

Etabloc 065-050-160 GG

ETB 065-050-160-GGSBV11 WSECD4HAB

Operating point

1 Dimensioning operating point

Operating conditions (purchaser requirements)

Target flow rate	52 m³/h	Vapour pressure determined	0,025 bar.a
Target head	11,71 m	Minimum inlet pressure	-0,3 bar.r
Fluid	Antifreeze on ethylene glycol base, inhibited, open system, e.g. Antifrogen N or similar products	required	
		Specified ambient temperature	20 °C
		Installation altitude above sea level	1.000 m
Fluid variant	Concentration 35% 50273		
Specified fluid temperature	20 °C		
Density Fluid handled	1.045 kg/m³		
Kinematic viscosity Fluid handled	2,55 mm²/s		

Operating conditions (performance)

Flow rate	52 m³/h	Maximum power input at duty point	2,19 kW
Minimum permissible flow rate	7,74 m³/h	Maximum power input / curve	2,45 kW
Head	11,71 m	Pump speed	1.663 1/min
Shut-off head	14,23 m	Discharge pressure-max.	1,46 bar
Efficiency Pump	79,3 %		
NPSH required	3,62 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	-30 °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	174 mm	Casing wear ring design discharge-side	Flat
Impeller type	Radial, closed, multi-channel	Installation chamber Casing cover	Conical (A-type cover)
Free passage	11,6 mm	Bearing bracket size / shaft unit	25
Nut lock for Impeller	No	Pump bearing type, non-drive end	Anti-friction bearing
Swirl break	No	Pump bearing type, drive end	Anti-friction bearing
Support foot	Yes	Pump directive	CE

Etabloc 065-050-160 GG

ETB 065-050-160-GGSBV11 WSECD4HAB

Nozzle connections pump

Nominal diameter Suction nozzle	DN 65	Nominal diameter Discharge nozzle	DN 50
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
Connection type 5B Venting and drain	G 1/4 Drilled and plugged		

Shaft sealing

Shaft seal type	SMS A-type cover, vented	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	-0,21 bar.r	Mechanical seal type inboard	1
		Material Shaft seal inboard	BQ1EGG-WA

Materials

Material Volute casing (102)	EN-GJL-250/A48 CL 35B	Material Bolts/Screws Hydraulic casing (902.01)	8.8
Material Casing cover (161)	EN-GJL-250/A48 CL 35B	Material Screw plug Hydraulic casing (903.01)	ST
Material Shaft	C45+N	Material Static seal Screw plug Volute casing	A4/AISI 316
Material Impeller (230)	EN-GJL-250/A48 CL 35B	Material Nut Impeller fastening (920.95)	(ST)
Material Casing wear ring suction-side (502.01)	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		

Etabloc 065-050-160 GG

ETB 065-050-160-GGSBV11 WSECD4HAB

Power Drive System

Drive concept	With 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	3 kW
Motor manufacturer	KSB	Motor power reserve determined	37,3 %
Customer supply Drive	No	Rated voltage Motor	400 V
Motor construction type	IM V1 (IM3011) IEC 60034-7	Motor winding	- / 400 V
Motor size	100L	Rated frequency Motor	50Hz
Efficiency class	IE5 (Ultra Premium)	Motor switching type	Star
Material motor housing	AL	Maximum current Unit	0 A
Enclosure Motor	IP55	Rated current Motor	7,8 A
Thermal class	155 (F) nach IEC 60085	Cos phi at 4/4 load	0,69
Temperature sensor motor	3 PTC thermistors	Motor efficiency at 4/4 load	90,4 %
Terminal box position of motor (looking at the motor shaft)	360 Grad	Explosion protection directive	Without
Operation on a frequency inverter permitted	Required by design	Drive	
Sound pressure level Motor	60 dBa	Directive Drive	CE
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-thin
Thickness Top coat	40 µm
Colour Top coat	RAL5002 Ultramarine Blue

Packaging

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

Nameplates

Duplicate name plate	No
----------------------	----



Etabloc 065-050-160 GG

ETB 065-050-160-GGSBV11 WSECD4HAB

Accessories & Service

HX SOCK HD CAP SCR W M 4 X 16

Hexagon socket head cap screw M 4X16 ISO4762 8.8+A2A

Ident-No. 01598711

commissioning

Ident-No. 01738240

"Commissioning of a PumpDrive according to specification 4. The specification is available on the following page - <https://www.ksb.com/en-de/ss-lv>"

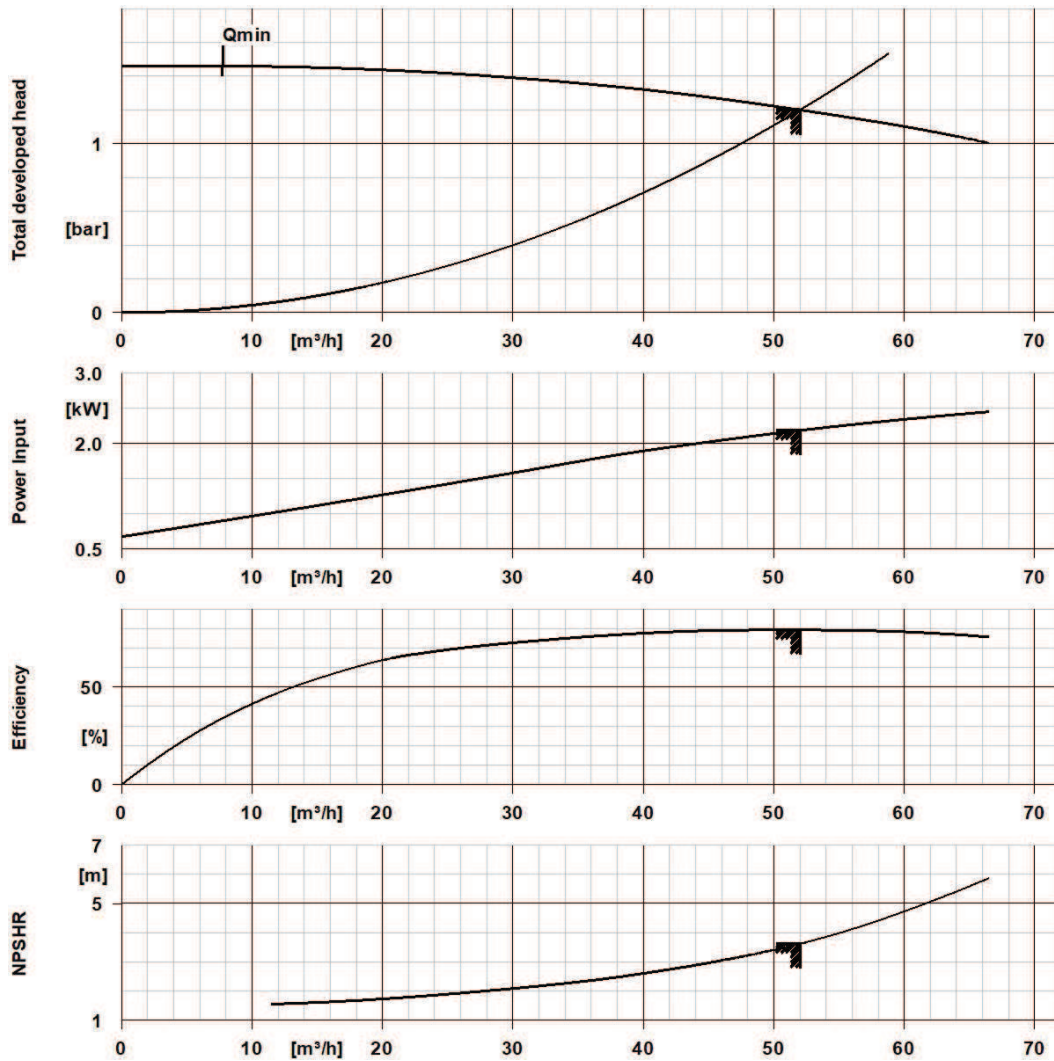
Performance Curve (Pump)



Page: 1 / 1

Etabloc 065-050-160 GG

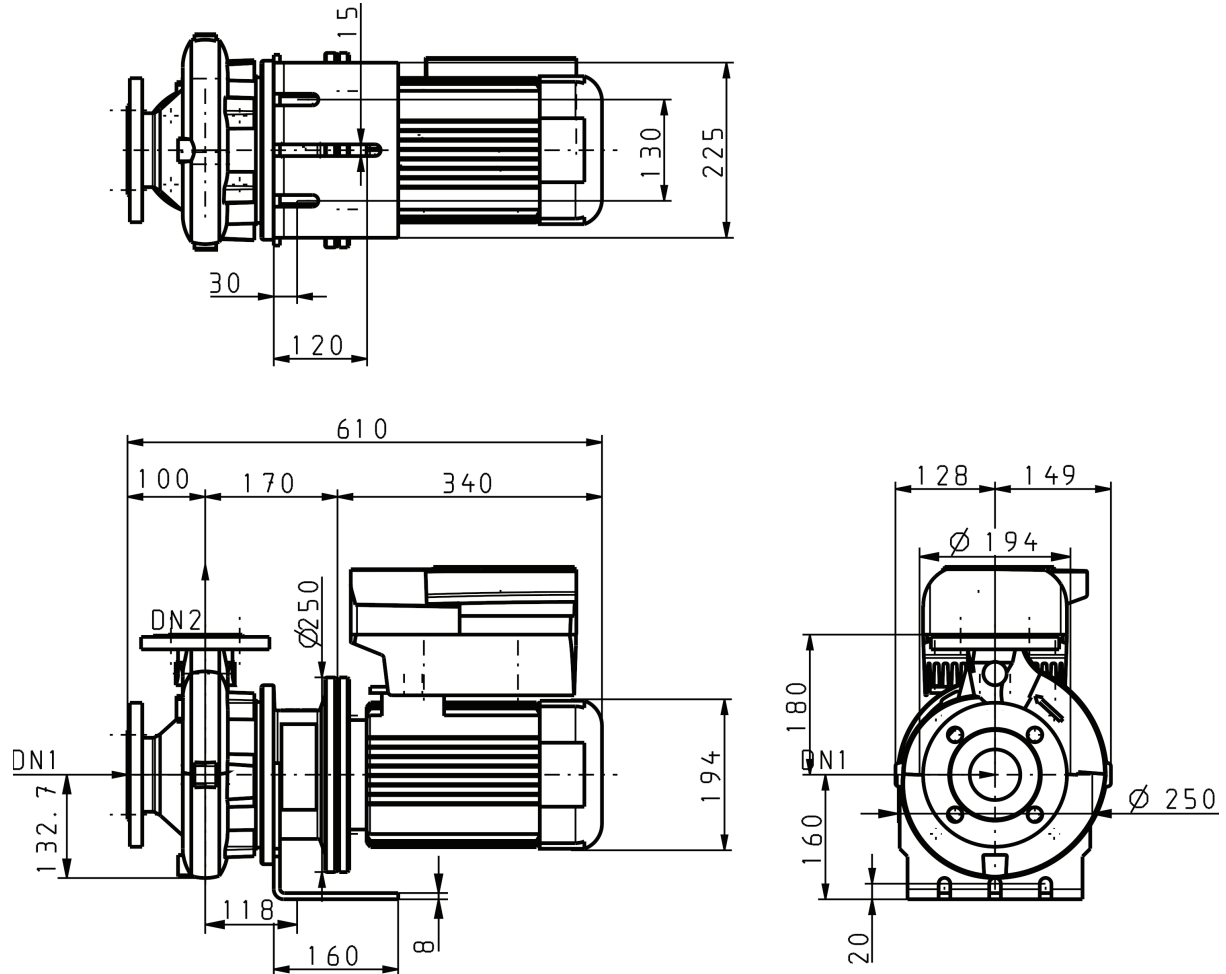
ETB 065-050-160-GGSBV11 WSECD4HAB



Curve Data

Pump speed	1.663 1/min	Efficiency Pump	79,3 %
Density Fluid handled	1.045 kg/m^3	Minimum efficiency index MEI	0,7
Kinematic viscosity Fluid handled	2,55 mm^2/s	Maximum power input at duty point	2,19 kW
Flow rate	52 m^3/h	NPSH required	3,62 m
Head	11,71 m	Hydraulic impeller diameter	174 mm
		Hydraulic calculation according to standard/ class	EN ISO 9906 Class 3B

Etabloc 065-050-160 GG
ETB 065-050-160-GGSBV11 WSECD4HAB



Drawing is not to scale.

Dimensions are given in mm

Motor

Rated power Motor 3 kW
Rated speed Motor 1.500 1/min

Connections

Nominal diameter Suction nozzle DN 65
Suction flange bolt hole pattern as per standard EN1092-2
Nominal diameter Discharge nozzle DN 50
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 33,3 kg
Total weight Pump set 69,3 kg



Etabloc 065-050-160 GG

ETB 065-050-160-GGSBV11 WSECD4HAB

Connect pipelines stress-free

Plan for additional connections see extra drawing

Dimensional tolerances for shaft axis height: DIN 747

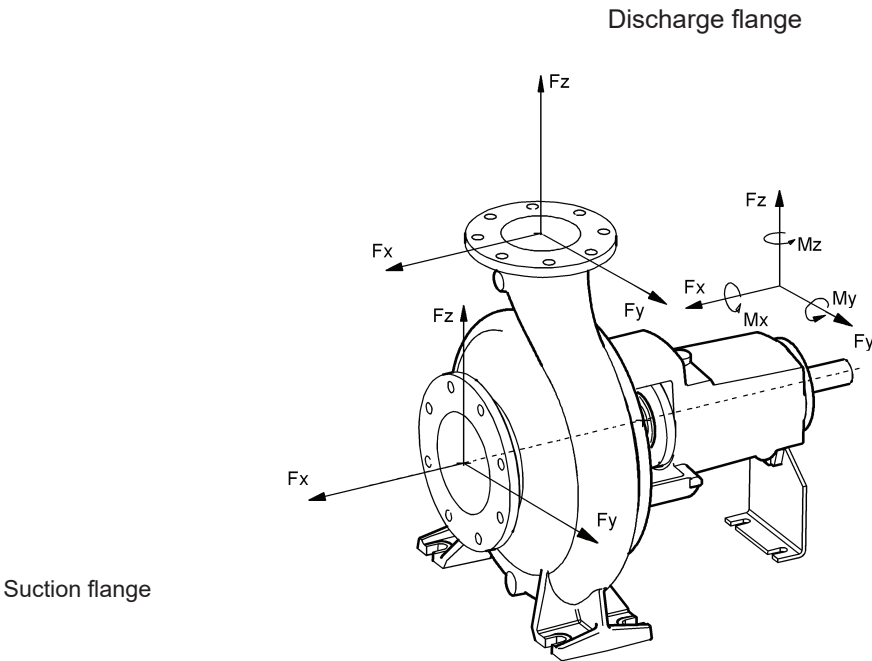
Dimensions without tolerances, middle tolerances to: ISO 2768-m

Connection dimensions for pumps: EN735

Dimensions without tolerances - welded parts: ISO 13920-B

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

Etabloc 065-050-160 GG
ETB 065-050-160-GGSBV11 WSECD4HAB



Drawing is not to scale.

Force and Moment Limits

Suction flange		Discharge flange	
F_x s (+/-)	740 N	F_x d (+/-)	530 N
F_y s (+/-)	650 N	F_y d (+/-)	470 N
F_z s (+/-)	600 N	F_z d (+/-)	580 N
F_{res} s (+/-)	1.153 N	F_{res} d (+/-)	916 N
M_x s (+/-)	530 Nm	M_x d (+/-)	500 Nm
M_y s (+/-)	390 Nm	M_y d (+/-)	350 Nm
M_z s (+/-)	420 Nm	M_z d (+/-)	400 Nm
		Temperature of validity	20 °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.



Variable speed system

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	3 kW	Maximum width	186 mm
Maximum output current Control unit	8 A	Maximum height	144 mm
M12 module	Without		
Integrated connection hardware for self-parameterisation	Without		
Integrated master switch	No		
Field bus module	Without		
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	26 kg

Packaging

Suitable for transport	Truck transport
Suitable for storage	Indoor storage
Packaging category	KSB's choice (A0)
Phytosanitary certificate	No

Variable speed system

PumpDrive 2 Eco

PumpDrive2 [A]

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

Installation options:

Motor-mounted, wall-mounted or cabinet-mounted from 0,37 - 11 kW

Protective functions:

- Full protection by means of over current limitation and PTC thermistor monitoring
- Automatic speed reduction at overload and excessive temperatures. Protection against phase failure motor side, short-circuit monitoring motor side (phase to phase and phase to earth), overvoltage/undervoltage.
- Protection against motor overload
- Suppression of resonant frequencies
- Cable integrity monitoring (live zero)
- Protection against dry running and hydraulic blockage (sensorless via learning function)
- Characteristic curve control

Open/closed-loop control

- Open-loop control via analog input, display or field bus
- Closed-loop control mode via integrated PID controller
- Controlled variables: pressure, differential pressure delta-p (constant) or delta-p (variable), temperature, level control, flow rate
- Sensorless differential pressure control (?p const) in a single-pump configuration
- Sensorless differential pressure control with dynamic pressure compensation (?p var) in a single-pump configuration
- Sensorless flow rate control
- Functional check run

Operation and display:

- Display of measured values and alerts and for setting parameters
- Operating point estimation (Q, H)
- Optical service interface for connection to KSB ServiceTool

PumpDrive functions:

- Programmable start and stop ramps
- Field-oriented control (vector control) with selectable motor control method (ASM, SuPremE)
- Automatic motor adaptation (AMA)
- Manual-0-automatic operation
- Sleep mode (stand-by mode)

Installation options:

- M12 module for bus connection of PumpMeter and for multiple pump operation of up to six pumps
- Wireless module for communication with a smartphone
- Field bus module Modbus RTU, as an alternative to the M12 module

Interference suppression class:

Motor ≤ 11 kW: EN 61800-3:2005-07 C1 / EN 55011 Class B / cable length < 5 m

Housing:

Heat sink: die-cast aluminium

Housing cover: polyamide, glass fibre reinforced

Variable speed system

Control panel: polyamide, glass fibre reinforced

Mains voltage 3~380 V AC -10% to 480 V AC +10 %

Mains frequency 50 - 60 Hz $\pm$ 2 %

Internal power supply unit 24 V DC $\pm$ 10 %, max. 600 mA

Enclosure IP55 (to EN 60529)

Ambient temperature -10 to +50°C

Rel. humidity 5 to 85 % (non-condensing)

Note regarding outdoor installation: Provide the frequency inverter with suitable protection when installed outdoors to prevent condensation on the electronic equipment and exposure to excessive sunlight.

Service interface: optical

2 analog inputs, 0/2-10 V or 0/4-20 mA

1 analog output, 0-10 V or 4-20 mA

Digital inputs:

1 hardware enable input

3 parameterisable inputs

Relay output:

2 NO contact, parameterisable

Manufacturer KSB



Variable speed system

Accessories & Service

HX SOCK HD CAP SCRW M 4 X 16

Hexagon socket head cap screw M 4X16 ISO4762 8.8+A2A

Ident-No. 01598711

commissioning

Ident-No. 01738240

"Commissioning of a PumpDrive according to specification 4. The specification is available on the following page - <https://www.ksb.com/en-de/ss-lv>"