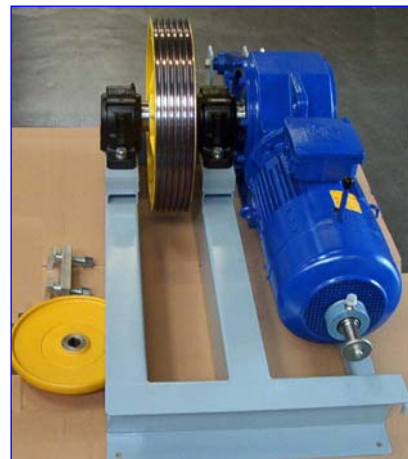


DYNASYS® G



**Geared Lift Drive Systems SSMVD 100
SSMVD 125
SSMVD 160**





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Important notes in advance

Installation and commissioning of the components described in this operating instruction shall be carried out only by well trained personnel of an experienced lift contractor.

The operating instruction includes safety instructions in the form of pictographs referring to possible hazards. The pictographs are indicating the kind of hazard.

Meaning of the pictographs:

Used pictographs	Signal words	Meaning
<p>Warning against electrical load</p> 	Danger	<p>Warning against immediate danger. Consequences if disregarded: Death or severe injuries</p>
<p>Warning against a general danger</p> 	Warning Caution	<ol style="list-style-type: none"> 1. Warning against a possible, highly dangerous situation. Possible consequences if disregarded: Death or severe injuries 2. Warning against a possibly dangerous situation. Possible consequences if disregarded: Minor injuries
<p>Warning against material damages</p> 	Stop!	<p>Warning against possible material damages Possible consequences if disregarded: Damage of the drive system or its environment.</p>
<p>Information</p> 	Tip!	<p>Marks a useful tip. Observing this will facilitate the handling of the drive system or the device .</p>

Contents

Introduction and general notes

Covering page (pictures)	5
About these operating instructions	5
Scope of supply.....	5-6
Documentation	6
Type code	7

Legal provisions

General notes.....	8
Intended use	8
Warranty	8
Damages in transport	8

Safety instructions

General notes.....	9
Persons responsible for the safety	9-10
Operating conditions for the DYNASYS® G drives	10
Limiting values for the gear	10
Transport.....	11-12

Description of the product

Frequency inverter.....	13
Motor.....	13
Gear	13-14
Speed encoder.....	14
Brake	14

Installation

Installation of the drive unit	15
--------------------------------------	----

Technical data and electrical connection

General notes	16
Drive motor and motor protection	16
Forced ventilation	17
Brake coil	18
Connected loads brake type BFK 454	18
Connected loads brake type Roba-stop-Z	18
Monitoring switch for brake lifting	18-19
Monitoring switch for wear of brake lining	19
Monitoring of brake temperature	19
Speed encoder.....	19-20

Contents

Maintenance and repair

General notes.....	21
Disassembly and assembly of motor and brake	21
Disassembly and assembly of the speed encoder	22
Disassembly and assembly of the traction sheave	22-23
Maintenance intervals for the gear	24
Check of oil level	24
Check of oil condition	24
Oil quantities	25
Lubrication	26
Oil change intervals	26
Carrying out oil change.....	26-27
Selection of lubrication means	27

Storage

Storage of DYNASYS® G drives	28
------------------------------------	----

Important actions prior to commissioning

To be observed and checked	29
----------------------------------	----

Dimension sheets

General	30
Dimension sheet SSMVD 100 traction sheave left	30
Dimension sheet SSMVD 125 traction sheave left	31
Dimension sheet SSMVD 160 traction sheave left	32
Dimension sheet SSMVD 250 traction sheave left	33

Annexes



The following operating instructions are separate documents and therefore not part of these operating instructions:

- Drive brake
- Auxiliary drive brake
- Frequency inverter

Introduction and general notes

Covering page (pictures)

The pictures on the covering page of this operating instruction are showing:

Upper picture : Frequency inverter DYNAVERT[®], series L05

Bottom, left : DYNASYS[®] G with gear, series SSMVD 160 with auxiliary brake on the traction sheave shaft

Bottom, right : DYNASYS[®] G standard gear series SSMVD 160

About this operating instruction

This operating instruction deals with a lift drive system, factory-mounted on a base frame. The system is composed from the following components: motor with brake, speed encoder and hand wheel, gear with traction sheave and base frame, and frequency inverter.

Depending on the requirements and on the order specification, an auxiliary hydraulic traction sheave brake will be supplied. Repair of the individual components of the system by users or installers is not intended and is therefore not described in this instruction. Repairs of **gear, motor, brake, speed encoder** or the **traction sheave brake (optional)** shall be carried out only by the manufacturers of the respective components or after consulting with the manufacturers or the Loher GmbH, Ruhstorf.

This operating instruction is part of the scope of supply of drive systems **DYNASYS[®]G**. The nominal data of gear, motor and brake may differ, according to the kind of use. The nominal data of these components can be taken from the individual type plates. An additional type plate is fixed to the frame, showing the specification of the drive system related to the respective lift project.

Any work regarding transport, connection, commissioning and maintenance shall be carried out by qualified and trained personal (observe prEN 50110-1/VDE 0105, IEC 364)

This instruction is intended to ensure safe working conditions during installation and maintenance of the drive system.

For installation and commissioning of the drive and for maintenance work, this operating instruction and the separate instruction for the drive brake as well shall always be available in a complete and well legible condition.

Scope of supply

The components of the drive systems are factory-mounted as per customer's order. The project-related scope of supply can be taken from the documents belonging to the supply.

Scope of supply, unless otherwise ordered:

- Frequency inverter DYNAVERT[®] L05 (separate op. instruction)
- Asynchronous drive motor, mounted at the output side of the gear
- Helical-worm gear with oil filling, mounted on a base frame without diverter pulley, with pulley bearing supports mounted on rubber-metal elements and a torque arm fastened to the base frame.

Introduction and general notes

- Traction sheave, mounted to the traction sheave shaft of the gear
- Dual-circuit disc brake with brake lifting lever, mounted to the B- side of the motor
- Incremental speed encoder mounted on the cover of the motor fan, with socket to plug in the signal cable
- Plastic handwheel, mounted to the B- side of the motor
- 10m screened cable to connect the speed encoder to the frequency inverter DYNAVERT® L05

Optional supplies (to be ordered separately):

- Hydraulic traction sheave brake, accepted as a safety component to control the speed of the upward travelling car acc. to EN 81
- Sub-frame with diverter pulley for roping 1:1
- Set of cable: screened cable for the motor, unscreened cables for brake and motor thermistors

Documentation

Together with drive **DYNASYS® G** one copy each of the following documents is supplied:

- This operating instruction
- Operating instruction for the drive brake
- Operating and commissioning instruction for the frequency inverter Loher **DYNAVERT® L05**
- Operating instruction for the traction sheave brake, if included in the scope of supply

The documentation listed below is sent to the company address of the customer:

- This operating instruction
- Operating instruction with EC type examination certificate for the traction sheave brake, if included in the scope of supply
- Results of calculation of the rope traction and rope safety factor as per EN 81, acc. to the lift data specified by the customer
- Type examination certificate of the drive brake
- Proof of endurance strength of the traction sheave shaft
- The required declarations of conformity

Additionally, the following documents are available in the terminal box of the motor:

- Connection diagram of motor and motor protection,
- Connection diagram of brake and brake monitoring contacts
- Connection diagram of speed encoder

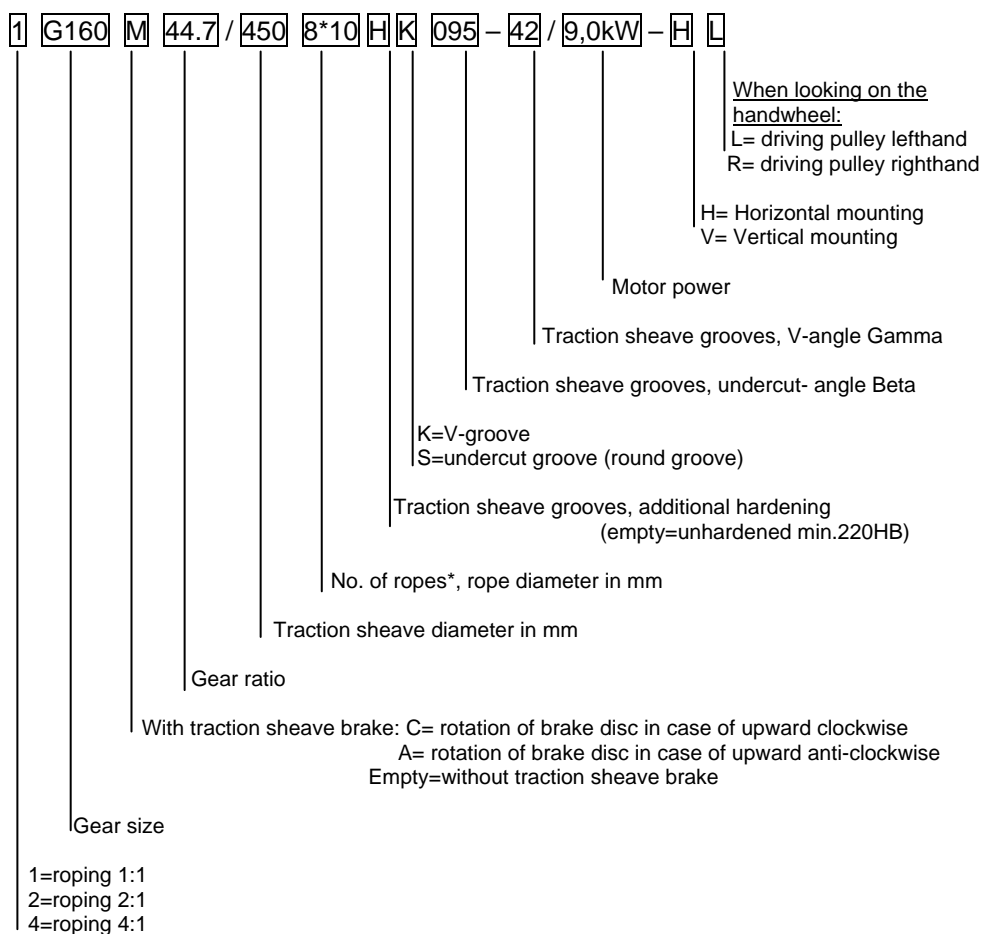
Introduction and general notes

Type code

From the type plate of the **DYNASYS® G** the most important data of the supplied drive are available.



Example type code:



A separate type plate is fixed to the motor showing the motor data. From this type plate the data for the adjustment of the frequency inverter are to be taken.

Further type plates are fixed to the brake and to the speed encoder.

Legal provisions

General notes

At the time of printing, the contents of this operating instruction was up to date. From information contained in this operating instruction no claims for already supplied drives can be pleaded for.

Intended use

The system described in this operating instruction is intended only for the operation of passenger and goods lifts. DYNASYS® G systems shall be used only for the ordered and confirmed purpose, and operated only under the operational conditions prescribed in the operating instruction. Operation beyond the capacity limits is not permitted.

Warranty

Claims for warranty are to be reported to the Loher GmbH, Ruhstorf immediately after the failure or fault was found out. For warranty claims the conditions of sales and delivery of the Loher GmbH shall apply.

Damages on transport

When leaving the factory, the drives are in perfect condition. Upon arrival, this perfect condition is to be verified. If it is found that any damages were caused by the transport, a claim is to be issued in the presence of the forwarder. Depending on the severeness of the damage, commissioning is to be excluded resp. shall not be carried out without consultation with Loher GmbH, Ruhstorf.

Safety instructions

General notes

- These safety instructions shall not be considered as complete. In case of any queries please contact Loher GmbH, Ruhstorf
- At the time of delivery, the drive complies with the state-of-the-art and it is considered as safe to operate.
- If the calculation of rope traction and rope safety was carried out by Loher the following is to be noted:
 - a) The calculation is made always on the basis of the lift specification provided by the customer.
 - b) The results, including the lift data upon which the calculation was based, are handed to the customer along with the order acknowledgement at the latest.
 - c) If in execution of the respective project there is made a deviation from these data, the results of the calculations become void. In this case Loher will reject any responsibility for the safe operation of the lift installation.
- The drive shall be operated in perfect condition only. In case of failures, e.g. leakage of oil, rising operating temperature etc. it is to be shut down immediately
- Basically, modifications or alterations of the drive are not permitted. In such a case, Loher GmbH, Ruhstorf has always to be consulted.
- Work shall always be carried with inoperative drive. Ensure, that during work the drive cannot be restarted by third parties.
- The drive unit must not be used as mass point for welding.



Under certain operating conditions an increased surface temperature may be developing. Caution! Risk of burns!

Persons responsible for safety

- a) "User" means any natural or artificial person who uses the drive or on whose behalf the drive is used. The user resp. his security representative has to guarantee,
 - That all applicable regulations, notes and laws are complied with
 - That only qualified personnel works at the drive and operates it
 - That this operating instruction is available to the personnel
 - That any work at the drive is forbidden to unqualified persons
- b) Qualified personnel
"Qualified personnel" means persons who, owing to their training, experience, information and knowledge about the relevant standards and regulations, accident prevention rules and operating conditions, have been entitled by the person responsible for safe condition of the lift, to carry out the required activities and to identify and avoid possible risks. (Definition for experts as per IEC 364).

Safety instructions

Operational conditions for DYNASYS® G drives...

- **DYNASYS® G** drives are intended for operation in lift installations only
- **DYNASYS® G** drives are not allowed to operate in areas subject to explosion hazards or in an aggressive atmosphere
- The required ambient temperature during operation may be within -10°C to 40°C . This does not apply to the frequency inverters. For these observe the specific operating instruction
- The data specified on the type plate apply only up to an altitude of $\leq 1000\text{m}$ above sea level
- **DYNASYS® G** drives shall be installed only in enclosed and dry rooms, declared as electrical machine rooms.

Limiting values of the gear

1. The input speed resp. motor speed shall not exceed 1800 rpm. The speed depends on the gear ration.
2. The admissible total mass of the load hanging on the traction sheave must not exceed the values stated in the table below:

Gear type		Maximum adm. axle load
SSMVD 100	:	3500 kg
SSMVD 125	:	5000 kg
SSMVD 160	:	7000 kg

Safety instructions

Transport



For the transport of the drives appropriate hoists and load suspension means with sufficient capacity are to be used. Here, the mass of the complete drive including the frame mounted gear with motor and brake shall be considered.

To determine the total mass resulting from the parts listed in the tables below the mass of the respective gear type shall be added to the mass of the motor and, if supplied, the mass of the traction sheave brake. The calculated weight may differ slightly from the real weight of the supplied drive. The actual, installation-related, weight is indicated on the type plate of the supplied drive assembly.

Table 1: Weight of gears with base frame, traction sheave and bearing support

Gear type	SSMVD 100	SSMVD 125	SSMVD 160	SSMVD 250
Mass of the gear	148 kg	203 kg	309 kg	950 kg

Table 2: Weight of motor with brake and speed encoder

Size/type of motor 50Hz	Mass	Size/type of motor 33 Hz	Mass
UBGA - 132 SB-04; 3,7kW	65 kg	UBHA-160LB-04M,10kW	159 kg
UBGA -132 SB-04;5,5kW	65 kg		
UBGA - 132 MB-04;7,5kW	78 kg		
UBGA - 132 MB-04;9,0	78 kg		
UBGA -160 MB-04;11kW	122 kg		
UBGA -160 LB-04;15kW	152 kg		
UBGA 160 LB-04;18,5kW	152 kg		
UBGA 180 LB-04;22kW	184 kg		
UBHA – 225ME-04C; 22kW	415 kg	UBHA – 225ME-04C; 17kW	415 kg
UBHA – 225ME-04C; 25kW	415 kg	UBLA – 225ME-04C; 22kW	415 kg
UBLA – 225ME-04C; 30kW	420 kg	UBLA – 225ME-04C; 26kW	420 kg
UBLA – 225ME-04C; 37kW	420 kg	UBLA – 225ME-04C; 30kW	420 kg
UBLA – 225ME-04C; 45kW	420 kg		

Table 3: Weight of the various traction sheaves

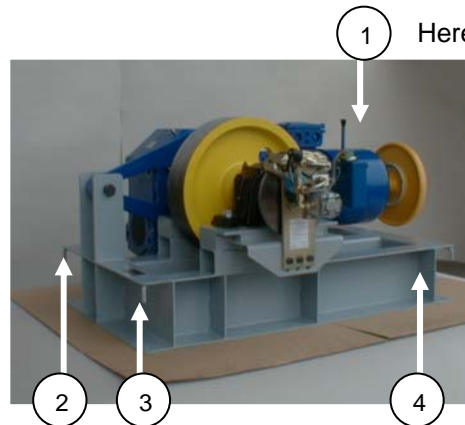
Traction sheave diameter	400 mm	520 mm	640 mm	700 mm	800 mm
Mass	45 kg	95 kg max.	220 kg max.	260 kg max.	300 kg max.

Table 4: Weight of the auxiliary traction sheave brake

Type of brake	TSB 2000-1	TSB 200-2
Mass	23 kg	27 kg

Safety instructions

Fig. 1: Load suspension points 1-4 at the frame (shown: gear with traction sheave brake)



1 Here not visible: Sling-point 1 at the frame corner

4 sling-points for the use of an appropriate belt or rope with eye are provided at the frame



It is not allowed to use only the lifting eye of the motor for the transport of the whole drive unit



The picture above on this page shows a drive unit with mounted base frame without diverter pulley and auxiliary traction sheave brake.



Frame structures with diverter pulley for roping 1:1 or 2:1 are solutions adapted to the respective lift or machineroom. Therefore, the suspension points may differ from that shown in the picture above. In these cases special precautions regarding safety during transport are to be taken .

Product description

Frequency inverter



The operating instruction of the frequency inverter DYNAVERT® L05 is not included in this manual. There is a separate manual attached to the supply.

The speed of the drive systems **DYNASYS® G** is controlled by frequency inverters type **DYNAVERT® L05**.

These are of the wall mounted enclosed type with protection class IP 20.

Installation in control cabinet together with the lift control is not required. **DYNAVERT® L05** frequency inverters are separate power section units with integrated motor contactor, EMC-filter, brake resistor, mains input filter and motor filter. Thus the devices comply with the presently applicable regulations regarding EMC and mains interference.

By this concept not only the reliable separation of the power section from the lift control is provided, but also the safe operation against incoming and outgoing interference (EMC) is guaranteed.

Triggering from lift control is effected either by parallel signal lines via terminals or by a serial interface. In this case the signal transmission is supported by a DCP-protokoll.

As an option, a signal converter card (slot-x26) is available for the control-side shaft information system, that converts the speed encoder signals to the output terminals as 5V square wave signals.

Motor

The motors of the **DYNASYS® G** system are 4-pole asynchronous motors of series UBGA up to gear size 160 or UBHA and UBLA for gear size 250. As standard, 4-pole motors with 400V, 50Hz are used. Depending on the required gear ratio and the output speed also 4-pole motors for 33 Hz are used.



Nominal data deviation in case of special equipment is possible. The specific data for the supplied unit can always be taken from the motor type plate.



Motors of type UBLA are equipped with a forced ventilation. The other motors are with self-ventilated.

Besides of the power connections U,V,W, the terminal box contains also the electrical connections for thermistors and brake.

To the shaft-end at the B-side, after the fan wheel, a dual-circuit disk brake is mounted, followed by fan cover, speed encoder and hand wheel.

At the A-side the motor shaft meshes directly into the helical stage of the gear unit (input stage). Fixation to the gear is performed by means of a flange ring.

Gear unit

The gear is a worm-helical unit. The coupling of the input stage with the motor is performed by a helical gear. The traction sheave is driven by the worm wheel of the output stage.

Product description

Advantages of this technology are the high efficiency and the smooth running. The traction sheave is fitted to a gearbox-inserted shaft with two pedestal bearings. The pedestal bearings are bolted to the base frame, sound-isolated by rubber-metal elements. The load is equally distributed to the two pedestal bearings.

The output torque is absorbed by a torque arm fixed to the gear box. The torque arm is also sound-isolated from the other elements of the drive by a rubber-metal element.



Never run the drive without torque arm. Never change the fixing position of the torque arm.

Speed encoder

The speed encoder is an incremental encoder with 1024 pulses per motor revolution and an operation voltage of 15V in HTL technology.

The hollow-shaft encoder is mounted to the fan casing of the motor by means of flexible torque arms, driven by the motor shaft via a form-fit key junction.



The scope of supply includes also a screened cable with plug at both ends for the connection of the speed encoder to the inverter DYNAVERT[®] L05.



Use original Loher cables only! Otherwise there is the risk of encoder damage owing to a wrong connection.

Brakes

The brake is a dual-circuit disk brake, approved by the TÜV (German notified body) for the use in lift installations. The total braking torque depends on applied type of brake. This however is selected according to the braking torque required for the specific lift. The calculation base for dimensioning is specified in the EN81.

The brake is equipped with a manual brake lifter usual in lift engineering.

Monitoring of lifting of brake lining is possible. The respective contact of the microswitch must be integrated in the lift control (see operating instruction of brake).



For the whole series of the Dynasys G two different manufactures of brakes are used: type BFK 454 from Lenze for the gear models SSMVD 100 to SSMVD 160, type ROBA-stop[®]-Z from Mayr starting from model SSMVD 250 .

Technical data and electrical connection of the speed encoder

Installation of the drive unit



The lift drive may be mounted only in the mounting position as per order.

The type plate data shall conform with those in the order and confirmed by Loher, particularly the following values:



- Form of the traction sheave grooves
- Undercut width at traction sheaves with undercut round grooves
- Opening angle at traction sheaves with V-groove
- Traction sheave diameter
- Rope groove appropriate to the rope diameter
- Gear ratio
- Mains voltage
- Mounting position horizontally or vertically



- Oil control, oil drain and bleeder screw must be free accessible.
- Installation only in enclosed lift machine rooms acc. to EN 81.

- Align the drive unit with frame in horizontal and the traction sheave in vertical position.
- Operation is allowed at ambient temperatures of -10°C to 40°C only
- Operation in areas subject to explosion hazards or in an aggressive atmosphere is not allowed.
- Ensure the free flow of cooling air to the motor fan.
- Protect the electrical connections against accidental contact.



An additional isolation of the frame by means of rubber-metal elements is not required. The drive is already sound-isolated by the rubber-metal elements arranged between diverter pulley bearing supports and frame.

Technical data and electrical connection of the speed encoder

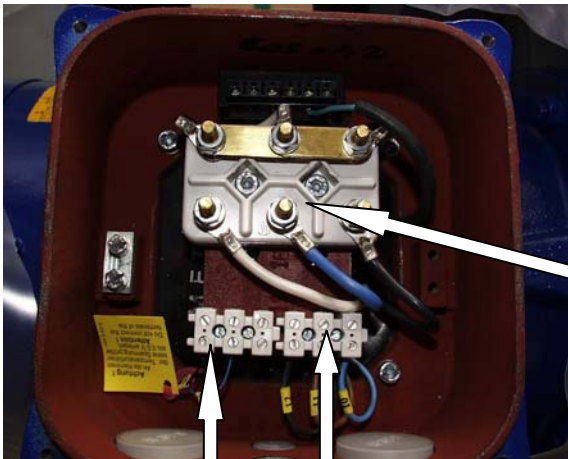
General notes



All electrical connections - incl. the thermistor connection - shall be carried out only with the lift disconnected from the supply.

Drive motor and motor protection

Example: Motor terminal box (not binding)



Motor connections U1;V1;W1. Directly to terminals U1;V1;W1 of inverter DYNAVERT® L. Connect the terminals in same phase.

Connections for the brake microswitch. Explanation see next page.

Connections for thermistors (motor protection). Alternatively connection to inverter DYNAVERT® L05, terminals 19;20 or to the respective terminals provided in the lift control.



The test voltage for the thermistors shall not exceed 2,5V. In case of a possibly required continuity test, an appropriate voltmeter shall be used.



Only an appropriate screened cable shall be used for the motor supply line from the frequency inverter. Strip the insulation off the screen at the motor end, so that the screen is completely gripped by the supplied metal cable fitting and a large sized contact area is provided



If ordered, Loher will supply the appropriate motor cables.

Technical data and electrical connection of the speed encoder

Forced ventilation



Only the motors of series UBLA are provided with forced ventilation.



The connection of the forced ventilation is imperative to avoid motor damages by overheating.

The forced ventilation has to be thermally monitored resp. protected in the lift control.

Description

The forced ventilation is controlled by a thermal contact, rated for max. 400V. Der thermal contact is mounted close to the stator plate package and therefore easily replaceable.

Technical data

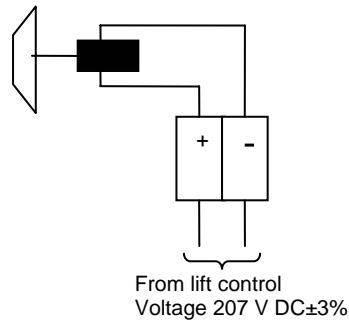
Type	: ALDA-063BG-04
Voltage/frequency	: 220V to 240V/50 Hz
Power	: 0,06kW
Rated current	: 0,78A
Voltage and capacity of capacitor	: 260V/5 μ F

Table: Delivery rate and exhaust air duct

Delivery rate m ³ /h	Diameter of exhaust air duct	Maximum admissible pressure loss by air duct	Pressure loss with smooth, circular pipe	Pressure loss with one elbow with medium curvature radius 2 d mm WS
330	160	2	0,2	0,4

Technical data and electrical connection of the speed encoder

Brake coil



At the control side the brake coil is to be fitted with a spark quenching device.

Switching of brake by contactor contacts should be performed at the A.C. and D.C. side.

Connected load for brake type BFK 454 (Lenze)

Motor type	Motor power	Brake type	Braking torque	Electrical power Brake	Coil resistance Brake ±3%
UBGA					
132SB-04M	5,5kW	BFK-454-14	60Nm	53W	793Ω
132MB-04M	7,5kW 9,0kW	BFK-454-16	100Nm	56W	751Ω
160MB-04M	11,0kW	BFK-454-18	150Nm	85W	494Ω
160LB-04M	15,0kW 18,5kW	BFK-454-20	240Nm	100W	420Ω
180MB-04M	22,0kW	BFK-454-20	240Nm	100W	420Ω

Connected load for brake type ROBA®-stop-Z (Mayr)

Motor types	Motor power	Brake type	Braking torque	Electrical power Brake
UBHA / UBLA				
225ME-04C	17kW to 45kW	ROBA® Stop-Z Size 500	2x270NmNm	129W



Roba® –stop brakes are used only with big gears of type SSMVD 250.

Micro-switch for monitoring of brake lifting

The brakes are equipped with a micro-switch. The change-over contact of the micro-switch is, depending on the instructions of the lift control manufacturer, to be connected in the control either as a breaker or a maker.



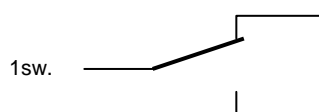
The micro-switch is adjusted in the factory to the correct brake lift gap and shall not be readjusted afterwards at site.



The evaluation of the micro-switch is performed in the lift control. It has to ensure that in case of a closed or not completely opened brake any running of the lift is prevented.

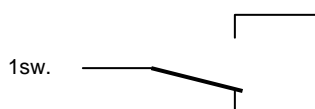
Technical data and electrical connection of the speed encoder

Circuit states of the change-over contact



Standstill:
Brake is closed (de-energized)

Switching capacity: 8A; 250VAC



Operation:
Brake is opened (energized)

Micro-switch on brake to monitor the wear (only with ROBA Stop-Z brakes)



With brakes ROBA Stopp-Z the monitoring of wear is possible. For that, an additional micro-switch with change-over contact is provided. Connection to be made according to the specific operating instruction for this type of brakes and to be wired in the lift control as per instructions of the manufacturer of the control.

Temperature monitoring (only with ROBA Stop-Z brakes)



With brakes ROBA Stopp-Z a temperature monitoring by PTC-sensors, installed in the brake, is possible. Connection is imperative if the brake is used as a protective device for lifts against overspeed in upward direction. **Use of the Roba[®] -stopp brake as a protective device is not allowed for Dynasys[®] G drives.**

Speed encoder

The speed encoder is connected to the inverter DYNAVERT[®] L05 by the pluggable cable included in the supply.

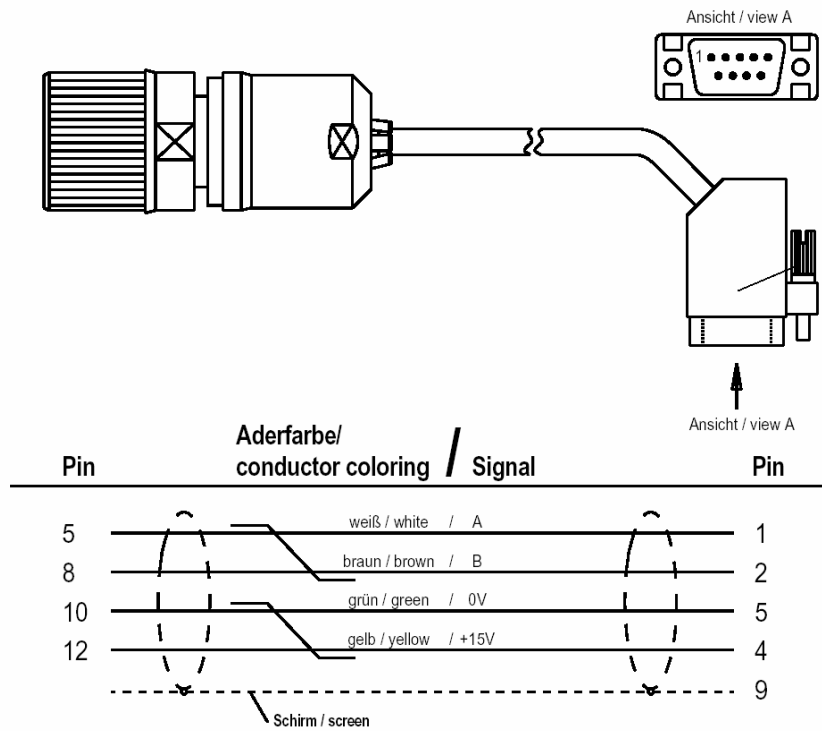
Insert the motor-side round plug into the corresponding socket directly at the speed encoder (between motor fan cover and hand wheel) and arrest it with the screwed cap.

Take care that no pins of the socket are bent. Plug and socket are coded by tongue and groove, so that these can be plugged together in only one position. By no means shall these parts be plugged together by force.



The inverter-side plug is a SUBD-plug. The corresponding socket at the inverter is designed as **X101**.

Technical data and electrical connection of the speed encoder



Technical data:

Encoder type	HTL 10-30V
Voltage supply	24 V from inverter
Pulses	1024 per revolution
Channels	A+B

Maintenance and repair

General notes

Repair work at the site of the lift installation which requires disassembly of individual components is not intended. In case of wear or defects at the individual components, these shall either be replaced completely or repaired in a workshop authorized by Loher.

Table 1: The individual components of the drive system **DYNASYS®G** :

Component	Repair
Drive motor	By Loher GmbH, Ruhstorf or an authorized workshop
Gear unit	By Loher GmbH, Ruhstorf or an authorized workshop
Pedestal bearing of the gear	No, only complete replacement
Brake	No, only complete replacement
Speed encoder	No, only complete replacement
Traction sheave	Replacement on site by the maintenance company

Disassembly and reassembly of motor and brake



Caution: Car and counterweight must be set into blocked position before the motor is replaced, as after motor disassembly no braking effect of the drive will remain.

Sequence of disassembly:

1. Support the motor by hanging up on a chain hoist or grip hoist, or by placing woods between frame and motor underside
2. Loosen the fastening bolts between motor flange and gear box
3. In order not to damage the helical gear, remove the motor from the gear unit with extreme care



Caution: Do not damage the helical gear on the drive shaft. Pull out the motor horizontally. Do not tilt.

4. Remove helical gear and snap-ring from the motor shaft. Attention: The helical gear is secured by an adhesive agent.

Sequence of reassembly:

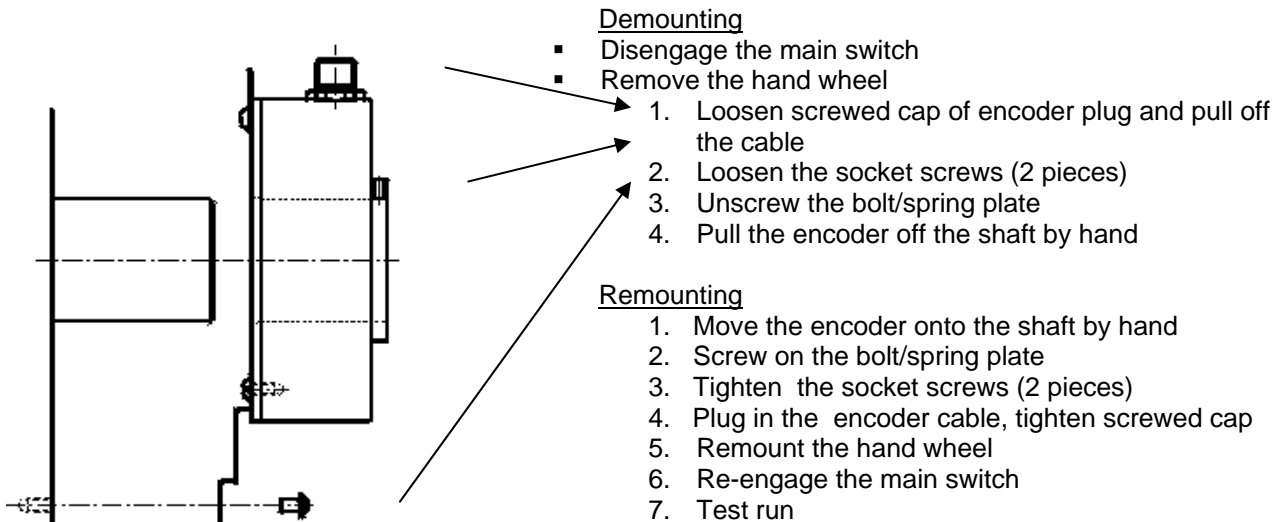
1. Secure the helical gear on the motor shaft with snap-ring, support disk and hexagon bolt. Secure the bolt with an anerobe adhesive, e.g. Loctite 670.
2. Clean the outer side of the flange
3. Apply an anerobe surface sealing agent, e.g. Loctite 518 to the outer side of the motor flange.
4. Fasten motor to gearbox with bolts.

Maintenance and repair

Disassembly and reassembly of the speed encoder



- The encoder shall be mounted with little force only (do not use a hammer) Shocks may damage the encoder.
- The encoder shall not be thrown or dropped
- The connecting cable shall not be laid under mechanical stress, (particularly tensile stress at the casing)



Disassembly and reassembly of the traction sheave

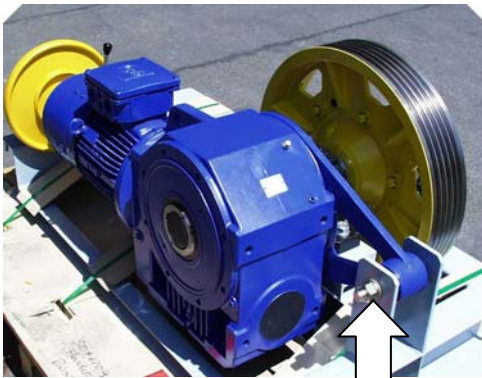


The traction sheave will be replaced as one unit together with the traction sheave shaft and the pedestal bearing.

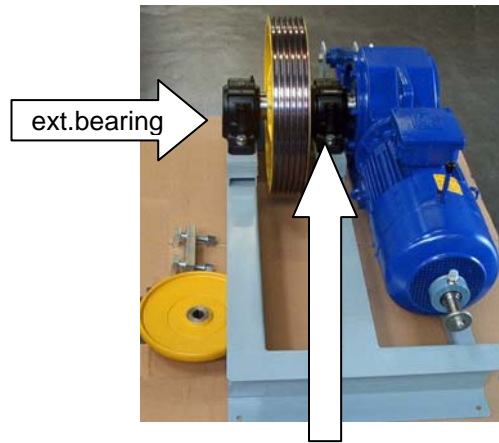


Before removing the ropes secure car and counterweight by appropriate means against falling.

Maintenance and repair



Torque arm



Inner pedestal bearing

Sequence of disassembly:

1. Take the ropes off the traction sheave
2. Secure the gear unit against change of position, e.g. by supporting at the motor with woods.
3. Remove the bolts at cover and pedestal of the outer pedestal bearing.
4. Loosen the bolts of the frame bar close to the traction sheave and remove the bar.
5. Remove the bolts at the pedestal of the inner pedestal bearing.
6. Remove the cap in the hollow shaft of the gear casing.
7. Loosen the hexagon bolt
8. Remove traction sheave shaft and traction sheave out of the hollow shaft by means of mounting lever or extracting device.



Replacement of traction sheave always together with the shaft

Sequence of reassembly:

1. Remount the inner pedestal bearing onto the support.
2. Insert the traction sheave shaft into the hollow shaft with a slip additive against rust.
3. Secure the traction sheave shaft with end disk and secured bolt (anerobe additive, e.g. Loctite 270).
4. Fasten the inner pedestal bearing to the frame bar
5. Secure the outer pedestal bearing with end disk and secured bolt (anerobe additive, e.g. Loctite 270).
6. Remount the outer pedestal bearing completely with end cover.
7. Bolt the bar to the frame and the casing of the pedestal bearing to the bar



After completion of work, check all fastening bolts for correct fit by means of a torque wrench.

Maintenance and repair

Maintenance intervals for the gear

The maintenance of the gear includes the following checking and maintenance activities, in compliance with the safety notes of this operating instruction:

inspection	time	remarks
Check of oil level	every 3 months	
Oil change	Refer to page 28	
Cleaning of bleeder screw	every 3 months	Cleaning to be done with benzine or similar agents. Handling with open fire is strictly forbidden and sufficient ventilation must be guaranteed since there is an increased explosion hazard.
Cleaning of the drive unit	every 12 months	
Checking of fastening bolts for correct tightening	every 12 months	Starting torques comply with the applicable regulations (e.g. VDI2230) Tool: torque wrench
Checking of the traction sheave for the degree of rope run-in in the groove	every 3 months	



The inspection intervals mentioned above are part of the warranty conditions.

Check of oil level

If the bleeder screw is not screwed in, fit it into the gear casing according to the operating position.

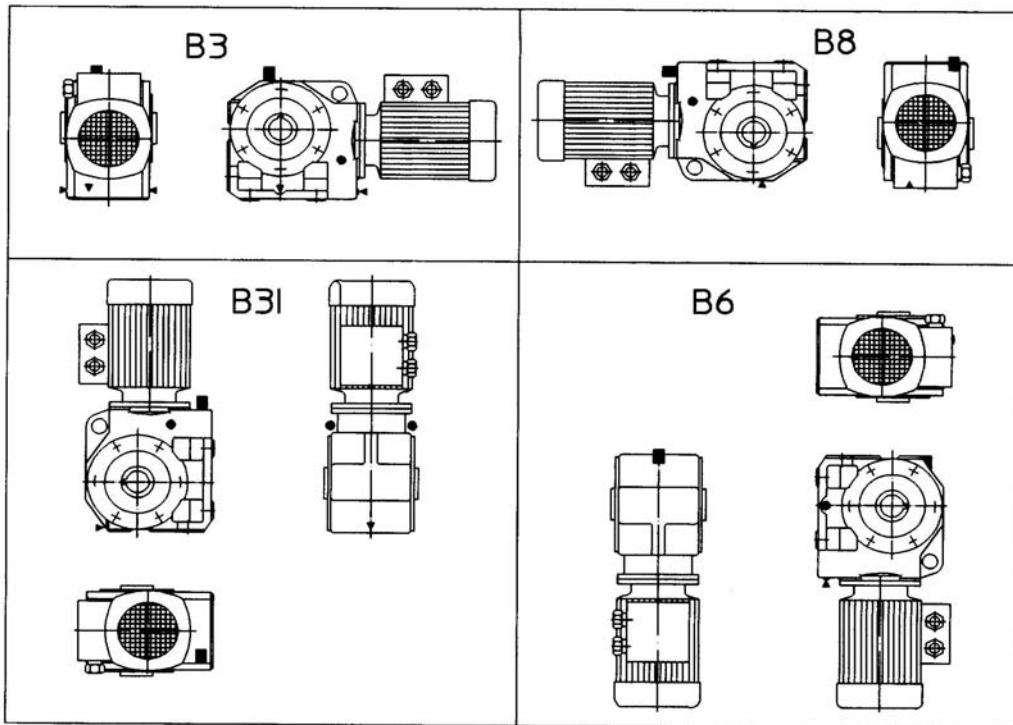
Check the drive for correct oil level prior to commissioning. Read the required oil levels for the respective operating position from the following plot. For checking the oil level remove the respective screw plug.

Check of oil condition

1. Open the oil drain screw and take out a bit of oil
2. Check the oil condition (colour, content of solids)
⇒ if necessary, change the oil and check the filling level

Maintenance and repair

Overview on operating positions



- Bleeding and oil filling
- ▼ Oil drain
- Oil level check screw

Oil quantity (synthetic oil)

Gear type	Installation position			
	B3 horizontal, gear upright	B3I vertical, gear below	B6 vertical, motor below	B8 horizontal, gear upside down
SSMVD 100	1,7 ltr	5,4 ltr	5,0 ltr	4,3 ltr
SSMVD 125	4,0 ltr	10,2 ltr	8,6 ltr	7,7 ltr
SSMVD 160	6,5 ltr	21,0 ltr I	Not allowed	Not allowed
SSMVD 250	20 ltr	Not allowed	Not allowed	Not allowed

Maintenance and repair

Lubrication

The gear is lubricated by oil immersion. With this kind of lubrication the ball bearings are provided with oil automatically.



Take care that for gears designed for synthetic lubricants no mineralic oil is used. It is also not allowed to mix mineralic and synthetic oil. In case of an oil change or topping-up select the type of oil acc. to the type plate.

The spherical roller bearings are filled with the respective quantity of lubricant before delivery. The lubricating grease shall be changed on occassion of the routine checks after about 15.000 hours of operation.

Gear type	SSM 100	SSM 125	SSM 160	SSM 250
Grease quantity (g)	180	230	280	1000
Pedestal bearing	SNL 513-611	SNL 515-612	SNL 517	SNL 524-620
Spherical roller bearing	DIN635-22213	DIN635-22215-J	DIN635-22217	DIN635-22224

The motor ball bearings have a permanent lubrication for 5 years operating time.

Oil change intervals

a) Mineralic oil:

Oil change ⇒ after about 500 hours of operation
further oilchanges ⇒ after about 4.000 hours of operation or 15 months

b) Synthetic oil:

Oil change ⇒ after about 1.000 hours of operation
further oilchanges ⇒ after about 15.000 hours of operation or 60 months



The initial factory-filling is always with synthetic oil.

Carrying out the oil change



Carry out the oil change in warm condition, as otherwise owing to the high viscosity of the oil a correct drain would become difficult. The temperature of the oil to be filled in must be at least 20°C.



Ensure prior to the begin of the oil change that the surface of the drive unit is only lukewarm, otherwise there is a risk of burnings caused by heated oil.

Maintenance and repair

1. Put a collecting bowl under the oil drain
2. Remove the oil level monitoring feature, the oil drain and the bleeder screw
3. Drain-off the oil completely
4. Rinse the gear with thin oil
(check for compatibility with the used lubricant)
5. Screw in the oil drain screw
6. Fill in the new oil via the oil drain boring
Check at oil level control screw
7. Screw in the oil level control screw
8. Screw in the bleeder screw

Selection of the lubrication means

The determination of the lubricating agents for an ambient temperature of -10°C to $+40^{\circ}\text{C}$ can be taken from the table below. Temperatures deviating therefrom require the selection of a suitable lubricant after consultation with Loher.

Lubricant	Ölqualität	Aral	BP	DEA	Esso	Klüber	Mobil	Shell
synthetic oil	PG 460	Degol GS 460	BP Enersyn SG-XP460	Polydea PGLP460	Glycolube 460	Klübersynth GH6- 460	Mobil Glygoyl HE 460	Tivela Oil 50
mineralic oil	CLP 460	BG 460 BMB 460	BP Energol GR-XP460	Falcon CLP460	Spartan EP 460	Klüberoil GEM1-460	Mobilgear 634	Shell Omala Oel 460
Ball bearing grease		Aralup HLP2	BP Energrease LS-EP2		Beacon EP2	Centoplex	Mobilux EP2	Shell Alvania EP Fett2

The sequence of company names is alphabetic and does not tell anything about the oil and grease qualities. We recommend you the use of these lubricants or of equivalent ones.



It is important that the oil type required on the type plate (CLP or PG) is taken into account.



Loher cannot guarantee for the perfect suitability of any selected lubricant.

Storage of the DYNASYS® G drives

Store only in enclosed, dry, dust-free and tempered rooms. The relative air humidity must not exceed 70%. Special packing is not required in this case. In other cases the drives must be packed in plastic foil with water absorbing agents (e.g. Branogel) or packed in an airtight sealed foil. Provide for a protection cover against sunshine and rain.

Store only in level areas and vibration-free rooms



Inside preservation of the gears:

- a) With oilfilling = longtime protection
- b) Without oilfilling maximum 12 months

Outside preservation of the gears:

- a) Blank parts: sufficient for 6 months
- b) External painting: polyurethan based 2-component paint



The time for the preservation periods starts with the delivery of the drive.



Antifriction bearings and lubrication:

If the drive is adequately stored it can be assumed that within 2 years no negative effect is to be expected to the lubricant in the bearings.

Important measures before commissioning

Observe and check before the initial run that

- for safety reasons the first run should be carried out from the control by means of the recall mode
- installation was carried out correctly and in accordance with this operating instruction
- the data of the DYNASYS® G drive correspond with the data of the lift installation, in particular the electrical power and the traction sheave
- the electrical connections are made correctly, in accordance with the operating instruction and the documentation supplied
- the connections of the frequency inverter are made in accordance with the separately supplied operating instruction
- The balancing of the counterweight has been carried out properly
- **The first trip shall be carried out in slow speed. If an abnormal noise is observed in the drive unit, it is to be disengaged immediately and the cause to be investigated.**

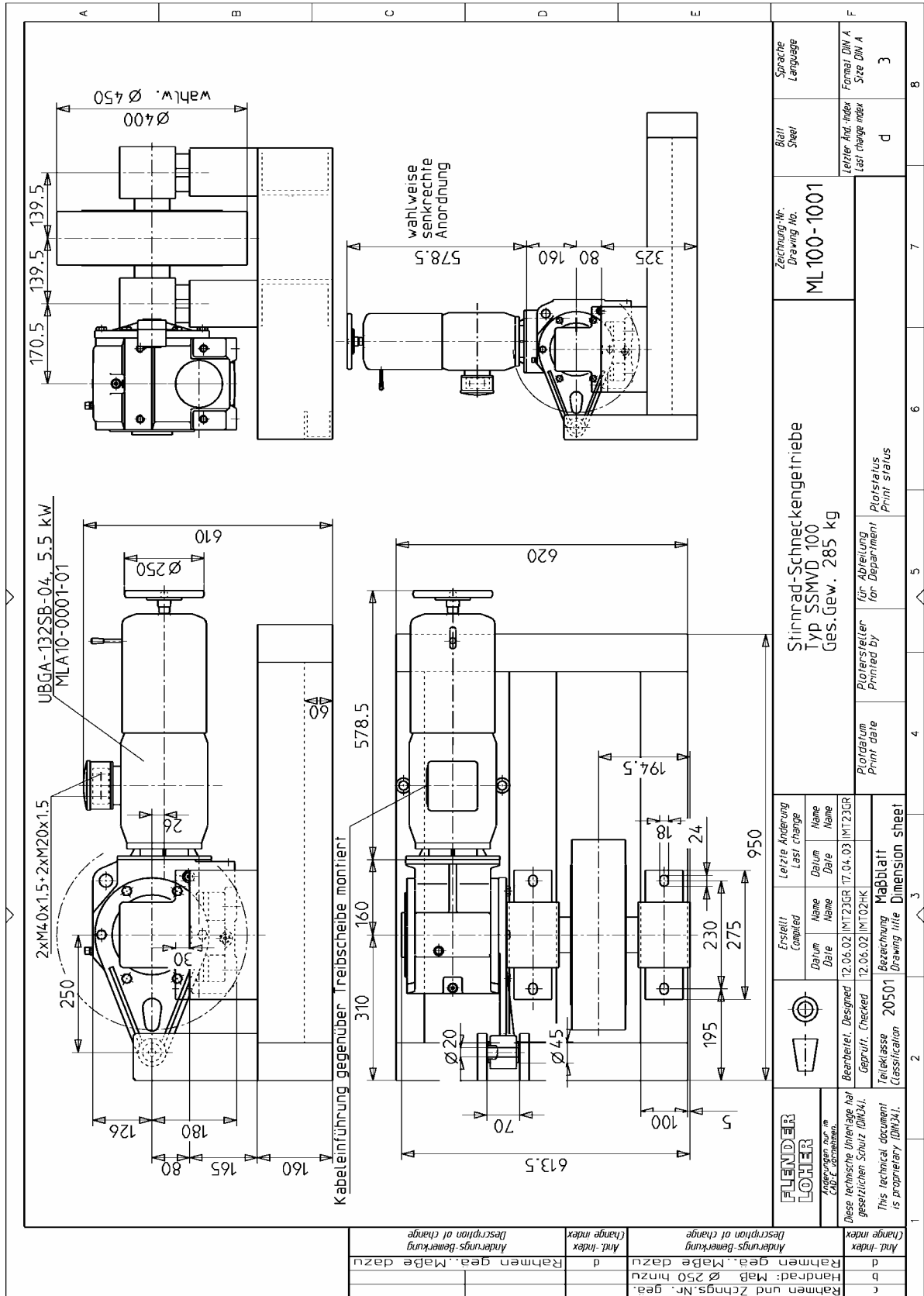


Electrical safety chain contacts must not be bridged

Dimension diagrams



The following dimensional sheets are showing only the versions with left-hand traction sheave. The traction sheaves are supplied in left-hand or right-hand version, according to the respective order.



Dimension diagrams

Motor specifications table:

Motor	L	H	Leistung max.	Motor	Massbild	Leistung max.	Motor	Gewicht max.
JBGA-180MB-04	803.5	759	22 KW	MLA18-1001		630kg		
JBGA-160LB-04	792.5	718	18.5 KW	MLA16-1002		600kg		
JBGA-160MB-04	748.5	718	11 KW	MLA16-1002		580kg		
JBGA-132VB-04	665	694	9 KW	MLA13-1004		530kg		

Technical drawing details:

- Front view dimensions: 380, 187, 95, 210, 280, 200, 60, 44, 470, 147, 147, 218, Wahlw. Ø 450 oder 600.
- Side view dimensions: 709.5, 115, 197, 22, 28, 260, 320, 1200, 100, 720, L max., 430, 245, 470, 95, 245.
- Motor dimensions: 470, 95, 245.

Handl. vergöberr. MAB Ø 360 hinzu	Zchngs. Nr. MLA16-0001-ML100-1003 gea.	e	Rahmen geb. Maße dazu	Rahmen und Zchngs. Nr. gea.	d	Änd. index	Änderungs-Bemerkung	Description of change
Handl. vergöberr. MAB Ø 360 hinzu	Zchngs. Nr. MLA16-0001-ML100-1003 gea.	e	Rahmen geb. Maße dazu	Rahmen und Zchngs. Nr. gea.	d	Änd. index	Änderungs-Bemerkung	Description of change

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	Geprüft, Checked	02.05.02	IMT2 HK		

Teleklasse 20501 Bezeichnung MABblatt
Drawing title Dimension sheet

Stirnrad-Schneckengetriebe Typ SSMVD 160

Motor L H Leistung max. Motor Massbild

Zeichnung-Nr. Drawing No. **ML 100-1003**

Ploterstatus Printed by

Plotersteller Printed by

für Abteilung for Department

Print date

Print date

Print status

Blatt Sheet		Sprache Language		Format DIN A		Size DIN A	
e		e		3		3	

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