

## Etaline 032-032-160 GG

ETL 032-032-160-GGSCV66 WSEBS2HHB

### Operating point 1

### Dimensioning operating point

#### Operating conditions (purchaser requirements)

Target flow rate		Vapour pressure determined	0.026 bar.a
Target head		Minimum inlet pressure required	-0.3 bar.r
Fluid	Antifreeze on propylene glycol base, inhibited, closed system, e.g. Antifrogen L or similar products	Specified ambient temperature	20 °C
		Installation altitude above sea level	1,000 m
Fluid variant	Concentration 30%		
Specified fluid temperature	20 °C		
Density Fluid handled	1,031 kg/m <sup>3</sup>		
Kinematic viscosity Fluid handled	3.34 mm <sup>2</sup> /s		

#### Operating conditions (performance)

Flow rate	19.88 m <sup>3</sup> /h	Maximum power input at duty point	1.734 kW
Minimum permissible flow rate	2.664 m <sup>3</sup> /h	Maximum power input / curve	1.927 kW
Maximum permissible flow rate	28.36 m <sup>3</sup> /h	Pump speed	2,904 1/min
Pump set		Shut-off discharge pressure	2.607 bar.r
Maximum permissible flow rate	28.36 m <sup>3</sup> /h		
Head	17.8 m		
Shut-off head	25.78 m		
Efficiency Pump	57.32 %		
NPSH required	3.73 m		

### Design data pump

Scope of supply Pump supplied by KSB	Pump + motor	Mains voltage	400 V
Pump standard	EN 733	Mains frequency	50 Hz
Shaft axis position	Vertical	Minimum efficiency index MEI	0.7
Pump design	Close-coupled	Minimum permissible fluid temperature	-30 °C
Pump system design	Single-pump system	Maximum permissible fluid temperature	110 °C
Pump direction of rotation, viewed from casing side	Counterclockwise	Quantity Stages, single-entry	1
Hydraulic impeller diameter	136.4 mm	Installation chamber Casing cover	Conical (A-type cover)
Impeller type	Radial, closed, multi-channel	Bearing bracket size / shaft unit	25
Free passage	5.4 mm	Pump directive	CE
Hydraulic casing foot	No		

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### Nozzle connections pump

Nominal diameter Suction nozzle	DN 32	Nominal diameter Discharge nozzle	DN 32
Nominal pressure Suction nozzle	PN 16	Nominal pressure Discharge nozzle	PN 16
Suction nozzle position	Opposite of discharge nozzle	Discharge nozzle position	0 deg
Suction nozzle design acc.to	EN1092-2	Discharge nozzle design acc.to	EN1092-2
Suction flange bolt hole pattern as per standard	EN1092-2	Discharge flange bolt hole pattern as per standard	EN1092-2
Flange facing type Inlet	Raised face (B,RF)		
Flange facing type Outlet	Raised face (B,RF)		

### Auxiliary connections pump

6B Fluid Drain	G 1/4 Drilled and plugged	1M Pressure gauge Discharge nozzle	G 1/4 Drilled and plugged
6D Fluid Filling and venting	G 1/4 Drilled and plugged	1M Pressure gauge Suction nozzle	G 1/4 Drilled and plugged
5B Venting and drain	G 1/4 Manual globe valve, fitted		

### Shaft sealing

Shaft seal type	Single mechanical seal; seal chamber can be vented (A-type casing cover) - AV	Shaft seal code	Code 66
		Shaft seal manufacturer inboard	BURGMANN
Determined pressure Seal chamber	1.65 bar.r	Mechanical seal type inboard	EMG13G6
		Material Shaft seal inboard	Q7Q7EGG-Y10 DW001

### Materials

Material Volute casing (102)	EN-GJL-250/A48 CL 35B	Material Bolts/Screws Volute casing (902.01)	8.8
Material Casing cover (161)	EN-GJL-250/A48 CL 35B	Material Nut Impeller fastening (920.95)	(ST)
Material Shaft	C45+N		
Material Impeller (230)	EN-GJL-250/A48 CL 35B		
Material Static seal Volute casing (400.10)	DPAF DW001		
Material Casing wear ring suction-side (502.01)	JL/LAMELLAR GRAPHITE CAST IRON		
Material Shaft protecting sleeve (523)	(CRNIMO ST INT)		
Material Static seal Discharge cover	DPAF DW001		
Material Drive lantern	EN-GJL-250/A48 CL 35B		

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### Driver

Asynchronous motors	Yes	Rated speed Motor	2,870 1/min
Drive concept	Electric actuator	Number of motor poles	2
Drive standard, mechanical	IEC	Rated power Motor	2.2 kW
Drive standard electric	IEC	Motor power reserve determined	26.9 %
Motor bearing, insulated	No	Rated voltage Motor	400 V
Motor manufacturer	KSB's choice	Motor winding	230 / 400 V
Customer supply Drive	No	Rated frequency Motor	50Hz
Motor construction type	IM V1 (IM3011) IEC 60034-7	Motor switching type	Star
Motor size	90L	Rated current Motor	4.62 A
Efficiency class	IE3 (Premium)	Starting current ratio Ia/In	8.7
Material motor housing	AL	Cos phi at 4/4 load	0.86
Enclosure Motor	IP55 (TEFC)	Motor efficiency at 4/4 load	85.9 %
Thermal class	155 (F) according to IEC 60085	Limit value Maximum humidity Motor	30 g/m³
Temperature sensor motor	1 PTC thermistors	Marking according to directive CE Drive	
Terminal box position of motor (looking at the motor shaft)	360 °	The values indicated are regarded as guaranteed values. They are applied to motors with a sinusoidal power supply within the permissible tolerances specified by IEC 60034-1. The values given on the name plate may be different.	
Operation on a frequency inverter permitted	Yes (acc to motor manufact)		
Sound pressure level Motor	68 dBa		
Type series Motor manufacturer	Acc. to motor manufacturer (IEC, IE3)		

### Coating

#### Aggregate

Surface preparation	Free from dirt, grease, rust
Properties Primer coat	Hydro dip primer, water-dilutable
Thickness Primer coat	60 µm
Properties Top coat	Acrylate dispersion water-thinned
Thickness Top coat	40 µm
Colour Top coat	RAL5002 Ultramarine Blue



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**Energy cost and Environmental Impact**

**Result**

Estimated Product Carbon Footprint (cradle-to-gate) (CO<sub>2</sub>eq) 237 kg  
\*

This PCF indication is based on the product mass assuming the typical shares of materials in use. The conversion rate between product mass and CO<sub>2</sub> emissions is based on several life cycle assessments acc. to ISO14040 / 14044 of sample products of the same type series. Objective and scope of these LCAs was defined as being limited to the manufacturing phase (cradle-to-gate). With regard to inputs, all materials, energy and auxiliary materials were accounted for, and with regard to outputs, emissions, scrap and waste were accounted for. The impact of outbound logistics is not covered. The assessments' input variables cover at least 95 % of the total product mass. The analysis focuses exclusively on the Global Warming Potential (EF3.0 Climate Change – total).

**Packaging**

Suitable for transport	Truck transport
Suitable for storage	Indoor storage
Packaging category	KSB's choice (A0)

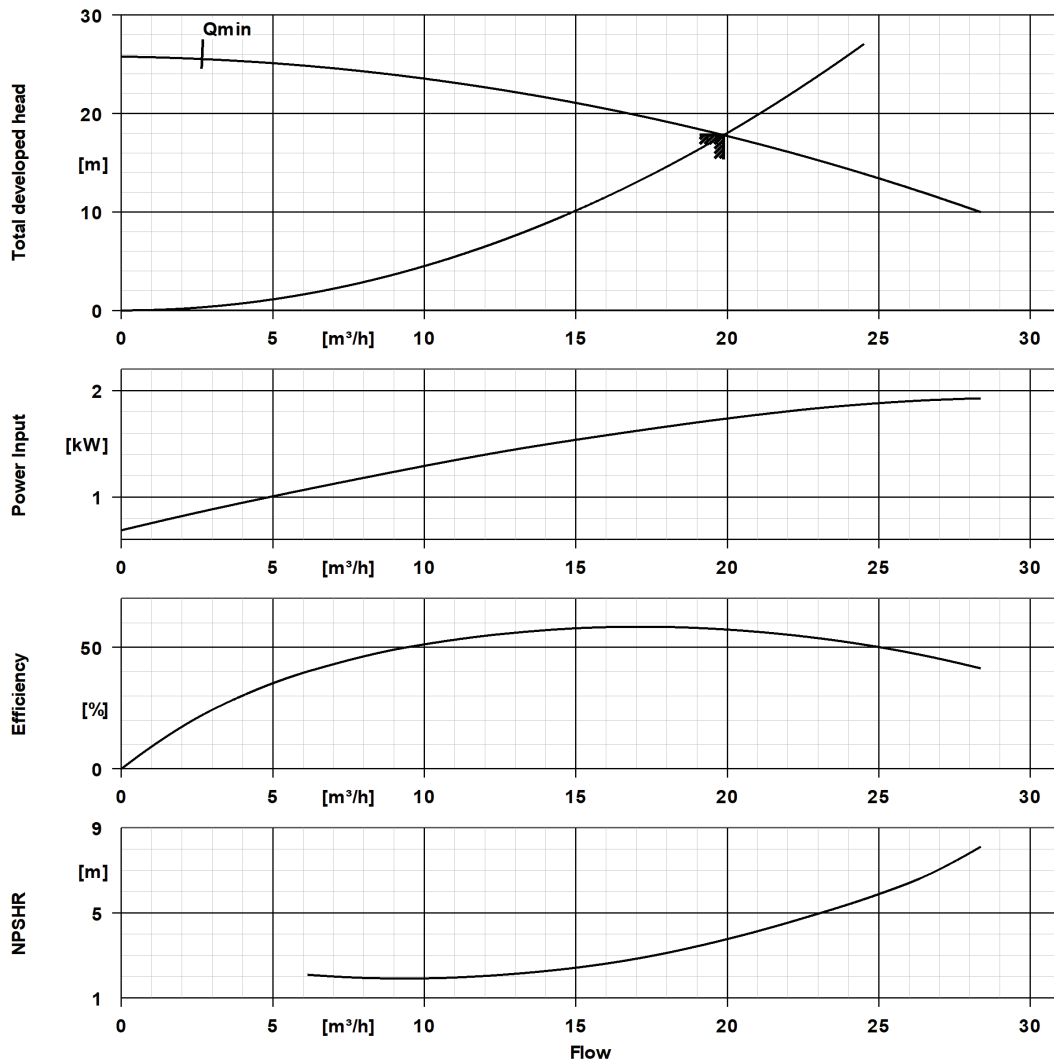
## Performance Curve (Pump)



Page: 1 / 1

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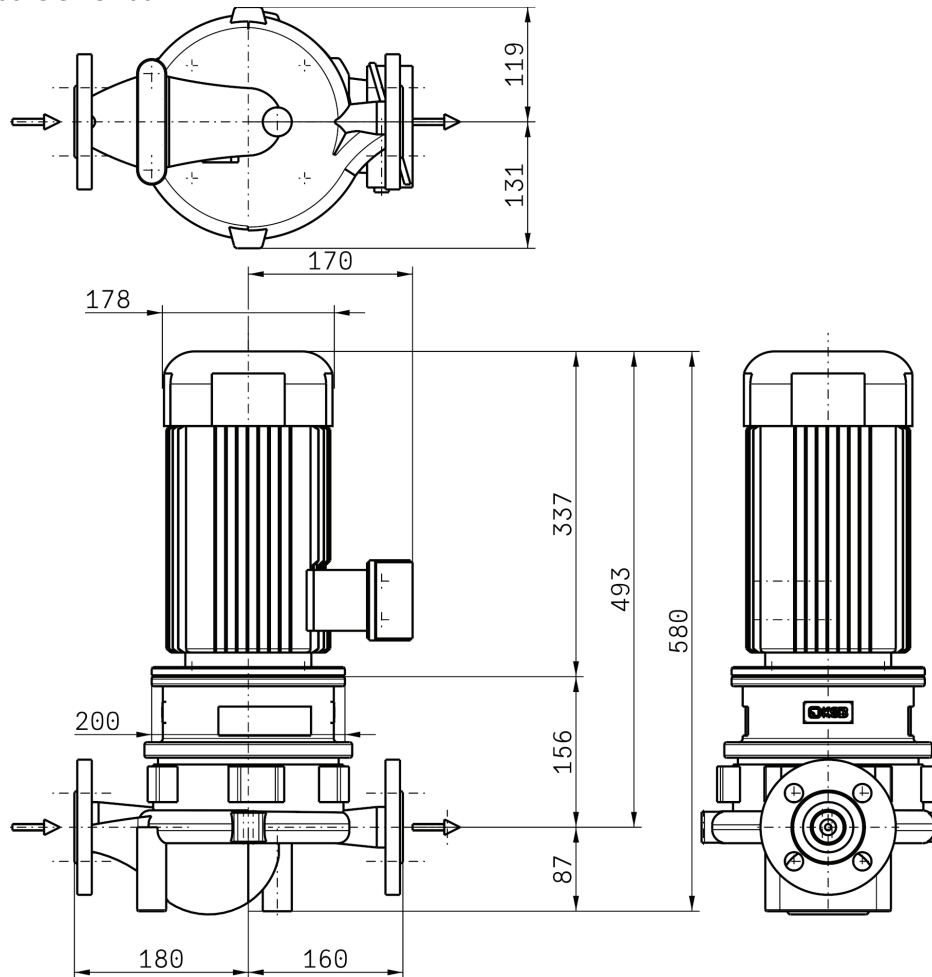


#### Curve Data

Pump speed	2,904 1/min	Efficiency Pump	57.3 %
Density Fluid handled	1,031 $\text{kg}/\text{m}^3$	Minimum efficiency index MEI	0.7
Kinematic viscosity Fluid handled	3.34 $\text{mm}^2/\text{s}$	Maximum power input at duty point	1.73 kW
Flow rate	19.9 $\text{m}^3/\text{h}$	NPSH required	3.73 m
Maximum permissible flow rate	28.4 $\text{m}^3/\text{h}$	Hydraulic impeller diameter	136.4 mm
Head	17.8 m	Hydraulic calculation according to standard/class	EN ISO 9906 Class 3B

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Drawing is not to scale.

Dimensions are given in mm

### Motor

Motor manufacturer	KSB's choice
Motor size	90L
Rated power Motor	2.2 kW
Number of motor poles	2
Rated speed Motor	2,870 1/min
Terminal box position of motor (looking at the motor shaft)	360 °

### Connections

Nominal diameter Suction nozzle	DN 32
Suction flange bolt hole pattern as per standard	EN1092-2
Nominal diameter Discharge nozzle	DN 32
Discharge flange bolt hole pattern as per standard	EN1092-2
Nominal pressure Suction nozzle	PN 16
Nominal pressure Discharge nozzle	PN 16



### **Etaline 032-032-160 GG**

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#### **Net weight**

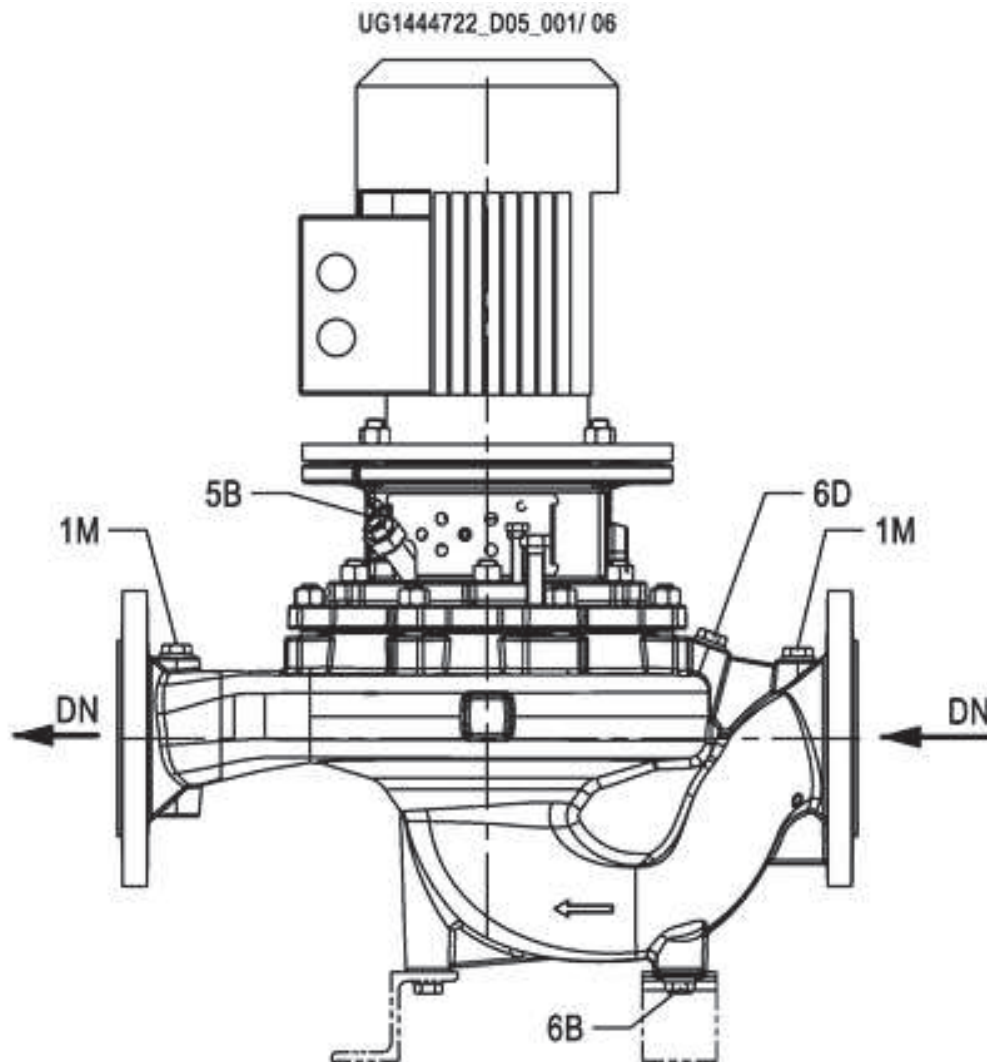
Total weight Pump	25.15 kg
Total weight Drive	22 kg
Total weight Pump set	47.15 kg
Total weight Assembly/transport aids	2.42 kg

#### **Connect pipelines stress-free**

Dimensional tolerances for shaft axis height: DIN 747  
Dimensions without tolerances, middle tolerances to: ISO 2768-m  
Connection dimensions for pumps: EN735  
Dimensions without tolerances - welded parts: ISO 13920-B  
Dimensions without tolerances - gray cast iron parts: ISO 8062-CT9

#### **Plan for additional connections see extra drawing**

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### Connections

6B Fluid Drain	G 1/4	Drilled and plugged
6D Fluid Filling and venting	G 1/4	Drilled and plugged
5B Venting and drain	G 1/4	Manual globe valve, fitted
1M Pressure gauge Discharge nozzle	G 1/4	Drilled and plugged
1M Pressure gauge Suction nozzle	G 1/4	Drilled and plugged