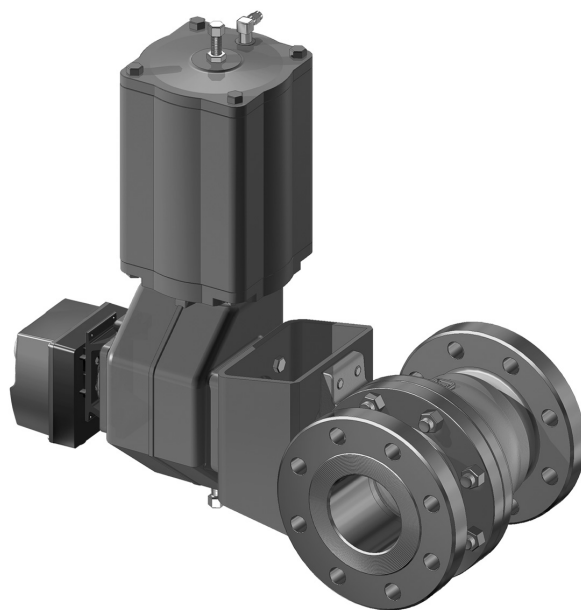


NELES® FLANGED FULL BORE MBV BALL VALVE, SERIES M1 FOR PN RATINGS

Metso's Neles modular ball valve series M1, offers optimized performance of pulp and paper applications. Series M, incorporates Metso's leading pulp and paper application know-how in valve technology. Several decade experience of Metso has fine tuned this product to deliver P&P customers easy product selection with industry leading performance. Valve series includes seat supported and trunnion mounted ball valve designs covering seat types, size ranges and material options offering comprehensive coverage for most pulp and paper applications needs. Valve delivers excellent tightness for shutoff as well as delivering good control performance for pulp and paper applications. Optimized modularity can be used as an advantage to cut down costs via reduced spare part inventory and product suitability for wide scope of process applications.



Applications

- Pulp & paper
- Digesters and fiberlines
- Liquor service
- Chemical recovery
- Sludge treatment
- TMP-plants
- Deinking and recycling plants
- Steam
- Paper mill application

DESIGN FEATURES

Size range

- DN 25 ... 400.

Pressure classes

- PN 10, 16, 25 and 40.

Tightness

- Separate ball and shaft assure good tightness, even with metal seats, at low shut-off pressure.
- Bubble tight shut-off with soft seats.

Versions, details

- V-ring gland packing ensures long maintenance-free operation.
- Spiral wound body joint gasket for leak free operation.
- Live loaded packing as standard option for trunnion mounted valves.
- Q-trim option for reduced noise and cavitation.
- Scraping seat as standard, can be locked.
- Splined ball/shaft connection for good torque transmission.
- Metric threading
- Trunnion design in DN 250 - 400
- ATEX

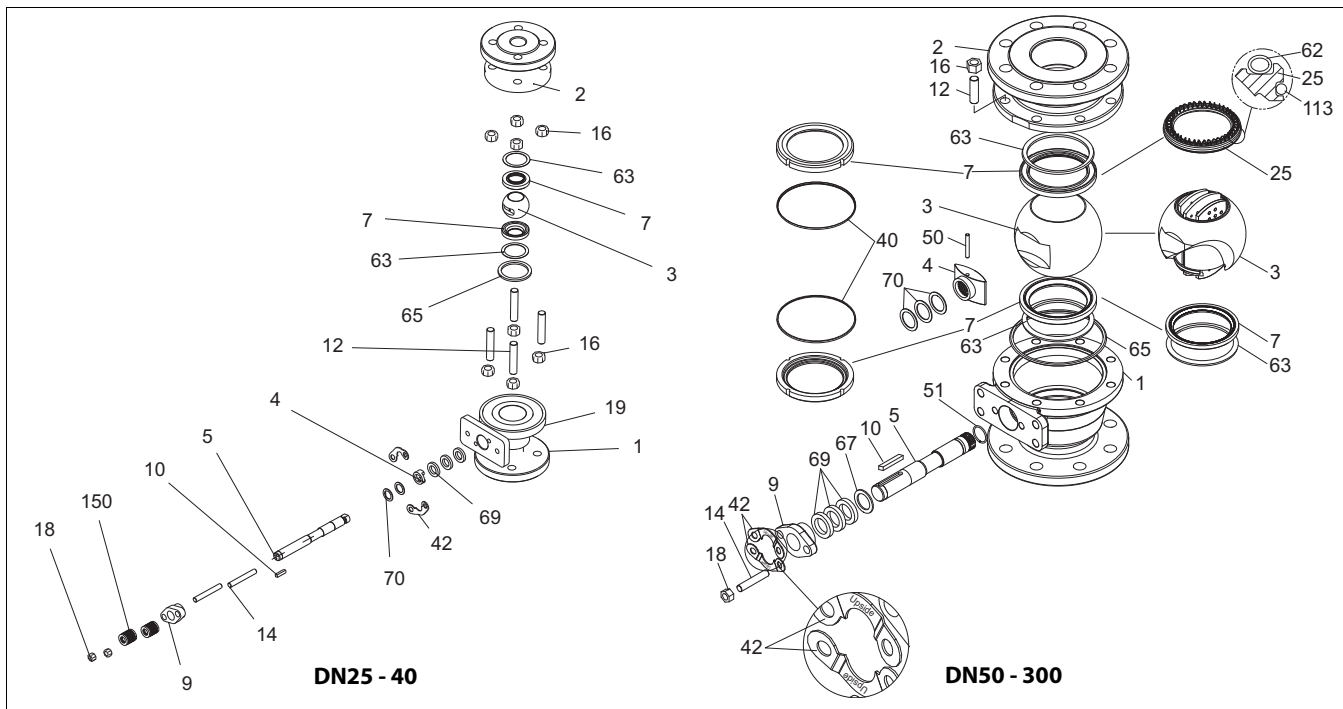
Full bore

- High C_v per nominal size.
- Straight ball opening offers low flow resistance.
- True full bore ball (cylindrical flow path).

Minimized emissions

- Uninterrupted circular spiral wound body gasket.
- No bending forces to gland packing.
- Live loaded gland packing available for seat supported valves

EXPLODED VIEW, SEAT SUPPORTED VALVES

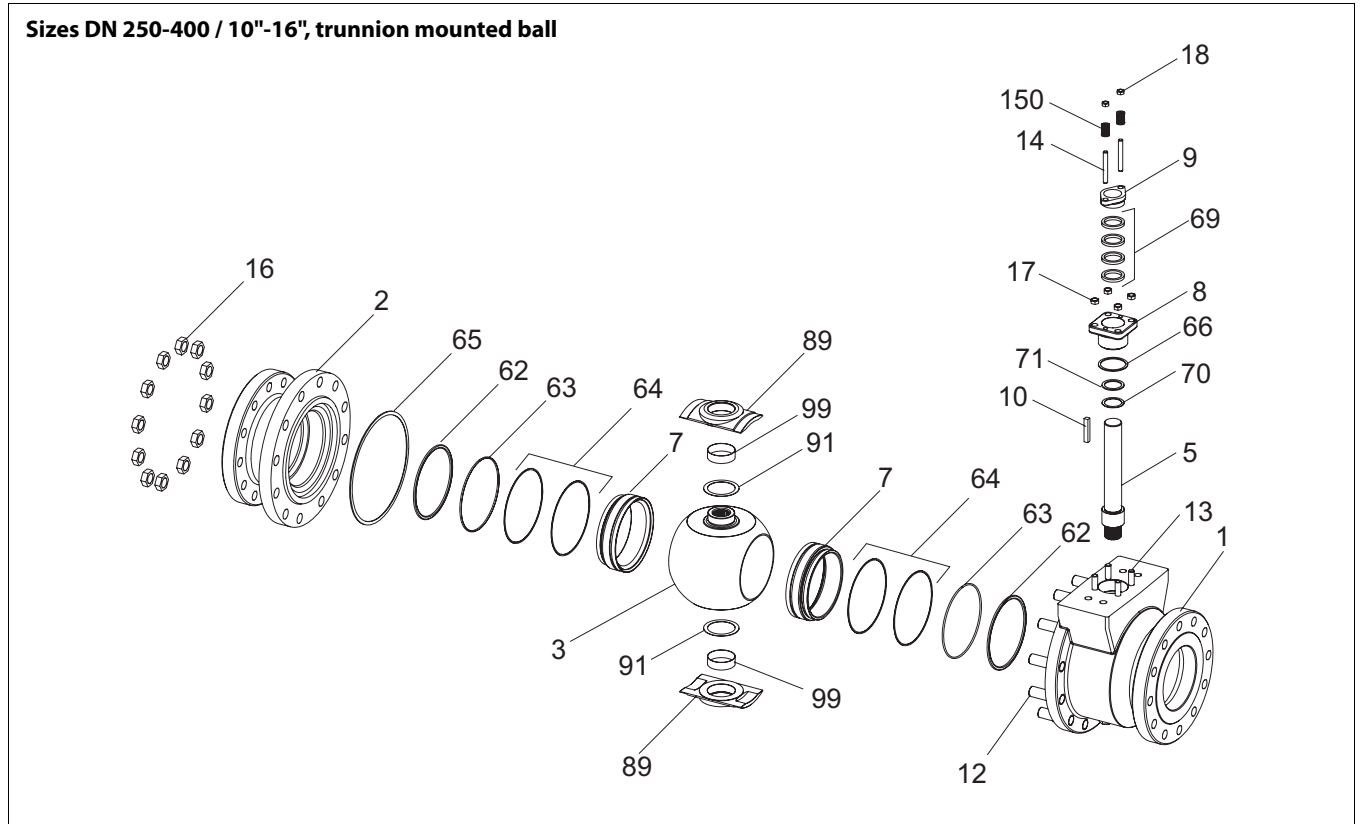


PARTS LIST

Item	Part description	Material		
1	Body	Stainless steel CF8M / CG8M		
2	Body cap	Stainless steel CF8M / CG8M		
3	Ball / Q-Trim ball	Stainless steel AISI 316/CF8M/ CG8M		
4	Spline driver DN50 ... 300 Thrust ring DN25 ... 40	Stainless steel CF8M AISI 316		
5	Stem	Stainless steel AISI 329		
7	Seat	Stainless steel + cobalt based alloy	PTFE	Xtreme®
9	Gland	Stainless steel CF8M		
10	Key	Stainless steel AISI 329		
12	Stud	Stainless steel A2-70		
14	Stud	Stainless steel A2-70		
16	Hexagon nut	Stainless steel A2-70		
18	Hexagon nut	Stainless steel A2-70		
25	Seat (E)	Stainless steel + cobalt based alloy		
40	Locking ring DN 250 - DN 300	Stainless steel AISI 316		
42	Retainer plate	Stainless steel AISI 316		
50	Cylindrical pin	Stainless steel AISI 316		
51	Retaining ring	UNS N06625		
62	Spring	UNS N06625		
63	Back seal	PTFE		
65	Body gasket	PTFE, Stainless steel AISI 316 + PTFE or graphite, filled spiral wound		
67	Thrust ring	Stainless steel AISI 316		
69	Packing	PTFE or graphite		
70	Thrust bearing	PTFE		
113	Back seal	FPM (O-ring) as standard, PTFE + polyester (lip seal) optional		
150	Disc spring set	Electroless nickel plated spring steel (EN 10083 - 1.8159)		

EXPLODED VIEW, TRUNNION MOUNTED VALVES

Sizes DN 250-400 / 10"-16", trunnion mounted ball



PARTS LIST

Item	Part description	Material	
1	Body	Stainless steel CF8M (~W-no. 1.4408) / CG8M	
2	Body cap	Stainless steel CF8M (~W-no. 1.4408) / CG8M	
3	Ball	Stainless steel AISI 316/CF8M / CG8M	
5	Shaft	Stainless steel XM-19	
7	Seat	Stainless steel + cobalt based alloy	PTFE
8	Bonnet	Stainless steel CF8M	
9	Gland	Stainless steel CF8M	
10	Key	Stainless steel AISI 329	
12	Stud	Stainless steel A2-70	
13	Stud	Stainless steel A2-70	
14	Stud	Stainless steel A2-70	
16	Hexagon nut	Stainless steel A2-70	
17	Hexagon nut	Stainless steel A2-70	
18	Hexagon nut	Stainless steel A2-70	
62	Seat spring	Alloy 625	
63	Back seal	PTFE or graphite	
64	Back-up ring	PTFE	
65	Body gasket	Stainless steel AISI 316 + PTFE or graphite, filled spiral wound	
66	Bonnet gasket	PTFE or graphite	
69	Packing ring	PTFE or graphite	
70	Thrust bearing	PTFE or cobalt based alloy	
71	Thrust bearing	Cobalt based alloy	
89	Trunnion plate	Stainless steel, ASTM A 351 gr. CF8M	
91	Bearing spacer	PTFE + Stainless steel	
99	Trunnion bearing	PTFE + Stainless steel	
150	Disc spring set	Electroless nickel plated spring steel (EN 10083-1.8159)	

TECHNICAL SPECIFICATION

Product type

Flanged full bore, ball valve.
Split body design.
Seat supported design DN 25 ... 300
Trunnion design DN 250 ... 400

Pressure ratings

PN 10, 16, 25, 40.

Size range

DN 25 ... 400.

Temperature range

-50 ... +260 °C. Depending on the seat material.

Design standards

Valve body DIN 3840, ISO 7121
Valve flanges PN 10 - 40
Face-to-face ISO 5752/EN 558-1. Basic series 3, 4 or 12 depending on size and pressure class.

Standard materials

Body CF8M.
Ball CF8M + hard chrome.
Bearings PTFE + graphite.
Seats Stainless steel + cobalt based alloy, Xtreme®
Optional PTFE or filled PTFE.
Seals/gaskets PTFE, graphite, FPM.
Body gasket Spiral wound with PTFE or graphite filler.
Gland packing PTFE (V-rings), graphite.

Bolting

A2-70

Certification

EN 10204 - 3.1 material certificates for body and body cap / bonnet.

Standard options

Degreasing.
Q-Trim.
Anti-Static. (ATEX).
Live loaded construction for trunnion mounted valves.

Valve testing

Each valve is tested for body integrity and seat tightness. The body test pressure is 1.5 x PN. The seat test pressure for metal seated valves is 1.1 x PN. The seat test pressure for soft seats is 6 bar. The test medium is inhibited water. Air test upon request.

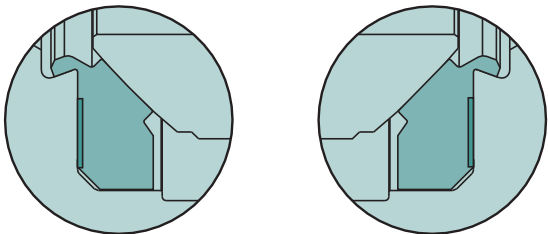
Valve tightness

ISO 5208 Rate D for metal seats as standard. Soft seated seat supported valves are bubble tight. Other tightness rates upon request.

C_v (K_v) -values and resistance coefficients

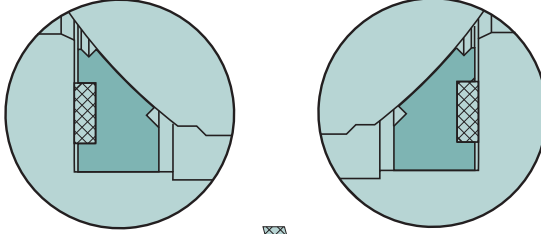
Valve size DN	M1			M1 with Q-Trim	
	C _v 90°	K _v 90°	ξ 90°	C _v 90°	K _v 90°
25	105	91	0.08	-	-
40	250	220	0.07	-	-
50	490	425	0.06	84	73
65	830	720	0.06	-	-
80	1160	1000	0.05	245	210
100	2200	1900	0.05	530	460
125	3360	2900	0.05	-	-
150	5100	4400	0.04	1360	1180
200	9300	8000	0.04	2330	2020
250	15200	13200	0.04	3920	3400
300	22400	19400	0.03	5600	4850
350	30500	26400	0.03	6860	5930
400	39800	34500	0.03	9190	7950

Locked scraping seat P



Materials:
Seats Stainless steel + cobalt based alloy
Seals PTFE
Temperature range -50 ... +260 °C
Size range DN 25 - 300

General scraping seat S

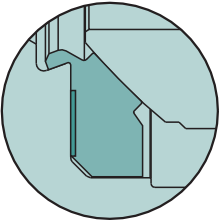


Materials:
Seats Stainless steel + cobalt based alloy
Seals PTFE
Temperature range -50 ... +230 °C
Size range DN 25 - 300

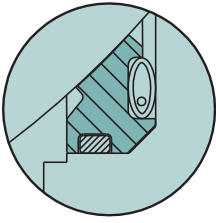
Non-compressed form of the PTFE back seal.

STANDARD SEAT OPTIONS

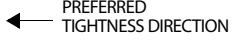
Scraping seat E for low Δp-applications



Body



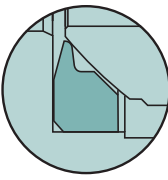
Body cap



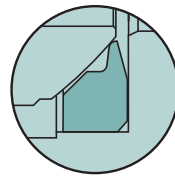
PREFERRED TIGHTNESS DIRECTION

<p>Seats Locked seals Spring assisted seals Springs Temperature range Maximum Δp</p>	<p>Stainless steel + cobalt based alloy PTFE Viton® GF O-ring. UNS N06625 -30 ... +200 °C 16 bar.</p>
<p>Note Available only on sizes DN 25 - 300</p>	

Soft seat X, for general use



DN 25 - 200

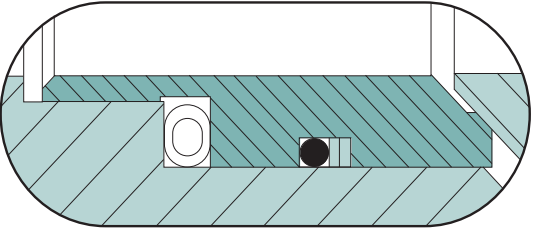


DN 250 - 300

Temperature ranges:

Xtreme (X)	-50 ... +260 °C DN 25 - 200
PTFE (T)	-50 ... +200 °C DN 250 & 300
Reinforced with carbon (M)	-50 ... +230 °C DN 125, 250 & 300

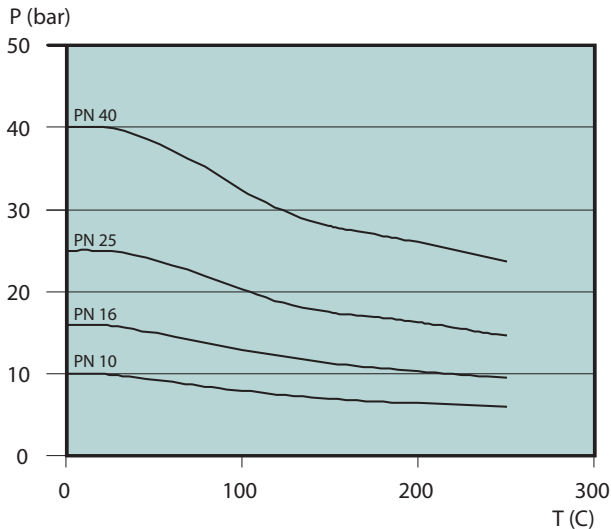
S seat for trunnion valves



<p>Ball seat: Seat seal: Spring: Temp. range:</p>	<p>SS steel + Cobalt based alloy Viton® GF O-ring. INCONEL 625. -30 ... +200 °C</p>
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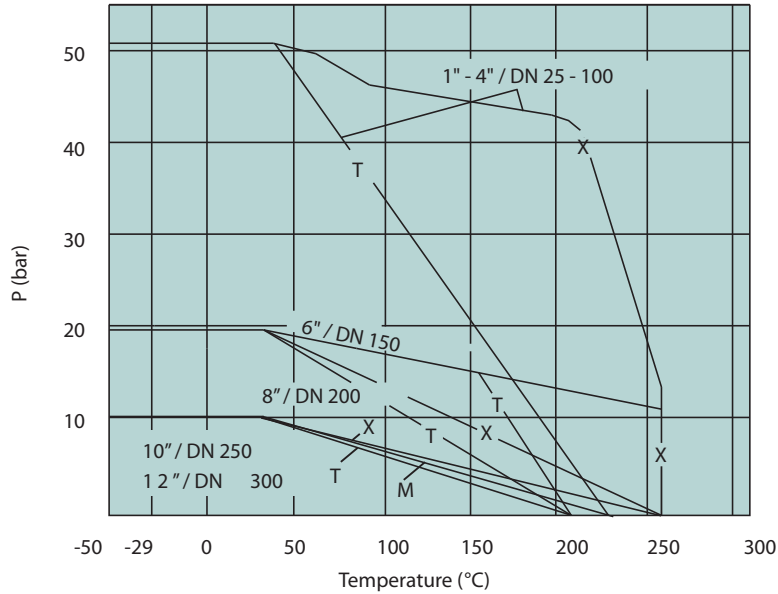
For temperatures over the specified ranges contact Metso.
Note: Max. operating pressure differentials for each seat type, see page 6.

VALVE BODY RATINGS CF8M and CG8M Pressure/temperature curves of valve body PN 10/16/25/40

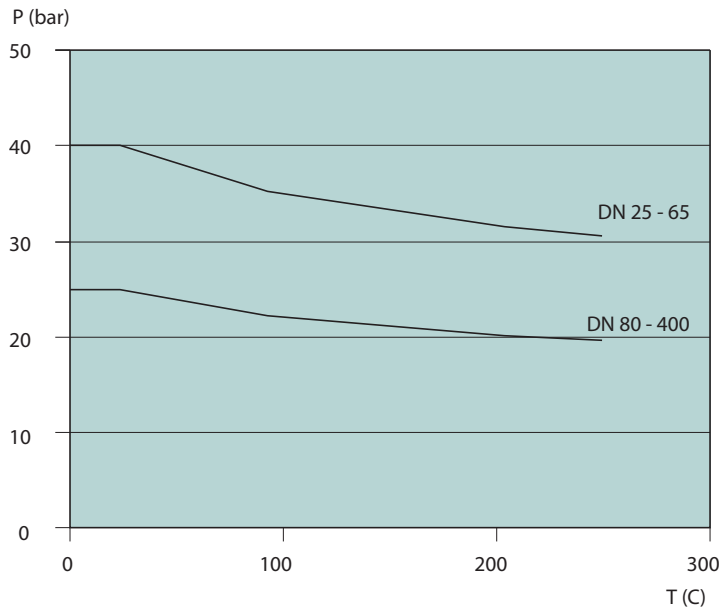


VALVE SEAT RATINGS

Seat supported valves, maximum operating pressure for soft seats



Maximum operating pressure for metal seats



Soft seat ratings are based on differential pressure with the valve ball in fully closed position and refer seats only.

ACTUATOR SELECTION

M1-valve can be equipped with the following Metso actuator types:

B1C/B1J Pneumatic double acting or spring return actuator. Actuators available for size range DN 25 - 400.

M M-series manual gear operator for valve sizes DN 25-300.

LK Hand lever for valve sizes DN 25-100.

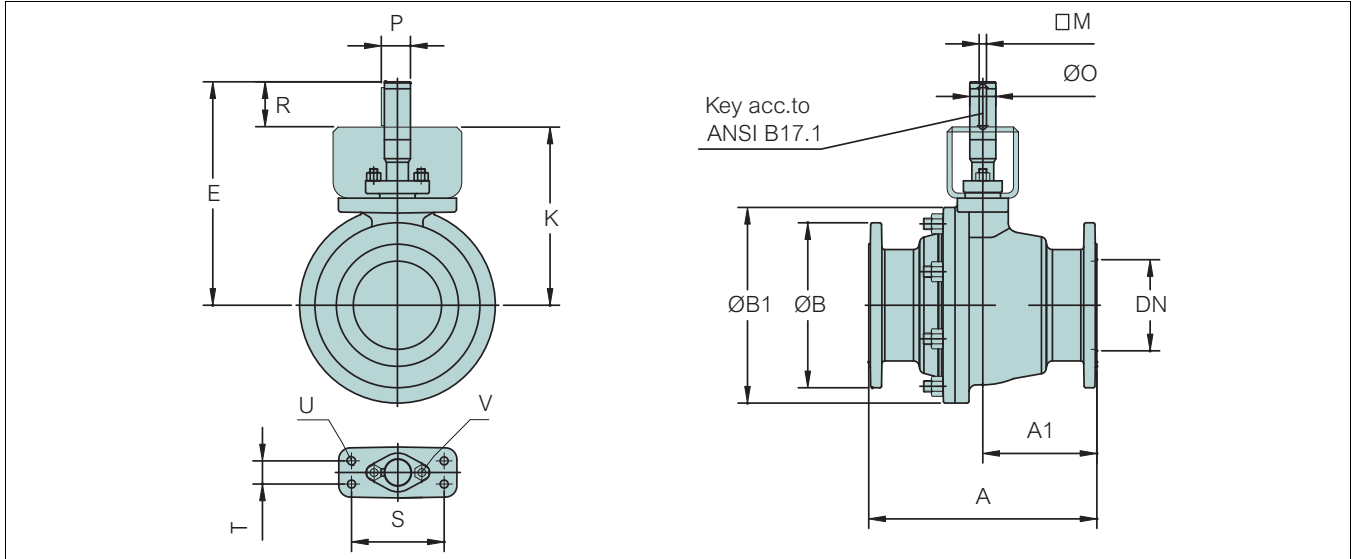
When selecting other than Metso actuators please contact your local Metso representative.

For the correct actuator selection you need to know the following process data:

- valve size and seat type
- supply pressure for the actuator
- maximum operating differential pressure over the valve in closed position

For pneumatic actuator selection use Metso Nelprof(R) Control and On-Off sizing and selection software. You can get a copy from you local sales office.

DIMENSIONS



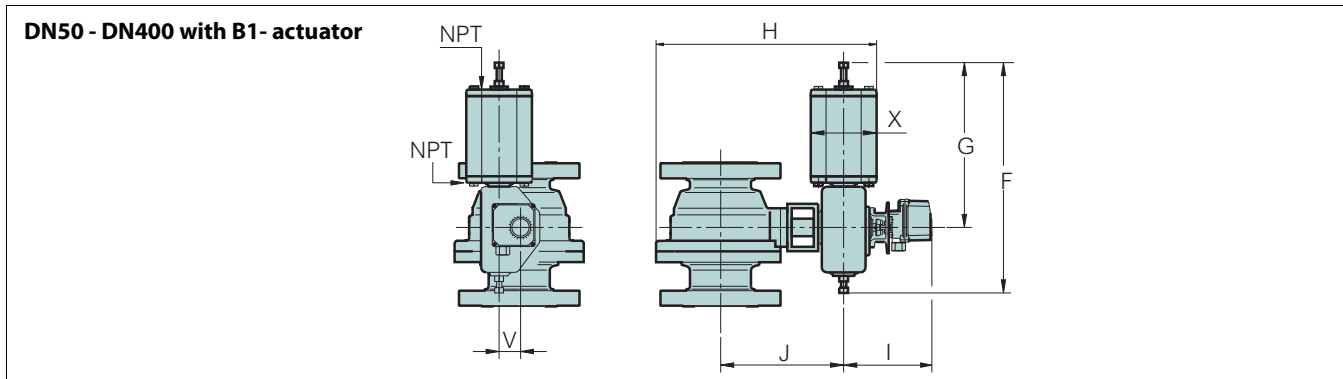
SEAT SUPPORTED VALVES

TYPE PN	DN	DIMENSIONS (mm)														WEIGHT (kg)	
		A	A1	ØB	ØB1	E	K	M	ØO	P	R	S	T	U	V	M1	Q-M1
M1M PN40 (10, 16, 25)	25	165	74	124	110	178	150	4.76	15	17	28	70	-	M10	M8	5	-
	40	165	70	155	145	206	168	4.76	20	22	38	70	-	M10	M10	8	-
	50	178	79	165	146	215	168	6.35	25	27.8	47	110	32	M12	M10	13	14
M1M PN40 (25)	65	270	135	185	154	223	176	6.35	25	27.8	47	110	32	M12	M10	20	-
	80	282	141	200	195	237	190	6.35	25	27.8	47	110	32	M12	M10	30	32
	100	305	152.5	235	252	309	250	9.52	35	39.1	59	130	32	M12	M10	50	55
	125	325	162.5	270	280	331	272	9.52	35	39.1	59	130	32	M12	M10	80	-
	150	403	201.5	300	346	386	305	12.70	45	50.4	81	160	40	M16	M14	120	130
M1L PN25	200	502	251	360	432	476	385	12.70	55	60.6	91	160	55	M20	M14	200	220
	250	568	284	425	512	582	472	15.87	65	71.9	110	230	90	M24	M20	295	335
	300	648	324	485	584	685	555	19.05	75	83.1	130	307.4	120	M30	M20	450	505
M1K PN16 (10)	65	270	135	185	154	223	176	6.35	25	27.8	47	110	32	M12	M10	20	-
	80	203	101.5	200	184	237	190	6.35	25	27.8	47	110	32	M12	M10	20	22
	100	229	114.5	220	236	309	250	9.52	35	39.1	59	130	32	M12	M10	35	37
	125	325	162.5	270	280	331	272	9.52	35	39.1	59	130	32	M12	M10	80	-
M1K PN16	150	394	197	285	338	386	305	12.70	45	50.4	81	160	40	M16	M14	100	110
	200	457	228.5	340	426	476	385	12.70	55	60.6	91	160	55	M20	M14	160	180
	250	533	266.5	405	512	582	472	15.87	65	71.9	110	230	90	M24	M20	280	320
M1J PN10	300	610	305	460	584	685	555	19.05	75	83.1	130	307.4	120	M30	M20	420	475
	200	457	228.5	340	426	476	385	12.70	55	60.6	91	160	55	M20	M14	160	180
	250	533	266.5	405	512	582	472	15.87	65	71.9	110	230	90	M24	M20	280	320
300	610	305	460	584	685	555	19.05	75	83.1	130	307.4	120	M30	M20	420	475	

TRUNNION TYPE VALVES DIMENSIONS

TYPE PN	DN	DIMENSIONS (mm)														WEIGHT (kg)	
		A	A1	ØB	ØB1	E	K	M	ØO	P	R	S	T	U	V	M1	Q-M1
M1JW/M1JZ PN 10	250	533	267	395	514	562	472	12.70	55	60.60	90	230	90	M24	M14	325	360
	300	610	305	445	592	605	515	12.70	55	60.60	90	230	90	M24	M14	480	530
	350	686	343	505	665	741	607	19.05	75	83.15	134	330	120	M30	M20	635	710
	400	762	381	565	750	779	633	22.23	85	94.63	146	330	120	M30	M20	840	940
M1KW/M1KZ PN 16	250	533	267	405	514	562	472	12.70	55	60.60	90	230	90	M24	M14	325	360
	300	610	305	460	592	605	515	12.70	55	60.60	90	230	90	M24	M14	480	530
	350	686	343	520	665	741	607	19.05	75	83.15	134	330	120	M30	M20	635	710
M1LW/M1LZ PN 25	400	762	381	580	750	779	633	22.23	85	94.63	146	330	120	M30	M20	840	940
	250	568	284	425	580	562	472	12.70	55	60.60	90	230	90	M24	M14	330	370
	300	648	324	485	652	605	515	12.70	55	60.60	90	230	90	M24	M14	610	660
M1MW/M1MZ PN 40	350	762	381	555	665	741	607	19.05	75	83.15	134	330	120	M30	M20	680	750
	400	838	419	620	750	779	633	22.23	85	94.63	146	330	120	M30	M20	890	980
	250	568	284	450	580	562	472	12.70	55	60.60	90	230	90	M24	M14	330	370
	300	648	324	515	652	605	515	12.70	55	60.60	90	230	90	M24	M14	610	660
M1MW/M1MZ PN 40	350	762	381	580	700	741	607	19.05	75	83.15	134	330	120	M30	M20	800	870
	400	838	419	660	799	779	633	22.23	85	94.63	146	330	120	M30	M20	1015	1100

DIMENSIONS



SEAT SUPPORTED VALVE + DOUBLE ACTING ACTUATOR, TYPE B1C

DN	TYPE	ACTUATOR / MOUNTING	DIMENSIONS, mm							NPT / ISO	WEIGHT [kg]
			F	G	H	I	J	V	X		
25	M1M, M1L, M1K, M1J	B1C6 / F07	400	260	260	224	210	36	90	1/4	12
40		B1C6 / F07	400	260	295	224	230	36	90	1/4	15
50		B1C6 / F07	400	260	390	224	226	36	90	1/4	20
50		B1C9 / F07	455	315	385	225	227	43	110	1/4	25
65	M1M, M1L	B1C9 / F07	455	315	390	225	235	43	110	1/4	30
80		B1C11 / F10	540	375	435	233	255	51	135	3/8	50
100		B1C13 / F12	635	445	550	253	331	65	175	3/8	85
125		B1C17 / F14	770	545	647	270	378	78	215	1/2	135
150	B1C20 / F14	840	575	720	291	420	97	215	1/2	200	
200	M1L	B1C25 / F16	1040	710	900	310	523	121	265	1/2	335
250		B1C32 / F25	1330	910	1105	348	647	153	395	3/4	570
300		B1C40 / F30	1660	1150	1325	368	780	194	505	3/4	930
65	M1K, M1J	B1C9 / F07	455	315	390	225	235	43	110	1/4	30
80		B1C9 / F07	455	315	425	225	249	43	110	1/4	40
100		B1C11 / F10	540	375	515	233	315	51	135	3/8	55
125		B1C17 / F14	770	545	647	270	378	78	215	1/2	125
150		B1C17 / F14	770	545	680	270	401	78	215	1/2	160
200		B1C20 / F14	840	575	840	291	500	97	215	1/2	240
200		B1C25 / F16	1040	710	895	310	523	121	265	1/2	295
250		B1C25 / F16	1040	710	1000	310	610	121	265	1/2	420
250		B1C32 / F25	1330	910	1105	348	647	153	395	3/4	550
300		B1C32 / F25	1330	910	1220	348	730	153	395	3/4	700
300	B1C40 / F30	1660	1150	1325	368	780	194	505	3/4	900	

TRUNNION TYPE VALVE + DOUBLE ACTING ACTUATOR, TYPE B1C

DN	TYPE	ACTUATOR / MOUNTING	DIMENSIONS, mm							NPT/ISO	WEIGHT (kg)
			F	G	H	I	J	V	X		
250	M1JW/M1JZ M1KW/M1KZ	B1C25 / F16	1040	710	1000	310	610	121	265	1/2	430
300		B1C25 / F16	1040	710	1080	310	650	121	265	1/2	580
300		B1C32 / F25	1330	910	1180	348	690	153	395	3/4	700
350		B1C32 / F25	1330	910	1310	348	780	153	395	3/4	890
350		B1C40 / F30	1660	1150	1415	368	830	194	505	3/4	1090
400		B1C32 / F25	1330	910	1380	348	810	153	395	3/4	1100
400	B1C40 / F30	1660	1150	1485	368	860	194	505	3/4	1300	
250	M1LW/M1LZ	B1C25 / F16	1040	710	1030	310	610	121	265	1/2	450
300		B1C25 / F16	1040	710	1110	310	650	121	265	1/2	595
300		B1C32 / F25	1330	910	1210	348	690	153	395	3/4	715
350		B1C32 / F25	1330	910	1330	348	780	153	395	3/4	950
350		B1C40 / F30	1660	1150	1435	368	830	194	505	3/4	1150
400		B1C32 / F25	1330	910	1405	348	810	153	395	3/4	1180
400	B1C40 / F30	1660	1150	1510	368	860	194	505	3/4	1380	
250	M1MW/M1MZ	B1C25 / F16	1040	710	1030	310	610	121	265	1/2	600
300		B1C25 / F16	1040	710	1110	310	650	121	265	1/2	730
300		B1C32 / F25	1330	910	1210	348	690	153	395	3/4	850
350		B1C32 / F25	1330	910	1330	348	780	153	395	3/4	1070
350		B1C40 / F30	1660	1150	1435	368	830	194	505	3/4	1270
400		B1C32 / F25	1330	910	1405	348	810	153	395	3/4	1400
400	B1C40 / F30	1660	1150	1510	368	860	194	505	3/4	1600	

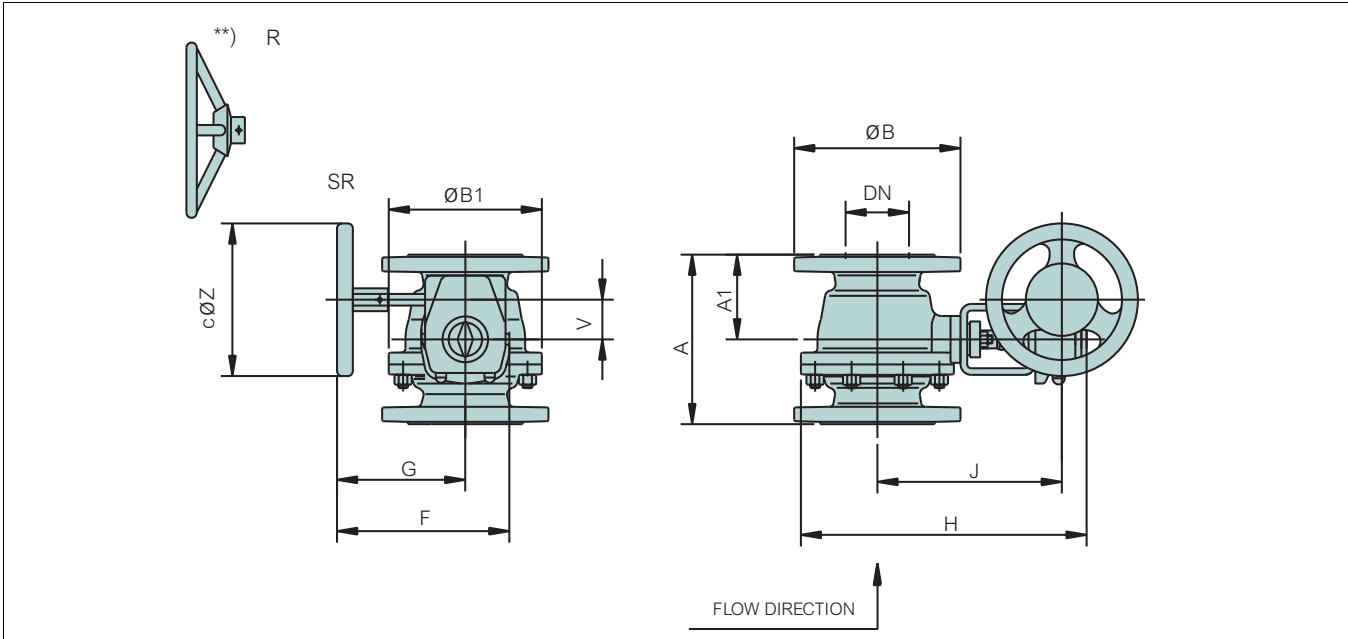
SEAT SUPPORTED VALVES + SPRING RETURN ACTUATOR, B1J and B1JA

DN	TYPE	ACTUATOR / MOUNTING	DIMENSIONS, mm							NPT / ISO	WEIGHT [kg]
			F	G	H	I	J	V	X		
25	M1M, M1L, M1K, M1J	B1J/B1JA6 / F07	485	368	273	225	220	36	110	3/8	16
25		B1J/B1JA8 / F07	560	420	280	225	220	43	135	3/8	25
40		B1J/B1JA6 / F07	485	368	315	225	240	36	110	3/8	21
40		B1J/B1JA8 / F07	560	420	315	225	240	43	135	3/8	30
50		B1J/B1JA8 / F07	560	420	385	225	227	43	135	3/8	35
50		B1J/B1JA10 / F10	650	490	405	233	233	51	175	3/8	45
65	M1M, M1L	B1J/B1JA10/F10	650	490	410	233	240	51	265	3/8	65
65		B1J/B1JA12/F14	800	620	440	153	250	65	395	1/2	110
80		B1J/B1JA12 / F12	800	620	480	253	271	65	215	1/2	90
100		B1J/B1JA16 / F14	990	760	605	270	346	78	265	1/2	150
125		B1J/B1JA16/F14	990	760	620	270	370	78	265	1/2	180
125		B1J/B1JA20 / F14	1200	935	760	291	400	97	395	3/4	250
150		B1J/B1JA20 / F14	1200	935	790	291	420	97	395	3/4	300
150		B1J/B1JA25 / F16	1530	1200	870	310	443	121	505	3/4	475
200	M1L	B1J/B1JA25 / F16	1530	1200	990	310	523	121	505	3/4	555
250		B1J/B1JA32 / F25	1830	1410	1175	348	647	153	540	1	980
300		B1J/B1JA32 / F25	1830	1410	1295	348	730	153	540	1	1150
65	M1K, M1J	B1J/B1JA10/F10	650	490	410	233	240	51	265	3/8	65
65		B1J/B1JA12/F14	800	620	440	153	250	65	395	1/2	110
80		B1J/B1JA10 / F10	650	490	445	233	255	51	175	3/8	50
100		B1J/B1JA12 / F12	800	620	555	253	331	65	215	1/2	95
125		B1J/B1JA16/F14	990	760	620	270	370	78	265	1/2	170
125		B1J/B1JA20 / F14	1200	935	760	291	400	97	395	3/4	240
150		B1J/B1JA16 / F14	990	760	705	270	401	78	265	1/2	205
200		B1J/B1JA20 / F14	1200	935	910	291	500	97	395	3/4	340
200		B1J/B1JA25 / F16	1530	1200	990	310	523	121	505	3/4	515
250		B1J/B1JA25 / F16	1530	1200	1120	310	610	121	505	3/4	635
250		B1J/B1JA32 / F25	1830	1410	1175	348	647	153	540	1	970
300		B1J/B1JA32 / F25	1830	1410	1295	348	730	153	540	1	1120

TRUNNION TYPE VALVE + SPRING RETURN ACTUATOR, TYPE B1J AND B1JA

DN	TYPE	ACTUATOR / MOUNTING	DIMENSIONS, mm							NPT/ISO	WEIGHT (kg)
			F	G	H	I	J	V	X		
250	M1JW/M1JZ M1KW/M1KZ	B1J/B1JA20 / F14	1200	935	1040	291	590	97	395	3/4	480
250		B1J/B1JA25 / F16	1530	1200	1120	310	610	121	505	3/4	650
300		B1J/B1JA25 / F16	1530	1200	1200	310	650	121	505	3/4	800
300		B1J/B1JA32 / F25	1830	1410	1255	348	690	153	540	1	1120
350		B1J/B1JA25 / F16	1530	1200	1330	310	750	121	505	3/4	990
350		B1J/B1JA32 / F25	1830	1410	1385	348	780	153	540	1	1310
400		B1J/B1JA32 / F25	1830	1410	1450	348	810	153	540	1	1520
250	M1LW/M1LZ	B1J/B1JA20 / F14	1200	935	1075	291	590	97	395	3/4	495
250		B1J/B1JA25 / F16	1530	1200	1150	310	610	121	505	3/4	665
300		B1J/B1JA25 / F16	1530	1200	1230	310	650	121	505	3/4	815
300		B1J/B1JA32 / F25	1830	1410	1285	348	690	153	540	1	1135
350		B1J/B1JA25 / F16	1530	1200	1385	310	750	121	505	3/4	1050
350		B1J/B1JA32 / F25	1830	1410	1400	348	780	153	540	1	1371
400	B1J/B1JA32 / F25	1830	1410	1480	348	810	153	540	1	1600	
250	M1MW/M1MZ	B1J/B1JA25 / F16	1530	1200	1150	310	610	121	505	3/4	820
300		B1J/B1JA25 / F16	1530	1200	1230	310	650	121	505	3/4	950
300		B1J/B1JA32 / F25	1830	1410	1285	348	690	153	540	1	1270
350		B1J/B1JA32 / F25	1830	1410	1400	348	780	153	540	1	1490
400		B1J/B1JA32 / F25	1830	1410	1480	348	810	153	540	1	1820

DIMENSIONS



SEAT SUPPORTED VALVE M1 AND MANUAL GEAR OPERATOR SERIES M

DN	TYPE	ACTUATOR / MOUNTING ISO 5211	Dimensions, mm										kg
			A	A1	ØB	ØB1	F	G	H	J	V	ØZ	
65	M1J, M1K	M07/25F07	270	135	185	154	235	184	320	205	52	160	23
80		M07/25F07	203	101.5	200	184	235	184	350	220	52	160	25
100		M12/35F12	229	114.5	220	236	307	238	455	292	71	315	45
100		M14/35F14	229	114.5	220	236	385	285	465	293	86	400	60
150		M14/45F14	394	197	285	338	385	285	570	348	86	400	120
150		M15/45F16	394	197	285	338	456	346	580	354	105	500	135
200		M15/55F16	457	228.5	340	426	456	346	700	434	105	500	195
200		M16/55F16	457	228.5	340	426	530	387	725	441	130	500	210
250		M16/65F25	533	266.5	405	512	530	387	855	528	130	500	340
300		M25/75F25	610	305	460	584	597	412	1010	615	182	600	510
200	M1L	M16/55F16	502	251	360	432	530	387	730	440	130	500	250
250		M16/65F25	568	284	425	512	530	387	855	528	182	600	355
300		M25/75F25	648	324	485	584	597	412	1010	615	182	600	540
25	M1J, M1K, M1L, M1M	M07/15F07	165	70	124	110	235	184	270	179	52	160	9
40		M07/20F07	165	74	155.5	149	235	184	307	197	52	160	12
50		M07/25F07	178	79	165	146	235	184	310	198	52	160	20
65	M1L, M1M	M07/25F07	270	135	185	154	235	184	320	205	52	160	23
80		M10/25F10	282	141	200	195	238	187	355	219	52	200	40
80		M12/25F12	282	141	200	195	307	238	380	232	71	315	45
100		M12/35F12	305	152.5	235	252	307	238	465	292	71	315	65
100		M14/35F14	305	152.5	235	252	385	285	470	293	86	400	75
150		M15/45F16	403	201.5	300	346	456	346	585	354	105	500	150

***) ACTUATORS M07...M12 ARE EQUIPPED WITH HANDWHEEL TYPE SR,P ACTUATORS
M14...M25 ARE EQUIPPED WITH HANDWHEEL TYPE R.
FACE-TO-FACE DIMENSIONS ACC. TO ISO 5752 P/PRESSURE RATINGS
J=PN10, K=PN16, L=PN25, M=PN40P FLANGED, FULL BORE

TRUNNION TYPE VALVE M1 AND MANUAL GEAR OPERATOR SERIES M

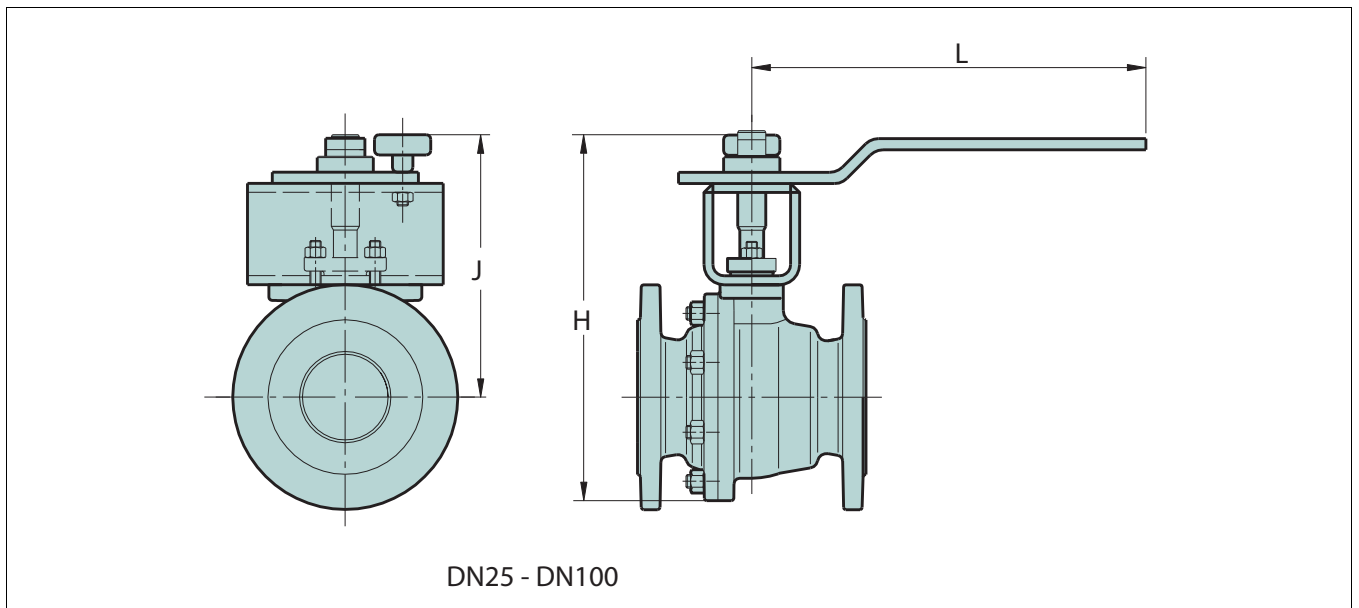
DN	TYPE	ACTUATOR/MOUNTING	DIMENSIONS IN mm									WEIGHT [kg]	
			A	A1	ØB	ØB1	F	G	H	J	V		ØZ
250	M1JW/ M1JZ	M15/55F16	533	267	395	514	456	346	880	520	105	500	335
300		M16/65F16	610	305	445	592	530	387	990	570	130	600	500
350	M1KW/ M1KZ	M25/75F25	686	343	520	665	597	412	1160	665	182	600	740
400		M25/75F25	762	381	580	750	597	412	1225	690	182	600	950
250	M1LW/ M1LZ	M15/55F16	568	284	425	580	456	346	910	520	105	500	350
300		M16/65F16	648	324	485	652	530	387	1020	570	130	600	515
350		M25/75F25	762	381	555	700	597	412	1175	665	182	600	800
400		M25/75F25	838	419	620	799	597	412	1250	690	182	600	1030
400		M15/55F16	568	284	450	580	456	346	910	520	105	500	505
300	M1MW/ M1MZ	M16/65F16	648	324	515	652	530	387	1020	570	130	600	650
350		M25/75F25	762	381	580	700	597	412	1175	665	182	600	920
400		M25/75F25	838	419	660	799	597	412	1250	690	182	600	1250

FACE-TO-FACE DIMENSIONS ACC. TO ISO 5752
 PRESSURE RATINGS J=PN10, K=PN16, L=PN25, M=PN40
 FLANGED, FULL BORE
 M1- VALVES INFORMATION

FACE-TO-FACE DIMENSIONS ACC. TO ASME B16.10
 PRESSURE RATINGS C=ASME 150, D=ASME 300
 FLANGED, FULL BORE
 M2- VALVES INFORMATION

FOR DETAILED MANUAL GEAR SIZING, SEE BULLETIN 6 MG 21.

DIMENSIONS



VALVE + HAND LEVER LX/LK

DN	TYPE	HAND LEVER	DIMENSIONS, mm			WEIGHT [kg]
			H	J	L	
25	M1M, M1L, M1K,M1J	LX180A	263	201	180	6
40		LX220A	304	227	220	9
50		LK350	295	222	350	14
65	M1M, M1L	LK350	305	230	350	21
80		LK350	342	244	350	35
100		LK450	435	309	450	55
65	M1K, M1J	LK350	305	230	350	21
80		LK350	336	244	350	25
100		LK450	427	309	450	40

HOW TO ORDER

MBV MODULAR BALL VALVE, Series M

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
	M1	M	A	150	A	P	V	A	/

1. sign	Low noise construction
Q-	Attenuator in flow port of ball

2. sign	Valve series, face-to-face length
M1	Full bore, seat supported, f-to-f length acc. to ISO 5752 basic series 3, 4, 12 or 15 depending on size and pressure class. Seat supported DN 025-300, trunnion mounted DN 250-400.

3. sign	Pressure rating of body and flanges
J	PN10
K	PN16
L	PN25
M	PN40

4. sign	Construction
A	Standard construction, seat supported
W	Trunnion mounted 2-seats
Z	Trunnion mounted 1-seat*

*) flow direction indicated by an arrow on the body

5. sign	Size
Seat supported valves	025, 040, 050, 065, 080, 100, 125, 150, 200, 250, 300
Trunnion mounted valves	250, 300, 350, 400

6. sign	Materials			
	Body material	Trim and coating material	Stem material	Bolting material / thread
A	CF8M	CF8M (+ Hard Chrome, if metal seat)	AISI 329 trunnion mounted: XM-19 (DN250-400)	A2 - 70 / metric
C	CG8M	CG8M (+ Hard Chrome, if metal seat)	AISI 329 trunnion mounted: XM-19 (DN250-400)	A2 - 70 / metric
U	CK-3MCuN	CK-3MCuN (& ceramic coating, if metal seat)	UNS S31254	A2 - 70 / metric
S	CF8M + Cobalt based alloy sleeves in flow ports	CF8M (cobalt based coating on ball surface and flow port)	AISI 329 Only for seat supported types	A2 - 70 / metric
X	4A	4A (+ Hard Chrome, if metal seat)	AISI 329 trunnion mounted: XM-19 (DN250-400)	A2 - 70 / metric

7. sign	Seat type	Materials		
		Seat material	Bearing material	Back seal material
P	locked	SS+ Cobalt based hard facing	PTFE + Graphite	PTFE
X	soft	Xtreme®	PTFE + Graphite	-
T	soft	PTFE	PTFE + Graphite	-
S	unlocked	SS+ Cobalt based hard facing	PTFE + Graphite	PTFE
E*	low Δp	SS+ Cobalt based hard facing	PTFE + Graphite	PTFE / FPM
C	locked	CK-3MCuN + Cobalt based hard facing	PTFE + Graphite	PTFE
M	soft	Filled PTFE	PTFE + Graphite	-

TRUNNION MOUNTED				
S	metal	SS + Cobalt based hard facing	PTFE + Graphite	Viton GF
T	soft	PTFE + C25	PTFE + Graphite	-

8. sign	Packing	Body gasket
V	PTFE V-rings, standard	PTFE
F	Graphite	Graphite
G	Live loaded graphite packing for trunnion and seat supported valves	Graphite
T	Live loaded PTFE packing for trunnion and seat supported valves	PTFE

9. sign	Model code
A	Version

10. sign	End connection style
	EN 1092-1 Type B1 (Ra 3.2 - 12.5), standard, without sign (M1)

Subject to change without prior notice.

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