5/2-way valve

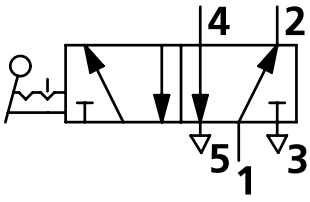
manually operated, series 70

PLUS

Art. No. 106469

Type No. 514.116





Exemplary illustration

Traditional way valves of series 70 in manually operated version with hand lever. These valves are also suitable for use with vacuum.

Technical data

Operation	manually
Function	5/2 bistable
Version	90° lever
Connection	G 1/2 IT
Flow rate measurement 1	flow rate at 6 bar and Δ_p 1 bar
Flow rate 1	4600 Nl/min
Flow rate measurement 2	flow rate at 6 bar and Δ_p 0.5 bar
Flow rate 2	3200 Nl/min
Medium	filtered compressed air with or without lubrication. If lubricated, then continuous.
Required purity class in accordance w. ISO 8573-1	4.7.3
Operating pressure	-0.99 - 10 bar
Temperature range	-10 to 60 °C
Valve body	aluminium
Piston	nickel-plated aluminium
Sealant	NBR
Spring	special steel
Series	series 70

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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

Material informations

REACH SVHC1 substance name	lead
CAS no. SVHC 1	7439-92-1
RoHS materials notice	RoHS compliant
REACH Info	contains SVHC substance

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VALVES SERIES 70

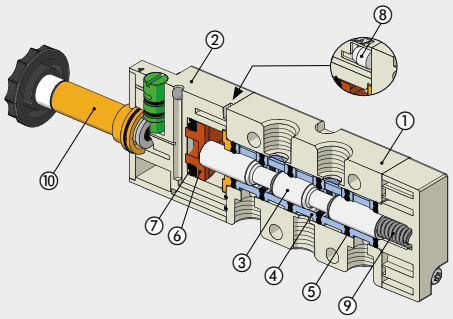
The Series 70 forms part of Metal Work's full range of traditional valves.
They are available in sizes 1/8", 1/4", 3/8" and 1/2", versions 3/2, 5/2, 5/3 and double 3/2, with mechanical, manual, pneumatic and electric drives.
They can be installed in line, onto a wall, on the cylinder (using a special 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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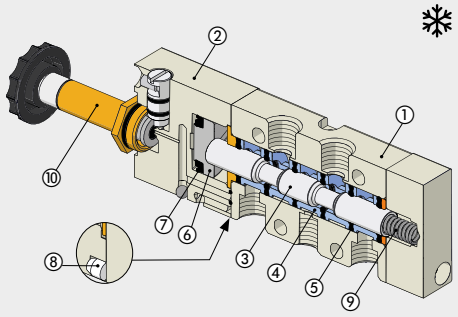
COMPONENTS SERIES 70 LT (LOW TEMPERATURE)

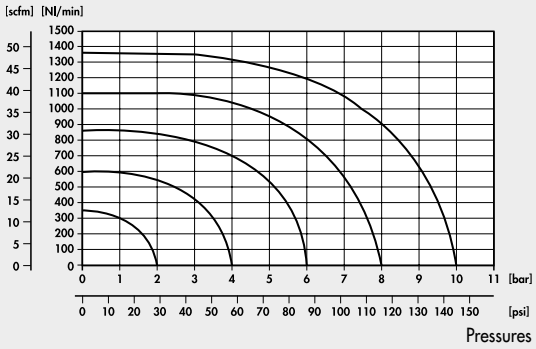
① ALVE BODY: aluminium
② CONTROL/END CAP: aluminium
③ SPOOL: chemically nickel-plated aluminium
④ DISTANCE PLATES: plastic
⑤ GASKETS: HNBR
⑥ PISTONS: aluminium
⑦ PISTON GASKET: HNBR
⑧ FILTER: plastic
⑨ SPRINGS: special steel
⑩ OPERATOR: brass pipe - Stainless steel core
(version specific for low-temperature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



FLOW CHARTS

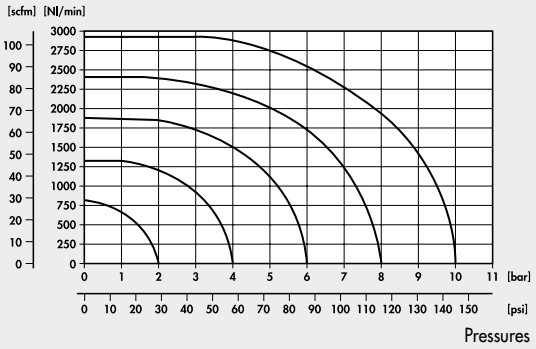
VALVES SERIES 70 1/8"

Flow rates



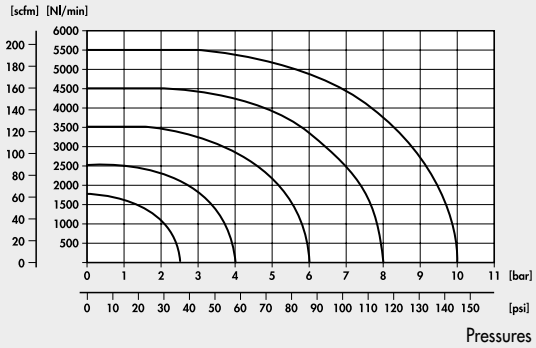
VALVES SERIES 70 1/4"

Flow rates



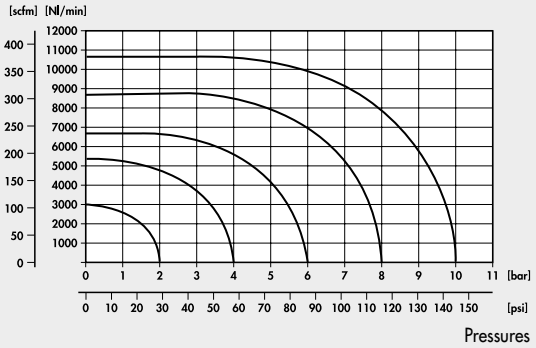
VALVES SERIES 70 3/8"

Flow rates



VALVES SERIES 70 1/2"

Flow rates



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VALVES SERIES 70, HAND OPERATED

TECHNICAL DATA		1/8"	1/4"	1/2"
Operating pressure range:				
• version with direct control	bar	Vacuum to 10		
• pilot-assisted version	bar	2.5 to 10		
Operating temperature range	°C	-10 to +60		
Nominal diameter	mm	5	7.5	15
Conductance C	Nl/min · bar	121.43	264.26	971.43
Critical ratio b	bar/bar	0.32	0.27	0.43
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	400	750	3200
Flow rate at 6 bar ΔP 1 bar	Nl/min	550	1100	4600

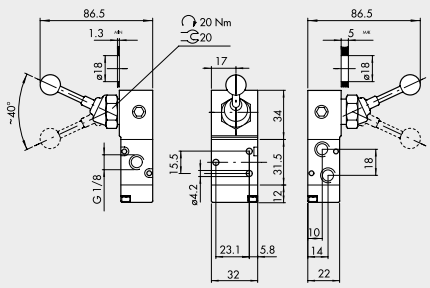


SYNOPTIC, SIZES AND VERSIONS

M A V FAMILY	2 DIMENSIONS	3 FUNCTION	P P OPERATORS 14	S RESETTING (12)	N C FURTHER DETAILS
MAV manual valves	**2** 1/8" **3** 1/4" **4** 1/2"	**3** 3/2 **5** 5/2 **6** 5/3 **8** 2 x 3/2	**PP** drawer **VL** axial lever **LE** 90° lever **BRE** arranged for manual panel actuators	**A** pneumatic/ mechanical springs* **S** mechanical springs **B** bistable **D** differential **O** stable for 5/3 *on demand	**NC** normally closed **NO** normally open **OO** no indication **CC** closed centres **OC** open centres **PC** pressure centres

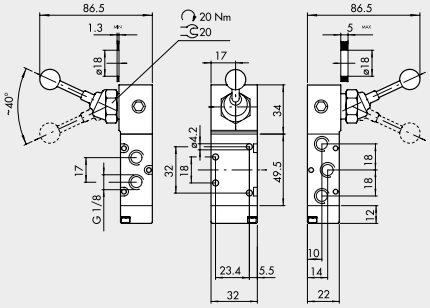
VALVES SERIES 70, HAND OPERATED, 1/8"

90° LEVER 3/2 1/8"



Symbol	Code	Abbrev.	Weight [g]
	**7010000100**	MAV 23 LES NC	168
	**7010000200**	MAV 23 LEB OO	171

90° LEVER 5/2 1/8"



Symbol	Code	Abbrev.	Weight [g]
	**7010000300**	MAV 25 LES OO	194
	**7010000400**	MAV 25 LEB OO	197

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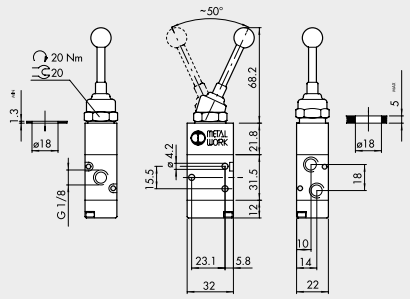
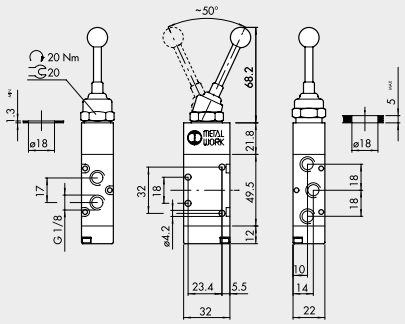
FRONT LEVER 3/2, 1/8"



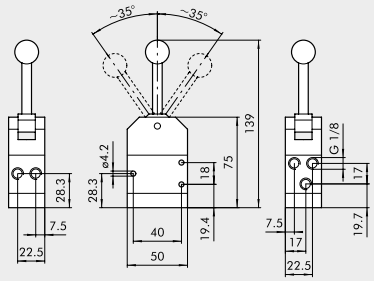
Symbol	Code	Abbrev.	Weight [g]
	7010001400	MAV 23 VLB OO	130

FRONT LEVER 5/2, 1/8"



Symbol	Code	Abbrev.	Weight [g]
	7010001700	MAV 25 VLB OO	156

FRONT LEVER 5/3, 1/8"



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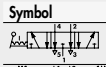
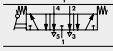
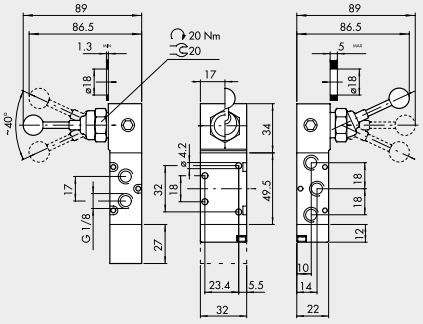
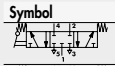
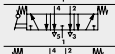
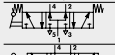
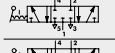
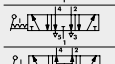
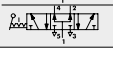
	7010001150	MAV 28 VLO OC	316
	7010001160	MAV 28 VLS OC	325

90° LEVER 5/3, 1/8"



Symbol	Code	Abbrev.	Weight [g]
	7010001000	MAV 26 LES CC	242
	7010000900	MAV 26 LES OC	242
	7010001100	MAV 26 LES PC	242
	7010000500	MAV 26 LEO CC	194
	7010000600	MAV 26 LEO OC	194
	7010000700	MAV 26 LEO PC	194

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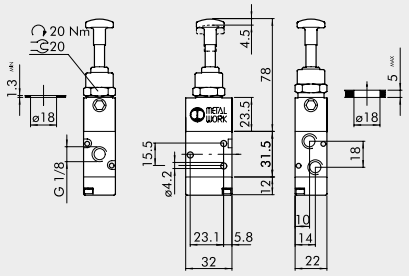
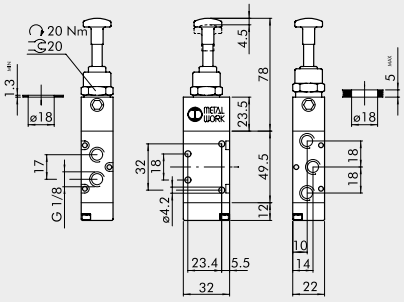
DRAWER 3/2, 1/8"



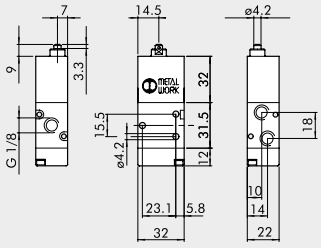
Symbol	Code	Abbrev.	Weight [g]
	7010001300	MAV 23 PPB OO	134
	7010001200	MAV 23 PPS NC	134

DRAWER 5/2, 1/8"



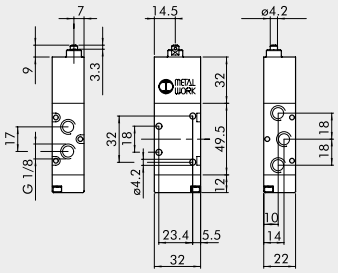
Symbol	Code	Abbrev.	Weight [g]
	7010001600	MAV 25 PPB OO	160
	7010001500	MAV 25 PPS OO	160

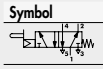
PILOT-ASSISTED PLUNGER 3/2 1/8" FOR PANEL ACTUATORS



Symbol	Code	Abbrev.	Weight [g]
	7010001800	MAV 23 BRE NC	124

PILOT-ASSISTED PLUNGER 5/2 1/8" FOR PANEL ACTUATORS



Symbol	Code	Abbrev.	Weight [g]
	7010001900	MAV 25 BRE OO	150

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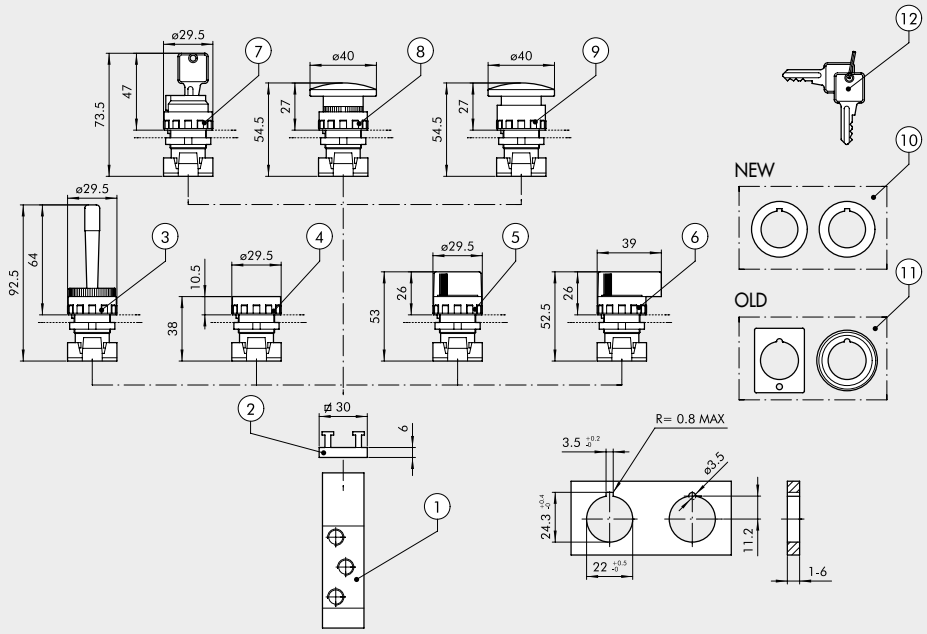
ASSEMBLY DIAGRAM FOR PILOT-ASSISTED HAND-OPERATED VALVES SERIES 70 WITH PANEL ACTUATORS



ORDERING CODES

Symbol	Reference	Code	Description	Weight [g]
	①	**7010001800**	Pilot-assisted plunger 3/2, 1/8"	124
	①	**7010001900**	Pilot-assisted plunger 5/2, 1/8"	150
	②	**0351000050**	2 places adaptor thickness 6.8 mm	5
	③	**W0351000015**	Red handler with horizontally pivoted lever	25
	④	**W0351000011**	Fat push button + 2 red/black coloured disks	15
			◆ Bistable fat push button without disk	
	⑤	**W0351000030**	Black selector short lever at 2 positions with return	20
		W0351000031	Black selector short lever at 2 positions	20
	⑤	**W0351000032**	Black selector short lever at 3 positions with return	20
		W0351000033	Black selector short lever at 3 positions	20
	⑥	**W0351000034**	Black selector long lever at 2 positions with return	26
		W0351000035	Black selector long lever at 2 positions	26
	⑥	**W0351000036**	Black selector long lever at 3 positions with return	26
		W0351000037	Black selector long lever at 3 positions	26
	⑦	**W0351000016**	2 positions key selector with extractable key in 2 positions	50
		W0351000018	2 positions key selector with extractable key in 0	50
	⑧	**W0351000013**	Red mushroom-head push button Ø 40	27
		W0351000017	Black mushroom-head push button Ø 40	27
	⑨	**W0351000014**	Red mushroom-head push button with lock Ø 40	29
	⑩	**W0351000049**	✚ Reducer from 30 to 22.5 mm	
	⑪	**W0351000050**	▲ Adapter for bore Ø 30 G2326	
	⑫	**W0351000021**	✚ Key for ESC selectors	
		W0351000056	Green disk for push button ④	

◆ It can't be supplied. As working replaced by selector with bistable short lever at 2 positions ⑤.
✚ Usable only with technopolymer body selectors.
▲ Usable only with metal body selectors.

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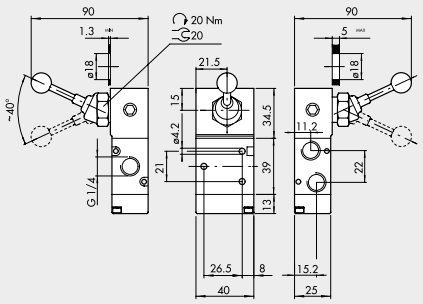
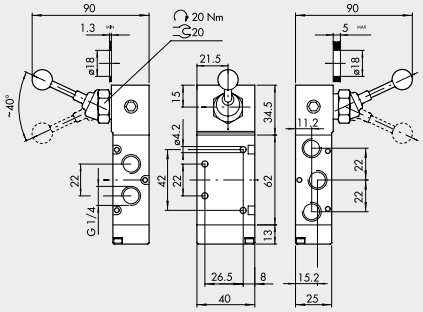
VALVES SERIES 70, HAND-OPERATED, 1/4"

90° LEVER 3/2, 1/4"



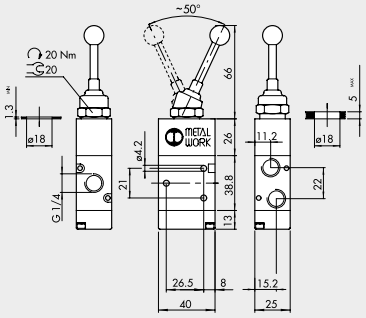
Symbol	Code	Abbrev.	Weight [g]
	7020000100	MAV 33 LES NC	244
	7020000200	MAV 33 LEB OO	244

90° LEVER 5/2, 1/4"



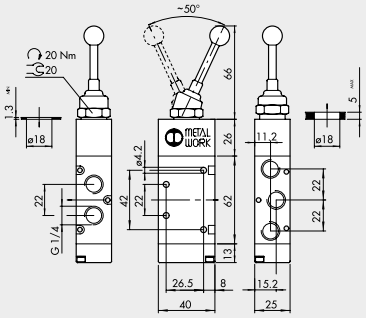
Symbol	Code	Abbrev.	Weight [g]
	7020000300	MAV 35 LES OO	290
	7020000400	MAV 35 LEB OO	290

FRONT LEVER 3/2, 1/4"



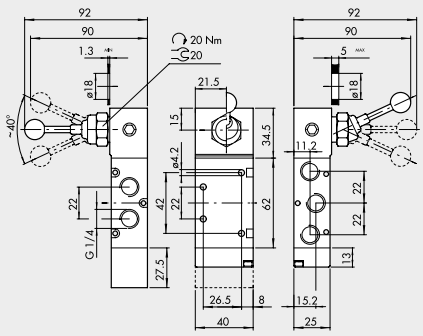
Symbol	Code	Abbrev.	Weight [g]
	7020001400	MAV 33 VLB OO	194

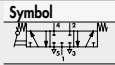
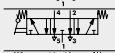
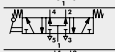
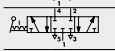
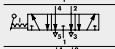
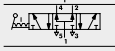
FRONT LEVER 5/2, 1/4"



Symbol	Code	Abbrev.	Weight [g]
	7020001700	MAV 35 VLB OO	244

90° LEVER 5/3, 1/4"



Symbol	Code	Abbrev.	Weight [g]
	7020001000	MAV 36 LES CC	354
	7020000900	MAV 36 LES OC	354
	7020001100	MAV 36 LES PC	354
	7020000500	MAV 36 LEO CC	288
	7020000600	MAV 36 LEO OC	288
	7020000700	MAV 36 LEO PC	288

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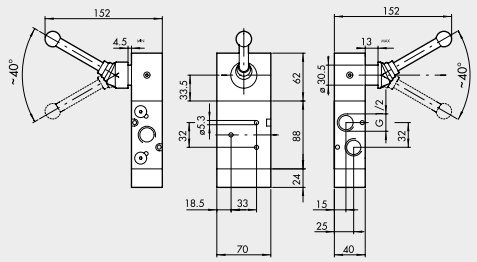
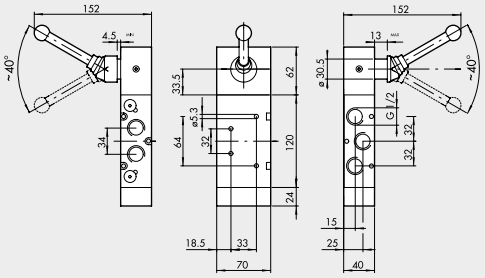
VALVES SERIES 70, HAND OPERATED, 1/2"

90° LEVER 3/2, 1/2"



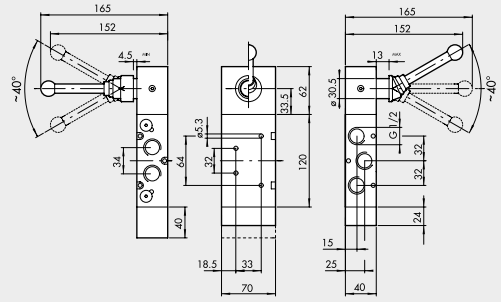
Symbol	Code	Abbrev.	Weight [g]
	7030000100	MAV 43 LES NC	1443
	7030000200	MAV 43 LEB OO	1435

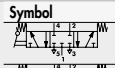
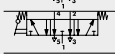
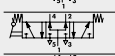
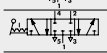
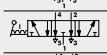
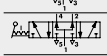
90° LEVER 5/2, 1/2"



Symbol	Code	Abbrev.	Weight [g]
	7030000300	MAV 45 LES OO	1588
	7030000400	MAV 45 LEB OO	1630

90° LEVER 5/3, 1/2"



Symbol	Code	Abbrev.	Weight [g]
	7030001000	MAV 46 LES CC	1810
	7030000900	MAV 46 LES OC	1800
	7030001100	MAV 46 LES PC	1800
	7030000500	MAV 46 LEO CC	1615
	7030000600	MAV 46 LEO OC	1605
	7030000700	MAV 46 LEO PC	1605

NOTES

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