; ∰ A B J ONEAX I & F € (**General valves**

Your worldwide partner for industrial valves & fittings

Omeax Project References List

	Country	Project	Product	Brand
٠	Vietnam	Royal city, Hanoi	Butterfly valves with electric actuator	OMEAX
	Vietnam	Vinpearl Cua Hoi - Nghe An	Butterfly valves with electric actuator	OMEAX
	Vietnam	Vinpearl Hoi An - Nghe An	Butterfly valves with electric actuator,	OMEAX
	Vietnam	Vincom HaTinh	Butterfly valves with electric actuator,	OMEAX
	Vietnam	Saigonres	Butterfly valves with electric actuator,	OMEAX
	Vietnam	Vinpearl Land Nha Trang	Butterfly valve, Check valve for sea water	OMEAX
	Vietnam	Condotel Nha Trang	Butterfly valves with electric actuator,	OMEAX
	Vietnam	Casino Phu Quoc	Butterfly valves with electric actuator,	OMEAX
	Vietnam	Royal city, Hanoi	Butterfly valves with electric actuator,	OMEAX
	Thailand	Rayong Industriel zone, replacement	Buttefly valves	OMEAX
	Indonesia	Building,	HVAC Electric actuator	OMEAX
٠	Hongkong	City plaza south	2 way proportional control valves	OMEAX
	China	Agriculture farm Hospital QI QI HA ER	Butterfly valves	OMEAX
	China	Aviation University Changchun	Butterfly valves	OMEAX
	China	Science and technology university, Changchun	Butterfly valves	OMEAX
	China	North west university	Butterfly valves	OMEAX
	China	Harbin medical university	Butterfly valves	OMEAX
٠	China	CBD New Zhujiang Pearl city, Guangzhou	Butterfly valves	OMEAX
	China	Arrow candy Co,.Ltd, Guangzhou	Butterfly valves	OMEAX
	China	Fengshun holiday Resort, Guangdong	Butterfly valves	OMEAX
	China	Data center, Sanshui, Guangdong	Butterfly valves	OMEAX
	China	Jinhai Pulp & Paper, Hainan	Butterfly valves	OMEAX
	China	Royal international scene, Jiuquan, Gansu	Butterfly valves, PRV, check valves, motorised valves	OMEAX
	China	Zhong Tian Jian Ye,Jiuquan,Gansu	Butterfly valves, PRV, check valves, motorised valves	OMEAX
	China	Ju Xin Yuan District,Jiuquan,Gansu	Butterfly valves, PRV, check valves, motorised valves	OMEAX
	China	DunHuang Jia He,Jiuquan,Gansu	Butterfly valves, PRV, check valves, motorised valves	OMEAX
	China	Red flag Xin Cun District,Jiuquan,Gansu	Butterfly valves, PRV, check valves, motorised valves	OMEAX
	China	Fu Ze Hua Ting District,Jiuquan,Gansu	Butterfly valves, PRV, check valves, motorised valves	OMEAX
	China	Fu Cun Garden District,Jiuquan,Gansu	Butterfly valves, PRV, check valves, motorised valves	OMEAX
	China	Double happiness cigarette factory, Guangzhou	Butterfly valves	OMEAX
	China	Cigarette factory, Meizhou	Butterfly valves	OMEAX
٠	China	HaoLai chemical industry,Zhongshan,Guangdong	Butterfly valves	OMEAX
	China	People hospital,Shunde,Guangdong	Butterfly valves	OMEAX
	China	NATFONAL	Butterfly valves	OMEAX
	China	Colgate (Guangzhou)	Butterfly valves	OMEAX
	China	New world real estate Lin He Xi project	Butterfly valves	OMEAX
	China	Heat energy,Shenyang	Butterfly valves	OMEAX
	China	Shougang Corporation Industry	Butterfly valves	OMEAX
	China	Southern power grid,Guangdong	Butterfly valves	OMEAX





THE THE

Vietnam





China

The Hawley & Hazel Chemical

City Plaza



Hongkong



China



Omeax, your valve partner

Professional team

We are a professional sales team with more than 10 years of sales experiences in valves and fittings.

Our sales network covers Asia and Europe.

We provide professional sales assistance in each step of sales :

- Before sales : product prescription, product selection
- During sales : commercial/technical support
- After sales : warranty, customer services

We are specialized in international business with experiences to handle export from Europe and from Asia.

Wide product range

The products cover different fluid circuit market: **building, fire protection, water supplier, HVAC, general industry, water works**...

Shut-off valves: butterfly valves, globe valves, gate valves, knife gate valves, pneumatic/electric actuator.

Check ,foot valves

Accessories: rubber joint, strainer.

Hydraulic control valve: pressure reducing valves, pressure relief valve, float valve, hydraulic check valve.

Attractive price

Reliable product

We provide good ratio of price and quality.

Omeax production is assured by experienced production manager and his team; With qualified engineer, designer and latest software, we are able to develop new product.

Complete approvals

ISO9001:2008, CE, WRAS, ACS, BUREAU VERITAS, RoHS, SA, ATEX, UL, FM







I. SHUT OFF VALVES

BUTTERFLY VALVES - Z100 SERIES P1	
BUTTERFLY VALVES - Z300 SERIES P2-P8	
BUTTERFLY VALVES - Z500/Z700 SERIES ······ P8	
GATE AND GLOBE VALVES- G100/GL100 SERIES PP-P10	С
ELECTRIC ACTUATOR P12	1



II. NON RETURN VALVES

DOUBLE DOOR CHECK VALVES-C100 SERIES P12-13
DISCO CHECK VALVES-C200/C500 SERIES P14-P15
SILENT CHECK VALVES-C300 SERIES ······P16-P17
BALL CHECK VALVES-C400 SERIES ······P18-P19

III. HYDRAULIC CONTROL VALVES

PRESSURE REDUCING VALVES-HCV100A······P20-2	1
PRESSURE RELIEF VALVES/PRESSURE SUSTAIN VALVES-HCV100B······P21	1
FLOAT VALVES-HCV100C·····P2	1
HYDRAULIC CHECK VALVES-HCV100D ·····P2	1
DIRECT ACTING PRESSURE REDUCING VALVES-RM01	2
WATER HAMMER ARRESTOR 4510/4520-P2	2
WATER SUPPLY SYSTEM ······P2	3
FIRE PROTECTION SYSTEM P2	4



IV. OTHERS

Y-STRAINER-Y300	····· P25
RUBBER JOINT- R300	P26
BRASS BALL VALVES-B1001	······ P27
BRASS GATE VALVES-B4030	····· P28
BRASS SWING CHECK VALVES-B5007	·····P29
BRASS STRAINER-B5005	P30





Shut off – Bu

Butterfly Valves – Z100

Omeax®

2 pressure ranges :	10/16 bars;
2 type of body :	wafer and lug;
1 material of body :	Cast iron GJL250;
2 material of disk :	Ductile iron and SS316;
2 type of seal :	EPDM/NBR;
Wide range :	DN50 to DN300;
Temperature :	-20°C to +100°C ;
Flange connection :	PN10/16, ASA150, JIK5K/10K/16K;
Epoxy Coated :	Thickness 150µm (standard), other thickness on request;
Application :	Water supplier, HVAC, general service;



•	1.	Hand	Lever	-G	L250
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- 2. Body GJL250
- 3. Upper Stem Carbon steel
- 4. Liner Vulcanized EPDM/NBR
- 5. Disk GGG40/SS316
- 6. Down Stem Carbon steel

	<u>wafer</u>
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DN	H1	H2	H3	L	L1	L2	øD1	4-ød
50	61	127	64	170	42	34	114	4-ø19
65	69	137	64	170	45	49	127	4-ø18
80	89	147	64	170	45	66	150	4-ø30
100	104	160	70	200	52	90	175	4-ø19
125	120	178	75	260	55	115	210	4-ø24
150	132	195	75	260	56	142	235	4-ø24
200	167	228	64	355	61	193	292	4-ø24
250	202	265	64	355	66	245	350	4-ø26
300	233	295	69	505	77	293	400	4-ø26

DN	H1	H2	H3	L	L1	L2	øD1	n-M
50	70	130	64	170	42.6	32	125	4-M16
65	76	143	64	170	45.6	47	145	4-M16
80	89	155	64	170	45.6	65	160	8-M16
100	104	170	70	200	51.6	91	180	8-M16
125	120	190	74	260	55.6	112	210	8-M16
150	132	210	74	260	55.6	146	240	8-M20
200	167	243	64	355	59.6		295	8-M20/12-M20
250	202	282	64	355	67.6		305/355	12-M20/M24
300	239	310	69	505	77.6		400/410	12-M20/M24

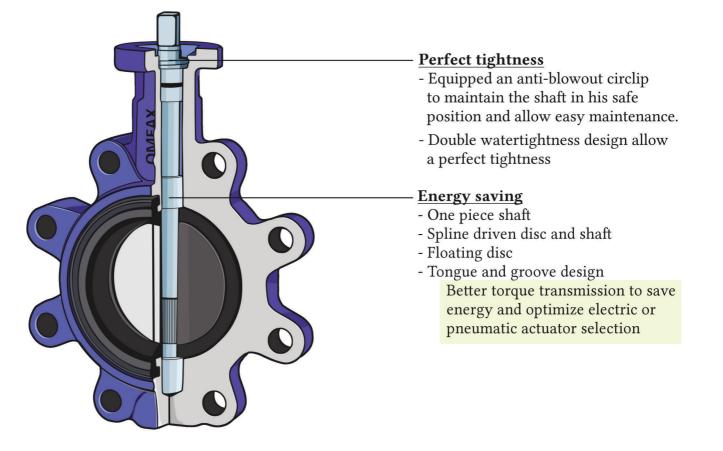




Butterfly Valves - Z300

2 pressure ranges:
3 type of body:
4 materials of body:
4 materials of disc:
4 type of seal:
Wide range:
Flange Connections:
Epoxy Coated:

10/16 bars; Wafer, Lug, double flange; Cast Iron, Ductile Iron, A216, SS316; DI, A216, SS316, Alu-Bronze; EPDM, NBR, VITON, PTFE; DN50 to DN600; PN10/16/25, ASA150/300, JIK5K/10K/16K; Thickness 150μm (standard), other thickness on request;





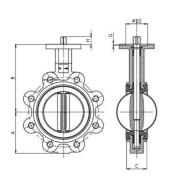
Special designed handlever for insulation piping application.

Laser engraved riveted metal tag on valve body allow a simple traceability.

Butterfly Valves - Z300

Dimensions

lug

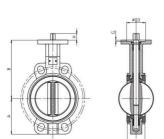


DN	А	В	С	Н
DN50(2")	72	126	43	16
DN65(2.5")	78	141	46	16
DN80(3")	90	146	46	16
DN100(4")	102	166	52	19
DN125(5")	119.5	180.5	55.5	19
DN150(6")	146	187	55.5	19
DN200(8")	165	227	62	24
DN250(10")	197	260	68	24
DN300(12")	232	305	78	24

Body CI/DI/A216WCB/SS316 Disc DI/A216WCB/Alu-bronze/SS316 SS416 Stem Seat EPDM/NBR Down Bushing AL-B Long Bushing AL-B Short Bushing AL-B O Ring EPDM/NBR **Bisect Ring** 1Cr13 **Retainer Ring** 65Mn Plate rivet Aluminium Name Plate Aluminium

MATERIAL

PART NAME



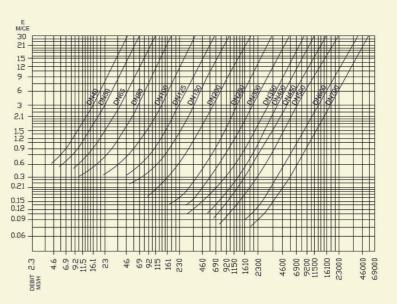
wafer

DN	А	В	С	Η
DN50(2")	72	126	43	16
DN65(2.5")	78	141	46	16
DN80(3")	90	146	46	16
DN100(4")	102	166	52	19
DN125(5")	119.5	180.5	55.5	19
DN150(6")	146	187	55.5	19
DN200(8")	165	227	62	24
DN250(10")	197	260	68	24
DN300(12")	232	305	78	24

Headloss	Chart
11cauloss	Unart

Headloss

DN (mm)	Flow (m³/h)	Headloss (m)	Pressure Drop (Pa)
40	23	3.20	32000
50	23	3.20	32000
65	35	2.70	27000
80	54	2.10	21000
100	92	1.70	17000
125	140	1.40	14000
150	208	1.10	11000
200	350	0.90	9000
250	575	0.70	7000
300	805	0.60	6000
350	1010	0.40	5000
400	1260	1.43	4300
450	1840	0.40	4000
500	2030	0.37	3700
600	3450	0.30	3000
700	4650	0.28	2800



Concentric butterfly valves-Z300 series

Т	 -10℃ to +100℃ (EPDM) -10℃ to 80℃ (NBR)
Туре	: Wafer
Body	: Cast iron GJL 250, Ductile iron GJS 400, A216WCB
Disc	: Ductile iron GJS400
Flange rating	: PN10/PN16/ANSI125/ANSI150/JIS 10K
Actuation	: Handlever, Gearbox, Electric actuator, Pneumatic actuator, Hydraulic actuator

Application : Clear water, building, HVAC general service



DN	PFA	Liner
40	16	EPDM/NBR
50	16	EPDM/NBR
65	16	EPDM/NBR
80	16	EPDM/NBR
100	16	EPDM/NBR
125	16	EPDM/NBR
150	16	EPDM/NBR
200	16	EPDM/NBR
250	16	EPDM/NBR
300	16	EPDM/NBR
350	10	EPDM/NBR
400	10	EPDM/NBR
450	10	EPDM/NBR
500	10	EPDM/NBR
600	10	EPDM/NBR

Omeax®

Concer	tric butterfly valves– Z300 series			
		DN	PFA	Liner
Т	: -10°C to +100°C (EPDM)	40	16	EPDM/NBR
-	-10°C to 80°C (NBR)	50	16	EPDM/NBR
19-10.2		65	16	EPDM/NBR
Туре	: Wafer	80	16	EPDM/NBR
Body	: Cast iron GJL250, Ductile iron GJS 400, A216WCB 🖉	100	16	EPDM/NBR
		125	16	EPDM/NBR
Disc	: A216 WCB	150	16	EPDM/NBR
Flange	: PN10/PN16/ANSI125/ANSI150/JIS 10K	200	16	EPDM/NBR
rating		250	16	EPDM/NBR
U		300	16	EPDM/NBR
Actuation	: Handlever, Gearbox, Electric actuator, Pneumatic	350	10	EPDM/NBR
	actuator, Hydraulic actuator	400	10	EPDM/NBR
Application	: Clear water, building, HVAC, general service	450	10	EPDM/NBR
reprication	. Creat water, bunuing, 11 vite, general service	500	10	EPDM/NBR
		600	10	EPDM/NBR

Concentric butterfly valves-Z300 series

Т	:	-10°C to +100°C (EPDM)
		-10°C to 80°C (NBR)
Туре	:	Wafer
Body	:	Cast iron GJL 250, Ductile iron GJS 400,
		A216WCB
Disc	:	Stainless steel 316
Flange	:	PN10/PN16/ANSI125/ANSI150/JIS 10K
rating		
Actuation	:	Handlever, Gearbox, Electric actuator, Pneumatic
		actuator, Hydraulic actuator
Application	1 :	Clear water, building, general service



DN	PFA	Liner
40	16	EPDM/NBR
50	16	EPDM/NBR
65	16	EPDM/NBR
80	16	EPDM/NBR
100	16	EPDM/NBR
125	16	EPDM/NBR
150	16	EPDM/NBR
200	16	EPDM/NBR
250	16	EPDM/NBR
300	16	EPDM/NBR
350	10	EPDM/NBR
400	10	EPDM/NBR
450	10	EPDM/NBR
500	10	EPDM/NBR
600	10	EPDM/NBR

Concentric butterfly valves-Z300 series

		DN	PFA	Liner
T : -10° C to $+100^{\circ}$ C (EPDM)		40	16	EPDM/NBR
-10° C to 80° C (NBR)		50	16	EPDM/NBR
and in optimis in contrast and structure for		65	16	EPDM/NBR
Type : Wafer		80	16	EPDM/NBR
Body : Cast iron GJL250, Ductile iron GJS	400. A216WCB	100	16	EPDM/NBR
		125	16	EPDM/NBR
Disc : Alu-bronze		150	16	EPDM/NBR
Flange : PN10/PN16/ANSI125/ANSI150/JIS 10K		200	16	EPDM/NBR
rating		250	16	EPDM/NBR
0		300	16	EPDM/NBR
Actuation : Handlever, Gearbox, Electric actuator,	Pneumatic	350	10	EPDM/NBR
actuator, Hydraulic actuator	PITE	400	10	EPDM/NBR
Application: Sea water, shipyard		450	10	EPDM/NBR
Application. Sea water, sinpyaru		500	10	EPDM/NBR
		600	10	EPDM/NBR

600

10

EPDM/NBR

U	meax	
C	Concentric butterfly valves— Z300 :	series

Concentric buttering valves – 2500 series			
	DN	PFA	Liner
T : -10°C to +100°C (EPDM)	40	16	EPDM/NBR
-10°C to 80°C (NBR)	50	16	EPDM/NBR
	65	16	EPDM/NBR
Type : Lug	80	16	EPDM/NBR
Body : Cast iron GJL250, Ductile iron GJS 400, A216WCB	100	16	EPDM/NBR
	125	16	EPDM/NBR
Disc : Ductile iron GJS400	150	16	EPDM/NBR
Flange : PN10/PN16/ANSI125/ANSI150/JIS 10K	200	16	EPDM/NBR
rating	250	16	EPDM/NBR
	300	16	EPDM/NBR
Actuation : Handlever, Gearbox, Electric actuator, Pneumatic	350	10	EPDM/NBR
actuator, Hydraulic actuator	400	10	EPDM/NBR
Application: Clear water, building, HVAC general service	450	10	EPDM/NBR
Application. Clear water, bunding, it vice general service	500	10	EPDM/NBR
	600	10	EPDM/NBR

Conce	nt	ric butterfly valves— Z300 series			
			DN	PFA	Liner
Т	:	-10°C to +100°C (EPDM)	40	16	EPDM/NBR
_		-10°C to 80°C (NBR)	50	16	EPDM/NBR
1012			65	16	EPDM/NBR
Туре	:	Lug	80	16	EPDM/NBR
Body	:	Cast iron GJL250, Ductile iron GJS 400, A216WCB	100	16	EPDM/NBR
			125	16	EPDM/NBR
Disc	:	A216 WCB	150	16	EPDM/NBR
Flange	:	PN10/PN16/ANSI125/ANSI150/JIS 10K	200	16	EPDM/NBR
rating			250	16	EPDM/NBR
U			300	16	EPDM/NBR
Actuation	:	Handlever, Gearbox, Electric actuator, Pneumatic	350	10	EPDM/NBR
		actuator, Hydraulic actuator	400	10	EPDM/NBR
Application	n •	Clear water, building, HVAC, general service	450	10	EPDM/NBR
пррисацо		Clear water, bunung, myAC, general service	500	10	EPDM/NBR

Concer	ntı	ic butterfly valves— Z300 series			
			DN	PFA	Liner
Т		-10°C to +100°C (EPDM)	40	16	EPDM/NBR
-		-10°C to 80°C (NBR)	50	16	EPDM/NBR
_			65	16	EPDM/NBR
Туре	:	Lug	80	16	EPDM/NBR
Body	:	Cast iron GJL250, Ductile iron GJS 400, A216WCB	100	16	EPDM/NBR
-			125	16	EPDM/NBR
Disc	:	Stainless steel 316	150	16	EPDM/NBR
Flange	:	PN10/PN16/ANSI125/ANSI150/JIS 10K	200	16	EPDM/NBR
rating			250	16	EPDM/NBR
e			300	16	EPDM/NBR
Actuation	:	Handlever, Gearbox, Electric actuator, Pneumatic	350	10	EPDM/NBR
		actuator, Hydraulic actuator	400	10	EPDM/NBR
Application	1 •	Clear water, building, general service	450	10	EPDM/NBR
Application	1.	creat water, bununig, general service	500	10	EPDM/NBR
			600	10	EPDM/NBR

Concer	ntı	tic butterfly valves– Z300 series			
			DN	PFA	Liner
Т	:	-10°C to +100°C (EPDM)	40	16	EPDM/NBR
		-10°C to 80°C (NBR)	50	16	EPDM/NBR
_			65	16	EPDM/NBR
Туре	:	Lug	80	16	EPDM/NBR
Body	:	Cast iron GJL250, Ductile iron GJS 400, A216WCB	100	16	EPDM/NBR
			125	16	EPDM/NBR
Disc	:	Alu-bronze	150	16	EPDM/NBR
Flange	:	PN10/PN16/ANSI125/ANSI150/IIS 10K	200	16	EPDM/NBR
rating			250	16	EPDM/NBR
U			300	16	EPDM/NBR
Actuation	:	Handlever, Gearbox, Electric actuator, Pneumatic	350	10	EPDM/NBR
		actuator, Hydraulic actuator	400	10	EPDM/NBR
Application	n •	Sea water, shipyard	450	10	EPDM/NBR
Аррисанов		Sea water, sinpyaru	500	10	EPDM/NBR
			600	10	EPDM/NBR

Shut off valves

Concentric butterfly valves- Z300 series

meax®
meax

Т	:	-10°C to +100°C (EPDM) -10°C to 80°C (NBR)
Туре	:	Wafer
Body	:	Stainless steel 316
Disc	:	Stainless steel 316
Flange	:	PN10/PN16/ANSI125/ANSI150/JIS 10K
rating		
Actuation	:	Handlever, Gearbox, Electric actuator, Pneumatic
		actuator, Hydraulic actuator
Application :		Clear water, building, general service



DN	PFA	Liner
40	16	EPDM/NBR
50	16	EPDM/NBR
65	16	EPDM/NBR
80	16	EPDM/NBR
100	16	EPDM/NBR
125	16	EPDM/NBR
150	16	EPDM/NBR
200	16	EPDM/NBR
250	16	EPDM/NBR
300	16	EPDM/NBR
350	10	EPDM/NBR
400	10	EPDM/NBR
450	10	EPDM/NBR
500	10	EPDM/NBR
600	10	EPDM/NBR

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Concentric butterfly valves-Z300 series					
T :	-10°C to +100°C (EPDM) -10°C to 80°C (NBR)				
Туре	Wafer				
Body :	Stainless steel 316				
Disc :	Alu-bronze				
Flange : rating	PN10/PN16/ANSI125/ANSI150/JIS 10K				
Actuation	Handlever, Gearbox, Electric actuator, Pneumatic actuator, Hydraulic actuator				
Application	Sea water, shipyard				



DN	PFA	Liner
40	16	EPDM/NBR
50	16	EPDM/NBR
65	16	EPDM/NBR
80	16	EPDM/NBR
100	16	EPDM/NBR
125	16	EPDM/NBR
150	16	EPDM/NBR
200	16	EPDM/NBR
250	16	EPDM/NBR
300	16	EPDM/NBR
350	10	EPDM/NBR
400	10	EPDM/NBR
450	10	EPDM/NBR
500	10	EPDM/NBR
600	10	EPDM/NBR

Concent	ric butterfly valves– Z300 series				
			DN	PFA	Liner
т :	-10°C to +100°C (EPDM)	they want the	40	16	EPDM/NBR
	-10°C to 80°C (NBR)	6	50	16	EPDM/NBR
_			65	16	EPDM/NBR
Type :	Lug		80	16	EPDM/NBR
Body :	Stainless steel 316	E E E	100	16	EPDM/NBR
	Stainless steel 316		125	16	EPDM/NBR
Disc :	Stainless steel 516	0	150	16	EPDM/NBR
Flange :	PN10/PN16/ANSI125/ANSI150/JIS 10K		200	16	EPDM/NBR
rating			250	16	EPDM/NBR
U			300	16	EPDM/NBR
Actuation :	Handlever, Gearbox, Electric actuator, Pneumatic		350	10	EPDM/NBR
	actuator, Hydraulic actuator	C C	400	10	EPDM/NBR
Application •	Clear water, building, general service	0 0 0	450	10	EPDM/NBR
reprication.	cical water, bullang, general service		500	10	EPDM/NBR
			600	10	EPDM/NBR

Concentric butterfly valves— Z300 series

Т	:	-10°C to +100°C (EPDM) -10°C to 80°C (NBR)	
Туре	:	Lug	
Body	:	Stainless steel 316	
Disc	:	Alu-bronze	-
Flange rating	:	PN10/PN16/ANSI125/ANSI150/JIS 10K	
Actuation	:	Handlever, Gearbox, Electric actuator, Pneumatic actuator, Hydraulic actuator	
Application	1 :	Sea water, shipyard	

Liner	PFA	DN
EPDM/NBR	16	40
EPDM/NBR	16	50
EPDM/NBR	16	65
EPDM/NBR	16	80
EPDM/NBR	16	100
EPDM/NBR	16	125
EPDM/NBR	16	150
EPDM/NBR	16	200
EPDM/NBR	16	250
EPDM/NBR	16	300
EPDM/NBR	10	350
EPDM/NBR	10	400
EPDM/NBR	10	450
EPDM/NBR	10	500
EPDM/NBR	10	600

Shut off – Butterfly valves Z300

Concentric butterfly valves- Z300 series

meax®

Т	: -10°C to +100°C (EPDM)
	-10°C to 80°C (NBR)
Туре	: Double flange
Body	: Ductile Iron GJS400, A216WCB
Disc	: Ductile iron GJS400
Flange	: PN10/PN16/ANSI125/ANSI150/JIS 10K
rating	
Actuation	: Handlever, Gearbox, Electric actuator, Pneumatic
	actuator, Hydraulic actuator
Application	: Clear water, building, HVAC general service



DN	PFA	Liner
150	16	EPDM/NBR
200	16	EPDM/NBR
250	16	EPDM/NBR
300	16	EPDM/NBR
350	10	EPDM/NBR
400	10	EPDM/NBR
450	10	EPDM/NBR
500	10	EPDM/NBR
600	10	EPDM/NBR

Concentric butterfly valves- Z300 series

Т	:	-10℃ to +100℃ (EPDM) -10℃ to 80℃ (NBR)
Туре	:	Double flange
Body	:	Ductile Iron GJS400, A216WCB
Disc	:	A216 WCB
Flange	:	PN10/PN16/ANSI125/ANSI150/JIS 10K
rating		
Actuation	:	Handlever, Gearbox, Electric actuator, Pneumatic
		actuator, Hydraulic actuator
Application :		Clear water, building, HVAC, general service



Liner	PFA	DN
EPDM/NBR	16	150
EPDM/NBR	16	200
EPDM/NBR	16	250
EPDM/NBR	16	300
EPDM/NBR	10	350
EPDM/NBR	10	400
EPDM/NBR	10	450
EPDM/NBR	10	500
EPDM/NBR	10	600

Concentric butterfly valves-Z300 series

Т	:	-10°C to +100°C (EPDM) -10°C to 80°C (NBR)
Туре	:	Double flange
Body	:	Ductile Iron GJS400, A216WCB
Disc	:	Stainless steel 316
Flange rating	:	PN10/PN16/ANSI125/ANSI150/JIS 10K
Actuation	:	Handlever, Gearbox, Electric actuator, Pneumatic actuator, Hydraulic actuator
Application :		Clear water, building, general service



DN	PFA	Liner
150	16	EPDM/NBR
200	16	EPDM/NBR
250	16	EPDM/NBR
300	16	EPDM/NBR
350	10	EPDM/NBR
400	10	EPDM/NBR
450	10	EPDM/NBR
500	10	EPDM/NBR
600	10	EPDM/NBR

Concentric butterfly valves- Z300 series

Τ	:	-10°C to +100°C (EPDM) -10°C to 80°C (NBR)
Туре	:	Double flange
Body	:	Ductile Iron GJS400, A216WCB
Disc	:	Alu-bronze
Flange	:	PN10/PN16/ANSI125/ANSI150/JIS 10K
rating		
Actuation	:	Handlever, Gearbox, Electric actuator, Pneumatic
		actuator, Hydraulic actuator
Application	:	Sea water, shipyard



DN	PFA	Liner
150	16	EPDM/NBR
200	16	EPDM/NBR
250	16	EPDM/NBR
300	16	EPDM/NBR
350	10	EPDM/NBR
400	10	EPDM/NBR
450	10	EPDM/NBR
500	10	EPDM/NBR
600	10	EPDM/NBR

Concentric butterfly valves— Z300 series

actuator, Hydraulic actuator Application : Clear water, building, general service

Concentric butterfly valves_ 7300 serie



Liner

EPDM/NBR EPDM/NBR EPDM/NBR EPDM/NBR EPDM/NBR

EPDM/NBR **EPDM/NBR**

EPDM/NBR

EPDM/NBR

				DN	PFA	Liner
т		-10°C to +100°C (EPDM)	THE FALLE	150	16	EPDM/NBR
-	•			200	16	EPDM/NBR
		-10°C to 80°C (NBR)		250	16	EPDM/NBR
Туре	:	Double flange		300	16	EPDM/NBR
		0		350	10	EPDM/NBR
Body	:	Stainless Steel 316		400	10	EPDM/NBR
Disc	:	Stainless steel 316		450	10	EPDM/NBR
Tlange		DNI10/DNI1C/ANICI12C/ANICI1CO/IIC 101/		500	10	EPDM/NBR
Flange	:	PN10/PN16/ANSI125/ANSI150/JIS 10K		600	10	EPDM/NBR
rating						
Actuation	:	Handlever, Gearbox, Electric actuator, Pneumatic				

Conce	IIU	ic buttering valves— 2500 series			
				DN	PFA
Т	:	-10°C to +100°C (EPDM)	- I - TI Fride	150	16
				200	16
		-10°C to 80°C (NBR)	W. F.	250	16
Туре	:	A216 WCB		300	16
(Th) (Th)	10.0	0. 1 0. 1010		350	10
Body	:	Stainless Steel 316		400	10
Disc	:	Alu-bronze		450	10
Flamma	1	DN10/DN1C/A NCI10C/A NCI1CO/HC 1012		500	10
Flange	:	PN10/PN16/ANSI125/ANSI150/JIS 10K		600	10
rating					
Actuation	:	Handlever, Gearbox, Electric actuator, Pneumatic			
		actuator, Hydraulic actuator			

Application : Sea water, shipyard

Double ECCENTRIC butterfly valves— Z500/Z700 series Т : -10°C to +100°C (EPDM) -10°C to 80°C (NBR) : DN100 to DN3600 Sizes : Cast/Ductile iron Body **Connection : Wafer/Double flanges** Flange : PN10/16/25/40 rating

Application : Industrial process, Steam, Mining, Ship building, Oil, Gas, General Services, smoke, Water distribution and treatment



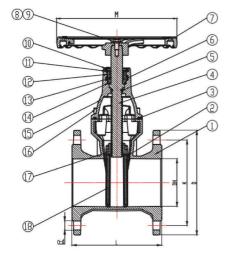
DN	PFA	Liner
100	10/16/25	EPDM/metal
150	10/16/25	EPDM/metal
200	10/16/25	EPDM/metal
250	10/16/25	EPDM/metal
300	10/16/25	EPDM/metal
350	10/16/25	EPDM/metal
400	10/16/25	EPDM/metal
450	10/16/25	EPDM/metal
500	10/16/25	EPDM/metal
600	10/16/25	EPDM/metal
700	10/16/25	EPDM/metal
800	10/16/25	EPDM/metal
900	10/16/25	EPDM/metal
1000	10/16/25	EPDM/metal
1200	10/16/25	EPDM/metal
1400	10/16/25	EPDM/metal
1600	10/16/25	EPDM/metal



Omeax®

Gate Valves — G100

2 pressure ranges: :	10/16 bars;
Design standard :	EN1171, EN1074-2;
Face to face :	EN1092-2 (DINF4, F5), ASMEB16.1;
Epoxy :	Thickness 150μm (standard), other thickness on request;
Wide range :	DN50-DN1000;
Application :	Clear water, HVAC, general service;
Internal and External Environmental Protect Fusion Bond Epoxy Co Disc: Fully vulcanized EPDM internally & ex 100% water tightness directions. * Linear sealing perpor lower close torque. Nylon guide shoe: et the disc not to stick to body when under hig pressure, thereby ge lower opening torque	tion hating. With ternally. is in both hides a mance and Stem, made by rolling machine get a smooth surface and lower torque. Full bore, self clearning, Minimum pressure loss.



ITEM	PART NAME	MATERIAL	STANDARD
1	Body	GGG50	DIN 1693
2	Disc	EPDM-GGG5	DDIN 1693
3	Bonnet Gasket	NBR	ISO 4633
4	Stem	SS420	ASTM A959
5	O Ring	NBR	ISO 4633
6	Locating Sleeve	CuZn40	EN 12167
7	Handwheel	GGG50	DIN 1693
8	Bolts	A2-70	ASTM A959
9	Washers	A2-70	ASTM A959
10	Dust Cover	PTFE	ASTM D1457
11	Clip Spring	C15	ASTM A29
12	Positioning Bloc	kCuZn10	EN 12167
13	O Ring	NBR	ISO 4633
14	O Ring	NBR	ISO 4633
15	Bonnet	GGG50	DIN 1693
16	Screw	C15	ASTM A29
17	Stem Nut	CuZn40	EN 12167
18	Iron Core	GGG50	DIN 1693

			Outline	e mm		End Flange PN10/16-CL125/150 mm											
DN	BS5163	DIN-F4	DIN-F5	ASME B16.10	AS2638	EN1092-2			ASI	ME B16.	1/B16.42	AS4087					
			L			D	K	n-d	D	K	n-d	D	K	n-d			
40	165	140	240	I	-	150	110	4-ø19	127	98.5	4-ø16	T	Τ	=			
50	178	150	250	178	-	165	125	4-ø19	152	120.5	4-ø19	-	-	-			
50	190	170	270	190	-	185	145	4-ø19	178	139.5	4-ø19	T	Т	-			
80	203	180	280	203	203	200	160	8-ø19	191	152.5	4-ø19	185	146	4-ø18			
100	229	190	300	229	229	220	180	8-ø19	229	190.5	8-ø19	215	178	4-ø18			
125	254	200	325	254	-	250	210	8-ø19	254	216.0	8-ø22	-		-			
150	267	210	350	267	267	285	240	8-ø23	279	241.5	8-ø22	280	235	8-ø18			
200	292	230	400	292	292	340	295	8-ø23/12ø23	343	298.5	8-ø22	335	292	8-ø18			
250	330	250	450	330	330	395/405	350/355	12-ø23/12ø28	406	362.0	12-ø25	405	356	8-ø22			
300	356	270	500	356	356	445/460	400/410	12-ø23/12ø28	483	432.0	12-ø25	455	406	12-ø22			

Shut off – Gate valves G100/GL100

Resilient seated gate valve, non-rising stem G101

T :	-10°C to +100°C (EPDM) ; -10°C to 80°C (NBR)
Body :	Ductile iron GJS500
Gate :	EPDM/NBR with ductile iron GJS500
Flange connection :	PN16, groove end
Actuation :	Hand wheel, square cap
Application :	Clear water



Omeax®

DN

PFA

Metal seated gate valve, rising stem G102

T :	-20°C to +300°C
Body :	Carbon steel A216WCB
Gate :	Carbon steel A216WCB
Flange connection :	PN16/PN25
Actuation :	Hand wheel
Application :	Water, steam, industrial process

			50	16
			65	16
			80	16
			100	16
			125	16
			150	16
			200	16
S			250	16
5	THE REAL PROPERTY OF THE PROPERTY OF THE REAL PROPE		300	16
			400	16
			500	16
			600	16
			DN	PFA
o 80°C (NBR)			50	16
		EM		

Gate valve G103FM

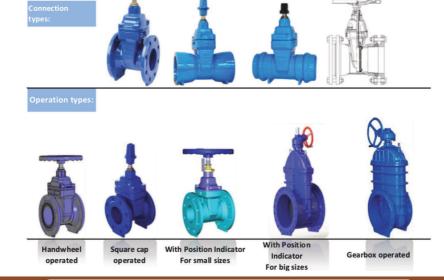
	_					
					DN	PFA
Т	:	-10°C to +100°C (EPDM), -10°C to 80°C (NBR)			50	16
D - J		The second se		<fm></fm>	65	16
Body		Ductile iron GJS500		APPROVED	80	16
Gate	:	EPDM/NBR with ductile iron GJS500	All and all and all and all all all all all all all all all al		100	16
Flange connectio	n:	PN16	ALC: THE	LISTED	125 150	16 16
Actuation	:	Hand wheel, square cap	SCI Maluano		200	16
Application		Fire protection system			250	16
reprication	•	The protection system			300	16

Globe valve GL100

T :	-20°C to +300°C
Body :	Carbon steel A216WCB
Gate :	Carbon steel A216WCB
Flange connection :	PN16/PN25
Actuation :	Hand wheel
Application :	Water, steam, industrial process



DN	PFA
50	16
65	16
80	16
100	16
125	16
150	16
200	16
250	16
300	16



Omeax®

Electric Actuator ME-MER/GE-GER

Torque :	20Nm to 6000Nm;
IP protection :	IP68;
Duty rating :	50%;
Temperature :	0°C to 80°C;
Actuator type :	Rotary 90°, 180°, 270° ; Linear type ; On-off ; modulation type;
Voltage :	AC 24V/110V/220V/380V ; DC 24V;
Application :	Butterfly valves (till DN700/800) ; Ball valves (till DN200/300) ; Globe valves;
Option :	H class ; Over torque limiter ; Anti-condensation heater ; Fail safe ; Potentiometer: 1K, 3K, 5K ; DC 4 to 20mA / DC 1 to 5V position feedback;





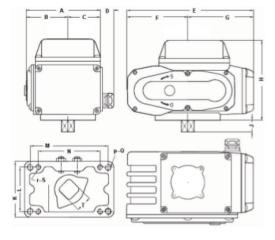
• Multiple functions: on-off, modulating, explosion proof, fire safe.

- Multiple voltage: AC 24V/110V/220V/380V, DC24V.
- Multiple travel time: 5/10/30/60 sec.

• High quality of integrated worm gear allows high torque transmission, low backlash for longer life.

- Guaranteed 50000 actuation during 2 years.
- Secured manual override.
- Compact design.
- Easy for installation: male type (Mounting kits is
- requested) and female type (Direct mounting).
- Any direction installation.

<u>me-mer</u>



l	Product type	Α	В	С	D	Е	F	G	н	J	К	L	М	N	0	Р	Q	R	s
	ME-2	95	33	62	20	133	72	61	87	8	72	46	80	68	4	M6	4	M8	12
	ME/MER-5	101	56	45	20	155	86	69	113	12	72	60	80	68	4	M6	4	M8	12
	ME/MER- 10/20	120	52	68	20	204	96	108	121	15	86	71	98	82	4	M6	4	M8	15
	ME/MER- 50/60	153	90															M10	
	ME/MER- 100/200	156	95	61	20	280	128	152	158	26	106	84	170	148	4	M12	4	M10	30
	ME/MER- 400/600		150	111	20	408	183	225	172	?	212				4	M20	4	M10	52

		<u>ge-ger</u>		
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			45	
4				
	E F	СВ		_

Product	Α	В	С	D	Е	F	G	Η	ØI	J
GE2	265	123	79	216	120	240	14×14	35	70	4-M8
GE3	265	123	79	262	120	240	17×17	35	70	4-M8
GE4	321	187	103	262	150	297	22×22	55	102	4-M10
GE5	321	187	103	262	150	297	22×22	55	102	4-M10
GE6	321	187	103	262	150	297	27×27	55	125	4-M12
GE7	321	187	103	262	150	297	27×27	55	125	4-M12
GE8	378	241	119	293	161	346	27×27	65	125	4-M12
GE9	378	241	119	293	161	346	36×36	65	125	4-M12



C100 – Check Valves

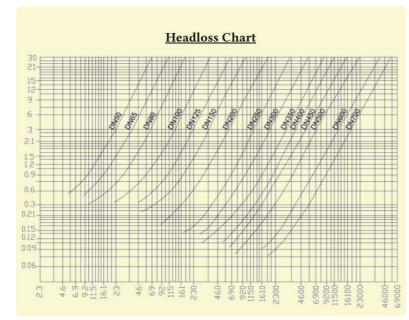
2 pressure ranges:	16bar, 25bar;
4 materials of body:	CI, DI, A216, SS316;
4 materials of disc:	DI, A216, SS316, Alu-Bronze;
3 type of seal:	EPDM, NBR, Viton;
Wide range:	DN50 to DN800;
Flange Connections:	PN10/16/25, ASA150/300, JIK5K/10K/16K;
Epoxy Coated:	Thickness 150µm (standard), other thickness on request;

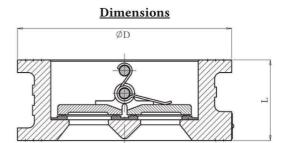


- Compact
- Little energy loss
- Gradual opening controlled by double contact spring
- Horizontal or Vertical installation, facing upward

The stainless steel spring pushes against the two plates, to maintain pressure on the valve seat seal

Vulcanised seal on the valve seat to ensure watertightness





Size	ØD	L	Size	ØD	L
dn50	101	43	dn250	327	114
DN65	121	46	DN300	375	114
dn80	129	64	DN350	420	127
DN100	156	64	DN400	483	140
DN125	187	70	DN450	537	152
DN150	213	76	DN500	592	152
DN200	267	89	DN600	695	178

Non return valves C100

meax® Double door check valves - C100_series

Doui	ble door check valves – C100_series		
		DN	PFA
PS	: 10/16/25 bar	50 65	10/16/25
Г	: 10°C to +100°C (EPDM)	80	10/16/2
	-10℃ to 80℃ (NBR)	100	10/16/2
	-20°C to 150°C (Viton)	150	10/16/2
D - 1		200	10/16/2
Body	: Cast Iron GJL250, Ductile iron GLS400, A216WCB	250	10/16/2
Plate	: Ductile iron GJL250, Ductile iron GLS400	300	10/16/2
Seal	: EPDM/NBR/VITON	350	10/16/25
Flange		400	10/16/25
U	: PN10/16/25, ASA150/300, JIK5K/10K/16K	500	10/16/2
Applicati	ion : Water, general industry, pumping	600 700	10/16/2
		800	10/10
Doul	ble door check valves – C100_series		
Doui	ble door check valves – C100_series	DN	PFA
PS	: 10/16/25 bar	50	10/16/25
	a source much many excession	65	10/16/25
Т	: 10°C to +100°C (EPDM)	80	10/16/25
	-10°C to 80°C (NBR)	100	10/16/25
	-20°C to 150°C (Viton)	150	10/16/25
Body	: Cast Iron GJL250, Ductile iron GLS400, A216WCB	200	10/16/2
		250	10/16/2
Plate	: Cast steel A216 WCB/SS316	300	10/16/2
Seal	: EPDM/NBR/VITON	350	10/16/2
Flange	: PN10/16/25, ASA150/300, JIK5K/10K/16K	400 500	10/16/2
-		600	10/16/25
Applicati	ion : Water, general industry, process, hydrocarbons	700	10/10/20
		800	10/16
Doul	ble door check valves – C100_series		
Dou		DN	PFA
PS	: 10/16/25 bar	50	10/16/25
T		65	10/16/25
1	: 10°C to +100°C (EPDM)	80	10/16/25
	-10°C to 80°C (NBR)	100	10/16/25
	-20°C to 150°C (Viton)	150	10/16/25
Body	: Stainless steel 316	200 250	10/16/25
Plate	: Cast steel A216 WCB/ Stainless steel 316	300	10/16/25
		350	10/16/25
Seal	: EPDM/NBR/VITON	400	10/16/25
Flange	: PN10/16/25, ASA150/300, JIK5K/10K/16K	500	10/16/25
	ion : Process, general industry water	600	10/16/25
rppneau	ion. Trocess, general mustry water	700	10/16
		800	10/16
Doul	ble door check valves – C100_series		
		DN	PFA
PS	: 10/16 bars	50	10/16/25
Т	: -10°C to +100°C (EPDM)	65 80	10/16/25
80000	-10°C to 80°C (NBR)	80	10/16/25
	-20°C to 150°C (Viton)	150	10/16/25
		200	10/16/25
Body	: Cast Iron GJL250, Ductile iron GLS400, A216WCB	250	10/16/25
Diata	Ale browne ASIGNOR		

Application: Sea water, general industry, process, water

: PN10/16/25, ASA150/300, JIK5K/10K/16K

: Alu-bronze, A216WCB

: EPDM/NBR/VITON

Plate

Seal

Flange

300

350

400

500

600

700 800 10/16/25

10/16/25

10/16/25

10/16/25

10/16/25

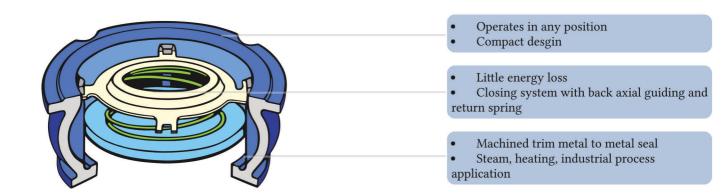
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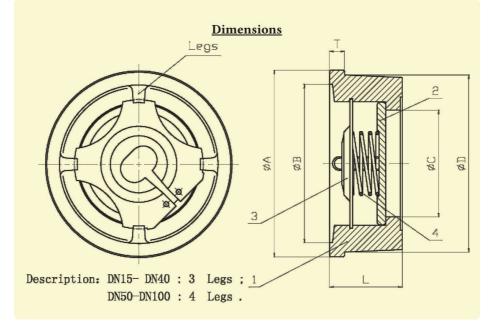
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C200 – Disco Check Valves

2 pressure ranges:	25bar, 40bar;
2 materials of body:	SS304, SS316;
2 materials of disc:	SS304, SS316;
Wide range:	DN15 to DN100;
Flange Connections:	PN10/16/25, ASA150/300, JIK5K/10K/16K;
Epoxy Coated:	Thickness 150µm (standard), other thickness on request;





Size	øA	øB	øC	L	Т	øD
DN15	38.8	28.5	15	16.1	7	34.8
DN20	46	35.6	20	19.1	7	42.6
DN25	54	43	25.3	22.1	7	50
DN32	68.5	52.6	31	27.1	7	62.3
DN40	78	63.4	39.2	30.5	7	74.9
DN50	90	74.6	48.1	39.3	7	87
DN65	111	95.5	61.5	45.3	7	107
DN80	128	108.5	75	47.8	9.3	126
DN100	148.5	126.2	85	57.9	12	141

meax® Disco check valves - C200_SS30440

			DN	PFA
PS	:	40 bars	 15	40
т		-20°C to +200°C	20	40
1	•	-20 C 10 $+200 C$	25	40
Body	:	Stainless steel CF8	32	40
Disco		Stainless steel 304	40	40
Disco	•	Stanness steel J04	50	40
Spring	:	Stainless steel 304	65	40
Flange	:	PN10/16/25, ASA150/300	80	40
0			100	40
Applicatio	on:	General industry, Corrosive fluids, High		
		termperature and pressure		

Disco check valves - C200_SS31640

PS	:	40 bars
Т	:	-20°C to +200°C
Body	:	Stainless steel CF8M
Disco	:	Stainless steel 316
Spring	:	Stainless steel 316
Flange	:	PN10/16/25, ASA150/300
Application	1 :	General industry, Corrosive fluids, High
		termperature and pressure



	DN	PFA
	15	40
	20	40
	25	40
	32	40
	40	40
	50	40
	65	40
	80	40
1	00	40

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Swing check valves – C500FM

Swing check valves - C500

PS :	:	10/16 bar
T :	:	10°C to +100°C (EPDM)
Body :	:	Ductile iron GLS400
Plate :	:	Ductile iron GLS400 EPDM coated
Seat :		SS316
Flange :	:	PN10/16
Application :	:	Water, Raw water



DN PFA 15 16 20 16 16 32 16 40 16 50 16 16 80 16 100 16 150 16 200 16 250 16 300 16

PS : 10/16/25/50 bar Т : 10°C to +80°C (EPDM) -15°C to +300°C (Metal seat) Body : Ductile iron GLS400 Plate : Ductile iron GLS400 EPDM coated/SS316 : SS316 Seat Face to face : ANSI B16.1 : PN10/16/25/JIS/ ANSI class 125/250 Flange **Connection** : Threaded, flanged, spiral groove flange

connection .	incaded, nanged, spirar groove nange
Options :	Pass unit, lever and weight, lever and spring,
	proximity switch, air cushioned, hydraulic cylinder,
	protection guard.
Application :	Water, waster water, general service



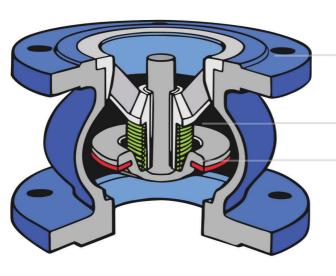
DN	PFA
15	16
20	16
25	16
32	16
40	16
50	16
65	16
80	16
100	16
150	16
200	16
250	16
300	16
400	16
500	16
600	16



C300 – Silent Check Valves

Pressure ranges:
Materials of body:
Materials of closing system:
Sizes:
Flange Connections:
Epoxy Coated:

16bar; Cast Iron GJL250; Bronze; DN50 to DN500; PN10/16; Thickness 150μm (standard), other thickness on request;



Any position installation.

• Hydraulic design to reduce head loss and water hammer.

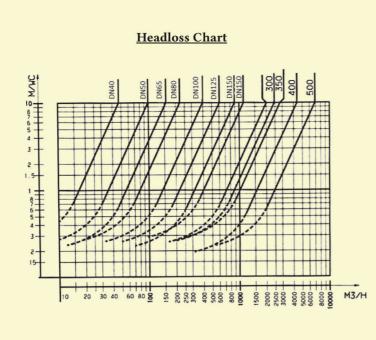
• Robust closing system design (ductile iron EPDM coating).

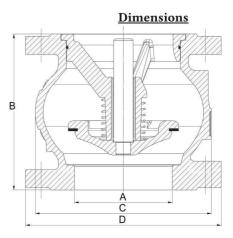
Silent, reliable sealing, compact.Closing system with long back axial

guiding for reduced displacement.Excellent tightness guaranteed by a flat seal.

• Stainless steel spring to assure frequent opening/closing operation.

• Notch provided for cable to submerged pumps.





A	В	C	D	A	В
dn40	85	80	150	DN150	230
dn50	100	97	165	DN200	289
dn60	120	125	185	dn250	354
dn65	120	125	185	DN300	396
dn80	140	150	200	dn350	473
DN100	170	187	220	DN400	560
DN125	150	220	250	DN500	750

neax® Silent check valves — C300

			DN	PFA
PS	:	16 bars	50	16
-			65	16
Т	:	-10°C to +120°C	80	16
Body	:	Cast iron GJL250	100	16
5			125	16
Closing system :		Ductile iron GJS400	150	16
Spring	:	Stainless steel 316	200	16
		DNA0/4C	250	16
Flange	:	PN10/16	300	16
Application	:	Water supply, Water distribution, Pumping		

Foot valves — C300F

PS	:	16 bars	
T	:	-10°C to +120°C	
Body	:	Cast iron GJL250	
Closing system	:	Ductile iron GJS400	
Spring	:	Stainless steel 316	10000
Strainer	:	Galvanised steel	111
Flange	:	PN10/16	
Application	:	Water supply, Water distribution, Pumping	

DN	PFA
50	16
65	16
80	16
100	16
125	16
150	16
200	16
250	16
300	16

CAVITATION

Cavitation is the formation and then immediate implosion of cavities in a liquid – i.e. small liquid-free zones ("bubbles") – that are the consequence of forces acting upon the liquid. It usually occurs when a liquid is subjected to rapid changes of pressure that cause the formation of cavities where the pressure is relatively low.Cavitation is a significant cause of wear in some engineering contexts. When entering high pressure areas, cavitation bubbles that implode on a metal surface cause cyclic stress through repeated implosion. This results in surface fatigue of the metal causing a type of wear also called "cavitation". The most common examples of this kind of wear are pump impellers and bends when a sudden change in the direction of liquid occurs.In order to minimise this problem of cavitation, large pressure differences between upstream and down- stream should be avoided. If there is a risk of cavitation (eg 10 bars - 1 bar), two valves should be fitted in succession (eg 10 bars 3 bars then 3 bars - 1 bar)

HEAD LOSS

Head Loss is the measure of the reduction in the total head of the liquid as it moves through a system. The total head is the sum of the elevation head, velocity head and pressure head. Head loss is unavoidable and is present because of the friction between the fluid and the walls of the pipe and is also present between adjacent fluid particles as they flow along the pipe. Head loss is a measure of the reduction in the total head (sum of elevation head, velocity head and pressure head) of the fluid as it moves through a fluid system.

This is unavoidable in real fluids.Energy losses are proportional to the square of the speed of the fluid (and therefore to the square of the flow rate) and inversely proportional to the diameter of the pipework:

if d / then ΔH if $v \nearrow$ then $\Delta H \uparrow \uparrow$ $\Delta H = \lambda \times \frac{l}{d} \times \frac{v^2}{2q}$

WATER HAMMER

Water hammer is a pressure surge or wave caused when a fluid (usually a liquid but sometimes also a gas) in motion is forced to stop or change direction suddenly (momentum change). Water hammer commonly occurs when a valve closes suddenly at an end of a pipeline system, and a pressure wave propagates in the pipe. It's also called hydraulic shock. This pressure wave can cause major problems, from noise and vibration to pipe collapse.

Allievi's formula allows the speed of propogation of the wave to be calculated :

$$V_p = \frac{1420}{\sqrt{1 + \frac{k}{E} \times \frac{d}{e}}} ms \underset{\begin{tabular}{l}{ll} {\rm kin} \ {\rm modulus} \ {\rm of} \ {\rm compression} \ {\rm of} \ {\rm the} \ {\rm fluid} \ {\rm the} \ {\rm fluid} \ {\rm the} \ {\rm fluid} \ {\rm the} \$$

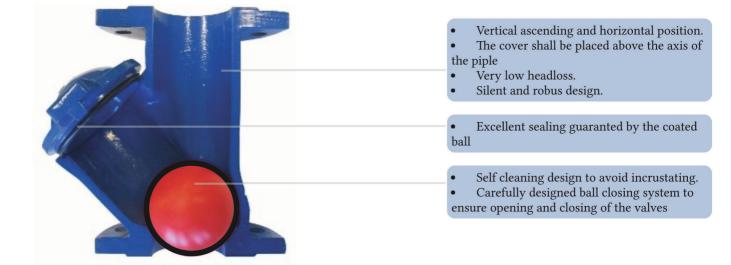
d: diameter of the conduit (m) e: thickness of the sides (m)

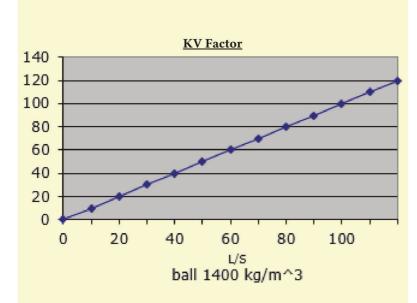
 $\Delta P = m \times V_p \times (V_0 - V_1) \underset{\mbox{Vo: speed of flow of the fluid kg/m3})}{\text{m: density of the fluid (kg/m3)}}$ conduit (m) e: thickness of the sides (m) V1: speed of flow of the fluid

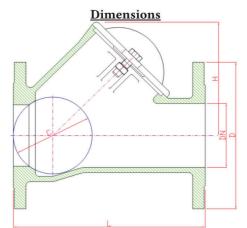


C400 – Ball Check Valves

Pressure ranges:	16bar;
Materials of body:	Ductile iron GJS400 ; Stainless steel 316;
Materials of ball:	Alu-NBR coated;
Sizes:	DN50 to DN600;
Flange Connections:	PN10/16;
Epoxy Coated:	Thickness 150µm (standard), other thickness on request;







Size	L	H	kg	PN
dn40	180	80	4.2	16
dn50	200	98	5.5	16
dn65	230	143	13	16
dn80	260	143	13	16
DN100	300	210	18	16
DN125	350	250	37	16
DN150	400	250	37	16
dn200	500	328	68	10
dn250	600	400	112	10
dn300	700	472	163	10
dn350	800	568	289	10
dn400	900	690	416	10

Non return valves C400

Ball check valves - C400_DI2000

meax®

				DN	PFA
PS	:	16 bars	at the second	25	16
-		1000		32	16
Т	:	-10°C to +80°C		40	16
Body	:	Ductile iron GGG40		50	16
Ball		Alu-NBR Coated	A Company	65	16
Dan	•	Alu-NDK Coaleu		80	16
Seal	:	NBR			
Threaded	:	PN10			
Application	n:	Water supply, Waste water, Water distribution,			
		Pumping			

Ball check valves – C400_DI4000

PS T		16 bars -10°C to +80°C	
Body	:	Ductile iron GGG40	
Ball	:	Alu-NBR Coated	- De Carta
Seal	:	NBR	
Flanged	:	PN10/16	W
Application	n:	Water supply, Waste water, Water distribution, Pumping	-

Ball check valves - C400_S2000

PS	:	16 bars
Т	:	-10°C to +80°C
Body	:	Stainless Steel 316
Ball	:	Alu-NBR Coated
Seal	:	NBR
Threaded	:	PN10
Application :		Water supply, Waste water, Water distribution,
		Pumping

Ball check valves - C400 S4000

PS	:	16 bars
Т	:	-10°C to +80°C
Body	:	Stainless Steel 316
Ball	:	Alu-NBR Coated
Seal	:	NBR
Flanged	:	PN10/16
Application :		Water supply, Waste water, Water distribution,
		Pumping

How to select check valves ?

- 1. Make sure the valve is tight.
- Low pressure drop to achieve energy saving.
 Low water hammering, noiseless operation.
- 4. Pay attention to operating positions5. Should know the working conditions.

- Pressure (bar)
- Temperature (C°)
- Type of Fluid (PH)
- Fluid speed (M/SEC)
- Flow (M3/H)
- Viscosity (cPO)

PFA

PFA

PFA

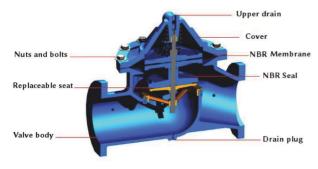
DN

DN

DN



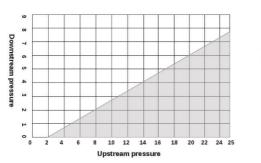
Design and Technical Advice



Control Valve Selection

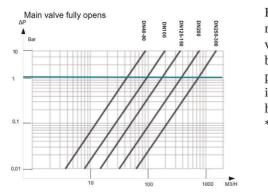
- 1. Specially designed for building market.
- 2. Compact and robust design
- 3. Epoxy powder coating.
- 4. Easy installation and maintenance.
- 5. Installation: horizontal or vertical.
- 6. Multiple options.
- 7. Traceability and identification ensured by riveted metal tag

Cavitation Chart



It is important to size the control valve correctly, in order to avoid cavitation phenomenons. Please refer to the diagram, if needed, 2 or 3 control valves could be installed one after another in order to reduce the differential pressure. *see page 18

Headloss Chart



Max flow

m³/h

32,78

39,98

49,78

79,67

99.89

149,99

299,57

549,78

849,99

KV factor

m³/h

45,56

45,56

45,56

94,49

169,87

169,87

372,98

739,78

739,78

Head Loss is the measure of the reduction in the total head of the liquid as it moves through a system. The total head is the sum of the elevation head, velocity head and pressure head. Head loss is unavoidable and is present because of the friction between the fluid and the walls of the pipe and is also present between adjacent fluid particles as they flow along the pipe. Head loss is a measure of the reduction in the total head (sum of elevation head, velocity head and pressure head) of the fluid as it moves through a fluid system. *see page 18

KV Factor Chart

It is important	to size the	e control val	ve correctly,	in order
-----------------	-------------	---------------	---------------	----------

to avoid undesirable characteristics. Such as noises, excessive wear, vibrations etc...

- 1. For a throttling valve application, 2 stages installation should be used.
- 2. The maximum flow rates are calculated by using a velocity of 4.5m/s

DN

mm 50

65

80

100

125

150

200

250

300

Min flow

m³/h

0,45

0,79

1,14

1,49

2.98

4,49

9,99

14,89

24,89

meax® Pressure reducing valves — HCV100A

PFA

16

16

16

16

16

16

16

16

16

16

Weight

13.0kg 13.0kg

15.0kg

15.0kg

29.0kg

46.0kg

50.0kg

95.0kg

360.0kg 360.0kg

Weight

13.0kg 13.0kg

15.0kg

15.0kg

29.0kg

46.0kg 50.0kg

95.0kg

360.0kg

360.0kg

DN

40

50

65

80

100

125

150

200

250

300

PS T Body	:	10/16 bars +1°C to +80°C Cast iron GJL	
Seat		Removable streamlined stainless steel	
Flanged	÷	PN10/16	a c
Application	n:	Clear water, building, irrigation	
		HCV100A reduces delivery pressure when water	
		distribution is done by gravity.	
		HCV100A reduces pressure to a preset value within	
		a given area.	
		HCV100A reduces working pressure in pipeline when the pump discharge is too high.	

Pressure relief valves — HCV100B

			m	DN	PFA
PS	:	10/16 bars		40	16
		1100 + - + 0000		50	16
Т		+1°C to +80°C		65	16
Body	:	Cast iron GJL		80	16
5				100	16
Seat	:	Removable streamlined stainless steel		125	16
Flanged	:	PN10/16		150	16
0				200	16
Application :		Clear water, building, irrigation		250	16
		Pressure relief valves controls and maintains a preset	t	300	16
		upstream pressure regardless of downstream			
		pressure and flow rate.			

Float valves — HCV100C

PS	:	10/16 bars	
Т	:	+1°C to +80°C	
Body	:	Cast iron GJL	•
Seat	:	Removable streamlined stainless steel	
Flanged	:	PN10/16	
			· · · · · · · · · · · · · · · · · · ·
Application	:	Clear water, building, irrigation	
Application	:	Clear water, building, irrigation Float valves is used to control a constant water level	đ
Application	:	5 5	4
Application	:	Float valves is used to control a constant water level	4
Application	:	Float valves is used to control a constant water level in a water tank.	đ
Application	:	Float valves is used to control a constant water level in a water tank. HCV100C avoids overflow to the water tank.	4

PFA	Weight
16	13.0kg
16	13.0kg
16	15.0kg
16	15.0kg
16	29.0kg
16	46.0kg
16	50.0kg
16	95.0kg
16	360.0kg
16	360.0kg
	16 16 16 16 16 16 16 16 16

Hydraulic check valves — HCV100D

PS	:	10/16 bars
Т	:	+1°C to +80°C
Body	:	Cast iron GJL
Seat	:	Removable streamlined stainless steel
Flanged	:	PN10/16
Application	ı:	Clear water, building, irrigation
		HCV100D works as a check valve, whose opending
		speed can be adjusted to avoid water hammer while
		pump starts.





Direct acting pressure reducer — RM01

PS	:	15 bars
Т	:	+1°C to +80°C
Body	:	Brass
Setting	:	Preset 3 bar, adjustable between 1 and 4 bar
Threaded	:	15 bar
Application	:	Clear water, building, pressure compensation system



U	m	ea	A X

DN	PFA	Weight
10	15	
15	15	-
20	15	-

Weight

Direct acting pressure reducer — RM02				
				DN
PS	:	25 bars		15
				20
Т	:	+1°C to +80°C		25
Body	:	Brass		32
U				40
Setting	:	Preset 3 bar, adjustable between 0,5 and 6 bar		50
Threaded	:	25 bar		
Application	ı:	Clear water, building, pressure compensation system		

Water hamm	er	arrestor — 4510			
			DN	PFA	Weight
PS	:	21 bars	15		-
-		1500 +- +0000	20		-
Т	:	-15°C to +80°C	25		-
Body	:	Bronze	40		-
	e:	2,5 bar, peak hour at 21 bar	50		-
Threaded	:	25 bar			
Application	:	Clear water, building			

Water hamn	ner arrestor — 4520
------------	---------------------

PS	:	21 bars
Т	:	-15°C to +80°C
Body	:	Cast iron GJL
Chamber pressure	:	2,5 bar, peak hour at 21 bar
Flanged	:	PN16
Application	:	Clear water, building



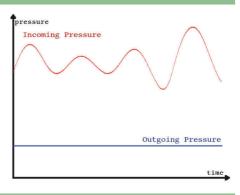
DN	PFA	Weight
80		18.0kg
100		31.0kg
125		32.0kg
150		67.0kg
200		93.0kg

Why Pressure Management in Building ?

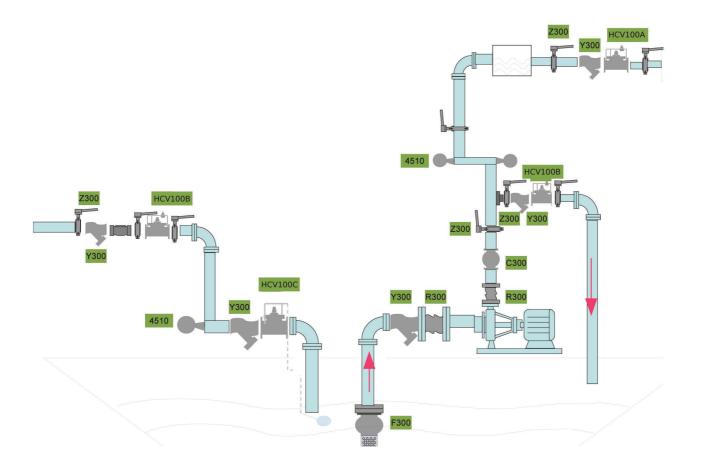
meax®

High water pressure is a contributing factor to background leakage (small leaks from the pipe system, typically at joints, that don't make it to the surface and are hard find) and burst water mains.

Research has shown that by managing water pressure, we can reduce pipe leakage, reduce the number of unplanned interruptions, improve the reliability of public assets and even prolong the life of appliances like your hot water services and dishwashing machines.



How to Manage Pressure in Water Supply System



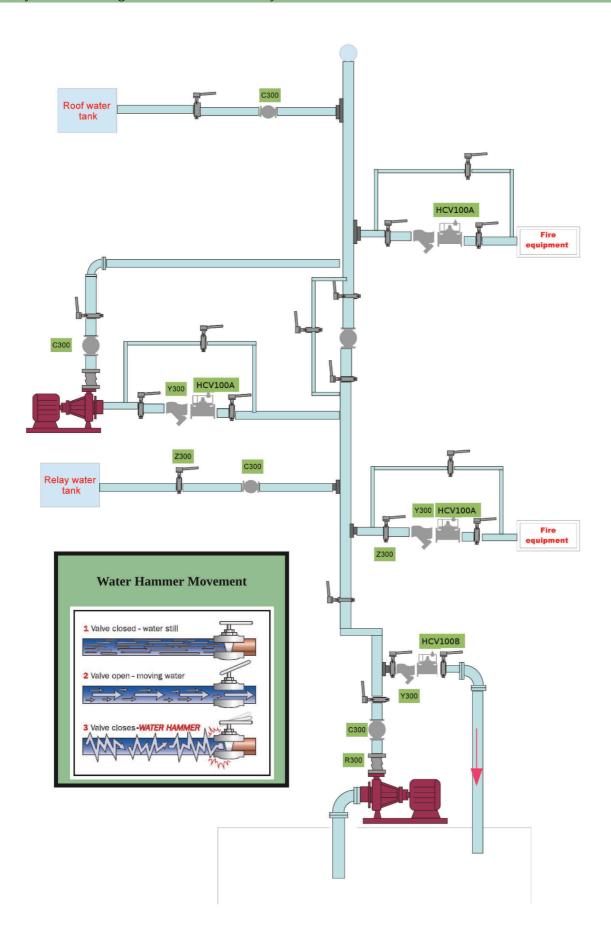
Maintenance Instruction

Regular maintenance is recommended, for a period of 6 to 12 months according to the quality of the water.

- Checking and cleaning filters of the pilot circuit and main pipe.
- Purging the upper chamber of main valve.
- Flashing the valves not frequently used.
- A general maintenance is needed for every 5 years.

Why Pressure Management in Fire Protection System ?



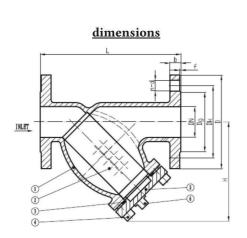




2 pressure range :	10/16 bars;
wide range :	DN50 to DN450;
Temperature :	-20°C to +100°C ;
Flange connection :	PN10/16;
Epoxy coated :	Thickness 150µm (standard), other thickness on request;
Application :	Clear water;



- 1. Body: Ductile iron
- Screen: Stainless steel
 Body Gasket: Graphite
- 4. Bolts: Steel •
- 5. Cover: Ductile iron
- 6. Plug: Stainless steel



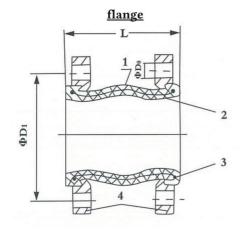
DN	L	Dg	Dk	D	f	b	n-d	Η
15	130	46	65	95	2	12	4-14	68
20	150	56	75	105	2	14	4-14	78
25	160	65	85	115	3	14	4-14	88
32	180	76	100	140	3	16	4-19	98
40	200	84	110	150	3	16	4-19	125
50	230	99	125	165	3	19	4-19	153
65	290	118	145	185	3	19	4-19	183
80	310	132	160	200	3	19	8-19	219
100	350	156	180	220	3	19	8-19	238
125	400	184	210	250	3	19	8-19	279
150	480	211	240	285	3	19	8-23	315
200	600	266	295	340	3	20	12-28	400
250	730	319	355	405	3	22	12-28	482
300	850	370	410	460	4	24.5	12-28	565
350	920	429	470	520	4	26.5	16-28	780
450	1250	548	585	640	4	30	20-31	1100

Omeax®

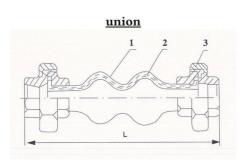
2 pressure range : 3 type of flange : 2 type of material : 2 type of connection : Wide range : Temperature : Flange connection : Deflection Angle : Application :

10/16 bars; Galvanized steel, Steel, Stainless steel; EPDM and NBR; Flange and Union; DN50 to DN300; -10°C to +80°C (NBR), to +100°C (EPDM); PN10/16, ASA150, JIK5K/10K/16K; 15°; Water supplier, HVAC, general service;





DN mm	Lmm	KG	Axial Stretch	Axial Compres.	Vertical disp.
40	95	3	6mm	10mm	9mm
50	105	4	7mm	10mm	10mm
65	115	5.4	7mm	13mm	12mm
80	130	6.5	8mm	15mm	12mm
100	135	7.5	10mm	19mm	13mm
125	170	9.5	12mm	19mm	13mm
150	180	11.7	12mm	20mm	14mm
200	205	16.3	16mm	25mm	22mm
250	240	23.4	16mm	25mm	22mm
300	260	29.1	16mm	25mm	22mm



DN in	Lmm	KG	Axial Stretch	Axial Compres.	Vertical disp.
1/2	200	0.44	5mm	22mm	22mm
3⁄4	200	0.65	5mm	22mm	22mm
1	200	1	5mm	22mm	22mm
11/4	200	1.3	5mm	22mm	22mm
$1\frac{1}{2}$	200	1.9	5mm	22mm	22mm
2	200	2.6	5mm	22mm	22mm
$2\frac{1}{2}$	200	3.72	5mm	22mm	22mm
3	200	4.9	5mm	22mm	22mm



Nominal diameter : Connection : ISO228 : Media temperature : Pressure range : Permissible medium : Test :

Threaded ; (equivalent to DIN 259 and BS 2779); -10 -120°C; 25 bar; Water services, heating and air-conditioning plants, compressed air systems; Opening/closing test : 10000 times;



DN15-DN100;

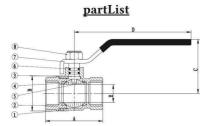
- Anti blow-out stem
- Solid ball
- PTFE packing
- Flat steel handle or aluminium butterfly handle

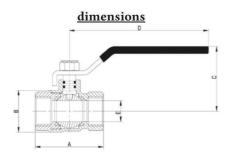
Material EN

- Reversible handle
- BSP, NPT

No Part

F/F, F/M,M/M,M/F





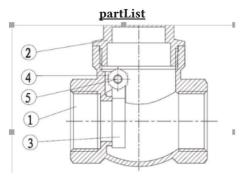
141							
1	Body	7	Brass		s CW	/614	
2	Bonne	t		Brass	s CW	/614	
3	Sten	ı		PTFE	Ξ		
4	Bal	1		Brass	s CW	/614	
5	Sea	t		Brass	s CW	/614	
6	O-ring	g		NBF	2		
7	Handle	9		iror	1		
8	Nu	t S	tainle	ss stee	1 S	S201	
9	bal	l Bra	ss (1/4	"-1/2") CW	/614	
		S		ss Stee 8/4"-4"	- S	S304	
DN	I A	В	С	D	Ε	PN	KVS(m ³ /h)
1/-	4" 40	23	39.2	87	9	25	-
3/							
5/1	8" 41	23	39.8	87	10	25	-
	8 ^{°°} 41 2 ^{°°} 48.2				10 14.8		- 15.3
	2" 48.2	29.5	54.2				- 15.3 27.5
1/ 3/-	2" 48.2	29.5	54.2	95	14.8	25	
1/ 3/-	2"48.2 4"56 1"65	29.5 35.6 42.7	54.2 57.6 60.6	95 95 126	14.8 19	25 25 25	27.5
1/ 3/ 1 1/	2" 48.2 4" 56 1" 65 4" 76	29.5 35.6 42.7	54.2 57.6 60.6	95 95 126	14.8 19 24	25 25 25	27.5 39.5
1/ 3/ 1 1/ 1 1/	2" 48.2 4" 56 1" 65 4" 76	29.5 35.6 42.7 53	54.2 57.6 60.6 75.8	95 95 126 140 140	14.8 19 24 30.2	25 25 25 25	27.5 39.5 65.0
1/ 3/ 1 1/ 1 1/	2" 48.2 4" 56 1" 65 4" 76 2" 85 2" 99	29.5 35.6 42.7 53 63	54.2 57.6 60.6 75.8 81.3 88.5	95 95 126 140 140	14.8 19 24 30.2 37	25 25 25 25 25 25	27.5 39.5 65.0 215.0
1/ 3/ 1 1/ 1 1/ 2 1/	2" 48.2 4" 56 1" 65 4" 76 2" 85 2" 99	29.5 35.6 42.7 53 63 79 102.5	54.2 57.6 60.6 75.8 81.3 88.5	95 95 126 140 140 165 224	14.8 19 24 30.2 37 47	25 25 25 25 25 25 25	27.5 39.5 65.0 215.0 249.0
1/ 3/ 1 1/ 1 1/ 2 1/	2" 48.2 4" 56 1" 65 4" 76 2" 85 2" 99 2" 132 3" 152	29.5 35.6 42.7 53 63 79 102.5	54.2 57.6 60.6 75.8 81.3 88.5 121.5 129.5	95 95 126 140 140 165 224	14.8 19 24 30.2 37 47 62	25 25 25 25 25 25 25 25	27.5 39.5 65.0 215.0 249.0 511.0



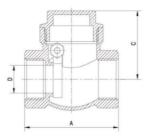
Nominal diameter : Connection : Media temperature : Pressure range : Permissible medium : Test : DN15-DN100; Threaded ISO228 (equivalent to DIN 259 and BS 2779); -10 -120°C; 16 bar; Hot and cold water, oils and domestic water service; Opening/closing test: 10000 times;



- Full brass check valves.
- Horizontal or vertical position (respect the flow direction indicated by the arrow)
- Female / female type



dimensions



No	Part	Material	EN
1	Body	Brass	CW614
2	Bonnet	Brass	CW614
3	Seal	Brass	CW614
4	Nut	Brass	CW614
5	Stem	Brass	CW614

DN	A(mm)	C(mm)	D(mm)	PN(bar)	KVS(m ³ /h)
1/2"	47.5	35.5	14	16	15.3
3/4"	56	39	18	16	26.5
1"	63	46.5	22	16	38
1 1/4"	71	51	28	16	60.3
1 1/2"	80.5	59.5	33.5	16	192.5
2"	93	67	43	16	228
2 1/2"	108	77	53	16	422.3
3"	125	84	64	16	496
4"	158	102	85	16	1003



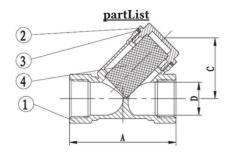
Nominal diameter : Connection : Media temperature : Pressure range : Permissible medium : Test :

DN15-DN100;

Threaded ISO228 (equivalent to DIN 259 and BS 2779); -10 -120°C; 16 bar; Hot and cold water, oils and domestic water service; Opening/closing test: 10000 times;



- Removable stainless steel filter SS304
- Horizontal or vertical position (respect the flow direction
- indicated by the arrow)
- Female / female type



<u>dimensions</u>

No	Part	Material	EN
1	Body	Brass	CW614
2	Bonnet	Brass	CW614
3	Seal	PTFE	
4	Strainer	Stainless steel	SS304

DN	A(mm)	B(mm)	C(mm)	PN(bar)	KVS(m ³ /h)
1/2"	56.5	32.5	18	16	19.5
3/4"	69	36	22.5	16	33.2
1"	80	42	28.5	16	49
1 1/4"	96	52.5	36	16	77.5
1 1/2"	105	61.5	43.5	16	250
2"	125	75	54	16	286
2 1/2"	134.5	86	65	16	518
3"	156	101	76	16	589
4"	181.5	123	97	16	1144



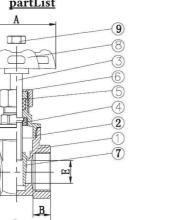
Nominal diameter : DN15-DN100; Connection : Threaded ISO228 (equivalent to DIN 259 and BS 2779); -10 -120°C; Media temperature : Pressure range : 16 bar; Permissible medium : Hot and cold water, compressed air, oils, non-corrosive fluids and steam; Test : Opening/closing test: 10000 times;



- Surface: Brass color or Nickel plating (rack plating)
- Handle: Dacromet plated, avoid rustiness in 3-5 years
- PVC thickness: 1-1.3m •
- Full bore •
- Rotating non rising stem
- Inside screw stem
- Single wedge disc
- Female / Female BSP cylindric
- Double O rings on stem
- **BSP/NPT**
- F/F

	partList A D
H	

dimensions



No	Part	Part Material	
1	Body	Brass	CW614
2	Bonnet	Brass	CW614
3	Stem	Brass	CW614
4	Lock Cap	Brass	CW614
5	Filler	PTFE	
6	Lock Cap	Brass	CW614
7	Disc	Brass	CW614
8	Hand wheel	Cast-iron	
9	Nut	Stainless steel	SS201

DN	A(mm)	B(mm)	H(mm)	L(mm)	E(mm)	PN(bar)	KVS(m ³ /h)
1/2"	54	12	71	41	14	16	15.3
3/4"	55	12.5	74	43	15	16	22
1"	60	14	85	48	19.5	16	33.5
1 1/4"	71	15	102	53	25	16	54
1 1/2"	71	14	111	54	31	16	178
2"	80	16	127	61	40	16	212
2 1/2"	100	22	170	78	53	16	422
3"	110	22	180	83	60	16	465
4"	143	22.5	220	91	75	16	885

т

The general terms and condition of sale are accepted by the client once the order is validated

order expresses the Purchaser's The irrevocable commitment ; hence, the Purchaser cannot cancel it unless the Supplier expressly consents thereto beforehand. Consequently, if the Purchaser requests cancellation of all or part of the order, the Supplier has the right to demand execution of tardiness, or when its financial situate contract and full payment of the sums substantially differs from data that stipulated therein.

The return of goods and the establishment of a credit for the Purchaser - may be immediate payment thereof. effectuated only with the express prior In such event, or in the event that the written agreement of the Supplier, which will purchaser sells, transfers, pledges or specify the conditions thereof. The fact that contributes its business to a company, or a

aces not conter on the Purchaser the right to return other products, even if identical. If the Supplier consents to a return, it must, in particular, meet the following cumulative conditions : the Purchaser must return the product carriage paid,at its expense and risk,to the place indicated by the Supplier ; the product must be returned in perfect condition, protected and packed in its original packing; a return does not its original packing; a return does not exempt the Purchaser from its obligation to pay; a return gives rise to the establishment of a credit corresponding to the price of the products involved, after verification of the condition thereof, less a fixed deduction for

In the case of the manufacturing of a product ursuant to specifications meeting the Purchaser's technical specifications, no return shall be accepted.

- III Products, modifications
 1. The quality of the products which Supplier manufactures or supplies shall be exclusively as set out in the current specifications of Supplier. Measures and tolerances are subject to EN standards as amended from time to time, otherwise to use in the business
- and the state of the art. Supplier may at any time make changes to its performance or the Products as far as such changes: are required to comply with applicable safety or other statutory or regulatory requirements; and do not materially affect their quality or performance, and are not unreasonable for the Customer.
- The product information on catalogue, website are for reference only. 3.

IV Price and conditions of payment

Price

Unless agreed differently, the prices of Supplier shall be Ex Works Supplier (INCOTERMS 2010) in EURO. Expenses for

packaging shall be charged separately. VAT is not included in the prices of Supplier. It shall be charged separately and

in line With development of the stipulated the sti

the transport and assumes the cost thereof, it shall assume responsibility for all it shall assume responsibility for all financial consequences of a direct action of the carrier against the Supplier. Any storage requested by the Purchaser shall be subject to an express agreement in which the financial terms, duration and risks must be specified.

Payment Payment Unless otherwise expressly agreed, payments shall be made in advance, before the goods are collected by the forwarder. The contractually agreed dates of payment Shall not be contested unlaterally by the the con-Purchaser for any reason whatsoever, even in and cor the event of dispute. Early payments are made report without discount, unless otherwise detectal

right to apply the reservation of ownership clause stipulated in article 10.5. In event of late payment, the Supplier h the has a right of retention in the manufactured products and related supplies pursuant to manufactured article 2286 of the Civil Code.

Changes in the Purchaser's situation

<u>In the event of deterioration in the</u> Purchaser's situation observed by any means and/or attested by late payment or repeated tardiness, or when its financial situation evented in the situation observed by any means be made only in consideration of the <u>YI Warranty and liability</u> immediate payment thereof. <u>VI Warranty and liability</u>

specify the conditions thereot. The fact that contributes its business to a company, or a the Supplier agrees to take back a product, significant part of its assets or equipment, does not confer on the Purchaser the right to or if a draft has not been honoured within return other products, even if identical. Seven business days of its sending, the Supplier consents to a return, it Supplier reserves the right without notice to the following seven business to a company.

declare a default resulting in the immediate payability of all sums that remains owed in any respect whatsoever

suspend any shipment ; establish first the rescission of all current contracts and, second, retain the instalments, tooling equipment and parts that it received ;

reject any new order. Offsetting of payments

or involcing of the supplier for sums that liability of the supplier being called a the latter has not expressly recognized to be the event of default of payment by the its responsibility. Any automatic debiting Purchaser, without the latter having the constitutes an outstanding payment giving right to prevail thereon in order to suspend constitutes an outstanding payment giving rise to the application of the provisions regarding late payments, and may b sanctioned pursuant to article L442-6 I 8° regarding be

of the entire principal and ancillary items. defects were noticed. Default of payment on any due date may entail The warranty, at the Supplier's discretion, the repos- session of these products. consists only of repairing or replacing However, upon delivery, the Purchaser assumes products that it finds defective upon their these products. the entire principal and ancillary items liability for damage that these products might incur or cause.

V Delivery, transport, Verification and acceptance of products

Delivery times commence to run from the latest of the following dates : date of the order's acknowledgement of

- receipt ; receipt of all of date of the date of receipt of all of the information, approvals, materials, products, details of execution due from the Purchaser or which are necessary for execution of the costart or whon applicable account necessary for execution of the contract, or, when applicable, receipt
- of the down payment ; date of execution of preliminary contractual or legal obligations incumbent on the Purchaser.

- the purchase order, the recipient:
 shall note its reservations on the delivery slip, and shall immediately inform the Supplier in writing;
 shall express its reservations to the
 - carrier according to the procedures and within the times specified by the regulations applicable to the mode of transport, with a copy thereof to the

Supplier.

Taking over Upon the unpacking, the Purchaser must verify Upon the unpacking, the Purchaser must verify the product of the conformity of the products with the terms any other type of sanction or and conditions of the products with the terms any other type of sanction or and conditions of the contract, and must indemnification. These contractual penalties report to the Supplier any visible or are capped, and apply only to the part of detectable defects within 7 days of delivery. Supplies or services that is involved. shall not be contested unilaterally by the the conformity of the products with the terms any other type of sanction of Purchaser for any reason whatsoever, even in and conditions of the contract, and must indemnification. These contractual penalties are capped, and apply only to the part of without discount, unless otherwise detectable defects within 7 days of delivery. Supplies or services that is involved. Any collections, controls, inspections, tests **VIII Hardship** and force majeure 420 of May 15, 2001 and with the European are at its expense. These additional If an event that is beyond the parties' directive 2000/35 EC of June 29, 2000, any operations shall be carried out in factory or control compromises the equilibrium of the default interest equal to the most recent In the case of products manufactured pursuant parties are et on event its only application of doing the default interest equal to the most recent In the case of products manufactured pursuant parties are to negotiate in good faith

General Terms and Co I General statementSupplier's discretion, results in the shall agree on a deadline for the lifting exchange rate or in the applicable laws and
Sale of applies to all the products and
even those that have not yet fallen due. The Purchaser of the date of these acceptances negotiations, they agree to appoint a
services provided by Omeax SARL.II Orders, acceptance, and returnII orders, acceptance, and return

If the Purchaser, having been advised of the date of these operations, is not present, a report of failure to attend, and acceptance shall be deemed to have occurred on the date that was set, without reservations.

Acceptance shall also be deemed to be given without reservations if the Purchaser uses the product (even in a limited way) or if he expresses reservations considered to be minor, which do not prevent use of the product in normal conditions independent of

Exclusions of warranty and liability

The warranty does not apply, with all liability of the Supplier being excluded, in with a11 the following cases parts subjected to normal wear and

- tear installation or use that is not in
- conformity with the proper professional standards, or with the
- defined technical specifications ; failure to comply with the installation, use or maintenance instructions ; defective oversight, storage or
- maintenance :
- a change or intervention by the Purchaser or a third party in the product that is not authorized by the Supplier, or which is made with parts and/or consumables original. that are

or defer its payments.

Contractual warranty

of Unless otherwise stipulated, sanctioned pursuant to article L442-0 1 ° of Unless otherwise stipulated, the Supplier the Commercial Code. Only an offsetting provides a 1 years warranty from the date of effectuated under conditions specified by law invoice. To invoke the warranty, the Beservation of onership The Supplier retains full ownership of the Supplier in writing of defects it has subject products until the effective payment of the entire principal and ancillary items. the Supplier

arrival at its premises.

Travel, transport and shipment costs and assembly and disassembly costs such as handling costs are not included in the warranty. Liability

The Supplier's liability is strictly limited to compliance with contractual specifications.

The Supplier shall manufacture the product or Therefore, the parties commit to provide the service requested by the • keep strictly secret all conf Purchaser in compliance with the standards of information and, in par its profession. The Supplier's liability shall be limited to

direct material damage suffered by the Purchaser due to wrongful acts or omissions The supplier when executing the contract. The Supplier shall not be required to indemnify consequential or indirect damage such as operating losses, profits, deprivation of a right or opportunity, such as operating losses, profits, deprivation of a right or opportunity, commercial injury, financial loss. The Supplier is not required to redress the

injurious consequences of wrongful acts or omissions of the Purchaser or third parties in respect to execution of the contract, and that is especially so in the events listed in article 9.1.

Supplier is not liable for The damage resulting from the Purchaser's use of technical documents, information or data coming from, or imposed by, the Purchaser. The Supplier's civil liability, for any causes except for bodily injuries and gross negligence, is limited to the cost of supplies collected on the date of the service

The Purchaser guarantees the Supplier or its insurers against recourse taken by its prop insurers or third parties in contractual They relationships therewith, above the limits and free exclusions spe- cified above.

VII PenaltIes

When penalties and indemnities are mutually agreed, they are deemed to serve as a fixed and liquidated indemnification, and exclude

late payment entails the application or on series of products manufactured pursuant parties is unable to execute its obligations, default interest equal to the most recent In the case of products manufactured pursuant parties is unable to execute its obligations, refinancing rate of the European Central Bank to specifications, the contract may specify the parties agree to negotiate in good faith a modification of the contract. Such events Any payment not made on a due date Each of these acceptances may be effectuated include particularly the occurrence of a constitutes an event of default which, at the with or without reservations. If acceptance fluctuation in the price of raw materials, a is pronounced with reservations, the parties change in customs duties, a change in the

regulations. Should the parties fail in their which, unless otherwise agreed to, must occur mediator or to call for a conciliation within a maximum of 10 business days of the Presiding Judge of the competent receipt of the notification. Force majeure

Force majeure Neither party in this contract shall be held liable for its delay or failure to execute its obligations hereunder if such delay or failure is the direct or indirect consequence of an event of force majeure, defined in a broader scope than that of the French case law, such as the occur- rence of a natural disaster, earthquakes, storms, fires, floods conflicts, wars, attacks, labour conflicts, total or partial strikes at the premises of the Supplier, Purchaser, or the suppliers, subcontractors, providers of services, carriers, post, public services, etc, mandatory orders of the public authorities (import prohibitions, embargos), operating accidents, machine breakdowns, explosions. Each party shall immediately inform the othe party of the occurrence of an event of force majeure brought to its knowledge which, in its opinion, is of such a nature as to affec the performance of the contract.

The parties must consult with each other within the shortest possible time to examine in good faith the consequences of the event of force majeure, and mutually consider the measures to be taken.

IX Intellectual property and ConfidentialIty

Intellectual property and knowledge of documents and products

All of the intellectual property rights, as well as the knowledge included in transmitter well as the knowledge included in transmitter docu-ments, delivered products and provided services remain the Supplier's exclusive property. Any transfer of intellectual property rights or knowledge must be subject to a specific contract. The Supplier reserve: the right to make use of its knowledge and results in its research and development work all plane, descriptions technical documents All plans, descriptions, technical documents or estimates provided to the other party are trans- mitted thereto as a gratis loan, the purpose of which is to evaluate and discuss the Supplier's commercial offer. They shall not be used by the other party for any other purposes. These documents must be returned to the Supplier upon first request.

<u>Confidentiality</u> The parties are reciprocally committed to general obligation of confidentiality regarding any oral or written information, regardless of the medium thereof (discussion general reports, plans, exchanges of computerized data, activities, installations, projects, expertise, prototypes developed at the Purchaser's requests, products, etc.) that are exchanged when preparing and executing the contract, unless said information is a matter of common knowledge or will become so by means other than through the Purchaser's wrongful act or omission.

- keep strictly secret all confidential information and, in particular, refrain from disclosing or refrain from disclosing or transmitting all or part thereof to any person by any means, directly or
- any person by any means, directly or indirectly, without the other party's written authorization beforehand; refrain from using all or part of confidential information for purposes or an activity other than execution of the contract
- refrain from making imitations of all or confidential information. g copies or or part of

The parties commit to take all necessary measures to ensure compliance with this obligation of confidentiality throughout the duration of the contract and even after the duration of the contract and even after the expiration thereof, and guarantee compliance therewith by all of their employees and subcontractors or other contracting parties. This obligation is absolute.

<u>Guarantee in the event of infringement</u> Each party guarantees that the elements it provides or designs for execution of the provides or contract (plans, specifications, processes, and their conditions of application, etc...) do not use intellec- tual rights or proprietary expertise owned by third parties proprietary expertise owned by third parties They guarantee that they have the right of free disposal of said elements without conflicting with a contractual or legal obligation. They mutually guarantee each other against the direct or indirect consequences of any action for civil or criminal liability, particularly an action for infringement or unfair competition.

X Disputes and applicable law

The parties commit to resolve their disputes by amicable means before submitting them to the competent Court. In the absence of amicable settlement, it is

expressly agreed that any dispute related to the contract shall be adjudicated exclusively by the Court located in the area of the Supplier's domicile, even in the event of an action for enforcement of a guarantee or a multiplicity of defendants. Only French law and, when applicable, the Vienna Convention regarding interna- tional sales of goods, shall apply.

