



# NATIONAL

Industrial Cooling System

## OIL CHILLING UNIT



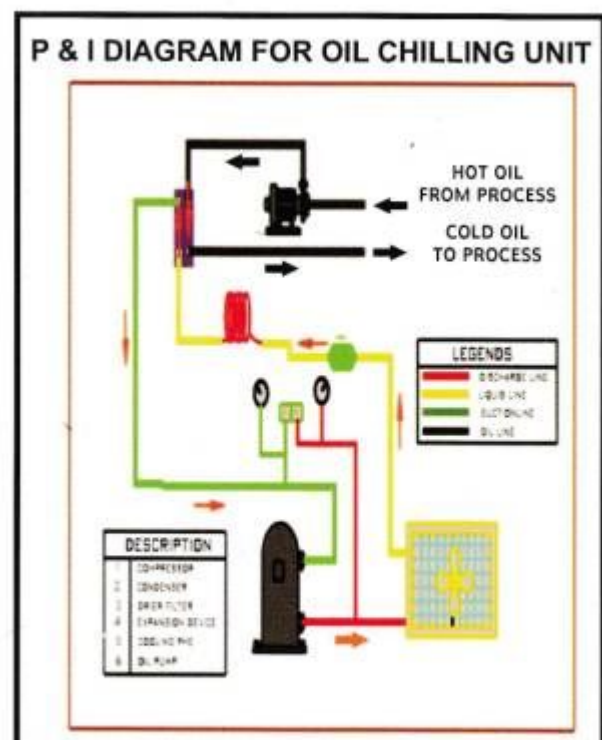
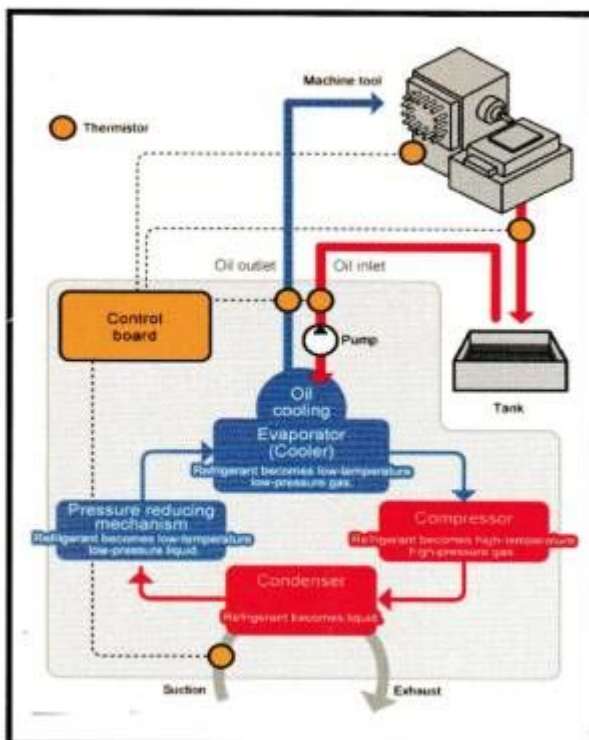
[www.nationalcoolingsystem.com](http://www.nationalcoolingsystem.com)

## DESCRIPTION:

Due to continuous production activities of CNC machine tools, high speed hydraulic process, hydraulic powered SPM's, oil temperature can not be maintain at a certain temperature range hence it affects badly on performance of machines & machine gets breakdown . For trouble free operation, it is essential to maintain the temperature of Oil at desired level. It has been found by experience that a working temperature between 35°C to 45°C would suffice the machine tool requirements.

The **NATIONAL COOLING SYSTEM** designed Oil Chilling unit is a machine that removes heat from the Hydraulic Oil via Vapor Compression Refrigeration System. It consist of four major parts- an evaporator, a condenser, a compressor and metering device. The main function of a Oil Chilling unit is to remove heat from the Oil and this it does by sucking up the heat by making use of refrigerant. This refrigerant is a chemical having heat absorbent properties. The heat is then carried by the refrigerant to the condenser from where it is released into the atmosphere in the form of vapor, air or water cooled heat exchanger. After the refrigerant has carried the heat to the condenser it passed to the metering device where expansion of refrigerant takes place in finely automized form, this chilled refrigerant then passed into the Cooling Coil where it absorb the latent heat of evaporation & returns back in compressor.

## PRINCIPAL OPERATION OF OIL COOLING UNIT AND OUTLINE OF THE GENERAL SYSTEM





## APPLICATION

- |            |              |                  |                   |            |
|------------|--------------|------------------|-------------------|------------|
| ▶ Turning  | ▶ Broaching  | ▶ Grinding       | ▶ Reaming         | ▶ EDM      |
| ▶ Milling  | ▶ Cutting    | ▶ Thread cutting | ▶ Polishing       | ▶ Press    |
| ▶ Shaping  | ▶ Honing     | ▶ Planing        | ▶ Super Finishing | ▶ Drilling |
| ▶ Slotting | ▶ Jig Boring | ▶ Cutting        | ▶ Molding machine | ▶ Bending  |

## FEATURES

- Heavy Duty MS fabricated Square Tube Body with removable Side Covers of CR sheet 1.6 mm thickness along with Powder Coating Paint.
- Hermatically Sealed Compressor of make – Emerson Climate Technology or Danfoss Copper
- Alluminium Fins Air Cooled Condenser , Bullet Expansion Type
- Kanbo German make external rotor axial fan made of 'H' class insulation, with ZZ ball bearings
- Thermostatic Expansion Valve make Danfoss / Emerson / Capillary
- PHE from Swep (Sweden), Kaori ( Taiwan ) & Alfa laval
- Gear Pump of make- Dowty or Boss
- Siemens or BCH make Electric Motor
- Schiendler or Siemens make Electrical Switch Gear for protection of Compressor, Fan and Pump
- Highly precise and calibrated Digital programmable Temperature controller
- Superlon insullation for chilled water tank
- Danfoss make High / Low pressure switch
- Washable metallic wire mesh Air Filter of 28 mesh.
- Hand valve for Gas charging.
- Compact but easy to maintain and service
- Potential free alarm for high and low temperature
- Water-cooled condenser for high ambient environment.



## TECHNICAL SPECIFICATION

Model	Compressor	Power Supply	Cooling Capacity (Kcal/Hr)	Refrigerant	Dimension (L X W X H) in mm	Oil Flow Rate (LPM)	Inlet & Outlet Connection
NOCU 0.3	Recip	1 Phase, 230 Volts, 50 Hz	900	R-134 a	500 X 450 X 600	8	½"
NOCU 0.75	Recip	1 Phase, 230 Volts, 50 Hz	2250	R-22/R-407	580 X 550 X 650	15	¾"
NOCU 1.0	Recip	1 Phase, 230 Volts, 50 Hz	3000	R-22/R-407	580 X 550 X 650	15	1"
NOCU 1.0	Recip	3 Phase, 415 Volts, 50 Hz	3000	R-22/R-407	580 X 550 X 850	20	1"
NOCU 1.5	Recip	3 Phase, 415 Volts, 50 Hz	4500	R-22/R-407	650 X 650 X 1100	32	1"
NOCU 2.0	Recip	3 Phase, 415 Volts, 50 Hz	6000	R-22/R-407	650 X 650 X 1100	40	1"
NOCU 3.0	Recip	3 Phase, 415 Volts, 50 Hz	9000	R-22/R-407	800 X 800 X 1300	52	1"
NOCU 5.0	Recip	3 Phase, 415 Volts, 50 Hz	15000	R-22/R-407	900 X 950 X 1300	70	1"
NOCU 7.5	Scroll	3 Phase, 415 Volts, 50 Hz	22500	R-22/R-407	1200 X 1200 X 1400	70	1"
NOCU 10.0	Scroll	3 Phase, 415 Volts, 50 Hz	30000	R-22/R-407	1400 X 1400 X 1600	100	1 ½"

- Note:**
- 1) All technical details are subjected to ambient Temp 35 °C & Oil Temp 30°C to 35°C for Oil ISO VG--32 to VG-68.
  - 2) The above range can work from 10 CST to 68 CST Oils.
  - 3) The Oil Cooling unit should be placed within 2 mtr from the oil tank.
  - 4) Higher Capacity Oil Chillers are also available as per client's requirement.

### IN ASSOCIATION WITH



## NATIONAL COOLING SYSTEM

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