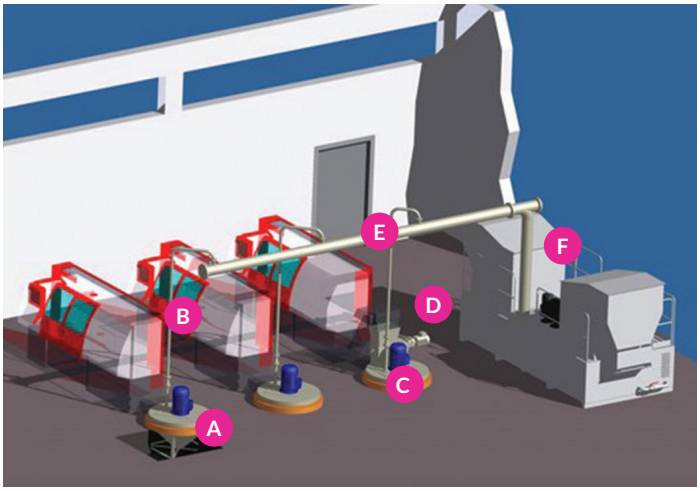
HYDRAULIC SYSTEMS

SYSTEMS

METAL SWARF



DESCRIPTION

FAMA **hydraulic systems** are systems designed to collect and transport swarf and cutting fluid directly from the machine tool to a centralised treatment point. The FAMA hydraulic system works continuously, automatically and without the need for the constant presence of an operator. It is a versatile and non-invasive system, easily extensible and modifiable over time.

Among the main advantages of **hydraulic systems**, it is worth mentioning the elimination of all problems related to the movement of oil and swarf.

The hydraulic transport system must then be completed with a cooling lubricant filtration and replenishment system. The construction of civil works may be necessary.

The goal is simple: a single centralized system that allows to remove swarf and coolant from lathes, milling machines, CNC machines continuously, automatically and without the constant presence of an operator to control it.

CHARACTERISTICS

- Allows the chip to be evacuated to the treatment or storage site
- Transports the chip continuously, automatically and without the constant presence of an operator to control it
- Allows unattended work

OPTIONAL

- Multiple swarf handling line in case of different types of material
- Wear-resistant kit for centrifugal pumps
- Cooling lubricant filtration system
- Cooling lubricant super-filtration system
- Cooling lubricant refrigeration system

SUPPLY

- Oil and swarf collection tank with special booster pump, to be installed on the machine in place of or in combination with the machine tool tank
- Main piping line conveyor to recover swarf and oil;
- Collection tank with dredger for separation of swarf from oil
- Bends, valves, pressure transducers, special parts
- Low pressure oil reintegration line
- Main electric panel, wiring and compressed air line

CONTINUOUS WORK

UNATTENDED WORK

LONG DISTANCE

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OPERATION

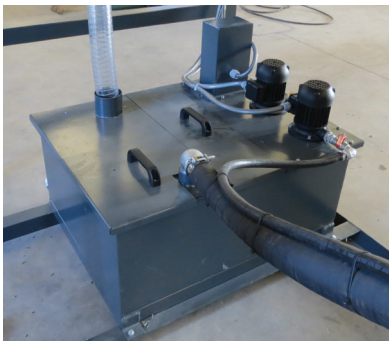
Each machine, to be connected to the system, will be equipped with an oil collection tank [A or C], provided with a shredder [D] in case the swarf is long and skein-type.

Each tank is equipped with a special pump that pushes swarf and oil into the manifold [E] via the pressure lines [B], each equipped with a manual emergency valve. The manifold directs the oil and swarf to the main collection tank [F].

Here, by decantation, the swarf settles on the bottom and is removed by a dredger.

The swarf then undergoes its treatment and storage process. The oil/emulsion can be filtered, super filtered, refrigerated before being pumped in low or high pressure to the machines.

Swarf and oil collection and treatment tank: the coolant and oil/emulsion collected by the machines are sent to this tank. The dredger extracts the swarf deposited on the bottom. Pump1 sends oil to the channels for swarf flushing and transportation,pump2 sends oil in low pressure to the machine, pump3 sends the oil to the filter, pump4 sends oil in high pressure to the machine, pump5 is used for the filter self-cleaning system.



EXAMPLE: Oil and swarf collection tank on the edge of the machine. In this case, channels convey the swarf to the tank thanks to the push of the emulsion. From here the pump sends everything to the treatment tank.

TECHNICAL DATA

COVERED DISTANCE	Up to 150 m
QUANTITY PER LINE	Up to 1200 kg/hour
POWER	22 ÷ ... kW
VOLTAGE	230/400 V
LOADING	Continuous
CIVIL WORKS*	Dependent
VERSATILITY	Maximum
TYPE OF SWARF	Any
COOLANT	Any

The described data are to be considered as limit values. Every case must be studied, analysed, sized and designed. The number of machines that can be connected depends on the distance and quantity of swarf. *The tanks on the machine for swarf and oil collection can be placed on the floor or in the pit. This will Involve a system for attachment to them, through hydraulic channels or conveyor channels (palettes or Shutters).

HOURLY PRODUCTION

Q = 0,8 m3/h	BRASS	STEEL	ALUMINIUM	STAINLESS STEEL	COPPER	CAST IRON
Δ density [kg/dm3]	1,2	1,1	0,4	1,1	1,5	1,4
kg/h	1200	1050	640	900	800	1150

The data in kg/h are approximate and in any case depend on the density of the swarf, the shape, the oil content and the type of coolant. The density data considered are hypothetical, based on an experimental average of the data in our possession.

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