Movitec A

High-pressure in-line pumps with and without speed control 50 Hz

Movitec V(S)

Movitec LHS

Movitec V PD

Applications

Movitec V(S) /**-PD** and **LHS** /**-PD** are used for general water supply, spray irrigation, irrigation and pressure boosting duties, for warm water, hot water and cooling water recirculation, condensate transport. They are installed in boiler feed circuits, domestic water supply systems, washing plants, water treatment and filter systems, degreasing baths/alkaline cleaning agents, alkaline solutions and oils/emulsions, fire-fighting systems, as well as reverse osmosis and surface treatment applications.

Design

Pump

Multistage, vertical (horizontal installation see page 5) high-pressure centrifugal pump, with suction and discharge nozzles of identical nominal diameters arranged opposite to each other (in-line design).

Drive

Without speed control

Electric motor, 50 Hz, air-cooled, 2-pole and 4-pole, KSB standard motor with main dimensions to IEC. Other motor makes subject to prior consultation with KSB.
Movitec V, VS, LHS with PTC thermistors for motors ≥ 3 kW.
Variants: single-phase AC motor, 60 Hz (see type series booklet 1798.56-10).

With PumpDrive speed control system

Enhanced with PumpDrive, a Movitec pump together with the appropriate sensors is turned into an intelligent, variable speed pumping system, ideal for both single-pump operation and multiple pump configurations with up to six pumps (see type series booklet PumpDrive 4070.5-10).

Conformity mark

CE (all pumps), ACS (Movitec VE / V)
ATEX Group II, Cat. 2 and 3 on request (not for Movitec PD)

Designation

Movitec V	S	F	10	–	3	PD
Type series Movitec V						
Material variant						
Flange design						
Size						
Number of stages						
PumpDrive						

Movitec LHS	6	–	10	PD
Type series				
Size				
Number of stages				
PumpDrive				

Material variant: blank or S, see page 3
Flange design/connection: F = Round flange
V = Victaulic coupling

Operating data

Movitec V(S) /-PD

Flow rate	Q	up to 75 m^3/h (21 l/s)
Head	H	up to 249 m
Operating pressure	p_d	up to 25 bar [1])
Operating temperature	t	–15 °C to +120 °C

Movitec LHS /-PD

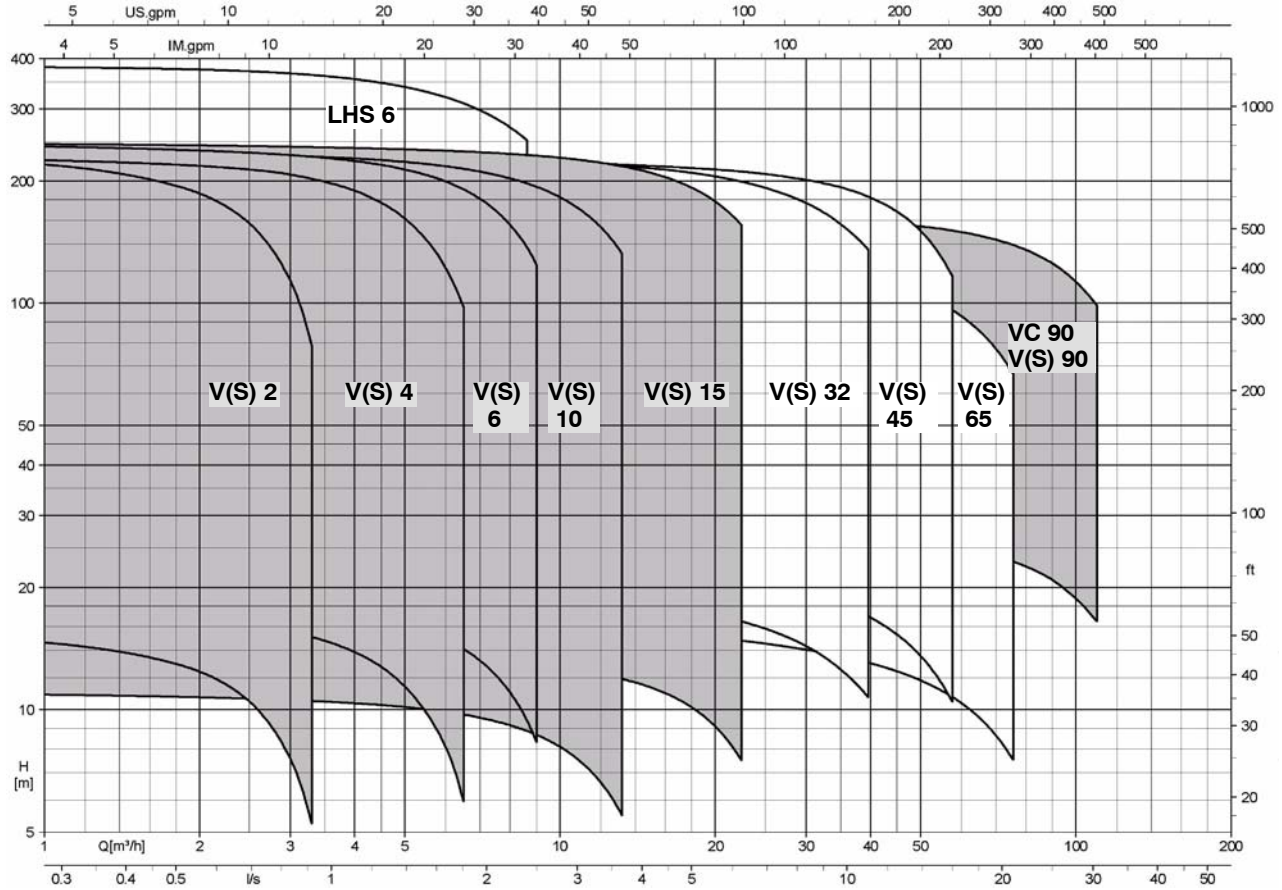
Flow rate	Q	up to 8.6 m^3/h (2.4 l/s)
Head	H	up to 401 m
Operating pressure	p_d	up to 40 bar [1])
Operating temperature	t	–15 °C to +120 °C [2])

[1]) The sum of inlet pressure and shut-off head must not exceed the value indicated.

[2]) Discharge pressure ≤ PN 25: up to 120 °C

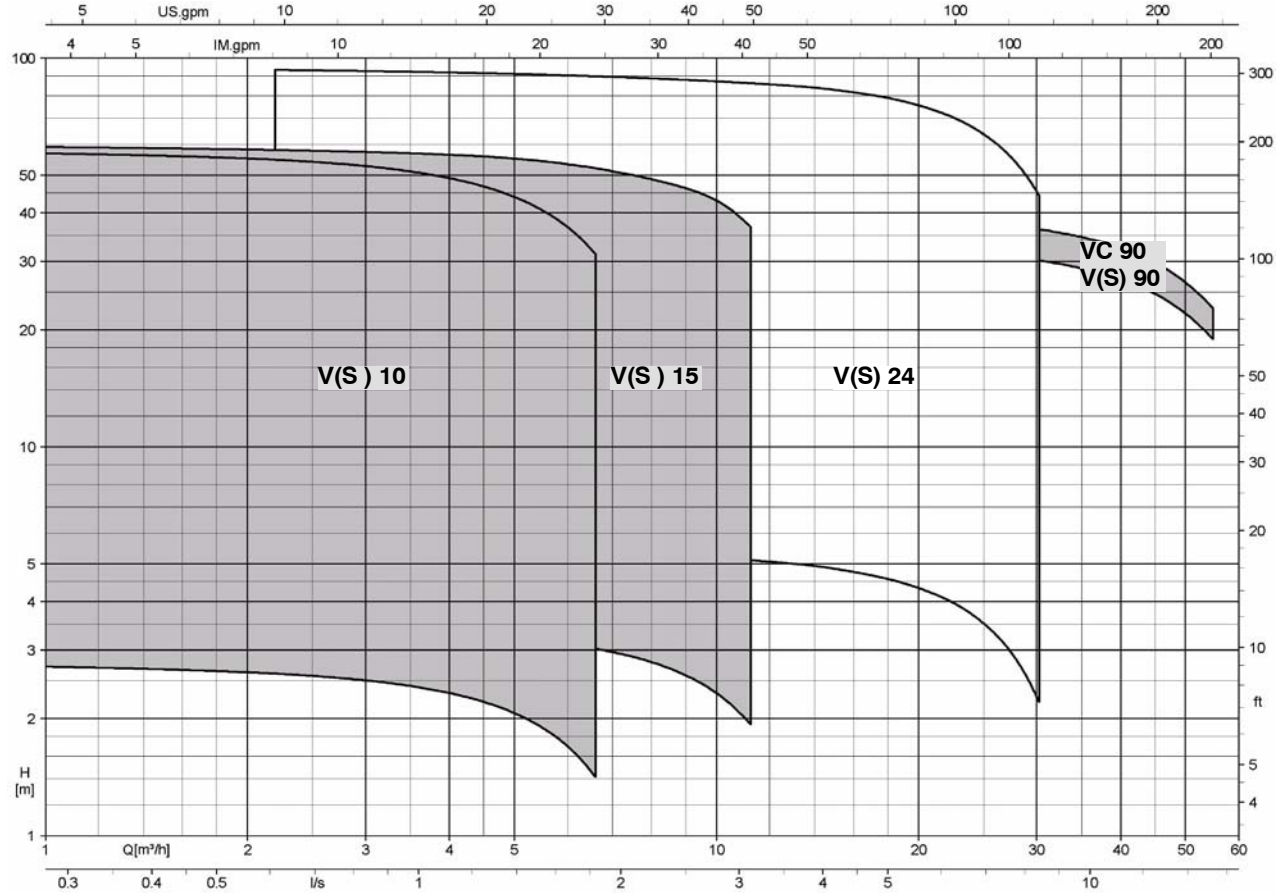
Selection charts

n ≈ 2900 1/min



For Movitec 2, 4, 6, 10 15 and 90 please refer to type series booklet Movitec B, reference No. 1798.52-10

n ≈ 1450 1/min



Materials

Part No.	Description	Material		
		Movitec V	**Movitec VS**	**Movitec LHS**
101	Pump casing	1.4301	1.4401	1.4408
108	Stage casing	1.4301	1.4404	
160	Cover	1.4301	1.4404	
171	Diffuser	1.4301	1.4404	–
10-6	Pump shroud	1.4301	1.4404	
210	Shaft	1.4305	1.4401	
230	Impeller	1.4301	1.4404	
341	Motor stool	JL 1040		1.4408
412	O-ring	EPDM	VITON	
525	Spacer sleeve	1.4301	1.4404	
529	Bearing sleeve	Tungsten carbide		
[1])	Bearing	Ceramics		
890	Baseplate	JL 1040		–
905	Tie bolt	1.4057		
920	Nut	1.4301	1.4404	
932	Circlip	1.4571		

[1]) Permanently connected with stage casing 108 or diffuser 171

Key to materials

Description	Code and material No.	Standard	to ASTM
Grey cast iron	JL1040 / GJL-250	EN 1561	A48:40B
Chrome nickel steel	1.4301 / X5CrNi18-10	EN 10088	A276:304
Chrome nickel molybdenum steel	1.4404 / X2CrNiMo 17-12-2	EN 10088	A276:316L
Carbon chrome nickel molybdenum steel	1.4408 / GX5CrNiMo19-11-2	EN 10213	A743CF8M
Chrome nickel molybdenum steel	1.4571 / X6CrNiMoTi17-12-2	EN 10088	A276:316
Chrome nickel steel	1.4057+QT800 / X17CrNi16-2-QT800	EN 10088-3	A276:431
	1.4305 / X8CrNiS 18-9	EN 10088	A276:303
	1.4401 / X5CrNiMo 17-12-2	EN 10088	A276:316
	1.4308 / GX5CrNi 19-10	EN 10283	A743:CF8

Please note: Material designations to ASTM/AISI are not binding.

Bearings

All V , VS and LHS pumps are equipped with tungsten carbide plain bearings at the hydraulic rotor.

Shaft seal

Single, uncooled mechanical seal in accordance with EN 12756.

Material codes

Mechanical seal	Description	Code letter to EN 12756	Material
	Primary ring	Q1 U3	Silicon carbide (sintered without pressure) Tungsten carbide (CrNiMo binder)
	Mating ring	B U3	Hard carbon, resin-impregnated Tungsten carbide (CrNiMo binder)
	Elastomer	E V X4	EPDM (ethylene propylene rubber) Fluoroelastomer (Viton) HNBR
	Spring	G	CrNiMo steel
	Other metal parts	G	CrNiMo steel
	Code number 13	Q1BEGG	Silicon carbide / Hard carbon / EPDM
	14	Q1BVGG	Silicon carbide / Hard carbon / Viton
	15	U3U3X4GG	Tungsten carbide/Tungsten carbide/HNBR
	16	U3U3VGG	Tungsten carbide/Tungsten carbide/Viton
	17	U3BVGG	Tungsten carbide/Hard carbon/Viton (40-bar seal; for Movitec LHS only)
	19	U3BEGG	Tungsten carbide / Hard carbon / EPDM

Pressure and temperature limits

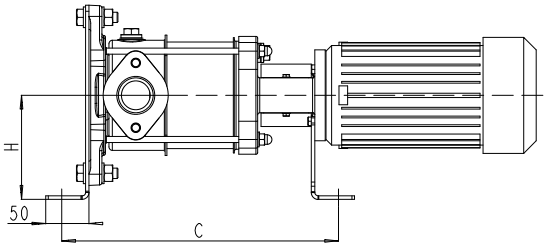
Fluid temperature t [3]	Flange design/connection	Material variant	Max. operating pressure p_s [1]	Code number of mechanical seal [5]	
				Standard	**Optional**
– 15 °C to + 120 °C	VF = Round flange [2]	Movitec VF	16 to 25 bar	13	14, 15, 16
		Movitec VSF	16 to 25 bar	14	13, 15, 16
– 15 °C to + 120 °C	VSV = Victaulic coupling	Movitec VV	up to 25 bar	13	14, 15, 16
		Movitec VSV	up to 25 bar	14	13, 15, 16
– 15 °C to + 80 °C	LHS = Round flange [4]	Movitec LHS	up to 40 bar	17	19
– 15 °C to + 120 °C [6]			up to 25 bar	17	19

[1] The sum of inlet pressure and shut-off head must not exceed the value indicated.
[2] Drilled to EN 1092-2 PN 25 (optional: ASME B 16.1 Class 250 or JIS B2238 16K)
[3] Subject to special application limits (see List of Fluids Handled)
[4] Drilled to EN 1092-2 PN 40
[5] Movitec 24, 32 and 45 with motor ratings of 11 kW or higher: cartridge seals; Movitec 65 always with cartridge seal
[6] If fluid temperature > 80°C: PN 25, recommended elastomer – EPDM

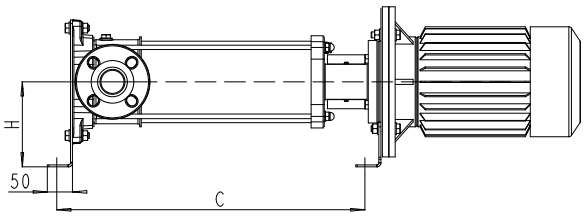
Horizontal installation

Movitec can be installed horizontally in systems where the installation conditions do not allow vertical installation.

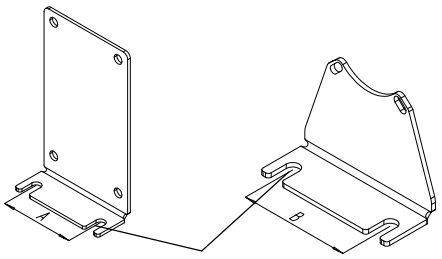
Motor flange B14 (0.55 to 4.0 kW)



Motor flange B5 (5.5 and 7.5 kW)



The set for horizontal installation includes 2 stainless steel holding brackets and the required fasteners.
Foundation bolts must be supplied by the operator.



max. Ø 13 mm for M12

Holding bracket (pump)
89-11.01

Holding bracket (motor)
89-11.02

Dimensions of Movitec V, VS 24, 32, 45, 65

Motor rating [kW]	C [1] [mm]	H [mm]	A [mm]	B [mm]	Ident. No. of set [2]
Movitec VF, VSF 24 – 4-pole					
1.1 – 1.5	F2 + 47	170	180	180	47 116 969
2.2 – 4.0	F2 + 39	170	180	180	47 116 970
5.5 – 7.5	F2 – 17	170	180	180	47 116 971
Movitec VF, VSF 32, 45, 65 – 2-pole					
1.5 – 2.2	F2 + 47	170	180	180	47 116 972
3.0 – 4.0	F2 + 39	170	180	180	47 116 973
5.5 – 7.5	F2 – 17	170	180	180	47 116 974

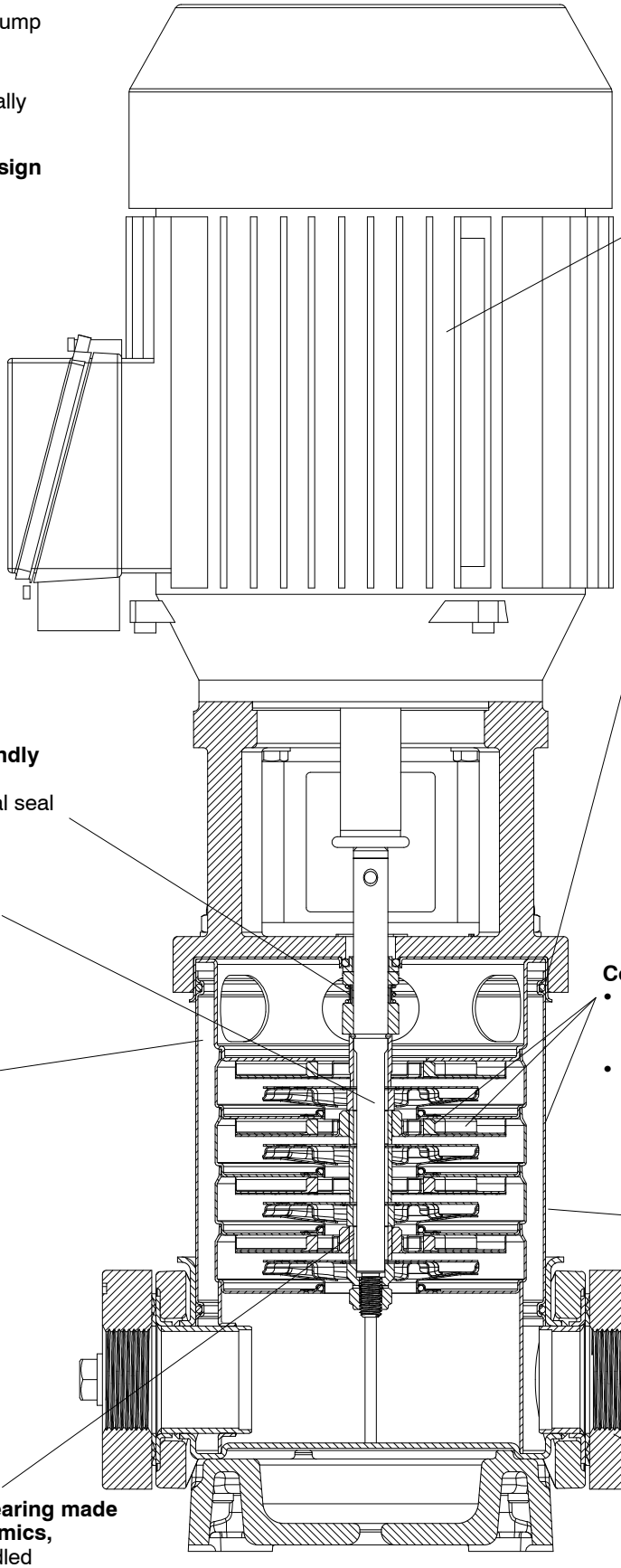
[1]) For stage-dependent height dimension F2 refer to Movitec type series booklet, page 27ff

[2]) Not possible for Movitec LHS and PD

Design features of Movitec V(S)

Universal high-pressure pump up to 25 bar
- –15 °C to 120 °C
- Also suitable for chemically aggressive fluids

Space saving vertical design



Service-friendly, robust three-phase motor
- Multi-range voltage/frequency
- Enclosure IP 55
- Thermal class F
- With PTC thermistor
  ≥ 3 kW

Leak-free and resistant to thermal shocks
- Floating pump shroud
- Confined O-rings

Reliable and service-friendly shaft seal
- Standardised mechanical seal to EN 12756

Easy-to-fit shaft made of high-alloy steel, firm connection between shaft and impeller

Low-noise:
Flow noise is damped by pump shroud

Corrosion-resistant:
- Hydraulic components and pump shroud made of high-alloy stainless steel
- Movitec V with pump shroud made of CrNi sheet steel

High operating reliability ensured by torsion-proof pump shroud
- No external joints
- Only 2 sealing elements

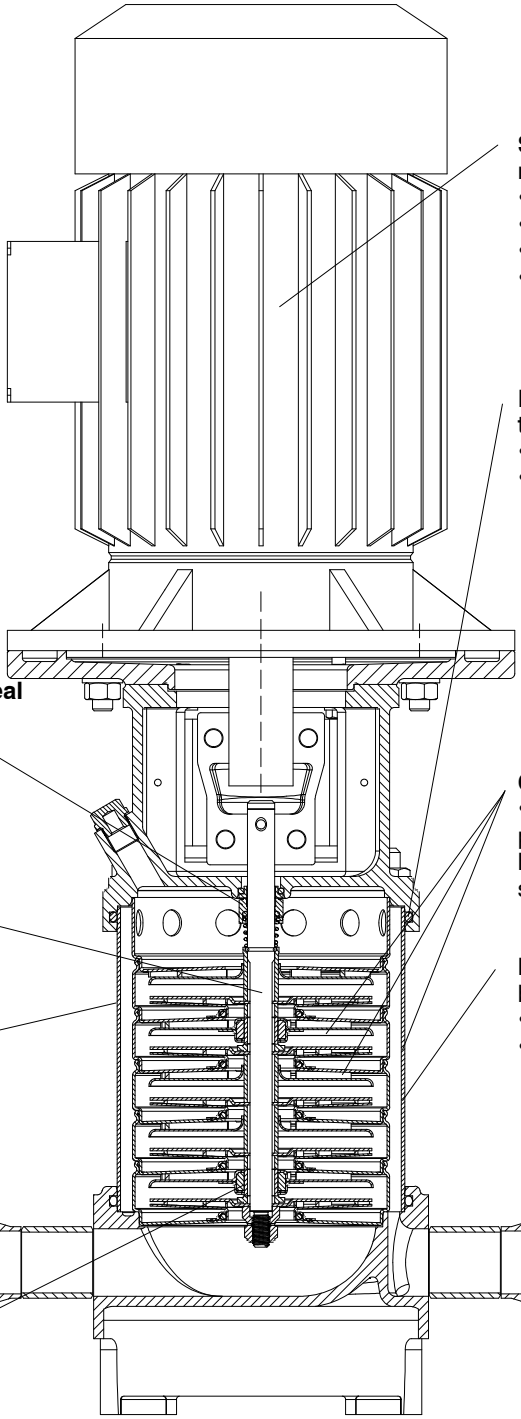
Highly wear-resistant and maintenance-free **plain bearing made of tungsten carbide/ceramics,** lubricated by the fluid handled
- Self-cleaning by forced flushing

Simple installation and piping layout thanks to in-line design
- Insensitive to external nozzle forces and moments

Design features of Movitec LHS

Universal high-pressure pump up to 40 bar
- –15 °C to 120 °C
- Also suitable for chemically aggressive fluids

Space saving vertical design



Service-friendly, robust three-phase motor
- Multi-range voltage/frequency
- Enclosure IP 55
- Thermal class F
- With PTC thermistor ≥ 3 kW

Leak-free and resistant to thermal shocks
- Floating pump shroud
- Confined O-rings

Reliable and service-friendly shaft seal
- Standardised mechanical seal to EN 12756

Corrosion-resistant
- Hydraulic components and pump shroud made of high-alloy stainless CrNiMo sheet steel

Easy-to-fit shaft made of high-alloy steel, flat shaft end ensures firm connection between shaft and impeller

High operating reliability ensured by torsion-proof pump shroud
- No external joints
- Only 2 sealing elements

Low-noise:
Flow noise is damped by pump shroud

Highly wear-resistant and maintenance-free **plain bearing made of tungsten carbide/ceramics,** lubricated by the fluid handled
- Self-cleaning by forced flushing

Simple installation and piping layout thanks to in-line design
- Insensitive to external nozzle forces and moments

PumpDrive features

Functions	PumpDrive ...	
	Basic	Advanced
Protective functions		
Thermal motor protection by PTC thermistors	■	■
Electrical motor protection by overvoltage/undervoltage monitoring	■	■
Dynamic overload protection by speed limitation (i^2t control)	■	■
Dry running protection		■
Minimum flow stop		■
Characteristic curve control (Q_{min}, Q_{max})		■
Open-loop control		
Open-loop operation via specified setpoint	■	■
User-definable speed (0 to 70 Hz)	■	■
Stand-by mode (stop at minimum speed after a defined period of time)	■	■
Programmable start and stop ramps	■	■
Slave in multiple pump configuration with up to 6 pumps	■	■
Master in multiple pump configuration with up to 6 pumps		■
Parameterisable H/Q/P curves		■
Closed-loop control		
Closed-loop operation via integrated, programmable PI controller	■	■
Differential pressure control	■	■
Level control	■	■
Temperature control	■	■
Flow control	■	■
Dynamic pressure setpoint compensation	■	■
Commissioning		
Plug & run	■	■
Automatic sensor recognition (when frequency inverter is started)	■	■
Operation		
3 LEDs (OK, warning and alert)	■	■
Control panel (optional), rotatable 180°	■	
Control panel, rotatable 180°		■
Monitoring		
Fault history	■	■
Energy meter (kWh)	■	
Operating hours counter (motor, FI)	■	■
Energy savings meter (kWh)		■
Communication		
Profibus field bus system	■	■
LON field bus system	■	■
RS 232 service interface	■	■
Installation		
CM: in control cabinet IP 21	■	■
MM: with adapter on motor, IP 55	■	■
WM: wall-mounted IP 55	■	■
Functional enhancements (planned)		
Sensorless flow rate estimation		■
Sensorless closed-loop control		■

Casing

Pump casing with suction and discharge nozzles of identical nominal diameters arranged opposite to each other (in-line design).
Movitec V(S): Pump casing made of stainless steel, baseplate made of powder-coated grey cast iron.
Movitec LHS: stainless steel pump casing.

Shaft seal

Uncooled, maintenance-free mechanical seal to EN 12756

Drive

Motor without speed control
Standard for V(S) and LHS:

- Electric motor, 50 Hz, air-cooled, 2-pole and 4-pole, standard KSB motor with main dimensions to IEC. Other motor makes after prior consultation with KSB,
  up to 2.2 kW 220–240 V/380–420 V,
  from 3 kW 380–420 V/660–725 V,
  enclosure IP 55,
  thermal class F,
  up to 4 kW in V18 type of construction; from 5.5 kW in V1 type of construction,
  all motors ≥3 kW with PTC thermistors.

Approved variants:

- Explosion-proof motor II 2 G Eexd/Eexe T3/T4, type of construction V1/V18, make to KSB's choice.
- Motor for mains voltage 500 V, type of construction V1/V18, make to KSB's choice.
- Motor make to customer's choice (upon request).
- PTC thermistors for motors < 3 kW

Direction of rotation:
Clockwise, viewed from the drive end (see rotation arrow on motor stool).

Coupling:

- All sizes: rigid coupling
- The couplings comply with the EC Machinery Directive.

Motor with speed control system
Standard for V(S) and LHS:

- Electric motor, 50 Hz, air-cooled, 2-pole and 4-pole, KSB standard motor with main dimensions to IEC. Other motor makes after prior consultation with KSB,
  3~380 V AC –15 % to 480 V AC +10 %
  Enclosure IP 55,
  thermal class F,
  up to 4 kW in V18 type of construction; from 5.5 kW in V1 type of construction,
  all motors ≥3 kW with PTC thermistors.

Approved variants:

- Motor make to customer's choice (upon request).
- PTC thermistors for motors < 3 kW

Direction of rotation:
Clockwise, viewed from the drive end (see rotation arrow on motor stool).

Coupling

- All sizes: rigid coupling
- The couplings comply with the EC Machinery Directive.

Installation

Vertical installation (horizontal installation see page 5)

Coating

Movitec V(S):
Powder-coated grey cast iron motor stool and baseplate.
Movitec V(S): Grey cast iron sliding flanges protected by sherardising.
All pumps: Stainless steel parts without additional protective coating.

Tests/Inspections

Standard:
Pressure test to EN 809
Leak test with water

Possible variant (on request):
Hydraulic test evidenced by test report. This test is always carried out using the original motor.
The NPSH and the suction head are not measured.

Materials testing
Certificate of compliance with the order (corresponds to EN 10 204)
In the certificate of compliance with the order the manufacturing or processing works confirms by way of an informal report without specifying test results that the delivery complies with the stipulations of the purchase order (certificate to 2.2 and 3.1 available upon request).

Characteristic curves [2]

The characteristic curves are based on the following principles:

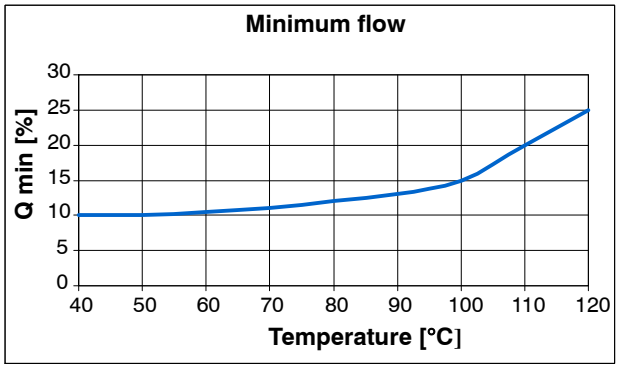
- Tolerances to ISO 9906 Class 2/Annex A
- Measurements are made with standardised KSB motors with integrated frequency inverters [1]
- The characteristic curves were obtained with deaerated water at a temperature of 20 °C and a density of 1.0 kg/dm^3 [1]
- The characteristic curves are valid for a kinematic viscosity of 1 mm^2/s (1 cst) [1]
- The pump is designed to give optimum performance at the point of best efficiency (Q_{opt}). This means:
  - **Recommended operating range: 0.50 to 1.30 of Q_{opt}** [2]
  - The characteristic curve outside this range is given for information purposes only [2].
- A minimum flow must be maintained to prevent the pump from overheating.

Movitec V	Q_{min} in m^3/h
24	2.2
32	4.0
45	4.6
65	6.1
LHS 6	0.8

[1] In case of different parameters, the performance data must be corrected accordingly.

[2] See example on the following page

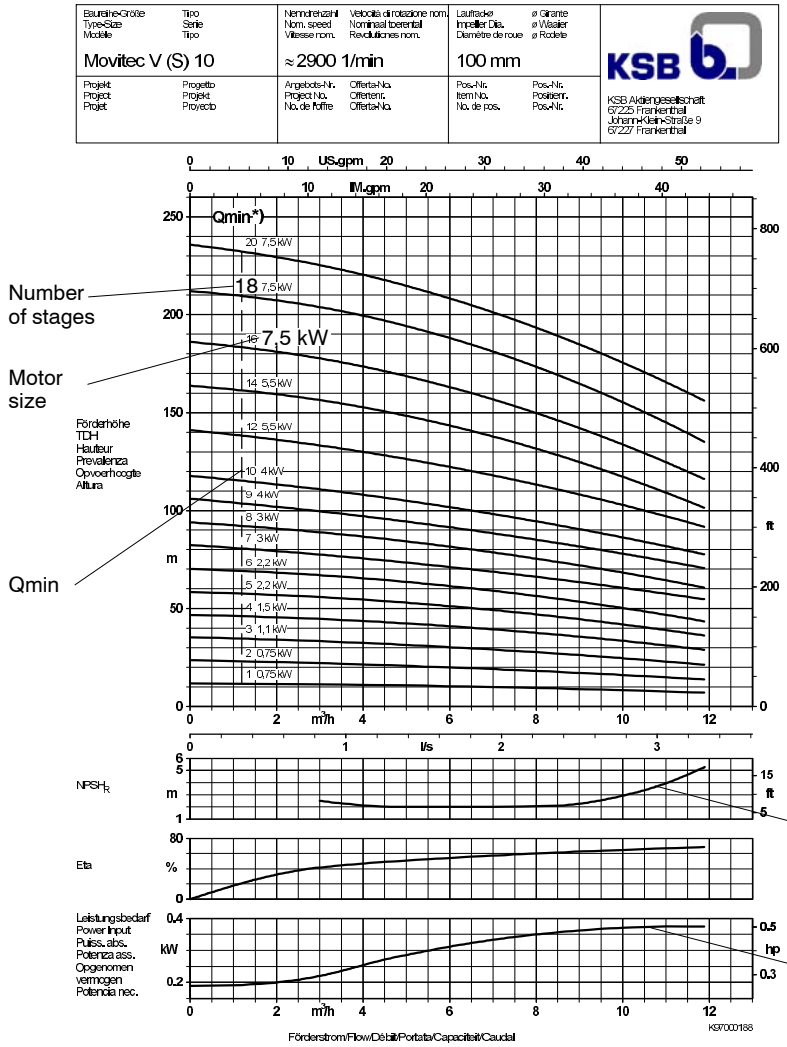
The following curve shows the minimum flow, corresponding to a percentage of the optimum flow Q_{opt} (flow rate at best efficiency point), as a function of the temperature of the fluid handled.



- Maximum pressure at the discharge nozzle:
  25 bar – shut-off head with round flange (VF) and Victaulic coupling (VSV).
  40 bar – shut-off head with round flange (LHS).

- **NPSH**
  The NPSH values given in the individual characteristic curves are minimum values which correspond to the cavitation limit. They refer to deaerated water.
  A safety allowance of at least 0.5 m must be added when selecting the pump to compensate for measuring inaccuracies and minor manufacturing deviations. The NPSH curve reflects mean values.

Selection example for pump set without speed control



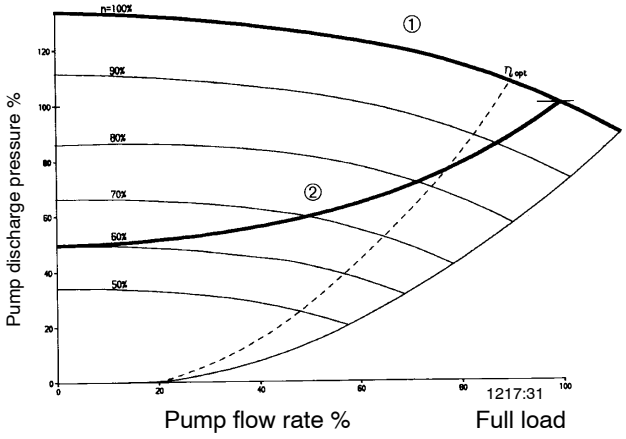
NPSH required. A safety allowance of 0.5 m must be added to the NPSH value of the characteristic curve when selecting the system.

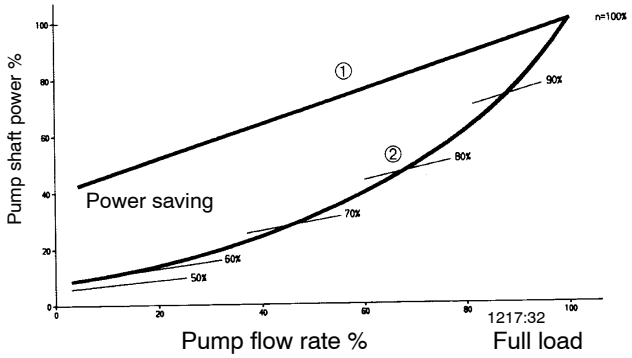
Power input per stage at a density $\rho = 1$ kg/dm^3

Example: Differential pressure control

Control task:

Maintaining the differential supply pressure even with changing operating conditions and interferences.





η_{opt} : optimum pump efficiency curve

① Pump curve for fixed-speed operation (n = 100 %)

② Pump curve for variable-speed operation (n = variable)

Pump performance

A pump's performance is described by several characteristic curves combined in a performance chart, which correspond to the different frequencies (Hz) or motor speeds.
The motor speed is indicated for each characteristic curve.
The range covered by the H/Q curves and the power input curves extends from the minimum speed stipulated for the pump up to the maximum speed.
Any duty point within this performance range can be obtained by adjusting the rotational speed accordingly.
Speed range: 100 – 25 % or 50 – 12.5 Hz.

Change in operating data

Flow rate Q, pump head H and power input P change as a function of speed N or frequency F.

$$Q_2 = \frac{n_2}{n_1} \cdot Q_1$$

$$H_2 = \frac{(n_2)^2}{(n_1)^2} \cdot H_1$$

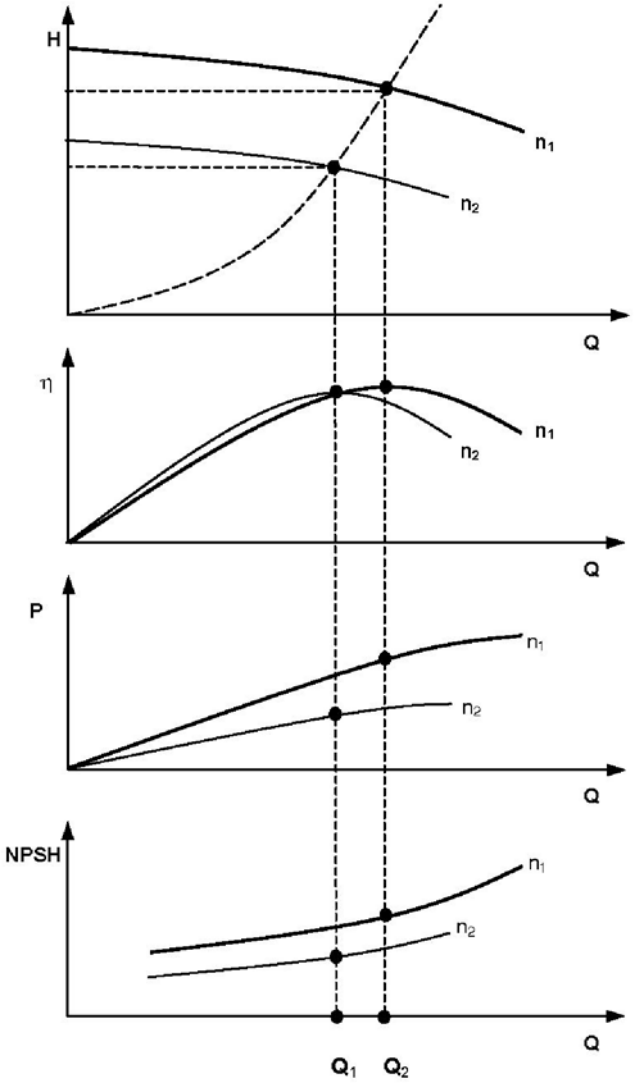
$$\eta_2 = 1 - \left((1 - \eta_1) \cdot \frac{(n_1)^{0,1}}{(n_2)^{0,1}} \right)$$

$$P_2 = \frac{(n_2)^3}{(n_1)^3} \cdot P_1$$

$$NPSH_2 = \frac{(n_2)^2}{(n_1)^2} \cdot NPSH_1$$

A pump's NPSH changes depending on the respective H/Q curve. However, the NPSH of the pump at maximum speed (or maximum frequency) must always be taken into account and used as calculation basis.

Performance chart



PumpDrive

Standard functions:
- Diagnostic LEDs signal operation, overload or fault
- Increased starting torque
- Pump-specific [1]) minimum and maximum speeds
- Two isolated analog inputs for standard signals / live-zero yes/no [1])
- Automatic restart after automatic safety tripping yes / no[1])
- Three restarting attempts within 3 seconds each [1])
- Modes of operation: open-loop control/differential pressure control by integrated PI controller with automatic detection
- Direction of rotation: anti-clockwise/clockwise 1)
- External standard signal 0/2 – 10 V / 0/4 – 20 mA
- General fault message contact (240 V AC, max. 1 A)
- Pump is stopped when flow rate falls below a minimum value
- Setpoint specified via motor potentiometer function

1) With optional control panel

Protective functions:
- Electronic overcurrent trip
- Integrated EMC (electromagnetic compatibility) filter, class B ≤7.5 kW, class A ≥11 kW
- Automatic overload control
- Thermal overload control
- Full motor protection by PTC thermistors
- Undervoltage/overvoltage protection
- Phase short-circuit protection
- Earth fault current protection
- Dry running protection
- Start/Stop via digital input
- No motor protection or mains switch required

For details please refer to type series booklet PumpDrive 4070.5-10

Recommended spare parts stock for two years' continuous operation

Number of pumps of identical size (including stand-by pumps) ->		2	3	4	5	6 and 7	8 and 9	10 and more
Part No.	Description	Quantity of spare parts						%
10-5	**Stage casing, cpl. with bearing kit** Stage casing with bearing (108.02) + bearing sleeve (529) + impeller (230) + spacer sleeve, short (525.01)	1 set		2 sets			3 sets	30
433	1 Mechanical seal 433 2 O-rings 412.01 2 Gaskets (oval) 400 (for pumps with V flange variant only) 1 O-ring 412.05 (for cartridge seal only) 1 O-ring 412.06 (for cartridge seal only)	1 set		2 sets			3 sets	30

List of fluids handled

The data refer to the chemical resistance of the materials. The relevant regulations/standards governing individual pump applications have to be complied with.
The actual operating conditions must always be checked (concentration, temperature, solids content).
The penetration of air into the system must be avoided by all means.
If the operating conditions differ from the data given (e.g. mixed products) or if the fluids are not included in the table below, please contact KSB.

Basic data:

- Temperature ranges:
  - Reference temperature: 20 °C.
  - In the case of temperatures ≤0 °C Contact KSB.
  - In the case of temperatures > 50 °C: check and observe the vapour pressure of the fluid handled!
  - Max. temperature = 120 °C, unless indicated otherwise.
- Max. concentration = 100 % unless indicated otherwise.
- Mechanical seal of silicon carbide / carbon (Q1B): not suitable for fluids containing solids.
  This rule also covers particles developing as a result of salt crystallisation at low fluid temperatures.
- Mechanical seal of tungsten carbide / tungsten carbide (U3U3): max. solids content 20 ppm (depending on particle size), with the exception of corrosive fluids. Fluids with a higher solids content are not permitted (ppm = 1 mg/kg).
- Please note: High temperatures will increase corrosion (reference temperature = 20 °C).
- Under unfavourable conditions (high temperatures, deposits, long idle periods), chloride contents of more than 300 mg/l may result in localised corrosion.

Fluid handled (see special conditions given at the end of the table)	Max. content in %	Max. temperature in °C	Mechanical seal variant					
			13	14	15	16	17	19
Alcohol (ethanol)		60	V	–	–	–	–	LHS
Alkaline solution (bottle rinsing) (pH ≤9.5)	10	80	–	–	V [1)]	–	–	–
Alkaline solution (metal degreasing) (pH ≤9.5)	10	80	–	–	V [1)]	–	–	–
Alum	3	80	–	VS	–	–	LHS	–
Aluminium sulphate	5	60	–	–	–	V [1)]	–	–
Ammonium bicarbonate	10	40	V[1)]	–	–	–	–	LHS
Ammonium chloride (salmiac)	25	30	VS	–	–	–	–	LHS
Ammonium sulphate	20	60	V[1)]	–	–	–	–	LHS
Antifreeze (glycol base, salt-free)	min. 20		V	–	–	–	LHS	LHS
Antifreeze (halogen-free) [4)]			V	–	–	–	–	LHS
Buttermilk		80	V[1)]	–	–	–	LHS	LHS
Butyl alcohol (Butanol)		60	V	–	–	–	–	LHS
Calcium acetate	10	60	VS	–	–	–	–	LHS
Calcium nitrate (non acidic)	10	60	–	–	–	V [1)]	–	–
Cider		40	V[1)]	–	–	–	LHS	LHS
Citric acid	25	30	–	V [1)]	–	–	–	–
Copper sulphate	10	80	–	–	V [1)]	–	–	–
Crude oil [4)]		80	–	V [1)]	–	–	LHS	–
Crude oil condensate [4)]			–	V [1)]	–	–	LHS	–
Deionised water (fully desalinated)			V[1)]	–	–	–	–	LHS
Diesel oil (light, extra light)		80	–	V	–	–	LHS	–
Ethanol (alcohol)		60	V	–	–	–	–	LHS
Ethylene glycol / Diethylene glycol (salt-free)		100	V	–	–	–	LHS	LHS
Ferric sulphate (II)	10	80	–	–	–	V	–	–
Fruit juices, pH-neutral (6.5)		60	–	V	–	–	LHS	–
Fuel oil (light) (without antifreeze for –20 °C and below)		80	–	V	–	–	LHS	–
Glycerine	40		V	–	–	–	LHS	LHS
Glycol (salt-free) (see ethylene glycol)		100	V	–	–	–	LHS	LHS
Hexane		40	–	V	–	–	LHS	–
Isopropyl alcohol (2-propanol)		80	V	–	–	–	–	LHS
Kerosene (jet fuel)		100	–	V	–	–	LHS	–

[1)] Only valid if all standard (brass) screw plugs of Movitec V are replaced by stainless steel screw plugs. Otherwise, a Movitec VS with the right seal must be used.

[4)] Fluid details required.

Fluid handled (see special conditions given at the end of the table)	Max. content in %	Max. temperature in °C	Mechanical seal variant					
			13	14	15	16	17	19
Lactic acid	40	60	–	V [1]	–	–	LHS	–
Liqueur		60	–	V	–	–	LHS	–
Magnesium sulphate	10	80	–	V	–	–	LHS	–
Maleic acid	10	60	–	VS	–	–	–	–
Miscella [4]		60	–	V [1]	–	–	LHS	–
Oil-water mixtures (without solids)			–	V	–	–	LHS	–
Oils (without abrasive solids):								
Corn oil		100	–	V [1][3]	–	–	LHS	–
Cutting oil [4]		100	–	–	–	V [3]	–	–
Hydraulic oil [4]		80	–	V [3]	–	–	LHS	–
Linseed oil		60	–	V [3]	–	–	LHS	–
Linseed oil + 3 % H_2SO_4		60	–	VS	–	–	–	–
Lubricating oil [4]		100	–	V [3]	–	–	LHS	–
Mineral oil [4]		80	–	V [3]	–	–	LHS	–
Peanut oil			–	V [3]	–	–	LHS	–
Rapeseed oil		100	–	V [3]	–	–	LHS	–
Salad oil [4]		100	–	V [3]	–	–	LHS	–
Silicone oil [4]		60	–	V [3]	–	–	LHS	–
Soybean oil		100	–	V [1][3]	–	–	LHS	–
Turpentine oil [4]		60	–	V [3]	–	–	LHS	–
Turbine oil (no SDF oils)[4]		100	–	V [3]	–	–	LHS	–
Vegetable oils (H_2SO_4-free) [4]			–	V [3]	–	–	LHS	–
Paraffin(s) [4]			–	V	–	–	LHS	–
Petroleum (without solids)		80	–	V	–	–	LHS	–
Phosphoric acid	5	20	–	V	–	–	–	–
Polyethylene glycol [4]		80	V	–	–	–	LHS	LHS
Polyglycols [4]		80	–	V	–	–	LHS	–
Potassium bicarbonate	10	60	–	–	V [1]	–	–	–
Potassium carbonate	25	60	–	–	V [1]	–	–	–
Potassium hydroxide	5	60	–	–	V [1]	–	–	–
Potassium nitrate	10	30	–	–	V [1]	–	–	–
Potassium sulphate	3	20	–	VS	–	–	LHS	–
Propyl alcohol (see isopropyl alcohol)		80	–	–	–	–	–	–
Soda lye (see sodium hydroxide)			–	–	–	–	–	–
Sodium carbonate	6	60	V [1]	–	–	–	–	LHS
Sodium hydroxide (soda lye)	10	60	–	–	V [1]	–	–	–
Sodium nitrate (non acidic)	10	60	V [1]	–	–	–	–	LHS
Sodium sulphate (non acidic)	5	60	V [1]	–	–	–	–	LHS
Spirits		60	V	–	–	–	–	LHS
Sulphuric acid	5	30	–	VS [3]	–	–	–	–
Tannic acid	20	80	–	V [1]	–	–	LHS	–
Tartaric acid	8	60	–	V [1]	–	–	LHS	–
Trisodium phosphate	4	80	–	–	V [1]	–	–	–
Turpentine (oil) (see oil, turpentine) [4]		60	–	V	–	–	LHS	–
Vinegar (wine vinegar)	10	60	VS	–	–	–	–	LHS

[1] Only valid if all standard (brass) screw plugs of Movitec V are replaced by stainless steel screw plugs. Otherwise, a Movitec VS with the right seal must be used.

[3] Pure fluid without abrasive solids.

[4] Fluid details required.

Fluid handled (see special conditions given at the end of the table)	Max. content in %	Max. temperature in °C	Mechanical seal variant					
			13	14	15	16	17	19
Water-glycol mixture (salt-free, with inhibitors)	min. 20		V	–	–	–	–	LHS
Water:								
Condensate			VS [2]	–	–	–	–	LHS
Cooling water			–	–	–	V [1]	–	–
Decarbonised water			–	–	V [1]	–	–	–
Deionised water			V[1]	–	–	–	–	LHS
Distilled water			V[1]	–	–	–	–	LHS
Drinking water			V	–	–	–	–	LHS
Fire-fighting water			–	–	V [1]	–	–	–
Fully desalinated water (see deionised water)			–	–	–	–	–	–
Heating water			V	–	–	–	–	LHS
Partly desalinated water (see decarbonised water)			–	–	–	–	–	–
Pure water (chemically neutral, **no** ultrapure water)			V[1]	–	–	–	–	LHS
Rinsing water			–	–	–	V [1]	–	–
Seawater (continuous operation)		25	–	–	–	VS	–	–
Softened water (see decarbonised water)			–	–	–	–	–	–
Swimming pool water (no brine)			–	VS	–	–	LHS	–
Untreated water (suspended solids content < 20 ppm)			–	–	V	–	–	–
Tap water			V	–	–	–	–	LHS
Wine (white, red)		40	V[1]	–	–	–	LHS	LHS

[1]) Only valid if all standard (brass) screw plugs of Movitec V are replaced by stainless steel screw plugs. Otherwise, a Movitec VS with the right seal must be used.

[2]) Water treatment shall be in accordance with VdTÜV guidelines for feed and boiler water in steam systems of up to 64 bar. The penetration of air into the system must be avoided by all means.

Movitec V with KSB standard motor, fixed/variable-speed [1])
3~230/400 V up to 2.2 kW, 3 kW and above: 3~400/692 V

Size	Number of stages	Shaft seal code	Motor rating	Pump Drive [1])	Max. current Fixed-speed pump	Oval flange Movitec V Fixed-speed pump		Round flange Movitec VF Fixed-speed pump		Victaulic coupling Movitec VV Fixed-speed pump	
			kW	Type	I_{max} in A	Ident. No.	kg	Ident. No.	kg	Ident. No.	kg
4-pole											
Movitec V 24	1	13	1.1	..001K10..	5.2 / 3.0	–	–	47 110 071	57.8	–	–
Movitec V 24	2	13	1.1	..001K10..	5.2 / 3.0	–	–	47 110 072	60.1	–	–
Movitec V 24	3	13	1.5	..001K50..	7.1 / 4.1	–	–	47 110 073	64.5	–	–
Movitec V 24	4	13	2.2	..002K20..	9.0 / 5.2	–	–	47 110 074	73.8	–	–
Movitec V 24	5	13	2.2	..002K20..	9.0 / 5.2	–	–	47 110 075	76.2	–	–
Movitec V 24	6	13	3	..004K00..	8.1 / 4.7	–	–	47 110 076	82.5	–	–
Movitec V 24	7	13	3	..004K00..	8.1 / 4.7	–	–	47 110 077	84.9	–	–
Movitec V 24	8	13	4	..004K00..	9.9 / 5.7	–	–	47 110 078	94.2	–	–
Movitec V 24	9	13	4	..004K00..	9.9 / 5.7	–	–	47 110 079	96.6	–	–
Movitec V 24	10	13	5.5	..005K50..	12.0 / 6.9	–	–	47 110 080	115.5	–	–
Movitec V 24	11	13	5.5	..005K50..	12.0 / 6.9	–	–	47 110 081	117.8	–	–
Movitec V 24	12	13	5.5	..005K50..	12.0 / 6.9	–	–	47 110 082	120.2	–	–
Movitec V 24	16	13	7.5	..007K50..	16.0 / 9.2	–	–	47 110 083	138.1	–	–
2-pole											
Movitec V 32	1	13	2.2	..002K20..	10.4 / 6.0	–	–	47 110 108	60.9	–	–
Movitec V 32	2	13	4	..004K00..	9.0 / 5.2	–	–	47 110 109	81.1	–	–
Movitec V 32	3	13	5.5	..005K50..	12.0 / 6.9	–	–	47 110 110	89.5	–	–
Movitec V 32	4	13	7.5	..007K50..	15.5 / 8.9	–	–	47 110 111	95.8	–	–
Movitec V 32	5	13	11	..011K00..	30.5 / 17.6	–	–	47 110 112	167.1	–	–
Movitec V 32	6	13	11	..011K00..	30.5 / 17.6	–	–	47 110 113	169.4	–	–
Movitec V 32	7	13	15	..015K00..	31.7 / 18.3	–	–	47 110 114	185.7	–	–
Movitec V 32	8	13	15	..015K00..	31.7 / 18.3	–	–	47 110 115	188.0	–	–
Movitec V 32	9	13	18.5	..018K50..	40.5 / 23.4	–	–	48 894 051	205.0	–	–
Movitec V 32	10	13	18.5	..018K50..	40.5 / 23.4	–	–	47 110 117	207.5	–	–
Movitec V 32	11	13	18.5	..018K50..	40.5 / 23.4	–	–	47 110 118	209.8	–	–
Movitec V 32	12	13	22	..022K00..	44.5 / 25.7	–	–	47 110 119	247.9	–	–
Movitec V 45	1-1	13	2.2	..002K20..	10.4 / 6.0	–	–	47 110 140	61.9	–	–
Movitec V 45	1	13	4	..004K00..	9.0 / 5.2	–	–	47 110 141	80.0	–	–
Movitec V 45	2-1	13	5.5	..005K50..	12.0 / 6.9	–	–	47 110 142	88.3	–	–
Movitec V 45	2	13	7.5	..007K50..	15.5 / 8.9	–	–	47 110 143	92.4	–	–
Movitec V 45	3-1	13	11	..011K00..	30.5 / 17.6	–	–	47 110 144	163.7	–	–
Movitec V 45	3	13	11	..011K00..	30.5 / 17.6	–	–	47 110 145	163.8	–	–
Movitec V 45	4-1	13	11	..011K00..	30.5 / 17.6	–	–	47 110 146	166.1	–	–
Movitec V 45	4	13	15	..015K00..	31.7 / 18.3	–	–	47 110 147	180.1	–	–
Movitec V 45	5-1	13	15	..015K00..	31.7 / 18.3	–	–	47 110 148	182.5	–	–
Movitec V 45	5	13	18.5	..018K50..	40.5 / 23.4	–	–	47 110 149	197.5	–	–
Movitec V 45	6-1	13	18.5	..018K50..	40.5 / 23.4	–	–	47 110 150	199.9	–	–
Movitec V 45	6	13	22	..022K00..	44.5 / 25.7	–	–	47 110 151	235.8	–	–
Movitec V 45	7-1	13	22	..022K00..	44.5 / 25.7	–	–	47 110 152	238.1	–	–
Movitec V 45	7	13	30	..030K00..	56.1 / 32.4	–	–	47 110 153	362.2	–	–
Movitec V 45	8-1	13	30	..030K00..	56.1 / 32.4	–	–	47 110 154	364.5	–	–
Movitec V 45	8	13	30	..030K00..	56.1 / 32.4	–	–	47 110 155	364.6	–	–
Movitec V 45	9-1	13	30	..030K00..	56.1 / 32.4	–	–	47 110 156	366.9	–	–
Movitec V 45	9	13	37	..037K00..	65.5 / 37.8	–	–	47 110 157	367.0	–	–
Movitec V 45	10-1	13	37	..037K00..	65.5 / 37.8	–	–	47 110 158	369.3	–	–
Movitec V 45	10	13	37	..037K00..	65.5 / 37.8	–	–	47 110 159	369.4	–	–
Movitec V 65	1	13	3	..004K00..	7.0 / 4.1	–	–	47 110 176	78.1	–	–
Movitec V 65	2	13	5.5	..005K50..	12.0 / 6.9	–	–	47 110 177	96.5	–	–
Movitec V 65	3	13	11	..011K00..	30.5 / 17.6	–	–	48 894 061	170.0	–	–
Movitec V 65	4	13	11	..011K00..	30.5 / 17.6	–	–	47 110 179	173.5	–	–
Movitec V 65	5	13	15	..015K00..	31.7 / 18.3	–	–	47 110 180	190.9	–	–
Movitec V 65	6	13	15	..015K00..	31.7 / 18.3	–	–	47 110 181	194.3	–	–
Movitec V 65	7	13	18.5	..018K50..	40.5 / 23.4	–	–	47 110 182	212.7	–	–
Movitec V 65	8	13	22	..022K00..	44.5 / 25.7	–	–	47 110 183	252.1	–	–

[1]) Voltage for variable-speed motors generally 3~400 V, currents see type series booklet 4070.5-10

Movitec V with KSB standard motor, fixed/variable-speed [1])
3 kW and above: 3~230/400 V

Size	Number of stages	Shaft seal code	Motor rating	Pump Drive [1])	Max. current Fixed-speed pump	Oval flange Movitec V Fixed-speed pump		Round flange Movitec VF Fixed-speed pump		Victaulic coupling Movitec VV Fixed-speed pump	
			kW	Type	I_{max} in A	Ident. No.	kg	Ident. No.	kg	Ident. No.	kg
4-pole											
Movitec V 24	6	13	3	..004K00..	14.0 / 8.1	–	–	47 110 063	82.5	–	–
Movitec V 24	7	13	3	..004K00..	14.0 / 8.1	–	–	47 110 064	84.9	–	–
Movitec V 24	8	13	4	..004K00..	17.2 / 9.9	–	–	47 110 065	94.2	–	–
Movitec V 24	9	13	4	..004K00..	17.2 / 9.9	–	–	47 110 066	96.6	–	–
Movitec V 24	10	13	5.5	..005K50..	20.8 / 12.0	–	–	47 110 067	115.5	–	–
Movitec V 24	11	13	5.5	..005K50..	20.8 / 12.0	–	–	47 110 068	117.8	–	–
Movitec V 24	12	13	5.5	..005K50..	20.8 / 12.0	–	–	47 110 069	120.2	–	–
Movitec V 24	16	13	7.5	..007K50..	27.7 / 16.0	–	–	47 110 070	138.1	–	–
2-pole											
Movitec V 32	2	13	4	..004K00..	15.6 / 9.0	–	–	47 110 097	81.1	–	–
Movitec V 32	3	13	5.5	..005K50..	20.8 / 12.0	–	–	47 110 098	89.5	–	–
Movitec V 32	4	13	7.5	..007K50..	26.8 / 15.5	–	–	47 110 099	95.8	–	–
Movitec V 32	5	13	11	..011K00..	52.8 / 30.5	–	–	47 110 100	167.1	–	–
Movitec V 32	6	13	11	..011K00..	52.8 / 30.5	–	–	47 110 101	169.4	–	–
Movitec V 32	7	13	15	..015K00..	54.9 / 31.7	–	–	47 110 102	185.7	–	–
Movitec V 32	8	13	15	..015K00..	54.9 / 31.7	–	–	47 110 103	188.0	–	–
Movitec V 32	9	13	18.5	..018K50..	54.9 / 31.7	–	–	48 894 050	205.0	–	–
Movitec V 32	10	13	18.5	..018K50..	70.1 / 40.5	–	–	47 110 105	207.5	–	–
Movitec V 32	11	13	18.5	..018K50..	70.1 / 40.5	–	–	47 110 106	209.8	–	–
Movitec V 32	12	13	22	..022K00..	77.1 / 44.5	–	–	47 110 107	247.9	–	–
Movitec V 45	1	13	4	..004K00..	15.6 / 9.0	–	–	47 110 128	80.0	–	–
Movitec V 45	2-1	13	5.5	..005K50..	20.8 / 12.0	–	–	47 110 129	88.3	–	–
Movitec V 45	2	13	7.5	..007K50..	26.8 / 15.5	–	–	47 110 130	92.4	–	–
Movitec V 45	3-1	13	11	..011K00..	52.8 / 30.5	–	–	47 110 131	163.7	–	–
Movitec V 45	3	13	11	..011K00..	52.8 / 30.5	–	–	47 110 132	163.8	–	–
Movitec V 45	4-1	13	11	..011K00..	52.8 / 30.5	–	–	47 110 133	166.1	–	–
Movitec V 45	4	13	15	..015K00..	54.9 / 31.7	–	–	47 110 134	180.1	–	–
Movitec V 45	5-1	13	15	..015K00..	54.9 / 31.7	–	–	47 110 135	182.5	–	–
Movitec V 45	5	13	18.5	..018K50..	70.1 / 40.5	–	–	47 110 136	197.5	–	–
Movitec V 45	6-1	13	18.5	..018K50..	70.1 / 40.5	–	–	47 110 137	199.9	–	–
Movitec V 45	6	13	22	..022K00..	77.1 / 44.5	–	–	47 110 138	235.8	–	–
Movitec V 45	7-1	13	22	..022K00..	77.1 / 44.5	–	–	47 110 139	238.1	–	–
Movitec V 65	1	13	3	..003K00..	12.1 / 7.0	–	–	47 110 167	78.1	–	–
Movitec V 65	2	13	5.5	..005K50..	20.8 / 12.0	–	–	47 110 168	96.5	–	–
Movitec V 65	3	13	11	..011K00..	52.8 / 30.5	–	–	48 894 060	170.0	–	–
Movitec V 65	4	13	11	..011K00..	52.8 / 30.5	–	–	47 110 170	173.5	–	–
Movitec V 65	5	13	15	..015K00..	54.9 / 31.7	–	–	47 110 171	190.9	–	–
Movitec V 65	6	13	15	..015K00..	54.9 / 31.7	–	–	47 110 172	194.3	–	–
Movitec V 65	7	13	18.5	..018K50..	70.1 / 40.5	–	–	47 110 173	212.7	–	–
Movitec V 65	8	13	22	..022K00..	77.1 / 44.5	–	–	47 110 174	252.1	–	–
Movitec V 65	9	13	30	..030K00..	77.1 / 44.5	–	–	48 894 072	329.0	–	–

*) Available as variant (Factory Option)

[1]) Voltage for variable-speed motors generally 3~400 V, currents see type series booklet 4070.5-10

Movitec VS with KSB standard motor, fixed/variable-speed [1])
3~230/400 V up to 2.2 kW, 3 kW and above: 3~400/692 V

Size	Number of stages	Shaft seal code	Motor rating	Pump Drive [1])	Max. current Fixed-speed pump	Oval flange Movitec VS Fixed-speed pump		Round flange Movitec VSF Fixed-speed pump		Victaulic coupling Movitec VSV Fixed-speed pump	
			kW	Type	I_{max} in A	Ident. No.	kg	Ident. No.	kg	Ident. No.	kg
4-pole											
Movitec VS 24	1	14	1.1	..001K10..	5.2 / 3.0	–	–	47 110 637	57.8	–	–
Movitec VS 24	2	14	1.1	..001K10..	5.2 / 3.0	–	–	47 110 638	60.1	–	–
Movitec VS 24	3	14	1.5	..001K50..	7.1 / 4.1	–	–	47 110 639	64.5	–	–
Movitec VS 24	4	14	2.2	..002K20..	9.0 / 5.2	–	–	47 110 640	73.8	–	–
Movitec VS 24	5	14	2.2	..002K20..	9.0 / 5.2	–	–	47 110 641	76.2	–	–
Movitec VS 24	6	14	3	..004K00..	8.1 / 4.7	–	–	47 110 642	82.5	–	–
Movitec VS 24	7	14	3	..004K00..	8.1 / 4.7	–	–	47 110 643	84.9	–	–
Movitec VS 24	8	14	4	..004K00..	9.9 / 5.7	–	–	47 110 644	94.2	–	–
Movitec VS 24	9	14	4	..004K00..	9.9 / 5.7	–	–	47 110 645	96.6	–	–
Movitec VS 24	10	14	5.5	..005K50..	12.0 / 6.9	–	–	47 110 646	115.5	–	–
Movitec VS 24	11	14	5.5	..005K50..	12.0 / 6.9	–	–	47 110 647	117.8	–	–
Movitec VS 24	12	14	5.5	..005K50..	12.0 / 6.9	–	–	47 110 648	120.2	–	–
Movitec VS 24	16	14	7.5	..007K50..	16.0 / 9.2	–	–	47 110 649	138.1	–	–
2-pole											
Movitec VS 32	1	14	2.2	..002K20..	10.4 / 6.0	–	–	47 110 674	60.9	–	–
Movitec VS 32	2	14	4	..004K00..	9.0 / 5.2	–	–	47 110 675	81.1	–	–
Movitec VS 32	3	14	5.5	..005K50..	12.0 / 6.9	–	–	47 110 676	89.5	–	–
Movitec VS 32	4	14	7.5	..007K50..	15.5 / 8.9	–	–	47 110 677	95.8	–	–
Movitec VS 32	5	14	11	..011K00..	30.5 / 17.6	–	–	47 110 678	167.1	–	–
Movitec VS 32	6	14	11	..011K00..	30.5 / 17.6	–	–	47 110 679	169.4	–	–
Movitec VS 32	7	14	15	..015K00..	31.7 / 18.3	–	–	47 110 680	185.7	–	–
Movitec VS 32	8	14	15	..015K00..	31.7 / 18.3	–	–	47 110 681	188.0	–	–
Movitec VS 32	9	14	18.5	..018K50..	40.5 / 23.4	–	–	48 894 053	205.0	–	–
Movitec VS 32	10	14	18.5	..018K50..	40.5 / 23.4	–	–	47 110 683	207.5	–	–
Movitec VS 32	11	14	18.5	..018K50..	40.5 / 23.4	–	–	47 110 684	209.8	–	–
Movitec VS 32	12	14	22	..022K00..	44.5 / 25.7	–	–	47 110 685	247.9	–	–
Movitec VS 45	1-1	14	2.2	..002K20..	10.4 / 6.0	–	–	47 110 705	61.9	–	–
Movitec VS 45	1	14	4	..004K00..	9.0 / 5.2	–	–	47 110 706	80.0	–	–
Movitec VS 45	2-1	14	5.5	..005K50..	12.0 / 6.9	–	–	47 110 707	88.3	–	–
Movitec VS 45	2	14	7.5	..007K50..	15.5 / 8.9	–	–	47 110 708	92.4	–	–
Movitec VS 45	3-1	14	11	..011K00..	30.5 / 17.6	–	–	47 110 709	163.7	–	–
Movitec VS 45	3	14	11	..011K00..	30.5 / 17.6	–	–	47 110 710	163.8	–	–
Movitec VS 45	4-1	14	11	..011K00..	30.5 / 17.6	–	–	47 110 711	166.1	–	–
Movitec VS 45	4	14	15	..015K00..	31.7 / 18.3	–	–	47 110 712	180.1	–	–
Movitec VS 45	5-1	14	15	..015K00..	31.7 / 18.3	–	–	47 110 713	182.5	–	–
Movitec VS 45	5	14	18.5	..018K50..	40.5 / 23.4	–	–	47 110 714	197.5	–	–
Movitec VS 45	6-1	14	18.5	..018K50..	40.5 / 23.4	–	–	47 110 715	199.9	–	–
Movitec VS 45	6	14	22	..022K00..	44.5 / 25.7	–	–	47 110 716	235.8	–	–
Movitec VS 45	7-1	14	22	..022K00..	44.5 / 25.7	–	–	47 110 717	238.1	–	–
Movitec VS 45	7	14	30	..030K00..	56.1 / 32.4	–	–	47 110 718	362.2	–	–
Movitec VS 45	8-1	14	30	..030K00..	56.1 / 32.4	–	–	47 110 719	364.5	–	–
Movitec VS 45	8	14	30	..030K00..	56.1 / 32.4	–	–	47 110 720	364.6	–	–
Movitec VS 45	9-1	14	30	..030K00..	56.1 / 32.4	–	–	47 110 721	366.9	–	–
Movitec VS 45	9	14	37	..037K00..	65.5 / 37.8	–	–	47 110 722	367.0	–	–
Movitec VS 45	10-1	14	37	..037K00..	65.5 / 37.8	–	–	47 110 723	369.3	–	–
Movitec VS 45	10	14	37	..037K00..	65.5 / 37.8	–	–	47 110 724	369.4	–	–
Movitec VS 65	1	14	3	..004K00..	7.0 / 4.1	–	–	47 110 741	78.1	–	–
Movitec VS 65	2	14	5.5	..005K50..	12.0 / 6.9	–	–	47 110 742	96.5	–	–
Movitec VS 65	3	14	11	..011K00..	30.5 / 17.6	–	–	48 894 063	170.0	–	–
Movitec VS 65	4	14	11	..011K00..	30.5 / 17.6	–	–	47 110 744	173.5	–	–
Movitec VS 65	5	14	15	..015K00..	31.7 / 18.3	–	–	47 110 745	190.9	–	–
Movitec VS 65	6	14	15	..015K00..	31.7 / 18.3	–	–	47 110 746	194.3	–	–
Movitec VS 65	7	14	18.5	..018K50..	40.5 / 23.4	–	–	47 110 747	212.7	–	–
Movitec VS 65	8	14	22	..022K00..	44.5 / 25.7	–	–	47 110 748	252.1	–	–
Movitec VS 65	9	14	30	..030K00..	56.1 / 32.4	–	–	47 110 749	255.5	–	–

[1]) Voltage for variable-speed motors generally 3~400 V, currents see type series booklet 4070.5-10

Movitec VS with KSB standard motor, fixed/variable-speed [1])
3 kW and above: 3~230/400 V

Size	Number of stages	Shaft seal code	Motor rating	Pump Drive [1])	Max. current Fixed-speed pump	Oval flange Movitec VS Fixed-speed pump		Round flange Movitec VSF Fixed-speed pump		Victaulic coupling Movitec VSV Fixed-speed pump	
			kW	Type	I_{max} in A	Ident. No.	kg	Ident. No.	kg	Ident. No.	kg
4-pole											
Movitec VS 24	6	14	3	..004K00..	14.0 / 8.1	–	–	47 110 629	82.5	–	–
Movitec VS 24	7	14	3	..004K00..	14.0 / 8.1	–	–	47 110 630	84.9	–	–
Movitec VS 24	8	14	4	..004K00..	17.2 / 9.9	–	–	47 110 631	94.2	–	–
Movitec VS 24	9	14	4	..004K00..	17.2 / 9.9	–	–	47 110 632	96.6	–	–
Movitec VS 24	10	14	5.5	..005K50..	20.8 / 12.0	–	–	47 110 633	115.5	–	–
Movitec VS 24	11	14	5.5	..005K50..	20.8 / 12.0	–	–	47 110 634	117.8	–	–
Movitec VS 24	12	14	5.5	..005K50..	20.8 / 12.0	–	–	47 110 635	120.2	–	–
Movitec VS 24	16	14	7.5	..007K50..	27.7 / 16.0	–	–	47 110 636	138.1	–	–
2-pole											
Movitec VS 32	2	14	4	..004K00..	15.6 / 9.0	–	–	47 110 663	81.1	–	–
Movitec VS 32	3	14	5.5	..005K50..	20.8 / 12.0	–	–	47 110 664	89.5	–	–
Movitec VS 32	4	14	7.5	..007K50..	26.8 / 15.5	–	–	47 110 665	95.8	–	–
Movitec VS 32	5	14	11	..011K00..	52.8 / 30.5	–	–	47 110 666	167.1	–	–
Movitec VS 32	6	14	11	..011K00..	52.8 / 30.5	–	–	47 110 667	169.4	–	–
Movitec VS 32	7	14	15	..015K00..	54.9 / 31.7	–	–	47 110 668	185.7	–	–
Movitec VS 32	8	14	15	..015K00..	54.9 / 31.7	–	–	47 110 669	188.0	–	–
Movitec VS 32	9	14	18.5	..018K50..	70.1 / 40.5	–	–	48 894 052	205.0	–	–
Movitec VS 32	10	14	18.5	..018K50..	70.1 / 40.5	–	–	47 110 671	207.5	–	–
Movitec VS 32	11	14	18.5	..018K50..	70.1 / 40.5	–	–	47 110 672	209.8	–	–
Movitec VS 32	12	14	22	..022K00..	77.1 / 44.5	–	–	47 110 673	247.9	–	–
Movitec VS 45	1	14	4	..004K00..	15.6 / 9.0	–	–	47 110 693	80.0	–	–
Movitec VS 45	2-1	14	5.5	..005K50..	20.8 / 12.0	–	–	47 110 694	88.3	–	–
Movitec VS 45	2	14	7.5	..007K50..	26.8 / 15.5	–	–	47 110 695	92.4	–	–
Movitec VS 45	3-1	14	11	..011K00..	52.8 / 30.5	–	–	47 110 696	163.7	–	–
Movitec VS 45	3	14	11	..011K00..	52.8 / 30.5	–	–	47 110 697	163.8	–	–
Movitec VS 45	4-1	14	11	..011K00..	52.8 / 30.5	–	–	47 110 698	166.1	–	–
Movitec VS 45	4	14	15	..015K00..	54.9 / 31.7	–	–	47 110 699	180.1	–	–
Movitec VS 45	5-1	14	15	..015K00..	54.9 / 31.7	–	–	47 110 700	182.5	–	–
Movitec VS 45	5	14	18.5	..018K50..	70.1 / 40.5	–	–	47 110 701	197.5	–	–
Movitec VS 45	6-1	14	18.5	..018K50..	70.1 / 40.5	–	–	47 110 702	199.9	–	–
Movitec VS 45	6	14	22	..022K00..	77.1 / 44.5	–	–	47 110 703	235.8	–	–
Movitec VS 45	7-1	14	22	..022K00..	77.1 / 44.5	–	–	47 110 704	238.1	–	–
Movitec VS 65	1	14	3	..003K00..	12.1 / 7.0	–	–	47 110 732	78.1	–	–
Movitec VS 65	2	14	5.5	..005K50..	20.8 / 12.0	–	–	47 110 733	96.5	–	–
Movitec VS 65	3	14	11	..011K00..	52.8 / 30.5	–	–	48 894 062	170.0	–	–
Movitec VS 65	4	14	11	..011K00..	52.8 / 30.5	–	–	47 110 735	173.5	–	–
Movitec VS 65	5	14	15	..015K00..	54.9 / 31.7	–	–	47 110 736	190.9	–	–
Movitec VS 65	6	14	15	..015K00..	54.9 / 31.7	–	–	47 110 737	194.3	–	–
Movitec VS 65	7	14	18.5	..018K50..	70.1 / 40.5	–	–	47 110 738	212.7	–	–
Movitec VS 65	8	14	22	..022K00..	77.1 / 44.5	–	–	47 110 739	252.1	–	–

*) Available as variant (Factory Option)

1) Voltage for variable-speed motors generally 3~400 V, currents see type series booklet 4070.5-10

Movitec LHS with KSB standard motor, fixed/variable-speed [1])
3~400/692 V

Size	Number of stages	Shaft seal code	Motor rating	Pump Drive [1])	Max. current Fixed-speed pump	Round flange Movitec LHS Fixed-speed pump	
			kW	Type	I_{max} in A	Ident. No.	kg
2-pole							
Movitec LHS 6	10	17	5.5	..005K50..	12.0 / 6.9	47 110 756	92.1
Movitec LHS 6	12	17	7.5	..007K50..	15.5 / 8.9	47 110 757	99.1
Movitec LHS 6	14	17	11	..011K00..	30.5 / 17.6	48 894 044	166.0
Movitec LHS 6	16	17	11	..011K00..	30.5 / 17.6	47 110 759	171.2
Movitec LHS 6	18	17	11	..011K00..	30.5 / 17.6	47 110 760	174.2
Movitec LHS 6	20	17	15	..015K00..	31.7 / 18.3	48 894 047	191.0

Movitec LHS with KSB standard motor, fixed/variable-speed [1])
3~230/400 V

Size	Number of stages	Shaft seal code	Motor rating	Pump Drive [1])	Max. current Fixed-speed pump	Round flange Movitec LHS Fixed-speed pump	
			kW	Type	I_{max} in A	Ident. No.	kg
2-pole							
Movitec LHS 6	20	17	15	..015K00..	54.9 / 31.7	48 894 108	191.0

[1]) Voltage for variable-speed motors generally 3~400 V, currents see type series booklet 4070.5-10

Baureihe-Größe / Type-Size / Modèle	Tipo / Serie / Tipo	Nenndrehzahl / Nom. speed / Vitesse nom.	Velocità di rotazione nom. / Nominaal toerental / Revolutiones nom.	Laufrad-ø / Impeller Dia. / Diamètre de roue	ø Girante / ø Waaier / ø Rodete
Movitec V (S) F 24		≈1450 1/min		145 mm	
Projekt / Project / Projet	Progetto / Projekt / Proyecto	Angebots-Nr. / Project No. / No. de l'offre	Offerta-No. / Offertenr. / Offerta-No.	Pos.-Nr. / Item No. / No. de pos.	Pos.-Nr. / Positienr. / Pos.-Nr.

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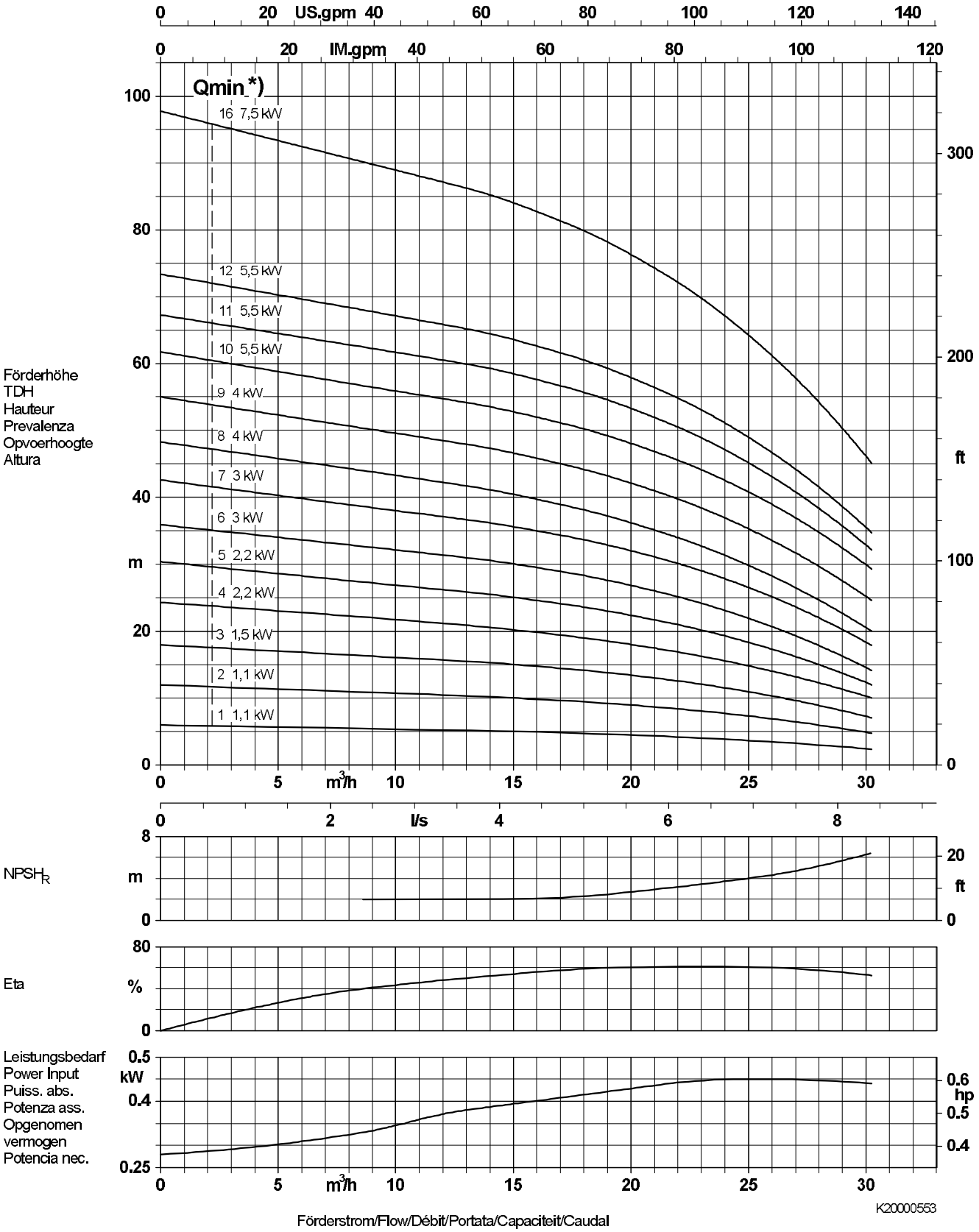
67225 Frankenthal
Johann-Klein-Straße 9
67227 Frankenthal



Förderstrom/Flow/Débit/Portata/Capaciteit/Caudal

*) Qmin up to 40 °C, for temperatures >40 °C refer to the table on page 10

Baureihe-Größe / Type-Size / Modèle	Tipo / Serie / Tipo	Nenndrehzahl / Nom. speed / Vitesse nom.	Velocità di rotazione nom. / Nominaal toerental / Revolutiones nom.	Laufrad-ø / Impeller Dia. / Diamètre de roue	ø Girante / ø Waaier / ø Rodete
Movitec V (S) F 32		≈2900 1/min		132 mm	
Projekt / Project / Projet	Progetto / Projekt / Proyecto	Angebots-Nr. / Project No. / No. de l'offre	Offerta-No. / Offertenr. / Offerta-No.	Pos.-Nr. / Item No. / No. de pos.	Pos.-Nr. / Positienr. / Pos.-Nr.

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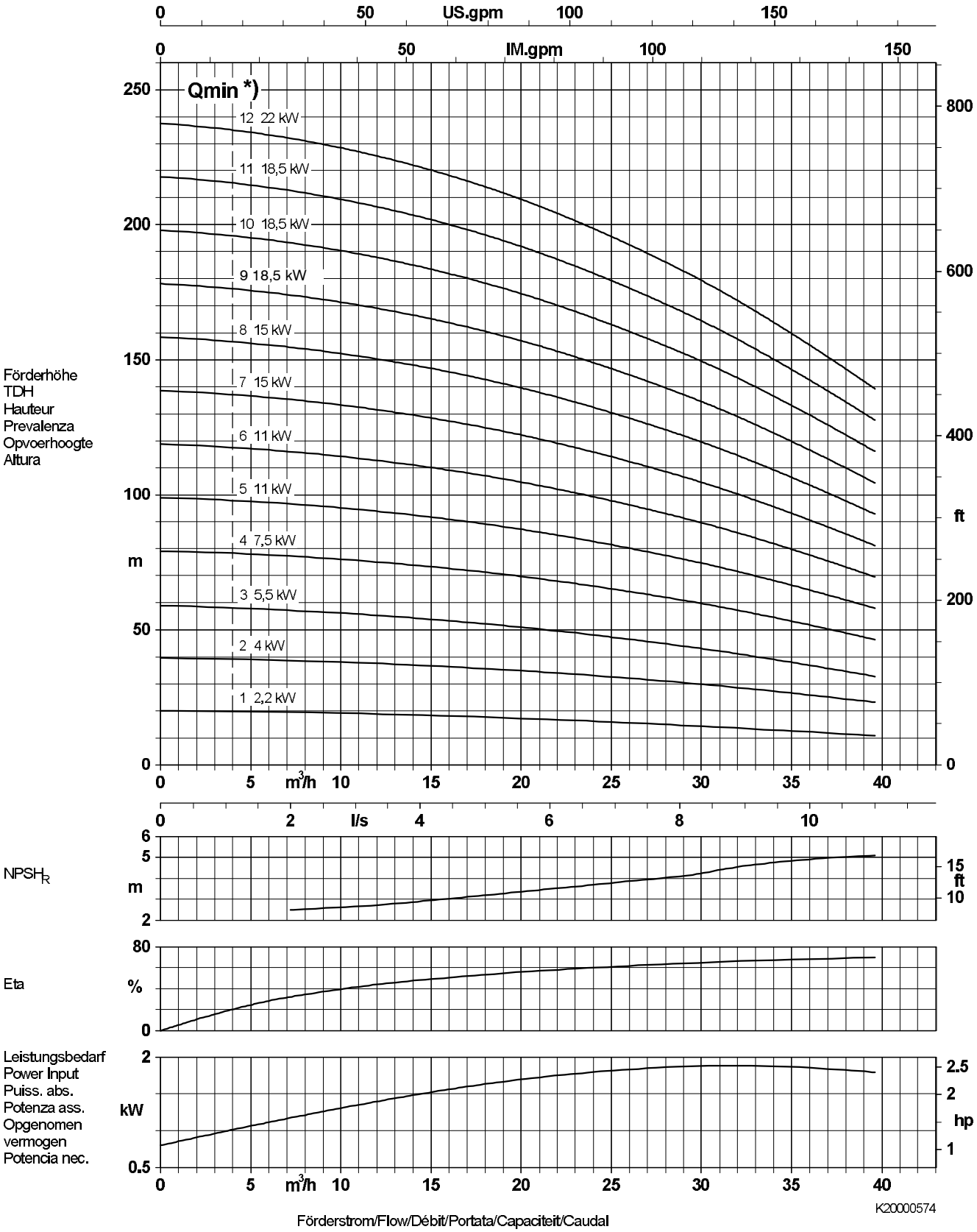

Förderstrom/Flow/Débit/Portata/Capaciteit/Caudal

*) Qmin up to 40 °C, for temperatures >40 °C refer to the table on page 10

Baureihe-Größe / Type-Size / Modèle	Tipo / Serie / Tipo	Nenndrehzahl / Nom. speed / Vitesse nom.	Velocità di rotazione nom. / Nominaal toerental / Revolutiones nom.	Laufrad-ø / Impeller Dia. / Diamètre de roue	ø Girante / ø Waaier / ø Rodete
Movitec V (S) F 45		≈2900 1/min		145 mm	
Projekt / Project / Projet	Progetto / Projekt / Proyecto	Angebots-Nr. / Project No. / No. de l'offre	Offerta-No. / Offertenr. / Offerta-No.	Pos.-Nr. / Item No. / No. de pos.	Pos.-Nr. / Positienr. / Pos.-Nr.

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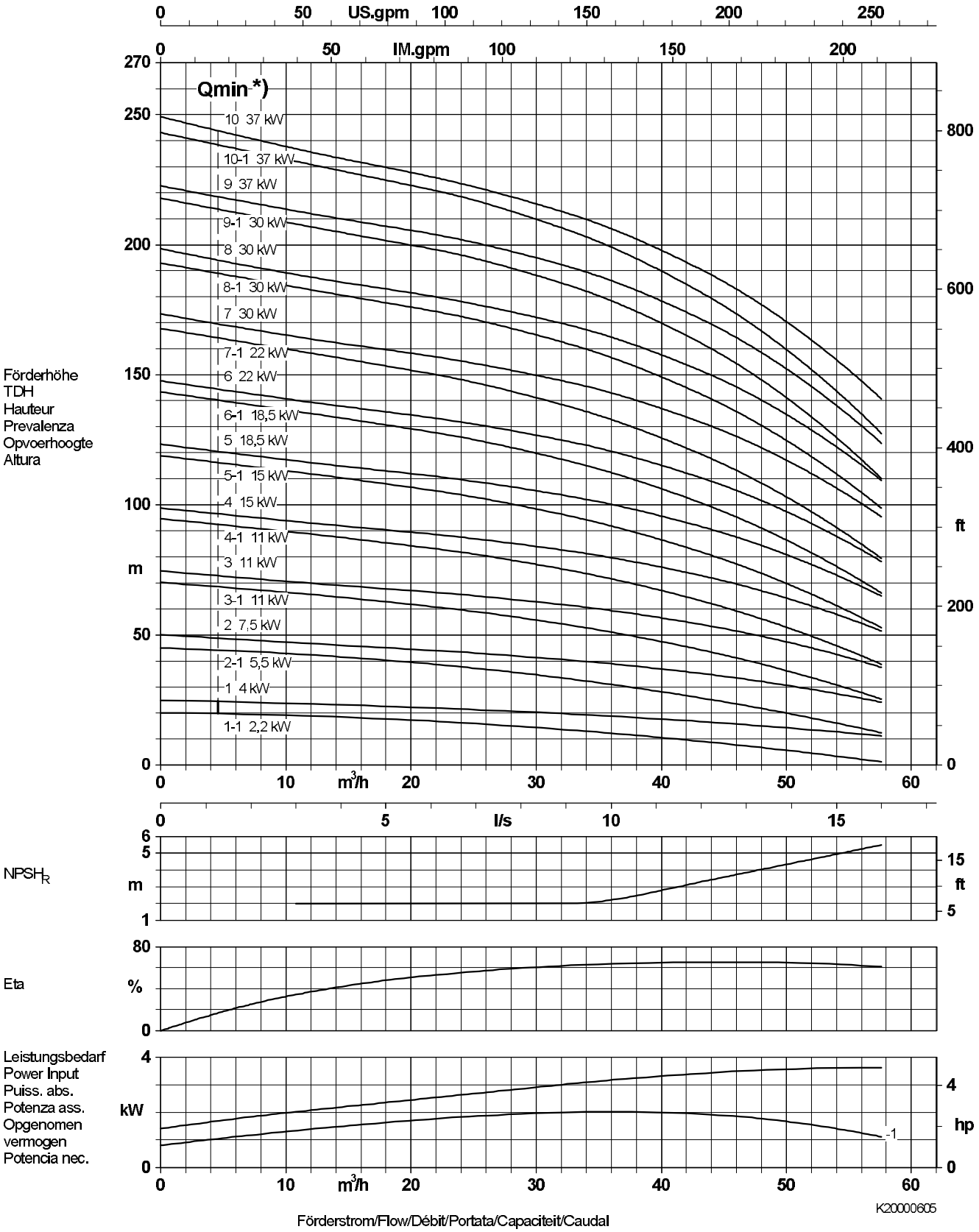

Förderstrom/Flow/Débit/Portata/Capaciteit/Caudal

*) Qmin up to 40 °C, for temperatures >40 °C refer to the table on page 10

Baureihe-Größe / Type-Size / Modèle	Tipo / Serie / Tipo	Nenndrehzahl / Nom. speed / Vitesse nom.	Velocità di rotazione nom. / Nominaal toerental / Revolutiones nom.	Laufrad-ø / Impeller Dia. / Diamètre de roue	ø Girante / ø Waaier / ø Rodete
Movitec V (C/S) F 65		≈2900 1/min		126/131 mm	
Projekt / Project / Projet	Progetto / Projekt / Proyecto	Angebots-Nr. / Project No. / No. de l'offre	Offerta-No. / Offertenr. / Offerta-No.	Pos.-Nr. / Item No. / No. de pos.	Pos.-Nr. / Positienr. / Pos.-Nr.

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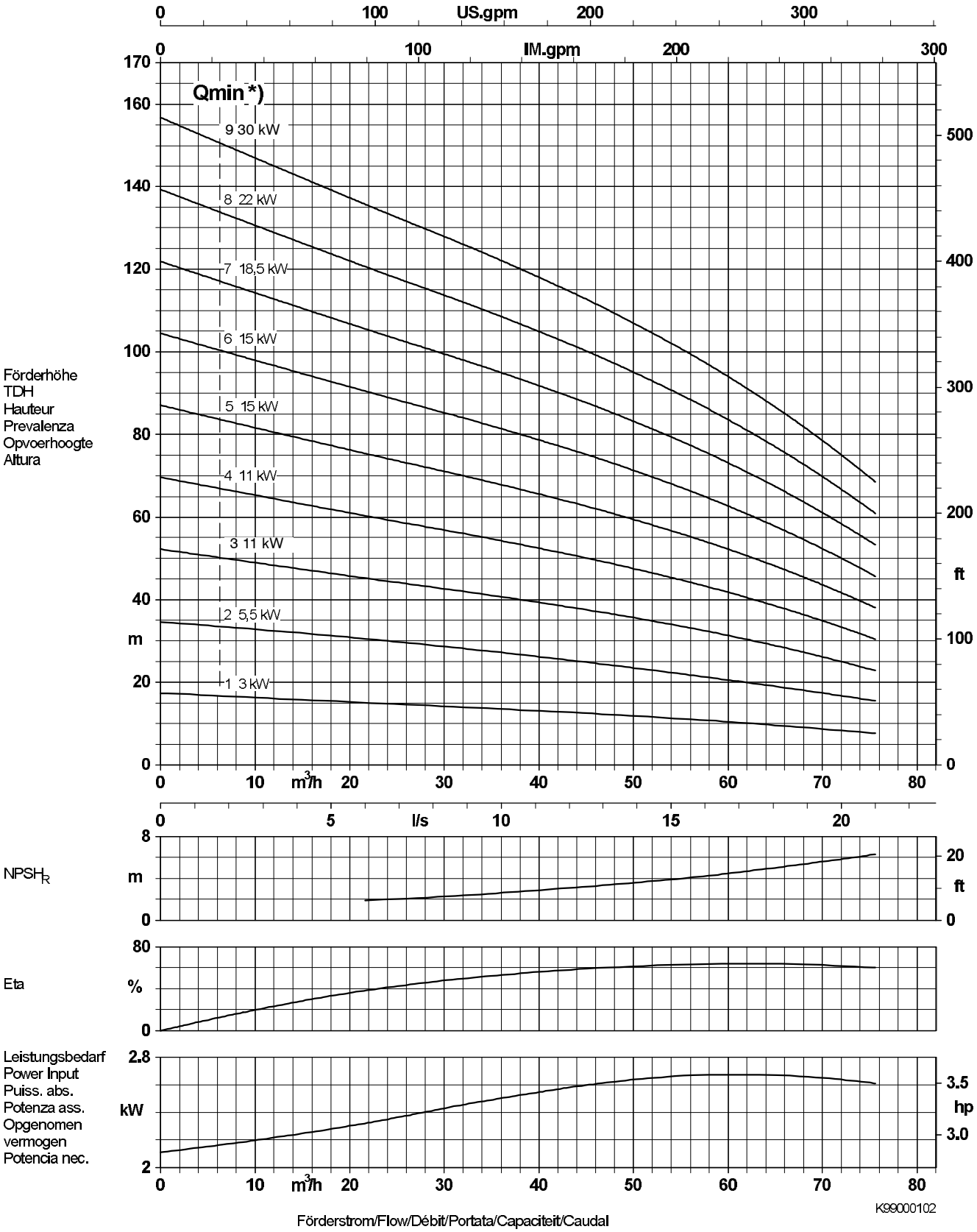

Förderstrom/Flow/Débit/Portata/Capaciteit/Caudal

*) Qmin up to 40 °C, for temperatures >40 °C refer to the table on page 10

Baureihe-Größe / Type-Size / Modèle	Tipo / Serie / Tipo	Nenndrehzahl / Nom. speed / Vitesse nom.	Velocità di rotazione nom. / Nominaal toerental / Revolutiones nom.	Laufrad-ø / Impeller Dia. / Diamètre de roue	ø Girante / ø Waaier / ø Rodete
Movitec LHS 6		≈2900 1/min		131 mm	
Projekt / Project / Projet	Progetto / Projekt / Proyecto	Angebots-Nr. / Project No. / No. de l'offre	Offerta-No. / Offertenr. / Offerta-No.	Pos.-Nr. / Item No. / No. de pos.	Pos.-Nr. / Positienr. / Pos.-Nr.

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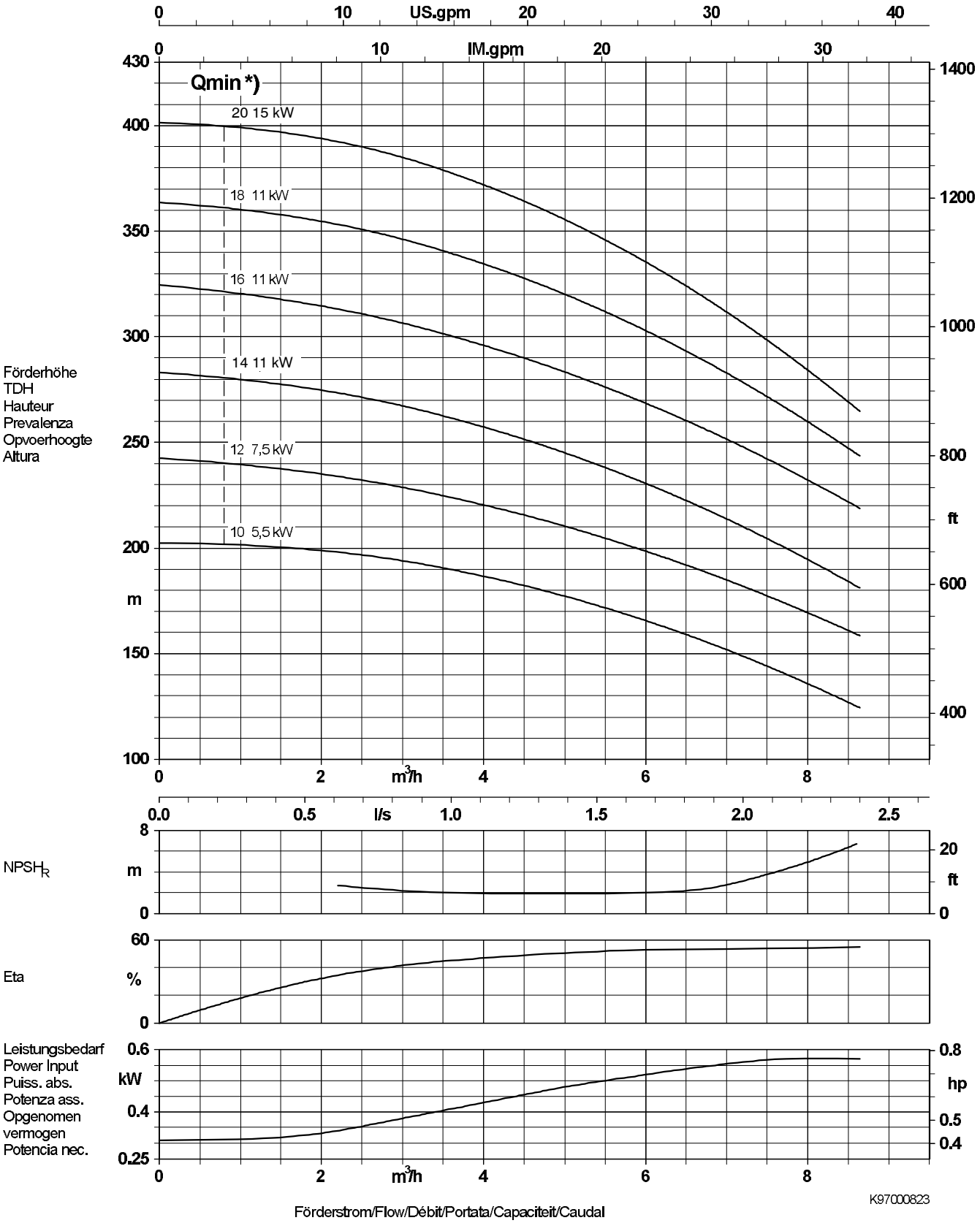
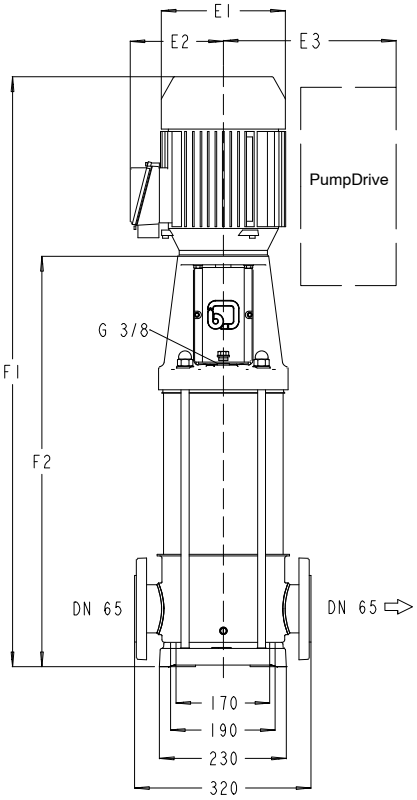
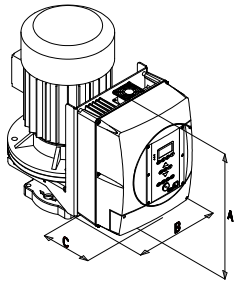


Förderstrom/Flow/Débit/Portata/Capaciteit/Caudal

*) Qmin up to 40 °C, for temperatures >40 °C refer to the table on page 10

Dimensions tables
Movitec VF 24 1450 1/min





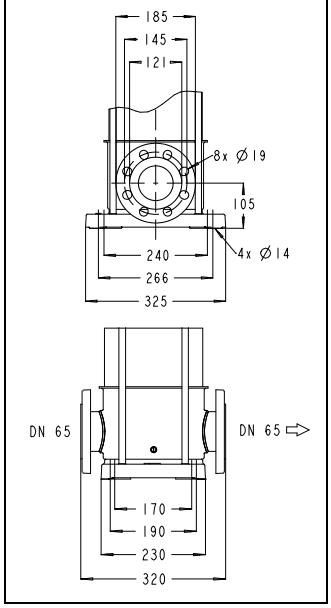
VF 24 Stages PD		E1	E2	E3	F1	F2
1	A	176	136	286	738	458
2	A	176	136	286	786	506
3	A	176	136	286	835	555
4	A	194	147	286	919	603
5	A	194	147	286	968	652
6	B	194	147	286	1016	700
7	B	194	147	286	1065	749
8	B	233	162	305	1121	797
9	B	233	162	305	1170	846
10	B	266	179	328	1297	914
11	B	266	179	328	1346	963
12	B	266	179	328	1394	1011
16	B	266	179	328	1626	1205

PumpDrive Model	Dimensions A	B	C
A	260	190	158
B	325	250	170

Dimensions in mm (details see type series booklet PumpDrive 4070.5)

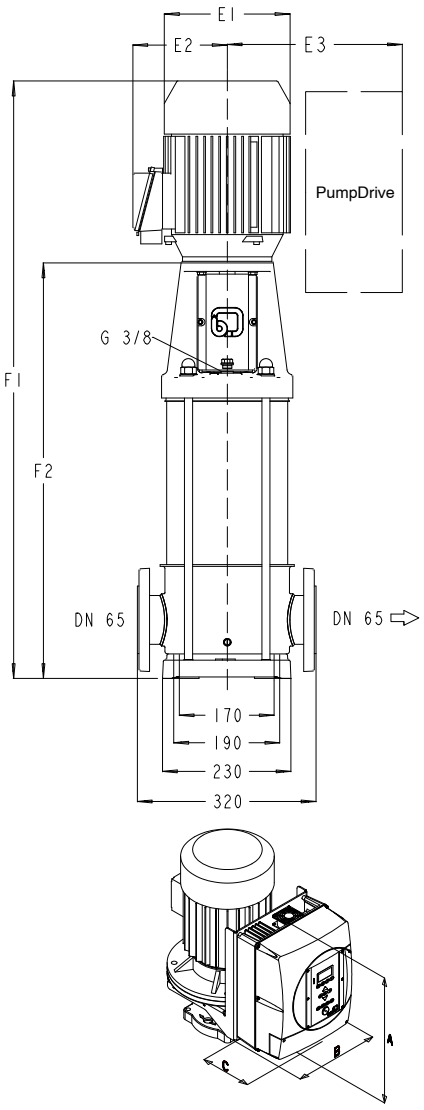
Flange variants

Round flange PN 25
Movitec V(S) F



Position of terminal box for all pump sizes see page 31

Dimensions tables
Movitec VF 32 2900 1/min



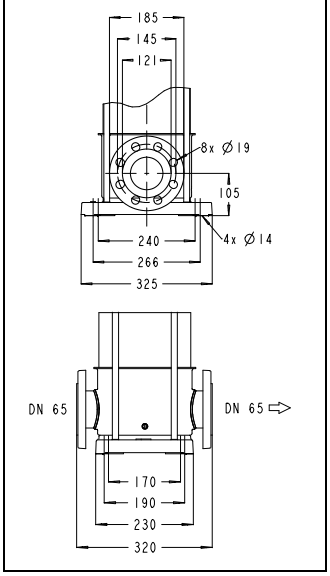
VF 32 Stages PD		E1	E2	E3	F1	F2
1	A	176	136	286	733	458
2	B	233	162	305	830	506
3	B	233	162	328	904	575
4	B	233	162	328	980	623
5	C	315	206	431	1279	777
6	C	315	206	431	1327	825
7	C	315	206	431	1376	874
8	C	315	206	431	1424	922
9	C	315	206	431	1517	971
10	C	315	206	431	1565	1019
11	C	315	206	431	1614	1068
12	C	350	225	431	1711	1116

PumpDrive Model	Dimensions A	B	C
A	260	190	158
B	325	250	170
C	420	320	235

Dimensions in mm (details see type series booklet PumpDrive 4070.5)

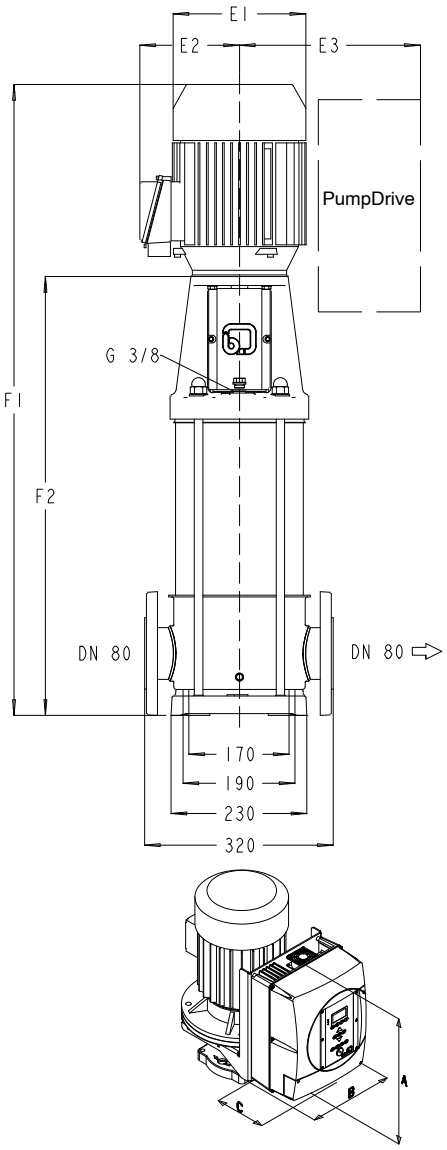
Flange variants

Round flange PN 25
Movitec V(S) F



Position of terminal box for all pump sizes see page 31

Dimensions tables
Movitec VF 45 2900 1/min



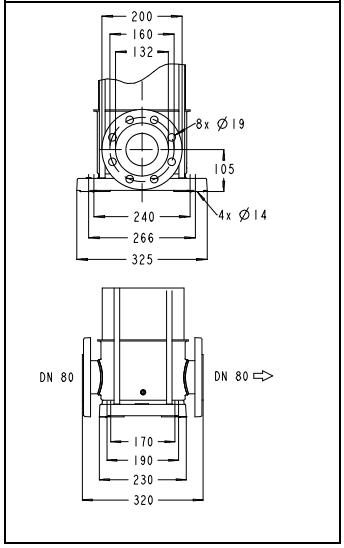
VF 45 Stages PD		E1	E2	E3	F1	F2
1-1	A	176	136	286	733	458
1	B	233	162	305	782	458
2-1	B	233	162	328	855	526
2	B	233	162	328	883	526
3-1	C	315	206	431	1182	680
3	C	315	206	431	1182	680
4-1	C	315	206	431	1230	728
4	C	315	206	431	1230	728
5-1	C	315	206	431	1279	777
5	C	315	206	431	1323	777
6-1	C	315	206	431	1371	825
6	C	350	225	431	1420	825
7-1	C	350	225	431	1469	874
7	D	398	323	518	1524	874
8-1	D	398	323	518	1572	922
8	D	398	323	518	1572	922
9-1	D	398	323	518	1621	971
9	D	398	323	518	1621	971
10-1	D	398	323	518	1669	1019
10	D	398	323	518	1669	1019

PumpDrive Model	Dimensions A	B	C
A	260	190	158
B	325	250	170
C	420	320	235
D	600	450	290

Dimensions in mm (details see type series booklet PumpDrive 4070.5)

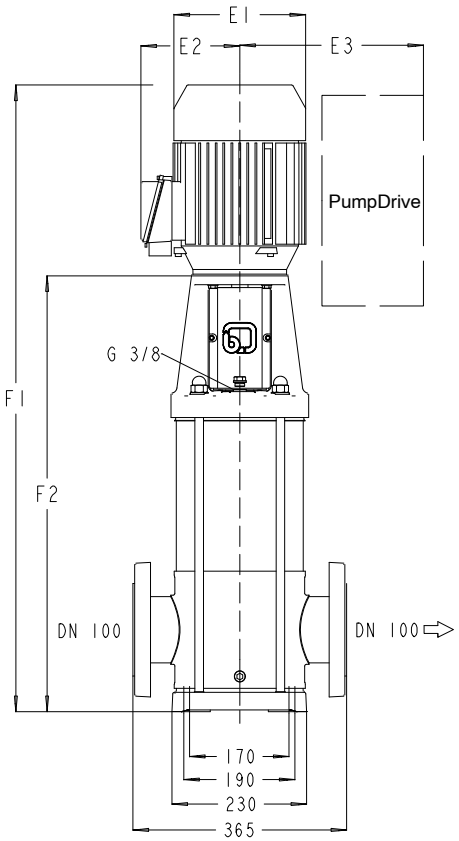
Flange variants

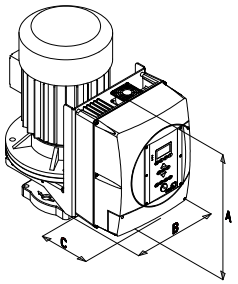
Round flange PN 25
Movitec V(S) F



Position of terminal box for all pump sizes see page 31

Dimensions tables
Movitec VF 65 2900 1/min





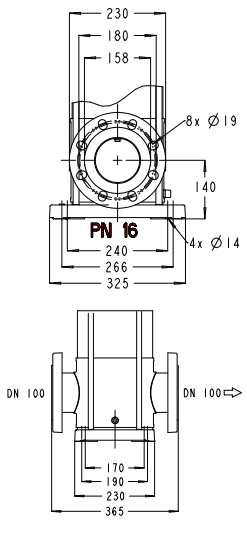
VF 65 Stages PD		E1	E2	E3	Round flange PN 16 F1	F2
1	B	194	147	286	886	570
2	B	233	162	328	1008	679
3	B	233	162	328	1270	768
4	C	315	206	431	1389	887
5	C	315	206	431	1478	976
6	C	315	206	431	1567	1065
7	C	315	206	431	1700	1154
8	C	350	225	431	1838	1243
9	C	350	225	431	1976	1332

PumpDrive Model	Dimensions A	B	C
B	325	250	170
C	420	320	235

Dimensions in mm (details see type series booklet PumpDrive 4070.5)

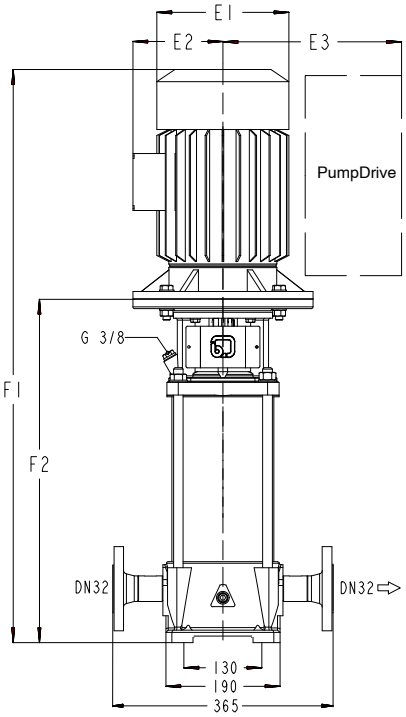
Flange variants

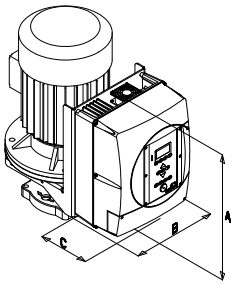
Round flange PN 16



Position of terminal box for all pump sizes see page 31

Dimensions tables
Movitec LHS 6 2900 1/min





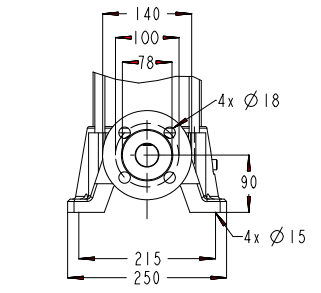
LHS 6 Stages	PD	E1	E2	E3	F1	F2
10	**B**	233	162	328	928	599
12	**B**	233	162	328	1015	658
14	**B**	233	162	328	1250	718
16	**C**	315	206	431	1310	808
18	**C**	315	206	431	1369	867
20	**C**	315	206	431	1429	927

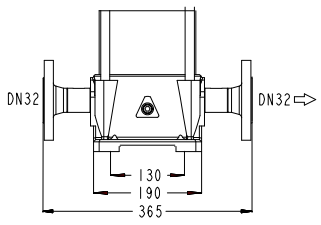
PumpDrive Model	Dimensions A	B	C
B	325	250	170
C	420	320	235

Dimensions in mm (details see type series booklet PumpDrive 4070.5)

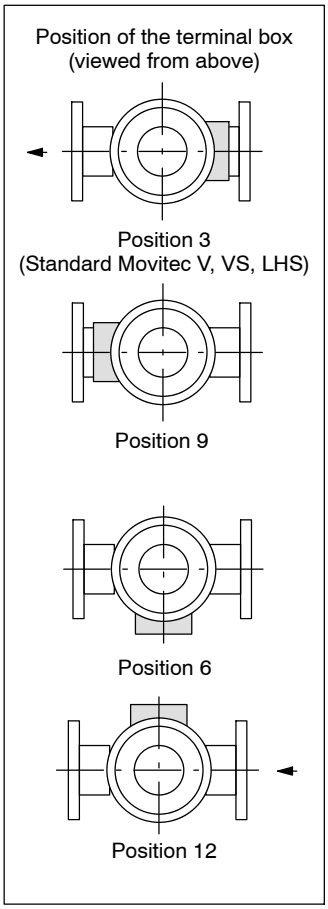
Flange variants

Round flange PN 40

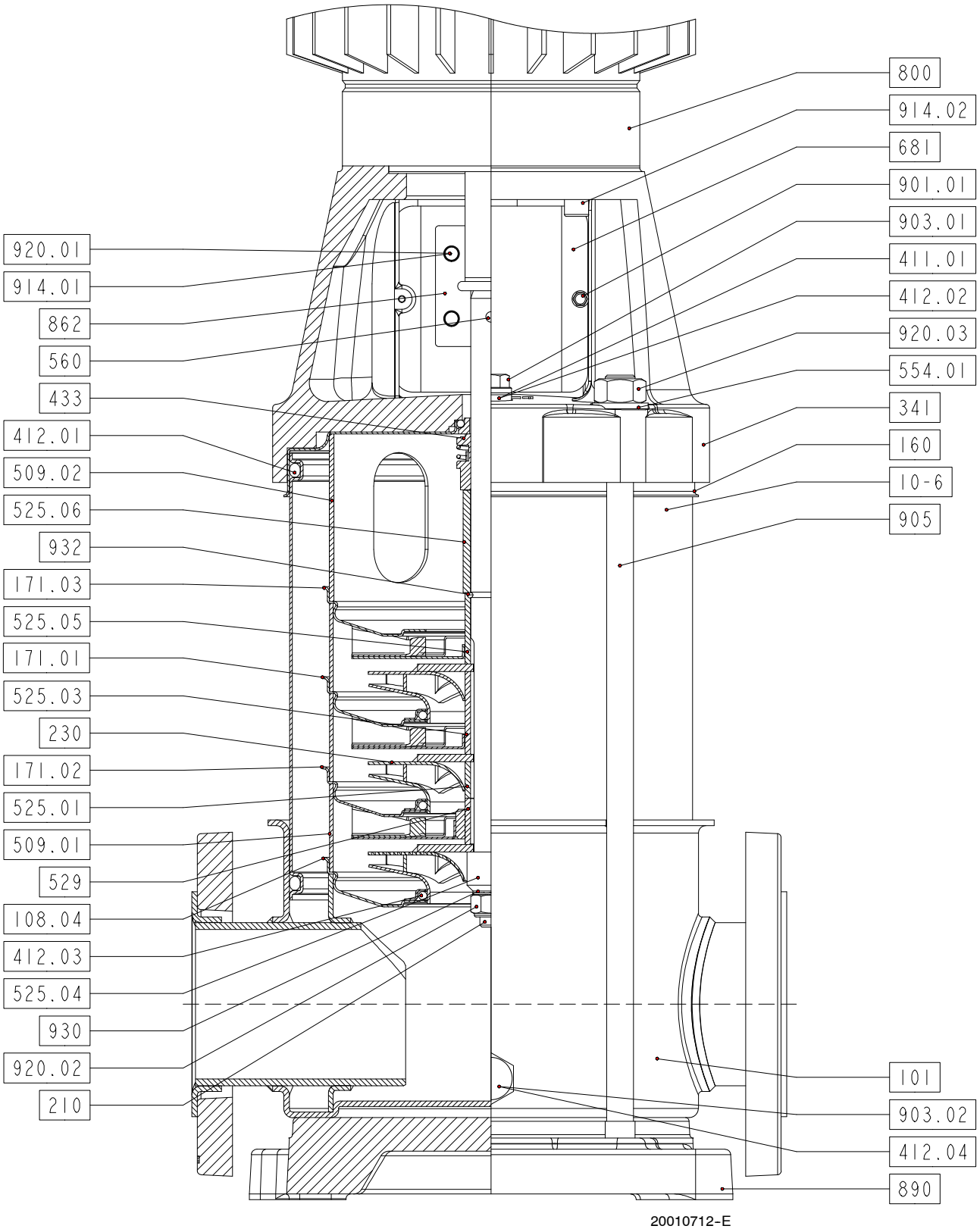




Position of terminal box for all sizes

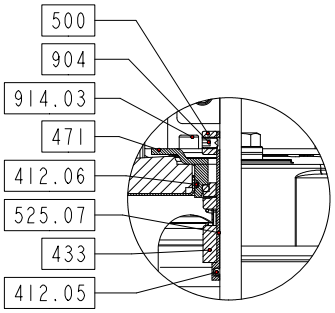


Sectional drawing
Movitec VF 24, 32, 45

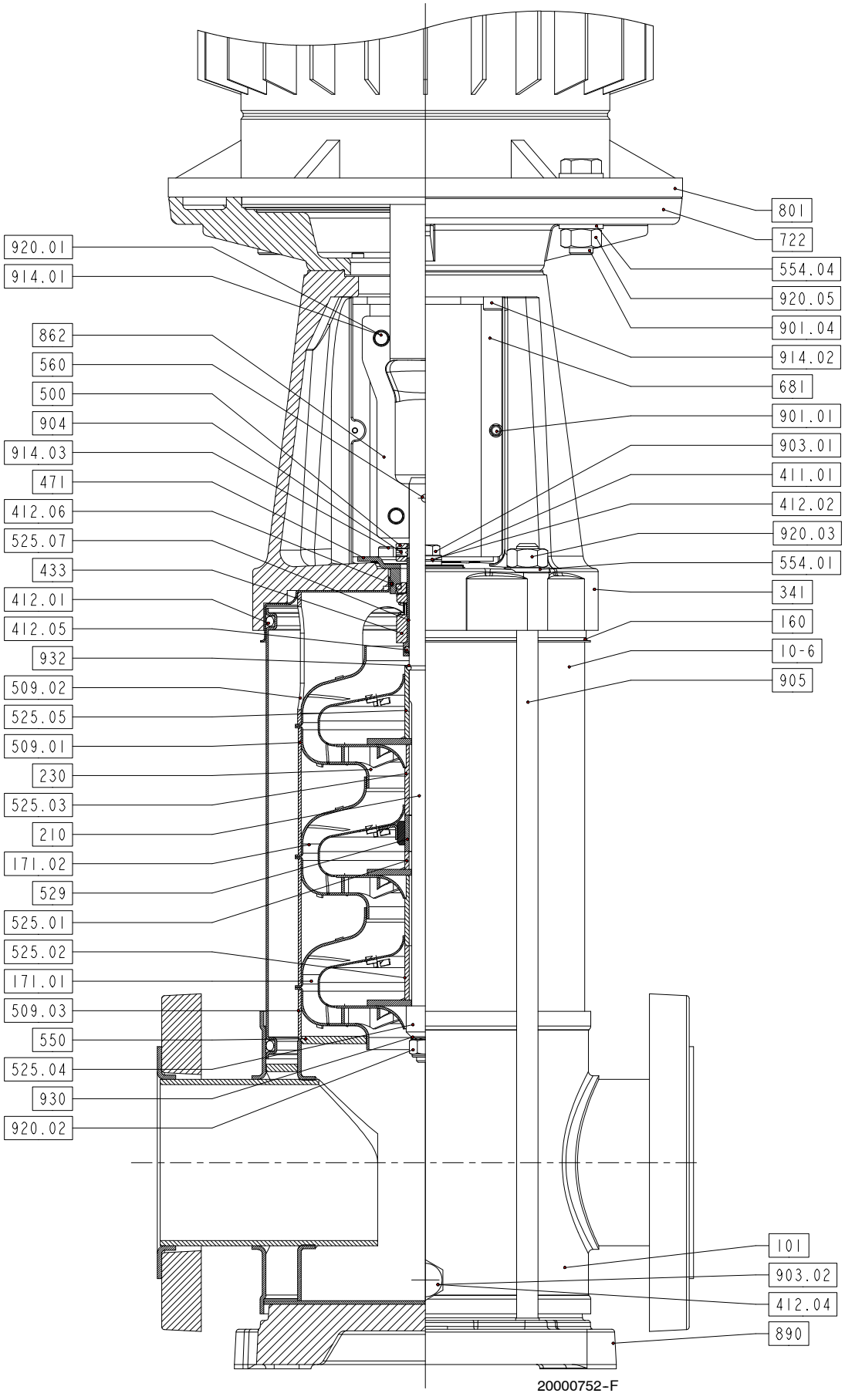


Part No.	Description
10-6	Pump shroud
101	Pump casing
108.04	Stage casing, bottom
160	Cover
171.01	Diffuser
171.02	Diffuser with ceramic bearing
171.03	Diffuser, upper
210	Shaft
230	Impeller (for Movitec VF 24 and 32)
230.01	Impeller (for Movitec VF 45)
230.02	Impeller, half-head (for Movitec VF 45)
341	Motor stool
411.01	Joint ring
412.01	O-ring
412.02	O-ring
412.03	O-ring
412.04	O-ring
412.05	O-ring
412.06	O-ring
433	Mechanical seal
471	Seal cover
500	Ring, cartridge
509.01	Intermediate ring
509.02	Intermediate ring, upper
525.01	Spacer sleeve, short
525.03	Spacer sleeve, long
525.04	Spacer sleeve, end
525.05	Spacer sleeve, seal
525.06	Spacer sleeve, seal extension
525.07	Spacer sleeve, cartridge
529	Bearing sleeve
554.01	Washer
560	Pin
681	Coupling guard
800	Motor ($\geq$ 5.5 kW 801 flanged motor)
862	Coupling shell
890	Baseplate, cast
901.01	Hexagon head bolt
903.01	Screw plug
903.02	Screw plug
904	Grub screw
905	Tie bolt
914.01	Hexagon socket head cap screw
914.02	Hexagon socket head cap screw
914.03	Hexagon socket head cap screw
920.01	Nut
920.02	Impeller nut with non-metal insert
920.03	Nut
930	Safety device
932	Circlip, (1/2)

Detail of cartridge seal

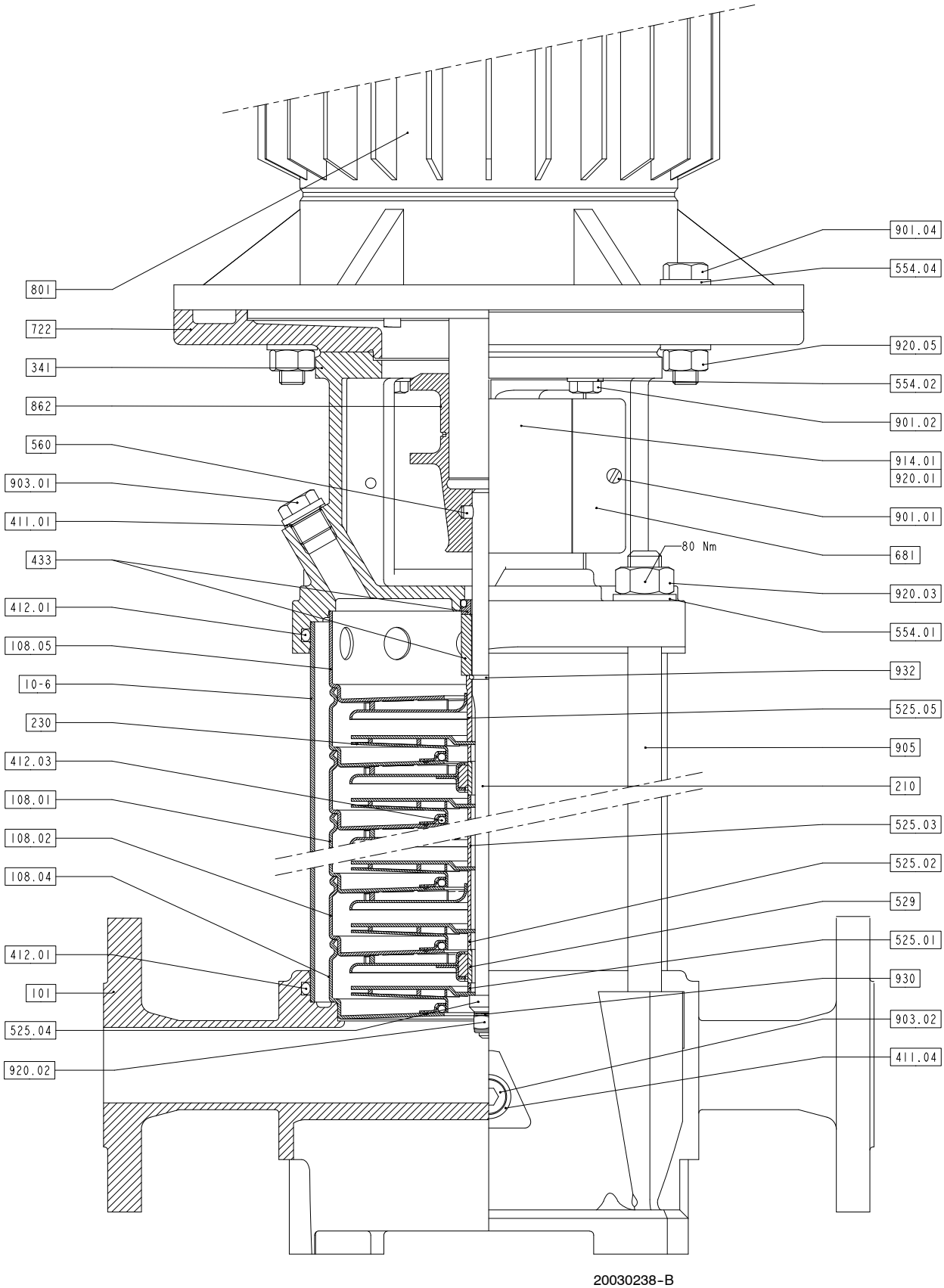


Sectional drawing
Movitec VF 65



Part No.	Description
10-6	Pump shroud
101	Pump casing
160	Cover
171.01	Diffuser
171.02	Diffuser with ceramic bearing
210	Shaft
230	Impeller
341	Motor stool
411.01	Joint ring
412.01	O-ring
412.02	O-ring
412.04	O-ring
412.05	O-ring
412.06	O-ring
433	Mechanical seal
471	Seal cover
500	Ring, cartridge
509.01	Intermediate ring
509.02	Intermediate ring, upper
509.03	Intermediate ring, lower
525.01	Spacer sleeve, short
525.02	Spacer sleeve, middle
525.03	Spacer sleeve, long
525.04	Spacer sleeve, end
525.05	Spacer sleeve, seal
525.07	Spacer sleeve, cartridge
529	Bearing sleeve
550	Disc, lower
554.01	Washer
554.04	Washer
560	Pin
681	Coupling guard
722	Taper piece, flanged
801	Flanged motor
862	Coupling shell
890	Baseplate, cast
901.01	Hexagon head bolt
901.04	Hexagon head bolt
903.01	Screw plug
903.02	Screw plug
904	Grub screw
905	Tie bolt
914.01	Hexagon socket head cap screw
914.02	Hexagon socket head cap screw
914.03	Hexagon socket head cap screw
920.01	Nut
920.02	Impeller nut with non-metal insert
920.03	Nut
920.05	Nut
930	Safety device
932	Circlip, (1/2)

Sectional drawing
Movitec LHS 6



Part No.	Description
10-6	Pump shroud
101	Pump casing
108.01	Stage casing
108.02	Stage casing with ceramic bearing
108.04	Stage casing, lower
108.05	Stage casing, upper
210	Shaft
230	Impeller
341	Motor stool
411.01	Joint ring
411.04	Joint ring
412.01	O-ring
412.03	O-ring
433	Mechanical seal
525.01	Spacer sleeve, short
525.02	Spacer sleeve, middle
525.03	Spacer sleeve, long
525.04	Spacer sleeve, end
525.05	Spacer sleeve, seal
529	Bearing sleeve
554.01	Washer
554.02	Washer
554.04	Washer
560	Pin
681	Coupling guard
722	Taper piece, flanged
801	Motor
862	Coupling shell
901.01	Hexagon head bolt
901.02	Hexagon head bolt
901.04	Hexagon head bolt
903.01	Screw plug
903.02	Screw plug
905	Tie bolt
914.01	Hexagon socket head cap screw
920.01	Nut
920.02	Impeller nut with non-metal insert
920.03	Nut
920.05	Nut
930	Safety device
932	Circlip

1.2.2011

1798.5/5-10

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