Data sheet

ETLZ032-032-200 GGSAV11D200114 BKSBIE4 PD2M Version no.: 1
Inline pump

Operating data

Requested flow rate	9.00 m³/h	Actual flow rate	9.00 m³/h
Requested developed head	14.00 m	Actual developed head	14.00 m
Pumped medium	Water Clean water	Efficiency	41.7 %
		MEI (Minimum Efficiency Index)	≥ 0.70
Pumped medium details	Not containing chemical and mechanical substances which affect the materials	Power absorbed	0.82 kW
		Pump speed of rotation	1566 rpm
Max. ambient air temperature	20.0 °C	NPSH required	1.97 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.	1.37 bar.g
Fluid viscosity	1.00 mm²/s	Shutoff head	16.27 m
Suction pressure max.	0.00 bar.g	Min. allow. flow for continuous stable operation	1.52 m³/h
Mass flow rate	2.50 kg/s		
Max. power on curve	1.11 kW	Min. allow. mass flow for continuous stable operation	0.42 kg/s
Max. allow. mass flow	5.09 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	BQEGG-DW001
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 nominal 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
		Bearing type	Anti-friction bearings
Shaft seal manufacturer	KSB's Choice	Lubrication type	Grease
Shaft seal type	KSB's Choice	Color	Ultramarine blue (RAL 5002) KSB-blue

Data sheet

ETLZ032-032-200 GGSAV11D200114 BKSBIE4 PD2M Version no.: 1
Inline pump

Driver, accessories

Frequency inverter operation allowed only for rated voltage.

Driver type	Electric motor	Cos phi at 4/4 load	0.67
Drive standard mech.	IEC	Motor efficiency at 4/4 load	87.2 %
Model (make)	KSB SuPremE®	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	90S	Number of poles	4
Efficiency class	Efficiency class IE4 acc. to IEC60034-30-1	Connection mode	Star
		Motor cooling method	Surface cooling
		Motor material	Aluminium
Speed control selection	Speed adjustment	Motor noise pressure level	60 dBa
Frequency	50 Hz	Driver colour	Same as the pump
Designed for operation with frequency inverter	Yes	CE-approval	Yes
		EAC Approval	Yes
Rated voltage	400 V	Ambient temperature	40.0 °C
Rated power P2	1.10 kW	Max. absolute humidity	30 g/m3
Available reserve	34.34 %	Temp. sensor mtr. bearing	Without
Rated current	3.0 A	UKCA conformity	Yes
Starting current ratio	1.1		
Insulation class	F to IEC 34-1		
Motor enclosure	IP55		

Materials G

Notes 1
General criteria for a water analysis: pH-value >= 6,5; 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 DW001		
Joint ring (411)	Steel ST		

Packaging

Packaging category	A0 Packing acc. to KSB choice	Packaging for transport	Truck
Packaging for storage	Indoor		

Nameplates

Nameplates language	International

Data sheet

ETLZ032-032-200 GGSAV11D200114 BKSBIE4 PD2M Version no.: 1
Inline pump

FOOT 85X 50X 60

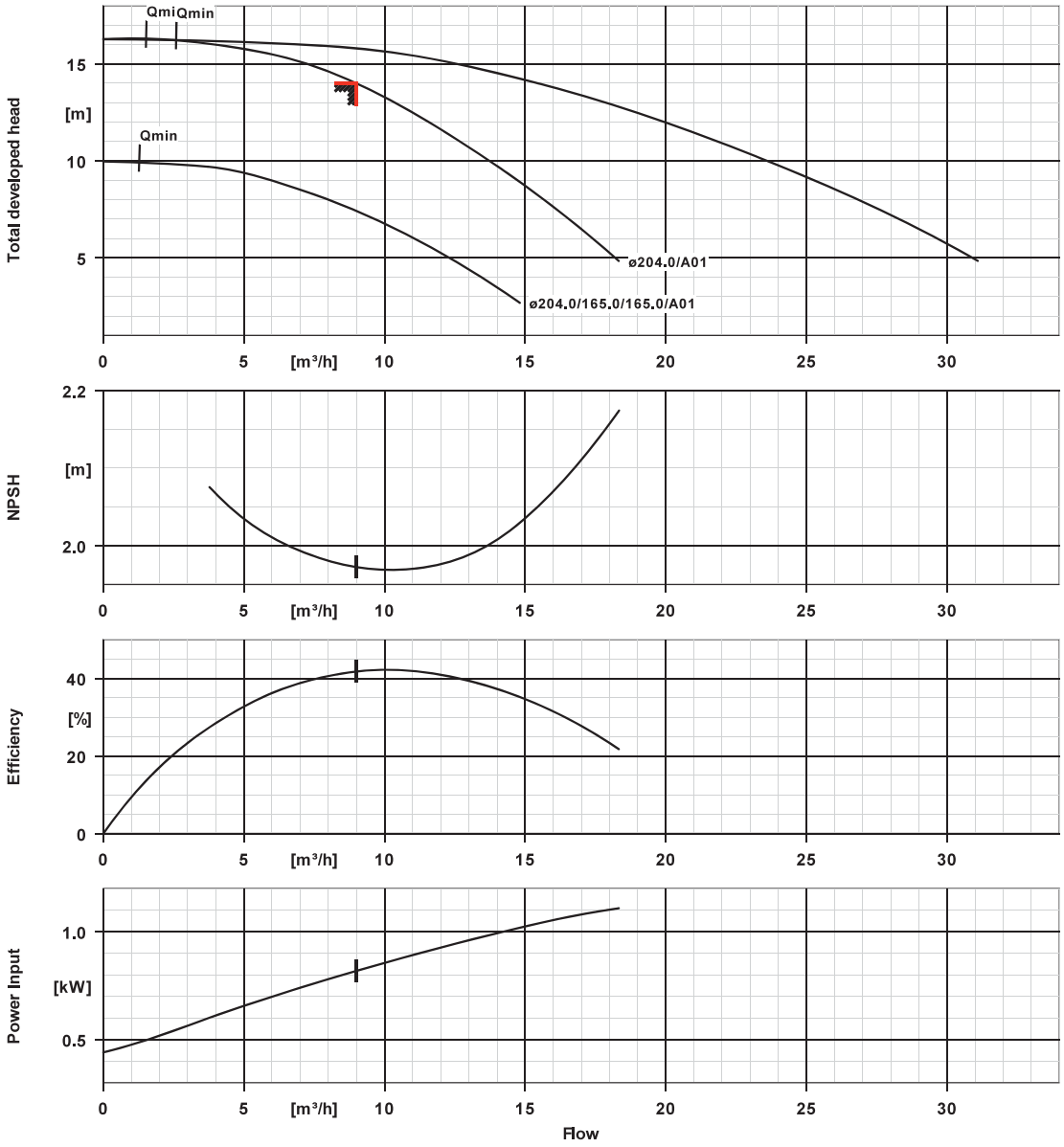
3 pump feet with bolts for vertical installation Material no 47077960
Pump foot for vertical installation
Etaline(Z) 32-160/ up to 100-160/

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

Performance curve

ETLZ032-032-200 GGSAV11D200114 BKSBIE4 PD2M Version no.: 1

Inline pump



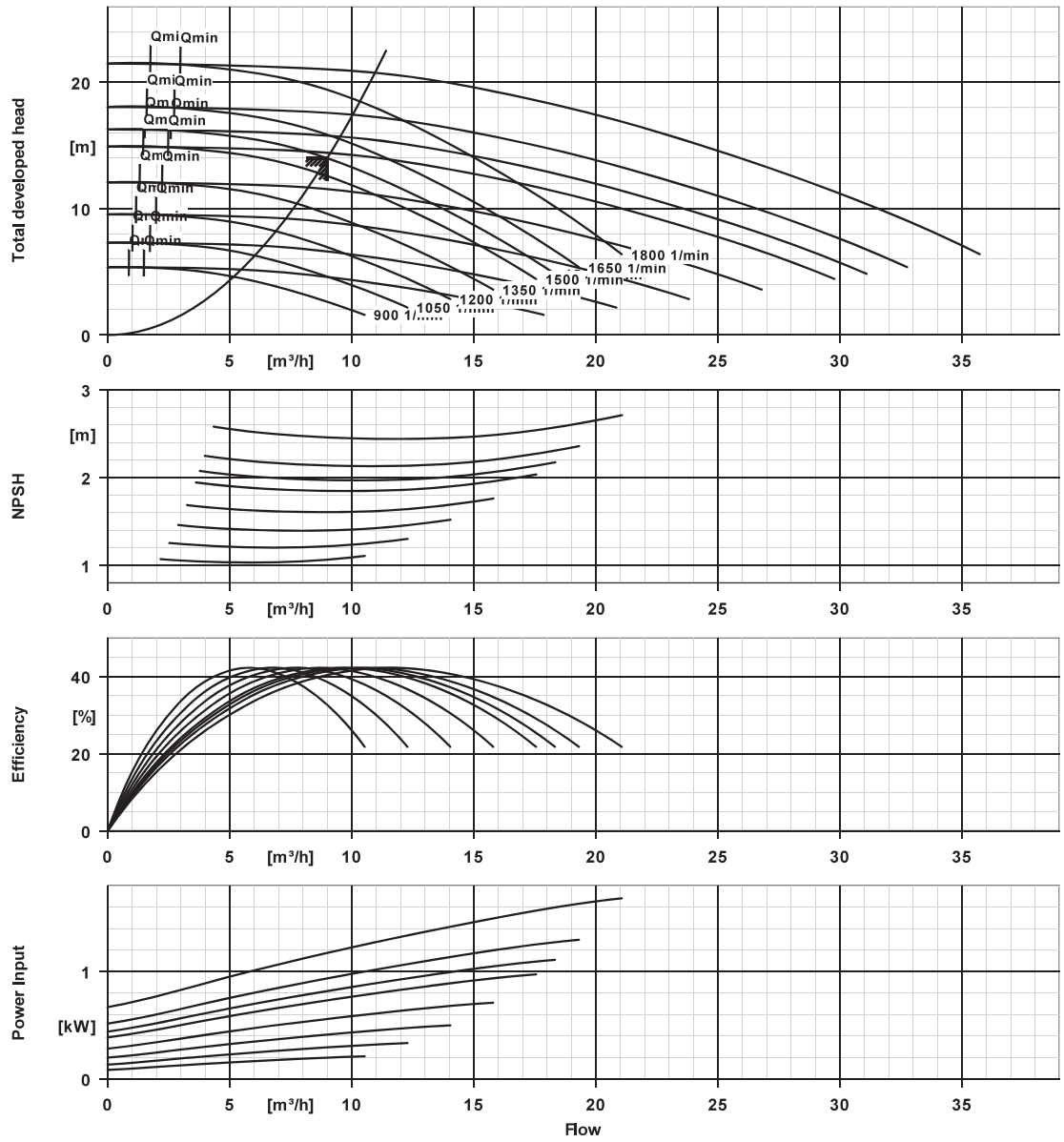
Curve data

Speed of rotation	1566 rpm	Efficiency	41.7 %
Fluid density	998 kg/m³	MEI (Minimum Efficiency Index)	≥ 0.70
Viscosity	1.00 mm²/s		
Flow rate	9.00 m³/h	Power absorbed	0.82 kW
Requested flow rate	9.00 m³/h	NPSHR	1.97 m
Total developed head	14.00 m	Curve number	K1161.454/19
Requested developed head	14.00 m	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 GGSAV11D200114 BKSBIE4 PD2M Version no.: 1

Inline pump



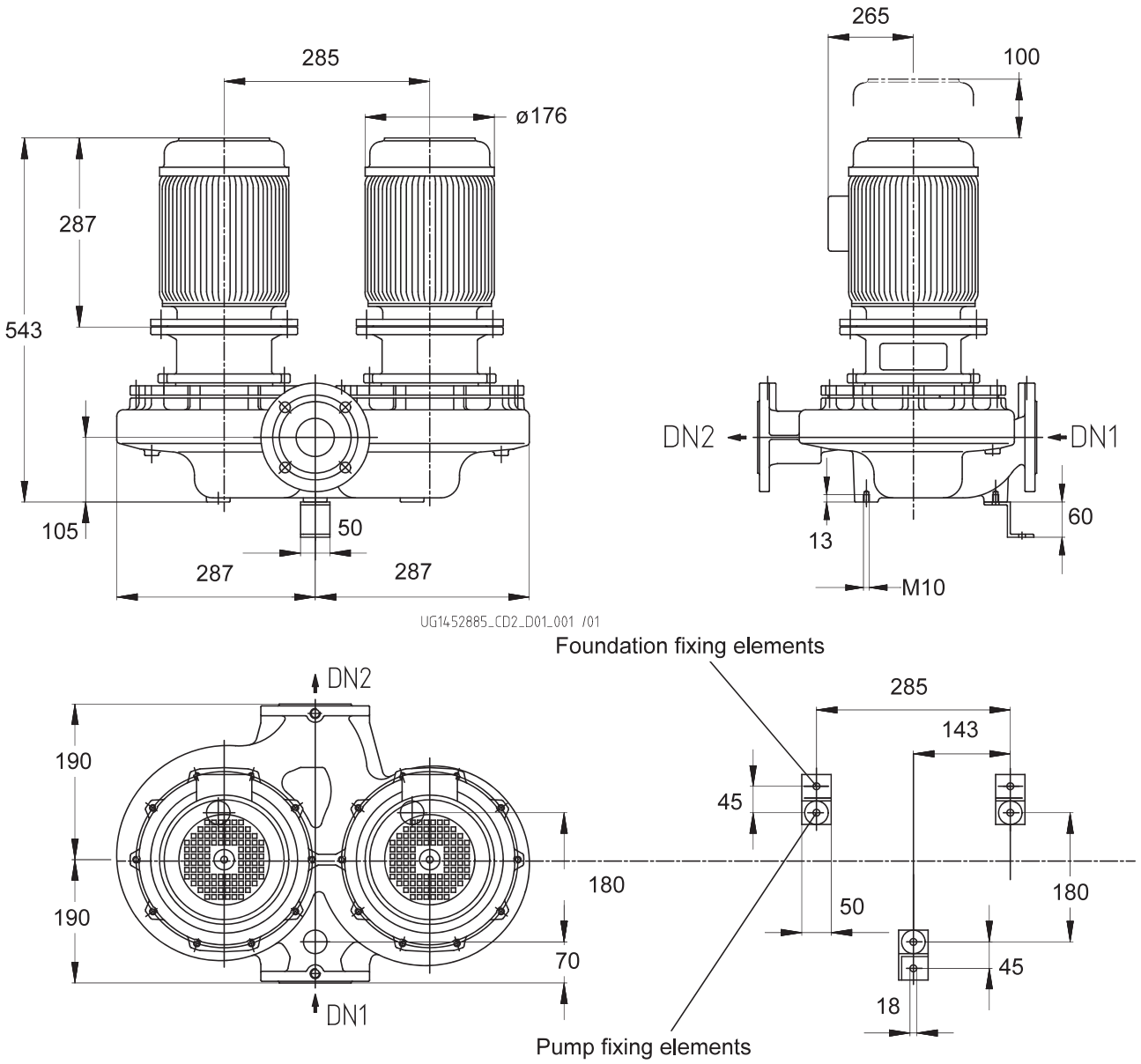
Curve data

Fluid density	998 kg/m³	Total developed head	14.00 m
Viscosity	1.00 mm²/s	Requested developed head	14.00 m
Flow rate	9.00 m³/h	MEI (Minimum Efficiency Index)	≥ 0.70
Requested flow rate	9.00 m³/h	Effective impeller diameter	204.0 mm

Installation plan

ETLZ032-032-200 GGSAV11D200114 BKSBIE4 PD2M Version no.: 1

Inline pump



Drawing is not to scale *Dimensions in mm*

Installation plan

ETLZ032-032-200 GGSAV11D200114 BKSBIE4 PD2M Version no.: 1
Inline pump

Motor

Motor manufacturer	KSB
Motor size	90S
Motor power	1.10 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	77 kg
Motor	32 kg
Other accessories	2 kg
PumpDrive 2	5 kg
Total	115 kg

Connect pipes without stress or strain!

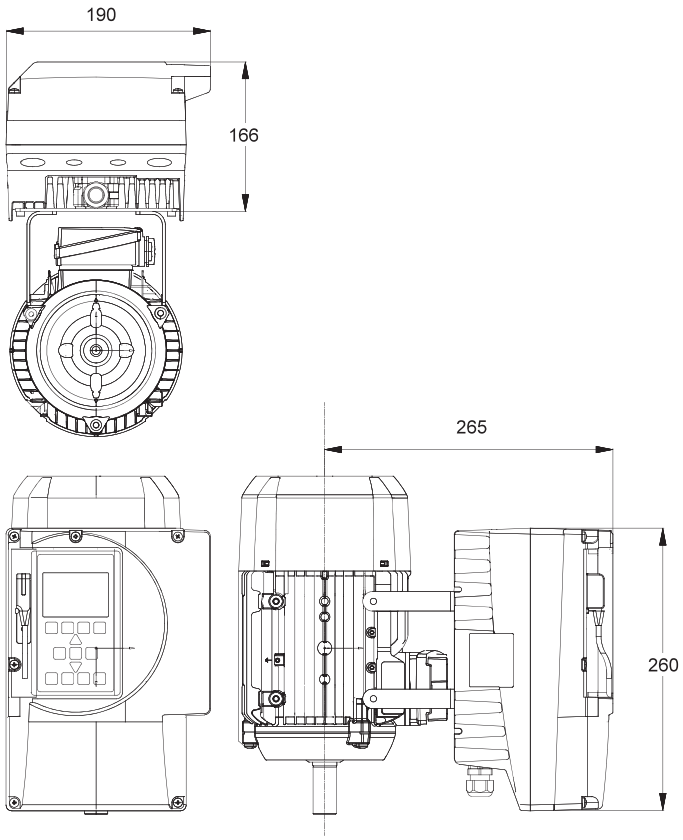
For auxiliary connections see separate drawing.

Supplementary drawing for PumpDrive

Installation plan

ETLZ032-032-200 GGSAV11D200114 BKSBIE4 PD2M
Inline pump

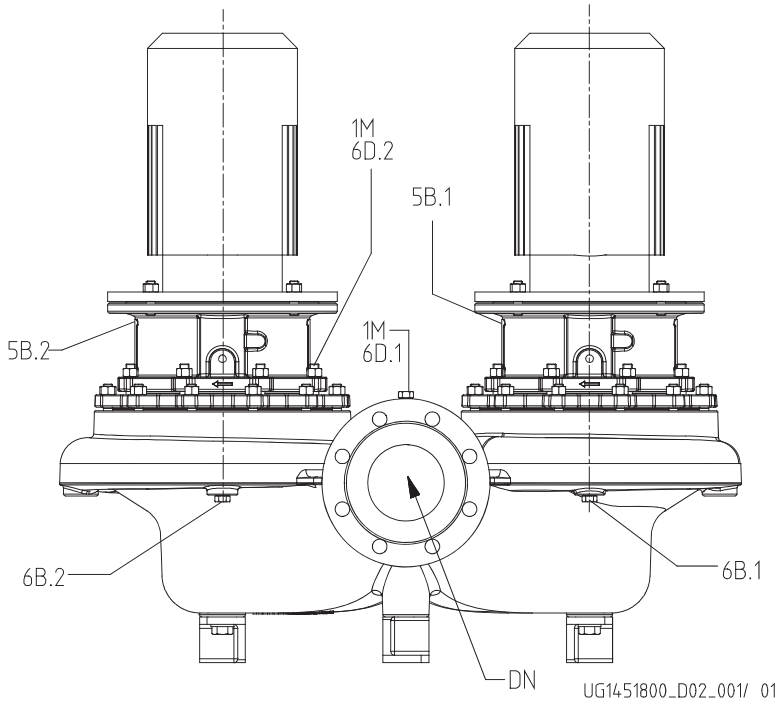
Version no.: 1



Drawing is not to scale

Connection plan

ETLZ032-032-200 GGSAV11D200114 BKSBIE4 PD2M Version no.: 1
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

Data sheet

PDRV2 _001K10M_KSUPRD2E4P4_MMOOO Version no.: 1

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
Display type	With graphic control panel
Rated power	1.10 kW
Max. allowed current	3.5 A
M12 module	With
Remote operation	Without
Main switch	Without
Fieldbus	Modbus
Optional IO module	Without
Mounting	MM - Mounted on the motor
Weight	5 kg
PumpDrive length	260.0 mm
PumpDrive width	190.0 mm
PumpDrive height	166.0 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
Interference suppression class: > 11 kW: EN 61800-3: C2 / EN 55011 Class A, Group 1 / cable length <= 50 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
5 parameterisable inputs
Relay output: 2 changeover 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: die-cast aluminium
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
- User-definable max. speed (0 to 70 Hz or 140 Hz).
- 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

Data sheet

PDRV2 _001K10M_KSUPRD2E4P4_MMOOO Version no.: 1

- 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
- Sensorless dynamic pressure compensation for pipe friction losses (DFS curve), enabling higher energy savings.
- Flow rate estimation
- Alternative setpoint
- Functional check run

Operation and display:
- Display of measured values and alerts and for setting parameters, incl. fault history, operating hours counter (motor, frequency inverter)
- Display of operating point (Q, H)
- Energy savings meter
- Optical service interface for connection to KSB Service Tool.
- Commissioning Wizard
- Display can be removed and mount on a wall or piping

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 modules Profibus DP, LON, Modbus RTU, BACnet MS/TP, Profinet
- I/O extension board
- Master switch

Data sheet

PDRV2 _001K10M_KSUPRD2E4P4_MMOOO Version no.: 1

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
Display type	With graphic control panel
Rated power	1.10 kW
Max. allowed current	3.5 A
M12 module	With
Remote operation	Without
Main switch	Without
Fieldbus	Modbus
Optional IO module	Without
Mounting	MM - Mounted on the motor
Weight	5 kg
PumpDrive length	260.0 mm
PumpDrive width	190.0 mm
PumpDrive height	166.0 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
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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
5 parameterisable inputs
Relay output: 2 changeover contacts, parameterisable

Environment:
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Ambient temperature: -10 to 50 °C
Rel. humidity in operation: 5 % to 85 % (non-condensing)
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Heat sink: die-cast aluminium
Housing cover: die-cast aluminium
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
- User-definable max. speed (0 to 70 Hz or 140 Hz).
- Closed-loop control mode via integrated PID controller
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Data sheet

PDRV2 _001K10M_KSUPRD2E4P4_MMOOO Version no.: 1

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- Sensorless differential pressure control with dynamic pressure compensation (Δp var) in a single-pump configuration
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- Sensorless dynamic pressure compensation for pipe friction losses (DFS curve), enabling higher energy savings.
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- Alternative setpoint
- Functional check run

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- Display of operating point (Q, H)
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- Commissioning Wizard
- Display can be removed and mount on a wall or piping

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 modules Profibus DP, LON, Modbus RTU, BACnet MS/TP, Profinet
- I/O extension board
- Master switch

Data sheet

PumpMeter Version no.: 1

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)