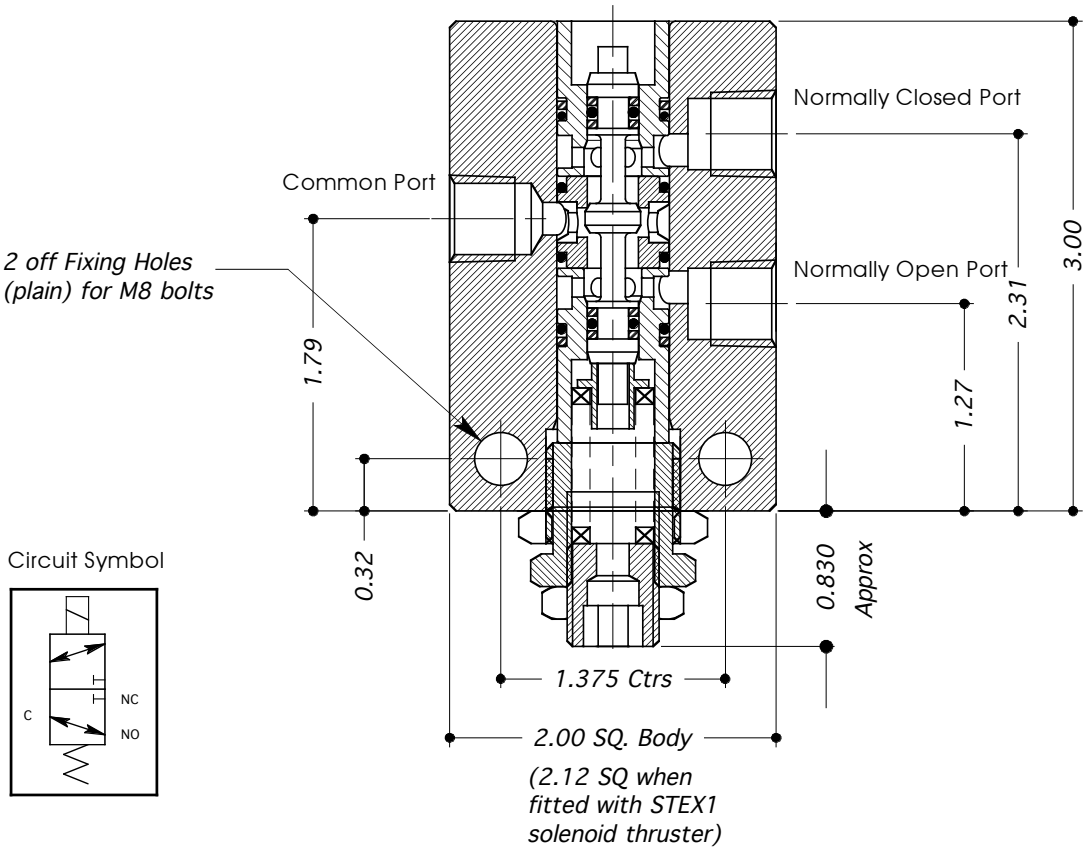
Valves Ltd

SECTION 1: SOLENOID VALVES

DIRECT SOLENOID VALVE TYPE: 2/3DS25

Valves Ltd

- **2 POSN / 3 PORTED STAINLESS STEEL (316 / 1.4404) VALVE WITH SOLENOID OPTIONS.**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **FITTED WITH "SOFT" SEATS.**
- **SOLENOID ACTUATION TYPE - SEE SECTION 12 FOR DETAILS.**
- **ALL DIMENSIONS IN INCHES.**



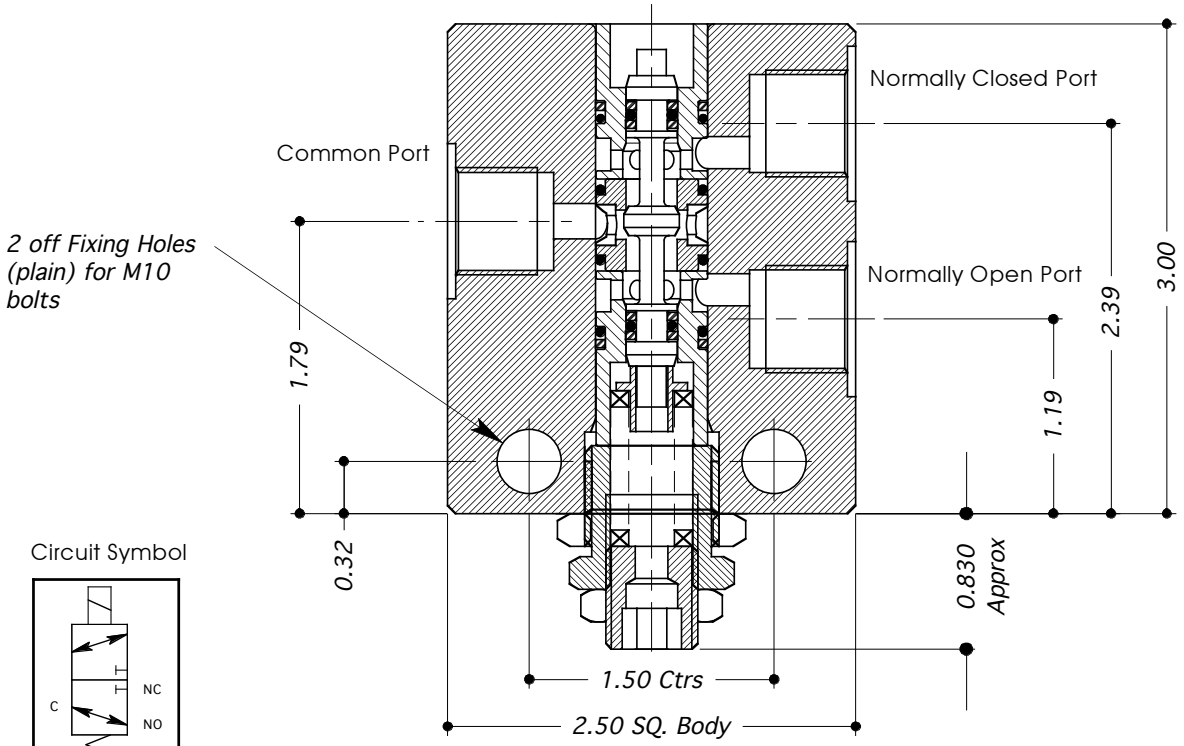
Circuit Symbol

TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:		**2/3DS25**	**2/3DS25**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper) **M** = Manifold	**N**
Soft Seated Valve:		**G**	**G**
Solenoid Thruster Options:		**HC**= (DIN connector) **KC**= (Kopex fitting) **STEX1**= (EExd)	**KC**
Max.Working Press: Liquid/Gas		**6K psi / 3,5K psi**	**6K**
Voltage Rating:		Check Voltage Rating availability in Section 12 (example given *)	**24V D.C. ***
Port Size:		1/4"	
Valve Seat Mat'l: Liquid/Gas		Peek	
Seal Material:		Viton (other materials available by request)	
CV Value:		0.26	
Dry Weight: (kg)		1.75	
Working Temp Range:	fitted with HC, KC	-10°C to +80°C	
	fitted with STEX1	T5 = -10°C to +40°C T4 = -10°C to +60°C	

DIRECT SOLENOID VALVE TYPE: 2/3DS37

Valves Ltd

- **2 POSN / 3 PORTED STAINLESS STEEL (316 / 1.4404) VALVE WITH SOLENOID OPTIONS.**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **FITTED WITH "SOFT" SEATS.**
- **SOLENOID ACTUATION TYPE - SEE SECTION 12 FOR DETAILS.**
- **ALL DIMENSIONS IN INCHES.**



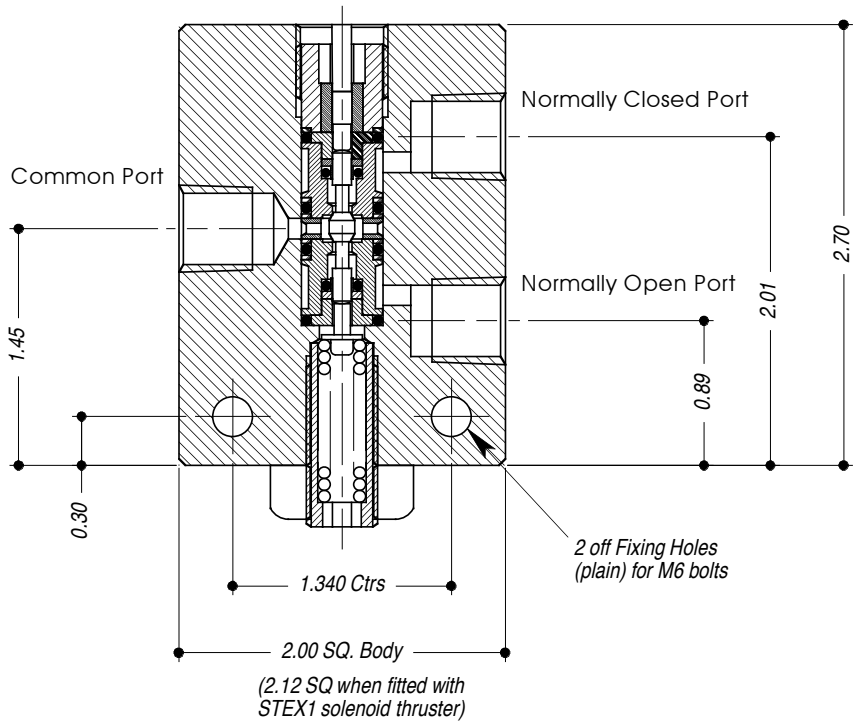
Circuit Symbol

TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:		**2/3DS37**	**2/3DS37**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper) **M** = Manifold	**P**
Soft Seated Valve:		**G**	**G**
Solenoid Thruster Options:		**HC**= (DIN connector) **KC**= (Kopex fitting) **STEX1**= (EExd)	**KC**
Max.Working Press: Liquid/Gas		**6K psi / 3,5K psi**	**6K**
Voltage Rating:		Check Voltage Rating availability in Section 12 (example given *)	**24V D.C. ***
Port Size:		3/8"	
Valve Seat Mat'l: Liquid/Gas		Peek	
Seal Material:		Viton (other materials available by request)	
CV Value:		0.26	
Dry Weight: (kg)		2.00	
Working Temp Range:	fitted with HC, KC	-10°C to +80°C	
	fitted with STEX1	T5 = -10°C to +40°C T4 = -10°C to +60°C	

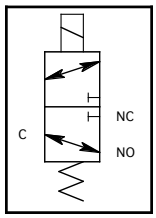
DIRECT SOLENOID VALVE TYPE: 2/3DS20/25

Valves Ltd

- **2 POSN / 3 PORTED STAINLESS STEEL (316 / 1.4404) VALVE WITH SOLENOID OPTIONS.**
- **SUITABLE FOR LIQUID USE.**
- **FITTED WITH "HARD" SEATS.**
- **SOLENOID ACTUATION TYPE - SEE SECTION 12 FOR DETAILS.**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol

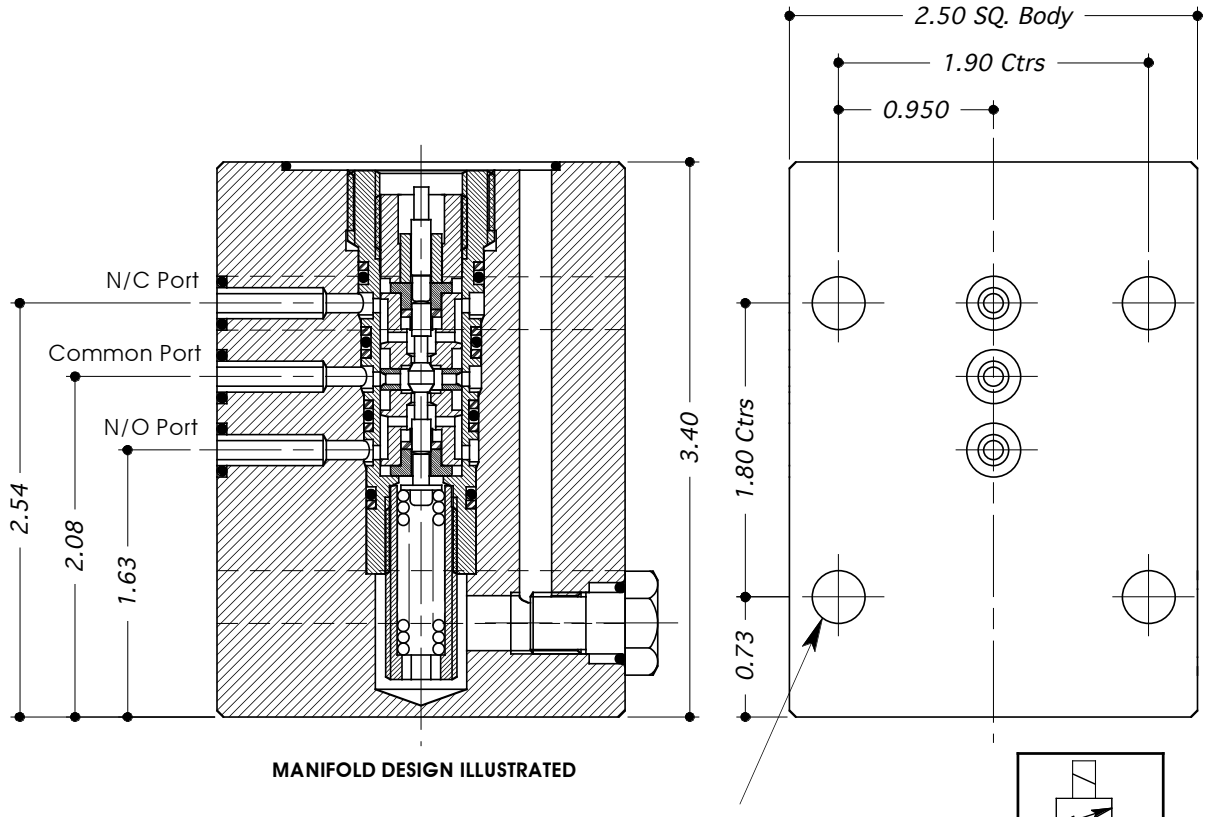


TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:		**2/3DS20/25**	**2/3DS20/25**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper) **M** = Manifold	**N**
Solenoid Thruster Options:		**HC**= (DIN connector) **KC**= (Kopex fitting) **STEX1**= (EExd)	**KC**
Max.Working Press: Liquid		**10,000 psi**	**10K**
Voltage Rating:		Check Voltage Rating availability in Section 12 (example given *)	**24V D.C. ***
Port Size:		1/4"	
Valve Seat Mat'l: Liquid		Stainless Steel - 431/1.4057	
Seal Material:		Viton (other materials available by request)	
CV Value:		0.1	
Dry Weight: (kg)		1.75	
Working Temp Range:	fitted with HC, KC	-10°C to +80°C	
	fitted with STEX1	T5 = -10°C to +40°C T4 = -10°C to +60°C	

CARTRIDGE SOLENOID VALVE TYPE: CS20

Valves Ltd

- 2 POSN / 3 PORTED STAINLESS STEEL (316 / 1.4404) VALVE FOR SUB-SEA APPLICATION.
- SUITABLE FOR LIQUID USE.
- FITTED WITH "HARD" SEATS.
- SOLENOID ACTUATION TYPE - SEE SECTION 12 FOR DETAILS.
- ALL DIMENSIONS IN INCHES.



N/C = Normally Closed Port
N/O = Normally Open Port

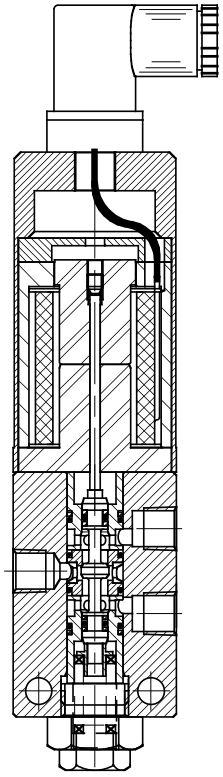
This Model can be supplied as a "non-standard" fitted with either 1/4" or 3/8" (BSP or NPT threaded ports). Ask for ordering details.

TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**CS20**	**CS20**
Porting / Connection Options:	**M** = Manifold	**M**
Solenoid Thruster Options:	**SW** = Sub-Sea	**SW**
Max.Working Press: Liquid	**10,000 psi**	**10K**
Valve Seat Mat'l: Liquid	Stainless Steel - 431/1.4057	
Seal Material:	Viton (other materials available by request)	
CV Value:	0.1	
Dry Weight: (kg)	2.0	
Working Temperature Range:	-10°C to +70°C	

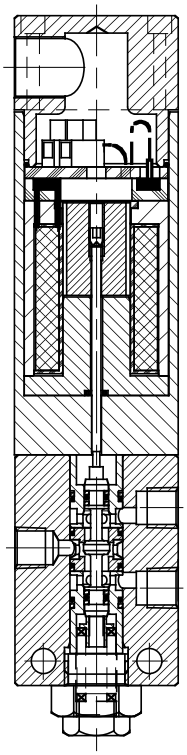
EXAMPLES OF SOLENOID ASSEMBLIES FITTED WITH SOLENOID THRUSTERS

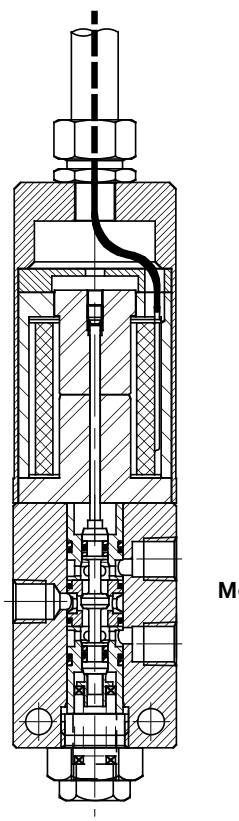
Valves Ltd

Model Type: 2/3DS25-HC (3.5K)



Model Type: 2/3DS25-STEX1A (6K)





Model Type: 2/3DS25-KC (3.5K)

BiS Valves Ltd., Units 17-22, Kingfisher Park, West Moors, Wimborne , Dorset, ENGLAND.
Tel: 01202 896322 Fax: 01202 896718 e-mail: info@bisvalves.co.uk. web site: www.bisvalves.co.uk

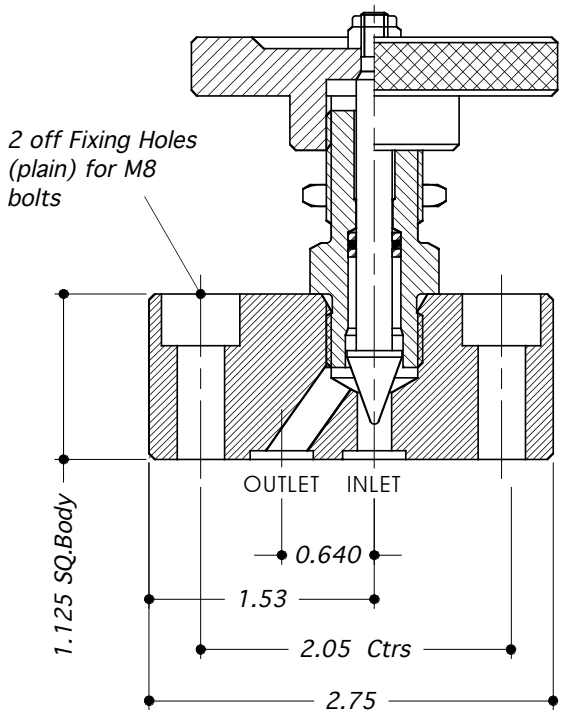
Valves Ltd

SECTION 2: STOP & METERING VALVES

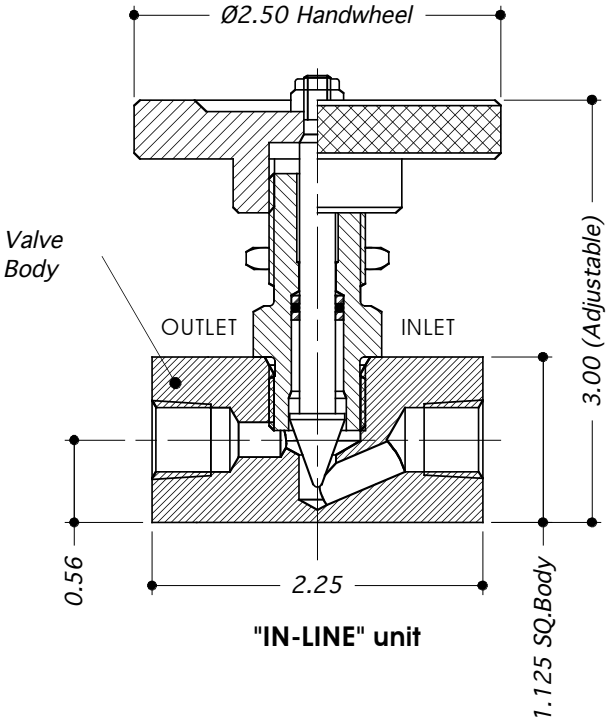
STOP & METERING VALVE TYPES: BNV25, BNV25/37

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **RECOMMENDED HOLE PANEL DIAMETER Ø0.70"**
- **ALL DIMENSIONS IN INCHES**



"MANIFOLD" mounted



"IN-LINE" unit

"Cartridge Unit"
With the Body removed this unit can be assembled into customers own manifold.
Ordering Example: BNV25C

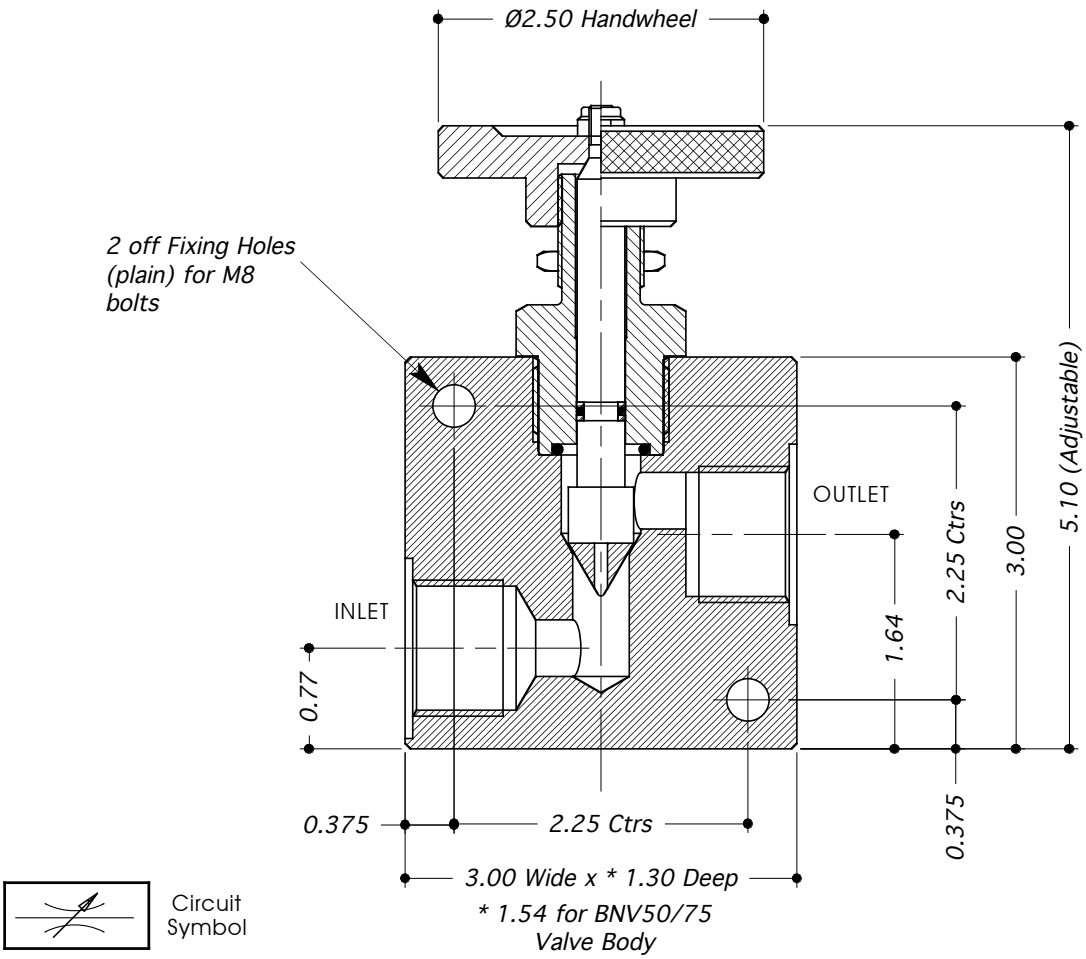
Circuit Symbol

TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:	**BNV25**	**BNV25/37**	**BNV25**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper) **M** = Manifold **C** = Cartridge		**N**
Soft Seated Valve:	**G**		———
Max.Working.Press: Liquid	**10,000 psi** (Hard Seat)		**10K**
Max.Working.Press: Liquid/Gas	**6,000 psi** (Soft Seat)		
Port Size:	1/4"	3/8"	
Valve Seat Mat'l: Hard Seat	Stainless Steel - 17-4/1.4542		
Valve Seat Mat'l: Soft Seat	Torlon		
Seal Material:	Viton (other materials available by request)		
CV Value:	0.52	0.52	
Dry Weight: (kg)	0.75	0.75	
Working Temperature Range:	-10°C to +120°C		

STOP & METERING VALVE TYPES: BNV50, BNV50/75

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **ALL DIMENSIONS IN INCHES**



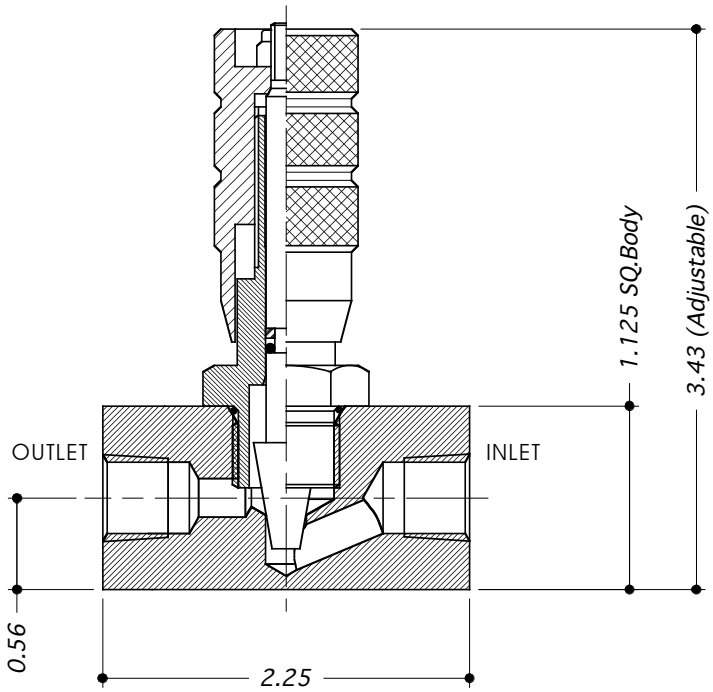
Circuit Symbol

TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:	**BNV50**	**BNV50/75**	**BNV50**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper) **C** = Cartridge		**P**
Soft Seated Valve:	**G**		—
Max.Working.Press: Liquid	**10,000 psi** (Hard Seat)		**6K**
Max.Working.Press: Liquid/Gas	**6,000 psi** (Soft Seat)		
Port Size:	1/2"	3/4"	
Valve Seat Mat'l: Hard Seat	Stainless Steel - 431/1.4057		
Valve Seat Mat'l: Soft Seat	Torlon		
Seal Material:	Viton (other materials available by request)		
CV Value:	2.1	2.1	
Dry Weight: (kg)	1.75	1.75	
Working Temperature Range:	-10°C to +120°C		

FINE FLOW METERING VALVE TYPES: MF25, MF37

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **THE "MF" SERIES IS NOT SUITABLE FOR "SCREW-DOWN" STOP VALVE USE WITH GAS.**
- **ALL DIMENSIONS IN INCHES.**



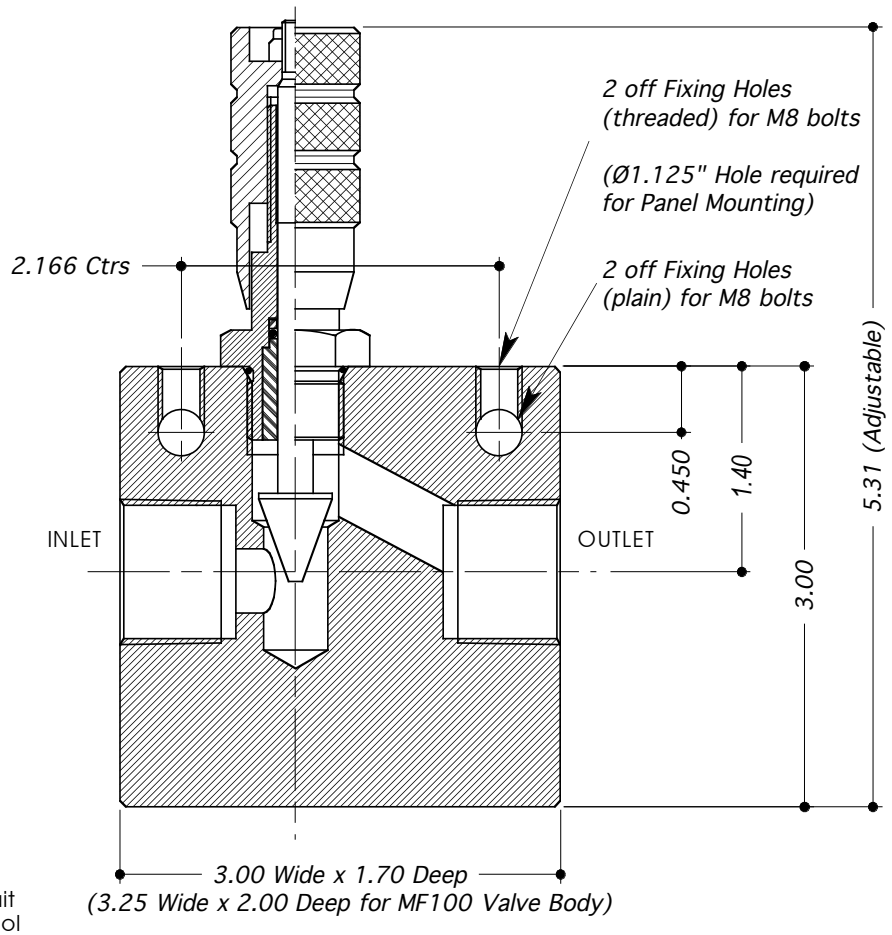
Circuit Symbol

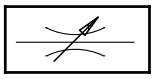
TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:	**MF25**	**MF37**	**MF25**
Porting / Connection Options:	**P** = BSP (Parallel)	**N** = NPT (Taper)	**N**
Max.Working Pressure - Liquid	**8,000 psi**		**8K**
Max.Working Pressure - Gas	**4,000 psi**		
Port Size:	1/4"	3/8"	
Valve Seat Material:	Stainless Steel - 431/1.4057		
Seal Material:	Viton (other materials available by request)		
CV Value:	0.64	0.70	
Dry Weight: (kg)	1.0	1.0	
Working Temperature Range:	-10°C to +120°C		

FINE FLOW METERING VALVE TYPES: MF50, MF75, MF100

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **THE "MF" SERIES IS NOT SUITABLE FOR "SCREW-DOWN" STOP VALVE USE WITH GAS.**
- **ALL DIMENSIONS IN INCHES.**





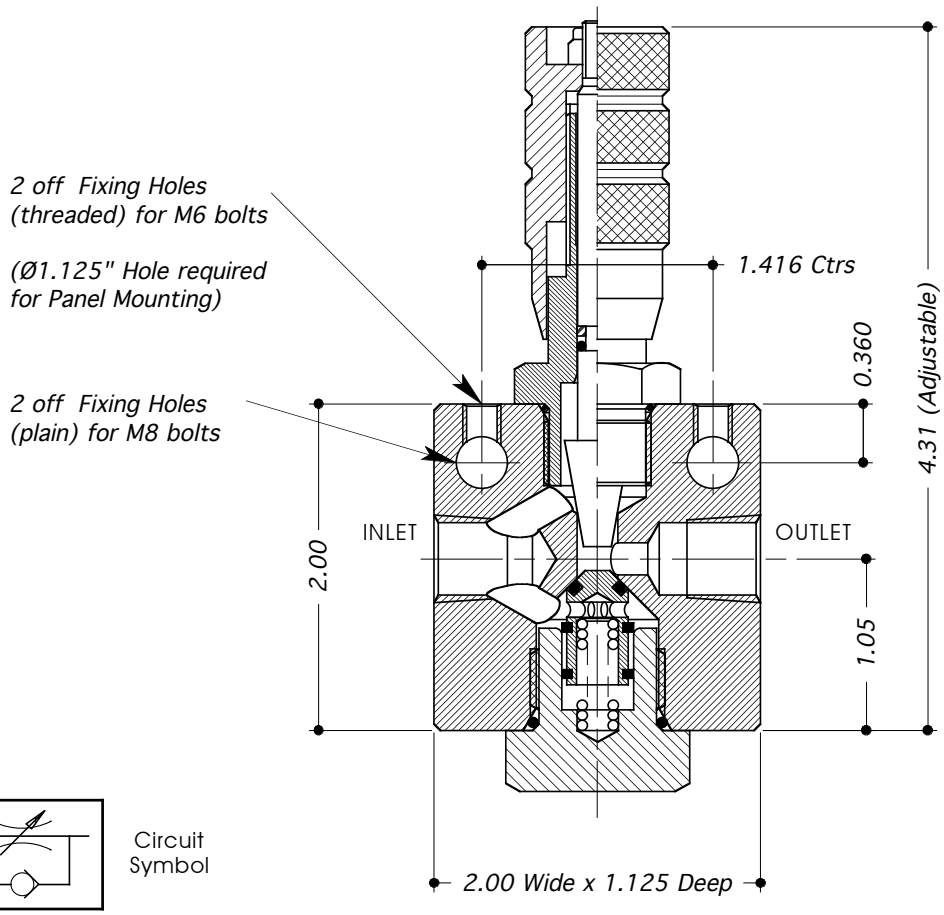
Circuit Symbol

TECHNICAL SPECIFICATION				ORDERING EXAMPLE
Valve Type:	**MF50**	**MF75**	**MF100**	**MF50**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)			**N**
Max.Working Pressure - Liquid	**8,000 psi**			**8K**
Max.Working Pressure - Gas	**4,000 psi**			
Port Size:	1/2"	3/4"	1.00"	
Valve Seat Material:	Stainless Steel - 17-4/1.4542			
Seal Material:	Viton (other materials available by request)			
CV Value:	1.4	2.5	2.5	
Dry Weight: (kg)	1.8	1.8	1.8	
Working Temperature Range:	-10°C to +120°C			

FINE FLOW METERING VALVE TYPES: CMF25, CMF37

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **THE "CMF" SERIES IS NOT SUITABLE FOR "SCREW-DOWN" STOP VALVE USE WITH GAS.**
- **ALL DIMENSIONS IN INCHES.**



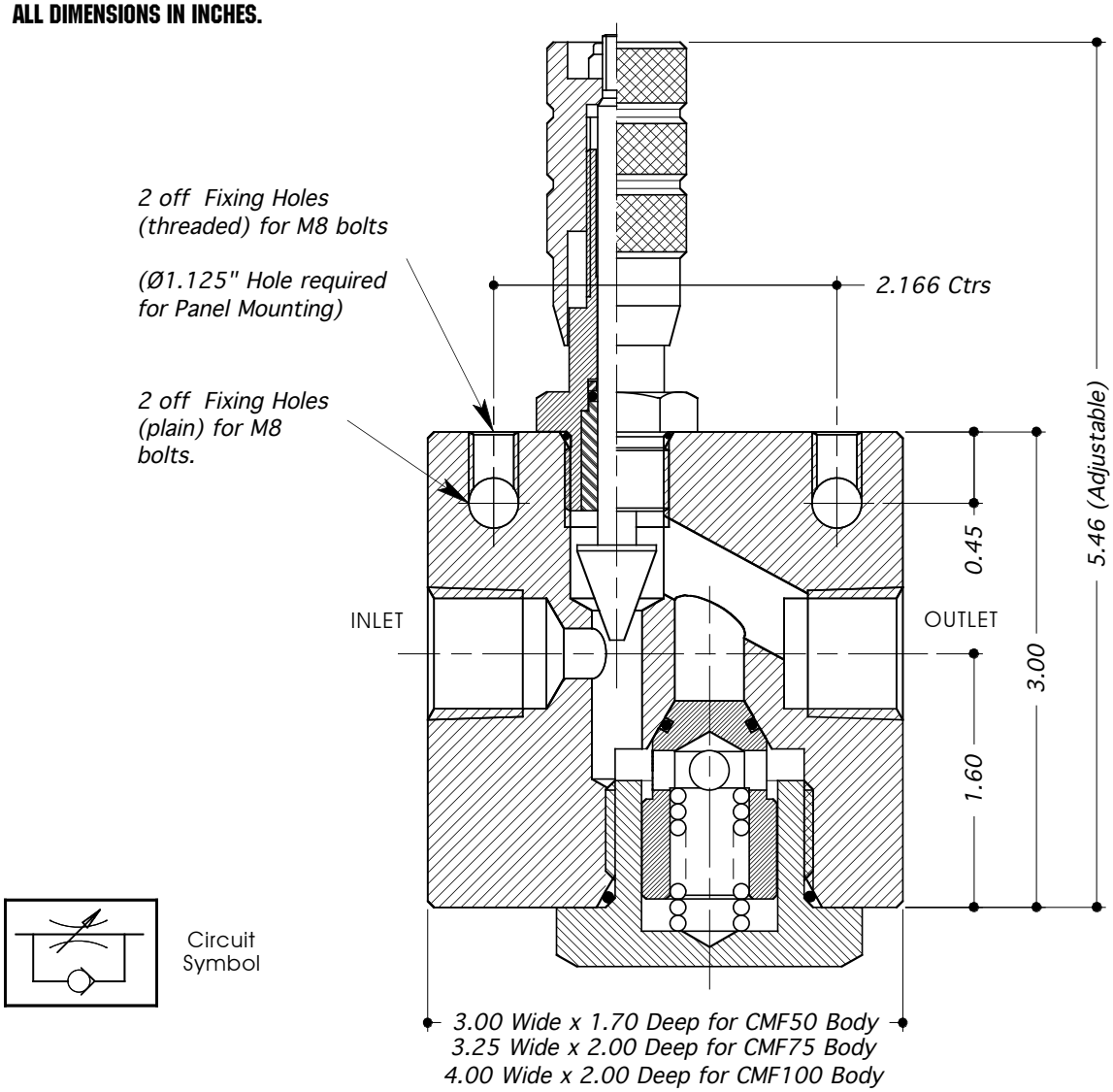
Circuit Symbol

TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:	**CMF25**	**CMF37**	**CMF25**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)		**N**
Max.Working Pressure: Liquid	**8,000 psi**		**8K**
Max.Working Pressure: Gas	**4,000 psi**		
Port Size:	1/4"	3/8"	
Valve Seat Material:	Stainless Steel - 431/1.4057		
Seal Material:	Viton (other materials available by request)		
CV Value:	0.56	0.62	
Dry Weight: (kg)	1.0	1.0	
Working Temperature Range:	-10°C to +120°C		

FINE FLOW METERING VALVE TYPES: CMF50, CMF75, CMF100

Valves Ltd

- **STAINLESS STEEL (17-4 / 1.4542)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **THE "CMF" SERIES IS NOT SUITABLE FOR "SCREW-DOWN" STOP VALVE USE WITH GAS.**
- **ALL DIMENSIONS IN INCHES.**



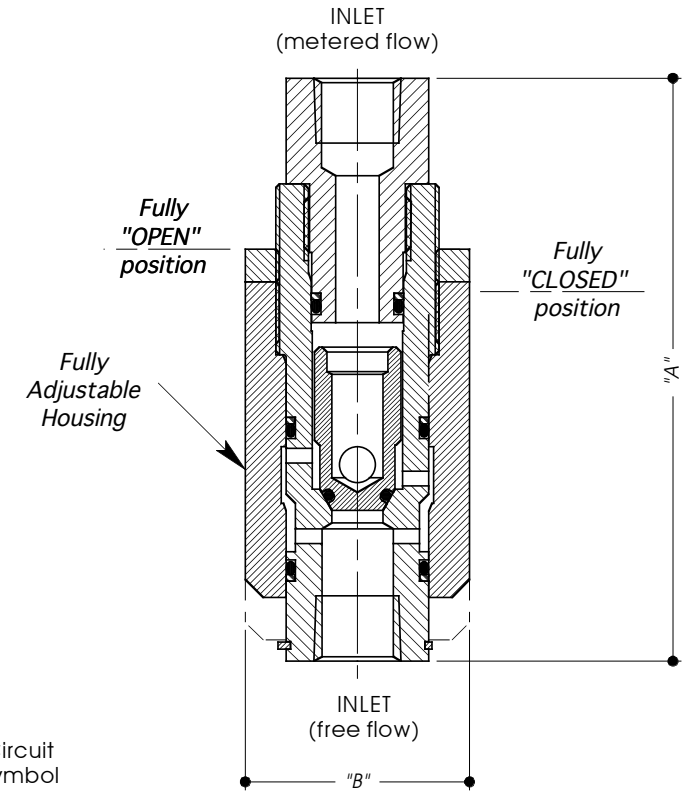
Circuit Symbol

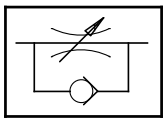
TECHNICAL SPECIFICATION				ORDERING EXAMPLE
Valve Type:	**CMF50**	**CMF75**	**CMF100**	**CMF50**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)			**N**
Max.Working Pressure: Liquid	**6,000 psi**			**6K**
Max.Working Pressure: Gas	**3,000 psi**			
Port Size:	1/2"	3/4"	1.0"	
Valve Seat Material:	Stainless Steel - 17-4/1.4542			
Seal Material:	Viton (other materials available by request)			
CV Value:	1.40	2.5	2.5	
Dry Weight: (kg)	2.0	2.0	2.0	
Working Temperature Range:	-10°C to +120°C			

METERING VALVE TYPES: IMC25, IMC37, IMC50

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **ALL DIMENSIONS IN INCHES.**





Circuit Symbol

The valve can be supplied to suit many types of flow metering characteristics "tailor-made" to suit your individual requirements. Contact our Technical Department for details.

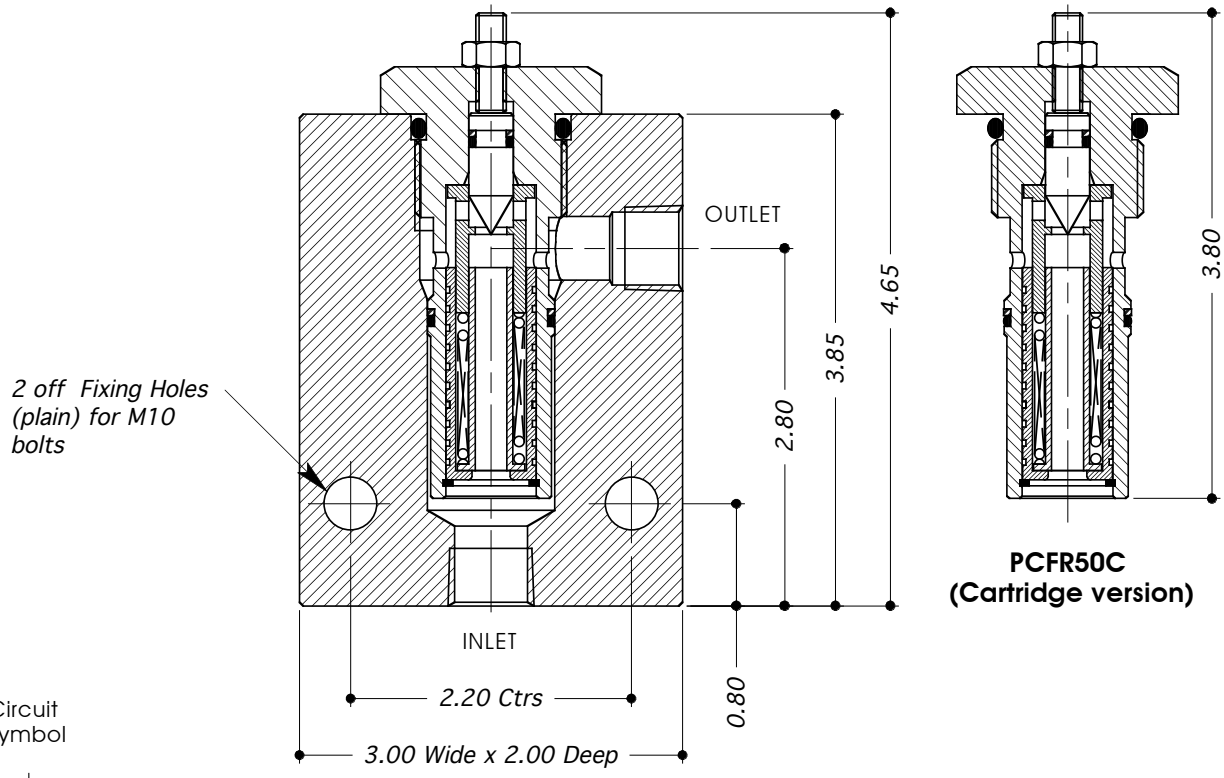
TECHNICAL SPECIFICATION				ORDERING EXAMPLE
Valve Type:	**IMC25**	**IMC37**	**IMC50**	**IMC25**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)			**N**
Max.Working Pressure: Liquid	**8,000 psi**			**8K**
Port Size:	1/4"	3/8"	1/2"	
Valve Seat Material:	Stainless Steel - 316/1.4404			
Seal Material:	Viton (other materials available by request)			
Dimension (ins) - Length "A"	3.57"	3.95"	5.30"	
Dimension (ins) - Diameter "B"	Ø1.37"	Ø1.73"	Ø2.25"	
CV Value: (MAX)	0.55	0.72	1.2	
Dry Weight: (kg)	0.44	0.73	1.25	
Working Temperature Range:	-10°C to +120°C			

PRESSURE COMPENSATED FLOW REGULATOR

TYPES: PCFR50/37, PCFR50

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **ALL DIMENSIONS IN INCHES**



PCFR50 illustrated

PCFR50C (Cartridge version)

Circuit Symbol

TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:	**PCFR50/37**	**PCFR50**	**PCFR50**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper) **C** = Cartridge		**P**
Flow Metering:	5 - 45 L/Min **(Standard)** ("**LF**" Low Flow = 2 - 15 L/Min)		———
Max.Working.Press: Liquid	**10,000 psi**		**10K**
Port Size:	3/8"	1/2"	
Materials (Internal):	Stainless Steel - 316/1.4404 & 440C		
Seal Material:	Viton (other materials available by request)		
Max Diff. Press (DP) psi	6,000 psi		
Dry Weight: (kg)	3.0		
Working Temperature Range:	-10°C to +120°C		

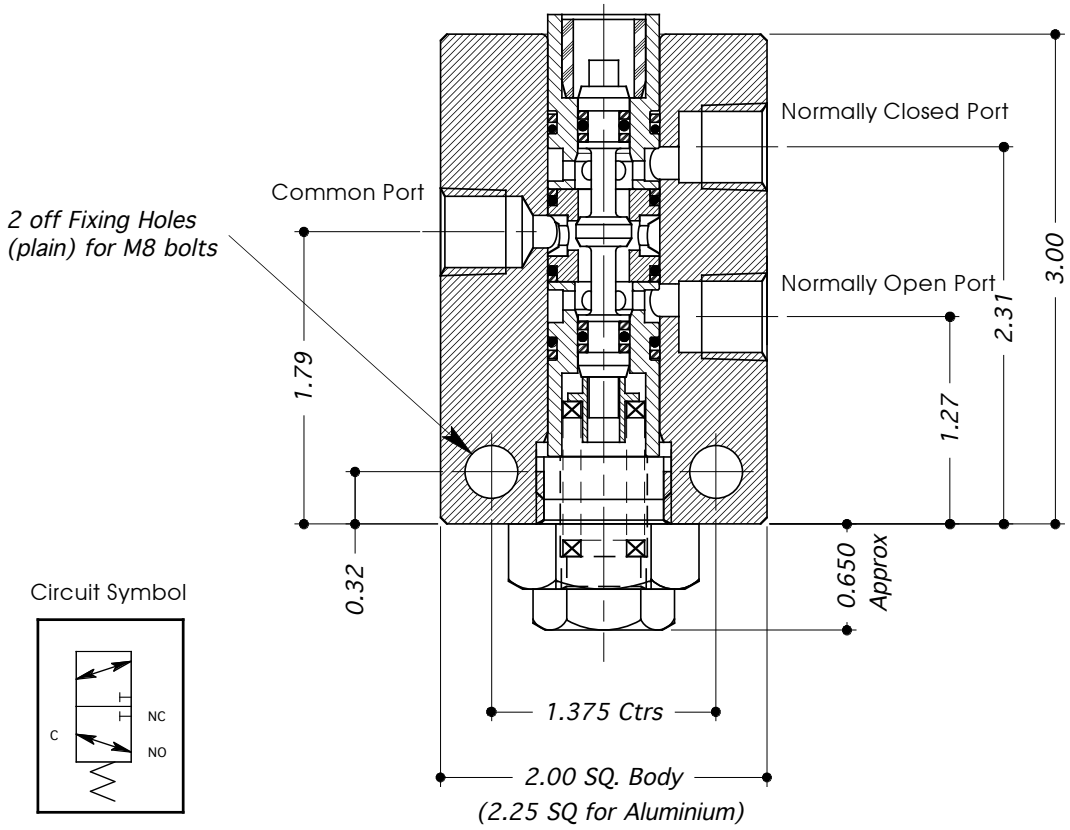
Valves Ltd

SECTION 3: 3 PORTED DIRECTIONAL CONTROL VALVES

DIRECTIONAL CONTROL VALVE TYPE: 3B25

Valves Ltd

- 2 POSN / 3 PORTED STAINLESS STEEL (316 / 1.4404) VALVE WITH ACTUATOR OPTIONS.
- BODY MATERIAL OPTIONS: MILD STEEL - ENP (EN1A / 220M07), ALUM. ALLOY (HE30)
- SUITABLE FOR LIQUID USE.
- FITTED WITH "HARD" SEATS.
- ACTUATION TYPE - SEE SECTION 12 FOR DETAILS.
- ALL DIMENSIONS IN INCHES.



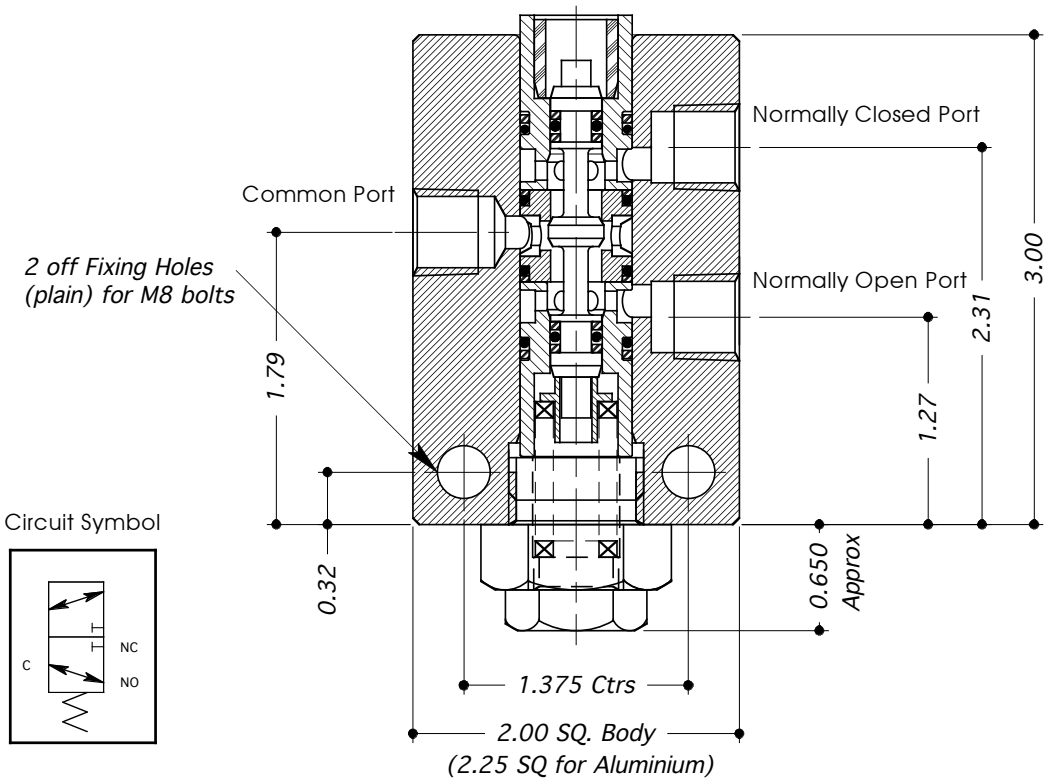
Circuit Symbol

TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Material Option (non-std)		**A** = Alum. Body (HE30) **C** = En1A/220M07 Mild Steel (E.N.P.)	——
Valve Type:		**3B25**	**3B25**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper) **M** = Manifold	**N**
Actuator Options	Low Press. Pilot:	Types: **H3** (44 to 300 psi)	**H3**
	High Press. Pilot:	Types: **H0** (400 to 3,500 psi), **H1** (1,400 to 10,000 psi)	
	Mechanical:	Types: **C0, C1, L, DL**	
Max.Working Press: Liquid		**10,000 psi**	**10K**
Port Size:		1/4"	
Valve Seat Mat'l: Liquid		Stainless Steel - 431/1.4057	
Seal Material:		Viton (other materials available by request)	
CV Value:		0.44	
Dry Weight: (kg)		1.75	
Working Temperature Range:		-10°C to +120°C	

DIRECTIONAL CONTROL VALVE TYPE: 3B25-G

Valves Ltd

- **2 POSN / 3 PORTED STAINLESS STEEL (316 / 1.4404) VALVE WITH ACTUATOR OPTIONS.**
- **BODY MATERIAL OPTIONS: MILD STEEL - ENP (EN1A / 220M07), ALUM. ALLOY (HE30)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **FITTED WITH "SOFT" SEATS.**
- **ACTUATION TYPE - SEE SECTION 12 FOR DETAILS.**
- **ALL DIMENSIONS IN INCHES.**



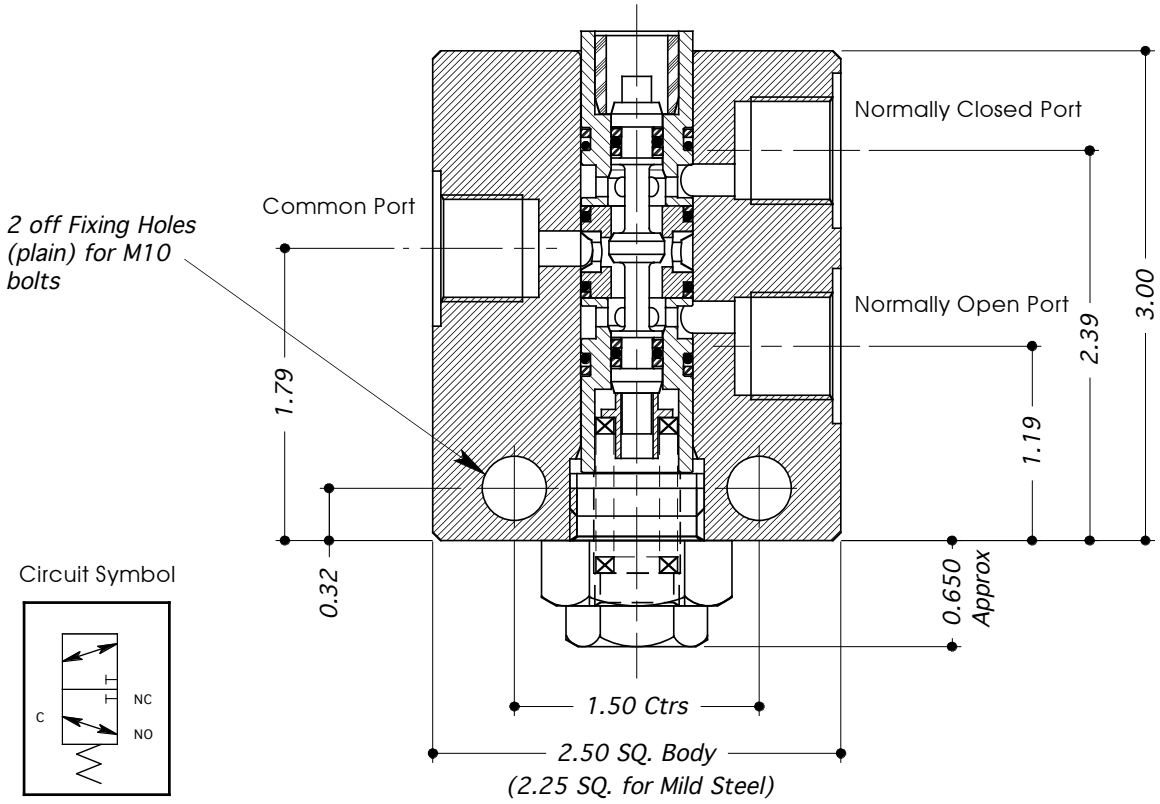
Circuit Symbol

TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Material Option (non-std)		**A** = Alum .Body (HE30) **C** = En1A/220M07 Mild Steel (E.N.P.)	——
Valve Type:		**3B25**	**3B25**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper) **M** = Manifold	**N**
Actuator Options	Low Press. Pilot:	Types: **H3** (44 to 115 psi)	**H3**
	High Press. Pilot:	Types: **H0** (400 to 1,200 psi), **H1** (1,400 to 4,000 psi)	
	Mechanical:	Types: **C0, C1, L, DL**	
Soft Seated Valve:		**G**	**G**
Max.Working Press: Liquid/Gas		**6,000 psi / 3,500 psi**	**6K**
Port Size:		1/4"	
Valve Seat Mat'l: Liquid/Gas		Torlon	
Seal Material:		Viton (other materials available by request)	
CV Value:		0.44	
Dry Weight: (kg)		1.75	
Working Temperature Range:		-10°C to +80°C	

DIRECTIONAL CONTROL VALVE TYPE: 3B37

Valves Ltd

- **2 POSN / 3 PORTED MILD STEEL - ENP (EN1A / 220M07) VALVE WITH ACTUATOR OPTIONS.**
- **BODY MATERIAL OPTIONS: STAINLESS STEEL (316 / 1.4404), ALUM. ALLOY (HE30)**
- **SUITABLE FOR LIQUID USE.**
- **FITTED WITH "HARD" SEATS.**
- **ACTUATION TYPE - SEE SECTION 12 FOR DETAILS.**
- **ALL DIMENSIONS IN INCHES.**



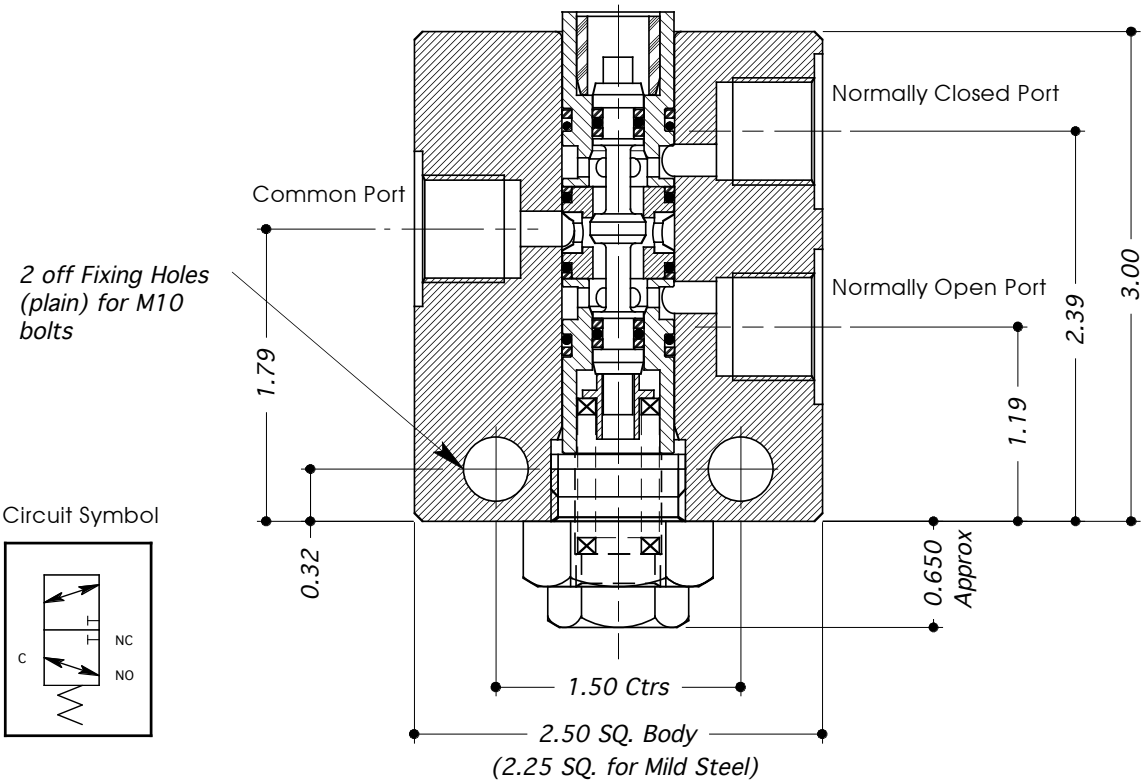
Circuit Symbol

TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Material Option (non-std)		**A** = Alum. Body (HE30) **S** = Stainless Steel (316/1.4404)	—
Valve Type:		**3B37**	**3B37**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper)	**P**
Actuator Options	Low Press. Pilot:	Types: **H3** (44 to 300 psi)	**H3**
	High Press. Pilot:	Types: **H0** (400 to 3,500 psi), **H1** (1,400 to 10,000 psi)	
	Mechanical:	Types: **C0, C1, L, DL**	
Max.Working Press: Liquid		**10,000 psi**	**10K**
Port Size:		3/8"	
Valve Seat Mat'l: Liquid		Stainless Steel - 431/1.4057	
Seal Material:		Viton (other materials available by request)	
CV Value:		0.44	
Dry Weight: (kg)		2.0	
Working Temperature Range:		-10°C to +120°C	

DIRECTIONAL CONTROL VALVE TYPE: 3B37-G

Valves Ltd

- **2 POSN / 3 PORTED MILD STEEL - ENP (EN1A / 220M07) VALVE WITH ACTUATOR OPTIONS.**
- **BODY MATERIAL OPTIONS: STAINLESS STEEL (316 / 1.4404), ALUM. ALLOY (HE30)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **FITTED WITH "SOFT" SEATS.**
- **ACTUATION TYPE - SEE SECTION 12 FOR DETAILS.**
- **ALL DIMENSIONS IN INCHES.**



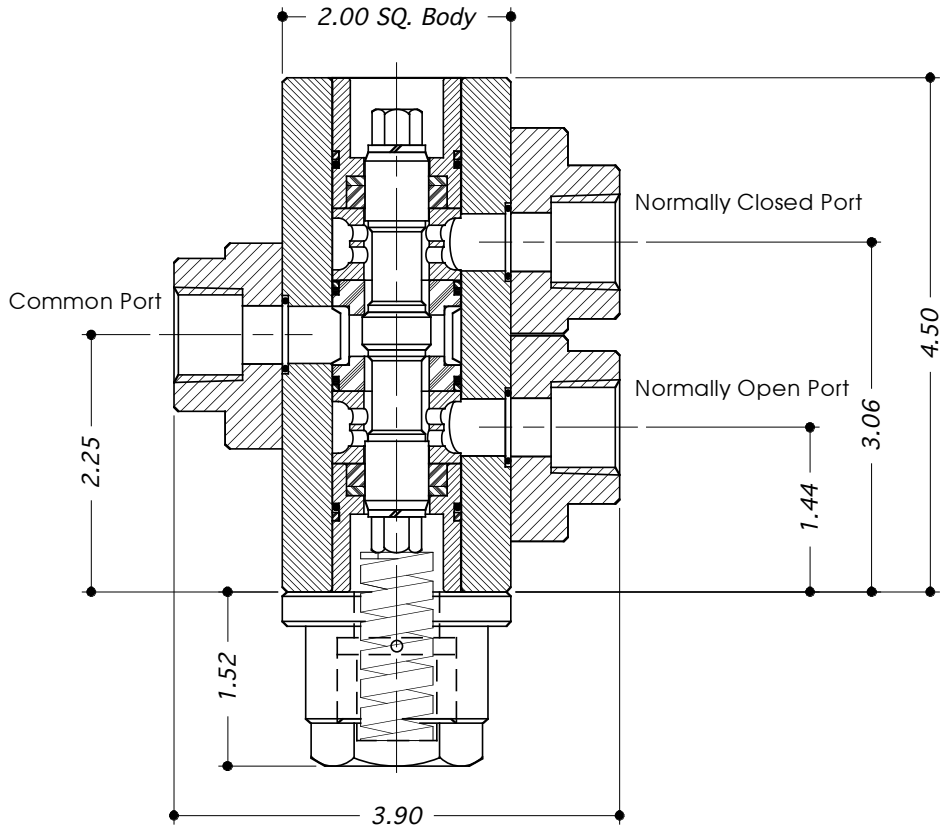
Circuit Symbol

TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Material Option (non-std)		**A** = Alum .Body (HE30) **S** = Stainless Steel (316/1.4404)	—
Valve Type:		**3B37**	**3B37**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper	**P**
Actuator Options	Low Press. Pilot:	Types: **H3** (44 to 115 psi)	**H3**
	High Press. Pilot:	Types: **H0** (400 to 1,200 psi), **H1** (1,400 to 4,000 psi)	
	Mechanical:	Types: **C0, C1, L, DL**	
Soft Seated Valve:		**G**	**G**
Max.Working Press: Liquid/Gas		**6,000 psi / 3,500 psi**	**6K**
Port Size:		3/8"	
Valve Seat Mat'l: Liquid/Gas		Torlon	
Seal Material:		Viton (other materials available by request)	
CV Value:		0.44	
Dry Weight: (kg)		2.0	
Working Temperature Range:		-10°C to +80°C	

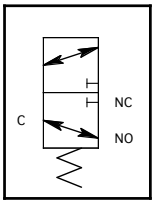
DIRECTIONAL CONTROL VALVE TYPE: 3B50

Valves Ltd

- **2 POSN / 3 PORTED STAINLESS STEEL (316 / 1.4404) VALVE WITH ACTUATOR OPTIONS.**
- **BODY MATERIAL OPTIONS: MILD STEEL - ENP (EN1A / 220M07), ALUM. ALLOY (HE30)**
- **SUITABLE FOR LIQUID USE.**
- **FITTED WITH "HARD" SEATS.**
- **ACTUATION TYPE - SEE SECTION 12 FOR DETAILS.**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol



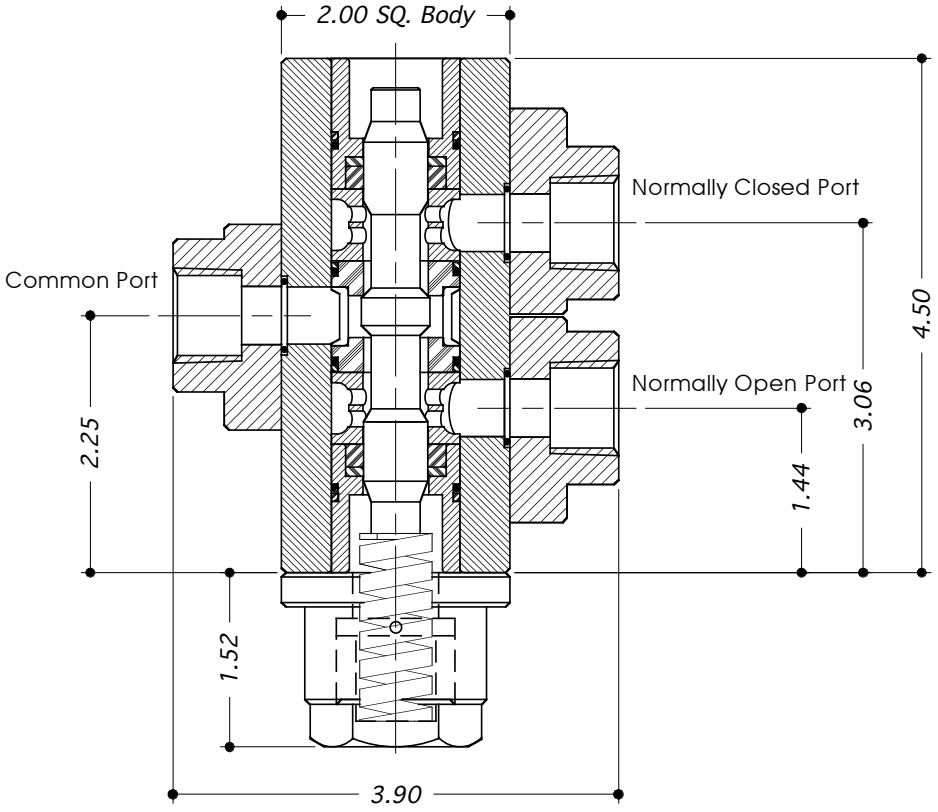
TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Material Option (non-std)		**A** = Alum. Body (HE30) **C** = En1A/220M07 Mild Steel (E.N.P.)	——
Valve Type:		**3B50**	**3B50**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper) **M** = Manifold	**N**
Actuator Options	Low Press. Pilot:	Types: **A2** (60 to 125 psi), **H3** (85 to 300 psi)	**A2**
	High Press. Pilot:	Types: **H0** (1,000 to 3,500 psi), **H1** (3,000 to 10,000 psi)	
	Mechanical:	Types: **C0, C1, L, DL**	
Max.Working Press: Liquid		**10,000 psi**	**10K**
Port Size:		1/2"	
Valve Seat Mat'l: Liquid		Stainless Steel - 316/1.4404	
Seal Material:		Viton (other materials available by request)	
CV Value:		1.59	
Dry Weight: (kg)		4.5	
Working Temperature Range:		-10°C to +120°C	

NOTE:- The 3B50 valve is also available with 3/4" ports (NPT & BSP) **Ordering Example: 3B50/75.**

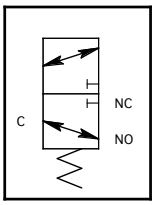
DIRECTIONAL CONTROL VALVE TYPE: 3B50-G

Valves Ltd

- **2 POSN / 3 PORTED STAINLESS STEEL (316 / 1.4404) VALVE WITH ACTUATOR OPTIONS.**
- **BODY MATERIAL OPTIONS: MILD STEEL - ENP (EN1A / 220M07), ALUM. ALLOY (HE30)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **FITTED WITH "SOFT" SEATS.**
- **ACTUATION TYPE - SEE SECTION 12 FOR DETAILS.**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol

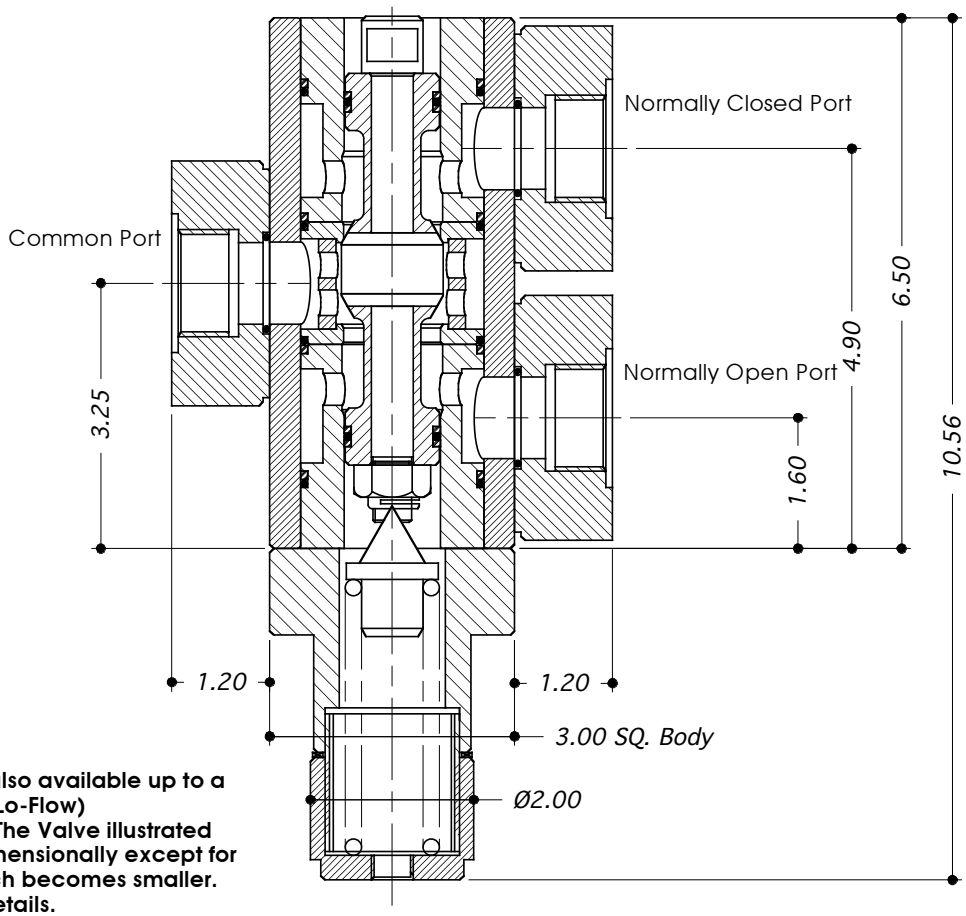


TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Material Option (non-std)		**A** = Alum .Body (HE30) **C** = En1A/220M07 Mild Steel (E.N.P.)	——
Valve Type:		**3B50**	**3B50**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper) **M** = Manifold	**N**
Actuator Options	Low Press. Pilot:	Types: **A2** (50 to 116 psi), **H3** (60 to 210 psi)	**H3**
	High Press. Pilot:	Types: **H0** (1,000 to 3,500 psi), **H1** (3,000 to 7,500 psi)	
	Mechanical:	Types: **C0, C1, L, DL**	
Soft Seated Valve:		**G**	**G**
Max.Working Press: Liquid/Gas		**6,000 psi / 3,500 psi**	**6K**
Port Size:		1/2"	
Valve Seat Mat'l: Liquid/Gas		Torlon	
Seal Material:		Viton (other materials available by request)	
CV Value:		1.75	
Dry Weight: (kg)		4.5	
Working Temperature Range:		-10°C to +80°C	

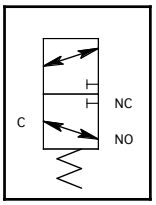
DIRECTIONAL CONTROL VALVE TYPE: 3BHF100 (HI-FLOW)

Valves Ltd

- 2 POSN / 3 PORTED STAINLESS STEEL (316 / 1.4404) VALVE WITH ACTUATOR OPTIONS.
- BODY MATERIAL OPTION: MILD STEEL - ENP (EN1A / 220M07)
- SUITABLE FOR LIQUID OR GAS USE.
- FITTED WITH "SOFT" SEATS.
- ACTUATION TYPE - SEE SECTION 12.
- ALL DIMENSIONS IN INCHES.



Circuit Symbol

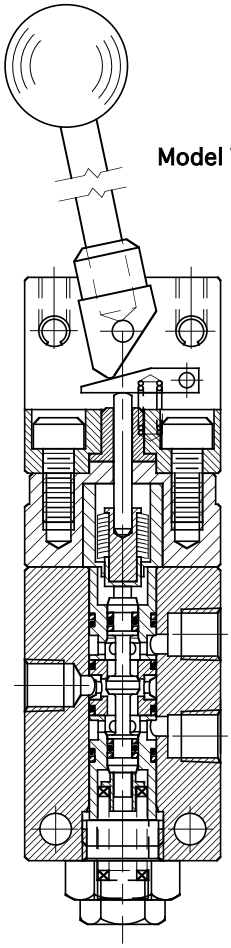


Note:- This Valve is also available up to a Max W.P. of 10K psi (Lo-Flow) Type: "3BLF100-A1". The Valve illustrated remains the same dimensionally except for the internal bore which becomes smaller. Contact factory for details.

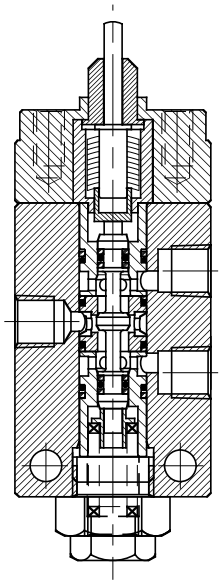
TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Material Option (non-std)		**C** = En1A/220M07 Mild Steel (E.N.P.)	——
Valve Type:		**3BHF100**	**3BHF100**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper)	**P**
Actuator Options	Low Press. Pilot:	Types: **A2** (80 to 150 psi)	**A2**
	High Press. Pilot:	Types: **H0** (800 to 1,600 psi) **H1** (1,700 to 3,000 psi)	
	Mechanical:	Types: **L, DL**	
Max.Working Press: Liquid/Gas		**3,500 psi**	**3.5K**
Port Size:		1.0"	
Valve Seat Mat'l: Liquid/Gas		Delrin	
Seal Material:		Viton (other materials available by request)	
CV Value:		10	
Dry Weight: (kg)		11.0	
Working Temperature Range:		-10°C to +80°C	

Typical examples of 3 Ported Directional Control Valves fitted with Actuators.

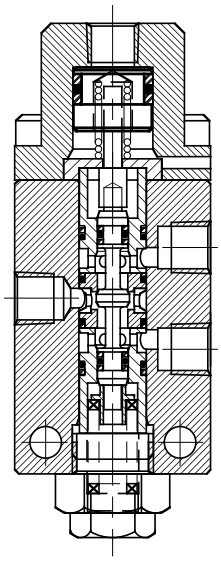
Valves Ltd



Model Type: 3B25-L (10K)



Model Type: 3B25-C1 (10K)



Model Type: 3B25-HO (10K)

BiS Valves Ltd., Units 17-22, Kingfisher Park, West Moors, Wimborne , Dorset, ENGLAND.
Tel: 01202 896322 Fax: 01202 896718 e-mail: info@bisvalves.co.uk. web site: www.bisvalves.co.uk

Valves Ltd

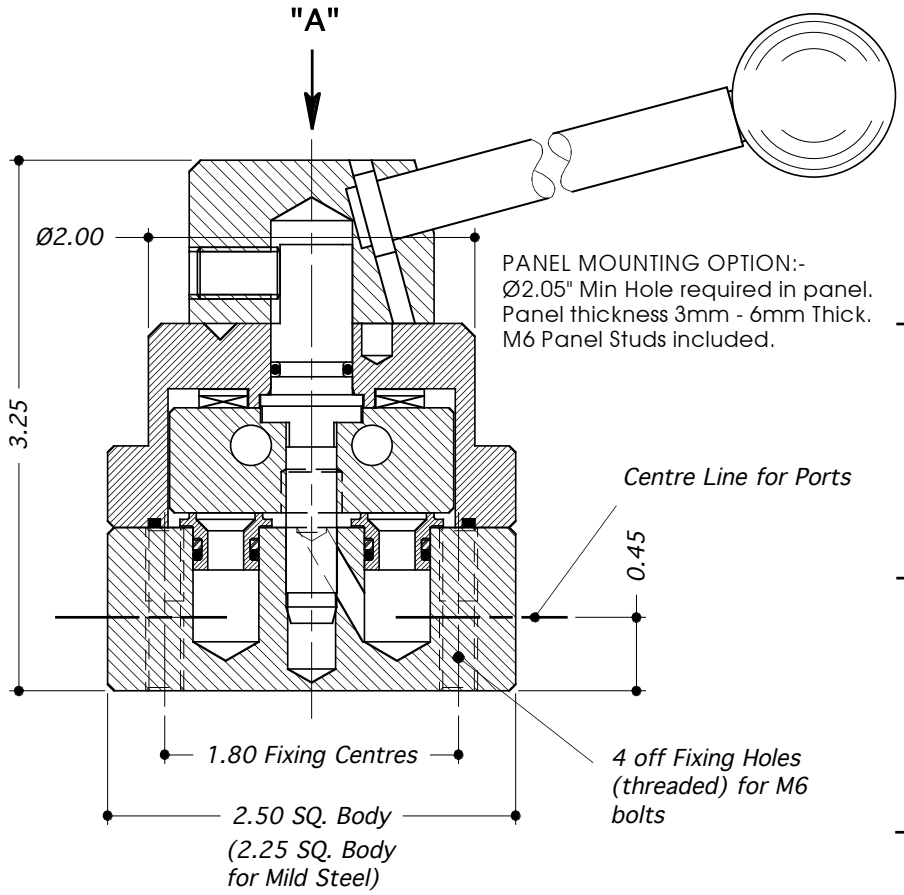
SECTION 4: 4 PORTED CONTROL VALVES

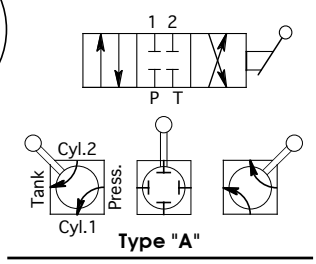
ROTARY CONTROL VALVE TYPE: 4R25

Valves Ltd

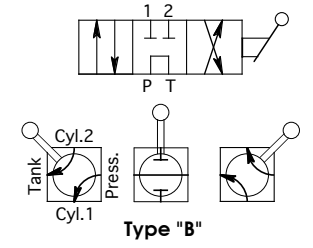
- **4 PORTED LEVER OPERATED STAINLESS STEEL (316 / 1.4404) VALVE. (SOME CARBON STEEL INTERNAL PARTS)**
- **BODY MATERIAL OPTION: MILD STEEL - ENP (EN1A / 220M07)**
- **SUITABLE FOR LIQUID USE.**
- **SPECIFY "FLOW PATTERN TYPE" WHEN ORDERING.**
- **ALL "FLOW DIAGRAMS" ARE VIEWED ON ARROW "A".**
- **ALL DIMENSIONS IN INCHES.**

Handle Length 5.0" Approx.
Handle Travel:- 90°

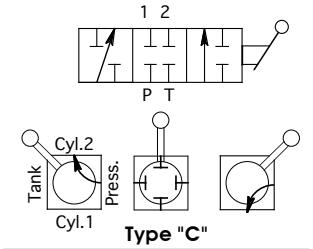




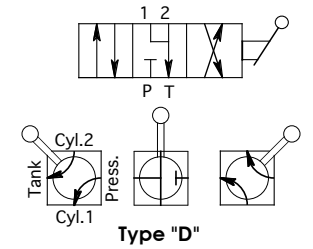
Type "A"



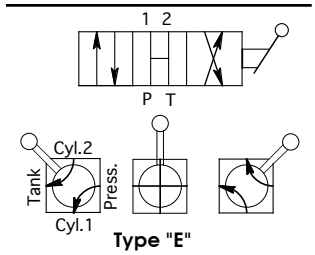
Type "B"



Type "C"



Type "D"



Type "E"

The "Flow Pattern" diagrams are viewed on arrow "A"

TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Material Option (non-std)	**C** = Mild Steel (Electro-Nickel Plated)	——
Valve Type:	**4R25**	**4R25**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper) **M** = Manifold *	**N**
Flow Pattern:	**A, B, C, D, E** (see flow diagrams)	**A**
Valve Options:	**PM** = Panel Mounted	——
Max.Working Pressure: Liquid	**10,000 psi** (1,450 psi MAX on Tank Port)	**10K**
Port Size:	1/4"	
Seal Material:	Viton (other materials available by request)	
CV Value:	0.67	
Dry Weight: (kg)	1.75	
Working Temperature Range:	-10°C to +100°C	

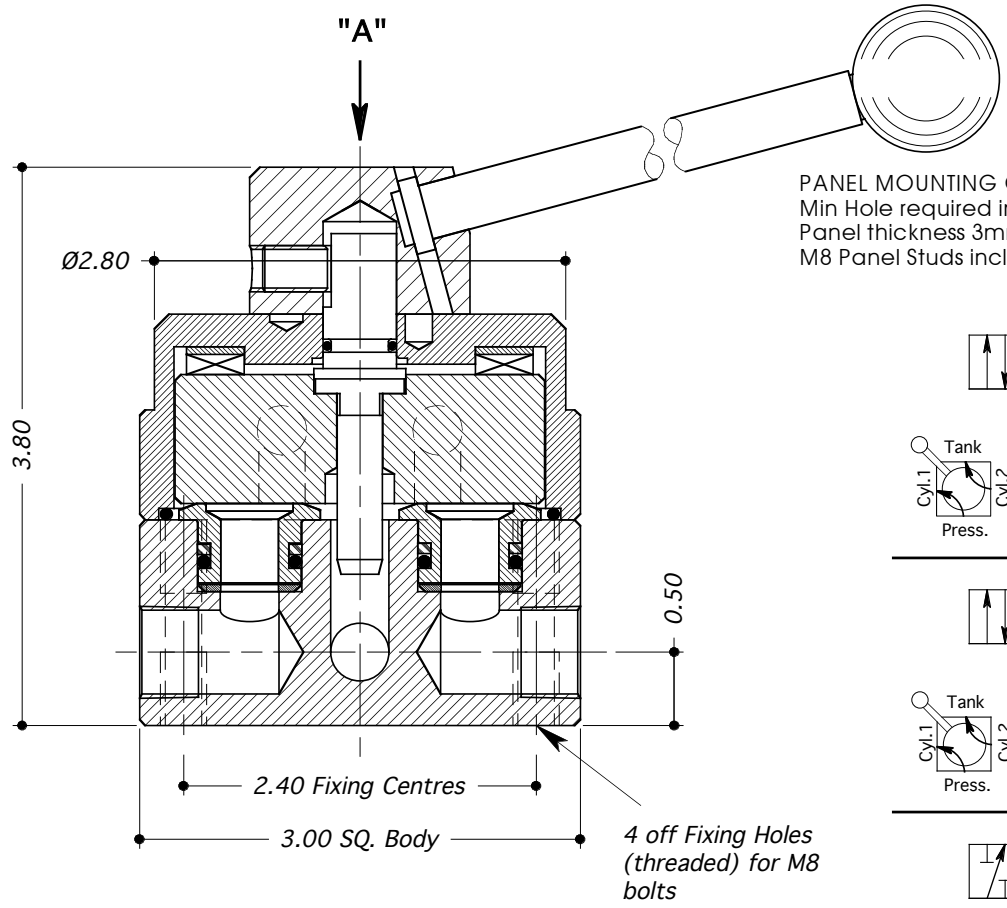
Technical Specification Notes:-
* For the "**MANIFOLD**" version, "Flow Pattern" diagrams for the 4R37 valve model apply. See **Page 4 : 2** for details.

ROTARY CONTROL VALVE TYPE: 4R37

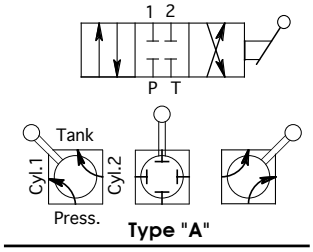
Valves Ltd

- **4 PORTED LEVER OPERATED STAINLESS STEEL (316 / 1.4404) VALVE. (SOME CARBON STEEL INTERNAL PARTS)**
- **SUITABLE FOR LIQUID USE.**
- **SPECIFY "FLOW PATTERN TYPE" WHEN ORDERING.**
- **ALL "FLOW DIAGRAMS" ARE VIEWED ON ARROW "A".**
- **ALL DIMENSIONS IN INCHES.**

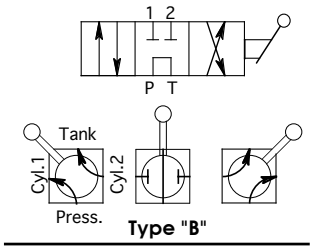
Handle Length 5.0" Approx.
Handle travel:- 90°



PANEL MOUNTING OPTION:- Ø2.85"
Min Hole required in panel.
Panel thickness 3mm - 6mm Thick.
M8 Panel Studs included.



Type "A"



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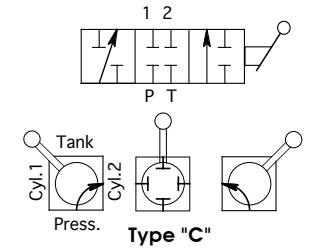
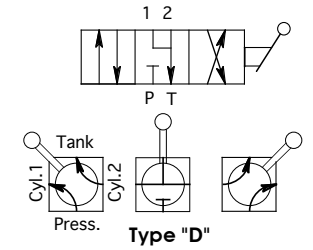
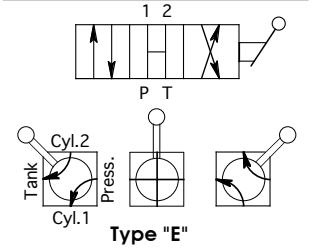


Type "C"



Type "D"



Type "E"

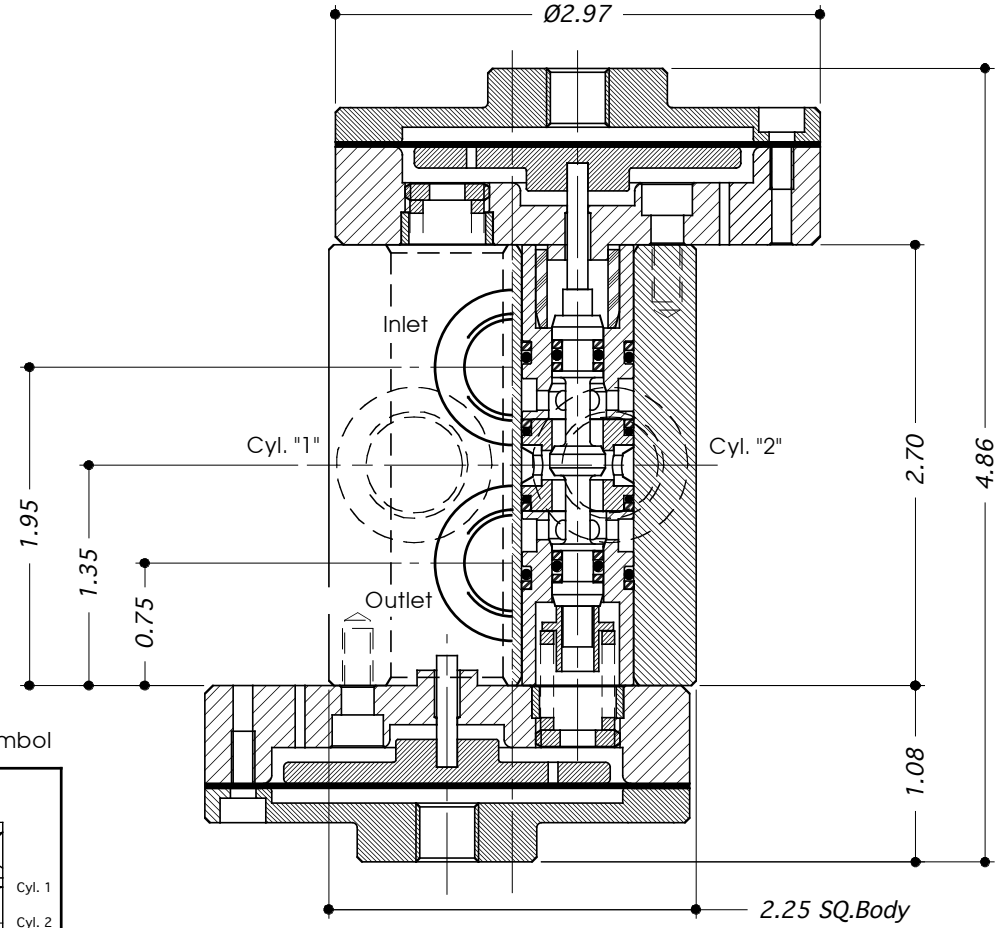
TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**4R37**	**4R37**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper) **M** = Manifold	**N**
Flow Pattern:	**A, B, C, D, E** (see flow diagrams)	**A**
Valve Options:	**PM** = Panel Mounted	—
Max.Working Pressure: Liquid	**6,000 psi** (1,450 psi MAX on Tank Port)	**6K**
Port Size:	3/8"	
Seal Material:	Viton (other materials available by request)	
CV Value:	1.37	
Dry Weight: (kg)	2.0	
Working Temperature Range:	-10°C to +100°C	

The "Flow Pattern" diagrams are viewed on arrow "A"

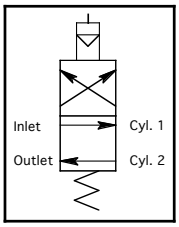
DIRECTIONAL CONTROL VALVE TYPE: 6B37-A3

Valves Ltd

- **2 POSN / 4 PORTED MILD STEEL - ENP (EN1A / 220M07) VALVE WITH ACTUATOR TYPE "A3" FITTED.**
- **BODY MATERIAL OPTION: STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **FITTED WITH "HARD" SEATS.**
- **SEE SECTION 12 FOR DETAILS OF TYPE "A3" ACTUATOR.**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol



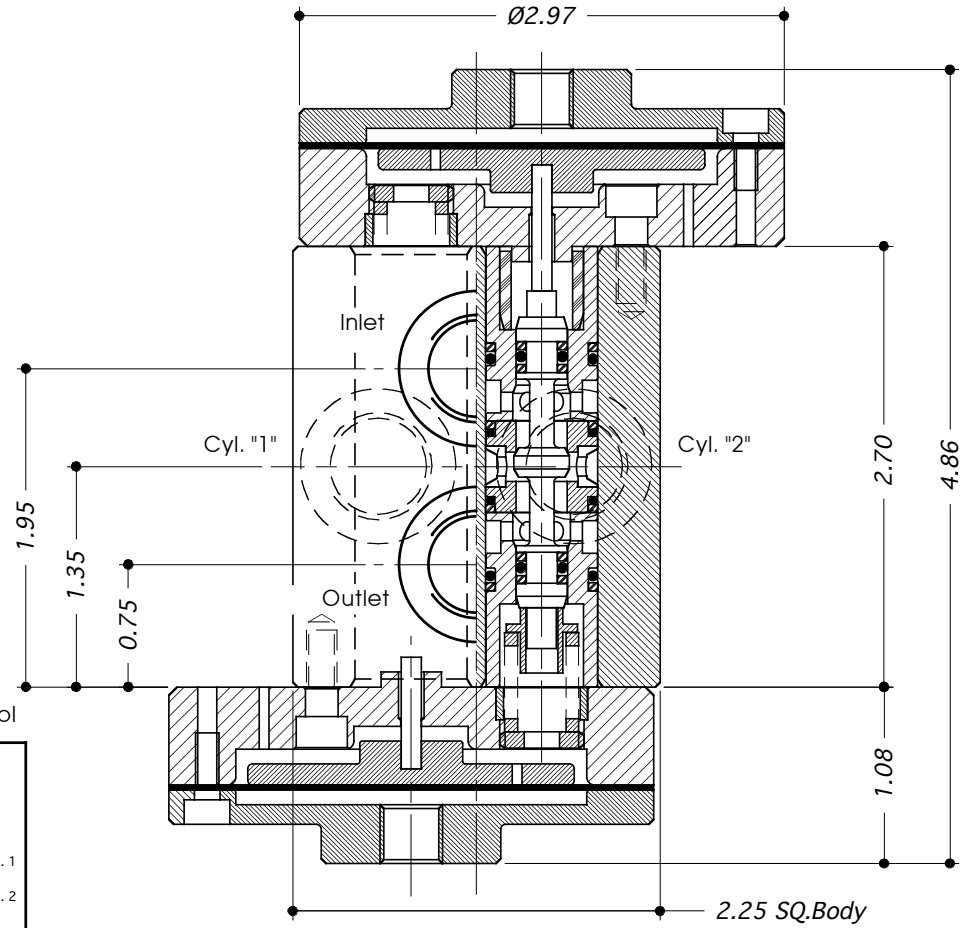
TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Material Option (non-std)	**S** = Stainless Steel (316/1.4404)	——
Valve Type:	**6B37-A3**	**6B37-A3**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)	**N**
Max.Working Press: Liquid	**10,000 psi**	**10K**
Port Size:	3/8"	
Actuator:	Type: A3 (60 to 150 psi)	
Valve Seat Mat'l: Liquid	Stainless Steel - 431/1.4057	
Seal Material:	Viton (other materials available by request)	
CV Value:	0.44	
Dry Weight: (kg)	5.5	
Working Temperature Range:	-10°C to +100°C	

NOTE: Both Actuators are pressurised simultaneously for valve operation.

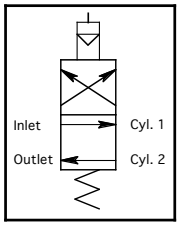
DIRECTIONAL CONTROL VALVE TYPE: 6B37-A3-G

Valves Ltd

- **2 POSN / 4 PORTED MILD STEEL - ENP (EN1A / 1.4404) VALVE WITH ACTUATOR TYPE "A3" FITTED.**
- **BODY MATERIAL OPTION: STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **FITTED WITH "SOFT" SEATS.**
- **SEE SECTION 12 FOR DETAILS OF TYPE "A3" ACTUATOR.**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol



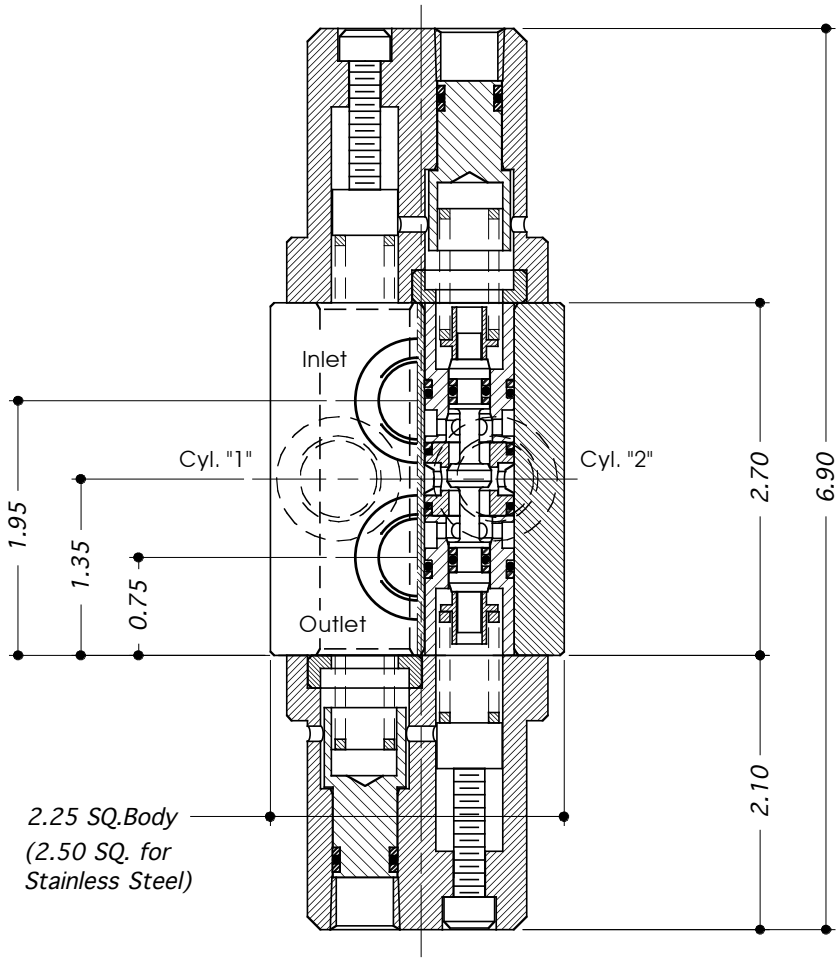
TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Material Option (non-std)	**S** = Stainless Steel (316/1.4404)	—
Valve Type:	**6B37-A3-G**	**6B37-A3-G**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)	**N**
Max.Working Press: Liquid/Gas	**6,000 psi / 3,500 psi**	**6K**
Port Size:	3/8"	
Actuator:	Type: A3 (60 to 150 psi)	
Soft Seated Valve:	G	
Valve Seat Mat'l: Liquid/Gas	Torlon	
Seal Material:	Viton (other materials available by request)	
CV Value:	0.44	
Dry Weight: (kg)	5.5	
Working Temperature Range:	-10°C to +80°C	

NOTE: Both Actuators are pressurised simultaneously for valve operation.

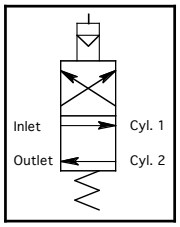
DIRECTIONAL CONTROL VALVE TYPE: 6B37-H

Valves Ltd

- **2 POSN / 4 PORTED MILD STEEL - ENP (EN1A / 220M07) VALVE WITH ACTUATOR TYPE "H" FITTED.**
- **BODY MATERIAL OPTION: STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **FITTED WITH "HARD" SEATS.**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol



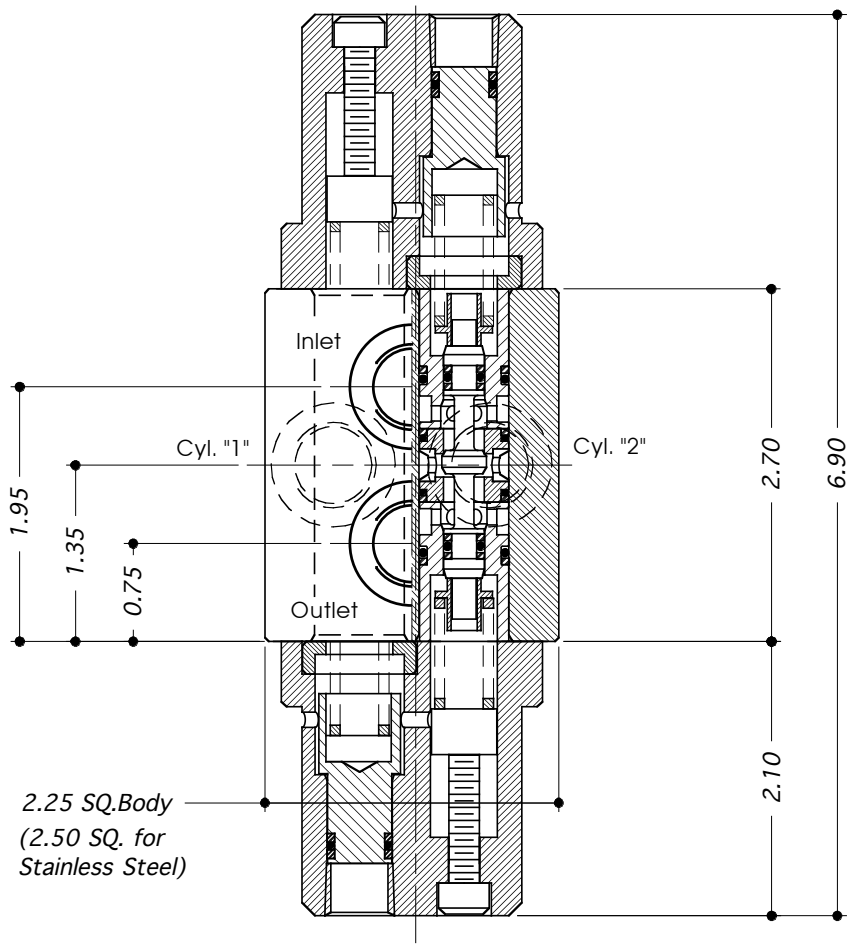
TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Material Option (non-std)	**S** = Stainless Steel (316/1.4404)	—
Valve Type:	**6B37-H**	**6B37-H**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)	**N**
Max.Working Press: Liquid	**10,000 psi**	**10K**
Port Size:	3/8"	
Actuator:	Type: H (1,000 to 9,000 psi)	
Valve Seat Mat'l: Liquid	Stainless Steel - 431/1.4057	
Seal Material:	Viton (other materials available by request)	
CV Value:	0.44	
Dry Weight: (kg)	4.0	
Working Temperature Range:	-10°C to +120°C	

NOTE: Both Actuators are pressurised simultaneously for valve operation.

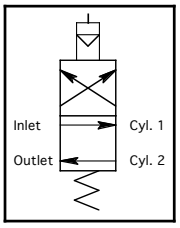
DIRECTIONAL CONTROL VALVE TYPE: 6B37-H-G

Valves Ltd

- **2 POSN / 4 PORTED MILD STEEL - ENP (EN1A / 220M07) VALVE WITH ACTUATOR TYPE "H" FITTED.**
- **BODY MATERIAL OPTION: STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **FITTED WITH "SOFT" SEATS.**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol



TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Material Option (non-std)	**S** = Stainless Steel (316/1.4404)	——
Valve Type:	**6B37-H-G**	**6B37-H-G**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)	**N**
Max.Working Press: Liquid/Gas	**6,000 psi / 3,500 psi**	**6K**
Port Size:	3/8"	
Actuator:	Type: H (1,000 to 3,100 psi)	
Soft Seated Valve:	G	
Valve Seat Mat'l: Liquid/Gas	Torlon	
Seal Material:	Viton (other materials available by request)	
CV Value:	0.44	
Dry Weight: (kg)	4.0	
Working Temperature Range:	-10°C to +80°C	

NOTE: Both Actuators are pressurised simultaneously for valve operation.

Valves Ltd

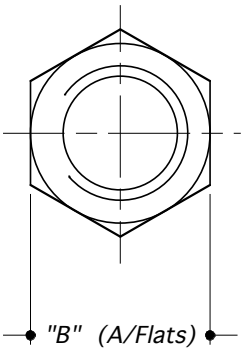
SECTION 5: CHECK VALVES

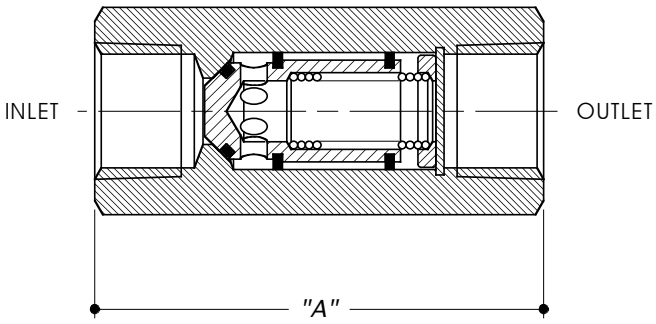
CHECK VALVE

TYPES: C25, C37, C50, C75, C100, C125, C150

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **ALL DIMENSIONS IN INCHES.**





Circuit Symbol

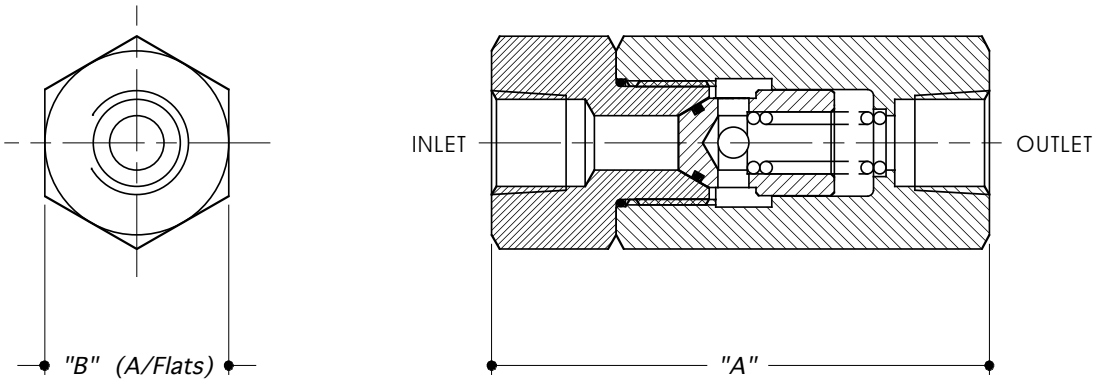
TECHNICAL SPECIFICATION								ORDERING EXAMPLE
Valve Type:	**C25**	**C37**	**C50**	**C75**	**C100**	**C125**	**C150**	**C25**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)							**N**
Max.Working Pressure - Liquid	**9K psi**					**7K psi**	**6K psi**	**9K**
Max.Working Pressure - Gas	**3,5K psi**							
Port Size:	1/4"	3/8"	1/2"	3/4"	1.0"	1.1/4"	1.1/2"	
Valve Seat Material:	Stainless Steel - 316/1.4404							
Seal Material:	Viton (other materials available by request)							
CV Value:	0.7	1.3	2.2	3.5	5.7	18.9	25.0	
Dry Weight (kg)	0.10	0.14	0.25	0.55	0.80	1.80	2.10	
Working Temperature Range:	-10°C to +120°C							
Cracking Pressure:	2.0 - 5.0 psi (0.75 psi without spring fitted)							
Dimension (ins) - Length "A"	2.14"	2.43"	2.89"	3.15"	3.60"	5.00"	5.10"	
Dimension (ins) - "B" (A/Flats)	0.75"	0.875"	1.10"	1.48"	1.75"	Ø2.50"	Ø2.50"	
Valve Orifice Size (sq.ins.)	0.034	0.078	0.13	0.25	0.44	N/A	N/A	

CHECK VALVE (12K SERIES)

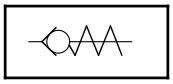
TYPES: NR25, NR37, NR50, NR75, NR100, NR200

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **MALE THREADED PORTING / CONNECTIONS ARE AVAILABLE UPON REQUEST.**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol



TECHNICAL SPECIFICATION							ORDERING EXAMPLE
Valve Type:	**NR25**	**NR37**	**NR50**	**NR75**	**NR100**	**NR200***	**NR25**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)						**N**
Max.Working Pressure - Liquid	**12K psi**				**9K psi**	**6K psi**	**12K**
Max.Working Pressure - Gas	**6K psi**				**4K psi**	**3K psi**	
Port Size:	1/4"	3/8"	1/2"	3/4"	1.0"	2.0"	
Valve Seat Material:	Stainless Steel - 316/1.4404						
Seal Material:	Viton (other materials available by request)						
CV Value:	1.00	1.30	3.1	4.6	7.7	25.0	
Dry Weight (kg)	0.35	0.4	1.0	1.2	1.45	4.10	
Working Temperature Range:	-10°C to +160°C						
Cracking Pressure: **	2.0 - 5.0 psi						
Dimension (ins) - Length "A"	3.20"	3.20"	4.00"	4.00"	5.50"	7.80"	
Dimension (ins) - "B" (A/Flats)	1.01"	1.01"	1.48"	1.48"	1.86"	Ø3.0"	

Technical Specification Notes:-
***** NR200 Valves are also available with 1.1/4" (125) & 1.1/2" (150) Port Sizes. **Ordering Example: NR200/125.**
***** NR200 Valves can also be supplied with "Pipe Fixing Flanges" to ANSI 1500LB or ANSI 2500LB.
The Flanges are welded to each end of the Valve. Technical Data Sheets are available by request.
Ordering Example: NR200F - ANSI 1500LB (F = Pipe Fixing Flange).

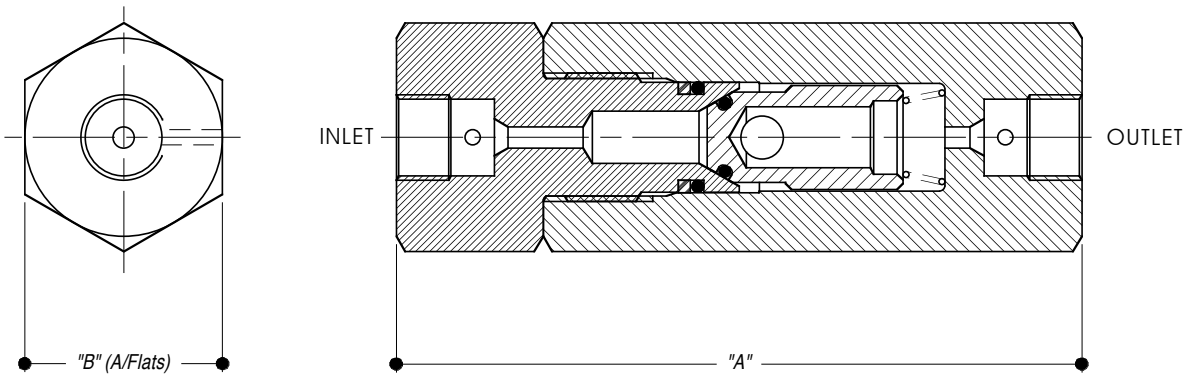
****** All Check Valves can be supplied with various High Cracking Pressures up to 50 psi. (Details by request).
Ordering Example: NR25N-HC-12K

CHECK VALVE (20K SERIES)

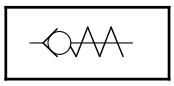
TYPES: NR25, NR50

Valves Ltd

- STAINLESS STEEL (316 / 1.4404)
- SUITABLE FOR LIQUID OR GAS USE.
- FITTED WITH AUTOCLAVE/BUTECH PORTED CONNECTIONS.
- NPT PORTS AVAILABLE UPON REQUEST.
- ALL DIMENSIONS IN INCHES.



Circuit Symbol

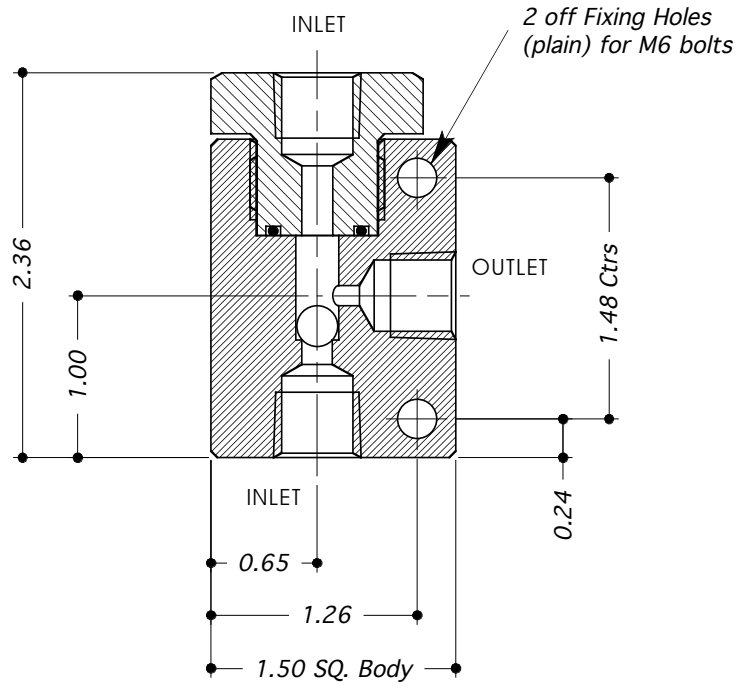


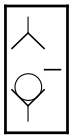
TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:	**NR25**	**NR50**	**NR25**
Porting / Connection Options:	**44AE** (for 1/4" O.D. Tube)	**56AE** (for 3/8" O.D. Tube)	**44AE**
Max.Working Pressure - Liquid	**20,000 psi**		**20K**
Max.Working Pressure - Gas	**10,000 psi**		
Pipe Size:	1/4" O.D. Tube	3/8" O.D. Tube	
Valve Seat Material:	Stainless Steel - 316/1.4404		
Seal Material:	Viton (other materials available by request)		
CV Value:	0.20	0.70	
Dry Weight: (kg)	0.35	1.00	
Working Temperature Range:	-10°C to +120°C		
Cracking Pressure:	2.0 - 5.0 psi		
Dimension (ins) - Length "A"	3.50"	4.50"	
Dimension (ins) - "B" (A/Flats)	1.01"	1.48"	

SHUTTLE VALVE TYPE: SV25

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **ALL DIMENSIONS IN INCHES.**

Valves Ltd





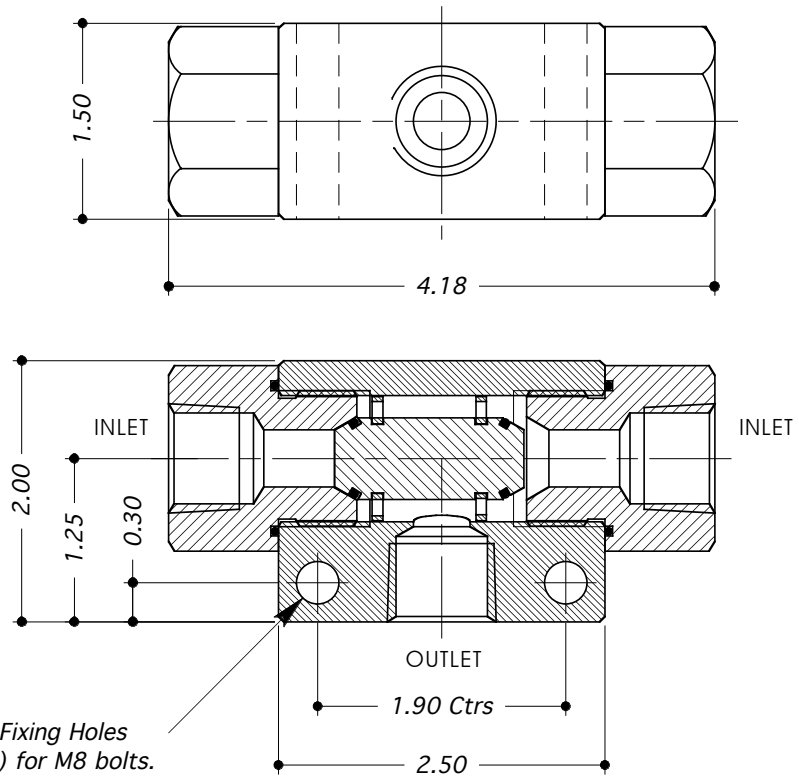
Circuit Symbol

TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**SV25**	**SV25**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)	**N**
Max.Working Pressure - Liquid	**10,000 psi**	**10K**
Port Size:	1/4"	
Valve Seat Material:	Stainless Steel - 316/1.4404	
Seal Material:	Viton (other materials available by request)	
CV Value:	0.33	
Dry Weight: (kg)	0.75	
Working Temperature Range:	-10°C to +160°C	

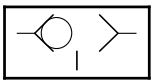
SHUTTLE VALVE TYPES: SV50/25, SV50/37, SV50/50

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol



TECHNICAL SPECIFICATION				ORDERING EXAMPLE
Valve Type:	**SV50/25**	**SV50/37**	**SV50/50**	**SV50/25**
Porting / Connection Options:	**P** = BSP (Parallel)	**N** = NPT (Taper)	**M** = Manifold	**N**
Max.Working Pressure - Liquid	**8,000 psi**			**8K**
Max.Working Pressure - Gas	**4,000 psi**			
Port Size:	1/4"	3/8"	1/2"	
Valve Seat Material:	Stainless Steel - 316/1.4404			
Seal Material:	Viton (other materials available by request)			
CV Value:	1.26	2.52	3.11	
Dry Weight: (kg)	1.2	1.2	1.2	
Working Temperature Range:	-10°C to +120°C			

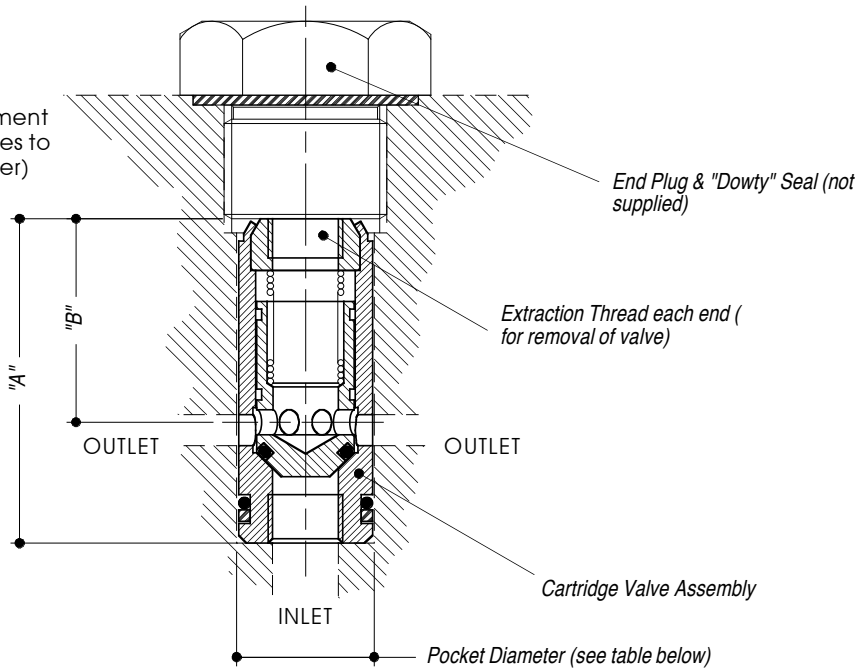
CARTRIDGE CHECK VALVE

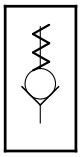
TYPES: CC25, CC37, CC50, CC75, CC100

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **POCKET DRILLING DETAILS AVAILABLE UPON REQUEST**
- **ALL DIMENSIONS IN INCHES**
- **THIS VALVE IS NON-SERVICEABLE**

Typical assembly arrangement (diameter of flow path holes to be determined by customer)





Circuit Symbol

TECHNICAL SPECIFICATION						ORDERING EXAMPLE
Valve Type:	**CC25**	**CC37**	**CC50**	**CC75**	**CC100**	**CC25**
Max.Working Pressure - Liquid	**10K psi ***				**6K psi**	**10K**
Max.Working Pressure - Gas	**5K psi ***				**3.5K psi**	
Valve Seat Material:	Stainless Steel - 316/1.4404					
Seal Material:	Viton (other materials available by request)					
CV Value:	0.7	1.3	2.2	3.5	5.7	
Dry Weight (kg)	0.03	0.05	0.07	1.0	1.5	
Working Temperature Range:	-10°C to +120°C					
Cracking Pressure:	3 - 7 psi					
Dimension (ins) - Length "A"	1.30"	1.67"	2.00"	2.16"	2.50"	
Dimension (ins) - Length "B"	0.835"	1.07"	1.40"	1.40"	1.70"	
Pocket Diameter (ins):	Ø0.565/0.562	Ø0.690/0.687	Ø0.878/0.875	Ø1.190/1.187	Ø1.627/1.625	
Extraction Thread (each end):	M6	1/8"BSP	M12	3/8"BSP	3/4"UNF	
End Plug Pocket Thread:	3/8"BSP	1/2"BSP	3/4"BSP	1"BSP	3/4"UNF	

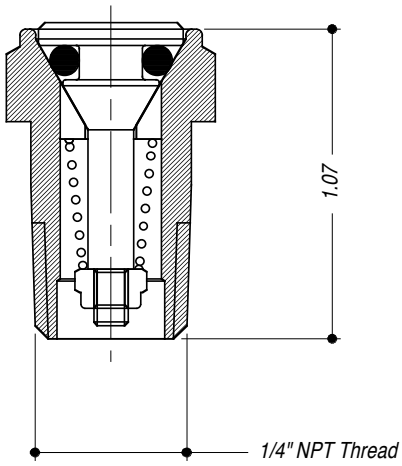
Technical Specification Notes:-

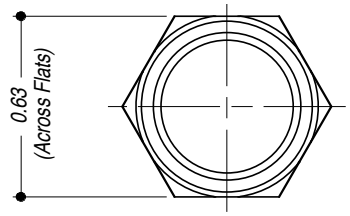
* Max W.P. dependant upon housing design. Contact factory for details.

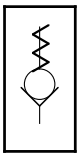
VENTING CHECK VALVE TYPE: CV25

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **ALL DIMENSIONS IN INCHES.**

Valves Ltd







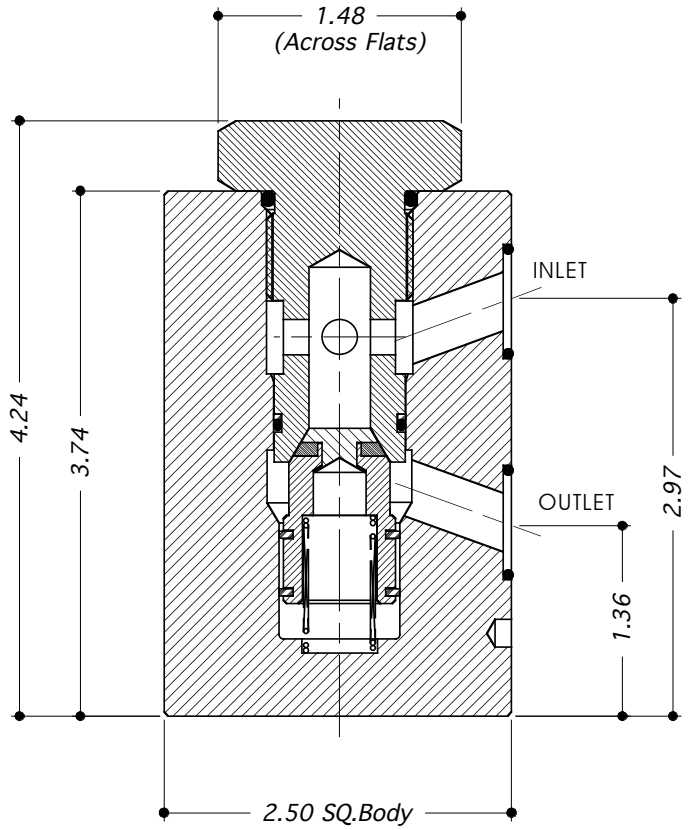
Circuit Symbol

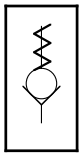
TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**CV25**	**CV25**
Porting / Connection Options:	**N** = NPT (Taper)	**N**
Cracking Pressure:	**0.5B** (8 psi) **0.8B** (12 psi)	**0.5B**
Port Size:	1/4"	
Valve Seat Material:	Stainless Steel - 316/1.4404	
Seal Material:	Viton (other materials available by request)	
Dry Weight: (kg)	0.1	
Working Temperature Range:	-10°C to +120°C	

CHECK VALVE TYPE: NR50M

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **ALL DIMENSIONS IN INCHES.**

Valves Ltd





Circuit Symbol

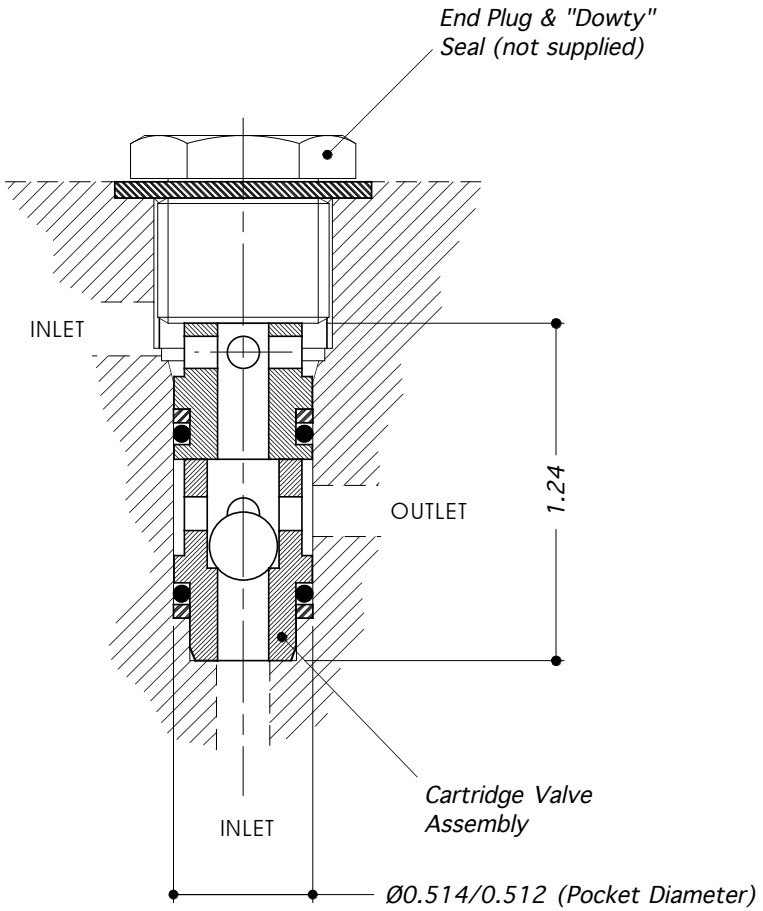
TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**NR50**	**NR50**
Porting / Connection Options:	**M** = Manifold	**M**
Max.Working Pressure - Liquid	**6,000 psi**	**6K**
Max.Working Pressure - Gas	**4,000 psi**	
Valve Seat Material:	Stainless Steel - 316/1.4404	
Seal Material:	Viton (other materials available by request)	
CV Value:	2.5	
Dry Weight: (kg)	3.1	
Working Temperature Range:	-10°C to +120°C	
Cracking Pressure:	2.0 - 5.0 psi	

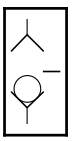
Technical Specification Notes:-
Manifold mounting details available on request.

CARTRIDGE SHUTTLE VALVE TYPE: SV25C

Valves Ltd

- STAINLESS STEEL (316 / 1.4404)
- SUITABLE FOR LIQUID OR GAS USE.
- POCKET DRILLING DETAILS AVAILABLE UPON REQUEST
- ALL DIMENSIONS IN INCHES.





Circuit Symbol

TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**SV25C**	**SV25C**
Max.Working Pressure - Liquid	**4,000 psi**	**4K**
Valve Seat Material:	Stainless Steel - 316/1.4404	
Seal Material:	Viton (other materials available by request)	
CV Value:	0.33	
Dry Weight: (kg)	0.03	
Working Temperature Range:	-10°C to +120°C	

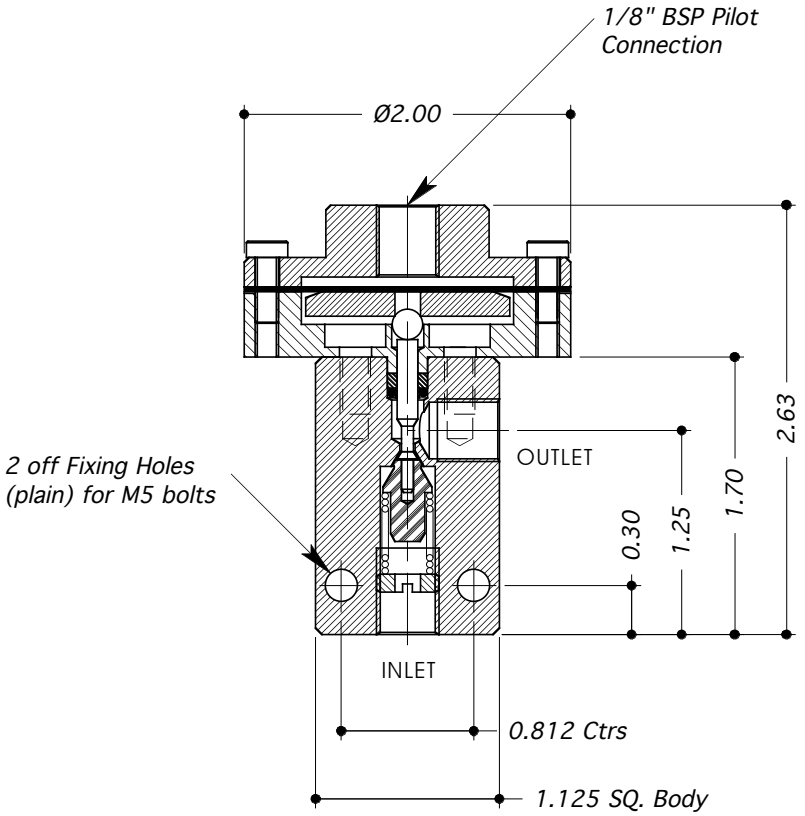
Valves Ltd

SECTION 6: PILOT OPERATED CHECK VALVES

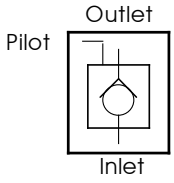
MIDGET PILOT OPERATED CHECK VALVE TYPE: SVA12

Valves Ltd

- **VALVE BODY - STAINLESS STEEL (316 / 1.4404)**
- **ACTUATOR BODY - STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol

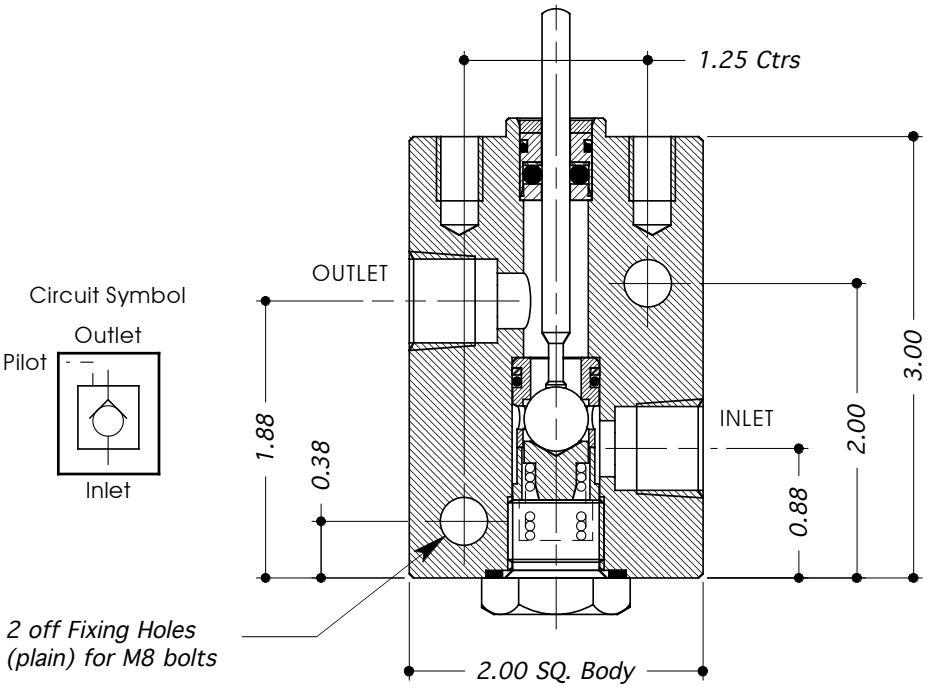


TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**SVA12**	**SVA12**
Porting / Connection Options:	**P** = BSP (Parallel)	**P**
Max.Working Press: Liquid/Gas	**4,000 psi**	**4K**
Pilot Ratio:	40 : 1	
Diaphragm Material:	Neoprene	
Maximum Pilot Pressure:	100 psi	
Port Size: (Valve Body)	1/8"	
Valve Seat Mat'l: Liquid/Gas	Stainless Steel - 431/1.4057	
Seal Material:	Viton (other materials available by request)	
CV Value:	0.15	
Dry Weight: (kg)	1.2	
Working Temperature Range:	-10°C to +120°C	

PILOT OPERATED CHECK VALVE TYPE: V1-37

Valves Ltd

- **2 POSN / 2 PORTED STAINLESS STEEL (316 / 1.4404) VALVE WITH ACTUATOR OPTIONS.**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **FITTED WITH "HARD" OR "SOFT" SEATS.**
- **ACTUATION TYPE - SEE SECTION 12 FOR DETAILS.**
- **ALL DIMENSIONS IN INCHES.**

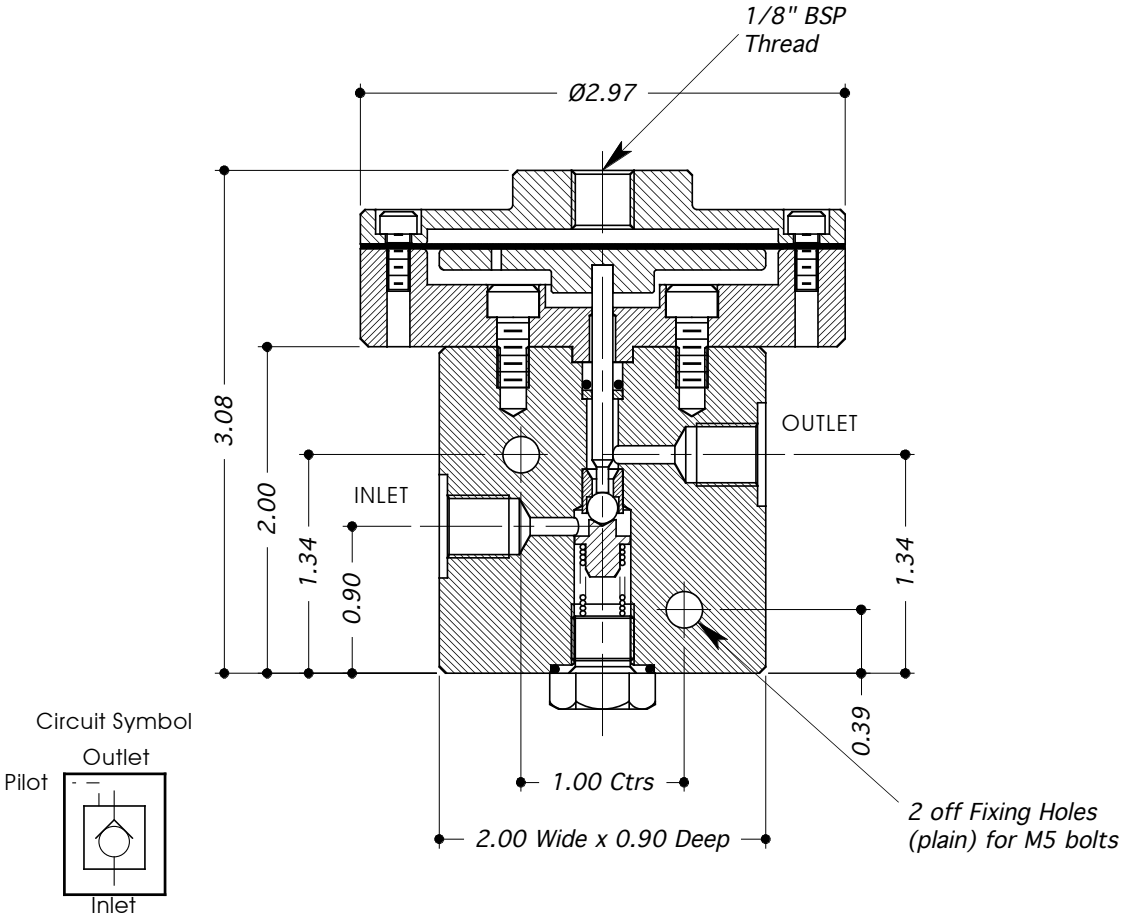


TECHNICAL SPECIFICATION						ORDERING EXAMPLE
Valve Type:		**V1-37**				**V1-37**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper) **M** = Manifold				**N**
Actuator Options	Low Press. Pilot:	Types: **H3** (500 psi Max)				**H3**
	High Press. Pilot:	Types: **H0** (10K psi Max), **H1** (10K psi Max), **H3** (500 psi Max)				
	Mechanical:	Types: **L, DL**				
Soft Seated Valve: Gas		Torlon - **G**				**G**
Hard Seated Valve: Liquid			Stainless Steel - 431/1.4057 (no ordering code required)			
Max.Working Press: Gas		**5,000 psi**				**5K**
Max.Working Press: Liquid			**5,000 psi**	**10,000 psi**	**20,000 psi**	
Pilot Ratio:	Act.Type: H0	10.6 : 1	4.7 : 1	10.6 : 1	18.8 : 1	
	Act.Type: H1	3.1 : 1	1.4 : 1	3.1 : 1	5.4 : 1	
	Act.Type: H3	110 : 1	49 : 1	110 : 1	196 : 1	
Port Size:		3/8"				
Seal Material:		Viton (other materials available by request)				
CV Value:		0.75	0.99	0.75	0.28	
Dry Weight: (kg)		1.75				
Working Temperature Range:		-10°C to +120°C				

STOP VALVE TYPE: B1-12

Valves Ltd

- **2 POSN / 2 PORTED STAINLESS STEEL (316 / 1.4404) VALVE WITH AIR ACTUATOR (TYPE "A4")**
- **SUITABLE FOR LIQUID USE.**
- **FITTED WITH "HARD" SEATS.**
- **ALL DIMENSIONS IN INCHES.**



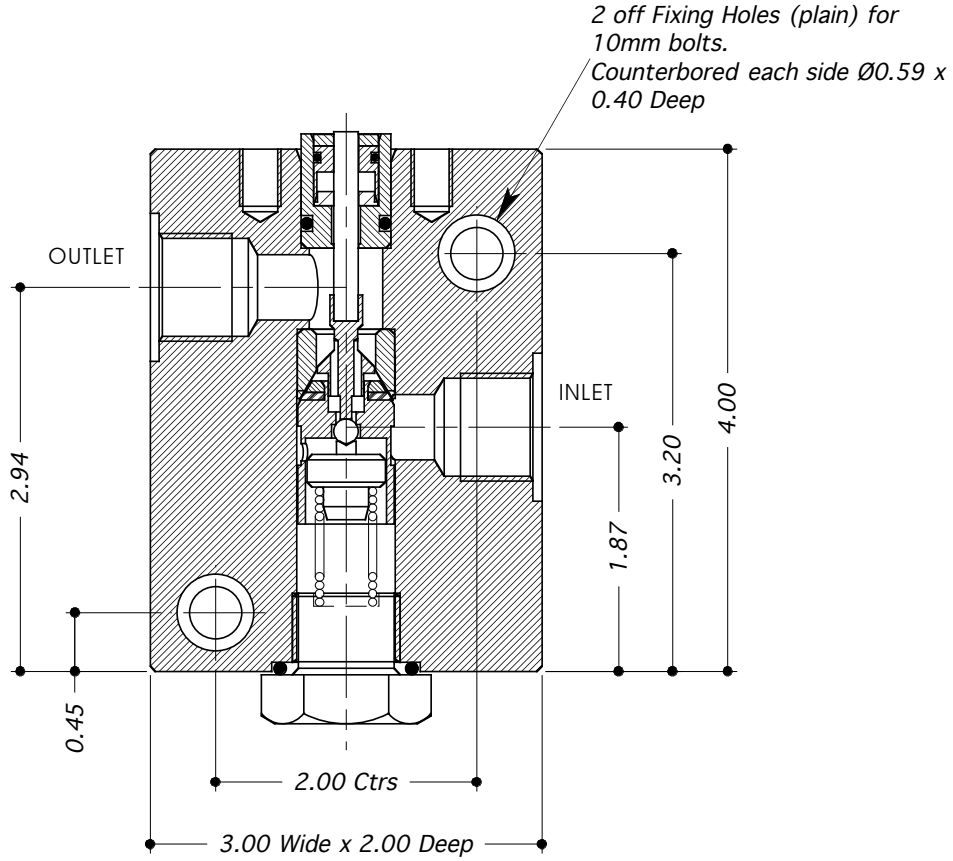
TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**B1-12 ***	**B1-12**
Porting / Connection Options:	**P** = BSP (Parallel)	**P**
Max.Working Press: Liquid	**20,000 psi**	**20K**
Actuator Specification:	A4 (150 psi Max)	
Pilot Ratio:	250:1	
Port Size:	1/8"	
Valve Seat Mat'l: Liquid	Stainless Steel - 431/1.4057	
Seal Material:	Viton (other materials available by request)	
CV Value:	0.15	
Dry Weight: (kg)	2.5	
Working Temperature Range:	-10°C to +120°C	

Technical Specification Notes:-
* This valve can be supplied fitted with a Manual Lever (non-standard).
Ordering Example: B1-12L. (details by request)

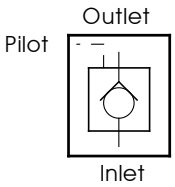
STOP VALVE TYPE: M1-50

Valves Ltd

- **2 POSN / 2 PORTED MILD STEEL - ENP (EN1A / 220M07) VALVE WITH ACTUATOR OPTIONS.**
- **SUITABLE FOR LIQUID USE.**
- **ACTUATION TYPE - SEE SECTION 12 FOR DETAILS.**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol



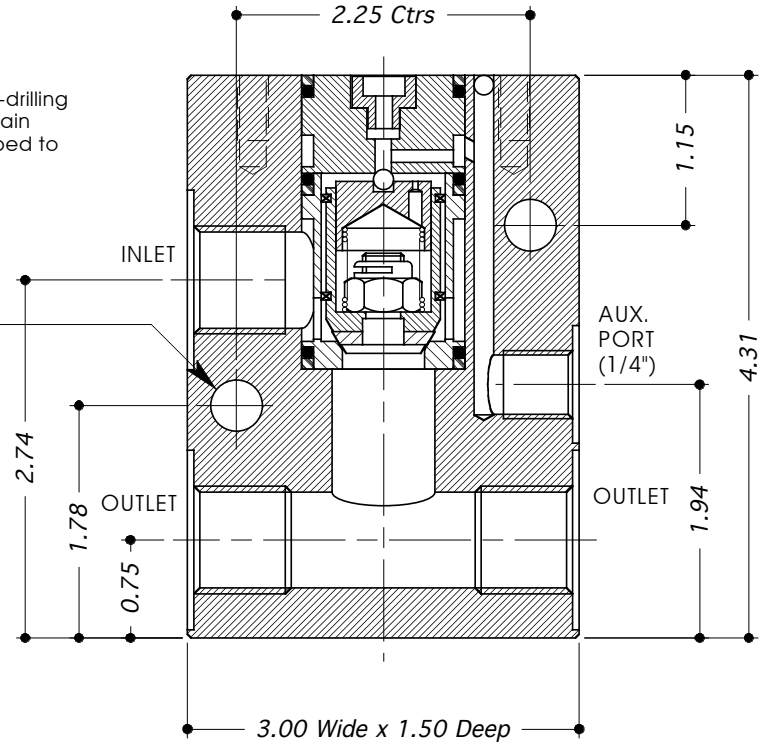
TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:		**M1-50**	**M1-50**
Porting / Connection Options:		**P** = BSP (Parallel)	**P**
Actuator Options	Low Press. Pilot:	Types: **H3** (125 psi MAX)	**H3**
	High Press. Pilot:	Types: **H0** (10,000 psi MAX), **H1** (10,000 psi MAX)	
	Mechanical:	Types: **L, DL**	
Max.Working Press: Liquid		**20,000 psi**	**20K**
Pilot Ratio:	Act.Type: H3	420 : 1	
	Act.Type: H0	42 : 1	
	Act.Type: H1	12.3 : 1	
Port Size:		1/2"	
Valve Seat Mat'l: Liquid		Stainless Steel - 431/1.4057	
Seal Material:		Viton (other materials available by request)	
CV Value:		1.72	
Dry Weight: (kg)		2.5	
Working Temperature Range:		-10°C to +80°C	

UNLOADER VALVE TYPE: UL75/50

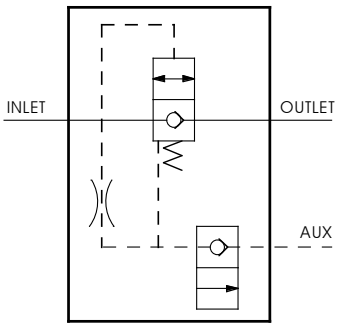
Valves Ltd

- **2 POSN / 3 PORTED MILD STEEL - ENP (EN1A / 220M07) VALVE WITH ACTUATOR OPTIONS.**
- **BODY MATERIAL OPTION: STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **ALL DIMENSIONS IN INCHES.**

Note: The "Aux. Port" is provided for overide options. An additional cross-drilling can be machined connecting the main outlet to the "Aux. Port" which is capped to provide a "stand-alone" valve.



Typical Circuit Symbol/Diagram



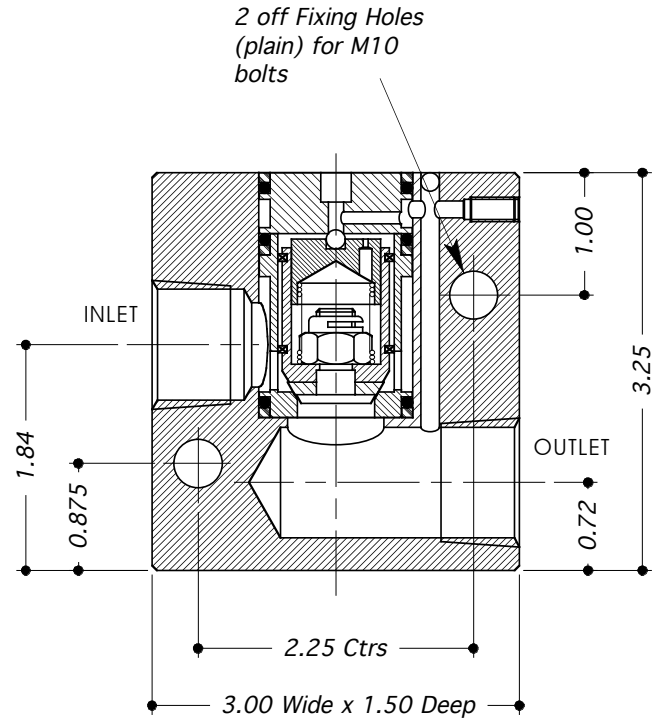
TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Material Option (non-std)		**S** = Stainless Steel (AISI 316/1.4404)	**S**
Valve Type:		**UL75/50**	**UL75/50**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper)	**P**
Actuator Options	Low Press. Pilot:	Type: **A4** = (150 psi Max) Pilot Ratio: 270 : 1	**L**
	Mechanical: *	Types: **L**= Lever, **PB**= Push Button, **R** = Remote Operation	
Max.Working Press: Liquid		**3,000 psi**	**3K**
Port Size:		1/2"	
Valve Seat Mat'l: Liquid		Stainless Steel - 316/1.4404	
Seal Material:		Viton (other materials available by request)	
CV Value:		1.98	
Dry Weight: (kg)		2.5	
Working Temperature Range:		-10°C to +80°C	

Technical Specification Notes:-
* Mechanical Actuators are "specials" only associated with the **UL75/50** valve.
Technical Data Sheets for individual valve/actuator assemblies are available upon request.

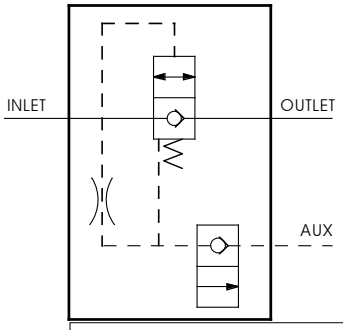
UNLOADER VALVE TYPE: UL75

Valves Ltd

- **2 POSN / 2 PORTED MILD STEEL - ENP (EN1A / 220M07) VALVE WITH ACTUATOR OPTIONS.**
- **SUITABLE FOR LIQUID USE.**
- **ALL DIMENSIONS IN INCHES.**



Typical Circuit Symbol/Diagram



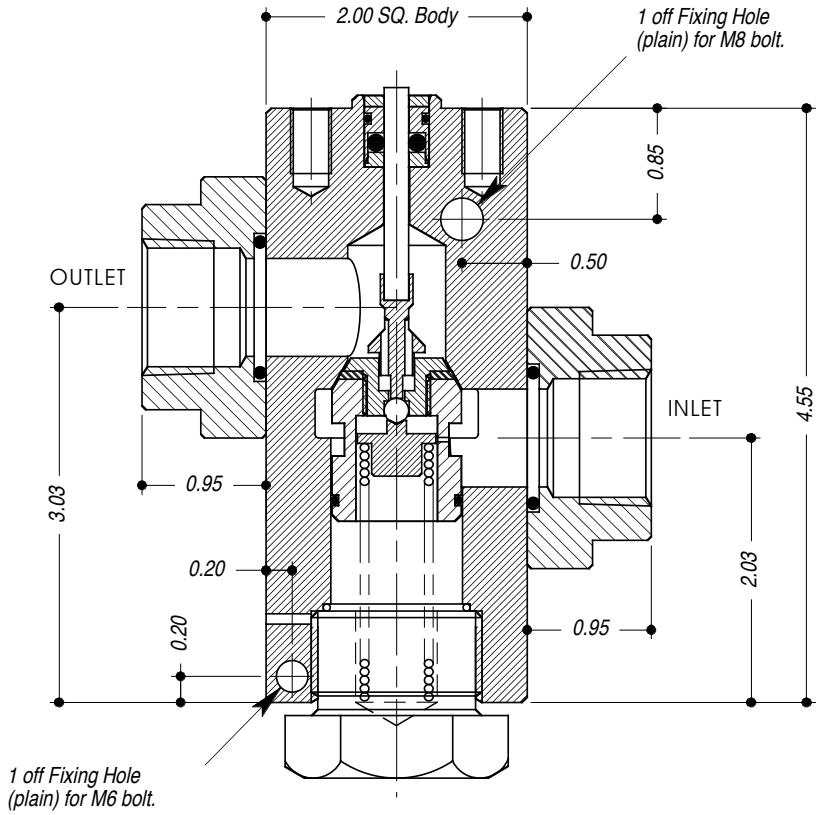
TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Material Option (non-std)		**A** = Aluminium Alloy (HE30) **S** = Stainless Steel (AISI 316/1.4404)	———
Valve Type:		**UL75**	**UL75**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper)	**N**
Actuator Options	Low Press. Pilot:	Type: **A4** (150 psi Max) Pilot Ratio: 270 : 1	**L**
	Mechanical: *	Types: **L**= Lever, **PB**= Push Button, **R** = Remote Operation	
Max.Working Press: Liquid		**4,500 psi** (HE30 valve) **5,500 psi** (AISI 316 valve) **3,000 psi** (EN1A valve)	**4.5K**
Port Size:		3/4"	
Valve Seat Mat'l: Liquid		Stainless Steel - 316/1.4404	
Seal Material:		Viton (other materials available by request)	
CV Value:		1.98	
Dry Weight: (kg)		1.0	
Working Temperature Range:		-10°C to +80°C	

Technical Specification Notes:-
* Mechanical Actuators are "specials" only associated with the **UL75** valve.
Technical Data Sheets for individual valve/actuator assemblies are available upon request.

PILOT OPERATED CHECK VALVE TYPES: MS75, MS75/50

Valves Ltd

- **2 POSN / 2 PORTED STAINLESS STEEL (316 / 1.4404) VALVE WITH ACTUATOR OPTIONS.**
- **SUITABLE FOR LIQUID USE.**
- **ACTUATION TYPE - SEE SECTION 12 FOR DETAILS.**
- **ALL DIMENSIONS IN INCHES.**



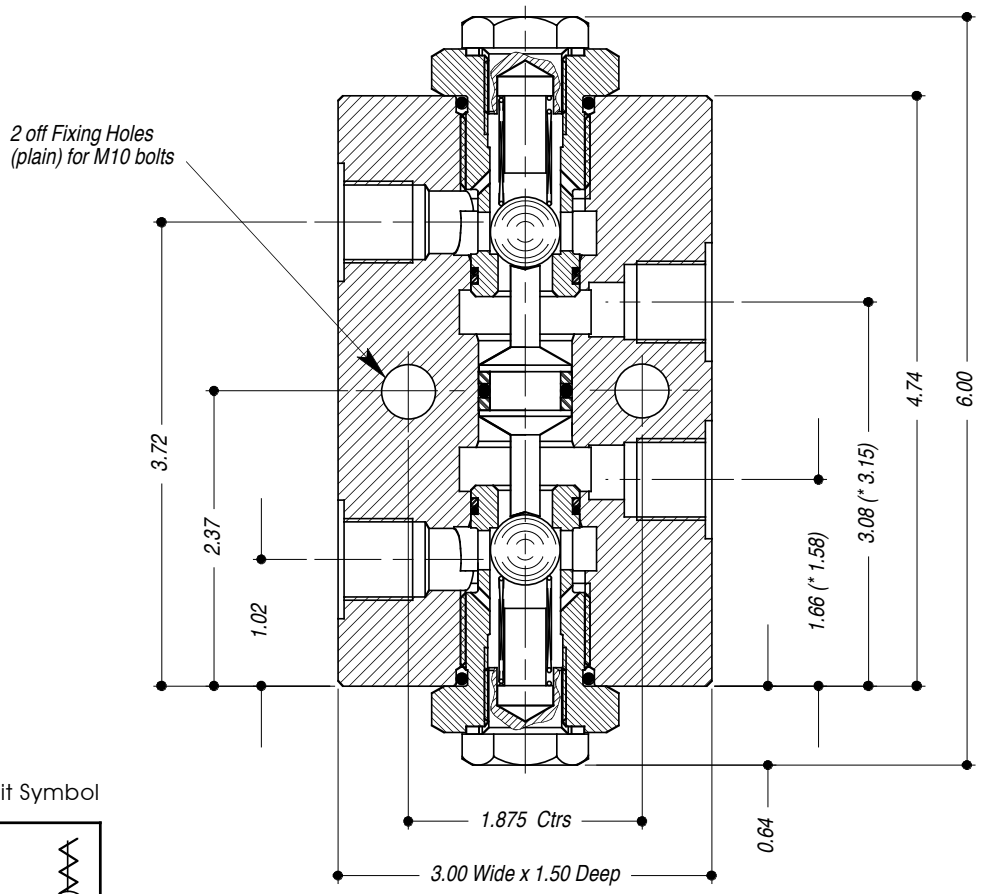
TECHNICAL SPECIFICATION				ORDERING EXAMPLE
Valve Type:		**MS75/50**	**MS75**	**MS75**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper)		**N**
Actuator Options	Low Press. Pilot:	Types: **H3** (60 - 150 psi Max)		**H0**
	High Press. Pilot:	Types: **H0** (10,000 psi Max), **H1** (10,000 psi Max)		
	Mechanical:	Types: **L, DL**		
Max.Working Press: Liquid		**12,000 psi**		**12K**
Pilot Ratio:	Act.Type: H3	400 : 1	400 : 1	
	Act.Type: H0	33 : 1	33 : 1	
	Act.Type: H1	9.6 : 1	9.6 : 1	
Port Size:		1/2"	3/4"	
Valve Seat Mat'l: Liquid		Stainless Steel - 316/1.4404		
Seal Material:		Viton (other materials available by request)		
CV Value:		3.7	3.7	
Dry Weight: (kg)		4.0		
Working Temperature Range:		-10°C to +80°C		

DOUBLE PILOT OPERATED CHECK VALVE

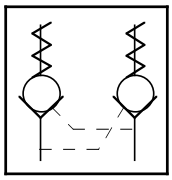
TYPES: 2XPC50/37, 2XPC50

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol



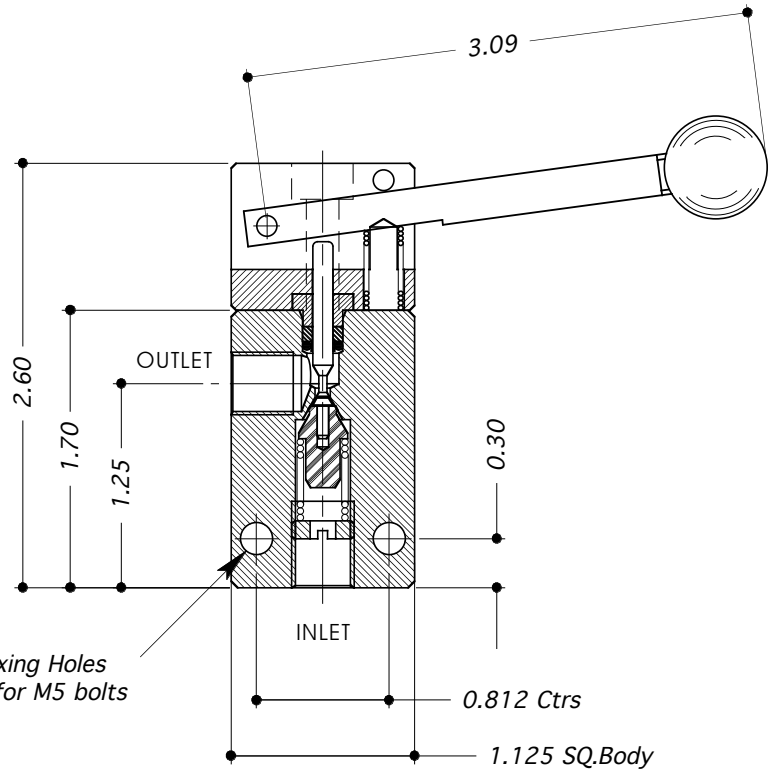
2XPC50/37 illustrated above fitted with 3/8" ports.
Dimensions marked thus * are for 1/2" porting

TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:	**2XPC50/37**	**2XPC50**	**2XPC50**
Porting / Connection Options:	**C5** = CETOP5 **P** = BSP (Parallel) **N** = NPT (Taper)		**P**
Max.Working Press: Liquid	**6,000 psi**		**6K**
Pilot Ratio:	2.9 : 1		
Port Size:	3/8"	1/2"	
Valve Seat Mat'l: Liquid	Stainless Steel - 316/1.4404		
Seal Material:	Viton (other materials available by request)		
CV Value:	1.9		
Dry Weight: (kg)	2.77		
Working Temperature Range:	-10°C to +120°C		

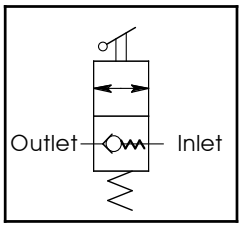
MIDGET LEVER OPERATED CHECK VALVE TYPE: SVT12

Valves Ltd

- VALVE BODY - STAINLESS STEEL (316 / 1.4404)
- LEVER ACTUATOR BODY - STAINLESS STEEL (316 / 1.4404)
- SUITABLE FOR LIQUID OR GAS USE.
- ALL DIMENSIONS IN INCHES.



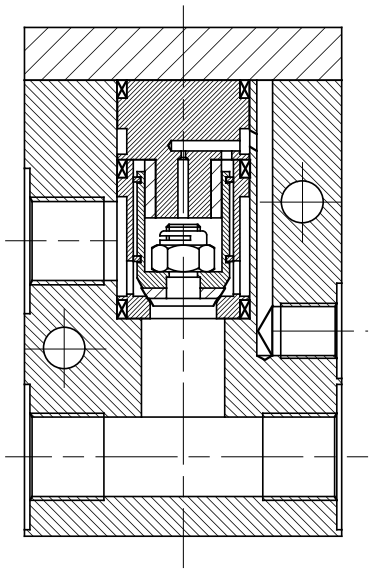
Circuit Symbol



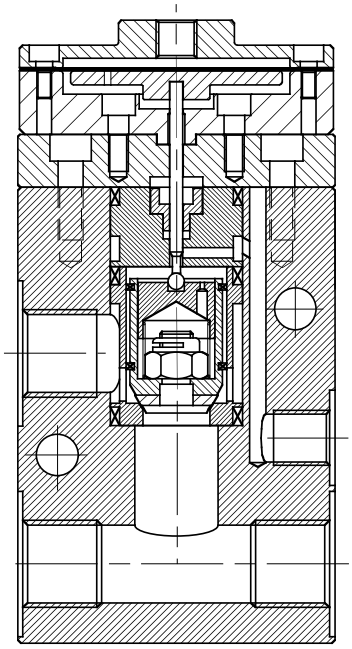
TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**SVT12**	**SVT12**
Porting / Connection Options:	**P** = BSP (Parallel)	**P**
Max.Working Press: Liquid/Gas	**2,000 psi**	**2K**
Port Size: (Valve Body)	1/8"	
Valve Seat Mat'l: Liquid/Gas	Stainless Steel - 431/1.4057	
Seal Material:	Viton (other materials available by request)	
CV Value:	0.15	
Dry Weight: (kg)	1.2	
Working Temperature Range:	-10°C to +120°C	

TYPICAL EXAMPLES OF UNLOADER VALVES TYPE "UL75/50" FITTED WITH ACTUATORS

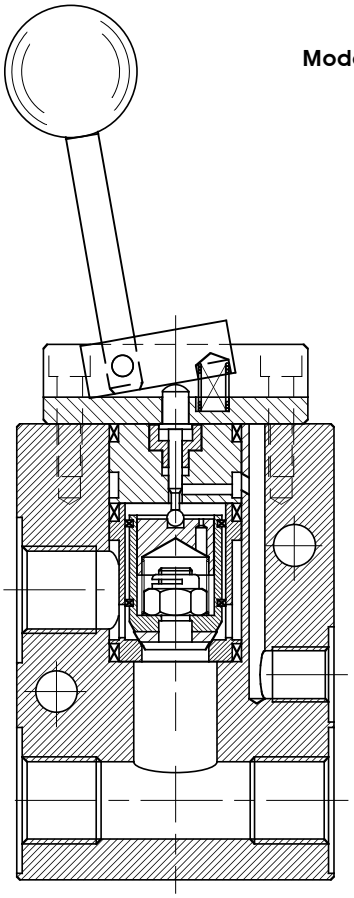
Valves Ltd



Model Type: UL75/50-R



Model Type: UL75/50-A4



Model Type: UL75/50-L

BiS Valves Ltd., Units 17-22, Kingfisher Park, West Moors, Wimborne , Dorset, ENGLAND.
Tel: 01202 896322 Fax: 01202 896718 e-mail: info@bisvalves.co.uk. web site: www.bisvalves.co.uk

Valves Ltd

SECTION 7: RELIEF VALVES

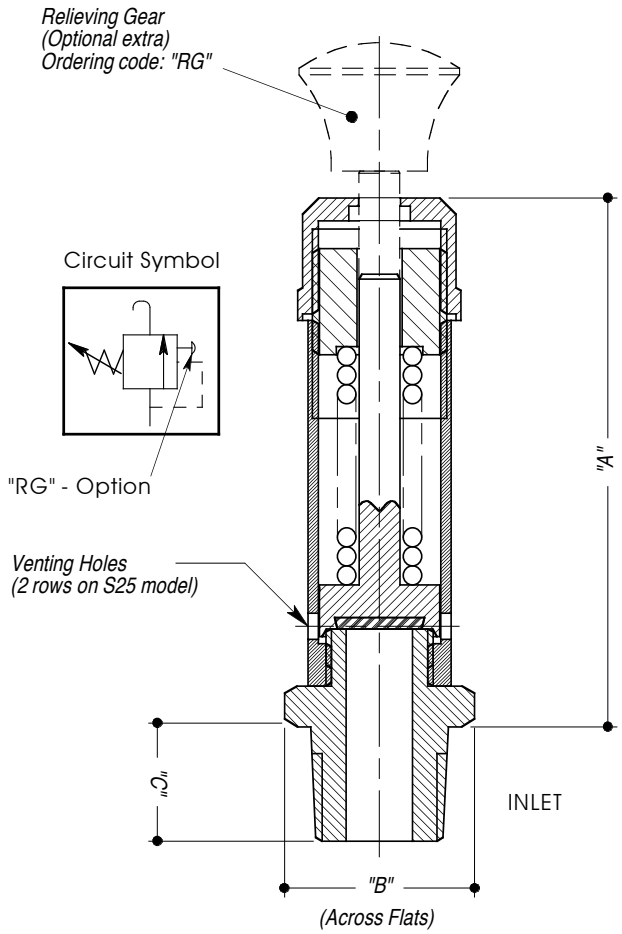
COMPLIANT WITH THE PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC.

SAFETY RELIEF VALVE (L.P.)

TYPES: S25, S37, S50, S75, S100

Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **MATERIAL OPTION: BRASS.**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **VENTING TO ATMOSPHERE.**
- **ALL DIMENSIONS IN INCHES.**



- It is NOT recommended to operate this valve below 10 psi. (0.7 Bar).
- Stated pressure is maximum setting.
  Lower settings are available by using a range of different springs. Please confirm when ordering.
- Leaktight when 90% of "set pressure" is applied.
- Repeatability ±3% of "set pressure".
- Re-seating within 7.5% of "cracking pressure".
  (Pre-set cracking pressure is optional)
  State details when ordering.

SAFETY RELIEF VALVE SPRING RANGE TABLE
Valve Type: S25, BS25 0 - **2B**, 2 - **10B**, 8 -**15B**, 13 - **26B**, 23 - **40B** (**B** = Bar)
Valve Type: S37, BS37 0.7 - **2B**, 2 - **7B**, 6 - **12B**, 11 - **25B**, 20 - **40B** (**B** = Bar)
Valve Type: S50, BS50 0.7 - **2B**, 2 - **7B**, 6 -**12B**, 11 - **25B**, 20 - **40B** (**B** = Bar)
Valve Type: S75, BS75 0.7 - **2B**, 2 - **7B**, 6 -**12B**, 11 - **25B**, 20 - **40B** (**B** = Bar)
Valve Type: S100 0.7 - **10B**, 8 - **18B** (**B** = Bar)

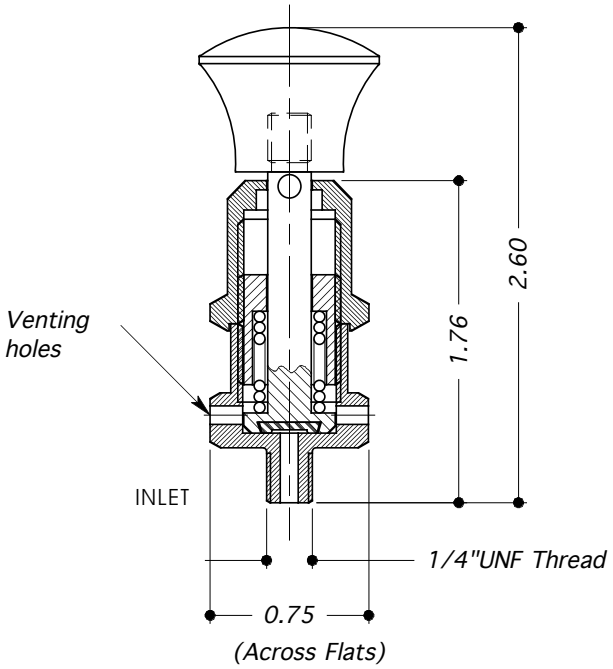
Select the Spring Range from the above table and add the number in '**BOLD**' text (e.g. **12B**) to the end of the Model Code.

TECHNICAL SPECIFICATION							ORDERING EXAMPLE
Material Option (non-std)		**B** = Brass				N/A	———
Valve Type:		**S25**	**S37**	**S50**	**S75**	**S100**	**S25**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper)					**N**
Valve Options:		**RG** = Relieving Gear					**RG**
Pressure/Spring Options:		See table above					**10B**
Max.Working Press: Liquid/Gas		580 psi				260 psi	
Orifice Size:		Ø5mm	Ø9.8mm	Ø9.8mm	Ø9.8mm	Ø20.8mm	
Port Size:		1/4"	3/8"	1/2"	3/4"	1.0"	
Valve Seat Material:		Stainless Steel - 316/1.4404					
Seal Material:		Viton (other materials available by request)					
Dry Weight: (kg)		0.2	0.25	0.3	0.35	1.0	
Working Temperature Range:		-10°C to +160°C					
Dimension (ins)	Length "A"	2.50"	3.30"	3.30"	3.30"	4.95"	
	"B" A/Flats	0.750"	1.01"	1.01"	1.30"	1.86"	
	Length "C"	0.50"	0.60"	0.60"	0.75"	1.00"	

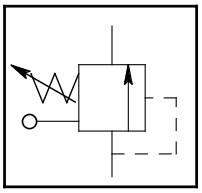
SAFETY RELIEF VALVE (L.P.) TYPE: SM25UF-RG

Valves Ltd

- PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.
- STAINLESS STEEL (316 / 1.4404)
- SUITABLE FOR LIQUID OR GAS USE.
- VENTING TO ATMOSPHERE.
- ALL DIMENSIONS IN INCHES.



Circuit Symbol



TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**SM25UF-RG**	**SM25UF-RG**
Porting / Connection Options:	**UNF** = Unified Fine Thread (no ordering code req'd)	———
Pressure/Spring Options:	0.7 - **5B**, 5 - **19B** (**B** = Bar)	**19B**
Max.Working Press: Liquid/Gas	280 psi	
Orifice Size:	Ø2.5mm	
Connection Size:	1/4"	
Valve Seat Material:	Stainless Steel - 316/1.4404	
Seal Material:	Viton (other materials available by request)	
Dry Weight: (kg)	0.1	
Working Temperature Range:	-10°C to +160°C	

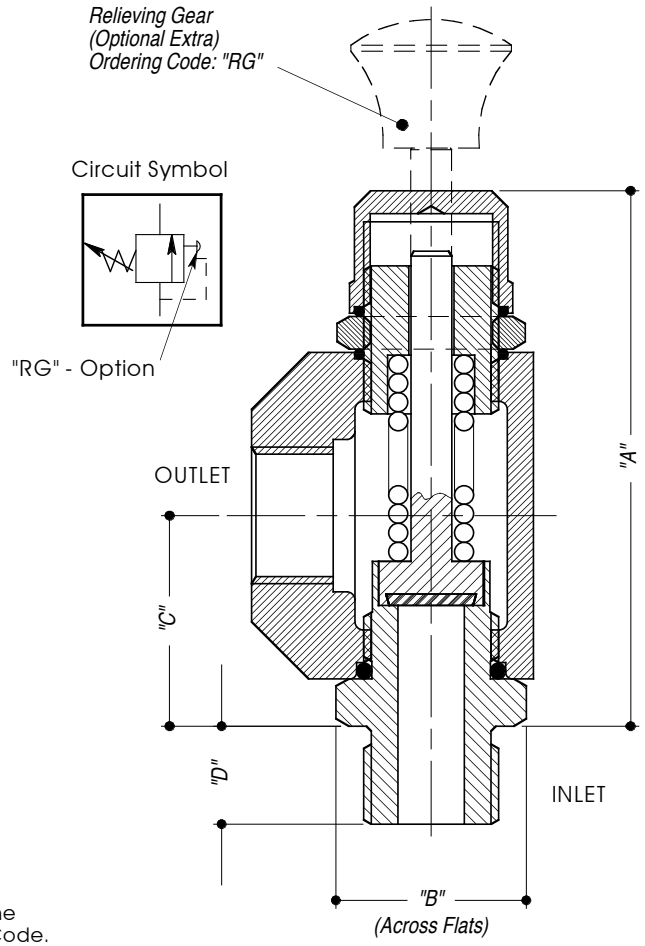
SAFETY RELIEF VALVE (L.P.)

TYPES: TS25, TS37, TS50, TS75, TS100

Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **ALL DIMENSIONS IN INCHES.**

- It is NOT recommended to operate this valve below 10 psi. (0.7 Bar).
- Stated pressure is maximum setting. Lower settings are available by using a range of different springs. Please confirm when ordering.
- Leaktight when 90% of "set pressure" is applied.
- Repeatability ±3% of "set pressure".
- Re-seating within 7.5% of "cracking pressure". (Pre-set cracking pressure is optional) State details when ordering.
- Recommended MAXIMUM back pressure 145 psi. (10 Bar).



SAFETY RELIEF VALVE SPRING RANGE TABLE
Valve Type: TS25 0.7 - **2B**, 2 - **10B**, 8 -**15B**, 13 - **26B**, 23 - **40B** (**B** = Bar)
Valve Type: TS37 0.7 - **2B**, 2 - **7B**, 6 - **12B**, 11 - **25B**, 20 - **40B** (**B** = Bar)
Valve Type: TS50 0.7 - **2B**, 2 - **7B**, 6 -**12B**, 11 - **25B**, 20 - **40B** (**B** = Bar)
Valve Type: TS75 0.7 - **2B**, 2 - **7B**, 6 -**12B**, 11 - **25B**, 20 - **40B** (**B** = Bar)
Valve Type: TS100 0.7 - **10B**, 8 - **18B**, 18 - **28B** (**B** = Bar)

Select the Spring Range from the above table and add the number in '**BOLD**' text (e.g. **12B**) to the end of the Model Code.

TECHNICAL SPECIFICATION							ORDERING EXAMPLE
Valve Type:		**TS25**	*** TS37**	**TS50**	**TS75**	**TS100**	**TS25**
Porting / Connection Options:		**P** = BSP (Parallel) **N** = NPT (Taper)					**N**
Valve Options:		**RG** = Relieving Gear					———
Pressure/Spring Options:		See table above					**10B**
Max.Working Press: Liquid/Gas		580 psi				400 psi	
Orifice Size:		Ø5mm	Ø9.8mm	Ø9.8mm	Ø9.8mm	Ø20.8mm	
Port Size:		1/4"	3/8"	1/2"	3/4"	1.0"	
Valve Seat Material:		Stainless Steel - 316/1.4404					
Seal Material:		Viton (other materials available by request)					
Dry Weight: (kg)		0.2	0.25	0.3	0.35	2.0	
Working Temperature Range:		-10°C to +120°C					
Dimension (ins)	Length "A"	2.50"	3.30"	3.30"	3.30"	4.95"	
	"B" A/Flats	0.750"	1.01"	1.01"	1.30"	1.86"	
	Length "C"	0.730"	1.43"	1.39"	1.44"	1.85"	
	Length "D"	0.450"	0.60"	0.70"	0.75"	0.81"	

Technical Specification Notes:-

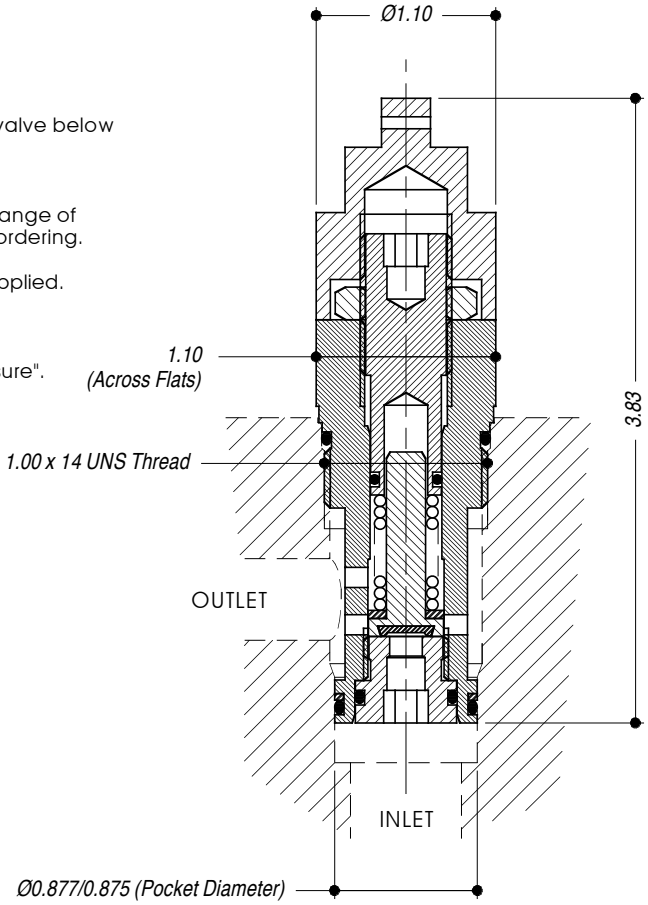
* The **TS37** valve is fitted with a 1/2" Female Outlet and 3/8" Male Inlet Port as standard.

CARTRIDGE RELIEF VALVE (L.P.) TYPE: TS25C

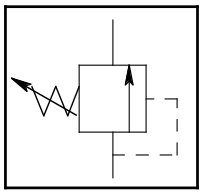
Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **FOR USE IN SUITABLE CAVITY HOUSING.** (details on request)
- **ALL DIMENSIONS IN INCHES.**

- It is NOT recommended to operate this valve below 10 psi. (0.7 Bar).
- Stated pressure is maximum setting. Lower settings are available by using a range of different springs. Please confirm when ordering.
- Leaktight when 90% of "set pressure" is applied.
- Repeatability ±3% of "set pressure".
- Re-seating within 7.5% of "cracking pressure". (Pre-set cracking pressure is optional) State details when ordering.
- Recommended MAXIMUM back pressure 145 psi. (10 Bar).



Circuit Symbol

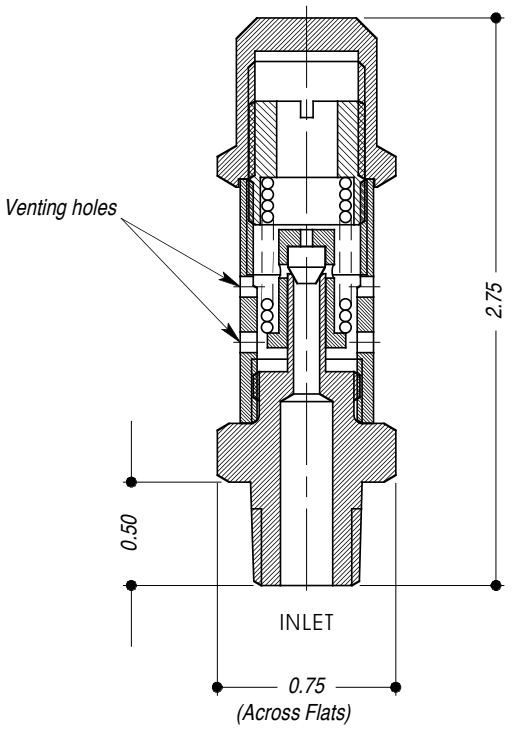


TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**TS25C**	**TS25C**
Pressure/Spring Options:	0.7 - **2B**, 2 - **10B** (**B** = Bar)	**10B**
Max.Working Press: Liquid/Gas:	580 psi	
Valve Seat Material:	Stainless Steel - 316/1.4404	
Seal Material:	Viton (other materials available by request)	
Dry Weight (kg)	0.4	
Working Temperature Range:	-10°C to +100°C	

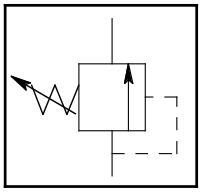
RELIEF VALVE (H.P.) TYPE: HS25

Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **VENTING TO ATMOSPHERE**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol



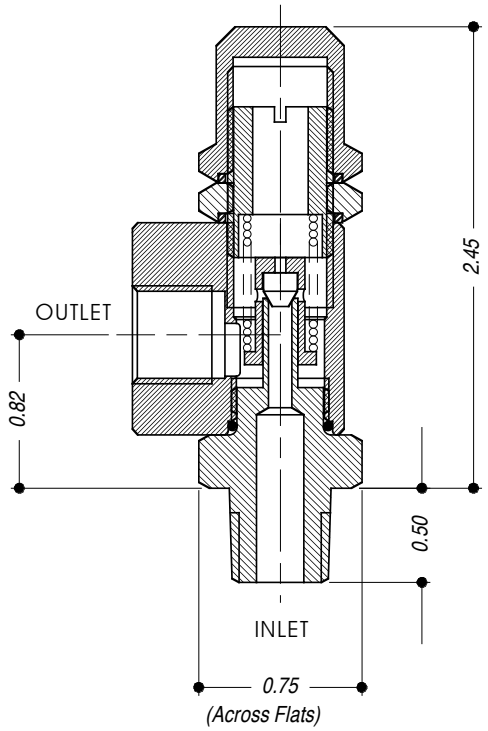
Spring range available: 400 - 2,000 psi

TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**HS25**	**HS25**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)	**N**
Valve Options:	**PM** = Pressure Maintaining (fitted with ball seal)	———
Max.Working Press: Liquid	2,000 psi	
Orifice Size:	Ø3.2mm	
Port Size:	1/4"	
Valve Seat Mat'l: Liquid	Stainless Steel - 316/1.4404	
Seal Material:	Viton (other materials available by request)	
Dry Weight: (kg)	0.22	
Working Temperature Range:	-10°C to +120°C	

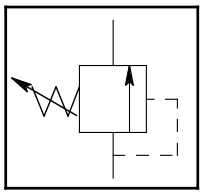
RELIEF VALVE (H.P.) TYPE: HTS25

Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol



Spring range available: 400 - 2,000 psi

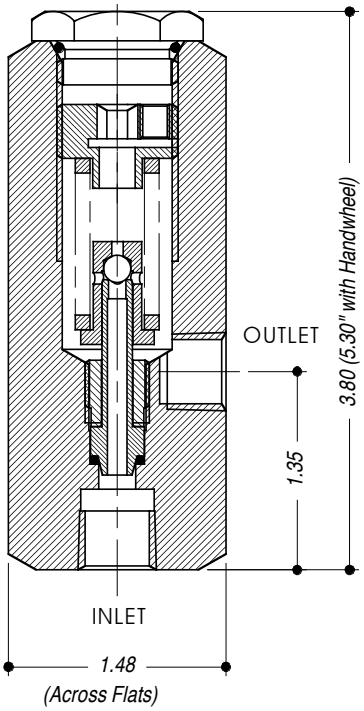
TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**HTS25**	**HTS25**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)	**N**
Valve Option:	**PM** = Pressure Maintaining (fitted with ball seal)	———
Valve Option:	**EH** = External Adjustment	———
Max.Working Press: Liquid	2,000 psi	
Orifice Size:	Ø3.2mm	
Port Size:	1/4"	
Valve Seat Mat'l: Liquid	Stainless Steel - 316/1.4404	
Seal Material:	Viton (other materials available by request)	
Dry Weight: (kg)	0.22	
Working Temperature Range:	-10°C to +120°C	

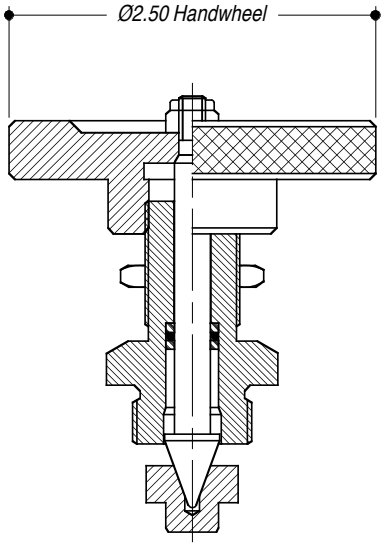
RELIEF VALVE (H.P.) TYPES: RL25, RL37

Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **ALL DIMENSIONS IN INCHES.**

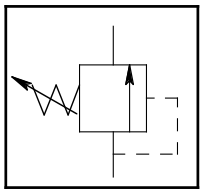
- Leaktight when 90% of "set pressure" is applied.
- Repeatability ±5% of "set pressure".
- Re-seating within 20% of "cracking pressure". (Pre-set cracking pressure is optional) State details when ordering.
- Recommended MAXIMUM back pressure 1,000 psi. (70 Bar).
- Mounting details for the **RL25-E** only. Hole panel dia: Ø0.75" Panel thickness: 0.125" to 0.250"





Handwheel (external) Adjustment assembly. (Optional extra) Ordering Code: **E**

Circuit Symbol



TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:	**RL25**	**RL37**	**RL25**
Porting / Connection Options: ("AE" threads fitted only to the INLET port)	**P** = BSP (Parallel) **N** = NPT (Taper) **44AE** (1/4" O.D. Tube) **56AE** (3/8" O.D. Tube) **81AE** (9/16" O.D. Tube)		**N**
Autoclave Outlet Port Options:	**25N** (1/4" NPT)	**37N** (3/8" NPT)	———
Valve Options:	**E** = Handwheel (external) Adjustment		———
Working Media: (std)	Oil / Water Glycol Duty (no ordering code req'd)		———
Working Media: (options)	**WD** = Water Duty **SWD** = Sea Water Duty		———
Press. Range:	**0.4K - 1.6K psi, 1K - 4K psi, 3K - 9K psi, 8K - 15K psi Max W.P.**		**9K**
Orifice Size:	Ø0.125"		
Port Size:	1/4"	3/8"	
Valve Seat Mat'l: (standard)	Stainless Steel - 440C (liquid use)		
Valve Seat Mat'l: (options)	1.4542 St.Steel - Water Duty Inconel - Sea Water Duty		
Seal Material:	Viton (other materials available by request)		
Dry Weight: (kg)	1.2	1.2	
Working Temperature Range:	-10°C to +120°C		
Flow Rate:	Contact factory for details		

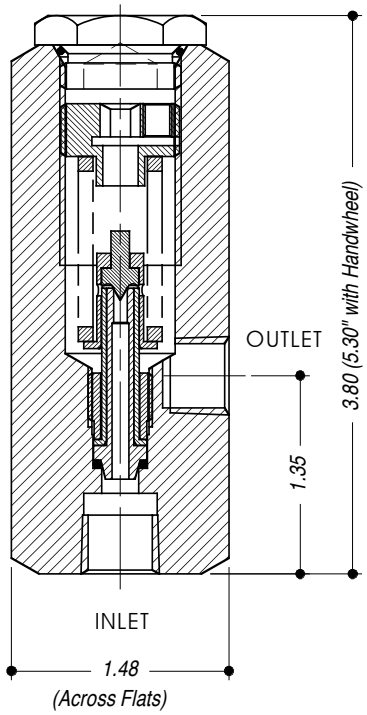
Technical Specification Notes:-
* Other materials available (Monel, Inconel, Hastelloy) subject to PED approval.

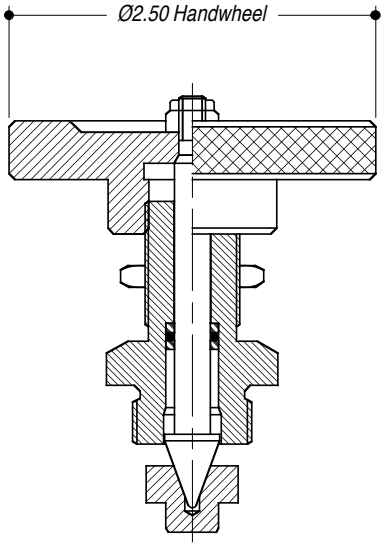
RELIEF VALVE (H.P.) TYPES: RL25-G, RL37-G

Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **ALL DIMENSIONS IN INCHES.**

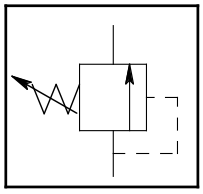
- Leaktight when 90% of "set pressure" is applied.
- Repeatability ±5% of "set pressure".
- Re-seating within 20% of "cracking pressure". (Pre-set cracking pressure is optional) State details when ordering.
- Recommended MAXIMUM back pressure 1,000 psi. (70 Bar).
- Mounting details for the **RL25-E** only. Hole panel dia: Ø0.75" Panel thickness: 0.125" to 0.250"





Handwheel (external) Adjustment assembly. (Optional extra)
Ordering Code: **E**

Circuit Symbol



TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:	**RL25**	**RL37**	**RL25**
Porting / Connection Options: ("AE" threads fitted only to the INLET port)	**P** = BSP (Parallel) **N** = NPT (Taper) **44AE** (1/4" O.D. Tube) **56AE** (3/8" O.D. Tube) **81AE** (9/16" O.D. Tube)		**N**
Autoclave Outlet Port Options:	**25N** (1/4" NPT)	**37N** (3/8" NPT)	———
Valve Options:	**E** = Handwheel (external) Adjustment		———
Soft Seated Valve:	**G**		**G**
Press. Range:	**1K - 6K psi Max W.P**		**6K**
Orifice Size:	Ø0.093"		
Port Size:	1/4"	3/8"	
Valve Seat Material:	Torlon		
Seal Material:	Viton (other materials available by request)		
Dry Weight: (kg)	1.2	1.2	
Working Temperature Range:	-10°C to +80°C		
Flow Rate:	Contact factory for details		

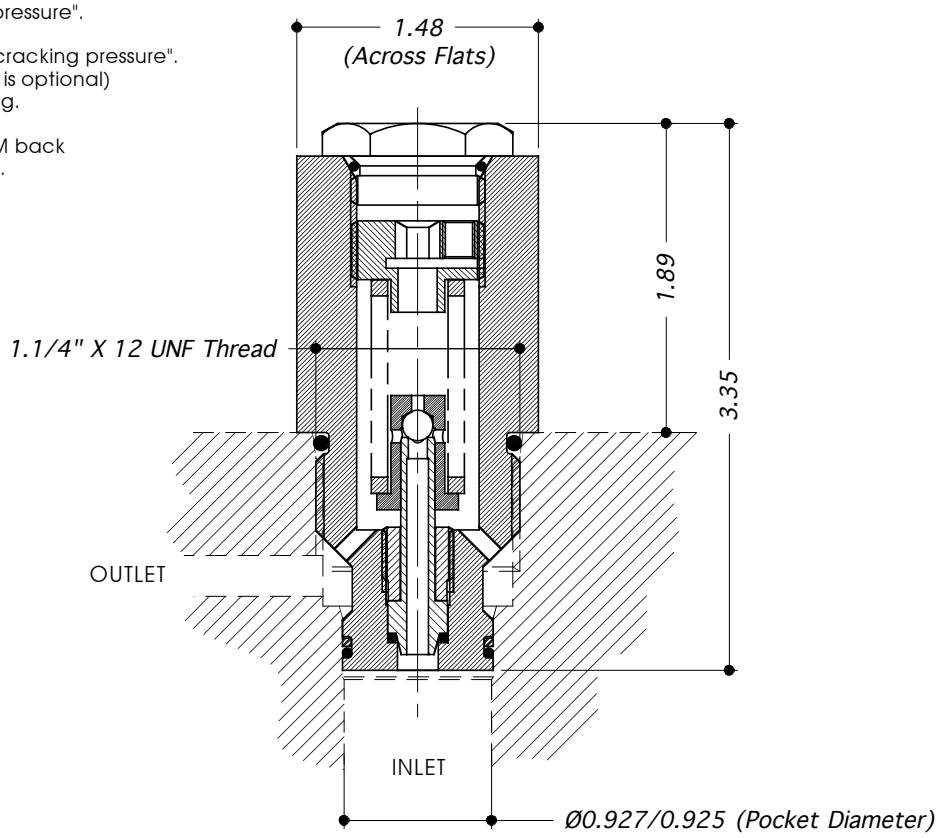
Technical Specification Notes:-
* Other materials available (Monel, Inconel, Hastelloy) subject to PED approval.

CARTRIDGE RELIEF VALVE (H.P.) TYPE: RL25C

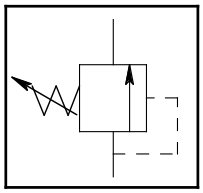
Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **FOR USE IN SUITABLE CAVITY HOUSING.** (details on request)
- **ALL DIMENSIONS IN INCHES.**

- Leaktight when 90% of "set pressure" is applied.
- Repeatability ±5% of "set pressure".
- Re-seating within 20% of "cracking pressure". (Pre-set cracking pressure is optional) State details when ordering.
- Recommended MAXIMUM back pressure 1,000 psi. (70 Bar).



Circuit Symbol



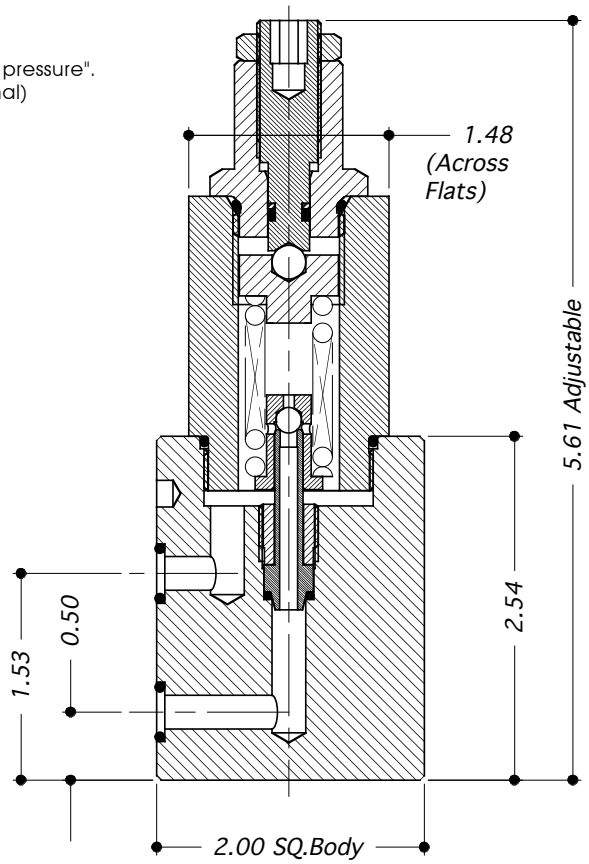
TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**RL25C**	**RL25C**
Working Media: (standard)	Oil / Water Glycol Duty (no ordering code req'd)	———
Working Media: (options)	**WD** = Water Duty **SWD** = Sea Water Duty	———
Press. Range:	**0.4K - 1.6K psi, 1K - 4K psi, 3K - 9K psi, 8K - 15K psi Max W.P.**	**9K**
Orifice Size:	Ø0.125"	
Valve Seat Mat'l: (standard)	Stainless Steel - 440C (liquid use)	
Valve Seat Mat'l: (options)	1.4542 St.Steel - Water Duty Inconel - Sea Water Duty	
Seal Material:	Viton (other materials available by request)	
Dry Weight: (kg)	0.7	
Working Temperature Range:	-10°C to +80°C	
Flow Rate:	Contact factory for details	

RELIEF VALVE (H.P.) TYPE: RL25M

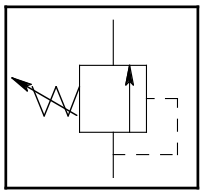
Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **MANIFOLD MOUNTED.**
- **ALL DIMENSIONS IN INCHES.**

- Leaktight when 90% of "set pressure" is applied.
- Repeatability ±5% of "set pressure".
- Re-seating within 20% of "cracking pressure". (Pre-set cracking pressure is optional) State details when ordering.
- Recommended MAXIMUM back pressure 1,000 psi. (70 Bar).



Circuit Symbol



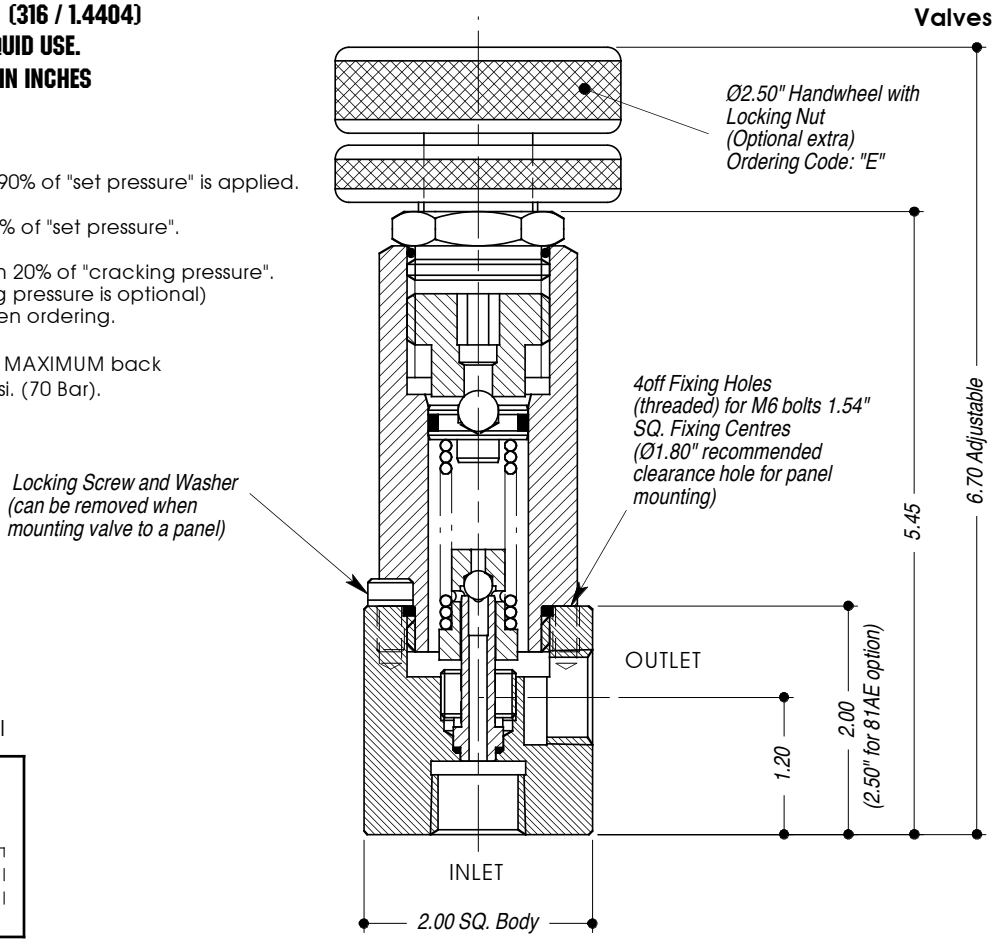
TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**RL25M**	**RL25M**
Working Media: (standard)	Oil / Water Glycol Duty (no ordering code req'd)	———
Working Media: (options)	**WD** = Water Duty **SWD** = Sea Water Duty	———
Press. Range:	**0.4K - 1.6K psi, 1K - 4K psi, 3K - 9K psi, 8K - 15K psi Max W.P.**	**9K**
Orifice Size:	Ø0.125"	
Port Size:	Manifold mounted	
Valve Seat Mat'l: (standard)	Stainless Steel - 440C (liquid use)	
Valve Seat Mat'l: (options)	1.4542 St.Steel - Water Duty Inconel - Sea Water Duty	
Seal Material:	Viton (other materials available by request)	
Dry Weight: (kg)	1.8	
Working Temperature Range:	-10°C to +80°C	
Flow Rate:	Contact factory for details	

RELIEF VALVE (H.P.) TYPE: RL50

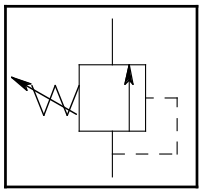
Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **ALL DIMENSIONS IN INCHES**

- Leaktight when 90% of "set pressure" is applied.
- Repeatability ±5% of "set pressure".
- Re-seating within 20% of "cracking pressure". (Pre-set cracking pressure is optional) State details when ordering.
- Recommended MAXIMUM back pressure 1,000 psi. (70 Bar).



Circuit Symbol



TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:	**RL50**		**RL50**
Porting / Connection Options: ("AE" threads fitted only to the INLET port)	**P** = BSP (Parallel) **N** = NPT (Taper) **56AE** (3/8" O.D. Tube) **81AE** (9/16" O.D. Tube)		**N**
Autoclave Outlet Port Options:	**50N** (1/2" NPT)		———
Valve Options:	**E** = Handwheel (external) Adjustment		———
Working Media: (standard)	Oil / Water Glycol Duty (no ordering code req'd)		———
Working Media: (options)	**WD** = Water Duty **SWD** = Sea Water Duty		———
Press. Range:	**200 - 1.6K psi, 1 - 5K psi**	**4K - 15K psi Max W.P.**	**5K**
Orifice Size:	Ø6.0mm	Ø4.1mm	
Port Size:	1/2"		
Valve Seat Mat'l: (standard)	Stainless Steel - 440C (liquid use)		
Valve Seat Mat'l: (options)	1.4542 St.Steel - Water Duty Inconel - Sea Water Duty		
Seal Material:	Viton (other materials available by request)		
Dry Weight: (kg)	1.75		
Working Temperature Range:	-10°C to +120°C		
Flow Rate:	Contact factory for details		

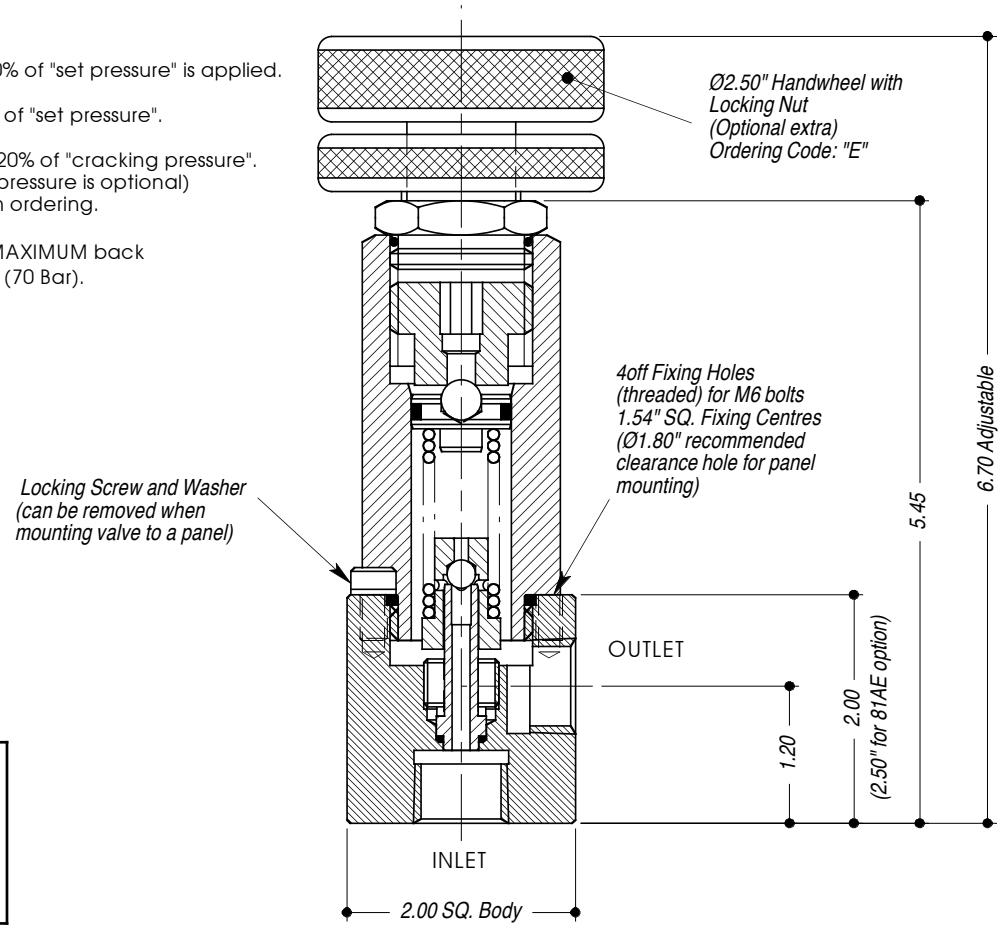
Technical Specification Notes:-
* Other materials available (Monel, Inconel, Hastelloy) subject to PED approval.

RELIEF VALVE (H.P.) TYPE: RL50-G

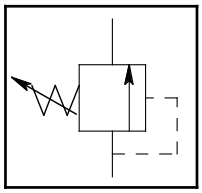
Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID AND GAS USE.**
- **ALL DIMENSIONS IN INCHES**

- Leaktight when 90% of "set pressure" is applied.
- Repeatability ±5% of "set pressure".
- Re-seating within 20% of "cracking pressure". (Pre-set cracking pressure is optional) State details when ordering.
- Recommended MAXIMUM back pressure 1,000 psi. (70 Bar).



Circuit Symbol



TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**RL50**	**RL50**
Porting / Connection Options: ("AE" threads fitted only to the INLET port)	**P** = BSP (Parallel) **N** = NPT (Taper) **56AE** (3/8" O.D. Tube) **81AE** (9/16" O.D. Tube)	**N**
Autoclave Outlet Port Options:	**50N** (1/2" NPT)	——
Valve Options:	**E** = Handwheel (external) Adjustment	——
Soft Seated Valve:	**G**	**G**
Press. Range:	**200 - 1.6K psi** **1 - 6K psi Max W.P.**	**6K**
Orifice Size:	Ø3.8mm	
Port Size:	1/2"	
Valve Seat Material:	Torlon	
Seal Material:	Viton (other materials available by request)	
Dry Weight: (kg)	1.75	
Working Temperature Range:	-10°C to +80°C	
Flow Rate:	Contact factory for details	

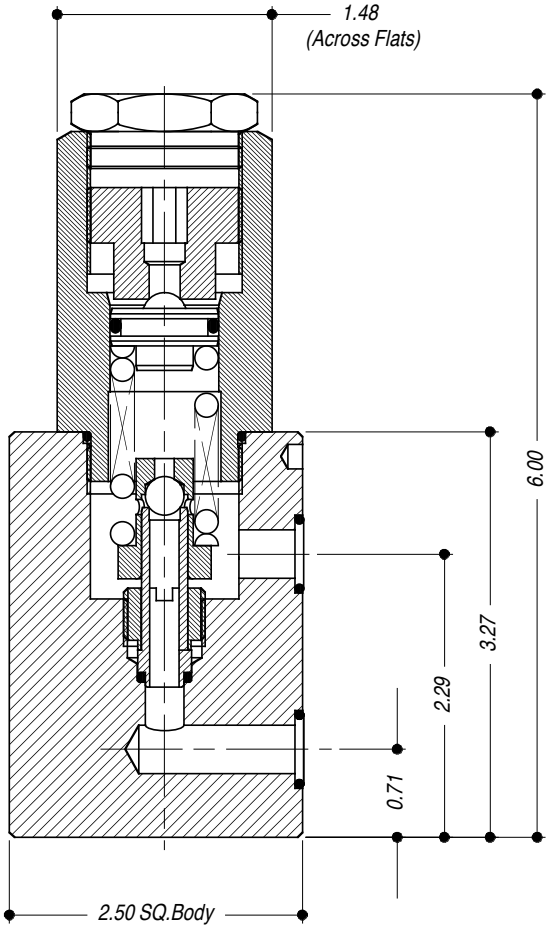
Technical Specification Notes:-
* Other materials available (Monel, Inconel, Hastelloy) subject to PED approval.

RELIEF VALVE (H.P.) TYPE: RL50M

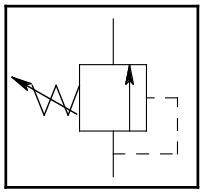
Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **MANIFOLD MOUNTED.**
- **ALL DIMENSIONS IN INCHES.**

- Leaktight when 90% of "set pressure" is applied.
- Repeatability ±5% of "set pressure".
- Re-seating within 20% of "cracking pressure". (Pre-set cracking pressure is optional) State details when ordering.
- Recommended MAXIMUM back pressure 1,000 psi. (70 Bar).



Circuit Symbol



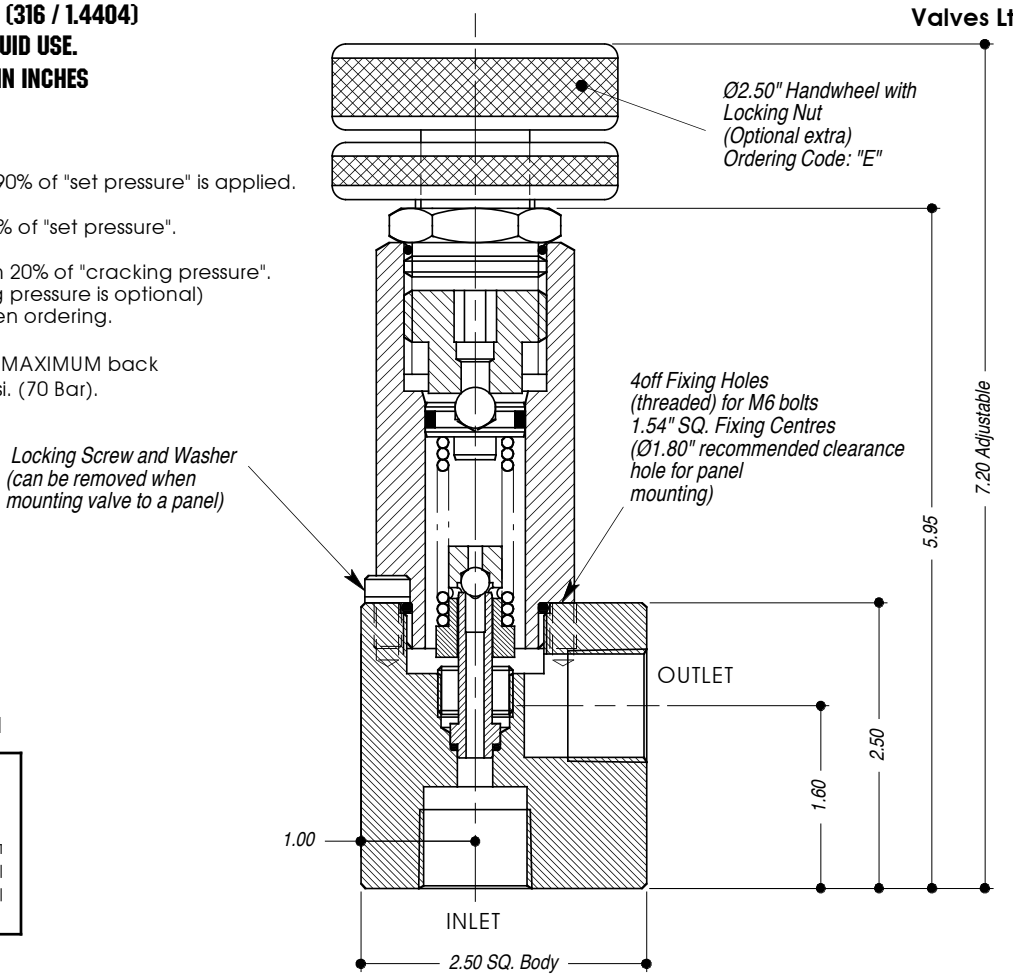
TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:	**RL50M**		**RL50M**
Working Media: (standard)	Oil / Water Glycol Duty (no ordering code req'd)		———
Working Media: (options)	**WD** = Water Duty	**SWD** = Sea Water Duty	———
Press. Range:	**200 - 1.6K psi, 1 - 5K psi**	**4K - 15K psi Max W.P.**	**5K**
Orifice Size:	Ø6.0mm	Ø4.1mm	
Port Size:	Manifold mounted		
Valve Seat Mat'l: (standard)	Stainless Steel - 440C (liquid use)		
Valve Seat Mat'l: (options)	1.4542 St.Steel - Water Duty	Inconel - Sea Water Duty	
Seal Material:	Viton (other materials available by request)		
Dry Weight: (kg)	2.0		
Working Temperature Range:	-10°C to +80°C		
Flow Rate:	Contact factory for details		

RELIEF VALVE (H.P.) TYPE: RL75

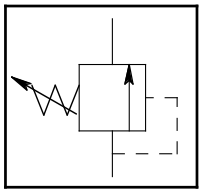
Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **ALL DIMENSIONS IN INCHES**

- Leaktight when 90% of "set pressure" is applied.
- Repeatability ±5% of "set pressure".
- Re-seating within 20% of "cracking pressure". (Pre-set cracking pressure is optional) State details when ordering.
- Recommended MAXIMUM back pressure 1,000 psi. (70 Bar).



Circuit Symbol



TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:	**RL75**		**RL75**
Porting / Connection Options: ("AE" threads fitted only to the INLET port)	**P** = BSP (Parallel) **N** = NPT (Taper) **103AE** (3/4" O.D. Tube)		**N**
Autoclave Outlet Port Options:	**75N** (3/4" NPT)		——
Valve Options:	**E** = Handwheel (external) Adjustment		——
Working Media: (standard)	Oil / Water Glycol Duty (no ordering code req'd)		——
Working Media: (options)	**WD** = Water Duty **SWD** = Sea Water Duty		——
Press. Range:	**200 - 1.6K psi, 1 - 5K psi**	**4K - 15K psi Max W.P.**	**5K**
Orifice Size:	Ø6.0mm	Ø4.1mm	
Port Size:	3/4"		
Valve Seat Mat'l: (standard)	Stainless Steel - 440C (liquid use)		
Valve Seat Mat'l: (options)	1.4542 St.Steel - Water Duty	Inconel - Sea Water Duty	
Seal Material:	Viton (other materials available by request)		
Dry Weight: (kg)	2.00		
Working Temperature Range:	-10°C to +120°C		
Flow Rate:	Contact factory for details		

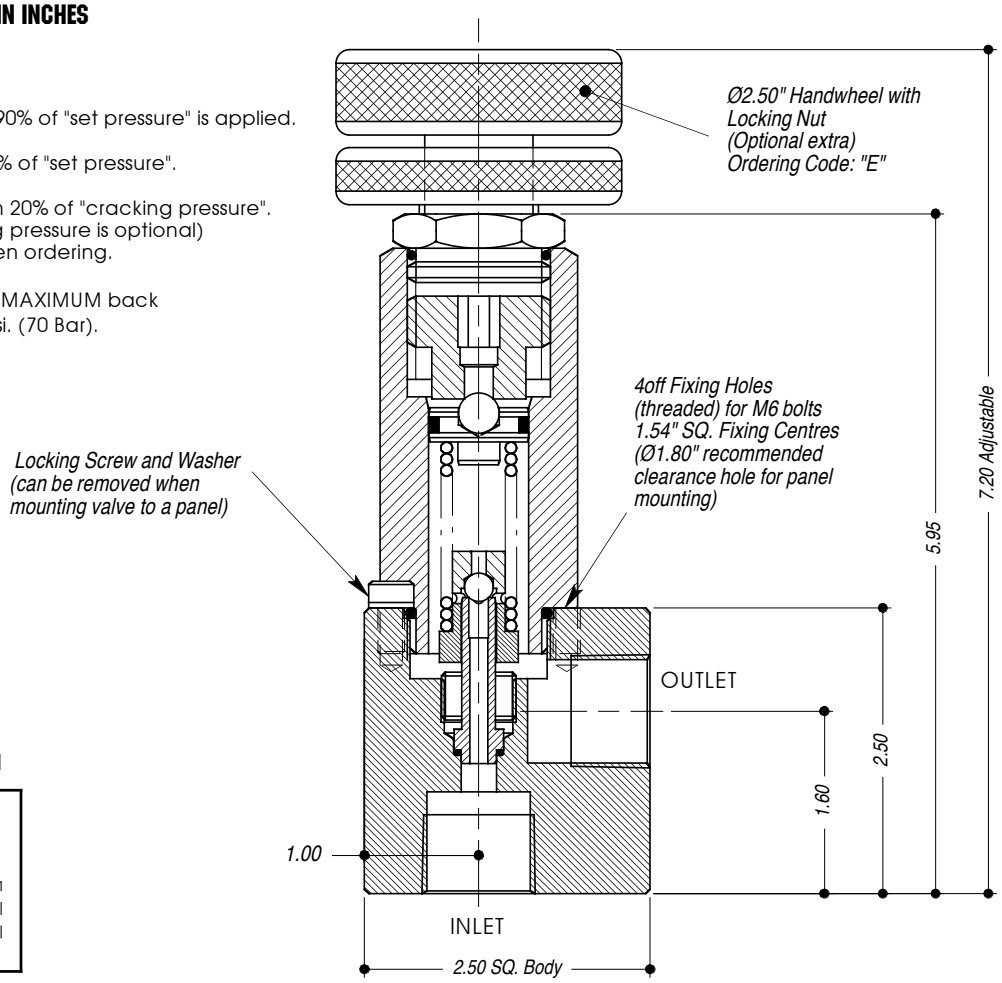
Technical Specification Notes:-
* Other materials available (Monel, Inconel, Hastelloy) subject to PED approval.

RELIEF VALVE (H.P.) TYPE: RL75-G

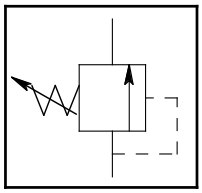
Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID AND GAS USE.**
- **ALL DIMENSIONS IN INCHES**

- Leaktight when 90% of "set pressure" is applied.
- Repeatability ±5% of "set pressure".
- Re-seating within 20% of "cracking pressure". (Pre-set cracking pressure is optional) State details when ordering.
- Recommended MAXIMUM back pressure 1,000 psi. (70 Bar).



Circuit Symbol



TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**RL75**	**RL75**
Porting / Connection Options: ("AE" threads fitted only to the INLET port)	**P** = BSP (Parallel) **N** = NPT (Taper) **103AE** (3/4" O.D. Tube)	**N**
Autoclave Outlet Port Options:	**75N** (3/4" NPT)	———
Valve Options:	**E** = Handwheel (external) Adjustment	———
Soft Seated Valve:	**G**	**G**
Press. Range:	**1 - 6K psi Max W.P.**	**6K**
Orifice Size:	Ø3.8mm	
Port Size:	3/4"	
Valve Seat Material:	Torlon	
Seal Material:	Viton (other materials available by request)	
Dry Weight: (kg)	2.0	
Working Temperature Range:	-10°C to +80°C	
Flow Rate:	Contact factory for details	

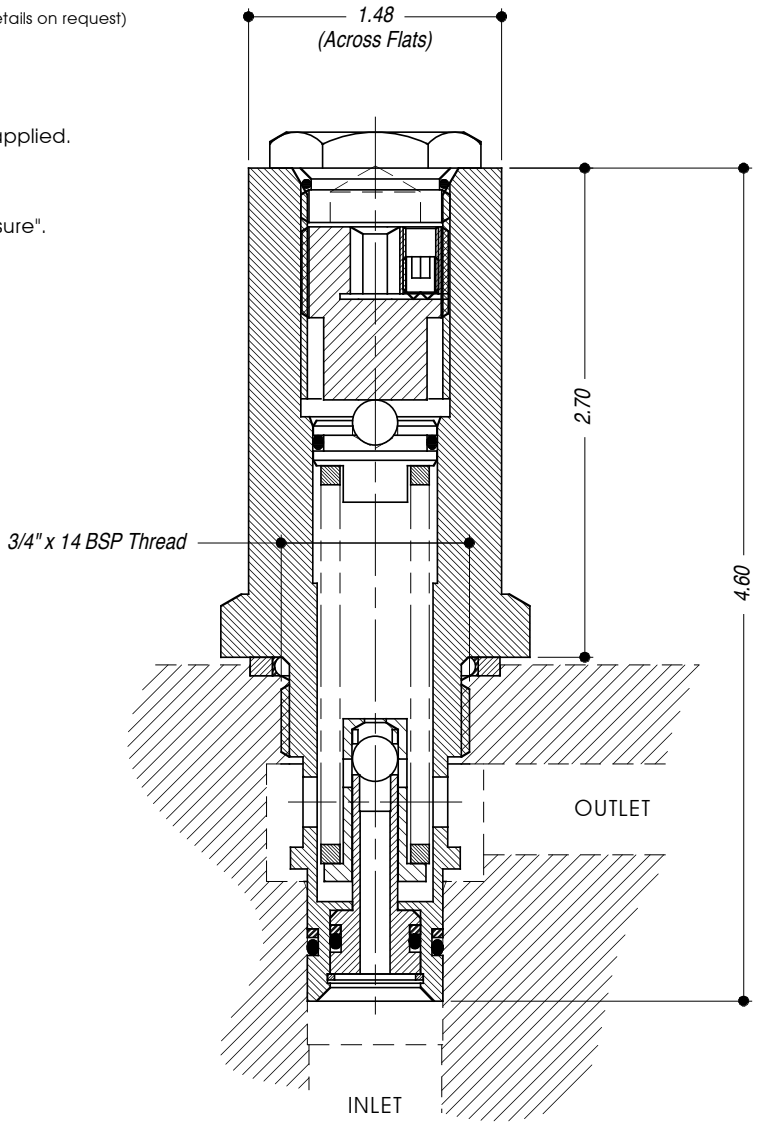
Technical Specification Notes:-
* Other materials available (Monel, Inconel, Hastelloy) subject to PED approval.

CARTRIDGE RELIEF VALVE (H.P.) TYPE: PRV75C

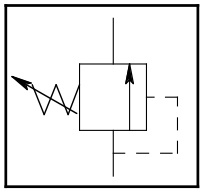
Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **FOR USE IN SUITABLE CAVITY HOUSING.** (details on request)
- **ALL DIMENSIONS IN INCHES.**

- Leaktight when 90% of "set pressure" is applied.
- Repeatability ±5% of "set pressure".
- Re-seating within 20% of "cracking pressure". (Pre-set cracking pressure is optional) State details when ordering.
- Recommended MAXIMUM back pressure 1,000 psi. (70 Bar).



Circuit Symbol



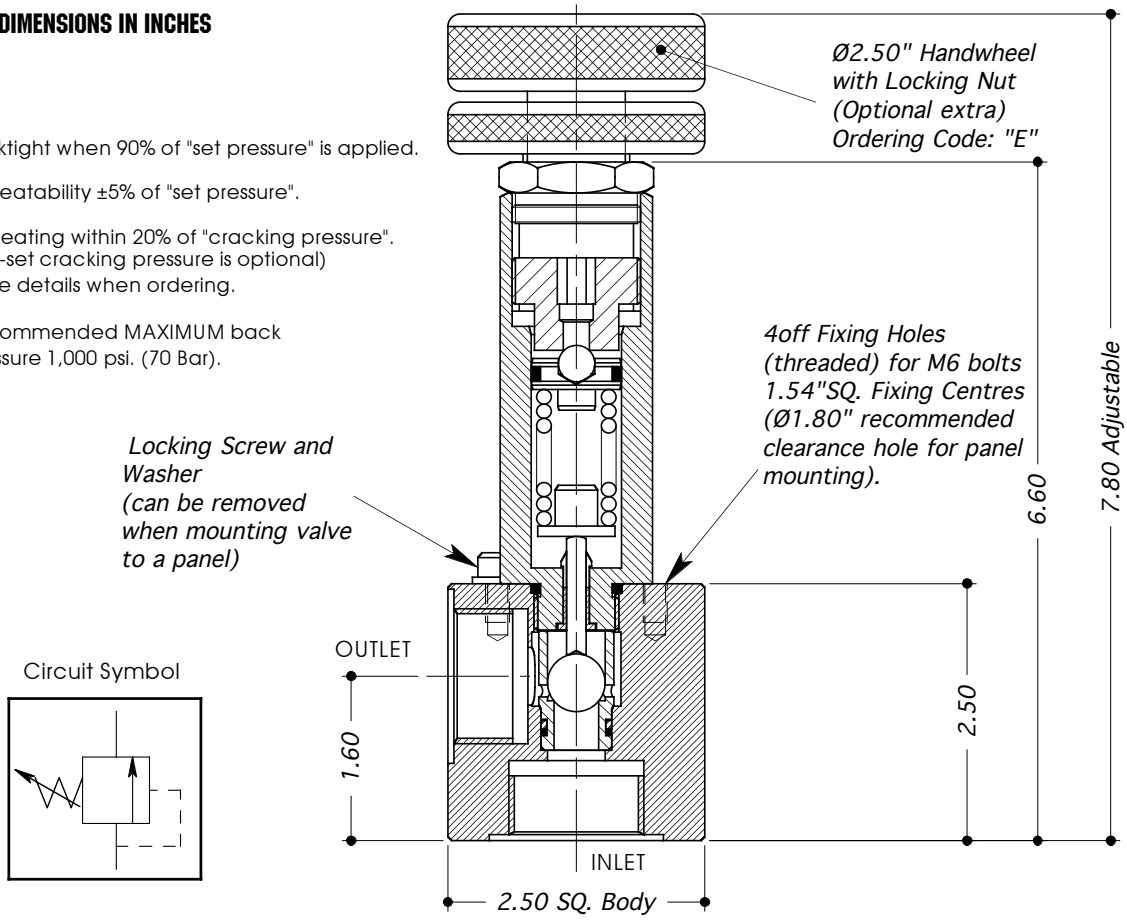
TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**PRV75C**	**PRV75C**
Working Media: (standard)	Oil / Water Glycol Duty (no ordering code req'd)	———
Press. Range:	**1K - 3K psi 2.5 - 6K Max W.P.**	**3K**
Orifice Size:	Ø4.1mm	
Valve Seat Mat'l: (standard)	Silver Steel KEA108 (liquid use)	
Seal Material:	Nitrile (other materials available by request)	
Dry Weight: (kg)	0.6	
Working Temperature Range:	-30°C to +105°C	
Flow Rate:	Contact factory for details	

RELIEF VALVE (H.P.) TYPE: RL100

Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **ALL DIMENSIONS IN INCHES**

- Leaktight when 90% of "set pressure" is applied.
- Repeatability ±5% of "set pressure".
- Re-seating within 20% of "cracking pressure". (Pre-set cracking pressure is optional) State details when ordering.
- Recommended MAXIMUM back pressure 1,000 psi. (70 Bar).



Circuit Symbol

TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**RL100**	**RL100**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)	**N**
Valve Options:	**E** = Handwheel (external) Adjustment	———
Working Media: (standard)	Oil / Water Glycol Duty (no ordering code req'd)	———
Press. Range:	**0.7K - 3K psi Max W.P.**	**3K**
Orifice Size:	Ø0.437"	
Port Size:	1.0"	
Valve Seat Mat'l: (standard)	Stainless Steel - 440C (liquid use)	
Seal Material:	Viton (other materials available by request)	
Dry Weight: (kg)	2.75	
Working Temperature Range:	-10°C to +120°C	
Flow Rate:	Contact factory for details	

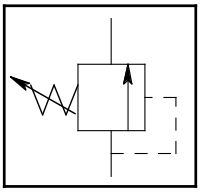
Technical Specification Notes:-
* Other materials available (Monel, Inconel, Hastelloy) subject to PED approval.

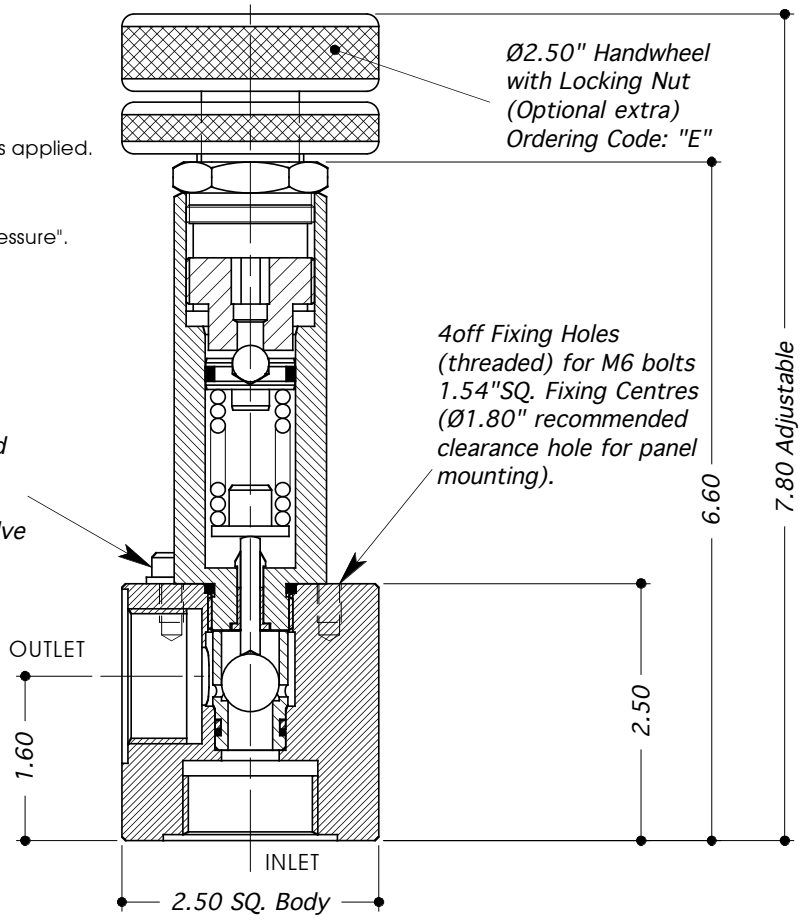
RELIEF VALVE (H.P.) TYPE: RL100-G

Valves Ltd

- **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC APPROVED.**
- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **ALL DIMENSIONS IN INCHES**

- Leaktight when 90% of "set pressure" is applied.
- Repeatability ±5% of "set pressure".
- Re-seating within 20% of "cracking pressure". (Pre-set cracking pressure is optional) State details when ordering.
- Recommended MAXIMUM back pressure 1,000 psi. (70 Bar).



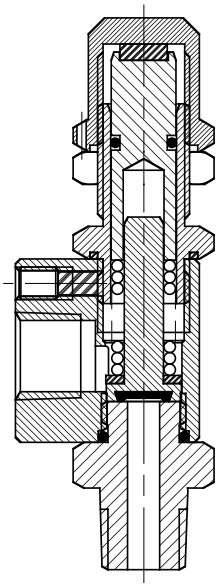


TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Valve Type:	**RL100**	**RL100**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)	**N**
Valve Options:	**E** = Handwheel (external) Adjustment	———
Soft Seated Valve:	**G**	**G**
Press. Range:	**0.7 - 3K psi Max W.P.**	**3K**
Orifice Size:	Ø0.437"	
Port Size:	1.0"	
Valve Seat Material:	Torlon	
Seal Material:	Viton (other materials available by request)	
Dry Weight: (kg)	2.75	
Working Temperature Range:	-10°C to +80°C	
Flow Rate:	Contact factory for details	

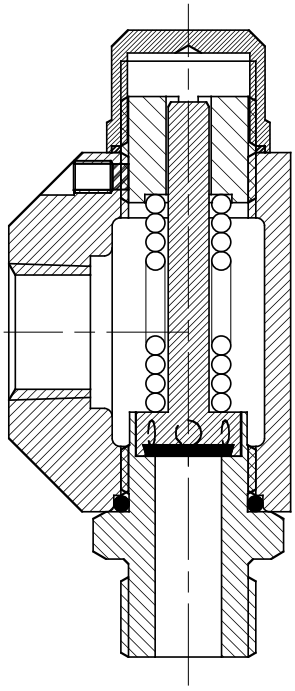
Technical Specification Notes:-
* Other materials available (Monel, Inconel, Hastelloy) subject to PED approval.

TYPICAL EXAMPLES OF LOW PRESSURE RELIEF VALVES

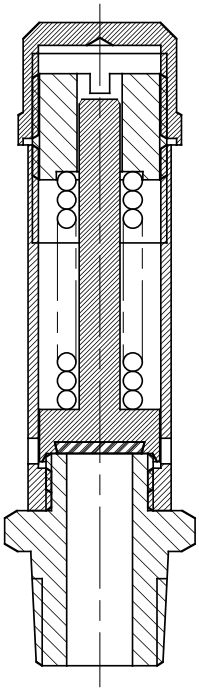
Valves Ltd



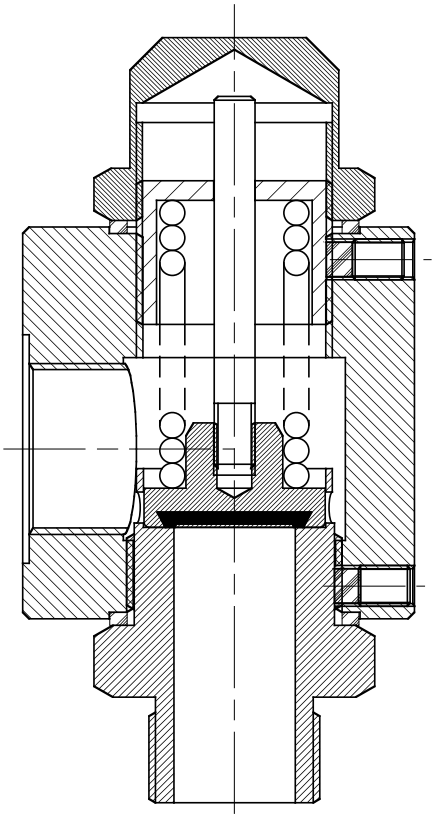
Model Type: TS25-EH (600psi)



Model Type: TS50 (600psi)



Model Type: S50 (600psi)

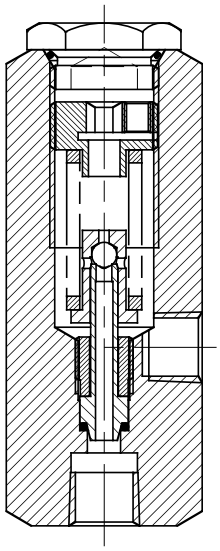


Model Type: TS100 (260psi)

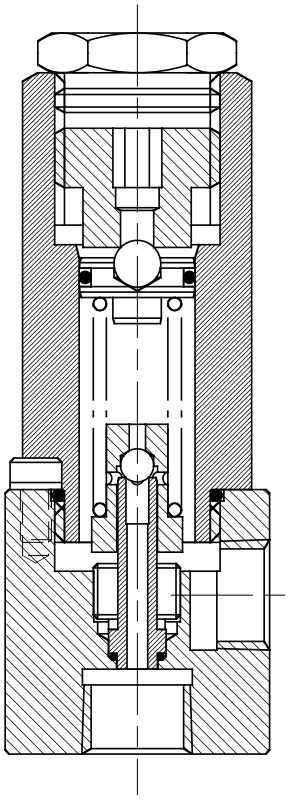
BiS Valves Ltd., Units 17-22, Kingfisher Park, West Moors, Wimborne , Dorset, ENGLAND.
Tel: 01202 896322 Fax: 01202 896718 e-mail: info@bisvalves.co.uk. web site: www.bisvalves.co.uk

TYPICAL EXAMPLES OF
HIGH PRESSURE RELIEF VALVES

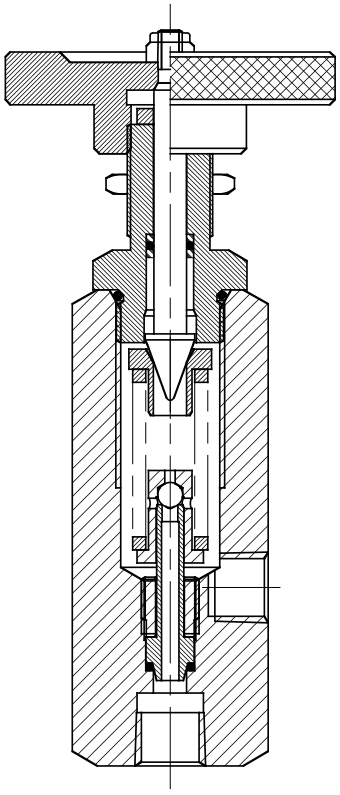
BiS
Valves Ltd



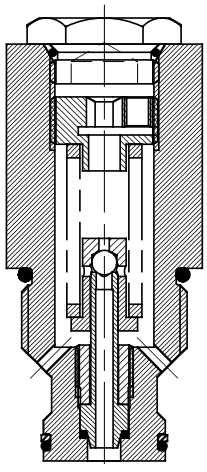
Model Type: RL25 (15K)



Model Type: RL50 (15K)



Model Type: RL25-E (15K)



Model Type: RL25C (15K)

BiS Valves Ltd., Units 17-22, Kingfisher Park, West Moors, Wimborne , Dorset, ENGLAND.
Tel: 01202 896322 Fax: 01202 896718 e-mail: info@bisvalves.co.uk. web site: www.bisvalves.co.uk

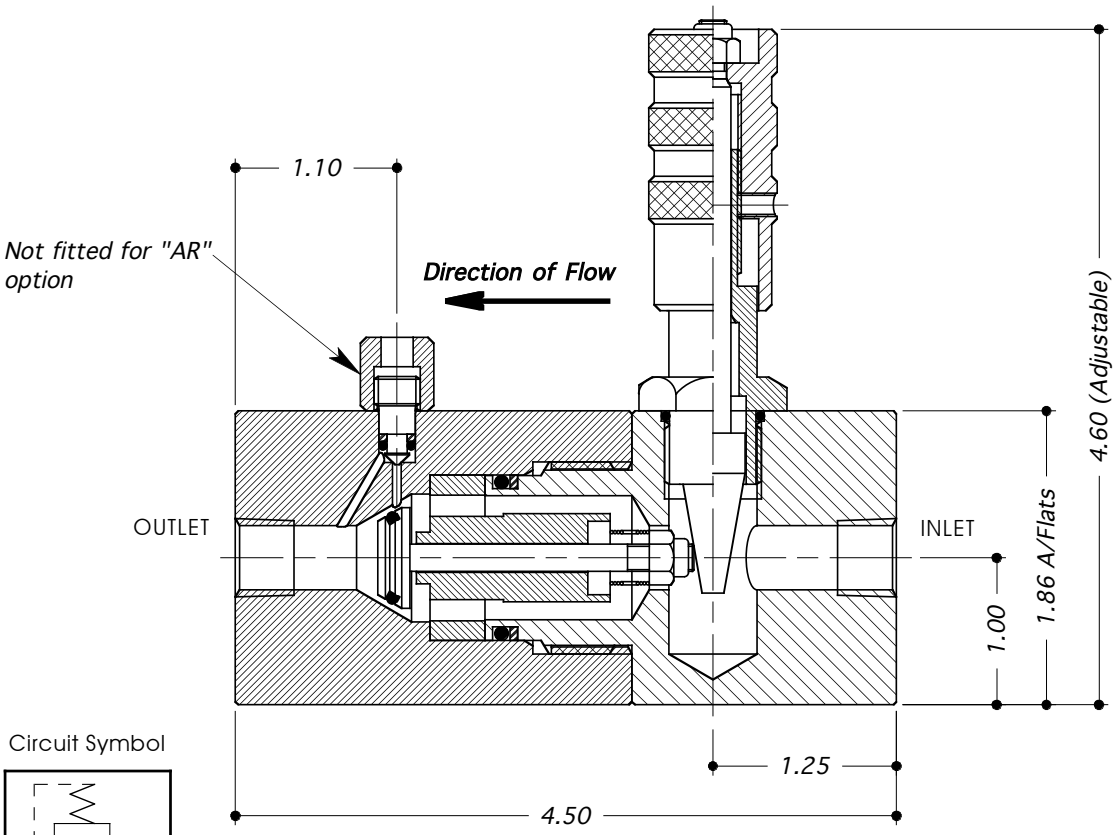
Valves Ltd

SECTION 8: EXCESS FLOW VALVES

EXCESS FLOW VALVE TYPES: ER25, ER37

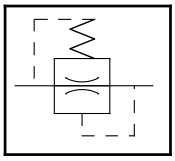
Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **ALL DIMENSIONS IN INCHES**



Option "MR" illustrated above

Circuit Symbol



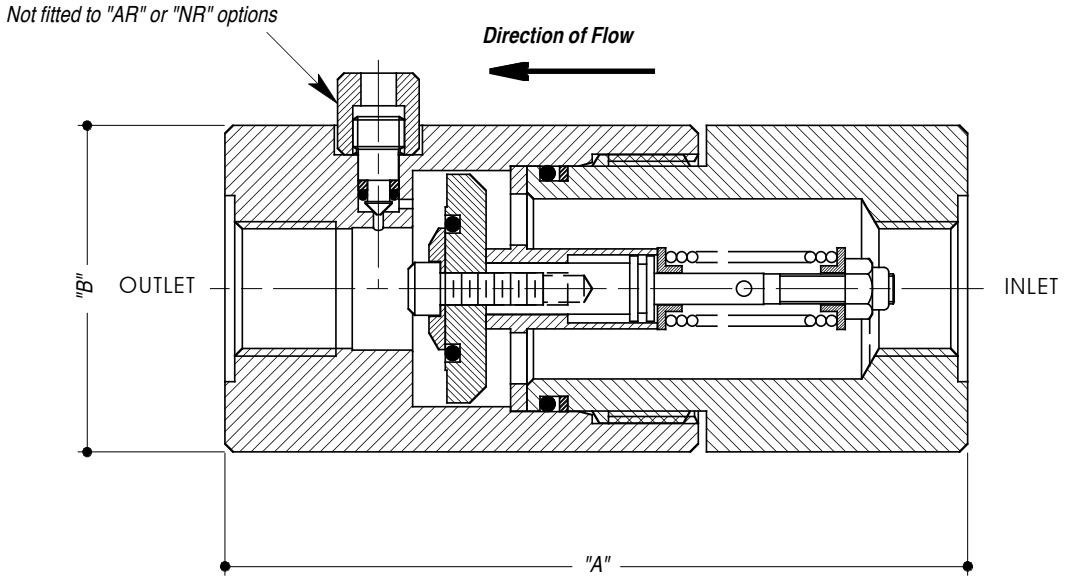
TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:	**ER25**	**ER37**	**ER25**
Porting / Connection Options:	**P** = BSP (Parallel)	**N** = NPT (Taper)	**N**
Valve Type Options:	**MR** = Manual Re-set **AR** = Auto Re-set **NR** = Non Re-set		**MR**
Max.Working Pressure - Liquid	**6,000 psi**		**6K**
Max.Working Pressure - Gas	**4,000 psi**		
Port Size:	1/4"	3/8"	
Valve Seat Mat'l: Liquid/Gas	Stainless Steel - 316/1.4404		
Seal Material:	Viton (other materials available by request)		
Dry Weight: (kg)	1.75		
Working Temperature Range:	-10°C to +110°C		
Closing DP: (Typically)	0.1 to 1 Bar		
Leak Rate:	Zero		
Flow Rate: Liquid	up to 18 litres/min		
Flow Rate: Gas	500 Nm^3/hour @ 4,000 psi		

EXCESS FLOW VALVE

TYPES: R25, R37, R50, R75, R100, R150

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **ALL DIMENSIONS IN INCHES.**



Option "MR" illustrated above

TECHNICAL SPECIFICATION							ORDERING EXAMPLE
Valve Type:	**R25**	**R37**	**R50**	**R75**	**R100**	**R150**	**R25**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)						**P**
Valve Type Options:	**MR** = Manual Re-set **AR** = Auto Re-set **NR** = Non Re-set						**MR**
Flow Rate: Water (l/min)	2 - 10	2 - 10	5 - 40	5 - 40	10 - 79	2 - 190	**LF ***
Flow Rate: Air @ 276 Barg (Nm3/hr)	60 - 280	60 - 280	145 - 1140	145 - 1140	280 - 2260	280 - 5420	
Flow Rate: Water (l/min)	——	8 - 22	——	37 - 90	25 - 123	32 - 316	**HF ***
Flow Rate: Air @ 276 Barg (Nm3/hr)	——	229 - 630	——	1058 - 2250	710 - 3450	914 - 9000	
Max.Working Pressure - Liquid	**6,000 psi**						**6K**
Max.Working Pressure - Gas	**4,000 psi**						
Port Size:	1/4"	3/8"	1/2"	3/4"	1.00"	1.50"	
Valve Seat Mat'l: Liquid/Gas	Stainless Steel - 316/1.4404						
Seal Material:	Viton (other materials available by request)						
Dry Weight: (kg)	1.3	1.3	1.5	1.5	1.8	1.8	
Working Temperature Range:	-10°C to +120°C						
Closing DP: (Typically)	0.5 to 1 Bar						
Leak Rate:	Zero						
Dimension (ins) - Length "A"	3.50"	3.50"	4.60"	4.60"	7.82"	7.82"	
Dimension (ins) - Length "B"	1.50"A/F	1.50"A/F	Ø2.0"	Ø2.0"	Ø3.0"	Ø3.0"	

Technical Specification Notes:-
* Other materials available (Monel, Inconel, Hastelloy) subject to PED approval.

Valves Ltd

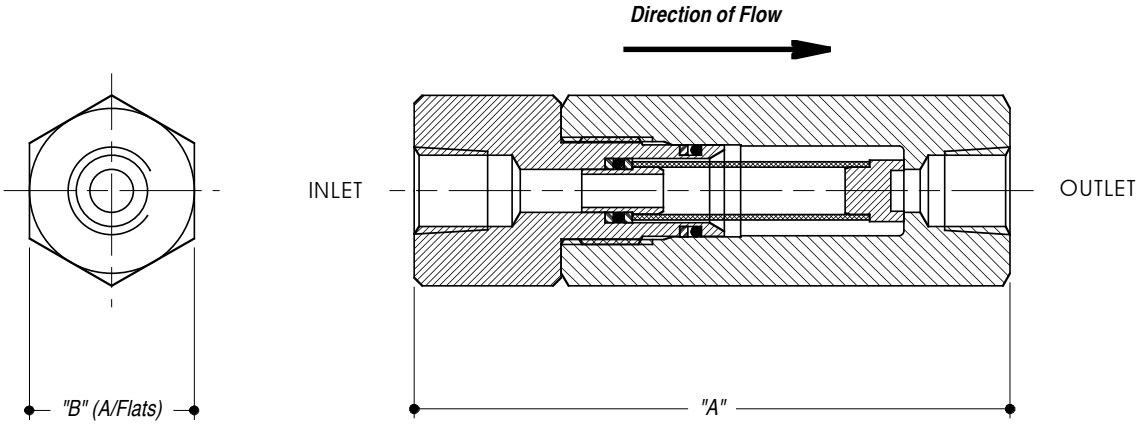
SECTION 9: FILTERS

"IN-LINE" FILTER

TYPES: F25, F37, F50, F75, F100, F125, F150, F200

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **ALL DIMENSIONS IN INCHES.**

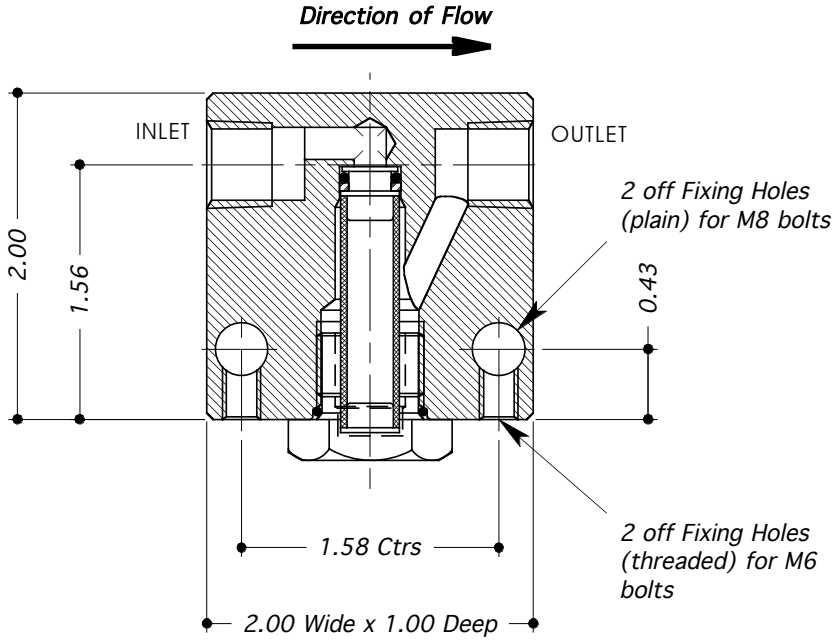


TECHNICAL SPECIFICATION									ORDERING EXAMPLE
Filter Type:	**F25**	**F37**	**F50**	**F75**	**F100**	**F125**	**F150**	**F200**	**F25**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)								**N**
Micron Rating:	**2.5, 5, 10, 20, 50, 100, 200 M** (Microns)								**2.5 M**
Max.Working Pressure - Liquid	**12Kpsi**				**9Kpsi**	**6Kpsi**			**12K**
Max.Working Pressure - Gas	**10Kpsi**	**6Kpsi**	**10Kpsi**	**6Kpsi**	**4Kpsi**	**3Kpsi**			
Port Size:	1/4"	3/8"	1/2"	3/4"	1.0"	1.1/4"	1.1/2"	2.0"	
Seal Material:	Viton (other materials available by request)								
Dry Weight (kg)	0.35	0.30	1.0	0.8	1.4	4.5	4.3	4.1	
Working Temperature Range:	-10°C to +120°C								
Filter Area (sq.ins)	1.3	1.3	4.5	4.5	6.5	15.5	15.5	15.5	
Filter Element Material:	Stainless Steel (316/1.4404) Rigid Mesh								
Max Diff. Press (DP) Bar (element)	20	20	10	10	10	10	10	10	
Dimension (ins) - Length "A"	3.50"	3.50"	4.50"	4.50"	5.50"	7.80"	7.80"	7.80"	
Dimension (ins) - "B" (A/Flats)	1.01"	1.01"	1.48"	1.48"	1.86"	Ø3.0"	Ø3.0"	Ø3.0"	

"IN-LINE" FILTER TYPES: EF25, EF37

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **EASY REPLACEMENT FILTERS.**
- **ALL DIMIENSIONS IN INCHES.**

Valves Ltd

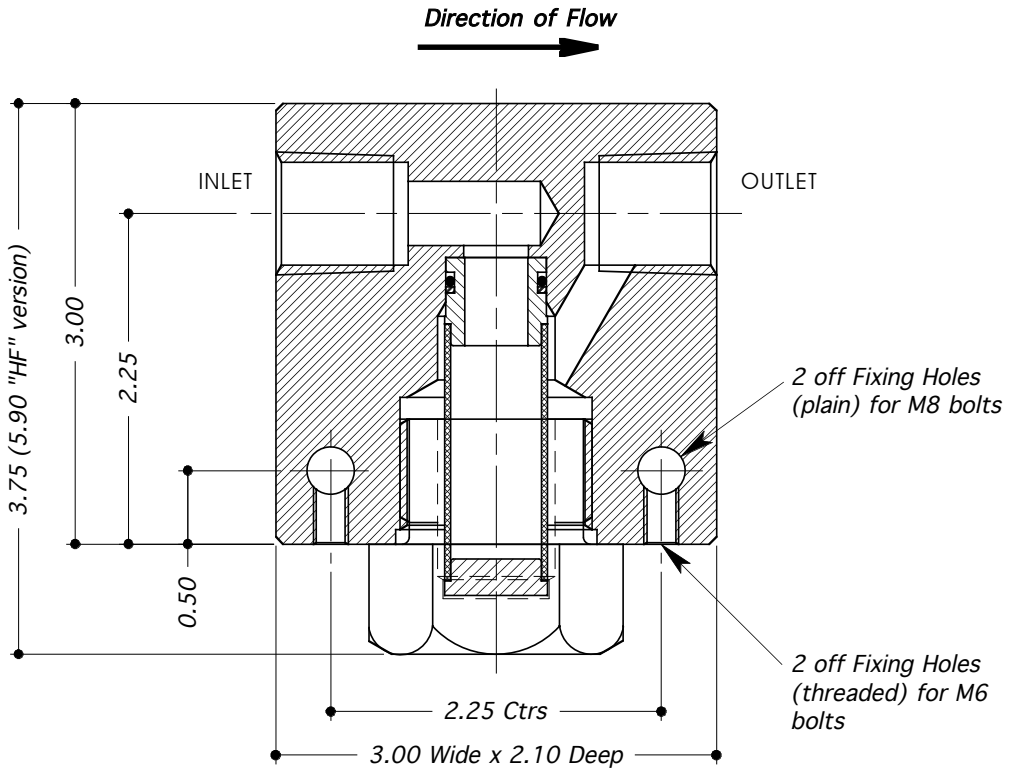


TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Filter Type:	**EF25**	**EF37**	**EF25**
Porting / Connection Options:	**P** = BSP (Parallel)	**N** = NPT (Taper)	**N**
Micron Rating:	**2.5, 5, 10, 20, 50, 100, 200 M** (Microns)		**2.5 M**
Max.Working Pressure - Liquid	**8,000 psi**		**8K**
Max.Working Pressure - Gas	**4,000 psi**		
Port Size:	1/4"	3/8"	
Seal Material:	Viton (other materials available by request)		
Dry Weight (kg)	0.5		
Working Temperature Range:	-10°C to +120°C		
Filter Area (sq.ins)	1.3		
Filter Element Material:	Stainless Steel (316/1.4404) Rigid Mesh		
Max Diff. Press (DP) Bar (element)	20		

"IN-LINE" FILTER TYPE: EF50

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **EASY REPLACEMENT FILTER.**
- **ALL DIMENSIONS IN INCHES.**

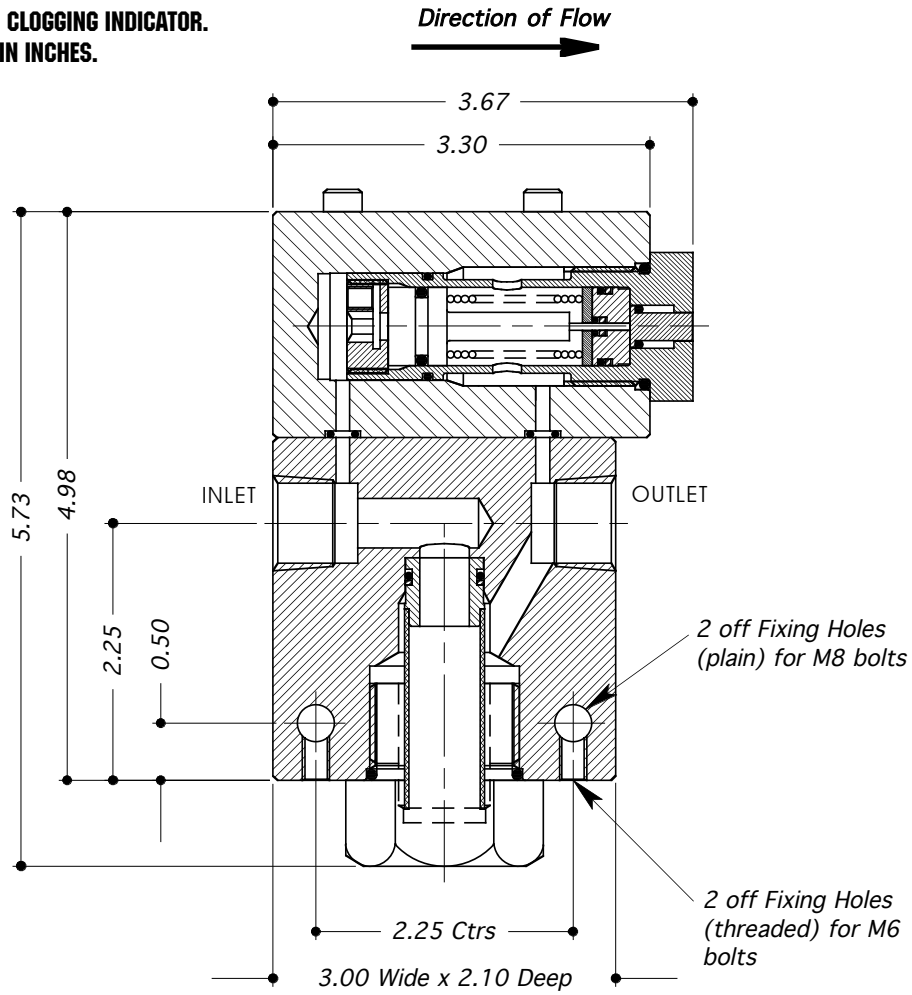


TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Filter Type:	**EF50**	**EF50**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)	**N**
Micron Rating:	**2.5, 5, 10, 20, 50, 100, 200 M** (Microns)	**2.5 M**
High Flow (extended filter element)	**HF**	———
Max.Working Pressure - Liquid	**8,000 psi**	**8K**
Max.Working Pressure - Gas	**4,000 psi**	
Port Size:	1/2"	
Seal Material:	Viton (other materials available by request)	
Dry Weight (kg)	2.5	
Working Temperature Range:	-10°C to +120°C	
Filter Area (sq.ins)	4.5	
Filter Element Material:	Stainless Steel (316/1.4404) Rigid Mesh	
Max Diff. Press (DP) Bar (element)	10	

"IN-LINE" FILTER TYPE: EF50-DP WITH DIFFERENTIAL PRESSURE (DP) INDICATOR

Valves Ltd

- STAINLESS STEEL (316 / 1.4404)
- SUITABLE FOR LIQUID OR GAS USE.
- EASY REPLACEMENT FILTER.
- "POP-OUT" FILTER CLOGGING INDICATOR.
- ALL DIMENSIONS IN INCHES.

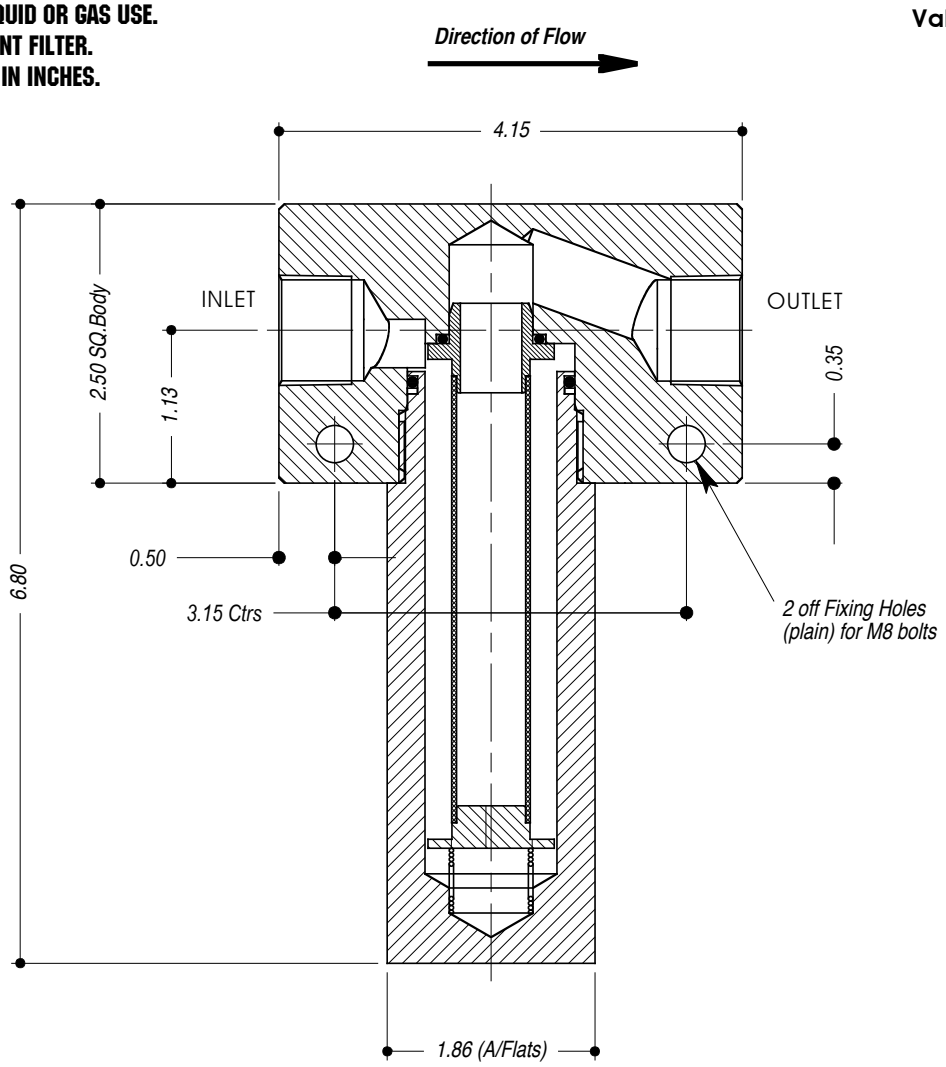


TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Filter Type:	**EF50**	**EF50**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)	**N**
Micron Rating:	**2.5, 5, 10, 20, 50, 100, 200 M** (Microns)	**2.5 M**
Max Diff. Press (DP) Bar (element)	**7**	**DP7**
Max.Working Pressure - Liquid	**8,000 psi**	**8K**
Max.Working Pressure - Gas	**4,000 psi**	
Port Size:	1/2"	
Seal Material:	Viton (other materials available by request)	
Dry Weight (kg)	2.5	
Working Temperature Range:	-10°C to +120°C	
Filter Area (sq.ins)	4.5	
Filter Element Material:	Stainless Steel (316/1.4404) Rigid Mesh	

"IN-LINE" FILTER TYPE: EF100, EF100/75

Valves Ltd

- STAINLESS STEEL (316 / 1.4404)
- SUITABLE FOR LIQUID OR GAS USE.
- EASY REPLACEMENT FILTER.
- ALL DIMENSIONS IN INCHES.

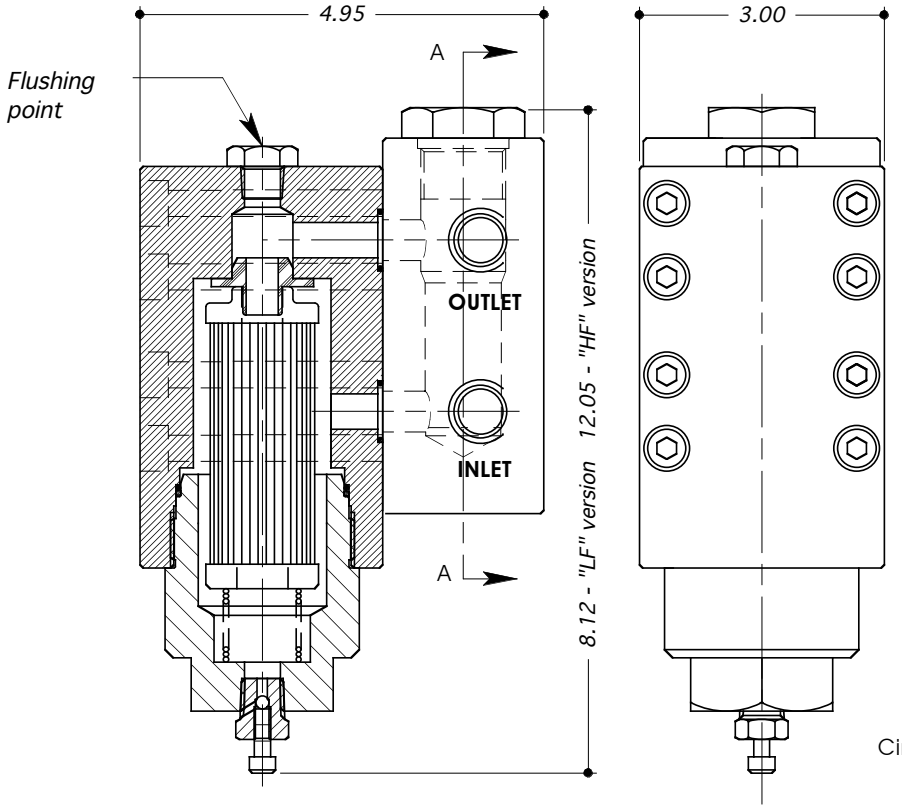


TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Filter Type:	**EF100**	**EF100/75**	**EF100**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)		**P**
Micron Rating:	**2.5, 5, 10, 20, 50, 100, 200 M** (Microns)		**2.5 M**
Max.Working Pressure - Liquid	**8,000 psi**		**8K**
Max.Working Pressure - Gas	**4,000 psi**		
Port Size:	1.0"	3/4"	
Seal Material:	Viton (other materials available by request)		
Dry Weight (kg)	5.5		
Working Temperature Range:	-10°C to +120°C		
Filter Area (sq.ins)	7.4		
Filter Element Material:	Stainless Steel (316/1.4404) Rigid Mesh		
Max Diff. Press (DP) Bar (element)	10		

SIMPLEX FILTER TYPE: SF50

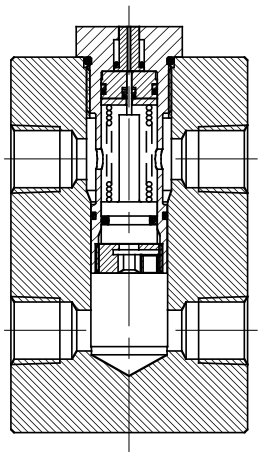
- STAINLESS STEEL (316 / 1.4404)
- SUITABLE FOR LIQUID USE.
- "POP-OUT" FILTER CLOGGING INDICATOR.
- ALL DIMENSIONS IN INCHES.

Valves Ltd



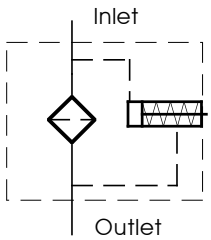
Low Flow **(LF)** illustrated.
High Flow **(HF)** version is fitted with a longer filter case and double element arrangement.

Section 'A-A'



Note the alternate Inlet and Exhaust Port options in both faces of Indicator Mounting Block enabling several piping options.

Circuit Symbol



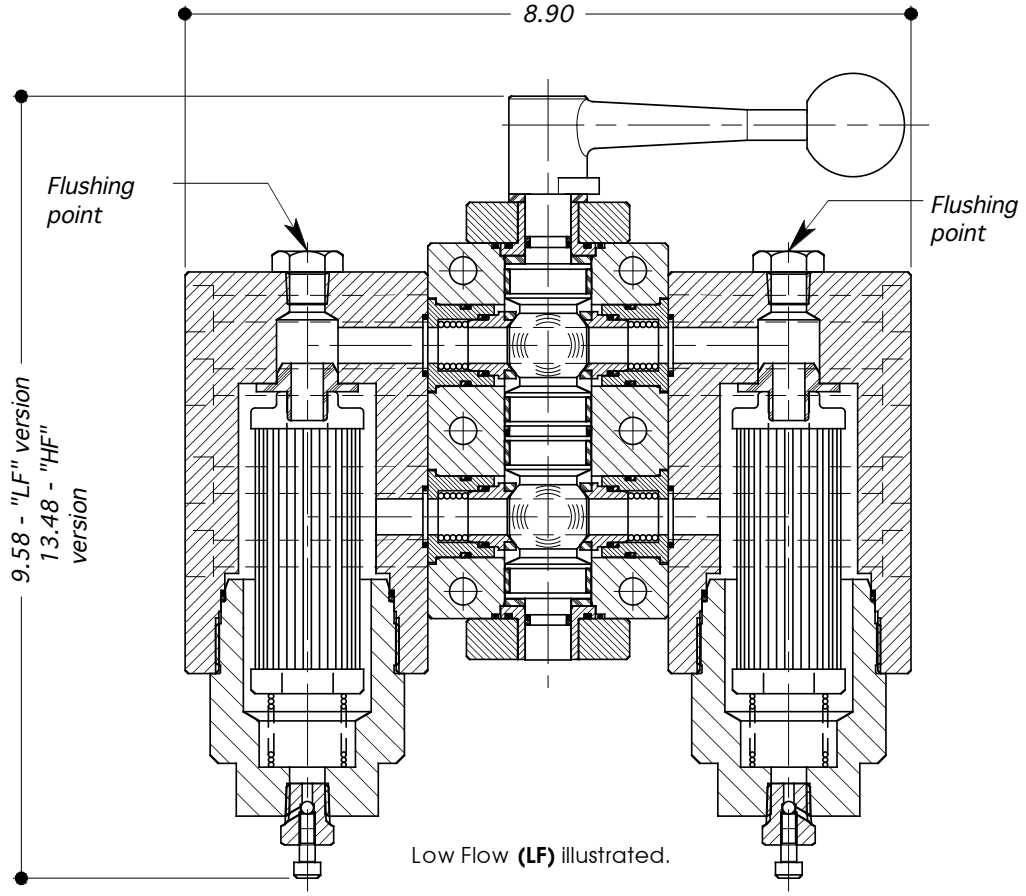
TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Filter Type:	**SF50**	**SF50**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)	**N**
Micron Rating:	**3, 5, 10, 20, 50 M** (Micron)	**20M**
Indicator Type:	**"DP"** = Visual 'pop-out' **"BP"** = Visual 'pop-out' with by-pass	**DP**
Differential Press (DP) Bar:	**3, 5 or 7**	**7**
Flow Rate:	30 L/Min (Standard) (**"HF"** High Flow = 50 L/Min)	——
Max.Working Pressure: (Liquid)	**6,000 psi**	**6K**
Port Size:	1/2"	
Cv Value: (See Note)	3.02	
Dry Weight: (kg)	8.6	
Seal Material:	Viton (other materials available by request)	
Working Temperature Range:	-10°C to +110°C	

Cv Value Note: The figures quoted are for the basic assembly without elements fitted. For total loss including elements forward details of Specific Gravity, Viscosity and Flow Rate to our Technical Department.

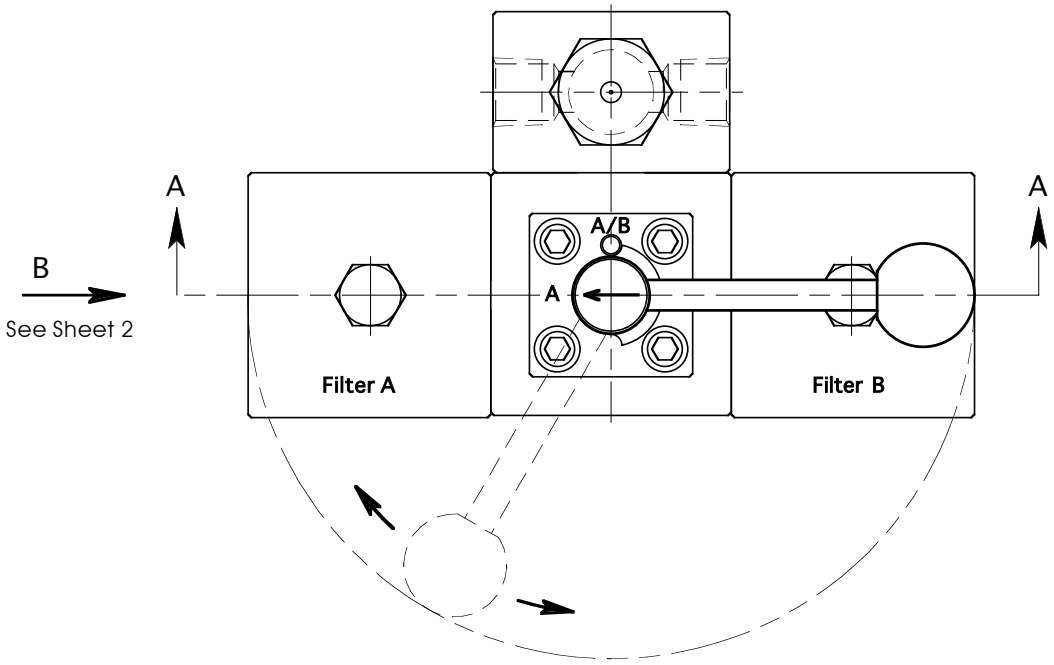
DUPLEX FILTER TYPE: DF50

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **"POP-OUT" FILTER CLOGGING INDICATOR.**
- **ALL DIMENSIONS IN INCHES.**



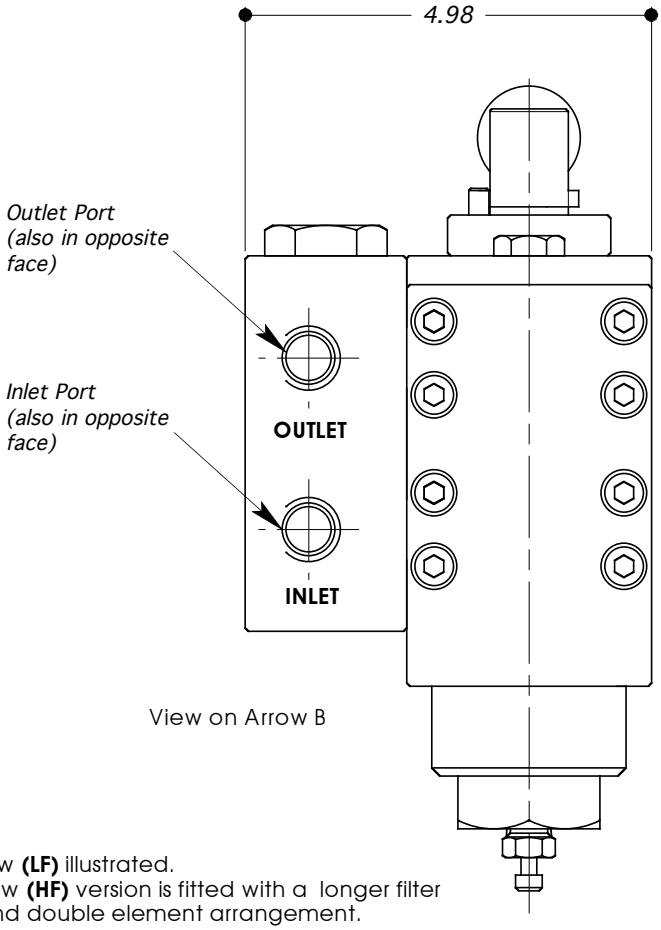
Low Flow **(LF)** illustrated.



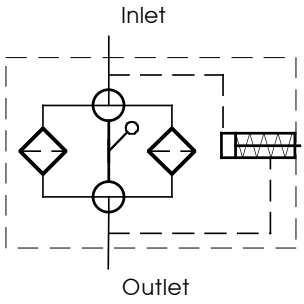
DUPLEX FILTER TYPE: DF50 Sheet 2 of 2

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID USE.**
- **"POP-OUT" FILTER CLOGGING INDICATOR.**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol



Low Flow **(LF)** illustrated.
High Flow **(HF)** version is fitted with a longer filter case and double element arrangement.

TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Filter Type:	**DF50**	**DF50**
Porting / Connection Options:	**P** = BSP (Parallel) **N** = NPT (Taper)	**N**
Micron Rating:	**3, 5, 10, 20, 50M** (Microns)	**20M**
Indicator Type:	**"DP"** = Visual 'pop-out' **"BP"** = Visual 'pop-out' with by-pass	**DP**
Differential Press (DP) Bar:	**3, 5** or **7**	**7**
Flow Rate:	30 L/Min **(Standard)** (**"HF"** High Flow = 50 L/Min)	———
Max.Working Pressure: (Liquid)	**6,000 psi**	**6K**
Port Size:	1/2"	
Cv Value: (See Note)	2.37 / 2.97	
Dry Weight (kg)	20	
Seal Material:	Viton (other materials available by request)	
Working Temperature Range:	-10°C to +110°C	

Cv Value Note: The figures quoted are for the basic assembly without elements fitted. The first figure for single filter selected and second figure for both filters selected. For total loss including elements forward details of Specific Gravity, Viscosity and Flow Rate to our Technical Department.

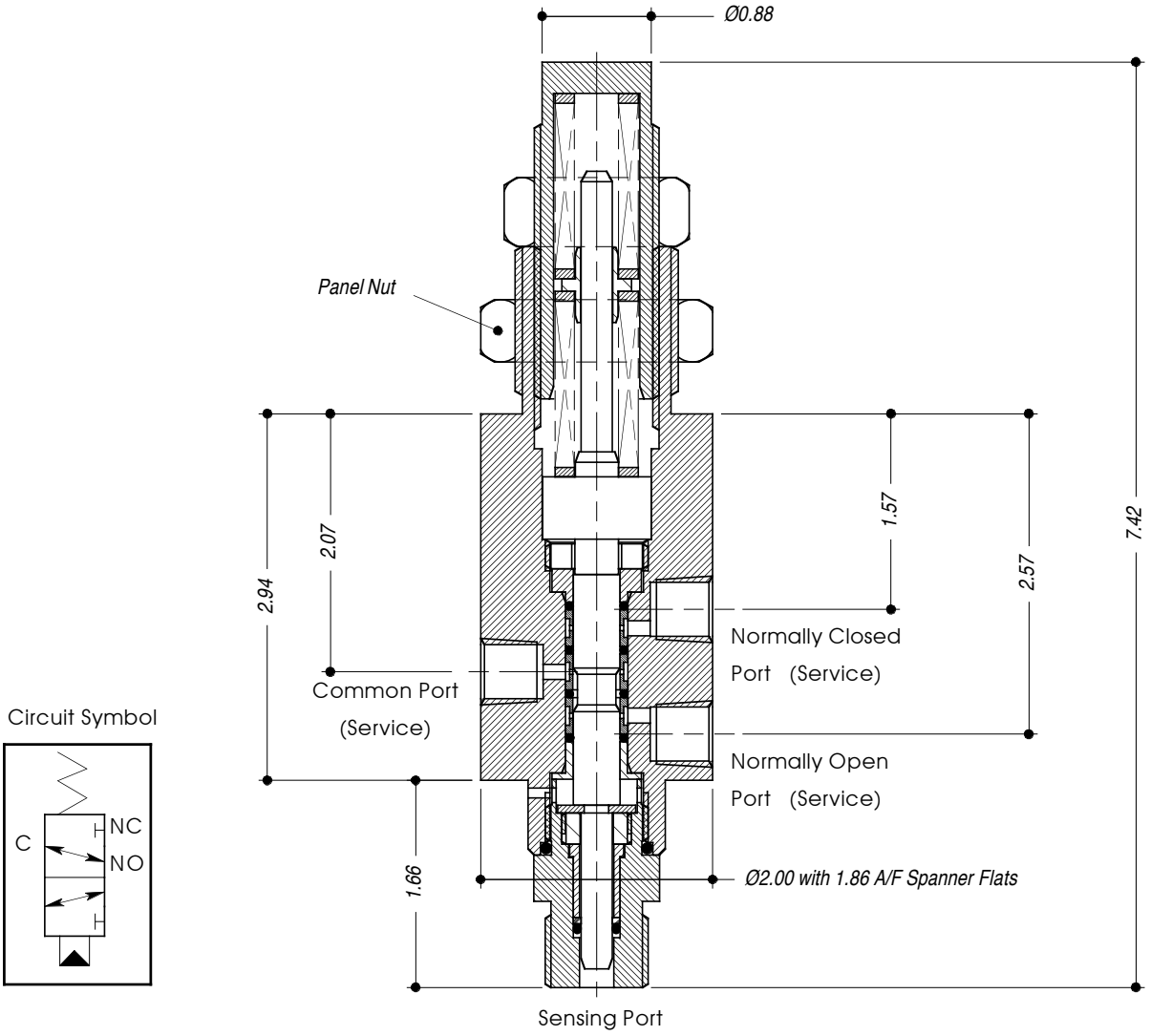
Valves Ltd

SECTION 10: PRESSURE SENSING VALVES

SENSING VALVE TYPES: 3SV25/37, 3SV25/50

Valves Ltd

- **STAINLESS STEEL (316 / 1.4404)**
- **SUITABLE FOR LIQUID OR GAS USE.**
- **ALL DIMENSIONS IN INCHES.**



Circuit Symbol

TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Valve Type:	**3SV25/37**	**3SV25/50**	**3SV25/37**
Porting / Connections Options:	**P** = BSP (Parallel)	**N** = NPT (Taper)	**N**
Sensing Pressure Range:	**0.1K - 1K psi, 0.9K - 3K psi, 2.8K - 6K psi**		**3K**
Max.Control Press: Liquid/Gas	**225 psi**		
Sensing Port Connections:	3/8"	1/2"	
Service Ports: (3 off)	1/4" NPT only		
Seal Material:	Viton (other materials available by request)		
CV Value:	0.15 (Max)		
Dry Weight: (kg)	2.5		
Working Temperature Range:	-10°C to +120°C		

IMPORTANT: This valve is **NOT** to be used as a "safety device" (pressure limiting) as defined in the Pressure Equipment Directive 97/23/EC. When the control function of this unit is being used to limit pressure within a system, safety devices such as "safety relief" or "relief" valves must be fitted. ***(See Section 7 for details).***

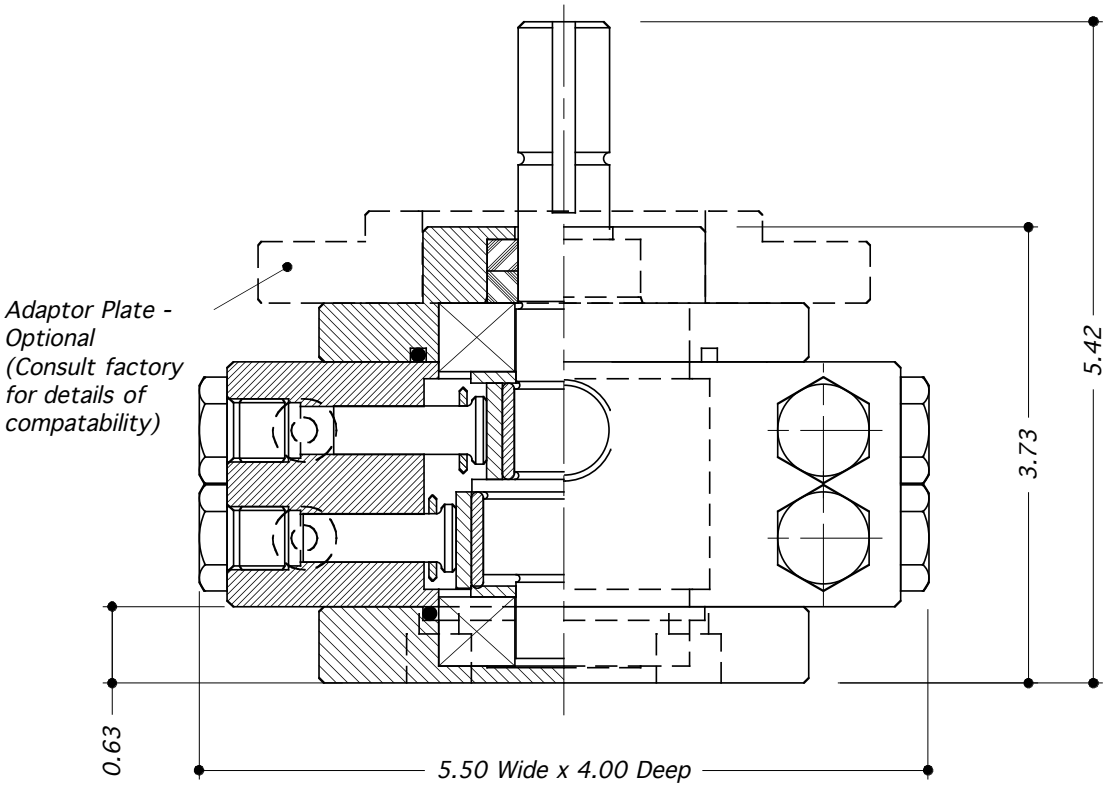
Valves Ltd

SECTION 11: PUMPS

H.P. RADIAL PISTON PUMP TYPES: 260PR & 520PR

Valves Ltd

- **MILD STEEL (EN1A / 220M07)**
- **SUITABLE FOR MINERAL OIL USE.**
- **ALL DIMENSIONS IN INCHES.**



Note: This unit can be used with certain water glycol fluids. Consult factory for details.

TECHNICAL SPECIFICATION				ORDERING EXAMPLE
Material Option (non-std)		Not Applicable		——
Pump Type:		**260PR**	**520PR**	**520PR**
Max.Working Pressure:		**12,000 psi**		**12K**
Connections:		Suction: 1/2" BSP	Discharge: 1/4" BSP	
Delivery Rate:	Off Load	0.35 Galls/min	0.68 Galls/min	
	On Load	0.20 Galls/min	0.48 Galls/min	
Power Consumption:	Off Load	0.90 kW	1.00 kW	
	On Load	2.90 kW	5.20 kW	
Pump - r.p.m.		1440		
Working Fluid Viscocity Range:		10 - 250 cSt.		
Suction: (Lift)		12" Water Gauge		
Dry Weight: (kg)		9.0		
Working Temperature Range:		-10°C to +60°C (Oil)	-10°C to +40°C (other fluids)	
External Construction:		Mild Steel (En1A / 220M07)		

Note: Delivery and Power consumption vary linearly with output pressure. Hence, Flow and Power consumption may be determined by linear interpolation between stated "off-load" and "on-load" (12,000 psi) figures.

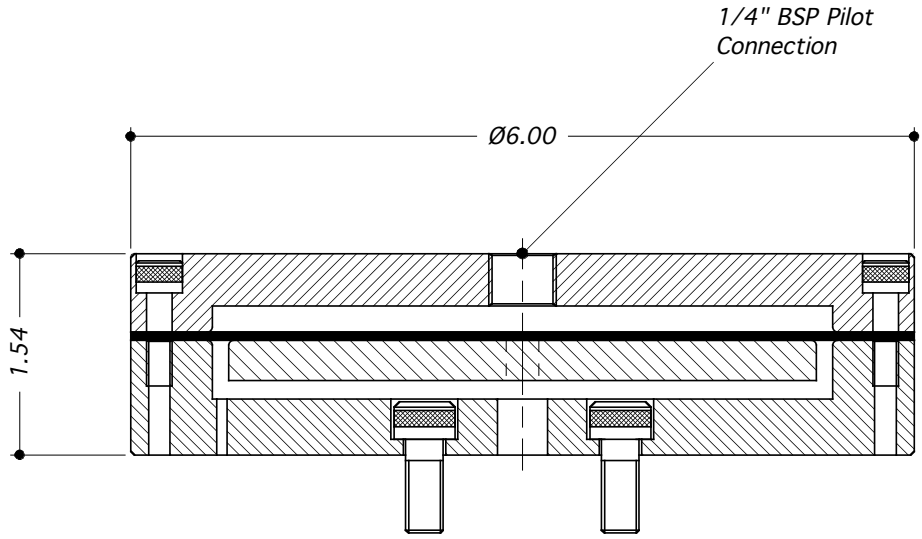
Valves Ltd

SECTION 12: ACTUATORS & SOLENOID THRUSTERS

DIAPHRAGM AIR ACTUATOR TYPE: A1

- **LOW PRESSURE OPERATION**
- **STAINLESS STEEL (316 / 1.4404)**
- **ALL DIMENSIONS IN INCHES.**

Valves Ltd



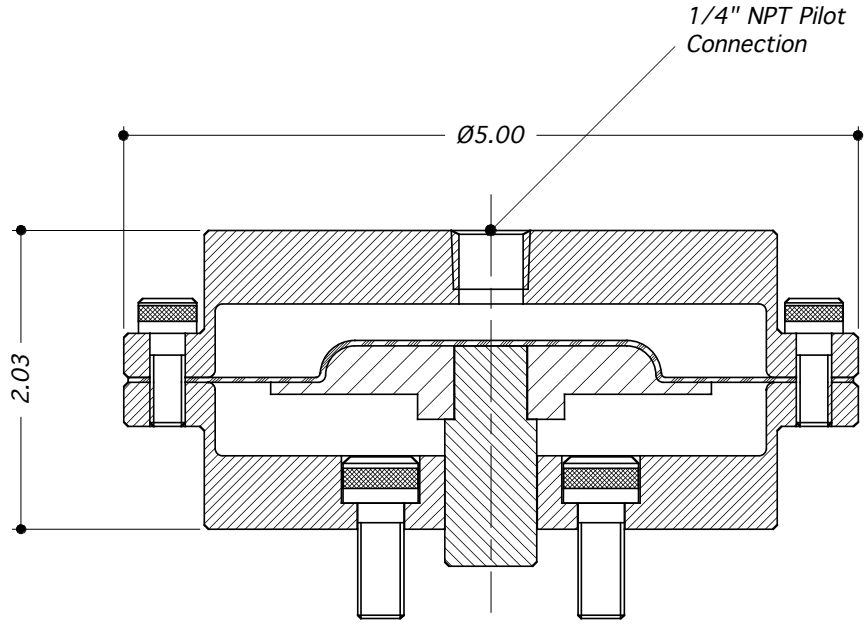
Technical Specification Note:-
***** The Maximum Pilot Pressure is for the above Actuator design only.
Different applications may limit the Maximum Pilot Pressure due to the design of the Valve Body being used.
Check with the individual Valve Body technical specification sheets for details.

TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Actuator Type:	**A1**	**A1**
Pilot Port Size:	1/4"	
Thread Form: (Pilot supply)	BSP (Parallel)	
Maximum Pilot Pressure: *****	150 psi	
Diaphragm Material:	Neoprene	
Dry Weight (kg)	1.3	
Working Temperature Range:	-10°C to +100°C	

DIAPHRAGM AIR ACTUATOR TYPE: A2

- **LOW PRESSURE OPERATION.**
- **STAINLESS STEEL (316 / 1.4404)**
- **ALL DIMENSIONS IN INCHES.**

Valves Ltd



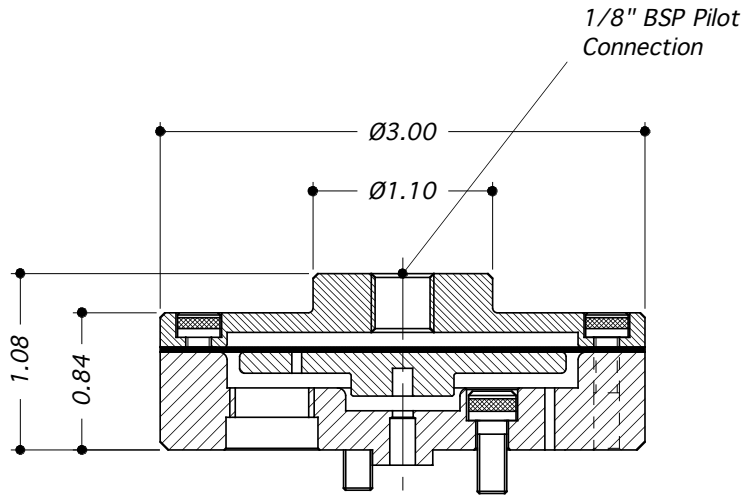
Technical Specification Note:-
***** The Maximum Pilot Pressure is for the above Actuator design only.
Different applications may limit the Maximum Pilot Pressure due to the design of the Valve Body being used.
Check with the individual Valve Body technical specification sheets for details.

TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Actuator Type:	**A2**	**A2**
Pilot Port Size:	1/4"	
Thread Form: (Pilot supply)	NPT (Taper)	
Maximum Pilot Pressure: *	150 psi	
Diaphragm Material:	Nitrile *(with Nylon fabric reinforcement)*	
Dry Weight (kg)	0.5	
Working Temperature Range:	-10°C to +100°C	

DIAPHRAGM AIR ACTUATOR TYPE: A3

- **LOW PRESSURE OPERATION**
- **STAINLESS STEEL (316 / 1.4404)**
- **ALL DIMENSIONS IN INCHES.**

Valves Ltd



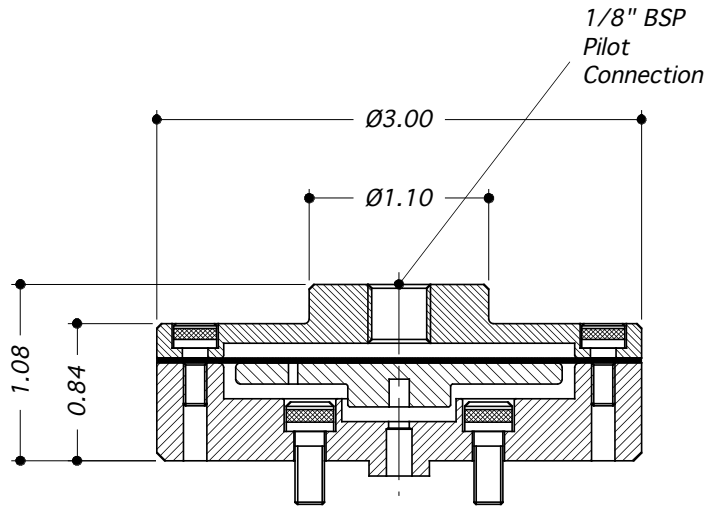
Technical Specification Note:-
***** The Maximum Pilot Pressure is for the above Actuator design only.
Different applications may limit the Maximum Pilot Pressure due to the design of the Valve Body being used.
Check with the individual Valve Body technical specification sheets for details.

TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Actuator Type:	**A3**	**A3**
Pilot Port Size:	1/8"	
Thread Form: (Pilot supply)	BSP (Parallel)	
Maximum Pilot Pressure: *	150 psi	
Diaphragm Material:	Nitrile *(with Nylon fabric reinforcement)*	
Dry Weight (kg)	1.3	
Working Temperature Range:	-10°C to +100°C	

DIAPHRAGM AIR ACTUATOR TYPE: A4

- **LOW PRESSURE OPERATION**
- **STAINLESS STEEL (316 / 1.4404)**
- **ALL DIMENSIONS IN INCHES.**

Valves Ltd



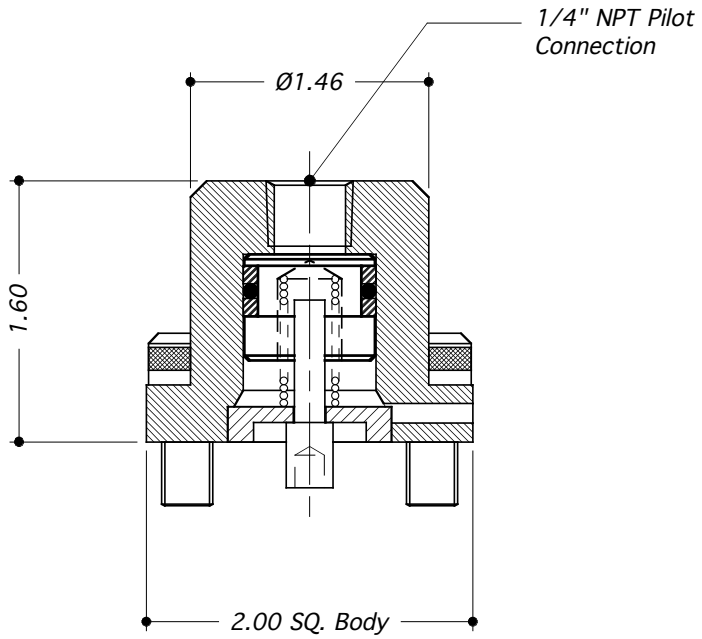
Technical Specification Note:-
***** The Maximum Pilot Pressure is for the above Actuator design only.
Different applications may limit the Maximum Pilot Pressure due to the design of the Valve Body being used.
Check with the individual Valve Body technical specification sheets for details.

TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Actuator Type:	**A4**	**A4**
Pilot Port Size:	1/8"	
Thread Form: (Pilot supply)	BSP (Parallel)	
Maximum Pilot Pressure: *	150 psi	
Diaphragm Material:	Nitrile *(with Nylon fabric reinforcement)*	
Dry Weight (kg)	1.3	
Working Temperature Range:	-10°C to +100°C	

PISTON HYDRAULIC ACTUATOR TYPE: HO

- **HIGH PRESSURE OPERATION.**
- **STAINLESS STEEL (316 / 1.4404)**
- **ALL DIMENSIIONS IN INCHES.**

Valves Ltd



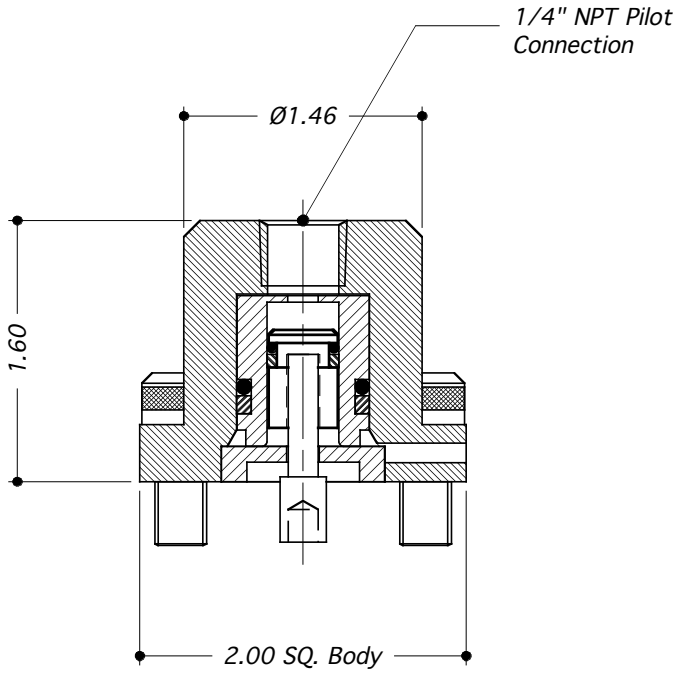
Technical Specification Note:-
***** The Maximum Pilot Pressure is for the above Actuator design only.
Different applications may limit the Maximum Pilot Pressure due to the design of the Valve Body being used.
Check with the individual Valve Body technical specification sheets for details.

TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Actuator Type:	**HO**	**HO**
Pilot Port Size:	1/4"	
Thread Form: (Pilot supply)	NPT (Taper)	
Maximum Pilot Pressure: *	10,000 psi	
Seal Material:	Viton	
Dry Weight (kg)	0.5	
Working Temperature Range:	-10°C to +120°C	

PISTON HYDRAULIC ACTUATOR TYPE: H1

- **HIGH PRESSURE OPERATION**
- **STAINLESS STEEL (316 / 1.4404)**
- **ALL DIMENSIONS IN INCHES.**

Valves Ltd



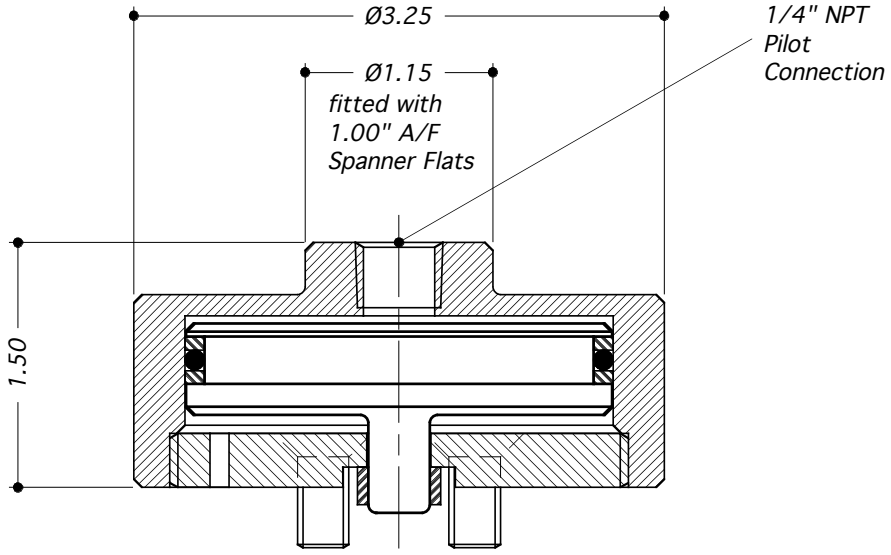
Technical Specification Note:-
***** The Maximum Pilot Pressure is for the above Actuator design only.
Different applications may limit the Maximum Pilot Pressure due to the design of the Valve Body being used.
Check with the individual Valve Body technical specification sheets for details.

TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Actuator Type:	**H1**	**H1**
Pilot Port Size:	1/4"	
Thread Form: (Pilot supply)	NPT (Taper)	
Maximum Pilot Pressure: *	10,000 psi	
Seal Material:	Viton	
Dry Weight (kg)	0.5	
Working Temperature Range:	-10°C to +120°C	

PISTON HYDRAULIC ACTUATOR TYPE: H3

- **HIGH PRESSURE OPERATION.**
- **STAINLESS STEEL (316 / 1.4404)**
- **ALL DIMENSIONS IN INCHES.**

Valves Ltd



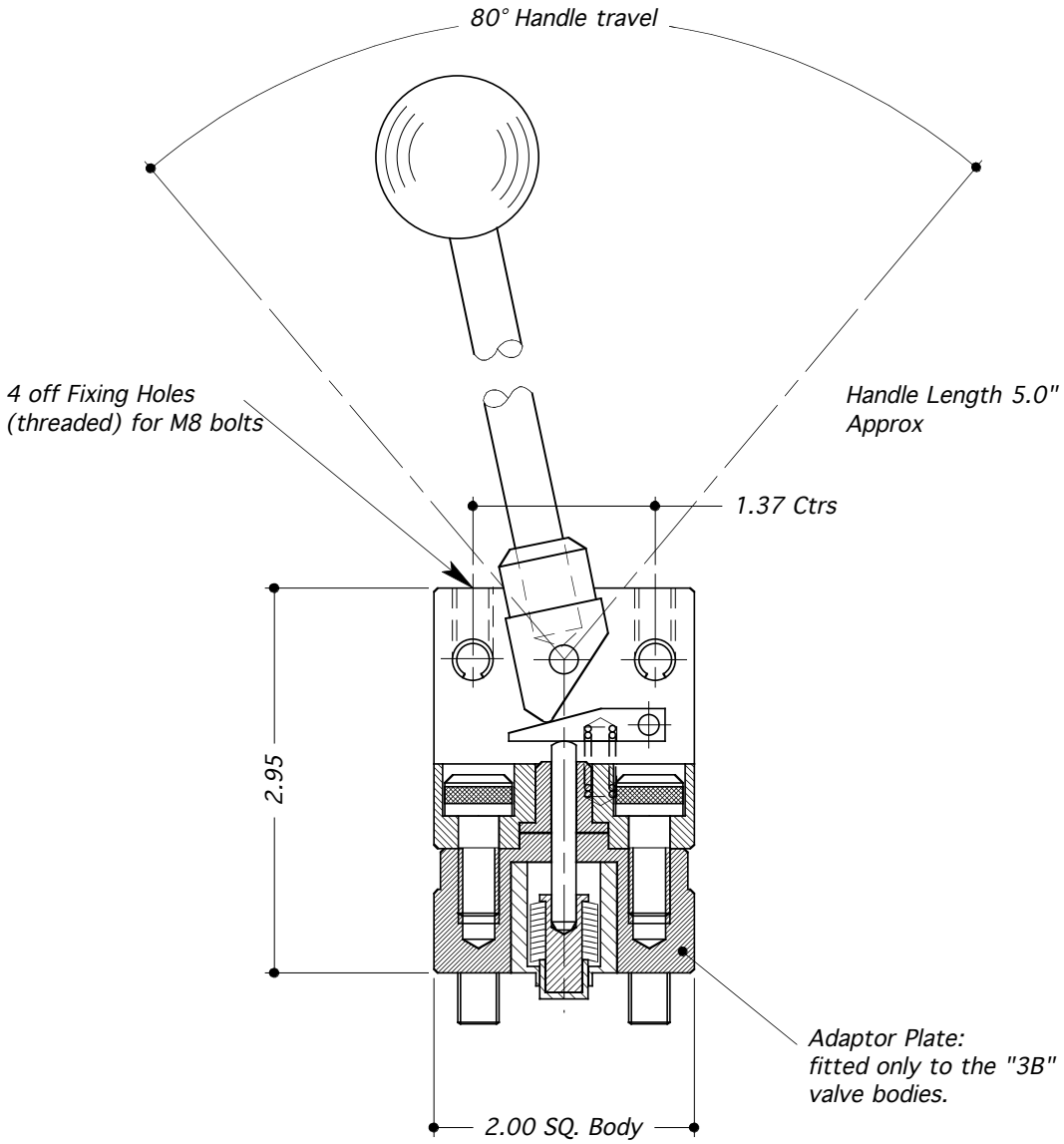
Technical Specification Note:-
***** The Maximum Pilot Pressure is for the above Actuator design only.
Different applications may limit the Maximum Pilot Pressure due to the design of the Valve Body being used.
Check with the individual Valve Body technical specification sheets for details.

TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Actuator Type:	**H3**	**H3**
Pilot Port Size:	1/4"	
Thread Form: (Pilot supply)	NPT (Taper)	
Maximum Pilot Pressure: *	500 psi	
Seal Material:	Viton	
Dry Weight (kg)	1.0	
Working Temperature Range:	-10°C to +120°C	

MANUAL LEVER ACTUATOR TYPES: L, DL

- **STAINLESS STEEL (316 / 1.4404)**
- **ALL DIMENSIONS IN INCHES.**

Valves Ltd

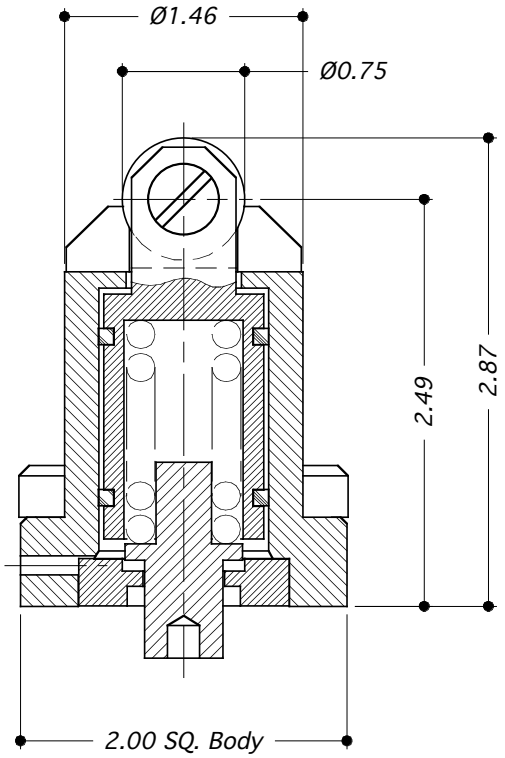


TECHNICAL SPECIFICATION			ORDERING EXAMPLE
Actuator Type:	**L**	**DL**	**L**
Type "L"	Lever remains at limit of travel after operating		
Type "DL"	Lever returns to centre position after operating		
Dry Weight (kg)	1.5		
Working Temperature Range:	-10°C to +120°C		

CAM ROLLER ACTUATOR TYPE: C0

- STAINLESS STEEL (316 / 1.4404)
- ALL DIMENSIONS IN INCHES.

Valves Ltd

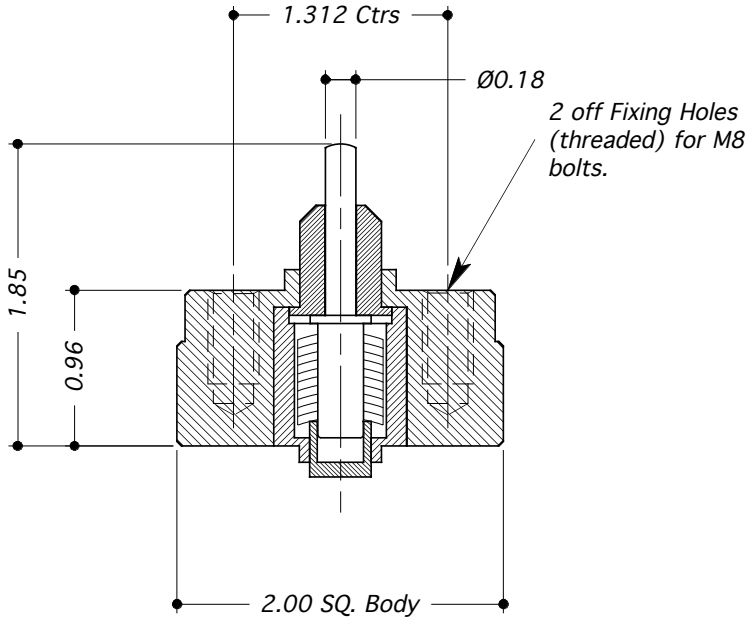


TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Actuator Type:	**C0**	**C0**
Dry Weight (kg)	0.6	
Working Temperature Range:	-10°C to +120°C	

CAM PIN ACTUATOR TYPE: C1

- STAINLESS STEEL (316 / 1.4404)
- ALL DIMENSIONS IN INCHES.

Valves Ltd



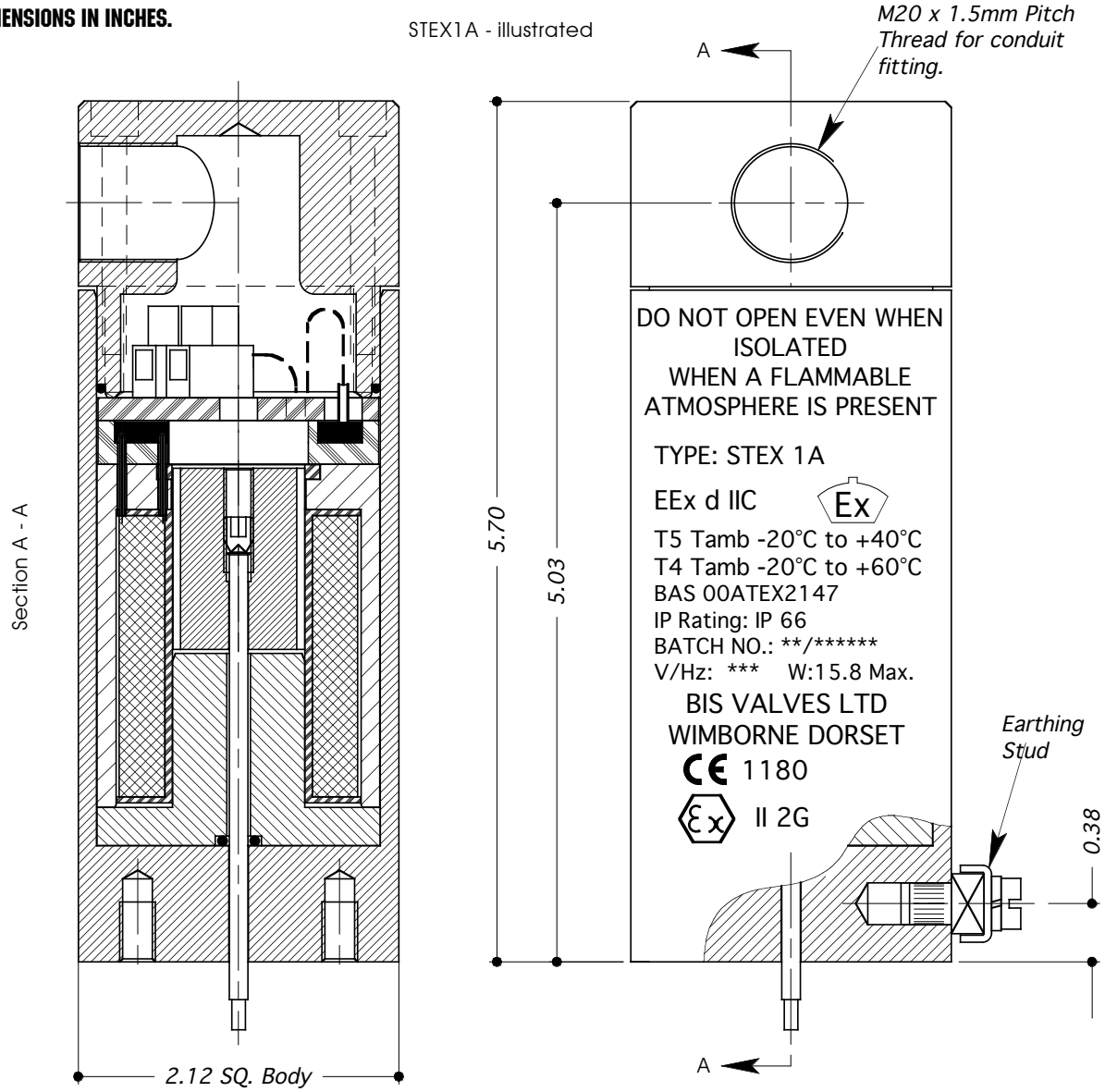
TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Actuator Type:	**C1**	**C1**
Dry Weight (kg)	0.5	
Working Temperature Range:	-10°C to +120°C	

SOLENOID THRUSTER TYPE: STEX1

Valves Ltd

- ATEX DIRECTIVE 94/9/EC APPROVED - FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES.
- STAINLESS STEEL HOUSING.
- TYPE: EEX'D' IIC.
- EXPLOSION PROOF.
- FLAMEPROOF ENCLOSURE.
- ALL DIMENSIONS IN INCHES.

STEX1A - illustrated



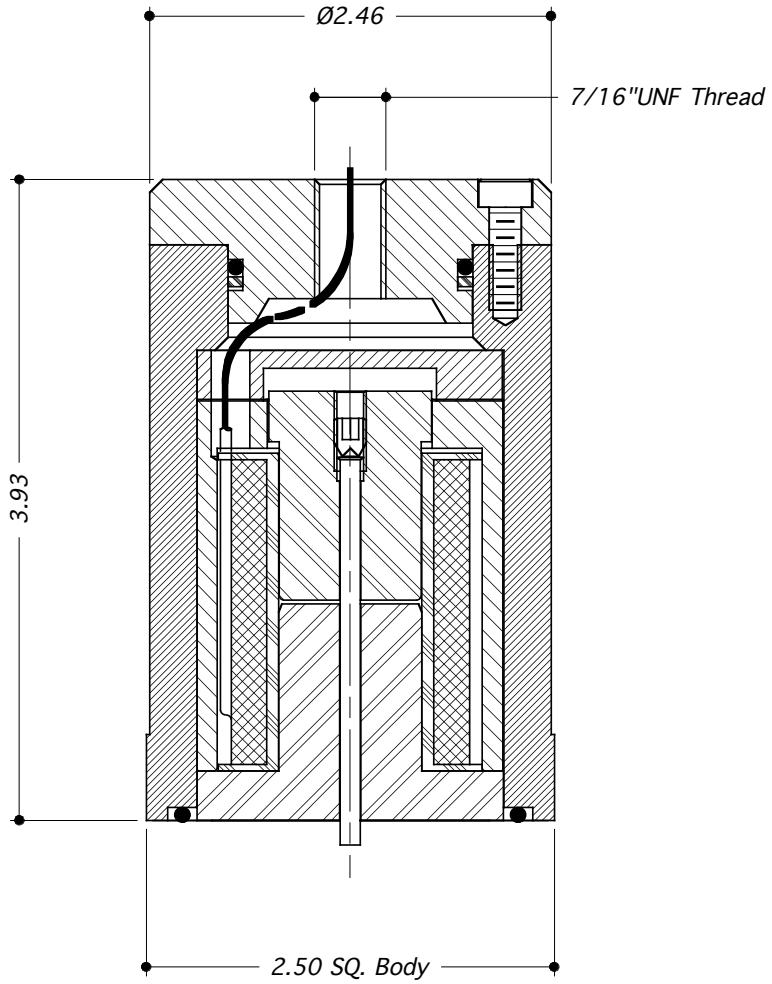
TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Solenoid Type:	**STEX 1**	**STEX 1A**
Conduit Connection:	**A** - Radial Exit as shown	
	B - Axial Exit	
Voltage Rating:	24 V (for other voltages contact our Technical Department)	
Power Rating:	15.8 Watts MAX	
IP Rating	IP 66	
Dry Weight: (kg)	2.8 kg	
Temperature Rating:	T5 @ -10°C to +40°C Ambients, T4 @ -10°C to +60°C Ambients	

Power Consumption: Coils with power consumption reduced down to 8W can be produced as a "special" if required. It should be noted that solenoid performance will be impaired, hence the valve operating pressures may differ from a standard build design.

SOLENOID THRUSTER (SUB-SEA) TYPE: SW

Valves Ltd

- STAINLESS STEEL (316 / 1.4404)
- SUB-SEA OPERATION (DEPTH OF 21,000 FT)
- A SUB-SEA CONNECTOR IS NOT SUPPLIED WITH THE SOLENOID THRUSTER.
- ALL DIMENSIONS IN INCHES.

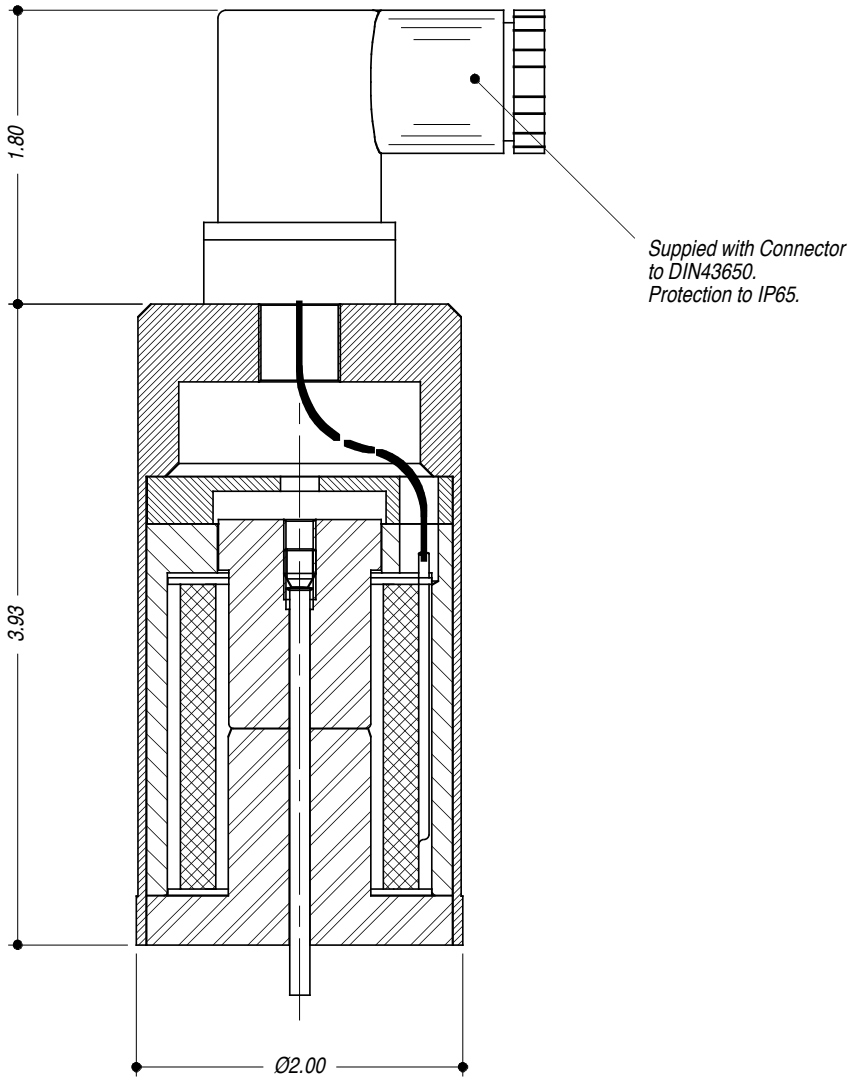


TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Solenoid Type:	**SW**	**SW**
Voltage Rating:	24 V D.C.	
Power Rating:	15.5 Watts	
Dry Weight: (kg)	1.0	
Working Temperature Range:	-10°C to +60°C (Ambient)	

SOLENOID THRUSTER TYPE: HC

- STAINLESS STEEL (316 / 1.4404)
- ALL DIMENSIONS IN INCHES.

Valves Ltd

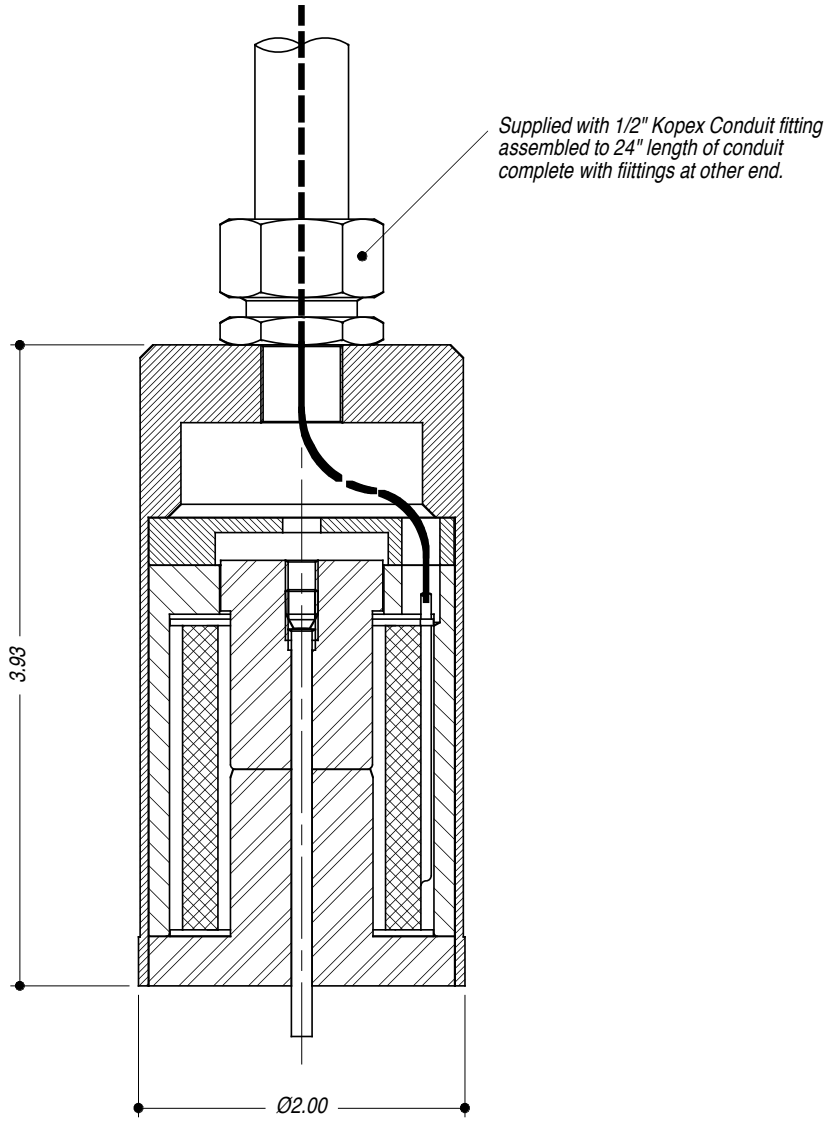


TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Solenoid Type:	**HC**	**HC**
Voltage Rating:	24 V D.C.	
Power Rating:	15.5 Watts	
Dry Weight: (kg)	1.0	
Working Temperature Range:	-10°C to +60°C (Ambient)	

SOLENOID THRUSTER TYPE: KC

- **STAINLESS STEEL (316 / 1.4404)**
- **ALL DIMENSIONS IN INCHES.**

Valves Ltd



TECHNICAL SPECIFICATION		ORDERING EXAMPLE
Solenoid Type:	**KC**	**KC**
Voltage Rating:	24 V D.C.	
Power Rating:	15.5 Watts	
Dry Weight: (kg)	1.0	
Working Temperature Range:	-10°C to +60°C (Ambient)	

TERMS AND CONDITIONS Rev: 2

1 Interpretation

1.1 In these Conditions:

'Buyer' means the person who accepts a quotation of the Seller for the sale of the goods or whose order for the goods is accepted by the Seller

'Goods' means the goods (including any instalment of the goods or any parts for them) which the Seller is to supply in accordance with these Conditions

'Seller' means BiS Valves Limited (registered in England under No. 826821)

'Conditions' means the standard terms and conditions of sale set out in this document and (unless the context otherwise requires) includes any special terms and conditions agreed in writing between the Buyer and the Seller

'Contract' means the contract for the purchase and sale of the goods

'Writing' includes telex cable facsimile transmission and comparable means of communication

1.2 Any reference in these Conditions to any provision of a statute shall be construed as a reference to that provision as amended re-enacted or extended at the relevant time

1.3 The headings in these Conditions are for convenience only and shall not affect their interpretation

2) Basis of the sale

2.1 The Seller shall sell and the Buyer shall purchase the Goods in accordance with any written quotation of the Seller which is accepted by the Buyer or any written order of the Buyer which is accepted by the Seller subject in either case to these Conditions which shall govern the Contract to the exclusion of any other terms and conditions subject to which any such quotation is accepted or purported to be accepted or any such order is made or purported to be made by the Buyer

2.2 No variation to these Conditions shall be binding unless agreed in writing between the authorised representatives of the Buyer and the Seller

2.3 The Seller's employees or agents are not authorised to make any representations concerning the goods unless confirmed by the Seller in writing. In entering into this Contract the Buyer acknowledges that it does not rely on any such representations which are not so confirmed

2.4 Any advice or representation given by the Seller or its employees or agents to the Buyer or its employees or agents as to the storage application or use of the Goods which is not confirmed in writing by the Seller is followed or acted upon entirely at the Buyer's own risk and accordingly the Seller shall not be liable for any such advice or recommendation which is not so confirmed

2.5 Any typographical clerical or other error or omission in any sales literature quotation price list acceptance or offer invoice or other document or information issued by the Seller shall be subject to correction without liability on the part of the Seller

3) Orders and specifications

3.1 No Order submitted by the Buyer shall be deemed to be accepted by the Seller unless and until confirmed in writing by the Seller's authorised representative.

3.2 The Buyer shall be responsible to the Seller for ensuring the accuracy of the terms of any Order (including any applicable specification) submitted by the Buyer and for giving the Seller any necessary information relating to the Goods within a sufficient time to enable the Seller to perform the Contract in accordance with its terms

3.3 The quantity quality and description of and any specification for the Goods shall be those set out in the Seller's quotation (if accepted by the Buyer) or the Buyer's order (if accepted by the Seller)

3.4 If the Goods are to be manufactured or any process is to be applied to the Goods by the Seller in accordance with the specification submitted by the Buyer the Buyer shall indemnify the Seller against all loss damages costs and expenses awarded against or incurred by the Seller in connection with or paid or agreed to be paid by the Seller in settlement of any claim for infringement of any patent copyright design trademark or other industrial or intellectual property rights of any other person which results from the Seller's use of the Buyer's specification

3.5 The Seller reserves the right to make any changes in the specification of the Goods which are required to conform with any applicable statutory or EC requirements or where the Goods are to be supplied to the Seller's specification which do not materially affect their quality of performance

3.6 No Order which has been accepted by the Seller may be cancelled by the Buyer except with the agreement in writing of the Seller and on terms that the Buyer shall indemnify the Seller in full against all loss (including loss of profit) costs (including the cost of all labour and materials used) damages charges and expenses incurred by the Seller as the result of cancellation

4) Price of the goods

4.1 The price of the goods shall be the Seller's quoted price or where no price has been quoted (or a quoted price is no longer valid) the price listed in the Seller's published price list current at the date of acceptance of the order. Where the Goods are supplied for export from the United Kingdom the Seller's published export price list shall apply. All prices quoted are valid for ninety days only or until earlier acceptance by the Buyer after which time they may be altered by the Seller without giving notice to the Buyer. **All orders are subject to a minimum order charge**.

4.2 The Seller reserves the right by giving notice to the Buyer at any time before delivery to increase the price of goods to reflect any increase in the cost to the Seller which is due to any factor beyond the control of the Seller (such as without limitation any foreign exchange fluctuation currency regulation alteration of duties significant increase in the cost of labour and/or materials and other costs of manufacture) any change in delivery dates quantities or specifications for the Goods which is requested by the Buyer or any delay caused by any instructions of the Buyer or failure of the Buyer to give the Seller adequate information or instructions

4.3 Except as otherwise stated under the terms of any quotation or in any price list of the Seller and unless otherwise agreed in writing between the Buyer and the Seller all prices are given by the Seller on an ex-works basis and exclusive of the cost of packaging carriage freight insurance and whether or not the Seller agrees to deliver the Goods otherwise than at the Seller's premises

4.4 The price is exclusive of any applicable value added tax which the Buyer shall be additionally liable to pay to the Seller

4.5 The cost of pallets and return of containers will be charged to the Buyer in addition to the price of the Goods but full credit will be given to the Buyer provided they are returned undamaged to the Seller before the due payment date

5) **Terms of payment**

5.1 Subject to any special terms agreed in writing between the Buyer and the Seller the Seller shall be entitled to invoice the Buyer for the price of the goods on or at any time after delivery of the Goods unless the Goods are to be collected by the Buyer or the Buyer wrongfully fails to take delivery of the goods in which event the Seller shall be entitled to invoice the Buyer for the price at any time after the Seller has notified the Buyer that the Goods are ready for collection or (as the case may be) the Seller has tendered delivery of the Goods

5.2 The Buyer shall pay the price of the Goods (less any discount to which the Buyer is entitled but without any other deduction) on or before the last working day of the month following the date of invoice. The Seller shall be entitled to recover the price notwithstanding that delivery may not have taken place and that the property and the Goods has not passed to the Buyer. The time for payment of the price shall be of the essence of the Contract. Receipts for payment will be issued only upon request.

5.3 If the Buyer fails to make any payment on the due date then without prejudice to any other right or remedy available to the Seller the Seller shall be entitled to:

5.4.1 cancel the Contract or suspend any further deliveries to the Buyer

5.4.2 appropriate any payment made by the Buyer to such of the Goods (or the Goods supplied under any other contract between the Buyer and the Seller) as the Seller may see fit (notwithstanding any purported appropriation by the Buyer) and

5.4.3 charge the Buyer interest (both before and after any judgment) on the amount unpaid at the rate of three per centum per annum above The Royal Bank of Scotland PLC Bank base rate from time to time until payment in full is made (a part of a month being treated as a full month for the purpose of calculating interest)

6) **Delivery**

6.1 Delivery of the Goods shall be made by the Buyer collecting the Goods at the Seller's premises at any time after the Seller has notified the Buyer that the Goods are ready for collection or if some other place for delivery is agreed by the Seller by the Seller delivering the Goods to that place

6.2 Any dates quoted for delivery of the Goods are approximate only and the Seller shall not be liable for any delay in delivery of the Goods howsoever caused. Time for delivery shall not be of the essence of the Contract unless previously agreed by the Seller in writing. The Goods may be delivered by the Seller in advance of the quoted delivery date upon giving reasonable notice to the Buyer

6.3 Where delivery of the Goods is to be made by the Seller in bulk the Seller reserves the right to deliver up to per cent more or per cent less than the quantity ordered without any adjustment in the price and the quantity so delivered shall be deemed to be the quantity ordered

6.4 Where the Goods are to be delivered in instalments each delivery shall constitute a separate Contract and failure by the Seller to deliver any one or more of the instalments in accordance with these Conditions or any claim by the Buyer in respect of any one or more instalments shall not entitle the Buyer to treat the Contract as a whole as repudiated

6.5 If the Seller fails to deliver the Goods (or any instalment) for any reason other than any cause beyond the Seller's reasonable control or the Buyer's fault and the Seller is accordingly liable to the Buyer the Seller's liability shall be limited to the excess (if any) of the cost to the Buyer (in the cheapest available market) of similar goods to replace those not delivered over the price of the Goods

6.6 If the Buyer fails to take delivery of the Goods or fails to give the Seller adequate delivery instructions at the time stated for delivery (otherwise than by reason of any cause beyond the Buyer's reasonable control or by reason of the Seller's fault) then without prejudice to any other right or remedy available to the Seller the Seller may:

6.6.1 store the Goods until actual delivery and charge the Buyer for the reasonable costs (including insurance) of storage or

6.6.2 sell the goods at the best price readily obtainable and (after deducting all reasonable storage and selling expenses) account to the Buyer for the excess over the price under the Contract or charge the Buyer for any shortfall below the price under the Contract

7) **Risk and property**

7.1 Risk of damage to or loss of the Goods passes to the Buyer:

7.1.1 in the case of Goods to be delivered to the Seller's premises at the time when the Seller notifies the Buyer that the Goods are available for collection or

7.1.2 in the case of Goods to be delivered otherwise than at the Seller's premises at the time of delivery or if the Buyer wrongfully fails to take delivery of the Goods at the time when the Seller intended delivery of the Goods

7.2 Notwithstanding delivery and the passing of risk in the Goods or any other provisions of these Conditions the property in the Goods shall not pass to the Buyer until the Seller has received in cash or cleared funds payment in full of the price of the Goods and all other goods agreed to be sold by the Seller to the Buyer for which payment is then due

7.3 Until such time as the property in the Goods passes to the Buyer the Buyer shall hold the Goods as the Seller's fiduciary agent and bailee and shall keep the Goods separate from those of the Buyer and third parties and properly stored protected and insured and identified as the Seller's property but shall be entitled to re-sell or use the Goods in the ordinary course of its business

7.4 Until such time as the property in the Goods passes to the Buyer (and provided the Goods are still in existence and have not been resold) the Seller shall be entitled at any time to require the Buyer to deliver up the Goods to the Seller and if the Buyer fails to do so forthwith to enter upon any premises of the Buyer or any third party where the Goods are stored and repossess the Goods

7.5 The Buyer shall not be entitled to pledge or in any way charge by way of security for any indebtedness any of the Goods which remain the property of the Seller but if the Buyer does so all monies owing by the Buyer to the Seller shall (without prejudice to any other right or remedy of the Seller) forthwith become due and payable

8) **Warranties and liability**

8.1 Subject to the conditions set out below the Seller warrants that the Goods will correspond with their specification at the time of delivery and will be free from defects in materials and workmanship for the period of twelve months from the date of their initial use or twenty four months from delivery whichever is the first to expire

8.2 The above warranty is given by the Seller subject to the following conditions:-

8.2.1 the Seller shall be under no liability in respect of any defect in the Goods arising from any drawing design or specification supplied by the Buyer

8.2.2 the Seller shall be under no liability in respect of any defect arising from fair wear and tear wilful damage negligence abnormal working conditions failure to follow the Seller's instructions (whether oral or in writing) misuse or alteration or repair of the Goods without the Seller's approval

8.2.3 the Seller shall be under no liability under the above warranty (or any other warranty condition or guarantee) if the total price of the Goods has not been paid by the due date for payment

8.2.4 the above warranty does not extend to parts materials or equipment not manufactured by the Seller in respect of which the Buyer shall only be entitled to the benefit of any such warranty or guarantee as is given by the manufacturer to the Seller

8.3 Subject as expressly provided in these Conditions and except where the Goods are sold to a person dealing as a consumer (within the meaning of the Unfair Contract Terms Act 1977) all warranties conditions or other terms implied by statute or common law are excluded to the fullest extent permitted by law

8.4 Where the Goods are sold under a consumer transaction (as defined by the Consumer Transaction (Restrictions on Statements) Order 1976) the statutory rights of the Buyer are not affected by these Conditions

8.5 Any claim by the Buyer which is based on any defect in the quality or condition of the Goods or their failure to correspond with specification shall (whether or not delivery is refused by the Buyer) be notified to the Seller within seven days from the date of delivery or (where the defect or failure was not apparent on reasonable inspection) within a reasonable time after discovery of the defect or failure and in any event within six months of the date of delivery of the Goods. If delivery is not refused and the Buyer does not notify the Seller accordingly the Buyer shall not be entitled to reject the Goods and the Seller shall have no liability for such defect or failure and the Buyer shall be bound to pay the price as if the Goods had been delivered in accordance with the Contract

8.6 Where any valid claim in respect of any of the Goods which is based on any defect in the quality or condition of the Goods or their failure to meet specification is notified to the Seller in accordance with these Conditions the Seller shall be entitled to replace the Goods (or the part in question) free of charge or at the Seller's sole discretion refund to the Buyer the price of the Goods (or a proportionate part of the price) but the Seller shall have no further liability to the Buyer

8.7 Except in respect of death or personal injury caused by the Seller's negligence the Seller shall not be liable to the Buyer by reason of any representation (unless fraudulent) or any implied warranty condition or other term or any duty at common law or under the express terms of the Contract for any indirect special or consequential loss or damage (whether for loss of profit or otherwise) costs expenses or other claims for compensation whatsoever (whether caused by the negligence of the Seller its employees or agents or otherwise) which arise out of or in connection with the supply of the Goods or their use or resale by the Buyer and the entire liability of the Seller under or in connection with the Contract shall not exceed the price of the Goods except as expressly provided in these Conditions

8.8 The Seller shall not be liable to the Buyer or be deemed to be in breach of the Contract by reason of any delay in performing or any failure to perform any of the Seller's obligations in relation to the Goods if the delay or failure was due to any cause beyond the Seller's reasonable control. Without prejudice to the generality of the foregoing the following shall be regarded as causes beyond the Seller's reasonable control:

8.8.1 act of God explosion flood tempest fire or accident

8.8.2 war or threat of war sabotage insurrection civil disturbance or requisition

8.8.3 acts restrictions regulations bye-laws prohibitions or measures of any kind on the part of any governmental parliamentary or local authority
8.8.4 import or export regulations or embargoes
8.8.5 strike lock-outs or other industrial actions or trade disputes (whether involving employees or the Seller or other third party)
8.8.6 difficulties in obtaining raw materials labour fuel parts or machinery
8.8.7 power failure or breakdown in machinery

9) **Insolvency of buyer**

9.1 This clause applies if:
9.1.1 the Buyer makes any voluntary arrangement with its creditors or (being an individual or firm) becomes bankrupt or (being a company) becomes subject to an administration order or goes into liquidation (otherwise than for the purposes of amalgamation or reconstruction) or
9.1.2 an encumbrancer takes possession or a receiver is appointed of any property or assets of the Buyer or
9.1.3 the Buyer ceases or threatens to cease to carry on business or
9.1.4 the Seller reasonably apprehends that any of the events mentioned above is about to occur in relation to the Buyer and notifies the Buyer accordingly

9.2 If this clause applies then without prejudice to any other right or remedy available to the Seller the Seller shall be entitled to cancel the Contract or suspend any further deliveries under the Contract without any liability to the Buyer and if the Goods have been delivered but not paid for the price shall become immediately due and payable notwithstanding any previous agreement or arrangement to the contrary

10) **Test or inspection of goods**

Where the Contract provides for test and inspection before despatch and delivery by or on behalf of the Buyer at the Seller's premises the following conditions shall apply:

10.1 In the event of inspection by the Buyer and/or their servant or agent any complaint in relation to the Goods must be notified to the Seller in writing within seven days of that inspection and in the absence of such notice the Buyer shall be conclusively deemed to have accepted the Goods as being in conformity with the Contract and shall not thereafter be entitled to reject the Goods

10.2 Examination of Goods during construction by an external authority where required shall be payable by and at the cost of the Buyer in addition to the ordinary price of the Goods

10.3 The Seller reserves the right to charge the Buyer the cost of all test pieces which comply with specification

11) **Export terms**

11.1 In these Conditions 'Incoterms' mean the international rules for the interpretation of trade terms of the International Chamber of Commerce as in force at the date when the Contract is made. Unless the context otherwise requires any term or expression which is defined in or given any particular meaning by the provisions of the Incoterms shall have the same meaning in these Conditions but if there is any conflict between the provisions of Incoterms and these Conditions the latter shall prevail

11.2 Where the Goods are supplied for export from the United Kingdom the provisions of this Clause 11 shall (subject to any special terms agreed in writing between the Buyer and the Seller) apply notwithstanding any other provision of these Conditions

11.3 The Buyer shall be responsible for complying with any legislation or regulation governing the importation of the Goods into the country of destination and for payment of any duties on them

11.4 Unless otherwise agreed in writing between the Buyer and the Seller the Goods shall be delivered fob the air or sea port of shipment and the Seller shall be under no obligation to give notice under Section 32(3) of the Sale of Goods Act 1979

11.5 The Buyer shall be responsible for arranging for testing and inspection of the Goods at the Seller's premises before shipment. The Seller shall have no liability for any claim in respect of any defect in the Goods which would be apparent on inspection and which is made after shipment or in respect of any damage during transit

11.6 Payment of all amounts due to the Seller shall be made by irrevocable letter of credit opened by the Buyer in favour of the Seller and confirmed by a bank in England acceptable to the Seller or if the Seller has agreed in writing on or before acceptance of the Buyer's order to waive this requirement by acceptance by the Buyer and delivery to the Seller of the bill of exchange drawn on the Buyer payable sixty days after sight to the order of the Seller at such branch of The Royal Bank of Scotland PLC in England as may be specified in the bill of exchange

12) **General**

12.1 Any notice required or permitted to be given by either party to the other under these Conditions shall be in Writing addressed to that other party at its registered office or principal place of business or such other address as may at the relevant time have been notified pursuant to this provision to the party giving the notice

12.2 No waiver by the Seller of any breach of the Contract by the Buyer shall be considered as a waiver of any subsequent breach of the same or any other provision

12.3 If any provision of these Conditions is held by any competent authority to be invalid or unenforceable in whole or in part the validity of the other provisions of these Conditions and the remainder of the provision in question shall not be affected

12.4 The Contract shall be governed by the laws of England and the Buyer agrees to submit to the non-exclusive jurisdiction of the English courts