

**Etaline 065-065-160 GG**

ETL 065-065-160-GGSCV11 WSEDY2HHB

**Operating point 1 Dimensioning operating point****Operating conditions (purchaser requirements)**

Target flow rate	85 m <sup>3</sup> /h	Vapour pressure determined	0.04398 bar.a
Target head	30 m	Minimum inlet pressure	-0.3 bar.r
Fluid	Water	required	
Fluid variant	Clean water	Specified ambient temperature	20 °C
Specified fluid temperature	30 °C	Installation altitude above sea	1,000 m
Density Fluid handled	995.5 kg/m <sup>3</sup>	level	
Kinematic viscosity Fluid handled	0.7979 mm <sup>2</sup> /s		

**Operating conditions (performance)**

Flow rate	84.97 m <sup>3</sup> /h	Maximum power input at duty point	8.776 kW
Minimum permissible flow rate	13.46 m <sup>3</sup> /h	Maximum power input / curve	10.74 kW
Head	29.98 m	Pump speed	2,963 1/min
Shut-off head	38.44 m	Discharge pressure-max.	3.753 bar.r
Efficiency Pump	78.71 %		
NPSH required	4.65 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	0 °C
Pump system design	Single-pump system	Maximum permissible fluid temperature	60 °C
Specification of wetted parts	Manufactured without paint wetting impairment substances	Quantity Stages, single-entry	1
Pump direction of rotation, viewed from casing side	Counterclockwise	Installation chamber Casing cover	Conical (A-type cover)
Impeller diameter D2	160 mm	Bearing bracket size / shaft unit	25
Impeller type	Radial, closed, multi-channel	Pump directive	CE
Free passage	11.6 mm		
Hydraulic casing foot	Yes		

**Nozzle connections pump**

Nominal diameter Suction nozzle	DN 65	Nominal diameter Discharge nozzle	DN 65
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)		

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**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 11
Determined pressure Seal chamber	-0.08 bar.r	Shaft seal manufacturer inboard	KSB's choice

Mechanical seal type inboard KSB's choice

Material Shaft seal inboard BQEGG 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 Casing wear ring discharge-side (502.02)	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		
Material Volute casing foot	ST+PAINTED		
Material Support foot	WITHOUT		

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### Driver

Electric motor	Yes	Rated speed Motor	2,950 1/min
Drive concept	Electric actuator	Number of motor poles	2
Drive standard, mechanical	IEC	Rated power Motor	11 kW
Drive standard electric	IEC	Motor power reserve	25.3 %
Motor bearing, insulated	No	determined	
Motor manufacturer	KSB's choice	Rated voltage Motor	400 V
Customer supply Drive	No	Motor winding	400 / 690 V
Motor construction type	IM V1 (IM3011) IEC 60034-7	Rated frequency Motor	50Hz
Motor size	160M	Motor switching type	Delta
Efficiency class	IE3 (Premium)	Rated current Motor	22 A
Material motor housing	AL	Starting current ratio $I_a/I_n$	9
Enclosure Motor	IP55 (TEFC)	Cos phi at 4/4 load	0.78
Enclosure Unit	Without	Motor efficiency at 4/4 load	91.2 %
Thermal class	155 (F) nach IEC 60085	Limit value Maximum humidity	30 g/m <sup>3</sup>
Temperature sensor motor	3 PTC thermistors	Motor	
Terminal box position of motor (looking at the motor shaft)	360 °	Marking according to directive	CE
Operation on a frequency inverter permitted	Yes (acc to motor manufact)	Drive	
Sound pressure level Motor	74 dBA		
Type series Motor manufacturer	Acc. to motor manufacturer		

### 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

### Energy cost and Environmental Impact

Product Carbon Footprint indication (cradle-to-gate) (CO2eq) 647 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 CO2 emissions is based on several life cycle assessments acc. ISO 14040 / 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 has covered at least 95% of the total product mass. The analysis focuses exclusively on the

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Global Warming Potential (EF3.0 Climate Change – total).

**Packaging**

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

**Nameplates**

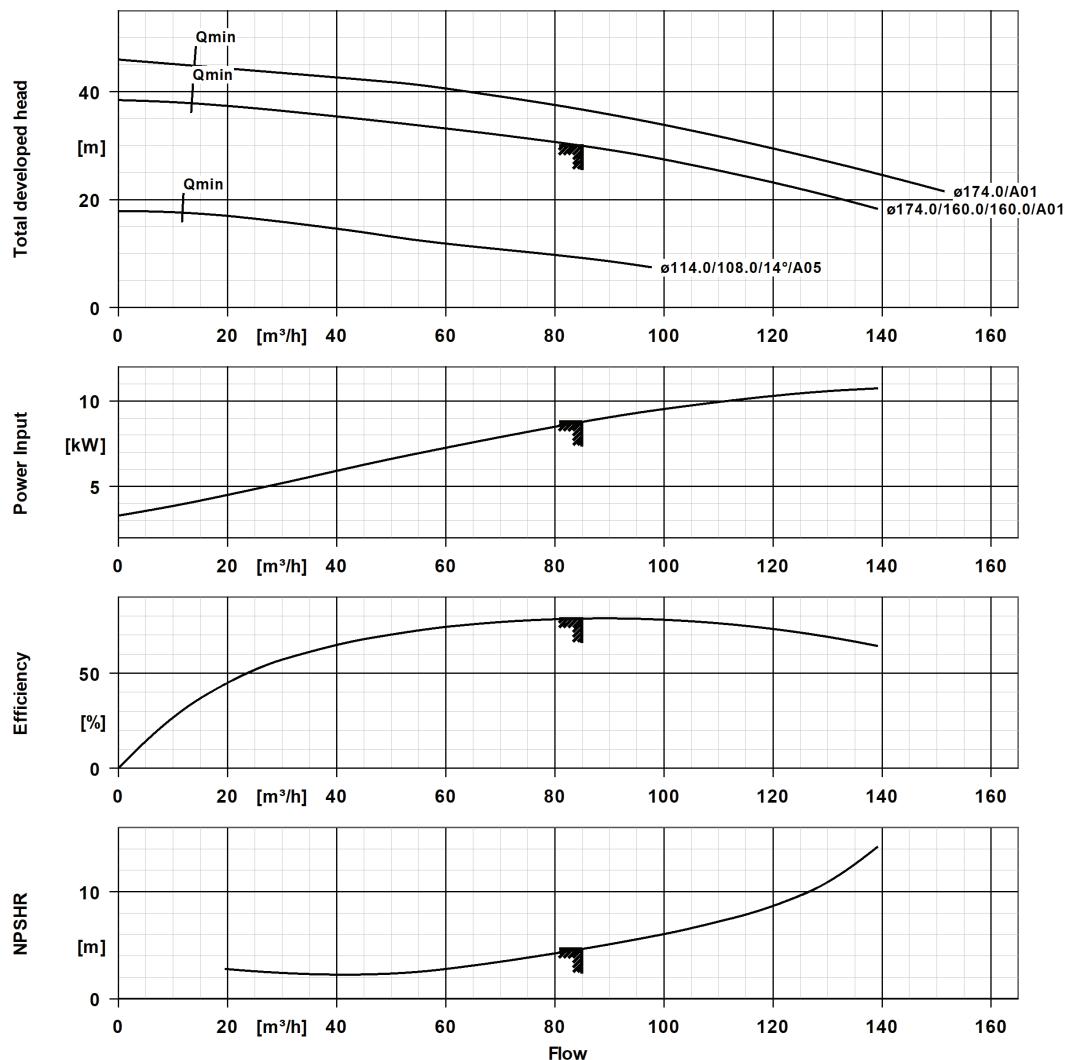
Duplicate name plate	No
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## Performance Curve (Pump)



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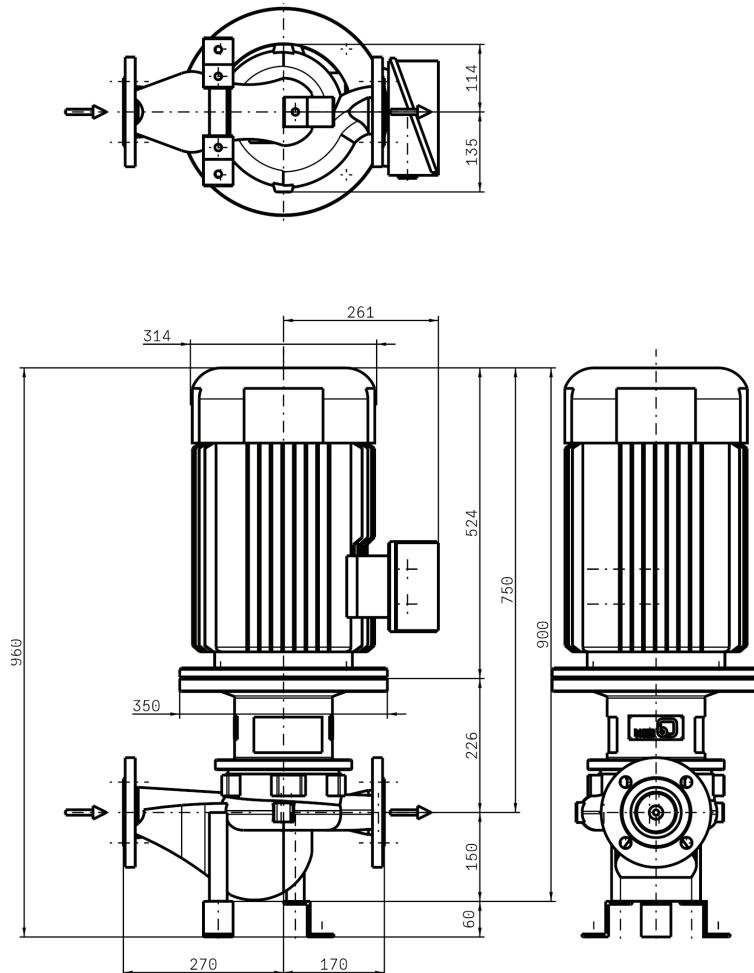
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### Curve Data

Pump speed	2,963 1/min	Efficiency Pump	78.7 %
Density Fluid handled	995 kg/m³	Minimum efficiency index MEI	0.7
Kinematic viscosity Fluid handled	0.798 mm²/s	Maximum power input at duty point	8.78 kW
Flow rate	85 m³/h	NPSH required	4.65 m
Head	30 m	Hydraulic impeller diameter	159.3 mm
		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**

Electric motor	Yes
Motor manufacturer	KSB's choice
Motor size	160M
Rated power Motor	11 kW
Number of motor poles	2
Rated speed Motor	2,950 1/min
Terminal box position of motor (looking at the motor shaft)	360 °

#### **Connections**

Nominal diameter Suction nozzle	DN 65
Suction flange bolt hole pattern as per standard	EN1092-2
Nominal diameter Discharge nozzle	DN 65
Discharge flange bolt hole pattern as per standard	EN1092-2
Nominal pressure Suction nozzle	PN 16
Nominal pressure Discharge nozzle	PN 16

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**Net weight**

Total weight Pump	43.24 kg
Total weight Drive	75 kg
Total weight Pump set	118.2 kg
Total weight Assembly/transport aids	11.92 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**