



# KENCO MIST COOLING SYSTEM

'Green Lubrication – Green Manufacturing'

MIST COOLING  
SYSTEM



“Minimum Quantity  
Lubrication Technique  
(MQL)”



M/s. Krishna Engineering Company

## KENCO MIST COOLING SYSTEM

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### Introduction

Kenco's Mist cooling System is based on Minimum Quantity Lubrication (MQL) Technology which not only leaves your workshop cleaner, but helps your tools cut cooler, last longer, and produce more good parts. By precisely metering and dispensing the lubricant oil at the cutting tool/work piece interface, you greatly reduce friction at the cut and ultimately save money.

This is a Minimum Quantity Lubrication Technique (MQL) that replaces the other coolant systems commonly used in machining. Our System provides a minute (required) amount of high-quality lubricant/Coolant which is precisely applied to the interface of the cutting tool and work piece. The lubricant minimizes friction and greatly reduces the heat generated by machining. The results are improved surface finish and tool life, increased production rates, and the elimination of the costly mess and disposal associate with flood coolant.

### Principle of working

In KENCO's Mist Cooling System the Lubricant / Coolant is atomized to 4 to 6 micron particle sizes, they form a mist and are coalesced at the point of application to lubricate/cool the two surfaces under friction.

The Spraying Action occurs in the Jet spray Nozzle block where the lubricant/coolant is atomized and until then it's kept separate in order to provide maximum cooling efficiency.

Further as the Coolant expands it gets more capacity to absorb heat from the source (tool-job interface) and whereas here along coolant/Lubricant even air is applied this helps out to blow chips during cutting operations which further avoid heat generation. This Lubricant /Coolant can be controlled through the controlling knob which is placed in the nozzle block and then starts spraying the liquid.



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### The Equipment

The Equipment consists of: 1) 5, 10, and 20 Liter Lubricant/Coolant Reservoir Non-Pressurized Type. 2) External jet Spray Nozzle (No of Nozzles based on model). 3) Filter Regulator Combination unit with pressure gauge. 4) Suction and Multi-Way Distribution Block. 5) Two Meter Long Standard Nylon Pipe with Metal Spring Guard. 6) Nozzle blocks assembly with liquid control knob. 7) Visual Lubricant/Coolant level indicator. 8) Lubricant/ Coolant filter cap. 9) Drain plug for draining the Lubricant/coolant from the tank. 10) Optional Solenoid valve and Float sensor attachment.

### Detailed Specifications

Parameters	Technical Specifications	
Model	KNPMB – 200, 400, 600, 800	Standard
Spray type	External Jet Mist Spray.	
Reservoir Capacity	5liter, 10 liter, 20liter.	Standard
Tank Type	Non-Pressurized	
Operating Source	Compressed Air Supply	
Working Air Pressure	1.5 kg/cm <sup>2</sup> to 3kg/cm <sup>2</sup>	
Maximum Inlet Pressure	10.5kg/cm <sup>2</sup> (150 PSIG)	
Air consumption at Max 3kg/cm <sup>2</sup>	1.2 CFM (ideal condition)	
Type of Lubricant	Water based soluble Coolant / Mist oil.	
Lubricant /Coolant Consumption	150 ml/hr to 1.5 liter/hr (depending on the Viscosity)	
Lubricant Controlling	Control screw on Nozzle Block	
Air Controlling	Air control Knob on Filter unit.	
Lubricant /Coolant Drain	Manual (plug)	
Solenoid Valve	230VAC or 24 VDC	Optional
Float Sensor	24VDC	Optional
Mounting Facility	Mounting Bracket / Frame	
Panel mounting	Possible	Standard.

Consult our technical service for precise use and for more details



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### External Mist Spray Jet Nozzle



The KENCO's Mist Cooling Spray Nozzles atomizes fine micron particles of coolant/lubricant that improves cooling effect. A wide range of controls are possible in the Nozzle Block, hence the fluid composition is not of critical importance and most of the viscosity Lubricants can be sprayed.

The Mist Nozzle moves the coolant/lubricant to the Nozzle tip under pressure where an internal mix occurs and a jet of mist is externally sprayed on the point of application.

The KENCO's Mist Spray Jet Nozzles provide effective mix of air and coolant with effective coolant/Lubricant control.



### Advantages

**KENCO's Mist Cooling System Provides Economic, Clean and Safe solution for Machining Operation and Machine Shop.**

- **Mist Spray provides more cooling efficiency, Low surface tension micro-droplets penetrate the tool boundary layer and wet a tool rotating at a surface high speed.**



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- Mist improves the tool life performance compared to dry cutting and flood cooling. The Improvement in tool life can be up to 1500% compared to dry cutting at low speeds.
- Oil based mist droplets has much lower surface tension and hence lower values of contact angle, this improves wetting of work piece.
- Mist forms a protective film thus improving Lubrication and reducing friction.
- There is a proper orientation of mist flow with respect to work piece orientation that will provide effective cutting.
- Eliminate flood coolant mess, treatment, & disposal.
- It Produce dry chips which has higher recycling value.
- Extends tool life, Improves Surface finish, provides visibility in machining operations, prevents galling and sizing of Taps and increases production.
- The system is easy to mount/Install, safe and simple to operate with Zero maintenance.
- It saves coolant, it saves power, it saves tool intern it saves Money.
- Environmentally friendly and safe, no disposal associate with this system promoting green manufacturing with increased production rates.

### Applications

KENCO'S Mist Cooling System Can Be Applied For,

- Turning Centre
- Milling Centre
- Boring
- Sawing
- Drilling
- Tapping
- Many Other Metal Cutting and Working Operations.
- Can Be Used On All Types Of Metals And Some Plastics.



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### Cost Saving Benefits

We provide innovative solutions to our customers that save money in their manufacturing processes by reducing the amount of fluids consumed. The consistent application of minimum quantities of fluids improves process efficiency and is friendly to the environment by reducing waste.

We believe Your Application's inspire our Innovation, hence let us work together for a Green Environment towards Green manufacturing by improving the process by elimination of the costly mess and disposal associate with flood coolant and Other coolant Systems.



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Your Applications Inspire  
Our Innovation



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