

Collet with internal square
for the secure holding of threading tools. The internal square of the collet and the square at the threading tool's shank create a positive fitting that guarantees torque transmission.

- ER 20-GB
- ER 25-GB



Sealing disk
ensures that the lubricant is transferred into the threading tool without loss and prevents pollution of the collet.

- ER 20
- ER 25



Clamping nut
for easy assembly of collet and threading tool. The tightening of the clamping nut pushes the collet into the tapered socket in the HST SYNCHRO. The collet closes, tightly fixing the threading tool. The special internal contour of the clamping nut enables quick and easy disassembly of collet and threading tool. BASS clamping nuts are suitable for internal coolant and can be used with sealing or cooling disks.

- ERC 20
- ERC 25



Wrenches
for tightening of the clamping nut. To be ordered separately.

- ER 20
- ER 25



Torque wrench
for secure tightening of the clamping nut. By setting the recommended tightening torque, you avoid damages on tap and tap holder. Suitable torque wrench heads to be ordered separately.



Axial adjustment screw (AES)
adjusts the protruding length of the threading tool from the HST SYNCHRO and guarantees a secure transfer of the aerosol.



Adjustment spanner for axial adjustment screw (AES)
long hexagon socket wrench, for adjustment of the AES also from the shank-side of the HST SYNCHRO MMS.

- spanner size 2.5
- spanner size 3.0



MQL transfer unit for HSK shanks
for the secure transfer of the lubricant from the machine to the HST SYNCHRO MMS. Available for 1-channel and/or 2-channel system and for automatic or manual tool change. Spanner for assembly to be ordered separately.

- HSK 63A



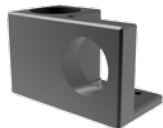
Tool holding fixture for HST SYNCHRO
holds the HST SYNCHRO so that the clamping nut can be tightened without the help of a second wrench.

- HST SYNCHRO 40
- HST SYNCHRO 60



Tool holding block
holds the HST SYNCHRO, allowing a tightening of the clamping nut with both hands.

- HSK 63A



Scope of delivery for HST SYNCHRO MMS:
1 pc clamping nut DIN ISO 15488 for internal coolant
1 pc axial adjustment screw (AES) of your choice
1 pc MQL transfer unit of your choice

Wrench set, collet, sealing disk and adjustment spanner for AES are to be ordered separately.

For detailed product information, see BASS main catalog. The prices can be found in our current pricelist.

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BASS
TECHNIK FÜR GEWINDE



HST SYNCHRO MMS / MQL

for 1- and 2-channel systems
for MQL pressure up to 10 bar

Basic Principle of Minimum Quantity Lubrication

Minimum Quantity Lubrication (MQL/MMS) means lubrication by an aerosol consisting of oil and compressed air, with an oil consumption of ≈ 50 ml per hour.

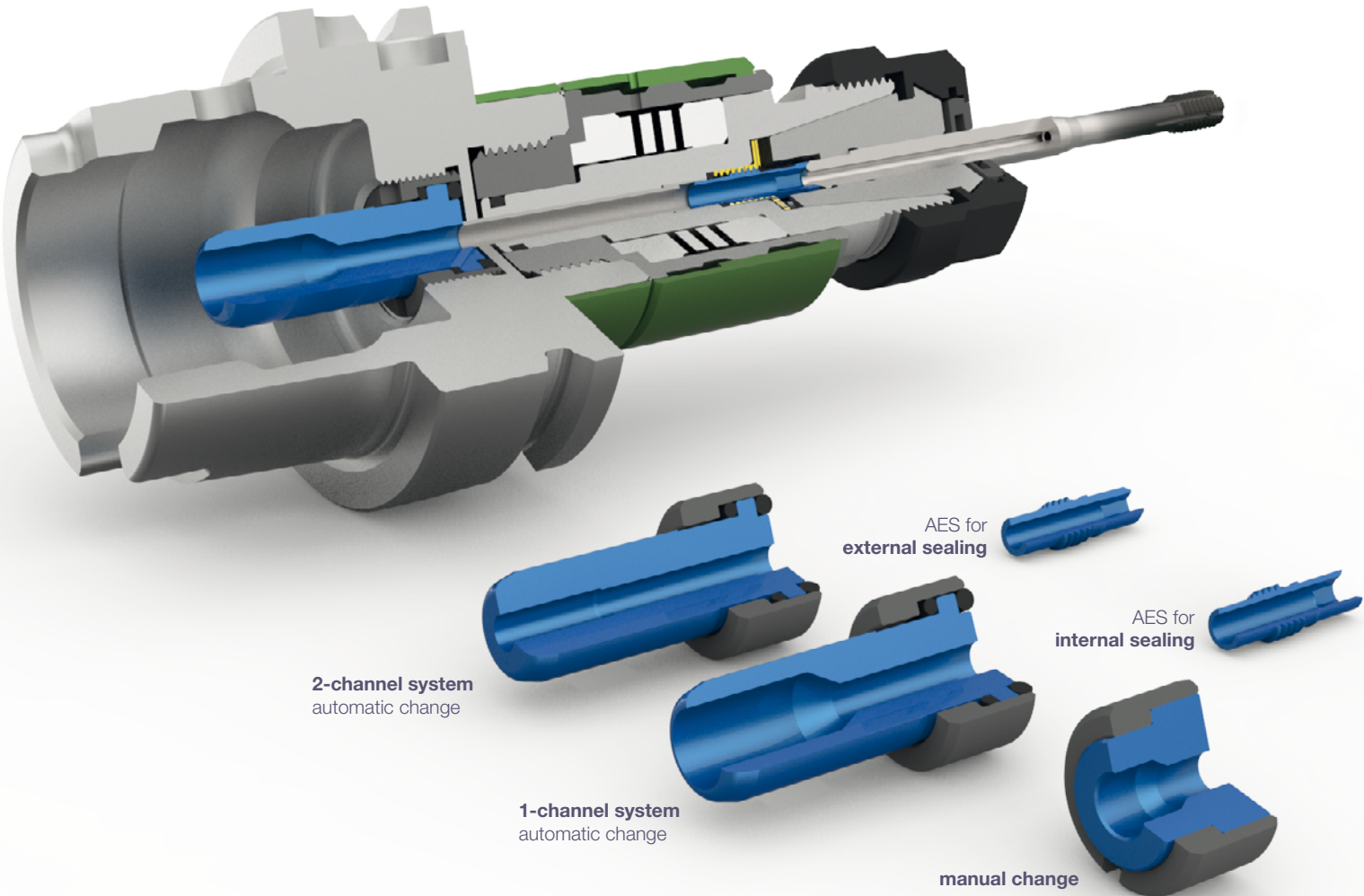
The aerosol can be supplied to the tool operating area either externally through a separate nozzle or internally through machine spindle, tool holder and tool.

The external nozzle sprays the aerosol on tool and workpiece only briefly before machining – additional lubrication supply to the tool operating area during machining is not possible.

The internal MQL-supply on the other hand, guarantees lubrication of the tool operating area also during machining.

There are two MQL systems for internal supply:

- **1-channel system:** The aerosol is prepared outside the machine in a separate MQL device and afterwards flows through the machine to the tool operating area. The oil content of the aerosol cannot be adjusted very precisely and may vary greatly from one manufacturer of MQL devices to another.
- **2-channel system:** Oil and air are fed through separate lines, and the aerosol is created in the tool holder and thus close to the tool operating area. In this system, oil and air can be mixed in a very variable, precisely adjustable percentage. The feed through two separate lines makes this system more complex than the 1-channel system.



HST SYNCHRO MMS (MQL)

The versatile design of our tap holder for MQL machining allows use with both 1- and 2-channel system. A simple change of the transfer unit in the HSK shank qualifies the tap holder for automatic (HSK-A) or manual tool change (HSK-C).

The HST SYNCHRO MMS prevents accumulations of oil or leakage and thus ensures that the maximum volume flow of the aerosol reaches the threading tool or the tool operating area respectively. Furthermore, our tap holder conforms to the requirements of different company standards respecting the draft standard for MQL processing technology E DIN 69090.

The HST SYNCHRO MMS for MQL pressure up to 10 bar is recognizable by its green ring between HSK-shank and identification sleeve.

Like the HST SYNCHRO, it features a patented steel spring component for a microcompensation of ± 0.5 mm, ensuring a long tool life compared to tap holders of other brands. By compensating the synchronization errors between rotation and feed spindle, it minimizes the otherwise high friction force on the tap flanks.

In order to ensure a reliable transfer of the aerosol from the HST SYNCHRO MMS to the threading tool, it is vital to choose a suitable axially adjustable setting screw (AES). The different AES are adapted to the corresponding threading tool regarding the square dimensions and transfer connection (internal or external cone – see right).

The elastic fixation of the AES absorbs axial forces that occur when tightening the clamping nut. Thus it avoids damage of the AES so that even frequent tightening of the clamping nut will not affect the leak tightness.

The AES has an adjustment way of at least 3 mm. The positioning of the adjustment screw can be corrected both from the tool-side as from the shank-side through the HSK.

The standard HST SYNCHRO MMS is available for collet sizes ER 20 (M4-M12) and ER 25 (M10-M20).



Threading tools for MQL machining

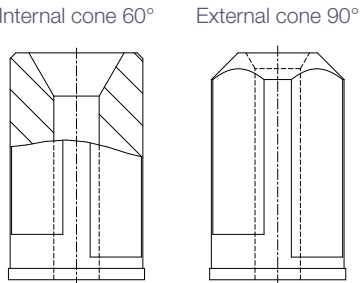
Like the HST SYNCHRO MMS also our threading tools for MQL machining comply with the draft standard DIN 69090-4 and several company standards. The threading tools are available with 60° internal cone or 90° external cone for lubrication transfer at the tool shank. Both executions guarantee a process reliable transfer of the aerosol.

With our roll tap DURAMAX GAL, we offer a catalog tool for minimum quantity lubrication (MQL/MMS) with internal radial coolant MKR and HL-coating.

The optimized coolant bores avoid oil accumulations or dead space. The aerosol supply to the tool operating area is reliable and there is no loss of oil. All radial coolant bores are equally fed with the aerosol.

We guarantee an optimal flow volume, adapted to the respective tool dimensions.

Besides our standard tools for MQL, we also offer customized solutions for taps and roll taps with MQL. We are looking forward to receiving your inquiry.



+ 30% tool life
increase in thread roll forming
with modified tool geometry for
MQL machining

For further information about DURAMAX GAL, see BASS main catalog.

Cost advantages through MQL vs. wet machining

- No disposal costs of used lubricant (MQL is a loss lubrication)
- Reduction of cleaning costs due to less oil on workpieces and chips
- Shorter drying time of the workpieces
- Additives against bacterial contamination of the lubricant are not necessary
- Reduction of maintenance, inspection and recycling of lubricants
- No more lubricant filtration to remove material residue or small chips
- No need of circulating pumps, cooling units and their maintenance
- Lower energy requirement of the lubricant pumps

All advantages at a glance

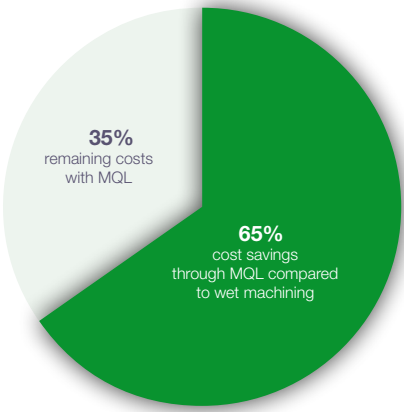
- Reduction of axial forces by up to 96%
- Torque reduction before and after reversion of rotation by up to 78%
- Tool life increase through lower friction on flanks
- Improved thread quality
- Higher process security
- Elastic fixation of the AES avoids deformation or cracking.
- Suitable for MQL pressures up to 10 bar
- Long service life through a patented steel spring compensation mechanism
- washable up to 80 °C

Comparison of axial force and torque

The HST SYNCHRO MMS compensates synchronization errors of the hole centerline spindle rotation and the feed axis of the CNC machine. In the majority of cases, these synchronization errors appear at low cutting speed, rotational speed stopp or change of the feed direction.

Subsequently, high torques and axial forces reduce the tool life of the threading tool and have negative effects on the thread quality.

As shown in the chart below, our patented steel spring element compensates the high torques and axial forces.



Source: www.umweltschutz-bw.de
Ministerium für Umwelt, Klima und Energiewirtschaft Baden-Württemberg
(Ministry for the environment, climate and energy industry of Baden-Württemberg)

