Secochem-Ex

Explosion-proof Standardized Chemical Pump
with canned motor

Connection dimensions to EN 22 858/ISO 2858
Explosion protection as per EC directive 94/9/EC

Automation products available:

- PumpExpert
- Hyamaster
- hyatronic

Fields of Application

For handling aggressive, flammable, explosive, toxic, volatile or valuable liquids in the chemical and petrochemical industry, in environmental and industrial engineering.
In addition, the Secochem-Ex pump is suitable for applications where low noise emissions, smooth running or long service intervals (operating reliability) are required.
Any CPK pump with shaft seal can easily and economically be converted to a seal-less design with a back pull-out unit. Casing and impeller are re-usable.

Design / Variant

Horizontal seal-less volute casing pump in back pull-out design with fully enclosed canned motor, with radial impeller, single-stage, single-flow.
The connection dimensions of the pump casing are in accordance with EN 22 858/ ISO 2858.

Drive

Three-phase asynchronous canned motors, enclosure IP55. Explosion protection in acc. with directive 94/9/EC II2GEEx de IIC T6, T5, T4 or T3. Stator space in “flameproof enclosure”, terminal box in “increased safety”. Thermal motor protection possible in all three phases by PTC resistors. Motor design is in accordance with IEC 60 034 (DIN VDE 0530).

Designation

Secochem C H 32 - 200 / 7 2 Ex

- Type series (code: SCX)
- Material of pump casing
- Additional code
- Discharge nozzle DN
- Nominal impeller dia. in mm
- Rated motor power in kW (rounded off to full kW)
- Number of motor poles
- Explosion-proof motor

Additional codes:
H = heatable version

Operating Data

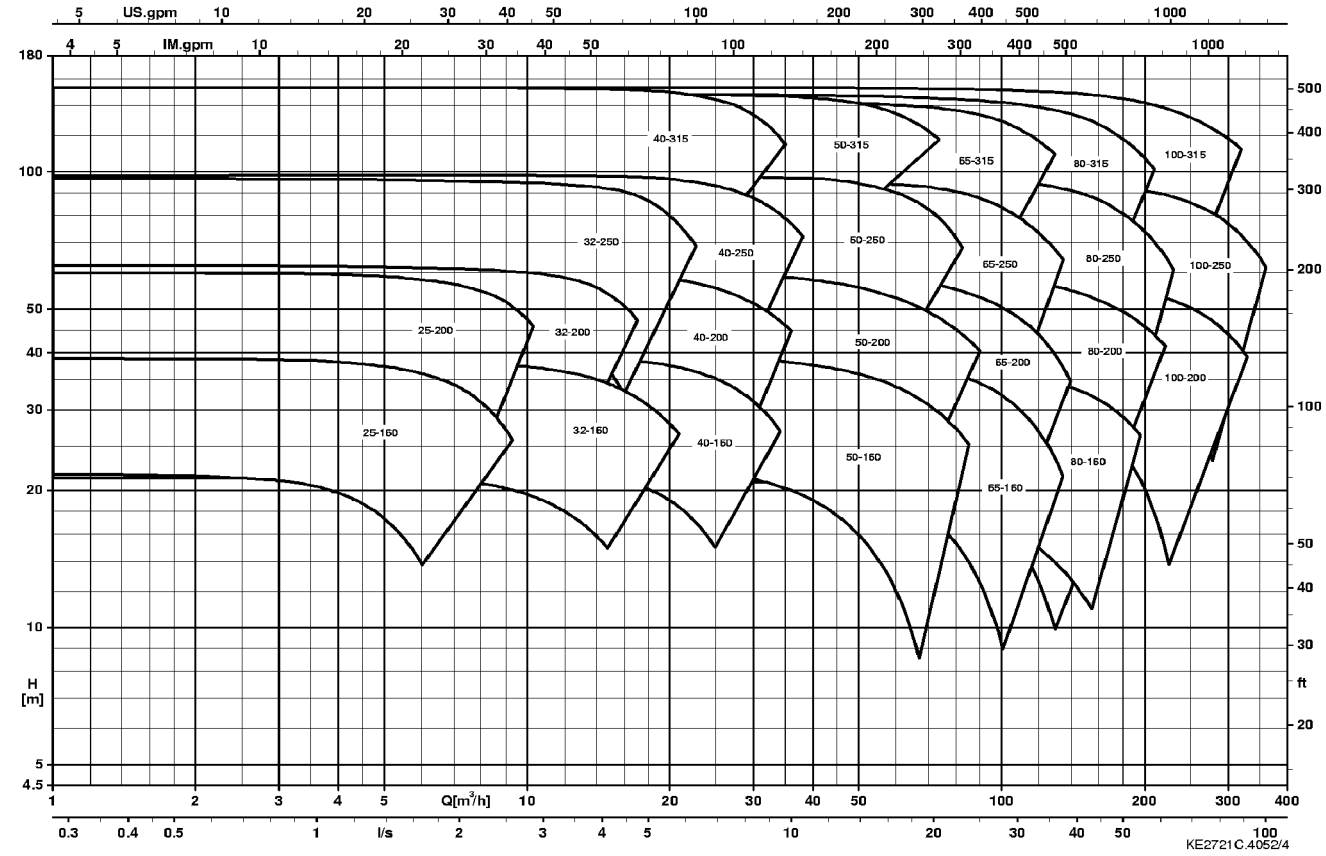
Frequency		50 Hz	60 Hz
Capacity	Q	up to 300 m^3/h	up to 250 m^3/h
Head	H	up to 150 m	up to 220 m
Motor power	P_2	1.1 to 60 kW	1.4 to 70 kW
Product temperature	t	- 40 to 130 °C	
Operating pressure	p_2	up to 25 bar	

Certification

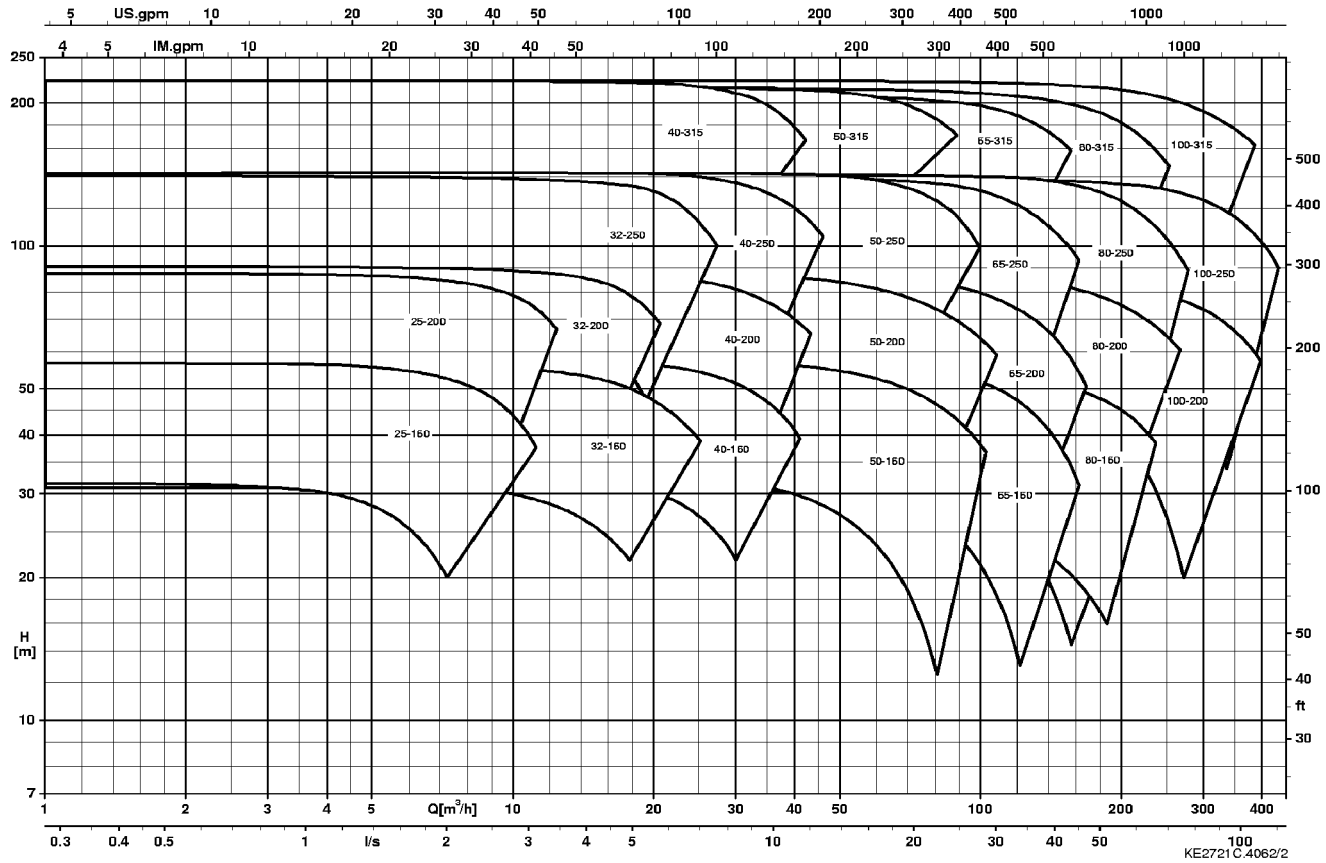
Certified quality management ISO 9001.

Selection Charts

n = 2900 1/min

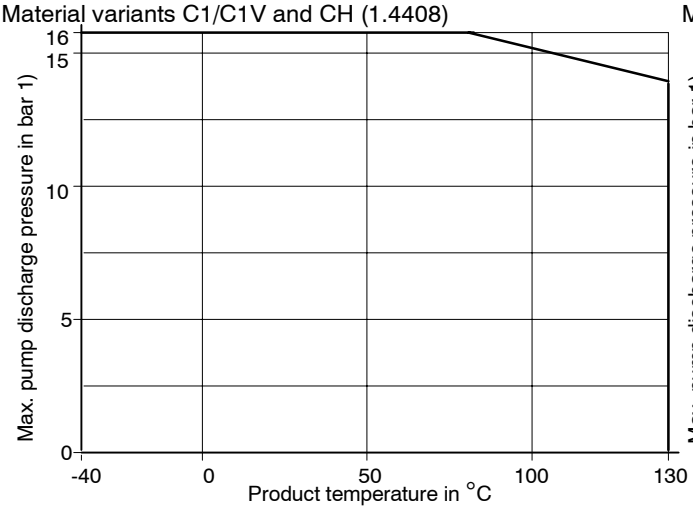


n = 3500 1/min

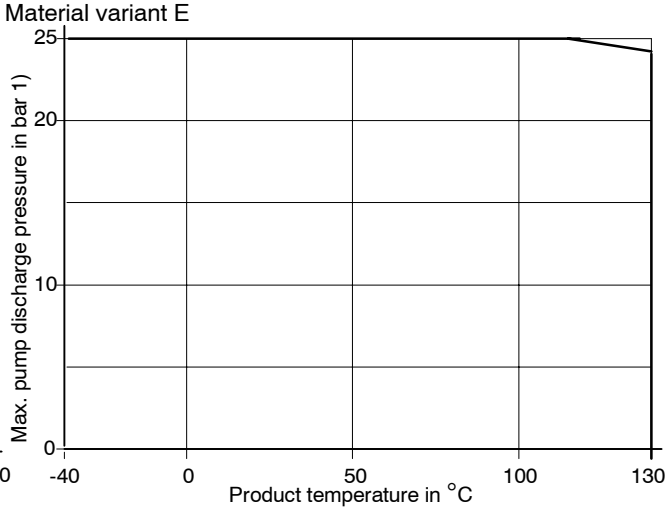


Pressure and Temperature Limits

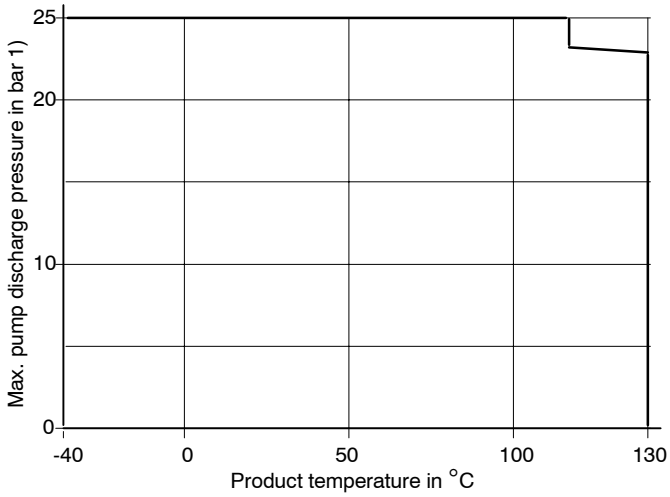
Material variants C1/C1V and CH (1.4408)



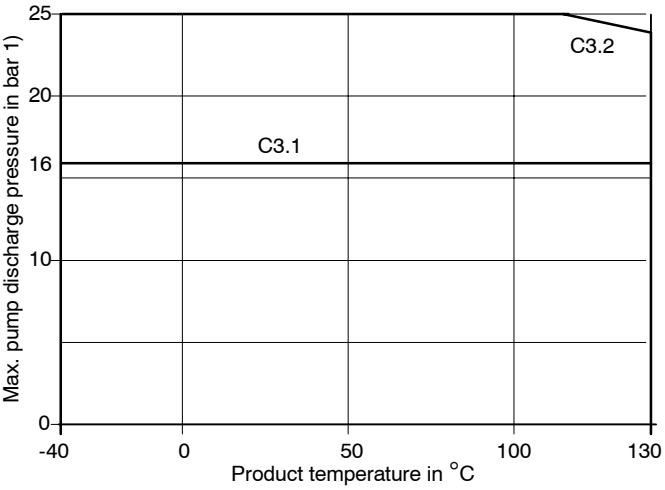
Material variant E



Material variant S2



Material variant C3.1/C3.2



1) The sum of inlet pressure and head at zero flow point must not exceed the value indicated.

Modular Pump /Motor Design System

Motor code	Pump size																							
	25-160	25-200	32-160	32-200	32-250	40-160	40-200	40-250	40-315	50-160	50-200	50-250	50-315	65-160	65-200	65-250	65-315	80-160	80-200	80-250	80-315	100-200	100-250	100-315
12	x	x	x	x	-	x	x	-	-	x	x	-	-	-	-	-	-	-	-	-	-	-	-	-
22	x	x	x	x	-	x	x	-	-	x	x	-	-	-	-	-	-	-	-	-	-	-	-	-
42	x	x	x	x	x	x	x	x	-	x	x	x	-	x	x	x	-	x	x	x	-	x	-	-
52	x	x	x	x	x	x	x	x	-	x	x	x	-	x	x	x	-	x	x	x	-	x	-	-
72	x	x	x	x	x	x	x	x	-	x	x	x	-	x	x	x	-	x	x	x	-	x	-	-
112	x	x	x	x	x	x	x	x	-	x	x	x	-	x	x	x	-	x	x	x	-	x	-	-
152	x	x	x	x	x	x	x	x	-	x	x	x	-	x	x	x	-	x	x	x	-	x	-	-
222	-	-	-	-	x	-	x	x	x	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x
302	-	-	-	-	x	-	x	x	x	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x
402	-	-	-	-	x	-	-	x	x	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x
552	-	-	-	-	x	-	-	x	x	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x

x = combination possible - = combination not possible

Material Variants

Part No.	Description	C1/C1V and CH 2)	C3.1/C3.2	S_2	E
102	Volute casing	1.4408	Noridur 1.4593	JS 1025 3)	GP240GH
161	Casing cover	1.4571	1.4462	P250GH	P250GH
230	Impeller	1.4408	Noridur 1.4593	JL 1040 4)	JL 1040 4)
344 1)	Bearing bracket lantern	1.4571	1.4462	JS 1025 3)	JS 1025 3)
411	U-rings	PTFE	PTFE	PTFE	PTFE
529.06/.21	Bearing sleeve	Sicadur ® 5)	Sicadur ® 5)	Sicadur ® 5)	Sicadur ® 5)
545.06/.21	Bearing bush	Sicadur ® 5)	Sicadur ® 5)	Sicadur ® 5)	Sicadur ® 5)
811	Motor housing	JS1025 3)	JS1025 3)	JS1025 3)	JS1025 3)
817.01	Can	2.4610	2.4610	2.4610	2.4610
818	Rotor (shaft)	1.4462	1.4462	1.4462	1.4462

1) not fitted on pumps with motors 12 and 22 2) C1V = 1.4408 to VDMA 24 276 3) GJS-400-18-LT to EN 1563 4) GJL-250 to EN 1561 5) Sicadur ® = SiC

The plain bearing
SICADUR®
Reliable, durable and highly load-resistant

Benefits at a Glance

Reliable due to well-proven hydraulic components of the CPK range (200,000 pump sets sold), with excellent efficiencies and low NPSH values

Wider application range due to barrier liquid feed (filtered product or external liquid)

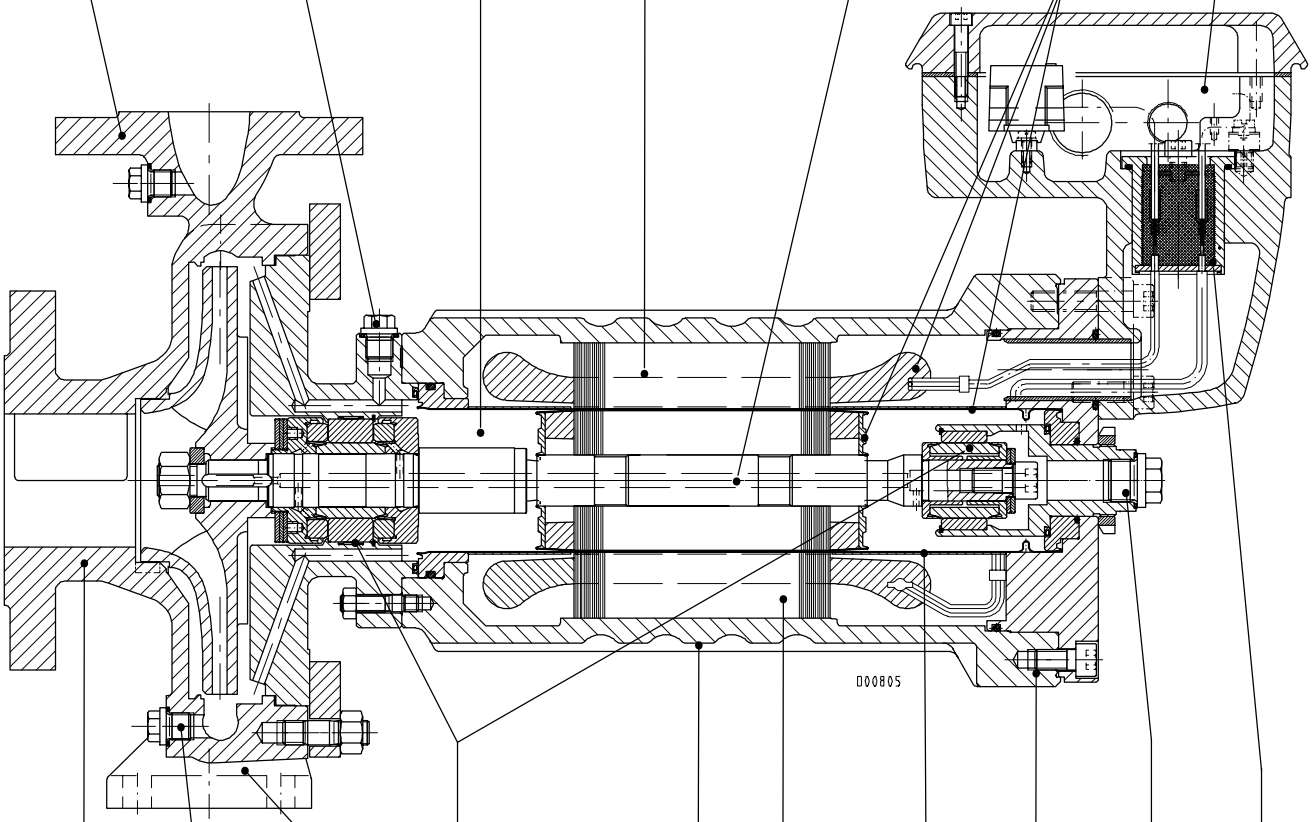
Rotor space heatable via motor standstill heater

Explosion protection as per EC directive 94/9/EC

High functional reliability due to self-venting feature of the pump set

Safe due to thermal motor protection and corrosion-resistant materials for can and rotor cladding

Simple electrical installation



Service-friendly due to self-draining facility at the lowest point of the rotor space

Long service life and long inspection intervals due to high-quality plain bearings made of SSiC

Economically efficient due to low life-cycle costs

Low energy costs due to good electrical efficiencies (can made of 2.4610)

Easy cleaning due to flushing connection

Heatable casing possible

Space-saving and easy to install due to close-coupled and back pull-out design and simple installation procedure.

Low-noise due to liquid cooling and plain bearings (no fan required)

Second pressure boundary made of ductile material

Top safety due to second barrier, protects persons and the environment

Pump sizes

DN discharge nozzle	Nominal impeller diameter			
	160	200	250	315
25	x	x		
32	x	x	x	
40	x	x	x	x
50	x	x	x	x
65	x	x	x	x
80	x	x [1)]	x [1)]	x [1)]
100		x [1)]	x [1)]	x [1)]

1) Casing with double volute; these pump sizes are not available in material C1

Heatable Casings

Radially split, consisting of volute casing (on material variant S with casing wear ring) and casing cover.

The following pump sizes can be supplied with a heatable casing (Secochem-CH):

DN discharge nozzle	Nominal impeller diameter			
	160	200	250	315
25	x			
32	x	x	x	
40	x	x	x	x
50	x	x	x	x
65		x		
80			x [1)]	x [1)]
100			x [1)]	

1) Casing with double volute

Balancing

Axial thrust is reduced by back vanes. The load acting on the thrust bearings is markedly reduced, which considerably increases operating reliability.

Drive

Design

Fully enclosed three-phase, asynchronous canned motor, with flameproof enclosure. Secondary sealing elements and a sealed cable entry into the terminal box provide the motor with a second pressure barrier. Thermal winding protection by PTC resistors is possible (optional). The motor is approved for hazardous zones as per directive 94/9/EC. The stator space is provided in "flameproof enclosure" and the terminal box in "increased safety". Type of protection to EN 60 034 is IP 55. Frequency inverters can be used in combination with the PTC resistors in the winding.

Operating modes - Cooling and lubricating flow:

N Standard design
A cooling flow taken from the pump's hydraulic end flows through the rotor space and returns to the suction side of the impeller by "internal circulation".

IF Internal filter
Cooling flow see "N". In addition, the cooling flow passes through an internal filter (0.2 mm) on the casing cover, to prevent solids from entering the rotor space.

F External liquid feed
The cooling flow is fed in by an external barrier pressure system. It flows through the rotor space back to the suction side of the impeller.

ZF Circulation via filter
Cooling flow see "F". However, the cooling flow is supplied via a main flow filter on the discharge nozzle.

Explosion Protection

Rotor space fill:
Operation of the canned motor pump in hazardous zones is only permitted if the rotor space is filled with the product to be pumped at all times, so that an explosive atmosphere in the rotor space is prevented. If this condition cannot be ensured by the system configuration, monitoring facilities will have to be provided around the pump unit (e.g. liquid level monitoring). These monitoring facilities have to be designed in acc. with directive 94/9/EC, Annex II, Section 1.5.5 and EN 1127-1. The monitoring devices offered by KSB meet these requirements.

Surface temperature:
When reaching the temperature limit for the temperature class, the canned motor must be cut out by means of an approved tripping unit in combination with the measuring points in the stator winding and/or the measuring point for liquid temperature in the rotor space.

Heating

Heatable pump casing:
The pump casing can be heated with hot water or saturated steam, for example. To observe explosion protection regulations as per directive 94/9/EC, the surface temperature of the pump casing has to be limited as well. The following supply temperatures of the heating medium have to be observed:

Temperature class as shown on pump name plate	Tmax Heating medium
T6	75 °C
T5	90 °C
T4	125 °C
T3	150 °C
Pmax = 10 bar	

Motor standstill heater

The motor standstill heater is factory-set. In continuous operation, the rotor space may be heated up to 80-100°C. Temperature class T4 is observed in this case. For operation at temperature classes T5 or T6, the external temperature measuring point of the rotor space and/or the integrated PTC resistors must be used for tripping the motor standstill heater. The motor standstill heater is set to the rotor space temperature required (T<100°C) by means of a control unit combined with a measuring resistor fitted on the can of the rotor space.

Documentation

Printed documentation adapted to CE requirements
- Operating instructions
- Sectional drawing with list of components
- Performance curves of the CPK range
- General arrangement drawing / dimensions table
- EC declaration of conformity
- EC type test certificate

Forces and Moments

The pumps are designed for handling forces and moments in accordance with ISO 5199.

Acceptance Tests / Guarantees

- **Materials tests**
  Test report 2.2 on request
- **Product tests**
  Inspection certificate 3.1 as per EN 10 204, on request, for: pressure test of complete pump
- **Hydraulic tests**

The following acceptance tests may be performed and certified at an extra charge:

Performance test ISO 9906
NPSH test

Warranties are given within the scope of the valid delivery conditions.

Coating/Preservation

(as per works standard AN 1865)

(E/S2) N 1 1 1 W
(C1/C1V/C3.1/C3.2) N 0 1 1 U

Treatment of unmachined parts
Coating - pressure-retaining components
Coating - bearing bracket lantern
Coating - motor
Preservation

Key:
N = reaction primer, wetted components without 1st primer coat
0 = without finish coat
1 = synthetic enamel RAL 5002
U = untreated
W = rinsed with water repellent; blank parts liable to rust with protective coating

Recommended Spare Parts Stock for Two Years' Operation

With a view to the special design of the pump sets, the manufacturer has developed a special concept for spare parts and after-sales service.
Consequently, the manufacturer will always have replacement drives on stock in order to restore the pump set's availability in the plant as quickly as possible.

Repair of the drive at the site is not provided for, except for replacing spare parts.
Depending on the number of pump sets installed, the operator should keep the following spare parts on stock:

Part No.	Description	Number of pump sets						
		2	3	4	5	6	8	10 and more
		Quantity of spare parts						
161	Casing cover	-	-	-	1	1	1	10%
230	Impeller	1	1	2	2	2	3	30%
314.01/.02	Thrust bearing	-	-	-	1	1	1	10%
344	Bearing bracket lantern [1)2)]	-	-	-	1	1	1	10%
382	Bearing carrier	-	-	-	1	1	1	10%
515.23/.24	Taper lock ring	-	-	-	1	1	1	10%
529.06/.21	Bearing sleeve	-	-	-	1	1	1	10%
	Motor unit [1)]	-	-	-	1	1	1	10%
818	Rotor [1)]	-	-	-	1	1	1	10%
	Set of sealing elements	2	2	4	4	6	8	100%
	Motor	-	-	-	1	1	1	10%

1) If more than 5 identical motors are in operation, we recommend to keep a complete motor on stock instead of the parts indexed
2) not fitted on units with motor sizes 12 and 22

Connections

Electrical connection:
The terminal box is fitted with power terminals (see fig. 1) and control terminals (see fig. 2), depending on the pump version. The side walls are provided with 2 bores each on the left and right, which can be used as cable entries as required.
Cable glands available

Motor size	Cable glands	Max. cable diameter
Power cable		
DE 90	M 20 x 1.5	13.5 mm
DE 90 [1)] DE 112/132	M 32 x 1.5	22.0 mm
DE 112/132 [1)]	M32/40 x 1.5	28.0 mm
DE 160	M 50 x 1.5	35.0 mm
DE 200	M 63 x 1.5	45.0 mm
Control cable		
DE 90-200	M 20 x 1.5	13.5 mm

1) Variant for particularly thick cables

The motor has been wired in the factory and set for d.o.l. starting (see fig. 1, terminals U-V-W). If PTC resistors or a measuring resistor (PT100 for the motor standstill heater) are provided, they have been connected to the control terminals (see fig. 2, terminals 3-2-1-11-10).

Fig. 1

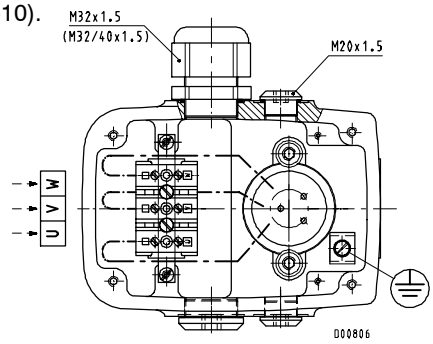
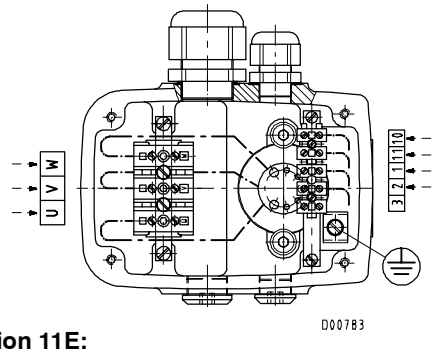


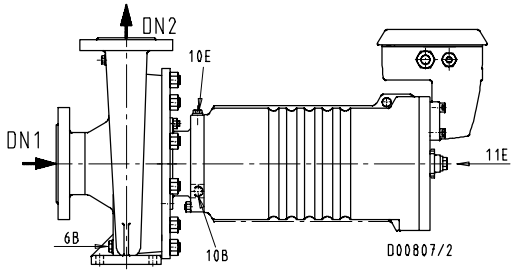
Fig. 2



Flushing connection 11E:
All pumps are equipped with a flushing connection 11 E as a standard feature, even if a PT100 sensor is installed in the rotor space (see fig. 3).

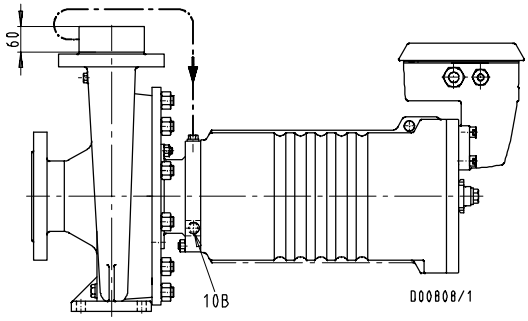
Barrier liquid connection 10E:
A pump version with barrier liquid supply is also available. In this case, the cooling and lubricating flow is not taken as internal circulation from the pump's hydraulic system, but has to be fed in through barrier liquid connection 10E. As the rotor space will no longer be self-draining as a result, it is provided with a drain hole 10B (see fig. 3).
Any barrier liquid used must be compatible with the pumped product. The barrier liquid system must ensure that the rotor space is filled at all times during pump operation.

Fig. 3



Connection of a main flow filter:
If the pumped product contains solid particles, a main flow filter can be used. In this case, the cooling and lubricating flow is not taken as internal circulation from the pump's hydraulic system, but as filtered product from the main flow filter. The pump is supplied in the version with barrier liquid supply in this case. As the rotor space will no longer be self-draining as a result, it is provided with a drain hole 10B. The main flow filter and associated pipework are fitted at the factory (see fig. 4).
Caution:
Pump dimension h2 will increase by 60 mm if the KSB filter is used.

Fig. 4



Accessories

Thermistor relay (PTC tripping unit):
The thermistor relay protects and monitors motors fitted with PTC resistors. The PTCs are installed in the motor, where they directly monitor the heat situation. The following operating conditions can be monitored directly:
- heavy (high-inertia) starting
- high switching frequency
- two-phase operation
- high ambient temperature
- inadequate cooling
- additional heat build-up due to frequency inverter

The tripping unit works independently of the motor current, insulation class and starting method.

Resistance thermometer (PT100):
The PT100 sensor is a resistance thermometer. It works as a passive component in the hazardous zone and measures the temperature in the pump rotor space. Connection is to a three-wire system by intrinsically safe wiring. For installation in the rotor space, the sensor is fitted with a protective well which is available in several material variants.
An installation kit is available for installing the PT100 on the pump. Thanks to the protective well, a defective resistance thermometer can be replaced without draining the pump (see fig. 5).

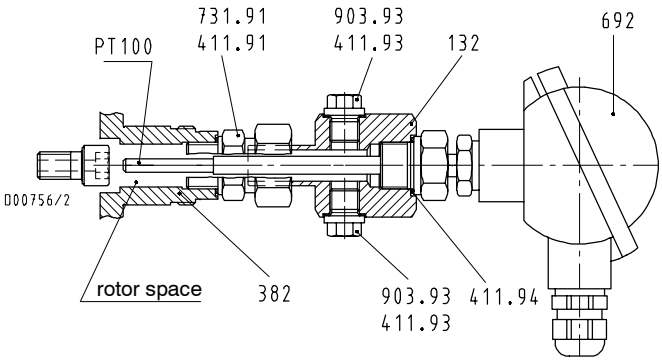
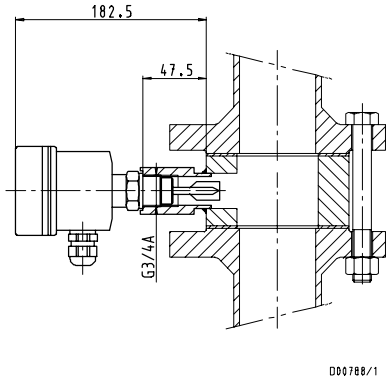


Fig. 5 Installation in the pump

Barrier and limit switch
The barrier is a passive component which shields the hazardous area from the non-hazardous area. On the input side, the PT100 is connected to the barrier in a three-wire system (intrinsically safe wiring). On the output side, it is connected to the limit switch.
The limit switch compares the actual temperature in the rotor space with the admissible temperature limit. If the temperature in the rotor space exceeds the limit set at the unit, the motor is tripped via the motor contactor. This prevents inadmissible surface temperatures with a view to explosion protection.
Both units are installed in the control cabinet mounted in the non-hazardous zone.

Level transmitter (Liquiphant)
The level transmitter is installed either in the suction pipe or the discharge pipe. It monitors the liquid level in the pipeline and thus the liquid fill in the rotor space.
In air, the fork of the liquiphant vibrates at its natural resonance. When covered by liquid, the fork's vibration frequency is reduced. This change in frequency causes the isolating amplifier to switch (see figs. 6 + 7).

Fig. 6
Installation with intermediate piece



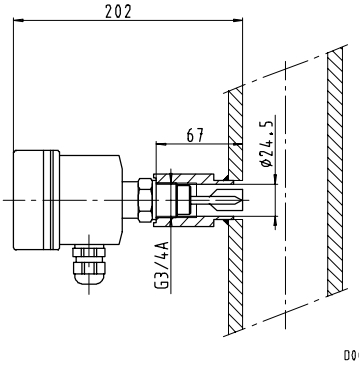


Fig. 7
Installation with weld-in socket

Isolating amplifier
The isolating amplifier is connected to the level transmitter by means of an intrinsically safe cable. If the latter signals that the pipeline is not filled, the output contact of the isolating switch opens, so that the release signal for the motor contactor is cancelled and the pump unit is switched off. With a view to explosion protection, this ensures that the pump cannot be operated without a complete liquid fill in the rotor space.
The unit is installed in the control cabinet mounted in the non-hazardous zone.

Motor standstill heater
The motor standstill heater serves to heat up the liquid in the rotor space. It generates an uninterrupted pulsating direct current, which flows through the motor winding. As a result, a three-dimensional stationary magnetic field is produced, which absolutely prevents the motor from starting.
The product temperature in the rotor space can be set to any value required by means of a measuring resistor (PT100) fitted on the can, by controlling the standstill heater accordingly.

Pump power monitoring unit
monitors the motor's active power input. The maximum and/or minimum power input can be adjusted by way of two potentiometers. If the power rises above or falls below the set values, 2 LEDs will signal overload or underload. The respective output relay switches after an adjustable trip delay of 1...10 s. The control unit also features an adjustable starting override function of 1...30 s as well as an LED for signalling that the unit is operational.

- monitoring the maximum power limits the max. flow rate with a view to cavitation-free pump operation and motor overloading
- monitoring the minimum power protects the pump against dry-running if medium is not available (=no-load power)

N.B.: For rated motor currents exceeding 5 A, a current transformer is required for the pump power monitoring unit.

Main flow filter
The main flow filter is installed between the pump discharge nozzle and the downstream piping. Whereas the pump's delivery flows axially through the filter, a partial flow is diverted in radial direction for cooling the motor and lubricating the bearings. The partial flow passes through a screen to keep entrained solids out of the rotor space. The main flow filter is self-cleaning, as the main flow passes parallel to the filter surface and thus carries away the solids.

Technical Data

Hydraulic data

		Unit	Pump sizes																							
			25-160	25-200	32-160	32-200	32-250	40-160	40-200	40-250	40-315	50-160	50-200	50-250	50-315	65-160	65-200	65-250	65-315	80-160	80-200	80-250	80-315	100-200	100-250	100-315
General	impeller outlet width	mm	6	6	7	7	6	9	7	7	8	15	12	10	8	20	16	13	10	27	22	17	14	29	23	19.5
	Impeller inlet diam.	mm	45	45	52	52	52	65	65	65	65	82	82	84	84	89	96	96	96	100	114	114	129	122	129	135
	max. impeller diam.	mm	see individual curve																							
	min. impeller diameter	mm	see individual curve																							
Pressure limit	max. operating pressure	bar	see diagram																							
	max. test pressure	bar	1.5 times the permissible pump discharge pressure																							
Temp. limit	min./max. product temperature	°C	-40/130																							

Motor data
Three-phase asynchronous motor

Starting method:	all motors d.o.l.
Voltages	50Hz: 400V, 500V, 690V 1) 60Hz: 480V, 600V
Voltage tolerance:	+/- 10%
Explosion protection	directive 94/9/EC
Identification	II 2 G EEx de T6, T5, T4 or T3
Enclosure to EN 60 034	IP 55
Thermal class	H

1) not available for motors 12 and 22

Operating mode	S1
Monitoring	PTC (optional)
Frequency inverter operation	possible in combination with PTC; motor supply voltage limits: du/dt < 1000 V/µs $\hat{U}$ < 1000 V

Noise Characteristics

Motor code	Motor size DE	Surface sound pressure level $\overline{L}$ pA (dB) 1)
12	90.2-1.1	48.5
22	90.2-2.2	48.5
42	112.2-4	52
52	112.2-5.5	53
72	132.2-7.5	55
112	132.2-11	58
152	132.2-15	60
222	160.2-22	65
302	160.2-30	67
402	200.2-40	69
552	200.2-55	70

1) measured at a distance of 1 m from the pump outline (as per DIN 45 635 Part 1 and 24)

Interchangeability of assemblies

GD = 161 **Casing cover** (902.15, 920.15)
SR = 515.04 **Taper lock ring**
LT = 344 **Lantern** (with bearing bush, 411.16, 903.16)
LR = 391.01 **Bearing ring carrier** (with bearing bush, hex. socket head cap screw 914.07)
TM = 80-1 **Motor unit** (with supporting sleeve, stator, motor housing, can, 412.21/.22/.71, 812, 902.04, 914.38/.57/.84, 920.04)

KK = 833 **Terminal box** (400.81, 412.80, 81-36, 81-22, 914.81, 834, 412.81, 550.81, 914.85)
RO = 818 **Rotor** (540.01, 940.01)
LP = 310.10 **Bearing, pump-end** (314.01/.02, 529.21, 950.23)
LM = 310.11 **Bearing, motor-end** (515.23/.24, 529.06, 914.80, 950.11)
LK = 382 **Bearing carrier** (with bearing bush, 411.91, 903.91, 920.36)
NR = 411 **U-rings** (411.11/.48/.87)

Size of hydraulics	Motor size 12	22	42	52	72	112	152	222	302	402	552
25-160	GD1 RO1	GD1 RO1	GD3 RO2	GD3 RO4	GD3 RO6	GD3 RO6	GD3 RO8				
32-160	SR1 LP1	SR1 LP1	SR1 LP2	SR1 LP2	SR1 LP2	SR1 LP2	SR1 LP2				
40-160	---- LM1	---- LM1	LT1 LM1	LT1 LM1	LT1 LM1	LT1 LM1	LT1 LM1				
50-160	TM1 LK1	TM2 LK1	TM3 LK1	TM4 LK1	TM5 LK1	TM6 LK1	TM7 LK1				
	KK1 NR1	KK1 NR1	KK2 NR2	KK2 NR2	KK2 NR2	KK2 NR2	KK2 NR2				
25-200	GD2 RO1	GD2 RO1	GD4 RO2	GD4 RO4	GD4 RO6	GD4 RO6	GD4 RO8	GD8 RO10	GD8 RO10		
32-200	SR2 LP1	SR2 LP1	SR2 LP2	SR2 LP2	SR2 LP2	SR2 LP2	SR2 LP2	---- LP2	---- LP2		
40-200	---- LM1	---- LM1	LT1 LM1	LT1 LM1	LT1 LM1	LT1 LM1	LT1 LM1	LR1 LM2	LR1 LM2		
50-200	TM1 LK1	TM2 LK1	TM3 LK1	TM4 LK1	TM5 LK1	TM6 LK1	TM7 LK1	TM8 LK2	TM9 LK2		
	KK1 NR1	KK1 NR1	KK2 NR2	KK2 NR2	KK2 NR2	KK2 NR2	KK2 NR2	KK3 NR3	KK3 NR3		
65-160			GD5 RO3	GD5 RO5	GD5 RO7	GD5 RO7	GD5 RO9	GD9 RO11	GD9 RO11	GD9 RO13	GD9 RO15
80-160			SR3 LP2	SR3 LP2	SR3 LP2	SR3 LP2	SR3 LP2	---- LP2	---- LP2	---- LP3	---- LP3
			LT1 LM1	LT1 LM1	LT1 LM1	LT1 LM1	LT1 LM1	LR1 LM2	LR1 LM2	LR2 LM2	LR2 LM2
			TM3 LK1	TM4 LK1	TM5 LK1	TM6 LK1	TM7 LK1	TM8 LK2	TM9 LK2	TM10 LK2	TM11 LK2
			KK2 NR2	KK2 NR2	KK2 NR2	KK2 NR2	KK2 NR2	KK3 NR3	KK3 NR3	KK4 NR3	KK4 NR3
65-200			GD6 RO3	GD6 RO5	GD6 RO7	GD6 RO7	GD6 RO9	GD10 RO11	GD10 RO11	GD10 RO13	GD10 RO15
80-200			SR4 LP2	SR4 LP2	SR4 LP2	SR4 LP2	SR4 LP2	---- LP2	---- LP2	---- LP3	---- LP3
100-200			LT1 LM1	LT1 LM1	LT1 LM1	LT1 LM1	LT1 LM1	LR1 LM2	LR1 LM2	LR2 LM2	LR2 LM2
			TM3 LK1	TM4 LK1	TM5 LK1	TM6 LK1	TM7 LK1	TM8 LK2	TM9 LK2	TM10 LK2	TM11 LK2
			KK2 NR2	KK2 NR2	KK2 NR2	KK2 NR2	KK2 NR2	KK3 NR3	KK3 NR3	KK4 NR3	KK4 NR3
32-250			GD7 RO3	GD7 RO5	GD7 RO7	GD7 RO7	GD7 RO9	GD11 RO11	GD11 RO11	GD11 RO13	GD11 RO15
40-250			SR5 LP2	SR5 LP2	SR5 LP2	SR5 LP2	SR5 LP2	---- LP2	---- LP2	---- LP3	---- LP3
50-250			LT1 LM1	LT1 LM1	LT1 LM1	LT1 LM1	LT1 LM1	LR1 LM2	LR1 LM2	LR2 LM2	LR2 LM2
65-250			TM3 LK1	TM4 LK1	TM5 LK1	TM6 LK1	TM7 LK1	TM8 LK2	TM9 LK2	TM10 LK2	TM11 LK2
80-250			KK2 NR2	KK2 NR2	KK2 NR2	KK2 NR2	KK2 NR2	KK3 NR3	KK3 NR3	KK4 NR3	KK4 NR3
40-315								GD12 RO11	GD12 RO11	GD12 RO13	GD12 RO15
50-315								---- LP2	---- LP2	---- LP3	---- LP3
								LR1 LM2	LR1 LM2	LR2 LM2	LR2 LM2
								TM8 LK2	TM9 LK2	TM10 LK2	TM11 LK2
								KK3 NR3	KK3 NR3	KK4 NR3	KK4 NR3
100-250								GD11 RO12	GD11 RO12	GD11 RO14	GD11 RO16
								---- LP2	---- LP2	---- LP3	---- LP3
								LR1 LM2	LR1 LM2	LR2 LM2	LR2 LM2
								TM8 LK2	TM9 LK2	TM10 LK2	TM11 LK2
								KK3 NR3	KK3 NR3	KK4 NR3	KK4 NR3
65-315								GD13 RO12	GD13 RO12	GD13 RO14	GD13 RO16
80-315								---- LP2	---- LP2	---- LP3	---- LP3
100-315								LR1 LM2	LR1 LM2	LR2 LM2	LR2 LM2
								TM8 LK2	TM9 LK2	TM10 LK2	TM11 LK2
								KK3 NR3	KK3 NR3	KK4 NR3	KK4 NR3

Motor data for 50Hz

Motor code	Motor size	Product temperature T_M	Rated current I_N [A] at			Power input P_1	Power output P_2	Rot. speed n	Efficiency 1) η	Service factor cos φ	Starting current I_A/I_N	Cutout temperature of liquid in rotor space		Cutout temperature of end windings (PTC)		Temperature class		EC type test certificate
												Monitoring concept		Monitoring concept		Monitoring concept		as per directive 94/9/EC
	DE	[°C]	400V	500V	690V	[kW]	[KW]	[1/min]	[%]	[-]	[-]	Ia / Ib	II	Ia	Ib / II	Ia / Ib	II	
		40	3.8	3.0	2.2	2.3	1.7	2732	74	0.88	4.1	50	110	---	180	T6	T4	
		70	3.5	2.8	2.1	2.1	1.6	2753	76	0.87	4.3	80	110	---	180	T5	T4	PTB 99
12	90.2-1.1	100	3.4	2.7	1.9	2.0	1.5	2771	75	0.86	4.6	110	110	---	180	T4	T4	ATEX 1133
		115	3.1	2.5	1.8	1.9	1.4	2791	75	0.85	4.9	125	---	---	180	T3	T3	
		130	2.8	2.2	1.6	1.6	1.2	2826	75	0.83	5.5	140	---	---	180	T3	T3	
		40	7.2	5.8	4.2	4.2	3.2	2754	76	0.85	4.2	50	110	---	180	T5	T4	
		70	6.6	5.3	3.8	3.8	2.9	2783	76	0.83	4.6	80	110	---	180	T4	T4	PTB 99
22	90.2-2.2	100	5.6	4.4	3.2	3.0	2.3	2835	77	0.78	5.5	110	110	---	180	T4	T4	ATEX 1133
		115	4.8	3.9	2.8	2.4	1.8	2876	75	0.71	6.3	125	---	---	180	T3	T3	
		130	4.2	3.4	2.4	1.7	1.2	2918	71	0.58	7.3	140	---	---	180	T3	T3	
		40	12.3	9.9	7.1	6.9	5.4	2823	78	0.80	4.2	50	110	---	180	T4	T4	
		70	11.0	8.8	6.4	6.1	4.8	2847	79	0.79	4.7	80	110	---	180	T4	T4	PTB 99
42	112.2-4.0	100	9.3	7.4	5.4	4.9	3.9	2879	80	0.77	5.6	110	110	---	180	T4	T4	ATEX 1134
		115	8.3	6.6	4.8	4.2	3.3	2898	79	0.73	6.2	125	---	---	180	T3	T3	
		130	7.1	5.6	4.1	3.3	2.5	2925	76	0.67	7.3	140	---	---	180	T3	T3	
		40	17.5	14.0	10.1	10.0	8.1	2834	81	0.83	4.5	50	110	---	180	T5	T4	
		70	15.5	12.4	9.0	8.7	7.1	2859	82	0.81	5.1	80	110	---	180	T4	T4	PTB 99
52	112.2-5.5	100	13.1	10.5	7.6	7.1	5.8	2888	82	0.79	6.0	110	110	---	180	T4	T4	ATEX 1134
		115	11.4	9.1	6.6	5.9	4.8	2908	81	0.75	6.9	125	---	---	180	T3	T3	
		130	9.6	7.7	5.5	4.6	3.6	2932	78	0.69	8.2	140	---	---	180	T3	T3	
		40	22.6	18.1	13.1	13.6	11.3	2870	83	0.87	4.4	50	110	---	180	T6	T4	
		70	20.1	16.0	11.6	12.1	10.1	2887	84	0.87	5.0	80	110	---	180	T4	T4	PTB 99
72	132.2-7.5	100	17.0	13.6	9.9	10.2	8.5	2908	83	0.86	5.9	110	110	---	180	T4	T4	ATEX 1135
		115	15.2	12.1	8.8	9.0	7.5	2921	83	0.86	6.6	125	---	---	180	T3	T3	
		130	12.9	10.3	7.5	7.5	6.2	2936	83	0.84	7.7	140	---	---	180	T3	T3	
		40	30.4	24.4	17.6	18.0	14.9	2882	83	0.85	4.9	50	110	---	180	T5	T4	
		70	27.1	21.7	15.7	15.9	13.2	2899	83	0.85	5.5	80	110	---	180	T4	T4	PTB 99
112	132.2-11	100	22.6	18.1	13.1	12.9	10.6	2921	82	0.82	6.6	110	110	---	180	T4	T4	ATEX 1135
		115	19.6	15.7	11.4	10.8	8.8	2934	81	0.80	7.6	125	---	---	180	T3	T3	
		130	16.3	13.0	9.4	8.4	6.6	2951	79	0.75	9.2	140	---	---	180	T3	T3	
		40	36.2	29.0	21.0	21.8	18.4	2895	84	0.87	5.5	50	110	---	180	T5	T4	
		70	32.2	25.7	18.6	19.2	16.2	2910	84	0.86	6.2	80	110	---	180	T4	T4	PTB 99
152	132.2-15	100	27.6	22.1	16.0	16.2	13.6	2926	84	0.85	7.2	110	110	---	180	T4	T4	ATEX 1135
		115	24.6	19.7	14.2	14.2	11.8	2937	83	0.83	8.1	125	---	---	180	T3	T3	
		130	20.5	16.4	11.9	11.3	9.2	2951	81	0.80	9.6	140	---	---	180	T3	T3	

1) without liquid fill

Motor data for 50Hz (cont'd)

Motor code	Motor size	Product temperature T_M	Rated current I_N [A] at			Power input P_1	Power output P_2	Rot. speed n	Efficiency 1) η	Service factor cos φ	Starting current I_A/I_N	Cutout temperature of liquid in rotor space		Cutout temperature of end windings (PTC)		Temperature class		EC type test certificate
												Monitoring concept		Monitoring concept		Monitoring concept		as per directive 94/9/EC
	DE	[°C]	400V	500V	690V	[kW]	[KW]	[1/min]	[%]	[-]	[-]	Ia / Ib	II	Ia	Ib / II	Ia / Ib	II	
222	160.2-22	40	48.4	38.7	28.1	28.3	23.0	2889	81	0.84	3.9	50	110	---	180	T6	T4	PTB 01 ATEX 1142
		70	43.0	34.4	24.9	25.3	20.5	2904	81	0.85	4.4	80	110	---	180	T5	T4	
		100	37.3	29.8	21.6	21.9	17.6	2919	80	0.85	5.1	110	110	---	180	T4	T4	
		115	34.1	27.3	19.8	20.0	15.9	2928	80	0.85	5.6	125	---	---	180	T3	T3	
		130	30.1	24.1	17.4	17.4	13.6	2940	78	0.83	6.3	140	---	---	180	T3	T3	
302	160.2-30	40	66.4	53.2	38.5	38.5	31.1	2917	81	0.84	5.3	50	110	---	180	T6	T4	PTB 01 ATEX 1142
		70	57.7	46.2	33.4	33.2	26.4	2931	80	0.83	6.1	80	110	---	180	T5	T4	
		100	49.7	39.8	28.8	27.9	21.7	2944	78	0.81	7.1	110	110	---	180	T4	T4	
		115	45.1	36.1	26.1	24.9	18.9	2951	76	0.80	7.8	125	---	---	180	T3	T3	
		130	39.9	31.9	23.1	21.2	15.5	2960	73	0.77	8.8	140	---	---	180	T3	T3	
402	200.2-40	40	93.2	74.6	54.0	54.0	44.5	2930	82	0.84	4.4	50	110	---	180	T5	T4	PTB 01 ATEX 1143
		70	82.7	66.2	47.9	48.4	39.5	2940	82	0.84	4.9	80	110	---	180	T4	T4	
		100	69.4	55.5	40.2	40.7	32.5	2950	80	0.85	5.9	110	110	---	180	T4	T4	
		115	63.0	50.4	36.5	36.9	29.0	2960	79	0.84	6.4	125	---	---	180	T3	T3	
		130	56.0	44.8	32.5	32.6	25.0	2965	77	0.84	7.3	140	---	---	180	T3	T3	
552	200.2-55	40	120.6	96.5	69.9	72.1	59.5	2950	83	0.86	5.0	50	110	---	180	T5	T4	PTB 01 ATEX 1143
		70	110.0	88.0	63.8	66.0	54.0	2950	82	0.87	5.4	80	110	---	180	T4	T4	
		100	91.0	72.8	52.8	54.6	43.5	2960	80	0.87	6.6	110	110	---	180	T4	T4	
		115	83.3	66.6	48.3	49.8	39.0	2970	78	0.86	7.2	125	---	---	180	T3	T3	
		130	73.4	58.7	42.6	43.6	33.0	2970	76	0.86	8.1	140	---	---	180	T3	T3	

1) without liquid fill

Motor data for 60Hz

Motor code	Motor size	Product temperature T_M	Rated current I_N [A] at			Power input P_1	Power output P_2	Rot. speed n	Efficiency 1) η	Service factor cos φ	Starting current I_A/I_N	Cutout temperature of liquid in rotor space		Cutout temperature of end windings (PTC)		Temperature class		EC type test certificate
												Monitoring concept		Monitoring concept		Monitoring concept		as per directive 94/9/EC
	DE	[°C]	480V	600V		[kW]	[KW]	[1/min]	[%]	[-]	[-]	Ia / Ib	II	Ia	Ib / II	Ia / Ib	II	
12	90.2-1.1	40	3.8	3.0		2.7	2.1	3278	78	0.88	4.7	50	110	---	180	T6	T4	PTB 99 ATEX 1133
		70	3.5	2.8		2.6	1.9	3304	75	0.87	5.0	80	110	---	180	T5	T4	
		100	3.4	2.7		2.4	1.8	3325	75	0.86	5.3	110	110	---	180	T4	T4	
		115	3.1	2.5		2.2	1.7	3349	75	0.85	5.7	125	---	---	180	T3	T3	
		130	2.8	2.2		1.9	1.4	3391	75	0.83	6.4	140	---	---	180	T3	T3	
22	90.2-2.2	40	7.2	5.8		5.1	3.9	3305	77	0.85	4.7	50	110	---	180	T5	T4	PTB 99 ATEX 1133
		70	6.6	5.3		4.6	3.6	3340	78	0.83	5.1	80	110	---	180	T4	T4	
		100	5.6	4.4		3.6	2.8	3402	78	0.78	6.1	110	110	---	180	T4	T4	
		115	4.8	3.9		2.8	2.1	3451	75	0.71	7.0	125	---	---	180	T3	T3	
		130	4.2	3.4		2.0	1.4	3502	70	0.58	8.0	140	---	---	180	T3	T3	
42	112.2-4.0	40	12.3	9.9		8.2	6.6	3388	81	0.80	4.5	50	110	---	180	T4	T4	PTB 99 ATEX 1134
		70	11.0	8.8		7.3	5.9	3416	81	0.79	5.0	80	110	---	180	T4	T4	
		100	9.3	7.4		5.9	4.7	3455	80	0.77	5.9	110	110	---	180	T4	T4	
52	112.2-5.5	40	17.5	14.0		12.0	9.8	3401	82	0.83	4.8	50	110	---	180	T5	T4	PTB 99 ATEX 1134
		70	15.5	12.4		10.5	8.6	3431	82	0.81	5.4	80	110	---	180	T4	T4	
		100	13.1	10.5		8.5	7.0	3466	82	0.79	6.4	110	110	---	180	T4	T4	
		115	11.4	9.1		7.1	5.7	3490	80	0.75	7.3	125	---	---	180	T3	T3	
		130	9.6	7.7		5.5	4.3	3518	78	0.69	8.7	140	---	---	180	T3	T3	
72	132.2-7.5	40	22.6	18.1		16.3	13.5	3444	83	0.87	4.6	50	110	---	180	T6	T4	PTB 99 ATEX 1135
		70	20.1	16.0		14.5	12.0	3464	83	0.87	5.2	80	110	---	180	T4	T4	
		100	17.0	13.6		12.2	10.1	3490	83	0.86	6.1	110	110	---	180	T4	T4	
		115	15.2	12.1		10.8	8.9	3505	82	0.86	6.9	125	---	---	180	T3	T3	
		130	12.9	10.3		9.0	7.3	3523	81	0.84	8.1	140	---	---	180	T3	T3	
112	132.2-11	40	30.4	24.4		21.5	17.7	3458	82	0.85	5.2	50	110	---	180	T5	T4	PTB 99 ATEX 1135
		70	27.1	21.7		19.1	15.6	3479	82	0.85	5.8	80	110	---	180	T4	T4	
		100	22.6	18.1		15.4	12.4	3505	81	0.82	6.9	110	110	---	180	T4	T4	
		115	19.6	15.7		13.0	10.2	3521	79	0.80	8.0	125	---	---	180	T3	T3	
		130	16.3	13.0		10.1	7.6	3541	75	0.75	9.7	140	---	---	180	T3	T3	
152	132.2-15	40	36.2	29.0		26.2	22.0	3474	84	0.87	5.6	50	110	---	180	T5	T4	PTB 99 ATEX 1135
		70	32.2	25.7		23.1	19.3	3492	84	0.86	6.3	80	110	---	180	T4	T4	
		100	27.6	22.1		19.5	16.0	3511	82	0.85	7.4	110	110	---	180	T4	T4	
		115	24.6	19.7		17.1	13.8	3524	81	0.83	8.3	125	---	---	180	T3	T3	
		130	20.5	16.4		13.6	10.6	3541	78	0.80	9.9	140	---	---	180	T3	T3	

1) without liquid fill

Motor data for 60Hz (cont'd)

Motor code	Motor size	Product temperature T_M	Rated current I_N [A] at			Power input P_1	Power output P_2	Rot. speed n	Efficiency 1) η	Service factor cos φ	Starting current I_A/I_N	Cutout temperature of liquid in rotor space		Cutout temperature of end windings (PTC)		Temperature class		EC type test certificate
												Monitoring concept		Monitoring concept		Monitoring concept		as per directive 94/9/EC
	DE	[°C]	480V	600V		[kW]	[KW]	[1/min]	[%]	[-]	[-]	Ia / Ib	II	Ia	Ib / II	Ia / Ib	II	
222	160.2-22	40	48.4	38.7		33.9	27.2	3467	80	0.84	4.0	50	110	---	180	T6	T4	PTB 01 ATEX 1142
		70	43.0	34.4		30.4	24.2	3485	80	0.85	4.6	80	110	---	180	T5	T4	
		100	37.3	29.8		26.3	20.7	3503	79	0.85	5.3	110	110	---	180	T4	T4	
		115	34.1	27.3		24.0	18.6	3514	78	0.85	5.7	125	---	---	180	T3	T3	
		130	30.1	24.1		20.9	15.8	3528	76	0.83	6.5	140	---	---	180	T3	T3	
302	160.2-30	40	66.4	53.2		46.2	36.3	3500	79	0.84	5.4	50	110	---	180	T6	T4	PTB 01 ATEX 1142
		70	57.7	46.2		39.8	30.6	3517	77	0.83	6.2	80	110	---	180	T5	T4	
		100	49.7	39.8		33.5	25.0	3533	75	0.81	7.2	110	110	---	180	T4	T4	
		115	45.1	36.1		29.8	21.6	3541	73	0.80	7.9	125	---	---	180	T3	T3	
		130	39.9	31.9		25.4	17.5	3552	69	0.77	8.9	140	---	---	180	T3	T3	
402	200.2-40	40	93.2	74.6		64.8	52.4	3525	81	0.84	4.4	50	110	---	180	T5	T4	PTB 01 ATEX 1143
		70	82.7	66.2		57.7	45.9	3535	80	0.84	5.0	80	110	---	180	T4	T4	
		100	69.4	55.5		48.0	37.0	3550	77	0.83	6.0	110	110	---	180	T4	T4	
		115	63.0	50.4		43.3	32.6	3560	75	0.83	6.6	125	---	---	180	T3	T3	
		130	56.0	44.8		38.0	27.6	3565	73	0.82	7.4	140	---	---	180	T3	T3	
552	200.2-55	40	120.6	96.5		87.3	70.2	3540	80	0.87	5.0	50	110	---	180	T5	T4	PTB 01 ATEX 1143
		70	110.0	88.0		79.7	63.3	3540	79	0.87	5.5	80	110	---	180	T4	T4	
		100	91.0	72.8		66.0	50.5	3555	77	0.87	6.6	110	110	---	180	T4	T4	
		115	83.3	66.6		60.2	45.0	3560	75	0.87	7.3	125	---	---	180	T3	T3	
		130	73.4	58.7		52.4	37.7	3565	72	0.86	8.2	140	---	---	180	T3	T3	

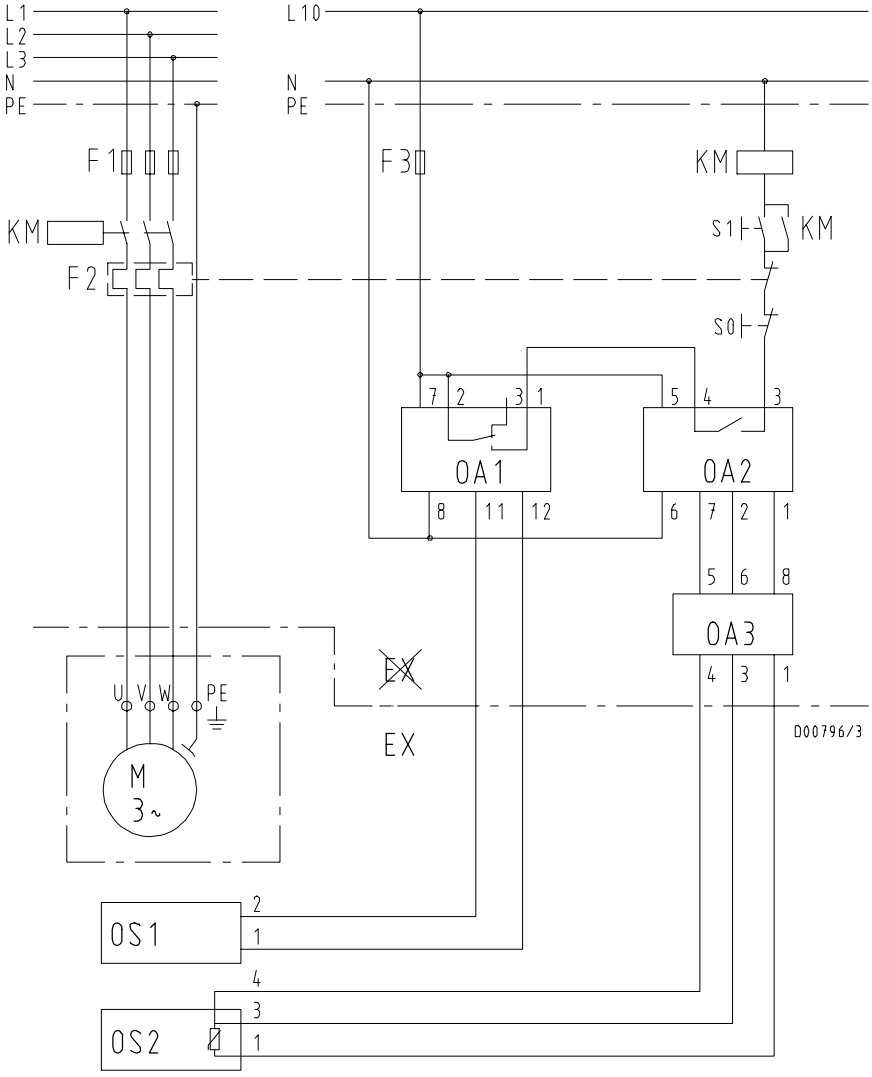
1) without liquid fill

Suggested Wiring Concepts (Logic Diagram)

The suggested wiring plans (in dead condition) show the electrical connection of the motor and monitoring devices depending on the monitoring concept selected. The diagrams do not take into account any plant-specific requirements or local regulations.

Monitoring concept Ia:

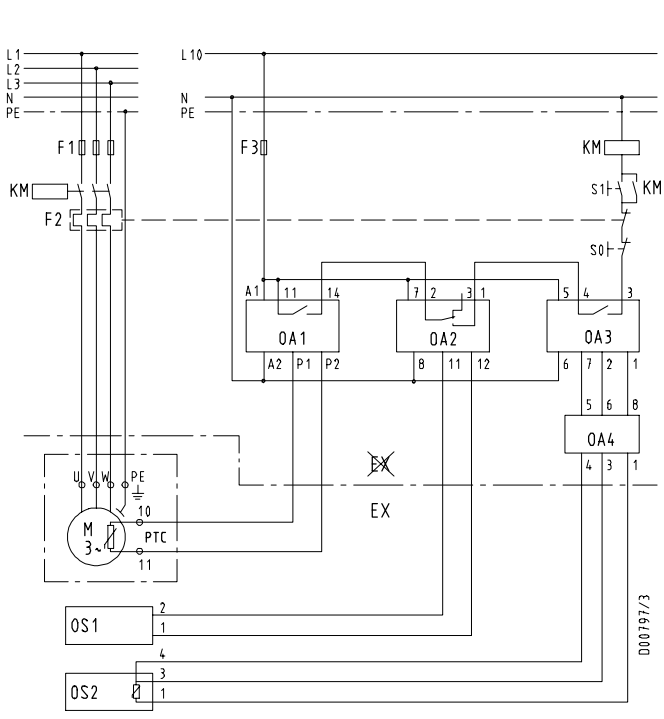
External monitoring of rotor space temperature by PT100 without PTC winding protection



	Type designation:	Description:
0A1	FXN 421	Isolating amplifier
0A2	CF1M	Limit switch
0A3	Z 954	Barrier
0S1	Liquiphant M	Level transmitter
0S2	TR 201	Resistance thermometer PT 100

Monitoring concept Ib:

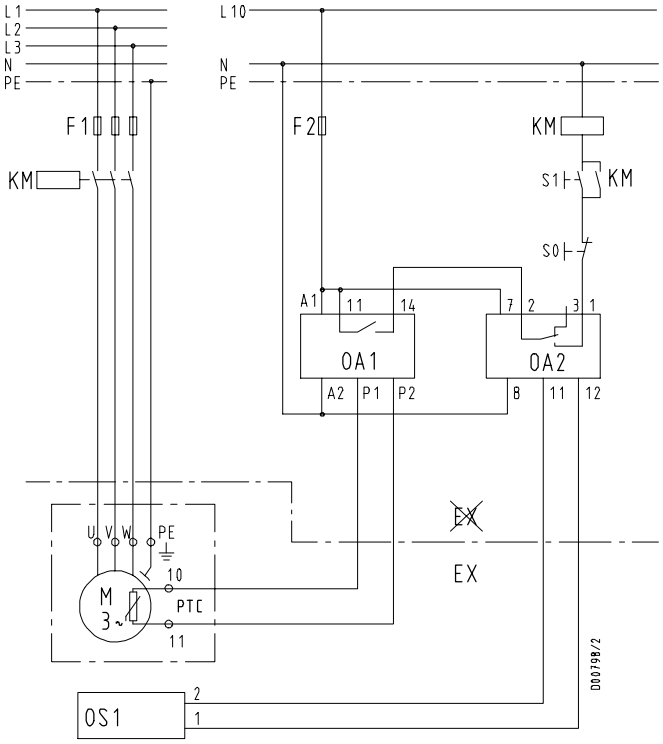
External monitoring of rotor space temperature by PT 100 and PTC winding protection



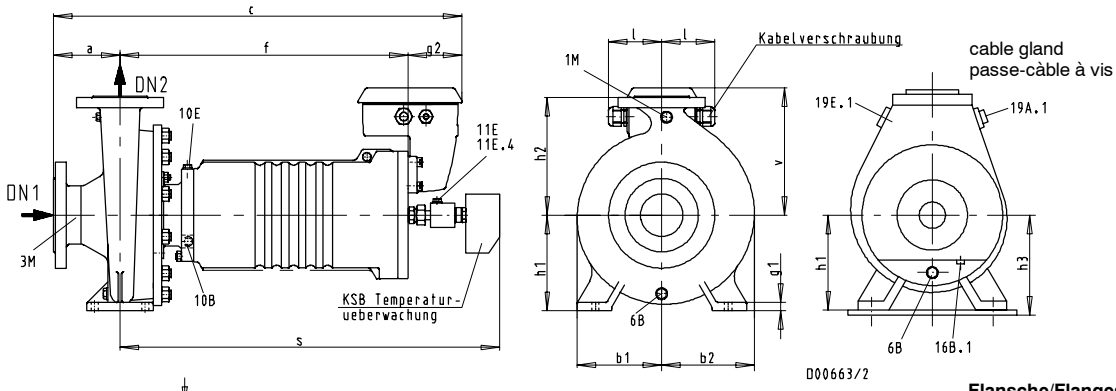
	Type designation:	Description:
0A1	MK 9163.12/100	Thermistor relay
0A2	FXN 421	Isolating amplifier
0A3	CF1M	Limit switch
0A4	Z 954	Barrier
0S1	Liquiphant M	Level transmitter
0S2	TR 201	Resistance thermometer PT 100

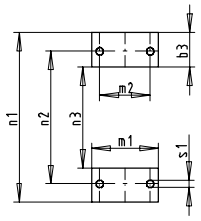
Monitoring concept II:

Internal monitoring of rotor space temperature by PTC and PTC winding protection



	Type designation:	Description:
0A1	MK 9163.12/100	Thermistor relay
0A2	FXN 421	Isolating amplifier
0S1	Liquiphant M	Level transmitter





KSB temperature control
Surveillance de température KSB

Flansche/Flanges/Brides

	Secochem	Ausführung Design selon	DN_1	DN_2
	-C1/-C1V	DIN 2543, PN 16		
	-CH 1)	DIN 2501, PN 16		
	-S2	EN1092-2, PN 25		
	-E	DIN 2544, PN 25		
	-C 3.1	DIN 2543, PN 16		
	-C 3.2	DIN 2544, PN 25		

1) Gehäuse beheizbar / Heatable casing / Corps réchauffable

Pumpenmaße / Pump dimensions / Encombrements de la pompe

		Pumpenmaße / Pump dimensions / Encombrements pompe																Gesamtgewicht/Motorgröße Total weight / motor size Poids total / taille moteur				
	Baugröße Pump size Taille	DN1	DN2	a	b1	b2	b3	g1	h1	h2	h3*)	m1	m2	n1	n2	n3	s1	12/ 22	42	52	72/ 112	152
	25-160	40	25	80	115	115	50	14	132	160	160	100	70	240	190	140	14	76	100	106	142	151
	25-200			80	135	135	50	14	160	180	---	100	70	240	190	140	14	84	109	115	151	160
	32-160			80	115	115	50	14	132	160	160	100	70	240	190	140	14	79	103	109	145	154
	32-200	50	32	80	135	135	50	14	160	180	180	100	70	240	190	140	14	85	110	116	152	161
	32-250			100	170	170	65	16	180	225	---	125	95	320	250	190	14	---	136	142	178	187
	40-160			80	116	124	50	14	132	160	160	100	70	240	190	140	14	79	103	109	145	154
	40-200	65	40	100	135	142	50	14	160	180	180	100	70	265	212	165	14	90	115	121	157	166
	40-250			100	170	170	65	16	180	225	200	125	95	320	250	190	14	---	139	145	181	190
	50-160			100	118	142	50	14	160	180	180	100	70	265	212	165	14	86	110	116	152	161
	50-200	80	50	100	136	156	50	14	160	200	180	100	70	265	212	165	14	93	118	124	160	169
	50-250			125	170	174	65	16	180	225	200	125	95	320	250	190	14	---	142	148	184	193
	65-160			100	123	148	65	15	160	200	---	125	95	280	212	150	14	---	117	123	159	168
	65-200	100	65	100	143	167	65	16	180	225	---	125	95	320	250	190	14	---	125	131	167	176
	65-250			125	170	192	80	18	200	250	---	160	120	360	280	200	18	---	146	152	188	197
	80-160			125	135	170	65	15	180	225	---	125	95	320	250	190	14	---	125	131	167	176
	80-200	125	80	125	153	192	65	16	180	250	---	125	95	345	280	215	14	---	134	140	176	185
	80-250			125	174	218	80	18	225	280	---	160	120	400	315	240	18	---	158	164	200	209
	100-200	125	100	125	164	209	80	16	200	280	---	160	120	360	280	200	18	---	144	150	186	195

*) Unterlage für Ablassleitung notwendig / Support for drain pipe necessary / Cale requise pour conduite de vidange

Aggregatmaße / Pump set dimensions / Encombrements du groupe

		Motorgröße / Motor size / Taille moteur 12/22							Motorgröße / Motor size / Taille moteur 42/52							Motorgröße / Motor size / Taille moteur 72/112/152						
	Baugröße Pump size Taille	c	f	g2	md	v	l	s	c	f	g2	md	v	l	s	c	f	g2	md	v	l	s
	25-160	616	434	102	197	228	105	654	708	526	102	240	240	105	746	801	619	102	265	255	105	839
	25-200	616	434	102	197	228	105	654	708	526	102	240	240	105	746	801	619	102	265	255	105	839
	32-160	616	434	102	197	228	105	654	708	526	102	240	240	105	746	801	619	102	265	255	105	839
	32-200	616	434	102	197	228	105	654	708	526	102	240	240	105	746	801	619	102	265	255	105	839
	32-250	---	---	---	---	---	---	---	730	528	102	240	240	105	748	823	621	102	265	255	105	841
	40-160	616	434	102	197	228	105	654	708	526	102	240	240	105	746	801	619	102	265	255	105	839
	40-200	636	434	102	197	228	105	654	728	526	102	240	240	105	746	801	619	102	265	255	105	839
	40-250	---	---	---	---	---	---	---	730	528	102	240	240	105	748	823	621	102	265	255	105	841
	50-160	636	434	102	197	228	105	654	728	526	102	240	240	105	746	801	619	102	265	255	105	839
	50-200	636	434	102	197	228	105	654	728	526	102	240	240	105	746	801	619	102	265	255	105	839
	50-250	---	---	---	---	---	---	---	755	528	102	240	240	105	748	848	621	102	265	255	105	841
	65-160	---	---	---	---	---	---	---	730	528	102	240	240	105	748	823	621	102	265	255	105	841
	65-200	---	---	---	---	---	---	---	730	528	102	240	240	105	748	823	621	102	265	255	105	841
	65-250	---	---	---	---	---	---	---	755	528	102	240	240	105	748	848	621	102	265	255	105	841
	80-160	---	---	---	---	---	---	---	755	528	102	240	240	105	748	848	621	102	265	255	105	841
	80-200	---	---	---	---	---	---	---	755	528	102	240	240	105	748	848	621	102	265	255	105	841
	80-250	---	---	---	---	---	---	---	755	528	102	240	240	105	748	848	621	102	265	255	105	841
	100-200	---	---	---	---	---	---	---	755	528	102	240	240	105	748	848	621	102	265	255	105	841

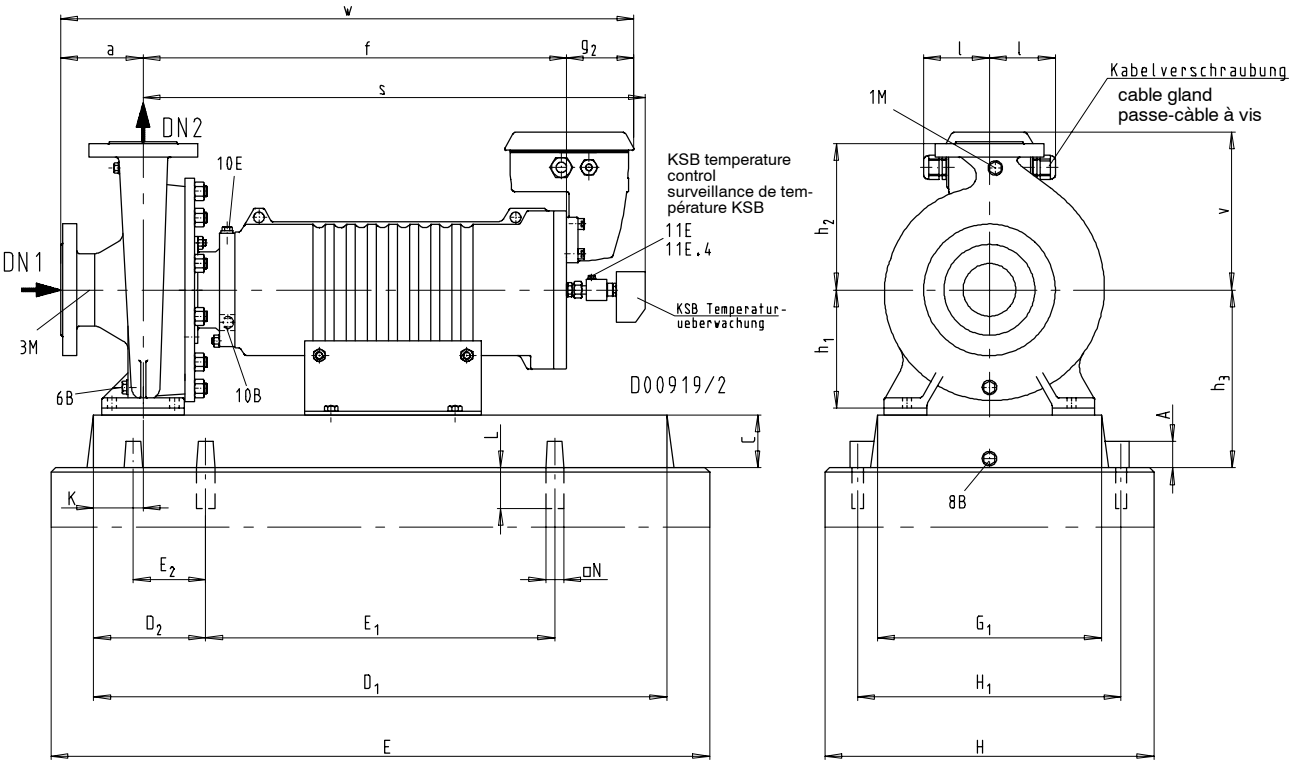
Anschlüsse Pumpe / Pump Connections / Raccords Pompe

	Anschlüsse Connections Raccords	Baugröße / Pump size / Taille 25-160 32-160 40-160 50-160 25-200 32-200 40-200 50-200 65-160 80-160 65-200 80-200 100-200 32-250 40-250 50-250 65-250 80-250	Bezeichnung Description Désignation	schließt an to be connected by raccordé par Kunde Customer Client	KSB	Menge erf. Quantity req. Quantité req.	Druck erf. Pressure req. Pression req.	max. Druck Max. pressure Pression maxi.
	1 M [1]	G 1/4 / G 1/4	Manometer / Pressure gauge / Manomètre					
	3 M [1]	G 1/4 / G 1/4	Manovacuummeter / Pressure-vacuum gauge / Manovacuomètre					
	6 B	G 1/4 / G 3/8	Förderflüssigkeit Entleerung Pumped liquid drain Vidange du liquide pompé					
	16 B.1	G 1/4	Kondensat Ablass (beheiztes Gehäuse) Condensate drain / Vidange de condensat					
	19 E.1	G 3/8	Heizung ein (Gehäuse) / Heating inlet (casing) / Chauffage-entrée (corps)					
	19 A.1	G 3/8	Heizung aus (Gehäuse) / Heating outlet (casing) / Chauffage-sortie (corps)					

1) entfällt bei heizbarem Gehäuse / not applicable for heatable casing / supprimé pour corps chauffable

Anschlüsse Motor / Motor Connections / Raccords Moteur

	Anschlüsse Connections Raccords	Motorgröße / Motor size / Taille moteur 12 22 42 52 72 112 152	Bezeichnung Description Désignation	schließt an to be connected by raccordé par Kunde Customer Client	KSB	Menge erf. Quantity req. Quantité req.	Druck erf. Pressure req. Pression req.	max. Druck Max. pressure Pression maxi.
	10 B	G 1/4 / G 1/4	Motor Entleerung (gesperrte Ausführung) Motor drain (variant with barrier liquid) Vidange du moteur (exécution fermée)					
	10 E	G 1/4 / G 1/4	Sperrflüssigkeit Ein / Barrier liquid inlet / Liquide de blocage-entrée					
	11 E/E.4	G 1/4 / G 1/4	Spülflüssigkeit Ein / Flushing liquid inlet / Liquide de rincage-entrée					
	Kabelverschraubung/ cable gland / passe-câble à vis	M 20 x 1,5 / M 32 x 1,5	elektr. Anschluss Kraftleitung El. connection power cable Raccordement du câble de puissance					
	Kabelverschraubung / cable gland / passe-câble à vis	M 20 x 1,5 / M 20 x 1,5	elektr. Anschluss Hilfsleitung El. connection auxiliary cable Raccordement du câble auxiliaire					



Die Ausführung des Auftrages ist durch X gekennzeichnet. / The relevant pump design is marked X. / La variante choisie est marquée d'un X.

Grundplattenmaße/Baseplate dimensions/Encombrements du socle

Maße in mm/Dimensions in mm/Encombrements en mm

	Motor		ZN 24 259 Größe/Size Taille	Gewicht kg Weight kg Poids kg	D1	G_1	C	D_2	E_1	E_2 1)	H_1	A	E	H	L	□N	Steinschrauben Foundation bolts Boulons de scellement	K
	222	302	5 G	75	1120	380	80	190	740	130	440	60	1250	620	190	85	M 20 X 250	2)
	402	552	7 G	120	1400	480	100	230	940	160	550	80	1540	750	240	100	M 24 X 320	2)

1) Grundplattenbefestigung alternativ im Bereich der Gehäusefüße möglich. Ggf. Rückfrage
1) Mounting of baseplate is also possible in the casing feet area. Contact KSB if required.
1) En alternative, fixation du socle possible au niveau des pieds de corps. Le cas échéant, nous consulter.

2) Siehe Pumpenmaßtabelle
2) See pump dimension table.
2) Voir tableau Encombrements de la pompe

Pumpenmaße/Pump dimensions/Encombrements de la pompe

	Baugrößen Pump sizes Types de pompe	Pumpenmaße / Pump dimensions / Encombrements						Motormaße/Bauhöhe h_3 / Motor dimensions/overall height h_3 / Encombrements du moteur /Hauteur de montage h_3 Motor / motor / moteur 222/302							Ppe. + Motor *)	Motormaße/Bauhöhe h_3 / Motor dimensions/overall height h_3 / Encombrements du moteur /Hauteur de montage h_3 Motor / motor / moteur 402/552							Ppe. + Motor *)
		DN_1	DN_2	a	h_1	h_2	K	w	f	g_2	s	v	l	h_3	Gew.	w	f	g_2	s	v	l	h3	Gew.
	32-250	50	32	100	180	225	75	1013	746	167	966	335	160	260	335	1191	924	167	1144	358	160	300	530
	40-200	65	40	100	160	180	60	1003	736	167	956	335	160	260	314	-	-	-	-	-	-	-	-
	40-250	65	40	100	180	225	75	1013	746	167	966	335	160	260	338	1191	924	167	1144	358	160	300	533
	40-315	65	40	125	200	250	75	1038	746	167	966	335	160	280	360	1216	924	167	1144	358	160	300	555
	50-200	80	50	100	160	200	60	1003	736	167	956	335	160	260	317	-	-	-	-	-	-	-	-
	50-250	80	50	125	180	225	75	1038	746	167	966	335	160	260	341	1216	924	167	1144	358	160	300	536
	50-315	80	50	125	225	280	75	1038	746	167	966	335	160	305	358	1216	924	167	1144	358	160	325	553
	65-160	100	65	100	160	200	75	1013	746	167	966	335	160	260	312	1191	924	167	1144	358	160	300	507
	65-200	100	65	100	180	225	75	1013	746	167	966	335	160	260	323	1191	924	167	1144	358	160	300	518
	65-250	100	65	125	200	250	90	1038	746	167	966	335	160	280	345	1216	924	167	1144	358	160	300	540
	65-315	100	65	125	225	280	90	1038	746	167	966	335	160	305	369	1216	924	167	1144	358	160	325	564
	80-160	125	80	125	180	225	75	1038	746	167	966	335	160	260	320	1216	924	167	1144	358	160	300	515
	80-200	125	80	125	180	250	75	1038	746	167	966	335	160	260	332	1216	924	167	1144	358	160	300	527
	80-250	125	80	125	225	280	90	1038	746	167	966	335	160	305	357	1216	924	167	1144	358	160	325	552
	80-315	125	80	125	250	315	90	1038	746	167	966	335	160	330	374	1216	924	167	1144	358	160	350	569
	100-200	125	100	125	200	280	90	1038	746	167	966	335	160	280	342	1216	924	167	1144	358	160	300	537
	100-250	125	100	140	225	280	90	1053	746	167	966	335	160	305	356	1231	924	167	1144	358	160	325	551
	100-315	125	100	140	250	315	90	1053	746	167	966	335	160	330	379	1231	924	167	1144	358	160	350	574

*) Pump + motor - weight / Pompe + moteur - poids

Flansche/Flanges/Brides

	Ausführung / Design / Exécution	DN_1	DN_2
	EN 1092-2/PN 16		
	DIN 2543, PN 16		
	EN 1092-2/PN 25		
	DIN 2544, PN 25		

Gewichte/Weights /Poids kg

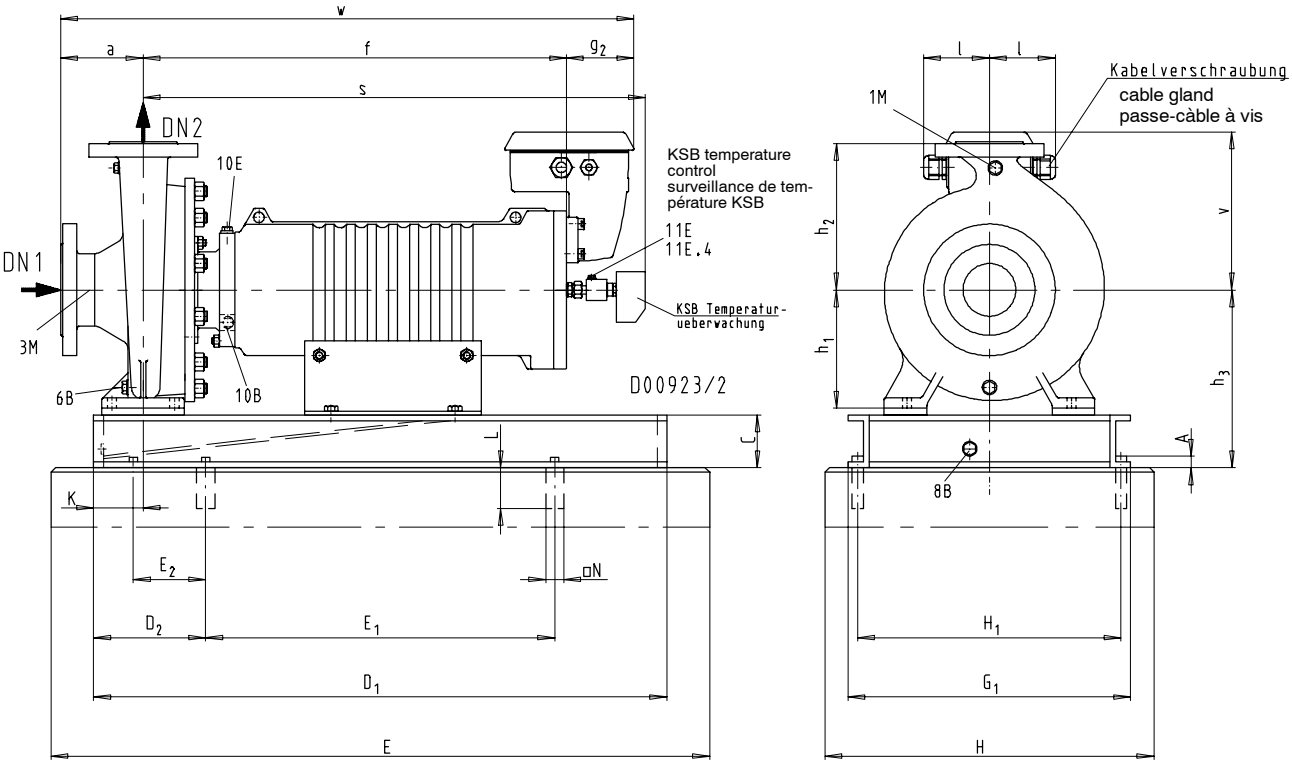
Pumpe/Pump/Pompe + Motor/Motor/Moteur	
Grundplatte/Baseplate Socle	
Gesamt Total	

Anschlüsse Pumpe / Pump Connections / Raccords Pompe

	Anschlüsse Connections Raccords	Baugröße / Pump size / Taille 40-200 50-200	 65-160 80-160 65-200 80-200 100-200	 32-250 40-250 50-250 65-250 80-250 40-315 50-315	 100-250 65-315 80-315 100-315	Bezeichnung Description Désignation	schließt an to be connected by raccordé par Kunde Customer Client	 KSB	Menge erf. Quantity req. Quantité req.	Druck erf. Pressure req. Pression req.	max. Druck Max. pressure Pression maxi.
	1 M	G 1/4			G 1/2	Manometer / Pressure gauge / Manomètre					
	3 M	G 1/4			G 1/2	Manovacuummeter / Pressure-vacuum gauge / Manovacuomètre					
	6 B	G 1/4	G 3/8		G 1/2	Förderflüssigkeit Entleerung Pumped liquid drain Vidange du liquide pompé					

Anschlüsse Motor / Motor Connections / Raccords Moteur

	Anschlüsse Connections Raccords	Motorgröße / Motor size / Taille moteur 222 302	 402 552	Bezeichnung Description Désignation	schließt an to be connected by raccordé par Kunde Customer Client	 KSB	Menge erf. Quantity req. Quantité req.	Druck erf. Pressure req. Pression req.	max. Druck Max. pressure Pression maxi.
	8 B	Rp 1		Leckablaß Grundplatte / Leakage drain baseplate / Récupération des fuites socle					
	10 B	G 1/4		Motor Entleerung (gesperrte Ausführung) Motor drain (variant with barrier liquid) Vidange du moteur (exécution fermée)					
	10 E	G 1/4		Sperrflüssigkeit Ein / Barrier liquid inlet / Liquide de blocage-entrée					
	11 E / E.4	G 1/2		Spülflüssigkeit Ein / Flushing liquid inlet / Liquide de rincage-entrée Anschluß für Temperaturmessung / Connection for temperature measuring / Raccord pour prise de température					
	Kabelver-schraubung/ cable gland / passe-câble à vis	M 50 x 1,5	M 63 x 1,5	elektr. Anschluß Kraftleitung El. connection power cable Raccordement du câble de puissance					
	Kabelver-schraubung / cable gland / passe-câble à vis	M 20 x 1,5		elektr. Anschluß Hilfsleitung El. connection auxiliary cable Raccordement du câble auxiliaire					



Die Ausführung des Auftrages ist durch X gekennzeichnet. / The relevant pump design is marked X. / La variante choisie est marquée d'un X.

Grundplattenmaße/Baseplate dimensions/Encombrements du socle

Maße in mm/Dimensions in mm/Encombrements en mm

	Motor		ZN 24 259 Größe/Size Taille	Gewicht kg Weight kg Poids kg	D1	G_1	C	D_2	E_1	E_2 1)	H_1	A	E	H	L	M	□N	P	Steinschrauben Foundation bolts Boulons de scellement	K
	222	302	4 S	78	1000	445	115	170	660	110	400	13	1130	580	220	40	85	100	M 20 X 250	2)
	402	552	6 S	128	1250	535	120	205	840	135	490	13	1380	670	220	40	85	100	M 20 x 250	2)

1) Grundplattenbefestigung alternativ im Bereich der Gehäusefüße möglich. Ggf. Rückfrage
1) Mounting of baseplate is also possible in the casing feet area. Contact KSB if required.
1) En alternative, fixation du socle possible au niveau des pieds de corps. Le cas échéant, nous consulter.

2) Siehe Pumpenmaßtabelle
2) See pump dimension table.
2) Voir tableau Encombrements de la pompe

Pumpenmaße/Pump dimensions/Encombrements de la pompe

	Baugrößen Pump sizes Types de pompe	Pumpenmaße / Pump dimensions / Encombrements						Motormaße/Bauhöhe h_3 / Motor dimensions/overall height h_3 / Encombrements du moteur /Hauteur de montage h_3 Motor / motor / moteur 222/302							Ppe. + Motor *)	Motormaße/Bauhöhe h_3 / Motor dimensions/overall height h_3 / Encombrements du moteur /Hauteur de montage h_3 Motor / motor / moteur 402/552							Ppe. + Motor *)
		DN_1	DN_2	a	h_1	h_2	K	w	f	g_2	s	v	l	h_3	Gew.	w	f	g_2	s	v	l	h3	Gew.
	32-250	50	32	100	180	225	75	1013	746	167	966	335	160	295	335	1191	924	167	1144	358	160	320	530
	40-200	65	40	100	160	180	60	1003	736	167	956	335	160	295	314	-	-	-	-	-	-	-	-
	40-250	65	40	100	180	225	75	1013	746	167	966	335	160	295	338	1191	924	167	1144	358	160	320	533
	40-315	65	40	125	200	250	75	1038	746	167	966	335	160	315	360	1216	924	167	1144	358	160	320	555
	50-200	80	50	100	160	200	60	1003	736	167	956	335	160	295	317	-	-	-	-	-	-	-	-
	50-250	80	50	125	180	225	75	1038	746	167	966	335	160	295	341	1216	924	167	1144	358	160	320	536
	50-315	80	50	125	225	280	75	1038	746	167	966	335	160	340	358	1216	924	167	1144	358	160	345	553
	65-160	100	65	100	160	200	75	1013	746	167	966	335	160	295	312	1191	924	167	1144	358	160	320	507
	65-200	100	65	100	180	225	75	1013	746	167	966	335	160	295	323	1191	924	167	1144	358	160	320	518
	65-250	100	65	125	200	250	90	1038	746	167	966	335	160	315	345	1216	924	167	1144	358	160	320	540
	65-315	100	65	125	225	280	90	1038	746	167	966	335	160	340	369	1216	924	167	1144	358	160	345	564
	80-160	125	80	125	180	225	75	1038	746	167	966	335	160	295	320	1216	924	167	1144	358	160	320	515
	80-200	125	80	125	180	250	75	1038	746	167	966	335	160	295	332	1216	924	167	1144	358	160	320	527
	80-250	125	80	125	225	280	90	1038	746	167	966	335	160	340	357	1216	924	167	1144	358	160	345	552
	80-315	125	80	125	250	315	90	1038	746	167	966	335	160	365	374	1216	924	167	1144	358	160	370	569
	100-200	125	100	125	200	280	90	1038	746	167	966	335	160	315	342	1216	924	167	1144	358	160	320	537
	100-250	125	100	140	225	280	90	1053	746	167	966	335	160	340	356	1231	924	167	1144	358	160	345	551
	100-315	125	100	140	250	315	90	1053	746	167	966	335	160	365	379	1231	924	167	1144	358	160	370	574

*) Pump + motor - weight / Pompe + moteur - poids

Flansche/Flanges/Brides

	Ausführung / Design / Exécution	DN_1	DN_2
	EN 1092-2/PN 16		
	DIN 2543, PN 16		
	EN 1092-2/PN 25		
	DIN 2544, PN 25		

Gewichte/Weights /Poids kg

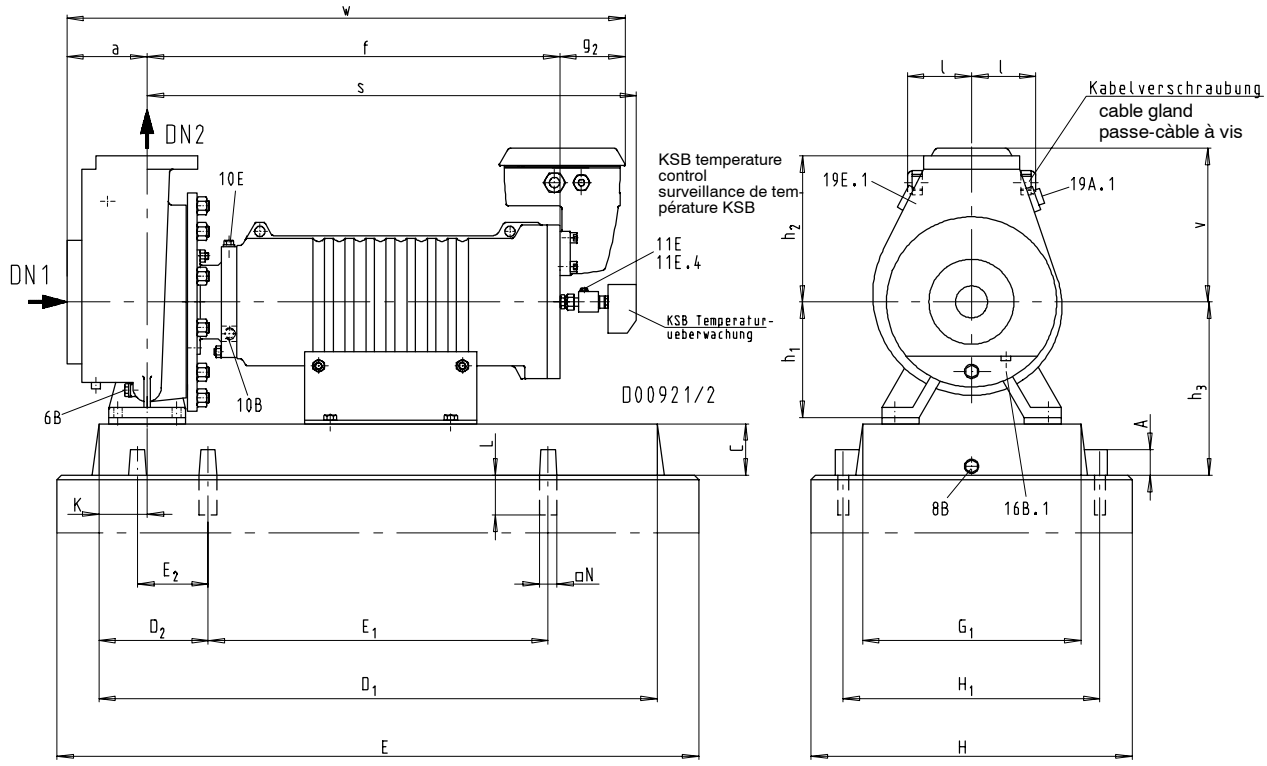
Pumpe/Pump/Pompe + Motor/Motor/Moteur	
Grundplatte/Baseplate Socle	
Gesamt Total	

Anschlüsse Pumpe / Pump Connections / Raccords Pompe

	Anschlüsse Connections Raccords	Baugröße / Pump size / Taille 40-200 50-200	 65-160 80-160 65-200 80-200 100-200	 32-250 40-250 50-250 65-250 80-250 40-315 50-315	 100-250 65-315 80-315 100-315	Bezeichnung Description Désignation	schließt an to be connected by raccordé par Kunde Customer Client	 KSB	Menge erf. Quantity req. Quantité req.	Druck erf. Pressure req. Pression req.	max. Druck Max. pressure Pression maxi.
	1 M	G 1/4			G 1/2	Manometer / Pressure gauge / Manomètre					
	3 M	G 1/4			G 1/2	Manovacuummeter / Pressure-vacuum gauge / Manovacuomètre					
	6 B	G 1/4	G 3/8		G 1/2	Förderflüssigkeit Entleerung Pumped liquid drain Vidange du liquide pompé					

Anschlüsse Motor / Motor Connections / Raccords Moteur

	Anschlüsse Connections Raccords	Motorgröße / Motor size / Taille moteur 222 302	 402 552	Bezeichnung Description Désignation	schließt an to be connected by raccordé par Kunde Customer Client	 KSB	Menge erf. Quantity req. Quantité req.	Druck erf. Pressure req. Pression req.	max. Druck Max. pressure Pression maxi.
	8 B	Rp 1		Leckablaß Grundplatte / Leakage drain baseplate / Récupération des fuites socle					
	10 B	G 1/4		Motor Entleerung (gesperrte Ausführung) Motor drain (variant with barrier liquid) Vidange du moteur (exécution fermée)					
	10 E	G 1/4		Sperrflüssigkeit Ein / Barrier liquid inlet / Liquide de blocage-entrée					
	11 E / E.4	G 1/2		Spülflüssigkeit Ein / Flushing liquid inlet / Liquide de rincage-entrée Anschluß für Temperaturmessung / Connection for temperature measuring / Raccord pour prise de température					
	Kabelver-schraubung/ cable gland / passe-câble à vis	M 50 x 1,5	M 63 x 1,5	elektr. Anschluß Kraftleitung El. connection power cable Raccordement du câble de puissance					
	Kabelver-schraubung / cable gland / passe-câble à vis	M 20 x 1,5		elektr. Anschluß Hilfsleitung El. connection auxiliary cable Raccordement du câble auxiliaire					



Die Ausführung des Auftrages ist durch X gekennzeichnet. / The relevant pump design is marked X. / La variante choisie est marquée d'un X.

Grundplattenmaße/Baseplate dimensions/Encombrements du socle

Maße in mm/Dimensions in mm/Encombrements en mm

	Motor		ZN 24 259 Größe/Size Taille	Gewicht kg Weight kg Poids kg	D1	G_1	C	D_2	E_1	E_2 1)	H_1	A	E	H	L	□N	Steinschrauben Foundation bolts Boulons de scellement	K
	222	302	5 G	75	1120	380	80	190	740	130	440	60	1250	620	190	85	M 20 X 250	2)
	402	552	7 G	120	1400	480	100	230	940	160	550	80	1540	750	240	100	M 24 X 320	2)

1) Grundplattenbefestigung alternativ im Bereich der Gehäusefüße möglich. Ggf. Rückfrage
1) Mounting of baseplate is also possible in the casing feet area. Contact KSB if required.
1) En alternative, fixation du socle possible au niveau des pieds de corps. Le cas échéant, nous consulter.

2) Siehe Pumpenmaßtabelle
2) See pump dimension table.
2) Voir tableau Encombrements de la pompe

Pumpenmaße/Pump dimensions/Encombrements de la pompe

	Baugrößen Pump sizes Types de pompe	Pumpenmaße / Pump dimensions / Encombrements						Motormaße/Bauhöhe h_3 / Motor dimensions/overall height h_3 / Encombrements du moteur /Hauteur de montage h_3 Motor / motor / moteur 222/302							Ppe. + Motor *)	Motormaße/Bauhöhe h_3 / Motor dimensions/overall height h_3 / Encombrements du moteur /Hauteur de montage h_3 Motor / motor / moteur 402/552							Ppe. + Motor *)
		DN_1	DN_2	a	h_1	h_2	K	w	f	g_2	s	v	l	h_3	Gew.	w	f	g_2	s	v	l	h3	Gew.
	32-250	50	32	100	180	225	75	1013	746	167	966	335	160	260	342	1191	924	167	1144	358	160	300	537
	40-200	65	40	100	160	180	60	1003	736	167	956	335	160	260	319	-	-	-	-	-	-	-	-
	40-250	65	40	100	180	225	75	1013	746	167	966	335	160	280	345	1191	924	167	1144	358	160	300	540
	40-315	65	40	125	200	250	75	1038	746	167	966	335	160	280	379	1216	924	167	1144	358	160	300	574
	50-200	80	50	100	160	200	60	1003	736	167	956	335	160	260	326	-	-	-	-	-	-	-	-
	50-250	80	50	125	180	225	75	1038	746	167	966	335	160	280	351	1216	924	167	1144	358	160	300	546
	50-315	80	50	125	225	280	75	1038	746	167	966	335	160	305	379	1216	924	167	1144	358	160	325	574
	65-200	100	65	100	180	225	75	1013	746	167	966	335	160	260	328	1191	924	167	1144	358	160	300	523
	80-250	125	80	125	225	280	90	1038	746	167	966	335	160	305	381	1216	924	167	1144	358	160	325	576
	80-315	125	80	125	250	315	90	1038	746	167	966	335	160	330	398	1216	924	167	1144	358	160	350	593
	100-250	125	100	140	225	280	90	1053	746	167	966	335	160	305	380	1231	924	167	1144	358	160	325	575

*) Pump + motor - weight / Pompe + moteur - poids

Flansche/Flanges/Brides

	Ausführung / Design / Exécution	DN_1	DN_2
	EN 1092-2/PN 16		
	DIN 2543, PN 16		
	EN 1092-2/PN 25		
	DIN 2544, PN 25		

Gewichte/Weights /Poids kg

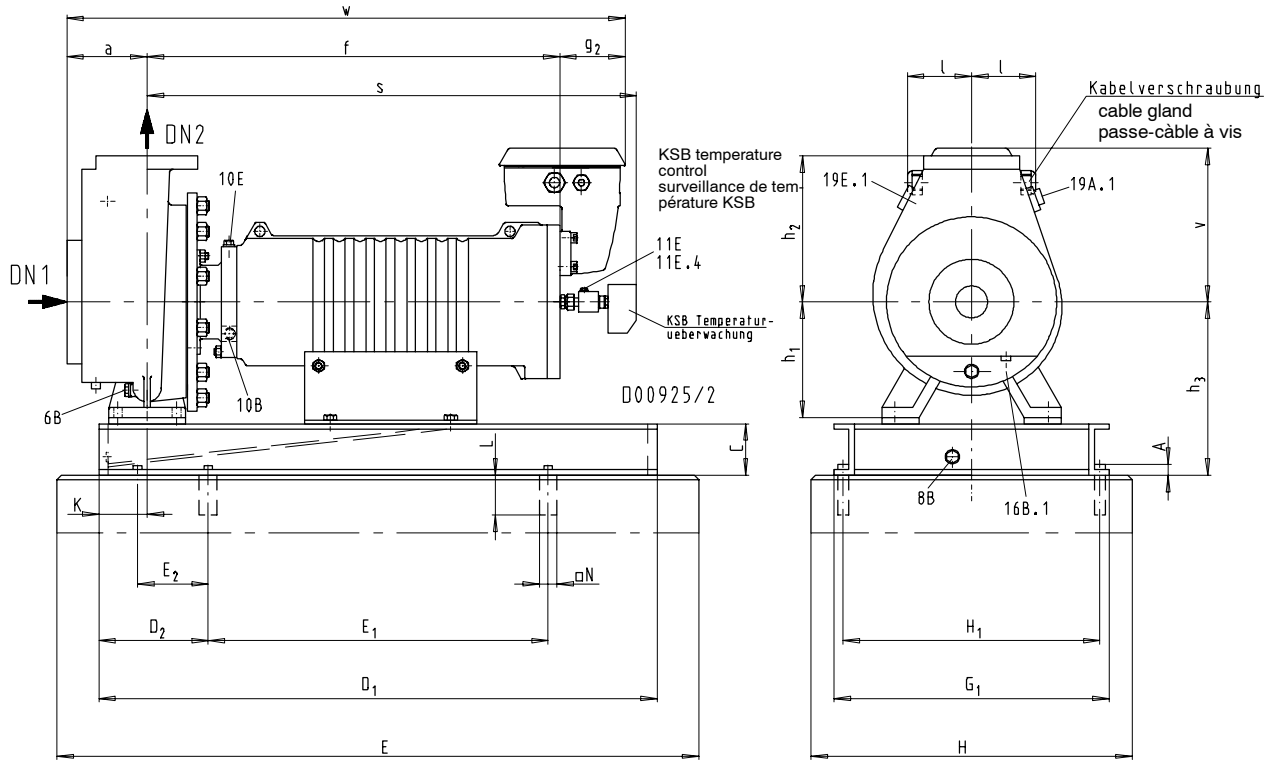
Pumpe/Pump/Pompe + Motor/Motor/Moteur	
Grundplatte/Baseplate Socle	
Gesamt Total	

Anschlüsse Pumpe / Pump Connections / Raccords Pompe

	Anschlüsse Connections Raccords	Baugröße / Pump size / Taille 40-200 50-200	65-200	32-250 40-250 50-250 80-250 40-315 50-315	100-250 80-315	Bezeichnung Description Désignation	schließt an to be connected by raccordé par Kunde Customer Client	KSB	Menge erf. Quantity req. Quantité req.	Druck erf. Pressure req. Pression req.	max. Druck Max. pressure Pression maxi.
	6 B	G 1/4	G 3/8		G 1/2	Förderflüssigkeit Entleerung Pumped liquid drain Vidange du liquide pompé					
	16 B.1	G 1/4				Kondensat Ablaß (beheiztes Gehäuse) Condensate drain / Vidange de condensat					
	19 E.1	G 3/8				Heizung ein (Gehäuse) / Heating inlet (casing) / Chauffage-entrée (corps)					
	19 A.1	G 3/8				Heizung aus (Gehäuse) / Heating outlet (casing) / Chauffage-sortie (corps)					

Anschlüsse Motor / Motor Connections / Raccords Moteur

	Anschlüsse Connections Raccords	Motorgröße / Motor size / Taille moteur 222 302	402 552	Bezeichnung Description Désignation	schließt an to be connected by raccordé par Kunde Customer Client	KSB	Menge erf. Quantity req. Quantité req.	Druck erf. Pressure req. Pression req.	max. Druck Max. pressure Pression maxi.
	8 B	Rp 1		Leckablaß Grundplatte / Leakage drain baseplate / Récupération des fuites socle					
	10 B	G 1/4		Motor Entleerung (gesperrte Ausführung) Motor drain (variant with barrier liquid) Vidange du moteur (exécution fermée)					
	10 E	G 1/4		Sperrflüssigkeit Ein / Barrier liquid inlet / Liquide de blocage-entrée					
	11 E / E.4	G 1/2		Spülflüssigkeit Ein / Flushing liquid inlet / Liquide de rincage-entrée Anschluß für Temperaturmessung / Connection for temperature measuring / Raccord pour prise de température					
	Kabelver-schraubung/ cable gland / passe-câble à vis	M 50 x 1,5	M 63 x 1,5	elektr. Anschluß Kraftleitung El. connection power cable Raccordement du câble de puissance					
	Kabelver-schraubung / cable gland / passe-câble à vis	M 20 x 1,5		elektr. Anschluß Hilfsleitung El. connection auxiliary cable Raccordement du câble auxiliaire					



Die Ausführung des Auftrages ist durch X gekennzeichnet. / The relevant pump design is marked X. / La variante choisie est marquée d'un X.

Grundplattenmaße/Baseplate dimensions/Encombrements du socle

Maße in mm/Dimensions in mm/Encombrements en mm

	Motor		ZN 24 259 Größe/Size Taille	Gewicht kg Weight kg Poids kg	D1	G_1	C	D_2	E_1	E_2 1)	H_1	A	E	H	L	M	□N	P	Steinschrauben Foundation bolts Boulons de scellement	K
	222	302	4 S	78	1000	445	115	170	660	110	400	13	1130	580	220	40	85	100	M 20 X 250	2)
	402	552	6 S	128	1250	535	120	205	840	135	490	13	1380	670	220	40	85	100	M 20 x 250	2)

1) Grundplattenbefestigung alternativ im Bereich der Gehäusefüße möglich. Ggf. Rückfrage
1) Mounting of baseplate is also possible in the casing feet area. Contact KSB if required.
1) En alternative, fixation du socle possible au niveau des pieds de corps. Le cas échéant, nous consulter.

2) Siehe Pumpenmaßtabelle
2) See pump dimension table.
2) Voir tableau Encombrements de la pompe

Pumpenmaße/Pump dimensions/Encombrements de la pompe

	Baugrößen Pump sizes Types de pompe	Pumpenmaße / Pump dimensions / Encombrements						Motormaße/Bauhöhe h_3 / Motor dimensions/overall height h_3 / Encombrements du moteur /Hauteur de montage h_3 Motor / motor / moteur 222/302							Ppe. + Motor *)	Motormaße/Bauhöhe h_3 / Motor dimensions/overall height h_3 / Encombrements du moteur /Hauteur de montage h_3 Motor / motor / moteur 402/552							Ppe. + Motor *)
		DN_1	DN_2	a	h_1	h_2	K	w	f	g_2	s	v	l	h_3	Gew.	w	f	g_2	s	v	l	h3	Gew.
	32-250	50	32	100	180	225	75	1013	746	167	966	335	160	295	342	1191	924	167	1144	358	160	320	537
	40-200	65	40	100	160	180	60	1003	736	167	956	335	160	295	319	-	-	-	-	-	-	-	-
	40-250	65	40	100	180	225	75	1013	746	167	966	335	160	315	345	1191	924	167	1144	358	160	320	540
	40-315	65	40	125	200	250	75	1038	746	167	966	335	160	315	379	1216	924	167	1144	358	160	320	574
	50-200	80	50	100	160	200	60	1003	736	167	956	335	160	295	326	-	-	-	-	-	-	-	-
	50-250	80	50	125	180	225	75	1038	746	167	966	335	160	315	351	1216	924	167	1144	358	160	320	546
	50-315	80	50	125	225	280	75	1038	746	167	966	335	160	340	379	1216	924	167	1144	358	160	345	574
	65-200	100	65	100	180	225	75	1013	746	167	966	335	160	295	328	1191	924	167	1144	358	160	320	523
	80-250	125	80	125	225	280	90	1038	746	167	966	335	160	340	381	1216	924	167	1144	358	160	345	576
	80-315	125	80	125	250	315	90	1038	746	167	966	335	160	365	398	1216	924	167	1144	358	160	370	593
	100-250	125	100	140	225	280	90	1053	746	167	966	335	160	340	380	1231	924	167	1144	358	160	345	575

*) Pump + motor - weight / Pompe + moteur - poids

Flansche/Flanges/Brides

	Ausführung / Design / Exécution	DN_1	DN_2
	EN 1092-2/PN 16		
	DIN 2543, PN 16		
	EN 1092-2/PN 25		
	DIN 2544, PN 25		

Gewichte/Weights /Poids kg

Pumpe/Pump/Pompe + Motor/Motor/Moteur	
Grundplatte/Baseplate Socle	
Gesamt Total	

Anschlüsse Pumpe / Pump Connections / Raccords Pompe

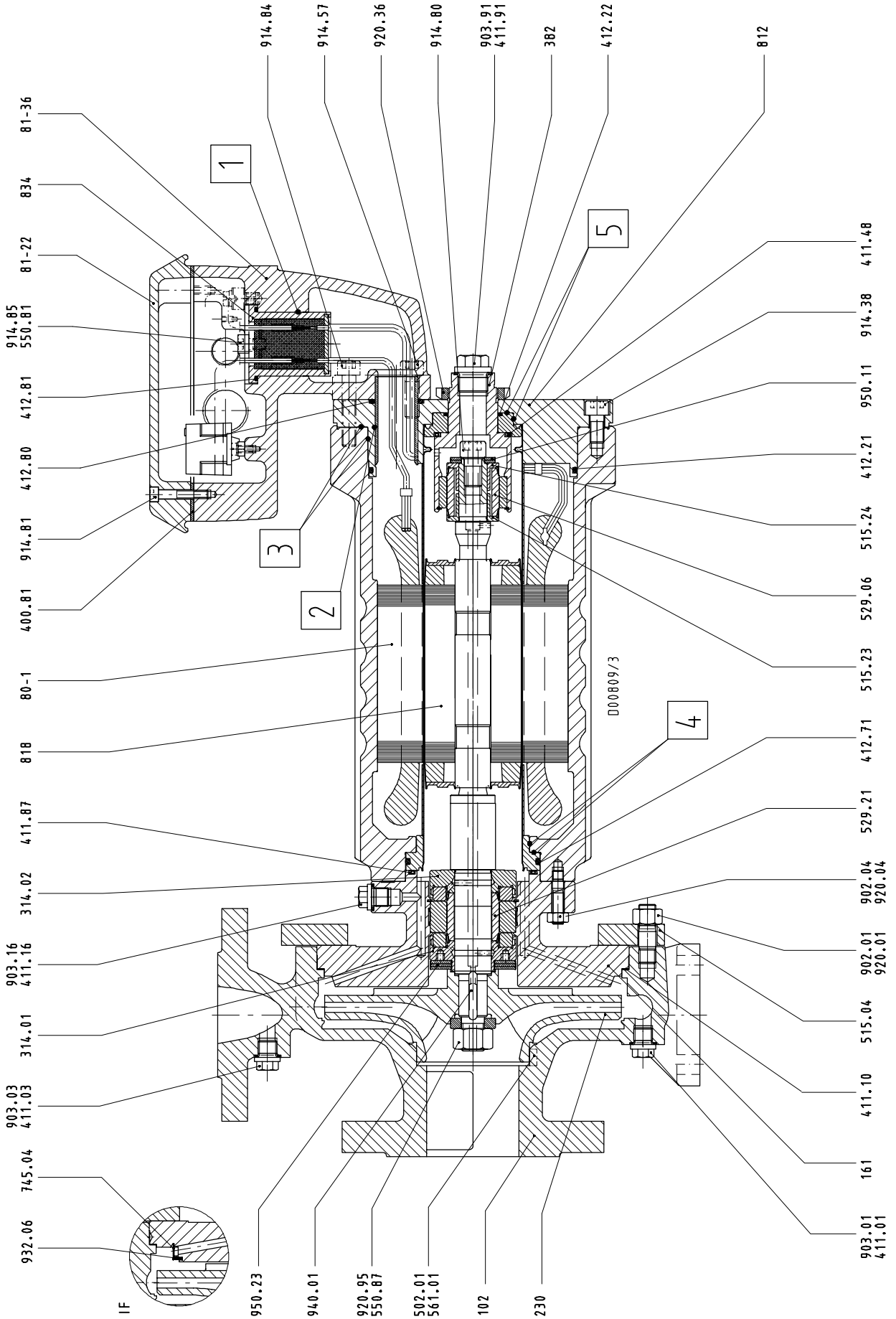
	Anschlüsse Connections Raccords	Baugröße / Pump size / Taille 40-200 50-200	65-200	32-250 40-250 50-250 80-250 40-315 50-315	100-250 80-315	Bezeichnung Description Désignation	schließt an to be connected by raccordé par Kunde Customer Client	KSB	Menge erf. Quantity req. Quantité req.	Druck erf. Pressure req. Pression req.	max. Druck Max. pressure Pression maxi.
	6 B	G 1/4	G 3/8		G 1/2	Förderflüssigkeit Entleerung Pumped liquid drain Vidange du liquide pompé					
	16 B.1	G 1/4				Kondensat Ablaß (beheiztes Gehäuse) Condensate drain / Vidange de condensat					
	19 E.1	G 3/8				Heizung ein (Gehäuse) / Heating inlet (casing) / Chauffage-entrée (corps)					
	19 A.1	G 3/8				Heizung aus (Gehäuse) / Heating outlet (casing) / Chauffage-sortie (corps)					

Anschlüsse Motor / Motor Connections / Raccords Moteur

	Anschlüsse Connections Raccords	Motorgröße / Motor size / Taille moteur 222 302	402 552	Bezeichnung Description Désignation	schließt an to be connected by raccordé par Kunde Customer Client	KSB	Menge erf. Quantity req. Quantité req.	Druck erf. Pressure req. Pression req.	max. Druck Max. pressure Pression maxi.
	8 B	Rp 1		Leckablaß Grundplatte / Leakage drain baseplate / Récupération des fuites socle					
	10 B	G 1/4		Motor Entleerung (gesperrte Ausführung) Motor drain (variant with barrier liquid) Vidange du moteur (exécution fermée)					
	10 E	G 1/4		Sperrflüssigkeit Ein / Barrier liquid inlet / Liquide de blocage-entrée					
	11 E / E.4	G 1/2		Spülflüssigkeit Ein / Flushing liquid inlet / Liquide de rincage-entrée Anschluß für Temperaturmessung / Connection for temperature measuring / Raccord pour prise de température					
	Kabelver-schraubung/ cable gland / passe-câble à vis	M 50 x 1,5	M 63 x 1,5	elektr. Anschluß Kraftleitung El. connection power cable Raccordement du câble de puissance					
	Kabelver-schraubung / cable gland / passe-câble à vis	M 20 x 1,5		elektr. Anschluß Hilfsleitung El. connection auxiliary cable Raccordement du câble auxiliaire					

Lists of Components and Sectional Drawings

Motors DS 90 (Motor sizes 12 and 22)
☐ = flameproof joint

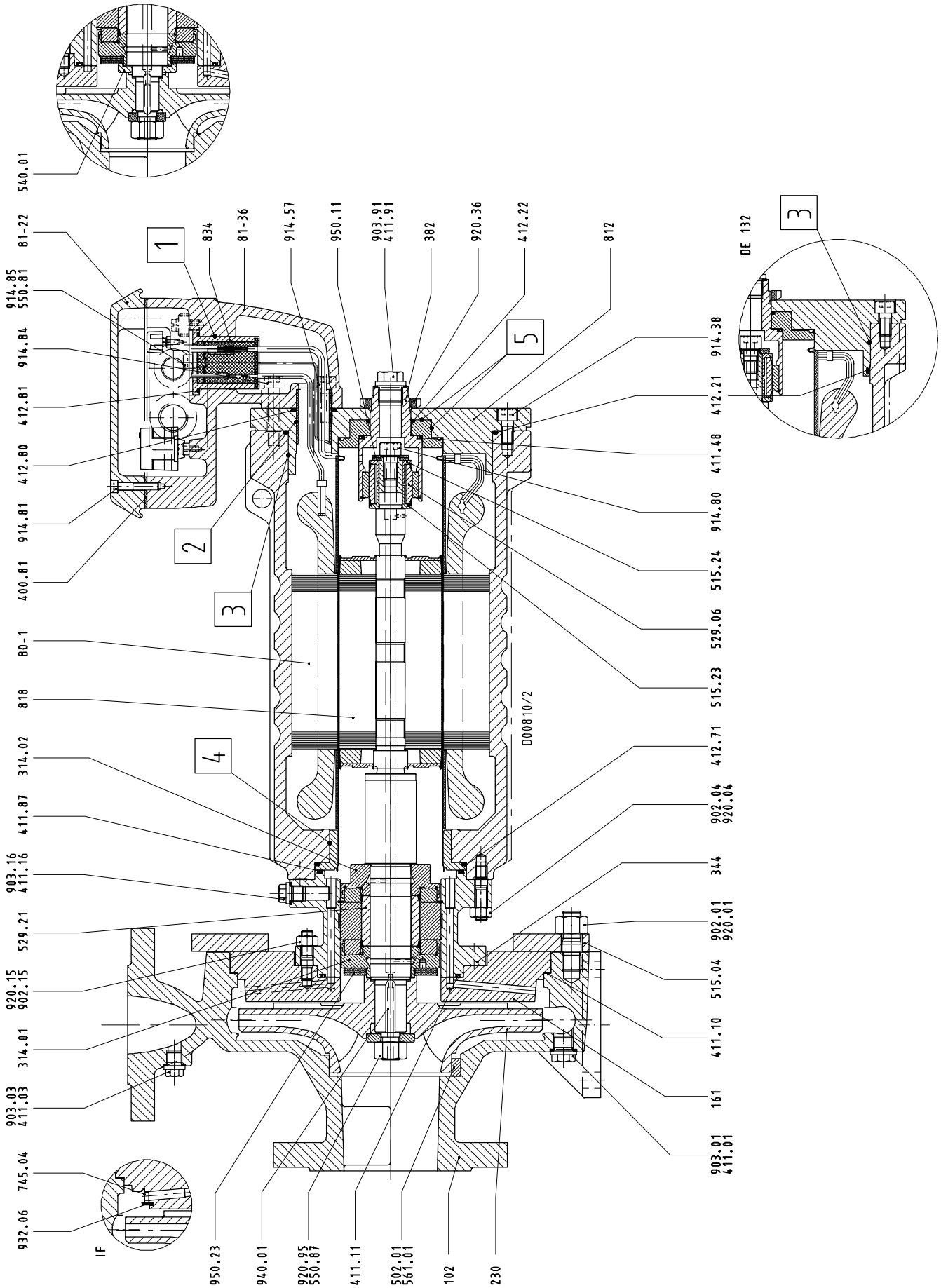


When ordering spare parts, please always specify:
Type series/pump size, works No. (stamped on the name plate and on the suction nozzle flange), motor No. (serial No.), year of construction, quantity required, part No., description, material, medium handled, general assembly drawing No. and mode of dispatch.

Part No.	Description	Scope of supply
102	Volute casing	with joint ring 411.01/.03/.10, casing wear ring 502.01 [1)], grooved pin 561.01 [1)], stud 902.01, screwed plug 903.01/.03, hex. nut 920.01
161	Casing cover	with bearing bush, joint ring 411.16, screwed plug 903.16
230	Impeller	
310.10	Plain bearing, pump end	comprising thrust bearing 314.01/.02, bearing sleeve 529.21, cup spring 950.23
310.11	Plain bearing, motor end	comprising taper lock ring 515.23/.24, bearing sleeve 529.06, socket head cap screw 914.80, cup spring 950.11
382	Bearing carrier	with bearing bush, gasket 411.91, screwed plug 903.91, nut 920.36
515.04	Taper lock ring	
80-1	Motor unit	with O-ring 412.21/.22/.71, cover 812, supporting sleeve, stator, motor housing, can, stud 902.04, socket head cap screw 914.38/.57/.84, hex. nut 920.04
818	Rotor	with key 940.01
833	Terminal box	comprising gasket 400.81, O-ring 412.80, base of terminal box 81-36, terminal box cover 81-22, socket head cap screw 914.81
834	Sealed terminal gland	with O-ring 412.81, disc 550.81, socket head cap screw 914.85
920.95	Hex. nut	with disc 550.87
99-9	Set of sealing elements	comprising 400.81, 411.01/.03/.10/.16/.48/.87/.91, 412.21/.22/.71/.80/.81

1) if fitted

Motors DS 112 (motor sizes 42 and 52) and DS 132 (motor sizes 72, 112 and 152)
□ = flameproof joint

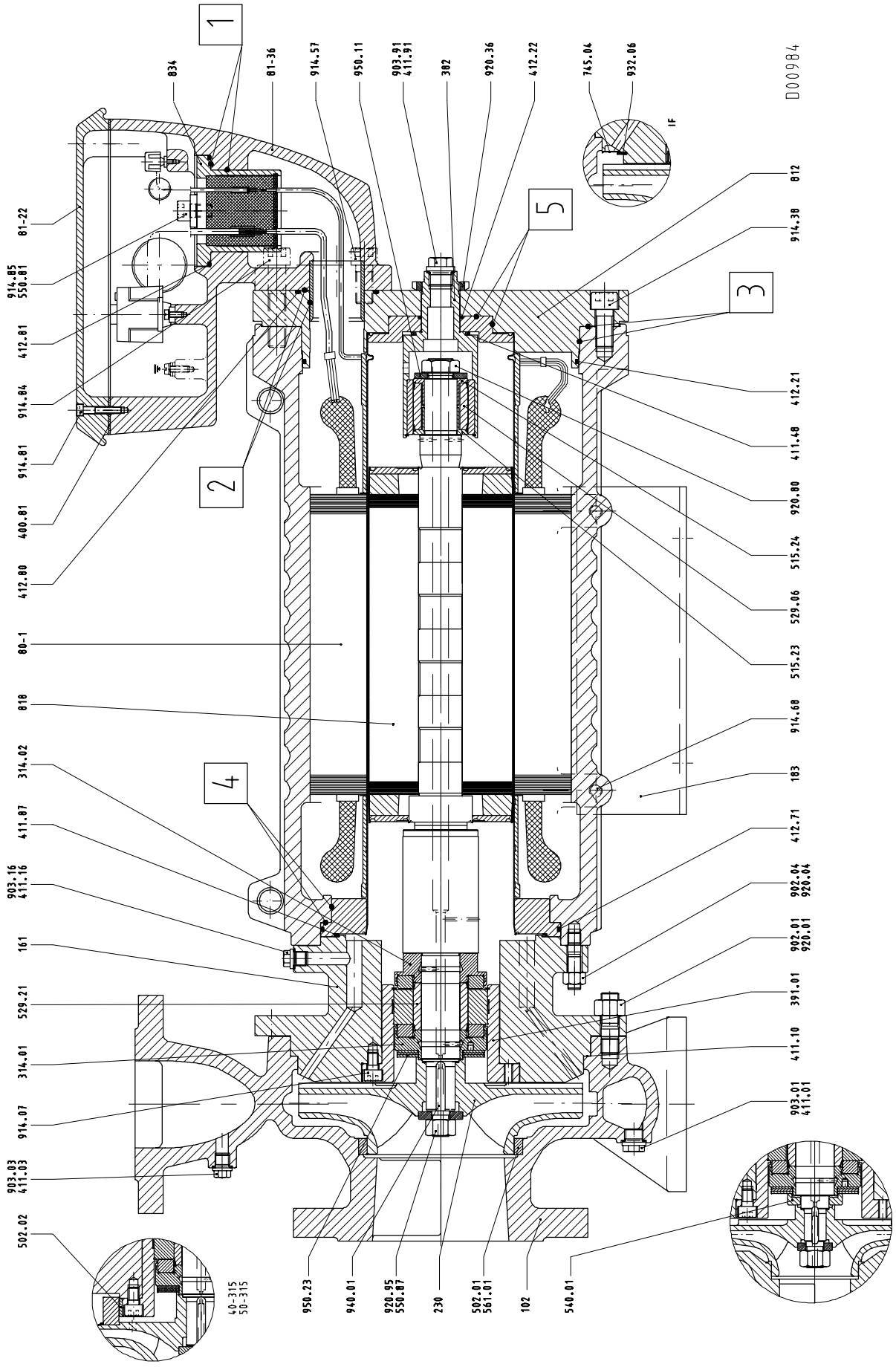


When ordering spare parts, please always specify:
Type series/pump size, works No. (stamped on the name plate and on the suction nozzle flange), motor No. (serial No.), year of construction, quantity required, part No., description, material, medium handled, general assembly drawing No. and mode of dispatch.

Part No.	Description	Scope of supply
102	Volute casing	with joint ring 411.01/.03/.10, casing wear ring 502.01 [1)], grooved pin 561.01 [1)], stud 902.01, screwed plug 903.01/.03, hex. nut 920.01
161	Casing cover	with stud 902.15, nut 920.15
230	Impeller	
310.10	Plain bearing, pump end	comprising thrust bearing 314.01/.02, bearing sleeve 529.21, cup spring 950.23
310.11	Plain bearing, motor end	comprising taper lock ring 515.23/.24, bearing sleeve 529.06, socket head cap screw 914.80, cup spring 950.11
344	Bearing bracket lantern	with bearing bush, joint ring 411.16, screwed plug 903.16
382	Bearing carrier	with bearing bush, gasket 411.91, screwed plug 903.91, nut 920.36
515.04	Taper lock ring	
80-1	Motor unit	with supporting sleeve, stator, motor housing, can, O-ring 412.21/.22/.71, cover 812, stud 902.04, socket head cap screw 914.38/.57/.84, nut 920.04
818	Rotor	with bush 540.01 [1)], key 940.01
833	Terminal box	comprising gasket 400.81, O-ring 412.80, base of terminal box 81-36, terminal box cover 81-22, socket head cap screw 914.81
834	Sealed terminal gland	with O-ring 412.81, disc 550.81, socket head cap screw 914.85
920.95	Hex. nut	with disc 550.87
99-9	Set of sealing elements	comprising 400.81, 411.01/.03/.10/.11/.16/.48/.87/.91, 412.21/.22/.71/.80/.81

1) if fitted

Motors DE 160 (motor sizes 222 and 302)
□ = flameproof joint

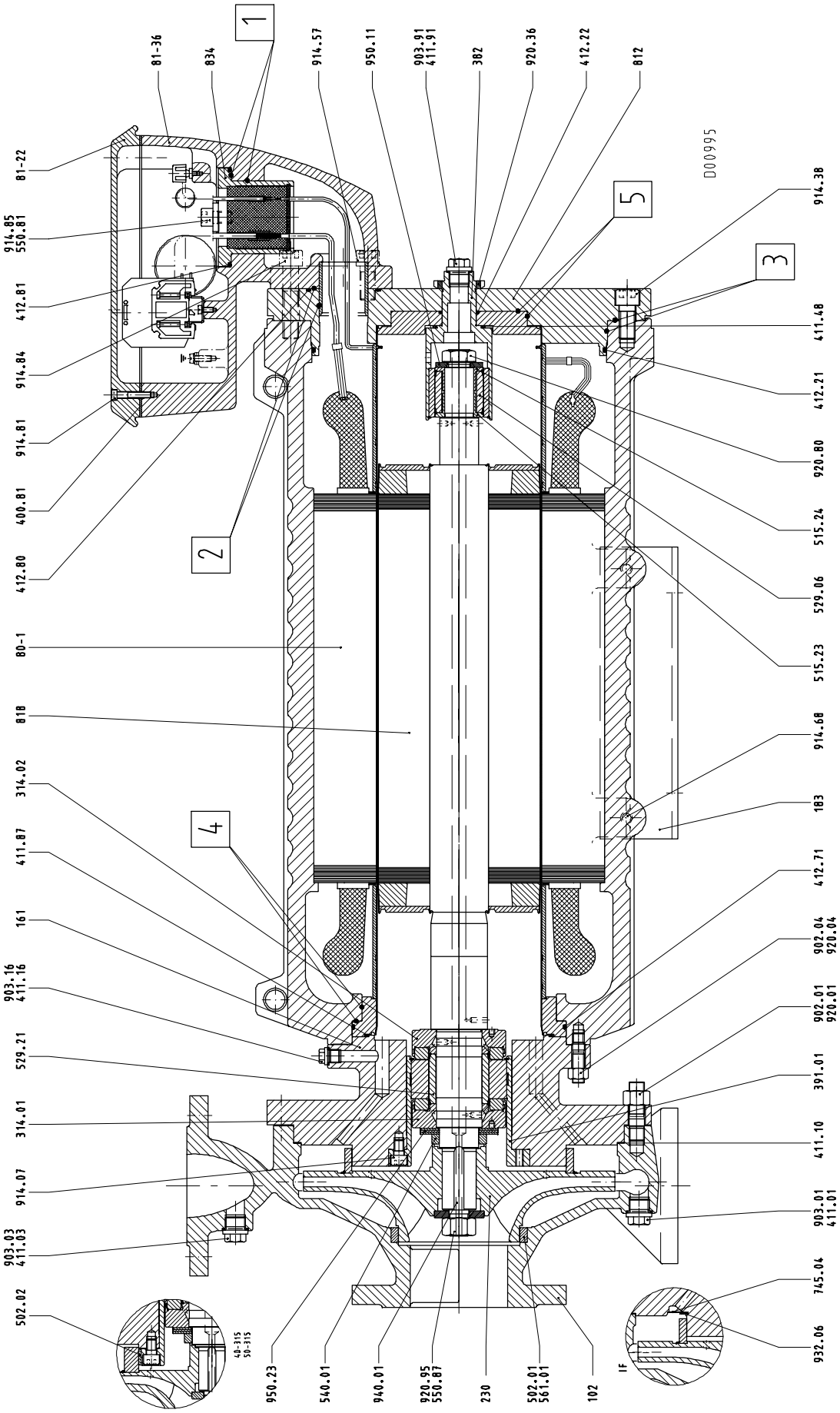


When ordering spare parts, please always specify:
Type series/pump size, works No. (stamped on the name plate and on the suction nozzle flange), motor No. (serial No.), year of construction, quantity required, part No., description, material, medium handled, general assembly drawing No. and mode of dispatch.

Part No.	Description	Scope of supply
102	Volute casing	with joint ring 411.01/.03/.10, casing wear ring 502.01 [1)], grooved pin 561.01 [1)], stud 902.01, screwed plug 903.01/.03, hex. nut 920.01
161	Casing cover	with joint ring 411.16, screwed plug 903.16
230	Impeller	
310.10	Plain bearing, pump end	comprising thrust bearing 314.01/.02, bearing sleeve 529.21, cup spring 950.23
310.11	Plain bearing, motor end	comprising taper lock ring 515.23/.24, bearing sleeve 529.06, hex. nut 920.80, cup spring 950.11
382	Bearing carrier	with bearing bush, gasket 411.91, screwed plug 903.91, nut 920.36
391.01	Bearing ring carrier	with bearing bush, socket head cap screw 914.07
80-1	Motor unit	with O-ring 412.21/.22/.71, cover 812, supporting sleeve, stator, motor housing, can, stud 902.04, socket head cap screw 914.38/.57/.84, hex. nut 920.04
818	Rotor	with bush 540 [1)], key 940.01
833	Terminal box	comprising gasket 400.81, O-ring 412.80, base of terminal box 81-36, terminal box cover 81-22, socket head cap screw 914.81
834	Sealed terminal gland	with O-ring 412.81, disc 550.81, socket head cap screw 914.85
920.95	Hex. nut	with disc 550.87
99-9	Set of sealing elements	comprising 400.81, 411.01/.03/.10/.16/.48/.87/.91, 412.21/.22/.71/.80/.81

1) if fitted

Motors DE 200 (motor sizes 402 and 552)
□ = flameproof joint



When ordering spare parts, please always specify:
Type series/pump size, works No. (stamped on the name plate and on the suction nozzle flange), motor No. (serial No.), year of construction, quantity required, part No., description, material, medium handled, general assembly drawing No. and mode of dispatch.

Part No.	Description	Scope of supply
102	Volute casing	with joint ring 411.01/.03/.10, casing wear ring 502.01 [1)], grooved pin 561.01 [1)], stud 902.01, screwed plug 903.01/.03, hex. nut 920.01
161	Casing cover	with joint ring 411.16, screwed plug 903.16
230	Impeller	
310.10	Plain bearing, pump end	comprising thrust bearing 314.01/.02, bearing sleeve 529.21, cup spring 950.23
310.11	Plain bearing, motor end	comprising taper lock ring 515.23/.24, bearing sleeve 529.06, hex. nut 920.80, cup spring 950.11
382	Bearing carrier	with bearing bush, gasket 411.91, screwed plug 903.91, nut 920.36
391.01	Bearing ring carrier	with bearing bush, socket head cap screw 914.07
80-1	Motor unit	with O-ring 412.21/.22/.71, cover 812, supporting sleeve, stator, motor housing, can, stud 902.04, socket head cap screw 914.38/.57/.84, hex. nut 920.04
818	Rotor	with bush 540.01, key 940.01/.02
833	Terminal box	comprising gasket 400.81, O-ring 412.80, base of terminal box 81-36, terminal box cover 81-22, socket head cap screw 914.81
834	Sealed terminal gland	with O-ring 412.81, disc 550.81, socket head cap screw 914.85
920.95	Hex. nut	with disc 550.87
99-9	Set of sealing elements	comprising 400.81, 411.01/.03/.10/.16/.48/.87/.91, 412.21/.22/.71/.80/.81

1.12.2005

2939.5/3-10

KSB Aktiengesellschaft
P.O. Box 1361, 91253 Pegnitz • Bahnhofplatz 1, 91257 Pegnitz (Germany)
Tel. +49 9241 71-0 • Fax +49 9241 71-1791 • www.ksb.com