

Etaline 200-200-250 GG

ETL 200-200-250-GGSCV11 WSFEH4HHB

Operating point 1 Dimensioning operating point

Operating conditions (purchaser requirements)

Target flow rate	357 m³/h	Vapour pressure determined	0,02337 bar.a
Target mass flow rate	98,97 kg/s	Minimum inlet pressure required	-0,3 bar
Target head	10 m	Specified ambient temperature	20 °C
Fluid	Water	Installation altitude above sea level	1.000 m
Fluid variant	Clean water		
Specified fluid temperature	20 °C		
Density Fluid handled	998 kg/m³		
Kinematic viscosity Fluid handled	1 mm²/s		

Operating conditions (performance)

Flow rate	364,52 m³/h	Maximum power input at duty point	13,55 kW
Minimum permissible flow rate	54,68 m³/h	Maximum power input / curve	13,6 kW
Head	10,43 m	Pump speed	1.469 1/min
Shut-off head	16,16 m	Discharge pressure-max.	1,582 bar
Efficiency Pump	76,22 %		
NPSH required	5,87 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	Vertical	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	60 °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	220 mm	Casing wear ring design discharge-side	Flat
Impeller type	Radial, closed, multi-channel	Installation chamber Casing cover	Conical (A-type cover)
Free passage	23 mm	Bearing bracket size / shaft unit	35
Nut lock for Impeller	No	Pump directive	CE
Swirl break	No		
Support foot	No		

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Nozzle connections pump

Nominal diameter Suction nozzle	DN 200	Nominal diameter Discharge nozzle	DN 200
Nominal pressure Suction nozzle	PN 16	Nominal pressure Discharge nozzle	PN 16
Suction nozzle position	Opposite of discharge nozzle	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,C)		
Flange facing type Outlet	Raised face (B,RF,C)		

Auxiliary connections pump

6B Fluid Drain	G 1/2 Drilled and plugged	1M Pressure gauge Discharge nozzle	G 1/2 Fitted pressure sensor
6D Fluid Filling and venting	G 1/2 Drilled and plugged	1M Pressure gauge Suction nozzle	G 1/2 Fitted pressure sensor
Connection type 5B Venting and drain	G 1/4 Manual globe valve, fitted		

Shaft sealing

Shaft seal type	SMS A-type cover, vented	Shaft seal code	Code 11
Determined pressure Seal chamber	-0,21 bar	Shaft seal manufacturer inboard	KSB's choice
		Mechanical seal type inboard	1
		Material Shaft seal inboard	BQ1EGG-WA

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Materials

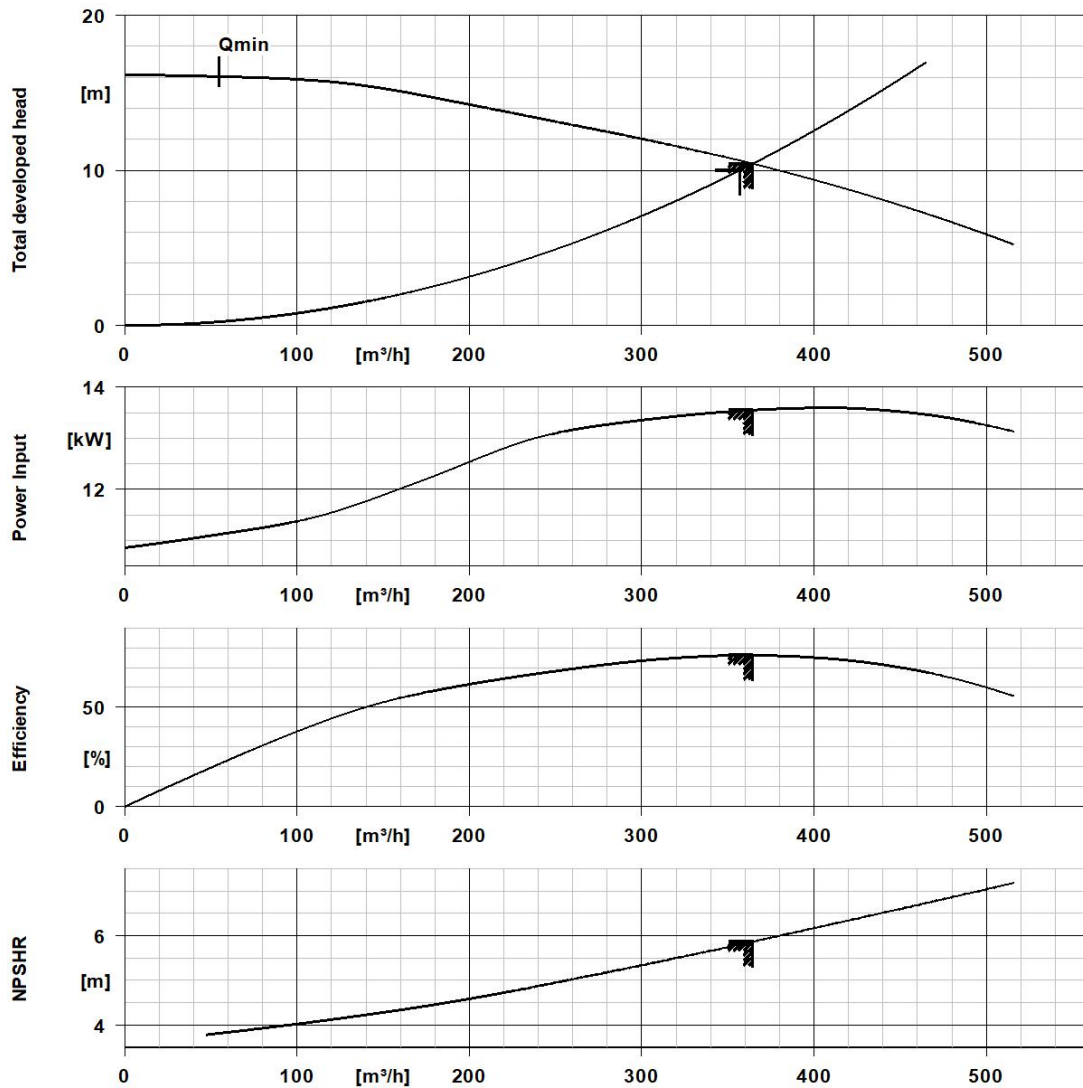
Material Volute casing (102)	EN-GJL-250/A48 CL 35B	Material Bolts/Screws	8.8
Material Casing cover (161)	EN-GJL-250/A48 CL 35B	Hydraulic casing (902.01)	
Material Shaft	C45+N	Material Screw plug Hydraulic casing (903.01)	ST
Material Impeller (230)	EN-GJL-250/A48 CL 35B	Material Static seal Screw plug Volute casing (411)	A4/AISI 316
Material Static seal Hydraulic casing (400.10)	DPAF DW001	Material Nut Impeller fastening (920.95)	(ST)
Material Casing wear ring suction-side	JL/LAMELLAR GRAPHITE CAST IRON	Material Key	C45+C/A311 GR 1045 CLASS A
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		
Material Support foot	WITHOUT		

Driver

Electric motor	Yes	Rated speed Motor	1.465 1/min
Drive concept	With electric actuator	Number of motor poles	4
Drive standard, mechanical	IEC	Rated power Motor	15 kW
Drive standard electric	IEC	Motor power reserve determined	10,7 %
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 V1 (IM3011) IEC 60034-7	Motor switching type	Delta
Motor size	160L	Rated current Motor	30,1 A
Efficiency class	IE3 (Premium)	Starting current ratio Ia/In	8,9
Material motor housing	AL	Cos phi at 4/4 load	0,81
Enclosure Motor	IP55	Motor efficiency at 4/4 load	92,1 %
Thermal class	155 (F) nach IEC 60085	Directive Drive	CE
Temperature sensor motor	3 PTC thermistors		
Terminal box position of motor (looking at the motor shaft)	360 Grad		
Operation on a frequency inverter permitted	Yes (acc to motor manufact)		
Sound pressure level Motor	68 dBa		
Type series Motor manufacturer	Acc. to motor manufacturer		

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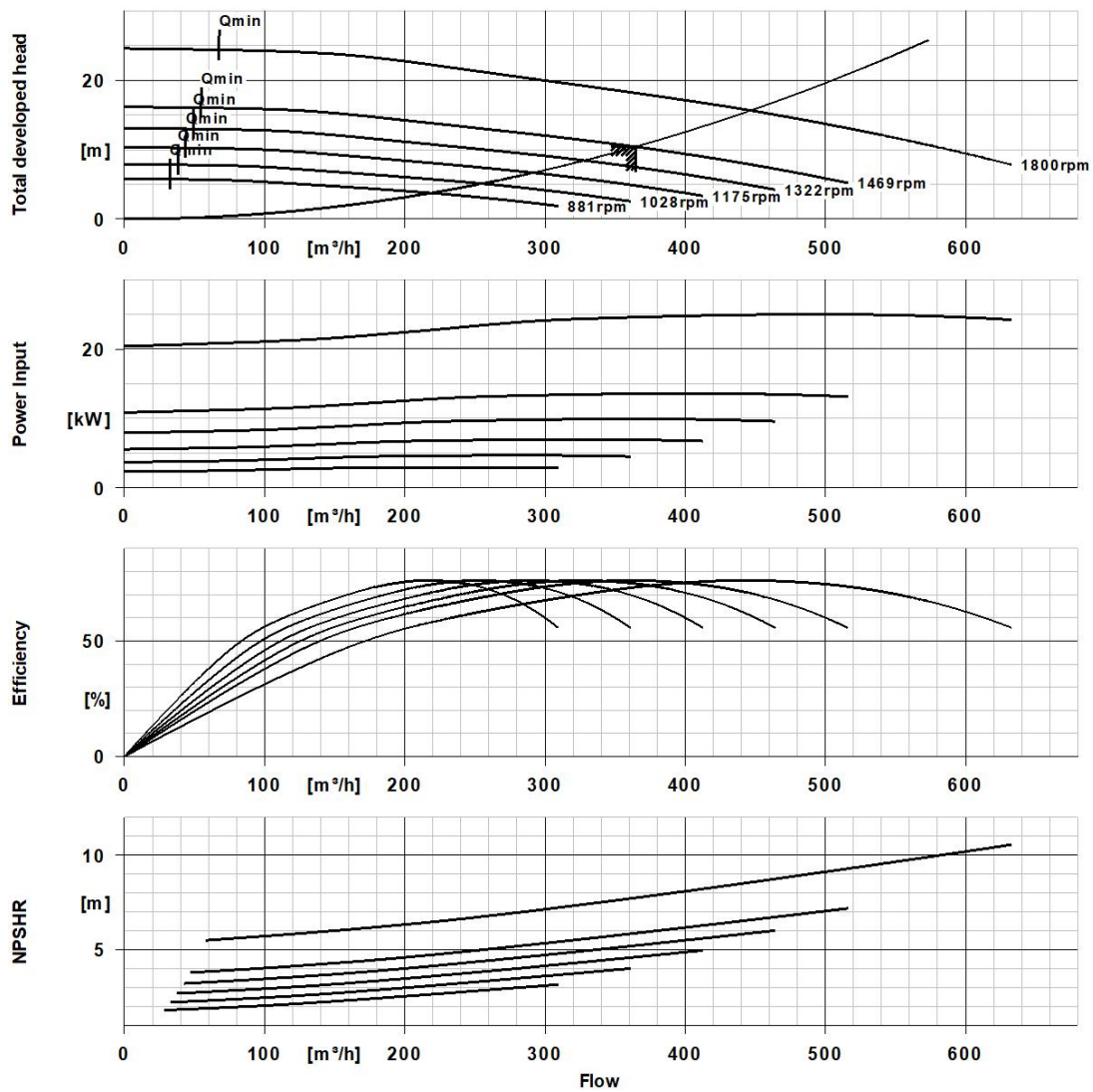


Curve Data

Pump speed	1.469 1/min	Efficiency Pump	76,2 %
Density Fluid handled	998 kg/m³	Minimum efficiency index MEI	0,7
Kinematic viscosity Fluid handled	1 mm²/s	Maximum power input at duty point	13,6 kW
Flow rate	365 m³/h	NPSH required	5,87 m
Head	10,4 m	Hydraulic impeller diameter	220 mm
		Hydraulic calculation according to standard/class	EN ISO 9906 Class 3B

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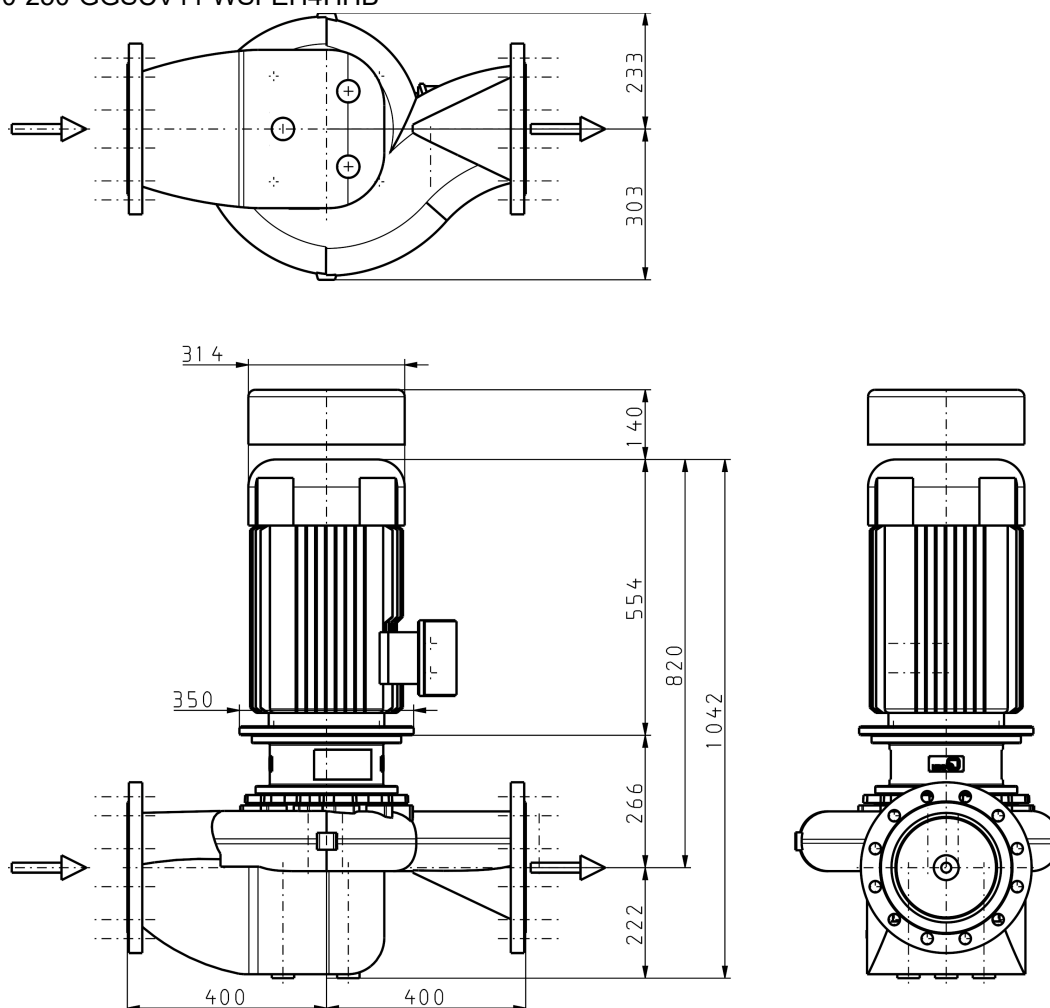
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**Curve Data**

Density Fluid handled	998 kg/m^3	Minimum efficiency index MEI	0,7
Kinematic viscosity Fluid handled	1 mm^2/s	Hydraulic impeller diameter	220 mm
Flow rate	364,52 m^3/h	Head	10,43 m

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Drawing is not to scale.

Dimensions are given in mm

Motor

Motor manufacturer	KSB's choice
Motor size	160L
Rated power Motor	15 kW
Number of motor poles	4
Rated speed Motor	1.465 1/min
Terminal box position of motor (looking at the motor shaft)	360 Grad

Connections

Nominal diameter Suction nozzle	DN 200
Suction flange bolt hole pattern as per standard	EN1092-2
Nominal diameter Discharge nozzle	DN 200
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	214 kg
Total weight Drive	118 kg
Total weight Pump set	369 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