

# Valves



2011





# Hafner introduced a line of 1/4" and 1/2" NPT ported valves.

## Lever valves

		displayed on page
HV 311 701 NPT	1/4" NPT	2.3.1.1
HVR 320 701 NPT	1/4" NPT	2.3.1.1
HV 511 701 NPT	1/4" NPT	2.3.2.1
HVR 520 701 NPT	1/4" NPT	2.3.2.1
HV 53_ 701 NPT	1/4" NPT	2.3.3.1
HVR 53_ 701 NPT	1/4" NPT	2.3.3.1
HV 311 121 NPT	1/2" NPT	2.3.1.2
HVR 320 121 NPT	1/2" NPT	2.3.1.2
HV 511 121 NPT	1/2" NPT	2.3.2.2
HVR 520 121 NPT	1/2" NPT	2.3.2.2
HV 53_ 121 NPT	1/2" NPT	2.3.3.2
HVR 53_ 121 NPT	1/2" NPT	2.3.3.2

## Pneumatically actuated valves

		displayed on page	in stainless steel on page
P 310 701 G NPT	1/4" NPT	2.4.1.4	2.10.1.1
P 311 701 G NPT	1/4" NPT	2.4.1.4	2.10.1.1
P 510 701 G NPT	1/4" NPT	2.4.2.4	2.10.1.2
P 511 701 G NPT	1/4" NPT	2.4.2.4	2.10.1.2
P 520 701 G NPT	1/4" NPT	2.4.2.8	2.10.1.2
P 53_ 701 G NPT	1/4" NPT	2.4.3.3	
P 310 121 NPT	1/2" NPT	2.4.1.3	
P 311 121 NPT	1/2" NPT	2.4.1.3	
P 510 121 NPT	1/2" NPT	2.4.2.3	
P 511 121 NPT	1/2" NPT	2.4.2.3	
P 520 121 NPT	1/2" NPT	2.4.2.7	
P 53_ 121 NPT	1/2" NPT	2.4.3.2	

## Solenoid valves

		displayed on page	in stainless steel on page
M(O)H 310 701 G NPT	1/4" NPT	2.5.1.1.12	2.10.2.2
MH 510 701 G NPT	1/4" NPT	2.5.2.1.5	2.10.2.3
MH 520 701 G NPT	1/4" NPT	2.5.2.1.11	2.10.2.3
MH 53_ 701 G NPT	1/4" NPT	2.5.2.1.4	
M(O)H 310 121 NPT	1/2" NPT	2.5.1.1.11	
MH 510 121 NPT	1/2" NPT	2.5.2.1.4	
MH 520 121 NPT	1/2" NPT	2.5.2.1.10	
MH 53_ 121 NPT	1/2" NPT	2.5.2.1.3	

## Namurvalves

		displayed on page	in stainless steel on page
MNH 310 701 NPT	1/4" NPT	2.8.1.1.1	2.10.3.1
MNH 311 701 NPT	1/4" NPT	2.8.1.1.1	2.10.3.1
MNH 310 121 NPT	1/2" NPT	2.8.1.1.2	
MNH 311 121 NPT	1/2" NPT	2.8.1.1.2	
MNH 510 701 NPT	1/4" NPT	2.8.1.2.1	2.10.3.2
MNH 511 701 NPT	1/4" NPT	2.8.1.2.1	2.10.3.2
MNH 510 121 NPT	1/2" NPT	2.8.1.2.2	
MNH 511 121 NPT	1/2" NPT	2.8.1.2.2	
MNH 520 701 NPT	1/4" NPT	2.8.1.2.3	2.10.3.2
MNH 520 121 NPT	1/2" NPT	2.8.1.2.3	
MNH 350 701 NPT	1/4" NPT	Namur Flex	2.10.3.3
MNH 351 701 NPT	1/4" NPT	Namur Flex	2.10.3.3
MNH 531 701 NPT	1/4" NPT	2.8.1.4	
MNH 531 121 NPT	1/2" NPT	2.8.1.4	

Pneumatically actuated Namurvalves and low-temperature valves on request.

page				
13		<b>General Technical Information</b>		
14		<b>Quick Finder for Manifold Systems</b>		
15	<b>2.1</b>	<b>Mechanically Actuated Valves</b>		
	<b>2.1.1</b>	<b>3/2 way valves</b>		
16	2.1.1.1	BV/BR/BL 311 201	M5	
17	2.1.1.2	BV/BR/BL 311 202	M5	ports on bottom
18	2.1.1.3	BV/BR/BL 311 243	ptf 4 mm	
19	2.1.1.4	BV/BR/BL 311 301	G 1/8"	
20	2.1.1.5	BG/BZ 311 401	G 1/8"	panel mounting
21	2.1.1.6	BR 311 501/701	G 1/8" - G 1/4"	heavy duty
	<b>2.1.2</b>	<b>5/2 way valves</b>		
22	2.1.2.1	BV/BR/BL 511 201	M5	
23	2.1.2.2	BV/BR/BL 511 301	G 1/8"	
24	2.1.2.3	BR 511 501/701	G 1/8" - G 1/4"	heavy duty
25	<b>2.2</b>	<b>Valves for Panel Mounting</b>		
26	2.2.1	BA 311 201/BA 311 202/BA 311 203 BA 311 243/BA 311 301	M5 ptf 4 mm - G 1/8"	3/2 way
27	2.2.2	BA 511 201/BA 511 202/BA 511 301	M5 - G 1/8"	5/2 way
28	2.2.3	Ø 22mm Actuators for Panel Mounting		
29	2.2.4	BH 311 401/BH 320 401/BH 311 701/BH 320 701	G 1/8" - G 1/4"	3/2 way, push-pull
30	2.2.5	BH 511 401/BH 520 401/BH 511 701/BH 520 701	G 1/8" - G 1/4"	5/2 way, push-pull
31	2.2.6	BHP 320 442/46	ptf 4 - 6 mm	3/2 way pneumatic reset
32	2.2.7	BHP 520 442/46	ptf 4 - 6 mm	5/2 way pneumatic reset
33	<b>2.3</b>	<b>Lever Actuated Valves</b>		
	<b>2.3.1</b>	<b>3/2 way valves</b>		
34	2.3.1.1	HV 311 501/HV 311 701/HV 311 801 HVR 320 501/HVR 320 701/HVR 320 801 HV 311 701 NPT HVR 320 701 NPT	G 1/8" - G 1/4" 1/4" NPT 1/4" NPT	spring return Indexed spring return Indexed
35	2.3.1.2	HV 311 101/HV 311 121/HV 311 181 HVR 320 101/HVR 320 121/HVR 320 181 HV 311 121 NPT HVR 320 121 NPT	G 3/8" - G 1/2" - G 3/4" 1/2" NPT 1/2" NPT	spring return Indexed spring return Indexed
	<b>2.3.2</b>	<b>5/2 way valves</b>		
36	2.3.2.1	HV 511 501/HV 511 701/HV 511 801 HVR 520 501/HVR 520 701/HVR 520 801 HV 511 701 NPT HVR 520 701 NPT	G 1/8" - G 1/4" 1/4" NPT 1/4" NPT	spring return Indexed spring return Indexed
37	2.3.2.2	HV 511 101/HV 511 121/HV 511 181 HVR 520 101/HVR 520 121/HVR 520 181 HV 511 121 NPT HVR 520 121 NPT	G 3/8" - G 1/2" - G 3/4" 1/2" NPT 1/2" NPT	spring return Indexed spring return Indexed
	<b>2.3.3</b>	<b>5/3 way valves</b>		
38	2.3.3.1	HV 53_ 501/HV 53_ 701/HV 53_ 801 HVR 53_ 501/HVR 53_ 701/HVR 53_ 801 HV 53_ 701 NPT HVR 53_ 701 NPT	G 1/8" - G 1/4" 1/4" NPT 1/4" NPT	spring return Indexed spring return Indexed
39	2.3.3.2	HV 53_ 101/HV 53_ 121/HV 53_ 181 HVR 53_ 101/HVR 53_ 121/HVR 53_ 181 HV 53_ 121 NPT HVR 53_ 121 NPT	G 3/8" - G 1/2" - G 3/4" 1/2" NPT 1/2" NPT	spring return Indexed spring return Indexed

# Table of Contents

page				
41	<b>2.4</b>	<b>Pilot Actuated Valves</b>		
	<b>2.4.1</b>	<b>3/2 way valves</b>		
42	2.4.1.1	P 310 302/P 310 502	M5- G 1/8"	air spring return
43	2.4.1.2	P 310 501/P 310 701/P 310 801 P 311 501/P 311 701/P 311 801	G 1/8" - G 1/4" G 1/8" - G 1/4"	air spring return mech. spring
44	2.4.1.3	P 310 101/P 310 121/P 310 181 P 311 101/P 311 121/P 311 181 P 310 121 NPT P 311 121 NPT	G 3/8" - G 1/2" - G 3/4" G 3/8" - G 1/2" - G 3/4" 1/2" NPT 1/2" NPT	air spring return mech. spring air spring return mech. spring
45	2.4.1.4	P 310 701 G/P 310 121 G P 311 701 G/P 311 121 G P 310 701 G NPT P 311 701 G NPT	G 1/4" - G 1/2" G 1/4" - G 1/2" 1/4" NPT 1/4" NPT	air spring, dual mech. spring, dual air spring, dual mech. spring, dual
46	2.4.1.5	P 320 302/P 320 502 P 322 302/P 322 502	M5- G 1/8" M5- G 1/8"	double pilot dominating
47	2.4.1.6	P 320 501/P 320 701 G/P 320 801 P 322 501/P 322 701 G	G 1/8" - G 1/4" G 1/8" - G 1/4"	double pilot dominating
48	2.4.1.7	P 320 101/P 320 121/P 320 181	G 3/8" - G 1/2"-G 3/4"	double pilot
	<b>2.4.2</b>	<b>5/2 way valves</b>		
49	2.4.2.1	P 510 302/P 510 502	M5- G 1/8"	air spring return
50	2.4.2.2	P 510 501/P 510 701/P 510 801 P 511 501/P 511 701/P 511 801	G 1/8" - G 1/4" G 1/8" - G 1/4"	air spring return mech. spring
51	2.4.2.3	P 510 101/P 510 121/P 510 181 P 511 101/P 511 121/P 511 181 P 510 121 NPT P 511 121 NPT	G 3/8" - G 1/2" - G 3/4" G 3/8" - G 1/2" - G 3/4" 1/2" NPT 1/2" NPT	air spring return mech. spring air spring return mech. spring
52	2.4.2.4	P 510 501 G/P 510 701 G/P 510 121 G P 511 501 G/P 511 701 G/P 511 121 G P 510 701 G NPT P 511 701 G NPT	G 1/8" - G 1/4" - G 1/2" G 1/8" - G 1/4" - G 1/2" 1/4" NPT 1/4" NPT	air spring, dual mech. spring, dual air spring, dual mech. spring, dual
53	2.4.2.5	P 520 302/P 520 502	M5- G 1/8"	double pilot
54	2.4.2.6	P 520 501/P 520 701/P 520 801 P 522 501/P 522 701	G 1/8" - G 1/4" G 1/8" - G 1/4"	double pilot dominating
55	2.4.2.7	P 520 101/P 520 121/P 520 181 P 520 121 NPT	G 3/8" - G 1/2" - G 3/4" 1/2" NPT	double pilot double pilot
56	2.4.2.8	P 520 501 G/P 520 701 G/P 520 121 G P 522 501 G/P 522 701 G P 520 701 G NPT	G 1/8" - G 1/4" - G 1/2" G 1/8" - G 1/4" 1/4" NPT	double pilot, dual dominating, dual double pilot, dual
	<b>2.4.3</b>	<b>5/3 way valves</b>		
57	2.4.3.1	P 53_ 501/P 53_ 701/P 53_ 801	G 1/8" - G 1/4"	
58	2.4.3.2	P 53_ 101/P 53_ 121/P 53_ 181 P 53_ 121 NPT	G 3/8" - G 1/2" - G 3/4" 1/2" NPT	
59	2.4.3.3	P 53_ 501 G/P 53_ 701 G/P 53_ 121 G P 53_ 701 G NPT	G 1/8" - G 1/4" - G 1/2" 1/4" NPT	dual
	<b>2.4.4</b>	<b>Pneumatic and logic elements – in-line</b>		
60	2.4.4.1	VA 341/VA 401/ES 341/ES 401	pif 4 mm, G 1/8"	OR- / AND-gate
61	2.4.4.2	DR 501/DR 801/DR 101/D 501/D 801/D 101	G 1/8" - G 3/8"	flow regulator
	<b>2.4.5</b>	<b>Sub-base mounted pneumatic valves with integral pif in plate – Logic elements</b>		
62	2.4.5.1	P 310 304/P 311 304/P 320 304/P 322 304 RP 3 344	all ports in the plate 3/2 way pif 4 mm	
63	2.4.5.2	P 510 304/P 511 304/P 520 304/P 522 304 RP 5 344	all ports in the plate 5/2 way pif 4 mm	
64	2.4.5.3	VA 304/ES 304 RP 2 344	all ports in the plate OR-/AND-gates pif 4 mm	

page

65	<b>2.5</b>	<b>Solenoid Valves</b>		
	<b>2.5.1</b>	<b>3/2 way valves and 2/2 way valves</b>		
	<b>2.5.1.1</b>	<b>3/2 way and 2/2 way in-line valves</b>	<b>G-type in-line and manifold use (dual)</b>	
56	2.5.1.1.1	MD 311 010	M5	direct actuated
67	2.5.1.1.2	MH 311 012/MOH 311 012 MH 311 015/MOH 311 015 MH 211 012/MH 211 015	M5 G 1/8" M5 - G 1/8"	3/2 way direct 3/2 way direct 2/2 way direct
68	2.5.1.1.3	MH 311 305/MOH 311 305 MH 311 309/MOH 311 309 MH 211 305/MH 211 309	G 1/8" G 1/4" G 1/8" - G 1/4"	3/2 way direct 3/2 way direct 2/2 way direct
69	2.5.1.1.4	MH 311 013/MH 311 017	G 1/8" - G 1/4"	banjo
70	2.5.1.1.5	MH 311 313/MH 311 317	G 1/8" - G 1/4"	banjo
71	2.5.1.1.6	MD 310 301/MOD 310 301 MD 310 341/MOD 310 341	M5 pil 4 mm	single solenoid single solenoid
72	2.5.1.1.7	MD 310 401/MOD 310 401 MD 310 461/MOD 310 461	G 1/8" pil 6 mm	single solenoid single solenoid
73	2.5.1.1.8	MH 310 302/MOH 310 302 MH 310 502/MOH 310 502	M5 G 1/8"	single solenoid single solenoid
74	2.5.1.1.9	MH 210 501/MH 210 701	G 1/8" - G 1/4"	2/2 single solenoid
75	2.5.1.1.10	MH 310 501/MOH 310 501 MH 310 701/MOH 310 701 MH 310 801/MOH 310 801	G 1/8" G 1/4" G 1/4"	single solenoid single solenoid single solenoid
76	2.5.1.1.11	MH 310 101/MOH 310 101 MH 310 121/MOH 310 121 MH 310 181/MOH 310 181 MH 310 121 NPT/MOH 310 121 NPT	G 3/8" G 1/2" G 3/4" 1/2" NPT	single solenoid single solenoid single solenoid single solenoid
77	2.5.1.1.12	MH 310 501 G/MOH 310 501 G MH 310 701 G/MOH 310 701 G MH 310 701 G NPT/MOH 310 701 G NPT	G 1/8" G 1/4" 1/4" NPT	single solenoid, dual single solenoid, dual single solenoid, dual
78	2.5.1.1.13	MH 310 101 G/MOH 310 101 G MH 310 121 G/MOH 310 121 G	G 3/8" G 1/2"	single solenoid, dual single solenoid, dual
79	2.5.1.1.14	MH 320 501/MH 320 701/MH 320 801	G 3/8" - G 1/2" - G 3/4"	double solenoid
80	2.5.1.1.15	MH 320 101/MH 320 121/MH 320 181	G 1/4" - G 1/2"	double solenoid, dual
81	2.5.1.1.16	MH 320 501 G/MH 320 701 G MH 320 101 G/MH 320 121 G	G 1/8" - G 1/2"	double solenoid, dual
	<b>2.5.1.2</b>	<b>3/2 and 2/2 way base-mounted valves</b>		
82	2.5.1.2.1	MD 311 104/RD 3__ 104/RD 3__ 144	M5 - pil 4 mm	direct actuated
83	2.5.1.2.2	MH 312/MH 315 MH 314/MH 316	M5 - G 1/8" pil 4 mm / 6 mm	direct actuated direct actuated
84	2.5.1.2.3	MH 339/MH 239/R 33 R/R 33 L	G 1/4"	direct modular
85	2.5.1.2.4	MD 310 343/MOD 310 343 MD 310 403/MOD 310 403 MD 310 463/MOD 310 463	pil 4 mm G 1/8" pil 6 mm	single solenoid single solenoid single solenoid
86	2.5.1.2.5	MD 310 304/MOD 310 304 MD 310 404/MOD 310 404	all ports in plate all ports in plate	single solenoid single solenoid
	<b>2.5.1.3</b>	<b>3/3 way valves</b>		
87	2.5.1.3	MH 331 701 G/MH 331 121 G	G 1/4" - G 1/2"	
	<b>2.5.2</b>	<b>5/2 way valves</b>		
	<b>2.5.2.1</b>	<b>In-line valves</b>	<b>G-type in-line and manifold use (dual)</b>	
89	2.5.2.1.1	MD 510 301/MOD 510 341 MD 510 401/MOD 510 461	M5 - pil 4 mm G 1/8" - pil 6 mm	single solenoid single solenoid
90	2.5.2.1.2	MH 510 302/MH 510 502	M5 - G 1/8"	single solenoid
91	2.5.2.1.3	MH 510 501/MH 510 701/MH 510 801	G 1/8" - G 1/4"	single solenoid
92	2.5.2.1.4	MH 510 101/MH 510 121/MH 510 181 MH 510 121 NPT	G 3/8" - G 1/2" - G 3/4" 1/2" NPT	single solenoid single solenoid

# Table of Contents

page				
93	2.5.2.1.5	MH 510 501 G/MH 510 701 G MH 510 701 G NPT	G 1/8" - G 1/4" - G 1/2" 1/4" NPT	single solenoid, dual single solenoid, dual
94	2.5.2.1.6	MH 510 101 G/MH 510 121 G	G 3/8" - G 1/2"	single solenoid, dual
95	2.5.2.1.7	MD 520 301/MD 520 341 MD 520 401/MD 520 461	M5 - pif 4 mm G 1/8" - pif 6 mm	double solenoid double solenoid
96	2.5.2.1.8	MH 520 302/MH 520 502	M5 - G 1/8"	double solenoid
97	2.5.2.1.9	MH 520 501/MH 520 701/MH 520 801	G 1/8" - G 1/4"	double solenoid
98	2.5.2.1.10	MH 520 101/MH 520 121/MH 520 181 MH 520 121 NPT	G 3/8" - G 1/2" - G 3/4" 1/2" NPT	double solenoid double solenoid
99	2.5.2.1.11	MH 520 501 G/MH 520 701 G MH 520 701 G NPT	G 1/8" - G 1/4" 1/4" NPT	double solenoid, dual double solenoid, dual
100	2.5.2.1.12	MH 520 101 G/MH 520 121 G	G 3/8" - G 1/2"	double solenoid, dual
	<b>2.5.2.2</b>	<b>Base-mounted valves</b>		
101	2.5.2.2.1	MD 510 303/MD 510 343 MD 510 403/MD 510 463	M5 - pif 4 mm G 1/8" - pif 6 mm	single solenoid single solenoid
102	2.5.2.2.2	MH 510 503/MH 510 703/MH 510 803	G 1/8" - G 1/4"	single solenoid
103	2.5.2.2.3	MD 510 304/MD 510 404	all ports in the plate	single solenoid
104	2.5.2.2.4	MH 510 304/MH 510 504/MH 510 704	all ports in the plate	single solenoid
105	2.5.2.2.5	MD 520 303/MD 520 343 MD 520 403/MD 520 463	M5 - pif 4 mm G 1/8" - pif 6 mm	double solenoid double solenoid
106	2.5.2.2.6	MH 520 503/MH 520 703/MH 520 803	G 1/8" - G 1/4"	double solenoid
107	2.5.2.2.7	MD 520 304/MD 520 404	all ports in the plate	double solenoid
108	2.5.2.2.8	MH 520 304/MH 520 504/MH 520 704	all ports in the plate	double solenoid
	<b>2.5.3</b>	<b>5/3 way valves</b>		
	<b>2.5.3.1</b>	<b>In-line valves</b>		<b>G-type in-line and manifold use (dual)</b>
109	2.5.3.1.1	MD 53_301/MD 53_341 MD 53_401/MD 53_461	M5 - pif 4 mm G 1/8" - pif 6 mm	
110	2.5.3.1.2	MH 53_501/MH 53_701/MH 53_801	G 1/8" - G 1/4"	
111	2.5.3.1.3	MH 53_101/MH 53_121/MH 53_181 MH 53_121 NPT	G 3/8" - G 1/2" - G 3/4" 1/2" NPT	
112	2.5.3.1.4	MH 53_501 G/MH 53_701 G/MH 53_121 G MH 53_701 G NPT	G 1/8" - G 1/4" - G 1/2" 1/4" NPT	dual dual
113	2.5.3.1.5	MH 53_101 G/MH 53_121 G	G 3/8" - G 1/2"	dual
	<b>2.5.3.2</b>	<b>Base-mounted valves</b>		
114	2.5.3.2.1	MD 53_303/MD 53_343 MD 53_403/MD 53_463	M5 - pif 4 mm G 1/8" - pif 6 mm	
115	2.5.3.2.2	MH 53_503/MH 53_703/MH 53_803	G 1/8" - G 1/4"	
116	2.5.3.2.3	MD 53_304/MD 53_404	all ports in the plate	
117	2.5.3.2.4	MH 53_304/MH 53_504/MH 53_704	all ports in the plate	
119	<b>2.6</b>	<b>Manifold Plates</b>		
	<b>2.6.1</b>	<b>For 3 way valves</b>		
120	2.6.1.1	R_ _		For valves displayed on page 2.5.1.2.2
121	2.6.1.2	RD 3_ _303/RD 3_ _403		For valves displayed on page 2.5.1.2.4
122	2.6.1.3	RD 3_ _344/RD 3_ _464		For valves displayed on page 2.5.1.2.5
123	2.6.1.4	RB 3_ _503 G RB 3_ _103 G		For solenoid valves displayed on page 2.5.1.1.12, 2.5.1.1.13, 2.5.1.1.16
124	2.6.1.5	R 3_ _703 G/R 3_ _121 G		For solenoid valves displayed on page 2.5.1.1.12, 2.5.1.1.6, 2.5.1.3
				For pneumatic valves of page 2.4.1.4, 2.4.1.6
				For low temp. solenoids of page 2.9.4.1.2
				For low temp. pneumatic v. of page 2.9.3.1
	<b>2.6.2</b>	<b>For 5 way valves</b>		
125	2.6.2.1	RD 5_ _303/RD 5_ _403		For valves displayed on page 2.5.2.2.1, 2.5.2.2.5, 2.5.3.2.1

page				
126	2.6.2.2	RB 5__ 503 G R 5 503 GR/R 5 503 GL/R 5 503 G		
127	2.6.2.3	RB 5__ 703 G R 5 703 GR/R 5 703 GL/R 5 703 G		For solenoid valves displayed on page 2.5.2.1.5, 2.5.2.1.11, 2.5.3.1.4, 2.5.2.2.2, 2.5.2.2.6, 2.5.3.2.2 For pneumatic valves displayed on page 2.4.2.4, 2.4.2.8, 2.4.3.3 For low temp. solenoids of page 2.9.4.2.1, 2.9.4.2.2 For low temp. pneumatic valves of page 2.9.3.2, 2.9.3.3
128	2.6.2.4	RB 5__ 103 G R 5 103 GR/R 5 103 GL/R 5 103 G		For valves displayed on page 2.5.2.1.6, 2.5.2.1.12, 2.5.3.1.5
129	2.6.2.5	R 5__ 803  R 5__ 121 G		For valves displayed on page 2.5.2.2.2, 2.5.2.2.6, 2.5.3.2.2 For solenoid valves displayed on page 2.5.2.1.6, 2.5.2.1.12, 2.5.3.1.5 For pneumatic valves of page 2.4.2.4, 2.4.2.8, 2.4.3.3
130	2.6.2.6	RD 5__ 344/RD 5__ 464		For valves displayed on page 2.5.2.2.3, 2.5.2.2.7, 2.5.3.2.3
131	2.6.2.7	R 5__ 304/R 5__ 504/R 5__ 704/R 5__ 784		For solenoid valves displayed on page 2.5.2.2.4, 2.5.2.2.8, 2.5.3.2.4 For low temp. solenoids of page 2.9.4.3.1, 2.9.4.3.2
132	2.6.3	<b>DIN-Rail mounting clips</b>		
133	2.7	<b>Valves Terminals</b>		
134	2.7.1	<b>General Information on Valve Terminals</b>		
	2.7.2	<b>Valve terminals with 3 way valves</b>		
135	2.7.2.1	T 16 3__ 104/T 16 3__ 144	M5 - pif 4 mm	direct actuated
136	2.7.2.2	T 16 3__ 303	pif 4 mm	port 2 in valve
137	2.7.2.3	T 16 3__ 403	G 1/8" - pif 6 mm	port 2 in valve
138	2.7.2.4	T 22 3__ 703	G 1/4"	port 2 in valve
139	2.7.2.5	T 16 3__ 344/T 16 3__ 464	pif 4 mm, pif 6 mm	all ports in plate
	2.7.3	<b>Valves terminals with 5 way valves</b>		
140	2.7.3.1	T 16 5__ 303	M5 - pif 4 mm	port 2 & 4 in valve
141	2.7.3.2	T 16 5__ 403	G 1/8" - pif 6 mm	port 2 & 4 in valve
142	2.7.3.3	T 22 5__ 503/T 22 5__ 703	G 1/8" - G 1/4"	port 2 & 4 in valve
143	2.7.3.4	T 16 5__ 344	pif 4 mm	all ports in plate
144	2.7.3.5	T 16 5__ 464	pif 6 mm	all ports in plate
145	2.7.3.6	T 22 5__ 504	G 1/8"	all ports in plate
146	2.7.3.7	T 22 5__ 704/T 22 5__ 784	G 1/4"	all ports in plate
	2.7.4	<b>Connectors and Cables</b>		
147	2.7.4	ST40W06/ST40 W14 ST40 G06/ST40 G14	Elbow connector Straight connector	
149	2.8	<b>Valves with Namur Interface</b>		
	2.8.1	<b>Solenoid valves with Namur Interface</b>		
	2.8.1.1	<b>3/2 way valves</b>		
150	2.8.1.1.1	MNH 310 701 / MNH 310 701 MNH 310 711 / MNH 311 701 MNK 310 701 / MNK 311 701 MNH 310 701 NPT / MNH 311 701 NPT	G 1/4" G 1/4" G 1/4" 1/4" NPT	low power
151	2.8.1.1.2	MNH 310 101 / MNH 311 101 MNH 310 121 / MNH 311 121 MNH 310 121 NPT / MNH 311 121 NPT	G 3/8" G 1/2" 1/2" NPT	max. flow



# Table of Contents

page				
	<b>2.8.1.2</b>	<b>5/2 way valves</b>		
152	2.8.1.2.1	MNH 510 701/MNH 510 711 MNH 511 701/MNH 511 711 MNK 510 701/MNK 511 701	G 1/4" G 1/4" G 1/4"	single solenoid single solenoid single solenoid, low power
153	2.8.1.2.2	MNH 510 701 NPT/MNH 511 701 NPT MNH 510 101/MNH 511 101 MNH 510 121/MNH 511 121	1/4" NPT G 3/8" G 1/2"	single solenoid, max. flow single solenoid single solenoid
154	2.8.1.2.3	MNH 510 121 NPT/MNH 511 121 NPT MNH 520 701/MNH 520 101/MNK 520 701 MNH 520 121 MNH 520 701 NPT MNH 520 121 NPT	1/2" NPT G 1/4" - G 3/8" G 1/2" 1/4" NPT 1/2" NPT	double solenoid double solenoid double solenoid double solenoid double solenoid
155	<b>2.8.1.3</b>	<b>Namur Flex</b>		
	<b>2.8.1.4</b>	<b>5/3 way valves</b>		
156	2.8.1.4.1	MNH 531 701/MNH 531 101/MNK 531 701 MNH 532 701 MNH 531 121 MNH 531 701 NPT MNH 531 121 NPT	G 1/4" - G 3/8" G 1/4" G 1/2" 1/4" NPT 1/2" NPT	Centre closed Centre exhausted Centre closed Centre closed Centre closed
	<b>2.8.2</b>	<b>Pneumatically actuated valves with Namur interface</b>		
	<b>2.8.2.1</b>	<b>3/2 way valves</b>		
157	2.8.2.1	PN 310 701/PN 311 701/PN 310 121	G 1/4" - G 1/2"	
	<b>2.8.2.2</b>	<b>5/2 way valves</b>		
158	2.8.2.2	PN 510 701/PN 511 701/PN 510 121 PN 520 701/PN 520 121	G 1/4" - G 1/2" G 1/4" - G 1/2"	single pilot double pilot
	<b>2.8.2.3</b>	<b>5/3 way valves</b>		
159	2.8.2.3	PN 531 701/PN 531 121	G 1/4" - G 1/2"	
	<b>2.8.3</b>	<b>Lever actuated valves with Namur interface</b>		
160	2.8.3	HVN 311 701/HVRN 320 701 HVN 511 701/HVRN 520 701	G 1/4" G 1/4"	3/2 way 5/2 way
	<b>2.8.4</b>	<b>Accessories for Actuator control</b>		
	<b>2.8.4.1</b>	<b>Flow regulators with Namur interface</b>		
161	2.8.4.1.1	DRN 3 601/DRN 3 611/DRN 3 128	for 3-way Namurvalves	
162	2.8.4.1.2	DRN 5 601/DRN 6 611/DRN 5 501	for 5-way Namurvalves	
	<b>2.8.4.2</b>	<b>Pneumo-manual override for positioner</b>		
163	2.8.4.2	HVRZN 731 701/HVRZN 731 702		
	<b>2.8.4.3</b>	<b>Safety-shortcut when using manual gearboxes</b>		
164	2.8.4.3	PN 411 701/P 411 121		
	<b>2.8.4.4</b>	<b>Quick-Exhaust-Block with integrated Non-Return valve</b>		
165	2.8.4.4	SENR-20		
	<b>2.8.4.5</b>	<b>Plates for cylinder-valve-combinations</b>		
166	2.8.4.5	ZVP 701/ZVP 101/ZVP 121/ZVP 121-701		
	<b>2.8.4.6</b>	<b>Accessories for valves with Namur interface</b>		
167	2.8.4.6	Mounting Accessories and Spare-part Kits		

page				
169	<b>2.9</b>	<b>"Hafner on the Rocks" – Low-Temperature Valves</b>		
	<b>2.9.1</b>	<b>Manually Actuated Valves</b>		
	<b>2.9.1.1</b>	<b>Push-Pull-Valves</b>		
170	2.9.1.1	BH 311 701 TT/BH 320 701 TT BH 511 701 TT/BH 520 701 TT	G 1/4" G 1/4"	3/2 way 5/2 way
	<b>2.9.2</b>	<b>Lever-Valves</b>		
171	2.9.2.1	HV 311 501 TT/HV 311 701 TT HVR 320 501 TT/HVR 320 701 TT	G 1/8" - G 1/4" G 1/8" - G 1/4"	3/2, spring return 3/2, indexed
172	2.9.2.2	HV 511 501 TT/HV 511 701 TT HVR 520 501 TT/HVR 520 701 TT	G 1/8" - G 1/4" G 1/8" - G 1/4"	5/2, spring return 5/2, indexed
173	2.9.2.3	HV 53_ 501 TT/HV 53_ 701 TT HVR 53_ 501 TT/HVR 53_ 701 TT	G 1/8" - G 1/4" G 1/8" - G 1/4"	5/3, spring return 5/3, indexed
	<b>2.9.3</b>	<b>Pneumatically Actuated Valves</b>		
174	2.9.3.1	P 310 501 TT/P 310 701 GTT P 311 501 TT/P 311 701 GTT P 320 501 TT/P 320 701 GTT	G 1/8" - G 1/4" G 1/8" - G 1/4" G 1/8" - G 1/4"	3/2, air spring return 3/2, spring return 3/2, double pilot
175	2.9.3.2	P 510 501 GTT/P 510 701 GTT P 511 501 GTT/P 511 701 GTT P 520 501 GTT/P 520 701 GTT	G 1/8" - G 1/4" G 1/8" - G 1/4" G 1/8" - G 1/4"	5/2, air spring return 5/2, spring return 5/2, double pilot
176	2.9.3.3	P 53_ 501 GTT/P 53_ 701 GTT	G 1/8" - G 1/4"	5/3 way
	<b>2.9.4</b>	<b>Solenoid Valves</b>		
	<b>2.9.4.1</b>	<b>3/2-way valves</b>		
177	2.9.4.1.1	MH 311 012 TT/MH 311 015 TT MH 311 013 TT/ MH 311 017 TT	M5- G 1/8" G 1/8" - G 1/4"	direct actuated banjo
178	2.9.4.1.2	MH 310 501 TT/MOH 310 501 TT MH 310 701 GTT/MOH 310 701 GTT MH 320 501 TT/MH 320 701 GTT	G 1/8" G 1/4" G 1/8" - G 1/4"	single solenoid single solenoid double solenoid
	<b>2.9.4.2</b>	<b>5-way G-type valves In-line and manifold use (dual)</b>		
179	2.9.4.2.1	MH 510 501 GTT/MH 510 701 GTT	G 1/8" - G 1/4"	5/2, air spring return
180	2.9.4.2.2.	MH 520 501 GTT/MH 520 701 GTT MH 53_ 501 GTT/MH 53_ 701 GTT	G 1/8" - G 1/4" G 1/8" - G 1/4"	5/2, double solenoid 5/3 way
	<b>2.9.4.3</b>	<b>5-way valves base-mounted</b>		
181	2.9.4.3.1	MH 510 304 TTMH 510 504 TT MH 510 704 TT	all ports in plate	5/2 air spring return
182	2.9.4.3.2	MH 520 304 TT/ MH 520 504 TT MH 520 704 TT MH 53_ 304 TT/MH 53_ 504 TT MH 53_ 704 TT	all ports in plate all ports in plate	5/2 double solenoid 5/3 way
	<b>2.9.5</b>	<b>Valves with Namur Interface</b>		
	<b>2.9.5.1</b>	<b>3/2-way solenoid valves</b>		
183	2.9.5.1	MNH 310 701 TT MNH 311 701 TT	G 1/4" G 1/4"	air spring return spring return
	<b>2.9.5.2</b>	<b>5-way solenoid valves</b>		
184	2.9.5.2.1	MNH 510 701 TT/MNH 510 711 TT MNH 511 701 TT/MNH 511 711 TT	G 1/4" G 1/4"	air spring return spring return
185	2.9.5.2.2	MNH 520 701 TT MNH 531 701 TT	G 1/4" G 1/4"	double solenoid 5/3-way
	<b>2.9.5.3</b>	<b>Flow regulators with Namur interface</b>		
186	2.9.5.3	DRN 3 611 TT/DRN 5 611 TT		

# Table of Contents

187	<b>2.10</b>	<b>Heavy Metal – Stainless Steel Valves</b>		
	<b>2.10.1</b>	<b>Pneumatically actuated Valves made from Stainless Steel</b>		
188	2.10.1.1	P 310 701 VES/P 311 701 VES	3/2-way	
		P 310 701 VES NPT/P 311 701 VES NPT	1/4" NPT	
189	2.10.1.2	P 510 701 VES/P 511 701 VES/P 520 701 VES	5/2-way	
		P 510 701 VES NPT/P 511 701 VES NPT	1/4" NPT	
		P 520 701 VES NPT	1/4" NPT	
	<b>2.10.2</b>	<b>Solenoid valves made from Stainless Steel</b>		
190	2.10.2.1	MH 311 015 VES	3/2-way	direct actuated
191	2.10.2.2	MH 310 701 VES/KES / MOH 310 701 VES/KES	3/2-way	
		MH 310 701 VES/KES NPT	1/4" NPT	
		MOH 310 701 VES/KES NPT	1/4" NPT	
192	2.10.2.3	MH 510 701 VES/KES	5/2-way	single solenoid
		MH 520 701 VES/KES	5/2-way	double solenoid
		MH 510 701 VES/KES NPT	1/4" NPT	single solenoid
		MH 520 701 VES/KES NPT	1/4" NPT	double solenoid
	<b>2.10.3</b>	<b>Namur-valves made from Stainless Steel</b>		
193	2.10.3.1	MNH 310 701 VES/KES	3/2-way	
		MNH 311 701 VES/KES		
		MNH 310 701 VES/KES NPT	1/4" NPT	
		MNH 311 701 VES/KES NPT	1/4" NPT	
194	2.10.3.2	MNH 510 701 VES/KES	5/2-way	single solenoid
		MNH 511 701 VES/KES		
		MNH 520 701 VES/KES	5/2-way	double solenoid
		MNH 510 701 VES/KES NPT	1/4" NPT	single solenoid
		MNH 511 701 VES/KES NPT	1/4" NPT	single solenoid
		MNH 520 701 VES/KES NPT	1/4" NPT	double solenoid
195	2.10.3.3	MNH 350 701 VES/KES		Namur-Flex
		MNH 351 701 VES/KES		Namur-Flex
		MNH 350 701 VES/KES NPT	1/4" NPT	Namur-Flex
		MNH 351 701 VES/KES NPT	1/4" NPT	Namur-Flex
196	2.10.3.4	DRN 3 611 VES/DRN 5 611 VES/DRF 3 601 VES		Flow regulators
197	<b>2.11</b>	<b>Coils and Connectors</b>		
198	2.11.1	MA 16/MA 16 L	Solenoid system 16 mm	
199	2.11.2	MA 22/MA 22 L/MA 22 D	Standard coils 22 mm	
200	2.11.3	ST 16/ST 22/ST 22 L 500/ST 30 ATEX	Connectors	
201	2.11.4.1	MA 22 EEx M II T4/MA 30 EEx i.A. IIC T6	Explosion-proof coils	
	<b>2.12</b>	<b>Products for Explosion hazardous Environment</b>		
202	<b>2.12.1</b>	<b>Non-electric valves for explosion hazardous environment</b>		
	<b>2.12.2</b>	<b>Solenoid valves for explosion hazardous environment</b>		
203	2.12.2.1	Ex-Solenoids standard temperature range		
204	2.12.2.2	Ex-Solenoids low temperature range		
206	2.12.2.3	Ex-Solenoids in stainless steel		
	<b>2.12.3</b>	<b>Coils for explosion hazardous environment</b>		
206	2.12.3.1	MA 22 Ex m II T4		
207	2.12.3.2	MA 22 Ex ia II C T6		

## Temperature range:

Type-number	Temperature range
BV, BR, BL, BA	-20°C to +50°C
BG, BH	-10°C to +60°C
HV, HVR, P	-10°C to +60°C
MH, MNH DC-version	-10°C to +60°C
MH, MNH AC-version	-10°C to +50°C
MD, MK	-10°C to +50°C
TT	-50°C to +50°C

Several customer-specific items have been catered for an enlarged temperature range.

## Leakage rate at 6 bar pressure:

All (100 % of) the Hafner-valves leaving the factory are individually tested on function and leakage.

The following leakage rate is allowed and a valve is still rated as good with the following:

- Internal leakage: 4 cm<sup>3</sup> / min
- External leakage: 2 cm<sup>3</sup> / min

For TT-valves only:

At temperatures below 40°C the internal leakage can increase to 10 cm<sup>3</sup> / min

## Required air-quality:

The valves are designed for being used with use cleaned and lubricated or cleaned and unlubricated compressed air quality level 5 following ISO 8573-1.

## Lubrication:

Valves do not require any lubrication but lubrication in general increases the life-time of the products. Please avoid to lubricate the valves during a certain period of time and let them run dry later. For low-temperature-items: Do not lubricate as most kinds of oil and grease do not properly operate below - 25°C.

## Standard materials used for Hafner-valves:

Bodies	standard VES / KES chapter 2.10	anodised aluminum 1.4404
Spool	standard	stainless steel 1.4104
Sealing-system	standard low temperature chapter 2.9 VES / KES chapter 2.10	brass & NBR brass & PUR stainless steel & PUR
Other inner parts	standard low temperature chapter 2.9 VES / KES chapter 2.10	brass, POM, NBR brass, POM, NBR stainless steel POM, FKM
Actuation elements	BA-valves HV BH BHP	PA 6 30% fibre reinforced Thermoset resin PA 6 ABS-plastic
Upper part solenoids	series 500 and 700 other series VES KES	PA, brass anodised aluminum, brass 1.4404 PA, stainless steel

PA Polyamide  
1.4404 high graded stainless steel  
POM Polyoxymethylene

In accordance to CETOP position paper „PP07 Machine Directive 2006/42/EC“: Single valves placed on the market are not ... within the meaning of Annex V, point 4 of Machine Directive 2006/42/EC.

The Hafner company policy is one of a continuous improvement process. We therefore reserve the right to amend, enhance and change specifications of the products presented in this document without notice.

# Quick Finder for Manifold Systems

We offer a large variety of manifold systems. In order to choose the appropriate combination of manifold plate and solenoid valves please consult the list below.

The different valves which can be assembled to one type of manifold plate are described in the same row.

Manifold systems that can be equipped with our D-Sub-terminal system are indicated by a T in the last column.

Valves that can be used in-line and on manifold plates are indicated by a G.

Modular Manifold-System indicated by a B.

## 3 way solenoid valves

position of ports			port size			manifold		3/2 way single sol.			3/2 way double sol.		comment	
1	2	3	1	2	3	type	page	type n.c.	type n.o.	page	type	page		
plate	plate	valve	G 1/8"	M5	operator	RD 3.. 104	2.5.1.2.1	MD 311 104	n.a.	2.5.1.2.1	n.a.	n.a.	direct acting	T
plate	plate	valve	G 1/8"	pf 4 mm	operator	RD 3.. 144	2.5.1.2.1	MD 311 104	n.a.	2.5.1.2.1	n.a.	n.a.	direct acting	T
plate	valve	valve	G 1/4"	M5	operator	R..	2.6.1.1	MH 312	n.a.	2.5.1.2.2	n.a.	n.a.	direct acting	
plate	valve	valve	G 1/4"	G 1/8"	operator	R..	2.6.1.1	MH 315	n.a.	2.5.1.2.2	n.a.	n.a.	direct acting	
plate	valve	valve	G 1/4"	pf 4 mm	operator	R..	2.6.1.1	MH 314	n.a.	2.5.1.2.2	n.a.	n.a.	direct acting	
plate	valve	valve	G 1/4"	pf 6 mm	operator	R..	2.6.1.1	MH 316	n.a.	2.5.1.2.2	n.a.	n.a.	direct acting	
plate	plate	valve	G 1/4"	G 1/4"	G 1/8"	R 33	2.5.1.2.3	MH 339	n.a.	2.5.1.2.3	n.a.	n.a.	direct acting	B
plate	valve	plate	G 1/8"	pf 4 mm	G 1/8"	RD 3.. 303	2.6.1.2	MD 310 343	MOD 310 343	2.5.1.2.4	n.a.	n.a.	3/2 way valves	T
plate	valve	plate	G 1/4"	pf 6 mm	G 1/4"	RD 3.. 403	2.6.1.2	MD 310 463	MOD 310 463	2.5.1.2.4	n.a.	n.a.	3/2 way valves	T
plate	valve	plate	G 1/4"	G 1/8"	G 1/4"	RD 3.. 403	2.6.1.2	MD 310 403	MOD 310 403	2.5.1.2.4	n.a.	n.a.	3/2 way valves	T
plate	plate	plate	G 1/4"	pf 4 mm	G 1/4"	RD 3.. 344	2.6.1.3	MD 310 304	MOD 310 304	2.5.1.2.5	n.a.	n.a.	3/2 way valves	T
plate	plate	plate	G 1/4"	pf 6 mm	G 1/4"	RD 3.. 464	2.6.1.3	MD 310 404	MOD 310 404	2.5.1.2.5	n.a.	n.a.	3/2 way valves	T
plate	valve	plate	G 1/4"	G 1/8"	G 1/4"	RB 3.. 503 G	2.6.1.4	MH 310 501 G	MOH 310 501 G	2.5.1.1.12	MH 320 501 G	2.5.1.1.16	3/2 way valves	GB
plate	valve	plate	G 3/8"	G 1/4"	G 3/8"	R 3.. 703 G	2.6.1.5	MH 310 701 G	MOH 310 701 G	2.5.1.1.12	MH 320 701 G	2.5.1.1.16	3/2 way valves	GT
plate	valve	plate	G 3/8"	G 1/4"	G 3/8"	R 3.. 703 G	2.6.1.5	MH 331 701 G		2.5.1.3			3/3 way valves	G
plate	valve	plate	G 1/2"	G 3/8"	G 1/2"	RB 3.. 303 G	2.6.1.4	MH 310 101 G	MOH 310 101 G	2.5.1.1.12	MH 320 101 G	2.5.1.1.16	3/2 way valves	GB
plate	valve	plate	G 1/2"	G 1/2"	G 1/2"	R 3.. 121 G	2.6.1.5	MH 310 121 G	MOH 310 121 G	2.5.1.1.12	MH 320 121 G	2.5.1.1.16	3/2 way valves	G
plate	valve	plate	G 1/2"	G 1/2"	G 1/2"	R 3.. 121 G	2.6.1.5	MH 331 121 G		2.5.1.3			3/3 way valves	G

## 5 way solenoid valves

position of ports			port size			manifold		5/2 single sol.		5/2 double sol.		5/3 way		
1	2+4	3+5	1	2+4	3+5	type	page	type	page	type	page	type	page	
plate	valve	plate	G 1/8"	M5	G 1/8"	RD 5.. 303	2.6.2.1	MD 510 303	2.5.2.2.1	MD 520 303	2.5.2.2.5	MD 53.. 303	2.5.3.2.1	T
plate	valve	plate	G 1/8"	pf 4 mm	G 1/8"	RD 5.. 303	2.6.2.1	MD 510 343	2.5.2.2.1	MD 520 343	2.5.2.2.5	MD 53.. 343	2.5.3.2.1	T
plate	valve	plate	G 1/4"	G 1/8"	G 1/4"	RD 5.. 403	2.6.2.1	MD 510 403	2.5.2.2.1	MD 520 403	2.5.2.2.5	MD 53.. 403	2.5.3.2.1	T
plate	valve	plate	G 1/4"	pf 6 mm	G 1/4"	RD 5.. 403	2.6.2.1	MD 510 463	2.5.2.2.1	MD 520 463	2.5.2.2.5	MD 53.. 463	2.5.3.2.1	T
plate	valve	plate	G 1/4"	G 1/8"	G 1/4"	RB 5.. 503 G	2.6.2.2	MH 510 501 G	2.5.2.1.5	MH 520 501 G	2.5.2.1.11	MH 53.. 501 G	2.5.3.1.4	GB
plate	valve	plate	G 1/4"	G 1/8"	G 1/4"	RB 5.. 503 G	2.6.2.2	MH 510 503	2.5.2.2.2	MH 520 503	2.5.2.2.6	MH 53.. 503	2.5.3.2.2	TB
plate	valve	plate	G 3/8"	G 1/4"	G 3/8"	RB 5.. 703 G	2.6.2.3	MH 510 701 G	2.5.2.1.5	MH 520 701 G	2.5.2.1.11	MH 53.. 701 G	2.5.3.1.4	GB
plate	valve	plate	G 3/8"	G 1/4"	G 3/8"	RB 5.. 703 G	2.6.2.3	MH 510 703	2.5.2.2.2	MH 520 703	2.5.2.2.6	MH 53.. 703	2.5.3.2.2	TB
plate	valve	plate	G 3/8"	G 1/4"	G 3/8"	R 5.. 803	2.6.2.5	MH 510 803	2.5.2.2.2	MH 520 803	2.5.2.2.6	MH 53.. 803	2.5.3.2.2	
plate	valve	plate	G 1/2"	G 3/8"	G 1/2"	RB 5.. 103 G	2.6.2.4	MH 510 101 G	2.5.2.1.6	MH 520 101 G	2.5.2.1.12	MH 53.. 101 G	2.5.3.1.5	GB
plate	valve	plate	G 1/2"	G 1/2"	G 1/2"	R 5.. 121 G	2.6.2.5	MH 510 121 G	2.5.2.1.6	MH 520 121 G	2.5.2.1.12	MH 53.. 121 G	2.5.3.1.5	G
plate	plate	plate	G 1/8"	pf 4 mm	G 1/8"	RD 5.. 344	2.6.2.6	MD 510 304	2.5.2.2.3	MD 520 304	2.5.2.2.7	MD 53.. 304	2.5.3.2.3	T
plate	plate	plate	G 1/4"	pf 6 mm	G 1/4"	RD 5.. 464	2.6.2.6	MD 510 404	2.5.2.2.3	MD 520 404	2.5.2.2.7	MD 53.. 404	2.5.3.2.3	T
plate	plate	plate	G 1/4"	G 1/8"	G 1/4"	R 5.. 304	2.6.2.7	MH 510 304	2.5.2.2.4	MH 520 304	2.5.2.2.8	MH 53.. 304	2.5.3.2.4	T
plate	plate	plate	G 1/4"	G 1/8"	G 1/4"	R 5.. 504	2.6.2.7	MH 510 504	2.5.2.2.4	MH 520 504	2.5.2.2.8	MH 53.. 504	2.5.3.2.4	T
plate	plate	plate	G 3/8"	G 1/4"	G 3/8"	R 5.. 704	2.6.2.7	MH 510 704	2.5.2.2.4	MH 520 704	2.5.2.2.8	MH 53.. 704	2.5.3.2.4	T
plate	plate	plate	G 3/8"	pf 6 mm	G 3/8"	R 5.. 784	2.6.2.7	MH 510 704	2.5.2.2.4	MH 520 704	2.5.2.2.8	MH 53.. 704	2.5.3.2.4	T



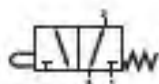
# 2.1

## Mechanically Actuated Valves

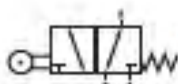
Selected models are available for explosion hazardous environment. They are ATEX-Ex certified. For detailed information refer to chapter 2.12.



# BV/BR/BL 311 201



BV 311 201



BR 311 201



BL 311 201



Mechanically actuated 3/2-way spool valve with mechanical spring. All ports are on the side of the valve.

If pressure is applied to port 1 the function is normally closed.

If pressure is applied to port 3 the function is normally open.

The use of the ports is interchangeable.

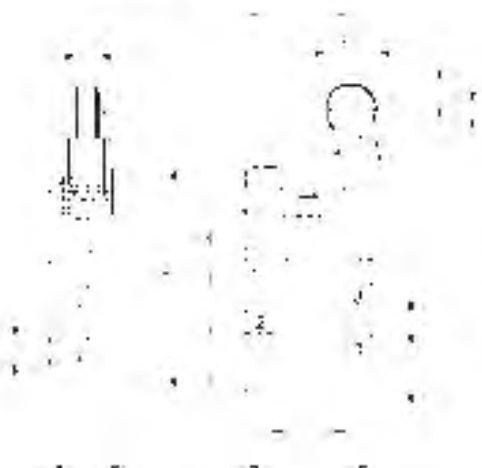
Exhaust can be throttled.



BV 311 201

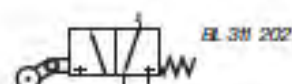
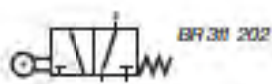
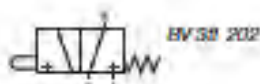


BR 311 201



BL 311 201

Type	Port size	Air flow	Operating press.	Actuating force	Weight
BV 311 201	M5	125 l/min	0 - 10 bar	14 N	0,033 kg
BR 311 201	M5	125 l/min	0 - 10 bar	9 N	0,041 kg
BL 311 201	M5	125 l/min	0 - 10 bar	9 N	0,044 kg



**BV 311 202**



**BR 311 202**



**BL 311 202**



Mechanically actuated 3/2-way spool valve with mechanical spring.

All ports are at the bottom of the valve.

Function is normally closed. When operated the valve opens from 1 to 2.

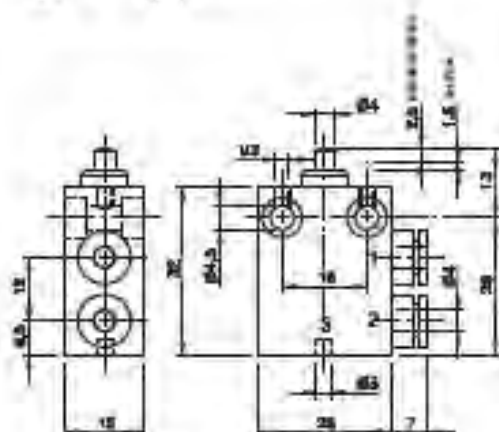
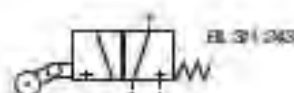
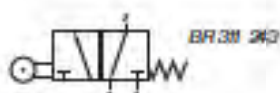
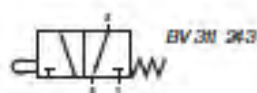
Exhaust through stem.

Normally open versions can be delivered on request.

Type	Port size	Air flow	Operating press.	Actuating force	Weight
BV 311 202	M5	115 l/min	0 - 10 bar	14 N	0,033 kg
BR 311 202	M5	115 l/min	0 - 10 bar	9 N	0,041 kg
BL 311 202	M5	115 l/min	0 - 10 bar	9 N	0,044 kg



# BV/BR/BL 311 243



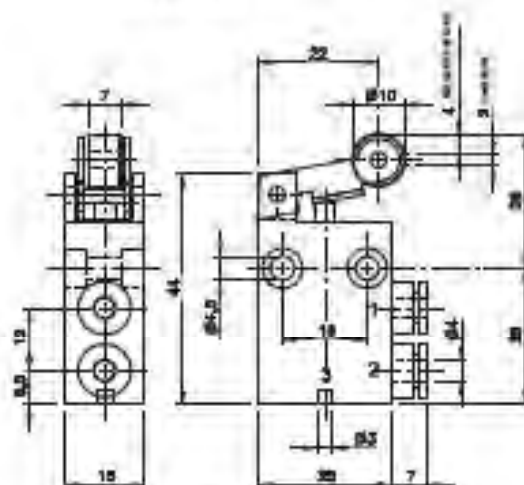
BV 311 243

Mechanically actuated 3/2-way spool valve with mechanical spring. Ports 1 and 2 are on one side of the valve, equipped with 4 mm push-in fittings.

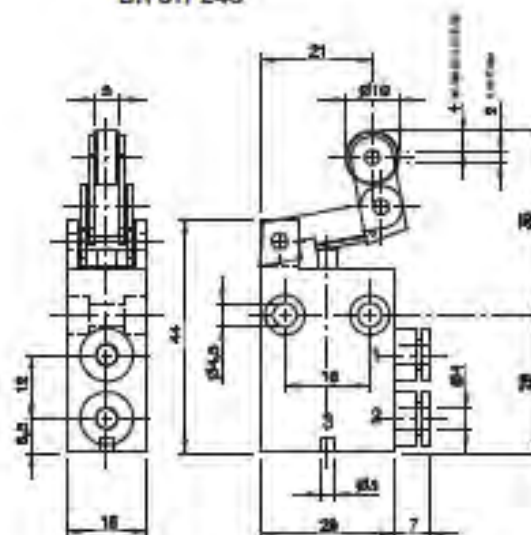
Function is normally closed. When operated the valve opens from 1 to 2.

Exhaust through endcap.

Normally open versions can be delivered on request.

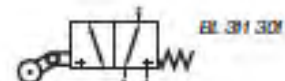
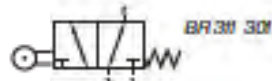


BR 311 243



BL 311 243

Type	Port size	Air flow	Operating press.	Actuating force	Weight
BV 311 243	ptf 4 mm	115 l/min	0 - 10 bar	14 N	0,033 kg
BR 311 243	ptf 4 mm	115 l/min	0 - 10 bar	9 N	0,041 kg
BL 311 243	ptf 4 mm	115 l/min	0 - 10 bar	9 N	0,044 kg



**BV 311 301**



**BR 311 301**



**BL 311 301**




Mechanically actuated 3/2-way spool valve with mechanical spring. All ports are on the side of the valve.

If pressure is applied to port 1 the function is normally closed.

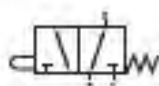
If pressure is applied to port 3 the function is normally open.

The use of the ports is interchangeable.

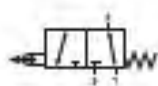
Exhaust can be throttled.

Type	Port size	Air flow	Operating press.	Actuating force	Weight
BV 311 301	G 1/8"	280 l/min	0 - 10 bar	14 N	0,047 kg 
BR 311 301	G 1/8"	280 l/min	0 - 10 bar	10 N	0,059 kg
BL 311 301	G 1/8"	280 l/min	0 - 10 bar	10 N	0,061 kg

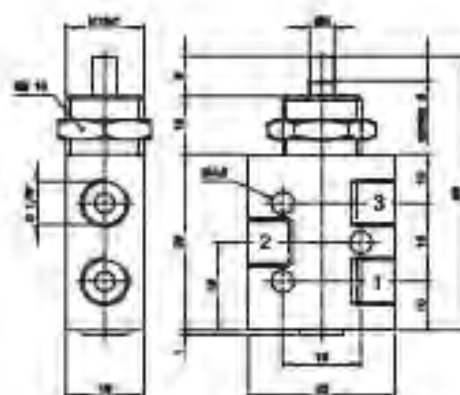
# BG 311 401/BZ 311 401



BG 311 401



BZ 311 401



BG 311 401

BG 311 401 stem actuated 3/2-way spool valve with mechanical spring.

BZ 311 401 manually or mechanically actuated G1/8" 3/2-way valve with mechanical spring. Actuated by pulling the stem.

If pressure is applied to port 1 the function is normally closed.

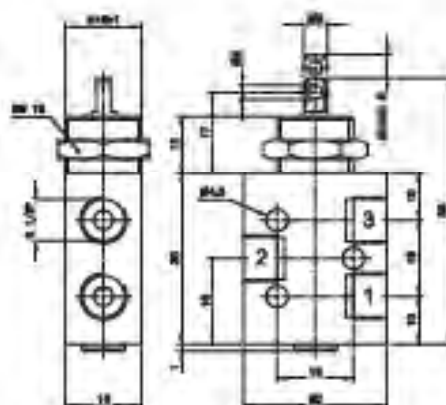
If pressure is applied to port 3 the function is normally open.

The use of the ports is interchangeable.

Exhaust can be throttled.

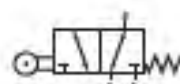
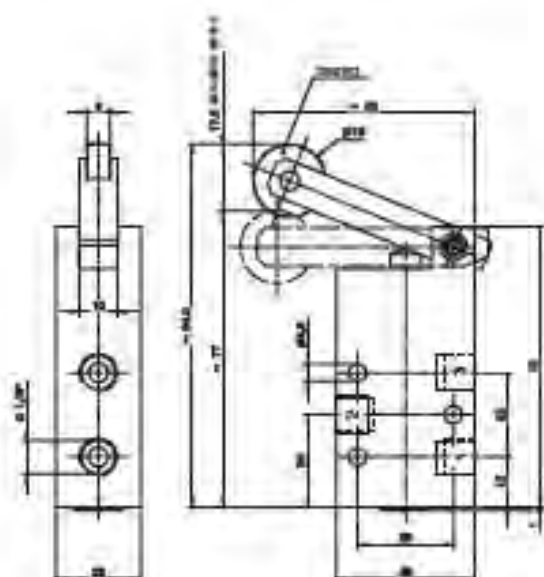
Valve bodies are threaded M16 x 1.

Delivery includes nut M16 x 1.

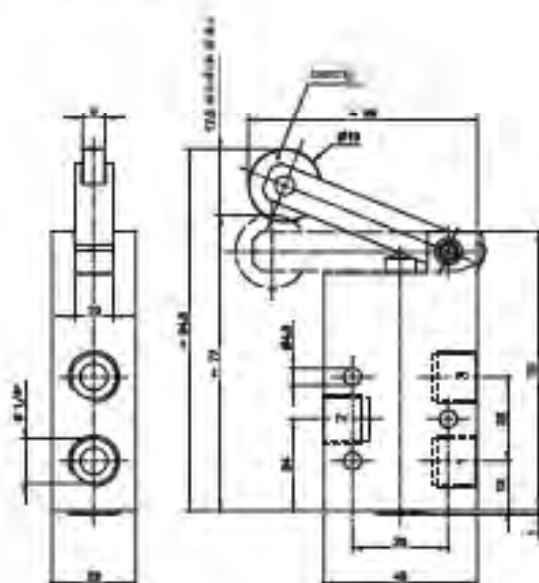


BZ 311 401

Type	Actuation	Port size	Air flow	Operating press.	Actuating force	Weight
BG 311 401	push	G 1/8"	450 l/min	2 - 10 bar	11 N	0,56 kg
BZ 311 401	pull	G 1/8"	450 l/min	2 - 10 bar	12 N	0,56 kg

BR 311 501  
BR 311 701

BR 311 501



BR 311 701



Heavy-duty 3/2-way roller-lever spool valve with mechanical spring. High flow. Lever-construction has proven capabilities in rough environmental applications for decades.

If pressure is applied to port 1 the function is normally closed.

If pressure is applied to port 3 the function is normally open.

The use of the ports is interchangeable.

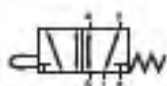
Exhaust can be throttled.

On request:  
Roller-lever valves with idle return.

Low temperature version: In this case the ports are not interchangeable, standard: Pressure at port 1 – normally closed, normally open version to be ordered separately.

Type	Port size	Air flow	Operating press.	Actuating force	Weight
BR 311 501	G 1/8"	650 l/min	1 - 10 bar	3,5 N	0,19 kg ❄
BR 311 701	G 1/4"	1250 l/min	1- 10 bar	3,5 N	0,20 kg ❄

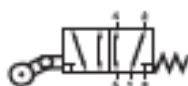
# BV/BR/BL 511 201



BV 511 201



BR 511 201



BL 511 201



Mechanically actuated 5/2-way spool valve with mechanical spring.

Normally open from 1 to 2 and from 4 to 5.  
Operated open from 1 to 4 and 2 to 3.

Exhaust can be throttled.

BV 511 201

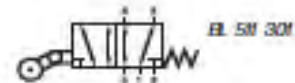
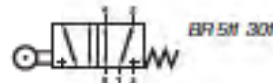
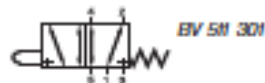


BR 511 201



BL 511 201

Type	Port size	Air flow	Operating press.	Actuating force	Weight
BV 511 201	M5	125 l/min	0 - 10 bar	14 N	0,043 kg
BR 511 201	M5	125 l/min	0 - 10 bar	9 N	0,051 kg
BL 511 201	M5	125 l/min	0 - 10 bar	9 N	0,054 kg

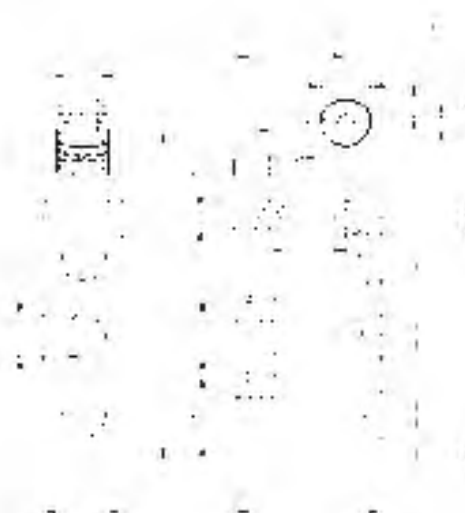


BV 511 301

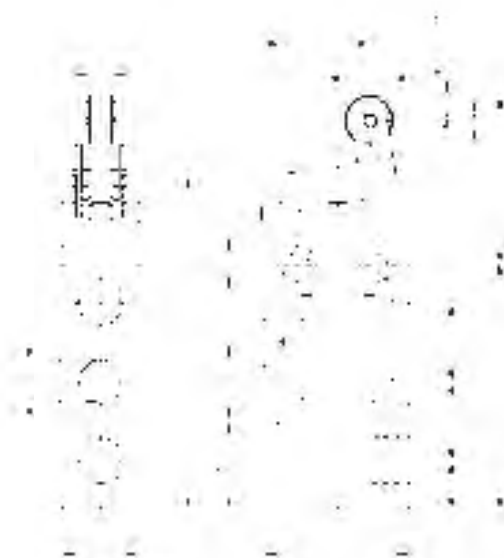
Mechanically actuated 5/2-way spool valve with mechanical spring.

Normally open from 1 to 2 and from 4 to 5.  
Operated open from 1 to 4 and 2 to 3.


Exhaust can be throttled.



BR 511 301



BL 511 301

Type	Port size	Air flow	Operating press.	Actuating force	Weight
BV 511 301	G 1/8"	280 l/min	0 - 10 bar	14 N	0,065 kg 
BR 511 301	G 1/8"	280 l/min	0 - 10 bar	10 N	0,077 kg
BL 511 301	G 1/8"	280 l/min	0 - 10 bar	10 N	0,079 kg

# BR 511 501/BR 511 701



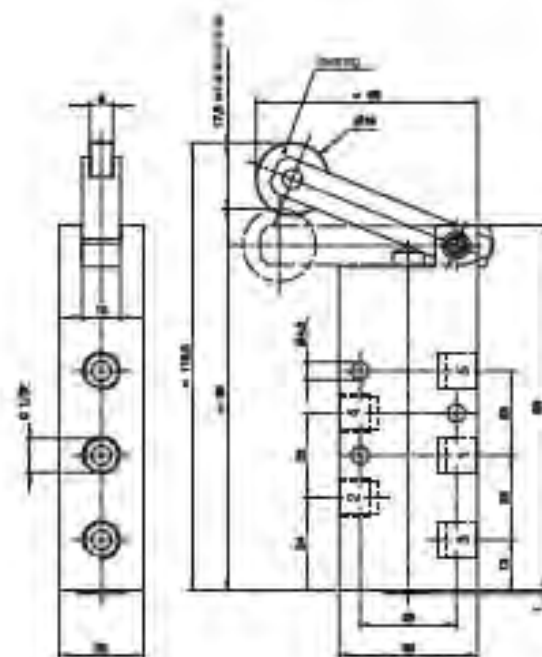
Heavy-duty 5/2-way roller-lever spool valve with mechanical spring. High flow especially for the trucking and railway industry. Lever-construction has proven capabilities in railway applications for decades.

Normally open from 1 to 2 and 4 to 5.  
Operated open from 1 to 4 and 2 to 3.

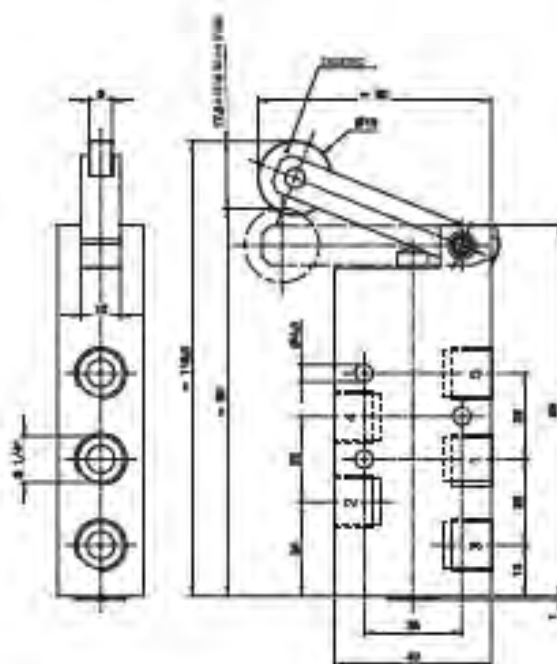
Exhaust can be throttled.

On request:  
Roller-lever valves with idle return.

Low temperature version: In this case the ports are not interchangeable, standard: Pressure at port 1 – normally closed, normally open version to be ordered separately.



BR 511 501



BR 511 701

Type	Port size	Air flow	Operating press.	Actuating force	Weight
BR 511 501	G 1/8"	650 l/min	1 - 10 bar	3,5 N	0.23 kg ❄️
BR 511 701	G 1/4"	1250 l/min	1 - 10 bar	3,5 N	0.25 kg ❄️



# 2.2

## Valves for Panel Mounting

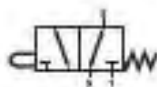
Selected models are available for explosion hazardous environment. They are ATEX-Ex certified. For detailed information refer to chapter 2.12.



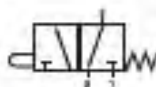
Selected models are available for low temperature application. Temperature-range: - 50° C to + 50° C. For detailed information refer to chapter 2.9.



# BA 311 201/BA 311 202/BA 311 203 BA 311 243/BA 311 301



BA 311 201  
BA 311 301



BA 311 202  
BA 311 203  
BA 311 243



BA 311 201

3/2-way spool valve with mechanical spring for panel mounting.

Valves with ports 1 - 3 on the side (type 201 and 301) are similar to those described on page 2.1.1.1. and 2.1.1.3.

For the valve with the ports on the bottom (type 202) please refer to page 2.1.1.2.

Valves BA 311 203 and BA 311 243 have port 1 and 2 at one side and exhaust through the end-cap. BA 311 243 offers 4 mm push-in fittings at ports 1 and 2.

Normally open versions of BA 311 203 and BA 311 243 can be delivered on request.

The actuating elements are displayed on page 2.2.3.



BA 311 202



BA 311 301

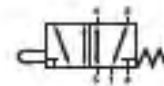


BA 311 243



BA 311 203

Type	Port size	Air flow	Operating press.	Actuating force	Weight
BA 311 201	M5	125 l/min	-0,9 - 10 bar	14 N	0,043 kg
BA 311 202	M5	125 l/min	0 - 10 bar	14 N	0,043 kg
BA 311 203	M5	125 l/min	0 - 10 bar	14 N	0,043 kg
BA 311 243	ptf 4 mm	125 l/min	0 - 10 bar	14 N	0,043 kg
BA 311 301	G 1/8"	280 l/min	-0,9 - 10 bar	14 N	0,057 kg



BA 511 201  
BA 511 202  
BA 511 301



BA 511 201



BA 511 202




BA 511 301

5/2-way spool valve with mechanical spring for panel mounting.

Actuating elements are displayed on page 2.2.3.

Exhaust can be throttled.

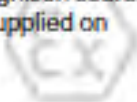
Type	Port size	Air flow	Operating press.	Actuating force	Weight
BA 511 201	M5	125 l/min	-0,9- 10 bar	14 N	0,053 kg
BA 511 202	M5	125 l/min	0- 10 bar	14 N	0,095 kg
BA 511 301	G 1/8"	280 l/min	-0,9- 10 bar	14 N	0,075 kg 

# Ø 22 mm Actuators for Panel Mounting



Actuating elements for valves displayed on page 2.2.1 and 2.2.2.

Declaration of manufacturer that actuation elements have no intrinsic ignition source can be supplied on request.



Panel mounting hole

BA 221

BA 222

BA 223



BA 221 SSK

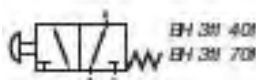
BA 224

BA 225

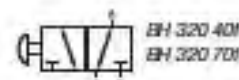
BA 226

BA 227 01 V

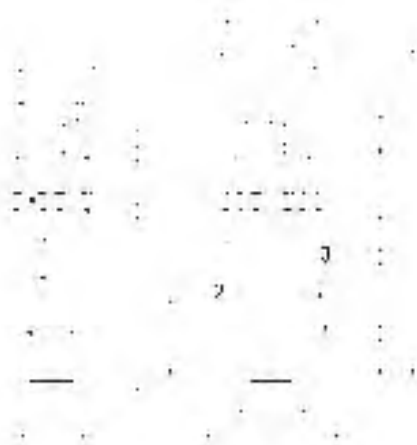
Type	Actuation	Colour	Actuating force	Weight
BA 221 01	Push button	black	16 N	0,014 kg
BA 221 02	Push button	red	16 N	0,014 kg
BA 221 03	Push button	green	16 N	0,014 kg
BA 221 04	Push button	yellow	16 N	0,014 kg
BA 221 05	Push button	blue	16 N	0,014 kg
BA 221 06	Push button	white	16 N	0,014 kg
BA 222 01	Palm button	black	16 N	0,020 kg
BA 223 02	Palm button w. detend	red	27 N	0,026 kg
BA 224 01	Rotary lever long	black	42 N/cm	0,021 kg
BA 225 00	Locking switch		25 N	0,080 kg
BA 226 01	Switch	black	16 N/cm	0,019 kg
BA 227 01 V	Rotary lever short	black	16 N/cm	0,018 kg
BA 221 SSK	Transparent dust protection cap for BA 221			0,009 kg



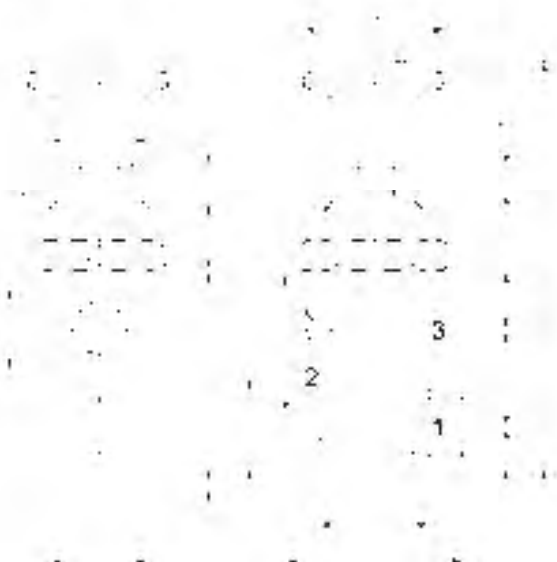
BH 311 401  
BH 311 701



BH 320 401  
BH 320 701



BH 311 401/BH 320 401



BH 311 701/BH 320 701



Manually actuated 3/2-way spool valve either with spring return to outer position (type 311) or with two stable positions (type 320).

If pressure is applied to port 1 the function is normally closed.

If pressure is applied to port 3 the function is normally open.

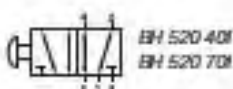
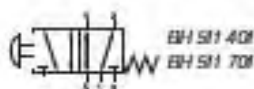
Exhaust can be throttled.

Nut M16 x 1 is included.

Suitable for wall or panel mounting. Nut for panel mounting, M16 x 1 for G 1/8"-valves or M22 x 1,5 for G 1/4"-valves is included.

Type	Port size	Air flow	Operating press.	Actuating force	Weight
BH 311 401	G 1/8"	450 l/min	1 - 10 bar	11 N	0,064 kg
BH 320 401	G 1/8"	450 l/min	1 - 10 bar	12 N	0,064 kg
BH 311 701	G 1/4"	1250 l/min	1 - 10 bar	17 N	0,140 kg ❄️
BH 320 701	G 1/4"	1250 l/min	1 - 10 bar	18 N	0,140 kg ❄️

# BH 511 401/BH 520 401 BH 511 701/BH 520 701



Manually actuated 5/2-way spool valve either with spring return to outer position (type 511) or with two stable positions (type 520).

Normally open from port 1 to 2 and from port 4 to 5.

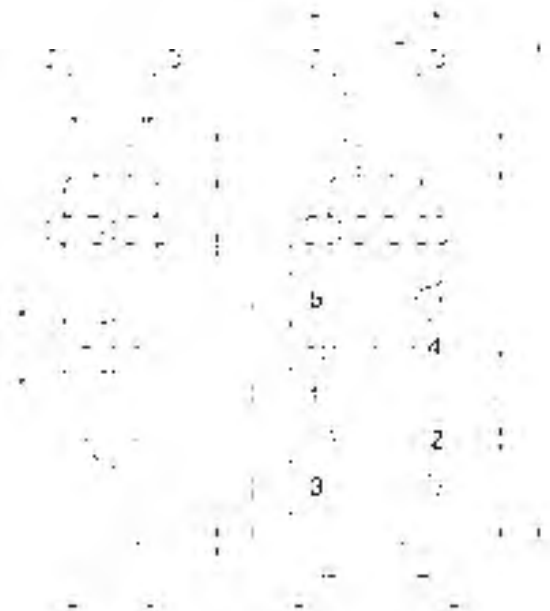
Operated open from port 1 to 4 and port 2 to 3.

Exhaust can be throttled.

Suitable for wall or panel mounting. Nut for panel mounting, M16 x 1 for G 1/8"-valves or M22 x 1,5 for G 1/4"-valves is included.

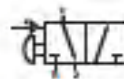


BH 511 401/BH 520 401

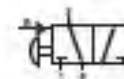


BH 511 701/BH 520 701

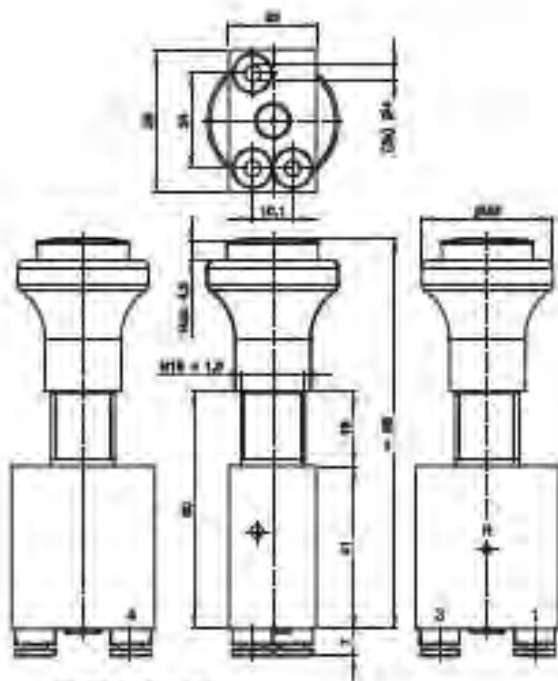
Type	Port size	Air flow	Operating press.	Actuating force	Weight
BH 511 401	G 1/8"	450 l/min	1 - 10 bar	11 N	0,080 kg
BH 520 401	G 1/8"	450 l/min	1 - 10 bar	12 N	0,080 kg
BH 511 701	G 1/4"	1250 l/min	1 - 10 bar	17 N	0,180 kg *
BH 520 701	G 1/4"	1250 l/min	1 - 10 bar	18 N	0,180 kg *



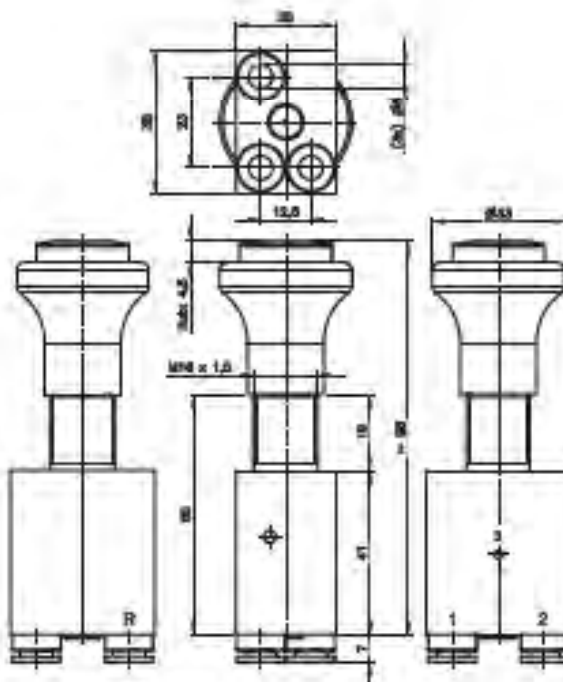
BHP 320 442



BHP 320 462



BHP 320 442



BHP 320 462



Manually actuated 3/2-way spool valve with 2 stable positions and pneumatic reset.

Ports on the bottom of the valve are equipped with integrated push-in fittings. Exhaust is undeducted.

If pressure is applied to port 4 (pneumatic reset-port) the stem is pulled in. The knob carries an indicator ring that sticks out when the valve is pulled - actuated.

The following knob-colours are available:

Colour code	Colour of knob	Colour of indicator
1	black	white
2	red	white
3	green	red
4	yellow	white
5	blue	white

Type	Function	Ports	Air flow	Operating press.	Weight
BHP 320 442	3/2-way	pif 4 mm	300 l/min	1 - 16 bar	0,13 kg
BHP 320 462	3/2-way	pif 6 mm	300 l/min	1 - 16 bar	0,13 kg

Please add one digit for color of knob.

# BHP 520 442/BHP 520 462



BHP 520 442



BHP 520 462



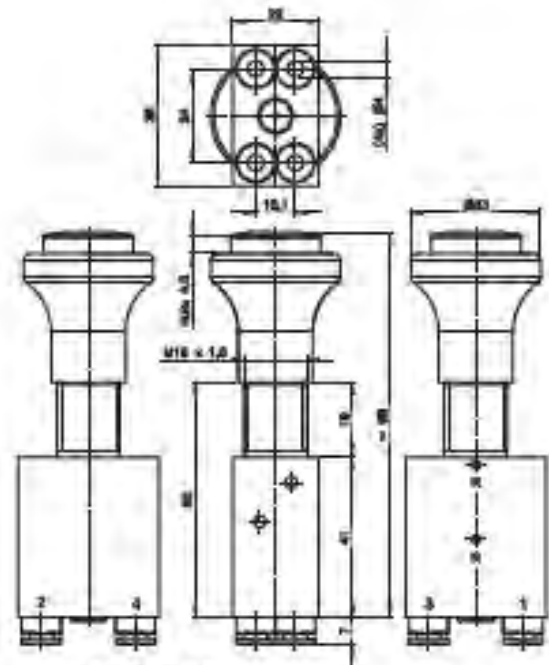
Manually actuated 5/2-way spool valve with 2 stable positions and pneumatic reset.

Ports on the bottom of the valve are equipped with integrated push-in fittings. Exhaust is undeducted.

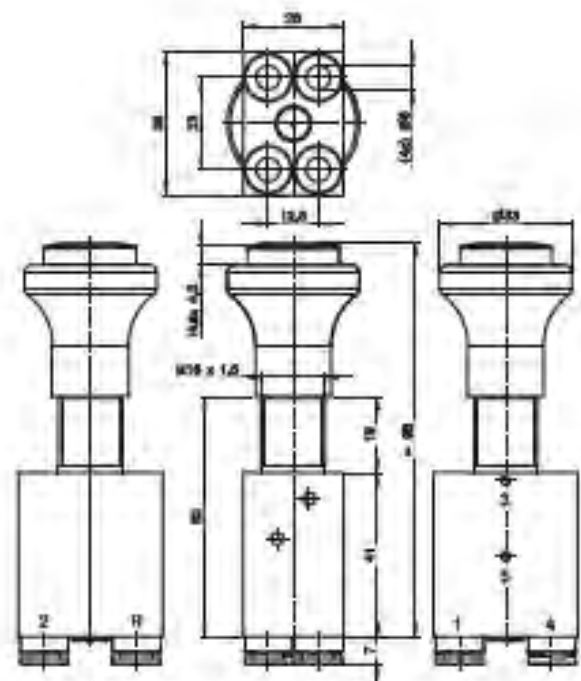
If pressure is applied to port 4 (pneumatic reset-port) the stem is pulled in. The knob carries an indicator ring that sticks out when the valve is pulled - actuated.

The following knob-colours are available:

Colour code	Colour of knob	Colour of indicator
1	black	white
2	red	white
3	green	red
4	yellow	white
5	blue	white

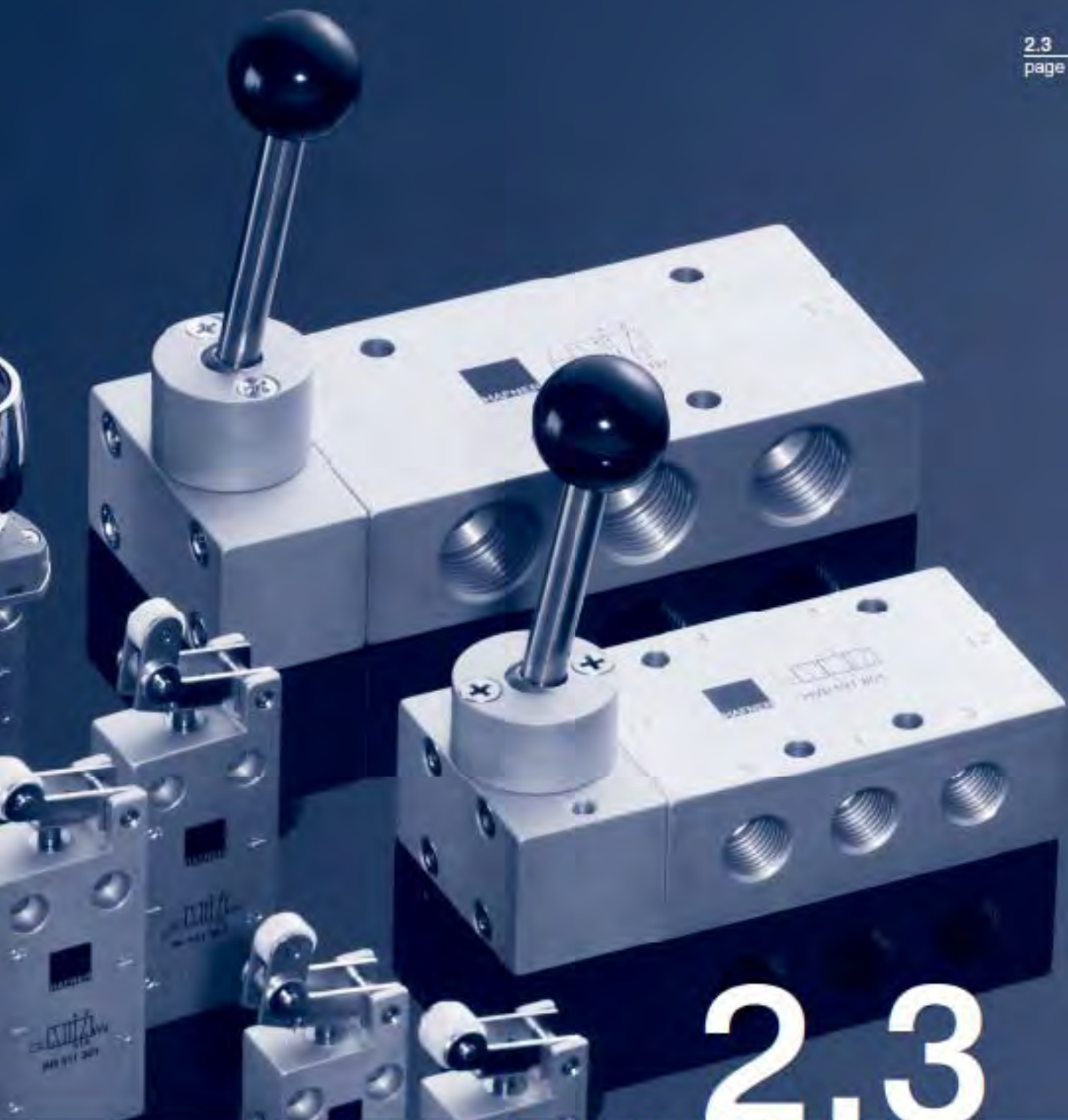


BHP 520 442



BHP 520 462

Type	Function	Ports	Air flow	Operating press.	Weight
BHP 520 442	5/2-way	p1f 4 mm	300 l/min	1 - 16 bar	0,13 kg
BHP 520 462	5/2-way	p1f 6 mm	300 l/min	1 - 16 bar	0,13 kg



# 2.3

## Lever Actuated Valves



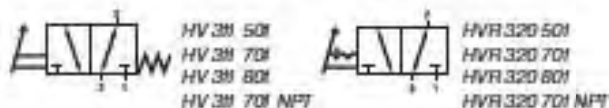
Instead of a rubber-gaitor that never lasts long, Hafner seals all the lever valves with a metallic seal.



Selected models are available for low temperature application.  
Temperature-range: - 50° C to + 50° C.  
For detailed information refer to chapter 2.9.



# HV 311 501/HV 311 701/HV 311 801 HVR 320 501/HVR 320 701/HVR 320 801



Lever actuated 3/2-way spool valve.

Type HV spring return  
Type HVR indexed

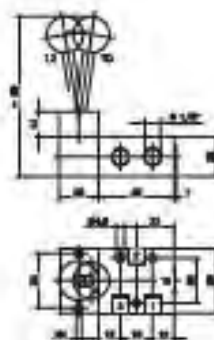
If pressure is applied to port 1 the function is normally closed.

If pressure is applied to port 3 the function is normally open.

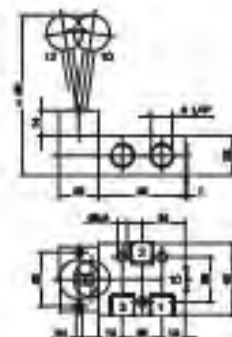
The lever is sealed against the valve by using a metal ball.

Exhaust can be throttled.

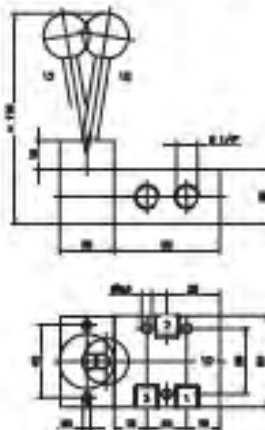
*Selected products displayed on this page are also available NPT threaded.*



HV 311 501/HVR 320 501



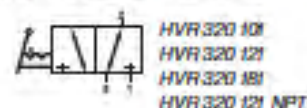
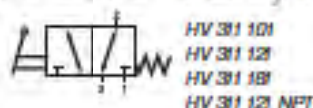
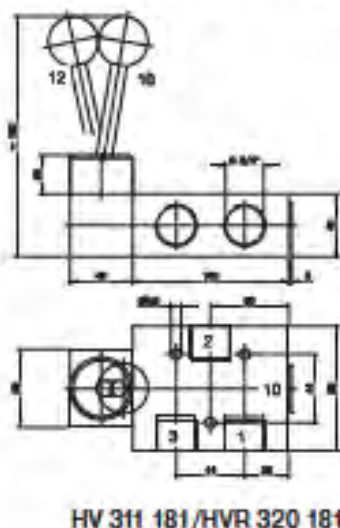
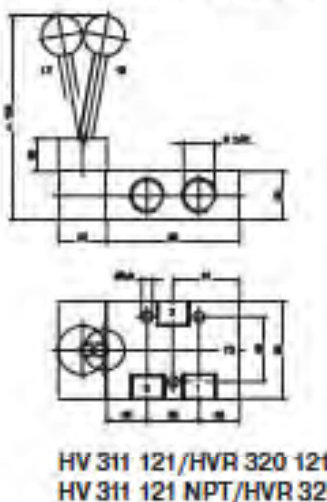
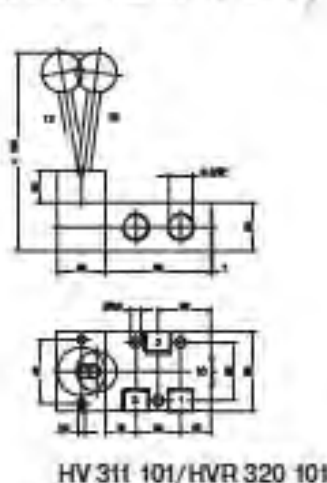
HV 311 701/HVR 320 701  
HV 311 701 NPT/HVR 320 701 NPT



HV 311 801/HVR 320 801

Type	Function	Port size	Air flow	Operating press.	Actuating force	Weight
HV 311 501	spring ret.	G 1/8"	650 l/min	1 - 10 bar	20 N	0,19 kg *
HV 311 701	spring ret.	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,20 kg *
HV 311 801	spring ret.	G 1/4"	1450 l/min	1 - 10 bar	25 N	0,46 kg
HVR 320 501	Indexed	G 1/8"	650 l/min	1 - 10 bar	20 N	0,19 kg *
HVR 320 701	Indexed	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,20 kg *
HVR 320 801	Indexed	G 1/4"	1450 l/min	1 - 10 bar	25 N	0,46 kg
HV 311 701 NPT	spring ret.	1/4" NPT	1250 l/min	1 - 10 bar	20 N	0,20 kg
HVR 320 701 NPT	Indexed	1/4" NPT	1250 l/min	1 - 10 bar	20 N	0,20 kg

# HV 311 101/HV 311 121/HV 311 181 HVR 320 101/HVR 320 121/HVR 320 181



Lever actuated 3/2-way spool valve.

Type HV spring return

Type HVR indexed

If pressure is applied to port 1 the function is normally closed.

If pressure is applied to port 3 the function is normally open.

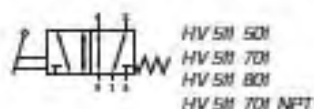
The lever is sealed against the valve by using a metal ball.

Exhaust can be throttled.

*Selected products displayed on this page are also available NPT threaded.*

Type	Function	Port size	Air flow	Operating press.	Actuating force	Weight
HV 311 101	spring ret.	G 3/8"	2250 l/min	1 - 10 bar	25 N	0,49 kg
HV 311 121	spring ret.	G 1/2"	3000 l/min	1 - 10 bar	32 N	0,69 kg
HV 311 181	spring ret.	G 3/4"	6000 l/min	1 - 10 bar	40 N	1,31 kg
HVR 320 101	Indexed	G 3/8"	2250 l/min	1 - 10 bar	25 N	0,49 kg
HVR 320 121	Indexed	G 1/2"	3000 l/min	1 - 10 bar	32 N	0,69 kg
HVR 320 181	Indexed	G 3/4"	6000 l/min	1 - 10 bar	40 N	1,31 kg
HV 311 121 NPT	spring ret.	1/2" NPT	3000 l/min	1 - 10 bar	32 N	0,69 kg
HVR 320 121 NPT	Indexed	1/2" NPT	3000 l/min	1 - 10 bar	32 N	0,69 kg

# HV 511 501/HV 511 701/HV 511 801 HVR 520 501/HVR 520 701/HVR 520 801



Lever actuated 5/2-way spool valve.

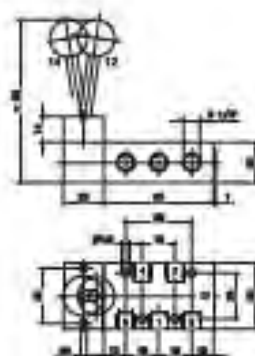
Type HV spring return

Type HVR indexed

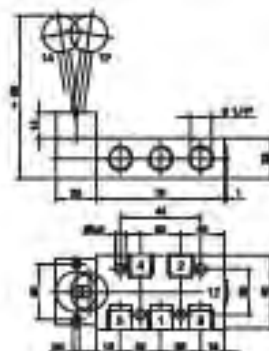
The lever is sealed against the valve by using a metal ball.

Exhaust can be throttled.

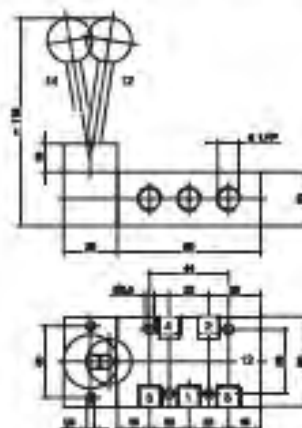
*Selected products displayed on this page are also available NPT threaded.*



HV 511 501/HVR 520 501

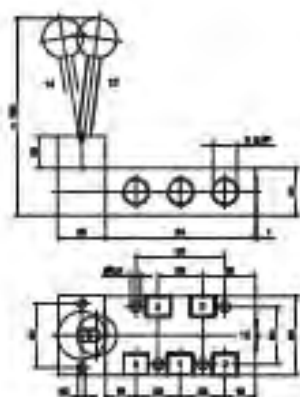
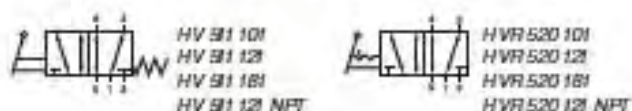


HV 511 701/HVR 520 701  
HV 511 701 NPT/HVR 520 701 NPT

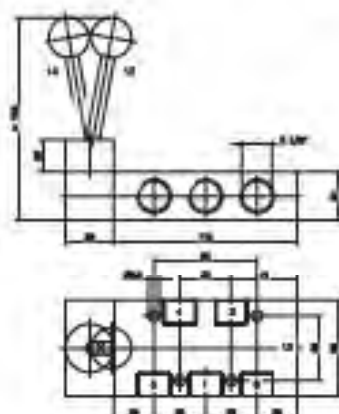


HV 511 801/HVR 520 801

Type	Function	Port size	Air flow	Operating press.	Actuating force	Weight
HV 511 501	spring ret.	G 1/8"	650 l/min	1 - 10 bar	20 N	0,22 kg *
HV 511 701	spring ret.	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,24 kg *
HV 511 801	spring ret.	G 1/4"	1450 l/min	1 - 10 bar	25 N	0,55 kg *
HVR 520 501	Indexed	G 1/8"	650 l/min	1 - 10 bar	20 N	0,22 kg *
HVR 520 701	Indexed	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,24 kg *
HVR 520 801	Indexed	G 1/4"	1450 l/min	1 - 10 bar	25 N	0,55 kg *
HV 511 701 NPT	spring ret.	1/4" NPT	1250 l/min	1 - 10 bar	20 N	0,24 kg
HVR 520 701 NPT	Indexed	1/4" NPT	1250 l/min	1 - 10 bar	20 N	0,24 kg



HV 511 101/HVR 520 101



HV 511 121/HVR 520 121  
HV 511 121 NPT/HVR 520 121 NPT



Lever actuated 5/2-way spool valve.

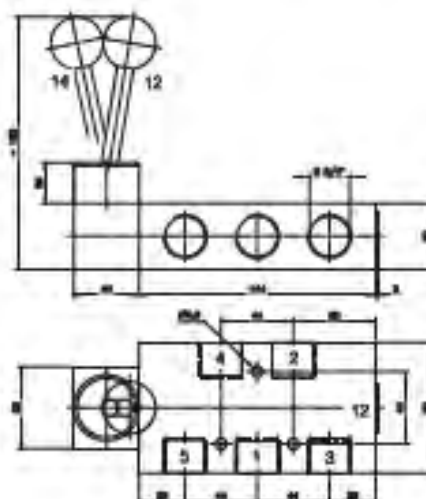
Type HV spring return

Type HVR indexed

The lever is sealed against the valve by using a metal ball.

Exhaust can be throttled.

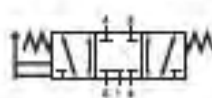
*Selected products displayed on this page are also available NPT threaded.*



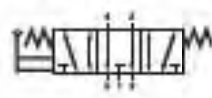
HV 511 181/HVR 520 181

Type	Function	Port size	Air flow	Operating press.	Actuating force	Weight
HV 511 101	spring ret.	G 3/8"	2250 l/min	1 - 10 bar	25 N	0,60 kg
HV 511 121	spring ret.	G 1/2"	3000 l/min	1 - 10 bar	32 N	0,79 kg
HV 511 181	spring ret.	G 3/4"	6000 l/min	1 - 10 bar	40 N	1,64 kg
HVR 520 101	Indexed	G 3/8"	2250 l/min	1 - 10 bar	25 N	0,60 kg
HVR 520 121	Indexed	G 1/2"	3000 l/min	1 - 10 bar	32 N	0,79 kg
HVR 520 181	Indexed	G 3/4"	6000 l/min	1 - 10 bar	40 N	1,64 kg
HV 511 121 NPT	spring ret.	1/2" NPT	3000 l/min	1 - 10 bar	32 N	0,79 kg
HVR 520 121 NPT	Indexed	1/2" NPT	3000 l/min	1 - 10 bar	32 N	0,79 kg

# HV 53\_ 501/HV 53\_ 701/HV 53\_ 801 HVR 53\_ 501/HVR 53\_ 701/ HVR 53\_ 801



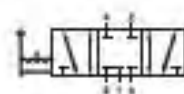
HV 531 501  
HV 531 701  
HV 531 801  
HV 531 701 NPT



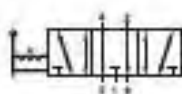
HV 532 501  
HV 532 701  
HV 532 801  
HV 532 701 NPT



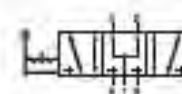
HV 533 501  
HV 533 701  
HV 533 801  
HV 533 701 NPT



HVR 531 501  
HVR 531 701  
HVR 531 801  
HVR 531 701 NPT



HVR 532 501  
HVR 532 701  
HVR 532 801  
HVR 532 701 NPT



HVR 533 501  
HVR 533 701  
HVR 533 801  
HVR 533 701 NPT



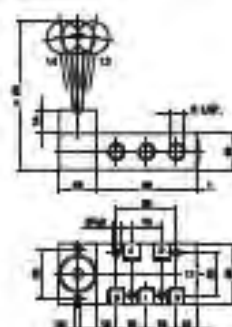
Lever actuated 5/3-way spool valve.

- Type HV      spring return to middle position
- Type HVR    indexed
  
- Type 531    centre closed
- Type 532    centre exhausted
- Type 533    centre pressurised

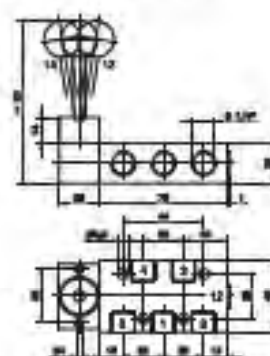
When ordering please complete the type number by 1, 2 or 3 according to the type required.

Exhaust can be throttled.

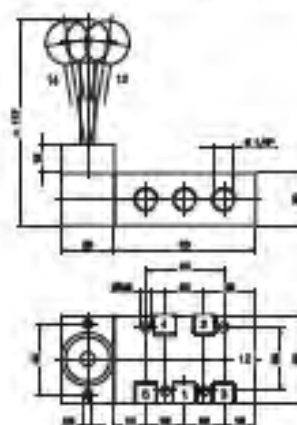
Selected products displayed on this page are also available NPT threaded.



HV 53\_ 501/HVR 53\_ 501



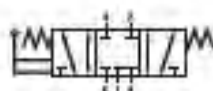
HV 53\_ 701/HVR 53\_ 701  
HV 53\_ 701 NPT/HVR 53\_ 701 NPT



HV 53\_ 801/HVR 53\_ 801

Type	Function	Port size	Air flow	Operating press.	Actuating force	Weight
HV 53_ 501	spring ret.	G 1/8"	650 l/min	1 - 10 bar	20 N	0,22 kg *
HV 53_ 701	spring ret.	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,24 kg *
HV 53_ 801	spring ret.	G 1/4"	1450 l/min	1 - 10 bar	25 N	0,55 kg
HVR 53_ 501	Indexed	G 1/8"	650 l/min	1 - 10 bar	20 N	0,22 kg *
HVR 53_ 701	Indexed	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,24 kg *
HVR 53_ 801	Indexed	G 1/4"	1450 l/min	1 - 10 bar	25 N	0,55 kg
HV 53_ 701 NPT	spring ret.	1/4" NPT	1250 l/min	1 - 10 bar	20 N	0,24 kg
HVR 53_ 701 NPT	Indexed	1/4" NPT	1250 l/min	1 - 10 bar	20 N	0,24 kg

# HV 53\_101/HV 53\_121/HV 53\_181 HVR 53\_101/HVR 53\_121/HVR 53\_181



HV 531 101  
HV 531 121  
HV 531 181  
HV 531 121 NPT



HV 532 101  
HV 532 121  
HV 532 181  
HV 532 121 NPT



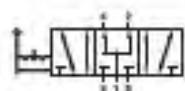
HV 533 101  
HV 533 121  
HV 533 181  
HV 533 121 NPT



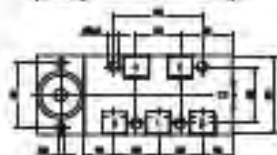
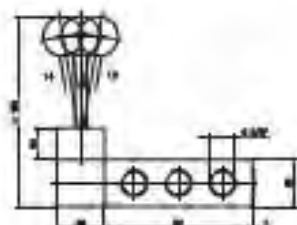
HVR 531 101  
HVR 531 121  
HVR 531 181  
HVR 531 121 NPT



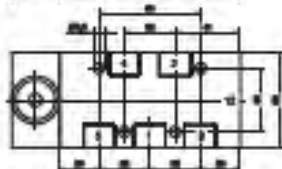
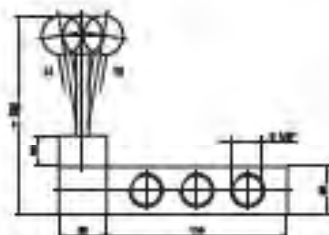
HVR 532 101  
HVR 532 121  
HVR 532 181  
HVR 532 121 NPT



HVR 533 101  
HVR 533 121  
HVR 533 181  
HVR 533 121 NPT



HV 53\_101/HVR 53\_101



HV 53\_121/HVR 53\_121  
HV 53\_121 NPT/HVR 53\_121 NPT

Selected products displayed on this page are also available NPT threaded.



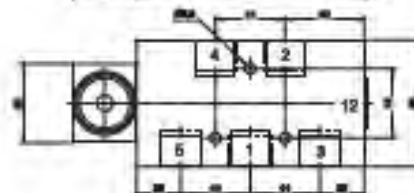
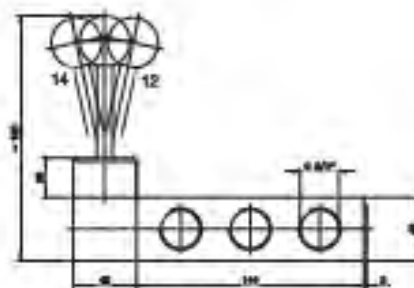
Lever actuated 5/3-way spool valve with.

Type HV spring return to middle position  
Type HVR indexed

Type 531 centre closed  
Type 532 centre exhausted  
Type 533 centre pressurised

When ordering please complete the type number by 1, 2 or 3 according to the type required.

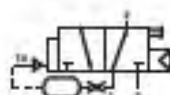
Exhaust can be throttled.



HV 53\_181/HVR 53\_181

Type	Function	Port size	Air flow	Operating press.	Actuating force	Weight
HV 53_101	spring ret.	G 3/8"	2250 l/min	1 - 10 bar	25 N	0,60 kg
HV 53_121	spring ret.	G 1/2"	3000 l/min	1 - 10 bar	32 N	0,80 kg
HV 53_181	spring ret.	G 3/4"	6000 l/min	1 - 10 bar	40 N	1,64 kg
HVR 53_101	Indexed	G 3/8"	2250 l/min	1 - 10 bar	25 N	0,60 kg
HVR 53_121	Indexed	G 1/2"	3000 l/min	1 - 10 bar	32 N	0,80 kg
HVR 53_181	Indexed	G 3/4"	6000 l/min	1 - 10 bar	40 N	1,64 kg
HV 53_121 NPT	spring ret.	1/2" NPT	3000 l/min	1 - 10 bar	32 N	0,80 kg
HVR 53_121 NPT	Indexed	1/2" NPT	3000 l/min	1 - 10 bar	32 N	0,80 kg

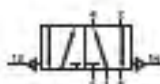
# Examples for customer-specific products



**SUH 310 502**  
 3/2-way G 1/8" impulse valve with manual override.  
 Valve is interrupting a pneumatic signal after a defined time-period, pressing the manual override brings the signal back.



**P 510 801 METS**  
 Single-pilot 5/2-way valve with metric ports.  
 Head is offering two pilot ports, both M10 x 1.



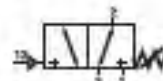
**P 524 501/P 524 502/P 524 404**  
 5/2-way Bleed valves.  
 Negative switching double pilot valve.



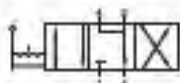
**PH 520 502**  
 Double pilot G 1/8" valve with manual override. Valve offers 2 pins that stick out at the ends of the valve. Those can be used as manual override or to indicate the position. Versions to be put onto manifold plates orifice size 5 mm have also been manufactured.



**P 310 701 VT**  
 Pneumatically actuated 3/2-way valve G 1/4" with FKM seals.



**P 311 501 SR**  
 Pneumatically actuated 3/2-way valve G 1/8" with mechanical spring return. Valve can be used normally closed (pressure at port 1) and normally open (pressure at port 3). Valve can be used as an adjustable pneumatic pressure switch. By turning the hand-wheel the required minimum actuation pressure can be set between 3 and 6 bar.



**BA 430 301**  
 4/3-way valve for panel mounting, middle-position exhausted, G 1/8".



**HVR 520 801 Z**  
 G 1/4" 5/2-way lever actuated valve, indexed. Valve can not be switched without thoroughly pulling the lever. This feature can also be included into 3/2-way valves, 5/3-way valves, valves with Namur-interface or valves with spring return. Valve can be used where prevention against unintended actuation is in need.



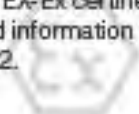
**HVP 531 501**  
 Lever actuated 5/3-way valve, centre position closed, with spring return to middle position. When a pneumatic signal is applied to port 12, spool moves to or is held in the position where 1 is open to 2 and 4 to 5. Commercial vehicle application.



# 2.4

## Pilot Actuated Valves

Selected models are available for explosion hazardous environment. They are ATEX-Ex certified. For detailed information refer to chapter 2.12.



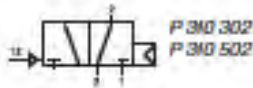
Selected models are available for low temperature application. Temperature-range: - 50° C to + 50° C. For detailed information refer to chapter 2.9.



Selected models are available in stainless steel. For detailed information refer to chapter 2.10.



# P 310 302/P 310 502



Pneumatically actuated 3/2-way spool valve with air spring return.

If pressure is attached to port 1 the function is normally closed.

If pressure is applied to port 3 the function is normally open.


Do not attach pressure at port 2.

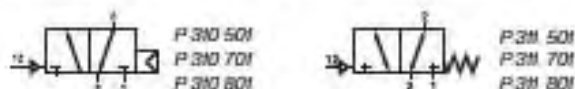
Operating pressure and actuating pressure should be at the same level.

Exhaust can be throttled.

**P 310 302**

**P 310 502**

Type	Port size	Air flow	Operating press.	Actuating press.	Weight
P 310 302	M5	180 l/min	2- 10 bar	the same	0,05 kg
P 310 502	G 1/8"	650 l/min	2- 10 bar	the same	0,13 kg 



P 310 501/P 311 501



P 310 701/P 311 701

P 310 801/P 311 801

Pneumatically actuated 3/2-way spool valve.

Type P 310 \_\_\_ with air-spring-return.  
Operating pressure and actuating pressure should be at the same level.

Type P 311 \_\_\_ with mechanical spring return.

If pressure is attached to port 1 the function is normally closed.

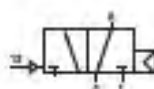
If pressure is applied to port 3 the function is normally open.

Pressure can only be attached to port 2 if valve has a mechanical spring (type P 311 \_\_\_).

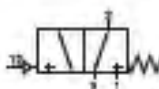
Exhaust can be throttled.

Type	Port size	Air flow	Operating press.	Actuating press.	Weight	
P 310 501	G 1/8"	650 l/min	2 - 10 bar	the same	0,13 kg	☺❄
P 310 701	G 1/4"	1250 l/min	2 - 10 bar	the same	0,14 kg	☺🔧
P 310 801	G 1/4"	1450 l/min	1,5 - 10 bar	the same	0,29 kg	☺
P 311 501	G 1/8"	650 l/min	1 - 10 bar	3 - 10 bar	0,13 kg	❄
P 311 701	G 1/4"	1250 l/min	1 - 10 bar	3 - 10 bar	0,14 kg	🔧
P 311 801	G 1/4"	1450 l/min	1 - 10 bar	3 - 10 bar	0,29 kg	

# P 310 101/P 310 121/P 310 181 P 311 101/P 311 121/P 311 181



P 310 101  
P 310 121  
P 310 181  
P 310 121 NPT



P 311 101  
P 311 121  
P 311 181  
P 311 121 NPT



P 310 101/P 311 101

Pneumatically actuated 3/2-way spool valve.

Type P 310 \_\_\_ with air-spring-return.  
Operating pressure and actuating pressure  
should be at the same level.

Type P 311 \_\_\_ with mechanical spring return.

If pressure is attached to port 1 the function  
is normally closed.  
If pressure is applied to port 3 the function  
is normally open.  
Pressure can only be attached to port 2 if valve  
has a mechanical spring (type P 311 \_\_\_).

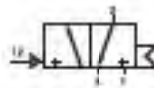
Exhaust can be throttled.

*Selected products displayed on this page are  
also available NPT threaded.*

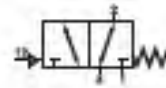
P 310 121/P 311 121  
P 310 121 NPT/P 311 121 NPT

P 310 181/P 311 181

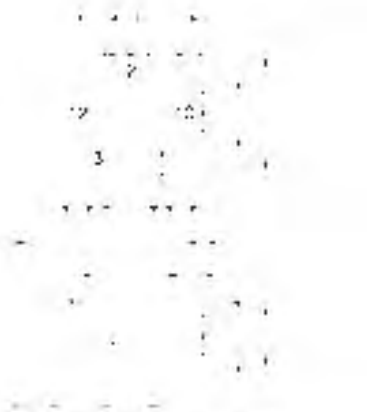
Type	Port size	Air flow	Operating press.	Actuating press.	Weight
P 310 101	G 3/8"	2250 l/min	1 - 10 bar	the same	0,32 kg 
P 310 121	G 1/2"	3000 l/min	1 - 10 bar	the same	0,45 kg 
P 310 181	G 3/4"	6000 l/min	1 - 10 bar	the same	0,85 kg
P 311 101	G 3/8"	2250 l/min	1 - 10 bar	3 - 10 bar	0,32 kg
P 311 121	G 1/2"	3000 l/min	1 - 10 bar	3 - 10 bar	0,45 kg
P 311 181	G 3/4"	6000 l/min	1 - 10 bar	3 - 10 bar	0,85 kg
P 310 121 NPT	1/2" NPT	3000 l/min	1 - 10 bar	the same	0,45 kg
P 311 121 NPT	1/2" NPT	3000 l/min	1 - 10 bar	3 - 10 bar	0,45 kg



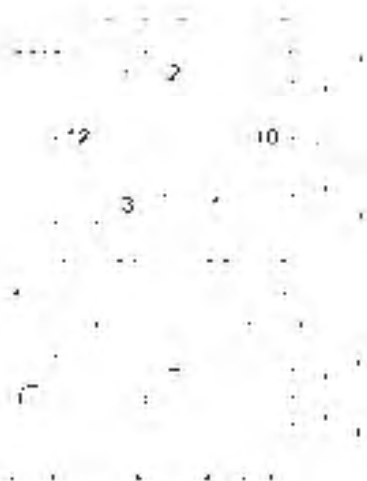
P 310 701 G  
P 310 121 G  
P 310 701 G NPT



P 311 701 G  
P 311 121 G  
P 311 701 G NPT



P 310 701 G/P 311 701 G  
P 310 701 G NPT/P 311 701 G NPT



P 310 121 G/P 311 121 G



Pneumatically actuated 3/2-way spool valve.

Type P 310 \_\_\_ with air-spring-return.

Operating pressure and actuating pressure should be at the same level.

Type P 311 \_\_\_ with mechanical spring return.

If pressure is attached to port 1 the function is normally closed.

If pressure is applied to port 3 the function is normally open.

Pressure can only be attached to port 2 if valve has a mechanical spring (type P 311 \_\_\_).

Valves can either be used in-line or on a manifold plate. Plates page 2.6.1.5.

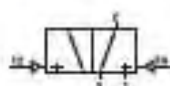
Take into consideration that G 1/2" valves have to be assembled onto the plate by fixing screws from the bottom through the plate into the valve.

Exhaust can be throttled.

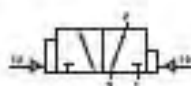
*Selected products displayed on this page are also available NPT threaded.*

Type	Port size	Air flow	Operating press.	Actuating press.	Weight
P 310 701 G	G 1/4"	1250 l/min	2 - 10 bar	the same	0,14 kg ❄️
P 310 121 G	G 1/2"	3000 l/min	1 - 10 bar	the same	0,45 kg
P 311 701 G	G 1/4"	1250 l/min	1 - 10 bar	3 - 10 bar	0,14 kg ❄️
P 311 121 G	G 1/2"	3000 l/min	1 - 10 bar	3 - 10 bar	0,45 kg
P 310 701 G NPT	1/4" NPT	1250 l/min	2 - 10 bar	the same	0,14 kg
P 311 701 G NPT	1/4" NPT	1250 l/min	1 - 10 bar	3 - 10 bar	0,14 kg

# P 320 302/P 320 502 P 322 302/P 322 502



P 320 302  
P 320 502



P 322 302  
P 322 502



Pneumatically actuated 3/2-way spool valve actuated by impulse.

Type P 320 \_\_\_ double pilot

Type P 322 \_\_\_ double pilot dominating at port 12

If signal is applied to 12 the valve is open from 1 to 2 and 3 is blocked.

If signal is applied at 10 the valve is open from 2 to 3.

Exhaust can be throttled.



P 320 302/P 322 302



P 320 502/P 322 502

Type	Port size	Air flow	Operating press.	Actuating press.	Weight
P 320 302	M5	180 l/min	1 - 10 bar	2,5 - 10 bar	0,05 kg
P 320 502	G 1/8"	650 l/min	1 - 10 bar	2,5 - 10 bar	0,13 kg
P 322 302	M5	180 l/min	1 - 10 bar	2,5 - 10 bar	0,05 kg
P 322 502	G 1/8"	650 l/min	1 - 10 bar	2,5 - 10 bar	0,13 kg

# P 320 501/P 320 701 G/ P 320 801 P 322 501/P 322 701 G



P 320 501/P 322 501



Pneumatically actuated 3/2-way spool valve actuated by impulse.

- Type P 320 \_\_\_ double pilot
- Type P 322 \_\_\_ double pilot dominating at port 12
- Type P 3 \_\_\_ 701 G dual use, in-line and on manifold.  
Plates are displayed on page 2.6.1.5.

If signal is applied to 12 the valve is open from 1 to 2 and 3 is blocked.

If signal is applied at 10 the valve is open from 2 to 3.

Operating pressure can also be applied to 2.

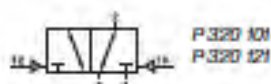
Exhaust can be throttled.

P 320 701 G/P 322 701 G

P 320 801

Type	Port size	Air flow	Operating press.	Actuating press.	Weight	
P 320 501	G 1/8"	650 l/min	1 - 10 bar	2,5 - 10 bar	0,16 kg	☉❄
P 322 501	G 1/8"	650 l/min	1 - 10 bar	2,5 - 10 bar	0,16 kg	
P 320 701 G	G 1/4"	1250 l/min	1 - 10 bar	2,5 - 10 bar	0,17 kg	☉❄
P 322 701 G	G 1/4"	1250 l/min	1 - 10 bar	2,5 - 10 bar	0,17 kg	
P 320 801	G 1/4"	1450 l/min	1 - 10 bar	2,5 - 10 bar	0,34 kg	☉

# P 320 101/P 320 121/P 320 181



Pneumatically actuated 3/2-way spool valve actuated by impulse.

If signal is applied to 12 the valve is open from 1 to 2 and 3 is blocked.

If signal is applied at 10 the valve is open from 2 to 3.

Operating pressure can also be applied to 2.

Position is kept until next pneumatic signal is applied.

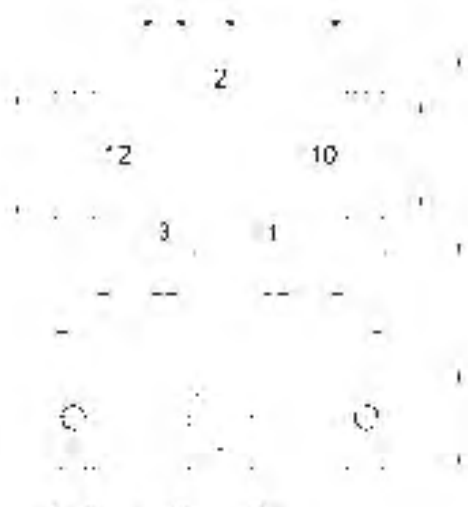
Exhaust can be throttled.



P 320 101



P 320 121



P 320 181

Type	Port size	Air flow	Operating press.	Actuating press.	Weight
P 320 101	G 3/8"	2250 l/min	1 - 10 bar	2,5 - 10 bar	0,38 kg
P 320 121	G 1/2"	3000 l/min	1 - 10 bar	2,5 - 10 bar	0,52 kg
P 320 181	G 3/4"	6000 l/min	1 - 10 bar	2 - 10 bar	0,88 kg



P 510 302  
P 510 502



P 510 302



P 510 502



Pneumatically actuated 5/2-way spool valve actuated by permanent signal and equipped with air spring return.

Normally open from 1 to 2 and from 4 to 5. If pressure is applied at 14 the valve is open from 1 to 4 and 2 to 3.

Operating pressure and actuating pressure should be at the same level.

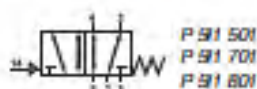
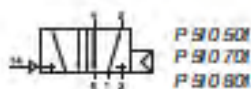
Exhaust can be throttled.

Type	Port size	Air flow	Operating press.	Actuating press.	Weight
P 510 302	M5	180 l/min	2 - 10 bar	the same	0,07 kg
P 510 502	G 1/8"	650 l/min	2 - 10 bar	the same	0,17 kg





# P 510 501/P 510 701/P 510 801 P 511 501/P 511 701/P 511 801



Pneumatically actuated 5/2-way spool valve.

Type P 510 \_\_\_ with air-spring-return.  
Operating pressure and actuating pressure should be at the same level.

Type P 511 \_\_\_ with mechanical spring return.

Normally open from 1 to 2 and from 4 to 5.  
If pressure is applied at 14 the valve is open from 1 to 4 and 2 to 3.

Exhaust can be throttled.



P 510 501/P 511 501

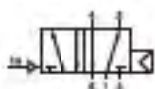


P 510 701/P 511 701

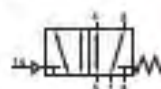


P 510 801/P 511 801

Type	Port size	Air flow	Operating press.	Actuating press.	Weight	
P 510 501	G 1/8"	650 l/min	2 - 10 bar	the same	0,16 kg	☉
P 510 701	G 1/4"	1250 l/min	2 - 10 bar	the same	0,18 kg	☉☉
P 510 801	G 1/4"	1450 l/min	1,5 - 10 bar	the same	0,38 kg	☉
P 511 501	G 1/8"	650 l/min	1 - 10 bar	3 - 10 bar	0,16 kg	
P 511 701	G 1/4"	1250 l/min	1 - 10 bar	3 - 10 bar	0,18 kg	☉
P 511 801	G 1/4"	1450 l/min	1 - 10 bar	3 - 10 bar	0,38 kg	



P 510 101  
 P 510 121  
 P 510 181  
 P 510 121 NPT



P 511 101  
 P 511 121  
 P 511 181  
 P 511 121 NPT

P 510 101/P 511 101



Pneumatically actuated 5/2-way spool valve.

Type P 510 \_\_\_ with air-spring return.

Operating pressure and actuating pressure should be at the same level.

Type P 511 \_\_\_ with mechanical spring return.

Normally open from 1 to 2 and from 4 to 5.

If pressure is applied at 14 the valve is open from 1 to 4 and 2 to 3.

Exhaust can be throttled.

*Selected products displayed on this page are also available NPT threaded.*

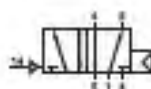
P 510 121/P 511 121

P 510 121 NPT/P511 121 NPT

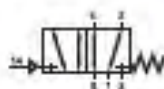
P 510 181/P 511 181

Type	Port size	Air flow	Operating press.	Actuating press.	Weight
P 510 101	G 3/8"	2250 l/min	1,5 - 10 bar	the same	0,42 kg
P 510 121	G 1/2"	3000 l/min	1 - 10 bar	the same	0,59 kg
P 510 181	G 3/4"	6000 l/min	1 - 10 bar	the same	1,18 kg
P 511 101	G 3/8"	2250 l/min	1 - 10 bar	3 - 10 bar	0,42 kg
P 511 121	G 1/2"	3000 l/min	1 - 10 bar	3 - 10 bar	0,59 kg
P 511 181	G 3/4"	6000 l/min	1 - 10 bar	3 - 10 bar	1,18 kg
P 510 121 NPT	1/2" NPT	3000 l/min	1 - 10 bar	the same	0,59 kg
P 511 121 NPT	1/2" NPT	3000 l/min	1 - 10 bar	3 - 10 bar	0,59 kg

# P 510 501 G/P 510 701 G/P 510 121 G P 511 501 G/P 511 701 G/P 511 121 G



P 510 501 G  
P 510 701 G  
P 510 121 G



P 511 501 G  
P 511 701 G  
P 511 121 G



Pneumatically actuated 5/2-way spool valve.

Type P 510 \_\_\_ with air-spring-return.  
Operating pressure and actuating pressure should be at the same level.

Type P 511 \_\_\_ with mechanical spring return.

Normally open from 1 to 2 and from 4 to 5.  
If pressure is applied at 14 the valve is open from 1 to 4 and 2 to 3.

Valves can either be used in-line or on a manifold plate. Manifolds for valves type 501 G are displayed on page 2.6.2.2, manifolds for valves type 701 G are displayed on page 2.6.2.3, manifolds for valves type 121 G are displayed on page 2.6.2.5.

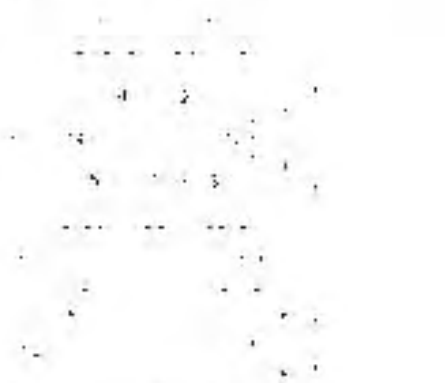
Take into consideration, that G 1/2" valves have to be assembled onto the plate by fixing screws from the bottom through the plate into the valve.

Exhaust can be throttled.

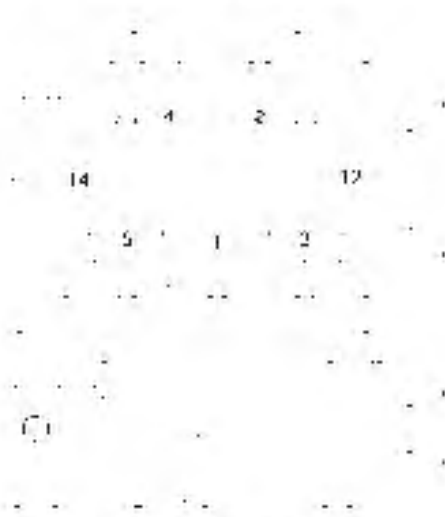
*Selected products displayed on this page are also available NPT threaded.*



P 510 501 G/P 511 501 G

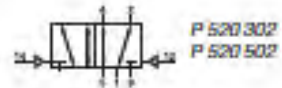


P 510 701 G/P 511 701 G  
P 501 701 G NPT/P 511 701 G NPT



P 510 121 G/P 511 121 G

Type	Port size	Air flow	Operating press.	Actuating press.	Weight	
P 510 501 G	G 1/8"	650 l/min	2 - 10 bar	the same	0,16 kg	*
P 510 701 G	G 1/4"	1250 l/min	2 - 10 bar	the same	0,18 kg	*
P 510 121 G	G 1/2"	3000 l/min	1 - 10 bar	the same	0,59 kg	
P 511 501 G	G 1/8"	650 l/min	1 - 10 bar	3 - 10 bar	0,16 kg	*
P 511 701 G	G 1/4"	1250 l/min	1 - 10 bar	3 - 10 bar	0,18 kg	*
P 511 121 G	G 1/2"	3000 l/min	1 - 10 bar	3 - 10 bar	0,59 kg	
P 510 701 G NPT	1/4" NPT	1250 l/min	2 - 10 bar	the same	0,18 kg	
P 511 701 G NPT	1/4" NPT	1250 l/min	1 - 10 bar	3 - 10 bar	0,18 kg	



**P 520 302**



**P 520 502**



Pneumatically actuated 5/2-way spool valve actuated by impulse.

If signal is applied to 14 the valve is open from 1 to 4 and 2 to 3, 5 is closed.

If signal is applied to 12 the valve is open from 1 to 2 and 4 to 5.

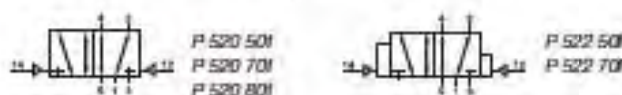
Position is kept until next pneumatic signal is applied.

Exhaust can be throttled.

Type	Port size	Air flow	Operating press.	Actuating press.	Weight
P 520 302	M5	180 l/min	1 - 10 bar	2,5 - 10 bar	0,07 kg
P 520 502	G 1/8"	650 l/min	1 - 10 bar	2,5 - 10 bar	0,17 kg



# P 520 501/P 520 701/P 520 801 P 522 501/P 522 701



Pneumatically actuated 5/2-way spool valve.

Type P 520 \_\_\_ double pilot

Type P 522 \_\_\_ double pilot dominating at port 14

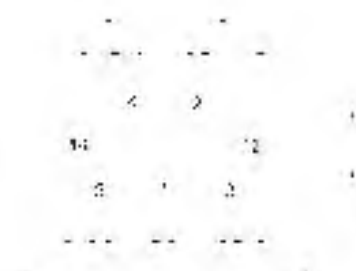
If signal is applied to 14 the valve is open  
from 1 to 4 and 2 to 3, 5 is closed.

If signal is applied to 12 the valve is open  
from 1 to 2 and 4 to 5.

Exhaust can be throttled.



P 520 501/P 522 501

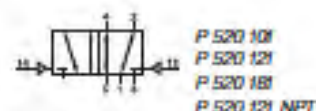


P 520 701/ P 522 701

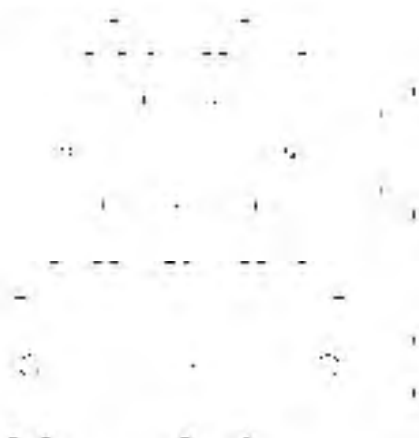


P 520 801

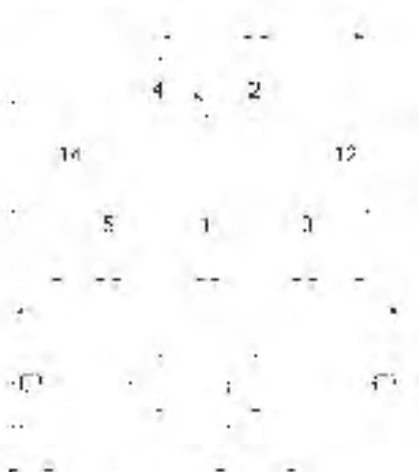
Type	Port size	Air flow	Operating press.	Actuating press.	Weight
P 520 501	G 1/8"	650 l/min	1 - 10 bar	2,5 - 10 bar	0,20 kg
P 522 501	G 1/8"	650 l/min	1 - 10 bar	2,5 - 10 bar	0,20 kg
P 520 701	G 1/4"	1250 l/min	1 - 10 bar	2,5 - 10 bar	0,22 kg
P 522 701	G 1/4"	1250 l/min	1 - 10 bar	2,5 - 10 bar	0,22 kg
P 520 801	G 1/4"	1450 l/min	1 - 10 bar	2,5 - 10 bar	0,44 kg



P 520 101



P 520 121/P 520 121 NPT



P 520 181



Pneumatically actuated 5/2-way spool valve actuated by impulse.

If signal is applied to 14 the valve is open from 1 to 4 and 2 to 3, 5 is closed.

If signal is applied to 12 the valve is open from 1 to 2 and 4 to 5.

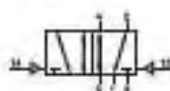
Position is kept until next pneumatic signal is applied.

Exhaust can be throttled.

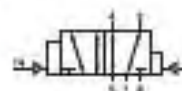
*Selected products displayed on this page are also available NPT threaded.*

Type	Port size	Air flow	Operating press.	Actuating press.	Weight
P 520 101	G 3/8"	2250 l/min	1 - 10 bar	2,5 - 10 bar	0,48 kg
P 520 121	G 1/2"	3000 l/min	1 - 10 bar	2,5 - 10 bar	0,67 kg
P 520 181	G 3/4"	6000 l/min	1 - 10 bar	2 - 10 bar	1,22 kg
P 520 121 NPT	1/2" NPT	3000 l/min	1 - 10 bar	2,5 - 10 bar	0,67 kg

# P 520 501 G/P 520 701 G/P 520 121 G P 522 501 G/ P 522 701 G



P 520 501 G  
P 520 701 G  
P 520 121 G  
P 520 701 G NPT



P 522 501 G  
P 522 701 G



Pneumatically actuated 5/2-way spool valve.

Type P 520 \_\_\_ double pilot

Type P 522 \_\_\_ double pilot dominating at port 14

If signal is applied to 14 the valve is open from 1 to 4 and 2 to 3, 5 is closed.

If signal is applied to 12 the valve is open from 1 to 2 and 4 to 5.

Valves can either be used in-line or on a manifold plate. Manifolds for valves type 501 G are displayed on page 2.6.2.2, manifolds for valves type 701 G are displayed on page 2.6.2.3, manifolds for valves type 121 G are displayed on page 2.6.2.5.

Take into consideration, that G 1/2" valves have to be assembled onto the plate by fixing screws from the bottom through the plate into the valve.

Exhaust can be throttled.

*Selected products displayed on this page are also available NPT threaded.*



P 520 501 G/P 522 501 G

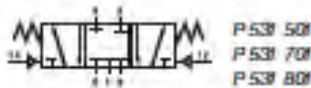


P 520 701 G/P 522 701 G  
P 520 701 G NPT



P 520 121 G

Type	Port size	Air flow	Operating press.	Actuating press.	Weight
P 520 501 G	G 1/8"	650 l/min	1 - 10 bar	2,5 - 10 bar	0,20 kg *
P 522 501 G	G 1/8"	650 l/min	1 - 10 bar	2,5 - 10 bar	0,20 kg
P 520 701 G	G 1/4"	1250 l/min	1 - 10 bar	2,5 - 10 bar	0,22 kg *
P 522 701 G	G 1/4"	1250 l/min	1 - 10 bar	2,5 - 10 bar	0,22 kg
P 520 121 G	G 1/2"	3000 l/min	1 - 10 bar	2,5 - 10 bar	0,67 kg
P 520 701 G NPT	1/4" NPT	1250 l/min	1 - 10 bar	2,5 - 10 bar	0,22 kg



P 531 501  
P 531 701  
P 531 801



P 532 501  
P 532 701  
P 532 801



P 533 501  
P 533 701  
P 533 801



## P 53\_ 501



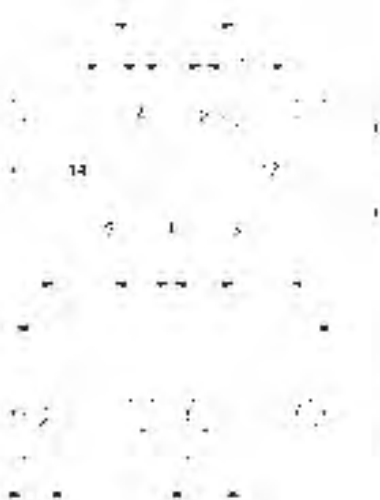
Pneumatically actuated 5/3-way spool valve with spring return to middle position.

- Type 531 centre closed
- Type 532 centre exhausted
- Type 533 centre pressurised

*When ordering please complete the type number by 1, 2 or 3 according to the type required.*

Exhaust can be throttled.

## P 53\_ 701

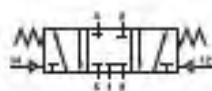


## P 53\_ 801

Type	Port size	Air flow	Operating press.	Actuating press.	Weight
P 53_ 501	G 1/8"	650 l/min	1 - 10 bar	3 - 10 bar	0,20 kg
P 53_ 701	G 1/4"	1250 l/min	1 - 10 bar	3 - 10 bar	0,22 kg
P 53_ 801	G 1/4"	1450 l/min	1 - 10 bar	3 - 10 bar	0,44 kg



# P 53\_ 101/P 53\_ 121/P 53\_ 181



P 531 101  
P 531 121  
P 531 181  
P 531 121 NPT



P 532 101  
P 532 121  
P 532 181  
P 532 121 NPT



P 533 101  
P 533 121  
P 533 181  
P 533 121 NPT



Pneumatically actuated 5/3-way spool valve with spring return to middle position.

Type 531 centre closed  
Type 532 centre exhausted  
Type 533 centre pressurised

When ordering please complete the type number by 1, 2 or 3 according to the type required.


Exhaust can be throttled.

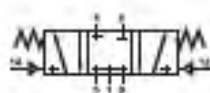
Selected products displayed on this page are also available NPT threaded.

P 53\_ 101

P 53\_ 121/P 53\_ 121 NPT

P 53\_ 181

Type	Port size	Air flow	Operating press.	Actuating force	Weight
P 53_ 101	G 3/8"	2250 l/min	1 - 10 bar	3 - 10 bar	0,49 kg 
P 53_ 121	G 1/2"	3000 l/min	1 - 10 bar	3 - 10 bar	0,69 kg 
P 53_ 181	G 3/4"	6000 l/min	1 - 10 bar	3 - 10 bar	1,22 kg
P 53_ 121 NPT	1/2" NPT	3000 l/min	1 - 10 bar	3 - 10 bar	0,69 kg



P 531 501 G  
P 531 701 G  
P 531 121 G  
P 531 701 G NPT



P 532 501 G  
P 532 701 G  
P 532 121 G  
P 532 701 G NPT



P 533 501 G  
P 533 701 G  
P 533 121 G  
P 533 701 G NPT



### P 53\_ 501 G



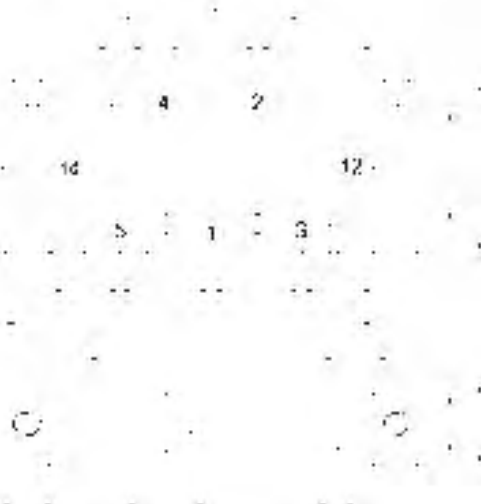
Pneumatically actuated 5/3-way spool valve with spring return to middle position.

- Type 531 centre closed
- Type 532 centre exhausted
- Type 533 centre pressurised

When ordering please complete the type number by 1, 2 or 3 according to the type in need.

Valves can either be used in-line or on a manifold plate. Manifolds for valves type 501 G are displayed on page 2.6.2.2, manifolds for valves type 701 G are displayed on page 2.6.2.3, manifolds for valves type 121 G are displayed on page 2.6.2.5.

### P 53\_ 701 G/P 53\_ 701 G NPT



Take into consideration, that G 1/2" valves have to be assembled onto the plate by fixing screws from the bottom through the plate into the valve.

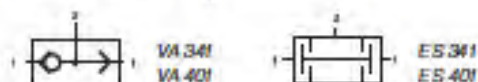
Exhaust can be throttled.

Selected products displayed on this page are also available NPT threaded.

### P 53\_ 121 G

Type	Port size	Air flow	Operating press.	Actuating press.	Weight	
P 53_ 501 G	G 1/8"	650 l/min	1 - 10 bar	3 - 10 bar	0,20 kg	❄
P 53_ 701 G	G 1/4"	1250 l/min	1 - 10 bar	3 - 10 bar	0,22 kg	❄
P 53_ 121 G	G 1/2"	3000 l/min	1 - 10 bar	3 - 10 bar	0,69 kg	
P 53_ 701 G NPT	1/4" NPT	1250 l/min	1 - 10 bar	3 - 10 bar	0,22 kg	

# VA 341/VA 401 ES 341/ES 401



## VA 341/VA 401: OR-gate

The OR-gate has two inputs 1 and one output 2.

The shuttle valve is used when only one of two possible signals is required to pass on a signal.

Function: If one of two signal inputs are activated, an output signal on port 2 is present and the other input is blocked.

In case of pressurising both inputs at different pressure levels, the higher pressure is fed to port 2.

## ES 341/ES 401: AND-gate

The AND-gate has two inputs 1 and one output 2.

The dual-pressure valve is used when at least 2 signals are required before a signal is passed on.

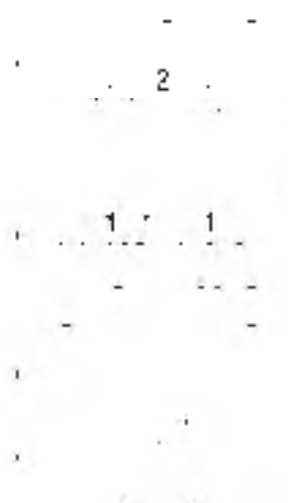
Function: Only when both inputs are pressurised output 2 is pressurised.

If two different pressures are applied the lower pressure is fed to output 2.

In case of only one signal at one of the two ports 1, the output 2 is blocked.

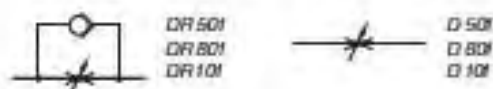


VA 341/ES 341



VA 401/ES 401

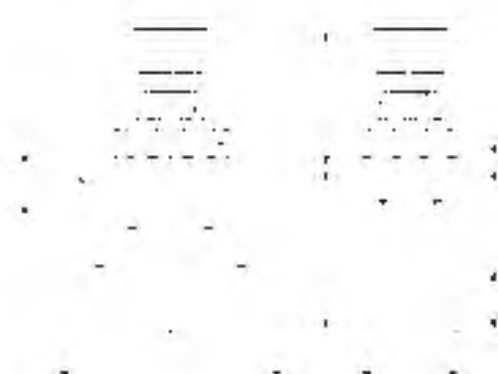
Type	Function	Port size	Air flow	Operating press.	Weight
VA 341	OR	plf 4 mm	280 l/min	1 - 10 bar	0,04 kg
VA 401	OR	G 1/8"	280 l/min	1 - 10 bar	0,04 kg
ES 341	AND	plf 4 mm	280 l/min	1 - 10 bar	0,04 kg
ES 401	AND	G 1/8"	280 l/min	1 - 10 bar	0,04 kg



DR 501/D 501



DR 801/D 801



DR 101/D 101



Block form flow regulator.

**Type DR**  
uni-directional block form flow regulator.  
Air streaming in the direction of the throttle can be regulated by turning the spindle. In the opposite direction air streams unthrottled.

**Type D**  
bi-directional flow regulator. Air is regulated in both directions.

The throttle can be adjusted very precisely along the entire regulation range.

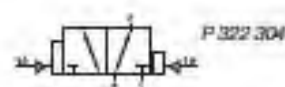
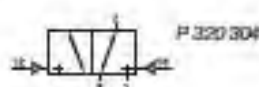
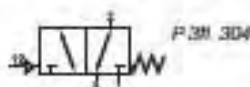
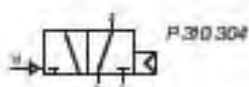
Adjustment can be locked.

Suitable for wall and panel mounting.  
Nut is included.



Type	Port size	Air flow	Airflow in opposite direction	Operating press.	Weight
D 501	G 1/8"	450 l/min	450 l/min	0,5 - 10 bar	0,04 kg
D 801	G 1/4"	1150 l/min	1150 l/min	0,5 - 10 bar	0,13 kg
D 101	G 3/8"	1450 l/min	1450 l/min	0,5 - 10 bar	0,13 kg
DR 501	G 1/8"	450 l/min	450 l/min	2 - 10 bar	0,04 kg
DR 801	G 1/4"	1150 l/min	1150 l/min	2 - 10 bar	0,13 kg
DR 101	G 3/8"	1450 l/min	1450 l/min	2 - 10 bar	0,13 kg

# P 310 304/P 311 304 P 320 304/P 322 304/RP 3 344



Pneumatically actuated 3/2-way spool valves.  
To be assembled to plate RP 3 344.

Four different versions are offered:

- P 310 304 valve with air-spring return.
- P 311 304 valve with mechanical spring return.
- P 320 304 double pilot valve
- P 322 304 double pilot valve dominating at port 12.

For P 310 304 the operating and actuating pressure should be at the same level.

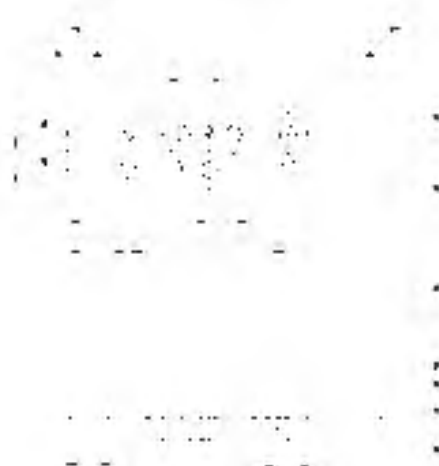
RP 3 344 is designed for carrying one 3/2-way valve type P 310 304, P 311 304, P 320 304 or P 322 304.  
The plate is equipped with 5 push-in fittings for 4 mm tube.



P 310 304/P 311 304



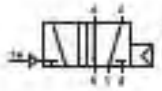
P 320 304/P 322 304



RP 3 344

Type	Port size	Air flow	Operating press.	Actuating press	Weight
P 310 304	Ø 3 mm	280 l/min	2 - 10 bar	the same	0,04 kg
P 311 304	Ø 3 mm	280 l/min	2 - 10 bar	3 - 10 bar	0,04 kg
P 320 304	Ø 3 mm	280 l/min	2 - 10 bar	2,5 - 10 bar	0,04 kg
P 322 304	Ø 3 mm	280 l/min	2 - 10 bar	2,5 - 10 bar	0,04 kg
RP 3 344	pif 4 mm				0,04 kg

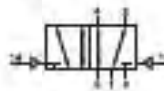
# P 510 304/P 511 304 P 520 304/P 522 304/RP 5 344



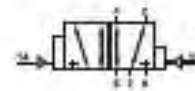
P 510 304



P 511 304



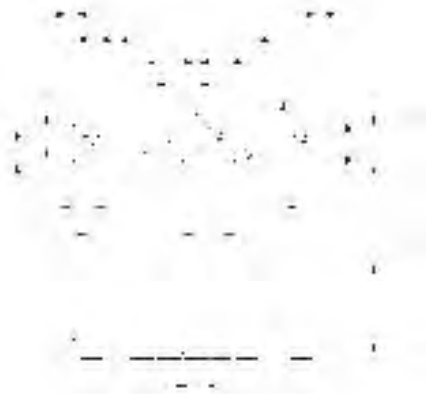
P 520 304



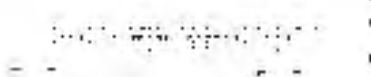
P 522 304



P 510 304/P 511 304



P 520 304/P 522 304



RP 5 344



Pneumatically actuated 5/2-way spool valves.  
To be assembled to plate RP 5 344.

Four different versions are offered:

- P 510 304 valve with air-spring return.
- P 511 304 valve with mechanical spring return.
- P 520 304 double pilot valve
- P 522 304 double pilot valve dominating at port 14.

5/3-way valves are available on request.

For P 510 304 the operating and actuating pressure should be at the same level.

RP 5 344 is designed for carrying one piece 5-way valve type P 510 304, P 511 304, P 520 304 or P 522 304.

3/2-way valves can also be assembled to that plate. The plate is equipped with 7 push-in fittings for 4 mm tube.

Type	Port size	Air flow	Operating press.	Actuating press	Weight
P 510 304	Ø 3 mm	280 l/min	2 - 10 bar	the same	0,06 kg
P 511 304	Ø 3 mm	280 l/min	2 - 10 bar	3 - 10 bar	0,06 kg
P 520 304	Ø 3 mm	280 l/min	2 - 10 bar	2,5 - 10 bar	0,06 kg
P 522 304	Ø 3 mm	280 l/min	2 - 10 bar	2,5 - 10 bar	0,06 kg
RP 5 344	plf 4 mm				0,04 kg

# VA 304/ES 304/RP 2 344



## VA 304: OR-gate

The OR-gate has two inputs 1 and one output 2.

The shuttle valve is used when only one of two possible signals is required to pass on a signal.

Function: If one of two signal inputs are activated, an output signal on port 2 is present and the other input is blocked.

In case of pressurising both inputs at different pressure levels, the higher pressure is fed to port 2.

## ES 304: AND-gate

The AND-gate has two inputs 1 and one output 2.

The dual-pressure valve is used when at least 2 signals are required before a signal is passed on.

Function: Only when both inputs are pressurised output 2 is pressurised.

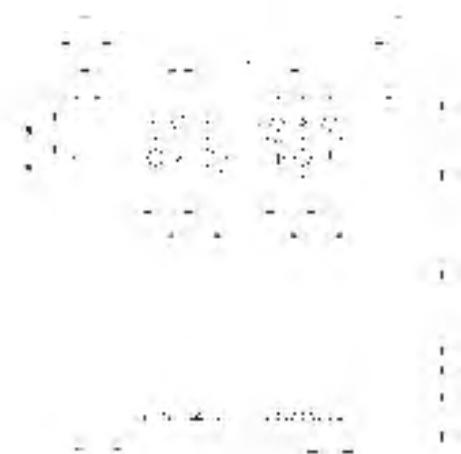
If two different pressures are applied the lower pressure is fed to output 2.

In case of only one signal at one of the two ports 1, the output 2 is blocked.

Both elements can be assembled to RP 2 344.  
Plate can carry 2 pieces AND- or OR-gates.  
Both types can be mixed on the plate. The plate is equipped with 6 push-in fittings for 4 mm tube.



VA 304/ES 304



RP 2 344

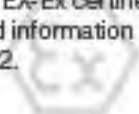
Type	Function	Port size	Air flow	Operating press.	Weight
VA 304	OR	Ø 3 mm	280 l/min	1 - 10 bar	0,03 kg
ES 304	AND	Ø 3 mm	280 l/min	1 - 10 bar	0,03 kg
RP 2 344	plate	plf 4 mm			0,04 kg



# 2.5

## Solenoid Valves

Selected models are available for explosion hazardous environment. They are ATEX-Ex certified. For detailed information refer to chapter 2.12.



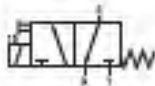
Selected models are available for low temperature application. Temperature-range: - 50° C to + 50° C. For detailed information refer to chapter 2.9.



Selected models are available in stainless steel. For detailed information refer to chapter 2.10.



# MD 311 010



MD 311 010



Direct acting 3/2-way solenoid, valve normally closed (n.c.), equipped with mechanical spring return.

By closing port 3 valve can be converted into a 2/2-way valve.

Available with solenoid operators:  
230/50Hz, 110V/50Hz, 24V50Hz, 24V-,  
12V-, 6V- either for connector form C ISO 15217 or  
with flying leads, standard cable length 500 mm.

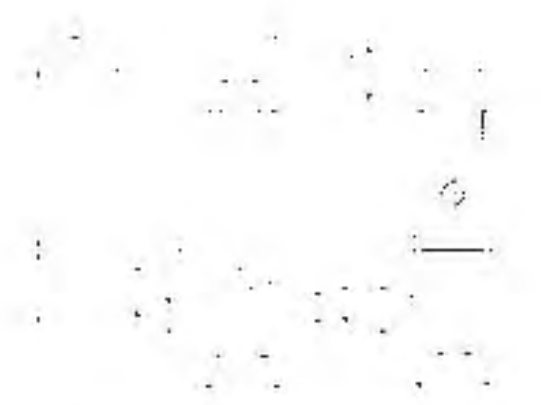
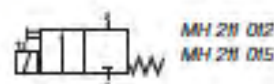
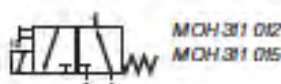
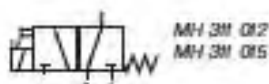
For details about solenoid system, please refer to  
page 2.11.1.

Valves are generally equipped with manual  
override to push.



MD 311 010

Type	Funktion	Port size	Air flow	Operating press.	Power consumption	Weight
MD 311 010	n.c.	M5	30 l/min	0 - 10 bar	1,8 W = / 3 VA -	0,05 kg



MH 311 012/MOH 311 012/MH 211 012



MH 311 015/MOH 311 015/MH 211 015



Direct acting 3/2-way and 2/2-way solenoid valve equipped with mechanical spring return.

Type MH 311 \_\_\_\_  
Normally closed, port 1 and 2 in the valve, port 3 at the top of the solenoid

Type MOH 311 \_\_\_\_  
Normally open, port 2 and 3 in the valve, port 1 at the top of the solenoid

Type MH 211 \_\_\_\_  
2/2-way valve n.c.

By closing port 3 3/2-way valves can be converted into 2/2-way version.

Please notice:  
Drawings are for MH 311 \_\_\_\_-valves. At MOH-valves ports 1 and 3 are swapped, at MH 211 port 3 is not existing. MOH 311 and MH 211-valves are equipped with a flat plastic nut.

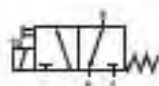
Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

Valves are generally equipped with manual override.

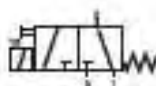
Connector as shown on the photo is included.

Type	Ways	Function	Port size			Air flow	Operating pressure	Power consumption	Weight	
			1	2	3					
MH 311 012	3/2	n.c.	M5	M5	M5	40 l/min	0 - 10 bar	3W = / 5VA -	0,12 kg	☞☞
MH 311 015	3/2	n.c.	G 1/8"	G 1/8"	M5	50 l/min	0 - 10 bar	3W = / 5VA -	0,14 kg	☞☞
MOH 311 012	3/2	n.o.	M5	M5	M5	40 l/min	0 - 10 bar	3W = / 5VA -	0,12 kg	
MOH 311 015	3/2	n.o.	M5	G 1/8"	G 1/8"	50 l/min	0 - 10 bar	3W = / 5VA -	0,14 kg	
MH 211 012	2/2	n.c.	M5	M5		40 l/min	0 - 10 bar	3W = / 5VA -	0,12 kg	
MH 211 015	2/2	n.c.	G 1/8"	G 1/8"		50 l/min	0 - 10 bar	3W = / 5VA -	0,14 kg	

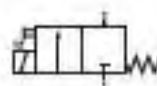
# MH 311 305/MH 311 309/MOH 311 305 MOH 311 309/MH 211 305/MH 211 309



MH 311 305  
MH 311 309



MOH 311 305  
MOH 311 309



MH 211 305  
MH 211 309



Direct acting 3/2-way and 2/2-way solenoid valve equipped with mechanical spring return.  
Orifice size: 3 mm, max. pressure: 7 bar.

Type MH 311 \_\_\_\_

Normally closed, port 1 and 2 in the valve, port 3 at the top of the solenoid

Type MOH 311 \_\_\_\_

Normally open, port 2 and 3 in the valve, port 1 at the top of the solenoid

Type MH 211 \_\_\_\_

2/2-way valve n.c.

Please notice:

Drawings are for MH 311 \_\_\_\_-valves. At MOH-valves ports 1 and 3 are swapped, at MH 211 port 3 is not existing.

Available with solenoid operators:

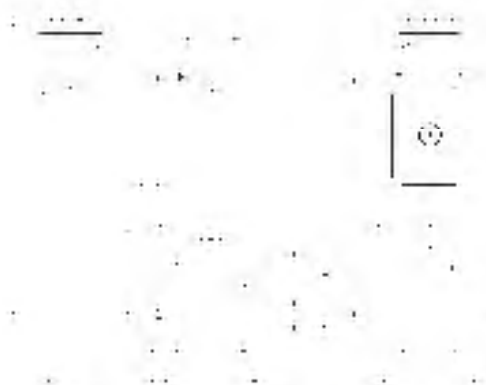
230VAC, 24DC.

Valves are generally equipped with manual override.

Connector Industry B (22 mm) as shown on the photo is included.

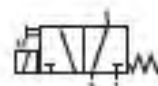


MH 311 305/MOH 311 305/MH 211 305

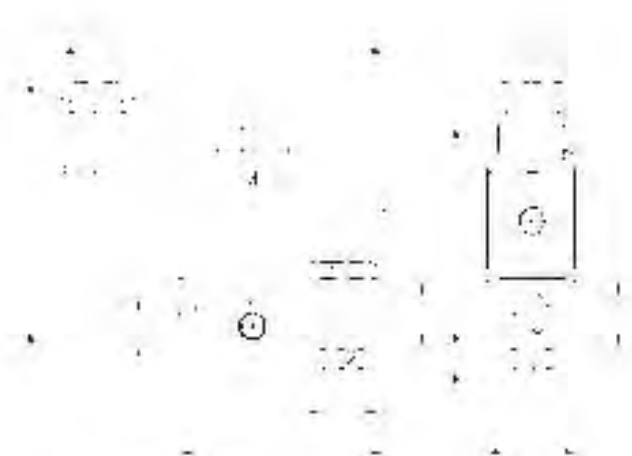


MH 311 309/MOH 311 309/MH 211 309

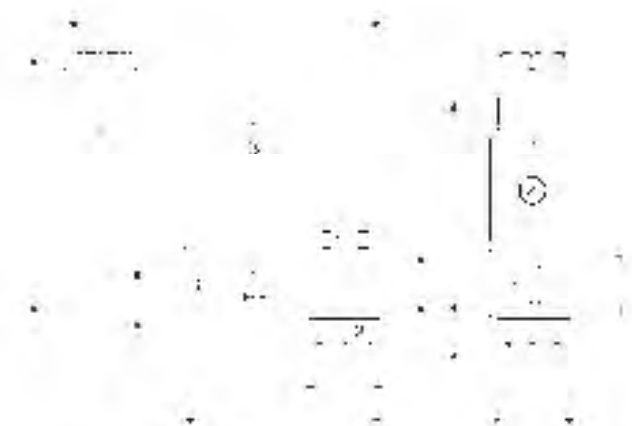
Type	Ways	Function	Port size			Air flow	Operating Power		Weight
			1	2	3		pressure	consumption	
MH 311 305	3/2	n.c.	G 1/8"	G 1/8"	G 1/8"	300 l/min	0 - 7 bar	8 W = /13,5 VA	0,17 kg
MH 311 309	3/2	n.c.	G 1/4"	G 1/4"	G 1/8"	300 l/min	0 - 7 bar	8 W = /13,5 VA	0,18 kg
MOH 311 305	3/2	n.o.	G 1/8"	G 1/8"	G 1/8"	300 l/min	0 - 7 bar	8 W = /13,5 VA	0,17 kg
MOH 311 309	3/2	n.o.	G 1/4"	G 1/4"	G 1/8"	300 l/min	0 - 7 bar	8 W = /13,5 VA	0,18 kg
MH 211 305	2/2	n.c.	G 1/8"	G 1/8"		300 l/min	0 - 7 bar	8 W = /13,5 VA	0,17 kg
MH 211 309	2/2	n.c.	G 1/4"	G 1/4"		300 l/min	0 - 7 bar	8 W = /13,5 VA	0,18 kg



MH 311 013  
MH 311 017



MH 311 013



MH 311 017



Direct acting 3/2-way solenoid valve equipped with mechanical spring return, normally closed.

Port 2 is a banjo that can be directly screwed into the actuator that is to be controlled.

Products with port 1 in NPT on request.  
Products normally open on request.  
2/2-way version on request.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

Valves are generally equipped with manual override.

Connector as shown on the photo is included.



MH 311 013 and MH 311 017 are designed for piloting angle seat valves or small spring-return actuators.

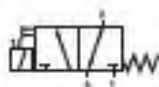
When assembling this type of valve to a spring-return actuator, please take into consideration that there is no exhaust air recirculation ("purge").

Instead of the standard banjo-screw, the valve can also be equipped with a flow-regulating banjo-screw.

Three different versions are available on request: Banjo-screw to regulate the opening speed, the closing speed as well as the opening and closing speed (not independent).

Type	Function	Port size			Air flow	Operating pressure	Power consumption	Weight
		1	2	3				
MH 311 013	n.c.	G 1/8"	G 1/8"	M5	50 l/min	0- 10 bar	3 W = / 5 VA -	0,14 kg ❄
MH 311 017	n.c.	G 1/8"	G 1/4"	M5	50 l/min	0- 10 bar	3 W = / 5 VA -	0,16 kg ❄

# MH 311 313/MH 311 317



MH 311 313  
MH 311 317



Direct acting 3/2-way solenoid valve equipped with mechanical spring return, normally closed. Orifice size: 3 mm, max. pressure: 7 bar.

Port 2 is a banjo that can be directly screwed into the actuator that is to be controlled.

Products with port 1 in NPT on request.  
Products normally open on request.  
2/2-way version on request.

Available with solenoid operators:  
230VAC, 24DC.

Valves are generally equipped with manual override.

Connector Industry B (22 mm) as shown on the photo is included.

MH 311 313 and MH 311 317 are designed for pilot-  
ing angle seat valves or small spring-return actu-  
tors.

When assembling this type of valve to a spring-  
return actuator, please take into consideration that  
there is no exhaust air recirculation ("purge").

Instead of the standard banjo-screw, the valve can  
also be equipped with a flow-regulating banjo-  
screw.

Three different versions are available on request:  
Banjo-screw to regulate the opening speed, the  
closing speed as well as the opening and closing  
speed (not independent).



MH 311 313

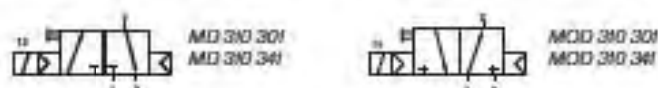


MH 311 317



Type	Function	Port size			Air flow	Operating pressure	Power consumption	Weight
		1	2	3				
MH 311 313	n.c.	G 1/8"	G 1/8"	G 1/8"	300 l/min	0 - 7 bar	8 W = /13,5 VA -	0,21 kg
MH 311 317	n.c.	G 1/8"	G 1/4"	G 1/8"	300 l/min	0 - 7 bar	8 W = /13,5 VA -	0,22 kg

# MD 310 301/MD 310 341 MOD 310 301/MOD 310 341



MD 310 301/MOD 310 301



MD 310 341/MOD 310 341



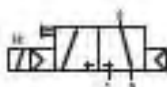
3/2-way solenoid valve normally closed (MD) or normally open (MOD) actuated by permanent signal and equipped with air spring return.

Available with solenoid operators: 230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-, 12V-, 6V- either for connector form C ISO 15217 or with flying leads, standard cable length 500 mm. For details about solenoid system, please refer to page 2.11.1.

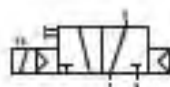
Valves are generally equipped with manual override to push.

Type	Function	Port size 1 and 2	Air flow	Operating pressure	Power consumption	Weight
MD 310 301	n.c.	M5	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,08 kg
MD 310 341	n.c.	plf 4 mm	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,09 kg
MOD 310 301	n.o.	M5	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,08 kg
MOD 310 341	n.o.	plf 4 mm	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,09 kg

# MD 310 401/MD 310 461 MOD 310 401/MOD 310 461



MD 310 401  
MD 310 461



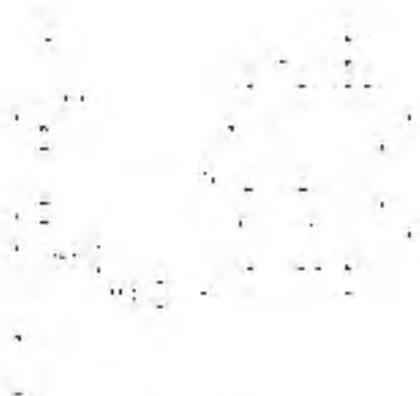
MOD 310 401  
MOD 310 461



3/2-way solenoid valve normally closed (MD) or normally open (MOD) actuated by permanent signal and equipped with air spring return.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-,  
12V-, 6V- either for connector form C ISO 15217  
or with flying leads, standard cable length 500 mm.  
For details about solenoid system, please refer to  
page 2.11.1.

Valves are generally equipped with manual  
override to push.



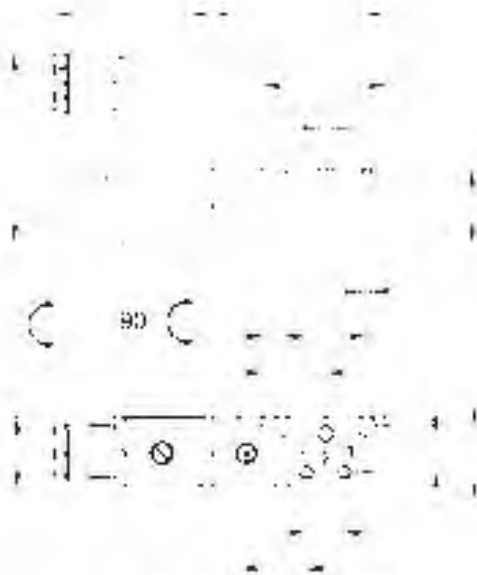
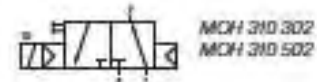
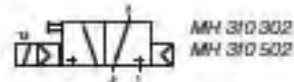
MD 310 401/MOD 310 401



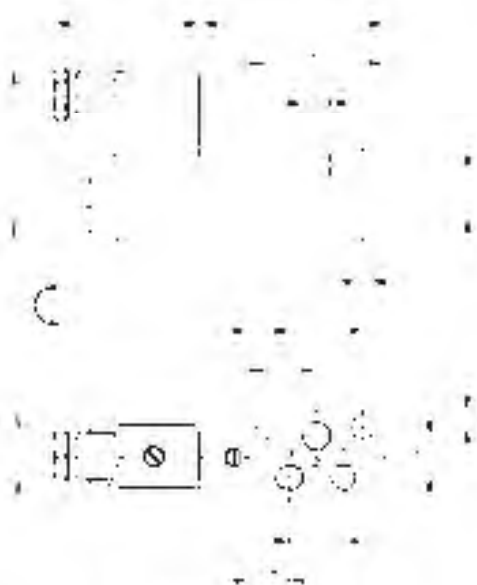
MD 310 461/MOD 310 461

Type	Function	Port size 1 and 2	Air flow	Operating pressure	Power consumption	Weight
MD 310 401	n.c.	G 1/8"	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,09 kg
MD 310 461	n.c.	plf 6 mm	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,10 kg
MOD 310 401	n.o.	G 1/8"	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,09 kg
MOD 310 461	n.o.	plf 6 mm	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,10 kg

# MH 310 302/MH 310 502 MOH 310 302/MOH 310 502



MH 310 302/MOH 310 302



MH 310 502/MOH 310 502



3/2-way solenoid valve normally closed (MH) or normally open (MOH) actuated by permanent signal and equipped with air spring return.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-

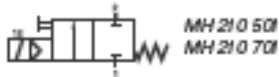
Valves are generally equipped with manual override.  
If requested without manual override please order  
M 310 \_\_\_ / MO 310 \_\_\_.

Connector as shown on the photo is included.

Type	Function	Port size 1 and 2	Air flow	Operating pressure	Power consumption	Weight
MH 310 302	n.c.	M5	180 l/min	2 - 10 bar	3 W = / 5 VA -	0,18 kg
MH 310 502	n.c.	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,25 kg
MOH 310 302	n.o.	M5	180 l/min	2 - 10 bar	3 W = / 5 VA -	0,18 kg
MOH 310 502	n.o.	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,25 kg



# MH 210 501/MH 201 701



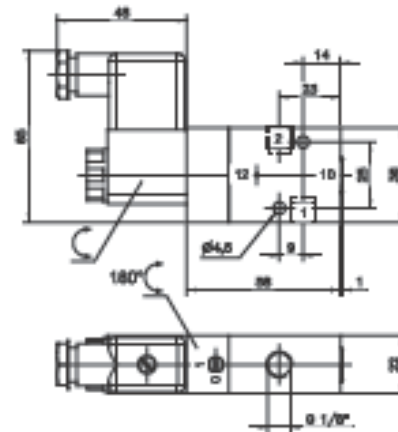
2/2-way solenoid valve, normally closed, actuated by permanent signal and equipped with air spring return.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

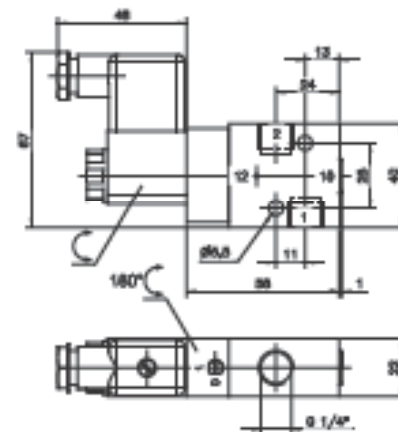
Valves are generally equipped with manual override.

Normally open version (MOH) on request.

Connector as shown on the photo is included.



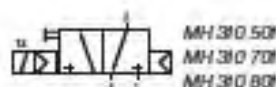
MH 210 501



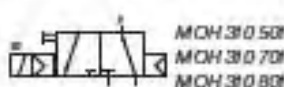
MH 210 701

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 210 501	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,19 kg
MH 210 701	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,19 kg

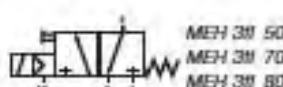
# MH 310 501/MH 310 701/MH 310 801 MOH 310 501/MOH 310 701/MOH 310 801



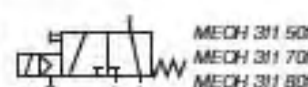
MH 310 501  
MH 310 701  
MH 310 801



MOH 310 501  
MOH 310 701  
MOH 310 801



MEH 311 501  
MEH 311 701  
MEH 311 801



MEOH 311 501  
MEOH 311 701  
MEOH 311 801

## MH 310 501/MOH 310 501



3/2-way solenoid valve normally closed (MH) or normally open (MOH) actuated by permanent signal and equipped with air spring return.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-

Valves are generally equipped with manual override.  
If requested without manual override please order  
M 310 \_\_\_ / MO 310 \_\_\_

Valves are also available with external pilot feed.  
Type: MEH 311 \_\_\_ (n.c.) or MEOH 311 \_\_\_ (n.o.).  
Port 12 series 501 and 701 M5, series 801 G 1/8".  
Minimum actuation pressure: 3 bar.  
Version for vacuum on request.

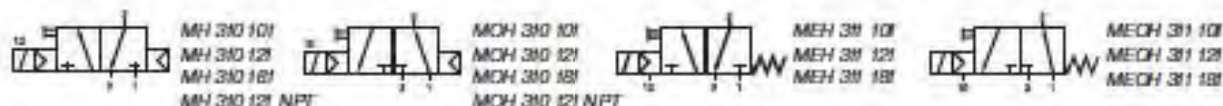
Connector as shown on the photo is included.

## MH 310 701/MOH 310 701

## MH 310 801/MOH 310 801

Type	Function	Port size	Air flow	Operating press.	Power consumption	Weight
MH 310 501	n.c.	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,19 kg 
MH 310 701	n.c.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,21 kg 
MH 310 801	n.c.	G 1/4"	1450 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,39 kg 
MOH 310 501	n.o.	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,19 kg 
MOH 310 701	n.o.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,21 kg 
MOH 310 801	n.o.	G 1/4"	1450 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,39 kg 

# MH 310 101/MH 310 121/MH 310 181 MOH 310 101/MOH 310 121/MOH 310 181



3/2-way solenoid valve normally closed (MH) or normally open (MOH) actuated by permanent signal and equipped with air spring return.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V~,  
24V~, 12V~.

Valves are generally equipped with manual override. If requested without manual override please order M 310 \_\_\_ / MO 310 \_\_\_.

Valves are also available with external pilot feed.  
Type: MEH 311 \_\_\_ (n.c.) or MEOH 311 \_\_\_ (n.o.).  
Port 12: G 1/8".

Minimum actuation pressure: 3 bar.  
Version for vacuum on request.

Connector as shown on the photo is included.

*Selected products displayed on this page are also available NPT threaded.*

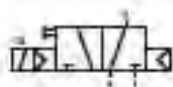
MH 310 101/MOH 310 101

MH 310 121/MOH 310 121  
MH 310 121 NPT/MOH 310 121 NPT

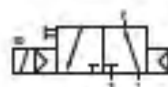
MH 310 181/MOH 310 181

Type	Function	Port size	Air flow	Operating press.	Power cons.	Weight
MH 310 101	n.c.	G 3/8"	2250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,41 kg
MH 310 121	n.c.	G 1/2"	3000 l/min	1 - 10 bar	3 W = / 5 VA -	0,53 kg
MH 310 181	n.c.	G 3/4"	6000 l/min	1 - 10 bar	3 W = / 5 VA -	0,88 kg
MOH 310 101	n.o.	G 3/8"	2250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,41 kg
MOH 310 121	n.o.	G 1/2"	3000 l/min	1 - 10 bar	3 W = / 5 VA -	0,53 kg
MOH 310 181	n.o.	G 3/4"	6000 l/min	1 - 10 bar	3 W = / 5 VA -	0,88 kg
MH 310 121 NPT	n.o.	1/2" NPT	3000 l/min	1 - 10 bar	3 W = / 5 VA -	0,53 kg
MOH 310 121 NPT	n.o.	1/2" NPT	3000 l/min	1 - 10 bar	3 W = / 5 VA -	0,53 kg

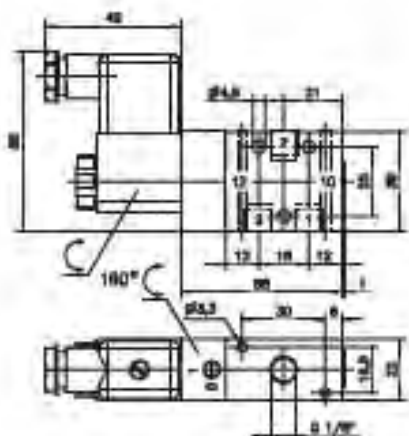
# MH 310 501 G/MH 310 701 G MOH 310 501 G/MOH 310 701 G



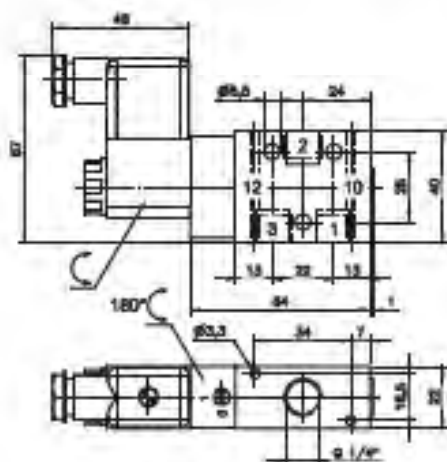
MH 310 501 G  
MH 310 701 G  
MH 310 701 G NPT



MOH 310 501 G  
MOH 310 701 G  
MOH 310 701 G NPT



MH 310 501 G/MOH 310 501 G



MH 310 701 G/MOH 310 701 G  
MH 310 701 G NPT/MOH 310 701 G NPT



3/2-way solenoid valve normally closed (MH) or normally open (MOH) actuated by permanent signal and equipped with air spring return.

Valves can either be used in-line or to be assembled onto a manifold plate. Manifolds for valves type 501 G are displayed on page 2.6.1.4, manifolds for valves type 701 G are displayed on page 2.6.1.5.

Normally open and normally closed products can be mixed on one plate.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

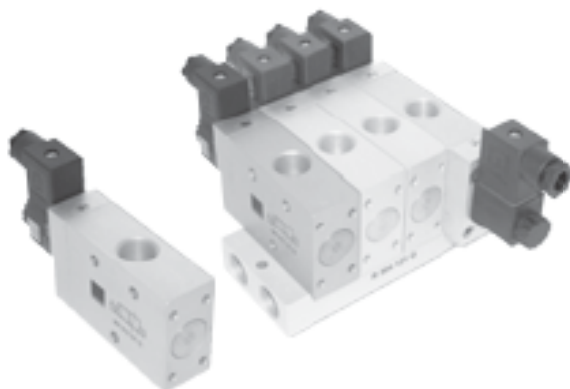
Valves are generally equipped with manual override. If requested without manual override please order M 310 \_\_\_ / MO 310 \_\_\_.

Connector as shown on the photo is included.

Selected products displayed on this page are also available NPT threaded.

Type	Function	Port size	Air flow	Operating press.	Power cons.	Weight
MH 310 501 G	n.c.	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,20 kg
MH 310 701 G	n.c.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,21 kg MK
MOH 310 501 G	n.o.	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,20 kg
MOH 310 701 G	n.o.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,21 kg MK
MH 310 701 G NPT	n.c.	1/4" NPT	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,21 kg
MOH 310 701 G NPT	n.o.	1/4" NPT	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,21 kg

# MH 310 101 G/MH 310 121 G MOH 310 101 G/MOH 310 121 G



3/2-way solenoid valve normally closed (MH) or normally open (MOH) actuated by permanent signal and equipped with air spring return.

Valves can either be used in-line or to be assembled onto a manifold plate. Manifolds for valves type 101 G are displayed on page 2.6.1.4, manifolds for valves type 121 G are displayed on page 2.6.1.5.

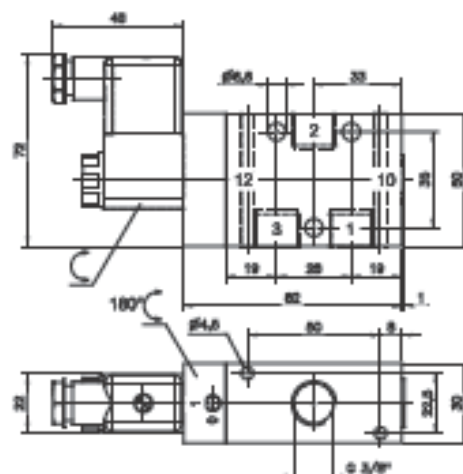
Normally open and normally closed products can be mixed on one plate.

Valves G1/2" have to be assembled onto the plate by fixing screws from the bottom through the plate into the valve.

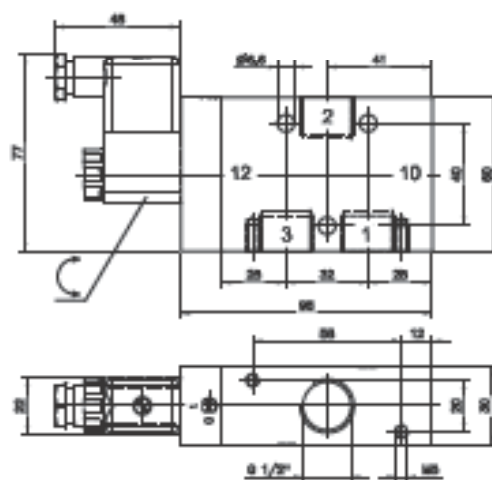
Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V~,  
24V~, 12V~.

Valves are generally equipped with manual override.  
If requested without manual override please order  
M 310 \_\_\_ / MO 310 \_\_\_.

Connector as shown on the photo is included.

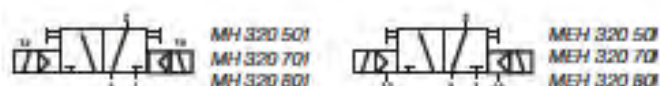


MH 310 101 G/MOH 310 101 G

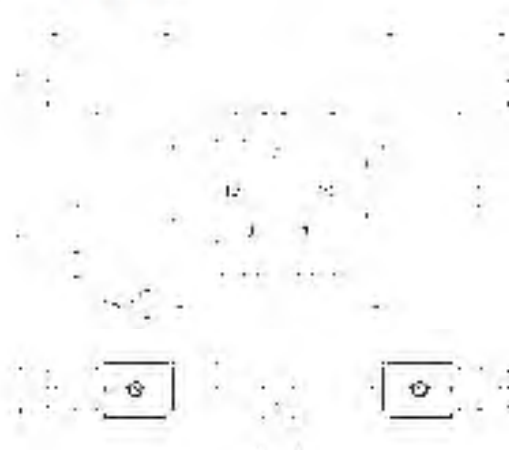


MH 310 121 G/MOH 310 121 G

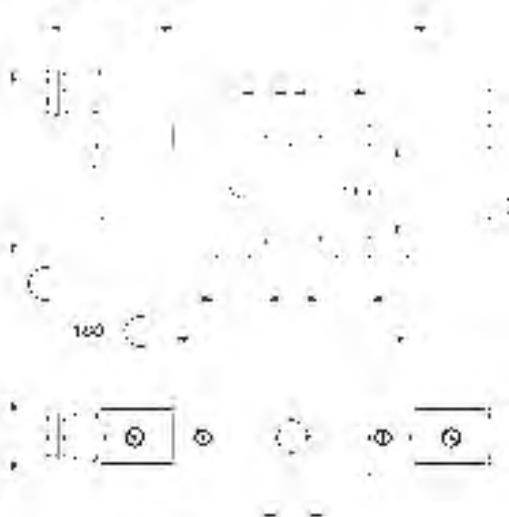
Type	Function	Port size	Air flow	Operating press.	Power consumption	Weight
MH 310 101 G	n.c.	G 3/8"	2250 l/min	1,5 - 10 bar	3 W= / 5 VA -	0,41 kg
MH 310 121 G	n.c.	G 1/2"	3000 l/min	1 - 10 bar	3 W= / 5 VA -	0,53 kg
MOH 310 101 G	n.o.	G 3/8"	2250 l/min	1,5 - 10 bar	3 W= / 5 VA -	0,41 kg
MOH 310 121 G	n.o.	G 1/2"	3000 l/min	1 - 10 bar	3 W= / 5 VA -	0,53 kg



**MH 320 501**



**MH 320 701**



**MH 320 801**



3/2-way double solenoid valve actuated by impulse. Position is kept until an electrical signal is applied to the opposite side even when not attached to an electrical source.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

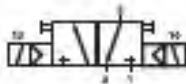
Valves are generally equipped with manual override. If requested without manual override please order type no. M 320 \_\_\_\_\_.

Valves are also available with external pilot feed.  
Type: MEH 320 \_\_\_\_\_.  
Port 12 series 501 and 701 M5, series 801 G 1/8".  
Minimum actuation pressure: 2,5 bar.  
Version for vacuum on request.

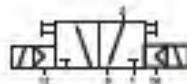
Connectors as shown on the photo are included.

Type	Port size	Air flow	Operating press.	Power consumption	Weight	
MH 320 501	G 1/8"	650 l/min	2 - 10 bar	3W = / 5VA -	0,29 kg	☞*
MH 320 701	G 1/4"	1250 l/min	2 - 10 bar	3W = / 5VA -	0,31 kg	☞MK
MH 320 801	G 1/4"	1450 l/min	1,5 - 10 bar	3W = / 5VA -	0,54 kg	☞

# MH 320 101/MH 320 121/MH 320 181



MH 320 101  
MH 320 121  
MH 320 181



MEH 320 NM  
MEH 320 121  
MEH 320 181



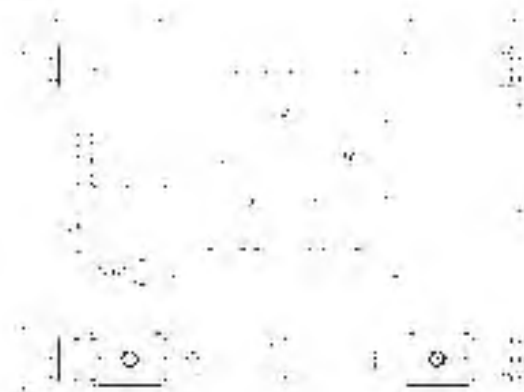
3/2-way double solenoid valve actuated by impulse. Position is kept until an electrical signal is applied to the opposite side even when not attached to an electrical source.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-

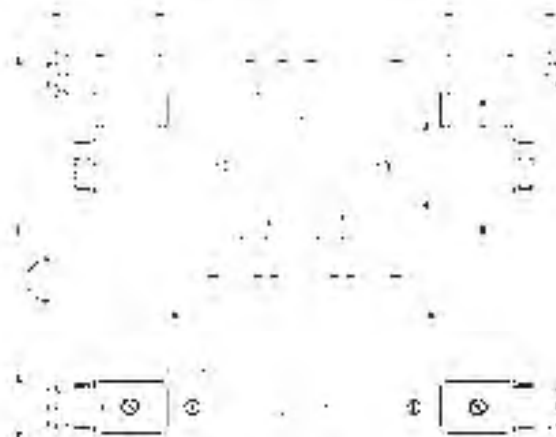
Valves are generally equipped with manual override. If requested without manual override please order type no. M 320 \_\_\_\_

Valves are also available with external pilot feed.  
Type: MEH 320 \_\_\_\_  
Port 12: G 1/8".  
Minimum actuation pressure: 2,5 bar.  
Version for vacuum on request.

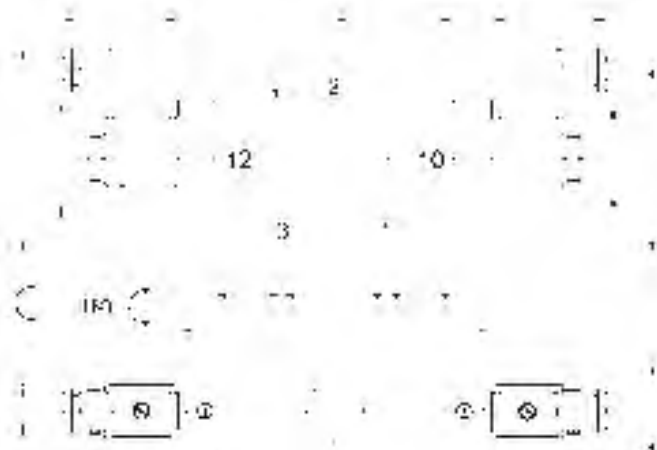
Connectors as shown on the photo are included.



MH 320 101

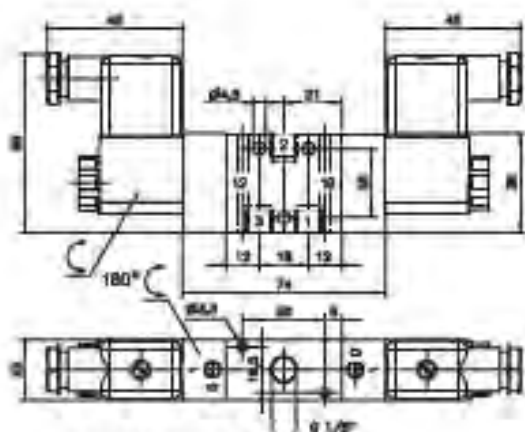
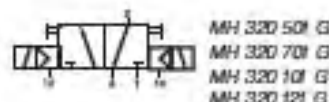


MH 320 121

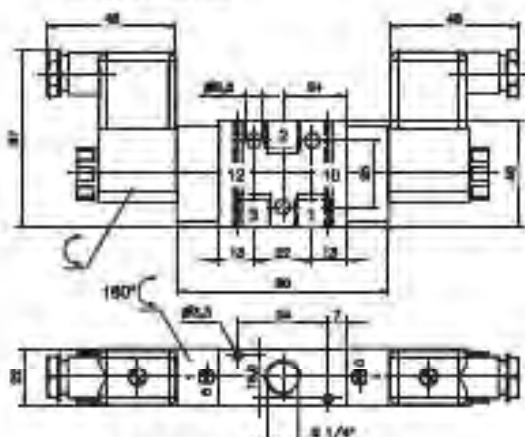


MH 320 181

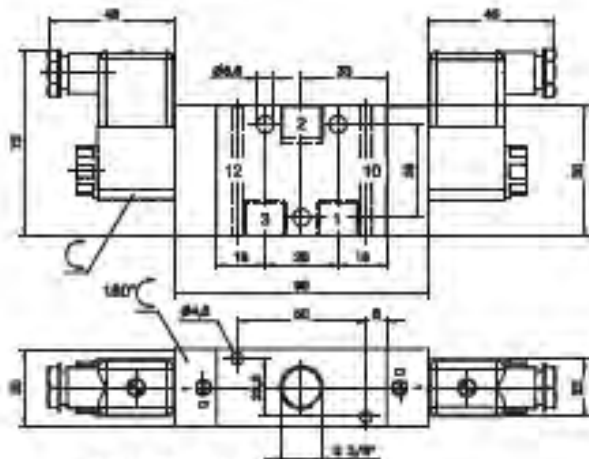
Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 320 101	G 3/8"	2250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,58 kg
MH 320 121	G 1/2"	3000 l/min	1 - 10 bar	3 W = / 5 VA -	0,70 kg
MH 320 181	G 3/4"	6000 l/min	1 - 10 bar	3 W = / 5 VA -	1,08 kg



MH 320 501 G



MH 320 701 G



MH 320 101 G

3/2-way double solenoid valve actuated by impulse. Position is kept until an electrical signal is applied to the opposite side even when not attached to an electrical source.

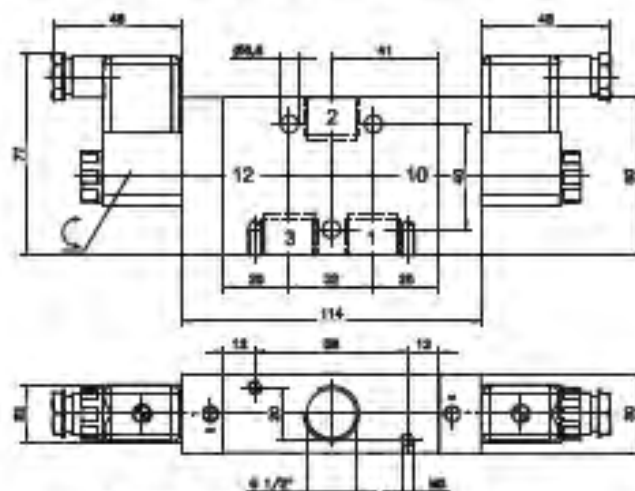
Valves can either be used in-line or to be assembled onto a manifold plate. Manifolds for valves type 501 G and 101 G are displayed on page 2.6.1.4, manifolds for valves type 701 G and 121 G are displayed on page 2.6.1.5.

Please notice: Valves G1/2" have to be assembled onto the plate by fixing screws from the bottom through the plate into the valve.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-

Valves are generally equipped with manual override. If requested without manual override please order M 310 \_\_\_ / MO 310 \_\_\_

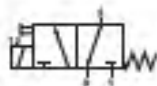
Connector as shown on the photo is included.



MH 320 121 G

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 320 501 G	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,29 kg
MH 320 701 G	G 1/4"	250 l/min	2 - 10 bar	3 W = / 5 VA -	0,31 kg MK
MH 320 101 G	G 3/8"	2250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,58 kg
MH 320 121 G	G 1/2"	3000 l/min	1 - 10 bar	3 W = / 5 VA -	0,70 kg





MD 311 104



System consisting of direct acting 3/2-way solenoid valves, normally closed, actuated by permanent signal and manifold plates for common pressure supply (1). Port 2 is in the plate, either threaded M5 or with 4 mm push-in fitting, exhaust through the operator tube, thread M3.

**Valves**

Type MD 311 104:

with electrical connection C ISO 15217, pins are 8 mm apart

Type MD 311 104 L:

with flying leads standard length 500 mm

Available with solenoid operators:

230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-, 12V-, 6V-

For details about solenoid system, please refer to page 2.11.1.

Valves are generally equipped with manual override to push.

**Plates**

RD 3\_\_ 104:

with M5 at port 2 (add 2 digits for number of positions required)

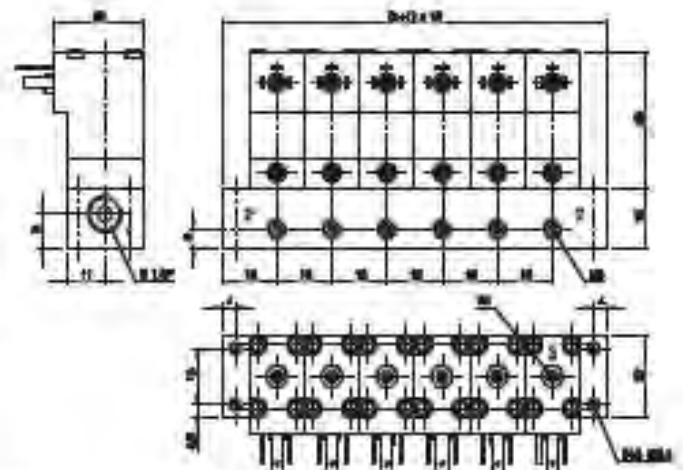
RD 3\_\_ 144:

with pin 4 mm at port 2 (add 2 digits for number of positions required)

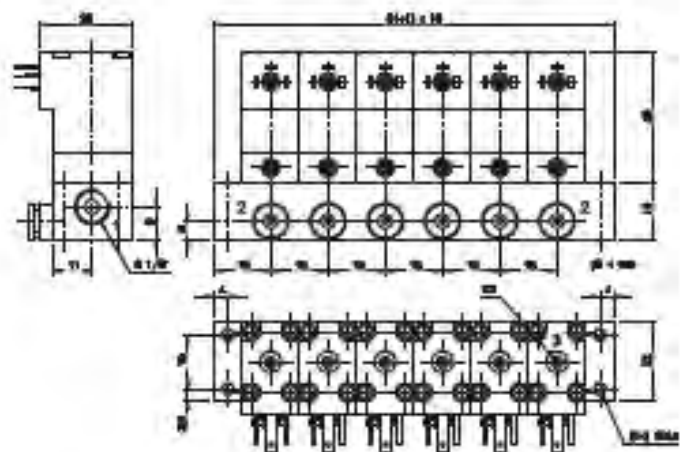
Plates are available with 2, 3, 4, 5, 6, 8, 10 and 12 positions, others on request.

Products are to be ordered individually but system will be delivered fully assembled.

Versions with common electrical connection (terminals) are displayed on page 2.7.2.1

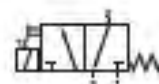


MD 311 104/RD 3\_\_ 104



MD 311 104/RD 3\_\_ 144

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MD 311 104	form C, 8 mm pin	30 l/min	0 - 10 bar	1,8 W = / 3,0 VA -	0,06 kg
MD 311 104 L	flying leads	30 l/min	0 - 10 bar	1,8 W = / 3,0 VA -	0,07 kg



MH 312  
MH 314  
MH 315  
MH 316

100



**MH 312**

140



**MH 314**

80



**MH 315**

110



**MH 316**



System consisting of direct acting 3/2 way solenoid valves, normally closed, actuated by permanent signal and a manifold plate for common pressure supply (1). Exhaust through the operator tube, thread M5.

Valves are equipped with manual override to be turned.

Available with solenoid operators  
230V/50 Hz, 110V/50 Hz, 24V/50 Hz, 48V-,  
24V-, 12V-

Different types of valves can be mixed on one plate.

Manifolds are displayed on page 2.6.1.1.

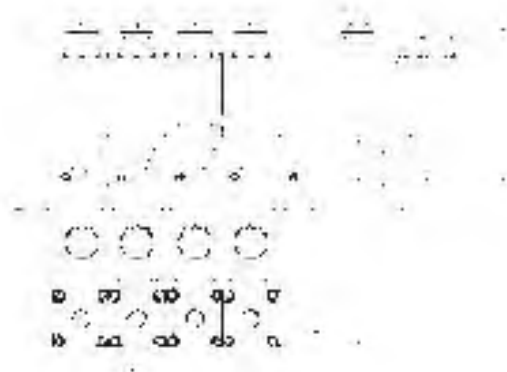
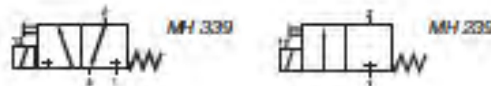
Blanking plates are also available type BP 3.

Common exhaust line to be assembled on the top using banjo joints is available on request.

Mounting screws, seals and connector are included.

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 312	M5	40 l/min	0 - 10 bar	3W = / 5VA -	0,13 kg
MH 314	ptf 4 mm	40 l/min	0 - 10 bar	3W = / 5VA -	0,13 kg
MH 315	G 1/8"	50 l/min	0 - 10 bar	3W = / 5VA -	0,13 kg
MH 316	ptf 6 mm	50 l/min	0 - 10 bar	3W = / 5VA -	0,13 kg

# MH 339/MH 239/R 33 R/R 33 L



Modular system MH 339/MH 239

Modular system consisting of direct acting 3/2-way or 2/2-way solenoid valves normally closed, actuated by permanent signal and endplates for common pressure supply (1). Port 2 is in the valve, G 1/4", exhaust through the operator tube, thread G 1/8".

By opening 2 hexagonsocket screws at the bodies the system can be taken apart at any point and valves can be added or taken away.

**Valves:**

Type MH 339: 3/2-way – drawings show 3/2-way valves

Type MH 229: 2/2-way – 2/2-way without port 3

Orifice size: 3 mm, max. pressure: 7 bar.

**Available with solenoid operators:**

230V/50Hz, 24V/50Hz, 24V-

Connector Industry B (22 mm) as shown on the photo is included.

Valves are generally equipped with manual override.

**The system consists of:**

End-plate right type R 33 R

End-plate left type R 33 L

Individual valve 3/2-way type MH 339

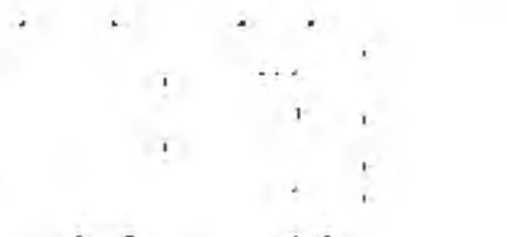
Individual valve 2/2-way type MH 229

The end-plates can be equipped with DIN-rail mounting clips. For details, please refer to page 2.6.3.

Products are to be ordered individually but system can be delivered fully assembled.



Individual valve MH 339/MH 239



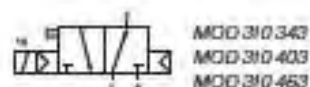
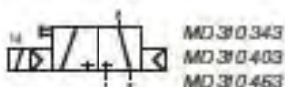
End-plate right R 33 R



End-plate left R 33 L

Type	Ways	Function	Port size			Air flow	Operating Power		Weight
			1	2	3		pressure	consumption	
MH 339	3/2	n.c.		G 1/4"	G 1/8"	300 l/min	0 - 7 bar	8 W = /13,5 VA	0,18 kg
MH 239	2/2	n.c.		G 1/4"		300 l/min	0 - 7 bar	8 W = /13,5 VA	0,18 kg
R 33 R		end-plate right		G 1/4"					0,04 kg
R 33 L		end-plate left		G 1/4"					0,04 kg

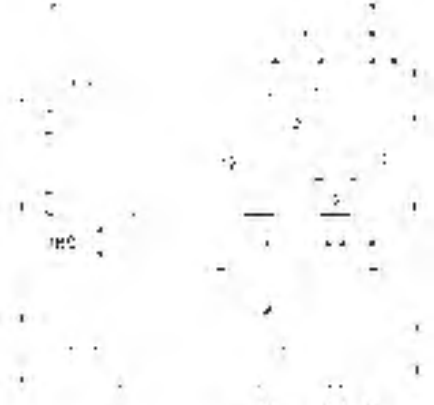
# MD 310 343/MD 310 403/MD 310 463 MOD 310 343/MOD 310 403/MOD 310 463



MD 310 343/MOD 310 343



MD 310 403/MOD 310 403



MD 310 463/MOD 310 463



3/2-way solenoid valve normally closed (MD) or normally open (MOD) for assembling on a manifold plate. Port 2 in the valve.

Available with solenoid operators: 230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-, 12V-, 6V- either for connector form C ISO 15217 or with flying leads, standard cable length 500 mm. For details about solenoid system, please refer to page 2.11.1.

Valves are generally equipped with manual override to push.

Manifolds are displayed on page 2.6.1.2.

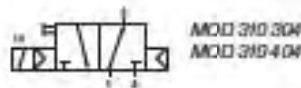
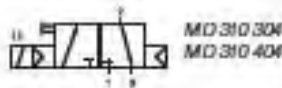
Valves normally open and normally closed can be mixed on one manifold plate!

Blanking plates are also available type BP 3 303 or BP 3 403.

Mounting screws and seals are included.

Type	Function	Port size	Air flow	Operating press.	Power consumption	Weight
MD 310 343	n.c.	plf 4 mm	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,08 kg
MD 310 403	n.c.	G 1/8"	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,09 kg
MD 310 463	n.c.	plf 6 mm	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,09 kg
MOD 310 343	n.o.	plf 4 mm	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,08 kg
MOD 310 403	n.o.	G 1/8"	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,09 kg
MOD 310 463	n.o.	plf 6 mm	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,09 kg

# MD 310 304/MD 310 404 MOD 310 304/MOD 310 404



3/2-way solenoid valve normally closed (MD) or normally open (MOD) for assembling on a manifold plate. All the ports are in the plate.

Available with solenoid operators: 230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-, 6V- either for connector form C ISO 15217 or with flying leads, standard cable length 500 mm. For details about solenoid system, please refer to page 2.11.1.

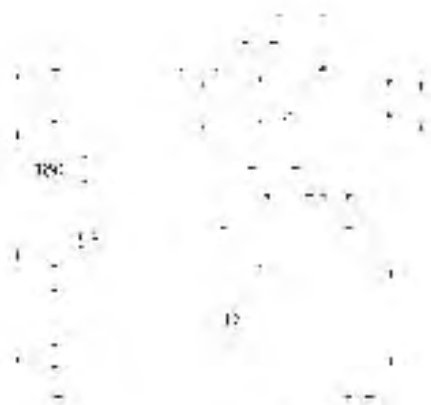
Valves are generally equipped with manual override to push.

Manifolds are displayed on page 2.6.1.3.

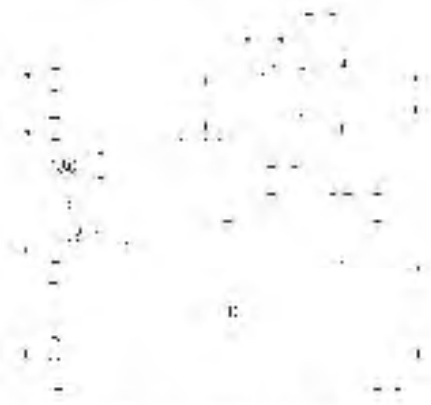
Valves normally open and normally closed can be mixed on one manifold plate!

Blanking plates are also available type BP 3 304 or BP 3 404.

Mounting screws and seals are included.

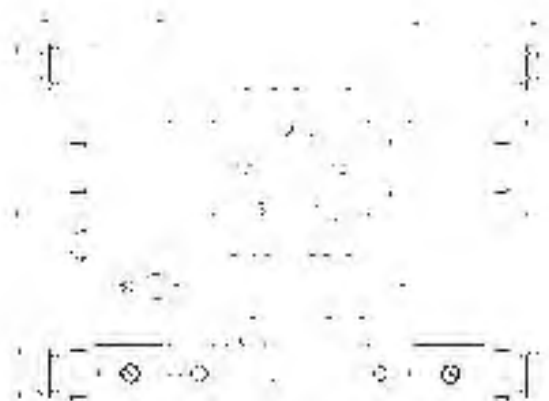
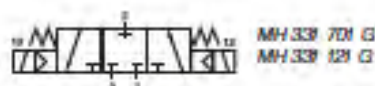


MD 310 304/MOD 310 304



MD 310 404/MOD 310 404

Type	Function	Air flow	Operating press.	Power consumption	Weight
MD 310 304	n.c.	280 l/min	3- 10 bar	1,8 W = / 3,0 VA -	0,08 kg
MD 310 404	n.c.	450 l/min	3- 10 bar	1,8 W = / 3,0 VA -	0,09 kg
MOD 310 304	n.o.	280 l/min	3- 10 bar	1,8 W = / 3,0 VA -	0,08 kg
MOD 310 404	n.o.	450 l/min	3- 10 bar	1,8 W = / 3,0 VA -	0,09 kg



**MH 331 701 G**



**MH 331 121 G**



3/3-way solenoid valve with spring return to middle position, actuated by permanent signal. Valve is to be used when a single acting cylinder or any other single acting actuator such as a lifting bag or car-suspension needs to be held in an intermediate position.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

Valves can be used in-line or on manifold plate, plates are displayed on page 2.6.1.5.

Please notice:  
Valves G 1/2" have to be assembled onto the plate by fixing screws from the bottom through the plate into the valve.

Valves are generally equipped with manual override to turn.

Connectors as shown on the photo are included.

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 331 701 G	G 1/4"	1250 l/min	3 - 10 bar	3W = / 5VA -	0.32 kg
MH 331 121 G	G 1/2"	3000 l/min	3 - 10 bar	3W = / 5VA -	0.72 kg

## MK

The MK-series is a combination of the 1.8 Watt / 3.0VA solenoid-system MA 16 (detailed information on page 2.11.1) and the G 1/4" valves of the 700-series with a flow of 1.250 NL/min. The following valves are available:



MK 310 701	3/2-way single solenoid, n.c.	in-line	description on page 2.5.1.10
MOK 310 701	3/2-way single solenoid, n.o.	in-line	page 2.5.1.10
MK 310 701 G	3/2-way single solenoid, n.c.	dual use	page 2.5.1.12
MOK 310 701 G	3/2-way single solenoid, n.o.	dual use	page 2.5.1.12
MK 320 701	3/2-way single solenoid	in-line	page 2.5.1.14
MK 320 701 G	3/2-way single solenoid	dual use	page 2.5.1.16
MK 510 701	5/2-way single solenoid	in-line	page 2.5.2.1.3
MK 520 701	5/2-way double solenoid	in-line	page 2.5.2.1.9
MK 531 701	5/3-way centre closed	in-line	page 2.5.3.1.2
MK 532 701	5/3-way centre exhausted	in-line	page 2.5.3.1.2
MK 533 701	5/3-way centre pressurized	in-line	page 2.5.3.1.2
MK 510 701 G	5/2-way single solenoid	dual use	page 2.5.2.1.5
MK 520 701 G	5/2-way double solenoid	dual use	page 2.5.2.1.11
MK 531 701 G	5/3-way centre closed	dual use	page 2.5.3.1.4
MK 532 701 G	5/3-way centre exhausted	dual use	page 2.5.3.1.4
MK 533 701 G	5/3-way centre pressurized	dual use	page 2.5.3.1.4
MK 510 703	5/2-way single solenoid	manifold	page 2.5.2.2.2
MK 520 703	5/2-way double solenoid	manifold	page 2.5.2.2.6
MK 531 703	5/3-way centre closed	manifold	page 2.5.3.2.2
MK 532 703	5/3-way centre exhausted	manifold	page 2.5.3.2.2
MK 533 703	5/3-way centre pressurized	manifold	page 2.5.3.2.2
MK 510 704	5/2-way single solenoid	manifold	page 2.5.2.2.4
MK 520 704	5/2-way double solenoid	manifold	page 2.5.2.2.8
MK 531 704	5/3-way centre closed	manifold	page 2.5.3.2.4
MK 532 704	5/3-way centre exhausted	manifold	page 2.5.3.2.4
MK 533 704	5/3-way centre pressurized	manifold	page 2.5.3.2.4

as well as valves with Namur interface, please refer to chapter 2.8.

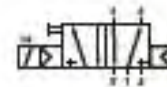


- ## Advantages
- High flow
  - Compact design
  - Low power consumption



The valves are also used for the 22 mm terminals, described in chapter 2.7.

# MD 510 301/MD 510 341 MD 510 401/MD 510 461



MD 510 301  
MD 510 341  
MD 510 401  
MD 510 461



MD 510 301



MD 510 341



MD 510 401



5/2-way solenoid valve actuated by permanent signal and equipped with air spring return.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-,  
12V-, 6V- either for connector form C ISO 15217  
or with flying leads, standard cable length 500 mm.  
For details about solenoid system, please refer to  
page 2.11.1.

Valves are generally equipped with manual override  
to push.



MD 510 461

Type	Ports 1, 2, 4	Air flow	Operating press.	Powerconsumption	Weight
MD 510 301	M5	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,09 kg
MD 510 341	p1f 4 mm	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,10 kg
MD 510 401	G 1/8"	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,10 kg
MD 510 461	p1f 6 mm	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,12 kg



# MH 510 302/MH 510 502



MH 510 302  
MH 510 502



5/2-way solenoid valve actuated by permanent signal and equipped with air spring return.

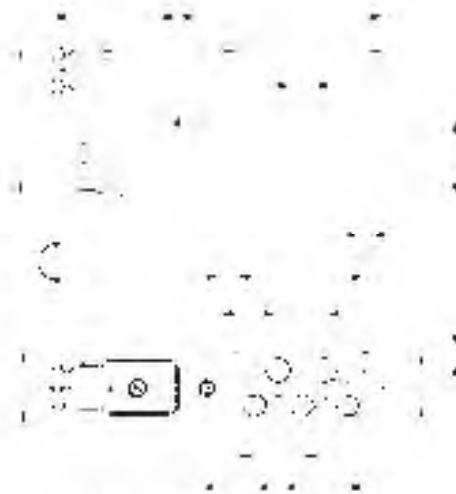
Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

Valves are generally equipped with manual override.  
If requested without manual override please order  
M 510 \_\_\_\_\_.

Connector as shown on the photo is included.

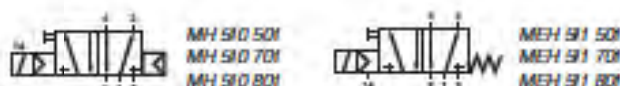


MH 510 302



MH 510 502

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 510 302	M5	180 l/min	2 - 10 bar	3W = / 5VA -	0,19 kg
MH 510 502	G 1/8"	650 l/min	2 - 10 bar	3W = / 5VA -	0,30 kg



MH 510 501



MH 510 701



MH 510 801



5/2-way solenoid valve actuated by permanent signal and equipped with air spring return.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

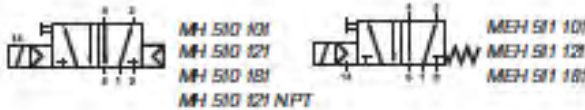
Valves are generally equipped with manual override.  
If requested without manual override please order  
M 510 \_\_\_\_.

Valves are also available with external pilot feed.  
Type: MEH 511 \_\_\_\_.  
Port 14 series 501 and 701 M5, series 801 G 1/8".  
Minimum actuation pressure: 3 bar.  
Version for vacuum on request.

Connector as shown on the photo is included.

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 510 501	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,23 kg
MH 510 701	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,25 kg  MK
MH 510 801	G 1/4"	1450 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,48 kg

# MH 510 101/MH 510 121/MH 510 181



5/2-way solenoid valve actuated by permanent signal and equipped with air spring return.

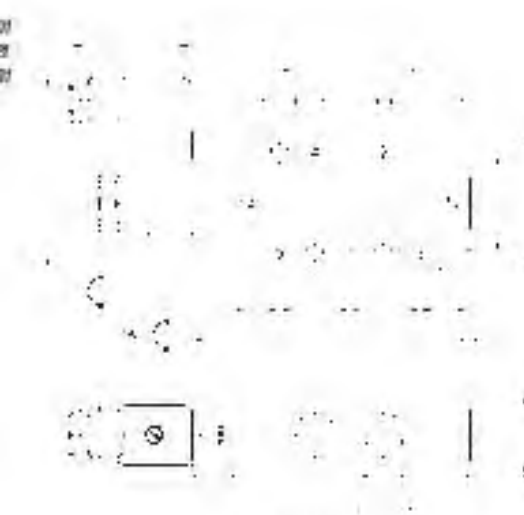
Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-

Valves are generally equipped with manual override.  
If requested without manual override please order  
M 510 \_\_\_\_\_

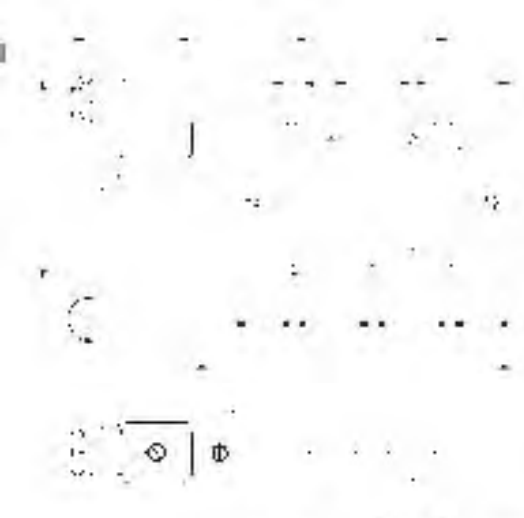
Valves are also available with external pilot feed.  
Type: MEH 511 \_\_\_\_\_  
Port 14: G 1/8".  
Minimum actuation pressure: 3 bar.  
Version for vacuum on request.

Connector as shown on the photo is included.

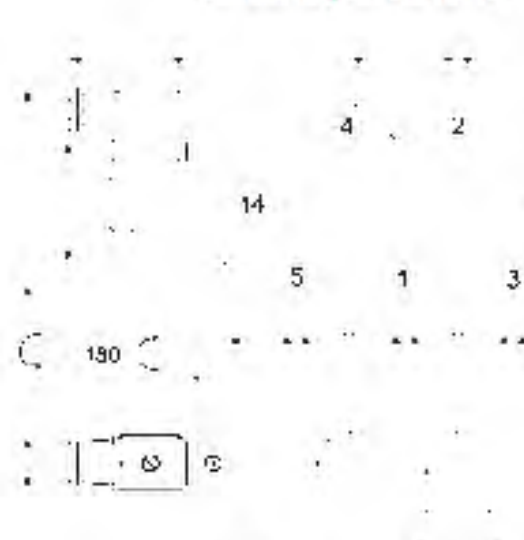
*Selected products displayed on this page are also  
available NPT threaded.*



**MH 510 101**



**MH 510 121/MH 510 121 NPT**

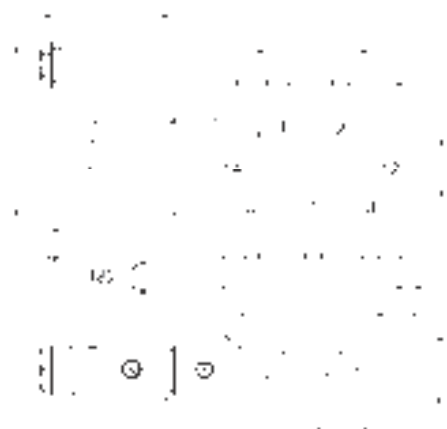


**MH 510 181**

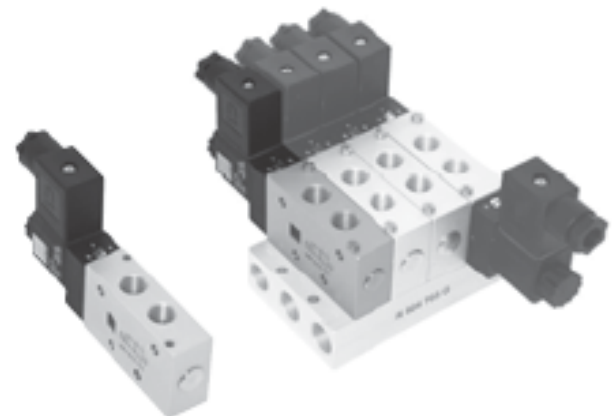
Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 510 101	G 3/8"	2250 l/min	1.5 - 10 bar	3W = / 5 VA -	0,50 kg
MH 510 121	G 1/2"	3000 l/min	1 - 10 bar	3W = / 5 VA -	0,67 kg
MH 510 181	G 3/4"	6000 l/min	1 - 10 bar	3W = / 5 VA -	1,29 kg
MH 510 121 NPT	1/2" NPT	3000 l/min	1 - 10 bar	3W = / 5 VA -	0,67 kg



MH 510 501 G



MH 510 701 G/MH 510 701 G NPT



5/2-way solenoid valve actuated by permanent signal and equipped with air spring return.

Valves can either be used in-line or on a manifold plate. Manifolds for valves type 501 G are displayed on page 2.6.2.2, manifolds for valves type 701 G are displayed on page 2.6.2.3.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V~,  
24V~, 12V~.

Valves are generally equipped with manual override.  
If requested without manual override please order  
M 510 \_\_\_\_.

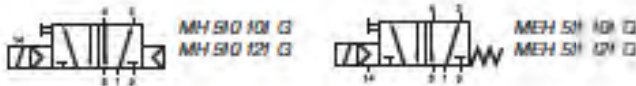
Valves are also available with external pilot feed.  
Type: MEH 511 \_\_\_\_ G.  
Port 14: M5.  
Minimum actuation pressure: 3 bar.  
Version for vacuum on request.

Connector as shown on the photo is included.

*Selected products displayed on this page are also available NPT threaded.*

Type	Port size	Air flow	Operating press.	Power cons.	Weight
MH 510 501 G	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,23 kg ❄
MH 510 701 G	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,25 kg ❄MK
MH 510 701 G NPT	1/4" NPT	1250 l/min	2 - 10 ba	3 W = / 5 VA -	0,25 kg

# MH 510 101 G/MH 510 121 G



5/2-way solenoid valve actuated by permanent signal and equipped with air spring return.

Valves can either be used in-line or to be assembled onto a manifold plate. Manifolds for valves type 101 G are displayed on page 2.6.2.4, manifolds for valves type 121 G are displayed on page 2.6.2.5.

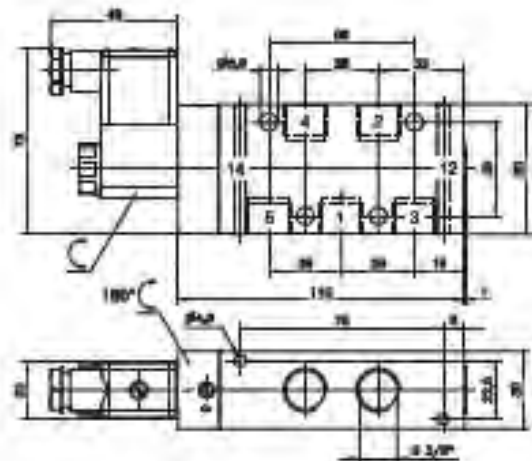
Please notice:  
Valves G1/2" have to be assembled onto the plate by fixing screws from the bottom through the plate into the valve.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-

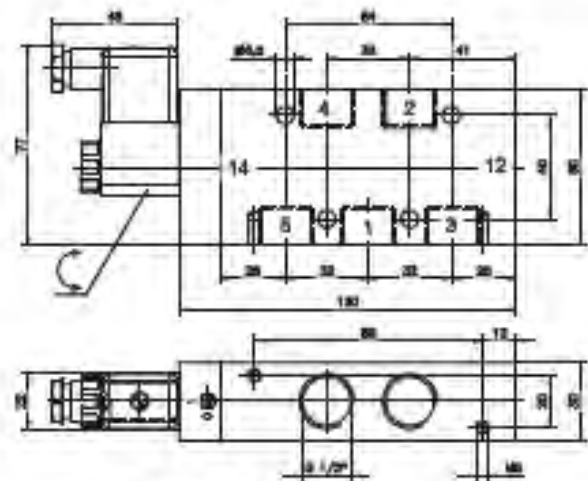
Valves are generally equipped with manual override.  
If requested without manual override please order  
M 510 \_\_\_ G

Valves are also available with external pilot feed.  
Type: MEH 511 \_\_\_ G.  
Port 14: G 1/8".  
Minimum actuation pressure: 3 bar.  
Version for vacuum on request.

Connector as shown on the photo is included.

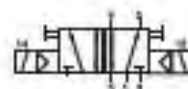


MH 510 101 G



MH 510 121 G

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 510 101 G	G 3/8"	2250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,52 kg
MH 510 121 G	G 1/2"	3000 l/min	1 - 10 bar	3 W = / 5 VA -	0,70 kg



MD 520 301  
MD 520 341  
MD 520 401  
MD 520 461



MD 520 301



MD 520 341



MD 520 401

5/2-way double solenoid valve actuated by impulse. Position is kept until an electrical signal is applied to the opposite side even when not attached to electrical source.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-,  
12V-, 6V- either for connector form C ISO 15217  
or with flying leads, standard cable length 500 mm.  
For details about solenoid system, please refer to  
page 2.11.1.

Valves are generally equipped with manual override  
to push.



MD 520 461

Type	Ports 1, 2, 4	Air flow	Operating press.	Power consumption	Weight
MD 520 301	M5	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,13 kg
MD 520 341	plf 4 mm	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,14 kg
MD 520 401	G 1/8"	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,15 kg
MD 520 461	plf 6 mm	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,16 kg

# MH 520 302/MH 520 502



MH 520 302  
MH 520 502

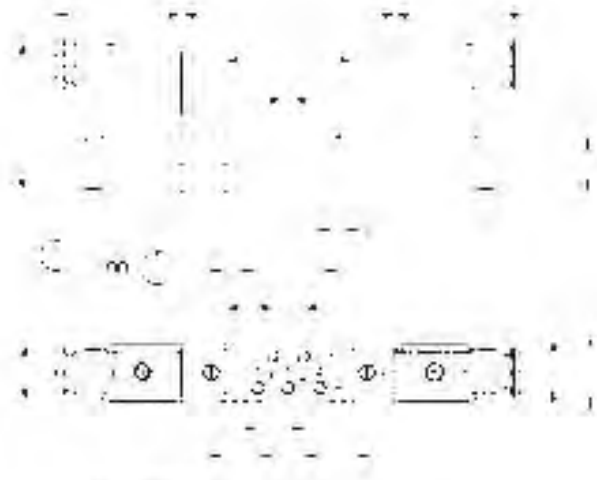


5/2-way double solenoid valve actuated by impulse. Position is kept until an electrical signal is applied to the opposite side even when not attached to electrical source.

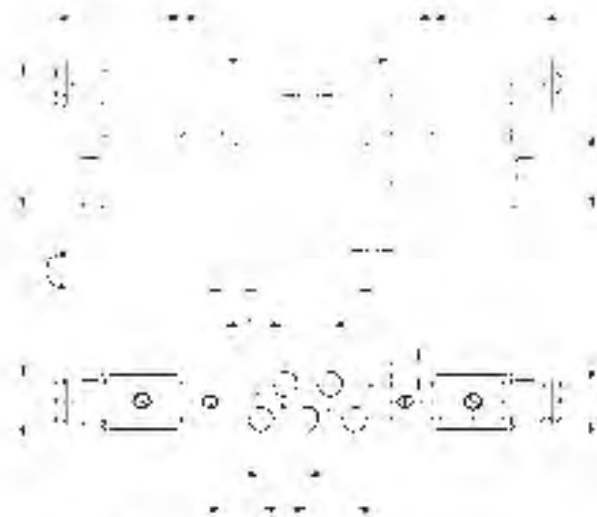
Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-

Valves are generally equipped with manual override. If requested without manual override please order M 520\_\_\_\_\_.

Connectors as shown on the photo are included.

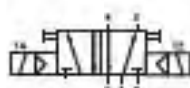


MH 520 302



MH 520 502

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 520 302	M5	180 l/min	2 - 10 bar	3W = / 5VA -	0,30 kg
MH 520 502	G 1/8"	650 l/min	2 - 10 bar	3W = / 5VA -	0,43 kg



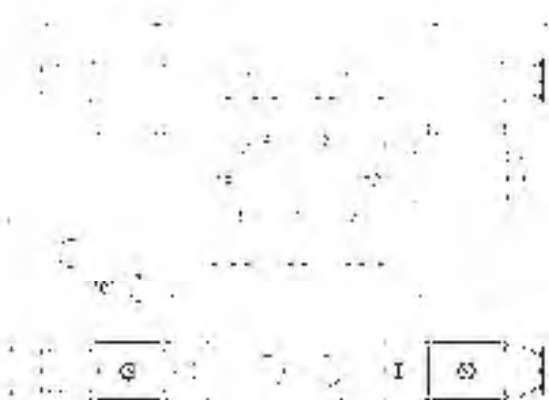
MH 520 501  
MH 520 701  
MH 520 801



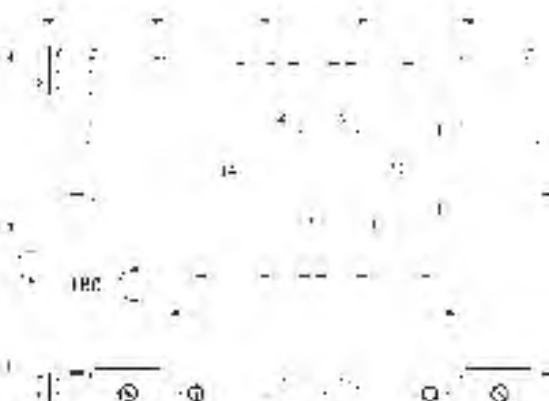
MEH 520 501  
MEH 520 701  
MEH 520 801



MH 520 501



MH 520 701



MH 520 801



5/2-way double solenoid valve actuated by impulse. Position is kept until an electrical signal is applied to the opposite side even when not attached to electrical source.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

Valves are generally equipped with manual override. If requested without manual override please order M 520 \_\_\_\_\_.

Valves are also available with external pilot feed.  
Type: MEH 520 \_\_\_\_\_.

Ports 12 and 14 series 501 and 701: M5,  
series 801: G 1/8".

Minimum actuation pressure: 2,5 bar.

Version for vacuum on request.

Connectors as shown on the photo are included.

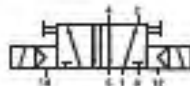
Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 520 501	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,33 kg
MH 520 701	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,35 kg
MH 520 801	G 1/4"	1450 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,62 kg



# MH 520 101/MH 520 121/MH 520 181



MH 520 101  
MH 520 121  
MH 520 181  
MH 520 121 NPT



MEH 520 101  
MEH 520 121  
MEH 520 181



5/2-way double solenoid valve actuated by impulse.  
Position is kept until an electrical signal is applied  
to the opposite side even when not attached to  
electrical source.

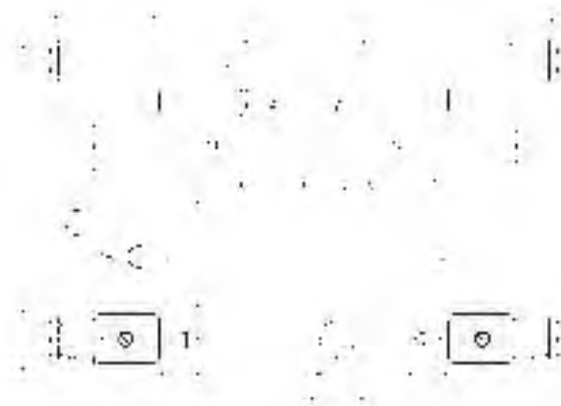
Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-

Valves are generally equipped with manual override.  
If requested without manual override please order  
M 520 \_\_\_\_\_

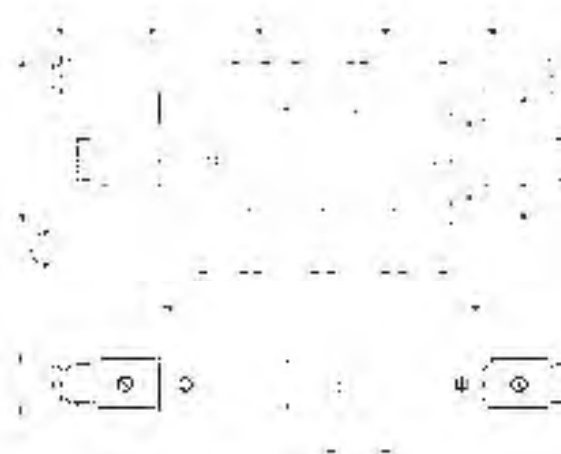
Valves are also available with external pilot feed.  
Type: MEH 520 \_\_\_\_\_  
Ports 12 and 14: G 1/8".  
Minimum actuation pressure: 2,5 bar.  
Version for vacuum on request.

Connectors as shown on the photo are included.

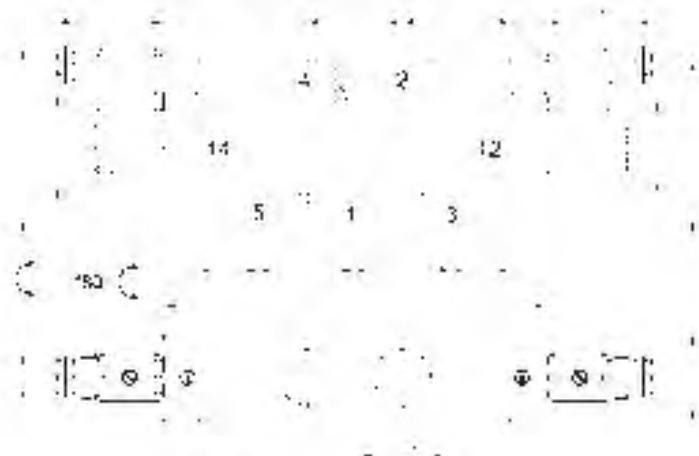
*Selected products displayed on this page are  
also available NPT threaded.*



MH 520 101

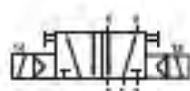


MH 520 121/ MH 520 121 NPT

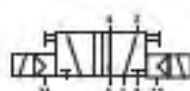


MH 520 181

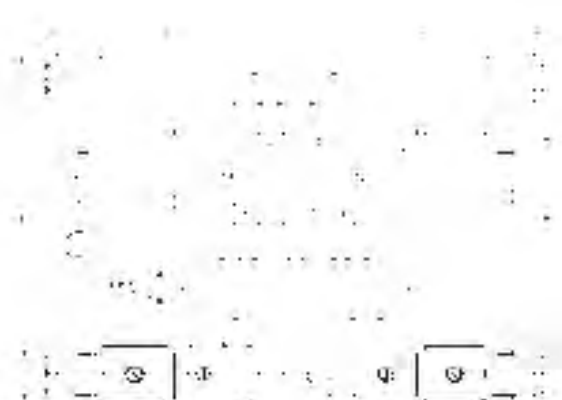
Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 520 101	G 3/8"	2250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,66 kg
MH 520 121	G 1/2"	3000 l/min	1 - 10 bar	3 W = / 5 VA -	0,84 kg
MH 520 181	G 3/4"	6000 l/min	1 - 10 bar	3 W = / 5 VA -	1,45 kg
MH 520 121 NPT	1/2" NPT	3000 l/min	1 - 10 bar	3 W = / 5 VA -	0,84 kg



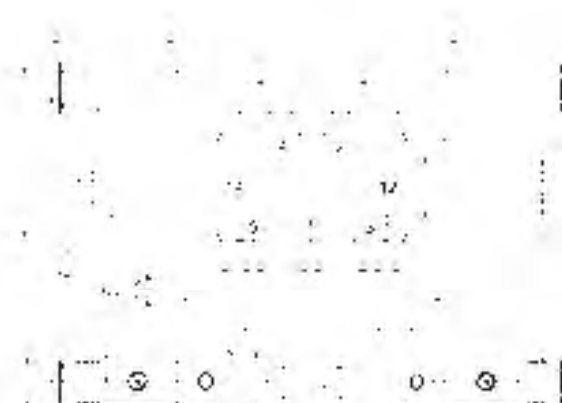
MH 520 501 G  
MH 520 701 G



MEH 520 501 G  
MEH 520 701 G



MH 520 501 G



MH 520 701 G/MH 520 701 G NPT

5/2-way double solenoid valve actuated by impulse. Position is kept until an electrical signal is applied to the opposite side even when not attached to electrical source.

Valves can either be used in-line or on a manifold plate. Manifolds for valves type 501 G are displayed on page 2.6.2.2, manifolds for valves type 701 G are displayed on page 2.6.2.3.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

Valves are generally equipped with manual override. If requested without manual override please order M 520 \_\_\_\_.

Valves are also available with external pilot feed.  
Type: MEH 520 \_\_\_\_ G.  
Ports 12 and 14: M5.  
Minimum actuation pressure: 2,5 bar.  
Version for vacuum on request.

Connectors as shown on the photo are included.

*Selected products displayed on this page are also available NPT threaded.*

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 520 501 G	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,33 kg ✱
MH 520 701 G	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,35 kg ✱MK
MH 520 701 G NPT	1/4" NPT	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,35 kg

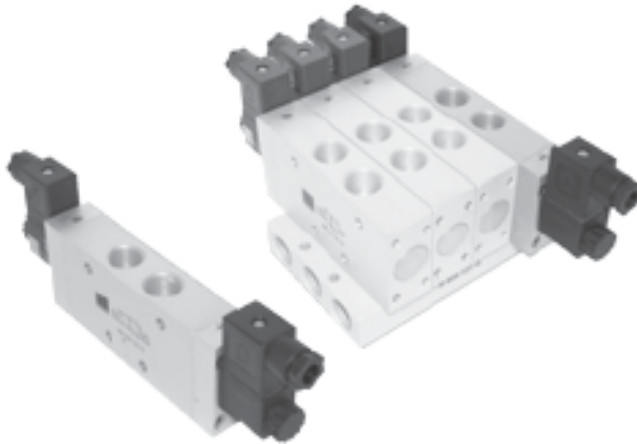
# MH 520 101 G/MH 520 121 G



MH 520 101 G  
MH 520 121 G



MEH 520 101 G  
MEH 520 121 G



5/2-way double solenoid valve actuated by impulse. Position is kept until an electrical signal is applied to the opposite side even when not attached to electrical source.

Valves can either be used in-line or to be assembled onto a manifold plate. Manifolds for valves type 101 G are displayed on page 2.6.2.4, manifolds for valves type 121 G are displayed on page 2.6.2.5.

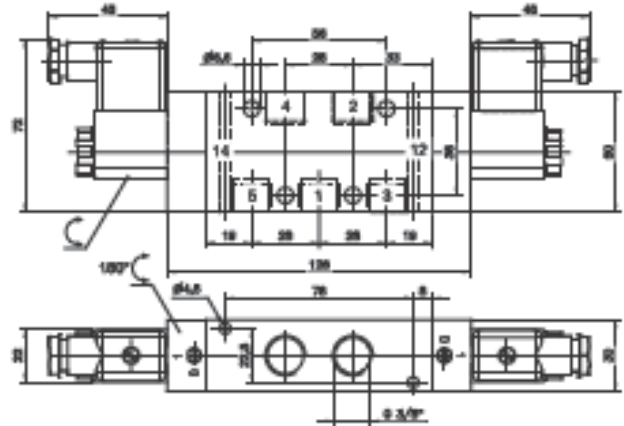
Please notice: Valves G1/2" have to be assembled onto the plate by fixing screws from the bottom through the plate into the valve.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V~,  
24V~, 12V~.

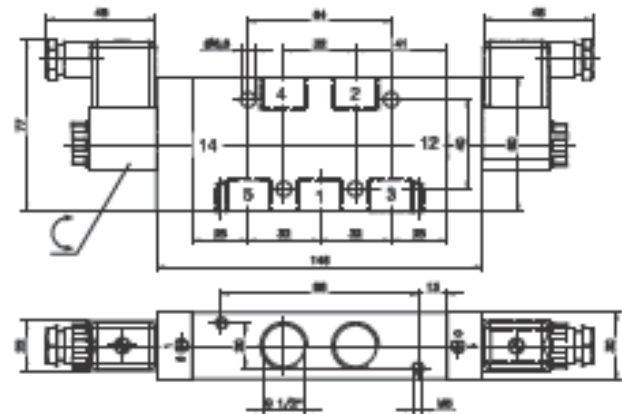
Valves are generally equipped with manual override. If requested without manual override please order M 520 \_\_\_ G

Valves are also available with external pilot feed.  
Type: MEH 520 \_\_\_ G.  
Ports 12 and 14: G 1/8".  
Minimum actuation pressure: 2,5 bar.  
Version for vacuum on request.

Connector as shown on the photo is included.



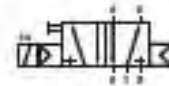
MH 520 101 G



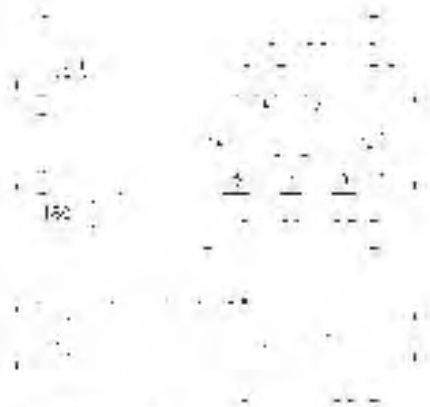
MH 520 121 G

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 520 101 G	G 3/8"	2250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,66 kg
MH 520 121 G	G 1/2"	3000 l/min	1 - 10 bar	3 W = / 5 VA -	0,84 kg

# MD 510 303/MD 510 343 MD 510 403/MD 510 463



MD 510 303  
MD 510 343  
MD 510 403  
MD 510 463



MD 510 303



MD 510 343

5/2-way solenoid valve actuated by permanent signal and equipped with air spring return. Ports 2 and 4 are in the valve, ports 1, 3 and 5 in the manifold plate.

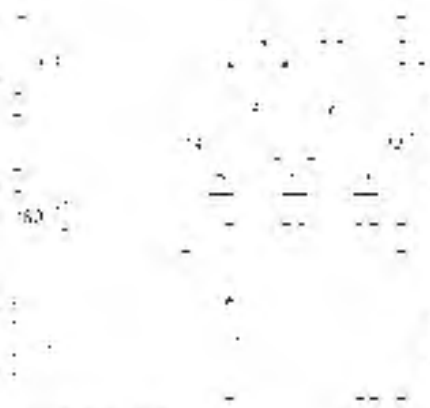
Available with solenoid operators: 230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-, 12V-, 6V- either for connector form C ISO 15217 or with flying leads, standard cable length 500 mm. For details about solenoid system, please refer to page 2.11.1.

Valves are generally equipped with manual override to push.

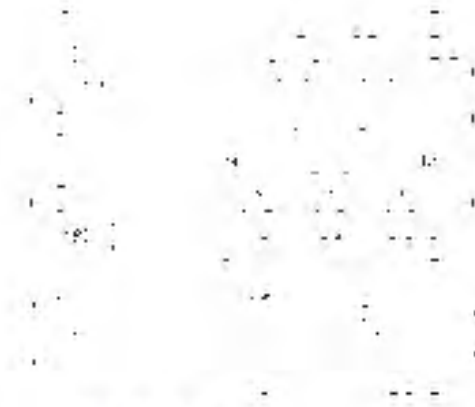
Manifolds are displayed on page 2.6.2.1.

Blanking plates are also available type BP 5 303 or BP 5 403.

Mounting screws and seals are included.



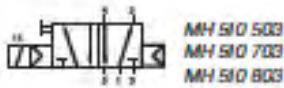
MD 510 403



MD 510 463

Type	Ports 1, 2, 4	Air flow	Operating press.	Powerconsumption	Weight
MD 510 303	M5	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,09 kg
MD 510 343	ptf 4 mm	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,10 kg
MD 510 403	G 1/8"	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,10 kg
MD 510 463	ptf 6 mm	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,12 kg

# MH 510 503/MH 510 703/MH 510 803



5/2-way solenoid valve actuated by permanent signal and equipped with air spring return. Ports 2 and 4 are in the valve, ports 1, 3 and 5 in the manifold plate.

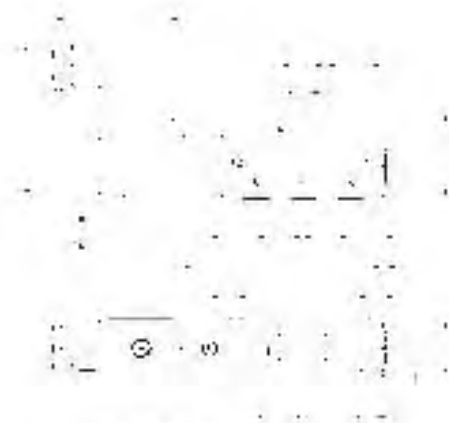
Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-

Valves are generally equipped with manual override.  
If requested without manual override please order  
M 510 \_\_\_\_\_.

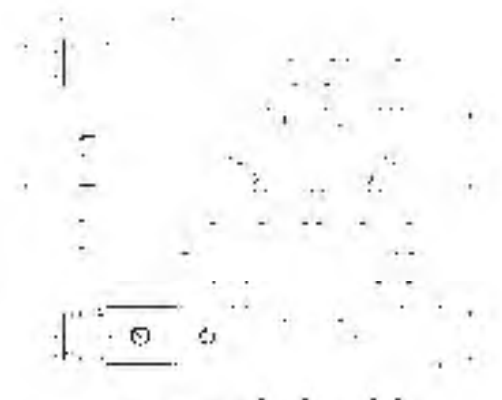
Manifolds for valves type 503 are displayed on  
page 2.6.2.2, manifolds for valves type 703 are  
displayed on page 2.6.2.3, manifolds for valves  
type 803 are displayed on page 2.6.2.5.

Blanking plates are also available type BP 5 503,  
BP 5 703 or BP 5 803.

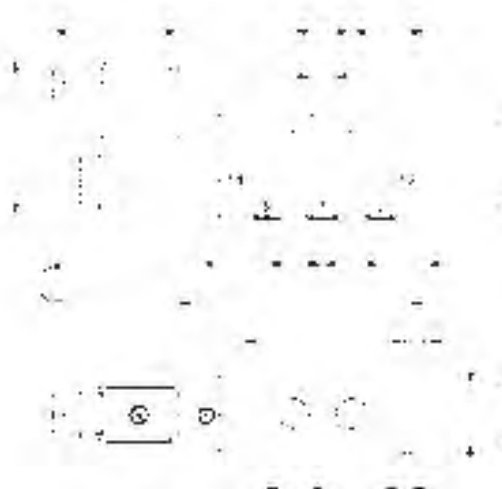
Mounting screws, seals and connector as shown  
on the photo are included.



MH 510 503

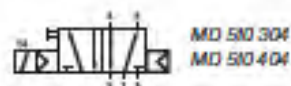


MH 510 703



MH 510 803

Type	Ports 2, 4	Air flow	Operating press.	Power consumption	Weight
MH 510 503	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,22 kg MK
MH 510 703	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,23 kg MK
MH 510 803	G 1/4"	1450 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,42 kg



MD 510 304



MD 510 404



5/2-way solenoid valve actuated by permanent signal and equipped with air spring return. All the ports are in the plate.

Available with solenoid operators: 230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-, 12V-, 6V- either for connector form C ISO 15217 or with flying leads, standard cable length 500 mm. For details about solenoid system, please refer to page 2.11.1.

Valves are generally equipped with manual override to push.

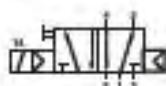
Manifolds are displayed on page 2.6.2.6.

Blanking plates are also available type BP 5 344 or BP 5 464.

Mounting screws and seals are included.

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MD 510 304	Ø 3 mm	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,09 kg
MD 510 404	Ø 4 mm	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,10 kg

# MH 510 304/MH 510 504/MH 510 704



MH 510 304  
MH 510 504  
MH 510 704



5/2-way solenoid valve actuated by permanent signal and equipped with air spring return. All the ports are in the plate.

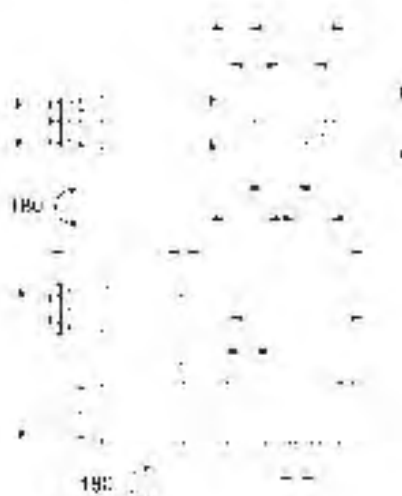
Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-

Valves are generally equipped with manual override.  
If requested without manual override please order  
M 510 \_\_\_\_\_

Manifolds are displayed on page 2.6.2.7.

Blanking plates are also available type BP 5 304,  
BP 5 504 or BP 5 704.

Mounting screws, seals and connector as shown  
on the photo are included.



MH 510 304

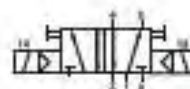


MH 510 504



MH 510 704

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 510 304	Ø 3 mm	220 l/min	2 - 10 bar	3 W = / 5 VA -	0,18 kg ❄
MH 510 504	Ø 5 mm	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,19 kg ❄MK
MH 510 704	Ø 7 mm	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,20 kg ❄MK



MD 520 303  
MD 520 343  
MD 520 403  
MD 520 463



## MD 520 303

5/2-way double solenoid valve actuated by impulse. Position is kept until an electrical signal is applied to the opposite side even when not attached to electrical source. Ports 2 and 4 are in the valve, ports 1, 3 and 5 in the manifold plate.

Available with solenoid operators: 230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-, 12V-, 6V- either for connector form C ISO 15217 or with flying leads, standard cable length 500 mm. For details about solenoid system, please refer to page 2.11.1.

Valves are generally equipped with manual override to push.

Manifolds are displayed on page 2.6.2.1.

Blanking plates are also available type BP 5 303 or BP 5 403.

Mounting screws and seals are included.

## MD 520 343

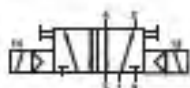
## MD 520 403

## MD 520 463

Type	Ports 1, 2, 4	Air flow	Operating press.	Powerconsumption	Weight
MD 520 303	M5	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,13 kg
MD 520 343	plf 4 mm	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,14 kg
MD 520 403	G 1/8"	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,14 kg
MD 520 463	plf 6 mm	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,15 kg



# MH 520 503/MH 520 703/MH 520 803



MH 520 503  
MH 520 703  
MH 520 803



5/2-way double solenoid valve actuated by impulse. Position is kept until an electrical signal is applied to the opposite side even when not attached to electrical source. Ports 2 and 4 are in the valve, ports 1, 3 and 5 in the manifold plate.

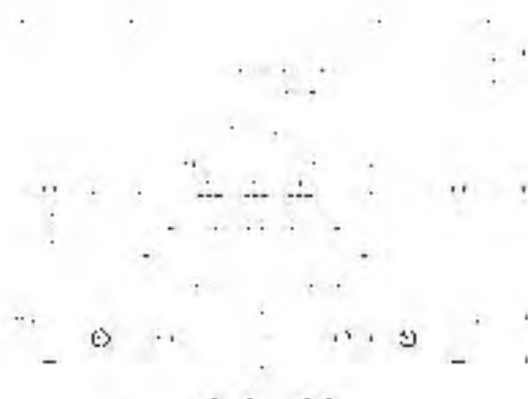
Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V~,  
24V~, 12V~.

Valves are generally equipped with manual override. If requested without manual override please order M 520 \_\_\_\_\_.

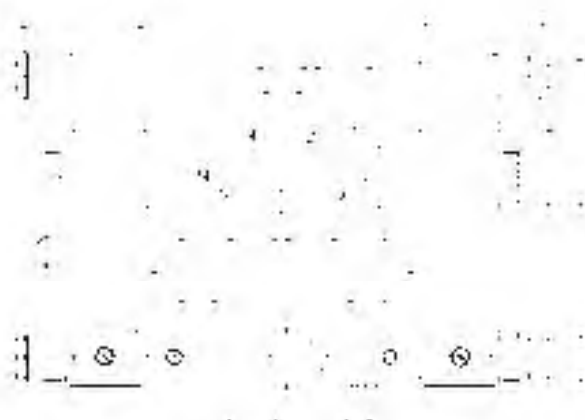
Manifolds for valves type 503 are displayed on page 2.6.2.2, manifolds for valves type 703 are displayed on page 2.6.2.3, manifolds for valves type 803 are displayed on page 2.6.2.5.

Blanking plates are also available type BP 5 503, BP 5 703 or BP 5 803.

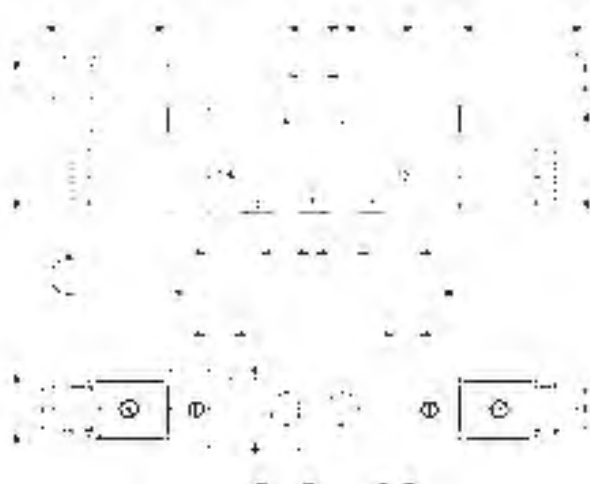
Mounting screws, seals and connectors as shown on the photo are included.



MH 520 503

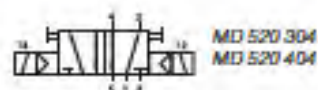


MH 520 703



MH 520 803

Type	Ports 2, 4	Air flow	Operating press.	Power consumption	Weight
MH 520 503	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,31 kg MK
MH 520 703	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,33 kg MK
MH 520 803	G 1/4"	1450 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,56 kg



MD 520 304



MD 520 404



5/2-way double solenoid valve actuated by impulse. Position is kept until an electrical signal is applied to the opposite side even when not attached to electrical source. All the ports are in the plate.

Available with solenoid operators: 230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-, 12V-, 6V- either for connector form C ISO 15217 or with flying leads, standard cable length 500 mm. For details about solenoid system, please refer to page 2.11.1.

Valves are generally equipped with manual override to push.

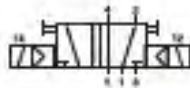
Manifolds are displayed on page 2.6.2.6.

Blanking plates are also available type BP 5 344 or BP 5 464.

Mounting screws and seals are included.

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MD 520 304	Ø 3 mm	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,13 kg
MD 520 404	Ø 4 mm	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,14 kg

# MH 520 304/MH 520 504/MH 520 704



MH 520 304  
MH 520 504  
MH 520 704



5/2-way double solenoid valve actuated by impulse. Position is kept until an electrical signal is applied to the opposite side even when not attached to electrical source. All the ports are in the plate.

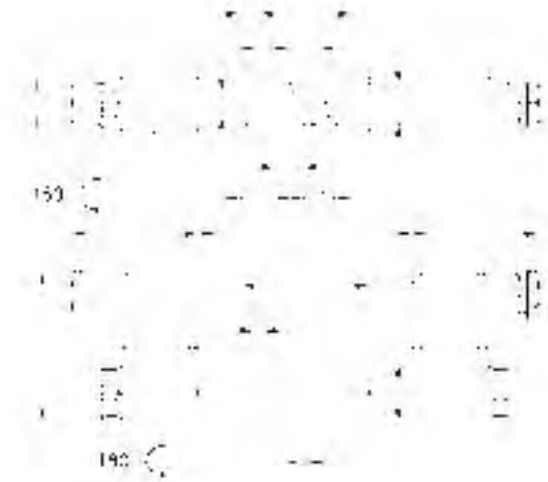
Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-

Valves are generally equipped with manual override. If requested without manual override please order M 520 \_\_\_\_\_

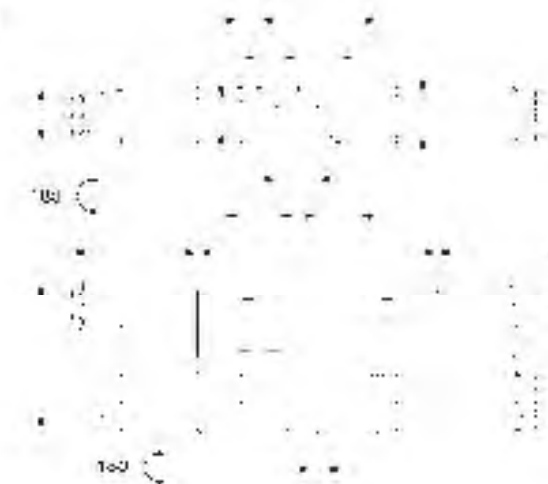
Manifolds are displayed on page 2.6.2.7.

Blanking plates are also available type BP 5 304, BP 5 504 or BP 5 704.

Mounting screws, seals and connectors as shown on the photo are included.



MH 520 304



MH 520 504

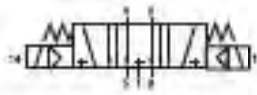


MH 520 704

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 520 304	Ø 3 mm	220 l/min	2 - 10 bar	3 W = / 5 VA -	0,25 kg *MK
MH 520 504	Ø 5 mm	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,27 kg *MK
MH 520 704	Ø 7 mm	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,29 kg *MK



MD 531\_301  
MD 531\_341  
MD 531\_401  
MD 531\_461



MD 532\_301  
MD 532\_341  
MD 532\_401  
MD 532\_461



MD 533\_301  
MD 533\_341  
MD 533\_401  
MD 533\_461



MD 53\_301



MD 53\_341



MD 53\_401



5/3-way solenoid valve with spring return to middle position, actuated by permanent signal.

- Type 531 centre closed
- Type 532 centre exhausted
- Type 533 centre pressurised

*When ordering please complete the type number by 1, 2 or 3 according to the type required.*

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-, 6V-  
either for connector form C ISO 15217 or with flying leads, standard cable length 500 mm. For details about solenoid system, please refer to page 2.11.1.

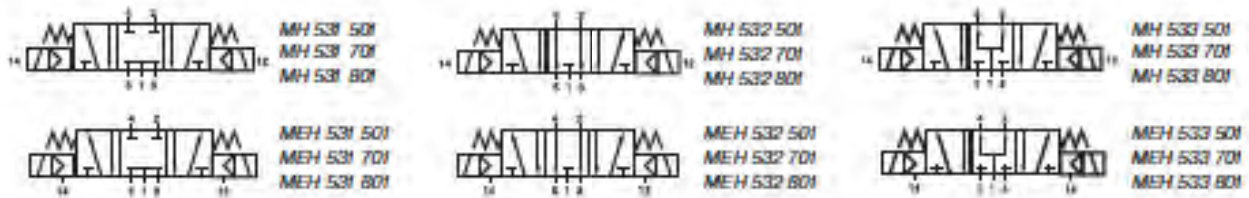
Valves are generally equipped with manual override to push.



MD 53\_461

Type	Ports 1, 2, 4	Air flow	Operating press.	Powerconsumption	Weight
MD 53_301	M5	280 l/min	3 - 10 bar	1,8W = / 3,0 VA -	0,13 kg
MD 53_341	ptf 4 mm	280 l/min	3 - 10 bar	1,8W = / 3,0 VA -	0,14 kg
MD 53_401	G 1/8"	450 l/min	3 - 10 bar	1,8W = / 3,0 VA -	0,15 kg
MD 53_461	ptf 6 mm	450 l/min	3 - 10 bar	1,8W = / 3,0 VA -	0,16 kg

# MH 53\_ 501/MH 53\_ 701/MH 53\_ 801



5/3-way solenoid valve with spring return to middle position, actuated by permanent signal.

- Type 531 centre closed
- Type 532 centre exhausted
- Type 533 centre pressurised

When ordering please complete the type number by 1, 2 or 3 according to the type required.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-

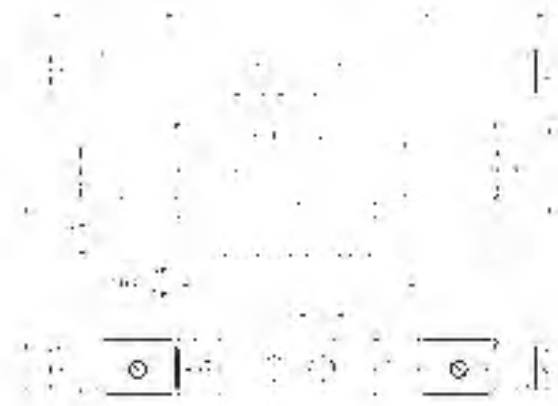
Valves are generally equipped with manual override.  
If requested without manual override please order  
M 53\_ \_\_\_\_.

Valves are also available with external pilot feed.  
Type: MEH 53\_ \_\_\_\_ (please add 1 digit for type  
and 3 digits for size).

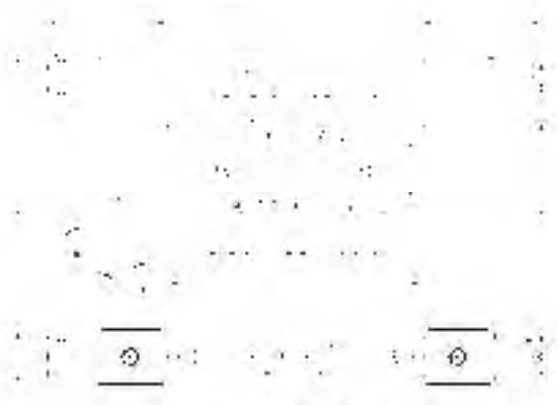
Ports 12 and 14 series 501 and 701: M5,  
series 801: G 1/8".

Minimum actuation pressure: 3 bar.  
Version for vacuum on request.

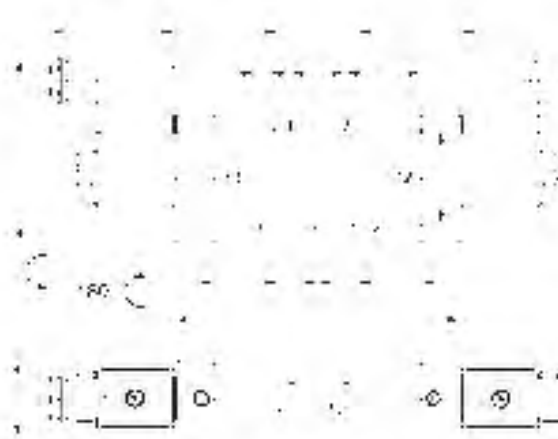
Connectors as shown on the photo are included.



MH 53\_ 501



MH 53\_ 701



MH 53\_ 801

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 53_ 501	G 1/8"	650 l/min	3 - 10 bar	3 W = / 5 VA -	0,33 kg
MH 53_ 701	G 1/4"	1250 l/min	3 - 10 bar	3 W = / 5 VA -	0,35 kg  MK
MH 53_ 801	G 1/4"	1450 l/min	3 - 10 bar	3 W = / 5 VA -	0,62 kg



MH 53\_101



MH 53\_121/MH 53\_121 NPT



MH 53\_181



5/3-way solenoid valve with spring return to middle position, actuated by permanent signal.

- Type 531 centre closed
- Type 532 centre exhausted
- Type 533 centre pressurised

When ordering please complete the type number by 1, 2 or 3 according to the type required.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

Valves are generally equipped with manual override.  
If requested without manual override please order  
M 53\_.

Valves are also available with external pilot feed.  
Type: MEH 53\_ (please add 1 digit for type  
and 3 digits for size).

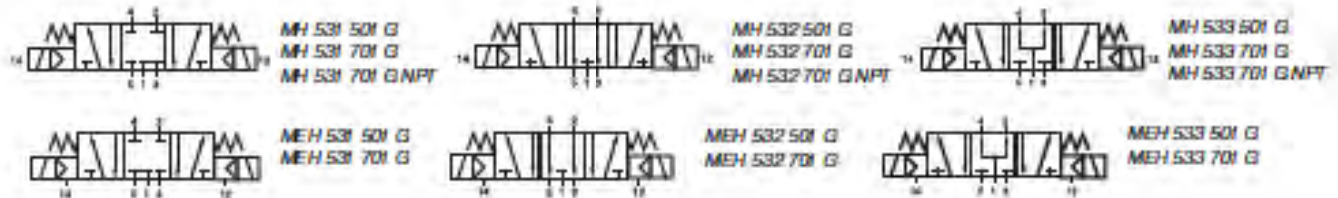
Ports 12 and 14: G 1/8".  
Minimum actuation pressure: 3 bar.  
Version for vacuum on request.

Connectors as shown on the photo are included.

Selected products displayed on this page are also  
available NPT threaded.

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 53_101	G 3/8"	2250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,66 kg
MH 53_121	G 1/2"	3000 l/min	1 - 10 bar	3 W = / 5 VA -	0,84 kg
MH 53_181	G 3/4"	6000 l/min	1 - 10 bar	3 W = / 5 VA -	1,45 kg
MH 53_121 NPT	1/2" NPT	3000 l/min	1 - 10 bar	3 W = / 5 VA -	0,84 kg

# MH 53\_ 501 G/MH 53\_ 701 G



5/3-way solenoid valve with spring return to middle position, actuated by permanent signal.

- Type 531 centre closed
- Type 532 centre exhausted
- Type 533 centre pressurised

When ordering please complete the type number by 1, 2 or 3 according to the type required.

Valves can either be used in-line or on a manifold plate. Manifolds for valves type 501 G are displayed on page 2.6.2.2, manifolds for valves type 701 G are displayed on page 2.6.2.3.

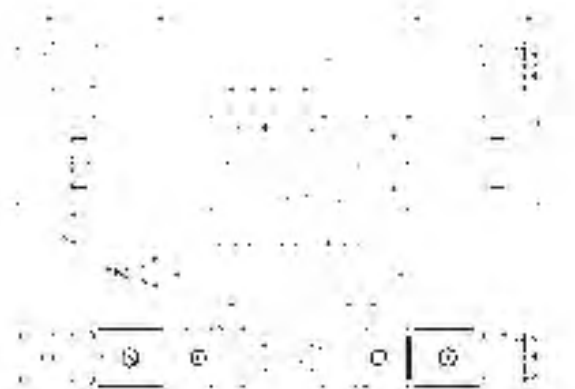
Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V~,  
24V~, 12V~.

Valves are generally equipped with manual override. If requested without manual override please order M 53\_ \_\_\_ G.

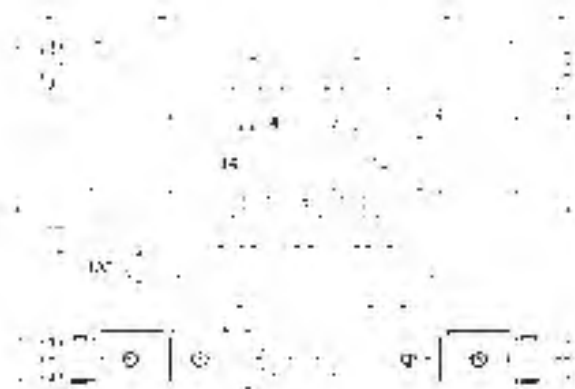
Valves are also available with external pilot feed.  
Type: MEH 53\_ \_\_\_ G (please add 1 digit for type and 3 digits for size).  
Ports 12 and 14: M5.  
Minimum actuation pressure: 3 bar.  
Version for vacuum on request.

Connectors as shown on the photo are included.

Selected products displayed on this page are also available NPT threaded.

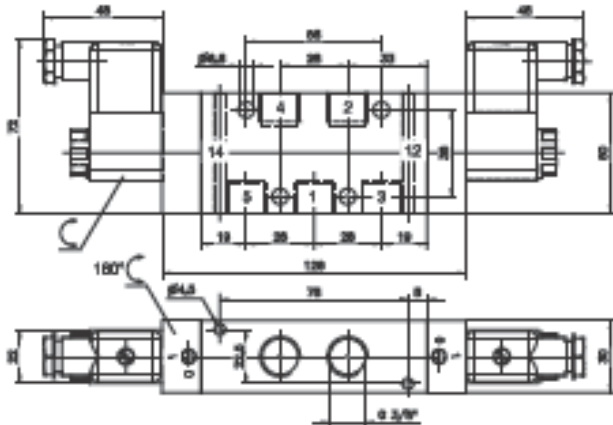
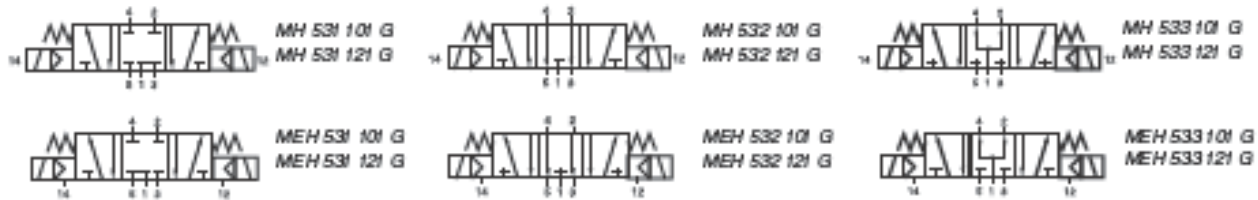


MH 53\_ 501 G

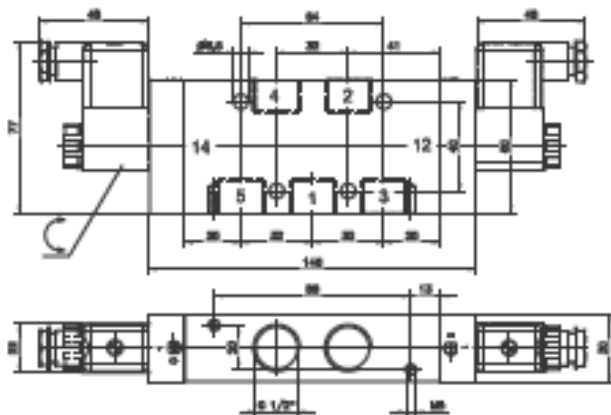


MH 53\_ 701 G/MH 53\_ 701 G NPT

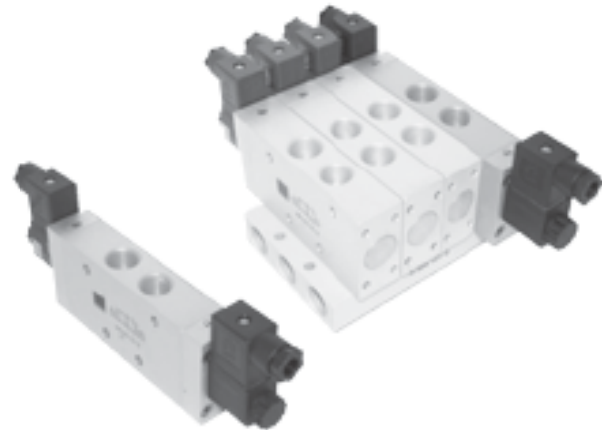
Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 53_ 501 G	G 1/8"	650 l/min	3- 10 bar	3 W = / 5 VA -	0.33 kg ✱
MH 53_ 701 G	G 1/4"	1250 l/min	3- 10 bar	3 W = / 5 VA -	0.35 kg ✱MK
MH 53_ 701 G NPT	1/4" NPT	1250 l/min	3- 10 bar	3 W = / 5 VA -	0.35 kg



MH 53\_ 101 G



MH 53\_ 121 G



5/3-way solenoid valve with spring return to middle position, actuated by permanent signal.

- Type 531    centre closed
- Type 532    centre exhausted
- Type 533    centre pressurised

*When ordering please complete the type number by 1, 2 or 3 according to the type required.*

Valves can either be used in-line or on a manifold plate. Manifolds for valves type 101 G are displayed on page 2.6.2.4, manifolds for valves type 121 G are displayed on page 2.6.2.5.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

Valves are generally equipped with manual override. If requested without manual override please order M 53\_ \_ \_ G.

Valves are also available with external pilot feed.  
Type: MEH 53\_ \_ \_ \_ G (please add 1 digit for type and 3 digits for size).

Ports 12 and 14: G 1/8".

Minimum actuation pressure: 3 bar.

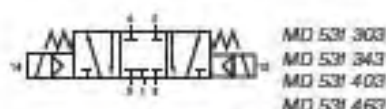
Version for vacuum on request.

Connectors as shown on the photo are included.

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 53_ 101 G	G 3/8"	2250 l/min	3 - 10 bar	3 W = / 5 VA -	0,66 kg
MH 53_ 121 G	G 1/2"	3000 l/min	3 - 10 bar	3 W = / 5 VA -	0,84 kg



# MD 53\_303/MD 53\_343 MD 53\_403/MD 53\_463



MD 531\_303  
MD 531\_343  
MD 531\_403  
MD 531\_463



MD 532\_303  
MD 532\_343  
MD 532\_403  
MD 532\_463



MD 533\_303  
MD 533\_343  
MD 533\_403  
MD 533\_463



5/3-way solenoid valve with spring return to middle position, actuated by permanent signal. Ports 2 and 4 are in the valve, ports 1, 3 and 5 in the manifold plate.

- Type 531 centre closed
- Type 532 centre exhausted
- Type 533 centre pressurised

When ordering please complete the type number by 1, 2 or 3 according to the type required.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-,  
12V-, 6V- either for connector form C ISO 15217  
or with flying leads, standard cable length 500 mm.  
For details about solenoid system, please refer to  
page 2.11.1.

Valves are generally equipped with manual override to push.

Manifolds are described on page 2.6.2.1.

Blanking plates are also available type BP 5 303  
or BP 5 403.

Mounting screws and seals are included.

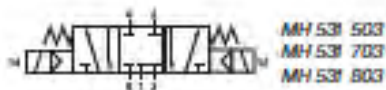
MD 53\_303

MD 53\_343

MD 53\_403

MD 53\_463

Type	Ports 1, 2, 4	Air flow	Operating press.	Power consumption	Weight
MD 53_303	M5	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,13 kg
MD 53_343	p1f 4 mm	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,14 kg
MD 53_403	G 1/8"	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,14 kg
MD 53_463	p1f 6 mm	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,15 kg



MH 531 503  
MH 531 703  
MH 531 803



MH 532 503  
MH 532 703  
MH 532 803



MH 533 503  
MH 533 703  
MH 533 803



MH 53\_ 503

5/3-way solenoid valve with spring return to middle position, actuated by permanent signal. Ports 2 and 4 are in the valve, ports 1, 3 and 5 in the manifold plate.

Type 531 centre closed  
Type 532 centre exhausted  
Type 533 centre pressurised

*When ordering please complete the type number by 1, 2 or 3 according to the type required.*

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

Valves are generally equipped with manual override. If requested without manual override please order M 53\_ \_\_\_ (please add 1 digit for type and 3 for size).

Manifolds for valves type 503 are displayed on page 2.6.2.2, manifolds for valves type 703 are displayed on page 2.6.2.3, manifolds for valves type 803 are displayed on page 2.6.2.5.

Blanking plates are also available type BP 5 503, BP 5 703 or BP 5 803.

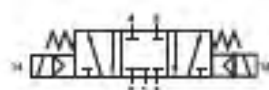
Mounting screws, seals and connectors as shown on the photo are included.

MH 53\_ 703

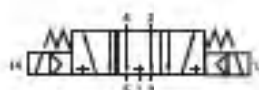
MH 53\_ 803

Type	Ports 2, 4	Air flow	Operating press.	Power consumption	Weight
MH 53_ 503	G 1/8"	650 l/min	3 - 10 bar	3W = / 5VA -	0,31 kg MK
MH 53_ 703	G 1/4"	1250 l/min	3 - 10 bar	3W = / 5VA -	0,33 kg MK
MH 53_ 803	G 1/4"	1450 l/min	3 - 10 bar	3W = / 5VA -	0,56 kg

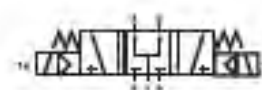
# MD 53\_304/MD 53\_404



MD 531 304  
MD 531 404



MD 532 304  
MD 532 404



MD 533 304  
MD 533 404



5/3-way solenoid valve with spring return to middle position, actuated by permanent signal. All the ports are in the plate.

- Type 531 centre closed
- Type 532 centre exhausted
- Type 533 centre pressurised

When ordering please complete the type number by 1, 2 or 3 according to the type required.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-,  
12V-, 6V- either for connector form C ISO 15217  
or with flying leads, standard cable length 500 mm.  
For details about solenoid system, please refer to  
page 2.11.1.

Valves are generally equipped with manual override to push.

Manifolds are described on page 2.6.2.6.

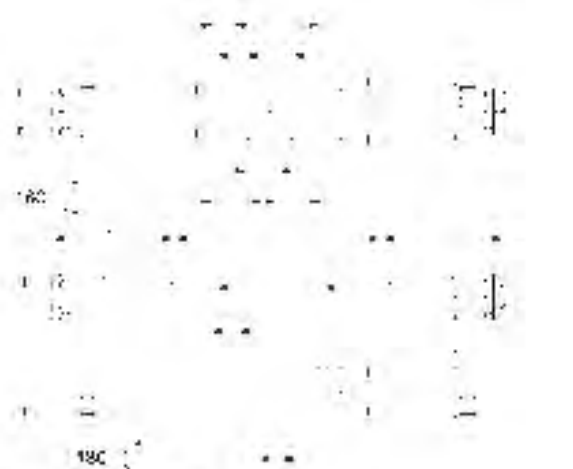
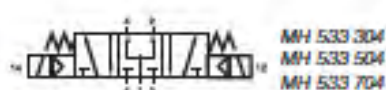
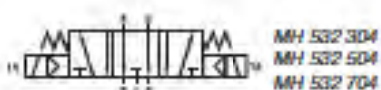
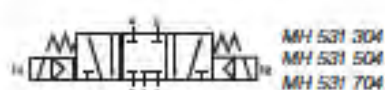
Blanking plates are also available type BP 5 344  
or BP 5 464.

Mounting screws and seals are included.

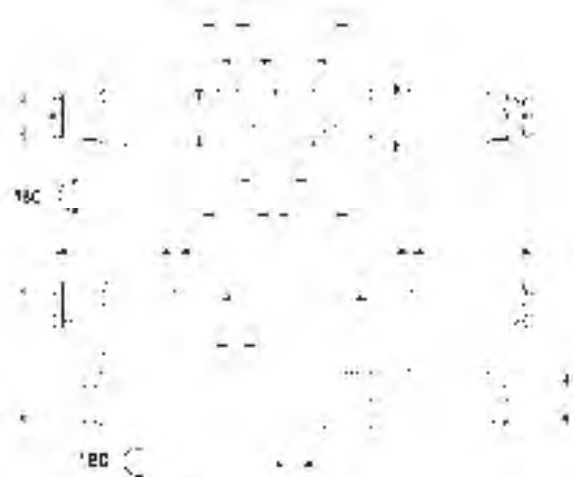
MD 53\_304

MD 53\_404

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MD 53_304	∅ 3 mm	280 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,13 kg
MD 53_404	∅ 4 mm	450 l/min	3 - 10 bar	1,8 W = / 3,0 VA -	0,14 kg



MH 53\_304



MH 53\_504



MH 53\_704



5/3-way solenoid valve with spring return to middle position, actuated by permanent signal. All the ports are in the plate.

- Type 531 centre closed
- Type 532 centre exhausted
- Type 533 centre pressurised

When ordering please complete the type number by 1, 2 or 3 according to the type required.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

Valves are generally equipped with manual override.  
If requested without manual override please order  
M 53\_ \_\_\_ (please add 1 digit for type and 3 for size).

Manifolds are described on page 2.6.2.7.

Blanking plates are also available:  
Type no. BP 5 304, BP 5 504 or BP 5 704.

Mounting screws, seals and connectors as shown  
on the photo are included.

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 53_304	Ø 3 mm	220 l/min	3 - 10 bar	3 W = / 5 VA -	0,25 kg ❄
MH 53_504	Ø 5 mm	650 l/min	3 - 10 bar	3 W = / 5 VA -	0,27 kg ❄MK
MH 53_704	Ø 7 mm	1250 l/min	3 - 10 bar	3 W = / 5 VA -	0,29 kg ❄MK

# Examples for customer-specific products



## Version EDS and BMF

For applications where a valve with an aluminum body is appropriate but brass is not, we can deliver selected models either „brass-free to the outside“ (version EDS) or totally „brass-free“ (version BMF).

### Materials used:

	EDS	BMF
	<i>Brass-free to the outside</i>	<i>Entirely brass-free</i>
Body and head	Aluminum	Aluminum
Manual override	1.4404	1.4404
Operator tube	Stainless steel	Stainless steel
Seat below plunger	Brass	1.4404
Sealing system	Brass / NBR	1.4404 / PUR
Spool	Stainless steel	Stainless steel
Piston	Brass / NBR	1.4404 / PUR
Rubber parts	FKM	FKM
Endcap	1.4404	1.4404
Screws	A2	A2



## RS 4

Connection for operator of direct actuated 3-way-valves can be used to capture exhaust for n.c. valves as well as supply for n.o. valves. Standard: 2, 4, 6 stations, others on request.



## MSV 311 030

Direct actuated 3/2-way valve for vacuum use, orifice size 3 mm.



## MHP 520 501

G 1/8" 2-position valve, actuated from one side pneumatically, from the other side with a solenoid. Also available with external pilot-feed and in other sizes.



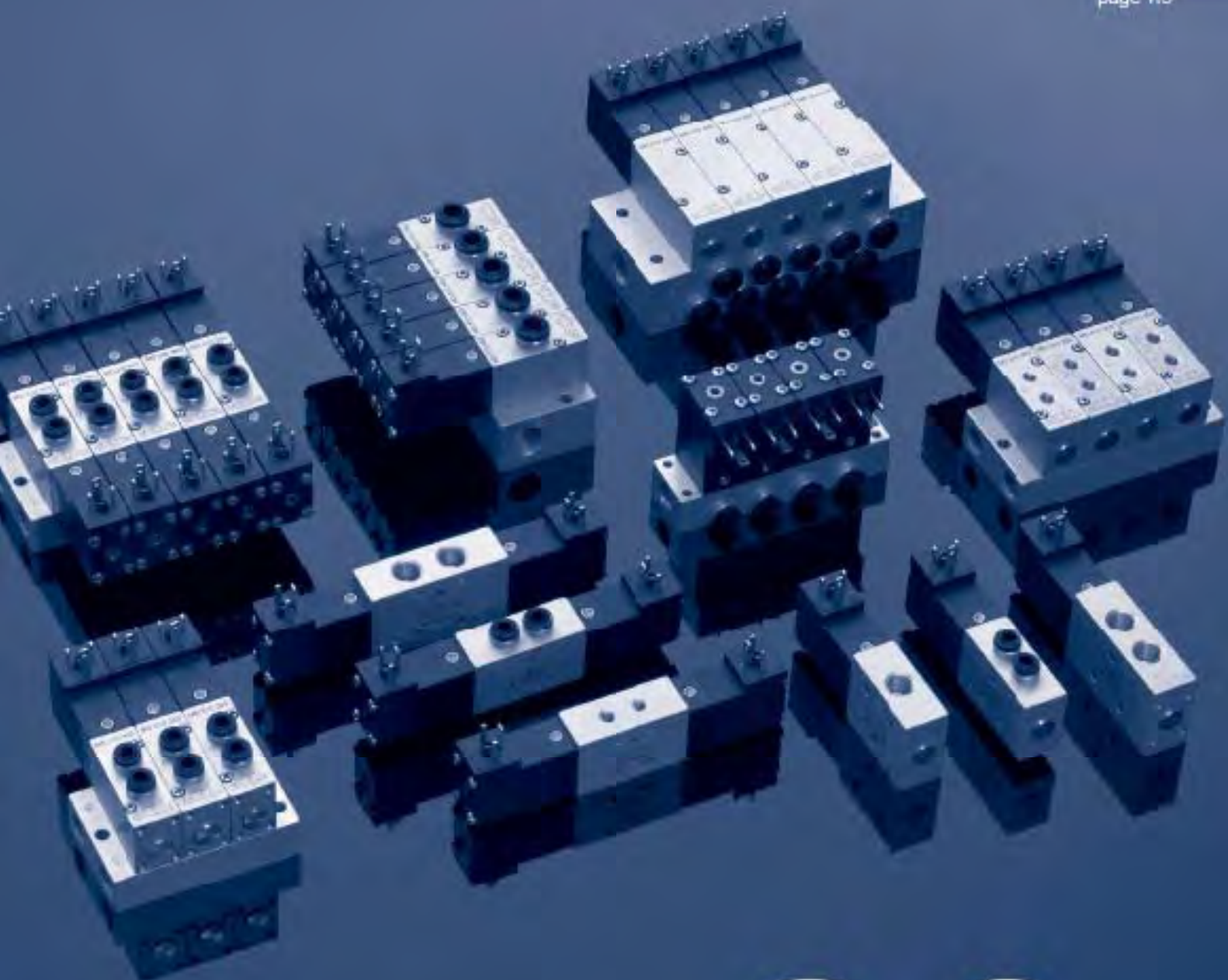
## MD 310 701 MDD

3/2-way valve with pneumatic spring return actuated by 2 solenoids. Valve offers a fail-safe-function in case one coil does not work.



## MH 510 704 J

Range of 35 mm wide valves with an orifice size of 7 mm for the packaging industry. Range consists of single and double solenoid valves as well as of 5/3-way valves. Pilot actuated products are also available.



# 2.6

## Manifold Plates

R \_\_



Common connection to port 1 (pressure).

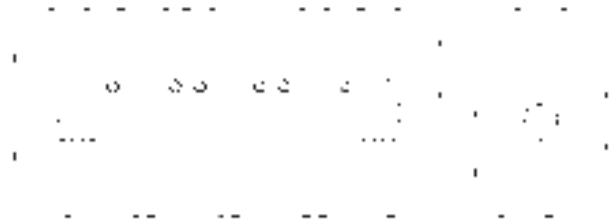
The following valves can be assembled to the manifold plate type R \_\_ :

- MH 312 port 2: M5
- MH 314 port 2: pil 4 mm
- MH 315 port 2: G 1/8"
- MH 316 port 2: pil 6 mm

All the valves are displayed on page 2.5.1.2.2.

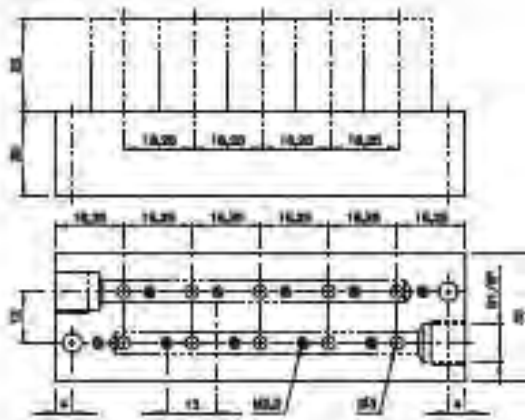
Blanking plates are also available type BP 3.

*All the manifold plates offered by Hafner-Pneumatik can be equipped with the DIN-rail mounting clips.*



R \_\_

Stations	Type	Weight	Available
1	R 01	0,05 kg	from stock
2	R 02	0,08 kg	from stock
3	R 03	0,11 kg	from stock
4	R 04	0,13 kg	from stock
5	R 05	0,16 kg	from stock
6	R 06	0,19 kg	from stock
7	R 07	0,21 kg	from stock
8	R 08	0,24 kg	from stock
9	R 09	0,27 kg	from stock
10	R 10	0,30 kg	from stock
11	R 11	0,32 kg	from stock
12	R 12	0,35 kg	from stock
13	R 13	0,38 kg	from stock
14	R 14	0,41 kg	from stock
15	R 15	0,44 kg	from stock
16	R 16	0,47 kg	from stock



RD 3\_\_ 303



Common connection to port 1 (pressure) and 3 (exhaust).

The following valves can be assembled to the manifold plate type RD 3\_\_ 303:

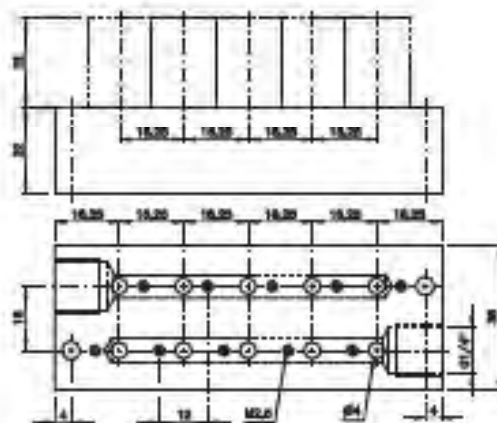
3/2-way n.c.	plf 4 mm	MD 310 343	page 2.5.1.2.4
3/2-way n.o.	plf 4 mm	MOD 310 343	page 2.5.1.2.4

Blanking plates are also available type BP 3 303.

The following valves can be assembled to the manifold plate type RD 3\_\_ 403:

3/2-way n.c.	G 1/8"	MD 310 403	page 2.5.1.2.4
3/2-way n.o.	G 1/8"	MOD 310 403	page 2.5.1.2.4
3/2-way n.c.	plf 6 mm	MD 310 463	page 2.5.1.2.4
3/2-way n.o.	plf 6 mm	MOD 310 463	page 2.5.1.2.4

Blanking plates are also available type BP 3 403.



RD 3\_\_ 403

Stations	Type	Weight	Available	Type	Weight	Available
2	RD 302 303	0,07 kg	from stock	RD 302 403	0,09 kg	from stock
3	RD 303 303	0,10 kg	from stock	RD 303 403	0,13 kg	from stock
4	RD 304 303	0,13 kg	from stock	RD 304 403	0,16 kg	from stock
5	RD 305 303	0,15 kg	from stock	RD 305 403	0,19 kg	from stock
6	RD 306 303	0,18 kg	from stock	RD 306 403	0,23 kg	from stock
7	RD 307 303	0,21 kg	on request	RD 307 403	0,27 kg	on request
8	RD 308 303	0,23 kg	from stock	RD 308 403	0,30 kg	from stock
9	RD 309 303	0,26 kg	on request	RD 309 403	0,33 kg	on request
10	RD 310 303	0,28 kg	from stock	RD 310 403	0,36 kg	from stock
12	RD 312 303	0,33 kg	from stock	RD 312 403	0,43 kg	from stock
14	RD 314 303	0,38 kg	on request	RD 314 403	0,49 kg	on request
16	RD 316 303	0,43 kg	on request	RD 316 403	0,55 kg	on request



# RD 3\_\_ 344/RD 3\_\_ 464



Common connection to port 1 (pressure) and 3 (exhaust). The individual ports 2 are also in the manifold plate equipped with push-in fittings.

The following valves can be assembled to the manifold plate type RD 3\_\_ 344 (plf 4 mm):

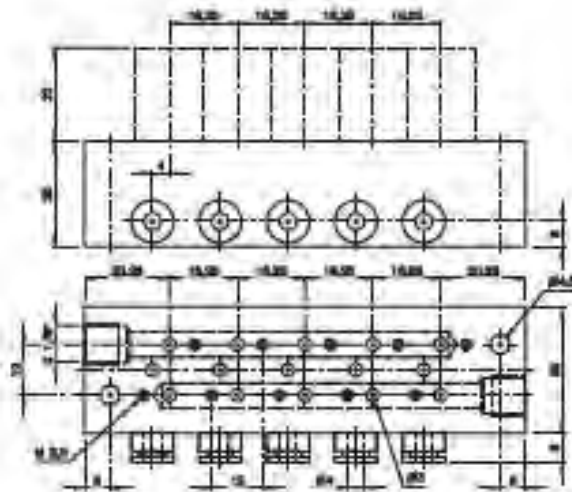
- 3/2-way n.c. MD 310 304 page 2.5.1.2.5
- 3/2-way n.o. MOD 310 304 page 2.5.1.2.5

Blanking plates are also available type BP 3 344.

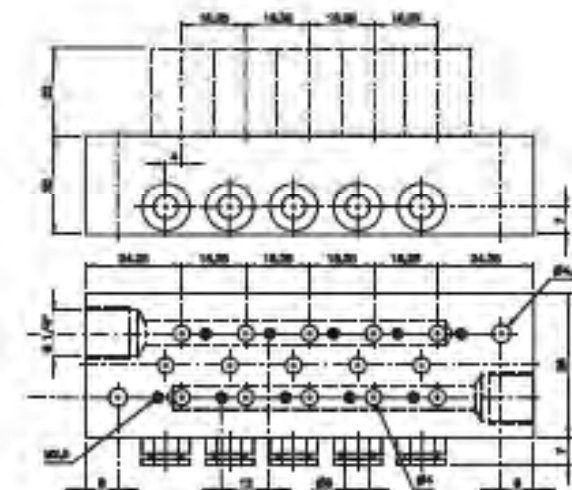
The following valves can be assembled to the manifold plate type RD 3\_\_ 464 (plf 6 mm):

- 3/2-way n.c. MD 310 404 page 2.5.1.2.5
- 3/2-way n.o. MOD 310 404 page 2.5.1.2.5

Blanking plates are also available type BP 3 464.

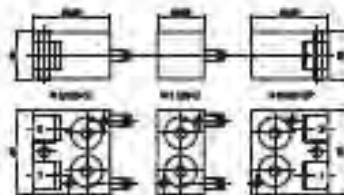


RD 3\_\_ 344

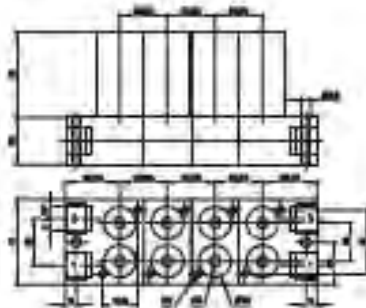


RD 3\_\_ 464

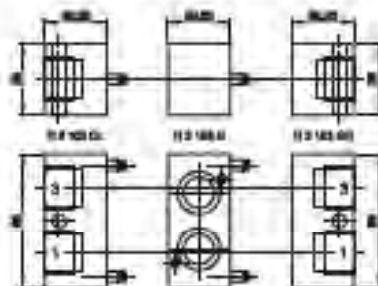
Stations	Type	Weight	Available	Type	Weight	Available
2	RD 302 344	0,13 kg	from stock	RD 302 464	0,15 kg	from stock
3	RD 303 344	0,16 kg	from stock	RD 303 464	0,19 kg	from stock
4	RD 304 344	0,19 kg	from stock	RD 304 464	0,23 kg	from stock
5	RD 305 344	0,22 kg	from stock	RD 305 464	0,26 kg	from stock
6	RD 306 344	0,25 kg	from stock	RD 306 464	0,30 kg	from stock
7	RD 307 344	0,28 kg	on request	RD 307 464	0,34 kg	on request
8	RD 308 344	0,31 kg	from stock	RD 308 464	0,38 kg	from stock
9	RD 309 344	0,34 kg	on request	RD 309 464	0,41 kg	on request
10	RD 310 344	0,38 kg	from stock	RD 310 464	0,49 kg	from stock
12	RD 312 344	0,44 kg	from stock	RD 312 464	0,53 kg	from stock
14	RD 314 344	0,50 kg	on request	RD 314 464	0,60 kg	from stock
16	RD 316 344	0,56 kg	on request	RD 316 464	0,68 kg	on request



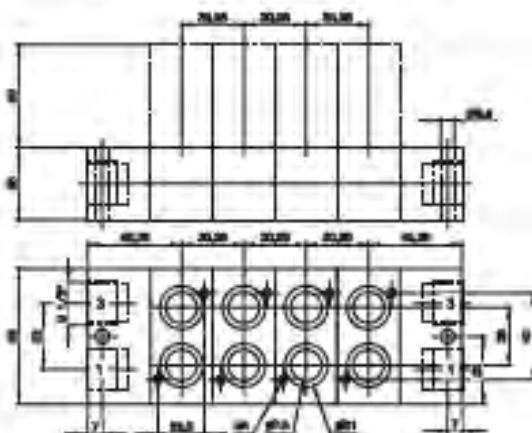
Parts of modular manifold RB 3 \_\_ 503 G



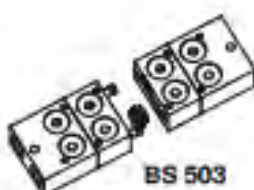
RB 3 \_\_ 503 G



Parts of modular manifold RB 3 \_\_ 103 G



RB 3 \_\_ 103 G



BS 503

By adding a special plug (type BS 503), two different pressures can be attached at the same manifold plate. The plug is intercepting the air-supply in the manifold plate wherever the customer likes to.



Modular manifold system for common connections to ports 1 (pressure) and 3 (exhaust). The system can be build and taken apart just by operating two hexagon socket screws. Additional stations can be added at any position and any time. End-plates are equipped with threads for adding DIN-rail mounting clips.

The following valves can be assembled to the system **RB 3 \_\_ 503 G**:

3/2 single sol. n.c.	G 1/8"	MH 310 501 G	page 2.5.1.1.12
3/2 single sol. n.o.	G 1/8"	MOH 310 501 G	page 2.5.1.1.12
3/2 double sol.	G 1/8"	MH 320 501 G	page 2.5.1.1.16

The system consists of:

End-plate right	type R 3 503 GR
End-plate left	type R 3 503 GL
Individual position	type R 3 503 G

Blanking plates are also available type BP 3 503.

The following valves can be assembled to the system **RB 3 \_\_ 103 G**:

3/2 single sol. n.c.	G 3/8"	MH 310 101 G	page 2.5.1.1.13
3/2 single sol. n.o.	G 3/8"	MOH 310 101 G	page 2.5.1.1.13
3/2 double sol.	G 3/8"	MH 320 101 G	page 2.5.1.1.16

The system consists of:

End-plate right	type R 3 103 GR
End-plate left	type R 3 103 GL
Individual position	type R 3 103 G

Blanking plates are also available type BP 3 103.

Attention:  
End-plates of series 103 G are not offering an individual valve-position.

The plates can also be ordered assembled by the manufacturer. In this case order RB 3 \_\_ 503 G (1/8") or RB 3 \_\_ 103 G (3/8"). Please add two digits for the number of positions required.

Type	Function	Weight
R 3 503 GR	End-plate right	0,07 kg
R 3 503 GL	End-plate left	0,07 kg
R 3 503 G	Individual position	0,05 kg

Type	Function	Weight
R 3 103 GR	End-plate right	0,14 kg
R 3 103 GL	End-plate left	0,15 kg
R 3 103 G	Individual position	0,12 kg

# R 3\_\_ 703 G/R 3\_\_ 121 G



Common connection to port 1 (pressure) and 3 (exhaust).

The following valves can be assembled to the manifold plate type R 3\_\_ 703 G:

Solenoid valves:

3/2 single sol. n.c.	G 1/4"	MH 310 701 G	page 2.5.1.1.12
3/2 single sol. n.o.	G 1/4"	MOH 310 701 G	page 2.5.1.1.12
3/2 double sol.	G 1/4"	MH 320 701 G	page 2.5.1.1.16
3/3-way centre closed	G 1/4"	MH 331 701 G	page 2.5.1.3

Pneumatically actuated 3/2-way valves:

air spring	G 1/4"	P 310 701 G	page 2.4.1.4
mech. spring	G 1/4"	P 311 701 G	page 2.4.1.4
double pilot	G 1/4"	P 320 701 G	page 2.4.1.6
double pilot	G 1/4"	P 322 701 G	page 2.4.1.6

Blanking plates are also available type BP 3 703.

NPT-ported plates available on request.

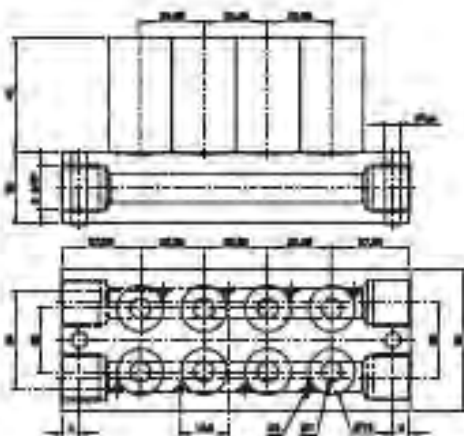
The following valves can be assembled to the manifold plate type R 3\_\_ 121 G:

Solenoid valves:

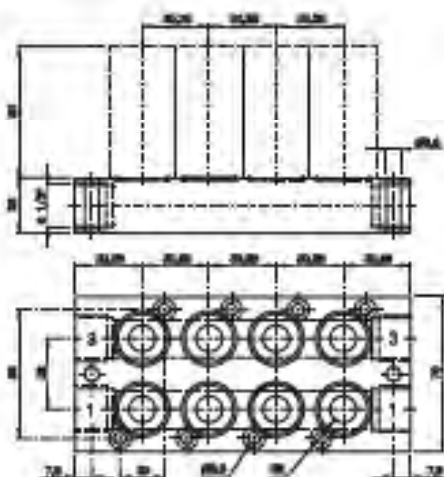
3/2 single sol. n.c.	G 1/2"	MH 310 121 G	page 2.5.1.1.13
3/2 single sol. n.o.	G 1/2"	MOH 310 121 G	page 2.5.1.1.13
3/2 double sol.	G 1/2"	MH 320 121 G	page 2.5.1.1.16
3/3-way centre closed	G 1/2"	MH 331 121 G	page 2.5.1.3

Pneumatically actuated 3/2-way valves:

air spring	G 1/2"	P 310 121 G	page 2.4.1.4
mech. spring	G 1/2"	P 311 121 G	page 2.4.1.4

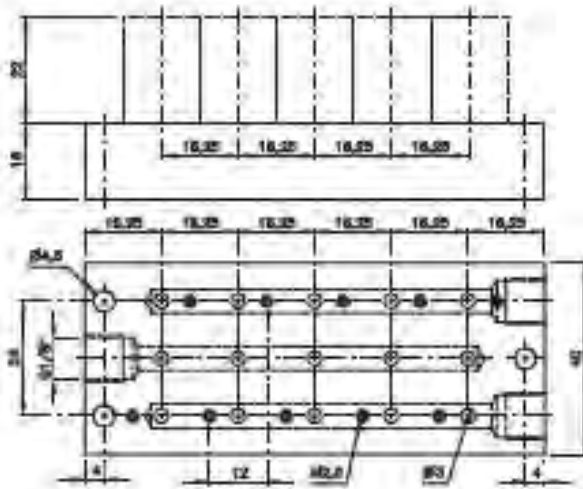


R 3\_\_ 703 G

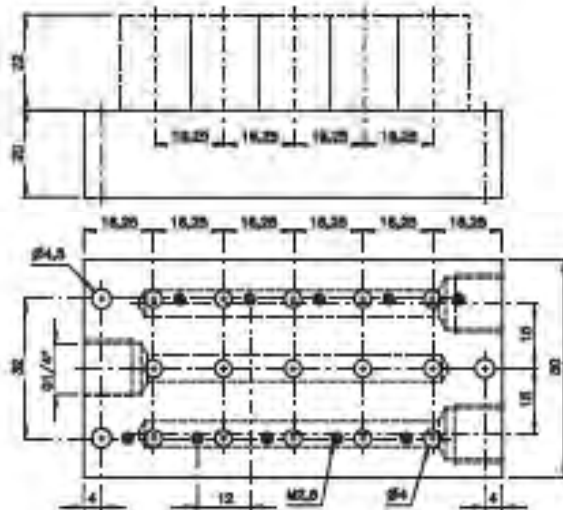


R 3\_\_ 121 G

Stations	Type	Weight	Available	Type	Weight	Available
2	R 302 703 G	0,15 kg	from stock	R 302 121 G	0,28 kg	from stock
3	R 303 703 G	0,21 kg	from stock			
4	R 304 703 G	0,26 kg	from stock	R 304 121 G	0,48 kg	from stock
5	R 305 703 G	0,32 kg	from stock			
6	R 306 703 G	0,37 kg	from stock			
8	R 308 703 G	0,48 kg	from stock			
10	R 310 703 G	0,59 kg	from stock			
12	R 312 703 G	0,70 kg	from stock			



RD 5\_303



RD 5\_403



Common connection to port 1 (pressure), 3 and 5 (exhaust).

The following solenoid valves can be assembled to the manifold plate type RD 5\_303:

5/2 single sol.	M5	MD 510 303	page 2.5.2.2.1
5/2 single sol.	pfl 4 mm	MD 510 343	page 2.5.2.2.1
5/2 double sol.	M5	MD 520 303	page 2.5.2.2.5
5/2 double sol.	pfl 4 mm	MD 520 343	page 2.5.2.2.5
5/3-way	M5	MD 53_303	page 2.5.3.2.1
5/3-way	pfl 4 mm	MD 53_343	page 2.5.3.2.1

Blanking plates are also available type BP 5 303.

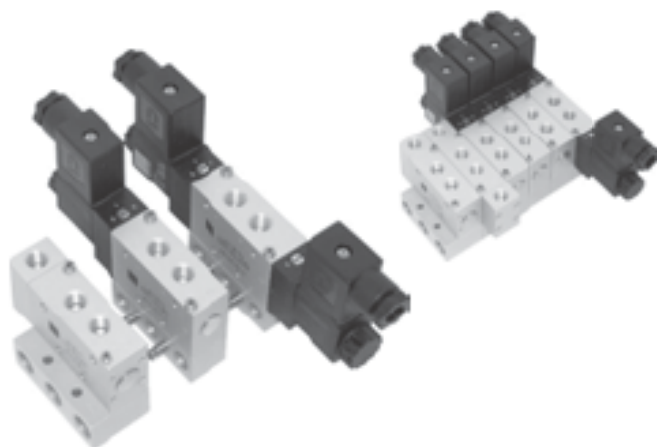
The following solenoid valves can be assembled to the manifold plate type RD 5\_403:

5/2 single sol.	G 1/8"	MD 510 403	page 2.5.2.2.1
5/2 single sol.	pfl 6 mm	MD 510 463	page 2.5.2.2.1
5/2 double sol.	G 1/8"	MD 520 403	page 2.5.2.2.5
5/2 double sol.	pfl 6 mm	MD 520 463	page 2.5.2.2.5
5/3-way	G 1/8"	MD 53_403	page 2.5.3.2.1
5/3-way	pfl 6 mm	MD 53_463	page 2.5.3.2.1

Blanking plates are also available type BP 5 403.

Stations	Type	Weight	Available	Type	Weight	Available
2	RD 502 303	0,08 kg	from stock	RD 502 403	0,12 kg	from stock
3	RD 503 303	0,10 kg	from stock	RD 503 403	0,16 kg	from stock
4	RD 504 303	0,13 kg	from stock	RD 504 403	0,20 kg	from stock
5	RD 505 303	0,16 kg	from stock	RD 505 403	0,24 kg	from stock
6	RD 506 303	0,18 kg	from stock	RD 506 403	0,28 kg	from stock
7	RD 507 303	0,21 kg	on request	RD 507 403	0,32 kg	on request
8	RD 508 303	0,24 kg	from stock	RD 508 403	0,37 kg	from stock
9	RD 509 303	0,26 kg	on request	RD 509 403	0,41 kg	on request
10	RD 510 303	0,29 kg	from stock	RD 510 403	0,45 kg	from stock
12	RD 512 303	0,34 kg	from stock	RD 512 403	0,53 kg	from stock
14	RD 514 303	0,39 kg	on request	RD 514 403	0,62 kg	from stock
16	RD 516 303	0,44 kg	on request	RD 516 403	0,69 kg	from stock

# RB 5 \_\_ 503 G



Modular manifold system for common connections to ports 1 (pressure), 3 and 5 (exhaust). The system can be built and taken apart just by operating two hexagon socket screws. Additional stations can be added at any position and any time. End-plates are equipped with threads for adding DIN-rail mounting clips.

The following valves can be assembled to the system RB 5 \_\_ 503 G:

**Solenoid valves:**

5/2 single sol.	G 1/8"	MH 510 501 G	page 2.5.2.1.5
5/2 single sol.	G 1/8"	MH 510 503	page 2.5.2.2.2
5/2 double sol.	G 1/8"	MH 520 501 G	page 2.5.2.1.11
5/2 double sol.	G 1/8"	MH 520 503	page 2.5.2.2.8
5/3 solenoid	G 1/8"	MH 53_ 501 G	page 2.5.3.1.4
5/3 solenoid	G 1/8"	MH 53_ 503	page 2.5.3.2.2

**Pneumatically actuated valves:**

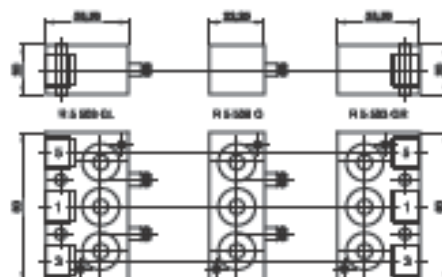
5/2 air spring	G 1/8"	P 510 501 G	page 2.4.2.4
5/2 mech. spring	G 1/8"	P 511 501 G	page 2.4.2.4
5/2 double pilot	G 1/8"	P 52_ 501 G	page 2.4.2.8
5/3	G 1/8"	P 53_ 501 G	page 2.4.3.3

**The system consists of:**

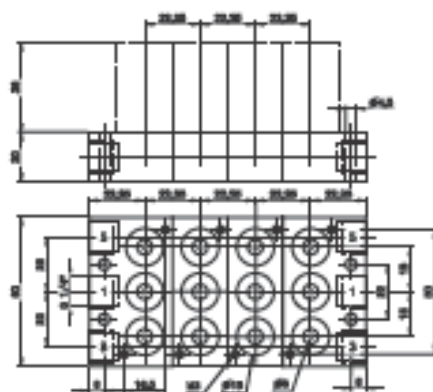
End-plate right	type R 5 503 GR
End-plate left	type R 5 503 GL
Individual position	type R 5 503 G

Blanking plates are also available type BP 5 503.

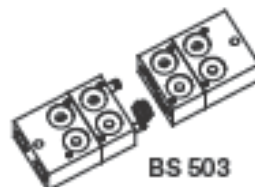
The plates can also be ordered assembled by the manufacturer. In this case order RB 5 \_\_ 503 G. Please add two digits for the number of positions required.



Parts of modular manifold RB 5 \_\_ 503 G



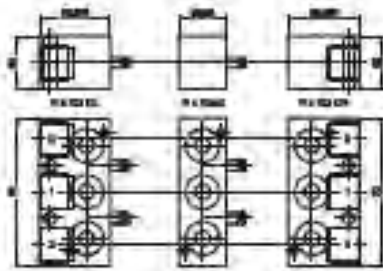
RB 5 \_\_ 503 G



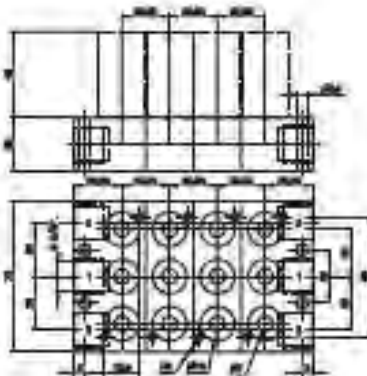
BS 503

By adding a special plug (type BS 503), two different pressures can be attached at the same manifold plate. The plug is intercepting the air-supply in the manifold plate wherever the customer likes to.

Type	Function	Weight
R 5 503 GR	End-plate right	0,08 kg
R 5 503 GL	End-plate left	0,08 kg
R 5 503 G	Individual position	0,06 kg



Parts of modular manifold RB 5 \_\_ 703 G



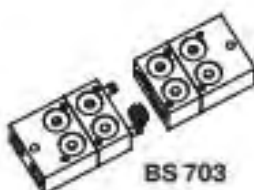
RB 5 \_\_ 703 G



1.) Combination of 3- and 5-way valves



2.) Individual valve isolation



BS 703

By adding a special plug (type BS 703), two different pressures can be attached at the same manifold plate. The plug is intercepting the air-supply in the manifold plate wherever the customer likes to.



Modular manifold system for common connections to ports 1 (pressure), 3 and 5 (exhaust). The system can be built and taken apart just by operating two hexagon socket screws. Additional stations can be added at any position and any time. End-plates are equipped with threads for adding DIN-rail mounting clips.

The following valves can be assembled to the system RB 5 \_\_ 703 G:

**Solenoid valves:**

5/2 single sol.	G 1/4"	MH 510 701 G	page 2.5.2.1.5
5/2 single sol.	G 1/4"	MH 510 703	page 2.5.2.2.2
5/2 double sol.	G 1/4"	MH 520 701 G	page 2.5.2.1.11
5/2 double sol.	G 1/4"	MH 520 703	page 2.5.2.2.6
5/3 solenoid	G 1/4"	MH 53_ 701 G	page 2.5.3.1.4
5/3 solenoid	G 1/4"	MH 53_ 703	page 2.5.3.2.2

**Pneumatically actuated valves:**

5/2 air spring	G 1/4"	P 510 701 G	page 2.4.2.4
5/2 mech. spring	G 1/4"	P 511 701 G	page 2.4.2.4
5/2 double pilot	G 1/4"	P 52_ 701 G	page 2.4.2.8
5/3 pneum.	G 1/4"	P 53_ 701 G	page 2.4.3.3

**The system consists of:**

End-plate right	type R 5 703 GR
End-plate left	type R 5 703 GL
Individual position	type R 5 703 G

Blanking plates are also available type BP 5 703.

NPT-ported end-plates available on request.

The plates can also be ordered assembled by the manufacturer. In this case order RB 5 \_\_ 703 G. Please add two digits for the number of positions required.

**Additional:**

1.) Combine 3-way and 5-way valves on the same plate. By adding R 53 703 G elements to the standard R 5 703 G elements, 3-way as well as 5-way valves can be mixed on the same plate (e.g. MH 510 701 G and MH 310 701 G).

2.) Individual valve isolation.

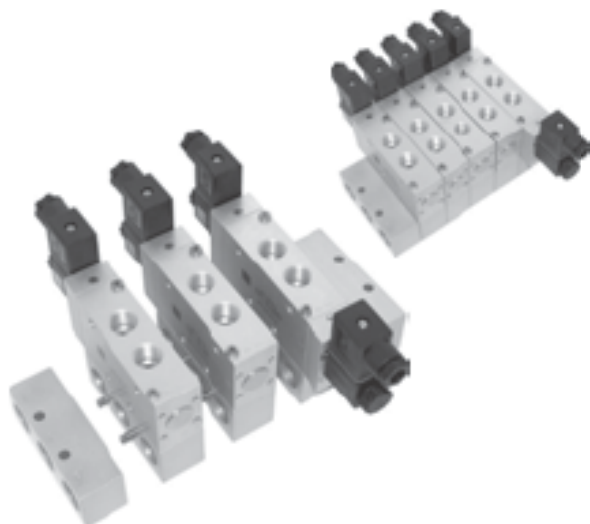
In certain industries the user appreciates, if he can take away air pressure at any valve on the plate individually. Valves can easily be exchanged by closing port 1 on the reverse side of the plate without interruption of the air-supply of the other valves.

**The system consists of:**

End-plate right	type R 5 703 GR D1
End-plate left	type R 5 703 GL D1
Individual position	type R 5 703 G D1

Type	Function	Weight
R 5 703 GR	End-plate right	0,13 kg
R 5 703 GL	End-plate left	0,12 kg
R 5 703 G	Individual position	0,09 kg

# RB 5 \_\_ 103 G



Modular manifold system for common connections to ports 1 (pressure), 3 and 5 (exhaust). The system can be build and taken apart just by operating two hexagon socket screws. Additional stations can be added at any position and any time. End-plates are equipped with threads for adding DIN-rail mounting clips.

The following valves can be assembled to the system

**RB 5 \_\_ 103 G:**

5/2 single solenoid	G 3/8"	MH 510 101 G	page 2.5.2.1.6
5/2 double solenoid	G 3/8"	MH 520 101 G	page 2.5.2.1.12
5/3 solenoid	G 3/8"	MH 53_ 101 G	page 2.5.3.1.5

The system consists of:

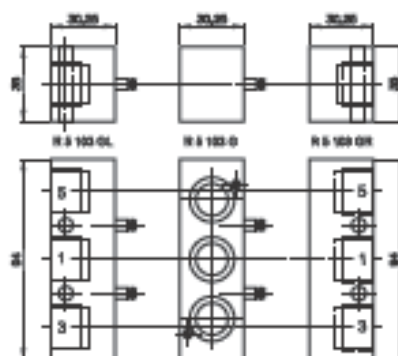
End-plate right	type R 5 103 GR
End-plate left	type R 5 103 GL
Individual position	type R 5 103 G

Blanking plates are also available type BP 5 103.

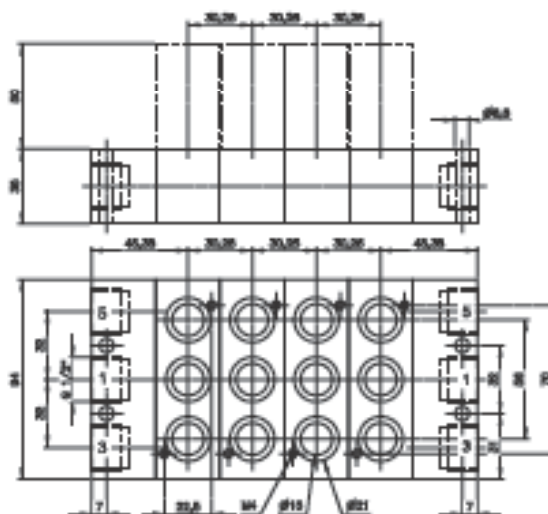
Attention:

End-plates are not offering an individual valve-position.

The plates can also be ordered assembled by the manufacturer. In this case order RB 5 \_\_ 103 G. Please add two digits for the number of positions required.

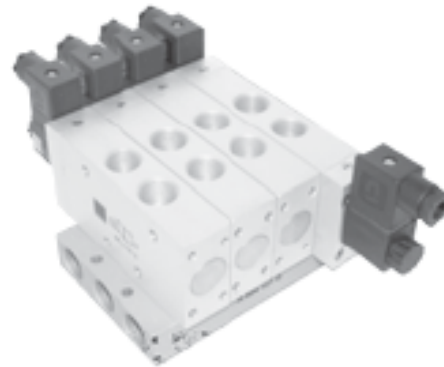


Parts of modular manifold RB 5 \_\_ 103 G



R 5 \_\_ 103 G

Type	Function	Weight
R 5 103 GR	End-plate right	0,20 kg
R 5 103 GL	End-plate left	0,21 kg
R 5 103 G	Individual position	0,18 kg



Common connection to port 1 (pressure), 3 and 5 (exhaust).

**R 5 \_\_ 803** for valves for manifold-plates only.

The following solenoid valves can be assembled to **R \_\_ 803**:

5/2 single sol.	G 1/4"	MH 510 803	page 2.5.2.2.2
5/2 double sol.	G 1/4"	MH 520 803	page 2.5.2.2.6
5/3- way	G 1/4"	MH 53_ 803	page 2.5.3.2.2

Blanking plates are also available type BP 5 803.

**R 5 \_\_ 121 G** for dual use valves.

The following valves can be assembled to **R 5 \_\_ 121 G**:

5/2 single sol.	G 1/2"	MH 510 121 G	page 2.5.2.1.6
5/2 double sol.	G 1/2"	MH 520 121 G	page 2.5.2.1.12
5/3 solenoid	G 1/2"	MH 53_ 121 G	page 2.5.3.1.5

5/2 single pilot	G 1/2"	P 510 121 G	page 2.4.2.4
5/2 double pilot	G 1/2"	P 520 121 G	page 2.4.2.8
5/3 pneum.	G 1/2"	P 53_ 121 G	page 2.4.3.3

Blanking plates are also available type BP 5 121 G.

Plates can be equipped with DIN-rail mounting clips.



**R 5 \_\_ 803**



**R 5 \_\_ 121 G**

Stations	Type	Weight	Type	Weight
2	R 502 803	0,41 kg	R 502 121 G	0,41 kg
3	R 503 803	0,54 kg	R 503 121 G	0,56 kg
4	R 504 803	0,71 kg	R 504 121 G	0,70 kg
5	R 505 803	0,86 kg	R 505 121 G	0,85 kg
6	R 506 803	1,00 kg	R 506 121 G	0,99 kg
8	R 508 803	1,30 kg	n.a.	
10	R 510 803	1,61 kg	n.a.	
12	R 512 803	1,90 kg	n.a.	



# RD 5\_\_ 344/RD 5\_\_ 464



Common connection to port 1 (pressure), 3 and 5 (exhaust). The individual ports 2 and 4 are also in the manifold plate equipped with push-in fittings.

The following solenoid valves can be assembled to the manifold plate type RD 5\_\_ 344 (plf 4 mm):

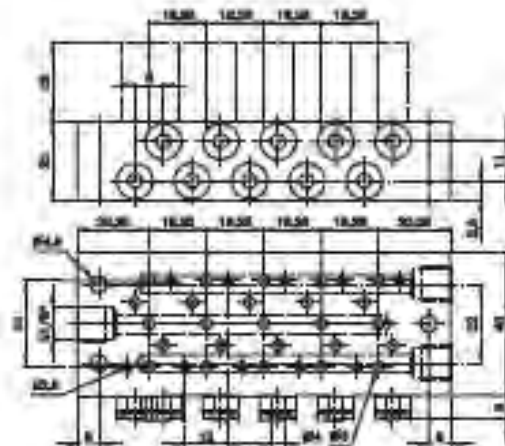
5/2 single sol.	MD 510 304	page 2.5.2.2.3
5/2 double sol.	MD 520 304	page 2.5.2.2.7
5/3-way	MD 53_ 304	page 2.5.3.2.3

Blanking plates are also available type BP 5 344.

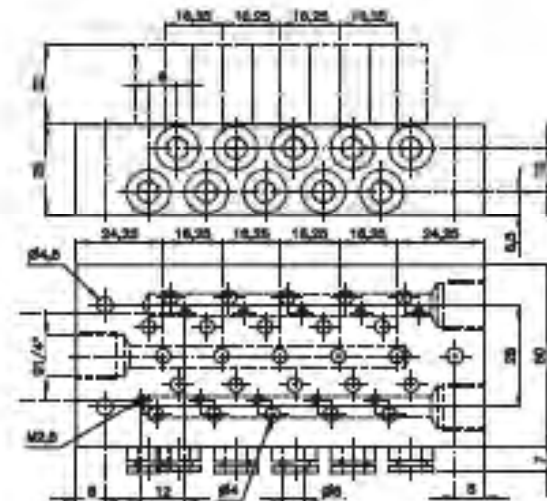
The following solenoid valves can be assembled to the manifold plate type RD 5\_\_ 464 (plf 6 mm):

5/2 single sol.	MD 510 404	page 2.5.2.2.3
5/2 double sol.	MD 520 404	page 2.5.2.2.7
5/3-way	MD 53_ 404	page 2.5.3.2.3

Blanking plates are also available type BP 5 464.



RD 5\_\_ 344

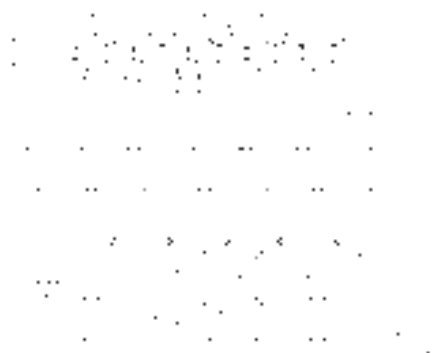


RD 5\_\_ 464

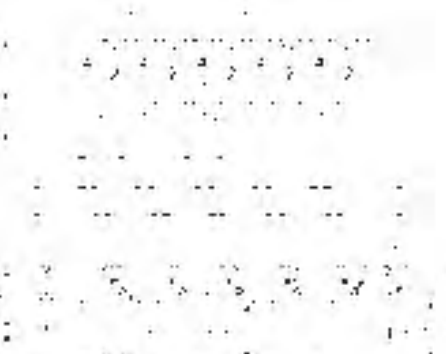
Stations	Type	Weight	Available	Type	Weight	Available
2	RD 502 344	0,14 kg	from stock	RD 502 464	0,21 kg	from stock
3	RD 503 344	0,18 kg	from stock	RD 503 464	0,27 kg	from stock
4	RD 504 344	0,22 kg	from stock	RD 504 464	0,33 kg	from stock
5	RD 505 344	0,26 kg	from stock	RD 505 464	0,38 kg	from stock
6	RD 506 344	0,30 kg	from stock	RD 506 464	0,44 kg	from stock
7	RD 507 344	0,34 kg	on request	RD 507 464	0,50 kg	from stock
8	RD 508 344	0,38 kg	from stock	RD 508 464	0,55 kg	from stock
9	RD 509 344	0,42 kg	on request	RD 509 464	0,60 kg	from stock
10	RD 510 344	0,46 kg	from stock	RD 510 464	0,66 kg	from stock
12	RD 512 344	0,54 kg	from stock	RD 512 464	0,77 kg	from stock
14	RD 514 344	0,62 kg	on request	RD 514 464	0,88 kg	on request
16	RD 516 344	0,70 kg	on request	RD 516 464	0,99 kg	on request



R 5\_\_ 304



R 5\_\_ 504



R 5\_\_ 784



Common connection to port 1 (pressure), 3 (exhaust) and 5 (exhaust). The ports 2 and 4 of the individual valves are also located in the manifold plate.

The following solenoid valves can be assembled to the manifold plate type R 5\_\_ 304 (G 1/8" orifice 3 mm):  
 5/2 single sol. MH 510 304 page 2.5.2.2.4  
 5/2 double sol. MH 520 304 page 2.5.2.2.8  
 5/3-way MH 53\_ 304 page 2.5.3.2.4

Blanking plates are also available type BP 5 304.

The following solenoid valves can be assembled to the manifold plate type R 5\_\_ 504 (G 1/8" orifice 5 mm):  
 5/2 single sol. MH 510 504 page 2.5.2.2.4  
 5/2 double sol. MH 520 504 page 2.5.2.2.8  
 5/3-way MH 53\_ 504 page 2.5.3.2.4

Blanking plates are also available type BP 5 504.

The following solenoid valves can be assembled to the manifold plates type R 5\_\_ 704 (G 1/4" orifice 7 mm) and R 5\_\_ 784 (pil 8 mm):  
 5/2 single sol. MH 510 704 page 2.5.2.2.4  
 5/2 double sol. MH 520 704 page 2.5.2.2.8  
 5/3-way MH 53\_ 704 page 2.5.3.2.4

**Manifold plates Type R 5\_\_ 704 are not displayed. All dimensions are the same as R 5\_\_ 784, only the pil 8 mm are replaced by threaded ports G 1/4".**

Blanking plates are also available type BP 5 704.

Stations	Type	Weight	Type	Weight	Type	Weight	Type	Weight
2	R 502 304	0,26 kg	R 502 504	0,30 kg	R 502 704	0,54 kg	R 502 784	0,54 kg
3	R 503 304	0,34 kg	R 503 504	0,40 kg	R 503 704	0,72 kg	R 503 784	0,72 kg
4	R 504 304	0,42 kg	R 504 504	0,50 kg	R 504 704	0,90 kg	R 504 784	0,90 kg
5	R 505 304	0,51 kg	R 505 504	0,60 kg	R 505 704	1,10 kg	R 505 784	1,10 kg
6	R 506 304	0,59 kg	R 506 504	0,70 kg	R 506 704	1,25 kg	R 506 784	1,25 kg
8	R 508 304	0,76 kg	R 508 504	0,89 kg	R 508 704	1,60 kg	R 508 784	1,60 kg
10	R 510 304	0,93 kg	R 510 504	1,08 kg	R 510 704	1,95 kg	R 510 784	1,95 kg
12	R 512 304	1,11 kg	R 512 504	1,29 kg	R 512 704	2,32 kg	R 512 784	2,32 kg

# DIN-rail mounting clips

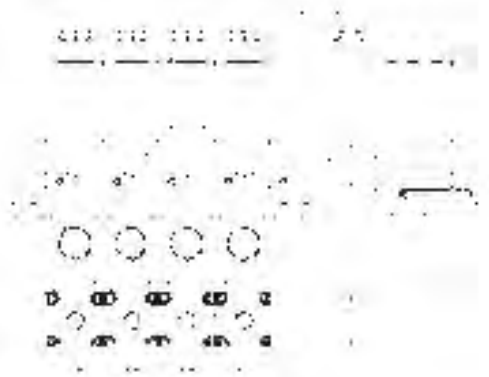
For assembling valve-terminals,  
please send us your inquiry.



Mounting accessory to assemble and dismantle manifold plates to and from 35 mm wide DIN-rails. The mounting accessory is generally to be assembled on the back of the manifold plate by the manufacturer. Self-assembly is also possible, assembly drawings can be made available.

All the manifold plates offered by Hafner-Pneumatik can be equipped with the DIN-rail mounting clips.

Modular manifolds are generally equipped with threads for assembling DIN-rails.



Also individual valves such as the MH 311 015 DIN can be equipped with DIN-rail mounting clips.





# 2.7

## Valve Terminals

# General Information on Valve Terminals

Valve terminal for valves 24 V- and 24 V-

2 - 14 stations available, equipped with varistor and red LED. Common Minus or Plus on white cable.

Double solenoid valves (5/2-way and 5/3-way) occupy 2 spaces.

The system is highly water resistant. D-sub-connector and individual valve positions are sealed with NBR O-rings against water and humidity offering IP 65.

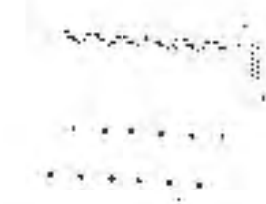
Position of the connector can be chosen at the right or at the left hand side of the terminal.

Cable can be supplied with an elbow or a straight electrical connector. Standard cable length is 3 m others are available on request. For details please refer to page 2.7.4.

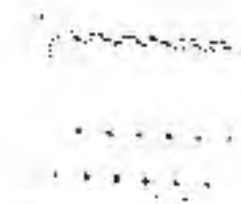


Seal at connector

Seal at valve



Connector right - TR16



Connector left - TL16

ST40 W\_\_

ST40 G\_\_

**General order information:**

When ordering a Hafner valve terminal please proceed as follows:

The electrical and pneumatical manifold has the type-number:

For ordering the required valves add a T to the order code, e.g. MD 510 404 T.

The cable with the connector as displayed on page 2.7.4.

All items to be ordered separately but assembled by manufacturer.

T \_ \_ \_ \_ \_  
1 2 3 4 5 6 7 8

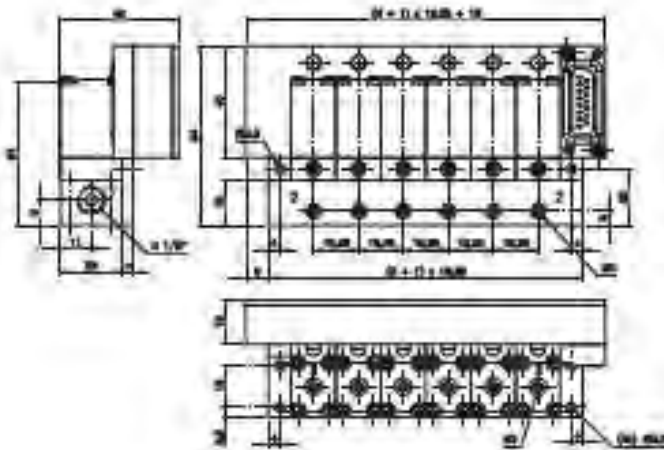
**1**  
R or L: Defining the side of the connector  
R = right, L = left

**2**  
16 for valves 16 mm wide  
22 for valves 22 mm wide

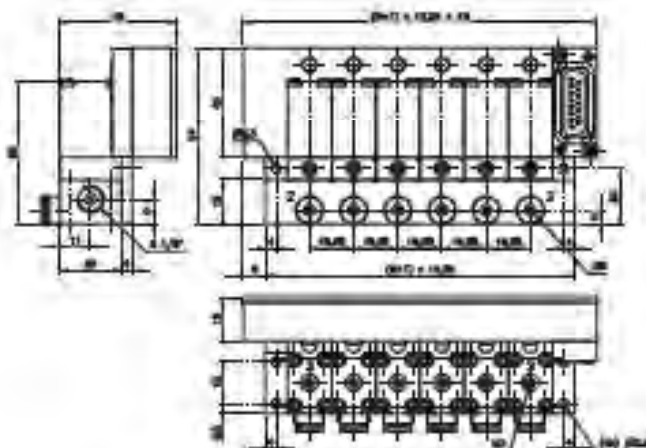
**3**  
3 or 5: Defining if the plate is for 3- or 5-way valves

**4, 5**  
number of positions, 02 to 14

**6, 7, 8**  
defining size and position of the ports, please refer to page 2.7.2.1 to 2.7.3.7



T\_163\_\_104



T\_163\_\_144



Valve terminal with direct actuated 3-way valves, orifice size 1 mm, port 2 is in the plate. Port 2 is either equipped with push-in fitting for 4 mm tube or thread M5.

The terminal is available from 2 to 14 stations (4 to 12 preferred stock item). Every station is equipped with a varistor and a red LED for coils 24 V- or 24 V-.

The pneumatic system (valve and manifold) is displayed and described on page 2.5.1.2.1, type RD 3\_\_104 or RD 3\_\_144.

Valves for terminal use offer a solenoid turned by 180° and no 3rd pin (ground).

For ordering add a T to the regular type-number (e.g. MD 311 104 T 24DC or MD 311 104 T 24AC).

Blanking plates are also available type BP 3 104 T.

# T\_163\_\_303



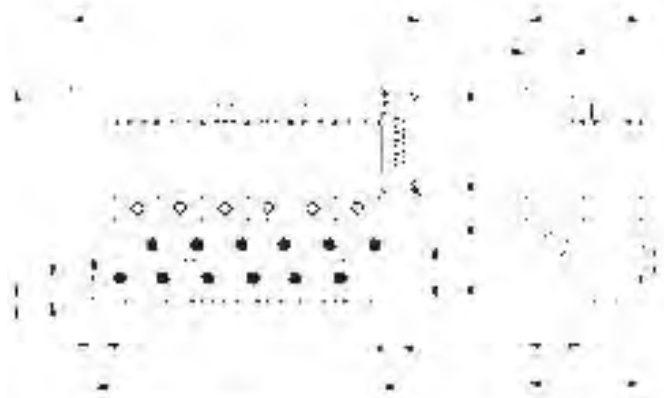
Valve terminal with 3-way valves, orifice size 3 mm, port 2 is in the valve. Port 2 is equipped with push-in fitting for 4 mm tube.

The terminal is available from 2 to 14 stations (4 to 12 preferred stock item). Every station is equipped with a varistor and a red LED for coils 24 V~ or 24 V-.

The pneumatic manifold is displayed and described on page 2.6.1.2, type RD 3\_\_303.

Valves for terminal use offer a solenoid turned by 180° and no 3rd pin (ground). For ordering please add a T to the regular type-number (e.g. MD 310 343 T 24DC or MD 310 343 T 24AC).

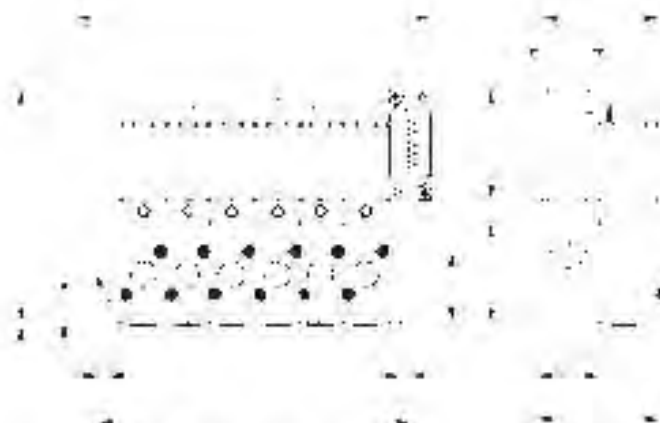
Blanking plates are also available type BP 3 303 T.



T\_163\_\_303  
equipped with valves type 343 T

The following valves can be used on that type of valve-terminal:

Type	Function	Page	Comment
MD 310 343 T	n.c.	2.5.1.2.4	both types can be mixed on the plate
MOD 310 343 T	n.o.	2.5.1.2.4	both types can be mixed on the plate



T\_16 3\_\_403  
equipped with valves type 403 T



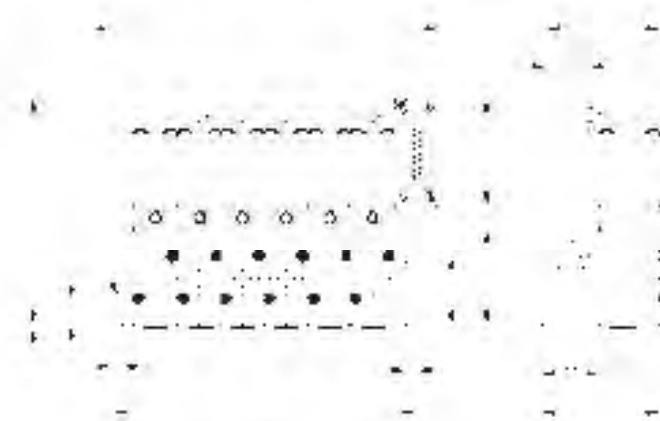
Valve terminal with 3-way valves, orifice size 4 mm, port 2 is in the valve. Port 2 is either equipped with thread G 1/8" or with push-in fitting for 6 mm tube.

The terminal is available from 2 to 14 stations (4 to 12 preferred stock item). Every station is equipped with a varistor and a red LED for coils 24 V- or 24 V-.

The pneumatic manifold is displayed and described on page 2.6.1.2, type RD 3\_\_403.

Valves for terminal use offer a solenoid turned by 180° and no 3rd pin (ground). For ordering please add a T to the regular type-number (e.g. MD 310 463 T 24DC or MD 310 463 T 24AC).

Blanking plates are also available type BP 3 403 T.



T\_16 3\_\_403  
equipped with valves type 463 T

The following valves can be used on that type of valve-terminal:

Type	Function	Page	Comment
MD 310 403 T	n.c.	2.5.1.2.4	all four types of valves can be mixed on one plate
MD 310 463 T	n.c.	2.5.1.2.4	all four types of valves can be mixed on one plate
MOD 310 403 T	n.o.	2.5.1.2.4	all four types of valves can be mixed on one plate
MOD 310 463 T	n.o.	2.5.1.2.4	all four types of valves can be mixed on one plate

For additional order information please refer to page 2.7.1.



# T\_223\_\_703



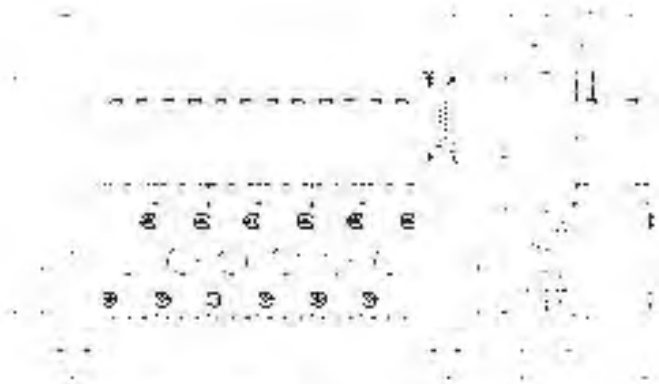
Valve terminal with 3-way valves, orifice size 7 mm, port 2 is in the valve, G 1/4".

The terminal is available with 2, 3, 4, 5, 6, 8, 10, 12 positions, others on request. Every station is equipped with a varistor and a red LED for coils 24 V- or 24 V~.

The pneumatic manifold is displayed and described on page 2.6.1.5, type R3 \_\_ 703.

Valves for terminal use offer a 1.8 Watt / 3 VA solenoid, turned by 180° and no 3rd pin (ground).  
Order-number valves:  
MK 310 703 T 24DC, MK 310 703 T 24 AC,  
MOK 310 703 T 24 DC, MOK 310 703 T 24 AC.

Blanking plates are also available type BP 3 703 T.

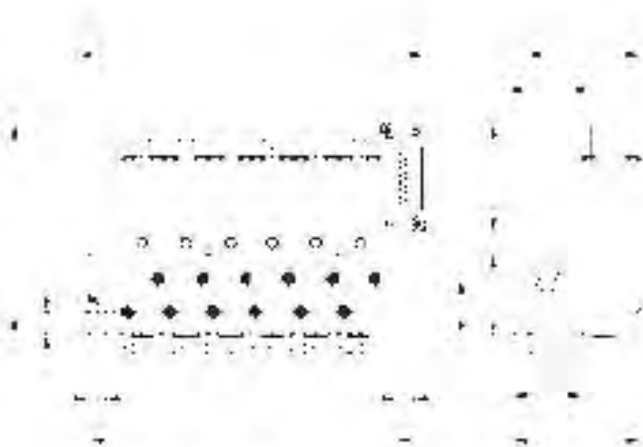


T\_223\_\_703  
equipped with valves type 703 T

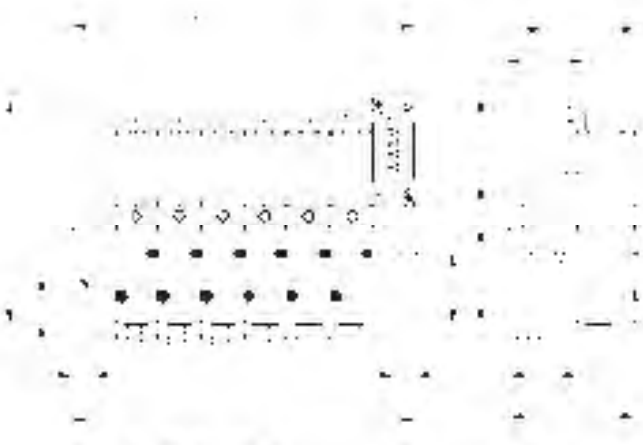
The following valves can be used on that type of valve terminal:

Type	Function	Page	Comment
MK 310 703 T	n.c.	2.5.1.2.6	both types can be mixed on the plate
MOK 310 703 T	n.o.	2.5.1.2.6	both types can be mixed on the plate

For additional order information please refer to page 2.7.1.



**T\_163\_\_344**  
equipped with valves type 304 T



**T\_163\_\_464**  
equipped with valves type 404 T



Valve terminal with 3-way valves, all ports are in the plate.

Type 344 orifice size 3 mm, port 2 is equipped with push-in fitting for 4 mm tube.

Type 464 orifice size 4 mm, port 2 is equipped with push-in fitting for 6 mm tube.

The terminal is available from 2 to 14 stations (4 to 12 preferred stock item). Every station is equipped with a varistor and a red LED for coils 24 V~ or 24 V-.

The pneumatic manifolds are displayed and described on page 2.6.1.3, type RD 3\_\_344 / RD 3\_\_464.

Valves for terminal use offer a solenoid turned by 180° and no 3rd pin (ground). For ordering please add a T to the regular type-number (e.g. MD 310 304 T 24DC or MD 310 304 T 24AC).

Blanking plates are also available type BP 3 344 T or type BP 3 464 T.

The following valves can be used on  
T\_163\_\_344 n.c. and n.o. can be mixed.

Type	Function	Page
MD 310 304 T	n.c.	2.5.1.2.5
MOD 310 304 T	n.o.	2.5.1.2.5

The following valves can be used on  
T\_163\_\_464 n.c. and n.o. can be mixed.

Type	Function	Page
MD 310 404 T	n.c.	2.5.1.2.5
MOD 310 404 T	n.o.	2.5.1.2.5

For additional order information please refer to page 2.7.1.

# T\_16 5\_\_303



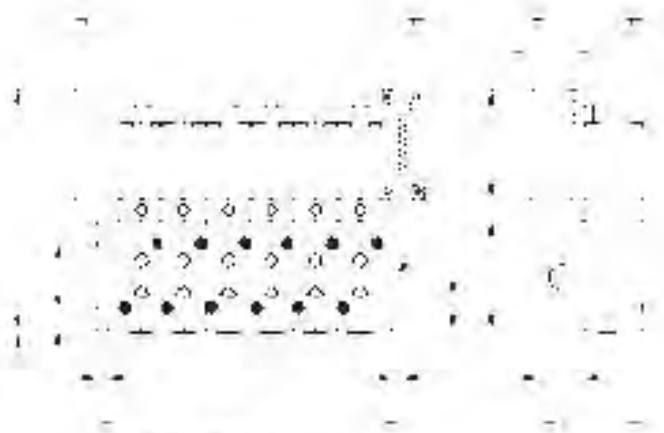
Valve terminal with 5-way valves, orifice size 3 mm, ports 2 and 4 are in the valve. Ports 2 and 4 are either equipped with thread M5 or with push-in fittings for 4 mm tube.

The terminal is available from 2 to 14 stations (4 to 12 preferred stock item). Every station is equipped with a varistor and a red LED for coils 24 V~ or 24 V-.

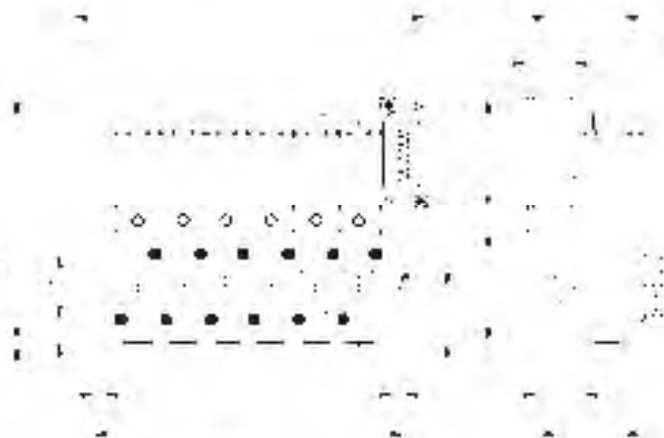
The pneumatic manifold is displayed and described on page 2.6.2.1, type RD 5\_\_303.

Valves for terminal use offer a solenoid turned by 180° and no 3rd pin (ground). For ordering please add a T to the regular type-number (e.g. MD 510 303 T 24DC or MD 510 303 T 24AC). "Double body valves" (5/2-way impulse and 5/3-way-valves) occupy 2 spaces as described on page 2.7.1.

Blanking plates are also available type BP 5 303 T.



T\_16 5\_\_303  
equipped with valves type 303 T

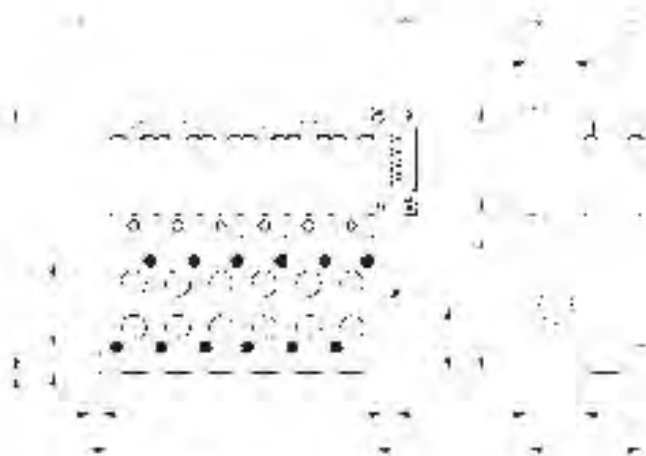


T\_16 5\_\_303  
equipped with valves type 343 T

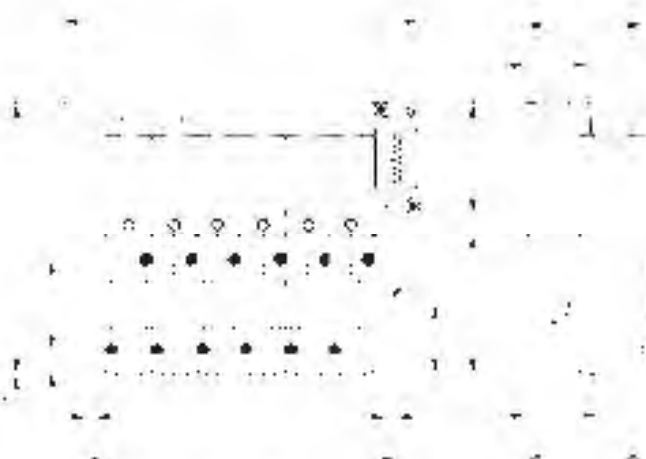
The following valves can be used on that type of valve terminal:

Type	Function	Page	Comment
MD 510 303 T	single sol.	2.5.2.2.1	
MD 510 343 T	single sol.	2.5.2.2.1	
MD 520 303 T	double sol.	2.5.2.2.5	double body
MD 520 343 T	double sol.	2.5.2.2.5	double body
MD 53_303 T	5/3-way	2.5.3.2.1	double body, 3 versions available, refer to description
MD 53_343 T	5/3-way	2.5.3.2.1	double body, 3 versions available, refer to description

For additional order information please refer to page 2.7.1.



T\_16 5\_\_403  
equipped with valves type 403 T



T\_16 5\_\_403  
equipped with valves type 463 T



Valve terminal with 5-way valves, orifice size 4 mm, ports 2 and 4 are in the valve. Ports 2 and 4 are either equipped with thread G 1/8" or with push-in fittings for 6 mm tube.

The terminal is available from 2 to 14 stations (4 to 12 preferred stock item). Every station is equipped with a varistor and a red LED for coils 24 V- or 24 V~.

The pneumatic manifold is displayed and described on page 2.6.2.1, type RD 5\_\_403.

Valves for terminal use offer a solenoid turned by 180° and no 3rd pin (ground). For ordering please add a T to the regular type-number (e.g. MD 510 403 T 24DC or MD 510 403 T 24AC). "Double body valves" (5/2-way impulse and 5/3-way-valves) occupy 2 spaces as described on page 2.7.1.

Blanking plates are also available type BP 5 403 T.

The following valves can be used on that type of valve terminal:

Type	Function	Page	Comment
MD 510 403 T	single sol.	2.5.2.2.1	
MD 510 463 T	single sol.	2.5.2.2.1	
MD 520 403 T	double sol.	2.5.2.2.5	double body
MD 520 463 T	double sol.	2.5.2.2.5	double body
MD 53_403 T	5/3-way	2.5.3.2.1	double body, 3 versions available, refer to description
MD 53_463 T	5/3-way	2.5.3.2.1	double body, 3 versions available, refer to description

For additional order information please refer to page 2.7.1.

# T\_22 5\_\_ 503/T\_22 5\_\_ 703



Valve terminal with 5-way valves, ports 2 and 4 are in the valve.

Type 503 orifice size 5 mm, G 1/8"

Type 703 orifice size 7 mm, G 1/4"

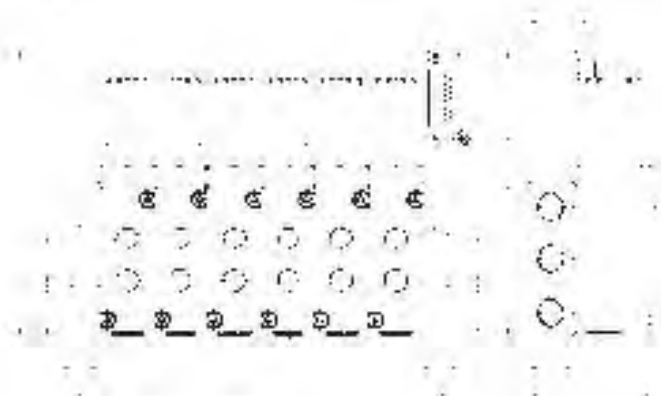
The terminal is available with 2, 3, 4, 5, 6, 8, 10, 12 positions, others on request. Every station is equipped with a varistor and a red LED for coils 24 V- or 24V~.

The pneumatic manifolds are displayed and described on page 2.6.2.2 type R 5\_\_ 503, on page 2.6.2.3 type R 5\_\_ 703.

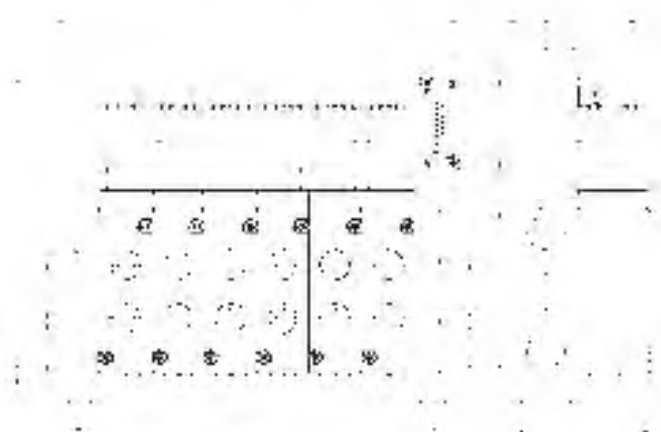
Valves for terminal use offer a 1.8 Watt / 3 VA solenoid, turned by 180° and no 3rd pin (ground).  
Order-number valves:

MK 5\_\_ 03 T 24DC or MK 5\_\_ 03 T 24AC.

Blanking plates are also available type BP 5 503 T or type BP 5 703 T.



**T\_22 5\_\_ 503**  
equipped with valves type 503 T



**T\_22 5\_\_ 703**  
equipped with valves type 703 T

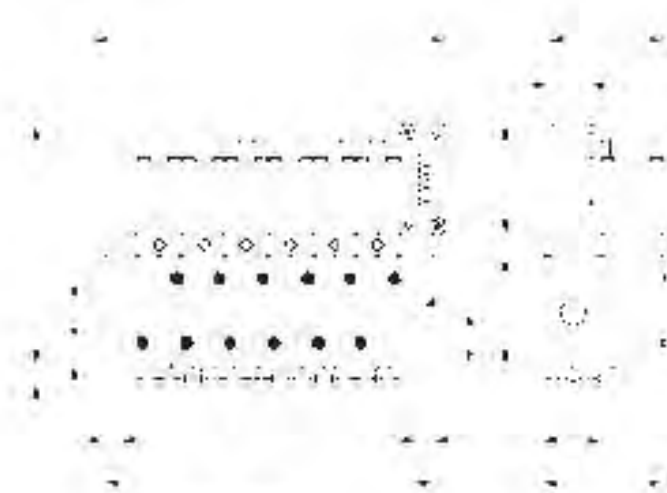
The following valves can be used on T\_22 5\_\_ 503:

Type	Function	Page	Comment
MK 510 503 T	single sol.	2.5.2.2.2	
MK 520 503 T	double sol.	2.5.2.2.6	double body
MK53_ 503 T	5/3-way	2.5.3.2.2	double body, 3 versions available, refer to description

The following valves can be used on T\_22 5\_\_ 703:

Type	Function	Page	Comment
MK 510 703 T	single sol.	2.5.2.2.2	
MK 520 703 T	double sol.	2.5.2.2.6	double body
MK 53_ 703 T	5/3-way	2.5.3.2.2	double body, 3 versions available, refer to description

For additional order information please refer to page 2.7.1.



T\_16 5\_\_344  
equipped with valves type 304 T



Valve terminal with 5-way valves, orifice size 3 mm, all the ports are in the plate. Ports 2 and 4 are equipped with push-in fittings for 4 mm tube.

The terminal is available from 2 to 14 stations (4 to 12 preferred stock item). Every station is equipped with a varistor and a red LED for coils 24 V- or 24 V-.

The pneumatic manifold is displayed and described on page 2.6.2.6, type RD 5\_\_344.

Valves for terminal use offer a solenoid turned by 180° and no 3rd pin (ground). For ordering please add a T to the regular type-number (e.g. MD 510 304 T 24DC or MD 510 304 T 24AC). "Double body valves" (5/2-way impulse and 5/3-way-valves) occupy 2 spaces as described on page 2.7.1.

Blanking plates are also available type BP 5 344 T.

The following valves can be used on that type of valve terminal:

Type	Function	Page	Comment
MD 510 304 T	single sol.	2.5.2.2.3	
MD 520 304 T	double sol.	2.5.2.2.7	double body
MD 53_ 304 T	5/3-way	2.5.3.2.3	double body, 3 versions available, refer to description

For additional order information please refer to page 2.7.1.

# T\_16 5\_\_464



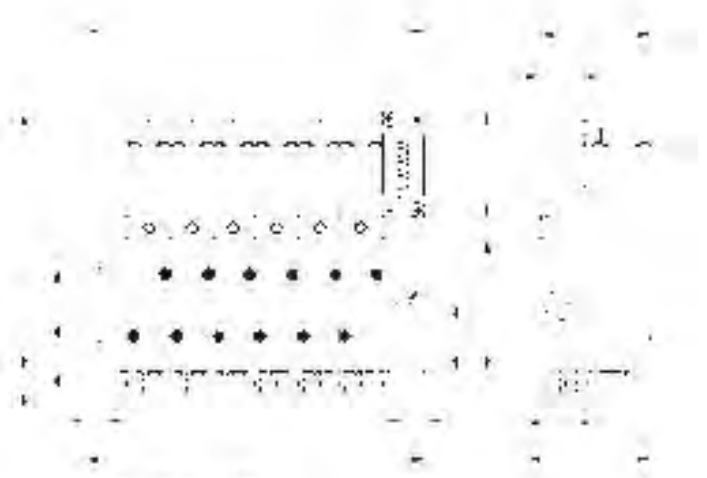
Valve terminal with 5-way valves, orifice size 4 mm, all the ports are in the plate. Ports 2 and 4 are equipped with push-in fittings for 6 mm tube.

The terminal is available from 2 to 14 stations (4 to 12 preferred stock item). Every station is equipped with a varistor and a red LED for coils 24 V~ or 24 V-.

The pneumatic manifold is displayed and described on page 2.6.2.6, type RD 5\_\_464.

Valves for terminal use offer a solenoid turned by 180° and no 3rd pin (ground). For ordering please add a T to the regular type-number (e.g. MD 510 404 T 24DC or MD 510 404 T 24AC). "Double body valves" (5/2-way impulse and 5/3-way-valves) occupy 2 spaces as described on page 2.7.1.

Blanking plates are also available type BP 5 464 T.

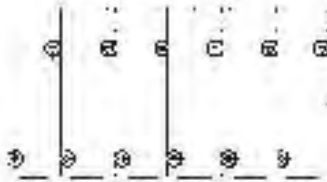


T\_16 5\_\_464  
equipped with valves type 404 T

The following valves can be used on that type of valve terminal:

Type	Function	Page	Comment
MD 510 404 T	single sol.	2.5.2.2.3	
MD 520 404 T	double sol.	2.5.2.2.7	double body
MD 53_404 T	5/3-way	2.5.3.2.3	double body, 3 versions available, refer to description

For additional order information please refer to page 2.7.1.



T\_22 5\_ \_ 504  
equipped with valves type 504 T



Valve terminal with 5-way valves, orifice 5 mm, all the ports are in the plate. Port 2 and 4: G 1/8".

The terminal is available with 2, 3, 4, 5, 6, 8, 10, 12 positions, others on request. Every station is equipped with a varistor and a red LED for coils 24 V- or 24 V-.

The pneumatic manifolds are displayed and described on page 2.6.2.7, type R 5\_ \_ 504.

Valves for terminal use offer a 1.8Watt / 3 VA solenoid, turned by 180° and no 3rd pin (ground).

Order-number valves:

MK 5\_ \_ 504 T 24DC or MK 5\_ \_ 504 T 24AC.

Blanking plates are also available type BP 5 504 T.

The following valves can be used on that type of valve terminal:

Type	Function	Page	Comment
MK 510 504 T	single sol.	2.5.2.2.4	
MK 520 504 T	double sol.	2.5.2.2.8	double body
MK 53_ 504 T	5/3-way	2.5.3.2.4	double body, 3 versions available, refer to description

For additional order information please refer to page 2.7.1.



# T\_22 5\_\_704/T\_22 5\_\_784



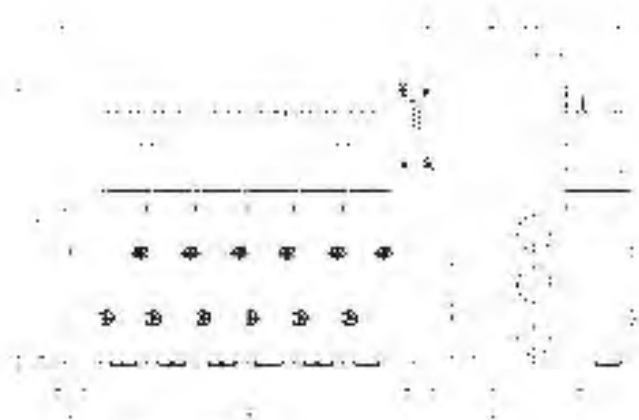
Valve terminal with 5-way valves, orifice 7 mm, all the ports are in the plate. Port 2 and 4 either G 1/4" (terminal 704) or push-in fittings for 8 mm tube (terminal 784).

The terminal is available with 2, 3, 4, 5, 6, 8, 10, 12 positions, others on request. Every station is equipped with a varistor and a red LED for coils 24 V- or 24 V~.

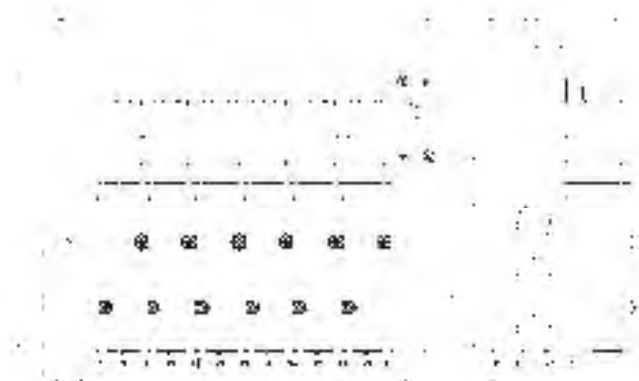
The pneumatic manifolds are displayed and described on page 2.6.2.7, type R 5\_\_704 / 784.

Valves for terminal use offer a 1.8 Watt / 3 VA solenoid, turned by 180° and no 3rd pin (ground).  
Order-number valves:  
MK 5\_\_704 T 24DC or MK 5\_\_704 T 24AC.

Blanking plates are also available type BP 5 704 T.



**T\_22 5\_\_704**  
equipped with valves type 704 T

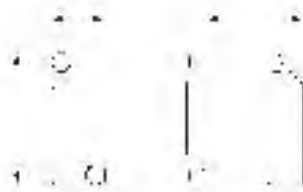


**T\_22 5\_\_784**  
equipped with valves type 704 T

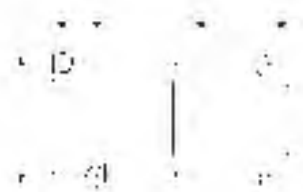
The following valves can be used on that type of valve terminal:

Type	Function	Page	Comment
MK 510 704 T	single sol.	2.5.2.2.4	
MK 520 704 T	double sol.	2.5.2.2.8	double body
MK 53_704 T	5/3-way	2.5.3.2.4	double body, 3 versions available, refer to description

For additional order information please refer to page 2.7.1.



ST40 W \_\_



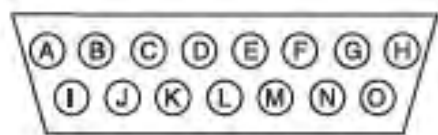
ST40 G \_\_



Connector and cables for Hafner valve-terminals. O-ring seal assures best protection against water and humidity. Standard cable length is 3 m, others are available on request.

2 screws are included.

Relationship of valve-position, cable-colour and PINS in the connector

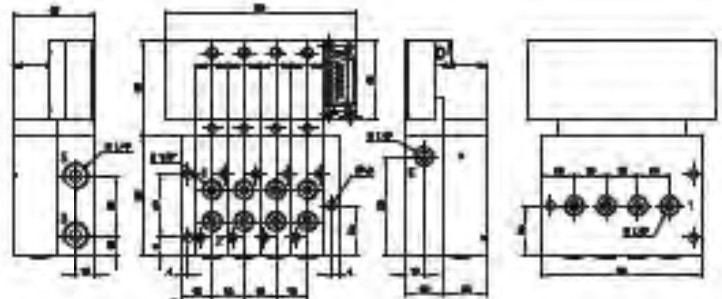
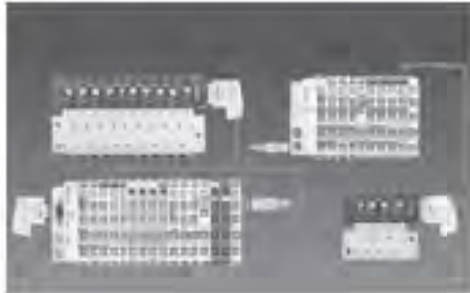


**Please be aware: Always count position of solenoid from the connector!**

Position of solenoid	Colour of cable	PIN
1	brown	K
2	green	M
3	yellow	C
4	grey	F
5	pink	J
6	blue	N
7	red	B
8	black	G
9	violet	I
10	grey-pink	O
11	blue-red	A
12	white-green	H
13	brown-green	D
14	white-yellow	E
common - or +	white	L

Type	Exit of cable	Number of laces
ST40 W6	at the side	7, 6 positions and common Plus or Minus
ST40 W14	at the side	15, 14 positions and common Plus or Minus
ST40 G06	at the back	7, 6 positions and common Plus or Minus
ST40 G14	at the back	15, 14 positions and common Plus or Minus

Hafner together with partners is currently working on an innovative system to further integrate electronic intelligence into the valve-terminal range. More information to come!



## TR 16 - E

This special terminal offers external pilot feed, therefore there is an additional port 14 in the plate. Valves are equipped with mechanic spring return. In addition this special plate offers individual ports 1 for every valve, thus the operating pressure of any valve can be different.



## TD 16

In case customers have the demand for only double solenoid or 5/3-way-valves on the terminal two electrical components can be assembled on either side. Therefore up to 14 valves can be put onto the terminal. Solution is only possible when port 2 and 4 is in the valve.



# 2.8

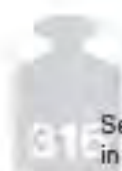
## Namur Valves

*Namur 1/4" also called "Namur 1"  
in accordance to VDI/VDE 3845.  
Namur 1/2" also called "Namur 2".*

Selected models are available for  
explosion hazardous environment.  
They are ATEX-Ex certified.  
For detailed information refer to  
chapter 2.12.

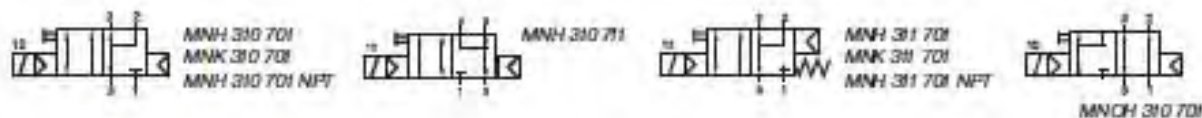


Selected models are available for low  
temperature application.  
Temperature-range: - 50° C to + 50° C.  
For detailed information refer to chapter 2.9.



Selected models are available  
in stainless steel.  
For detailed information refer to  
chapter 2.10.

# MNH 310 701/MNH 310 711/MNH 311 701 MNOH 310 701/MNK 310 701/MNK 311 701



3/2-way solenoid valve, actuated by permanent signal. Interface according to 1/4" Namur standard, with exhaust air recirculation ("purge").

Type MNH 31\_7\_1 normally closed  
Type MNOH 31\_701 normally open  
Type MNK 31\_701 n.c. low power

MNH 310 701, MNH 310 711, MNOH 310 701 and MNK 310 701 with pneumatic spring return, MNH 311 701 and MNK 311 701 with combined spring assuring a fail-safe function.

**MNH** generally with manual override to turn with actuators 230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-, 24V-, 12V-.  
Delivery includes 1 pin, 2 screws, 2 O-rings and 1 connector.

**MNK** with manual override to push with actuators 230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-, 12V-, 6V-

Delivery includes 1 pin, 2 screws and 2 O-rings.

*Selected products displayed on this page are also available NPT threaded.*

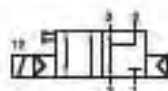
MNH 310 701/MNH 311 701/MNOH 310 701  
MNH 310 701 NPT/MNH 311 701 NPT

MNH 310 711 ports 1 and 3 are swapped!

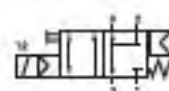
MNK 310 701/MNK 311 701

Type	Function	Port size	Air flow	Operating press.	Power cons.	Weight	
MNH 310 701	n.c.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,26 kg	☉☉☉
MNOH 310 701	n.o.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,26 kg	
MNH 310 711	n.c.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,26 kg	☉☉
MNH 311 701	n.c.	G 1/4"	1250 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,26 kg	☉☉
MNK 310 701	n.c.	G 1/4"	1250 l/min	2 - 10 bar	1,8 W = / 3 VA -	0,21 kg	
MNK 311 701	n.c.	G 1/4"	1250 l/min	2,5 - 10 bar	1,8 W = / 3 VA -	0,21 kg	
MNH 310 701 NPT	n.c.	1/4" NPT	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,26 kg	
MNH 311 701 NPT	n.c.	1/4" NPT	1250 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,26 kg	

# MNH 310 101/MNH 311 101 MNH 310 121/MNH 311 121



MNH 310 101  
MNH 310 121  
MNH 310 121 NPT



MNH 311 101  
MNH 311 121  
MNH 311 121 NPT



MNH 310 101/MNH 311 101



MNH 310 121/MNH 311 121  
MNH 310 121 NPT/MNH 311 121 NPT



3/2-way solenoid valve, actuated by permanent signal. Interface according to Namur standard, with exhaust air recirculation ("purge").

Type 101 according to 1/4" Namur standard  
Type 121 according to 1/2" Namur standard

MNH 310 101, MNH 310 121 with pneumatic spring return, MNH 311 101 and MNH 311 121 with combined spring assuring a fail-safe function.

Available with actuators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-

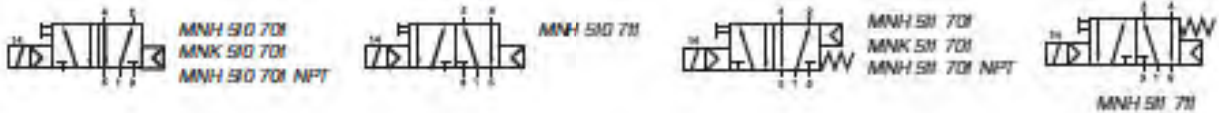
The valves are generally equipped with manual override to turn.

Delivery includes 1 pin, 2 screws, 2 O-rings and 1 connector.

*Selected products displayed on this page are also available NPT threaded.*

Type	Namur	Port size	Air flow	Operating press.	Power cons.	Weight
MNH 310 101	1/4"	G 3/8"	2250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,55 kg
MNH 311 101	1/4"	G 3/8"	2250 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,55 kg
MNH 310 121	1/2"	G 1/2"	3000 l/min	1,0 - 10 bar	3 W = / 5 VA -	0,70 kg 
MNH 311 121	1/2"	G 1/2"	3000 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,70 kg
MNH 310 121 NPT	1/2"	1/2" NPT	3000 l/min	1,0 - 10 bar	3 W = / 5 VA -	0,70 kg
MNH 311 121 NPT	1/2"	1/2" NPT	3000 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,70 kg

# MNH 510 701/MNH 510 711/MNH 511 701 MNH 511 711/MNK 510 701/MNK 511 701



5/2-way solenoid valve, actuated by permanent signal. Interface according to 1/4" Namur standard.

MNH 510 701, MNH 510 711 and MNK 510 701 with pneumatic spring return, MNH 511 701, MNH 511 711 and MNK 511 701 with combined spring.

MNH generally with manual override to turn with actuators 230V/50Hz, 110V/50Hz, 24V/50Hz, 48V~, 24V~, 12V~.

Delivery includes 1 pin, 2 screws, 2 O-rings and 1 connector.

MNK with manual override to push with actuators 230V/50Hz, 110V/50Hz, 24V/50Hz, 24V~, 12V~, 6V~.

Delivery includes 1 pin, 2 screws and 2 O-rings.

Selected products displayed on this page are also available NPT threaded.

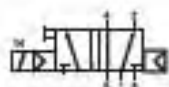
MNH 510 701/MNH 511 701  
MNH 510 701 NPT/MNH 511 701 NPT

MNH 510 711/MNH 511 711  
ports 2,4,3,5 are swapped!

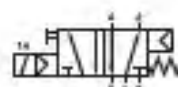
MNK 510 701/MNK 511 701

Type	Port size	Air flow	Operating press.	Power consumption	Weight	
MNH 510 701	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,26 kg	☉☼☽
MNH 510 711	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,26 kg	☉☼
MNH 511 701	G 1/4"	1250 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,26 kg	☼☽
MNH 511 711	G 1/4"	1250 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,26 kg	☼
MNK 510 701	G 1/4"	1250 l/min	2 - 10 bar	1,8 W = / 3 VA -	0,21 kg	
MNK 511 701	G 1/4"	1250 l/min	2,5 - 10 bar	1,8 W = / 3 VA -	0,21 kg	
MNH 510 701 NPT	1/4" NPT	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,26 kg	
MNH 511 701 NPT	1/4" NPT	1250 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,26 kg	

# MNH 510 101/MNH 511 101 MNH 510 121/MNH 511 121



MNH 510 101  
MNH 510 121  
MNH 510 121 NPT



MNH 511 101  
MNH 511 121  
MNH 511 121 NPT

MNH 510 101/MNH 511 101

MNH 510 121/MNH 511 121  
MNH 510 121 NPT/MNH 511 121 NPT



5/2-way solenoid valve, actuated by permanent signal. Interface according to Namur standard.

Type 101 according to 1/4" Namur standard  
Type 121 according to 1/2" Namur standard

MNH 510 101, MNH 510 121 with pneumatic spring return, MNH 511 101 and MNH 511 121 with combined spring.

Available with actuators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-

The valves are generally equipped with manual override to turn.

Delivery includes 1 pin, 2 screws, 2 O-rings and 1 connector.

*Selected products displayed on this page are also available NPT threaded.*

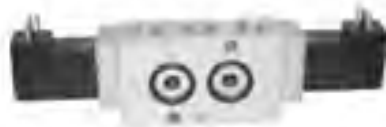
Type	Namur	Port size	Air flow	Operating press.	Power cons.	Weight
MNH 510 101	1/4"	G 3/8"	2250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,55 kg
MNH 511 101	1/4"	G 3/8"	2250 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,55 kg
MNH 510 121	1/2"	G 1/2"	3000 l/min	1,0 - 10 bar	3 W = / 5 VA -	0,70 kg 
MNH 511 121	1/2"	G 1/2"	3000 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,70 kg
MNH 510 121 NPT	1/2"	1/2" NPT	3000 l/min	1,0 - 10 bar	3 W = / 5 VA -	0,70 kg
MNH 511 121 NPT	1/2"	1/2" NPT	3000 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,70 kg



# MNH 520 701/MNH 520 101/MNH 520 121 MNK 520 701



MNH 520 701  
MNH 520 101  
MNH 520 121  
MNK 520 701  
MNH 520 701 NPT  
MNH 520 121 NPT



5/2-way solenoid valve actuated by impulse. Position is kept until next electrical signal even when not attached to electrical source. Interface according to Namur standard.

**MNH** generally with manual override to turn with actuators 230V/50Hz, 110V/50Hz, 24V/50Hz, 48V~, 24V~, 12V~.

Delivery includes 1 pin, 2 screws, 2 O-rings and 1 connector.

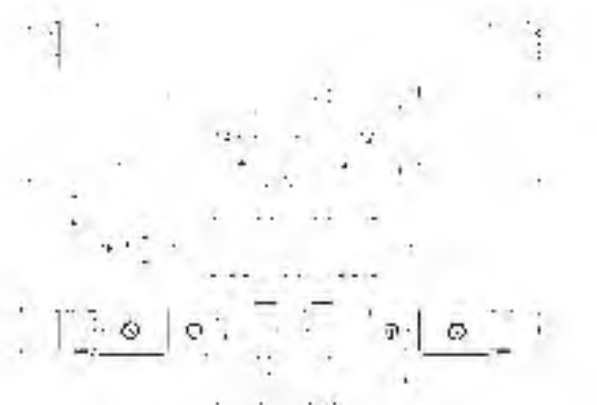
**MNK** with manual override to push with actuators 230V/50Hz, 110V/50Hz, 24V/50Hz, 24V~, 12V~, 6V~.

Delivery includes 1 pin, 2 screws and 2 O-rings.

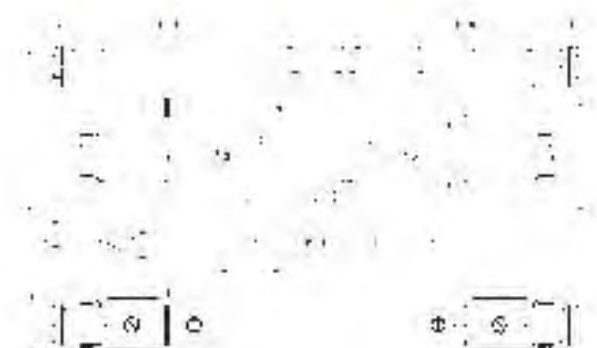
*Selected products displayed on this page are also available NPT threaded.*



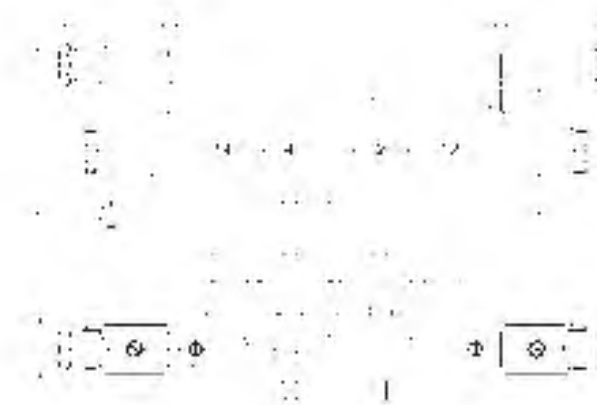
MNK 520 701



MNH 520 701/MNH 520 701 NPT

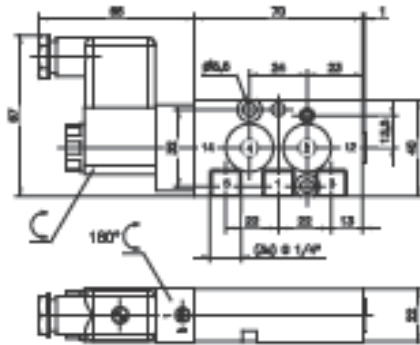
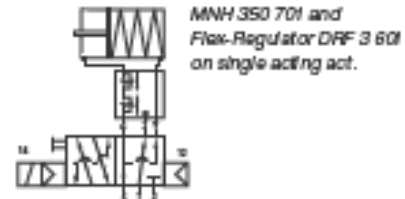
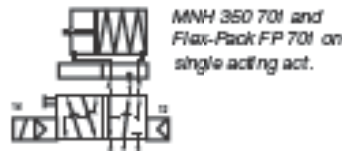


MNH 520 101

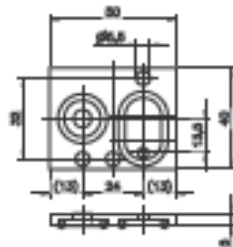


MNH 520 121/MNH 520 121 NPT

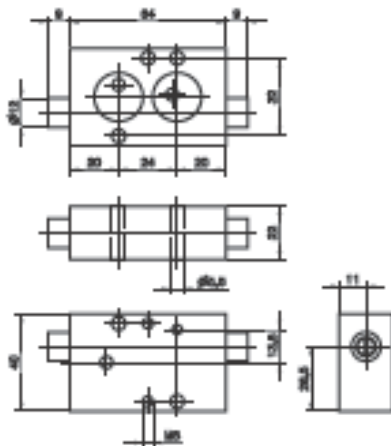
Type	Namur	Port size	Air flow	Operating press.	Power cons.	Weight	
MNH 520 701	1/4"	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,35 kg	☺☼☼
MNH 520 101	1/4"	G 3/8"	2250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,84 kg	
MNH 520 121	1/2"	G 1/2"	3000 l/min	1,0 - 10 bar	3 W = / 5 VA -	0,87 kg	☺
MNK 520 701	1/4"	G 1/4"	1250 l/min	2 - 10 bar	1,8 W = / 3 VA -	0,31 kg	
MNH 520 701 NPT	1/4"	1/4" NPT	1250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,35 kg	
MNH 520 121 NPT	1/2"	1/2" NPT	3000 l/min	1,0 - 10 bar	3 W = / 5 VA -	0,87 kg	



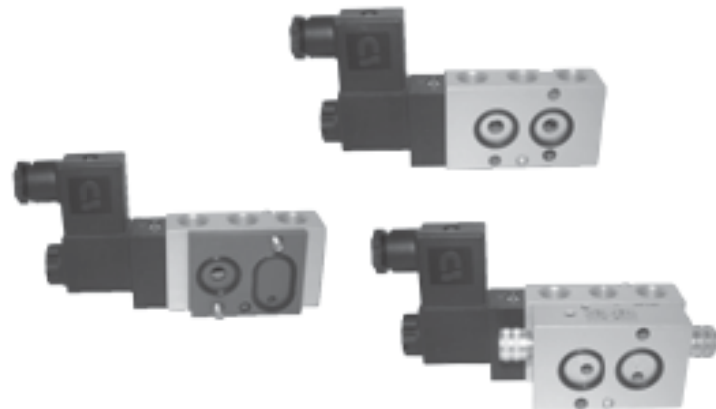
MNH 350 701/MNH 351 701



FP 701 K/FP 701 A



DRF 3 601



5/2-way solenoid valve, actuated by permanent signal. Interface according to 1/4" Namur standard. Adding the „Flex-Pack“, converts the valve into a 3/2-way-Namurvalve with exhaust-air recirculation („purge“).

MNH 350 701 with pneumatic spring return, MNH 351 701 with combined spring.


Valves are available with solenoid operators: 230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-, 24V-, 12V-





Valves are generally equipped with manual override.

Delivery of valve includes 1 pin, 2 screws, 2 O-rings and 1 connector.

Instead of the Flex-Pack the „Flex-regulator“ Type DRF 601 converts the function of the valve and offers the possibility to control opening- and closing-speed of a spring-return actuator independently.

Delivery of FP 701 and DRF 3 601 includes longer screws, seals as well as a plug to close port 3 of the valve.

Type	Material	Orifice 4	Orifice 2-3	Weight
FP 701 K	PA	7 mm	4 mm	0,012 kg
FP 701 A	alu	7 mm	4 mm	0,016 kg
DRF 3 601	alu + brass	0,5 - 6 mm	4 mm	0,18 kg 

Type	Port size	Air flow	Operating press.	Power Consumption	Weight
MNH 350 701	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA - 	0,24 kg 
MNH 351 701	G 1/4"	1250 l/min	2,5 - 10 bar	3 W = / 5 VA - 	0,24 kg 

# MNH 531 701/MNH 532 701/MNH 531 101 MNH 531 121/MNK 531 701



MNH 531 701  
MNH 531 101  
MNH 531 121  
MNK 531 701  
MNH 531 701 NPT  
MNH 531 121 NPT



MNH 532 701



5/3-way solenoid valve with spring return to middle position. Interface according to Namur standard.

- Type 531 centre closed
- Type 532 centre exhausted
- Other versions on request.

MNH generally with manual override to turn with actuators 230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-, 24V-, 12V-.

Delivery includes 1 pin, 2 screws, 2 O-rings and 1 connector.

MNK with manual override to push with actuators 230V/50Hz, 110V/50Hz, 24V/50Hz, 24V-, 12V-, 6V-.

Delivery includes 1 pin, 2 screws and 2 O-rings.

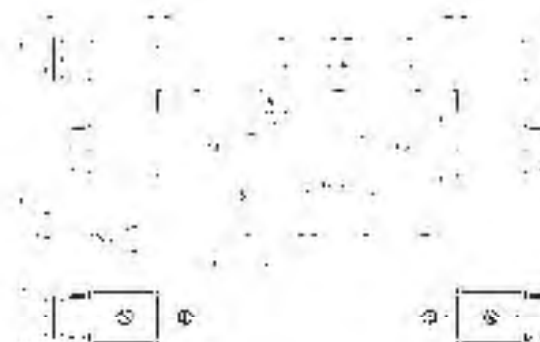
Selected products displayed on this page are also available NPT threaded.



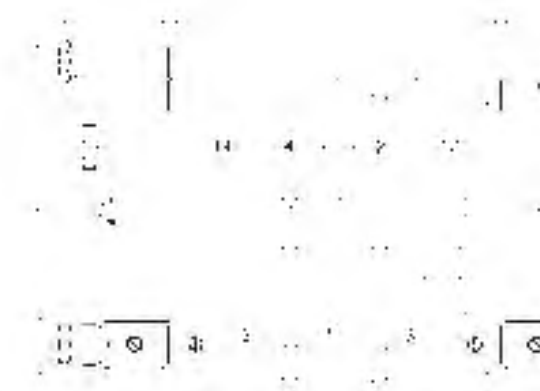
MNK 531 701



MNH 531 701/MNH 532 701/MNH 531 701 NPT

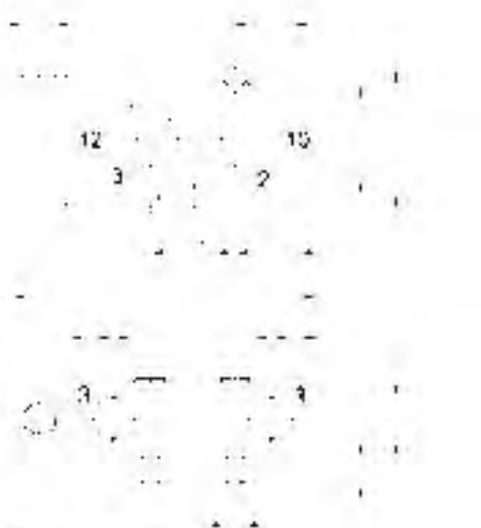
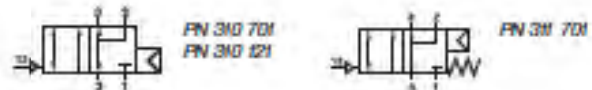


MNH 531 101



MNH 531 121/MNH 531 121 NPT

Type	Namur	Port size	Air flow	Operating press.	Power cons.	Weight
MNH 53_701	1/4"	G 1/4"	1250 l/min	3 - 10 bar	3W = / 5 VA -	0.36 kg
MNH 531 101	1/4"	G 3/8"	2250 l/min	1.5 - 10 bar	3W = / 5 VA -	0.84 kg
MNH 531 121	1/2"	G 1/2"	3000 l/min	1.0 - 10 bar	3W = / 5 VA -	0.87 kg
MNK 531 701	1/4"	G 1/4"	1250 l/min	3 - 10 bar	1.8W = / 3 VA -	0.32 kg
MNH 531 701 NPT	1/4"	1/4" NPT	1250 l/min	3 - 10 bar	3W = / 5 VA -	0.36 kg
MNH 531 121 NPT	1/2"	1/2" NPT	3000 l/min	1.0 - 10 bar	3W = / 5 VA -	0.87 kg



PN 310 701/PN 311 701



PN 310 121



Pneumatically actuated 3/2-way spool valve. Interface according to Namur standard with exhaust recirculation („purge“).

PN 310 701 and PN 310 121 with pneumatic spring. For valves with pure pneumatic spring operating and actuation pressure should be at the same level. PN 311 701 with combined mechanical and pneumatic spring return.

Port sizes type 701: 1 and 3: G 1/4"  
12: G 1/8"

Port sizes type 121: 1 and 3: G 1/2"  
12: G 1/8"

Delivery includes 1 pin, 2 screws and 2 O-rings.

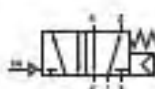
*NPT threaded valves are available on request.*

Type	Namur	Port size	Air flow	Operating press.	Actuation press.	Weight
PN 310 701	1/4"	G 1/4" - G 1/8"	1250 l/min	2 - 10 bar	the same	0,20 kg
PN 311 701	1/4"	G 1/4" - G 1/8"	1250 l/min	3 - 10 bar	3 - 10 bar	0,20 kg
PN 310 121	1/2"	G 1/2" - G 1/8"	3000 l/min	1 - 10 bar	the same	0,62 kg

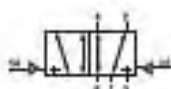
# PN 510 701/PN 511 701/PN 510 121 PN 520 701/PN 520 121



PN 510 701  
PN 510 121



PN 511 701



PN 520 701  
PN 520 121



Pneumatically actuated 5/2-way spool valve. Interface according to Namur standard.

PN 510 701 and PN 510 121 with pneumatic spring. For valves with pure pneumatic spring operating and actuation pressure should be at the same level. PN 511 701 with combined mechanical and pneumatic spring return.

Port sizes type 701: 1, 3 and 5: G 1/4"  
12 and 14: G 1/8"

Port sizes type 121: 1, 3 and 5: G 1/2"  
12 and 14: G 1/8"

Delivery includes 1 pin, 2 screws and 2 O-rings.

*NPT threaded valves are available on request.*



PN 520 121



PN 510 701/PN 511 701

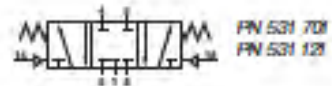


PN 510 121

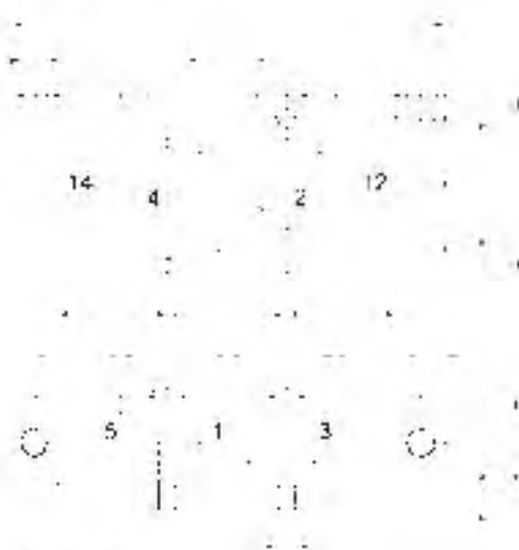


PN 520 701

Type	Namur	Port size	Air flow	Operating press.	Actuating press.	Weight
PN 510 701	1/4"	G 1/4" - G 1/8"	1250 l/min	1 - 10 bar	the same	0,19 kg
PN 511 701	1/4"	G 1/4" - G 1/8"	1250 l/min	3 - 10 bar	3 - 10 bar	0,19 kg
PN 510 121	1/2"	G 1/2" - G 1/8"	3000 l/min	1 - 10 bar	the same	0,60 kg
PN 520 701	1/4"	G 1/4" - G 1/8"	1250 l/min	1 - 10 bar	2,5 - 10 bar	0,22 kg
PN 520 121	1/2"	G 1/2" - G 1/8"	3000 l/min	1 - 10 bar	2,5 - 10 bar	0,67 kg



PN 531 701



PN 531 121



Pneumatically actuated 5/3-way spool valve with spring return to middle position, centre closed. Interface according to Namur standard.



Port sizes type 701: 1, 3 and 5: G 1/4"  
12 and 14: G 1/8"

Port sizes type 121: 1, 3 and 5: G 1/2"  
12 and 14: G 1/8"

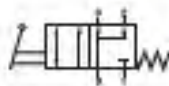
Other 5/3-way versions (centre exhausted or pressurised) are available on request.

Delivery includes 1 pin, 2 screws and 2 O-rings.

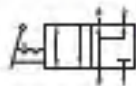
*NPT threaded valves are available on request.*

Type	Namur	Port size	Air flow	Operating press.	Actuation press.	Weight
PN 531 701	1/4"	G 1/4" - G 1/8"	1250 l/min	1 - 10 bar	3 - 10 bar	0,22 kg 
PN 531 121	1/2"	G 1/2" - G 1/8"	3000 l/min	1 - 10 bar	3 - 10 bar	0,67 kg 

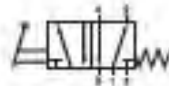
# HVN 311 701/HVRN 320 701 HVN 511 701/HVRN 520 701



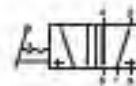
HVN 311 701



HVRN 320 701



HVN 511 701



HVRN 520 701



Lever actuated spool valves with 1/4" Namur interface. 4 versions are offered:

HVN 311 701 3/2-way, normally closed with spring return

HVRN 320 701 3/2-way, normally closed, indexed

HVN 511 701 5/2-way with spring return

HVRN 520 701 5/2-way indexed

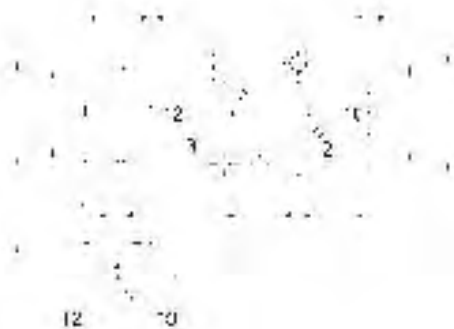
3/2-way valves are normally closed and offer exhaust air recirculation („purge“).

The lever is sealed against the valve by using a metal ball.

Exhaust can be throttled.

Delivery includes 1 pin, 2 screws and 2 O-rings.

*NPT threaded versions and 5/3-way valves are available on request.*

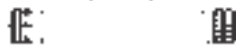
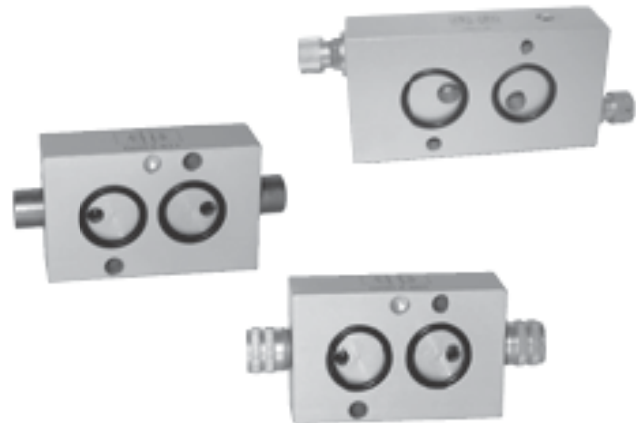


HVN 311 701/HVRN 320 701



HVN 511 701/HVRN 520 701

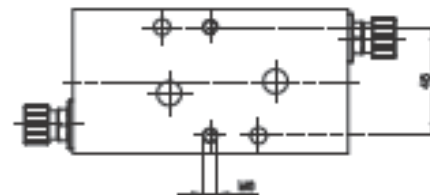
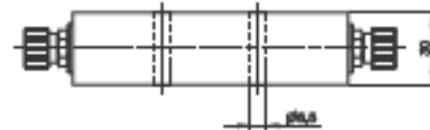
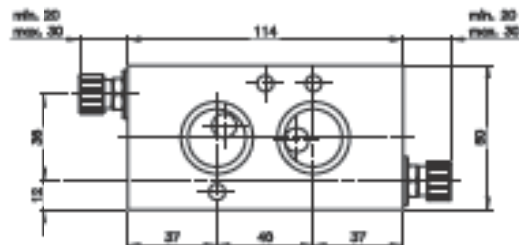
Type	Function	Port size	Air flow	Operating press.	Actuating force	Weight
HVN 311 701	3/2-way spring	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,24 kg
HVRN 320 701	3/2-way Indexed	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,24 kg
HVN 511 701	5/2-way spring	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,24 kg
HVRN 520 701	5/2-way Indexed	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,24 kg



DRN 3 601



DRN 3 611



DRN 3 128

Block form flow regulator as intermediate plate, interface according to Namur standard, for 3/2-way valves with exhaust air recirculation.

To regulate the forward stroke of a single acting pneumatic actuator and to regulate the exhaust air going into the spring return unit. DRN 3 601 and DRN 3 128 to be operated manually, DRN 3 611 with a screw-driver.

Delivery includes 1 pin, 2 screws, 2 O-rings.

Type	Function	Namur	Port size	Max. air flow	Operating pressure	Weight
DRN 3 601	3-way	1/4"	Ø 5 mm	650 l/min	0,5 - 10 bar	0,18 kg
DRN 3 611	3-way	1/4"	Ø 5 mm	650 l/min	0,5 - 10 bar	0,18 kg
DRN 3 128	3-way	1/2"	Ø 8 mm	1.500 l/min	0,5 - 10 bar	0,60 kg





# DRN 5 601/DRN 5 611/DRN 5 501

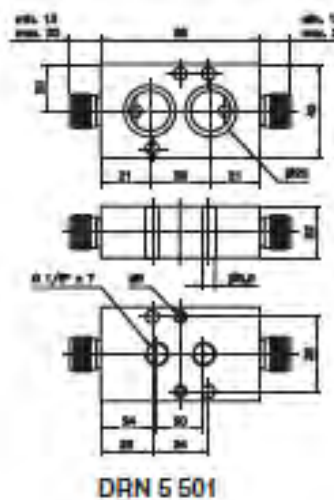


Block form flow regulator as intermediate plate, interface according to 1/4" Namur standard, for 5-way valves only.

To regulate the forward- and backward-stroke of a double acting pneumatic actuator. DRN 5 601 and DRN 5 501 to be operated manually, DRN 5 611 with a screw-driver. DRN 5 501 has 2 ports G 1/8" to be used when non Namurpilot-valve is in use.

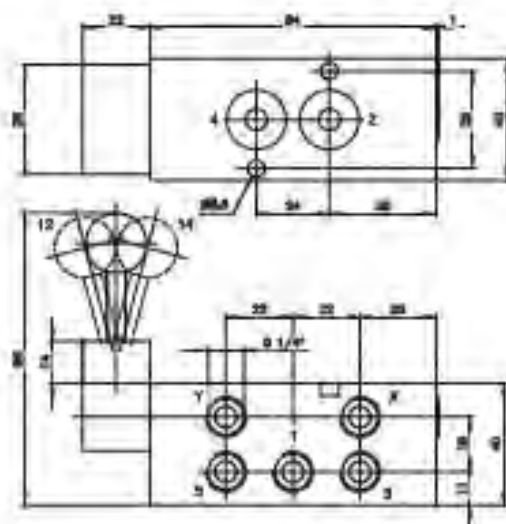
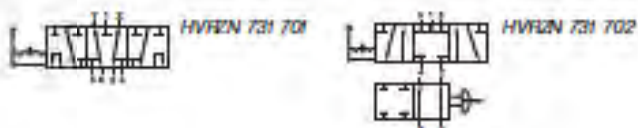
Delivery includes 1 pin, 2 screws, 2 O-rings.

Delivery of DRN 5 501 includes additionally 2 longer screws for usage with Namurpilot-valve.

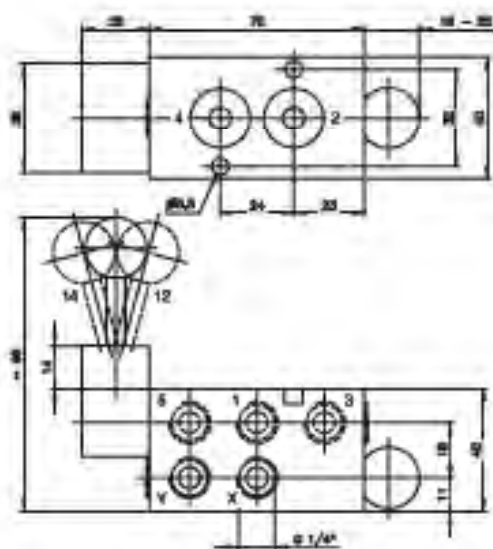


Type	Function	Port size	Max. air flow	Operating pressure	Weight
DRN 5 601	5-way	Ø 5 mm	650 l/min	0,5 - 10 bar	0,18 kg
DRN 5 611	5-way	Ø 5 mm	650 l/min	0,5 - 10 bar	0,18 kg
DRN 5 501	5-way	G 1/8"	650 l/min	0,5 - 10 bar	0,17 kg





HVRZN 731 701



HVRZN 731 702



Lever valve for direct assemblage to an actuator with 1/4" Namur interface.

Valves offer the possibility to override a positioner.

**Version 731 701:**

Normally the lever is in the middle position and the actuator is piloted by the positioner. In this position the valve just feeds the signals from the positioner through to the actuator. In case of electric / electronic problems the actuator can be opened or closed manually.

*Advantages of version 701 :*

*Only one lever to manipulate (no second actuation elements).  
Overrides in manual mode the positioner, manual mode and automatic mode truly independent.*

**Version 731 702:**

If the knob is pushed, air flows from the positioner from Y to 4 and from X to 2. If the knob is pulled valve is in manual mode. The lever valve is to be used as a centre closed 5/3-way valve, actuator can be fully opened, fully closed or put into intermediate position.

*Advantage of version 702:*

*Offers in manual mode a centre closed 5/3-way-valve. Version 701 is in manual mode a 5/2-way-valve.*

**Safety lever:**

In order to avoid unintended manual actuation the lever of both versions has to be pulled thoroughly for being manipulated out of central position.

Type	Function	Port size	Air flow	Operating press.	Actuating force	Weight
HVRZN 731 701	5/2-way Indexed	G 1/4"	1250 l/min	1 - 10 bar	- 25 N	0.53 kg
HVRZN 731 702	5/3-way Indexed	G 1/4"	1250 l/min	1 - 10 bar	- 25 N	0.45 kg

# PN 411 701/P 411 121



The **PN 411 701** is made for direct assemblage to an actuator with 1/4" Namurinterface. It offers a 1/4" Namurinterface towards the pilot-valve (use as sandwich plate) as well as ports G 1/4" for piped application.

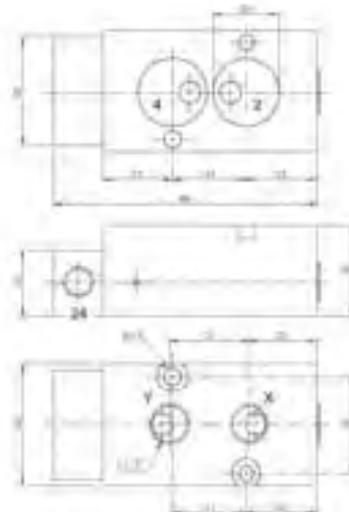
The **P 411 121** is an in-line-version for high-flow-application, ported G1/2".

#### Function:

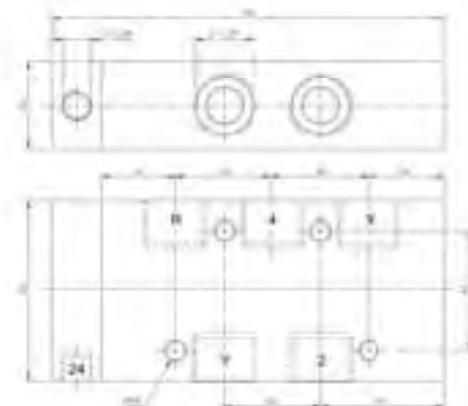
As long as a pneumatic signal is applied, the valve forwards the signals applied to 2 and 4 through to X and Y. When no pneumatic signal is applied the ports 2 and 4 are shortcut.

#### Typical application:

On automated process-valve equipped with a gear-box for manual actuation in case of emergency. When failure occurs, compressed air might get trapped in the actuator. Manual operation might damage the actuator. Valve assures, that the user doesn't have to close the process valve against the force of the air.

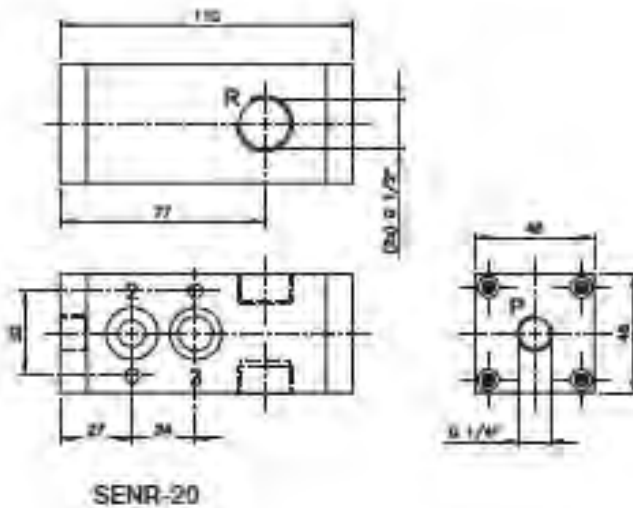
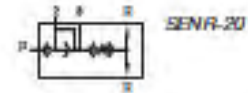


**PN 411 701**



**P 411 121**

Type	Port size	Air flow	Operating press.	Actuating press.	Weight
PN 411 701	G 1/4"	1250 l/min	1,5 - 10 bar	3 - 10 bar	0,20 kg
P 411 121	G 1/2"	3000 l/min	1 - 10 bar	3 - 10 bar	0,63 kg



The valve is designed for fast closing of a spring-return actuator with 1/4" Namur-interface.

Any 3/2-way valve can be used as pilot valve. The interface towards the pilot valve is G 1/4". If requested the plate for the pilot-valve-interface can be exchanged, e.g. by a Namur-interface plate.

The block assures that only processed air that has been used to open the actuator is used in the spring-chamber (non-return-function). Excess air is released very fast by the quick-exhaust valve, exhaust-port G 1/2", orifice 10 mm. The non-return valve makes absolutely sure that no ambient atmosphere can be sucked into the actuator.

Two exhaust-ports R allow that the product can always be assembled so the silencer always faces downwards.

Low-temperature version available on request.

Type	Port size P	Port size R	Air flow P to 2	Air flow exhaust	Pressure-range	Weight
SENR 20	G 1/4"	G 1/2"	1250 l/min	2500 l/min	2 - 10 bar	0,54 kg

# ZVP 701/ZVP 101/ZVP 121/ZVP 121-701



Plates to combine a Namur-valve with a double acting cylinder / the actuation-element of a knife-gate-valve.

ZVP 701 to be assembled onto a cylinder with G 1/4" ports (diameter 32, 40, 50 mm according to ISO 6431/ISO 15552). Designed for an orifice-size 7 mm in combination with e.g. MNH 510 711.

ZVP 101 to be assembled onto a cylinder with G 3/8" ports (diameter 63, 80 mm according to ISO 6431/ISO 15552). Designed for an orifice-size 10 mm in combination with e.g. MNH 510 101.

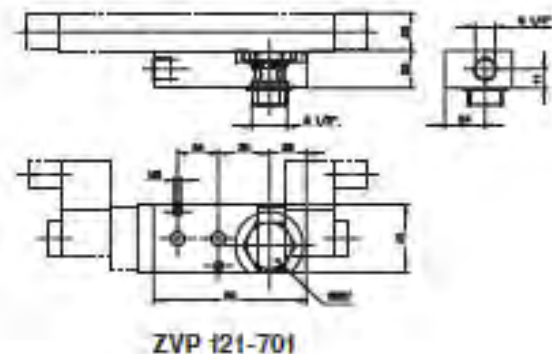
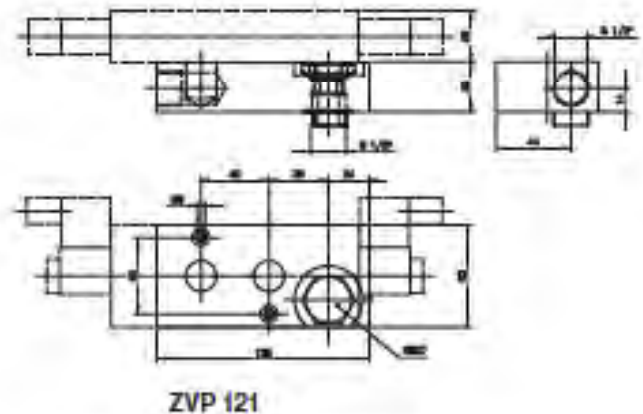
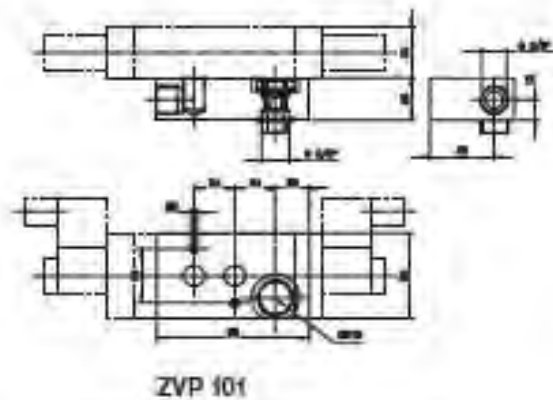
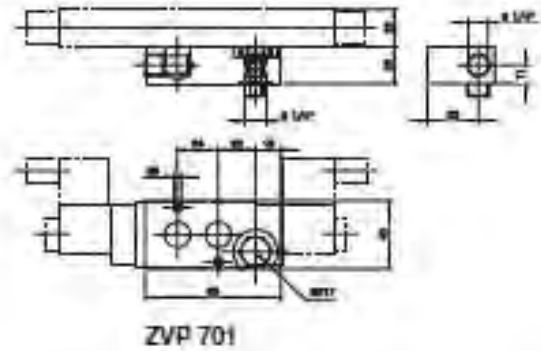
ZVP 121 to be assembled onto a cylinder with G 1/2" ports (diameter 100, 125 mm according to ISO 6431/ISO 15552). Designed for an orifice-size 12 mm in combination with e.g. MNH 510 121.

ZVP 121 - 701 to be assembled onto a cylinder with G 1/2" ports and equipped with a Namur-valve of 1/4" standard.

Plate can be equipped with different kinds of Namur-valves.

Delivery contains the plate and the banjo for one port.

Straight male fittings and rotating elbow fittings to make the other connection can be supplied on request.



Type	Port A	Port B	Namur	Orifice	Weight
ZVP 701	Banjo G 1/4"	G 1/4"	1/4"	7 mm	0,35 kg
ZVP 101	Banjo G 3/8"	G 3/8"	1/4"	10 mm	0,40 kg
ZVP 121	Banjo G 1/2"	G 1/2"	1/2"	12 mm	0,45 kg
ZVP 121-701	Banjo G 1/2"	G 1/4"	1/4"	7 mm	0,35 kg



ZPN 5

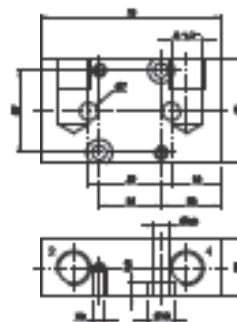
ZPN 6-5

Mounting accessories for Namur products when assembling them to an actuator.

O-ring seals are made from NBR 70° shore, fasteners such as screws and pins are made from stainless steel (A2) only.

**FPNW 22-1/4:**

Plate to convert a 5-way Namur-valve into an inline valve. The Namur ports 2 and 4 are transferred into the plate and offer G 1/4" BSP thread. Mounting plate can be assembled independently and the valve is attached later-on.

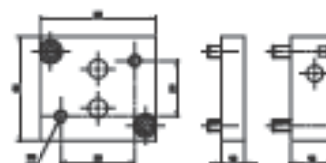


FPNW 22-1/4

ZPN 8

**ZPN 6-10:**

Adapter plate to be assembled onto an actuator with 1/2" interface. A 1/4" Namur-valve can be assembled to the plate. Saves money whenever the actuator does not have to be operated fast.



ZPN 701-90

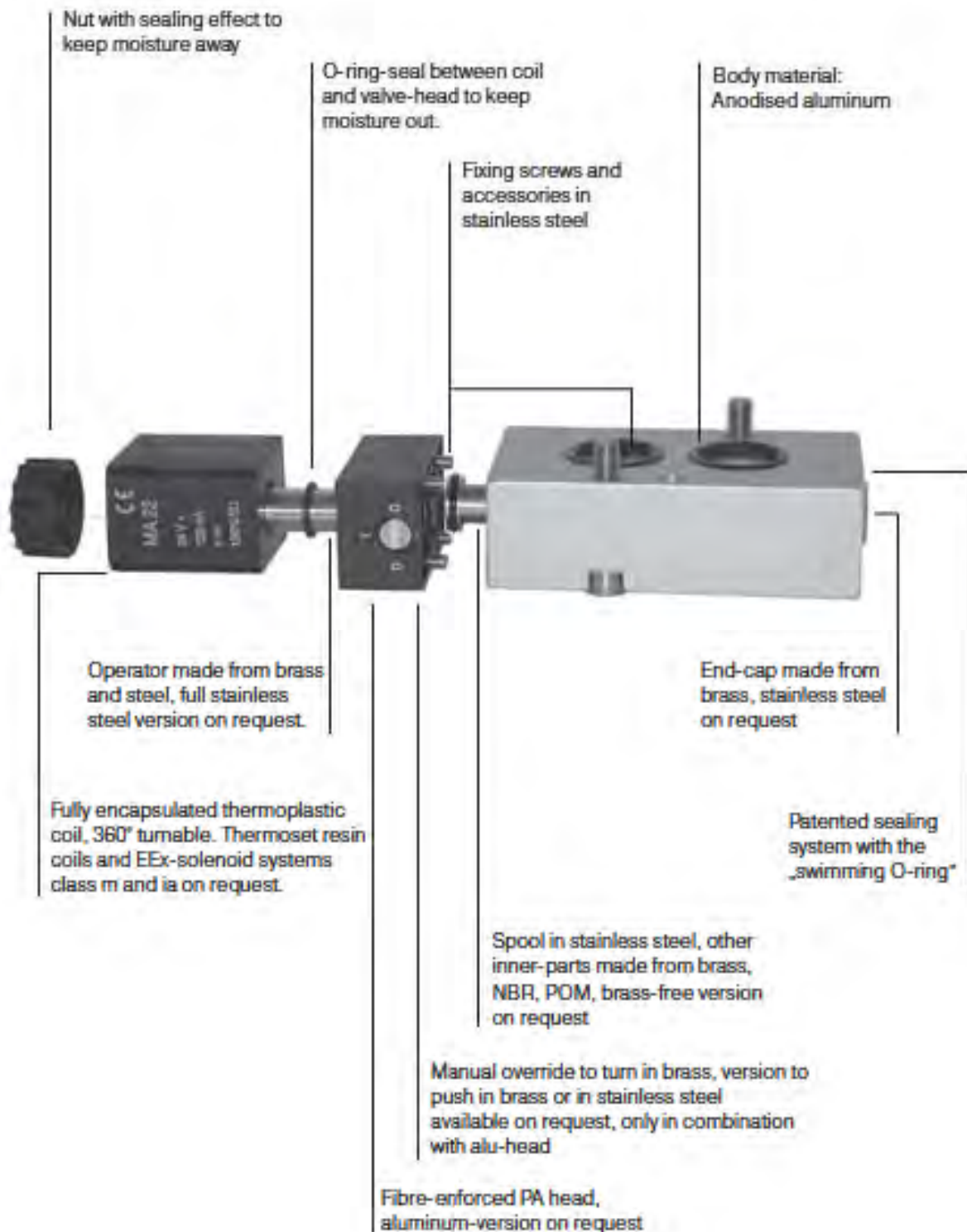
ZPN 6-10

**ZPN 701-90:**

Plate to rotate a Namur-valve on the actuator by 90°. Orifice 7 mm assures full flow!

Type	Use and Content
ZPN 5A	Intermediate plate, made from anodised aluminum 5 mm thick to be used in case a 30 mm wide coil is to be assembled to a 22 mm wide 1/4" Namurvalve
ZPN 5K	Intermediate plate, made from Polyamid 5 mm thick to be used in case a 30 mm wide coil is to be assembled to a 22 mm wide 1/4" Namurvalve
ZPN 8	Intermediate plate, made from anodised aluminum 8 mm thick to be used in case a 36 mm wide coil is to be assembled to a 22 mm wide 1/4" Namurvalve
ZPN 6-5	Intermediate plate, made from anodised aluminum 5 mm thick to be used in case a 36 mm wide coil is to be assembled to a 30 mm wide 1/2" Namurvalve
FPNW 22-1/4	Plate to convert a Namurvalve into an inline valve
ZPN 6-10	Adapter-plate G 1/2" actuator to G 1/4" valve
ZPN 701-90	Plate to turn a Namurvalve by 90° on the actuator

Besides maximum flow of 1.250 NI/min at compact design there are 11 more competitive advantages of the Hafner Namurvalves series 701.





# 2.9

## „Hafner on the Rocks“ Low Temperature Valves

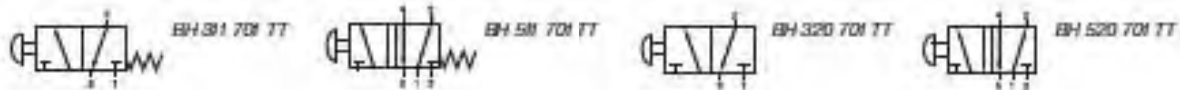
Selected models are available for explosion hazardous environment. They are ATEX-Ex certified. For detailed information refer to chapter 2.12.



Temperature range: - 50° C to + 50° C



# BH 311 701 TT / BH 320 701 TT BH 511 701 TT / BH 520 701 TT



Manually actuated spool valve for low temperature environment - 50° C to + 50° C.

BH 311 701 3/2-way, normally closed, spring return  
 BH 320 701 3/2-way, indexed  
 BH 511 701 5/2-way, spring return  
 BH 520 701 5/2-way, indexed

Due to the specific design of the low temperature seals pressure has to be applied to port 1.  
 For other versions (e.g. normally open) please get in touch with the manufacturer.

**Please notice:**

When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!

Below - 40° C the leakage-rate of the valve can increase to 10 cm<sup>3</sup> /min.

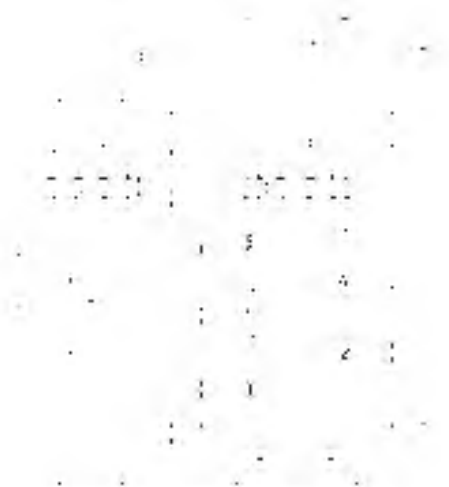
Use unlubricated air only.

Exhaust can be throttled.

Suitable for wall or panel mounting. Nut for panel mounting M22 x 1,5 is included.

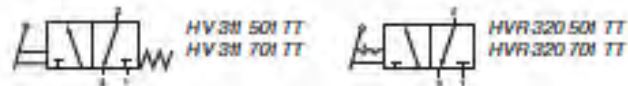


BH 311 701 TT / BH 320 701 TT



BH 511 701 TT / BH 520 701 TT

Type	Function	Port size	Air flow	Operating press.	Actuating force	Weight
BH 311 701 TT	3/2-way spring ret.	G 1/4"	1250 l/min	1 - 10 bar	17 N	0,18 kg
BH 320 701 TT	3/2-way Indexed	G 1/4"	1250 l/min	1 - 10 bar	18 N	0,18 kg
BH 511 701 TT	5/2-way spring ret.	G 1/4"	1250 l/min	1 - 10 bar	17 N	0,18 kg
BH 520 701 TT	5/2-way Indexed	G 1/4"	1250 l/min	1 - 10 bar	18 N	0,18 kg



HV 311 501 TT/HVR 320 501 TT



Lever actuated 3/2-way spool valve for low temperature environment - 50° C to + 50° C.

Type HV 311 normally closed, spring return  
Type HVR 320 indexed

The lever is sealed against the valve by using a metal ball.

Due to the specific design of the low temperature seals pressure has to be applied to port 1.  
For other versions (e.g. normally open) please get in touch with the manufacturer.

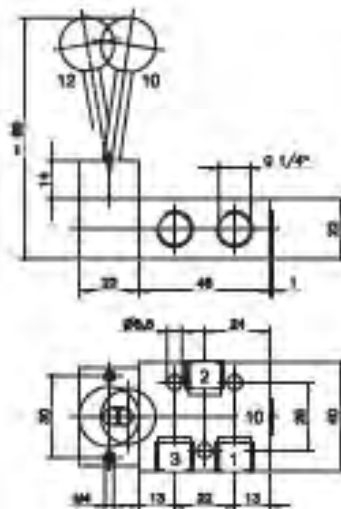
Please notice:

When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!

Below - 40° C the leakage-rate of the valve can increase to 10 cm<sup>3</sup> /min.

Use unlubricated air only.

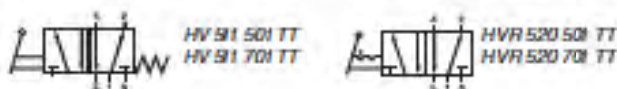
Exhaust can be throttled.



HV 311 701 TT/HVR 320 701 TT

Type	Function	Port size	Air flow	Operating press.	Actuating force	Weight
HV 311 501 TT	3/2-way spring ret.	G 1/8"	650 l/min	1 - 10 bar	20 N	0,19 kg
HV 311 701 TT	3/2-way spring ret.	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,20 kg
HVR 320 501 TT	3/2-way Indexed	G 1/8"	650 l/min	1 - 10 bar	20 N	0,19 kg
HVR 320 701 TT	3/2-way Indexed	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,20 kg

# HV 511 501 TT/HV 511 701 TT HVR 520 501 TT/HVR 520 701 TT



Lever actuated 5/2-way spool valve for low temperature environment - 50° C to + 50° C.

Type HV 511 spring return  
Type HVR 520 indexed

The lever is sealed against the valve by using a metal ball.

Due to the specific design of the low temperature seals pressure has to be applied to port 1. If other function is required please get in touch with the manufacturer.

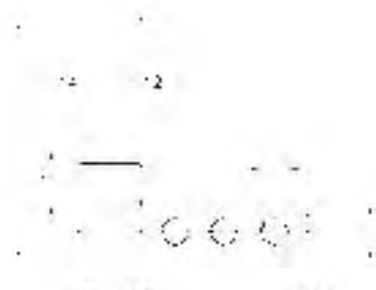
Please notice:

When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!

Below - 40° C the leakage-rate of the valve can increase to 10 cm<sup>3</sup> /min.

Use unlubricated air only.

Exhaust can be throttled.

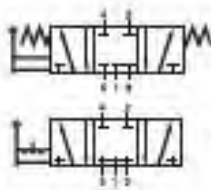


HV 511 501 TT/HVR 520 501 TT

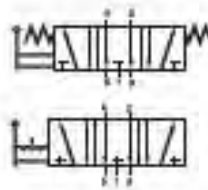


HV 511 701 TT/HVR 520 701 TT

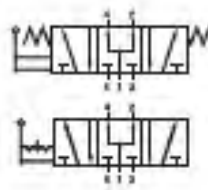
Type	Function	Port size	Air flow	Operating press.	Actuating force	Weight
HV 511 501 TT	5/2-way spring ret.	G 1/8"	650 l/min	1 - 10 bar	20 N	0,22 kg
HV 511 701 TT	5/2-way spring ret.	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,24 kg
HVR 520 501 TT	5/2-way Indexed	G 1/8"	650 l/min	1 - 10 bar	20 N	0,22 kg
HVR 520 701 TT	5/2-way Indexed	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,24 kg



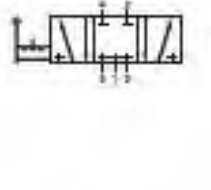
HV 531 501 TT  
HV 531 701 TT



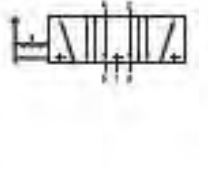
HV 532 501 TT  
HV 532 701 TT



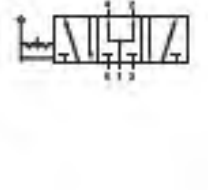
HV 533 501 TT  
HV 533 701 TT



HVR 531 501 TT  
HVR 531 701 TT



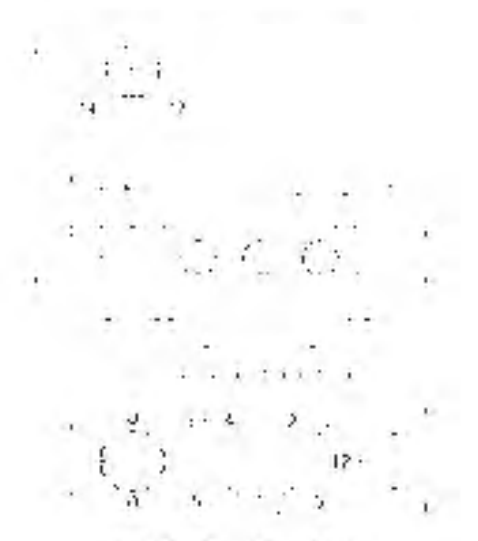
HVR 532 501 TT  
HVR 532 701 TT



HVR 533 501 TT  
HVR 533 701 TT



HV 53\_ 501 TT/HVR 53\_ 501 TT



HV 53\_ 701 TT/HVR 53\_ 701 TT



Lever actuated 5/3-way spool valve for low temperature environment - 50° C to + 50° C.

Type HV            spring return to middle position  
Type HVR        indexed

Type 531        centre closed  
Type 532        centre exhausted  
Type 533        centre pressurized

*When ordering please complete the type number by 1, 2 or 3 according to the type required.*

The lever is sealed against the valve by using a metal ball.

Due to the specific design of the low temperature seals pressure has to be applied to port 1. If other function is required please get in touch with the manufacturer.

Please notice:

When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!

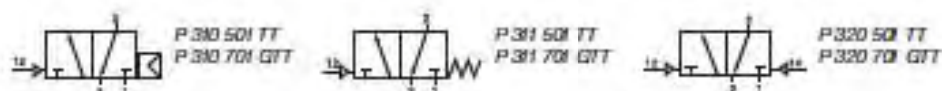
Below - 40° C the leakage-rate of the valve can increase to 10 cm<sup>3</sup>/min.

Use unlubricated air only.

Exhaust can be throttled.

Type	Function	Port size	Air flow	Operating press.	Actuating force	Weight
HV 53_ 501 TT	spring ret.	G 1/8"	650 l/min	1 - 10 bar	20 N	0,22 kg
HV 53_ 701 TT	spring ret.	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,24 kg
HVR 53_ 501 TT	Indexed	G 1/8"	650 l/min	1 - 10 bar	20 N	0,22 kg
HVR 53_ 701 TT	Indexed	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,24 kg

# P 310 501 TT/P 310 701 GTT/P 311 501 TT P 311 701 GTT/P 320 501 TT/P 320 701 GTT



P 310 501 TT/P 311 501 TT

Pneumatically actuated 3/2-way spool valve for low temperature environment - 50° C to + 50° C.

- Type 310 single pilot n.c. air-spring return operating and actuating pressure should be at the same level.
- Type 311 single pilot n.c. mechanical spring return
- Type 320 double pilot

GTT: dual use, valves can be used in-line as well as on manifold plates. Manifolds for valves type 701 G are displayed on page 2.6.1.5.

Due to the specific design of the low temperature seals pressure has to be applied to port 1.  
For other versions (e.g. normally open) please get in touch with the manufacturer.

Please notice:

When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!

Below - 40° C the leakage-rate of the valve can increase to 10 cm<sup>3</sup> /min.

Use unlubricated air only.

Exhaust can be throttled.



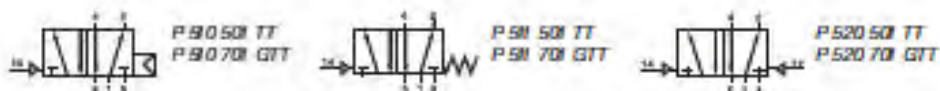
P 310 701 GTT/P 311 701 GTT



P 320 501 TT

P 320 701 GTT

Type	Function	Port size	Air flow	Operating pressure	Actuating pressure	Weight
P 310 501 TT	n.c. air return	G 1/8"	650 l/min	2 - 10 bar	the same	0,13 kg
P 310 701 GTT	n.c. air return	G 1/4"	1250 l/min	2 - 10 bar	the same	0,14 kg
P 311 501 TT	n.c. mech. spring	G 1/8"	650 l/min	2 - 10 bar	3 - 10 bar	0,13 kg
P 311 701 GTT	n.c. mech. spring	G 1/4"	1250 l/min	2 - 10 bar	3 - 10 bar	0,14 kg
P 320 501 TT	double pilot	G 1/8"	650 l/min	2 - 10 bar	2,5 - 10 bar	0,16 kg
P 320 701 GTT	double pilot	G 1/4"	1250 l/min	2 - 10 bar	2,5 - 10 bar	0,17 kg



P 510 501 GTT/P 511 501 GTT

P 510 701 GTT/P 511 701 GTT

P 520 501 GTT

P 520 701 GTT



Pneumatically actuated 5/2-way spool valve for low temperature environment - 50° C to + 50° C.

- Type 510      single pilot air-spring return  
operating and actuating pressure  
should be at the same level.
- Type 511      single pilot mechanical  
spring return
- Type 520      double pilot

GTT: dual use, valves can be used in-line as well as on manifold plates. Manifolds for valves type 501 G are displayed on page 2.6.2.2, manifold for valves type 701 G are displayed on page 2.6.2.3.

Due to the specific design of the low temperature seals pressure has to be applied to port 1. For other versions please get in touch with the manufacturer.

Please notice:  
 When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!  
 Below - 40° C the leakage-rate of the valve can increase to 10 cm<sup>3</sup>/min.  
 Use unlubricated air only.

Exhaust can be throttled.

Type	Function	Port size	Air flow	Operating pressure	Actuating pressure	Weight
P 510 501 GTT	air return	G 1/8"	650 l/min	2 - 10 bar	the same	0,16 kg
P 510 701 GTT	air return	G 1/4"	1250 l/min	2 - 10 bar	the same	0,18 kg
P 511 501 GTT	mech. spring	G 1/8"	650 l/min	2 - 10 bar	3 - 10 bar	0,16 kg
P 511 701 GTT	mech. spring	G 1/4"	1250 l/min	2 - 10 bar	3 - 10 bar	0,18 kg
P 520 501 GTT	double pilot	G 1/8"	650 l/min	2 - 10 bar	2,5 - 10 bar	0,20 kg
P 520 701 GTT	double pilot	G 1/4"	1250 l/min	2 - 10 bar	2,5 - 10 bar	0,22 kg

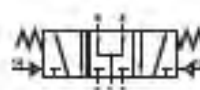
# P 53\_ 501 GTT/P 53\_ 701 GTT



P 531 501 GTT  
P 531 701 GTT  
P 531 121 GTT



P 532 501 GTT  
P 532 701 GTT  
P 532 121 GTT



P 533 501 GTT  
P 533 701 GTT  
P 533 121 GTT



Pneumatically actuated 5/3-way spool valve for low temperature environment - 50° C to + 50° C.

- Type 531      centre closed
- Type 532      centre exhausted
- Type 533      centre pressurized

*When ordering please complete the type number by 1, 2 or 3 according to the type required.*

GTT: dual use, valves can be used in-line as well as on manifold plates. Manifolds for valves type 501 G are displayed on page 2.6.2.2, manifold for valves type 701 G are displayed on page 2.6.2.3.

Due to the specific design of the low temperature seals pressure has to be applied to port 1. For other versions please get in touch with the manufacturer.

Please notice:

When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!

Below - 40° C the leakage-rate of the valve can increase to 10 cm<sup>3</sup> /min.

Use unlubricated air only.

Exhaust can be throttled.

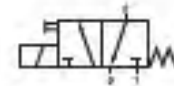


P 53\_ 501 GTT



P 53\_ 701 GTT

Type	Port size	Air flow	Operating pressure	Actuating pressure	Weight
P 53_ 501 GTT	G 1/8"	650 l/min	2 - 10 bar	3- 10 bar	0,20 kg
P 53_ 701 GTT	G 1/4"	1250 l/min	2 - 10 bar	3 - 10 bar	0,22 kg



MH 311 012 TT  
MH 311 015 TT  
MH 311 013 TT  
MH 311 017 TT

MH 311 012 TT

MH 311 015 TT

MH 311 013 TT

MH 311 017 TT



Direct acting 3/2-way solenoid valve equipped with mechanical spring return for low temperature environment - 50° C to + 50° C.

By closing port 3 the valves can be converted into 2/2-way version.

MH 311 013 TT and MH 311 017 TT are designed for piloting angle seat valves or small spring-return actuators.

When assembling this type of valve to a spring-return actuator, please take into consideration that there is no exhaust air recirculation ("purge").

Please notice:

When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!

Use unlubricated air only.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

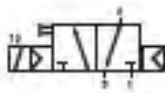
Valves are equipped with manual override to turn.

Connector as shown on the photo is included.

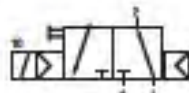
Type	Port size			Air flow	Operating pressure	Power consumption	Weight	
	1	2	3					
MH 311 012 TT	M5	M5	M5	40 l/min	0 - 10 bar	3 W = / 5 VA -	0,12 kg	Ⓔ
MH 311 015 TT	G 1/8"	G 1/8"	M5	50 l/min	0 - 10 bar	3 W = / 5 VA -	0,14 kg	Ⓔ
MH 311 013 TT	G 1/8"	G 1/8" Banjo	M5	50 l/min	0 - 10 bar	3 W = / 5 VA -	0,14 kg	Ⓔ
MH 311 017 TT	G 1/8"	G 1/4" Banjo	M5	50 l/min	0 - 10 bar	3 W = / 5 VA -	0,16 kg	Ⓔ



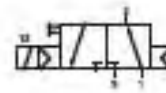
# M(O)H 310 501 TT/M(O)H 310 701 GTT MH 320 501 TT/MH 320 701 GTT



MH 310 501 TT  
MH 310 701 GTT



MOH 310 501 TT  
MOH 310 701 GTT



MH 320 501 TT  
MH 320 701 GTT



MH 310 501 TT/MOH 310 501 TT

3/2-way solenoid valve for low temperature environment - 50° C to + 50° C.

Type MH 310 single solenoid n.c. air-spring return  
Type MOH 310 single solenoid n.o. air-spring return  
Type MH 320 double solenoid

G 1/4"-valves are dual use, they can be used in-line as well as on manifold plates. Manifolds for valves type 701 G are displayed on page 2.6.1.5.

Available with solenoid operators  
230V/50 Hz, 110V/50 Hz, 24V/50 Hz, 48V-,  
24V-, 12V-

Valves are equipped with manual override to turn.

Please notice:  
When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!  
Below - 40° C the leakage-rate of the valve can increase to 10 cm<sup>3</sup> /min.  
Use unlubricated air only.

Valves are also available with external pilot feed.

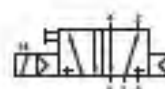
Connectors as shown on the photo are included.

MH 310 701 GTT/MOH 310 701 GTT

MH 320 501 TT

MH 320 701 GTT

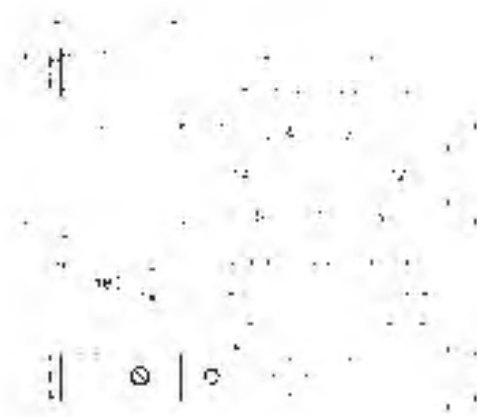
Type	Function	Port size	Air flow	Operating press.	Power cons.	Weight
MH 310 501 TT	n.c.	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,21 kg
MH 310 701 GTT	n.c.	G 1/4"	1450 l/min	2 - 10 bar	3 W = / 5 VA -	0,23 kg
MOH 310 501 TT	n.o.	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,21 kg
MOH 310 701 GTT	n.o.	G 1/4"	1450 l/min	2 - 10 bar	3 W = / 5 VA -	0,23 kg
MH 320 501 TT	double sol.	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,34 kg
MH 320 701 GTT	double sol.	G 1/4"	1450 l/min	2 - 10 bar	3 W = / 5 VA -	0,36 kg



MH 510 501 GTT  
MH 510 701 GTT



MH 510 501 GTT



MH 510 701 GTT



5/2-way single solenoid valve equipped with air spring return for low temperature environment - 50° C to + 50° C.

Valves are dual use, they can be used in-line as well as on manifold plates. Manifolds for valves type 501 G are displayed on page 2.6.2.2, manifold for valves type 701 G are displayed on page 2.6.2.3.

Available with solenoid operators  
230V/50 Hz, 110V/50 Hz, 24V/50 Hz, 48V-,  
24V-, 12V-.

Valves are equipped with manual override to turn.

Please notice:


When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!

Below - 40° C the leakage-rate of the valve can increase to 10 cm<sup>3</sup>/min.

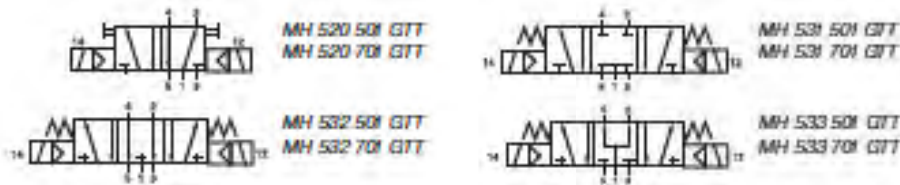
Use unlubricated air only.

Valves are also available with external pilot feed.

Connector as shown on the photo is included.

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 510 501 GTT	G 1/8"	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,25 kg 
MH 510 701 GTT	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,27 kg 

# MH 520 501 GTT/MH 520 701 GTT MH 53\_ 501 GTT/MH 53\_ 701 GTT



5-way solenoid valve for low temperature environment - 50° C to + 50° C.

- Type 520 5/2-way double solenoid, actuated by impulse
- Type 531 5/3-way centre closed
- Type 532 5/3-way centre exhausted
- Type 533 5/3-way centre pressurized

Valves are dual use, they can be used in-line as well as on manifold plates. Manifolds for valves type 501 G are displayed on page 2.6.2.2, manifold for valves type 701 G are displayed on page 2.6.2.3

Available with solenoid operators  
230V/50 Hz, 110V/50 Hz, 24V/50 Hz, 48V-, 24V-, 12V-

Valves are equipped with manual override to turn.

Please notice:

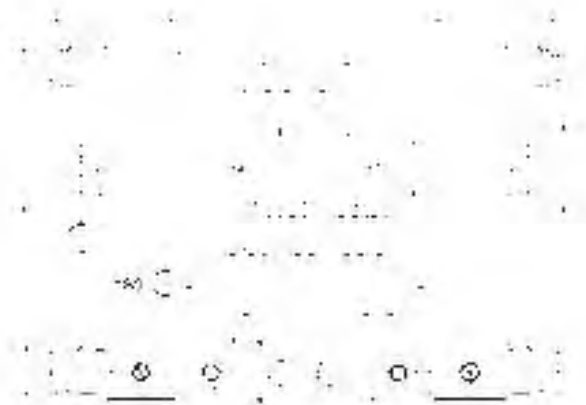
When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!

Below - 40° C the leakage-rate of the valve can increase to 10 cm<sup>3</sup> /min.

Use unlubricated air only.

Valves are also available with external pilot feed.

Connectors as shown on the photo are included.



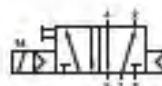
MH 520 501 GTT/MH 53\_ 501 GTT



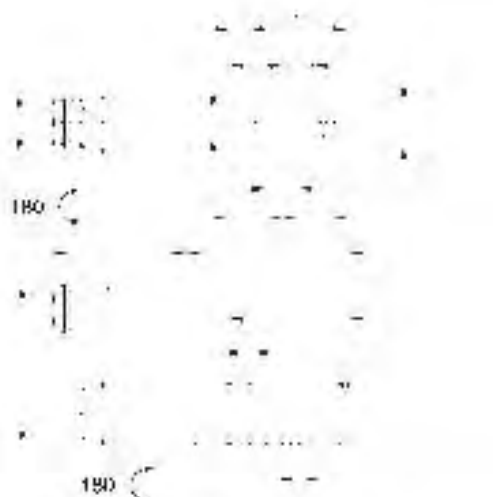
MH 520 701 GTT/MH 53\_ 701 GTT

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 520 501 GTT	G 1/8"	650 $\mu$ min	1 - 10 bar	3 W = / 5 VA -	0,38 kg
MH 520 701 GTT	G 1/4"	1250 $\mu$ min	1 - 10 bar	3 W = / 5 VA -	0,40 kg
MH 53_ 501 GTT	G 1/8"	650 $\mu$ min	3 - 10 bar	3 W = / 5 VA -	0,38 kg
MH 53_ 701 GTT	G 1/4"	1250 $\mu$ min	3 - 10 bar	3 W = / 5 VA -	0,40 kg

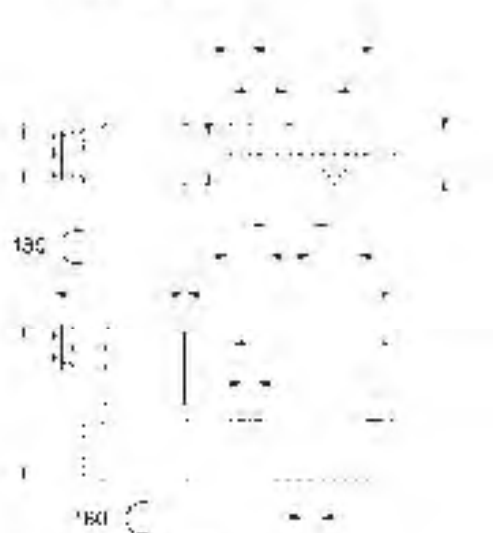
# MH 510 304 TT / MH 510 504 TT MH 510 704 TT



MH 510 304 TT  
MH 510 504 TT  
MH 510 704 TT



MH 510 304 TT



MH 510 504 TT



MH 510 704 TT

5/2-way single solenoid valve equipped with air spring return for low temperature environment - 50° C to + 50° C.

All the ports are in the plate, plates are displayed on page 2.6.2.7.

Available with solenoid operators  
230V/50 Hz, 110V/50 Hz, 24V/50 Hz, 48V-,  
24V-, 12V-.

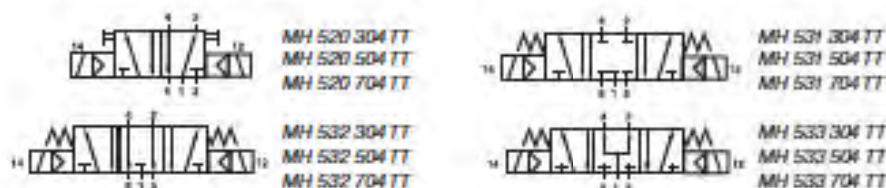
Valves are equipped with manual override to turn.

Please notice:  
When operated below 0°C the pressure condensation point has to be at least 15°C below the temperature of environment and media. Air has to be dried!  
Below - 40° C the leakage-rate of the valve can increase to 10 cm<sup>3</sup> /min.  
Use unlubricated air only.

Connector as shown on the photo is included.

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 510 304 TT	Ø 3 mm	220 l/min	2 - 10 bar	3 W = / 5 VA -	0,20 kg
MH 510 504 TT	Ø 5 mm	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,21 kg
MH 510 704 TT	Ø 7 mm	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,22 kg

# MH 520 304 TT/MH 520 504 TT/MH 520 704 TT MH 53\_ 304 TT/MH 53\_ 504 TT/MH 53\_ 704 TT



5-way solenoid valve for low temperature environment - 50° C to + 50° C.

- Type 520 5/2-way double solenoid, actuated by impulse
- Type 531 5/3-way centre closed
- Type 532 5/3-way centre exhausted
- Type 533 5/3-way centre pressurized

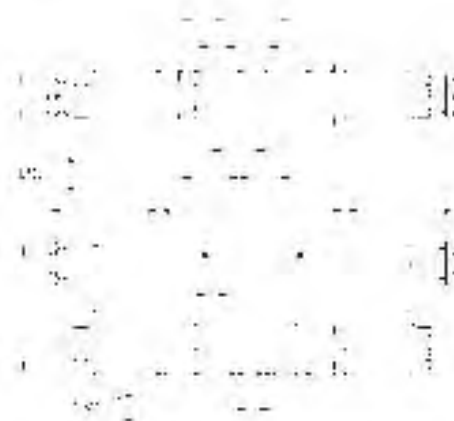
All the ports are in the plate, plates are displayed on page 2.6.2.7.

Available with solenoid operators  
230V/50 Hz, 110V/50 Hz, 24V/50 Hz, 48V-, 24V-, 12V-

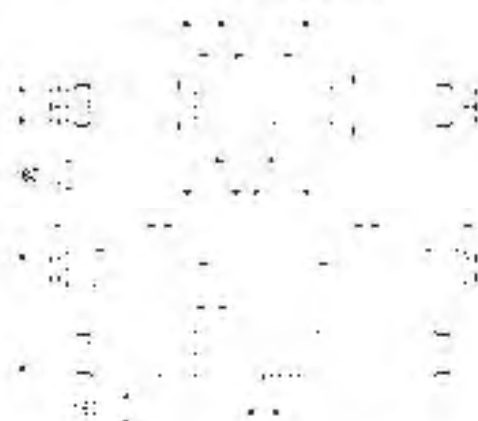
Valves are equipped with manual override to turn.

Please notice:  
When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!  
Below - 40° C the leakage-rate of the valve can increase to 10 cm<sup>3</sup> /min.  
Use unlubricated air only.

Connectors as shown on the photo are included.



MH 520 304 TT/MH 53\_ 304 TT

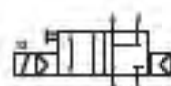


MH 520 504 TT/MH 53\_ 504 TT

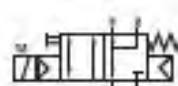


MH 520 704 TT/MH 53\_ 704 TT

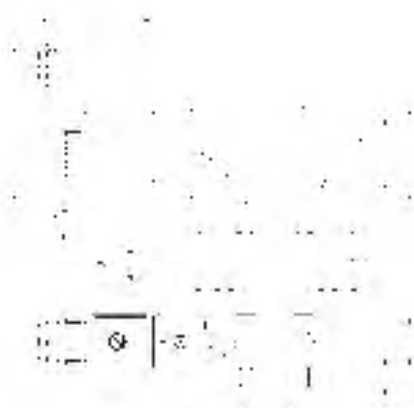
Type	Port size	Air flow	Operating press.	Power consumption	Weight
MH 520 304 TT	∅ 3 mm	220 l/min	2 - 10 bar	3 W = / 5 VA -	0,30 kg
MH 520 504 TT	∅ 5 mm	650 l/min	2 - 10 bar	3 W = / 5 VA -	0,32 kg
MH 520 704 TT	∅ 7 mm	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,34 kg
MH 53_ 304 TT	∅ 3 mm	220 l/min	3 - 10 bar	3 W = / 5 VA -	0,30 kg
MH 53_ 504 TT	∅ 5 mm	650 l/min	3 - 10 bar	3 W = / 5 VA -	0,32 kg
MH 53_ 704 TT	∅ 7 mm	1250 l/min	3 - 10 bar	3 W = / 5 VA -	0,34 kg



MNH 310 701 TT



MNH 311 701 TT



MNH 310 701 TT/MNH 311 701 TT



3/2-way solenoid valve, actuated by permanent signal for low temperature environment - 50° C to + 50° C. Interface according to 1/4" Namur standard, with exhaust air recirculation (purge).

Type MNH 310 701 with pneumatic spring return  
 Type MNH 311 701 with combined spring assuring a fail-safe function in case of cut-off of pressure supply.

Available with actuators:  
 230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
 24V-, 12V-

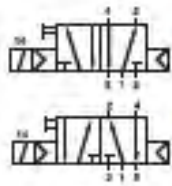
The valves are generally equipped with manual override to turn.

Please notice:  
 When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!  
 Below - 40° C the leakage-rate of the valve can increase to 10 cm<sup>3</sup>/min.  
 Use unlubricated air only.

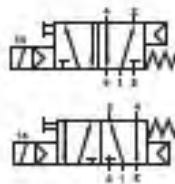
Delivery includes 1 pin, 2 screws, 2 O-rings and 1 connector as shown on the photo.

Type	Port size	Air flow	Operating press.	Power consumption	Weight
MNH 310 701 TT	G 1/4"	1250 l/min	1,5 - 10 bar	3W = / 5 VA -	0,28 kg
MNH 311 701 TT	G 1/4"	1250 l/min	2,5 - 10 bar	3W = / 5 VA -	0,28 kg

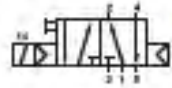
# MNH 510 701 TT/MNH 511 701 TT MNH 510 711 TT/MNH 511 711 TT



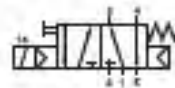
MNH 510 701 TT



MNH 511 701 TT



MNH 510 711 TT



MNH 511 711 TT



5/2-way solenoid valve, actuated by permanent signal for low temperature environment - 50° C to + 50° C. Interface according to 1/4" Namur standard.

Type MNH 510 7\_1 with pneumatic spring return  
Type MNH 511 7\_1 with combined spring.

Available with actuators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V~,  
24V~, 12V~.

The valves are generally equipped with manual override to turn.

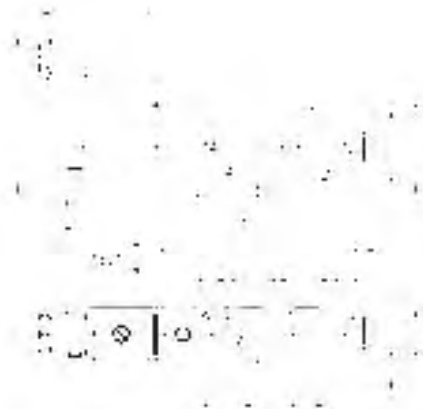
Please notice:

When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!

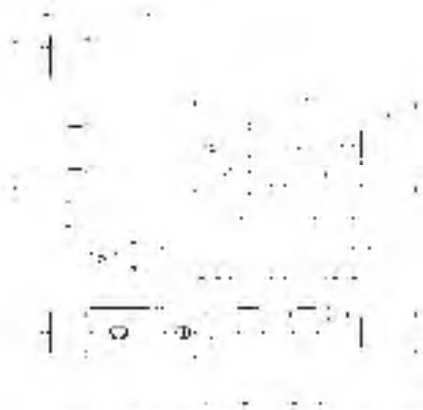
Below - 40° C the leakage-rate of the valve can increase to 10 cm<sup>3</sup> /min.

Use unlubricated air only.

Delivery includes 1 pin, 2 screws, 2 O-rings and 1 connector as shown on the photo.



MNH 510 701 TT/MNH 511 701 TT

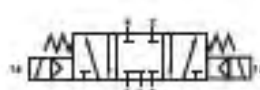


MNH 510 711 TT/MNH 511 711 TT  
ports 2 and 4 are swapped!

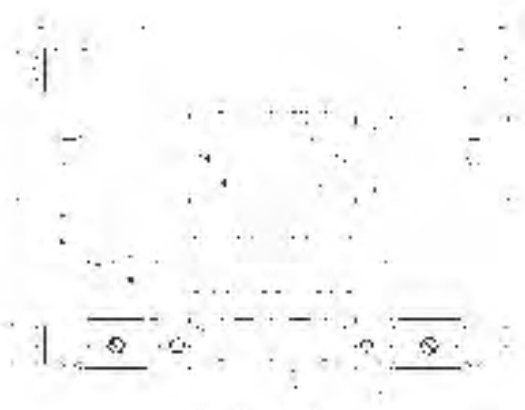
Type	Port size	Air flow	Operating press.	Power consumption	Weight
MNH 510 701 TT	G 1/4"	1250 l/min	1,5 - 10 bar	3W = / 5 VA -	0,28 kg
MNH 510 711 TT	G 1/4"	1250 l/min	1,5 - 10 bar	3W = / 5 VA -	0,28 kg
MNH 511 701 TT	G 1/4"	1250 l/min	2,5 - 10 bar	3W = / 5 VA -	0,28 kg
MNH 511 711 TT	G 1/4"	1250 l/min	2,5 - 10 bar	3W = / 5 VA -	0,28 kg



MNH 520 701 TT



MNH 531 701 TT



MNH 520 701 TT/MNH 531 701 TT



5-way solenoid valve for low temperature environment - 50° C to + 50° C. Interface according to 1/4" Namur standard.

- Type 520      5/2-way double solenoid, actuated by impulse.
- Type 531      5/3-way centre closed. Other 5/3-way versions available on request.

Available with solenoid operators 230V/50 Hz, 110V/50 Hz, 24V/50 Hz, 48V-, 24V-, 12V-.

Valves are equipped with manual override to turn.

Please notice:  
When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!  
Below - 40° C the leakage-rate of the valve can increase to 10 cm<sup>3</sup>/min.  
Use unlubricated air only.

Delivery includes 1 pin, 2 screws, 2 O-rings and 2 connectors as shown on the photo.

Type	Function	Port size	Air flow	Operating pressure	Power consumption	Weight
MNH 520 701 TT	5/2 double sol.	G 1/4"	1250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,41 kg
MNH 531 701 TT	5/3 centre closed	G 1/4"	1250 l/min	3 - 10 bar	3 W = / 5 VA -	0,41 kg



# DRN 3 611 TT/DRN 5 611 TT



DRN 3 611 TT



DRN 5 611 TT



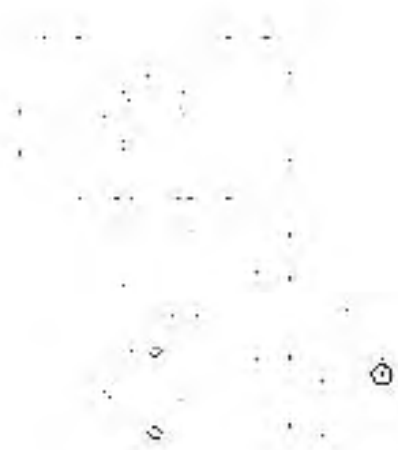
Block form flow regulator as intermediate plate, interface according to 1/4" Namur standard for low temperature environment - 50° C to + 50° C.

**Type DRN 3 611 TT:**  
for 3/2-way valves with exhaust air recirculation only. To regulate the forward stroke of a single acting pneumatic actuator and to regulate the exhaust air going into the spring return unit independently. To be operated with a screw-driver.

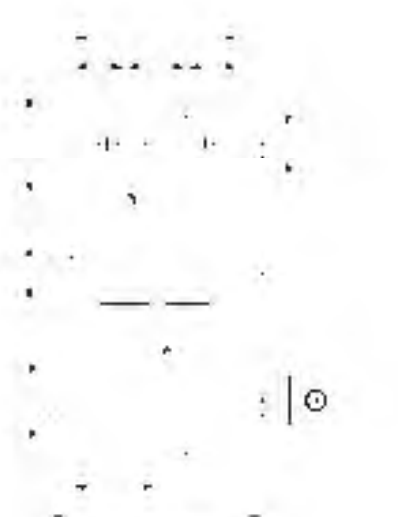
**Type DRN 5 611 TT:**  
for 5/2 and 5/3 way valves only. To regulate the forward- and backward stroke of a double acting pneumatic actuator. To be operated with a screw-driver.

**Please notice:**  
When operated below 0° C the pressure condensation point has to be at least 15° C below the temperature of environment and media. Air has to be dried!  
Use unlubricated air only.

Delivery includes 1 pin, 2 screws (50 mm long), 2 O-rings.

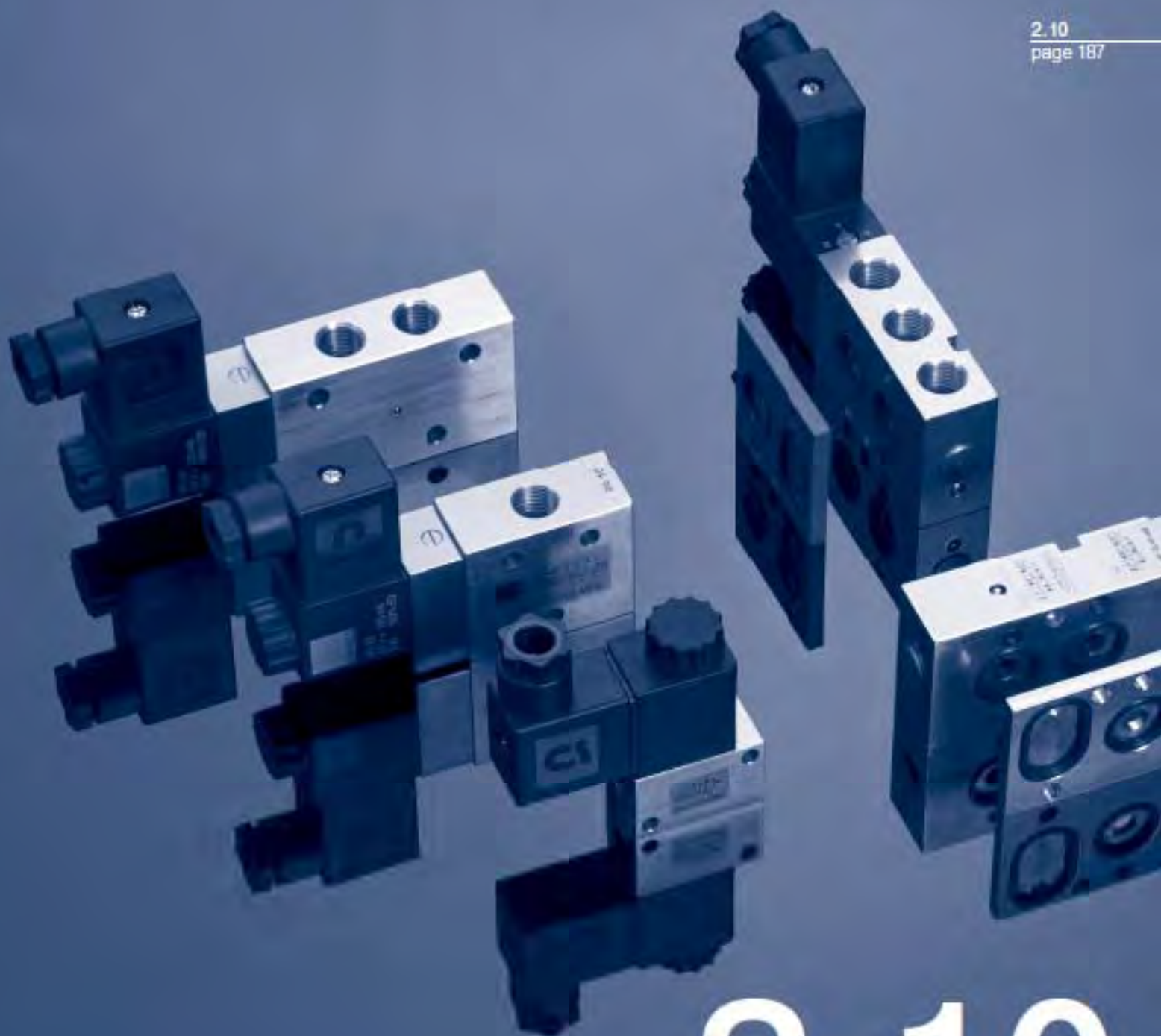


DRN 3 611



DRN 5 611

Type	Function	Port size	Max. air flow	Operating pressure	Weight
DRN 3 611 TT	3-way	Ø 5 mm	650 l/min	0,5 - 10 bar	0,18 kg
DRN 5 611 TT	5-way	Ø 5 mm	650 l/min	0,5 - 10 bar	0,18 kg



# 2.10

## „Heavy Metal“ Stainless Steel Valves

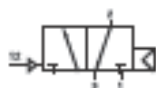
Selected models are available for explosion hazardous environment. They are ATEX-Ex certified. For detailed information refer to chapter 2.12.



Selected models are available for low temperature application. Temperature-range: - 50° C to + 50° C. For detailed information refer to chapter 2.9.



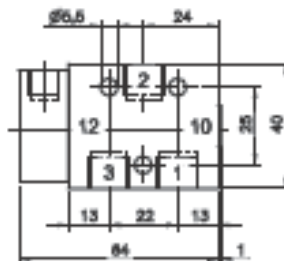
# P 310 701 VES/P 311 701 VES



P 310 701 VES  
P 310 701 VESNPT



P 311 701 VES  
P 311 701 VESNPT



P 310 701 VES/ P 311 701 VES  
P 310 701 VES NPT/ P 311 701 VES NPT

Pneumatically actuated 3/2-way spool valve.

Body parts are made from stainless steel 316L / 1.4404, rubber parts PUR and FKM.

Type P 310 701 VES with air-spring-return.  
Operating pressure and actuating pressure should be at the same level.

Type P 311 701 VES with combined spring return.  
Due to the specific design of the internal parts pressure has to be applied to port 1. For other versions (e.g. normally open) please contact the manufacturer.

Double pilot valves are available on request.

Exhaust can be throttled.

*Products displayed on this page are also available NPT threaded.*

Type	Port size	Function	Air flow	Oper. press.	Act. press.	Weight
P 310 701 VES	G 1/4"	air-spring	1250 l/min	2 - 10 bar	the same	0,35 kg ❄️
P 311 701 VES	G 1/4"	mech. spring	1250 l/min	2 - 10 bar	3 - 10 bar	0,35 kg ❄️
P 310 701 VES NPT	1/4" NPT	air-spring	1250 l/min	2 - 10 bar	the same	0,35 kg ❄️
P 311 701 VES NPT	1/4" NPT	mech. spring	1250 l/min	2 - 10 bar	3 - 10 bar	0,35 kg ❄️

# P 510 701 VES/P 511 701 VES P 520 701 VES



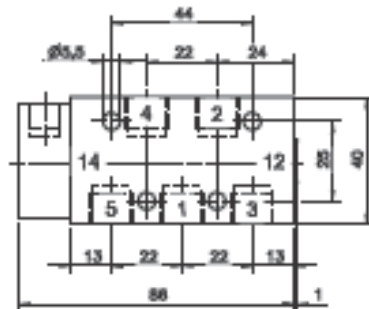
P 510 701 VES  
P 501 701 VES NPT



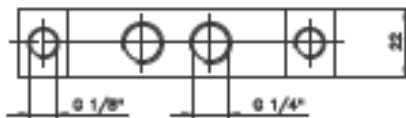
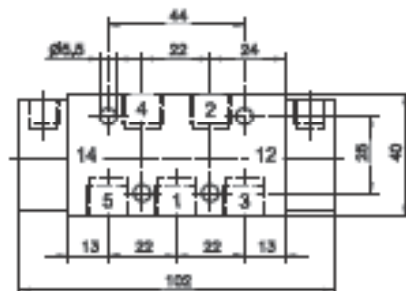
P 511 701 VES  
P 511 701 VES NPT



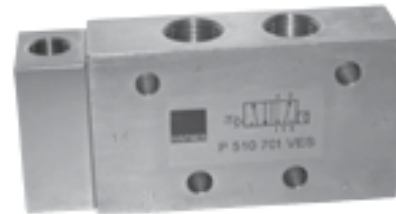
P 520 701 VES  
P 520 701 VES NPT



P 510 701 VES/P 511 701 VES  
P 510 701 VES NPT/P 511 701 VES NPT



P 520 701 VES/ P 520 701 VES NPT



Pneumatically actuated 5/2-way spool valve.

Body parts are made from stainless steel 316L/ 1.4404, rubber parts PUR and FKM.

Type P 510 701 VES single pilot with air-spring-return.

Operating pressure and actuating pressure should be at the same level.

Type P 511 701 VES single pilot with combined spring return. Due to the specific design of the internal parts pressure has to be applied to port 1. For other versions please contact the manufacturer.

Type P 520 701 VES double pilot.

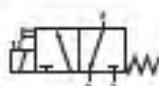
Operating pressure and actuating pressure should be at the same level.

Exhaust can be throttled.

Products displayed on this page are also available NPT threaded.

Type	Port size	Function	Air flow	Oper. press.	Act. press.	Weight
P 510 701 VES	G 1/4"	air-spring	1250 l/min	2 - 10 bar	the same	0,40 kg ❄️
P 511 701 VES	G 1/4"	mech. spring	1250 l/min	2 - 10 bar	3 - 10 bar	0,40 kg ❄️
P 520 701 VES	G 1/4"	double pilot	1250 l/min	1,5 - 10 bar	the same	0,50 kg ❄️
P 510 701 VES NPT	1/4" NPT	air-spring	1250 l/min	2 - 10 bar	the same	0,40 kg ❄️
P 511 701 VES NPT	1/4" NPT	mech. spring	1250 l/min	2 - 10 bar	3 - 10 bar	0,40 kg ❄️
P 520 701 VES NPT	1/4" NPT	double pilot	1250 l/min	1,5 - 10 bar	the same	0,50 kg ❄️

# MH 311 015 VES



MH 311 015 VES



MH 311 015 VES

Direct acting 3/2-way solenoid valve equipped with mechanical spring return.

Valve body is made from stainless steel, material: 1.4404.  
Plunger-seals are made of FKM.

Normally closed, port 1 and 2 in the valve, port 3 at the top of the solenoid.

By closing port 3 valve can be converted into a 2/2-way valve.

Available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-, 24V-, 12V-

Valves are generally equipped with manual override.

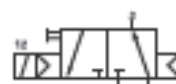
Connector as shown on the photo is included.

Type	Function	Port size			Air flow	Operating pressure	Power consumption	Weight
		1	2	3				
MH 311 015 VES	n.c.	G 1/8"	G 1/8"	M5	50 l/min	0- 10 bar	3 W = / 5 VA -	0.14 kg

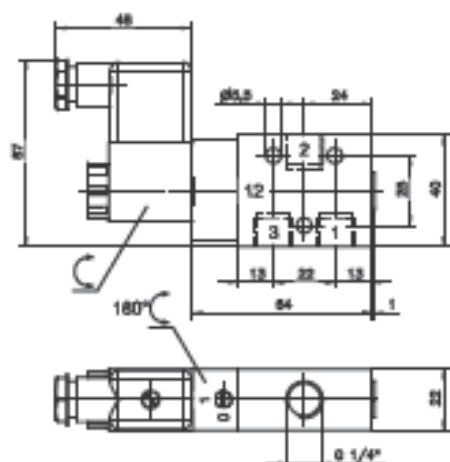
# MH 310 701 VES/MH 310 701 KES MOH 310 701 VES/MOH 310 701 KES



MH 310 701 VES  
MH 310 701 KES  
MH 310 701 VES NPT  
MH 310 701 KES NPT



MOH 310 701 VES  
MOH 310 701 KES  
MOH 310 701 VES NPT  
MOH 310 701 KES NPT



MH 310 701 VES/KES  
MOH 310 701 VES/KES  
MH 310 701 VES/KES NPT  
MOH 310 701 VES/KES NPT



3/2-way solenoid valve normally closed (MH) or normally open (MOH) actuated by permanent signal and equipped with air spring return.

Body parts are made from stainless steel 316L / 1.4404. Customer has the choice between two versions VES and KES, for details refer to the table below.





Available with solenoid operators :  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V-,  
24V-, 12V-.

Valves are equipped with manual override to be turned.

Connector as shown on the photo is included.

Products displayed on this page are available NPT threaded.

Type	Pilot head	Seals	Other rubber parts
VES	1.4404	PUR	FKM
KES	PA	PUR	FKM

Type	Function	Port size	Air flow	Oper. press.	Power cons.	Weight
MH 310 701 VES	n.c.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,20 kg  
MH 310 701 KES	n.c.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,21 kg
MOH 310 701 VES	n.o.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,21 kg  
MOH 310 701 KES	n.o.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,21 kg
MH 310 701 VES NPT	n.c.	1/4" NPT	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,20 kg 
MH 310 701 KES NPT	n.c.	1/4" NPT	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,21 kg
MOH 310 701 VES NPT	n.o.	1/4" NPT	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,21 kg 
MOH 310 701 KES NPT	n.o.	1/4" NPT	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,21 kg

# MH 510 701 VES/MH 510 701 KES MH 520 701 VES/MH 520 701 KES



MH 510 701 VES  
MH 510 701 KES  
MH 510 701 VES NPT  
MH 510 701 KES NPT



MH 520 701 VES  
MH 520 701 KES  
MH 520 701 VES NPT  
MH 520 701 KES NPT



5/2-way solenoid valve.

Type MH 510 \_\_\_ single solenoid actuated by permanent signal and equipped with air spring return.

Type MH 520 \_\_\_ double solenoid actuated by impulse. Position is kept until an electric signal is applied to the opposite side even when not attached to an electrical source.

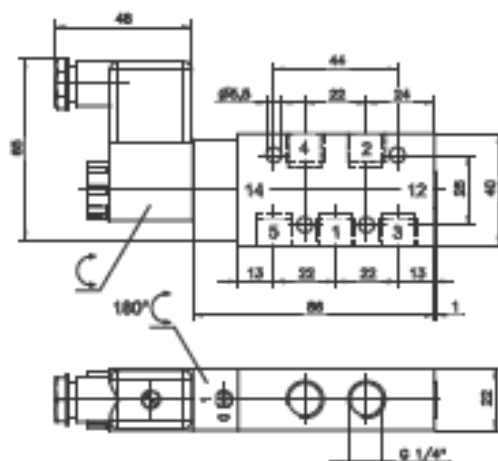
Body parts are made from stainless steel 316L / 1.4404. Customer has the choice between two versions VES and KES, for details refer to the table below.

Available with solenoid operators :  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V~,  
24V~, 12V~.

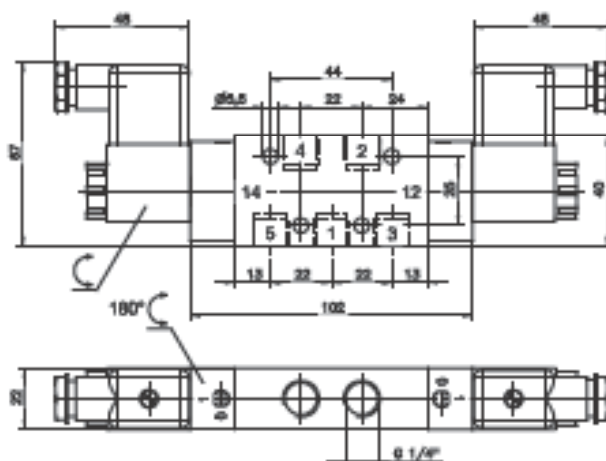
Valves are equipped with manual override to be turned.

Connector as shown on the photo is included.

Products displayed on this page are available NPT threaded.



MH 510 701 VES/KES  
MH 510 701 VES/KES NPT



MH 520 701 VES/KES  
MH 520 701 VES/KES NPT

Type	Pilot head	Seals	Other rubber parts
VES	1.4404	PUR	FKM
KES	PA	PUR	FKM

Type	Function	Port size	Air flow	Oper. press.	Power cons.	Weight
MH 510 701 VES	single sol.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA	0,20 kg *⊕
MH 510 701 KES	single sol.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA	0,21 kg
MH 520 701 VES	double sol.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA	0,21 kg *⊕
MH 520 701 KES	double sol.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA	0,21 kg
MH 510 701 VES NPT	single sol.	1/4" NPT	1250 l/min	2 - 10 bar	3 W = / 5 VA	0,20 kg *
MH 510 701 KES NPT	single sol.	1/4" NPT	1250 l/min	2 - 10 bar	3 W = / 5 VA	0,21 kg
MH 520 701 VES NPT	double sol.	1/4" NPT	1250 l/min	2 - 10 bar	3 W = / 5 VA	0,21 kg *
MH 520 701 KES NPT	double sol.	1/4" NPT	1250 l/min	2 - 10 bar	3 W = / 5 VA	0,21 kg





# MNH 510 701 VES/MNH 510 701 KES MNH 511 701 VES/MNH 511 701 KES MNH 520 701 VES/MNH 520 701 KES



MNH 510 701 VES  
MNH 510 701 KES  
MNH 510 701 VES NPT  
MNH 510 701 KES NPT



MNH 511 701 VES  
MNH 511 701 KES  
MNH 511 701 VES NPT  
MNH 511 701 KES NPT



MNH 520 701 VES  
MNH 520 701 KES  
MNH 520 701 VES NPT  
MNH 520 701 KES NPT



5/2-way solenoid valve.

Type MH 510 \_\_\_ single solenoid actuated by permanent signal and equipped with air spring return.

Type MH 520 \_\_\_ double solenoid actuated by impulse. Position is kept until an electric signal is applied to the opposite side even when not attached to an electrical source.

Body parts are made from stainless steel 316L / 1.4404. Customer has the choice between two versions VES and KES. for details refer to the table below.

Available with solenoid operators :  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V=,  
24V-, 12V=.

Valves are equipped with manual override to be turned.

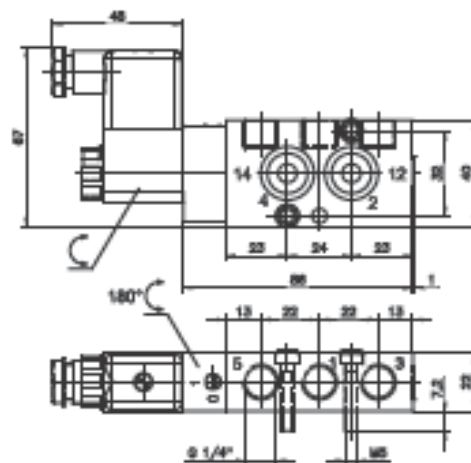
Connector as shown on the photo is included.

Products displayed on this page are available  
NPT threaded.

Type Pilot head Seals Other rubber parts

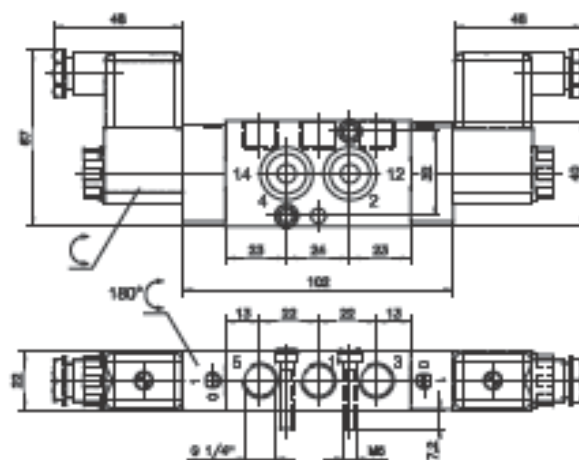
VES 1.4404 PUR FKM

KES PA PUR FKM



MNH 510 701 VES/KES  
MNH 511 701 VES/KES

MNH 510 701 VES/KES NPT  
MNH 511 701 VES/KES NPT



MNH 520 701 VES/KES  
MNH 520 701 VES/KES NPT

Type	Function	Port size	Air flow	Oper. press.	Power cons.	Weight
MNH 510 701 VES	air-spring	G 1/4"	1250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,57 kg *Ⓢ
MNH 510 701 KES	air-spring	G 1/4"	1250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,49 kg *Ⓢ
MNH 511 701 VES	comb. spring	G 1/4"	1250 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,57 kg *Ⓢ
MNH 511 701 KES	comb. spring	G 1/4"	1250 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,49 kg *Ⓢ
MNH 520 701 VES	double sol.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,67 kg *Ⓢ
MNH 520 701 KES	double sol.	G 1/4"	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,58 kg *Ⓢ
MNH 510 701 VES NPT	air-spring	1/4" NPT	1250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,57 kg *
MNH 510 701 KES NPT	air-spring	1/4" NPT	1250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,49 kg *
MNH 511 701 VES NPT	comb. spring	1/4" NPT	1250 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,57 kg *
MNH 511 701 KES NPT	comb. spring	1/4" NPT	1250 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,49 kg *
MNH 520 701 VES NPT	double sol.	1/4" NPT	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,67 kg *
MNH 520 701 KES NPT	double sol.	1/4" NPT	1250 l/min	2 - 10 bar	3 W = / 5 VA -	0,58 kg *

# MNH 350 701 VES/MNH 350 701 KES MNH 351 701 VES/MNH 351 701 KES



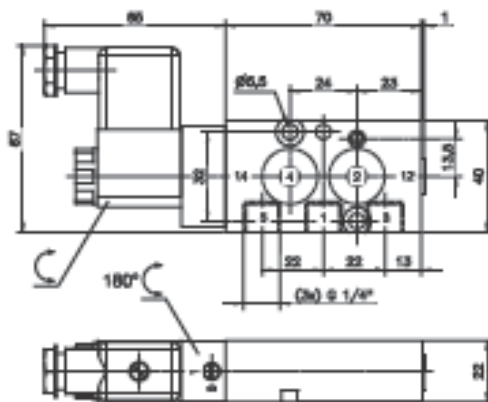
MNH 350 701 VES/KES  
MNH 350 701 VES/KES NPT  
on double acting act.



MNH 350 701 VES/KES  
MNH 350 701 VES/KES NPT  
and Flex-Pack  
on single acting act.

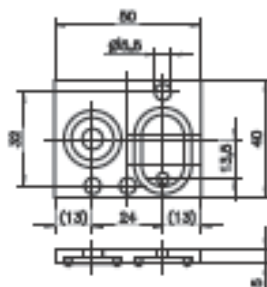


MNH 351 701 VES/KES  
MNH 351 701 VES/KES NPT  
and Flex-Pack  
on single acting act.



MNH 350 701 VES/KES  
MNH 351 701 VES/KES

MNH 350 701 VES/KES NPT  
MNH 351 701 VES/KES NPT



FP 701 K/FP 701 VES



5/2-way solenoid valve, actuated by permanent signal. Interface according to 1/4" Namur standard. Adding the „Flex-Pack“, converts the valve into a 3/2-way-Namur-valve with exhaust-air recirculation ("purge").

MNH 350 701 with pneumatic spring return,  
MNH 351 701 with combined spring.

Body parts are made from stainless steel 316L / 1.4404. Customer has the choice between two versions VES and KES, for details refer to the table below.

Valves are available with solenoid operators:  
230V/50Hz, 110V/50Hz, 24V/50Hz, 48V=,  
24V-, 12V=

Valves are generally equipped with manual override.

Delivery of valve includes 1 pin, 2 screws, 2 O-rings and 1 connector.

Products displayed on this page are available NPT threaded.

Instead of the Flex-Pack the „Flex-regulator“ Type DRF 601 converts the function of the valve and offers the possibility to control opening- and closing-speed of a spring-return actuator independently.

Delivery of FP 701 K includes longer screws, seals as well as a plug to close port 3 of the valve.

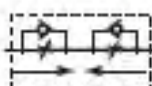
Delivery of FP 701 VES includes longer screws and seals.

Type	Pilot head	Seals	Other rubber parts
VES	1.4404	PUR	FKM
KES	PA	PUR	FKM

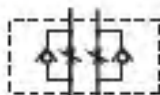
Type	Material	Orifice 4	Orifice 2-3	Weight
FP 701 K	PA	7 mm	4 mm	0,012 kg
FP 701 VES	1.44.04	7 mm	4 mm	0,025 kg

Type	Function	Port size	Air flow	Oper. press.	Power Cons.	Weight
MNH 350 701 VES	air-spring	G 1/4"	1250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,57 kg ❄️Ⓜ️
MNH 350 701 KES	air-spring	G 1/4"	1250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,49 kg ❄️
MNH 351 701 VES	comb. spring	G 1/4"	1250 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,57 kg ❄️
MNH 351 701 KES	comb. spring	G 1/4"	1250 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,49 kg ❄️
MNH 350 701 VES NPT	air-spring	1/4" NPT	1250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,57 kg ❄️
MNH 350 701 KES NPT	air-spring	1/4" NPT	1250 l/min	1,5 - 10 bar	3 W = / 5 VA -	0,49 kg ❄️
MNH 351 701 VES NPT	comb. spring	1/4" NPT	1250 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,57 kg ❄️
MNH 351 701 KES NPT	comb. spring	1/4" NPT	1250 l/min	2,5 - 10 bar	3 W = / 5 VA -	0,49 kg ❄️

# DRN 3 611 VES/DRN 5 611 VES DRF 3 611 VES



DRN 3 611 VES



DRN 5 611 VES



MNH 350 701  
and Flex Regulator  
DRF 3 611 VES



Block form flow regulator as intermediate plate, interface according to 1/4" Namur standard.

**Type DRN 3 611 VES:**

For 3/2-way valves with exhaust air recirculation. To regulate the forward stroke of a single acting pneumatic actuator and to regulate the exhaust air going into the spring return unit.

**Type DRN 5 611 VES:**

For 5/2 and 5/3 way valves only. To regulate the forward- and backward-stroke of a double acting pneumatic actuator.

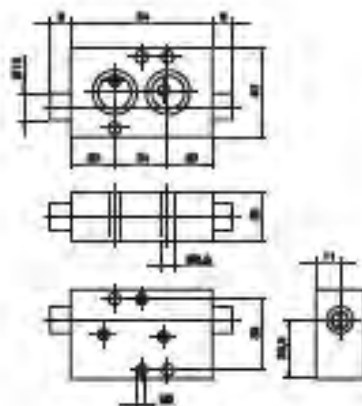
**Type DRF 3 611 VES:**

For the Hafner Namur-Flex valve. To regulate the forward stroke of a single acting actuator and to regulate the exhaust air going into the spring return unit.

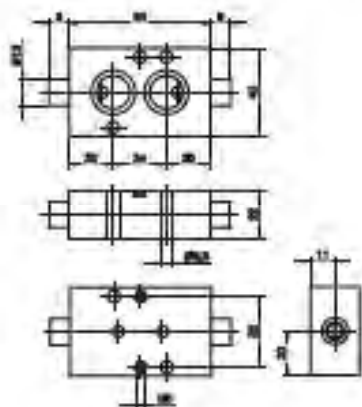
To be operated with a screw-driver.

Entirely made of stainless steel 316L / 1.4404.

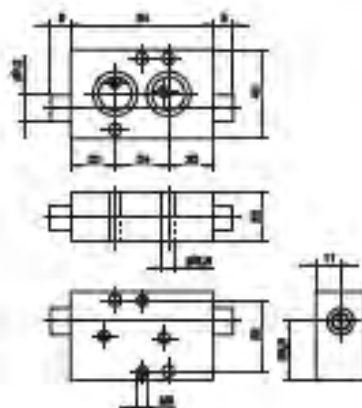
Delivery includes 1 pin, 2 screws, 2 O-Rings.



DRN 3 611 VES



DRN 5 611 VES



DRF 3 611 VES

Type	Function	Port size	Max. air flow	Operating press.	Weight	
DRN 3 611 VES	3-way valves	Ø 5mm	650 l/min	0,5 - 10 bar	0,42 kg	❄
DRN 5 611 VES	5-way valves	Ø 5mm	650 l/min	0,5 - 10 bar	0,42 kg	❄
DRF 3 611 VES	3-way Namur Flex	Ø 5mm	650 l/min	0,5 - 10 bar	0,42 kg	



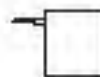
# 2.11

## Coils and Connectors

# MA 16/MA 16 L



MA 16



MA 16 L



16 mm wide solenoid system for valves type MD and MK, including valve-head.

Coil made from 25 % glass filled thermoplastic PA material, epoxy filled. Valve head glass filled thermoplastic PA (standard) or anodised aluminum (on request). Valve-head includes a manual override to push.

### MA 16

interface form C (DIN EN 175301-803), with 8 mm contact distance, connectors are displayed on page 2.11.3. Equipped with appropriate connector coil offers IP 65.

### MA 16 L (Flying leads version)

have a standard cable length of 500 mm, others are available on request. The coils are not grounded, take national safety regulations into consideration!

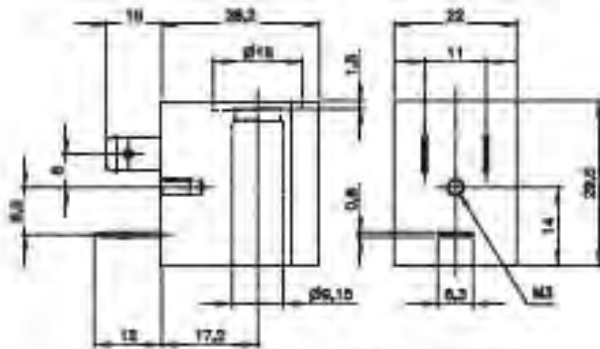


MA 16

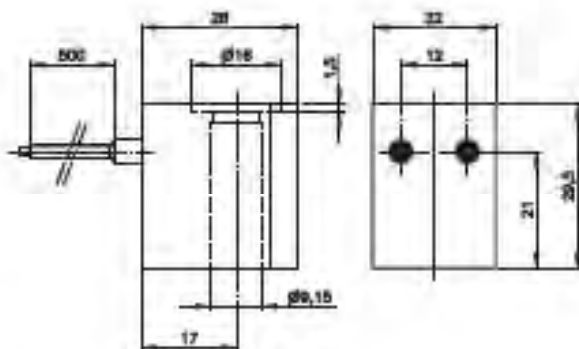


MA 16 L

Type	Voltage	Ampere	Power cons.	Connection
MA 16 6DC	6 V=	300 mA	1,8 W	Form C (DIN EN 175301-803)
MA 16 L 6DC	6 V=	300 mA	1,8 W	Flying leads 500 mm long
MA 16 12DC	12 V=	150 mA	1,8 W	Form C (DIN EN 175301-803)
MA 16 L 12DC	12 V=	150 mA	1,8 W	Flying leads 500 mm long
MA 16 24DC	24 V=	75 mA	1,8 W	Form C (DIN EN 175301-803)
MA 16 L 24DC	24 V=	75 mA	1,8 W	Flying leads 500 mm long
MA 16 24AC	24 V~	125 mA	3 VA	Form C (DIN EN 175301-803)
MA 16 L 24AC	24 V~	125 mA	3 VA	Flying leads 500 mm long
MA 16 110AC	110 V~	27 mA	3 VA	Form C (DIN EN 175301-803)
MA 16 L 110AC	110 V~	27 mA	3 VA	Flying leads 500 mm long
MA 16 230AC	230 V~	13 mA	3 VA	Form C (DIN EN 175301-803)
MA 16 L 230AC	230 V~	13 mA	3 VA	Flying leads 500 mm long



MA 22/MA 22 D/MA 22 U



MA 22 L

AC-coils can be operated at 50 Hz and 60 Hz.



22 mm wide coils for solenoid valves of MH-type, 22 mm, 30 mm and 40 mm wide.

### MA 22

Housing made from heat resistant thermoplastic polyester material 30 % glass filled. Interface industryform B (DIN / ISO 436 50), connectors are displayed on page 2.11.3. Equipped with appropriate connector, solenoid offers IP 65.

### MA 22 L (Flying leads version)

Housing made from heat resistant thermoplastic polyester material with 30 % glass filled. Standard cable length of 500 mm, others are available on request. The coils are not grounded, please take national safety regulations into consideration!

### MA 22 D (Epoxy version)

Housing made from Epoxy, interface industryform B (DIN/ISO 436 50). Equipped with connector ST 22 and ST 222 V (please refer to page 2.11.3) solenoid system offers IP 65. Equipped with connector ST 22 L 500 and additional O-rings the system offers IP 67.

### MA 22 U

Same as MA 22 but with UL-certification.



Type	Voltage	Ampere	Power cons.	Connection
MA 22 12 DC	12 V=	250 mA	3 W	Industryform Type B (DIN 436 50)
MA 22 24DC	24 V=	125 mA	3 W	Industryform Type B (DIN 436 50)
MA 22 L5 24DC	24 V=	125 mA	3 W	Flying leads
MA 22 48DC	48 V=	62 mA	3 W	Industryform Type B (DIN 436 50)
MA 22 24AC	24 V~	200 mA	5 VA	Industryform Type B (DIN 436 50)
MA 22 110AC	110 V~	45 mA	5 VA	Industryform Type B (DIN 436 50)
MA 22 L5 110AC	110 V~	45 mA	5 VA	Flying leads
MA 22 230AC	230 V~	22 mA	5 VA	Industryform Type B (DIN 436 50)
MA 22 L5 230AC	230 V~	22 mA	5 VA	Flying leads
MA 22 D 24DC	24 V=	125 mA	3 W	Industryform Type B (DIN 436 50)
MA 22 D 230AC	230 V~	22 mA	5 VA	Industryform Type B (DIN 436 50)
MA 22 U 24DC	24 V=	125 mA	3 W	Industryform Type B (DIN 436 50)
MA 22 U 110AC	110 V~	45 mA	5 VA	Industryform Type B (DIN 436 50)
MA 22 U 230AC	230 V~	22 mA	5 VA	Industryform Type B (DIN 436 50)

# ST 16/ST 22/ ST 22 L 500 ST 222 V 67/ST 30



Connectors as accessories for Hafner valves.

### Type ST 16 and ST 22

using the enclosed flat seal and fastening screw and nut appropriately the system reaches protection class IP 65 in accordance to IEC 60 529.

### Type ST 22 L 500/ST 222 V 67

in combination with MA 22 D, using the enclosed flat seal, adding 2 O-rings at the top of the solenoid system and fastening screw and nut appropriately the system reaches protection class IP 67 in accordance to IEC 60 529. Cable length of ST 22 L 500: 5.000 mm.

ST 222 V 67 available for 24V and 230V applications. Cable length: 1.500 mm.

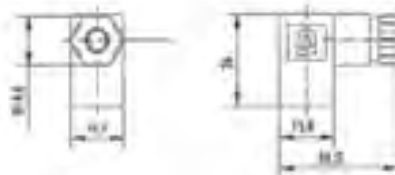
### Type ST 30 ATEX

is an ATEX approved connector especially designed for being used in combination with the intrinsically safe coil MA 30 EEx ia C TB 24- displayed on page 2.12.3.2.

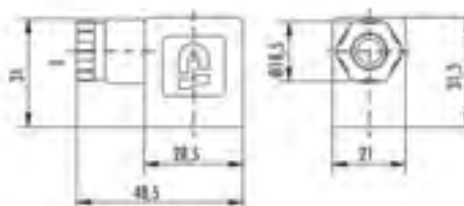
Delivery includes connector, flat nitril gasket and fixing screw (zinc-plated steel).

Other connectors are available on request.

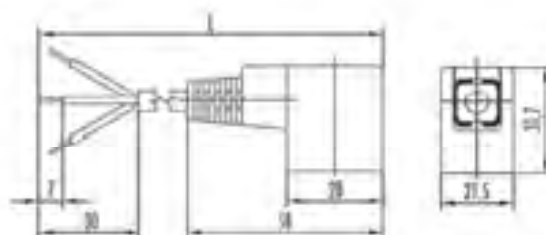
ST 30 ATEX is an in ATEX-approved connector especially designed for the use in combination with the EEx i.A. coil displayed in chapter 2.12.



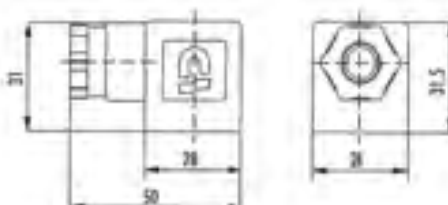
ST 16



ST 22



ST 22 L 500



ST 30

Type	Form	LED	VAR	Operat. voltage	Max. current	cable diameter
ST 16	C, ISO 15219	no	no	0 - 250V	6 A	5 - 6,5 mm
ST 162 V 24	C, ISO 15219	red	yes	24 V ±10 %	6 A	5 - 6,5 mm
ST 162 V 230	C, ISO 15219	red	yes	230 V ±10 %	6 A	5 - 6,5 mm
ST 22	Industrial	no	no	0 - 250V	10 A	6 - 8 mm
ST 222 V 24	Industrial	red	yes	24 V ±10 %	10 A	6 - 8 mm
ST 222 V 230	Industrial	red	yes	230 V ±10 %	10 A	6 - 8 mm
ST 22 L 500	Industrial	no	no	0 - 250V	6 A	6,5 mm
ST 222 V 24 67	Industrial	red	yes	24 V ±10 %	6 A	6,5 mm PUR
ST 222 V 230 67	Industrial	red	yes	230 V ±10 %	6 A	6,5 mm PVC
ST 30 ATEX	A, ISO 4400	no	no	0 - 250V	10 A	6 - 8 mm



Ex

2.12

Products for  
Explosion hazardous Environment



# Non-electric valves for explosion hazardous environment

The following manually and mechanically actuated valves are available for the use in explosion hazardous environment in zone 1 and 2, gas and dust atmosphere, zone 1, 2, 21, 22:

Type	product description
BV 311 301 EX	2.1.1.4
BV 511 301 EX	2.1.2.2
BA 311 301 EX	2.2.1
BA 511 301 EX	2.2.2
BA 22_	2.2.3

The products are marked:

II2G/D c T6 -10° C ≤ Ta ≤ 50° C

Delivery contains a manual as well as a declaration of conformity.

A declaration of the manufacturer that the actuation elements BA 22\_ do not require a certification can be supplied on request. For the use in dust atmosphere we recommend the use of a dust protection cap.



The following pneumatically actuated valves are available for the use in explosion hazardous environment in zone 1 and 2, gas and dust atmosphere, zone 1, 2, 21, 22:

Types	Product description
P 310 502 EX	2.4.1.1
P 310 501 EX, P 310 701 EX, P 310 801 EX	2.4.1.2
P 310 101 EX, P 310 121 EX	2.4.1.3
P 320 502 EX	2.4.1.5
P 320 501 EX, P 320 701 EX, P 320 801 EX	2.4.1.6
P 320 101 EX, P 320 121 EX	2.4.1.7
P 510 502 EX	2.4.2.1
P 510 501 EX, P 510 701 EX, P 510 801 EX	2.4.2.2
P 510 101 EX, P 510 121 EX	2.4.2.3
P 520 502 EX	2.4.2.5
P 520 501 EX, P 520 701 EX, P 520 801 EX	2.4.2.6
P 520 101 EX, P 520 121 EX	2.4.2.7
P 53_ 501 EX, P 53_ 701 EX, P 53_ 801 EX	2.4.3.1
P 53_ 101 EX, P 53_ 121 EX	2.4.3.2
PN 310 701 EX, PN 310 121 EX	2.8.2.1
PN 510 701 EX, PN 510 121 EX, PN 520 701 EX, PN 520 121 EX	2.8.2.2
PN 531 701 EX, PN 531 121 EX	2.8.2.3

The products are marked:

II2G/D c T6 -10° C ≤ Ta ≤ 50° C

Delivery contains a manual as well as a declaration of conformity.

ATEX-certified pneumatically actuated valves for low-temperature applications as well as stainless steel products are available on request.






The solenoid valves of the MH and MNH series can be offered for explosion hazardous environment. Solenoid valves can be used in zone 1 and 2, gas and dust atmosphere, zone 1, 2, 21, 22.

The following protection classes are available:


#### Encapsulation (Ex m T4)

Marking on valve  II2G/D c T4  $-10^{\circ}\text{C} \leq T_a \leq 50^{\circ}\text{C}$   
II3G/D c T5  $-10^{\circ}\text{C} \leq T_a \leq 50^{\circ}\text{C}$

Coils are described on page 2.12.3.1.

Further coils variants on request: Coils for Ex na-systems, CSA / FM certified coils.

#### Intrinsically safe (Ex ia T6)

marking on valve  II2G/D c T6  $-10^{\circ}\text{C} \leq T_a \leq 50^{\circ}\text{C}$

Coil is described on page 2.12.3.2.

**Please notice:** Maximum operating pressure for valves with Ex ia solenoid system is 8 bar!

The following solenoid valves are available for the use in explosion hazardous environment:

Types	Product description
MH 311 012 Ex m, MH 311 012 Ex ia, MH 311 015 Ex m, MH 311 015 Ex ia	2.5.1.1.2
MH 311 013 Ex m, MH 311 013 Ex ia, MH 311 017 Ex m, MH 311 017 Ex ia	2.5.1.1.4
MH 312 Ex m, MH 315 Ex ia	2.5.1.2.2
MH 310 501 Ex m, MH 310 501 Ex ia, MOH 310 501 Ex m, MOH 310 501 Ex ia	2.5.1.1.10
MH 310 701 Ex m, MH 310 701 Ex ia, MOH 310 701 Ex m, MOH 310 701 Ex ia	2.5.1.1.10
MH 310 801 Ex m, MH 310 801 Ex ia, MOH 310 801 Ex m, MOH 310 801 Ex ia	2.5.1.1.10
MH 310 101 Ex m, MH 310 101 Ex ia, MOH 310 101 Ex m, MOH 310 101 Ex ia	2.5.1.1.11
MH 310 121 Ex m, MH 310 121 Ex ia, MOH 310 121 Ex m, MOH 310 121 Ex ia	2.5.1.1.11
MH 320 501 Ex m, MH 320 501 Ex ia, MH 320 701 Ex m, MH 320 701 Ex ia, MH 320 801 Ex m, MH 320 801 Ex ia	2.5.1.1.14
MH 320 101 Ex m, MH 320 101 Ex ia, MH 320 121 Ex m, MH 320 121 Ex ia	2.5.1.1.15
MH 510 501 Ex m, MH 510 501 Ex ia, MH 510 701 Ex m, MH 510 701 Ex ia, MH 510 801 Ex m, MH 510 801 Ex ia	2.5.2.1.3
MH 510 101 Ex m, MH 510 101 Ex ia, MH 510 121 Ex m, MH 510 121 Ex ia	2.5.2.1.4
MH 520 501 Ex m, MH 520 501 Ex ia, MH 520 701 Ex m, MH 520 701 Ex ia, MH 520 801 Ex m, MH 520 801 Ex ia	2.5.2.1.9
MH 520 101 Ex m, MH 520 101 Ex ia, MH 520 121 Ex m, MH 520 121 Ex ia	2.5.2.1.10
MH 53_ 501 Ex m, MH 53_ 501 Ex ia, MH 53_ 701 Ex m, MH 53_ 701 Ex ia, MH 53_ 801 Ex m, MH 53_ 801 Ex ia	2.5.3.1.2
MH 53_ 101 Ex m, MH 53_ 101 Ex ia, MH 53_ 121 Ex m, MH 53_ 121 Ex ia	2.5.3.1.3
MNH 310 701 Ex m, MNH 310 701 Ex ia, MNH 310 711 Ex m, MNH 310 711 Ex ia	2.8.1.1.1
MNH 310 121 Ex m, MNH 310 121 Ex ia	2.8.1.1.2
MNH 510 701 Ex m, MNH 510 701 Ex ia, MNH 510 711 Ex m, MNH 510 711 Ex ia	2.8.1.2.1
MNH 510 121 Ex m, MNH 510 121 Ex ia	2.8.1.2.2
MNH 520 701 Ex m, MNH 520 701 Ex ia, MNH 520 121 Ex m, MNH 520 121 Ex ia,	2.8.1.2.3
MNH 350 701 Ex m, MNH 350 Ex ia	2.8.1.3
MNH 53_ 701 Ex m, MNH 53_ 701 Ex ia, MNH 531 121 Ex m, MNH 531 121 Ex ia	2.8.1.4

Delivery contains valve with the appropriate operator system, coil, manual and declaration of conformity.

# Solenoid valves for explosion hazardous environment – Low temperature range

The low temperature solenoid valves of the MH and MNH series can be offered for explosion hazardous environment. Solenoid valves can be used in zone 1 and 2, gas and dust atmosphere, zone 1, 2, 21, 22.

The following protection classes are available:

### Encapsulation (Ex m T4)

Marking on valve  II2G/D c T4  $-40^{\circ}\text{C} \leq T_a \leq 50^{\circ}\text{C}$   
 II3G/D c T5  $-40^{\circ}\text{C} \leq T_a \leq 50^{\circ}\text{C}$

Coils are described on page 2.12.3.1.

**Please notice:** System is restricted by the minimum applicable temperature of the coil of  $-20^{\circ}\text{C}$ !

Further coils variants on request: Low temperature coils, CSA / FM certified coils.



### Intrinsically safe (Ex ia T6)

Marking on valve  II2G/D c T6  $-40^{\circ}\text{C} \leq T_a \leq 50^{\circ}\text{C}$

Coil is described on page 2.12.3.2.

**Please notice:** Maximum operating pressure for valves with Ex ia solenoid system is 8 bar!

The following **solenoid valves** are available for the use in explosion hazardous environment:

Type	Product description
MH 311 012 TT Ex m, MH 311 012 TT Ex ia, MH 311 015 TT Ex m, MH 311 015 TT Ex ia	2.9.4.1.1
MH 311 013 TT Ex m, MH 311 013 TT Ex ia, MH 311 017 TT Ex m, MH 311 017 TT Ex ia	2.9.4.1.1
MH 310 501 TT Ex m, MH 310 501 TT Ex ia, MOH 310 501 TT Ex m, MOH 310 501 TT Ex ia	2.9.4.1.2
MH 310 701 G TT Ex m, MH 310 701 G TT Ex ia, MOH 310 701 G TT Ex m, MOH 310 701 G TT Ex ia	2.9.4.1.2
MH 320 501 TT Ex m, MH 320 501 TT Ex ia, MH 320 701 G TT Ex m, MH 320 701 G TT Ex ia	2.9.4.1.2
MH 510 501 GTT Ex m, MH 510 501 GTT Ex ia, MH 510 701 GTT Ex m, MH 510 701 GTT Ex ia	2.9.4.2.1
MH 520 501 GTT Ex m, MH 520 501 GTT Ex ia, MH 520 701 GTT Ex m, MH 520 701 GTT Ex ia	2.9.4.2.2
MH 53_501 GTT Ex m, MH 53_501 GTT Ex ia, MH 53_701 GTT Ex m, MH 53_701 GTT Ex ia	2.9.4.2.2
MNH 310 701 TT Ex m, MNH 310 701 TT Ex ia, MNH 310 711 TT Ex m, MNH 310 711 TT Ex ia	2.9.5.1
MNH 510 701 TT Ex m, MNH 510 701 TT Ex ia, MNH 510 711 TT Ex m, MNH 510 711 TT Ex ia	2.9.5.2.1
MNH 520 701 TT Ex m, MNH 520 701 TT Ex ia, MNH 531 701 TT Ex m, MNH 531 701 TT Ex ia	2.9.5.2.2

Delivery contains valve with the appropriate operator system, coil, manual and declaration of conformity.




Solenoid valves made from stainless steel can be offered for explosion hazardous environment. Solenoid valves can be used in zone 1 and 2, gas and dust atmosphere, zone 1, 2, 21, 22.

Stainless steel products for low temperature environment are also available with mechanical ATEX.

Valves carry the suffix ... VES TT Ex ia. Currently only available with intrinsically safe solenoid systems.

The following protection classes are available:

#### Encapsulation (Ex m T4)

Marking on valve  II2G/D c T4 -10° C ≤ Ta ≤ 50° C  
II3G/D c T5 -10° C ≤ Ta ≤ 50° C

Coils are described on page 2.12.3.1.

Further coils variants on request: Coils for Ex na-systems.


#### Intrinsically safe (Ex ia T6)

Marking on valve  II2G/D c T6 -10° C ≤ Ta ≤ 50° C

Coil is described on page 2.12.3.2.

**Please notice:** Maximum operating pressure for valves with Ex ia solenoid system is 8 bar!

#### Intrinsically safe low temperature (Ex ia T6)

Marking on valve  II2G/D c T6 -40° C ≤ Ta ≤ 50° C

Coil is described on page 2.12.3.2.

**Please notice:** Maximum operating pressure for valves with Ex ia solenoid system is 8 bar!

The following solenoid valves are available for the use in explosion hazardous environment:

Type	 Low temperature	Product description
MH 311 015 VES Ex m, MH 311 015 VES Ex ia	MH 311 015 VES TT Ex ia	2.10.2.1
MH 310 701 VES Ex m, MH 310 701 VES Ex ia	MH 310 701 VES TT Ex ia	2.10.2.2
MDH 310 701 VES Ex m, MDH 310 701 VES Ex ia	MDH 310 701 VES TT Ex ia	2.10.2.2
MH 510 701 VES Ex m, MH 510 701 VES Ex ia	MH 510 701 VES TT Ex ia	2.10.2.3
MH 520 701 VES Ex m, MH 520 701 VES Ex ia	MH 520 701 VES TT Ex ia	2.10.2.3
MNH 310 701 VES Ex m, MNH 310 701 VES Ex ia	MNH 310 701 VES TT Ex ia	2.10.3.1
MNH 510 701 VES Ex m, MNH 510 701 VES Ex ia	MNH 510 701 VES TT Ex ia	2.10.3.2
MNH 520 701 VES Ex m, MNH 520 701 VES Ex ia	MNH 520 701 VES TT Ex ia	2.10.3.2
MNH 350 701 VES Ex m, MNH 350 701 VES Ex ia	MNH 350 701 VES TT Ex ia	2.10.3.1

Delivery contains valve with the appropriate operator system, coil, manual and declaration of conformity.

# Ex II 2G EEx m II T4/IEC Ex m II T4 Ex II 2D IP65 T130° C/IP65 DIP A21 T130° C

When this solenoid system is used in combination with „ATEX certified“ mechanical components conforming EN 13463-1:2001 and PrEN 13463-5:2000, the entire valve can be used in explosive hazardous environment zone 1 and 21.



ATEX approved encapsulated coils for gas and dust explosion-hazardous environment.

The standard cable length is 3 meter, others on request.

Voltage tolerance: -10...+10 %

Relative duty cycle: 100 %

Temperature range: -20°...+50° C

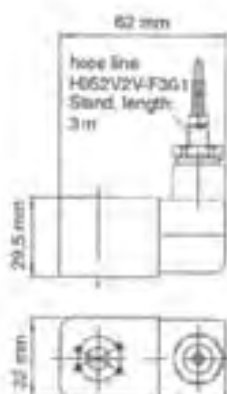
Insulation class of insulating materials according to DIN VDE 0580: F

Protection with mounted plug-in connector according to IEC 529: IP 65

Moulding material: Thermoplastic

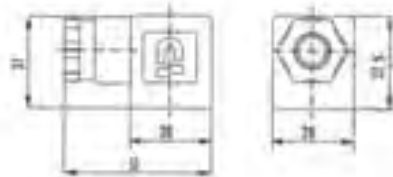
The ATEX approval is only valid as long as the associated components are used.

These coils are approved according to EN 50 028 resp. DIN VDE 0170/0171, part 9 by the Physikalisch-Technische-Bundesanstalt (PTB). For additional information see „Specification for Electronic Devices“ DIN VDE 0580.



Type	Operating press.	Power consumption	Temperature class
MA 22 EEx M II T4 24=	max. 10 bar	5,0 Watt	T4 (135° C)
MA 22 EEx M II T4 110=	max. 10 bar	4,5 VA	T4 (135° C)
MA 22 EEx M II T4 230=	max. 10 bar	5,1 VA	T4 (135° C)

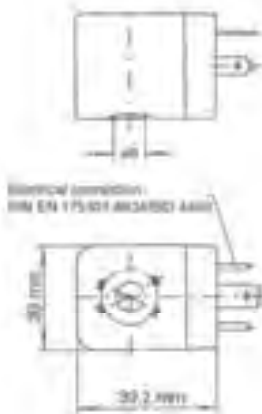
When this solenoid system is used in combination with „ATEX certified“ mechanical components conforming EN 13463-1:2001 and PrEN 13463-5:2000, the entire valve can be used in explosive hazardous environment zone 1 and 21.



ATEX approved intrinsic safety coil and connector for gas and dust explosion-hazardous environment. System with IEC approval available on request. Electrical connection according to DIN EN 175301-803-A / ISO 4400.

**General data:**

Relative duty cycle:	100 %
Insulation class of insulating materials according to DIN VDE 0580:	F
Protection with connector according to EN 60529:	IP 65
Moulding material:	Epoxy
Coil:	
Electrical characteristics:	21,6... 28 V DC >37 mA final temperature rise 18 K 275 Ohm +/-8 %
Temperature range:	-40°... +50° C
Barrier:	
Electrical characteristics:	21,6... 28 V DC
Admissible peak value:	28 V DC 115 mA 1,6 W



As the coil is 30 mm wide, a spacer plate called „ZPN 5“ has to be used, in case of combination with our Namur valve series 700.

Our ST 30 ATEX is an ATEX approved connector, especially designed for being used in combination with the intrinsic safety coil. For dust approval (zone 21), this original connector has to be used.

Delivery includes connector, flat nitril gasket and fixing screw (zinc-plated steel). Form according to A - ISO 4400, no LED, no varistor, operating voltage 0- 250 V, max. current 10 A, cable diameter 6 - 8 mm.

The ATEX approval is only valid as long as the associated components are used. These coils are approved according to EN 50 020 resp. DIN VDE 0170/0171, part 5 by the Physikalisch-Technische-Bundesanstalt (PTB). For additional information see „Specification for Electronic Devices“ DIN VDE 0580.



Hafner-Pneumatik Krämer KG  
Stammheimer Straße 10

D-70806 Kornwestheim

Phone +49 - 71 54 - 17 85 890  
Fax +49 - 71 54 - 17 85 89 28

info@hafner-pneumatik.de  
www.hafner-pneumatik.de

Hafner Pneumatika Kft.  
Püski út 3

9228 Halászi – Hungary

Phone +36 - 96 - 57 30 12  
Fax +36 - 96 - 21 06 15

ertekesites@hafner-pneumatika.com  
www.hafner-pneumatika.com

Hafner UK  
Unit 11 Forest Row Business Park,  
Station Road  
Forest Row, East Sussex. RH18 5DW

Phone +44 (0) 13 42 82 64 88  
Fax +44 (0) 13 42 82 64 89

info@hafner-pneumatic.co.uk  
www.hafner-pneumatic.co.uk