

# Submersible Chopperpump

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

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[Principal measurements](#)

[Technical data sheet](#)

[Service instruction](#)

[Quickguide](#)



### Oil-/Conversion table

[Oil table](#)

[Conversion table](#)



### Elektric data

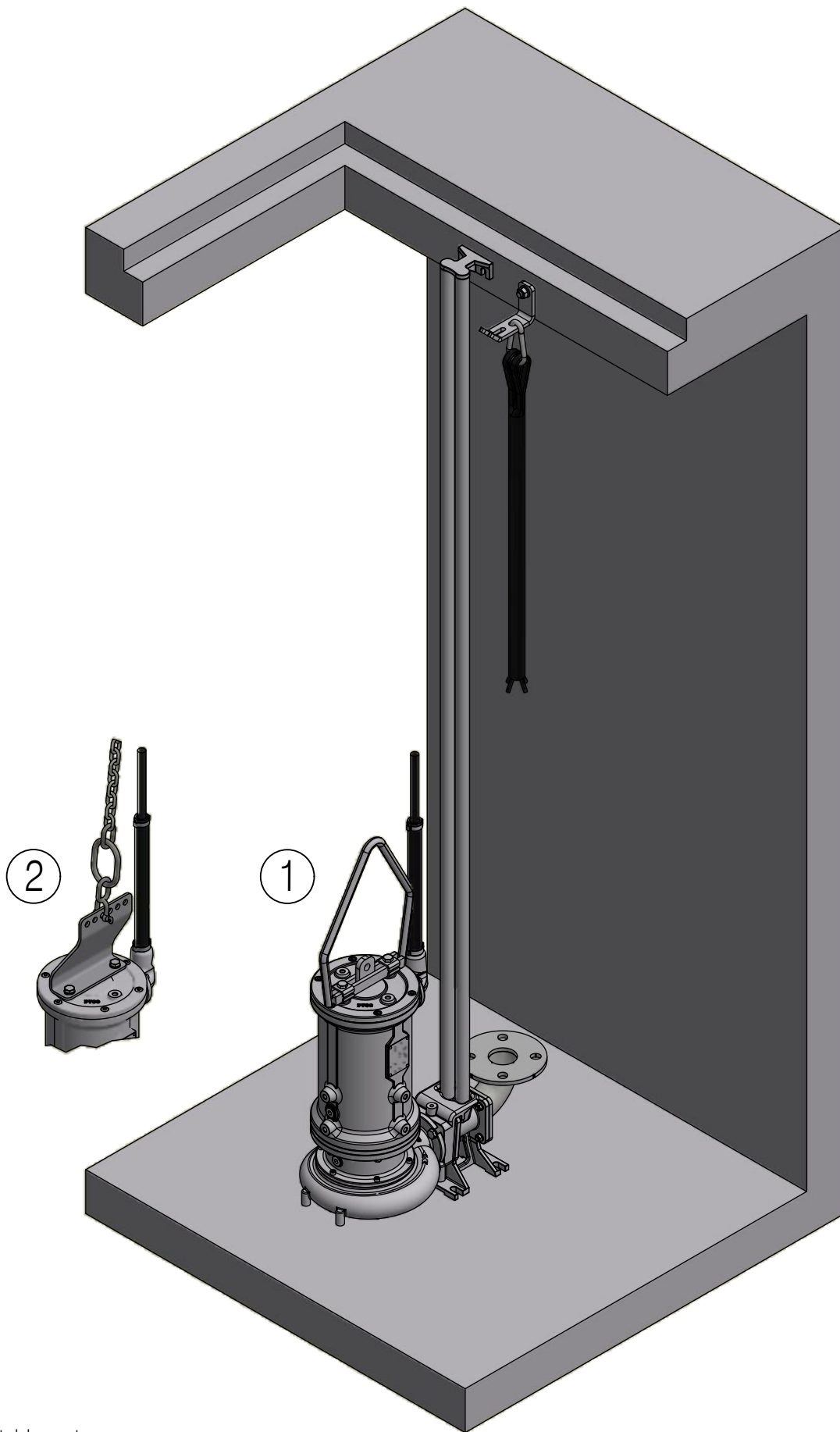
[Elektric data 400V-50 Hz IE1](#)

[Elektric data 400V-50 Hz IE2](#)

[Elektric data 400V-50 Hz IE3](#)



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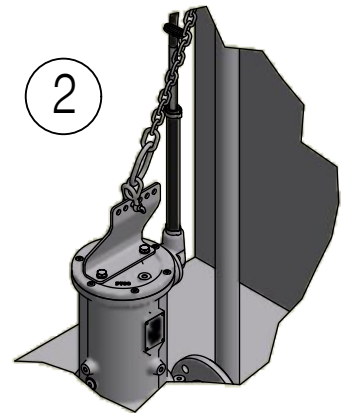
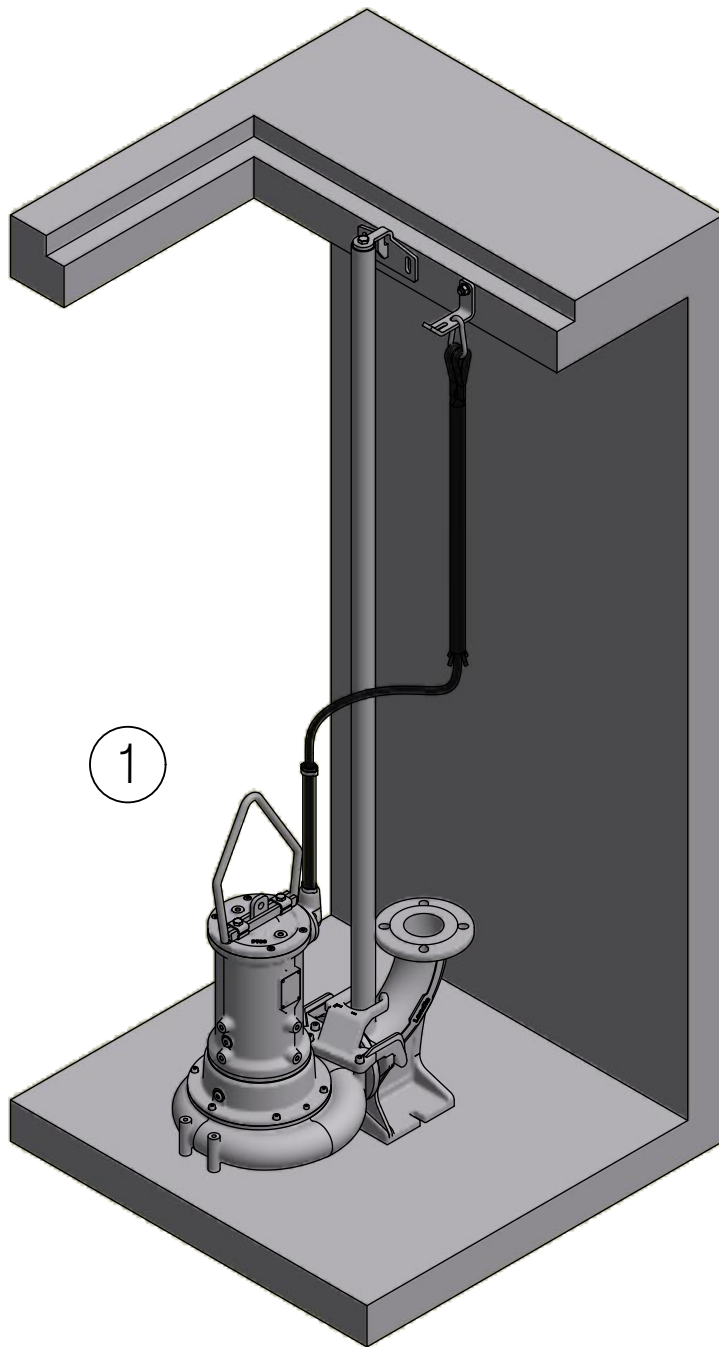
Styret dokument

**Landia**<sup>®</sup>

DG-I 50  
m/koblingssystem - w/coupling system  
m/Kupplungsy. - a/pied d'accouplement.

Scale: 1 : 11	Sign.: BNV   KSK	Date: 06-11-2018
Dwg.no.:		3740960
Revision date: 07-12-2020		

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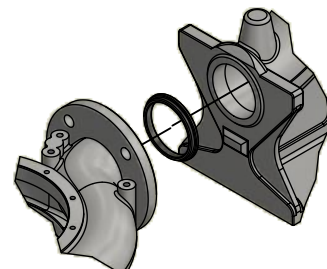


1:10

A



B



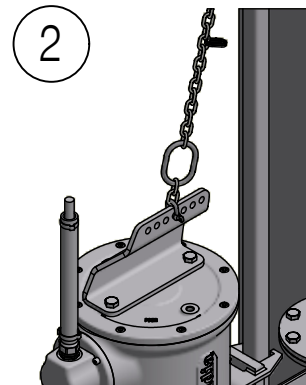
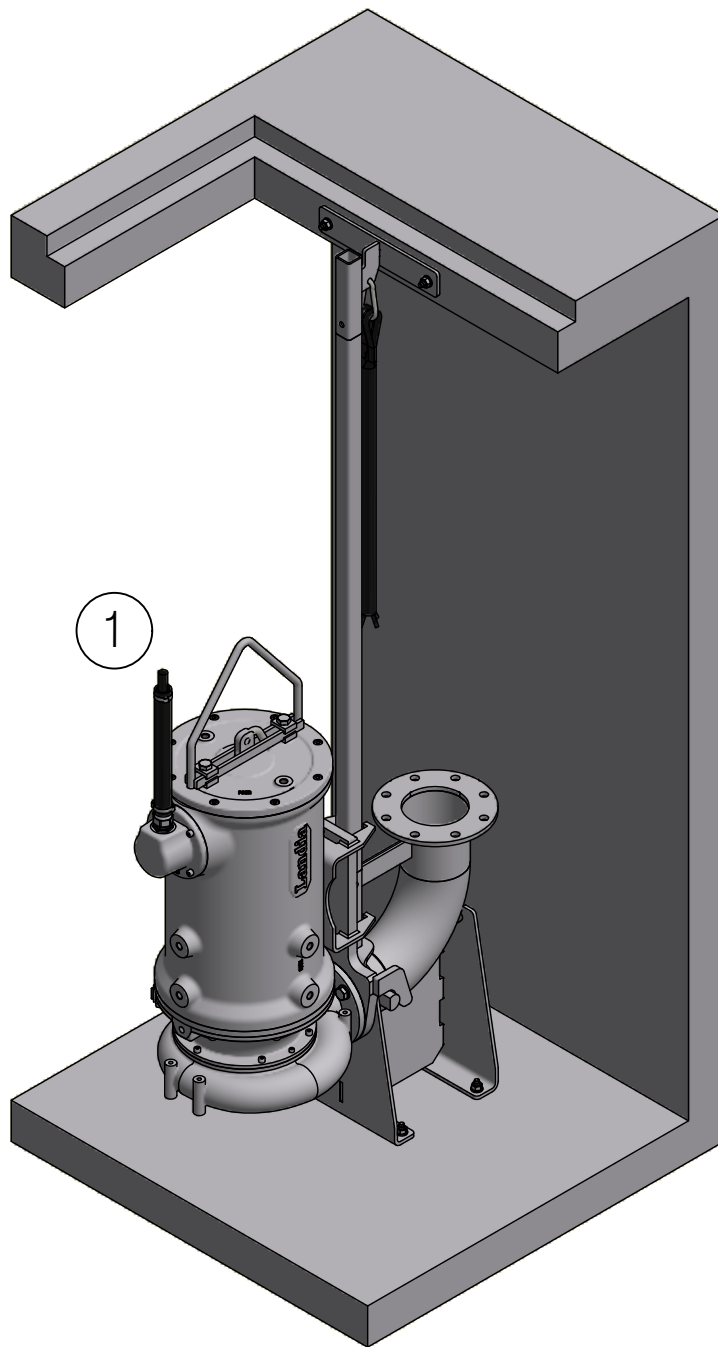
Styret dokument

**Landia**

DG-I 65-105  
m/koblingssystem - w/coupling system  
m/Kupplungsy. - a/pied d'accouplement.

Scale:	Sign.:	Date:
1:15	HL   KSK	28-06-2016
Dwg.no.:		3740639
Revision date: 07-12-2020		

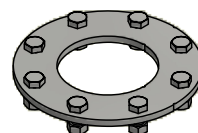
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1:10

Welding flange  
DN125 - PN 10

A



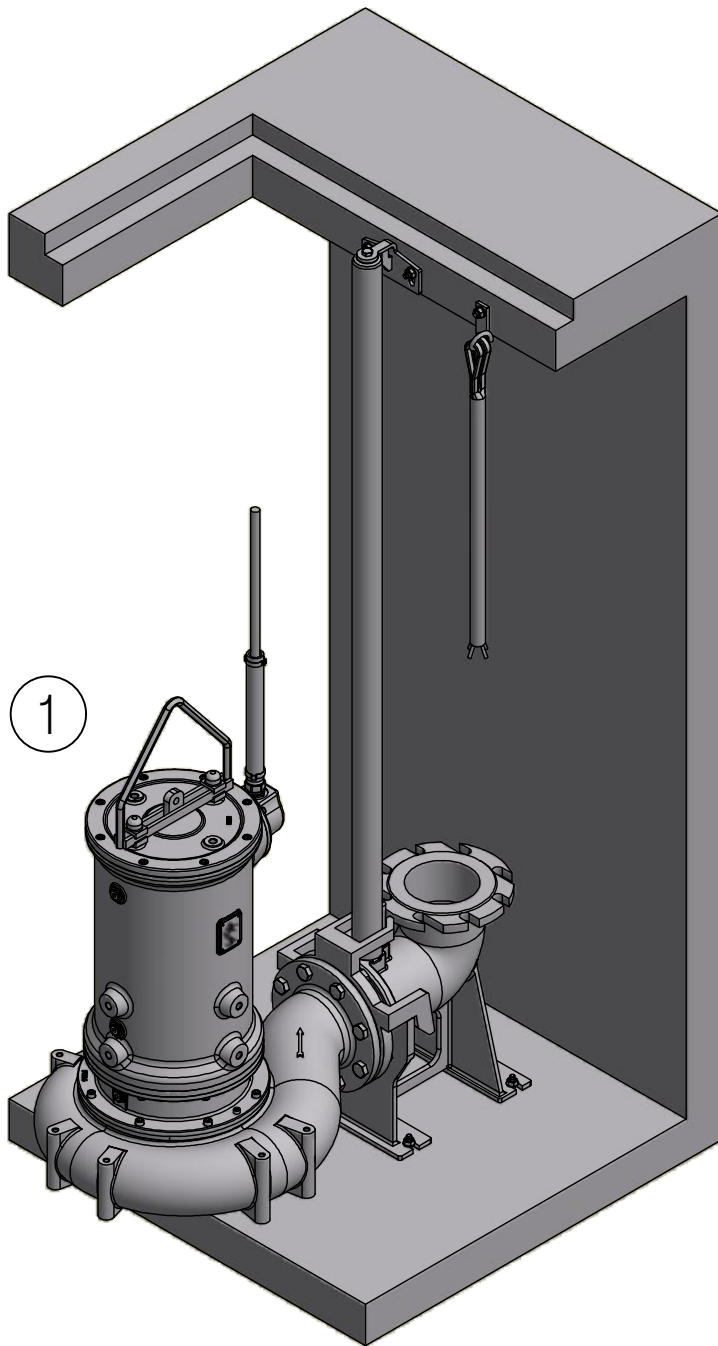
Styret dokument

**Landia**<sup>®</sup>

DG-I 65-105  
m/koblingss. - w/coupling  
m/kuppl. - a/pied d'acco.

Scale:	Sign.:	Date:
1 : 15	HL   KSK	21-07-2010
Dwg.no.:		3740835
Revision date: 11-11-2021		

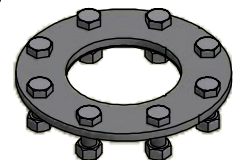
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1:10

Welding flange  
DN150 - PN 10

A



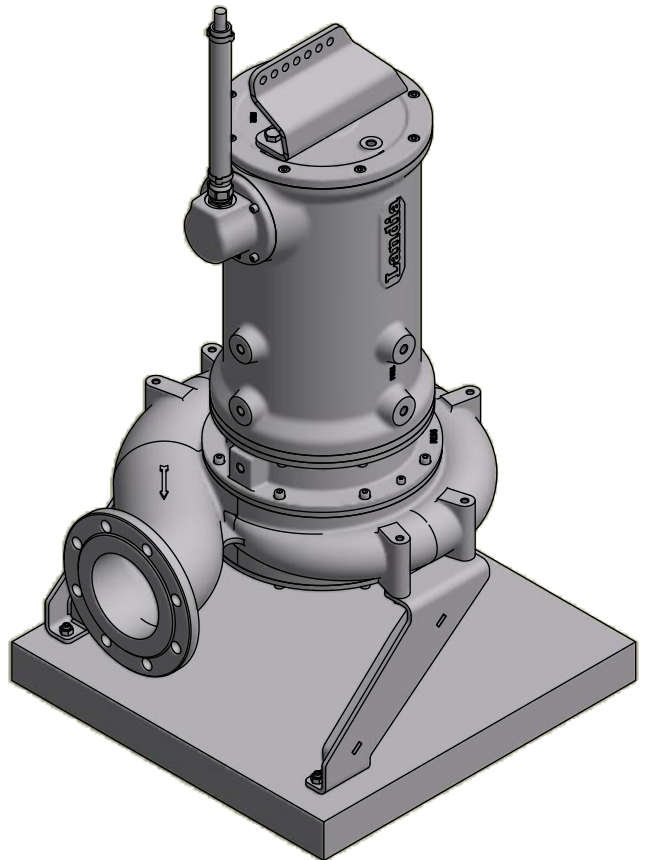
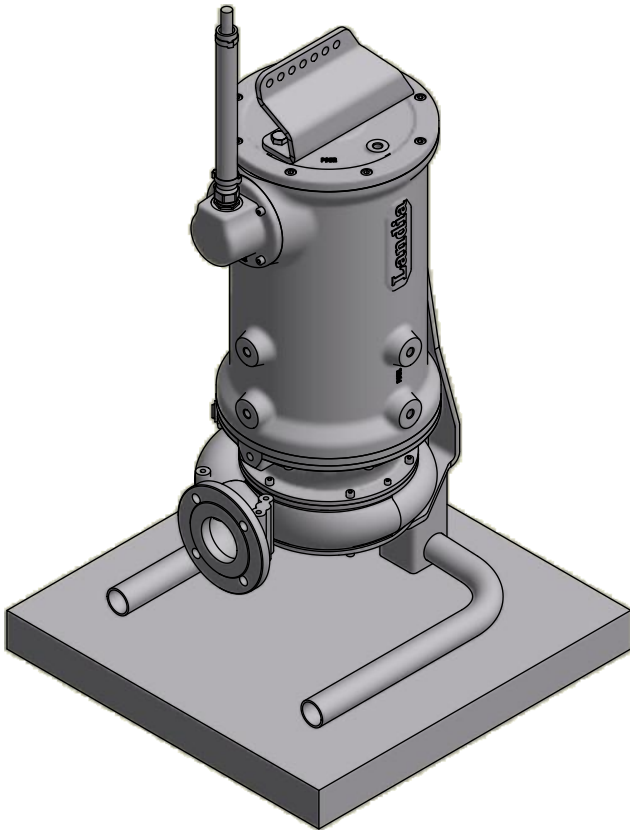
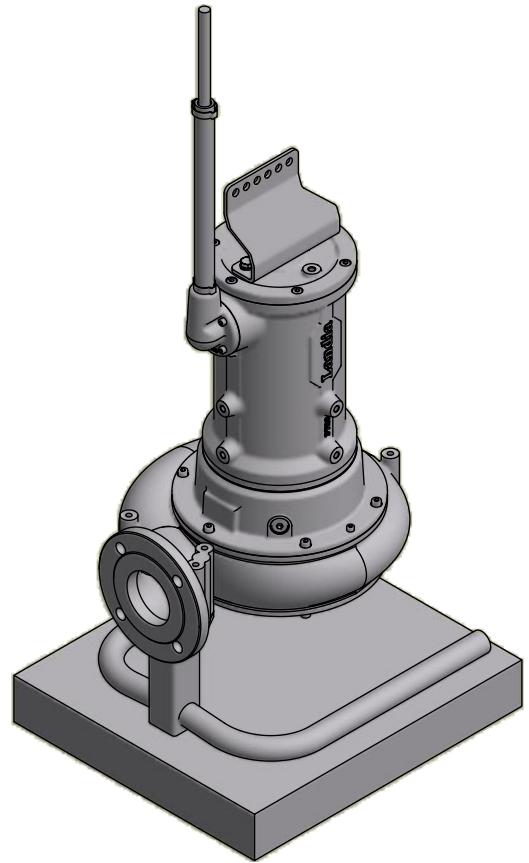
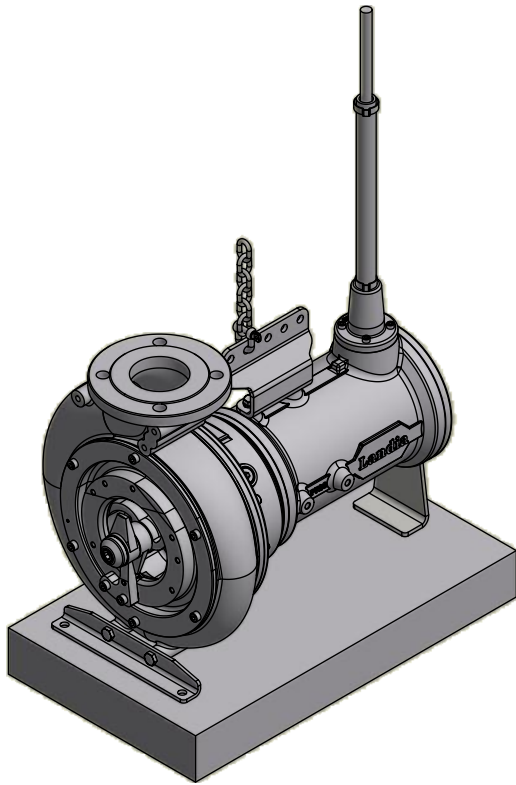
Styret dokument

**Landia**

DG-I 150  
m/koblingssystem, w/coupling system  
m/Kupplungsy., a/pied d'accouplém.

Scale: 1 : 15	Sign.: HL   KSK	Date: 22-07-2010
Dwg.no.:		3740840
Revision date: 31-07-2017		

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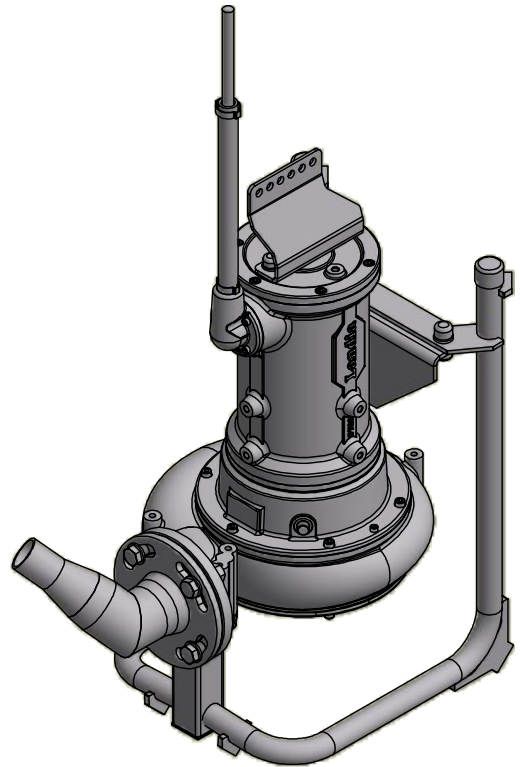
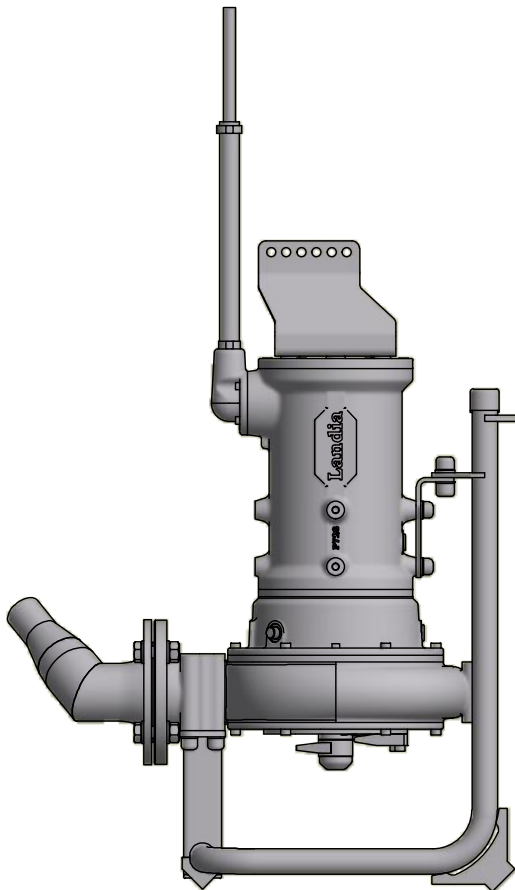
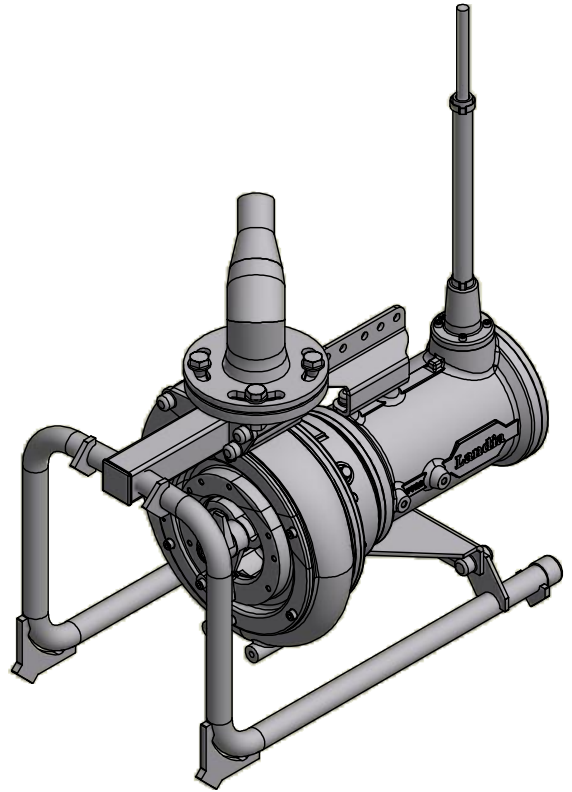
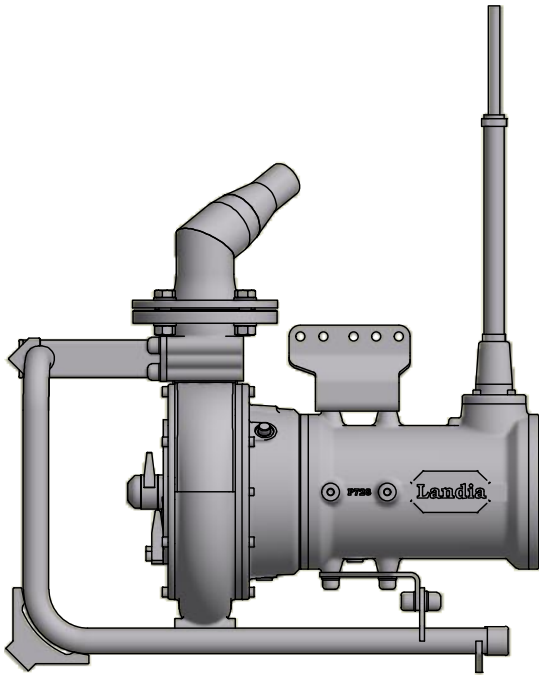
Styret dokument

**Landia**

DG / DG-I  
Principtegning, principal drawing  
Prinzipskizze, dessin de principe

Scale:	Sign.:	Date:
1 : 10	CML   KSK	29-04-2016
Dwg.no.:		3740569
Revision date: 03-12-2020		

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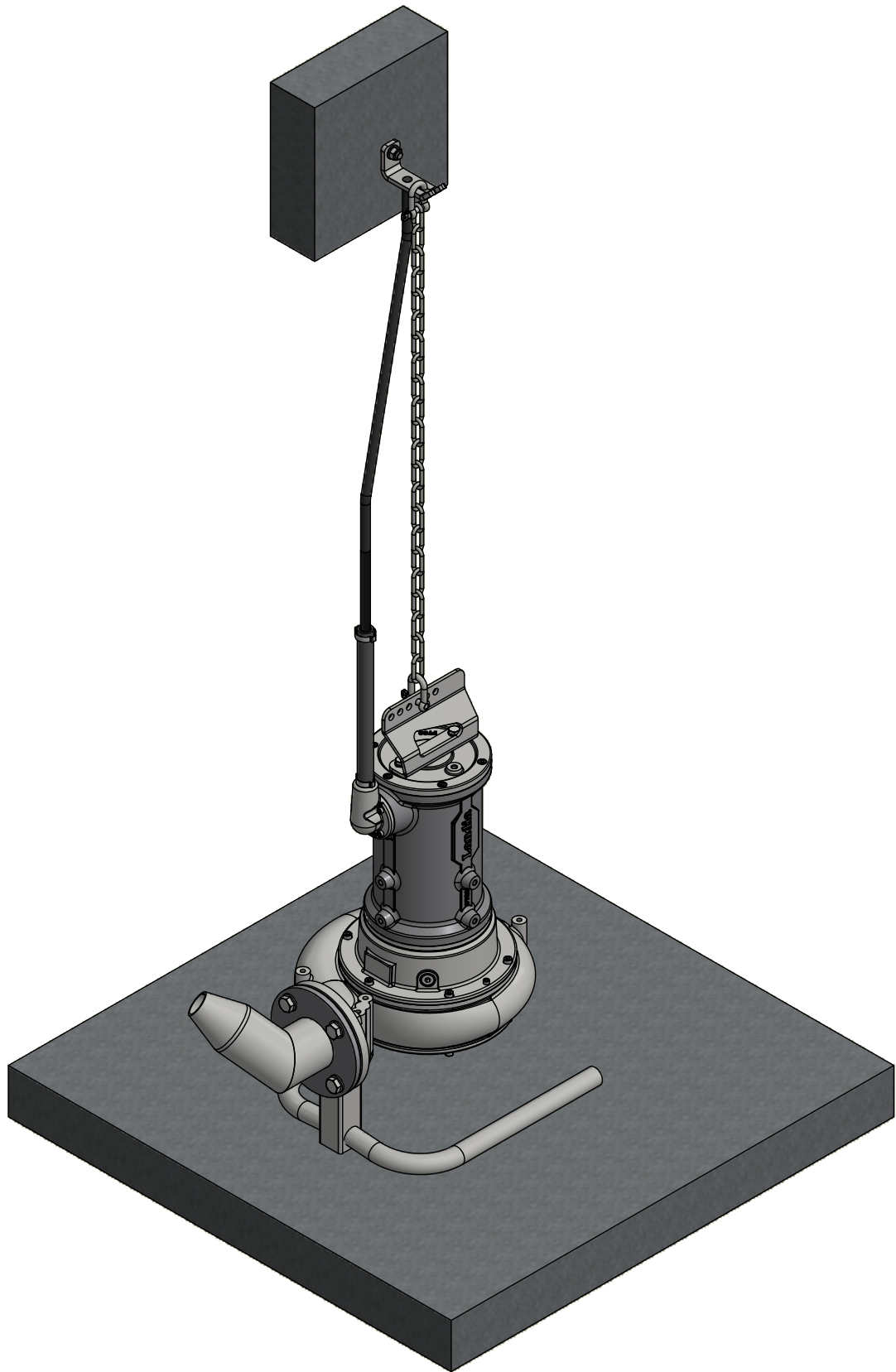


Styret dokument

**Landia**

DG-I Vertical/horizontal  
Principtegning, principal drawing  
Prinzipskizze, Dessin de principe

Scale:	Sign.:	Date:
1 : 10	HL   KSK	10-12-2013
Dwg.no.:		3740907
Revision date: 31-07-2017		



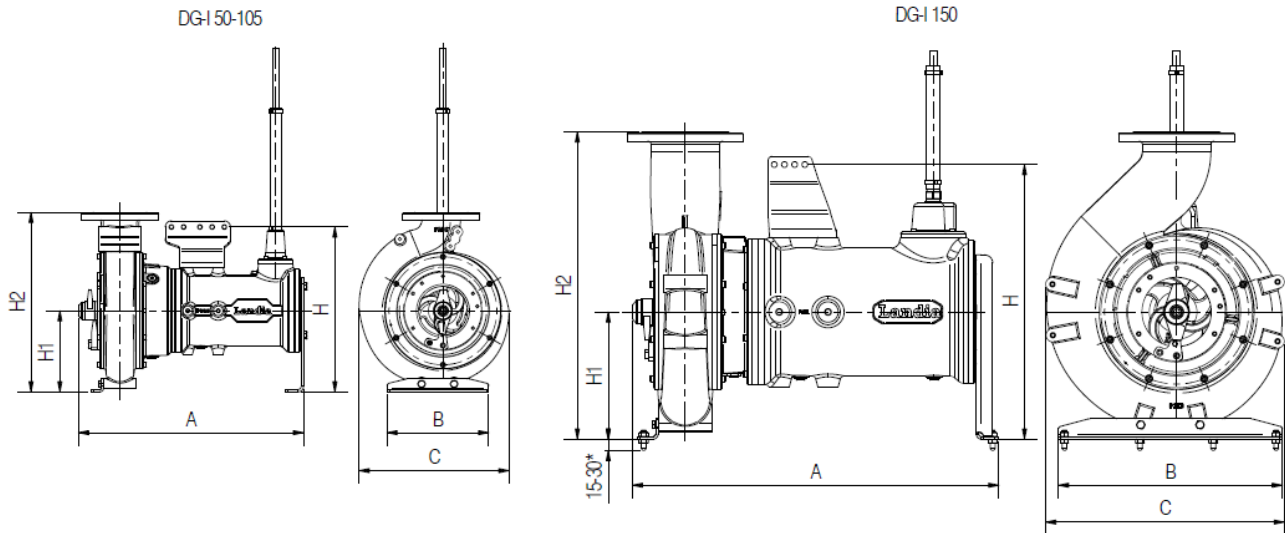
Styret dokument

**Landia**

DG-I m/blandedyse, w/recirculation nozzle,  
m/Rührdüse, avec buse de recirculation  
Principtegning, Principal drawing,  
Prinzipskizze, dessin de principe

Scale: 1 : 10	Sign.: HL   MHA	Date: 11-11-2008
Dwg.no.:		3740831
Revision date: 10-05-2022		

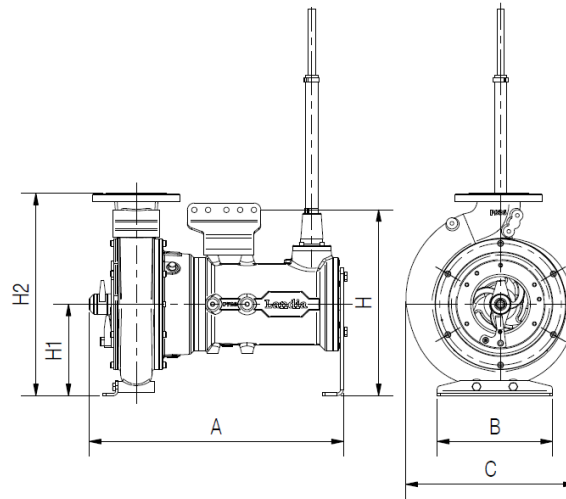


**DG-I / DGR-I  
vandret - horizontal - waagrecht - horizontal**

**Mellemtryk - Medium pressure - Mittlerer Druck - Moyenne pression**

DG-I IE1 (400V)	DGR-I IE1 (400V)	Effekt Power Leist. Puiss. [kW]	Type Typ	Serie Series Baureihe Série	H [mm]	H1 [mm]	H2 [mm]	A [mm]	B [mm]	C [mm]
2314197	-	0,75	50	71	312	140	300	365	200	250
2314718	-	1,1	65	80	344	174	380	445		320
2314711	-	1,5		90	362			450		
2314712	-	2,2		100	380			520		
-	2334212 (IE2)	2,2								
2314813	2314213	3,0	80	100	402	198	440	550	250	370
2314814	2314214	4,0		112	409			580		
2314815	-	5,5								
2314917	2314217	7,5	105	132	570	245	545	665	300	460
2314911	2314211	11,0		160	598			710		
2314915	2314215	15,0								
2314918	2314218	18,5								
2314622	-	22,0	150	180	674	312	754	820	350	580
2314630	-	30,0								

DG-I IE3 (400V)	-	Effekt Power Leist. Puiss. [kW]	Type Typ	Serie Series Baureihe Série	H [mm]	H1 [mm]	H2 [mm]	A [mm]	B [mm]	C [mm]
2364711	-	1,5	65	100	380	174	380	520	200	320
2364814	-	4,0	80	112	409	198	440	580	250	370
2364917	-	7,5	105	132	570	245	545	665	300	460
2364911	-	11,0		160	598			710		
2364918	-	18,5		180	627			815		

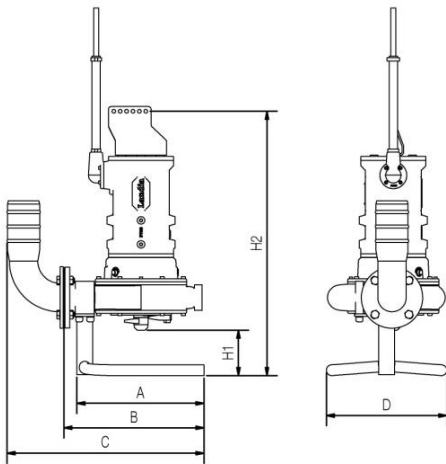
\* Justerbar – Adjustable – Justierbar - Réglable

**DG-I / DGR-I  
vandret - horizontal - waagrecht - horizontal**

**Højtryk - High pressure - Hochdruck - Haute pression**

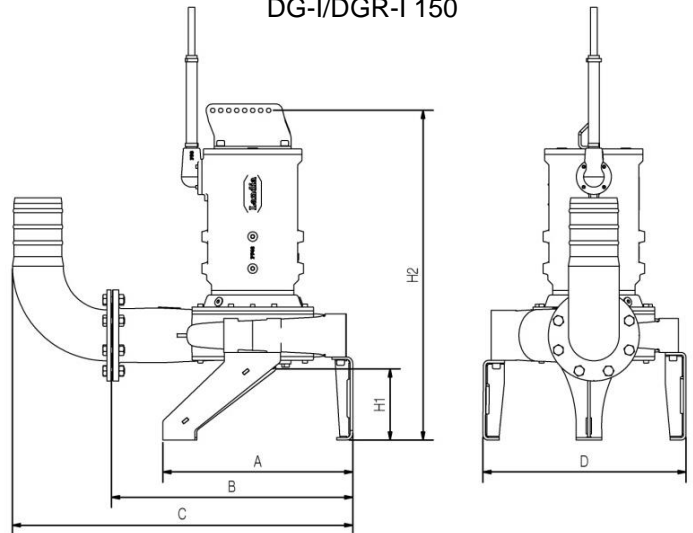
DG-I IE1 (400V)	DGR-I IE1 (400V)	Effekt Power Leist. Puiss. [kW]	Type Typ	Serie Series Baureihe Série	H [mm]	H1 [mm]	H2 [mm]	A [mm]	B [mm]	C [mm]
2312102	-	2,2	50	80	310	140	300	440	200	250
2312103	-	3,0		90	330					
2312104	-	4,0		100	312					
2312105	-	5,5								
2312717	-	7,5	65	112	387	174	380	555	250	320
2312711	2312211	11,0		132	501					
2312715	2312215	15,0		160	528					
2312718	2312218	18,5								
2312815	-	15,0	80	160	553	198	440	690	250	370
2312818	-	18,5								
2312822	2312222	22,0		180	561					
2312830	2312230	30,0								

**DG-I / DGR-I**
**Iodret - vertical - vertikal – vertical**

DG-I/DGR-I 50-105



DG-I/DGR-I 150


**Mellemtryk - Medium pressure - Mittlerer Druck - Moyenne pression**

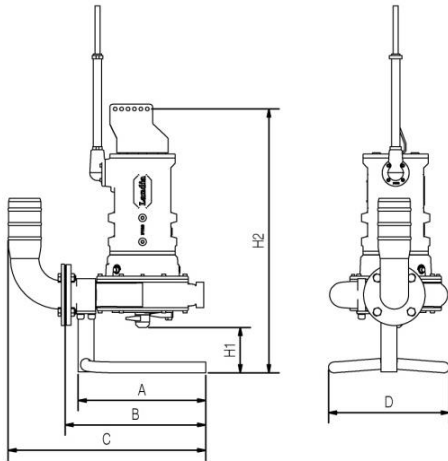
DG-I IE1 (400 V)	DGR-I IE1 (400 V)	Effekt Power Leist. Puiss. [kW]	Type Typ	Serie Series Baureihe Série	A [mm]	B [mm]	C* [mm]	C** [mm]	D [mm]	H1 [mm]	H2 [mm]
2314196	-	0,55	50	71	265	290	405	-	271	95	560
2314197	-	0,75									
2314718	-	1,1	65	80	360	390	565	580	314	145	680
2314711	-	1,5									
2314712	-	2,2									
-	2334212	2,2									
-	-	-	-	100	-	-	-	-	-	-	805
2314813	2314213	3,0	80	100	400	440	620	630	374	142	825
2314814	2314214	4,0									
2314815	-	5,5									
2314815	-	5,5	105	112	494	534	765	745	455	173	860
2314917	2314217	7,5									
2314911	2314211	11,0									
2314915	2314215	15,0									
2314918	2314218	18,5	105	160	494	534	765	745	455	173	1005
2314618	-	18,5									
2314622	-	22,0	150	180	594	755	1065	-	636	223	1035
2314630	-	30,0									
											1185

\* Slangestuds - Hose connection - Schlauchstutzen - Raccord de tuyau

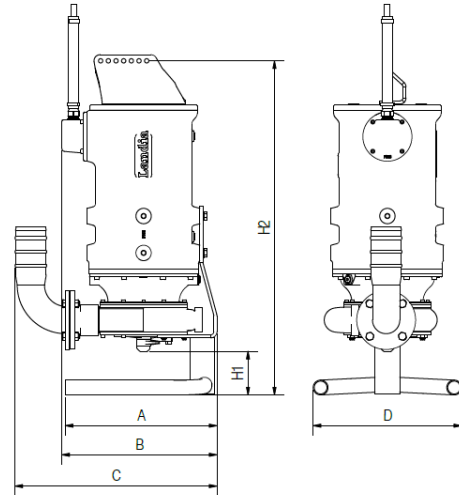
\*\* Blandedyse - Mixing nozzle - Rührdüse - Buse de mélange

**DG-I**
**Iodret - vertical - vertikal – vertical**

DG-I 50-105



DG-I 105, ms.180


**Mellemtryk - Medium pressure - Mittlerer Druck - Moyenne pression**

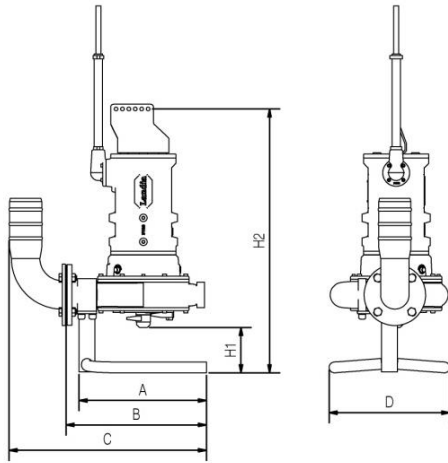
DG-I IE3 (400 V)	-	Effekt Power Leist. Puiss. [kW]	Type Typ	Serie Series Baureihe Série	A [mm]	B [mm]	C* [mm]	C** [mm]	D [mm]	H1 [mm]	H2 [mm]				
2364711	-	1,5	65	100	360	390	565	580	314	145	805				
2364814	-	4,0	80	112	400	440	620	630	374	142	860				
2364917	-	7,5	105	132	494	534	765	745	455	173	955				
2364911	-	11,0		160							1005				
2364918	-	18,5		180							538	800	780	485d	1125

\* Slangestuds - Hose connection - Schlauchstutzen - Raccord de tuyau

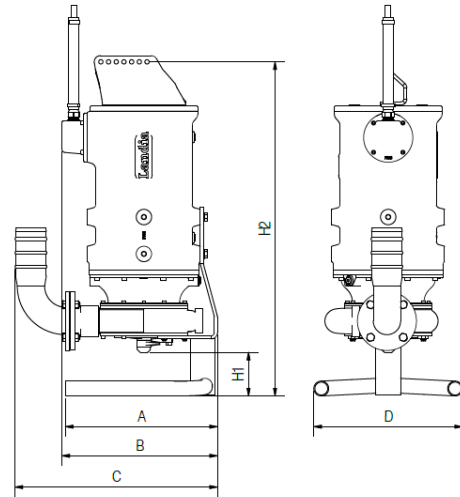
\*\* Blandedyse - Mixing nozzle - Rührdüse - Buse de mélange

**DG-I / DGR-I**
**Iodret - vertical - vertikal – vertical**

DG-I/DGR-I 50-65



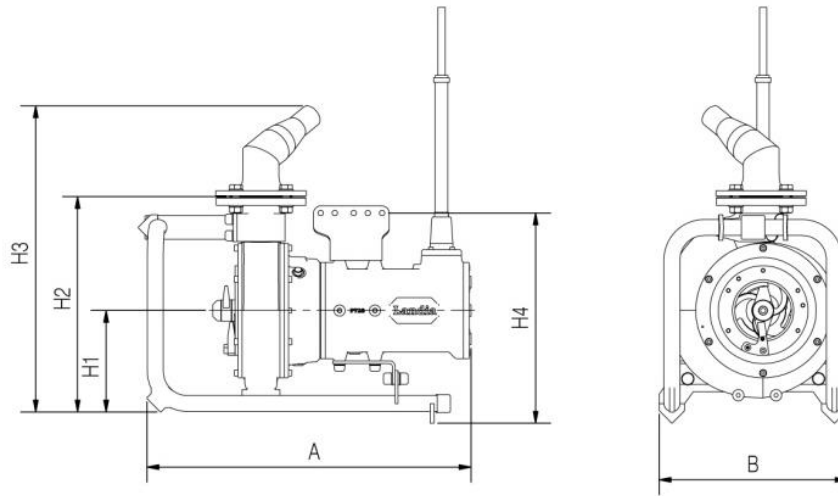
DG-I/DGR-I 80


**Højtryk - High pressure - Hochdruck - Haute pression**

DG-I IE1 (400 V)	DGR-I IE1 (400 V)	Effekt Power Leist. Puiss. [kW]	Type Typ	Serie Series Baureihe Série	A [mm]	B [mm]	C * [mm]	C ** [mm]	D [mm]	H1 [mm]	H2 [mm]					
2312102	-	2,2	50	80	265	290	405	-	271	95	620					
2312103	-	3,0		90							625					
2312104	-	4,0		100							735					
2312105	-	5,5														
2312717	-	7,5	65	112	385	460	605	615	455	115	810					
2312711	2312211	11,0		132							850					
2312715	2312215	15,0		160							895					
2312718	2312218	18,5														
2312815	-	15,0	80	160	494	475	660	670	485	142	955					
2312818	-	18,5				505										
2312822	2312222	22,0		180												1090
2312830	2312230	30,0														

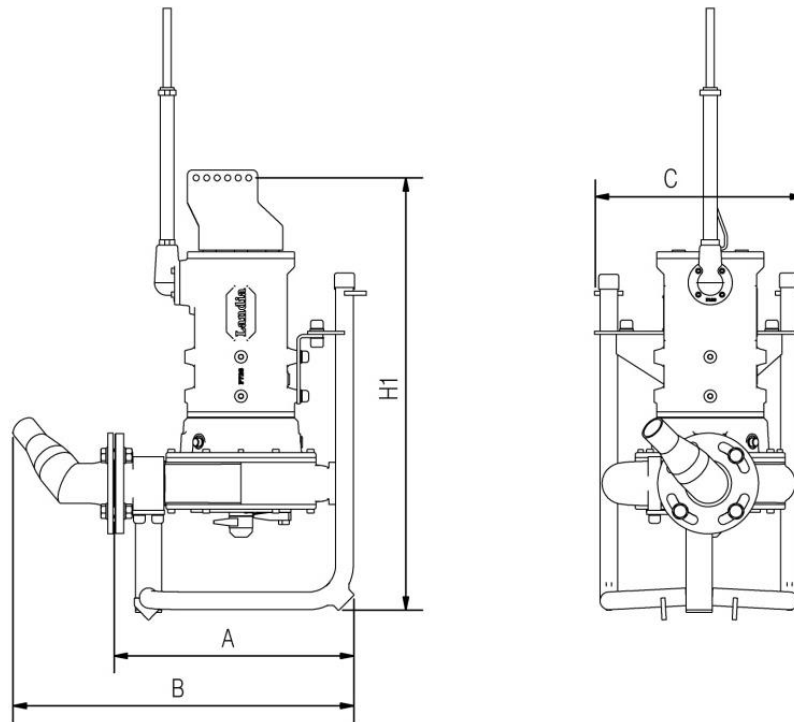
\* Slangestuds - Hose connection - Schlauchstutzen - Raccord de tuyau

\*\* Blandedyse - Mixing nozzle - Rührdüse - Buse de mélange

**DG-I / DGR-I  
vandret - Horizontal - waagrecht - horizontal**

**Mellemtryk - Medium pressure - Mittlerer Druck - Moyenne pression**

DG-I IE1 (400 V)	DGR-I IE1 (400 V)	Effekt Power Leist. Puiss. [kW]	Type Typ	Serie Series Baureihe Série	A [mm]	B [mm]	H1 [mm]	H2 [mm]	H3 [mm]	H4 [mm]
2314813	2314213	3,0	80	100	709	398	237	479	671	445
2314814	2314214	4,0		112	743					452
2314815	-	5,5								
2314917	2314217	7,5	105	132	855	476	292	591	804	624
2314911	2314211	11,0		160	900					651
2314915	2314215	15,0								
2314918	2314218	18,5								

DG-I IE3 (400 V)	DGR-I IE3 (400 V)	Effekt Power Leist. Puiss. [kW]	Type Typ	Serie Series Baureihe Série	A [mm]	B [mm]	H1 [mm]	H2 [mm]	H3 [mm]	H4 [mm]
2364814	-	4,0	80	112	743	398	237	479	671	452
2364917	-	7,5	105	132	855	476	292	591	804	624
2364911	-	11,0		160	900					651

**DG-I / DGR-I**
**Iodret - vertical - vertikal - vertical**

**Mellemtryk - Medium pressure - Mittlerer Druck - Moyenne pression**

DG-I IE1 (400 V)	DGR-I IE1 (400 V)	Effekt Power Leist. Puiss. [kW]	Type Typ	Serie Series Baureihe Série	A [mm]	B [mm]	C [mm]	H1 [mm]
2314813	2314213	3,0	80	100	479	671	398	846
2314814	2314214	4,0		112				880
2314815	-	5,5						
2314917	2314217	7,5	105	132	591	804	476	976
2314911	2314211	11,0		160				1021
2314915	2314215	15,0						
2314918	2314218	18,5						

DG-I IE3 (400 V)	DGR-I IE3 (400 V)	Effekt Power Leist. Puiss. [kW]	Type Typ	Serie Series Baureihe Série	A [mm]	B [mm]	C [mm]	H1 [mm]
2364814	-	4,0	80	112	479	671	398	880
2364917	-	7,5	105	132	591	804	476	976
2364911	-	11,0		160				1021

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

# DG-I

The DG-I pump is a highly efficient chopper pump that is designed to pump heavily contaminated liquids as well as liquids with a high dry matter content.

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

- Sewage treatment plants
- Pump stations
- Biogas plants
- Food industry
- Pumping abrasive liquids or liquids with high viscosity



## PUMP RPM

- 1,500 rpm
- 3,000 rpm

## 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) W1.4408/AISI316 (optional) not available for DG-I 105
Pump Shaft	W1.6582/AISI4340
Bolts	A4
Sealing system	Mechanical shaft seal: silicon carbide/silicon carbide
Knife system	Hardened steel W1.0038/S235JR W1.4404/AISI316 (optional) not available for DG-I 105
Extended knife system	Hardened steel W1.0038/S235JR (optional) W1.4404/AISI316 (optional) not available for DG-I 105
Oil type	15W-40 Vario HDX (with moisture detection)



## 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

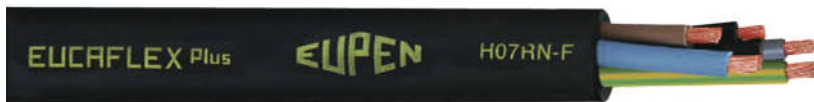
## SURFACE TREATMENT

Machinery enamel: RAL 9005 (Jet Black)	Jet Black
2-component coating: RAL 7005 (Mouse Grey) (optional)	Mouse Grey

## ELECTRICAL CABLE

H07RN-F/S07RN-F EUCAFLEX<sup>Plus</sup> Cable.

Resistant to oil and UV radiation.



Number of conductors:

H07RN-F 7G1.5 mm<sup>2</sup> (Not used in United Kingdom)

H07RN-F 7G2.5 mm<sup>2</sup> (Only United Kingdom. Motor ≤ 5,5 kW)

S07RN-F 7G4+3x1.5 mm<sup>2</sup>

S07RN-F 7G6+3x1.5 mm<sup>2</sup>

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

## MONITORING FUNCTIONS

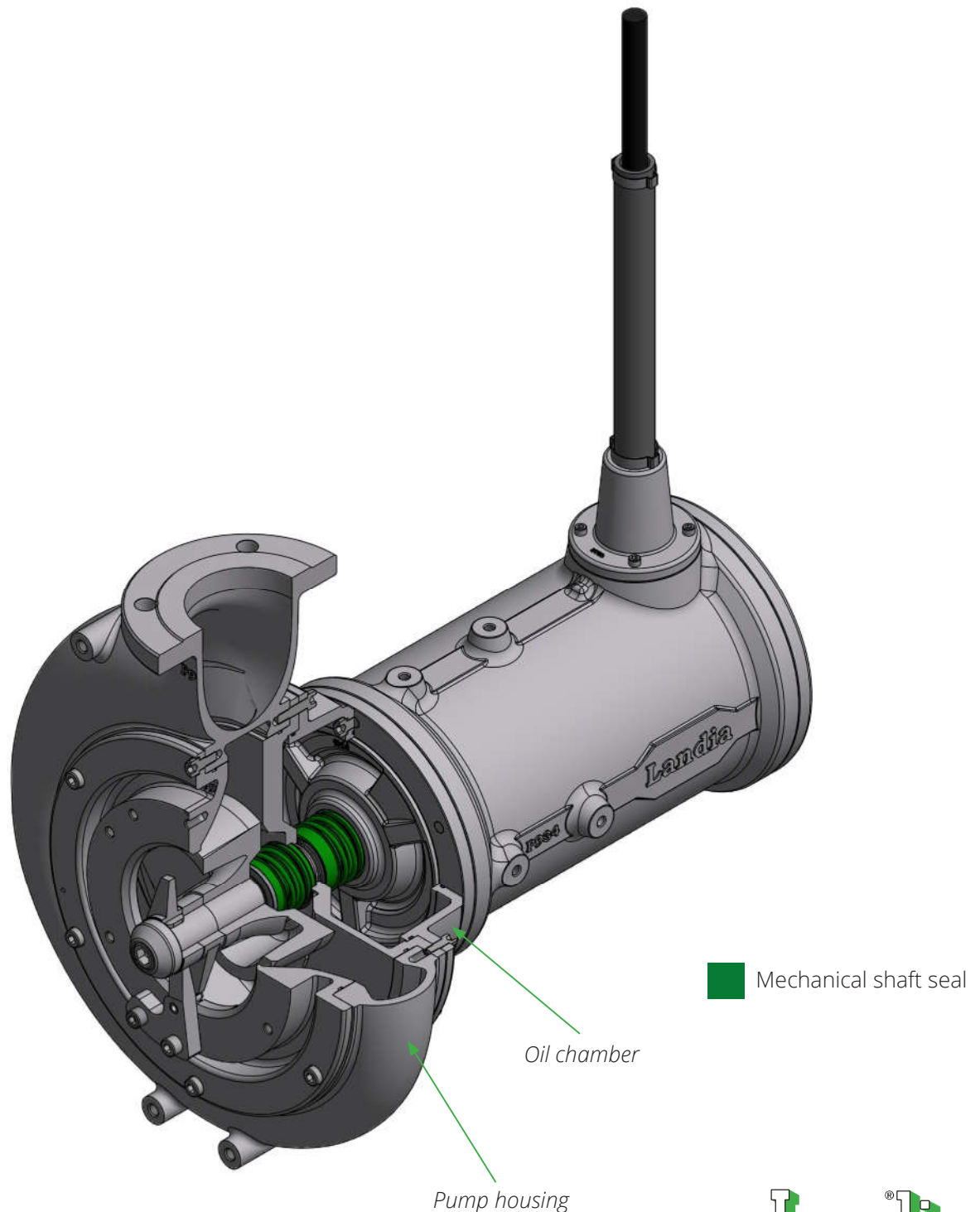
Bimetal thermal sensors 120 °C

Moisture detection system (optional)

## DESIGN

The open pump impeller design means that the chopper 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. A large part of the DG-I programme can be supplied in acid-proof steel for aggressive liquids with a low or high pH.

All chopper 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**

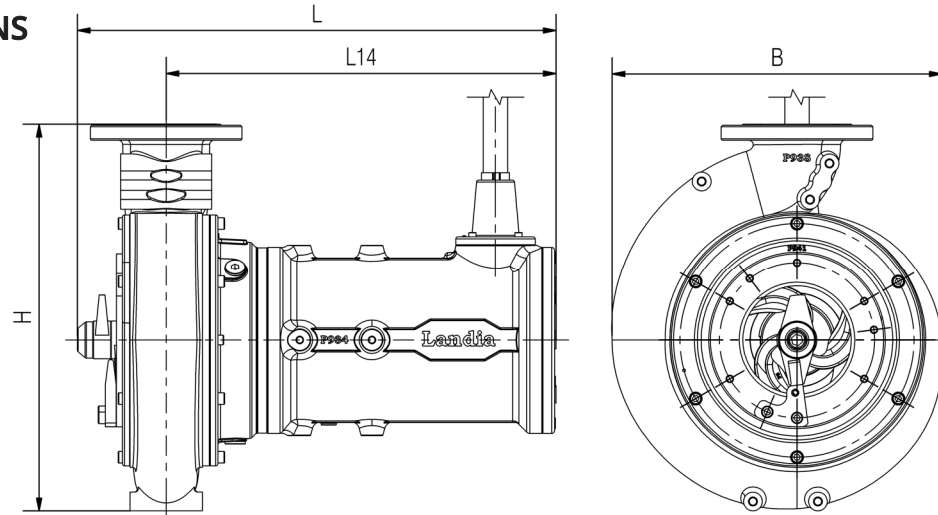
Motor type	3-phase AC motor
Nominal voltage	400 V
Minimum voltage allowed	360 V
Nominal frequency	50 Hz
Applicable for VFD operation	Yes
Ingress protection rating	IP 68
Insulation class	F
ATEX classification	II 2 G Ex db h IIB T4 Gb (Option, only available for specific models)

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]		[%]
<b>Medium pressure</b>								
DG-I 50 0.55 kW-1,500 rpm	2314196	0.55	1,400	1.6	Y	7	0.69	71.9
DG-I 50 0.75 kW-1,500 rpm	2314197	0.75	1,400	2.1	Y	10	0.70	73.6
DG-I 65 1.1 kW-1,500 rpm	2314718	1.1	1,410	2.6	Y	14	0.79	76.7
DG-I 65 1.5 kW-1,500 rpm	2314711	1.5	1,400	3.4	Y	19	0.81	78.6
DG-I 65 2.2 kW-1,500 rpm	2314712	2.2	1,410	5.0	Y	30	0.80	80.2
DG-I 80 3.0 kW-1,500 rpm	2314813	3.0	1,430	6.7	Δ	43	0.79	82.4
DG-I 80 4.0 kW-1,500 rpm	2314814	4.0	1,435	8.8	Δ	61	0.78	84.1
DG-I 80 5.5 kW-1,500 rpm	2314815	5.5	1,440	11.0	Δ	68	0.87	84.6
DG-I 105 7.5 kW-1,500 rpm	2314917	7.5	1,455	15.0	Δ	90	0.83	86.2
DG-I 105 11.0 kW-1,500 rpm	2314911	11.0	1,455	21.5	Δ	146	0.84	87.9
DG-I 105 15.0 kW-1,500 rpm	2314915	15.0	1,465	29.0	Δ	212	0.84	88.7
DG-I 105 18.5 kW-1,500 rpm	2314918	18.5	1,460	35.0	Δ	238	0.85	89.3
DG-I 150 18.5 kW-1,500 rpm	2314618	18.5	1,460	35.0	Δ	238	0.85	89.3
DG-I 150 22.0 kW-1,500 rpm	2314622	22.0	1,465	43.0	Δ	280	0.82	90.1
DG-I 150 30.0 kW-1,500 rpm	2314630	30.0	1,465	57.0	Δ	399	0.84	90.7
<b>High pressure</b>								
DG-I 50 2.2 kW-3,000 rpm	2312102	2.2	2,850	4.6	Y	34	0.85	82.1
DG-I 50 3.0 kW-3,000 rpm	2312103	3.0	2,865	6.2	Δ	42	0.85	82.8
DG-I 50 4.0 kW-3,000 rpm	2312104	4.0	2,900	8.4	Δ	59	0.81	84.9
DG-I 50 5.5 kW-3,000 rpm	2312105	5.5	2,860	11.0	Δ	61	0.86	84.7
DG-I 65 7.5 kW-3,000 rpm	2312717	7.5	2,890	15.0	Δ	99	0.85	86.1
DG-I 65 11.0 kW-3,000 rpm	2312711	11.0	2,905	20.5	Δ	143	0.88	87.6
DG-I 65 15.0 kW-3,000 rpm	2312715	15.0	2,940	27.5	Δ	195	0.89	88.7
DG-I 65 18.5 kW-3,000 rpm	2312718	18.5	2,925	33.0	Δ	238	0.90	89.9
DG-I 80 15.0 kW-3,000 rpm	2312815	15.0	2,940	27.5	Δ	195	0.89	88.7
DG-I 80 18.5 kW-3,000 rpm	2312818	18.5	2,925	33.0	Δ	238	0.90	89.9
DG-I 80 22.0 kW-3,000 rpm	2312822	22.0	2,935	39.0	Δ	265	0.90	90.5
DG-I 80 30.0 kW-3,000 rpm	2312830	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.

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**OVERALL DIMENSIONS**

Model	Item number	B [mm]	H [mm]	L [mm]	L14 [mm]	Weight [kg]
<b>Medium pressure</b>						
DG-I 50 0.55 kW-1,500 rpm	2314196	250	290	360	290	25
DG-I 50 0.75 kW-1,500 rpm	2314197	250	290	360	290	25
DG-I 65 1.1 kW-1,500 rpm	2314718	320	371	445	361	45
DG-I 65 1.5 kW-1,500 rpm	2314711	320	371	445	361	50
DG-I 65 2.2 kW-1,500 rpm	2314712	320	371	450	366	55
DG-I 80 3.0 kW-1,500 rpm	2314813	370	432	550	445	80
DG-I 80 4.0 kW-1,500 rpm	2314814	370	432	550	445	85
DG-I 80 5.5 kW-1,500 rpm	2314815	370	432	580	480	100
DG-I 105 7.5 kW-1,500 rpm	2314917	460	534	665	540	150
DG-I 105 11.0 kW-1,500 rpm	2314911	460	534	665	540	160
DG-I 105 15.0 kW-1,500 rpm	2314915	460	534	710	585	200
DG-I 105 18.5 kW-1,500 rpm	2314918	460	534	710	585	210
DG-I 150 18.5 kW-1,500 rpm	2314618	580	736	715.5	585.5	265
DG-I 150 22.0 kW-1,500 rpm	2314622	580	736	845	715	325
DG-I 150 30.0 kW-1,500 rpm	2314630	580	736	845	715	350
<b>High pressure</b>						
DG-I 50 2.2 kW-3,000 rpm	2312102	250	290	435	365	40
DG-I 50 3.0 kW-3,000 rpm	2312103	250	290	440	370	43
DG-I 50 4.0 kW-3,000 rpm	2312104	250	290	505	430	55
DG-I 50 5.5 kW-3,000 rpm	2312105	250	290	505	430	60
DG-I 65 7.5 kW-3,000 rpm	2312717	320	371	555	470	80
DG-I 65 11.0 kW-3,000 rpm	2312711	320	371	620	535	105
DG-I 65 15.0 kW-3,000 rpm	2312715	320	371	660	580	140
DG-I 65 18.5 kW-3,000 rpm	2312718	320	371	660	580	155
DG-I 80 15.0 kW-3,000 rpm	2312815	370	432	689	587	175
DG-I 80 18.5 kW-3,000 rpm	2312818	370	432	689	587	185
DG-I 80 22.0 kW-3,000 rpm	2312822	390	432	805	703	254
DG-I 80 30.0 kW-3,000 rpm	2312830	390	432	805	703	276

We reserve the right to make technical changes.

# DGR-I

The DGR-I pump is a highly efficient chopper pump made entirely of acid-proof steel. It is ideal for aggressive liquids with low or high pH values, as well as liquids with a high dry matter content.

All DGR-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

- ▶ Chemical industry
- ▶ Paper industry
- ▶ Food industry
- ▶ Biogas plants
- ▶ Pumping abrasive or aggressive liquids

## PUMP RPM

1,500 rpm

3,000 rpm

## MATERIAL OF CONSTRUCTION

Motor housing and oil chamber	W1.4404/AISI316
Pump housing	W1.4408/AISI316
Pump impeller	W1.4408/AISI316
Pump shaft	W1.4404/AISI316
Bolts	A4
Sealing system	Mechanical shaft seals: silicon carbide/silicon carbide
Knife system	W1.4404/AISI316
Extended knife system	W1.4404/AISI316 (optional)
Oil type	15W-40 Vario HDX (with moisture detection)

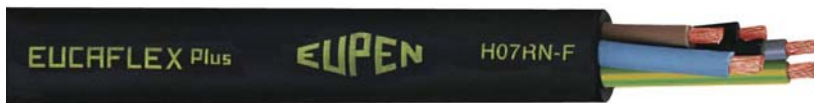
## SERVICE AND MAINTENANCE

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

## ELECTRICAL CABLE

H07RN-F/S07RN-F EUCAFLEX<sup>Plus</sup> Cable.

Resistant to oil and UV radiation.



Number of conductors:

H07RN-F 7G1.5 mm<sup>2</sup> (Not used in United Kingdom)

H07RN-F 7G2.5 mm<sup>2</sup> (Only United Kingdom. Motor ≤ 5,5 kW)

S07RN-F 7G4+3x1.5 mm<sup>2</sup>

S07RN-F 7G6+3x1.5 mm<sup>2</sup>

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

## MONITORING FUNCTIONS

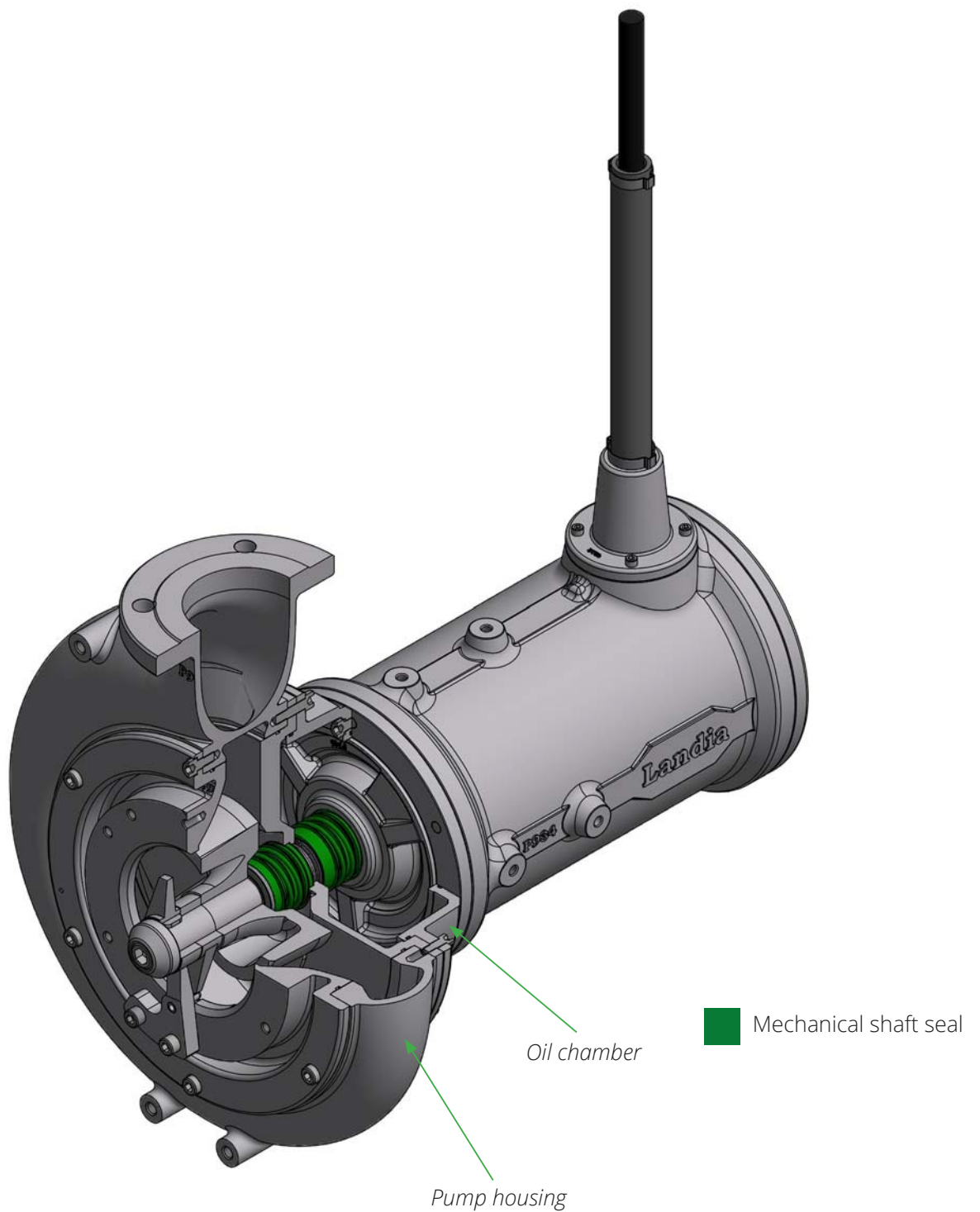
Bimetal thermal sensors 120 °C

Moisture detection system (optional)

### DESIGN

The chopper pump's design, with an open pump impeller, means that the 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 lifespan is extended significantly in comparison to a standard pump.

All chopper 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**

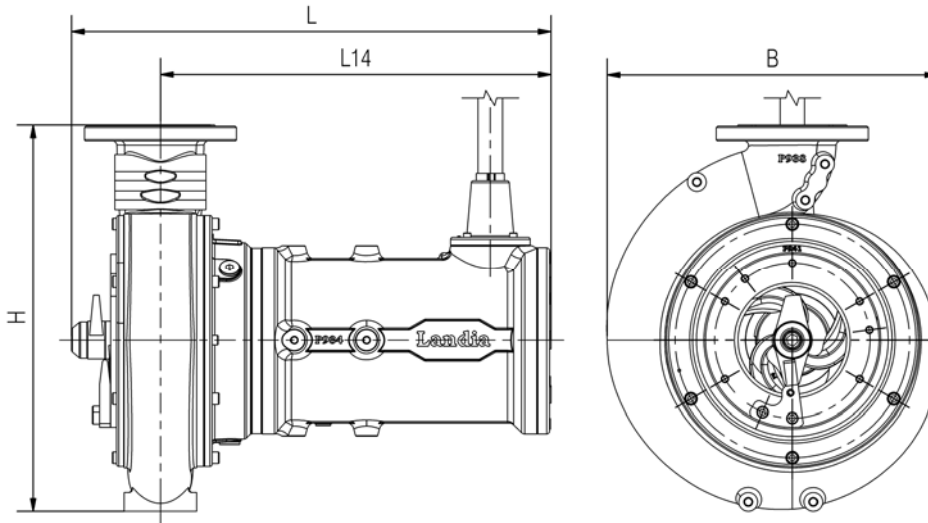
Motor type	3-phase AC motor
Nominal voltage	400 V
Minimum voltage allowed	360 V
Nominal frequency	50 Hz
Applicable for VFD operation	Yes
Ingress protection rating	IP 68
Insulation class	F
ATEX classification	Not possible

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]		[%]
<b>Medium pressure</b>								
DGR-I 65 2.2/1.1 kW-1,500 rpm IE2	2334212	2.2	1,455	4.8	Y	45	0.77	84.3
DGR-I 80 3.0 kW-1,500 rpm	2314213	3.0	1,430	6.7	Δ	43	0.79	82.4
DGR-I 80 4.0 kW-1,500 rpm	2314214	4.0	1,435	8.8	Δ	61	0.78	84.1
DGR-I 105 7.5 kW-1,500 rpm	2314217	7.5	1,455	15.0	Δ	90	0.83	86.2
DGR-I 105 11.0 kW-1,500 rpm	2314211	11	1,455	21.5	Δ	146	0.84	87.9
DGR-I 105 15.0 kW-1,500 rpm	2314215	15.0	1,465	29.0	Δ	212	0.84	88.7
DGR-I 105 18.5 kW-1,500 rpm	2314218	18.5	1,460	35.0	Δ	238	0.85	89.3
DGR-I 105 22.0 kW-1,500 rpm	2314222	22.0	1,465	43.0	Δ	280	0.82	90.1
DGR-I 105 30.0 kW-1,500 rpm	2314230	30.0	1,465	57.0	Δ	399	0.84	90.7
<b>High pressure</b>								
DGR-I 65 11.0 kW-3,000 rpm	2312211	11.0	2,905	20.5	Δ	143	0.88	87.6
DGR-I 65 15.0 kW-3,000 rpm	2312215	15.0	2,940	27.5	Δ	195	0.89	88.7
DGR-I 65 18.5 kW-3,000 rpm	2312218	18.5	2,925	33.0	Δ	238	0.90	89.9
DGR-I 80 22.0 kW-3,000 rpm	2312222	22.0	2,935	39.0	Δ	265	0.90	90.5
DGR-I 80 30.0 kW-3,000 rpm	2312230	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]
<b>Medium pressure</b>						
DGR-I 65 2.2/1.1 kW-1,500 rpm IE2	2334212	320	371	520	437	80
DGR-I 80 3.0 kW-1,500 rpm	2314213	370	432	550	445	96
DGR-I 80 4.0 kW-1,500 rpm	2314214	370	432	550	445	100
DGR-I 105 7.5 kW-1,500 rpm	2314217	460	534	665	540	150
DGR-I 105 11.0 kW-1,500 rpm	2314211	460	534	665	540	160
DGR-I 105 15.0 kW-1,500 rpm	2314215	460	534	712	585	200
DGR-I 105 18.5 kW-1,500 rpm	2314218	460	534	710	585	210
DGR-I 105 22.0 kW-1,500 rpm	2314222	460	534	809	687	270
DGR-I 105 30.0 kW-1,500 rpm	2314230	460	534	809	687	295
<b>High pressure</b>						
DGR-I 65 11.0 kW-3,000 rpm	2312211	320	371	620	535	105
DGR-I 65 15.0 kW-3,000 rpm	2312215	320	371	660	580	140
DGR-I 65 18.5 kW-3,000 rpm	2312218	320	371	660	580	155
DGR-I 80 22.0 kW-3,000 rpm	2312222	390	432	805	703	254
DGR-I 80 30.0 kW-3,000 rpm	2312230	390	432	805	703	276

We reserve the right to make technical changes.

# DGER-I

The DGER-I pump is a highly efficient chopper pump designed as a combination of a standard pump and a stainlesssteel pump. The pump part is made of acid-proof steel, while the motor is epoxy-coated cast iron. It is ideal for “semi-aggressive” liquids and liquids with a high dry matter content.

All DGER-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

- ✦ Chemical industry
- ✦ Paper industry
- ✦ Food industry
- ✦ Biogas plants
- ✦ Pumping abrasive or aggressive liquids

## PUMP RPM

- 1,500 rpm
- 3,000 rpm

## MATERIAL OF CONSTRUCTION

Motor housing and oil chamber	Cast iron EN-GJL-250
Pump housing	W1.4408/AISI316
Pump impeller	W1.4408/AISI316
Pump shaft	W.1.6582/AISI4340
Bolts	A4
Sealing system	Mechanical shaft seals: silicon carbide/silicon carbide
Knife system	W1.4404/AISI316
Extended knife system	W1.4404/AISI316 (optional)
Oil type	15W-40 Vario HDX (with moisture detection)

## 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

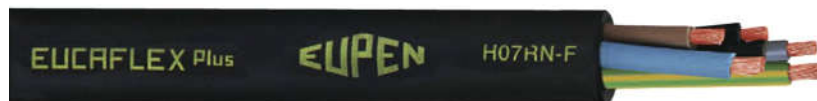
2-component coating: RAL 7005 (Mouse Grey)

Mouse Grey

## ELECTRICAL CABLE

H07RN-F/S07RN-F EUCAFLEX<sup>Plus</sup> Cable.

Resistant to oil and UV radiation.



Number of conductors:

H07RN-F 7G1.5 mm<sup>2</sup> (Not used in United Kingdom)

H07RN-F 7G2.5 mm<sup>2</sup> (Only United Kingdom. Motor ≤ 5,5 kW)

S07RN-F 7G4+3x1.5 mm<sup>2</sup>

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

## MONITORING FUNCTIONS

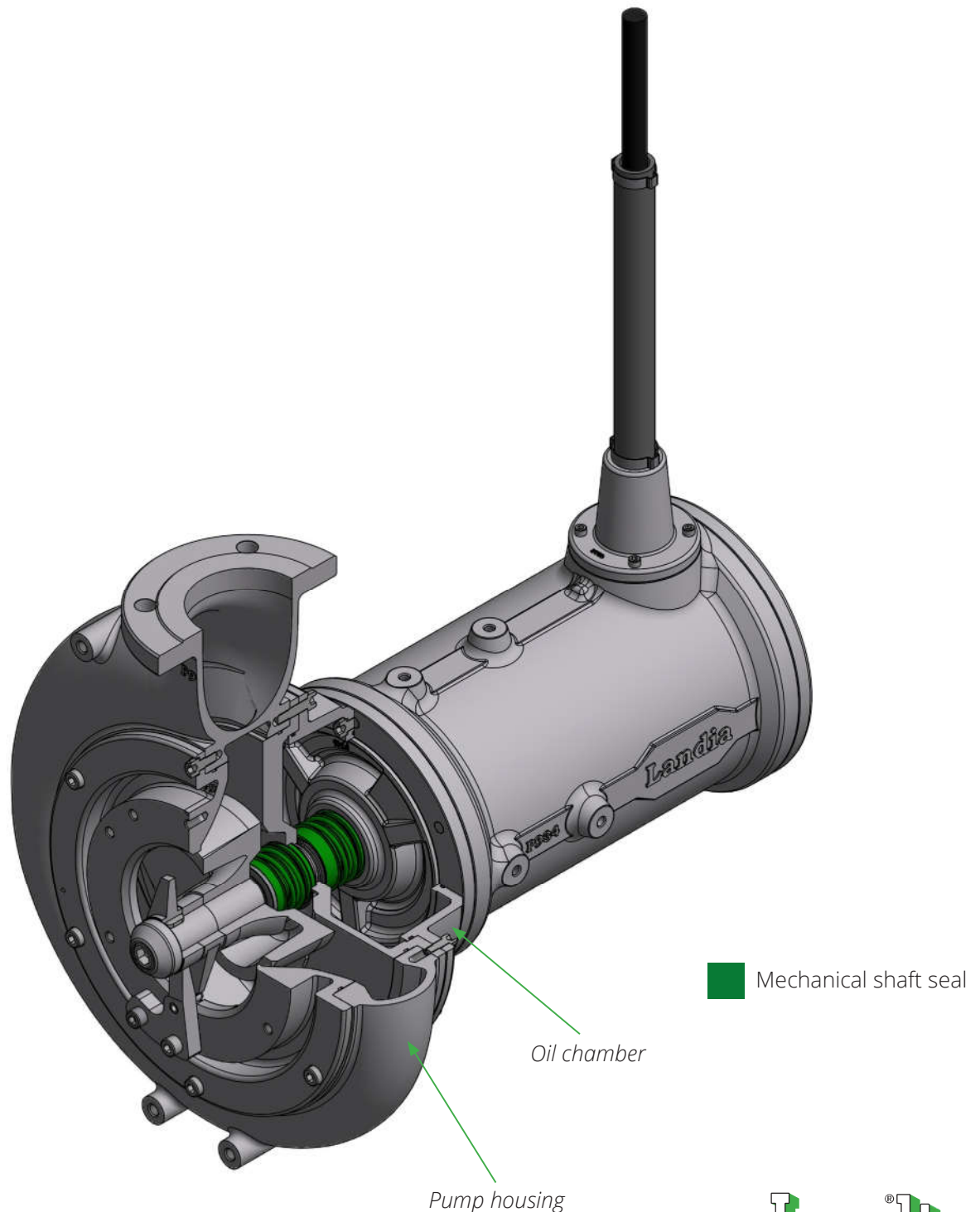
Bimetal thermal sensors 120 °C

Moisture detection system (optional)

## DESIGN

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

All chopper 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.

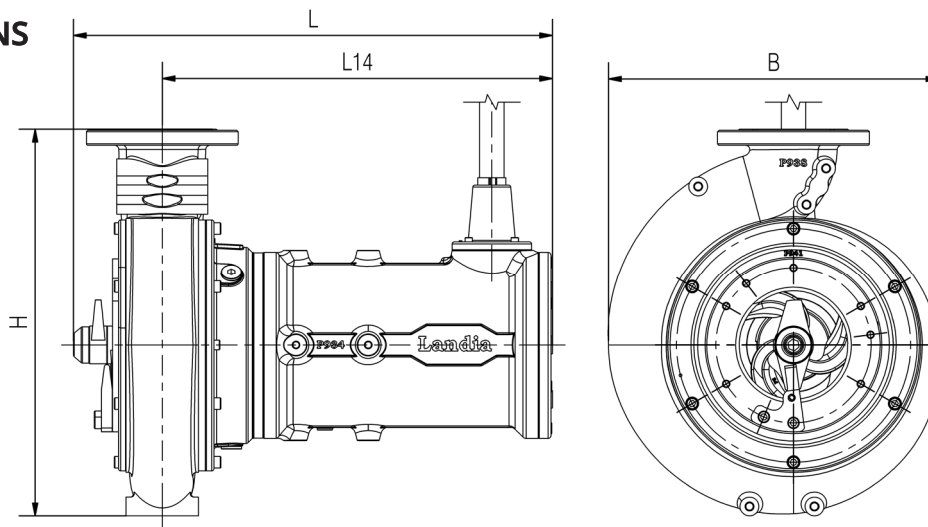


**ELECTRICAL DATA**

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
ATEX classification	II 2 G Ex db h IIB T4 Gb (Option, only available for specific models)

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]		[%]
<b>Medium pressure</b>								
DGER-I 80 3.0 kW-1,500 rpm	2314283	3.0	1,430	6.7	Δ	43	0.79	82.4
DGER-I 80 4.0 kW-1,500 rpm	2314284	4.0	1,435	8.8	Δ	61	0.78	84.1
DGER-I 80 5.5 kW-1,500 rpm	2314286	5.5	1,440	11.0	Δ	68	0.87	84.6
DGER-I 105 7.5 kW-1,500 rpm	2314287	7.5	1,455	15.0	Δ	90	0.83	86.2
DGER-I 105 11.0 kW-1,500 rpm	2314281	11.0	1,455	21.5	Δ	146	0.84	87.9
DGER-I 105 15.0 kW-1,500 rpm	2314285	15.0	1,465	29.0	Δ	212	0.84	88.7
DGER-I 105 18.5 kW-1,500 rpm	2314288	18.5	1,460	35.0	Δ	238	0.85	89.3
<b>High pressure</b>								
DGER-I 80 18.5 kW-3,000 rpm	2312288	18.5	2,925	33.0	Δ	238	0.90	89.9

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]
<b>Medium pressure</b>						
DGER-I 80 3.0 kW-1,500 rpm	2314283	370	432	550	445	84
DGER-I 80 4.0 kW-1,500 rpm	2314284	370	432	550	445	89
DGER-I 80 5.5 kW-1,500 rpm	2314286	370	432	580	480	104
DGER-I 105 7.5 kW-1,500 rpm	2314287	460	534	665	540	155
DGER-I 105 11.0 kW-1,500 rpm	2314281	460	534	665	540	165
DGER-I 105 15.0 kW-1,500 rpm	2314285	460	534	710	585	205
DGER-I 105 18.5 kW-1,500 rpm	2314288	460	534	710	585	215
<b>High pressure</b>						
DGER-I 80 18.5 kW-3,000 rpm	2312288	370	432	689	587	185

We reserve the right to make technical changes.

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Prepared by: BNV/GB  
Approved by: KSK/TM

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## Introduction

DG-I is a submersible pump.

It can be expanded with the help of different equipment, so it can solve many different pumping needs. The pumping takes place by means of a submersible 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 submersible pump type DG-I.

## 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 sulfide.

## 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](mailto:info@landia.dk)  
[www.landia.dk](http://www.landia.dk)

UK subsidiary:  
Landia (UK) Ltd.  
Waymills Industrial Estate,  
Whitchurch,  
Shropshire SY13 1TT  
Tel: + 44 01948 661 200  
[info@landia.co.uk](mailto:info@landia.co.uk)  
[www.landia.co.uk](http://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.				
Type		3~mot.nr.		
	V		A	
	Hz		kW	Ins.cl.
Cos φ	0,		RPM	kg
Eff. cl.		Year		
	IP 68		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 when connecting 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.

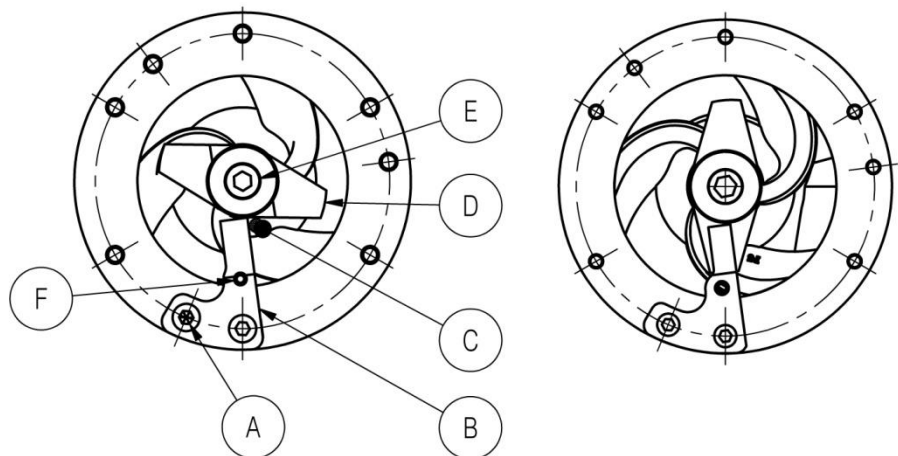
To obtain the highest capacity possible with as low motor power as possible it is important that the diameters of the pump pipes are large enough and that sharp bends are avoided as far as possible. Large pipe dimensions are especially important in connection with long distances.

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 capacity of the pump will be impaired if the edge of the guide groove on the front and back plate is worn round or there are deep joints in the guide grooves. You can minimize the wear on the front and back 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 to settle stones and the like. In the clamp between the impeller and the back plate, which then drive with the impeller around, the wear will increase. In case of doubt, contact Landia A/S 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.

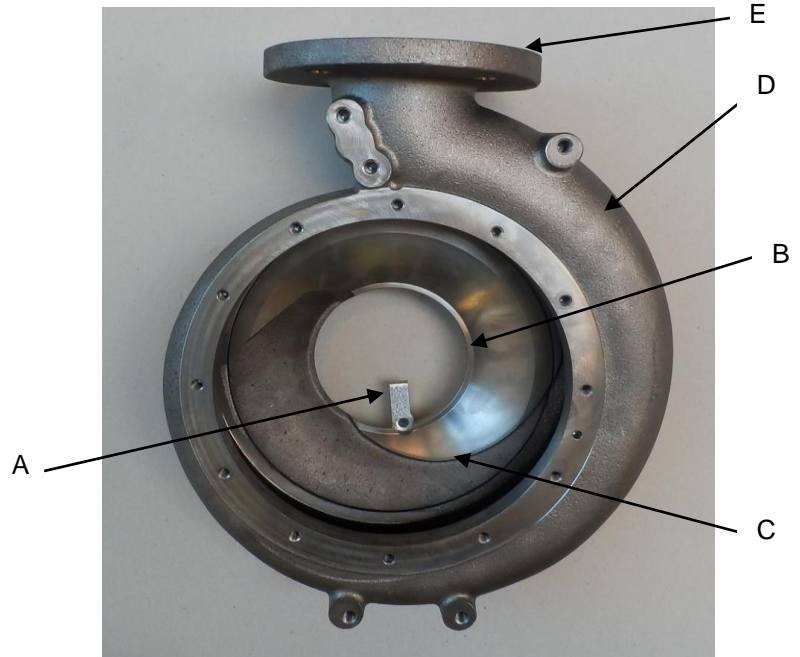
- A. Shear bolt
- B. Fixed knife
- C. Metal object
- D. Rotating knife
- E. Bolt
- F. Tightening pin



**Fitting the front plate**

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

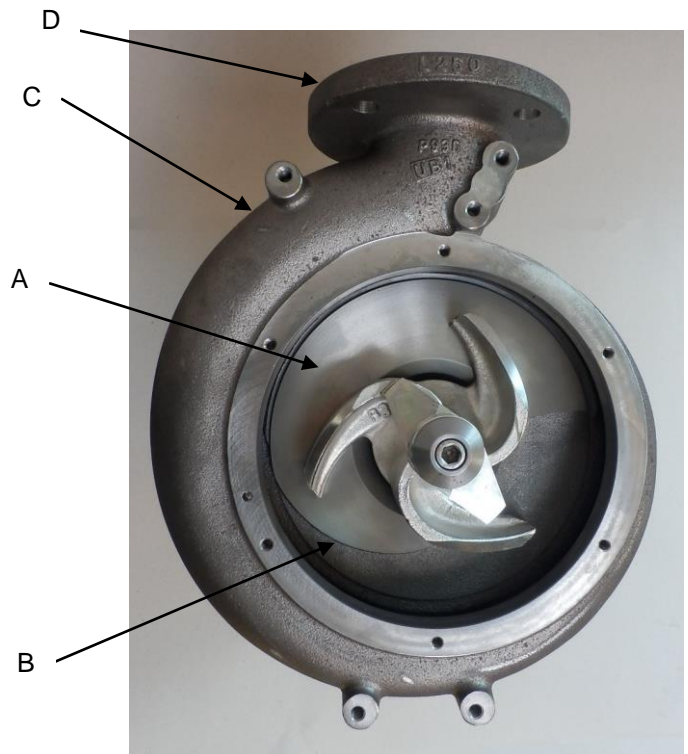
The front plate for the pump casing is designed with a guide trace. The guide trace must always be placed in the same direction as the outlet, regardless of how the outlet of the pump is turned.



**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

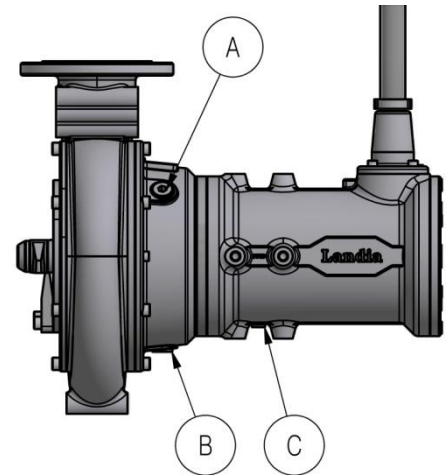
Regular inspection will ensure the submersible pump a long life at low costs. After every 2000 hours of operation, or more often depending on the operation conditions, the knife system, the impeller, the oil quantity and the motor casing of the pump should be checked. The oil must be changed at least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

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



The oil is drained off by removing the plugs pos. A and pos. B. If the oil is dirty, the outer seal must be checked.

Oil is filled at oil plug pos. A.

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

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

In general the shear bolt (see spare parts list) 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 Allen screw CH 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, type DG-I. 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.

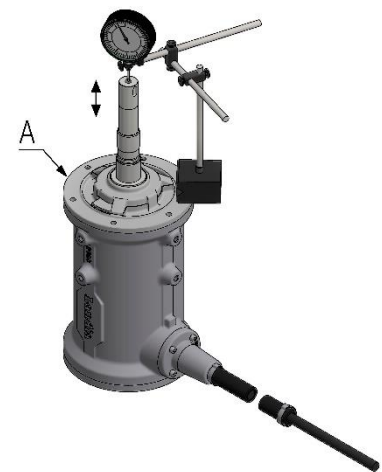
When disassembling the unit, handle the mechanical seals with care as they are not shock resistant. Prior to reinstallation, all sealing surfaces must be cleaned; all O-rings must be checked and changed, if necessary. Adhesive substance (e.g. Loctite) must be applied on all bolt joints. All bolts are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

Bolt sizes	Quality 10.9 – 12.9 Steel  	Quality A4-80 Stainless Steel  
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 space must be checked acc. to the table below.

Type	Rpm	Pump casing	Motor casing	Acceptable margin
DG-I DGER-I DG-GI	1500	50	ms71	$0.25 \pm 0.05$ mm
		65	ms80-90	$0.50 \pm 0.05$ mm
		80	ms100-112	$0.50 \pm 0.05$ mm
		105	ms132-160	$0.80 \pm 0.05$ mm
		150	ms160	$0.80 \pm 0.05$ mm
		150	ms180	$1.30 \pm 0.05$ mm
	3000	50	ms80-100	$0.50 \pm 0.05$ mm
		65	ms112-160	$0.80 \pm 0.05$ mm
		80	ms160	$0.80 \pm 0.05$ mm
		80	ms180	$1.30 \pm 0.05$ mm
DGR-I	1500	80	ms100	$0.90 \pm 0.05$ mm
		105	ms132-160	$1.20 \pm 0.05$ mm
		105	ms180	$1.80 \pm 0.05$ mm
		150	ms180	$1.80 \pm 0.05$ mm
	3000	65	ms132-160	$1.20 \pm 0.05$ mm
		80	ms180	$1.80 \pm 0.05$ mm

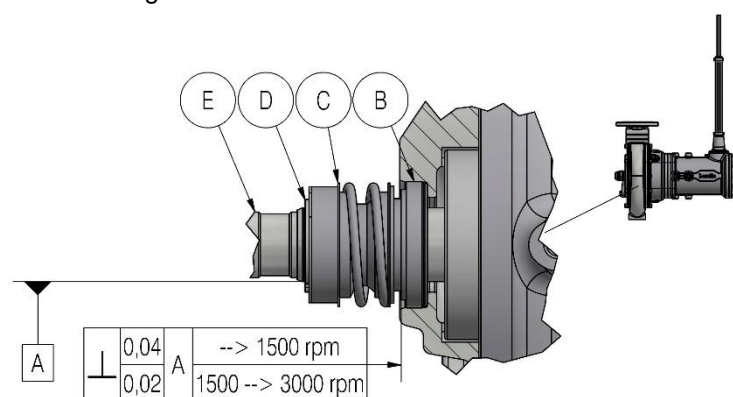
A. Bearing flange



### 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.

Slide/run the rotating sealing part (pos. C) 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.

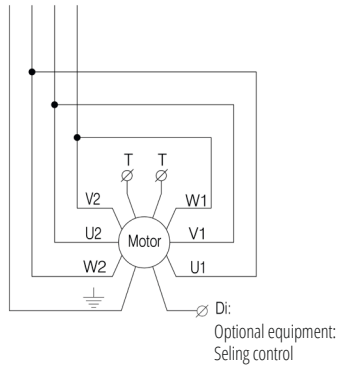
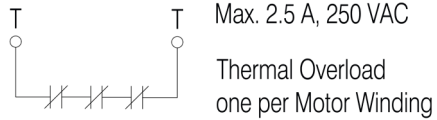
Test the pump for leakage by submerging it and by putting the motor casing and the oil chamber under an overpressure. The overpressure is to be approx. 1 bar. Leakage (air bubbles) must not appear. Oil is filled in the oil chamber. During the filling, the pump must be in a horizontal position. Oil quantity: see spare parts list.

Repair of the surface coating is necessary prior to operation start. See instruction for maintenance of surface coating.

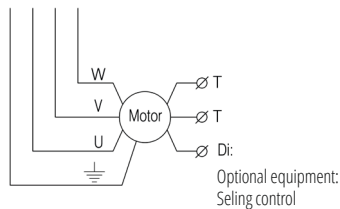


We reserve the right to technical alterations. Translated from Danish.

To Overtemp. Relay  
in Control Panel



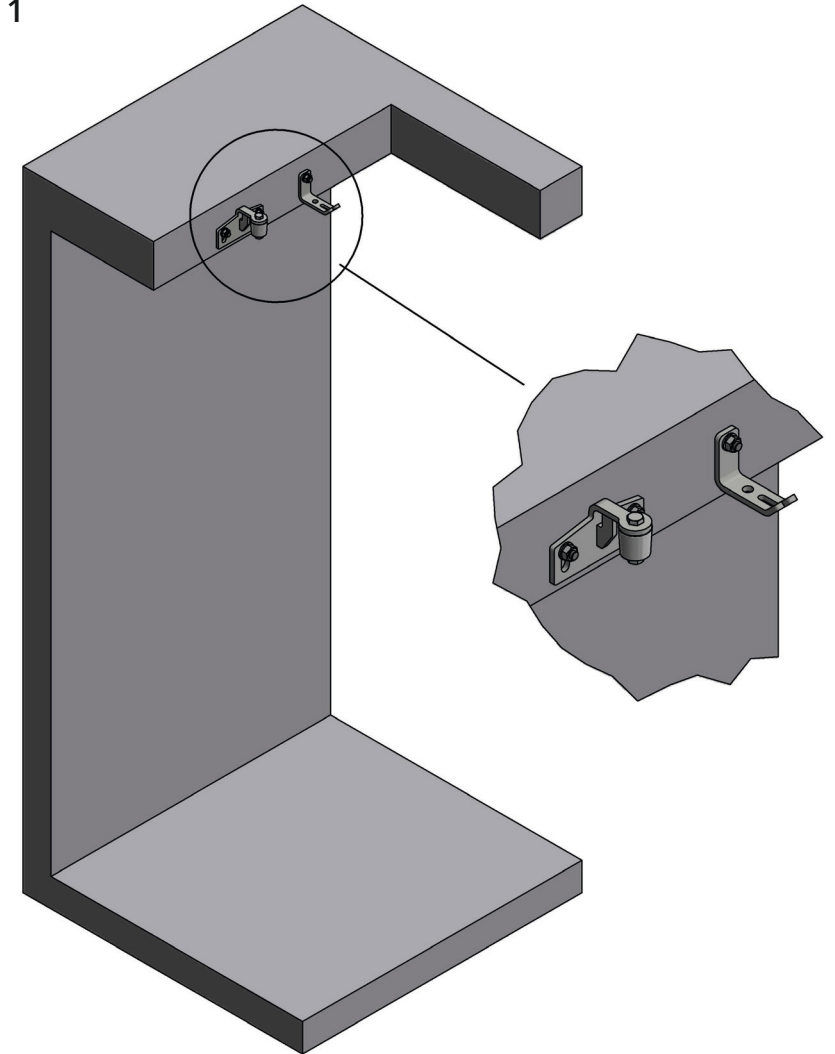
Wire function	US model only Color code	Number/color
U1	Red ●	1
V1	Orange ●	2
W1	White ○	3
W2	Green/black ●	4
U2	Red/black ●	5
V2	Orange/black ●	6
Ground	Green ●	Green/yellow ●
Thermal sensor	Blue ●	Blue ●
Thermal sensor	Black ●	Brown ●
Seal control	White/black ●	Black ●



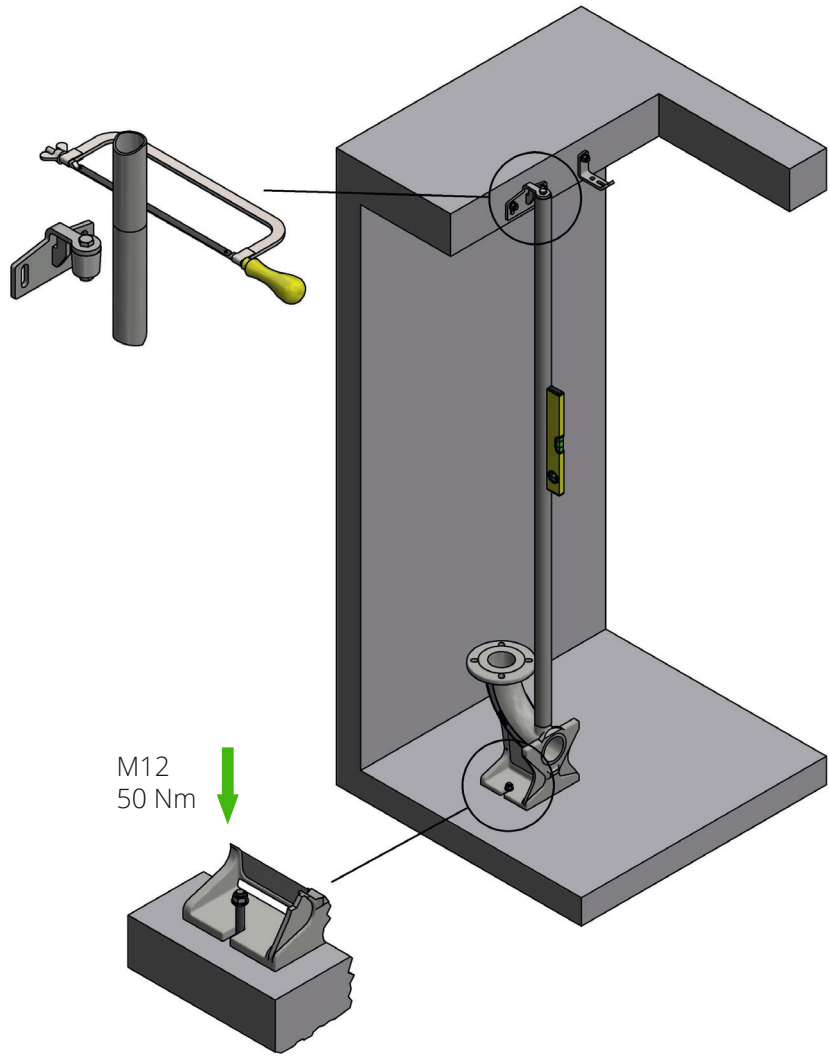
Wire function	US model only Color code	Number/color
U1	Red ●	1
V1	Orange ●	2
W1	White ○	3
Ground	Green ●	Green/yellow ●
Thermal sensor	Blue ●	Blue ●
Thermal sensor	Black ●	Brown ●
Seal control	White/black ●	Black ●

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

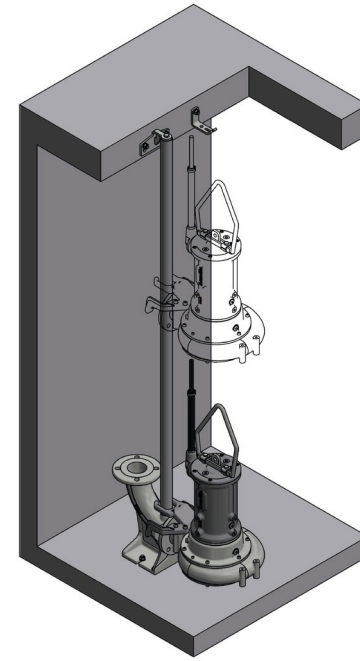
### Step 1



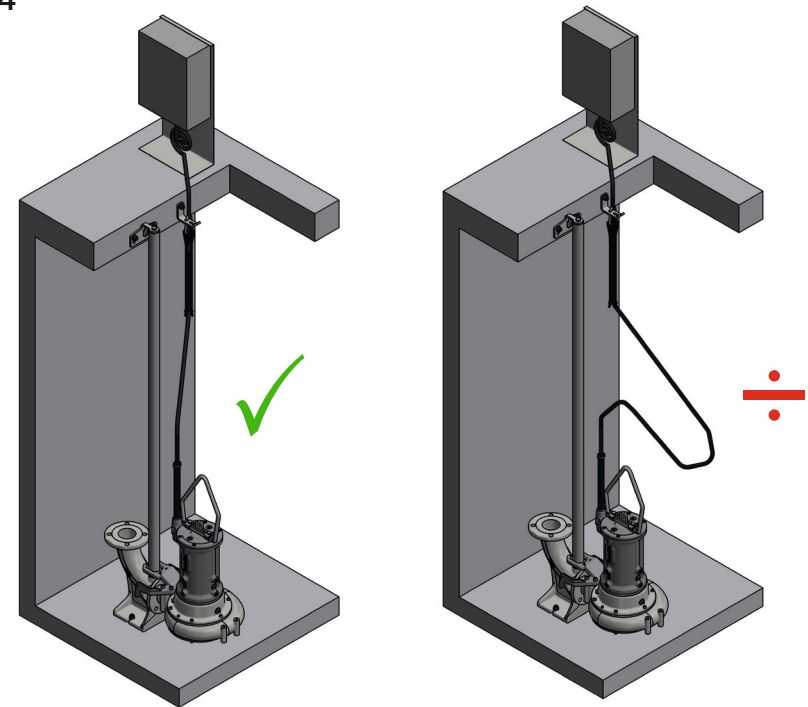
Step 2



Step 3



Step 4





## Oliemængdeskema - pumper

## DG-I

Type	Pumpehus	Motorserie	Rpm.	CRB Multi 15W-40 (9380001)	Hyspin HVI 15 (9380011)	Tætnings- overvågning Hyspin HVI 46D (9380009)	Frekvens- omformer CRB Multi 15W-40 (9380001)	Levnedsmid- delindustrien Whitemore WOM 65 (9380015)
DG-I	50	71	1500	0,7 l	-		0,7 l	
	65	80/90		1,5 l			1,5 l	
DG-I	65	100		1,5 l			1,5 l	
DGR-I	80	100/112		2,4 l			2,4 l	
DGER-I	105	132/160/180		3,8 l			3,8 l	
DG-I	150	160		3,8 l			3,8 l	
		180	6,5 l	6,5 l				
DG-I	50	80/90/100	3000	-		0,8 l		
	65	112				1,1 l		
DG-I	65	132/160				1,7 l		
DGR-I	80	160				2,4 l		
	80	180				4,0 l		

## MPTK-I

Type	Pumpehus	Effekt [kW]	Rpm.	CRB Multi 15W-40 (9380001)	Hyspin HVI 15 (9380011)	Tætnings- overvågning Hyspin HVI 46D (9380009)	Frekvens- omformer CRB Multi 15W-40 (9380001)	Levnedsmid- delindustrien Whitemore WOM 65 (9380015)
MPTK-I	50	-	1500	0,6 l	-		0,6 l	
MPTK-I	65			1,3 l			1,3 l	
MPTKR-I	65			1,3 l			1,3 l	
MPTK-I	80			2,3 l			2,3 l	
MPTKR-I				2,3 l			2,3 l	
MPTK-GI	80			2,3 l			2,3 l	
MPTK-I Ex.				3,4 l			3,4 l	
MPTK-I	105			3,4 l			3,4 l	
MPTKR-I				3,4 l			3,4 l	
MPTK-GI				3,4 l			3,4 l	
MPTKR-GI	105	3,4 l	3,4 l					
MPTK-I Ex.		5,8 l	5,8 l					
MPTKR-I Ex.		5,8 l	5,8 l					
MPTK-I	150	18,5	4,0 l	4,0 l				
MPTK-GI		22,0/30,0	5,5 l	5,5 l				
MPTK-I Ex.		-	8,5 l	8,5 l				
MPTK-I	50	-	3000	-		0,7 l		
MPTK-I	65					1,3 l		1,3 l
MPTKR-I	65					1,3 l		1,3 l
MPTK-I	80					15,0/18,5		2,2 l
MPTKR-I	80	22,0/30,0	4,2 l	4,2 l				

**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
<b>DIN-Norm / godkendelse</b>	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**

<b>BEL RAY</b>	Bel Ray 50-2
<b>CASTROL</b>	Tribol GR 4747/220-2 HT
<b>MOBIL</b>	Mobilgrease FM 222
<b>Q8</b>	Rubens WB
<b>SHELL</b>	SHELL GADUS S3 V220C 2
<b>TEXACO</b>	Anderol 783-2
<b>TOTAL</b>	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 Fedttyper 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 $\phi$	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	$\varphi$	%	%	%
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