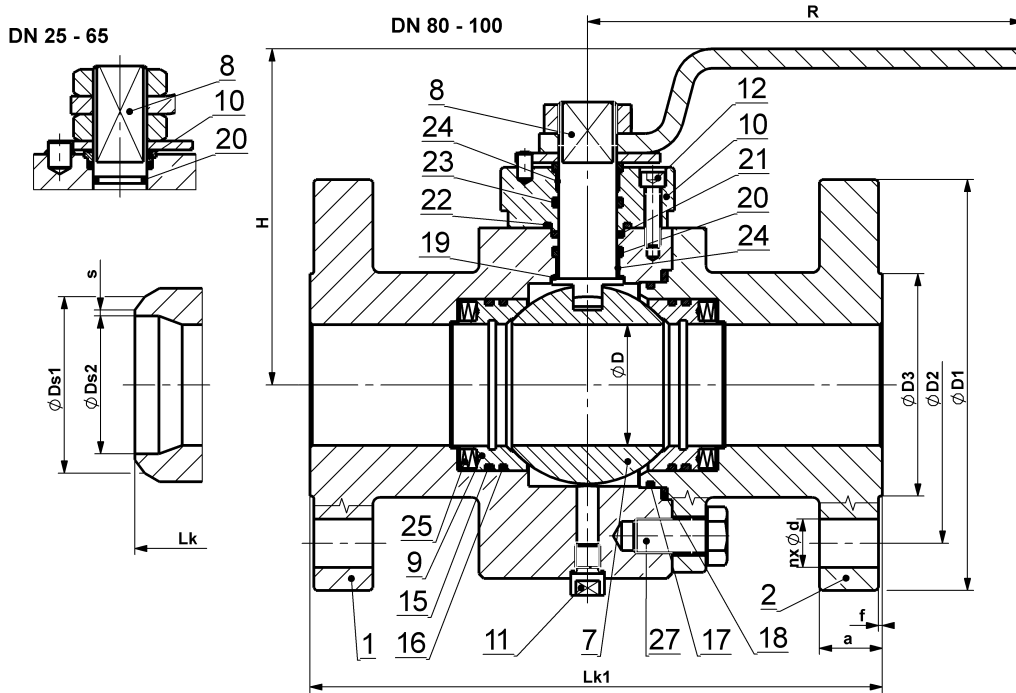


BALL VALVE, METAL-TO-METAL

with two piece body and metal floating seats, fire-safe
KM 9108.X-MF5 (MFS) (flanged) and KM 9103.X-MF5 (MFS) (butt weld ends)
DN 25–100 PN 16, 25, 40, 63, 100, (160)



Materials

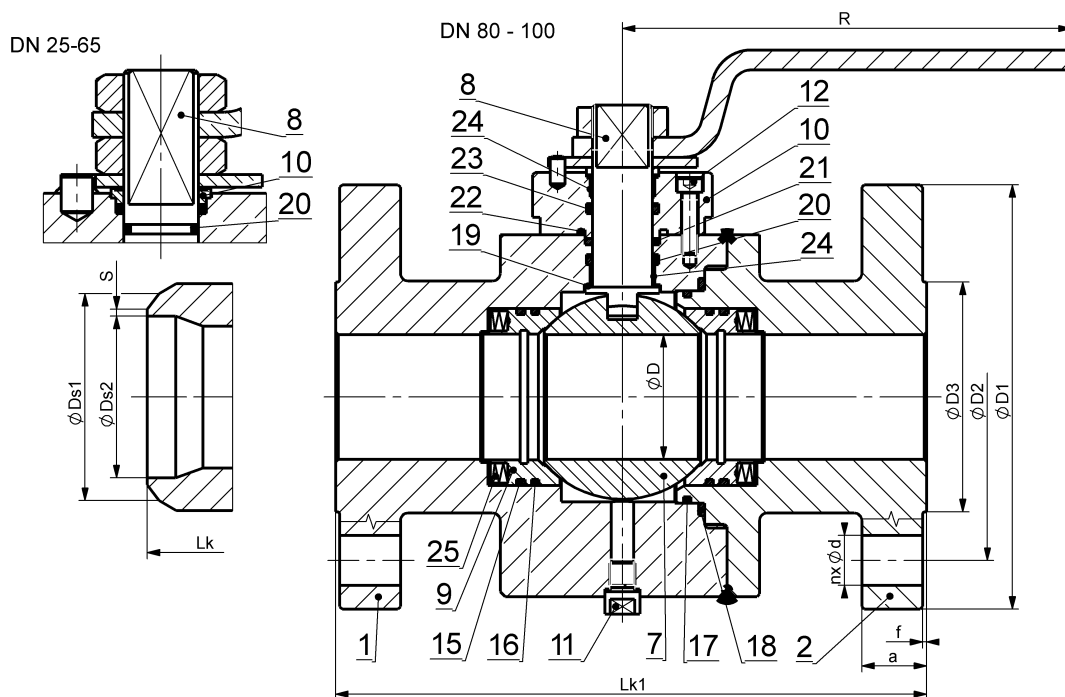
Type KM 9108.X-MF5(MFS) Type KM 9103.X-MF5(MFS)		Material			
Position	Component	Carbon steel		Stainless steel	
		X=1 For common temperatures from -20°C to +200°C	X=5 For low temperatures from -46°C to +200°C	X=3 For temperatures from -50°C to +200°C	X=4 For temperatures from -50°C to +200°C
1	Body	1.0577, S355J2	1.0565, A350 LF2	1.4541, A 182 F321	1.4571, A 182 F316
2	Cover				
7	Ball	ČSN 17 029 (hardened), 1.4034 (hardened), 1.4541+Stellite		1.4541+Stellite	1.4571+Stellite
8	Stem	1.4021, ČSN 17 027	1.4541, ČSN 17 027	1.4541, A 182 F321	1.4571, A 182 F316
9	Seat	ČSN 17 029 (hardened), 1.4034 (hardened), 1.4541+Stellite		1.4541+Stellite	1.4571+Stellite
10	Cover	1.0577, S355J2	1.0565, A350 LF2, ČSN 11 503	1.4541, A 182 F321	1.4571, A 182 F316
11	Screw plug				
12	Bolt	A2-70			
15	Sealing	NBR, HNBR, EPDM, FPM			
16	Sealing (fire-safe)	Graphite			
17	Sealing	NBR, HNBR, EPDM, FPM			
18	Gasket	Graphite			
19	Gasket	RPTFE, PEEK			
20	Sealing	NBR, HNBR, EPDM, FPM			
21	Gasket (fire-safe)	Graphite			
22	Sealing	NBR, HNBR, EPDM, FPM			
23	Sealing	NBR, HNBR, EPDM, FPM			
24	Bearing	KU			
25	Spring	1.4310			
27	Bolt	A2-70			

Operating temperature range can be reduced based on selected sealing materials.

BALL VALVE, METAL-TO-METAL

with welded body and metal floating seats, fire-safe

KM 9108.X-FW-MF5 (MFS) (flanged) and KM 9103.X-FW-MF5 (MFS) (butt weld ends)
DN 25–100 PN 16, 25, 40, 63, 100, (160)



Materials

Type KM 9108.X-FW-MF5(...) Type KM 9103.X-FW-MF5(...)		Material			
Position	Component	Carbon steel		Stainless steel	
		X=1 For common temperatures from -20°C to +200°C	X=5 For low temperatures from -46°C to +200°C	X=3 For temperatures from -50°C to +200°C	X=4 For temperatures from -50°C to +200°C
1	Body	1.0577, S355J2	1.0565, A350 LF2	1.4541, A 182 F321	1.4571, A 182 F316
2	Cover				
7	Ball	ČSN 17 029, 1.4034 (hardened) 1.4541+Stellite		1.4541+Stellite	1.4571+Stellite
8	Stem	1.4021, ČSN 17 027	1.4541, ČSN 17 027	1.4541, A 182 F321	1.4571, A 182 F316
9	Seat	ČSN 17 029, 1.4034 (hardened) 1.4541+Stellite		1.4541+Stellite	1.4571+Stellite
10	Cover	1.0577, S355J2	1.0565, A350 LF2, ČSN 11 503	1.4541, A 182 F321	1.4571, A 182 F316
11	Screw plug				
12	Bolt	A2-70			
15	Sealing	NBR, HNBR, EPDM, FPM			
16	Sealing (fire-safe)	Graphite			
17	Sealing	NBR, HNBR, EPDM, FPM			
18	Gasket	Graphite			
19	Gasket	RPTFE, PEEK			
20	Sealing	NBR, HNBR, EPDM, FPM			
21	Gasket (fire-safe)	Graphite			
22	Sealing	NBR, HNBR, EPDM, FPM			
23	Sealing	NBR, HNBR, EPDM, FPM			
24	Bearing	KU KU			
25	Spring	1.4310			

Operating temperature range can be reduced based on selected sealing materials.

Dimensions and Weights

PN 16, 25, 40	DN	øD	øD1	øD2	øD3	Lk1	f	a	n	ød	R	H	Lk	Lk1	øDs1	øDs2	S	Trubka/Pipe
	25	25	115	85	68	160	2	18	4	14	250	117	270	160	34	28,5	-	33,7×2,6
32	32	140	100	78	180	2	18	4	18			270		43	37	-	42,4×2,6	
40	38	150	110	88	200	2	18	4	18			270		49	42,5	-	48,3×2,9	
50	49	165	125	102	230	2	20	4	18			300		61	53,5	1,5	60,3×3,2	
65	62	185	145	122	290	2	22	8	18			360		77	69,5	1,5	76,1×3,2	
80	74	200	160	138	310	2	24	8	18			390		90	81,5	1,5	88,9×3,6	

PN 16	DN	øD	øD1	øD2	øD3	Lk1	f	a	n	ød	R	H	Lk	Lk1	øDs1	øDs2	S	Trubka/Pipe
100	100	220	180	158	350	2	20	8	18				450	350	115	106	1,5	114,3×4

PN 25 PN 40	DN	øD	øD1	øD2	øD3	Lk1	f	a	n	ød	R	H	Lk	Lk1	øDs1	øDs2	S	Trubka/Pipe
100	100	235	190	162	350	2	24	8	22				450	350	116	106	1,5	114,3×4

PN 63	DN	øD	øD1	øD2	øD3	Lk1	f	a	n	ød	R	H	Lk	Lk1	øDs1	øDs2	S	Trubka/Pipe
	25	25	140	100	68	160	2	24	4	18	250	122	270	160	34	28,5	-	33,7×2,6
32	32	155	110	78	180	2	24	4	22			270		43	37	-	42,4×2,6	
40	38	170	125	88	200	2	26	4	22			270		49	42,5	-	48,3×2,9	
50	49	180	135	102	230	2	26	4	22			300	230	61	53,5	1,5	60,3×3,2	
65	62	205	160	122	290	2	26	8	22			360		77	68,5	1,5	76,1×3,6	
80	74	215	170	138	310	2	28	8	22			390		90	80,5	1,5	88,9×4	
100	100	250	200	162	350	2	30	8	26			450	350	115	104	1,5	114,3×5	

PN 100	DN	øD	øD1	øD2	øD3	Lk1	f	a	n	ød	R	H	Lk	Lk1	øDs1	øDs2	S	Trubka/Pipe
	25	25	140	100	68	160	2	24	4	18				270		34	27,5	-
32	32	155	110	78	180	2	24	4	22				270		43	36	1,5	42,4×3,2
40	38	170	125	88	200	2	26	4	22				270		49	41	1,5	48,3×3,6
50	49	195	145	102	230	2	28	4	26				300		61	51	1,5	60,3×4,5
65	62	220	170	122	290	2	30	8	26				360		77	66	1,5	76,1×5
80	74	230	180	138	310	2	32	8	26				390		90	77,5	1,5	88,9×5,6
100	100	265	210	162	350	2	36	8	30				450		115	100	1,5	114,3×7

Dimensions of welding ends according to the dimensional table or customer requirement.

Application

Ball valves with butt-weld ends type KM 9103.X-MF5(-FW-MF5), and with flanged ends type KM 9108.X-MF5 (-FW-MF5) are isolating valves designed to fully open or close the service fluid flow. They are not designed to be used for throttling or regulating purposes. The scope of application of the ball valves depends directly on their materials and on the properties and temperature of the service fluid. The standard materials are specified in the table of materials. By agreement and based on service conditions, also other materials than those specified in the table may be used.

The ball valves are intended to be used with fluids **containing mechanical particles with sizes not exceeding 5mm**, especially heating gases (natural gas, lighting gas, propane-butane mixture, biogas, coke-oven gas), water, and non-corrosive liquids and gases in general. The permissible hardness of mechanical impurities depends on the material of the ball valve seat. For hardened stainless material 1.4034 (MF5), ČSN 17 029 (MF5) or for Stellite (MFS) overlay, the solid particles can be very hard (up to hardness Mohs 7, e.g. sand, etc.).

Service temperature range can be from -46°C to +200°C depending on combination of body material and sealing rings. Allowable service pressures are in compliance with the pressure-temperature ratings (graph B1).

Technical Description

Ball valve design meets the requirements of API 608 and API Spec 6D. The ball valve is with full bore, floating ball and floating seats, and is fire resistant in accordance with API 607 (fire-safe). The stem design ensures that

the stem can not be ejected from the valve body by pressure of the fluid (anti-blow-out stem), internal components are connected to provide conductivity and resistance to formation of electrostatic discharges (anti-static design). Sealing between the ball and valve seats is ensured by metal-to-metal contact. The cover is attached to the body by bolts or screwed and secured by a seal weld (FW design).

Operation

By lever, gear box with a hand wheel, pneumatic actuator, electric actuator. Dimensions of flanges for actuator installation are in accordance with ISO 5211. The actuator size depends on the maximum service pressure drop through the ball.

The method of operation is indicated by the third digit of the type designation, which is "0" for lever and "3" for actuator (e.g. KM 9138.X-MF5).

Connection to Piping

Overall dimensions are shown in the tables of dimensions.

- dimension of ball bore according to API 6D or API 608
- connection according to EN 1092-1 or ANSI B 16.5
- face-to-face dimensions of type KM 9108.X-MF5 – series 1 according to EN 558-1 (DIN 3202 series F1)
- shapes of welding ends according to EN 17292
- end-to-end dimension of type KM 9103.X-MF5 – according to EN 12982

Testing

According to EN 12 266-1 as a standard, i.e. shell strength test P10, P11, seat tightness test P12 (water pressure $1,1 \times PN$ and air pressure 0,6 MPa), leakage rate A – zero leakage. If required by the Customer, additional tests may be performed as well.

Installation, Service and Maintenance

The ball valves may be installed into the piping in any arbitrary position. They require no special adjustments or maintenance. They are operable at the full pressure drop which equals to PN.

When welding the ball valves type KM 9103.X-MF5 into the pipeline, the following procedure must be followed:

1. prior to welding, open the ball valve fully
2. do not release and do not remove the sockets from the body!
3. use a welding procedure with which the rubber O-rings between the sockets and the body and their ambient are not exposed to temperatures above 120°C! For instance, protect the O-rings and their ambient by means of wet cloth and continue cooling this area by pouring cold water.

In case of testing of piping with water it is recommended to drain the water from valve's hollow with the plug (Pos. 12) after completion of the tests.

Optional Accessories, Adjustments and Services

- heating jacket – for keeping the fluid liquid
- different face-to-face dimensions or end combinations
- adaptation of face form (Groove, Tongue, Spigot, Recess, O-ring groove, RTJ)
- lockable handle with a padlock – for locking opened / closed position of the valve
- underground set – for underground service
- extended stem – e.g. for the reason of insulation of the valve and pipeline
- up-stream vent hole – for balancing pressure into up-stream pipeline
- limit switches
- documentation according to EN 10204 3.1 or 3.2
- special adjustments according to customer requests
- valves for nominal pressure classes PN 160
- execution according to standard NACE MR 0175 or ISO 15156