

3/2-WAY QUICK EXHAUST SAFETY VALVES

SERIES MD SAFEMAX



- According to machinery directive 2006/42/CE
- Integrated 24 V
- Easy integration with Series MD FRL units
- Solutions to reach Performance Level E
- OFF status valve signaling LEDs

Series MD SAFEMAX solenoid valves are equipped with an integrated sensor that detects the position of the spool and enables to quickly exhaust the system in case of emergency.

The sensor is in ON status (LED switched on, electric contact closed) when the valve is in rest position (NC).

The single channel valve is classified in category 2 and can reach Performance level D.

The double channel valve is classified in category 4 and can reach Performance level E.

Please note: the safety valve is not sufficient, alone, to guarantee the safety function. Its setup requires the use of a monitoring device.

The Machinery Directive (MD) 2006/42 / EC establishes the safety requirements that a machine must respect in order to protect the health of people during its use.

Series MD SAFEMAX solenoid valves comply with ISO 13849-1, regarding the safe design of control systems that perform safety functions.

GENERAL DATA

Type of construction	modular, compact, spool-type
Materials	see TABLE OF MATERIALS on the following page
Ports	interchangeable threaded cartridges with thread G1/8, G1/4, G3/8, 1/8 NPTF, 1/4 NPTF or 3/8 NPTF or super-rapid fitting for tube Ø 6, Ø 8 and Ø 10 mm or 1/4", Ø 5/16" and Ø 3/8"
Mounting	in-line
Working temperature	-5°C ÷ 50°C
Working pressure	2 ÷ 10 bar
Nominal range of use	see FLOW RATE GRAPHS on the next pages
Fluid	compressed air
Flow rate	single version: 1→2 = 1900 NI/min 2→3 = 850 NI/min (free flow) double version: 1→2 = 1400 NI/min 2→3 = 850 NI/min (free flow)
Category and PL	single version Cat. 2 up to PL d double version Cat. 4 up to PL e
B10d	2.000.000 cycles
Solenoid voltage	24VDC
Protection class	IP 65

3/2-WAY QUICK EXHAUST SAFETY VALVES
SERIES MD SAFEMAX - CODING EXAMPLE

CODING EXAMPLE

MD 1 - V 16 2 1 B - 3/8 - ST

MD	SERIES
1	SIZE
V	COMPONENT 3/2-way valve
16	CONSTRUCTION internal servo-pilot
2	CHANNEL 2 = single 4 = double
1	ACCESSORIES 0 = without silencer 1 = with silencer
B	SENSOR A = CE sensor, cable length 2 m B = CE sensor, cable length 5 m C = CE sensor, M8 connector
3/8	ATTACCO = without cartridge 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tubo Ø 6 8 = tubo Ø 8 10 = tubo Ø 10 1/8TF = 1/8 NPTF 1/4TF = 1/4 NPTF 3/8TF = 3/8 NPTF 04TF = tube Ø 1/4" 05TF = tube Ø 5/16" 06TF = tube Ø 3/8"
ST	MOUNTING = without mounting accessories ST = rear bracket D = through-bolts

AIR TREATMENT

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N.B.: if the inlet cartridge (IN) is different than the outlet cartridge (OUT), both dimensions must be stated. The inlet cartridge (IN) must be larger than or equal to the outlet cartridge (OUT), for example: MD1-V1621B-3/8-1/4-ST.

3/2-WAY QUICK EXHAUST SAFETY VALVES SERIES MD SAFEMAX - PNEUMATIC SYMBOLS

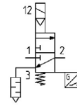
Symbols for single version

SF01



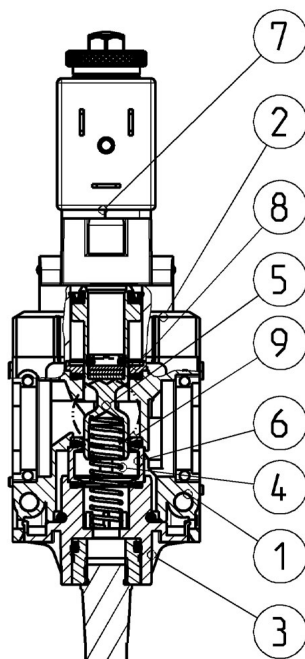
without silencer

SF03



with silencer

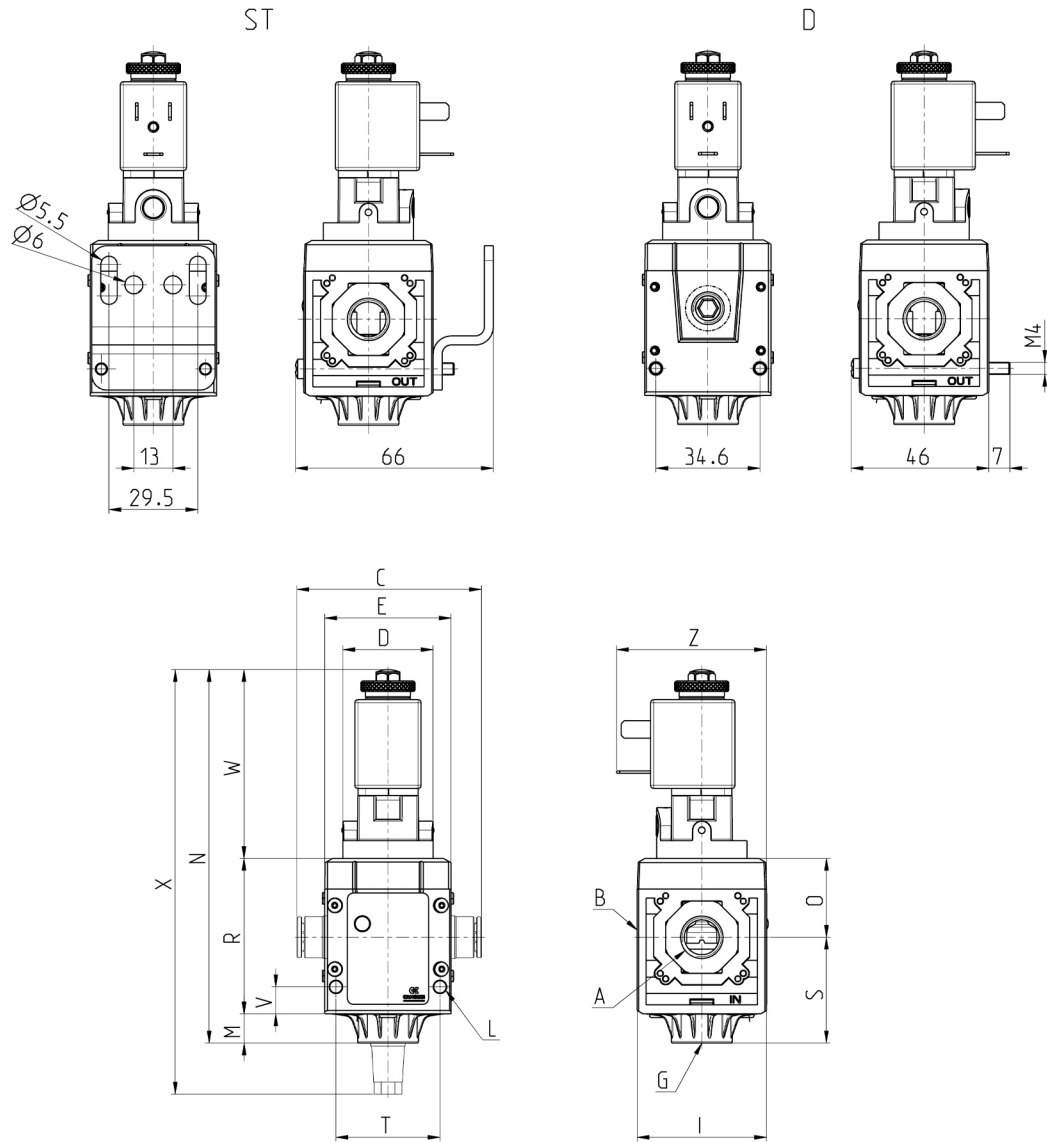
Series MD SAFEMAX single valve - materials



PARTS	MATERIALS
1 - Body	PA
2 - Covering	PA
3 - Cover	PA + brass
4 - Spring	Steel
5 - Spool	Steel, NBR, neodymium
6 - Cage element	Brass
7 - Solenoids	Copper, brass, steel, PET
8 - Spacer	Brass
9 - Spacer	Brass
O-ring and seals	NBR, FKM

3/2-WAY QUICK EXHAUST SAFETY VALVES
SERIES MD SAFEMAX - DIMENSIONAL CHARACTERISTICS

Series MD SAFEMAX single valve



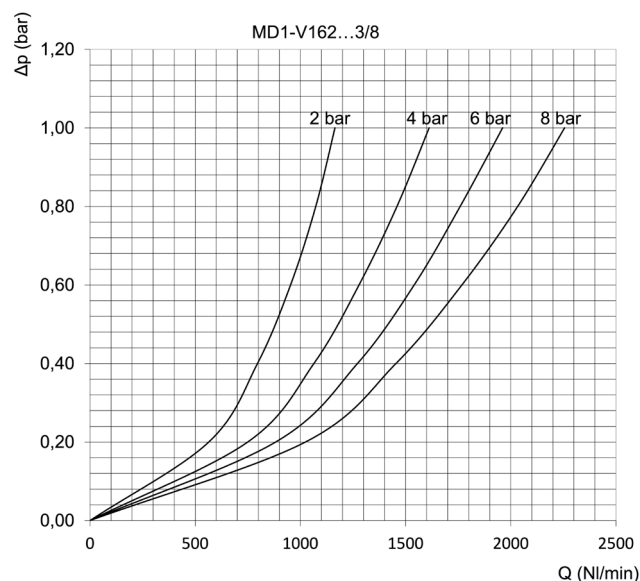
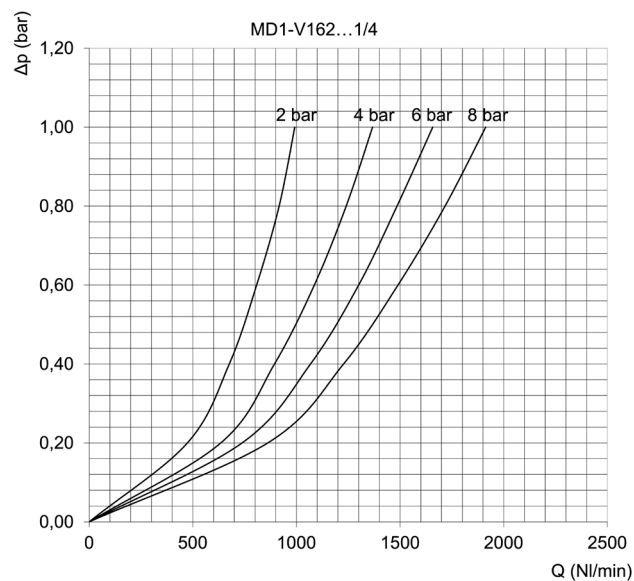
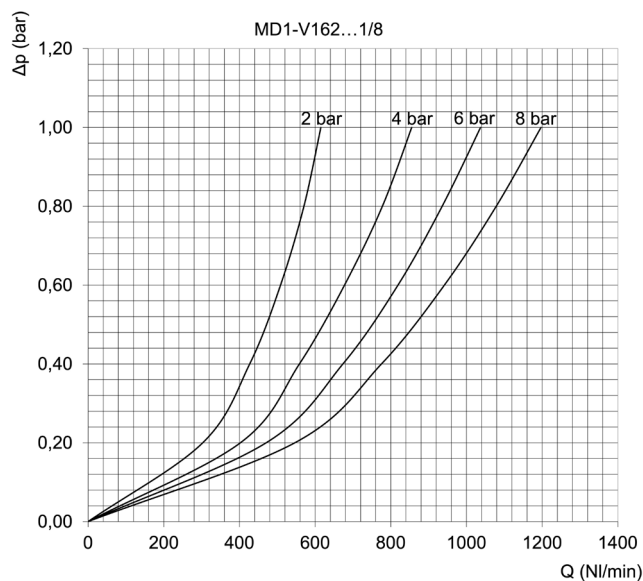
AIR TREATMENT

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Mod.	A	C	D	E	G	I	L	M	N	O	R	S	T	V	X	Z	W	Weight (Kg)
MD1-V1620*-..	-	42	Ø30	42	G1/8	43	Ø4	9,5	124	26,2	51,7	35,1	34,6	9	-	50	63	0,3
MD1-V1620*-..	G1/8	42	Ø30	42	G1/8	43	Ø4	9,5	124	26,2	51,7	35,1	34,6	9	-	50	63	0,3
MD1-V1620*-..	G1/4	42	Ø30	42	G1/8	43	Ø4	9,5	124	26,2	51,7	35,1	34,6	9	-	50	63	0,3
MD1-V1620*-..	G3/8	42	Ø30	42	G1/8	43	Ø4	9,5	124	26,2	51,7	35,1	34,6	9	-	50	63	0,3
MD1-V1620*-..	Ø6	47	Ø30	42	G1/8	43	Ø4	9,5	124	26,2	51,7	35,1	34,6	9	-	50	63	0,3
MD1-V1620*-..	Ø8	62	Ø30	42	G1/8	43	Ø4	9,5	124	26,2	51,7	35,1	34,6	9	-	50	63	0,3
MD1-V1620*-..	Ø10	67	Ø30	42	G1/8	43	Ø4	9,5	124	26,2	51,7	35,1	34,6	9	-	50	63	0,3
MD1-V1621*-..	-	42	Ø30	42	G1/8	43	Ø4	9,5	-	26,2	51,7	35,1	34,6	9	141	50	63	0,3
MD1-V1621*-..	G1/8	42	Ø30	42	G1/8	43	Ø4	9,5	-	26,2	51,7	35,1	34,6	9	141	50	63	0,3
MD1-V1621*-..	G1/4	42	Ø30	42	G1/8	43	Ø4	9,5	-	26,2	51,7	35,1	34,6	9	141	50	63	0,3
MD1-V1621*-..	G3/8	42	Ø30	42	G1/8	43	Ø4	9,5	-	26,2	51,7	35,1	34,6	9	141	50	63	0,3
MD1-V1621*-..	Ø6	47	Ø30	42	G1/8	43	Ø4	9,5	-	26,2	51,7	35,1	34,6	9	141	50	63	0,3
MD1-V1621*-..	Ø8	62	Ø30	42	G1/8	43	Ø4	9,5	-	26,2	51,7	35,1	34,6	9	141	50	63	0,3
MD1-V1621*-..	Ø10	67	Ø30	42	G1/8	43	Ø4	9,5	-	26,2	51,7	35,1	34,6	9	141	50	63	0,3

3/2-WAY QUICK EXHAUST SAFETY VALVES SERIES MD SAFEMAX - DIAGRAMS

FLOW RATE GRAPHS

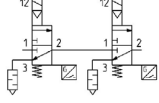
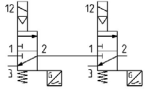


3/2-WAY QUICK EXHAUST SAFETY VALVES
SERIES MD SAFEMAX - PNEUMATIC SYMBOLS

Symbols for double version

SF05

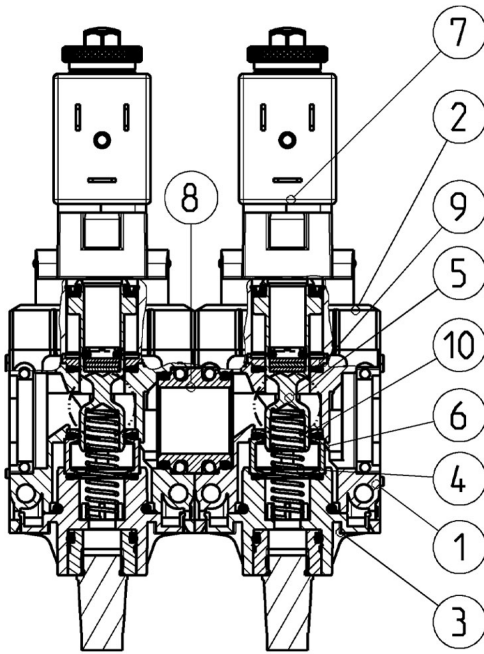
SF07



without silencer

with silencer

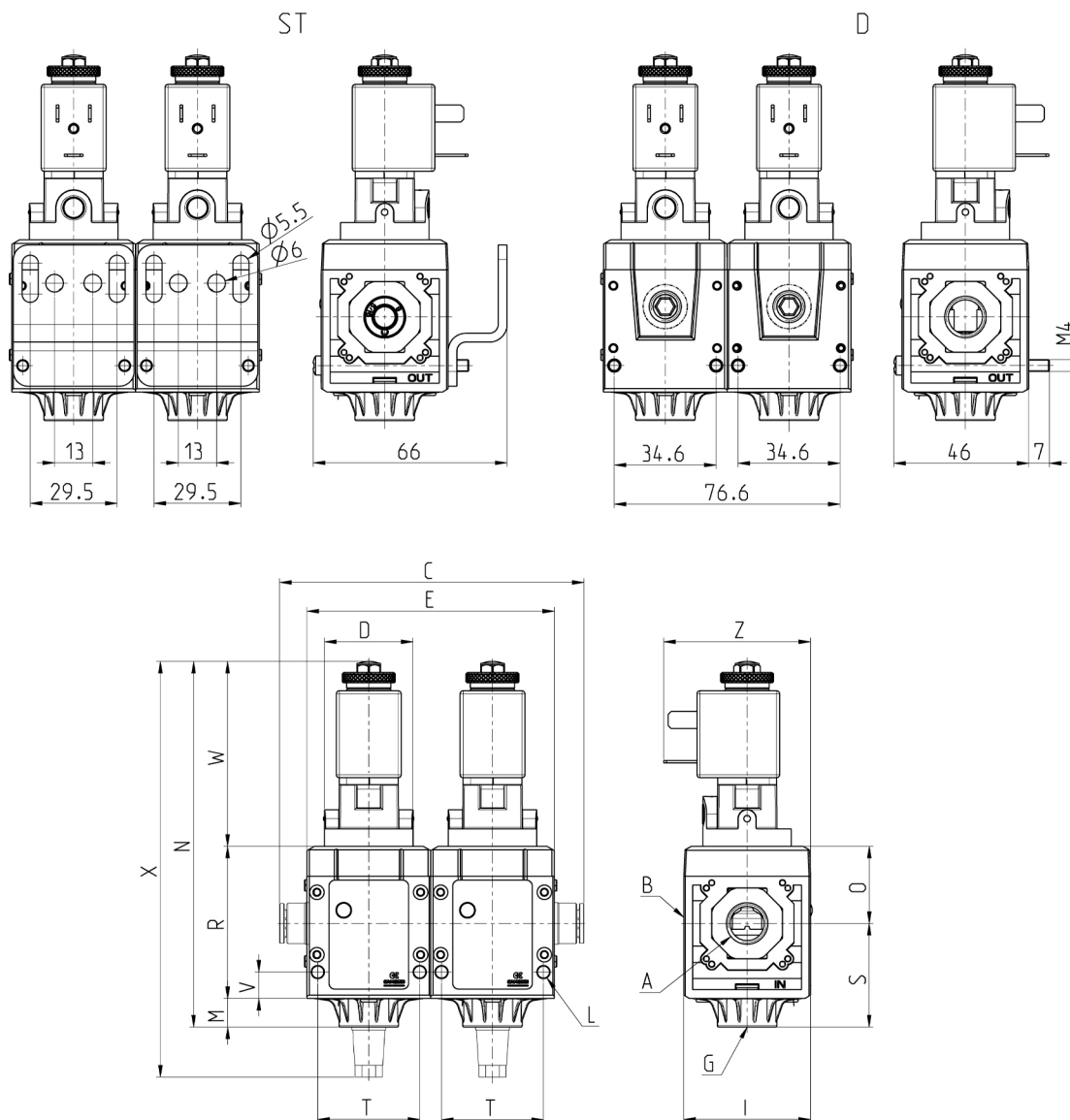
Series MD SAFEMAX double valve - materials



PARTS	MATERIALS
1 - Body	PA
2 - Covering	Polyamide
3 - Cover	PA + Brass
4 - Spring	Steel
5 - Spool	Steel, NBR, Neodymium
6 - Cage element	Brass
7 - Solenoids	Copper, Brass, Steel, PET
8 - Nipple	Nickel-plated Brass + NBR
9 - Spacer	Brass
10 - Spacer	Brass
O-ring and seals	NBR, FKM
Sensor	Electronic waste

3/2-WAY QUICK EXHAUST SAFETY VALVES SERIES MD SAFEMAX - DIMENSIONAL CHARACTERISTICS

Series MD SAFEMAX double valve



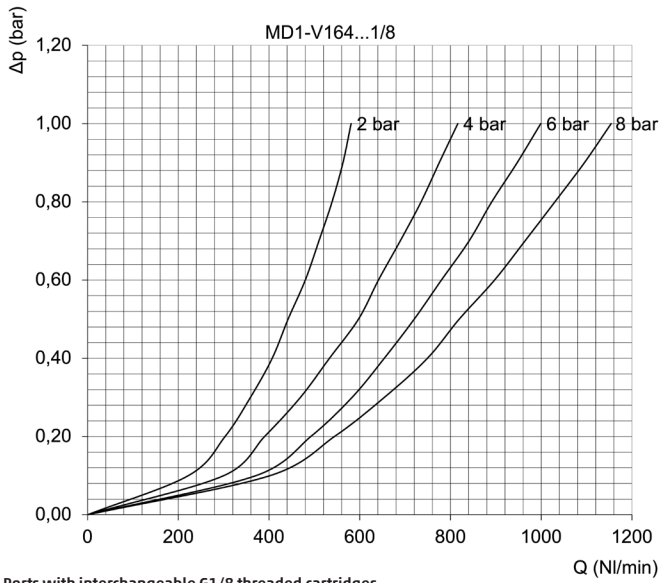
AIR TREATMENT

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Mod.	A	C	D	E	G	I	L	M	N	O	R	S	T	V	X	Z	W	Weight (Kg)
MD1-V1640*-..	-	84	Ø30	84	G1/8	43	Ø4	9,5	124	26,2	51,7	35,1	34,6	9	-	50	63	0,6
MD1-V1640*-..	G1/8	84	Ø30	84	G1/8	43	Ø4	9,5	124	26,2	51,7	35,1	34,6	9	-	50	63	0,6
MD1-V1640*-..	G1/4	84	Ø30	84	G1/8	43	Ø4	9,5	124	26,2	51,7	35,1	34,6	9	-	50	63	0,6
MD1-V1640*-..	G3/8	84	Ø30	84	G1/8	43	Ø4	9,5	124	26,2	51,7	35,1	34,6	9	-	50	63	0,6
MD1-V1640*-..	Ø6	94	Ø30	84	G1/8	43	Ø4	9,5	124	26,2	51,7	35,1	34,6	9	-	50	63	0,6
MD1-V1640*-..	Ø8	124	Ø30	84	G1/8	43	Ø4	9,5	124	26,2	51,7	35,1	34,6	9	-	50	63	0,6
MD1-V1640*-..	Ø10	134	Ø30	84	G1/8	43	Ø4	9,5	124	26,2	51,7	35,1	34,6	9	-	50	63	0,6
MD1-V1641*-..	-	84	Ø30	84	G1/8	43	Ø4	9,5	-	26,2	51,7	35,1	34,6	9	141	50	63	0,6
MD1-V1641*-..	G1/8	84	Ø30	84	G1/8	43	Ø4	9,5	-	26,2	51,7	35,1	34,6	9	141	50	63	0,6
MD1-V1641*-..	G1/4	84	Ø30	84	G1/8	43	Ø4	9,5	-	26,2	51,7	35,1	34,6	9	141	50	63	0,6
MD1-V1641*-..	G3/8	84	Ø30	84	G1/8	43	Ø4	9,5	-	26,2	51,7	35,1	34,6	9	141	50	63	0,6
MD1-V1641*-*	Ø6	94	Ø30	84	G1/8	43	Ø4	9,5	-	26,2	51,7	35,1	34,6	9	141	50	63	0,6
MD1-V1641*-..	Ø8	124	Ø30	84	G1/8	43	Ø4	9,5	-	26,2	51,7	35,1	34,6	9	141	50	63	0,6
MD1-V1641*-..	Ø10	134	Ø30	84	G1/8	43	Ø4	9,5	-	26,2	51,7	35,1	34,6	9	141	50	63	0,6

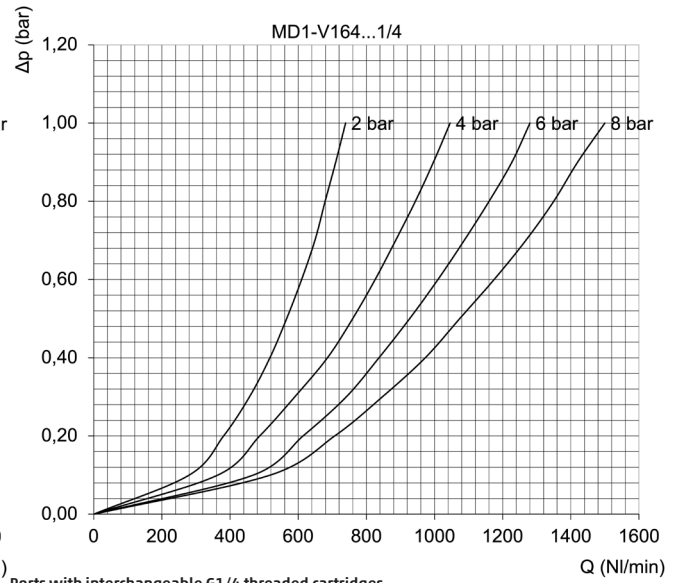
3/2-WAY QUICK EXHAUST SAFETY VALVES
SERIES MD SAFEMAX - DIAGRAMS

FLOW RATE GRAPHS



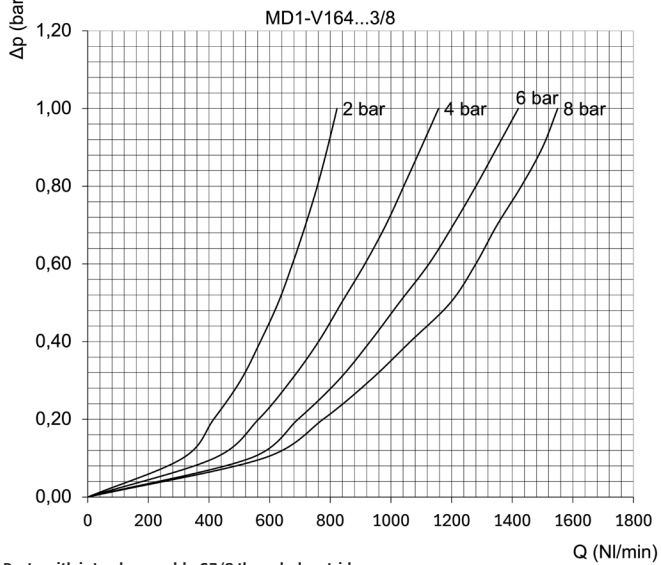
Ports with interchangeable G1/8 threaded cartridges

Δp = Pressure drop (bar)
 Q = Flow (NI/min)



Ports with interchangeable G1/4 threaded cartridges

Δp = Pressure drop (bar)
 Q = Flow (NI/min)



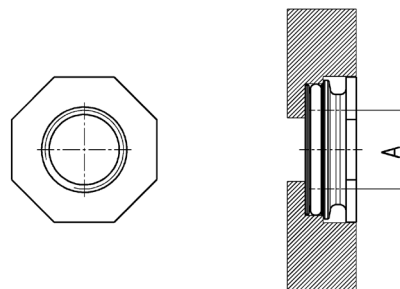
Ports with interchangeable G3/8 threaded cartridges

Δp = Pressure drop (bar)
 Q = Flow (NI/min)

Threaded cartridges Mod. MD1-A-...



Supplied with:
 2x nickel-plated threaded cartridges
 4x special white zinc-plated screws $\varnothing 4,5$ TC/RC

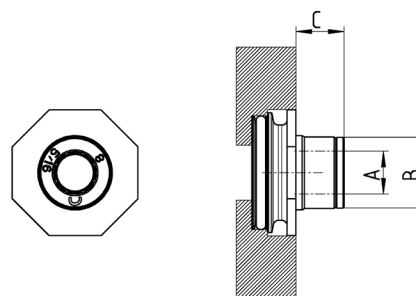


Mod.	A
MD1-A-1/8	G1/8
MD1-A-1/4	G1/4
MD1-A-3/8	G3/8
MD1-A-1/8TF	1/8 NPTF
MD1-A-1/4TF	1/4 NPTF
MD1-A-3/8TF	3/8 NPTF

Integrated cartridges with super-rapid fitting Mod. MD1-A-...



The kit is supplied with:
 2x integrated nickel-plated cartridges with super-rapid fitting
 4x special white zinc-plated screws $\varnothing 4,5$ TC/RC

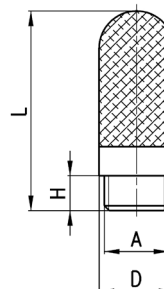


Mod.	A	B	C
MD1-A-6	$\varnothing 6$	12,7	8,5
MD1-A-8	$\varnothing 8$	14,2	10
MD1-A-10	$\varnothing 10$	16,5	12,5
MD1-A04TF	$\varnothing 1/4"$	12,7	8,5
MD1-A-05TF	$\varnothing 5/16"$	14,2	10
MD1-A-06TF	$\varnothing 3/8"$	16,5	12,5

Silencers Series 2928



SIL1

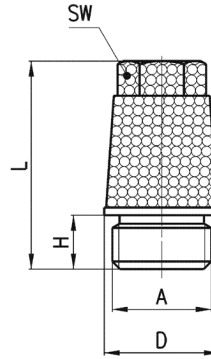


Operating temperature:
 - 40 / + 80 °C

Mod.	A	D	H	L	Max. Oper. Pressure	Flow rate (NL/min)	Noise db (A)
2928 1/8	G1/8	12,9	6,5	34,5	10	1450	67

3/2-WAY QUICK EXHAUST SAFETY VALVES
SERIES MD SAFEMAX - ACCESSORIES

Silencers Series 2921



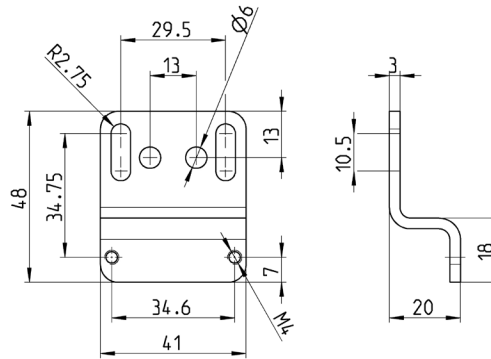
Mod.	A	D	H	L	SW	Max. Oper. Pressure	Flow rate (NI/min)	Noise db (A)
2921 1/8	G1/8	12	4,5	21,5	8	10	1730	81

Rear bracket Mod. MD1-ST/1

AIR TREATMENT



The kit is supplied with:
1x zinc-plated bracket
2x white zinc-plated screws
M4x50



Mod.
MD1-ST/1

Screws for wall mounting Mod. MD1-D



The kit is supplied with:
2x white zinc-plated screws
M4x50

Mod.
MD1-D