

Etabloc 100-080-200 GG ETB 100-080-200-GGSBV11 WSFCM4HAB

Operating point 1

Dimensioning operating point

Operating conditions (purchaser requirements)

Target flow rate		Vapour pressure determined	0,7032 bar.a
Target head		Minimum inlet pressure	-0,1454 bar.r
Fluid	Water, heating water	required	
Fluid variant	Heating water up to 100°C (max.), acc. to VDI 2035	Specified ambient temperature	20 °C
Specified fluid temperature	90 °C	Installation altitude above sea level	1.000 m
Density Fluid handled	965,2 kg/m³		
Kinematic viscosity Fluid handled	0,3297 mm²/s		

Operating conditions (performance)

Flow rate	86,12 m³/h	Maximum power input at duty point	3,124 kW
Minimum permissible flow rate	22,25 m³/h	Maximum power input / curve	3,632 kW
Head	11,53 m	Pump speed	1.500 1/min
Shut-off head	13,36 m	Discharge pressure-max.	1,264 bar.r
Efficiency Pump	83,56 %		
NPSH required	1,1 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	Horizontal	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	110 °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	192 mm	Casing wear ring design discharge-side	Flat
Impeller type	Radial, closed, multi-channel	Installation chamber Casing cover	Conical (A-type cover)
Free passage	15,2 mm	Bearing bracket size / shaft unit	35
Support foot	Yes	Pump directive	CE

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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

6B Fluid Drain	G 3/8 Drilled and plugged	1M Pressure gauge Discharge nozzle	Without Without
6D Fluid Filling and venting	G 3/8 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 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	-0,07 bar.r	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 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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Power Drive System

Drive concept	Electric actuator	Rated speed Motor	1.500 1/min
Drive standard, mechanical	IEC	Number of motor poles	4
Drive standard electric	IEC	Rated power Motor	4 kW
Motor manufacturer	KSB	Motor power reserve determined	28 %
Motor construction type	IM V1 (IM3011) IEC 60034-7	Rated voltage Motor	400 V
Motor size	112M	Motor winding	- / 400 V
Efficiency class	IE5 (Ultra Premium)	Rated frequency Motor	50Hz
Material motor housing	AL	Motor switching type	Star
Enclosure Motor	IP55 (TEFC)	Maximum current Unit	0 A
Thermal class	155 (F) nach IEC 60085	Rated current Motor	9,6 A
Temperature sensor motor	3 PTC thermistors	Cos phi at 4/4 load	0,73
Terminal box position of motor (looking at the motor shaft)	360 °	Motor efficiency at 4/4 load	91,2 %
Operation on a frequency inverter permitted	Required by design	Marking according to directive CE Drive	
Sound pressure level Motor	61 dBa		
Type series Motor manufacturer	SuPremE C2		

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



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Packaging

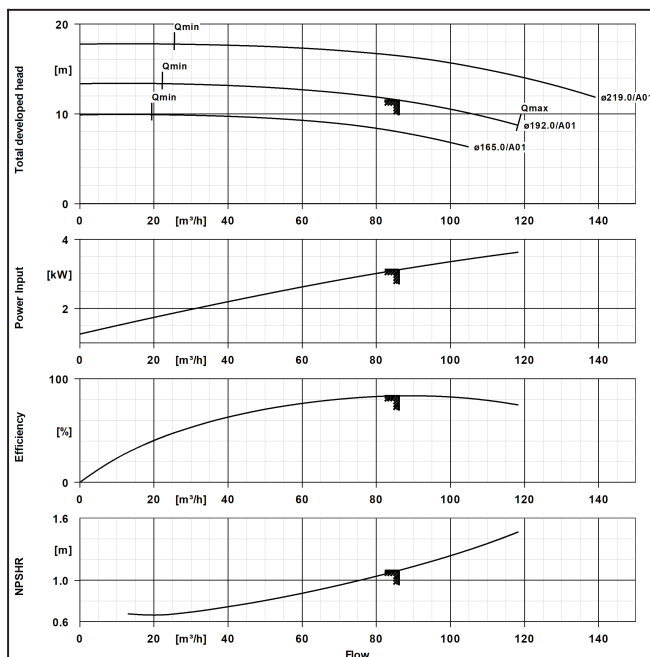
Suitable for transport	Truck transport
Suitable for storage	Indoor storage
Packaging category	KSB's choice (A0)

Nameplates

Duplicate name plate	No
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Design data pump

Pump standard	EN 733
Pump design	Close-coupled
Nominal diameter Suction nozzle	DN 100
Suction nozzle design acc.to	EN1092-2
Suction flange bolt hole pattern as per standard	EN1092-2
Nominal diameter Discharge nozzle	DN 80
Discharge nozzle design acc.to	EN1092-2
Discharge flange bolt hole pattern as per standard	EN1092-2
Nominal pressure Suction nozzle	PN 16
Nominal pressure Discharge nozzle	PN 16
Shaft/Stem seal	Inboard single mechanical seal
Material Shaft seal inboard	BQEGG DW001
Shaft seal code	Code 11
Hydraulic impeller diameter	191,9 mm
Free passage	15,2 mm
Specification of wetted parts	Manufactured without paint wetting impairment substances

Materials

Material Volute casing	EN-GJL-250/A48 CL 35B
Material Casing cover	EN-GJL-250/A48 CL 35B
Material Shaft	C45+N
Material Impeller	EN-GJL-250/A48 CL 35B

Dimensioning operating point

Fluid	Water, heating water
Fluid variant	Heating water up to 100°C (max.), acc. to VDI 2035
Specified ambient temperature	20 °C
Specified fluid temperature	90 °C
Flow rate	86,1 m³/h
Head	11,5 m
Efficiency Pump	83,6 %
Minimum efficiency index MEI	0,7
Maximum power input at duty point	3,124 kW
Pump speed	1.500 1/min
Pump system design	Single-pump system
NPSH required	1,1 m

Driver

Drive concept	Electric actuator
Drive standard, mechanical	IEC
Drive standard electric	IEC
Efficiency class	IE5 (Ultra Premium)
Rated speed Motor	1.500 1/min
Rated frequency Motor	50Hz
Rated voltage Motor	400 V
Rated power Motor	4 kW
Motor power reserve determined	28 %
Rated current Motor	9,6 A
Thermal class	155 (F) nach IEC 60085
Enclosure Motor	IP55 (TEFC)
Temperature sensor motor	3 PTC thermistors
Mains voltage	400 V
Motor switching type	Star
Operation on a frequency inverter permitted	Required by design
Terminal box position of motor (looking at the motor shaft)	360 °

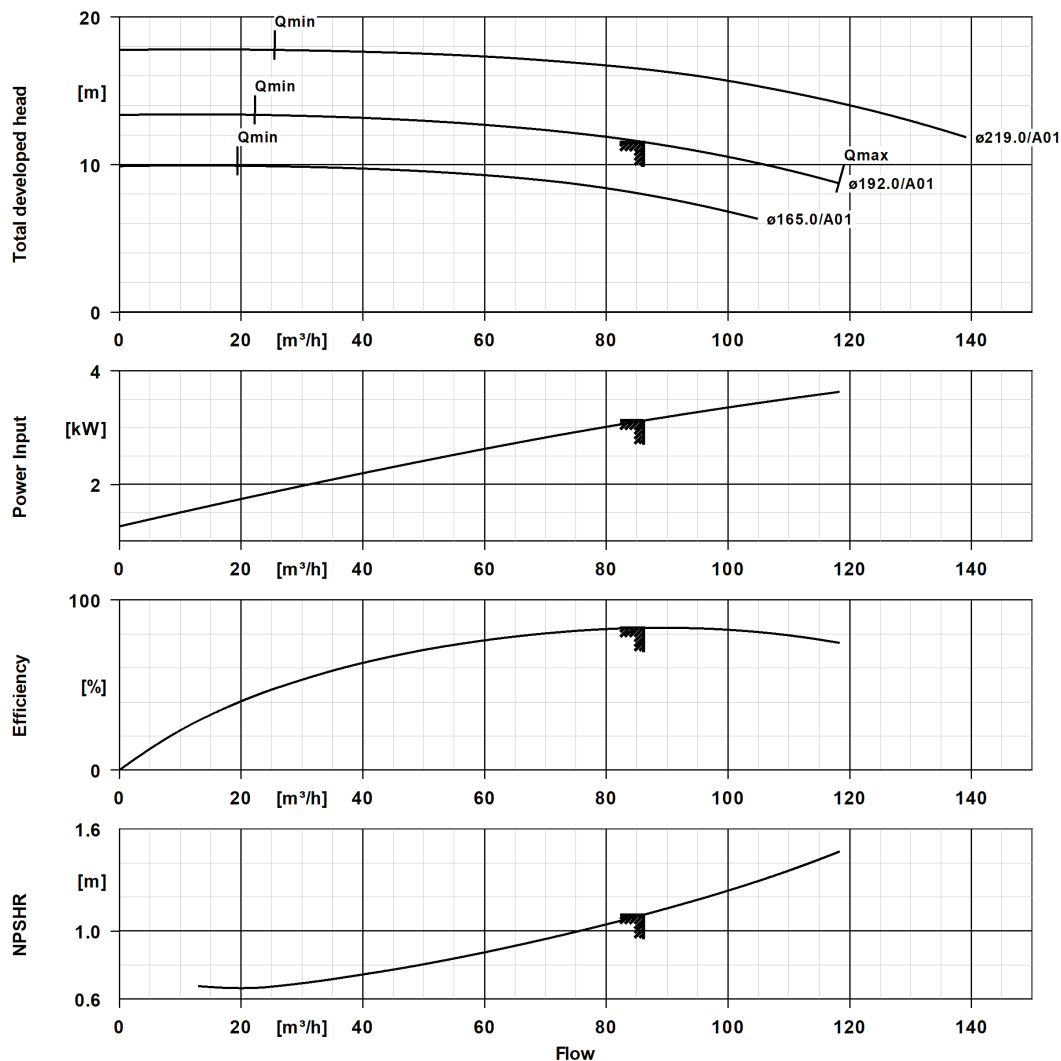
Performance Curve (Pump)



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Curve Data

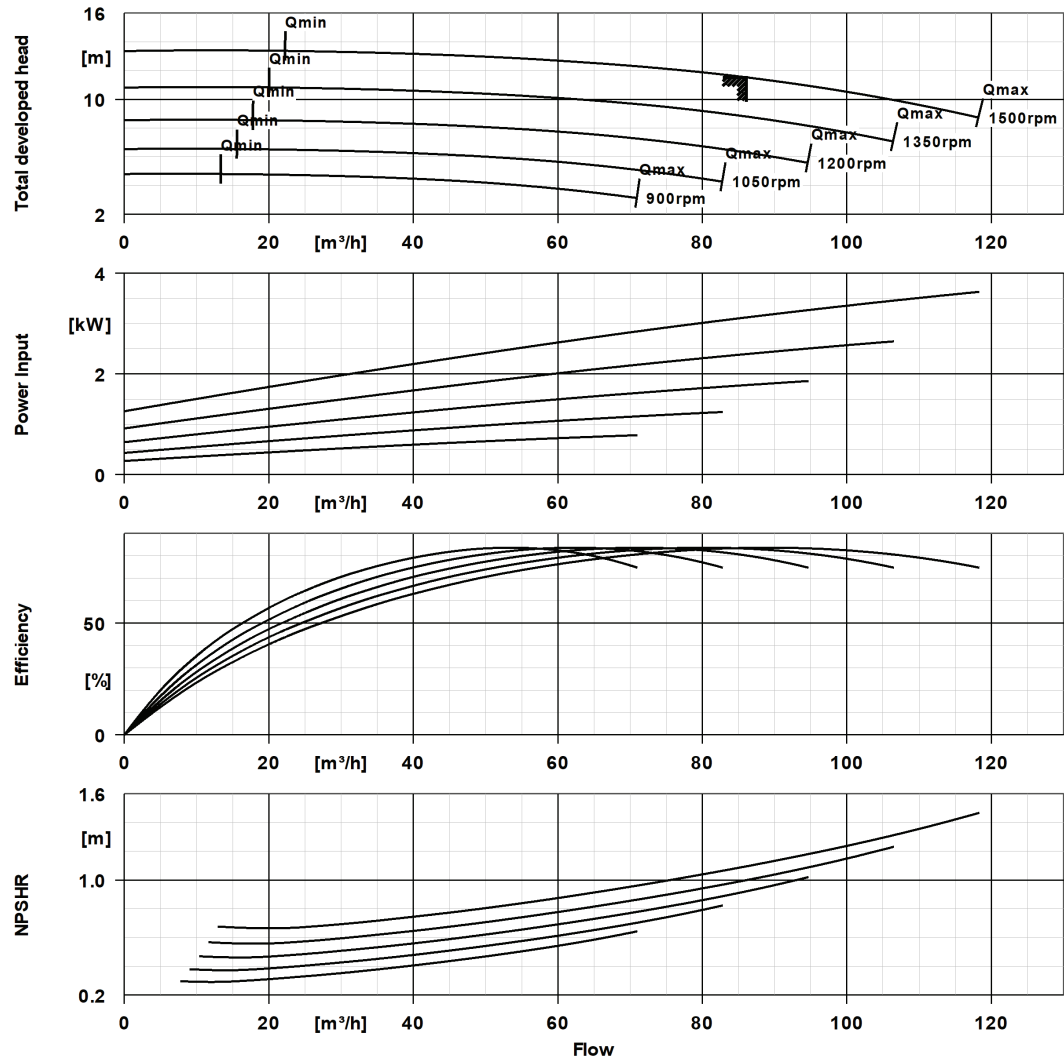
Pump speed	1.500 1/min	Efficiency Pump	83,6 %
Density Fluid handled	965 kg/m ³	Minimum efficiency index MEI	0,7
Kinematic viscosity Fluid handled	0,33 mm ² /s	Maximum power input at duty point	3,12 kW
Flow rate	86,1 m ³ /h	NPSH required	1,1 m
Head	11,5 m	Hydraulic impeller diameter	191,9 mm
		Hydraulic calculation according to standard/class	EN ISO 9906 Class 3B

Speed Curve



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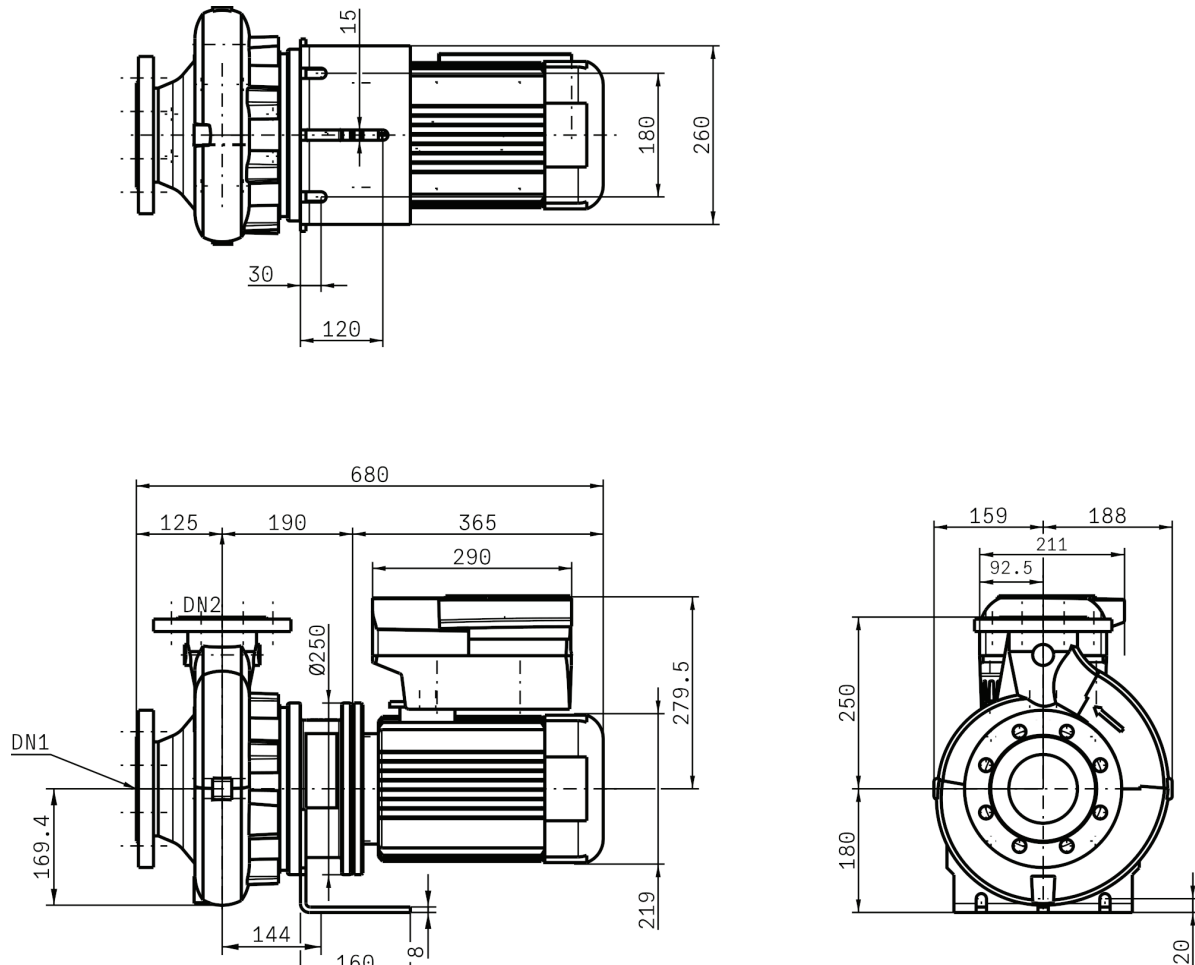
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Curve Data

Density Fluid handled	965 kg/m³	Minimum efficiency index MEI	0,7
Kinematic viscosity Fluid handled	0,33 mm²/s	Hydraulic impeller diameter	191,9 mm
Flow rate	86,12 m³/h	Head	11,53 m

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Drawing is not to scale.

Dimensions are given in mm

Motor

Electric motor	No
Rated power Motor	4 kW
Rated speed Motor	1.500 1/min

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

Net weight

Total weight Pump	58,73 kg
Total weight Drive	33 kg
Total weight Pump set	102,3 kg



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Connect pipelines stress-free

Plan for additional connections see extra drawing

Dimensional tolerances for shaft axis height: DIN 747

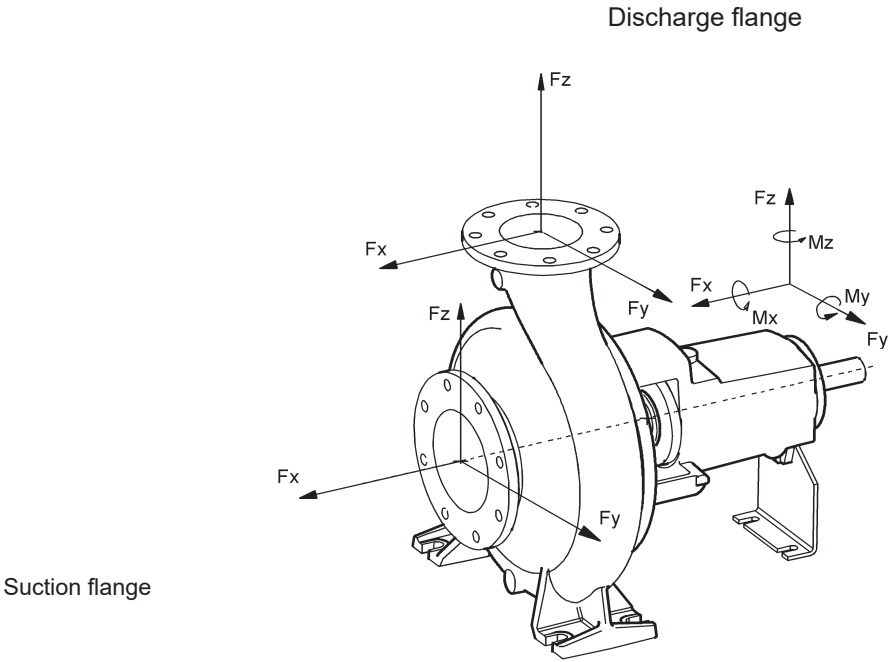
Dimensions without tolerances, middle tolerances to: ISO 2768-m

Connection dimensions for pumps: EN735

Dimensions without tolerances - welded parts: ISO 13920-B

Dimensions without tolerances - gray cast iron parts: ISO 8062-CT9

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Drawing is not to scale.

Force and Moment Limits

Suction flange		Discharge flange	
Fx s (+/-)	1.166 N	Fx d (+/-)	780 N
Fy s (+/-)	1.037 N	Fy d (+/-)	711 N
Fz s (+/-)	939 N	Fz d (+/-)	869 N
Fres s (+/-)	1.821 N	Fres d (+/-)	1.368 N
Mx s (+/-)	613 Nm	Mx d (+/-)	553 Nm
My s (+/-)	435 Nm	My d (+/-)	395 Nm
Mz s (+/-)	504 Nm	Mz d (+/-)	454 Nm
		Temperature of validity	90 °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.

Design

Modular, self-cooling frequency inverter enabling continuously variable speed control of asynchronous and synchronous reluctance motors.

Design concept	Eco	Total weight Control unit	0 kg
Display type	With standard control panel	Maximum length	290 mm
Rated power Control unit	4 kW	Maximum width	186 mm
Maximum output current Control unit	10 A	Maximum height	144 mm
M12 module	Without		
Integrated connection hardware for self-parameterisation	Without		
Integrated master switch	No		
Field bus module	Modbus RTU		
Additional IO module	Without		
Mounting location	Motor		

Parameterized for driver

Motor manufacturer	KSB	Efficiency class	IE5 (Ultra Premium)
Type series Motor manufacturer	SuPremE C2	Number of motor poles	4
		Total weight Drive	33 kg

Packaging

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

PumpDrive 2 Eco