

Uniwat®



Concentric Butterfly Valves

Series VF701/VF751/VF7U1

www.comeval.es

Codification

Butterfly valve

V F 7 0 1 P G G N 0 0 0 5 0

VF UNIWAT® butterfly valve identification

BUTTERFLY TYPE

701 Wafer type dovetail (edge-boot) seat

751 Lug type dovetail (edge-boot) seat

7U1 U type dovetail (edge-boot) seat

ACTUATION DEVICE

P With lever

R With worm gear

B Bare shaft

BODY

G Ductile iron JS1030 (GGG40)

DISC

G Ductile iron JS1030 (GGG40)

I St. Steel CF8M (AISI 316)

J St. Steel CF8 (AISI 304)

SEAT

E EPDM

N NBR

S Silicon

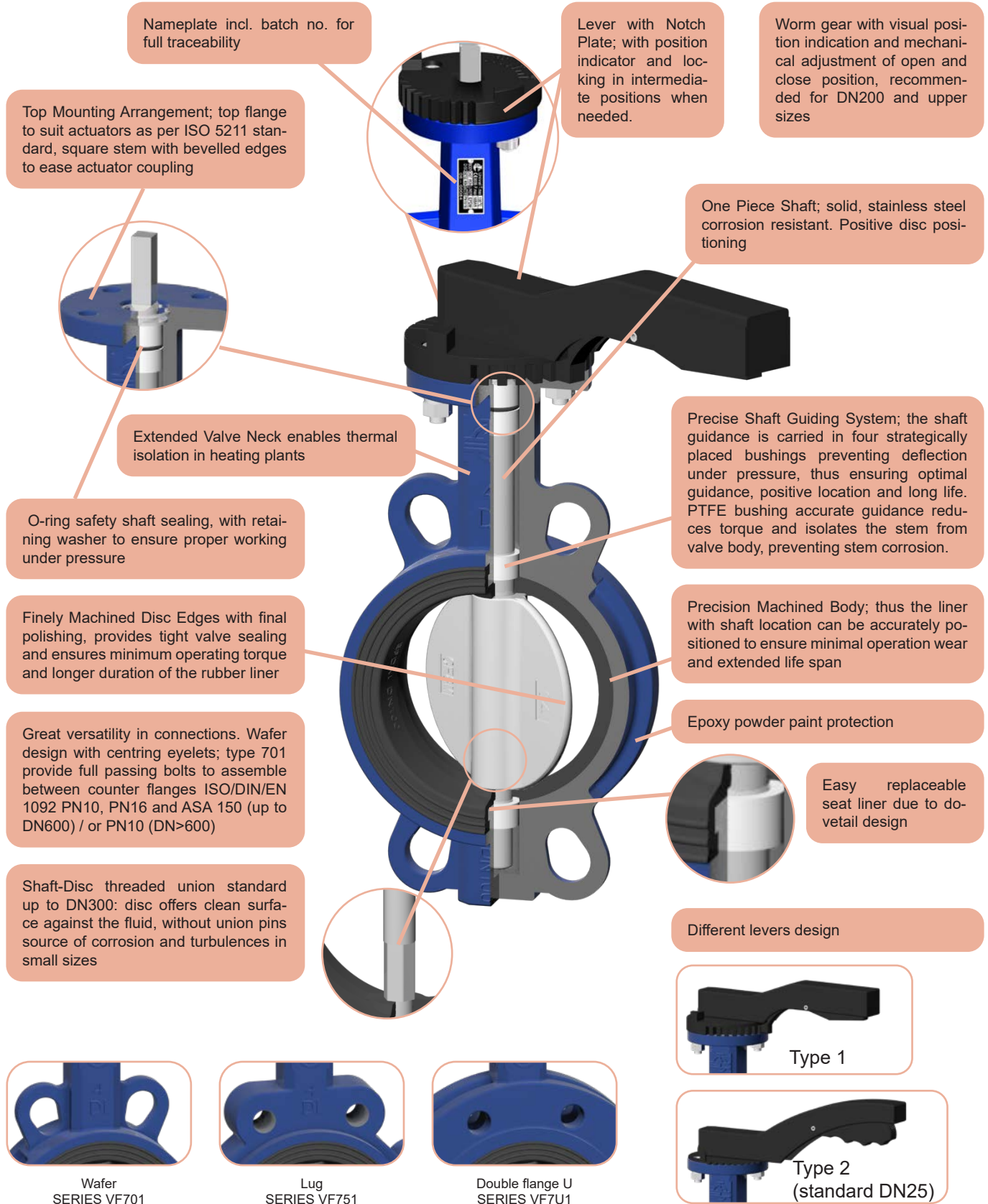
VALVE SIZE

050 DN50

300 DN300

Design Attributes

Concentric Butterfly Valves are quarter turn rotary valves, bidirectional, with rubber seat, for stopping or regulating the flow of the service fluid when necessary. A metal disc is positioned in the centre of the valve. The plate has a rod (stem) through it connected to an actuator device (handwheel, gear, etc.) on the outside of the valve. The valve closes by turning the disc clockwise and is open when the lever is parallel to the pipe. Valves are provided with epoxy paint against environmental aggression. They are of simple design, light weight and volume and offer a quick operation with full seat tightness, being widely used in many applications with significant savings in space and investment costs for installation.



Main Features

Valve design: EN 593, EN 12516 & DIN 3840.

Nominal Pressure: PN16 up to DN300 / PN10* 350-1200

*Option PN16

Face to face length: EN 558 S20 (DIN 3202 K1)

Valve end connections:

Wafer type to be installed between welding neck flanges EN 1092-1/2 type 11/B PN10/16 and ASME B16.5 ASA 150 flanges

Top flange: ISO 5211

Marking: EN 19

Pressure Tests: EN 12266-1

Seat leakage rate: Rate A (full seat tightness in both directions)

Outside epoxy coating protection blue color similar to RAL5005. Min. average thickness 150 microns

Product compliant with Directive 2014/68/EU on Pressure Equipment (PED) and Machinery Directive 2006/42/EC

Main Duties / Limits of use

Liquids compatible with materials of construction, acc. to Directive 2014/68/EU, Annex II table 8 (liquids of group 1*) & table 9 (liquids of group 2*) up to category I

Low pressure steam & neutral gases of group 2*, acc. to Directive 2014/68/EU, Annex II table 7 up to category I

Table 7: PS 16 bar DN25-200 (Art.4-Parr.3 DN25-50)

PS 13 bar DN250

PS 10 bar DN300-350

PS 6 bar DN400-500

PS 2,5 bar DN1200

Table 8: PS 16 bar DN25-125 (Art.4-Parr.3)

PS 13 bar DN150

PS 10 bar DN200-1200 (Art.4-Parr.3 DN200)

Table 9: PS 16 bar DN25-600 (Art.4-Parr.3 DN300)

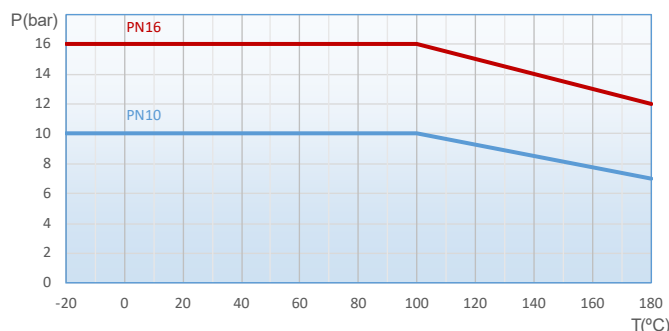
- Option DN700-1200

PS 10 bar DN700-1200 (Art.4-Parr.3)

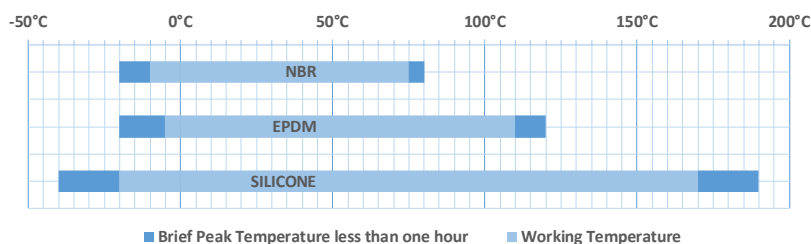
Questions referring to chemical resistance, please consult us

Observe also pressure/temperature limits on diagrams under. For vacuum service please consult us

*Classification of fluids (group 1 or 2) acc. to Directive 2014/68/EU, Article 13



We recommend not to exceed maximum velocity as follows:
PN10: 3 m/s
PN16: 4 m/s



Temperature ranges given just for reference.

Pressure-temperature rating, material compatibility and other parameters also to be considered for rubber selection.

Please consult our Technical Department for a particular application.

Options

Other connections, other designs and approvals, limit switches, different actuation. Please consult us

Flow Coefficients Kv Values (m³/h)

DN	Opening Angle of the Valve								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
25	-	-	1,5	5	8,3	14	22	33	36
32	-	0,8	1,7	5,3	9,5	16	25	37	41
40	-	1,5	3,5	8	14	23	37	55	61
50	-	2,5	7	14	24	40	64	95	105
65	-	5	11	23	40	67	107	159	176
80	-	9	20	35	61	101	161	240	265
100	-	16	38	78	137	226	360	538	594
125	0,5	26	69	129	219	361	576	860	950
150	0,8	44	105	205	373	617	983	1468	1622
200	1,3	82	205	387	680	1124	1792	2676	2957
250	2,1	138	345	669	1084	1791	2855	4262	4711
300	3,7	210	534	1028	1639	2707	4318	6449	7126
350	5,5	305	750	1326	2347	3878	6184	9236	10205
400	7,4	388	935	1813	3208	5301	8454	12625	13950
450	9,7	550	1212	2370	4193	6929	11049	16500	18232
500	13	658	1595	2981	5275	8716	13900	20758	22937
600	20	962	2246	4431	7919	13083	20864	31158	34429
700	55	1233	2725	5105	9022	14906	23770	35499	39225
800	135	1719	3394	6367	10338	17081	27239	40905	44950
900	180	2475	4731	8631	13691	22620	36072	54165	59525
1000	250	3342	6443	11752	18642	30800	49116	73755	81050
1200	320	4715	8643	15155	24198	39980	63757	95741	105210

A valve flow coefficient represents the standard flow rate which flows through the valve at a given opening, referred to pre-established conditions:

* Kv value is the volume of water at 20°C, in cubic meters per hour (m³/h), that will flow through the valve at a static pressure drop of 1 bar across the valve.

* Cv value is the volume of water at 60°F, in gallons per minute (gpm), that will flow through the valve at a static pressure drop of 1 psi across the valve.

Conversion from Kv to Cv can be roughly calculated by means of the following expression:

$$Cv = Kv \times 1,17$$

Flow rate through the valve with other liquids can be calculated with the following expressions (for gases please consult us):

$$Kv = q (SG / dp)^{1/2} \quad \text{where}$$

q = water flow (m³/h)

SG = specific gravity (1 for water)

dp = pressure drop (bar)

$$Cv = q (SG / dp)^{1/2} \quad \text{where}$$

q = water flow (US gallons per minute)

SG = specific gravity (1 for water)

dp = pressure drop (psi)

It is common practice to size the valves on the basis of pipe DN for on off application. Nevertheless, Butterfly Valves used for control purpose should be calculated on the basis of operating conditions.

First step is to calculate the Kv values for the different working conditions and then choose the DN with such Kv values in the region of 20° to 70° valve opening angle.

COMEVAL Technical Department is at your disposal to help you sizing your system.

Valve Torques (Nm)

DN	VF701		
	PN6	PN10	PN16
25	-	-	-
32	8	10	11
40	8	10	11
50	9	11	12
65	15	18	20
80	22	25	30
100	39	43	50
125	60	67	77
150	94	110	121
200	165	201	242
250	253	310	352
300	352	473	490
350		610	920
400		890	1440
450		1240	1780
500		1670	2210
600		2560	3980
700		3720	4920
800		5640	7840
900		7650	9760
1000		9800	13560
1200		16800	21200

Remarks for Actuator Sizing:

The torque values given are for water or other non-viscous lubricating liquids at ambient temperature.

Recommended safety factor to be applied:

30-40% for double acting pneumatic actuators

30-50% for single acting pneumatic actuators and electric actuators

There are several factors that can increase above given values and should be taken into account for actuators sizing:

-For gases and dry medium (non lubricating), multiply above values by about 1,25-2 depending on application

-For viscous liquids increase above values depending on the liquid properties

-For service conditions such as likelihood of seat swelling, or low and high temperature seat hardening, an additional safety factor should be considered.

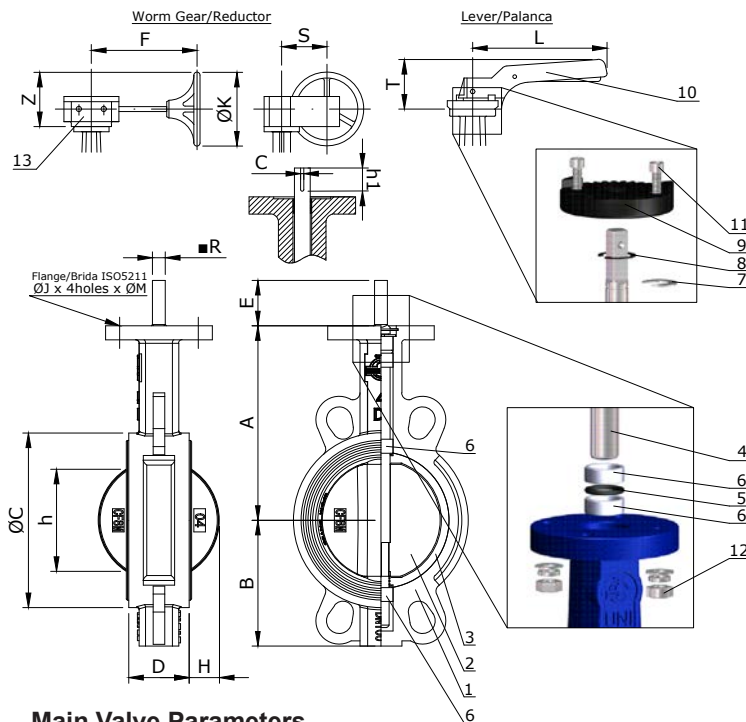
There are three torques to be considered when selecting the proper actuator for a butterfly valve:

1) Seating Torque: The torque to displace a resilient seat and effect shutoff

2) Bearing Torque: The torque required to overcome friction forces on the valve shaft bearing surfaces during valve travel angle (about 30% of seating torque)

3) Dynamic Torque: Due to fluid forces which tend to close the valve when the valve is partially open. This torque is due to the velocity of the fluid created by a differential pressure across the valve. Systems should be projected to avoid high velocities across the valve

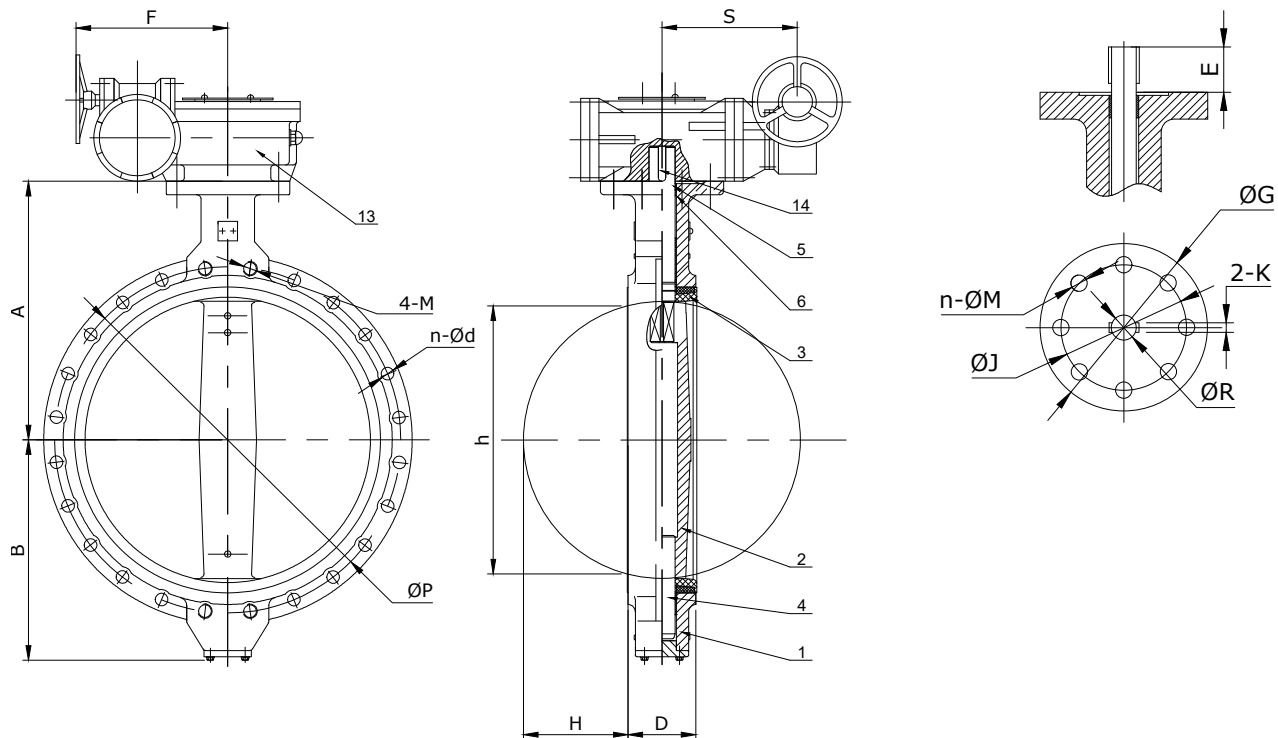
Above given values are inclusive of the 3 torques if max. recommended velocities are not exceeded, the actuator selected must provide the calculated torque over its total opening and closing travel angle.



NO.	PART	MATERIAL
1	BODY	Ductile Iron EN-JS1030 (GGG40)
2	DISC	Ductile Iron EN-JS1030 (GGG40) Ni Plated // St. Steel CF8 (AISI 304) // St. Steel CF8M (AISI 316) // Ductile Iron + EPDM
3	LINER	NBR (VF701_N_) / EPDM (VF701_E_) / Silicon (VF701_S_)
4	STEM	St. Steel AISI 410
5	O-RING	NBR
6	BUSHING	PTFE
7	WASHER	St. steel
8	CIRCLIP	Steel
9	NOTCH PLATE	Aluminium
10	HAND LEVER	Aluminium
11	BOLTS	Steel
12	NUTS	Steel
13	WORM GEAR	Cast Iron

DN		25	32	40	50	65	80	100	125	150	200
MAIN DIMENSIONS	A	96	101	101	132	138	153	167	183	195	236
	B	46	56	56	72	80	95	106	125	136	170
	ØC	69	85	85	89	103	121,5	146,7	175	210	263
	D	33	33	33	43	46	46	52	56	56	60
	H	0,5	4	4	4,95	9,2	16,4	26	33,7	49,9	71,25
	h	30	38	38	47	59,5	75,4	98,5	117,1	147,8	195,7
COUPLING DETAIL	ISO 5211	F05	F05	F05	F05	F05	F05	F07	F07	F07	F10
	E	17	39	39	39	39	39	45	45	45	53
	■R	9	9	9	9	9	9	11	14	14	17
	ØG	65	65	65	65	65	65	90	90	90	125
	ØJ	50	50	50	50	50	50	70	70	70	102
	ØM	8	8	8	8	8	8	10	10	10	12
LEVER	T	37	39	39	39	39	39	45	45	45	53
	L	125	197	197	197	197	197	207	277	277	324
	Approx. weight	1,3	1,6	1,6	3,1	3,55	4,15	5,25	6,9	8,2	12,85
WORM GEAR	F	132,5	132,5	132,5	132,5	132,5	132,5	132,5	132,5	132,5	197
	S	44	44	44	44	44	44	44	44	44	53
	Z	97,5	97,5	97,5	97,5	97,5	97,5	97,5	97,5	97,5	177
	ØK	136	136	136	136	136	136	136	136	136	277
	Approx. weight	3,65	3,95	3,95	5,45	5,9	6,5	7,5	9	10,3	18,45
DN		250	300	350	400	450	500	600			
MAIN DIMENSIONS	A	268	306	340	400	411	460	523			
	B	206	236	260	304	337	368	428			
	ØC	316,6	370,5	424	470	530	580	675			
	D	68	78	78	102	114	127	154			
	H	91,25	111,8	128,4	152,3	168,2	181,1	220,7			
	h	242,6	292,5	325,2	380,6	429,4	480,8	580			
COUPLING DETAIL	ISO 5211	F10	F10	F10	F14	F14	F14	F16			
	E	45	45	45	52	52	60	70			
	■R	22	22	22	22	36	36	36			
	ØG	125	125	125	175	175	175	210			
	ØJ	102	102	102	140	140	140	165			
	ØM	12	12	12	18	18	18	22			
	C				10	10	12	16			
	h1				45	45	55	65			
WORM GEAR	F	197	212	212	257	257	257	321			
	S	53	79	79	-	-	-	-			
	Z	177	178,5	178,5	285	285	285	375			
	ØK	277	277	277	285	285	285	375			
	Approx. weight	24	34,9	42	80,3	84	123	207			

Main Parts and Materials



NO.	PART	MATERIAL
1	BODY	Ductile Iron EN-JS1030 (GGG40)
2	DISC	Ductile Iron EN-JS1030 (GGG40) // Ni Plated St. Steel CF8 (AISI 304) // St. Steel CF8M (AISI 316) // Ductile Iron + EPDM
3	LINER	NBR (VF701_N_) / EPDM (VF701_E_) / Silicon (VF701_S_)
4	STEM	St. Steel AISI 410
5	O-RING	NBR
6	BUSHING	Brass
13	WORM GEAR	Ductile Iron
14	KEY	Steel

Main Valve Parameters

DN		700	800	900	1000	1200
MAIN DIMENSIONS	A	629	666	720	800	1343
	B	527	594	656	721	800
	D	165	190	203	216	254
	ØH	693,7	794,4	864,7	965	1160,6
	H	264,35	302,2	330,85	374,5	453,3
	h	688,78	788,70	858,72	958,94	1153,63
	ØP	840	950	1050	1160	1380
	4-M	M27	M30	M30	M36	M36
	nxØd	20xØ31	20xØ34	24xØ34	24xØ37	28xØ41
COUPLING DETAIL	ISO 5211	F25	F25	F25	F25	F35
	E	85	85	130	130	150
	2-K	18	18	20	22	28
	ØR	63,35	63,35	75	85	100
	ØG	300	300	300	300	354
	ØJ	254	254	254	254	298
	ØM	18	18	18	18	18
WORM GEAR	F	361	361	385	385	420
	S	228	228	243	243	302
	Approx. weight	292	396	520	668	1080

Dimensions in mm subject to manufacturing tolerance / Weights in kg

Technical drawing of a worm gear reducer assembly, showing various views and dimensions:

- Top View (Left):** Shows the worm gear (13) and the housing (10). Dimensions include F (flange diameter), Z (flange thickness), $\varnothing K$ (housing bore diameter), and S (housing flange diameter).
- Side View (Top):** Shows the housing (10) and the worm gear (13). Dimensions include L (housing length), T (housing flange thickness), and C (housing flange diameter).
- Front View (Bottom):** Shows the worm gear (13) and the housing (10). Dimensions include E (housing flange thickness), A (housing flange diameter), B (housing flange diameter), D (housing flange diameter), and H (housing flange diameter).
- Top View (Right):** Shows the worm gear (13) and the housing (10). Dimensions include R (flange thickness), $\varnothing C$ (flange diameter), h (flange thickness), and $\varnothing D$ (flange diameter).
- Bottom View (Right):** Shows the worm gear (13) and the housing (10). Dimensions include 1 (flange thickness), 2 (flange thickness), 3 (flange thickness), 4 (flange thickness), 5 (flange thickness), 6 (flange thickness), 7 (flange thickness), 8 (flange thickness), 9 (flange thickness), 10 (flange thickness), 11 (flange thickness), and 12 (flange thickness).

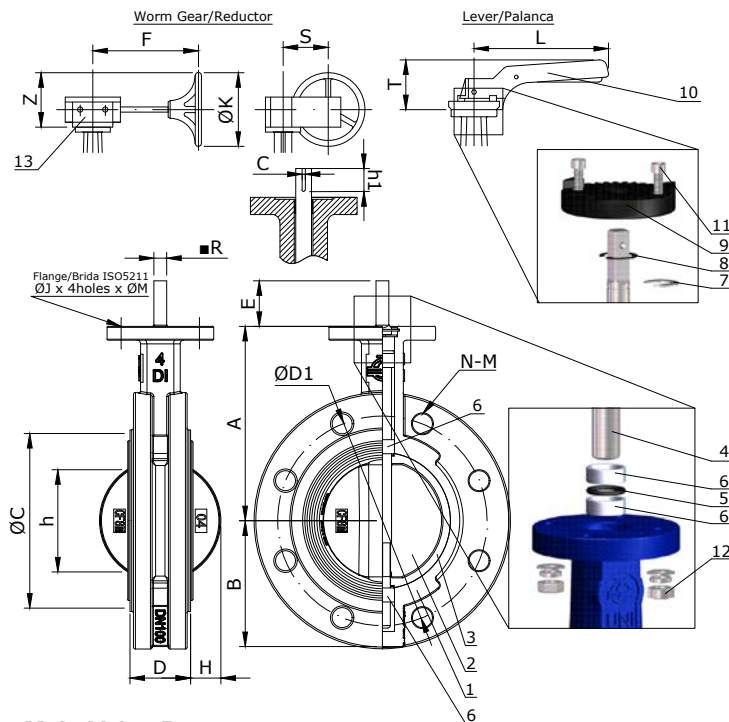
NO.	PART	MATERIAL
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2	DISC	Ductile Iron EN-JS1030 (GGG40) Ni Plated // St. Steel CF8 (AISI 304) // St. Steel CF8M (AISI 316) // Ductile Iron + EPDM
3	LINER	NBR (VF751_N_) / EPDM (VF751_E_) / Silicon (VF751_S_)
4	STEM	St. Steel AISI 410
5	O-RING	NBR
6	BUSHING	PTFE
7	WASHER	St. steel
8	CIRCLIP	Steel
9	NOTCH PLATE	Aluminium
10	HAND LEVER	Aluminium
11	BOLTS	Steel
12	NUTS	Steel
13	WORM GEAR	Cast Iron

DN		40	50	65	80	100	125	150	200
MAIN DIMENSIONS	A		162	175	181	200	213	225	260
	B		76	89	95	114	127	140	177
	ØC	42,5	52,6	64,4	78,8	104,1	123,3	155,75	202,5
	D	33	43	46	46	52	56	56	60
	H	4	4,95	9,2	16,4	26	33,7	49,9	71,25
	h	38	47	59,5	75,4	98,5	117,1	147,8	195,7
	D1		125	145	160	180	210	240	295
	N	4	4	4	8	8	8	8	12
COUPLING DETAIL	M	16	16	16	16	16	16	20	20
	ISO 5211	F05	F05	F05	F05	F07	F07	F07	F10
	E	30	30	30	30	30	35	35	35
	■R	9	9	9	9	11	14	14	17
	ØG	65	65	65	65	90	90	90	125
	ØJ	50	50	50	50	70	70	70	102
LEVER	ØM	8	8	8	8	10	10	10	12
	T	39	39	39	39	45	45	45	45
	L	197	197	197	197	207	277	277	324
WORM GEAR	Approx. weighth	-	3,4	3,8	4,5	7,7	9,55	10,95	16,7
	F	132,5	132,5	132,5	132,5	132,5	132,5	132,5	197
	S	44	44	44	44	44	44	44	53
	Z	97,5	97,5	97,5	97,5	97,5	97,5	97,5	177
	ØK	136	136	136	136	136	136	136	277
	Approx. weight	-	5.75	6.15	6.85	9.95	11.65	13.05	22.3

DN		250	300	350	400	450	500	600
MAIN DIMENSIONS	A	292	337	368	400	411	460	523
	B	203	242	267	304	337	368	428
	ØC	250,5	301,6	333,4	389,7	440,7	491,6	592,5
	D	68	78	78	102	114	127	154
	H	91,25	111,8	128,4	152,3	168,2	181,1	220,7
	h	242,6	292,5	325,2	380,6	429,4	480,8	580
	D1	355	410	470	525	585	650	770
	N	12	12	16	16	20	20	20
M	24	24	24	27	27	30	33	
COUPLING DETAIL	ISO 5211	F10	F10	F10	F14	F14	F14	F16
	E	45	45	45	45	45	55	65
	■R	22	22	22	22	36	36	36
	ØG	125	125	125	175	175	175	210
	ØJ	102	102	102	140	140	140	165
	ØM	12	12	12	18	18	18	22
	C				10	10	12	16
	h1				45	45	55	65
WORM GEAR	F	197	212	212	257	257	257	321
	S	53	79	79	220	220	220	265
	Z	177	178,5	178,5	285	285	285	375
	ØK	277	277	277	285	285	285	375
	Approx. weight	31.5	43.5	47.5	73	131	166	298

The engineer, designing a system or a plant, is responsible for the selection of the correct valve
Product suitability must be verified, contact manufacturer for information

Main Parts and Materials



NO.	PART	MATERIAL
1	BODY	Ductile Iron EN-JS1030 (GGG40)
2	DISC	Ductile Iron EN-JS1030 (GGG40) Ni Plated // St. Steel CF8 (AISI 304) // St. Steel CF8M (AISI 316) // Ductile Iron + EPDM
3	LINER	NBR (VF7U1_N_) / EPDM (VF7U1_E_) / Silicon (VF7U1_S_)
4	STEM	St. Steel AISI 410
5	O-RING	NBR
6	BUSHING	PTFE
7	WASHER	St. steel
8	CIRCLIP	Steel
9	NOTCH PLATE	Aluminium
10	HAND LEVER	Aluminium
11	BOLTS	Steel
12	NUTS	Steel
13	WORM GEAR	Cast Iron

Main Valve Parameters

DN	40	50	65	80	100	125	150	200
MAIN DIMENSIONS	A	101	162	175	181	200	213	260
	B	56	76	89	95	114	127	177
	ØC	85	52,6	64,4	78,8	104,1	123,3	202,5
	D	33	43	46	46	52	56	60
	H	4	4,95	9,2	16,4	26	33,7	71,25
	h	38	47	59,5	75,4	98,5	117,1	195,7
	D1		125	145	160	180	210	295
	N	4	4	4	8	8	8	12
COUPLING DETAIL	M	18	18	18	18	18	18	22
	ISO 5211	F05	F05	F05	F05	F07	F07	F10
	E	39	30	30	30	30	35	35
	■R	9	9	9	9	11	14	17
	ØG	65	65	65	65	90	90	125
	ØJ	50	50	50	50	70	70	102
LEVER	ØM	8	8	8	8	10	10	12
	T	39	39	39	39	45	45	45
WORM GEAR	L	197	197	197	197	207	277	324
	Approx. weight		6,5	8,8	9,5	10,4	13,55	27,9
	F	132,5	132,5	132,5	132,5	132,5	132,5	197
	S	44	44	44	44	44	44	53
	Z	97,5	97,5	97,5	97,5	97,5	97,5	177
	ØK	136	136	136	136	136	136	277
	Approx. weight		8,85	11,15	11,85	12,65	15,65	33,5

DN	250	300	350	400	450	500	600
MAIN DIMENSIONS	A	292	337	368	400	422	562
	B	203	242	267	309	337	459
	ØC	250,5	301,6	333,4	389,7	440,7	592,5
	D	68	78	78	102	114	154
	H	91,25	111,8	128,4	152,3	168,2	220,7
	h	242,6	292,5	325,2	380,6	429,4	580
	D1	355	410	470	525	585	770
	N	12	12	16	16	20	20
COUPLING DETAIL	M	26	26	26	30	30	36
	ISO 5211	F10	F10	F10	F14	F14	F16
	E	45	45	45	45	45	65
	■R	22	22	22	22	36	36
	ØG	125	125	125	175	175	210
	ØJ	102	102	102	140	140	165
WORM GEAR	ØM	12	12	12	18	18	22
	C				10	10	16
	h1				45	45	65
	F	197	212	212	257	257	321
	S	53	79	79	220	220	265
	Z	177	178,5	178,5	285	285	375
	ØK	277	277	277	285	285	375
	Approx. weight	36,5	66,5	72,5	102	136	247

Dimensions in mm subject to manufacturing tolerance / Weights in kg

Information / restriction of technical rules need to be observed!
Installation, Operating and Maintenance Manual can be downloaded at www.comeval.es

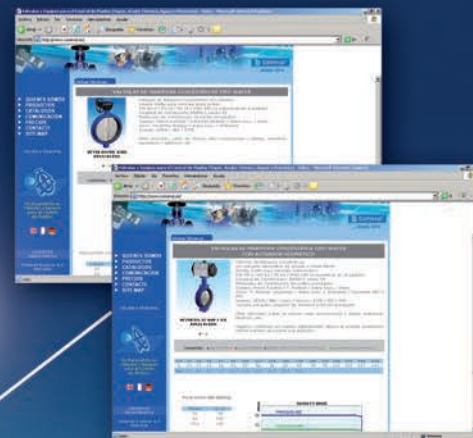
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Product suitability must be verified, contact manufacturer for information

Marketing Tools Available to Distributors

A rich assortment of Uniwat® marketing tools are available to our distributors worldwide, visit our corporate Web site www.comeval.es for more details.



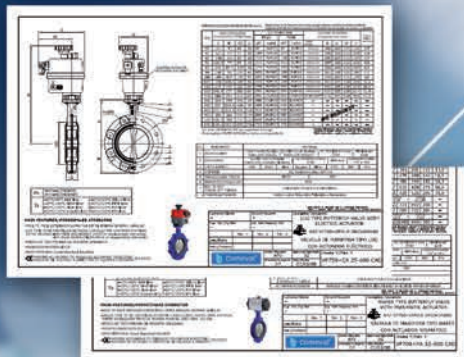
Data Sheets Manual
Comprehensive of all technical and engineering information on the comprehensive portfolio.



Web Site Product Sheet
Valve description, main dimensions, operating parameters and other links accessible at your finger tips.

Arrangement Drawings

Standardized sectional parts and dimensional drawings for use on engineering projects or enquiries.



Cut way / Demo Samples



Price Lists

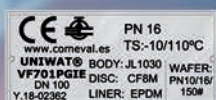
Up dated price book comprehensive of all models including actuated valves.

Join us on the net to start your Uniwat® experience
www.comeval.es



Operating and Maintenance Manuals

Provided along every valve into the sealed plastic bag. Also accessible via Internet at all times



Traceability

Valves are provided with a riveted name plate ensuring traceability, year of manufacture and main parameters. Valves are individually preserved into a sealed air bubble plastic bag and then on sets of some number of valves per cardboard box to assist with handling and storing. Please ask your Uniwat® distributor for packaging details. (no minimum order requirement is imposed).