



## High performance Near-dry machining solutions with MKD-DUAL

discover how **you** can use our cutting-edge **minimal lubrication products** and advanced technology to implement **near-dry machining solutions** that provide you with unprecedented **productivity gains**



Eco friendly machining

## MINIMAL QUANTITY LUBRICATION(MQL) & NEAR DRY MACHINING

The aim of near dry machining is to replace traditional coolant and pure oil flood systems in a machining environment with an accurately controlled compressed air stream that carries minimal quantities of oil lubrication in an "aerosol" format to the cutting surface. This ensures lubrication of the cutting surface and allows for high performance machining.

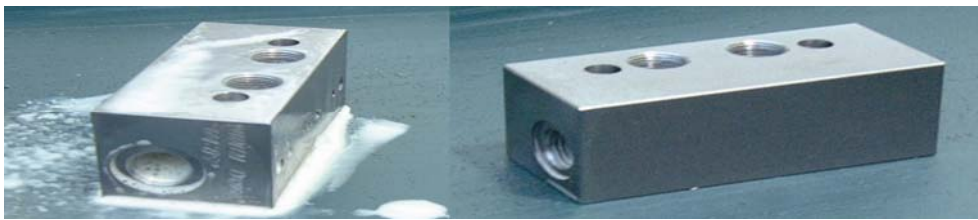


Lubricating Aerosol is transported to the cutting surface in two ways:

With **External** Lubrication: oil is transported via a nozzle to the cutting surface.

Dropsa has a complete product line from simple, easy to install products such as the **Grip** and **Vip4Tools** series for External lubrication (please ask for documentation).

With **Internal** or "**through-the-tool**" lubrication: oil is transported through internal lubrication holes in the cutting tools. The **MKD-Dual** product leads the way with patented technology that generates specifically profiled micron-sized oil aerosol particles that can be injected through existing spindles and tool-holders to the leading edge of the cutting tool.



Wet

Dry

### THE BENEFIT OF DROPSA NEAR-DRY MACHINING TECHNOLOGY

- **Reduce work cycle times**, generally by **25% to 80%**.
- **Increase tool life** thus increasing time between tool change and gain productivity.
- Better **surface finish** and **tolerances** can be achieved.
- **Eliminate coolant** – make your plant more environmentally friendly.
- Parts finish machining with a fine **rust inhibiting oil coating** – not coolant contamination.
- **Water** and **oil** consumption drastically **reduced**.
- Our technology works on diverse **materials** and **machining operations**.
- Eliminate capital cost of high pressure thru-tool coolant system on new systems.
- Side-by-side Implementation parallel to existing coolant system gives you peace of mind and maximum flexibility.
- MKD DUAL Uses Patented Auto-adaptive technology eliminating complex and continual adjustment between tool change.
- No complicated electronic control systems needed thanks to the patented Auto-adaptive system

Coolant is eliminated



Cycle times are reduced



Tool life is increased



ADVICE ON TOOLING  
AND APPLICATIONS AVAILABLE



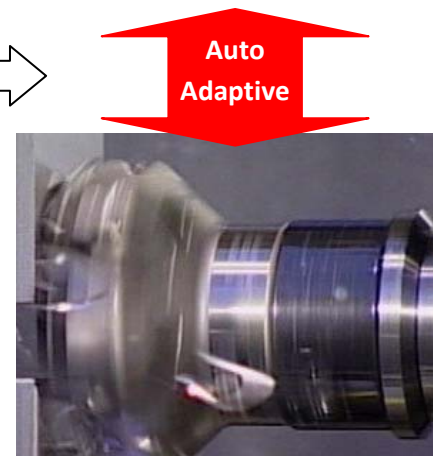
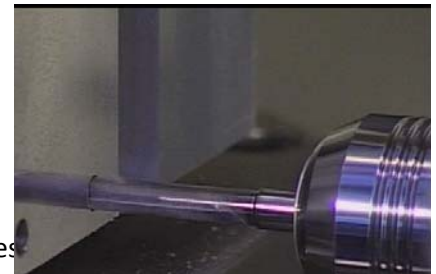
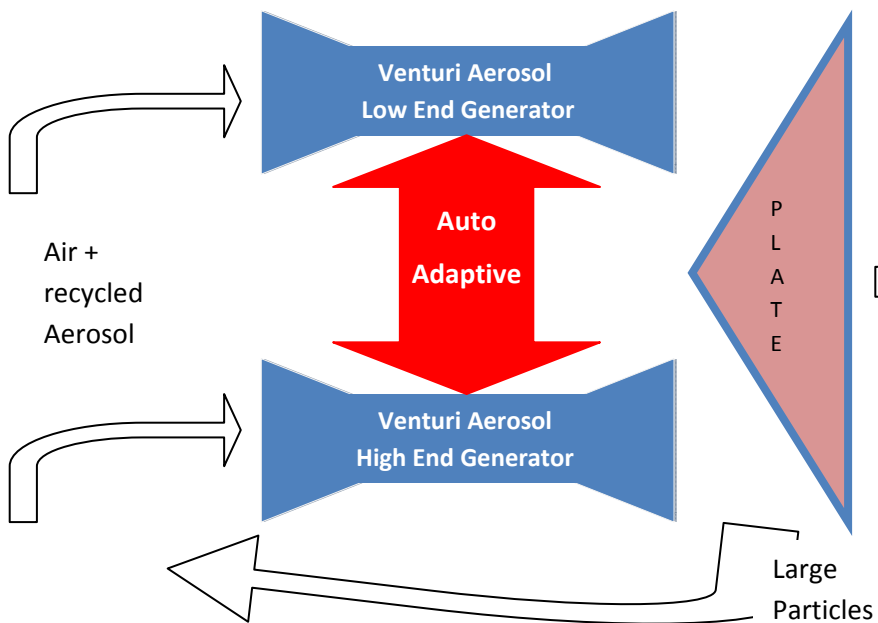
**The revolutionary system for internal and external high-end Near Dry Machining applications.**

MKD-Dual is the ready-to-go solution for the most demanding and high performance near-dry machining applications requiring internal, thru-the-tool minimal quantity lubrication.

Thanks to state of the art aerosol generation technology and its auto-adaptive system, MKD-Dual is suited both to new machine installations saving substantial capital costs on coolant equipment and retrofit installations where existing spindle and coolant piping can be used to channel aerosol lubrication to the tool tip.

**Particle profiling**

Ultra-fine aerosol particles are the key to good through the tool minimal lubrication. In fact, sub micron particles are key to successful high end application – where the aerosol is delivered through a rotating tool and spindle arrangement. MKD-Dual uses a sub micron aerosol particle profiling plate positioned at the Venturi-generator outlet to create micro-particles and filter out large particles back to tank.



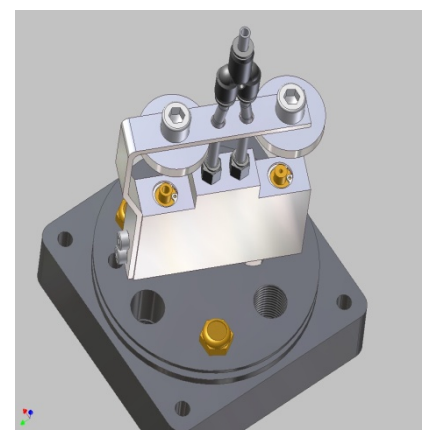
**Auto-adaptive**

The auto-adaptive system is a feature not found elsewhere that means no adjustment between tool changes.

**How it works** - Aerosol generators base on the Venturi principle have non linear aerosol generation. Importantly, at low linear velocity air flow through the Venturi the aerosol quality starts to degrade.

The problem is solved system by implementing a piloted arrangement that automatically optimizes the internal choice of aerosol generator according to the air flow required by the cutting tool used. This means a good aerosol quality whatever cutting tool is working at any given time.

Not only does this give better aerosol generation, but you don't need complex regulations between tool changes (common in other systems)



## APPLICATIONS AND IMPLEMENTATION

With numerous applications in the field, we invite you to come and see one for yourself.

Each dry machining implementation is followed by one of our near-dry machining consultants that provide step-by-step support throughout the process, including:

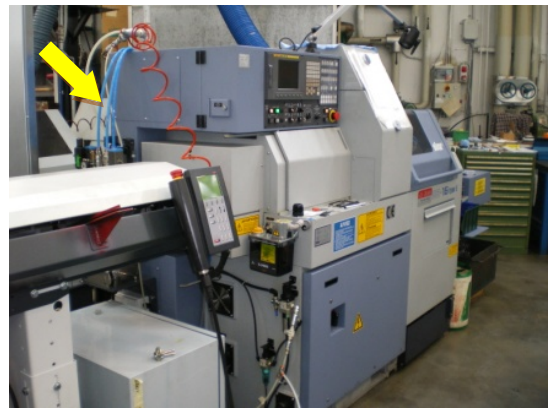
- ✓ Evaluating your current production machinery, process and coolant system.
- ✓ Understanding the best product for your application.
- ✓ Looking at chip removal solutions, if necessary.
- ✓ Machine conversion or new machine configuration.
- ✓ Help in interfacing machine and program controls.
- ✓ Tooling inspection and tool geometry advice for dry machining
- ✓ here cutting speeds can be increased.

### Examples:

Fixed head lathe



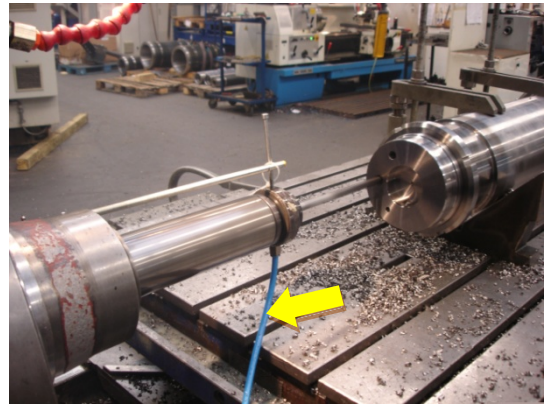
Swiss-type lathe



Horizontal Machining Center



Gun drill for spindle



Contact us today to learn more about implementing high performance near-dry machining in your plant and gain the competitive edge.



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