

Etabloc 065-050-160 GG

ETB 065-050-160-GGSBV10 WSEDY2HHB

Operating point 1

Dimensioning operating point

Operating conditions (purchaser requirements)

Target flow rate	
Target head	
Fluid	Water
Fluid variant	Clean water
Specified fluid temperature	20 °C
Density Fluid handled	998 kg/m³
Kinematic viscosity Fluid handled	1 mm²/s

Vapour pressure determined	0.02337 bar.a
Minimum inlet pressure required	-0.3 bar.r
Specified ambient temperature	20 °C
Installation altitude above sea level	1,000 m

Operating conditions (performance)

Flow rate	77.98 m³/h
Minimum permissible flow rate	11.86 m³/h
Maximum permissible flow rate	104.38 m³/h
Pump set	
Maximum permissible flow rate	104.38 m³/h
Head	29.98 m
Shut-off head	36.66 m
Efficiency Pump	80.04 %
NPSH required	3.13 m

Maximum power input at duty point	7.94 kW
Maximum power input / curve	9.022 kW
Pump speed	2,966 1/min
Shut-off discharge pressure	3.588 bar.r

Design data pump

Scope of supply Pump supplied by KSB	Pump + motor
Pump standard	EN 733
Shaft axis position	Horizontal
Pump design	Close-coupled
Pump system design	Single-pump system
Pump direction of rotation, viewed from casing side	Counterclockwise
Hydraulic impeller diameter	155.8 mm
Impeller type	Radial, closed, multi-channel
Free passage	11.6 mm
Support foot	No

Mains voltage	400 V
Mains frequency	50 Hz
Minimum efficiency index MEI	0.7
Minimum permissible fluid temperature	0 °C
Maximum permissible fluid temperature	60 °C
Quantity Stages, single-entry	1
Casing wear ring design suction-side	Flat
Casing wear ring design discharge-side	Flat
Installation chamber Casing cover	Conical (A-type cover)
Bearing bracket size / shaft unit	25
Pump directive	CE

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Nozzle connections pump

Nominal diameter Suction nozzle	DN 65	Nominal diameter Discharge nozzle	DN 50
Nominal pressure Suction nozzle	PN 16	Nominal pressure Discharge nozzle	PN 16
Suction nozzle position	Axial	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	Without Without
6D Fluid Filling and venting	G 1/4 Drilled and plugged	1M Pressure gauge Suction nozzle	Without Without
5B Venting and drain	G 1/4 Drilled and plugged		

Shaft sealing

Shaft seal type	Single mechanical seal; seal chamber can be vented (A-type casing cover) - AV	Shaft seal code	Code 10
		Shaft seal manufacturer inboard	KSB's choice
Operating mode of mechanical seal (function)	API plan 03	Mechanical seal type inboard	KSB's choice
Determined pressure Seal chamber	-0.09 bar.r	Material Shaft seal inboard	QQXGG

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 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		

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Driver

Asynchronous motors	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 determined	38.5 %
Motor bearing, insulated	No	Rated voltage Motor	400 V
Motor manufacturer	KSB's choice	Motor winding	400 / 690 V
Customer supply Drive	No	Rated frequency Motor	50Hz
Motor construction type	IM V15 (IM2011) IEC 60034-7	Motor switching type	Delta
Motor size	160M	Rated current Motor	22 A
Efficiency class	IE3 (Premium)	Starting current ratio Ia/In	9
Material motor housing	AL	Cos phi at 4/4 load	0.78
Enclosure Motor	IP55 (TEFC)	Motor efficiency at 4/4 load	91.2 %
Thermal class	155 (F) according to IEC 60085	Limit value Maximum humidity Motor	30 g/m³
Temperature sensor motor	3 PTC thermistors	Marking according to directive Drive	CE
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.	
Motor housing feet position	180° (below)		
Operation on a frequency inverter permitted	Yes (acc to motor manufact)		
Sound pressure level Motor	74 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) (CO₂eq) 778 kg
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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. 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)

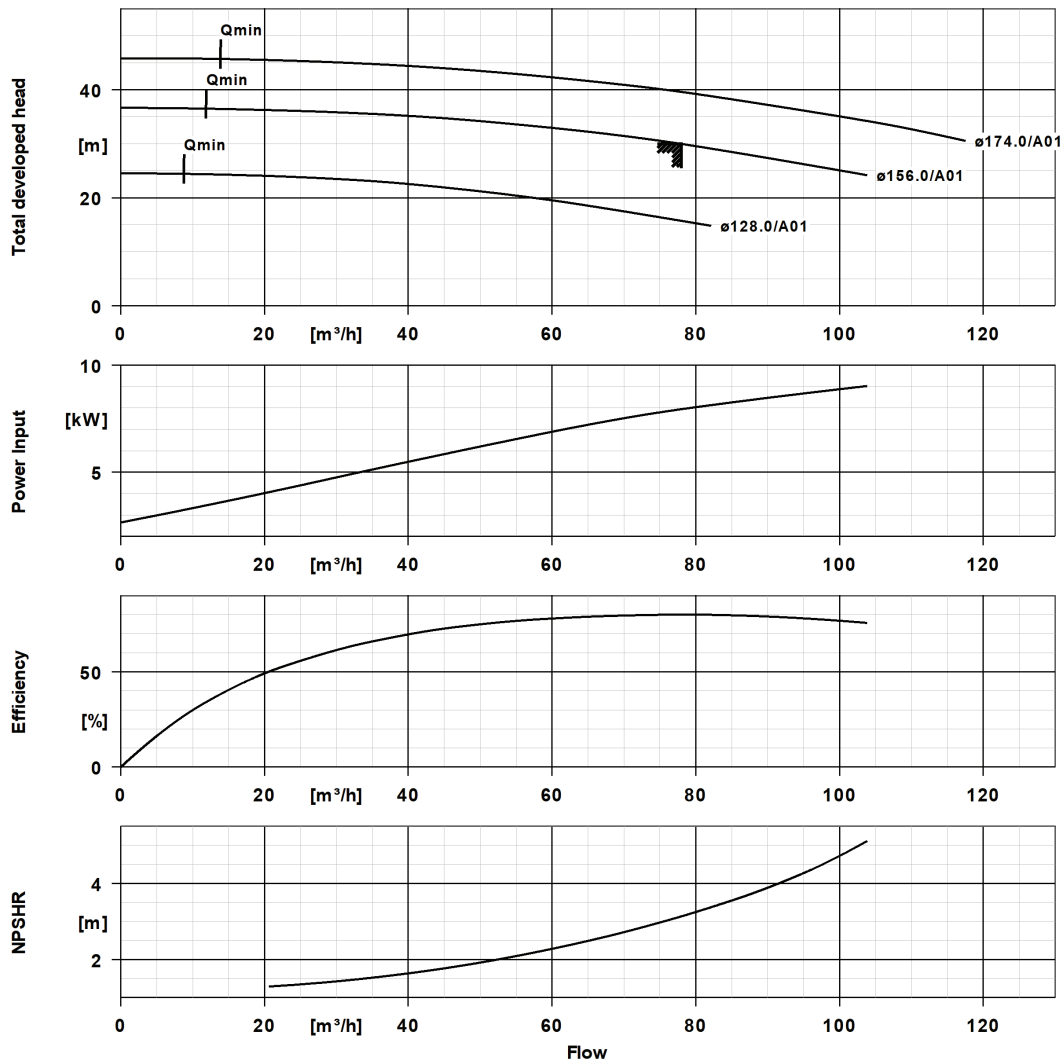
Performance Curve (Pump)



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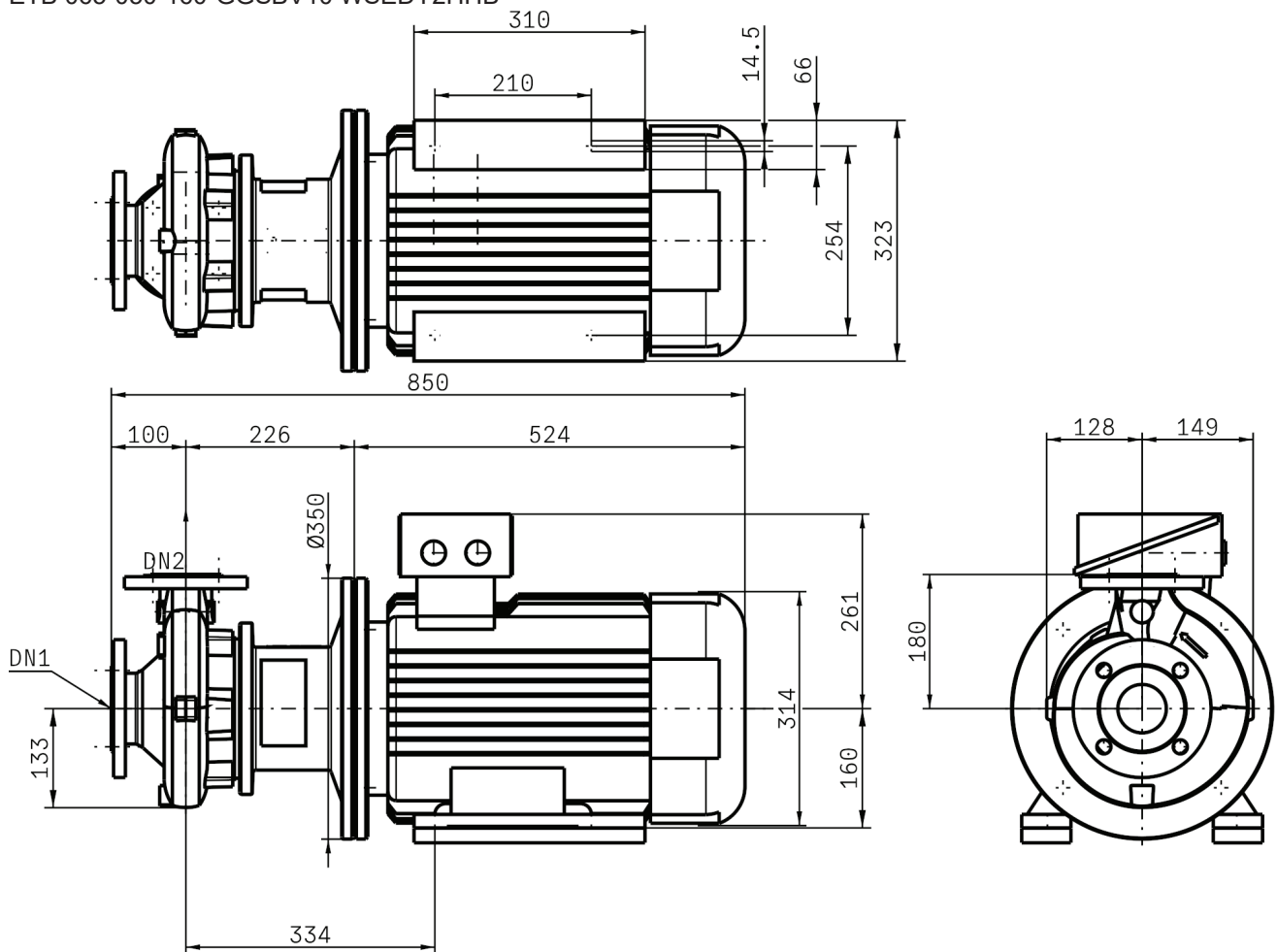


Curve Data

Pump speed	2,966 1/min	Efficiency Pump	80 %
Density Fluid handled	998 kg/m ³	Minimum efficiency index MEI	0.7
Kinematic viscosity Fluid handled	1 mm ² /s	Maximum power input at duty point	7.94 kW
Flow rate	78 m ³ /h	NPSH required	3.13 m
Maximum permissible flow rate	104 m ³ /h	Hydraulic impeller diameter	155.8 mm
Head	30 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	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 °
Motor housing feet position	180° (below)

Connections

Nominal diameter Suction nozzle	DN 65
Suction flange bolt hole pattern as per standard	EN1092-2
Nominal diameter Discharge nozzle	DN 50
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

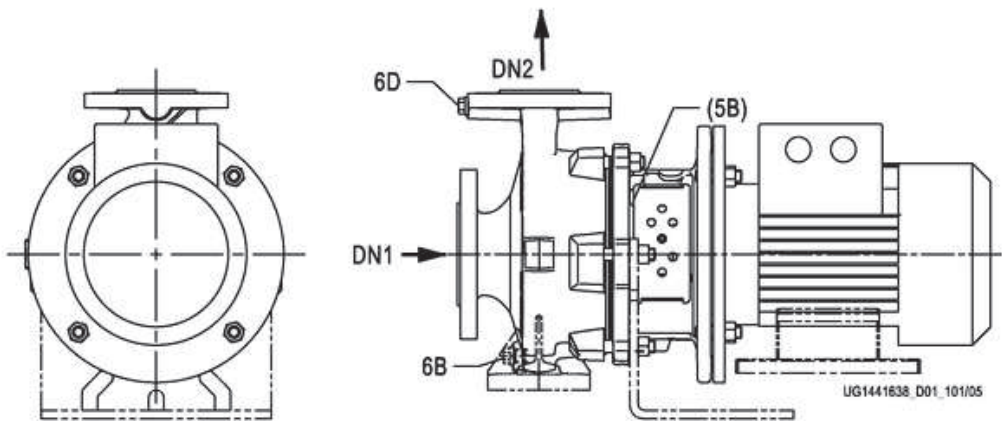
Total weight Pump	38.53 kg
Total weight Drive	98 kg
Total weight Pump set	136.5 kg
Total weight Assembly/transport aids	3.4 kg

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

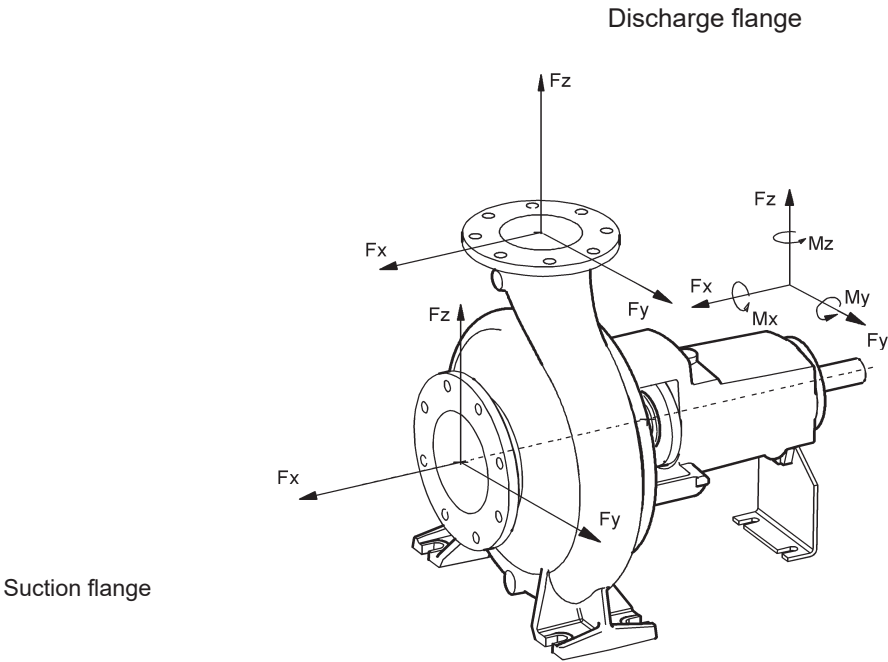
6B Fluid Drain
6D Fluid Filling and venting

G 1/4	Drilled and plugged
G 1/4	Drilled and plugged

5B Venting and drain

G 1/4	Drilled and plugged
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Drawing is not to scale.

Force and Moment Limits

Suction flange		Discharge flange	
Fx s (+/-)	740 N	Fx d (+/-)	530 N
Fy s (+/-)	650 N	Fy d (+/-)	470 N
Fz s (+/-)	600 N	Fz d (+/-)	580 N
Fres s (+/-)	1,153 N	Fres d (+/-)	916 N
Mx s (+/-)	530 Nm	Mx d (+/-)	500 Nm
My s (+/-)	390 Nm	My d (+/-)	350 Nm
Mz s (+/-)	420 Nm	Mz d (+/-)	400 Nm
		Temperature of validity	20 °C

The given force and moment limits are only applicable for static pipe loads. A computerized strength analysis is only available on special request. The values apply for installation on completely grouted baseplates bolted to a rigid, level foundation.