

MECHANICAL-MANUAL-FOOT VALVES

Series 100/200/AZ

General

New 104 micro valves series have been realized as an economic version to complete the range of 105 valves version. With their small overall dimensions it makes easy installation and operation. Their main characteristic is the possibility to choose between the version with lateral or rear pneumatic connections realized with quick fitting for Ø 4 mm. tube included.

The valves are available with 2 or 3 ways versions, normally closed or open, 5 ways and 5 ways 3 positions open centres and pressured centres.

The 5 ways version is made with two 3 ways valves placed side by side with common inlet.

The operators available for this valve are push button (different versions), selector (key, short and long lever), lever (lever roller or lever unidirectional) and pneumatic.

It is also possible to combine the 2 and 3 ways valves with electrical switches, normally closed or open.



The series 105 consist of a broad range of miniature valves and valves with various type of actuation. The connections are M5 for this series.

Due to their special construction with a balanced spool, these valves can be used interchangeably as 3 ways or 5 ways as can be seen in the functional schematics in section 0. This is important because, for example, the 3 ways can be used normally closed or normally open and the 5 ways can be fed through the exhausts 3 and 5 with different pressures according to the need. The spool, as it is moving, isolates the connections without being effected by the inlet pressure.

The series 200 consist of a broad range of valves with various type of actuation.

The connections for this series are from G 1/8" to G 1".

Due to their special construction with a balanced spool, these valves can be used interchangeably as 3 ways or 5 ways as can be seen in the functional schematics in section 0. This is important because, for example, the 3 ways can be used normally closed or normally open and the 5 ways can be fed through the exhausts 3 and 5 with different pressures according to the need. The spool, as it is moving, isolates the connections without being effected by the inlet pressure.





<p>Tappet - Spring</p> <p><i>Lateral connections</i></p> <p>Weight gr. 20 Operating force 13 N</p>	<p>2/2 3/2</p> <p>Ordering code 104.T.0.1.P.F</p> <p>TYPE T 22 = 2 ways 32 = 3 ways STD CONNECTION TYPE P L = Lateral STD P = Rear FUNCTION F A = Normally Open STD C = Normally Closed STD </p>	<p>Tappet - Spring</p> <p><i>Rear connections</i></p> <p>Weight gr. 20 Operating force 13 N</p>
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<p>Lever roller ball bearing - Spring</p> <p><i>Lateral connections</i></p> <p>Weight gr. 46 Operating force 9N</p>	<p>2/2 3/2</p> <p>Ordering code 104.T.2.1/1.P.F</p> <p>TYPE T 22 = 2 ways 32 = 3 ways STD CONNECTION TYPE P L = Lateral STD P = Rear FUNCTION F A = Normally Open STD C = Normally Closed STD </p>	<p>Lever roller ball bearing - Spring</p> <p><i>Lateral connections</i></p> <p>Weight gr. 46 Operating force 9N</p>
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Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

Accessories



Push button protection cover	104.02
Complete pneumatic operator STD	104.11
Complete lever roller operator STD	104.2.1
Complete lever roller ball bearing operator STD	104.2.1/1
Complete lever unidirectional operator STD	104.3.1
Push button STD	104.6.22/*
Raised push button STD	104.6.23/*
Palm button 2 positions STD	104.6.25
Switch long lever 2 positions stable STD	104.6.27
Switch long lever 3 positions instable STD	104.6.27.0
Switch long lever 3 positions stable STD	104.6.27.1
Key switch 2 positions stable STD	104.6.28
Key switch 3 positions instable STD	104.6.28.0
Key switch 3 positions stable STD	104.6.28.1
Switch short lever 2 positions stable STD	104.6.30
Switch short lever 3 positions instable	104.6.30.0
Switch short lever 3 positions stable STD	104.6.30.1
Push button 2 pos. (step. - step.) STD	104.6.31
Joystick selector switch STD	104.6.39.0
Fixing plate (complete with fixing screws) STD	104.00
Contact electric element N.C.	104.NC
Contact electric element N.O.	104.NA

* 1 = Red 2 = Black 3 = Green 4 = Yellow

Technical modifications keep in reserve !

(2021/03)



Lever roller ball bearing - Spring

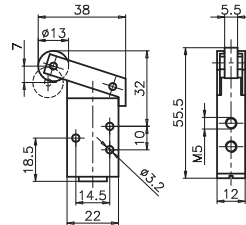
3/2

Ordering code

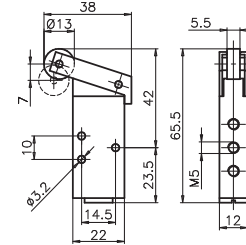
105.1.2.1/1

5/2

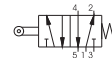
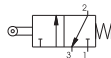
Lever roller ball bearing - Spring



TYPE	
1	32 = 3 ways STD
	52 = 5 ways



Weight gr. 100
Operating force 6 N



Weight gr. 177
Operating force 6 N

Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (Nl/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	120 Nl/min	mm 2,5	M5

Lever button - Spring

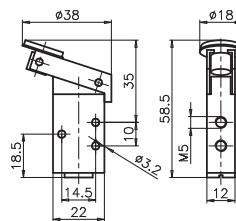
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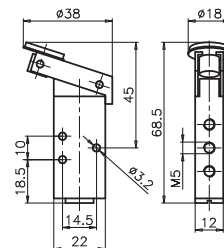
105.1.2.6/C

5/2

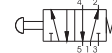
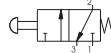
Lever button - Spring



TYPE	
1	32 = 3 ways STD
	52 = 5 ways
BUTTON COLOR	
C	1 = Red STD
	2 = Black
	3 = Green



Weight gr. 85
Operating force 6 N



Weight gr. 102
Operating force 6 N

Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (Nl/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	120 Nl/min	mm 2,5	M5

Lever unidirectional - Spring

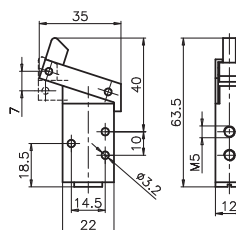
3/2

Ordering code

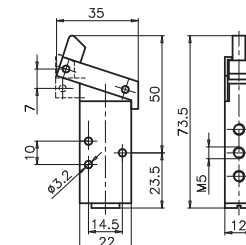
105.1.3.1

5/2

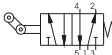
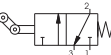
Lever unidirectional - Spring



TYPE	
1	32 = 3 ways STD
	52 = 5 ways



Weight gr. 85
Operating force 6 N



Weight gr. 102
Operating force 6 N

Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (Nl/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	120 Nl/min	mm 2,5	M5

Technical modifications keep in reserve !

(2021/03)



			Symbol	Description	Code	Operating force	Max. pressure	Flow at 6 bar, Δp=1	Orifice size
G1/8" 	3/2		Tappet spring	228.32.0.1	33 N	10 bar	540 NI/min	mm 6	
			Tappet panel spring STD	228.32.1.1					
			Pedal aluminium 2-positions	228.32.10	/				
				Pedal aluminium spring					228.32.10.1
				Pedal protected spring					228.32.10.1/1
			Pedal prot. - Spring (no safety) STD	228.32.10.2/1	/				
				Pedal protected - 2 positions					228.32.10/1
			Lever plastic roller spring	228.32.2.1	15 N				
				Lever roller ball bearings spring STD					228.32.2.1/1
				Lever metal roller spring					228.32.2.1/2
			Lever button spring STD	228.32.2.6/*	/				
			Switch lateral 2-positions	228.32.27					
				Lever roller unidirectional spring					228.32.3.1
		Lever roller unidirectional spring STD		228.32.3.1/2					
			Lever roller lateral bidirect. spring	228.32.4.1					
			Lever sensitive differential STD	228.32.4.13					
			Lever panel Ø 30 2-positions	228.32.5/*					
		Lever front 2-positions	228.32.55/*						
		Push button Ø 30 spring	228.32.6.1/*	33 N					
		Sensitive push button Ø 30 diff.	228.32.6.13/*	18,5 N					
			Push button spring	228.32.6.22/**		33 N			
	Raised push button spring		228.32.6.23/**						
		Palm button 2-positions	228.32.6.25	/					
		Switch 2 positions	228.32.6.27						
		Key switch 2-positions	228.32.6.28						
		Palm push button Ø 30 spring	228.32.7.1/*	33 N					
		Push button spring	228.32.8.1/*						
		Push button 2-positions	228.32.8/*	10 N					
		Lever lateral spring STD	228.32.9.1/*	/					
		Lever lateral 2 positions STD	228.32.9/*						
	5/2		Tappet spring	228.52.0.1	33 N				
			Tappet panel spring	228.52.1.1					
		Pedal aluminium 2 positions	228.52.10	/					
			Pedal aluminium spring		228.52.10.1				
			Pedal protected - spring		228.52.10.1/1				
		Pedal prot. - spring (no safety dev.)	228.52.10.2/1						
		Pedal plastic spring (miniatur)	228.52.10.1P						
		Pedal spring (miniatur.stainless spool)	228.52.10.1PX						
		Pedal protected 2 positions	228.52.10/1	10 bar	540 NI/min	mm 6			
		Lever plastic roller spring	228.52.2.1						
			Lever roller ball bearings - spring				228.52.2.1/1		
			Lever metal roller- spring				228.52.2.1/2		
		Lever button - spring	228.52.2.6/*						
		Switch lateral - 2 positions	228.52.27				/		
		Lever roller unidirectional - spring	228.52.3.1	15 N					

Technical modifications keep in reserve !

(2021/03)



VALVES

(series 200, section 1)

PNEUMAX

		Symbol	Description	Code	Operating force	Max. pressure	Flow at 6 bar, Δp=1	Orifice size
G 1/8"	5/2		Lever roller, unidirectional spring	228.52.3.1/2	15 N	10 bar	540 NI/min	mm 6
			Lever roller lateral bidir. - spring	228.52.4.1	/			
			Lever sensitive differential	228.52.4.13				
			Lever panel Ø 30 - 2 positions	228.52.5/*				
			Lever front 2 positions	228.52.55/*				
			Push button Ø 30 spring	228.52.6.1/*	33 N			
			Sensitive pushbutton Ø 30 differ.	228.52.6.13/*	18,5 N			
			Push button spring	228.52.6.22/**	33 N			
			Raised push button spring	228/.52.6.23/**				
			Palm pushbutton 2 positions	228/.52.6.25	/			
		Switch 2 positions	228.52.6.27					
		Key switch 2 positions	228.52.6.28					
		Palm push button Ø 30 spring	228.52.7.1/*	33 N				
		Pushbutton spring	228.52.8.1/*					
		Push button 2 positions	228.52.8/*	10 N				
		Lever lateral spring STD	228.52.9.1/*	/				
		Lever lateral 2 positions STD	228.52.9/*					
	5/3		Pedal spring - 3 positions	228.53.31.10.1	/	10 bar	410 NI/min	mm 6
			Lever lat. spring 3 pos. C.C. STD	228.53.31.9.1/*				
			Lever lateral 3 pos. C.C. STD	228.53.31.9/*				
		Pedal spring 3- pos. O.C.	228.53.32.10.1					
		Lever lateral spring 3 pos. O.C. STD	228.53.32.9.1/*					
		Lever lateral 3 pos. O.C. STD	228.53.32.9/*					
		Lever central (2 positions)	228.53.32.99.2/***					
		Lever central (3 positions)	228.53.32.99.3/***					
	Lever central - spring 3 positions	228.53.32.99/***						

* 1 = Red 2 = Black 3 = Green
 ** 1 = Red 2 = Black 3 = Green 4 = Yellow
 *** 1 = Red 2 = Black

STD

Spare Parts

RS/218/72R LEVER SHORT RED (default mounted)
 RS/218/72 LEVER SHORT BLACK



Technical modifications keep in reserve !

(2021/03)





VALVES
(series 200, section 1)

PNEUMAX

		Symbol	Description	Code	Operating force	Max. pressure	Flow at 6 bar, Δp=1	Orifice size			
G 1/4"	3/2		Tappet spring	224.32.1.1	71,5 N	10 bar	1360 NI/min	mm 8			
			Pedal aluminium 2 positions	224.32.10	/						
			Pedal aluminium - spring	224.32.10.1							
			Pedal protected 2 positions STD	214.32.10/1							
			Pedal protected - spring	214.32.10.1/1							
			Pedal prot. - spring (no safety device) STD	214.32.10.2/1							
			Lever roller spring	224.32.2.1					35 N		
			Lever roller unidirectional - spring	224.32.3.1							
			Push button 2 positions	224.32.8					105 N		
			Push button spring	224.32.8.1					71,5 N		
		Lever lateral spring STD	224.32.9.1/*	/							
		Lever lateral 2 positions STD	224.32.9/*								
	5/2	5/2		Tappet spring	224.52.1.1	71,5 N	10 bar	1360 NI/min	mm 8		
				Pedal aluminium 2 positions	224.52.10	/					
				Pedal aluminium - spring	224.52.10.1						
				Pedal protected 2 positions STD	214.52.10/1						
				Pedal protected spring	214.52.10.1/1						
			Pedal protected -spring (no safety device) STD	214.52.10.2/1							
			Lever roller spring	224.52.2.1	35 N						
			Lever roller unidirectional spring	224.52.3.1							
		Push button 2 positions	224.52.8	10 N							
		Push button spring	224.52.8.1	71,5 N							
	Lever lateral spring STD	224.52.9.1/*									
	Lever lateral 2 positions	224.52.9.2	10 bar		1020 NI/min	mm 7					
	Lever lateral with bloc. dev. 2 positions STD	224.52.9/*	/	10 bar	1360 NI/min	mm 8					
5/3	5/3		Pedal 3 positions C.C.	224.53.31.10	/	10 bar	1280 NI/min	mm 8			
			Pedal - spring 3 pos. C.C.	224.53.31.10.1							
			Lever lat. - spring 3 pos. C.C. STD	224.53.31.9.1/*							
			Lever lateral 3 pos. C.C.	224.53.31.9.2					10 bar	1020 NI/min	mm 7
			Lev. lat. bloc. dev.-spring 3 pos. C.C. STD	224.53.31.9/*							
		Pedal aluminium 3 pos. O.C.	224.53.32.10	/	10 bar	1280 NI/min	mm 8				
		Pedal alum. spring 3 pos. O.C.	224.53.32.10.1								
		Lever lat. - spring 3 pos. O.C. STD	224.53.32.9.1/*								
		Lever lateral 3 pos. O.C.	224.53.32.9.2					10 bar	1020 NI/min	mm 7	
	Lev. lat. bloc. dev.-spring 3 pos. O.C. STD	224.53.32.9/*	/	10 bar	1280 NI/min	mm 8					

* 1 = Red 2 = Black 3 = Green
STD

Spare Parts

RS/214/34R LEVER LONG RED (default mounted)
RS/214/34 LEVER LONG BLACK



Technical modifications keep in reserve !

(2021/03)



	Symbol	Description	Code	Max. pressure	Flow at 6 bar, Δp=1	Orifice size
G 1/2" 	3/2	Lever lateral - 2 positions STD	212.32.9	10 bar	3500 NI/min	mm 15
		Lever lateral - Spring STD	212.32.9.1			
	5/2	Lever lateral - 2 positions STD	212.52.9	10 bar	3500 NI/min	mm 15
		Lever lateral - Spring STD	212.52.9.1			
	5/3	Lever lateral - 3 pos. C.C. STD	212.53.31.9	10 bar	3000 NI/min	mm 15
		Lever lateral - Spring 3 pos. C.C. STD	212.53.31.9.1			
		Lever lateral - 3 positions O.C. STD	212.53.32.9			
		Lever lateral - 3 positions O.C. STD	212.53.32.9.1			
G 1" 	3/2	Lever lateral - 2 positions	211.32.9	10 bar	6500 NI/min	mm 20
		Lever lateral - Spring	211.32.9.1			
	5/2	Lever lateral - 2 positions	211.52.9	10 bar	6500 NI/min	mm 20
		Lever lateral - Spring	211.52.9.1			
	5/3	Lever lateral - 3 positions C.C.	211.53.31.9	10 bar	6500 NI/min	mm 20
		Lever lateral - Spring 3 pos. C.C.	211.53.31.9.1			
		Lever lateral - 3 positions O.C.	211.53.32.9			
		Lever lateral - Spring 3 pos. O.C.	211.53.32.9.1			

LEVER ONLY BLACK (default mounted)

Use and maintenance

These valves have an average life of 15 million cycles depending on the application and air quality, filtered and lubricated air using specified lubricants will dramatically reduce the wear of the seals and ensures long and trouble free operation.

Please ensure that the valve is being used according with the manufacturers specification, such as air pressure and temperature and that exhaust ports 3 & 5 are protected against the possible ingress of dirt or debris.

Repair kits including the spool complete with seals are available for overhauling the valves; however, although this is a simple operation it should be carried out by a competent person.

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



Technical modifications keep in reserve !

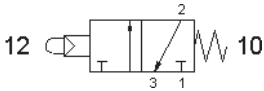
(2021/03)

EMERGENCY & KEY SELECTOR VALVES Series AZ

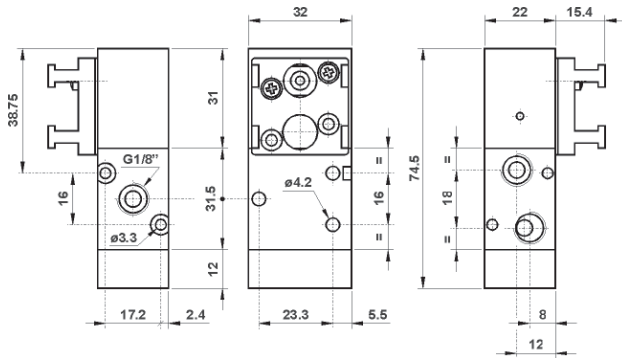
Nominal orifice: 5 mm
Nominal flow rate at 6 bar: 550 NI/min
Temperature range: max +60°C
Working pressure: 2.5 ... 10 bar
Actuating force: 4 N
Fluid: 50µ filtered, lubricated or non lubricated air

Materials
Body: aluminium 11S
Spool: nickel plated aluminium
Seals: NBR
Springs: stainless steel
Internal parts: brass OT 58

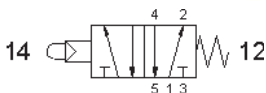
3/2 1/8" NC servo-piloted tappet with 90° actuator adaptor for panel mounting - spring return



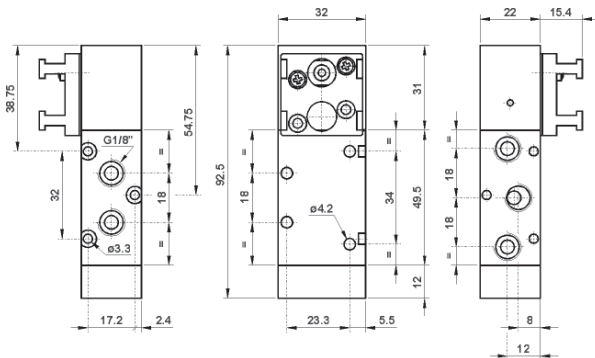
Order code:
 321MB90



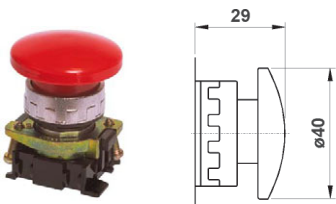
5/2 1/8" servo-piloted tappet with 90° actuator adaptor for panel mounting - spring return



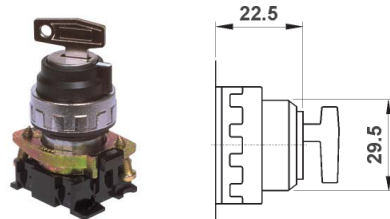
Order code:
 521MB90



Actuators for panel mounting



Emergency mushroom Ø40 Red
Order code:
 RM065R



Bi-stable key selector Black
Order code:
 SSC/CD-V

Technical modifications keep in reserve !

(2021/03)



PNEUMAX

General

New 104 micro valves series have been realized as an economic version to complete the range of 105 valves version. With their small overall dimensions it makes easy installation and operation.

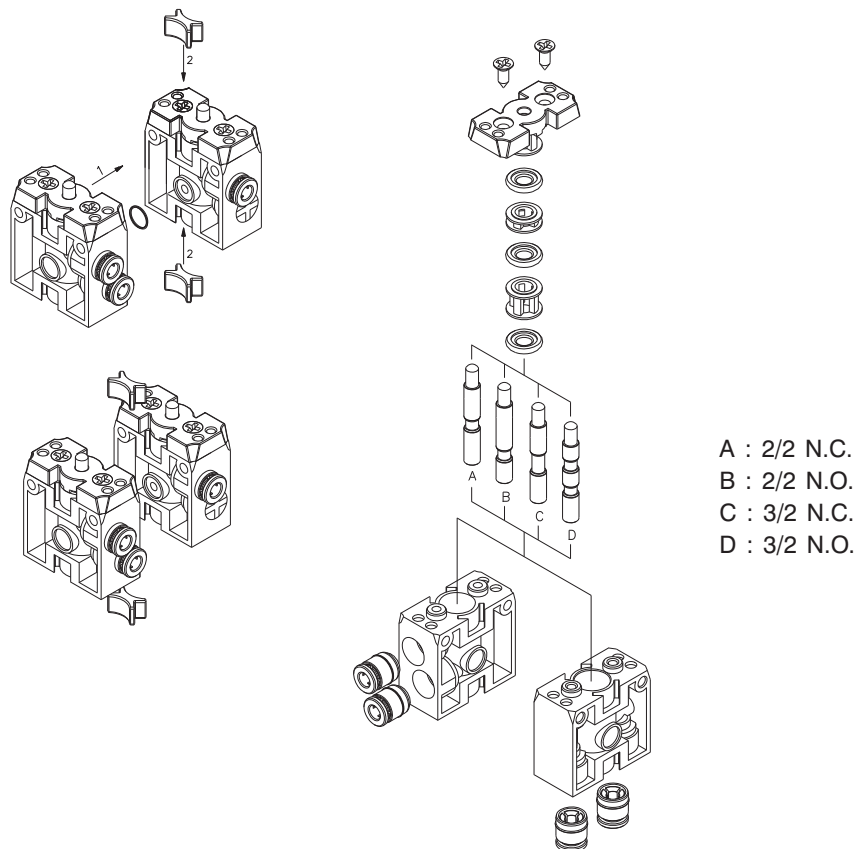
Their main characteristic is the possibility to choose between the version with lateral or rear pneumatic connections realized with quick fitting for $\varnothing 4$ mm. tube included.

The valves are available with 2 or 3 ways versions, normally closed or open, 5 ways and 5 ways 3 positions open centres and pressured centres.

The 5 ways version is made with two 3 ways valves placed side by side with common inlet.

The operators available for this valve are push button (different versions), selector (key, short and long lever), lever (lever roller or lever unidirectional) and pneumatic.

It is also possible to combine the 2 and 3 ways valves with electrical switches, normally closed or open.



Construction characteristics

Body and cover	Technopolymer
Actuators	Plastic material for buttons and switches
Seals	NBR
Spacer	Acetal resin
Spool	Steel
Spring	Spring steel

Use and maintenance

These valves have an average life of 15 million cycles depending on the application and air quality, filtered and lubricated air using specified lubricants will dramatically reduce the wear of the seals and ensures long and trouble free operation.

Please ensure that the valve is being used according with the manufacturers specification, such as air pressure and temperature and that exhaust ports 3 & 5 are protected against the possible ingress of dirt or debris.

Repair kits including the spool complete with seals are available for overhauling the valves; however, although this is a simple operation it should be carried out by a competent person.

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



Tappet - Spring	2/2 3/2	Ordering code	2/2 3/2	Tappet - Spring
<i>Lateral connections</i>		104.1.0.1.P.F		<i>Rear connections</i>
		TYPE T 22 = 2 ways 32 = 3 ways CONNECTION TYPE P L = Lateral P = Rear FUNCTION F A = Normally Open C = Normally Closed		
Weight gr. 20 Operating force 13 N				Weight gr. 20 Operating force 13 N

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

Push button - Spring	2/2 3/2	Ordering code	2/2 3/2	Push button - Spring
<i>Lateral connections</i>		104.1.6.22/C.P.F		<i>Rear connections</i>
		TYPE T 22 = 2 ways 32 = 3 ways BUTTON COLOR C 1 = Red 2 = Black 3 = Green 4 = Yellow CONNECTION TYPE P L = Lateral P = Rear FUNCTION F A = Normally Open C = Normally Closed		
Weight gr. 50 Operating force 18 N				Weight gr. 50 Operating force 18 N

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

Push button - Spring	5/2	Ordering code	5/2	Push button - Spring
<i>Lateral connections</i>		104.52.6.22/C.P		<i>Rear connections</i>
		BUTTON COLOR C 1 = Red 2 = Black 3 = Green 4 = Yellow CONNECTION TYPE P L = Lateral P = Rear		
Weight gr. 105 Operating force 30 N				Weight gr. 105 Operating force 30 N

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

1

Push button 2 positions (step - step)	2/2 3/2	Ordering code 104.T.6.31.PF	2/2 3/2	Push button 2 positions (step - step)						
<i>Lateral connections</i>				<i>Rear connections</i>						
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>TYPE</td></tr> <tr><td>T 22 = 2 ways 32 = 3 ways</td></tr> <tr><td>CONNECTION TYPE</td></tr> <tr><td>P L = Lateral P = Rear</td></tr> <tr><td>FUNCTION</td></tr> <tr><td>A = Normally Open C = Normally Closed</td></tr> </table>	TYPE	T 22 = 2 ways 32 = 3 ways	CONNECTION TYPE	P L = Lateral P = Rear	FUNCTION	A = Normally Open C = Normally Closed		
TYPE										
T 22 = 2 ways 32 = 3 ways										
CONNECTION TYPE										
P L = Lateral P = Rear										
FUNCTION										
A = Normally Open C = Normally Closed										
Weight gr. 60 Operating force 18N				Weight gr. 60 Operating force 18N						

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

Push button 2 positions (step - step)	5/2	Ordering code 104.52.6.31.P	5/2	Push button 2 positions (step - step)		
<i>Lateral connections</i>				<i>Rear connections</i>		
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>CONNECTION TYPE</td></tr> <tr><td>P L = Lateral P = Rear</td></tr> </table>	CONNECTION TYPE	P L = Lateral P = Rear		
CONNECTION TYPE						
P L = Lateral P = Rear						
Weight gr. 110 Operating force 30N				Weight gr. 110 Operating force 30N		

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

Raised Push button - Spring	2/2 3/2	Ordering code 104.T.6.23/C.PF	2/2 3/2	Raised Push button - Spring								
<i>Lateral connections</i>				<i>Rear connections</i>								
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>TYPE</td></tr> <tr><td>T 22 = 2 ways 32 = 3 ways</td></tr> <tr><td>BUTTON COLOR</td></tr> <tr><td>C 1 = Red 2 = Black 3 = Green 4 = Yellow</td></tr> <tr><td>CONNECTION TYPE</td></tr> <tr><td>P L = Lateral P = Rear</td></tr> <tr><td>FUNCTION</td></tr> <tr><td>A = Normally Open C = Normally Closed</td></tr> </table>	TYPE	T 22 = 2 ways 32 = 3 ways	BUTTON COLOR	C 1 = Red 2 = Black 3 = Green 4 = Yellow	CONNECTION TYPE	P L = Lateral P = Rear	FUNCTION	A = Normally Open C = Normally Closed		
TYPE												
T 22 = 2 ways 32 = 3 ways												
BUTTON COLOR												
C 1 = Red 2 = Black 3 = Green 4 = Yellow												
CONNECTION TYPE												
P L = Lateral P = Rear												
FUNCTION												
A = Normally Open C = Normally Closed												
Weight gr. 50 Operating force 18N				Weight gr. 50 Operating force 18N								

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube



1

Raised Push button - Spring	5/2	Ordering code	5/2	Raised Push button - Spring
<i>Lateral connections</i>		104.52.6.23/C.P		<i>Rear connections</i>
		BUTTON COLOR 1 = Red 2 = Black 3 = Green 4 = Yellow CONNECTION TYPE L = Lateral P = Rear		
Weight gr. 105 Operating force 30N				Weight gr. 105 Operating force 30N

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

Palm button 2 position	2/2 3/2	Ordering code	2/2 3/2	Palm button 2 position
<i>Lateral connections</i>		104.1.6.25.P.F		<i>Rear connections</i>
		TYPE 22 = 2 ways 32 = 3 ways CONNECTION TYPE L = Lateral P = Rear FUNCTION A = Normally Open C = Normally Closed		
Weight gr. 65 Operating force 19N Emergency - Rotate to unlock				Weight gr. 65 Operating force 19N Emergency - Rotate to unlock

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

Palm button 2 position	5/2	Ordering code	5/2	Palm button 2 position
<i>Lateral connections</i>		104.52.6.25.P		<i>Rear connections</i>
		CONNECTION TYPE L = Lateral P = Rear		
Weight gr. 120 Operating force 32N Emergency - Rotate to unlock				Weight gr. 120 Operating force 32N Emergency - Rotate to unlock

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

1

Switch - short lever	2/2 3/2	Ordering code 104.1.6.30.PF	2/2 3/2	Switch - short lever	
<i>Lateral connections</i>				<i>Rear connections</i>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>79,5 Quick fitting for ø4 tube 30</p> </div> <div style="text-align: center;"> <p>ø22 8 max 40</p> </div> </div>		<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>79,5 Quick fitting for ø4 tube 30</p> </div> <div style="text-align: center;"> <p>ø22 8 max 40</p> </div> </div>			
<p>Weight gr. 65 Switch 2 positions stable</p>				<p>Weight gr. 65 Switch 2 positions stable</p>	

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

Switch - short lever	5/2	Ordering code 104.52.6.30.P	5/2	Switch - short lever	
<i>Lateral connections</i>				<i>Rear connections</i>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>79,5 Quick fitting for ø4 tube 30</p> </div> <div style="text-align: center;"> <p>ø22 8 max 40</p> </div> </div>		<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>79,5 Quick fitting for ø4 tube 30</p> </div> <div style="text-align: center;"> <p>ø22 8 max 40</p> </div> </div>			
<p>Weight gr. 120 Switch 2 positions stable</p>				<p>Weight gr. 120 Switch 2 positions stable</p>	

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

Switch - short lever	5/3	Ordering code 104.53.F.6.30.S.P	5/3	Switch - short lever	
<i>Lateral connections</i>				<i>Rear connections</i>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>79,5 Quick fitting for ø4 tube 30</p> </div> <div style="text-align: center;"> <p>ø22 8 max 40</p> </div> </div>		<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>79,5 Quick fitting for ø4 tube 30</p> </div> <div style="text-align: center;"> <p>ø22 8 max 40</p> </div> </div>			
<p>Weight gr. 120</p>				<p>Weight gr. 120</p>	

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube



1

Switch - long lever	2/2 3/2	Ordering code	2/2 3/2	Switch - long lever
<i>Lateral connections</i>		104.1.6.27.P.F		<i>Rear connections</i>
		TYPE T 22 = 2 ways 32 = 3 ways CONNECTION TYPE P L = Lateral P = Rear FUNCTION F A = Normally Open C = Normally Closed		
Weight gr. 65 Switch 2 positions stable				Weight gr. 65 Switch 2 positions stable

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

Switch - long lever	5/2	Ordering code	5/2	Switch - long lever
<i>Lateral connections</i>		104.52.6.27.P		<i>Rear connections</i>
		CONNECTION TYPE P L = Lateral P = Rear		
Weight gr. 120 Switch 2 positions stable				Weight gr. 120 Switch 2 positions stable

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

Switch - long lever	5/3	Ordering code	5/3	Switch - long lever
<i>Lateral connections</i>		104.53.F.6.27.S.P		<i>Rear connections</i>
		FUNCTION F 32 = Open centres 33 = Pressured centres SWITCH POSITIONS S 0 = 3 pos. instable 1 = 3 pos. stable CONNECTION TYPE P L = Lateral P = Rear		
Weight gr. 120 Switch 2 positions stable				Weight gr. 120 Switch 2 positions stable

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

1

Key switch	2/2 3/2	Ordering code 104.T.6.28.PF	2/2 3/2	Key switch						
<i>Lateral connections</i>				<i>Rear connections</i>						
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>TYPE</td></tr> <tr><td>T 22 = 2 ways 32 = 3 ways</td></tr> <tr><td>CONNECTION TYPE</td></tr> <tr><td>P L = Lateral P = Rear</td></tr> <tr><td>FUNCTION</td></tr> <tr><td>F A = Normally Open C = Normally Closed</td></tr> </table>	TYPE	T 22 = 2 ways 32 = 3 ways	CONNECTION TYPE	P L = Lateral P = Rear	FUNCTION	F A = Normally Open C = Normally Closed		
TYPE										
T 22 = 2 ways 32 = 3 ways										
CONNECTION TYPE										
P L = Lateral P = Rear										
FUNCTION										
F A = Normally Open C = Normally Closed										
Weight gr. 100 Switch 2 positions stable				Weight gr. 100 Switch 2 positions stable						

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

Key switch	5/2	Ordering code 104.52.6.28.P	5/2	Key switch		
<i>Lateral connections</i>				<i>Rear connections</i>		
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>CONNECTION TYPE</td></tr> <tr><td>P L = Lateral P = Rear</td></tr> </table>	CONNECTION TYPE	P L = Lateral P = Rear		
CONNECTION TYPE						
P L = Lateral P = Rear						
Weight gr. 155 Switch 2 positions stable				Weight gr. 155 Switch 2 positions stable		

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

Key switch	5/3	Ordering code 104.53.F.6.28.S.P	5/3	Key switch						
<i>Lateral connections</i>				<i>Rear connections</i>						
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>FUNCTION</td></tr> <tr><td>F 32 = Open centres 33 = Pressured centres</td></tr> <tr><td>SWITCH POSITIONS</td></tr> <tr><td>S 0 = 3 pos. instable 1 = 3 pos. stable</td></tr> <tr><td>CONNECTION TYPE</td></tr> <tr><td>P L = Lateral P = Rear</td></tr> </table>	FUNCTION	F 32 = Open centres 33 = Pressured centres	SWITCH POSITIONS	S 0 = 3 pos. instable 1 = 3 pos. stable	CONNECTION TYPE	P L = Lateral P = Rear		
FUNCTION										
F 32 = Open centres 33 = Pressured centres										
SWITCH POSITIONS										
S 0 = 3 pos. instable 1 = 3 pos. stable										
CONNECTION TYPE										
P L = Lateral P = Rear										
Weight gr. 155 Switch 2 positions stable				Weight gr. 155 Switch 2 positions stable						

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube



1

Lever roller - Spring	2/2 3/2	Ordering code	2/2 3/2	Lever roller - Spring
<i>Lateral connections</i>		104.T.2.1.P.F		<i>Rear connections</i>
		<p>TYPE</p> <p>T 22 = 2 ways 32 = 3 ways</p> <p>CONNECTION TYPE</p> <p>P L = Lateral P = Rear</p> <p>FUNCTION</p> <p>F A = Normally Open C = Normally Closed</p>		
<p>Weight gr. 31 Operating force 9N</p>				<p>Weight gr. 31 Operating force 9N</p>

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

Lever roller ball bearing - Spring	2/2 3/2	Ordering code	2/2 3/2	Lever roller ball bearing - Spring
<i>Lateral connections</i>		104.T.2.1/1.P.F		<i>Lateral connections</i>
		<p>TYPE</p> <p>T 22 = 2 ways 32 = 3 ways</p> <p>CONNECTION TYPE</p> <p>P L = Lateral P = Rear</p> <p>FUNCTION</p> <p>F A = Normally Open C = Normally Closed</p>		
<p>Weight gr. 46 Operating force 9N</p>				<p>Weight gr. 46 Operating force 9N</p>

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

Lever unidirectional - Spring	2/2 3/2	Ordering code	2/2 3/2	Lever unidirectional - Spring
<i>Lateral connections</i>		104.T.3.1.P.F		<i>Lateral connections</i>
		<p>TYPE</p> <p>T 22 = 2 ways 32 = 3 ways</p> <p>CONNECTION TYPE</p> <p>P L = Lateral P = Rear</p> <p>FUNCTION</p> <p>F A = Normally Open C = Normally Closed</p>		
<p>Weight gr. 31 Operating force 9N</p>				<p>Weight gr. 31 Operating force 9N</p>

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered air, with or without lubrication	10 bar	-5 - +70	90 NI/min	mm 2,5	ø4 tube

1

Complete lever roller operator

Ordering code	
104.2.1	

Complete lever roller ball bearing operator

Ordering code	
104.2.1/1	

Complete lever unidirectional

Ordering code	
104.3.1	

Fixing plate

Ordering code	
104.00	
Complete with fixing screws	

Push button

Ordering code	
104.6.22/ⓐ	
BUTTON COLOR	
1 = Red	
ⓐ 2 = Black	
3 = Green	
4 = Yellow	

Raised Push button

Ordering code	
104.6.23/ⓐ	
BUTTON COLOR	
1 = Red	
ⓐ 2 = Black	
3 = Green	
4 = Yellow	

Push button 2 positions

Ordering code	
104.6.31	
(step - step)	

Palm button 2 position

Ordering code	
104.6.25	
Emergency - Rotate to unlock	

Switch - short lever








Ordering code	
104.6.30.Ⓢ	
SWITCH POSITIONS	
Ⓢ 0 = 3 pos. instable	
1 = 3 pos. stable	
Switch 3 positions	

Switch - short lever

Ordering code	
104.6.30	
Switch 2 positions stable	



1

Switch - long lever		Switch - long lever	
Ordering code		Ordering code	
104.6.27.S		104.6.27	
SWITCH POSITIONS			
0 = 3 pos. instable 1 = 3 pos. stable			
Switch 3 positions		Switch 2 positions stable	
Key switch		Key switch	
Ordering code		Ordering code	
104.6.28.S		104.6.28	
SWITCH POSITIONS			
0 = 3 pos. instable 1 = 3 pos. stable			
Switch 3 positions		Switch 2 positions stable	
Joystick selector switch		Complete Pneumatic Operator	
Ordering code		Ordering code	
104.6.39.S		104.11	
SWITCH POSITIONS			
0 = 3 pos. instable			
Contact electric element		Push button protection cover	
Ordering code		Ordering code	
104.F		104.02	
FUNCTION			
F NA = Normally Open NC = Normally Closed			

General

The series 105 consist of a broad range of miniature valves and valves with various type of actuation. The connections are M5 for this series.

Due to their special construction with a balanced spool, these valves can be used interchangeably as 3 ways or 5 ways as can be seen in the functional schematics in section 0. This is important because, for example, the 3 ways can be used normally closed or normally open and the 5 ways can be fed through the exhausts 3 and 5 with different pressures according to the need. The spool, as it is moving, isolates the connections without being effected by the inlet pressure.

Construction characteristics

	M5	G 1/8" - G 1/4" - G 1/2" - G 1"
Body	Aluminium	Aluminium
Actuators	Nickel plated brass Stainless steel for roller levers and button levers. Zinc plated steel for side levers Plastic material for handles, buttons, switches	Aluminium
Seals	NBR	NBR
Spacer	Acetal resin	Technopolymer (Aluminium for G 1")
Spool	Stainless steel	Stainless steel / Technopolymer
Bottom plates		Technopolymer
Spring	Spring steel	Spring steel

Use and maintenance

These valves have an average life of 15 million cycles depending on the application and air quality, filtered and lubricated air using specified lubricants will dramatically reduce the wear of the seals and ensures long and trouble free operation.

Please ensure that the valve is being used according with the manufacturers specification, such as air pressure and temperature and that exhaust ports 3 & 5 are protected against the possible ingress of dirt or debris.

Repair kits including the spool complete with seals are available for overhauling the valves; however, although this is a simple operation it should be carried out by a competent person.

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



1

Tappet panel - Spring	3/2	Ordering code 105.1.0.1	5/2	Tappet panel - Spring				
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">TYPE</td> </tr> <tr> <td>32 = 3 ways</td> </tr> <tr> <td>52 = 5 ways</td> </tr> </table>		TYPE	32 = 3 ways	52 = 5 ways		
				TYPE				
32 = 3 ways								
52 = 5 ways								
Weight gr. 70 Operating force 14 N				Weight gr. 87 Operating force 14 N				

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	120 NI/min	mm 2,5	M5

Lever roller - Spring	3/2	Ordering code 105.1.2.1	5/2	Lever roller - Spring				
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">TYPE</td> </tr> <tr> <td>32 = 3 ways</td> </tr> <tr> <td>52 = 5 ways</td> </tr> </table>		TYPE	32 = 3 ways	52 = 5 ways		
				TYPE				
32 = 3 ways								
52 = 5 ways								
Weight gr. 85 Operating force 6 N				Weight gr. 102 Operating force 6 N				

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	120 NI/min	mm 2,5	M5

Lever roller ball bearing - Spring	3/2	Ordering code 105.1.2.1/1	5/2	Lever roller ball bearing - Spring				
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">TYPE</td> </tr> <tr> <td>32 = 3 ways</td> </tr> <tr> <td>52 = 5 ways</td> </tr> </table>		TYPE	32 = 3 ways	52 = 5 ways		
				TYPE				
32 = 3 ways								
52 = 5 ways								
Weight gr. 100 Operating force 6 N				Weight gr. 177 Operating force 6 N				

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	120 NI/min	mm 2,5	M5

1

Lever button - Spring	3/2	Ordering code 105.T.2.6/C	5/2	Lever button - Spring							
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>TYPE</td></tr> <tr><td>T 32 = 3 ways</td></tr> <tr><td>52 = 5 ways</td></tr> <tr><td>BUTTON COLOR</td></tr> <tr><td>C 1 = Red</td></tr> <tr><td>2 = Black</td></tr> <tr><td>3 = Green</td></tr> </table>	TYPE	T 32 = 3 ways	52 = 5 ways	BUTTON COLOR	C 1 = Red	2 = Black	3 = Green		
TYPE											
T 32 = 3 ways											
52 = 5 ways											
BUTTON COLOR											
C 1 = Red											
2 = Black											
3 = Green											
Weight gr. 85 Operating force 6 N				Weight gr. 102 Operating force 6 N							

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	120 NI/min	mm 2,5	M5

Lever unidirectional - Spring	3/2	Ordering code 105.T.3.1	5/2	Lever unidirectional - Spring			
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>TYPE</td></tr> <tr><td>T 32 = 3 ways</td></tr> <tr><td>52 = 5 ways</td></tr> </table>	TYPE	T 32 = 3 ways	52 = 5 ways		
TYPE							
T 32 = 3 ways							
52 = 5 ways							
Weight gr. 85 Operating force 6 N				Weight gr. 102 Operating force 6 N			

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	120 NI/min	mm 2,5	M5

Lever panel Ø22 - 2 positions	3/2	Ordering code 105.T.4/C	5/2	Lever panel Ø22 - 2 positions							
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>TYPE</td></tr> <tr><td>T 32 = 3 ways</td></tr> <tr><td>52 = 5 ways</td></tr> <tr><td>BUTTON COLOR</td></tr> <tr><td>C 1 = Red</td></tr> <tr><td>2 = Black</td></tr> <tr><td>3 = Green</td></tr> </table>	TYPE	T 32 = 3 ways	52 = 5 ways	BUTTON COLOR	C 1 = Red	2 = Black	3 = Green		
TYPE											
T 32 = 3 ways											
52 = 5 ways											
BUTTON COLOR											
C 1 = Red											
2 = Black											
3 = Green											
Weight gr. 125				Weight gr. 142							

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	120 NI/min	mm 2,5	M5

General

The series 200 consist of a broad range of valves with various type of actuation.

The connections for this series are from G 1/8" to G 1".

Due to their special construction with a balanced spool, these valves can be used interchangeably as 3 ways or 5 ways as can be seen in the functional schematics in section 0. This is important because, for example, the 3 ways can be used normally closed or normally open and the 5 ways can be fed through the exhausts 3 and 5 with different pressures according to the need. The spool, as it is moving, isolates the connections without being effected by the inlet pressure.

The main components constituting the valves of the Tecno228 series are manufactured with high performance technopolymer. The use of technopolymer has resulted in a light weight product which can be offered to the market at very interesting prices. This valve series is manufactured with 1/8" connections, 3 and 5 ways function, mechanical or pneumatically operated, monostable spring or pneumatic return, bistable and in 5 ways 3 positions version with closed, open and pressured centres.

This series is completely interchangeable with the standard 228 series (with alluminium body).

Construction characteristics

	G 1/8" - G 1/4" - G 1/2" - G 1"	G 1/8" (in Technopolymer T228 Series)
Body	Aluminium	Technopolymer
Actuators	Aluminium Technopolymer	Technopolymer
Spool	Stainless steel Technopolymer	Technopolymer (5/2 version) Nickel plated steel (5/3 version)
Seals	NBR	NBR
Spacers	Technopolymer (Aluminium for G 1")	Technopolymer
Spring	Spring steel	Spring steel
Pistons	Technopolymer	Technopolymer

Maximum fitting torque (for T228 Series)

Thread	Maximum Torque (Nm)
G 1/8"	4

Use and maintenance

These valves have an average life of 15 million cycles depending on the application and air quality, filtered and lubricated air using specified lubricants will dramatically reduce the wear of the seals and ensures long and trouble free operation.

Please ensure that the valve is being used according with the manufacturers specification, such as air pressure and temperature and that exhaust ports 3 & 5 are protected against the possible ingress of dirt or debris.

Repair kits including the spool complete with seals are available for overhauling the valves; however, although this is a simple operation it should be carried out by a competent person.

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



1

Tappet - Spring	3/2	Ordering code 228.1.0.1	5/2	Tappet - Spring				
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">TYPE</td> </tr> <tr> <td>1 32 = 3 ways</td> </tr> <tr> <td>52 = 5 ways</td> </tr> </table>		TYPE	1 32 = 3 ways	52 = 5 ways		
				TYPE				
1 32 = 3 ways								
52 = 5 ways								
Weight gr. 85 Operating force 33 N				Weight gr. 105 Operating force 33 N				

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"

Tappet panel - Spring	3/2	Ordering code 228.1.1.1	5/2	Tappet panel - Spring				
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">TYPE</td> </tr> <tr> <td>1 32 = 3 ways</td> </tr> <tr> <td>52 = 5 ways</td> </tr> </table>		TYPE	1 32 = 3 ways	52 = 5 ways		
				TYPE				
1 32 = 3 ways								
52 = 5 ways								
Weight gr. 102 Operating force 33 N				Weight gr. 122 Operating force 33 N				

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"

Lever roller - Spring	3/2	Ordering code 228.1.2.V	5/2	Lever roller - Spring							
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">TYPE</td> </tr> <tr> <td>1 32 = 3 ways</td> </tr> <tr> <td>52 = 5 ways</td> </tr> <tr> <td style="text-align: center;">VERSION</td> </tr> <tr> <td>1 = Plastic roller</td> </tr> <tr> <td>1/2 = Metal roller</td> </tr> </table>		TYPE	1 32 = 3 ways	52 = 5 ways	VERSION	1 = Plastic roller	1/2 = Metal roller		
				TYPE							
1 32 = 3 ways											
52 = 5 ways											
VERSION											
1 = Plastic roller											
1/2 = Metal roller											
Weight gr. 115 Operating force 15 N				Weight gr. 135 Operating force 15 N							

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"

1

Lever roller ball bearing - Spring	3/2	Ordering code 228.1.2.1/1	5/2	Lever roller ball bearing - Spring
		TYPE		
		T 32 = 3 ways 52 = 5 ways		
Weight gr. 130 Operating force 15 N			Weight gr. 150 Operating force 15 N	


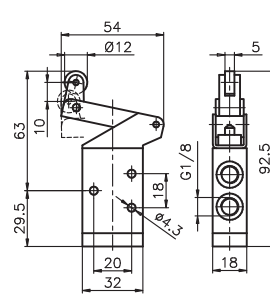

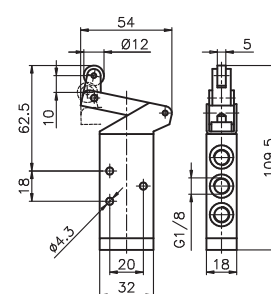
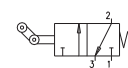
Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"

Lever button - Spring	3/2	Ordering code 228.1.2.6/C	5/2	Lever button - Spring
		TYPE		
		T 32 = 3 ways 52 = 5 ways		
		BUTTON COLOR		
		C 1 = Red 2 = Black 3 = Green		
Weight gr. 120 Operating force 15 N			Weight gr. 120 Operating force 15 N	


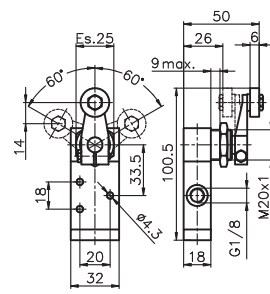

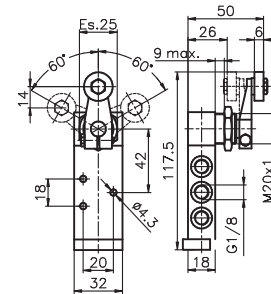
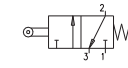
Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"

Switch lateral 2 positions	3/2	Ordering code 228.1.27	5/2	Switch lateral 2 positions
		TYPE		
		T 32 = 3 ways 52 = 5 ways		
Weight gr. 190			Weight gr. 210	


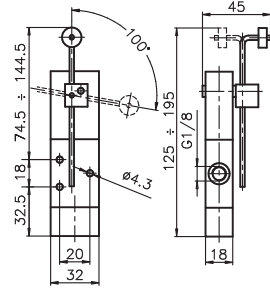

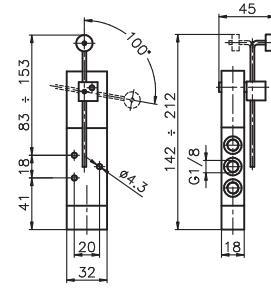
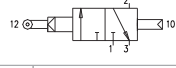
Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"

Lever roller unidirectional - Spring	3/2	Ordering code 228.1.3.V	5/2	Lever roller unidirectional - Spring
 		TYPE T 32 = 3 ways 52 = 5 ways VERSION V 1 = Plastic roller 1/2 = Metal roller		 
Weight gr. 110				Weight gr. 130

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

Lever roller lateral bidirectional - Spring	3/2	Ordering code 228.1.4.1	5/2	Lever roller lateral bidirectional - Spring
 		TYPE T 32 = 3 ways 52 = 5 ways		 
Weight gr. 180				Weight gr. 200

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

Lever sensitive - differential	3/2	Ordering code 228.1.4.13	5/2	Lever sensitive - differential
 		TYPE T 32 = 3 ways 52 = 5 ways		 
Weight gr. 200 Minimum rotation angle 11° Minimum working pressure 2,5 bar				Weight gr. 220 Minimum rotation angle 11° Minimum working pressure 2,5 bar

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

1

Lever panel Ø30 - 2 positions	3/2	Ordering code 228.1.5/C	5/2	Lever panel Ø30 - 2 positions
		<ul style="list-style-type: none"> TYPE T 32 = 3 ways 52 = 5 ways BUTTON COLOR C 1 = Red 2 = Black 3 = Green 		
Weight gr. 198				Weight gr. 218

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

Lever front - 2 positions	3/2	Ordering code 228.1.55/C	5/2	Lever front - 2 positions
		<ul style="list-style-type: none"> TYPE T 32 = 3 ways 52 = 5 ways BUTTON COLOR C 1 = Red 2 = Black 3 = Green 		
Weight gr. 115				Weight gr. 135

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

Push button Ø30 - Spring	3/2	Ordering code 228.1.6.1/C	5/2	Push button Ø30 - Spring
		<ul style="list-style-type: none"> TYPE T 32 = 3 ways 52 = 5 ways BUTTON COLOR C 1 = Red 2 = Black 3 = Green 		
Weight gr. 155 Operating force 33 N				Weight gr. 175 Operating force 33 N

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

Sensitive pushbutton Ø30 - differential	3/2	Ordering code 228.1.6.13/C	5/2	Sensitive pushbutton Ø30 - differential
		<p>TYPE</p> <p>1 32 = 3 ways 52 = 5 ways</p> <p>BUTTON COLOR</p> <p>C 1 = Red 2 = Black 3 = Green</p>		
<p>Weight gr. 197 Operating force 18,5N (at 6 bar)</p>				<p>Weight gr. 217 Operating force 18,5N (at 6 bar)</p>

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (Nl/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 Nl/min	mm 6	G 1/8"

Push button - Spring	3/2	Ordering code 228.1.6.22/C	5/2	Push button - Spring
		<p>TYPE</p> <p>1 32 = 3 ways 52 = 5 ways</p> <p>BUTTON COLOR</p> <p>C 1 = Red 2 = Black 3 = Green 4 = Yellow</p>		
<p>Weight gr. 225 Operating force 33N</p>				<p>Weight gr. 245 Operating force 33N</p>

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (Nl/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 Nl/min	mm 6	G 1/8"

Raised pushbutton Ø22 - Spring	3/2	Ordering code 228.1.6.23/C	5/2	Raised pushbutton Ø22 - Spring
		<p>TYPE</p> <p>1 32 = 3 ways 52 = 5 ways</p> <p>BUTTON COLOR</p> <p>C 1 = Red 2 = Black 3 = Green 4 = Yellow</p>		
<p>Weight gr. 230 Operating force 33N</p>				<p>Weight gr. 250 Operating force 33N</p>

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (Nl/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 Nl/min	mm 6	G 1/8"

1

Push button Ø22 - 2 positions

3/2

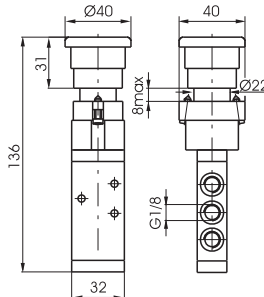
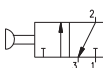
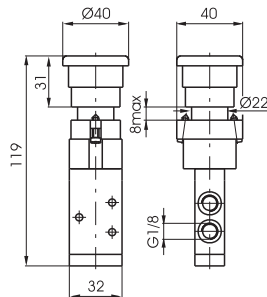
Ordering code

228. 6.25

TYPE
32 = 3 ways
52 = 5 ways

5/2

Push button Ø22 - 2 positions



Weight gr. 235
Operating force 33N
Emergency - Rotate to unlock

Weight gr. 235
Operating force 33N
Emergency - Rotate to unlock

Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"

Switch 2 positions

3/2

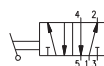
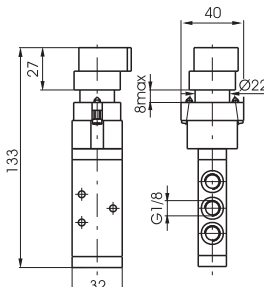
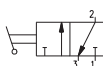
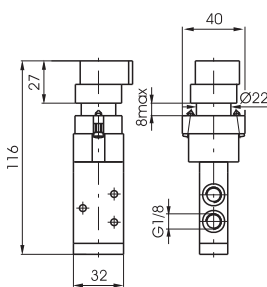
Ordering code

228. 6.27

TYPE
32 = 3 ways
52 = 5 ways

5/2

Switch 2 positions



Weight gr. 230

Weight gr. 250

Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"

Key switch 2 positions

3/2

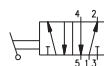
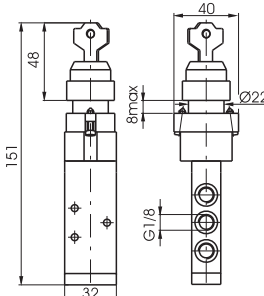
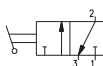
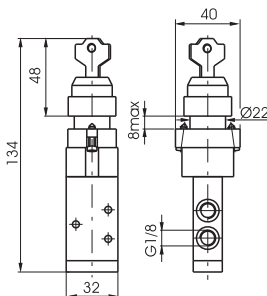
Ordering code

228. 6.28

TYPE
32 = 3 ways
52 = 5 ways

5/2

Key switch 2 positions



Weight gr. 230

Weight gr. 250

Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"

Palm pushbutton Ø30 2 positions	3/2	Ordering code 228.1.7.1/C	5/2	Palm pushbutton Ø30 2 positions							
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>TYPE</td></tr> <tr><td>1 32 = 3 ways</td></tr> <tr><td>52 = 5 ways</td></tr> <tr><td>BUTTON COLOR</td></tr> <tr><td>C 1 = Red</td></tr> <tr><td>2 = Black</td></tr> <tr><td>3 = Green</td></tr> </table>	TYPE	1 32 = 3 ways	52 = 5 ways	BUTTON COLOR	C 1 = Red	2 = Black	3 = Green		
TYPE											
1 32 = 3 ways											
52 = 5 ways											
BUTTON COLOR											
C 1 = Red											
2 = Black											
3 = Green											
<p>Weight gr. 148 Operating force 33N</p>				<p>Weight gr. 168 Operating force 33N</p>							

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"


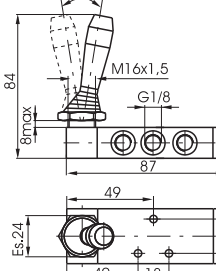

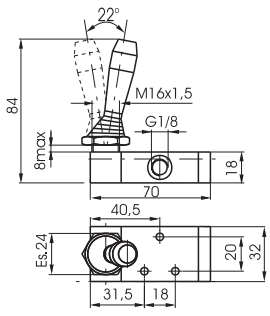
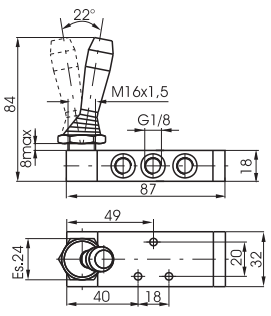
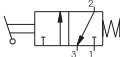

Push button - Spring	3/2	Ordering code 228.1.8.1/C	5/2	Push button - Spring							
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TYPE											
1 32 = 3 ways											
52 = 5 ways											
BUTTON COLOR											
C 1 = Red											
2 = Black											
3 = Green											
<p>Weight gr. 120 Operating force 33N</p>				<p>Weight gr. 140 Operating force 33N</p>							

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"


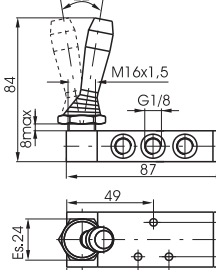

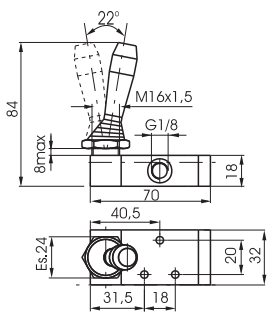
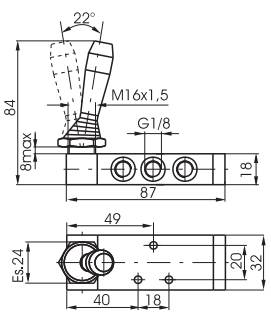
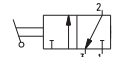
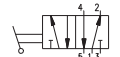
Push button 2 positions	3/2	Ordering code 228.1.8/C	5/2	Push button 2 positions							
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TYPE											
1 32 = 3 ways											
52 = 5 ways											
BUTTON COLOR											
C 1 = Red											
2 = Black											
3 = Green											
<p>Weight gr. 120 Operating force 10N</p>				<p>Weight gr. 140 Operating force 10N</p>							

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"


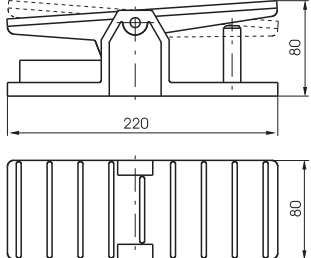
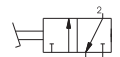
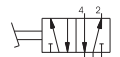
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Lever lateral - Spring	3/2	Ordering code 228.1.9.1/C	5/2	Lever lateral - Spring							
											
											
Weight gr. 140		<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>TYPE</td></tr> <tr><td>32 = 3 ways</td></tr> <tr><td>52 = 5 ways</td></tr> <tr><td>BUTTON COLOR</td></tr> <tr><td>1 = Red</td></tr> <tr><td>2 = Black</td></tr> <tr><td>3 = Green</td></tr> </table>	TYPE	32 = 3 ways	52 = 5 ways	BUTTON COLOR	1 = Red	2 = Black	3 = Green		Weight gr. 160
TYPE											
32 = 3 ways											
52 = 5 ways											
BUTTON COLOR											
1 = Red											
2 = Black											
3 = Green											
											

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"

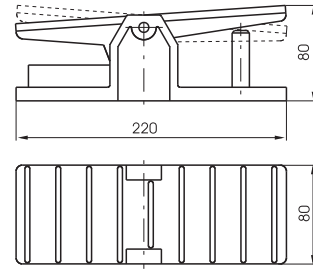
Lever lateral 2 positions	3/2	Ordering code 228.1.9/C	5/2	Lever lateral 2 positions							
											
											
Weight gr. 140		<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>TYPE</td></tr> <tr><td>32 = 3 ways</td></tr> <tr><td>52 = 5 ways</td></tr> <tr><td>BUTTON COLOR</td></tr> <tr><td>1 = Red</td></tr> <tr><td>2 = Black</td></tr> <tr><td>3 = Green</td></tr> </table>	TYPE	32 = 3 ways	52 = 5 ways	BUTTON COLOR	1 = Red	2 = Black	3 = Green		Weight gr. 160
TYPE											
32 = 3 ways											
52 = 5 ways											
BUTTON COLOR											
1 = Red											
2 = Black											
3 = Green											
											

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"

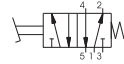
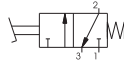
Pedal aluminium 2 positions	3/2		5/2						
<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>Ordering code</td></tr> <tr><td>228.1.10</td></tr> <tr><td>TYPE</td></tr> <tr><td>32 = 3 ways</td></tr> <tr><td>52 = 5 ways</td></tr> </table>	Ordering code	228.1.10	TYPE	32 = 3 ways	52 = 5 ways				
Ordering code									
228.1.10									
TYPE									
32 = 3 ways									
52 = 5 ways									
Weight gr. 790 (3/2) Weight gr. 810 (5/2)									
Operational characteristic									
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size				
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"				

Pedal aluminium - Spring

Ordering code	228.10.1
TYPE	
T	32 = 3 ways 52 = 5 ways



Weight gr. 790 (3/2)
Weight gr. 810 (5/2)

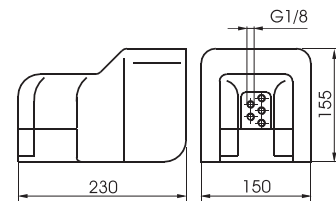


Operational characteristic

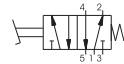
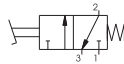
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"

Pedal protected - Spring

Ordering code	228.10.V
TYPE	
T	32 = 3 ways 52 = 5 ways
VERSION	
V	1/1 = Standard version 2/1 = without safety device



Weight gr. 1.120

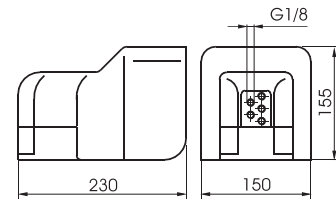


Operational characteristic

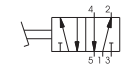
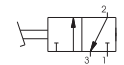
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"

Pedal protected 2 positions

Ordering code	228.10/1
TYPE	
T	32 = 3 ways 52 = 5 ways



Weight gr. 1.120

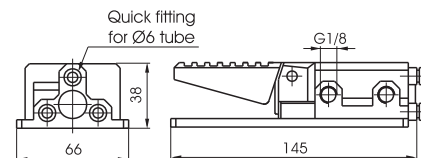


Operational characteristic

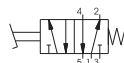
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"

Pedal plastic miniaturized - Spring

Ordering code	228.52.10.F
FUNCTION	
F	1P = Standard version 1PX = Stainless steel spool



Weight gr. 230



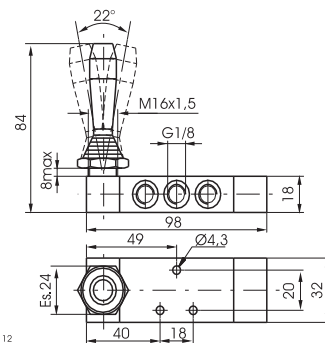
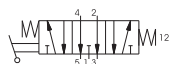
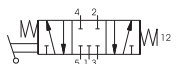
Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	540 NI/min	mm 6	G 1/8"

Lever lateral spring centre 3 positions

Ordering code	
228.53.F.9.1/C	
FUNCTION	
F	31 = Closed centres
	32 = Open centres
BUTTON COLOR	
C	1 = Red
	2 = Black
	3 = Green

Weight gr. 190



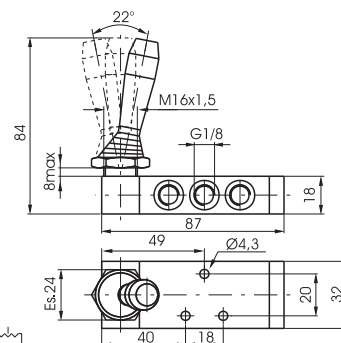
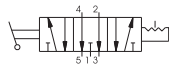
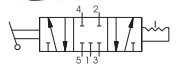
Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	410 NI/min	mm 6	G 1/8"

Lever lateral 3 positions detent

Ordering code	
228.53.F.9/C	
FUNCTION	
F	31 = Closed centres
	32 = Open centres
BUTTON COLOR	
C	1 = Red
	2 = Black
	3 = Green

Weight gr. 160



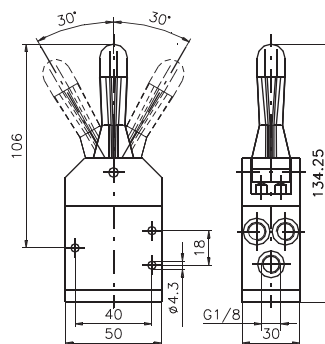
Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	410 NI/min	mm 6	G 1/8"

Lever central (spring 3 pos.) Operator, Levar, Spole in Technopolymer

Ordering code	
228.53.32.99P/C	
LEVER COLOR	
C	1 = Red
	2 = Black

Weight gr. 140



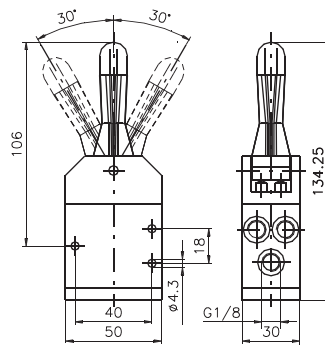
Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10	-5 - +70	410	6	G 1/8"

Lever central (spring 3 pos.) Levar in Technopolymer

Ordering code	
228.53.32.99/C	
LEVER COLOR	
C	1 = Red
	2 = Black

Weight gr. 140



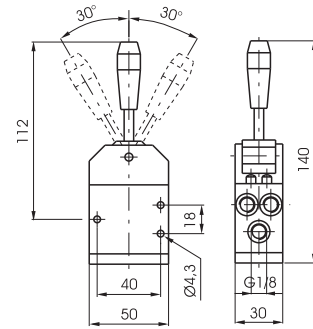
Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10	-5 - +70	410	6	G 1/8"

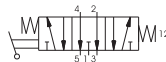
Lever central Metal (spring 3 pos.) One position stable

5/3

Ordering code
228.53.32.99/CS
LEVER COLOR
1 = Red
2 = Black



Weight gr. 140

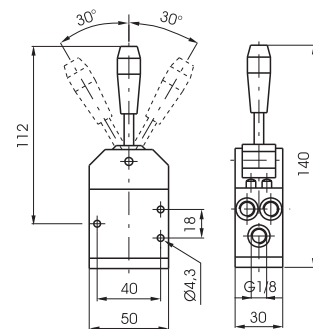


Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10	-5 - +70	410	6	G 1/8"

Lever central Metal

5/3

Ordering code
228.53.32.99/F/C
FUNCTION
2 = 2 Stable positions
3 = 3 Stable positions
LEVER COLOR
1 = Red
2 = Black



Weight gr. 140

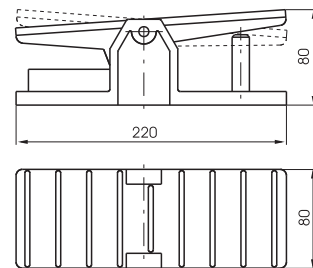


Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10	-5 - +70	410	6	G 1/8"

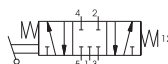
Pedal - Spring 3 positions

5/3

Ordering code
228.53.F.10.1
FUNCTION
31 = Closed centres
32 = Open centres



Weight gr. 810



Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	410 NI/min	mm 6	G 1/8"



1

Tappet panel - Spring	3/2	Ordering code 224.1.1	5/2	Tappet panel - Spring				
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">TYPE</td> </tr> <tr> <td>32 = 3 ways</td> </tr> <tr> <td>52 = 5 ways</td> </tr> </table>		TYPE	32 = 3 ways	52 = 5 ways		
				TYPE				
32 = 3 ways								
52 = 5 ways								
<p>Weight gr. 370 Operating force 71,5N</p>				<p>Weight gr. 455 Operating force 71,5N</p>				

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1360 NI/min	mm 8	G 1/4"

Lever roller - Spring	3/2	Ordering code 224.2.1	5/2	Lever roller - Spring				
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">TYPE</td> </tr> <tr> <td>32 = 3 ways</td> </tr> <tr> <td>52 = 5 ways</td> </tr> </table>		TYPE	32 = 3 ways	52 = 5 ways		
				TYPE				
32 = 3 ways								
52 = 5 ways								
<p>Weight gr. 510 Operating force 35N</p>				<p>Weight gr. 595 Operating force 35N</p>				

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1360 NI/min	mm 8	G 1/4"

Lever roller unidirectional - Spring	3/2	Ordering code 224.3.1	5/2	Lever roller unidirectional - Spring				
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">TYPE</td> </tr> <tr> <td>32 = 3 ways</td> </tr> <tr> <td>52 = 5 ways</td> </tr> </table>		TYPE	32 = 3 ways	52 = 5 ways		
				TYPE				
32 = 3 ways								
52 = 5 ways								
<p>Weight gr. 525 Operating force 35N</p>				<p>Weight gr. 610 Operating force 35N</p>				

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1360 NI/min	mm 8	G 1/4"

1

Push button - Spring	3/2	Ordering code 224.1.8.1	5/2	Push button - Spring	
Weight gr. 395 Operating force 71,5N				Weight gr. 480 Operating force 71,5N	


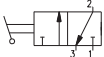
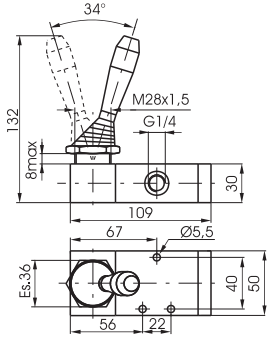
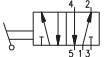

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1360 NI/min	mm 8	G 1/4"

Push button 2 positions	3/2	Ordering code 224.1.8	5/2	Push button 2 positions	
Weight gr. 385 Operating force 105N				Weight gr. 470 Operating force 10N	


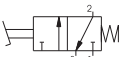

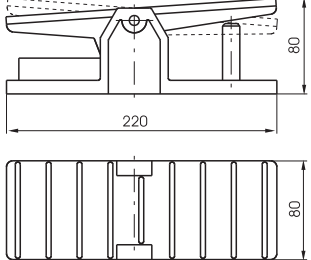
Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1360 NI/min	mm 8	G 1/4"

Lever lateral - Spring	3/2	Ordering code 224.1.9.1/C	5/2	Lever lateral - Spring	
Weight gr. 520				Weight gr. 605	


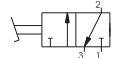
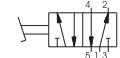
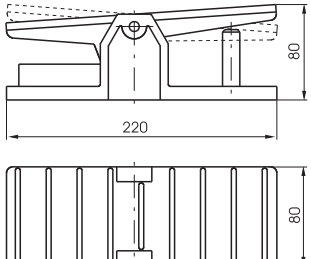
Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1360 NI/min	mm 8	G 1/4"

Lever lateral 2 positions	3/2	Ordering code 224.1.9/C	5/2	Lever lateral 2 positions
				
		<p>TYPE</p> <p>1 32 = 3 ways 52 = 5 ways</p> <p>BUTTON COLOR</p> <p>C 1 = Red 2 = Black 3 = Green</p>		
Weight gr. 510			Weight gr. 595	

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1360 NI/min	mm 8	G 1/4"

Pedal aluminium - Spring	
<p>Ordering code 224.1.10.1</p> <p>TYPE</p> <p>1 32 = 3 ways 52 = 5 ways</p>	
Weight gr. 1.070 (3/2) Weight gr. 1.155 (5/2)	 
	

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1360 NI/min	mm 8	G 1/4"

Pedal aluminium 2 positions	
<p>Ordering code 224.1.10</p> <p>TYPE</p> <p>1 32 = 3 ways 52 = 5 ways</p>	
Weight gr. 1.060 (3/2) Weight gr. 1.145 (5/2)	 
	

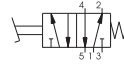
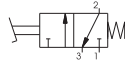
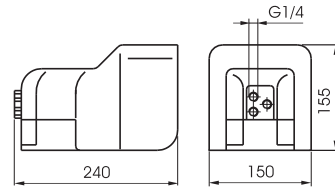
Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1360 NI/min	mm 8	G 1/4"

Pedal protected - Spring

Ordering code

214.10.1

- TYPE
- 32 = 3 ways
- 52 = 5 ways
- VERSION
- 1/1 = Standard version
- 2/1 = without safety device



Weight gr. 1.730

Operational characteristic

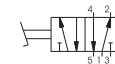
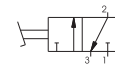
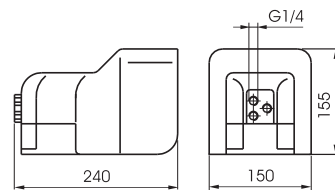
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1360 NI/min	mm 8	G 1/4"

Pedal protected 2 positions

Ordering code

214.10/1

- TYPE
- 32 = 3 ways
- 52 = 5 ways



Weight gr. 1.730

Operational characteristic

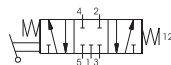
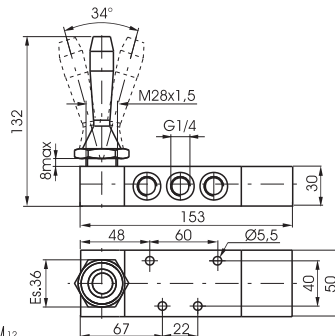
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1360 NI/min	mm 8	G 1/4"

Lever lateral spring 3 positions

Ordering code

224.53.F.9.1/C

- FUNCTION
- 31 = Closed centres
- 32 = Open centres
- BUTTON COLOR
- 1 = Red
- 2 = Black
- 3 = Green



Weight gr. 745

Operational characteristic

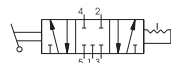
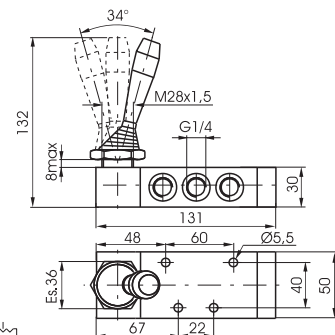
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1280 NI/min	mm 8	G 1/4"

Lever lateral 3 positions

Ordering code

224.53.F.9/C

- FUNCTION
- 31 = Closed centres
- 32 = Open centres
- BUTTON COLOR
- 1 = Red
- 2 = Black
- 3 = Green



Weight gr. 605

Operational characteristic

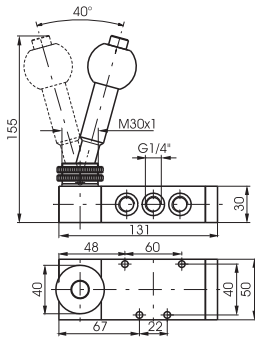
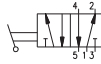
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1280 NI/min	mm 8	G 1/4"

Lever lateral with locking device - 2 positions

Ordering code
224.52.9.2



Weight gr. 825



Operational characteristic

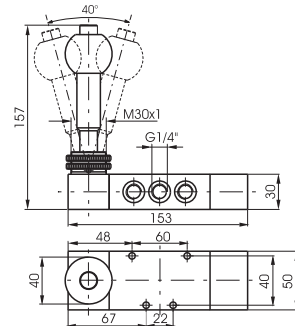
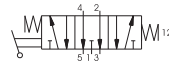
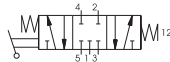
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1020 NI/min	mm 8	G 1/4"

Lever lateral with locking device - Spring 3 positions

Ordering code
224.53.F.9.2
FUNCTION
F 31 = Closed centres
32 = Open centres



Weight gr. 965



Operational characteristic

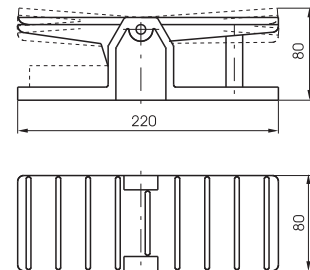
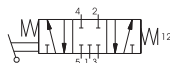
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1020 NI/min	mm 8	G 1/4"

Pedal - Spring 3 positions

Ordering code
224.53.F.10.1
FUNCTION
F 31 = Closed centres
32 = Open centres



Weight gr. 1.285



Operational characteristic

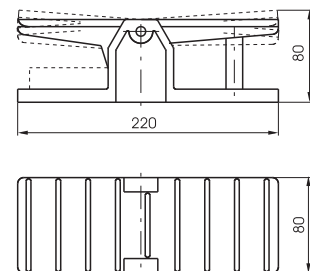
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1280 NI/min	mm 8	G 1/4"

Pedal 3 positions

Ordering code
224.53.F.10
FUNCTION
F 31 = Closed centres
32 = Open centres



Weight gr. 1.145



Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	1280 NI/min	mm 8	G 1/4"

1

Lever lateral - Spring

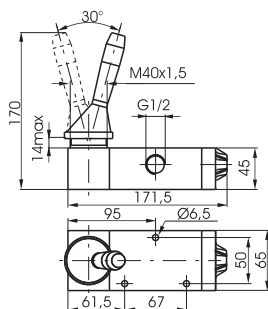
3/2

Ordering code

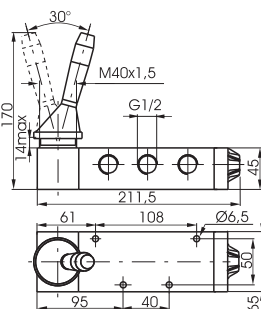
212.9.1

5/2

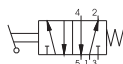
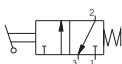
Lever lateral - Spring



TYPE
32 = 3 ways
52 = 5 ways



Weight gr. 1.480



Weight gr. 1.765

Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	3500 NI/min	mm 15	G 1/2"

Lever lateral - 2 positions

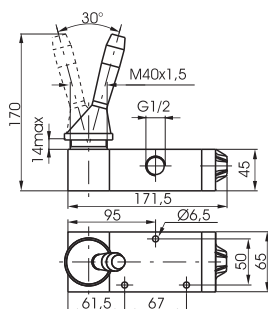
3/2

Ordering code

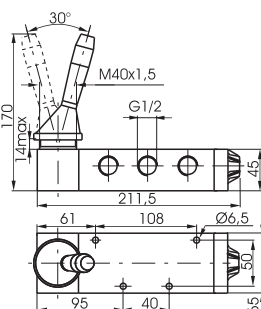
212.9

5/2

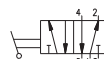
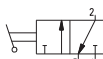
Lever lateral - 2 positions



TYPE
32 = 3 ways
52 = 5 ways



Weight gr. 1.460



Weight gr. 1.745

Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	3500 NI/min	mm 15	G 1/2"

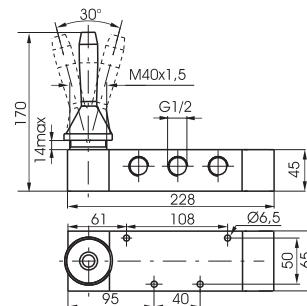
Lever lateral - Spring 3 positions

5/3

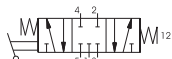
Ordering code

212.53.9.1

FUNCTION
31 = Closed centres
32 = Open centres



Weight gr. 2.100



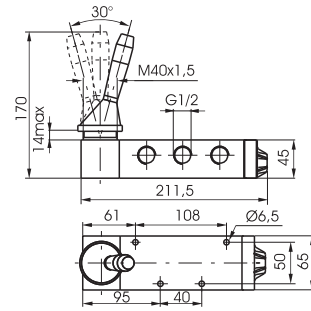
Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with Δp=1 (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	3000 NI/min	mm 15	G 1/2"

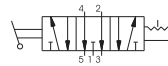
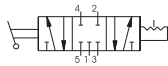
Lever lateral Ø40 - 3 positions

5/3

Ordering code
212.53.F.9
FUNCTION
F 31 = Closed centres
32 = Open centres



Weight gr. 1.765



Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (l/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	3000 l/min	mm 15	G 1/2"

1

1

Lever lateral - Spring	3/2	Ordering code 211.1.9.1	5/2	Lever lateral - Spring				
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">TYPE</td> </tr> <tr> <td>32 = 3 ways</td> </tr> <tr> <td>52 = 5 ways</td> </tr> </table>		TYPE	32 = 3 ways	52 = 5 ways		
				TYPE				
32 = 3 ways								
52 = 5 ways								
Weight gr. 4.300				Weight gr. 4.900				

Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	6500 NI/min	mm 20	G 1"

Lever lateral 2 positions	3/2	Ordering code 211.1.9	5/2	Lever lateral 2 positions				
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">TYPE</td> </tr> <tr> <td>32 = 3 ways</td> </tr> <tr> <td>52 = 5 ways</td> </tr> </table>		TYPE	32 = 3 ways	52 = 5 ways		
				TYPE				
32 = 3 ways								
52 = 5 ways								
Weight gr. 4.300				Weight gr. 4.900				

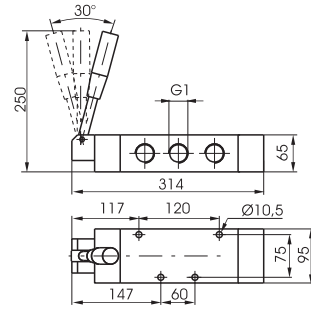
Operational characteristic					
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	6500 NI/min	mm 20	G 1"

Lever lateral - Spring 3 positions				5/3					
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Ordering code</td> </tr> <tr> <td style="text-align: center;">211.53.F.9.1</td> </tr> <tr> <td style="text-align: center;">FUNCTION</td> </tr> <tr> <td>31 = Closed centres</td> </tr> <tr> <td>32 = Open centres</td> </tr> </table>		Ordering code	211.53.F.9.1	FUNCTION	31 = Closed centres	32 = Open centres			
Ordering code									
211.53.F.9.1									
FUNCTION									
31 = Closed centres									
32 = Open centres									
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">FUNCTION</td> </tr> <tr> <td>31 = Closed centres</td> </tr> <tr> <td>32 = Open centres</td> </tr> </table>		FUNCTION	31 = Closed centres	32 = Open centres					
FUNCTION									
31 = Closed centres									
32 = Open centres									
Weight gr. 5.000									
Operational characteristic									
Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (NI/min)	Working ports size					
Filtered and lubricated air	10 bar	-5 - +70	6500 NI/min	G 1"					

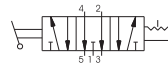
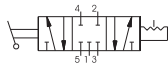
Lever lateral - 3 positions

5/3

Ordering code
211.53.F.9
FUNCTION
F 31 = Closed centres
32 = Open centres



Weight gr. 5.000



Operational characteristic

Fluid	Max working pressure (bar)	Temperature °C	Flow rate at 6 bar with $\Delta p=1$ (l/min)	Orifice size (mm)	Working ports size
Filtered and lubricated air	10 bar	-5 - +70	6500 l/min	mm 20	G 1"

1