Data sheet

ETL 032-032-160 GGSAV11D200114 BKSBIE5 PD2E
Inline pump

Operating data

Requested flow rate	14.00 m³/h	Actual flow rate	14.00 m³/h
Requested developed head	12.50 m	Actual developed head	12.50 m
Pumped medium	Water, heating water Heating water up to 100°C (max.), acc. to VDI 2035 Not containing chemical and mechanical substances which affect the materials	Efficiency	60.5 %
		MEI (Minimum Efficiency Index)	≥ 0.70
		Power absorbed	0.76 kW
		Pump speed of rotation	1806 rpm
		NPSH required	1.89 m
Max. ambient air temperature	20.0 °C	Permissible operating pressure	16.00 bar.g
Min. ambient air temperature	20.0 °C		
Fluid temperature	90.0 °C		
Fluid density	965 kg/m³	Discharge press.	1.18 bar.g
Fluid viscosity	0.33 mm²/s	Min. allow. mass flow for continuous stable operation	0.93 kg/s
Suction pressure max.	0.00 bar.g		
Mass flow rate	3.75 kg/s	Shutoff head	15.51 m
Max. power on curve	0.92 kW	Max. allow. mass flow	5.98 kg/s
Min. allow. flow for continuous stable operation	3.48 m³/h	Design	Single system 1 x 100 % Tolerances to ISO 9906 Class 3B; below 10 kW acc. to paragraph 4.4.2

Design

Pump standard	Without	Material code	BQ1EGG-WA
		Shaft seal code	11
		Sealing plan	Single-acting mechanical seal with vented chamber (A-type casing cover, taper bore)

Caution: The overall length from suction to discharge can be different to the previous generation of Etaline.

Minimum requirements for hot water quality: treatment acc. to VdTÜV regulation TCH 1466 and solids content up to max. 5 mg/l.

Design	Close-coupled in-line	Seal chamber design	Conical seal chamber (A-type cover)
Orientation	Vertical	Contact guard	With
Suction nominal dia.	DN 32	Wear ring	Casing wear ring
Suction nominal pressure	PN 16	Impeller diameter	170.0 mm
Suction position	180° (down)	Free passage size	5.4 mm
Suction flange drilled according to standard	EN1092-2	Direction of rotation from drive	Clockwise
		Silicon free pump assembly	Yes
Discharge nominal dia.	DN 32	Bearing bracket construction	Close-coupled
Discharge norminal pressure	PN 16	Bearing bracket size	25
Discharge position	top (0°/360°)	Bearing type	Anti-friction bearings
Discharge flange drilled according to standard	EN1092-2	Lubrication type	Grease
		Color	Vermilion (RAL 2002)
Surface type	Raised face (form B to EN 1092)		
Shaft seal	Single acting mechanical seal		
Manufacturer	KSB		
Type	1		

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Driver, accessories

Driver type	Electric motor	Rated current	3.0 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	0.67
		Motor efficiency at 4/4 load	87.2 %
		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	Connection mode	Star
Efficiency class	Efficiency class IE5 acc. IEC/TS 60034-30-2 (2016) – free of magnets. Motor size 80 with ferrite 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	1.10 kW		
Available reserve	44.91 %		

Materials G

Notes 1
Unalloyed cast iron components: pH = 9 to 10.5 and O2 content <= 0.02 mg/kg.

Volute casing (102)	Grey cast iron EN-GJL-250/A48CL35B	Joint ring (411)	Steel ST
		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	Shaft sleeve (523)	CrNiMo steel
Impeller (230)	Grey cast iron EN-GJL-250/A48CL35B	Stud (902)	Steel 8.8
		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
Flat gasket (400)	DPAF seal plate asbestos free		

Performance curve

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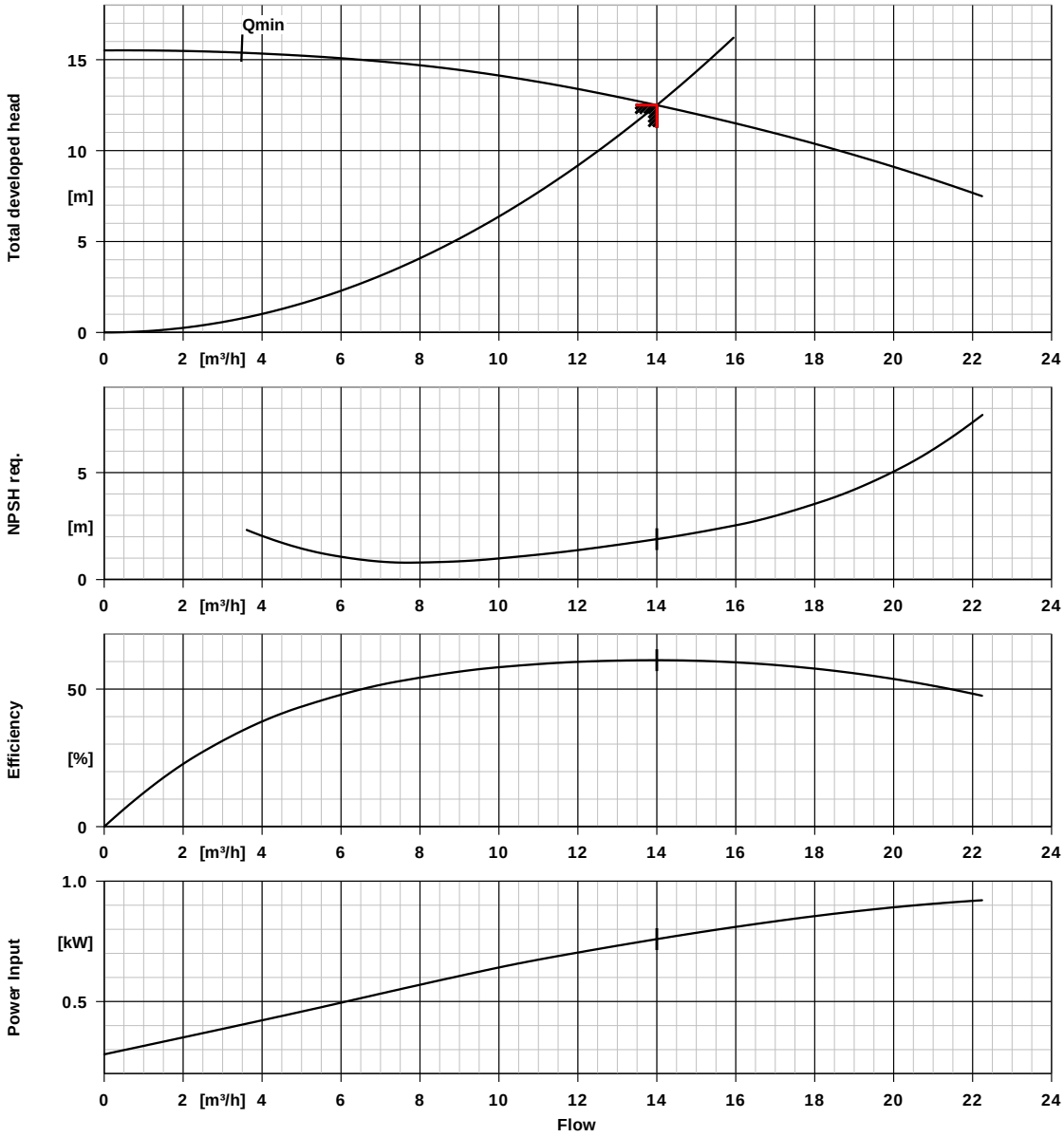


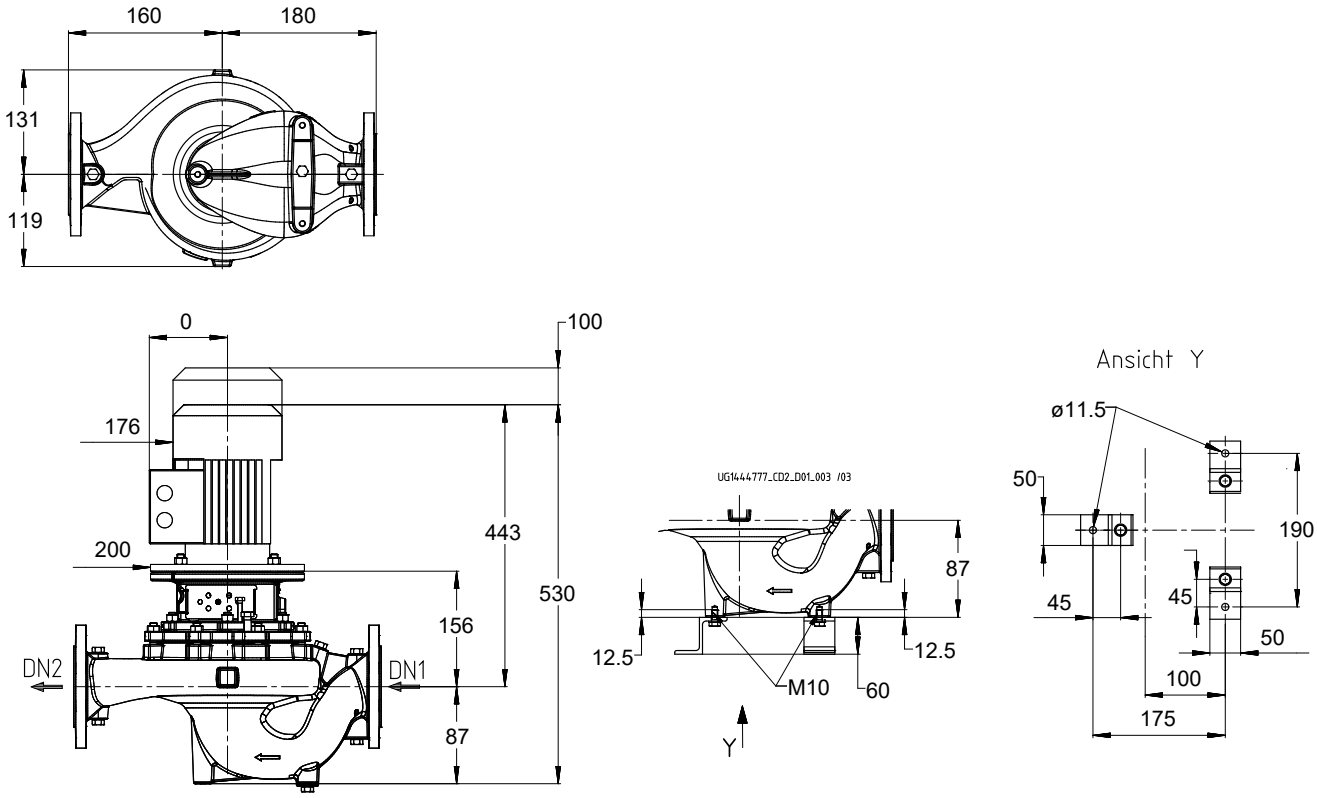
Curve data

Speed of rotation	1806 rpm
Fluid density	965 kg/m³
Viscosity	0.33 mm²/s
Flow rate	14.00 m³/h
Requested flow rate	14.00 m³/h
Total developed head	12.50 m
Requested developed head	12.50 m

Efficiency	60.5 %
MEI (Minimum Efficiency Index)	≥ 0.70
Power absorbed	0.76 kW
NPSH required	1.89 m
Curve number	K1159.464/18
Effective impeller diameter	170.0 mm
Acceptance standard	Tolerances to ISO 9906 Class 3B; below 10 kW acc. to paragraph 4.4.2

Installation plan

ETL 032-032-160 GGSAV11D200114 BKSBIE5 PD2E
Inline pump



Drawing is not to scale *Dimensions in mm*

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	20 kg
Motor	16 kg
Total	36 kg

Connect pipes without stress or strain!

For auxiliary connections see separate drawing.

Installation plan

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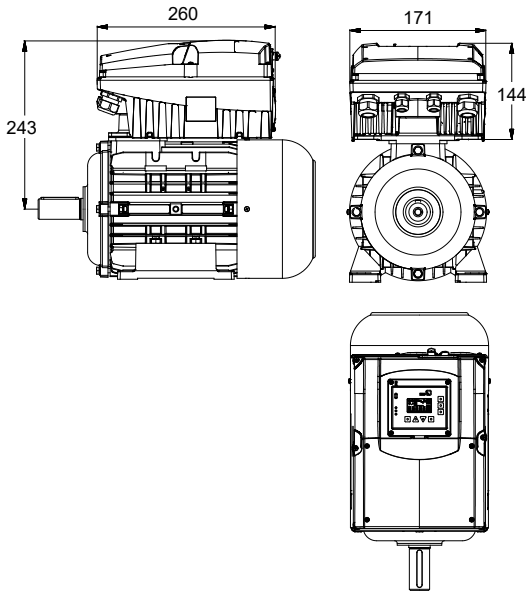
Inline pump

Supplementary drawing for PumpDrive



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Connection plan

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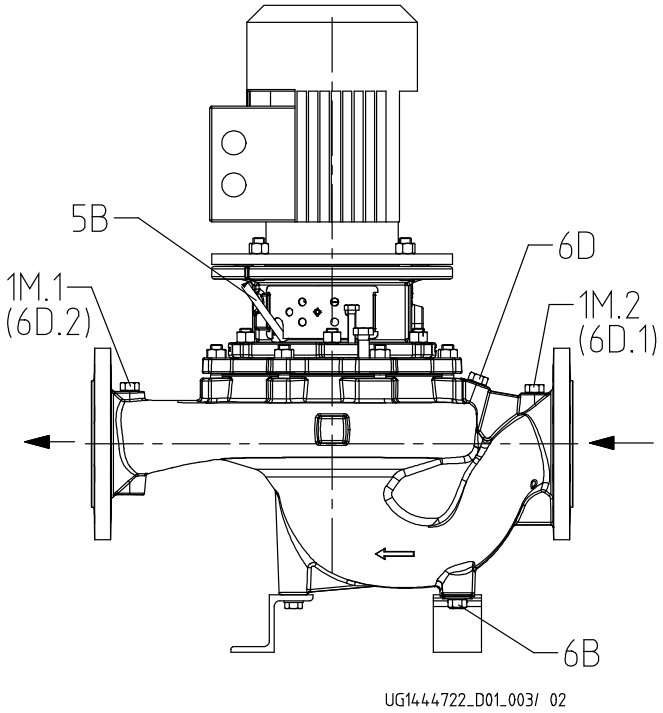
Inline pump



Connections

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

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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	Without
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	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

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- 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.