

# Long shaft chopper pump

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

Please click on the links below "table of contents" to get the information needed.

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### MPG

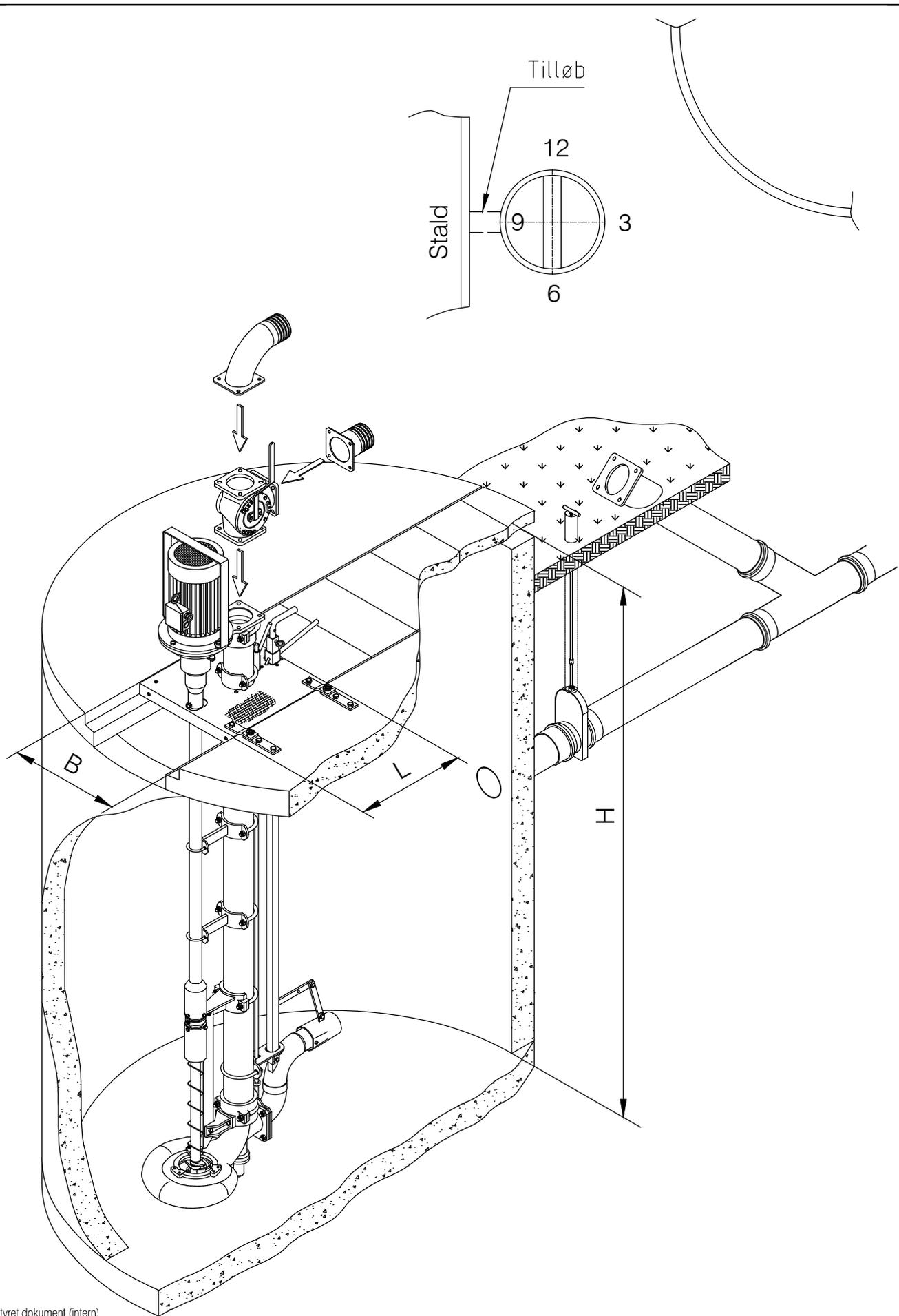
[Schematic drawing](#)

[Principal measurements](#)

[Technical data sheet](#)

[Service instruction](#)



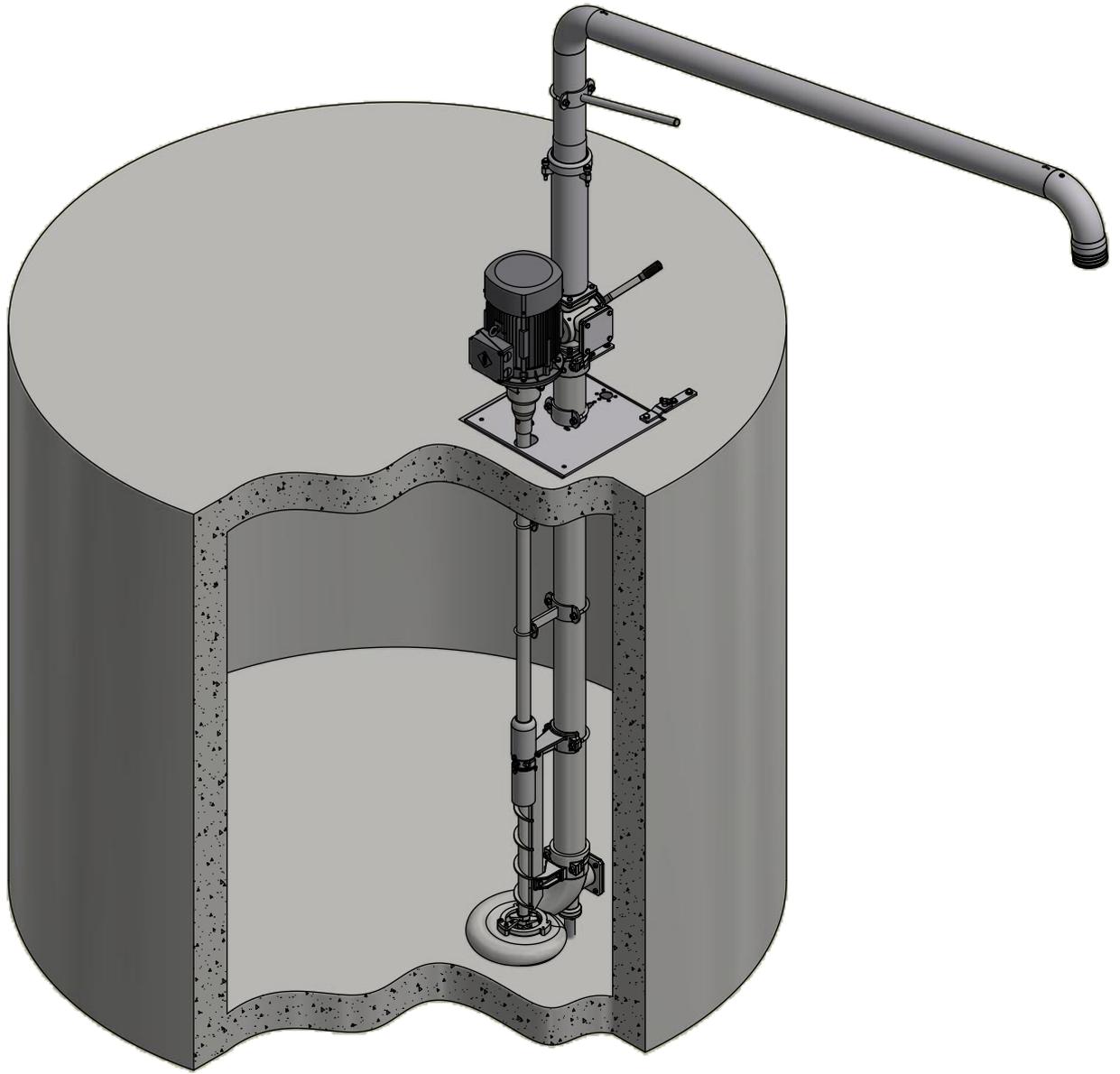


Styret dokument (intern)



**MPG/TPG**  
 Hjælpetegning vedr.  
 montering af pumpesystem  
 Principtegning

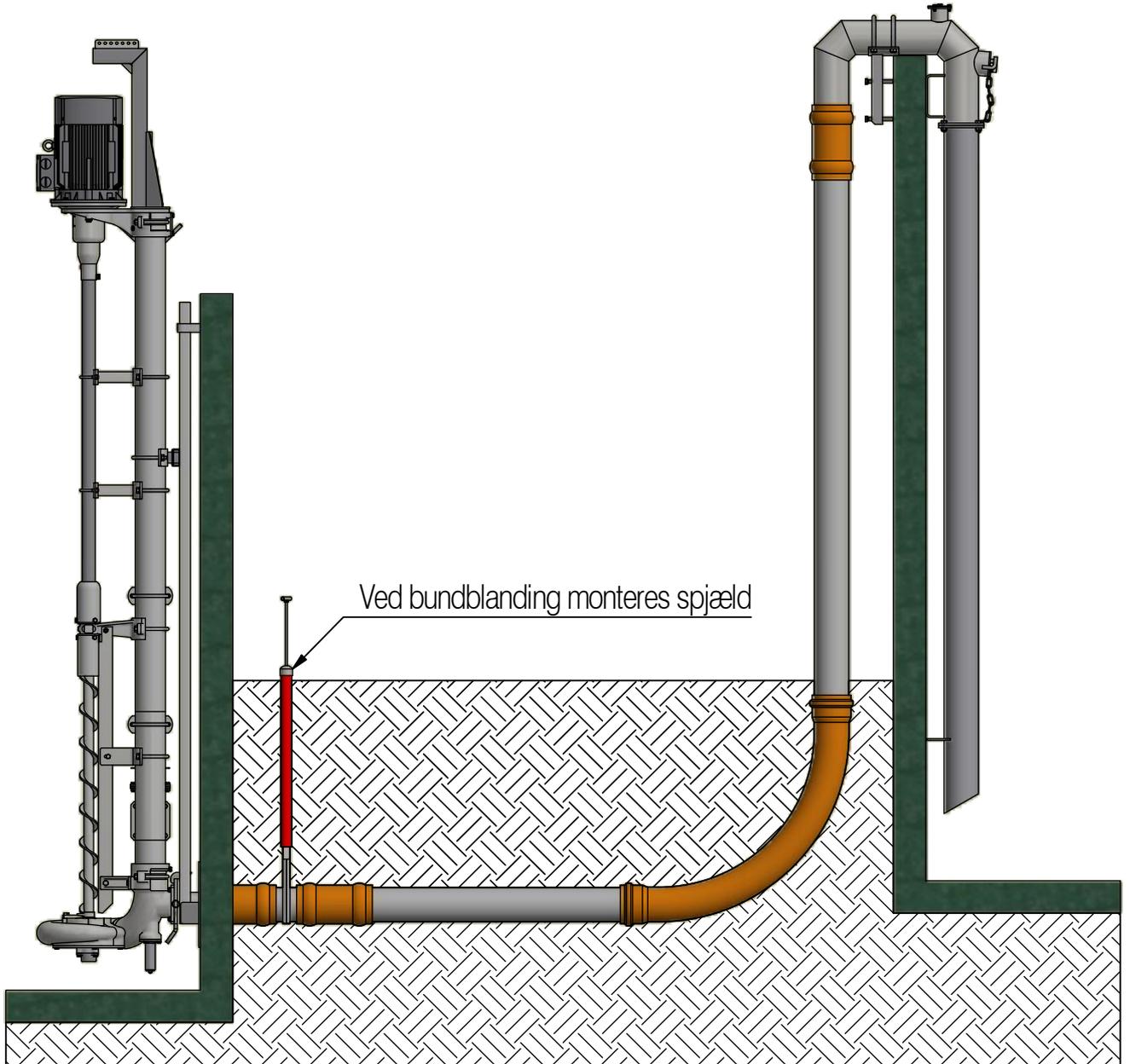
Scale: 1:30	Sign.: LA   KT	Date: 07-01-1998
Dwg.no.:		3740602
Revision date: 25.04.2013		



**Landia**

MPG  
Teleskopisk aftapningsrør  
Principtegning

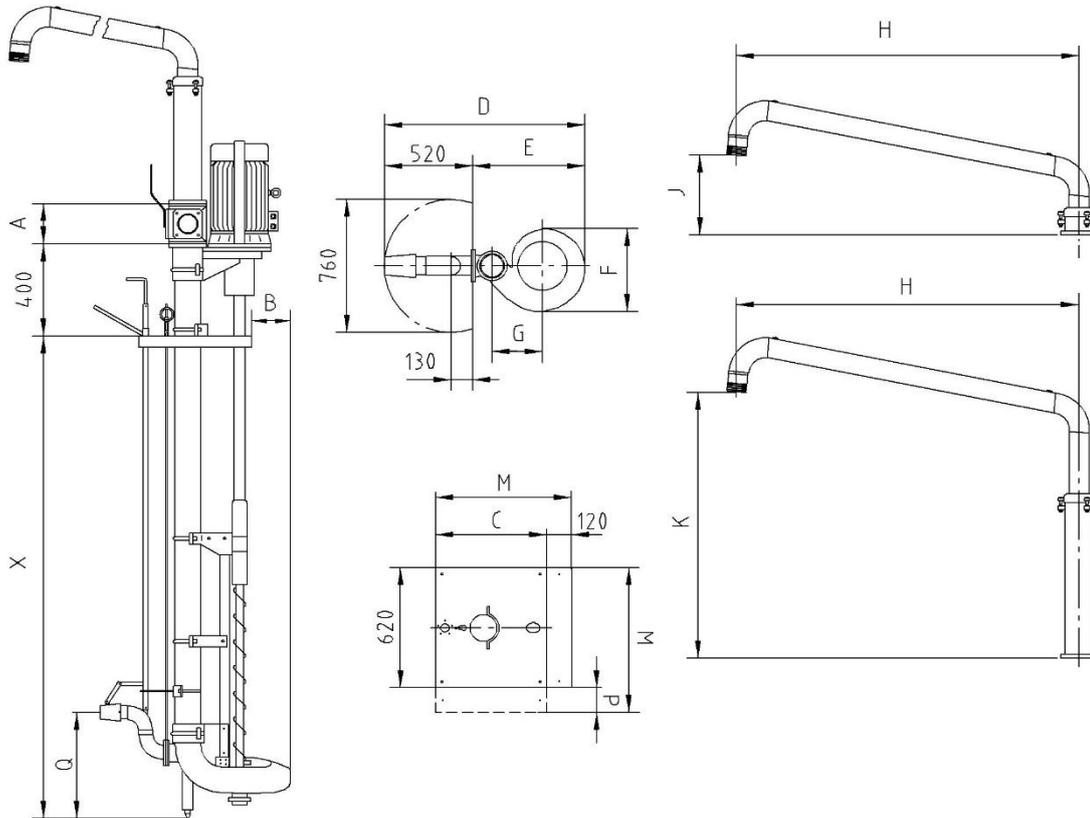
Scale:	Sign.:	Date:
1 : 30	BNV   KSK	11-03-2020
Dwg.no.:		3740976



**Landia**

Overpumpningssystem  
MPG med styreskinnesystem  
Principtegning

Scale:	Sign.:	Date:
1 : 30	VFO   LEN	19-06-2020
Dwg.no.:		3740980

**MPG**
**Med tovejshane og aftapningsrør – With two way tap and drainage pipe**
**Mit Zweiwegehahn und Faßfüllrohr – Avec vanne à 2 voies et tuyau de vidange**


Type	X [m]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	M [mm]	P [mm]
4"	1,6 – 5,4	244	120	620	1050	530	420	225	740	-
5"	1,6 – 5,4	282	180	620	1155	635	480	285	740	-
6"	1,6 – 5,4	322	218	722	1330	810	600	355	842/890	270

Aftapningsrør - Drainage pipe Faßfüllrohr - Tuyau de vidange [m]	H [mm]	J [mm]	K [mm]
2,7	2700	400	1500->2100
3,2	3200	450	1600->2200
3,7	3700	500	1750->2350

Bundblanding – Bottom Flushing Rührdüse - Recyclage	Q [mm]
Bevægelig kort - Adjustable short Beweglich kurz - Orientable, court	650
Bevægelig lang – Adjustable long Beweglich lang - Orientable, long	1200
Fast - Fixed Fest – Fixe	700

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

# Long shaft pump type MPG

Landia long shaft slurry pump for electrical operation. Reliable, robust pump with high capacity for pumping slurry.

## APPLICATION EXAMPLES

- Transfer to tanks
- Back flushing canals
- Suitable for shredding and pumping slurry with high dry-matter content
- Available with adjustable bottom mixer

## PUMP RPM

1500 rpm



## MATERIAL OF CONSTRUCTION

Motor housing	Cast iron EN-GJL-250
Pump housing	Cast iron EN-GJL-250
Pump impeller	Cast iron EN-GJL-250
Bolts	A4
Knife system	Hardened steel W1.0038, hardened to RC 59-
Extended knife system	Hardened steel W1.0038, hardened to RC 59-60 (optional)

**SERVICE AND MAINTENANCE**

Recommended service interval/oil	Maximum 2000 operational hours/minimum once a year
Motor	Lifetime lubricated bearings

**SURFACE TREATMENT**

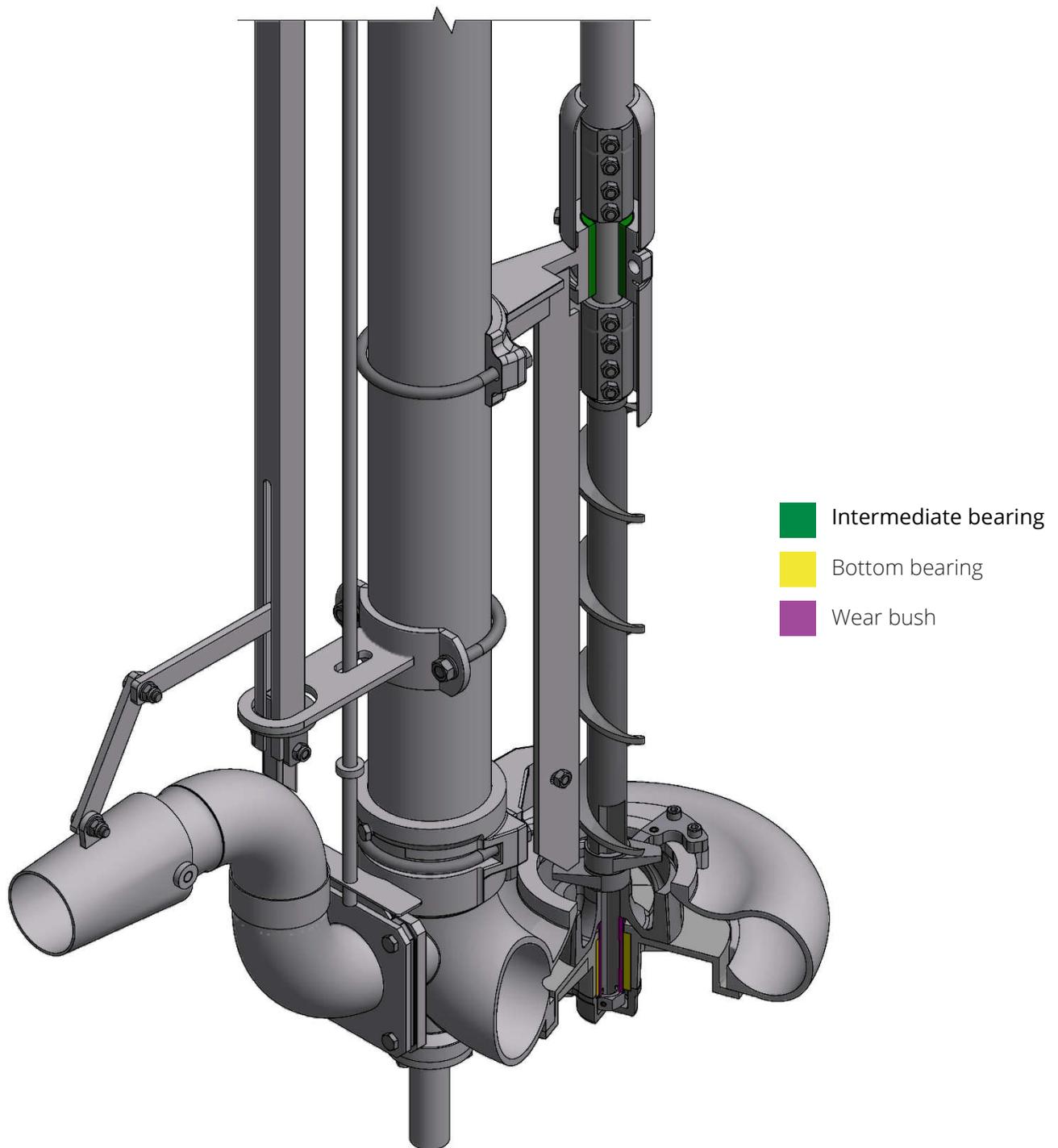
Machinery enamel: RAL 9005 (Jet black)

Jet  
black

**DESIGN**

Very service friendly construction. Knife system for shredding straw and auger for homogenous feeding of the pump ensure clog-free pumping.

Pipe dimension: 4"  $\varnothing$  114, 5"  $\varnothing$  140 or 6"  $\varnothing$  168

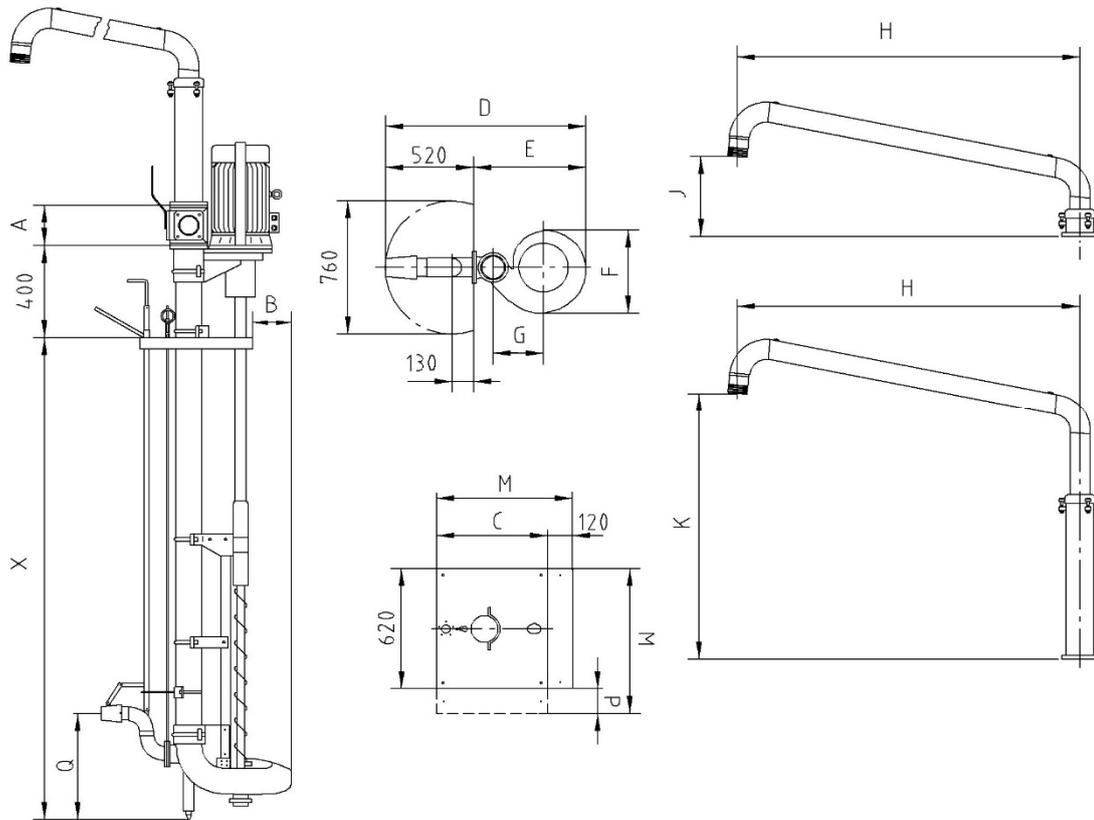


**ELECTRICAL DATA MPG**

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]		[%]
MPG 4" 5.5 kW-1500 rpm	2004422	5.5	1460	10.5	Δ	91.4	0.84	89.6
MPG 4" 7.5 kW-1500 rpm	2004423	7.5	1460	14.5	Δ	135	0.84	90.7
MPG 4" 11.0 kW-1500 rpm	2004424	11.0	1470	21.0	Δ	214	0.85	91.4
MPG 4" 15.0 kW-1500 rpm	2004425	15.0	1470	28.0	Δ	283	0.85	92.1
MPG 4" 18.5 kW-1500 rpm	2004430	18.5	1470	33.0	Δ	257	0.88	92.6
MPG 5" 11.0 kW-1500 rpm	2004523	11.0	1470	21.0	Δ	214	0.85	91.4
MPG 5" 15.0 kW-1500 rpm	2004524	15.0	1470	28.0	Δ	283	0.85	92.1
MPG 5" 18.5 kW-1500 rpm	2004525	18.5	1470	33.0	Δ	257	0.88	92.6
MPG 5" 22.0 kW-1500 rpm	2004534	22.0	1470	40.0	Δ	320	0.87	93.0
MPG 6" 15.0 kW-1500 rpm	2004621	15.0	1470	28.0	Δ	283	0.85	92.1
MPG 6" 18.5 kW-1500 rpm	2004623	18.5	1470	33.0	Δ	257	0.88	92.6
MPG 6" 22.0 kW-1500 rpm	2004624	22.0	1470	40.0	Δ	320	0.87	93.0
MPG 6" 30.0 kW-1500 rpm	2004625	30.0	1475	52.0	Δ	447	0.89	93.6

**OVERALL DIMENSIONS**



Type	X [m]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	M [mm]	P [mm]
4"	1.6 – 5.4	244	120	620	1050	530	420	225	740	-
5"	1.6 – 5.4	282	180	620	1155	635	480	285	740	-
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Aftapningsrør - Drainage pipe Faßfüllrohr -Tuyau de vidange [m]	H [mm]	J [mm]	K [mm]
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Bundblanding – Bottom Flushing Rührdüse - Recyclage	Q [mm]
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We reserve the right to make technical alterations.



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## Application

MPG is a dry installed, long-shaft centrifugal pump.

This pump is well suited for pumping of heavily contaminated liquids with large dry matter particles and a high dry matter content. Application possibilities are, for example, pumping of paper pulp, slaughterhouse waste, manure and slurry with a high level of straw content. The pump cannot be applied for other purposes without prior advice from Landia.

## Capacity

The capacity of the pump will always depend on the consistency of the medium. The capacity can be increased either by increasing the motor size or the size of the impeller. In order to reach the best possible performance with the smallest possible motor power, it is important that the pipe dimensions are as large as possible and that sharp bends are avoided, especially if the liquid is to be pumped over a long distance. The valve, if any, must allow free flow when it is open.

## Important

Please note the following points:

- Only a certified electrician is allowed to connect the unit.
- The motor is designed for outdoor application without covering, as the motor is splash proof.
- The motor **must not** be wrapped in plastic or the like.
- After a period of about 2 months of operation the pump has lodged in the tank bottom. The checker plate cover should then be adjusted in order to ensure the resting position of the pump at the tank bottom. (This is mainly due to concrete quality fluctuations).
- When working with gassy slurry (long term stored slurry), it is essential to comply with **health and safety** instructions regarding slurry plants.
- Prior to starting it must be verified that the equipment is correctly installed and tightened and that hoses, connections and flanges are tightened.
- In connection with pump service or removal it must be verified that the pump cannot start, e.g. by activating the pump emergency stop.
- It may be necessary to dismantle the power cable if the pump is to be removed from the tank. If the power cable is not equipped with a CE-plug only a certified electrician is allowed to dismantle and connect the power cable.

## Power connection

For every motor pump a star-delta starter must be used. A reversible starter can be applied. Check that the electrical data of the starter correspond to those of the motor. The motor is marked with S2-6 min. operation form.

To protect the motor from excess power consumption and from short-circuiting by a sudden blocking a motor protection switch must be installed, e.g. AEG type MBS.

### **Only a certified electrician is allowed to connect the unit.**

The certified electrician must verify that the rotational direction of the pump is correct as per the motor rating plate.

## Operation

With the help of the reversible starter, it is possible to let the pump reverse shortly. This can be an advantage if the pump blocks due to impurities or if the pump cannot be started normally. It is important to switch the starter quickly (2-3 sec) from star to delta position. Operation in star position can cause burning of the motor.

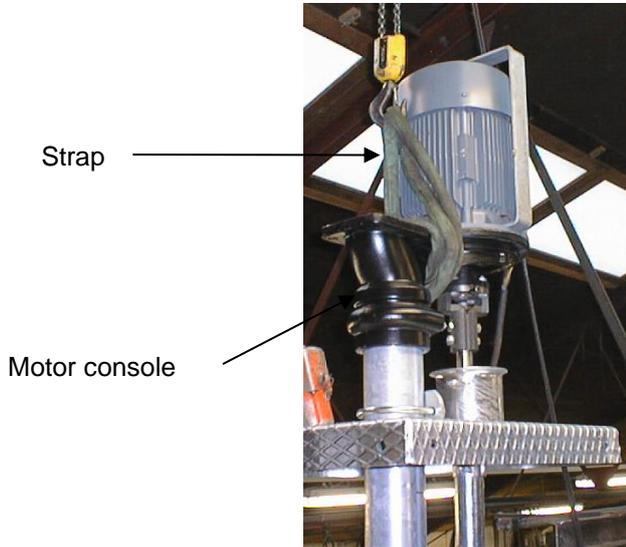
If the motor protection switch has been activated the pump can be restarted by pressing the "reset" button once the cause of the disconnection has been determined and rectified. The cause could be e.g. low mains voltage.

In case of irregularities the cause must be found immediately. If the pump capacity decreases or even disappears, foreign objects such as wire and rope may be the cause. These objects can be removed only by hoisting the pump.

If the pumps are to be applied in a different tank it can be hoisted and removed. Please see the hoisting instruction.

**Hoisting instruction**

Initially the discharge pipe as well as hoses must be uninstalled before the pump can be hoisted from the tank. To hoist the pump from the tank a strap/chain must be placed around the motor console – please see picture below.



If the pump is to be hoisted horizontally, two straps/chains must be placed around the pump pipe.

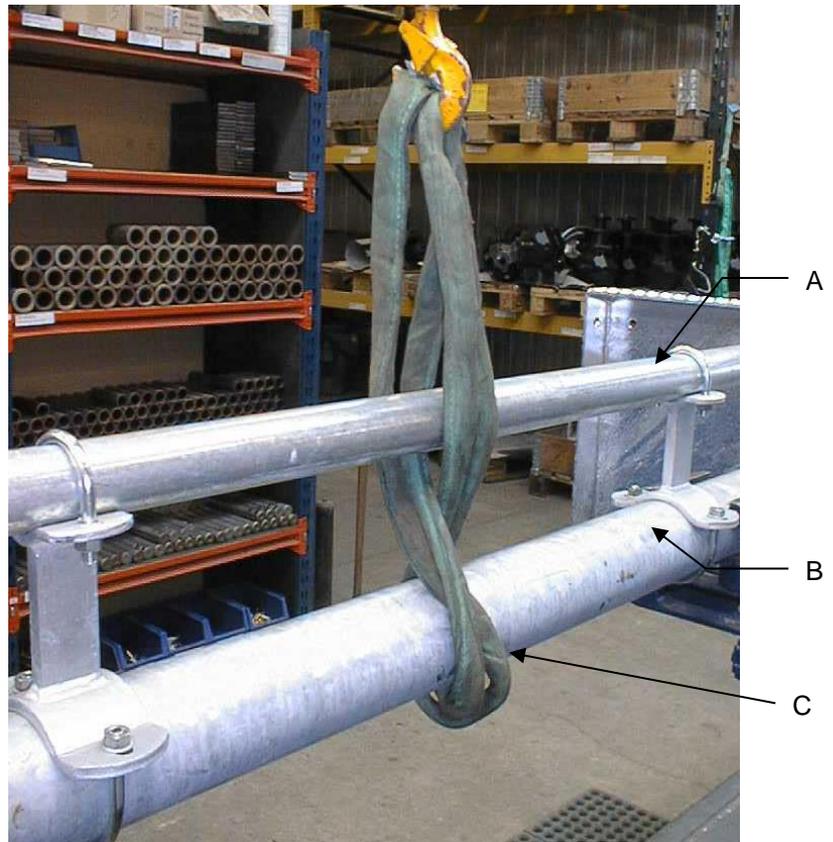
**Important**

The protective pipe must not be used for hoisting.

Place the straps/chains in a figure-of-eight around the pump pipe and protective pipe – please see picture below.

- A. Protective pipe
- B. Pump pipe
- C. Strap

The position of the straps/chains between the pump casing and the motor will vary depending on the length of the pump. Thus it is important to find the centre of gravity of the pump by gently lifting it and then hoist the pump.



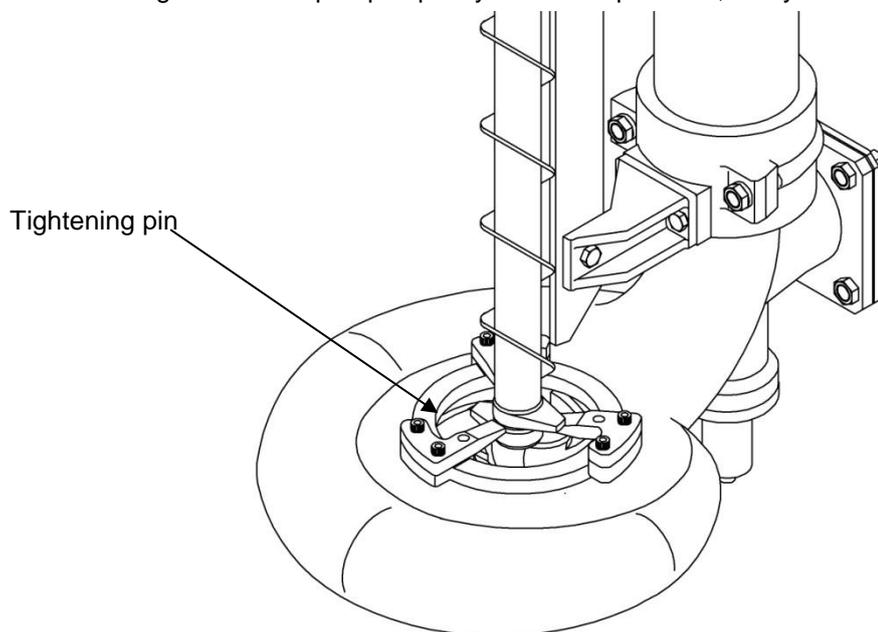
## Inspection

Regular inspection will ensure the pump a long service life at low costs.

The intermediate bearing of the pump is designed for liquid lubrication. If the pump mostly operates with the intermediate bearing being above liquid level, the bearing should be equipped with either a lubrication device or be lubricated frequently, (e.g. waste oil) along the shaft.

**Pumps placed in storage tanks and thus out of use for several months should be lubricated prior to this down time.**

- Every 400 hours of operation or once a year, perhaps even more often, dependent on operation conditions, the knife system of the pump must be inspected. If the tightening pin (5" and 6") of the fixed knife is lacking, the pin and the knife must be exchanged.
- Every 1000 hours of operation the pump bearings, the bottom plate and the impeller must be inspected for wear. This might influence pump capacity and the repair cost, if any.



## Motor greasing

(If equipped with grease nipples)

The 18.5, 22.5 and the 30.0 kW motors are greased through a grease nipple at the top and bottom bearing every 6500 hours of operation. Grease quantity: approx. 20 g.

The motor must be greased while in operation.

Ball bearing grease must be applied for greasing.

## Service/repair

If spare parts not identical to those recommended are applied in connection with service/repair, the guarantee from Landia A/S is no longer valid. If you are not able to obtain the recommended parts by yourself, the parts can be ordered through Landia.

Repair on a larger scale should be carried out at a special workshop, as given below.

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)

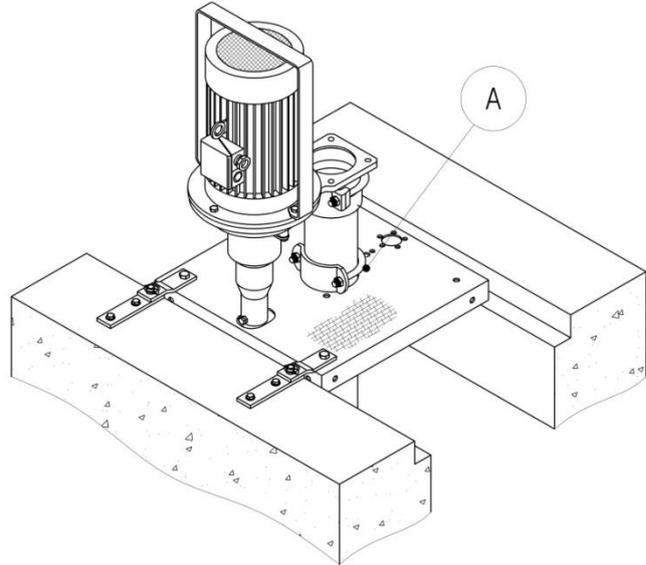
UK subsidiary:  
Landia (UK) Ltd.  
Waymills Industrial Estate,  
Whitchurch,  
Shropshire SY13 1TT  
Tel: + 44 01948 661 200  
[info@landia.co.uk](mailto:info@landia.co.uk)  
[www.landia.co.uk](http://www.landia.co.uk)

## Adjustment of pump height

### Front tank

Adjust the checker plate cover by loosening the two nuts on the threaded shackle and pull out the checker plate cover in horizontal position. Tighten the nuts on the threaded shackle.

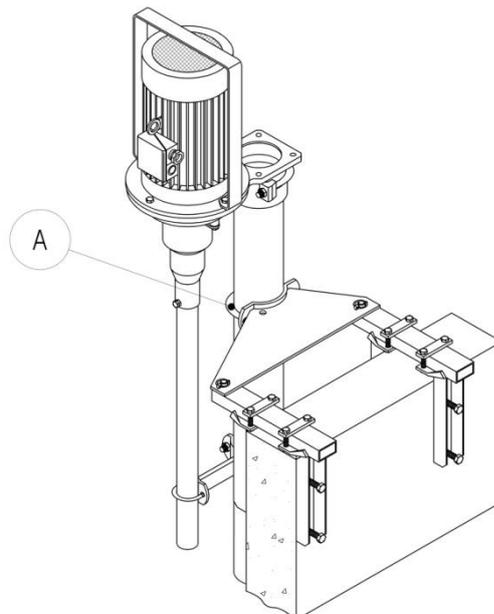
A. Threaded shackle



### Storage tank

Adjust the mounting plate by loosening the two nuts on the threaded shackle and pull out the mounting plate in horizontal position. Tighten the nuts on the threaded shackle.

A. Threaded shackle

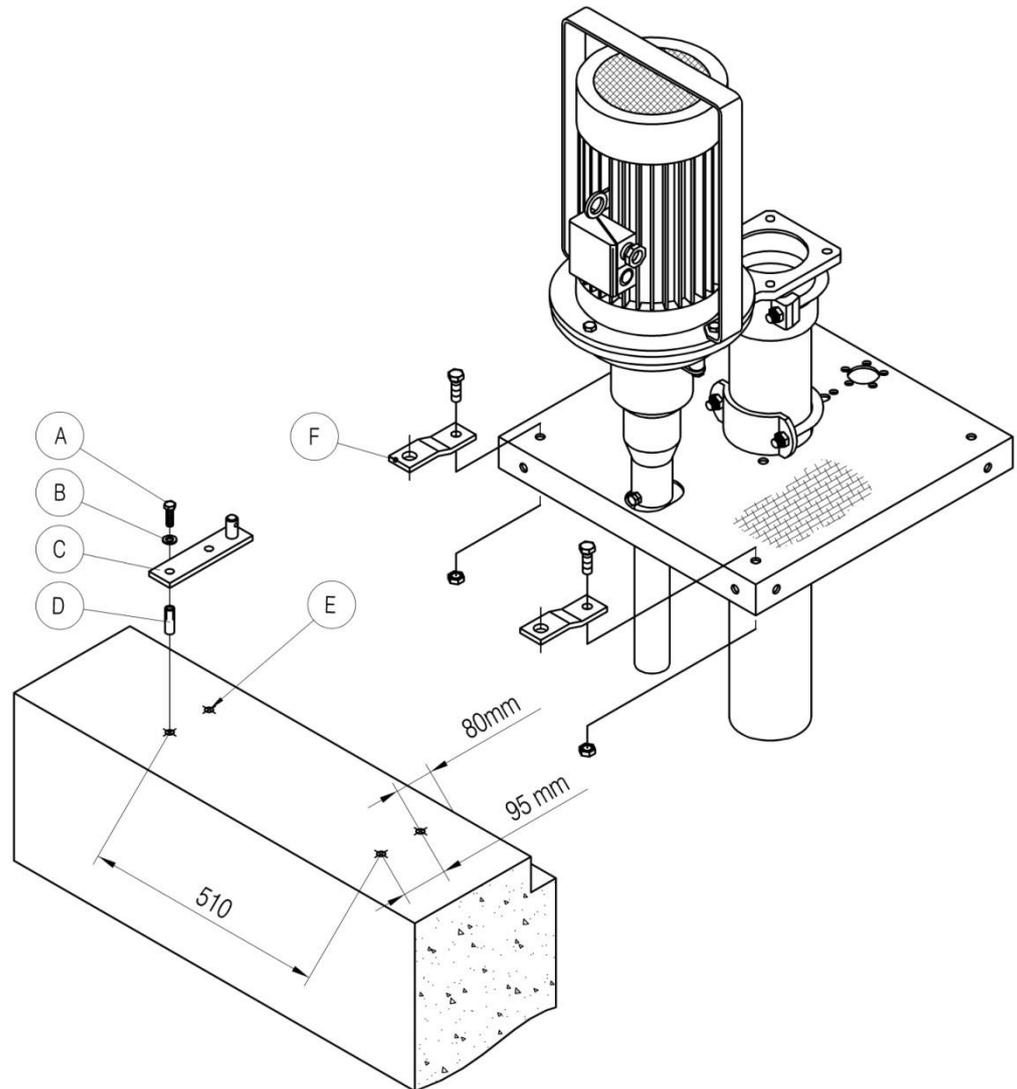


## Assembling

### Front tank

Fasten the two fixing brackets, pos. 2, on the tank cover or edge acc. to the stated pos. nos. on the figure below.

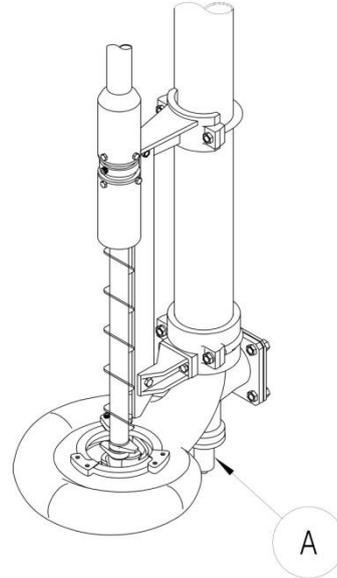
- A. Bolt
- B. Washer
- C. Mounting plate
- D. Impact anchor
- E. Hole  $\varnothing 15$
- F. Bracket



Four (4) holes (15 mm diam.) must be drilled in the tank cover/edge acc. to the stated dimensions and then pos. 7 must be inserted in the drilled holes. Fasten pos. 2 on the tank cover/edge by means of pos. 5 and 6. Install the two brackets (pos. 1) for the checker plate cover on the pump checker plate cover, leaving 510 mm between the holes of the brackets.

The pump is mounted vertically so that the guide pivot rest on the tank bottom. Please see drawing below:

A. Guide pivot

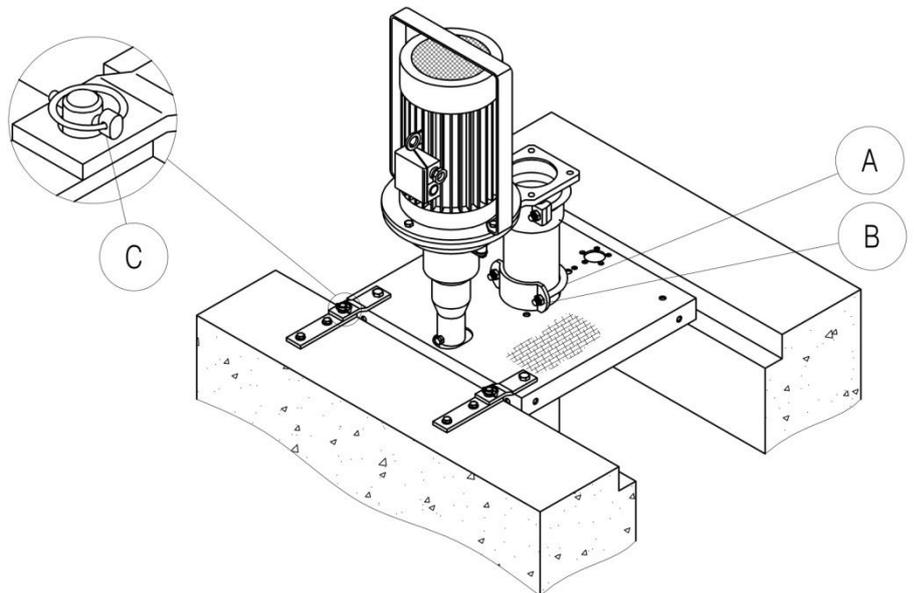


The checker plate cover with brackets must be adjusted on the pump pipe by loosening the nuts, pos. B, on the threaded shackle, pos. A.

When the brackets fit the two fixing brackets on the tank edge/cover, the pump is in the correct position.

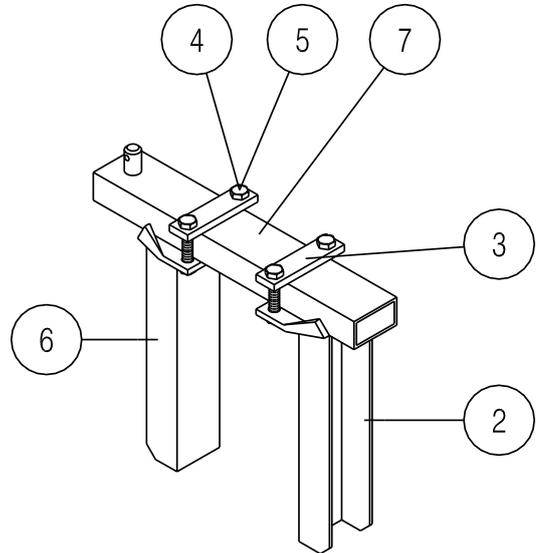
The pump is locked in this position by means of a tractor plug, pos. C.

- A. Threaded shackle
- B. Nut
- C. Tractor plug



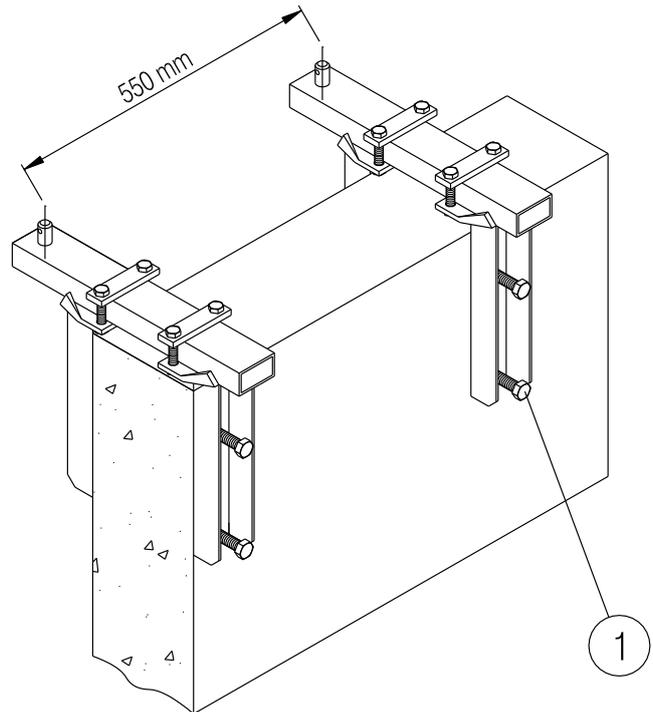
**Storage tank, only 5" and 6" pumps**

First of all, the fixing brackets must be assembled as shown on the drawing below.



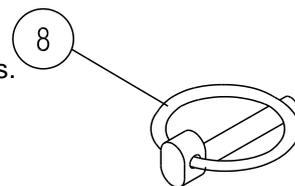
Pos. 4 and 5 are only tightened when the mounting brackets are located on the edge of the tank.

The mounting brackets are placed at a distance of 550 mm.



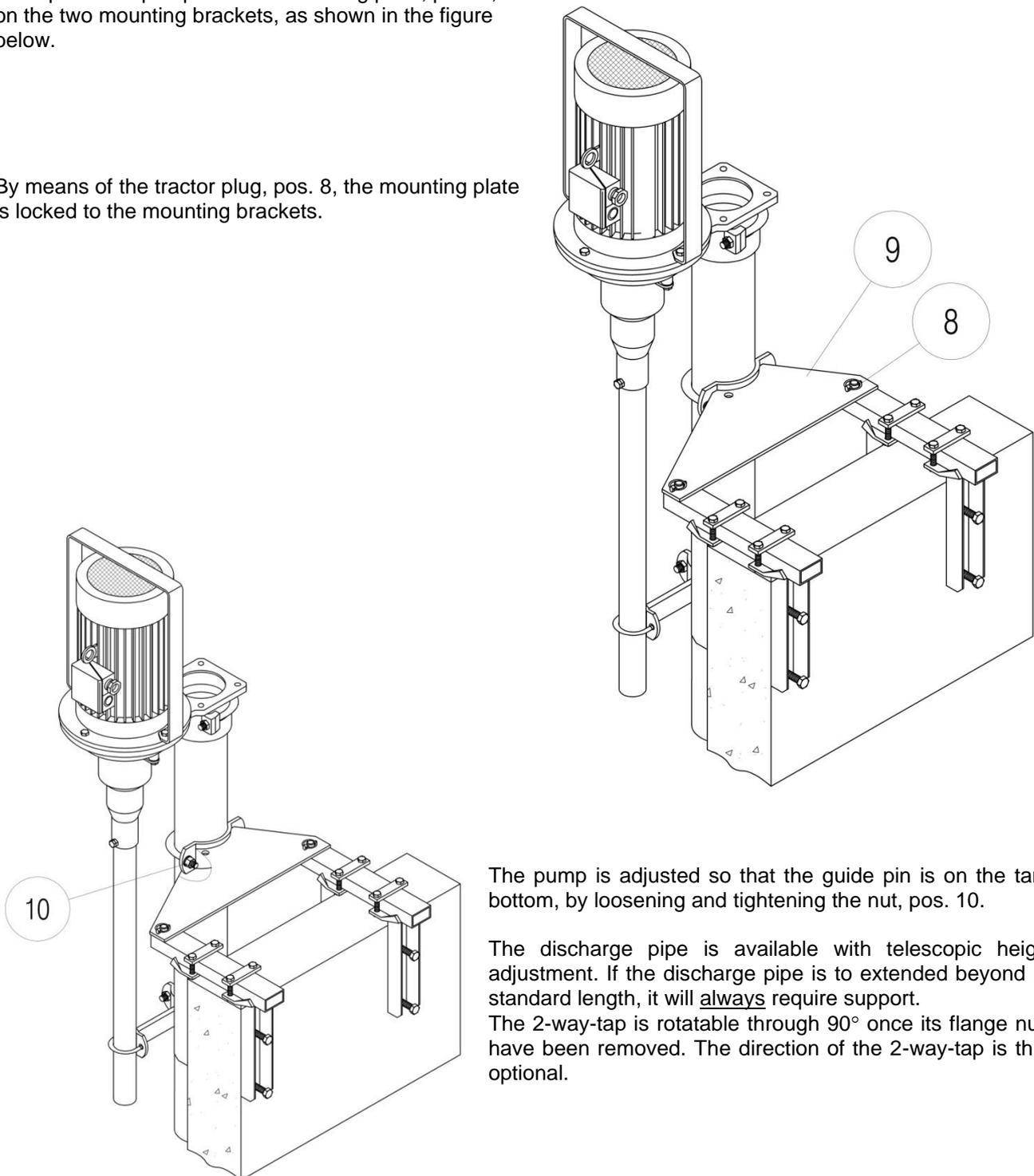
Tighten pos. 4 and 5 on each fixing bracket and, finally, tighten pos. 1.

The tractor plug, pos. 8, is to be installed later in the assembly process.



Then place the pump with the mounting plate, pos. 9, on the two mounting brackets, as shown in the figure below.

By means of the tractor plug, pos. 8, the mounting plate is locked to the mounting brackets.



The pump is adjusted so that the guide pin is on the tank bottom, by loosening and tightening the nut, pos. 10.

The discharge pipe is available with telescopic height adjustment. If the discharge pipe is to extended beyond its standard length, it will always require support.

The 2-way-tap is rotatable through 90° once its flange nuts have been removed. The direction of the 2-way-tap is thus optional.

### Important

- The auger cannot and must not be turned before the pump is in vertical position.
- Prior to commissioning it must be verified that the tank fixing is correctly installed and tightened and that hoses, connections and flanges are tightened.
- The rotational direction of the pump must be checked.

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