



Flüssiggas-Anlagen

»Group 22«

LPG Dispensers

Fuel Gas / AUTOGAS Filling Stations

Compact LPG Filling Stations



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»22« **LPG Dispensers**
Fuel Gas / AUTOGAS Filling Stations
Compact LPG Filling Stations

Electronic LPG Dispenser Type FAS-120 and FAS-220

Housing of stainless steel

Electronic:

- electronic price meter, Kienzle (ER4)
- power supply unit 230 VAC / 50-60Hz
- display with illumination
- push-button
- release illumination

Hydraulic PN 25:

- special meter for LPG
flow rate 5 - 50 l/min
- vapour eliminator with filter unit, pressure-retaining valve, pressure gauge, diaphragm memory, back pressure check valve, relief valve 25 bar
- excess flow valve before the LPG high pressure hose
- LPG high pressure hose DN 16, length = 4,5 m, with breakaway coupling and LPG nozzle, type LG, with locking device (connection 1 3/4" ACME / standard) (without additional price are other LPG nozzles deliverable)
- connection liquid line: ball valve 1" NPT-IG
- connection vapour return line: ball valve 3/4" NPT-IG

Certificate:

- with PTB type approval acc. to OIML IR117
- LPG Dispenser regulation acc. to pr EN 14678-1
- declaration of conformity with CE marking acc. to PED 97/23/EC, ATEX 94/9/EC and 89/336/EWG

For Additional Price:

- calibration test by an independent organisation
- solenoid valve in the liquid line
- control device in dispenser head for electric connection of pump motor, solenoid valve, emergency shut-off switch etc.
- hose return system (only for type FAS-220, FAS-230 and FAS-240)

Order No.	Typ	Type	Weight
22 371	FAS-120	Standard, Meter MK-III, 1 display	115,0
22 233	FAS-120	Economy, Meter FASY-I, 1 display	115,0
22 216	FAS-220	Standard, Meter MK-III, 1 display	150,0
22 229	FAS-240	like Type FAS-220, jet with 2 hoses and 2 displays	160,0



LPG Dispenser
Type FAS-120



LPG Dispenser
Type FAS-220
additionally equipped with the
hose return system, Order No. 22 406

Electronic LPG Dispenser Type FAS-230

Housing of stainless steel, refuelling of two vehicles at the time possible

Electronic:

- electronic price meter, Kienzle (ER4)
- power supply unit 230 VAC / 50-60Hz
- 2 displays with illumination
- 2 turn-switch
- 2 release illumination
- total sums (quantity sums) to be fetched from magnetic switch

Hydraulic PN 25:

- special meter for LPG
flow rate 5 - 50 l/min
- vapour eliminator with filter unit, pressure-retaining valve, Pressure Gauge, diaphragm memory, back pressure check valve, relief valve 25 bar
- internal filler connection
- 2 LPG high pressure hose DN 16, length = 5,0 m, with breakaway coupling and excess flow valve before the LPG high pressure hose
- 2 LPG nozzles by by customer specification
- connection liquid line: ball valve 1" NPT-IG
- connection vapour return line: ball valve 3/4" NPT-IG

Certificate:

- declaration of conformity with CE marking acc. to PED 97/23/EC, ATEX 94/9/EC and 89/336/EWG

For Additional Price:

- calibration test by an independent organisation
- hose return system

Order No.	Type	Weight
22 241	FAS-230	230,0



LPG Dispenser
Type FAS-230
additionally equipped with the
hose return system, Order No. 22 406
and Preset Order No. 22 996

»22« **LPG Dispensers**
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Electronic LPG Dispenser Type FAS-130, not suitable for calibration

Housing of stainless steel, with integrated control in dispenser head

Electronic:

- without measuring equipment
- without price meter
- without illumination
- push-button
- release illumination
- control with logo unit in dispenser head for electrical connection of pump motor, solenoid valve, emergency shut-off push button, etc.
- dry-run protection by electrical capacity measurement, for the connection of max. 5 kW motor

Hydraulic PN 25:

- without special meter for LPG
- excess flow valve before the LPG high pressure hose
- LPG high pressure hose DN 16, length = 4,5 m, with breakaway coupling and LPG nozzle, type LG, with locking device (connection 1 3/4" ACME / standard)
- connection liquid line: ball valve 3/4" NPT-IG

Certificate:

- declaration of conformity with CE marking acc. to PED 97/23/EC, ATEX 94/9/EC and 89/336/EWG

Order No.	Typ	Gewicht
36 401	FAS-130	80,0



LPG Dispenser
Type FAS-130

Electronic LPG Dispenser Type FAS-130, not suitable for calibration

Housing of stainless steel, with mechanical totalizer

Electronic:

- with mechanical counter (only totalizing, non-resettable)
- flow rate 12 - 70 l/min
- without price meter
- without illumination
- push-button
- release illumination

Hydraulic PN 25:

- without special meter for LPG
- excess flow valve before the LPG high pressure hose
- LPG high pressure hose DN 16, length = 5,0 m, with breakaway coupling and LPG nozzle, type LG, with locking device (connection 1 3/4" ACME / standard)
- connection liquid line: ball valve 3/4" NPT-IG

Certificate:

- declaration of conformity with CE marking acc. to PED 97/23/EC, ATEX 94/9/EC and 89/336/EWG

Order No.	Type	Weight
36 487	FAS-130	85,0



LPG Dispenser
Type FAS-130

Electronic LPG Dispenser Type FAS-430, not suitable for calibration

Housing of stainless steel, with integrated tank automatic without ticket printer

Electronic:

- tank automatic
- interface RS 232 and RS 422
- reader for round transponder chip cards (non-contacting)
- power supply unit 230 VAC / 50-60Hz
- display heated
- 4 MB Flash Memory Card
- electronic journal
- push-button
- release illumination

Hydraulic PN 25:

- special meter for LPG, flow rate 5 - 50 l/min
- vapour eliminator with filter unit, pressure-retaining valve, pressure gauge, diaphragm memory, back pressure check valve, relief valve 25 bar
- excess flow valve before the LPG high pressure hose
- LPG high pressure hose DN 16, length = 4,5 m, with breakaway coupling and LPG nozzle, type LG, with locking device (connection 1 3/4" ACME / standard)
- connection liquid line: ball valve 1" NPT-IG
- connection vapour return line: ball valve 3/4" NPT-IG

Certificate:

- declaration of conformity with CE marking acc. to PED 97/23/EC, ATEX 94/9/EC and 89/336/EWG

For Additional Price:

- solenoid valve in the liquid line

Order No.	Type	Weight
36 336	FAS-430	130,0



LPG Dispenser
Type FAS-430

»22« **LPG Dispensers**
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Flow Meter for LPG, Typ LPM-101, PN 25, not suitable for calibration
 designed for retail sales dispensing units

System consisting of:

- with mechanical counter (only totalizing, non-resettable)
- flow rate 12 - 70 l/min
- flow direction from left to right
- without vapour eliminator, strainer, differential valve
- connection 3/4" IG NPT

Certificate:

- declaration of conformity with CE marking acc. to PED 97/23/EC

Order No.

	Type	Weight
18 744	LPM-101	13 kg
18 988	extra charge for metering package consisting of: vapour eliminator, strainer, differential valve with steel base plate, completely mounted and primed	



LPG Flow Meter
 Type LPM-101

Complete Metering System, Type FAS-100, PN 25, suitable for calibration

for internal filling processes of fork lift truck and factory owned vehicles,
 mounted on a base plate, height 720 mm, width 700 mm, depth 260 mm,
 primed and painted

System consisting of:

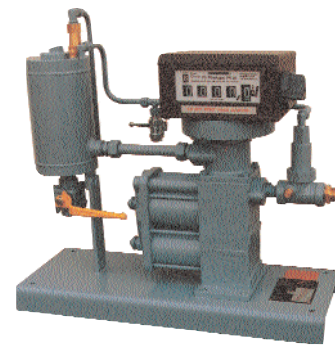
- with mechanical counter (Type VR) for supplied litre,
 resettable by handwheel, with non-resettable totalizer
- without price meter
- special meter for LPG
 flow rate 5 - 50 l/min
- vapour eliminator with replaceable
 microfilter (25 µm)
- connection liquid line: ball valve 1" NPT-IG
- connection vapour return line: ball valve 3/8" NPT-IG
- differential valve, outlet 3/4" NPT IG

Certificate:

- declaration of conformity with CE marking acc. to PED 97/23/EC

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	56



LPG Metering System
 Type FAS-100

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.

Electronic LPG Dispenser for busses and road tankers Type FAS-320, FAS-340 & FAS-360

Housing of stainless steel

Electronic:

- electronic price meter, Kienzle (ER4)
- power supply unit 230 VAC / 50-60Hz
- 2 LCD displays with illumination
- push-button
- release illumination

Hydraulic PN 25:

- positive displacement meter for LPG
- vapour eliminator with filter unit, pressure-retaining valve, pressure gauge,
 diaphragm memory, back pressure check valve, relief valve 25 bar
- excess flow valve before the LPG high pressure hose
- LPG high pressure hose DN 16, length = 5,0 m, with breakaway coupling and
 LPG nozzle, type LG, with locking device (connection 1 3/4" ACME / standard)
- connection liquid line: ball valve by customer specification
- connection vapour return line: ball valve by customer specification

Certificate:

- with PTB type approval acc. to OIML IR117
- LPG dispenser regulation acc. to pr EN 14678-1
- declaration of conformity with CE marking acc. to PED 97/23/EC,
 ATEX 94/9/EC and 89/336/EWG

For Additional Price:

- calibration test by an independent organisation
- solenoid valve in the liquid line
- control in dispenser head for electrical connection of pump motor,
 solenoid valve, emergency shut-off switch, etc.
- hose return system

Order No.

	Type	Hose	Flow Rate	Weight
22 260	FAS-320	DN 25	20 - 115 l/min	190,0
22 270	FAS-340	DN 32	45 - 225 l/min	195,0
22 709	FAS-360	DN 32	76 - 300 l/min	200,0



LPG Dispenser
 Type FAS-220
 additionally equipped with the
 hose return system, Order No. 22 406
 (Type FAS-320/FAS-340/FAS-360
 same design)

»22« **LPG Dispensers
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Electronic LPG Dispenser Type FAS-420, with combined car system including card system for fleet management (however without Eurocard or any credit card) and incorporated receipt printer

Housing of stainless steel

Electronic:

- with electronic price meter and precalibrated CPU board
- power supply unit 230 VAC / 50-60Hz
- display with illumination and heated
- 4 MB Flash Memory Card
- electronic journal
- push-button
- release illumination

Hydraulic PN 25:

- special meter for LPG, flow rate 5 - 50 l/min
- vapour eliminator with filter unit, pressure-retaining valve, pressure gauge, diaphragm memory, back pressure check valve, relief valve 25 bar
- excess flow valve before the LPG high pressure hose
- LPG high pressure hose DN 16, length = 4,5 m, with breakaway coupling and LPG nozzle, type LG, with locking device (connection 1 3/4" ACME / standard)
- connection liquid line: ball valve 1" NPT-IG
- connection vapour return line: ball valve 3/4" NPT-IG

Certificate:

- with PTB type approval acc. to OIML IR117
- LPG dispenser regulation acc. to pr EN 14678-1
- declaration of conformity with CE marking acc. to PED 97/23/EC, ATEX 94/9/EC and 89/336/EWG

For Additional Price:

- calibration test by an independent organisation
- solenoid valve in the liquid line
- control in dispenser head for electrical connection of pump motor, magnetic valve, emergency shut-off switch etc.

Order No.	Type	Execution	Weight
22 871	FAS-420	standard, Meter MK-III, 1 display	130,0
22 197		Magnetic cards , coded, available in colours red, blue, green or white, magnetic cards with special prints (e.g. company's logo) for publicity purposes on request. Please indicate colour when placing the order.	



LPG Dispenser with card system
Type FAS-420

Electronic registration system with card reader Type FAS 400

Order No. 22 191 Execution **Electronic registration system with card reader type FAS 400** in stand post housing, with acceptance of station cards, EC-Card, DKV/UTA, Diners and Eurocard, system for connection on all electronic FAS-LPG dispensers, with pre-calibrated CPU plate, 4 MB Flash Memory Card (emergency storage), ticket printer, illuminated and heated display, ISDN terminal adapter, execution and inscription acc. to customer's specification. Up to 8 pumps / dispensers may be selected, without tank data processing software and hardware, with foundation frame, **erection outside of the explosion proof area, with calibration test.**
Notice to Electronic-Cash: For the authorization of the EC-cards or credit cards, respectively fleet cards the operator or customer has to contact FAS.
Electronic registration system type 400 with additional CASH-operation with banknote check on request.

22 195 **Tank data processing software** for FAS 400 / 420, tank data information and accounting system „Autopoll 2000“, for Windows 95/98 with Windows NT 4.0., individual position for PC, menu administration / master file administration / data reading (FAS 400 / 420) / vehicle analysis / inventory maintenance / writing of invoices / data export in ASCII format further processing software according to customer's specification on request.

22 966 **Modem M1 (In-House)** for electronic registration system FAS 400 / 420, with adapter cable, transmission of badge and tank data from the card system to the PC, without laying and delivery of the necessary data line, for this operation 2 pieces are necessary.

22 967 **GSM-radio modem** for electronic registration system FAS 400 / 420, complete set with antenna and connection line, GMS-M1 module on system, standard modem on PC with connection to TAE-outlet. A card contract with a mobile radiotelephone service company is necessary.

22 830 **Commissioning** of the card system type FAS 400 / dispenser with card system type FAS 420, including installation of the tankdata processing software, functional check and training of the service personnel with introduction of the programs. Accounting is effected according to the expenditures and according to the actual FAS installation terms.

Notice: An intensive and detailed training of the service staff at site by our experts is necessary in order to guarantee a smooth functioning and a safe operation of the electronic registration system with the corresponding processing software. For this reason this processing software has to be ordered, too. The integration into the complete system, as well as the cabling / electrical installation of the registration system and the connection to the existing hardware is to be effected by customer.



Card System
Type FAS-400
with additional equipment for CASH-operation with banknote check

Additional equipment and options:

Order No.	Execution
22 963	Flash Memory Card , 4 MB, for card system FAS 400/420, formatted
22 964	Memory Card drive , Reading / Writing unit on PC for Flash Memory Card out of card system FAS 400/420
22 962	Additional heating for electronic part in electronic registration system FAS 420, including installation
22 298	Calibration test by an independent organisation for each positive displacement meter, including pressure, tightness and functional test
22 999	Calibration test by an independent organisation for each piston meter including pressure, tightness and functional test
22 995	TVC Temperature Volume Compensation (per hose system)
22 996	Preset , complete with keyboard (per hose system)
22 406	Hose return system for electronic dispensers for type FAS 220 and FAS 230, despite for type 120, including installation (per hose system)
22 403	Heating system for electronic part, including installation
22 404	Magnetic switch for calling total amounts for electronic dispensers (without opening the electronic housing)
22 696	Solenoid valve G 3/4" , PN 25, explosion-proof, 230 V/50 Hz, currentless closed, with Viton seals, installed in pressure line and electronically connected in car dispensers
22 399	Solenoid valve G 1 1/4" , PN 25, explosion-proof, 230 V/50 Hz, currentless closed, with Viton seals, installed in pressure line and electronically connected in bus / road tanker dispensers
22 600	Remote control for electronic dispensers, completely installed in a housing, including one release button mounted on housing and plug-type connector, cabling to be executed by customer
22 601	Electronic wiring for indicator panel remote control
22 605	Electronic wiring for release button remote control
22 291	Factory test with LPG - calibration of dispenser to be executed in our works for each piston meter, including pressure, tightness and functional test
22 090	Base frame for dispensers, type 120/420, galvanized, h = 100 mm, for separate installation, erection to be executed by customer
22 407	Base frame for dispensers, type 220/230/240/320/340/360, galvanized, h = 100 mm, for separate installation, erection to be executed by customer
22 408	Base frame for dispenser type 210, galvanized, h = 100 mm, for separate installation, erection to be executed by customer
22 409	Commissioning of the LPG dispenser



Remote control for electronic dispensers
 Order No. 22 600

- ¹⁾ Please indicate in your order. In case of a push-button the LPG dispenser is equipped with a nozzle with locking device, in case of a rotary-type switch the LPG dispenser is equipped with a nozzle without locking device. Standard execution: push-button
- ²⁾ FAS is able to deliver all types of dispensers also according to corresponding specific design and regulations of different countries and requirements, as well as with the corresponding inscription and approval of that country.

Other LPG nozzles according to customer specification on request.

Further types of dispensers for LPG and options, as well as accessories and options see following pages and on request.

Dispenser with electronics 60 Hz are available on request.

Pump units with ex-motor and bypass valve are located outside of the dispenser directly beside the storage tank. They are not included in the scope of supply of the dispenser. The electrical control cubicle is not included in the scope of supply and depends on the execution of the other electrical equipment (see following pages).

arrangements by customer for above ground tanks

- | | |
|---|---|
| -Foundation / approach protector | - Earthing / high-voltage protector |
| -Unloading and erection | - Fire extinguisher |
| -Erection test | - First filling process / Commissioning |
| -Electrical installation with test | - Illumination / Weather protection |
| -Installation, material, protection against corrosion of connecting pipework incl. TÜV-approval | |

arrangements by customer for underground tanks

- | | |
|--|---|
| -Foundation ditch with sand bedding incl. approval | - Electrical installation with test |
| -Unloading / storage / erection | - Earthing / high-voltage protector |
| -Test / approval of tank isolation and storage / erection | - Fire extinguisher |
| - Installation, material, protection against corrosion of connecting pipework incl. TÜV-approval | - First filling process / Commissioning |
| | - Illumination / Weather protection |
| | - Foundation / approach protector dispenser |

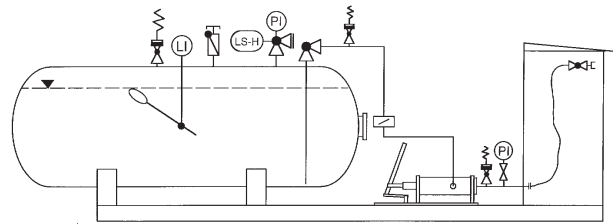
Remarks: For the use of pumps with mechanical seal

Please check the described execution for your special purpose and field of application, also with the regulations and specific requirements to be applied in your country.

»22« **LPG Dispensers**
Fuel Gas / AUTOGAS Filling Stations
Compact LPG Filling Stations

Compact filling station with hand filling pump and hose cabinet without meter complete with LPG storage tank and following fittings / equipment mounted on a base frame, including pipework, primed and painted, pipeline out of precision steel tube, galvanized, with inspection certificate 3.1.B

- Tank connection, LPG withdrawal angle valve 3/4" NPT
- Strainer with NPT thread PN 40, inspection certificate 3.1.B
- Hand filling pump PN 25, capacity approx. 0,5 l/stroke, test report 2.2
- Safety relief valve, setting pressure 25 bar, with TÜV-approval
- Pressure gauge with shut-off valve
- Painted steel sheet cabinet with safety lock, LPG 13 high-pressure hose line with filling connection, length = 3,0 metres, hose holder, type **C** additionally with a safety breakaway coupling
- Including TÜV-approval with construction, pressure and tightness test



Type A + B

- Type A = for balloon cylinders with **RegO**-coupling
- Type B = for balloon cylinders with **TEMA**-coupling
- Type C = filling connection with safety filler coupling 1 3/4" **ACME**

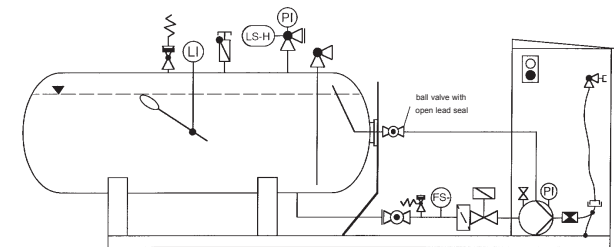
Order No.	Order No.	Order No.	Tank size
Type A	Type B	Type C	
22 091	22 005	22 015	2700 litres
22 092	22 006	22 068	4850 litres
22 411	22 011	22 069	6400 litres

Additional equipment and options:

- Order No. Execution
- 22 033 **Hot galvanized steel frame** tank size 2700 litres
- 22 034 **Hot galvanized steel frame** tank size 4850 litres
- 22 035 **Hot galvanized steel frame** tank size 6400 litres
- 22 065 **Freight charges** according to km-tariff scale, compact filling station unloaded
- 22 010 **Additional LPG 13 high pressure hose line** for type A and B with filling connection, including installation and hose holder

Compact filling station with hose cabinet without counter complete with one LPG storage tank and following fittings / equipment mounted on a base frame, including pipework, primed and painted, pipeline out of precision steel tube, galvanized, with inspection certificate 3.1.B

- Tank shut-off valve DN 25 PN 40, inspection certificate 3.1.B
- Safety relief valve setting pressure 25 bar, with TÜV-approval
- Ex-proof flow detector with analysing device
- Strainer with NPT thread PN 40, inspection certificate 3.1.B
- Ex-proof solenoid valve G 1", PN 25, 230V / 50Hz, test report 2.2
- Painted steel sheet cabinet with safety lock, installed in steel cabinet: **Blackmer pump unit with mechanical seal**, internal by-pass valve, pressure gauge and bleeder valve, capacity approx. 35 l/min, ex-motor 230/400V / 50Hz, 1 kW, LPG high-pressure hose line with filling connection, excess flow valve in front of filling hose, hose holder and ex-proof ON/OFF-switch
- Type **C** additionally with a safety breakaway coupling
- Ball valve PN 40 in by-pass line, with open lead seal
- Including fire protection sheet, galvanized
- Including TÜV-approval with construction, pressure and tightness test (without electro-TÜV approval)
- Including **Electrical control cubicle** with control transformer for installation inside building and outside of protection zone



Type C

- Type **A** = for balloon cylinders with **RegO**-coupling, with LPG 13 high-pressure hose line length = 3,0 metres
- Type **B** = for balloon cylinders with **TEMA**-coupling, with LPG 13 high-pressure hose line length = 3,0 metres
- Type **C** = with safety filler coupling 1 3/4" **ACME**, with LPG 19 high-pressure hose line length = 5,0 metres

Order No.	Order No.	Order No.	Tank size
Type A	Type B	Type C	
22 412	22 417	22 435	2700 litres
22 413	22 418	22 062	4850 litres
22 414	22 419	22 436	6400 litres

Additional equipment and options:

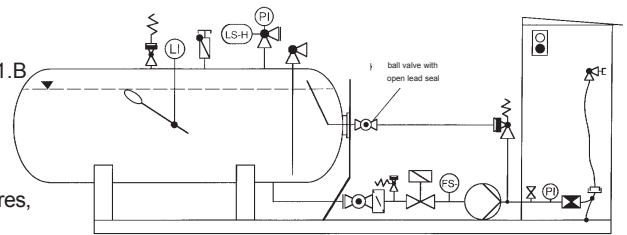
- Order No. Execution
- 22 033 **Hot galvanized steel frame** tank size 2700 litres
- 22 034 **Hot galvanized steel frame** tank size 4850 litres
- 22 035 **Hot galvanized steel frame** tank size 6400 litres
- 22 010 **Additional LPG 13 high pressure hose line** for type A and B with filling connection, including installation and hose holder
- 22 048 **Sun protection shed** made of aluminium sheet
- 22 857 **2 stairs** with holding device, completely galvanized
- 22 065 **Freight charges** according to km-tariff scale, compact filling station unloaded
- 22 055 **Commissioning** of the complete filling station at site, as well as training of the service personnel, charges by agreement
- 26 041 **Emergency stop button**, with ex-protection
- 26 046 **Emergency stop button**, without ex-protection

Further compact filling stations with or without counter see following pages. Other executions available on request.

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Compact filling station with dispensing system without meter complete with one LPG storage tank and following fittings / equipment mounted on a base frame, including pipework, primed and painted

- Tank shut-off valve PN 40, inspection certificate 3.1.B
- Strainer PN 40, inspection certificate 3.1.B
- Safety relief valve, setting pressure 25 bar, with TÜV-approval
- Ex-proof solenoid valve, PN 40, 230V / 50Hz, inspection certificate 3.1.B
- Ex-proof flow detector with analysing device
- LPG pump with ex-motor 230/400V / 50Hz
- External by-pass valve PN 25, test report 2.2
- Ball valve PN 40 in by-pass line, with open lead seal,
- Painted steel sheet cabinet with safety lock
- Installed in steel cabinet: LPG 19 high-pressure hose, length = 5,0 metres, with safety breakaway coupling and LPG nozzle, type LG with safety filler coupling, connection 1³/₄" ACME, pressure gauge and bleeder valve, excess flow valve in front of filling hose, hose holder and ex-proof ON/OFF-switch
- Including fire protection sheet, galvanized
- Including TÜV-approval with construction, pressure and tightness test (without electro-TÜV approval)
- Pipeline liquid phase completely welded



Type A + B

- Type A = with BLACKMER pump unit with **mechanical seal**, capacity approx. 50 l/min, Ex-Motor 2,0 kW
 Type B = with FAS pump unit with **mechanical seal**, capacity approx. 50 l/min, Ex-Motor 3,3 kW
 Type C = with side channel pump unit with **mechanical seal**, capacity approx. 50 l/min, Ex-Motor 3,3 kW
 Type D = with Dispenser FAS-130 side channel pump unit with **mechanical seal**, capacity approx. 50 l/min, Ex-Motor 3,3 kW

Order No.	Order No.	Order No.	Order No.	Tank size
Type A	Type B	Type C	Type D	
22 437	22 439	22 xxx	36 145	2700 litres
22 046	22 002	22 xxx	36 148	4850 litres
22 438	22 440	22 xxx	36 149	6400 litres

Additional equipment and options:

Order No.	Execution
22 033	Hot galvanized steel frame tank size 2700 litres
22 034	Hot galvanized steel frame tank size 4850 litres
22 035	Hot galvanized steel frame tank size 6400 litres
22 048	Sun protection shed made of aluminium sheet
22 857	2 stairs with holding device, completely galvanized
22 030	X-ray test of welding seams (10 %)
22 055	Commissioning of the complete filling station at site, as well as training of the service personnel, charges according to km-tariff scale

Order No.	Execution
22 061	Electrical control cubicle with control transformer for installation inside the building and outside of the protection zone, for connection of pump motor up to 5 kW, solenoid valve, flow detector, ON/OFF-switch and emergency stop button
26 046	Emergency stop button, without ex-protection
26 041	Emergency stop button, with ex-protection
22 065	Freight charges according to km-tariff scale, compact filling station unloaded



Execution with coated steel sheet cabinet, as well as separate electrical control box in zone 2



Execution with stainless steel housing and integrated control system in the dispenser head

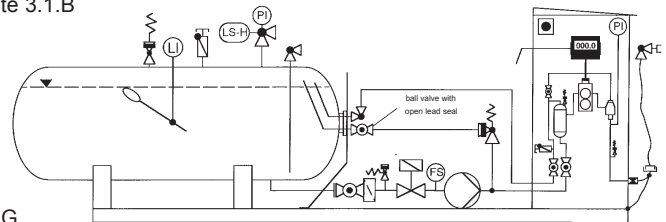
Further compact filling stations without dispensing system or with counter see following pages. Other executions on request.

»22« **LPG Dispensers**
Fuel Gas / AUTOGAS Filling Stations
Compact LPG Filling Stations

Compact filling station with dispenser - not suitable for calibration -

complete with one LPG storage tank and following fittings / equipment mounted on a base frame, including pipework, primed and painted

- Tank shut-off valve PN 40, inspection certificate 3.1.B
- Strainer PN 40, inspection certificate 3.1.B
- Safety relief valve, setting pressure 25 bar, with TÜV-approval
- Ex-proof solenoid valve, PN 40, 230V / 50Hz, inspection certificate 3.1.B
- Ex-proof flow detector with analysing device
- LPG pump with ex-motor 230/400V / 50Hz
- External by-pass valve PN 25, test report 2.2
- Ball valve PN 40 in by-pass line, with open lead seal,
- Angle valve 3/4" NPT on inspection flange
- Mechanical compact LPG dispenser, type FAS 110, **not suitable for calibration**, capacity 5-50 l/min, with litre display and litre totalizer, without price computer, counter with mechanical, hand-operated reset, with LPG 19 high-pressure hose, length = 5,0 m, with safety breakaway coupling and LPG nozzle, type LG with safety filler coupling, connection 1 3/4" ACME, excess flow valve in front of filling hose
- Including fire protection sheet, galvanized
- Including TÜV-approval with construction, pressure and tightness test (without electro-TÜV approval)
- Pipeline liquid phase completely welded



- Type A = with BLACKMER pump unit with **mechanical seal**, capacity approx. 50 l/min, Ex-Motor 2,0 kW
 Type B = with FAS pump unit with **mechanical seal**, capacity approx. 50 l/min, Ex-Motor 3,3 kW

Order No.	Order No.	Tank size
Type A	Type B	
22 477	22 xxx	2700 litres
22 478	22 xxx	4850 litres
22 447	22 xxx	6400 litres

Additional equipment and options:

Order No.	Execution
22 033	Hot galvanized steel frame tank size 2700 litres
22 034	Hot galvanized steel frame tank size 4850 litres
22 035	Hot galvanized steel frame tank size 6400 litres
22 048	Sun protection shed made of aluminium sheet
22 857	2 stairs with holding device, completely galvanized
22 030	X-ray test of welding seams (10 %)
22 055	Commissioning of the complete filling station at site, as well as training of the service personnel, charges according to km-tariff scale

Order No.	Execution
22 719	Electrical control cubicle with control transformer for installation inside the building and outside of the protection zone, for connection of dispenser, type FAS-110, pump motor up to 5 kW, solenoid valve, flow detector and emergency stop button
26 041	Emergency stop button, with ex-protection
26 046	Emergency stop button, without ex-protection
22 065	Freight charges according to km-tariff scale, compact filling station unloaded



Execution with counter in the steel sheet cabinet



Execution with submersible pump and coated steel sheet cabinet



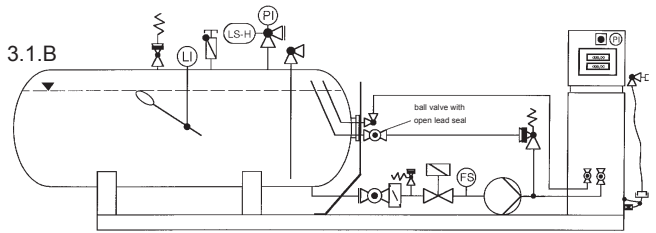
Execution with counter in the stainless steel housing and integrated control system in the dispenser head

Compact filling stations with dispenser suitable for calibration or without dispensing system see following pages. Other executions e.g. with a side channel pump unit or submersible motor-driven pump on request.

»22« **LPG Dispensers
Fuel Gas / AUTOGAS Filling Stations
Compact LPG Filling Stations**

Compact filling station with dispenser suitable for calibration complete with LPG storage tank and following fittings / equipment mounted on a base frame, including pipework, primed and painted

- Tank shut-off valve PN 40, inspection certificate 3.1.B
- Strainer PN 40, inspection certificate 3.1.B
- Safety relief valve, setting pressure 25 bar, with TÜV-approval
- Ex-proof solenoid valve, PN 40, 230V / 50Hz, inspection certificate 3.1.B
- Ex-proof flow detector with analysing device
- LPG pump with ex-motor 230/400V / 50Hz
- External by-pass valve PN 25, test report 2.2
- Ball valve PN 40 in by-pass line, with open lead seal,
- Angle valve 3/4" NPT on inspection flange
- LPG dispenser with totalizer, **suitable for calibration**, capacity 5-50 l/min, with LPG 19 high-pressure hose line, length = 5,0 m, with safety breakaway coupling and LPG nozzle, type LG with safety filler coupling, connection 1 3/4" ACME, excess flow valve in front of filling hose, with push button or rotary-type switch (please indicate when placing the order), official calibration test against additional charge
- Including fire protection sheet, galvanized
- Including TÜV-approval with construction, pressure and tightness test (without electro-TÜV approval)
- Pipeline liquid phase completely welded



- Type A = with BLACKMER pump unit with **mechanical seal**, capacity approx. 50 l/min, Ex-Motor 2,0 kW
- Type B = with FAS pump unit with **mechanical seal**, capacity approx. 50 l/min, Ex-Motor 3,3 kW
- Type C = with side channel pump unit with **mechanical seal**, capacity approx. 50 l/min, Ex-Motor 3,3 kW

with electronic dispenser, type FAS-120

Order No.	Order No.	Order No.	Tank size
Type A	Type B	Type C	
22 487	22 534	22 xxx	2700 litres
22 488	22 535	22 xxx	4850 litres
22 520	22 536	22 xxx	6400 litres

with electronic dispenser, type FAS-220

Order No.	Order No.	Order No.	Tank size
Type A	Type B	Type C	
22 467	22 537	22 xxx	2700 litres
22 468	22 538	22 xxx	4850 litres
22 530	22 539	22 xxx	6400 litres

**with electronic dispenser, type FAS-420,
with installed card system and ticket printer**

Order No.	Order No.	Order No.	Tank size
Type A	Type B	Type C	
22 540	22 545	22 xxx	2700 litres
22 541	22 546	22 xxx	4850 litres
22 543	22 547	22 xxx	6400 litres
22 197	Magnetic card, coded		

Additional equipment and options:

- | | |
|------------------|--|
| Order no. | Execution |
| 22 033 | Hot galvanized steel frame tank size 2700 litres |
| 22 034 | Hot galvanized steel frame tank size 4850 litres |
| 22 035 | Hot galvanized steel frame tank size 6400 litres |
| 22 299 | Calibration test for each piston meter |
| 22 048 | Sun protection shed made of aluminium sheet |
| 22 857 | 2 stairs with holding device, completely galvanized |
| 22 030 | X-ray test of welding seams (10%) |
| 26 046 | Emergency stop button, without ex-protection |
| 26 041 | Emergency stop button, with ex-protection |
| 22 063 | Electrical control cubicle with control transformer for installation inside the building and outside of the protection zone, for connection to dispenser, pump motor up to 5 kW, solenoid valve, flow detector and emergency stop button |

- | | |
|------------------|--|
| Order no. | Execution |
| 22 055 | Commissioning of the compact filling station with dispenser type FAS-120/FAS-220 at site, as well as training of the service personnel, charges according to km-tariff scale |
| 22 830 | Commissioning of the compact filling station with dispenser type FAS-420 with card system and ticket printer at site, as well as training of the service personnel, invoicing will be made according to the actual FAS installation terms (see also page 74) |
| 22 065 | Freight charges according to km-tariff scale, compact filling station unloaded |



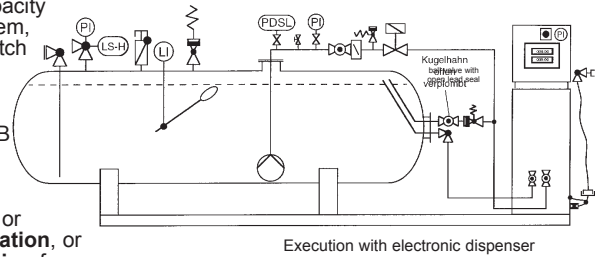
Further executions on request.

»22« **LPG Dispensers**
Fuel Gas / AUTOGAS Filling Stations
Compact LPG Filling Stations



Compact filling station with submersible pump and hose cabinet without meter or with a dispenser complete with LPG storage tank and following fittings / equipment mounted on a base frame, including pipe-work, primed and painted

- **Submersible pump, 21 stages**, with ex-motor, 2,2 kW, 400V / 50Hz, capacity approx. 50 l/min with 8,0 bar differential pressure, with pressure line system, differential pressure switch as protection to dry run including isolating switch amplifier, expansion valve, pressure gauge and ex-proof connecting box
- Ball valve and strainer DN 25 PN 40, inspection certificate 3.1.B
- Safety relief valve, setting pressure 25 bar, with TÜV-approval
- Ex-proof solenoid valve DN 25 PN 40, 230V / 50Hz, inspection certificate 3.1.B
- External by-pass valve PN 25, test report 2.2
- Ball valve PN 40 in by-pass line, with open lead seal
- Angle valve or plug 3/4" NPT on inspection flange
- **Dispensing system**, either hose cabinet **without meter and computer**, or mechanical dispenser type 110 with **litre counter not suitable for calibration**, or with electronic dispenser with **meter and computer suitable for calibration** for price and quantity, capacity dispenser 5-50 l/min, each dispensing system with LPG 19 high-pressure hose line, length = 5,0 m, with safety breakaway coupling and nozzle type LG with safety filler coupling, connection 1 1/2" ACME, excess flow valve in front of filling hose, ON/OFF push button in hose cabinet, rotary-type switch on dispenser, type 110, push button or rotary-type switch (please indicate when placing the order) on electronic dispenser, official calibration test against additional charge
- Including TÜV-approval with construction, pressure and tightness test (without electro-TÜV approval)
- Pipeline liquid phase completely welded



Type A = with **hose cabinet without meter**
 Type B = with mechanical dispenser **type FAS-110**
 Type C = with electronic dispenser **type FAS-120**

Type D = with electronic dispenser **type FAS-220**
 Type E = with electronic dispenser **type FAS-420** with installed card system and ticket printer

Order No.	Order No.	Order No.	Order No.	Order No.	Tank size
Type A	Type B	Type C	Type D	Type E	
22 591	22 594	22 552	22 548	22 555	2700 litres
22 592	22 595	22 553	22 549	22 556	4850 litres
22 593	22 596	22 554	22 550	22 557	6400 litres

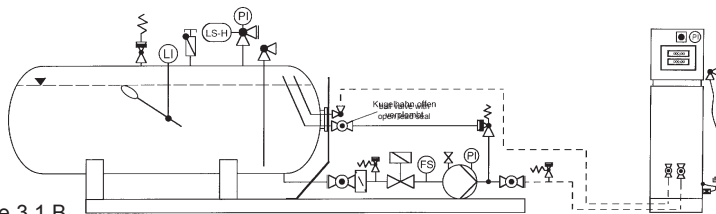
Additional equipment and options:

Order no.	Execution	Order no.	Execution
22 033	Hot galvanized steel frame, tank size 2700 litres	22 055	Commissioning of the compact filling station with dispenser type FAS-110/FAS-120/FAS-220 or hose cabinet at site, as well as training of the service per personnel, charges according to km-tariff scale
22 034	Hot galvanized steel frame, tank size 4850 litres	22 065	Freight charges according to km-tariff scale, compact filling station, unloaded
22 035	Hot galvanized steel frame, tank size 6400 litres	22 715	Electrical control cubicle with control transformer for installation inside the building and outside of the protection zone, for connection of motor up to 5 kW, solenoid valve, ON/OFF-switch and emergency stop button
22 299	Calibration test for each piston meter	22 067	Electrical control cubicle with control transformer for installation inside the building and outside of the protection zone, for connection of dispenser, pump to 5 kW, solenoid valve, differential pressure switch and emergency stop button
22 197	Magnetic card, coded, for execution E		
22 581	2 stairs with holding device, completely galvanized		
22 564	Weather protection for submersible pump with fittings		
26 046	Emergency stop button, without ex-protection		
26 041	Emergency stop button, with ex-protection		
22 030	X-ray test of welding seams (10%)		
22 830	Commissioning of the complete filling station with dispenser, type 420 with card system and ticket printer at site, as well as training of the service personnel, invoicing will be made according to the actual FAS motor up installation terms (see also page 74)		



Compact filling station without dispensing system for fuel gas / AUTOGAS complete with LPG storage tank and following fittings / equipment mounted on a base frame, including pipework, primed and painted

- Tank shut-off valve PN 40, inspection certificate 3.1.B
- Strainer PN 40, inspection certificate 3.1.B
- Safety relief valve, setting pressure 25 bar, with TÜV-approval
- Ex-proof solenoid valve, PN 40, 230V / 50Hz, inspection certificate 3.1.B
- Ex-proof flow detector with analysing device
- LPG pump with ex-motor 230/400V / 50Hz with expansion valve and pressure gauge
- External by-pass valve PN 25, test report 2.2
- Ball valve PN 40 in by-pass line, with open lead seal,
- Angle valve or plug 3/4" NPT on inspection flange
- Output pressure line ball valve PN 40, inspection certificate 3.1.B
- Including fire protection sheet, galvanized
- Including TÜV-approval with construction, pressure and tightness test (without electro-TÜV approval)
- Pipeline liquid phase completely welded



- Type A = with BLACKMER pump unit with **mechanical seal**, capacity approx. 50 l/min, Ex-Motor 2,0 kW
 Type B = with FAS pump unit with **mechanical seal**, capacity approx. 50 l/min, Ex-Motor 3,3 kW
 Type C = with side channel pump unit with **mechanical seal**, capacity approx. 50 l/min, Ex-Motor 3,3 kW

Order No.	Order No.	Order No.	Tank size
Type A	Type B	Type C	
22 558	22 561	22 xxx	2700 litres
22 559	22 562	22 xxx	4850 litres
22 560	22 563	22 xxx	6400 litres

Compact filling station without dispensing system, additional equipment and options:

Order No.	Execution	Order No.	Execution
22 033	Hot galvanized steel frame, tank size 2700 litres for	22 063	Electrical control cubicle with control transformer
22 034	Hot galvanized steel frame, tank size 4850 litres		installation inside the building and outside of the protection zone, for connection to dispenser, pump motor capacity up to 5 kW, solenoid valve, flow detector and emergency stop button
22 035	Hot galvanized steel frame, tank size 6400 litres		
22 857	2 stairs with holding device, completely galvanized		
22 048	Sun protection shed made of aluminium sheet	22 055	Commissioning of the compact filling station at site, as well as training of the service personnel, charges according to km-tariff scale
26 041	Emergency stop button, with ex-protection	22 030	X-ray test of welding seams (10%)
26 046	Emergency stop button, without ex-protection		
22 065	Freight charges according to km-tariff scale, compact filling station, unloaded, without packing charges for dispenser		

Separate dispenser installation, additional equipment and options:

Order No.	Execution	Order No.	Execution
22 371	Electronic dispenser, type FAS-120	22 090	Base frame dispenser type FAS-120, galvanized (other dispensers or hose cabinet without counter possible, see also pages 71 - 74 on request)
15 614	Safety relief valve, 1/2" NPT, setting pressure 25 bar		
15 332	Adapter for blowing-off line of safety relief valve		
22 299	calibration test for each piston meter		

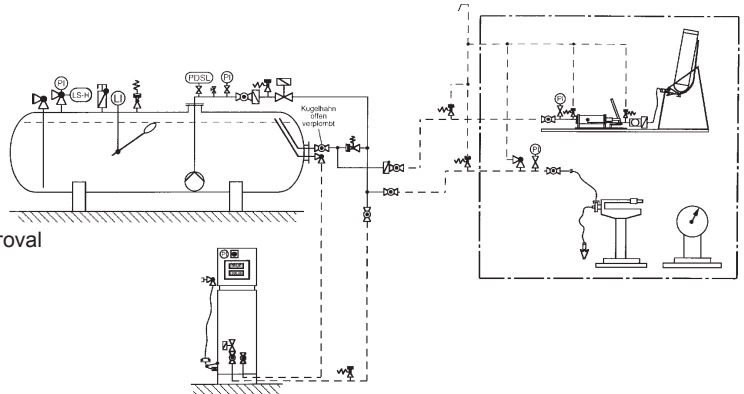


Further executions on request.

»22« **LPG Dispensers
Fuel Gas / AUTOGAS Filling Stations
Compact LPG Filling Stations**

Compact filling station without dispensing system for fuel gas / AUTOGAS or/and cylinder filling
complete with LPG storage tank and following fittings / equipment mounted on a base frame, including pipe-work, primed and painted

- **Submersible pump, 21 stages**, with ex-motor, 2,2 kW, 400V / 50Hz, capacity approx. 50 l/min with 8,0 bar differential pressure, with pressure line system and ex-proof connecting box
- Differential pressure switch as protection to dry run including isolating switch amplifier
- Expansion valve and pressure gauge
- Ball valve DN 25 PN 40, inspection certificate 3.1.B
- Strainer DN 25 PN 40, inspection certificate 3.1.B
- Safety relief valve, setting pressure 25 bar, with TÜV-approval
- Ex-proof solenoid valve DN 25 PN 40, 230V / 50Hz, inspection certificate 3.1.B
- External by-pass valve PN 25, test report 2.2
- Ball valve PN 40 in by-pass line, with open lead seal
- Angle valve or plug 3/4" NPT on inspection flange
- Output pressure line ball valve DN 25 PN 40, inspection certificate 3.1.B
- Including TÜV-approval with construction, pressure and tightness test (without Electro-TÜV approval)
- Pipeline liquid phase completely welded



Order No.	Tank size
22 441	2700 litres
22 442	4850 litres
22 443	6400 litres

Compact filling station without dispensing system, additional equipment and options:

Order No.	Execution	Order No.	Execution
26 041	Emergency stop button, with ex-protection	22 715	Electrical control cubicle with control transformer for installation inside the building and outside of the protection zone, for connection of pump motor up to 5 kW, solenoid valve, differential pressure switch, ON/OFF-switch and emergency stop button
26 046	Emergency stop button, without ex-protection	22 067	Electrical control cubicle with control transformer for installation inside the building and outside of the protection zone, for connection of dispenser, pump motor up to 5 kW, solenoid valve, differential pressure switch and emergency stop button
26 042	ON-OFF switch, with ex-protection	22 710	Electrical control cubicle with control transformer for installation inside the building and outside of the protection zone, for connection of dispenser, ON/OFF-push button, pump motor up to 5 kW, solenoid valve, differential pressure switch and emergency stop button
22 030	X-ray test of welding seams (10%)		
22 564	Weather protection shed for submersible pump with fittings		
22 065	Freight charges according to km-tariff scale, compact filling station unloaded (without packing charges for scale and dispenser)		
22 055	Commissioning of the complete filling station at site, as well as training of the service personnel, charges according to km-tariff scale		

Separate dispenser installation, additional equipment and options:

Order No.	Execution	Order No.	Execution
22 371	Electronic dispenser, type 120 (other dispensers or hose cabinet without counter possible, see also pages 71 - 74 on request)	22 090	Base frame dispenser type 120 , galvanized
22 299	Calibration test for each piston meter	15 614	Safety relief valve , 1/2" NPT, setting pressure 25 bar
22 429	Second ball valve DN 25 in outlet compact filling station	15 332	Adapter for blowing-off line of safety relief valve
		22 696	Solenoid valve , ex-proof, in dispenser inlet, incl. installation

Dispensing system cylinder filling plant, additional equipment and options:

Order No.	Execution	Order No.	Execution
23 001	Mechanical filling scale , weighing capacity 105 kg (other filling scale, e.g. table filling scale up to 42 kg possible, see page 84 or on request)	15 614	Safety relief valve 1/2" NPT, setting pressure 25 bar
23 008	Filter for filling scale W 21,8 x 1/4" left male/female	15 332	Adapter for blowing-off line of safety relief valve
23 055	Holding device for mechanical filling connection	19 441	Angle valve 3/4" NPT
23 009	LPG 10-high pressure hose , with a length of 1,75 m, W 21,8 x 1/4" left, with connections on both sides,	17 152	Pressure gauge shut-off valve G 1/2"
23 015	Mechanical filler connection W 21,8 x 1/4" left	17 013	Pressure gauge 0 - 25 bar, G 1/2", liquid-filled
23 011	Check scale , 2 - 100 kg, for separate installation, suitable for calibration	17 089	Weld nipple G 1/2" left for pressure gauge
23 012	Charges for calibration test check scale	17 077	Copper seal for pressure gauge G 1/2"
		17 080	Barrel nut for pressure gauge, G 1/2" right/left
		19 251	Ball valve 1/2" female NPT, inspection certificate 3.1.B
		10 154	Adapter 1/2" male NPT-W 21,8 x 1/4" male left
		27 555	Filling instructions for LPG cylinders, DIN A2

Evacuation unit for defect or overfilled cylinders, additional equipment and options:

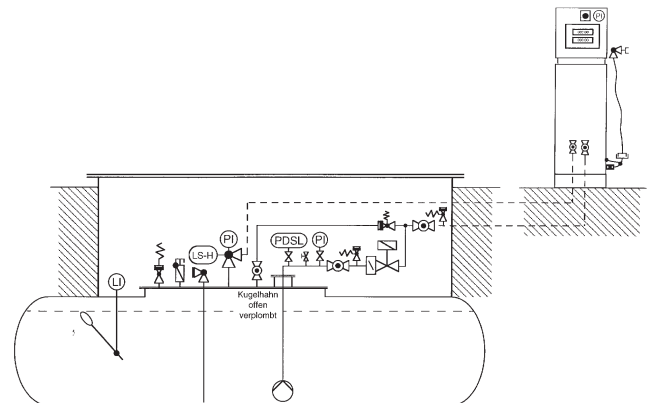
Order No.	Execution	Order No.	Execution
23 058	Cylinder evacuation unit with hand pump complete with tubular steel frame for one cylinder on robust base frame	15 332	Adapter for blowing-off line of safety relief valve
15 614	Safety relief valve , 1/2" NPT, setting pressure 25 bar	22 125	Additional connection with ball valve and back pressure check valve DN 15 on the compact filling station for return line, completely mounted

Further executions and additional equipment on request.

»22« **LPG Dispensers
Fuel Gas / AUTOGAS Filling Stations
Compact LPG Filling Stations**

Compact filling station without dispensing system for fuel gas / AUTOGAS or/and cylinder filling complete with an underground LPG storage tank with outside epoxy resin coating and following fittings / equipment, mounted in manhole, including pipework, primed and painted

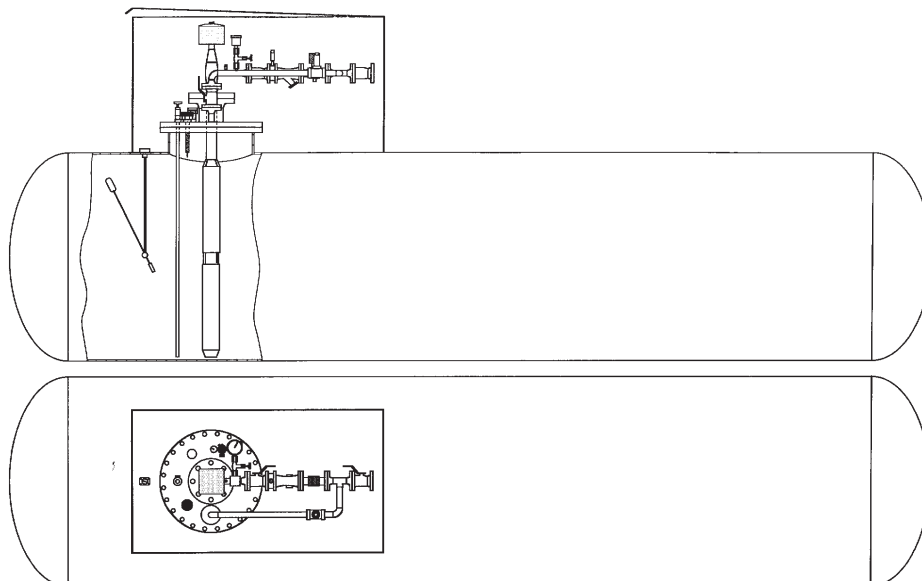
- **Submersible pump, 21 stages**, with ex-motor, 2,2 kW, 400V / 50Hz, capacity approx. 50 l/min with 8,0 bar differential pressure, with pressure line system and ex-proof connecting box
- Differential pressure switch as protection to dry run including isolating switch amplifier
- Expansion valve and pressure gauge
- Ball valve DN 25 PN 40, inspection certificate 3.1.B
- Strainer DN 25 PN 40, inspection certificate 3.1.B
- Safety relief valve, setting pressure 25 bar, with TÜV-approval
- Ex-proof solenoid valve DN 25 PN 40, 230V / 50Hz, inspection certificate 3.1.B
- External by-pass valve PN 25, test report 2.2
- Ball valve PN 40 in by-pass line, with open lead seal
- Connection vapour return line dispenser on vapour discharge valve (connection POL-female)
- Connection liquid phase ball valve DN 25 PN 40, with inspection certificate 3.1.B
- Including TÜV-approval with construction, pressure and tightness test (without Electro-TÜV approval)
- Pipeline liquid phase completely welded



Order No.	Tank size
22 527	4850 litres
22 528	6400 litres

Compact filling station without dispensing system, additional equipment and options:

Order No.	Execution	Order No.	Execution
26 041	Emergency stop button, with ex-protection	22 715	Electrical control cubicle with control transformer for installation inside the building and outside of the protection zone, for connection of pump motor up to 5 kW, solenoid valve, differential pressure switch, ON/OFF-switch and emergency stop button
26 046	Emergency stop button, without ex-protection		
26 042	ON-OFF switch, with ex-protection		
22 030	X-ray test of welding seams (10%)		
22 065	Freight charges according to km-tariff scale, compact filling station unloaded (without packing charges for scale and dispenser)	22 067	Electrical control cubicle with control transformer for installation inside the building and outside of the protection zone, for connection of dispenser, pump motor up to 5 kW, solenoid valve, differential pressure switch and emergency stop button
22 055	Commissioning of the complete filling station at site, as well as training of the service personnel, charges according to km-tariff scale	22 710	Electrical control cubicle with control transformer for installation inside the building and outside of the protection zone, for connection of dispenser, ON/OFF-push button, pump motor up to 5 kW, solenoid valve, differential pressure switch and emergency stop button



Additional equipment and options for dispensing system like dispenser and cylinder filling plant, as well as for a cylinder evacuation unit for defect or overfilled LPG cylinders see page 81 or on request. Subject to technical alterations. Further executions and additional equipment on request.

»22« **LPG Dispensers
Fuel Gas / AUTOGAS Filling Stations
Compact LPG Filling Stations**

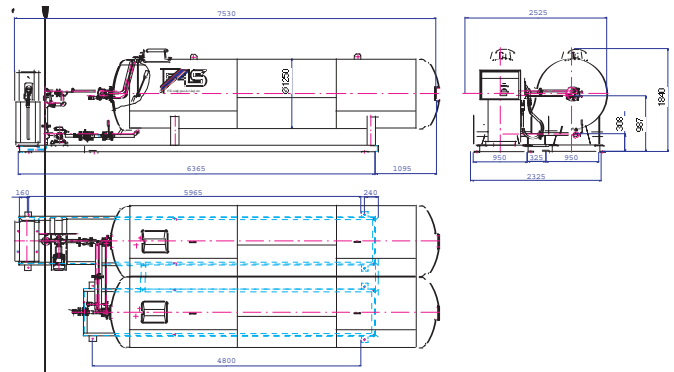


Fuel gas / AUTOGAS filling station with metering system, as well as with all necessary fittings and additional components, completely mounted on a base frame, primed and painted

Execution according to the specifications and regulations of the corresponding countries

Different types of construction for LPG storage tanks with a capacity of 2.700 litres - 4.850 litres - 6.700 litres. Filling stations with more tanks or other tank capacities available on request.

- with one, two or three LPG storage tanks
- with mechanical dispenser, type FAS-110 or FAS-210
- with electronic dispenser, type FAS-120, FAS-220 or FAS-240
- with electronic double hose dispenser, type FAS-230
- with electronic dispenser, type FAS-420 with combined card system and ticket printer
- with tankdata processing software, type FAS-400 for separate installation
- separate installation of the dispenser(s) on separate base frame
- separate installation of the dispenser(s) and of the pump system with all necessary fittings mounted on a separate base frame
- additional connections for a second, separately installed dispenser
- additional connections for storage tank filling from road tankers (filling and vapour displacement connection)
- additional connections for LPG cylinder filling plant and cylinder evacuation unit (for defect and overfilled cylinders)



Select your corresponding application and contact us for further information.

Cylinder Filling Unit in Compact Construction completely installed and mounted

Execution with steel-container consisting of:

- outside: 2,99 x 2,44 x 2,59 m (length x width x height)
- inside: 2,83 x 2,34 x 2,37 m (length x width x height)
- all-steel design with fork lift truck pockets, wooden floor,
- two-leaf steel sheet door with massive lock bail, door rubber seal, forced ventilation

Completion of the interior equipment

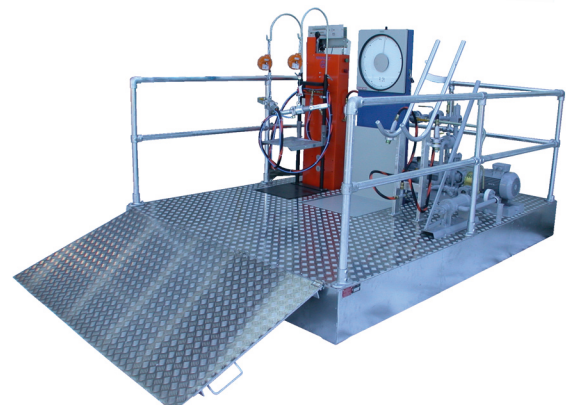
- Filling scale for LPG cylinders with filling hose and filler connection
- Check scale, suitable for calibration
- Cylinder evacuation unit for defect and overfilled cylinders with hand-operated pump and tubular steel frame for pick-up of LPG cylinders (not tilting)
- Complete with all necessary fittings, such as ball valves, sight flow indicator, strainer, safety relief valves and pressure gauges, including pipework and installation

Electronic installation

- 1 piece ex-proof fluorescent lamp (2 x 36 W)
- 1 piece ex-proof light switch
- 1 piece ex-proof ON/OFF push button
- completely mounted and cabled

Execution without Steel Container consisting of:

- without Electronic installation
- otherwise as steel-container version



Further construction variations and executions according to the specifications and regulations of the corresponding countries on request.