Technical Datasheet

Etabloc 100-080-200 GG
ETB 100-080-200-GGSBV11 WSFBI6HHB

Operating point 1 Dimensioning operating point

Operating conditions (purchaser requirements)

Target flow rate		Vapour pressure determined	0.4736 bar.a
Target head		Minimum inlet pressure required	-0.3 bar.r
Fluid	Water, heating water		
Fluid variant	Heating water up to 100°C (max.), acc. to VDI 2035	Specified ambient temperature	20 °C
		Installation altitude above sea level	1'000 m
Specified fluid temperature	80 °C		
Density Fluid handled	972 kg/m³		
Kinematic viscosity Fluid handled	0.37 mm²/s		

Operating conditions (performance)

Flow rate	44.75 m³/h	Maximum power input at duty point	0.6441 kW
Minimum permissible flow rate	8.356 m³/h		
Maximum permissible flow rate	71.44 m³/h	Maximum power input / curve	0.8059 kW
Pump set		Pump speed	987.3 1/min
Maximum permissible flow rate	71.44 m³/h	Shut-off pressure	0.4604 bar.r
Head	4.36 m		
Maximum pressure determined at duty point	0.4156 bar.r		
Shut-off head	4.83 m		
Efficiency Pump	80.24 %		
NPSH required	0.48 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	0.7
Shaft axis position	Horizontal	Minimum permissible fluid temperature	0 °C
Pump design	Close-coupled		
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	174.1 mm	Casing wear ring design suction-side	Casing wear ring flat
Impeller type	Radial, closed, multi-channel		
Free passage	15.2 mm	Casing wear ring design discharge-side	Casing wear ring flat
Support foot	Yes		
		Installation chamber Casing cover	Conical (A-type cover)
		Bearing bracket size / shaft unit	35
		Pump directive	UKCA

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Nozzle connections pump

Nominal diameter Suction nozzle	DN 100	Nominal diameter Discharge nozzle	DN 80
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

1M Pressure gauge Discharge nozzle	G 3/8 Drilled and plugged	5B Venting and drain	G 1/4 Drilled and plugged
1M Pressure gauge Suction nozzle	G 3/8 Drilled and plugged		
6B Fluid Drain	G 3/8 Drilled and plugged		
6D Fluid Filling and venting	G 3/8 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 11
		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	-0.27 bar.r	Material Shaft seal inboard	BQEGG DW001

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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		

Driver

Electric motor, asynchronous	Yes	Rated speed Motor	970 1/min
Drive concept	Electric actuator	Number of motor poles	6
Drive standard, mechanical	IEC	Rated power Motor	1.5 kW
Drive standard electric	IEC	Motor power reserve determined	133 %
Motor bearing, insulated	No		
Motor manufacturer	Innomotics	Rated voltage Motor	400 V
Customer supply Drive	No	Motor winding	230 / 400 V
Motor construction type	IM V1 (IM3011) IEC 60034-7	Rated frequency Motor	50Hz
Motor size	100L	Motor switching type	Star
Efficiency class	IE3 (Premium)	Rated current Motor	3.6 A
Material motor housing	AL	Starting current ratio Ia/In	5.2
Enclosure Motor	IP55 (TEFC)	Cos phi at 4/4 load	0.73
Thermal class	155 (F) according to IEC 60085	Motor efficiency at 4/4 load	82.5 %
Temperature sensor motor	3 PTC thermistors	Limit value Maximum humidity Motor	30 g/m³
Terminal box position of motor (looking at the motor shaft)	360 °	Marking according to directive Drive	UKCA
Operation on a frequency inverter permitted	Yes (acc to motor manufact)		
Earthing connection 31M Drive	No		
Sound pressure level Motor	59 dBa		
Type series Motor manufacturer	1LE1		

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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
Colour Top coat Drive	RAL5002 Ultramarine Blue

Energy cost and Environmental Impact

Result

Estimated Product Carbon Footprint (cradle-to-gate) (CO2eq) *	382 kg

*is based on the product weight assuming typical material proportions. The conversion rate between product weight and CO2 emissions is based on several life cycle analyses in acc. with ISO 14040 / 44 of sample products from the same series. The objective and scope of these LCAs was limited to the manufacturing phase (cradle-to-gate). With regard to the ‘inputs’, all materials, energy and auxiliary materials were taken into account; with regard to the ‘outputs’, emissions, scrap and waste were considered. The influence of outgoing logistics is not covered. The input variables of the analyses cover at least 95% of the total weight. The analysis focusses on the global warming potential (EF3.0 Climate Change - total).

Packaging

Suitable for transport	Truck transport
Suitable for storage	Indoor storage
Packaging category	Wooden box to ISPM 15 with a certificate or <40 kg; alternatively a folding box of corrugated cardboard (A11)
IPPC Standard ISPM 15	Yes

Order related documents

Detail drawing Mechanical seal	No

Performance Curve (Pump)

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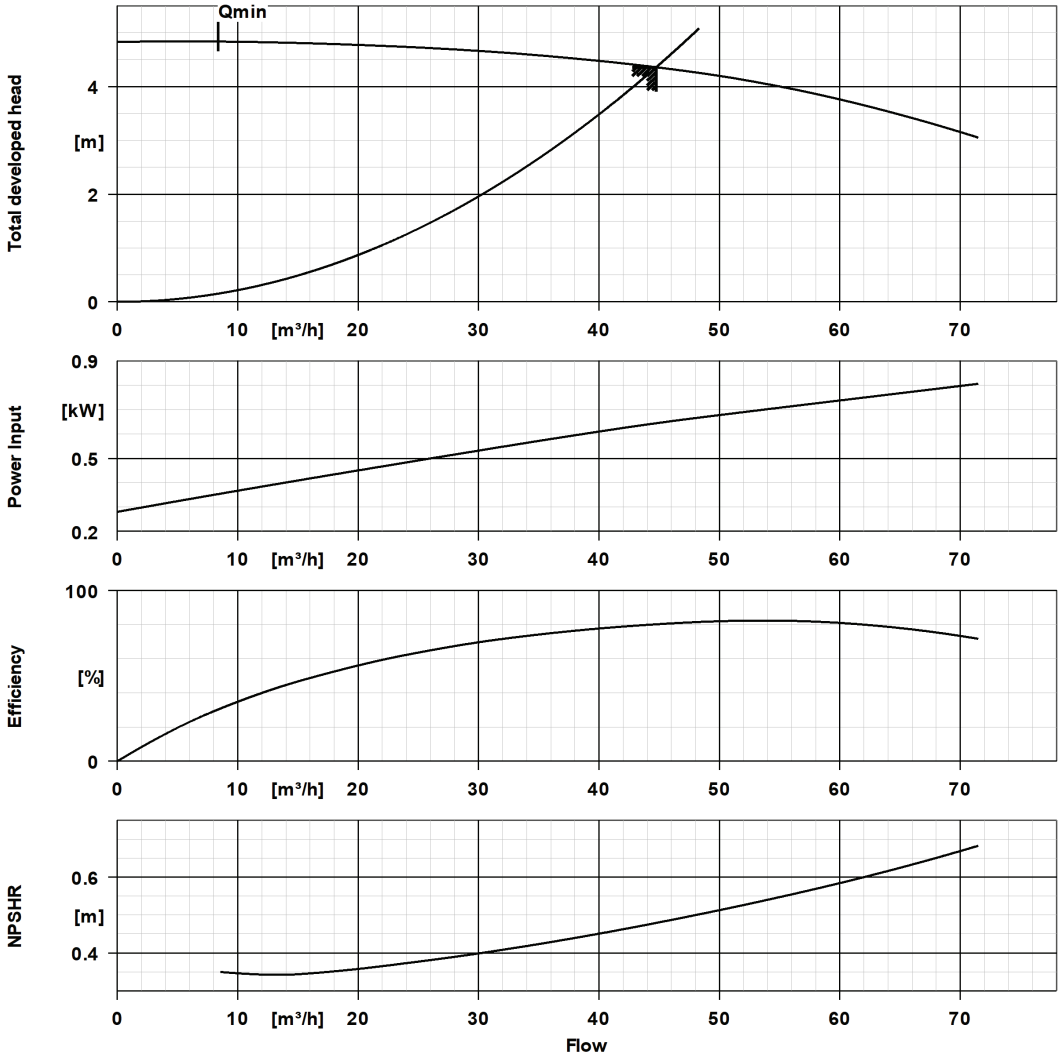

Curve Data

Pump speed	987 1/min	Efficiency Pump	80.2 %
Density Fluid handled	972 kg/m³	Minimum efficiency index MEI	0.7
Kinematic viscosity Fluid handled	0.37 mm²/s	Maximum power input at duty point	0.64 kW
Flow rate	44.8 m³/h	NPSH required	0.48 m
Maximum permissible flow rate	71.4 m³/h	Hydraulic impeller diameter	174.1 mm
Head	4.36 m	Hydraulic values according to	EN ISO 9906 Class 3B
Maximum pressure determined at duty point	0.42 bar.r		

Installation plan

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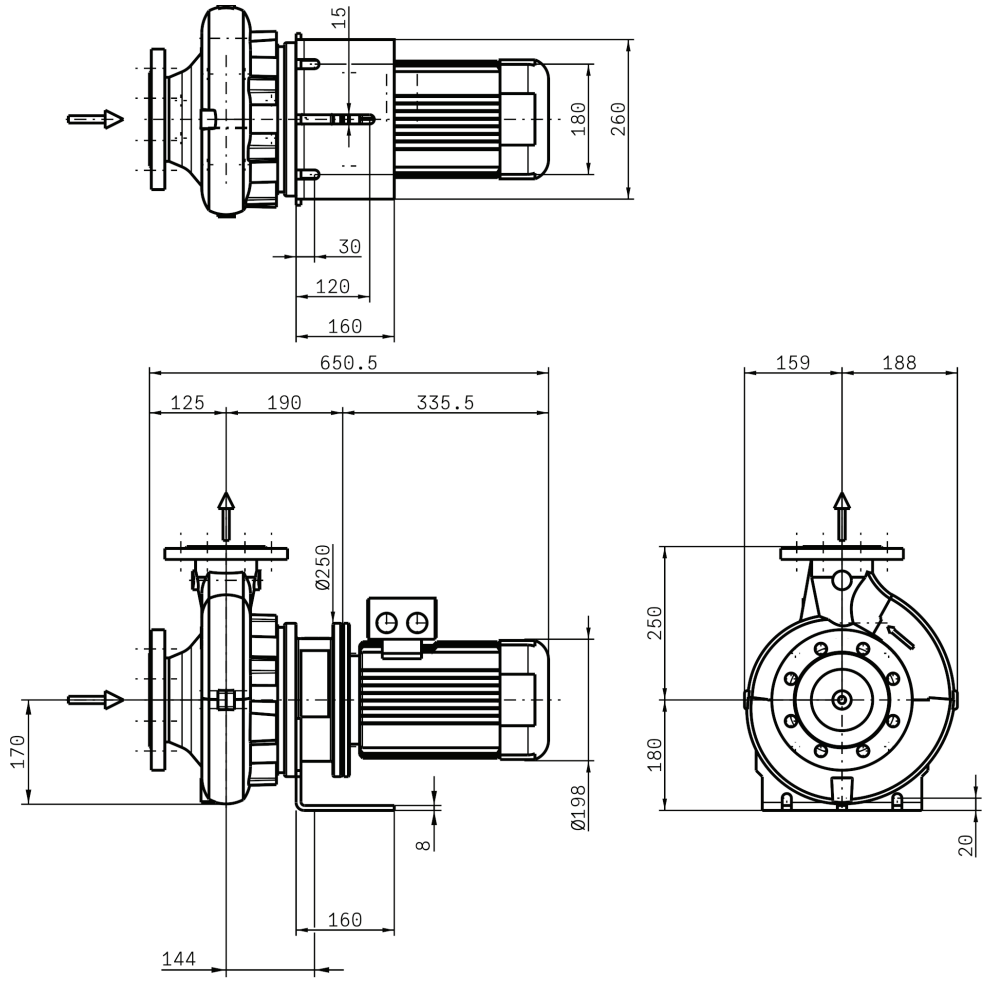

Drawing is not to scale.

Dimensions are given in mm

Motor

Motor manufacturer	Innomotics
Motor size	100L
Rated power Motor	1.5 kW
Number of motor poles	6
Rated speed Motor	970 1/min
Terminal box position of motor (looking at the motor shaft)	360 °

Connections

Nominal diameter Suction nozzle	DN 100
Suction flange bolt hole pattern as per standard	EN1092-2
Nominal diameter Discharge nozzle	DN 80
Discharge flange bolt hole pattern as per standard	EN1092-2
Nominal pressure Suction nozzle	PN 16
Nominal pressure Discharge nozzle	PN 16

Installation plan

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Net weight

Total weight Pump	58.24 kg
Total weight Drive	25 kg
Total weight Pump set	83.24 kg

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

Auxiliary Connection Plan

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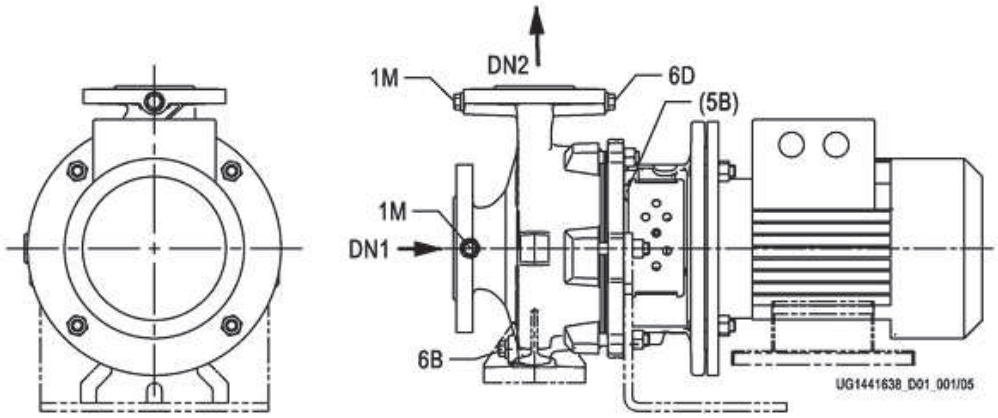

Connections

1M Pressure gauge Discharge nozzle	G 3/8	Drilled and plugged
1M Pressure gauge Suction nozzle	G 3/8	Drilled and plugged
6B Fluid Drain	G 3/8	Drilled and plugged
6D Fluid Filling and venting	G 3/8	Drilled and plugged
5B Venting and drain	G 1/4	Drilled and plugged

Force and Moment

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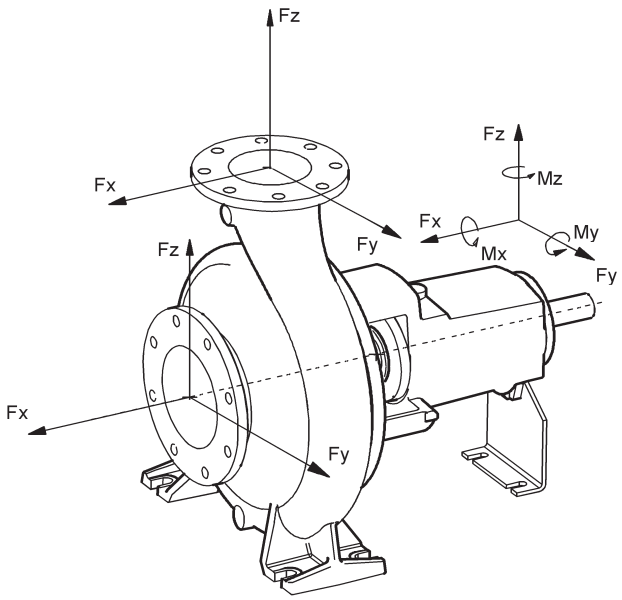
Discharge flange



Suction flange

Drawing is not to scale.

Force and Moment Limits

Suction flange		Discharge flange	
Fx s (+/-)	1'169 N	Fx d (+/-)	783 N
Fy s (+/-)	1'040 N	Fy d (+/-)	713 N
Fz s (+/-)	941 N	Fz d (+/-)	872 N
Fres s (+/-)	1'826 N	Fres d (+/-)	1'372 N
Mx s (+/-)	614 Nm	Mx d (+/-)	555 Nm
My s (+/-)	436 Nm	My d (+/-)	396 Nm
Mz s (+/-)	505 Nm	Mz d (+/-)	456 Nm
		Temperature of validity	80 °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.