

# 3 LOBES ROOTS BLOWER

RH, RL, RW

## Operation Instruction & Service Manual

Many thanks for purchasing **ALVEST** three lobes roots blowers, please read below instructions before installation.

### LOCATION

1. The blower shall be installed in a building where is lighted and fresh air for smooth operation and maintenance.
2. In case of outdoor installation - take care of the following :
  - 2.1. The motor shall be covered with the sunshade to prevent temperature rise of motor surface and weather protection
  - 2.2. The air filter of suction silencer shall be covered with rain cover so as to prevent that the rain water is entering to blower during the operation (the rain cover is not necessary in pneumatic transportation. )
3. In case of indoor installation, total air intake volume of the blower shall be flow in the room from outside
4. For the maintenance and periodical inspection - sufficient space and hoist shall be provided around the blower
5. Adequate ventilation must be provided for the air required for suction of blower and to limit temperature rise to 10°C above the ambient temperature when the roots blower is on the full load operation.

## INSTALLATION

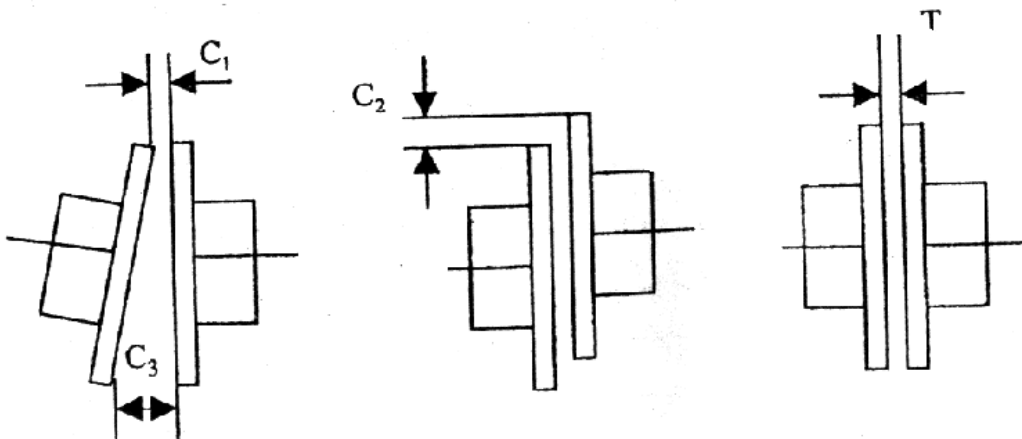
1. Concrete foundation shall be sufficiently stable to withstand the vibrations and solid enough to give firm support of assembled unit on a base plate.

Note: concrete composition —

cement : sand : gravel= 1 : 2 : 4

2. The blower shall be installed in a horizontal plane (1/100 slope) which is a little bit higher than floor level. In order to correct the alignment - place small rectangular thickness of metal or wedges under the base near the foundation bolts.
3. It is very important not to allow any foreign bodies to enter inside the blower through the pipes. The pipes shall be carefully cleaned before assembling and cleared from any foreign bodies, particularly from welding.
4. For the vibration isolating from the roots blower to the pipes. expansion joints shall be installed at suction side and discharge side of the roots blower.
5. Use the suitable supports or hangers for the piping to avoid effecting any piping load to the blower nozzle.
6. When the operating discharge air-pressure is more than 8,000 mmAq or discharge air-temperature is too high, it is advisable that the cooling system shall be provided to the roots blower (for instance : choosing RW type—water-cooling design) for the bearing protection.
7. When use RW type (water-cooling design) to prevent any danger of cracking caused by frost the cooling piping shall be provided with emptying valve on the flow in side.
8. If operating fluid is dangerous, vent pipes shall be provided to the safety valve and piped to outside (pressure operation) or suction side of roots blower (vacuum operation).
9. Repeat alignment test after the foundation bolts have been tightened and pipes have been connected.
  - 9.1. The V-belt drive was properly aligned with a rule placed on the faces of the pulleys at the factory but shall be checked again.
  - 9.2. Also, belts tension shall be checked - the deflection of 10 mm for 1m distance between the centers by hand pressure - too high belt tension may cause damages to the roots blowers.
  - 9.3. Centering of coupling
    - a. When flange outside diameter fits in every directions and no gap, set the other shaft center of driving and the driven shaft precisely.
    - b. To maintain rubber bush life for a long period - make C1,C2 ,C3, within 0.02 mm as the following figures.
    - c. " T " is equivalent to the thickness of washer.

$C_1, C_2, C_3 \leq 0,02 \text{ mm}$



## TROUBLE – SHOOTING

Description of troubles		Causes
The rotors can not rotate		Rotor contacts each other.
		Foreign objects come into the blower casing.
		The belts tension is not enough.
The rotors still rotate	Abnormal vibration & noise	Grease is not enough
		Grease is not good
		Foreign objects come into the blower casing,
		Discharge pressure is increase.
		Safety valve doesn't work
		Belt pulley is not in right position
		V -belt tension is too tight
		Foundation isn't good
		Pipeline is twisted
		Gear oil is not enough
		Gear oil is not good
	Abnormal temperature increasing.	Discharge inlet is blocked
		Discharge pressure is increase.
		Ambient temperature increased
	Oil dropping	Oil is too much.
		Grease oil is too much.
		Grease Plug is too tight
		Grease Plug is too tight
	Insufficient air volume	Lubrication plug is too tight
		Discharge inlet is blocked
		The belts tension is not enough

## MAINTENANCE AND INSPECTION

Items of inspection	Before operation	Daily	Three monts	One year	Two year	Remark
Clean foreign objects in the piping	●					
Check every connection part	●		●			Blower, Piping
Valve operation	●	●				
Check valve	●					
Safety valve	●	●	●			
Gear oil volume	●	●				the half of oil gauge
Replacemení of gear oil			●			
Re-fill grease			●			
Current &Voltage	●	●				
Voice	●	●				
The tensionof V-belt	●		●			
Replacement of V-belt				●		
Insade silencer clean	●			●		
Replacement of oil seal					●	

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