

CLIPPARD METRIC CATALOG

Electronic/
Pneumatic
Valves

Valves and
Components
with Special
Purposes



Modular Valves
and
Components

Fittings,
Hoses and
Accessories

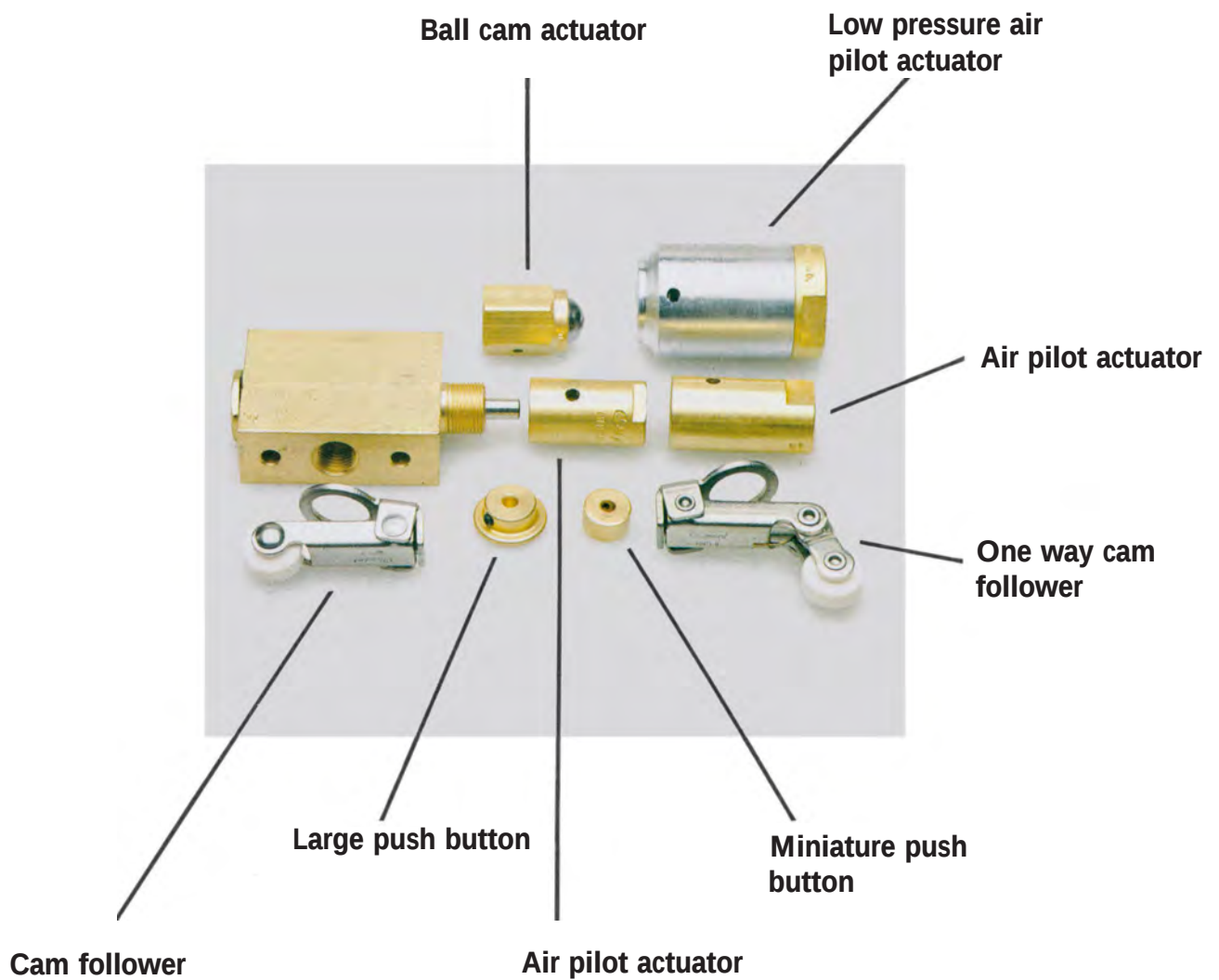
2/2- 3/2- 5/2- 5/3-
Valves

2/2-, 3/2-, 5/2-, 5/3-Valves



Actuators for Clippard Valves

Following actuators can be mounted on all stem actuated valves





Valve Engineering Data

2/2-Valves

Model	Type*	Actuator	Return position	Pressure (bar)	Air flow (l/min @ 6 bar)
MAV-2-M5	Poppet valve, NC	Stem	Spring	0–21	170
MAV-2C	Cartridge valve, NC	Stem	Spring	0–21	150
MAVO-2-M5	Spool valve, NO	Stem	Spring	0–10	245
MAVO-2C	Cartridge valve, NO	Stem	Spring	0–10	245
MJV-2-MG	Poppet valve, NC	Stem	Spring	0–21	600
MJV-2C	Cartridge valve, NC	Stem	Spring	0–21	600
MJVO-2-MG	Spool valve, NO	Stem	Spring	0–21	600
MJVO-2C	Cartridge valve, NO	Stem	Spring	0–21	600
MTV-2-M5	Poppet valve, NC	Toggle, 2 position		0–21	175
SLV-2-M5	Sleeve valve	Sleeve, 2 position		0–10	280
TV-2S/SF-M5	Spool valve, NC	Toggle, 2 position		0–10	190

3/2-Valves

Model	Type*	Actuator	Return position	Pressure (bar)	Air flow (l/min @ 6 bar)
SMAV-3	Spool valve, NC or NO	Stem	Spring	0–7	35
SMTV-3	Spool valve, NC	Toggle, 2 position		0–7	35
MAV-3-M5	Poppet valve, NC	Stem	Spring	0–21	170
MLV-3-M5	Poppet valve, NC	Stem	Spring	0–21	150
MAV-3C	Cartridge valve, NC	Stem	Spring	0–21	150
MAVO-3-M5	Spool valve, NO	Stem	Spring	0–10	245
MAVO-3C	Cartridge valve, NO	Stem	Spring	0–10	245
TV-3S/SF-M5	Spool valve, NC	Toggle, 2 position		0–10	190
MTV-3-M5	Poppet valve, NC	Toggle, 2 position		0–21	175
MJTV-3-MG	Poppet valve, NC	Toggle, 2 position		0–21	600
MJV-3-MG	Poppet valve, NC	Stem	Spring	0–21	600
MJVO-3-MG	Spool valve, NO	Stem	Spring	0–21	600
MJV-3C	Cartridge valve, NC	Stem	Spring	0–21	600
MJVO-3C	Cartridge valve, NO	Stem	Spring	0–21	600
FV-3-M5	Spool valve, fully ported	Stem	Spring	0–10	240
FV-3-MG	Spool valve, fully ported	Stem	Spring	0–10	240
FV-3D-M5	Spool valve, fully ported	Stem, 2 position		0–10	240
FV-3D-MG	Spool valve, fully ported	Stem, 2 position		0–10	240
SLV-3-M5	Sleeve valve, NC	Sleeve, 2 position		0–10	280

5/2-Valves

Model	Type	Actuator	Return position	Pressure (bar)	Air flow (l/min @ 6 bar)
MTV-4-M5	Spool valve, 3 ported	Toggle, 2 position		0–10	240
MTV-4F-M5	Spool valve, 3 ported	Toggle, 2 position		0–10	240
MJTV-4-MG	Spool valve, 3 ported	Toggle, 2 position		0–10	250
MJTV-4F-MG	Spool valve, 3 ported	Toggle, 2 position		0–10	250
FV-4-M5	Spool valve, 3 ported	Stem	Spring	0–10	240
FV-5-M5	Spool valve, fully ported	Stem	Spring	0–10	240
FV-4-MG	Spool valve, 3 ported	Stem	Spring	0–10	250
FV-5-MG	Spool valve, fully ported	Stem	Spring	0–10	250
FV-4D-M5	Spool valve, 3 ported	Stem, 2 position		0–10	240
FV-5D-M5	Spool valve, fully ported	Stem, 2 position		0–10	240
FV-4D-MG	Spool valve, 3 ported	Stem, 2 position		0–10	250
FV-5D-MG	Spool valve, fully ported	Stem, 2 position		0–10	250

* NC – Normally closed, NO – Normally open



Valve Engineering Data

5/3-Valves

Model	Type*	1. Position	NO	3. Position	Pressure (bar)	Air flow (l/min @ 6 bar)
TV-4D-M5	Poppet valve, NO	Toggle, detend		Toggle, detend	0–8	180
TV-4M-M5	Poppet valve, NO	Toggle, spring		Toggle, spring	0–8	180
TV-4DM-M5	Poppet valve, NO	Toggle, detend		Toggle, spring	0–8	180

Actuators

Model	Type	Actuator	Return position	Pressure (bar)
MPA-3-M5	Air pilot actuator	Pneumatic	Spring	Max. 17
MPA-5-M5/MG	Air pilot actuator	Pneumatic	Spring	Max. 17
MPA-7-MG	Air pilot actuator	Pneumatic	Spring	Max. 17
MBA-1	Ball cam actuator	Ball	–	–
11916-1	Push button Ø 16 mm	Manual	–	–
11916-2	Push button Ø 16 mm	Manual	–	–
11916-3	Push button Ø 10,3 mm	Manual	–	–
11916-4	Push button Ø 10,3 mm	Manual	–	–
11925	Cam follower	Mechanical	–	–
12296	One way cam follower	Mechanical	–	–

Mountings

Model	Type
11917-1	Flat mounting bracket, Ø 12,3 mm
11917-2	Flat mounting bracket, Ø 8,3 mm
11918-1	Mounting bracket, Ø 12,3 mm
11918-2	Mounting bracket, Ø 8,3 mm
15018-2	Heavy duty mounting bracket, Ø 12,5 mm
11406-1	Panel mounting nut, brass with black finish
11406-2	Panel mounting nut, brass with bright nickel finish

Symbol Port Coding

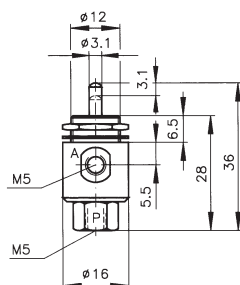
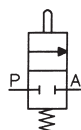
1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Notes :

- Viton, Delrin and Neoprene are registered trademarks of E.I. du Pont de Nemours & Co
- Chemraz is registered trademark of Greene, Tweed & Co, Inc.

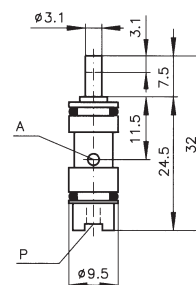
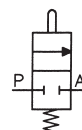
2/2-Valves

2/2-Poppet valve, normally closed, spring return



MAV-2-M5

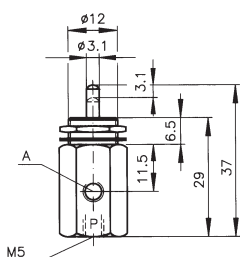
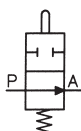
2/2-Poppet (cartridge) valve, normally closed, spring return



MAV-2C

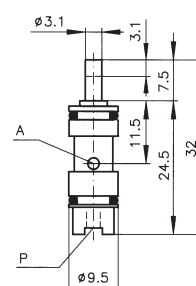
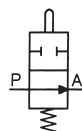
Inserts in a $\frac{3}{8}$ " bore
($\varnothing 9,53 \pm 0,02$)

2/2-Spool valve, normally open, spring return



MAVO-2-M5

2/2-Spool (cartridge) valve, normally open, spring return



MAVO-2C

Inserts in a $\frac{3}{8}$ " bore
($\varnothing 9,53 \pm 0,02$)

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Technical specifications

Valve	MAV-2-M5	MAV-2C	MAVO-2-M5	MAVO-2C
Input pressure (bar)	0–21	0–21	0–10	0–10
Medium	Air, gas, water, oil	Air, gas, water, oil	Air, gas, water, oil	Air, gas, water, oil
Air flow @ 6 bar (l/min)	170	150	245	245
Temperature range (°C)	0 to +110	0 to +110	0 to +110	0 to +110
Force for full travel @ 3,5 bar (N)	6,8	6,8	9	9
Material	Body: brass; stem & spring: stainless steel; seals: Buna N			

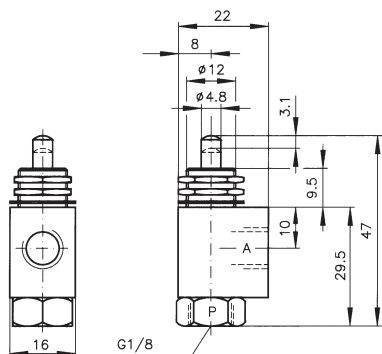
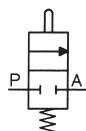
Options (all options shown in color are possible)

	Oxygen*	Nickel plated	Electroless NP	Viton®	EPDM
Order reference	-OX	-NP	-ENP	-V	-E
MAV-2-M5				Upon request	Upon request
MAV-2C				Upon request	Upon request
MAVO-2-M5				Upon request	Upon request
MAVO-2C				Upon request	Upon request

* Lubrication compatible for oxygen use, max. 6 bar and 60°C

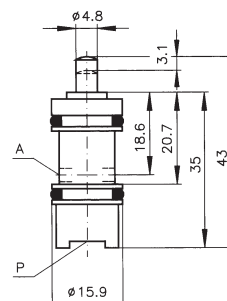
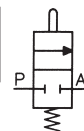
2/2-Valves

2/2-Poppet valve, normally closed, spring return



MJV-2-MG

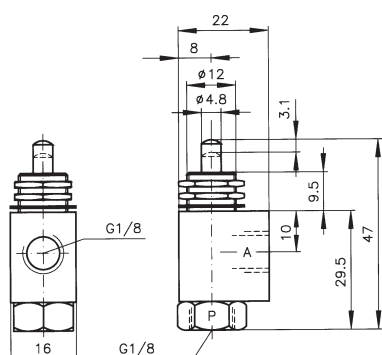
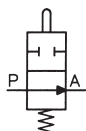
2/2-Poppet (cartridge) valve, normally closed, spring return



MJV-2C

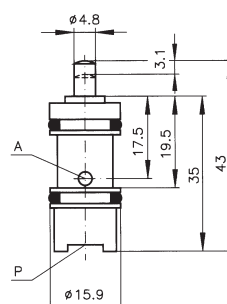
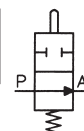
Inserts in a $\frac{5}{8}$ " bore
($\varnothing 15,87 \pm 0,02$)

2/2-Spool valve, normally open, spring return



MJVO-2-MG

2/2-Spool (cartridge) valve, normally open, spring return



MJVO-2C

Inserts in a $\frac{5}{8}$ " bore
($\varnothing 15,87 \pm 0,02$)

Technical specifications

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Valve	MJV-2-MG	MJV-2C	MJVO-2-MG	MJVO-2C
Input pressure (bar)	0-21	0-21	0-21	0-21
Medium	Air, gas, water, oil	Air, gas, water, oil	Air, gas, water, oil	Air, gas, water, oil
Air flow @ 6 bar (l/min)	600	600	600	600
Temperature range (°C)	0 to +110	0 to +110	0 to +110	0 to +110
Force for full travel @ 3,5 bar (N)	10	10	10	10
Material	Body: brass; stem & spring: stainless steel; seals: Buna N			

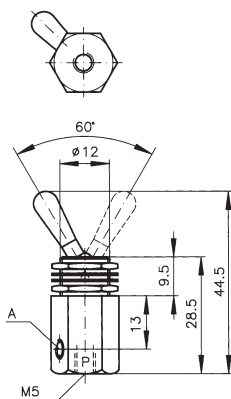
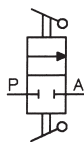
Options (all options shown in color are possible)

	Oxygen*	Nickel plated	Electroless NP	Viton®	EPDM
Order reference	-OX	-NP	-ENP	-V	-E
MJV-2-MG				Upon request	Upon request
MJV-2C				Upon request	Upon request
MJVO-2-MG				Upon request	Upon request
MJVO-2C				Upon request	Upon request

* Lubrication compatible for oxygen use, max. 6 bar and 60°C

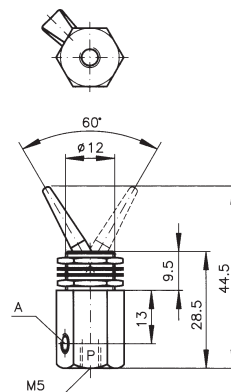
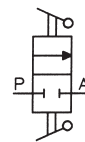
2/2-Valves

**2/2-Two position toggle valve,
normally closed**



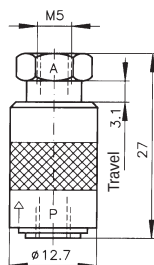
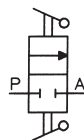
TV-2S-M5

**2/2-Two position toggle valve, plastic toggle,
normally closed**



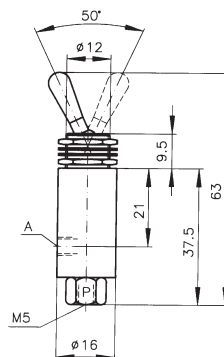
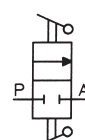
TV-2SF-M5

2/2-Sleeve valve



SLV-2-M5

**2/2-Poppet two position toggle valve,
normally closed**



MTV-2-M5

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Technical specifications

Valve	TV-2S-M5	TV-2SF-M5	SLV-2-M5	MTV-2-M5
Input pressure (bar)	0–10	0–10	0–10	0–21
Medium	Air, gas, water, oil	Air, gas, water, oil	Air, gas, water, oil	Air, gas, water, oil
Air flow @ 6 bar (l/min)	190	190	280	175
Temperature range (°C)	0 to +110	0 to +110	0 to +110	0 to +110
Force for full travel @ 3,5 bar (N)	0,28	0,28	11	0,45
Material	Body: brass; SLV-2-M5: brass NP; stem & spring: stainless steel; seals: Buna N			

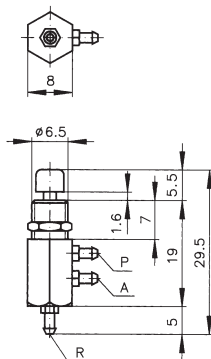
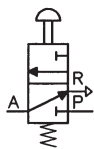
Options (all options shown in color are possible)

	Oxygen*	Nicked plated	Electroless NP	Viton®	EPDM	Black Toggle
Order reference	-OX	-NP	-ENP	-V	-E	-BC
TV-2S-M5				Upon request	Upon request	
TV-2SF-M5				Upon request	Upon request	
SLV-2-M5		Standard		Upon request	Upon request	
MTV-2-M5				Upon request	Upon request	

* Lubrication compatible for oxygen use, max. 6 bar and 60°C

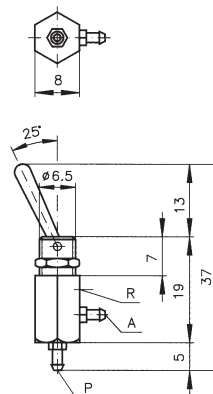
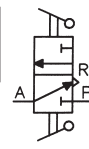
3/2-Valves

**3/2-Sub-miniature spool valve,
spring return, normally open or closed**



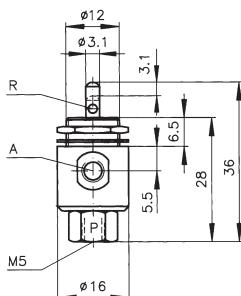
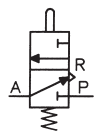
SMAV-3

**3/2-Sub-miniature two position spool toggle
valve, normally closed**



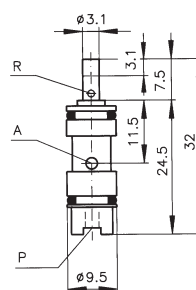
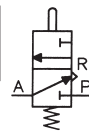
SMTV-3

**3/2-Poppet valve, normally closed,
spring return**



MAV-3-M5

**3/2-Poppet (cartridge) valve,
normally closed, spring return**



MAV-3C

Inserts in a $\frac{3}{8}$ " bore
($\varnothing 9,53 \pm 0,02$)

Technical specifications

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Valve	SMAV-3	SMTV-3	MAV-3-M5	MAV-3C
Input pressure (bar)	0-7	0-7	0-21	0-21
Medium	Air, gas	Air, gas	Air, gas	Air, gas
Air flow @ 6 bar (l/min)	35	35	170	150
Temperature range (°C)	0 to +110	0 to +110	0 to +110	0 to +110
Force for full travel @ 3,5 bar (N)	5,7	0,2	6,8	6,8
Material	Body: brass; stem & spring: stainless steel; seals: Buna N			

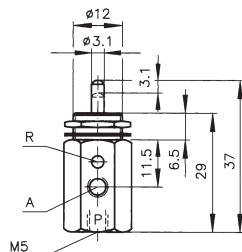
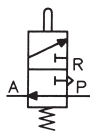
Options (all options shown in color are possible)

	Oxygen*	Nickel plated	Electroless NP	Viton®	EPDM
Order reference	-OX	-NP	-ENP	-V	-E
SMAV-3					
SMTV-3	R to atmosphere				
MAV-3-M5	R to atmosphere			Upon request	Upon request
MAV-3C	R to atmosphere			Upon request	Upon request

* Lubrication compatible for oxygen use, max. 6 bar and 60°C

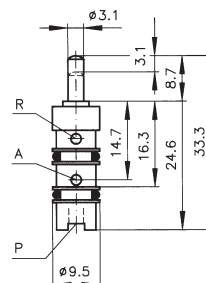
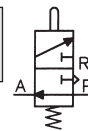
3/2-Valves

3/2-Spool valve, normally open, spring return



MAVO-3-M5

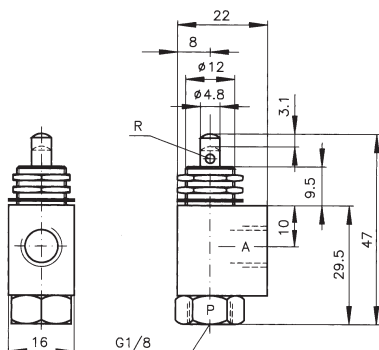
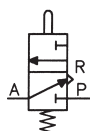
3/2-Spool (cartridge) valve, normally open, spring return



MAVO-3C

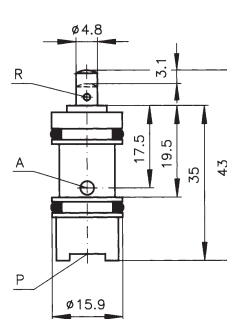
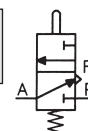
Inserts in a $\frac{3}{8}$ " bore
($\varnothing 9,53 \pm 0,02$)

3/2-Poppet valve, normally closed, spring return



MJV-3-MG

3/2-Poppet (cartridge) valve, normally closed, spring return



MJV-3C

Inserts in a $\frac{5}{8}$ " bore
($\varnothing 15,87 \pm 0,02$)

Technical specifications

Valve	MAVO-3-M5	MAVO-3C	MJV-3-MG	MJV-3C
Input pressure (bar)	0–10	0–10	0–21	0–21
Medium	Air, gas	Air, gas	Air, gas	Air, gas
Air flow @ 6 bar (l/min)	245	245	600	600
Temperature range (°C)	0 to +110	0 to +110	0 to +110	0 to +110
Force for full travel @ 3,5 bar (N)	9	9	11	11
Material	Body: brass; stem & spring: stainless steel; seals: Buna N			

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

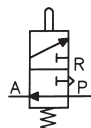
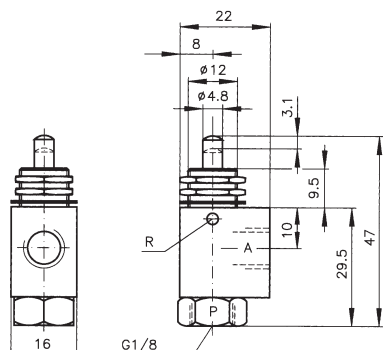
Options (all options shown in color are possible)

	Oxygen*	Nickel plated	Electroless NP	Viton®	EPDM
Order reference	-OX	-NP	-ENP	-V	-E
MAVO-3-M5	R to atmosphere			Upon request	Upon request
MAVO-3C	R to atmosphere			Upon request	Upon request
MJV-3-MG	R to atmosphere			Upon request	Upon request
MJV-3C	R to atmosphere			Upon request	Upon request

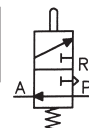
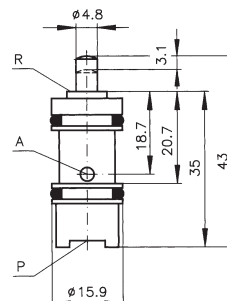
* Lubrication compatible for oxygen use, max. 6 bar and 60°C

3/2-Valves

3/2-Spool valve, normally open, spring return



3/2-Spool (cartridge) valve, normally open, spring return

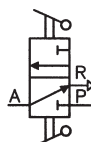
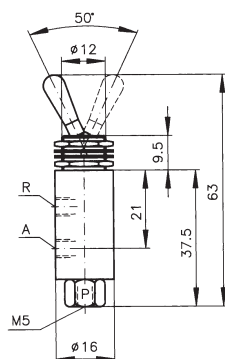


MJVO-3-MG

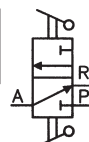
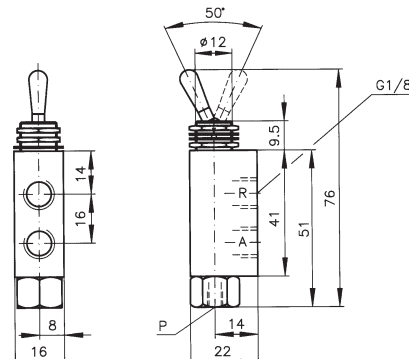
MJVO-3C

Inserts in $\frac{5}{8}$ " bore
($\varnothing 15,87 \pm 0,02$)

3/2-Poppet two position toggle valve, normally closed



3/2-Poppet two position toggle valve, normally closed



MTV-3-M5

MJTV-3-MG

Technical specifications

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Valve	MJVO-3-MG	MJVO-3C	MTV-3-M5	MJTV-3-MG
Input pressure (bar)	0-21	0-21	0-21	0-21
Medium	Air, gas	Air, gas	Air, gas, water, oil	Air, gas, water, oil
Air flow @ 6 bar (l/min)	600	600	175	600
Temperature range (°C)	0 to +110	0 to +110	0 to +110	0 to +110
Force for full travel @ 3,5 bar (N)	11	11	0,45	0,7
Material	Body: brass; stem & spring: stainless steel; seals: Buna N			

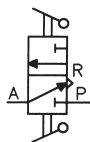
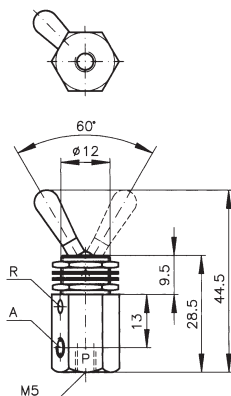
Options (all options shown in color are possible)

	Oxygen*	Nickel plated	Electroless NP	Viton®	EPDM	Black Toggle
Order reference	-OX	-NP	-ENP	-V	-E	-BC
MJVO-3-MG	R to atmosphere			Upon request	Upon request	
MJVO-3C	R to atmosphere			Upon request	Upon request	
MTV-3-M5				Upon request	Upon request	
MJTV-3-MG				Upon request	Upon request	

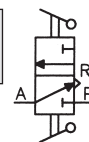
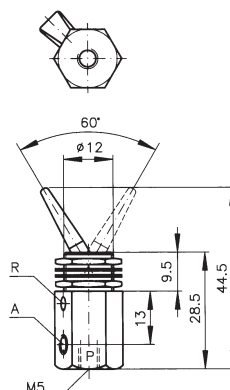
* Lubrication compatible for oxygen use, max. 6 bar and 60°C

3/2-Valves

3/2-Two position toggle valve, normally closed



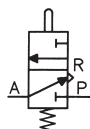
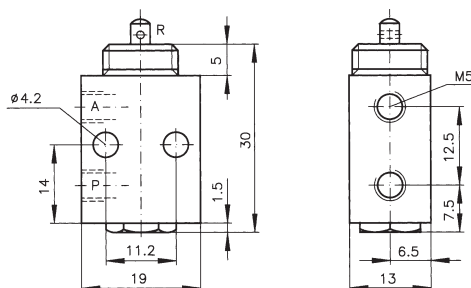
3/2-Two position toggle valve, plastic toggle, normally closed



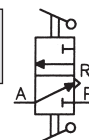
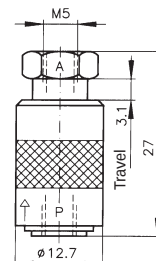
TV-3S-M5

TV-3SF-M5

3/2-Poppet valve, stem actuated only, normally closed, spring return



3/2-Sleeve valve, normally closed



MLV-3-M5

SLV-3-M5

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Technical specifications

Valve	TV-3S-M5	TV-3SF-M5	MLV-3-M5	SLV-3-M5
Input pressure (bar)	0-10	0-10	0-10	0-10
Medium	Air, gas	Air, gas	Air, gas	Air, gas
Air flow @ 6 bar (l/min)	190	190	150	280
Temperature range (°C)	0 to +110	0 to +110	0 to +110	0 to +110
Force for full travel @ 3,5 bar (N)	0,28	0,28	14	11
Material	Body: brass; stem & spring: stainless steel; seals: Buna N			

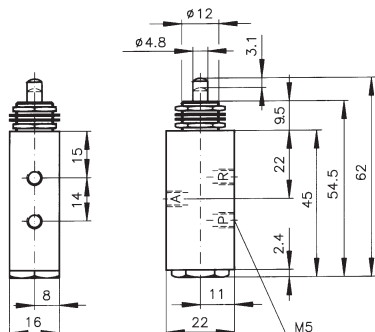
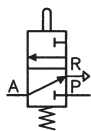
Options (all options shown in color are possible)

	Oxygen*	Nickel plated	Electroless NP	Viton®	EPDM	Black Toggle
Order reference	-OX	-NP	-ENP	-V	-E	-BC
TV-3S-M5	R to atmosphere			Upon request	Upon request	
TV-3SF-M5	R to atmosphere			Upon request	Upon request	
MLV-3-M5	R to atmosphere			Upon request	Upon request	
SLV-3-M5	R to atmosphere			Upon request	Upon request	

* Lubrication compatible for oxygen use, max. 6 bar and 60°C

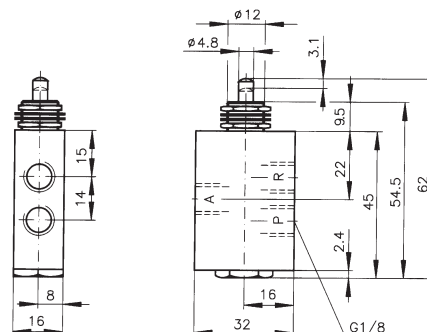
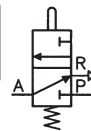
3/2-Valves

3/2-Spool valve, plunger actuated, fully ported, spring return



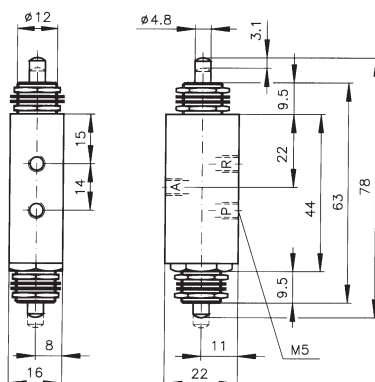
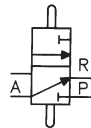
FV-3-M5

3/2-Spool valve, plunger actuated, fully ported, spring return



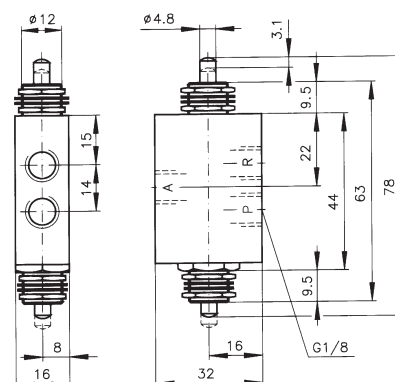
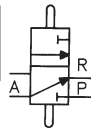
FV-3-MG

3/2-Spool valve, double plunger, two position, fully ported



FV-3D-M5

3/2-Spool valve, double plunger, two position, fully ported



FV-3D-MG

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Technical specifications

Valve	FV-3-M5	FV-3-MG	FV-3D-M5	FV-3D-MG
Input pressure (bar)	0–10	0–10	0–10	0–10
Medium	Air, gas, water, oil	Air, gas, water, oil	Air, gas, water, oil	Air, gas, water, oil
Air flow @ 6 bar (l/min)	240	240	240	240
Temperature range (°C)	0 to +110	0 to +110	0 to +110	0 to +110
Force for full travel @ 3,5 bar (N)	20	20	6,8	6,8
Material	Body: brass; stem & spring: stainless steel; seals: Buna N			

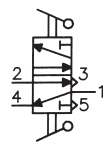
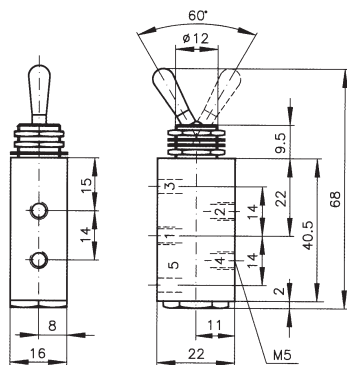
Options (all options shown in color are possible)

	Oxygen*	Nickel plated	Electroless NP	Viton®	EPDM
Order reference	-OX	-NP	-ENP	-V	-E
FV-3-M5				Upon request	Upon request
FV-3-MG				Upon request	Upon request
FV-3D-M5				Upon request	Upon request
FV-3D-MG				Upon request	Upon request

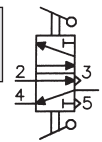
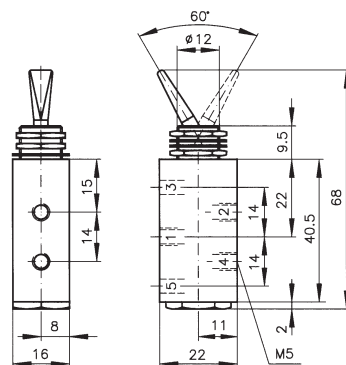
* Lubrication compatible for oxygen use, max. 6 bar and 60°C

5/2-Valves

**5/2-Spool valve toggle actuated,
two position, 3 ported**

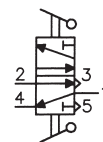
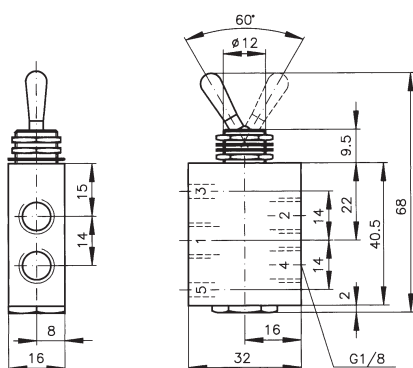
**MTV-4-M5**

**5/2-Spool valve toggle (plastic) actuated,
two position, 3 ported**



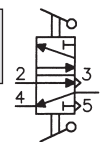
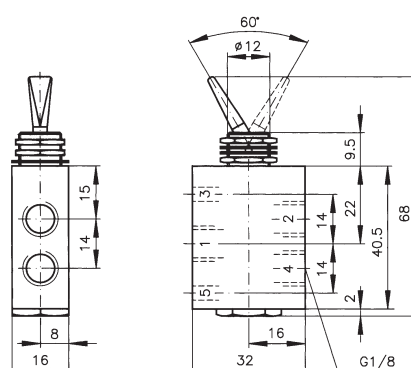
MTV-4F-M5

**5/2-Spool valve toggle actuated,
two position, 3 ported**



MJTV-4-MG

**5/2-Spool valve toggle (plastic) actuated,
two position, 3ported**



MJTV-4F-MG

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Technical specifications

Valve	MTV-4-M5	MTV-4F-M5	MJTV-4-MG	MJTV-4F-MG
Input pressure (bar)	0–10	0–10	0–10	0–10
Medium	Air, gas	Air, gas	Air, gas	Air, gas
Air flow @ 6 bar (l/min)	240	240	250	250
Temperature range (°C)	0 to +110	0 to +110	0 to +110	0 to +110
Force for full travel @ 3,5 bar (N)	0,9	0,9	0,9	0,9
Material	Body: brass; stem & spring: stainless steel; seals: Buna N			

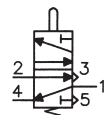
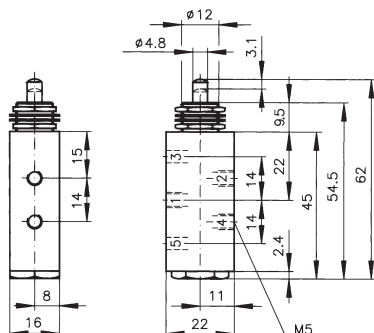
Options (all options shown in color are possible)

	Oxygen*	Nickel plated	Electroless NP	Viton®	EPDM	Black Toggle
Order reference	-OX	-NP	-ENP	-V	-E	-BC
MTV-4-M5	Orifices 3,5 to atm.			Upon request	Upon request	
MTV-4F-M5	Orifices 3,5 to atm.			Upon request	Upon request	
MJTV-4-MG	Orifices 3,5 to atm.			Upon request	Upon request	
MJTV-4F-MG	Orifices 3,5 to atm.			Upon request	Upon request	

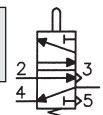
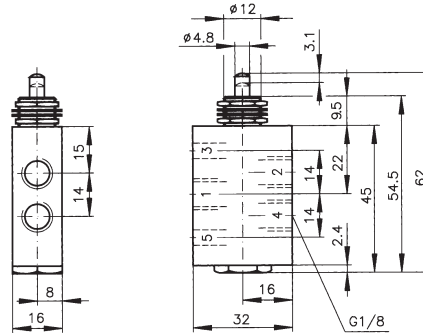
* Lubrication compatible for oxygen use, max. 6 bar and 60°C

5/2-Valves

**5/2-Spool valve, plunger actuated,
3 ported, spring return**



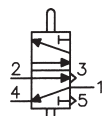
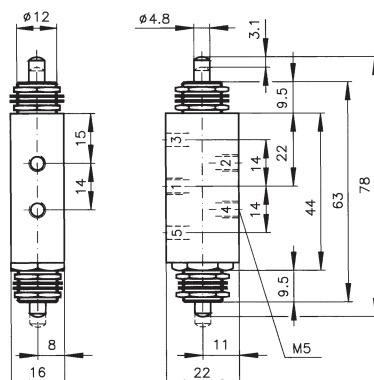
**5/2-Spool valve, plunger actuated,
3 ported, spring return**



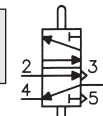
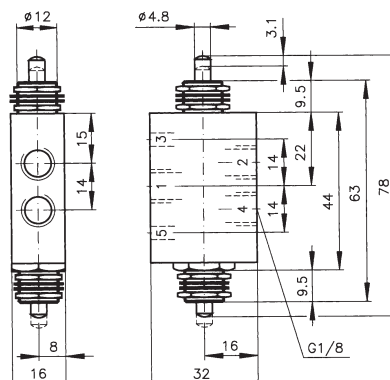
FV-4-M5

FV-4-MG

**5/2-Spool valve, double plunger,
two position, 3 ported**



**5/2-Spool valve, double plunger,
two position, 3 ported**



FV-4D-M5

FV-4D-MG

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Technical specifications

Valve	FV-4-M5	FV-4-MG	FV-4D-M5	FV-4D-MG
Input pressure (bar)	0-10	0-10	0-10	0-10
Medium	Air, gas	Air, gas	Air, gas	Air, gas
Air flow @ 6 bar (l/min)	240	250	240	250
Temperature range (°C)	0 to +110	0 to +110	0 to +110	0 to +110
Force for full travel @ 3,5 bar (N)	20	20	6,8	6,8
Material	Body: brass; stem & spring: stainless steel; seals: Buna N			

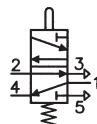
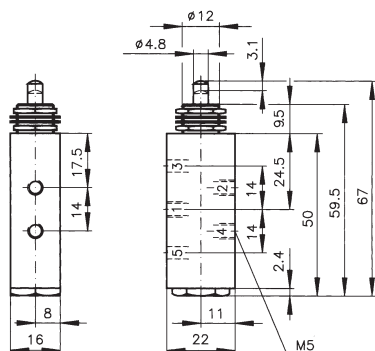
Options (all options shown in color are possible)

	Oxygen*	Nickel plated	Electroless NP	Viton®	EPDM
Order reference	-OX	-NP	-ENP	-V	-E
FV-4-M5	Orifices 3,5 to atm.			Upon request	Upon request
FV-4-MG	Orifices 3,5 to atm.			Upon request	Upon request
FV-4D-M5	Orifices 3,5 to atm.			Upon request	Upon request
FV-4D-MG	Orifices 3,5 to atm.			Upon request	Upon request

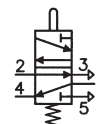
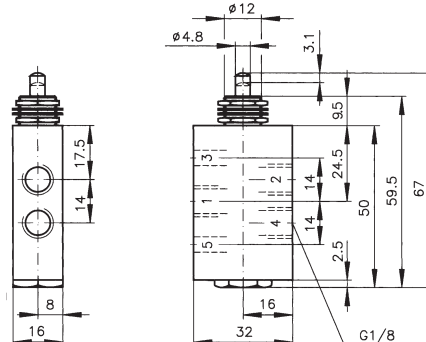
* Lubrication compatible for oxygen use, max. 6 bar and 60°C

5/2-Valves

5/2-Spool valve, plunger actuated, fully ported, spring return



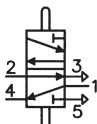
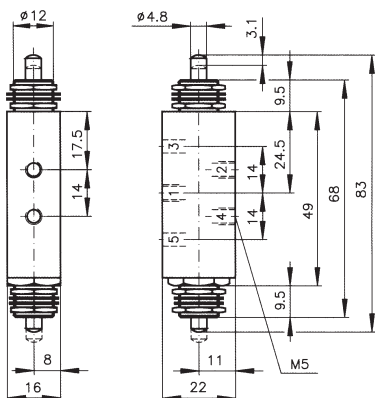
5/2-Spool valve, plunger actuated, fully ported, spring return



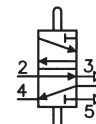
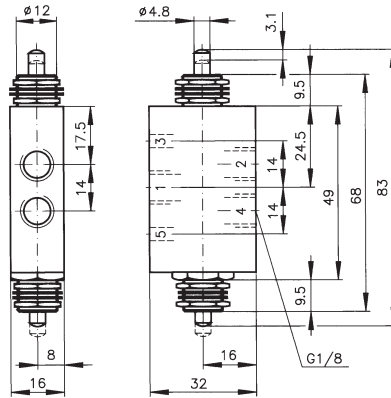
FV-5-M5

FV-5-MG

5/2-Spool valve, double plunger, two position, fully ported



5/2-Spool valve, double plunger, two position, fully ported



FV-5D-M5

FV-5D-MG

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Technical specifications

Valve	FV-5-M5	FV-5-MG	FV-5D-M5	FV-5D-MG
Input pressure (bar)	0–10	0–10	0–10	0–10
Medium	Air, gas, water, oil	Air, gas, water, oil	Air, gas, water, oil	Air, gas, water, oil
Air flow @ 6 bar (l/min)	240	250	240	250
Temperature range (°C)	0 to +110	0 to +110	0 to +110	0 to +110
Force for full travel @ 3,5 bar (N)	20	20	6,8	6,8
Material	Body: brass; stem & spring: stainless steel; seals: Buna N			

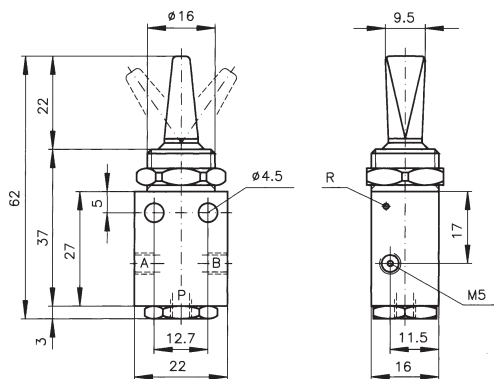
Options (all options shown in color are possible)

	Oxygen*	Nickel plated	Electroless NP	Viton®	EPDM
Order reference	-OX	-NP	-ENP	-V	-E
FV-5-M5				Upon request	Upon request
FV-5-MG				Upon request	Upon request
FV-5D-M5				Upon request	Upon request
FV-5D-MG				Upon request	Upon request

* Lubrication compatible for oxygen use, max. 6 bar and 60°C

5/3-Valves

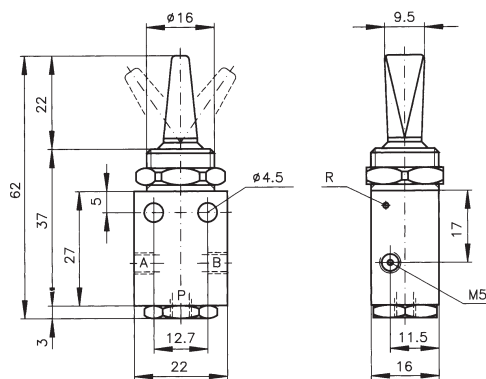
5/3-Poppet toggle valve, center vented, toggle detented, toggle detented



TV-4D-M5

Toggle: black acetyl plastic

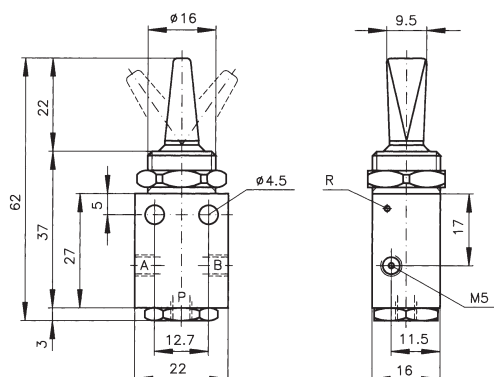
5/3-Poppet toggle valve, center vented, toggle momentary, toggle momentary



TV-4M-M5

Toggle: black acetyl plastic

5/3-Poppet toggle valve, center vented, toggle detented, toggle momentary



TV-4DM-M5

Toggle: black acetyl plastic

Technical specifications

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Valve	TV-4D-M5	TV-4M-M5	TV-4DM-M5
Input pressure (bar)	0-8	0-8	0-8
Medium	Air, gas	Air, gas	Air, gas
Air flow @ 6 bar (l/m)	180	180	180
Temperature range (°C)	0 to +110	0 to +110	0 to +110
Force for full travel @ 3,5 bar (N)	0,9	0,9	0,9
Material	Body: brass; stem & spring: stainless steel; seals: Buna N		

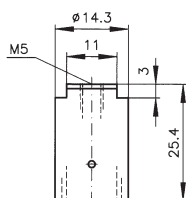
Options (all options shown in color are possible)

	Oxygen*	Nickel plated	Electroless NP
Order reference	-OX	-NP	-ENP
TV-4D-M5	R to atmosphere		
TV-4M-M5	R to atmosphere		
TV-4DM-M5	R to atmosphere		

* Lubrication compatible for oxygen use, max. 6 bar and 60°C

Valve Actuators

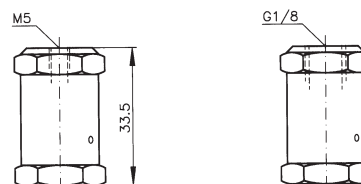
Single acting, spring return,
air pilot actuator



MPA-3-M5

Body: brass

Single acting, spring return,
air pilot actuator

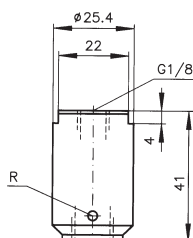


MPA-5-M5

MPA-5-MG

Body:
brass

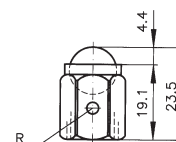
Single acting, spring return,
air pilot actuator



MPA-7-MG

Body: aluminum

Ball cam actuator



MBA-1

Body: brass - ball: stainless steel

Please refer to the chart page 1-20 giving the minimum pressure to be applied for the different valves as well as the necessary spacing required between the valves and the actuators

Technical specifications

Actuator	MPA-3-M5	MPA-5-M5 / MG	MPA-7-MG	MBA-1
Input pressure (bar)	Max. 17	Max. 17	Max. 17	
Medium	Air, gas	Air, gas	Air, gas	
Temperature range (°C)	0 bis +110	0 bis +110	0 bis +110	
Material	Springs: stainless steel; piston: Delrin ®; seals: Buna N			

Options (all options shown in color are possible)

	Oxygen*	Nickel plated	Electroless NP	Viton®	EPDM
Order reference	-OX	-NP	-ENP		
MPA-3-M5				Upon request	Upon request
MPA-5-M5, MPA-5-MG				Upon request	Upon request
MPA-7-MG				Upon request	Upon request
MBA-1					

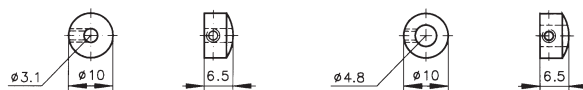
* Lubrication compatible for oxygen use, max. 6 bar and 60°C

Valve Actuators

Push buttons (Ø 16) prevent overtravel of valve stem by providing positive stop



Miniature push buttons



11916-1

Option: -NP

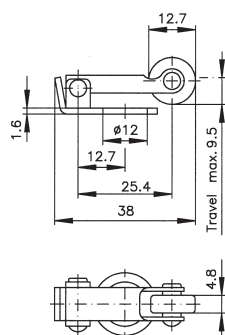
11916-2

11916-3

Option: -NP

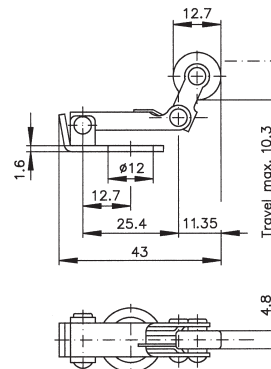
11916-4

Roller cam follower actuator



11925

Roller, double-pivoted one way cam follower actuator



12296

Captured Push Buttons

Order reference

PC-

X

X

-

XX

Valve stem diameter

1	3,1
2	4,8

Color

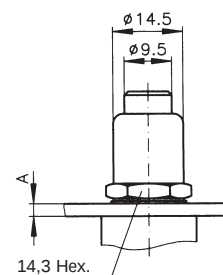
B	Black
G	Green
R	Red
W	White
Y	Yellow

Material

-	Brass
BC	Black chrome
NP	Nickel plated

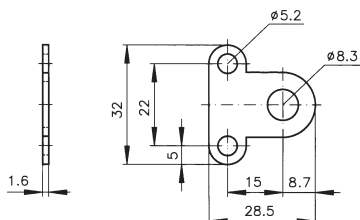
Spacing required for proper actuation of push buttons

Valve	"A" (mm)
MAV-2-M5, MAV-3-M5, MAVO-2-M5, MAVO-3-M5	2,4
MJV-4-MG, MJV-4D-MG	4
MJV-2-MG, MJV-3-MG, MJVO-2-MG, MJVO-3-MG	5,5
FV-3..., FV-4..., FV-5...	5,5

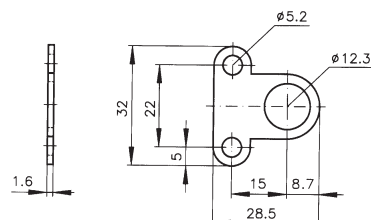


Valve Mountings

Flat mounting bracket Ø 8,3 mm



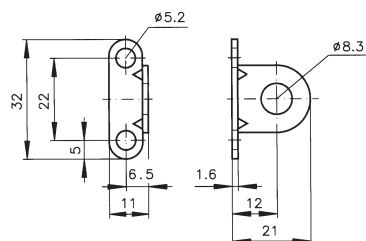
Flat mounting bracket Ø 12,3 mm



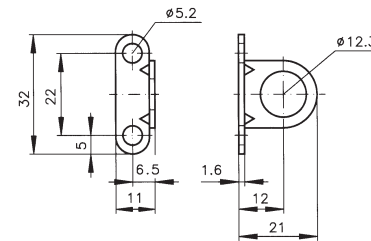
11917-2

11917-1

90° angle mounting bracket Ø 8,3 mm



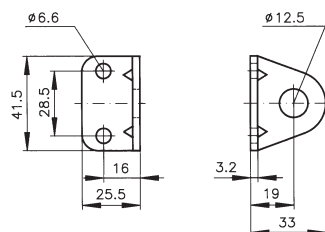
90° angle mounting bracket Ø 12,3 mm



11918-2

11918-1

90° angle heavy duty mounting bracket
Ø 12,5 mm



Panel mounting nuts



15018-2

11406-1

Brass with
black finish

11406-2

Brass with bright
nickel finish

Minimum pressure required (bar) with following actuators:

Valve	MPA-3-M5	MPA-5-M5, MPA-5-MG	MPA-7-MG
ES-1	0,84	0,28	0,14
MAV-2-M5	1,61	0,56	0,28
MAV-3-M5	1,61	0,56	0,28
MJV-4-MG	2,52	0,77	0,39
MJV-2-MG	2,10	0,70	0,35
MJV-3-MG	2,10	0,70	0,35
MAVO-2-M5	1,90	0,63	0,32
MAVO-3-M5	1,90	0,63	0,32
MJVO-2-MG	2,10	0,70	0,35
MJVO-3-MG	2,10	0,70	0,35
FV-3-M5	2,87	1,05	0,53
FV-3-MG	2,87	1,05	0,53
FV-4-M5	2,87	1,05	0,53
FV-4-MG	2,87	1,05	0,53
FV-5-M5	2,87	1,05	0,53
FV-5-MG	2,87	1,05	0,53
FV-3D-M5	0,98	0,35	0,18
FV-3D-MG	0,98	0,35	0,18
FV-4D-M5	0,98	0,35	0,18
FV-4D-MG	0,98	0,35	0,18
FV-5D-M5	0,98	0,35	0,18
FV-5D-MG	0,98	0,35	0,18

Following chart gives the necessary spacing required between the shoulder of the valve and the base of the actuator

Valve	MPA-3-M5/MPA-3-MG/MPA-7-MG (*)	MBA-1	11925, 12296
MAV-2-M5	3,2 mm	3,2 mm	1,6mm
MAV-3-M5			
MAVO-2-M5			
MAVO-3-M5	5,6 mm	5,6 mm	4,8 mm
MJV-2-MG			
MJV-3-MG			
MJVO-2-MG			
MJVO-3-MG			
ES-1	3,2 mm	1,6 mm	1,6 mm
FV-3-M5	5,6 mm	5,6 mm	4,8 mm
FV-3-MG			
FV-3D-M5			
FV-3D-MG			
FV-4-M5	5,6 mm	5,6 mm	4,8 mm
FV-4-MG			
FV-4D-M5			
FV-4D-MG			
FV-5-M5	5,6 mm	5,6 mm	4,8 mm
FV-5-MG			
FV-5D-M5			
FV-5D-MG			

* MPA-5-M5/MPA-5-MG require no spacing

For example: The MPA-3-M5 can be mounted on an MAV-3-M5

- 1- by using two lockwashers (2 x 0,8) and a nut (1 x 1,6)
- 2- by using two lockwashers (2 x 0,8) and a spacer (1 x 1,6)
- 3- by using two lockwashers (2 x 0,8) and a 1,6 bracket P/N 11918-1
- 4- by using a 3,2 bracket P/N 15018-2

Notes: -lockwashers (P/N 0302-32) and nuts are supplied with the valves

-lockwashers (P/N 0302-32) and spacers (P/N 12098) are supplied with the MPA-3-M5/MG and MPA-7-MG actuators

Electronic/Pneumatic Valves





Electronic/Pneumatic Valves and Accessories

Double E-3 Valve Series, Manifolds and Accessories

Model	Description
EE3-...	3/2 - subminiature electronic/pneumatic valves NC
C2A-RB12	Connector for EE3- valves
EE3M-...	Single/multi-station manifolds
EE3M-CP	Manifold cover plate
EE3M-MH	Mounting hardware

ET/ETO - EV/EVO Valve Series

Model	Description
ET-2-.../ EV-2-...	2/2 - Electronic/pneumatic valves NC
ET-3-.../ EV-3-...	3/2 - Electronic/pneumatic valves NC
ETO-3-.../ EVO-3-...	3/2 - Electronic/pneumatic valves NO
3831-1-BLK / 3831-1-PKG	Spad lug connector for ET/ETO valve series

Boosters, Amplifiers to be piloted by ET-3-/EV-3- Valves

Model	Description
EVB-2 / EVB-3	3/2 - Booster NC
2020-MG	3/2 - Amplifier NC
2021-MG	3/2 - Amplifier NC
2010-050	Mounting plate for 2020-MG and 2021-MG

Manifolds and Accessories for ET/ETO and EV/EVO Valve Series

Model	Description
15490-1-MG	Single pilot manifold
15490-2-MG	Single supply manifold
15490-3-MG	Dual supply manifold
15481-4-M5	Manifold for 4 valves on one side
15482-8-M5	Manifold for 8 valves, 4 each on opposite sides
15481-6-M5	Manifold for 6 valves on one side
15482-12-M5	Manifold for 12 valves, 6 each on opposite sides

ES/ESO Compact Valve Series

Model	Description
ES-2...	2/2 - Electronic/pneumatic valves NC
ES-3...	3/2 - Electronic/pneumatic valves NC
ESO-3...	3/2 - Electronic/pneumatic valves NO
C3-RXB18	Connector for ES/ESO valve series

Manifolds for ES/ESO Valve Series

Model	Description
26090-1-M5	Single in-line manifold
26090-2-M5	Single bottom-ported manifold
26090-3-M5	Double manifold
26081-*-M5	Single-sided manifolds * 4, 6, 8 valves
26082-*-M5	Double-sided manifolds * 8, 12, 16 valves
26084-*-M5	Double-sided manifolds * 8, 12, 16 valves



Electronic/Pneumatic Valves and Accessories

E3 Eagle Valve Series	
Model	Description
E3-...	3/2 - Electronic/pneumatic valve NC
C3-RBX18	Connector for E3-... valves DC
C3-WXB18	Connector for E3-... valves AC
E3M-1-M5	Single-station manifold
E3M-*-M5	Multi-station manifold * 2, 4, 6, 8, 10, 12 valves
E3M-MH	Mounting hardware
E3M-CP	Cover plate
E4 Eagle Valve Series	
Model	Description
E4-5PS	5/2 - Piloted valve, spring return
E4-5PP	5/2 - Double piloted valve
E4-5ES	5/2 - Electronic/pneumatic valve, single solenoid, spring return
E4-5EA	5/2 - Electronic/pneumatic valve, single solenoid, air return
E4-5EP	5/2 - Electronic/pneumatic valve, single solenoid, pneumatic pilot return
E4-5EE	5/2 - Electronic/pneumatic valve, double solenoid
E4M-MH	Mounting hardware
E4M-CP	Cover plate
Manifold Cards for 3/2 - and 5/2 - Electronic/Pneumatic Valves	
Model	Description
EMC-08-...	Manifold card for 8 ET/ETO valves
EMC-12-...	Manifold card for 12 ET/ETO valves
EMC-4-08-...	Manifold card for 8 E4 valves
EMC-4-12-...	Manifold card for 12 E4 valves

Symbol Port Coding

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts
12, 14 : Pilot signals

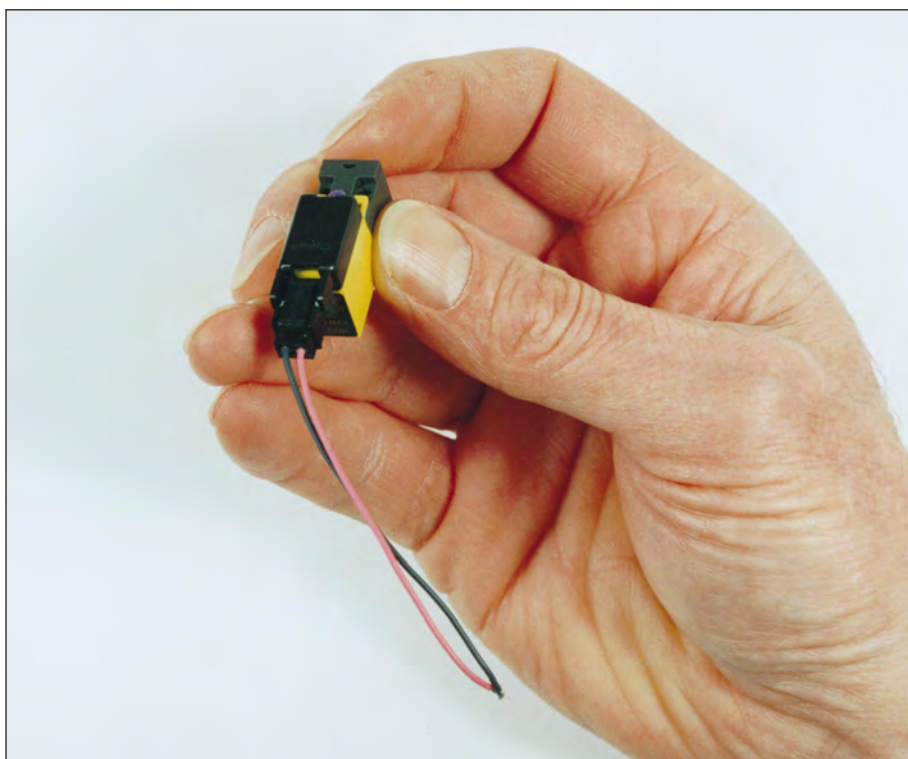
Notes :

- Viton, Delrin Neoprene and Zytel are registered trademarks of E.I. du Pont de Nemours & Co
- Chemraz is registered trademark of Greene, Tweed & Co, Inc.

10mm - Subminiature Electronic/Pneumatic

3/2 - Valves

Double E - 3 Series



Specifications

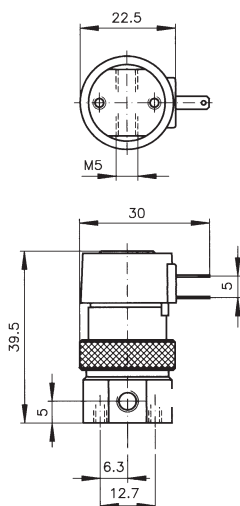
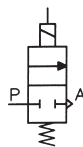
Valve	EE3	EE3-H
Input pressure (bar)	0–7	0–4,2
Air flow (l/min)	14 @ 7 bar	14 @ 4,2 bar
Temperature range (°C)	0 to + 50	0 to + 50
Medium	Air, gas	Air, gas
Material	High strength thermoplastic construction - Seals: Buna N	

Electrical Data

Voltage (VDC)	12, 24 (allowable variation $\pm 10\%$)
Power consumption (W)	1,4 (with LED and diodes) / 1,1 / 1,2 (24/12 VDC coil only)
Response time	10 ms
Electrical connection	Custom plug connector C2A-RB12 (with 300mm wire leads) supplied with valve
LED and spike suppression diodes	Standard

2/2-Electronic/Pneumatic ET Valve Series

**2/2-Electronic/Pneumatic valve
normally closed**



Mounting screws provided with valve

ET-2-*-M5

0-7 bar

ET-2-*-L-M5

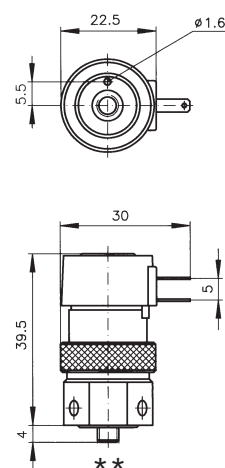
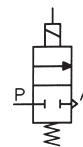
0-3,5 bar

ET-2-*-H-M5

0-1,8 bar

*** Voltage**

**2/2-Electronic/Pneumatic valve
normally closed, manifold mount**



** 10-32 fits into M5

ET-2M-*

0-7 bar

ET-2M-*-L

0-3,5 bar

ET-2M-*-H

0-1,8 bar

*** Voltage**

Specifications

Valve	ET-2-*-M5, ET-2M-*	ET-2-*-L-M5, ET-2M-*-L	ET-2-*-H-M5, ET-2M-*-H
Pressure range (bar)	0-7	0-3,5	0-1,8
Air flow (l/min)	15 @ 7 bar	15 @ 3,5 bar	14 @ 1,8 bar
Temperature range (°C)	0 to 80	0 to 80	0 to 80
Medium	Air, gas	Air, gas	Air, gas
Material	Base: ENP brass; core & housing: ENP steel; nozzle: stainless steel; seals: Buna N		
Application	Compatible for oxygen use		

Spade lug connectors available (P/N: 3831-1-BLK and 3831-1-PKG)

1 (P)	: Pressure supply
4,2 (A,B)	: Output signals
5,3 (R,S)	: Exhausts

Electrical data

Voltages (VDC)	6	12	24
Working range (cont. duty) VDC	5,4 - 9	10,8 - 18	21,5 - 36
Current (A) / Resistance (Ω)	0,12 / 54	0,055 / 218	0,028 / 864
Power consumption (W)	0,67 at rated voltage		
Response @ 7 bar (ms)	5 - 10		

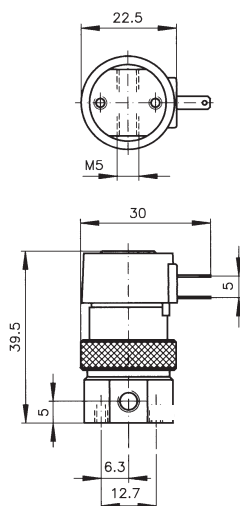
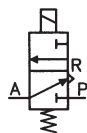
Options (all options shown in color are possible)

	Viton®	Silicone	Chemraz®	EPDM	Neoprene®	Stainless steel
Order reference	-V	-S		-E		
ET-2-*-M5		Upon request	Upon request		Upon request	Upon request
ET-2M-*		Upon request	Upon request		Upon request	Upon request
ET-2-*-L-M5		Upon request	Upon request		Upon request	Upon request
ET-2M-*-L		Upon request	Upon request		Upon request	Upon request
ET-2-*-H-M5		Upon request	Upon request		Upon request	Upon request
ET-2M-*-H		Upon request	Upon request		Upon request	Upon request

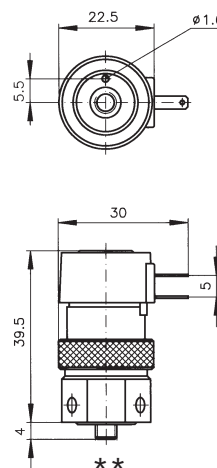
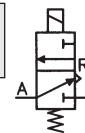
*** Voltage**

3/2-Electronic/Pneumatic ET Valve Series

3/2-Electronic/Pneumatic valve normally closed



3/2-Electronic/Pneumatic valve normally closed, manifold mount



Mounting screws provided with valve

ET-3-*-M5	ET-3-*-L-M5	ET-3-*-H-M5
0-7 bar	0-3,5 bar	0-1,8 bar

* Voltage

** 10-32 fits into M5

ET-3M-*	ET-3M-*-L	ET-3M-*-H
0-7 bar	0-3,5 bar	0-1,8 bar

* Voltage

Specifications

Valve	ET-3-*-M5, ET-3M-*	ET-3-*-L-M5, ET-3M-*-L	ET-3-*-H-M5, ET-3M-*-H
Pressure range (bar)	0-7	0-3,5	0-1,8
Air flow (l/min)	15 @ 7 bar	15 @ 3,5 bar	14 @ 1,8 bar
Temperature range (°C)	0 to 80	0 to 80	0 to 80
Medium	Air, gas	Air, gas	Air, gas
Material	Base: ENP brass; core & housing: ENP steel; nozzle: stainless steel; seals: Buna N		
Application	Compatible for oxygen use		

Spade lug connectors available (P/N: 3831-1-BLK and 3831-1-PKG)

1 (P)	: Pressure supply
4,2 (A,B)	: Output signals
5,3 (R,S)	: Exhausts

Electrical data

Voltages (VDC)	6	12	24
Working range (cont. duty) VDC	5,4 - 9	10,8 - 18	21,5 - 36
Current (A) / Resistance (Ω)	0,12 / 54	0,055 / 218	0,028 / 864
Power consumption (W)	0,67 at rated voltage		
Response @ 7 bar (ms)	5 - 10		

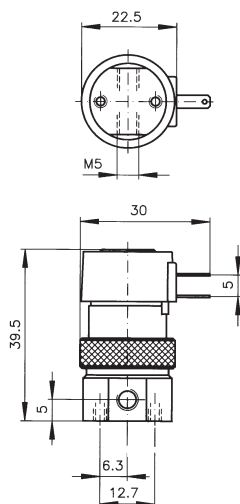
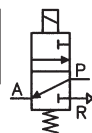
Options (all options shown in color are possible)

	Viton®	Silicone	Chemraz®	EPDM	Neoprene®	Stainless steel
Order reference	-V	-S		-E		
ET-3-*-M5		Upon request	Upon request		Upon request	Upon request
ET-3M-*		Upon request	Upon request		Upon request	Upon request
ET-3-*-L-M5		Upon request	Upon request		Upon request	Upon request
ET-3M-*-L		Upon request	Upon request		Upon request	Upon request
ET-3-*-H-M5		Upon request	Upon request		Upon request	Upon request
ET-3M-*-H		Upon request	Upon request		Upon request	Upon request

* Voltage

3/2-Electronic/Pneumatic ETO Valve Series

3/2-Electronic/Pneumatic valve normally open



Mounting screws provided with valve

ETO-3-*-M5

0-7 bar

ETO-3-*-L-M5

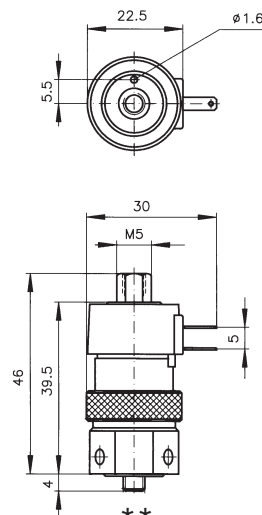
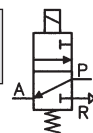
0-3,5 bar

ETO-3-*-H-M5

0-1,8 bar

*** Voltage**

3/2-Electronic/Pneumatic valve normally open, manifold mount



** 10-32 fits into M5

ETO-3M-*-M5

0-7 bar

ETO-3M-*-L-M5

0-3,5 bar

ETO-3M-*-H-M5

0-1,8 bar

*** Voltage**

Specifications

Valve	ETO-3-*-M5, ETO-3M-*-M5	ETO-3-*-L-M5, ETO-3M-*-L-M5	ETO-3-*-H-M5, ETO-3M-*-H-M5
Pressure range	0-7	0-3,5	0-1,8
Air flow (l/min)	15 @ 7 bar	15 @ 3,5 bar	14 @ 1,8 bar
Temperature range (°C)	0 to 80	0 to 80	0 to 80
Medium	Air, gas	Air, gas	Air, gas
Material	Base: ENP brass; core & housing: ENP steel; nozzle: stainless steel; seals: Buna N		
Application	Compatible for oxygen use		

Spade lug connectors available (P/N: 3831-1-BLK and 3831-1-PKG)

Electrical data

Voltages (VDC)	6	12	24
Working range (cont. duty) VDC	5,4 - 9	10,8 - 18	21,5 - 36
Current (A) / Resistance (Ω)	0,12 / 54	0,055 / 218	0,028 / 864
Power consumption (W)	0,67 at rated voltage		
Response @ 7 bar (ms)	5 - 10		

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

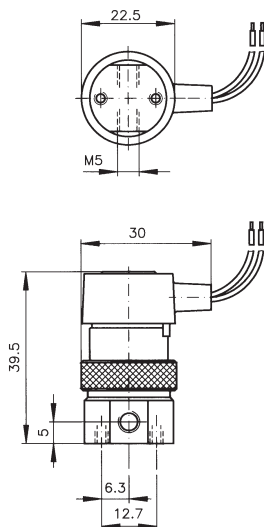
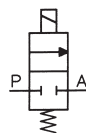
Options (all options shown in color are possible)

	Viton®	Silicone	Chemraz®	EPDM	Neoprene®	Stainless steel
Order reference	-V	-S		-E		
ETO-3-*-M5		Upon request	Upon request		Upon request	Upon request
ETO-3M-*-M5		Upon request	Upon request		Upon request	Upon request
ETO-3-*-L-M5		Upon request	Upon request		Upon request	Upon request
ETO-3M-*-L-M5		Upon request	Upon request		Upon request	Upon request
ETO-3-*-H-M5		Upon request	Upon request		Upon request	Upon request
ETO-3M-*-H-M5		Upon request	Upon request		Upon request	Upon request

*** Voltage**

2/2-Electronic/Pneumatic EV Valve Series

**2/2-Electronic/Pneumatic valve
normally closed**



Mounting screws provided with valve

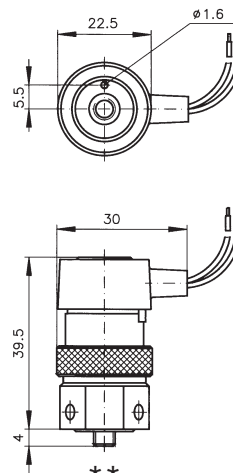
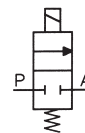
EV-2-*-M5
0-7 bar

EV-2-*-L-M5
0-3,5 bar

EV-2-*-H-M5
0-1,8 bar

*** Voltage**

**2/2-Electronic/Pneumatic valve
normally closed, manifold mount**



** 10-32 fits into M5

EV-2M-*
0-7 bar

EV-2M-*-L
0-3,5 bar

EV-2M-*-H
0-1,8 bar

*** Voltage**

Specifications

Valve	EV-2-*-M5, EV-2M-*	EV-2-*-L-M5, EV-2M-*-L	EV-2-*-H-M5, EV-2M-*-H
Pressure range (bar)	0-7	0-3,5	0-1,8
Air flow (l/min)	15 @ 7 bar	15 @ 3,5 bar	14 @ 1,8 bar
Temperature range (°C)	0 to 80	0 to 80	0 to 80
Medium	Air, gas	Air, gas	Air, gas
Material	Base: ENP brass; core & housing: ENP steel; nozzle: stainless steel; seals: Buna N		
Application	Compatible for oxygen use		

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Electrical data

Voltages (VDC)	6	12	24
Working range (cont. duty) VDC	5,4 - 9	10,8 - 18	21,5 - 36
Current (A) / Resistance (Ω)	0,12 / 54	0,055 / 218	0,028 / 864
Power consumption (W)	0,67 at rated voltage		
Response @ 7 bar (ms)	5 - 10		

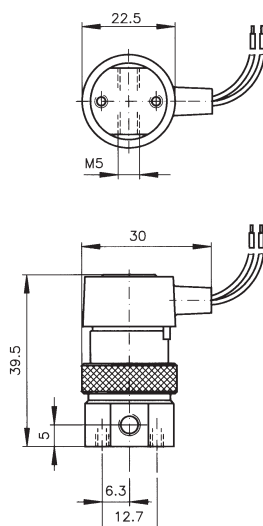
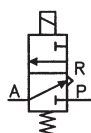
Options (all options shown in color are possible)

	Viton®	Silicone	Chemraz®	EPDM	Neoprene®	Stainless steel
Order reference	-V	-S		-E		
EV-2-*-M5		Upon request	Upon request		Upon request	Upon request
EV-2M-*		Upon request	Upon request		Upon request	Upon request
EV-2-*-L-M5		Upon request	Upon request		Upon request	Upon request
EV-2M-*-L		Upon request	Upon request		Upon request	Upon request
EV-2-*-H-M5		Upon request	Upon request		Upon request	Upon request
EV-2M-*-H		Upon request	Upon request		Upon request	Upon request

*** Voltage**

3/2-Electronic/Pneumatic EV Valve Series

**3/2-Electronic/Pneumatic valve
normally closed**



Mounting screws provided with valve

EV-3-*-M5

0-7 bar

EV-3-*-L-M5

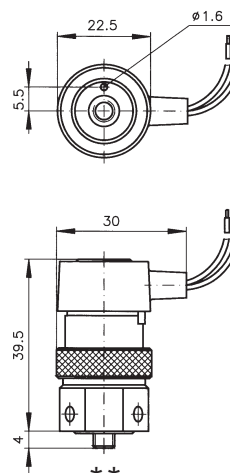
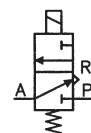
0-3,5 bar

EV-3-*-H-M5

0-1,8 bar

*** Voltage**

**3/2-Electronic/Pneumatic valve
normally closed - manifold mount**



** 10-32 fits into M5

EV-3M-*

0-7 bar

EV-3M-*-L

0-3,5 bar

EV-3M-*-H

0-1,8 bar

*** Voltage**

Specifications

Valve	EV-3-*-M5, EV-3M-*	EV-3-*-L-M5, EV-3M-*-L	EV-3-*-H-M5, EV-3M-*-H
Pressure range (bar)	0-7	0-3,5	0-1,8
Air flow (l/min)	15 @ 7 bar	15 @ 3,5 bar	14 @ 1,8 bar
Temperature range (°C)	0 to 80	0 to 80	0 to 80
Medium	Air, gas	Air, gas	Air, gas
Material	Base: ENP brass; core & housing: ENP steel; nozzle: stainless steel; seals: Buna N		
Application	Compatible for oxygen use		

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Electrical data

Voltages (VDC)	6	12	24
Working range (cont. duty) VDC	5,4 - 9	10,8 - 18	21,5 - 36
Current (A) / Resistance (Ω)	0,12 / 54	0,055 / 218	0,028 / 864
Power consumption (W)	0,67 at rated voltage		
Response @ 7 bar (ms)	5 - 10		

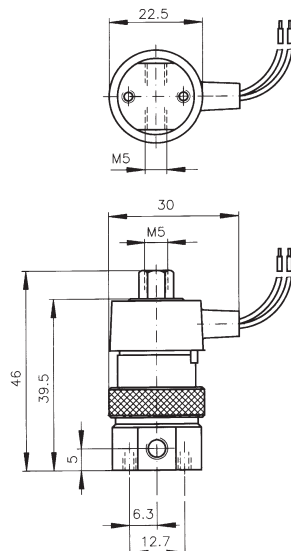
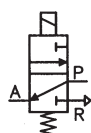
Options (all options shown in color are possible)

	Viton®	Silicone	Chemraz®	EPDM	Neoprene®	Stainless steel
Order reference	-V	-S		-E		
EV-3-*-M5		Upon request	Upon request		Upon request	Upon request
EV-3M-*		Upon request	Upon request		Upon request	Upon request
EV-3-*-L-M5		Upon request	Upon request		Upon request	Upon request
EV-3M-*-L		Upon request	Upon request		Upon request	Upon request
EV-3-*-H-M5		Upon request	Upon request		Upon request	Upon request
EV-3M-*-H		Upon request	Upon request		Upon request	Upon request

*** Voltage**

3/2-Electronic/Pneumatic EVO Valve Series

**3/2-Electronic/Pneumatic valve
normally open**



Mounting screws provided with valve

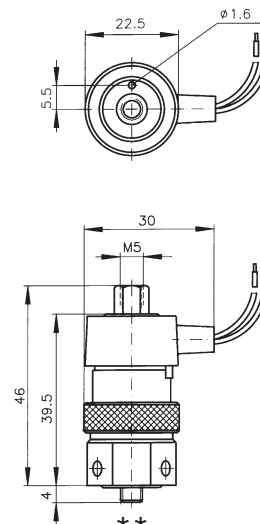
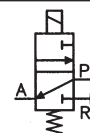
EVO-3-*-M5
0-7 bar

EVO-3-*-L-M5
0-3,5 bar

EVO-3-*-H-M5
0-1,8 bar

*** Voltage**

**3/2-Electronic/Pneumatic valve
normally open, manifold mount**



** 10-32 fits into M5

EVO-3M-*-M5
0-7 bar

EVO-3M-*-L-M5
0-3,5 bar

EVO-3M-*-H-M5
0-1,8 bar

*** Voltage**

Specifications

Valve	EVO-3-*-M5, EVO-3M-*-M5	EVO-3-*-L-M5, EVO-3M-*-L-M5	EVO-3-*-H-M5, EVO-3M-*-H-M5
Pressure range (bar)	0-7	0-3,5	0-1,8
Air flow (l/min)	15 @ 7 bar	15 @ 3,5 bar	14 @ 1,8 bar
Temperature range (°C)	0 to 80	0 to 80	0 to 80
Medium	Air, gas	Air, gas	Air, gas
Material	Base: ENP brass; core & housing: ENP steel; nozzle: stainless steel; seals: Buna N		
Application	Compatible for oxygen use		

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Electrical data

Voltages (VDC)	6	12	24
Working range (cont. duty) VDC	5,4 - 9	10,8 - 18	21,5 - 36
Current (A) / Resistance (Ω)	0,12 / 54	0,055 / 218	0,028 / 864
Power consumption (W)	0,67 at rated voltage		
Response @ 7 bar (ms)	5 - 10		

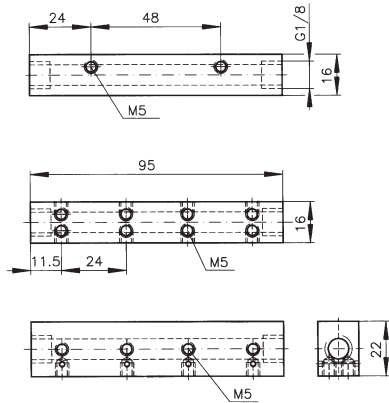
Options (all options shown in color are possible)

	Viton®	Silicone	Chemraz®	EPDM	Neoprene®	Stainless steel
Order reference	-V	-S		-E		
EVO-3-*-M5		Upon request	Upon request		Upon request	Upon request
EVO-3M-*-M5		Upon request	Upon request		Upon request	Upon request
EVO-3-*-L-M5		Upon request	Upon request		Upon request	Upon request
EVO-3M-*-L-M5		Upon request	Upon request		Upon request	Upon request
EVO-3-*-H-M5		Upon request	Upon request		Upon request	Upon request
EVO-3M-*-H-M5		Upon request	Upon request		Upon request	Upon request

*** Voltage**

Manifolds

Manifold for 4 valves on one side / for 8 valves, 4 each on opposite sides



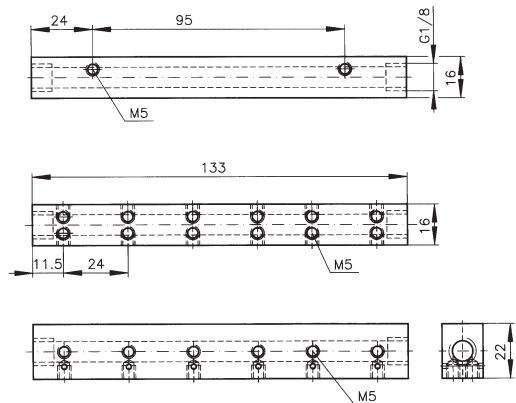
15481-4-M5

for 4 valves

15482-8-M5

for 8 valves

Manifold for 6 valves on one side / for 12 valves, 6 each on opposite sides



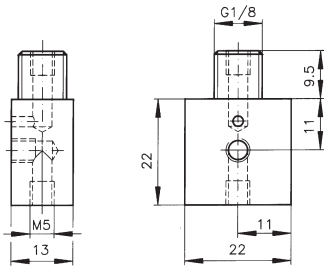
15481-6-M5

for 6 valves

15482-12-M5

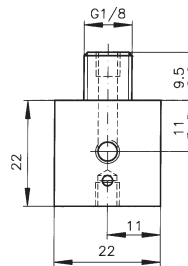
for 12 valves

Pilot manifold



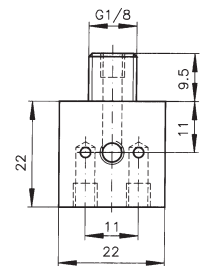
15490-1-MG

Single supply manifold



15490-2-MG

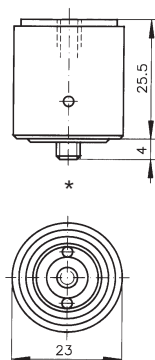
Dual supply manifold



15490-3-MG

Electronic Valve Boosters

2/2-and 3/2 - Amplifier valves NC, manifold mount

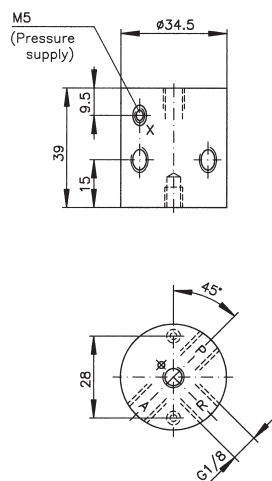


to be piloted by ET-3/EV-3 valves
* 10-32 fits into M5

EVB-2

EVB-3

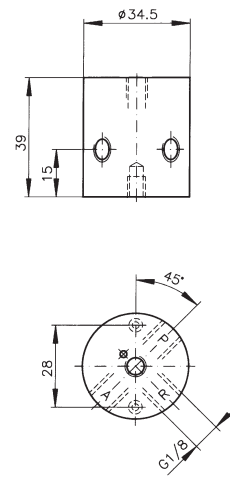
3/2- Amplifier valve normally closed



to be piloted by ET-3/EV-3 valves

2020-MG

3/2- Amplifier valve normally closed



to be piloted by ET-3/EV-3 valves

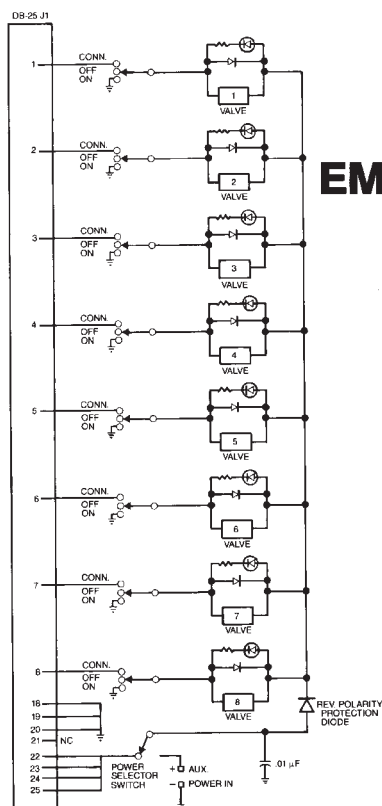
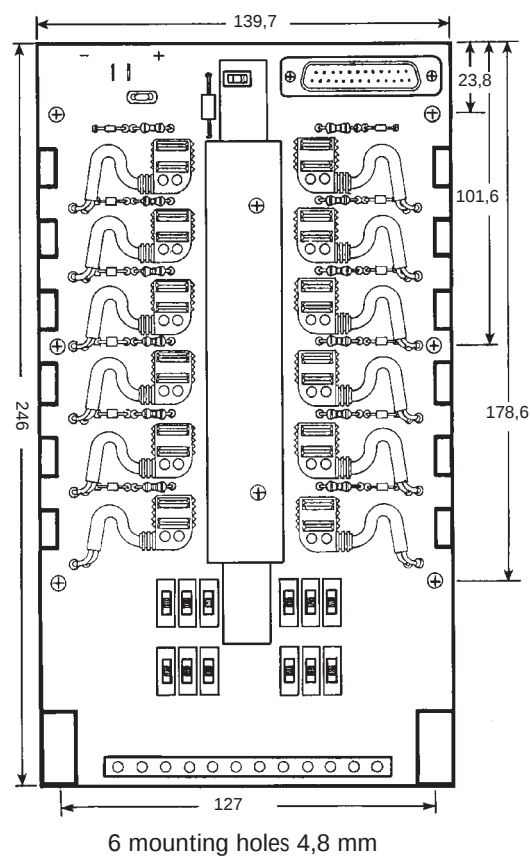
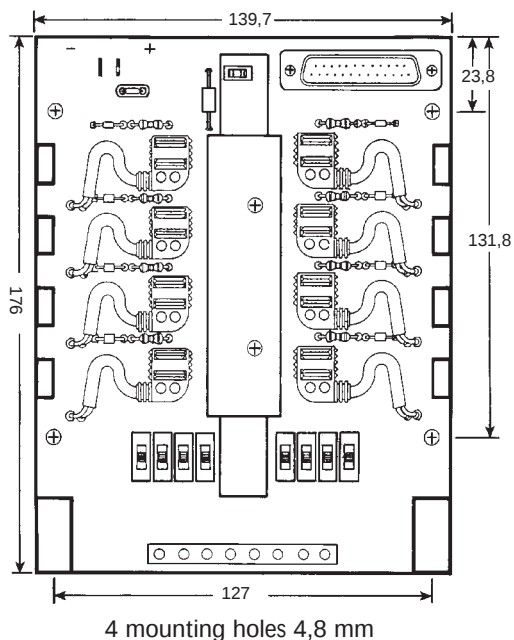
2021-MG

Specifications

Valve	EVB-3	2020-MG	2021-MG
Input pressure (bar)	1,4–7	2,1–7	2,1–7
Medium	Air, gas	Air, gas	Air, gas
Air flow @ 6 bar (l/min)	170	620	620
Temperature range (°c)	0 to 80	0 to 80	0 to 80
Response (ms)	20 @ 1,4 bar; 13 @ 7 bar	approx. 20	approx. 20
Material	Body : EVB-3 : brass; 2020/2021 : aluminum		

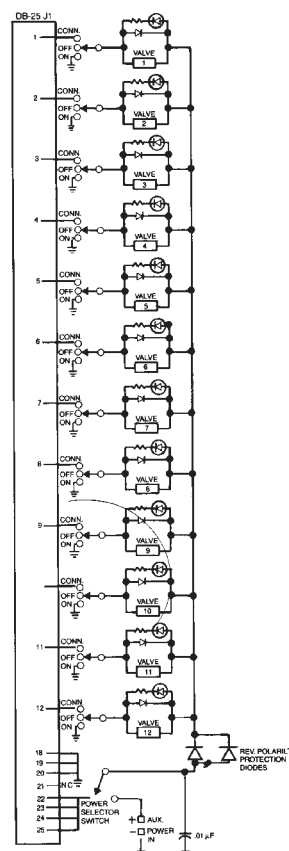
Mounting plate P/N 2010-050 available for 2020-MG and 2021-MG

3/2 - Electronic/Pneumatic ET/EV Valves on Manifold Cards



EMC-08 for 8 valves

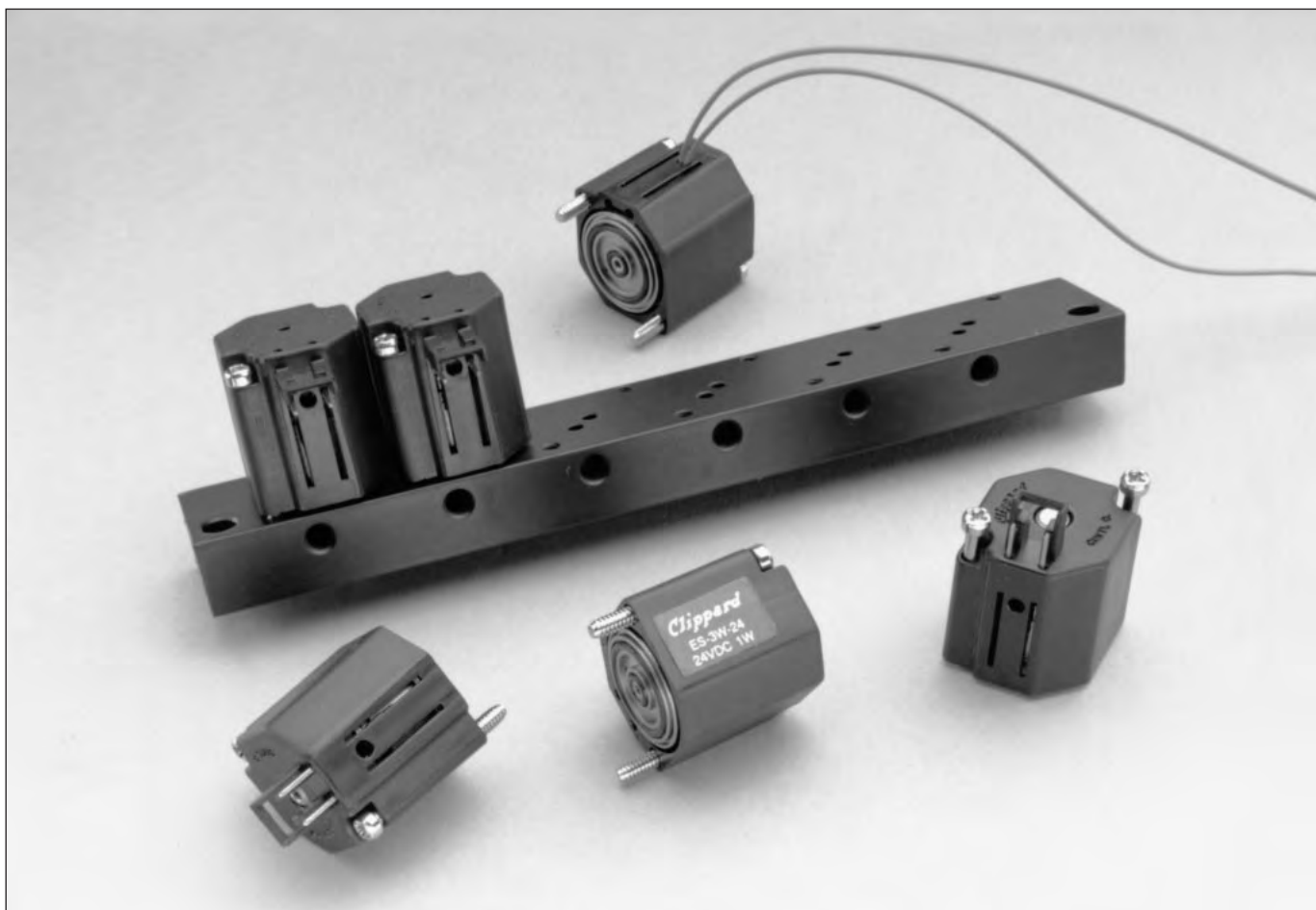
EMC-12
for 12 valves



*Note: Manifold mounted valves are normally closed.
Use ETO models if exhaust must be ported.
ETO models cannot be used "Normally Open"
without special piping.

2/2 - and 3/2 - Electronic/Pneumatic Compact Valves

ES/ESO Series*



Specifications

Input pressure (bar)	0 – 7	0 - 3,5 (L version)
Air flow (l/min)	17 @ 7 bar	17 @ 3,5 bar (L version)
Temperature range (°C)	0 to 80	
Medium	Air, gas	
Material	Polymer housing - Zytel® supertough	

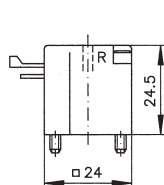
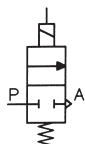
* manifold mount only

Electrical data

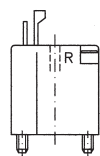
Voltage (VDC)	6	12	24
Working range (cont. duty) VDC	5 - 7,5	10 - 15	20 - 30
Current (A) / Resistance (Ω)	0,17 / 36	0,083 / 144	0,042 / 576
Power consumption	1 W @ rated voltage		
Response time (ms)	5 - 10 @ 7 bar		
Connector	P/N C3-RXB18 (with 450 mm wire lead)		

2/2-Electronic/Pneumatic Valves

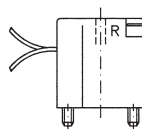
ES-2 Series



Side pin



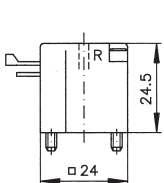
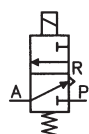
Top pin



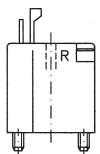
With wire (450mm)

3/2-Electronic/Pneumatic Valves

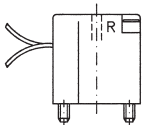
ES-3 Series (normally closed)



Side pin

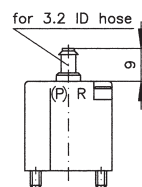
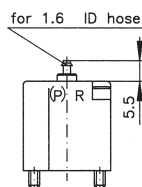
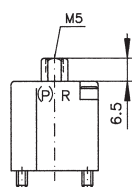
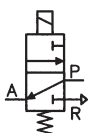


Top pin



With wire (450mm)

ESO-3 Series (normally open)



Options : Side pin
Top pin
Wire (450 mm)

1 (P)	Pressure supply
4,2 (A,B)	Output Signals
5,3 (R,S)	Exhausts

Numbering system

-	NC
0	NO

2	2/2
3	3/2

-	0-7 bar (17 l/min)
L	0-3,5 bar (17 l/min)

ESX - X X - X X - X X

S	Side pin
T	Top pin
W	Wire (450 mm)

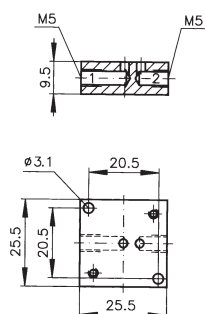
06	6 VDC
12	12 VDC
24	24 VDC

0	M5
1	1,6 ID hose barb
2	3,2 ID hose barb

only ESO

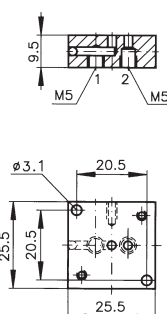
Single Manifolds for ES/ESO Valve Series

In-line Manifold



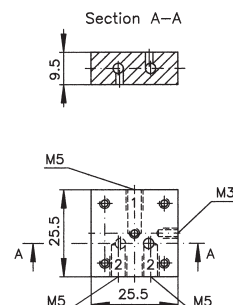
26090-1-M5

Bottom - Ported Manifold



26090-2-M5

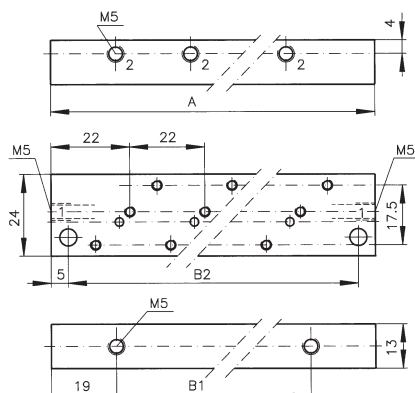
Double Manifold



26090-3-M5

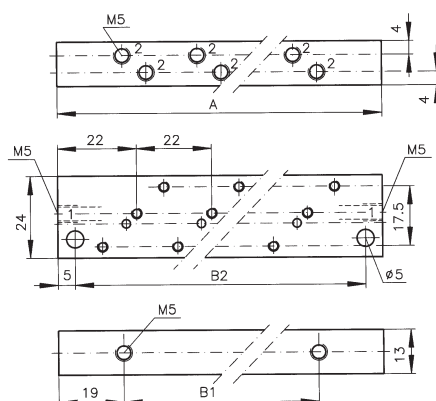
Manifolds

Single-Sided



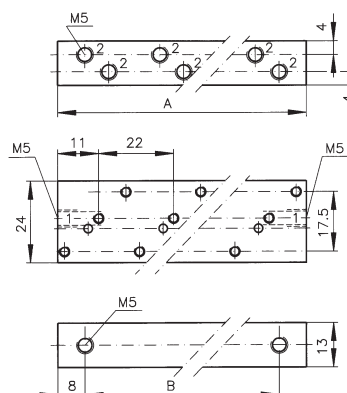
P/N	Valves	A (mm)	B1 (mm)	B2 (mm)
26081-4-M5	4	111	73	101,5
26081-6-M5	6	155	117	145,5
26081-8-M5	8	199	161	189,5

Double Sided



P/N	Valves	A (mm)	B1 (mm)	B2 (mm)
26082-8-M5	8	111	73	101,5
26082-12-M5	12	155	117	145,5
26082-16-M5	16	199	161	189,5

Double-Sided



P/N	Valves	A (mm)	B (mm)
26084-8-M5	8	89	73
26084-12-M5	12	133	117
26084-16-M5	16	177	161

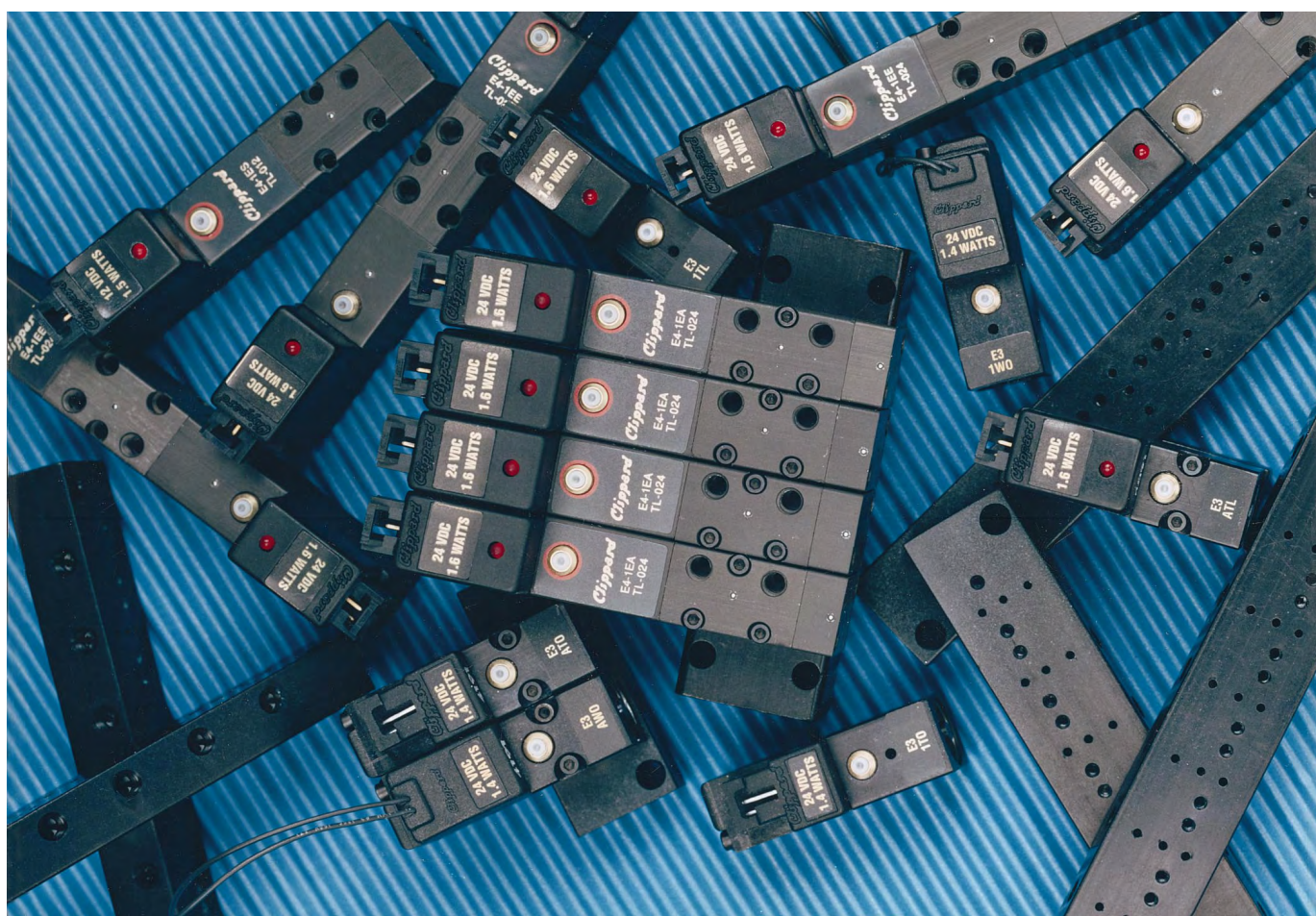
3/2-Electronic/Pneumatic Valves

E3 Series

5/2-Pneumatic Valves

5/2-Electronic/Pneumatic Valves

E4 Series



3/2-Electronic/Pneumatic Valves

E3 Series

5/2-Electronic/Pneumatic Valves

E4 Series

E3 Series



E4 Series



Specifications

Valve	E3	E4
Type	Plunger type valve	Balanced spool construction
Connections	M5 or manifold mount	M5 or manifold mount
Air flow (l/min)	30 @ 6 bar	225 @ 6 bar / 140 @ 3,5 bar
Input Pressure (bar)	1,4–7	2,1–7
Medium	Air, gas	Air, gas
Temperature range (°C)	0 to + 80	0 to + 80

Electrical data

Voltages	12, 24 VDC	120 VAC
Power consumption (W)	1,4 without LED; 1,6 with LED;	3 W
Response time	E3 : 10 ms, E4 : 30 ms (on and off)	
Manual override	Standard on all types	
Connections	Plug connector or wire lead	
Connector types	DC = C3-RXB18; AC = C3-WXB18	

E3 - Numbering System

A	For manifold mount	T	Terminal
5	M5	W	Wire(*)

E3 - X X X - X X X

L	LED & diodes	012	12 VDC
O	Without LED & diodes	024	24 VDC
R	Rectifier for 24, 120 VAC	120	120 VAC
		24A	24 VAC

* wire lead 450mm, only without LED

E4 - Numbering System

Refer to drawings page 2-24		T	Terminal
		W	Wire(*)

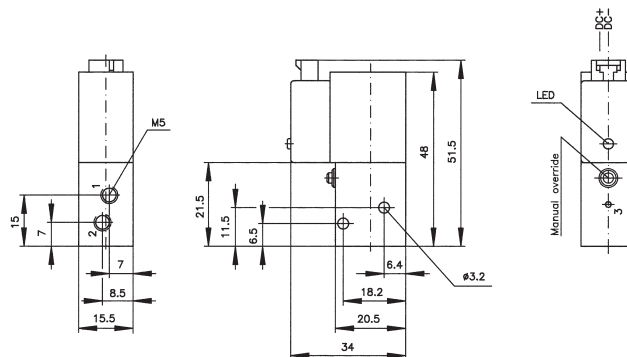
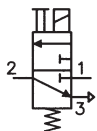
E4 - 5 X X - X X - X X X

L	LED & diodes	012	12 VDC
O	Without LED & diodes	024	24 VDC
R	Rectifier for 24, 120 VAC	120	120 VAC
		24A	24 VAC

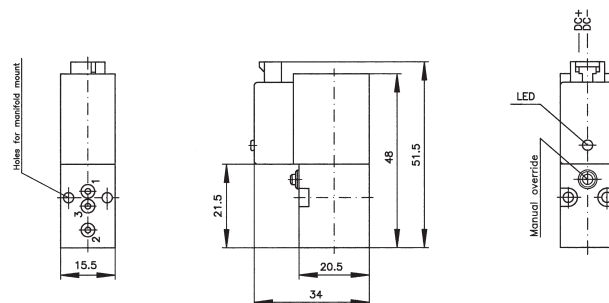
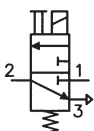
* Wire lead 450mm, only without LED

3/2-Electronic/Pneumatic Valves - E3 Series

3/2 - Electronic/Pneumatic valve,
normally closed



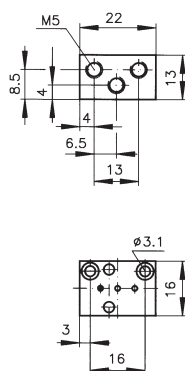
3/2 - Electronic/Pneumatic valve,
normally closed, manifold mount



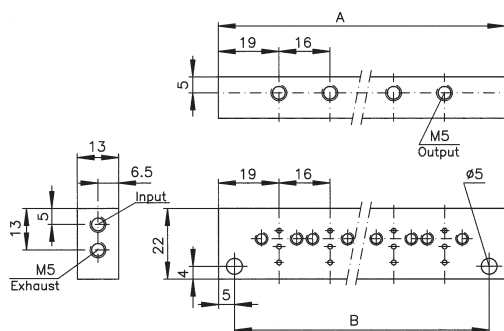
Single and multi-station manifolds

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Single-station



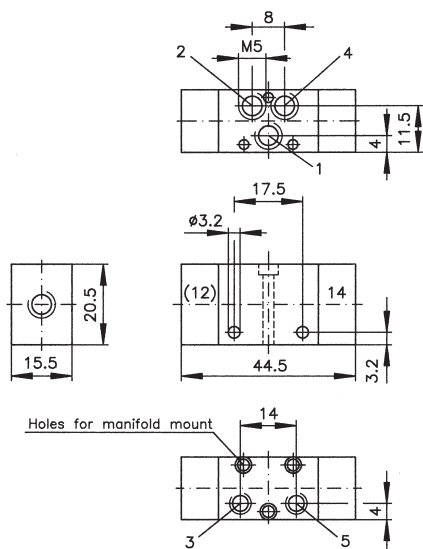
Multi-station



Model	Station	A (mm)	B (mm)
E3M-1-M5	1	22	16
E3M-2-M5	2	54	44,5
E3M-4-M5	4	86	76
E3M-6-M5	6	117,5	108
E3M-8-M5	8	149	140
E3M-10-M5	10	181	171,5
E3M-12-M5	12	213	203
E3M-CP	Cover Plate	—	—

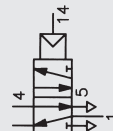
Mounting hardware including
mounting screws and O-rings available.
P/N : E3M-MH

5/2-Valves - E4 Series



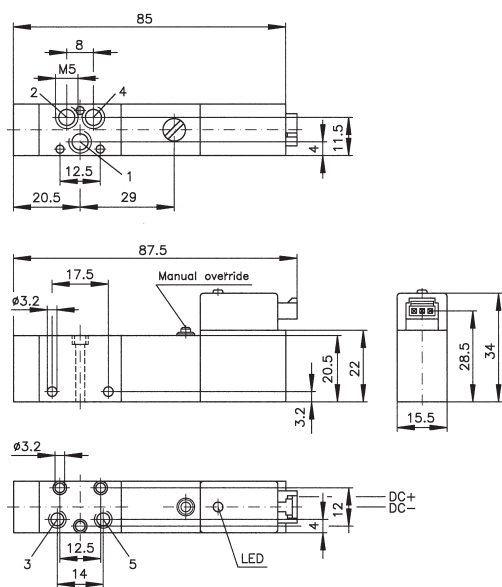
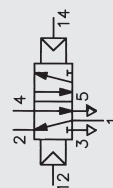
E4-5PS

Single pneumatic pilot,
spring return



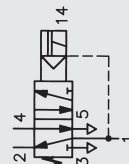
E4-5PP

Double pneumatic pilot



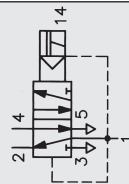
E4-5ES

Single solenoid,
spring return



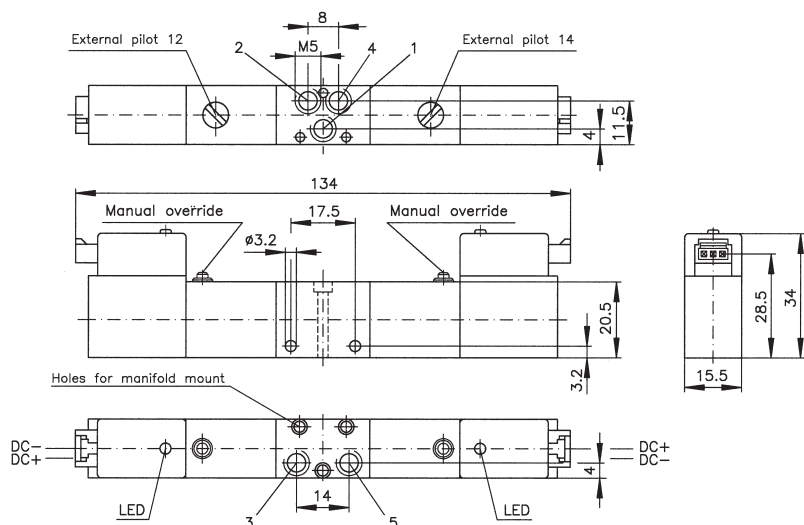
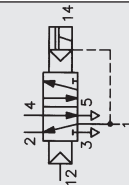
E4-5EA

Single solenoid,
air return



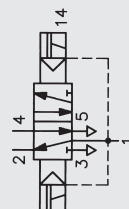
E4-5EP

Single solenoid,
pneumatic pilot return



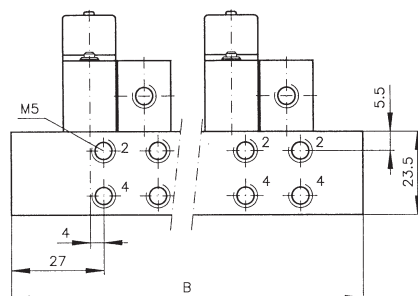
E4-5EE

Double solenoid



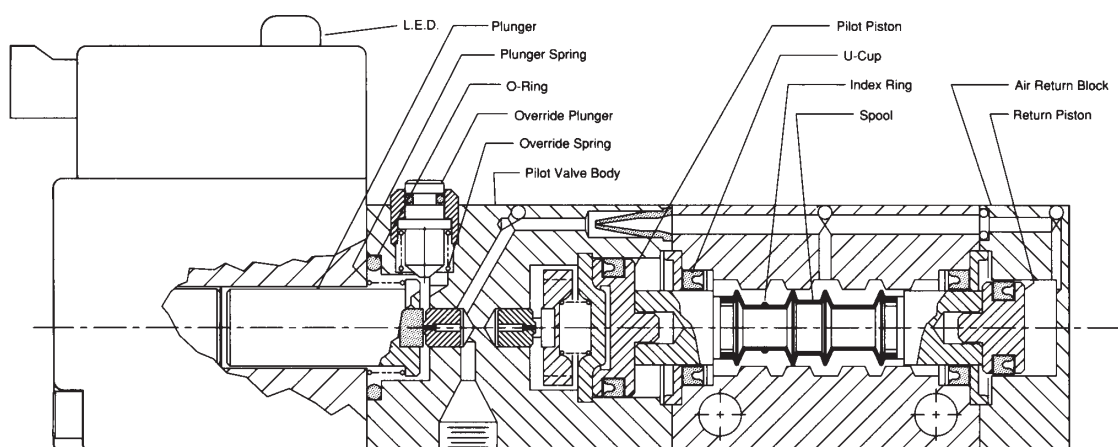
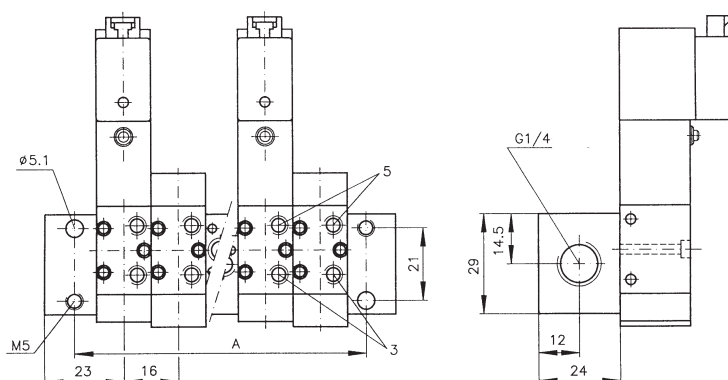
1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts
12, 14 : Pilot signals

Manifolds for 5/2 - Valves E4 Series



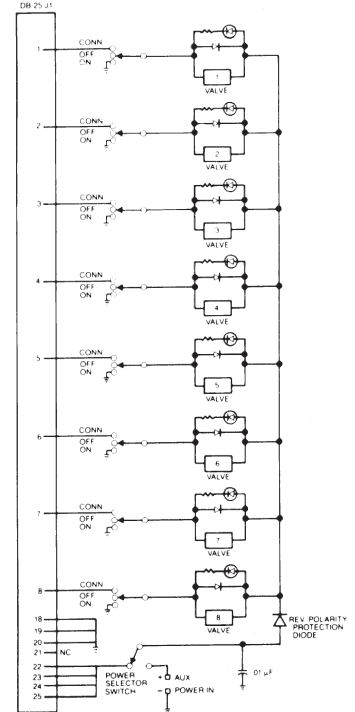
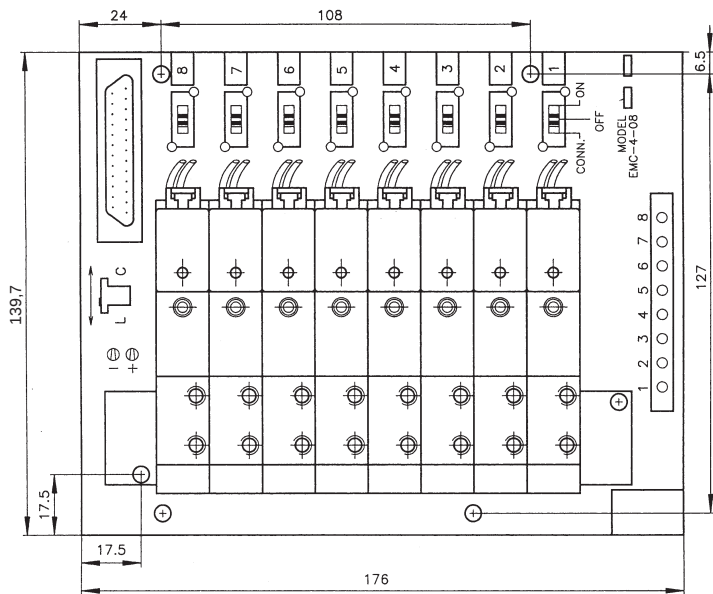
Model	Station	A (mm)	B (mm)
E4M-4-M5	4	76	94
E4M-6-M5	6	108	125,5
E4M-8-M5	8	140	162
E4M-10-M5	10	171,5	189
E4M-12-M5	12	203	220,5
E4M-CP	Cover Plate	—	—

Mounting hardware including mounting screws and O-rings available.
P/N : E4M-MH

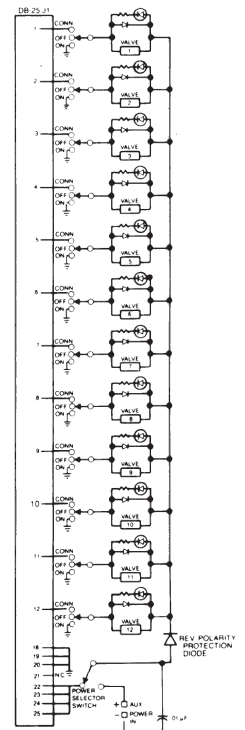
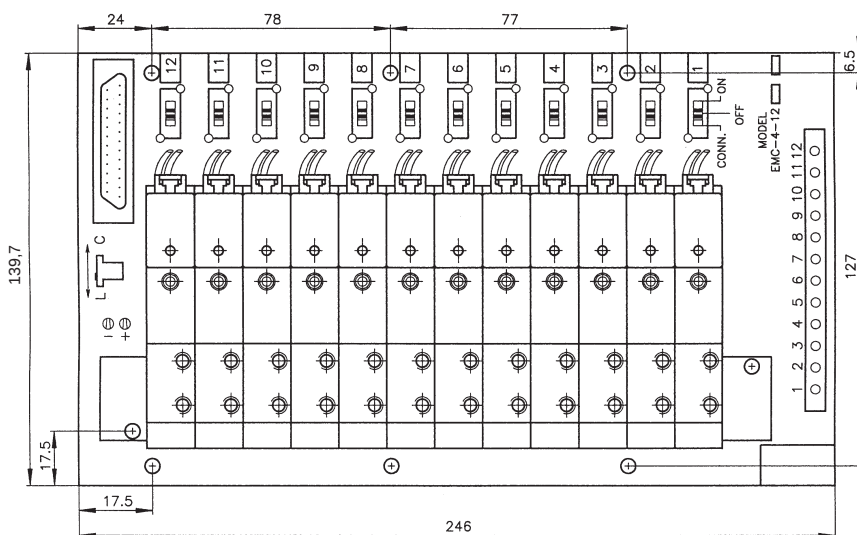


5/2-Electronic/Pneumatic E4 Valves on Manifolds Cards

EMC-4-08 for 8 Valves



EMC-4-12 for 12 valves



Miniature Valves and Components with Special Purposes





Miniature Valves and Components with Special Purposes

Pressure Regulators, Control Valves

Model	Description
MAR-1-M5	Pressure regulator, self-relieving
MAR-1C-M5	Plunger controlled pressure regulator
MAR-1NR-M5	Pressure regulator, non-relieving
MCV-2-M5	Miniature check valve M5 ("Duckbill" type)
MCV-1-...-M5	Miniature check valves M5
MJCV-1-...-MG	Check valves G1/8
MFC-3...	Flow control valves (M5, 1,6 mm and 3,2 mm hose barbs)
MNV-4...	Needle valves (M5, 1,6 mm and 3,2 mm hose barbs)
MNV-3-M5/MNV-3K-M5	Needle valves M5
MSV-1-...	Shuttle valves (M5, 1,6 mm and 3,2 mm hose barbs)
MJSV-1-MG	Shuttle valve G1/8

Special Purpose Valves, Components

Model	Description
PV-1-M5	Pulse valve
WDV-2-M5	Water drawback valve
IND-3-...-M5	Pneumatic pressure indicator
MWV-1-M5	Whisker valve

Sensing and Interface Valves and Components

Model	Description
2012-MG	3/2 - Power valve NO/NC
2012-G-MG	3/2 - Glue valve NO/NC
2010-MG	3/2 - Amplifier valve NC
2011-1-MG	3/2-Limit valve
2013-* -MG	3/2 - Electronic amplifier valve (* 6, 12, 24 VDC)
ES-1	Electrical switch
5100-3-NC / 5100-3-NO	Pneumatic/electric switches
2010-050	Mounting plate for 2012-MG/2012-G-MG/2010-MG/2011-1-MG and 2013-* -MG
15601	Terminal cover for ES-1 electrical switch

AIR 2 ELECTRIC Pilot Actuated Switches

Model	Description
AS-***	Different versions of switches
AS-01 / AS-10	switch module NC/NO
AS-**	Various types of mounting clips

Symbol Port Coding

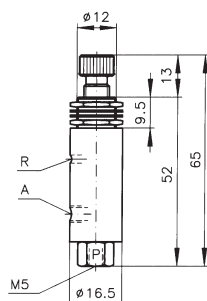
1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Notes :

- Viton, Delrin and Neoprene are registered trademarks of E.I. du Pont de Nemours & Co
- Chemraz is registered trademark of Greene, Tweed & Co, Inc.

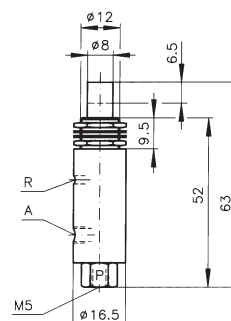
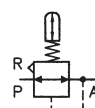
Pressure Regulators, Check Valves

Adjustable pressure regulator, self-relieving



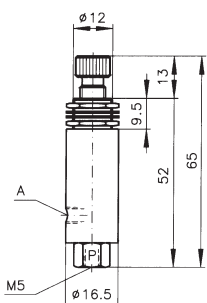
MAR-1-M5

Plunger controlled pressure regulator, piston type valve with variable pressure output



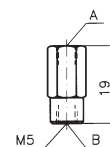
MAR-1C-M5

Adjustable pressure regulator, non-relieving



MAR-1NR-M5

Miniature check valve, «duckbill» type, low cracking pressure, flow in one direction only



MCV-2-M5

Specifications

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Valve	MAR-1-M5	MAR-1C-M5	MAR-1NR-M5	MCV-2-M5
Input pressure (bar)	0–21	0–21	0–21	Cracks at approx. 10 mbar
Regulated output pressure (bar)	0–7	0–7	0–7	–
Medium	Air, gas	Air, gas	Air, gas, hydraulic	Air, gas, hydraulic
Air flow (l/min)	120 @ 6 bar	120 @ 6 bar	120 @ 6 bar	28 @ 3,5 bar
Temperature range (°C)	0 to +110	0 to +110	0 to +110	0 to +110
Material	Body : brass; spring : stainless steel; seal : Buna N			

Options (all options shown in color are possible)

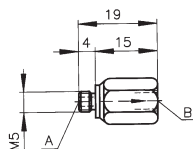
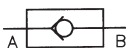
	Oxygen*	Nickel plated	Electroless NP	Viton ®	EPDM
Order reference	-OX	-NP	-ENP	-V	-E
MAR-1-M5				Upon request	Upon request
MAR-1C-M5				Upon request	Upon request
MAR-1NR-M5				Upon request	Upon request
MCV-2-M5	Standard			Upon request	Upon request

* Lubrication compatible for oxygen use, max. 6 bar and 60°C

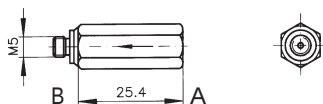
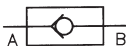
Check Valves

Miniature poppet type check valves, permit flow in one direction only

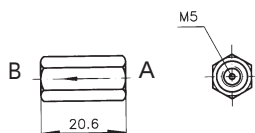
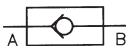
MCV-1-M5



MCV-1AB-M5

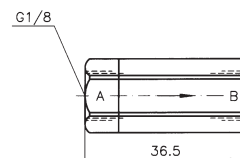
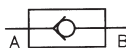


MCV-1BB-M5

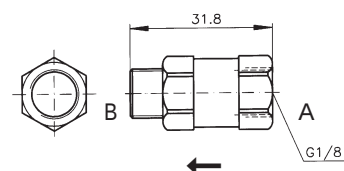


Poppet type check valves, permit flow in one direction only

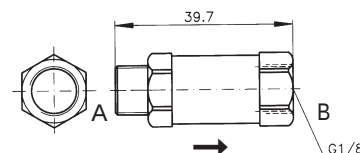
MJCV-1-MG



MJCV-1AB-MG



MJCV-1BA-MG



Specifications

Valve	MCV-1-M5, MCV-1AB-M5, MCV-1BB-M5	MJCV-1-MG, MJCV-1AB-MG, MJCV-1BA-MG
Cracking pressure/input pressure (bar)	0,035 / 21	0,07 / 21 (air) - 70 (hydraulic)
Medium	Air, gas, hydraulic	Air, gas, hydraulic
Air flow @ 6 bar (l/min)	280	580
Temperature range (°C)	0 to +110	0 to +110
Material	Body : Brass; spring : stainless steel; seals : Buna N	

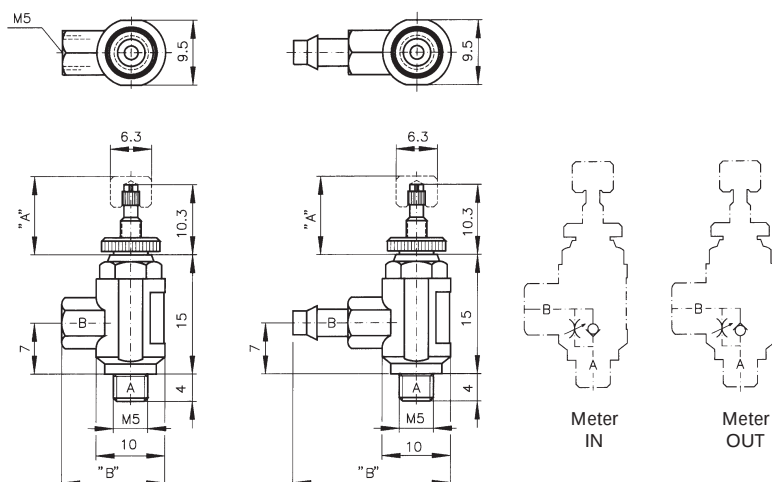
Options (all options shown in color are possible)

	Oxygen*	Nickel plated	Electroless NP	Viton ®	EPDM
Order reference	-OX	-NP	-ENP		
MCV-1**-M5	Standard			Upon request	Upon request
MJCV-1**-MG				Upon request	Upon request

* Lubrication compatible for oxygen use, max. 6 bar and 60°C

** Please refer to above models

Flow Control Valves, Needle Valves

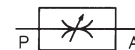


**Flow control valves MFC-3 Series,
restriction of flow in one direction**

Technical data

Valve	Regulation	Actuation	Connection	A (mm)	B (mm)
MFC-3A1	A – B (meter OUT)	Screwdriver slot	1,6 mm hose barb	10,3	19
MFC-3A2	A – B (meter OUT)	Screwdriver slot	3,2 mm hose barb	10,3	23
MFC-3A5	A – B (meter OUT)	Screwdriver slot	M5	10,3	15
MFC-3AK1	A – B (meter OUT)	Knurled knob	1,6 mm hose barb	11,1	19
MFC-3AK2	A – B (meter OUT)	Knurled knob	3,2 mm hose barb	11,1	23
MFC-3AK5	A – B (meter OUT)	Knurled knob	M5	11,1	15
MFC-3B1	B – A (meter IN)	Screwdriver slot	1,6 mm hose barb	10,3	19
MFC-3B2	B – A (meter IN)	Screwdriver slot	3,2 mm hose barb	10,3	23
MFC-3B5	B – A (meter IN)	Screwdriver slot	M5	10,3	15
MFC-3BK1	B – A (meter IN)	Knurled knob	1,6 mm hose barb	11,1	19
MFC-3BK2	B – A (meter IN)	Knurled knob	3,2 mm hose barb	11,1	23
MFC-3BK5	B – A (meter IN)	Knurled knob	M5	11,1	15

Fine adjustment needle valve MNV-4 Series, restriction of flow in both directions



Technical data

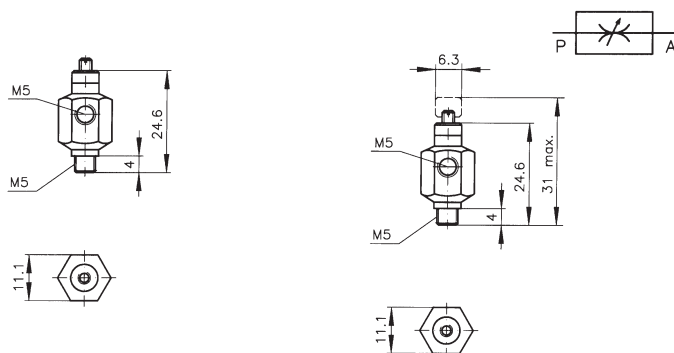
Valve	Actuation	Connection	A (mm)	B (mm)
MNV-41	Screwdriver slot	1,6 mm hose barb	10,3	19
MNV-42	Screwdriver slot	3,2 mm hose barb	10,3	23
MNV-45	Screwdriver slot	M5	10,3	15
MNV-4K1	Knurled knob	1,6 mm hose barb	11,1	19
MNV-4K2	Knurled knob	3,2 mm hose barb	11,1	23
MNV-4K5	Knurled knob	M5	11,1	15

Specifications

Valve	MFC-3 Series	MNV-4 Series
Input pressure (bar)	0 - 10	0 - 21
Medium	Air , gas	Air, gas, water or oil
Air flow @ 6 bar (l/min)	0 to 100 adjustment	0 to 100 adjustment

Needle Valves, Shuttle Valves

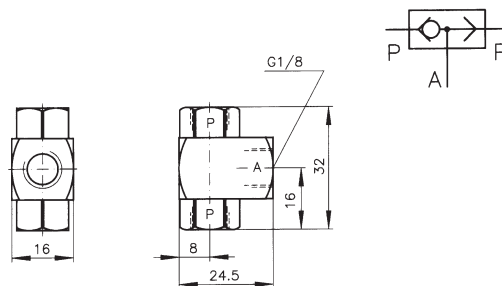
Fine adjustment needle valves, restriction of flow in both directions



MNV-3-M5

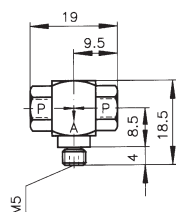
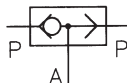
MNV-3K-M5

Shuttle valve ("OR" function)



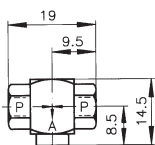
MJSV-1-MG

Shuttle valves ("OR" function)



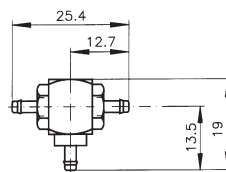
MSV-1-M5

M5 Connections



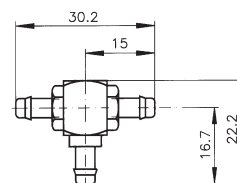
MSV-1FFF-M5

M5 Connections



MSV-1222

1,6 mm hose barb



MSV-1444

3,2 mm hose barb

Specifications

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Valve	MNV-3-M5, MNV-3K-M5	MSV-.....	MJSV-1-MG
Input pressure (bar)	0–140	0–17,5	0–21 air / 0 - 70 hyd.
Medium	Air, gas, water or oil	Air, gas, water or oil	Air, gas, water or oil
Air flow @ 6 bar (l/min)	120	230	630
Temperature range (°C)	0 to +110	0 to +110	0 to +110

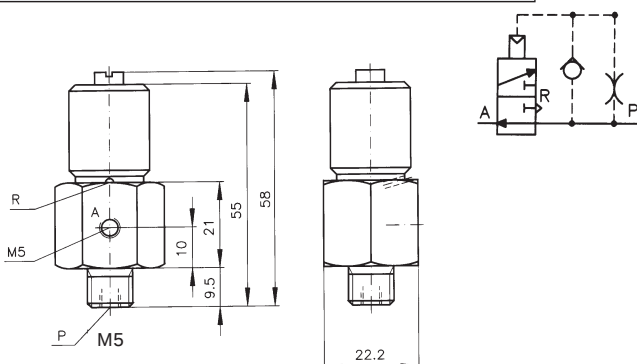
Options (all options shown in color are possible)

	Oxygen*	Nickel plated	Electroless NP	Viton ®	EPDM
Order reference	-OX	-NP	-ENP	-V	-E
MNV-3-M5, MNV-3K-M5				Upon request	Upon request
MSV-.....	Standard			Upon request	Upon request
MJSV-1-MG				Upon request	Upon request

* Lubrication compatible for oxygen use, max. 6 bar and 60°C

Special Purpose Valves / Components

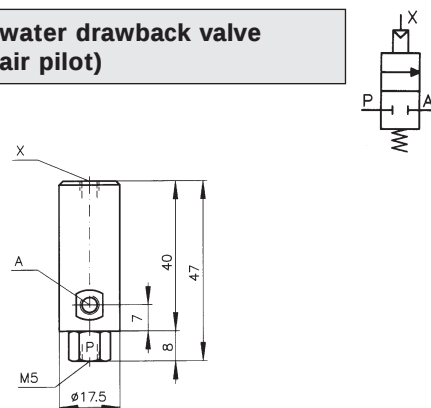
Miniature pulse valve



PV-1-M5

Converts a continuous supply of inlet air into a pulse of approximately 100ms.

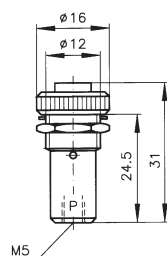
2/2-Poppet type water drawback valve normally closed (air pilot)



WDV-2-M5

Drawback of 1,2 ml at port A when valve is actuated in spring return position

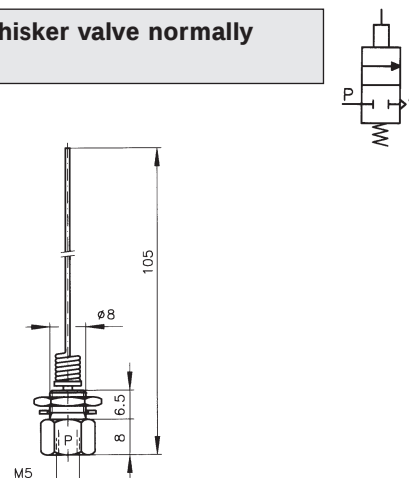
Pneumatic pressure indicator



IND-3-*-M5

* GN = Green WH = White
RD = Red YL = Yellow

2/2-Poppet type whisker valve normally closed



MWV-1-M5

Specifications

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Valve	PV-1-M5	WDV-2-M5	IND-3-*-M5	MWV-1-M5
Input pressure (bar)	0-10	0-7	1-10	0-10
Medium	Air, gas	Water, light liquids **	Air, gas	Air, gas
Temperature range (°C)	0 to +50	0 to +110	0 to +90	0 to +110
Material	Body : brass; spring : stainless steel; seal : Buna N			

** air pilot

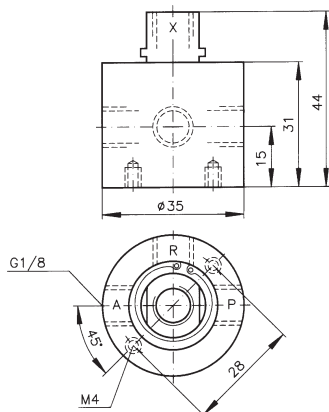
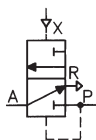
Options (all options shown in color are possible)

	Oxygen*	Nickel plated	Electroless NP	Viton ®
Order reference	-OX	-NP	-ENP	
PV-1-M5				
WDV-2-M5				
IND-3-*-M5				
MWV-1-M5				

* Lubrication compatible for oxygen use, max. 6 bar and 60°C

Sensing and Interface Valves and Components

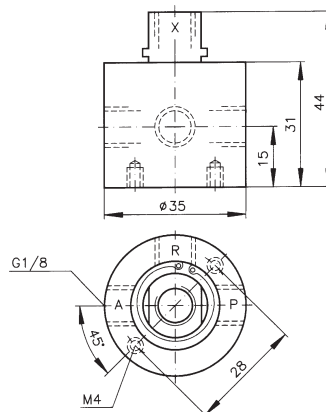
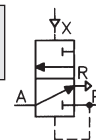
3/2-Normally open or normally closed valve, air pilot



- Minimum Control Pressure :
NO - 90% of supply pressure
NF - 60% of supply pressure
- Mounting plate P/N 2010-050

2012-MG

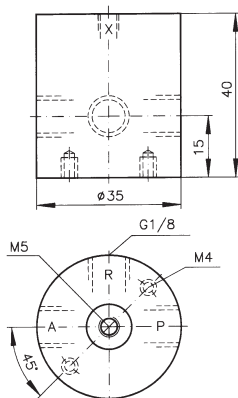
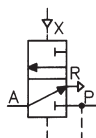
3/2-NO or NC valve for on-off controls of liquid adhesive, air pilot



- Diaphragm, seal and poppet of Silastic silicone
- Mounting plate P/N 2010-050

2012-G-MG

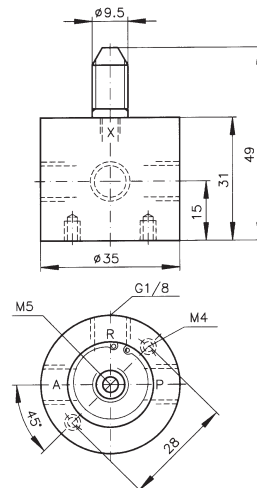
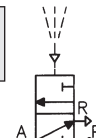
3/2-Amplifier valve - normally closed



- Air consumption : 2,8 l/min @ 7 bar
- Control pressure : min. 10mbar / max 0,35 bar
- Mounting plate P/N 2010-050

2010-MG

3/2-Bleed pressure piloted limit valve



- The blocking of the sensing port causes rapid valve opening
- Mounting plate P/N 2010-050

2011-1-MG

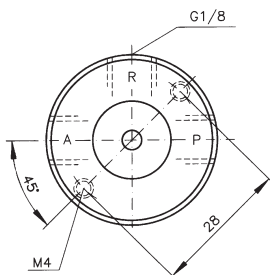
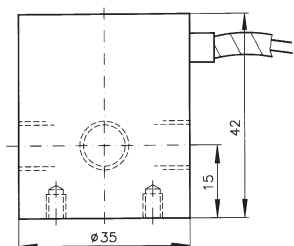
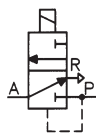
Specifications

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

Valve	2012-MG	2012-G-MG	2010-MG	2011-1-MG
Input pressure (bar)	0-7	0-7	2-7	2-7
Medium	Air, gas	Liquid adhesives	Air, gas	Air, gas
Air flow @ 6 bar (l/min)	530	530	530	530
Temperature range (°C)	0 to +80	0 to +90	0 to +80	0 to +80
Material	Housing : aluminum; seals : Buna N except 2012-G-MG : silicone			

Sensing and Interface Valves and Components

3/2-Electronic amplifier valve, normally closed

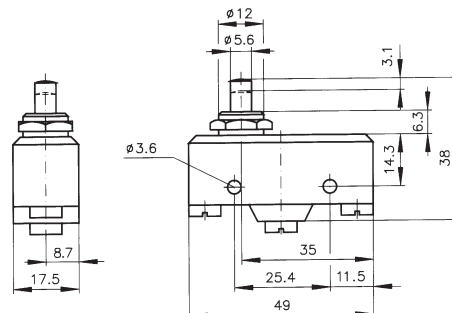
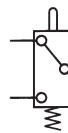


2013-*-MG

-Bleed flow : 2,8 l/min @ 7 bar
-Mounting plate P/N 2010-050

*** Voltage**

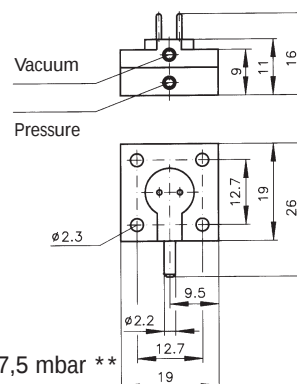
Single pole, double throw snap-action electrical switch



-Rating :120, 240, 480 VAC : 15 A
125 VDC : 0,5 A/250 VDC : 0,25 A
-Pneumatic actuation with MPA-3-M5 /
MP5-M5 / MPA-7-MG
-Terminal Cover P/N 15601

ES-1

Pneumatic/electric switch for very low pressures, vacuum or differential pressures



-Actuating pressure : 7,5 mbar **
-Switching speed : 125 Hz
** Options : actuation pressures : 1,2 to 150 mbar

5100-3-NC

Contacts normally closed

5100-3-NO

Contacts normally open

Specifications

Model	2013-*-MG	ES-1	5100-3-NC/5100-3-NO
Input pressure (bar)	2-7	-	0,5 max.
Air flow @ 6 bar (l/min)	530	-	-
Temperature range (°C)	0 to +50	0 to +80	0 to +65
Medium	Air, gas	-	Air, gas
Material	Aluminum	Plastic	Plastic case

Electrical data of 2013-*-MG

Voltage	6, 12, 24 VDC
Power consumption	0,5 W (80 mA @ 6 VDC/40 mA @ 12 VDC/20 mA @ 24 VDC)
Switching speed	10 ms
Frequency response @ 7 bar	50 Hz
Connection	Wire leads (450mm)

*** Voltage**

1 (P) : Pressure supply
4,2 (A,B) : Output signals
5,3 (R,S) : Exhausts

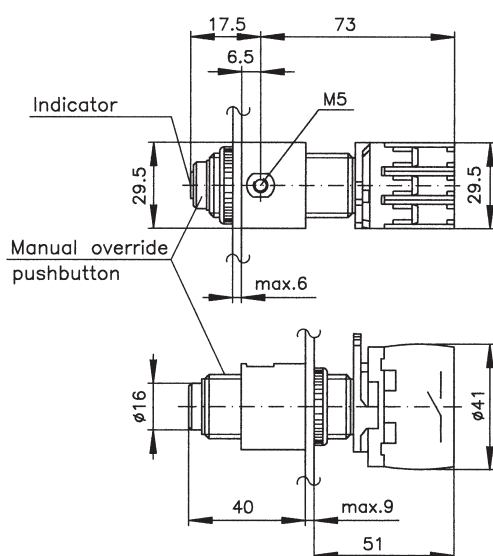
AIR 2 ELECTRIC Pilot Actuated Switches

- with manual override pushbutton
- with or without indicator

Clippard AIR 2 ELECTRIC Pilot Actuated Switches enable the convenient and safe use of pneumatics to remotely pilot electrical switches.

The AIR 2 ELECTRIC system can handle up to 12 switches. Switch modules are available in NO or NC models. A wide range of mounting configurations can be achieved with the different types of mounting clips available as shown on following page.

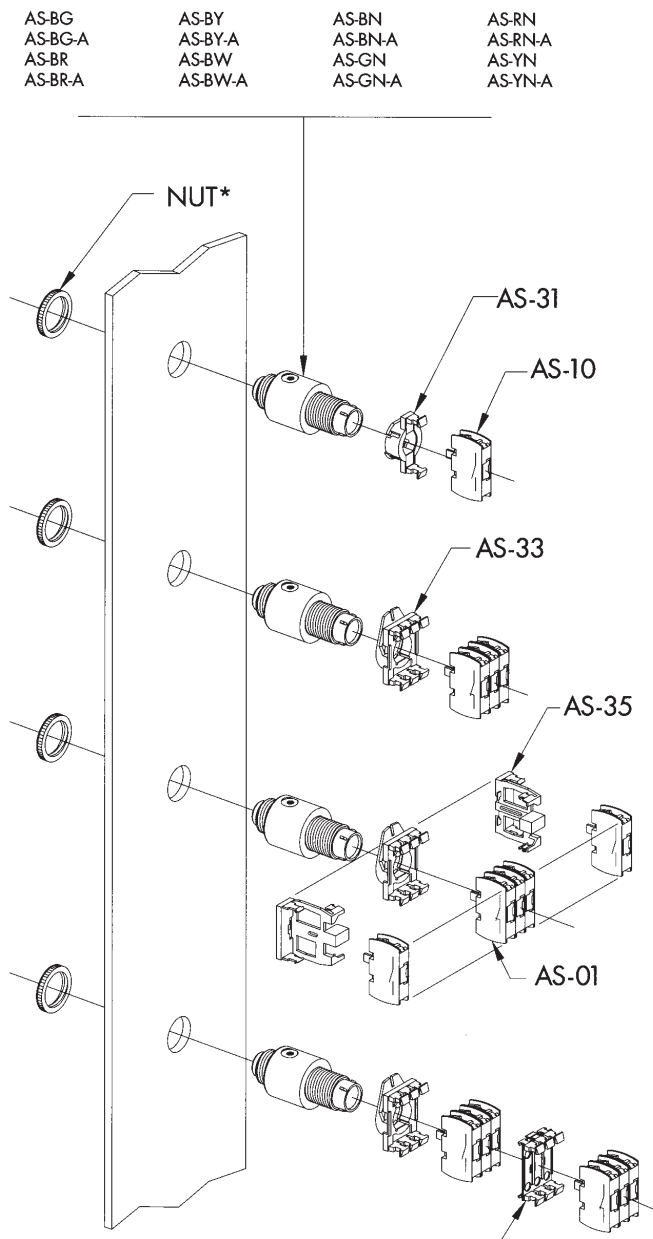
Note: Mounting nuts are provided with switches (panel mount hole 22,3 mm)



Electrical and Mechanical Specifications of Switch Modules AS-01 and AS-10

Nominal operating voltage (50 - 60 Hz)	110 VAC	220 VAC	440 VAC
Nominal operating current	8 A	6,5 A	3,5 A
Nominal operating voltage	12 VDC	24 VDC	
Nominal operating current	4 A	1,5 A	
Power	at 110 V	1-phase	0,37 kW
	at 220 V	1-phase	0,74 kW
	at 220 V / 240 V	3-phase	2,37 kW
	at 440 V / 480 V	3-phase	3,73 kW
Operating pressure (bar) : approx. 0,7 plus 0,10 per switch			
Medium	Air, gas		
Temperature range (°C)	0 to +60		
Materials	Housing : anodized aluminum & nylon; internal parts: Delrin®, stainless steel; seals : Buna-N		

AIR 2 ELECTRIC Pilot Actuated Switches



Order Numbering System

B	G	Black	Green
B	R	Black	Red
B	Y	Black	Yellow
B	W	Black	White
B	N	Black	—
G	N	Green	—
R	N	Red	—
Y	N	Yellow	—
Pushbutton color	Indicator color	Pushbutton	Indicator

AS - XXX

-	Air actuation with manual override (std)
A	Air actuation only (manual override blocked)

Switch modules

AS - XX

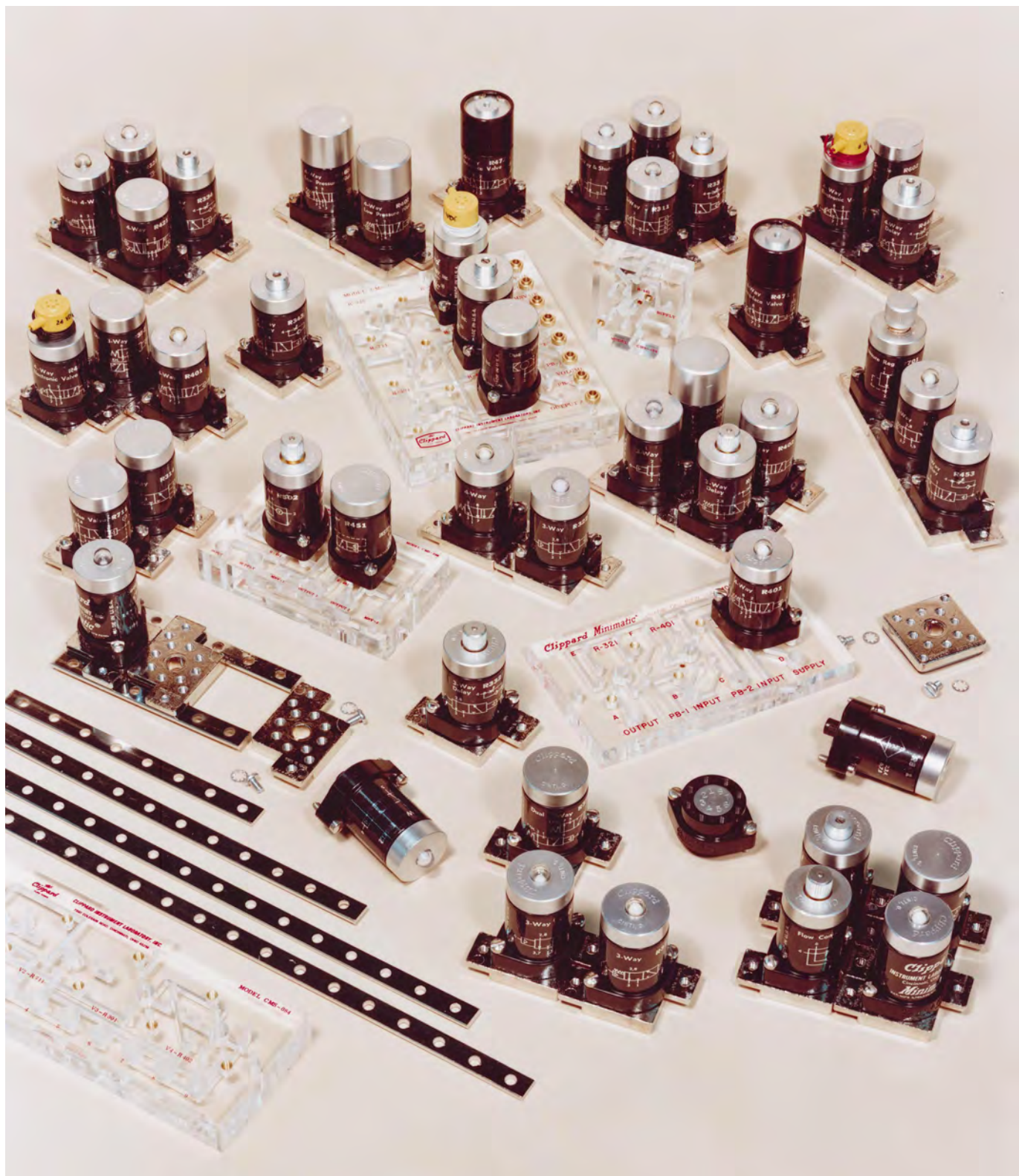
01	NC
10	NO

Mounting clips

AS - XX

31	Single clip
33	Front clip
35	Single clip
36	2nd row clip

Modular Valves and Components



Modular Valve Design

Exclusive Microgap construction for full air flow, long life and fast response

Eight air passages extend longitudinally through the body surrounding the valve cavity

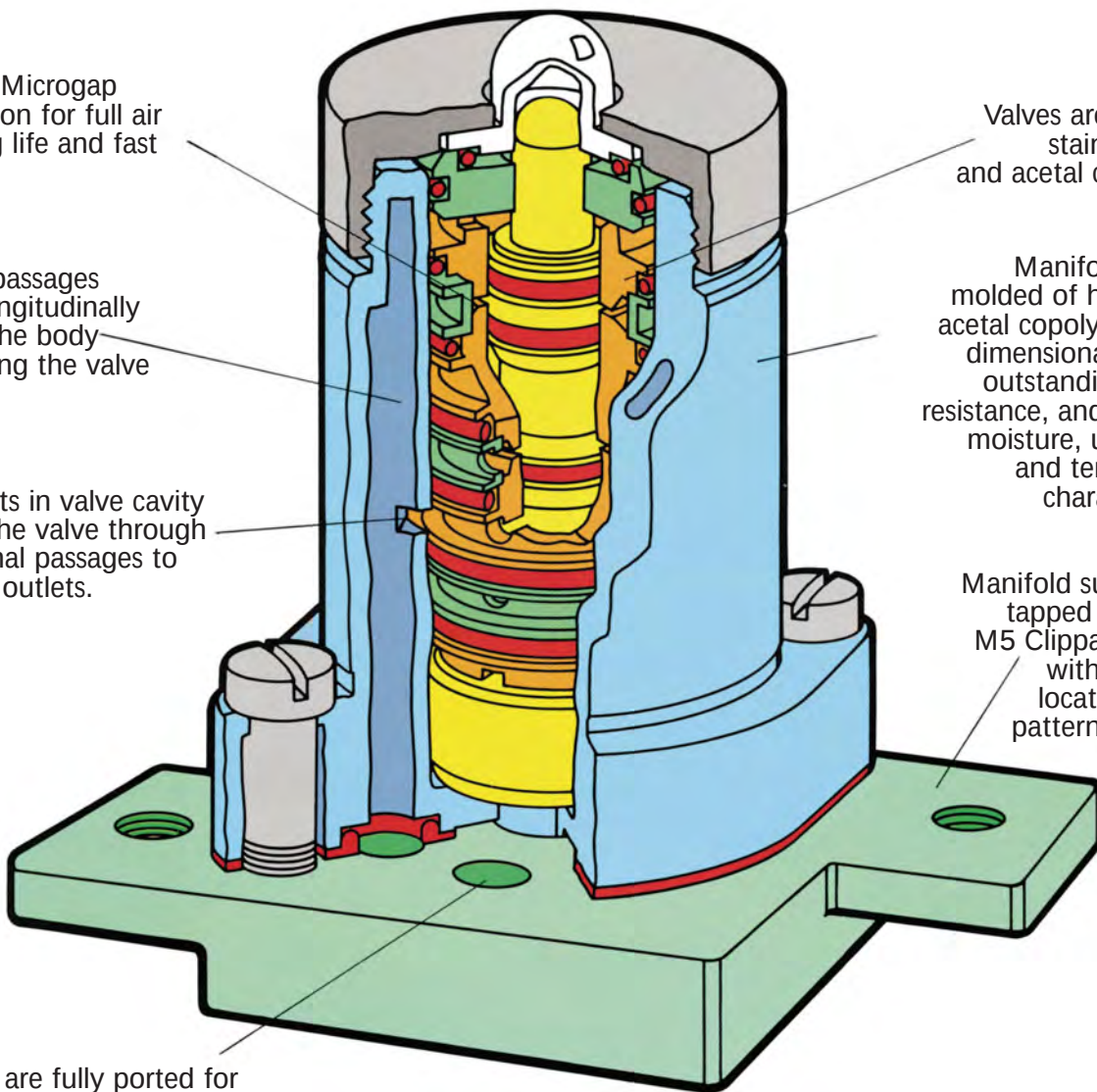
Milled slots in valve cavity connect the valve through longitudinal passages to Octoport outlets.

Valves are of brass, stainless steel, and acetal copolymer

Manifold body is molded of high density acetal copolymer. High dimensional stability, outstanding impact resistance, and excellent moisture, ultraviolet, and temperature characteristics.

Manifold sub-plate is tapped for metric M5 Clippard fittings with all piping located in neat patterns beneath modules.

All valves are fully ported for maximum versatility.





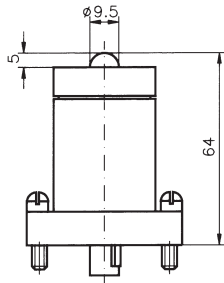
Modular Valves and Components

Subplates, Mounting Strips and Connectors	
Model	Description
R-101-M5 / R-111-M5	Subplates
R-102-*	Mounting strips for subplates (* 1 to 8 modules)
R-104	Molded gasket
R-811	Octoport connector
3/2 - Modular Valves	
Model	Description
R-301	3/2 - Piloted valve, spring return
R-302	3/2 - Double piloted valve
R-305	3/2 - Low pressure piloted valve
R-310	3/2 - Valve with a special air retracted spring
R-311	3/2 - Spring return valve with four pilots
R-312	3/2 - Piloted valve with four pilots on one position
R-314	3/2 - Multiple pilot valve
R-321	3/2 - Spring return valve with one interconnected shuttle valve in one pilot line
R-322	3/2 - Double piloted valve with one interconnected shuttle valve in one pilot line
R-323	3/2 - Piloted valve, spring return with an independent shuttle valve in the same body
R-324	3/2 - Double piloted valve, with an independent shuttle valve in the same body
R-325	3/2 - Low pressure piloted valve, spring return with an interconnected shuttle valve
R-331 / R-333	3/2 - Delay valves ("IN" function), spring return
R-332 / R-334	3/2 - Double piloted delay valves ("IN" function)
R-341 / R-343	3/2 - Delay valves ("OUT" function), spring return
R-351	Combination of 2 independent 3/2 - valves NC, spring return
R-352	Combination of 2 independent 3/2 - valves NC, spring return with a common inlet
R-353	Combination of two 3/2 - valves NC forming a 3-input "AND" subcircuit
R-355	Combination of 2 independent 3/2 - valves NO, spring return
5/2 - Modular Valves	
Model	Description
R-401	5/2 - Pilot operated valve, spring return
R-402	5/2 - Double piloted valve
R-405	5/2 - Low pressure piloted valve, spring return
R-410 / R-412	5/2 - Valves with a special air-retracted spring (reset function)
R-432	5/2 - Double piloted valve
R-443	5/2 - Delay valve ("OUT" function), spring return
R-451	5/2 - Special valve to work with the R-402 to provide a single input flip-flop
R-453	5/2 - Delay valve ("IN" function), spring return
R-481-*	5/2 - Electronic/pneumatic valve, spring return (* 6, 12, 24 VDC)
5/3 - Modular Valve	
Model	Description
R-421	5/3 - Spring centered valve. Center NC
Modular Valves with Special Functions	
Model	Description
R-602	Combination of two independent shuttle valves
R-603	Combination of two interconnected shuttle valves (3-input "OR" function)
R-701	Self-relieving pressure regulator

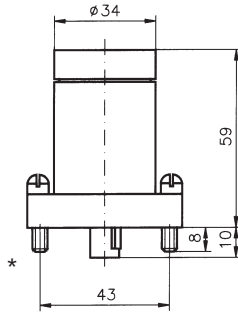
Notes :

- Viton, Delrin and Neoprene are registered trademarks of E.I. du Pont de Nemours & Co
- Chemraz is registered trademark of Greene, Tweed & Co, Inc.

Manifold Module Dimensions

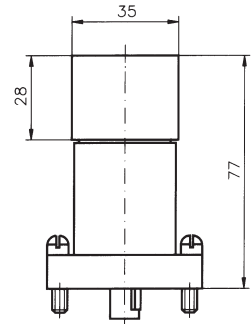


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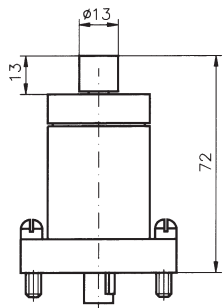


*10-32 fits into M5

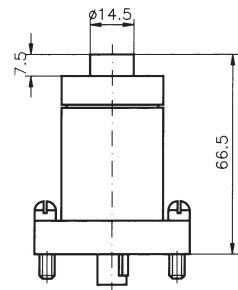
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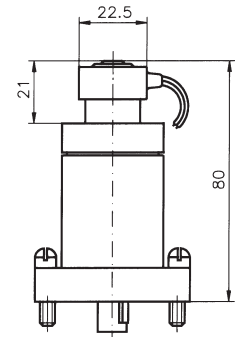
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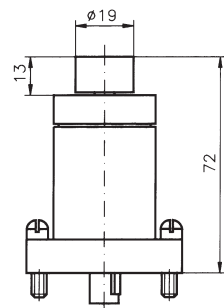
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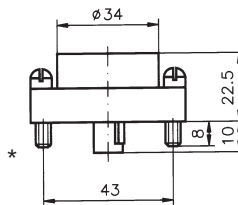
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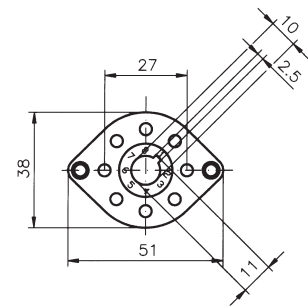


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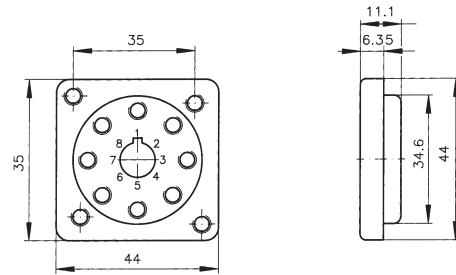
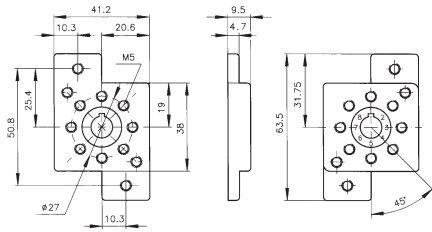
*10-32 fits into M5

8



Bottom view

Subplates



R-101-M5

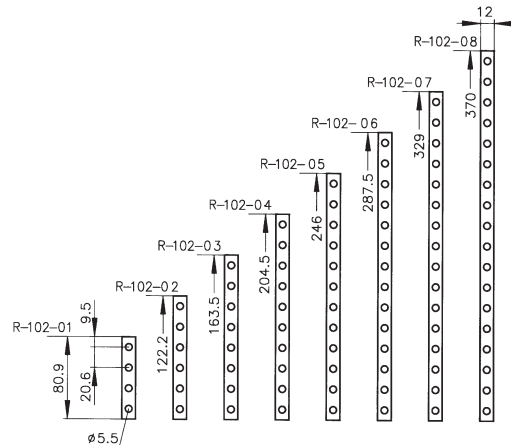
Molded gasket P/N R-104 furnished with each module

R-111-M5

Molded gasket P/N R-104 furnished with each module

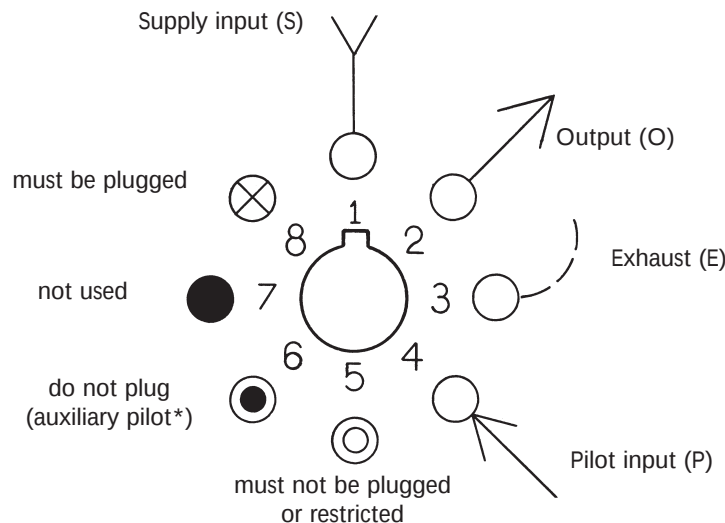
Mounting strips for subplates

R-102-*



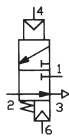
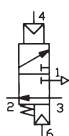
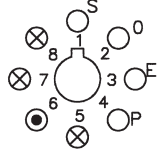
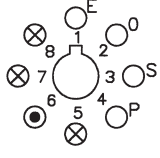
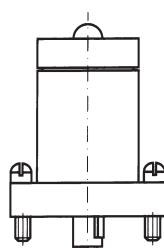
*Number of modules

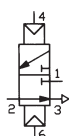
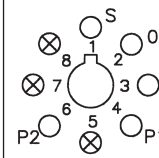
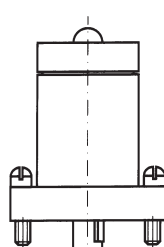
Octoport Port Coding

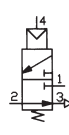
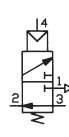
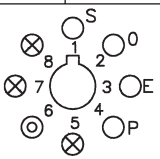
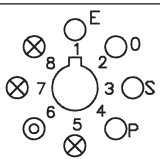
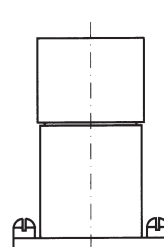


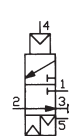
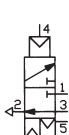
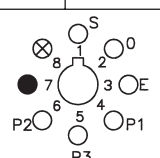
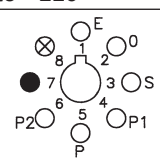
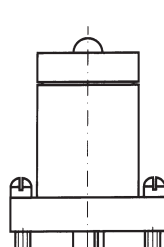
* The auxiliary pilot consists of an air pilot in addition to the standard spring pilot and may be used to cancel the force of the opposite pilot.

Modular Valves

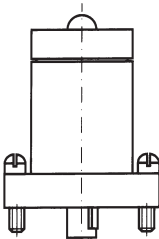
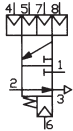
R-301		3/2-Piloted valve, spring return, can be used NC, NO, as a diverter or as a selector	
	NC	Working range (bar)	0 to 10
		Pilot pressure (bar)	min. 2,8
		Air flow @ 6 bar (l/min)	240
		Response time (ms)	10
		Temperature range (°C)	0 to +110
	NO	Note: - Can also be used as a 2/2 - valve by plugging the exhaust port	
		 R-301 NC	 R-301 NO
		 Drawing nr. 1 page 4-5	

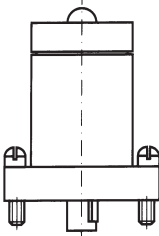
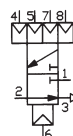
R-302		3/2-Double piloted valve, can be used NC, NO, as a 2 position diverter or 2-position selector	
		Working range (bar)	0 to 10
		Pilot pressure (bar)	min. 1,4
		Air flow @ 6 bar (l/min)	240
		Response time (ms)	10
		Temperature range (°C)	0 to +110
		Note: - Can also be used as a 2/2 - valve by plugging the exhaust port	
		 R-302	
		 Drawing nr. 1 page 4-5	

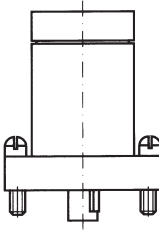
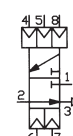
R-305		3/2-Low pressure piloted valve, spring return, can be used as NC, NO, as a diverter or as a selector	
	NC	Working range (bar)	0 to 10
		Pilot pressure (bar)	min. 0,7
		Air flow @ 6 bar (l/min)	240
		Response time (ms)	10
		Temperature range (°C)	0 to +110
	NO	Notes: - Can also be used as a 2/2 - valve by plugging the exhaust port - Replaces an R-301 where a lower pilot actuation pressure is desired	
		 R-305 NC	 R-305 NO
		 Drawing nr. 3 page 4-5	

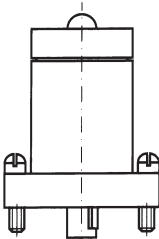
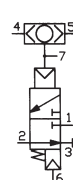
R-310		3/2-Valve with a special air retracted spring return that will return the valve to a definite position when no signal at ports 5 and 4	
	NC	Working range (bar)	0 to 10
		Pilot pressure against spring/spring retracted (bar)	2,8 / 1,4
		Air flow @ 6 bar (l/min)	240
		Response time (ms)	10
		Temperature range (°C)	0 to +110
	NO	Notes: - This «reset» feature may be used in circuits in the events of loss of air pressure - Port 5 not piloted: valve acts as an R-301 and port 6 acts as auxiliary pilot - Port 5 actuated: valve acts as an R-302	
		 R-310 NC	 R-310 NO
		 Drawing nr. 3 page 4-5	

Modular Valves

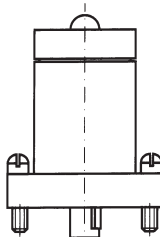
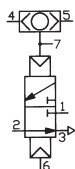
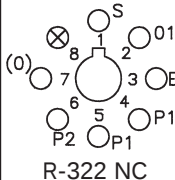
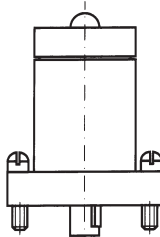
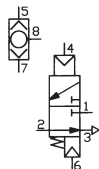
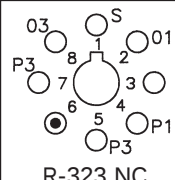
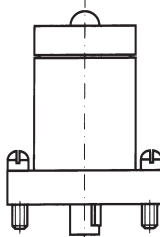
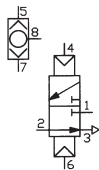
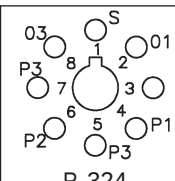
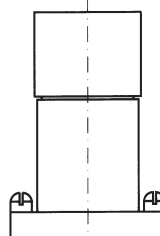
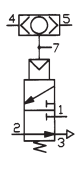
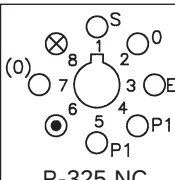
R-311	3/2-Spring return valve with four pilots. It can be used NC, NO, as a diverter or as a selector											
 NC	<table><tr><td>Working range (bar)</td><td>0 to 10</td></tr><tr><td>Pilot pressure (bar)</td><td>min. 2,8</td></tr><tr><td>Air flow @ 6 bar (l/min)</td><td>240</td></tr><tr><td>Response time (ms)</td><td>10</td></tr><tr><td>Temperature range (°C)</td><td>0 to +110</td></tr></table> Notes: - Any one of the four pilots will actuate the valve. Actuating more than one pilot has no additional effect («OR» function) - Pilot signals must be absent at all pilots to release the valve - The auxiliary pilot will overcome any one of all the four input pilots	Working range (bar)		0 to 10	Pilot pressure (bar)	min. 2,8	Air flow @ 6 bar (l/min)	240	Response time (ms)	10	Temperature range (°C)	0 to +110
Working range (bar)	0 to 10											
Pilot pressure (bar)	min. 2,8											
Air flow @ 6 bar (l/min)	240											
Response time (ms)	10											
Temperature range (°C)	0 to +110											
Drawing nr. 1 page 4-5												

R-312	3/2-Piloted valve with four pilots on one position. It can be used NC, NO, as a diverter or a selector											
	<table><tr><td>Working range (bar)</td><td>0 to 10</td></tr><tr><td>Pilot pressure (bar)</td><td>min. 1,4</td></tr><tr><td>Air flow @ 6 bar (l/min)</td><td>240</td></tr><tr><td>Response time (ms)</td><td>10</td></tr><tr><td>Temperature range (°C)</td><td>0 to +110</td></tr></table> Notes: - Any one of the four pilots will actuate the valve. Actuating more than one pilot has no additional effect («OR» function) - Pilot signals must be absent at all pilots to release the valve	Working range (bar)		0 to 10	Pilot pressure (bar)	min. 1,4	Air flow @ 6 bar (l/min)	240	Response time (ms)	10	Temperature range (°C)	0 to +110
Working range (bar)	0 to 10											
Pilot pressure (bar)	min. 1,4											
Air flow @ 6 bar (l/min)	240											
Response time (ms)	10											
Temperature range (°C)	0 to +110											
Drawing nr. 1 page 4-5												

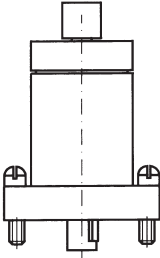
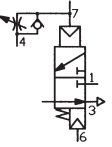
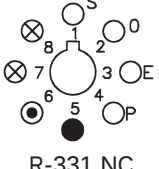
R-314	3/2-Multiple pilot valve, three pilots on one side and two pilots on the other side. It can be used NC, NO, as a diverter or a selector											
	<table><tr><td>Working range (bar)</td><td>0 to 10</td></tr><tr><td>Pilot pressure (bar)</td><td>min. 1,4</td></tr><tr><td>Air flow @ 6 bar (l/min)</td><td>240</td></tr><tr><td>Response time (ms)</td><td>10</td></tr><tr><td>Temperature range (°C)</td><td>0 to +110</td></tr></table> Notes: -Actuating more than one pilot on the same side has no additional effect -Pilot signals must be absent from all pilots (on the same side) before an opposite pilot will shift the valve	Working range (bar)		0 to 10	Pilot pressure (bar)	min. 1,4	Air flow @ 6 bar (l/min)	240	Response time (ms)	10	Temperature range (°C)	0 to +110
Working range (bar)	0 to 10											
Pilot pressure (bar)	min. 1,4											
Air flow @ 6 bar (l/min)	240											
Response time (ms)	10											
Temperature range (°C)	0 to +110											
Drawing nr. 2 page 4-5												

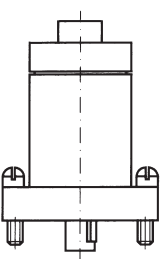
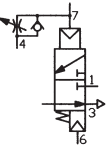
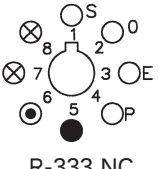
R-321	3/2-Spring return valve with an interconnected shuttle valve in one pilot line to provide 2 inputs to the pilot («OR» function)											
	<table><tr><td>Working range (bar)</td><td>0 to 10</td></tr><tr><td>Pilot pressure (bar)</td><td>min. 2,8</td></tr><tr><td>Air flow @ 6 bar (l/min)</td><td>240</td></tr><tr><td>Response time (ms)</td><td>10</td></tr><tr><td>Temperature range (°C)</td><td>0 to +110</td></tr></table> Notes: -Can be used NO, NC, as a diverter or as a selector -Port 7 should be plugged if not used	Working range (bar)		0 to 10	Pilot pressure (bar)	min. 2,8	Air flow @ 6 bar (l/min)	240	Response time (ms)	10	Temperature range (°C)	0 to +110
Working range (bar)	0 to 10											
Pilot pressure (bar)	min. 2,8											
Air flow @ 6 bar (l/min)	240											
Response time (ms)	10											
Temperature range (°C)	0 to +110											
Drawing nr. 1 page 4-5												

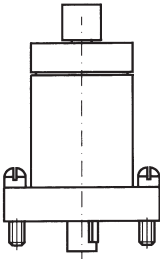
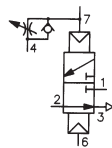
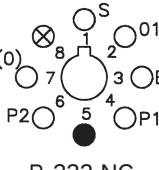
Modular Valves

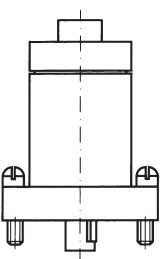
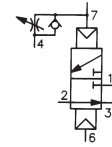
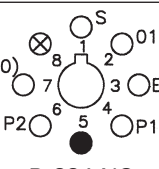
R-322	3/2-Double piloted valve with an interconnected shuttle valve in one pilot line to provide 2 inputs to the pilot («OR» function)		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 1,4	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
Notes: - Can be used NO, NC, as a diverter or as a selector -Port 7 should be plugged if not used		 R-322 NC	Drawing nr. 1 page 4-5
R-323	3/2-Piloted valve, spring return, with an independent shuttle valve in the same body. Both valves may be used independently in a circuit		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 2,8	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
Notes: - Can be used as NO, NC, as a diverter or as a selector -R-323 features an auxiliary pilot on the spring side of the valve		 R-323 NC	Drawing nr. 1 page 4-5
R-324	3/2-Double piloted valve, with an independent shuttle valve in the same body. Both valves may be used independently in a circuit		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 1,4	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
Note: - Can be used NO, NC, as a diverter or as a selector		 R-324	Drawing nr. 1 page 4-35
R-325	3/2-Low pressure piloted valve, spring return, with an interconnected shuttle valve to provide two inputs to the low pressure pilot		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 0,7	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
Notes: - Can be used NO, NC, as a diverter or as a selector -May be used in place of an R-321 where a lower pilot pressure is desired -Port 7 should be plugged if not used		 R-325 NC	Drawing nr. 3 page 4-5

Modular Valves

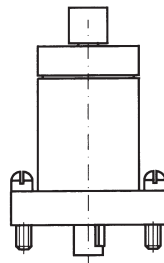
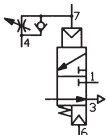
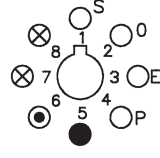
R-331	3/2-Delay valve («IN» function), spring return, with an adjustable flow control in the pilot line		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 2,8	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
	Notes: -Input signal at port 4 adjusted by the flow control will delay actuation of the valve -Timing range: 0-15s - volume can be added at port 7 for longer time delay. Port 7 to be plugged if not used -Knurled knob adjustment -Can be used NO, NC, as a diverter or as a selector		Drawing nr. 4 page 4-5

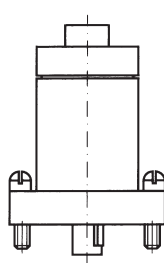
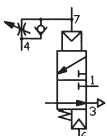
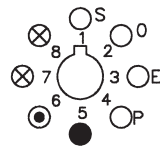
R-333	3/2-Delay valve («IN» function), spring return, with an adjustable flow control in the pilot line		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 2,8	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
	Notes: -Input signal at port 4 adjusted by the flow control will delay actuation of the valve -Timing range: 0-15s - volume can be added at port 7 for longer time delay. Port 7 to be plugged if not used -Screwdriver slot needle adjustment -Can be used NO, NC, as a diverter or as a selector		Drawing nr. 5 page 4-5

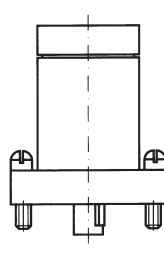
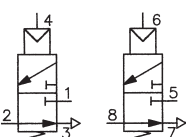
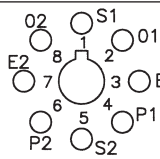
R-332	3/2-Double piloted delay valve («IN» function) with an adjustable flow control in one pilot line. Input signal at port 4 adjusted by the flow control with delay actuation of the valve		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 1,4	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
	Notes: -Knurled knob adjustment -Timing range: 0-8s - volume can be added at port 7 for longer time delay. Port 7 to be plugged if not used -Can be used NO, NC, as a diverter or as a selector		Drawing nr. 4 page 4-5

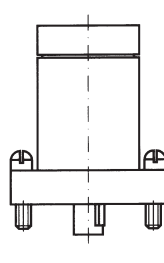
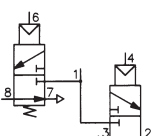
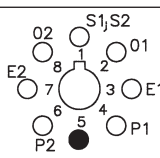
R-334	3/2-Double piloted delay valve («IN» function) with an adjustable flow control in one pilot line. Input signal at port 4 adjusted by the flow control with delay actuation of the valve		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 1,4	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
	Notes: -Screwdriver slot needle adjustment -Timing range: 0-8s - volume can be added at port 7 for longer time delay. Port 7 to be plugged if not used -Can be used NO, NC, as a diverter or as a selector		Drawing nr. 5 page 4-5

Modular Valves

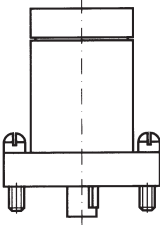
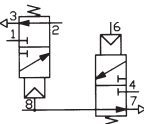
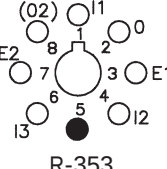
R-341	3/2-Delay valve («OUT» function), spring return, with an adjustable flow control in the pilot line		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 2,8	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
	Notes: -Input signal at port 4 actuates the valve immediately and remains until the pilot pressure decays through the flow control -Timing range: 0-15s - volume can be added at port 7 for longer time delay. Port 7 to be plugged if not used -Knurled knob adjustment		Drawing nr. 4 page 4-5

R-343	3/2-Delay valve (3«OUT» function), spring return, with an adjustable flow control in the pilot line		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 2,8	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
	Notes: -Input signal at port 4 actuates the valve immediately and remains until the pilot pressure decays through the flow control -Timing range: 0-15s - volume can be added at port 7 for longer time delay. Port 7 to be plugged if not used -Screwdriver slot needle adjustment		Drawing nr. 5 page 4-5

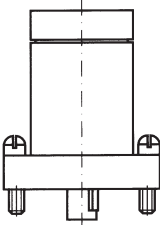
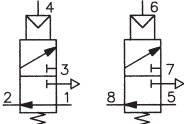
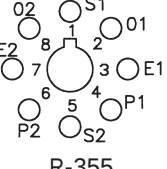
R-351	Dual element combination consisting of 2 independent 3/2 - valves normally CLOSED, spring return		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 2,8	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
	Note: - Ports 3 and 7 are exhausts to atmosphere and should not be restricted		Drawing nr. 2 page 4-5

R-352	Dual element combination consisting of 2 independent 3/2 - valves normally CLOSED, spring return, with a common inlet		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 2,8	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
	Note: - Ports 3 and 7 are exhausts to atmosphere and should not be restricted		Drawing nr. 2 page 4-5

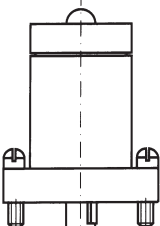
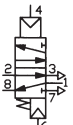
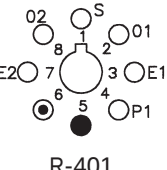
Modular Valves

R-353	Dual element combination consisting of two 3/2 - valves normally CLOSED interconnected to form a 3-input «AND» subcircuit		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 2,8	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
	Notes: -Ports 3 and 7 are exhausts to atmosphere and should not be restricted -Ports 1, 4 and 6 are inputs -Port 2 is output -Port 8 is auxiliary output and should be plugged if not used		

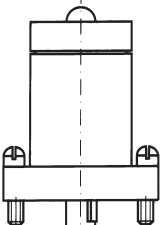
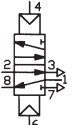
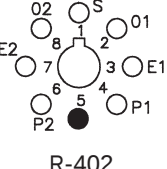
Drawing nr. 2
page 4-5

R-355	Dual element combination consisting of 2 independent 3/2 - valves normally OPEN, spring return		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 2,8	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
	Note: -Ports 3 and 7 are exhausts to atmosphere and should not be restricted		

Drawing nr. 2
page 4-5

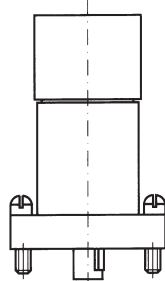
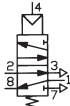
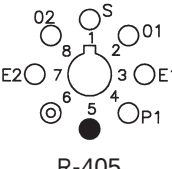
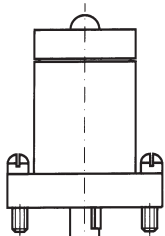
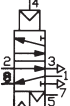
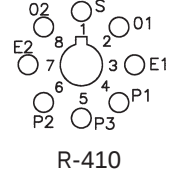
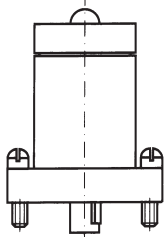
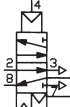
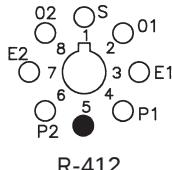
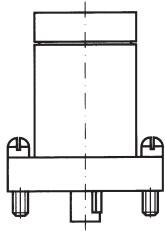
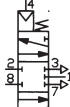
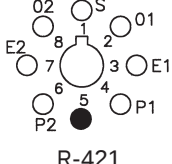
R-401	5/2-Pilot operated valve, spring return. It can be used with 1 input, 2 outputs and 2 exhausts or with 2 independent inputs, 2 outputs and a common exhaust		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 2,8	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
	Notes: -Can perform 2/2, 3/2, 4/2, 5/2 functions -Balanced design allows speed control at exhausts		

Drawing nr. 1
page 4-5

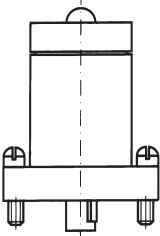
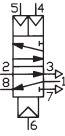
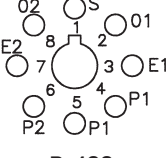
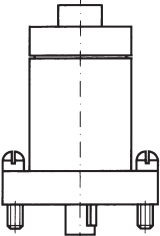
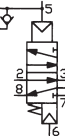
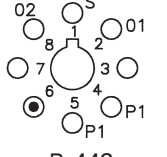
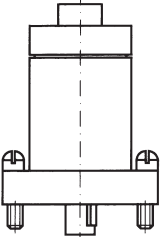
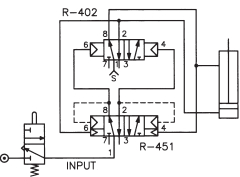
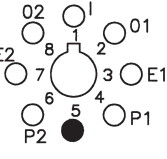
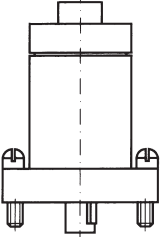
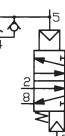
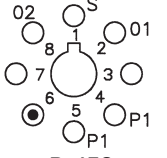
R-402	5/2-Double piloted valve. It can be used with 1 input, 2 outputs and 2 exhausts or with 2 independent inputs, 2 outputs and a common exhaust		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 1,4	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
	Notes: -Can perform 2/2, 3/2, 4/2, 5/2 functions -Balanced design allows speed control at exhausts		

Drawing nr. 1
page 4-5

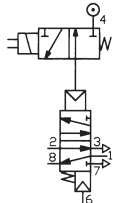
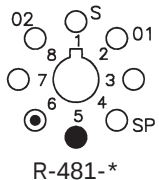
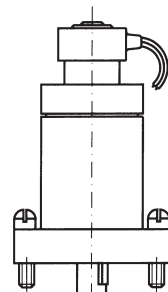
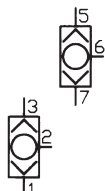
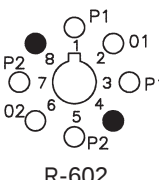
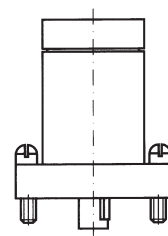
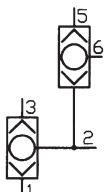
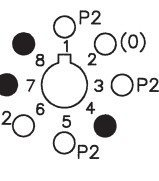
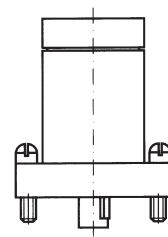
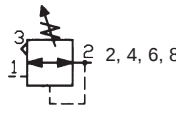
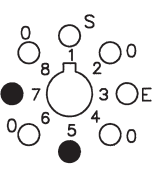
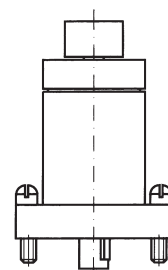
Modular Valves

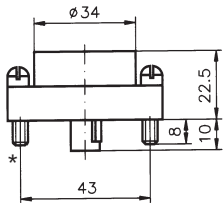
R-405	5/2-Low pressure piloted valve, spring return. It can be used with 1 input, 2 outputs and 2 exhausts or with 2 independent inputs, 2 outputs and a common exhaust		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min. 0,7	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
Notes: -Can perform 2/2, 3/2, 4/2, 5/2 function -Balanced design allows speed control at exhausts -Replaces an R-401 where a lower pilot actuation pressure is desired		 R-405	
R-410	5/2-Valve with a special air-retracted spring return that will return the valve to a definite position when no signal at port 5 and 4		
	Working range (bar)	0 to 10	
	Pilot pressure against spring / spring retracted (bar)	2,8 / 1,4	
	Air flow @ 6 bar (l/min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
Notes: -This «reset» feature may be used in circuits in the event of loss of air pressure -Port 5 not piloted: valve acts as an R-401 and port 6 acts as auxiliary pilot -Port 5 actuated: valve acts as an R-402		 R-410	
R-412	5/2-Valve with a special air-retracted spring that will return the valve to a definite position when the input air is off.		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min 1,4	
	Air flow @ 6 bar (l./min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
Notes: -When there is pressure at port 1, the valve functions as an R-402 - Ideal when definite starting position is required after air pressure failure.		 R-412	
R-421	5/3-Spring centered valve. In the center position all ports are blocked		
	Working range (bar)	0 to 10	
	Pilot pressure (bar)	min 2,8	
	Air flow @ 6 bar (l./min)	240	
	Response time (ms)	10	
	Temperature range (°C)	0 to +110	
Note: -Balanced design allows speed control at exhausts		 R-421	

Modular Valves

R-432	5/2-Double piloted valve		 Drawing nr. 1 page 4-5
	Working range (bar) 0 to 10 Pilot pressure (bar) min. 1,4 Air flow @ 6 bar (l/min) 240 Response time (ms) 10 Temperature range (°C) 0 to +110		
	Note: -Dual pilots eliminate shuttle valve	 R-432	
R-443	5/2-Delay valve («OUT» function), spring return, with an adjustable flow control interconnected to the pilot		 Drawing nr. 5 page 4-5
	Working range (bar) 0 to 10 Pilot pressure (bar) min. 2,8 Air flow @ 6 bar (l/min) 240 Response time (ms) 10 Temperature range (°C) 0 to +110		
	Notes: -Input signal at port 4 actuates the valve immediately and remains until the pilot pressure decays through the flow control -Port 5 must be plugged if not used -Should be used with separate volume because delay very slow -Screwdriver slot needle adjustment	 R-443	
R-451	Special purpose 5/2 - valve designed to work with the R-402 to provide a single input flip-flop (binary sub-circuit)		 Drawing nr. 2 page 4-5
	Working range (bar) 0 to 10 Pilot pressure (bar) min. 2,8 Air flow @ 6 bar (l/min) 240 Response time (ms) 10 Temperature range (°C) 0 to +110		
	 Binary redirect circuit	 R-451	
R-453	5/2-Delay valve («IN» function), spring return, with an adjustable flow control valve interconnected to the pilot		 Drawing nr. 5 page 4-5
	Working range (bar) 0 to 10 Pilot pressure (bar) min. 2,8 Air flow @ 6 bar (l/min) 240 Response time (ms) 10 Temperature range (°C) 0 to +110		
	Notes: -Input signal at port 4 adjusted by the flow control will delay actuation of the valve -Port 5 must be plugged if not used -Should be used with separate volume because delay very slow -Screwdriver slot needle adjustment	 R-453	

Modular Valves

R-481-* *-6 6VDC -12 12VDC -24 24VDC 	5/2-Electronic/pneumatic valve, spring return. <table><tr><td>Working range (bar)</td><td>0-10</td></tr><tr><td>Pilot pressure at port 4 / at port 6 (bar)</td><td>3,2 / 1,4</td></tr><tr><td>Air flow @ 6 bar (l./min)</td><td>240</td></tr><tr><td>Response time (ms)</td><td>10</td></tr><tr><td>Temperature range (°C)</td><td>0 to +80</td></tr></table> Notes: -This valve is essentially a combination of the R-401 valve and the ET-3 electronic/pneumatic valve -Low power consumption: 0,65 W -Provides interface between electronics and pneumatics 	Working range (bar)	0-10	Pilot pressure at port 4 / at port 6 (bar)	3,2 / 1,4	Air flow @ 6 bar (l./min)	240	Response time (ms)	10	Temperature range (°C)	0 to +80	 Drawing nr. 6 page 4-5
Working range (bar)	0-10											
Pilot pressure at port 4 / at port 6 (bar)	3,2 / 1,4											
Air flow @ 6 bar (l./min)	240											
Response time (ms)	10											
Temperature range (°C)	0 to +80											
R-602 	Combination of two completely independent shuttle valves <table><tr><td>Working range (bar)</td><td>0,35 to max. 10</td></tr><tr><td>Air flow @ 6 bar (l/min)</td><td>240</td></tr><tr><td>Response time (ms)</td><td>10</td></tr><tr><td>Temperature range (°C)</td><td>0 to +110</td></tr></table> Note: -Bubbletight - high and low pressure seals 	Working range (bar)	0,35 to max. 10	Air flow @ 6 bar (l/min)	240	Response time (ms)	10	Temperature range (°C)	0 to +110	 Drawing nr. 2 page 4-5		
Working range (bar)	0,35 to max. 10											
Air flow @ 6 bar (l/min)	240											
Response time (ms)	10											
Temperature range (°C)	0 to +110											
R-603 	Combination of two shuttle valves interconnected into a subcircuit. It provides a 3-input «OR» function <table><tr><td>Working range (bar)</td><td>0,35 to max. 10</td></tr><tr><td>Air flow @ 6 bar (l/min)</td><td>240</td></tr><tr><td>Response time (ms)</td><td>10</td></tr><tr><td>Temperature range (°C)</td><td>0 to +110</td></tr></table> Note: -Port 2 available as an auxiliary, must be plugged if not used 	Working range (bar)	0,35 to max. 10	Air flow @ 6 bar (l/min)	240	Response time (ms)	10	Temperature range (°C)	0 to +110	 Drawing nr. 2 page 4-5		
Working range (bar)	0,35 to max. 10											
Air flow @ 6 bar (l/min)	240											
Response time (ms)	10											
Temperature range (°C)	0 to +110											
R-701 	Self-relieving, adjustable pressure regulator with multiple output ports <table><tr><td>Working range (bar)</td><td>max. 10</td></tr><tr><td>Air flow @ 6 bar (l./min)</td><td>240</td></tr><tr><td>Adjustment</td><td>knurled knob</td></tr><tr><td>Temperature range (°C)</td><td>0 to +110</td></tr></table> Note: -Pressure can be piped directly from ports 2, 4, 6 and 8. Unused output ports should be plugged 	Working range (bar)	max. 10	Air flow @ 6 bar (l./min)	240	Adjustment	knurled knob	Temperature range (°C)	0 to +110	 Drawing nr. 7 page 4-5		
Working range (bar)	max. 10											
Air flow @ 6 bar (l./min)	240											
Adjustment	knurled knob											
Temperature range (°C)	0 to +110											

R-811	Octoport connector providing rapid and accurate connection of up to 8 hoses	
		 * 10-32 fits into M5 Drawing nr. 8 page 4-5

Fittings, Hoses and Accessories





Fittings, Hoses and Accessories

Fittings, Gaskets and Accessories	
Model	Description
11749-1	Sub-miniature in line coupling M2,5
11749-2	Sub-miniature "T" coupling M2,5
11749-3	Sub-miniature "X" coupling M2,5
11750-2	Sub-miniature fitting M2,5 for 1,6 mm ID hose
11752-2-M5	Fitting M5 for 1,6 mm ID hose
11752-3-M5	Fitting M5 for 3,2 mm ID hose
11752-4-M5	Single barb fitting M5 for 3,2 mm ID hose
11752-5-M5	Single barb fitting M5 for 1,6 mm ID hose
11755-M5	Screw plug M5
11923	Connector for copper and nylon tubing
11924-4-MG	Fitting G1/8 for 3,2 mm ID hose
15002-1	Adjustable "L" fitting
15002-6	Adjustable "T" fitting
15004-M5	Female hose connector M5
C22	Double in line single barb fitting for 1,6 mm ID hose
C44	Double in line single barb fitting for 3,2 mm ID hose
CTO-2-M5	Single barb "L" fitting M5 for 1,6mm ID hose
CTO-4-M5	Single barb "L" fitting M5 for 3,2 mm ID hose
T22-2	Single barb "T" fitting for 1,6 mm ID hose
T44-4	Single barb "T" fitting for 3,2 mm ID hose
11761-1	Lead gasket for M5 fittings, valves and accessories
11761-2	Buna N gasket for M5 fittings, valves and accessories
11761-3	Fiber impregnated with Buna N gasket for M5 fittings, valves and accessories
11761-4	Nylon gasket for M5 fittings, valves and accessories
11761-6	Nylon gasket for G1/8 fittings, valves and accessories
15070	Sintered stainless steel muffler
15080-MG	Sintered stainless steel muffler G1/8
MAN-12-M5	12-port manifold
Quick Connectors	
Model	Description
MQC-2	One way check quick connect assembly for 3,2 mm ID hose
MQC-3-M5	One way check quick connect assembly for 3,2 mm ID hose
MQC-F	Hose connector for 3,2 mm ID hose
MQC-FT-M5	Connector tapped M5
MQC-F2	Hose connector for 1,6 mm ID hose
MQC-VP-MG	Valve body of quick connector
MQC-V2	Valve body of quick connector
MQC-V3-M5	Valve body of quick connector

Fittings, Hose and Accessories

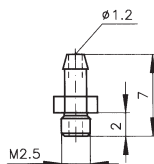
Tubing, Hoses and Clamps	
Model	Description
3811-1-RL	Copper tubing 1,6 ID / 3,2 OD
3814-2-RL	Nylon tubing 2,4 ID / 3,2 OD
3814-1-*-*	Vinyl hose 3,2 ID / 6,3 OD
3814-3-*	Twin vinyl hose 3,2 ID / 6,3 OD
3814-5-*-*	Vinyl hose 1,6 ID / 3,2 OD
3814-6-*-*	Urethane hose 3,2 ID / 6,3 OD
3814-7-*-*	Urethane hose 1,6 ID / 3,2 OD
3814-9-RL	Urethane ribbon hose 1,6 ID / 3,2 OD
3814-12-RL	Urethane ribbon hose 3,2 ID / 6,3 OD
3814-13-RL	Twin urethane hose 3,2 ID / 6,3 OD
11763-RL	Braided hose 3,2 ID / 7,1 OD
5000-1 / 5000-1A	Quick set hose clamps
5000-2	Reusable hose clamp
5000-4	Press-on hose clamp

Notes :

- Viton, Delrin and Neoprene are registered trademarks of E.I. du Pont de Nemours & Co
- Chemraz is registered trademark of Greene, Tweed & Co, Inc.

Fittings

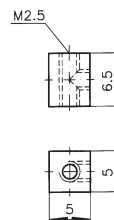
Sub-miniature fitting M2,5 for 1,6 mm ID hose



11750-2

Bulk (-BLK) or per package of 10 pieces (-PKG)

Sub-miniature «T» coupling M2,5



11749-2

Bulk (-BLK) or per package of 10 pieces (-PKG)

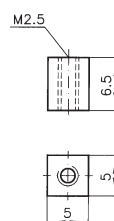
Sub-miniature «X» coupling M2,5



11749-3

Bulk (-BLK) or per package of 10 pieces (-PKG)

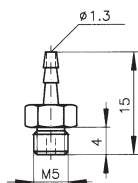
Sub-miniature in line coupling M2,5



11749-1

Bulk (-BLK) or per package of 10 pieces (-PKG)

Fitting M5 for 1,6 mm ID hose

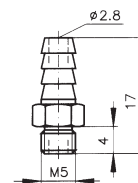


Option: -NP

11752-2-M5

Bulk (-BLK) or per package of 10 pieces (-PKG)

Fitting M5 for 3,2 mm ID hose

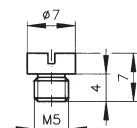


Option: -NP

11752-3-M5

Bulk (-BLK) or per package of 10 pieces (-PKG)

Screw plug M5

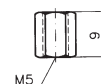


Option: -NP

11755-M5

Bulk (-BLK) or per package of 10 pieces (-PKG)

Female hose connector M5



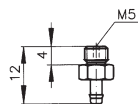
Option: -NP

15004-M5

Bulk (-BLK) or per package of 10 pieces (-PKG)

Fittings

Single barb fitting M5 for 1,6 mm ID hose

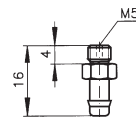


Option: -NP

11752-5-M5

Bulk (-BLK) or per package of 10 pieces (-PKG)

Single barb fitting M5 for 3,2 mm ID hose

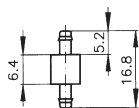


Option: -NP

11752-4-M5

Bulk (-BLK) or per package of 10 pieces (-PKG)

Double in line single barb fitting for 1,6 mm ID hose

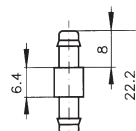


Option: -NP

C22

Bulk (-BLK) or per package of 5 pieces (-PKG)

Double in line single barb fitting for 3,2 mm ID hose

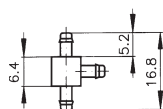


Option: -NP

C44

Bulk (-BLK) or per package of 5 pieces (-PKG)

Single barb «T» fitting for 1,6 mm ID hose

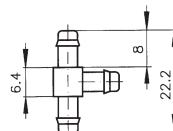


Option: -NP

T22-2

Bulk (-BLK) or per package of 5 pieces (-PKG)

Single barb «T» fitting for 3,2 mm ID hose

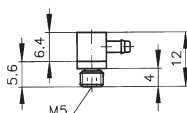


Option: -NP

T44-4

Bulk (-BLK) or per package of 5 pieces (-PKG)

Single barb «L» fitting M5 for 1,6 mm ID hose

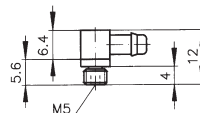


Option: -NP

CTO-2-M5

Bulk (-BLK) or per package of 5 pieces (-PKG)

Single barb «L» fitting M5 for 3,2 mm ID hose



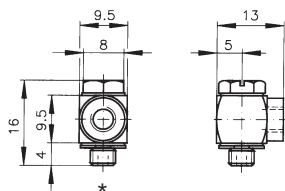
Option: -NP

CTO-4-M5

Bulk (-BLK) or per package of 5 pieces (-PKG)

Fittings - Manifolds - Mufflers - Seals

Adjustable «L» fitting

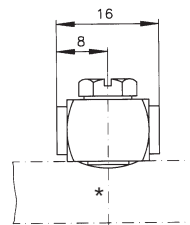


Option: -NP

15002-1

-Bulk (-BLK) or per package of 5 pieces (-PKG)
* 10-32 fits into M5

Adjustable «T» fitting

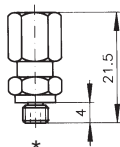


Option: -NP

15002-6

-Bulk (-BLK) or per package of 5 pieces (-PKG)
* 10-32 fits into M5

Connector for copper and nylon tubing

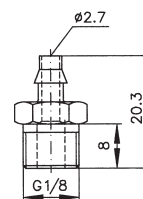


Option: -NP

11923

-Bulk (-BLK) or per package of 10 pieces (-PKG)
* 10-32 fits into M5

Fitting G 1/8 for 3,2 mm ID hose

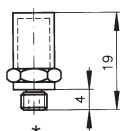


Option: -NP

11924-4-MG

Also available with 1/8 taper
under P/N 11924-4-NR

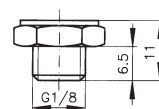
Sintered stainless steel muffler (Brass body)



15070

* 10-32 fits into M5

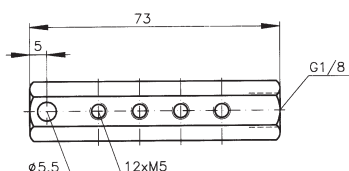
Sintered stainless steel muffler G1/8 (Brass body)



Option: -NP

15080-MG

12-port brass manifold



MAN-12-M5

Gaskets for M5 fittings, valves and accessories

11761-1

Lead

11761-2

Buna-N

11761-3

Fiber impregnated with Buna-N

11761-4

Nylon

Note: The gaskets are supplied bulk (-BLK) or per package of 25 pieces (-PKG)

Gasket for G1/8 fittings, valves and accessories

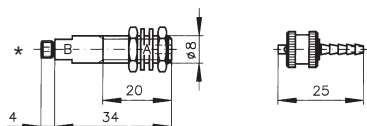
11761-6

Nylon

Note: This gasket is supplied bulk (-BLK) or per package of 10 pieces (-PKG)

Quick Connectors

One way check quick connect assembly for 3,2 mm ID hose

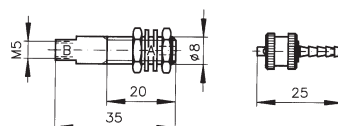


Option: -NP

MQC-2

(Assembly made up of MQC-V2 and MQC-F)
* 10-32 fits into M5

One way check quick connect assembly for 3,2 mm ID hose

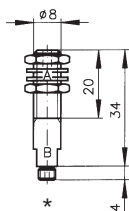


Option: -NP

MQC-3-M5

(Assembly made up of MQC-V3-M5 and MQC-F)

Valve body of quick connector

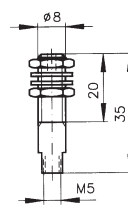


Option: -NP

MQC-V2

To be used with MQC-F, MQC-FT-M5 or MQC-F2
* 10-32 fits into M5

Valve body of quick connector

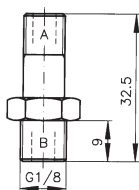


Option: -NP

MQC-V3-M5

To be used with MQC-F, MQC-FT-M5 or MQC-F2

Valve body of quick connector

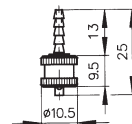


Option: -NP

MQC-VP-MG

To be used with MQC-F, MQC-FT-M5 or MQC-F2

Hose connector for 3,2 mm ID hose

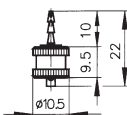


Option: -NP

MQC-F

To be used with MQC-V2, MQC-V3-M5 or MQC-VP

Hose connector for 1,6 mm ID hose

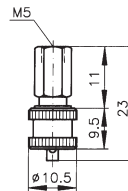


Option: -NP

MQC-F2

To be used with MQC-V2, MQC-V3-M5 or MQC-VP

Connector tapped M5



MQC-FT-M5

To be used with MQC-V2, MQC-V3-M5 or MQC-VP

Hose and Tubing



Copper Tubing

Working pressure: 175 bar max.

Length available: 15 m roll

Note: - to be used with ferrule tubing connector 11923

1,6 ID / 3,2 OD

3811-1-RL



Nylon Tubing

Working pressure: 17 bar max.

Length available: 15 m roll

Color: white

Note: - to be used with ferrule tubing connector 11923

2,4 ID / 3,2 OD

3814-2-RL



Vinyl Hose

8 colors *

clear = -CL	blue = -BL
grey = -GR	green = -GN
yellow = -YL	black = -BK
red = -RD	white = -WH

3,2 ID / 6,3 OD

3814-1--****

Working pressure (bar):

0 to 7 @ 20°C

4 max. above 25° C (max. 35°C)

Hose clamp: 5000-2

Lengths available ** 15 m roll (-RL) and 150 m spool (-SPL)

Notes: - to be used with all fittings for 3,2 ID hose shown on pages 5-5 through 5-8
- Color and length code letters to be added to P/N of hose



Twin Vinyl Hose

Color: grey

3,2 ID / 6,3 OD

3814-3--****

Working pressure (bar):

0 to 7 @ 20°C

4 max. above 25° C (max. 35°C)

Hose clamp: 5000-1

Lengths available ** 15 m roll (-RL) and 150 m spool (-SPL)

Notes: - to be used with all fittings for 3,2 ID hose shown on pages 5-5 through 5-8
- length code letters to be added to P/N of hose

Hose



Vinyl Hose

10 colors *

clear = -CL green = -GN
grey = -GR black = -BK
yellow = -YL white = -WH
red = -RD brown = -BR
blue = -BL orange = -OG

1,6 ID / 3,2 OD

3814-5--****

Working pressure (bar):

0 to 7 @ 20°C
4 max. above 25° C (max. 35°C)

Hose clamp: 5000-4

Lengths available ** 15 m roll (-RL)
and 150 m spool (-SPL)

Notes: - to be used with all fittings for
1,6 ID hose shown on pages 5-5
through 5-8
- Color and length code letters to
be added to P/N of hose



Urethane Hose

10 colors *

clear = -CL green = -GN
grey = -GR black = -BK
yellow = -YL white = -WH
red = -RD brown = -BR
blue = -BL orange = -OG

3,2 ID / 6,3 OD

3814-6--****

Working pressure (bar):

0 to 7 @ 35°C (max. 50°C)

Lengths available ** 15 m roll (-RL)
or 150 m spool (-SPL)

Notes: - to be used with all fittings for
3,2 ID hose shown on pages 5-5
through 5-8
- Color and length code letters to
be added to P/N of hose



Urethane Hose

10 colors *

clear = -CL green = -GN
grey = -GR black = -BK
yellow = -YL white = -WH
red = -RD brown = -BR
blue = -BL orange = -OG

1,6 ID / 3,2 OD

3814-7--****

Working pressure (bar):

0 to 7 @ 35°C (max. 50°C)

Lengths available ** 15 m roll (-RL)
or 150 m spool (-SPL)

Notes: - to be used with all fittings for
3,2 ID hose shown on pages 5-5
through 5-8
- Color and length code letters to
be added to P/N of hose



Urethane Ribbon Hose

8 colors

white, grey, purple, blue, green,
yellow, orange and red

1,6 ID / 3,2 OD

3814-9-RL

Working pressure (bar):

0 to 7 @ 35°C (max. 50°C)

Lengths available 15 m roll

Note: - to be used with all fittings for
1,6 ID shown on pages 5-5
through 5-8

Hose



Urethane Ribbon Hose

8 colors

white, grey, purple, blue, green, yellow, orange and red

3,2 ID / 6,3 OD

3814-12-RL

Working pressure (bar):

0 to 7 @ 35°C (max. 50°C)

Length available: 15 m roll

Note: - to be used with all fittings for 3,2 ID hose shown on pages 5-5 through 5-8



Braided Hose

Flexible Buna N hose with nylon braided covering

3,2 ID / 7,1 OD

11763-RL

Working pressure (bar): 0 to 7

Hose clamp: 5000-1A

Length available: 15 m roll

Note: - to be used with all fittings for 3,2 ID hose shown on pages 5-5 through 5-8



Twin Urethane Hose

Colors: grey and black

3,2 ID / 6,3 OD

3814-13-RL

Working pressure (bar): 0 to 7 @ 35°C

Bend radius: 2 x hose diameter

Length available: 15 m roll

Note: - to be used with all fittings for 3,2 ID hose shown on pages 5-5 through 5-8

Quick Set Hose Clamps

5000-1

-Zinc plated steel
-for hose 3814-3
-Bulk (BLK) or per package of 10 pieces (-PKG)

5000-1A

-Zinc plated steel
-For hose 11763
-Bulk (BLK) or per package of 10 pieces (-PKG)

Reusable Hose Clamp

5000-2

Option: -NP

-Brass
-for hose 3814-1
-Bulk (BLK) or per package of 10 pieces (-PKG)

Press-On Hose Clamp

5000-4

Option: -NP

-Brass
-for hose 3814-5
-Bulk (BLK) or per package of 10 pieces (-PKG)