Technical Datasheet

Etabloc 200-150-250 GG
ETB 200-150-250-GGSBV76 WSFEO4HHB

Version No.: 1

Operating point 1 Dimensioning operating point

Operating conditions (purchaser requirements)

Target flow rate	400 m³/h	Vapour pressure determined	2.249 bar.a
Target head	12 m	Minimum inlet pressure required	1.601 bar.r
Fluid	Water, high-temperature hot water	Specified ambient temperature	20 °C
Fluid variant	High-temperature hot water treated to VdTÜV 1466	Installation altitude above sea level	1,000 m
Specified fluid temperature	124 °C		
Density Fluid handled	939.7 kg/m³		
Kinematic viscosity Fluid handled	0.2518 mm²/s		

Operating conditions (performance)

Flow rate	400.2 m³/h	Maximum power input at duty point	14.63 kW
Minimum permissible flow rate	95.42 m³/h	Maximum power input / curve	14.72 kW
Maximum permissible flow rate	0 m³/h	Pump speed	1,474 1/min
Pump unit		Discharge pressure-max.	3.176 bar.r
Head	12.01 m		
Shut-off head	17.59 m		
Efficiency Pump	84.12 %		
NPSH required	3.32 m		

Design data pump

Scope of supply Pump supplied by KSB	Pump + motor	Mains voltage	400 V
		Mains frequency	50 Hz
Pump standard	EN 733	Minimum efficiency index MEI	0.8
Shaft axis position	Horizontal	Minimum permissible fluid temperature	0 °C
Pump design	Close-coupled		
Pump system design	Single-pump system	Maximum permissible fluid temperature	140 °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	Casing wear ring design suction-side	Flat
Impeller diameter D2	233 mm	Casing wear ring design discharge-side	Flat
Impeller type	Radial, closed, multi-channel		
Free passage	23 mm	Installation chamber Casing cover	Conical (A-type cover)
Support foot	No		
		Bearing bracket size / shaft unit	35
		Pump directive	CE

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Nozzle connections pump

Nominal diameter Suction nozzle	DN 200	Nominal diameter Discharge nozzle	DN 150
Nominal pressure Suction nozzle	PN 10	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 1/2 Drilled and plugged	1M Pressure gauge Discharge nozzle	Without Without
6D Fluid Filling and venting	G 1/2 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 76
		Shaft seal manufacturer inboard	BURGMANN
Operating mode of mechanical seal (function)	API plan 03	Mechanical seal type inboard	ERMG13G6
Determined pressure Seal chamber	1.7 bar.r	Material Shaft seal inboard	AQ7EGG-Y10

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

Electric motor	Yes	Rated speed Motor	1,470 1/min
Drive concept	Electric actuator	Number of motor poles	4
Drive standard, mechanical	IEC	Rated power Motor	18.5 kW
Drive standard electric	IEC	Motor power reserve determined	26.5 %
Motor bearing, insulated	No		
Motor manufacturer	KSB's choice	Rated voltage Motor	400 V
Customer supply Drive	No	Motor winding	400 / 690 V
Motor construction type	IM V15 (IM2011) IEC 60034-7	Rated frequency Motor	50Hz
Motor size	180M	Motor switching type	Delta
Efficiency class	IE3 (Premium)	Rated current Motor	36.8 A
Material motor housing	AL	Starting current ratio Ia/In	8.7
Enclosure Motor	IP55 (TEFC)	Cos phi at 4/4 load	0.87
Enclosure Unit	Without	Motor efficiency at 4/4 load	92.6 %
Thermal class	155 (F) nach IEC 60085	Limit value Maximum humidity Motor	30 g/m³
Temperature sensor motor	3 PTC thermistors		
Terminal box position of motor (looking at the motor shaft)	360 °	Marking according to directive Drive	CE
Operation on a frequency inverter permitted	Yes (acc to motor manufact)		
Sound pressure level Motor	69 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)	1,646 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	KSB's choice (A0)

Nameplates

Duplicate name plate	No

Performance Curve (Pump)

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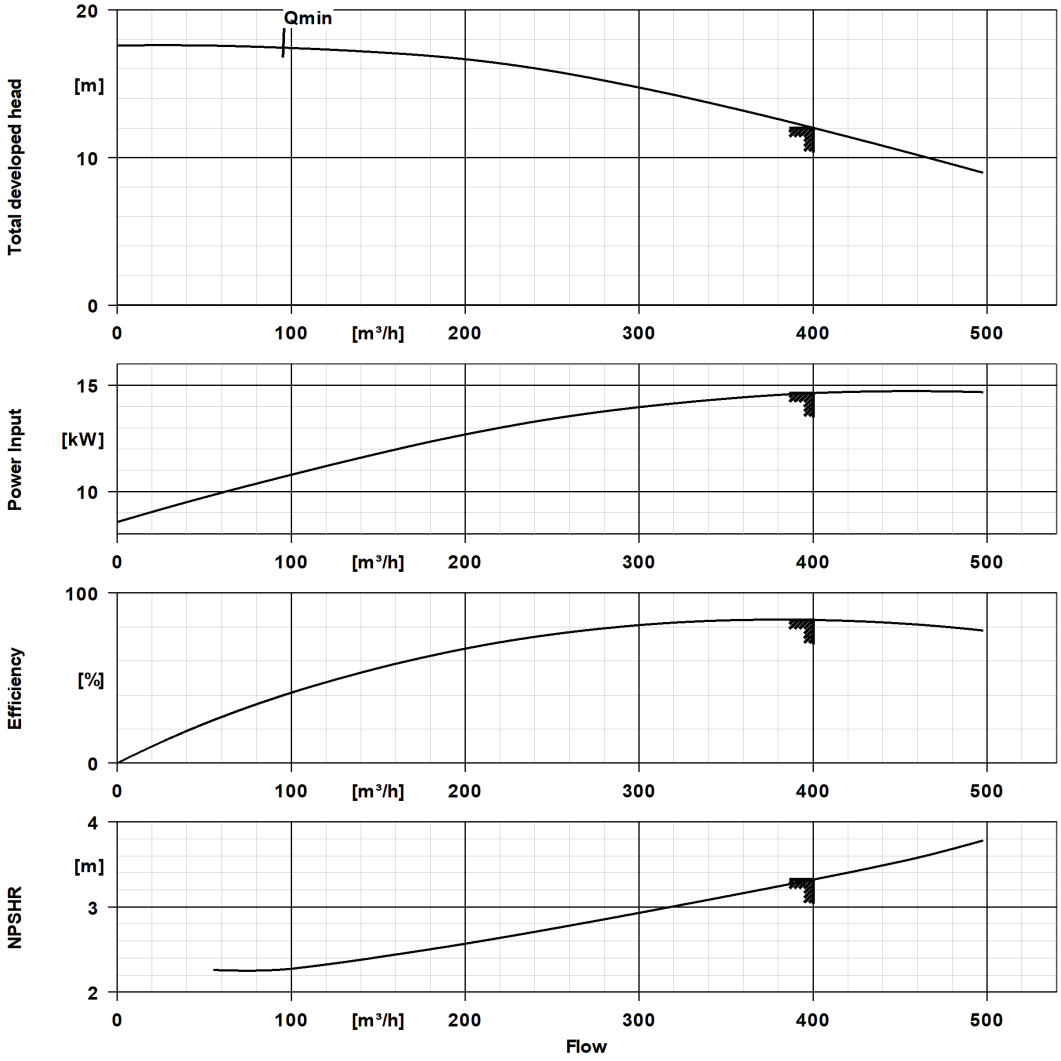

Curve Data

Pump speed	1,474 1/min	Efficiency Pump	84.1 %
Density Fluid handled	940 kg/m³	Minimum efficiency index MEI	0.8
Kinematic viscosity Fluid handled	0.252 mm²/s	Maximum power input at duty point	14.6 kW
Flow rate	400 m³/h	NPSH required	3.32 m
Head	12 m	Hydraulic impeller diameter	232.6 mm
		Hydraulic calculation according to standard/ class	EN ISO 9906 Class 3B

Installation plan

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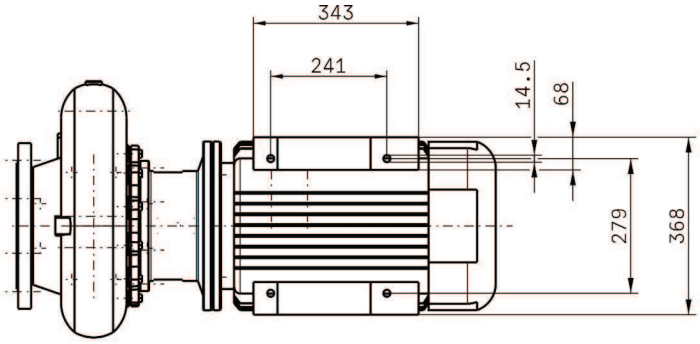

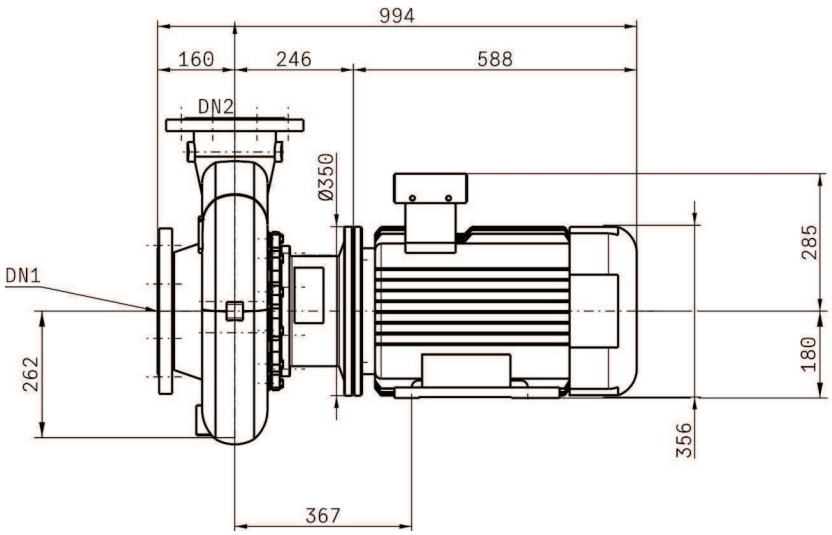

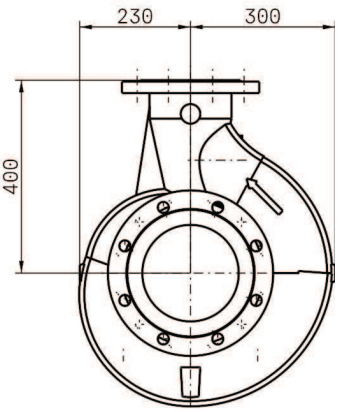

Drawing is not to scale.

Dimensions are given in mm

Motor

Electric motor	Yes
Motor manufacturer	KSB's choice
Motor size	180M
Rated power Motor	18.5 kW
Number of motor poles	4
Rated speed Motor	1,470 1/min
Terminal box position of motor (looking at the motor shaft)	360 °

Connections

Nominal diameter Suction nozzle	DN 200
Suction flange bolt hole pattern as per standard	EN1092-2
Nominal diameter Discharge nozzle	DN 150
Discharge flange bolt hole pattern as per standard	EN1092-2
Nominal pressure Suction nozzle	PN 10
Nominal pressure Discharge nozzle	PN 16

Net weight

Total weight Pump	146.7 kg
Total weight Drive	169 kg
Total weight Pump set	315.7 kg

Installation plan

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Connect pipelines stress-free

Plan for additional connections see extra drawing

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