

TURNFLO



Butterfly Valves Slim Disc Design T3 (Wafer) and T4 (Lugged) Series



- 50-300mm size range
- Cartridge type replaceable seat
- 316 stainless steel disc
- Full vacuum to 16 bar pressure range
- Universal flange compatibility on wafer style
- Variety of actuation options

TURNFLO Butterfly Valves T3 and T4 Series – Slim Disc Design

DESIGN FEATURES

A high quality industrial rated butterfly valve, incorporating a *slim disc design* which utilises an internal square drive mechanism instead of conventional disc pins or bolts. This provides a clean sanitary path for improved product flow, without obstructions that could snag product or provide havens for buildup, or even leakage. This makes these valves ideal for applications such as in breweries, wineries, distilleries, soft drink and food processing, chemical and other industrial applications.

Turnflo T3 and T4 valves utilise the same well proven *cartridge type seat* design used in T5/T6 series valves. This design provides all the desired properties of a bonded liner – such as a higher pressure rating (16 Bar), non-dependance on flange types (full face or slip on) to achieve maximum performance and prevention of seat “roll-out” – typical of “soft seat” designs, reduced operating torque and better wear characteristics, yet allows for easy replacement – a feature not possible with bonded liner valves.



**AGA
Approved**

When fitted with Buna Seats
Fig. No. T3CS33 (Wafer)
Fig. No. T4CS33 (Lugged)
Max. WP 16 bar
Max. Temp. 60°C

Turnflo butterfly valves also incorporate non-corrosive *fibre backed PTFE stem bushes*. These bushes isolate the stem from the valve body, significantly reducing the potential for stem seizure due to corrosion or lack of operation and minimise operating torque – putting less pressure on the operator and extending service life.

Universal flange compatibility for the wafer style (T3) valves offer flexibility in pipe and flange selection, without having to modify valves or wait for special flange options. The large top flange and drilling to ISO 5211 specifications offer the widest possible selection of actuation options, as well as direct mount of TURNFLO pneumatic actuators and accessories.

TECHNICAL SPECIFICATIONS

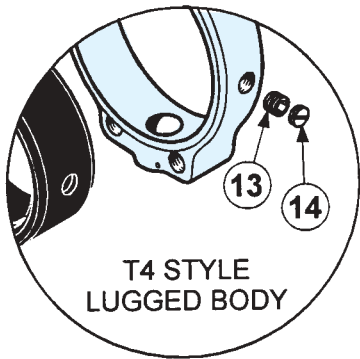
- Size range** – 50-300 NB
- Body styles** – Wafer or lugged body
– Face to Face – BS 5155
- Flanging** – Wafer – Universal, suits ANSI 125/150, AS 2129 Table “E”, DIN 16
– Lugged Body
AS 2129 Table “E” (Tapped metric)
ANSI 125/150 (Tapped UNC)
- Top Flange** – Large diameter for universal compatibility, drilled to ISO 5211 to suit most actuators
- Pressure Ratings** – In accordance with BS 5155
– Max. CWP – 1.6 Mpa
– Seat Test – 1.76 Mpa
– Shell Test – 2.4 Mpa
– Vacuum to – 1 bar

MATERIAL SPECIFICATIONS

- Body** – Cast Iron – ASTM A126 Gr B
- Disc** – Stainless Steel
ASTM A351 Gr CF8M (316SS)
- Stems** – Stainless Steel
- Stem Bushes** – Fibreglass backed PTFE
- Stem Seals** – O’rings – Buna-N (Nitrile)
- Seat Options**
EPDM (Ethylene propylene diene monomer)
Temp. range - 40 to 110 degrees C.
Suitable for most general applications including hot water, animal oils, some acids, salts and oxidising chemicals.
Not suitable for Hydrocarbons.
- FKM** (Viton)
Temp. range - 30 to 180 degrees C.
Suitable for most processing applications, aromatic hydrocarbons (oils and petrol), gases and most acids.
Excellent for higher temp. applications (not steam).
- BUNA-N** (Nitrile butadiene rubber)
Temp. range -18 to 90 degrees C.
Suitable for general applications where temperature is not a problem. Can be used on some Hydrocarbons
(NOT PETROL).

Note - The information above is intended as a guideline only. Always refer if unsure of the compatibility of components with the medium or when the intended application approaches the maximum pressures and temperatures listed above.

ITEM	QTY	DESCRIPTION	REMARKS
1	1	LOWER STEM	431SS
2	2	STEM RETAINING PIN	SPRING STEEL
3	6	O'RING	NBR
4	4	SMALL STEM BUSH	FIBRE BACKED PTFE
5	1	BODY	CAST IRON
6	1	DISC	316SS
7	1	SEAT	PHENOLIC BACKED RUBBER
8	1	UPPER STEM	431SS
9	1	IDENT. PLATE	
11	2	LARGE STEM BUSH	FIBRE BACKED PTFE
12	1	STEM DRIVE KEY	250 & 300NB ONLY
13	2-6	SEAT RETAINING SCREW	LUGGED VALVES ONLY
14	2-6	PLUG SCREW	LUGGED VALVES ONLY



13 14 Set screws positively retain seat in position to allow max. cwp with downstream flange removed.

5 Large top flange with ISO 5211 drilling, compatible with most actuators.

12 Detail of 250 & 300NB Valves

T3 STYLE WAFER BODY

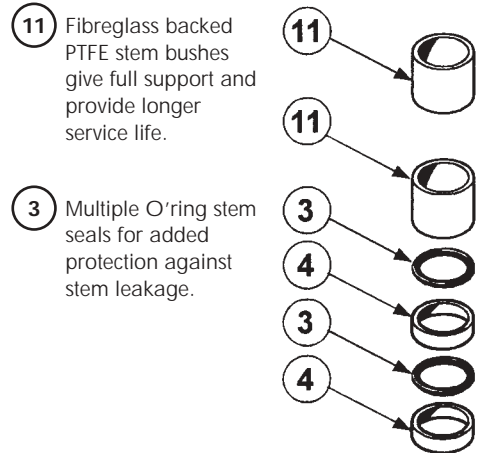
7 Cartridge type seat design. Acts like a bonded liner but is replaceable.

* Universal flanging for wafer style bodies.

6 Slim disc with internal square drive – no pins, better flow characteristics, less corrosion potential.

2 Stainless spring pins for stem retention.

1 431SS for max. tensile strength



3 Multiple O'ring stem seals for added protection against stem leakage.

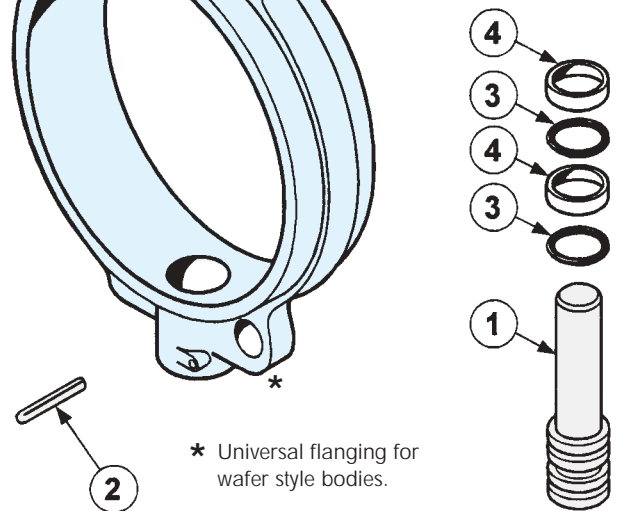
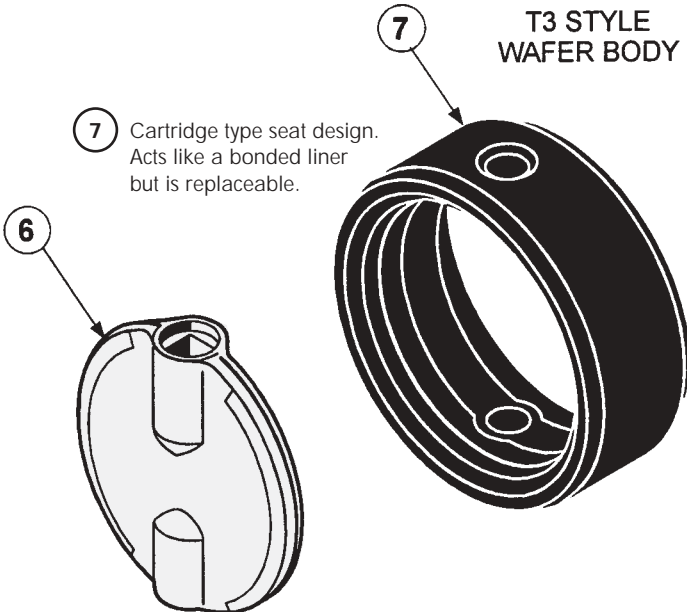
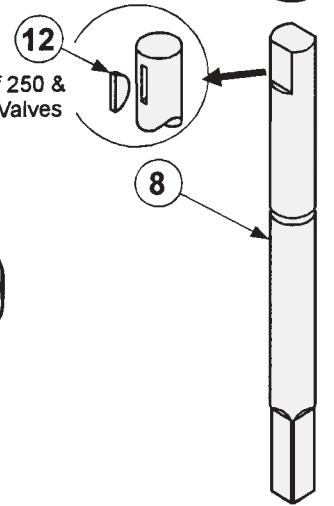
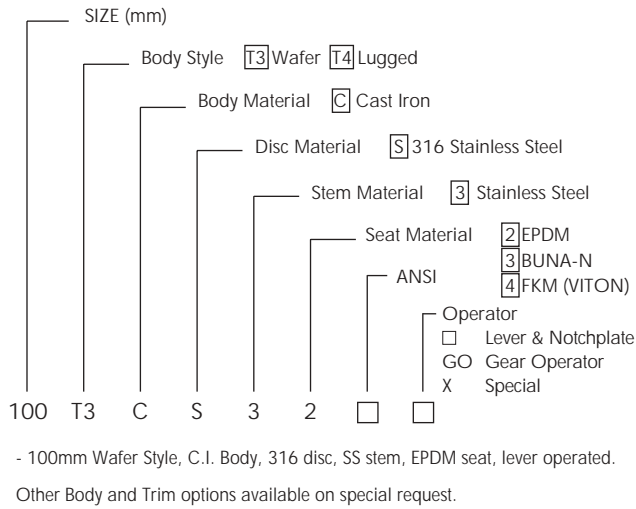
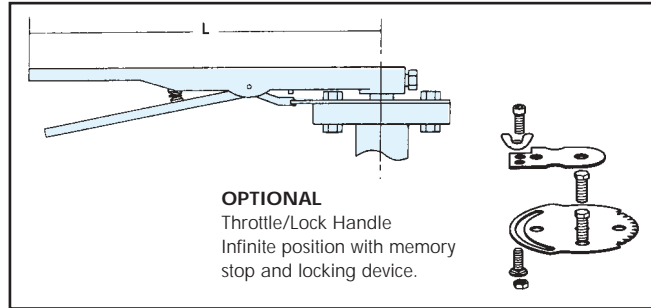


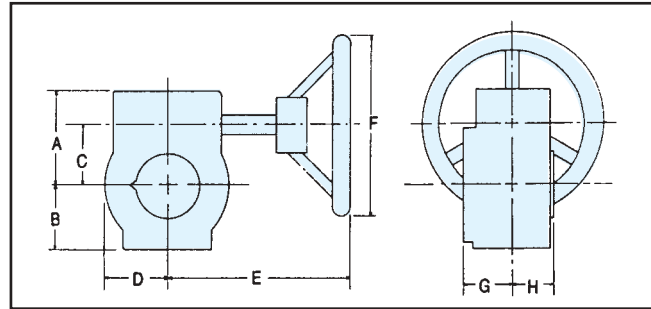
FIGURE NUMBERING SYSTEM – T3 and T4 Series



LEVER OPERATOR

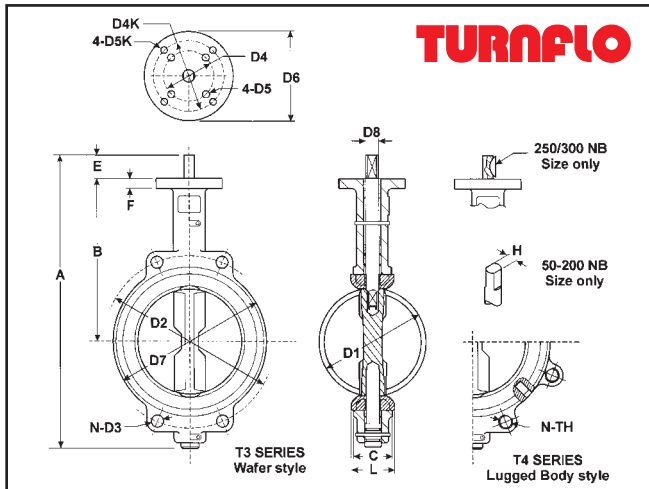


GEAR OPERATOR



MANUAL OPERATOR DIMENSIONS

Size	Model	Gear Operator								Lever
		A	B	C	D	E	F	G	H	
50	GO1	74	52	45	52	153	150	39	36	267
65	GO1	74	52	45	52	153	150	39	36	267
80	GO1	74	52	45	52	153	150	39	36	267
100	GO2	74	52	45	52	153	150	39	36	267
125	GO3	74	52	45	52	153	150	39	36	267
150	GO3	74	52	45	52	153	150	39	36	267
200	GO4	101	75	63	75	250	300	43	43	353
250	GO5	101	75	63	75	250	300	43	43	353
300	GO6	118	81	80	81	250	300	38	45	353



DIMENSIONS T3 and T4 Series

Size (mm)	D1	WAFER		LUGGED**		D4	D4K	D5	D5K	D6	D7	D8	A	B	C	E	F	L	H	KEY (ITEM 12)	WEIGHTS (KG)			
		D2	N-D3	D2	N-Tho																BARE SHAFT		OPERATORS	
																					T3	T4	LEVER	GEAR
50	53	UNIVERSAL SUITS ANSI 150, DIN 10/16, AS 2129 D/E. REFER TO FLANGE TABLE STANDARDS FOR DRILLING AND PCD'S.	114	4-M16	70	83	10	11	102	100	12.7	280	161	42	32	13	45	9.5	-	3	4	0.5	5	
65	65		127	4-M16	70	83	10	11	102	120	12.7	303	175	45	32	13	48	9.5	-	3	4	0.5	5	
80	79		146	4-M16	70	83	10	11	102	127	12.7	315	181	45	32	13	49	9.5	-	4	5	0.5	5	
100	104		178	8-M16	70	83	10	11	102	156	15.9	353	200	52	32	13	55	11.1	-	5	9	0.5	6	
125	123		210	8-M16	70	83	10	11	102	190	19.0	379	213	54	32	13	58	12.7	-	7	11	0.8	6	
150	156		235	8-M20	70	83	10	11	102	212	19.0	404	226	56	32	13	59	12.7	-	8	14	0.8	6	
200	203		292	8-M20	102	127	12	14	152	268	22.1	487	260	61	45	13	63	15.9	-	13	18	1.3	13	
250	251		356	12-M20	102	127	12	14	152	325	28.5	547	292	66	37	13	70	-	6.35x25.4	19	27	-	13	
300	302		406	12-M24	102	127	12	14	152	403	28.5	631	337	77	45	20	80	-	6.35x25.4	33	40	-	15	

**LUGGED — To AS 2129 Table "E" as standard

VALVE SIZING CO-EFFICIENTS (Cv VALUES)

DISC OPENING	Degrees								
	10	20	30	40	50	60	70	80	90
Size mm	10	20	30	40	50	60	70	80	90
50	2	8	17	28	46	72	125	179	200
65	3.1	10	22	47	72	120	185	270	300
80	3.9	17	36	65	100	158	274	410	500
100	7	30	61	108	178	265	410	712	800
125	11	46	99	181	282	445	710	1097	1250
150	19	64	140	252	396	620	1090	1590	1800
200	28	118	260	460	710	1140	1780	2750	3100
250	43	190	420	715	1130	1820	2900	4200	5000
300	59	280	600	1100	1780	2800	4100	6000	7100

Note - Cv is the unit of measure normally used to define the flow capacity of a valve and is defined as -

The volume of water, in U.S. g.p.m., that will flow through the valve, at ambient temperature, with the disc in the degree open position indicated adjacent, giving a pressure drop across the valve of 1p.s.i.

Kv is the metric version for flow rates, in cubic metres per hour, with a pressure drop of 1 Bar.

The conversion from Cv to Kv is Cv x 0.856.

TURNFLO Butterfly Valves T3 and T4 Series – Slim Disc Design

ACTUATOR OPTIONS:

- Lever Operator** – 10 position lever and notchplate
– standard on sizes up to 200mm
- Gear Operator** – standard on sizes 250mm & above
- Pneumatic** – air operated (double acting & spring return), c/w solenoid valves, limit switches, position indicators, modulating controls
- Electric** – open/close, modulating control



TURNFLO 'TF' Series Pneumatic Actuators A perfect match for T3/T4 series butterfly valves

Valve/Actuator Selection Chart

(Based on valve max. cwp = 16 bar, actuator air pressure = 550 kPa)

To find suggested valve/actuator matchup – use appropriate chart below (double acting or spring return), locate valve size in left hand column and read across until you find a shaded box in that row, look to the top of that column to find the correct actuator. Depending on the valve/actuator combination, you may need a drive adaptor kit, which consists of a special drive adaptor and the necessary bolts to attach the actuator to the valve top flange – The required adaptor can be found next to the valve size, in the same chart. ('D' denotes double 'D' type)

DOUBLE ACTING		TF40D	TF65D	TF100D	TF200D	TF350D	TF600D		
	DRIVE ADAPTOR D/BLE 'D'								
VALVE									
50	BFDA1D	-							
65	BFDA1D	-							
80	BFDA1D	-							
100	BFDA3D		-						
125	BFDA5D			-					
150	BFDA6D				-				
200	BFDA7D					-			
250	BFDA8D						-		
300	BFDA8D						-		

SPRING RETURN		TF40S	TF65S	TF100S	TF200S	TF350S	TF600S	TF950S	TF1600S
	DRIVE ADAPTOR D/BLE 'D'								
VALVE									
50	BFDA1D	-							
65	BFDA1D		-						
80	BFDA2D			-					
100	BFDA4D			-					
125	BFDA6D				-				
150	BFDA6D					-			
200	BFDA7D						-		
250	BFDA9K							-	
300	BFDA10K								-

DRIVE ADAPTOR LEGEND

BFDA 'X' D – Butterfly Drive Adaptor, (x = size), 'D' = double 'D' stem drive



TURNFLO Butterfly Valves T3 and T4 Series – Slim Disc Design

TURNFLO 'TF' SERIES PNEUMATIC ACTUATORS

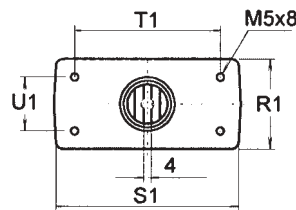
A perfect match for T3/T4 series butterfly valves

FEATURES

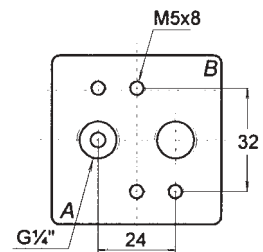
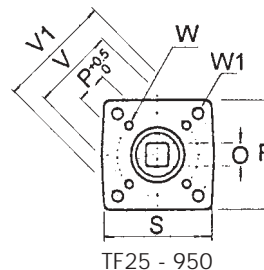
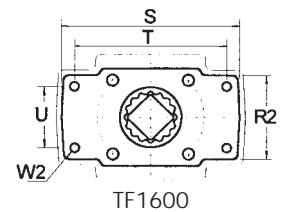
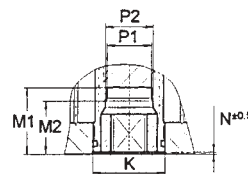
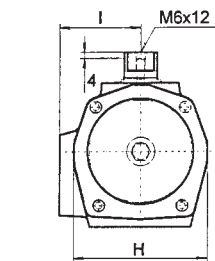
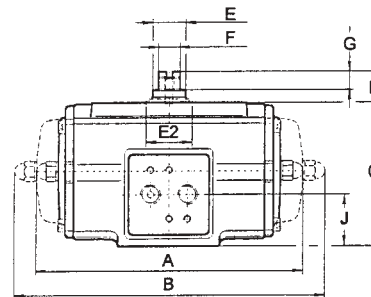
- Compact rack & pinion design
- Available in double acting and spring return
- Manufactured from high grade aluminium alloy, polyurethane coated, for maximum corrosion resistance
- Drive and base mount in accordance with ISO 5211
- Patented 3-point piston support system ensures high cycle life
- Air connections and accessory mounts to NAMUR std.
- Wide choice of 'bolt on' accessories such as solenoid valves, speed controls, limit switches, positioners, etc.
- Drive inserts allow easy adaptation without the need for brackets



Dim. in mm	TF25	TF40	TF65	TF100	TF200	TF350	TF600	TF950	TF1600
A ED	159	180	199	221	283	305	387	424	516
B ES	172	204	249	267	360	387	477	517	637
C	80	93	105	118	143	181	220	259	297
D	20	20	20	20	20	20	30	30	30
E	16	22	22	22	36	36	55	55	64
E2	23	30	30	30	45	45	65	65	75
F	10	14	14	14	19	19	36	36	36
G	12	12	12	12	12	12	10	10	10
H	74	86	98	108	128	173	207	231	265
I	46	53	57.5	63	73	94.3	113	126	142
J	32	33.5	39.1	40.5	50.5	72.4	84.5	105.5	120.5
K	24	33	33	38	55	55	68	75	95
M1	34.5	34.5	34.5	34.5	50	50	52	64	82
M2	-	-	-	27	37	37	-	-	-
N	1	1	1	1.5	1.5	1.5	1.5	1.5	1.5
O max.	11.11	14.11	14.11	19.13	22.13	27.13	27.13	36.16	46.16
O min.	11.00	14.00	14.00	19.00	22.00	27.00	27.00	36.00	46.00
P	14.1	18.1	18.1	25.2	28.2	36.2	36.2	48.2	60.2
P1	14.1	18.1	21.1	23.1	32.1	32.1	36.5	48.5	60.5
P2	-	-	-	25.2	36.2	36.2	-	-	-
R	52	65	70	70	90	114	124	130	154
R1	50	50	50	60	60	60	90	90	125
R2	-	-	-	-	-	-	-	-	132
S	52	65	70	70	90	114	124	142	280
S1	100	100	100	100	100	100	170	170	210
T	-	-	-	-	-	-	-	-	234.6
T1	80	80	80	80	80	80	130	130	130
U	-	-	-	-	-	-	-	-	97.2
U1	30	30	30	30	30	30	30	30	30
V	36	50	50	50	70	70	102	102	165
V1	50	70	70	70	102	102	125	140	-
W	M5 x 8	M6 x 10	M6 x 10	M6 x 10	M8 x 13	M8 x 13	M10 x 16	M10 x 16	M20 x 30
W1	M6 x 10	M8 x 13	M8 x 13	M8 x 13	M10 x 16	M10 x 16	M12 x 20	M16 x 25	-
W2	-	-	-	-	-	-	-	-	M16 x 25



Refer to OneSteel for additional technical information on valves, actuators, solenoid valves, limit switches and other accessories.



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