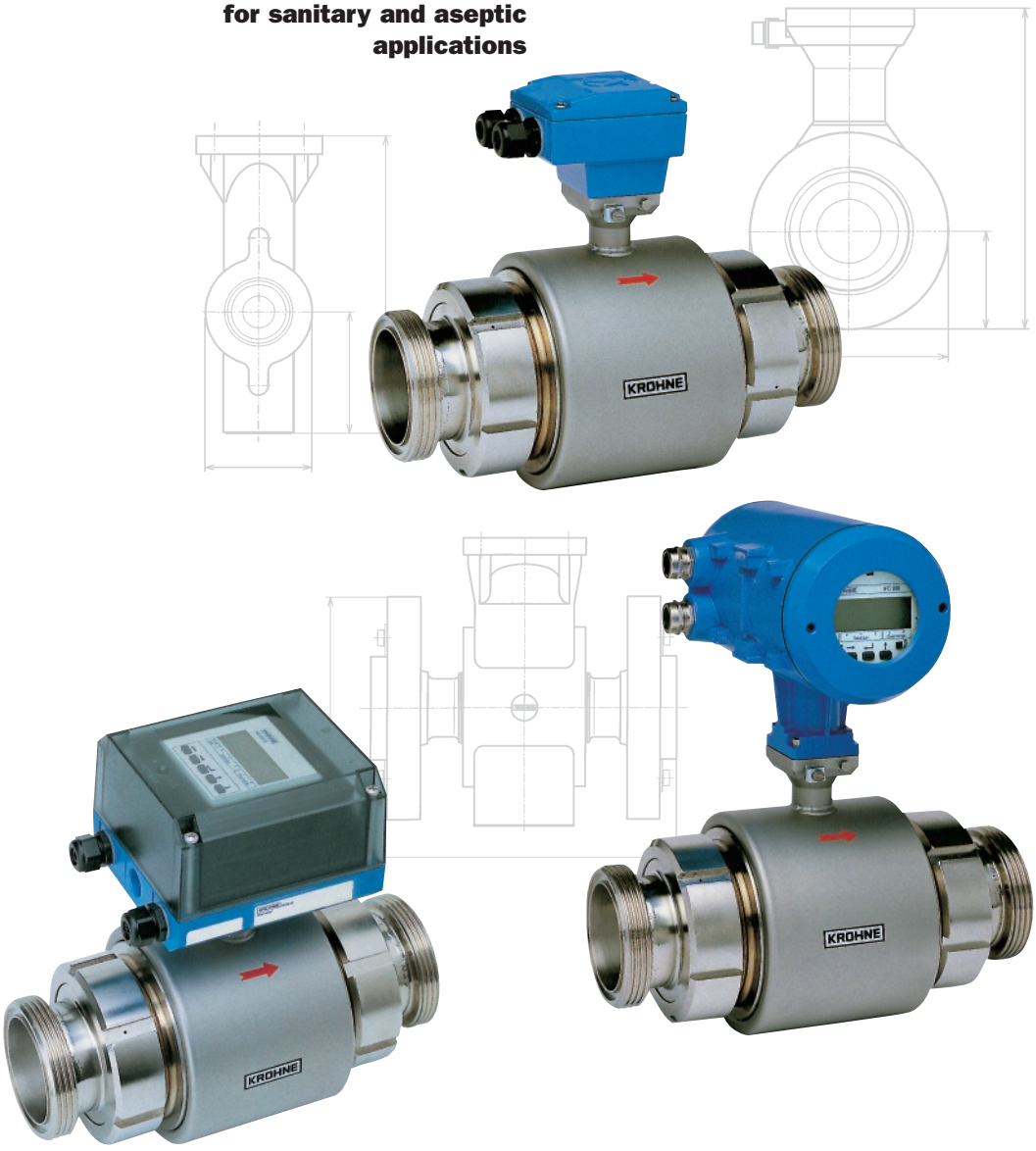
 D 31 VR60 02 E

GR/PRINTO

VARIFLUX IFS 6000
Electromagnetic Flowmeter

for sanitary and aseptic applications



- For many different application fields with many different types of process connections
- For measurement of quantities! Dosing! Batching!
- 3A und Weihenstephan authorizations,
- FDA-approved materials for wetted parts

VARIFLUX IFS 6000
Electromagnetic Flowmeter

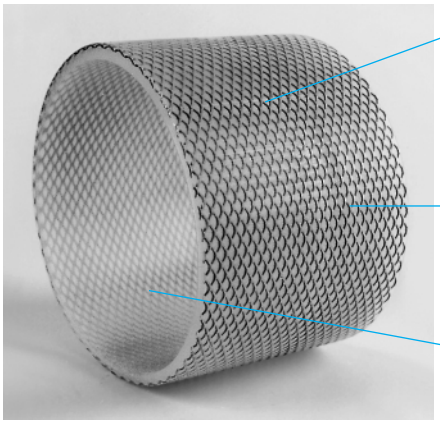
for hygienic and aseptic applications

VARIFLUX flowmeters measure the volumetric flowrate of electrically conductive liquids, acids, alkaline solutions, pastes, etc.

Fields of application

- Batching, dosing, measurement of quantities in sanitary and aseptic applications
- Abrasion resistance: high
- Chemical resistance: all concentrations

Calibrated on **EN 45 001** certified calibration rigs, accuracy of calibration better than 99.97% of the measured value.



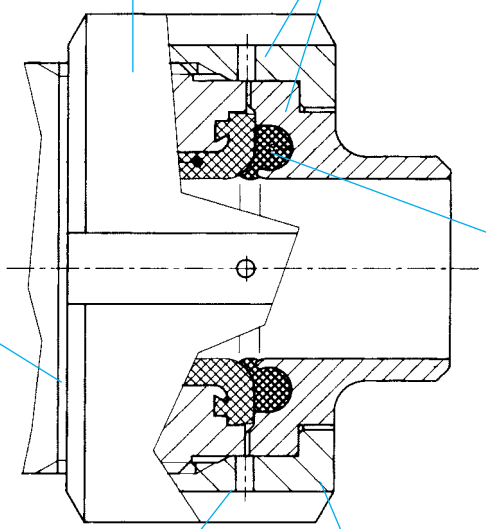
Dimensionally stable through stainless steel mesh reinforcement or sintered metal bearing bush, also at high temperatures and when exposed to vacuum impact, resistant to high-temperature steam, residue-free cleaning by CIP and SIP up to 140°C (180°C for separate systems)

No electrode gaskets

KROHNE Teflon®-PFA liner, with FDA approval, surface roughness Ra < 0.8 µm

Metallic stop face, therefore defined, tolerance-free projection of the O-rings and smooth transition between adapters and measuring tube

Simple, quick and low-cost installation through the sanitary welding connections or the many different self-centering connections to DIN, ISO, ANSI, SMS, etc.



Stainless steel measuring tube

O-ring gaskets with leak detection

Pressure-relief through-hole, therefore no pressure build-up behind sealing groove between seal and environment

Union nuts

Can be operated together with all KROHNE signal converters of integral or separate design

Available sizes/types and connections

Size / Type		Inside diameter ø d_i of measuring tube in mm (inches) for connections to …		Aseptic weld-on connections for pipes to DIN 11850	Aseptic weld-on connections for pipes to ISO 2037		Connection and pipe flanges to DIN 2501/PN 40	Connection and pipe flanges to ANSI B 16.5/150, 300lb	Connection and pipe flanges to JIS 2210/20 K	Dairy screw connections and tube nozzles (option) to DIN 11851	Screwed pipe connections to ISO 2853		Screwed pipe connections to SMS 1145	Clamp joints to ISO 2852	
mm	inches	DIN	ISO, SMS, ect.	mm	mm	inches	mm	inches	mm	mm	mm	inches	mm	mm	inches
DN 2.5	1/10	2.5	2.5	DN 10	12	–	DN 10	1/2	DN 10	DN 10	12	–	–	12	–
DN 4	1/8	4	4	DN 10	12	–	DN 10	1/2	DN 10	DN 10	12	–	–	12	–
DN 6	1/4	6	6	DN 10	12	–	DN 10	1/2	DN 10	DN 10	12	–	–	12	–
DN 10	3/8	10	10	DN 10	12	–	DN 10	1/2	DN 10	DN 10	12	–	–	12	–
DN 15	1/2	13	13	DN 15	18	–	DN 15	1/2	DN 15	DN 15	18	–	–	18	–
DN 25	1	26	23	DN 25	25	1*	–	–	–	DN 25	25	–	25	25	–
DN 40	1 1/2	38	36	DN 40	38	1 1/2	–	–	–	DN 40	38	1 1/2	38	38	1 1/2
DN 50	2	50	49	DN 50	51	2	–	–	–	DN 50	51	2	51	51	2
DN 65	2 1/2	66	60	DN 65	63.5	2 1/2	–	–	–	DN 65	63.5	2 1/2	63.5	63.5	2 1/2
DN 80	3	81	73	DN 80	76.1	3	–	–	–	DN 80	76.1	3	76	76.1	3

Other connections on request

* not to ISO 2037

Same inside diameter of measuring tube and pipeline

Pipe standard to

DIN 11850

Meter size	dia. d_i mm
DN 25	26
DN 40	38
DN 50	50
DN 65	66
DN 80	81

Pipe standard to

ISO, SMS, RJT, JIS OD-Tube

Meter size	dia. d_i mm
DN 25 / 1”	23
DN 40 / 1 1/2”	36
DN 50 / 2”	49
DN 65 / 2 1/2”	60
DN 80 / 3”	73

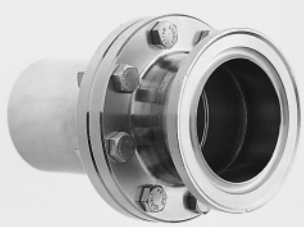
Dairy screw connection DIN 11851

Tri-clamp joint (ITE-Intertechnik)

Aseptic flange (Südmo)

SMS screw connection

VARIVENT® flanged connection (GEA-Tuchenhagen)



Aseptic flanged joint (APV-Rosista)

Tests and approvals

Dairy and Research Center Weihenstephan

Technical University Munich

Chair for Food Process Engineering
and Dairy Technology

Applications in the food and beverage industry

FML

Weihenstephan

Institute for Food Process Engeneering

3A

Qualification testing of a type VARIFLUX IFS 6000 F electromagnetic flowmeter with regard to its cleaning capability under food processing conditions

Main points of the test report

- The subject of the test was the VARIFLUX IFS 6000 F primary head with PFA liner
- The gaskets pertaining to the two adapters on the flowmeter are designed with special reference to the cleaning aspect
- Through-bores in the adapter allow immediate detection of any leakages through the O-ring gaskets.
- The polished electrode tip forms a crevicefree seal with the PFA liner.
- Outstanding cleaning capability even under non-typically hard soiling conditions and given reduced performance of the CIP cleaning unit.
- Resistance to thermal shock, abrupt cooling from 131°C to 13°C/267.8 °F to 55.4°F has no effect on the function of the VARIFLUX IFS 6000 F.
- Vacuum resistance: even after 300 strokes by vacuum absolutely no noticeable effect on measuring accuracy.

Summarized assessment

- The VARIFLUX IFS 6000 was found to satisfy dairy and food processing requirements in regard to its cleaning capability.
- The VARIFLUX IFS 6000 was found to be stable when exposed to heat in the form of saturated steam, 131°C/267.8°F, and when exposed to vacuum impact.

Use in hazardous areas

Additional information on the signal converters is provided in the relevant Data Sheets.

Ex

European Standard

IFS 6000 F-EEx primary heads
are approved in conformity with European Standard:
EEx me ib IIC T3 – T5, KEMA No. Ex-95.D.9699X.

The **IFM 6080 K-EEx integral flowmeters**
are approved in conformity with European Standard:
EEx d ib IIC T6 – T3 or
EEx de ib IIC T6 – T3 or
EEx dme ib IIC T6 – T3,
KEMA No. Ex-96.D.1850X.

Factory Mutual System®

FM approval applied for
Class I:
Div 1 / Groups B, C, D
Div 2 / Groups A, B, C, D

Class II:
Div 1, 2 / Groups E, G

Class III:
Div 1, 2

Technical data

Size/type	DN2.5 – 80 and 1/10" – 3"
Available connections	see page 4
Electrical conductivity	≥ 5µS/cm (≥ 20µS/cm for demineralized water)
Ambient temperature	
Standard	–25 to + 60°C / –13 to + 140°F
Hazardous duty versions	–20 to + 40°C / –24 to + 104°F
Max. permissible operating data	
Operating pressure / product temperature	see table "limits" on next page
Vacuum load	0 mbar abs. / 0 psia
Insulation class of field coils	H
Electrode design	permanently fitted (≥ DN25 / ≥ 1" surface polished)
Power for field coils	< 60V from signal converter
Grounding rings	standard for flanged connections
Protection category (IEC 529/EN 60 529)	IP67, equivalent to NEMA 6
Hazardous-duty versions	see Page 5
Materials	
Measuring tube	stainless steel 1.4301 / 304-AISI
Liner	clear, virgin Teflon®-PFA, FDA-approved
DN 2.5 – 10 mm / 1/10" – 3/8"	reinforced with sintered metal bearing bush
DN 15 – 80 mm / 1/2" – 3"	reinforced with stainless steel mesh
Electrodes	
Standard	Hastelloy C4
Special version	stainless steel 1.4571/316 Ti-AISI, titanium, tantalum, platinum, others on request
Connections	
Flanges to DIN 2501 / ANSI B 16.5 / JIS 2210	Standard: stainless steel 1.4301/304-AISI; Special version: stainless steel 1.4404/316L-AISI
Aseptic weld-on connection for pipes to DIN 11 850 / ISO 2037	stainless steel 1.4404 / 316L-AISI
Dairy screw connection and tube nozzles (option) to DIN 11 851	stainless steel 1.4404 / 316L-AISI
Screwed pipe connection to SMS 1145	stainless steel 1.4404 / 316L-AISI
Screwed pipe connection to ISO 2853	stainless steel 1.4404 / 316L-AISI
Clamp joint to ISO 2852	stainless steel 1.4404 / 316L-AISI
Housing	
DN 2.5 – 15 mm / 1/10" – 1/2"	stainless steel 1.4462 Duplex
DN 25 – 80 mm / 1" – 3"	stainless steel 1.4301/ 304-AISI
Terminal box	
Standard	die cast aluminium, paint finish
Special version	stainless steel 1.4301/304-AISI, others on request
Grounding rings (only for flange versions)	stainless steel 1.4571/316 Ti-AISI, others on request

Teflon® is a registered trademark of Du Pont

Limits for operating pressure and product temperature

Please note:
The limits specified in the table for temperature and pressure allow for the liner and the max. operating data of the connections and supplied gaskets.

Connections	Connection meter size	Max. operating pressure in bar/psig at product temperature of ...							
		< 40 °C (< 105 °F)	< 60 °C (< 140 °F)	< 70 °C (< 158 °F)	< 90 °C (< 195 °F)	< 100 °C (< 210 °F)	< 120 °C (< 250 °F)	<140 °C ** (< 285 °F)	<180 °C ** (< 355 °F)
Flange DIN 2501/PN 40	DN 10* – 15	39 (566)	37 (537)	36 (522)	34 (493)	33 (497)	32 (464)	30 (435)	28 (406)
Flange JIS 2210/20K	DN 10* – 15	39 (566)	37 (537)	36 (522)	34 (493)	33 (497)	32 (464)	30 (435)	28 (406)
Flange ANSIB16.5: 150 lb	½"*	19.6 (284)	19.0 (276)	18.7 (271)	18.1 (263)	17.7 (257)	17.0 (247)	16.2 (235)	14.7 (213)
300 lb	½"*	39 (566)	37 (537)	36 (522)	34 (493)	33 (479)	32 (464)	30 (435)	28 (406)
Aseptic weld-on connection for pipes to DIN 11850	DN10*– 40	40 (580)	40 (580)	40 (580)	40 (580)	40 (580)	40 (580)	40 (580)	–
	DN 50 – 80	25 (360)	25 (360)	25 (360)	25 (360)	25 (360)	25 (360)	25 (360)	–
Aseptic weld-on connection for pipes to ISO 2037	12*– 38/1"– 1½"*	40 (580)	40 (580)	40 (580)	40 (580)	40 (580)	40 (580)	40 (580)	–
	51 – 76.1/ 2"–3"	25 (360)	25 (360)	25 (360)	25 (360)	25 (360)	25 (360)	25 (360)	–
Dairy screw connection DIN 11851	DN 10*– 40	40 (580)	40 (580)	40 (580)	40 (580)	40 (580)	40 (580)	40 (580)	–
	DN 50 – 80	25 (360)	25 (360)	25 (360)	25 (360)	25 (360)	25 (360)	25 (360)	–
Screwed pipe connection ISO 2853	12*– 38 mm	40 (580)	40 (580)	40 (580)	40 (580)	40 (580)	40 (580)	40 (580)	–
	51 – 76.1 mm/1½"–3.0"	25 (360)	25 (360)	25 (360)	25 (360)	25 (360)	25 (360)	25 (360)	–
Screwed pipe connection SMS 1145	25 – 76 mm	6 (90)	6 (90)	6 (90)	6 (90)	6 (90)	6 (90)		
CLAMP joint ISO 2852									
	12*– 51 mm/1½"–2.0"	16 (230)	16 (230)	16 (230)	16 (230)	16 (230)	16 (230)	–	–
	63.5 – 76.1 mm/2½"–3.0"	10 (150)	10 (150)	10 (150)	10 (150)	10 (150)	10 (150)	–	–

* size DN 2.5 – 10 / 1/10" – 3/8"

** **max. process temperature 140 °C (285 °F)** for integral flowmeters

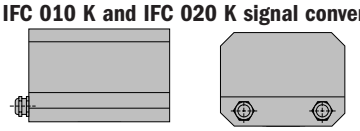
Dimensions and weights

PLEASE NOTE !

The **total dimension for the height** is obtained from **dimension b** (see table) **plus the height** of the terminal box or the signal converter, see drawings.

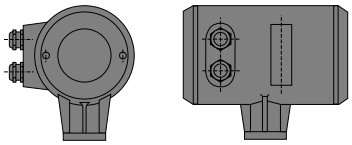
The **total weight** is made up of the weight of the signal converter (see table) **plus** the weight of the terminal box or signal converter, see below.

IFC 010 K and IFC 020 K signal converter



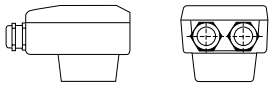
Weight approx. 1.6 kg (3.6 lb)

IFC 090 K signal converter



Weight approx. 2.3 kg (5.1 lb)

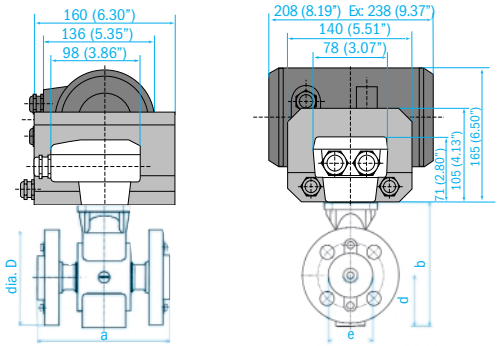
Terminal box



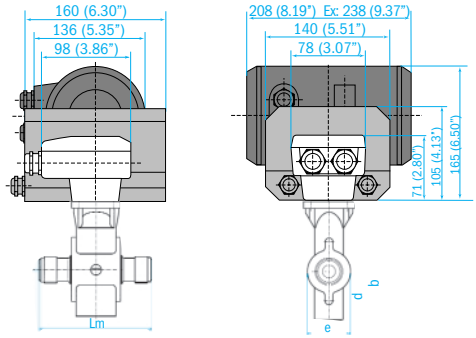
Weight approx. 0.5 kg (1.1 lb)

Dimensions in mm (inches)

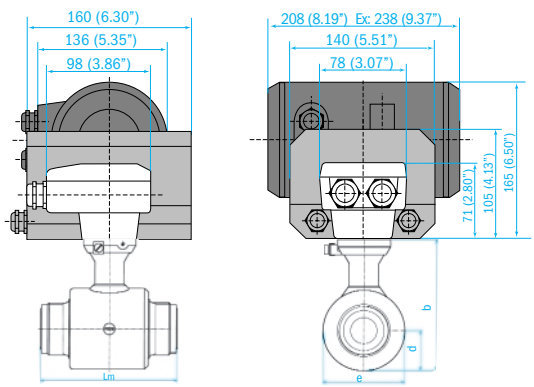
DN 2.5 – 15 / 1/10" – 1/2"



DN 2.5 – 15 / 1/10" – 1/2"



DN 25 – 80 / 1" – 3"



Flange connections to DIN, JIS and ANSI

Flowmeter				Dimensions in mm and (inches)							Approx. weight
Size/type		Flanges		a	b_{max}	ØD				d	
DIN/JIS	ANSI	DIN/JIS	ANSI			DIN/PN40	JIS/20K	ANSI/150lb	ANSI/300lb		in kg (lb)
DN2.5	1/10"										
DN4	1/8"										
DN6	1/4"	DN10	1/2"	130 (5.12)	142 (5.59)	90 (3.54)	90 (3.54)	88.9 (3.50)	95.2 (3.75)	51 (2.01)	2.6 (5.8)
DN10	3/8"										
DN15	1/2"	DN15				95 (3.74)	95 (3.74)				

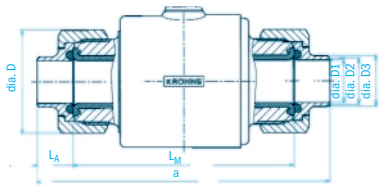
Dimensions without connectors/adapters

Size/type		Dimensions in mm and (inches)								Approx. weight in kg (lb) without adapters	
mm	inches	LM		bmax		d		e			
DN 2.5	1/10	180	(7.09)	142	(5.59)	51	(2.01)	44	(1.73)	1.2	(2.7)
DN 4	1/8	180	(7.09)	142	(5.59)	51	(2.01)	44	(1.73)	1.2	(2.7)
DN 6	1/4	180	(7.09)	142	(5.59)	51	(2.01)	44	(1.73)	1.2	(2.7)
DN10	3/8	180	(7.09)	142	(5.59)	51	(2.01)	44	(1.73)	1.2	(2.7)
DN15	1/2	180	(7.09)	142	(5.59)	51	(2.01)	44	(1.73)	1.2	(2.7)
DN25	1	186	(7.32)	146	(5.75)	40	(1.57)	80	(3.15)	1.8	(4.0)
DN40	1 1/2	200	(7.87)	164	(6.46)	49	(1.93)	98	(3.86)	3.2	(7.1)
DN50	2	204	(8.03)	196	(7.72)	65	(2.56)	130	(5.12)	4.5	(10.0)
DN65	2 1/2	250	(9.84)	221	(8.70)	78	(3.07)	156	(6.14)	7.0	(15.5)
DN80	3	266	(10.47)	221	(8.70)	78	(3.07)	156	(6.14)	7.0	(15.5)

Dimensions with mounted connectors/adapters

Aseptic weld-on connection for pipes to DIN 11850

Connection meter size	dia. D	L_A	a	dia. D1	dia. D2	dia. D3
DN 10 [1]	38 (1.50)	30.0 (1.18)	180 (7.09)	10 (0.39)	12 (0.47)	15 (0.59)
DN 15				16 (0.63)	18 (0.71)	21 (0.83)
DN 25	63 (2.48)	25.0 (0.98)	186 (7.32)	26 (1.02)	28 (1.10)	31 (1.22)
DN 40	78 (3.07)	23.0 (0.91)	200 (7.87)	38 (1.50)	40 (1.57)	43 (1.69)
DN 50	92 (3.62)	22.0 (0.87)	204 (8.03)	50 (1.97)	52 (2.05)	55 (2.17)
DN 65	112 (4.41)	21.0 (0.83)	250 (9.84)	66 (2.60)	68 (2.68)	72 (2.83)
DN 80	127 (5.00)	29.0 (1.14)	266 (10.47)	81 (3.19)	83 (3.27)	87 (3.43)

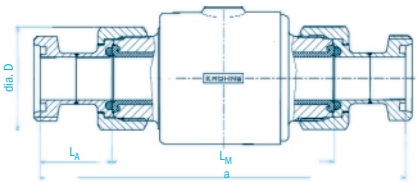


Sanitary weld-on connection for pipes to ISO 2037

Connection meter size		dia. D	L_A	a	dia. D1	dia. D2	dia. D3
12 mm [1]	–	38 (1.50)	30.0 (1.18)	180 (7.09)	10.0 (0.39)	12.0 (0.47)	15.0 (0.59)
18 mm	–				16.0 (0.63)	18.0 (0.71)	21.0 (0.83)
25 mm	1 [2]	63 (2.48)	22.0 (0.87)		22.6 (0.89)	–	25.6 (1.01)
38 mm	1 1/2"	78 (3.07)	26.5 (1.04)	207 (8.15)	35.6 (1.40)	–	38.6 (1.52)
51 mm	2"	92 (3.62)	28.5 (1.12)	217 (8.54)	48.6 (1.91)	–	51.6 (2.03)
63.5 mm	2 1/2"	112 (4.41)	27.5 (1.08)	263 (10.35)	60.3 (2.37)	–	64.1 (2.52)
76.1 mm	3"	127 (5.00)			72.9 (2.87)	–	76.7 (3.02)

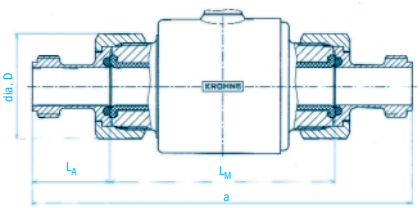
Dairy screw connection to DIN 11851

Connection meter size	dia. D	L_A	a
DN 10 [1]	38 (1.50)	47.0 (1.85)	214 (8.43)
DN 15			
DN 25	63 (2.48)		230 (9.06)
DN 40	78 (3.07)	49.0 (1.93)	252 (9.92)
DN 50	92 (3.62)	50.0 (1.97)	260 (10.24)
DN 65	112 (4.41)	53.0 (2.09)	314 (12.36)
DN 80	127 (5.00)	66.0 (2.60)	340 (13.39)



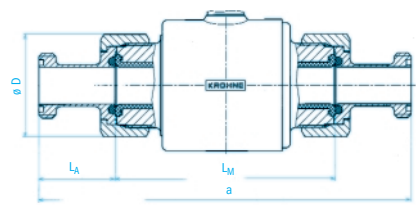
Screwed pipe connection to ISO 2853

Connection meter size		dia. D	L_A	a
12 mm [1]	–	38 (1.50)	53.0 (2.09)	226 (8.90)
18 mm	–			
25 mm	–	63 (2.48)	45.0 (1.77)	
38 mm	1 1/2"	78 (3.07)	49.5 (1.95)	253 (9.96)
51 mm	2"	92 (3.62)	51.5 (2.03)	263 (10.35)
63.5 mm	2 1/2"	112 (4.41)	50.5 (1.99)	309 (12.17)
76.1 mm	3"	127 (5.00)		



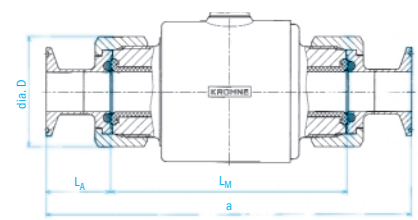
Screwed pipe connection to SMS 1145

Connection meter size	dia. D	L_A	a
25 mm [1]	63 (2.48)	38.5 (1.52)	213 (8.39)
38 mm	78 (3.07)	48.0 (1.89)	250 (9.84)
51 mm	92 (3.62)	50.0 (1.97)	260 (10.24)
63.5 mm	112 (4.41)	53.0 (2.09)	314 (12.36)
76 mm	127 (5.00)		



Clamp joint ISO 2852

Connection meter size		dia. D	L_A	a
12 mm [1]	–	38 (1.50)	49.5 (1.95)	219 (8.62)
18 mm	–			
25 mm	–	63 (2.48)	45.0 (1.77)	226 (8.90)
38 mm	1 1/2"	78 (3.07)	49.5 (1.95)	253 (9.96)
51 mm	2"	92 (3.62)	51.5 (2.03)	263 (10.35)
63.5 mm	2 1/2"	112 (4.41)	50.5 (1.99)	309 (12.17)
76.1 mm	3"	127 (5.00)		



1) for sizes DN 2.5 – 10 / 1/10" – 3/8" 2) not to ISO 2037