

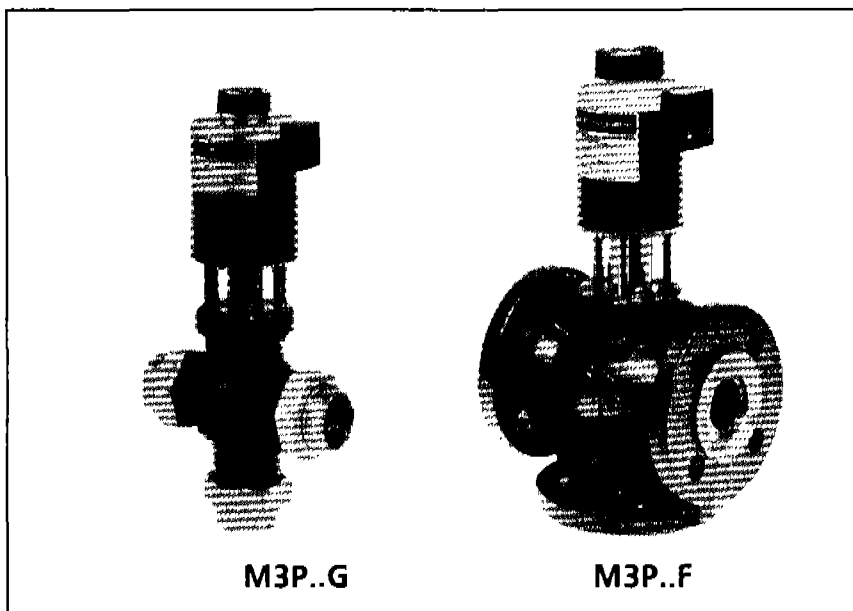
Modulating control valve for hot and chilled water

Application

Three-way (or straight-through) valve with magnetic actuator for modulating control of LTHW and CHW systems.

Features:

- robust, maintenance free
- friction-free
- short positioning time
- high resolution
- high rangeability
- two interchangeable wire connection



Technical data

Control voltage	0 ... 20 VDC phase cut
Type of operation	modulating
Positioning time	approx. 1 s
Admissible ambient temperature	2 ... 50 °C
Protection standard	IP 31
Valve body material	cast iron
Seat/inner valve material	chrome nickel steel
Nominal pressure	PN 16
Operating pressure p_e max	1 MPa (10 bar)
Leakage	1 → 3 max. 0.05 % k_{vs} 2 → 3 approx. 2 % k_{vs} (depending on application data)
Water temperature	2 ... 110 °C
Valve characteristic (stroke, k_v)	linear
Deenergised position	closed (1 → 3)
Mounting position	upright or horizontal

Types and operating data

- Δp_v max = Max. admissible pressure differential
 P_N = Nominal power
 P_{med} = Mean operating power
 L = Max. cable length between controller and valve
 q = Cross-section of cable (Cu)

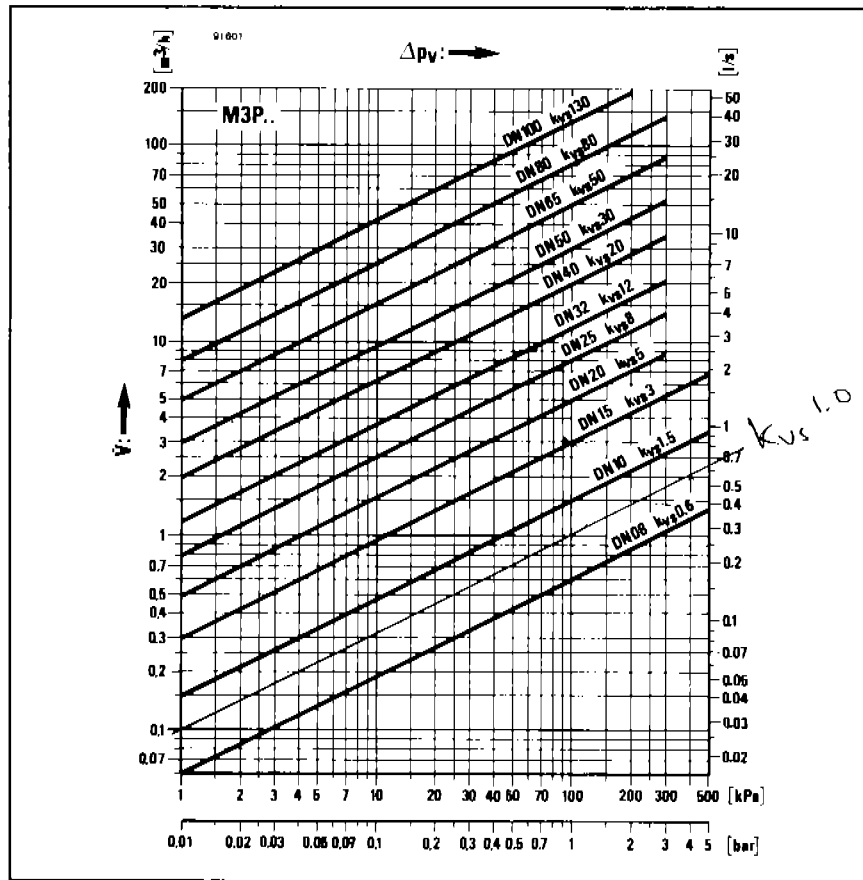
Type	DN [mm]	k_{vs} [m ³ /h]	Δp_v max		P_N [W]	P_{med} [W]	q [mm ²]		
			[kPa]	[bar]			1,5	2,5	4
							L[m]		
M3P08..	15	0,6	500	5	13	3	60	100	170
M3P10..	15	1,5	500	5	13	3	60	100	170
M3P15..	15	3	500	5	13	3	60	100	170
M3P20..	20	5	300	3	13	3	60	100	170
M3P25..	25	8	300	3	16	4	50	85	135
M3P32..	32	12	300	3	20	5	40	65	110
M3P40..	40	20	300	3	26	6	30	50	80
M3P50..	50	30	300	3	40	10	20	30	50
M3P65F	65	50	300	3	40	10	20	30	50
M3P80F	80	80	300	3	80	20	10	15	25
M3P100F	100	130	200	2	120	30	6	10	18

3m³/h → 1 Bar Δp
15m³/h → ?

2m³/h = 350 kPa
5m³/h = 25 kPa
 $\left(\frac{V_1}{V_2}\right)^2 = \frac{P_1}{P_2}$

Water flow chart

Flow/pressure differential relationship:
k_{v5} signifies the volume of water \dot{V} in m³/h which flows through the open valve at a pressure differential Δp_v of 100 kPa (1 bar).



Principle of operation / Construction

The only moving part, the magnetic core, is free from friction and changes its position against a counterspring with each change in current.

Even the smallest movement is transferred directly to the inner valve so that proportional control down to infinitesimally low rates of flows is possible.

Staefa valves are pressure-balanced.

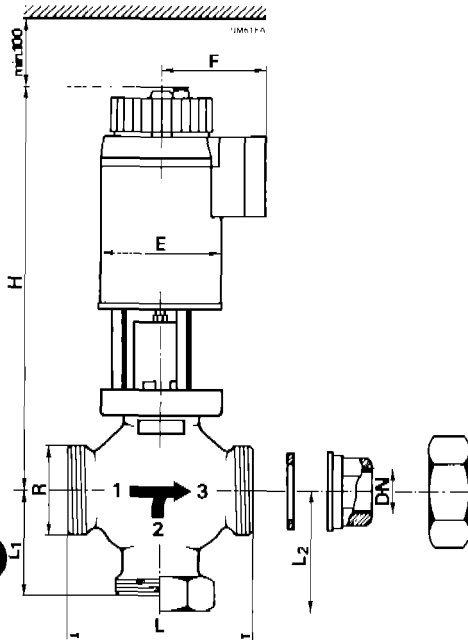
Because of its short positioning time, the valve can be used in cases where fast changes in load have to be corrected.

Manual adjustment

The valve can be opened and closed manually by turning the handwheel.

M3P..G

Dimensions [mm] and weights [kg]

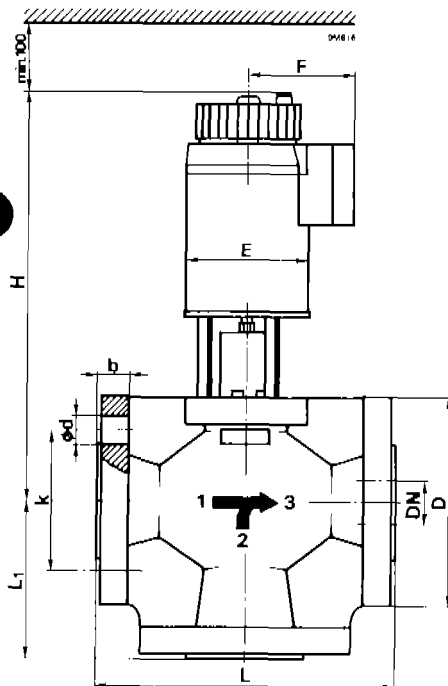


In the case of the screwed valves, screwed fittings are supplied.

Type	DN		R	L	L ₁	H	E	F	G*
	[mm]	[inches]							
M3P08G	08/15	1/2	R 1"	80	42,5	211	60	55	3,2
M3P10G	10/15	1/2	R 1"	80	42,5	211	60	55	3,2
M3P15G	15	1/2	R 1"	80	42,5	211	60	55	3,2
M3P20G	20	3/4	R 1 1/4"	95	52,5	213	60	55	3,8
M3P25G	25	1	R 1 1/2"	110	56,5	231	70	60	4,9
M3P32G	32	1 1/4	R 2"	125	67,5	251	80	65	7,2
M3P40G	40	1 1/2	R 2 1/4"	140	80,5	294	100	75	12,3
M3P50G	50	2	R 2 3/4"	170	93,5	313	100	75	16,8

* Weight incl. packaging

M3P..F



Flange dimensions according to DIN 2533, PN16

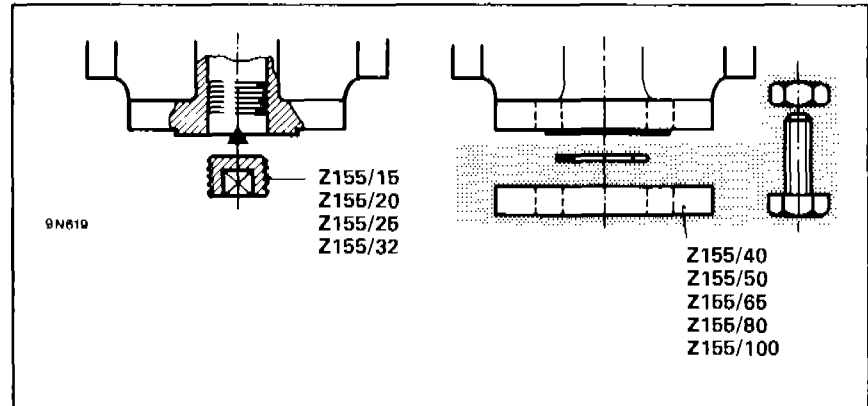
Type	DN	L	L ₁	D	b	k	d	H	E	F	*
M3P08F	08/15	130	65	95	14	65	4 x 14	211	60	55	5,0
M3P10F	10/15	130	65	95	14	65	4 x 14	211	60	55	5,0
M3P15F	15	130	65	95	14	65	4 x 14	211	60	55	5,0
M3P20F	20	150	75	105	16	75	4 x 14	213	60	55	6,0
M3P25F	25	160	80	115	16	85	4 x 14	231	70	60	8,1
M3P32F	32	180	90	140	18	100	4 x 18	251	80	65	11,9
M3P40F	40	200	100	150	18	110	4 x 18	294	100	75	17,3
M3P50F	50	230	105	165	20	125	4 x 18	313	100	75	23,0
M3P65F	65	290	125	185	20	145	4 x 18	475	145	100	40,0
M3P80F	80	310	140	200	22	160	8 x 18	505	145	100	48,0
M3P100F	100	350	160	220	24	180	8 x 18	568	145	100	65,0

* Weight incl. packaging

Valves

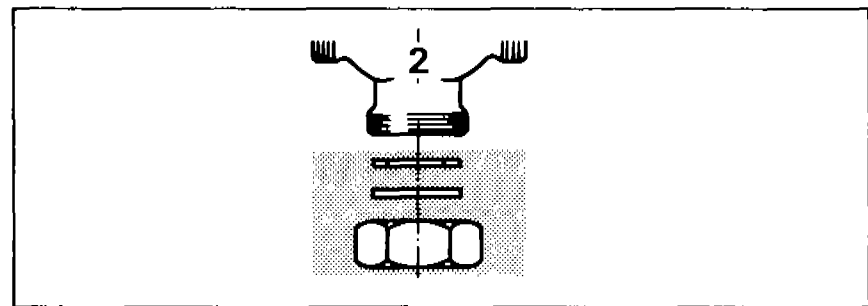
Mounting

The three-way valve is used basically as a mixing valve. Only three-way valves are supplied. These may, however, be used as straight-through valves in the way described below.



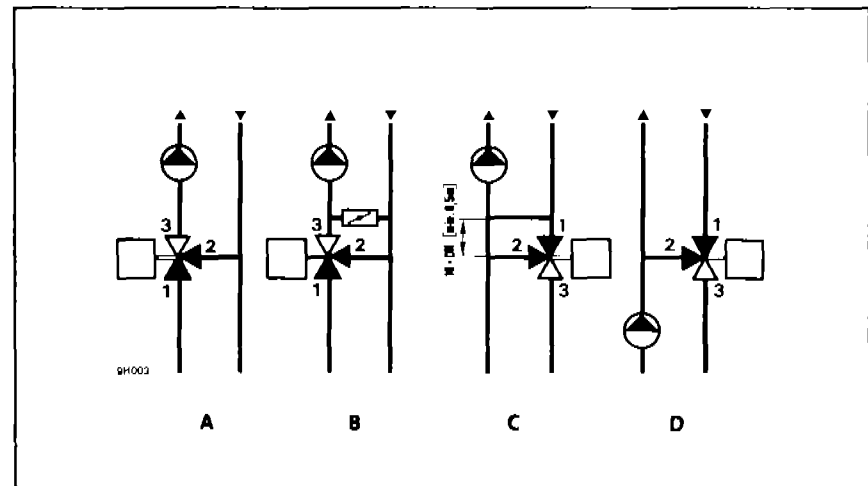
Flanged valves

Connection "2" is sealed with accessory Z155/.. (screwed tap or blank flange). These are ordered separately where required.



Screwed valves

Connection "2" is sealed with the accessory supplied.



Hydraulic circuits

- A mixing circuit
- B underfloor heating mixing circuit with bypass
- C injection circuit
- D diverting circuit

To prevent solids and deposits from affecting the hydraulic system, it is recommended to follow the flushing instructions given in:

"BSRIA - Technical Memorandum TM2 184".