Neles Easyflow™ angle stem tank bottom valves

Series JT

JT series angle stem tank bottom valves provide a compact assembly with additional space for actuator clearance on insulated vessels. Large port has unobstructed flow to empty or fill the tank quickly. Quarter-turn operation and direct actuator mounting capability makes it easy to automate with accurate alignment to ensure long cycle life. Complete package reliability and single source responsibility with full range of actuators, switches, and intelligent valve controllers. Cavity fill and T-port options for the JT series ensure lowest possible dead volume and full draining of media from the valve.



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Technical description

- Sizes DN 25 to 150 (NPS 1 to 6)
- Rugged ASME Class 150 body construction
- Live-loaded stem packing
- Bi-directional bubble-tight shut-off to full rated pressure
- Suitable for vacuum service

Features

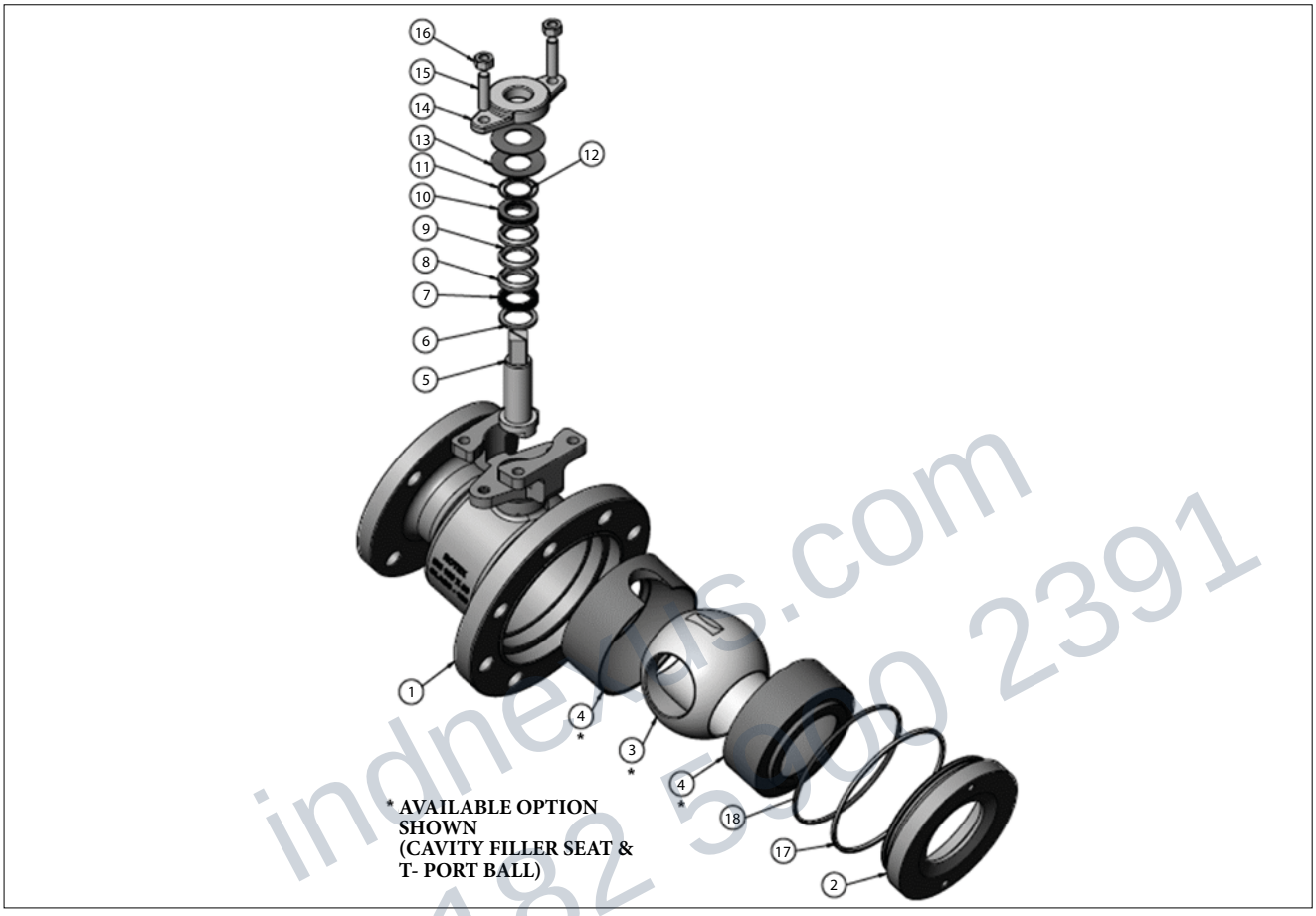
- Unique low torque seat design maintains tight shut-off through pressure and temperature cycles is standard for valves without cavity fill
- ISO 5211 mounting pad for direct mounting of handle, gear operator, manual override, or actuator
- Internal entry blow-out proof stem design
- An extremely tight fit drive between the stem and ball provides accurate and repeatable shut-off and control
- Cavity fill option includes solid seats to prevent media being trapped in the cavity between the seats
- Optional T-port ball provides draining of the cavity between the seats when the valve is closed
- When combined, cavity fill and T-port ball option provides the best solution to avoid media inside the valve
- Every valve is factory tested, serialised & quality tagged prior to shipment

Applications

- Pharmaceutical
- Biotech
- Cosmetic
- Food
- Chemical

Exploded view and parts list

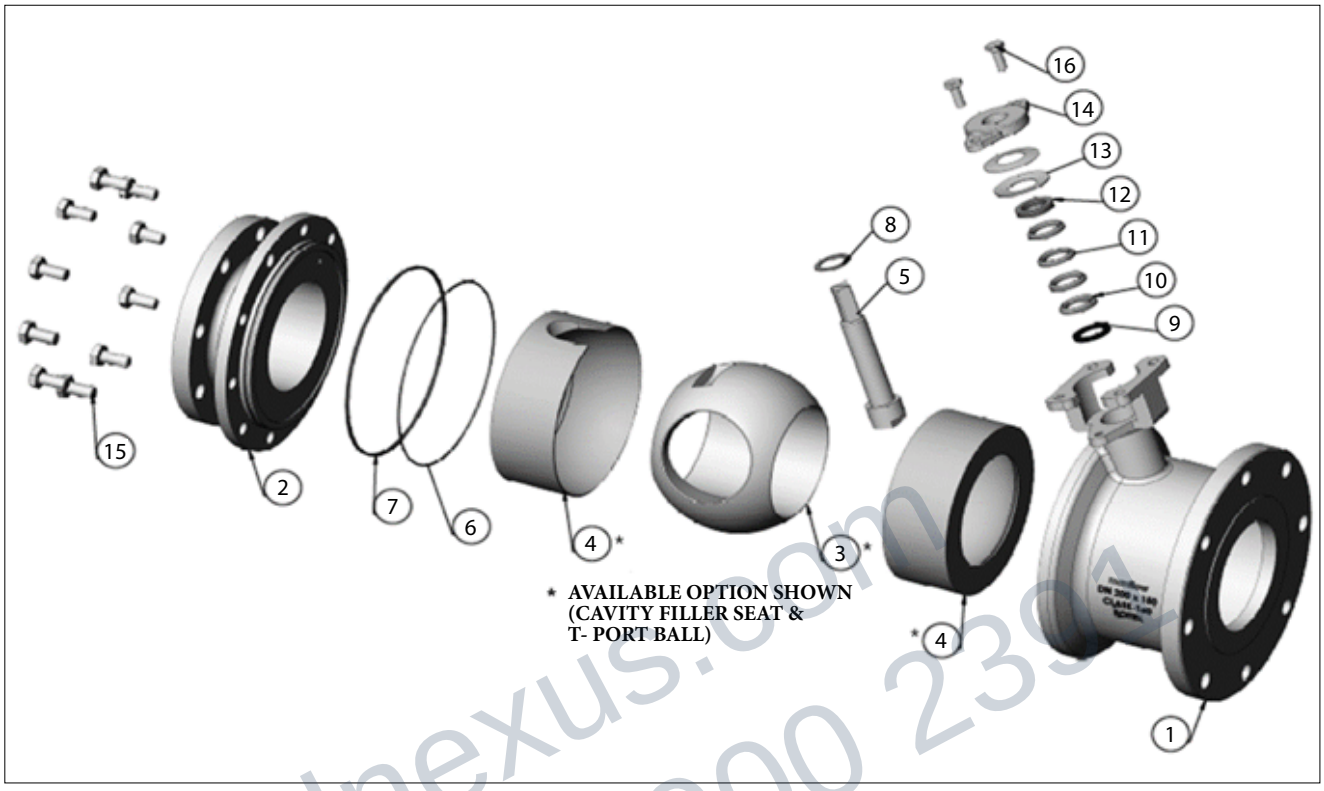
DN25 to DN80 single piece body construction



Part no.	Part name	Material	
		Carbon steel	Stainless steel
		-22	-36
1	Body	ASTM A216 Gr. WCB	ASTM A351 Gr. CF8M
2	Body adaptor	ASTM A216 Gr. WCB	ASTM A351 Gr. CF8M
3	Ball	316 Stainless steel	
4	Seat	TFM™ 1600	
5	Stem	316 Stainless steel	
6	Stem thrust washer	Glass filled PTFE	
7	Stem seal	Graphite	
8	Stem retainer 1	Glass filled PTFE	
9	V-ring stem seal	TFM™ 1600	
10	Stem retainer 2	Glass filled PTFE	
11	Outer O-ring stem seal	Fluoroelastomer (FKM)	
12	Inner O-ring stem seal	Fluoroelastomer (FKM)	
13	Disc spring	Spring steel	
14	Gland flange	ASTM A216 Gr. WCB	ASTM A351 Gr. CF8M
15	Gland stud	ASTM A193 Gr. B7	ASTM A193 Gr. B8M
16	Gland nut	ASTM A194 Gr. 2H	ASTM A194 Gr. 8M
17	Body gasket	Graphite	
18	Body seal	Fluoroelastomer (FKM)	

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DN100 and DN150 two-piece body construction



Part no.	Part name	Material	
		Carbon steel	Stainless steel
		-22	-36
1	Body	ASTM A216 Gr. WCB	ASTM A351 Gr. CF8M
2	Body adaptor	ASTM A216 Gr. WCB	ASTM A351 Gr. CF8M
3	Ball	316 Stainless steel	
4	Seat	TFM™ 1600	
5	Stem	316 Stainless steel	
6	Body seal	Fluoroelastomer (FKM)	
7	Body gasket	Graphite	
8	Stem thrust washer	Glass filled PTFE	
9	Bottom stem seal	Graphite	
10	Bottom stem seal retainer	Glass filled PTFE	
11	Stem seal	TFM™ 1600	
12	Top stem seal retainer	Glass filled PTFE	
13	Disc spring	Spring steel	
14	Gland flange	ASTM A216 Gr. WCB	ASTM A351 Gr. CF8M
15	Body bolt	ASTM A193 Gr. B7	ASTM A193 Gr. B8M
16	Gland flange bolt	ASTM A194 Gr. 2H	ASTM A194 Gr. 8M

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Technical specifications

Nominal diameter:	DN25 – DN150 (NPS 1 – 6)
Pressure rating:	ASME Class 150
Flange accommodation:	ASME B16.5 Class 150
Vacuum rating:	29.91 inch Hg gauge (759.98 mm Hg gauge or $2x10^{-2}$ Torr or $4x10^{-4}$ psia or 99.99% vacuum)
Leakage:	No visible leakage
Standards followed:	ISO EN 17292, ASME B16.34, API 598, BS EN 12266
Testing:	API 598

Flow data

The table below provides flow coefficients for JT series valves covered in this bulletin. C_v values represent the flow of water at +60 °F through the valve in US gallons per minute at a pressure drop of 1 psi. The metric equivalent, K_v, is the flow of water at +16 °C through the valve in cubic meters per hour at a pressure drop of 1 bar. C_v =1.167 K_v

Valve size		Cv	Kv
DN	NPS		
25	1	118	101
40	1 1/2	312	267
50	2	541	464
80	3	1,289	1,105
100	4	2,247	1,925
150	6	5,922	5,075

Valve body ratings

These are the maximum working pressure ratings of the valve body. The seat rating determine the practical temperature and pressure limitations according to actual service conditions. Test pressures are recommended pressures for hydrostatic shell test with the valve ball half open.

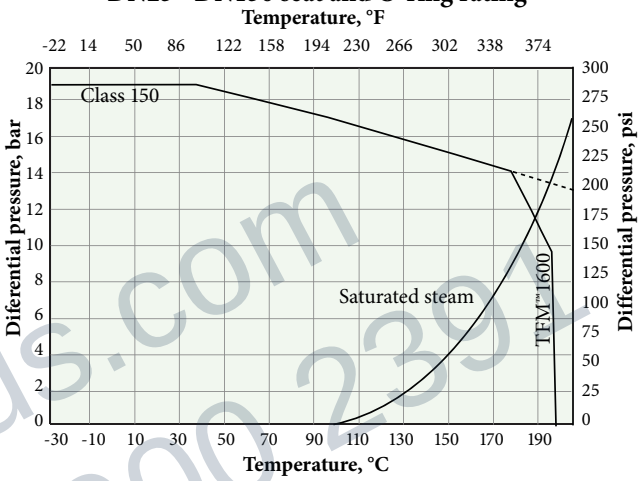
Temperature °C	Class 150 Maximum working pressure, barg	
	Carbon steel WCB	Stainless steel CF8M
-29 to +38	19.6	19
100	17.7	16.2
150	15.8	14.8
200	13.8	13.7
250	12.1	12.1
Test pressure	30	29

Temperature °F	Class 150 Maximum working pressure, psig	
	Carbon steel WCB	Stainless steel CF8M
-20 to +100	285	275
200	260	235
300	230	215
400	200	195
500	170	170
Test pressure	450	425

Valve seat ratings

Seat ratings, indicated by solid line in the chart, are based on differential pressure with the valve ball in the fully closed position. The dotted lines indicate the maximum working pressures for WCB carbon steel valve bodies. The combination of dotted and solid lines indicates the maximum valve rating at specific pressure and temperature conditions. Carbon steel valves are rated to -29°C (-20°F). Low temperature limit for TFM™ seat and body seal O-ring is -30°C (-22°F).

DN25 - DN150 seat and O-ring rating



Valve torque data

Use this torque chart as a guide for actuator selection. The recommended minimum actuator torque includes a safety factor, so it is suitable for difficult services such as slurries, semi-solids and non-lubricating media.

Valve size		Minimum actuator torque	Minimum actuator torque
DN	NPS	N.m	lb-ft
25	1	15	11
40	1 1/2	36	27
50	2	53	39
80	3	113	83
100	4	225	166
150	6	600	442

Actuator selection

Selected rack and pinion actuator sizes in the chart are based on the recommended minimum actuator torque and 4 barg minimum air supply pressure. Selected spring return actuator size is suitable for fail open or fail close configuration. Unless otherwise specified, actuator will be set for fail close.

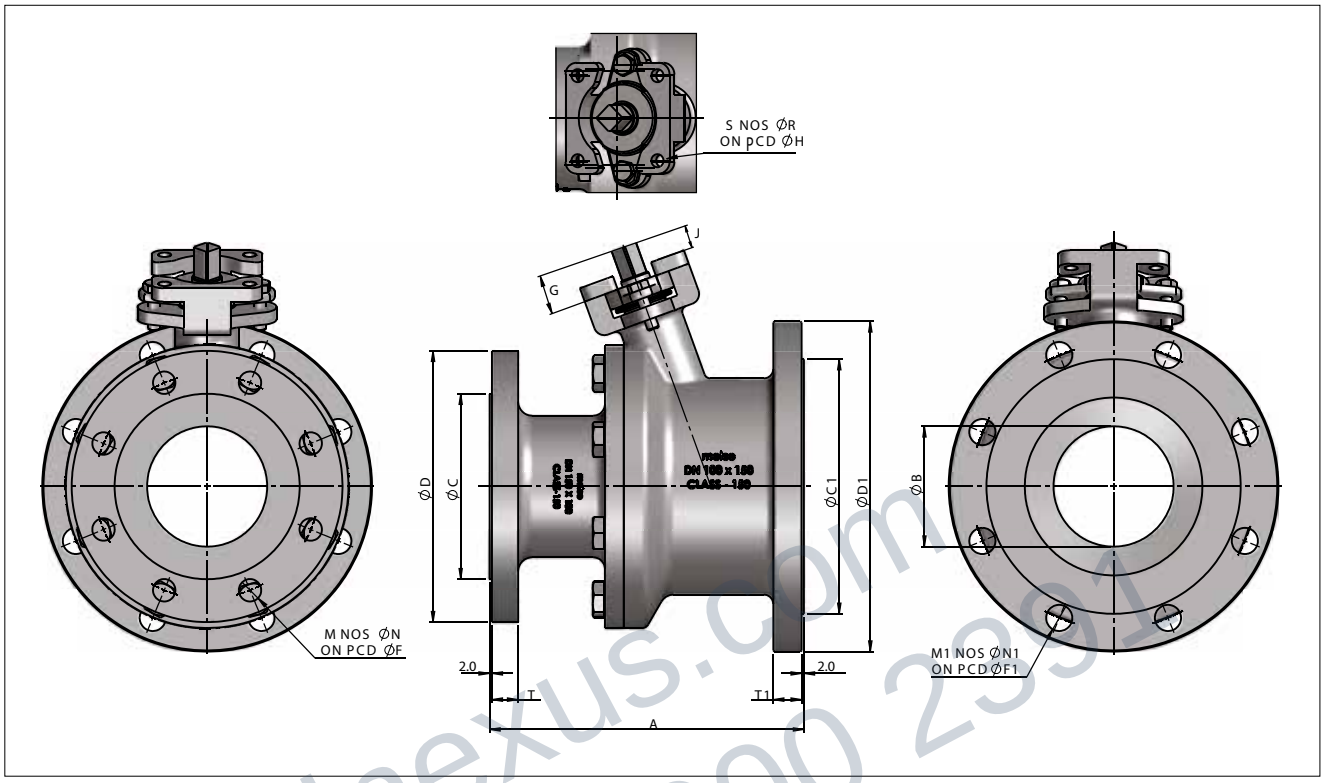
Actuators may be direct mounted or direct mounted with sleeve or mounted using bracket & coupler. For all these cases, the mounting sets include respective fasteners in addition to the above said components.

Valve size		Actuator, 4 barg min. air supply	
DN	NPS	RNP DA	RNP SR
25	1	RNP 50	RNP 63 SR40
40	1 1/2	RNP 63	RNP 90 SR40
50	2	RNP 80	RNP 100 SR40
80	3	RNP 100	RNP 150 SR40
100	4	RNP 125	RNP 175 SR40
150	6	RNP 175	RNP 250 SR40

For details of mounting kits, please contact factory

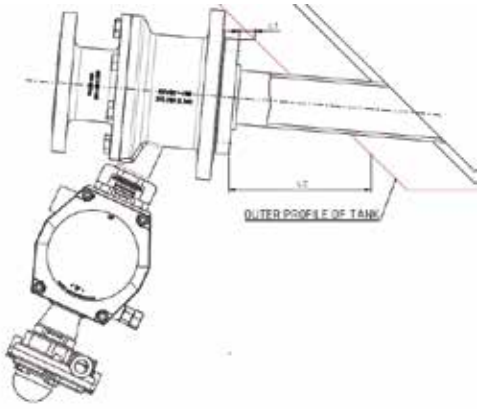
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Dimensions



Notes:
(1) Tank side flange is larger than pipe side flange. Valve size is pipe side flange size.
(2) DN 100 & 150 two-piece body construction shown. Dimensions applicable to all sizes
(3) Valve face-to-face dimensions as per manufacturer's standard.
(4) To always obtain the tank mounting space dimensions from client in order to check fouling of top automation
(5) Hand levers are not available for these valves

Valve size		Dimensions (mm)																				Weight (kg)
		Tank side flange								Pipe side flange						Actuator mounting interface						
DN	NPS	A	ØB	ØC1	ØD1	T1	M1	ØN1	ØF1	ØC	ØD	T	M	ØN	ØF	ISO 5211	S	ØR	ØH	G	J	
25	1	102	25.4	92.1	150	14.3	4	19.1	120.7	50.8	110	9.6	4	15.9	79.4	F05	4	M6	50	9	6.6	4
40	1 1/2	110	38.1	92.1	150	14.3	4	19.1	120.7	73	125	12.7	4	15.9	98.4	F05	4	8	50	11	11.3	5
50	2	130	49	127	190	17.5	4	19.1	152.4	92.1	150	14.3	4	19.1	120.7	F07	4	9	70	14	15.5	9
80	3	180	74	157.2	230	22.3	8	19.1	190.5	127	190	17.5	4	19.1	152.4	F10	4	11	102	17	24.2	18
100	4	267	102	215.9	280	23.9	8	22.2	241.3	157.2	230	22.3	8	19.1	190.5	F10	4	11	102	17	20	41.5
150	6	292	150.8	269.9	345	27	8	22.2	298.5	215.9	280	23.9	8	22.3	241.3	F12	4	13	125	22	43	77



Mounting space requirements

DESCRIPTION	VALUES
SIZE OF FLANGE (TANK SIDE)	
DIMENSION L1 in mm	
DIMENSION L2 in mm	
ACTUATOR MOUNTING POSITION	

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How to order

1		2	3	4	5	6	7	8	9
50		JT	15	22	36	36	ZG	53	QT

1.	Size, DN (NPS ref.) Pipe side x Tank side
25	25 (1) x 50 (2)
40	40 (1 1/2) x 50 (2)
50	50 (2) x 80 (3)
80	80 (3) x 100 (4)
100	100 (4) x 150 (6)
150	150 (6) x 200 (8)

2.	Series
JT	

3.	Flange / rating
15	ASME Class 150

4.	Body material
22	Carbon steel (WCB)
36	Stainless steel (CF8M)

5.	Ball material
36	316 Stainless steel

6.	Stem material
36	316 Stainless steel
43	17-4PH Stainless steel

7.	Seat and seal materials
ZG	TFM™ 1600 / Graphite

8.	O-ring material
53	Fluoroelastomer (FKM)

9.	Options
	Blank, standard option
Q	Cavity filler seat
T	T-port ball

Note: Options can be combined (e.g. Q, T, QT)

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NOTE: As the use of the valve is application specific, a number of factors should be taken into account when selecting a valve for a given application. Therefore, some of the applications in which the valves are used are outside the scope of this document.
If you have any questions concerning the use, application or compatibility of the valve with the intended service, contact nearest Valmet sales office for more information.

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