# Continuous and perfect air/oil lubrication Guarantee ted with MiQueL

Discover how **you can** increase your **productivity** by installing **near dry machining** lubrication solutions an alternative to the traditional cooling water emulsion systems

MiQueL

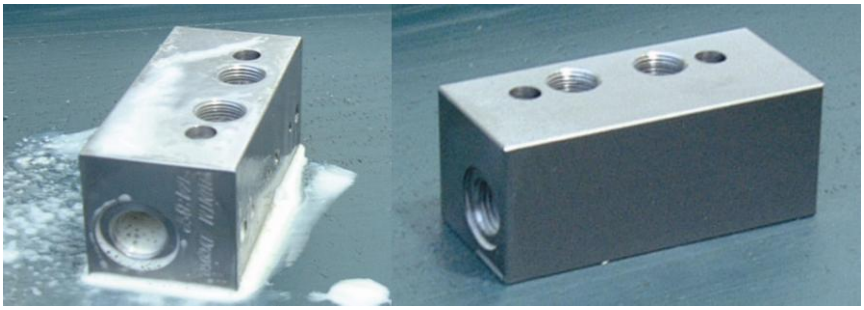

Eco friendly machining

## MINIMAL LUBRIFICATION

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 guarantees minimal quantities of oil lubrication in an air/oil format to the cutting surface. This ensures better lubrication of the cutting surface and guarantees high performance machining.

Air-oil mixture arrives to the surface to be lubricated with a nozzle.

MiQueL is the perfect solution for air / oil external lubrication.



Wet → Dry

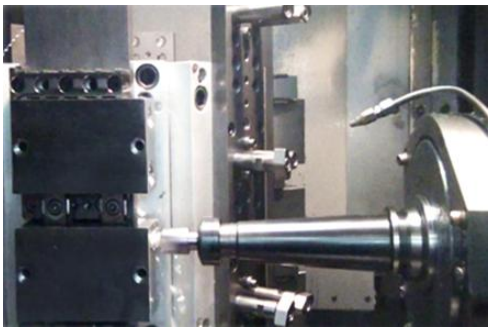
Coolant is eliminated

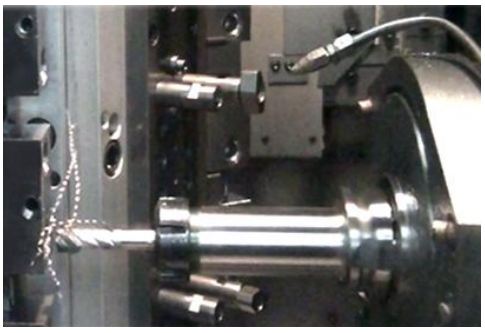
Cycle times are reduced

Tool life is increased

## BENEFIT OF DROPSA MNIMAL LUBRICATION

- **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 or reorganize 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.



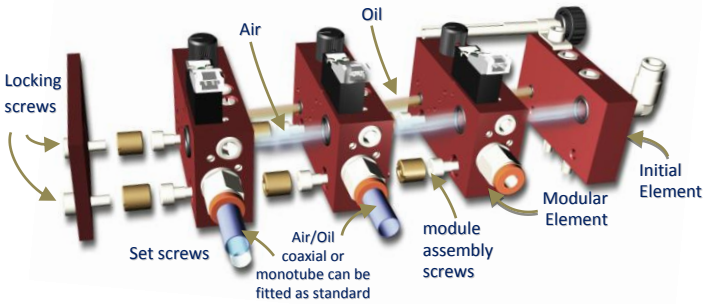



## The revolutionary system for spray applications with minimal lubrication.

MiQueL 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 necessary for air/oil modular systems.
MiQueL is designed for near dry machining lubrication for machine tools, machine for cut and fold sheet metal, steel mills, it can be used on all the systems that need a calibrate lubrication and a functions control.

It is possible to insert till 8 elements connected among themselves that, anytime, can be excluded or activated singularly, through integrated electrovalve.

For each single element it is possible to control individually oil and air delivery.



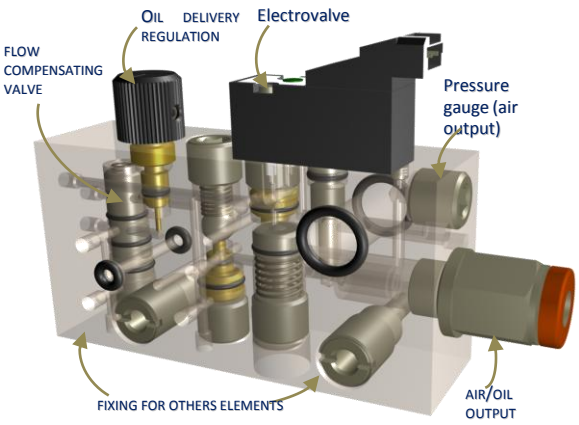

## AVAILABLE VERSIONS

**MiQueL PRO** : A/O Flow compensating system N(1-8) miniModules

**MiQueL PRO-i** : A/O flow compensating system N (1-8) miniModules with independent solenoid control

**MiQueL BASE** : A/O System N(1-8) miniModules, NO compensation valve

**MiQueL BASE-i**: A/O System N(1-8) miniModules with independent solenoid control, NO compensation valve

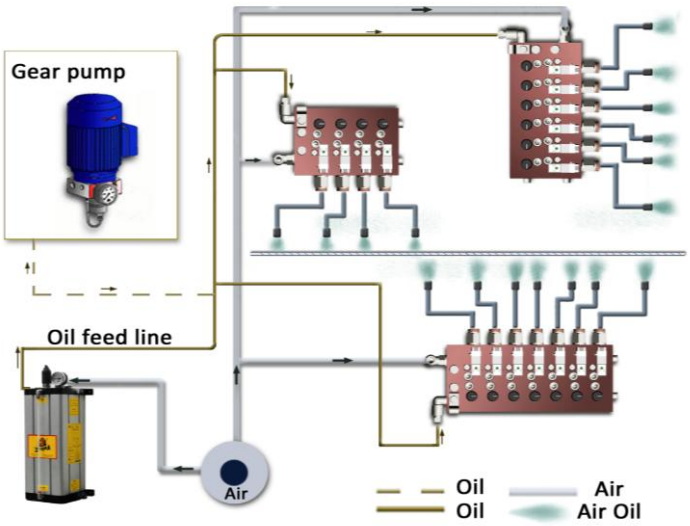



## MIXING ELEMENT

The lubricant delivery is always constant even if the output and input pressure changes; this is possible thanks to the self-compensation valve that maintains constant pressure between the oil input and output.

$\Delta p_{(oil)}$ = constant (~2 bar) $\Rightarrow$ $Q_{(oil)}$ = constant

The system includes a scavenge device that rapidly recoils oil from the delivery line to prevent lubricant drip when powered down.




## MiQueL Ext

Air/Oil Modular systems **MiQueL EXT** (External Pump source version), are centralized minimal lubrication modules engineering with separate pressurized reservoir or external lubricant pump. **MiQueL** modules can be Installed in more remote area of a machine and operate them remotely.

Oil pressure must be higher than the air pressure. The PRO versions will automatically balance oil pressure depending on lubrication point back pressure.

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## 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
How cutting speeds can be increased.

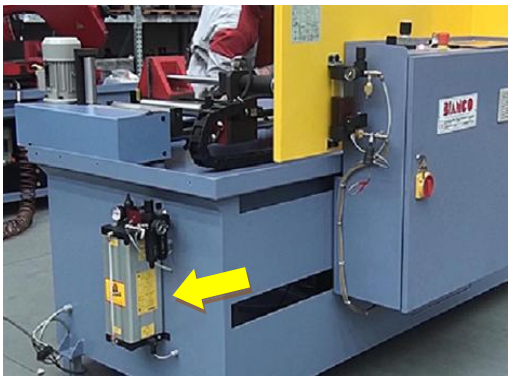
**Examples:**

**Fixed head lathe**

**Swiss-type lathe**

**bandsawing machines**


**bandsawing machines**



You are always welcome to contact our engineering department for more information about implementing high performance minimal dry machining lubrication.