



USER MANUAL



ELEVATOR GEARED MACHINE USER MANUAL

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This publication is prepared for elevator machines in accordance with EN 81-1:1998+A3:2009.



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OBJECTIVE

This manual contains the necessary assembly, application and maintenance instructions for our machines and motors, as well as safety warnings during installation and operation.

The machine and motor should not be assembled and operated without reading the manual completely.

All of the operations described in this user manual must be performed by qualified personnel in the elevator industry.

IT IS FORBIDDEN TO DISASSEMBLE THE PARTS OF THE ELEVATOR MACHINE WITHOUT THE KNOWLEDGE AND PERMISSION OF THE MANUFACTURER COMPANY, OTHERWISE THE WARRANTY WILL LOSE ITS VALIDITY.

PLEASE FOLLOW THE VALUES IN THE FLOW MACHINE ENGINE PRODUCT CATALOGS REGARDING THE CONDITIONS AND LIMITATIONS OF USE.

WHEN PART REPLACEMENT IS REQUIRED, IT IS NECESSARY TO CONTACT THE MANUFACTURER AND PROVIDE THE FOLLOWING INFORMATION.

SERIAL NUMBER TRANSMISSION NUMBER



ENTRANCE

AKIŞ ELEVATOR MACHINES; special elevator motor, brake assembly, drive pulley, side bearing and flywheel consists of a worm gearbox. Protected by the housing, the screw gear group ensures efficient power transmission and complete operational safety.

Our elevator machines can be used in elevators that rely on the frictional force between the drive system and the suspension ropes and the drive pulley channels. (Except for drum machines.)

Our elevator motors we use in our drive machines are 3-phase (380V-220V-220V/380V) 50Hz. and 60Hz. squirrel cage asynchronous motors.

The materials used during the motor production of our machine comply with international standards in terms of mechanical durability.

Our motors are subjected to 1500 V AC high voltage tests for 60 seconds.

Our elevator motors are designed and manufactured in accordance with TS EN 81-1 (Elevator safety rules for construction and installation) and TS EN 60204-32 (Electrical and electronic equipment used in load lifting machines and related equipment) standards.

Our motors used in our machines are designed and manufactured in accordance with TS EN 60204-1 (Electrical equipment of machines and safety rules for machines) and TS EN 60034-1 (Rotary electric motors and their declared values and performance) standards.

The worm is manufactured from vacuum and crack controlled alloy carburizing steel, surface hardened and ground. The worm gear is made of bronze casting (CuSn12) in accordance with DIN 1075.

In our machines, the worm screws are mounted with bushings made of bronze casting. The axial forces coming to the worm screw are met by the thrust bearing. The gear shaft is mounted with sliding bushings made of cast bronze and in all types, the places where the shafts are mounted are supported by bearings made of cast bronze and bearings of suitable specifications.

All our machines and motors are designed to operate smoothly for a long time in case of correct capacity determination and with correct assembly and periodic controls.

Our company reserves the right to change the technical specifications of its products.

The worm shafts of our machines are housed in front and rear bearings.

The worm screw is made of vacuum and crack controlled alloy carburizing steel, hardened to the core and ground on the surface.

The elevator motors we use in our drive machines are 3-phase squirrel cage asynchronous motors. 1800 V Ac, 1000 V Dc voltage is applied to our motors for 60 seconds.

Electrical insulation tests are performed.

The electromagnetic brake system in our machines operates at 24-48-60-110-198-220 V Dc voltage.

The insulation of our motors is F class. If the temperature of the stator reaches 60 °C, the fan is activated. As a result of overload, ptc stops the motor at 120 °C in order not to damage the stator.



1.BASIC KNOWLEDGES

Some basic information is given below for better efficiency and longer service life of our elevator machines and motors.

The operations described in this user manual must be performed by qualified technical personnel with sufficient technical knowledge. Before any maintenance operation, the system must be stopped and the electric current must be cut off.

It is necessary for safety precautions not to wear long and loose clothes during the installation and maintenance of our machine.

Make grounding connections immediately after the installation of our machine.

In our double speed motors, 2 thermistors are installed at fast and slow speeds. These thermistors are set so that the motor temperature does not exceed 120 °C. These thermistor terminals must be connected according to the diagram inside the terminal box.

Our elevator machines should not be operated continuously at low speed for a long time (max. 20 sec.). When the elevator reaches the floor, the 2nd speed floor setting should not exceed 30 cm.

There is a protection device on the drive pulley in accordance with the standard in order to prevent injury to persons and loose ropes from coming out of the pulley. This protection device must not be removed except in cases where the ropes are replaced or the pulley is replaced. In cases where it is removed, it must be reinstalled immediately after the necessary maintenance is carried out.

Accessible and visible rotating parts on our machines are painted yellow for warning purposes. These parts should be taken into consideration during maintenance and control operations.

Our drive machines for electric elevators should be located in a special elevator room with solid walls, ceiling and door or hatch and only authorized persons should be allowed to enter it.

Machine rooms must be properly ventilated for efficient operation of the machine. This ventilation must be arranged to protect the elevator machine from dust and moisture. Make sure that the connection chassis of our machine is leveled.

You can make your requests for spare parts that may be necessary by informing our company via telephone, fax number and e-mail written on the first page of the booklet by informing the serial number of the machine.

The serial number of all our machines and motors is written on the metal label on the body.



2.TRANSPORTATION

The following points must be observed during the delivery, loading, unloading and dispatch of our lift machine and motor.

Check the general appearance of our machine during delivery. If our machine is damaged, please inform our company with the serial number of the product.

There are chocks under our machine and motor to ensure easy transport of our machine and motor. Remove these wedges during the assembly process and assemble our machine and motor.

Our machine must be transported safely. During the loading and unloading of our machine, be careful against impact, shaking and falling hazard.

Our engines should never be placed on the flywheel mounted on the motor shaft.

The machine and the motor must be transported together during the transport of our machine to the area where it will be used for assembly.

Due to the level difference between our machine and the drive pulley, care should be taken against the danger of falling hard on the drive pulley while lowering the machine. This may cause the shaft of our machine to bend and the bolts to break.

When lowering the machine, it should be lowered and transported with the help of two ropes or chains as shown in Figure 2.1. However, sensitive points such as motor shaft, brake apparatus, machine motor clutch etc. should not be exposed to load during lifting.

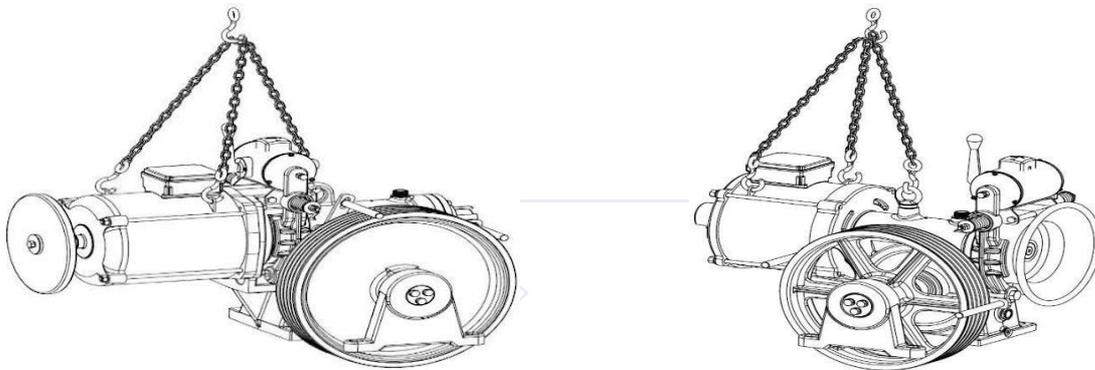


Figure 2.1 Motor Transport Connection



The weights of the body and engines of our machines are given in [Table 1](#) and the weights of the deflection pulleys are given in [Table 2](#).

Machine and motor packaging should not be deformed during transport, the packaging lock clamp should not be opened.



Figure 2.2 Motor Packaging

For products shipped in boxes, only boxes of the same size and boxes assembled with corner profile sheets can be transported on top of each other during the shipment. This application can only be implemented for two (2) layers.



Figure 2.3 Motor Box Packaging

In this section, the points to be used in lifting the machines manufactured by AKIŞ ASANSÖR and the techniques to be considered are shown.

It is the responsibility of the customer to check the suitability of the tools such as chains, steel ropes, belts, hooks, cranes and other lifting equipment to be used in the realisation of these operations.





**IT IS OF VITAL IMPORTANCE TO
SHOW GREAT CARE AND ATTENTION AT EVERY STAGE
OF HOOKING, LIFTING AND PLACING OUR MACHINE ON
THE HOOK**

WEIGHT CHART OF AKIŞ LIFT MACHINES		AKIŞ LIFT MACHINE MOTOR WEIGHT TABLE	
PRODUCT NAME	WEIGHT (KG)	PRODUCT NAME	WEIGHT (KG)
Z 40	50-65	MUGEN MF 1	175-190
Z 60	120-150	MUGEN MF 1 PRO E	160-170
Z 82	285-350	MUGEN MF 2	210-290
Z 102	320-405	VOLPI VF 2	225-235
Z112	700-780	VOLPI VF 3	275-365
Z 142	1350-1440		

Table 1. Machine Engine Weights Panel

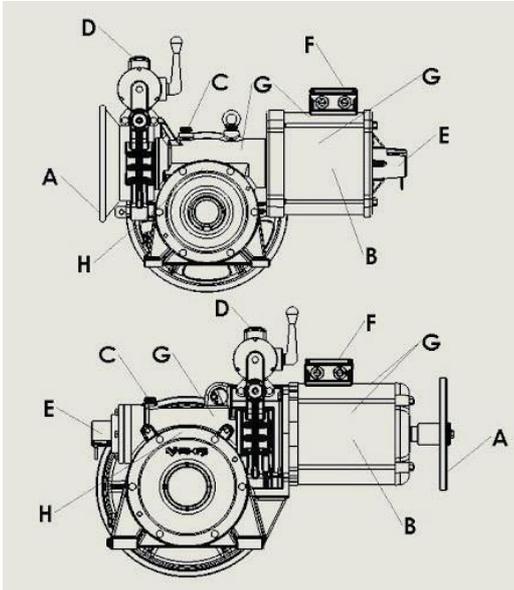
DEFLECTION PULLEY WEIGHT CHART	
PRODUCT NAME	WEIGHT (KG)
Ø400*4*Ø10 DEFLECTION PULLEY(WITH BEARING)	16 KG
Ø400*5*Ø10 DEFLECTION PULLEY(WITH BEARING)	17.5 KG
Ø400*6*Ø10 DEFLECTION PULLEY(WITH BEARING)	21.5 KG
Ø400*7*Ø10 DEFLECTION PULLEY(WITH BEARING)	22 KG

Table 2. Deflection Pulleys Weight Chart



3.MARKING PLATES OF OUR MACHINES AND ENGINES

This is a summarising example of the information and warnings on our machines, the amount and position of which may vary according to the machine configuration.



- A:** Adhesive Up/Down Label
- B:** Machine-Motor Plate
- C:** Oil Information Label
- D:** Brake Connection Box
- E:** Encoder Plate and Cable Connection Label
- F:** Motor Connection Box
- G:** Warning Label
- H:** Transmission Number

Figure 3.1. Signalling Plates

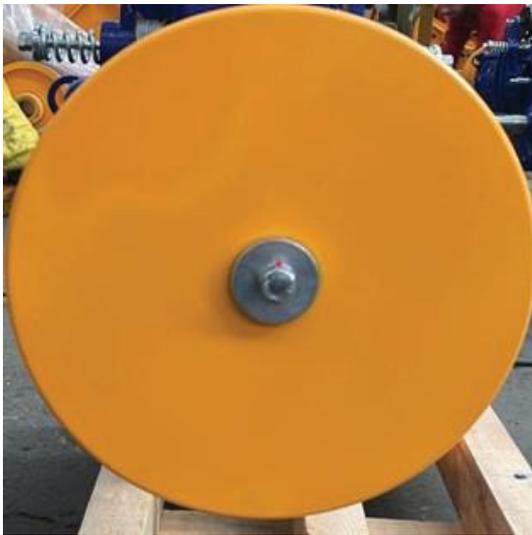


Figure 3.2. Flywheel

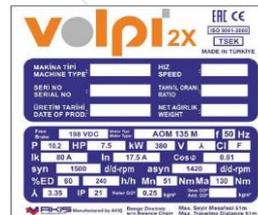


Figure 3.3. Machine motor labels



3.1. MAKİNE MOTOR ETİKET DEĞERLERİ AÇIKLAMA

mugen  **EAC CE**
ISO 9001-2008
TSEK
MADE IN TÜRKİYE

MAKİNA TİPİ MACHINE TYPE:		HIZ SPEED:	
SERİ NO SERIAL NO:		TAHVİL ORANI RATIO:	
ÜRETİM TARİHİ DATE OF PROD:		NET AĞIRLIK WEIGHT:	

Fren Brake		Motor Tipi: Motor Type:		f	Hz
P	HP	kW	V	CI	
Ik	In	Cosφ			
syn	d/d-rpm	asyn	d/d-rpm		
%ED	h/h	Mn	Nm	Ma	Nm
λ	IP	Rotor GD ²	kgm ²	ilave GD ² Additional GD ²	kgm ²

AKIS Manufactured by AKİŞ Denge Zincirsiz w/o Balance Chain Max. Seyir Mesafesi 21m Max. Travelling Distance 21m

Machine Type: Indicates the machine type.

Serial Number: Machine production serial number

Date of production: Indicates the machine production date.

Speed: Indicates machine speed.

Bond Ratio: Gear rotation ratio

Net Weight: Indicates the machine weight.

Brake: Brake Voltage

Motor type: AKİŞ ELEVATOR indicates the type of motor

f: Motor nominal frequency

P: Motor rated power

V: Motor nominal voltage

CI: Motor insulation class

Ik: Motor start current

In: Motor nominal current

Cosφ: Motor power factor

syn: Motor synchronous speed

asyn: Motor asynchronous speed

%ED: Brake stop lift-off period

Mn: Motor nominal torque

Ma: Motor take-off torque

λ: Motor connection type

IP: Motor protection class

2: Solid objects larger than 12.5 mm

1: Protected against dripping water

Rotor GD2: motor moment of inertia



Figure.3.4. Machine Warning Signs

4. LUBRICATION

Our machines are oil filled and ready for operation.

In order to drain the oil in our machine and engine in case of need; the system must be stopped and the oil must be drained by removing the oil drain plug. Oil should be filled from the oil filling reservoir. (See Figure 3.2)

Oil level should be checked from the oil indicator shown in figure 3.3.

When adding oil to our machine and engine, take care not to lubricate the brake pads. The oil types used in our machine are shown in Image 3 and oil information labels are shown in Figure 3.1.

Shell Omala 85 W 140	Z/ZF 60 – M/MF 2 – MF1 – MF1 Pro - Z40
Shell Omala S4 WE 320	Z/ZF 82 – Z/ZF 102 – Z/ZF112 – Z/ZF 142 V/VF 2/VF 2 X – V/VF3/VF3X

Table 3. Machine Oil Sheet

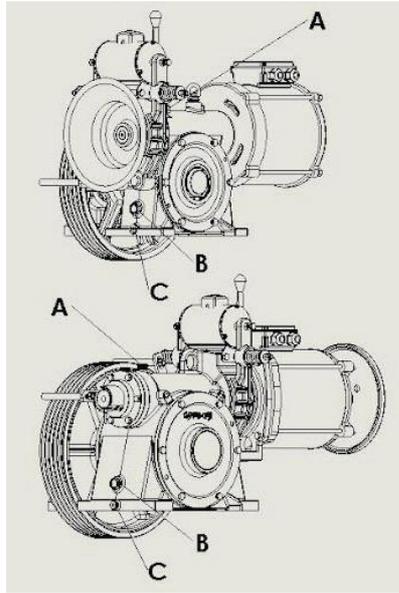


Figure 4.1. Oil Information Label





IN CASE THE OIL CAP IS REMOVED AND/OR OIL IS ADDED WITHOUT THE KNOWLEDGE OF THE MANUFACTURER COMPANY OUR MACHINE WILL BE OUT OF WARRANTY!



- A: Oil Filling Reservoir**
- B: Oil Indicator**
- C: Oil Drain Plug**

Figure 4.2 Machine Lubrication System



Figure 4.3. Oil Drain Plug



OIL INDICATOR WARNING POINT

Figure 4.4.

Figure 3.3.'de the assembled state of the oil gauge is shown. The oil level is monitored via this indicator. The red dot in the center is taken as a reference for oil change. Oil should be changed when the oil level reaches this point.



Makine Yağ Kapasiteleri/Machines Oil Capability										
Makine Tipleri/Machines Types	Z60/ZF60	Z82/ZF82	Z102/ZF102	Z112/ZF112	Z142/ZF142	MF1/MF1 PRO	V2/VF2	V3/VF3	V2X/VF2X	Z40/ZF40
Makine Yağ Kapasitesi Machine Oil Capability	2 Lt.	4 Lt.	5 Lt.	12 Lt.	32 Lt.	2 Lt.	3 Lt.	4 Lt.	3 Lt.	1 Lt.

Image 4. Oil Capacities of the Machines

4. MOTOR ELECTRICITY CONNECTION

Make the electrical connection of the motor according to the electrical connection diagram in the terminal box.

Connect the brake electromagnet and fan to its own terminal.

Our electric motors are protected with IP 21. It is made in accordance with IP 21 protection class as protection against solid objects with a diameter of 12.5 mm and protection against water drops vertically.

General construction motors have 3 phase cables. Connect the thermistor (ptc) cables according to the connection diagram.

Connect the earth wire to the earth socket in the terminal block.

It is important that you prefer panels with thermal protection relay and pass the ptc leads through the relay without bridging them for the long life of your motor.

Our lift motors are directly connected to the mains and must be protected against overload with a manually re-installable automatic breaker that cuts the supply on all live conductors.

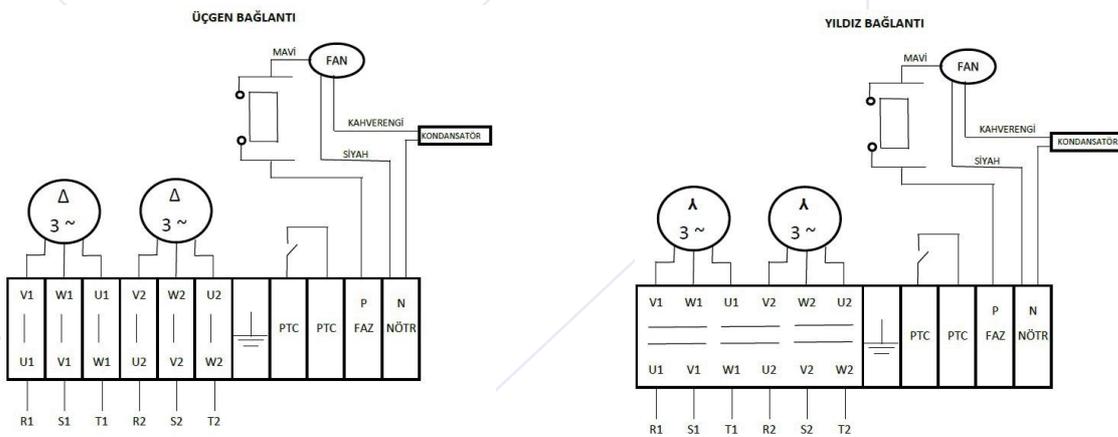
The ventilation fans supplied with our motors work together with a thermostat to ensure that the motor temperature is kept at a certain level.

In cases where the temperature is too high, it is better to operate the thermostat control with a relay.

The cables used in the connection of our engine must comply with the relevant standards. The cables used in the connection of our motor must be well insulated.

It is appropriate to fix the cables by fixing the cables while connecting our motors to the panel..

5.1. Star-Delta Bağlantılar



Şekil 5.1. Star-Delta Fanlı Çift Hız Bağlantı



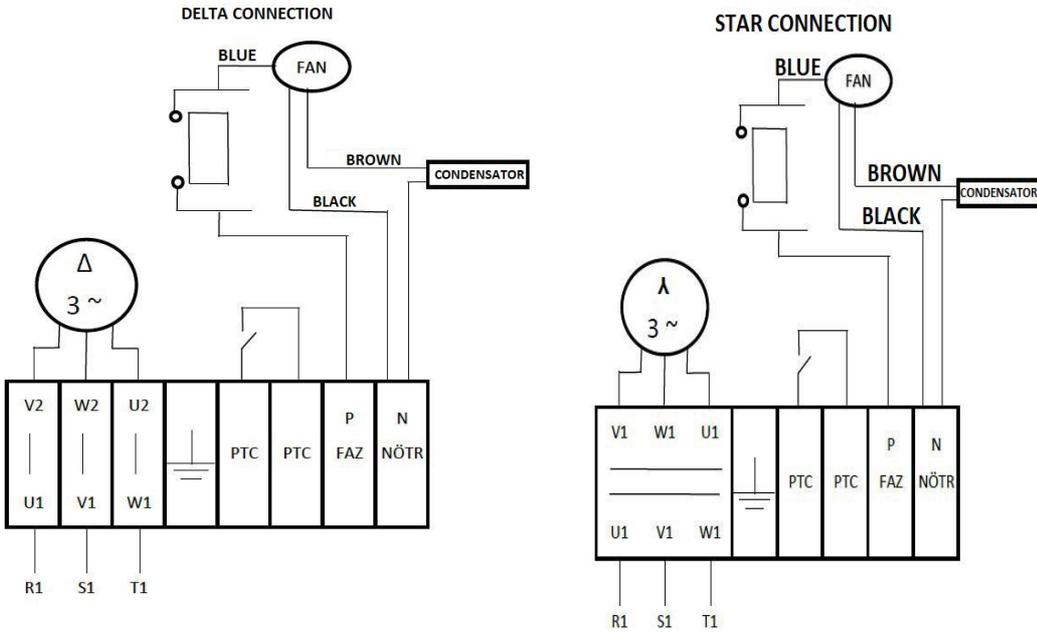


Figure 5.2. Single Speed Connection with Fan

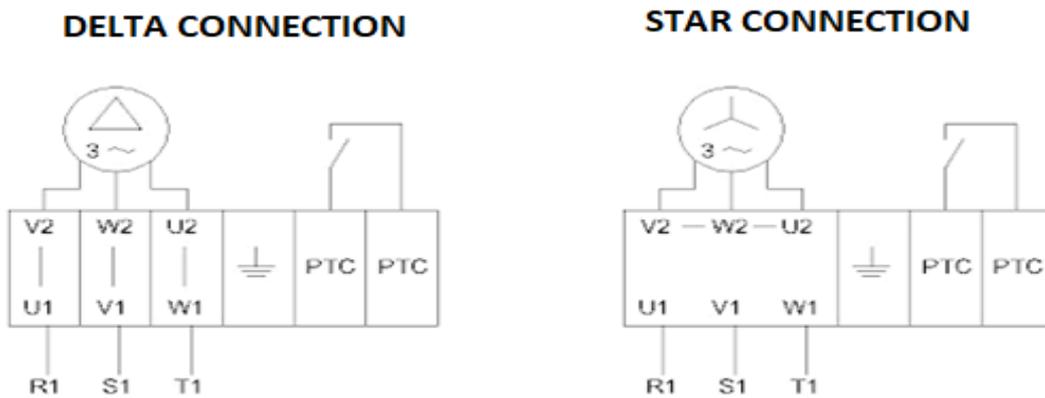


Figure 5.3. Fanless Single Speed Connection

5.2. Motor Connections

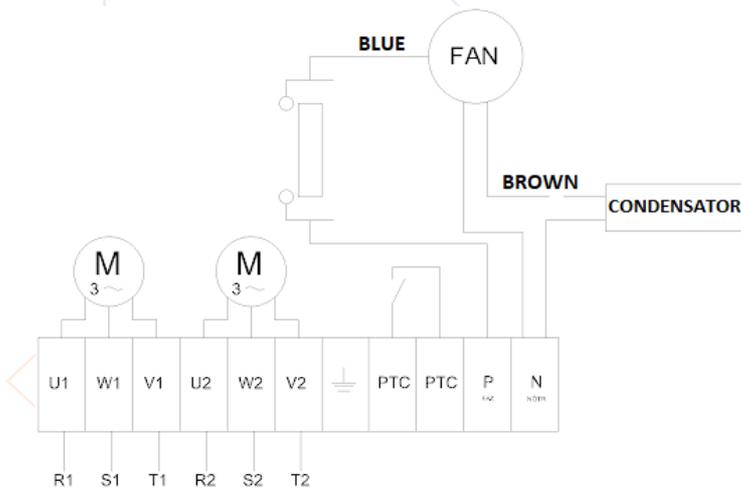


Figure 5.4. Double Speed Connection with Fan



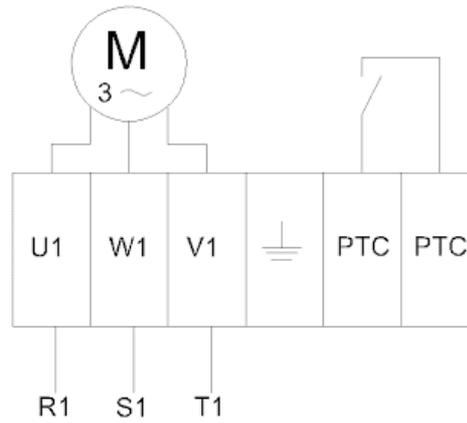


Figure 5.5 Fanless Single Speed Connection

6. FIRST START

Before starting the machine for the first time, the flywheel is turned by hand to ensure that the oil is distributed properly.

After it is seen that our machine is working properly, it should be operated with 1/4 load and then it should be operated with empty cabin and the operation of the machine should be checked.

Run our machine and engine at double speed (low speed) for maximum 20 seconds.

7. BRAKE WIRING DIAGRAM AND ADJUSTMENT

Our machines are shipped with brake settings adjusted and checked. If the brake settings are disturbed for any reason, they can be adjusted again by following the steps below.

Brake connection diagram is shown below.

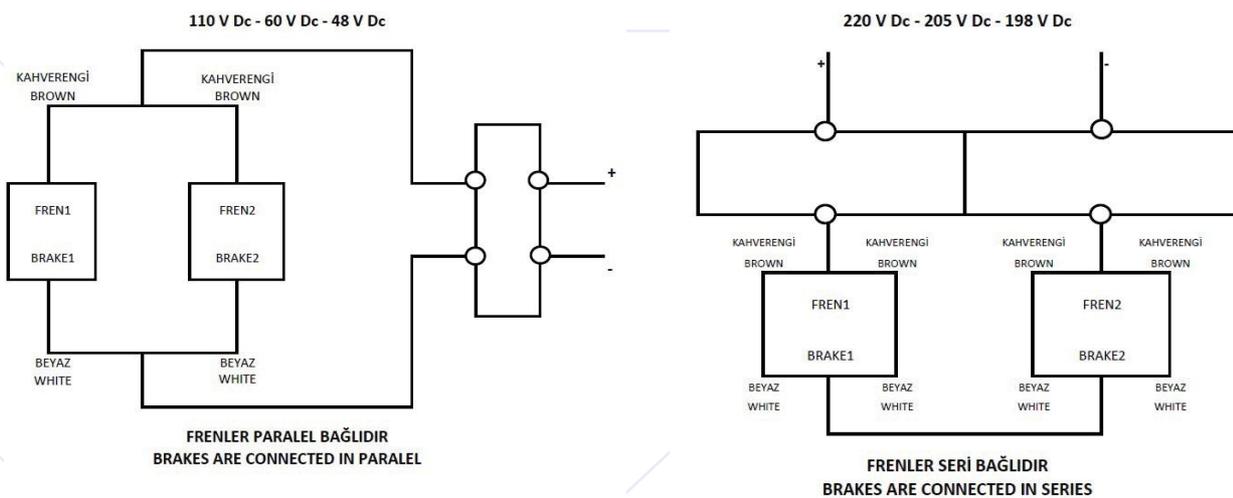


Figure 7.1 Brake Connection Scheme



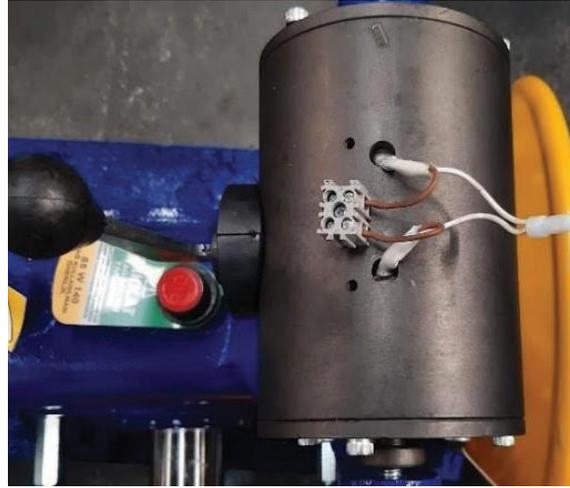


Figure 7.2 198 v DC Brake connection

The brake is switched to the open position by holding the brake lever (1) by hand. (See Figure 6.3.)

When the brake is in the open position, the screw (2) in the jaw is tightened until it contacts the brake pin (3). As soon as the screw contacts the brake pin, it is tightened by turning half turn.

In this case, the nut on it is tightened until the jaw. The same process is applied to the other jaw.

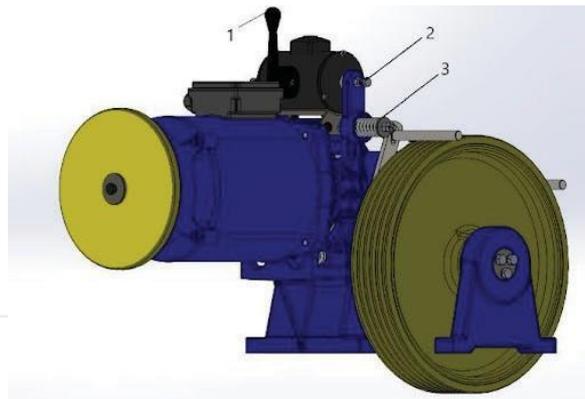


Figure 7.3 Brake Setting

By opening and closing the brake lever, it is checked whether the brake coupling rotates when the brake is on. When the brake is on, the distance between the brake coupling and the brake pad should be 1 mm.

Voltage is applied to the brake magnet. It is checked whether the brake shoes are opened at the same time. Braking distance depends on springs that need to be adjusted at certain time intervals.

If the brake pad is 3 mm or less, it must be replaced immediately.

It is checked whether the brake pad is lubricated during the oil addition to the engine and machine. If it is lubricated, the oil on the brake pad should be cleaned.





**CHECK THE BRAKE PADS FOR ABRASION AT
REGULAR INTERVALS AND REPLACE THEM
IMMEDIATELY WHEN THE AMOUNT OF
ABRASION EXCEEDS 3 MM.**

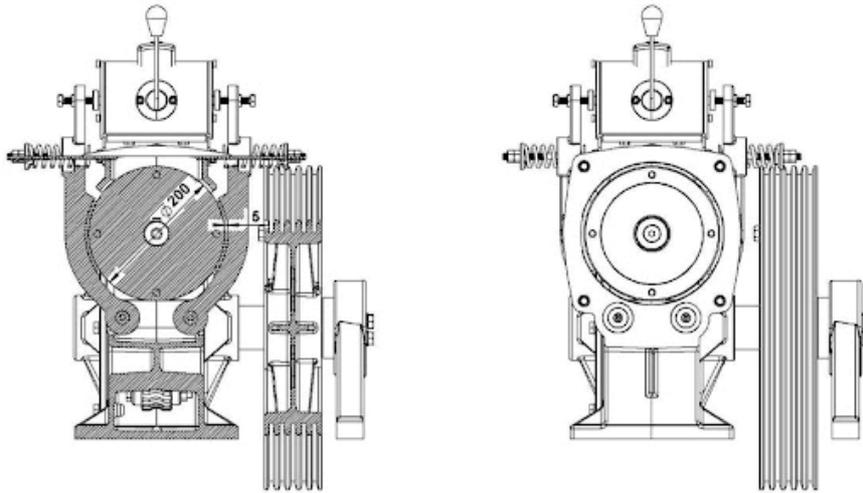


Figure 7.4. Brake Jaw and Pad

It should be noted that the brake jaws tend to wear out over the lifetime of the machine, reducing the preload of the springs and therefore the brake performance.

8.A3 BRAKE

8.1.Air Gap Tolerances



Figure 8.1. Air Gap Tolerance

8.2.Air Gap Control And Adjustment

8.2.1.Brake Air Gap Control

The air gap is measured between the brake box and the brake mirror. The air gap portion should be in the range of 0.40-0.50 mm.



8.2.2. Brake Air Gap Adjustment

Loosen the screws on the brake. Leave an air gap of 0.40-0.50 mm between the brake box and the brake mirror to prevent brake opening and closing noise.

8.3.Brake Operation Control

Activate the brake and check the sound with each braking.

Check the pulley rotation as a result of brake fluctuation.

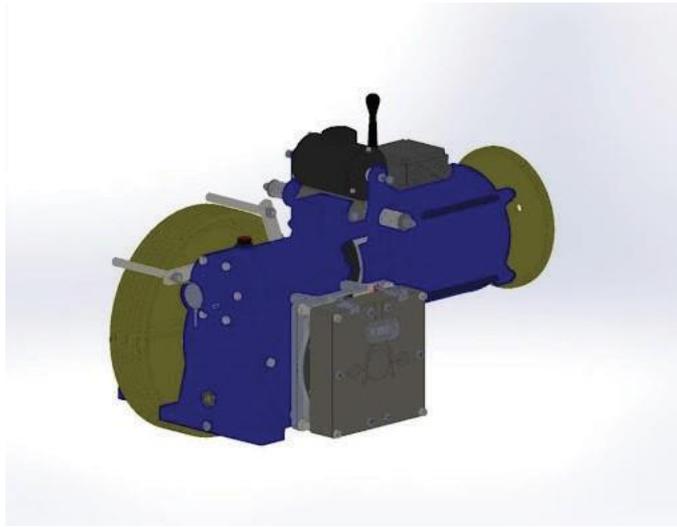


Figure 8.2. Brake Installation

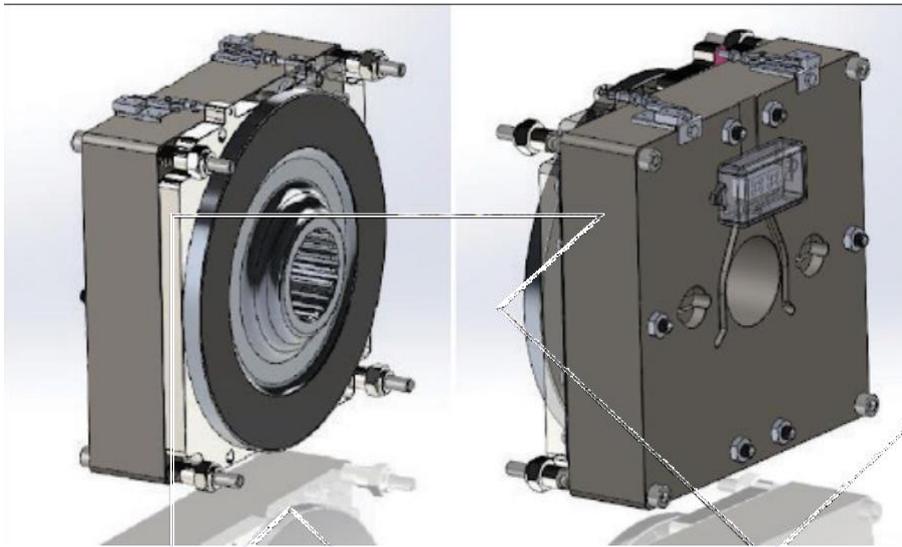


Figure 8.3. A3 Brake



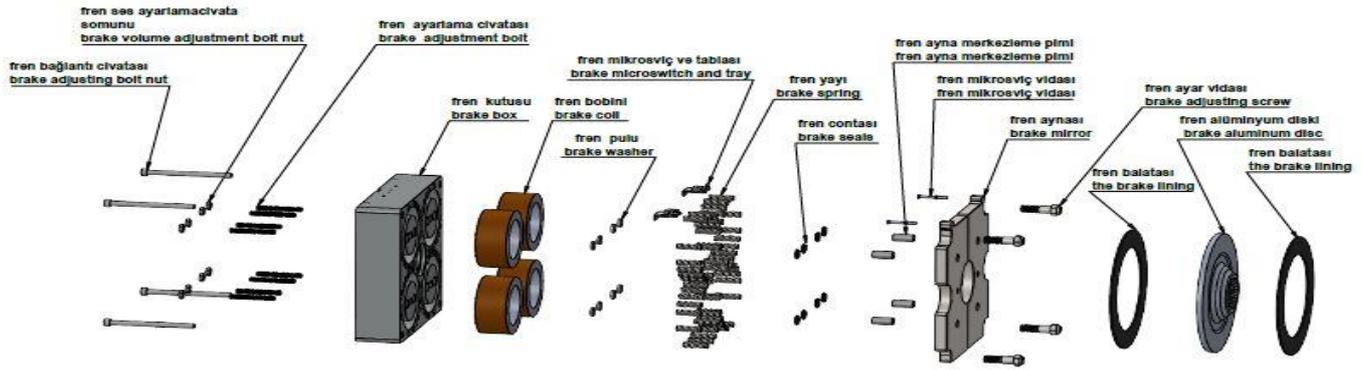


Figure 8.4. A3 Brake decomposed Picture

9. CONTROL AND ADJUSTMENT OF MICROSWITCHES

Each brake has a microswitch. When the brakes are on, the microswitches are off. The microswitches are connected in series. Use an ohmmeter to check the microswitches. Check each microswitch by shorting each microswitch in turn to the others.

The check should be repeated several times when the brake disc is braked evenly with at least 3 turns. This test should be repeated several times until the brake is active.

Tighten the screw with M6 spanner, insert and tighten the bolt in the same way. Then tighten the screw more than half a turn and lock it. Repeat the first and second steps again.

Brake Specifications		BRAKE							
	DEMF1	DEMF2	DEMF3	DEMF4	DEMF5	DEMF6	DEMF7	DEMF8	
Exciting/Holding Voltage(Vdc)	197/110	197/110	197/110	110/70	110/70	110/70	197/110	110/70	
Nominal revolution [rpm]	98	98	98	98	98	98	69	69	
Max. tripping revolution [rpm]	115	115	115	115	115	115	80	80	
Ø Brake Lining [mm]	270	270	270	270	270	270	630	630	
Max. Air Gap(mm)	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	
Nominal Torque(Nm)	2*400=800	2*500=1000	2*550=1100	2*400=800	2*500=1000	2*550=1100	2*1100=2200	2*1100=2200	
T ₁₀ (ms)	220	210	150	220	210	150	180	180	

Tablo 5.A3 Brake Table

7. USE

Our machines and motors are designed and manufactured to be used in human and load carrying lifts.

Except for the specifications specified in your orders (load to be transported, speed, travelling distance, etc.), it is not possible to use them with different specifications.

Installation, maintenance and periodic maintenance of our machines and motors must be carried out by persons with sufficient technical know-how.

11.MAINTENANCE AND CONTROLS

In order to get a better efficiency from our machine, it is important for the interests of our customer that the points specified in this manual are especially observed. In order to get more benefit from the machine for a longer period of time, this section will explain how the maintenance should be done and what to pay attention to in the controls.

12.WORM SCREW TOLERANCE CONTROL

For the safe use of our machines, it is necessary to check the tolerance of the worm screw after every 3000 hours of operation.

Stop the system and cut off the electric current. Separate the ropes from the pulley.

Open the brake manually and rotate the flywheel in both directions until you feel the pressure of the worm gear on the pulley. (The drive pulley must remain motionless.)

Figure 8.1. Place a tolerance end state mark around the flywheel, which you have marked for the starting position by looking at it.

Measure the arc distance between the two marks (See Figure 8.1).

Compare the value obtained with the acceptable values in Table 6.

If the obtained range values are at or above the maximum value, please contact our company.

TYPE OF MACHINE	Z 60 / ZF 60	Z 82 / ZF 82	Z 102 / ZF 102	Z 112 /ZF 112	Z 142 /ZF 142
MINIMUM	3 MM	3 MM	3 MM	3 MM	3 MM
MAXIMUM	35 MM	35 MM	35 MM	35 MM	35 MM

Sheet 6.Statement of Acceptable Spacing Values between Thread and Screw

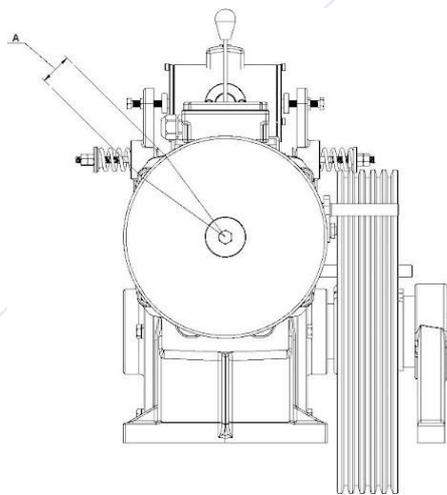


Figure 12.1.Worm Screw Tolerance Control



When checking the tolerance of the worm screw, the value formed in the A zone should be checked in Sheet 6 to check whether it is within the desired ranges.

13.AXIAL BEARING TOLERANCE CONTROL

Thrust bearing tolerance control is regulated in the machines whose type is written below.

The thrust bearing tolerance is roughly determined by observing the axial movement of the brake coupling. In case of any misalignment, the brake coupling performs an unbalanced movement back and forth. In case of misalignment, the following items can be applied.

14.ADJUSTMENT

Stop the system and disconnect the electric current before starting the adjustment.

Suspend the cab.

Remove the ropes from the drive pulley

Loosen the bute nut retaining bolt (A).

Turn the bute nut (B) clockwise without excessive force until you feel resistance. Tighten the retaining bolt or lock nut.

The noise level may require reorganisation or replacement of the bearing. In this case, contact our company.

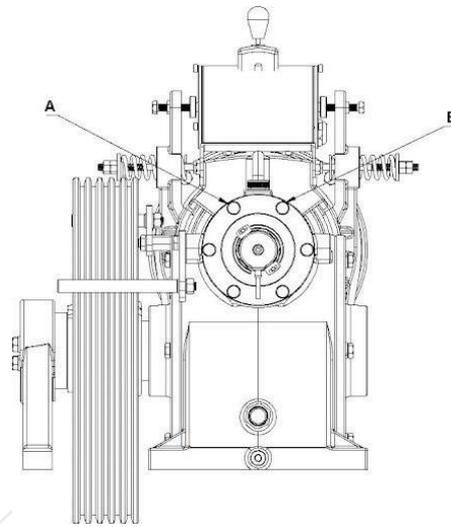


Figure 14.1.Axial Bearing Adjustment

15.OIL AND OIL SEALING CONTROL

Oil level should be checked once a month.

When oil is missing in the grease fittings, it should be completed.

It should be checked whether the oil has deteriorated during periodic maintenance. If the oil has deteriorated, it should be replaced.

Check for oil leaks during periodic checks on our machine and engine. Static and dynamic oil sealing gaskets are used in all machines.

16.DRIVE PULLEY GROOVE WEAR CONTROL AND ROPE PROFILE

Uneven tension of the ropes can lead to uneven wear of the pulleys.

If there is wear in the grooves of the drive pulley, the pulley must be replaced. In this case, it will be sufficient to contact our company with the serial number of your machine.

Do not repair the pulley rope grooves.

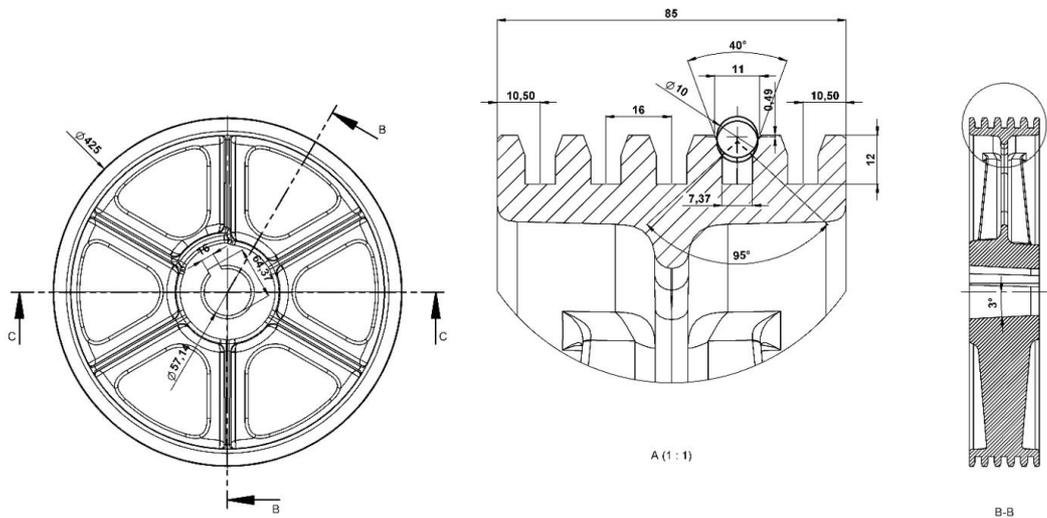


Figure 16.1. Drive Pulley Rope V Groove Profile

NUMERATORS AND EQUIVALENTS TO BE USED FOR CODING ON SPECIAL REQUEST ON PULLEYS	P	Q	X	UNDERCUT PULLEY	V CHANNEL PULLEY
	PITCH	ANGLE	ROPE DIAMETER	Y	V
SAMPLE APPLICATION	19.2 PITCH			P 19.2	
SAMPLE APPLICATION(UNDERCUT V CHANNEL)	45°- 90° ANGLE			Y-Q 45-90	
SAMPLE APPLICATION(V CHANNEL WITHOUT UNDERCUT)	ANGLE 45°			V Q 45	
SAMPLE APPLICATION				X 12	



Figure 16.2. Traction Pulley Coding Example

For example, in the numbering process shown in figure 16.2, the drive pulley is produced as 19.2 pitch, $\alpha:45^\circ$, $\beta:90^\circ$ angle, rope diameter 12 mm with an undercut channel.



17. BRAKE SYSTEM AND LINING CONTROLS

The following checks must be performed during periodic maintenance.

The stopping accuracy of the electromechanical brake must be checked.

Brake lining and coupling distances should be checked. Brake noise control and brake settings should be done. Brake pads should be checked for wear. Brake settings deteriorate as the pads wear.

In cases where the brake pads are worn, the brake settings must be adjusted again. If the brake is not adjusted, the brake opens and closes more than necessary and this causes the brake coils to heat up. This may cause a decrease in efficiency and may cause the coils to burn.

18. PART EXCHANGE

When part replacement is required, you can obtain the relevant part by informing the serial number of the machine to our company. Part descriptions and other features are described in detail in the last chapter of this booklet.

19. GENERAL DESCRIPTION OF THE MACHINE AND PARTS

General description of Z - ZF, VOLPI V2X-VF2-VF2X, VOLPI V3X-VF3-VF3X, MÜGEN MF-1 MF-2 M2 type machines manufactured by Akış Elevator is explained in this section.

Z type machines have a load lifting capacity between 150-9750 kg with 1:1 suspension. In these models, the motor is mounted to the body by means of a special connection slot.

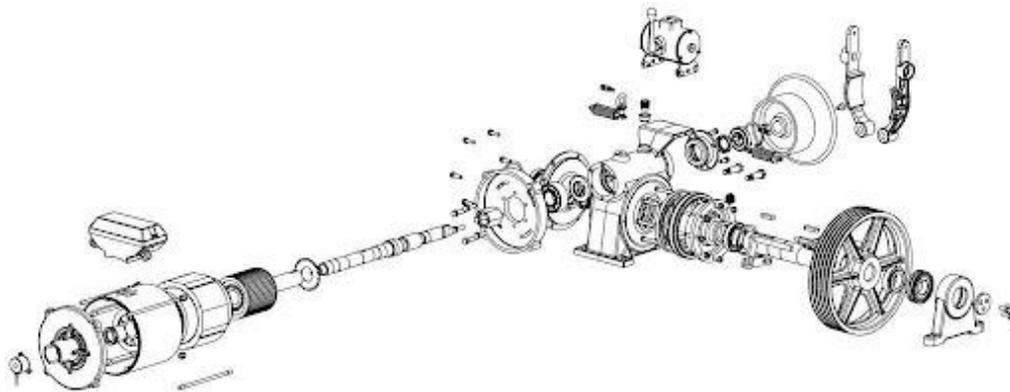


Figure 19.1. Decomposed Representation of MUGEN Machine Parts



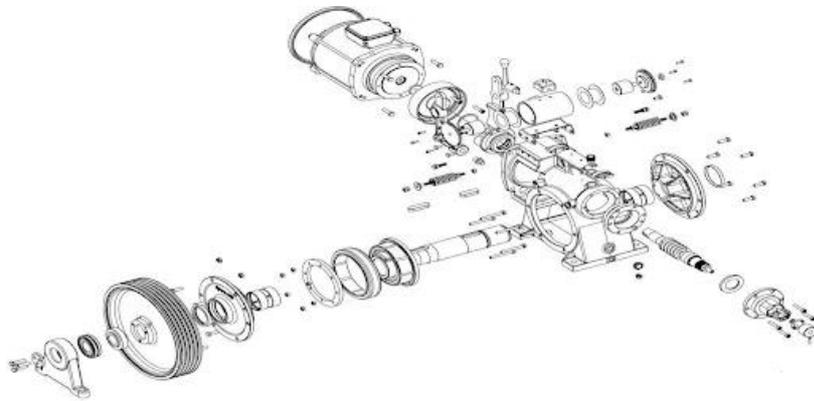


Figure 19.2. Display of Z Machine Parts

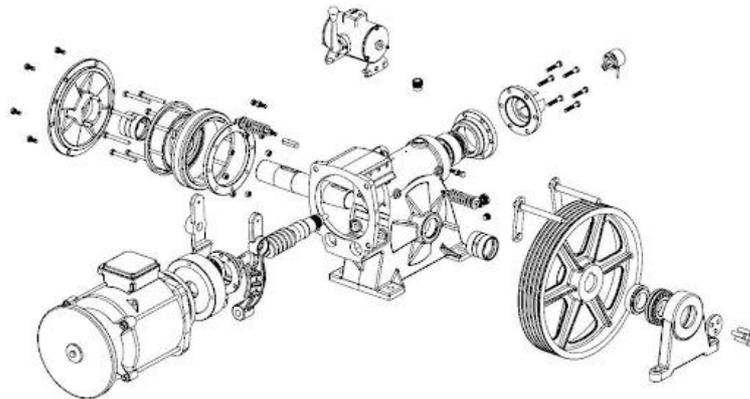


Figure 19.3. Display of Volpi Machine Components

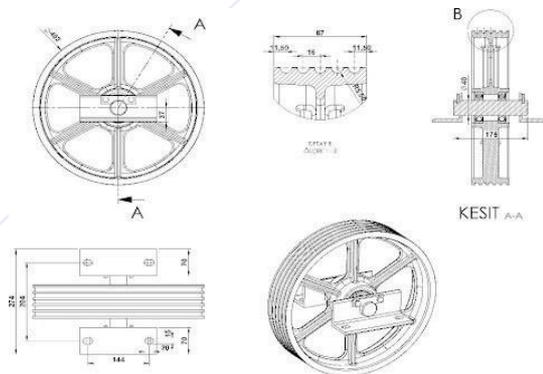


Figure 19.4. Illustration of the Deflection Pulley



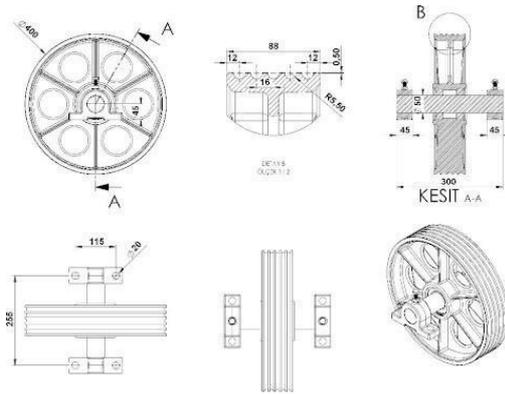


Figure 19.5 Display of Sheave

19.1 Machine Size And Technical Specifications

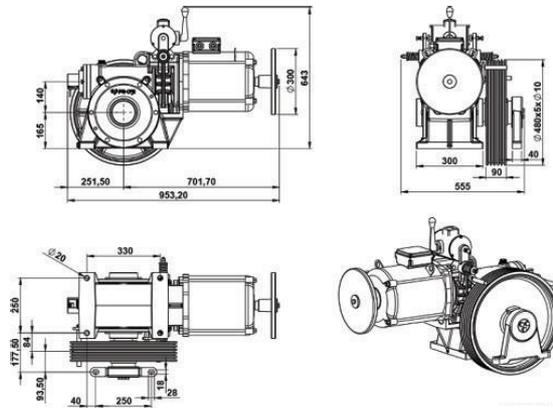


Figure 19.6. ZF Model Machine

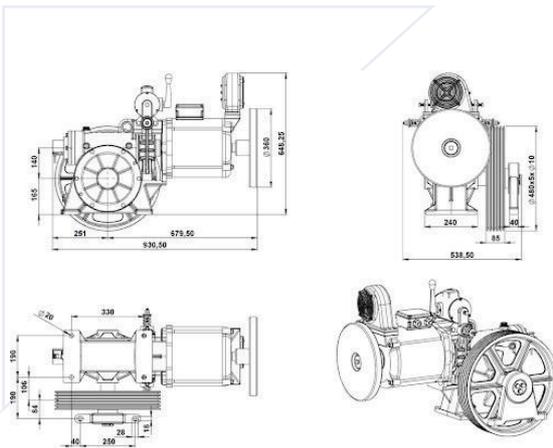


Figure 19.7. Volpi Model Machine



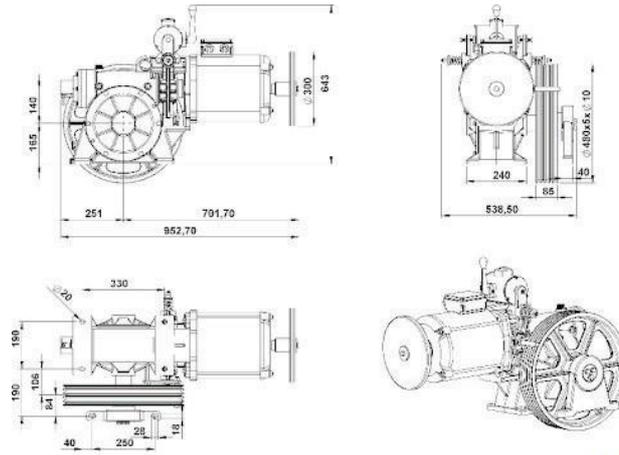


Figure 19.8. Volpi VF2X Model Machine

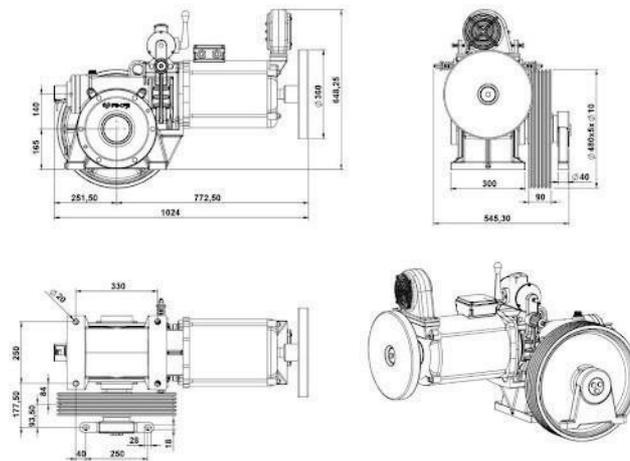


Figure 19.9. Z Model Machine Motor Installation

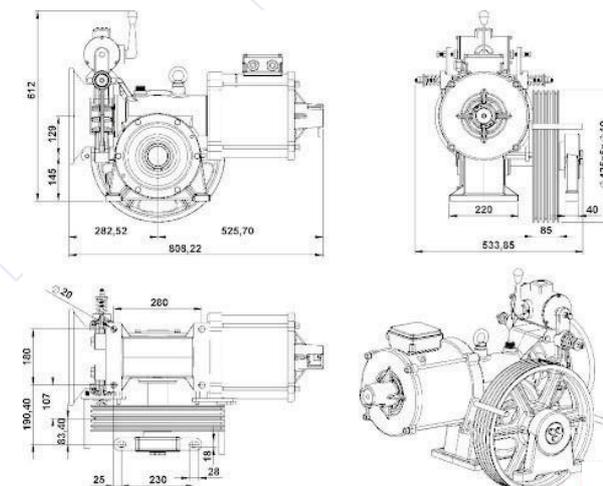


Figure 19.10. Mugen Machine Installation View

20.IMPORTANT WARNINGS

When the lift car is switched to the parachute, the gear unit is subjected to excessive load and may be damaged. In this case, make sure that the gear backlash in the gear train is below the maximum values specified in Table 6. Make the necessary measurements. If the measured value is above the maximum value, do not put the machine into operation.

If the lining thickness on the brake jaws is below 3 mm, replace them. As a result of thinning of the pads, your machine cannot operate safely.

Take care not to lubricate the pads, lubrication of the pads prevents the safe operation of the brake system of your machine.

Check the function of the brake coil continuously during the periodic checks you will make to our machine. When you see a negativity in the brake, be sure to replace it.

Use the specified screws when fixing our machine. Otherwise, you will not fix the machine safely. Check the engine cooling fan periodically. In case of failure of the fan, the engine overheats excessively and may cause our engine to burn.

Determine the capacity of our machine and motor correctly. Otherwise, your machine will be short-lived and cannot operate safely.

Make thermistor (ptc) connection in the connection of the motor.

Make sure to ventilate the environment where the machine and motor work. In case of insufficient ventilation of the environment, the machine and motor will overheat and cannot operate safely.

Ensure that the electrical connection of our motor is made by personnel with sufficient technical knowledge.

Always follow the diagrams indicated on the motor and in the user manual. Otherwise, the machine and motor cannot operate safely.

Take the necessary precautions to prevent the contact of foreign materials with our machine and motor. Otherwise, the machine and the engine may be damaged.

Always take the lift out of operation when interfering with our machine or motor. Otherwise, injuries may be caused.

It is recommended that the rope pulley clutch angle should be 160-165° for the lift car to stop at the floor level. (See Figure 11.1)

Our machine is fully filled with oil. Adding oil without the knowledge of the manufacturer firm, using different oil, removing the oil cap will result in the product being out of warranty.



ENSURE THAT THE ELECTRICAL CONNECTION OF OUR ENGINE IS MADE BY PERSONNEL WITH SUFFICIENT TECHNICAL KNOWLEDGE.

ALWAYS DISCONNECT THE ELECTRICAL CONNECTION DURING REPAIR AND MAINTENANCE OPERATIONS

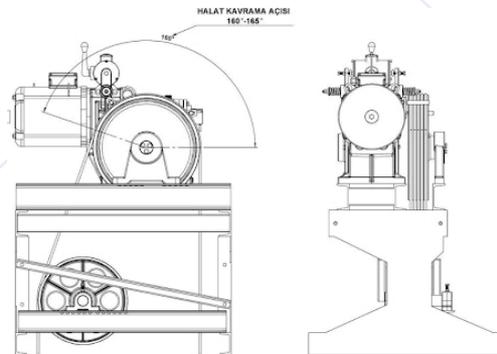


Figure 11.1 Rope wrapping angle for Machines



21.POSSIBLE MALFUNCTIONS OF MACHINES AND SUGGESTIONS FOR SOLUTIONS

POSSIBLE MALFUNCTIONS	CAUSES OF MALFUNCTION	SOLUTION SUGGESTIONS
Machine spasms or strains	Machine is not mounted on a level surface	The machine should be taken from the load, adjusted and assembled properly and checked whether the machine rotates freely from the flywheel part.
The engine runs vibrationally	The chassis is not straight or not suitable for the machine	The machine should be removed from the load and the chassis should be placed smoothly and levelled
The brake is operating with insufficient efficiency.	Brake pads may be worn out	The brake pads must be replaced.
	The brake is out of adjustment.	The brakes must be adjusted in accordance with the brake adjustment instructions described previously.
	Brake coupling or brake pad may be worn	Brake jaws should be removed, brake coupling and brake pads should be cleaned with thinner and brake adjustment should be done again.
Brake makes noise	The pad coupling distance is too long	The lining coupling distance should be adjusted accordingly (0,5 -1,0 mm).
Brake does not function	The brake electrical connection may be incorrect.	The connections should be checked and redone.
	The brake coils may be burnt out.	Brake coils must be replaced. Please contact our company for this.
Gear wears out	Lubrication not performed or insufficient	The firm should be contacted.
	The machine is not properly mounted on the chassis.	The gear must be changed by ensuring that the machine is seated on the chassis in a level
The machine leaks oil.	The oil seals, which are the oil sealing elements of the machine, are worn.	The surfaces of the machine should be thoroughly cleaned and liquid gasket should be applied and the oil seals, which are the sealing elements of the machine, should be replaced.
Pulley wears out.	Failure to adjust the rope tension.	The pulley must be replaced. Please contact our company for this.
Machine bearings are wearing out .	Lack of complete lubrication	The bearings must be replaced. Please contact our company for this.
	Failure to properly connect the motor to the machine body during assembly and to tighten the bolts properly against each other.	Proper reassembly of the machine by disassembling the engine .
The engine makes noise when running at low speed.	Wear of bearings due to insufficient lubrication	Check the lubrication level to ensure proper lubrication.
There is a noise coming from the front ball bearing part of the machine.	The machine may have been parachuted in.	Bearing replacement is required. The company must be contacted.
The machines vibrate.	The gear or worm may be bent or parachuted.	The geared or worm screw must be replaced. The company must be contacted.
There's a noise coming from the bearing.	The motor bearing may be disintegrated.	In such a case, it is recommended to replace the bearing and contact our company if necessary.

Table 7. Possible Malfunctions of Machines and Suggestions for Solutions

