4500 Ancillary Valve Selection Chart

Ancillary Valve	Model	Working Temp Range	Flow (Max)	Operating Medium	Cv (Kv)	Working Pressure
	Air Pressure Switch	-20°C to +80°C (-4°F to +176°F)	6 bar (87 psi), 1 bar (14.5 psi) differential 3/2 valves - 480 L/min (17 SCFM) 5/2 valves - 680 L/min (24 SCFM)	Gases - Filtered lubricated or non-lubricated air, inert gas, sweet (natural) gases Sour gas option available	3/2 valves 0.5 (7.5) 5/2 valves 0.7 (10.5)	For main directional valve 12 bar (174 psi)
	Uni & Bi-Directional Flow Regulators	-20°C to +70°C (-4°F to +158°F) Low temperature version -50°C (-58°F) (optional)	6 bar (87 psi), 1 bar (14.5 psi) differential Uni-directional 1/4" - 1000 L/Min (35 SCFM) 3/8" - 1680 L/Min (59 SCFM) 1/2" - 2520 L/Min (89 SCFM) 3/4" - 5428 L/Min (192 SCFM) 1" - 9920 L/ Min (347 SCFM) Bi-directional 1/4" - 620 L/Min (22 SCFM) 3/8" - 1290 L/Min (45 SCFM) 1/2" - 2000 L/Min (71 SCFM)	Gases - Filtered lubricated or non-lubricated air, inert gas, sweet (natural) gases Sour gas option available Liquids - Low pressure hydraulic, mineral oil or water	Uni-directional 1/4" - 1.0 Cv (15.5 Kv) 3/8" - 1.7 Cv (26 Kv) 1/2" - 2.5 Cv (39 Kv) 3/4" - 5.4 Cv (84 Kv) 1" - 9.8 Cv (152 Kv) Bi-directional 1/4" - 0.6 Cv (9.6 Kv) 3/8" - 1.3 Cv (20 Kv) 1/2" - 2.0 Cv (31 Kv)	10 bar (145 psi)
	Needle Valves Exhaust Port Flow Regulators	-20°C to +70°C (-4°F to +158°F) Low temperature version -50°C (-58°F) (optional)	6 bar (87 psi), 1 bar (14.5 psi) differential Needle Valve (3mm orifice) 1/4" - 290 L/Min (10.5 SCFM) Needle Valve (6mm orifice) 1/4" - 640 L/Min (23 SCFM) Exhaust Port Flow Regulators 1/4" - 646 L/Min (25 SCFM) 3/8" - 1100 L/Min (39 SCFM) 1/2" - 1800 L/Min (64 SCFM)	Gases - Filtered non-lubricated air, inert, sweet (natural) gases	Needle Valve (3mm orifice) 1/4" - 0.30 Cv (4.6 Kv) Needle Valve (6mm orifice) 1/4" - 0.64 Cv (10 Kv) Exhaust Port Flow Regulators 1/4" - 0.64 Cv (10 Kv) 3/8" - 1.10 Cv (17 Kv) 1/2" - 1.80 Cv (28 Kv)	12 bar (174 psi) maximum
	Non-Return Valve	-20°C to +70°C (-4°F to +158°F) Low temperature version -50°C (-58°F) (optional)	6 bar (87 psi), 1 bar (14.5 psi) differential Uni-directional 1/4" - 1000 L/Min (35 SCFM) 3/8" - 1680 L/Min (59 SCFM) 1/2" - 2520 L/Min (89 SCFM) 3/4" - 5428 L/Min (192 SCFM) 1" - 9920 L/ Min (347 SCFM) Bi-directional 1/4" - 620 L/Min (22 SCFM) 3/8" - 1290 L/Min (45 SCFM) 1/2" - 2000 L/Min (71 SCFM)	Gases - Filtered lubricated or non lubricated air, inert gas, sweet (natural) gases Sour gas option available. Liquids - Low pressure hydraulic, mineral oil or water	Uni-directional 1/4" - 1.0 Cv (15.5 Kv) 3/8" - 1.7 Cv (26 Kv) 1/2" - 2.5 Cv (39 Kv) 3/4" - 5.4 Cv (84 Kv) 1" - 9.8 Cv (152 Kv) Bi-directional 1/4" - 0.6 Cv (9.6 Kv) 3/8" - 1.3 Cv (20 Kv) 1/2" - 2.0 Cv (31 Kv)	10 bar (145 psi)
	Quick Exhaust & Shuttle Valves	-20°C to +70°C (-4°F to +158°F) Low temperature version -50°C (-58°F) (optional)	6 bar (87 psi), 1 bar (14.5 psi) differential Quick Exhaust Valve (supply to outlet) 1/4" - 1290 L/Min (46 SCFM) 3/8" - 1810 L/Min (64 SCFM) 1/2" - 3810 L/Min (135 SCFM) 3/4" - 4520 L/Min (160 SCFM) 1" - 7700 L/ Min (274 SCFM) Quick Exhaust Valve (outlet to exhaust) 1/4" - 2780 L/Min (98 SCFM) 3/8" - 3810 L/Min (135 SCFM) 1/2" - 5490 L/Min (194 SCFM) 3/4" - 6460 L/Min (228 SCFM) 1" - 11000 L/Min (388 SCFM) Shuttle Valve 1/4" - 1350 L/Min (45 SCFM)	Gases - Filtered lubricated or non lubricated air, inert gas, sweet (natural) gases Sour gas option available. Liquids - Low pressure hydraulic, mineral oil or water	Quick Exhaust Valve (supply to outlet) 1/4" - 1.3 Cv (20 Kv) 3/8" - 1.8 Cv (28 Kv) 1/2" - 3.8 Cv (59 Kv) 3/4" - 4.5 Cv (70 Kv) 1" - 7.8 Cv (120 Kv) Quick Exhaust Valve (outlet to exhaust) 1/4" - 2.8Cv (43 Kv) 3/8" - 3.8 Cv (59 Kv) 1/2" - 5.5 Cv (85 Kv) 3/4" - 6.5 Cv (100Kv) 1" - 11.0 Cv (170 Kv) Shuttle Valve 1/4" - 1.36 Cv (21 Kv)	12 bar (174 psi)
	Thermal Fuses & Visual Indicator	Thermal Fuses -20°C to + 70°C (-4°F to +158°F) -20°C to + 96°C (-4°F to +205°F) -20°C to +102°C (-4°F to +216°F) -20°C to +124°C (-4°F to +255°F) -20°C to +137°C (-4°F to +279°F) -20°C to +200°C (-4°F to +392°F) Visual Indicator -20°C to +65°C (-56°F to +149°F)	6 bar (87 psi), 1 bar (14.5 psi) differential Thermal Fuses 1/2" - 5800 L/Min (205 SCFM) 1/2" - 5.8 Cv (90 Kv)	Gases - Filtered lubricated or non lubricated air, inert gas, sweet (natural) gases Sour gas option available. Liquids - Low pressure hydraulic, mineral oil or water	N/A	Thermal Fuses - 12 bar (174 psi) Visual Indicator - 1 to 12 bar (14.5 to 174 psi)
	N.R.V. Breathers And Breather (Silencers)	-20°C to +70°C (-4°F to +158°F)	6 bar (87 psi), 1 bar (14.5 psi) differential N.R.V. Breathers 1/4" - 646 L/Min (25 SCFM) 3/8" - 1300 L/Min (45 SCFM) 1/2" - 1550 L/Min (54 SCFM) Breathers (Silencers) 1/4" - 1550 L/Min (55 SCFM) 3/8" - 1940 L/Min (68 SCFM) 1/2" - 3410 L/Min (123 SCFM) 3/4" - 5500 L/Min (194 SCFM) 1" - 5700 L/Min (201 SCFM)	Gases - Filtered lubricated or non-lubricated air, inert gas, sweet (natural) gases Liquids - Low pressure hydraulic, mineral oil	N.R.V. Breathers 1/4" - 0.65 Cv (10 Kv) 3/8" - 1.3 Cv (20 Kv) 1/2" - 1.6 Cv (24 Kv) Breathers (Silencers) 1/4" - 1.5 Cv (24 Kv) 3/8" - 2.0 Cv (30 Kv) 1/2" - 3.5 Cv (54 Kv) 3/4" - 5.5 Cv (85 Kv) 1" - 5.7 Cv (88 Kv)	12 bar (174 psi)

Electro-Hydraulic Valve Actuation

Electro-Hydraulic Valve Actuation

As a specialist manufacturer of Electro-Hydraulic Actuation equipment we offer comprehensive purpose designed, engineered and manufactured solutions for the operation of choke and control valves installed on and offshore. Ring main & solar powered self contained control options incorporating special features including:

Double Acting Systems

- For choke valves used for position and modulating control with a fail safe in position, fail safe closed or fail safe open options

Spring Return Actuator Systems

- For positioning and modulating control incorporating a preloaded mechanical spring arrangement to provide failure position conditions in the event of electrical power/signal or hydraulic supply failure

Stepping Feature

- Available on all systems providing positioning control with extended operating times associated with choke valves. Fail safe in position and fail safe open or closed options available

Special purpose design Electro-hydraulic control systems available on request including:

- Hydraulic control cabinet assemblies
- Solar power self contained systems

Certification Options Available

Hydraulic Valves & Manifolds

Hydraulic Control Valves

Our wealth of experience in wellhead control, has enabled us to develop both generic and tailored solutions with the ability to operate reliably in the most arduous and severe of environments. We can supply an engineered solution to meet your wellhead/local control panel specification, whether it be direct solenoid operated or low pressure air/hydraulic logic control of wing, master, blowout preventor controls, chemical injection valves and DHSV's.

DN Series of Hydraulic Valves

- Specifically designed for severe offshore environments
- Certified for zone 0, 1 and division 1 hazardous areas
- Atex 94/9/ec approvals
- M.T.B.F., Lambda and sil data (available upon request)
- Easy installation, repair and replacement
- Ambient temperature range -50°c to +60°c
- Low power consumption (3.5 & 8 Watts)
- 316 Stainless Steel construction
- Wide range of operators available
- 1140 Bar max operating pressure
- Leak tight
- Up to 200 litres/min (45 gpm)
- 2/2, 3/2, 4/2, & 4/3 Functions available
- Interface valve with a variety of options available
- Nace standard
- ¼ - 1" Port size

Certification Options Available

Hydraulic Manifolds

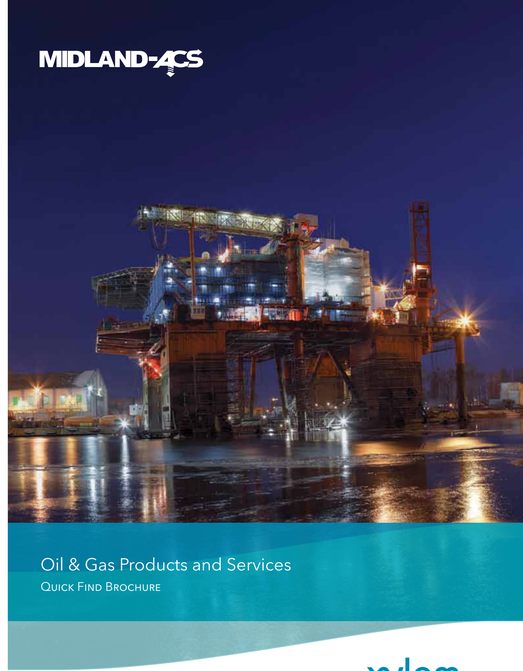
Wellhead Control - Multi-Station Manifold Systems

- Minimises pipework, fitting and potential leaks
- 316 Stainless Steel construction
- 1140 bar max working pressure for DHSV's
- Reduced system costs
- Easy to maintain
- Compact envelope space savings
- Control circuits tailored to suit your specification
- Cartridge component technology for flow, check, relief and isolation valves
- Flowrates up to 400 l/min (45 gpm)
- Additional stations can be added for chemical injection and future slots

Certification Options Available

Hydraulic Valve Selection Chart

Hydraulic Valve	Model	Flow Rate	Available Approvals	Ingress Protection	Media	Pressure Range (Bar)	Power Consumption
	DN2 (Ball Seated)	1 l/min	ATEX, UL, CSA, Gost (R), Baseefa, Inmetro	IP66/NEMA 4X	Mineral Oils, Water Glycols and Synthetic fluids	0 - 690	<1 & 3.5 Watts
	DN2 (Cartridge)	1 l/min	ATEX, UL, CSA, Gost (R), Baseefa, Inmetro	IP66/NEMA 4X	Mineral Oils, Water Glycols and Synthetic fluids	0 - 690	3.5 & 8 Watts
	DN2 (IECEx)	1 l/min	ATEX, IECEx BAS.070029x	IP67	Mineral Oils, Water Glycols and Synthetic fluids	0 - 690	3.5 & 8 Watts
	DN3	5 l/min	ATEX, UL, CSA, Gost (R), Baseefa, Inmetro	IP66/NEMA 4X	Mineral Oils, Water Glycols, Methanol and Fresh Water, Air, Natural Gas, and Nitrogen	0 - 1140	3.5 & 8 Watts
	DN5 (Interface)	15 l/min	ATEX, CSA, Gost (R)	IP66/NEMA 4X	Mineral Oils, Water Glycols and Synthetic fluids	0 - 690	3.5 & 8 Watts
	DN5	20 l/min	ATEX, UL, CSA, Gost (R), Baseefa, Inmetro	IP67/NEMA 6	Mineral Oils, Water Glycols and Synthetic fluids	0 - 690	3.5 & 8 Watts
	DN5 (IECEx)	20 l/min	ATEX, IECEx BAS.070029x	IP67/NEMA 6	Mineral Oils, Water Glycols and Synthetic fluids	0 - 690	3.5 Watts
	DN6	15-200 l/min	ATEX, UL, CSA, Gost (R), Baseefa, Inmetro	IP66/NEMA 4X	Mineral Oils, and Fresh Water	0 - 400	3.5 & 8 Watts
	DN10	50 l/min	ATEX, UL, CSA, Gost (R), Baseefa, Inmetro	IP66/NEMA 4X	Mineral Oils, Water Glycols and Synthetic fluids	0 - 690	3.5 & 8 Watts
	DN10 (IECEx)	50 l/min	ATEX, IECEx BAS.070029x	IP67/NEMA 6	Mineral Oils, Water Glycols and Synthetic fluids	0 - 690	3.5 & 8 Watts
	DN15	100 l/min	ATEX, UL, CSA, Gost (R), Baseefa, Inmetro	IP66/NEMA 4X	Mineral Oils, Water Glycols and Synthetic fluids	0 - 400	3.5 & 8 Watts
	DN25	200 l/min	ATEX, UL, CSA, Gost (R), Baseefa, Inmetro	IP66/NEMA 4X	Mineral Oils, Water Glycols and Synthetic fluids	0 - 517	3.5 & 8 Watts



MIDLAND-ACS

Oil & Gas Products and Services

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Let's Solve Water

Introduction

Since our foundation in 1956, we have been known internationally as one of the Q & G industries **premier designers** and manufacturers of 316 Stainless Steel control equipment, over the years we've developed an enviable reputation for high quality products, reliability and innovation.

It is our ability to interrogate problems **and provide comprehensive** solutions for the control of hydraulic and pneumatic actuated process valves, on **FPSO**'s, **onshore** and **offshore** facilities to **floating** and **fixed production** installations, repeatedly delivering impressive results **that sets us apart from our competitors.**

Pneumatic Valves

Pneumatic Control Valves

Designed and constructed from 316 Stainless Steel using experience gained through project specification in a variety of industries, our range of pneumatic components are ideal for both hazardous area and industrial use. Variety of certification options available.

Air Preparation

Filters, Pressure Regulators & Combined Units

- Manual / Automatic Drain
- ¼ -½ = 40 Micron Element (5 or 25 Micron Option)
- ¾ - 1" = 25 Micron Element (5 Micron Option)
- High Flow Capabilities
- Four Pressure Ranges (2, 4, 8 & 12 Barg)
- Self/Non Relieving Options
- 50 mm Pressure Gauge
- NACE Standard
- ¼ - 1" port size

Spool & Poppet

- 3/2 & 5/2 Function (Poppet 3/2 only)
- Air Pilot
- Direct Solenoid Operated
- Solenoid Pilot
- Manual
- Mechanical

Ancillaries

- Non Return Valves
- Quick Exhaust Valves
- Flow (Speed) Control
- Exhaust Port Protectors
- Thermal Fuses
- Pneumatic Pressure Switches
- Visual Indicators
- IP66/67 ingress protection
- Boosters

Certification Options Available

UL SIL CE Ex ATEX IECEx PC (GOST R)

Modular Pneumatic & Electro-Pneumatic Actuation

Modular Pneumatic Controls

IMPACT™ (International Modular Pneumatic Actuator Control Technology) is a high integrity modular pneumatic actuator control assembly in 316 Stainless Steel, used for the control and sequencing of process valve actuators on oil and gas platforms and pipelines.

Using a range of field proven components, valves, spool, poppet or direct acting, and filter regulators are connected in series using a universally compatible interface block and mounted directly onto the valve actuator.

No design work is required from the contractor and all components are kept in stock, resulting in short lead times. Manifolds can also be designed to individual customer requirements.

To accommodate specific solenoid operator requirements we work with a number of renowned solenoid manufacturers, thus allowing the manifold solution to be tailored to both valve control system construction and client solenoid specification requirements.

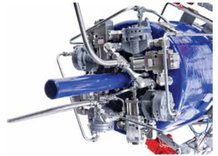
Features

- Available ATEX compliant to category 2
- Range of circuits available designed to request
- Units will interface with all global pneumatic actuators
- Simplifies valve automation reducing potential failure
- Ideal for both hazardous area and industrial use
- Lighter, stronger & eliminates joining pipework and fittings
- Reduction in CAPEX & OPEX over panel mounted assemblies
- IP66/67 ingress protection

Certification Options Available

UL SIL CE Ex ATEX IECEx PC (GOST R)

Electro-Pneumatic Valve Actuation



Using the modular nature of our IMPACT™ system, we also offer a range of Electro-Pneumatic Actuation equipment. Designed for safety shutdown and control applications, Electro-Pneumatics offer the speed, accuracy and repeatability of electric actuators but with the force capability of pneumatics.

Configurations dependent on need include:

Double Acting (Air-To-Open, Air-To-Close)

- Adaptable to any type of gate valve. Cylinder sizes range from 100mm bore through 915mm bore

Spring-Return

- Air energised, spring to fail position closed or open

All configurations incorporate a non-rotating split rod coupling. As part of the customisation process actuation accessories can also be added including:

- Solenoids
- Positioners
- Hand wheel overrides - side or end mounted
- Position switches

Certification Options Available

UL SIL CE Ex ATEX IECEx PC (GOST R)

Pneumatic Valve Selection Chart

Filters

Model	Temp Range	Flow (Max)	Cv (Kv)	Working Pressure (Bar)		Ports Npt	Ingress Protection	Filter Element
3575 Series	-20°C to +80°C	6 bar (87 psi), 1 bar (14.5 psi) differential 2" - 45000 L/Min (1590 SCFM)	2" - 45 Cv	Manual drain 20 Bar (290psi)	Auto drain 17 bar (247 psi)	2", 1½"	IP65	25 Micron
3550 Series	-20°C to +80°C	At 7 bar (102 psi) inlet pressure, 0.35 bar (5 psi) pressure drop	¾" - 4.4 Cv	Manual drain 20 Bar (290psi)	Auto drain 17 bar (247 psi)	¼", ½", ¾"	IP65	40 Micron
3500 Series	-20°C to +80°C	At 7 bar (102psi) inlet pressure 0.35 bar (5psi) pressure drop 3/4" - 10020 l/min (353 SCFM)	¾" - 6.5 Cv	Manual drain 20 Bar (290psi)	Auto drain 17 bar (247 psi)	¾", 1"	IP65	5 Micron

Pressure Regulators

Model	Temp Range	Relief Flow (Max)	Flow (Max)	Cv	Maximum Inlet Pressure	Ports Npt	Ip
3575 Series	-20°C to +80°C	At 2 bar (29psi) secondary pressure 0.5cc/sec (0.03 cu in/sec)	6 bar (87 psi), 1 bar (14.5 psi) differential 2" - 45000 L/Min (1590 SCFM)	2" - 45 Cv ¾" 38 Cv	20 Bar (290psi)	2", 1½"	IP65
3550 Series	-20°C to +80°C	At 2 bar (29psi) secondary pressure 0.5cc/sec (0.03 cu in/sec)	10 bar (145 psi) inlet pressure, 6 bar (87 psi) secondary pressure with 1 bar (14.5 psi) pressure drop, ¾" - 3720 L/min (130 SCFM), ½" - 6000 L/min (212 SCFM)	¼" - 2.4 Cv, ½" 4.6 Cv	20 Bar (290psi)	¼", ½", ¾"	IP65
3500 Series	-20°C to +80°C	At 2 bar (29psi) secondary pressure 0.5cc/sec (0.03 cu in/sec)	At 7 bar (102psi) inlet pressure 1 bar (14.5psi) pressure drop ¾" - 7800 l/min (353 SCFM)	¾" - 6.5 Cv, 1" - 8.0 Cv	20 Bar (290psi)	¾" , 1"	IP65

Filter Regulators

Model	Temp Range	Relief Flow (Max)	Flow (Max)	Cv	Maximum Inlet Pressure	Ports Npt	Filter Element	Ingress Protection
3575 Series	-20°C to +80°C	At 2 bar (29psi) secondary pressure 0.5cc/sec (0.03 cu in/sec)	6 bar (87 psi), 1 bar (14.5 psi) differential 2" - 45000 L/Min (1590 SCFM)	2" - 45 Cv, 1½" 38 Cv	20/17 Bar (manual/Auto)	2", 1½"	25 Micron	IP65
3550 Series	-20°C to +80°C	At 2 bar (29psi) secondary pressure 0.5cc/sec (0.03 cu in/sec)	10 bar (145 psi) inlet pressure, 6 bar (87 psi) secondary pressure with 1 bar (14.5 psi) pressure drop, ¾" - 3720 L/min (130 SCFM), ½" - 6000 L/min (212 SCFM)	¼" - 2.4 Cv, ½" 4.4 Cv, ¾" 5.0 Cv	20/17 Bar (manual/Auto)	¼", ½", ¾"	40 Micron	IP65
3525 Series	-15°C to +80°C	Set at 6.3 bar, 6.9 bar secondary pressure 30 cc/sec (1.8 cu in/sec)	At 6.3 bar inlet pressure, 5.3 bar secondary pressure, 1 bar pressure drop, 696 L/min (707 cu in/sec)	Not Available yet	20 bar (290 psi)	¼"	25 Micron	IP65
3500 Series	-20°C to +80°C	At 2 bar (29psi) secondary pressure 0.5cc/sec (0.03 cu in/sec)	At 7 bar (102psi) inlet pressure 1 bar (14.5psi) pressure drop ¾" - 7800 l/min (353 SCFM)	¾" - 6.5 Cv, 1" - 8.0 Cv	20/17 Bar (manual/Auto)	¾" , 1"	5 Micron	IP65

Volume Boosters

Model	Working Temp Range (Standard)	Cv (In-Out)	Cv (Out Exhaust)	Supply Pressure	Supply / Output Connection	Deadband Width	Media
Series 1000	-40°C to +70°C (-40°F to +158°F)	0.5	0.5	Up to 150psig (10.3 Bar)	¼", ½" or ¾" NPT (F)	1psig (0.7 bar) or 5% of output span, whichever is greater	Gases - Air, Nitrogen, Methane (Natural Gas)
Series 3000	-40°C to +70°C (-40°F to +158°F)	3.5	2.5	Up to 150psig (10.3 Bar)	¼", ½" or ¾" NPT (F)	1psig (0.7 bar) or 5% of output span, whichever is greater	Gases - Air, Nitrogen, Methane (Natural Gas)

Poppet Valves

Model	Configuration	Working Temp Range (Standard)	Cv	Working Pressure	Ports Npt	Minimum Pilot Pressure	Media
1750 Series	3/2 pilot operated	-20°C to +180°C (-4°F to +356°F)	1.2 (¼") - 22 (1½")	2 to 12 bar (30 to 174 psi)	¼" - 1½"	At 6.3 bar (91.3 psi) body pressure¼" - 3/8" Spring return 4.0 bar (58.0 psi) ½" - 1½" Spring return 3.0 bar (43.5 psi)	Gases - Filtered lubricated or non lubricated Air, inert gas , sweet (natural) gases, sour gas option Liquids - Low pressure hydraulic, mineral oil or water
1750 Series	3/2 pilot operated - NC, NO and uni	-20°C to +70°C (-4°F to +356°F)	110 litres/min with ports at 180° with ports inline 90 litres/min with ports at 90°	2 to 12 bar (30 to 174 psi)	2", 3" and Flange versions	4 bar	Air, inert gas and sweet gas

Solenoid Valves

Model	Valve Type	Configuration	Working Temp Range (Standard)	Cv	Working Pressure	Minimum Pilot Pressure	Protection Class	Ports Npt	Media	Power Consumption
1500 series	Spool	3/2 NC, NO, div, changeover or 5/2	Valve only version -20°C to +180°C (-4°F to +356°F)	3/2 valves - 1.0 5/2 valves - 1.2	Single solenoid valve: 3 -12 Bar (45 -174 psi) Double solenoid valves: 2 - 12 bar (30 -174 psi)	At 6.3 bar (91.3 psi) body pressure Pilot return 1.5 bar (22 psi)	NEMA 7 & 9 - NEMA 4 (IP55) EExd IIC T5 - IP67 EExd IIC T6 - IP67 EExme IIC T4/T5 - IP66 EExia IIC T6 - IP66	¼"	Gases - Filtered non lubricated air, inert gas sweet (natural) gases	5-9 watts (solenoid dependent)
1600 series	Spool	3/2 NC, NO, div, changeover or 5/2	Valve only version -20°C to +180°C (-4°F to +356°F)	3/2 valves - 3.5 5/2 valves - 3.5	Single solenoid valve: 3 -12 Bar (45 -174 psi) Double solenoid valves: 2 - 12 bar (30 -174 psi)	At 6.3 bar (91.3 psi) body pressure Pilot return 2.0 bar (30 psi)	NEMA 7 & 9 - NEMA 4 (IP55) EExd IIC T5 - IP67 EExd IIC T6 - IP67 EExme IIC T4/T5 - IP66 EExia IIC T6 - IP66	½"	Gases - Filtered lubricated or non lubricated air, inert gas, sweet (natural) gases, sour gas option Liquids - Low pressure hydraulic, mineral oil or water.	5-9 watts (solenoid dependent)
1750 Series	Poppet	3/2 - NC, NO, div, changeover	Valve only version: -20°C to +180°C (-4°F to +356°F) Solenoid - Ambient Temperature -20°C to +65°C (-4°F to +149°F)	¼" - 1.3 Cv ⅜" - 1.75 Cv ½" - 3.5 Cv ¾" - 8.0 Cv 1" - 12.0 Cv 1-¼" - 16.0 Cv 1- ½" - 20.0 Cv	0 to 12 bar (45 to 174 psi) - main valve only	At 6.3 bar (91.3 psi) body pressure ¼" - ⅜" Spring return 4.0 bar (58.0 psi) ½" - 1½" Spring return 3.0 bar (43.5 psi)	NEMA 7 & 9 - NEMA 4 (IP55) EExd IIC T5 - IP67 EExd IIC T6 - IP67 EExme IIC T4/T5 - IP66 EExia IIC T6 - IP66	¼" - 1½", ¾" pilot ports	Gases - Filtered lubricated or non lubricated air, inert gas, sweet (natural) gases, sour gas option Liquids - Low pressure hydraulic, mineral oil or water.	5-9 watts (solenoid dependent)
1900 Series	Direct acting	3/2 - uni	-50°C to +40°C (-58°F to +104°F)	0.86	10 bar (145 psi)	N/A	EExd IIC T6 -50°C to +40°C Tamb - IP67	¼", ⅜", ½"	Gases - Filtered lubricated or non lubricated air, inert gas, sweet (natural) gases, sour gas option Liquids - Low pressure hydraulic, mineral oil or water.	9 watts
70 Series	Direct acting	3/2 - NC, NO or uni	-20°C to +60°C (T4) (-4°F to +140°F) (T6 - +80°C)	1.6 Cv	0 to 12 bar (45 to 174 psi)	N/A	EExd IIC T6 -50°C to +60°C Tamb - IP67 EExd IIC T4 -50°C to +80°C Tamb - IP67	¼", ⅜", ½"	Gases - air, inert gas, sweet (natural) gases, sour gas option	3.5 Watts
74 Series	Direct acting	3/2 - NC, NO or uni	-20°C to +40°C (T6) (-4°F to +104°F) (T4 - +80°C)	0.6 Cv	0 to 10 bar (145 psi)	N/A	EExd IIC T4 -50°C to +80°C Tamb - IP67 EExd IIC T6 -50°C to +40°C Tamb - IP67	¼"	Gases - air, inert gas, sweet (natural) gases, sour gas option	4 watts

Hydraulic & Pneumatic Local Control Panels

Local Control Panels for Actuators

Local Control Panels for hydraulic and pneumatic actuators can be supplied to meet project requirements, be it for a simple On/Off actuator, a control system for the accurate positioning of Choke or Globe control valves, or ESD actuator local control panels with partial stroking facilities.

Manufactured in 316 stainless steel with IP66/67 ingress protection the panels are suitable for the most hazardous, severe and corrosive environments. Both our hydraulic and pneumatic valve control systems, can be produced as manifold design to eliminate costly pipework and fittings, resulting in weight and space savings.

All components meet the requirements demanded by ATEX and a multitude of individual international certifying authorities, MBTF, SFF and PFD data is also available upon request to enable engineers to calculate SIL requirements.

Certification Options Available

UL SIL CE Ex ATEX IECEx PC (GOST R)

Available Global Certifications

INMETRO

Official Accreditation Body in Brazil. Created to provide technical support to Conmetro - the National Metrology, Standardization and Industrial Quality Council, responsible for establishing the national policies on metrology and quality.

UL

Underwriters Laboratories Inc. does not "approve" products, it evaluates products, components, materials and systems for compliance to specific requirements, and permits acceptable products to carry a UL certification Mark, as long as they remain compliant with the standards.

IECEx

The IECEx is the IEC scheme for the certification to standards for electrical equipment for explosive atmospheres. The IECEx Scheme comprises two Global Certification Programs -
1. The IECEx Certified Equipment Program - covering product that meets the requirements of International Standards, e.g. IEC Standards
2. The IECEx Certified Service Facilities Program - covers the assessment and the on-site audit of organizations that provide a Repair and Overhaul service to the Ex industry.

PC

GOST refers to a set of technical standards maintained by the Euro-Asian Council for Standardization, Metrology and Certification (EASC), a regional standards organization operating under the auspices of the Commonwealth of Independent States (CIS).
GOST standards are adopted by Russia, and it is a common misconception to think of GOST standards as the national standards of Russia. They are not. The national standards of Russia are the GOST R standards.

ATEX

Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres. (See ATEX directive for additional information).

CE

Declaration by the manufacturer that product meets the requirements of the applicable European Directive(s).

ISO 9001 BUREAU VERITAS Certification

Bureau Veritas is a professional services company whose aim is to provide its clients with all the necessary services required to achieve, maintain and demonstrate compliance with their Quality, Health, Safety, Environment and Social Accountability (SHEQ/SA) obligations. Core part of Bureau Veritas is the Oil & Gas. They provide Inspection and Verification Services in accordance with the Offshore Installations (Safety Case) Regulations, which has a legal requirement for the Duty Holder (Shell, BP etc) to appoint an Independent Verification Body (IVB).

sira CERTIFICATION

IEC 61508 Functional Safety (SIL) Functional safety is about a system or equipment performing specified functions to a defined level of reliability in order to control risks associated with hazardous processes or machinery. The amount of risk reduction needed determines the 'Safety Integrity Level' (SIL) of the system.

SP

The Canadian Standards Association is a not-for-profit membership-based association serving business, industry, government and consumers in Canada and globally. As a solutions-oriented organisation, they develop standards that address needs, such as enhancing public safety and health, facilitating trade.

MIDLAND-ACS

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