

# Series 7 Butterfly Damper Valves

## Series 701 Butterfly Damper Valve

### Applications

- Fluids: Air, Gas and Fumes
- CHP and Incineration Plants
- Biomass, Biogas and Renewable Energy Plants
- Steel Industry and Furnaces
- Glass Industry
- Cement Plants
- Air Pollution and Filtration
- Power Plants
- Heat recovery systems
- Boilers and Burners
- Chemical Industry
- Oil and Gas
- HVAC
- Thermal Oxidizers

### Working Conditions

- Maximum Working Temperature up to 200°C
- Maximum Working Pressure up to 3 bar  
Maximum Working pressure varies with diameter and temperature

### General Characteristics

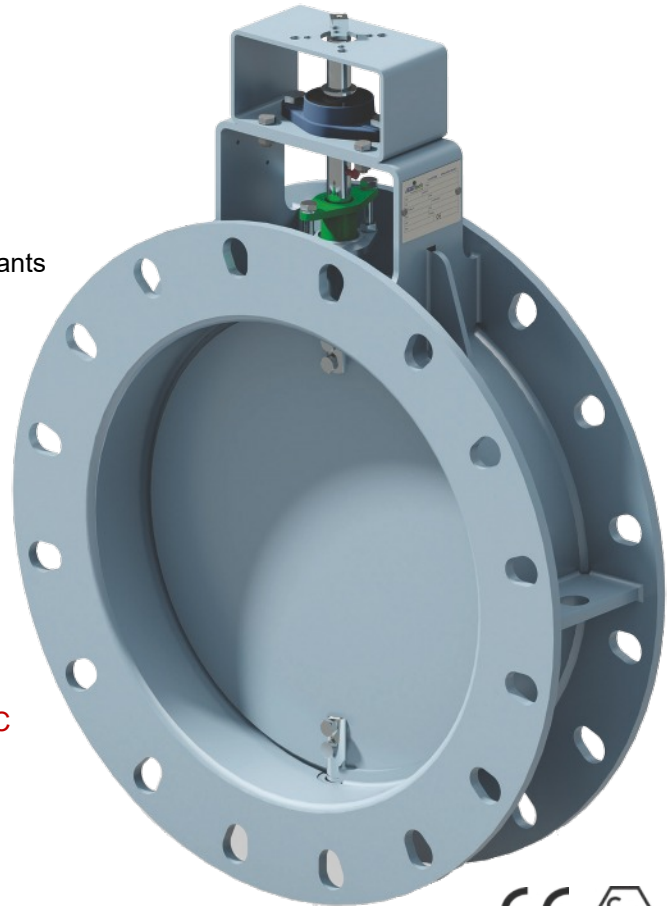
- ON/OFF or MODULATING Service
- Diameter Range from DN 150 to DN 1500  
(DN below 150 or above 1500 upon request)
- End Connections: WAFER or FLANGED  
PN6, PN10, ANSI 150, Butt Weld or according to Customer Drawing
- Outside Bearing
- Tightness Class I, II and III according to FCI 70-2 (ex ANSI B16.104)
- Operated by Handlever, Pneumatic or Electric Actuators

### Materials

- Carbon Steel: S275JR or equivalent
- 304 SS
- 316 SS
- Others upon request

### Applicable Standards

- Designed according to EN 12516-1, EN 736-1, EN 736-2, EN 736-3, EN 1349, EN 593, ASME B16.34
- Materials according to EN 1503-1, EN 1503-2
- End Connections as per EN 1092-1, ASME B16.5
- Marking according to EN 19
- Certified Welding Procedures according to UNI EN 287-1



### Applicable Directives

- Declaration of Conformity in Compliance with Machinery Directive 2006/42/CE
- Declaration of Conformity in Compliance with European Directive PED 97/23/CE
- Declaration of Conformity in Compliance with European Directive ATEX 94/9/CE  
**Group II Category 3 for Zone 2 Gas and 22 Dust (II 3 GD)**

### Coating

- According to PSP00 Cycle PS3\_P
- Carbon Steel: RAL 7031 epoxy coating

### Test

- According to AMMtech Quality Control Plan QCP00
- According to ANSI/FCI70-2, EN 12266-1, EN 12266-2, EN 60534

### Driving Systems

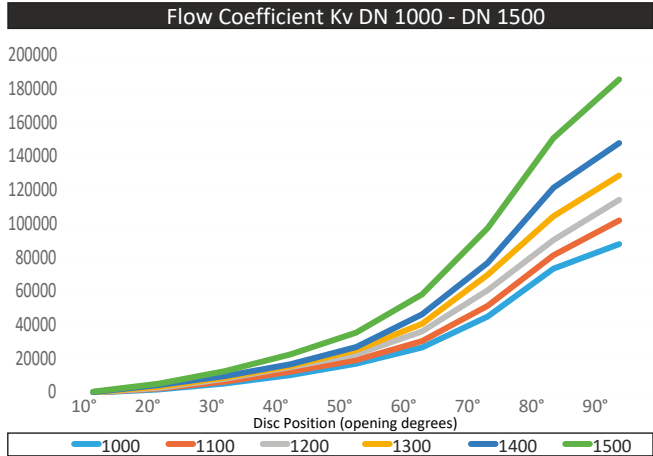
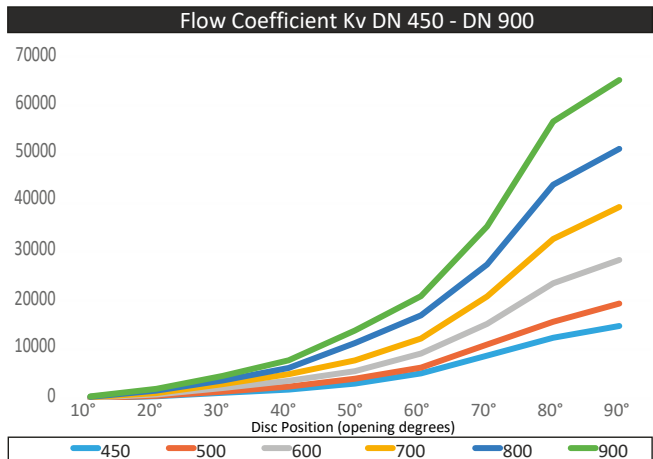
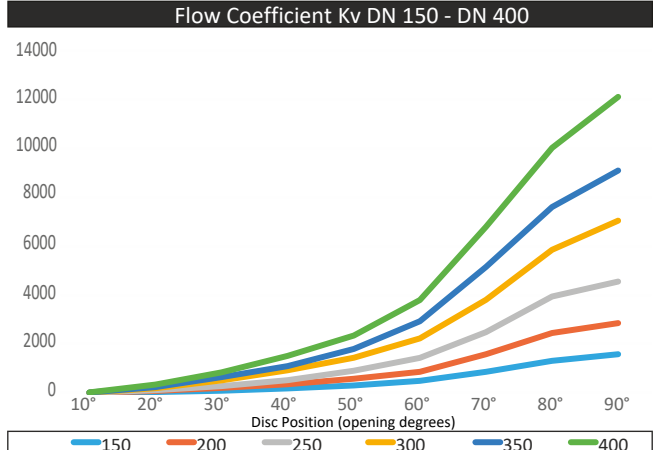
- Pneumatic and Electric Actuators according to EN 15714-1, EN 15714-2, EN 15714-3
- Actuators End Connections as per EN ISO 5210, EN ISO 5211

# Series 7 Butterfly Damper Valves

## Series 701 Butterfly Damper Valve

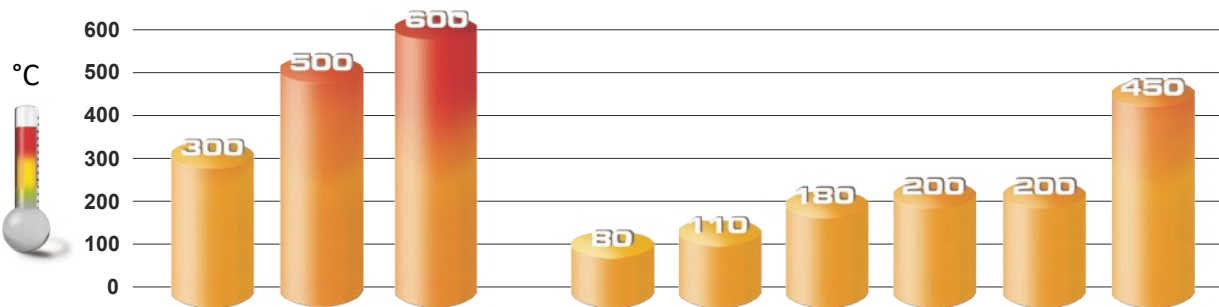
Flow Coefficient Kv										
DN	NPS	90°	80°	70°	60°	50°	40°	30°	20°	10°
150	6"	1593	1322	874	506	318	197	104	46	5
200	8"	2861	2458	1591	874	591	367	218	94	10
250	10"	4557	3948	2492	1443	916	532	291	122	18
300	12"	7040	5852	3811	2235	1447	935	525	206	27
350	14"	9087	7597	5152	2935	1807	1107	660	252	31
400	16"	12094	10012	6792	3805	2355	1525	850	353	36
450	18"	14843	12436	8769	5122	3032	1816	1143	454	51
500	20"	19434	15691	11042	6310	4043	2415	1379	531	64
600	24"	28355	23588	15256	9207	5576	3616	2140	817	155
700	28"	39198	32657	20885	12270	7779	4982	2928	1107	264
800	32"	51110	43759	27424	17016	11344	6235	3681	1603	331
900	36"	65197	56692	35219	20949	13903	7812	4607	1980	420
1000	40"	88575	74031	45613	27339	17739	10979	5929	2424	576
1100	44"	102597	81922	52019	31070	19862	13043	7032	2977	629
1200	48"	114762	90965	61188	36818	23213	15698	8746	3339	722
1300	52"	129225	105050	70393	41360	25674	16364	9451	4072	823
1400	56"	148449	121954	77473	46911	27595	17408	10370	5058	886
1500	58"	186168	151348	98037	58748	36171	23234	13284	5876	1168

$K_v = Q_n / 519 * [(\rho_g * T_1) / (\Delta p * p_2)]^{0.5}$  (C<sub>v</sub> = K<sub>v</sub> / 0.8565)  
 where:  
 Q<sub>n</sub> [m<sup>3</sup>/h] : Flow Rate of gas, related to 0 °C and 1013 mbar  
 ρ<sub>g</sub> [kg/m<sup>3</sup>] : density of gases at 0 °C and 1013 mbar  
 T<sub>1</sub> [K] : absolute temperature at upstream side of the valve  
 Δp [bar] : pressure drop in the valve  
 p<sub>2</sub> [bar] : absolute pressure at downstream side of the valve



Body and disc material		
S275JR	AISI 304	AISI

Seat and packing material					
NBR	EPDM	FPM	Silicone	PTFE	Graphite



\* Chemical suitability of construction material verified according to process fluid.



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# Series 7 Butterfly Damper Valves

## Series 701 Butterfly Damper Valve



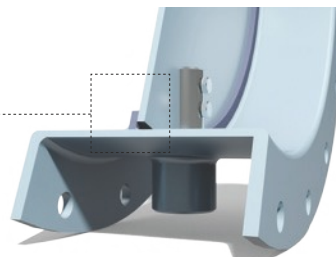
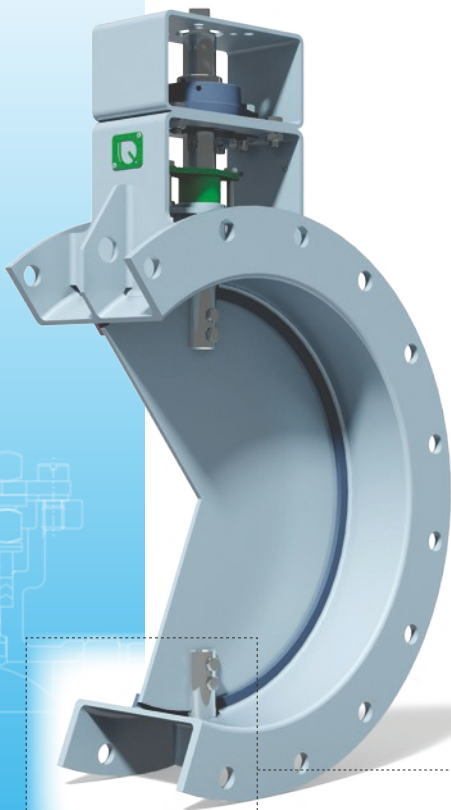
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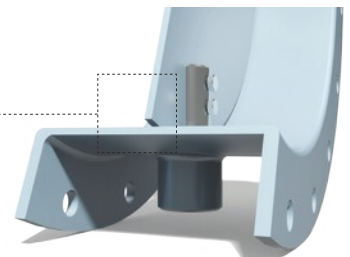
**W**afer



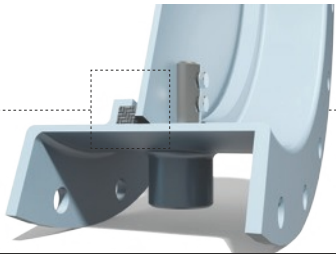
**B**utt Weld



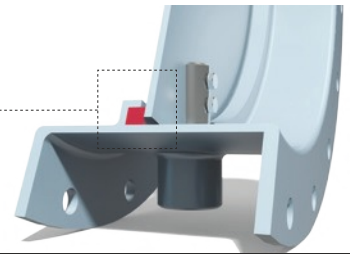
COD.0 standard		
Met - Metal to Metal seat		
DN	CLASS	VALUE (FCI 70-2)
da 150 a 200	I	Relative tightness
da 250 a 1500	II	< 0,5%Kvs
-	-	-



COD.3		
No seat		
DN	CLASS	VALUE (FCI 70-2)
da 150 a 1500	I	Relative tightness
-	-	-
-	-	-



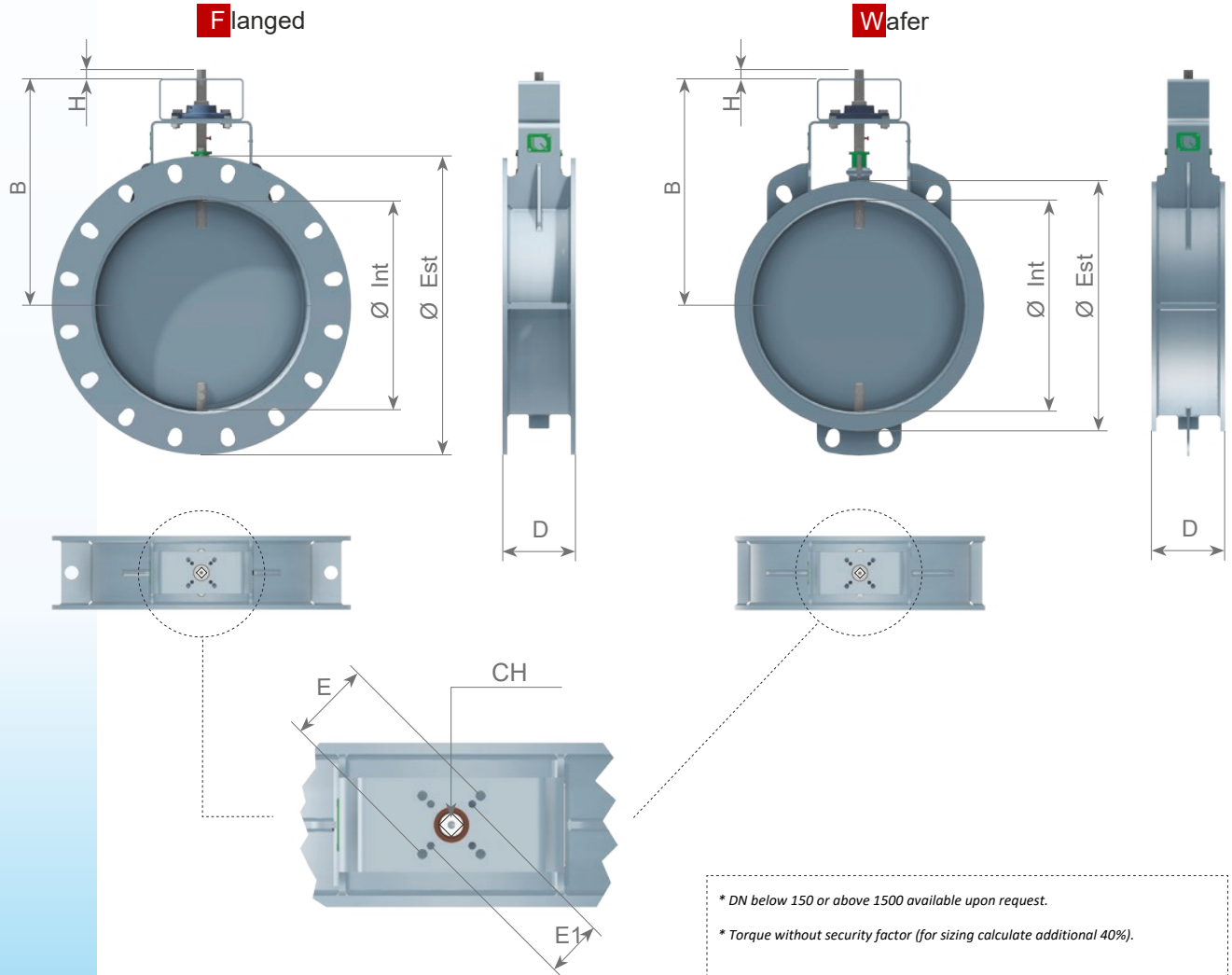
COD.5		
Soft Sealing with Braid		
DN	CLASS	VALUE (FCI 70-2)
da 150 a 200	II	< 0,5%Kvs
da 250 a 1000	III	< 0,1%Kvs
da 1100 a 1500	III/IV	< 0,05%Kvs



COD.7		
Soft Sealing with Elastomer		
DN	CLASS	VALUE (FCI 70-2)
da 150 a 200	II	< 0,5%Kvs
da 250 a 1000	III	< 0,1%Kvs
da 1100 a 1500	III/IV	< 0,05%Kvs

# Series 7 Butterfly Damper Valves

## Series 701 Butterfly Damper Valve



\* DN below 150 or above 1500 available upon request.  
 \* Torque without security factor (for sizing calculate additional 40%).

The torque supplied by PNEUMATIC actuators are calculated assuming a supply pressure of 5 bar.

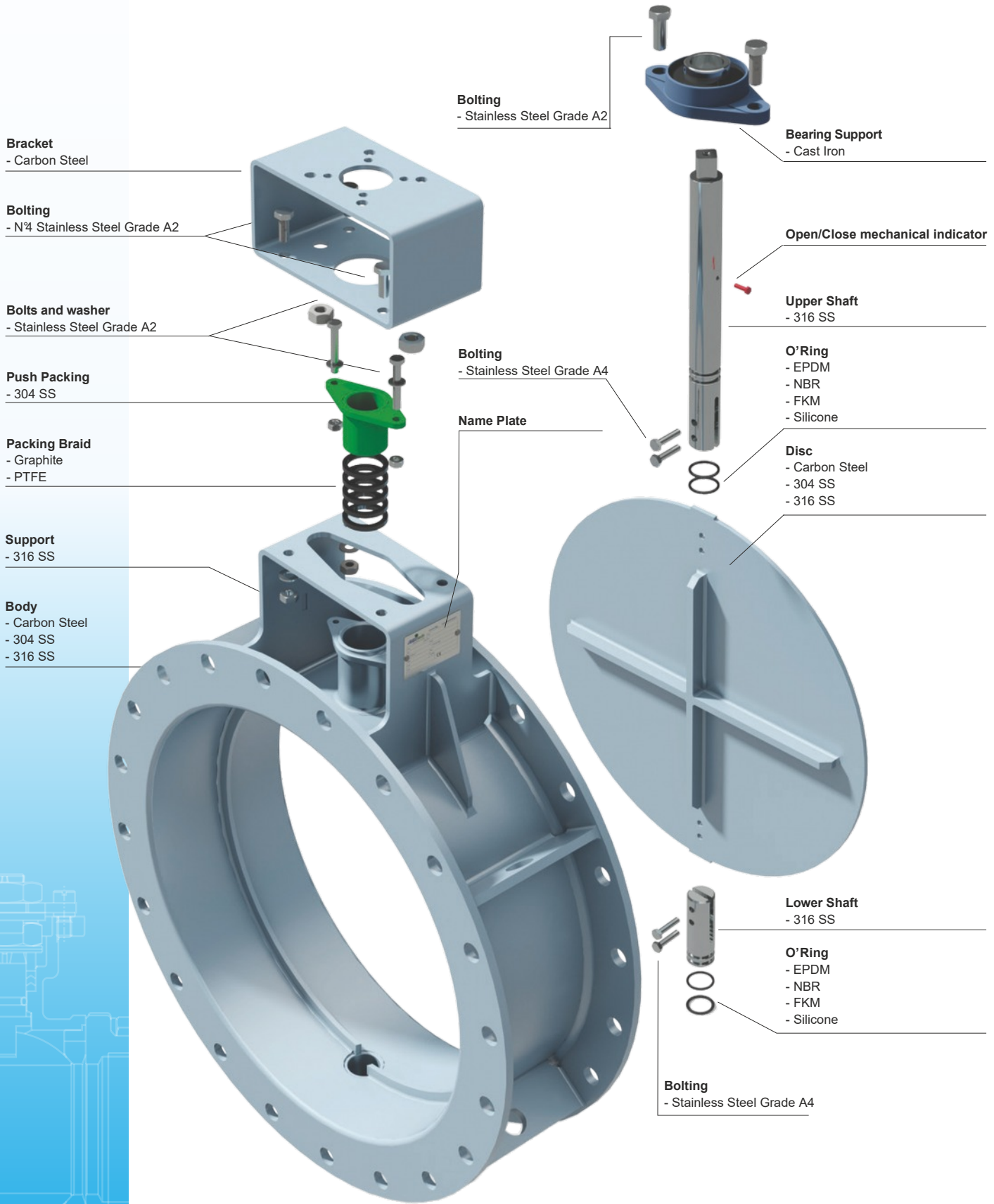
DN	PS MAX (bar)	Ø Int	Ø Est			D	B	CH	H	E	E1	WEIGHT		Max Torque (Nm)
			FLANGED PN6	FLANGED PN10	WAFER							FLANGED	WAFER	
150	3	160	285	285	205	140	310	14	17	F07	F05	15	12	10
200	3	211	340	340	260	140	335	14	17	F07	F05	17,5	13,5	15
250	2	265	395	395	315	140	363	14	17	F07	F05	22	16	18
300	2	316	445	445	371	140	388	14	17	F07	F05	25	19	22
350	2	350	490	505	421	140	405	14	17	F07	F05	31	24,5	26
400	2	400	565		471	140	429	14	17	F07	F05	35	27,5	30
450	1	450	595	615	526	190	488	22	20	F10	F07	47	41	35
500	1	500	670		576	190	513	22	20	F10	F07	60	46	42
600	1	600	755	780	677	190	561	22	20	F10	F07	72	59	55
700	1	700	860	895	782	190	611	22	20	F10	F07	88	68	68
800	0,5	800	975	1015	888	190	661	22	20	F10	F07	110	82	77
900	0,5	900	1075	1115		240	803	27	25	F14	F12	138		89
1000	0,5	1000	1175	1230		240	853	27	25	F14	F12	151		104
1100	0,5	1100	1290	1335		240	903	27	25	F14	F12	164		124
1200	0,5	1200	1405	1445		240	953	27	25	F14	F12	196		144
1300	0,2	1300	1515	1560		240	1003	27	25	F14	F12	231		168
1400	0,2	1400	1560	1675		240	1053	27	25	F14	F12	270		192
1500	0,2	1500	1660	1795		240	1103	27	25	F14	F12	340		214



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# Series 7 Butterfly Damper Valves

## Series 701 Butterfly Damper Valve



# Series 7 Butterfly Damper Valves

## Series 731 Butterfly Damper Valve

### Applications

- Fluids: Air, Gas and Fumes
- CHP and Incineration Plants
- Biomass, Biogas and Renewable Energy Plants
- Steel Industry and Furnaces
- Glass Industry
- Cement Plants
- Air Pollution and Filtration
- Power Plants
- Heat recovery systems
- Boilers and Burners
- Chemical Industry
- Oil and Gas
- HVAC
- Thermal Oxidizers

### Working Conditions

- Maximum Working Temperature up to 600°C
- Maximum Working Pressure up to 3 bar
- Maximum Working pressure varies with diameter and temperature

### General Characteristics

- ON/OFF or MODULATING Service
- Diameter Range from DN 150 to DN 1500 (DN below 150 or above 1500 upon request)
- End Connections: WAFER or FLANGED PN6, PN10, ANSI 150, Butt Weld or according to Customer Drawing
- Outside Bushing
- Tightness Class I, II and III according to FCI 70-2 (ex ANSI B16.104)
- Operated by Handlever, Pneumatic or Electric Actuators
- Designed for Insulation 200 mm

### Materials

- Carbon Steel: S355JOWP - CORTEN A (Tmax < 450°C)
- 304 SS
- 316 SS
- others upon request

### Applicable Standards

- Designed according to EN 12516-1, EN 736-1, EN 736-2, EN 736-3, EN 1349, EN 593, ASME B16.34
- Materials according to EN 1503-1, EN 1503-2
- End Connections as per EN 1092-1, ASME B16.5
- Marking according to EN 19
- Certified Welding Procedures according to UNI EN 287-1



### Applicable Directives

- Declaration of Conformity in Compliance with Machinery Directive 2006/42/CE
- Declaration of Conformity in Compliance with Directive PED 97/23/CE
- Declaration of Conformity in Compliance with Directive ATEX 94/9/CE
- Group II Category 3 for Zone 2 Gas and 22 Dust (II 3 GD)**

### Coating

- According to PSP00 Cycle PS4-PHT
- Carbon Steel: RAL 9005 HT silicon coating

### Test

- According to AMMtech Quality Control Plan QCP00
- According to ANSI/FCI70-2-2006, EN 12266-1, EN 12266-2, EN 60534

### Driving Systems

- Pneumatic and Electric Actuators according to EN 15714-1, EN 15714-2, EN 15714-3
- Actuators End Connections as per EN ISO 5210, EN ISO 5211

# Series 7 Butterfly Damper Valves

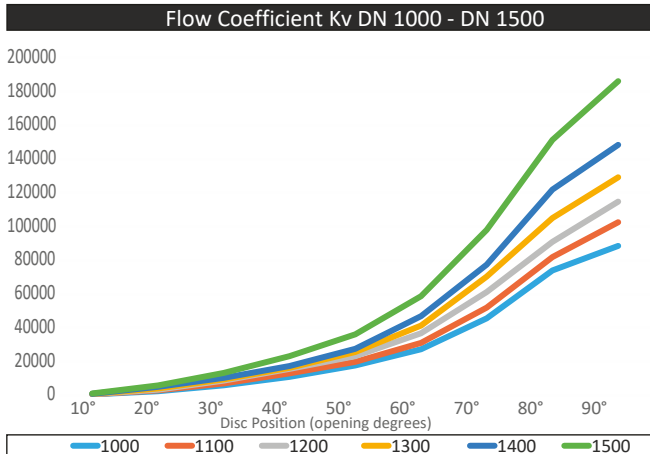
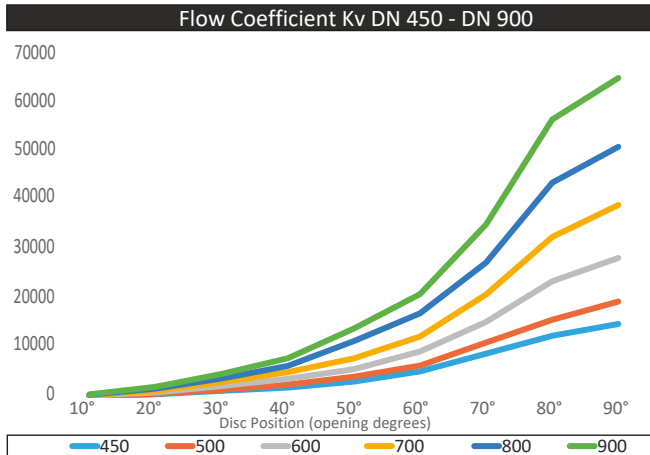
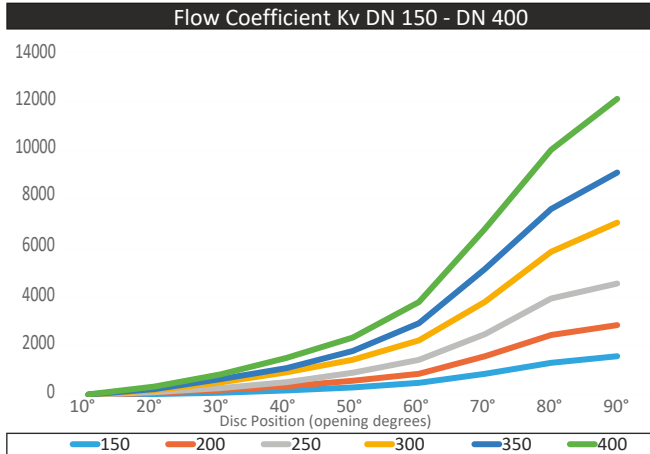
## Series 731 Butterfly Damper Valve

Flow Coefficient Kv										
DN	NPS	90°	80°	70°	60°	50°	40°	30°	20°	10°
150	6"	1593	1322	874	506	318	197	104	46	5
200	8"	2861	2458	1591	874	591	367	218	94	10
250	10"	4557	3948	2492	1443	916	532	291	122	18
300	12"	7040	5852	3811	2235	1447	935	525	206	27
350	14"	9087	7597	5152	2935	1807	1107	660	252	31
400	16"	12094	10012	6792	3805	2355	1525	850	353	36
450	18"	14843	12436	8769	5122	3032	1816	1143	454	51
500	20"	19434	15691	11042	6310	4043	2415	1379	531	64
600	24"	28355	23588	15256	9207	5576	3616	2140	817	155
700	28"	39198	32657	20885	12270	7779	4982	2928	1107	264
800	32"	51110	43759	27424	17016	11344	6235	3681	1603	331
900	36"	65197	56692	35219	20949	13903	7812	4607	1980	420
1000	40"	88575	74031	45613	27339	17739	10979	5929	2424	576
1100	44"	102597	81922	52019	31070	19862	13043	7032	2977	629
1200	48"	114762	90965	61188	36818	23213	15698	8746	3339	722
1300	52"	129225	105050	70393	41360	25674	16364	9451	4072	823
1400	56"	148449	121954	77473	46911	27595	17408	10370	5058	886
1500	58"	186168	151348	98037	58748	36171	23234	13284	5876	1168

$$K_v = Q_n / 519 * [(\rho_g * T_1) / (\Delta p * p_2)]^{0.5} \quad (C_v = K_v / 0.8565)$$

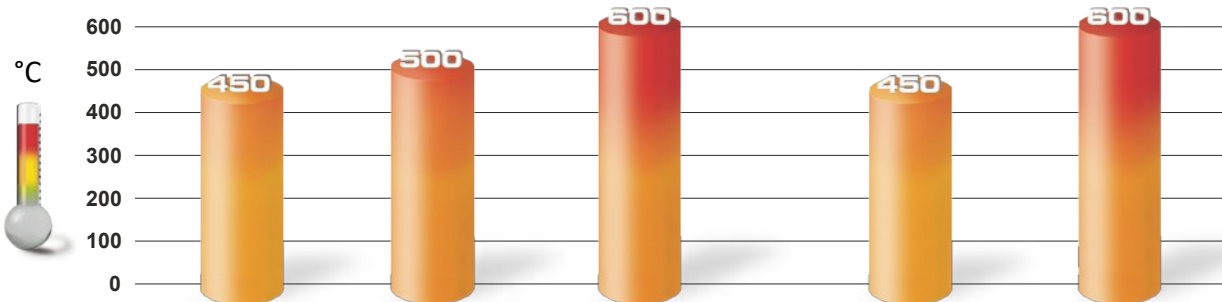
where:

- $Q_n$  [m<sup>3</sup>/h] : Flow Rate of gas, related to 0 °C and 1013 mbar
- $\rho_g$  [kg/m<sup>3</sup>] : density of gases at 0 °C and 1013 mbar
- $T_1$  [K] : absolute temperature at upstream side of the valve
- $\Delta p$  [bar] : pressure drop in the valve
- $p_2$  [bar] : absolute pressure at downstream side of the valve



Body and disc material		
S355JOWP	AISI 304	AISI 316

Braid material for seat and packing	
Graphite	FiberGlass



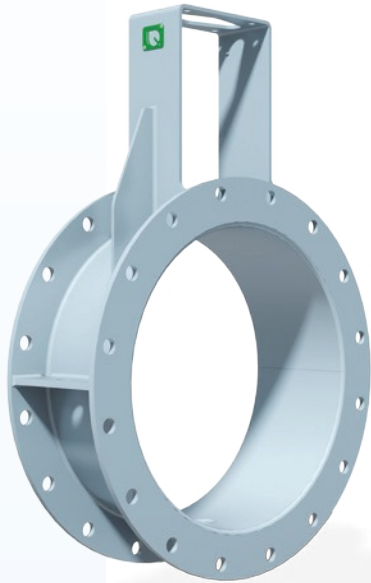
\* Chemical suitability of construction material verified according to process fluid.



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# Series 7 Butterfly Damper Valves

## Series 731 Butterfly Damper Valve



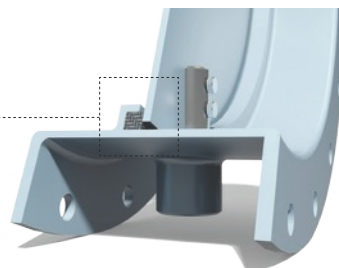
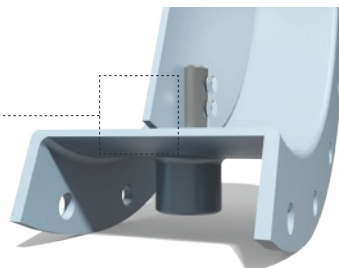
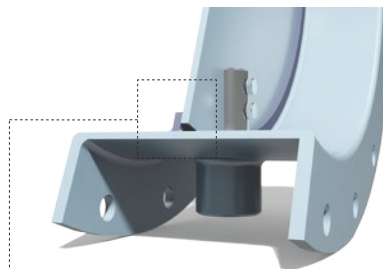
**F**langed



**W**afer



**B**utt Weld



### COD.0 standard

#### Met - Metal to Metal seat

DN	CLASS	VALUE (FCI 70-2)
da 150 a 200	I	Relative tightness
da 250 a 1500	II	< 0,5%Kvs
-	-	-

### COD.3

#### No seat

DN	CLASS	VALUE (FCI 70-2)
da 150 a 1500	I	Relative tightness
-	-	-
-	-	-

### COD.5

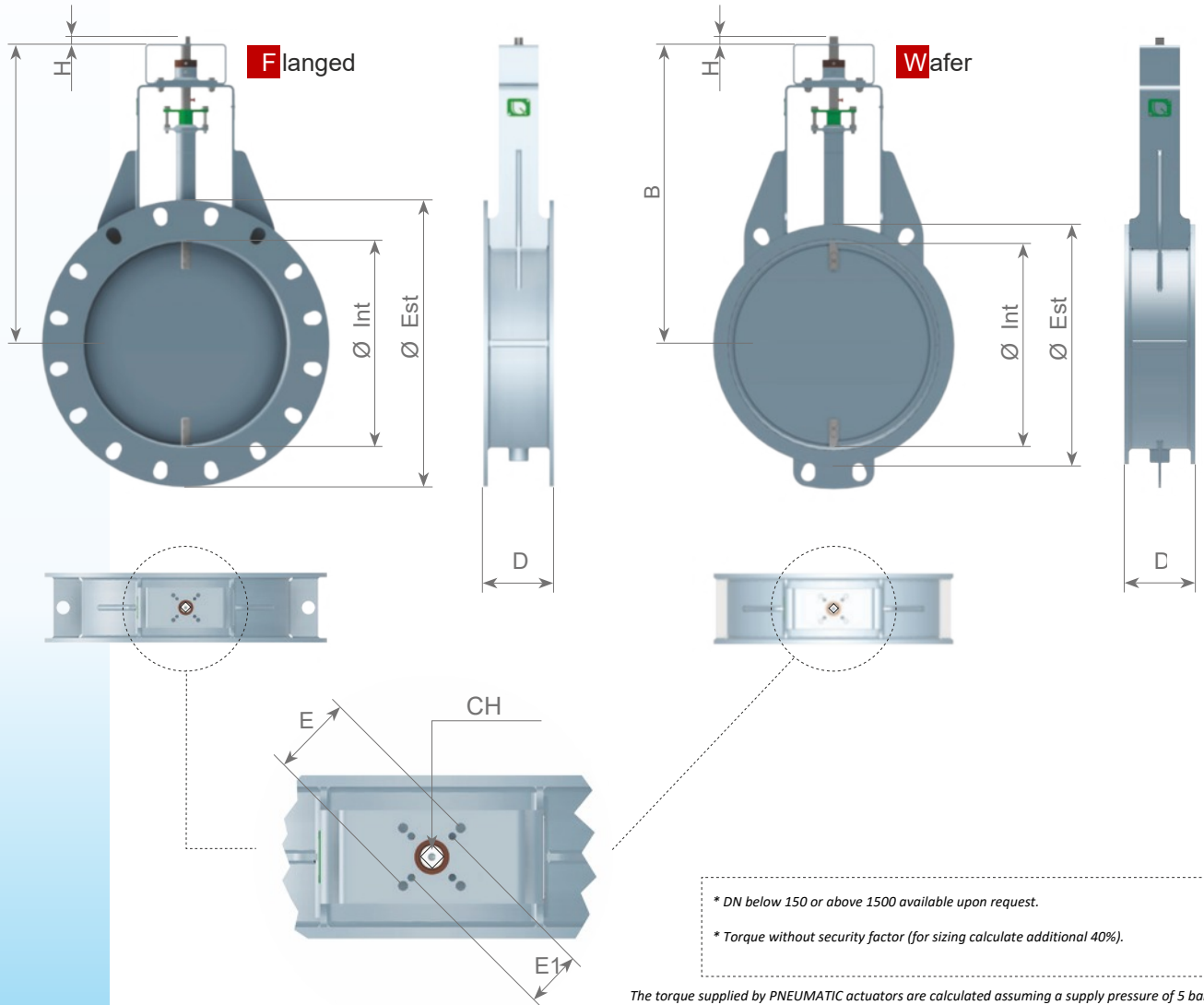
#### Soft Sealing with Braid

DN	CLASS	VALUE (FCI 70-2)
da 150 a 200	II	< 0,5%Kvs
da 250 a 1000	III	< 0,1%Kvs
da 1100 a 1500	III/IV	< 0,05%Kvs



# Series 7 Butterfly Damper Valves

## Series 731 Butterfly Damper Valve



DN	PS MAX (bar)	Ø Int	Ø Est			D	B	CH	H	WEIGHT		Max Torque (Nm)		
			FLANGED PN6	FLANGED PN10	WAFER					FLANGED	WAFER			
150	3	160	285		205	140	470	14	17	F07	F05	16	13	10
200	3	211	340		260	140	495	14	17	F07	F05	19	15	15
250	2	265	395		315	140	522	14	17	F07	F05	23	18	18
300	2	316	445		371	140	547	14	17	F07	F05	26	21	22
350	2	350	490	505	421	140	564	14	17	F07	F05	33	26	26
400	2	400	565		471	140	588	14	17	F07	F05	37	29	30
450	1	450	595	615	526	190	648	22	20	F10	F07	49	39	35
500	1	500	670		576	190	673	22	20	F10	F07	61	49	42
600	1	600	755	780	677	190	721	22	20	F10	F07	74	56	55
700	1	700	860	895	782	190	771	22	20	F10	F07	85	64	68
800	0,5	800	975	1015	888	190	821	22	20	F10	F07	112	85	77
900	0,5	900	1075	1115		240	963	27	25	F14	F12	134		89
1000	0,5	1000	1175	1230		240	1013	27	25	F14	F12	147		104
1100	0,5	1100	1290	1335		240	1063	27	25	F14	F12	160		124
1200	0,5	1200	1405	1445		240	1113	27	25	F14	F12	191		144
1300	0,2	1300	1515	1560		240	1163	27	25	F14	F12	226		168
1400	0,2	1400	1560	1675		240	1215	27	25	F14	F12	265		192
1500	0,2	1500	1660	1795		240	1265	27	25	F14	F12	335		214

# Series 7 Butterfly Damper Valves

## Series 731 Butterfly Damper Valve

**Bracket**  
- Carbon Steel

**Bolting**  
- N4 Stainless Steel Grade A2

**Bolts and washer**  
- Stainless Steel Grade A2

**Push Packing**  
- 304 SS

**Packing Braid**  
- Graphite  
- Glass Fiber

**Support**  
- 316 SS

**Body**  
- S355JOWP (Corten A)  
- 304 SS  
- 316 SS

**Bushing**  
- Bronze

**Bushing Support**  
- 304 SS

**Open/Close mechanical indicator**

**Upper Shaft**  
- 316 SS

**Bolting**  
- Stainless Steel Grade A4

**Name Plate**

**Gasket**  
- Graphite  
- Glass Fiber

**Disc**  
- S355JOWP (Corten A)  
- 304 SS  
- 316 SS

**Lower Shaft**  
- 316 SS

**Gasket**  
- Graphite  
- Glass Fiber

**Bolting**  
- Stainless Steel Grade A4

# Series 7 Butterfly Damper Valves

## Series 780 Butterfly Damper Valve

### Applications

- Fluids: Air, Gas and Fumes
- CHP and Incineration Plants
- Biomass, Biogas and Renewable Energy Plants
- Steel Industry and Furnaces
- Glass Industry
- Air Pollution and Filtration
- Power Plants
- Heat recovery systems
- Boilers and Burners
- Chemical Industry
- Oil and Gas
- Thermal Oxidizers

### Working Conditions

- Maximum Working Temperature up to 1000°C
- Maximum Working Pressure up to 3 bar  
Maximum Working pressure varies with diameter and temperature

### General Characteristics

- ON/OFF or MODULATING Service
- Diameter Range from DN 50 to DN 1000 (DN above 1000 upon request)
- End Connections: WAFER or FLANGED PN6, PN10, ANSI 150, Butt Weld or according to Customer Drawing
- Outside Bushing
- Tightness Class I, II and III according to FCI 70-2 (ex ANSI B16.104)
- Operated by Handlever, Pneumatic or Electric Actuators
- Designed for Insulation 250 mm

### Materials

- 310 SS
- 321 SS
- Inconel
- Others upon request

### Applicable Standards

- Designed according to EN 12516-1, EN 736-1, EN 736-2, EN 736-3, EN 1349, EN 593, ASME B16.34
- Materials according to EN 1503-1, EN 1503-2
- End Connections as per EN 1092-1, ASME B16.5
- Marking according to EN 19
- Certified Welding Procedures according to UNI EN 287-1



### Applicable Directives

- Declaration of Conformity in Compliance with Machinery Directive 2006/42/CE
- Declaration of Conformity in Compliance with Directive PED 97/23/CE
- Declaration of Conformity in Compliance with Directive ATEX 94/9/CE  
**Group II Category 3 for Zone 2 Gas and 22 Dust (II 3 GD)**

### Test

- According to AMMtech Quality Control Plan QCP00
- According to ANSI/FCI70-2, EN 12266-1, EN 12266-2, EN 60534

### Driving Systems

- Pneumatic and Electric Actuators according to EN 15714-1, EN 15714-2, EN 15714-3
- Actuators End Connections as per EN ISO 5210, EN ISO 5211

# Series 7 Butterfly Damper Valves

## Series 780 Butterfly Damper Valve

Flow Coefficient Kv										
DN	NPS	90°	80°	70°	60°	50°	40°	30°	20°	10°
50	2"	122	91	70	51	37	23	13	6	1
65	2 1/2"	235	186	136	84	54	34	20	10	1
80	3"	387	301	222	130	76	48	29	12	1
100	4"	690	568	420	239	146	97	54	24	3
125	5"	1145	970	642	363	232	141	84	34	5
150	6"	1532	1271	840	487	306	189	100	44	5
200	8"	2777	2387	1544	848	574	356	212	91	10
250	10"	4467	3871	2444	1415	898	521	286	120	18
300	12"	6916	5748	3744	2196	1421	919	516	203	26
350	14"	8874	7419	5031	2866	1765	1081	644	246	30
400	16"	11845	9807	6652	3726	2307	1494	832	346	35
450	18"	14566	12204	8605	5026	2975	1782	1121	445	50
500	20"	19185	15490	10900	6229	3991	2384	1361	524	63
600	24"	28075	23354	15105	9116	5521	3580	2118	809	153
700	28"	38810	32334	20678	12149	7702	4933	2899	1096	261
800	32"	50604	43325	27153	16848	11232	6174	3645	1587	328
900	36"	64551	56130	34871	20742	13765	7735	4561	1961	416
1000	40"	87698	73298	45161	27068	17563	10871	5870	2400	570

$$K_v = Q_n / 519 * [(\rho_g * T_1) / (\Delta p * p_2)]^{0.5} \quad (C_v = K_v / 0.8565)$$

where:

$Q_n$  [m<sup>3</sup>/h] : Flow Rate of gas, related to 0 °C and 1013 mbar

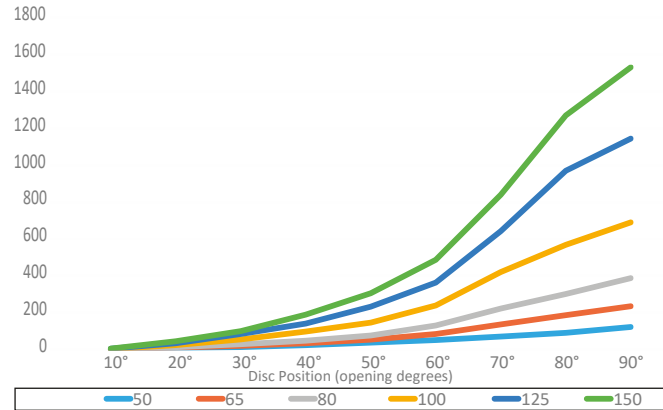
$\rho_g$  [kg/m<sup>3</sup>] : density of gases at 0 °C and 1013 mbar

$T_1$  [K] : absolute temperature at upstream side of the valve

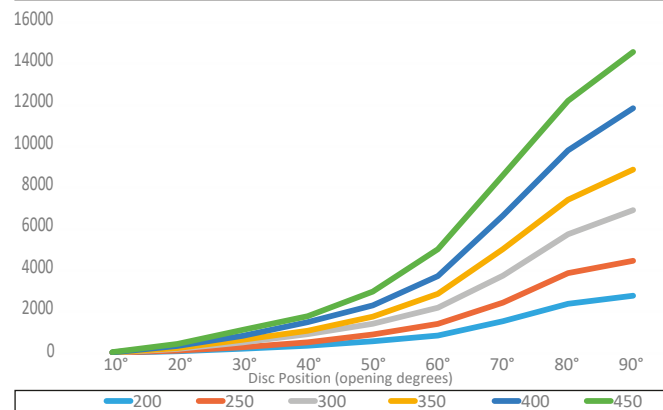
$\Delta p$  [bar] : pressure drop in the valve

$p_2$  [bar] : absolute pressure at downstream side of the valve

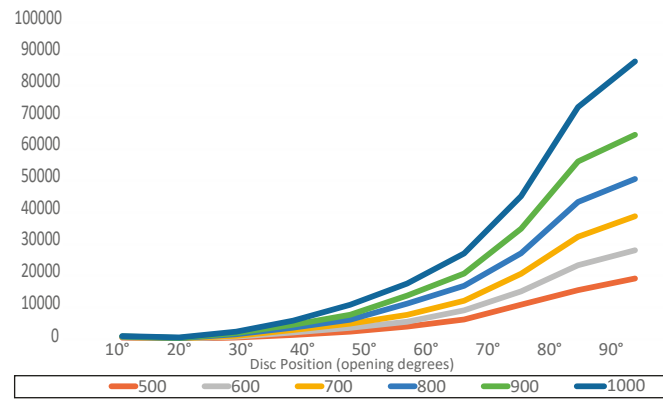
Flow Coefficient Kv DN 50 - DN 150



Flow Coefficient Kv DN 200 - DN 450



Flow Coefficient Kv DN 500 - DN



Body and disc material

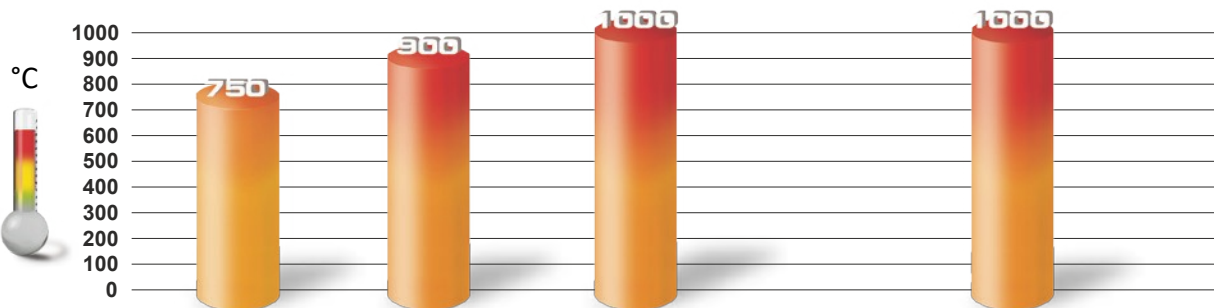
321 SS

310 SS

Inconel

Seat and packing material

Ceramic Fiber



310 SS max 1000 °C for discontinuous service

\* Chemical suitability of construction material verified according to process fluid.



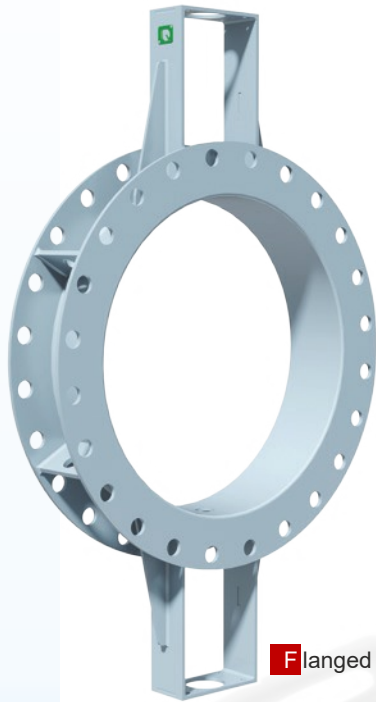
Tel: 01902 780700

Email: enquiries@powerite.co.uk

Web: www.powerite.co.uk

# Series 7 Butterfly Damper Valves

## Series 780 Butterfly Damper Valve



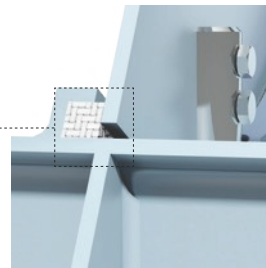
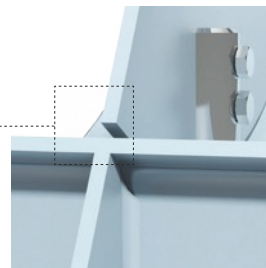
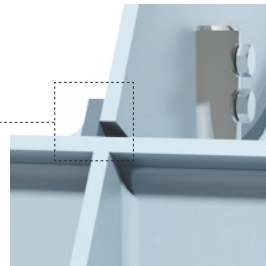
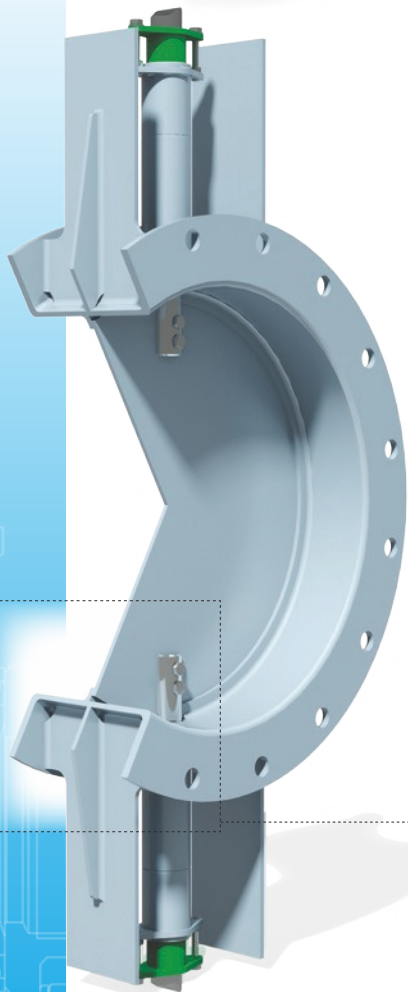
**F**langed



**W**afer



**B**utt Weld



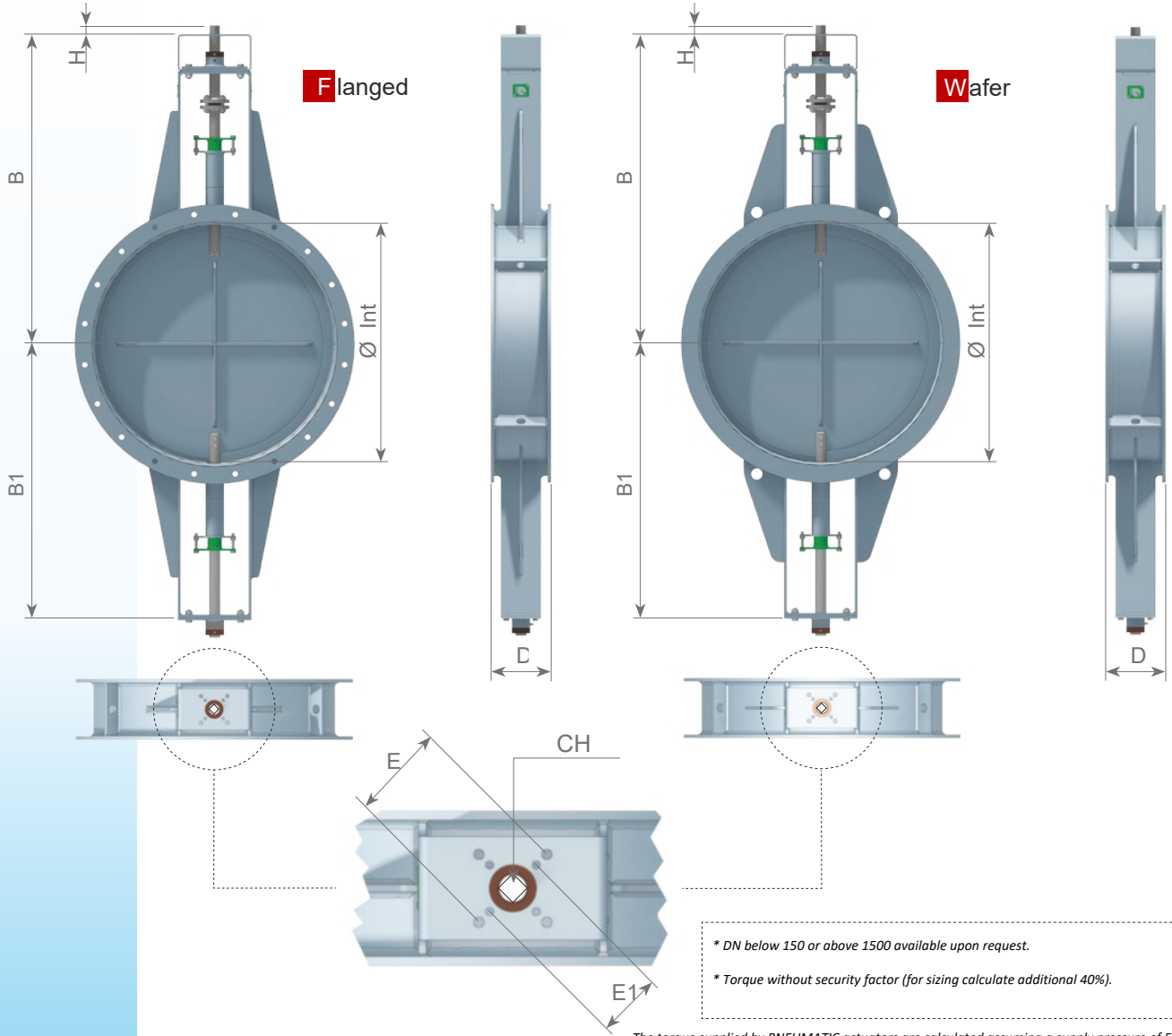
COD.0 standard		
Met - Metal to Metal seat		
DN	CLASS	VALUE (FCI 70-2)
from 50 to 300	I	Relative tightness
from 350 to 1000	II	< 0,5%Kvs
-	-	-

COD.3		
No seat		
DN	CLASS	VALUE (FCI 70-2)
from 50 to 1000	I	Relative tightness
-	-	-
-	-	-

COD.5		
Soft Sealing with Ceramic Fiber		
DN	CLASS	VALUE (FCI 70-2)
from 50 to 200	I	Relative tightness
from 250 to 450	II	< 0,5%Kvs
from 500 to 1000	III	< 0,1%Kvs

# Series 7 Butterfly Damper Valves

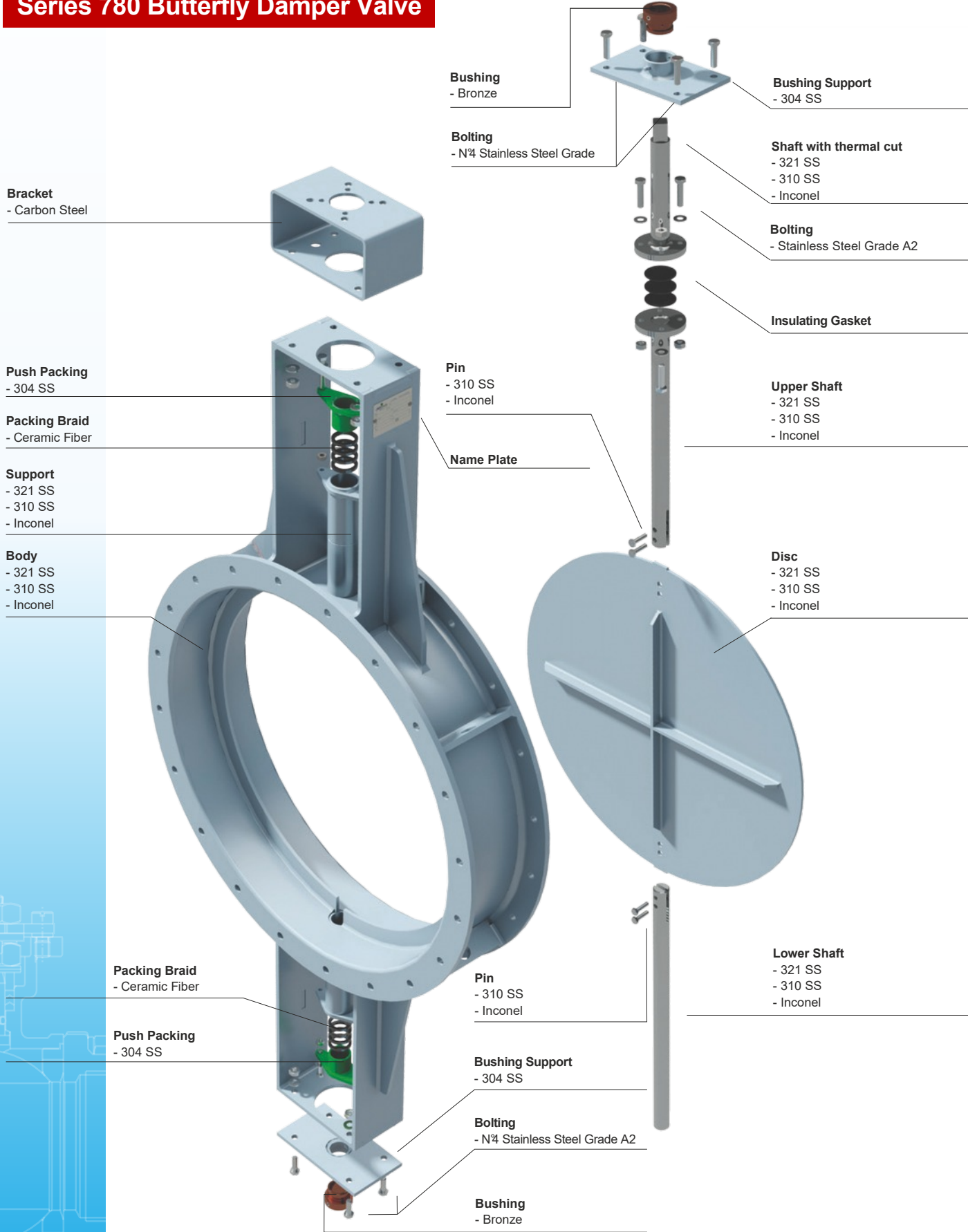
## Series 780 Butterfly Damper Valve



DN	P. MAX (bar)	Ø Int	D	B	B1	CH	H	E	E1	WEIGHT		Max Torque (Nm)
										ISO 5210	ISO 5210	
50	3	54	64	500	465	11	14	F05		6	5,5	8
65	3	70	64	508	473	11	14	F05		7	6,5	8
80	3	83	64	515	480	11	14	F05		10	9	8
100	3	108	64	527	492	11	14	F05		14	13	8
125	3	138	64	540	505	11	14	F05		20	18	10
150	3	160	140	584	554	14	17	F07	F05	27	24	10
200	3	211	140	610	580	14	17	F07	F05	31	27	15
250	2	265	140	637	607	14	17	F07	F05	34	29	18
300	2	316	140	662	632	14	17	F07	F05	38	33	22
350	2	350	140	741	691	22	20	F10	F07	59	53	26
400	2	400	140	766	716	22	20	F10	F07	63	56	30
450	1	450	190	791	741	22	20	F10	F07	67	59	35
500	1	500	190	816	766	22	20	F10	F07	80	71	42
600	1	600	190	866	816	22	20	F10	F07	92	82	55
700	1	700	190	916	866	22	20	F10	F07	112	98	68
800	0,5	800	190	1048	978	27	25	F14	F12	173	157	77
900	0,5	900	240	1098	1028	27	25	F14	F12	190	171	89
1000	0,5	1000	240	1148	1078	27	25	F14	F12	215	194	104

# Series 7 Butterfly Damper Valves

## Series 780 Butterfly Damper Valve



# Series 7 Butterfly Damper Valves

## Series 701 Butterfly Damper Valve Kinetrol Assembly



## Series 731 Butterfly Damper Valve Kinetrol Assembly



## Series 780 Butterfly Damper Valve Kinetrol Assembly

