

**Etaline 080-080-200 GG**  
 ETL 080-080-200-GGSCV11 WSECM4HCB

**Operating point 1 Dimensioning operating point**

**Operating conditions (purchaser requirements)**

Target flow rate	65 m <sup>3</sup> /h	Vapour pressure determined	0.04398 bar.a
Target head	12.6 m	Minimum inlet pressure	-0.3 bar.r
Fluid	Water	required	
Fluid variant	Clean water	Specified ambient temperature	20 °C
Specified fluid temperature	30 °C	Installation altitude above sea level	1,000 m
Density Fluid handled	995.5 kg/m <sup>3</sup>		
Kinematic viscosity Fluid handled	0.7979 mm <sup>2</sup> /s		

**Operating conditions (performance)**

Flow rate	65 m <sup>3</sup> /h	Maximum power input at duty point	2.814 kW
Minimum permissible flow rate	9.135 m <sup>3</sup> /h	Maximum power input / curve	3.441 kW
Head	12.6 m	Pump speed	1,440 1/min
Shut-off head	16.08 m	Discharge pressure-max.	1.57 bar.r
Efficiency Pump	78.9 %		
NPSH required	1.55 m		

**Design data pump**

Scope of supply Pump supplied by KSB	Pump + motor	Input voltage and frequency	Without
Pump standard	EN 733	Mains voltage	400 V
Shaft axis position	Vertical	Mains frequency	50 Hz
Pump design	Close-coupled	Minimum efficiency index MEI	0.7
Pump system design	Single-pump system	Minimum permissible fluid temperature	0 °C
Specification of wetted parts	Manufactured without paint wetting impairment substances	Maximum permissible fluid temperature	60 °C
Pump direction of rotation, viewed from casing side	Counterclockwise	Quantity Stages, single-entry	1
Impeller diameter D2	212 mm	Casing wear ring design suction-side	Flat
Impeller type	Radial, closed, multi-channel	Casing wear ring design discharge-side	Flat
Free passage	13.3 mm	Installation chamber Casing cover	Conical (A-type cover)
Nut lock for Impeller	No	Bearing bracket size / shaft unit	25
Swirl break	No	Pump directive	CE
Hydraulic casing foot	Yes		

**Etaline 080-080-200 GG**

ETL 080-080-200-GGSCV11 WSECM4HCB

**Nozzle connections pump**

Nominal diameter Suction nozzle	DN 80	Nominal diameter Discharge nozzle	DN 80
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**

6B Fluid Drain	G 3/8 Drilled and plugged	1M Pressure gauge Discharge nozzle	G 3/8 Fitted pressure sensor
6D Fluid Filling and venting	G 3/8 Drilled and plugged	1M Pressure gauge Suction nozzle	G 3/8 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.r	Shaft seal manufacturer inboard	KSB's choice
		Mechanical seal type inboard	1
		Material Shaft seal inboard	BQ1EGG-WA

**Etaline 080-080-200 GG**

ETL 080-080-200-GGSCV11 WSECM4HCB

**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		

**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	4 kW
Motor manufacturer	KSB	Motor power reserve determined	36.1 %
Customer supply Drive	No	Rated voltage Motor	400 V
Motor construction type	IM V1 (IM3011) IEC 60034-7	Motor winding	- / 400 V
Motor size	112M	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	9.6 A
Thermal class	155 (F) nach IEC 60085	Cos phi at 4/4 load	0.73
Temperature sensor motor	3 PTC thermistors	Motor efficiency at 4/4 load	91.2 %
Terminal box position of motor (looking at the motor shaft)	360 °	Explosion protection directive Drive	Without
Operation on a frequency inverter permitted	Required by design	Directive Drive	CE
Sound pressure level Motor	61 dBa		
Type series Motor manufacturer	SuPremE C2		



**Etaline 080-080-200 GG**

ETL 080-080-200-GGSCV11 WSECM4HCB

**Coating**

**Aggregate**

Surface preparation  
Properties Primer coat  
Thickness Primer coat  
Properties Top coat  
Thickness Top coat  
Colour Top coat

Free from dirt, grease, rust  
Hydro dip primer, water-dilutable  
60 µm  
Acrylate dispersion water-thin  
40 µm  
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
----------------------	----



**Etaline 080-080-200 GG**

ETL 080-080-200-GGSCV11 WSECM4HCB

**Accessories & Service**

**TERMINATING RESISTOR G-OM12-5B**

M12 terminating resistors for Profibus, Modbus and BACnet MS/TP M12 connector B-coded Can be mounted on the M12 socket of the Profibus, Modbus and BACnet MS/TP Module

Ident-No. 01125102

**FUNCTION MODULE M12-MODULE PDRV2**

Function module M12 Module PDRV2 -

Ident-No. 01537899

**HX SOCK HD CAP SCRW M 4 X 16**

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

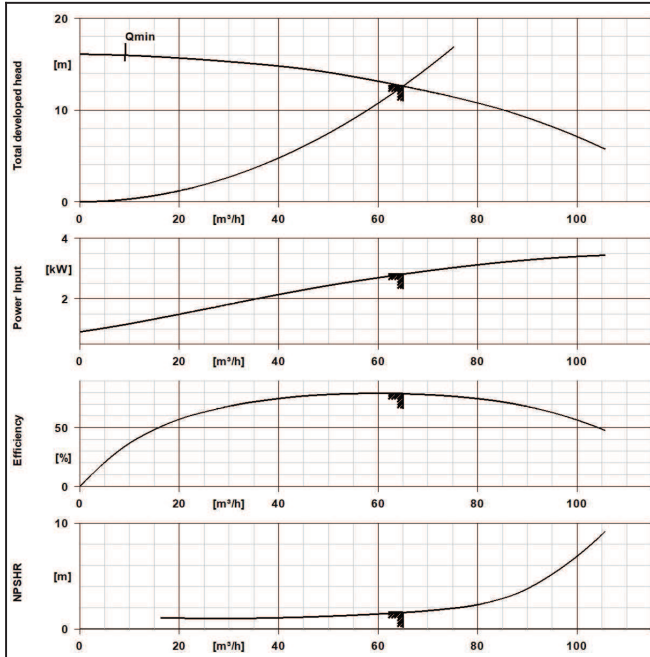
Ident-No. 01598711

**FUNCTION MODULE PDRV2- MODBUS**

Feldbus modul

Ident-No. 01496563

**Etaline 080-080-200 GG**  
 ETL 080-080-200-GGSCV11 WSECM4HCB



**Design data pump**

Pump standard	EN 733
Pump design	Close-coupled
Nominal diameter Suction nozzle	DN 80
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 SM seal
Material Shaft seal inboard	BQ1EGG-WA
Shaft seal code	Code 11
Impeller diameter D2	212 mm
Free passage	13.3 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 Support foot	WITHOUT
Material Shaft	C45+N
Material Impeller	EN-GJL-250/A48 CL 35B

**Dimensioning operating point**

Fluid	Water
Fluid variant	Clean water
Specified ambient temperature	20 °C
Specified fluid temperature	30 °C
Flow rate	65 m³/h
Head	12.6 m
Efficiency Pump	78.9 %
Minimum efficiency index MEI	0.7
Maximum power input at duty point	2.814 kW
Pump speed	1,440 1/min
Pump system design	Single-pump system
NPSH required	1.55 m

**Driver**

Drive concept	With 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	36.1 %



**Etaline 080-080-200 GG**

ETL 080-080-200-GGSCV11 WSECM4HCB

	Rated current Motor	9.6 A
	Thermal class	155 (F) nach IEC 60085
	Enclosure Motor	IP55
	Temperature sensor motor	3 PTC thermistors
	Mains voltage	400 V
	Motor switching type	Star
	Operation on a frequency inverter permitted	Required by design
	Sound pressure level Motor	61 dBa
	Terminal box position of motor (looking at the motor shaft)	360 °

**PumpDrive 2**

Design concept	Advanced
Display type	With graphical control panel
Rated power Control unit	4 kW
Maximum output current Control unit	10 A
M12 module	M12 module PDrv2
Field bus module	Modbus
Integrated connection hardware for self-parameterisation	Without
Mains voltage	400 V
Mains frequency	50 Hz
Enclosure Motor	IP55
Minimum ambient temperature	20 °C
Maximum ambient temperature	20 °C

### **Etaline 080-080-200 GG**

ETL 080-080-200-GGSCV11 WSECM4HCB

### **KSB PumpMeter [A]**

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.

**Etaline 080-080-200 GG**

ETL 080-080-200-GGSCV11 WSECM4HCB

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

±1% for a fluid temperature of -10 to 100 °C

±2.5% for a fluid temperature of -30 to -10 °C and 100 to 140 °C

Measuring cell material: stainless steel (sealless)

Available measuring ranges:

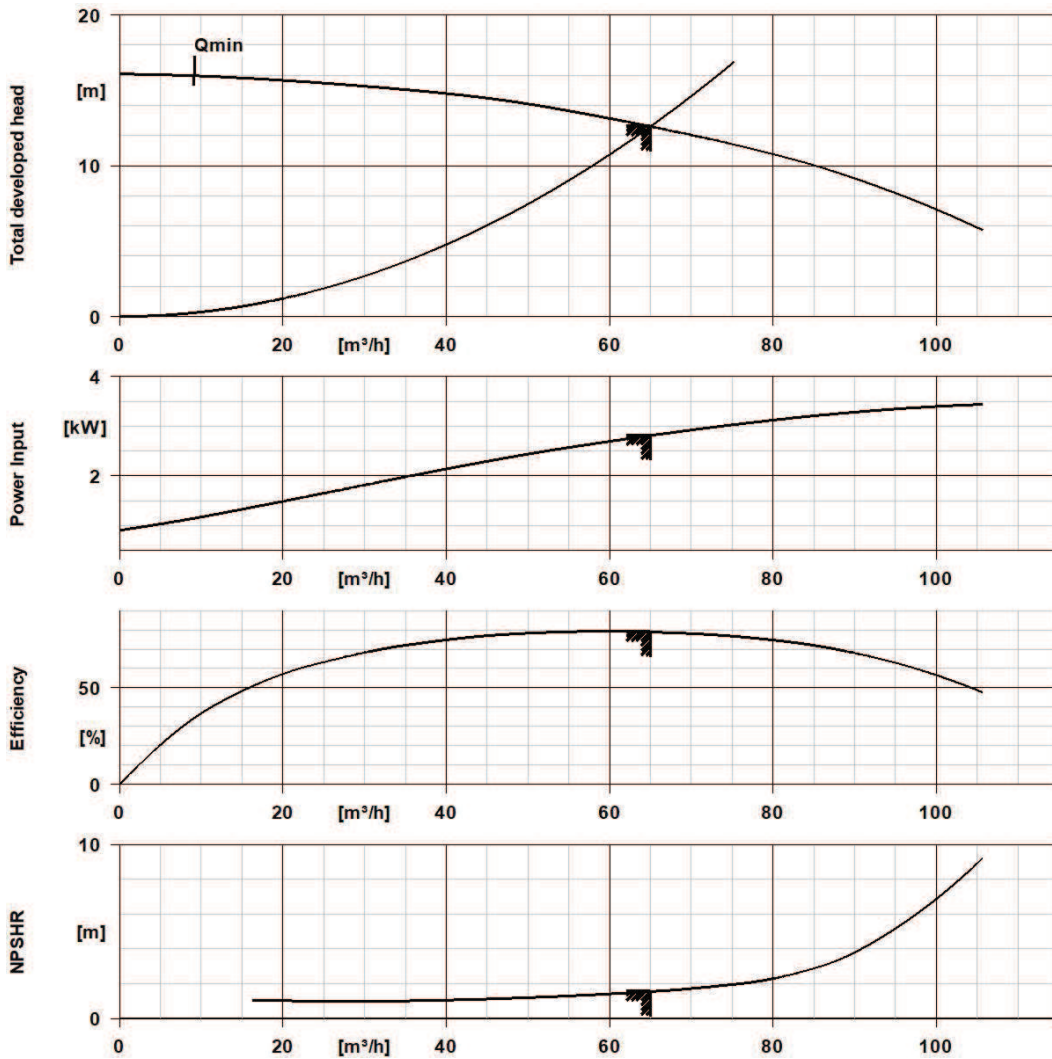
-1 ... 10 bar (gauge pressure)

-1 ... 10 bar (gauge pressure)

# Performance Curve (Pump)



**Etaline 080-080-200 GG**  
 ETL 080-080-200-GGSCV11 WSECM4HCB



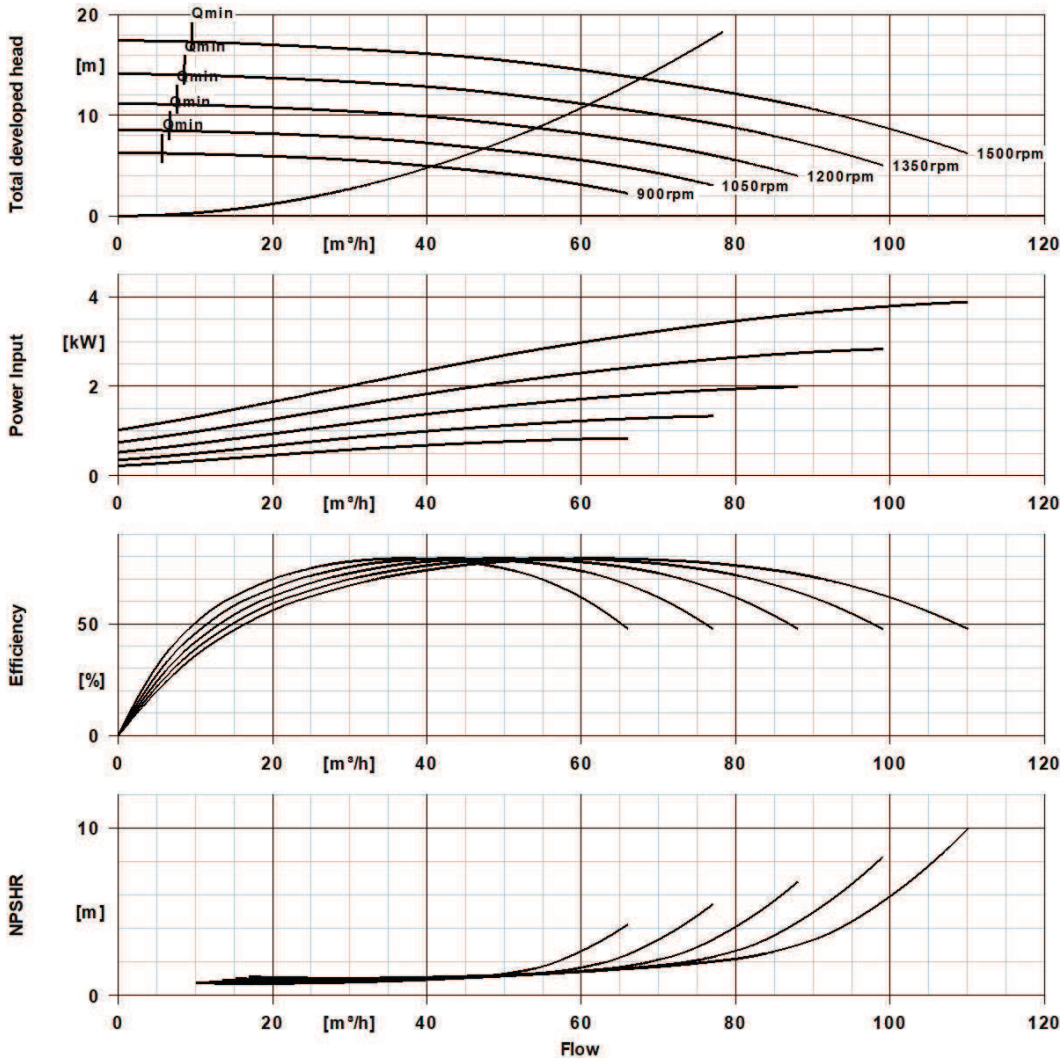
**Curve Data**

Pump speed	1,440 1/min	Efficiency Pump	78.9 %
Density Fluid handled	995 kg/m <sup>3</sup>	Minimum efficiency index MEI	0.7
Kinematic viscosity Fluid handled	0.798 mm <sup>2</sup> /s	Maximum power input at duty point	2.81 kW
Flow rate	65 m <sup>3</sup> /h	NPSH required	1.55 m
Head	12.6 m	Hydraulic impeller diameter	211.5 mm
		Hydraulic calculation according to standard/class	EN ISO 9906 Class 3B

# Speed Curve



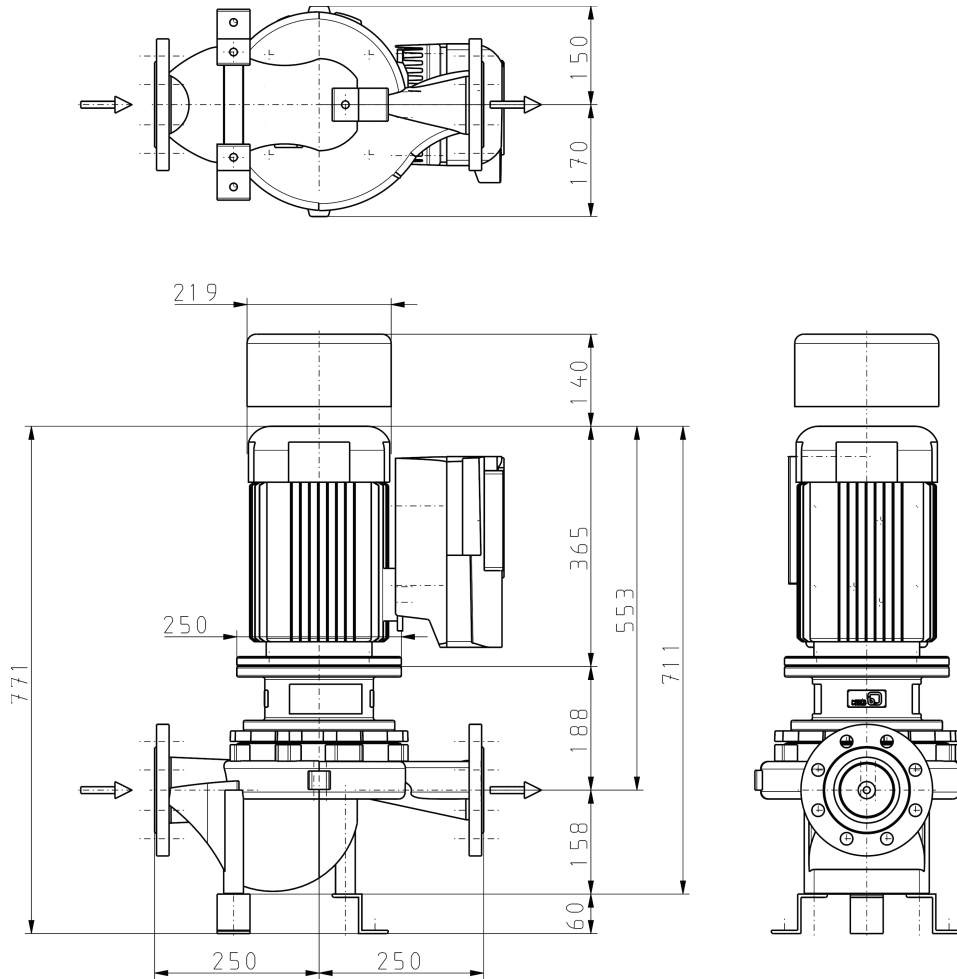
## Etaline 080-080-200 GG ETL 080-080-200-GGSCV11 WSECM4HCB



### Curve Data

Density Fluid handled	995 kg/m <sup>3</sup>	Minimum efficiency index MEI	0.7
Kinematic viscosity Fluid handled	0.798 mm <sup>2</sup> /s	Hydraulic impeller diameter	211.5 mm
Flow rate	65 m <sup>3</sup> /h	Head	12.6 m

**Etaline 080-080-200 GG**  
 ETL 080-080-200-GGSCV11 WSECM4HCB



Drawing is not to scale.

Dimensions are given in mm

**Motor**

Rated power Motor 4 kW  
 Rated speed Motor 1,500 1/min

**Connections**

Nominal diameter Suction nozzle DN 80  
 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 54.82 kg  
 Total weight Pump set 89.32 kg



**Etaline 080-080-200 GG**

ETL 080-080-200-GGSCV11 WSECM4HCB

**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**



## Variable speed system

### Design

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

Design concept	Advanced	Total weight Control unit	0 kg
Display type	With graphical control panel	Maximum length	290 mm
Rated power Control unit	4 kW	Maximum width	211 mm
Maximum output current Control unit	10 A	Maximum height	166 mm
M12 module	M12 module PDrv2		
Integrated connection hardware for self-parameterisation	Without		
Integrated master switch	No		
Field bus module	Modbus		
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)
Phytosanitary certificate	No

## Variable speed system

### PumpDrive 2

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  $\leq 11$  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**

**TERMINATING RESISTOR G-OM12-5B**

M12 terminating resistors for Profibus, Modbus and BACnet MS/TP M12 connector B-coded Can be mounted on the M12 socket of the Profibus, Modbus and BACnet MS/TP Module

Ident-No. 01125102

**FUNCTION MODULE M12-MODULE PDRV2**

Function module M12 Module PDRV2 -

Ident-No. 01537899

**HX SOCK HD CAP SCRW M 4 X 16**

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

Ident-No. 01598711

**FUNCTION MODULE PDRV2- MODBUS**

Feldbus modul

Ident-No. 01496563

## Design

Explosion protection type Monitoring unit	Without
Explosion protection zone (ATEX)	Without

## 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):

±1% for a fluid temperature of -10 to 100 °C

±2.5% 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)