ECCENTRIC PLUG VALVE
MODEL K-PV 80MM - 300MM

CHALLENGER
VALVES AND ACTUATORS

FEATURES AND BENEFITS

- Designed and manufactured in accordance to AWWA C517.
- The eccentric design allows the rubber encapsulated ductile iron plug to rotate away from the seat as soon as movement commences.
- The FBE coated body, 95% nickel welded seat and heat encapsulated plug provide excellent corrosion resistance and performance.
- The flow area provides effective throttling performance for water, waste water with solids, sludge and slurries. The flow area is no less than 80% of the pipe area.
- The rubber encapsulated plug standard material is NBR Nitrile with additional options of EPDM and Neoprene to suit the customers medium requirements.
- All internal and external coatings comply to AS 4158.
- Mounting Flange complies with ISO 5211 allowing for direct actuator mounting.
- The plug rotates in a permanently lubricated Alloy Bronze bearing located under the cover.
- The "V" design rubber packing effectively reduces maintenance time and silt/debris ingress.
- Face to face dimensions conform to ISO 5752.
- When the plug is in the fully closed position it is pressed firmly into the seat by the medium allowing it to be drip tight.

OPTIONS

- Jotun Epoxy Coating
- Actuators
  - Electric
  - Pneumatic
- Extensions
- Lockable Gearbox
- Chain wheel Operation
- Limit Switches

APPLICATIONS

Challenger Valves and Actuators are the "*Right Choice for Valves and Actuation*" when quality matters.

Servicing a variety of industries such as : Water & Waste Water, Treatment Plants, Sewage and Sludge Systems, in addition can be used as a flow control or isolation valve.

NOTE : Not suitable for the application of Dry or Air Services

TECHNICAL SPECIFICATION

Construction:	Eccentric Plug Valve
Operation:	Clockwise Closing Only
Face to Face:	ISO5752 Series 3
Size:	80mm - 300mm (larger sizes are available)
Pressure Rating:	PN16
Pressure Testing:	ISO 5208(API598)
Flange Drilling:	AS4087 B5 (Table D)
Coating:	AS4158 FBE AKZO Nobel Resicoat R4 HJF10R RAL 5017
Temperature Range:	0-65°C

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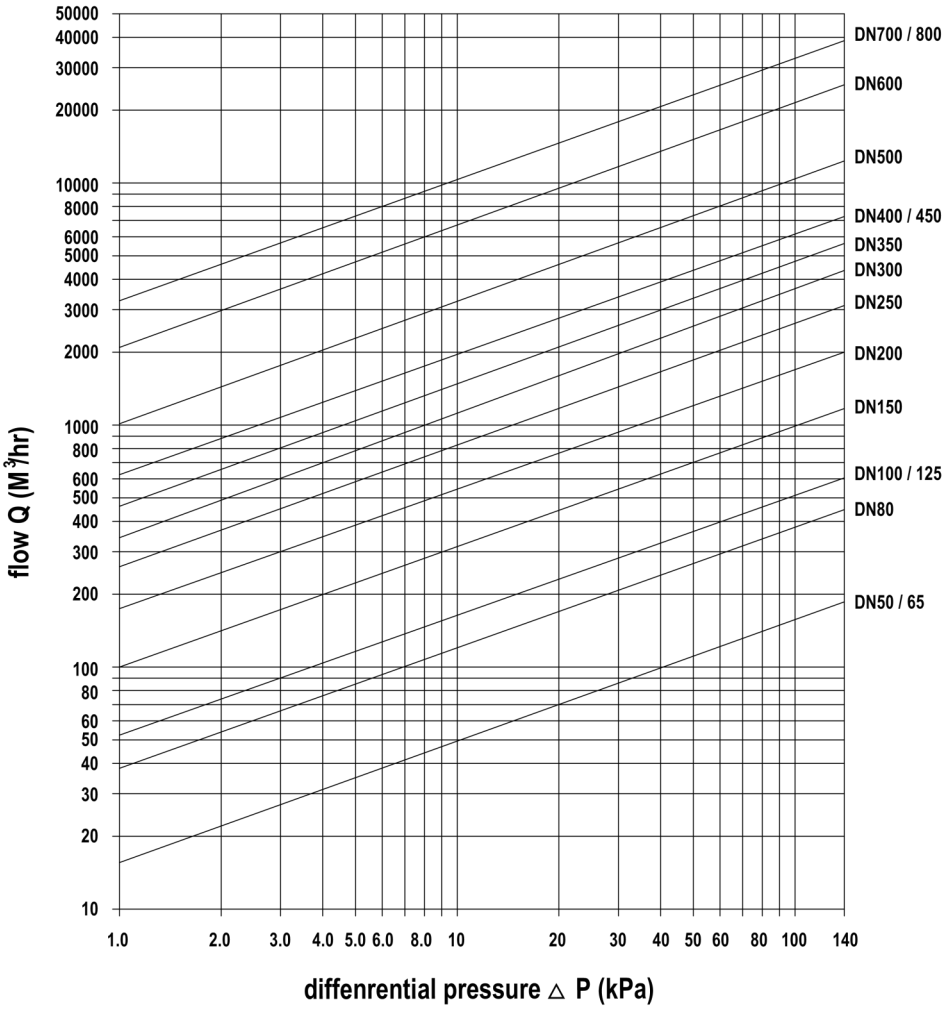
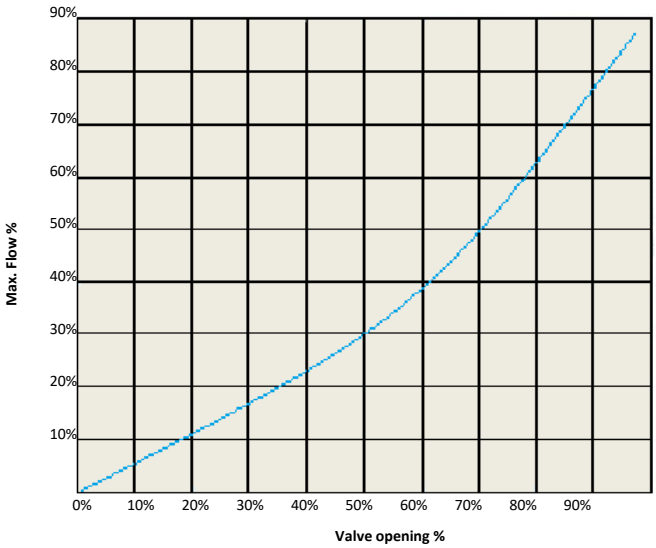
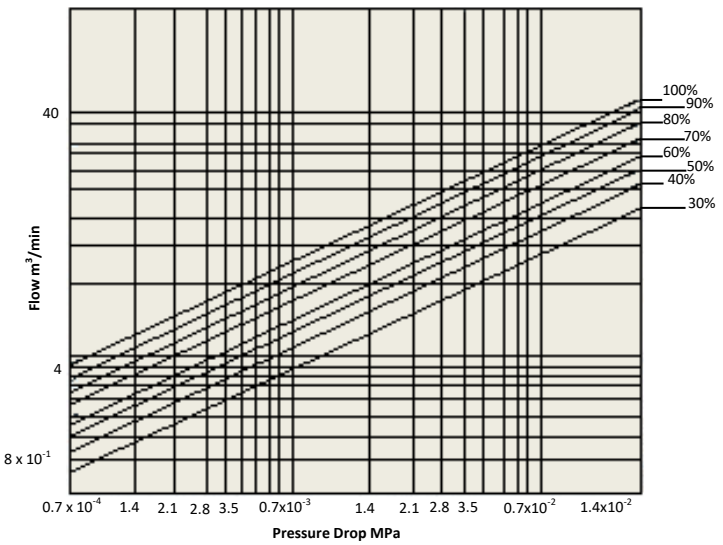
FLOW / DIFFERENTIAL PRESSURE CURVE



INHERENT FLOW CHARACTERISTIC





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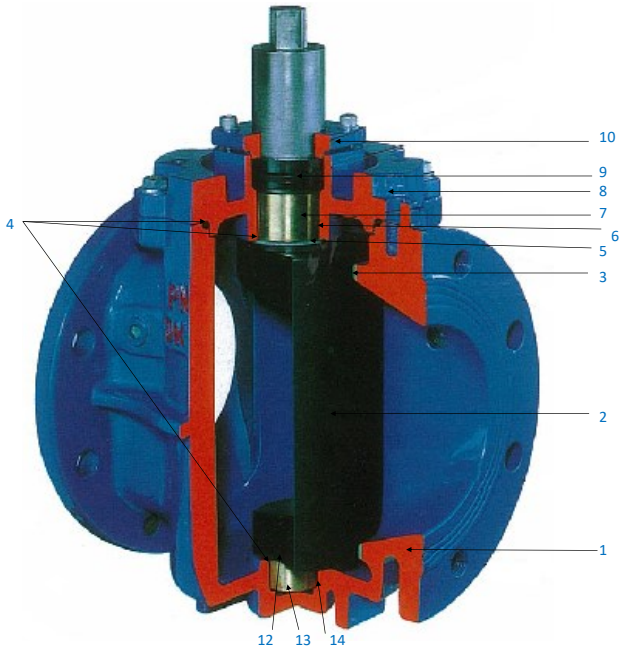
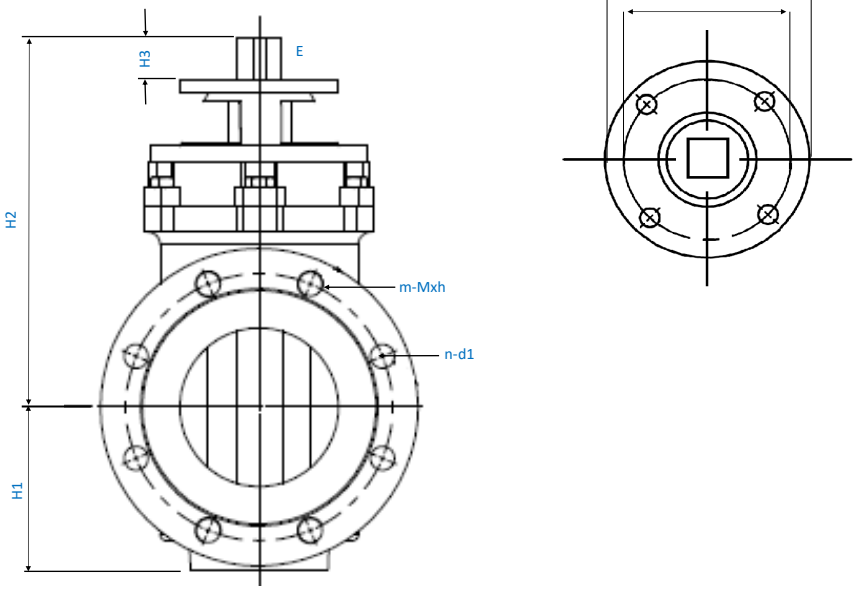
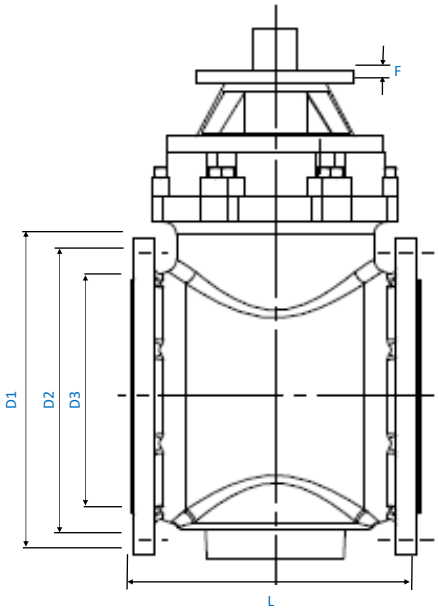
TECHNICAL : VALVE DETAILS

ITEM	COMPONENT	MATERIAL (ASTM)	GRADE
1	Body	Ductile Iron	ATSM A536 450-10
2	Plug	Ductile Iron NBR Nitrile Rubber	ATSM A536 450-10 AS1646, AS681.1
3	Seat	95% Nickel	ASTM B730-08
4	O-Ring	NBR Rubber	AS1646, A5681.1
5	Upper Thrust Bearing	-	PTFE
6	Upper Bearing (1)	Alloy Bronze	C95210
7	Upper Bearing (2)	Stainless Steel	304
8	Cover	Ductile Iron	ATSM A536 450-10
9	V-Packing	NBR Rubber	AS1646, AS681.1
10	Bonnet	Ductile Iron	ATSM A536 450-10
11	Mounting Pad	Ductile Iron	ASTM 536 450-10
12	Lower Thrust Bearing	Stainless Steel	304
13	Lower Bearing (1)	Alloy Bronze	C95210
14	Lower Bearing (2)	Stainless Steel	304

* Point "11" is not shown on the diagram







DIMENSIONS AND WEIGHTS

DN	D1	D2	D3	A	B	F	E**	H1	H2	H3	L	m-MXh	n-d1	*WEIGHTS
80	200	146	122	125	102 (F10)	10	17	109	203	23	203	4-M16	-	19
100	220	178	154	125	102 (F10)	10	22	128	236	23	229	-	4-Ø18	22
150	285	235	211	174	140 (F14)	14	27	165	318	28	267	4-M16	4-Ø18	54
200	340	292	268	174	140 (F14)	14	36	198	388	36	292	4-M16	4-Ø18	70
250	405	356	328	174	140 (F14)	14	46	249	400	50	330	4-M20	4-Ø22	113
300	460	406	378	200	165 (F16)	17	46	290	490	50	356	4-M20	8-Ø22	156

** Square Shaft, 45° offset

*Weights are for valves only, they do not include operators

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TECHNICAL DATA

CV VALUES

Cv is defined as the volume of water in U.S.G.P.M that will flow through a given restriction or valve opening with a pressure drop of one (1) P.S.I at room temperature. Recommended control angles are between 25°- 70° open.

Preferred angle for control valve sizing is 60°-65° open. To convert Cv to Kv divide by 1.1553.

Cv VALUES										*TORQUE Nm
SIZE	10°	20°	30°	40°	50°	60°	70°	80°	90°	@ 16 BAR
80	21	39	61	91	131	185	253	337	439	180
100	18	52	94	142	205	282	369	465	561	213
150	32	108	205	308	439	596	789	967	1149	650
200	89	186	332	480	659	908	1148	1406	1680	1250
250	186	349	548	773	1046	1373	1741	2126	2503	2320
300	125	368	653	994	1406	1915	2535	3165	3807	3750

*These figures include 25% safety factors

***TORQUE NOTES:**
For conditions that vary from those noted, apply The following Application Factor Multipliers:
- Operated less than once per day x 1.2
- Lubricant oils x 0.5
- Temperature - lower than –4.5°C x 1.2
  - higher than 93°C x 1.2
- Chemical attack: **Consult Challenger**
- **NOTE : Not suitable for the application of Dry / Air Services.**

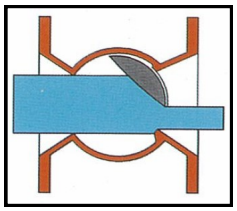
TORQUE DATA

Torque is the measure of the seating turning force on an object. For the plug valve the torque is determined by the seating force, bushing friction and fluid dynamic torque.

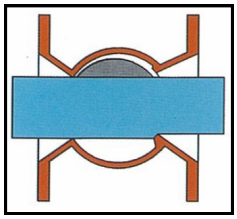
The torques listed are based on normal temperatures and applications at full 16 Bar (1600KPA) rated pressures

ACTUATOR SIZING CHART			
SIZE	DOUBLE ACTING PNEUMATIC ACTUATOR	SPRING RETURN PNEUMATIC ACTUATOR	ELECTRIC ACTUATORS
80	HP-DA115	HP-SR160	HQ030
100	HP-DA115	HP-SR160	HQ030
150	HP-DA200	HP-SR212	HQ080
200	HP-DA210	Consult Factory	Consult Factory
250	Consult Factory	Consult Factory	Consult Factory
300	Consult Factory	Consult Factory	Consult Factory

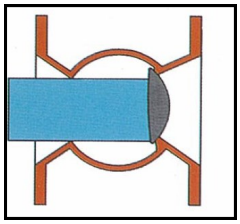
All Sizing based on 1,600kpa wet service application and 5.5BAR air supply if applicable.



THROTTLING POSITION
When the plug is partially closed, the flow path is still straight through. Linear characteristics of this valve give ideal throttling capabilities.



FULL OPEN POSITION
When the valve is in fully open position the plug is out of the flow path. The flow is straight through, higher flow capacity is achieved with a low pressure drop.



CLOSED POSITION
When the valve is in the closed position the resilient plug is pressed firmly into the seat for tight shut off.