

# Pneumatic actuated valves

## Series 104/105/200

Valves  $\varnothing$ 4 tube

Valves M 5

Valves G 1/8"

Valves G 1/4" - Compact series

Valves G 1/4"

Valves G 1/2"

Valves G 1/2" - Compact series

Valves G 1"



## General

The pneumatic actuated valves are grouped in this part of catalogue because they have similar operating conditions of the solenoid valves. In fact the commutation signal is remote as it is for the manual and mechanical actuated valves.

In the first part of these catalogues are listed the pneumatic actuated valves for single use not suitable to be assembled on bases but eventually on manifold with one inlet port only.

The valves series 800 are suitable for both single and ganged applications.

These valves have a diversified use of 3-ways and 5-ways based on balanced spool as shown on functional symbols.

The repositions are made by spring, differential pneumatic spring or pneumatic for the bistable and centre spring return.

The polyurethane seals are available for oil free operation. In this case, the ordering code becomes:

**238...** for G 1/8" - **234 ...** for G 1/4" **232...** for G 1/2"

**Important:** on this type of valves a temperature higher than 40°C along with water or high humidity are causing a progressive reduction of mechanical characteristics of the seals. This chemical reaction (hydrolysis) duration depends by the ambient temperature and in some cases the seal becomes brittle and falls to pieces.

**The valves equipped with polyurethane seals are not suitable for tropical climate.**

## Construction characteristics

	Tube Ø 4	M5	G 1/8" ÷ G 1"
Bodies	Reinforced technopolymer	Nickel plated brass	Anodized aluminium
Actuators	Reinforced technopolymer	Nickel plated brass	Anodized aluminium
Spools	Hardened nickel plated steel		
Seals	Nitrile (NBR) rubber oil resistant		
Spacers	Polyacetal		
Pistons	Acetal resin	Brass	Brass
Springs	Spring steel		
Bottom plates	/	/	Acetal resin Anodized aluminium

## Use and maintenance

These valves are a mean life of 10 to 15 millions of cycles depending on application. Proper lubrication with specified oil reduces dramatically the wear of the seals as well as a good filtration insures long and trouble free operation. Check that the operating conditions are according to the suggested pressure, temperature and so on.

The exhaust ports of the distributor have to be protected in a dusty and dirty environment.

A spare parts kit including the spool complete of wearing seals and actuators are available for overhauling the valve. This simple operation does not require a skilled worker. Although a particular care is needed for assembling the valve.

**ATTENTION:** use hydraulic oil class H for lubrication such as MAGNA GC 32 (Castrol).



**2/2 - 3/2** **2/2 - 3/2**

**Pneumatic Spring**

Ordering code

Lateral connections

Weight gr. 25

**104. . .11.1.**

TYPE:  
22 = 2 way  
32 = 3 way

CONNECTION TYPE:  
L = Lateral  
P = Rear

FUNCTION:  
C = Norm. closed N.C.  
A = Norm. open N.O.

Minimum operating pressure 2,5 bar

Rear connections

Weight gr. 25

**3/2** **5/2**

**Pneumatic Spring**

Ordering code

Weight gr. 90

**105.32.11.1**    **105.52.11.1**

Weight gr. 100

Weight gr. 100

Minimum operating pressure 2,5 bar

**3/2** **5/2**

**Pneumatic Differential - External**

Ordering code

Weight gr. 110

**105.32.11.12**    **105.52.11.12**

Weight gr. 120

Weight gr. 120

Minimum operating pressure 2,5 bar

**3/2** **5/2**

**Pneumatic Pneumatic**

Ordering code

Weight gr. 110

**105.32.11.11**    **105.52.11.11**

Weight gr. 120

Weight gr. 120

Minimum operating pressure 2 bar

Operational characteristics	Fluid	Max working pressure	Operating temperature		Flow rate at 6 bar with $\Delta p = 1$ bar	Orifice size	Working ports size	Pilot ports size
	Filtered and lubricated air	10 bar	min. -5°C	max. +70°C	120 NI/min	2,5 mm	M 5	M 5

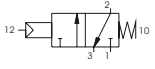
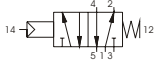




**3/2** **5/2**

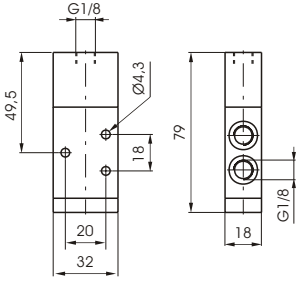
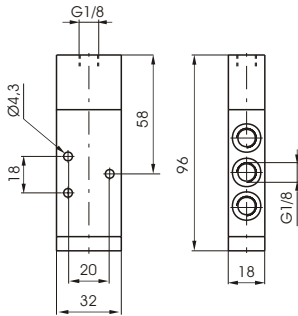
**Pneumatic Spring**

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Ordering code

<p><b>228.32.11.1</b></p>  <p>Weight gr. 110</p>	<p><b>228.52.11.1</b></p>  <p>Weight gr. 130</p>
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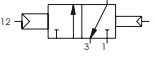
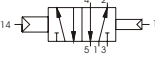
Minimum operating pressure 2,5 bar



**3/2** **5/2**

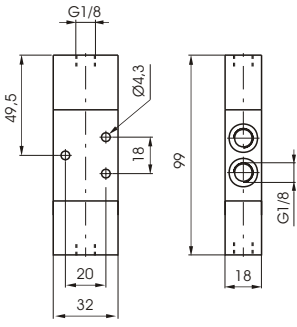
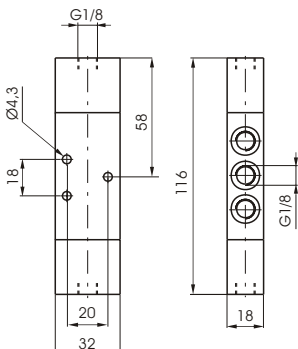
**Pneumatic Differential - External**

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Ordering code

<p><b>228.32.11.12</b></p>  <p>Weight gr. 140</p>	<p><b>228.52.11.12</b></p>  <p>Weight gr. 160</p>
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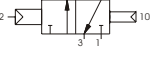

Minimum operating pressure 2,5 bar



**3/2** **5/2**

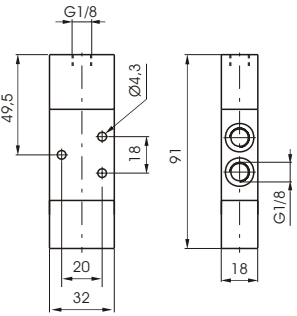
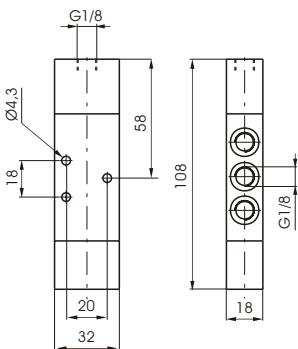
**Pneumatic Differential - Self-aligned**

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Ordering code

<p><b>228.32.11.12/1</b></p>  <p>Weight gr. 130</p>	<p><b>228.52.11.12/1</b></p>  <p>Weight gr. 150</p>
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Minimum operating pressure 2,5 bar

Operational characteristics	Fluid	Max working pressure	Operating temperature		Flow rate at 6 bar with $\Delta p = 1$ bar	Orifice size	Working ports size	Pilot ports size
	Filtered and lubricated air	10 bar	min. -5°C	max. +70°C	540 NI/min	6 mm	G 1/8"	G 1/8"



**3/2** **5/2**

**Pneumatic  
Pneumatic**

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Ordering code

<p><b>228.32.11.11</b></p> <p>Weight gr. 140</p>	<p><b>228.52.11.11</b></p> <p>Weight gr. 160</p>
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Minimum operating pressure 2 bar

**3/2** **5/2**

**Amplified Pneumatic  
Spring**

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Ordering code

<p><b>228.32.13.1</b></p> <p>Weight gr. 260</p>	<p><b>228.52.13.1</b></p> <p>Weight gr. 290</p>
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Minimum operating pressure 0,5 bar

**5/3**

**Pneumatic  
Pneumatic**

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Ordering code

	<i>Closed centres</i>	<p><b>228.53.31.11.11</b></p>	
	<i>Open centres</i>	<p><b>228.53.32.11.11</b></p>	
	<i>Pressured centres</i>	<p><b>228.53.33.11.11</b></p>	

Weight gr. 180

Minimum operating pressure 3 bar

Operational characteristics	Fluid	Max working pressure	Operating temperature		Flow rate at 6 bar with $\Delta p = 1$ bar	Orifice size	Working ports size	Pilot ports size
	Filtered and lubricated air	10 bar	min. -5°C	max. +70°C	540 NI/min (3/2-5/2) 410 NI/min (5/3)	6 mm	G 1/8"	G 1/8"



3/2	<b>Pneumatic Spring</b>		5/2
		<p><b>Ordering code</b></p> <p><b>214/2.32.11.1</b></p> <p>Weight gr. 310</p>	
		<p><b>214/2.52.11.1</b></p> <p>Weight gr. 370</p>	
Minimum operating pressure 2,5 bar			
3/2	<b>Pneumatic Differential</b>		5/2
		<p><b>Ordering code</b></p> <p><b>214/2.32.11.12</b></p> <p>Weight gr. 380</p>	
		<p><b>214/2.52.11.12</b></p> <p>Weight gr. 440</p>	
Minimum operating pressure 2,5 bar			
3/2	<b>Pneumatic Pneumatic</b>		5/2
		<p><b>Ordering code</b></p> <p><b>214/2.32.11.11</b></p> <p>Weight gr. 400</p>	
		<p><b>214/2.52.11.11</b></p> <p>Weight gr. 460</p>	
Minimum operating pressure 2 bar			
3/2	<b>Amplified Pneumatic Spring</b>		5/2
		<p><b>Ordering code</b></p> <p><b>214/2.32.13.1</b></p> <p>Weight gr. 500</p>	
		<p><b>214/2.52.13.1</b></p> <p>Weight gr. 560</p>	
Minimum operating pressure 0,5 bar			

Operational characteristics	Fluid	Max working pressure	Operating temperature		Flow rate at 6 bar with $\Delta p = 1$ bar	Orifice size	Working ports size	Pilot ports size
	Filtered and lubricated air	10 bar	min. -5°C	max. +70°C	1030 NI/min	7 mm	G 1/4"	G 1/8"

**3/2** **5/2**

**Pneumatic Spring**

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Ordering code

<p><b>224.32.11.1</b></p> <p>Weight gr. 370</p>	<p><b>224.52.11.1</b></p> <p>Weight gr. 450</p>
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Minimum operating pressure 2,5 bar

**3/2** **5/2**

**Pneumatic Differential**

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Ordering code

<p><b>224.32.11.12</b></p> <p>Weight gr. 480</p>	<p><b>224.52.11.12</b></p> <p>Weight gr. 550</p>
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Minimum operating pressure 2,5 bar

**3/2** **5/2**

**Pneumatic Pneumatic**

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Ordering code

<p><b>224.32.11.11</b></p> <p>Weight gr. 470</p>	<p><b>224.52.11.11</b></p> <p>Weight gr. 540</p>
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Minimum operating pressure 2 bar

**5/3**

**Pneumatic Pneumatic**

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Ordering code

	<p><b>224.53.31.11.11</b></p> <p><i>Closed centres</i></p>	
	<p><b>224.53.32.11.11</b></p> <p><i>Open centres</i></p>	
	<p><b>224.53.33.11.11</b></p> <p><i>Pressured centres</i></p>	

Weight gr. 550  
Minimum operating pressure 3 bar

Operational characteristics	Fluid	Max working pressure	Operating temperature		Flow rate at 6 bar with $\Delta p = 1$ bar	Orifice size	Working ports size	Pilot ports size
		Filtered and lubricated air	10 bar	min. -5°C	max. +70°C	1360 NI/min (3/2-5/2) 1280 NI/min (5/3)	8 mm	G 1/4"



**3/2** **5/2**

**Pneumatic Spring**

Ordering code

<b>212.32.11.1</b>	<b>212.52.11.1</b>
Weight gr. 1110	Weight gr. 1390

Minimum operating pressure 2,5 bar

**3/2** **5/2**

**Pneumatic Differential**

Ordering code

<b>212.32.11.12</b>	<b>212.52.11.12</b>
Weight gr. 1380	Weight gr. 1660

Minimum operating pressure 2,5 bar

**3/2** **5/2**

**Pneumatic Pneumatic**

Ordering code

<b>212.32.11.11</b>	<b>212.52.11.11</b>
Weight gr. 1350	Weight gr. 1630

Minimum operating pressure 2 bar

**5/3**

**Pneumatic Pneumatic**

Ordering code

<i>Closed centres</i>	<b>212.53.31.11.11</b>
<i>Open centres</i>	<b>212.53.32.11.11</b>
<i>Pressured centres</i>	<b>212.53.33.11.11</b>

Weight gr. 1650  
Minimum operating pressure 3 bar

Operational characteristics	Fluid	Max working pressure	Operating temperature		Flow rate at 6 bar with Δp = 1 bar	Orifice size	Working ports size	Pilot ports size
	Filtered and lubricated air	10 bar	min. -5°C	max. +70°C	3500 NI/min (3/2-5/2) 3000 NI/min (5/3)	15 mm	G 1/2"	G 1/8"



**Pneumatic Spring**

3/2
5/2

Ordering code

<b>212/2.32.11.1</b>	<b>212/2.52.11.1</b>
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Minimum operating pressure 2,5 bar

**Pneumatic Differential (external or self-aligned)**

3/2
5/2

Ordering code

<b>212/2.32.11.12</b>	<b>212/2.52.11.12</b>
<b>212/2.32.11.12/1.C</b>	<b>212/2.52.11.12/1</b>
<b>212/2.32.11.12/1.A</b>	

Minimum operating pressure 2,5 bar

**Pneumatic Pneumatic**

3/2
5/2 e 5/3

Ordering code

<b>212/2.32.11.11</b>	<b>212/2.52.11.11</b>
<b>212/2.53.31.11.11</b>	<b>212/2.53.32.11.11</b>
<b>212/2.53.33.11.11</b>	

Minimum operating pressure 2 bar (3/2 - 5/2), 3 bar (5/3)

Operational characteristics	Fluid	Max. working pressure	Operating temperature		Flow rate at 6 bar with $\Delta p = 1$ bar	Orifice size	Working ports sizes	Pilot ports size
	Filtered and lubricated air, or not	10 bar	min. -5°C	max. +70°C	3.600 NI/min (3/2 - 5/2) 3.300 NI/min (5/3)	15 mm.	G 1/2"	G 1/8"



**3/2** **5/2**

**Pneumatic Spring**

Ordering code

<b>211.32.11.1</b>	<b>211.52.11.1</b>
Weight gr. 3300	Weight gr. 4200

Minimum operating pressure 2,5 bar

**3/2** **5/2**

**Pneumatic Differential**

Ordering code

<b>211.32.11.12</b>	<b>211.52.11.12</b>
Weight gr. 3300	Weight gr. 4200

Minimum operating pressure 2,5 bar

**3/2** **5/2**

**Pneumatic Pneumatic**

Ordering code

<b>211.32.11.11</b>	<b>211.52.11.11</b>
Weight gr. 3300	Weight gr. 4200

Minimum operating pressure 2 bar

**5/3**

**Pneumatic Pneumatic**

Ordering code

<i>Closed centres</i>	<b>211.53.31.11.11</b>	
<i>Open closed</i>	<b>211.53.32.11.11</b>	
<i>Pressured centres</i>	<b>211.53.33.11.11</b>	

Weight gr. 4200  
Minimum operating pressure 3 bar

Operational characteristics	Fluid	Max working pressure	Operating temperature		Flow rate at 6 bar with Δp = 1 bar	Orifice size	Working ports size	Pilot port size
		Filtered and lubricated air	10 bar	min. -5°C	max. +70°C	6500 NI/min	20 mm.	G 1"