

Etanorm 065-040-315 CC
 ETN 065-040-315-CCSID21 GSFY4ECB

Operating point 1 Dimensioning operating point

Operating conditions (purchaser requirements)

Target flow rate	25 m ³ /h	Vapour pressure determined	0.02 bar.a
Target head	45 m		
Fluid	Cathodic dip painting (CDP) application	Specified ambient temperature	20 °C
Fluid variant	Cataphoretic dip paint	Installation altitude above sea level	1,000 m
Specified fluid temperature	20 °C		
Density Fluid handled	1,100 kg/m ³		
Kinematic viscosity Fluid handled	1 mm ² /s		

Operating conditions (performance)

Flow rate	25 m ³ /h	Maximum power input at duty point	8.483 kW
Minimum permissible flow rate	4.551 m ³ /h	Maximum power input / curve	10.07 kW
Head	45 m	Pump speed	1,660 1/min
Shut-off head	50.45 m	Discharge pressure-max.	5.443 bar
Efficiency Pump	39.75 %		
NPSH required	2.74 m		

Etanorm 065-040-315 CC
 ETN 065-040-315-CCSID21 GSFY4ECB

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	0.4
Pump design	Long-coupled (basepl-mounted)	Minimum permissible fluid temperature	-20 °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	Casing wear ring L-shaped
Hydraulic impeller diameter	326 mm	Casing wear ring design discharge-side	Casing wear ring L-shaped
Impeller type	Radial, closed, multi-channel	Installation chamber Casing cover	Cylindrical (C-type cover)
Free passage	7.1 mm	Bearing bracket size / shaft unit	35
Nut lock for Impeller	No	Bearing bracket type	Bearing bracket
Swirl break	No	Bearing bracket design	Medium
		Pump bearing type, non-drive end	Anti-friction bearing
		Pump bearing type, drive end	Anti-friction bearing
		Lubrication type	Grease lubrication
		Bearing seal Pump	V-ring
		Pump directive	CE

Nozzle connections pump

Nominal diameter Suction nozzle	DN 65	Nominal diameter Discharge nozzle	DN 40
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	EN1092-1	Discharge nozzle design acc.to	EN1092-1
Suction flange bolt hole pattern as per standard	EN1092-1	Discharge flange bolt hole pattern as per standard	EN1092-1
Flange facing type Inlet	Raised face (B,RF,C)		
Flange facing type Outlet	Raised face (B,RF,C)		

Etanorm 065-040-315 CC
 ETN 065-040-315-CCSID21 GSFY4ECB

Auxiliary connections pump

6B Fluid Drain	G 1/4 Drilled and plugged	1M Pressure gauge Discharge nozzle	G 1/4 Fitted pressure sensor
6D Fluid Filling and venting	G 1/4 Drilled and plugged	1M Pressure gauge Suction nozzle	G 1/4 Fitted pressure sensor
8B Leakage Drain	G 1/2 Drilled		
10A External barrier fluid Outlet	G 1/4 Pipe con by pipe union +plugged		
10E External barrier fluid Inlet	G 1/4 Pipe con by pipe union +plugged		
Connection type 24E Quench liquid inlet	Without Without		

Shaft sealing

Shaft seal type	DMS back to back	Shaft seal code	Code 21
Piping plan	API plan 53A	Shaft seal manufacturer inboard	BURGMANN
Quantity Barrier fluid	0.24 m³/h	Mechanical seal type inboard	M7G49
Barrier fluid pressure	5.67 bar	Material Shaft seal inboard	Q1Q1KGG
Determined pressure Seal chamber	0.17 bar	Shaft seal manufacturer, outboard	BURGMANN
		Mechanical seal type outboard	M7G49
		Material Shaft seal outboard	Q1Q1KGG

Materials

Material Volute casing (102)	1.4408/A743CF8M	Material Bolts/Screws Hydraulic casing (902.01)	A4-70/A193 GR B8M CL2
Material Casing cover (161)	1.4408/A743CF8M	Material Screw plug Hydraulic casing (903.01)	A4/AISI 316
Material Shaft (210)	1.4462/UNS S31803	Material Static seal Screw plug Volute casing (411)	A4/AISI 316
Material Impeller (230)	1.4408/A743CF8M	Material Nut Impeller fastening (920.95)	(CRNIMO ST INT)
Material Casing wear ring suction-side (502.01)	(CRNIMO ST INT)	Material Key	1.4571+C/A276 TP 316 COND B
Material Casing wear ring discharge-side (502.02)	(CRNIMO ST INT)		
Material Shaft protecting sleeve (523)	(CRNIMO ST INT)		
Material Bearing bracket (330)	EN-GJL-250/A48 CL 35B		
Material Static seal Discharge cover	DPAF DW001		

Etanorm 065-040-315 CC
 ETN 065-040-315-CCSID21 GSFY4ECB

Driver

Electric motor	Yes	Rated speed Motor	1,500 1/min
Drive concept	With electric actuator	Number of motor poles	4
Drive standard, mechanical	IEC	Rated power Motor	11 kW
Drive standard electric	IEC	Motor power reserve determined	29.6 %
Motor bearing, insulated	No	Rated voltage Motor	400 V
Motor manufacturer	KSB	Motor winding	- / 400 V
Customer supply Drive	No	Rated frequency Motor	50Hz
Motor construction type	IM B3 (IM1001) IEC 60034-7	Motor switching type	Star
Motor alignment	No	Rated current Motor	24.2 A
Motor size	160M	Motor cos phi at nominal speed	0.77
Efficiency class	IE5 (Ultra Premium)	Rated efficiency Motor	93.5 %
Material motor housing	AL	Motor service factor	1
Enclosure Motor	IP55 (TEFC)	Directive Drive	CE
Thermal class	155 (F) nach IEC 60085		
Temperature sensor motor	3 PTC thermistors		
Terminal box position of motor (looking at the motor shaft)	360 °		
Operation on a frequency inverter permitted	Required by design		
Sound pressure level Motor	61 dBa		
Type series Motor manufacturer	SuPremE C2		

Installation parts / Accessories

Coupling

Coupling type	ROFLEX N
Coupling manufacturer	KTR
Nominal size Coupling	95

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	7A
Drill baseplate at motor end	Yes

Etanorm 065-040-315 CC
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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
Material Installation part Pump (ST)	

Etanorm 065-040-315 CC
ETN 065-040-315-CCSID21 GSFDY4ECB

KSB PumpMeter [A]

Design

Explosion protection zone (ATEX) Without

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

Etanorm 065-040-315 CC

ETN 065-040-315-CCSID21 GSFY4ECB

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)

Etanorm 065-040-315 CC
ETN 065-040-315-CCSID21 GSFY4ECB

Accessories & Service

FUNCTION MODULE M12-MODULE PDRV2
Function module M12 Module PDRV2 -

Ident-No. 01537899

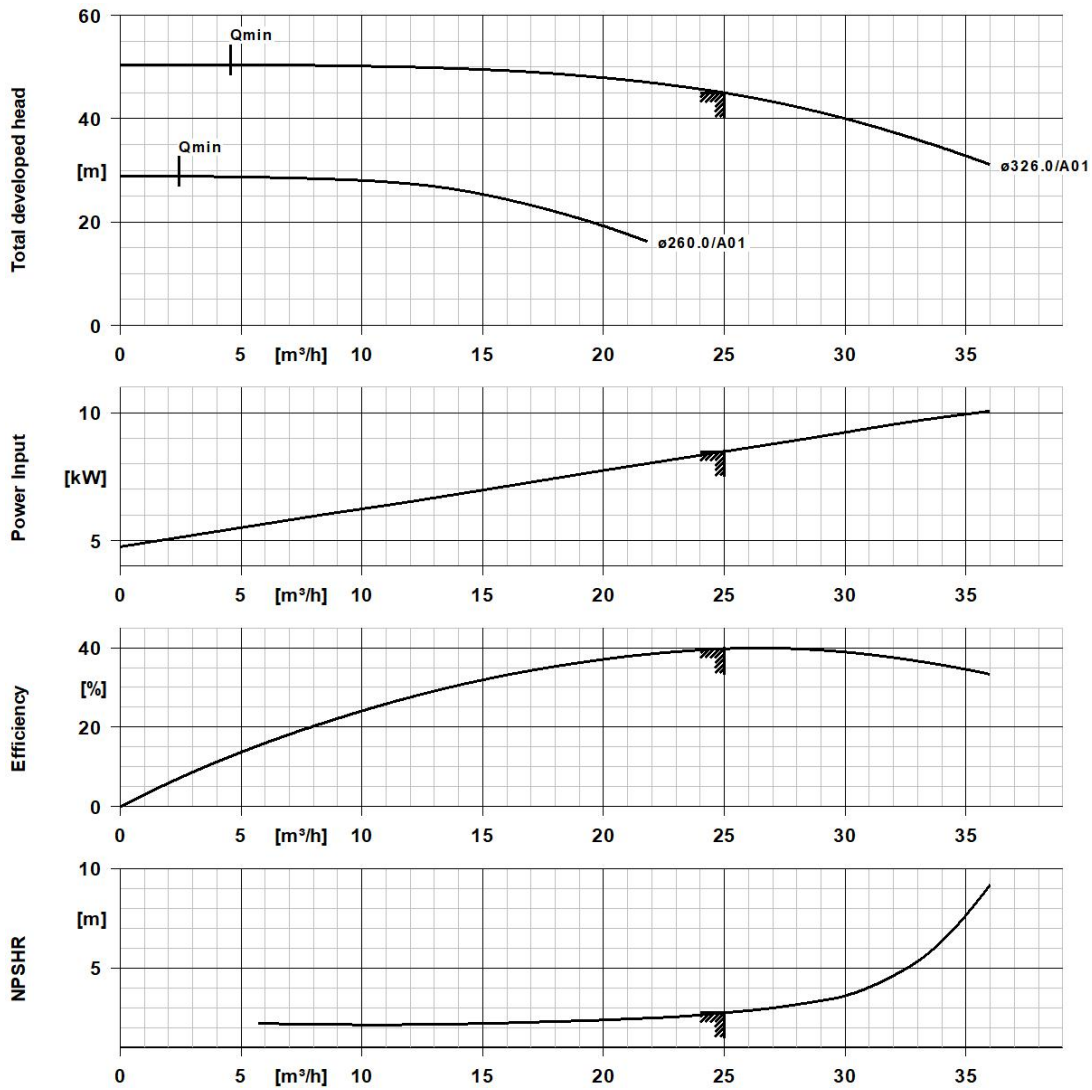
O-RING 50,17X 5,33-N-B-329
O-Ring 50,17X5,33-N-B-329 ZN3770-1 NBR70

Ident-No. 01162381

HX SOCK HD CAP SCRW M 8 X 16
Hexagon socket head cap screw M 8X16 ISO4762 A4-70

Ident-No. 00140150

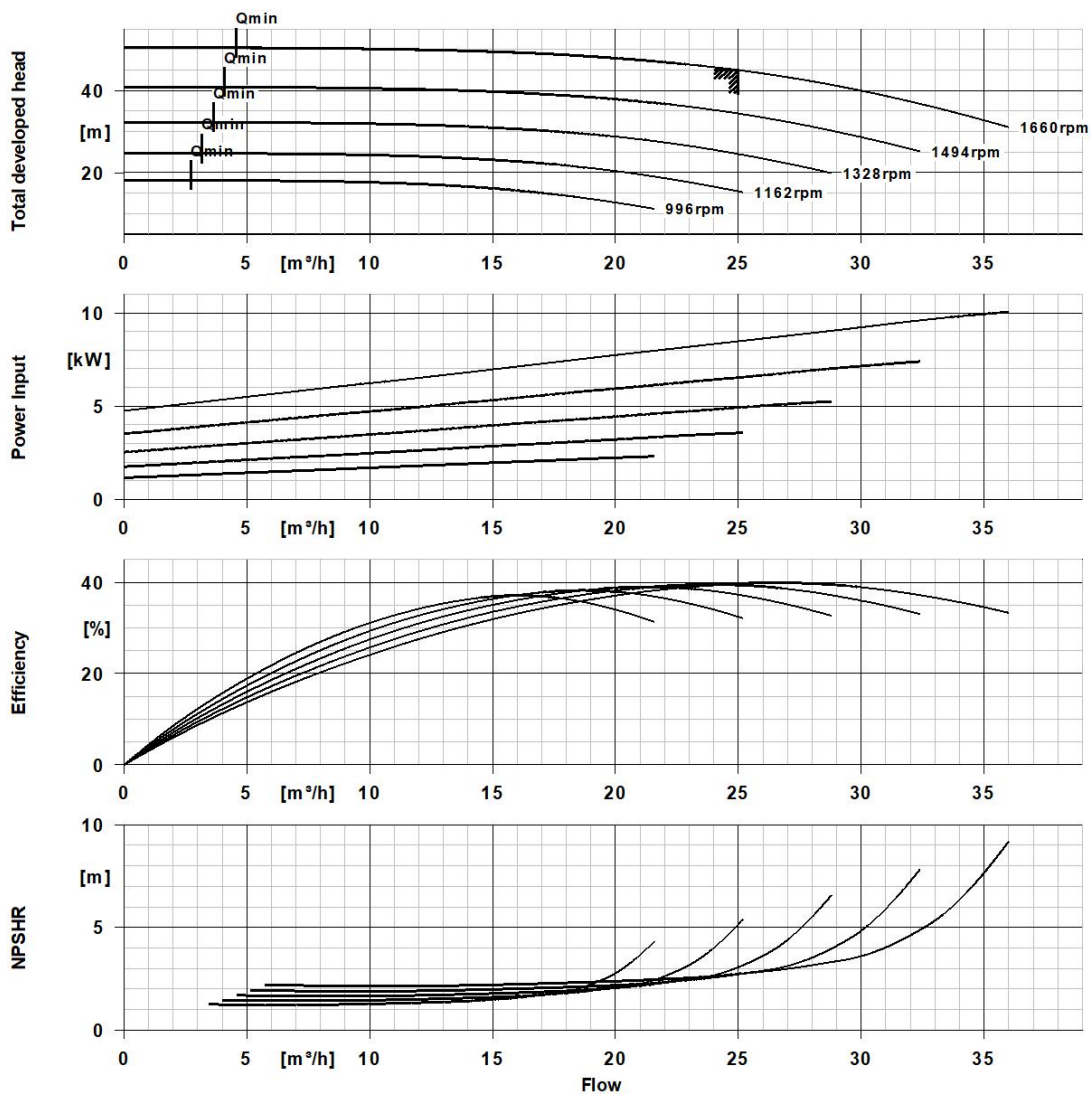
Etanorm 065-040-315 CC
 ETN 065-040-315-CCSID21 GSFY4ECB



Curve Data

Pump speed	1,660 1/min	Efficiency Pump	39.75 %
Density Fluid handled	1,100 kg/m³	Minimum efficiency index MEI	0.4
Kinematic viscosity Fluid handled	1 mm²/s	Maximum power input at duty point	8.48 kW
Flow rate	25 m³/h	NPSH required	2.74 m
Head	45 m	Hydraulic calculation according to standard/class	EN ISO 9906 class 3B

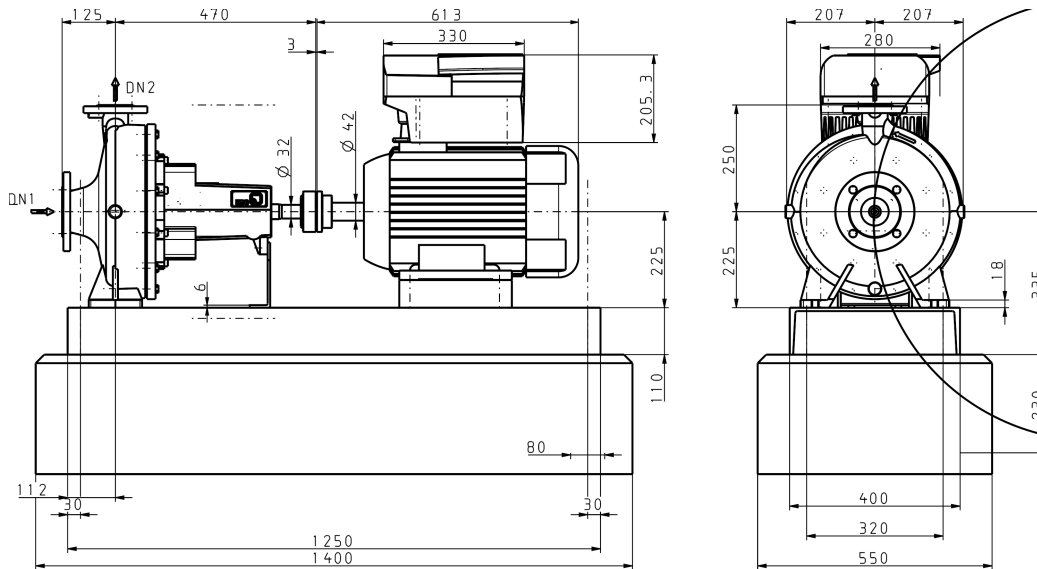
Etanorm 065-040-315 CC
 ETN 065-040-315-CCSID21 GSF4Y4ECB



Curve Data

Density Fluid handled	1,100 kg/m ³	Minimum efficiency index MEI	0.4
Kinematic viscosity Fluid handled	1 mm ² /s	Hydraulic impeller diameter	326 mm
Flow rate	25 m ³ /h	Head	45 m

Etanorm 065-040-315 CC
 ETN 065-040-315-CCSID21 GSFY4ECB



Drawing is not to scale.

Dimensions are given in mm

Motor

Motor manufacturer	KSB
Motor size	160M
Rated power Motor	11 kW
Number of motor poles	4
Rated speed Motor	1,500 1/min
Terminal box position of motor (looking at the motor shaft)	360 °

Baseplate

Baseplate type	Folded plate/U-section
Baseplate size	7A

Connections

Nominal diameter Suction nozzle	DN 65
Suction flange bolt hole pattern as per standard	EN1092-1
Nominal diameter Discharge nozzle	DN 40
Discharge flange bolt hole pattern as per standard	EN1092-1
Nominal pressure Suction nozzle	PN 16
Nominal pressure Discharge nozzle	PN 16

Coupling

Coupling manufacturer	KTR
Coupling type	ROFLEX N
Nominal size Coupling	95

Net weight

Total weight Pump	107 kg
Total weight Installation parts	93.2 kg
Total weight Coupling	2.6 kg
Total weight Contact guard	0.41 kg
Total weight Drive	82 kg
Total weight Pump set	299 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

Plan for additional connections see extra drawing

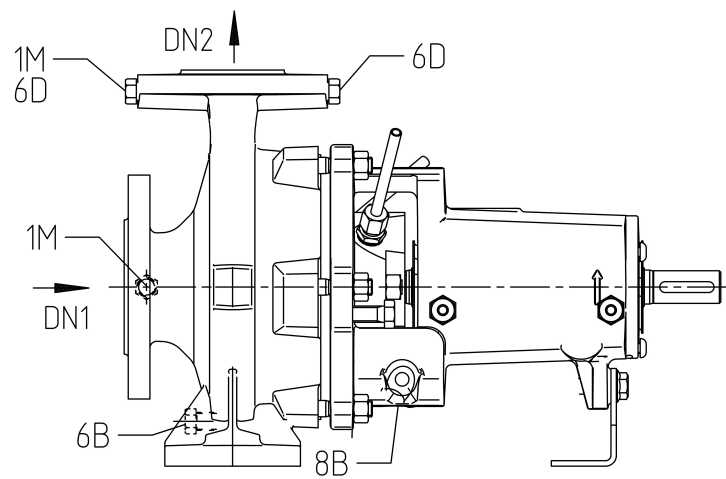
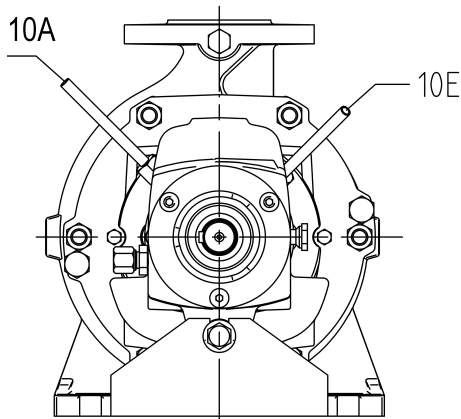
Etanorm 065-040-315 CC

ETN 065-040-315-CCSID21 GSFY4ECB

Dimensions without tolerances - welded parts: ISO 13920-B

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

Etanorm 065-040-315 CC
 ETN 065-040-315-CCSID21 GSF4Y4ECB

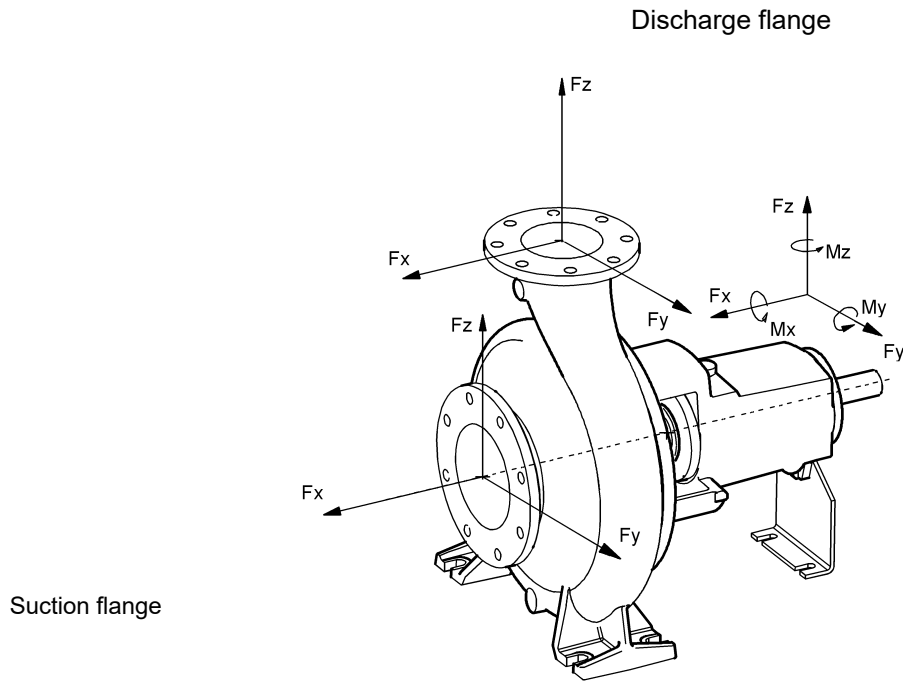


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Connections

6B Fluid Drain	G 1/4	Drilled and plugged
6D Fluid Filling and venting	G 1/4	Drilled and plugged
8B Leakage Drain	G 1/2	Drilled
10A External barrier fluid Outlet	G 1/4	Pipe con by pipe union+plugged
10E External barrier fluid Inlet	G 1/4	Pipe con by pipe union+plugged
1M Pressure gauge Discharge nozzle	G 1/4	Fitted pressure sensor
1M Pressure gauge Suction nozzle	G 1/4	Fitted pressure sensor

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Drawing is not to scale.

Force and Moment Limits

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.