

# New spindle family

# MHF/MHT-45



Meyrat SA, manufacturer of spindles based in Biel, has developed a new product range in Ø 45mm, which is divided into two main categories. On one hand the high frequency spindles of type MHF (Meyrat High Frequency), on the other the high torque spindles of type MHT (Meyrat High Torque). This new range of products follows on from the existing and proven MHF/MHT-30 range, using the same basic principles.

**A wider range:** this new product range is an adaptation to the increasing demands of machine manufacturers to easily and quickly integrate an optional motorised spindle into an existing machine, or to use the product as a main spindle for small, customised machines.

The concept is identical to that used on the Ø30mm range, namely:

- **2 types of engine**, complementary and efficient:
  - A **high-frequency synchronous motor (MHF)** with a maximum speed of 45,000 rpm with lifetime lubrication of the bearings, offering a nominal torque of 0.19 Nm over the entire speed range.
  - A **high-torque multi-pole motor (MHT)** that offers 3 times more torque than the MHF model (0.6 Nm), while offering a rotation frequency of 20'000 rpm.
- **2 tool interfaces**, one **manual** and one **automatic**:
  - The interface **ER16 of REGO-FIX**; a collet chuck interface that is, integrated into the spindle shaft. Universal, accurate and advantageous, it allows a quick change of the collet by hand. The clamping capacity is Ø 0.5 to 10mm.
  - The interface **HSK-E20**; a tool clamping system with taper and mating face contact, highly precise and rigid, for an **automatic tool change**. It is compact and allows pre-setting of tools outside the machine. The clamping monitoring of the tool holder is provided by an inductive sensor with a signal converter housing.
- The possibility of **internal coolant supply (optional)**:
  - The coolant supply through the centre of the compact spindle is essential to meet all user requirements. A rotary joint with a maximum permissible pressure of 80 bar is **available on the ER-16 tool interface**.



What is particularly attractive with products in this category is that **the motor is cooled with compressed air**. As a result, integration is easy and the spindle can be easily mounted in various machines, allowing the machine to be configured according to serial requirements.

It should also be noted that Meyrat SA has chosen to offer this new range only with **lifetime greased hybrid bearings (ceramic balls)**. The reason is economic and ecological. An oil-lubricated spindle consumes more of compressed air, which significantly increases its operating cost.

# MHF/MHT-45 range



## How is that an innovation?

Innovation is manifold. This is not only due to the fact that the spindle in the HSK-E20 variant is **the most compact spindle available on the market**, but also to the fact that **the power density of the high-torque variant is one of the highest**, considering that the motor is only air-cooled.

## A compact product:

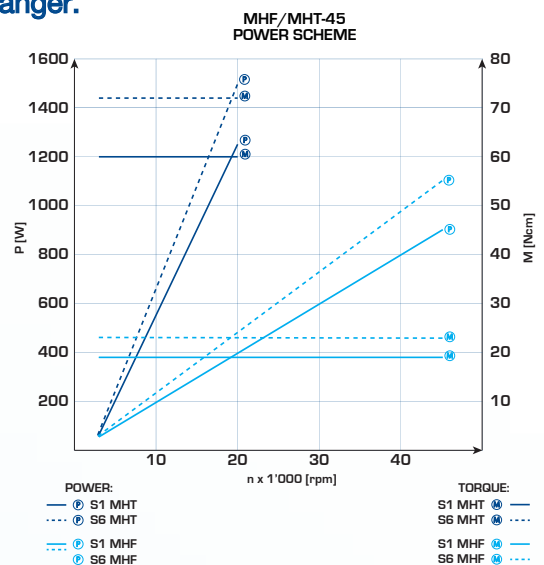
The HSK-E20 model has a diameter of only 45 mm, which means that **it is possible to mount several spindles of this type in parallel** using a 50mm spacing between 2 spindles. This makes it possible to integrate several spindles, and thus several tools in parallel, while minimizing the necessary travel of the machine axis. This spindle is also very compact in terms of its length. In this space, the spindle has a **pneumatic cylinder that operates at 5 bar to release the tool**. A **taper cleaning function is also integrated**, which allows the taper surface to be cleaned when the tool is changed, ensuring precise clamping of the tool. Finally, this spindle has a sensor that constantly monitors the correct tension of the tool and thus ensure that the product can **operate autonomously on machines equipped with an automatic tool changer**.

## A powerful product:

The **efficiency of the high-torque engine is very high**, even though it is only cooled with air. This high power density allows this product to carry out a wide range of applications and makes it one of the most torquiest spindles on the market and over a wide speed range (1'000 to 20'000 rpm).

## An universal product:

There are many possible applications for the MHF/MHT-45 series. **The spindles can be used for all kinds of applications**, such as drilling, milling, whirling, grinding, diamond cutting, deburring, engraving, etc. The spindle is also designed so that it **can be integrated in any orientation**, whether horizontal, vertical with the nose up or down, or even inclined.



## Acquire a spindle, but not only

The philosophy of Meyrat SA is not limited to selecting the spindle from its assortment that best corresponds to the customer's needs. The company also offers its services in defining the necessary aggregates to be able to install the product, together with the customer. This mainly involves defining the frequency converter, the appropriate parameters, the electrical extensions, the air treatment units and also the consumables like collets, clamping nuts, tool holders, etc

## Why choose a spindle from the MHF/MHT-45 series?

Because it takes the familiar and innovative concepts of the MHF/MHT-30 series, bringing more power and stiffness. It is a reliable and universal product that meets the growing market demand to replace belt driven spindles with motorized products. The spindle is compact and lightweight, which fits well with the current trend of miniaturizing the machines in order to reduce power consumption and increase the dynamics of the axes.

STANDARD MHF	45 mm	188 mm	Axial	Synchron	45'000 rpm	ER16	S1 = 900 W S6 = 1100 W	Grease		010-137-00
		198 mm	Radial			HSK-20 ATC				010-137-50
		230 mm				010-140-50				
STANDARD MHT	45 mm	188 mm	Axial	Synchron	20'000 rpm	ER16	S1 = 1250 W S6 = 1500 W	Grease		010-136-00
		198 mm	Radial			HSK-20 ATC				010-136-50
		230 mm				ER16				010-139-50
		268 mm				5 bar* Tool Clamping Control Through-spindle coolant (IKZ)				010-138-50

\*pneumatic release unit