

**PENTAIR  
HYGIENIC PROCESS VALVES  
(FORMERLY KEYSTONE)**

**F250/F251  
HYGIENIC  
BUTTERFLY VALVES**

WELD/CLAMP/THREAD END CONNECTIONS



## PENTAIR HYGIENIC PROCESS VALVES (Formerly Keystone)

# HYGIENIC BUTTERFLY VALVES

WELD/CLAMP/THREAD END CONNECTIONS

The F250 and 251 butterfly valves are used for in-line isolation or control of process or C.I.P. fluids .

### GENERAL APPLICATIONS

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

The F250 and F251 are designed to be easily automated with any of PENTAIR's actuators and controls. From the F257 Vertical actuator and F783E Electronic control top, to the F79E/U or F79S Actuator.



- F250 for inch OD tubing
- F251 for metric tubing

### TECHNICAL DATA

Max. product pressure at 20°C: 10bar (1000kPa)

Min. product pressure at 20°C: Full vacuum

Recommended operating pressure at 20°C: 6bar (600kPa)

Recommended temperature range: -5°C to 95°C



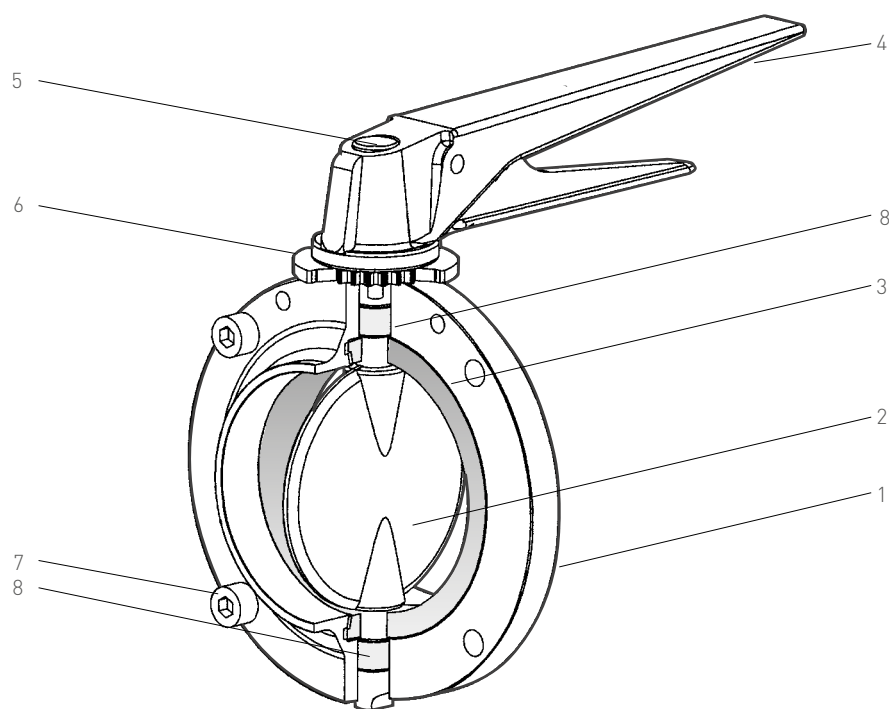
### FEATURES

- 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

# PENTAIR HYGIENIC BUTTERFLY VALVES

## F250/251 WELD/CLAMP/THREAD END CONNECTIONS

### PRODUCT INFORMATION



#### PARTS LIST

No.	Description	Material	Standard
1	Body	316L (or 304L) stainless steel	ASTM A276 (or A182)
2	Disc stem	316L stainless steel	ASTM A743 CF8M
3	Seat	VMQ (white)	FDA
		EPDM (black)	FDA
		NBR (black)	FDA
		HNBR (black)	FDA
		FKM (red)	FDA
4	Handle assembly	High impact glass reinforced polymer or 304 stainless steel	-
5	Handle plug/Screw	TPR / 304 stainless steel	Commercial
6	Notch plate	304 stainless steel	ASTM A743 CF8
7	Body fasteners	304 stainless steel	ASTM A276
8	Bearings	PVDF	Commercial

#### TECHNICAL DATA

Max static temperature	
VMQ	150°C
EPDM	120°C
NBR	100°C
HNBR	150°C
FKM	150°C

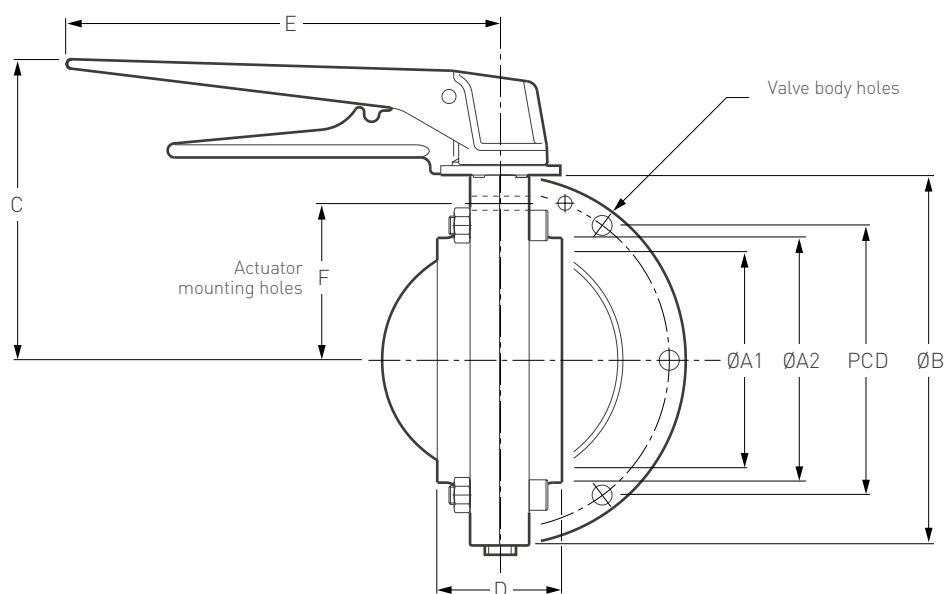
#### NOTE:

Although the various seat materials available can withstand temperatures above the max. recommended operating temperature 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.

# PENTAIR HYGIENIC BUTTERFLY VALVES

## F250/251 WELD/CLAMP/THREAD END CONNECTIONS

### PRODUCT INFORMATION



#### F250 INCH OD VALVE DIMENSIONS (mm)

Valve size													$K_v$	
DN	Inch OD	ØA1	ØA2	ØB	C	D	E	F	PCD	No. holes	Hole dia.	Stem conn.	Mass (kg)	(Fully open)
25	1.0"	22.3	25.4	69	83.5	50	156	26.5	59	4	6	8 x 8	0.7	17
40	1.5"	35.0	38.1	79	88.5	50	156	31.5	69	4	6	8 x 8	0.8	64
50	2.0"	47.7	50.8	94	96.0	50	156	38.0	84	4	6	8 x 8	1.1	131
65	2.5"	60.4	63.5	104	101.0	50	156	43.0	95	4	6	8 x 8	1.5	220
80	3.0"	73.1	76.2	124	112.0	60	185	50.0	111	4	8	10 x 10	2.0	333
100	4.0"	98.0	101.6	151	125.5	70	185	63.5	139	6	8	12 x 12	3.3	726
125	5.0"	123.0	127.0	198	171.0	71	266	90.4	177	6	10	15 x 15	7.5	1370
150	6.0"	148.4	152.4	223	183.5	80	266	98.5	207	6	10	15 x 15	8.2	2050

#### F251 METRIC VALVE DIMENSIONS (mm)

Valve size													$K_v$	
DN	Metric	ØA1	ØA2	ØB	C	D	E	F	PCD	No. holes	Hole dia.	Stem conn.	Mass (kg)	(Fully open)
25	25	26	29	74	86.0	50	156	29.0	63	4	6	8 x 8	0.8	19
32	32	32	35	79	88.5	50	156	31.5	69	4	6	8 x 8	0.7	41
40	40	38	41	87	92.5	50	156	35.5	76	4	6	8 x 8	0.9	69
50	50	50	54	99	98.5	50	156	40.5	89	4	6	8 x 8	1.4	137
65	65	66	70	123	111.5	50	185	49.5	109	4	8	10 x 10	2.5	263
80	80	81	85	138	119.0	54	185	57.0	124	4	8	10 x 10	3.0	381
100	100	100	104	158	129.0	54	185	67.0	144	6	8	12 x 12	4.5	689
125	125	125	129	198	171.0	74	266	90.4	177	6	10	15 x 15	7.5	1370
150	150	150	154	223	183.5	80	266	99.5	203	6	10	15 x 15	8.2	2050

#### NOTE:

Dimensions 'D' and 'A2' shown above, are for the butt weld configuration only.

For other types of connections, refer to the following end connection data.

Dimension 'E' is the maximum clearance length for either handle.

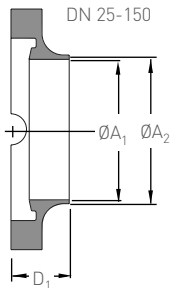
Masses shown are for bare shafted butt weld valves only.

# PENTAIR HYGIENIC BUTTERFLY VALVES

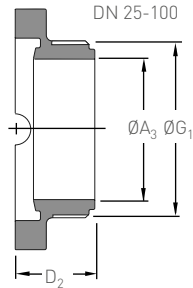
## F250/251 WELD/CLAMP/THREAD END CONNECTIONS

### PRODUCT INFORMATION

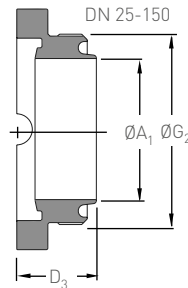
#### F250 INCH OD VALVES - AVAILABLE END CONNECTIONS



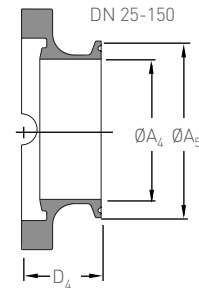
Butt weld (std) for inch tubing  
(O.D. tubes)  
ISO 2037, BS 4825-1, AS 1528-1  
and ASME BPE\*\*



IDF/FIL male part connection  
ISO 2853 & BS 4825-4



RJT/BSM male part connection  
BS 4825-5



Clamp connection  
ISO 2852

#### DIMENSIONS (mm)

DN	Inch OD	$\varnothing A_1$	$\varnothing A_2$	$\varnothing A_3$	$\varnothing A_4$	$\varnothing A_5$	$\varnothing G_1$	$\varnothing G_2$	$D_1$		$D_2$		$D_3$		$D_4$	
									M*	F*	M*	F*	M*	F*	M*	F*
25	1.0"	22.3	25.4	23.0	23.0	50.5	IDF 1"	RJT 1"	25	40	46	40	50.5	40	37	
40	1.5"	35.0	38.1	35.6	35.6	50.5	IDF 1½"	RJT 1½"	25	40	46	40	50.5	40	37	
50	2.0"	47.7	50.8	47.7	47.7	64.0	IDF 2"	RJT 2"	25	40	46	40	50.5	40	37	
65	2.5"	60.4	63.5	59.4	60.4	77.5	IDF 2½"	RJT 2½"	25	50	46	50	50.5	40	37	
80	3.0"	73.1	76.2	72.2	73.1	91.0	IDF 3"	RJT 3"	30	50	51	46	55.5	40	42	
100	4.0"	98.5	101.6	98.5	98.0	119.0	IDF 4"	RJT 4"	35	52	64	52	60.5	46	50	
125	5.0"	123.0	127.0	-	123.0	-	-	RJT 5"	35	-	-	-	62.5	-	58	
150	6.0"	148.4	152.4	-	148.4	167.0	-	RJT 6"	40	-	-	-	65.5	55	-	

#### NOTE:

BSM modified version is available upon request, deduct 4.7 mm from dimension  $D_3$

\*F Fabricated two piece body (Std.)

\*M Machined one piece body (on request)

\*\* BPE is provided as Std. 1" thru 4" other sizes subject to enquiry

### OTHER SPECIALITY HYGIENIC BUTTERFLY VALVE OPTIONS

#### F250/1 WAFER BUTTERFLY VALVE

For easy insertion and removal from inline service



#### F250/1P SKI-JUMP POWDER BUTTERFLY VALVE

For use with abrasive powder or granular products



#### F250T/1T MULTI-WAY BUTTERFLY VALVE

For diversion or convergence of fluids

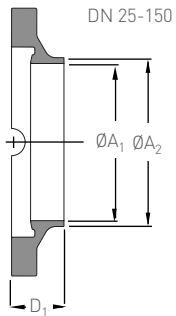


# PENTAIR HYGIENIC BUTTERFLY VALVES

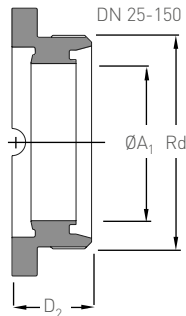
## F250/251 WELD/CLAMP/THREAD END CONNECTIONS

### PRODUCT INFORMATION

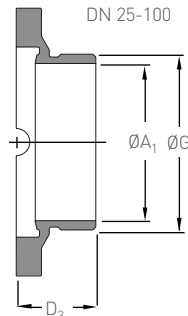
#### F251 METRIC VALVES - AVAILABLE END CONNECTIONS



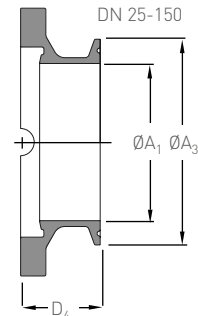
Butt weld (std) for tubing  
DIN 11850, sheet 1-3



Connection male part  
DIN 11851 and 11887



BSP male DIN ISO 228



Clamp Connection  
DIN 32676

#### DIMENSIONS (mm)

DN	Metric	$\varnothing A_1$	$\varnothing A_2$	$\varnothing A_3$	Rd	$\varnothing G$	$D_1$	$D_2$		$D_3$	$D_4$	
								M*	F*		M*	F*
25	25	26	29	50.5	Rd 52 x 1/8"	G 1"	25	37	53.5	34	34	46.0
32	32	32	35	50.5	Rd 58 x 1/8"	G 1 1/4"	25	37	56.5	34	34	46.0
40	40	38	41	50.5	Rd 65 x 1/8"	G 1 1/2"	25	37	57.5	34	34	46.0
50	50	50	54	64.0	Rd 78 x 1/8"	G 2"	25	37	59.5	34	34	46.0
65	65	66	70	91.0	Rd 95 x 1/8"	G 2 1/2"	25	41	64.5	37	37	52.5
80	80	81	85	106.0	Rd 110 x 1/8"	G 3"	27	45	66.5	41	41	54.5
100	100	100	104	119.0	Rd 130 x 1/8"	G 4"	27	45	80.5	41	41	54.5
125	125	125	129	155.0	Rd 160 x 1/8"	-	37	58	82.5	50	50	64.5
150	150	150	154	183.0	Rd 190 x 1/8"	-	40	66	89.5	55	55	67.5

**NOTE:** M\* = Machined 1 piece body (Standard)

F\* = Fabricated 2 piece body (May apply for Imperialised DIN thread or other special cases)

#### OTHER SPECIALITY HYGIENIC BUTTERFLY VALVE OPTIONS

##### F250D/1D DOUBLE BLOCK AND BLEED BUTTERFLY VALVE

For safe separation of incompatible fluids



##### F250/1 HANDLE EXTENSIONS

For extension of valve stem, where extra handle clearance is needed for insulated pipes etc.



##### F250/1 PROXIMITY KITS

For feedback indication on manual valves

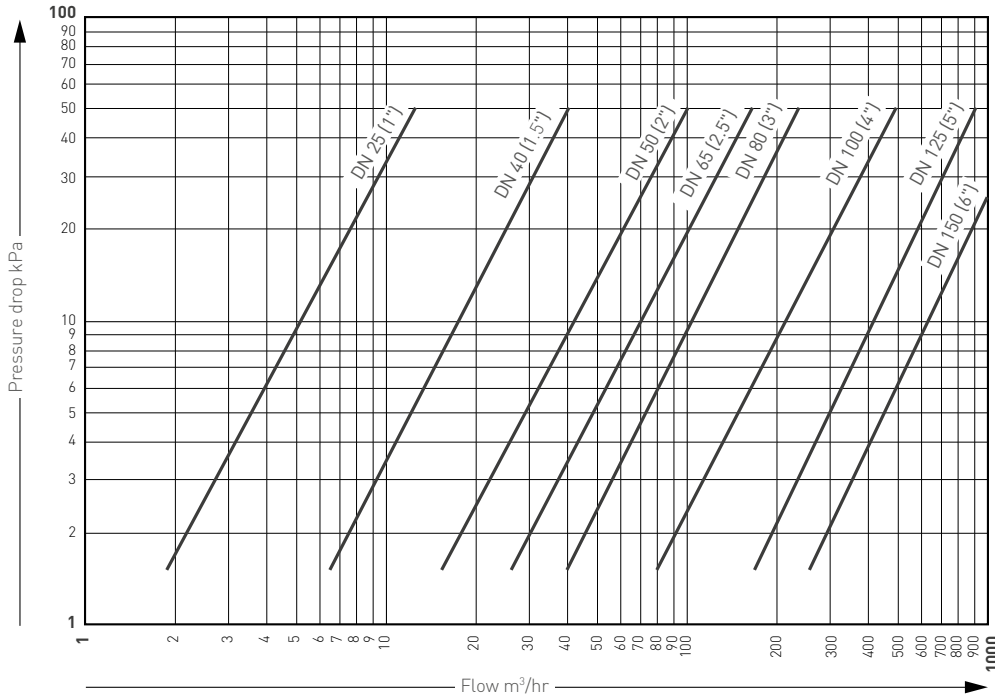


# PENTAIR HYGIENIC BUTTERFLY VALVES

## F250/251 WELD/CLAMP/THREAD END CONNECTIONS

### PRODUCT INFORMATION

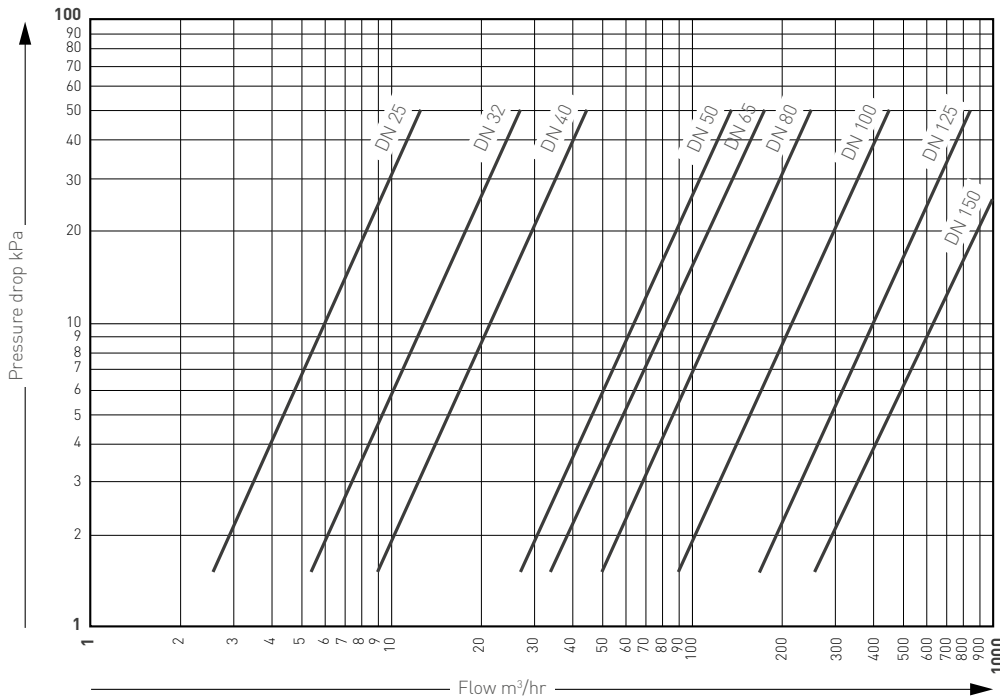
F250 PRESSURE DROP / FLOW RATES GRAPH



**NOTE:**

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

F251 PRESSURE DROP / FLOW RATES GRAPH



**NOTE:**

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

# PENTAIR HYGIENIC BUTTERFLY VALVES

## F250/251 WELD/CLAMP/THREAD END CONNECTIONS

### PRODUCT INFORMATION

#### SELECTION GUIDE

Example:			050	F250	255	CLP	397	SS
<b>Valve size</b>	<b>Metric</b>	<b>Inch OD</b>						
025	25	1.0"						
032	32	1.25"						
040	40	1.5"						
050	50	2.0"						
065	65	2.5"						
080	80	3.0"						
100	100	4.0"						
125	125	5.0"						
150	150	6.0"						
<b>Figure</b>								
<b>F250</b>	Inch OD tubing butterfly valve							
<b>F251</b>	Metric tubing butterfly valve							
<b>Trim</b>	<b>Seat</b>	<b>Body</b>	<b>Disc</b>	<b>Bearing</b>				
255	EPDM	304L	316L	PVDF				
256	VMQ	304L	316L	PVDF				
252	HNBR	304L	316L	PVDF				
258	FKM	304L	316L	PVDF				
259	FKM	316L	316L	PVDF				
262	EPDM	316L	316L	PVDF				
263	VMQ	316L	316L	PVDF				
253	HNBR	316L	316L	PVDF				
<b>End connections</b>								
<b>Weld ends</b>			<b>Thread ends</b>					
<b>BW</b>	butt weld		<b>BSP</b>	internal thread (BSPT)				
<b>BWD</b>	butt weld DIN tube		<b>DIN</b>	DIN thread (fabricated)				
<b>PUP</b>	BW extension tube 101.6 mm long		<b>HEX</b>	hexagonal nut and liner, RJT				
<b>WAF*</b>	wafer valve and BW flanges		<b>IDF</b>	BS/ISO/Japanese standard				
<b>WAO*</b>	wafer valve without flanges		<b>NPT</b>	NPT taper thread (machined)				
<b>Clamp ends</b>			<b>NPF</b>	NPT taper thread (fabricated)				
<b>CLF</b>	ISO clamp ends (fabricated)		<b>RJF</b>	RJT male part (fabricated)				
<b>CLP</b>	ISO clamp ends (machined)		<b>RJM</b>	RJT male part (machined) (BSM) modified spigot				
<b>DCL</b>	DIN clamp end, DIN sizing		<b>RJT</b>	RJT male part (machined)				
<b>ILN</b>	I line, male spigot		<b>RND</b>	round nut and liner, RJT				
			<b>SMS</b>	SMS male part, external thread 6 TPI (machined)				
			<b>SMF</b>	SMS male part, external thread 6 TPI (fabricated)				
<b>Extended definer</b>								
<b>RMT</b>	Reverse mount attachment							
<b>ACT</b>	Pneumatic actuator							
<b>397</b>	F397 manual operator/handle							
<b>398</b>	F398 manual operator/handle							
<b>Actuator details if specified above</b>								
<b>SR</b>	Pneumatic actuator spring return							
<b>DA</b>	Pneumatic actuator double acting							
<b>SS</b>	Manual operator/handle in 304 stainless steel							
<b>PL</b>	Manual operator/handle in glass reinforced plastic							

#### NOTES:

\* For information on the wafer style valve refer to separate literature sheet.



#### PENTAIR FLOW CONTROL PACIFIC PTY LTD

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