High Performance Butterfly Valves

Stainless Steel Wafer Body ANSI/ASME 150

3" to 8" Sizes

SERIES 5690

Features

- Double offset design reduces seal wear
- High quality, 316SS (CF8M) construction
- Heavy– duty, single piece cast & machined disc with integral mounting sleeve
- Reinforced Teflon (RPTFE) seat for expanded temperature range
- Spring-loaded seat cover for easier removal and replacement of the valve seat
- Adjustable stem packing without loading seats
- Integral ISO 5211 direct mounting pad eliminates additional mounting brackets
- Integral disc stop prevents overtravel
- Stainless steel, single piece shaft
- Optional 10 position locking hand lever for 3 and 4" sizes
- Optional hand wheel gear operator for 3-8" sizes
- Pressure-rated 285psi

Applications

High performance wafer butterfly valves are used to control the flow of water, oils, air, certain caustics, and other media compatible with the materials of construction for general service and where an expanded temperature range or higher pressure is required.

Temperature Range

RPTFE Seals: -20 to 500°F (-29 to 260°C)

Construction

Valve Body	316 stainless steel CF8M
Disc	316 stainless steel CF8M
Disc Seat/Liner - Options	RPTFE
Stem Seals	V-ring (same material as seat)
Stem	17-4PH/316SS
Bearings	RPTFE
Fasteners	Stainless Steel

Operation

Direct mount wafer butterfly valves can be easily fitted with optional manual operator, air actuator or electric actuator using standard ISO5211 top mounting. Rotating the square stem one quarter turn moves the stainless steel disc and open or closes the valve.

Description

High Performance Wafer butterfly valves with 316 Stainless Steel body are designed to control various media in commercial and industrial applications. Valve mounts between two standard ANSI/ASME Class 125/ 150 and other international flanges. Disc is precision machined 316SS. Flange gaskets required.

Standards

- ANSI/ASME B16.5 CLASS150
- ANSI/ASME B16.1 CLASS125
- EN1092 PN10, PN16
- JIS B 2239 10K, 16K

Options

- Hand lever with 10 position locking (3-4")
- Gear Operators (3-8")
- Air Actuators
- Electric Actuators
- High Temperature Brackets

Construction Features

Integral ISO mount

Stem packing adjustment below ISO mount eliminates additional bracket

316 Stainless Steel (CF8M) construction

RTPFE Seat

Spring-loaded faceplate for easy seat removal

Single piece cast & machined disc with integral shaft sleeve

Integrally-cast heavy duty mounting stop

Specifications (English units)

Stock	Pipe Size	Orifice	Cv Flow	Pressure**	Fluid Media*	Body	Disc
Wafer Body EPDM Seals: BARE STEM (no handle)							
569003	3	2.9	165	285	Air, oil and other fluids compatible with materials of construction	316SS (CF8M)	316SS
569004	4	3.8	400	285	Air, oil and other fluids compatible with materials of construction	316SS (CF8M)	316SS
569006	6	5.6	1050	285	Air, oil and other fluids compatible with materials of construction	316SS (CF8M)	316SS
569008	8	7.4	2200	285	Air, oil and other fluids compatible with materials of construction	316SS (CF8M)	316SS

Cv = The GPM of water at 60° F that will pass through the valve with 1 PSI pressure drop

* Consult compatibility chart for other fluid media. Suitable for vacuum up to 29 inHg

* See P/T Chart

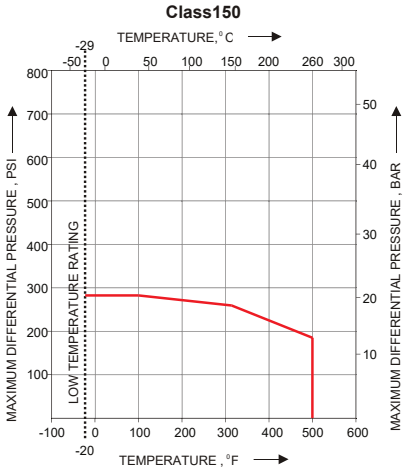
Specifications (Metric units)

Stock Number	Pipe Size (DN)	Orifice Diam. (mm)	Kv Flow Factor	Pressure** Max.(Bar)	Fluid Media*	Body	Disc
Wafer Body EPDM Seals: BARE STEM (no handle)							
569003	80	73.7	143	19.7	Air, oil and other fluids compatible with materials of construction	316SS (CF8M)	316SS
569004	100	96.5	346	19.7	Air, oil and other fluids compatible with materials of construction	316SS (CF8M)	316SS
569006	150	142.2	908	19.7	Air, oil and other fluids compatible with materials of construction	316SS (CF8M)	316SS
569008	200	188.0	1903	19.7	Air, oil and other fluids compatible with materials of construction	316SS (CF8M)	316SS

Kv = The number of m³ per hour of 20° C water at 1 bar pressure drop

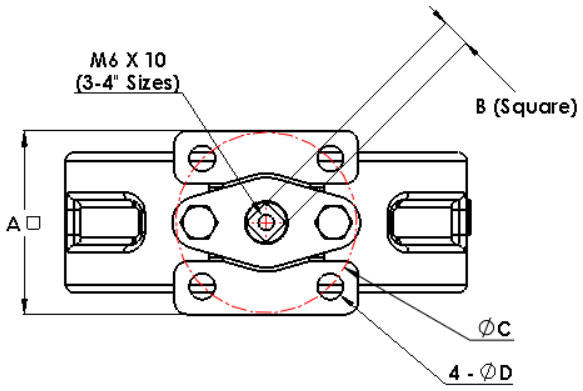
* Consult compatibility chart for other fluid media. Suitable for vacuum up to 29 inHg

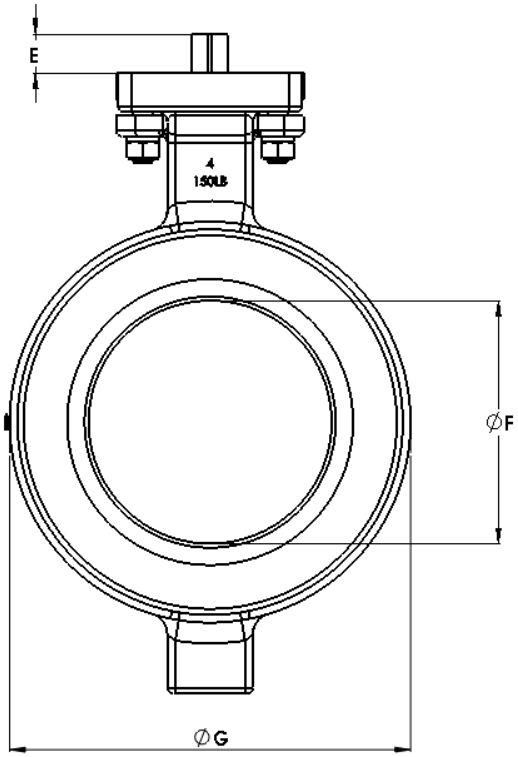
* See P/T Chart

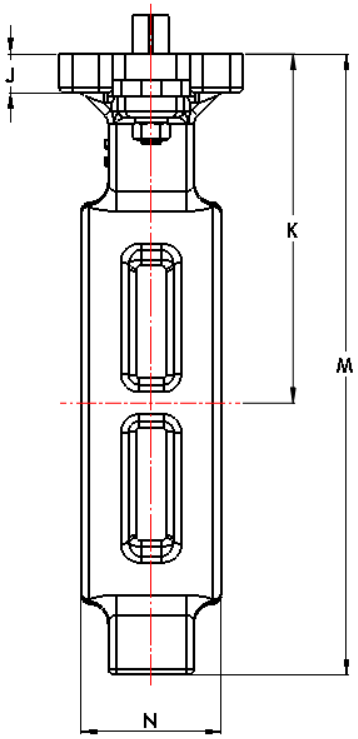


Rated value for 150 Lb body			
Temperature °F	Temperature °C	CF8M (PSI)	CF8M (bar)
-20.2 to 100.4	-29 to 38	275.6	19.0
199.4	93	235.0	16.2
300.2	149	214.7	14.8
399.2	204	194.4	13.4
500	260	169.7	11.7

Dimensions







Pipe Size		A	B	C	D	E	F	G	J	K	M	N	ISO	Weight
3	inch	2.8	0.4	2.8	0.4	0.6	2.8	5.2	0.4	4.8	8.3	1.9	F07	9.7 lb
DN80	mm	70.0	11.0	70.0	10.0	15.0	72.0	131.0	11.0	122.0	212.0	49.0		4.4 kg
4	inch	2.8	0.4	2.8	0.4	0.6	3.7	6.1	0.6	5.3	9.4	2.1	F07	12.9 lb
DN100	mm	71.0	11.0	70.0	10.0	15.0	94.0	155.0	14.0	135.0	240.0	54.0		5.9 kg
6	inch	4.1	0.6	0.5	4.0	0.9	5.5	8.5	0.6	6.6	12.0	2.2	F10	25.4 lb
DN150	mm	103.0	14.0	12.0	102.0	23.0	140.0	216.0	16.0	168.0	300.0	57.0		11.5 kg
8	inch	4.1	0.7	0.5	4.0	0.9	7.3	10.6	0.6	7.8	14.6	2.5	F17	37.8 lb
DN200	mm	103.0	17.0	12.0	102.0	24.0	185.0	270.0	16.0	199.0	371.0	64.0		17.1 kg

Valve Seating Torques (inch lbs)

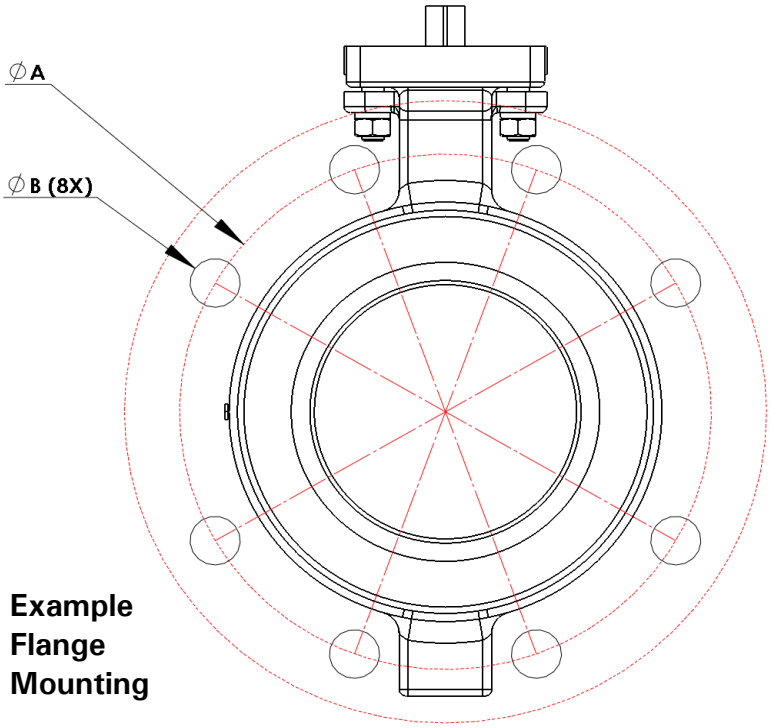
SIZE	Standard Disc Differential Pressure (PSI)		
	100	200	285
3	25	27	29
4	35	39	43
6	72	83	93
8	121	142	160

Valve Seating Torques (nm)

SIZE	Standard Disc Differential Pressure (Bar)		
	6.9	13.8	19.7
DN80	34	37	39
DN100	47	53	58
DN150	97	113	126
DN200	164	193	217

Torques shown are for on-off "wet" service (ex: water), for dry service (ex: air) multiply above values by 1.25, or see below. Valve disc turned clockwise and actuated at least once per month. The effect of dynamic torque is not considered in calculation.

Typical Wafer Valve Installation



Example Flange Mounting

Valve suitable between flanges:

- ANSI/ASME B16.5 CLASS150
- ANSI/ASME B16.1 CLASS125
- EN1092 PN10, PN16
- JIS B 2239 10K, 16K
- BS 10 Table D, Table E

Pipe Size		A	B (8X)
3	inch	6	0.7
DN80	mm	152.4	18
4	inch	7.5	0.7
DN100	mm	190.5	18
6	inch	9.5	0.9
DN150	mm	241.3	22
8	inch	11.8	0.9
DN200	mm	298.5	22

Example Valve Torque Service and Medium Factors

SERVICE FACTOR (SF)	Multiply by	Medium Factor (MF)	Multiply by	Medium Factor (MF)	Multiply by
ON/OFF operation	1.15	Lubricating liquid/gas	0.90	For dry service (dry gas/air)	1.25
Modulating operation	1.25	Viscous liquids/molasses	1.30	Dirty air slurry, natural gas, dirty slurry	1.50-1.80
*2 cycle/day "NC"	1.15	Degreasing liquid	1.25	Lime water, powder	1.50-1.80
**1 cycle/week "NC"	1.50	Saturated steam	1.20	Hydrodynamic torque	N/A

* Valve normally remains completely closed (NC), and is opened 2 times a day minimum.
** Valve normally remains completely closed (NC), and is opened only one time per week or less.

Having a long period without cycling the valve will increase the breakaway torque.

Only choose one Service Factor (SF) and one Medium Factor (MF) when calculating the sizing torque.

Typical Wafer Valve Installation

- Always keep the valve closed during installation and disassembly
- The piping must have a straight line and the flanges have to be parallel.
- The distance between the flange must correspond to the face-to-face dimensions of the butterfly valve.
- The installation direction of the butterfly valve needs to be based on the flow direction arrow on the body.
- Before commissioning, the pipework has to be rinsed out to remove dirt and remnants of welding material, to avoid damage to the liner. During the rinsing procedure, the butterfly valve has to be positioned as open and may not be operated before the rinsing has been completed.
- Welding operations may not be performed near the butterfly valve, as welding drops can damage the liner.
- When installing and disassembling, the pipe must be completely relieved of pressure to avoid injury to people or damage to equipment.
- Where vacuum, high flow rate or water hammering can occur, flanges without a loose collar should be used.
- Carefully place the gasket between the flanges and place them in the center of the pipe to ensure a good seal. (see Fig.1)
- Place the valve between the gaskets and make sure the valve disc is parallel to the flange.
- Tighten the flange bolts in a diagonally opposite way to ensure that the valve is evenly stressed. (see Fig.2)
- After the installation is complete, carefully open and close the valve to ensure smooth operation.

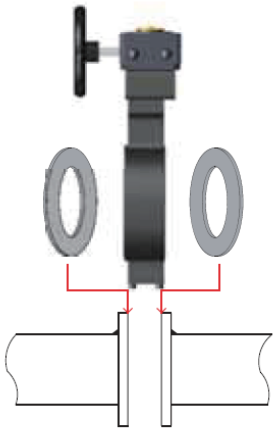


Fig.1

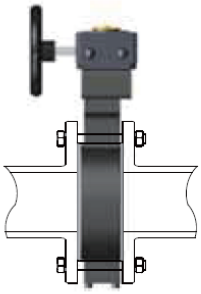


Fig.2

Seat Liner Resistance to Media

* Many conditions can affect the valve material choices, including: pressure, temperature, chemical mix, material compounding, viscosity and environment. Ultimately it is the user's responsibility to ensure valve materials are suitable for any specific purpose.

Valworx

Hand Lever

3" to 4" Sizes

Accessory
5650

Features

- Stainless steel construction
- 10 position locking handle
- Convenient installation and usage
- 304SS bolts and nuts

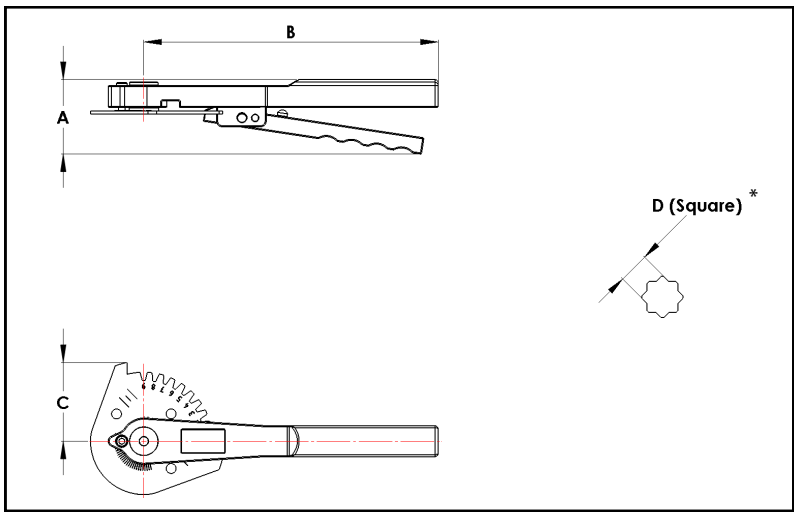
Application

Hand lever operator for high performance butterfly valves. The valve disc can be locked in any one of 10 positions with spring loaded lever. Hand lever kit includes lever, gear locking plate and stainless hardware for mounting.

Specifications

Stock No.	Description
565020	Hand lever for valve sizes 3-4", stainless steel

Dimensions



*14x11 square reducer included

Pipe Size		A	B	C	D	ISO	Weight
3-4	inch	3.7	10.5	2.9	14x14	F07	1.8 lbs
	mm	95.0	267.0	73.0			0.8 kg

Hand Wheel Gear Operator

3”-8” Sizes

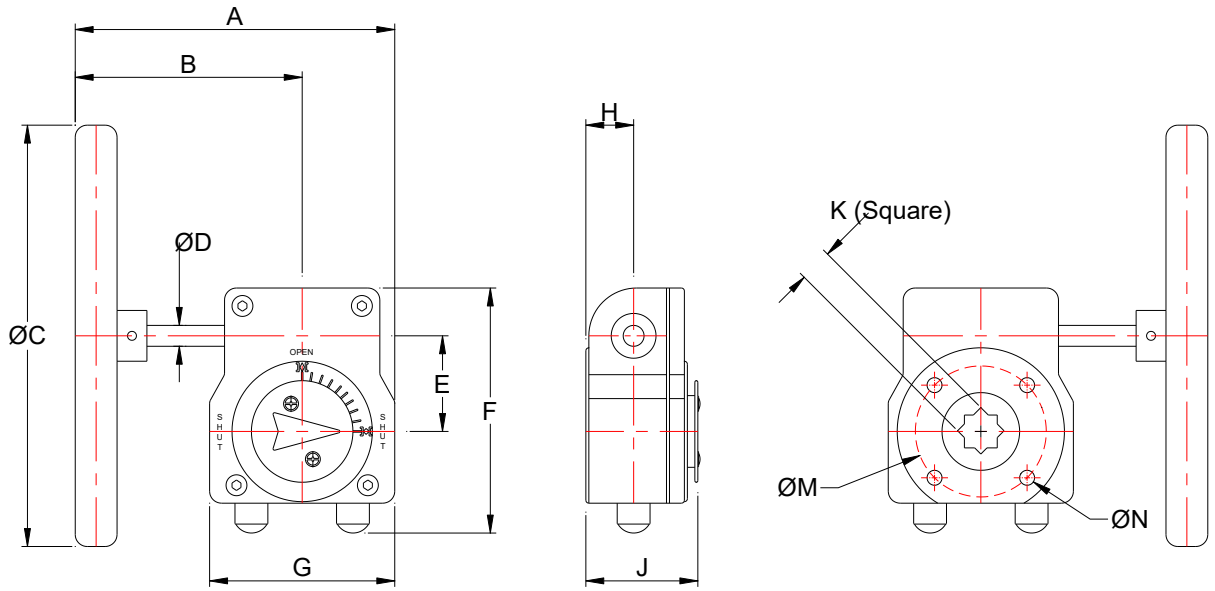
Accessory
5650

Features

- Aluminum alloy housing
- Hand wheel control
- Steel input shaft and worm gear drive
- Easy ISO5211 mounting
- IP65 weatherproof enclosure
- Adjustable travel stops are standard and factory set
- 304SS bolts and nuts

Specifications

Stock No.	Output Drive	Input Torque (nm/in. lbs)	Output Torque (nm/in. lbs)	Ratio	Description
565009	**F07**	**18.5/163**	**150/1327**	**37:1**	Includes fasteners and accessories for Valworx **High Performance** butterfly valves, 3-4”
565008	**F07**	**18.5/163**	**150/1327**	**37:1**	Includes fasteners and accessories for Valworx **High Performance** butterfly valves, 6”
565012	**F10**	**83/734**	**750/6638**	**45:1**	Includes fasteners and accessories for Valworx **High Performance** butterfly valves, 8”



Pipe Size		A	B	C	D	E	F	G	H	J	K	M	N	ISO	Weight
3-4	inch	6.8	4.7	7.9	0.5	2.0	5.1	3.9	1.0	2.1	0.5	2.8	-	F07	4.9 lbs
(DN80-DN100)	mm	172.7	119.1	200.7	12.7	50.8	129.6	99.1	25.4	53.3	14.0	71.1	M8x16 depth		2.22 kg
6	inch	6.8	4.7	7.9	0.5	2.0	5.1	3.9	1.0	2.1	0.6	2.8	-	F07	4.9 lbs
(DN150)	mm	172.7	119.1	200.7	12.7	50.8	129.6	99.1	25.4	53.3	17.0	71.1	M8x16 depth		2.22 kg
8	inch	11.5	8.7	11.8	0.6	2.4	6.7	5.7	1.5	3.0	0.9	4.0	-	F10	11.9 lbs
(DN200)	mm	292.1	221.0	299.7	15.2	61.0	170.2	144.8	38.1	76.2	22.0	101.6	M10x20 depth		5.4 kg

High Performance Hand Wheel Gear Operator

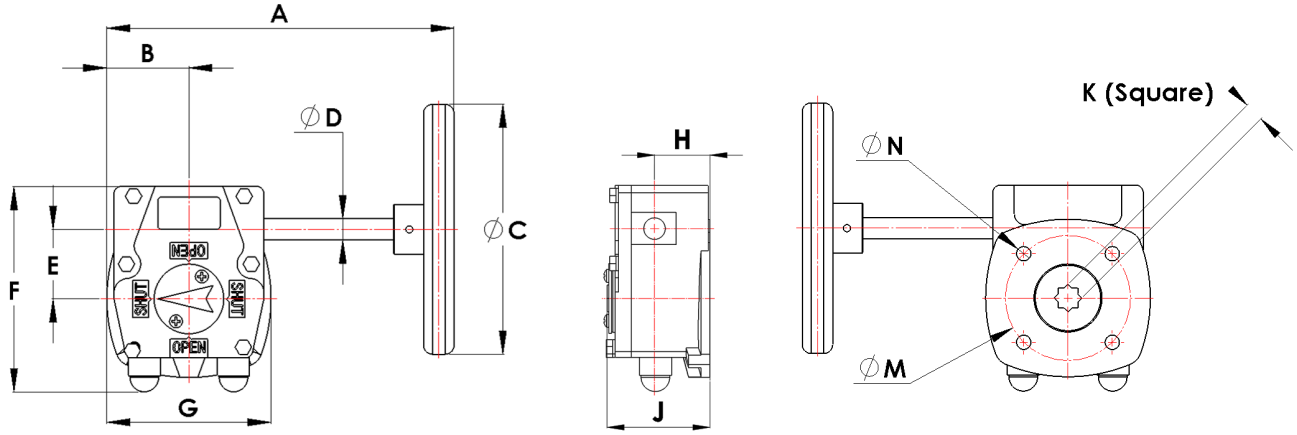
Accessory
5659

Features

- 316 Stainless steel housing, shaft, and hand wheel
- Expanded temperature range (5° to 320°F)(-15° to 160°C)
- Aluminum Bronze gear drive
- Viton (FPM) Seals
- Easy ISO5211 mounting
- IP65 weatherproof enclosure
- Adjustable travel stops are standard and factory set
- 304SS bolts and nuts
- Suitable for corrosive environments

Specifications

Stock No.	Output Drive	Input Torque (nm/in. lbs)	Output Torque (nm/ in. lbs)	Ratio	Description
565930	F07	19/168	200/1770	40:1	Includes fasteners and accessories for Valworx **High Performance** butterfly valves, 3-4"
565931	F10	45/398	500/4425	42:1	Includes fasteners and accessories for Valworx **High Performance** butterfly valves, 6"
565932	F10	45/398	500/4425	42:1	Includes fasteners and accessories for Valworx **High Performance** butterfly valves, 8"



Pipe Size		A	B	C	D	E	F	G	H	J	K	M	N	ISO	Weight
3-4	inch	5.9	1.8	5.5	0.5	1.5	4.4	3.6	1.2	2.2	0.4	2.8	-	F07	6.8 lbs
(DN80/DN100)	mm	151.0	46.0	140.0	12.0	39.0	111.0	92.0	31.0	55.0	11.0	70.0	M8x15		3.1 kg
6	inch	8.3	2.3	10.2	0.6	2.1	5.7	4.6	1.4	2.4	0.6	4.0	-	F10	14.2 lbs
(DN150)	mm	212.0	59.0	260.0	15.0	53.0	145.0	118.0	35.0	61.0	14.0	102.0	M10x18		6.4 kg
8	inch	8.3	2.3	10.2	0.6	2.1	5.7	4.6	1.4	2.4	0.7	4.0	-	F10	14.2 lbs
(DN 200)	mm	212.0	59.0	260.0	15.0	53.0	145.0	118.0	35.0	61.0	17.0	102.0	M10x18		6.4 kg