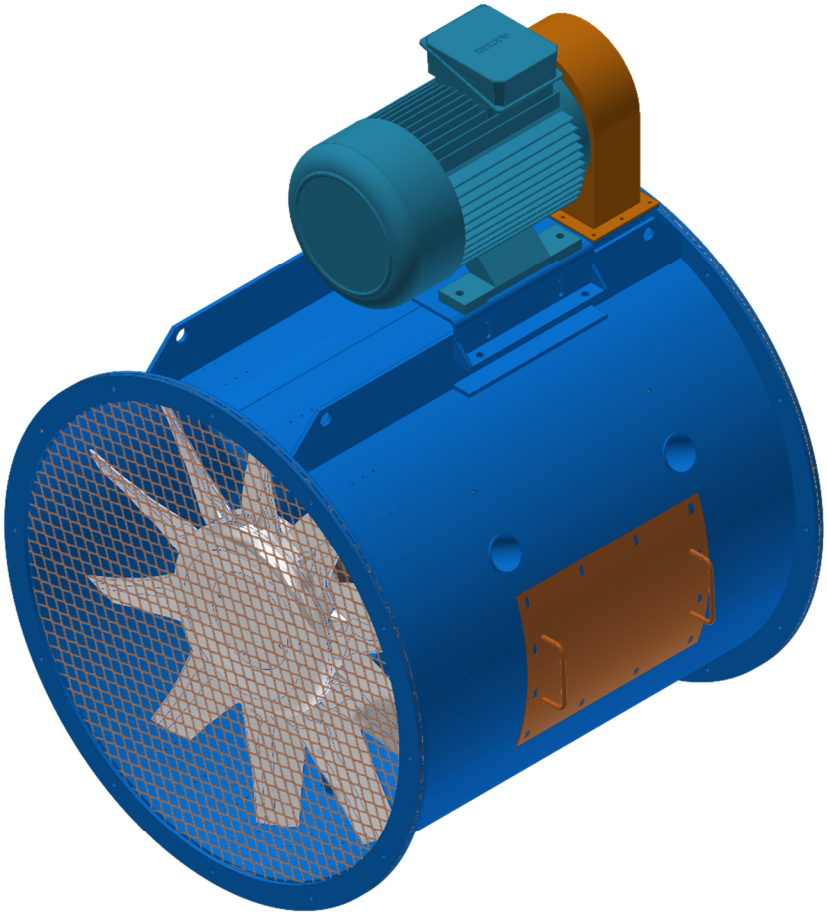
OPERATION AND MAINTENANCE MANUAL FOR AXIAL VENTILATORS



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ED VAN VANTİLATÖR

1.INTRODUCTION

ED-VAN VANTİLATÖR SANAYİ VE TİCARET LTD. ŞTİ. provides services in solving all kinds of dedusting and industrial ventilation problems with its expert technical staff. Our company has been established in an area of 19.500 m2 in 1975 and continues its activities in a closed area of 8.000 m2.

ED-VAN products used in all areas of the industry are manufactured in accordance with the national and international standards, taking into account the consumer protection principle. The design, planning, and manufacturing procedures of all kinds of products produced by our company are carried out in its own production facilities and by its own team.

Our R&D group continuously follows technological developments without compromising our quality. In the light of technological developments, tests of ventilators are carried out in our Edremit factory. The test results and test diagrams resulting from these tests are available in our company and are given to the customer upon request. We control all the problems that may occur in our products in advance, by making quality controls at every stage of the production before both manufacturing and shipment.

We declare that we produce our products in accordance with the requirements of;
-CE,
-TSE,
-ATEX,
-OHSAS 18001,
-ISO 9001:2008,
-ISO 14001:2015



WARNING:

Complying with the operating and maintenance manual will ensure you work uneventfully.



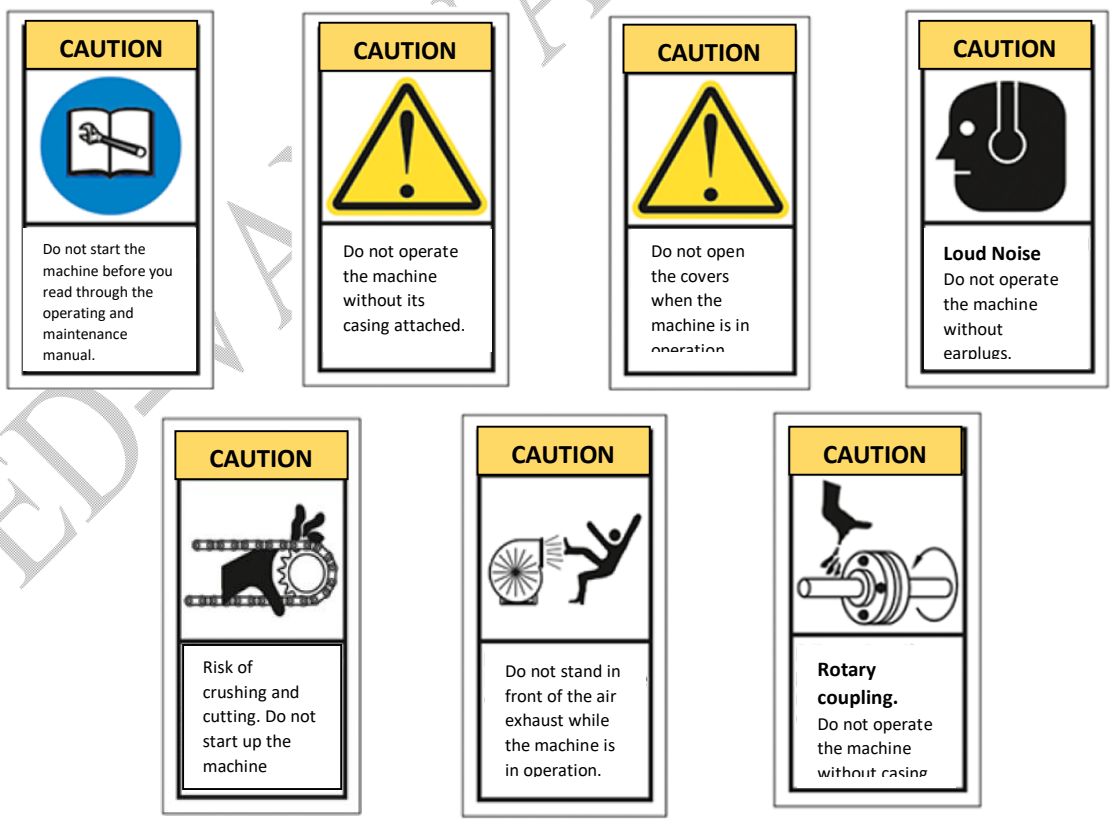
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2.SAFETY MEASURES

Ventilator system instructions should be followed by trained and experienced staff.

- Security measures should be checked.
- Electrical systems should be checked.
- Before starting work, the copper plate should be touched with bare hands.
- Make sure tha t the inspection hatches are closed.
- Power consumption should be monitored. Max. power should not exceed the allowable power.
- After starting, it should be checked if there is any noise, vibration, or abnormal situation.





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3.WARRANTY

- Our products are under a 1-year warranty as from the date of invoice against material and manufacturing defects; except for engine failures, wear, and misuse.
- The supply of material for overseas sales (EXW) is within the scope of warranty, and the service will be charged separately.
- The warranty period continues, provided that the delivered products are used and commissioned within a maximum of 120 days. Otherwise, any malfunction that may arise from waiting is out of warranty.
- Items not included within the scope of warranty by the seller:

(a) Defects caused by the failure to provide the appropriate installation environment for the product,
(b) Damages arising from the use of the product for purposes other than for which it was purchased,
(c) Damage caused by disasters such as fire, flood, wind, and lightning,
(d) Damage caused by unapproved additions and modifications;
(e) Any abuse and / or misuse by the purchaser, including improper assembly;
(f) Products damaged or altered by the buyer and / or their customers; or
(g) Performance problems caused by incorrect information.



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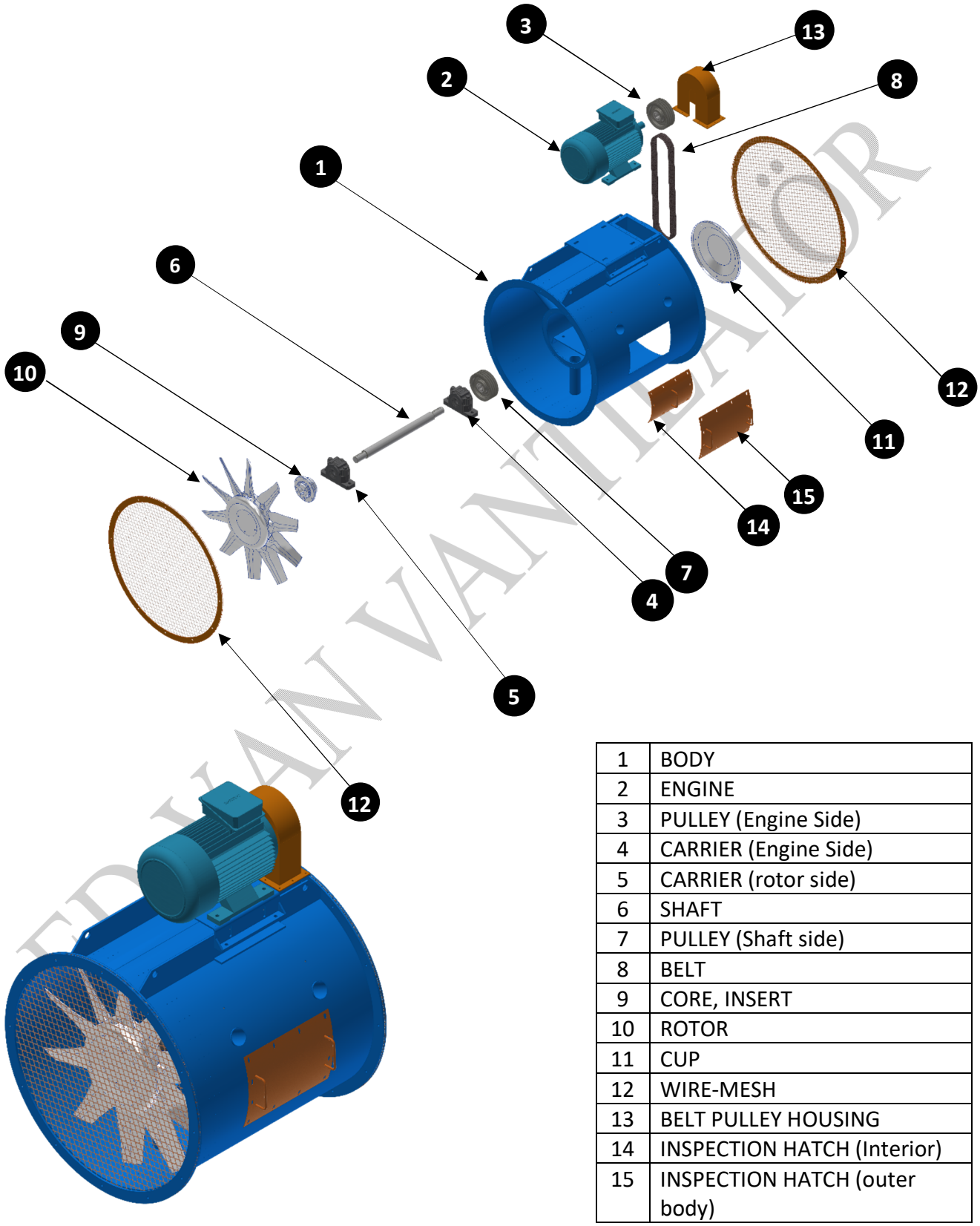
4.PRODUCT DESCRIPTION OF AXIAL VENTILATORS

Customer name			
Product tracking details		**Engine details**	
Purchase order no.		Voltage (V)	
Date of manufacture		Current (A)	
Product type		Frequency (Hz)	
Serial number		Power (kW)	
Design details		Engine speed (rpm)	
Drive type		Engine Serial number	
Working temperature (^{0}C) (O.C.)		**Drive details**	
Altitude (m) (O.C.)		Diameter of engine pulley (mm)	
Flow density (kg /m^3) (O.C.)		Diameter of shaft pulley (mm)	
Flow rate (m^3/h- N.C.)		Dimensions of the belt (mm)	
Total pressure (mmSS) (N.C.)		Number of belts	
Total pressure (mmSS) (O.C.)		Type of coupling	
Ventilator speed (rpm)		Type of bearing	
Ventilator position		Bearing shell	
Net weight (Kg)		Type of bearing oil	
N.C. : Normal conditions			
O.C. : operation conditions			
Foreseen operating conditions			

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5.PARTS AND ACCESSORIES OF AXIAL VENTILATORS

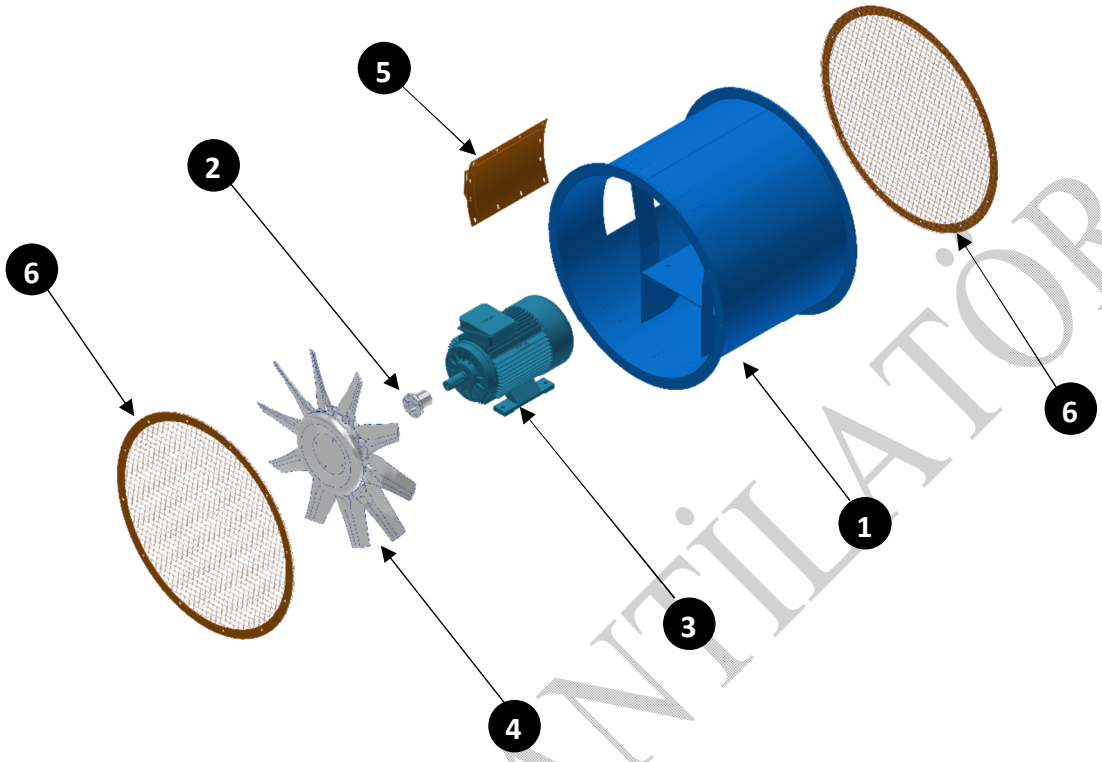
5.1.1.Belt Pulley Axial Ventilator (Assembling-Disassembling parts list)

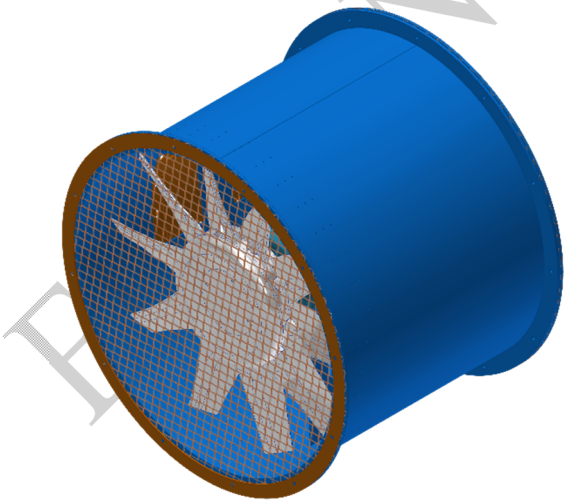


1	BODY
2	ENGINE
3	PULLEY (Engine Side)
4	CARRIER (Engine Side)
5	CARRIER (rotor side)
6	SHAFT
7	PULLEY (Shaft side)
8	BELT
9	CORE, INSERT
10	ROTOR
11	CUP
12	WIRE-MESH
13	BELT PULLEY HOUSING
14	INSPECTION HATCH (Interior)
15	INSPECTION HATCH (outer body)

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5.1.2.Direct-Coupled Axial Ventilator (Assembling-Disassembling parts list)

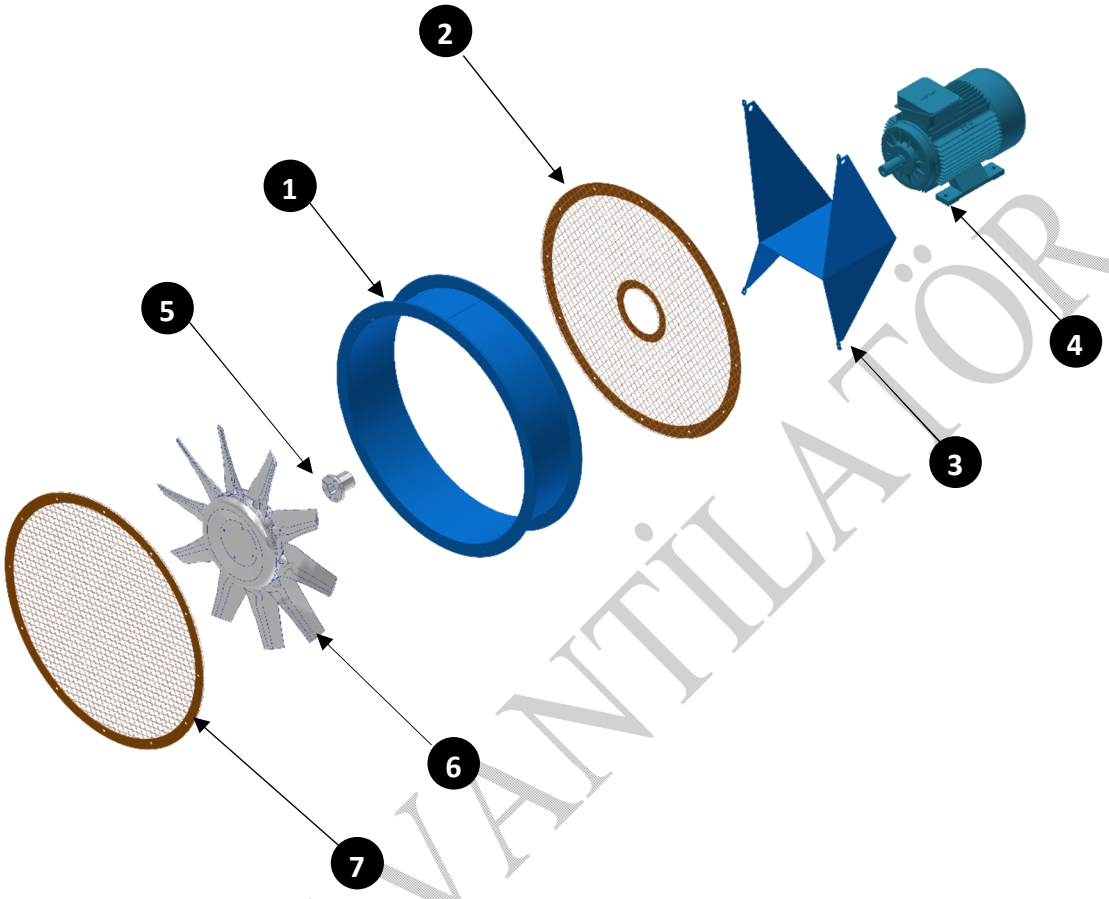


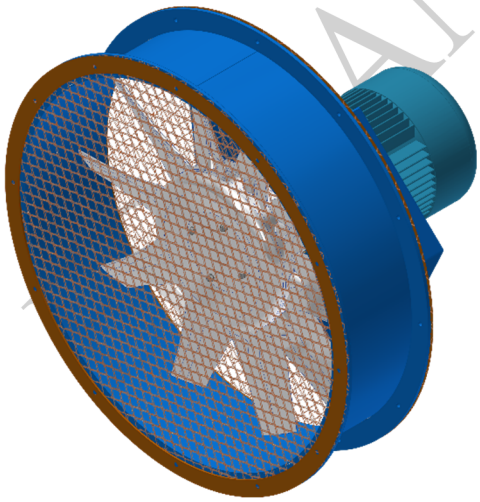


1	BODY
2	INSERT
3	ENGINE
4	ROTOR
5	INSPECTION HATCH
6	WIRE-MESH

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5.1.3. Fixing-Frame, Direct-Coupled (Assembling-Disassembling parts list)





1	BODY
2	WIRE-MESH (Engine Side)
3	ENGINE BASE
4	ENGINE
5	INSERT
6	ROTOR
7	WIRE-MESH

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5.2.Accessories

5.2.1.Parallel Blade Damper



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6.COMMISSIONING AND OPERATING



6.1. Points to consider before commissioning the axial fan:

- The electric engine and electric circuits must be connected and operated by a trained and experienced electrician.
- Electrical connections and panels must comply with EN 60204-1: 1995 standard.
- Check if the operating voltage written on the engine's label conforms to the mains voltage.
- Grounding of the body should be done in accordance with the procedure.
- The engine should be protected via a thermal relay calibrated according to the ampere of the engine.
- Before commissioning the ventilator, all protection measures should be reviewed.
- Before the ventilator starts up for the first time, it should be checked whether there are foreign substances in the ducts, and cleaned if necessary.
- It should be checked whether the fan is rotating in the right direction (arrow direction on the ventilator) by turning the engine switch on and off for a short time. If it does not turn in the right direction, the polar connections of the engine must be changed.
- Start the engine, and check the engine current with an ammeter after the fan starts up.

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WARNING:

• According to IEC Standards, the engine can be operated for a maximum of two minutes at 1.5 times the ampere rating of the engine. Adjust the engine thermal relay according to these ampere and time values. Generally, engine amps can be allowed to be up to 90% of the label value during operation.

• While operating axial ventilators, inlet and outlet channels must be open.



• Belts will elongate overtime after commissioning. Belt tension should be checked and increased within the second week and one month after commissioning and should be inspected every three months. Set the belt tension in accordance with section 06.02.03 tensioning the belts.

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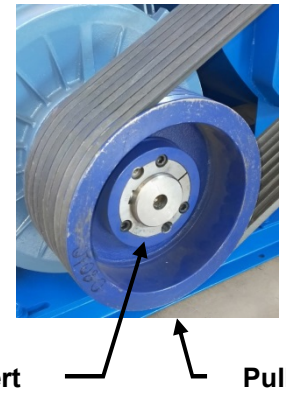
- ***Considering the operating conditions, the belts of the fan must be protected from dust, oil, and chemicals.***
- ***The bearings should be checked in terms of heat and sound during the first operating hours. If the bearings are already warm in the beginning; the fan is stopped, the bearings are cooled with air and the engine is restarted. If the bearings cannot be prevented from heating in this way, you should apply to our company for a solution.***
- ***In order to use the ventilator under different conditions (except the conditions stated in the purchase order), our company should be consulted.***

6.2. Installation, Remaval and Replacement Procedure During the Operation

After the ventilator was commissioned, follow the sections below for maintenance and assemblies that can be made by the enterprise in the drive group.

Installation and Removal of the Pulley

All ED-VAN Ventilator pulleys are equipped with a taper ring insert. The insert makes it very easy to dismantle the pulley. In this taper insert system, rotating parts are fixed on the shaft by the shrinkage method. Only hexagon socket allen bolts are used for assembly and disassembly. The insert has a cylindrical hole inside (machined according to the diameter of the shaft), and the outside is conical and grooved. There are threaded holes parallel to the axis on the face on the small diameter side of the insert. Some of these are tightening holes and some are dismantling holes. When you place the insert in its slot in the pulley, the ones that meet the holes in the insert are used for tightening and the others are used for dismantling. When the bolts are tightened by placing them into the tightening holes, the taper insert pulls itself into its place in the pulley and tightens the shaft with great force. When all the bolts are removed and tightened by being inserted in a few of the mounting holes, they are easily removed from the shaft. Never use a puller with this type of pulley, otherwise, the pulley will be damaged.



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Advantages of Tapered Ring Insert

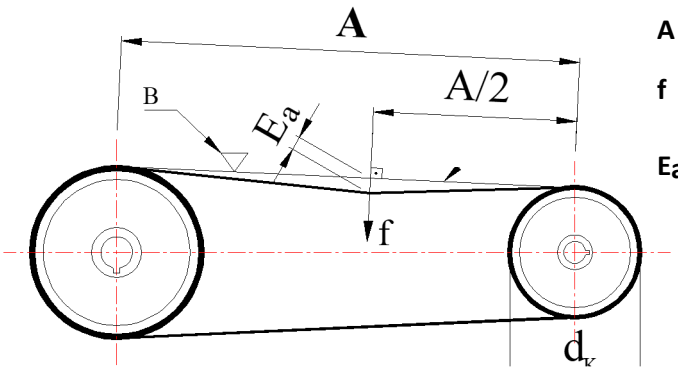
- It eliminates additional operations such as boring on the pulley hub and keyway opening.
- It does not require a shoulder for resting on the shaft. It is tightened in the desired position on the shaft.
- Since the assembly process is very easy with the clamping bush, it does not require qualified personnel for installation.
- Face thrust washer, distance bushing, bolt, etc. are not required.
- It provides convenience for maintenance and replacement during operation and dismantling, since it is easy to disassemble the parts. In addition, it eliminates all risks since it does not require any additional tools such as a puller, or hammer blows.

6.3.Tensioning the Belt

The elongation of the belts of the ventilator after 15 operating hours is 80% of the total elongation. When we change the belts for this reason or for any other reason, the belt adjustments are made as follows.

Belt Profile	Diameter of Pulley dK (mm)	Bending of the belts Ea (mm) Axial distance of straps A (mm)								
		500	630	800	1000	1250	1600	2000	2500	3150
SPZ (10)	>100 ≤ 125	14	17	22	28	34	44	55	-	-
	>140 ≤ 160	13	16	20	25	31	40	50	63	-
	>180 ≤ 200	11	14	18	22	28	36	45	56	71
SPA (13)	>180 ≤ 200	15	19	24	30	38	48	60	75	95
	>224 ≤ 250	13	16	20	25	31	40	50	63	79
SPB (17)	>224 ≤ 250	15	19	24	30	38	48	60	75	95
	>280 ≤ 355	15	19	24	30	38	48	60	75	95
SPC (22)	>315 ≤ 355	15	19	24	30	38	48	60	75	95
	400	14	17	22	28	34	44	55	69	87
	450	13	16	20	25	31	40	50	63	79
	500	11	14	18	22	28	36	45	56	71

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A = Distance between the centers of the pulleys (mm)

f = Pressure force

Ea = Pulley deviation

The desired Ea Belt bending amount is measured with a caliper by placing a steel ruler on the B surface.

7.MAINTENANCE AND LUBRICATION

7.1. Maintenance (periodic maintenance)

7.1.1 General Maintenance

The most expensive maintenance is less expensive than the cheapest repair. The better the maintenance of the ventilator, the more the ventilator works smoothly. The staff responsible for the operation and maintenance of the ventilator are obliged to follow the rules specified in these instructions and fulfill the maintenance requirements on daily, weekly, monthly, quarterly, and annual basis.

Daily Maintenance

- Check if there is vibration.
- Check if the bearings are protected from getting wet.
- Check the temperature of the engine. (Practically, when we touch it with the palm, our hand should be able to tolerate the heat.)

7.1.2. Weekly Maintenance

- Check if all mounting bolts (e.g. frame, bearing and engine fixing bolts) are tight.
- Check the tension of the belts.

7.1.3. Monthly Maintenance

- If any wear is observed on the belts, replace them with new ones. If this wear occurs within a short time, check if the pulleys are in the same direction.
- If a repair or modification is made on the fan for any reason, the dynamic balance of the fan must be adjusted before it is installed on the ventilator.

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7.1.4. Quarterly Maintenance

- Grease lubrication shall be performed according to the grease lubrication instructions given in section 7.2.1. If the amount of the grease in the bearing decreases, add the same brand and type of grease.
- Check whether the rotor is worn.

7.1.5. Annual Maintenance

- If the ventilator paint deteriorates, repaint it. In extreme cases, this period can be shortened.
- Greases applied inside the bearing can only protect it for a certain period of time. After that, they lose their lubricating properties. Once a year, greases should be renewed.
- The integrity of rotor blades and pulleys should be checked.

7.2. Lubrication and Lubrication Period

7.2.1. Greasing

- In case of oil loss; the grease nipple bolt at the top of the bearing is opened. Grease is transferred through the grease nipple hole.

WARNING:

- If the carriers get hot after the grease is added, that means the amount of grease is too much. Drain some grease.
- To compensate for the grease loss, the same brand and type of grease should be added.

When changing the oil, drain away the grease in the carriers. Then wash it off with pure gasoline or benzene. Diesel and kerosene should never be used. Do not dry with oakum or similar fibers and fluffy materials during the cleaning process. Always use clean and lint-free cloths. Apply grease to the ball of the bearings. In the meantime, fill one-third of the bearing carrier with grease. Please see the lubrication diagram given in section 7.2.3.

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Opening the grease nipple and bearing for cleaning

- **NORMAL CONDITIONS**

  ✓ SHELL – GADUS S2 V100C 3 (ALVALINA RT 3)

- **WORKING IN HOT ENVIRONMENT**

  ✓ SHELL – GADUS S2 V220 2 (ALVALINA EP LF 2)

  Or equivalent greases are recommended.

Chemical structure: Lubricating grease containing highly refined mineral oil and additives. Highly refined mineral oil contains <3% (by weight) of DMSO extract according to IP346.

Harmful ingredients

Chemical	CAS-No. EC-No. *Registry number*	T.R. SEA No 28848	Consentration (%)
Zinc Naphthenate	12001-85-3 ***234-409-2***	Skin corrosion.2; H315 Aquatic acute1; H400 ***Acuatic chronic1; H410***	0,25 - 2,4
Triazole derivative	91273-04-0 ***401-280-0***	Skin corrosion.1B; H314 Skin irritation.1A; H317 ***Aquatic chronic1; H410***	0,01 - 0,09

Please contact the company for detailed safety measures.

Original grease was applied by ED-VAN in carriers.

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7.2.2. Liquid Lubrication

Liquid lubricant is used in cases of high rotation speed or hot operating regime or in cases where the heat caused by external sources is desired to be removed from the bearing.

RECOMMENDED GREASE: SHELL - Super Plus 20W/50

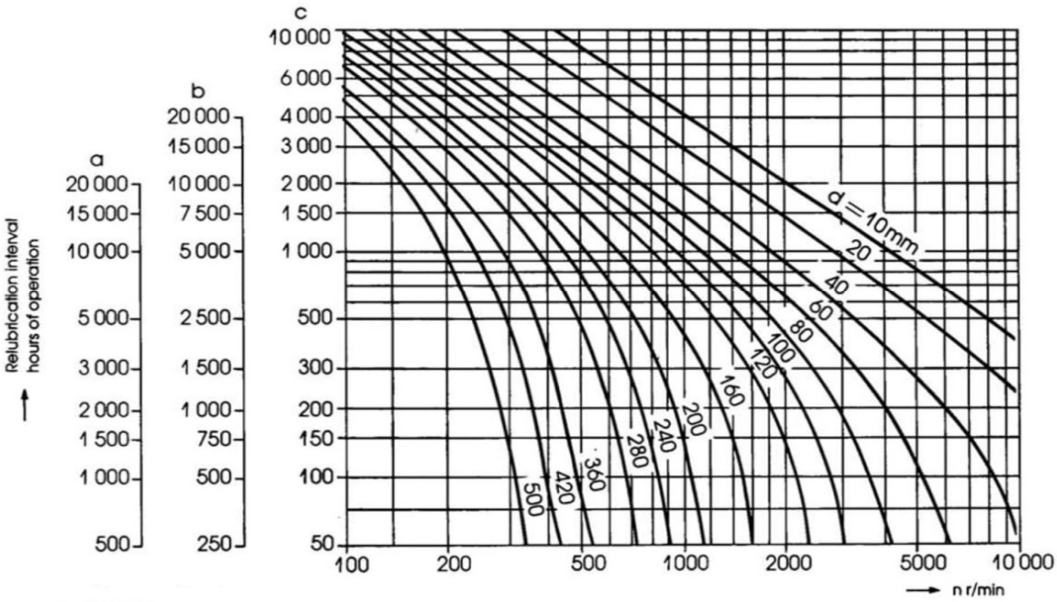
Specially manufactured bearings with a water-cooling jacket are used in special ventilators operating at gas temperatures above 400 C. Water pipe connections should be made to the water inlet and outlet ends of the system beds with the required pipe diameters. If necessary, the temperature should be controlled by connecting thermometers to the inlets and outlets of the system. The ventilator is specially designed for gas temperatures above 800 ºC, and the shaft and bearings must be water-cooled.

WARNING:

To compensate for the oil loss, the same brand and type of oil should be added.

7.2.3. Lubrication Period

You can determine the lubrication period via the lubrication diagram on the following page.



a: Radial Ball Bearing

b: Cylindrical Roller Bearing, Needle Roller Bearing (With Needle)

c: Spherical Roller Bearing, Tapered Roller Bearing, Thrust Ball Bearing

d: Bearing Inner Diameter

Example:
A deep groove ball bearing with a bore diameter (d) of 60 mm rotates at 1500 (rpm). Operating temperature ranges from 60 ° C to 70 ° C (140-160 ° F). What is the required lubrication period? In the diagram, the d = 60 mm curve is estimated by drawing a line upward from the point on the x-axis indicating 1500 rpm. By drawing a line starting from the point found, being parallel to the x-axis, an approximate value of 10,000 is read on the scale a (radial-ball). So, the relubrication period is determined as 10.000 operating hours.

9.OPERATIONAL TROUBLESHOOTING, CAUSES, AND SOLUTIONS ?

9.1.Operational Troubleshooting

The following issues should be carefully monitored while detecting malfunctions in the operation:

- Fan instability
- Heating up of the beds
- The bearings are not mounted correctly
- Lengthening and tearing of belts
- Loosening of grounding-plate, engine or bearing bolts

For the faults signed with and for their solutions, you should consult to ED-VAN!

FAILURE: 1

EXTREME VIBRATION IN THE VENTILATOR.

CAUSE OF FAILURE:	REPAIR OF FAILURE:
The base was mounted incorrectly.	Check the base and grounding-plate connections, and level them.
There are foreign substances in the bearings.	Check, and clean the foreign materials. If necessary, replace the bearing.
Bearing clamping sleeve is deformed.	Check the assembly, change the sleeve if necessary.
The rotor, engine, or pulley are out of balance.	Check the balance, equalize again.
Off-center shaft, imbalance in the fan, friction of the fan against the body.	Check the shaft and fan, fit them properly.

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Coupling, pulley or fan mounted on the shaft having an excessive gap.	Check the assembly.
The outer shell of the bearing moves in the carrier or the bearing is moving on the shaft.	Check the carriers, repair, replace the shaft or bearings if required.
Dust or foreign materials on the fan.	Replace with a suitable fan or clean the fan frequently.
There is an imbalance in the fan.	Equalize it in accordance with the permanent imbalance.
There is runout on the fan shaft.	Check the runout of the shaft. Replace with a new shaft if necessary.

FAILURE: 2

ABNORMAL NOISE IN THE VENTILATOR.

CAUSE OF FAILURE:	REPAIR OF FAILURE:
There is friction between the moving parts of the ventilator or the engine.	Stop the ventilator, check it, prevent the friction.
The outer shell of the bearing moves in the carrier or the bearing is moving on the shaft.	Check the bearings, replace shaft or bearings if necessary.
Fan rubbing on the body or suction funnel.	Stop the fan, check the installation, adjust.
Dust or foreign material on the fan.	Replace with a suitable fan or clean the fan frequently.

FAILURE: 3

ROTOR HEATS UP EASILY.

CAUSE OF FAILURE:	REPAIR OF FAILURE:
The operating temperature of the fan is increasing.	Replace with a fan of suitable material quality.
There are corrosive gases not specified in the purchase order.	Replace with a fan of suitable material quality.
The dust filter is clogged. (If there is a filter in its suction duct)	Clean the filter, replace if necessary.

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Ducts or filters are not sealed.	Check ducts and seals.
There is a problem with the ducts. (Broken, cracked ducts or opened valve)	Check ducts and valves.
The dust filter is clogged. (If there is a filter in its suction duct)	Clean the filter, replace if necessary.
Fan rotates in the opposite direction of the arrow on the ventilator.	Check it and change the direction of rotation of the engine.
Pressure loss or flow is set incorrectly.	Check it, change the ventilator.

FAILURE: 4

POWER ENGINE DOES NOT LIFT UP UNDER LOAD.

CAUSE OF FAILURE:	REPAIR OF FAILURE:
The poles or the switch are connected incorrectly.	Check, and fix it.
Switch not turned correctly, or disconnected.	Fix the connection, check the key. Repair or replace.
Mains voltage is low or one of the phases is missing.	Check mains voltage or phases.
The moving parts of the fan are mechanically locked.	Disconnect the engine, check the coupling or belt-pulleys.
Cold-start ventilator working with hot air.	Check the power of the ventilator on the operating curve. Close the valve.

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FAILURE: 5

ELECTRIC ENGINE STARTS UP WITH DIFFICULTY.

CAUSE OF FAILURE:	REPAIR OF FAILURE:
Engine power is low. (The fan needs greater power.)	Check the ventilator's operating curve and replace it with the correct engine.
Thermal switch adjusted incorrectly.	Set it up again.
If there are malfunctions in the duct installation (broken, cracked, etc.), the load increases.	Check the ducting.

FAILURE: 6

ELECTRIC ENGINE OVERHEATS WHILE OPERATING.

CAUSE OF FAILURE:	REPAIR OF FAILURE:
The poles or the switch are connected incorrectly.	Check and fix it.
The switch is not turned correctly or disconnected.	Fix the connection, check the key. Repair or replace.
The grid or engine phase is interrupted.	Check the continuity of the phase.
Cold-start ventilator working with hot air.	Check the power of the ventilator on the operating curve. Close the valve.
The airflow is not adjusted (the damper), and the flow rate is high. Therefore, it consumes too much power.	Adjust the valves with the design value.
There is friction between the moving parts of the ventilator or the engine.	Stop the fan. Check it and prevent friction.
The engine is not cooling, or the cooling fan is damaged.	Clean the engine and fan. Replace the engine if needed.
The engine starts up with too many amps.	Review engine operating instructions.

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FAILURE: 7

SPEED DECREASES WHILE LOAD INCREASES.

CAUSE OF FAILURE:	REPAIR OF FAILURE:
The poles or the switch are connected incorrectly.	Check and fix it.
The switch is not turned correctly or disconnected.	Fix the connection, check the key. Repair or replace.
Mains voltage is low.	Check the grid voltage.
There are cracks or fractures in the channels. The valve opens suddenly.	Check ducts and valves.

FAILURE: 8

ABNORMAL NOISES IN ELECTRIC ENGINE.

CAUSE OF FAILURE:	REPAIR OF FAILURE:
The electric engine switch is not turned correctly or disconnected.	Check the connection. Repair or replace links.
The grid or engine phase is interrupted.	Check the continuity of the phases.

FAILURE: 9

ABNORMAL HEATING IN ELECTRIC ENGINE MOUNTS.

CAUSE OF FAILURE:	REPAIR OF FAILURE:
The poles or the switch are connected incorrectly.	Check and fix it.
It uses too many amps on start-up.	Check the engine label. It will drop when the fan reaches its speed. If not, there is a problem with the characteristic value of the system.
The engine base is installed incorrectly.	Set the base again.
The engine bearings are overlubricated.	Drain the excess oil.

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There are foreign substances in the engine bearings.	Check the bearings, clean them, replace them if necessary.
A bearing that does not conform to the label values is installed.	Replace with the correct bearing.
Bearings are unlubricated.	Lubricate bearings, replace if necessary
Excessive axial forces in bearings.	Bring the bearings and shaft to the axis.
If it is a vee belt, the belts are overstretched.	Check the tension.

FAILURE: 10

ABNORMAL HEATING IN VENTILATOR MOUNTS.

CAUSE OF FAILURE:	REPAIR OF FAILURE:
Bearings mounted on the base incorrectly.	Check the bed conditions, bring it to the balance.
Bearings are overlubricated.	Drain the excess oil.
There are foreign substances in the bearings.	Clean bearings, replace them if necessary.
A bearing that does not conform to the label values is installed.	Replace with the correct bearing.
Bearing clamping sleeves are deformed.	Check the assembly, replace the sleeve if necessary.
Excessive axial forces in bearings.	Bring the bearings and shaft to the axis.
If it is a vee belt, the belts are overstretched.	Check the tension and fix it.
The bearing clamping sleeve is too tight.	Tighten it according to the value in the bearing catalog.
The outer shell of the bearing moves in the carrier or the bearing is moving on the shaft.	Check the bearings, repair them, replace the shaft or bearings if necessary.

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FAILURE: 11

ABNORMAL NOISES IN VENTILATOR MOUNTS.

CAUSE OF FAILURE:	REPAIR OF FAILURE:
A bearing that does not conform to the label values is installed.	Replace with the correct bearing.
Bearing clamping sleeve is deformed.	Check it, and change it if necessary.

FAILURE: 12

ABNORMAL HEATING IN PULLEYS.

CAUSE OF FAILURE:	REPAIR OF FAILURE:
Gauge adjustment of belts if they are made incorrectly.	Check it. Set the gauge.
Belts against the inside of the pulley groove	Replace pulleys or belts.
Installing a pulley that is not suitable for the pulley profile of the label value.	Check it. Change pulleys.
Improper pulley diameter fitting.	Change pulleys.
The straps are not tight enough.	Stretch the straps.
Missing strap.	Correct the number of straps and choose the appropriate length.
Slippery belts contaminated with oil.	Clean the oil and protect the belts against oil contamination.

FAILURE: 13

FAST WEARING IN PULLEYS.

CAUSE OF FAILURE:	REPAIR OF FAILURE:
There is excessive tension in the belts.	Check your tension and fix it.
Gauge adjustment of belts is incorrect.	Check it, set the gauge.
Installing a pulley that is not suitable for the pulley profile of the label value.	Check it, change the pulleys.
If improper pulley diameter is installed.	Change the pulley.
Insufficient number of straps and too long.	Correct the number of straps and choose the

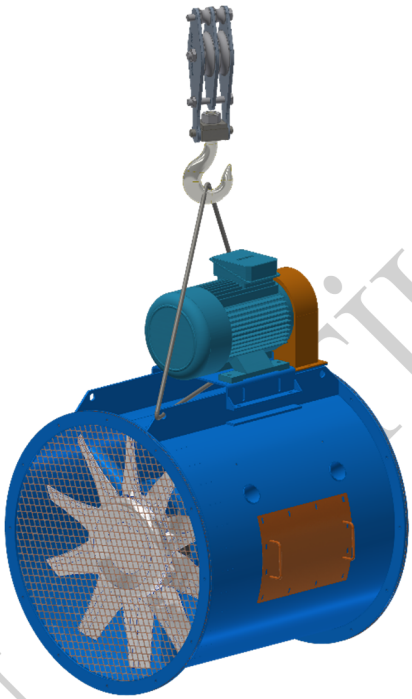
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	appropriate strap lengths.

9.TRANSPORTATION AND STORAGE

9.1.Transportation

In order to transfer the ventilator from one place to another, you should move it after attaching the carrying hooks to the carrying rings placed on the ventilator or to the holes in the strength plates on the body.



WARNING:

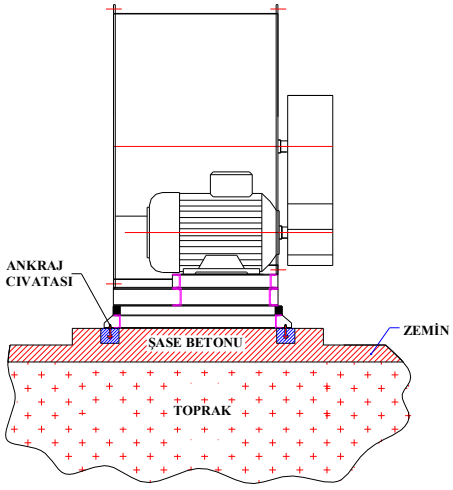
During transportation, the sensitive parts of the ventilator (shaft, rotor inlet, suction and outlet flanges, drive engine, etc.) must not be transported.

9.2.Storage

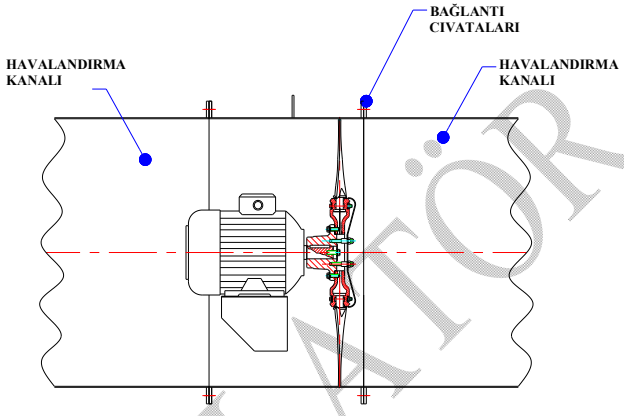
- Ventilators should be kept indoors and protected from moisture, chemical reactions, and rain.
- Shafts should be kept away from moisture and excessive heat in order to prevent corrosion.
- If the ventilator will not be operated for a long time; shaft, bearing etc. parts should be oiled.
- Our company cannot be held responsible for damages arising from the storage, and after the vehicle enters the customer's working area.

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9.3.Installing the Ventilators



Installing the ventilator on concrete



Connecting the ventilator to the duct

Installing the Ventilator on Concrete

ATTENTION: *When placing the fan grounding-plate on the concrete floor, it must be separated from the concrete floor.*

- The foundation concrete should be 5 to 10 cm thick, in accordance with the construction technique.
  A 3 to 5 cm thick cork layer should be placed on the foundation concrete.
- The grounding-plate concrete that 2 to 4 times heavier than the ventilator should be poured over the cork layer, depending on the size of the ventilator.
- The grounding-plate concrete on which the fan will sit should be 10 to 20 cm above the ground concrete. Leave holes by placing wooden wedges corresponding with the connection points. The foundation must be well-dried and hardened before the fan is installed.
- After the ventilator is placed on the foundation, it must be placed exactly with the help of a water level according to the axial direction of the shaft principle. After correctly positioning the ventilator, tighten the base connection (Anchor) bolts and check again with the water level.

Not: In cases where the preparation of the abovementioned foundation is not possible, the ventilator is fully placed on the flat ground that is poured or planned to be poured according to the principle of shaft axis direction, and fixed with a rolled-steel pin.

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Connecting the Ventilator to an Air Duct

Axial ventilators are mounted to ventilation ducts with bolts.

WARNING:

- In places where foundation and grounding concrete is not applied, a common base with rubber wedge should definitely be applied.
- When it is inconvenient to transmit vibrations to suction and outlet ducts, flexible tarpaulin rubber or DEC connector can be attached to suction and outlet ducts.
- Do not hit the rotating parts such as ventilator fan, shaft, bearing, or engine with a hammer or similar, hard objects during the assembly procedure.
- If the ventilator is to be installed in an open area, it should be protected from rain and external factors.
- If there is a possibility of water condensation inside the ventilator, a drainage hole should be opened at the bottom of the body, and the water should be discharged through a pipe to be connected to this hole.

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