

■ SERVICE

Segment ball is quarter turn control valve mainly recommended for throttle service, but it is also applicable for shut off service. Segment ball is in V-notch design with strong cutting force and self-cleanness, especially suitable for control of medium containing fibre and tiny solids. Therefore, it is widely used in the control systems in industries such as pulp and paper, petrochemistry, petroleum, chemical fibre, power metallurgy, pharmacy, environmental protection etc.

■ FEATURES

One-piece valve body

One-piece valve body prevents potential leakage path caused by separate flange.

Spring loaded valve seat

Pretightened spring loaded seat to keep valve seat and ball in constant close contact, therefore, good sealing performance is assured even at a low differential pressure with greatly extended service life. PTFE soft seat and metal seat are available for different application requirements.

V-notch ball and bearings

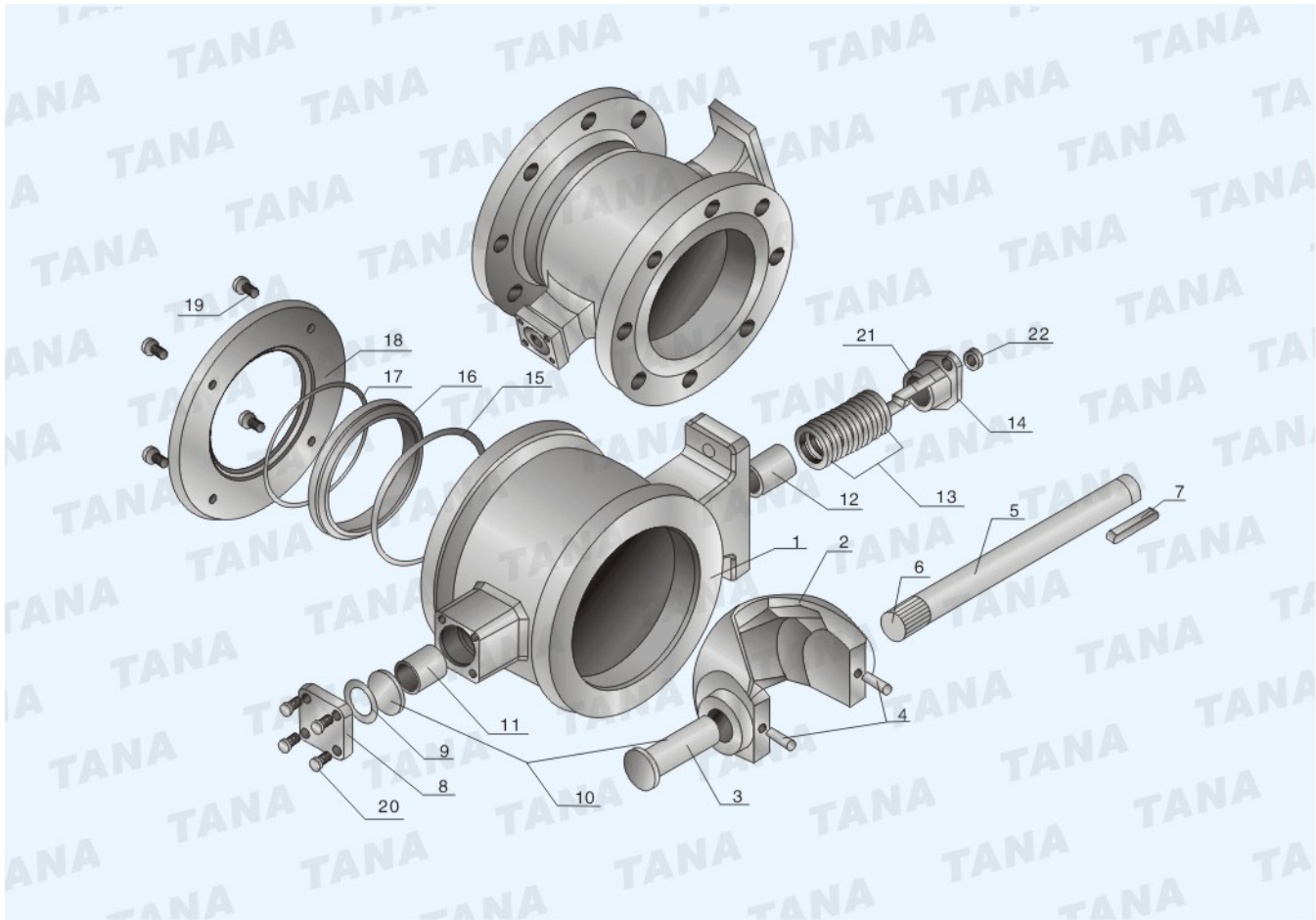
Specially designed V-notch ball provides equal percentage flow characteristic with high precision control performance as well as strong cutting force and self-cleanness function. Upper and lower shaft are fixed by bearings with good stability. Bearings are in composite material, loaded surfaces of which are sintered with superior abrasion resistant and self-lubricating function, which prevents valve seizing up during service life.

Spline connection between shaft and ball

Ball and shaft are connected by spline, which well keeps shaft to neutral position with large load bearing capacity and long service life, it also provides seamless match ball with shaft and the dead band phenomenon is prevented with enhanced control precision.

Low capacity

For super-low flow applications, low capacity valves are available with DN25 for precise control. Non-standard flanges are needed for connection with DN20 and DN15 pipe.



■ PARTS LIST

No	Name	Quantity(Pcs)	Material
1	Body	1	WCB、CF8、CF8M
2	Ball	1	CF,CF8M hard chromium plating or stellite surfacing
3	Lower shaft	1	17-4PH, SS316
4	Cylindrical pin	2	SS304, SS316
5	Upper shaft	1	17-4PH, SS316
6	Spline	1	17-4PH, SS316
7	Flat key	1	SS304, 45#
8	Blind flange	1	CF8, CF8M
9	O-ring	1	Viton
10	Gasket	1/each	PTFE
11	Self-lubricating bearing	1	Composite material
12	Self-lubricating bearing	1	Composite material
13	Packing	1group	PTFE
14	Gland	1	CF8
15	O-ring	1	Viton
16	Seat	1	Stainless steel304,316 hard chromium plating or stellite surfacing
17	Wavy spring	1	SS316
18	Retainer	1	Q235, SS304, SS316
19	Socket head screw		SS304
20	Hexagon screw	4	SS304
21	Stud	2	SS304
22	Hexagon nut	2	SS304

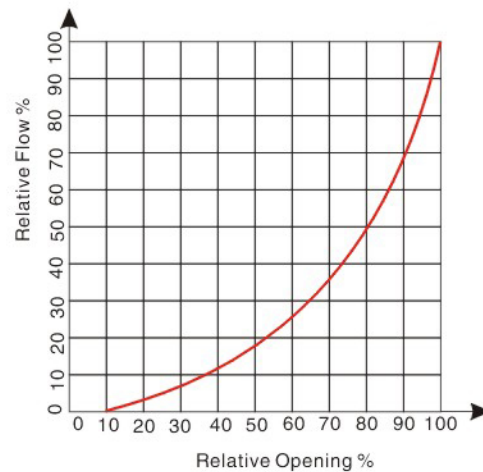
■ **Technical Parameters**

Nominal Diameter(mm): 25, 32, 40, 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600.
 Nominal pressure rating: 1.0, 1.6, 2.5, 4.0, 6.4(MPa), ANSI150, ANSI300.
 Connection type: Wafer connection for DN25–250, flanged connection for DN25–800.
 Working temperature: -20–160°C(Normal Temp.)–20–230°C(Medium Temp.)–20–450°C(High Temp.)
 Pressure test Each TANA valve undergoes hydraulic test with 1.5Xpressure rating as shell test pressure and 1.1Xpressure rating as tightness test pressure. Testing medium is water.
 Leakage: Segment ball valve with maximum allowable leakage as following, equal to 2%.of maximum leakage of ANSI/FCL70.2Class IV.

■ **Maximum Allowable Leakage**

DN	Metal-seated	PTFE-seated
25	2.0ml/min	0.20ml/min
32	2.4ml/min	0.24ml/min
40	3.0ml/min	0.30ml/min
50	3.8ml/min	0.38ml/min
65	5.2ml/min	0.52ml/min
80	6.2ml/min	0.62ml/min
100	7.6ml/min	0.76ml/min
125	9.6ml/min	0.96ml/min
150	12.0ml/min	1.20ml/min
200	15.4ml/min	1.54ml/min
250	19.2ml/min	1.92ml/min
300	24.0ml/min	2.40ml/min
350	30.0ml/min	3.00ml/min
400	34.0ml/min	3.40ml/min

■ **Equal Percentage Inherent Flow Characteristic.**



■ **Maximum Allowable Differential Pressure And Rated Cv**

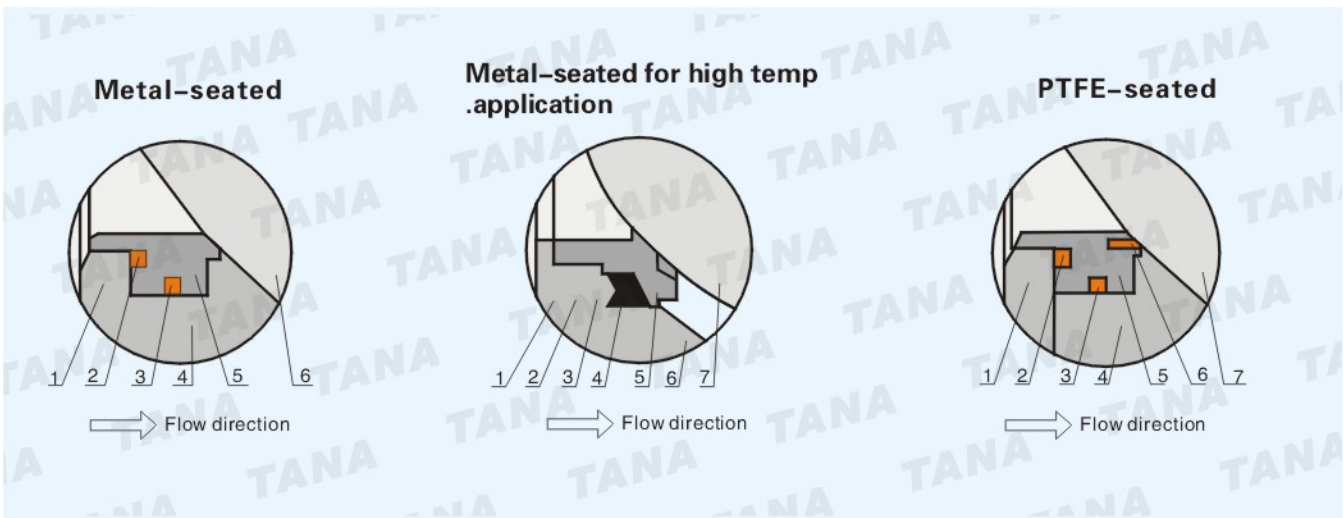
DN	Wafer.connection		Flanged connection		Rated Cv
	Max.shut off dp(bar)	Max.control dp(bar)	Max.shut off dp(bar)	Max.control dp(bar)	
25	50	35	40	35	27
32	50	35	40	35	47
40	50	35	40	35	70
50	50	35	40	35	110
65	50	35	40	35	170
80	50	35	40	35	280
100	40	25	40	25	410
125	40	25	40	25	750
150	40	25	40	25	980
200	35	25	35	25	1720
250	35	20	35	20	2900
300			30	10	3800
350			30	10	7000
400			30	10	9800
450			30	10	12000
500			30	10	23000

■ **Actuator sizing**

DN	Operation Torque(n.m) 1.6mpa	Z Series Actuators		Small Size Actuators		Electric Actuators	Air Supply Pressure (MPa)
		ZSQ diybke actning	ZDQ single acting	DA double acting	SR single acting		
25	25	ZSQ32- c 63- c 16	ZDQ41- c 100- c 16	63	85	10(05)	0.5-0.7
32	25	ZSQ32- c 63- c 16	ZDQ41- c 100- c 16	63	85	10	
40	30	ZSQ32- c 63- c 16	ZDQ41- c 100- c 16	75	100	10	
50	35	ZSQ41- c 80- c 16	ZDQ41- c 100- c 16	75	100	10	
65	60	ZSQ41- c 80- c 16	ZDQ41- c 125- c 16	85	100	10	
80	80	ZSQ41- c 100- c 20	ZDQ50- c 125- c 20	100	125	20	
100	140	ZSQ50- c 100- c 20	ZDQ50- c 160- c 20	100	125	20	
125	150	ZSQ50- c 100- c 25	ZDQ50- c 160- c 25	115	140	20	
150	180	ZSQ50- c 125- c 30	ZDQ60- c 160- c 30	125	160	40	
200	350	ZSQ60- c 125- c 30	ZDQ60- c 200- c 30	140	200	40	
250	600	ZSQ60- c 160- c 40	ZDQ80- c 250- c 40	160	240	60	
300	1200	ZSQ80- c 200- c 40	ZDQ100- c 300- c 40	240	270	100	
350	1700	ZSQ80- c 250- c 50	ZDQ130- c 350- c 50	270	350	150	
400	2600	ZSQ130- c 300- c 60	ZDQ130- c 400- c 60				
450	3500	ZSQ130- c 300- c 70	ZDQ160- c 400- c 70				
500	3800	ZSQ130- c 350- c 80	ZDQ160- c 450- c 80				

Note: ZSQ,ZDQ series actuators are developed and manufactured by TANA.For actuator particulars,please refer to Z SERIES ACTUATORS SIZING.
The actuators above are recommended for valves at pressure rating PN1.6MPa and normal temperature with minimum air supply pressure of 0.5MPa.
For valves at pressure rating higher than 1.6MPa.largened actuators wil be recommended.

■ **Three Different Seal Structures**



■ **Metal-seated**

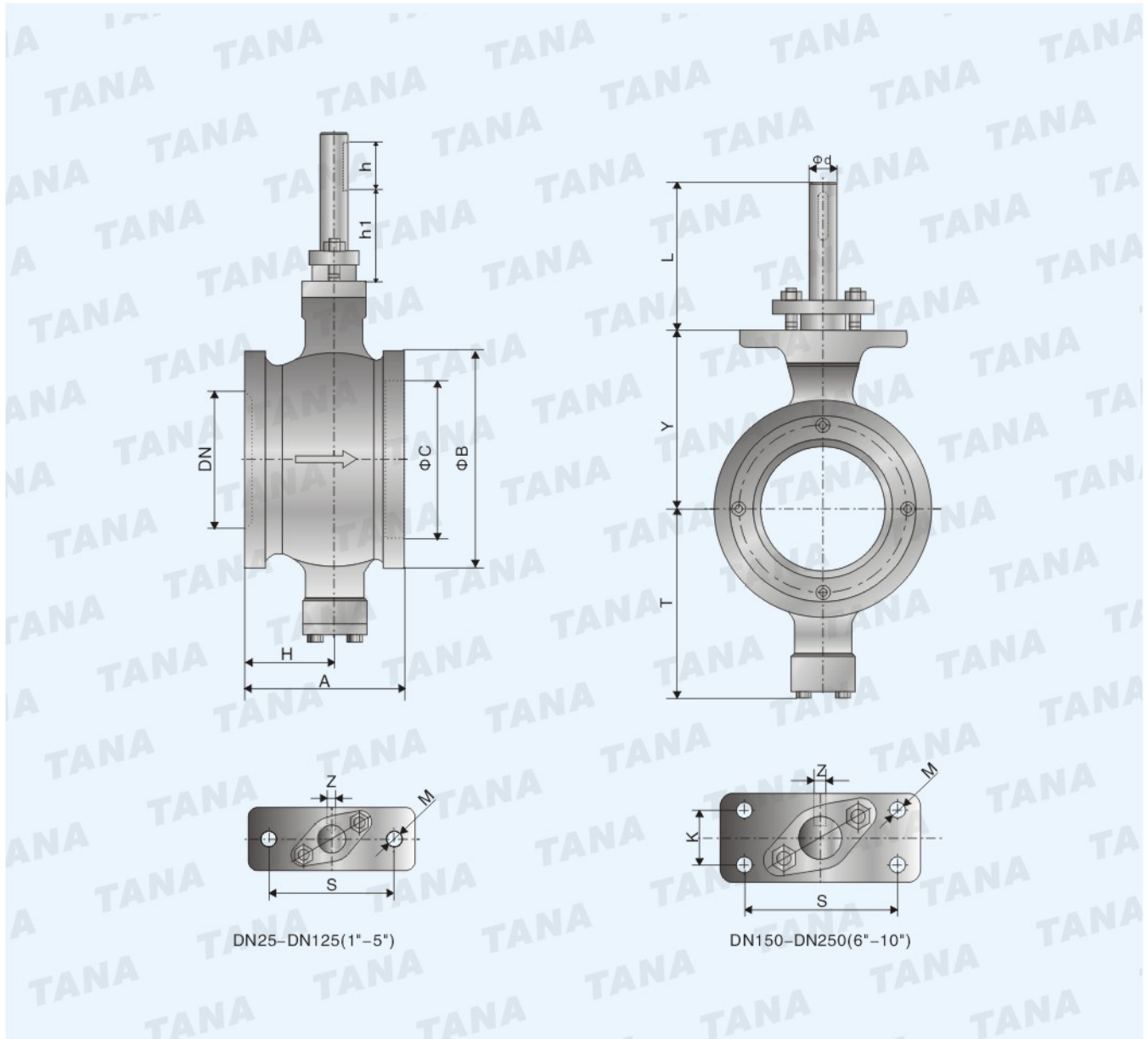
No	Name	Temp.Range
1	Retainer	-20-160 -20-230
2	Spring	
3	O-ring	
4	Valve body	
5	Metal seat	
6	Ball	

■ **Metal-seated for high temp. application**

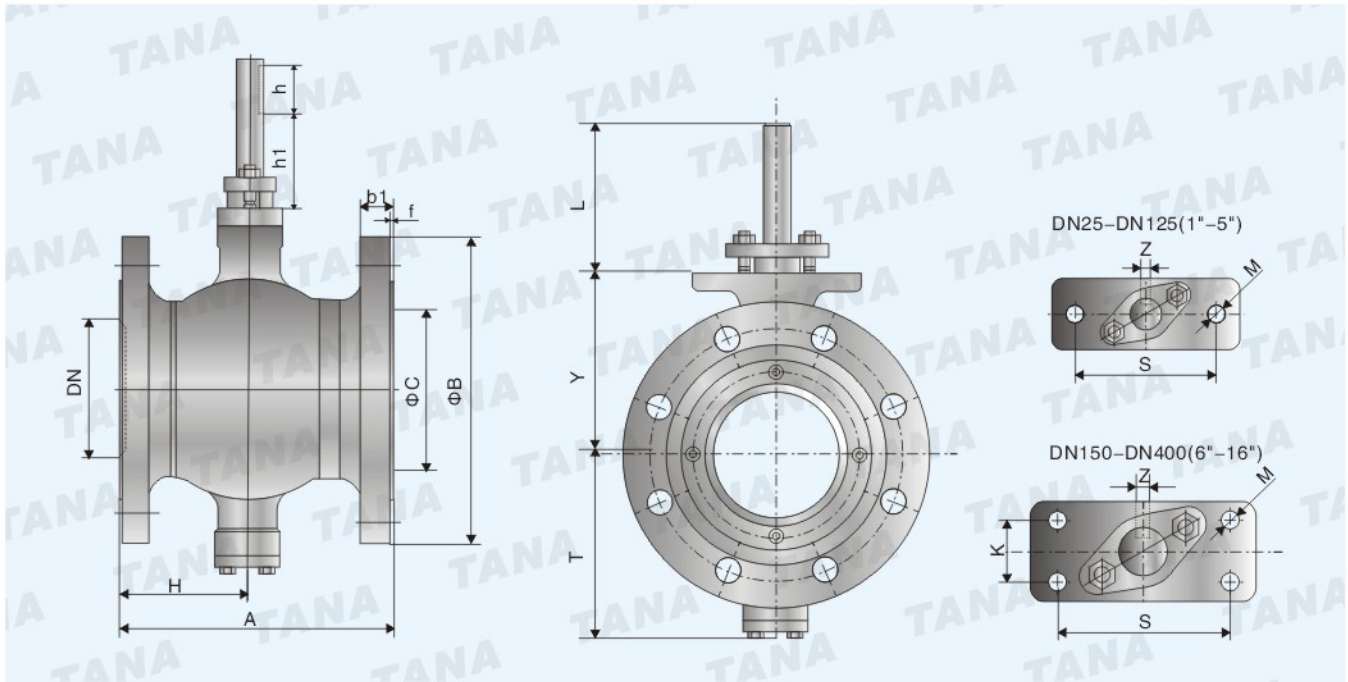
No	Name	Temp.Range
1	Retainer	-20-425
2	Bellevill Spring	
3	Piunge ring	
4	Graphite ring	
5	Metal seat	
6	Valve body	
7	Ball	

■ **PTFE-seated**

No	Name	Temp.Range
1	Retainer	-20-160
2	Spring	
3	O-ring	
4	Valve body	
5	Seat ring	
6	PTFE	
7	Ball	



DN	A	H	B	C	T	Y	L	Φd	h1	h	S	K	M	Z
25	50	30	68	38	81	73	102	16	64	35	75	/	2-M10	5
32	60	35	76	45	86	78	100	16	62	35	75	/	2-M10	5
40	60	35	84	50	90	80	102	16	64	35	75	/	2-M10	5
50	75	43	100	62	93	90	104	16	66	35	75	/	2-M10	5
65	100	50	118	73	108	105	102	16	64	35	75	/	2-M10	5
80	100	57	132	90	123	118	110	20	68	35	90	/	2-M12	6
100	115	65	158	115	138	130	108	20	66	35	90	/	2-M12	6
125	129	78	184	134	148	145	110	25	65	40	90	/	2-M12	8
150	160	95	216	164	170	170	124	30	69	50	110	40	4-M12	8
200	200	120	268	206	200	201	124	30	69	50	110	40	4-M12	8
250	240	148	326	260	240	237	140	40	77	60	135	40	4-M16	12

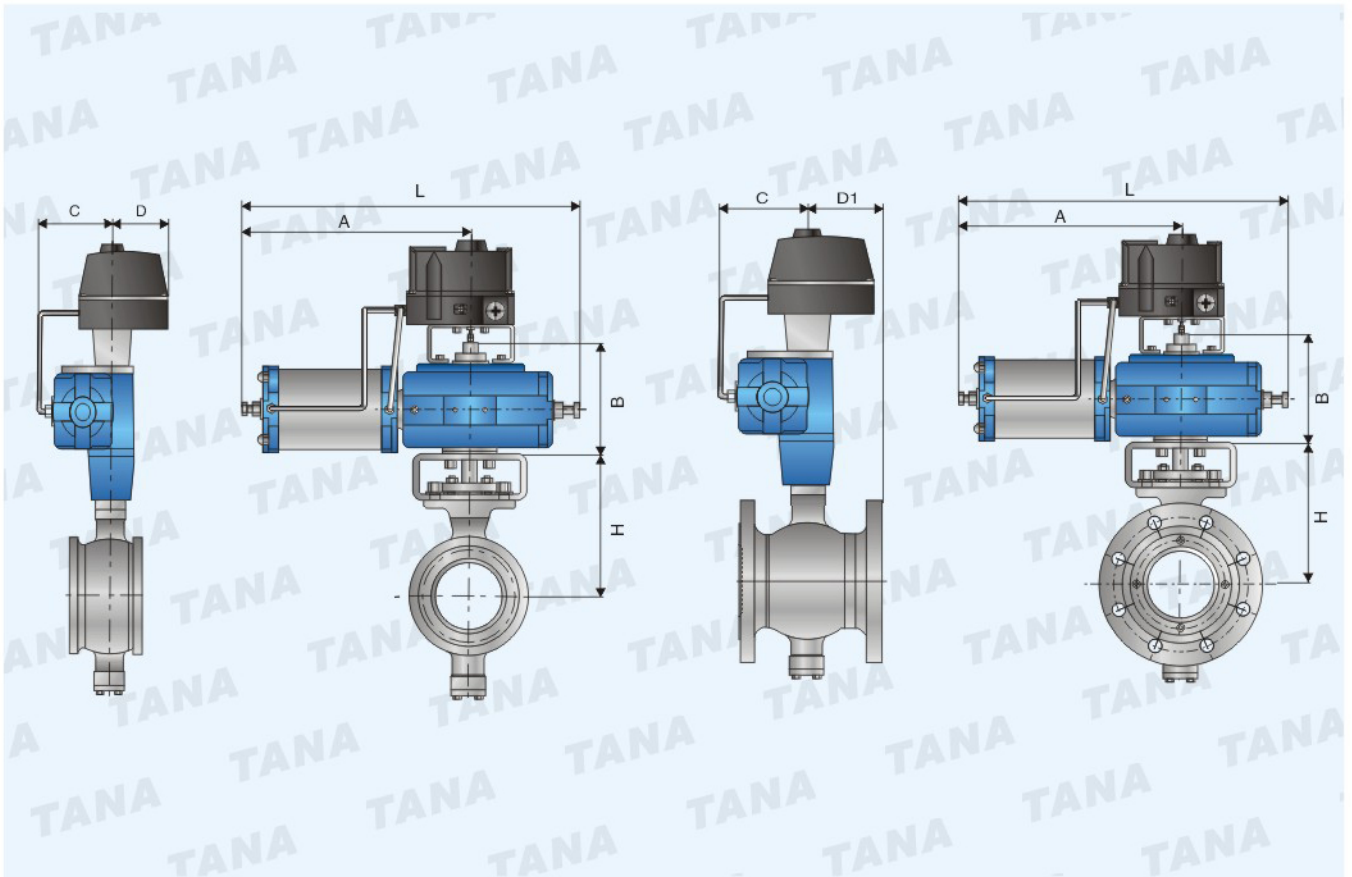


■ PN16

DN	A	H	B	b1	f	C	T	Y	L	Φd	h1	h	S	K	M	Z
25	102	51	115	16	2	38	81	73	102	16	64	35	75	/	2-M10	5
32	102	51	140	18	2	45	86	78	100	16	62	35	75	/	2-M10	5
40	114	57	150	18	2	50	90	80	102	16	64	35	75	/	2-M10	5
50	124	60	165	20	2	62	93	90	104	16	66	35	75	/	2-M10	5
65	145	70	185	20	2	73	108	105	102	16	64	35	75	/	2-M10	5
80	165	75	200	20	2	90	123	118	110	20	68	35	90	/	2-M12	6
100	194	92	220	22	2	115	138	130	108	20	66	35	90	/	2-M12	6
125	194	97	250	22	2	134	148	145	110	25	65	40	90	/	2-M12	8
150	229	110	285	24	2	164	170	170	124	30	69	50	110	40	4-M12	8
200	243	120	340	24	2	206	200	201	124	30	69	50	110	40	4-M12	8
250	297	148	405	26	2	260	240	237	140	40	77	60	135	40	4-M16	12
300	338	190	460	28	2	316	286	282	140	40	77	60	135	40	4-M16	12
350	400	221	520	30	2	372	330	337	170	50	105	60	140	64	4-M16	14
400	400	220	580	32	2	420	367	372	212	60	127	80	170	80	4-M20	18

■ 150Lb

DN	A	H	B	b1	f	C	T	Y	L	Φd	h1	h	S	K	M	Z
1	102	51	108	14.5	2	38	81	73	102	16	64	35	75	/	2-M10	5
1 1/4	102	51	115	14.5	2	45	86	78	100	16	62	35	75	/	2-M10	5
1 1/2	114	57	127	14.5	2	50	90	80	102	16	64	35	75	/	2-M10	5
2	124	60	152	16.3	2	62	93	90	104	16	66	35	75	/	2-M10	5
2 1/2	145	70	180	18	2	73	108	105	102	16	64	35	75	/	2-M10	5
3	165	75	191	19.5	2	90	123	118	110	20	68	35	90	/	2-M12	6
4	194	92	230	24	2	115	138	130	108	20	66	35	90	/	2-M12	6
5	194	97	255	24.3	2	134	148	145	110	25	65	40	90	/	2-M12	8
6	229	110	280	26	2	164	170	170	124	30	69	50	110	40	4-M12	8
8	243	120	340	29	2	206	200	201	124	30	69	50	110	40	4-M12	8
10	297	148	405	30.6	2	260	240	237	140	40	77	60	135	40	4-M16	12
12	338	190	485	32.2	2	316	286	282	140	40	77	60	135	40	4-M16	12
14	400	221	535	35.4	2	372	330	337	170	50	105	60	140	64	4-M16	14
16	400	220	595	37	2	420	367	372	212	60	127	80	170	80	4-M20	18



DN	A	L	B	H	C	D	D1
25	270	390	140	133	105	85	85
32	270	390	140	138	105	85	85
40	275	395	140	140	115	85	85
50	275	395	140	150	115	85	85
65	296	440	150	165	125	85	85
80	300	445	150	178	135	85	90
100	300	445	150	190	135	85	102
125	343	507	155	205	155	85	97
150	343	507	155	235	170	85	129
200	418	617	190	265	200	85	123
250	502	742	224	317	260	92	149
300	520	760	224	362	280	/	148
350	605	900	277	437	330	/	179
400	620	900	277	492	330	/	180