



## OPTIFLUX 2000 Technical Datasheet

### Electromagnetic Flow Sensor

- Engineered and manufactured for the water and wastewater industry
- All relevant approvals for potable water
- Proven and unsurpassed lifetime
- Long-term reliability and durability
- Permanently submersible



**KROHNE**

## Solution for the water and wastewater industry

The **OPTIFLUX 2000** electromagnetic flow sensor is the optimum solution for water and wastewater applications. Its long-term reliability and durability make it the standard flow sensor for the water market.



- ① Flanged design
- ② PP and hard rubber liners
- ③ DVGW and ISO installation lengths

### Highlights

- Drinking water approvals including KTW, WRc, KIWA, ACS
- Proven and unsurpassed lifetime
- Maintenance free
- In situ verification with KROHNE MagCheck
- Compliance with OIML R-49 and ISO 4064
- Optionally permanently submersible, buried underground

### Industries

- Water
- Wastewater
- Pulp & Paper
- Minerals & Mining
- Iron, Steel & Metals
- Power plant

### Applications

- Water distribution networks
- Irrigation
- Municipal watering
- Water purification
- Cooling stations
- District heating

## Electromagnetic product range

**OPTIFLUX converters:** All converters fit to all sensors



- 1 IFC 300 High-performance solution
- 2 IFC 010 Economical solution

**OPTIFLUX sensors**



- 1 OPTIFLUX 1000 Economical solution
- 2 OPTIFLUX 2000 Solution for the water and wastewater industry
- 3 OPTIFLUX 4000 Standard solution for the process industry
- 4 OPTIFLUX 5000 Solution with high-tech ceramics
- 5 OPTIFLUX 6000 Sanitary and hygienic solution

**Special-purpose flowmeters**



- 1 WATERFLUX 2070 Battery powered watermeter solution
- 2 OPTIFLUX 4040 C 2-wire solution
- 3 TIDALFLUX 4110 PF Solution for partially filled pipelines
- 4 BATCHFLUX 5015 C Solution for volumetric filling
- 5 OPTIFLUX 7300 C Electrode-free solution

## Technical data

Nominal diameter	VN14								VN15								VN16									
ASME [inch]	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"	40"	48"	56"	64"	72"	80"
DN [mm]	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000

### Nominal flange pressure

EN 1092-1 - PN 40	[Pressure range chart]																								
EN 1092-1 - PN 25	[Pressure range chart]																								
EN 1092-1 - PN 16	[Pressure range chart]																								
EN 1092-1 - PN 10	[Pressure range chart]																								
EN 1092-1 - PN 6	[Pressure range chart]																								
ISO insertion length	[Pressure range chart]																								
ASME B16.5 - 150 lbs RF	[Pressure range chart]																								
ASME B16.5 - 300 lbs RF	[Pressure range chart]																								
ASME B16.5 - 600 lbs RF	[Pressure range chart]																								
ASME B16.5 - 900 lbs RF	[Pressure range chart]																								
ASME B16.5 - 1500 lbs RF	[Pressure range chart]																								
AWWA - class B or D FF	[Pressure range chart]																								
JIS 10 K	[Pressure range chart]																								
JIS 20 K	[Pressure range chart]																								
For vacuum load see separate table.																									
Larger than DN 2000 / ASME 80" on request																									
AWWA flanges, DN 700 - 1000 / ASME 28" - 40" ≤ 10 bar																									
AWWA flanges, DN 1200 - 2000 / ASME 48" - 80" ≤ 6 bar																									

### Liner

Polypropylene	[Liner availability chart]																								
Hardrubber	[Liner availability chart]																								
See pressure and temperature limits for various liners																									

### Electrodes

Hastelloy C4	[Electrode availability chart]																								
Stainless steel 1,4571 (AISI 316 Ti)	[Electrode availability chart]																								
Titanium	[Electrode availability chart]																								

### Grounding rings

Hastelloy C4	[Grounding ring availability chart]																								
Stainless steel 1,4571 (AISI 316 Ti)	[Grounding ring availability chart]																								
Titanium	[Grounding ring availability chart]																								

### Flanges

Steel 1.0460 (C 22,8)	[Flange availability chart]																								
Steel 1.0038 (RSt37-2)	[Flange availability chart]																								
Stainless steel 1.4404 (AISI 316 L)	[Flange availability chart]																								
Stainless steel 1.4571 (AISI 316 Ti)	[Flange availability chart]																								

### Materials

Measuring tube - austenitic stainless steel	[Material availability chart]																								
Housing (polyurethane coated) sheet steel	[Material availability chart]																								

Nominal diameter	VN14										VN15										VN16									
ASME [inch]	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"		8"	10"	12"	14"	16"	18"	20"	24"		28"	32"	36"	40"	48"	56"	64"	72"	80"		
DN [mm]	25	32	40	50	65	80	100	125	150		200	250	300	350	400	450	500	600		700	800	900	1000	1200	1400	1600	1800	2000		
Housing stainless steel	■										■										■									
Die-cast aluminium connection box (polyurethane coated)	■										■										■									
Stainless steel connection box	■										■										■									
	Other materials on request																													

### Protection category

IP 66 / 67 eq. NEMA 4/4X / 6	■																													
IP 68 field eq. NEMA 6P	■																													
IP 68 factory eq. NEMA 6P	■																													

### Approvals

Non-Ex	■																													
EEx zone 1 / 2	■																													
FM - class I div. 2	■																													
CSA - GP	■																													
CSA - class I div. 2	■																													
SAA - Aus Ex zone 2	■																													
TIIS - zone 2	■																													
	Please note the approvals are for flow sensors only.																													

### Versions

Compact + IFC 300 C	■																													
Separate + IFC 300 F, R, W	■																													
Compact + IFC 010 C	■																													
Separate + IFC 010 W	■																													

### Conductivity

Min. conductivity	min. 20 µS/cm																													
-------------------	---------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

■ standard ■ optional □ on request

## Temperature range

Temperature range	Process [°C]		Ambient [°C]	
	min.	max.	min.	max.

### Hardrubber

Separate flow sensor (OPTIFLUX 2000 F)	-5	80	-40	65
Compact with IFC 300 (OPTIFLUX 2300 C)	-5	80	-40	65
Compact with IFC 010 (OPTIFLUX 2010 C)	-5	80	-25	60

### Polypropylene

Separate flow sensor (OPTIFLUX 2000 F)	-5	90	-40	65
Compact with IFC 300 (OPTIFLUX 2300 C)	-5	90	-40	65
Compact with IFC 010 (OPTIFLUX 2010 C)	-5	90	-25	60
* Polypropylene available for DN 25 - 150				

Temperature range	Process [°F]		Ambient [°F]	
	min.	max.	min.	max.

### Hardrubber

Separate flow sensor (OPTIFLUX 2000 F)	23	176	-40	149
Compact with IFC 300 (OPTIFLUX 2300 C)	23	176	-40	149
Compact with IFC 010 (OPTIFLUX 2010 C)	23	176	-13	140

### Polypropylene

Separate flow sensor (OPTIFLUX 2000 F)	23	194	-40	149
Compact with IFC 300 (OPTIFLUX 2300 C)	23	194	-40	149
Compact with IFC 010 (OPTIFLUX 2010 C)	23	194	-13	140
* Polypropylene available for ASME 1" - 6"				

## Vacuum load

Liner	Diameter	Minimum operating pressure absolute in mbar (abs) at process temperature				
		[mm]	20°C	40°C	60°C	80°C
Polypropylene	DN 25 - 150		250	250	400	400
Hardrubber	DN 200 - 300		250	250	400	400
	DN 350 - 1000		500	500	600	600
	DN 1200 - 3000		600	600	750	750

Liner	Diameter	Minimum operating pressure absolute in psia at process temperature				
		[inch]	68°F	104°F	140°F	176°F
Polypropylene	1" - 6"		3,6	3,6	5,8	5,8
Hardrubber	8" - 12"		3,6	3,6	5,8	5,8
	14" - 40"		7,3	7,3	8,7	8,7
	48" - 120"		8,7	8,7	10,9	10,9

## Dimensions and Weights

Nominal size		Dimensions [mm]							Approx.
DN	PN	L		H	W	T			weight
[mm]	[bar]	DIN	ISO			box	010	300	[kg]

### DN25...150

25	40	150	200	140	115	218	245	297	5
32	40	150	200	157	140	235	262	314	6
40	40	150	200	166	150	244	271	323	7
50	40	200	200	186	165	264	291	343	11
65	16	200	200	200	185	278	305	357	9
80	40	200	200	209	200	287	314	366	14
100	16	250	250	237	220	315	342	394	15
125	16	250	250	266	250	344	371	423	19
150	16	300	300	300	285	378	405	457	27

### DN200...600

200	10	350	350	361	340	439	466	518	34
250	10	400	450	408	395	486	513	565	48
300	10	500	500	458	445	536	563	615	58
350	10	500	550	510	505	588	615	667	78
400	10	600	600	568	565	646	673	725	101
450	10	600	-	618	615	696	723	775	111
500	10	600	-	671	670	749	776	828	130
600	10	600	-	781	780	859	886	938	165

### DN700...2000

700	10	700	-	898	895	976	1003	1055	248
800	10	800	-	1012	1015	1090	1117	1169	331
900	10	900	-	1114	1115	1192	1219	1271	430
1000	10	1000	-	1225	1230	1303	1330	1382	507
1200	6	1200	-	1417	1405	1495	-	1574	555
1400	6	1400	-	1619	1630	1697	-	1776	765
1600	6	1600	-	1819	1830	1897	-	1976	1035
1800	6	1800	-	2027	2045	2105	-	2184	1470
2000	6	2000	-	2259	2265	2337	-	2416	1860



Nominal size		Dimensions 150lbs [inch]						Approx.
ASME	PN	L	H	W	T			weight
[inch]	[psi]				box	010	300	[lbs]

DN1" ...6"

1"	284	5,91	5,39	4,25	8,46	9,53	11,57	18
1 1/2"	284	5,91	6,1	5	9,17	10,24	12,28	22
2"	284	7,87	7,05	5,98	10,12	11,18	13,23	29
3"	284	7,87	8,03	7,5	11,1	12,17	14,21	37
4"	284	9,84	9,49	9	12,56	13,62	15,67	51
5"	284	9,84	10,55	10	13,62	14,69	16,73	60
6"	284	11,81	11,69	11	14,76	15,83	17,87	75

DN8" ...24"

8"	284	13,78	14,25	13,5	17,32	18,39	20,43	95
10"	284	15,75	16,3	16	19,37	20,43	22,48	143
12"	284	19,69	18,78	19	21,85	22,91	24,96	207
14"	284	27,56	20,67	21	23,74	24,8	26,85	284
16"	284	31,5	22,95	23,5	26,02	27,09	29,13	364
18"	284	31,5	24,72	25	27,8	28,86	30,91	410
20"	284	31,5	26,97	27,5	30,04	31,1	33,15	492
24"	284	31,5	31,38	32	34,45	35,51	37,56	675
Pressures are applicable at 20 °C (68 °F).								
For higher temperatures, the pressure and temperature ratings are as per ASME B16.5 (up to 24") or ASME B16.47 (>24")								

Nominal size		Dimensions 150lbs [mm]						Approx.
ASME	PN	L	H	W	T			weight
[inch]	[psi]				box	010	300	[kg]

## DN1" ...6"

1"	284	150	137	108	215	242	294	8
1 1/2"	284	150	155	127	233	260	312	10
2"	284	200	179	152	257	284	336	13
3"	284	200	204	190,5	282	309	361	17
4"	284	250	241	228,6	319	346	398	23
5"	284	250	268	254	346	373	425	27
6"	284	300	297	279,4	375	402	454	34

## DN8" ...24"

8"	284	350	362	342,9	440	467	519	43
10"	284	400	414	406,4	492	519	571	65
12"	284	500	477	482,6	555	582	634	94
14"	284	700	525	533,4	603	630	682	129
16"	284	800	583	596,9	661	688	740	165
18"	284	800	628	635	706	733	785	186
20"	284	800	685	698,5	763	790	842	223
24"	284	800	797	812,8	875	902	954	306

Pressures are applicable at 20 °C (68 °F).

For higher temperatures, the pressure and temperature ratings are as per ASME B16.5 (up to 24") or ASME B16.47 (>24")

Nominal size		Dimensions 300lbs [inch]						Approx. Weight
ASME	PN	L	H	W	T			
[inch]	[psi]				box	010	300	[lbs]

DN1" ...6"

1"	741	5,91	5,71	4,87	8,78	9,84	11,89	18
1 1/2"	741	7,87	6,65	6,13	9,72	10,79	12,83	20
2"	741	9,84	7,32	6,5	10,39	11,46	13,5	29
3"	741	9,84	8,43	8,25	11,5	12,56	14,61	37
4"	741	11,81	10	10	13,07	14,13	16,18	51
6"	741	12,6	12,44	12,5	15,51	16,57	18,62	79

DN8" ...24"

8"	741	15,75	15,04	15	18,11	19,17	21,22	157
10"	741	19,69	17,05	17,5	20,12	21,18	23,23	247
12"	741	23,62	20	20,5	23,07	24,13	26,18	375
14"	741	27,56	21,65	23	24,72	25,79	27,83	474
16"	741	31,5	23,98	25,5	27,05	28,11	30,16	639
20"	741	31,5	28,46	30,5	31,54	32,6	34,65	937
24"	741	31,5	33,39	36	36,46	37,52	39,57	1345

Pressures are applicable at 20 °C [68 °F].

For higher temperatures, the pressure and temperature ratings are as per ASME B16.5 (up to 24") or ASME B16.47 (>24")

Nominal size		Dimensions 300lbs [mm]						Approx.
ASME	PN	L	H	W	T			weight
[inch]	[psi]				box	010	300	[kg]

## DN1" ...6"

1"	741	150	145	123,8	223	250	302	8
1 1/2"	741	200	169	155,6	247	274	326	9
2"	741	250	186	165,1	264	291	343	13
3"	741	250	214	209,6	292	319	371	17
4"	741	300	254	254	332	359	411	23
6"	741	320	316	317,5	394	421	473	36

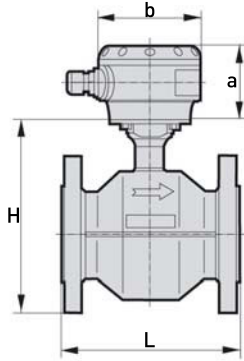
## DN8" ...24"

8"	741	400	382	381	460	487	539	71
10"	741	500	433	444,5	511	538	590	112
12"	741	600	508	520,7	586	613	665	170
14"	741	700	550	584,2	628	655	707	215
16"	741	800	609	647,7	687	714	766	290
20"	741	800	723	774,7	801	828	880	425
24"	741	800	848	914,4	926	953	1005	610

Pressures are applicable at 20 °C (68 °F).

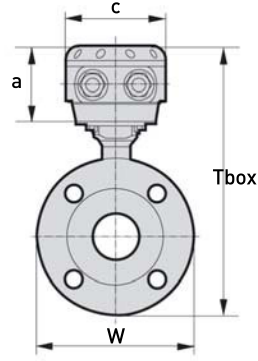
For higher temperatures, the pressure and temperature ratings are as per ASME B16.5 (up to 24") or ASME B16.47 (>24")

Frontview OPTIFLUX 2000 F



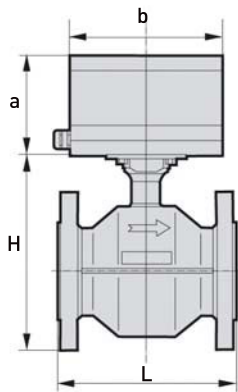
a = 77 mm / 3,1"  
b = 111 mm / 4,4"

Sideview OPTIFLUX 2000 F



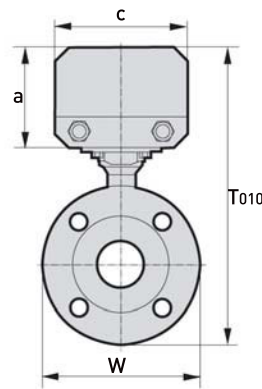
a = 77 mm / 3,1"  
c = 106 mm / 4,2"

Frontview OPTIFLUX 2010 C



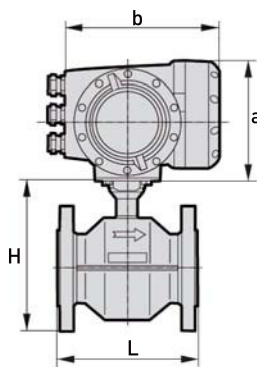
a = 105 mm / 4,2"  
b = 160 mm / 6,3"

Sideview OPTIFLUX 2010 C



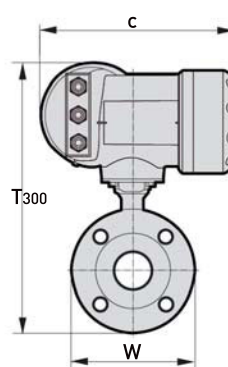
a = 105 mm / 4,2"  
c = 140 mm / 5,5"

Frontview OPTIFLUX 2300 C

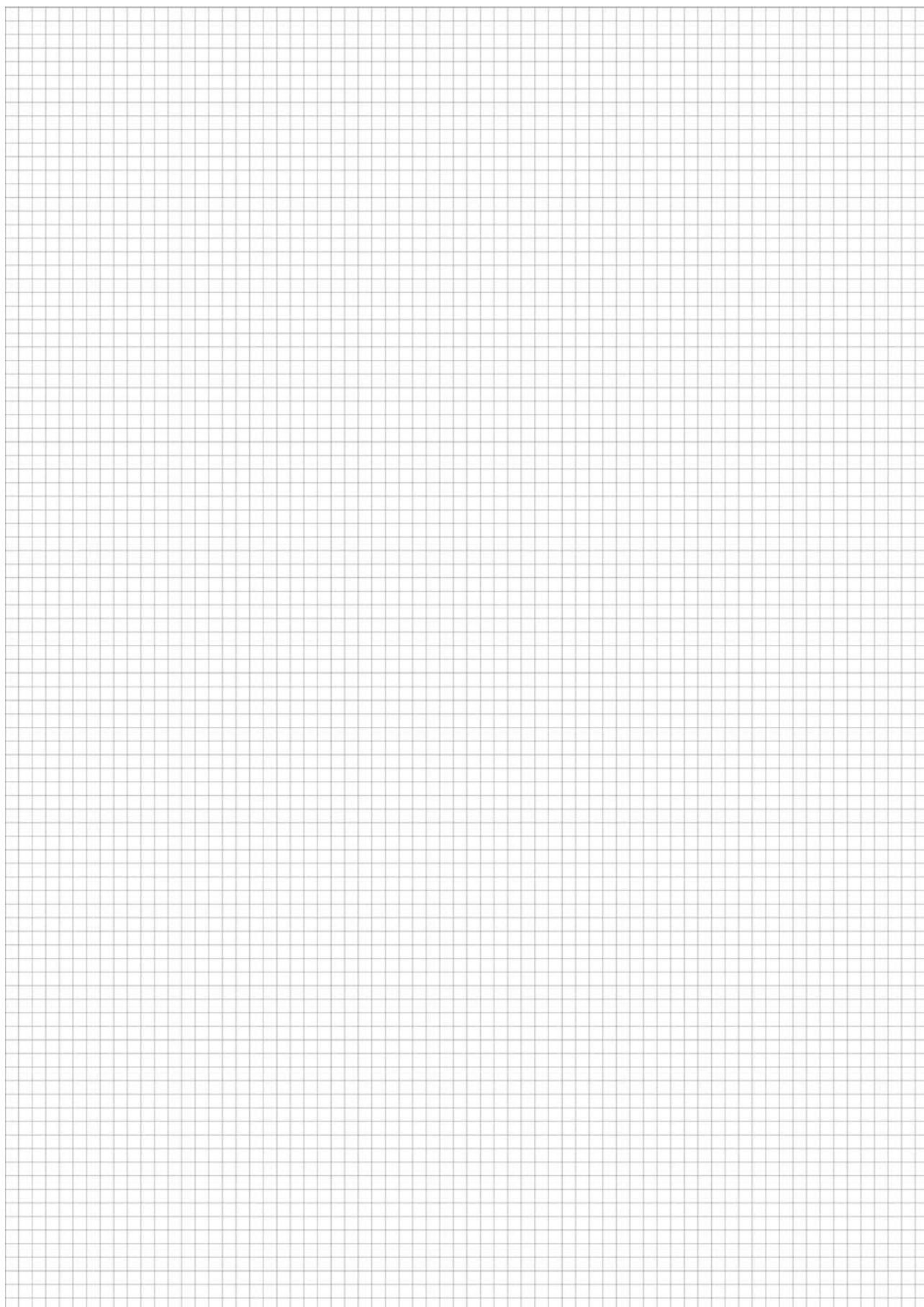


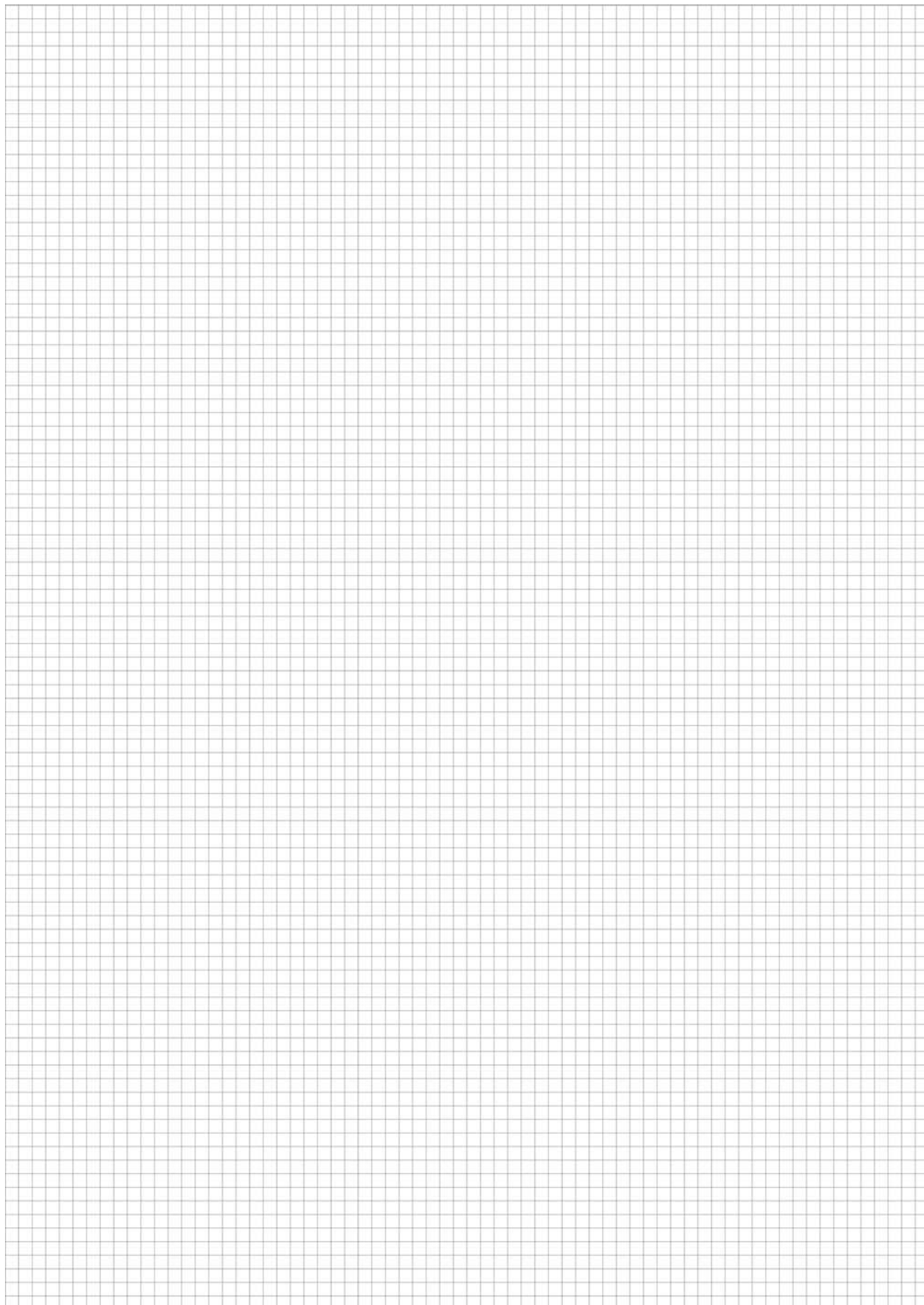
a = 155 mm / 6,1"  
b = 202 mm / 7,8"

Sideview OPTIFLUX 2300 C



c = 260 mm / 10,2"





## KROHNE product overview

- Electromagnetic flowmeters
- Variable area flowmeters
- Mass flowmeters
- Ultrasonic flowmeters
- Vortex flowmeters
- Flow controllers
- Level measuring instruments
- Pressure gauges
- Temperature measuring instruments
- Water solutions & analysis
- Oil and gas turnkey solutions

## Addresses:

### KROHNE Deutschland

#### Vertrieb Nord (North sales office)

KROHNE Messtechnik GmbH & Co. KG  
Bremer Str. 133  
D-21073 Hamburg  
Phone: +49 (0)40 767 3340  
Fax: +49 (0)40 767 33412  
nord@krohne.de  
ZIP code: 10000 - 29999, 49000 - 49999

#### Vertrieb West-Mitte (West and Central sales office)

KROHNE Messtechnik GmbH & Co. KG  
Ludwig-Krohne-Straße  
D-47058 Duisburg  
Phone: +49 (0)203 301 416  
Fax: +49 (0)203 301 10416  
west@krohne.de  
ZIP code: 30000 - 34999, 37000 - 48000, 50000 - 53999, 57000 - 59999, 98000 - 99999

#### Vertrieb Süd (South sales office)

KROHNE Messtechnik GmbH & Co. KG  
Landsberger Str. 392  
D-81241 Munich  
Phone: +49 (0)89 121 5620  
Fax: +49 (0)89 129 6190  
sued@krohne.de  
ZIP code: 0 - 9999, 80000 - 89999, 90000 - 97999

#### Vertrieb Süd-West (Southwest sales office)

KROHNE Messtechnik GmbH & Co. KG  
Rüdesheimer Str. 40  
D-65239 Hochheim/Main  
Phone: +49 (0)6146 827 30  
Fax: +49 (0)6146 827 312  
rhein-main@krohne.de  
ZIP code: 35000 - 36999, 54000 - 56999, 60000 - 79999

#### Instrumentation and control equipment catalog

TABLAR Messtechnik GmbH  
Ludwig-Krohne-Straße 5  
D-47058 Duisburg  
Phone: +49 (0)2 03 305 880  
Fax: +49 (0)2 03 305 8888  
kontakt@tablar.de www.tablar.de

### KROHNE marketing companies

#### Australia

KROHNE Australia Pty Ltd  
Quantum Business Park 10/287  
Victoria Rd Rydalmere NSW 2116  
Phone: +61 2 8846 1700  
Fax: +61 2 8846 1755  
krohne@krohne.com.au

#### Belgium

KROHNE Belgium N.V.  
Brusselstraat 320  
B-1702 Groot Bijgaarden  
Phone: +32 (0)2 4 66 00 10  
Fax: +32 (0)2 4 66 08 00  
krohne@krohne.be

#### Brazil

KROHNE Conaut Controles  
Automaticos Ltda.  
Estrada Louis Pasteur, 230  
C.P. 56 06835 - 080 EMBU - SP  
Phone: +55 (0)11-4785-2700  
Fax: +55 (0)11 4785-2768  
conaut@conaut.com.br

#### China

KROHNE Measurement Instruments  
(Shanghai) Co. Ltd., (KMIC)  
Room 1501  
1033 Zhaojiabang Road  
Shanghai 200030  
Phone: +86 21 6487 9611  
Fax: +86 21 6438 7110  
info@krohne-asia.com

#### France

KROHNE S.A.S.  
Les Ors BP 98  
F-26103 ROMANS Cedex  
Phone: +33 (0)4 75 05 44 00  
Fax: +33 (0)4 75 05 00 48  
info@krohne.fr

#### Great Britain

KROHNE Ltd.  
Rutherford Drive  
Park Farm Industrial Estate  
Wellingborough  
Northants NN8 6AE  
Phone: +44 (0)19 33 408 500  
Fax: +44 (0)19 33 408 501  
info@krohne.co.uk

#### CIS

Kanex KROHNE Engineering AG  
Business-Centre Planeta  
Office 404 ul.  
Marxistskaja 3  
109147 Moscow/Russia  
Phone: +7 (0)095 911 7165  
Fax: +7 (0)095 742 8873  
krohne@dol.ru

#### India

KROHNE Marshall Ltd.  
A-34/35, M.I.D.C. Industrial Area,  
H-Block  
Pimpri Poona 411018  
Phone: +91 (0)202 744 2020  
Fax: +91 (0)202 744 2020  
pcui@vsnl.net

#### Iran

KROHNE Liaison Office  
North Sohrvardi Ave.  
26, Sarmad St., Apt. #9  
Tehran 15539  
Phone: +9821 8874 5973  
Fax: +9821 8850 1268  
krohne@krohneiran.com

#### Italy

KROHNE Italia Srl.  
Via V. Monti 75  
I-20145 Milan  
Phone: +39 (0)2 4300 661  
Fax: +39 (0)2 4300 66 66  
info@krohne.it

#### Korea

KROHNE Korea  
Room 508 Miwon Bldg 43  
Yoido-Dong Youngdeungpo-Ku  
Seoul, Korea  
Phone: 00-82-2-780-1743  
Fax: 00-82-2-780-1749  
krohnekorea@krohnekorea.com

#### Netherlands

KROHNE Nederland B.V.  
Kerkepleat 14  
NL-3313 LC Dordrecht  
Phone: +31 (0)78 630 6200  
Fax: +31 (0)78 630 6405  
Service Direct: +31 (0)78 630 6222  
info@krohne.nl

#### Norway

KROHNE Norway A.S.  
Ekholtveien 114  
NO-1521 Moss  
Phone: +47 (0)69 264 860  
Fax: +47 (0)69 267 333  
postmaster@krohne.no

#### Austria

KROHNE Austria Ges.m.b.H.  
Modocenterstraße 14  
A-1030 Vienna  
Phone: +43 (0)1/203 45 32  
Fax: +43 (0)1/203 47 78  
info@krohne.at

#### Poland

KROHNE Endra Sp. z o.o.  
ul. Stary Rynek Oliwski 8a  
80-324 Danzig  
Phone: +48 (0)58 5209211  
Fax: +48 (0)58 520912  
wendraszka@krohne.pl

#### Republic of South Africa

KROHNE Pty. Ltd.  
163 New Road  
Halfway House Ext 13  
Midrand  
Phone: +27 (0)11 315 2685  
Fax: +27 (0)11 805 0531  
midrand@krohne.co.za

#### Switzerland

KROHNE AG  
Uferstr. 90  
CH-4019 Basel  
Phone: +41 (0)61 638 30 30  
Fax: +41 (0)61 638 30 40  
info@krohne.ch

#### Singapore

Tokyo Keiso - KROHNE (Singapore)  
Pte. Ltd.  
14, International Business Park,  
Jurong East  
Chiyoda Building, #01-01/02  
Singapore 609922  
Phone: (65) 6567 4548  
Fax: (65) 6567 9874  
tks@tokyokeiso-krohne.com.sg

#### Spain

I. I. KROHNE IBERIA, S.r.l.  
Poligono Industrial Nilo  
Calle Brasil, nº. 5  
28806 Alcalá de Henares Madrid  
Phone: +34 (0)91 883 2152  
Fax: +34 (0)91 883 4854  
krohne@krohne.es

#### Czech Republic

KROHNE CZ, spol. s r.o.  
Soběšická 156  
63800 Brno  
Phone: +420 (0)545.242 627  
Fax: +420 (0)545 220 093  
brno@krohne.cz

#### USA

KROHNE, Inc.  
7 Dearborn Road  
Peabody, MA 01960  
Phone: +1 (800) FLOWING  
Phone: +1 (978) 535 6060 (in MA)  
info@krohne.com

### KROHNE representatives

Algeria  
Argentina  
Cameroon  
Canada  
Chile  
Columbia  
Croatia  
Denmark  
Ecuador  
Egypt  
Finland  
Gabon  
Ghana  
Greece  
Hong Kong  
Hungary  
Indonesia  
Iran  
Ireland  
Israel  
Ivory Coast  
Japan  
Jordan  
Kuwait  
Libya  
Lithuania  
Malaysia  
Mauritius  
Mexico  
Morocco  
New Zealand  
Peru  
Portugal  
Romania  
Saudi Arabia  
Senegal  
Slovakia  
Slovenia  
Sweden  
Taiwan  
Thailand  
Tunisia  
Turkey  
Venezuela  
Yugoslavia

### Other countries

KROHNE Messtechnik GmbH & Co. KG  
Ludwig-Krohne-Str. 5  
D-47058 Duisburg  
Phone: +49 (0)203 301 0  
Fax: +49 (0)203 301 389  
export@krohne.de