



Etaline 065-065-250 GG

ETL 065-065-250-GGSCV11 WSEBS4HBB

Operating point 1

Dimensioning operating point

Operating conditions (purchaser requirements)

Target flow rate	
Target head	
Fluid	Water, heating water
Fluid variant	Heating water up to 100°C (max.), acc. to VDI 2035
Specified fluid temperature	20 °C
Density Fluid handled	998 kg/m³
Kinematic viscosity Fluid handled	1 mm²/s

Vapour pressure determined	0.02337 bar.a
Minimum inlet pressure required	-0.3 bar.r
Specified ambient temperature	20 °C
Installation altitude above sea level	1,000 m

Operating conditions (performance)

Flow rate	31.31 m³/h
Minimum permissible flow rate	6.975 m³/h
Maximum permissible flow rate	65.79 m³/h
Pump set	
Maximum permissible flow rate	65.79 m³/h
Head	12.24 m
Maximum pressure determined at duty point	1.198 bar.r
Shut-off head	14.15 m
Efficiency Pump	70.74 %
NPSH required	0.8 m

Maximum power input at duty point	1.471 kW
Maximum power input / curve	2.028 kW
Pump speed	1,477 1/min
Shut-off pressure	1.385 bar.r

Design data pump

Scope of supply Pump supplied by KSB	Pump + motor
Pump standard	EN 733
Shaft axis position	Vertical
Pump design	Close-coupled
Pump system design	Single-pump system
Pump direction of rotation, viewed from casing side	Counterclockwise
Hydraulic impeller diameter	196 mm
Impeller type	Radial, closed, multi-channel
Free passage	10 mm
Hydraulic casing foot	Yes

Mains voltage	400 V
Mains frequency	50 Hz
Minimum efficiency index MEI	0.7
Minimum permissible fluid temperature	0 °C
Maximum permissible fluid temperature	110 °C
Quantity Stages, single-entry	1
Installation chamber Casing cover	Conical (A-type cover)
Bearing bracket size / shaft unit	25
Pump directive	CE



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Nozzle connections pump

Nominal diameter Suction nozzle	DN 65	Nominal diameter Discharge nozzle	DN 65
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)		
Flange facing type Outlet	Raised face (B,RF)		

Auxiliary connections pump

1M Pressure gauge Discharge nozzle	G 1/4 Pressure sensor	5B Venting and drain	G 1/4 Manual globe valve, fitted
1M Pressure gauge Suction nozzle	G 1/4 Pressure sensor		
6B Fluid Drain	G 1/4 Drilled and plugged		
6D Fluid Filling and venting	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
Determined pressure Seal chamber	-0.22 bar.r	Mechanical seal type inboard	KSB's choice
		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 Static seal Volute casing (400.10)	DPAF DW001		
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		
Material Volute casing foot	ST+PAINTED		

Driver

Asynchronous motors	Yes	Rated speed Motor	1,465 1/min
Drive concept	Electric actuator	Number of motor poles	4
Drive standard, mechanical	IEC	Rated power Motor	2.2 kW
Drive standard electric	IEC	Motor power reserve determined	49.5 %
Motor bearing, insulated	No	Rated voltage Motor	400 V
Motor manufacturer	Innomotics	Motor winding	230 / 400 V
Customer supply Drive	No	Rated frequency Motor	50Hz
Motor construction type	IM V1 (IM3011) IEC 60034-7	Motor switching type	Star
Motor size	100L	Rated current Motor	4.5 A
Efficiency class	IE4 (Super Premium)	Starting current ratio Ia/In	8.5
Material motor housing	AL	Cos phi at 4/4 load	0.79
Enclosure Motor	IP55 (TEFC)	Motor efficiency at 4/4 load	89.5 %
Thermal class	155 (F) according to IEC 60085	Limit value Maximum humidity Motor	30 g/m³
Temperature sensor motor	3 PTC thermistors	Marking according to directive Drive	CE
Terminal box position of motor (looking at the motor shaft)	360 °		
Operation on a frequency inverter permitted	Yes (acc to motor manufact)		
Sound pressure level Motor	63 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) 389 kg

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*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	KSB's choice (A0)

Order related documents

Detail drawing Mechanical seal	No
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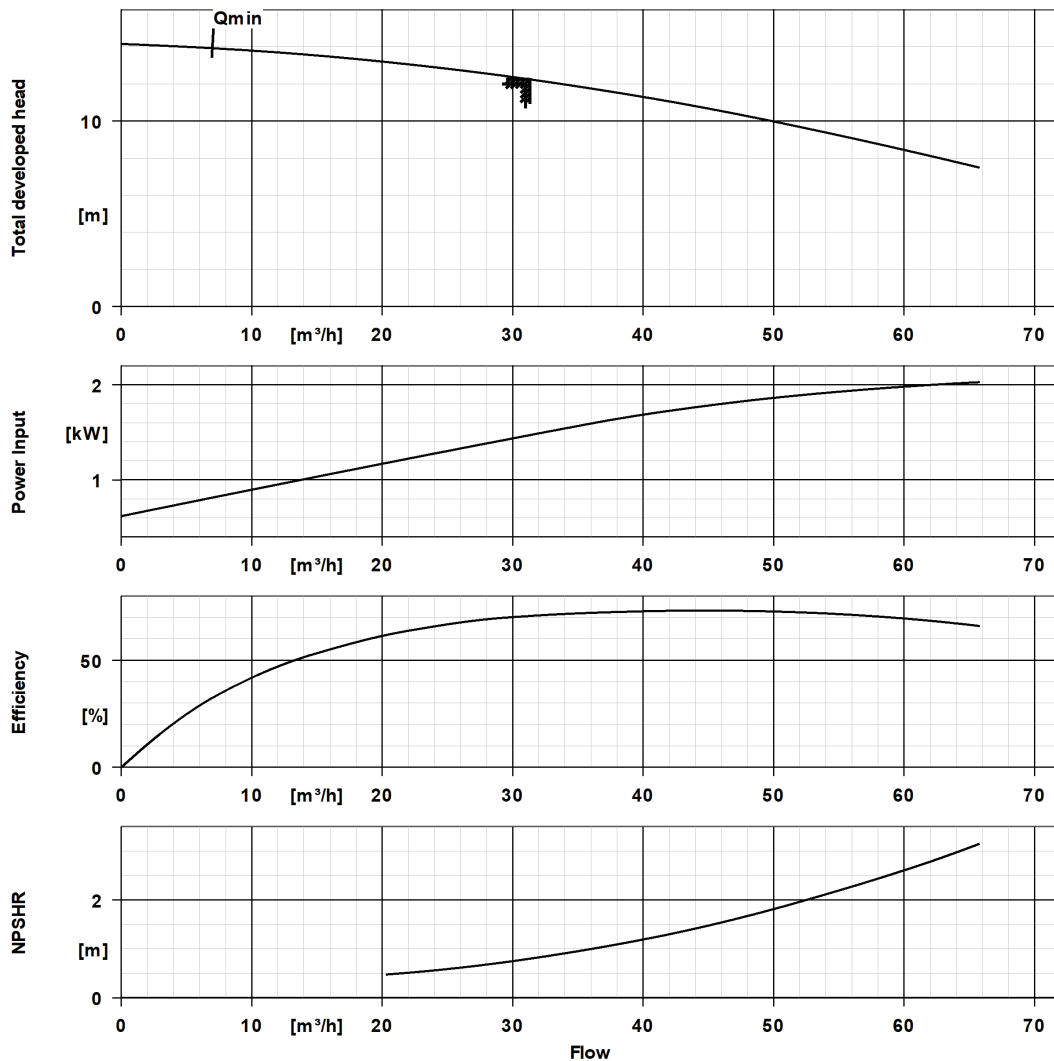
Performance Curve (Pump)



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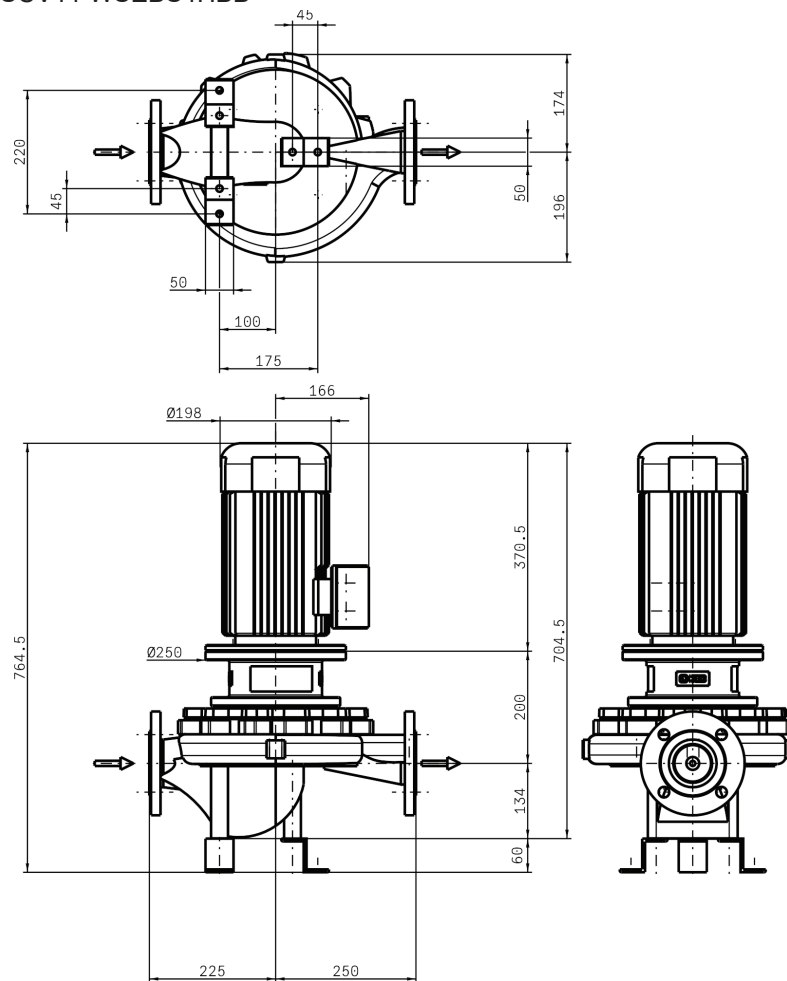
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Curve Data

Pump speed	1,477 1/min	Efficiency Pump	70.7 %
Density Fluid handled	998 kg/m^3	Minimum efficiency index MEI	0.7
Kinematic viscosity Fluid handled	1 mm^2/s	Maximum power input at duty point	1.47 kW
Flow rate	31.3 m^3/h	NPSH required	0.8 m
Maximum permissible flow rate	65.8 m^3/h	Hydraulic impeller diameter	196 mm
Head	12.2 m	Hydraulic calculation according to standard/ class	EN ISO 9906
Maximum pressure determined at duty point	1.2 bar.r		Class 3B

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Drawing is not to scale.

Dimensions are given in mm

Motor

Motor manufacturer	Innomotics
Motor size	100L
Rated power Motor	2.2 kW
Number of motor poles	4
Rated speed Motor	1,465 1/min
Terminal box position of motor (looking at the motor shaft)	360 °

Connections

Nominal diameter Suction nozzle	DN 65
Suction flange bolt hole pattern as per standard	EN1092-2
Nominal diameter Discharge nozzle	DN 65
Discharge flange bolt hole pattern as per standard	EN1092-2
Nominal pressure Suction nozzle	PN 16
Nominal pressure Discharge nozzle	PN 16

Installation plan



Quantity: 2

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Net weight

Total weight Pump	51.6 kg
Total weight Drive	30 kg
Total weight Pump set	83.18 kg
Total weight Assembly/transport aids	4.26 kg

Connect pipelines stress-free

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

Plan for additional connections see extra drawing



PumpMeter

Design

Explosion protection type Monitoring unit	Without
Length Connection cable Monitoring unit	5 m

General description

PumpMeter

Intelligent pressure transmitter PumpMeter with on-site display of operating point

General description:

PumpMeter is an intelligent pressure transmitter with on-site display of measured values and pump operating data. It is supplied completely assembled and parameterised for the individual pump. PumpMeter is ready for operation as soon as the M12 plug connector is plugged in. PumpMeter records the load profile of the pump during operation in order to indicate any potential for optimising the energy efficiency and availability of your pumping system.

Display unit:

Backlit display for on-site display of measured values and pump operating data in a straightforward manner based on international symbols, rotatable in steps of 90°.

Values displayed:

Suction pressure, pressure at pump inlet in bar(g)
Discharge pressure, pressure at pump outlet in bar(g)
Differential pressure between pump inlet and outlet in bar
Qualitative indication of the operating point

Connection of display unit via M12 x 1 5-pin connector, for power supply and utilisation of communication interfaces. Data options available: measured discharge pressure or calculated differential pressure of the pump via analog 4 - 20 mA signal or serial interface RS 485 (Modbus RTU).

Communication via RS232 service interface for parameterisation. Parameters factory-set for the individual pump.

Ambient conditions:

Enclosure: IP65

Ambient temperature

-30°C ... 80°C (transport, storage)

-10°C ... 60°C (operation)

Fluid temperature: -30°C to 140°C

Material resistance:

UV-resistant (suitable for outdoor installation)

Resistant to most commonly used cleaning agents

Resistant to oil mist

Silicone-free:

Manufactured without paint wetting impairment substances

Electrical data:

Power supply:

24V DC $\pm$ 10%, min. 140 mA



Interfaces, alternatives: 4 - 20 mA, 3-wire (discharge pressure or differential pressure)

RS485, Modbus RTU (Slave)

Service interface: RS232

EMC:

EN 61326-1 (interference immunity for industrial environments, interference emission for residential environments)

Sensors:

Two gauge pressure sensors - one sensor factory-mounted at the pump inlet and outlet, respectively, and connected to the analysing unit by plug-type connector.

Measuring accuracy (sum of all errors relative to the measuring range):

± % for a fluid temperature of -10 to 100 °C

± .5% for a fluid temperature of -30 to -10 °C and 100 to 140 °C

Measuring cell material: stainless steel (sealless)

Available measuring ranges:

-1 ...10 bar (gauge pressure)

-1 ...10 bar (gauge pressure)