



## BM500 / LS6X00 / LS72XX

Technical Datasheet

Level gauges for hygienic applications

- Hygienic installation
- Completely made of stainless steel
- Maintenance / seal-free installation

**KROHNE**

## Hygienic level gauges

The **BM 500** is a continuous level gauge for small vessels with viscous and pasty products with a minimum conductivity of 1  $\mu\text{S}/\text{cm}$ .

The electromagnetic switches of the **LS 6000 series** are designed as limit switches for level detection or dry run protection. The measurement method allows universal application for changing media. Coating and condensate are not detected.

The conductive switches of the **LS 7000 series** are designed as limit switches for level detection or dry run protection for conductive products.



- ① BM 500
- ② LS 6200 PG
- ③ LS 7240 coated

### Highlights

- Max. temperature 140°C / 285°F
- Fast response time
- Optimized flow geometry
- No pressure loss

### Industries

- Food & Beverage
- Pharmaceuticals
- Cosmetics

### Typical applications

- Level measurement of mustard
- Level measurement of ketchup
- Level detection of cream
- Level detection of toothpaste

## Options and variants



### BM 500

- Remote version
- Length up to 3 m / 10 ft
- Potted version
- "Empty" and "Overfull" status signals
- Automatic position detection (installation from top or bottom)



### LS 6200

- No blockage of the pipeline
- Installation from DN 25
- LED switch indicator
- Insensitive to build-up of foam



**LS 6250 (LS 6250 S)**

- Suitable for organic products
- LED switch indicator



**LS 6300 (LS 6300 S)**

- Installation from DN 15
- LED switch indicator



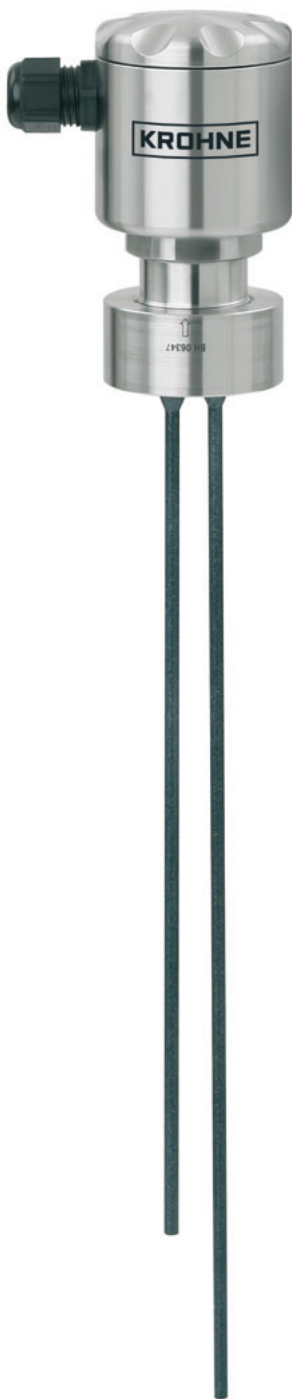
#### LS 7200

- No blockage of the pipeline



#### LS 7210 / 7211 / 7220 / 7221

- Mono rod probes, stainless steel or coated
- Can be shortened



LS 7230 / 7240 (LS 7240 coated)

- Multiple rod probes, stainless steel or coated
- Can be shortened

## Technical data

### BM 500

#### Measuring system

Functional principle	Potentiometric
Installation	Installation from top or bottom (automatic position detection)

#### Measuring accuracy

Accuracy	± 0.5%
Repeatability	± 0.1% of the max. measuring rod length
Min. measuring range	50 mm / 2", configurable using keys
Response time	T <sub>66</sub> 10 ms

#### Operating conditions

Pressure	≤ 16 bar / 232 psi
Ambient temperature (compact)	-20...+60°C / -4...+140°F
Ambient temperature (remote)	-20...+100°C / -4...+212°F
Operating temperature	-20...+140°C / -4...+284°F
Medium conductivity	≥ 1 µS/cm

#### Materials

Probe	Stainless steel 1.4404 / AISI 316 L
Housing	Stainless steel 1.4301 / AISI 304
Process connection	Stainless steel 1.4404 / AISI 316 L
Isolation material	PEEK (FDA accepted)
M16 cable glands	Plastic
M12 plug	Brass, nickel plated

#### Process connections

Screwed joint	G1" hygienic; adapter ①
Sensor length	200...3000 mm / 0.6...10 ft
Cable length	1000...5000 mm / 3.3...16.4 ft (only for remote version)
Protection class [EN 60529]	IP67
Vibrations	IEC 68-2-6, GL test2

#### Electrical connection

Resolution, input	15 bit
Output	4...20 mA; max. load 500 Ohm
Power supply	18...36 VDC; max. 200 mA
Status signal, "empty"	2.4 mA
Status signal, "filled"	21.6 mA

#### Approvals

Immunity (EMC)	EN 61000-6-2
Emissions (EMC)	EN 50081-1

#### Accessories

HWN 500 welding sleeve	Option ①
Hygienic adapter sleeve for other process connections	Option ①
Adapter sleeve	Option ①

① For further information, see additional datasheet "Accessories for hygienic measuring instruments".

## LS 6000 Series

Version	LS 6200	LS 6250 / LS 6250 S	LS 6300 / LS 6300 S
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## Measuring system

Functional principle	Electromagnetic wave
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## Operating conditions

Pressure	≤ 16 bar / 232 psi
Ambient temperature	-20...+60°C / -4...+140°F
Operating temperature	-20...+85°C / -4...+185°F (Cleaning 140°C / 284°F (1h))
Applications	Please refer to the following table "Positioning the jumper and recommended applications"

## Materials

Probe	Stainless steel 1.4404 / AISI 316 L
Housing	Stainless steel 1.4301 / AISI 304
Process connection	Stainless steel 1.4404 / AISI 316 L
Isolation material	PEEK (FDA accepted)
M16 cable glands	Plastic
M12 plug	Brass, nickel plated

## Process connections

Threaded joint	G½" hygienic; adapter ❶	M12 hygienic ❶
Protection class (EN 60529)	IP67	

## Electrical connection

Standard	Contactless switch
Contact output	18...36 VDC; max. 50 mA (load free)
Power supply	18...36 VDC; max. 70 mA
Full/empty switching function	Polarity of the power supply
Attenuation	0.1 / 1.0 s (Jumper)
Hysteresis	± 1 mm
Repeatability	± 2 mm
Status display	LED

## Approvals

Immunity (EMC)	EN 61000-6-2
Emissions (EMC)	EN 50081-1
Vibration	IEC 68-2-6, GL test2

## Accessories

HWN 200 welding sleeve	Option ❶
Hygienic adapter sleeve for other process connections	Option ❶

❶ For further information, see additional datasheet "Accessories for hygienic measuring instruments".

## Positioning the jumper and recommended applications

Series	Jumper	DK value	Immunity to foam	Response time [s]	Recommended application Medium type
LS 6200	1-2	> 22	Yes	1	Aqueous, fat component <10%
	2-3	> 22	Yes	0.1	Aqueous, fat component <10%
	Open	> 22	No	0.1	Aqueous, fat component <85%
LS 6250	1-2	> 30	Yes	1	Aqueous, fat component <1% or carbohydrates >10%
	2-3	> 30	Yes	0.1	Aqueous, fat component <1% or carbohydrates >10%
	Open	> 22	No	0.1	Aqueous, fat component <20% or carbohydrates >10%
LS 6250 S	1-2	< 10	Yes	1	Organic solvents, fat and oil. Dry media.
	2-3	< 10	Yes	0.1	Organic solvents, fat and oil. Dry media.
	Open	< 27	No	0.1	Organic solvents, fat and oil. Dry media.
LS 6300	1-2	> 28	Yes	1	Aqueous, fat component <10%
	2-3	> 28	Yes	0.1	Aqueous, fat component <10%
	Open	> 22	No	0.1	Aqueous, fat component <20%
LS 6300 S	1-2	< 12	Yes	1	Organic solvents, fat and oil. Dry media.
	2-3	< 12	Yes	0.1	Organic solvents, fat and oil. Dry media.
	Open	< 21	No	0.1	Organic solvents, fat and oil. Dry media.

## LS 7000 series: versions with stump electrode or mono rod electrode

Version	LS 7200 / LS7201	LS 7210 / LS 7211	LS 7220 / LS 7221
Probe type	Stump electrode	Rod electrode	Rod electrode, coated

### Measuring system

Functional principle	Conductive
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### Operating conditions

Pressure	≤ 16 bar / 232 psi
Ambient temperature	-20...+85°C / -4...+185°F (electrode / mass output) -20...+60°C / -4...+140°F (contact output)
Operating temperature	-20...+140°C / -4...284°F

### Materials

Probe	Stainless steel 1.4404 / AISI 316 L	E1.4404 / AISI 316 L, PTFE coated
Housing	Stainless steel 1.4301 / AISI 304	
Process connection	Stainless steel 1.4404 / AISI 316 L	
Isolation material	PEEK (FDA accepted)	
M16 cable glands	Plastic	
M12 plug	Brass, nickel plated	

### Process connections

Screwed joint	G½" hygienic; adapter ❶		
Rod diameter	-	4 mm / 0.16"	4.2 mm / 0.17"
Electrode length [mm]	-	200; 500; 850; 1000	200; 500; 850; 1000
Electrode length [ft]	-	7.87; 19.69; 33.46; 39.37	7.87; 19.69; 33.46; 39.37
Protection class (EN 60529)	IP67		

### Electrical connection

Output	LS 7200: Electrode / mass connection	LS 7210: Electrode / mass connection	LS 7220: Electrode / mass connection
	LS 7201: Active max. 50 mA (resistant to short circuits)	LS 7211: Active max. 50 mA (resistant to short circuits)	LS 7221: Active max. 50 mA (resistant to short circuits)
Power supply	18...36 VDC; max. 10 mA ❷		
Sensitivity [kOhm]	Adjustable: 0,2; 2; 20 ❷		

### Approvals

Immunity (EMC)	EN 61000-6-2
Emissions (EMC)	EN 50081-1

### Accessories

Level evaluation modules	Option ❶
Hygienic process connections	Option ❶

❶ For further information, see additional datasheet "Accessories for hygienic measuring instruments".

❷ Valid for active output

LS 7000 series: Versions with multiple rod electrodes

Version	LS 7230 / LS 7231	LS 7240 / LS 7241
Probe type	Multiple rod electrode	Multiple rod electrode, coated

Measuring system

Functional principle	Conductive
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Operating conditions

Pressure	≤ 16 bar / 232 psi
Ambient temperature	-20...+85°C / -4...+185°F (Electrode / mass output) -20...+60°C / -4...+140°F (contact output)
Operating temperature	-20...+140°C / -4...284°F

Materials

Probe	Stainless steel 1.4404 / AISI 316 L	Stainless steel 1.4404 / AISI 316 L, PTFE coated
Housing	Stainless steel 1.4301 / AISI 304	
Process connection	Stainless steel 1.4404 / AISI 316 L	
Isolation section	PEEK (FDA accepted)	
M16 cable glands	Plastic	
M12 plug	Brass, nickel plated (only for 2 and 3 rod probes)	

Process connections

Screwed joint	1" hygienic; adapter ❶	
Rod diameter	4 mm / 0.16"	4.2 mm / 0.17"
Electrode length [mm]	200; 500; 850; 1000	
Electrode length [ft]	7.87; 19.69; 33.46; 39.37	
Protection class [EN 60529]	IP67	

Electrical connection

Output	LS 7230: Electrode / mass connection	LS 7240: Electrode / mass connection
	LS 7231: Active max. 50 mA (resistant to short circuits)	LS 7241: Active max. 50 mA (resistant to short circuits)
	max. 1 piece	
Power supply	18...36 VDC; max. 10 mA ❷	
Sensitivity [kOhm]	Adjustable: 0,2; 2; 20 ❷	

Approvals

Immunity (EMC)	EN 61000-6-2
Emissions (EMC)	EN 50081-1

Accessories

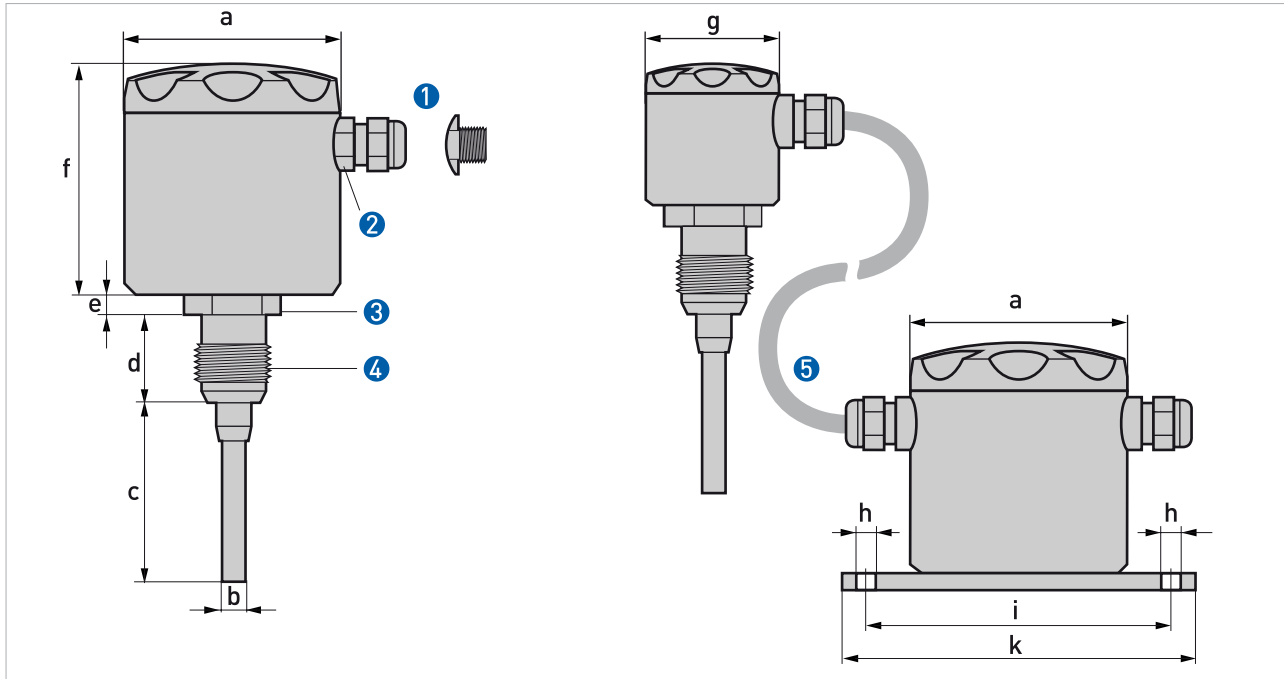
Level evaluation modules	Option ❶
Hygienic process connections	Option ❶

❶ For further information, see additional datasheet "Accessories for hygienic measuring instruments".

❷ Valid for active output

## Dimensions

### BM 500



- ❶ M12x1 plug
- ❷ M16x1.5 cable gland
- ❸ WAF 36
- ❹ G1"
- ❺ Connecting cable (please specify length on ordering)

### Dimensions in mm

	a	b	c	d	e	f	g	h	i	k
BM 500	89	10	L ❶	36	8	92	55	8	125	145

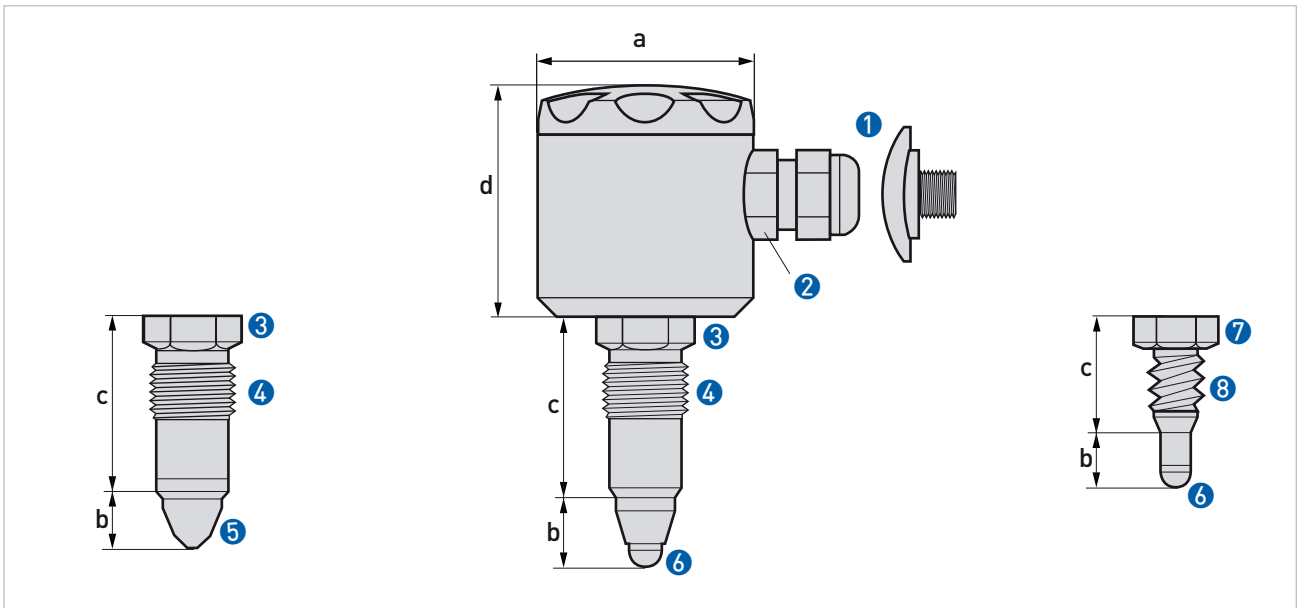
❶ ordered rod length

### Dimensions in inches

	a	b	c	d	e	f	g	h	i	k
BM 500	3.5	0.49	L ❶	1.42	0.31	3.62	2.17	0.31	4.92	5.71

❶ ordered rod length

LS 6000 Series: LS 6200, LS 6250 / LS 6250 S & LS 6300 / LS 6300 S (from left to right)



- ❶ M12x1 plug
- ❷ M16x1.5 cable gland
- ❸ WAF 22
- ❹ G 1/2"
- ❺ PEEK tip
- ❻ Metal tip
- ❼ WAF 17
- ❽ M12

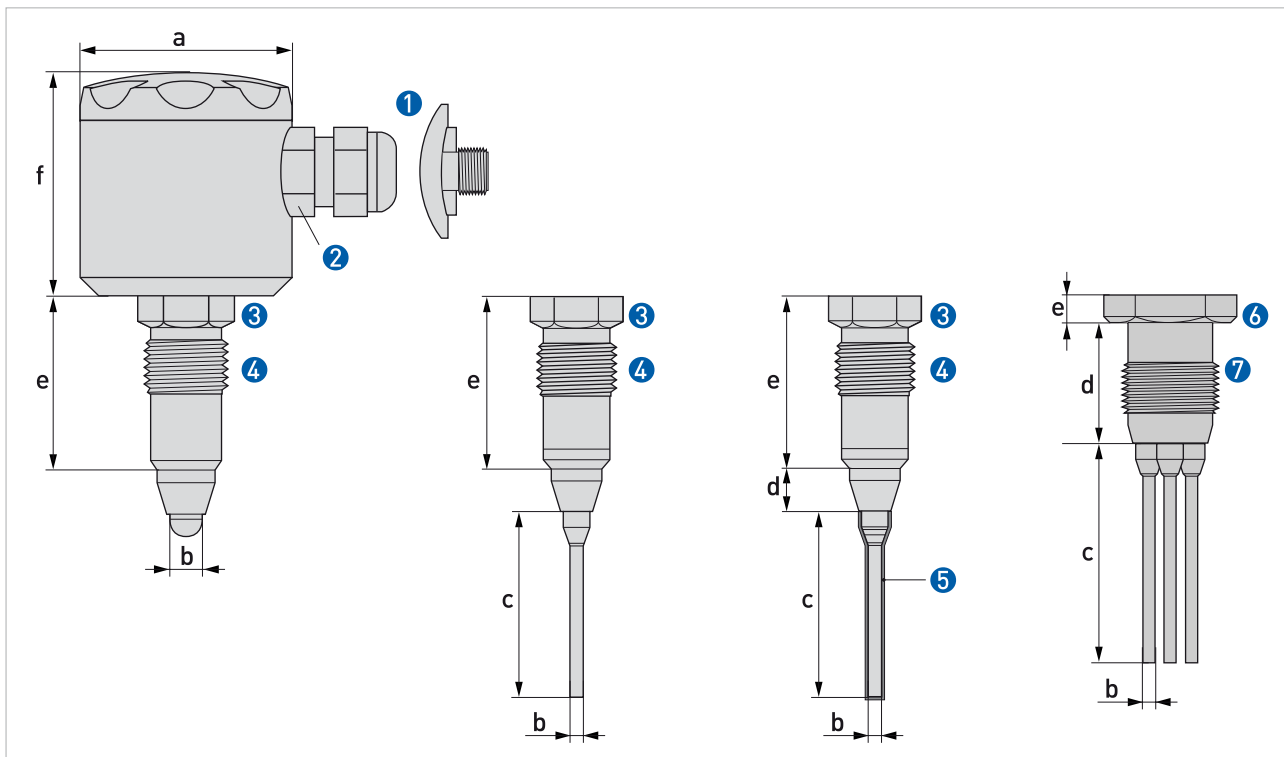
Dimensions in mm

	a	b	c	d
LS 6200	55	13	44	58
LS 6250	55	17	46	58
LS 6300	55	11	27	58

Dimensions in inches

	a	b	c	d
LS 6200	2.17	0.51	1.73	2.28
LS 6250	2.17	0.67	1.81	2.28
LS 6300	2.17	0.43	1.06	2.28

LS 7000 Series: LS 7200 / 7201, LS 7210 / 7211, LS 7220 / 7221, LS 7230 / LS 7231 (from left to right)



- ❶ M12x1 plug
- ❷ M16x1.5 cable gland
- ❸ WAF 22
- ❹ G 1/2"
- ❺ Powder coating
- ❻ WAF 37
- ❼ G 1"

### Dimensions in mm

	a	b	c	d	e	f
LS 7200 / LS 7201	55	8	-	-	46	58
LS 7210 / LS 7211	55	4	L ❶	-	46	58
LS 7220 / LS 7221	55	4.2	L ❶	11	46	58
LS 7230 / LS 7231	55	4	L ❶	36	8	58
LS 7240 / LS 7241	55	4.2	L ❶	36	8	58

❶ ordered rod length

### Dimensions in inches

	a	b	c	d	e	f
LS 7200 / LS 7201	2.17	0.31	-	-	1.81	2.28
LS 7210 / LS 7211	2.17	0.16	L ❶	-	1.81	2.28
LS 7220 / LS 7221	2.17	0.17	L ❶	0.43	1.81	2.28
LS 7230 / LS 7231	2.17	0.16	L ❶	1.41	0.31	2.28
LS 7240 / LS 7241	2.17	0.17	L ❶	1.41	0.31	2.28

❶ ordered rod length



## 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:

### Germany

#### Northern 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

#### Western and middle 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

#### Southern 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

#### Southwestern 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 sales companies

#### International

##### 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

##### Austria

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

##### 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 Das Águas Espriaiadas, 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

##### Czech Republic

Krohne CZ, spol. s r.o.  
Soběsická 156  
63800 Brno  
Phone: +420 (0)545 242 627  
Fax: +420 (0)545 220 093  
brno@krohne.cz

##### 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@ddol.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  
pcul@vsnl.net

##### Iran

KROHNE Liaison Office  
North Sohrevardi 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 02 4300 661  
Fax: +39 02 4300 6666  
info@krohne.it

##### Korea

KROHNE Korea  
Room 508 Miwon Bldg 43  
Yoido-Dong Youngdeungpo-Ku  
Seoul, Korea  
Phone: 00-82-2-782-1900  
Fax: 00-82-2-780-1749  
krohnekorea@krohnekorea.com

##### Netherlands

KROHNE Nederland B.V.  
Kerkeplaat 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

##### Poland

KROHNE Polska Sp.z.o.o.  
ul. Stary Rynek Oliwski 8a  
80-324 Gdansk  
Phone: +48 (0)58 520 9211  
Fax: +48 (0)58 520 9212  
info@krohne.pl

##### 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

##### Republic of South Africa

KROHNE Pty. Ltd.  
Bushbuck Close  
Corporate Park South  
Midrand, Gauteng  
P.O. Box 2069  
Midrand, 1685  
Phone: +27 (0)11 314 1391  
Fax: +27 (0)11 314 1681  
midrand@krohne.co.za

##### 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

##### USA

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

### Representatives

Algeria  
Argentina  
Cameroon  
Canada  
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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