Data sheet

ETLZ065-065-250 GGSAV11D200154 BSIEIE3 PD2EM
Inline pump

Operating data

Requested flow rate		Actual flow rate	24.00 m³/h
Requested developed head		Actual developed head	12.00 m
Pumped medium	Water Clean water	Efficiency	59.6 %
Pumped medium details	Not containing chemical and mechanical substances which affect the materials	MEI (Minimum Efficiency Index)	≥ 0.70
		Power absorbed	1.32 kW
		Pump speed of rotation	1452 rpm
Max. ambient air temperature	20.0 °C	NPSH required	1.18 m
Min. ambient air temperature	20.0 °C	Permissible operating pressure	16.00 bar.g
Fluid temperature	11.0 °C		
Fluid density	999 kg/m³	Discharge press.	1.18 bar.g
Fluid viscosity	1.29 mm²/s	Shutoff head	13.85 m
Suction pressure max.	0.00 bar.g	Min. allow. flow for continuous stable operation	5.67 m³/h
Mass flow rate	6.66 kg/s		
Max. power on curve	1.85 kW	Min. allow. mass flow for continuous stable operation	1.58 kg/s
Max. allow. mass flow	14.94 kg/s		
		Design	Twin system one full duty + one standby pump Tolerances to ISO 9906 Class 3B; below 10 kW acc. to paragraph 4.4.2

Design

Pump standard	Without	Material code	BQ1EGG-WA
Design	Close coupled twin inline	Shaft seal code	11
Orientation	Vertical	Sealing plan	Single-acting mechanical seal with vented chamber (A-type casing cover, taper bore)
Suction nominal dia.	DN 65		
Suction nominal pressure	PN 16		
Suction position	180° (down)	A liquid free of solids is assumed	
Suction flange drilled according to standard	EN1092-2	Seal chamber design	Conical seal chamber (A-type cover)
Discharge nominal dia.	DN 65	Contact guard	With
Discharge norminal pressure	PN 16	Wear ring	Casing wear ring
Discharge position	top (0°/360°)	Impeller diameter	198.0 mm
Discharge flange drilled according to standard	EN1092-2	Free passage size	10.0 mm
		Direction of rotation from drive	Clockwise
Surface type	Flat face	Bearing bracket construction	Close-coupled
Flanges DN 65 will be drilled with 4 holes		Bearing bracket size	25
Shaft seal	Single acting mechanical seal	Bearing type	Anti-friction bearings
Shaft seal manufacturer	KSB	Lubrication type	Grease
Shaft seal type	1	Color	Vermilion (RAL 2002)

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Driver, accessories

Driver type	Electric motor	Cos phi at 4/4 load	0.80
Drive standard mech.	IEC	Motor efficiency at 4/4 load	85.3 %
Model (make)	Siemens	Temperature sensor	1 PTC resistor
Drive supplied by	Standard motor supplied by KSB - mounted by KSB	Terminal box position	0° same orientation Viewed from the drive
Motor const. type	V1	Motor winding	230 / 400 V
Motor size	90L	Number of poles	4
Efficiency class	Efficiency class IE3 acc. to IEC60034-30-1	Connection mode	Star
		Motor cooling method	Surface cooling
Motor speed	1452 rpm	Motor material	Aluminium
Frequency	50 Hz	Frequency inverter operation allowed	FI allowed
Designed for operation with frequency inverter	Yes		
		Motor noise pressure level	56 dBa
Rated voltage	400 V	CE-approval	Yes
Rated power P2	1.50 kW	Condensat drain motor	Yes
Available reserve	14.01 %	Ambient temperature	40
Rated current	3.1 A	Max. absolute humidity	30
Starting current ratio	7.2	Temp. sensor mtr. bearing	Without
Insulation class	F to IEC 34-1		
Motor enclosure	IP55		

Materials G

Notes 1
General criteria for a water analysis: pH-value >= 7; chloride content (Cl) <=250 mg/kg. Chlorine (Cl2) <=0.6 mg/kg.

Volute casing (102)	Grey cast iron EN-GJL-250/A48CL35B	Casing wear ring (502.1)	Grey cast iron GG/CAST IRON
		Casing wear ring (502.2)	Grey cast iron GG/CAST IRON
Casing cover (161)	Grey cast iron EN-GJL-250/A48CL35B	Disc (550)	Steel ST
		Stud (902)	Steel 8.8
Shaft (210)	Tempered steel C45+N	Nut (920)	8+A2A/ 8+B633 SC1 TP3
Impeller (230)	Grey cast iron EN-GJL-250/A48CL35B	Impeller nut (922)	Steel 8
		Key (940)	Steel C45+C / A311 GR 1045 CLASS A
Motor stool (341)	Grey cast iron EN-GJL-250/A48CL35B	Pipe line (700)	Steel ST
Flat gasket (400)	DPAF seal plate asbestos free		
Joint ring (411)	Steel ST		

FOOT 85X 50X 60

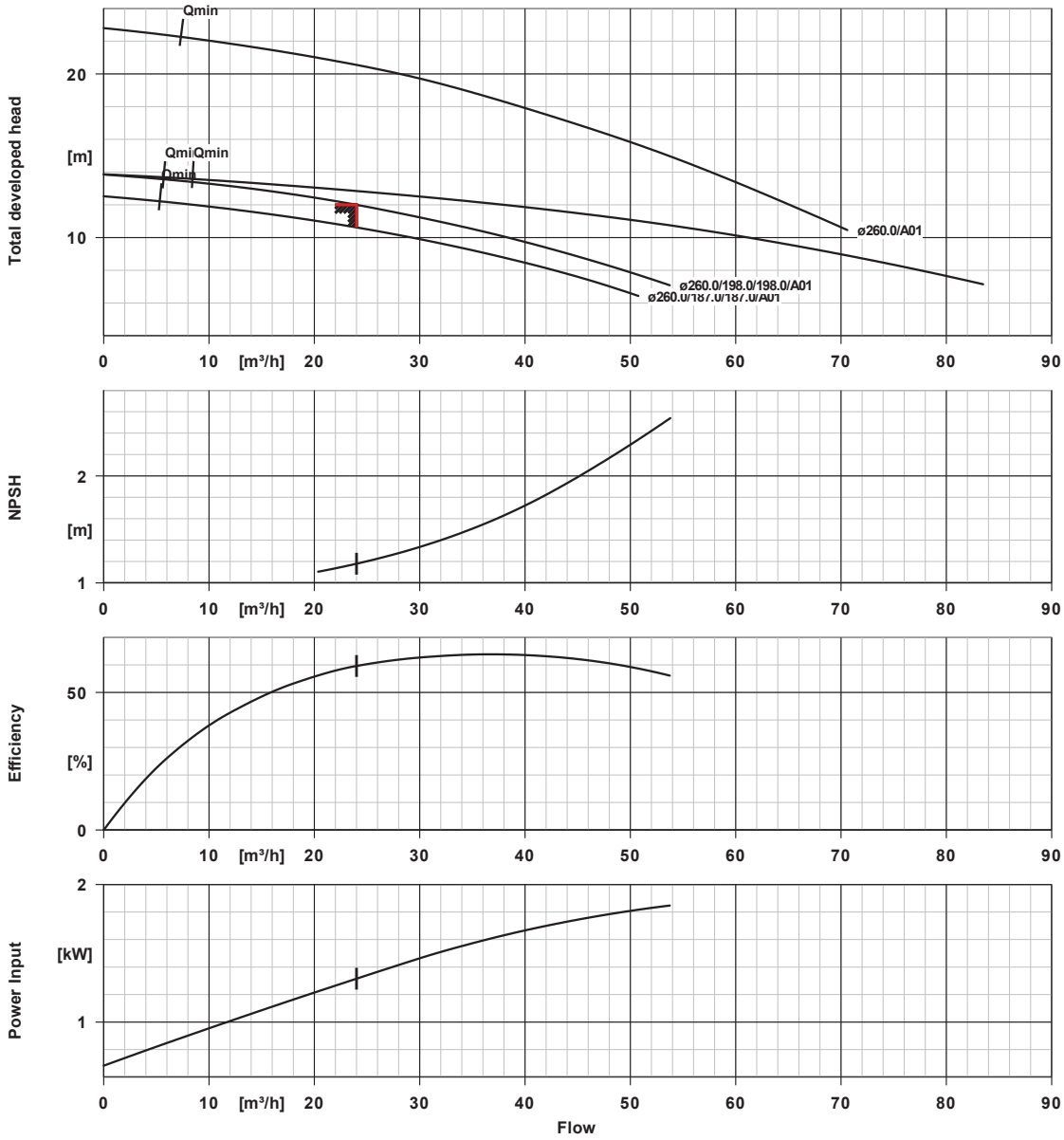
3 pump feet with bolts for vertical installation
Pump foot for vertical installation
Etaline(Z) 32-160/ up to 100-160/

Pump foot, not for Etaline SY
Weight : 2,0 kg

Material no 47077960

Performance curve

ETLZ065-065-250 GGSAV11D200154 BSIEIE3 PD2EM
Inline pump



Curve data

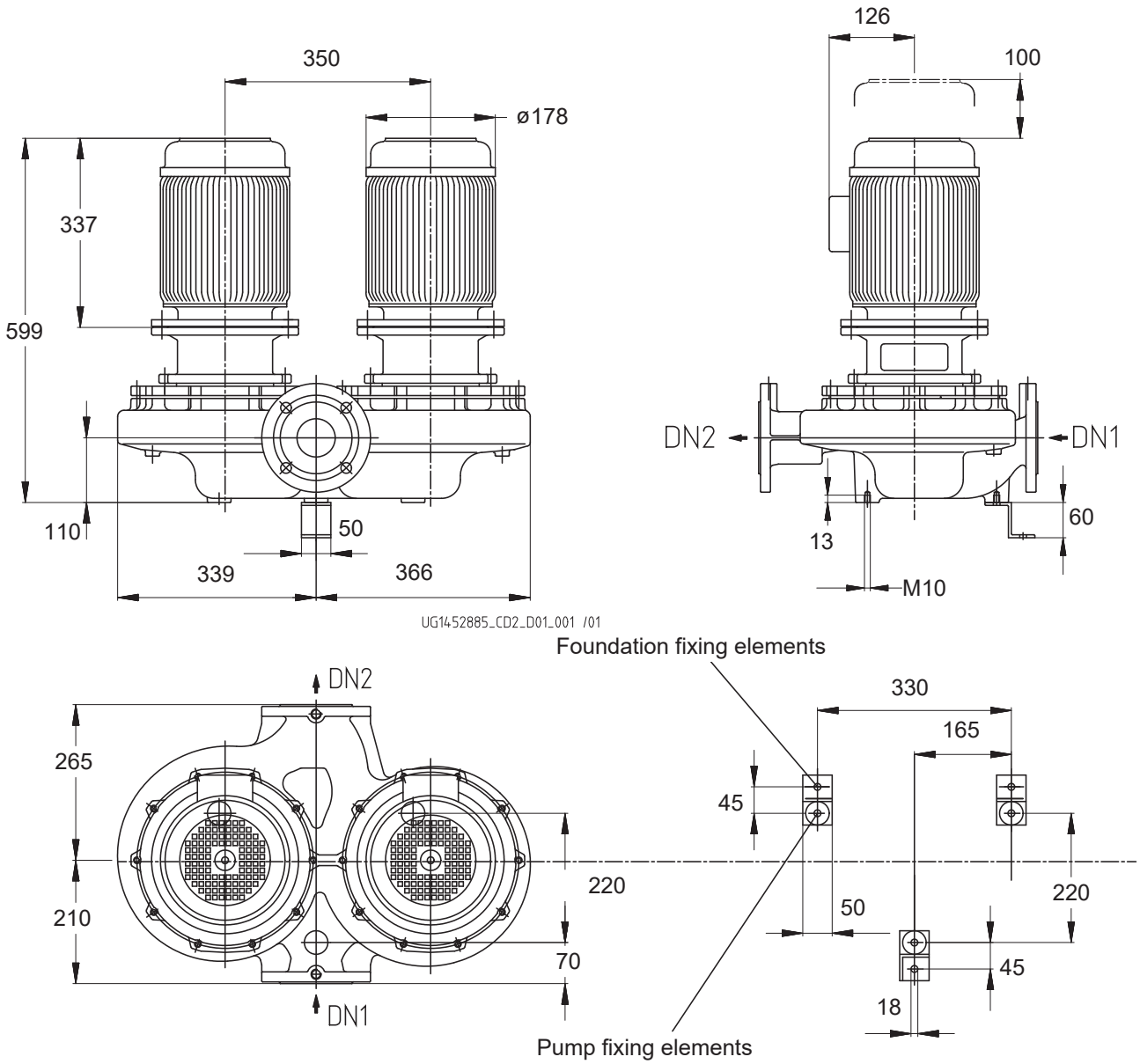
Speed of rotation	1452 rpm
Fluid density	999 kg/m³
Viscosity	1.29 mm²/s
Flow rate	24.00 m³/h
Requested flow rate	24.00 m³/h
Total developed head	12.00 m
Requested developed head	12.00 m

Efficiency	59.6 %
MEI (Minimum Efficiency Index)	≥ 0.70
Power absorbed	1.32 kW
NPSH required	1.18 m
Curve number	K1161.454/33
Effective impeller diameter	198.0 mm
Acceptance standard	Tolerances to ISO 9906 Class 3B; below 10 kW acc. to paragraph 4.4.2

Installation plan

ETLZ065-065-250 GGSAV11D200154 BSIEIE3 PD2EM

Inline pump



Drawing is not to scale

Dimensions in mm

Installation plan

ETLZ065-065-250 GGSAV11D200154 BSIEIE3 PD2EM
Inline pump

Motor

Motor manufacturer	Siemens
Motor size	90L
Motor power	1.50 kW
Number of poles	4
Speed of rotation	1452 rpm
Position of terminal box	0° same orientation Viewed from the drive

Connections

Suction nominal size DN1	DN 65 / EN1092-2
Discharge nominal size DN2	DN 65 / EN1092-2
Nominal pressure suct.	PN 16
Rated pressure disch.	PN 16

Flanges DN 65 will be drilled with 4 holes

Weight net

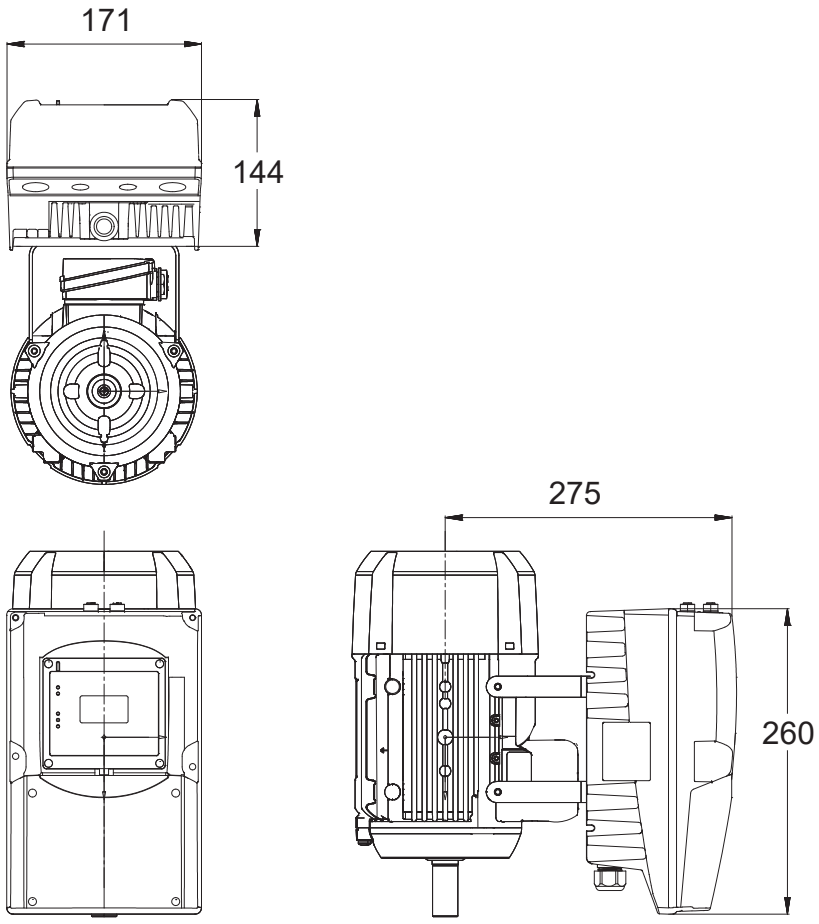
Pump	112 kg
Motor	38 kg
Other accessories	2 kg
Total	152 kg

Connect pipes without stress or strain!

For auxiliary connections see separate drawing.

Supplementary drawing for PumpDrive

ETLZ065-065-250 GGSAV11D200154 BSIEIE3 PD2EM
Inline pump



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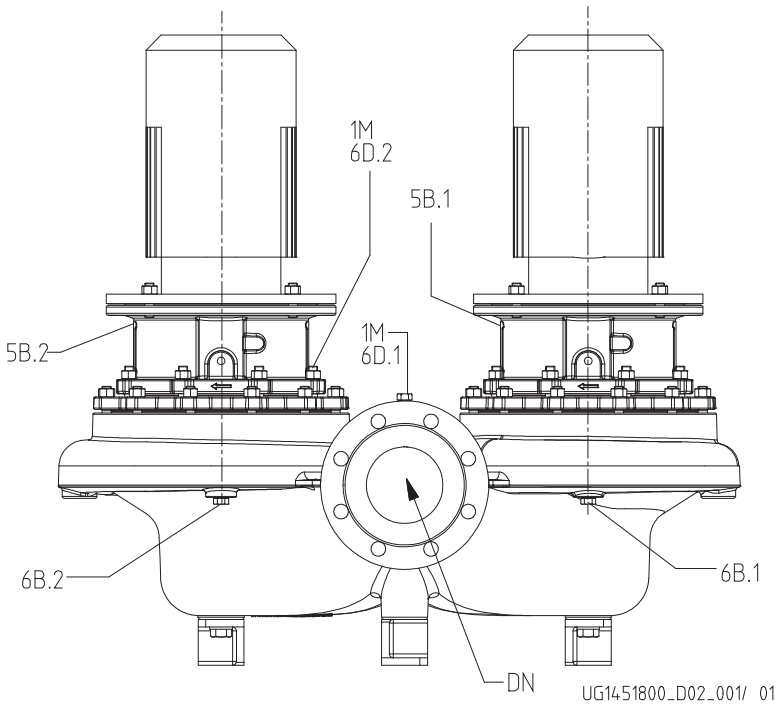
Inline pump



Connections

Pump casing variant		XX46
1M.1 Pressure gauge connection	G 1/4	Pressure sensor for PumpMeter fitted
1M.2 Pressure gauge connection	G 1/4	Pressure sensor for PumpMeter fitted
6B.1 Pumped liquid drain	G 1/4	Drilled and plugged.
6B.2 Pumped liquid drain	G 1/4	Drilled and plugged.
6D.1 Pumped medium - filling/venting	G 1/4	Drilled and plugged.
6D.2 Pumped medium - filling / venting	G 1/4	Drilled and plugged.
5B.1 venting	G 1/4	Closed with venting plug
5B.2 venting	G 1/4	Closed with venting plug

PumpMeter

Intelligent Pressure Transmitter PumpMeter - with on-site display of operating point

General description:

PumpMeter in an intelligent pressure transmitter with on-site display of measurement values and operating data of the pump. It comes factory-provided completely assembled and parameterised for your individual pump, to be connected via M12 connector and immediately ready to operate. PumpMeter records the pumps load profile during operation in order to – if applicable – provide information on the potential for energy savings or increased availability.

On-site display unit:

Backlit display unit for on-site display of measurement values and operating data of pump with intuitive and internationally comprehensible icons, rotatable in steps of 90 °.

Display values:

suction pressure, pressure at inlet of pump in bar, gauge pressure
discharge pressure, pressure at outlet of pump in bar, gauge pressure
differential pressure between in- and outlet of pump in bar
qualitative indication of operating point

Connection of display unit via connector (M12 x 1, 5-pin for power supply and utilization of communication interface. Making alternatively available:
measurement value of discharge pressure via analogue signal 4 … 20 mA
calculated value of differential pressure via analogue signal 4 … 20 mA
all display values via serial interface RS 485 (Modbus RTU).
Service interface RS232 for parameterisation.
Factory provided parameterisation for individual pump.

Sensors:

Two gauge pressure transmitters, one each factory provided on both, inlet and discharge side of pump. Connected to display unit via connector.

Accuracy of measurement (sum of errors; relating to measurement range):

±1% for fluid temperature -10 … 100 °C

±2.5% for fluid temperature -30 … -10 °C and 100 … 140 °C

Material of measuring cell: stainless steel (no internal gasket)

Available measurement ranges:

-1 ...10 bar (gauge pressure)

-1 ...10 bar (gauge pressure)

Ambient conditions:

Type of protection: IP 65

Ambient temperature:
-30°C … 80°C (during transport, storage)
-10°C … 60°C (operation)

Fluid temperature: -30°C … 140°C

Scuff resistance:
Ultraviolet resistance (outdoor installation)
Resistance to most cleaning agents
Resistance to oil mist

Silicone free:
No detrimental to paint adhesion

Electric data:

Power supply:
24V DC ± 10%, min. 140 mA
Interfaces, alternatively utilisable:
4 … 20 mA, 3-conductor (discharge pressure or differential pressure)
RS485, Modbus RTU (Slave)
Service interface: RS232
EMC:
EN 61326 (Immunity: industrial environment, Emissions: applicable in home and building environment)

PDRV2E_001K10M_S1LE1E3P4_MOOOO

PumpDrive 2

Modular, self-cooling frequency inverter enabling continuously variable speed control of asynchronous and synchronous reluctance motors.

Design concept of control unit	PumpDrive 2 Eco
Display type	With standard control panel
Rated power	1.10 kW
Max. allowed current	3.5 A
M12 module	With
Remote operation	Without
Mounting	MM - Mounted on the motor

Weight	4 kg
PumpDrive length	260.0 mm
PumpDrive width	171.0 mm
PumpDrive height	144.0 mm
Manufacturer	KSB
PumpDrive adapter	Yes
Designation	PDRV2_SIZEA_BG90

Characteristic

Mains voltage: 3 ~ 380 V AC -10% to 480 V AC +10 %
Mains frequency: 50 - 60 Hz +/- 2%
Interference suppression class: <= 11 kW: EN 61800-3 C1 / EN 55011 Class B / cable length <= 5 m
Internal power supply: 24 V +/- 10 %, max. 600 mA DC
Service interface: optical
2 analog inputs, 0/2-10 V or 0/4-20 mA
1 analog output, 0-10 V or 4-20 mA
Digital inputs:
1 hardware enable input
3 parameterisable inputs
Relay output: 2 NO contacts, parameterisable

Environment:
IP 55 enclosure (acc. EN 60529)
Ambient temperature: -10 to 50 °C
Rel. humidity in operation: 5 % to 85 % (non-condensing)
Note regarding Outdoor installation: Provide the frequency inverter with suitable protection when installed outdoors to prevent condensation on the electronic equipment and exposure to excessive sunlight.

Housing:
Heat sink: die-cast aluminium
Housing cover: Polyamid, glass fibre reinforced
Control panel: Polyamid, glass fibre reinforced

Protective functions:
- Full protection by means of overcurrent limitation and PTC thermistor monitoring
- Automatic speed reduction at overload and excessive temperatures. Protection against phase failure motor side, short-circuit monitoring motor side (phase to phase and phase to earth), overvoltage/undervoltage
- Protection against motor overload
- Suppression of resonant frequencies
- Cable integrity monitoring (live zero)
- Protection against dry running and hydraulic blockage (sensorless via learning function)
- Characteristic curve control

Open/closed-loop control
- Open-loop control via analog input, display or fieldbus
- Closed-loop control mode via integrated PID controller
- Controlled variables: pressure, differential pressure delta-p (constant) or delta-p (variable), temperature, level control, flow rate
- Sensorless differential pressure control (Δp const) in a single-pump configuration
- Sensorless differential pressure control with dynamic pressure compensation (Δp var) in a single-pump configuration
- Sensorless flow rate control

PDRV2E_001K10M_S1LE1E3P4_MOOOO

- Functional check run

Operation and display:
- Operating point estimation (Q, H)
- Optical service interface for connection to KSB Service Tool

PumpDrive functions:
- Programmable start and stop ramps
- Field-oriented control (vector control) with selectable motor control method (ASM, SuPremE)
- Automatic motor adaptation (AMA)
- Manual-0-automatic operation
- Sleep mode (stand-by mode)

Installation options:
- M12 module for bus connection of PumpMeter and for multiple pump operation of up to six pumps
- Wireless module for communication with a Smartphone
- Field bus module Modbus RTU, as an alternative to the M12 module.

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