

# APPLICATIONS PROCESS INDUSTRY

## Product Index



Function	$\Delta P$		Temperature			Pipe connections	Series	Page	
	min. (bar)	max. (bar)	min. (°C)	max. (°C)					
<b>BRASS BODY</b>									
3/2 U	0	10	-50	+120	ATEX Ex d, IP66/67 IEC 61508		1/4 - 1/2	<a href="#">327</a>	<b>1</b>
	0	10	-50	+120	IP65, IEC 61508		1/4 - 1/2	<a href="#">327</a>	(1)
3/2 NC	0/2	10	-40	+60	Monostable/bistable, IP67, IEC 61508		1/4	<a href="#">551</a>	(1)
5/2	0/2	10	-40	+60	Monostable/bistable, IP67, IEC 61508		1/4	<a href="#">551</a>	(2)
3/2 NC - 5/2 NAMUR	0/2	10	-40	+60	Monostable/bistable, IP67, IEC 61508		1/4	<a href="#">551</a>	(2)
<b>STAINLESS STEEL BODY</b>									
3/2 U	0	10	-50	+120	ATEX Ex d, IP66/67 IEC 61508		1/4 - 1/2	<a href="#">327</a>	<b>1</b>
	0	10	-50	+120	IP65, IEC 61508		1/4 - 1/2	<a href="#">327</a>	(1)
3/2 NC	0/2	10	-40	+80	Monostable/bistable, IP67, IEC 61508		1/4	551	<a href="#">3/2</a>
5/2-5/3			-40	+60			1/2	553	<a href="#">5/2-5/3</a>
3/2 NC - 5/2 NAMUR	2	10	-40	+80	Monostable/bistable, IP65, IEC 61508		1/4	551	<a href="#">NAMUR</a>
			-40	+60			1/2	553	<a href="#">3/2</a>
									<a href="#">5/2-5/3</a>
									<a href="#">NAMUR</a>
<b>ALUMINIUM BODY</b>									
3/2 NC	2	10	-25	+60	Monostable/bistable, IP67, IEC 61508		1/4 - 1/2	<a href="#">551-553</a>	(1)
	0/2	10	-25	+60	Monostable/bistable, IP67, IEC 61508		1/4 - 1/2	<a href="#">551-553</a>	
5/2 - 5/3	2	10	-25	+60	Monostable/bistable, IP67, IEC 61508		1/4 - 1/2	<a href="#">551-553</a>	(2)
	0/2	10	-25	+60	Monostable/bistable, IP67, IEC 61508		1/4 - 1/2	<a href="#">551-553</a>	
3/2 NC - 5/2 - 5/3 NAMUR	2	10	-25	+60	Monostable/bistable, IP67, IEC 61508		1/4 - 1/2	<a href="#">551-553</a>	(2)
	0/2	10	-25	+60	Monostable/bistable, IP67, IEC 61508		1/4 - 1/2	<a href="#">551-553</a>	
3/2 NC - 5/2 NAMUR	2	8	-20	+60	Monostable/bistable, IP65		1/4	<a href="#">521</a>	(2)

Solenoid Valves / Pneumatic Valves (3/2) ◀<sup>(1)</sup>  
 Direct or Pilot Operated Solenoid Valves / Pneumatic Valves (4/2 - 5/2 - 5/3) ◀<sup>(2)</sup>  
 Solenoid Valves / Pneumatic Valves (3/2) ◀<sup>(3)</sup>  
 Pressure Operated Valves (3/2) ◀<sup>(4)</sup>

All leaflets are available on: [www.asco.com](http://www.asco.com)

pipe connections										body material			max. operating pressure differential (bar)				fluid temperature range		power coil		series	page											
M5	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	Air operated version	SIL (IEC 61508)	ATEX / IECEx	brass	stainless steel	aluminium	orifice size (mm)	min. operating pressure differential (bar)	air			inert gases	water	oil	air	inert gases	water	oil	min.	max.	AC (~)	DC (=)
N ┘ - NAMUR interface ┘ - VDE 3845 ┘ ┘ - internal thread ┘ ┘ ┘ - internal thread, in-line										AC (~)		DC (=)		(°C)		(W)																	
<b>3/2 UNIVERSAL (U)</b>																																	
												-	4					5,7	0	10	10	10	10	-50	+120	1,85	1,8			<b>327</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>1</b> (Ex db)		
												-	3					12	0	10	-	10	-	-50	+90	14,1	14			<b>327</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>1</b> (Ex db)		
												-	4					5,7	0	10	10	10	10	-50	+120	3,7	3,6			<b>327</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(1)</b>		
												-	3					12	0	10	-	10	-	-50	+90	14,1	14			<b>327</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(1)</b>		
<b>3/2 NORMALLY CLOSED (NC)</b>																																	
												-	4					5,7	0	10	10	10	10	-50	+120	1,8	1,5			<b>327</b>	+ <a href="http://www.asco.com">www.asco.com</a>		
<b>3/2 NORMALLY CLOSED (NC), VDI/VDE 3845, for linear actuator</b>																																	
												-	4					5,7	0	10	10	10	10	-50	+120	1,8	1,5			<b>327</b>	+ <a href="http://www.asco.com">www.asco.com</a>		
<b>3/2 UNIVERSAL, MANUAL RESET CONSTRUCTION</b>																																	
												-	4					5,7	0	10	10	10	10	-40	+120	3,7	3,2			<b>327</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(1)</b>		
												-	-					12	0	10	-	10	-	-40	+90	10	11,2			<b>327</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(1)</b>		
<b>3/2 UNIVERSAL (U), REDUNDANT</b>																																	
												-	-					5,7	0	10	10	10	10	-50	+120	1,8	1,5			<b>327</b>	+ <a href="http://www.asco.com">www.asco.com</a>		
<b>3/2 NORMALLY CLOSED (NC) - 5/2</b>																																	
												↑	4					6	2 (0)	10	-	10	-	-40 <sup>(1)</sup>	+40	0,4	0,03			<b>551</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(2)</b>		
												↑	3					13	2 (0)	10	-	10	-	-25	+60	10,5	11,2			<b>553</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(2)</b>		
																		6	2	8	-	8	-	-20	+60	2,5	3			<b>521</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(2)</b>		
												↑	4					6	2 (0)	10	-	10	-	-40	+60	1,1	0,003			<b>551</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(2)</b>		
												↑	4					6	2 (0)	10	-	10	-	-40	+80	1,5	0,4			<b>551</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(1)</b>		
												↑	3					13	2 (0)	10	-	10	-	-40	+60	10,5	11,2			<b>553</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(1)</b>		
												↑	4					6	2 (0)	10	-	10	-	-40 <sup>(1)</sup>	+40	0,4	0,03			<b>551</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(1)</b>		
												↑	3					13	2 (0)	10	-	10	-	-25	+60	10,5	11,2			<b>553</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(1)</b>		
												↑	4					6	2 (0)	10	-	10	-	-40	+60	1,1	0,003			<b>551</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(1)</b>		
												↑	4					6	2 (0)	10	-	10	-	-40	+80	1,5	0,4			<b>551</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(1)</b>		
												↑	3					13	2 (0)	10	-	10	-	-40	+60	10,5	11,2			<b>553</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(1)</b>		
<b>5/3</b>																																	
												-	-					6	2 (0)	10	-	10	-	-40	+40	1,1	1,2			<b>551</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(2)</b>		
												-	-					13	2 (0)	10	-	10	-	-40	+60	10,5	11,2			<b>553</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(2)</b>		
												-	-					6	2 (0)	10	-	10	-	-25	+40	1,1	1,2			<b>551</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(2)</b>		
												-	-					13	2 (0)	10	-	10	-	-25	+60	10,5	11,2			<b>553</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(2)</b>		
												-	-					6	2 (0)	10	-	10	-	-40	+80	1,5	0,4			<b>551</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(2)</b>		
												-	-					13	2 (0)	10	-	10	-	-40	+80	10,5	11,2			<b>551</b>	+ <a href="http://www.asco.com">www.asco.com</a> <b>(2)</b>		

Solenoid Valves / Pneumatic Valves (3/2) ◀<sup>(1)</sup>  
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ASCO offers a wide range of products for the process industry such as the oil & gas, (petro)chemical, pharmaceutical, power generation, water/waste water, food and paper & pulp sectors.

Solenoid pilot valves are used to activate single-acting or double-acting pneumatic actuators operating as the driving force on process valves. Quality and reliability of the process valves are paramount for production line safety and output.

The products are often installed in environments with low or high temperatures, corrosive atmospheres, or high mechanical stress. They must be designed to provide a high level of long-term reliability under severe operating conditions.

Our catalogue "Pilot Valves and Systems for the Process Industry" details the full line of our process industry products adapted to your specific sector of activity.

You will find our complete range of solenoid valves, pressure operated valves and pneumatic components on the internet at [www.asco.com](http://www.asco.com).



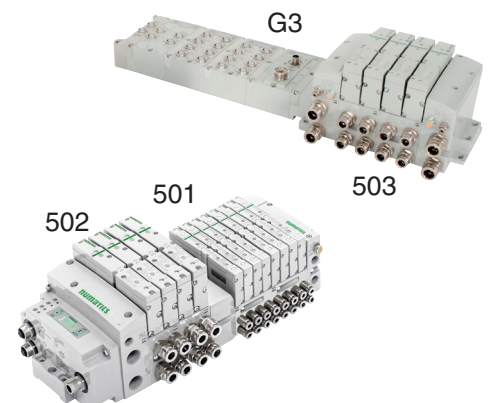
To provide you with the best solution for your application needs, ASCO offers a variety of exclusive pilot valve features including:

- Intrinsic safety
- Low power consumption
- Namur mounting pad
- Safety shutdown systems

Our low power solenoid valves are compliant with all major communication protocols such as: DeviceNet™, EtherNet/IP™, Profibus DP, PROFINET, ModbusTCP and Foundation Fieldbus

Our pilot valves are available in a large selection of versions:

- 3x2-, 4- and 5-way direct acting or pilot operated valves
- Brass, stainless steel, aluminium or plastic bodies
- Seals in a wide choice of elastomers
- Solenoid valves for use in potentially explosive atmospheres to ATEX designed to operate at temperatures from -60°C to +100°C.



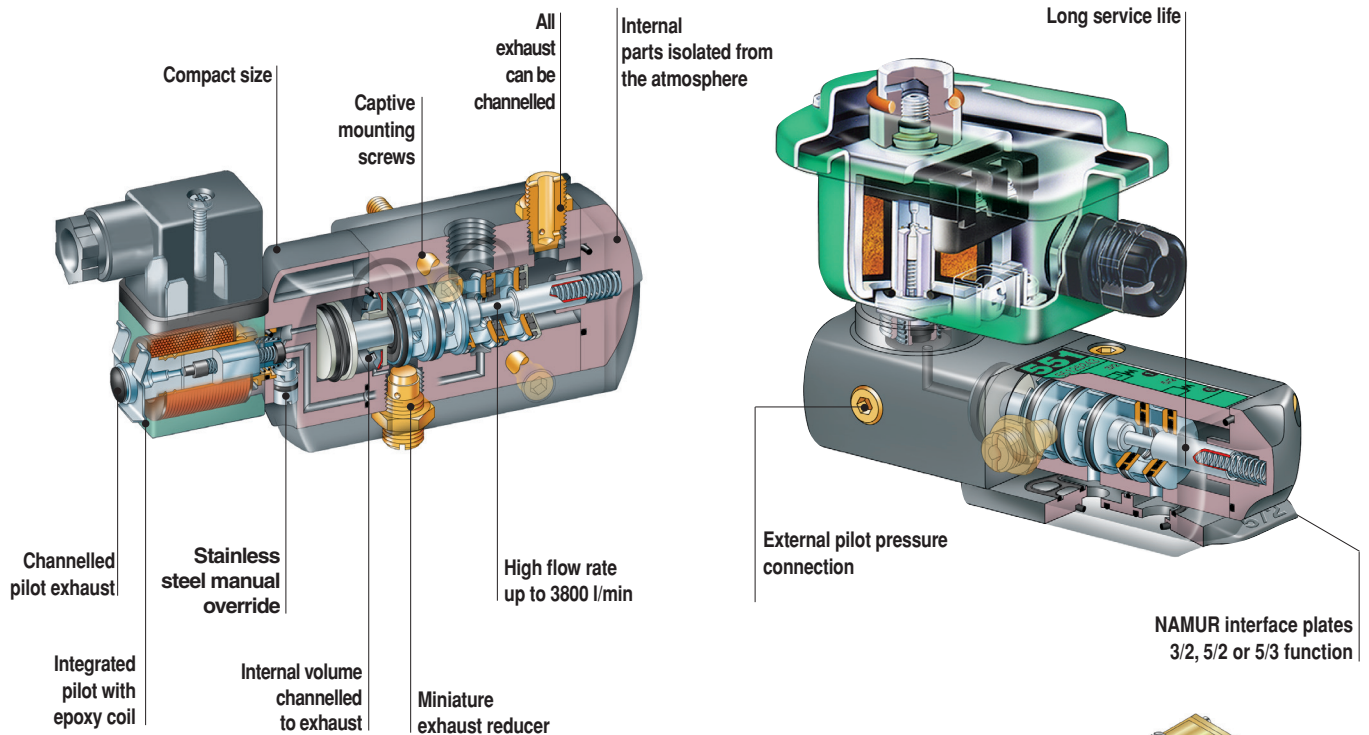
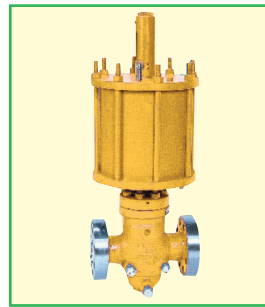
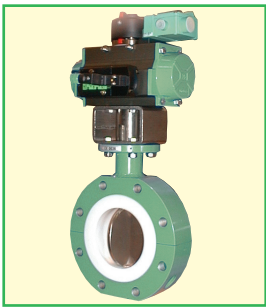
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To meet both environmental standards and actuator requirements, pilot valves need to be selected with care, with reference to:

- Mounting interface
- Flow capacity
- Function
- Choice between direct-acting or pilot operated valves
- Functional safety
- Power consumption and type of electrical connection
- Communication through fieldbus and remote I/O
- Environment: Temperature, humidity, aggressive atmospheres, potentially explosive atmospheres, and protection rating

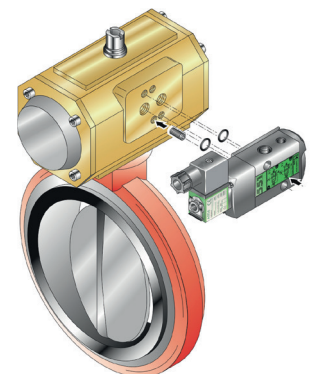
### Different types of pneumatic actuators: rack & pinion, scotch yoke, linear etc.



### Clean/aggressive environments

#### All the exhaust ports are pipable for environment protection.

The solenoid valve's internal volumes are channelled to the exhaust port to prevent the risk of corrosion in aggressive atmospheres. In NAMUR version, the spring-return chamber of the single-acting actuator "breathes" through the solenoid valve, isolating it from the outside atmosphere.



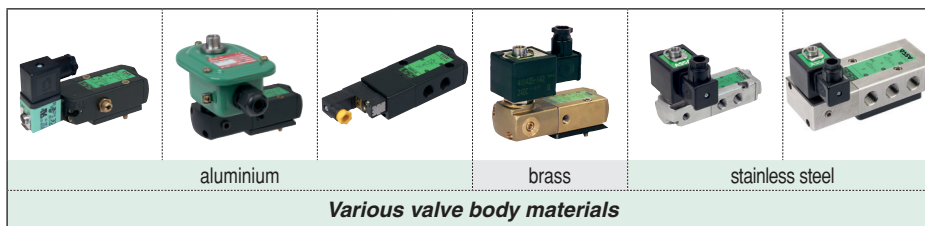
### 551 and 553 Series

- A unique range of 1/4" and 1/2" pilot operated solenoid valves for your pneumatic actuator applications.
  - Small size and high flow rate up to 3800 l/min
  - NAMUR and threaded versions
  - Intrinsic safe version
  - Fieldbus compatible
  - Suitable for use in hazardous area zones 0, 1, 2, 20, 21, 22
- Wide range of pilot valves and solenoid operators, available with different power levels, valve materials, piloting interfaces and functions (3/2, 5/2, 5/3) to meet your needs for safety and low power consumption.
- NAMUR versions are in accordance with CEN/TC69/WG1/SG10 and VDI/VDE3845 (NAMUR).
- The monostable spool valves in conformity with IEC 61508 Standard (2010 route 2<sub>H</sub> version) have TÜV (551 series) and EXIDA (551-553 series) certified with integrity levels: SIL 2 for HFT = 0 / SIL 3 for HFT = 1
- General characteristics (according to version):
  - Max. operating pressure: 10 bar
  - Operating temperature range: -40°C to +80°C
  - Flow: 700 l/min to 3800 l/min

UP	LP	RP - MP	BP
0,125W 0,003W	0,4 W 1,9 W	4 W 3 W	11,2 W 6,9 W
Ultra Low power	Low power	Reduced and Medium power	Basic power

**POWER LEVELS - cold electrical holding values (watt)**

### See Quick Selection Chart



To reduce the total cost of installation, enhance the reliability of solenoid valves and make them suitable for fieldbus control, there is a strong trend towards low power design.

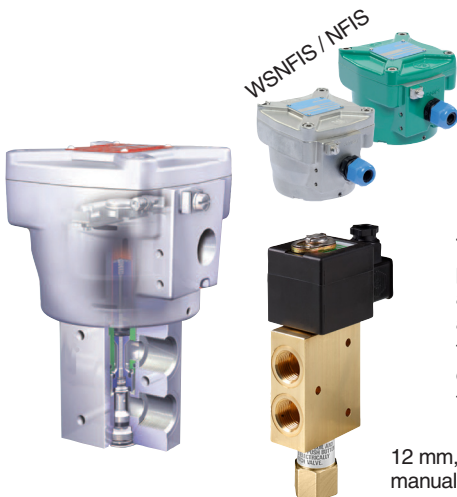


### Series 327

- Series 327 1/4" -1/2" direct acting solenoid valve are recommended for pilot applications with high flow, a wide pressure range and no minimum operating pressure.
- The balanced poppet design combines a special low friction seal with low power consumption.
- Functional safety levels: SIL 3, IEC 61508
- General characteristics (brass, aluminium or stainless steel bodies):
  - Orifice size = 5,7 mm (1/4), 12 mm (1/4, 1/2)
  - Temperature range: -60°C to +120°C
  - Manual Operators are optional including an under pressure removable type
    - Standard or tamperproof manual reset, NAMUR versions, redundant solenoid valves, for linear actuators (VDE 3845).
- Environmental NACE compliant and certified vibration resistant in combination with WSCR solenoids

LP	RP	MP	BP
1,8 W 0,5 W	3,7 W 3,6 W	5,8 W 5,7 W	14,1 W 8 W
Low power	Reduced power	Medium power	Basic power

**POWER LEVELS - cold electrical holding values (watt)**



The balanced poppet design provides a uniform pressure field around the poppet that prevents any resistance to pressure when the valve opens. The coil therefore only has to offset the friction of the seal.



