

aerospace
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Offshore and Onshore Applications

Lucifer™ 2/2 and 3/2 ways 316L
Stainless Steel solenoid valves



ENGINEERING YOUR SUCCESS.

Heavy Duty, Corrosion Resistant for Hazardous Areas

Extremely severe operating conditions prevailing in the North Sea offshore stringent, safety and hazardous area requirements require design features not generally found in conventional solenoid valves.

The 316 stainless steel range of solenoid valves described in this brochure are the result of many years cooperation between North Sea operators and Parker Lucifer SA, a worldwide leader in design and development of high technology solenoid valves.

Parker products follow a severe Quality Assurance and materials traceability program. They are supplied with corresponding certificates.

Used or specified as actuator control or fail-safe valves. We offer many different protection solutions ("ia", "d", "e" & "mb"), according to ATEX and IECEx certification.

We provide the ultimate in quality, reliability and safety: AK7 certified (valves X), working in SIL 2 & 3 loops (valves F, V & X).



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Applications

- Pneumatic Actuator control.
- Fail-safe function of main ON/OFF or modulating valves. The main valve keeps its safe position in case of current failure. Fail-safe valves are either electrically (U)133X, or manually (U)033X resettable.

Hazardous locations (ATEX: EXplosible ATmosphere)

Several optional electrical parts, certified to operate in hazardous locations according to our electrical part/valve compatibility table (see page 6).

Corrosion resistance (Stainless steel 316 L material)

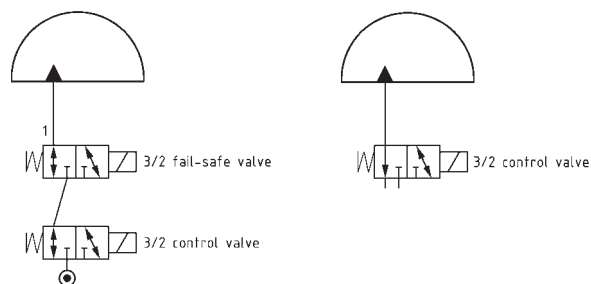
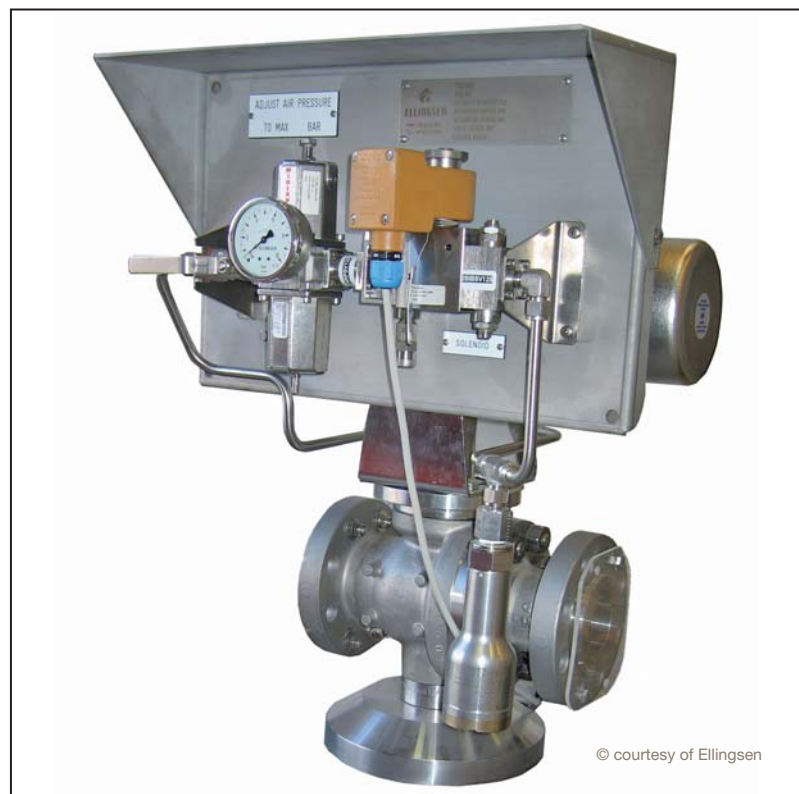
These valves have been specifically designed for use in corrosive environments (Salt spray and sour gas,...).

3/2 solenoid valves normally closed (3rd digit of valve ref. = 1) and universal function (3rd digit = 3).

For actuator control and fail-safe function in corrosive and hazardous locations.

Benefits

- Extensive range of ATEX and IECEx certified coils fully complying to stated EN and IEC standards.
- A completely traceable manufacturing programme together with 25 years field proven technology in the Offshore Industry.
- Complete range of corrosion resistant valves together with cutting edge low temperature valves technology.



Technical Data

Basic Models

V valves range: Direct pipe mounting

Common features:

Poppet design, Viton, PUR, seat discs.

Safe body working pressure:

10500 kPa / 105 bar for F, V and X valves types (except U033X5195 valve: SBWP = 15 bar)

Valve mounting:

- direct pipe mounting: valves V and X
- Sub-base mounting (or flanged): valves F + 3 valves X references

Mouting position:

Indifferent

Body material:

316L Stainless steel

Valve trim (gasket) material:

Buna (NBR), Viton (FKM), Polyurethan (PUR)

Seat discs material:

Stainless steel (valves F & V), polyamid-imid (valves X)

Medium:

Instrument or industrial air, dry or lubricated, nitrogen (121V... valve)

Filtration:

50µm or better

ON/OFF function, 2/2 solenoid valves, Direct operated, Normally Closed (N.C.: 3rd digit of valve ref. = 1)

**U121V 5595
U121V 5596
U121V 5596 1D**

Nominal diameter: 1.0 mm
Flow Qn: 40 NL/min.
(Cv = 0.04)
ΔP max.: 9800 kPa
(98 bar)
Body connection: 1/4 NPT

Valves integrable in complete SIL 3 safety loops (IEC 61508).

ON/OFF, Mix & distribution function, 3/2 solenoid valves Direct operated, Universal (Univ.: 3rd digit of valve ref. = 3)

**U133V 5595
U133V 5595 1D
U133V 5695
U133V 5695 1D**

Nominal diameter: 2.0 & 2.5 mm
Flow Qn: 140 & 220 NL/min.
(Cv 0.18 & 0.25)
ΔP max.: 1200 & 850 kPa
(12 & 8.5 bar)
Body connection: 1/4 NPT (ports 1 & 2)
1/8 NPTF (port 0)

Valves integrable in complete SIL 3 safety loops (IEC 61508).



F valves range:

Flanged mounting

ON/OFF, Mix & distrib. function,
3/2 solenoid valves,
Direct operated,
Normally Closed
(N.C.: 3rd digit of valve ref. = 1)

U131F 5695
U131F 5695 1D

Nominal diameter: 2.5 mm
Flow Qn: 220 NL/min.
(Cv = 0.25)
 ΔP max.: 1200 & 1400 kPa
(12 & 14 bar)
Body connection: sub-base

Valves integrable in complete
SIL 3 safety loops (IEC 61508).



X valves range:

Direct pipe mounting

ON/OFF, Mix & distrib. function,
3/2 solenoid valves,
Direct operated, Universal
(Univ.: 3rd digit of valve ref. = 3)

U133X 5152*
U133X 5156* / 5156 1D*
U133X 5192
U133X 5296 / 5296 1D

* Valve with Manual Override function

Nominal diameter: 6.0 mm
Flow Qn: 680 NL/min.
(Cv 0.63)
 ΔP max.: 1000 kPa
(10 bar)
Body Connection: 1/4 NPTF
3/8 NPTF

DIN V 19251 AK7 certified valves,
integrable in complete SIL 2 & 3
safety loops (IEC 61508).



ON/OFF, Mix & distrib. function,
3/2 Universal valves
(3rd digit of valve ref. = 3)
with manual reset
(1st digit of valve ref. = 0)

U033X 5152
U033X 5156 / 5156 1D
U033X 5256 / 5256 1D

Nominal diameter: 6.0 mm
Flow Qn: 680 NL/min.
(Cv 0.63)
 ΔP max.: 1000 kPa
(10 bar)
Body Connection: 1/4 NPTF
3/8 NPTF

DIN V 19251 AK7 certified valves,
integrable in complete SIL 2 safety
loops (IEC 61508).





Manual Reset function

These valves close when the electrical signal fails. When the electrical signal comes back, the valve remains closed, it has to be reset manually.

If the coil is not energized, the valve can be opened by actuating the manual reset button (as for the manual override function), but the valve remains open **only** when the coil is energized while the reset button has been pushed.

You will find other valves references, like the manual reset U033X5195 (top picture of the cover page), with other performances values. See page 6.

Compatibility Chart

Valve Family		Valve Reference		Valves Features Stainless Steel 316L bodies + ...										Compatible Electrical Parts  			
														ATEX ZONES			
														0/20 - 1/21 & 2/22		1/21 & 2/22	
														ATEX protection mode			
		Flow pattern	Function	Manual action	Mounting	Thread Type & Size	On (in NL/min)	Cv	Max. ΔP (in bar)	Orifice (in mm)	Seal Material	Intrinsically Safe	Flame Proof Enclosure		Encapsulation		
												Ex ia IIC T6 482870.01 492965.01	Ex d mb IIC T4 to T6 483270 483270.02		Ex e mb II T4 to T6 (5) 492210 492310		
F	U131F5695	N.C	3/2	-	Flanged (1)	Ø 3.25	220	0.25	12	2.5	FKM	x		x	x		
	U131F56951D	N.C	3/2	-	Flanged (1)	Ø 3.25	220	0.25	14	2.5	FKM		x	x			
V	U121V5595	N.C	2/2	-	Pipe	NPT 1/4-18	40	0.04	98	1	PUR	x		x	x		
	U121V5596	N.C	2/2	-	Pipe	NPT 1/4-18	40	0.04	98	1	PUR				x		
	U121V55961D	N.C	2/2	-	Pipe	NPT 1/4-18	40	0.04	98	1	PUR		x	x			
	U133V5595	Univ.	3/2	-	Pipe	NPT 1/4-18	140	0.18	12	2	FKM	x		x	x		
	U133V55951D	Univ.	3/2	-	Pipe	NPT 1/4-18	140	0.18	12	2	FKM		x	x			
	U133V5695	Univ.	3/2	-	Pipe	NPT 1/4-18	220	0.25	8.5	2.5	FKM	x		x	x		
	U133V56951D	Univ.	3/2	-	Pipe	NPTF 1/4-18	220	0.25	8.5	2.5	FKM		x	x			
X	U033X5152	Univ.	3/2	M.R. (2)	Pipe	NPTF 1/4-18	680	0.63	10	6	NBR	x			x		
	U033X5156	Univ.	3/2	M.R. (2)	Pipe	NPTF 1/4-18	680	0.63	10	6	NBR	x			x		
	U033X51561D	Univ.	3/2	M.R. (2)	Pipe	NPTF 1/4-18	680	0.63	10	6	NBR		x	x			
	U033X5195	Univ.	3/2	M.R. (2)	Pipe	NPTF 1/4-18	560	0.45	10	6	FKM	x			x		
	U033X5256	Univ.	3/2	M.R. (2)	Pipe	NPTF 3/8-18	680	0.63	10	6	NBR	x			x		
	U033X52561D	Univ.	3/2	M.R. (2)	Pipe	NPTF 3/8-18	680	0.63	10	6	NBR		x	x			
	U131X1201	N.C	3/2	-	Interface	NPT 3/8-18	680	0.63	10	6	NBR	x			x	x	
	U133X5152	Univ.	3/2	M.O. (3)	Pipe	NPTF 1/4-18	680	0.63	10	6	NBR				x	x	
	U133X5156	Univ.	3/2	M.O. (3)	Pipe	NPTF 1/4-18	680	0.63	10	6	NBR	x			x	x	
	U133X51561D	Univ.	3/2	M.O. (3)	Pipe	NPTF 1/4-18	680	0.63	10	6	NBR		x	x			
	U133X5192	Univ.	3/2	-	Pipe	NPTF 1/4-18	680	0.63	10	6	NBR					x	
	U133X5195	Univ.	3/2	-	Interface	NPTF 1/4-18	680	0.63	10	6	FKM	x			x	x	
	U133X51951D	Univ.	3/2	-	Interface	NPTF 1/4-18	680	0.63	10	6	FKM		x	x			
	U133X5196	Univ.	3/2	-	Pipe	NPTF 1/4-18	680	0.63	10	6	NBR	x			x	x	
	U133X51961D	Univ.	3/2	-	Pipe	NPTF 1/4-18	680	0.63	10	6	NBR		x	x			
	U133X5296	Univ.	3/2	-	Pipe	NPTF 3/8-18	680	0.63	10	6	NBR	x			x	x	
U133X52961D	Univ.	3/2	-	Pipe	NPTF 3/8-18	680	0.63	10	6	NBR		x	x				
Standards reference IEC/EN 60079-0 / 61241-0... +												60079-11 61241-1	60079-1 & 18 61241-1	60079-7 & 18 61241-1			
Certificate of conformity ATEX: LCIE 02 ATEX... IECEX: IECEX LCI...												6024 X 6066 X	6008 X	6023 X			
Degree of protection												IP 66	IP 66 (4)	IP 66			
Max. admissible enclosure surface temperature GAS												85 °C	100 °C	85 °C 100 °C			
Max. admissible enclosure surface temperature DUST												80 °C	95 °C	80 °C 95 °C			
Electrical power consumption												0.8 W DC Booster	0.3 - 2.3 W DC Booster	8 W Booster			
Electrical cable gland entry thread												M20 x 1.5	M20 x 1.5 1/2 NPT	M20 x 1.5			

(1) Flanged / Sub-base mounting

(2) Manual Reset (safety function: both actions are necessary: the coil energizing + operator button push)

(3) Manual Override (push in)

(4) When mounted with appropriate Ex cable gland

(5) See max. coil ambient temperature

Quality

Quality Assurance

Each valve carries its own identification number. It is sent out from the factory with a Quality Assurance Certificate ensuring the following:

Strategic Parts Identification

Strategic parts, i.e. parts which are directly involved in the valving process are identified. Materials traceability of all identified parts is assured back to source. Identified stainless steel parts have either a EN10204.3.1B declaration or a supplier's attest.

Final Test declaration

Confirms correct valve function at minimum and maximum rated pressures, with specified mains supply rating and checks that the maximal external & internal leakage rates values respect the valves specifications.



SQS and IQnet Certificate

The Swiss Association for Quality Assurance Certificates (SQS) has issued a SQS and IQnet Certificate according to ISO 9001/14001, certifying that Parker Lucifer is maintaining a Quality Assurance system which meets the above mentioned international standards.

ATEX and IECEx certified electrical parts

Parker Lucifer has a large range of certified coils working in hazardous locations (gaz and dust environment), for surface applications (Ex II).



The different existing technical solutions (ATEX & IECEx protection modes "ia", "d", "e" & "mb") allow our customers to face to every specific request.

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