

**ETL 050-050-160 GGS AV11D200402 BKSBIE3**

Inline pump

**Operating data**

Pumped medium	Water	Actual flow rate	47.42 m <sup>3</sup> /h
	Clean water	Actual developed head	19.84 m
Pumped medium details	Not containing chemical and mechanical substances which affect the materials	Efficiency	69.3 %
		MEI (Minimum Efficiency Index)	≥ 0.60
Max. ambient air temperature	20.0 °C	Power absorbed	3.69 kW
Min. ambient air temperature	20.0 °C	Pump speed of rotation	2910 rpm
Fluid temperature	20.0 °C	NPSH required	3.43 m
Fluid density	998 kg/m <sup>3</sup>	Permissible operating pressure	16.00 bar.g
Fluid viscosity	1.00 mm <sup>2</sup> /s		
Suction pressure max.	0.00 bar.g	Discharge press.	1.94 bar.g
Mass flow rate	13.15 kg/s	Shutoff head	27.92 m
Max. power on curve	4.06 kW	Min. allow. flow for continuous stable operation	7.23 m <sup>3</sup> /h
Max. allow. mass flow	19.74 kg/s	Min. allow. mass flow for continuous stable operation	2.01 kg/s
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
Caution: The overall length from suction to discharge can be different to the previous generation of Etaline.		Shaft seal code	11
Design	Close-coupled in-line	Sealing plan	Single-acting mechanical seal with vented chamber (A-type casing cover, taper bore)
Orientation	Vertical		
Suction nominal dia.	DN 50	A liquid free of solids is assumed	
Suction nominal pressure	PN 16	Seal chamber design	Conical seal chamber (A-type cover)
Suction position	180° (down)	Contact guard	With
Suction flange drilled according to standard	EN1092-2	Wear ring	Casing wear ring
Discharge nominal dia.	DN 50	Impeller diameter	139.0 mm
Discharge nominal pressure	PN 16	Free passage size	11.5 mm
Discharge position	top (0°/360°)	Direction of rotation from drive	Clockwise
Discharge flange drilled according to standard	EN1092-2	Silicon free pump assembly	Yes
Surface type	Raised face (form B to EN 1092)	Bearing bracket construction	Close-coupled
Shaft seal	Single acting mechanical seal	Bearing bracket size	25
		Bearing type	Anti-friction bearings
Shaft seal manufacturer	KSB	Lubrication type	Grease
Shaft seal type	1	Color	Ultramarine blue (RAL 5002) KSB-blue

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**Driver, accessories**

Driver type	Electric motor	Temperature sensor	3 PTC resistors
Drive standard mech.	IEC	Terminal box position	0° same orientation
Model (make)	KSB-Motor		Viewed from the drive
Drive supplied by	Standard motor supplied by KSB - mounted by KSB	Motor winding	400 / 690 V
Motor const. type	V1	Number of poles	2
Motor size	112M	Connection mode	Delta
Efficiency class	Efficiency class IE3 acc. to IEC60034-30-1	Motor cooling method	Surface cooling
Motor speed	2910 rpm	Motor material	Aluminium
Frequency	50 Hz	Frequency inverter operation allowed	FI allowed
Rated voltage	400 V	Motor noise pressure level	72 dBa
Rated power P2	4.00 kW	Motor data can vary from type plate information. Motor data describes KSB's choice functional specification and is used for pump selection.	
Available reserve	8.31 %	CE-approval	Yes
Rated current	8.0 A	EAC Approval	Yes
Starting current ratio	8.6	Condensat drain motor	Yes
Insulation class	F to IEC 34-1	Ambient temperature	40.0 °C
Motor enclosure	IP55	Max. absolute humidity	30 %
Cos phi at 4/4 load	0.81	Temp. sensor mtr. bearing	Without
Motor efficiency at 4/4 load	88.1 %	UKCA conformity	Yes

**Materials G****Notes 1**

General criteria for a water analysis: pH-value  $\geq 6,5$ ; chloride content (Cl)  $\leq 250$  mg/kg. Chlorine (Cl<sub>2</sub>)  $\leq 0.6$  mg/kg.

Volute casing (102)	Grey cast iron EN-GJL-250/A48CL35B	Joint ring (411)	Steel ST
Casing cover (161)	Grey cast iron EN-GJL-250/A48CL35B	Casing wear ring (502.1)	Grey cast iron GG/CAST IRON
Shaft (210)	Tempered steel C45+N	Casing wear ring (502.2)	Grey cast iron GG/CAST IRON
Impeller (230)	Grey cast iron EN-GJL-250/A48CL35B	Shaft sleeve (523)	CrNiMo steel
Motor stool (341)	Grey cast iron EN-GJL-250/A48CL35B	Stud (902)	Steel 8.8
Flat gasket (400)	DPAF DW001	Impeller nut (922)	Steel 8
		Key (940)	Steel C45+C / A311 GR 1045 CLASS A

**Packaging**

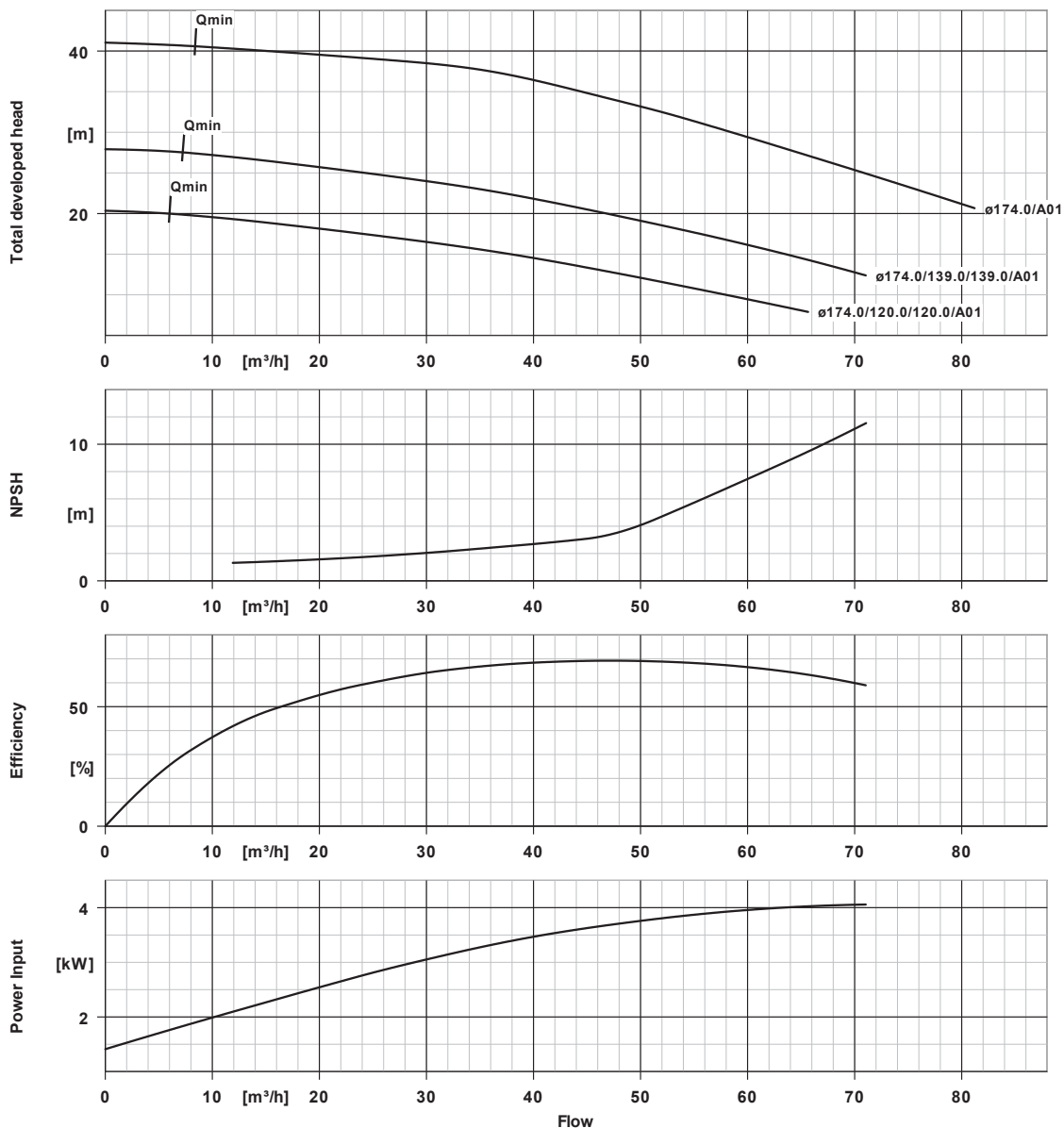
Packaging category	A0 Packing acc. to KSB choice	Packaging for transport	Truck
Packaging for storage	Indoor		

**Nameplates**

Nameplates language	International
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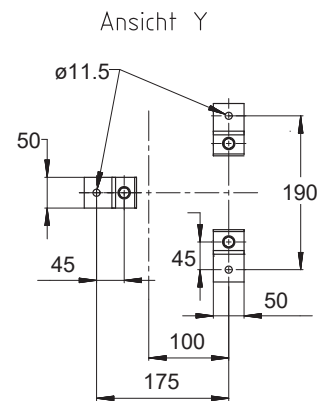
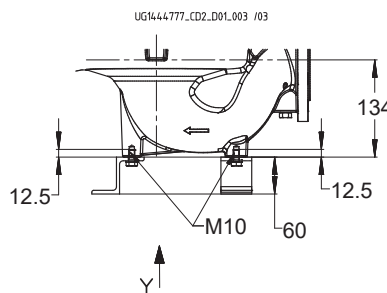
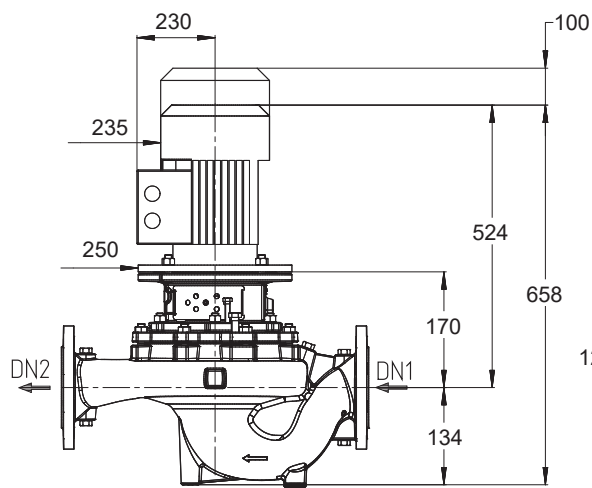
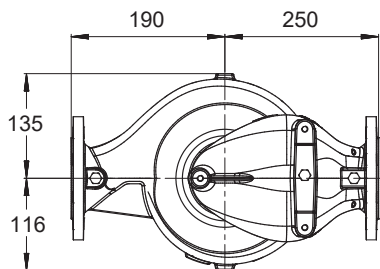
Inline pump



Curve data

Speed of rotation	2910 rpm	MEI (Minimum Efficiency Index)	$\geq 0.60$
Fluid density	$998 \text{ kg/m}^3$	Power absorbed	3.69 kW
Viscosity	$1.00 \text{ mm}^2/\text{s}$	NPSHR	3.43 m
Flow rate	$47.42 \text{ m}^3/\text{h}$	Curve number	K1159.452/26
Total developed head	19.84 m	Effective impeller diameter	139.0 mm
Efficiency	69.3 %	Acceptance standard	Tolerances to ISO 9906 Class 3B; below 10 kW acc. to paragraph 4.4.2

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*Drawing is not to scale*

*Dimensions in mm*

**Motor**

Motor manufacturer	KSB-Motor
Motor size	112M
Motor power	4.00 kW
Number of poles	2
Speed of rotation	2910 rpm
Position of terminal box	0° same orientation Viewed from the drive

**Connections**

Suction nominal size DN1	DN 50 / EN1092-2
Discharge nominal size DN2	DN 50 / EN1092-2
Nominal pressure suct.	PN 16
Rated pressure disch.	PN 16

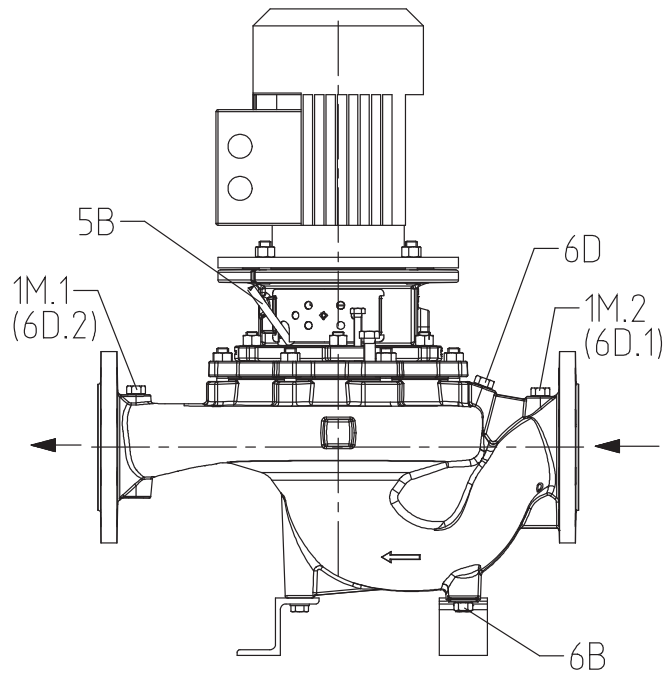
**Weight net**

Pump	25 kg
Motor	38 kg
Total	63 kg

**Connect pipes without stress or strain!**

**For auxiliary connections see separate drawing.**

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**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