Data sheet

ETLZ032-032-200 GGSAV11D200224 BKSBIE4 PD2EM
Inline pump

Operating data

Requested flow rate		Actual flow rate	17.50 m³/h
Requested developed head		Actual developed head	11.40 m
Pumped medium	Water Clean water Not containing chemical and mechanical substances which affect the materials	Efficiency	34.2 %
		MEI (Minimum Efficiency Index)	≥ 0.70
		Power absorbed	1.59 kW
		Pump speed of rotation	1808 rpm
Max. ambient air temperature	20.0 °C	NPSH required	2.55 m
Min. ambient air temperature	20.0 °C	Permissible operating pressure	16.00 bar.g
Fluid temperature	20.0 °C		
Fluid density	998 kg/m³	Discharge press.	1.12 bar.g
Fluid viscosity	1.00 mm²/s	Min. allow. mass flow for continuous stable operation	0.48 kg/s
Suction pressure max.	0.00 bar.g		
Mass flow rate	4.85 kg/s	Shutoff head	21.68 m
Max. power on curve	1.71 kW	Max. allow. mass flow	5.88 kg/s
Min. allow. flow for continuous stable operation	1.74 m³/h	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 32		
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 32	Contact guard	With
Discharge norminal pressure	PN 16	Wear ring	Casing wear ring
Discharge position	top (0°/360°)	Impeller diameter	204.0 mm
Discharge flange drilled according to standard	EN1092-2	Free passage size	5.3 mm
		Direction of rotation from drive	Clockwise
Surface type	Flat face	Bearing bracket construction	Close-coupled
Shaft seal	Single acting mechanical seal	Bearing bracket size	25
Manufacturer	KSB	Bearing type	Anti-friction bearings
Type	1	Lubrication type	Grease
		Color	Vermilion (RAL 2002)

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Inline pump

Driver, accessories

Driver type	Electric motor	Rated current	5.7 A
Drive standard mech.	IEC	Insulation class	F to IEC 34-1
Model (make)	KSB SuPremE®	Motor enclosure	IP55
Type series motor manufacturer	SuPremE C2 (with mounting plate for PumpDrive 2, non removable)	Cos phi at 4/4 load	0.68
		Motor efficiency at 4/4 load	89.5 %
		Temperature sensor	3 PTC resistors
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	400 V
Motor size	100L	Connection mode	Star
Efficiency class	Efficiency class IE4 acc. IEC/TS 60034-30-2 (2016) – free of magnets. The efficiency of the motor for a quadratic torque-speed characteristic is > 95% of the nominal efficiency even at 25% of the nominal power.	Motor cooling method	Surface cooling
		Motor material	Aluminium
		Driver colour	Same as the pump
		CE-approval	Yes
Speed control selection	Speed adjustment		
Frequency	50 Hz		
Designed for operation with frequency inverter	Yes		
Rated voltage	400 V		
Rated power P2	2.20 kW		
Available reserve	38.80 %		

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.

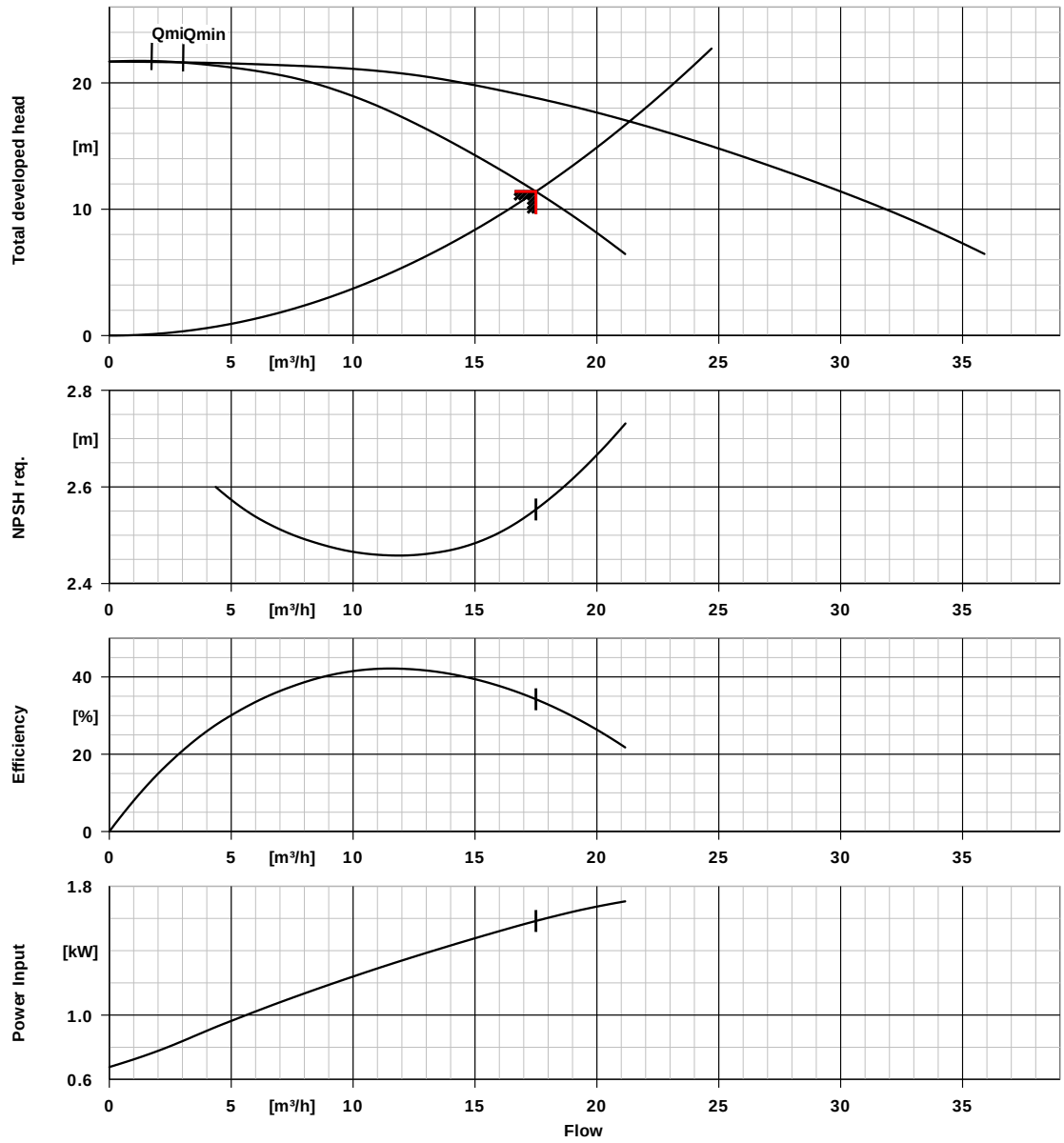
Volute casing (102)	Grey cast iron EN-GJL-250/A48CL35B	Casing wear ring (502.1)	Grey cast iron GG/CAST IRON
Casing cover (161)	Grey cast iron EN-GJL-250/A48CL35B	Casing wear ring (502.2)	Grey cast iron GG/CAST IRON
Shaft (210)	Tempered steel C45+N	Disc (550)	Steel ST
Impeller (230)	Grey cast iron EN-GJL-250/A48CL35B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

Nameplates

Nameplates language	International	Supplementary text	VDL PC 8

Performance curve

ETLZ032-032-200 GGSAV11D200224 BKSBIE4 PD2EM
Inline pump



Curve data

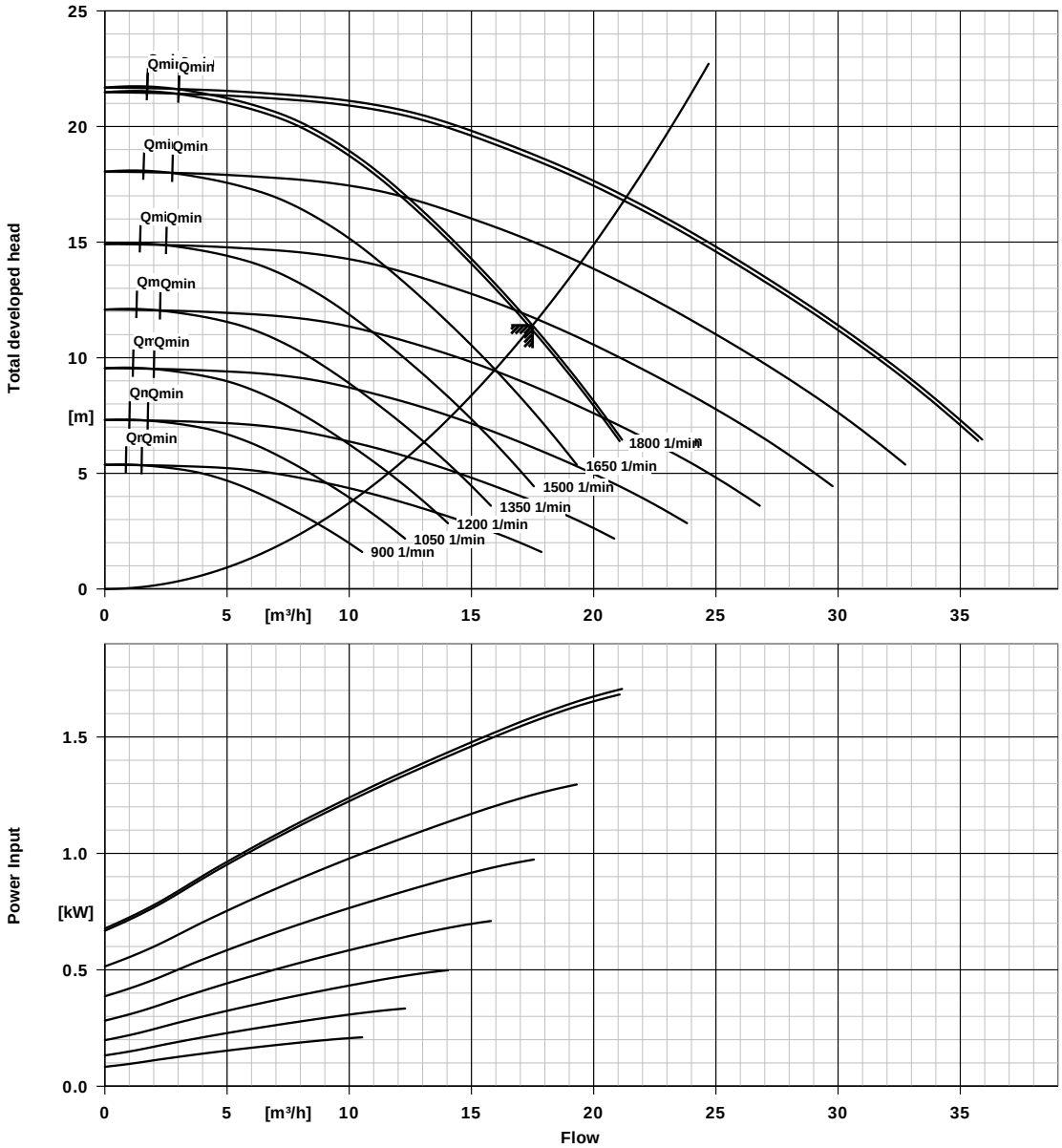
Speed of rotation	1808 rpm
Fluid density	998 kg/m³
Viscosity	1.00 mm²/s
Flow rate	17.50 m³/h
Requested flow rate	17.50 m³/h
Total developed head	11.40 m
Requested developed head	11.40 m

Efficiency	34.2 %
MEI (Minimum Efficiency Index)	≥ 0.70
Power absorbed	1.59 kW
NPSH required	2.55 m
Curve number	K1161.464/19
Effective impeller diameter	204.0 mm
Acceptance standard	Tolerances to ISO 9906 Class 3B; below 10 kW acc. to paragraph 4.4.2

Speed curve

ETLZ032-032-200 GGSAV11D200224 BKSBIE4 PD2EM

Inline pump



Curve data

Fluid density	998 kg/m³	Total developed head	11.40 m
Viscosity	1.00 mm²/s	Requested developed head	11.40 m
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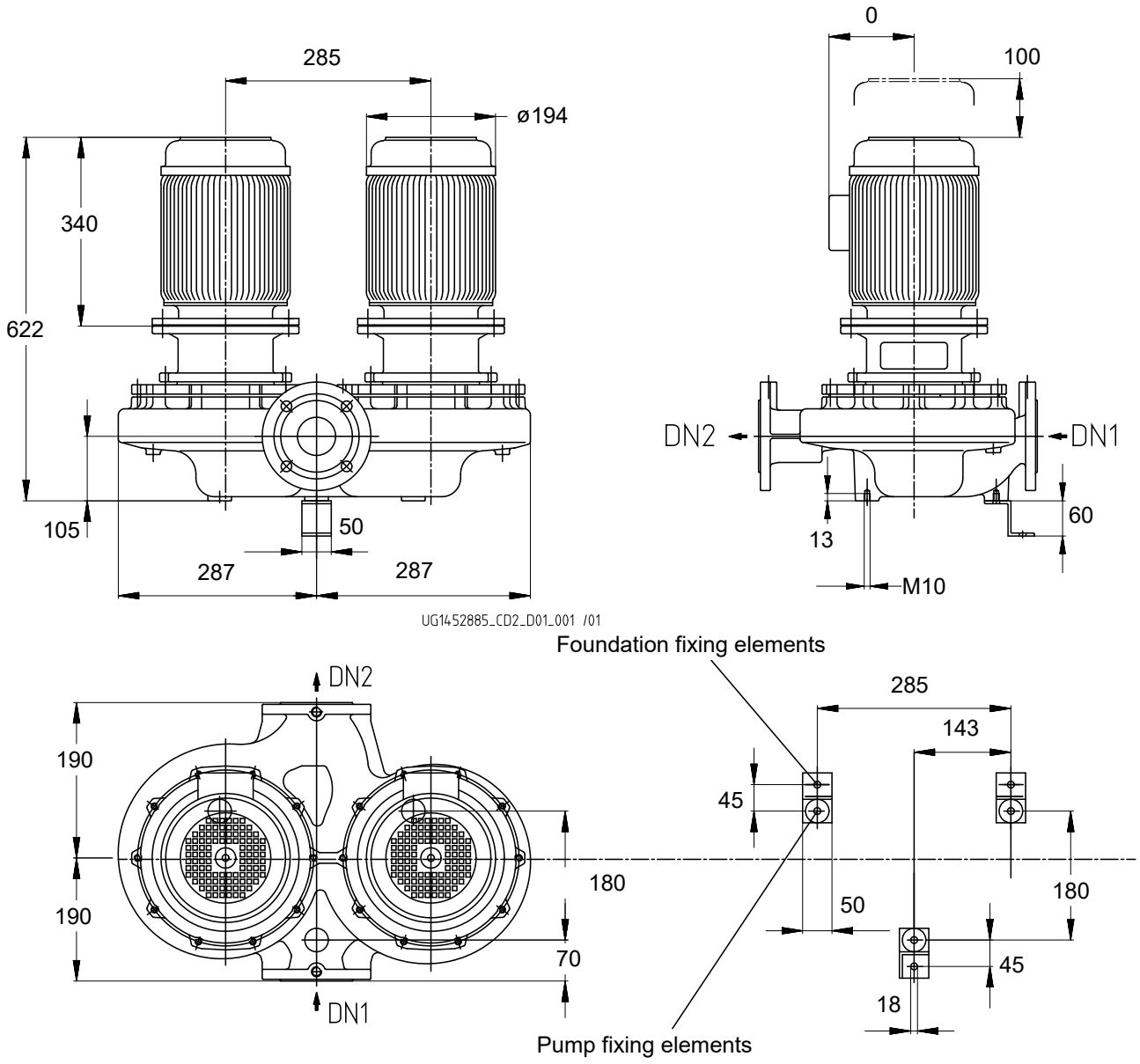
Inline pump



Drawing is not to scale

Dimensions in mm

Installation plan

ETLZ032-032-200 GGSAV11D200224 BKSBIE4 PD2EM
Inline pump

Motor

Motor manufacturer	KSB
Motor size	100L
Motor power	2.20 kW
Number of poles	4
Speed of rotation	1500 rpm
Position of terminal box	0° same orientation Viewed from the drive

Connections

Suction nominal size DN1	DN 32 / EN1092-2
Discharge nominal size DN2	DN 32 / EN1092-2
Nominal pressure suct.	PN 16
Rated pressure disch.	PN 16

Weight net

Pump	79 kg
Motor	48 kg
Total	127 kg

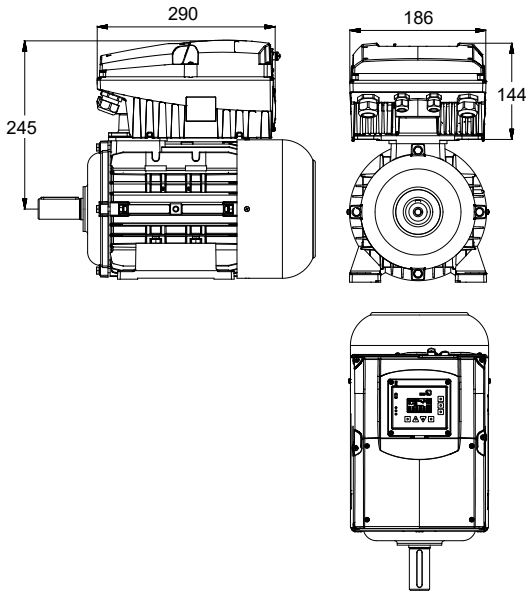
Connect pipes without stress or strain!

For auxiliary connections see separate drawing.

Supplementary drawing for PumpDrive

Installation plan

ETLZ032-032-200 GGSAV11D200224 BKSBIE4 PD2EM
Inline pump



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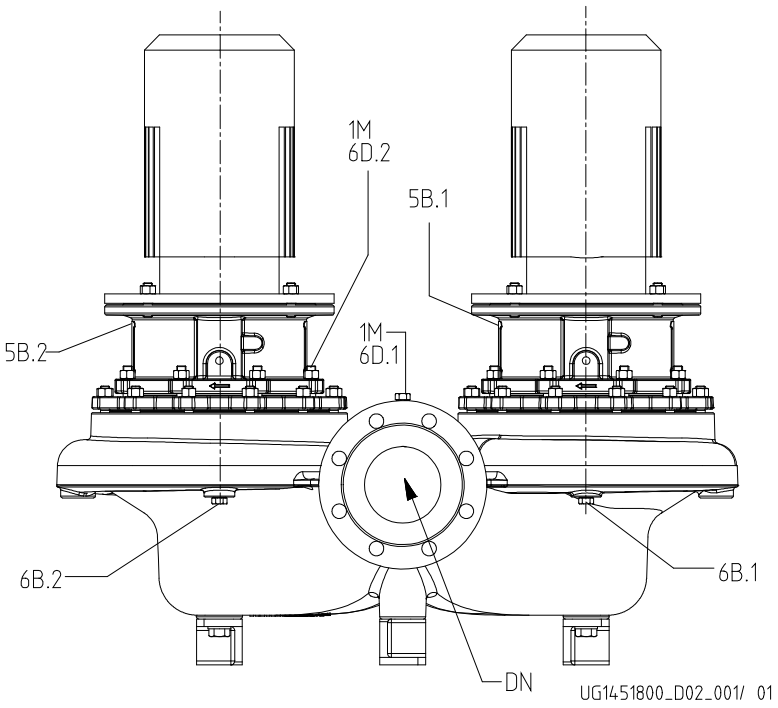
Connection plan

ETLZ032-032-200 GGSAV11D200224 BKSBIE4 PD2EM
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

PDRV2E_002K20M_KSUPBE4P4_OOOOO

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	2.20 kW
Max. allowed current	6.0 A
M12 module	Without
Remote operation	Without
Mounting	MM - Mounted on the motor

Weight	6 kg
PumpDrive length	290.0 mm
PumpDrive width	186.0 mm
PumpDrive height	144.0 mm
Manufacturer	KSB
PumpDrive adapter	No
Designation	-

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_002K20M_KSUPBE4P4_OOOOO

- 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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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)