

Slurry pump

Here you will find technical documentation for Landia pumps in the form of schematic drawing, service instructions and more.

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- Schematic drawing
- Principal measurements
- Technical data sheet
- Service instruction
- Quickguide



MPTK

- Schematic drawing
- Principal measurements
- Technical data sheet
- Service instruction
- Quickguide



Conversion table

- Conversion table

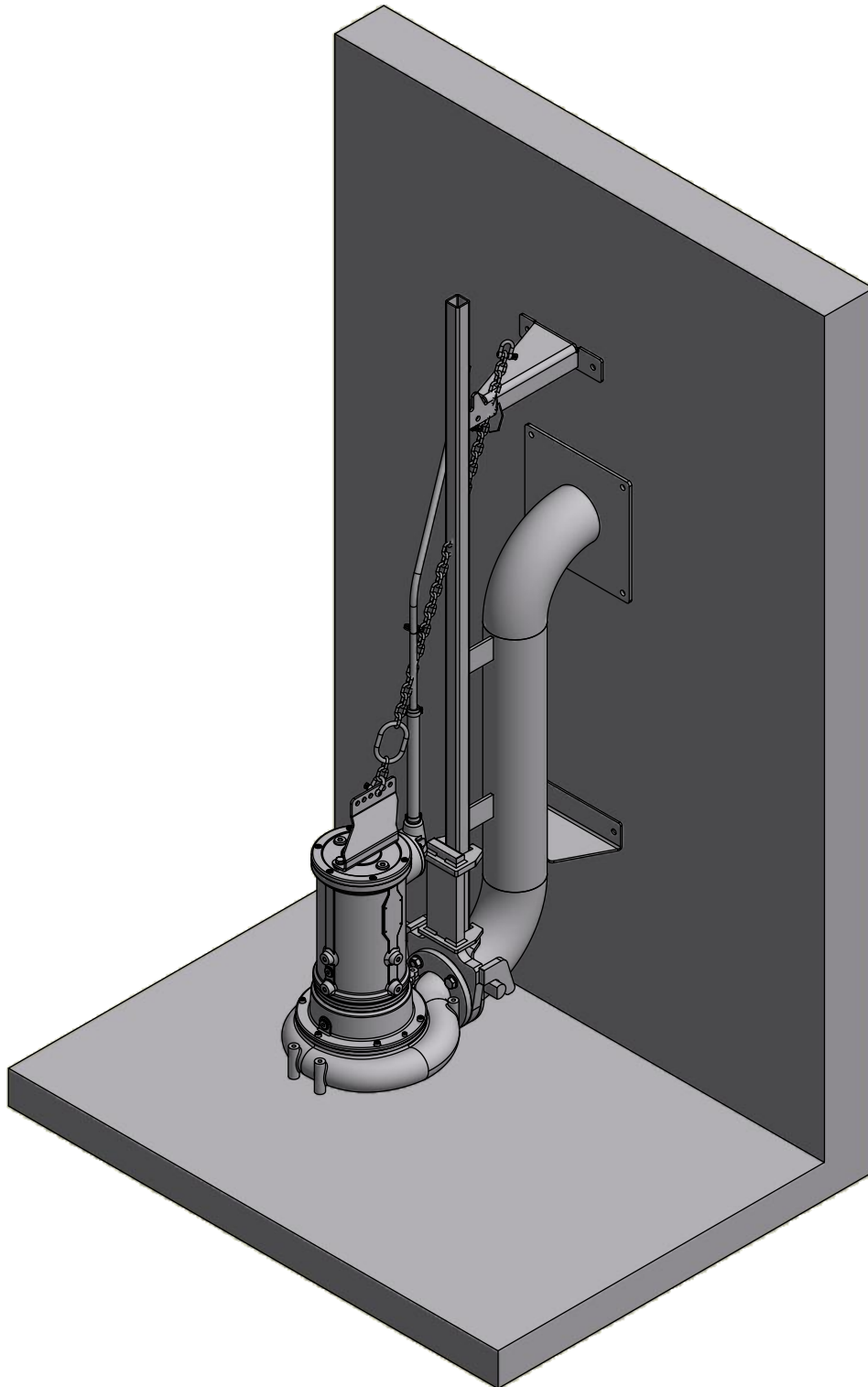
Elektric data

- Elektric data 400V-50 Hz IE1

- Elektric data 400V-50 Hz IE2

- Elektric data 400V-50 Hz IE3

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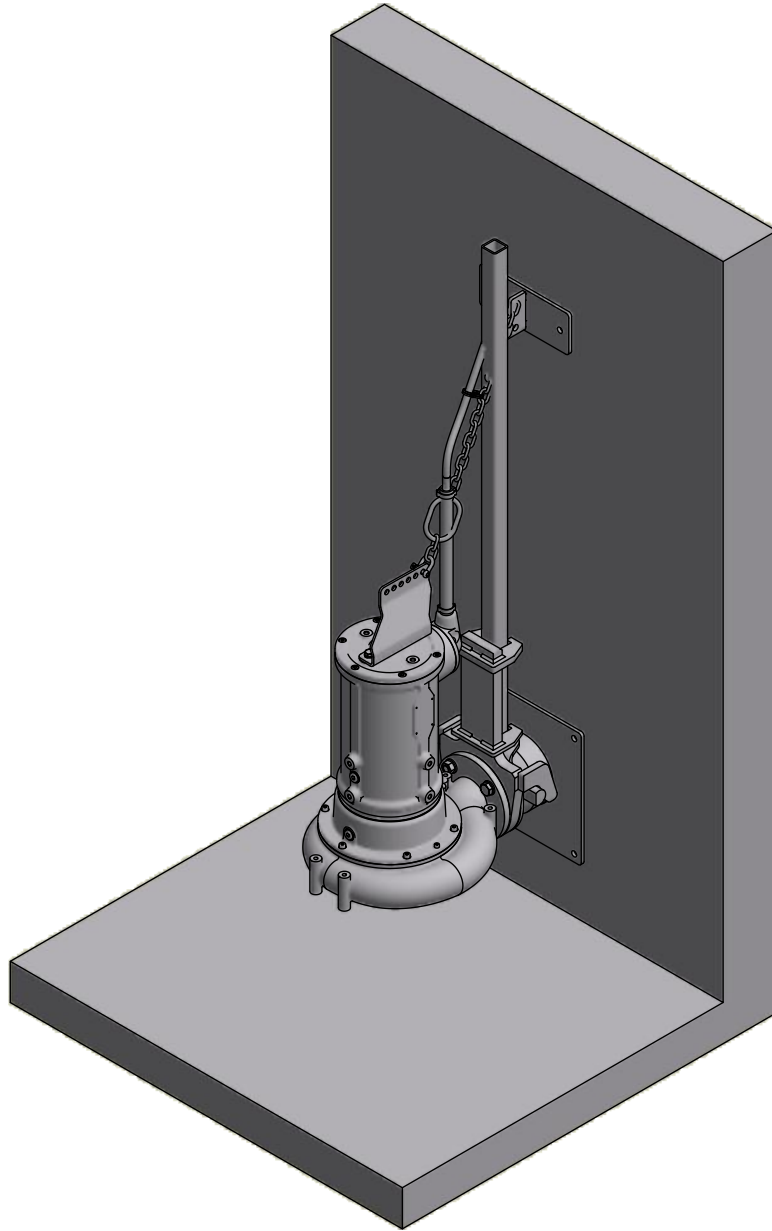
Styret dokument

Landia[®]

DG-opstilling på væg
Forskudt rørgennemføring
Principtegning

Scale:	Sign.:	Date:
1 : 15	CML KSK	20-12-2011
Dwg.no.:		3740883
Revision date: 20-11-2020		

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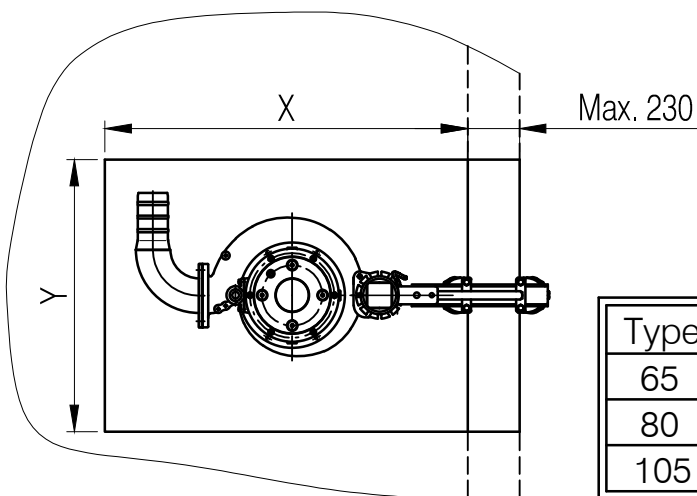
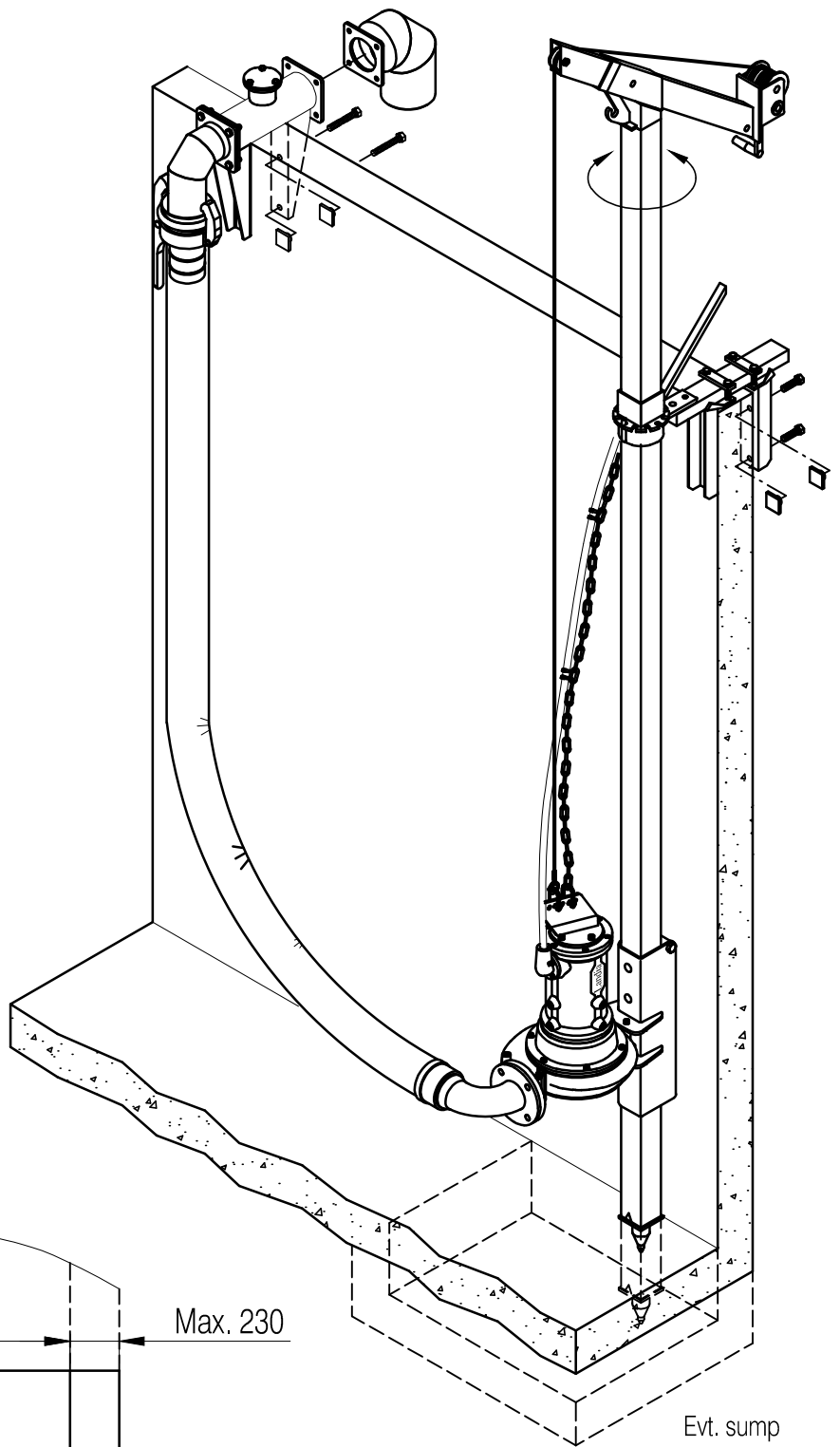


Styret dokument

Landia[®]

DG opstilling, installation
Direkte rørgennemføring
Straight pipe penetration

Scale:	Sign.:	Date:
1:15	HL KSK	19-07-2018
Dwg.no.:		3740651
Revision date: 20-11-2020		



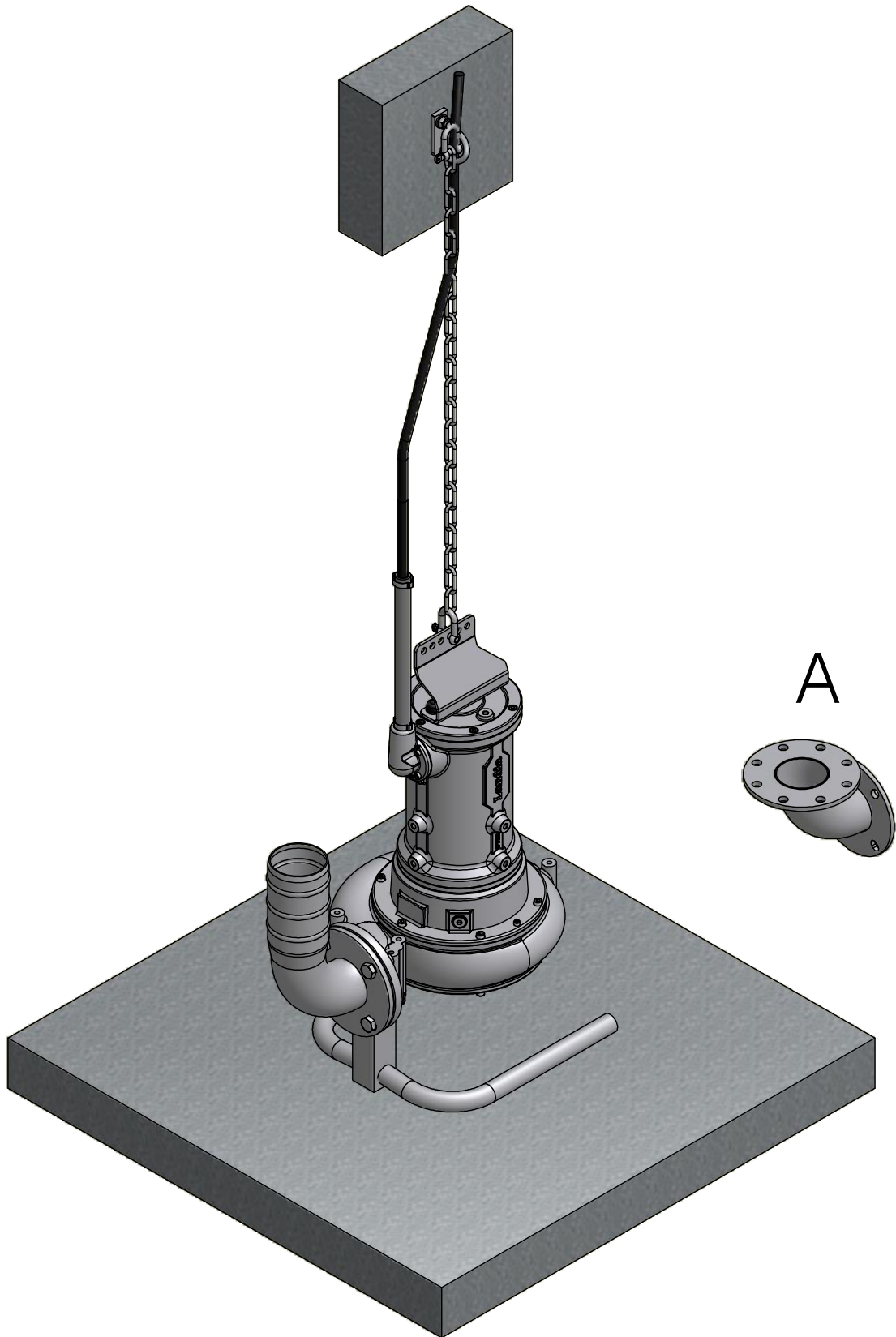
Type	X	Y
65	950	700
80	1050	800
105	1200	900

Styret dokument

Landia

DG opstilling
 DG 65/80/105
 Principtegning

Scale: 1:25	Sign.: HL KSK	Date: 26-06-2002
Dwg.no.:		3740715
Revision date: 11.09.2014		

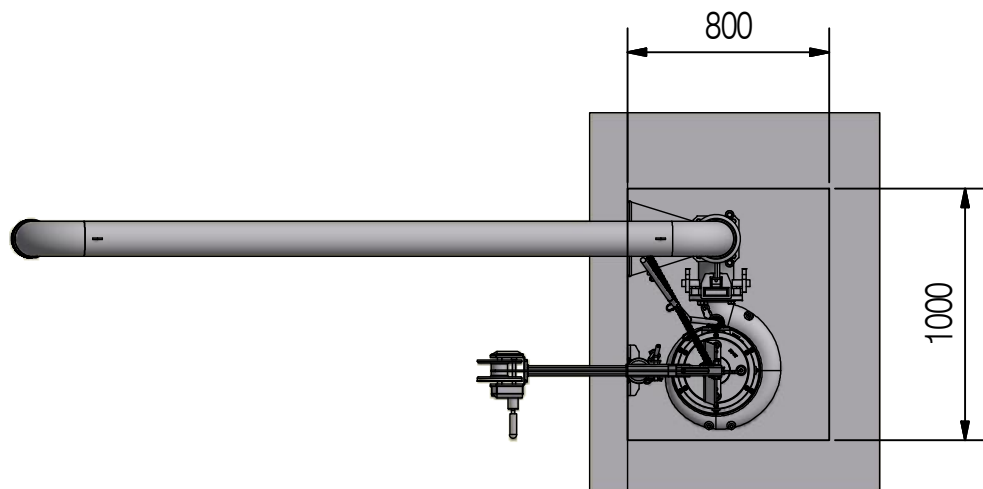
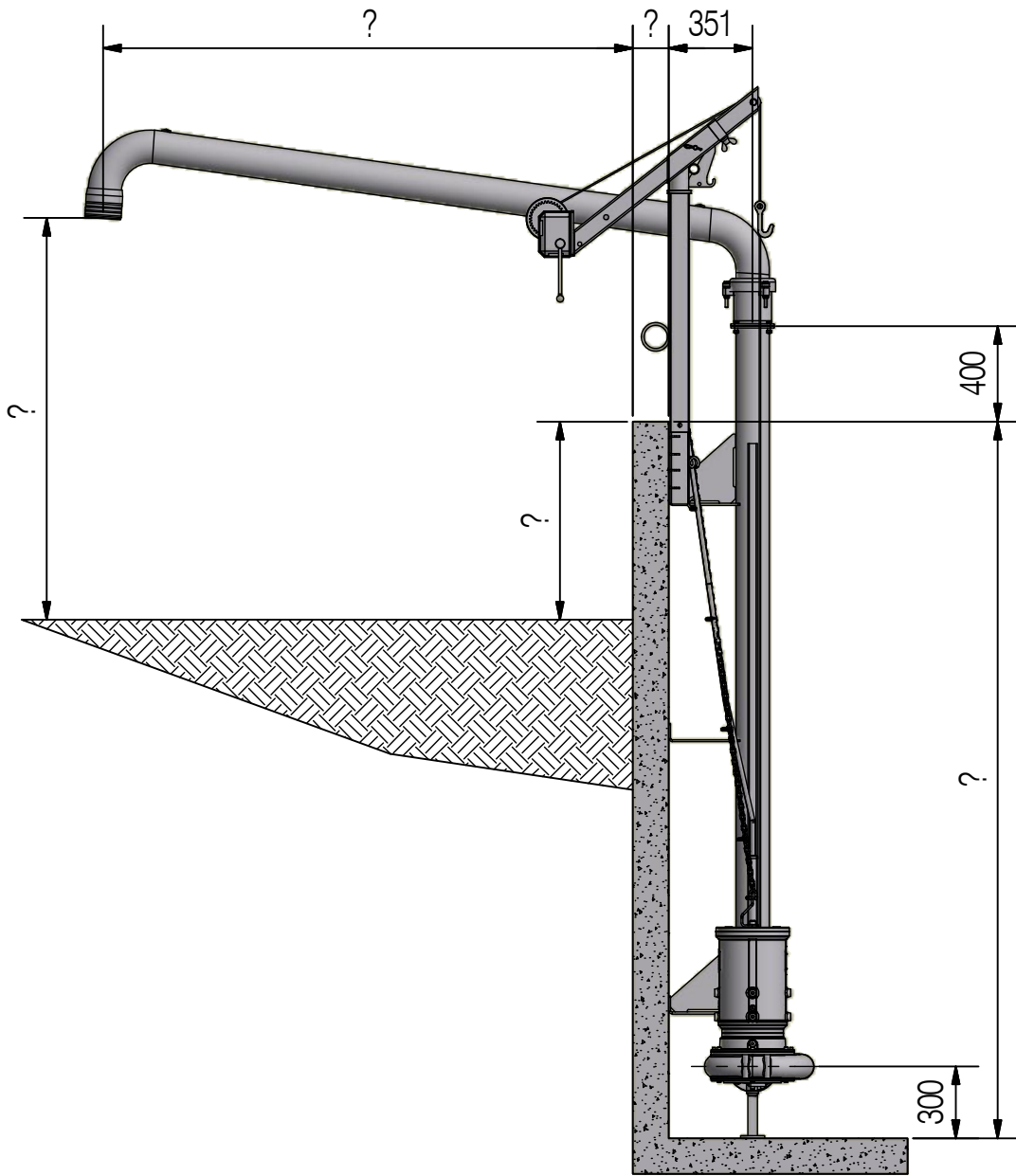


Landia

DG-I m/slangestuds, w/outlet for hose,
 m/Abgang, f. Schlauch, avec sortie, p/tuyau souple
 Principtegning, Principal drawing,
 Prinzipskizze, dessin de principe

Scale:	Sign.:	Date:
1 : 10	HL MHA	27-03-2014
Dwg.no.:		3740912

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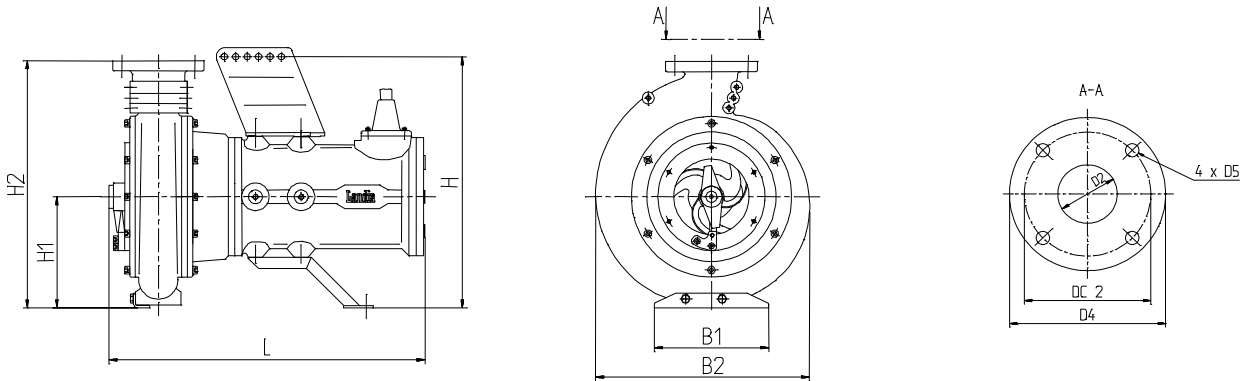


Landia

DG Installation - med aftapningsrør
Lodret afgangsrør m/flange
Vertical pipe w/flange and drainage pipe

Scale:	Sign.:	Date:
1 : 30	HL LEN	22-08-2017
Dwg.no.:		3740942
Revision date: 15-10-2019		

**Dykpumpe / Submersible pump / Tauchmotorpumpe / Pompe submersible
Type DG, horizontal**



Mellemtryk - Mittlerer Druck - Medium pressure - Moyenne pression.

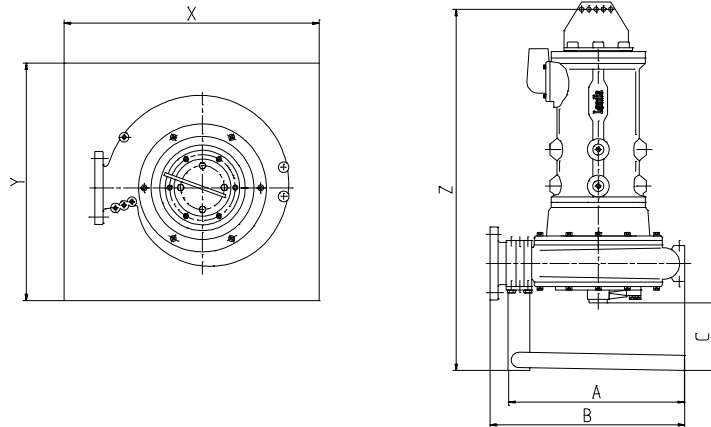
DG vandret DG Horizontal DG waagerecht DG horizontal	Serie Series Baureihe Série	Dimensioner – Dimensions Hauptmaße – Encombremts [mm]									
		H	H1	H2	B1	B2	L	D2	D4	D5	DC2
		DG 50/1500	71	317	140	300	200	250	360	ø50	ø110
DG 65/1500	80	350	174	380	200	320	445	ø67	ø160	ø14	130
DG 65/1500	90	357	174	380	200	320	450	ø67	ø160	ø14	130
DG 80/1500	100	393	198	440	250	370	547	ø80	ø190	ø18	150
DG 80/1500	112	399	198	440	250	370	581	ø80	ø190	ø18	150
DG 105/1500	132	590	245	545	300	460	663	ø105	ø210	ø18	170
DG 105/1500	160	617	245	545	300	460	708	ø105	ø210	ø18	170
DG 150/1500	160	684	312	754	350	580	747	ø150	ø285	ø22	240
DG 150/1500	180	674	312	754	350	580	876	ø150	ø285	ø22	240

Højtryk - Hochdruck - High pressure - Haute pression.

DG vandret DG Horizontal DG waagerecht DG horizontal	Serie Series Baureihe Série	Dimensioner – Dimensions Hauptmaße – Encombremts [mm]									
		H	H1	H2	B1	B2	L	D2	D4	D5	DC2
		DG 50/3000	80	310	140	300	200	250	435	ø50	ø110
DG 50/3000	90	320	140	300	200	250	440	ø50	ø110	ø10	90
DG 50/3000	100	330	140	300	200	250	502	ø50	ø110	ø10	90
DG 65/3000	112	375	174	380	200	320	562	ø67	ø160	ø14	130
DG 65/3000	132	520	174	380	200	320	623	ø67	ø160	ø14	130
DG 65/3000	160	546	174	380	200	320	668	ø67	ø160	ø14	130
DG 80/3000	160	557	198	440	250	370	714	ø80	ø190	ø18	150
DG 80/3000	180	561	198	440	250	390	833	ø80	ø190	ø18	150

* forberedt for 90° slangestuds – Prepared for 90° hose branch.

Vorberetet für 90° Schlauchstutzen – Préparé pour montage avec raccord pour tuyau 90°.

Dykpumpe / Submersible pump / Tauchmotorpumpe / Pompe submersible
Type DG, vertical


Mellemtryk - Mittlerer Druck - Medium pressure - Moyenne pression.

DG lodret DG vertical DG vertikal DG vertical	Serie Series Baureihe Série	Dimensioner – Dimensions Hauptmaße – Encombremments [mm]					
		A	B	C	Z	X *	Y *
		DG 50/1500	71	265	290	95	542
DG 65/1500	80	360	370	145	700	750	500
DG 65/1500	90	360	370	145	705	750	500
DG 80/1500	100	400	432	140	800	900	550
DG 80/1500	112	400	432	140	835	900	550
DG 105/1500	132	485	534	175	940	1000	650
DG 105/1500	160	485	534	175	1010	1000	650
DG 150/1500	160	-	-	-	-	1200	750
DG 150/1500	180	-	-	-	-	1200	750

Højtryk - Hochdruck - High pressure - Haute pression.

DG lodret DG vertical DG vertikal DG vertical	Serie Series Baureihe Série	Dimensioner – Dimensions Hauptmaße – Encombremments [mm]					
		A	B	C	Z	X *	Y *
		DG 50/3000	80	265	290	95	620
DG 50/3000	90	265	290	95	625	600	400
DG 50/3000	100	265	290	95	685	600	400
DG 65/3000	112	385	445	115	860	850	650
DG 65/3000	132	385	445	115	900	850	650
DG 65/3000	160	385	445	115	900	850	650
DG 80/3000	160	-	-	-	-	850	650
DG 80/3000	180	-	-	-	-	850	650

* forberedt for 90° slangestuds – Prepared for 90° hose branch.

Vorberetet für 90° Schlauchstutzen – Préparé pour montage avec raccord pour tuyau 90°.

Ret til tekniske ændringer forbeholdes. - We reserve the right to make technical alterations.

Technische und maßliche Änderungen vorbehalten. – Sous réserve de modifications techniques.

DG Slurry Pump

The DG pump is a highly efficient slurry pump that is designed to pump all kinds of slurry.

All DG-I pumps are equipped with a knife system at the inlet to the pump, which ensures problem-free operation under conditions where many other pumps have problems with clogging.

APPLICATION EXAMPLES

- Slurry pumping
- Back flushing
- Long distance pumping
- Chopping of solids with high viscosity



PUMP RPM

1,500 rpm – medium pressure

3,000 rpm – high pressure

MATERIAL OF CONSTRUCTION

Motor housing and oil chamber	Cast iron EN-GJL-250
Pump housing	Cast iron EN-GJL-250
Pump impeller	Cast iron EN-GJL-250 Cast iron EN-GJS-700-2 (optional)
Pump Shaft	W1.6582/AISI4340
Bolts	Stainless steel AISI316, A4
Sealing system	Mechanical shaft seal: silicon carbide/silicon carbide
Knife system	Hardened steel W1.0038
Extended knife system	Hardened steel W1.0038/S235JR (optional)
Oil type	15W-40

SERVICE AND MAINTAINANCE

Recommended service interval/oil change	Maximum 2,000 operating hours/minimum once a year
Motor	Lifetime lubricated bearings
Oil chamber	Periodic oil change

SURFACE TREATMENT

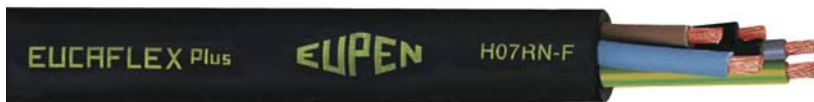
Machinery enamel: RAL 9005 (Jet Black)

Jet Black

ELECTRICAL CABLE

H07RN-F/S07RN-F EUCAFLEX^{Plus} Cable.

Resistant to oil and UV radiation.



Number of conductors:

H07RN-F 7G1.5 mm² (Not used in United Kingdom)

H07RN-F 7G2.5 mm² (Only United Kingdom. Motor ≤ 5,5 kW)

S07RN-F 7G4+3x1.5 mm²

As standard supplied with 7 m of cable (extra length available upon request).

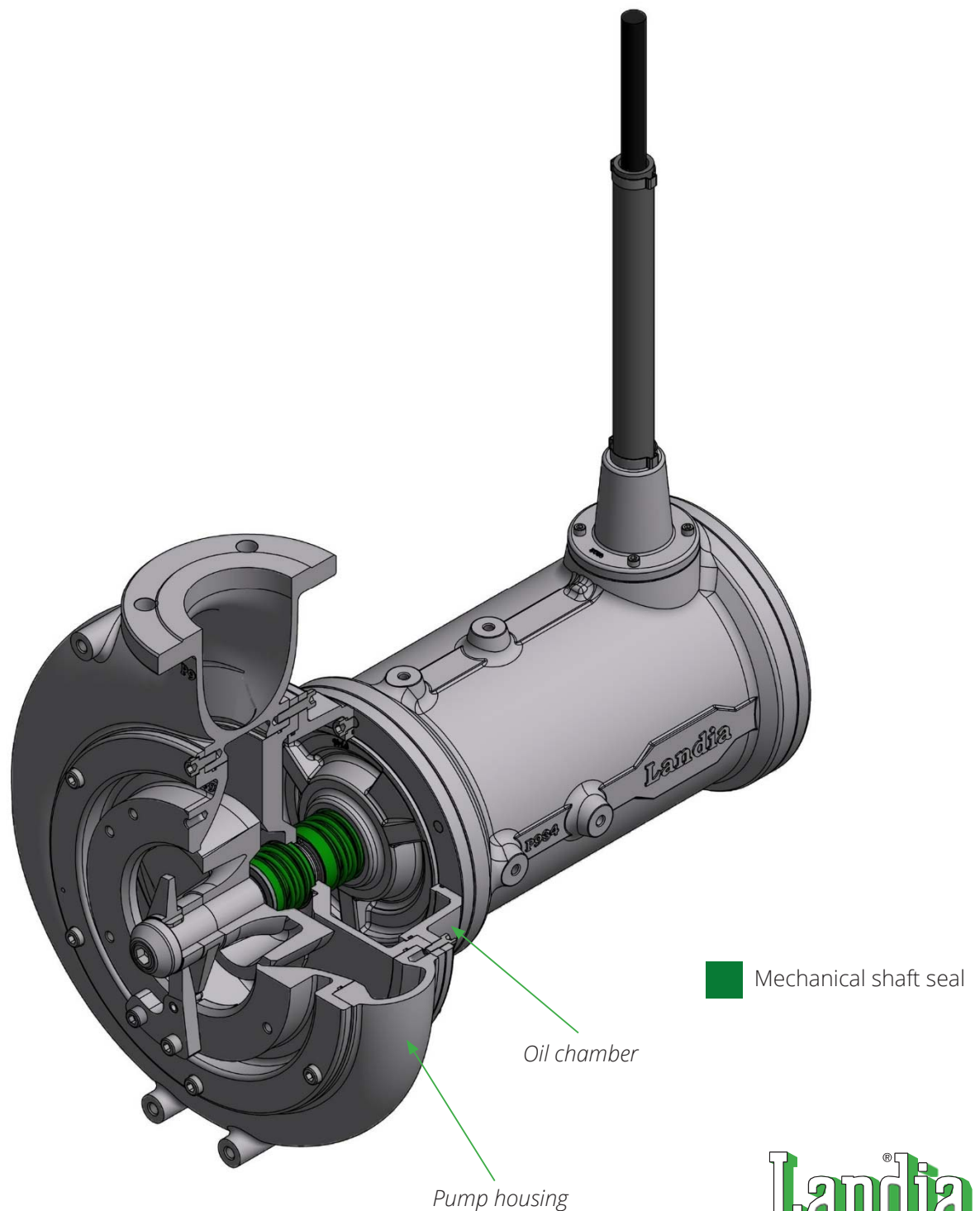
MONITORING FUNCTIONS

Bimetallic thermal sensors 120 °C

DESIGN

The open pump impeller design means that the slurry pump can pump liquids with a high viscosity. For liquids containing abrasive particles, such as sand, Landia has developed special materials so that the pump's life span is extended significantly in comparison to a standard pump.

All DG pumps are equipped with a knife system at the inlet to the pump, which ensures problem-free operation under conditions where many other pumps have problems with clogging.



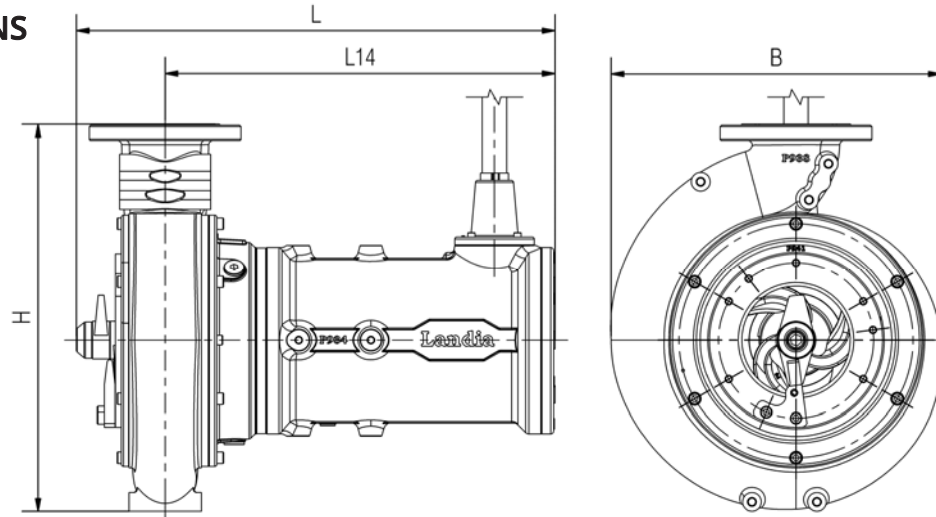
ELECTRICAL DATA

Motor type	3-phase AC motor
Nominal voltage	400 V
Minimum voltage allowed	360 V
Nominal frequency	50 Hz
Applicable for VFD operation	Yes
Ingress protection rating	IP 68
Insulation class	F

Model	Item number	Nominal power	Motor	Full load current (400 V)	Connection method	Start current (DOL)	cos phi	Efficiency
		[kW]	[rpm]	[A]	Y/Δ	[A]		[%]
Medium pressure								
DG 50 0.75 kW-1,500 rpm	2304197	0.75	1,400	2.1	Y	10	0.70	73.6
DG 65 1.1 kW-1,500 rpm	2304718	1.1	1,410	2.6	Y	14	0.79	76.7
DG 65 1.5 kW-1,500 rpm	2304711	1.5	1,400	3.4	Y	19	0.81	78.6
DG 65 2.2 kW-1,500 rpm	2304712	2.2	1,410	5.0	Y	30	0.80	80.2
DG 80 3.0 kW-1,500 rpm	2304813	3.0	1,430	6.7	Δ	43	0.79	82.4
DG 80 4.0 kW-1,500 rpm	2304814	4.0	1,435	8.8	Δ	61	0.78	84.1
DG 80 5.5 kW-1,500 rpm	2304815	5.5	1,440	11.0	Δ	68	0.87	84.6
DG 105 7.5 kW-1,500 rpm	2304917	7.5	1,455	15.0	Δ	90	0.83	86.2
DG 105 11.0 kW-1,500 rpm	2304911	11.0	1,455	21.5	Δ	146	0.84	87.9
DG 105 15.0 kW-1,500 rpm	2304915	15.0	1,465	29.0	Δ	212	0.84	88.7
DG 105 18.5 kW-1,500 rpm	2304918	18.5	1,460	35.0	Δ	238	0.85	89.3
DG 150 18.5 kW-1,500 rpm	2304618	18.5	1,460	35.0	Δ	238	0.85	89.3
DG 150 22.0 kW-1,500 rpm	2304622	22.0	1,465	43.0	Δ	280	0.82	90.1
DG 150 30.0 kW-1,500 rpm	2304630	30.0	1,465	57.0	Δ	399	0.84	90.7
High pressure								
DG 50 2.2 kW-3,000 rpm	2302102	2.2	2,850	4.6	Y	34	0.85	82.1
DG 50 3.0 kW-3,000 rpm	2302103	3.0	2,865	6.2	Δ	42	0.85	82.8
DG 50 4.0 kW-3,000 rpm	2302104	4.0	2,900	8.4	Δ	59	0.81	84.9
DG 50 5.5 kW-3,000 rpm	2302105	5.5	2,860	11.0	Δ	61	0.86	84.7
DG 65 7.5 kW-3,000 rpm	2302717	7.5	2,890	15.0	Δ	99	0.85	86.1
DG 65 11.0 kW-3,000 rpm	2302711	11.0	2,905	20.5	Δ	143	0.88	87.6
DG 65 15.0 kW-3,000 rpm	2302715	15.0	2,940	27.5	Δ	195	0.89	88.7
DG 65 18.5 kW-3,000 rpm	2302718	18.5	2,925	33.0	Δ	238	0.90	89.9
DG 80 15.0 kW-3,000 rpm	2302815	15.0	2,940	27.5	Δ	195	0.89	88.7
DG 80 18.5 kW-3,000 rpm	2302818	18.5	2,925	33.0	Δ	238	0.90	89.9
DG 80 22.0 kW-3,000 rpm	2302822	22.0	2,935	39.0	Δ	265	0.90	90.5
DG 80 30.0 kW-3,000 rpm	2302830	30.0	2,940	52.5	Δ	383	0.91	90.6

For voltages others than 400 V/50 Hz please refer to the attached Appendix.

OVERALL DIMENSIONS



Model	Item number	B [mm]	H [mm]	L [mm]	L14 [mm]	Weight [kg]
Medium pressure						
DG 50 0.75 kW-1,500 rpm	2304197	250	300	365	290	25
DG 65 1.1 kW-1,500 rpm	2304718	320	380	445	361	45
DG 65 1.5 kW-1,500 rpm	2304711	320	380	445	361	50
DG 65 2.2 kW-1,500 rpm	2304712	320	380	450	366	55
DG 80 3.0 kW-1,500 rpm	2304813	370	440	550	445	80
DG 80 4.0 kW-1,500 rpm	2304814	370	440	550	445	85
DG 80 5.5 kW-1,500 rpm	2304815	370	545	580	480	100
DG 105 7.5 kW-1,500 rpm	2304917	460	545	665	540	150
DG 105 11.0 kW-1,500 rpm	2304911	460	545	665	540	160
DG 105 15.0 kW-1,500 rpm	2304915	460	545	710	585	200
DG 105 18.5 kW-1,500 rpm	2304918	460	545	710	585	210
DG 150 18.5 kW-1,500 rpm	2304618	580	754	690	585.5	265
DG 150 22.0 kW-1,500 rpm	2304622	580	754	820	715	325
DG 150 30.0 kW-1,500 rpm	2304630	580	754	820	715	350
High pressure						
DG 50 2.2 kW-3,000 rpm	2302102	250	300	440	365	40
DG 50 3.0 kW-3,000 rpm	2302103	250	300	445	370	43
DG 50 4.0 kW-3,000 rpm	2302104	250	300	505	430	55
DG 50 5.5 kW-3,000 rpm	2302105	250	300	505	430	60
DG 65 7.5 kW-3,000 rpm	2302717	320	380	555	470	80
DG 65 11.0 kW-3,000 rpm	2302711	320	380	615	535	105
DG 65 15.0 kW-3,000 rpm	2302715	320	380	660	580	140
DG 65 18.5 kW-3,000 rpm	2302718	320	380	660	580	155
DG 80 15.0 kW-3,000 rpm	2302815	370	440	690	587	175
DG 80 18.5 kW-3,000 rpm	2302818	370	440	690	587	185
DG 80 22.0 kW-3,000 rpm	2302822	390	440	805	703	254
DG 80 30.0 kW-3,000 rpm	2302830	390	440	805	703	276

We reserve the right to make technical changes.

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Introduction

DG is a submersible pump.

By means of different equipment a great number of different pumping requirements can be met. The pumping takes place by means of a submersible electric motor; a pump casing with an impeller is mounted on the motor. The oil filled oil chamber between motor and impeller provides cooling and lubrication of the mechanical seals. The sealing system consists of two mechanical seals. The exterior seal separates the medium from the oil chamber, the interior seal separates the oil from the motor casing.

The following pages describe the connection and maintenance of the submersible pump type DG.

Application

The submersible pump is to be applied for pumping of liquids with a high or a low dry matter content, like e.g. thick manure and highly polluted wastewater. The submersible pump is only to be applied fully submerged in tanks at e.g. effluent treatment plants, in industry and in agriculture.

If the pump is to be applied for other purposes, contact Landia A/S for advice.

Warning

Please note the following points:

- Only a certified electrician is allowed to connect the unit.
- Prior to installation and commissioning ensure that the equipment is installed correctly and fixed to the pump, as well as ensure that the equipment in the tank is fixed safely.
- Prior to the first start of the pump, the pump shaft must be rotated manually. This also applies if the pump has not been in operation for a longer period.
- The electrical cable is always to be tightened by means of the chain to prevent the cable from getting into contact with the knife system of the pump. If the pump is not supplied with a chain, the cable is to be protected against damage in another way, e.g. by means of a cable mesh.
- It is always to be ensured that the pump is fully below liquid level during operation.
- Prior to hoisting the pump at service/repair it is always to be ensured that the electrical connection of the submersible pump is switched off or locked. Prior to service/repair the submersible pump should be cleaned thoroughly.
- When the pump is hoisted or lowered, its cable and chain are always to be placed outside the work area.
- For service/repair of pumps installed in well/tank with explosion danger/toxic gases we refer to the national safety directions as far as safety is concerned, e.g. concerning the toxic hydrogen sulphide.

Service/repair

To maintain a high operating safety and a long service life without unnecessary and expensive repair it is important from the beginning to execute regular and preventive service. Maintenance should be executed according to the intervals stated in the manual. Always follow the instruction carefully and only apply the parts described by Landia A/S in the spare parts list.

Please note

If spare parts not identical to the recommended are applied at service/repair, the guarantee from Landia A/S will be annulled. Spare parts can be ordered at Landia A/S or your local distributor.

For major repairs at a special workshop please contact:

Head Office:
LANDIA A/S
Industrivej 2
DK-6940 Lem St.
Tel.: +45 97 341244
info@landia.dk
www.landia.dk

UK subsidiary:
Landia (UK) Ltd.
Waymills Industrial Estate,
Whitchurch,
Shropshire SY13 1TT
Tel: + 44 01948 661 200
info@landia.co.uk
www.landia.co.uk

Landia A/S is represented by local distributors worldwide, please call for further information.

Rating plate

		DK-6940	CE	UK
		Lem St.	CA	
Type	<input type="text"/>	3~mot.nr.	<input type="text"/>	
	<input type="text"/>	V	<input type="text"/>	A
	<input type="text"/>	Hz	<input type="text"/>	kW
	<input type="text"/>	Ins.cl.	<input type="text"/>	
Cos φ	0, <input type="text"/>	RPM	<input type="text"/>	kg
Eff. cl.	<input type="text"/>	Year	<input type="text"/>	
	IP <input type="text"/>	Duty type	S1	

Type:	Unit type
3~mot.nr.:	Serial no.
V:	Connection voltage, star/delta
A:	Nominal power consumption at full load
Hz:	Net frequency
kW:	Max. shaft power
Ins.cl.:	Insulation class
Cos φ:	Power factor
RPM:	Motor revolutions per minute
Kg:	Weight of unit
Eff. cl.:	Efficiency class
Year:	Year of manufacture
IP:	Cage class
Duty type S1	Continuous working period

The rating plate states the motor's electrical data as well as the year of manufacture and the serial no. (3~mot.nr.). With regard to maintenance of a specific unit please state serial no. when contacting Landia.

Please note

It is important that the electrical cable is tightened to prevent the cable from getting into contact with the knife system of the pump. The cable can be ensured against damage by means of a cable mesh or a chain.



Power connection

Every submersible pump is equipped with the abovementioned rating plate. It must be ensured that the other electrical parts correspond to the motor data. For each pump there is an electrical diagram. A protective motor switch must be applied at connection of the pump to the mains.

Only a certified electrician is allowed to connect the unit.

Operation

Submersible pumps have thermal sensors as standard equipment.

Often the pump is exposed to extremely difficult operation conditions. Therefore, it is important to connect the thermal control. Burning of the motor due to overheating can thus be avoided. If the safety function has been activated the pump must not be re-started until the cause of the disconnection has been found. Among other things the disconnection can be caused by reduced mains voltage, a pump blockage or an overheated motor. The cooling period can be up to 1 hour.

The submersible pump must not operate above liquid level

Capacity

The capacity of the pump will always depend on the consistency of the medium.

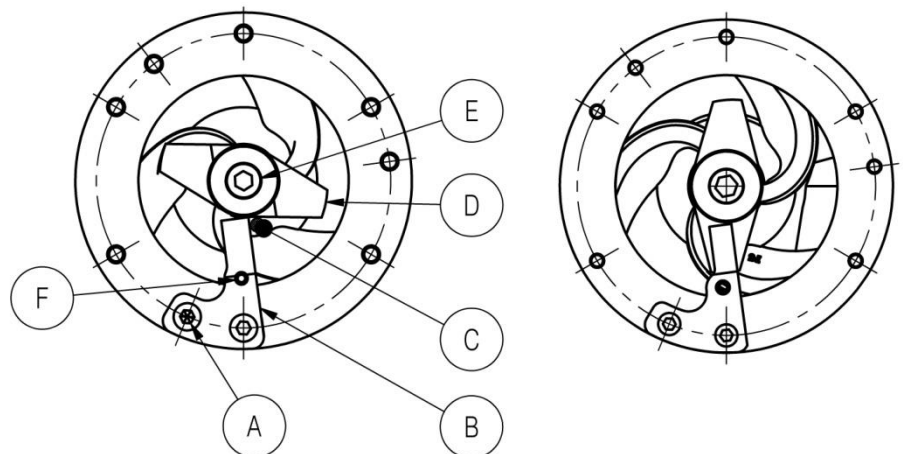
In order to obtain the highest capacity possible with as low motor power as possible it is important that the diameters of the pump pipes are as large as possible and that sharp bends are avoided as far as possible. Large pipe dimensions are especially important in connection with long distances.

The sub pumps are equipped with open impellers especially suited for liquids with large particles, e.g. raw waste water, manure and industry applications. Furthermore, the sub pumps are equipped with a knife system placed in the inlet port. This system consists of one fixed and two rotating knives. The knives comminute large impurities in the medium in order to ease the pumping. They are ideal for comminuting e.g. straw, shreds, paper, fish etc.

The pump capacity will be reduced if the edge of the guide traces on the front and back plates is worn round or if there are deep traces on the surface. You can minimize the wear on the front and rear plate by changing the impeller before the edges on the back of the impeller become too round. If the edges of the impeller become too round, it can be easier to settle stones in the clamp between the impeller and the back plate, which will turn the impeller round and the wear will increase. If you have any doubts or questions, please contact Landia for advice.

The fixed knife is equipped with a shear bolt which will be destroyed in case a metal object, a stone etc. blocks the knives. In this way damage of the pump can be avoided.

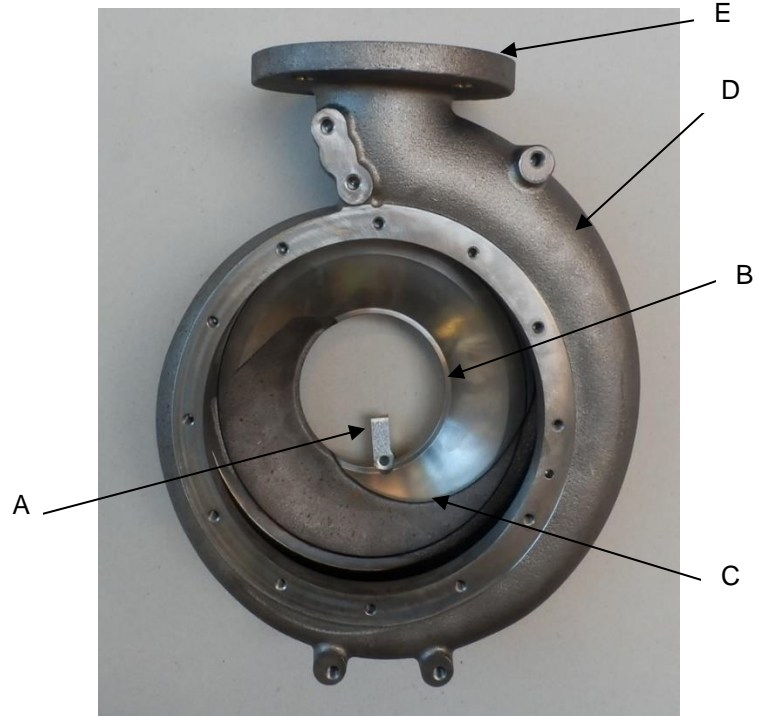
- A. Shear bolt
- B. Fixed knife
- C. Metal object
- D. Rotating knife
- E. Bolt
- F. Tightening pin



Fitting the front plate

- A. Knife with tightening pin
- B. Front plate
- C. Guide trace
- D. Pump casing
- E. Outlet

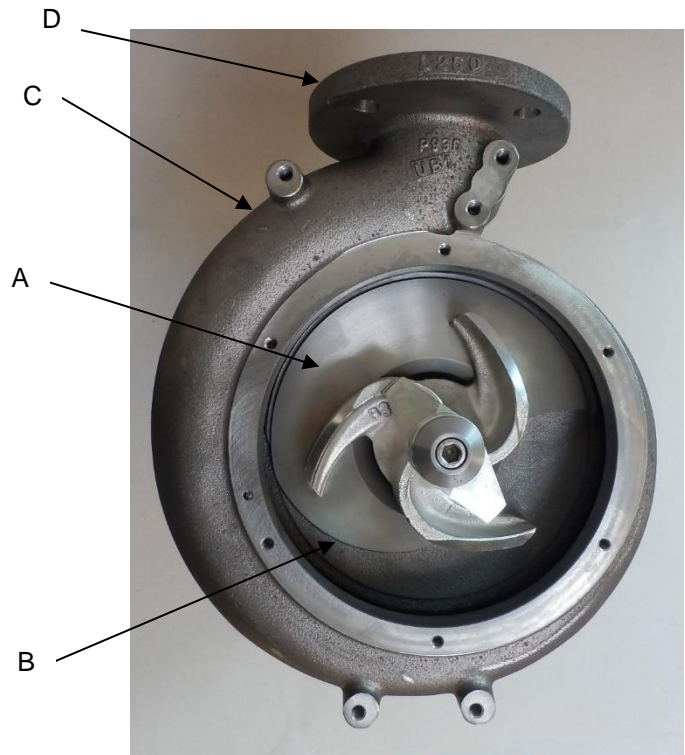
The front plate for the pump casing is designed with a guide trace. The guide trace must always be placed in the same direction as the outlet, regardless of how the outlet of the pump is turned.



Fitting the back plate

- A. Back plate
- B. Guide trace
- C. Pump casing
- D. Outlet

The back plate for the pump casing is designed with a guide trace. The guide trace must always be placed in the same direction as the outlet, regardless of how the outlet of the pump is turned.



Inspection

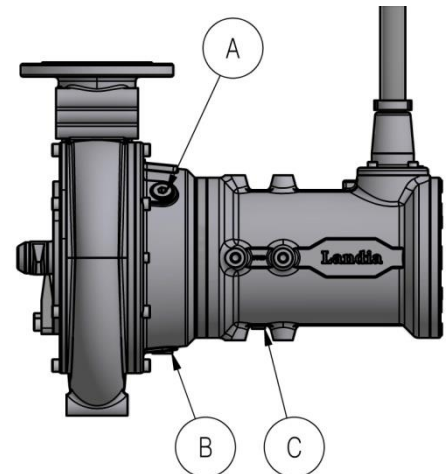
Regular inspection will ensure the submersible pump a long life at low costs. After every 2000 hours of operation, or more often depending on the operation conditions, the knife system, the impeller, the oil quantity and the motor casing of the pump should be checked. The oil must be changed at least once a year.

If the tightening pin of the fixed knife is lacking, the pin and the knife must be exchanged. If the knife system, the front plate or the impellers are worn, they should be replaced.

Oil control

The oil is checked by disassembling the upper oil plug pos. A on the oil chamber between motor and pump casing. The oil has to be clean. If the oil is dirty it must be exchanged. Oil type see table page 10. The oil is drained off by disassembling the plugs pos. A and pos. B. If the oil is dirty, the exterior seal must be checked.

- A. Upper oil plug
- B. Lower oil plug
- C. Inspection screw



Oil is filled at oil plug pos. A.

The motor casing must be checked in the following way:
Disassemble the inspection plug pos. C beneath the motor.
A small leakage of oil is normal.
The oil quantity is checked by drainage pos. C.

In case of abnormal leakage it is necessary to check the interior seal in the oil chamber. If it is necessary to dry up the motor windings, contact a special workshop.

In general the shear bolt must be checked at oil change/service. In case the bolt is damaged, the fixed knife must be loosened and a new shear bolt installed. The new shear bolt must have the same dimension and must be made of the same material as the replaced one. The bolt must be tightened with a tightening torque acc. to the table below.

Do not apply Loctite

Pump type	Shear bolts (see spare parts list) quality A4-80	Tightening torque
50	M6x20	7 Nm
65	M8x25	10 Nm
80	M8x25	24 Nm
105 / 150	M10x30	25 Nm

Equipment

The equipment should be checked for wear and corrosion. The winch is to be grease lubricated. Check brake and lock. Retighten screws. If the screws are loose, remove them and lubricate with an adhesive substance (e.g. Loctite) prior to reinstallation.

Disassembling/assembling

A major repair should take place at a special workshop.

Below please find some general conditions regarding disassembling/assembling of the pump. The drawing attached to the spare parts list shows the construction of the unit. Not all parts can/should be dismantled, e.g. do not press the rotor off the shaft.

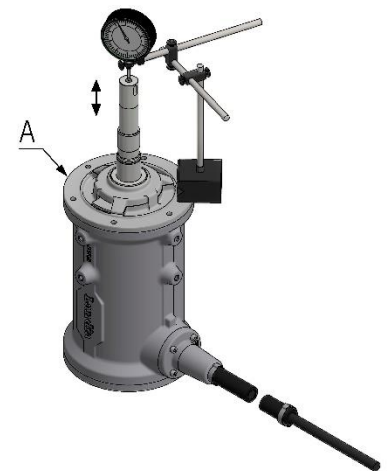
When disassembling the unit, handle the mechanical seals with care as they are not shock resistant. Prior to reassembling, all sealing surfaces must be cleaned; all O-rings must be checked and changed, if necessary. Adhesive substance (e.g. Loctite) must be applied on all bolt joints. All bolts are tightened with a tightening torque acc. to the table below.

Bolt sizes	Quality 10.9 - 12.9 Steel 	Quality A4 kl. 80 St.steel 
M5	-	4,5 Nm
M6	14 Nm	10 Nm
M8	34 Nm	24 Nm
M10	67 Nm	48 Nm
M12	115 Nm	82 Nm
M16	160 Nm	137 Nm

After the bearing flange has been installed, the axial clearance must be checked acc. to the table below.

Type	Rpm	Pumpehus	Motorhus	Acceptable clearance
DG	1500	50	ms71	0.25 ± 0.05 mm
		65	ms80-90	0.50 ± 0.05 mm
		80	ms100-112	0.50 ± 0.05 mm
		105	ms132-160	0.80 ± 0.05 mm
		150	ms160	0.80 ± 0.05 mm
	ms180		1.30 ± 0.05 mm	
	3000	50	ms80-100	0.50 ± 0.05 mm
		65	ms112-160	0.80 ± 0.05 mm
		80	ms160	0.80 ± 0.05 mm
			ms180	1.30 ± 0.05 mm

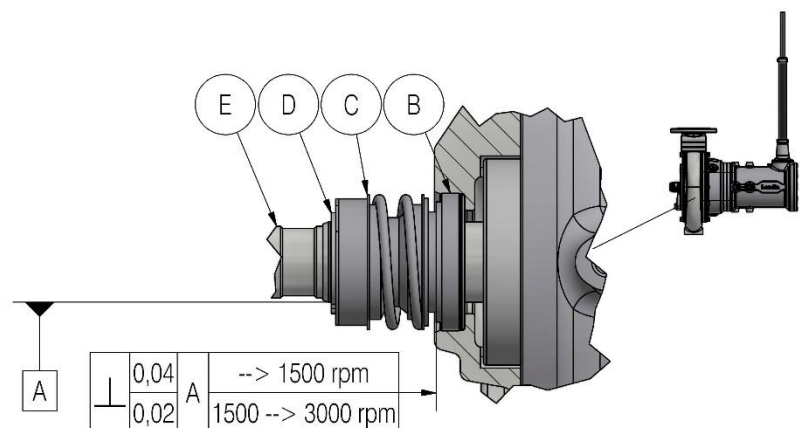
A. Lejefflange



Installation of mechanical shaft seals

When installing mechanical shaft seals please be aware that these are precision products and that they should be treated as such. The slide faces must be protected during the installation.

- B. Stationary sealing part
- C. Rotating sealing part
- D. Locking ring
- E. Shaft



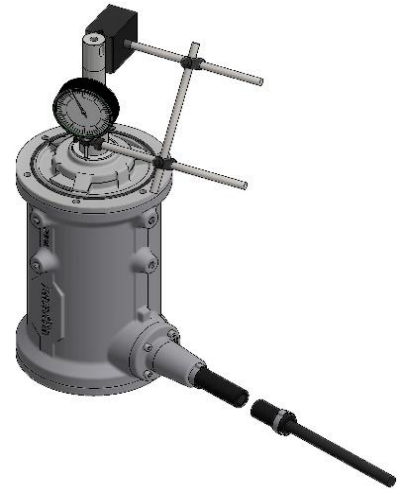
Push the stationary sealing part, pos. B, into place. Be careful not to damage the slide face during the installation. When the stationary part has been installed and adjusted with a dial gauge, clean it with a degreasing agent.

The rotating sealing part, pos. C, is put over the shaft. To ease the installation put soap water on the interior side of the rubber bellows as well as on the shaft. Do not apply silicone, PTFE lubricants or oil as they will prevent the rubber bellows from sticking to the shaft. Installation arbor should be used. Put the locking ring, pos. D, on the shaft and press together the seal until the locking ring snaps into the locking ring trace. Control the seal by turning the motor shaft.

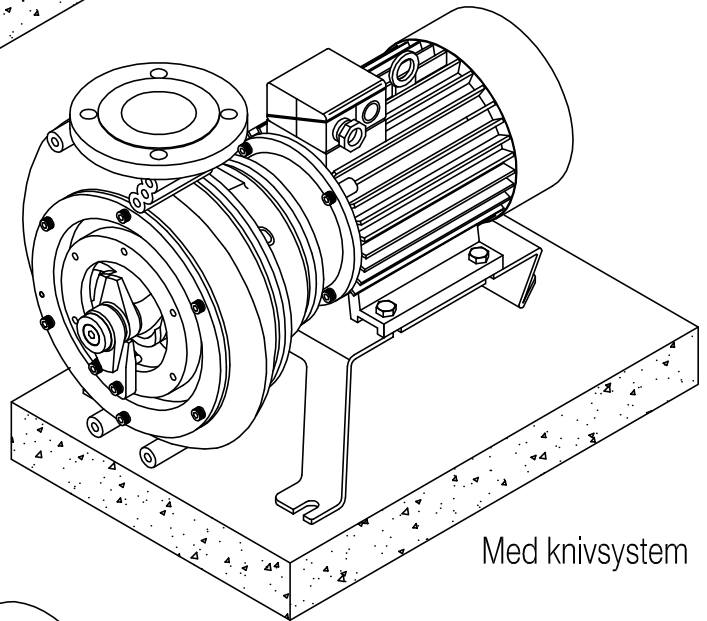
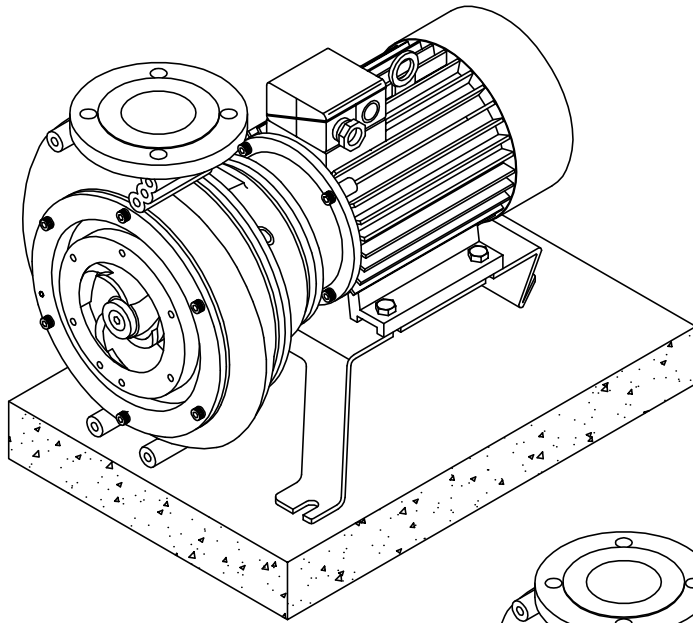
Test the pump for leakage by submerging it and by putting the motor casing and the oil chamber under an overpressure. The overpressure is to be approx. 1 bar. Leakage (air bubbles) must not appear. Oil is filled in the oil chamber. During the filling, the pump must be in a horizontal position. Repair of the surface coating is necessary prior to operation start. See instruction for maintenance of surface coating.

Oil quantity: See spare parts list.

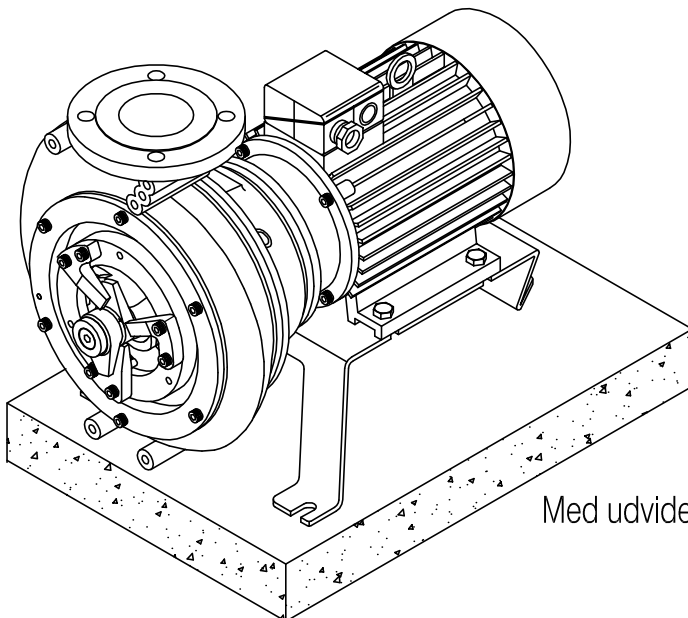
If the pump is supplied with seal control, another type of oil must be applied. See additional instruction.



We reserve the right to technical alterations. Translated from Danish.



Med knivsystem



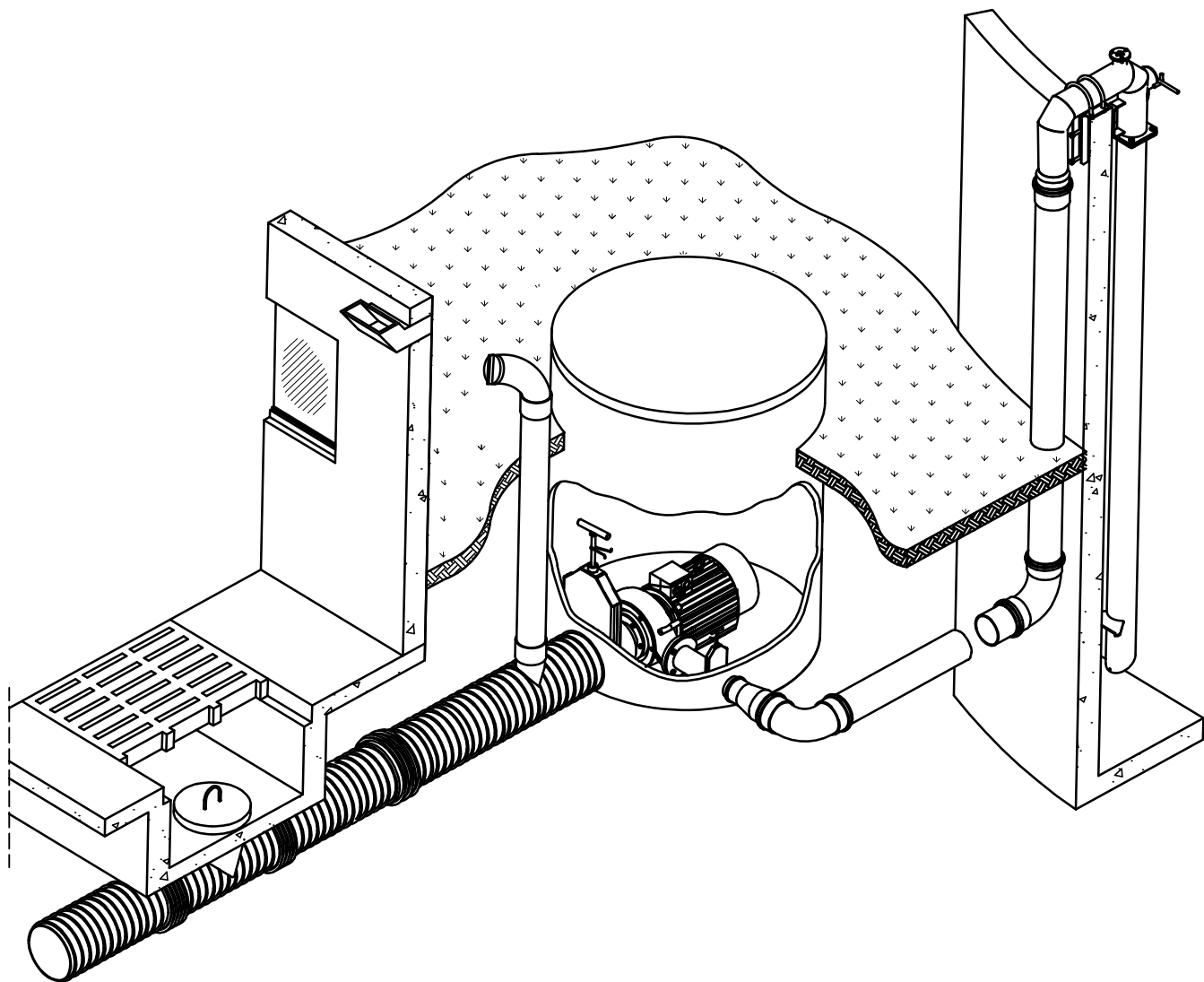
Med udvidet knivsystem

Styret dokument

Landia

MPTK pumper
med knivsystem
Principtegning

Scale: 1:10	Sign.: LA PH	Date: 25.11.1996
Dwg.no.:		3740543
Revision date: 09.09.1997		



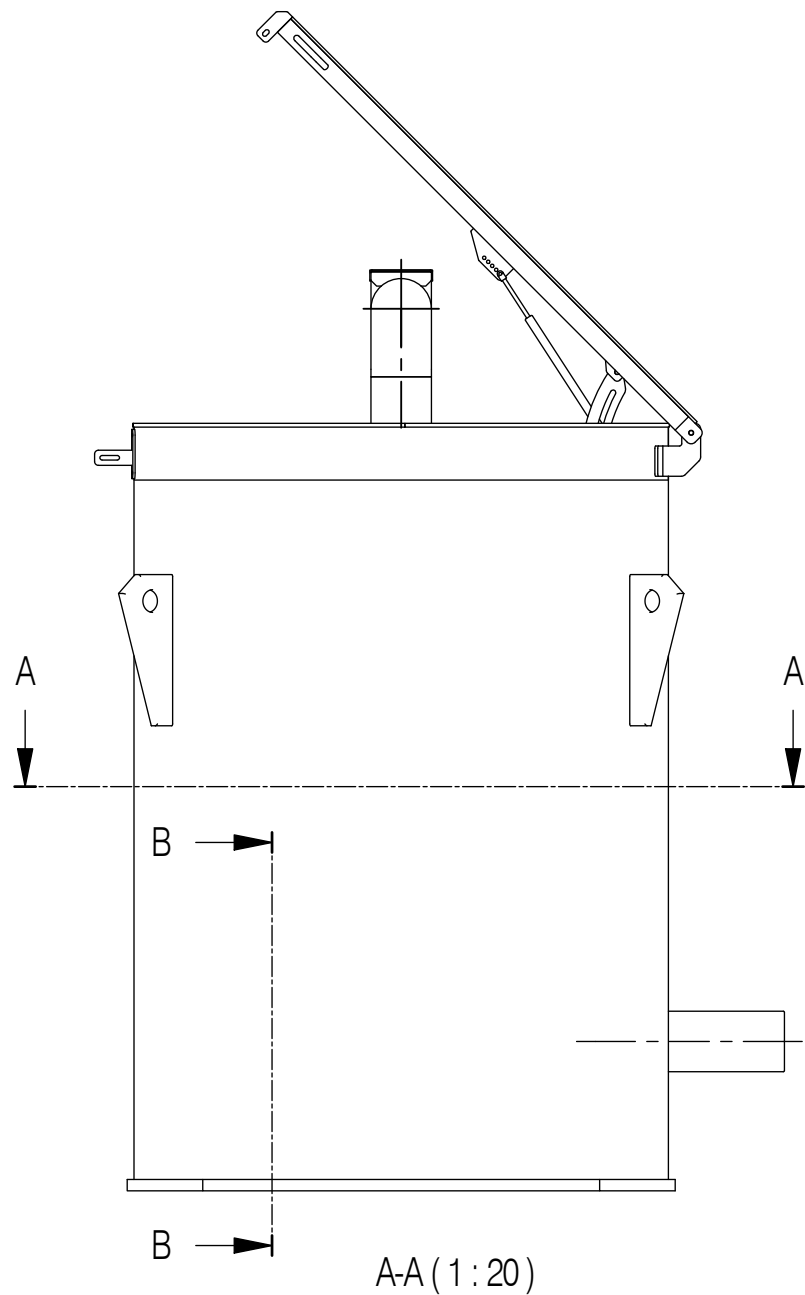
Styret dokument

Landia

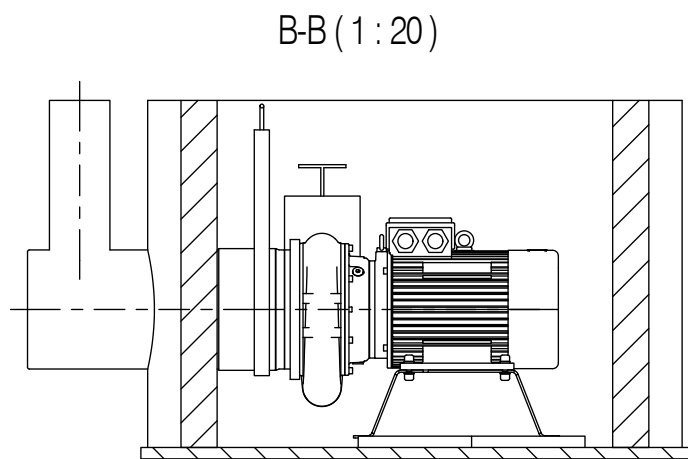
MPTK

i PE brønd, dry pit, Trockenschacht
Principtegning, Schematic drawing

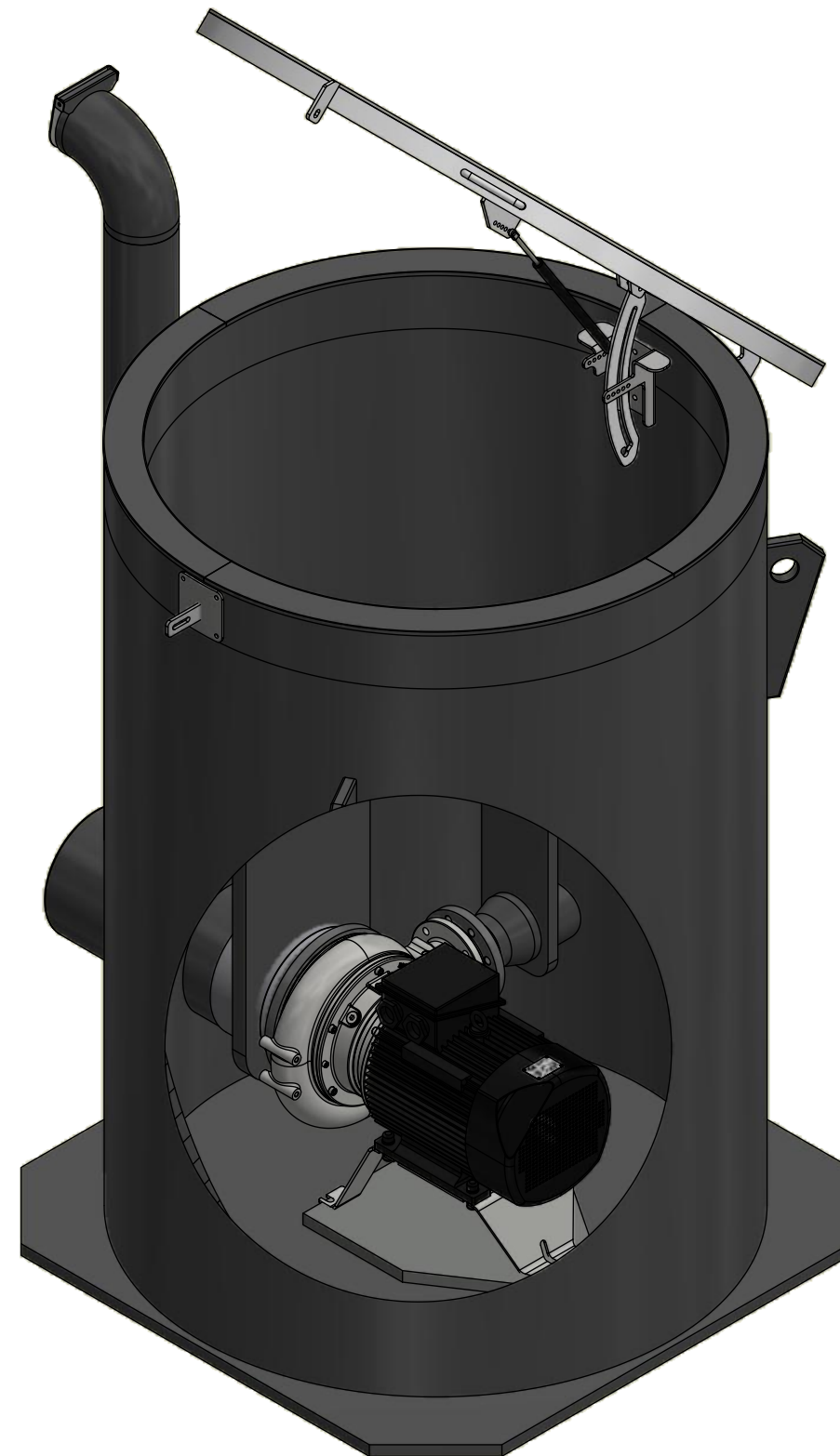
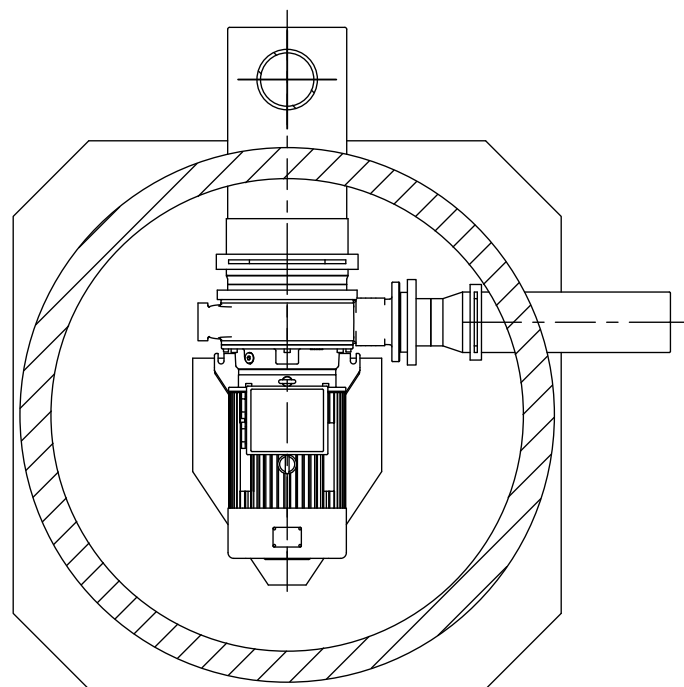
Scale:	Sign.:	Date:
1:40	BN KSK	28-09-2001
Dwg.no.:		3740699
Revision date: 26-06-2017		



A-A (1:20)



B-B (1:20)



Landia

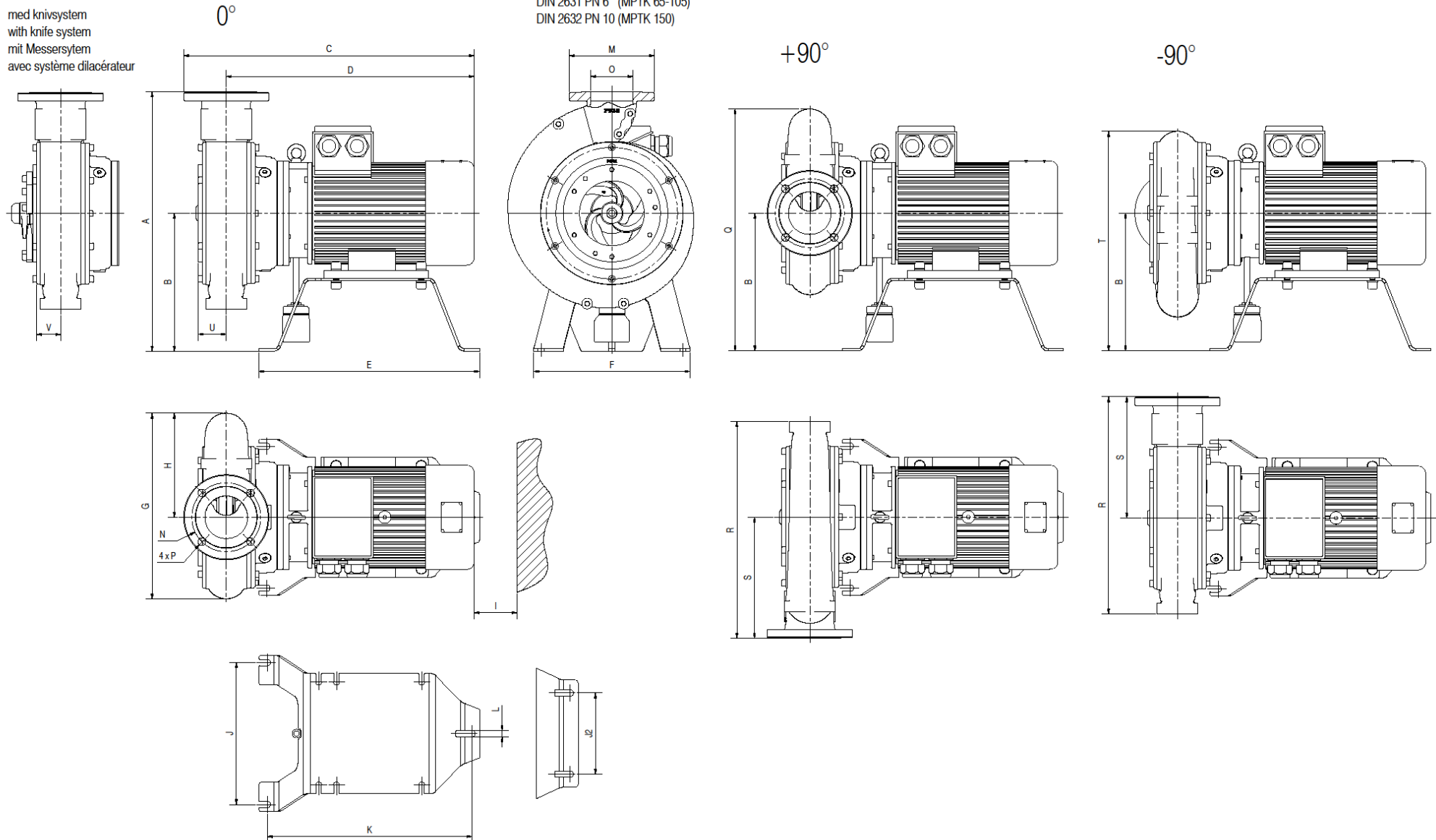
PE-brønd inkl. MPTK pumpe
PE dry pit incl. MPTK pump

Scale:	Sign.:	Date:
1:20	HL LEN	07-12-2020
Dwg.no.:		3740977

Hovedmål – Principal measurements – Hauptmaße – Encombrements

med knivsystem
with knife system
mit Messersystem
avec système dilacérateur

DIN 2631 PN 6 (MPTK 65-105)
DIN 2632 PN 10 (MPTK 150)



MPTK IE1
Mellemtryk - Medium pressure - Mittlerer Druck - Moyenne pression

Varenr. Article no. Artikel Nr. Code no. (400V)	Effekt Power Leist. Puiss. [kW]	Type Typ	Dimensioner – Dimensions – Dimensionen – Dimensions [mm]																								
			A	B	C	D	E	F	G	H	I	J	J2	K	L	M	N	O	P	Q	R	S	T	U	V		
2504197	0,75	50	295	135	360	305	330	200	250	135	16	175	-	230	12	Ø110	Ø90	Ø50	4xØ10	270	290	160	250	42	36		
2504798	1,1	65	455	250	455	375	420	310	320	175		270		390	15,5	Ø160	Ø130	Ø67	4xØ14	425	371	205	395	46	39		
2504701	1,5				480	400					490		410														
2504702	2,2				570	475					605		510													635	540
2504803	3,0	80	522	280	570	475	490	340	370	205	20	300	-	460	15,5	Ø190	Ø150	Ø80	4xØ18	485	432	242	445	54,5	48		
2504804	4,0				605	510																				635	540
2504805	5,5				670	565																				720	615
2504907	7,5	105	640	340	670	565	545	390	460	250	35	350	515	Ø210	Ø170	Ø105	4xØ18	590	534	300	545	69	59				
2504911	11,0				720	615																		730	625		
2504915	15,0				822	380																		870	725	600	450
2504918	18,5	150	822	380	870	725	600	450	580	320	380	200	560	Ø285	Ø240	Ø150	8xØ22	700	740	442	640	72,6	76				
2504622	22,0						630						580														
2504630	30,0																										

MPTK IE1
Højtryk - High pressure - Hochdruck - Haute pression

Varenr. Article no. Artikel Nr. Code no. (400V)	Effekt Power Leist. Puiss. [kW]	Type Typ	Dimensioner – Dimensions – Dimensionen – Dimensions [mm]																											
			A	B	C	D	E	F	G	H	I	J	J2	K	L	M	N	O	P	Q	R	S	T	U	V					
2502102	2,2	50	410	250	450	395	420	310	250	135	16	270	J2	390	15,5	Ø110	Ø90	Ø50	4xØ10	385	290	160	365	42	36					
2502103	3,0				465	410					18			460						415			395							
2502104	4,0				440	280					510			455						490			340			20	300	390	385	365
2502105	5,5				410	250					545			490						420			310			18	270	460	390	385
2502707	7,5	65	485	280	605	525	490	340	320	175	35	300	-	460	15,5	Ø160	Ø130	Ø67	4xØ14	455	371	205	425	46	39					
2502711	11,0				650	570														545			390			515	515	485		
2502715	15,0				655	575														600			450			550	505			
2502718	18,5				695	615														600			450			550	505			
2502815	15,0	80	622	380	681	586	600	450	370	205	35	380	200	550	15,5	Ø190	Ø150	Ø80	4xØ18	545	432	242	505	54,5	48					
2502818	18,5				719	624														560			560			545	505			
2502822	22,0				759	664														600			450			560	505			
2502830	30,0				805	710														630			450			580	545			

Ret til tekniske ændringer forbeholdes - We reserve the right to make technical alterations - Technische und maßliche Änderungen vorbehalten - Sous réserve de modifications techniques.

MPTK Slurry Pump

The MPTK-I pump is a highly efficient slurry pump designed for pumping all kinds of slurry.

All MPTK pumps can be equipped with a knife system at the inlet to the pump, which ensures problem-free operations under conditions where many other pumps have problems with clogging.

APPLICATION EXAMPLES

- Long distance pumping
- Dry well installations
- Straight flush
- Vacuum system
- Abrasive slurry applications

PUMP RPM

- 1,500 rpm – medium pressure
- 3,000 rpm – high pressure



MATERIAL OF CONSTRUCTION

Motor housing and oil chamber	Cast iron EN-GJL-250
Pump housing	Cast iron EN-GJL-250
Pump impeller	Cast iron EN-GJL-250 Cast iron EN-GJS-700-2 (optional)
Pump Shaft	W1.6582/AISI4340
Bolts	A4
Sealing system	Mechanical shaft seals: silicon carbide/silicon carbide
Knife system	Hardened steel W1.0038/S235JR
Extended knife system	Hardened steel W1.0038 (optional)
Oil type	15W-40

SERVICE AND MAINTENANCE

Recommended service interval/oil change	Maximum 2,000 operating hours/minimum once a year
Motor	Lifetime lubricated bearings
Oil chamber	Periodic oil change

SURFACE TREATMENT

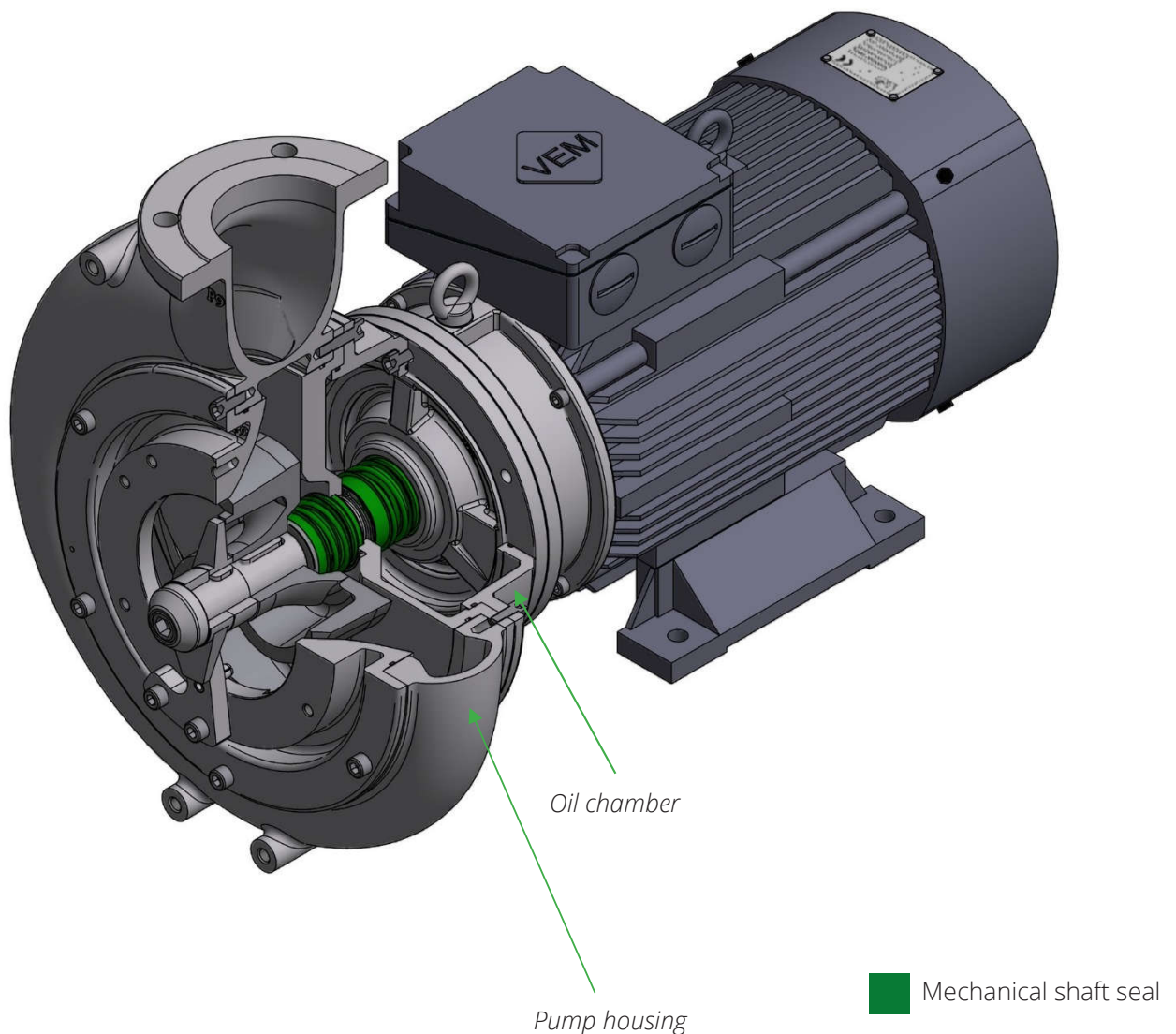
Machinery enamel: RAL 9005 (Jet Black)

Jet Black

DESIGN

The open pump impeller design means that the MPTK pump can pump slurry with a high TS concentration. For slurry containing abrasive particles, such as sand, Landia has developed special materials so that the pump's life span is extended significantly in comparison to a standard pump.

MPTK pumps can be equipped with a knife system at the inlet to the pump, which ensures problem-free operation under conditions where many other pumps have problems with clogging.

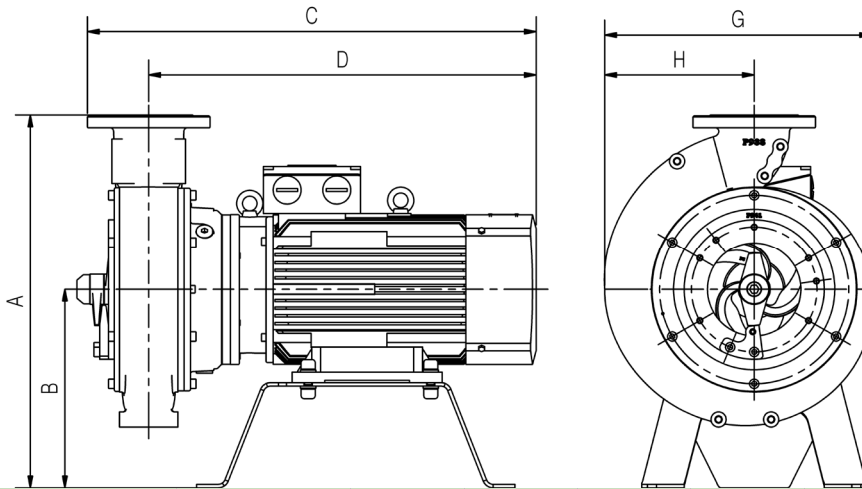


ELECTRICAL DATA MPTK

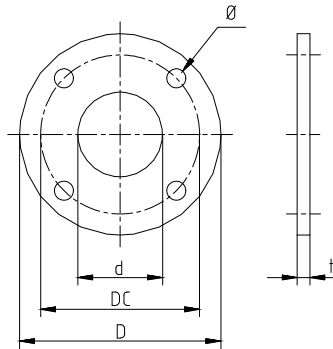
Motor type	3-phase AC motor
Nominal voltage	400 V
Minimum voltage allowed	360 V
Nominal frequency	50 Hz
Applicable for VFD operation	Yes
Ingress protection rating	IP 55
Insulation class	F

Model	Item number	Nominal power	Motor	Full load current (400 V)	Connection method	Start current (DOL)	cos phi	Efficiency
		[kW]	[rpm]	[A]	Y/Δ	[A]		[%]
Medium pressure								
MPTK 50 0.75 kW-1,500 rpm	2504197	0.75	1,400	2.1	Y	10	0.70	73.6
MPTK 65 1.1 kW-1,500 rpm	2504798	1.1	1,410	2.6	Y	14	0.79	76.7
MPTK 65 1.5 kW-1,500 rpm	2504701	1.5	1,400	3.4	Y	19	0.81	78.6
MPTK 65 2.2 kW-1,500 rpm	2504702	2.2	1,410	5.0	Y	30	0.80	80.2
MPTK 80 3.0 kW-1,500 rpm	2504803	3.0	1,430	6.7	Δ	43	0.79	82.4
MPTK 80 4.0 kW-1,500 rpm	2504804	4.0	1,435	8.8	Δ	61	0.78	84.1
MPTK 80 5.5 kW-1,500 rpm	2504805	5.5	1,440	11.0	Δ	68	0.87	84.6
MPTK 105 7.5 kW-1,500 rpm	2504907	7.5	1,455	15.0	Δ	90	0.83	86.2
MPTK 105 11.0 kW-1,500 rpm	2504911	11.0	1,455	21.5	Δ	146	0.84	87.9
MPTK 105 15.0 kW-1,500 rpm	2504915	15.0	1,465	29.0	Δ	212	0.84	88.7
MPTK 105 18.5 kW-1,500 rpm	2504918	18.5	1,460	35.0	Δ	238	0.85	89.3
MPTK 150 18.5 kW-1,500 rpm	2504618	18.5	1,460	35.0	Δ	238	0.85	89.3
MPTK 150 22.0 kW-1,500 rpm	2504622	22.0	1,465	43.0	Δ	280	0.82	90.1
MPTK 150 30.0 kW-1,500 rpm	2504630	30.0	1,465	57.0	Δ	399	0.84	90.7
High pressure								
MPTK 50 2.2 kW-3,000 rpm	2502102	2.2	2,850	4.6	Y	34	0.85	82.1
MPTK 50 3.0 kW-3,000 rpm	2502103	3.0	2,865	6.2	Δ	42	0.85	82.8
MPTK 50 4.0 kW-3,000 rpm	2502104	4.0	2,900	8.4	Δ	59	0.81	84.9
MPTK 50 5.5 kW-3,000 rpm	2502105	5.5	2,860	11.0	Δ	61	0.86	84.7
MPTK 65 7.5 kW-3,000 rpm	2502707	7.5	2,890	15.0	Δ	99	0.85	86.1
MPTK 65 11.0 kW-3,000 rpm	2502711	11.0	2,905	20.5	Δ	143	0.88	87.6
MPTK 65 15.0 kW-3,000 rpm	2502715	15.0	2,940	27.5	Δ	195	0.89	88.7
MPTK 65 18.5 kW-3,000 rpm	2502718	18.5	2,925	33.0	Δ	238	0.90	89.9
MPTK 80 15.0 kW-3,000 rpm	2502815	15.0	2,940	27.5	Δ	195	0.89	88.7
MPTK 80 18.5 kW-3,000 rpm	2502818	18.5	2,925	33.0	Δ	238	0.90	89.9
MPTK 80 22.0 kW-3,000 rpm	2502822	22.0	2,935	39.0	Δ	265	0.90	90.5
MPTK 80 30.0 kW-3,000 rpm	2502830	30.0	2,940	52.5	Δ	383	0.91	90.6

OVERALL DIMENSIONS MPTK



Model	Item number	A [mm]	B [mm]	C [mm]	D [mm]	G [mm]	H [mm]	Weight [kg]
Medium pressure								
MPTK 50 0.75 kW-1,500 rpm	2504197	295	135	360	305	250	135	25
MPTK 65 1.1 kW-1,500 rpm	2504798	455	250	455	375	320	175	45
MPTK 65 1.5 kW-1,500 rpm	2504701	455	250	480	400	320	175	50
MPTK 65 2.2 kW-1,500 rpm	2504702	455	250	490	410	320	175	55
MPTK 80 3.0 kW-1,500 rpm	2504803	522	280	570	475	370	205	80
MPTK 80 4.0 kW-1,500 rpm	2504804	522	280	605	510	370	205	85
MPTK 80 5.5 kW-1,500 rpm	2504805	522	280	635	540	370	205	100
MPTK 105 7.5 kW-1,500 rpm	2504907	640	340	670	565	460	250	140
MPTK 105 11.0 kW-1,500 rpm	2504911	640	340	720	615	460	250	160
MPTK 105 15.0 kW-1,500 rpm	2504915	640	340	730	625	460	250	200
MPTK 105 18.5 kW-1,500 rpm	2504918	640	340	730	625	460	250	210
MPTK 150 18.5 kW-1,500 rpm	2504618	822	380	775	630	580	320	270
MPTK 150 22.0 kW-1,500 rpm	2504622	822	380	870	725	580	320	330
MPTK 150 30.0 kW-1,500 rpm	2504630	822	380	870	725	580	320	360
High pressure								
MPTK 50 2.2 kW-3,000 rpm	2502102	410	250	450	395	250	135	36
MPTK 50 3.0 kW-3,000 rpm	2502103	410	250	465	410	250	135	41
MPTK 50 4.0 kW-3,000 rpm	2502104	440	280	510	455	250	135	53
MPTK 50 5.5 kW-3,000 rpm	2502105	410	250	545	490	250	135	61
MPTK 65 7.5 kW-3,000 rpm	2502707	485	280	605	525	320	175	80
MPTK 65 11.0 kW-3,000 rpm	2502711	545	340	650	570	320	175	105
MPTK 65 15.0 kW-3,000 rpm	2502715	545	340	655	575	320	175	140
MPTK 65 18.5 kW-3,000 rpm	2502718	545	340	695	615	320	175	155
MPTK 80 15.0 kW-3,000 rpm	2502815	622	380	681	586	370	205	188
MPTK 80 18.5 kW-3,000 rpm	2502818	622	380	719	624	370	205	205
MPTK 80 22.0 kW-3,000 rpm	2502822	622	380	759	664	370	205	258
MPTK 80 30.0 kW-3,000 rpm	2502830	622	380	805	710	370	205	305

OVERALL DIMENSIONS WELDING FLANGE

Model/ Pump series	Article no.	Material	MPTK 50 - 65 - 80 - 105 DIN 2573 PN 6 Dim. [mm] MPTK 150 2576 PN 10 Dim. [mm]				
			D	DC	d	\varnothing	t
MPTK 50	7713006	W1.0038/S235JR	$\varnothing 110$	90	$\varnothing 52$	4 x $\varnothing 10$	8
MPTK 65	7713052	W1.0038/S235JR	$\varnothing 160$	130	$\varnothing 69$	4 x $\varnothing 14$	8
MPTK 80	7713053	W1.0038/S235JR	$\varnothing 192$	150/160	$\varnothing 82$	4 x $\varnothing 18$	10
MPTK 105	7713054	W1.0038/S235JR	$\varnothing 212$	170/180	$\varnothing 107$	4 x $\varnothing 18$	10
MPTK 150	7713009	W1.0038/S235JR	$\varnothing 285$	240	$\varnothing 152$	8 x $\varnothing 22$	12

We reserve the right to make technical changes.

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Fitting the front plate	5
Fitting the back plate	5
Installing the knives.....	6
Inspection	6
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Introduction

MPTK is a dry installed pump.

By means of different equipment a great number of different pumping requirements can be met. The pumping takes place by means of an electric motor; a pump casing with an impeller is installed on the motor. The oil filled oil chamber between motor and impeller provides cooling and lubrication of the mechanical seals. The sealing system consists of two mechanical seals. The exterior seal separates the medium from the oil chamber, the interior seal separates the oil from the motor casing.

The following pages describe the connection and maintenance of the chopper pump, type MPTK.

Application

This dry installed pump is to be applied for pumping of liquids with a high or a low dry matter content, like e.g., thick manure and highly polluted wastewater. The pump is only to be applied dry installed in connection with application at e.g., effluent treatment plants, in industry and in agriculture. If the pump is to be applied for other purposes, contact Landia A/S for advice.

Warning

Please note the following points:

- Only a certified electrician is allowed to connect the unit.
- Prior to installation and commissioning secure that the equipment, such as hoses, pipes and pipe branches, is installed correctly and fixed to the pump.
- Prior to the first start of the pump, the pump shaft must be rotated manually. This also applies if the pump has not been in operation for a longer period.
- The pump **must** be dry installed but can be placed outside without protection as the motor is splash proof.
- The motor is **not** to be wrapped in plastic film etc.
- Prior to service/repair of the pump **it is always to be ensured** that the electrical connection of the pump is switched off or locked.
- Prior to disassembling the pump, the sluice valve on the pressure side and on the inlet side **must** be completely closed.

Service/repair

To maintain a high operating safety and a long service life without unnecessary and expensive repair it is important from the beginning to execute regular and preventive service. Maintenance should be executed according to the intervals stated in the manual. Always follow the instruction carefully and only apply the parts described by Landia A/S in the spare parts list.

If you do not want to execute the service yourself, we can offer you a service agreement - please call for further information.

Please note

If spare parts not identical to the recommended are applied at service/repair, the guarantee from Landia A/S will be annulled. Spare parts can be ordered at Landia A/S or your local distributor.

For major repairs at a special workshop please contact:

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Industrivej 2
DK-6940 Lem St.
Tel.: +45 97 341244
info@landia.dk
www.landia.dk

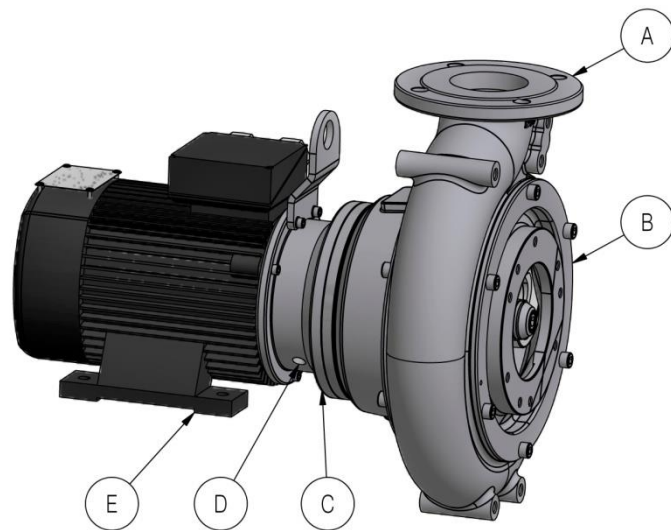
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Whitchurch,
Shropshire SY13 1TT
Tel: + 44 01948 661 200
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Installation

At installation it must be secured that the pump can be removed from the pipe system in case of breakdown, service etc. Therefore, block valves must be installed on the pressure and on the inlet side of the pump, unless the pipe system can be emptied in another way. Besides, it must be secured at fixing to the concrete foundation that the pump can be lifted in service situations.

The pump must be relieved on the foundation/bracket through the motor base, pos. E. When installing it in a pipe system where vibrations and temperature fluctuations affect the pipe system, compensators must be used. When installing, the pump drain hole, pos. C, in the intermediate chamber and the condensation hole of the pump, pos. D, in the engine must turn downwards.

- A. Pressure side
- B. Suction side
- C. Drain hole
- D. Condensate hole
- E. Motor base



Rating plate

		VEM motors GmbH Thurm		
IM	IP	IF	3~Mot	kg
○50HZ	cos φ	kW/60HZ	kW	○
	V		V	
	A		A	
	min ⁻¹		min ⁻¹	
50 Hz	...	/	...	V
60 Hz	...	/	...	V
				A
				A

IP:	Cage class
F:	Insulation class F
3~mot.nr.:	3 phased motor
IM:	Building form
cos φ:	Power factor
Kg:	Weight of motor without pump
kW:	Max. shaft power
V:	Mains voltage
A:	Nominal power consumption
min:	Motor revolutions per minute

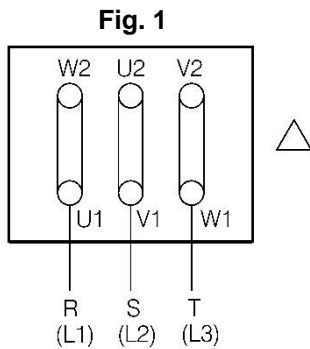
kW,V,A and min⁻¹ for 50 Hz and 60 Hz respectively.

The final two lines state the allowed voltage intervals with power consumption at 50 Hz and 60 Hz resp.

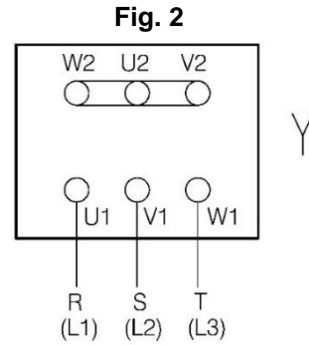
Power connection

Every pump is equipped with the above-mentioned rating plate with technical motor data. The motor is connected according to Fig. 1 or 2. It must be secured that the other electrical parts correspond to the motor data. For each pump there is an electrical diagram. A protective motor switch must be applied at connection of the pump to the mains.

Only a certified electrician is allowed to connect the unit.



Delta connection.



Star connection.

Capacity

The capacity of the pump will always depend on the consistency of the medium.

To obtain the highest capacity possible with as low motor power as possible it is important that the diameters of the pump pipes are sufficiently large, and that sharp bends are avoided as far as possible. Large pipe dimensions are especially important in connection with long pumping distances. At pump installations in piping systems compensators must be applied since vibrations and temperature fluctuations will influence the piping system.

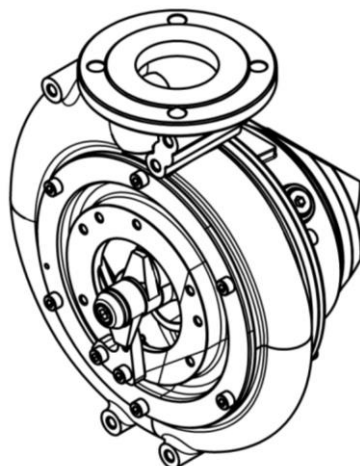
The pumps are equipped with open impellers especially suited for liquids with large particles, like e.g., raw wastewater, manure, and industry applications. For difficult mediums with e.g., a high dry matter content or large impurities which make up a risk for blocking, the pumps can be supplied with a knife system. The knife system which is placed in the inlet port consists of one (or three) fixed and two rotating knives. The knives comminute large impurities in the medium in order to ease the pumping. They are ideal for comminuting e.g., straw, shreds, paper, fish etc.

To minimize downtime on the pump due to metal objects in the medium, it may be recommended to mount a magnet at the feed system to the tank to which the pump is connected.

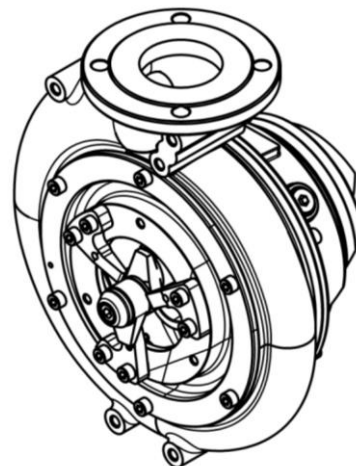
The capacity of the pump will be reduced if the edge of the guide trace on the front and back plates is rounded and worn or if deep furrows occur in the guide traces. You can minimize the wear on the front and rear plate by changing the impeller before the edges on the back of the impeller become too round. If the edges of the impeller become too round, it is easier for stones and the like to get caught between the impeller and the back plate, which then rotates with the impeller around, and the wear will increase.

If you have any doubts or questions, please contact Landia for our advice.

Pump casing w. knife system.



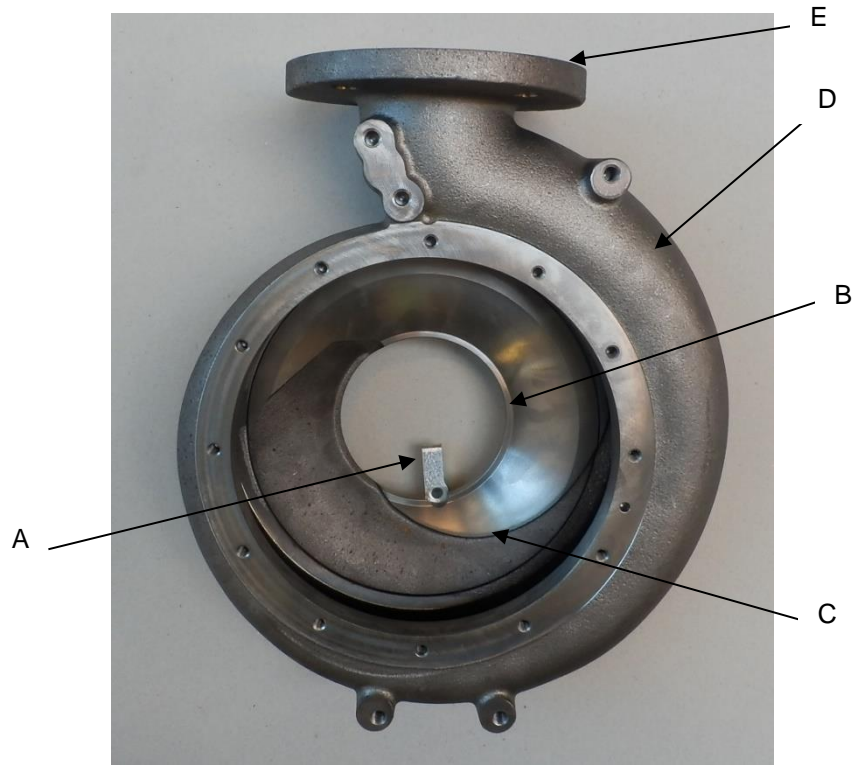
Pump casing w. extended knife system



Fitting the front plate

- A. Knife with tightening pin
- B. Front plate
- C. Guide trace
- D. Pump casing
- E. Outlet

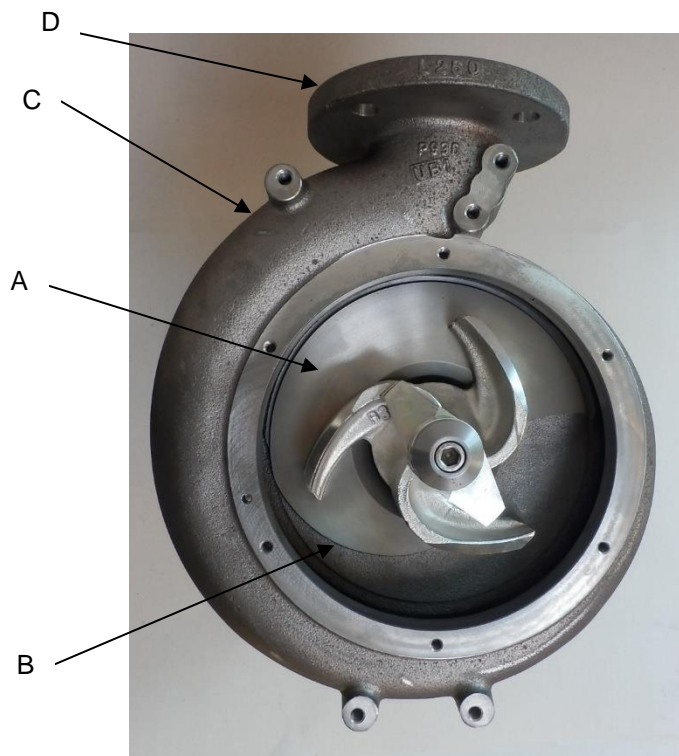
The front plate of the pump casing is designed with a guide trace. The guide trace has to be placed like shown on the above photo, regardless of how the outlet of the pump is turned.



Fitting the back plate

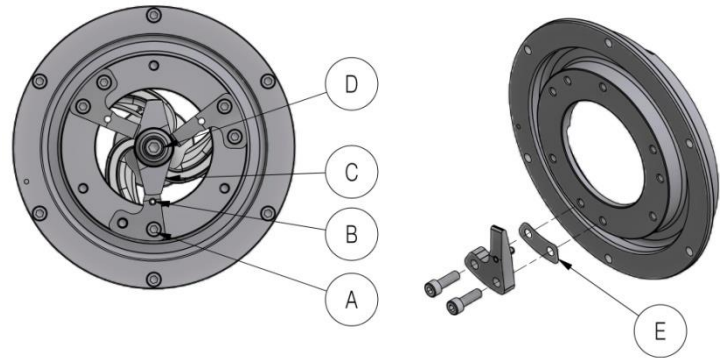
- A. Back plate
- B. Guide trace
- C. Pump casing
- D. Outlet

The front plate of the pump casing is designed with a guide trace. The guide trace has to be placed like shown on the above photo, regardless of how the outlet of the pump is turned.



Installing the knives

- A. Fixed knife
- B. Tightening pin
- C. Rotating knife
- D. Bolt
- E. Shim



If the tightening pin in the fixed knife is missing, the pin/knife must be replaced.

When the fixed and rotating knives are replaced, make sure that the shaft can rotate without the rotating knives touching the fixed knife/knives. If this is not the case, the fixed knife/knives must be adjusted with shims.

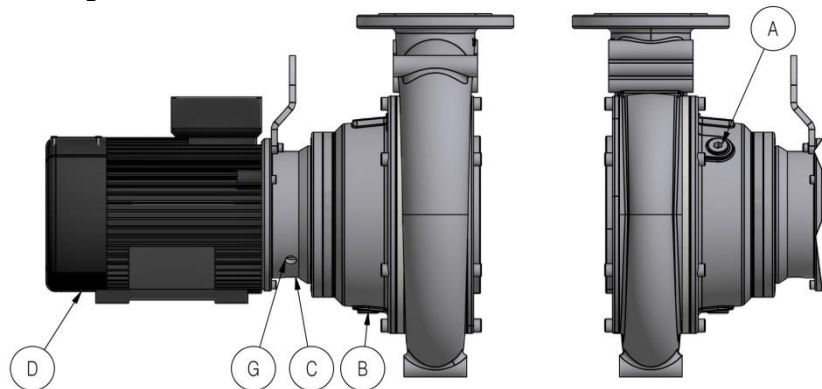
Inspection

Regular inspection will ensure the pump a long service life at low costs. Every 2000 operating hours or more, often depending on the operation conditions, the impeller, the oil quantity, the motor casing and the knife system, if any, should be checked. The oil must be changed at least once a year.

If the tightening pin of the fixed knife is lacking, the pin and the knife must be exchanged.

If large quantities of oil/liquid seep out of the drainage hole in the intermediate chamber, the mechanical shaft seals of the pump should be checked. When the knife system has been replaced, the bolts must be tightened with a tightening torque according to the diagram below.

- A. Top oil plug
- B. Bottom oil plug
- C. Drain hole
- D. Condensate hole
- E. Filter
- F. Pressure equalization
- G. Control hole



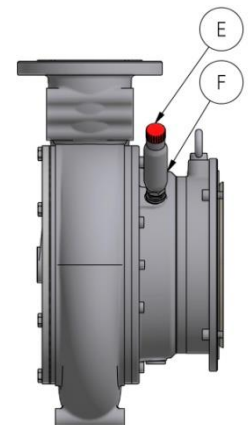
Oil control

The oil is checked by uninstalling the top oil plug pos. A. For pumps with pressure equalization, pos. F is uninstalled.

The oil has to be clean and the level must reach the level of the upper plug pos. A when the pump is in a horizontal position, standing on its feet. If the oil is dirty, it must be changed and the two mechanical seals must be checked and changed, if necessary. Oil type see table page 10.

The oil is drained off at oil plug pos. B and is filled at oil plug pos. A. For pumps with pressure equalization, oil is filled at pos. F.

If the pump is equipped with an oil collector, a drain hole, pos. C, is stuffed with a screw. The oil in the collector is drained by removing the screw in the drain hole, pos. C. When the oil collector is full, the oil comes out of the control hole, pos. G.



For pumps equipped with pressure equalization, the filter pos. E must be cleaned or replaced in connection with maintenance to avoid plugging.

Disassembling/assembling

A major repair should take place at a special workshop.

Below please find some general conditions regarding disassembling/ assembling of the pump. The drawing attached to the spare parts list shows the construction of the unit. Not all parts can/should be dismantled, e.g. do not press the rotor off the shaft. When disassembling the unit, handle the mechanical seals with care as they are not shock resistant.

Prior to reinstallation, all sealing surfaces must be cleaned; all O-rings must be checked and changed, if necessary. Adhesive substance (e.g. Loctite) must be applied on all bolt joints. All bolts must be tightened with a tightening torque acc. to the table below.

Bolt sizes	Quality 10.9 - 12.9 Steel	Quality A4 kl. 80 St. steel
M5	-	4,5 Nm
M6	14 Nm	10 Nm
M8	34 Nm	24 Nm
M10	67 Nm	48 Nm
M12	115 Nm	82 Nm
M16	160 Nm	137 Nm

After the bearing flange has been installed, the axial clearance must be controlled acc. to the table below.

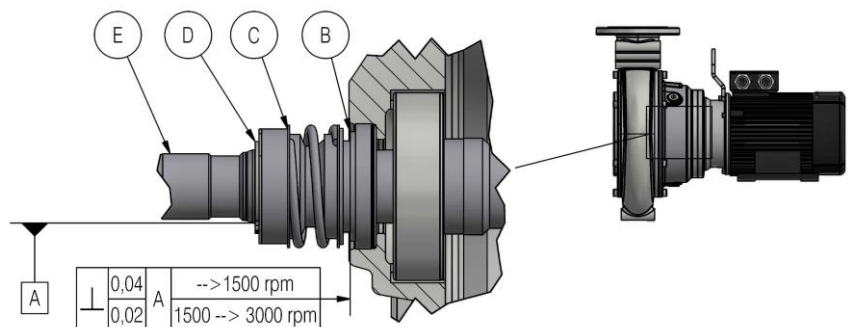
Pump size 1500 rpm.	Acceptable clearance	Pump size 3000 rpm.	Acceptable clearance
50	0.25 ± 0.05 mm	50	0.50 ± 0.05 mm
65	0.50 ± 0.05 mm	65	0.80 ± 0.05 mm
80	0.50 ± 0.05 mm	80	1.30 ± 0.05 mm
105	0.80 ± 0.05 mm		
150 and 105 22/30 kW	1.30 ± 0.05 mm		

Installation of mechanical shaft seals

When installing the mechanical shaft seals, you must be aware that these are precision products and that they should be treated as such. The slide faces must be protected during the installation.

- B. Stationary sealing part
- C. Rotating sealing part
- D. Locking ring
- E. Shaft

Push the stationary sealing part, pos. B, into place. Be careful not to damage the slide surface during the installation.



The rotating sealing part, pos. C, is put over the shaft. To ease the installation put soap water on the interior side of the rubber bellows as well as on the shaft. Do not apply silicone, PTFE lubricants or oil as they will prevent the rubber bellows from sticking to the shaft. Installation arbor should be used.

Put the locking ring, pos. D, on the shaft and press together the seal until the locking ring snaps into the locking ring trace. Check the seal by turning the motor shaft.

Oil is filled in the oil chamber. During the filling, the pump must be in a horizontal position. Oil quantity: see spare parts list, otherwise the oil must be at the level of the top oil plug.

It is necessary to repair the surface coating before the pump is put back into operation. See instructions for the maintenance of surface coating.

We reserve the right to technical alterations. Translated from Danish.

Konverteringsskema - Conversion table – Umrechnungstabelle - Tableau concernant**Olie - Oil - Öl**

CASTROL	Alpha SP 100	Alpha SP 220	Whitemore WOM 65	CRB Multi 15W-40	Hyspin HVI 15	Hyspin HVI 46D	Nevastane EP 100	Alphasyn GS 220
DIN-Norm / godkendelse	DIN 51502/DIN 51517 - CLP	DIN 51502/DIN 51517 - CLP	Ingen alternativer - No alternatives - Keine Alternativen - Pas d'alternative	Ingen alternativer - No alternatives - Keine Alternativen - Pas d'alternative	DIN 51502/ DIN 51524 - HVLP	DIN 51502-HVLP-D/ DIN 51524 - CLP	Ingen alternativer – No alternatives - Keine Alternativen - Pas d'alternative	DIN 51502/ DIN 51517 - CLP PG

Fedt - Grease - Fett - Graisse

BEL RAY	Bel Ray 50-2
CASTROL	Tribol GR 4747/220-2 HT
MOBIL	Mobilgrease FM 222
Q8	Rubens WB
SHELL	SHELL GADUS S3 V220C 2
TEXACO	Anderol 783-2
TOTAL	TOTAL NEVASTANE XMF 2

Smøremidler, som anvendes og anbefales af Landia A/S, er markeret med gråt i ovenstående skemaer. Konverteringsskemaerne angiver DIN-Norm / godkendelse på olietyper fra Castrol. DIN-Normen fra Castrol er vejledende og kan bruges til at finde en erstatningsolie hos Deres lokale olieleverandør. Hvis det ikke er muligt at finde en erstatningsolie, kan olien købes hos Landia A/S. Generelt bør blanding af forskellige fedttyper undgås enten ved udskiftning af al fedtet eller hyppig eftersmøring, så fedtet hurtigt udskiftes. Fedttyperne angivet ovenfor er blandbare.

Lubricants applied and recommended by Landia A/S are marked with grey in the above tables. The conversion schemes indicate the DIN Norms and the approved oil types from Castrol. The DIN Norm from Castrol is indicative and can be used to find a replacement oil from your local oil supplier. If it is not possible to find a replacement oil, the oil can be purchased from Landia A/S. Generally, mixing of different types of grease should be avoided either by replacing all the grease or frequent lubrication, so the grease is quickly replaced. The grease types mentioned above are mixable.

Das von Landia A/S empfohlene Schmiermittel, das verwendet werden muss ist in oben stehendem Schema mit grau markiert. Die Konvertierungsschemas zeigen die DIN-Normen und eine Übersicht der zugelassenen Öltypen von Castrol. Die DIN-Normen von Castrol sind indikativ und kann verwendet werden, um ein Ersatzöl von Ihrem lokalen Öllieferanten zu finden. Wenn es nicht möglich ist, ein Ersatzöl zu finden, kann das Öl von Landia A / S gekauft werden. Im Allgemeinen sollte Mischung von verschiedenen Schmiermitteln vermieden werden. Entweder das Fett wechseln oder häufig nachschmieren. Die oben genannte Fetttypen sind mischbar.

Les lubrifiants utilisés et recommandés par Landia A/S sont marqués d'un cri dans les tableaux ci-dessus. Les tableaux de conversion indiquent la norme DIN/approbation pour les types d'huile de Castrol. La norme DIN de Castrol est indicative et peut être utilisée pour trouver une huile de remplacement chez votre fournisseur d'huile local. S'il n'est pas possible de trouver une huile de remplacement, l'huile peut être acheté auprès de Landia. En général, il convient d'éviter de mélanger différents types de graisses en remplaçant toutes les graisses ou toutes les post-lubrifications fréquentes de manière à remplacer rapidement les graisses. Les types de graisse mentionnés ci-dessus sont miscibles.

Motordata for Landia motorer IE1
Side 1/1
3 x 400 Volt 50 Hz

Effekt kW	ms.	Poltal	RPM	Spænding trekant	Spænding stjerne	Strøm ved 3x400 V A	Strøm ved 3x690 A	Starts. direkte A	Cos phi %	Virk. grad fuld last %	Virk. grad 3/4 last %	Virk. grad 1/2 last %
1,5	80	2	2840	230	400	3,1	0	22	0,86	81,2	82,2	80,3
2,2	80	2	2850	230	400	4,6	0	34	0,85	82,1	83,4	81,9
3	90	2	2865	400	690	6,2	3,6	42	0,85	82,8	83,1	83,3
4	100	2	2900	400	690	8,4	4,9	59	0,81	84,9	85,5	84,4
5,5	100	2	2860	400	690	11	6,2	61	0,86	84,7	84,7	0
7,5	112	2	2890	400	690	15	8,6	99	0,85	86,1	86,1	84,1
11	132	2	2905	400	690	20,5	12	143	0,88	87,6	87,6	84,6
15	160	2	2940	400	690	27,5	16	195	0,89	88,7	88,7	85,8
18,5	160	2	2925	400	690	33	19,5	238	0,9	89,9	88,9	86,4
22	180	2	2935	400	690	39	22,5	265	0,9	90,5	90,5	86,7
30	180	2	2940	400	690	52,5	30,5	383	0,91	90,6	89,8	88,3
37		2	2940	400	690	65	37,50	455	0,9	91,5	90,5	89
45		2	2940	400	690	77,5	44,7	581	0,91	92	91,3	88,8
0,55	71	4	1400	230	400	1,6	0	7	0,69	71,9	70,7	64,1
0,75	71	4	1400	230	400	2,1	0	10	0,7	73,6	72,2	66,8
1,1	80	4	1410	230	400	2,6	0	14	0,79	76,7	76,8	73,6
1,5	80	4	1400	230	400	3,4	0	19	0,81	78,6	79,1	76,9
2,2	90	4	1410	230	400	5	0	30	0,8	80,2	80,7	79,5
3	100	4	1430	400	690	6,7	3,9	43	0,79	82,4	82,8	80,8
4	100	4	1435	400	690	8,8	5,1	61	0,78	84,1	85,1	83,6
5,5	112	4	1440	400	690	11	6,2	68	0,87	84,6	84,6	83,1
7,5	132	4	1455	400	690	15	8,8	90	0,83	86,2	85,2	83,8
11	131	4	1455	400	690	21,5	12,5	146	0,84	87,9	87,5	85,5
15	160	4	1465	400	690	29	17,00	212	0,84	88,7	88,3	85,8
18,5	160	4	1460	400	690	35	20,5	238	0,85	89,3	88,8	86,8
22	180	4	1465	400	690	43	25	280	0,82	90,1	90,1	88,6
30	180	4	1465	400	690	57	33	399	0,84	90,7	90,2	89,2
37		4	1470	400	690	68	39,2	476	0,86	91,2	90,2	89,2
45		4	1470	400	690	82,5	47,6	578	0,86	91,7	91,2	89,7
0,55	50	8	695	230	400	2	0	7	0,6	64,8	62,5	55,8
0,75	50	8	705	230	400	2,7	0	9	0,6	66,8	64,7	57,9
1,1	50	8	705	230	400	3,3	0	13	0,67	72,9	73,3	69,6
1,5	50	8	705	230	400	4,1	0	18	0,7	75,4	75,7	72,4
2,2	50	8	705	230	400	5,6	0	25	0,75	75,6	75,1	72,1
3	50	8	705	400	690	7,4	4,3	33	0,75	78	78	75
4	50	8	710	400	690	9,3	5	37	0,78	79,6	79,3	77,3
5,5	50	8	710	400	690	12,5	7,2	56	0,78	81,4	81	78
7,5	50	8	725	400	690	18	10,5	81	0,71	84,7	84,7	81,7
11	50	8	720	400	690	24	14	108	0,78	84,8	83,8	81,3

Motordata for Landia motorer IE2
Side 1/1
3 x 400 Volt 50 Hz

Effekt kW	ms.	Poltal	N rpm	Spænding trekant V	Spænding stjerne V	Strøm ved 3x400 V A	Strøm ved 3x690 A	Starts. direkte A	Cos phi ϕ	Virk. grad fuld last %	Virk. grad 3/4 last %	Virk. grad 1/2 last %
1,5	90	2	2910	230	400	2,9	0	34	0,87	81,3	85,5	82,9
2,2	90	2	2880	230	400	4,25	0	34	0,88	83,2	85,7	83,9
3	100	2	2930	400	690	6,55	3,8	56	0,76	84,6	86,2	83,5
4	100	2	2920	400	690	7,9	4,6	66	0,84	85,8	86,4	85,8
5,5	112	2	2900	400	690	10,3	5,9	80	0,88	87	88,7	88,8
7,5	132	2	2925	400	690	13,5	7,8	90	0,91	88,8	89,2	88,3
11	160	2	2950	400	690	19,5	11,3	150	0,9	90,3	90,3	89,1
15	160	2	2940	400	690	26	15,0	230	0,92	90,7	90,5	89,1
18,5	160	2	2935	400	690	32	18,5	230	0,91	91	91,4	91,4
22	180	2	2935	400	690	38,5	22,2	239	0,9	91,3	90,6	86,4
30	180	2	2945	400	690	52	30,0	359	0,91	92	91,3	90,5
37	180	2	2940	400	690	63	36,4	466	0,92	92,5	92,3	91,6
0,55	80	4	1430	230	400	1,25	0	8	0,8	79,4	79,6	78,7
0,75	80	4	1430	230	400	1,65	0	12	0,81	79,6	81,4	79,6
1,1	90	4	1435	230	400	2,4	0	16	0,8	81,4	82,3	80,4
1,5	100	4	1455	230	400	3,35	0	45	0,77	82,8	83,2	80,7
2,2	100	4	1455	230	400	4,8	0	45	0,77	84,3	85,2	81,7
3	112	4	1460	400	690	6,5	3,8	63	0,77	85,5	86,3	84,5
4	112	4	1460	400	690	7,6	4,4	63	0,86	87,6	88	86,9
5,5	132	4	1470	400	690	10,5	6,1	123	0,87	88,4	89,3	89
7,5	132	4	1470	400	690	14,5	8,4	123	0,82	89,9	90	88,5
11	160	4	1470	400	690	22,5	13,0	176	0,78	90,3	90,3	88,9
15	180	4	1475	400	690	28,5	16,5	307	0,83	91	90,4	89
18,5	180	4	1475	400	690	35,5	20,5	307	0,82	91,2	90,6	89,3
22	180	4	1475	400	690	42	24,2	307	0,83	91,6	91,4	89,9
0,55	80	6	950	230	400	1,5	0	6	0,69	76,5	76,1	72,6
0,75	90	6	955	230	400	1,95	0	10	0,71	75,9	78,3	75,1
1,1	100	6	955	230	400	2,75	0	15	0,71	78,1	82	79,3
1,5	112	6	955	400	690	3,55	0	50	0,75	81	80,5	79,6
2,2	112	6	955	400	690	5,2	0	50	0,74	82,8	82,5	80
3	112	6	955	400	690	7,1	4,1	50	0,73	83,3	83,1	80,5
4	132	6	965	400	690	8,5	4,9	43	0,79	85,5	85,5	83,8
5,5	160	6	970	400	690	12	6,9	91	0,76	87	86,4	85,8
7,5	160	6	970	400	690	15,5	8,9	91	0,79	87,5	87,6	85,9
11	180	6	975	400	690	21	12,1	177	0,84	89,2	87,9	86,3
15	180	6	975	400	690	28,5	16,5	177	0,84	89,7	88,8	86,7
18,5	180	6	980	400	690	35	20,2	231	0,85	90,4	88,8	86,5

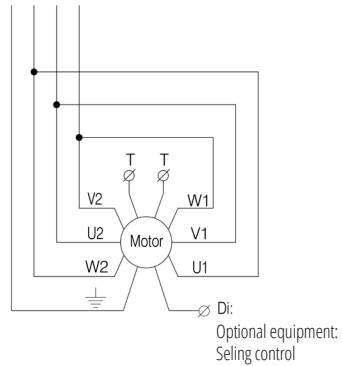
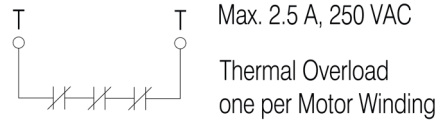
Motordata for Landia motorer IE3

Side 1/1

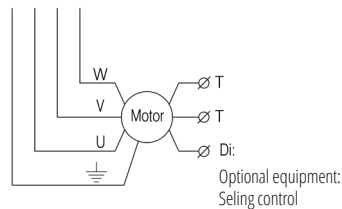
3 x 400 Volt 50 Hz

Effekt	ms.	Poltal	N	Spænding trekant	Spænding stjerne	Strøm ved 3x400 V	Strøm ved 3x690	Starts. direkte	Cos phi	Virk. grad fuld last	Virk. grad 3/4 last	Virk. grad 1/2 last
kW			rpm	V	V	A	A	A	φ	%	%	%
1,5	100	4	1455	230	400	3,4	-	32,3	0,75	85,3	84	80,6
4	112	4	1465	400	690	7,9	4,6	74,3	0,82	88,6	88,9	87,4
7,5	132	4	1470	400	690	16	9,2	121,6	0,75	90,5	90,5	89,2
11	160	4	1465	400	690	21	12,1	147	0,82	91,4	91,4	91,5
18,5	180	4	1475	400	690	34,5	19,9	269,1	0,84	92,6	92,7	91,9
4	132	6	965	400	690	8,3	4,8	39,9	0,8	86,8	87	86
7,5	160	6	975	400	690	14,5	8,4	84,1	0,82	89,6	89,4	87,8

To Overtemp. Relay
in Control Panel



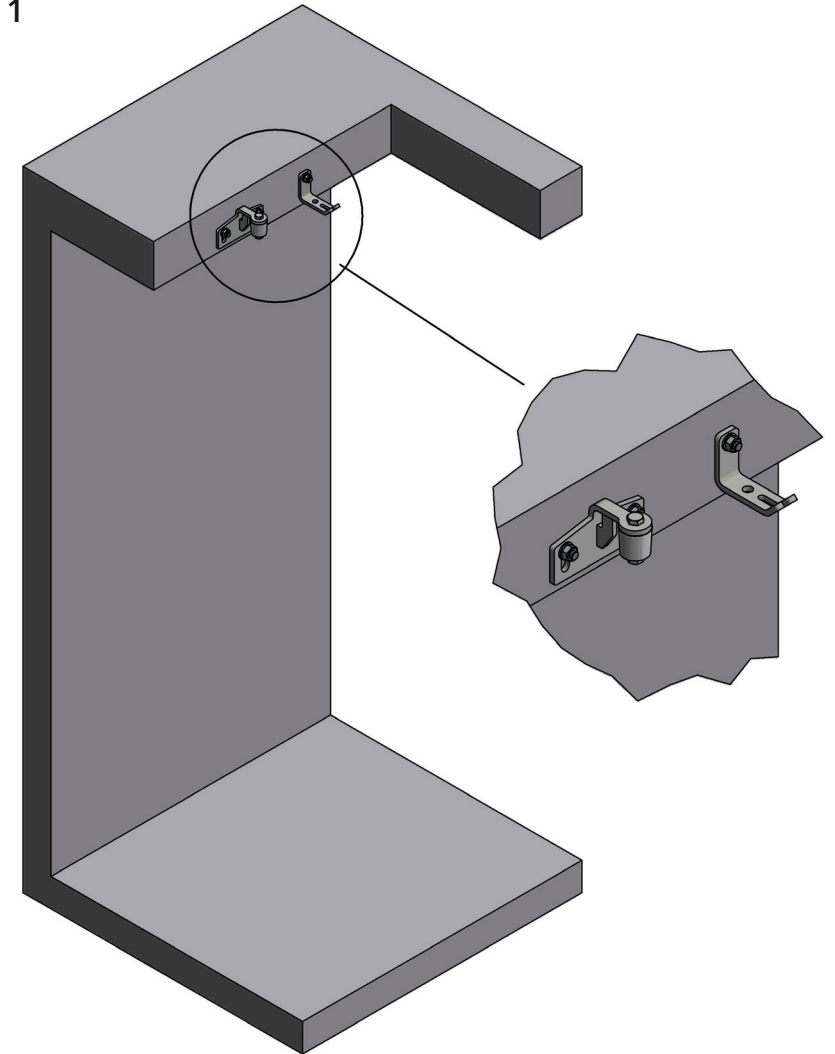
Wire function	US model only Color code	Number/color
U1	Red ●	1
V1	Orange ●	2
W1	White ○	3
W2	Green/black ●	4
U2	Red/black ●	5
V2	Orange/black ●	6
Ground	Green ●	Green/yellow ●
Thermal sensor	Blue ●	Blue ●
Thermal sensor	Black ●	Brown ●
Seal control	White/black ●	Black ●



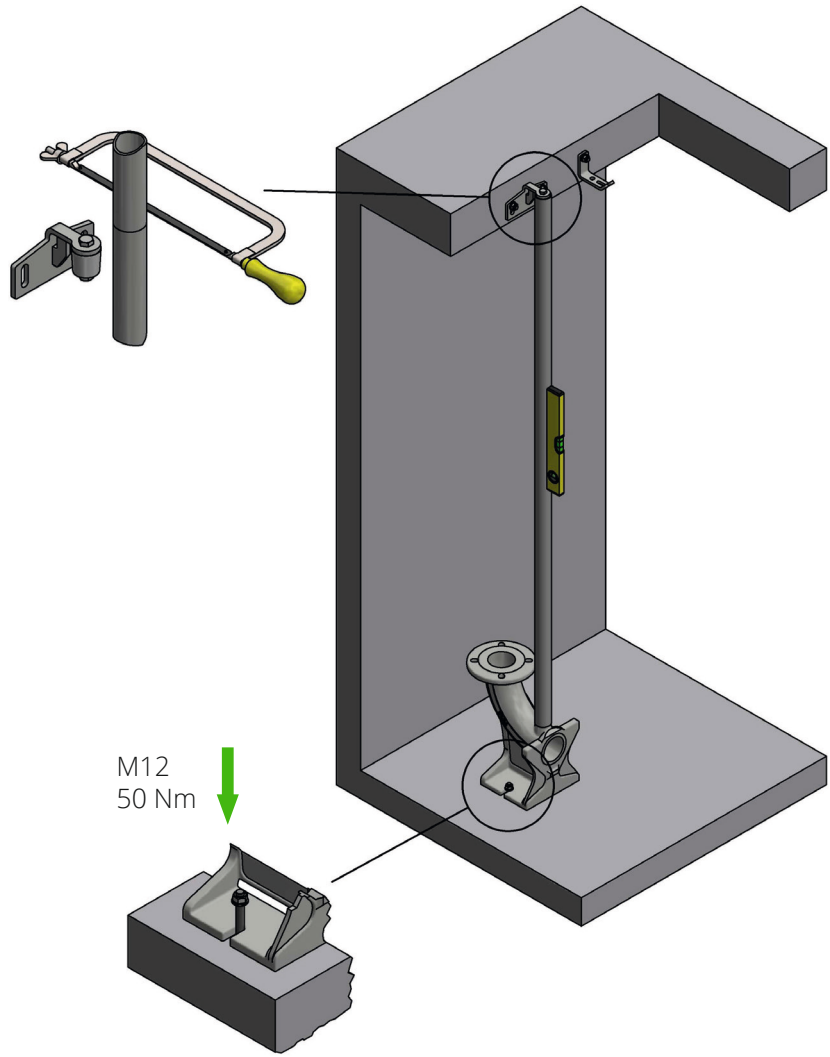
Wire function	US model only Color code	Number/color
U1	Red ●	1
V1	Orange ●	2
W1	White ○	3
Ground	Green ●	Green/yellow ●
Thermal sensor	Blue ●	Blue ●
Thermal sensor	Black ●	Brown ●
Seal control	White/black ●	Black ●

Quick Guide for Submersible Pump DG/DG-I/DGER-I/DGR-I

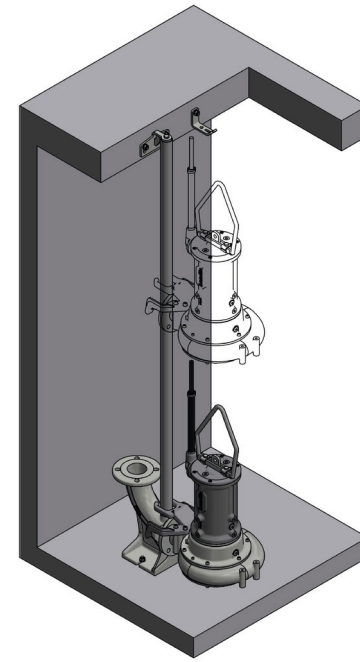
Step 1



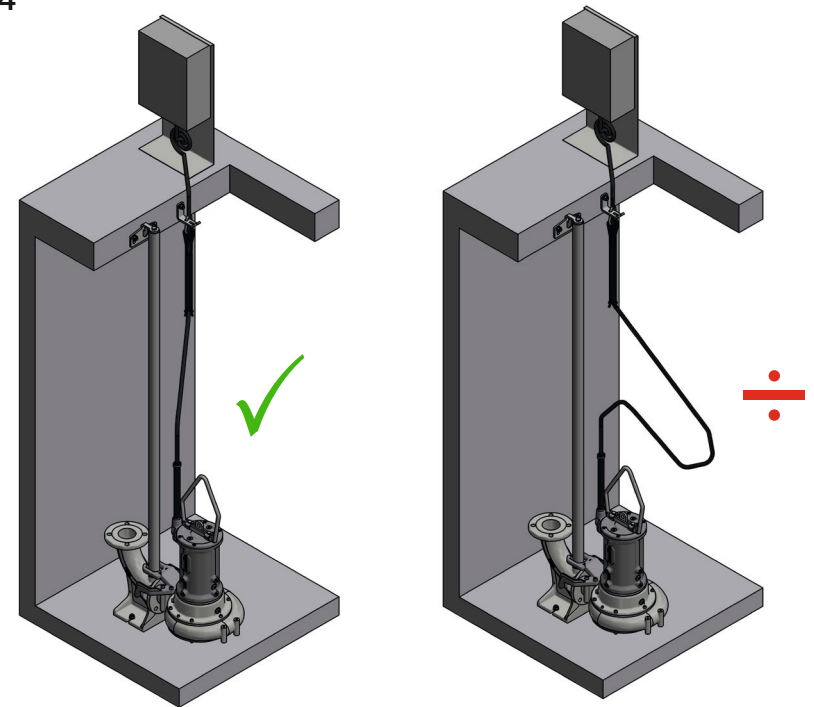
Step 2



Step 3

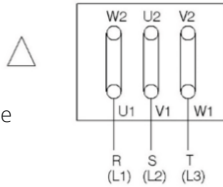


Step 4

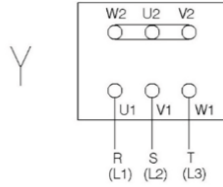


Klemrækketilslutning
Klemmbrettschaltungen
Terminal Board Connections
Couplages sur la planche à bornes

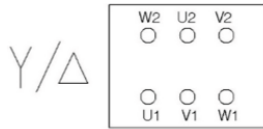
Trekantkobling
Delta connection
Dreieckschaltung
Branchement en triangle



Stjernekobling
Star connection
Sternschaltung
Branchement en étoile

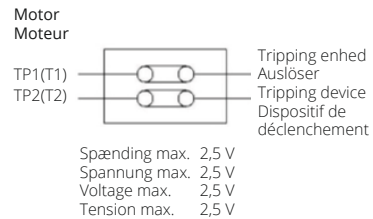


Stjerne-trekant tilslutning
Sterndreieckschalteranschluss
Star-delta switch connection
Connexion du commutateur étoile-triangle



Ved brug af stjerne-trekantstarter tilsluttes efter dennes diagram.
Bei Sterndreieckschalter ohne Brücken Anschluss nach Schema des Schalters.
For star-delta switches without jumpers connection is as indicated on the schematic of the switch.
En cas de commutateur étoile-triangle sans ponts, connexion selon le schéma au commutateur.

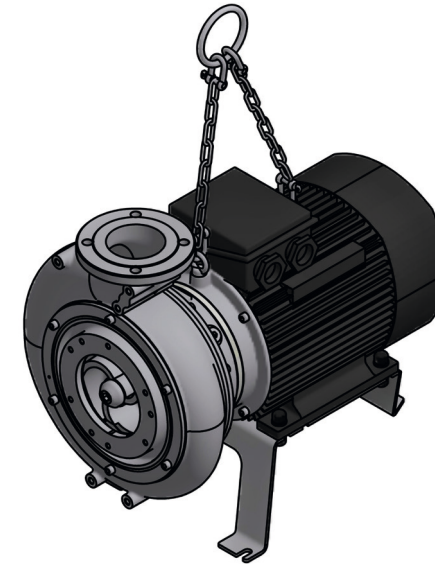
Motorer med termistorer
Motoren mit thermischem Wicklungsschutz
Motors with Thermal Winding Protection
Moteurs avec protection thermique par enroulement



Forbindelsen implementeres ifølge forbindelsesdiagrammet for tripperenheden.
Die Verbindung erfolgt nach dem Anschlussplan der Auslösevorrichtung.
The connection is implemented as per the connection diagram of the tripping device.
La connexion est implémentée selon le schéma de connexion du dispositif de déclenchement.

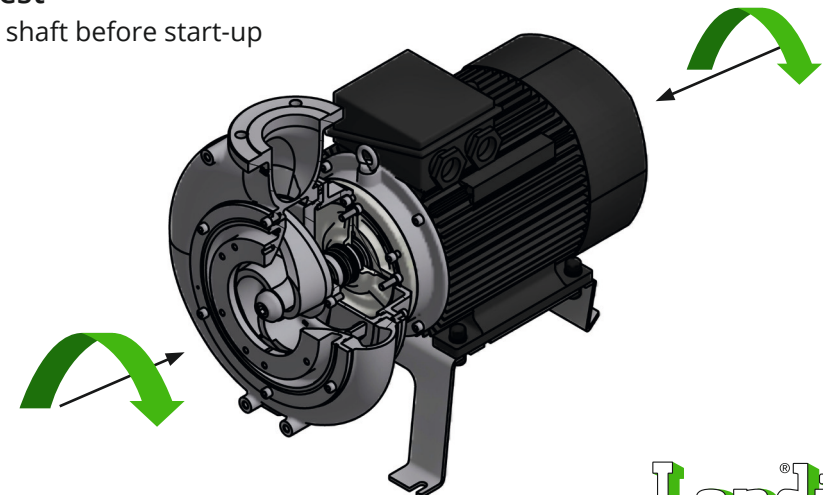
Quick Guide for Dry Mounted Pump MPTK-I/MPTKR-I/MPTK-GI

Lifting Point

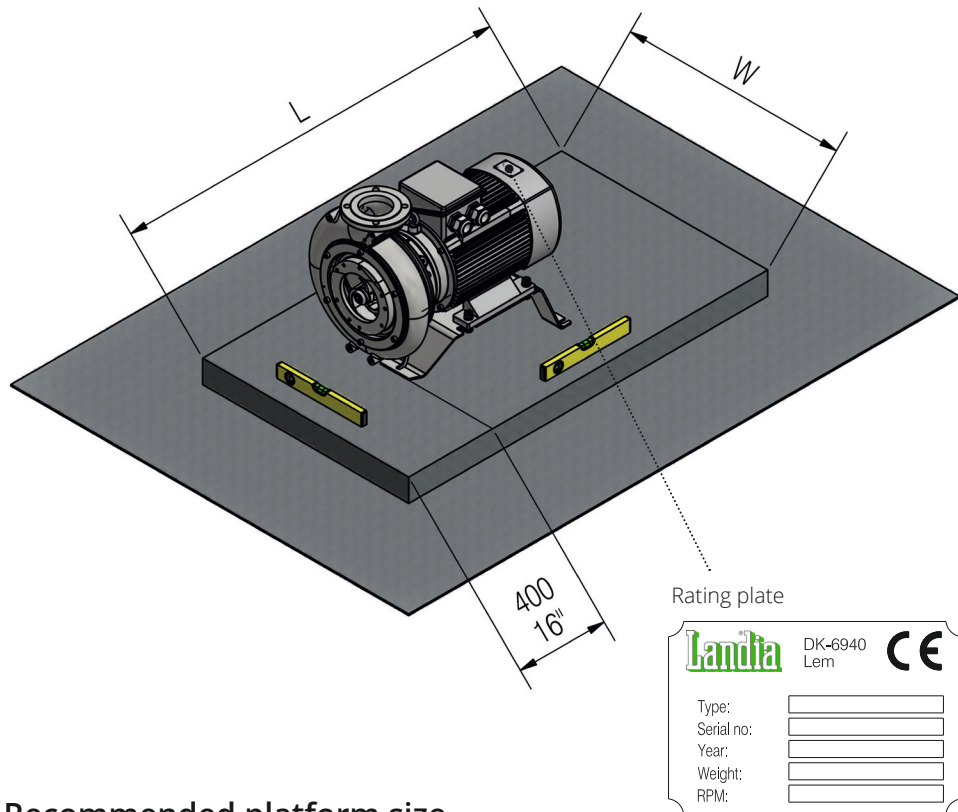


Dry Test

Rotate shaft before start-up



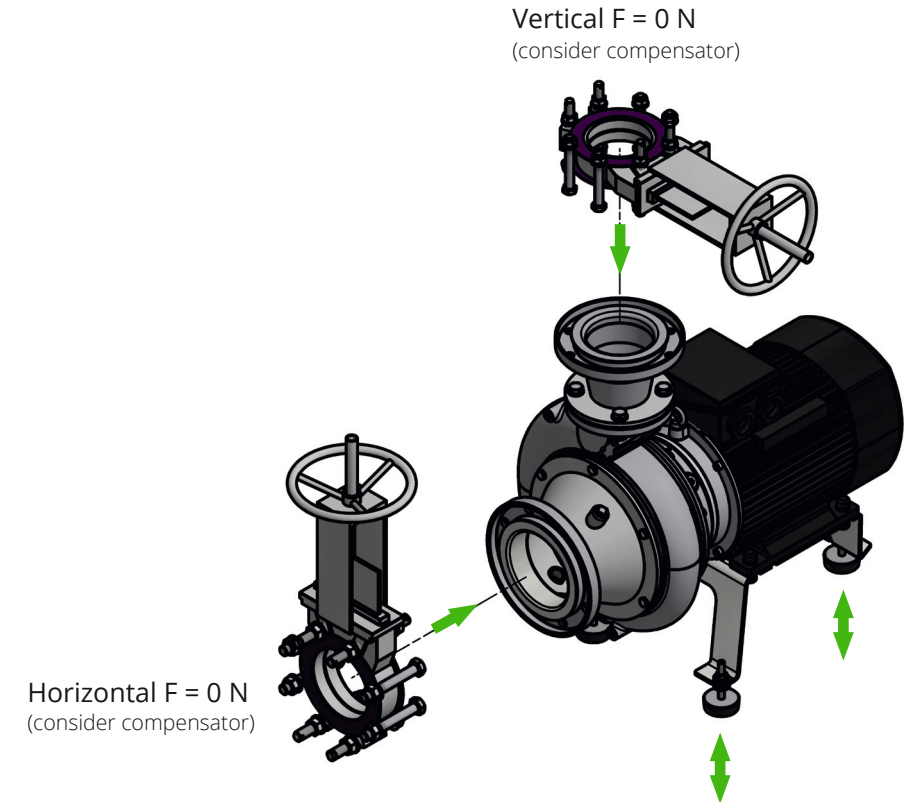
Service Area



Recommended platform size

Model	W		L	
	mm	inch	mm	inch
MPTK-I 50	1250	49	1350	53
MPTK-I 65	1350	53	1500	59
MPTK-I 80	1400	55	1600	63
MPTK-I 105	1450	57	1800	70
MPTK-I 150	1600	63	1850	72

The pump is not designed to carry the weight of the pipe system.
The pipe system needs to be supported.



Piping to be aligned

