

**KRÜGER**

***General Instructions***  
***(Propeller Fan)***  
**APW II Series**



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.

## **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 if there is a potential for wind milling. (impeller turning due to a draft through the system).

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 hrs of running, it should be periodically observed and checked for excessive vibration and noise. Checks should be made of motor input current and motor & bearing temperature to ensure that they do not exceed manufacturer's recommendation. After 8 hrs of operation, the fan should be shut down to check the following items :-

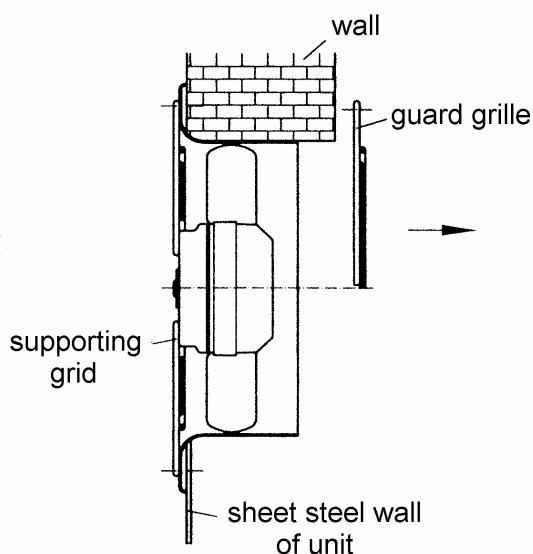
- (1) All set screws and hold-down bolts
- (2) Bearing housing temperature

## INSTALLATION

- Inlet and outlet ductwork should be free from obstructions.
- Avoid sharp bends on inlet or outlets.
- Do not use ductwork smaller in area than the fan.
- Flexible duct connections should be taut
- Ductwork connections should be well aligned.
- Inlet cones must be fitted to free inlet applications.
- Ensure that the fan orientation is correct for the required air flow direction.

### **IMPORTANT:** External rotor motors only

All singled-speed three-phase fans must be wired in star only. If wired in delta they will burn out and motor warranty is avoid. Refer to wiring diagram for details.



## 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 system should require cleaning only about a year. However, the fan and system 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.

## KRUGER GROUP (VENTILATION)

**SINGAPORE*****Kruger Ventilation Industries Pte Ltd***

No. 17 Tuas Avenue 10  
Singapore 639141  
Tel. +65 68611577 - Fax +65 68613577

**SINGAPORE*****Kruger Engineering Pte Ltd***

No. 17 Tuas Avenue 10  
Singapore 639141  
Tel. +65 68631191 - Fax +65 68631151

**MALAYSIA*****Kruvent Industries (M) Sdn Bhd***

Lot 8, Jalan Perusahaan 2 Batu Caves  
Industrial Area, 68100 Batu Caves Selangor  
Tel. +603 61888293 - Fax +603 61898843

**THAILAND*****Kruger Ventilation (Thailand) Co. Ltd***

1/19 Moo 2 Rama II Rd, Tasai Mueng  
Samuthsakorn 74000, Thailand  
Tel. +66 34-490164-9 - Fax +66 34-490170

**BEIJING*****Beijing Kruger M&E Equipment Co. Ltd***

No. 1A Fuyuan South Road, Beijing  
Economical and Technological Development  
Area, Beijing China 100176  
Tel. +8610-67881366 - Fax +8610-67880566

**GUANGZHOU*****Guangzhou Kruger M&E Ind. Ltd***

No 1270 Maogang Road, Huangpu  
Guangzhou, P.R. China 510700  
Tel. +8620-82287634 - Fax +8620-82287624

**HONG KONG*****Kruger Ventilation (Hong Kong) Limited***

Flat B, 9/F, Yeung Yiu Chung (No. 8) Industrial  
Building, 20 Wang Hoi Road, Kowloon, Hong Kong  
Tel. +852 22469182 - Fax +852 22469187

**SHANGHAI*****Shanghai Kruger M&E Industries Ltd***

No.500 Yuanguo Road, Anting, Jiading, Shanghai  
201814 P.R. China  
Tel. +86 21-69573266 - Fax +86 21-69573296

**WUHAN*****Wuhan Kruger M&E Industries Ltd***

108 Fangjicun, Yangyuan Street  
Wuhan, P.R China 430063  
Tel. +8627-86718165 - Fax +8627-86825719

**TAIPEI*****Kruger Ventilation (Twn) Co. Ltd***

No. 157, Ping-an Rd, Hengfeng Village,  
Dayuan Shiang Taoyuan County 337, Taiwan (ROC)  
Tel. +886 3-3859119 - Fax +886 3-3859118

**PHILIPPINES*****Kruger Ventilation Industries Phils. Inc***

FAPI Compound, E. Rodriguez Ave.  
Tunasan, Muntinlupa City, Philippines 1773  
Tel. +63-2 862-2891 - Fax +63-2 862-1287

**AUSTRALIA*****Kruger Ventilation (Australia) Pty Ltd***

4 Blackfriar Place, Wetherill Park  
NSW 2164, Australia  
Tel. +61-2-97562008 - Fax +61-2-97560808

**INDONESIA*****P.T KrugerIndo Adhiteknik***

Ruko Mahkota Mas Blok C No. 20  
Jl. M.H. Thamrin - Cikokol Tangerang 15117  
Tel. +6221-5543107/8 - Fax +6221-5543016

**INDIA*****Kruger M&E Ind. (India) Pvt Ltd***

Pardhy House 1<sup>st</sup> Floor  
Junction of Hanuman Road & MG Road  
Vile Parle (East) Mumbai 57  
Tel. +9122-56926095/6/7 - Fax +9122-56926098

**KOREA*****Neomate Technology&Consulting Co. Ltd***

No. A-407-1, Ansung B/D, 410-13  
Shindorimdong, Kuro-Gu, Seoul, Korea  
Tel. +82 2-2679-2052/3 - Fax +82 2-2679-2052/3