Data sheet

ETL 125-125-160 GGSAV11D300404 BKSBIE4 PD2E
Inline pump

Operating data

Requested flow rate		Actual flow rate	141.50 m³/h
Requested developed head		Actual developed head	8.00 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	80.9 %
		MEI (Minimum Efficiency Index)	≥ 0.60
		Power absorbed	3.73 kW
		Pump speed of rotation	1405 rpm
		NPSH required	2.22 m
Ambient air temperature	20.0 °C	Permissible operating pressure	16.00 bar.g
Fluid temperature	75.0 °C		
Fluid density	975 kg/m³		
Fluid viscosity	0.39 mm²/s	Discharge press.	0.76 bar.g
Suction pressure max.	0.00 bar.g	Min. allow. mass flow for continuous stable operation	5.64 kg/s
Mass flow rate	38.33 kg/s		
Max. power on curve	3.88 kW	Max. allow. mass flow	54.08 kg/s
Min. allow. flow for continuous stable operation	20.82 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
Shutoff head	9.87 m		

Design

Pump standard	Without	Shaft seal code	11
Caution: The overall length from suction to discharge can be different to the previous generation of Etaline.		Sealing plan	Single-acting mechanical seal with vented chamber (A-type casing cover, taper bore)
Design	Close-coupled in-line	Minimum requirements for hot water quality: treatment acc. to VdTÜV regulation TCH 1466 and solids content up to max. 5 mg/l.	
Orientation	Vertical		
Suction nominal dia.	DN 125		
Suction nominal pressure	PN 16		
Suction position	180° (down)	Seal chamber design	Conical seal chamber (A-type cover)
Suction flange drilled according to standard	EN1092-2	Contact guard	With
		Wear ring	Casing wear ring
Discharge nominal dia.	DN 125	Impeller diameter	185.0 mm
Discharge norminal pressure	PN 16	Free passage size	16.4 mm
Discharge position	top (0°/360°)	Direction of rotation from drive	Clockwise
Discharge flange drilled according to standard	EN1092-2		
Shaft seal	Single acting mechanical seal	Silicon free pump assembly	Yes
Manufacturer	KSB	Bearing bracket construction	Close-coupled
Type	1	Bearing bracket size	35
Material code	BQ1EGG-WA	Bearing type	Anti-friction bearings
		Lubrication type	Grease
		Color	Vermilion (RAL 2002)

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Driver, accessories

Driver type	Electric motor
Drive standard mech.	IEC
Model (make)	KSB SuPremE®
Type series motor manufacturer	SuPremE C2 (with mounting plate for PumpDrive 2, non removable)
Drive supplied by	Standard motor supplied by KSB - mounted by KSB
Motor const. type	V1
Motor size	112M
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.
Speed control selection	Speed adjustment
Frequency	50 Hz
Designed for operation with frequency inverter	Yes
Rated voltage	400 V
Rated power P2	4.00 kW
Available reserve	7.11 %

Rated current	9.6 A
Insulation class	F to IEC 34-1
Motor enclosure	IP55
Cos phi at 4/4 load	0.73
Motor efficiency at 4/4 load	91.2 %
Temperature sensor	3 PTC resistors
Terminal box position	0° same orientation Viewed from the drive
Motor winding	400 V
Connection mode	Star
Motor cooling method	Surface cooling
Motor material	Aluminium
Motor noise pressure level	61 dBa
Driver colour	Same as the pump

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
Casing cover (161)	Grey cast iron EN-GJL-250/A48CL35B
Shaft (210)	Tempered steel C45+N
Impeller (230)	Grey cast iron EN-GJL-250/A48CL35B
Motor stool (341)	Grey cast iron EN-GJL-250/A48CL35B
Flat gasket (400)	DPAF seal plate asbestos free
Joint ring (411)	Steel ST
Casing wear ring (502.1)	Grey cast iron GG/CAST IRON
Casing wear ring (502.2)	Grey cast iron GG/CAST IRON
Shaft sleeve (523)	CrNiMo steel
Stud (902)	Steel 8.8
Impeller nut (922)	Steel 8
Key (940)	Steel C45+C / A311 GR 1045 CLASS A

Performance curve

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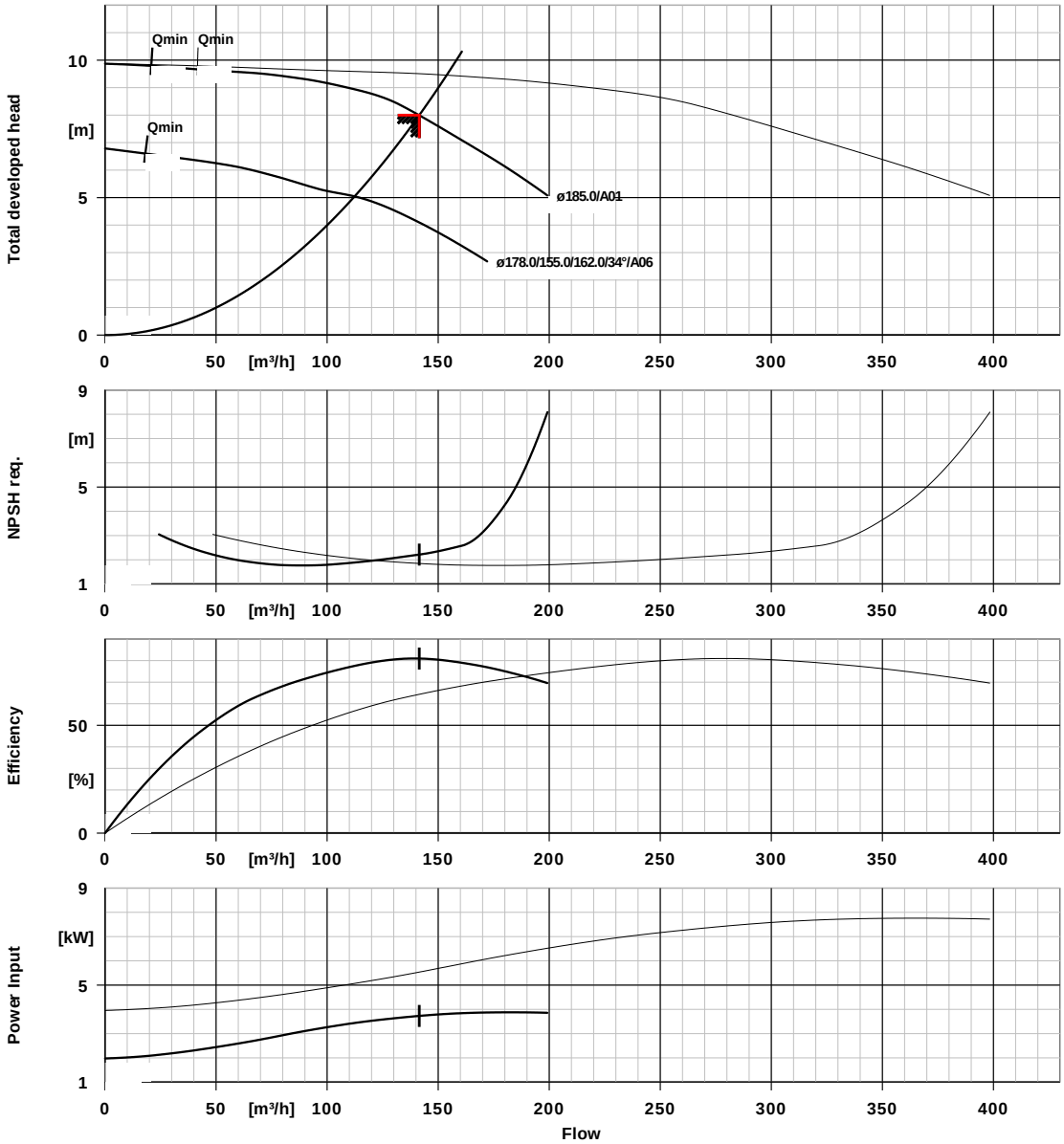


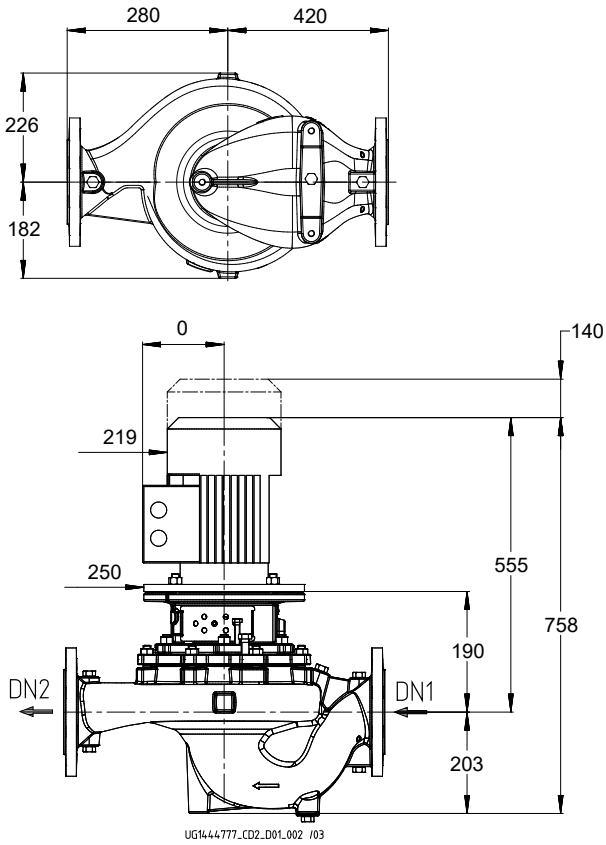
Curve data

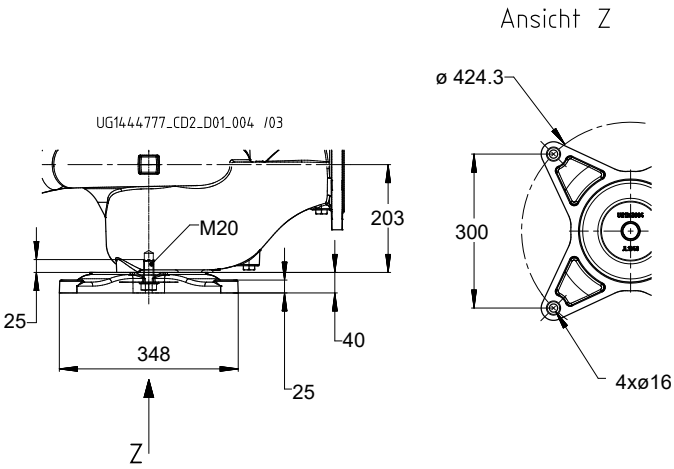
Speed of rotation	1405 rpm
Fluid density	975 kg/m³
Viscosity	0.39 mm²/s
Flow rate	141.50 m³/h
Requested flow rate	141.50 m³/h
Total developed head	8.00 m
Requested developed head	8.00 m

Efficiency	80.9 %
MEI (Minimum Efficiency Index)	≥ 0.60
Power absorbed	3.73 kW
NPSH required	2.22 m
Curve number	K1159.454/45
Effective impeller diameter	185.0 mm
Acceptance standard	Tolerances to ISO 9906 Class 3B; below 10 kW acc. to paragraph 4.4.2

Installation plan

ETL 125-125-160 GGSAV11D300404 BKSBIE4 PD2E
Inline pump





Drawing is not to scale *Dimensions in mm*

Motor

Motor manufacturer	KSB
Motor size	112M
Motor power	4.00 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 125 / EN1092-2
Discharge nominal size DN2	DN 125 / EN1092-2
Nominal pressure suct.	PN 16
Rated pressure disch.	PN 16

Weight net

Pump	98 kg
Motor	33 kg
Other accessories	1 kg
Total	132 kg

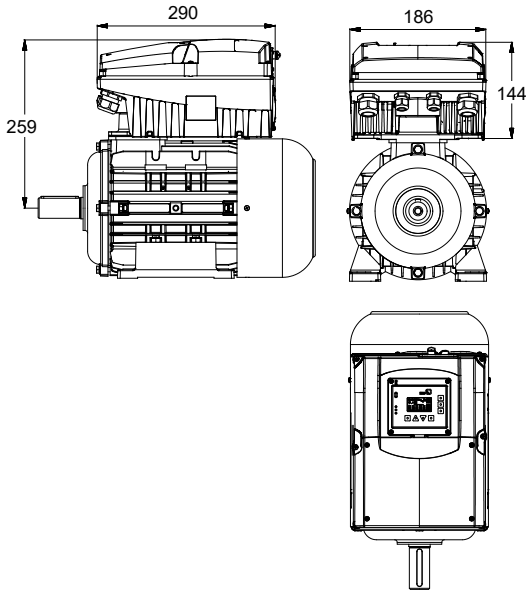
Connect pipes without stress or strain!

For auxiliary connections see separate drawing.

Installation plan

ETL 125-125-160 GGSAV11D300404 BKSBIE4 PD2E
Inline pump

Supplementary drawing for PumpDrive



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Connection plan

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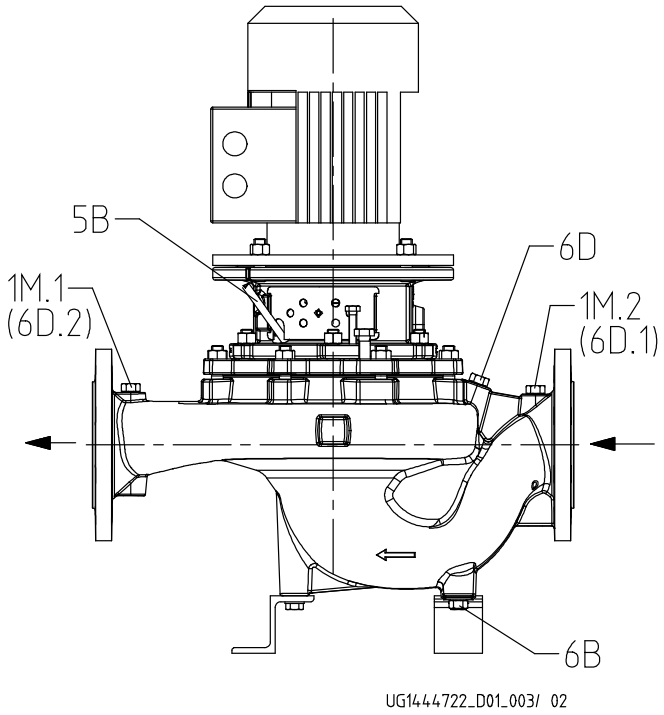
Inline pump



Connections

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

PDRV2E_004K00M_KSUPBE4P4_OMOOO

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	4.00 kW
Max. allowed current	10.0 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
- Functional check run

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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.

MEASUR TRANSDUCER 0- 2 BAR 1/2

Differential pressure transducer 0 to 2 bar RC1/2 With two copper-spiralled pipe sections measuring 75 cm in length for connection to the discharge or suction nozzles complete with retaining plate spiralled pipe section and adapter Output 4 to 20 mA 3-wire Supply voltage 18 to 30 V DC 2.5 m connection cable Ambient temperature -10 to +50 °C Temperature of measured medium -10 to +80 °C Differential pressure transducer with two copper spiralled pipe sections of 75 cm length for connection to the discharge or suction nozzles of the pump, complete with retaining plate, spiralled pipe section and adapter, 3-wire output 4...20 mA, supply voltage 18…30 V DC, 2.5 m connection cable	Material no	01111305

CABLE PDRV2 CAN M12-ST./ST.2M

M12 bus cable for multi pump operation Pre-configured bus cable for dual and multiple pump configuration For looping of the KSB device bus (CAN) from frequency inverter to frequency inverter via M12 module Shielded Colour: light purple M12 connector: angled - M12 connector: angled A-coded 5 poles Length: 2m	Material no	01533748