

Stainless steel hygienic butterfly valves.

- **F250 for imperial tubing.**
- **F251 for metric tubing.**

Features

- Keystone technology.
- Quarter turn operation.
- Isolation or regulation control.
- Equal percentage characteristics.
- Bi-directional capability.
- Fully machined 316L stainless steel body.
- Optional end connections.
- One-piece disc and stem assembly.
- High Cv slim profile disc.
- Integral valve position indicator.
- High grade seat material options.
- Combination dual or multi position handle assembly.
- High impact reinforced polymer handle with a stainless steel drive (full stainless steel option available).
- Integral padlocking as standard on manual valves.
- Maintenance friendly.
- Site repairable.
- Full range of optional accessories.



General application

A universal valve for isolation and control, in the food, dairy, brewing, pharmaceutical, beverage and chemical industries.

The Figure 250 and 251 are designed to be easily automated with any of Keystone's actuators and controls. From the Figure 257 Vertical Actuator and Figure 783 Electronic Control Head, to the Figure 790 or Figure 79S actuator.



Typical specifying sequence - valves

Valve (Bare)	50	F250	263	BW
	Valve Size	Figure Number	Trim Code	End Connections
Trim	Body	Disc Stem	Seat	Bearing
259	316L Stainless Steel	316 Stainless Steel	Viton	Acetal
262	316L Stainless Steel	316 Stainless Steel	EPDM	Acetal
263	316L Stainless Steel	316 Stainless Steel	Silicon	Acetal
264	316L Stainless Steel	316 Stainless Steel	Nitrile	Acetal

Typical specifying sequence - handles

Handle	F397	08SQ	P
	Figure Number	Stem Connection	Material Code

Code	Material
P	Polymer
S	304 Stainless Steel

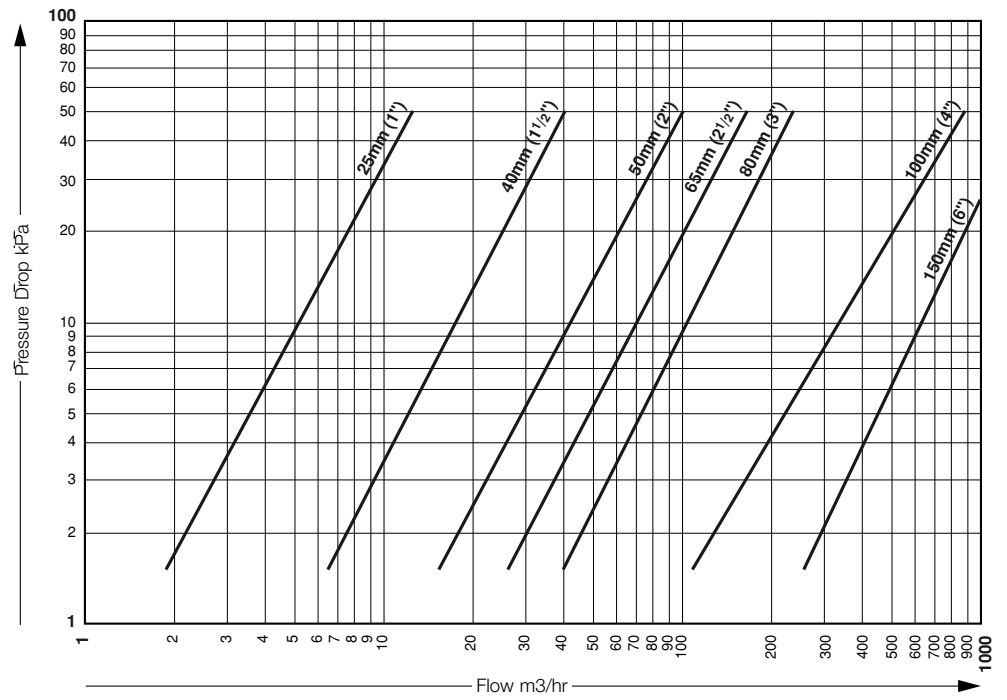
End connections

F250	Butt Weld (std) IDF ISO 2853/BS 4825-4 (male) RJT/BSM BS 4825 (male) Clamp ISO 2852 (ferrule)
F251	Butt Weld (std) DIN 11851/11887 (male) Clamp ISO 2852 (ferrule) BSP ISO 228 (male)

Notes

For information on the Wafer Style Valve refer separate literature sheet.

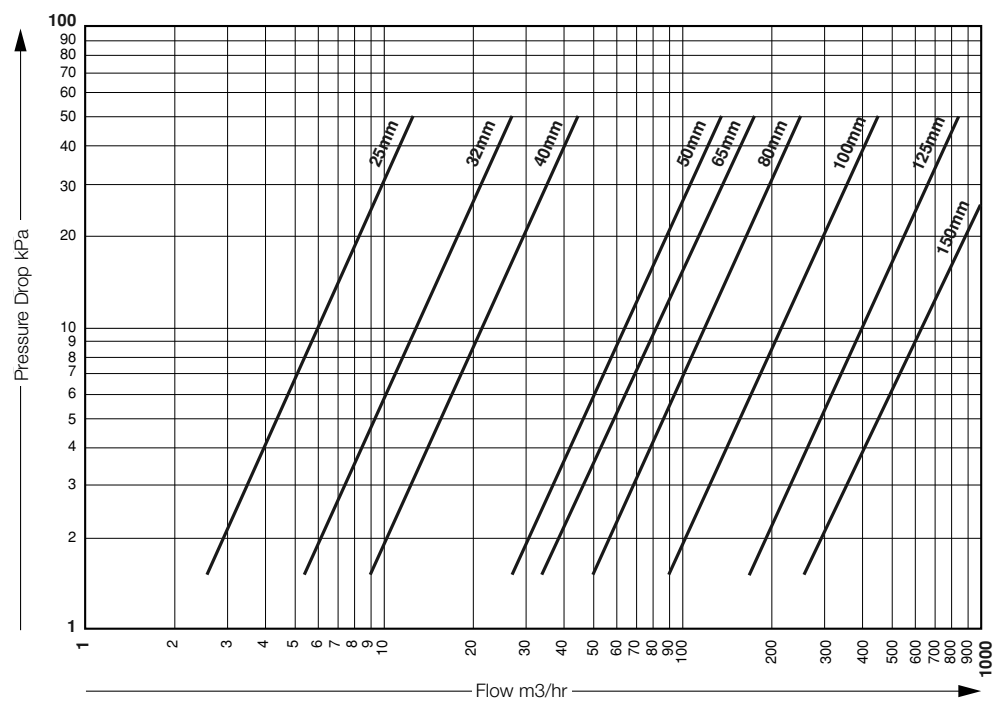
F250 pressure drop / flowrates graph



Note

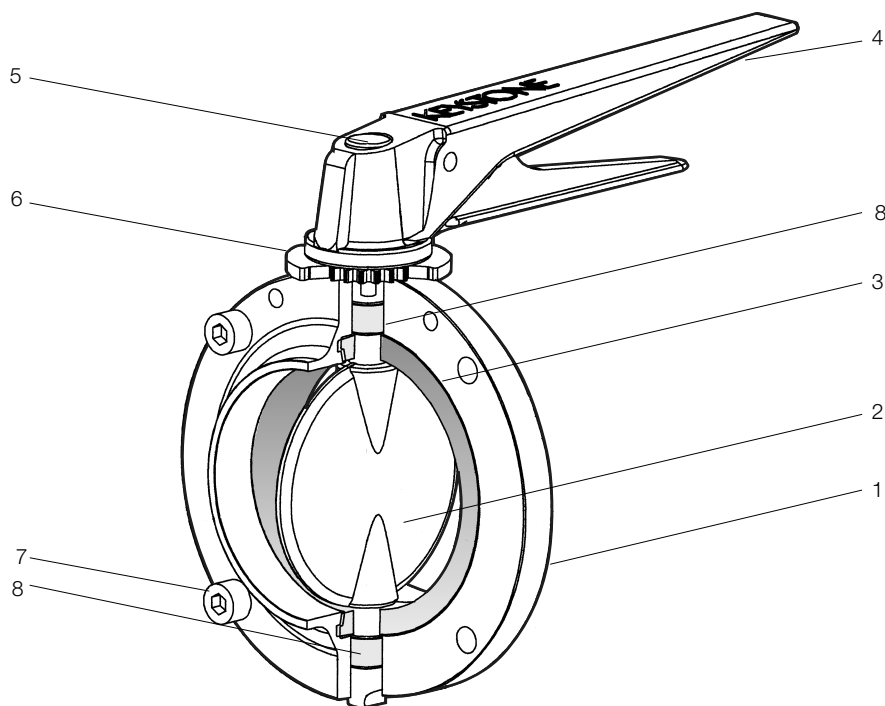
This chart is based on an F250 valve fully open, using water at 20°C.

F251 pressure drop / flowrates graph



Note

This chart is based on an F251 valve fully open, using water at 20°C.



Technical data

Max Product Pressure at 20°C

1000 kPa (10 bar).

Min Product pressure at 20°C

Full Vacuum.

General Temperature Range:

Minus 10°C to 95°C

Max Static Temperature

Silicon: 240°C

EPDM: 120°C

Nitrile: 100°C

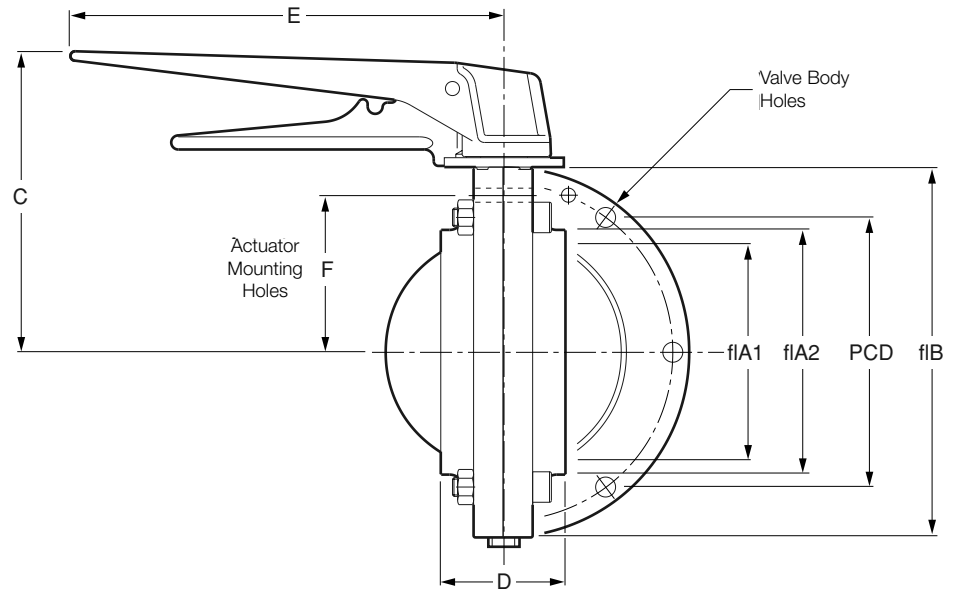
Viton: 230°C

Note

Although the various seat materials available can withstand temperatures above the 95° stated, for short periods of time, such as for sterilisation and certain applications, the servicability of these seats at elevated temperatures does vary depending on the media, pressure and other variables. Therefore, this is best determined from experience gained with the application concerned.

Parts list

No.	Description	Material	Standard
1	Body	316L Stainless Steel	ASTM A276
2	Disc Stem	316 Stainless Steel	ASTM A743 CF8M
3	Seat	Silicon (White)	FDA
		EPDM (Brown)	FDA
		Nitrile (Black)	FDA
		Viton (Red)	-
4	Handle Assembly	High Impact Glass Reinforced Polymer or 304 Stainless Steel	-
5	Handle Plug/Screw	Santaprene / 304 Stainless Steel	Commercial
6	Notch Plate	304 Stainless Steel	ASTM A743 CF8
7	Body Fasteners	304 Stainless Steel	ASTM A276
8	Bearings	Acetal	Commercial



Note

Dimensions 'D' and 'A2' shown above, are for the Butt weld configuration only. For other types of connections, refer to attached End Connection data.
 Dimension 'E' is the maximum clearance length for either handle.
 Masses shown are for bare shafted butt weld valves only.

F250 imperial valve dimensions (mm)

Valve Size		ØA1	ØA2	ØB	C	D	E	F	PCD	No. Holes	Hole Dia	Stem Conn.	Mass (kg)	Kv (Fully open)
mm	inches													
25	1"	22.3	25.8	69	83.5	50	185	26.5	59	4	6	8mm sq.	0.7	17
40	1 1/2"	35.0	38.5	79	88.5	50	185	31.5	69	4	6	8mm sq.	0.8	64
50	2"	47.7	51.2	94	96.0	50	185	38.0	84	4	6	8mm sq.	1.1	131
65	2 1/2"	60.4	63.9	104	101.0	50	185	43.0	95	4	6	8mm sq.	1.5	220
80	3"	73.1	76.6	124	112.0	60	185	50.0	111	4	8	10mm sq.	2.0	333
100	4"	98.5	102.0	151	125.5	70	185	63.5	139	6	8	12mm sq.	3.3	726
150	6"	148.4	153.0	223	183.5	80	266	98.5	207	6	10	15mm sq.	8.2	2050

F251 metric valve dimensions (mm)

Valve Size		ØA1	ØA2	ØB	C	D	E	F	PCD	No. Holes	Hole Dia	Stem Conn.	Mass (kg)	Kv (Fully open)
mm	inches													
25	-	26	30.4	74	86.0	50	185	29.0	63	4	6	8mm sq.	0.8	19
32	-	32	36.4	79	88.5	50	185	31.5	69	4	6	8mm sq.	0.7	41
40	-	38	42.4	87	92.5	50	185	35.5	76	4	6	8mm sq.	0.9	69
50	-	50	54.4	99	98.5	50	185	40.5	89	4	6	8mm sq.	1.4	206
65	-	66	70.4	123	111.5	50	185	49.5	109	4	8	10mm sq.	2.5	263
80	-	81	85.4	138	119.0	54	185	57.0	124	4	8	10mm sq.	3.0	381
100	-	100	104.4	158	129.0	54	185	67.0	144	6	8	12mm sq.	4.5	689
125	-	125	132.4	198	166.0	74	266	90.4	177	6	10	15mm sq.	7.5	1370
150	-	150	156.4	223	183.5	80	266	98.5	207	6	10	15mm sq.	8.2	2050

F790 pneumatic actuator selection chart for F250 and F251 butterfly valves.

F790 double acting pneumatic actuator - normal service

Valve size mm	Actuator Supply Pressure - kPa/(bar)					
	300 (3)	400 (4)	500 (5)	550 (5.5)	600 (6)	700 (7)
25						
32						
40						
50			003			
65						
80						
100						
150	012		006			

F790 spring to close pneumatic actuator - normal service

Valve size mm	Actuator Supply Pressure - kPa/(bar)				
	400 (4)	500 (5)	550 (5.5)	600 (6)	700 (7)
25					
32					
40	003		003		
50					
65					
80	006		006		
100	012				
150	018		012		

F790 double acting pneumatic actuator - severe service

Valve size mm	Actuator Supply Pressure - kPa/(bar)					
	300 (3)	400 (4)	500 (5)	550 (5.5)	600 (6)	700 (7)
25						
32						
40						
50			003			
65						
80			006			
100	018					
150			012			

F790 spring to close pneumatic actuator - severe service

Valve size mm	Actuator Supply Pressure - kPa/(bar)				
	400 (4)	500 (5)	550 (5.5)	600 (6)	700 (7)
25					
32	003		003		
40	006				
50			006		
65	012				
80			012		
100	036		018		
150			036		

This actuator selection chart is a guide to the anticipated maximum torque required to operate the valve under the stated conditions. It includes seating, unseating (break-away), running torques and allows for stem bearing frictional forces.

No additional safety factors are considered necessary unless the operating conditions are beyond the stated duties.

Service definitions

Normal Service:

When used with clean lubricating fluids at ambient temperature and at a maximum of 1000 kPa (10 bar).

Severe Service:

All other applications.

Notes:

Actuation selection for 400 kPa (4 bar) supply pressure is based on using 400 kPa spring pack.

Actuator selection for all the others, 500 - 700 kPa (5-7 bar) is based on using 550 kPa spring pack.

For spring to open actuator selection, consult factory.

- 003 = F790 003
- 006 = F790 006
- 012 = F790 012
- 018 = F790 018
- 036 = F790 036

F79S pneumatic actuator selection chart for F250 and F251 butterfly valves.

This actuator selection chart is a guide to the anticipated maximum torque required to operate the valve under the stated conditions. It includes seating, unseating (break-away), running torques and allows for stem bearing frictional forces. No additional safety factors are considered necessary unless the operating conditions are beyond the stated duties.

Service Definitions

Normal Service:

When used with clean lubricating fluids at ambient temperature and at a maximum of 1000 kPa (10 bar).

Severe Service:

All other applications.

Notes:

Actuator selection for 300 kPa (3 bar) supply pressure is based on using 300 kPa spring pack.

Actuator selection for 400 kPa (4 bar) supply pressure is based on using 400 kPa spring pack.

Actuator selection for all the others, 500 - 700 kPa (5-7 bar) is based on using 550 kPa spring pack.

For spring to open actuator selection, consult factory.

003 = F79S 003

006 = F79S 006

012 = F79S 012

023 = F79S 023

036 = F79S 036

046 = F79S 046

F79S double acting pneumatic actuator - normal service

Valve size mm	Actuator Supply Pressure - kPa/(bar)					
	300 (3)	400 (4)	500 (5)	550 (5.5)	600 (6)	700 (7)
25						
32						
40						
50			003			
65						
80						
100			006			
150	012					

F79S single acting spring return pneumatic actuator - severe service

Valve size mm	Actuator Supply Pressure - kPa/(bar)					
	300 (3)	400 (4)	500 (5)	550 (5.5)	600 (6)	700 (7)
25						
32						
40	003	003	003			
50						
65	006	006				
80	012		006			
100		012	012			
150	023	023	023			

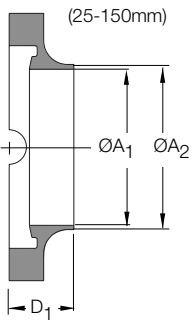
F79S double acting pneumatic actuator - severe service

Valve size mm	Actuator Supply Pressure - kPa/(bar)					
	300 (3)	400 (4)	500 (5)	550 (5.5)	600 (6)	700 (7)
25						
32						
40			003			
50						
65						
80			006			
100						
150	023		012			

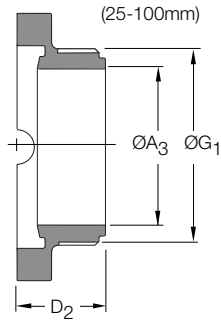
F79S single acting spring return pneumatic actuator - severe service

Valve size mm	Actuator Supply Pressure - kPa/(bar)					
	300 (3)	400 (4)	500 (5)	550 (5.5)	600 (6)	700 (7)
25	003	003	003			
32						
40	006	006	006			
50						
65	012	012	012			
80						
100	036	036	036		023	
150	046					

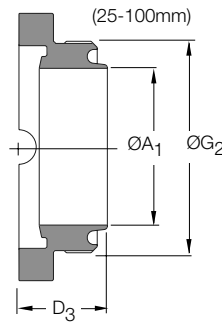
F250 imperial valve - available end connections



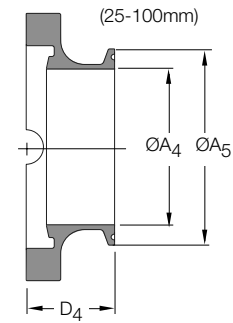
Butt weld (std) for inch tubing (O.D. tubes)
ISO 2037/BS 4825-1/AS 1528-1



IDF/FIL male part connection
ISO 2853/BS4825-4



RJT/BSM male part connection
BS 4825-5



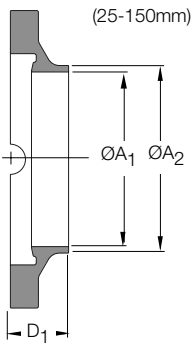
Clamp connection
ISO 2852

Dimensions (mm)

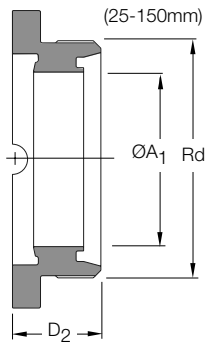
mm	inch	ØA1	ØA2	ØA3	ØA4	ØA5	ØG1	ØG2	D1	D2	D3	D4
25	1"	22.3	25.8	23.0	23.0	50.5	IDF 1"	RJT 1"	25	40	40	40
40	1 1/2"	35.0	38.5	35.6	35.6	50.5	IDF 1 1/2"	RJT 1 1/2"	25	40	40	40
50	2"	47.7	51.2	47.7	47.7	64.0	IDF 2"	RJT 2"	25	40	40	40
65	2 1/2"	60.4	63.9	59.4	60.4	77.5	IDF 2 1/2"	RJT 2 1/2"	25	50	50	40
80	3"	73.1	76.6	72.2	73.1	91.0	IDF 3"	RJT 3"	30	50	46	40
100	4"	98.5	102.0	98.5	98.0	119.0	IDF 4"	RJT 4"	35	52	52	46
150	6"	148.4	153.0	-	153.0	-	-	-	40	-	-	55

Note: BSM modified version is available upon request, deduct 4.7mm from dimension D3.

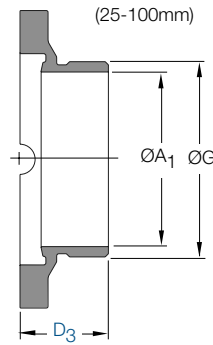
F251 metric valve - available end connections



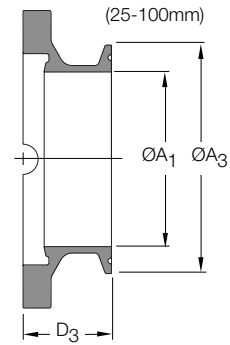
Butt weld (std) for tubing
DIN 11850, sheet 1-3



Connection male part
DIN 11851/11887



BSP male
DIN ISO 228



Clamp Connection
ISO 2852

Dimensions (mm)

mm	DIN	ØA1	ØA2	ØA3	ØG	D1	D2	D3	Rd
25	25	26	30.4	50.5	G 1"	25	37	34	Rd 52 x 1/6"
32	32	32	36.4	50.5	G 1 1/4"	25	37	34	Rd 58 x 1/6"
40	40	38	42.4	50.5	G 1 1/2"	25	37	34	Rd 65 x 1/6"
50	50	50	54.4	64	G 2"	25	37	34	Rd 78 x 1/6"
65	65	66	70.4	91	G 2 1/2"	25	41	37	Rd 95 x 1/6"
80	80	81	85.4	106	G 3"	27	45	41	Rd 110 x 1/4"
100	100	100	104.4	119	G 4"	27	45	41	Rd 130 x 1/4"
125	125	125	132.4	-	-	37	58	-	Rd 160 x 1/4"
150	150	150	156.4	-	-	40	66	-	Rd 190 x 1/4"