



## EDMFLUID 110 MP-S

Special synthetic fluid for die-sinking type electric discharge machining, *Multipurpose*, specific for dies to be used for pressure casting of light alloys

### Description

**EDMfluid 110 MP-S** is a special medium viscosity fluid consisting of hydrocarbons that undergo final hydrogenation processes with which the natural molecular structures of the hydrocarbons are modified in order to: enhance purity, stability and resistance to downgrading caused by oxidation, assure almost complete elimination of the content of aromatic hydrocarbons, reduce the distillation range and tendency to evaporate to very low values.

It has been developed to meet the requirements of new metal working technologies using die-sinking type electric discharge machining in particular for the production of dies to be used to pressure cast light alloys. Compared with Multipurpose fluids with kinematic viscosity at 20°C of less than 2,5 cSt generally used when the roughing out phase is followed by superfinishing with very low roughness values ( $R_a = 0.2 \div 1,2 \mu\text{m}$ ), it assures a 25÷40% reduction in erosion times during roughing out (Amperage >60 Amp). Its constant viscosity rating, to be ascribed to the very limited distillation range, guarantees constant erosion performance, the electric parameters set being equal.

### Properties and advantages

Considering all the requirements with which a modern fluid for plunge type EDM must comply for the production of dies for the pressure casting sector or each time high erosion speed is required during the roughing out phase, combined with excellent results as regards finishing, **EDMfluid 110-MP-S** is characterized by the following advantages and properties:

- Excellent dielectric strength and high ability to concentrate the energy of the discharges in the erosion area. This property, together with the possibility of operating at high frequencies, means that **EDMfluid 110 MP-S** is able to guarantee top flight performance as regards:
  - speed of erosion
  - reduced specific consumption of tool electrodes
  - no bridging and voltaic arcs that interrupt production and lead to loss of efficiency
  - greater resistance to the formation of voltaic arcs.
- Medium viscosity, lower than that of specific roughing out fluids, such as to guarantee smooth, constant circulation of the fluid in the gap between workpiece and electrode (as during in-depth machining of narrow fins) also in the case of reduced Gaps. This permits constant flushing of the erosion area, facilitating removal of particles and metal scrap.
- Effective cooling capability in relation to the high electrical power installed.
- Medium high flash point such as to eliminate any danger of fire due to autocombustion.
- Very limited evaporation which can be assessed as 2 to 4 times lower than a conventional finishing fluid.
- Excellent performance during finishing.
- Very limited emission of fumes.
- Absolute transparency of the colorless fluids assures excellent visibility of the work area.
- High level filterability, a particular characteristic that extends the service life of the filter sections and also facilitates separation from the fluid of any scraps that may impair machine efficiency and product stability.
- Chemically inactive towards the metal and seals of the machine in view of the almost complete absence of PNA.
- Excellent resistance to downgrading caused by oxidation due to high level of refining and addition of a specific anti-oxidation additives. These factors guarantee constant performance in time and extend the service life of the charges used compared with conventional fluids.



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## Applications

**EDMfluid 110 MP-S** is recommended in particular for all machining operations requiring a fluid able to assure particularly high erosion performance during the roughing out phase without compromising an appropriate level of surface finish. The innovative quality level of **EDMfluid 110 MP-S** makes this fluid a forefront, up-to-date response as regards formulations able to meet the needs of die makers.

## Specifications

**EDMfluid 110 MP-S** complies with and exceeds the requirements of the main plunge type EDM machine manufacturers such as: AGIE, CDM, CHARMILLES, CORMAC, ELOTHERM, EROTECH, FANUC, INGERSOLL, Makino, MITSUBISHI, ONA, Sodick as well as those of major filter manufacturers.

## Storage conditions and safety

**EDMfluid 110 MP-S** does not entail any specific risks under normal conditions of use. Even if fume emission is very low, it is good practice to provide efficient fume aspiration and extraction systems. Information regarding health and environmental safety is available on request. It is advisable to store the fluids under cover. If outdoor storage cannot be avoided, keep the drums horizontal so as to avoid any infiltration of water which is not compatible with the electro-erosion process in that even minor quantities would affect the die-electric strength of the contaminated fluid.

In the case of storage outdoors, make sure that ambient temperature is at least 5°C above product freezing point.

## Typical characteristics

<b>EDMfluid 110 MP-S</b>			
Characteristics	Test method	Unit of measure	Values
Appearance			Clear, colorless
Density at 15°C	ASTM D4052	kg/l	0.768
Kinem. viscosity at 20°C	ASTM D445	cSt	3.30
Flash point (PM)	ASTM D93	°C	110
Start of distillation	ASTM D86	°C	250
End of distillation	ASTM D86	°C	280
Color	ASTM D156		+30
Odor			None
Aromatic hydrocarbon content	UV spectrum	%	More or less nil
Neutralization No.	DIN 51558/1	mg KOH/gr	0.01
Doctor test	DIN 51765		negative

The above data are typical production data and are not specifications.<sup>1</sup>

<sup>1</sup> 01-01Rev n°5,