

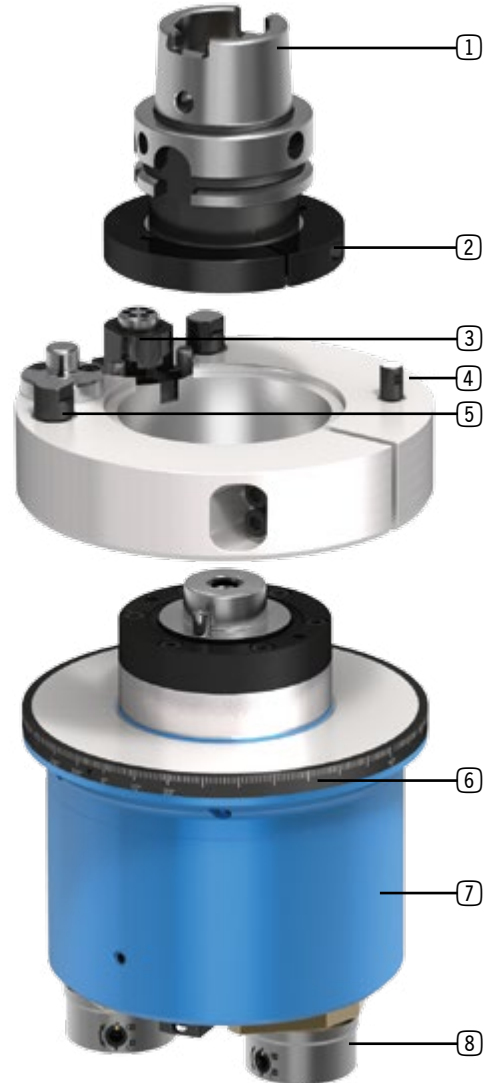
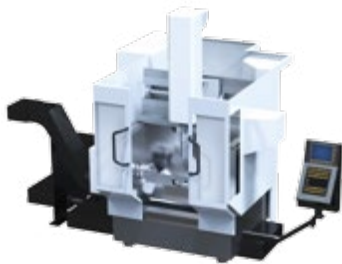
# INTERCHANGEABLE MULTI-SPINDLE HEADS SYSTEM DESIGN

## SYSTEM DESIGN

### Requirements

#### Machine type

Machining center  
Turning/milling center



#### Replacing the angle head



#### Individual machining drilling pattern



#### Desired tool holder

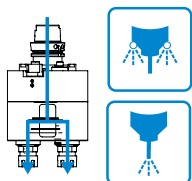


#### Required torque



### Optional: Equipment variations

#### COOLANT FEED



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#### ADDITIONAL SUPPORT



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#### STOP BLOCK



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#### BENZ I.COM



Page 41

#### C-AXIS FUNCTIONALITY



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## Components

### 1 Drive cone / machine interface

- For holding the angle head in the machine
- All common drive cones available
- Special connections in accordance with specification



SK  
DIN 69871



MAS BT



CAT



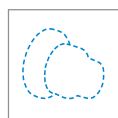
HSK  
DIN 69893



Coromant  
Capto®



KM™



Other

### 2 Locking disc

- Secures the precise angle position of the drive cone in relation to the torque support arm, in combination with the locking sleeve and locking pin

### 3 Interlock

- The drive cone interlock - together with the locking disc - prevents the drive from rotating without equipment inserted. This enables precise placement in the tool change magazine. When switching out the multi-spindle head in the machine, the interlock is activated by the stop block and the drive is released

### 4 Torque support arm

- Secures the multi-spindle head to prevent it from rotating during processing by fixing it to the machine spindle
- Generally adapted to the specific machine type
- Alternatively: Standard torque support arms from BENZ

### 5 Support points

- Additional support points provide maximum stability and accuracy during processing

### 6 360° graduated collar (optional)

- For manual, continuously variable rotation of the multi-spindle head into a desired operating angle
- Fixing using clamping screws

### 7 Drill head

- Material design matched to the application (high-strength aluminum for minimal exchange weight, steel/cast iron for maximum stiffness)
- High-performance gearbox with hardened and ground gears for maximum power transmission

### 8 Tool holder/clamping system

- For holding the tool
- Design based on customer specification
- Central coolant outlet possible through the spindles or coolant nozzles. Coolant pressure of up to 100 bar. Dry running possible



BENZ  
Solidfix®



BENZ  
Nanofix®



Collet



HSK



Cutter arbor



Weldon

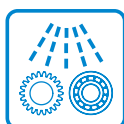


Whistle  
Notch



KM™

## GEARBOX LUBRICATION



## TESTING EQUIPMENT



## Additional equipment variations:

- ▶ Integrated pivoting and movement devices
- ▶ Threaded spindles with lead screw (optionally as sleeve unit)
- ▶ Tool guide/centering
- ▶ etc.

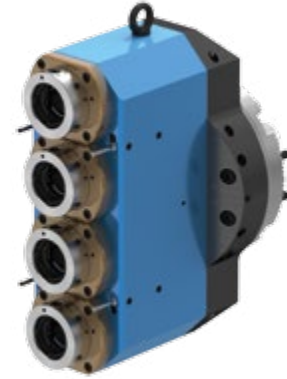
# INTERCHANGEABLE MULTI-SPINDLE HEADS IMPLEMENTED SOLUTIONS

## Typical applications for interchangeable multi-spindle heads



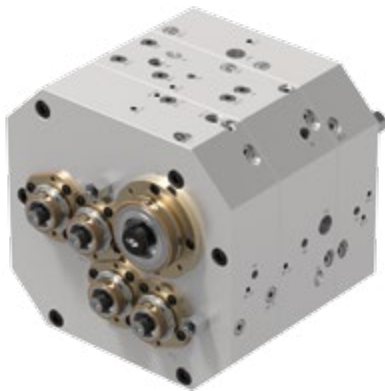
**Multi-spindle angle head**

For brake caliper machining in the automotive industry



**4-spindle head**

For heavy-duty cutting. The gearboxes in use feature a power partition.



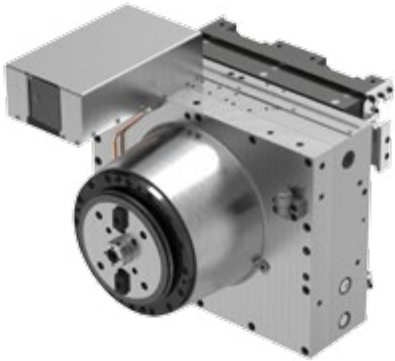
**Multi-spindle head**

With 5 spindles for steering gear. The head features an oil mist lubrication system, making it ideal for continuous (24/7) use.

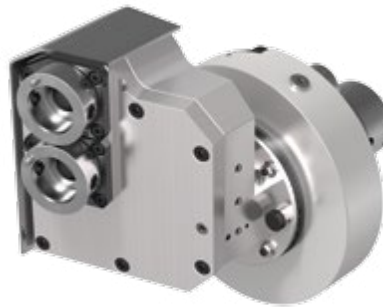


**Multi-spindle head**

With interchangeable drill guide plate



**Planetary milling cassette**  
For heavy-duty cutting. With automatic testing equipment.



**Angle multi-spindle head**  
With 2 spindles



**Multi-spindle head**  
For step machining (drilling and threading)



**Angle multi-spindle head**  
With external cooling using coolant nozzles.  
Tool holder: BENZ Solidfix® (modular quick-change system)

# INTERCHANGEABLE MULTI-SPINDLE HEADS IMPLEMENTED SOLUTIONS

## Typical applications for interchangeable multi-spindle heads



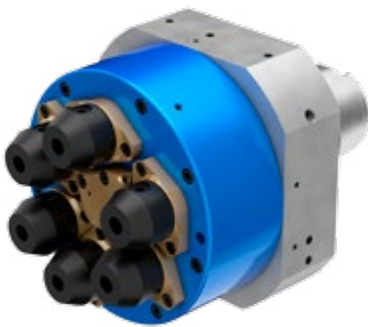
### Multi-spindle head

For brake caliper machining. Gearbox lubrication using oil mist for continuous use (24/7).



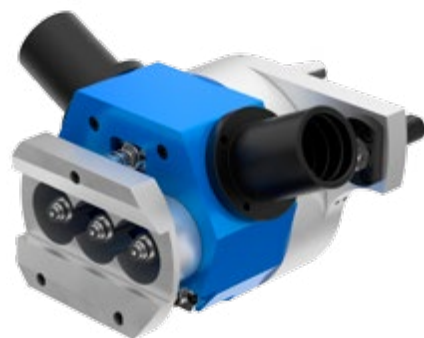
### Multi-spindle head

With oil mist lubrication



### 6-spindle multi-spindle head

With internal coolant infeed



### Multi-spindle head

with integrated extraction and drill guide