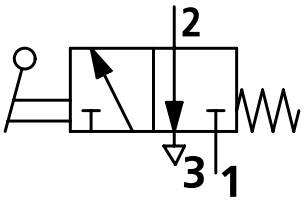
3/2-way valve

manually operated, series 70 low temperature

PLUS

Art. No. 149906

Type No. 70L2000100



Exemplary illustration

The series 70 low temperature valves in manually operated version with hand lever complement our range of traditional way valves of series 70. They represent a selection of the most commonly used manually operated way valves, which are manufactured with components for special low temperature applications. These valves are also suitable for use with vacuum.

Technical data

Function	3/2 NC
Operation	monostable
Connection	G 1/4 IT
DN	7.5
Flow rate measurement 1	flow rate at 6 bar and Δp 0.5 bar
Flow rate 1	750 Nl/min
Flow rate measurement 2	flow rate at 6 bar and Δp 1 bar
Flow rate 2	1100 Nl/min
Medium	filtered, dry and unlubricated compressed air
Required purity class in accordance w. ISO 8573-1	4.2.3
Operating pressure	-0.99 - 10 bar
Temperature range	-40 to 60 °C
Valve body	aluminium
Piston	nickel-plated aluminium
Sealant	NBR
Spring	special steel

RIEGLER & Co. KG
Schützenstraße 27
72574 Bad Urach
Tel. +49 7125 9497-642
technik@riegler.de

Commercial data

Customs tariff number	84818079
Country of origin	IT
eCl@ss 5.1.4	27291801
eCl@ss 9.0	27291390
UNSPSC_Code_v190501	40141603
UNSPSC_CodeDesc_v190501	Pneumatic valves

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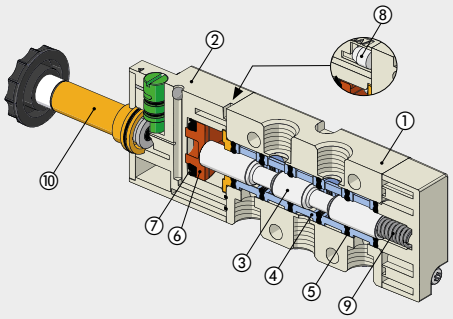
VALVES SERIES 70

The Series 70 forms part of Metal Work's full range of traditional valves.
They are available in sizes 1/8", 1/4", 3/8" and 1/2", versions 3/2, 5/2, 5/3 and double 3/2, with mechanical, manual, pneumatic and electric drives.
They can be installed in line, onto a wall, on the cylinder (using a special bracket) or in series (on a multiple or modular base) to suit all possible applications.
A range of valves (Series 70 LT) designed using components for specific low-temperature applications is now available for the most commonly used types and sizes.
These highly reliable valves comply with the main applicable standards, including Atex, ISO 13489 and SIL, as stated in the documents and certificates available online.

TECHNICAL DATA			1/8"	1/4"	3/8"	1/2"
Thread on the valve ports			1/8"	1/4"	3/8"	1/2"
Operating pressure series 70 versions		bar				
monostable and bistable differential			2.5 to 10			
bistable			1 to 10			
asserved			vacuum to 10			
Operating pressure series 70 LT (low temperature) versions		bar				
hand operated			vacuum to 10		-	
pneumatic and solenoid/pneumatic	t = -40°C to -10°C		5 to 10		-	
	t = -10°C to +60°C		3 to 10		-	
Minimum pilot pressure		bar	2.5			
Operating temperature range		°C				
series 70 versions			-10 to +60			
series 70 LT (low temperature) versions			-40 to +60			
Nominal diameter		mm	5	7.5	13.3	15
Conductance C		Nl/min · bar	121.43	264.26	505.52	971.43
Critical ratio b		bar/bar	0.32	0.27	0.32	0.43
Flow rate at 6 bar ΔP 0.5 bar		Nl/min	400	750	1560	3200
Flow rate at 6 bar ΔP 1 bar		Nl/min	550	1100	2150	4600
Installation			In any position (vertical assembly is not recommended for bistable valves subjected to vibration)			
Fluid			Filtered air without lubrication; lubrication, if used, must be continuous.			
			For series 70 LT (low-temperature) versions, it is recommended to use of perfetamente dried air.			
Recommended lubricant			ISO and UNI FD 22			
			For series 70 LT (low-temperature) it is not expected to be used with lubricated air.			
Maximum coil nut torque		Nm	1			
Compatibility with oils			See **chapter Z1**			

COMPONENTS SERIES 70

① VALVE BODY: Aluminium
② CONTROL/END CAP: plastic
③ SPOOL: chemically nickel-plated aluminium
④ DISTANCE PLATES: plastic
⑤ GASKETS: NBR
⑥ PISTONS: Hostaform®
⑦ PISTON GASKET: NBR
⑧ FILTER: plastic
⑨ SPRINGS: special steel
⑩ OPERATOR: Brass pipe - Stainless steel core



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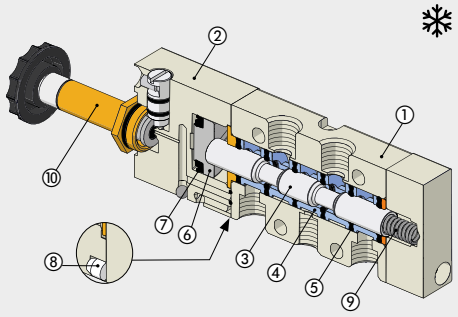
Schützenstraße 27
72574 Bad Urach
Tel. +49 7125 9497-642
technik@riegler.de

COMPONENTS SERIES 70 LT (LOW TEMPERATURE)

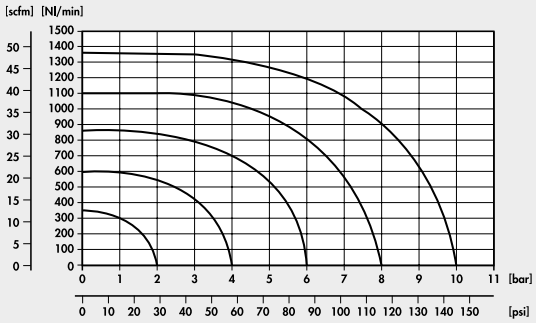
① ALVE BODY: aluminium
② CONTROL/END CAP: aluminium
③ SPOOL: chemically nickel-plated aluminium
④ DISTANCE PLATES: plastic
⑤ GASKETS: HNBR
⑥ PISTONS: aluminium
⑦ PISTON GASKET: HNBR
⑧ FILTER: plastic
⑨ SPRINGS: special steel
⑩ OPERATOR: brass pipe - Stainless steel core
(version specific for low-temperature applications)



FLOW CHARTS

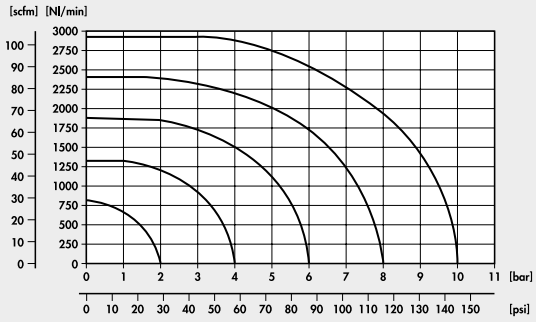
VALVES SERIES 70 1/8"

Flow rates



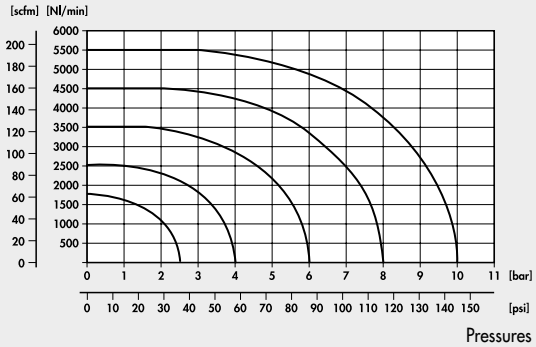
VALVES SERIES 70 1/4"

Flow rates



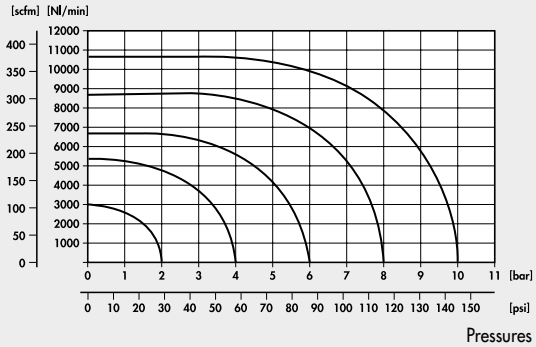
VALVES SERIES 70 3/8"

Flow rates



VALVES SERIES 70 1/2"

Flow rates



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Schützenstraße 27
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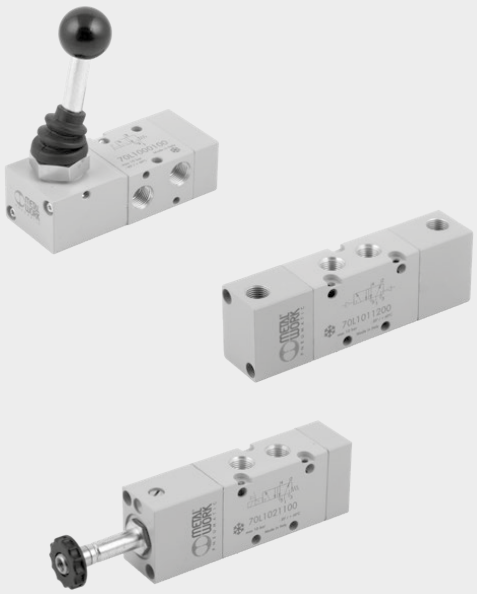
technik@riegler.de

VALVES SERIES 70 LT (LOW TEMPERATURE)

TECHNICAL DATA		1/8"	1/4"	3/8"
Operating pressure standard	bar			
hand operated		Vacuum to 10		
pneumatic and solenoid/pneumatic	t = -40°C to -10°C	5 to 10		
	t = -10°C to +60°C	3 to 10		
Operating temperature range	°C	−40 to +60		
Nominal diameter	mm	5	7.5	13.3
Conductance C	Nl/min · bar	121.43	264.26	505.52
Critical ratio b	bar/bar	0.32	0.27	0.32
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	400	750	1560
Flow rate at 6 bar ΔP 1 bar	Nl/min	550	1100	2150
PNEUMATIC				
Minimum pilot pressure	bar			
t = -40°C to -10°C		5		
t = -10°C to +60°C		3		
TRA / TRR monostable at 6 bar (at 20°C)	ms	6/15	7/15	5/28
TRA / TRR bistable at 6 bar (at 20°C)	ms	7/7	7/7	13/13
SOLENOID/PNEUMATIC				
TRA / TRR monostable at 6 bar (at 20°C)	ms	15/35	19/45	21/72
TRA / TRR bistable at 6 bar (at 20°C)	ms	20/20	21/21	18/18
Coil voltage values		12; 24 VDC		
		24; 110; 220V AC 50/60Hz		
Power	t = -40°C to -10°C	5 W (DC) - 5 VA (AC)		
	t = -10°C to +60°C	2 W (DC) - 3.5 VA (AC)		
Voltage tolerance	%	-10 to +15		
Insulation class		F 155		
Maximum coil nut torque	Nm	1		
Hand operator		Bistable		

Notes: after a long stop and with very low temperatures the movement of the first drives may be slower. It recommends the use of perfectly dry air.

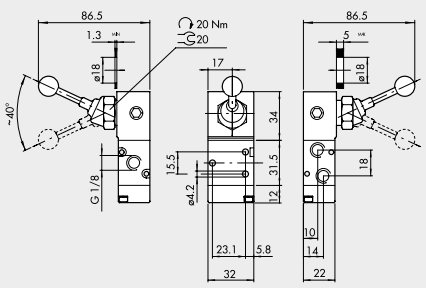


SYNOPTIC, SIZES AND VERSIONS

PNV FAMILY	2 DIMENSIONS	3 FUNCTION	PN OPERATORS 14	S RESETTING (12)	OO FURTHER DETAILS	LT
MAV manual valves	**2** 1/8"	**3** 3/2	**LE** leva 90°	**S** mechanical springs	**OO** no indication	**LT** low temperature
PNV pneumatic valves	**3** 1/4"	**5** 5/2	**PN** pneumatic	**B** bistable	**NC** normally closed	
SOV solenoid/ pneumatic	**C** 3/8"	**6** 5/3	**SO** solenoid	**O** stable for 5/3	**NO** normally open	
					CC closed centres	
					OC open centres	
					PC pressure centres	

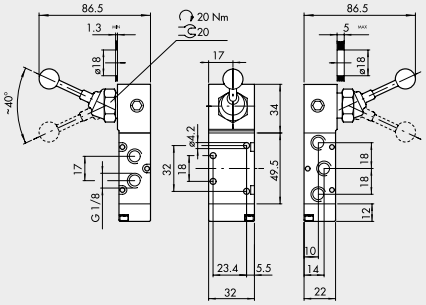
VALVES SERIES 70 LT, HAND OPERATED (LOW TEMPERATURE)

90° LEVER 3/2 1/8"



Symbol		Code	Abbrev.	Weight [g]
	❄	**70L1000100**	MAV 23 LES NC LT	184
	❄	**70L1000200**	MAV 23 LEB OO LT	187

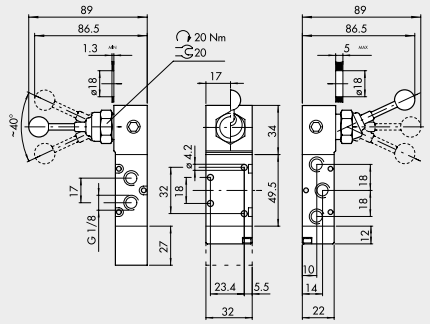
90° LEVER 5/2 1/8"



Symbol		Code	Abbrev.	Weight [g]
	❄	**70L1000300**	MAV 25 LES OO LT	210
	❄	**70L1000400**	MAV 25 LEB OO LT	213

RIEGLER & Co. KG
Schützenstraße 27
72574 Bad Urach
Tel. +49 7125 9497-642
technik@riegler.de

90° LEVER 5/3, 1/8"



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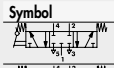
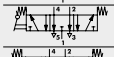
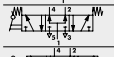
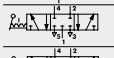
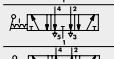
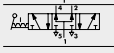
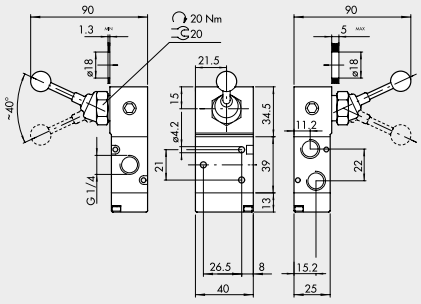
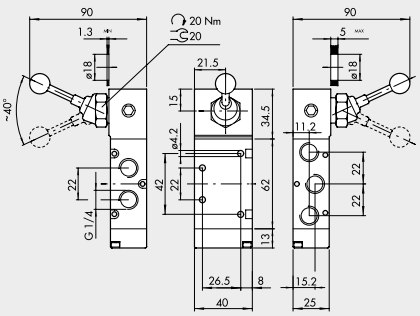
	70L1001000	MAV 26 LES CC LT	242
	70L1000900	MAV 26 LES OC LT	242
	70L1001100	MAV 26 LES PC LT	242
	70L1000500	MAV 26 LEO CC LT	194
	70L1000600	MAV 26 LEO OC LT	194
	70L1000700	MAV 26 LEO PC LT	194

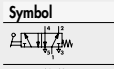
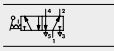
90° LEVER 3/2, 1/4"



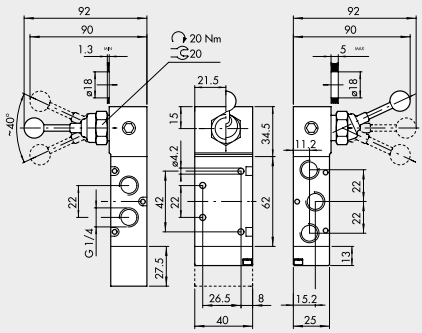
Symbol	Code	Abbrev.	Weight [g]
	70L2000100	MAV 33 LES NC LT	272
	70L2000200	MAV 33 LEB OO LT	272

90° LEVER 5/2, 1/4"



Symbol	Code	Abbrev.	Weight [g]
	70L2000300	MAV 35 LES OO LT	326
	70L2000400	MAV 35 LEB OO LT	326

90° LEVER 5/3, 1/4"



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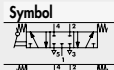
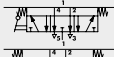
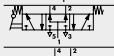
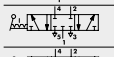
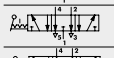
	70L2001000	MAV 36 LES CC LT	354
	70L2000900	MAV 36 LES OC LT	354
	70L2001100	MAV 36 LES PC LT	354
	70L2000500	MAV 36 LEO CC LT	288
	70L2000600	MAV 36 LEO OC LT	288
	70L2000700	MAV 36 LEO PC LT	288

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