

aerospace  
climate control  
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filtration  
fluid & gas handling  
hydraulics  
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process control  
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# Offshore and Onshore Applications

2/2 and 3/2 ways 316L St. 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)

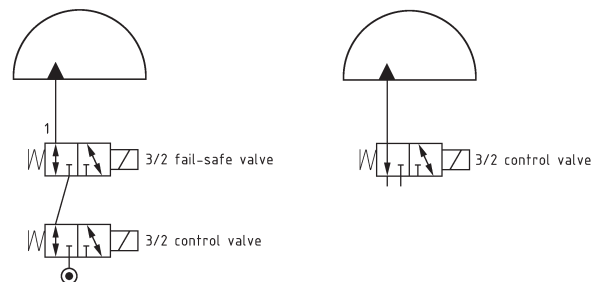
These valves have been specifically designed for use in corrosive environments (Salt spray and sour gas,...).

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

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

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

Nominal diameter: 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.



## F valves range:

Flanged mounting

ON/OFF, Mix & distrib. function,  
3/2 solenoid valves,  
Direct operated,  
Normally Closed  
(N.C.: 3<sup>rd</sup> 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.



## X valves range:

Direct pipe mounting

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

**U133X 5152\***  
**U133X 5156\* / 5156 1D\***  
**U133X 5192**  
**U133X 5196 / 5196 1D**  
**U133X 5296 / 5296 1D**

\* Valve with Manual Override function

Nominal diameter: 5.0 mm  
Flow Qn: 680 NL/min.  
(Cv 0.63)  
ΔP max.: 1000 kPa  
(10 bar)  
Body Connection: 1/4 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  
(3<sup>rd</sup> digit of valve ref. = 3)  
with manual reset  
(1<sup>st</sup> digit of valve ref. = 0)

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

Nominal diameter: 5.0 mm  
Flow Qn: 680 NL/min.  
(Cv 0.63)  
ΔP max.: 1000 kPa  
(10 bar)  
Body Connection: 1/4 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					
		Flow pattern	Function	Manual action	Mounting	Qn (in NL/mm)	Cv (in bar)	Max ΔP	Orifice Size (in mm)	ATEX ZONES					
										All : 0/20 - 1/21 & 2/22		1/21 & 2/22		encapsulation increased safety	
										Intrinsincally Safe "ia" protection mode		Flame proof enclosure "d" protection mode		"e mb" protection mode	
									482870.01 Ex ia IIC T6	492965.01 Ex d mb IIC T5	492210 Ex e mb IIC T6	492310 Ex mb IIC T5			
F	U131F5695	N.C	3/2		Flanged <sup>(1)</sup>	220	0.25	12	2.5	x	x			x	x
	U131F5695D	N.C	3/2		Flanged <sup>(1)</sup>	220	0.25	14	2.5			x	x		
V	U121V5595	N.C	2/2		Pipe	40	0.04	98	1		x			x	
	U121V5596	N.C	2/2		Pipe	40	0.04	98	1						x
	U121V5596D	N.C	2/2		Pipe	40	0.04	98	1			x	x		
	U133V5595	Univ.	3/2		Pipe	140	0.18	12	2		x				x
	U133V5595D	Univ.	3/2		Pipe	140	0.18	12	2			x	x		
	U133V5695	Univ.	3/2		Pipe	220	0.25	8.5	2.5		x			x	x
	U133V5695D	Univ.	3/2		Pipe	220	0.25	8.5	2.5			x	x		
X	U033X5152	Univ.	3/2	M.R. <sup>(2)</sup>	Pipe	680	0.63	10	6	x					x
	U033X5156	Univ.	3/2	M.R. <sup>(2)</sup>	Pipe	680	0.63	10	6	x					x
	U033X5156D	Univ.	3/2	M.R. <sup>(2)</sup>	Pipe	680	0.63	10	6			x	x		
	U033X5195	Univ.	3/2	M.R. <sup>(2)</sup>	Pipe	560	0.45	10	6						x
	U033X5256	Univ.	3/2	M.R. <sup>(2)</sup>	Pipe	680	0.63	10	6	x					x
	U033X5256D	Univ.	3/2	M.R. <sup>(2)</sup>	Pipe	680	0.63	10	6			x	x		
	U131X1201	N.C	3/2		Interface	680	0.63	10	6		x			x	x
	U133X5152	Univ.	3/2	M.O. <sup>(3)</sup>	Pipe	680	0.63	10	6						x
	U133X5156	Univ.	3/2	M.O. <sup>(3)</sup>	Pipe	680	0.63	10	6		x			x	x
	U133X5156D	Univ.	3/2	M.O. <sup>(3)</sup>	Pipe	680	0.63	10	6			x	x		
	U133X5192	Univ.	3/2		Pipe	680	0.63	10	6						x
	U133X5195	Univ.	3/2		Interface	680	0.63	10	6					x	x
	U133X5195D	Univ.	3/2		Interface	680	0.63	10	6			x	x		
	U133X5196	Univ.	3/2		Pipe	680	0.63	10	6		x			x	x
	U133X5196D	Univ.	3/2		Pipe	680	0.63	10	6			x	x		
U133X5296	Univ.	3/2		Pipe	680	0.63	10	6					x	x	
U133X5296D	Univ.	3/2		Pipe	680	0.63	10	6			x	x			
Standards reference IEC/EN 60079-0 / 61241-0...									+ 60079-11 / 61241-11	+ 60079-1 / 61241-1	+ 60079-7 & 18 + 61241-7 & 18				
Certificate of conformity ATEX: LCIE 02 ATEX...									6024 X	6066 X	6008 X		6023 X		
IEEx : IEEx LCI...									pending	07.0007X	pending pending		06.0011X		
Mechanical protection degree									IP 66		IP 65 (4)		IP 66 (4)		
Max admissible enclosure surface temperature									85 °C		100 °C		85 °C	100 °C	
Electrical power consumption									0.8 W DC	0.3 - 2.3 W Booster- DC	8 W		1 - 1.5 W Booster	6 W	
Electric cable 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 action are necessary: the coil energizing + operator button push)
- (3) Manual Override (push in)
- (4) When mounted with appropriate Ex cable gland



# 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.



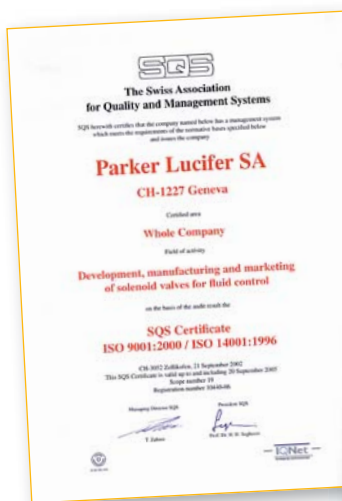
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### SQS and IQnet Certificate

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 protection modes "ia", "d" and "em b") allow our customer to face to every specific request.

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