

# Flow meter programme In Touch with the Future

Turbine Wheel Meter TR Series  
Swash Plate Meter TS Series  
Oval Gear Meter HDO Series



**Safety is our concern**

# You can count on Lutz already for a long time.

Precise work counts more than ever in laboratories as well as in production and fluid handling. Flow measurement therefore has to be rational, economical and - above all - practical, in mobile use as well as in stationary operation.

The precise recording of the liquid discharge ensures the quality of the work processes and the economic use of the operating resources.

You have been able to rely on the proven Lutz flow meters for almost 20 years - the new generation of meters will also inspire you.

**Turbine wheel meter TR**

**Swash plate meter TS**

**Oval gear meter HDO**

**Watch product video**



## Selection Criteria

- Selection criteria
- Measuring principle
- Type of application
- Measuring range
- Liquid
- Power supply

drum pump

turbine wheel

without volume preselection

up to 120 l/min.

aqueous

battery



### TR series

- ✓ Can be combined with all drum and container pumps
- ✓ Wide measuring range
- ✓ Also for small volume flows
- ✓ Partial volume resettable

(see page 4-5)

drum pump/plant construction

swash plate

with / without preselection

up to 100 l/min.

thin-bodied to semi-viscous

mains operation



### TS series

- ✓ Touch screen display
- ✓ Multilingual menu guidance
- ✓ Simple operation in plain text
- ✓ „Plug & Play“ module concept

(see page 6-15)

high viscosity pump / plant construction

oval gear

with / without preselection

up to 380 l/min.

thin-bodied to highly viscous

mains operation



### HDO series

- ✓ Touch screen display
- ✓ Multilingual menu guidance
- ✓ Simple operation in plain text
- ✓ „Plug & Play“ module concept
- ✓ For high flow rates, temperatures and pressures

(see page 16-23)

# Lutz flow meter programme

The value for money Lutz flow meter TR

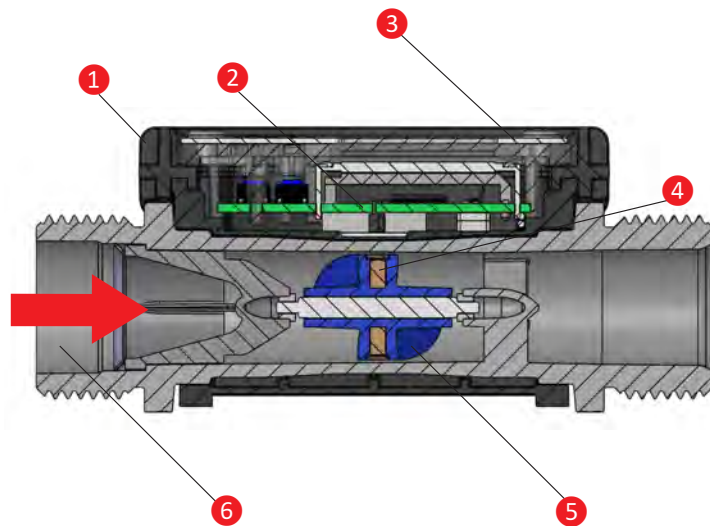


## Easy to operate

Easy to operate, compact and quick to install on all drum and container pumps: The new Lutz flow meter TR3 in PP or PVDF. A flow meter, easy to handle, that you can "count on" in any situation. The symmetrical measuring chamber can be used for all flow directions and measures low-viscosity, non-flammable substances precisely, quickly and above all efficiently.

## With drive to the measurement result

The new TR3 with illuminated, digital display according to the measuring principle of a turbine wheel meter has a two-line LED display showing the current output and the total memory or the 8 partial quantity memories. The display can be mounted adapted to the viewing angle or moved when mounted. The measuring accuracy is better than  $\pm 1\%$ , the nominal operating pressure is 10 bar.



## Benefits:

- Flexible assembly
- Variable display alignment
- Larger volume flow range
- Easy battery change

- 1 Upper part of the housing (PC) with shock protection (NBR)
- 2 Circuit board
- 3 Keyboard foil
- 4 Magnet
- 5 Axial turbine (PP or PVDF)
- 6 Measuring chamber (PP or PVDF)

# The economic liquid volume meter

You have the free choice



## PP pump for neutral and aggressive liquids

such as glycol, ferric(III)chloride, hydrochloric acid, phosphoric acid, etc.



## PVDF for highly aggressive fluids

such as sodium hypochlorite, nitric acid, sulphuric acid

Lutz offers you complete systems for laboratory and pilot plant. The pump set Lutz B2 Battery and Vario can optionally be supplemented with the flow meter TR3-PP (order no. 0213-051).



Type	TR3-PP		TR3-PVDF	
<b>Material</b>	Cover Housing Keyboard Shock protection	PC POM PES NBR	PC POM PES NBR	
<b>Material</b> (in contact with liquid)	Measuring chamber Rotor Shaft Bearing ball Seal	PP PP Hastelloy C-22 PTFE PTFE	PVDF PVDF Hastelloy C-22 PTFE PTFE	
<b>Measuring range</b>	5-120 l/min.		5-120 l/min.	
<b>Range of viscosity</b>	0,8-40 mPas		0,8-40 mPas	
<b>max. operating pressure</b>	10 bar		10 bar	
<b>Measuring accuracy uncalibrated</b>	± 2%*		± 2%*	
<b>Measuring accuracy (calibrated)</b>	± 1%*		± 1%*	
<b>Repeat accuracy</b>	± 0.5%		± 0.5%	
<b>Connection thread</b>	G 1	G 1 1/4	G 1	G 1 1/4
<b>Protection class</b>	IP65		IP65	
<b>Battery</b>	Two 1.5 V batteries (AAA) replaceable		Two 1.5 V batteries (AAA) replaceable	
<b>Temperature range</b>	-10 to +50 °C		-10 to +50 °C	
<b>Dimensions</b>	85 x 123 x 52 mm		85 x 123 x 52 mm	
<b>Weight</b>	0.22 kg		0.24 kg	
<b>Order no.</b> Mounting on B1/B2 Battery/B2 Vario	<b>0213-051</b>	-	<b>0213-061</b>	-
<b>Order no.</b> Mounting on drum pump	-	<b>0213-050</b>	-	<b>0213-060</b>
<b>Order no.</b> Mounting on nozzle	-	<b>0213-052</b>	-	<b>0213-062</b>

\* Testassembly: Medium water / diesel, flow in preferred direction, settling section 0.2 m upstream and downstream of flow meter

# Lutz flow meter programme

## Series TS: Swash plate principle



### Product features

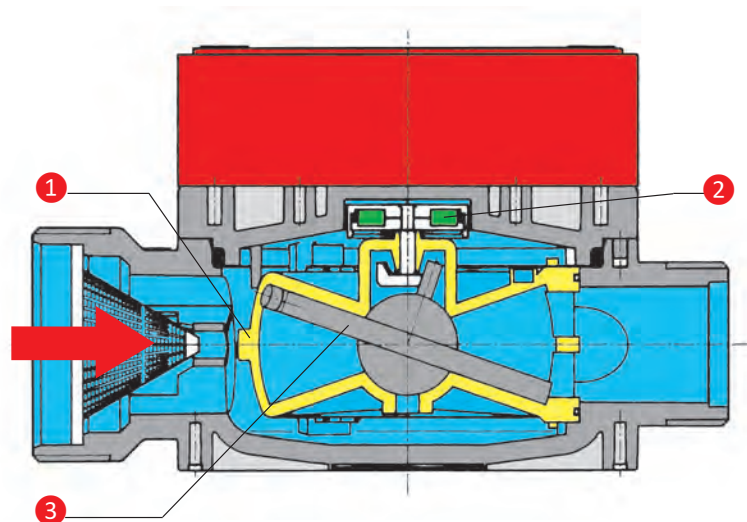
The flow meters in plastic and metal design work according to the swash plate principle. They are suitable for pumping neutral, aggressive, flammable and viscous liquids.

Wide range of applications  
Also in PURE version

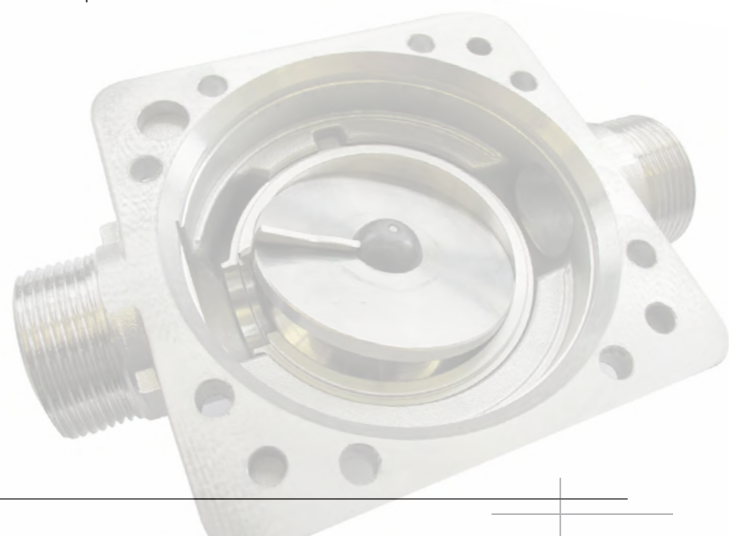
### Everything under control This is how TS works

The flowing liquid causes a swash plate to rotate around its own axis. A magnet with several poles is set in rotation via a "coupling".

This switches a reed contact through the cover of the housing. The volume of the liquid flowing through results from the number of the detected pulses.



- ① measuring chamber
- ② Magnet
- ③ Swash plate



# Lutz flow meter programme

The innovative Lutz flow meter TS

There are a lot of measuring devices for fluids. But the advantages of the new Lutz flow meters stand out from them all. Therefore, let yourself be convinced by the outstanding precision, flexibility and user-friendliness.

Watch product  
video



## Discover the advantages of innovative Lutz technology:

- + Touchscreen display
- + Multilingual menu guidance
- + Simple operation in plain text
- + Integrated help function
- + High measuring accuracy due to overrun correction
- + Safety and monitoring functions
- + Simple system connection
- + „Plug & Play“ module concept



## Easy to use at a high level.

The first flow meter with **touchscreen display** and backlight convinces with its simple, demand-oriented display and operability, the **multilingual interface** and the compact design.

The **user guidance with clear text instructions, system messages and assistance texts** as well as **safety and monitoring functions** almost exclude errors. It can also be operated manually or by external control.

**In Touch with the Future.**





## Simply convenient: Flow measurement with volume preselection.

The relay module, an intelligent "building block" of the Lutz meter innovation helps you to automatise work processes and thus make them more efficient.

The desired quantity can simply be preselected and started by pressing a key. Whether for mobile operation with a drum pump, or for controlling complex systems: The convenient volume preselection makes your processes easier and safer. The pump, the system and/or the solenoid valve are switched on and off by the integrated electronics.

**Precise, safe and economical.**



## **Combine as required. Easy to assemble.**

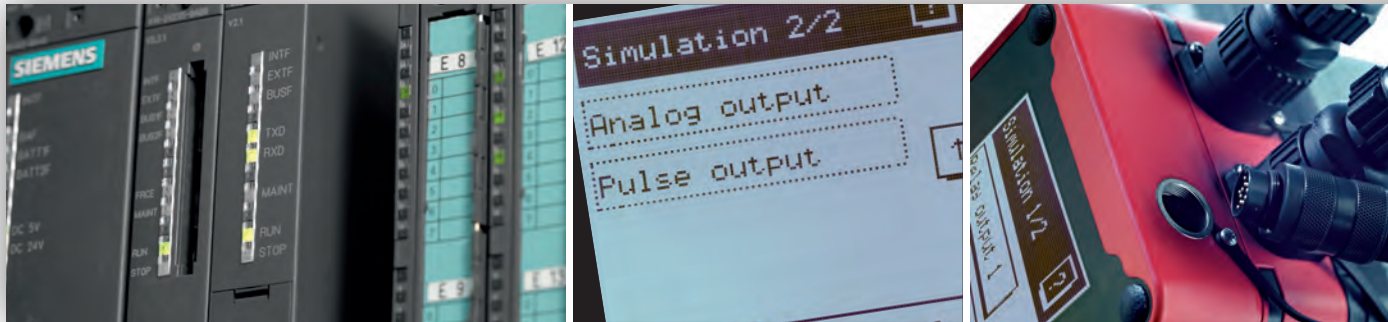
The Lutz flow meter can be integrated into your system very quickly and without wiring work thanks to confusion-proof plug-in connections. Individual modules such as the basic flow meter, the operating unit or the relay module can be assembled, combined and installed with the new connection system as in a modular system.

### **Flexible in use**

#### **The variety of possibilities:**

- Food, luxury food and beverage industry**
- Paint and lacquer industry**
- Pharmaceuticals and cosmetics**
- Plant and apparatus construction**
- Chemical industry**
- Petrochemistry**
- Chemicals and mineral oil trade**
- Machine factories & metal processing**
- Automotive industry & suppliers**
- Electroplating and surface treatment**
- Engineering and design offices**





## The flexible flow meter system you can rely on.

Easy installation and commissioning

External control/data evaluation  
via standard interfaces

Installation of the modules at separate locations is possible

The technically and economically best solution at all times



# Flow measurement without volume preselection - TS

for non-flammable liquids



Flow meter type VA10 in PURE Version suitable for use in the food and cosmetics industry as well as in the pharmaceuticals.

Technical data	Type ST10	Type SL10	Type VA10
Field of application	Neutral media, such as water, mineral oils	Aggressive liquids such as acids and alkalis	Many acids, alkalis and other liquids
Flow rate	min. 10 – max. 100** l/min.	min. 10 – max. 100** l/min.	min. 10 – max. 100 l/min.
Temperature	60 °C	60 °C	80 °C
Viscosity	2,000 mPas	2,000 mPas	5,000 mPas
Operating pressure	4 bar	4 bar	10 bar
Accuracy	± 1% standard < 1% with adaptation to the operating conditions	± 1% standard < 1% with adaptation to the operating conditions	± 1%
Inlet port	G 2 male thread suitable for connection piece with wing nut	G 2 male thread suitable for connection piece with wing nut	G 1 1/4 male thread
Outlet port	G 1 1/4 male thread	G 1 1/4 male thread	G 1 1/4 male thread
LCD display	Touch-Screen 63x63 mm, 128x128 pixels, display sub-total and total volume can be reset		
Menu language	DE, GB, ES, FR, IT, NL, PT, RU		
Materials:			
Housing	PPO	PPO	Stainless steel (1.4581/ 1.4571)*
Measuring chamber	PPO/PPS	PPO/PPS	Stainless steel (1.4581/1.4571) ETFE / PTFE
Seals	FPM	FPM	FEP
Magnet	BaFe / PA / stainless steel 1.4401	PPS encapsulated	PTFE encapsulated
Protection class	IP55	IP55	IP55
Weight	1.1 kg	1.1 kg	3.7 kg
<b>Order No.</b>	<b>0231-000</b>	<b>0231-010</b>	<b>0231-049</b>

\* Special materials on request Information on the chemical resistance of the different flow meter variants can be found in our resistance table.  
 \*\* Short-term 120 l/min.

## Recommended accessories: Power supply unit NG10\*\*\*

Voltage	220-230 V
Frequency	50-60 Hz
<b>Order No.</b>	<b>0230-230</b>

\*\*\* Limited battery operation possible without power supply unit.

# Flow measurement without volume preselection - TS

for easily inflammable liquids



Flow meter type VA10 in PURE Version suitable for use in the food and cosmetics industry as well as in the pharmaceuticals.

Technical data	Type LM10 (Ex)	Type UN10 (Ex)	Type VA10 (Ex)
Field of application	Solvents and many other highly flammable liquids, oils and neutral liquids.	Solvents and highly flammable liquids, most of acids and alkalis..	Almost all solvents and highly flammable liquids. Many acids, alkalis and other liquids.
Flow rate	min. 10 – max. 100** l/min.	min. 10 – max. 100** l/min.	min. 10 – max. 100 l/min.
Temperature	60 °C	60 °C	60 °C
Viscosity	2,000 mPas	2,000 mPas	5,000 mPas
Operating pressure	4 bar	4 bar	10 bar
Accuracy	± 1% standard < 1% with adaptation to the operating conditions	± 1% standard < 1% with adaptation to the operating conditions	± 1%
Inlet port	G 2 male thread suitable for connection piece with wing nut	G 2 male thread suitable for connection piece with wing nut	G 1 1/4 male thread
Outlet port	G 1 1/4 male thread	G 1 1/4 male thread	G 1 1/4 male thread
LCD display	Touch-Screen 63x63 mm, 128x128 pixels, display sub-total and total volume can be reset		
Menu language	DE, GB, ES, FR, IT, NL, PT, RU		
Materials:			
Housing	PPS	PPS	Stainless steel (1.4581/1.4571)*
Measuring chamber	LCP	LCP	Stainless steel (1.4581/1.4571) ETFE/
Seals	FEP	FEP	PTFE
Magnet	BaFe / MS / stainless steel 1.4401	PPS encapsulated	FEP PTFE encapsulated
Marking:			
Operating unit	II 2G Ex ib IIB T4 Gb***	II 2G Ex ib IIB T4 Gb***	II 2G Ex ib IIB T4 Gb***
Basic flow meter	II 2G Ex h IIB T6 ... T4 Gb X	II 2G Ex h IIB T6 ... T4 Gb X	II 2G Ex h IIB T6 ... T4 Gb X
Protection class	IP55	IP55	IP55
Weight	1.1 kg	1.1 kg	3.7 kg
<b>Order No.</b>	<b>0231-020</b>	<b>0231-030</b>	<b>0231-040</b>

\*Special materials on request Information on the chemical resistance of the different flow meter variants can be found in our resistance table. \*\* Short-term 120 l/min. \*\*\* Type of protection II 2G Ex ib IIC T4 Gb on request

## Recommended accessories: Power supply unit NG10\*\*\*\*

Voltage	220-230 V
Frequency	50-60 Hz
<b>Order No.</b>	<b>0230-230</b>

\*\*\*\* Limited battery operation possible without power supply unit, installation of power supply unit outside hazardous area necessary

# Flow measurement with volume preselection - TS

for non-flammable liquids



Flow meter type VA10 in PURE Version suitable for use in the food and cosmetics industry as well as in the pharmaceuticals.

Technical data	Type ST10/RM10 230 V	Type SL10/RM10 230 V	Type VA10/RM10 230 V
Field of application	Neutral media, such as water, mineral oils	Aggressive liquids such as acids and alkalis	Many acids, alkalis and other liquids
Flow rate	min. 10 – max. 100** l/min.	min. 10 – max. 100** l/min.	min. 10 – max. 100 l/min.
Temperature	60 °C	60 °C	80 °C
Viscosity	2,000 mPas	2,000 mPas	5,000 mPas
Operating pressure	4 bar	4 bar	10 bar
Accuracy	± 1% standard < 1% with adaptation to the operating conditions	± 1% standard < 1% with adaptation to the operating conditions	± 1%
Inlet port	G 2 male thread suitable for connection piece with wing nut	G 2 male thread suitable for connection piece with wing nut	G 1 1/4 male thread
Outlet port	G 1 1/4 male thread	G 1 1/4 male thread	G 1 1/4 male thread
LCD display	Touch-Screen 63x63 mm, 128x128 pixels, display sub-total and total volume can be reset		
Menu language	DE, GB, ES, FR, IT, NL, PT, RU		
Materials:			
Housing	PPO	PPO	Stainless steel (1.4581/1.4571)*
Measuring chamber	PPO/PPS	PPO/PPS	Stainless steel (1.4581/1.4571) ETFE/PTFE
Seals	FPM	FPM	FEP
Magnet	BaFe / PA / Stainless steel 1.4401	PPS encapsulated	PTFE encapsulated
Protection class	IP55	IP55	IP55
Weight	1.6 kg	1.6 kg	4.1 kg
<b>Relay module RM10</b>			
Voltage	220-230 V		
Frequency	50-60 Hz		
Switching outputs	2 switching outputs (potentially bound)		
Output 1 (Pump)	8 A, cos > 0,7		
Output 2 (Valve)	0.5 A		
<b>Order No.</b>	<b>0231-001</b>	<b>0231-011</b>	<b>0231-041</b>

\* Special materials on request. Information on the chemical resistance of the different flow meter variants can be found in our resistance table.  
 \*\* Short-term 120 l/min.

# Flow measurement with volume preselection - TS

for easily inflammable liquids



Flow meter type VA10 in PURE Version suitable for use in the food and cosmetics industry as well as in the pharmaceuticals.



Technical data	Type LM10 / Ex-RM10mK	Type UN10 / Ex-RM10mK	Type VA10 / Ex-RM10mK
Field of application	Solvents and many other highly flammable liquids, oils and neutral liquids.	Solvents and highly flammable liquids, most of acids and alkalis.	Almost all solvents and highly flammable liquids. Many acids, alkalis and other liquids.
Flow rate	min. 10 – max. 100** l/min.	min. 10 – max. 100** l/min.	min. 10 – max. 100 l/min.
Temperature	40 °C	40 °C	40 °C
Viscosity	2,000 mPas	2,000 mPas	5,000 mPas
Operating pressure	4 bar	4 bar	10 bar
Accuracy	± 1% standard < 1% with adaptation to the operating conditions	± 1% standard < 1% with adaptation to the operating conditions	± 1%
Inlet port	G 2 male thread suitable for connection piece with wing nut	G 2 male thread suitable for connection piece with wing nut	G 1 1/4 male thread
Outlet port	G 1 1/4 male thread	G 1 1/4 male thread	G 1 1/4 male thread
LCD display	Touch-Screen 63x63 mm, 128x128 pixels, display sub-total and total volume can be reset		
Menu language	DE, GB, ES, FR, IT, NL, PT, RU		
Materials:			
Housing	PPS	PPS	Stainless steel (1.4581/1.4571)*
Measuring chamber	LCP	LCP	Stainless steel (1.4581/1.4571) ETFE/PTFE
Seals	FEP	FEP	FEP
Magnet	BaFe / MS / stainless steel 1.4401	PPS encapsulated	PTFE encapsulated
Marking:			
Operating unit	II 2G Ex ib IIB T4 Gb***	II 2G Ex ib IIB T4 Gb***	II 2G Ex ib IIB T4 Gb***
Basic flow meter	II 2G Ex h IIB T6 ... T4 Gb X	II 2G Ex h IIB T6 ... T4 Gb X	II 2G Ex h IIB T6 ... T4 Gb X
Protection class	IP55	IP55	IP55
Weight	4.4 kg	4.4 kg	6.7 kg
<b>Relay module Ex-RM10mK</b>			
Voltage	220-230 V		
Frequency	50-60 Hz		
Switching outputs	2 switching outputs (potentially bound)		
Output 1 (Pump)	5 A, cos > 0,7		
Output 2 (Valve)	0.315 A		
Marking	II 2G Ex db eb mb [ib] IIC T4 Gb		
<b>Order No.</b>	<b>0231-023</b>	<b>0231-033</b>	<b>0231-043</b>

\* Special materials on request. Information on the chemical resistance of the different flow meter variants can be found in our resistance table.

\*\* Short-term 120 l/min.

\*\*\* Type of protection II 2G Ex ib IIC T4 Gb on request

# Lutz flow meter programme

Series HDO: Oval gear principle

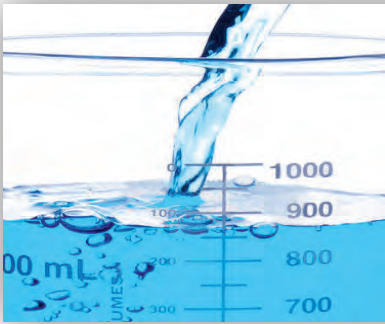


## Product features

The flow meters in plastic and metal design work according to the oval gear principle. They are suitable for pumping thin-bodied to highly viscous liquids.

- For high flow rates, temperatures and pressures
- Few construction and wear parts
- Low pressure losses in the system

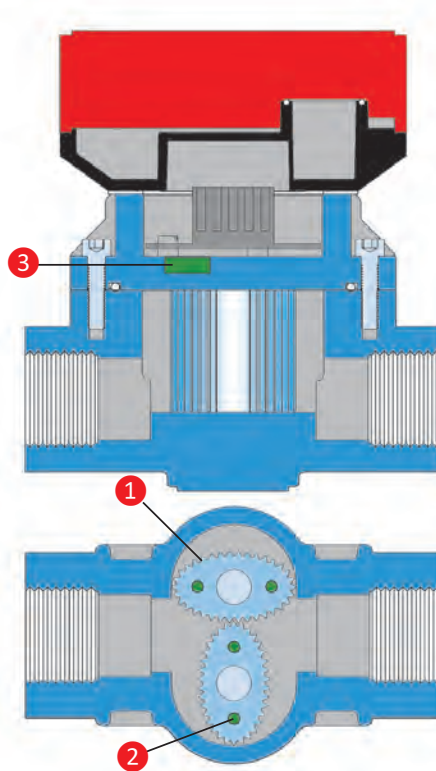




### How the HDO works

Two interlocked oval gears, offset by 90° in the meter housing, are set in rotation by the flowing liquid. A defined volume of liquid is transported "in portions" through the two oval wheels. Magnets placed on the measuring wheels are also set in rotation.

A reed contact mounted outside the measuring chamber records the magnetic pulses generated. The volume of the liquid flowing through is determined by the number of pulses detected.

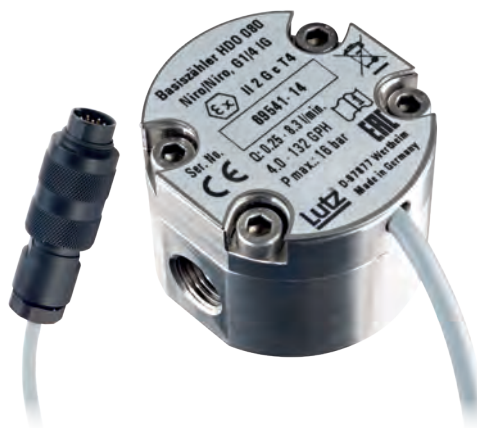


- 1 Oval gears
- 2 Permanent magnets
- 3 Reed contact

# Lutz flow meter HDO 080 with pulse output

for very small flow rates

- ✓ Metal housing
- ✓ for very small flow rates up to 8.3 l/min.
- ✓ compact basic flow meter with 0.3 m connection cable and plug for connection to external operating unit
- ✓ for neutral liquids, many acids and alkalis, petroleum products, highly flammable hydrocarbons, solvents, paints and lacquers, etc.
- ✓ with threaded connection




Technical data	Type HDO 080 SS/SS
Measuring range: below 5 mPas above 5 mPas	0.44 l/min up to 8.3 l/min 0.25 l/min up to 8.3 l/min
Temperature	max. 80 °C
Viscosity max.	1,000 mPas
Operating pressure max.	16 bar
Measuring accuracy	below 5 mPas ± 2,5% of measured value above 5mPas ± 1% of measured value
Reproducibility	± 0.03%
Nominal width	DN 8
Connections: Thread / flange	G 1/4 IT
LCD display	Basic flow meter without operating unit (Suitable operating unit) BE10/BE10 Ex see accessories)
Materials: Housing Measuring wheels Shaft Sealing	Stainless steel (1.4571) Stainless steel (1.4571) Stainless steel (1.4571) FPM (alt. FFPM, EPDM)*
Weight	0.7 kg
Marking: Basic flow meter	II 2G Ex h IIB T4 Gb
<b>Order No.</b>	<b>Thread</b>
<b>up to 1000 mPas</b>	<b>0230-600</b>

Optional:  
\*Seal FFPM or EPDM on request

# Lutz Flow Meter HDO 120

for non-flammable and easily flammable liquids

- ✓ Metal housing
- ✓ For small flow rates up to 30 l/min.
- ✓ **Non explosion-proof version:**  
for neutral liquids, many acids and alkalis, mineral oil products, paints and lacquers, etc.
- ✓ **Ex version:**   
for flammable mineral oil products, highly flammable hydrocarbons and other chemicals in explosive environments.
- ✓ with threaded connection



Technical data	Type HDO 120 Alu/LCP	Type HDO 120 SS/SS
Measuring range:		
below 5 mPas	2 l/min up to 25 l/min	2 l/min up to 25 l/min
above 5 mPas	1 l/min up to 30 l/min	1 l/min up to 30 l/min
Temperature	max. 80 °C (60 °C**)	max. 120 °C (60 °C**)
Viscosity max.	1,000 mPas	1,000 mPas
Operating pressure max.	16 bar	16 bar
Measuring accuracy	below 5mPas ± 2% of measured quantity above 5mPas ± 0.5% of measured quantity	below 5mPas ± 2% of measured value above 5mPas ± 0,5% of measured value
Reproducibility	± 0.03%	± 0.03%
Nominal width	DN 12	DN 12
Connections:		
Thread / flange	G 1/2 IT	G 1/2 IT
LCD display	Touch-Screen 63x63 mm, 128x128 pixels, display sub-total and total volume can be reset	
Menu language	DE, GB, ES, FR, IT, NL, PT, RU	
Materials:		
Housing	Aluminium	Stainless steel (1.4404)
Measuring wheels	LCP	Stainless steel (1.4404)
Shaft	Stainless steel (1.4404)	Stainless steel (1.4404)
Sealing	FPM (alt. FFPM, EPDM)*	FPM (alt. FFPM, EPDM)*
Protection class	IP55	IP55
Weight	2.1 kg	4.5 kg
<b>Order No.</b>	<b>Thread</b>	<b>Thread</b>
<b>up to 1000 mPas</b>	<b>0231-101</b>	<b>0231-100</b>

Technical data	Type HDO 120 Alu/LCP Ex	Type HDO 120 SS/SS Ex
Marking:		
Operating unit	II 2G Ex ib IIB T4 Gb*** 	II 2G Ex ib IIB T4 Gb*** 
Basic flow meter	II 2G Ex h IIB T4 Gb	II 2G Ex h IIB T4 Gb
<b>Order No.</b>	<b>Thread</b>	<b>Thread</b>
<b>up to 1000 mPas</b>	<b>0231-103</b>	<b>0231-102</b>


Optional: \* Seal FFPM or EPDM on request \*\*in Ex version \*\*\* type of protection II 2G Ex ib IIC T4 Gb on request.

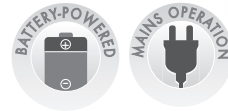
Recommended accessories: Power supply unit NG10****	
Voltage	220-230 V
Frequency	50-60 Hz
<b>Order No.</b>	<b>0230-230</b>

\*\*\*\* Limited battery operation possible without power supply unit, installation of power supply unit outside hazardous area necessary

# Lutz Flow Meter HDO 200

for non-flammable and easily flammable liquids

- ✓ Metal housing
- ✓ for small and medium-sized flow rates up to 60 l/min.
- ✓ **Non explosion-proof version:**  
for neutral liquids, many acids and alkalis, mineral oil products, paints and lacquers, etc.
- ✓ **Ex version:**   
for flammable mineral oil products, highly flammable hydrocarbons and other chemicals in explosive environments.
- ✓ with threaded connection



Technical data	Type HDO 200 Alu/LCP	Type HDO 200 SS/SS
Measuring range:		
below 5 mPas	4.5 l/min up to 53 l/min	4.5 l/min up to 53 l/min
above 5 mPas	2 l/min up to 60 l/min	2 l/min up to 60 l/min
Temperature	max. 80 °C (60 °C**)	max. 120 °C (60 °C**)
Viscosity max.	1,000 mPas	1,000 mPas
Operating pressure max.	16 bar	16 bar
Measuring accuracy	below 5mPas ± 2% of measured quantity above 5mPas ± 0.5% of measured quantity	below 5mPas ± 2% of measured quantity above 5mPas ± 0.5% of measured quantity
Reproducibility	± 0.03%	± 0.03%
Nominal width	DN 20	DN 20
Connections:		
Thread / flange	G 3/4 IT	G 3/4 IT
LCD display	Touch-Screen 63x63 mm, 128x128 pixels, display sub-total and total volume can be reset	
Menu language	DE, GB, ES, FR, IT, NL, PT, RU	
Materials:		
Housing	Aluminium	Stainless steel (1.4404)
Measuring wheels	LCP	Stainless steel (1.4404)
Shaft	Stainless steel (1.4404)	Stainless steel (1.4404)
Sealing	FPM (alt. FFPM, EPDM)*	FPM (alt. FFPM, EPDM)*
Protection class	IP55	IP55
Weight	2.2 kg	4.8 kg
<b>Order No.</b>	<b>Thread</b>	<b>Thread</b>
<b>up to 1000 mPas</b>	<b>0231-105</b>	<b>0231-104</b>

Technical data	Type HDO 200 Alu/LCP Ex	Type HDO 200 SS/SS Ex
Marking:		
Operating unit	II 2G Ex ib IIB T4 Gb*** 	II 2G Ex ib IIB T4 Gb*** 
Basic flow meter	II 2G Ex h IIB T4 Gb	II 2G Ex h IIB T4 Gb
<b>Order No.</b>	<b>Thread</b>	<b>Thread</b>
<b>up to 1000 mPas</b>	<b>0231-107</b>	<b>0231-106</b>

Optional: \* Seal FFPM or EPDM on request \*\*in Ex version \*\*\* type of protection II 2G Ex ib IIC T4 Gb on request.


Recommended accessories: Power supply unit NG10****	
Voltage	220-230 V
Frequency	50-60 Hz
<b>Order No.</b>	<b>0230-230</b>

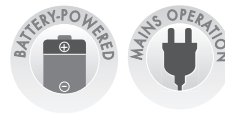
\*\*\*\* Limited battery operation possible without power supply unit, installation of power supply unit outside hazardous area necessary



# Lutz Flow Meter HDO 400

for non-flammable and easily flammable liquids

- ✓ Metal housing
- ✓ for medium-sized flow rates up to 246 l/min.
- ✓ **Non explosion-proof version:**  
for neutral liquids, many acids and alkalis, mineral oil products, paints and lacquers, etc.
- ✓ **Ex version:**   
for flammable mineral oil products, highly flammable hydrocarbons and other chemicals in explosive environments.
- ✓ with threaded or flanged connection



Technical data	Type HDO 400 Alu/PPS		Type HDO 400 SS/PPS		Type HDO 400 SS/SS		
Measuring range:	15 l/min up to 227 l/min		15 l/min up to 227 l/min		15 l/min up to 227 l/min		
below 5 mPas	9.5 l/min up to 246 l/min		9.5 l/min up to 246 l/min		9.5 l/min up to 246 l/min		
above 5 mPas	max. 80 °C (60 °C**)		max. 80 °C (60 °C**)		max. 120 °C (60 °C**)		
Temperature	500,000 mPas		500,000 mPas		500,000 mPas		
Viscosity max.	16 bar		16 bar		16 bar		
Operating pressure max.	below 5mPas ± 1% of measured quantity		below 5mPas ± 1% of measured quantity		below 5mPas ± 1% of measured quantity		
Measuring accuracy	above 5mPas ± 0.5% of measured quantity		above 5mPas ± 0.5% of measured quantity		above 5mPas ± 0.5% of measured quantity		
Reproducibility	0.03%		0.03%		0.03%		
Nominal width	DN 40		DN 40		DN 40		
Connections:	G 1 1/2 IT		G 1 1/2 IT		G 1 1/2 IT		
Thread / flange	PN 16		PN 16		PN 16		
LCD display	Touch-Screen 63x63 mm, 128x128 pixels, display sub-total and total volume can be reset						
Menu language	DE, GB, ES, FR, IT, NL, PT, RU						
Materials:	Aluminium		Stainless steel (1.4404)		Stainless steel (1.4404)		
Housing	PPS		PPS		Stainless steel (1.4401)		
Measuring wheels	Stainless steel (1.4404)		Stainless steel (1.4404)		Stainless steel (1.4404)		
Shaft	FPM (alt. FFPM, EPDM)*		FPM (alt. FFPM, EPDM)*		FPM (alt. FFPM, EPDM)*		
Sealing	IP55		IP55		IP55		
Protection class	4.5 kg	5.5 kg	10.4 kg	12.0 kg	10.5 kg	12.1 kg	
Weight	<b>Order No.</b>	<b>Thread</b>	<b>Flange</b>	<b>Thread</b>	<b>Flange</b>	<b>Thread</b>	
	<b>up to 1000 mPas</b>	<b>0231-233</b>	<b>0231-234</b>	<b>0231-229</b>	<b>0231-230</b>	<b>0231-225</b>	
	<b>up to 500000 mPas</b>	<b>0231-235</b>	<b>0231-236</b>	<b>0231-231</b>	<b>0231-232</b>	<b>0231-227</b>	
	<b>Technical data</b>	<b>Type HDO 400 Alu/PPS Ex</b>		<b>Type HDO 400 SS/PPS Ex</b>		<b>Type HDO 400 SS/SS Ex</b>	
Marking:	II 2G Ex ib IIB T4 Gb*** 		II 2G Ex ib IIB T4 Gb*** 		II 2G Ex ib IIB T4 Gb*** 		
Operating unit	II 2G Ex h IIB T4 Gb		II 2G Ex h IIB T4 Gb		II 2G Ex h IIB T4 Gb		
Basic flow meter	<b>Order No.</b>	<b>Thread</b>	<b>Flange</b>	<b>Thread</b>	<b>Flange</b>	<b>Thread</b>	
	<b>up to 1000 mPas</b>	<b>0231-245</b>	<b>0231-246</b>	<b>0231-241</b>	<b>0231-242</b>	<b>0231-237</b>	
	<b>up to 500000 mPas</b>	<b>0231-247</b>	<b>0231-248</b>	<b>0231-243</b>	<b>0231-244</b>	<b>0231-239</b>	

Optional: \*Seal FFPM or EPDM on request. Drum pump connection for connecting to a drum pump B70 / HD-E see accessories.

\*\*in Ex version \*\*\* Type of protection II 2G Ex ib IIC T4 Gb on request.


## Recommended accessories: Power supply unit NG10\*\*\*\*

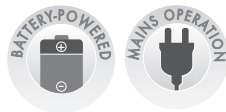
Voltage	220-230 V
Frequency	50-60 Hz
<b>Order No.</b>	<b>0230-230</b>

\*\*\*\* Limited battery operation possible without power supply unit, installation of power supply unit outside hazardous area necessary




# Lutz Flow Meter HDO 500

for non-flammable and easily flammable liquids

- ✓ Metal housing
- ✓ for large flow rates up to 380 l/min.
- ✓ **Non explosion-proof version:**  
for neutral liquids, many acids and alkalis, mineral oil products, paints and lacquers, etc.
- ✓ **Ex version:**   
for flammable mineral oil products, highly flammable hydrocarbons and other chemicals in explosive environments.
- ✓ with flange connection



Technical data	Type HDO 500 Alu/PPS	Type HDO 500 SS/PPS	Type HDO 500 SS/SS
Measuring range: below 5 mPas above 5 mPas	23 l/min up to 380 l/min 15 l/min up to 380 l/min	23 l/min up to 380 l/min 15 l/min up to 380 l/min	23 l/min up to 380 l/min 15 l/min up to 380 l/min
Temperature	max. 80 °C (60 °C**)	max. 80 °C (60 °C**)	max. 120 °C (60 °C**)
Viscosity max.	500,000 mPas	500,000 mPas	500,000 mPas
Operating pressure max.	16 bar	16 bar	16 bar
Measuring accuracy	below 5mPas ± 1% of measured quantity above 5mPas ± 0.5% of measured quantity	below 5mPas ± 1% of measured quantity above 5mPas ± 0.5% of measured quantity	below 5mPas ± 1% of measured quantity above 5mPas ± 0.5% of measured quantity
Reproducibility	0.03%	0.03%	0.03%
Nominal width	DN 50	DN 50	DN 50
Connections: Flange	PN 16	PN 16	PN 16
LCD display	Touch-Screen 63x63 mm, 128x128 pixels, display sub-total and total volume can be reset		
Menu language	DE, GB, ES, FR, IT, NL, PT, RU		
Materials:			
Housing	Aluminium	Stainless steel (1.4404)	Stainless steel (1.4404)
Measuring wheels	PPS	PPS	Stainless steel (1.4401)
Shaft	Stainless steel (1.4404)	Stainless steel (1.4404)	Stainless steel (1.4404)
Sealing	FPM (alt. FFPM, EPDM)*	FPM (alt. FFPM, EPDM)*	FPM (alt. FFPM, EPDM)*
Protection class	IP55	IP55	IP55
Weight	6.6 kg	13.6 kg	13.8 kg
<b>Order No.</b>	<b>Flange</b>	<b>Flange</b>	<b>Flange</b>
<b>up to 1000 mPas</b>	<b>0231-253</b>	<b>0231-251</b>	<b>0231-249</b>
<b>up to 500000 mPas</b>	<b>0231-254</b>	<b>0231-252</b>	<b>0231-250</b>

Technical data	Type HDO 500 Alu/PPS Ex	Type HDO 500 SS/PPS Ex	Type HDO 500 SS/SS Ex
Marking: Operating unit Basic flow meter	II 2G Ex ib IIB T4 Gb***  II 2G Ex h IIB T4 Gb	II 2G Ex ib IIB T4 Gb***  II 2G Ex h IIB T4 Gb	II 2G Ex ib IIB T4 Gb***  II 2G Ex h IIB T4 Gb
<b>Order No.</b>	<b>Flange</b>	<b>Flange</b>	<b>Flange</b>
<b>up to 1000 mPas</b>	<b>0231-259</b>	<b>0231-257</b>	<b>0231-255</b>
<b>up to 500000 mPas</b>	<b>0231-260</b>	<b>0231-258</b>	<b>0231-256</b>

Optional: \*Seal FFPM or EPDM on request. \*\*in Ex version \*\*\* Type of protection II 2G Ex ib IIC T4 Gb on request.

## Recommended accessories: Power supply unit NG10\*\*\*\*

Voltage	220-230 V
Frequency	50-60 Hz
<b>Order No.</b>	<b>0230-230</b>

\*\*\*\* Limited battery operation possible without power supply unit, installation of power supply unit outside hazardous area necessary

# Accessories programme Lutz flow meters

for mobile and stationary application

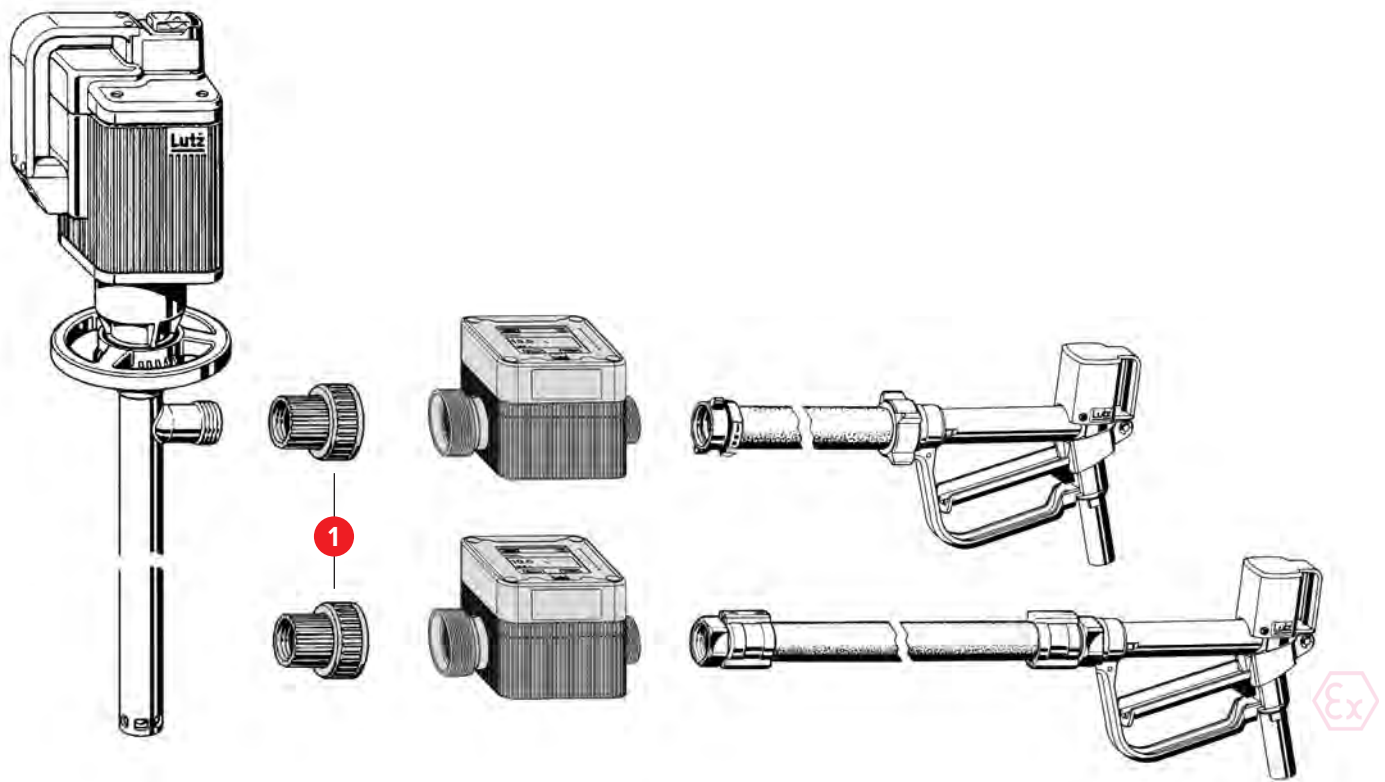


**So you always know what's going on.**

The wide range of accessories offers you the option of installing the flow meter on a pump or in a pipe. With suitable connection cables, the system is quickly ready for use.

# Range of accessories

Flow meter TSB without volume preselection

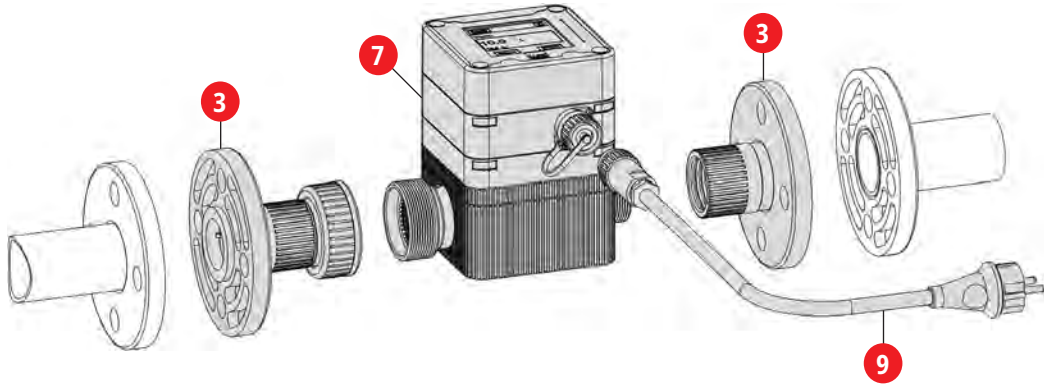


... in threaded design

**1** Drum pump connection

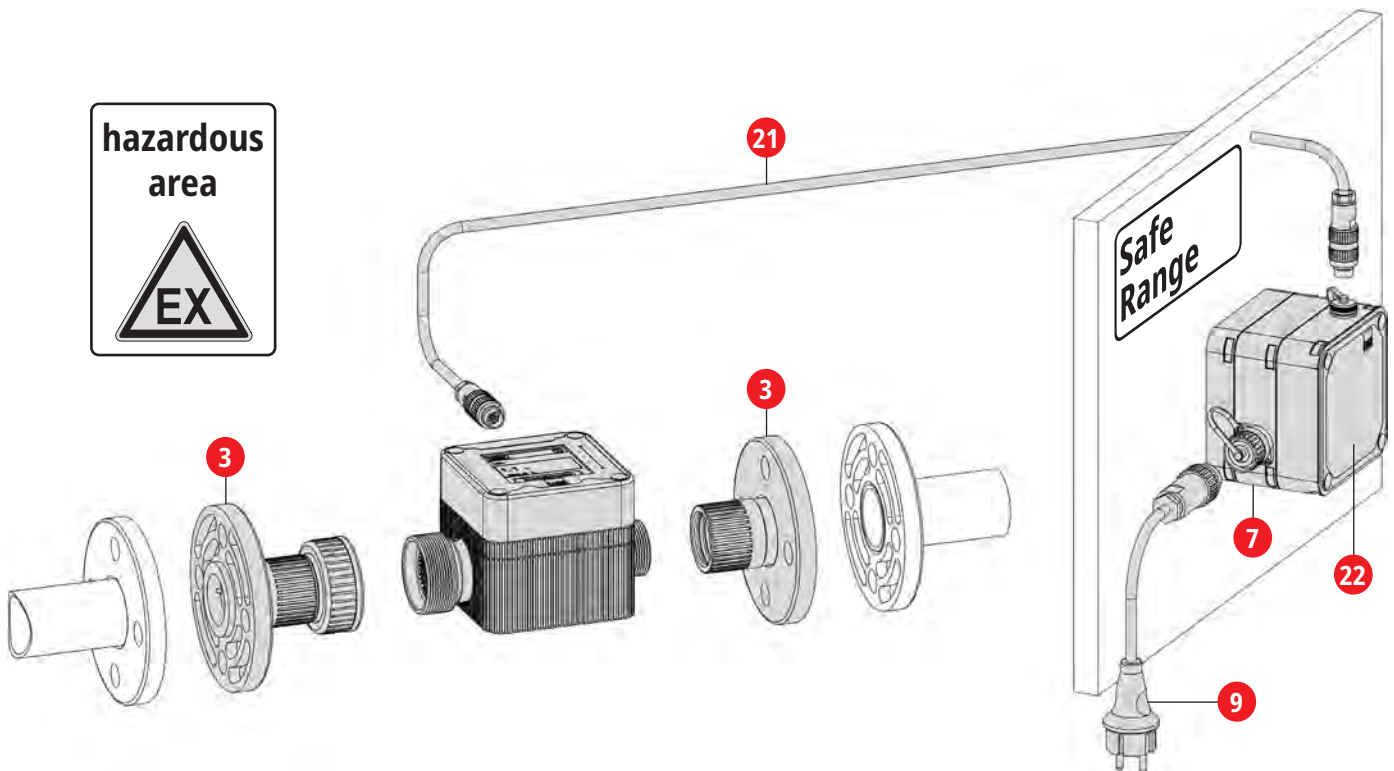
# Range of accessories

## Flow meter TS without volume preselection



... with power supply unit in plant engineering

- 3** Flange connection
- 7** Power supply NG10
- 9** Power supply cable

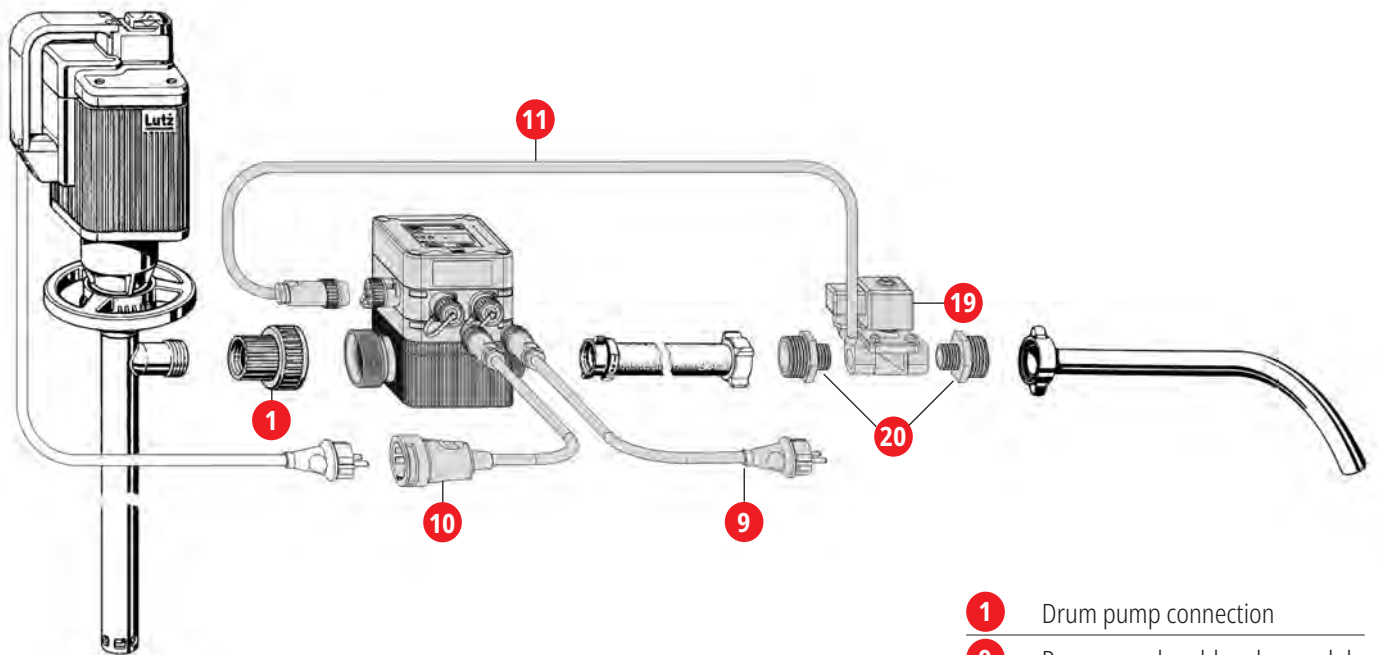


... with power supply unit in plant engineering (Ex)

- 3** Flange connection
- 7** Power supply NG10
- 9** Power supply cable
- 21** Data line
- 22** Protection cap SH10

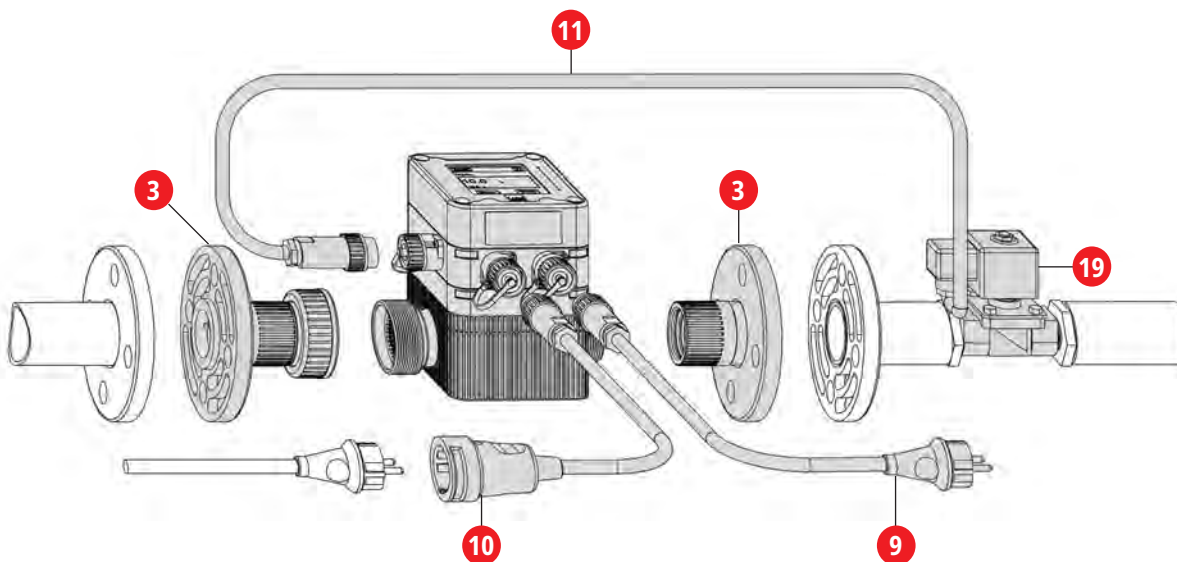
# Range of accessories

Flow measurement with volume preselection



... in threaded design

- 1** Drum pump connection
- 9** Power supply cable relay module
- 10** Connection cable motor/slow 1-way
- 11** Connection cable main valve
- 19** Solenoid valve
- 20** Double nipple

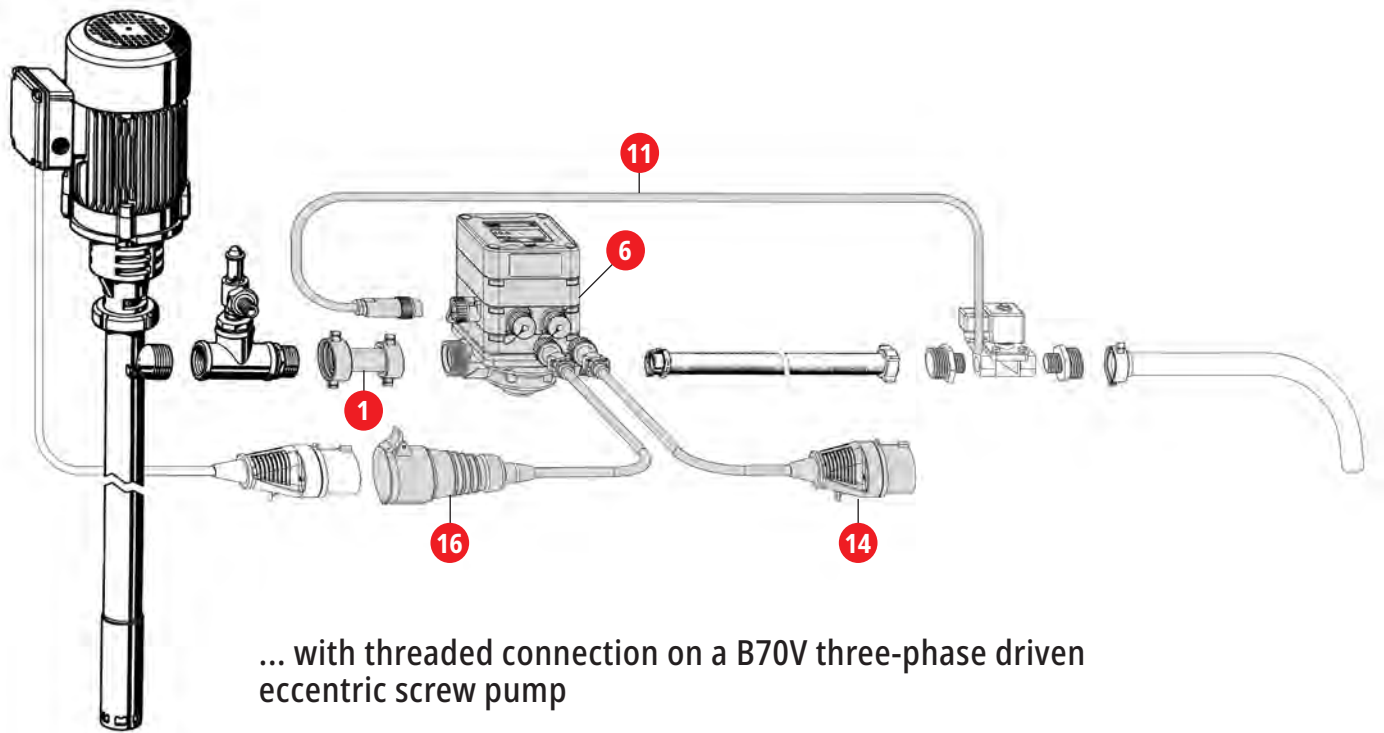


... in flange design

- 3** Flange connection
- 9** Power supply cable relay module
- 10** Connection cable motor/slow 1-way
- 11** Connection cable main valve
- 19** Solenoid valve

# Range of accessories

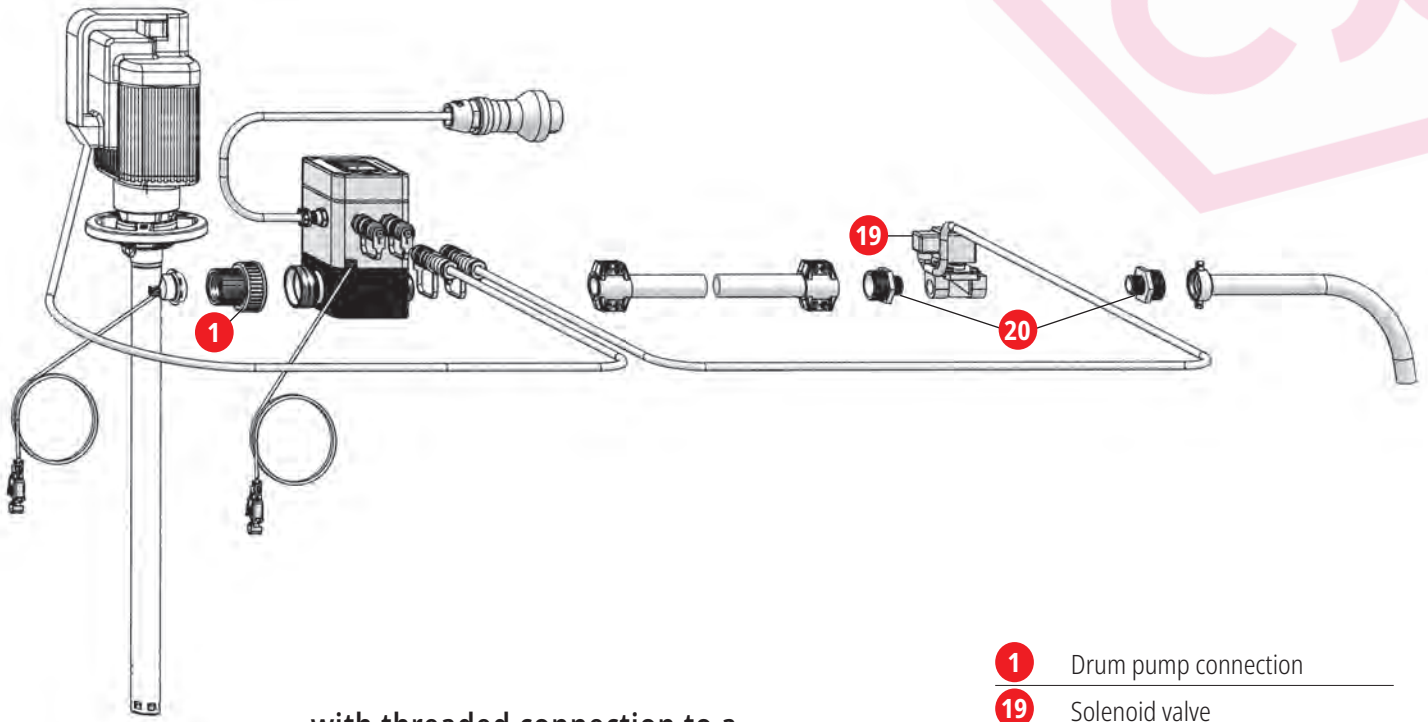
Flow measurement with volume preselection



- 1** Drum pump connection
- 6** Relay module RM30
- 11** Connection cable main valve
- 14** Power supply cable RM30, 400V
- 16** Connection cable motor RM30 400 V

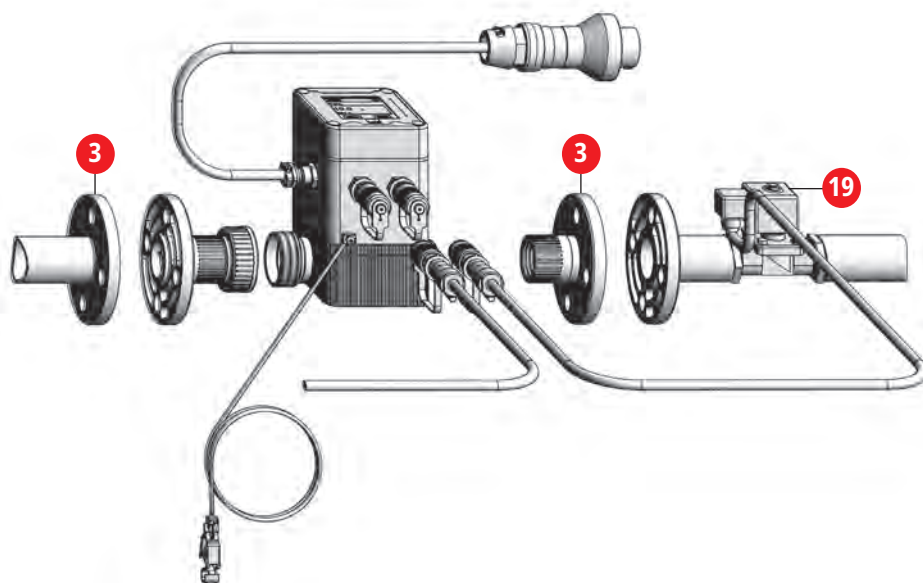
# Range of accessories

Flow measurement with volume preselection



... with threaded connection to a drum and container pump (Ex)

- 1** Drum pump connection
- 19** Solenoid valve
- 20** Double nipple

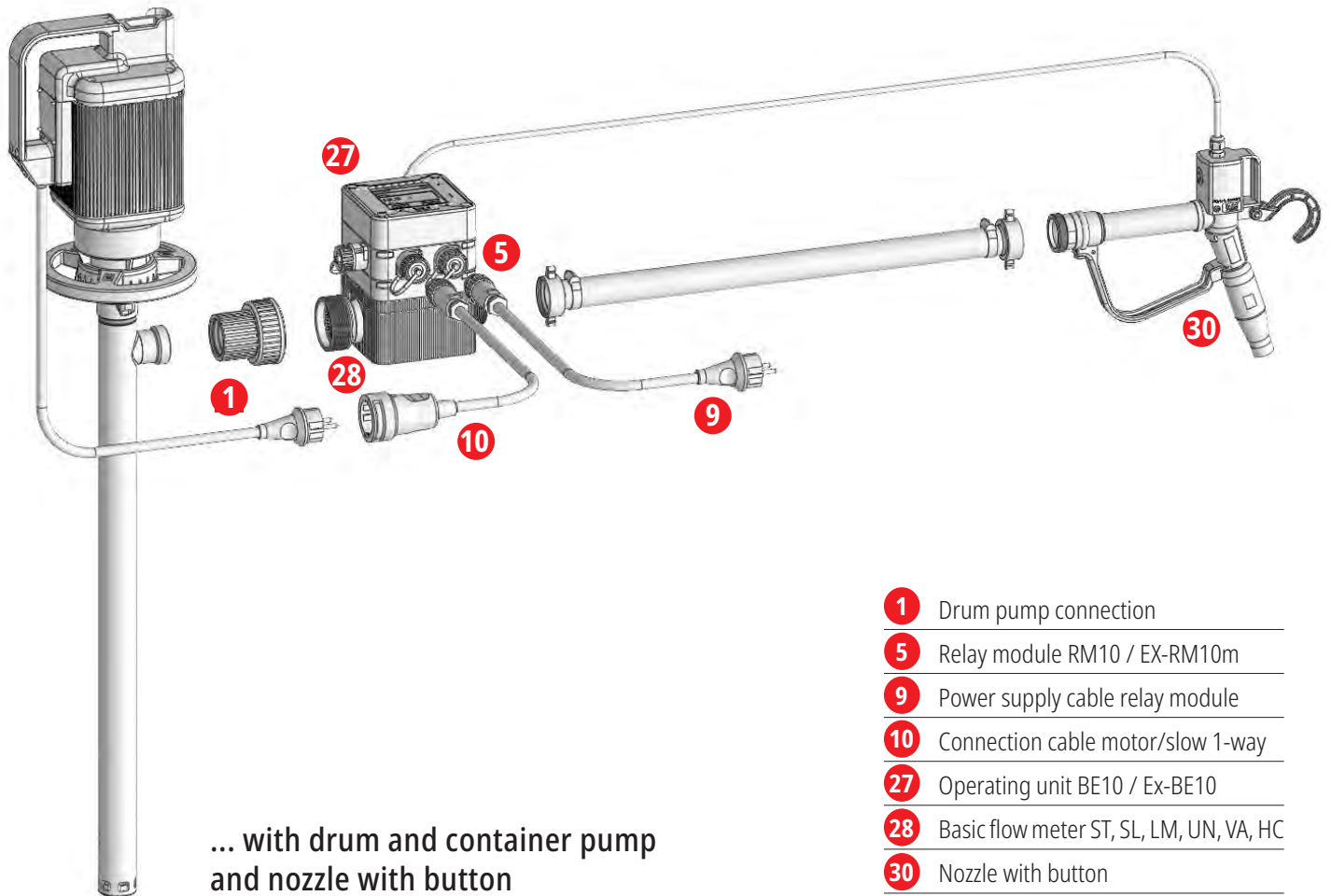


... with flange connection in plant engineering (Ex)

- 3** Flange connection
- 19** Solenoid valve

# Range of accessories

## Flow measurement with volume preselection



- 1 Drum pump connection
- 5 Relay module RM10 / EX-RM10m
- 9 Power supply cable relay module
- 10 Connection cable motor/slow 1-way
- 27 Operating unit BE10 / Ex-BE10
- 28 Basic flow meter ST, SL, LM, UN, VA, HC
- 30 Nozzle with button



### For the non-Ex areas

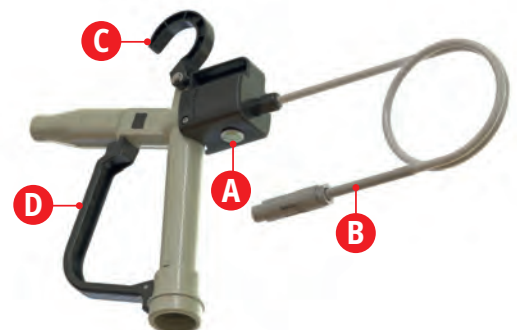
- Operating unit BE10
- Relay module RM10 (for pumps with three-phase drive RM30)
- Basic flow meter ST, SL, LM, UN, VA, HC



### For use in Ex areas

- Operating unit Ex-BE10
- Relay module Ex-RM10m
- Basic flow meter LM, UN, VA, HC





### Assembly:



- A Push button
- B Connection cable (5 m) for connection to operating unit BE10 or another control system
- C Suspension hook
- D Hoop guard

# Range of accessories

## Flow measurement with volume preselection, nozzle with button

Specification	Order No.	Product detail
<p><b>30 Nozzle ZP-E PP</b></p> <p>For filling and transferring neutral and aggressive liquids. With hoop guard, suspension hook, outlet spouts <math>\varnothing</math> 23 mm (cylindrical) and 5 m connecting cable. Polypropylene (PP) housing and polytetrafluoroethylene (PTFE) valve tappet.</p> <p>Opening pressure: 0.45 bar Viscosity: max. 1000 mPas Flow rate: max. 35 l/min. (Water) Temperature of medium: max. 50 °C Weight: approx. 0.6 kg Connection: Outer thread G 1 1/4 Seal: FPM EPDM</p>	<p><b>0204-036</b> <b>0204-825</b></p>	
<p><b>30 Nozzle ZP-E PVDF</b></p> <p>For filling and transferring neutral and aggressive liquids. With hoop guard, suspension hook, outlet spouts <math>\varnothing</math> 23 mm (cylindrical) and 5 m connecting cable. Polyvinylidenfluoride (PVDF) housing and polytetrafluoroethylene (PTFE) valve tappet.</p> <p>Opening pressure: 0.45 bar Viscosity: max. 1000 mPas Flow rate: max. 35 l/min. (Water) Temperature of medium: max. 50 °C Weight: approx. 0.6 kg Connection: Outer thread G 1 1/4 Seal: FPM EPDM</p>	<p><b>0204-080</b> <b>0204-826</b></p>	
<p><b>30 Nozzle ZP-E stainless steel</b></p> <p>Ideally suitable for filling and transferring liquids - also for combustible and easy flammable liquids - in food and pharmaceutical industry. Stainless steel (1.4571) housing and polytetrafluoroethylene (PTFE) valve tappet. With hoop guard, suspension hook and rotating joint and 5 m connecting cable. Ex II 2 G Ex h IIB T6 Gb</p> <p>Opening pressure: 0.45 bar Viscosity: max. 5000 mPas Flow rate: max. 35 l/min. (Water) Temperature of medium: max. 80 °C Weight: approx. 1.5 kg Connection: Outer thread G 1 1/4 Seal: FPM</p>	<p><b>0204-060</b></p>	
<p><b>30 Nozzle ZP-E stainless steel (PURE)</b></p> <p>Ideally suitable for filling and transferring liquids - also for combustible and easy flammable liquids - in food and pharmaceutical industry. Stainless steel (1.4571) housing and polytetrafluoroethylene (PTFE) valve tappet. With hoop guard, suspension hook and rotating joint and 5 m connecting cable. Ex II 2 G Ex h IIB T6 Gb</p> <p>Opening pressure: 0.45 bar Viscosity: max. 5000 mPas Flow rate: max. 35 l/min. (Water) Temperature of medium: max. 80 °C Weight: approx. 1.5 kg Connection: Tri-Clamp DN 32 Seal: EPDM</p>	<p><b>0204-827</b></p>	

Suitable for pumping flammable and highly inflammable liquids (e.g. ethanol, petrol) or in explosive environments.

# Range of accessories

## Connection fittings

Product detail	Specification	Order No.
	<p><b>1 Drum pump connection</b> connects the flow meter to a drum and container pump.</p> <p>PPO/FPM G 1 1/4 IT for ST10, SL10            PPS/FPM-FEP G 1 1/4 IT for LM10, UN10            Stainless steel/PTFE G 1 1/4 - G 1 1/4 IT for VA10            Stainless steel/PTFE G 1 1/4 - G 1 1/2 IT for VA10</p>	<p><b>0211-130</b>  <b>0211-132</b>  <b>0211-211</b>  <b>0211-214</b></p>
	<p><b>1 Drum pump connection</b> connects the flow meter to an eccentric screw pump B70V or HD-E</p> <p>PP/PTFE G 1 OT x G 1 1/4 IT for HDO250 PVDF            Stainless steel/PTFE G 1 OT x G 1 1/4 IT for HDO250            Stainless steel/PTFE G 1 OT x G 1 1/2 IT for HDO250</p>	<p><b>0211-332</b>  <b>0211-330</b>  <b>0211-331</b></p>
	<p><b>2 Double nipple</b> connects the flow meter to the hose line</p> <p>PP G 1 OT x G 1 1/4 OT, for drum pump connection G 1 OT x G 1 1/4 IT            Stainless steel G 1 OT x G 1 1/4 OT, for drum pump connection G 1 OT x G 1 1/4 IT            Stainless steel G 1 OT x G 1 1/2 OT, for drum pump connection G 1 OT x G 1 1/2 IT</p> <p><small>*additional spacer ring 0231-545 is required</small></p>	<p><b>0373-076*</b>  <b>5000-073*</b>  <b>0211-340*</b></p>
	<p><b>3 Flange connection</b> connects the flow meter to the piping system.</p> <p>PPO/FPM DN 32, PN 10 on both sides for ST10, SL10            PPS/FPM-FEP DN 32, PN 10 on both sides for LM10, UN10            Stainless steel DN 25, PN 6, one-sided for VA10            Stainless steel DN 32, PN 6, one-sided for VA10            Stainless steel DN 32, PN 10, one-sided for VA10            Stainless steel DN 40, PN 10, one-sided for VA10</p>	<p><b>0211-131</b>  <b>0211-133</b>  <b>0208-620</b>  <b>0208-621</b>  <b>0208-622</b>  <b>0208-623</b></p>
	<p><b>4 Threaded connection</b> connects the flow meter to screw flanges or threaded screw connections.</p> <p>PPO/FPM G 1 1/4 OT for ST10, SL10            PPS/FPM-FEP G 1 1/4 OT for LM10, UN10</p>	<p><b>0211-135</b>  <b>0211-136</b></p>
	<p><b>Check valve</b> prevents the liquid from flowing back in the full hose system.</p> <p>PTFE/FPM for ST10, SL10            PTFE/FPM-FEP for LM10, UN10</p> <p>Opening pressure: 0.05 bar</p>	<p><b>0211-140</b>  <b>0211-141</b></p>

FPM is a registered trademark of DuPont Performance Elastomers.

# Range of accessories

For volume preselection





Specification	Order No.	Product detail
<p><b>5 Relay module RM10</b> enables a volume preselection with the corresponding connection cables.</p> <p>220-230 V, 50-60 Hz, II (2) G [Ex ib Gb] IIC, protection class IP55</p> <p>for ST10, SL10, VA10 HDO080, HDO120, HDO200, HDO250, HDO400, HDO500</p>	<b>0230-200</b>	
<p><b>5 Relay module Ex-RM10mK (complete version)</b> enables filling with volume preselection in the hazardous area. Ex plug-in connections according to „mini CLIX®/eXLink-System®“ with 5 m connection cable, and 3-pole Ex plug (CEAG) and 2 m equipotential bonding cable.</p> <p>220-230 V, 50-60 Hz, II 2G Ex eb mb [ib] IIC T4 Gb, protection class IP55</p> <p>for LM10, UN10, VA10, HDO080Ex, HDO120Ex, HDO200Ex, HDO250Ex, HDO400Ex, HDO500Ex</p>	<b>0230-211</b>	
<p><b>5 Relay module Ex-RM10mB (basic version)</b> enables filling with volume preselection in the hazardous area. Without plug connections, with 2 m equipotential bonding cable, accessories on request.</p> <p>220-230 V, 50-60 Hz, II 2G Ex eb mb [ib] IIC T4 Gb, protection class IP55</p> <p>for LM10, UN10, VA10, HDO080Ex, HDO120Ex, HDO200Ex, HDO250Ex, HDO400Ex, HDO500Ex</p>	<b>0230-210</b>	
<p><b>6 Relay module RM30</b> enables a volume preselection with the corresponding connection cables. For controlling three-phase motors.</p> <p>400 V, 1,5 kW, 50 Hz or 230 V, 0,8 kW, 50 Hz, II (2) G [Ex ib Gb] IIC, protection class IP55</p> <p>for ST10, SL10, VA10 HDO080, HDO120, HDO200, HDO250, HDO400, HDO500</p>	<b>0230-220</b>	
<p><b>7 Power supply unit NG10 230V</b> takes over the power supply of the control unit instead of the batteries. Relay modules already include this function.</p> <p>220-230 V, 50-60 Hz, II (2) G [Ex ib Gb] IIC, protection class IP55</p> <p>for ST10, SL10, VA10 HDO080, HDO120, HDO200, HDO250, HDO400, HDO500</p>	<b>0230-230</b>	
<p><b>7 Power supply unit Ex-NG10m 230V</b> takes over the power supply of the control unit instead of the batteries. Relay modules already include this function. With 5 m connection cable and 3-pole Ex-plug (CEAG) and 2 m equipotential bonding cable.</p> <p>220-230 V, 50-60 Hz, II 2G Ex eb mb [ib] IIC T4 Gb, protection class IP55</p> <p>for LM10, UN10, VA10 HDO120 Ex, HDO200 Ex, HDO250 Ex, HDO400 Ex, HDO500 Ex</p>	<b>0230-240</b>	

eXLink-System® is a registered trademark of Cooper Crouse-Hinds GmbH

Suitable for pumping flammable and highly inflammable liquids (e.g. ethanol, petrol) or in explosive environments.








# Range of accessories

For volume preselection

Product detail	Specification	Order No.
	<p><b>Communication module</b> enables communication with other controllers Analogue output (0-20mA, 4-20mA, 0-10V), pulse output, RS485 interface, alarm output, digital input (ext. Start/Stop)</p> <p><b>8 Communication module KM10K (complete version)</b> with screwed cable glands, protection class IP55</p> <p>für ST10, SL10, VA10, HDO080, HDO120, HDO200, HDO250, HDO400, HDO500</p>	<p><b>0230-101</b></p>
	<p><b>9 Power supply cable relay module</b> 5 m long 230 V, 50 Hz</p> <p>for RM10, NG10</p>	<p><b>0211-155</b></p>
	<p><b>10 Connection cable motor/slow 1-way</b> 0.5 m long 230 V, 50 Hz</p> <p>for RM10</p>	<p><b>0211-153</b></p>
	<p><b>Connection cable motor/slow 3-way</b> 0.5 m long 230 V, 50 Hz</p> <p>for RM10</p>	<p><b>0211-154</b></p>

# Range of accessories

For volume preselection

Specification	Order No.	Product detail
<p><b>11 Connection cable main valve</b> 5 m long 230 V, 50 Hz</p> <p>for RM10 und RM30</p>	<p><b>0211-150</b></p>	
<p><b>12 Connection cable slow valve</b> 5 m long 230 V, 50 Hz</p> <p>for RM10</p>	<p><b>0211-151</b></p>	
<p><b>13 Extension cable</b> 5 m long 230 V, 50 Hz</p> <p>for RM10</p>	<p><b>0211-152</b></p>	
<p><b>14 Power supply cable RM30 400 V</b> 5 m long 400 V, 50 Hz, 5-pole</p> <p>for RM30</p>	<p><b>0211-388</b></p>	
<p><b>15 Plug-in connector relay module</b> for individual wiring</p> <p><b>Plug for motor/valve connection</b> 230 V, 50 Hz, 4-pole 230 V, 50 Hz, „mini CLIX®/eXLink-System®“</p> <p><b>Coupling for mains connection</b> 230 V, 50 Hz, 4-pole</p>	<p>for RM10 for Ex-RM10mK</p> <p>for RM10</p>	<p><b>0336-095</b> <b>0336-108*</b></p> <p><b>0336-099</b></p>
<p><b>16 Connection cable motor RM30 400 V</b> 0.6 m long 400 V, 50 Hz, 5-pole</p> <p>for RM30</p>	<p><b>0211-386</b></p>	
<p><b>17 Power supply cable RM30 230 V</b> 5 m long 230 V, 50 Hz</p> <p>for RM30</p>	<p><b>0211-387</b></p>	
<p><b>18 Connection cable motor RM30 230 V</b> 0.5 m long 230 V, 50 Hz</p> <p>for RM30</p>	<p><b>0211-385</b></p>	

\*Special Crimp tool required for the connection eXLink-System® is a registered trademark of the Cooper Crouse-Hinds GmbH

# Range of accessories

For volume preselection

Product detail	Specification	Order No.
	<p><b>19 Solenoid valve brass</b>                      Seal FPM, connection G 3/4 IT                      230 V, 50 Hz</p>	<p>for RM10 and RM30  <b>0211-096</b></p>
	<p><b>19 Solenoid valve stainless steel</b>                      Seal FPM, connection G 3/4 IT                      230 V, 50 Hz</p>	<p>for RM10 and RM30  <b>0211-097</b></p>
	<p><b>19 Solenoid valve PVC</b>                      Seal PTFE, connection G 1 1/4 OT, incl. 5 m connection cable                      230 V, 50/60 Hz</p>	<p>for RM10 and RM30  <b>0211-399</b></p>
	<p><b>19 Solenoid valve brass, Ex</b>                      Seal PTFE, connection G 3/4 IT, incl. 5 m connection cable and "mini CLIX®/eXLink®plug"                      230 V, 50 Hz, II 2G Ex eb mb IIC T3 Gb</p>	<p>for Ex-RM10mK  <b>0211-396</b></p>
	<p><b>19 Solenoid valve stainless steel, Ex</b>                      Seal PTFE, connection G 3/4 IT, incl. 5 m connection cable and "mini CLIX®/eXLink®plug"                      230 V, 50 Hz, II 2G Ex eb mb IIC T3 Gb</p>	<p>for Ex-RM10mK  <b>0211-395</b></p>
	<p><b>20 Double nipple PP</b>                      G 3/4 OT – G 1 1/4 OT</p> <p><b>Double nipple brass</b>                      G 3/4 OT – G 1 1/4 OT</p> <p><b>Double nipple stainless steel</b>                      G 3/4 OT – G 1 1/4 OT</p>	<p><b>0211-606</b></p> <p><b>0204-346</b></p> <p><b>0204-347</b></p>

Suitable for pumping flammable and highly inflammable liquids (e.g. ethanol, petrol) or in explosive environments.

# Range of accessories

## Other installation accessories

Specification	Order No.	Product detail
<p><b>21 Data line</b> connects the modules in case of decentralised installation.</p> <p>14-pole, 5 m long      for ST10, SL10, LM10, UN10, VA10, HDO080, HDO120, HDO200, HDO250, HDO400, HDO500      <b>0230-306</b></p> <p>14-pole, 10 m long      for ST10, SL10, LM10, UN10, VA10, HDO080, HDO120, HDO200, HDO250, HDO400, HDO500      <b>0230-309</b></p> <p><b>Data line SPS</b> for connecting a basic flow meter with protection cap to a programmable logic controller (PLC). 14-pole, with one free cable end, 5 m long      <b>0230-317</b></p> <p><b>Push-button data line</b> for connecting a push-button to the operating unit/protective cover, 14-pole, with one free cable end, 5 m long      <b>0230-332</b></p>		
<p><b>22 Protective cap SH10 with 1 data socket</b> protects the modules for decentralised installation, protection class IP55      for ST10, SL10, LM10, UN10, VA10, HDO080, HDO120, HDO200, HDO250, HDO400, HDO500      <b>0230-350</b></p> <p><b>22 Protective cap SH20 with 2 data sockets</b> protects the modules for decentralised installation, protection class IP55      for ST10, SL10, LM10, UN10, VA10, HDO080, HDO120, HDO200, HDO250, HDO400, HDO500      <b>0230-351</b></p>		
<p><b>Pulse converter</b> for signal amplification, must be mounted on the basic flow meter, if the next module is more than 5 m away.</p> <p><b>23 Pulse converter IW10 with 1 data socket</b> Protection class IP55      for ST10, SL10, VA10, HDO080, HDO120, HDO200, HDO250, HDO400, HDO500      <b>0230-352</b></p> <p><b>23 Pulse converter IW20 with 2 data socket</b> Protection class IP55      for ST10, SL10, VA10, HDO080, HDO120, HDO200, HDO250, HDO400, HDO500      <b>0230-353</b></p>		
<p><b>24 Intermediate plate</b> For wall mounting or as heat protection plate      for ST10, SL10, LM10, UN10, VA10, HDO080, HDO120, HDO200, HDO250, HDO400, HDO500      <b>0230-304</b></p>		
<p><b>25 Wall bracket set</b> additional clamp fixing for ST10, SL10, LM10, UN10, VA10, HDO080, HDO120, HDO200, HDO250, HDO400, HDO500      <b>0230-307</b></p> <p>Installation together with intermediate plate 0230-304. (Intermediate plate not included in wall bracket set)</p>		
<p><b>26 Hose bracket for operating unit</b> for decentralised installation of the modules on a hose line      for ST10, SL10, LM10, UN10, VA10, HDO080, HDO120, HDO200, HDO250, HDO400, HDO500      <b>0230-303</b></p>		

Suitable for pumping flammable and highly inflammable liquids (e.g. ethanol, petrol) or in explosive environments.

# Range of accessories

Product detail	Specification	Order No.
	<p><b>27 Operating unit BE10</b> Protection class IP55</p>	<p>for ST10, SL10, VA10, HDO080, HDO120, HDO200, HDO250, HDO400, HDO500</p> <p><b>0230-000</b></p>
	<p><b>27 Operating unit BE10 V</b> with encapsulated electronics, protection class IP55</p>	<p>für ST10, SL10, VA10, HDO080, HDO120, HDO200, HDO250, HDO400, HDO500</p> <p><b>0230-001</b></p>
	<p><b>27 Operating unit Ex-BE10B</b> II 2G Ex ib IIB T4 Gb, protection class IP55</p>	<p>for LM10, UN10, VA10, HDO080Ex, HDO120Ex, HDO200Ex, HDO250Ex, HDO400Ex, HDO500Ex</p> <p><b>0230-010</b></p>
	<p><b>27 Operating unit Ex-BE10BV</b> with encapsulated electronics II 2G Ex ib IIB T4 Gb, protection class IP55</p>	<p>for LM10, UN10, VA10, HDO080Ex, HDO120Ex, HDO200Ex, HDO250Ex, HDO400Ex, HDO500Ex</p> <p><b>0230-011</b></p>
	<p><b>27 Operating unit Ex-BE10C</b> II 2G Ex ib IIC T4 Gb, protection class IP55</p>	<p>for LM10, UN10, VA10, HDO080Ex, HDO120Ex, HDO200Ex, HDO250Ex, HDO400Ex, HDO500Ex</p> <p><b>0230-020</b></p>
	<p><b>27 Operating unit Ex-BE10CV</b> with encapsulated electronics II 2G Ex ib IIC T4 Gb, protection class IP55</p>	<p>for LM10, UN10, VA10, HDO080Ex, HDO120Ex, HDO200Ex, HDO250Ex, HDO400Ex, HDO500Ex</p> <p><b>0230-021</b></p>
	<p><b>Pin</b> facilitates input on the touch screen of the control unit</p>	<p><b>0230-325</b></p>




Suitable for pumping flammable and highly inflammable liquids (e.g. ethanol, petrol) or in explosive environments.

## Basic flow meter for decentralised mounting and external data evaluation

If there are larger distances between the measuring and control points or if the installation locations in the system are difficult to access, the individual modules (basic flow meter, operating unit, relay module, etc.) can be installed separately from each other. The data transmission between the components is established without cumbersome

wiring by means of plug-in connections via a data line and a protective cap/pulse converter.

A communication module is required for data transmission to an external signal processing system (e.g. PLC).

Specification	Order No.	Product detail
<p><b>28 Basic flow meter ST10 (FPM)</b> PPO/PPS/BaFe/FPM</p> <p><b>Basic flow meter SL10 (FPM)</b> PPO/PPS/FPM</p> <p><b>Basic flow meter LM10 (FPM-FEP)</b> PPS/LCP/BaFe/FPM-FEP II 2G Ex h IIB T6 ... T4 Gb X</p> <p><b>Basic flow meter UN10 (FPM-FEP)</b> PPS/LCP/FPM-FEP II 2G Ex h IIB T6 ... T4 Gb X</p>	<p><b>0230-500</b></p> <p><b>0230-510</b></p> <p><b>0230-520</b></p> <p><b>0230-530</b></p>	
<p><b>28 Basic flow meter VA10 (FPM-FEP)</b> Stainless steel 1.4571/PTFE/FEP II 2G Ex h IIB T6 ... T4 Gb X</p>	<p><b>0230-540</b></p>	
<p><b>28 Basic flow meter HDO</b> II 2G c T4 Gb (SS/Alu)</p>	<p><b>on request</b></p>	

# Range of accessories

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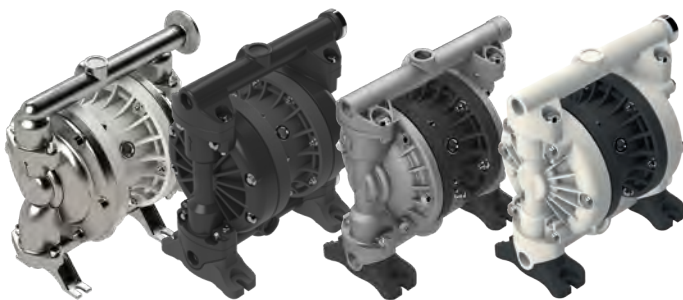
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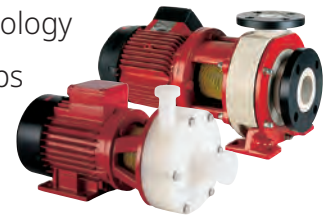
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