Neles™ heavy-duty rotary ball valve

Series T2

T2 is a heavy-duty rotary ball valve designed for

demanding applications. It is designed to control and shut-off fluids such as crude oil, hot residual oil, LPG and other hydrocarbons, and gases such as natural gas, ethylene, synthesis gas and hydrocarbon vapours under high pressures.

Features

- Wide control rangeability

Stable / accurate control

- Load caused by flow is carried by strong bearings.
- Stemball construction ensures no deadband or hysteresis, no loose motion during throttling or positioning.

Controls loaded fluids

- Can handle fluids forming coke and crystallising substances at high temperatures.
- Self cleaning trim design scraping seat.

Tightness

- Long life metal to metal seats, class V tightness.
- Soft seated class Vl tightness.

Safety

- Fire-tested API 607.
- Stemball construction. Anti-blow out design.
- Rugged body resists pipe stresses.
- SIL Certified, IEC 61508 SIL 3 capable.

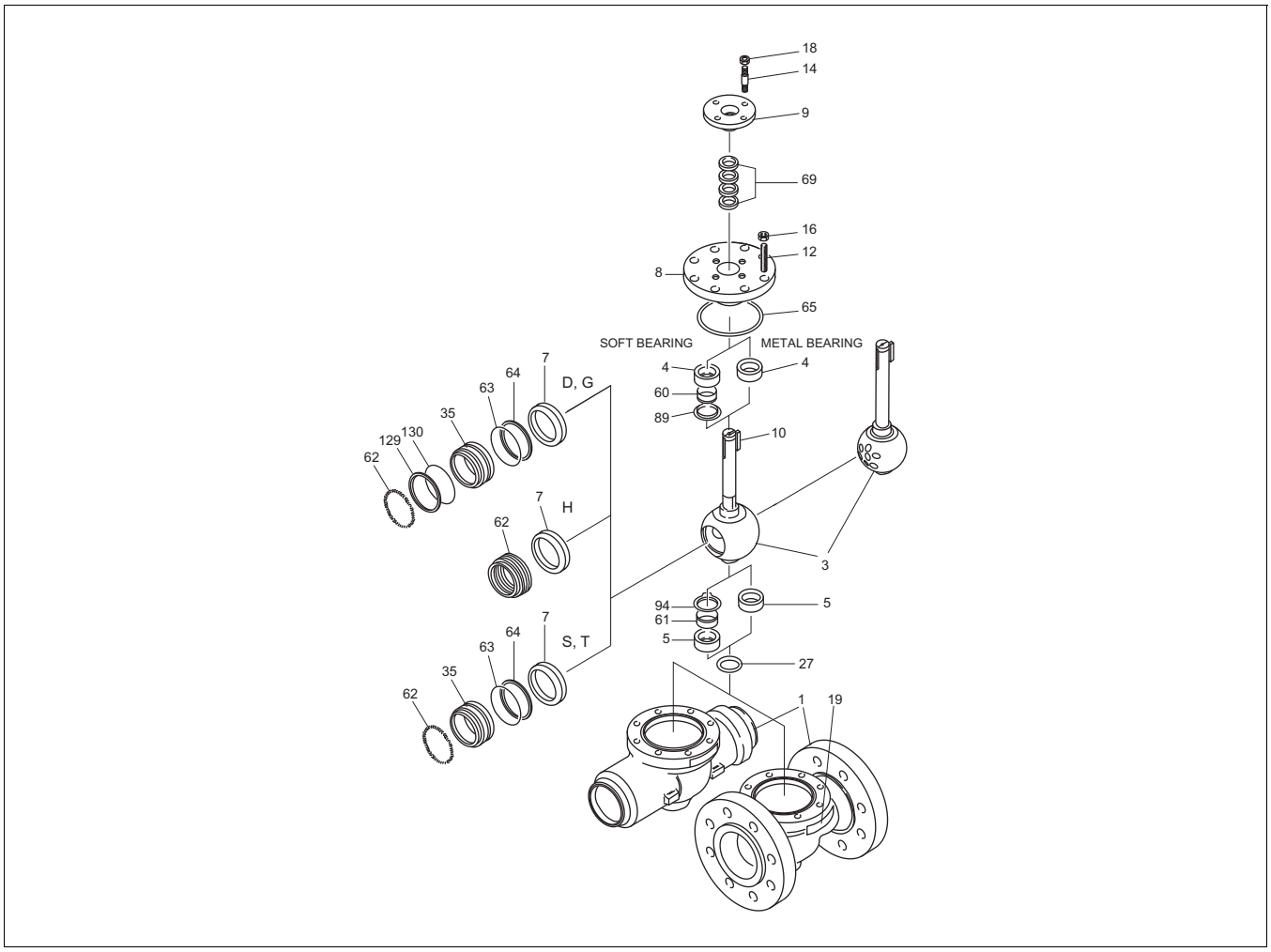
Noise/cavitation abatement

- Patented Q-Trim™ design provides up to 18 dB(A) noise attenuation, self-flushing for impure fluids.
- In severe applications such as gas to flare or steam blow down Q-Trim gives the best possible support to the seat by keeping spherical contacts.

Environmental design

- Rotary operation reduces emissions dramatically compared with those of linear valves with standard packing.
- Separate bonnet construction makes it possible to upgrade the valve to new requirements without touching the valve body
- Optional weld ends allow a 100 % emission free pipe line connection.

Exploded view



Bill of material

PART NO	DESCRIPTION	MATERIAL
1	Body	WCB / CF8M
3	Ball	CF8M with hard face
4	Thrust bearing	Stainless steel / cobalt based alloy
5	Trunnion bearing	Stainless steel / cobalt based alloy
7	Seat	Cobalt based alloy
8	Bonnet	WCB / CF8M
9	Gland	Stainless steel
10	Key	Stainless steel
11	Stud	Carbon steel / stainless steel
12	Stud	Carbon steel / stainless steel
14	Stud	Carbon steel / stainless steel
15	Hexagon nut	Carbon steel / stainless steel
16	Hexagon nut	Carbon steel / stainless steel

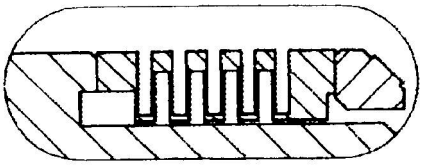
PART NO	DESCRIPTION	MATERIAL
18	Hexagon nut	Carbon steel / stainless steel
19	Identification plate	Stainless steel
27	Lock ring	Stainless steel Inconel X-750
60	Bearing strip	PTFE on Stainless steel net
61	Bearing strip	PTFE on Stainless steel net
62	Spring /bellows	Stainless steel Inconel X-750 / Avesta 248 SV
65	Gasket	Graphite
69	Gland packing	Graphite+PTFE / PTFE
89	Thrust bearing	PTFE on Stainless steel net
94	Thrust bearing	PTFE on Stainless steel net
129	Support ring	Stainless steel
130	Back seal	Graphite

Technical specification

Product type:	Top entry, trunnion mounted, design standard ASME B16.34. Flanges ASME B16.5.
Type T2	Flanged, full bore (Face-to-face - see page 5)
Type T3	Weld ends, full bore (Face-to-face - see page 5)
Temperature range:	Seat H -200 …+400 °C Seat S, D -30 …+80 °C Seat T, G -20 …+80 °C
Flow characteristic:	T2 modified equal percentage. Q-T2 modified equal.
Valve ball rotation:	Clockwise to close.
Shut-off classification Tightness:	Metal seated: FCI 70.2 class V Soft seated: FCI 70.2 class VI

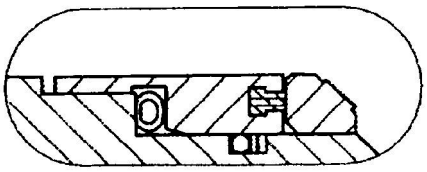
SEAT OPTIONS

H Bellows metal seat



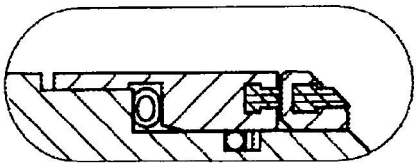
Ball seat:	Stainless steel + cobalt based hard facing
Bellows spring:	Stainless steel
Temp. range:	-200 .... +400 °C
Service:	Shut-off applications at low and high temperatures

S Metal seat



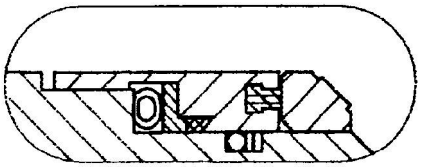
Ball seat:	Stainless steel + cobalt based hard facing
Seat seal:	Polyamide (Nylon)
Supporting ring seal:	Viton O-ring
Spring:	Inconel® X-750
Temp. range:	-20 .... +80 °C
Service:	General applications

T Soft seat



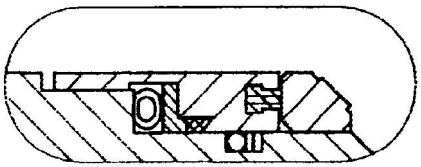
Ball seat:	Stainless steel + polyamide (Nylon)
Seat seal:	Polyamide (Nylon)
Supporting ring seal:	Viton O-ring
Spring:	Inconel® X-750
Temp. range:	-20 ... +80 °C

G Fire safe metal seat



Ball seat:	Stainless steel + cobalt based hard facingon)
Seat seal:	Polyamide (Nylon)
Supporting ring seal:	Viton O-ring
Back ring:	316 SS
Fire safe seal:	Graphite
Spring:	Inconel® X-750
Temp. range:	-20 ... +80 °C
Note:	Fire safe construction

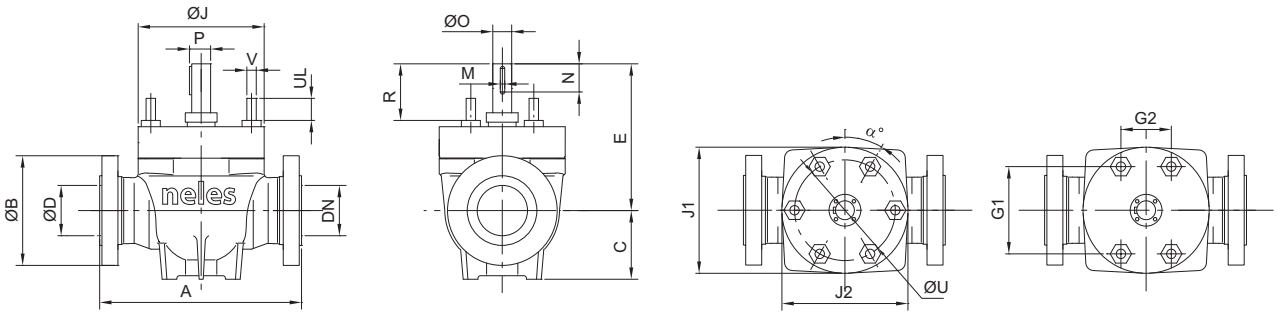
D Fire safe soft seat



Ball seat:	SS steel + Polyamide (Nylon)
Seat seal:	Polyamide (Nylon)
Supporting ring seal:	Viton O-ring
Back ring:	316 SS
Fire safe seal:	Graphite
Spring:	Inconel X-750
Temp. range:	-30 ... +80 °C
Size:	NPS 2" or bigger.
Service:	Fire safe applications (not certified)

Dimensions

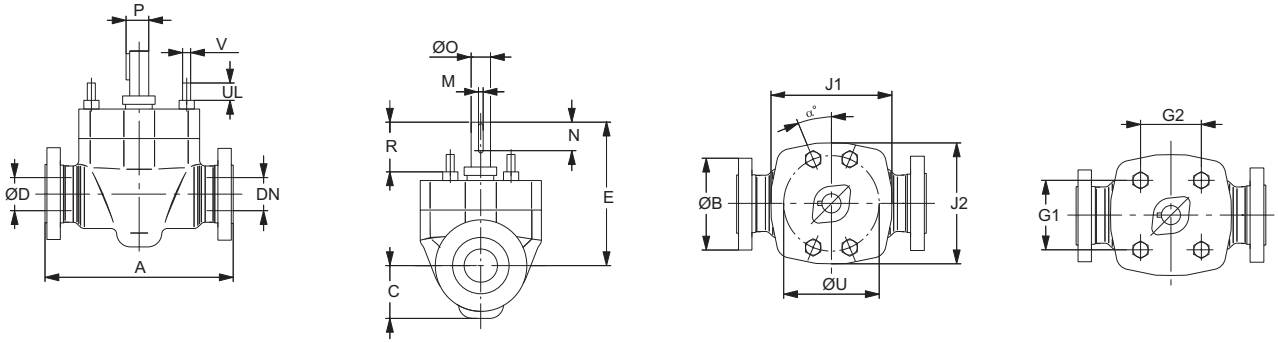
T2G class 900



TYPE	Dimensions in millimeters																			V UNC	Weight kg
	DN	A	ØB	C	ØD	E	M	N	ØO	P	R	UL	øU	G1	G2	α°	J1	J2	ØJ		
T2H 01	25	254*	150	60	25.5	226	4.76	35	20	22.16	100	36	110	-	-	22.5	-	-	142	3/4	30
T2H 02	50	368	215	89	50.8	348	9.52	58	35	39.1	163	60	167	-	-	22.5	-	-	224	1 1/8	95
T2G 03	80	470**	240	125	76.2	447	12.7	80	45	50.4	201	70	225	-	-	22.5	-	-	300	1 1/2	190
T2G 04	100	546**	290	152	101.6	507	12.7	90	55	60.6	218	80	280	-	-	16.6	348	348	-	1 1/2	320
T2G 06	150	610	380	255	152	730	22.22	146	85	94.6	328	80	-	415.2	216.2	-	575	440	-	2	760
T2G 08	200	832**	470	310	203	850	25.4	180	105	116.1	358	95	-	480	128	-	624	546	-	2	1430
T2G 10	250	838	545	330	254	795	31.75	205	120	133.8	387	73	546	-	-	8.18	630	600	-	1 1/2	1350
T2G 12	300	965	610	372	304.8	865	31.75	205	120	133.8	404	119	615	-	-	10	745	715	-	2	2200
T2G 16	400	1250*	705	485	374.7	1095	38.1	280	165	181.8	532	111	800	-	-	20	-	-	940	2 1/2	3500
T2G 20	500	1600*	855	615	473.1	1150	50.8	340	220	242.1	440	140	1040	-	-	7.5	1170	1170	1170	2 3/4	6300
T2G 24	600	1820*	1040	735	571.5	1270	-	-	230	-	-	-	-	-	-	-	1347	1347	1347	-	11000
T2G 30	750	2400*	1230	868	714.4	1520	-	-	270	-	-	-	-	-	-	-	1835	1835	1835	-	22000

*) Face-to-face according to manufacturer internal standard
**) Face-to-face according to ASME class 1500

T2H class 1500



TYPE	DIMENSIONS IN mm																	α°	V UNC	KG
	DN	A	ØB	C	ØD	E	M	N	ØO	P	R	UL	G1	G2	ØU	J1	J2			
T2H 01	25	254*	149.3	60	25.5	226	4.76	35	20	22.16	100	36	-	-	110	Ø142		22.5	3/4	29
T2H 02	50	368	215.9	89	50.8	348	9.52	58	35	39.1	163	45	-	-	167	Ø224		22.5	1 1/8	95
T2H 03	80	470	266.7	125	76.2	447	12.7	80	45	50.4	201	70	-	-	225	Ø300		22.5	1 1/2	205
T2H 04	100	546	311.1	150	101.6	507	12.7	90	55	60.6	218	75	-	-	280	348	348	16.6	1 1/2	335
T2H 06	150	705	393.7	240	146.1	730	22.22	146	85	94.6	328	85	415.2	216.2	-	440	575	-	2	800
T2H 08	200	832	482.6	305	193.7	850	25.4	180	105	116.1	358	105	480	128	-	545	625	-	2	1500
T2H 10	250	1200*	584.2	340	241.3	1000	38.1	250	150	166	440	110	762	204	-	850	890	-	2 1/2	2000
T2H 12	300	1130	673.1	440	288.9	1120	38.1	250	150	166	440	125	834	208	860	730	1200	42	2 1/2	4200

*) Face-to-face according to manufacturer internal standard

How to order

Example:

1.	2.	3.	4.	5.	6.	7.	8.		9.	10.
T2	G	H	20	D	H	H	03	/	01	Y

1.SIGN	SERIES/DESIGN
T	Top entry body, trunnion mounted, gland packing (except subsea)
STANDARD	
T2	Full bore, flanged
NON-STANDARD	
T3	Full bore, weld ends
T4	Reduced bore, weld ends
T5	Reduced bore, flanged

2. SIGN	PRESSURE RATING
G	ASME class 900
H	ASME class 1500

3. SIGN	CONSTRUCTION
A	General, PTFE bearings
B	Single-seated, metal bearings
C	Cryogenic, PTFE bearings
E	Single-seated, PTFE bearings
H	High temperature, metal bearings
S	Subsea construction
Y	Special, to be specified

4. SIGN	SIZE (IN)
	01, 02, 03, 04, 06, 08, 10, 12, 16, 20, 24, 30

5. SIGN	BODY	SCREWS
	STANDARD MATERIALS	
A	CF8M	B8M
D	WCB	L7M
	NON-STANDARD MATERIALS	
F	LCC	L7M
G	WCC	L7M
J	LC2	L7M
Y	Special, to be specified	

6. SIGN	BALL
	STANDARD MATERIALS
A	CF8M + Chrome
G	Type AISI 329 (SS 2324) + Chrome
D	CF8M + NiBo
	NON-STANDARD MATERIALS
B	CF8M + cobalt based bard facing
H	CA-6NM + Chrome
Y	Special, to be specified

7. SIGN	Seat code for material and construction, see page 4

8. SIGN	Seat seal	Bonnet gasket	Gland packing	Back seal of support ring	Spring/ bellows
	STANDARD MATERIALS				
02	(Polyamide)	Graphite	Graphite	Viton	Inconel X-750
03	(Polyamide)	Graphite	Graphite		Wno. 1.4418
22	(Polyamide)	Graphite	Graphite	Viton GF	Inconel X-750
	NON-STANDARD MATERIALS				
05* *subsea		Viton GF	V-rings, PTFE	Viton GF	Type AISI 329 (SS 2324)

9. SIGN	Construction code acc. to S391 (obsolete)

10. SIGN	FLANGE FACING
05	RTJ, ASME 16.5 ring joint
Y	Special flanges, to be specified

Ball without chrome with soft seats

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