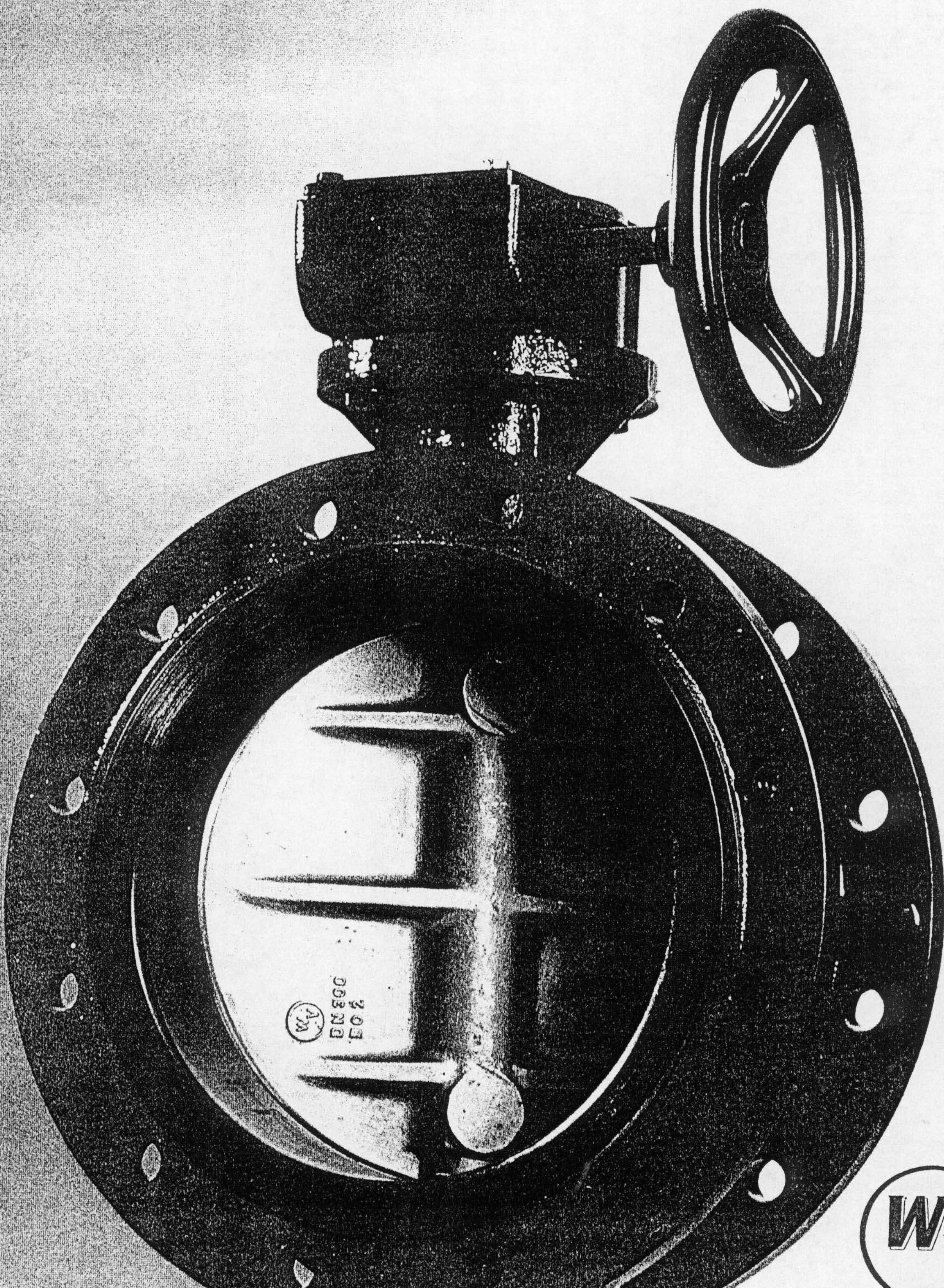


WORLD-VALVE BV

J.H. WITZEL VALVES • LOSSER • THE NETHERLANDS

WORLD WIDE APPROVED

WORLD-VALVE TO BE INSTALLED TO THE SURVEYORS SATISFACTION

World-Valve
MANUFACTURED IN THE NETHERLANDS

ENGINEERING SERVICES

Lloyd's Register

Correspondence: P.O. Box 701, 3000 AS Rotterdam Location: Wilhelm-Zand 170, 3012 NC Rotterdam
Telephone 010 414 60 81 Fax 010 214 01 90 Cable Lloydreg Rotterdam

Page 1 of 8
Document number MDA/97.R.731
Issue number 2

DESIGN APPRAISAL DOCUMENT

Date	Quote this reference on all future communications
4 September 2002	MDA/02.R.0948/JdB

Client : World-Valve B.V./J.H. Witzel B.V.

Manufacturer : World-Valve B.V./J.H. Witzel B.V.

Subject : General Design Appraisal of Resilient Seated Butterfly Valves, Types: TB-70.1, WVTB-70.1, WVFL-70.2, WVTB-ISO, WVM-70.4, WVTB-ISO-LT, WVTB-NOVA, WVFL-F4, WVFL-F16, WVFL-NOVA, WVFL-LE, WVTB-ISOLEX, WVTB-ISOLEX-LT, WVFL-ISOLEX face to face ISO 5752 and Metal Seated Butterfly Valves, Types WVSK-70-3 and WVSK-70-3-K3

G.A. Registration No. : ROT.90.M.101 (E2)

VALID UNTIL 3 September 2007

This Design Appraisal Document (D.A.D.) supersedes and cancels the previous D.A.D. No. MDA/97.R.731 (issue No. 1), dated 16 April 1997.

The valves are of the design in accordance with the plans and documentation listed in the Appendix A. The pressure rating for the various type of valves are tabled in Appendix B.

1. The resilient seated butterfly valves are such as could be accepted as shown and amended on the documentation and plans as applicable for the following services on ships classed or intended for Classification with this Society, provided they will be constructed, tested and installed to the Surveyors' satisfaction.

1.1 Salt and fresh cooling water systems.

1.2 Water ballast and fresh water pumping systems. (When subject valves will be used in clean ballast lines through cargo oil tanks to forward ballast tanks, or as collision bulkhead valves, they are not to be made of grey cast iron).

1.3 Cargo oil lines on tankers.

1.4 Bilge suctions of cargoholds in bulkcarriers (only when fitted in a pipetunnel and in association with a metal seated non-return valve.

1.5 . As suction valves on double bottom oil fuel tanks (only when located in a closed pipetunnel or duct keel) or, in addition, as suction valves on double bottom lubricating oil fuel oil tanks in machinery spaces, subject to the applicable conditions as set forth under the paragraph 1.7.

РОССИЙСКИЙ МОРСКОЙ РЕГИСТР СУДОХОДСТВА
RUSSIAN MARITIME REGISTER OF SHIPPING

СЕРТИФИКАТ О ТИПОВОМ ОДОБРЕНИИ
TYPE APPROVAL CERTIFICATE

Изготовитель / Manufacturer: WORLD-VALVE B.V.

Адрес / Address: P.O.BOX 146, 7580 AC LOSSER
LEUSINKWEG 5A, 7582 CM LOSSER
THE NETHERLANDS

Изделие / Product

Butterfly valves type WVTB-ISO; WVTB-ISO-LT; WVTB-ISOLEX; WVTB-70-2 with operating free shaft.

Check-valve type WV-CH-DD-WA and WV-CH-FL flange type.

This is to certify that on the basis of the survey and tests carried out the above mentioned product(s) comply(ies) with the requirements of Russian Maritime Register of Shipping.

This Type Approval Certificate is valid until: 27.04.2009

Дата выдачи / Date of issue: 27.04.2004

Российский Морской Регистр Судоходства / Russian Maritime Register of Shipping

04.00003.271

DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. P-11248
This Certificate consists of 3 pages

This is to certify that the
Butterfly Valves
with type designation(s)
TB 70-1, WVTB 70-1, WVTB 70-1M, WVTB-ISO, WVTB-ISO-LT, WVM 70-4, WVTB-NOVA, WVTB-ISOLEX, WVTB-NOVA LT, WVTB-ISOLEX-LT, WVFL-70-2, WVFL-F16, WVFL-F4, WVFL-NOVA and WVFL-ISOLEX

Manufactured by
J.H. Witzel B.V. World-Valve
Losser, Netherlands

is found to comply with
Det Norske Veritas' Rules for Classification of Ships and Mobile Offshore ...
Det Norske Veritas' Standards for Certification 2.9 No. 101

Application
The valves may be used in the following systems: Cargo Oil Transfer, Fre... Seawater, Water Ballast, Bilge and Sanitary

Temperature range: Dep. on lining material (see cert.)
Max. working press.: PN 6/10/16/25 (dep. on type, see cert.)
Sizes: 25 - 1200 mm (dep. on type, see cert.)

Place and date: Høvik, 2002-06-11
for DET NORSKE VERITAS AS

Head of Section

Local Office DNV Rotterdam

CENTRUM VOOR DE STUDIE VAN WATER, BODEM EN LUCHT v.z.w.

Aan World Valve
T.a.v. de Heer Krommendijk
Leusinkweg 5a - 7582 CM Losser Holland
P.O. BOX 146 - 7580 AC LOSSER
NEDERLAND

Ons ref.: MV/JM/93-065 Uw ref.: Gent, 10 maart 1993

Betreft : Verslag proeven volgens NBN S 29-001 en 003, studienummer 93.01.012

Geachte Heer,

... van het onderzoek van rubber volgens de normen ...

M. Verstuyft
manager

Certification
Awarded to
World Valve B.V.

STANDARD
ISO 9001:2000

SCOPE OF SUPPLY

LLOYD'S REGISTER OF SHIPPING

USSR REGISTER OF SHIPPING

TNO
SHOCK TESTING

Germanischer Lloyd

DET NORSKE VERITAS ESTABLISHED 1864

WORLD-VALVE APPROVED WORLD-WIDE
WORLD VALVE

American Bureau of Shipping

BUREAU VERITAS 1828
BUREAU VERITAS

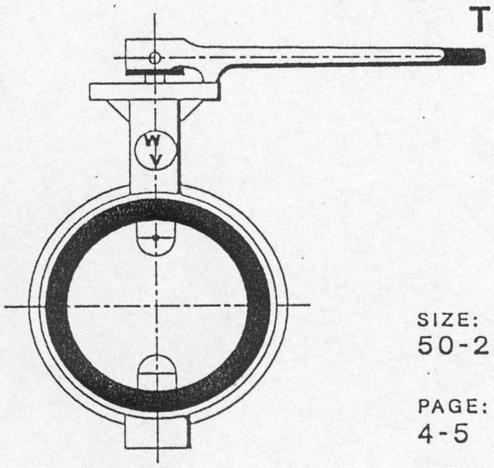
becewa

1 CONCENTRIC VALVES

LINING VULCANISED TO THE VALVE BODY

World-Valve
MANUFACTURED IN THE NETHERLANDS

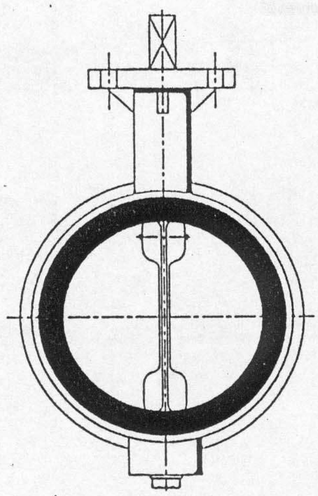
TB-70-1



SIZE:
50-200 mm

PAGE:
4-5

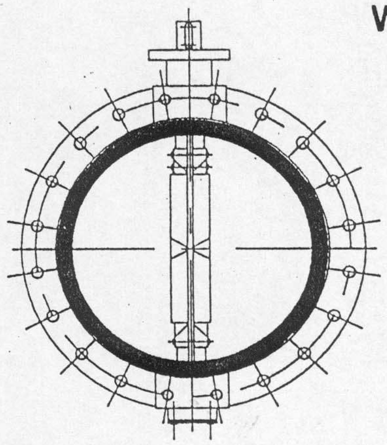
WVTB-70-1



SIZE:
50-500 mm

PAGE:
6-7

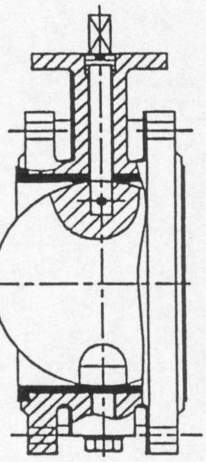
WVTB-70-1-M



SIZE:
600-2000 mm

PAGE:
8-9

WVFL-70-2



SIZE:
50-2000 mm

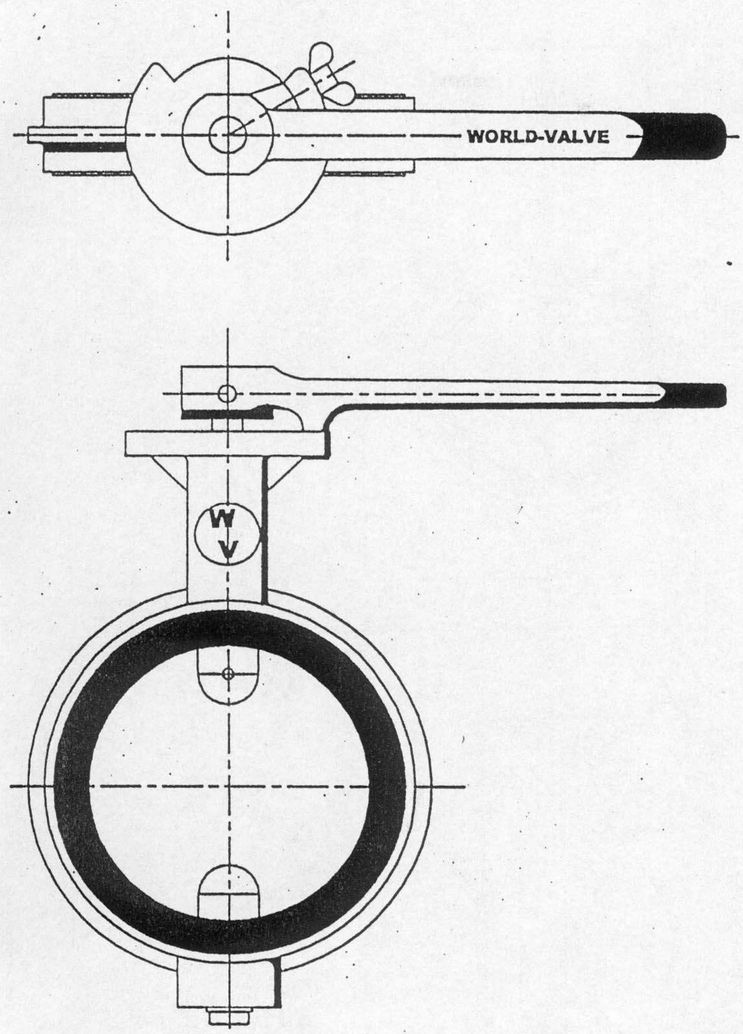
PAGE:
10-13

FACE TO FACE DIMENSIONS ACCORDING **WORLD-VALVE STANDARD**

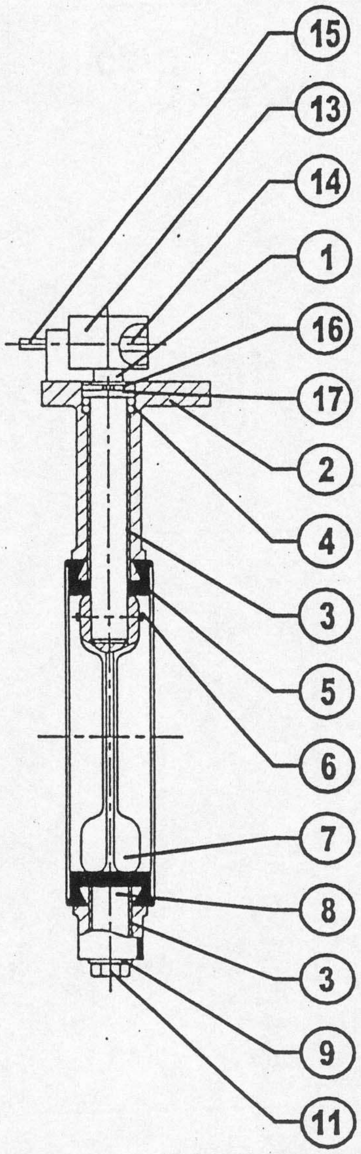
TB-70-1

WAFER TYPE

World-Valve
MANUFACTURED IN THE NETHERLANDS



SIZE 50-200



1	AS	SHAFT	SPINDEL	HUSILLO
2	AFSLUITERHUIS	BODY	GEHÄUSE	CAJA
3	LAGERBUS	BEARING	LAGERBUCHSE	COJINETTE
4	O-RING	O-RING	O-RING	ANILLO-O
5	VOERING	LINER	FUTTER	MANQUITO
6	PEN	PIN	STIFT	CLAVIJA
7	KLEP	DISC	KLAPPENSCHEIBE	VALVULA
8	AS	SHAFT	SPINDEL	HUSILLO
9	PAKKING	PACKING	PACKUNG	EMPAQUETADURA
11	BOUT	BOLT	SCHRAUBE	PERNO
13	HANDEL	HANDLEVER	HANDHEBEL	MANGO
14	SPANSTIFT	PIN	STIFT	CLAVIJA
15	STELBOUT	BOLT	SCHRAUBE	PERNO
16	BORGRING	LOCK WASHER	SICHERUNGSRING	ANILLO DE SOJECION
17	RING	RING	RING	ILAVE

FLANGE CONNECTION
DIN-PN6/10
ANSI-CLASS-125/150
JIS-5/10K

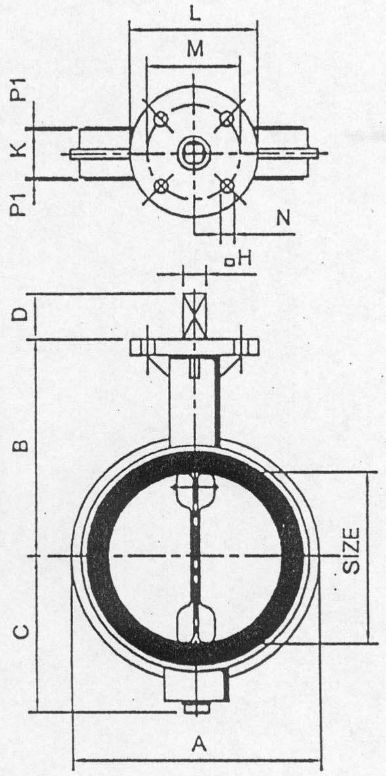
FIGURE: MATERIAL COMBINATION			
TYPE	B	C	D
BODY	STANDARD DUCTILE-IRON GGG-40		
DISC	AL.BRONZE	AISI-316	AL.BRONZE
SHAFT	AISI-316	AISI-316	AL.BRONZE
PINS	STANDARD DUPLEX		
LINER	STANDARD BUNA-N OR EPDM		

FACE TO FACE DIMENSIONS ACCORDING WORLD-VALVE STANDARD

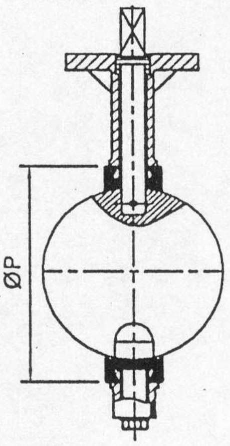
WVTB-70-1

WORLD-VALVE
MANUFACTURED IN THE NETHERLANDS

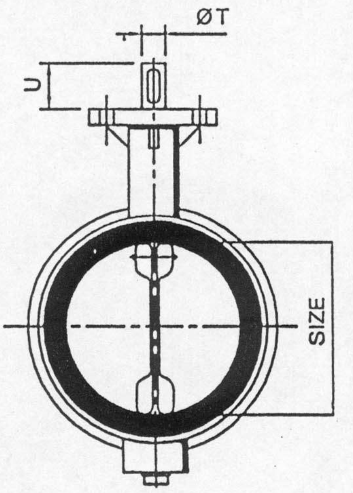
WAFER TYPE



STANDARD
SIZE 50-300
SQUARE SHAFT



STANDARD
SIZE 350-500
ROUND SHAFT



SIZE 250-500
2x KEYWAY 180⁰

DIMENSIONS

SIZE mm	SIZE inch	A	B	C	D	H	K	L	M	N	P	P1	T	U	Kg
50	2	105	128	70	37	12	**35**	90	66	9	85	1.5	16	40	**3**
65	2.5	125	136	80	37	12	**35**	90	66	9	100	1.5	16	40	**3**
80	3	140	144	88	37	12	**35**	90	66	9	115	1.5	16	40	**4**
100	4	160	154	98	37	12	**35**	90	66	9	135	1.5	16	40	**4**
125	5	190	184	114	37	16	**40**	110	80	11	165	2	20	40	**5**
150	6	215	194	124	37	16	**40**	130	80	11	190	2	20	40	**6**
175	7	245	206	145	37	16	**40**	110	80	11	215	2	20	40	**8**
200	8	270	229	180	37	16	**50**	130	80	11	240	2	22	40	**12**
250	10	326	261	190	37	24	**65**	175	135	14	295	3	30	50	**21**
300	12	375	286	220	37	24	**65**	175	135	14	345	3	30	50	**27**
350	14	435	322	260	-	-	**65**	175	135	14	400	3	35	50	**37**
400	16	485	352	280	-	-	**75**	175	135	14	440	3	40	60	**45**
450	18	535	380	325	-	-	**75**	175	135	14	490	3	45	60	**70**
500	20	590	420	340	-	-	**75**	175	135	14	550	3	45	60	**90**

K = FACE TO FACE ACC. WORLD-VALVE STANDARD

PRESSURE TABLE

STANDARD DELIVERY			WHEN REQUESTED		
WORKING/TESTPRESSURE			WORKING/TESTPRESSURE		
SIZE mm	WP ΔP-BAR	TP ΔP-BAR	SIZE mm	WP ΔP-BAR	TP ΔP-BAR
50-150	10	11	50-150	16	18
175-500	6	7	175-300	10	11

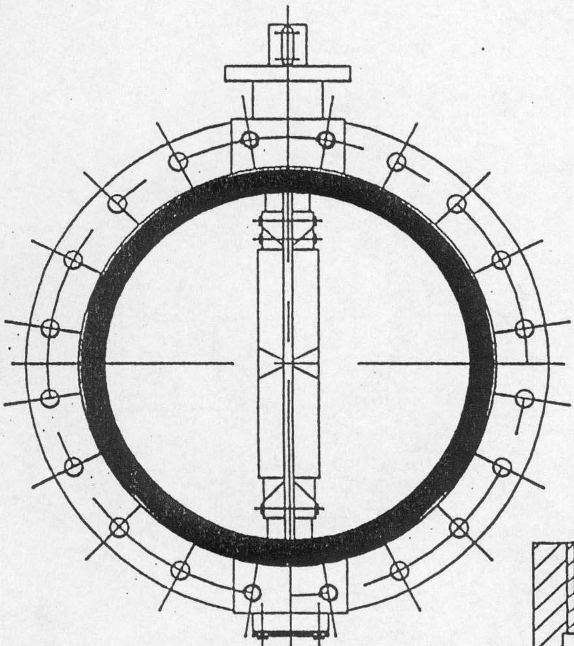
BODY TEST 1.5 X DP

FACE TO FACE DIMENSIONS ACCORDING **WORLD-VALVE STANDARD**

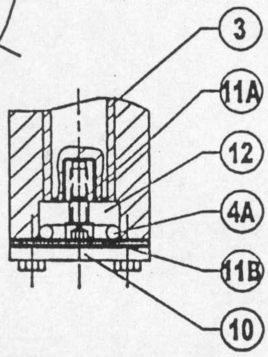
WVTB-70-1-M

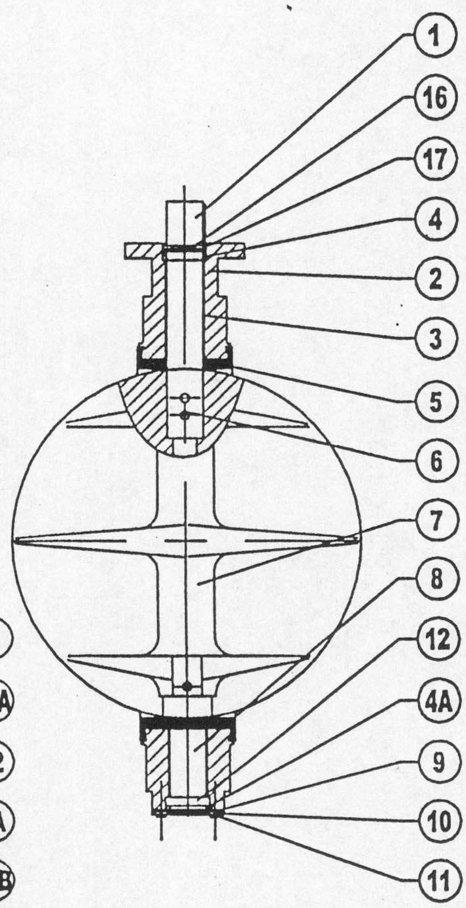
WAFER TYPE WITH MONO FLANGE

World-Valve
MANUFACTURED IN THE NETHERLANDS



SIZE 600-2000





1	AS	SHAFT	SPINDEL	HUSILLO
2	AFSLUITERHUIS	BODY	GEHÄUSE	CAJA
3	LAGERBUS	BEARING	LAGERBUCHSE	COJINETTE
4	O-RING	O-RING	O-RING	ANILLO-O
4A	O-RING	O-RING	O-RING	ANILLO-O
5	AFDICHTING	SEAT	DICHTUNG	MANQUITO
6	PEN	PIN	STIFT	CLAVIJA
7	KLEP	DISC	KLAPPENSCHEIBE	VALVULA
8	AS	SHAFT	SPINDEL	HUSILLO
9	PAKKING	PACKING	PACKUNG	EMPAQUETADURA
10	ACHTERPLAAT	COVER PLATE	LAGERDECKEL	TAPA
11	BOUT	BOLT	SCHRAUBE	PERNO
11A	BOUT	BOLT	SCHRAUBE	PERNO
11B	BOUT	BOLT	SCHRAUBE	PERNO
12	DRUKLAGER	THRUST BEARING	DRUCKLAGER	COJINETTE
16	BORGRING	LOCK WASHER	SICHERUNGSRING	ANILLO DE SOJECION
17	RING	RING	RING	ILAVE

FLANGE CONNECTION
DIN-PN6/10/16
ANSI-CLASS-125/150
JIS-5/10K

FIGURE: MATERIAL COMBINATION				
TYPE	B	C	D	X
BODY	STANDARD DUCTILE IRON GGG-40			
DISC	AL.BRONZE	AISI-316	AL.BRONZE	GGG-40
SHAFT	AISI-316	AISI-316	AL.BRONZE	AISI-304
PINS	STANDARD DUPLEX			
LINER	STANDARD BUNA-N OR EPDM			

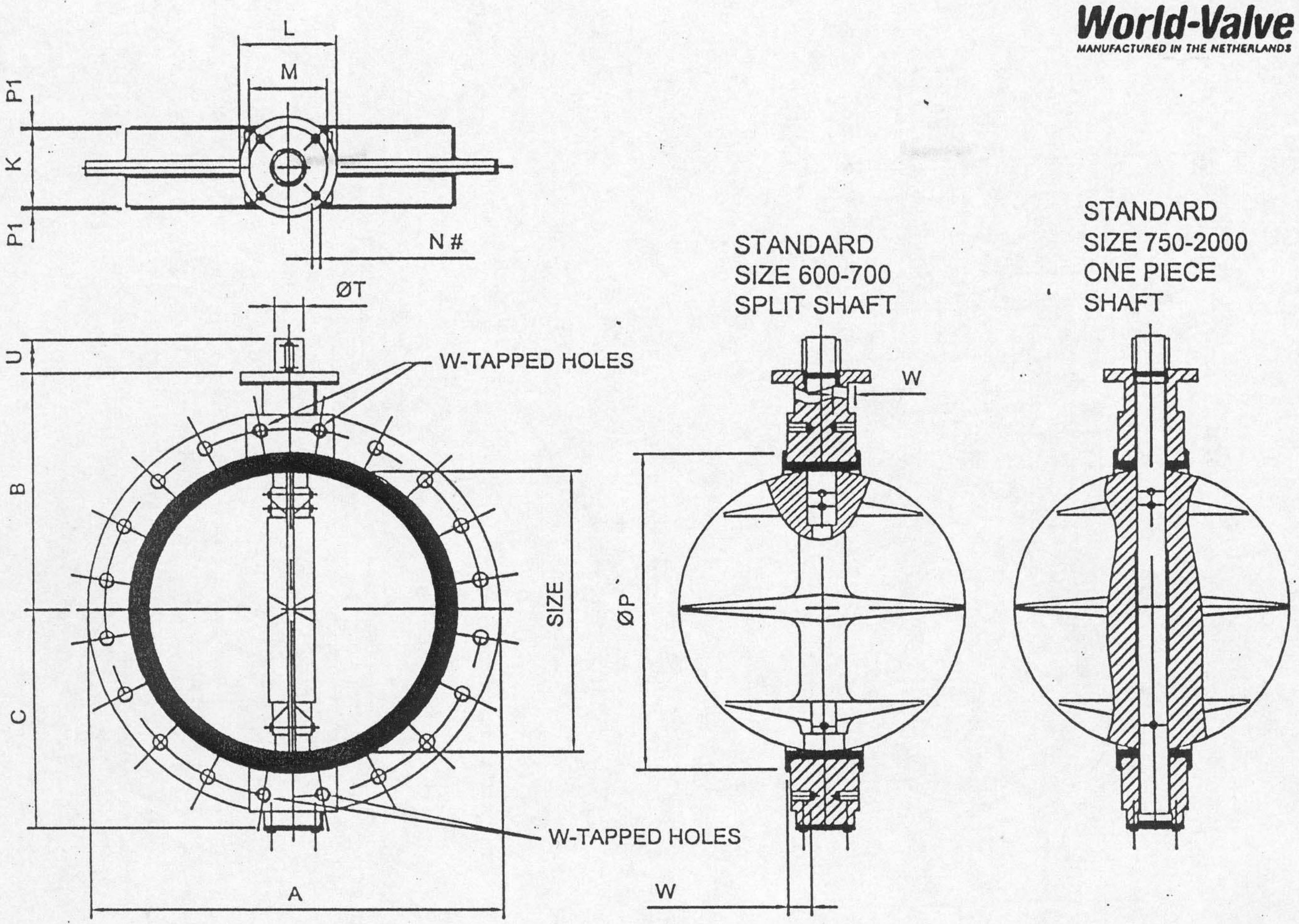
WHEN REQUESTED					
BODY	B-AL.BRONZE	A-AISI-304 C-AISI-316	S-RST- 37/2 G-GSC-25	K-SILUMIN	
DISC	J-DUPLEX	H-HASTELLOY			
SHAFT AND PINS	M-MONEL K-500	H-HASTELLOY	J-DUPLEX		
LINER	V-VITON	H-HYPALON	S-SILICONE	N-NITRIL FOOD	U-VULKOLAN
TOPFLANGE ACC. ISO-5211					

FACE TO FACE DIMENSIONS ACCORDING **WORLD-VALVE STANDARD**

WVTB-70-1-M

WAFER TYPE WITH MONO FLANGE

World-Valve
MANUFACTURED IN THE NETHERLANDS



DIMENSIONS

SIZE mm	SIZE inch	A	B	C	K	L	ISO 5211 M	N (#)	P	P1	T	U	W	Kg
600	24	825	468	425	154	210	165	22 (4)	650	3	60	70	45	198
700	28	900	533	464	150	300	254	18 (8)	760	3	70	85	45	238
750	30	984	575	495	150	300	254	18 (8)	810	3	70	85	40	286
800	32	1010	642	539	150	350	298	22 (8)	870	3	80	85	40	298
900	36	1120	670	580	220	350	298	22 (8)	970	3	90	100	45	390
1000	40	1230	746	646	220	350	298	22 (8)	1070	3	90	100	50	470
1200	48	1485	841	737	254	415	356	32 (8)	1270	3	110	105	70	740
1300	52	1625	915	845	320	415	356	32 (8)	1389	3	110	150	70	920
1350	54	1685	975	905	320	415	356	32 (8)	1435	3	110	150	70	1050
1400	56	1685	975	905	320	415	356	32 (8)	1490	3	110	150	90	1080
1500	60	1854	1030	960	320	475	406	38 (8)	1605	3	110	150	90	1280
1600	64	1930	1160	1000	320	475	406	38 (8)	1690	3	120	150	100	1600
1800	72	2130	1200	1100	490	475	406	38 (8)	1900	3	120	150	100	1850
2000	80	2345	1310	1200	540	475	406	38 (8)	2105	3	140	180	100	2150

K = FACE TO FACE ACC. WORLD-VALVE STANDARD
(#) = NUMBER OF HOLES

PRESSURE TABLE

STANDARD DELIVERY				WHEN REQUESTED			
STANDARD WORKING/TESTPRESSURE				MAXIMUM WORKING/TESTPRESSURE			
SIZE mm	WP ΔP-BAR	TP ΔP-BAR	SHAFT ONE PIECE	SIZE mm	WP ΔP-BAR	TP ΔP-BAR	ONE PIECE SHAFT
600-700	6	7	-	600-1400	10	11	YES
750-1400	6	7	YES				
1500-2000	4	5	YES				

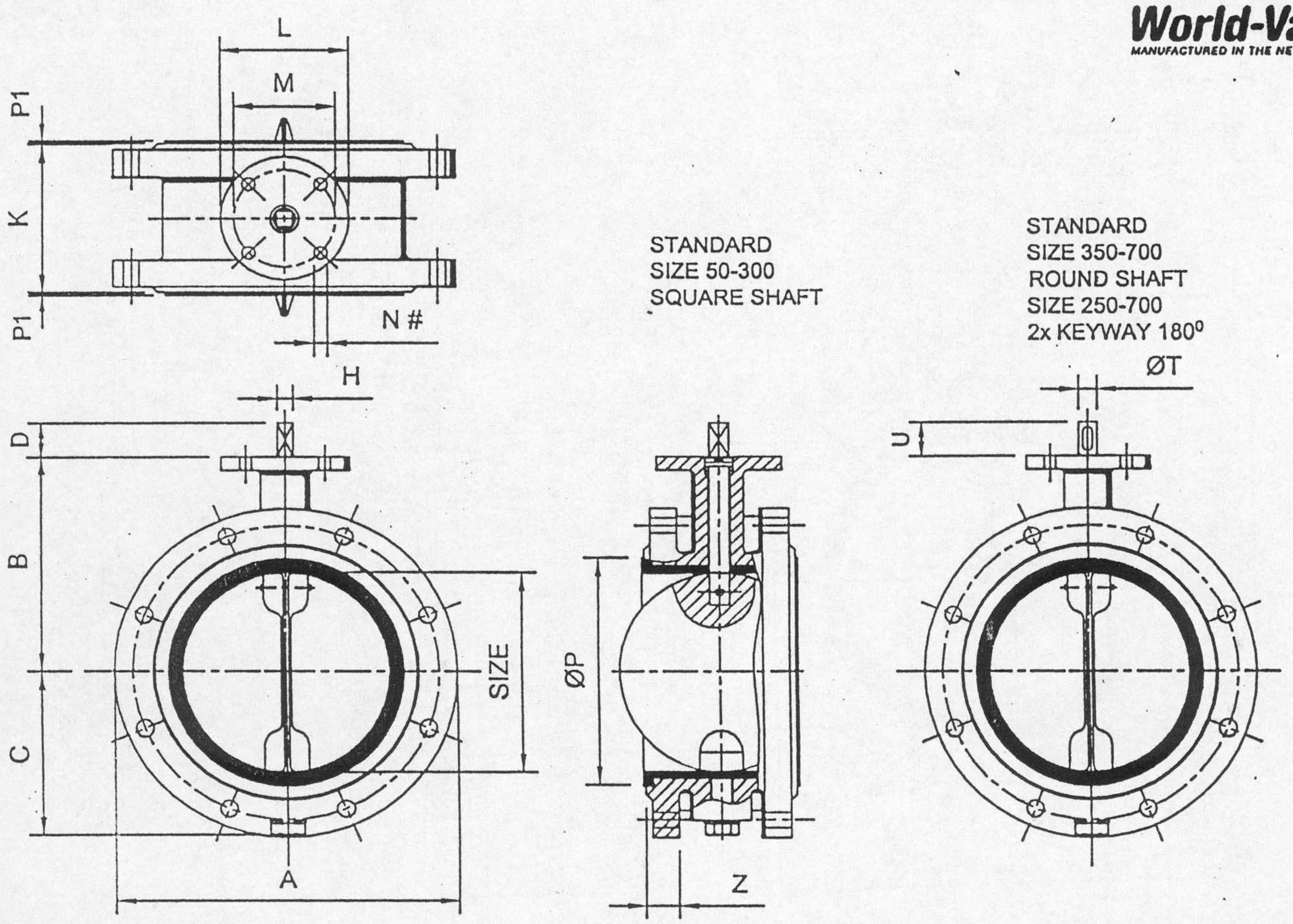
BODY TEST 1.5X DP

FACE TO FACE DIMENSIONS ACCORDING **WORLD-VALVE STANDARD**

WVFL-70-2

DOUBLE FLANGED TYPE

World-Valve
MANUFACTURED IN THE NETHERLANDS



DIMENSIONS

SIZE mm	SIZE inch	A	B	C	D	H	K	L	M	N (#)	P	P1	T	U	Z	Kg
50	2	165	128	70	37	12	120	90	66	9 (4)	88	1.5	16	40	20	9
65	2.5	185	136	80	37	12	120	90	66	10 (4)	108	1.5	16	40	20	11
80	3	200	144	88	37	12	120	90	66	11 (4)	120	1.5	16	40	23	1[illegible]
100	4	220	154	98	37	12	120	90	66	11 (4)	140	1.5	16	40	23	16
125	5	250	184	114	37	16	130	110	80	11 (4)	170	2	20	40	26	24
150	6	285	194	124	37	16	130	110	80	11 (4)	198	2	20	40	26	27
175	7	315	206	145	37	16	150	110	80	11 (4)	230	2	20	40	28	32
200	8	340	229	180	37	16	150	130	80	11 (4)	250	2	22	40	31	38
250	10	405	261	190	37	24	160	175	135	14 (4)	308	3	30	50	31	60
300	12	460	286	220	37	24	180	175	135	14 (4)	358	3	30	50	31	70
350	14	520	322	260	-	-	180	175	135	14 (4)	418	3	35	50	35	90
400	16	580	352	280	-	-	220	175	135	14 (4)	468	3	40	60	35	115
450	18	640	380	325	-	-	220	175	135	14 (4)	518	3	45	60	36	130
500	20	715	420	340	-	-	220	175	135	14 (4)	568	3	45	60	36	180
600	24	840	468	425	-	-	220	210	165	22 (4)	668	3	60	70	40	260
700	28	910	533	464	-	-	220	300	254	18 (4)	778	3	70	85	40	295

M = TOPFLANGE SIZE 600-700 ACC. ISO-5211
(#) = NUMBER OF HOLES

K = FACE TO FACE ACC. WORLD-VALVE STANDARD

PRESSURE TABLE

<table>
<tr><th colspan="3">STANDARD DELIVERY</th><th colspan="4">WHEN REQUESTED</th></tr>
<tr><th colspan="3">STANDARD WORKING/TESTPRESSURE</th><th colspan="4">MAXIMUM WORKING/TESTPRESSURE</th></tr>
<tr><th>SIZE mm</th><th>WP ΔP-BAR</th><th>TP ΔP-BAR</th><th>SIZE mm</th><th>WP ΔP-BAR</th><th>TP ΔP-BAR</th><th>ONE PIECE SHAFT</th></tr>
<tr><td>50-150</td><td>10</td><td>11</td><td>50-150</td><td>16</td><td>18</td><td>-</td></tr>
<tr><td rowspan="3">175-700</td><td rowspan="3">6</td><td rowspan="3">7</td><td>175-300</td><td>10</td><td>11</td><td>-</td></tr>
<tr><td>350-700</td><td>10</td><td>11</td><td>YES</td></tr>
<tr><td>200-500</td><td>16</td><td>18</td><td>YES</td></tr>
</table>

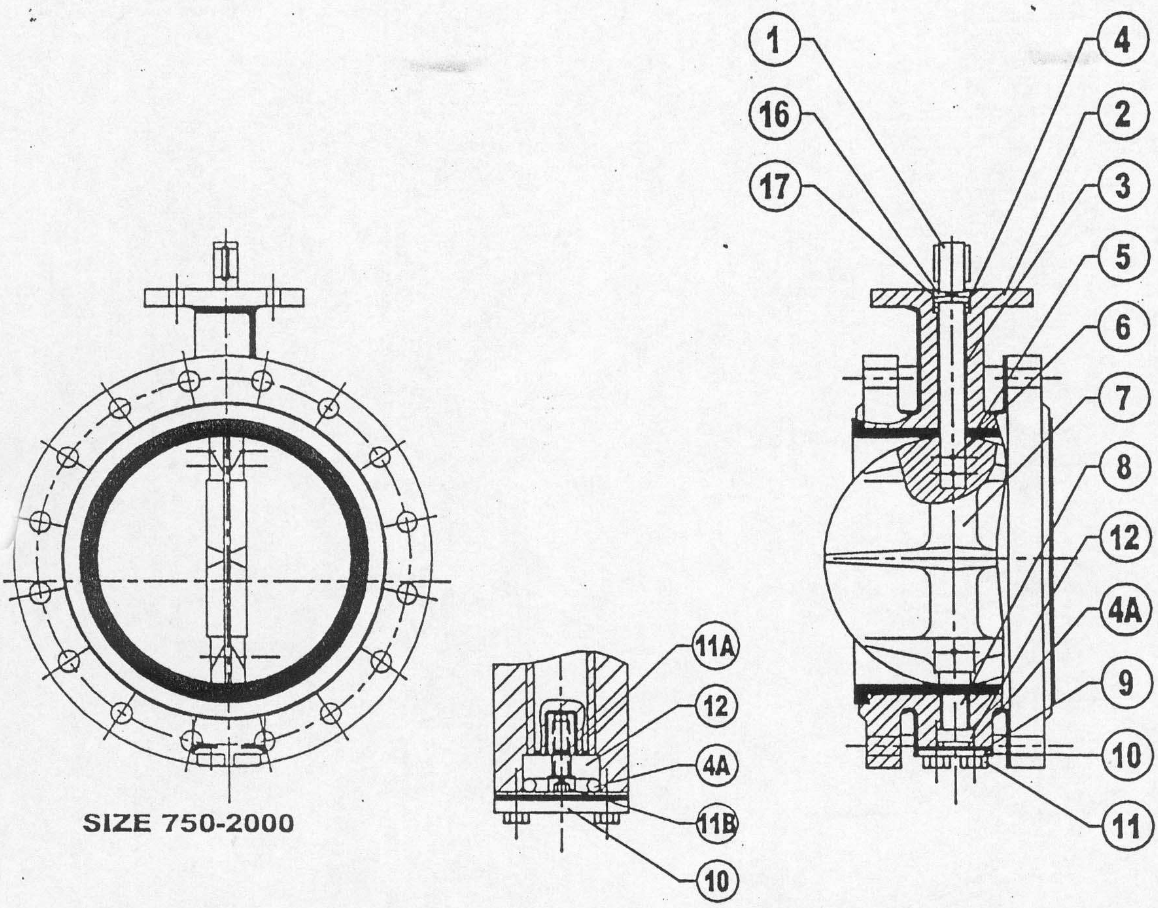
BODY TEST 1.5 X DP

FACE TO FACE DIMENSIONS ACCORDING **WORLD-VALVE STANDARD**

WVFL-70-2

DOUBLE FLANGED TYPE

World-Valve
MANUFACTURED IN THE NETHERLANDS



SIZE 750-2000

1	AS	SHAFT	SPINDEL	HUSILLO
2	AFSLUITERHUIS	BODY	GEHÄUSE	CAJA
3	LAGERBUS	BEARING	LAGERBUCHSE	COJINETTE
4	O-RING	O-RING	O-RING	ANILLO-O
4A	O-RING	O-RING	O-RING	ANILLO-O
5	VOERING	LINER	FUTTER	MANQUITO
	PEN	PIN	STIFT	CLAVIJA
	KLEP	DISC	KLAPPENSCHEIBE	VALVULA
8	AS	SHAFT	SPINDEL	HUSILLO
9	PAKKING	PACKING	PACKUNG	EMPAQUETADURA
10	ACHTERPLAAT	COVER PLATE	LAGERDECKEL	TAPA
11	BOUT	BOLT	SCHRAUBE	PERNO
11A	BOUT	BOLT	SCHRAUBE	PERNO
11B	BOUT	BOLT	SCHRAUBE	PERNO
12	DRUKLAGER	THRUST BEARING	DRUCKLAGER	COJINETTE
16	BORGRING	LOCK WASHER	SICHERUNGSRING	ANILLO DE SOJECION
17	RING	RING	RING	ILAVE

FLANGE CONNECTION
DIN-PN 6/10/16 ANSI-CLASS 125/150 JIS-5/10K

FIGURE: MATERIAL COMBINATION

TYPE	B	C	D	X
BODY	STANDARD DUCTILE IRON GGG-40			
DISC	AL.BRONZE	AISI-316	AL.BRONZE	GGG-40
SHAFT	AISI-316	AISI-316	AL.BRONZE	AISI-304
PINS	STANDARD DUPLEX			
LINER	STANDARD BUNA-N OR EPDM			

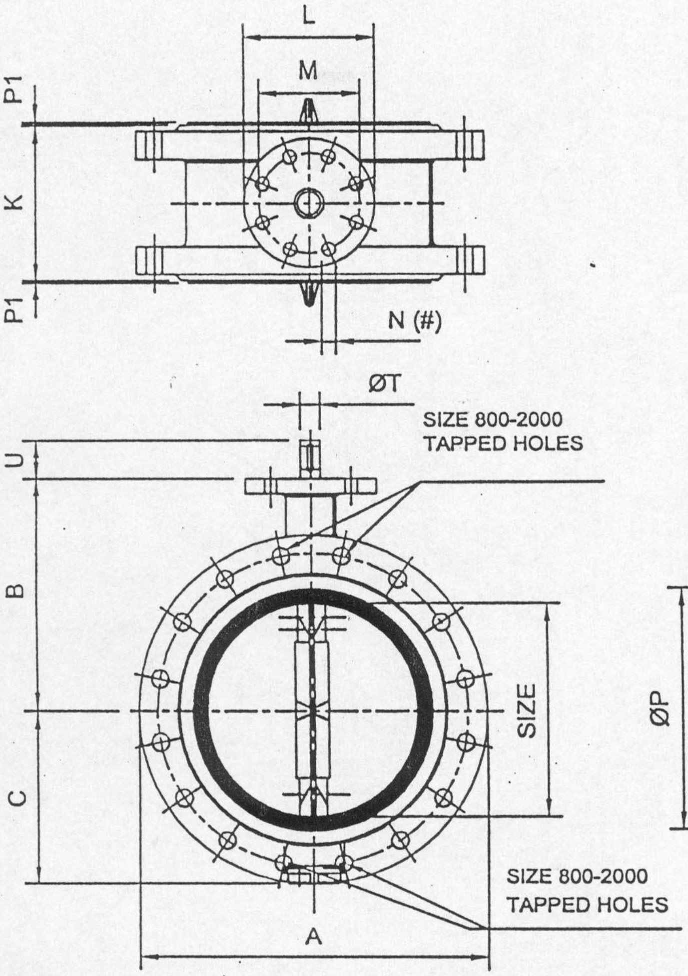
WHEN REQUESTED

BODY	B-AL.BRONZE	A-AISI-304 C-AISI-316	S-RST- 37/2 G-GSC-25	K-SILUMIN	
DISC	J-DUPLEX	H-HASTELLOY			
SHAFT AND PINS	M-MONEL K-500	H-HASTELLOY	J-DUPLEX		
	V-VITON	H-HYPALON	S-SILICONE	N-NITRIL FOOD	U-VULKOLAN

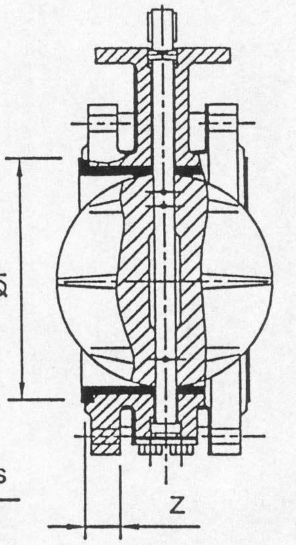
WVFL-70-2

World-Valve
MANUFACTURED IN THE NETHERLANDS

DOUBLE FLANGED TYPE



STANDARD
ONE PIECE SHAFT



DIMENSIONS

SIZE mm	SIZE Inch	A	B	C	K	L	ISO 5211 M	N (#)	P	P1	T	U	Z	Kg
750	30	984	575	495	220	300	254	18 (8)	835	3	70	85	40	480
800	32	1010	642	539	220	350	298	22 (8)	885	3	80	85	40	680
900	36	1120	670	580	220	350	298	22 (8)	985	3	90	100	40	880
1000	40	1230	746	646	220	350	298	22 (8)	1090	3	90	100	40	980
1100	44	1403	790	680	280	350	298	22 (8)	1240	3	110	105	47	1040
1200	48	1485	841	737	280	415	356	32 (8)	1310	3	110	105	47	1090
1300	52	1625	915	845	320	415	356	32 (8)	1389	3	110	150	47	1180
1350	54	1685	975	905	320	415	356	32 (8)	1435	3	110	150	47	1260
1400	56	1685	975	905	320	415	356	32 (8)	1490	3	110	150	47	1380
1500	60	1854	1030	960	320	475	406	38 (8)	1605	3	110	150	50	1600
1600	64	1930	1160	1000	320	475	406	38 (8)	1690	3	120	150	50	1800
1800	72	2130	1200	1100	490	475	406	38 (8)	1900	3	120	150	60	2050
2000	80	2345	1310	1200	540	475	406	38 (8)	2105	3	140	180	60	2300

K = FACE TO FACE ACC. WORLD-VALVE STANDARD
(#) = NUMBER OF HOLES

PRESSURE TABLE

STANDARD DELIVERY				WHEN REQUESTED			
STANDARD WORKING/TESTPRESSURE				MAXIMUM WORKING/TESTPRESSURE			
SIZE mm	WP ΔP-BAR	TP ΔP-BAR	ONE PIECE SHAFT	SIZE mm	WP ΔP-BAR	TP ΔP-BAR	ONE PIECE SHAFT
750-1400	6	7	YES	750-1400	10	11	YES
1500-2000	4	5	YES	-	-	-	-

BODY TEST 1.5 X DP

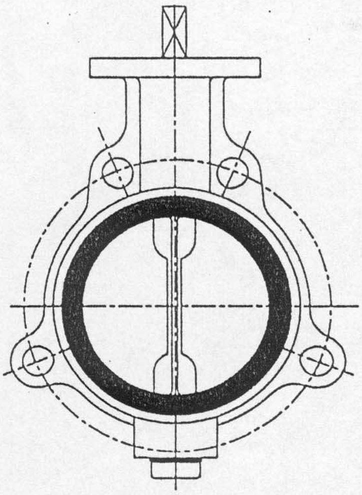
FACE TO FACE DIMENSIONS ACCORDING **WORLD-VALVE STANDARD**

2 CONCENTRIC VALVES

LINING VULCANISED TO THE VALVE BODY

World-Valve
MANUFACTURED IN THE NETHERLANDS

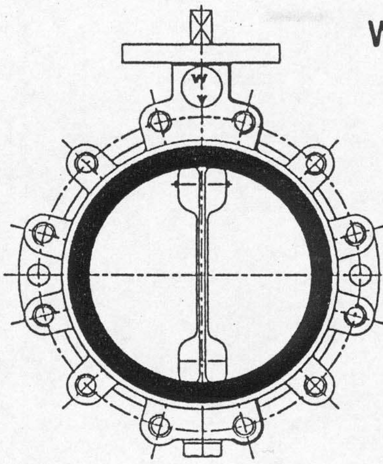
WVTB-ISO



SIZE:
25-500 mm

PAGE:
16-17

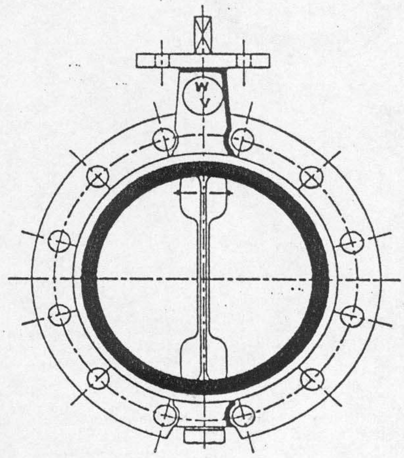
WVTB-ISO-LT



SIZE:
50-700 mm

PAGE:
18-19

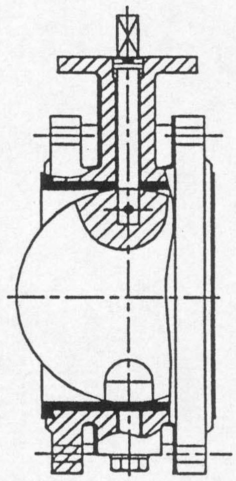
WVM-70-4



SIZE:
40-650 mm

PAGE:
20-21

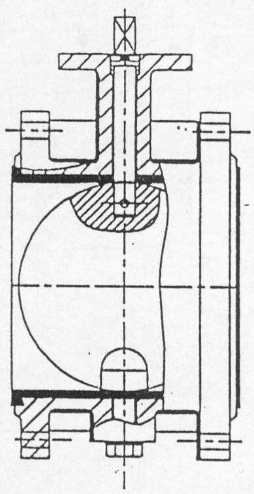
WVFL-F16



SIZE:
50-2000 mm

PAGE:
22-25

WVFL-F4

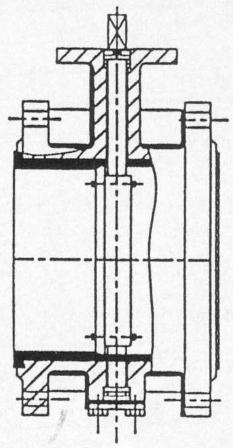


SIZE:
65-2000 mm

PAGE:
26-29

SINGLE ECCENTRIC DISC

WVFL-EE-F4



SIZE:
80-1200 mm

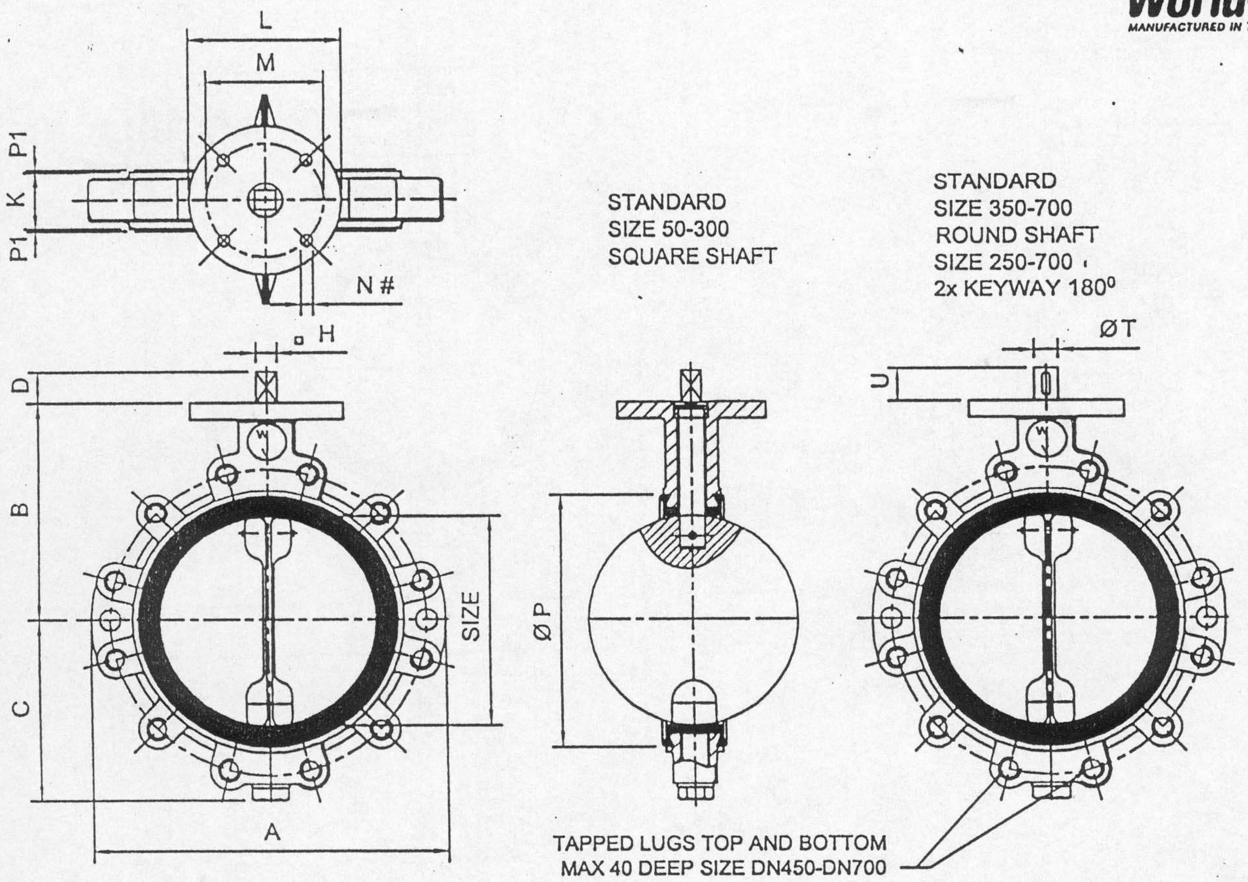
PAGE:
30-31

FACE TO FACE DIMENSIONS ACCORDING **INTERNATIONAL STANDARDS**

WVTB-ISO-LT

WAFER LUG TYPE

World-Valve
MANUFACTURED IN THE NETHERLANDS



DIMENSIONS

SIZE mm	SIZE inch	A	B	C	D	H	K	L	M	N (#)	P	P1	T	U	Kg
50	2	165	128	70	37	12	**43**	90	66	9 (4)	85	1.5	16	40	5
65	2.5	185	136	80	37	12	**46**	90	66	9 (4)	100	1.5	16	40	5
80	3	200	144	88	37	12	**46**	90	66	9 (4)	115	1.5	16	40	7
100	4	230	154	98	37	12	**52**	90	66	9 (4)	135	1.5	16	40	8
125	5	255	184	114	37	16	**56**	130	80	11 (4)	165	2	20	40	[illegible]
150	6	285	194	124	37	16	**56**	130	80	11 (4)	190	2	20	40	12
200	8	340	229	180	37	16	**60**	130	80	11 (4)	240	2	22	40	25
250	10	405	261	190	37	24	**68**	175	135	14 (4)	295	3	30	50	38
300	12	480	286	220	37	24	**78**	175	135	14 (4)	345	3	30	50	45
350	14	530	322	260	-	-	**78**	175	135	14 (4)	400	3	35	50	55
400	16	595	352	280	-	-	**102**	175	135	14 4)	440	3	40	60	65
450	18	640	380	325	-	-	**114**	175	135	14 (4)	490	3	45	60	128
500	20	715	420	340	-	-	**127**	175	135	14 (4)	550	3	45	60	145
600	24	840	468	425	-	-	**154**	210	165	22 (4)	650	3	60	70	175
700	28	900	533	464	-	-	**165**	300	254	18 (8)	760	3	70	85	225

M = TOPFLANGE SIZE DN-600-700 ACC. ISO-5211
STANDARD TAPPED HOLES

K = FACE TO FACE ACC. DIN-3202 K1 (ISO SERIES 20) (BS-SHORT) (API-609)
(#) = NUMBER OF HOLES

PRESSURE TABLE

STANDARD DELIVERY			WHEN REQUESTED			
STANDARD WORKING/TESTPRESSURE			MAXIMUM WORKING/TESTPRESSURE			
SIZE mm	WP ΔP-BAR	TP ΔP-BAR	SIZE mm	WP ΔP-BAR	TP ΔP-BAR	ONE PIECE SHAFT
50-150	10	11	**50-150**	16	18	-
200-700	6	7	**200-300**	10	11	-
			350-700	10	11	YES
			200-500	16	18	YES

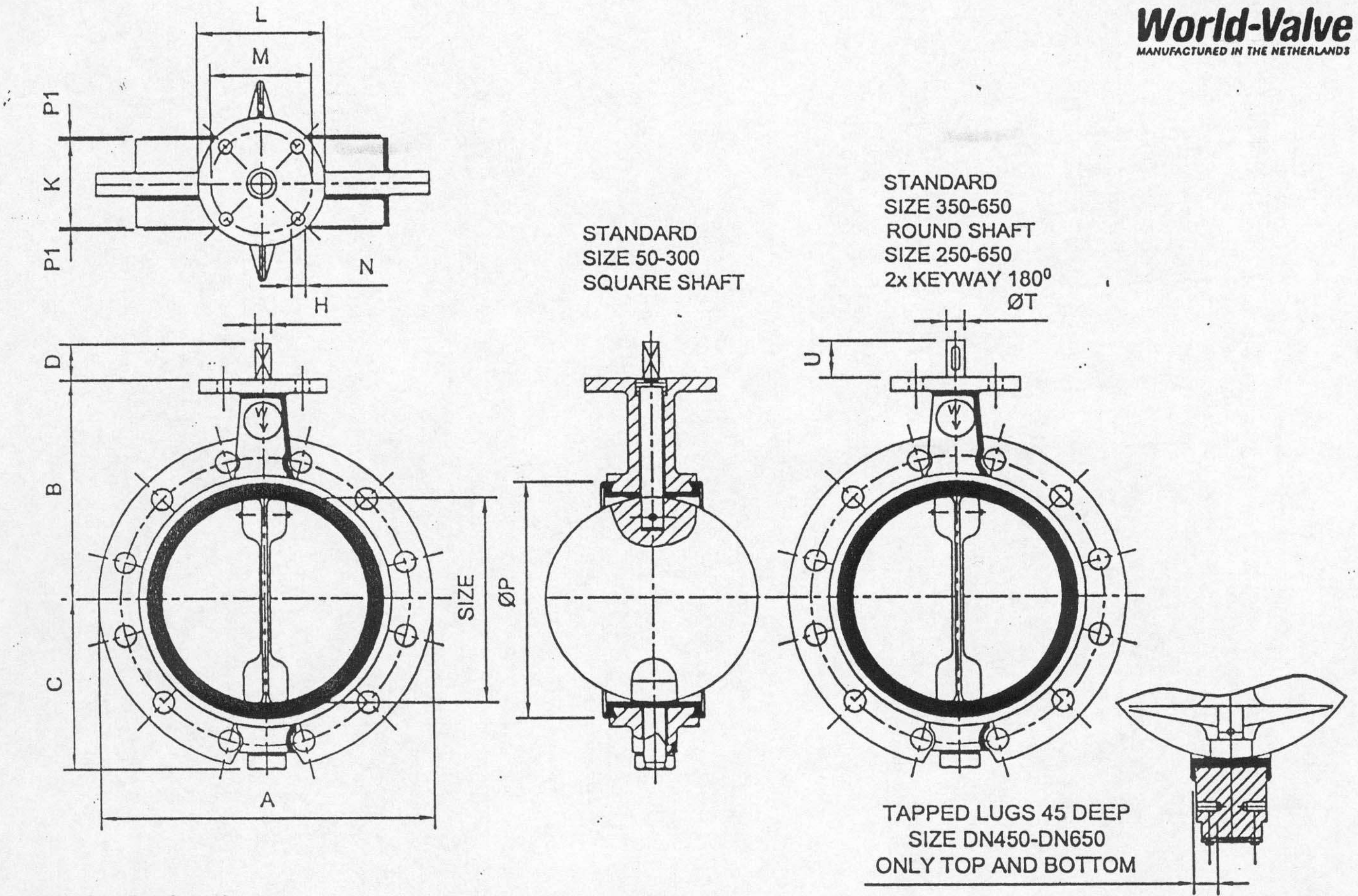
BODY TEST 1.5 X DP

FACE TO FACE DIMENSIONS ACCORDING **INTERNATIONAL STANDARDS**

WVM-70-4

World-Valve
MANUFACTURED IN THE NETHERLANDS

WAFER MONO FLANGE TYPE



DIMENSIONS

SIZE mm	SIZE inch	A	B	C	D	H	K	L	M	N	P	P1	T	U	Kg
40	1.5	150	122	64	37	12	**33**	90	66	9	67	1.5	16	40	4
50	2	165	128	70	37	12	**43**	90	66	9	85	1.5	16	40	4
65	2.5	185	136	80	37	12	**46**	90	66	9	100	1.5	16	40	4
80	3	200	144	88	37	12	**64**	90	66	9	115	1.5	16	40	6
100	4	220	154	98	37	12	**64**	90	66	9	135	1.5	16	40	7
125	5	250	184	114	37	16	**70**	110	80	11	165	2	20	40	8
150	6	285	194	124	37	16	**76**	110	80	11	190	2	20	40	10
175	7	315	206	145	37	16	**76**	110	80	11	215	2	20	40	12
200	8	340	229	180	37	16	**89**	130	80	11	240	2	22	40	21
250	10	395	261	190	37	24	**114**	175	135	14	295	3	30	50	34
300	12	445	286	220	37	24	**114**	175	135	14	345	3	30	50	41
350	14	505	322	260	-	-	**127**	175	135	14	400	3	35	50	50
400	16	595	352	280	-	-	**140**	175	135	14	440	3	40	60	58
450	18	615	380	325	-	-	**152**	175	135	14	490	3	45	60	110
500	20	690	420	340	-	-	**152**	175	135	14	550	3	45	60	130
550	22	770	465	410	-	-	**154***	210	165	22	610	3	60	70	150
650	26	870	520	460	-	-	**165***	210	165	22	720	3	60	70	220

M = TOPFLANGE SIZE 550-650 ACC. ISO-5211
K = FACE TO FACE ACC. DIN-3202 K3 (ISO SERIES 16) (BS-LONG)

PRESSURE TABLE

STANDARD DELIVERY			WHEN REQUESTED			
STANDARD WORKING/TESTPRESSURE			MAXIMUM WORKING/TESTPRESSURE			
SIZE mm	WP ΔP-BAR	TP ΔP-BAR	SIZE mm	WP ΔP-BAR	TP ΔP-BAR	ONE PIECE SHAFT
40-150	10	11	40-150	16	18	-
175-650	6	7	175-300	10	11	-
			350-650	10	11	YES
			200-650	16	18	YES

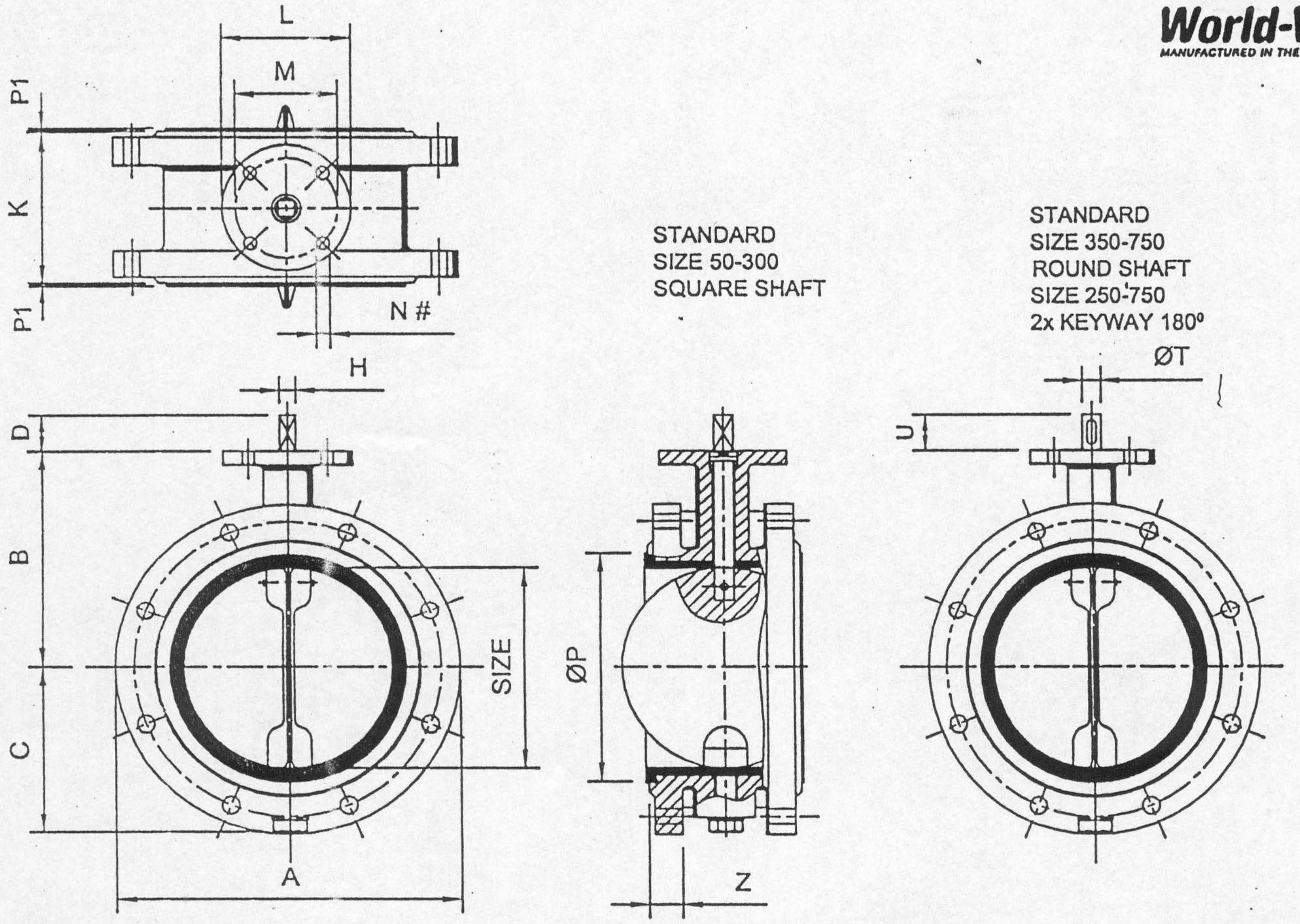
BODY TEST 1.5 X DP

FACE TO FACE DIMENSIONS ACCORDING **INTERNATIONAL STANDARDS**

WVFL-F16

DOUBLE FLANGED TYPE

World-Valve
MANUFACTURED IN THE NETHERLANDS



DIMENSIONS

SIZE mm	SIZE inch	A	B	C	D	H	K	L	M	N (#)	P	P1	T	U	Z	Kg
50	2	165	128	70	37	12	**108**	90	66	9 (4)	88	1.5	16	40	20	9
65	2.5	185	136	80	37	12	**112**	90	66	9 (4)	108	1.5	16	40	20	11
80	3	200	144	88	37	12	**114**	90	66	9 (4)	120	1.5	16	40	23	14
100	4	220	154	98	37	12	**127**	90	66	9 (4)	140	1.5	16	40	23	16
125	5	250	184	114	37	16	**140**	130	80	11 (4)	170	2	20	40	26	24
150	6	285	194	124	37	16	**140**	130	80	11 (4)	198	2	20	40	26	27
200	8	340	229	180	37	16	**152**	130	80	11 (4)	250	2	22	40	31	38
250	10	405	261	190	37	24	**175**	135	135	14 (4)	308	3	30	50	31	60
300	12	460	286	220	37	24	**178**	175	135	14 (4)	358	3	30	50	31	70
350	14	520	322	260	-	-	**190**	175	135	14 (4)	418	3	35	50	31	90
400	16	580	352	280	-	-	**216**	175	135	14 (4)	468	3	40	60	33	115
450	18	640	380	325	-	-	**222**	175	135	14 (4)	518	3	45	60	35	130
500	20	715	420	340	-	-	**229**	175	135	14 (4)	568	3	45	60	35	180
600	24	840	468	425	-	-	**267**	210	165	22 (4)	668	3	60	70	35	260
700	28	910	533	464	-	-	**292**	300	254	18 (8)	778	3	70	85	35	295
750	30	984	575	495	-	-	**310**	300	254	18 (8)	835	3	70	85	39	480

M = TOPFLANGE SIZE 600-750 ACC. ISO-5211
K = FACE TO FACE ACC. DIN-3202 F16 (ISO SERIES 13) (BS-SHORT)

(#) = NUMBER OF HOLES

PRESSURE TABLE

STANDARD DELIVERY			WHEN REQUESTED			
STANDARD WORKING/TESTPRESSURE			MAXIMUM WORKING/TESTPRESSURE			
SIZE mm	WP ΔP-BAR	TP ΔP-BAR	SIZE mm	WP ΔP-BAR	TP ΔP-BAR	ONE PIECE SHAFT
50-150	10	11	50-150	16	18	-
200-750	6	7	200-300	10	11	-
			350-750	10	11	YES
			200-500	16	18	YES

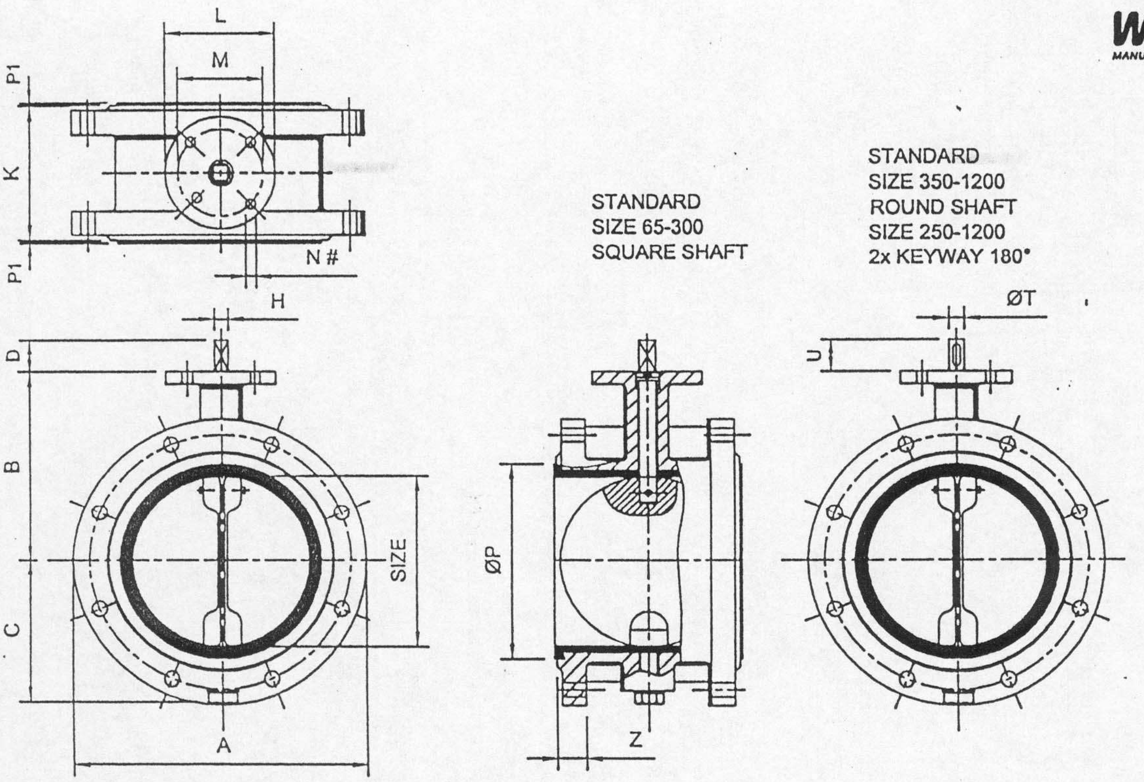
BODY TEST 1.5 X DP

FACE TO FACE DIMENSIONS ACCORDING **INTERNATIONAL STANDARDS**

WVFL-F4

World-Valve
MANUFACTURED IN THE NETHERLANDS

DOUBLE FLANGED TYPE



DIMENSIONS

SIZE mm	SIZE inch	A	B	C	D	H	K	L	M	N (#)	P	P1	T	U	Z	Kg
65	2.5	185	136	80	37	12	**170**	90	66	9 (4)	108	1.5	16	40	20	**15**
80	3	200	144	88	37	12	**180**	90	66	9 (4)	120	1.5	16	40	23	**18**
100	4	220	154	98	37	12	**190**	90	66	9 (4)	140	1.5	16	40	23	**20**
125	5	250	184	114	37	16	**200**	110	80	11 (4)	170	2	20	40	26	**28**
150	6	285	194	124	37	16	**210**	110	80	11 (4)	198	2	20	40	26	**30**
200	8	340	229	180	37	16	**230**	130	80	11 (4)	250	2	22	40	31	**41**
250	10	405	261	190	37	24	**250**	175	135	14 (4)	308	3	30	50	31	**74**
300	12	460	286	220	37	24	**270**	175	135	14 (4)	358	3	30	50	31	**86**
350	14	520	322	260	-	-	**290**	175	135	14 (4)	418	3	35	50	33	**106**
400	16	580	352	280	-	-	**310**	175	135	14 (4)	468	3	40	60	35	**120**
450	18	640	380	325	-	-	**330**	175	135	14 (4)	518	3	45	60	36	**150**
500	20	715	420	340	-	-	**350**	175	135	14 (4)	568	3	45	60	36	**220**
600	24	840	468	425	-	-	**390**	210	165	22 (4)	668	3	60	70	40	**300**
700	28	910	533	464	-	-	**430**	300	254	18 (8)	778	3	70	85	40	**380**
800	32	1025	642	539	-	-	**470**	350	298	22 (8)	885	3	80	85	42	**790**
900	36	1125	670	580	-	-	**510**	350	298	22 (8)	985	3	90	100	42	**1000**
1000	40	1255	746	646	-	-	**550**	350	298	22 (8)	1090	3	90	100	45	**1100**
1200	48	1485	841	737	-	-	**630**	415	356	32 (8)	1310	3	110	105	50	**1290**

M = TOPFLANGE SIZE 600-1200 ACC. ISO-5211
K = FACE TO FACE ACC. DIN-3202 F4 (ISO SERIE 14) (BS-LONG)
(#) = NUMBER OF HOLES

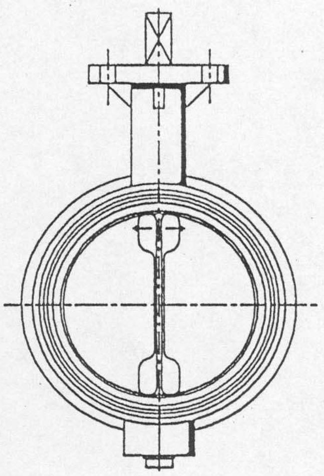
PRESSURE TABLE

STANDARD DELIVERY				WHEN REQUESTED			
STANDARD WORKING/TESTPRESSURE				MAXIMUM WORKING/TESTPRESSURE			
SIZE mm	WP ΔP-BAR	TP ΔP-BAR	ONE PIECE SHAFT	SIZE mm	WP ΔP-BAR	TP ΔP-BAR	ONE PIECE SHAFT
65-150	10	11	-	65-150	16	18	-
200-700	6	7	-	200-300	10	11	-
800-1200	6	7	YES	200-500	16	18	YES
				350-1200	10	11	YES

BODY TEST 1.5 X DP

FACE TO FACE DIMENSIONS ACCORDING **INTERNATIONAL STANDARDS**

World-Valve
MANUFACTURED IN THE NETHERLANDS

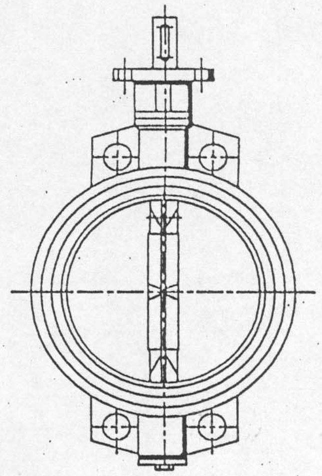


WVSK-70-3

SIZE:
50-1000 mm

PAGE:
34-37

FACE TO FACE DIMENSIONS ACCORDING
WORLD-VALVE STANDARD



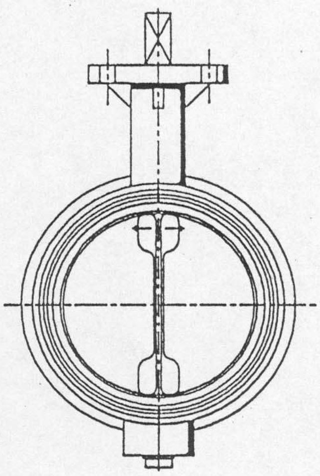
WVSK-70-3-K3

SIZE:
250-700 mm

PAGE:
38-39

FACE TO FACE DIMENSIONS ACCORDING
INTERNATIONAL STANDARDS

World-Valve
MANUFACTURED IN THE NETHERLANDS

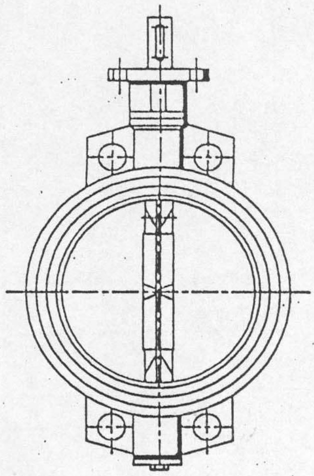


WVSK-70-3

SIZE:
50-1000 mm

PAGE:
34-37

FACE TO FACE DIMENSIONS ACCORDING
WORLD-VALVE STANDARD



WVSK-70-3-K3

SIZE:
250-700 mm

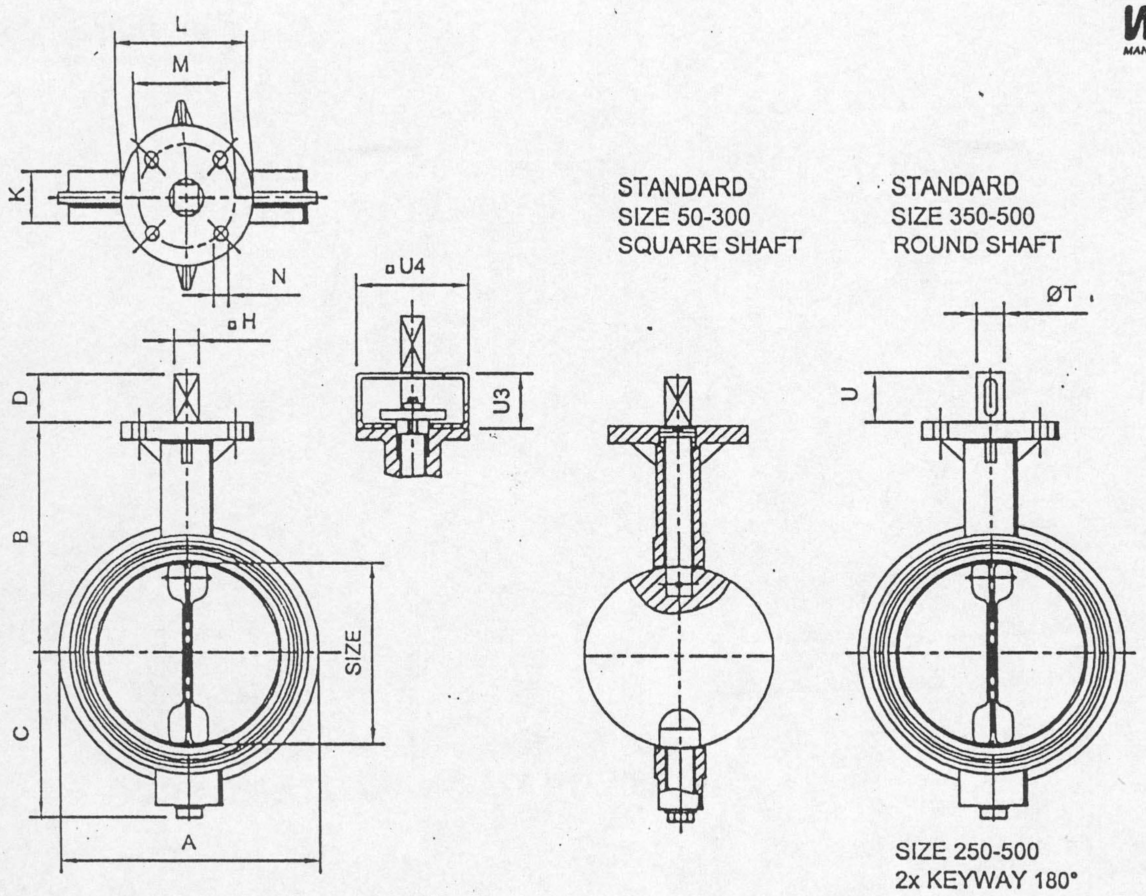
PAGE:
38-39

FACE TO FACE DIMENSIONS ACCORDING
INTERNATIONAL STANDARDS

WVSK-70-3

REGULATION TYPE

World-Valve
MANUFACTURED IN THE NETHERLANDS



DIMENSIONS

SIZE mm	SIZE inch	A	B	C	D	H	K	L	M	N	T	U	U3	U4	Kg
50	2	105	128	70	37	12	35	90	66	9	16	40	100	100	3
65	2.5	125	136	80	37	12	35	90	66	9	16	40	100	100	3
80	3	140	144	88	37	12	35	90	66	9	16	40	100	100	4
100	4	160	154	98	37	12	35	90	66	9	16	40	100	100	4
125	5	190	184	114	37	16	40	110	80	11	20	40	100	150	5
150	6	215	194	124	37	16	40	110	80	11	20	40	100	150	6
200	8	270	229	180	37	16	50	130	80	11	22	40	100	150	12
250	10	326	261	190	37	24	65	175	135	14	30	50	100	150	21
300	12	375	286	220	37	24	65	175	135	14	30	50	100	150	27
350	14	435	322	260	-	-	65	175	135	14	35	50	100	200	37
400	16	485	352	280	-	-	75	175	135	14	40	60	100	200	45
450	18	535	380	325	-	-	75	175	135	14	45	60	100	200	70
500	20	590	420	340	-	-	75	175	135	14	45	60	100	200	90

K = FACE TO FACE ACC. WORLD-VALVE STANDARD

PRESSURE TABLE

STANDARD DELIVERY
SIZE mm
50-500

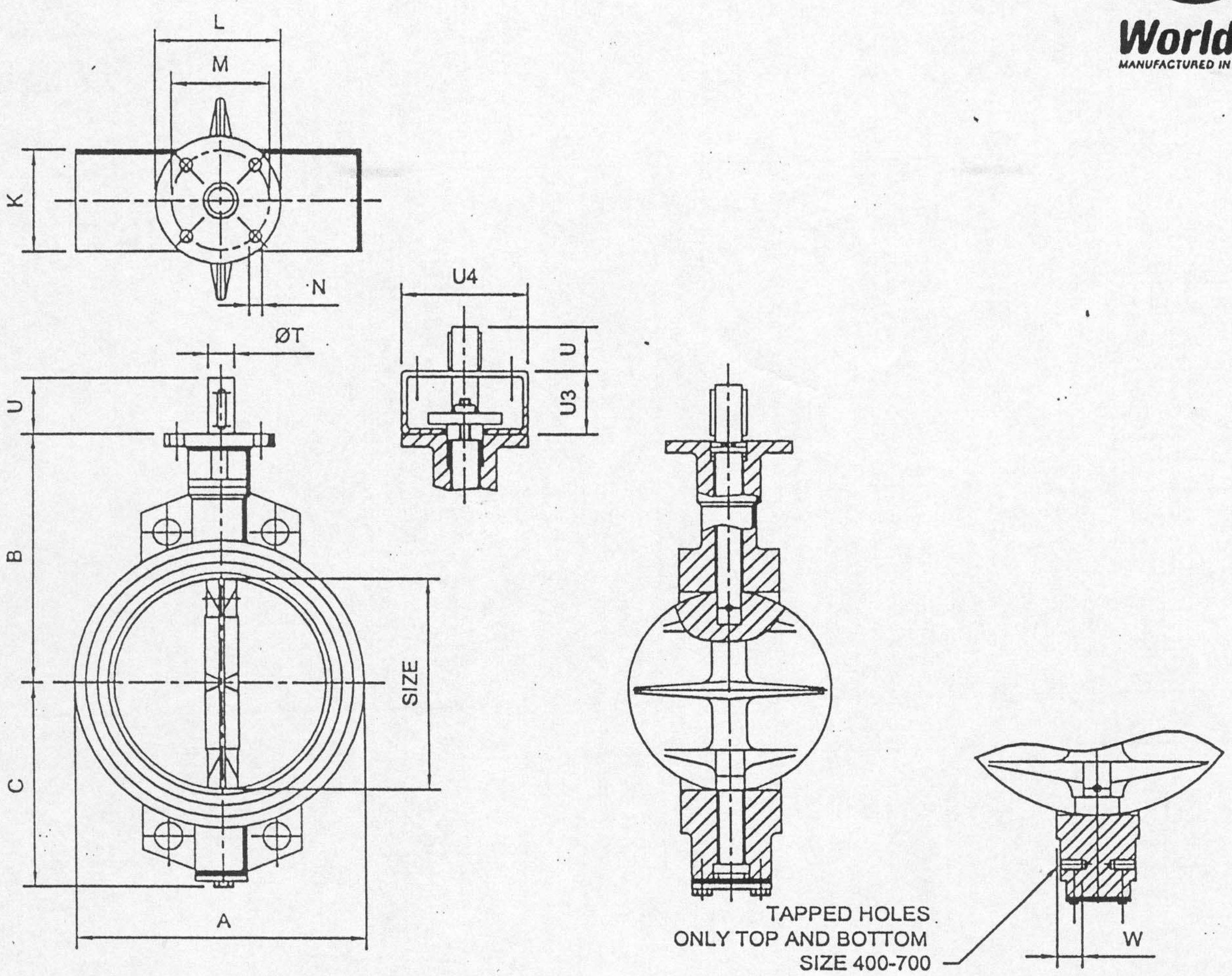
BODY TEST 1.5 X DP

FACE TO FACE DIMENSIONS ACCORDING **WORLD-VALVE STANDARD**

WVSK-70-3-K3

REGULATION TYPE

World-Valve
MANUFACTURED IN THE NETHERLANDS



DIMENSIONS

SIZE mm	SIZE inch	A	B	C	K	L	M	N	T	U	U3	U4	TAPPED HOLES W	Kg
250	10	324	285	240	114	190	135	14	35	50	100	200	-	57
300	12	376	305	260	114	190	135	14	40	60	100	200	-	78
350	14	423	345	290	127	190	135	14	40	60	100	200	-	106
400	16	470	380	325	140	190	135	14	50	60	100	200	30	151
450	18	530	400	345	152	190	135	14	50	60	100	200	30	171
500	20	582	455	380	152	190	135	14	55	70	100	200	30	220
600	24	690	525	445	178	210	165	22	70	85	200	300	30	335
700	28	794	576	490	229	300	165	22	80	85	200	300	30	475

K = FACE TO FACE ACC. DIN-3202-K3 (ISO-SERIES 16) (BS-LONG)

PRESSURE TABLE

STANDARD DELIVERY
SIZE mm
250-700

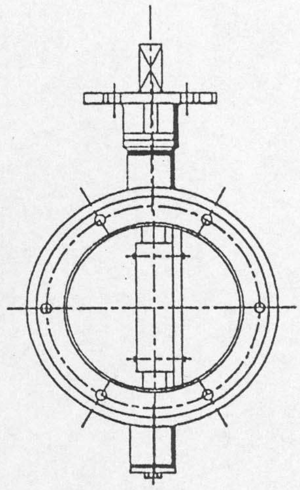
BODY TEST 1.5 X DP

4 DOUBLE ECCENTRIC VALVES

RENEWABLE SEAT

World-Valve
MANUFACTURED IN THE NETHERLANDS

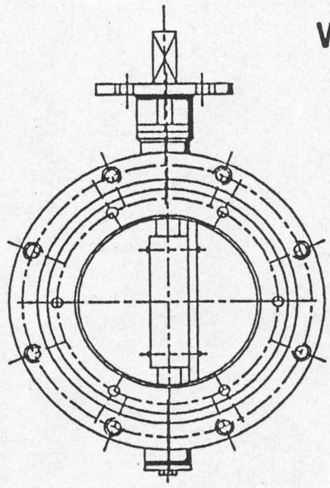
WVTB-NOVA



SIZE:
65-1200 mm

PAGE:
42-45

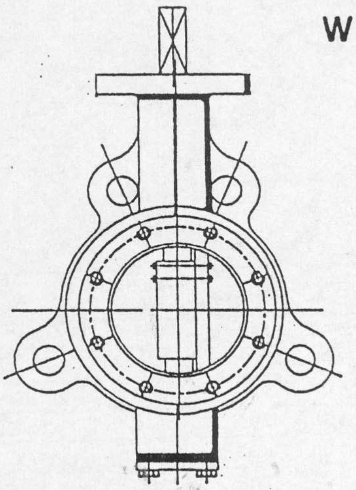
WVTB-NOVA-LT



SIZE:
80-800 mm

PAGE:
46-49

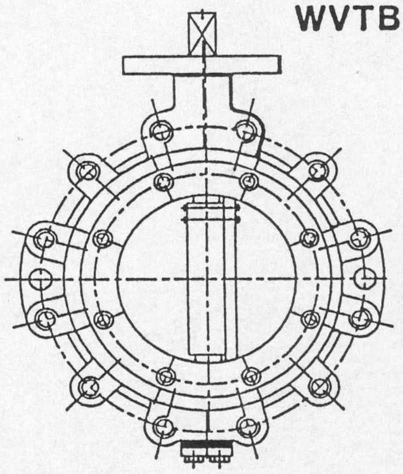
WVTB-ISOLEX



SIZE:
65-600 mm

PAGE:
50-51

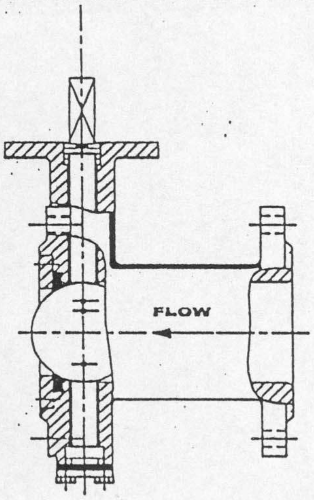
WVTB-ISOLEX-LT



SIZE:
65-1200 mm

PAGE:
52-55

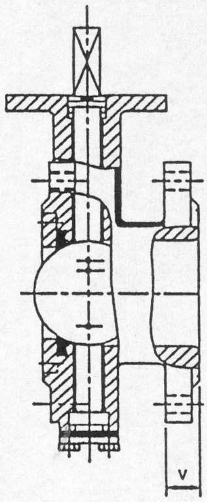
WVFL-NOVA



SIZE:
80-1200 mm

PAGE:
56-57

WVFL-ISOLEX



SIZE:
80-1200 mm

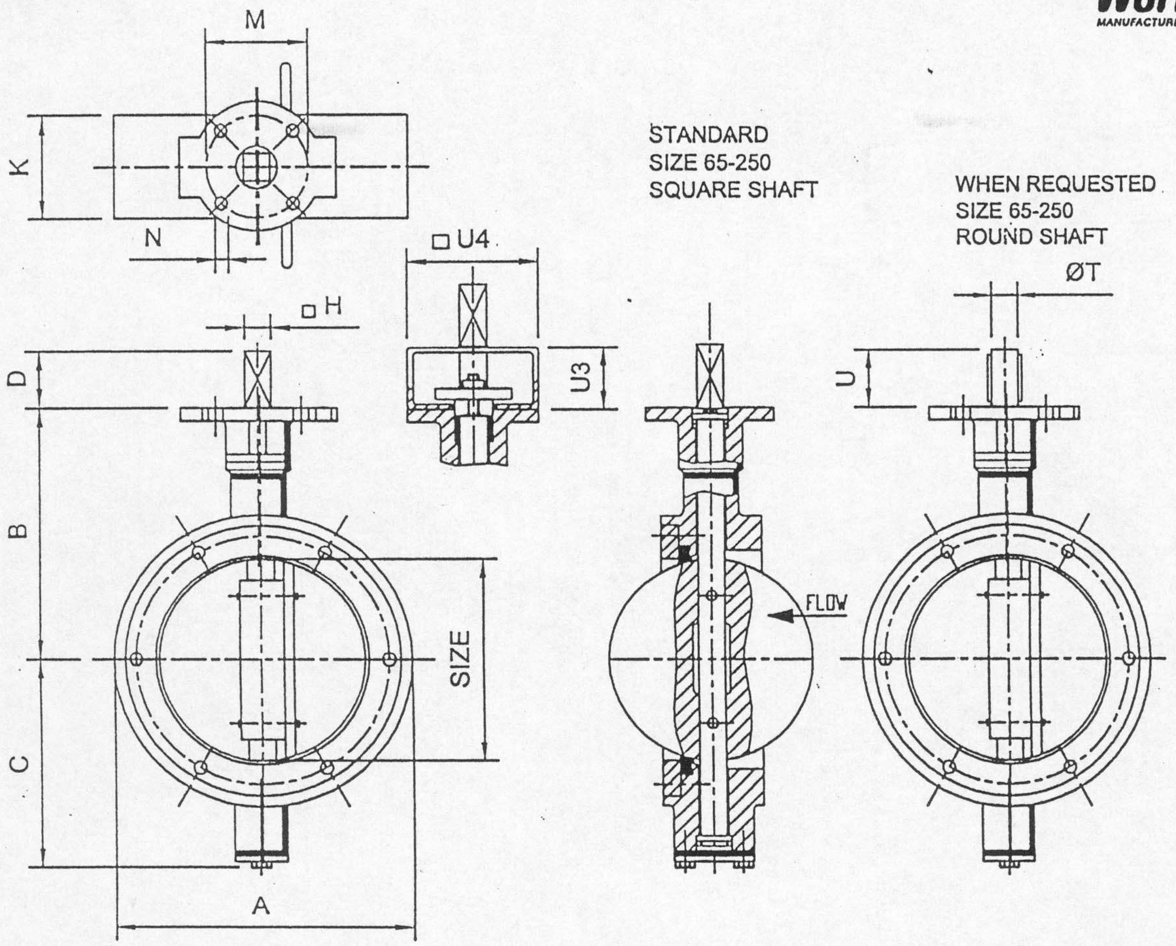
PAGE:
58-59

FACE TO FACE DIMENSIONS ACCORDING **INTERNATIONAL STANDARDS**

WVTB-NOVA

WAFER TYPE DOUBLE ECCENTRIC - RENEWABLE SEAT

World-Valve
MANUFACTURED IN THE NETHERLANDS



DIMENSIONS

SIZE mm	SIZE inch	A	B	C	D	H	K	M	N	T	U	U3	U4	Kg
65	2.5	120	150	65	37	12	**46**	66	9	16	40	100	100	4
80	3	133	155	75	37	16	**64**	80	11	20	40	100	150	7
100	4	161	164	91	37	16	**64**	80	11	20	40	100	150	9
125	5	191	196	107	37	16	**70**	80	11	20	40	100	150	14
150	6	217	206	120	37	16	**76**	80	11	25	50	100	150	17
200	8	272	241	180	37	16	**89**	80	11	25	50	100	150	28
250	10	324	285	240	37	24	**114**	135	14	30	50	100	200	57

WHEN REQUESTED: BI-DIRECTIONAL SHUT OFF
K = FACE TO FACE ACC. DIN-3202 K3 (ISO SERIES 16) (BS-LONG)

PRESSURE TABLE

STANDARD DELIVERY			WHEN REQUESTED		
STANDARD WORKING/TESTPRESSURE			MAXIMUM WORKING/TESTPRESSURE		
SIZE mm	WP ΔP-BAR	TP ΔP-BAR	SIZE mm	WP ΔP-BAR	TP ΔP-BAR
65-250	10	11	65-250	16	18
			65-250	25	28

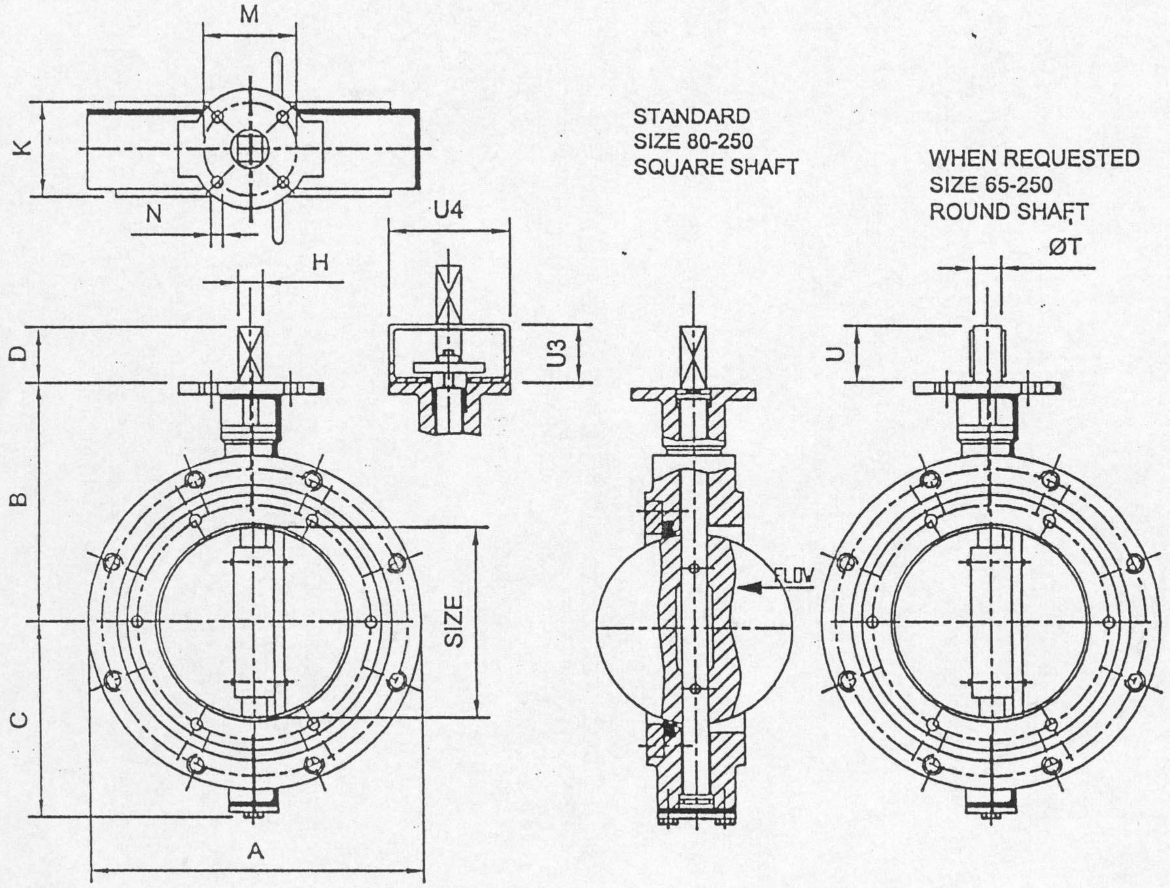
BODY TEST 1.5X DP

FACE TO FACE DIMENSIONS ACCORDING **INTERNATIONAL STANDARDS**

WVTB-NOVA-LT

World-Valve
MANUFACTURED IN THE NETHERLANDS

WAFER LUG TYPE DOUBLE ECCENTRIC - RENEWABLE SEAT
DRILLED OR TAPPED HOLES



DIMENSIONS

SIZE mm	SIZE inch	A	B	C	D	H	K	M	N	T	U	U3	U4	Kg
80	3	200	155	75	37	16	**64**	80	11	20	40	100	150	8
100	4	220	164	91	37	16	**64**	80	11	20	40	100	150	12
125	5	250	196	107	37	16	**70**	80	11	20	40	100	150	1[illegible]
150	6	285	206	120	37	16	**76**	80	11	25	50	100	150	24
200	8	340	241	180	37	16	**89**	80	11	25	50	100	150	34
250	10	405	285	240	37	24	**114**	135	14	30	50	100	200	65

WHEN REQUESTED: BI-DIRECTIONAL SHUT OFF
STANDARD: TAPPED HOLDES
K = FACE TO FACE ACC. DIN-3202 K3 (ISO SERIES 16) (BS-LONG)

PRESSURE TABLE

STANDARD DELIVERY			WHEN REQUESTED		
STANDARD WORKING/TESTPRESSURE			MAXIMUM WORKING/TESTPRESSURE		
SIZE mm	WP ΔP-BAR	TP ΔP-BAR	SIZE mm	WP ΔP-BAR	TP ΔP-BAR
80-250	10	11	80-250	16	18
			80-250	25	28

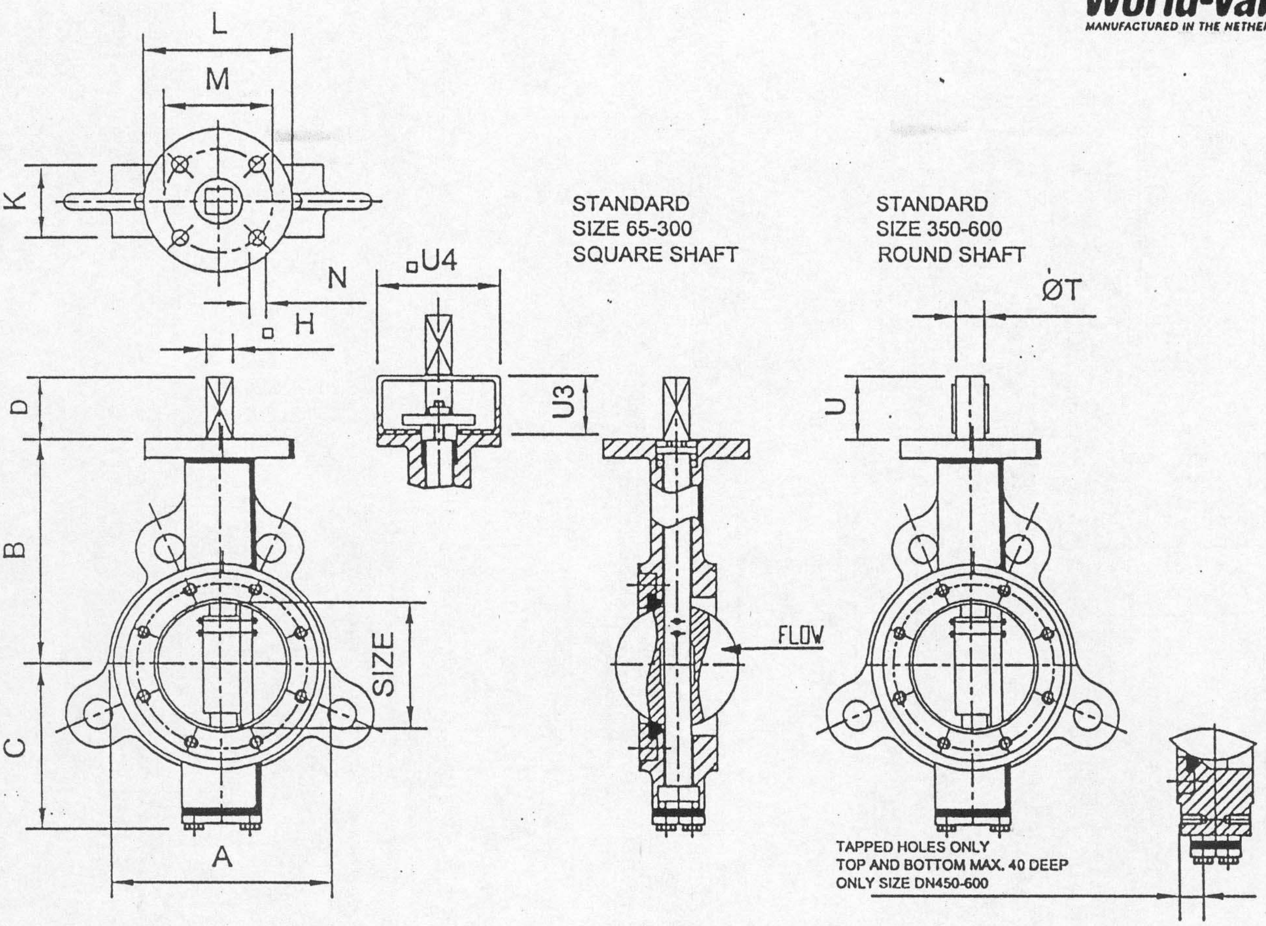
BODY TEST 1.5X DP

FACE TO FACE DIMENSIONS ACCORDING **INTERNATIONAL STANDARDS**

WVTB-ISOLEX

WAFER TYPE DOUBLE ECCENTRIC - RENEWABLE SEAT

World-Valve
MANUFACTURED IN THE NETHERLANDS



DIMENSIONS

SIZE mm	SIZE inch	A	B	C	D	H	K	L	M	N	T	U	U3	U4	Kg
65	2.5	125	136	80	37	12	**46**	90	66	9	16	40	100	100	**5**
80	3	140	144	110	37	12	**46**	90	66	9	16	40	100	100	**7**
100	4	160	154	115	37	12	**52**	90	66	9	16	40	100	100	**8**
125	5	190	184	130	37	16	**56**	130	80	11	20	40	100	150	**13**
150	6	215	194	144	37	16	**56**	130	80	11	20	40	100	150	**16**
200	8	270	229	180	37	16	**60**	130	80	11	22	40	100	150	**24**
250	10	326	261	210	37	24	**68**	175	135	14	30	50	100	200	**48**
300	12	375	286	240	37	24	**78**	175	135	14	30	50	100	200	**68**
350	14	435	322	284	-	-	**78**	175	135	14	35	50	100	200	**87**
400	16	485	352	305	-	-	**102**	175	140	18	40	60	100	200	**125**
450	18	535	380	330	-	-	**114**	175	140	18	50	60	100	200	**148**
500	20	590	420	370	-	-	**127**	175	140	18	50	60	100	200	**201**
600	24	840	525	445	-	-	**154**	210	165	22	60	70	200	300	**305**

WHEN REQUESTED: BI-DIRECTIONAL SHUT OFF
M = TOPFLANGE SIZE 400-600 ACC. ISO-5211
K = FACE TO FACE ACC. DIN-3202 K1 (ISO SERIES 20) (BS-SHORT) (API-609)

PRESSURE TABLE

STANDARD DELIVERY			WHEN REQUESTED		
STANDARD WORKING/TESTPRESSURE			MAXIMUM WORKING/TESTPRESSURE		
SIZE mm	WP ΔP-BAR	TP ΔP-BAR	SIZE mm	WP ΔP-BAR	TP ΔP-BAR
65-600	10	11	**65-600**	16	18
			65-250	25	28

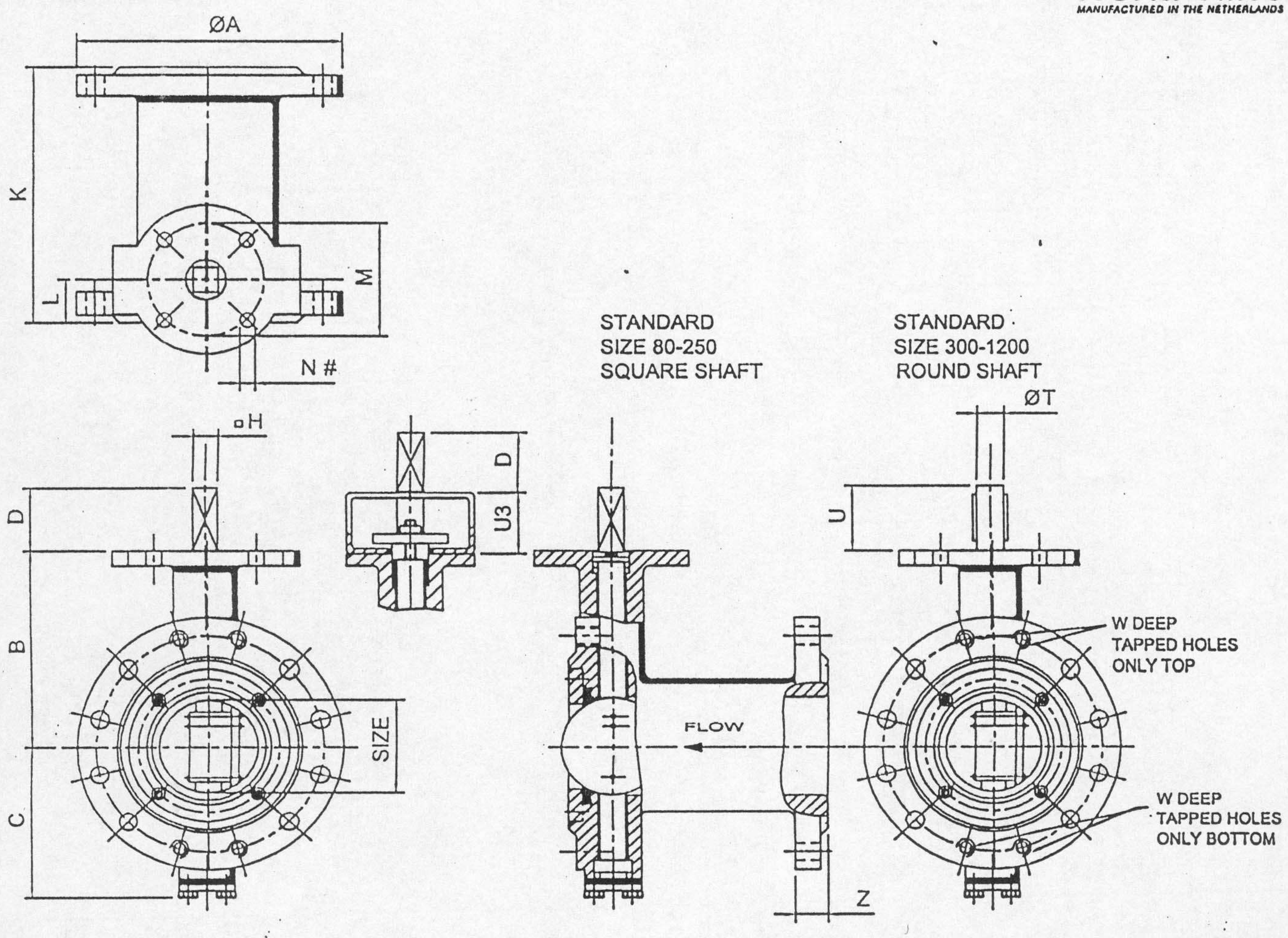
ODY TEST 1.5X DP

FACE TO FACE DIMENSIONS ACCORDING **INTERNATIONAL STANDARDS**

WVFL-NOVA

DOUBLE FLANGED TYPE - DOUBLE ECCENTRIC - RENEWABLE SEAT

World-Valve
MANUFACTURED IN THE NETHERLANDS



DIMENSIONS

SIZE mm	SIZE Inch	A	B	C	D	H	K	L	M	N (#)	T	U	U3	Z	W	Kg
80	3	200	155	75	37	16	**180**	32	80	11 (4)	20	40	100	22	20	**1[illegible]**
100	4	220	164	91	37	16	**190**	32	80	11 (4)	20	40	100	22	20	**20**
125	5	250	196	107	37	16	**200**	35	80	11 (4)	20	40	100	26	22	**28**
150	6	285	206	120	37	16	**210**	38	80	11 (4)	25	50	100	26	22	**30**
200	8	340	241	152	37	16	**230**	44	80	11 (4)	25	50	100	30	24	**41**
250	10	405	285	240	37	24	**250**	57	135	14 (4)	30	50	100	30	26	**74**
300	12	460	305	260	-	-	**270**	57	135	14 (4)	40	60	100	30	26	**86**
350	14	520	345	290	-	-	**290**	63	135	14 (4)	40	60	100	33	28	**106**
400	16	580	380	325	-	-	**310**	70	140	18 (4)	50	60	100	35	30	**120**
450	18	640	400	345	-	-	**330**	76	140	18 (4)	50	60	100	36	30	**150**
500	20	715	455	380	-	-	**350**	76	140	18 (4)	55	70	100	36	32	**220**
600	24	840	525	445	-	-	**390**	86	254	18 (8)	70	85	200	40	38	**300**
700	28	910	576	490	-	-	**430**	94	298	22 (8)	80	85	200	40	38	**380**
800	32	1025	655	530	-	-	**470**	94	298	22 (8)	80	85	200	42	38	**790**
900	36	1125	705	570	-	-	**510**	99	298	22 (8)	100	105	200	42	38	**1000**
1000	40	1255	780	640	-	-	**550**	99	298	22 (8)	100	105	200	45	40	**1100**
1200	48	1485	890	760	-	-	**630**	112	356	32 (8)	110	105	200	50	40	**1290**

WHEN REQUESTED: BI-DIRECTIONAL SHUT OFF
M = TOPFLANGE SIZE 400-1200 ACC. ISO-5211
STANDARD: TAPPED HOLES
K = FACE TO FACE ACC. DIN-3202 F4 (ISO SERIES 14) (BS-LONG)
(#) = NUMBER OF HOLES

STANDARD WORK/TESTPRESSURE (LOOK AT OUR TYPE: WVTB-NOVA)

SEAT - LINER

World-Valve
MANUFACTURED IN THE NETHERLANDS

WV code	Name	Int. code		Temp. °C	Colour
P	Buna-N	**NBR**	Nitril rubber	-10° + 90°	Black + Mark-Red
E	EPDM	**EPDM**	Ethylenepropylene	-30° +130°	Black + Mark-Blue
V	Viton	**FPM**	Viton B	-10° +200°	Red
H	Hypalon	**CSM**	Hypalon	-20° +100°	Greenish
S	Silicone	**VSI**	Silicone	-45° +230°	Red + Mark-Black
U	Vulkolan	**PU**	Vulkolan	-30° + 80°	Brownish
N	Nitril	**NBR**	Nitril food	-30° + 80°	White
T	PTFE +25% Glass	**PTFE**		-50° +210°	White
K	PTFE +50% St. steel-Aisi-316	**PTFE/S**		-50° +230°	Grey
	Metal - Seat				
I	Inconel	**I**		-50° +600°	Metal
B	Ni.Al.Bronze	**A B**		-10° +180°	Metal
C	Aisi-316	**SS**		-40° +300°	Metal

ELASTOMERS-SHORE A - 65°-70°

	Excellent +	WV-code		Unsatisfactory—
N B R	— Water - seawater air — Gas - mineral oil - grease — Alkali - glue — Carbon dioxide	**P**	**N B R**	—Benzole - benzene —Chlorine wet gas —Ethers —Naphta
E P D M	— Water- steam — Actylene - air- gas — Sour - ozon 80 °C	**E**	**E P D M**	—Oils —Grease
V S I	— Hot air — Water 90 °C — H2O2	**S**	**V S I**	—Oils —Aromatic hydrocarbons
C S M	— Organically sour + lye — Oil — Grease	**H**	**C S M**	—Benzol - benzene —Toluol - toluene
P U	— Hydraulic oils — Petroleum — Resistand to erosion	**U**	**P U**	—Water
F P M	— Organically sour + lye — Ozon 80 °C - Water 80 °C — Hydraulic oils — Hot air	**V**	**F P M**	—Water 90 °C —Ammonia

MATERIALS SELECTION

World-Valve
MANUFACTURED IN THE NETHERLANDS

ELASTOMER TYPES

- BUNA-N
- EPDM
- HYPALON
- SILICONE
- VITON

DISC

- Ductile Iron - GGG-40
- Aluminium Bronze - ALBR.
- Stainless steel AISI 316 - AISI 316

	GGG-40	AL-BR	AISI-316	BUNA-N	EPDM	HYPALON	SILICONE	VITON
Acetone	■	■	■	×	■	○	×	×
Acetylene	■	○	■	■	■	○	×	■
Acetic acid	×	○	■	×	■	■	×	×
Boric acid	×	○	■	■	■	■	×	■
Butyric acid	×	×	■	○	●	×	×	×
Carbonic acid	×	×	●	●	●	■	×	■
Chromic acid	×	×	●	○	×	■	×	■
Formic acid	×	○	■	×	■	■	×	×
Hydrochloric acid	×	×	×	×	■	×	×	■
Maleic acid	○	○	■	×	×	■	×	×
Nitric acid	×	×	■	×	×	○	×	■
Oleic acid	×	○	■	■	●	●	×	■
Phosphoric acid	×	○	■	×	■	■	×	■
Salicylic acid	×	×	■	■	■	■	○	■
Sulphuric acid	×	○	●	×	○	■	×	■
Tartaric acid	×	■	■	×	●	■	×	■
Air	■	■	■	■	■	■	■	■
Ethyl alcohol	●	●	●	■	■	■	×	■
Methyl alcohol	●	●	■	■	■	■	×	○
Aniline	○	○	●	○	●	●	×	●
Liquid asphalt	●	■	■	×	×	○	●	■
Benzol	●	■	■	×	×	×	×	●
Potassium bichromate	●	×	■	×	■	■	●	●
Potassium biphosphate	×	●	●	■	■	■	●	■
Borax	×	×	■	×	■	■	×	■
Potassium bromide	●	○	●	■	■	■	×	■
Butane	●	■	●	■	●	■	×	■
Calcium carbonate	●	■	■	■	■	■	×	■
Potassium carbonate	●	●	■	■	■	■	×	■
Sodium carbonate	●	●	●	■	■	■	×	■
Potassium chlorate	●	●	■	■	■	■	×	■
Barium chloride	●	●	■	■	■	■	×	■
Calcium chloride	×	●	●	■	■	■	×	■
Ferric chloride	×	×	○	×	●	■	×	■
Magnesium chloride	×	×	●	■	■	■	×	■
Mercury chloride	×	×	×	●	■	■	×	■
Potassium chloride	×	■	●	■	■	■	×	■
Sodium chloride	×	●	■	■	■	■	×	■
Zinc chloride	×	×	●	×	■	■	×	■
Chlorine	●	●	■	●	×	■	×	■
Chlorobenzene	×	■	■	×	×	●	×	●
Chloroform	●	●	■	×	×	●	×	■
Potassium cyanide	×	×	■	■	■	■	×	■
Acetic anhydride	×	○	●	○	×	■	×	×
Carbon dioxide	×	■	●	○	●	■	×	■
Sulphur dioxide	×	×	●	○	■	■	×	●
Ether	●	●	■	×	×	×	×	×
Sodium fluoride	×	×	●	■	■	■	×	■

	GGG-40	AL-BR	AISI-316	BUNA-N	EPDM	HYPALON	SILICONE	VITON
Formaldehyde	●	■	■	×	●	●	■	■
Furfural	×	■	■	○	●	○	×	×
Gasoline	●	■	■	●	×	○	×	■
Glucose	●	■	■	■	■	■	×	■
Glycerol	●	■	■	■	■	■	×	■
Glycol	●	■	■	■	■	■	×	■
Heptane	×	■	■	■	×	■	×	■
Hydrogen	×	×	■	■	■	■	■	■
Barium hydroxide	×	×	■	■	■	■	×	■
Calcium hydroxide	×	●	■	■	■	■	×	■
Sodium hydroxide	×	×	■	×	●	■	■	○
Sodium hypochlorite	×	×	●	×	■	■	×	●
Kerosene	■	■	■	■	×	●	×	■
Juices	×	×	■	●	●	×	×	×
Methane	●	■	■	■	■	■	×	■
Milk	×	×	■	●	■	×	×	●
Naphta	×	■	■	●	×	○	×	■
Naphthalene	×	■	■	●	×	○	×	■
Ammonium nitrate	×	○	■	■	●	■	×	×
Silver nitrate	×	×	●	■	■	■	×	■
Animal oil	●	●	■	■	×	■	○	■
Diathermic oil	●	●	■	●	×	○	×	■
Emulsifiable oil	●	●	■	■	×	■	○	■
Lubricating oil	■	●	■	■	×	■	○	■
Mineral oil	●	●	■	■	×	■	○	■
Vegetable oil	●	●	■	■	×	■	○	■
Oxygen	●	■	■	○	■	●	×	×
Sodium perborate	×	●	■	●	■	■	×	■
Hydrogen peroxide	×	×	●	×	×	●	×	■
Petroleum	×	×	■	×	×	×	×	■
Ammonic phosphate	×	○	■	●	●	■	×	■
Sodium phosphate	×	○	■	●	■	■	×	■
Pickling sol	×	●	■	●	×	■	×	■
Propane	●	■	■	■	×	●	×	■
Solvent	●	■	■	●	×	●	×	●
Ammonic sulfate	●	●	■	■	■	■	×	■
Barium sulfate	●	■	■	■	■	■	×	—
Ferric sulfate	×	●	■	○	■	■	×	■
Zinc sulfate	×	●	■	■	■	■	×	■
Potassium sulphide	×	●	■	■	■	■	×	×
Sodium sulphide	●	×	■	■	■	■	×	×
Steam	■	■	■	×	■	×	×	○
Sulphur	●	×	■	×	■	■	■	■
Tetraethyl lead	●	●	■	●	×	×	×	■
Turpentine	●	●	■	●	×	×	×	■
Urea	×	●	■	●	■	■	×	×
Sea water	×	●	■	●	■	■	×	■
Soft water	●	■	■	●	■	■	×	■

■ - excellent ● - good ○ - middling × - not to be used