KRUGER

General Instructions (Propeller Fan)

APL Series (SA)

INTRODUCTION

This manual is to assist the engineer to avoid the most common fan problems caused by improper storage, installation, operation and maintenance. **HANDLING AND MAINTENANCE SHOULD ALWAYS BE PERFORMED BY EXPERIENCED AND TRAINED PERSONNEL.**

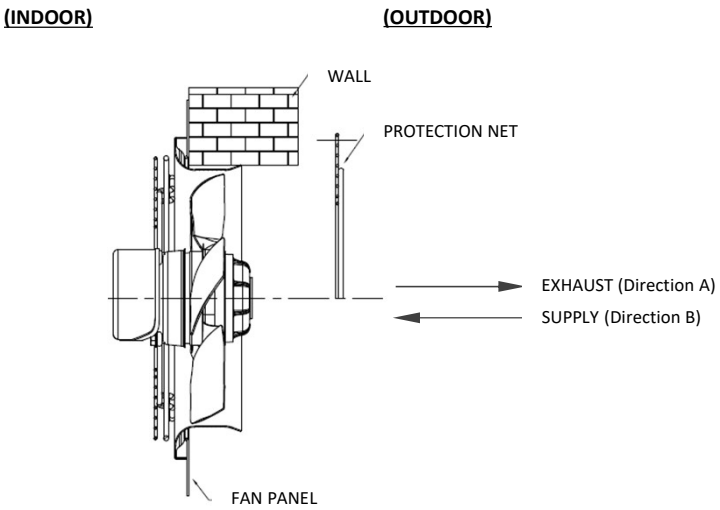
RECEIVING, HANDLING AND STORAGE

Rough handling during shipment and improper storage can cause damage that is not noticeable until the fan is in operation. This can be avoided with proper storage and handling techniques.

Fan should be hoisted with slings placed around the fan housing. Touch up the scratch coated surfaces during lifting, to prevent corrosion to occur at this area. Store the fan in a clean and dry place, preferably indoor to ensure fan shaft, bearing and fan casing are protected against dust and corrosion. Do not store the fan in a location where it will be subjected to vibration. This can cause the internal surface to rub against each other and damage the bearings.

INSTALLATION

- ❑ Ensure that suitable fastener is used for each of the mounting holes in the panel.
- ❑ Ensure that the fan panel and drive components are not bent or twisted during installation.
- ❑ Fan should be installed so that any obstructions will not be within 1 Diameter of the fan inlet and outlet.
- ❑ Ensure that the fan orientation is correct for the required air flow direction.

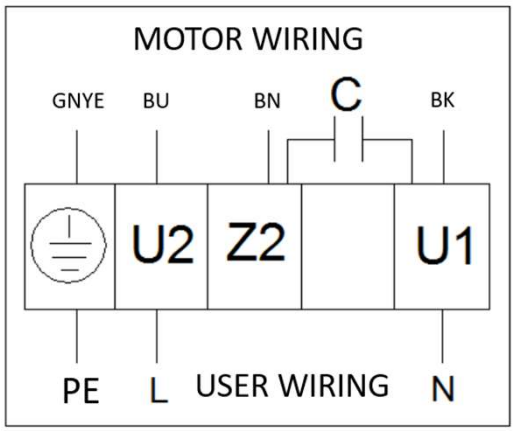


ELECTRICAL CONNECTION

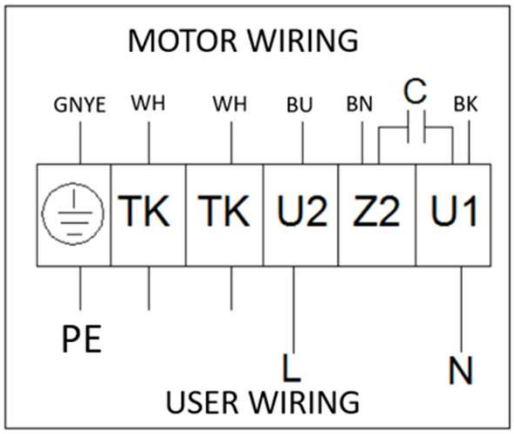
- ❑ Before carrying out any installation or wiring of the range ensure that the mains electrical supply is disconnected.
- ❑ Before making any electrical connections ensure that the voltage and frequency of the mains electrical supply matches that of the fan data plate label (maximum permissible deviation of voltage and frequency +/- 5%).
- ❑ All models must be wired in accordance with the enclosed instructions and the direction of rotation must be checked.
- ❑ The earth connection must be connected and checked for continuity before leaving the installation.
- ❑ In addition it is important to check that the wires within the terminal block/box are separated and the wires are correctly and firmly tightened within the terminal block and that the connection box lid is required.
- ❑ Fan wiring must be strictly in accordance with wiring diagram with a reliable grounding and no loosening phenomenon, otherwise it may cause motor burning and personal accidents.

⚠ Electrical connection must be done by a specialized electrician or a person with professional electrical knowledge and operation skills

WIRING DIAGRAM



For APL (SA) 315 to 560



For APL (SA) 630

START – UP CHECK LIST

Before putting any fan into initial operation, the manufacturer's instruction must be followed. Complete the following checklist to make sure that the fan is ready to run.

- ❑ Lock out the primary and all secondary power sources.
- ❑ Ensure that all fastener, particularly impeller fastener, are tight prior to start-up. Do not re-use locking fasteners.
- ❑ Regularly check impeller fastener for tightness.
- ❑ Spin impeller to see whether it rotates freely and is not grossly out of balance.
- ❑ Inspect impeller for correct rotation for the fan design.
- ❑ Properly secure all safety guards.
- ❑ Switch on the electrical supply and allow the fan to reach full speed.
- ❑ Check carefully for :- (1) Excessive vibration
  (2) Unusual noise
  (3) Proper amperage and voltage values

If any problem is indicated, **SWITCH OFF IMMEDIATELY**. Lock out the electrical supply, secure the fan impeller and check carefully for the cause of the trouble and correct as necessary.

- ❑ The fan may now be put into operation but during the first 8 hours of running, it should be periodically observed and checked for excessive vibration and noise. Checks should be make of motor input current and motor temperature to ensure that they do not exceed manufacturer's recommendation. After 8 hours of operation, the fan should be shut down to check all set screws and hold-down bolts.

ROUTINE MAINTENANCE

⚠ Maintenance should always be performed by experienced and trained personnel. Do not attempt any maintenance on a fan unless the electrical supply has been locked out or tagged out and the impeller has been secured.

Under normal circumstances, handling clean air, the fan should require cleaning only about a year. However, the fan should be checked at regular intervals to detect any unusual accumulation.

The fan impeller should be specially checked for build-up of material or dirt which may cause an Imbalance with resulting undue wear on bearings and belt drives. A regular maintenance program should be established as needed to prevent material build-up.

Periodic inspection of the rotating assembly must be made to detect any indication of weakening of the rotor because of corrosion, erosion, or metal fatigue.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES	SOLUTION
Fan operates unevenly	Impeller imbalance	Rebalancing by specialist or contact KRUGER
	Impurities on the impeller	Clean the impeller carefully
	Impeller deformation	Replace impeller or contact KRUGER
	Vibration	Ensure the fan is installed firmly
Motor is not in operation	Connection malfunction	Disconnect power supply and corrected following wiring diagram
	Supply voltage issues	Ensure supply voltage within recommended range
	Thermal protection has been activated	Allow the motor cool down and determine the cause of an overload or excessively high ambient temperature.
Insufficient air output	Inlet or outlet is blocked	Remove blockage.
	Flow regulator is partially opened	Check opening position
Abnormal noise	Impeller interference	Check whether the impeller is deformed