Technical Datasheet

Etanorm 050-032-200 GG
ETN 050-032-200-GGSAA11 GSEDN2EHB

Operating point 1 Dimensioning operating point

Operating conditions (purchaser requirements)

Target flow rate		Vapour pressure determined	0,026 bar.a
Target head		Minimum inlet pressure required	-0,3 bar.r
Fluid	Antifreeze on ethylene glycol base, inhibited, closed system, e.g. Antifrogen N or similar products	Specified ambient temperature	20 °C
		Installation altitude above sea level	1.000 m
Fluid variant	Concentration 30% 50295		
Specified fluid temperature	20 °C		
Density Fluid handled	1.040 kg/m³		
Kinematic viscosity Fluid handled	2,22 mm²/s		

Operating conditions (performance)

Flow rate	27,02 m³/h	Maximum power input at duty point	5,692 kW
Minimum permissible flow rate	3,725 m³/h	Maximum power input / curve	6,024 kW
Maximum permissible flow rate Pump set	0 m³/h	Pump speed	2.954 1/min
Head	40,05 m	Discharge pressure-max.	4,961 bar.r
Shut-off head	48,64 m		
Efficiency Pump	53,86 %		
NPSH required	2,84 m		

Design data pump

Scope of supply Pump supplied by KSB	Pump + coupling + coupling guard + baseplate + motor	Mains voltage	400 V
Pump standard	EN 733	Mains frequency	50 Hz
Shaft axis position	Horizontal	Minimum efficiency index MEI	0,6
Pump design	Long-coupled (baseplate-mounted)	Quantity Stages, single-entry	1
Pump system design	Single-pump system	Casing wear ring design suction-side	Flat
Pump direction of rotation, viewed from casing side	Counterclockwise	Casing wear ring design discharge-side	Flat
Hydraulic impeller diameter	187,2 mm	Installation chamber Casing cover	Conical (A-type cover)
Impeller type	Radial, closed, multi-channel	Bearing bracket size / shaft unit	25
Free passage	6,7 mm	Bearing bracket design	Medium
		Lubrication type	Grease lubrication
		Bearing seal Pump	V-ring
		Pump directive	CE

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Nozzle connections pump

Nominal diameter Suction nozzle	DN 50	Nominal diameter Discharge nozzle	DN 32
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
8B Leakage Drain	G 1/2 Drilled		

Shaft sealing

Shaft seal type	Single mechanical seal (A-type cover) - A	Shaft seal code	Code 11
Operating mode of mechanical seal (function)	API plan 03	Shaft seal manufacturer inboard	KSB's choice
Determined pressure Seal chamber	-0,01 bar.r	Mechanical seal type inboard	KSB's choice
		Material Shaft seal inboard	BQEGG DW001

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Materials

Material Volute casing	EN-GJL-250/A48 CL 35B	Material Bolts/Screws Volute casing	8.8
Material Casing cover	EN-GJL-250/A48 CL 35B	Material Nut Impeller fastening	(ST)
Material Shaft	C45+N		
Material Impeller	EN-GJL-250/A48 CL 35B		
Material Casing wear ring suction-side	JL/LAMELLAR GRAPHITE CAST IRON		
Material Casing wear ring discharge-side	JL/LAMELLAR GRAPHITE CAST IRON		
Material Shaft protecting sleeve	(CRNIMO ST INT)		
Material Bearing bracket	EN-GJL-250/A48 CL 35B		
Material Static seal Discharge cover	DPAF DW001		

Driver (not included)

Electric motor	Yes	Rated speed Motor	2.935 1/min
Drive concept	Electric actuator	Number of motor poles	2
Drive standard, mechanical	IEC	Rated power Motor	7,5 kW
Drive standard electric	IEC	Motor power reserve determined	31,8 %
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 B3 (IM1001) IEC 60034-7	Rated frequency Motor	50Hz
Motor alignment	No	Motor switching type	Delta
Motor size	132S	Rated current Motor	14,6 A
Efficiency class	IE3 (Premium)	Starting current ratio Ia/In	8,9
Material motor housing	AL	Cos phi at 4/4 load	0,83
Enclosure Motor	IP55 (TEFC)	Motor efficiency at 4/4 load	90,1 %
Thermal class	155 (F) according to IEC 60085	Motor service factor	1,13
		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	71 dBa		
Type series Motor manufacturer	Acc. to motor manufacturer (IEC, IE3)		

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Installation parts / Accessories

Coupling

Coupling type	ROFLEX N
Coupling manufacturer	KTR
Nominal size Coupling	68

Coupling guard

Coupling guard type	Light (ZN79)
Nominal coupling guard size	A148
Material Coupling guard	ST+Z

Baseplate

Baseplate type	Folded plate/U-section
Material Installation part Pump	(ST)
Baseplate size	1A
Drill baseplate at motor end	Yes
Connection element type Foundation	Foundation bolts
Material Connecting element Foundation	3.6+A2A
Foundation bolt set	4xM16x250
Supply Fastening element Installation part	By customer (not in scope of supply)

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

Product Carbon Footprint indication (cradle-to-gate) (CO_2eq) * 747 kg

This PCF indication is based on the product mass assuming the typicalsha res of materials in use. The conversion rate between product mass andCO_2 emissions is based on several life cycle assessments acc. to ISO14040 / 14044 of sample products of the same type series. Objective andscope of these LCAs was defined as being limited to the manufacturingphase (crad le-to-gate). With regard to inputs, all materials, energy andauxiliary m aterials were accounted for, and with regard to outputs,emissions, scrap and waste were accounted for. The impact of outboundlogistics is not co vered. The assessments' input variables cover atleast 95 % of the total product mass. The analysis focuses exclusivelyon the Global Warming Pote ntial (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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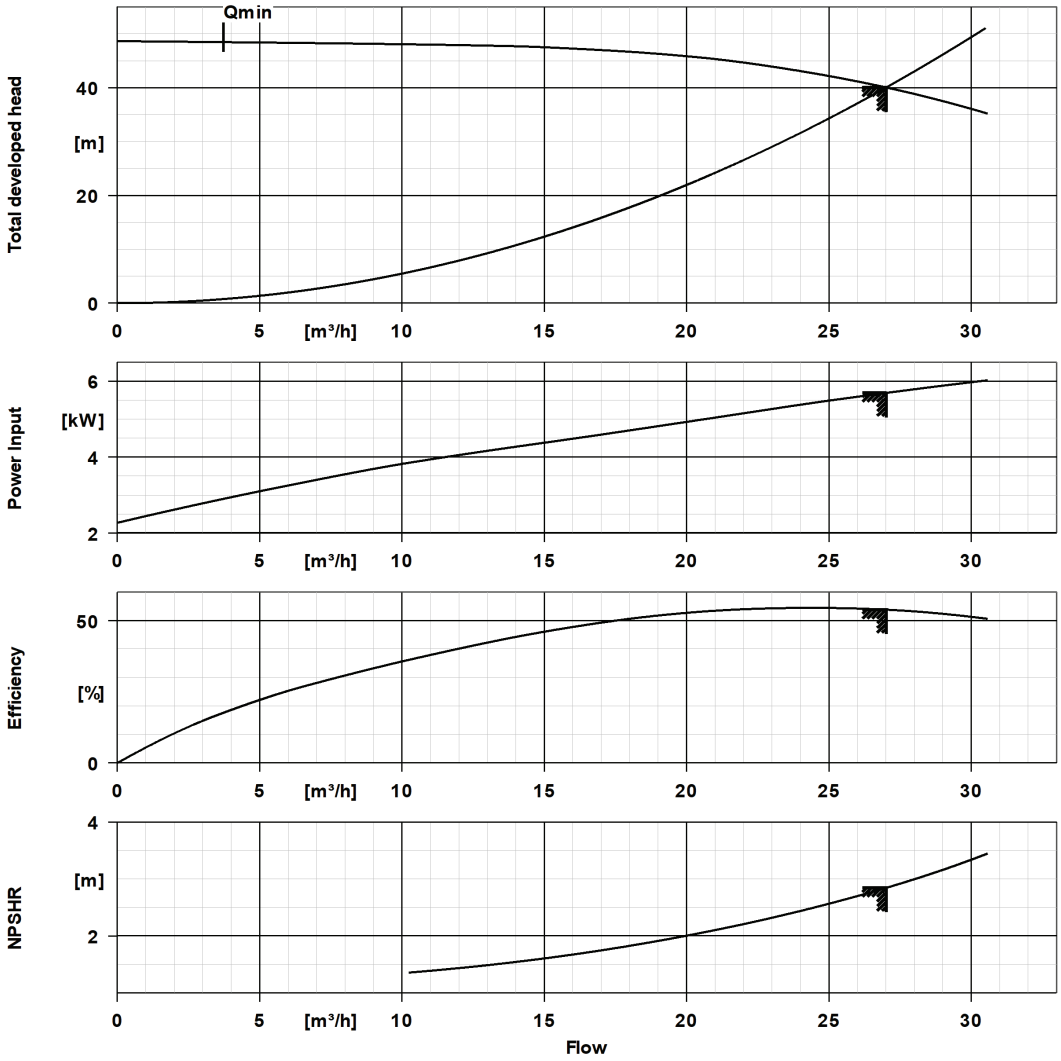

Curve Data

Pump speed	2.954 1/min	Efficiency Pump	53,9 %
Density Fluid handled	1.040 kg/m³	Minimum efficiency index MEI	0,6
Kinematic viscosity Fluid handled	2,22 mm²/s	Maximum power input at duty point	5,69 kW
Flow rate	27 m³/h	NPSH required	2,84 m
Head	40,1 m	Hydraulic impeller diameter	187,2 mm
		Hydraulic calculation according to standard/class	EN ISO 9906 Class 3B

Performance Curve (Pump)

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According to EN ISO 9906, §4.4.2 (pump input power below 10 kW)

Installation plan

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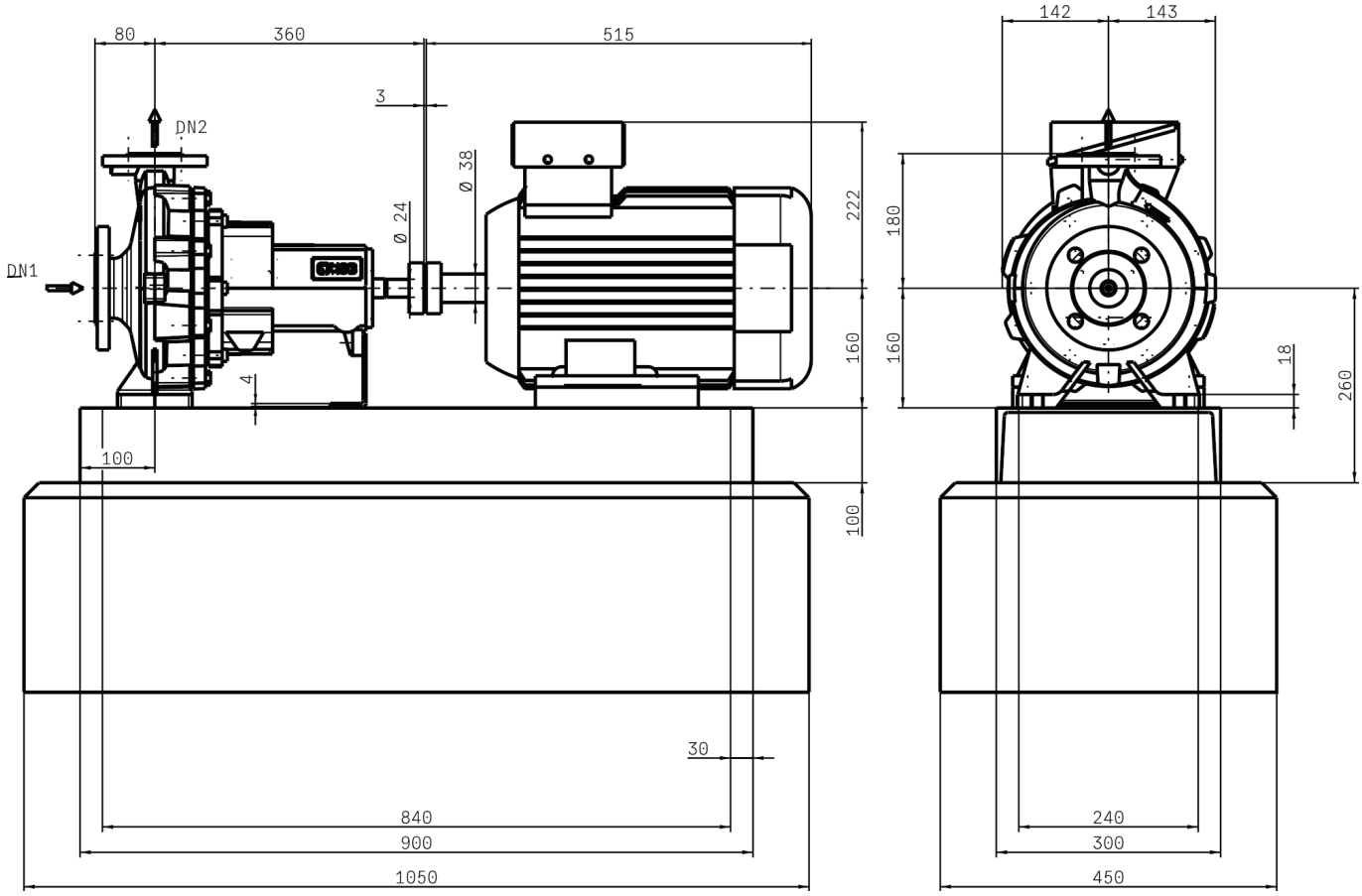

Drawing is not to scale.

Dimensions are given in mm

Motor (not included)	Yes
Motor manufacturer	KSB's choice
Motor size	132S
Rated power Motor	7,5 kW
Number of motor poles	2
Rated speed Motor	2.935 1/min
Terminal box position of motor (looking at the motor shaft)	360 °

Connections	
Nominal diameter Suction nozzle	DN 50
Suction flange bolt hole pattern as per standard	EN1092-2
Nominal diameter Discharge nozzle	DN 32
Discharge flange bolt hole pattern as per standard	EN1092-2
Nominal pressure Suction nozzle	PN 16
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Baseplate size	1A
Connection element type Foundation	Foundation bolts
Material Connecting element Foundation	3.6+A2A
Foundation bolt set	4xM16x250
Supply Fastening element Installation part	By customer (not in scope of supply)

Coupling

Coupling manufacturer	KTR
Coupling type	ROFLEX N
Nominal size Coupling	68

Net weight

Total weight Pump	43,1 kg
Total weight Installation parts	45,26 kg
Total weight Coupling	0,65 kg
Total weight Contact guard	0,72 kg
Total weight Drive	
Total weight Pump set	90 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