



**Flüssiggas-Anlagen**

## **»Group 18«**

**Measuring Instruments and Systems**

**Gauges Monitoring Instruments**

**Meters**

**Accessories**

**Electronic Metering and Data Processing**



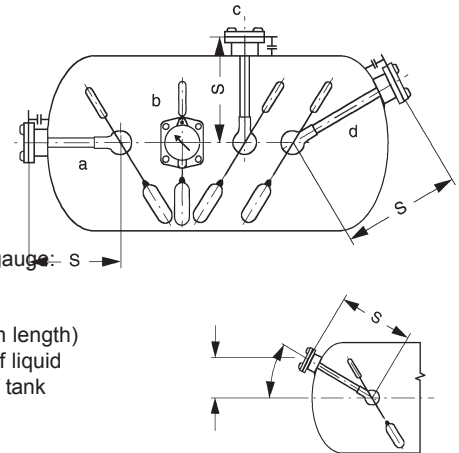
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**Liquid Level Gauge** a float gauge which operates by magnetic means to indicate the liquid level in a tank as a percentage of the tank volume

When placing your order please specify:

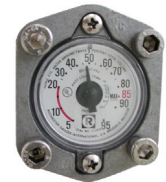
1. Type required: Junior, Senior or large tank version
2. Diameter of tank
3. Tank type: cylindrical or spherical
4. Mounting position:
  - a) end mounted in tank bottom
  - b) side-mounted in tank shell
  - c) top-mounted, i.e. vertically in top of tank
  - d) angle-mounted in tank bottom or in tank shell
5. The following additional information is required to determine the dimensions of the gauge:
  - to 4a) stem length (S)
  - to 4b) stem length (S)
  - to 4c) distance from centre line of tank to top of mounting flange (S = stem length)
  - to 4d) degree of angle between horizontal centre line of tank and centre of liquid level gauge or vertical distance in mm from horizontal centre line of tank to centre of gauge;  
distance from centre of motion of liquid level gauge to top of mounting flange (S = stem length)



**Liquid Level Gauge PN 25, type Junior 6284, type Rochester or equivalent, with rubber seal, plastic protective cap and mounting bolts M 6 x 25 of stainless steel, with test report 2.2 to EN 10 204**

**Installation: horizontal**

Order No.	Tank-Ø	Stem Length
18 001	max. 800 mm	approx. 350 mm
18 002	max. 1250 mm	approx. 350 mm
18 003	max. 1600 mm	approx. 350 mm
18 006	Special execution for ammonia	



**Liquid Level Gauge PN 25, type Junior 6281, type Rochester or equivalent, with rubber seal, plastic protective cap and mounting bolts M 6 x 25 of stainless steel, with test report 2.2 to EN 10 204**

**Installation: vertical**

Order No.	Tank-Ø	Stem Length
18 011	800 mm	630 mm
18 012	1000 mm	510 mm
18 013	1250 mm	630 mm
18 014	1250 mm	755 mm
18 015	1250 mm	785 mm
18 016	1250 mm	805 mm
18 017	max. 1600 mm	max. 1200 mm
18 019	Special execution for ammonia	



**Liquid Level Gauge PN 25, type Senior 6283, type Rochester or equivalent, with rubber seal, plastic protective cap and mounting bolts M 6 x 25 of stainless steel, with test report 2.2 to EN 10 204**

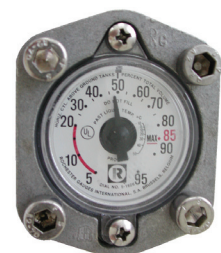
**Installation: horizontal**

Order No.	Tank-Ø	Stem Length
18 021	max. 1600 mm	approx. 200 mm

**Liquid Level Gauge PN 25, type Senior 6280, type Rochester or equivalent, with rubber seal, plastic protective cap, mounting bolts M 6 x 25 of stainless steel with test report 2.2 to EN 10 204**

**Installation: vertical**

Order No.	Tank-Ø	Stem Length
18 031	max. 1500 mm	max. 825 mm
18 032	max. 2000 mm	max. 1200 mm



**Liquid Level Gauge - Large Tank Version** for horizontal cylindrical tanks, **horizontal installation**, bolt holes on mounting flange span centre line, with **8" dial**, spiral wound gasket 1.4571/graphite to 550°C and bolts M12 x 25 of stainless steel

Type: **A = for propane/butane**, type W 709, pressure part PN 40 (flanges) of stainless steel 1.4541 with inspection certificate 3.1.B to EN 10 204 and type approval no. TÜ.AGG.151-92  
 Type: **B = for propane/butane and ammonia**, type Rochester, pressure part PN 25 (flanges) of stainless steel with test report 2.2 to EN 10 204

Order No.	Tank-Ø	Stem Length	Order No.	Tank-Ø	Stem Length
<b>Type A</b>			<b>Type B</b>		
18 071	1600 mm	610 mm	18 167	max. 2500 mm	610 mm
18 072	1900 mm	610 mm	18 168	max. 3000 mm	610 mm
18 073	2000 mm	610 mm	18 169	max. 3600 mm	610 mm
18 074	2100 mm	610 mm	18 170	max. 4000 mm	610 mm
18 075	2200 mm	610 mm			
18 076	2300 mm	610 mm			
18 077	2400 mm	610 mm			
18 078	2500 mm	610 mm			
18 079	2700 mm	610 mm			
18 080	2800 mm	610 mm			
18 081	2900 mm	610 mm			
18 082	3000 mm	610 mm			
18 083	3200 mm	610 mm			
18 084	3400 mm	610 mm			
18 085	3500 mm	610 mm			
18 086	3600 mm	610 mm			
18 087	3800 mm	610 mm			
18 088	4000 mm	610 mm			

**When placing your order, please specify the product for type „B“.**



**18 094 Extra charge** - bolt holes on mounting flange positioned on centre line or other tank diameters or stem lengths

Type: **C = for propane/butane**, type W 709 with **spring shock absorber for road tankers**, stem length **475 mm** (side mounted), pressure part PN 40 (flange) of stainless steel 1.4541 with inspection certificate 3.1.B to EN 10 204 and type approval TÜ.AGG.151-92

Order No.	Tank-Ø	Order No.	Tank-Ø	Order No.	Tank-Ø
<b>Type C</b>		<b>Type C</b>		<b>Type C</b>	
18 100	2000 mm	18 103	2150 mm	18 106	2250 mm
18 101	2100 mm	18 104	2050 mm	18 107	1800 mm
18 102	2200 mm	18 105	1900 mm	18 108	1750 mm

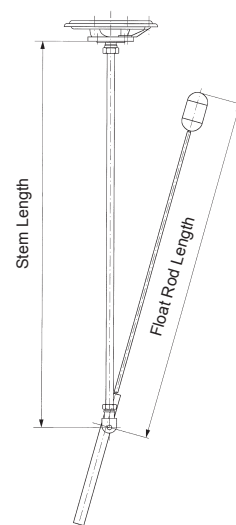
**Other sizes are available on request.**

**Liquid Level Gauge - Large Tank Version** for horizontal cylindrical tanks, **vertical installation**, bolt holes on mounting flange span centre line, with **8" dial**, spiral wound gasket 1.4571/graphite to 550°C and bolts M12 x 25 of stainless steel

Type: **A = for propane/butane**, Typ S 709, pressure parts PN 40 (flange) of stainless steel 1.4541 with inspection certificate 3.1.B to EN 10 204 and type approval TÜ.AGG.151-92  
 Type: **B = for propane/butane and ammonia**, type Rochester, pressure parts PN 25 (flange) of stainless steel with test report 2.2 to EN 10 204

Order No.	Tank-Ø	Stem Length	Order No.	Tank-Ø	Stem Length
<b>Type A</b>			<b>Type B</b>		
18 140	1600 mm	980 mm	18 172	max. 2500 mm	max. 1550 mm
18 141	2000 mm	1100 mm	18 173	max. 3000 mm	max. 1800 mm
18 142	2300 mm	1330 mm	18 174	max. 3600 mm	max. 2100 mm
18 143	2500 mm	1350 mm	18 175	max. 4000 mm	max. 2300 mm
18 144	2500 mm	1380 mm			
18 145	2500 mm	1400 mm			
18 146	2500 mm	1430 mm			
18 147	2500 mm	1450 mm			
18 148	2500 mm	1550 mm			
18 149	2500 mm	1650 mm			
18 150	2600 mm	1540 mm			
18 151	2600 mm	1590 mm			
18 152	2900 mm	1550 mm			
18 153	2900 mm	1580 mm			
18 154	2900 mm	1600 mm			
18 155	2900 mm	1650 mm			
18 156	3000 mm	1530 mm			
18 157	3000 mm	1635 mm			
18 158	3200 mm	1750 mm			
18 159	3400 mm	1850 mm			
18 160	3600 mm	1800 mm			
18 161	4000 mm	2085 mm			

**When placing your order, please specify the product for type „B“.**



**18 094 Extra charge** - bolt holes on mounting flange positioned on centre line or other tank diameters or stem lengths

**The max. stem length for level gauges, version S 709, is 2500 mm. Other sizes or gauges for other products are available on request.**

**Liquid Level Gauge - Large Tank Version PN 25**, for horizontal cylindrical tanks, type Rochester, with **4" dial**, bolt holes on mounting flange span centre line, spiral wound gasket 1.4571/graphite to 550°C and bolts M12 x 25 of stainless steel, suitable for propane/butane, with test report 2.2 to EN 10 204

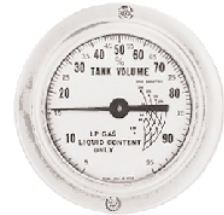
**Installation: horizontal**

Order No.	Tank-Ø	Stem Length
18 330	max. 2000 mm	610 mm
18 331	max. 2500 mm	610 mm
18 332	max. 3000 mm	610 mm

**Installation: vertical**

Order No.	Tank-Ø	Stem Length
18 333	max. 2000 mm	max. 1250 mm
18 334	max. 2500 mm	max. 1550 mm
18 335	max. 3000 mm	max. 1800 mm

18 094 **Extra charge** - bolt holes on mounting flange positioned on centre line or other tank diameters or stem lengths



**Liquid level gauges (Large Tank Version) with 4" dial for ammonia (NH<sub>3</sub>) are available on request.**

**Dials** for liquid level gauge

Order No.	Type
18 177	Junior
18 178	Senior
18 179	SRG 705 (old version)
18 205	SRG 487 (new version)
18 180	FAS 708
18 181	FAS 752
18 182	Gauge - Large Tank Version 709, 8", Propane/Butane, bolt holes on mounted flange span centre line
18 203	Gauge - Large Tank Version 709, 8", Propane/Butane, bolt holes on mounting flange on centre line

Order No.	Type
18 184	Rochester 8", ammonia, bolt holes on mounting flange span centre line
18 308	Rochester 8", ammonia, bolt holes on mounting flange on centre line
18 183	Rochester 4", propane/butane, bolt holes on mounted flange span centre line
18 204	Rochester 4", propane/butane, bolt holes on mounting flange on centre line



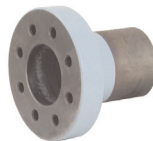
Order No. 18 177



Order No. 18 203

**Flange PN 40**, for liquid level gauge, Large Tank Version, with inspection certificate 3.1.B to EN 10 204

Order No.	Type	Weight
18 191	Flange of TSTE 355 with neck of St 35.8 III, Length 110 mm	2,3
18 192	Welding flange TSTE 355	2,0
18 193	Blind flange H II	1,0



**Flange Gasket** for liquid level gauge

Order No.	Type	Material
18 194	Junior	rubber
18 195	Senior	rubber
18 196	Large Tank Version	rubber
18 202	Large Tank Version, PN 40, resistant to 550°C, with inspection certificate 3.1.B to EN 10 204	1.4571/graphite

**Flange PN 25**, for level gauge „Junior“ and „Senior“ Material H II, with inspection certificate 3.1.B to EN 10 204

Order No.	Type	Weight
18 037	Welding flange gauge „Junior“	1,3
18 038	Blind flange gauge „Junior“	0,8
18 036	Welding flange gauge „Senior“	1,5
18 035	Blind flange gauge „Senior“	1,0

**Replacement Glass** for Large Tank Version

Order No.	Type
18 199	for dial 8"
18 208	for dial 4"

**Screws** for liquid level gauge, stainless steel

Order No.	Type	
18 185	Junior	M 6 x 25
18 186	Senior	M 8 x 25
18 187	Large Tank Version	M12 x 25

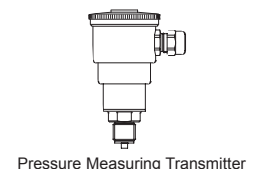
**Plastic Protective Cap** for liquid level gauge

Order No.	Type
18 188	Junior
18 189	Senior
18 190	SRG



**Remote Pressure System PN 40**, for LPG tanks for remote transfer of pressure to the control box or measuring station, robust construction in stainless steel housing, Ex-proof EEx ib IIC T6, with PTB-certificate

Order No.	Execution
18 311	<b>Pressure Measuring Transmitter in field frame</b> with screw cap, measuring range <sup>1)</sup> 0...25 bar, process connection G 1/2", outlet signal: 2-circuit 4...20 mA, 24 V DC
18 312	<b>Pressure Gauge with Measuring Transmitter</b> , measuring range <sup>1)</sup> 0...25 bar, process connection G 1/2", housing diameter 100 mm, liquid filled and safety glass, outlet signal: 2-circuit 4...20 mA, 24 V DC
18 313	<b>Power Supply</b> for measuring transmitter, decoupled, execution with explosion proof protection, inlet signal 4...20 mA, outlet signal 0/4...20 mA reversible, auxiliary power 24 V DC, housing for top hat rail installation, <b>with PTB-certificate</b>
26 318	<b>Electric Power for Power Supply</b> for installation in control box, housing for top hat rail installation, Inlet 230 V AC, Outlet 24 V DC / 0,8 A
18 314	<b>Power Supply</b> like above, but with a 19" insert card 4 TE,
18 315	<b>Digital Indication</b> 0-25 bar, suitable for installation into switchboard, 96 x 48 mm, Inlet: 4...20 mA, auxiliary power 230 V / 50 Hz



Pressure Measuring Transmitter



Pressure Gauge with Measuring Transformer



Digital Indication

<sup>1)</sup> Other measuring ranges are available on request.

**Tank Remote System** for storage tanks, suitable in connection with liquid level gauge, type Rochester Junior/Senior, consisting of voltage transmitter and domestic receiver. This system allows the remote indication of the liquid volume of a domestic tank up to a distance of 100 metres with direct reading on the tank. The existing dial of the gauge can be replaced by the transmitter without replacing the gauge.

**Voltage Transmitter**

Plastic housing, waterproof IP 67,  
 Combined resistance: 10 kOhm,  
**Electric Power:** 0,5 W / 24 V DC max.,  
 with joining piece and 2 m cable 3 x 0,75 mm<sup>2</sup>

<b>Order No.</b>	Type
<b>18 027</b>	Junior 6320S80070T
<b>18 028</b>	Senior 6320S90070T



Order No. 18 027

**Analogue domestic receiver** for inside installation

10 LED bargraph via push-button inquiry  
 of liquid tank contents in 10 % steps.  
 System approval: EEx ib IIB T6, ISSeP (INIEX) 91-C.101.152

<b>Order No.</b>	Type	Execution
<b>18 029</b>	6371S60502E	Plastic housing 105 x 55 x 35 mm Electric power: 9 V alkaline battery (not included in scope of supply)



Order No. 18 029

**Digital Domestic Receiver** with 2-digit LCD-display for inside installation

Uninterrupted information about the tank contents in %,  
 flash signal as a warn signal about low tank contents (between 20 % and 10 %).  
 System approval: EEx ib IIB T6, ISSeP 95-D.101.215X

<b>Order No.</b>	Type	Execution
<b>18 655</b>	6371S60401E	Plastic housing 120 x 80 x 35 mm Electric power: 3 pcs. 1,5 V AA alkaline batteries (not included in scope of supply)



Order No. 18 655

**Remote Indication** for storage tanks, suitable in connection with liquid level gauges, Large Tank Version, with 8" and 4" dials, consisting of voltage transmitter and domestic receiver (monitoring system), installation or retrofitting between tank flange and dial, direct reading on tank, system approval EEx d IIB T6, INIEX/NIEB 88-B.103.696 X

**Voltage Transmitter**

model 6323S00070, ex-proof, international protection IP 65,  
 including non-linear precision potentiometer 5 kOhm, screw connection  
 for cables and 2 m cable 3 x 0,75 mm<sup>2</sup>, aluminium housing with 2 fastening screws  
 for tank flange and 3 screws with distance bushings for dial

<b>Order No.</b>	Dial size	Bolt holes on mounting flange positioned on:
<b>18 000</b>	8"	centre line
<b>18 008</b>	8"	span centre line
<b>18 007</b>	4"	centre line
<b>18 005</b>	4"	span centre line



Order No. 18 005

**Digital Domestic Receiver (monitoring system), IP 54,**  
 information about the tank contents in %, 4 adjustable level limits,  
 with PC-interface RS 232, output: 4 - 20 mA

<b>Order No.</b>	Type	Execution
<b>18 009</b>	6370S0741E	Polyester housing 293 x 185 x 96 mm Electric power: 24 V DC

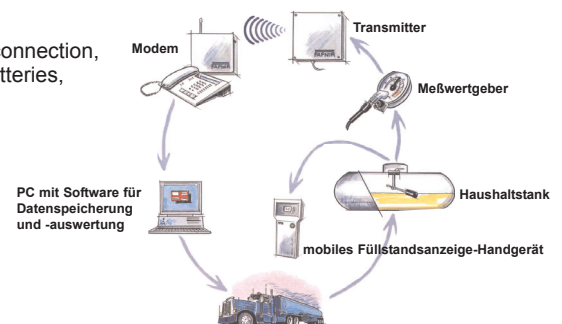


Order No. 18 009

**Tank Level - Management System** for storage tanks, supplies informations about the liquid level via junction line to a central reporting point for planning and optimizing LPG supplying.

System consisting of level transmitter (PickUp), voltage transmitter for wireless transmission of the levels, receiver (Modem) in house range for transmission of the data via a junction line and a PC-Software to control receivers and data processing, voltage transmitter suitable for float indication, radio data communication up to 100 metres, transmitter installation on tank with approval for operation in Ex-Zone 1

<b>Order No.</b>	Execution
<b>18 320</b>	Set with voltage transmitter for <b>Junior</b> level gauge with cable connection, transmitter with mounting device and batteries, modem with batteries, junction line to the telephone
<b>18 321</b>	Set with voltage transmitter for <b>Senior</b> level gauge - otherwise as mentioned before
<b>18 322</b>	Set with voltage transmitter for <b>Large Tank Version</b> level gauge - otherwise as mentioned before
<b>18 323</b>	PC-Software (Windows) with data bank and evaluation
<b>18 358</b>	mobile handheld display for truck drivers
<b>18 359</b>	Repeater for increase the range of the radio data communication of the transmitter to the modem



**Overfill Protection PN 25**, for storage tanks, type CMT-CL, ex-proof, type approval according to German pressure vessels regulations for storage of LPG to DIN 51622 of groups A - D according to TRB 801/25 Encl. and Vd TÜV "Overfill Protection 100", system with fixed breaking point not to manipulate, with operational switch point (pre-alarm)

**Order No. 18 482** Complete single overfill protection, group A+B, failsafe to category of service requirements 4 to DIN V 19250 consisting of:

- sensor with flange DN 50 PN 40, type CL-SRO-50, probe length<sup>1)</sup> up to 3 m, extra charge for lengths of more than 3 m
- switching amplifier, type CL-SLA1
- voltage transmitter, type CL-URO
- EEx-i power supply (2-channel), type Ex-SU2
- rack with butt plate, type CL-01

**18 483** Complete single overfill protection with field housing IP 65 and butt plate, instead of a rack

**Order No. 18 484** Complete redundant overfill protection, group C+D, failsafe to category of service requirements 5 to DIN V 19250 consisting of:

- sensor with flange DN 50 PN 40, type CL-SRO-50, probe length<sup>1)</sup> up to 3 m, extra charge for lengths of more than 3 m
- switching amplifier, type CL-SLC1
- relay monitoring, type CL-CRC2
- voltage transmitter, type CL-URO
- EEx-i electric power (2-channel), type Ex-SU2
- rack with butt plate, type CL-01

**18 485** Complete redundant overfill protection with field housing IP 65 and butt plate, instead of a rack

**Accessories:**

**Order No. 18 486** Power supply 230 V AC or 24 V DC, type CL-SU  
**18 487** Truck switch off system, type CL-OB1  
**18 488** Bridging connector for monitoring of the overfill protection, type CL-OB2 (only AK 5)  
**18 489** Bridging connector for monitoring of the overfill protection in combination with truck switch off system, type CL-OB3 (only AK5)  
**18 497** Extra charge for each beginning meter, for probe lengths of more than 3 m



**Overfill Protection with integral continuous level measuring PN 25**, for storage tanks, type CMT-CL/FSM, for use in hazardous area, overfill protection: same as mentioned for FAS-No. 18482  
 Remote level indication: capacitive level measuring with 3 selectable switch points, 0/4 - 20 mA

**Order No. 18 492** Complete single overfill protection with level measuring, group A+B, failsafe to category of service requirements 4 to DIN V 19250, consisting of:

- sensor with flange DN 50, PN 40, type CL-SRON-50, probe length<sup>1)</sup> to 3 m, extra charge for lengths of more than 3 m
- switching amplifier, type CL-SLA1
- voltage transmitter, type CL-URON
- EEx-i power supply (2-channel), type Ex-SU2
- level indicator with 3 outlets, type CL-NIV3
- rack with butt plate, type CL-01

**18 493** Complete single overfill protection with level measuring and field housing IP 65 with butt plate instead of a rack

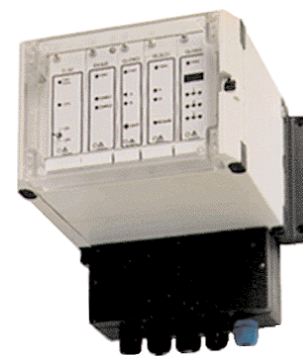
**Order No. 18 494** Complete redundant overfill protection with level measuring, group C+D, failsafe to category of service requirements 5 to DIN V 19250, consisting of:

- sensor with flange DN 50, PN 40, type CL-SRON-50, probe length<sup>1)</sup> to 3 m, extra charge for lengths of more than 3 m
- switching amplifier, type CL-SLC1
- relay monitoring, type CL-CRC2
- voltage transmitter, type CL-URON
- EEx-i power supply (2-channel), type Ex-SU2
- level indicator with 3 outlets, type CL-NIV3
- rack with butt plate, type CL-01

**18 495** Complete redundant overfill protection with level measuring and field housing IP 65 with butt plate instead of a rack

**Accessories:**

**Order No. 18 486** Power supply 230 V AC or 24 V DC, type CL-SU  
**18 487** Truck switch off system, type CL-OB1  
**18 488** Bridging connector for monitoring of the overfill protection, type CL-OB2 (only AK 5)  
**18 489** Bridging connector for monitoring of the overfill protection in combination with truck switch off system, type CL-OB3 (only AK5)  
**18 497** Extra charge for each beginning meter, for probe lengths of more than 3 m



<sup>1)</sup> When placing your order, please specify the probe length.

Other flange connections in DN 40, DN 65, DN 80, DN 100, as well as for Rochester Senior flange are available on request.

**Overflow Protection** PN 25, for storage tanks according to the pressure vessel regulations for the storage of LPG to DIN 51622, ex-proof, execution as vibration limit switch with safety breaking point, sensor and flange of stainless steel, electronic housing of plastic, protection class IP 66, probe lengths 220 mm to 6000 mm

- Order No.**     **Single** execution consisting of:  
**18 336**         Overflow protection **FTL 51** with flange connection DN 50 PN 40, **with function control**  
**18 337<sup>1)</sup>**       **Extra charge** for each 100 mm sensor length  
**18 338**         Voltage transmitter **FTL 370**, 19" Euro card, 24 V DC, 1-channel, 4 TE width  
**26 136**         Voltage transmitter **FTL 320**, built-in-housing, 230 V AC, 1-channel



Order No. 18 338 / 18 341

- Order No.**     **Redundant** execution consisting of:  
**18 340**         Overflow protection **FDL 61** with flange connection DN 50 PN 40, **protection proof to AK 5 to DIN V 19250, type approval to VdTÜV-code of practice „Overflow Protection 100“**  
**18 337<sup>1)</sup>**       **Extra charge** for each 100 mm sensor length  
**18 341**         Voltage transmitter **FTL 670**, 19" Euro card, 24 V DC, 1-channel, 4 TE width

**Accessories:**

- Order No.**     Execution  
**18 342**         Power supply 230 V AC/24 V DC, 19" Euro card  
**18 343**         Monorack - for wall mounting 4 TE 230 V AC, power supply 230 V AC/24 V DC  
**18 344**         Monorack - for wall mounting 4 TE 24 V DC  
**18 347**         Monorack protective housing for outside installation, IP 55, for 2 Monoracks  
**18 348**         Butt plate equipment for FTL 370, 16/2, with wire terminating tab  
**18 349**         Butt plate equipment for FTL 670, 25/2, with wire terminating tab

Order No. 18 336 / 18 340



Order No. 26 136

<sup>1)</sup>When placing your order, please specify the sensor length.

Sensor with other process connections like NPT-thread or other sizes are available on request.

**Level Measuring with Radar-Compact-Sensor** PN 25, in ex-proof execution, with PTB-approval

**Principle of Measurement:** non-contact measurement of filling levels by digital run time of microwave basis

- Order No.**     Execution  
**18 350**         Radar-Compact-Sensor with analogue electric current outlet, measuring range up to 20 m, protection class IP 67, flange DN 50 PN 40 of stainless steel, **only** for measuring in stand- or bypass pipe of metall  
**18 351**         Operating modul, pluggable, for compensation of radar compact sensor  
**18 352**         Digital display with integral limit switch, IP 40, for installation into a switchboard or wall mounting, with LC display, Outlet: 1 electric current outlet 0/4 ... 20 mA (potential-free) rated voltage: 20 ... 250 V AC/DC



Order No. 18 352



Order No. 18 350

Other mounting variations are available on request.

**Level Indicator for Electrical Control Panel**

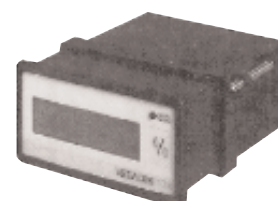
Dial 0 to 100%, Inlet 4 ... 20 mA

- | Order No. | Size (mm) | Weight (kg) |
|-----------|-----------|-------------|
| 18 261    | 96 x 96   | 0,5         |
| 18 262    | 144 x 144 | 0,5         |



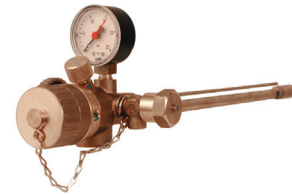
**Digital Level Indicator for Electrical Control Panel**, with 3<sup>1</sup>/<sub>2</sub>-digit LED-numerical display and adjustable decimal point, measuring range 0 - 100%, IP 20, Inlet 4 ... 20 mA

- | Order No. | Size (mm) | Weight (kg) |
|-----------|-----------|-------------|
| 18 263    | 96 x 48   | 0,3         |



**Vapour Withdrawal Valve with Limit Switch** PN 25, compatible overfill protection for LPG storage tanks filled by road tanker, switch amplifier on road tanker, housing of brass, tank connection 3/4" male NPT, vapour withdrawal connection female POL, complete with pressure gauge and maximum level vent valve, with type approval

Order No.	Type	Dip Tube Length	Weight
18 024	489	250 mm	1,5
18 025	489	310 mm	1,5
18 026	489	463 mm	1,5



Other dip tube lengths are available on request.

**Flow Detector** electronic version, for use in hazardous areas, zone 1, as dry-run protection for pumps, side installation of the sensor horizontally into the suction pipe of the pump, with PTB-approval

Order No.	Execution	Weight
18 381	<b>Analysing device</b> for connection to sensor, intrinsically safe EEx ib II C, operating voltage 230 V AC, 1 relay output, for installation in control panel	0,3
18 380	<b>Analysing device</b> for connection to sensor, intrinsically safe EEx ib II C, operating voltage 24 V DC, 1 relay outlet, for installation in control panel	0,3
18 384	<b>Analysing device</b> for connection to sensor, intrinsically safe EEx ib II C, operating voltage 24 V DC, European standard size 100 x 160 mm	0,3
18 382	<b>Dip Sensor</b> with connection 1/2" male NPT, housing of stainless steel A2, protection class IP 67, with 2 m cable, ambient temperature -25°C to +80°C, resistance to pressure 60 bar	0,2
18 389	<b>Connection Sleeve</b> 1/2" female NPT, PN 40 for dip sensor, made of steel ASTM 105, for welding on a pipeline, with inspection certificate 3.1.B to EN 10 204	0,1



Order No. 18 381



Order No. 18 382

**Adapter** PN 40, for dip sensor, material H II, for installation between two flanges to DIN 2635, with inspection certificate 3.1.B to EN 10 204

Type: **A** = connection for sensor 1/2" female NPT,

Type: **B** = connection for sensor 1/2" female NPT and **additional** connection 1/4" female NPT for a relief valve

Order No.	Order No.	Size	Weight
Type A	Type B	DN	(kg)
18 390	18 680	15	0,3
18 391	18 681	20	0,5
18 392	18 682	25	0,7
18 393	18 683	32	0,9
18 394	18 684	40	1,1
18 395	18 685	50	1,5
18 396	18 686	65	2,0
18 397	18 687	80	2,3
18 398	18 688	100	3,0
18 399	18 689	125	3,6
18 400	18 690	150	4,2



Type B

Other sizes are available on request.

**Flow Indicator** PN 25, (not for measuring flow), connection 2" NPT male thread, for installation in pipelines in liquid phase (e. g. tank filling lines), for pipe diameter 50 to 100 mm, with test report 2.2 to EN 10 204

Order No.	Length L	Weight
18 440	55 mm	0,9
18 441	75 mm	0,9
18 442	125 mm	0,9

**Spare Part**

Order No.	Dial size	Weight
18 444	4"	0,1





**Maximum Level Vent Valve PN 40, with 1/4" NPT male thread, with screw secured against accidental loosening, with test report 2.2 to EN 10 204**

Order No.	RegO	FAS	Warning Plate	Dip Tube	Material	Fig.
18 430 <sup>1) 2)</sup>	-	7155	no	no	brass	1
18 431 <sup>2)</sup>	3165 C	-	no	no	brass	1
18 432 <sup>2)</sup>	3165 CP	-	yes	no	brass	2
18 433 <sup>2) 4)</sup>	3165 CF	-	no	with, 300 mm	brass	like 5
18 434 <sup>2) 4)</sup>	3165 CPF	-	yes	with, 300 mm	brass	4
18 438 <sup>2)</sup>	-	AL 1917	no	no	steel	1
18 435 <sup>3)</sup>	TSS 3169	-	no	no	stainless st.	3
18 436 <sup>3) 4)</sup>	TA 3169 F	-	no	with, 300 mm	steel	5

<sup>1)</sup> with type approval    <sup>2)</sup> with knurled screw    <sup>3)</sup> with tee handle  
<sup>4)</sup> standard dip tube length 300 mm - other lengths available on request



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5

**Pressure Switch** explosion-proof, EEx ed IIC T6, connection G 1/4" male, in case of cast aluminium silicon alloy, protection class IP 55, admissible ambient temperature -20 °C to +40 °C, with 1 change-over contact in sealed flameproof enclosure, switching capacity 0,5 A/230 V-AC, adjusting screw located in interior, dial visible only if case is removed, with PTB-approval

Order No.	Type	Range	Difference	Test Pressure	Weight
18 461	Ex/FF 142V-3	-0,4 to 8 bar	0,3 to 3 bar	25 bar	1,2
18 460	Ex/FF 142V-10	5,0 to 40 bar	1,2 to 10 bar	50 bar	1,2

**Pressure Switch** not explosion-proof, connection G 1/4" male, in case of cast aluminum alloy, protection class IP 65, admissible ambient temperature -50 °C to +70 °C, 2 change-over contacts, switching capacity 6 A/230 V-AC, with test report 2.2 to EN 10 204

Ex-proof when used in conjunction with isolating switch amplifier order no. **26 301** (230 V) or **26 303** (24 V)

Order No.	Type	Range	Difference	Test Pressure	Weight
18 458	FFg 142-3	-0,4 to 8 bar	0,6 to 3 bar	25 bar	1,2
18 459	FFg 142-10	5,0 to 40 bar	2,0 to 10 bar	50 bar	1,2



**Pressure Switch** not explosion-proof, connection G 1/2" male, in case of cast aluminum alloy, protection class IP 54, max. working pressure 25 bar, admissible ambient temperature -25 °C to +70 °C, 1 change-over contact, switching capacity 5 A/230 V-AC, switching difference not adjustable, TÜV-approval, with test report 2.2 to EN 10 204

Ex-proof when used in conjunction with isolating switch amplifier order No. **26 301** (230 V) or **26 303** (24 V)

Order No.	Type	Range	Difference	Weight
18 457	DWR 625	0,5 to 6 bar	0,25 bar	0,3
18 456	DWR 25	4 to 25 bar	1,00 bar	0,3

**Pressure Switch** not explosion-proof, connection G 1/2" male, in case of cast aluminum alloy, protection class IP 54, max. working pressure 16 bar, admissible ambient temperature -25 °C to +70 °C, 1 change-over contact, switching capacity 5 A/230 V-AC, switching difference not adjustable, with test report 2.2 to EN 10 204

Ex-proof when used in conjunction with isolating switch amplifier Order No. **26 301** (230 V) or **26 303** (24 V)

Order No.	Type	Range	Difference	Weight
18 462	DCM 6	0,5 to 6 bar	0,15 bar	0,3



**Maximum Pressure Switch** for LPG systems to TRB 801/25, not explosion-proof, connection G 1/2" male, in case of cast aluminum alloy, protection class IP 65, ambient temperature -25 °C to +60 °C, setting range 3 - 16 bar, 1 change-over contact, preset registers for monitoring cable breaks and short circuits, switching difference not adjustable, TÜV-approval, with test report 2.2 to EN 10 204

Ex-proof when used in conjunction with isolating switch amplifier order No. **26 305** (230 V)

Order No.	Type	Execution	Weight
18 453	FD 16-326	external electrical locking system required in switch cabinet	0,6
18 454	FD 16-327	with locking mechanism	0,6
26 305	KHA6-SH-EX1	Isolation switch amplifier in safety engineering, intrinsically safe control circuit, supply voltage 230 V / 50 Hz, <b>TÜV-approval</b>	0,1



**Differential Pressure Switch** not explosion-proof, connection G 1/4" female, in case of cast aluminum alloy, protection class IP 54, max. working pressure 25 bar, admissible ambient temperature -25 °C to +70 °C, 2 change-over contacts, switching capacity 5 A/230 V-AC, switching difference not adjustable, Ex-proof when used in conjunction with isolating switch amplifier order No. **26 301** (230 V) or **26 303** (24 V), with test report 2.2 to EN 10 204

Order No.	Type	Range	Difference	Weight
18 465	DDCM 4	1 - 4 bar	0,2 bar	1,1
18 466	DDCM 16	3 - 16 bar	0,6 bar	1,1



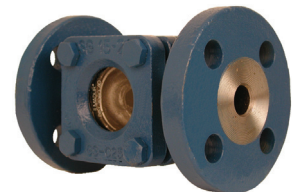
**Sight Flow Indicator PN 25**, with connection NPT-female thread, housing of cast steel GS-C 25, with glass windows on both sides, with inspection certificate 3.1.B to EN 10 204

Order No.	Connection	Length	Weight
18 503	1/2"	100	2,8
18 504	3/4"	100	2,8
18 505	1"	130	5,6
18 506	1 1/4"	130	5,6
18 507	1 1/2"	150	6,0
18 508	2"	180	9,5



**Sight Flow Indicator PN 25**, with flange connection to DIN 2635, housing of cast steel GS-C 25, with borosilicate glass windows on both sides to DIN 7080, with inspection certificate 3.1.B to EN 10 204

Order No.	Connection	Length	Weight
	DN	(mm)	(kg)
18 511	15	150	3,5
18 512	20	150	4,5
18 513	25	160	5,5
18 514	32	180	8,0
18 515	40	200	9,0
18 516	50	230	11,0
18 517	65	290	16,0
18 518	80	310	21,0
18 519	100	350	27,0
18 509	125	400	38,0
18 510	150	480	50,0



**Sight Flow Indicator PN 25**, with NPT-female thread, housing of ductile iron ASTM 536, swing check of stainless steel, with glass windows on both sides, with test report 2.2 to EN 10 204

Order No.	RegO	Connection	Weight
18 501*	A7794	2"	4,7
18 502*	A7796	3"	10,0
18 520	<b>Extra charge for TÜV-pressure test (single testing)</b>		



**Rotary Level Gauge PN 25**, steel, for horizontal tanks, connection 1" NPT-male, complete with dial and rotary level gauge for stationary and mobile tanks, with test report 2.2 to EN 10 204

Order No.	Type	Stem Length	Weight
	RegO	<b>Standard Stem</b>	(kg)
18 531*	A9091 R	490	1,7
18 533*	A9092 R	675	2,0
18 535*	A9093 RS	915	2,3



Order No.	Type	Stem Length	Weight
	RegO	<b>Reinforced Stem</b>	(kg)
18 536*	A9093 TS	915	3,0
18 537*	A9094 TS	1150	3,5
18 530*	A9095 TS	1422	3,8

**Rotary Level Gauge PN 40**, stuffing box and union of stainless steel, for horizontal tanks, connection 1" male NPT, complete with dial and rotary level gauge for stationary and mobile tanks, with inspection certificate 3.1.B to EN 10 204

Order No.	Type	Stem Length	Weight
		<b>Standard Stem</b>	(kg)
18 538*	FAS-3.1B	490	1,7
18 539*	FAS-3.1B	675	2,0



**Please indicate tank diameter when placing your order.**

The max. stem length of rotary level gauges with standard stem for use in mobile tanks is 675 mm.

### Spare Parts for Rotary Level Gauge

Order No.	Type	Execution	Material	Fig.
18 545*	A3163-6	screw plug with seal	steel	1
18 546*	FAS	screw plug with seal	steel	1
18 547	FAS	Scale	alu	2
18 548	RegO	Scale	alu	2



Fig. 1



Fig. 2

**Other spare parts are available on request.**

### LPG Turbine Meter, Zone 2

The turbine meter is particularly suitable for the application with internal refuelling processes, e.g. fork lift trucks, factory owned vehicles etc. with systems not necessary to be calibrated. The meter persuaded by its compact design, by its simple and quick assembly, as well as by its excellent cost / performance ratio.

Order No.	Execution	Technical data:
<b>18 388</b>	<ul style="list-style-type: none"> <li>- 6-digit LCD-display with floating point</li> <li>- installation independent on location</li> <li>- different measuring possibilities:                             <ul style="list-style-type: none"> <li>- total sum</li> <li>- partial sum (resettable)</li> <li>- actual flow rate in l/min.</li> </ul> </li> <li>- pwn power supply by long-life lithium batteries (approx. 4.000 working hours)</li> <li>- automatic switching on and off</li> <li>- different signal output modules available</li> <li>- simple change of batteries</li> <li>- replaceable turbine</li> <li>- not suitable for calibration</li> </ul>	<ul style="list-style-type: none"> <li>connection : <math>\frac{3}{4}</math>" female NPT</li> <li>measuring accuracy : <math>\pm 2\%*</math></li> <li>measuring range : 8 - 80 l/min.</li> <li>max. flow rate : 114 l/min.</li> <li>Pressure stages : PN 40</li> <li>Temperature ranges : -10°C bis +60°C</li> <li>Dimensions (L X W X H) : 11 cm x 5 cm x 7 cm</li> <li>Weight : 1,1 kg</li> </ul>
		Other sizes on request.

\* Attention: When using meter without vapour eliminator, higher deviations due to formation of gas bubbles depending on operation conditions are possible.



### Flow Meter for LPG, PN 25, type LPM

Flow rate 12 - 68 l/min, connection  $\frac{3}{4}$ " female NPT, flow direction from left to right, designed for retail sales dispensing units, with test report 2.2 to EN 10 204

**Type A:** System consisting of:

- meter (metering chamber)
- litres display
- 3" dial totalizer
- without mechanical litre counter / printer
- without vapour eliminator, strainer, differential valve



Type A

**Type B:** System consisting of:

- meter (metering chamber)
- gear plate (for separate pulser connection)
- without pulser
- without mechanical litre counter / printer
- vapour eliminator
- strainer
- differential valve

**Type C:** System consisting of:

- meter (metering chamber)
- gear plate
- mechanical, resettable litre counter
- without ticket printer
- vapour eliminator
- strainer
- differential valve



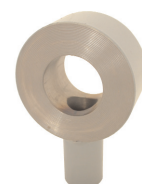
Type C

Order No.	Type	Weight
<b>18 744</b>	<b>A</b>	13 kg
<b>18 745</b>	<b>B</b>	25 kg
<b>18 746</b>	<b>C</b>	29 kg

**18 988** Extra charge for metering package consisting of:  
vapour eliminator, strainer, differential valve with steel base plate, completely mounted and primed

**Adapter PN 40, steel H II, with connection  $\frac{1}{2}$ " NPT female, intermediate flange construction for flanges to DIN 2635, for connection of a relief valve, 40 mm thick, with inspection certificate 3.1.B to EN 10 204**

Order No.	Size DN	Weight (kg)	Order No.	Size DN	Weight (kg)
<b>18 631</b>	15	0,6	<b>18 637</b>	65	2,6
<b>18 632</b>	20	0,8	<b>18 638</b>	80	3,1
<b>18 633</b>	25	1,0	<b>18 639</b>	100	4,0
<b>18 634</b>	32	1,2	<b>18 640</b>	125	4,8
<b>18 635</b>	40	1,5	<b>18 641</b>	150	5,2
<b>18 636</b>	50	2,0			



**Pressure-Retaining Valve** PN 25, DN 50, for road tankers, type DHV-S, of cast steel, galvanized, execution in accordance with weights and measures regulations. Calibrated and sealed to a minimum differential pressure of 1 bar by official calibration authority, with type approval<sup>1)</sup>

Order No.	Dimensions							Weight
	A	B	C	D	E	F	G	
18 701	100	166	33	98	243	340	95	24,0

**Replacement Parts**

18 705 Diaphragm for pressure-retaining valve, type DHV-S



**Vapour Eliminator** PN 25, DN 50, for road tankers, type GA-S, working volume 9.1 litres, of cast steel, galvanized, with inspection test, with type approval<sup>1)</sup>

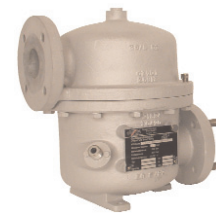
Type: **A** = standard execution  
 Type: **B** = with removable cover

Order No.	Order No.	Dimensions								Weight
		A	B	C	D	E	F	G	H	
18 711	18 712	84	256	350	162	278	190	13	172	32,0

**Spare Parts**

18 710 Float and valve for vapour eliminator type GA-S, ready to be installed, with pre-assembled float ball, float valve, ball cage

18 706 Housing seal, O-Ring of NBR

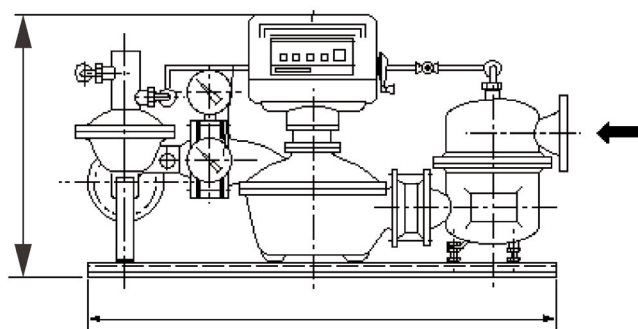


**Complete Metering System** PN 25, DN 50, for road tankers, with EWG-type approval<sup>2)</sup>, mounted on base steel plate, galvanized, with test report 2.2 to EN 10 204 for pressure and function test

- consisting of:
1. Pressure-retaining valve of cast steel, with official calibration test and type approval
  2. Pressure- and temperature measuring flanges of steel, **galvanized**, with inspection certificate 3.1.B to EN 10 204, with pressure gauge 0 - 25 bar, liquid-filled, radial connection with thermometer -20/+60 °C, **suitable for calibration**, with half-degree divisions 0,5 °C,
  3. Rotary-piston meter with mechanical counter and ticket printer with official calibration test and inspection certificate 3.1.B to EN 10 204
  4. Back pressure check valve with Viton seals, of material 1.4571, with type approval
  5. Vapour eliminator of cast steel, galvanized, working volume 9.1 litres, with type approval
  6. Steel base plate, **galvanized**

Order No.	Capacity l/min.	Dimensions		Weight (kg)
		L	H	
18 721	80 - 400	1050	585	115,0
18 722	<b>Extra charge for painting</b>			

The inlet flange of the metering system located at the vapour eliminator can be rotated by 90°. The position of the outlet flange at the pressure-retaining valve cannot be altered.



<sup>1)</sup> Type approval valid only in conjunction with pressure-retaining valve order no. 18 701 and vapour eliminator order no. 18 711 / 18 712

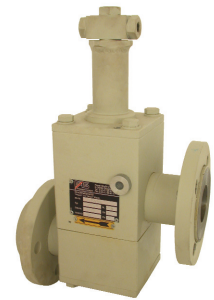
<sup>2)</sup> Type approval for road tankers metering systems (for application purposes please submit complete schematic flow diagram or drawing).

»18« **Measuring Instruments and Systems - Gauges**  
**Monitoring Instruments - Meters - Accessories**  
**Electronic Metering and Data Processing**

**Pressure-Retaining Valve** PN 25, type DHV-F of steel St 52.3, primed, execution in accordance with weights and measures regulations. Calibrated and sealed to a minimum differential pressure of 1 bar, with inspection certificate 3.1.B to EN 10 204

Order No.	Size	Dimensions							Weight (kg)
	DN	A	B	C	D	E	F	G	
18 752	50	120	135	45	125	355	380	78	26,0
18 753	80	170	170	71	191	457	484	78	58,0
18 754	<b>Extra charge for painting.</b>								

Replacement parts are available on request.



**Vapour Eliminator** PN 25, type GBA-F of low temperature steel TT St 35N, primed, execution in accordance with weights and measures regulations, with calibration test and TÜV-approval, with inspection certificate 3.1.B to EN 10 204

Order No.	Size	Volume	Dimensions					Weight (kg)	
	DN	litre	A	B	C	D	E		
18 762	50	9	130	447	577	180	180	45,0	
18 763	80	23	160	630	800	230	230	70,0	
18 764	80	36	160	860	1030	230	230	85,0	
18 765	100	36	160	860	1030	230	230	85,0	
18 755	<b>Extra charge for painting</b>								

**Spare Parts**

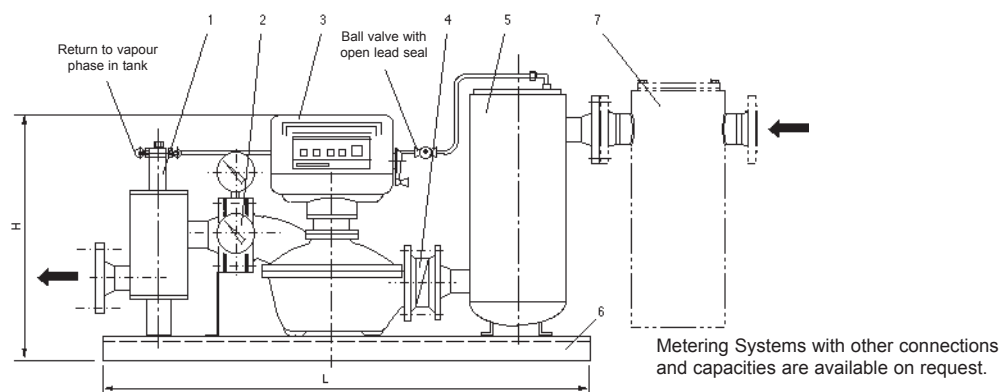
18 769	Double-seat-valve with float and rod assembly for vapour eliminator DN 50
18 770	Double-seat-valve with float and rod assembly for vapour eliminator DN 80



**Complete Metering System** PN 25, for stationary systems, EWG-type approval 1.32.8-5.112-FAS 93.20 mounted on a steel base plate, primed, with test report 2.2 to EN 10 204 for pressure and function test

- consisting of:
1. Pressure-retaining valve with official calibration test and inspection certificate 3.1.B to EN 10 204
  2. Pressure and temperature measuring flange of steel, **galvanized**, with inspection certificate 3.1.B to EN 10 204, with pressure-gauge 0 - 25 bar, liquid-filled, with thermometer -20/+60 °C, **suitable for calibration**, liquid-filled, with half-degree divisions (0,5 °C),
  3. Rotary-piston meter with mechanical counter and ticket printer, with official calibration test and inspection certificate 3.1B to EN 10 204, (DN 80 rotary-piston meter with test report 2.2 to EN 10 204
  4. Back pressure check valve with Viton-seals, of material 1.4571, with type approval
  5. Vapour eliminator, for pipe length < 25 m from tank to measuring system, with TÜV-approval and inspection certificate 3.1.B to EN 10 204
  6. Base plate of steel, **galvanized**
  7. Fine-mesh filter, order no. 14 134 / 14 136 (not included in scope of supply) with manufacturer's certificate (DN 50), respectively TÜV-approval (DN 80) and inspection certificate 3.1.B to EN 10 204

Order No.	Connection	Capacity	Dimensions		Working Volume	Weight (kg)
	DN	l/min.	L	H	GBA-F in litre	
18 772	50	80 - 400	1121	630	9	130,0
18 773	80	150 - 1000	1450	893	23	290,0
18 774	80	150 - 1000	1450	1100	36	350,0
18 722	<b>Extra charges for painting</b>					
18 720	<b>Commissioning Complete Metering System</b>					



**Mass Flow Meter** PN 25, type FAS 640, for mass metering of propane / butane in weight according to the CORIOLIS - principle, suitable for calibration, protective system EEx de IIC, auxiliary energy 20 - 55 V DC, meter tube of stainless steel, fully welded construction, two-line LC-Display, menu-driven operation from out-side without opening the device, additional measuring of density and temperature, with PTB-approval and inspection certificate 3.1 B to EN 10 204

Order No.	Connection Size	Capacity kg/min	Length (mm)	Weight (kg)
18 618	DN 40	35 - 250	550	30,0
18 619	DN 80	300 - 800	840	55,0



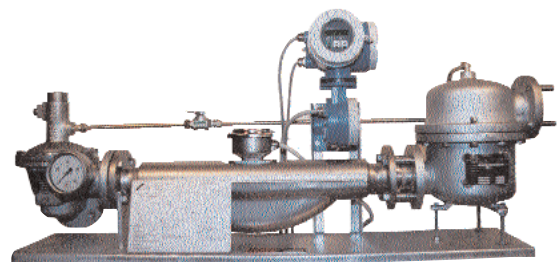
Other sizes are available on request.

**Complete Mass Flow Metering System** PN 25, flow direction from right to left, mounted on a common base plate, primed. Components with type approval or with inspection certificate 3.1 B to EN 10 204, with test report 2.2 to EN 10 204 for pressure and function test

System consisting of:

- Vapour eliminator
- Back check valve
- Mass flow meter, **type FAS 640**
- Pressure gauge 0 - 25 bar, liquid-filled
- Pressure-retaining valve **with official calibration test**
- Base plate of steel, **galvanized**

Order No.	Type	Connection Size	Capacity kg/min	Length (mm)	Weight (kg)
18 615	640-S	DN 50	35 - 250	1870	98,0
18 616	640-F	DN 80	300 - 800	1995	225,0
18 740	<b>Extra charge for painting</b>				



Type 640-S in special execution with pulser and separate display, DIN flange connection DN 50

**Turbine Flow Meter** type FAS/Daniel, compact device with 2 NAMUR-sensors to DIN 19 234 for flow metering of propane / butane in liquid phase, as well as corresponding accessories on request. Please let us have your detailed specification, i.e. min./max. capacity and application purpose enabling us to submit our corresponding offer to you.

**Complete Metering System** PN 25, type LC/LCR for road tankers and stationary systems, meter type MA-7-GX-10-LCR in aluminium-construction **with electronic counter**, as well as approved ticket printer with holding device for separate installation, a **lap-pad** and a set of cables for connection at site, without temperature volume compensation, Buna seals, capacity 75 - 380 l/min, connection 2" female NPT, operating temperature range -40 °C to +70 °C, metering system with fastening foot, without base plate, with TÜV approval and official calibration test, with test report 2.2 to EN 10 204 for pressure and function test

System consisting of:

- Inlet back pressure check valve
- Vapour eliminator with integrated filter
- Electrical counter LCR
- LC-Meter (metering chamber)
- Pressure retaining valve
- Lap-Pad
- Ticket printer

Order No.	Execution	Weight
18 857	Flow direction from right to left	41,0
18 864	Flow direction from left to right	41,0



Other LCR-metering systems with different capacities and with temperature volume compensation are available on request.

**Complete Metering System** PN 25, type LC, for road tankers or stationary applications, type MA-7-GX-10 in aluminium-construction, without temperature compensation, Buna seals, capacity max. 380 l/min, connection 2" female NPT, metering system with fastening foot, without base plate, with test report 2.2 to EN 10 204, TÜV-approval and official calibration authority

System consisting of:

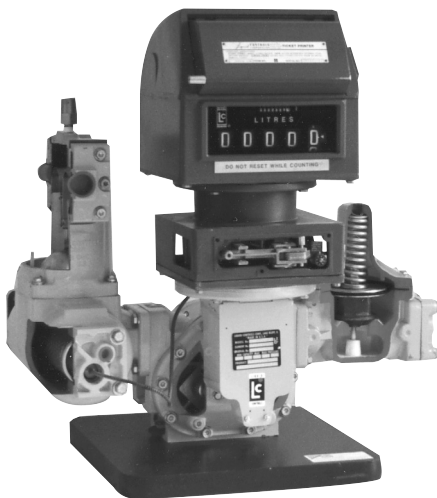
- Back pressure check valve
- Vapour eliminator with integral filter
- LC-Meter (metering chamber)
- Mechanical, resettable counter (litre) with ticket printer
- Pressure-retaining valve

Order No.	Execution	Gewicht
18 921	Counter type VR, flow direction from right to left, back check valve between the vapour eliminator and the meter (metering chamber)	40,0
18 922	Counter type VR, flow direction from right to left, inlet back check valve	40,0
18 923	Counter type VR, flow direction from left to right, inlet back check valve	40,0
18 924 <sup>1)</sup>	Counter type Kienzle 105, flow direction from right to left, back check valve between the vapour eliminator and the meter (metering chamber)	43,0
18 925 <sup>1)</sup>	Counter type Kienzle 105, flow direction from right to left, inlet back check valve	43,0
18 926 <sup>1)</sup>	Counter type Kienzle 105, flow direction from left to right, inlet back check valve	43,0

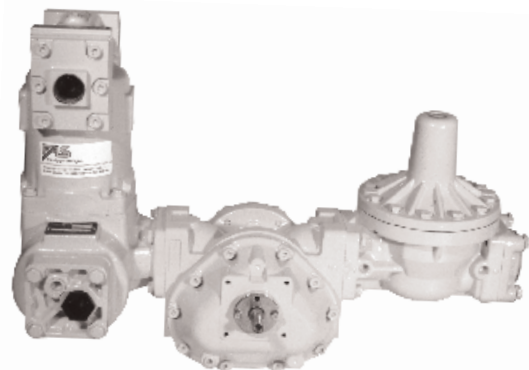
<sup>1)</sup> Discontinued execution

#### Versions without mechanical counter and ticket printer

Order No.	Execution
18 941	Prepared for use with pulser, flow direction from right to left
18 942	Prepared for use with pulser, flow direction from left to right



Metering Sytem **with** mechanical counter and ticket printer type VR, flow direction from left to right, (cut-away additionally equipped with variable temperature compensation)



Metering Sytem **without** mechanical counter and ticket printer, prepared for pulser, flow direction from left to right

#### Set of Accessories for MA-7 Metering System

Order No.	consisting of:
18 929	<ul style="list-style-type: none"> <li>- 1 base plate of steel, primed and painted, order no. 18 951 with 4 pcs. vibration dampers M10, order no. 18 952</li> <li>- 2 pcs. reductions, steel ASTM A 105, 1" NPT male x 1/2" NPT female, order no. 10 086</li> <li>- 3 pcs. elbow union, galvanized, 1/2" NPT - 12 mm, order no. 10 716</li> <li>- 1 ball valve of steel, PN 100, DN 6, 1/4" NPT, order no. 19 249, between vapour eliminator and pressure-retaining valve, with open lead seal, with 2 pcs. straight pipe union 1/4" NPT - 12 mm, order no. 10 703</li> <li>- 0,5 m precision pipe, galvanized, 12 mm, order no. 10 623</li> <li>- complete installation and pressure test</li> </ul>

**Complete Metering Systems** type LC, flow direction from left to right, Buna seals, with fastening foot, without base plate, for road tankers use types MA-4 to MA-15 in aluminium construction, for stationary systems use types MSA-15 to MSA-120 with housing of steel, with test report 2.2 to EN 10 204

System consisting of:

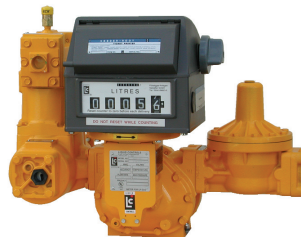
- Back pressure check valve (only included in standard execution of types MA-4 to MA-7)
- Vapour eliminator with integral filter
- LC-Meter (metering chamber)
- Mechanical, resettable counter (litre) with ticket printer, type VR
- Pressure-retaining valve

#### Executions for Road Tankers and Stationary Systems with female NPT thread

Order No.	Type	Connection NPT	Capacity l/min	Max. Pressure PN	Housing material	Execution	Weight (kg)
18 791	MA-4-GX-10	1 1/2"	20 - 113	25	aluminium	without temperature compensation	35,0
18 931	MA-4-GY-10	1 1/2"	20 - 113	25	aluminium	with variable temperature compensation	38,0
18 792	MA-5-GX-10	1 1/2"	45 - 227	25	aluminium	without temperature compensation	37,0
18 932	MA-5-GY-10	1 1/2"	45 - 227	25	aluminium	with variable temperature compensation	40,0
18 793	MA-7-GX-10	2"	75 - 380	25	aluminium	without temperature compensation	40,0
18 904	MA-7-GY-10	2"	75 - 380	25	aluminium	with variable temperature compensation	43,0
18 903	MA-7-GY-10-Y	2"	75 - 380	25	aluminium	with variable temperature compensation and ex-proof pulser on the counter	44,0
18 794	MA-15-GX-10	3"	150 - 757	25	aluminium	without temperature compensation	56,0
18 933	MA-15-GY-10	3"	150 - 757	25	aluminium	with variable temperature compensation	59,0
18 750	<b>Extra charge for factory test</b>						



MA-15-GY-10



MA-4-GX-10



MSA-30-GY-10

#### Executions for Stationary Systems with ANSI flanges

Order No.	Type	Connection Flange (300 lbs)	Capacity l/min	Max. Pressure PN	Housing material	Execution	Weight (kg)
18 915	MSA-15-GX-10	3" ANSI	150 - 757	21	steel	without temperature compensation	56,0
18 914	MSA-15-GY-10	3" ANSI	150 - 757	21	steel	with variable temperature compensation	59,0
18 795	MSA-30-GX-10	3" ANSI	265 - 1325	21	steel	without temperature compensation	138,0
18 909	MSA-30-GY-10	3" ANSI	265 - 1325	21	steel	with variable temperature compensation	141,0
18 786	MSA-75-GX-10	4" ANSI	530 - 2650	21	steel	without temperature compensation	269,0
18 789	MSA-75-GY-10	4" ANSI	530 - 2650	21	steel	with variable temperature compensation	272,0
18 918	MSA-120-GX-10	6" ANSI	760 - 3785	21	steel	without temperature compensation	269,0
18 928	MSA-120-GY-10	6" ANSI	760 - 3785	21	steel	with variable temperature compensation	372,0
18 750	<b>Extra charge for factory test</b>						

#### Combinations, accessories and conversion parts are available on request.

- Preset of quantity
- Kienzle mechanical counter with ticket printer
- Mechanical counter **without** ticket printer
- Pulser
- Electronics for road tankers and stationary plants (LCR)
- Flow direction from right to left
- DIN-flange connection
- Kilogram (kg) - display
- Gallons - display
- Base plate

In addition to the LPG program, **LC** also supplies complete metering systems for liquids of other fields of application.

Please ask for our separate **LC**-catalogue.



**Complete Metering System PN 25, type FAS 100**, for internal filling processes of fork lift truck and factory owned vehicles, with mechanical counter (litre), without printer, resettable by handwheel, with non-resettable totalizer, metering system without price display, suitable for calibration, mounted on a base plate, height 720 mm, width 700 mm, depth 260 mm, primed and painted, (Fig. 1), with test report 2.2 to EN 10 204

System consisting of:

- Special piston meter 5 - 50 l/min
- Mechanical counter type VR
- Vapour eliminator with replaceable microfilter (25 µm)
- Ball valve 3/8" female NPT for vapour line
- Ball valve 1" female NPT for liquid line
- Differential valve, outlet 3/4" female NPT

Order No.	Execution	Weight
18 981	without official calibration	60
18 982	with official calibration	60
18 983	with pulse transmitter, without mechanical counter, without official calibration	60

**Note :** Pump with motor, bypass valve and strainer are located outside of the metering system next to the storage tank. They are not included in the metering system.

**This metering system is also available in combination with a stand post for LPG dispensing hose with lockable nozzle holder (order no. 22 841, page 73) or installed in a steel plate cubicle, as well as mobile version on a stable hand-cart (like Fig. 2).**

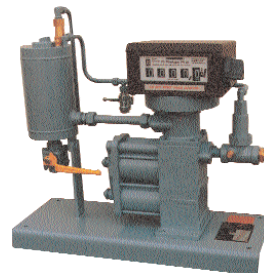


Fig. 1  
**Complete metering system, type FAS 100**  
with piston meter vapour eliminator and differential valve on base plate

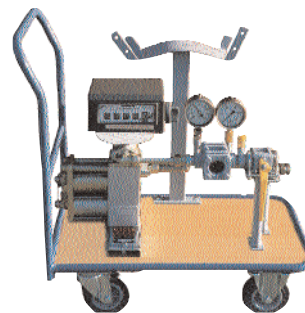
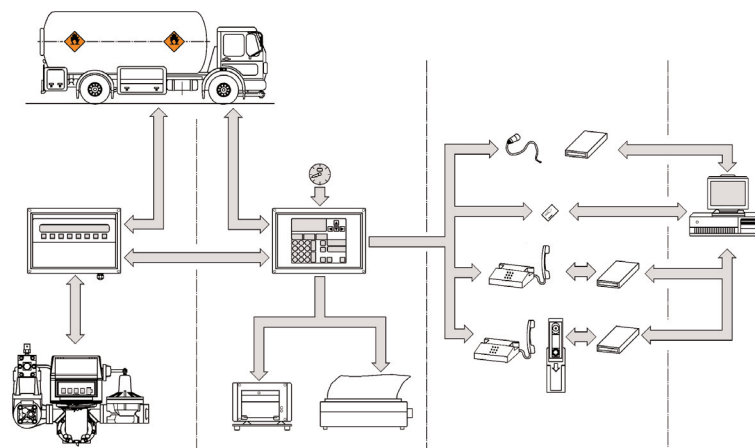


Fig. 2  
**LPG Master Meter Proving Cart**, for metering range 5 - 50 l/min, with piston meter and mechanical roller-type counter (litre), without vapour eliminator and differential valve, mounted on a hand-cart with hose holder. Under FAS-No. 18 896 is the LPG Master Meter Proving Cart including 10 meter LPG hose with nozzle and accessories available. Other constructions are available on request.

### Complete Metering System with Electronic Metering and Data Processing

Computer system for electronic metering, for data storage, processing and transfer in addition to route-planning for optimum vehicle usage

- | Order No. | Execution   |
|-----------|---|
| 18 991    | System consisting of: <ul style="list-style-type: none"> <li>- Metering system, DN 50 PN 25, with electronic scanning of quantitative pulses</li> <li>- Alphanumeric display (large, easy to read) in close proximity to metering system</li> <li>- Data processing system in driver's cab with display and keyboard with optional automatic identification system using card or barcode and additional customized program parts</li> <li>- Ticket printer or invoice printer in driver's cab</li> <li>- Data transfer system (cable, mobile telephone etc.) to central processing unit (PC or host)</li> </ul> |



Range of Application:

- Modular, expandable and therefore adaptable to individual needs
- Variety of enclosure sizes, single-line or multiline displays and a range of keyboards available
- Regulation of all valves and pumps possible
- On-the-spot printing of invoices or delivery notes at vehicle
- A wide range of automatic data transfer processes (cable, mobile telephone, RAM disk, acoustic coupling etc.) means no need for manual input of route details for subsequent electronic processing
- Route details can be transferred from electronic data processing system to computer in driver's cab
- Storage of data and customer equipment error messages by driver for subsequent electronic processing
- Determination and supervision of vehicle data and maintenance schedule
- Automatic storage and printing of dangerous goods papers (or manually at the push of a key)
- Integral conversion with temperature compensators
- On-the-spot recording of all delivery details

**To find out more about the wide range of possible application, please talk to us.**