

## Notes on setting and handling KS flange adapter

Installing the KS clamping cartridge in the machine spindle, the chuck or adapter with the assembly tool



Opening the KS assembly tool



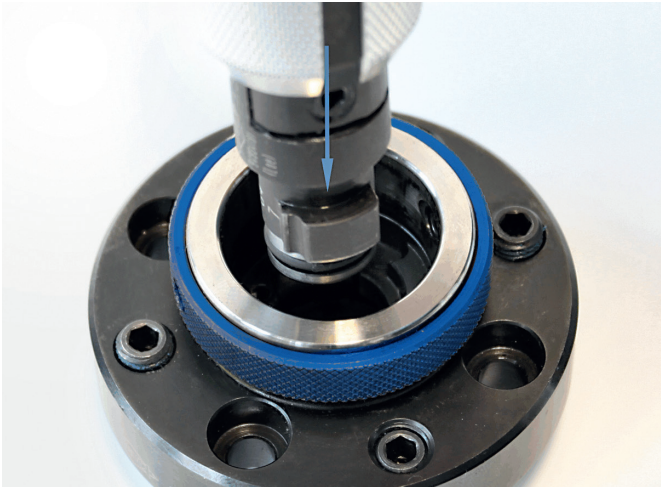
Inserting the KS clamping cartridge into the KS assembly tool

### NOTE

- For the KS clamping cartridge in standard and high-pressure design, only use the KS assembly tool for standard and high-pressure designs with the flute.
- For the MQL-design KS clamping cartridges, only use the KS assembly tool for the MQL design with the two pins.

1. Open the KS assembly tool gripper jaws by pushing down the ball head.
2. Keep the ball head pressed down.
3. Insert the KS clamping cartridge into the KS assembly tool.
4. Release the ball head.

The KS clamping cartridge is connected to the KS assembly tool.



Inserting the KS clamping cartridge

#### NOTE

- Make sure that the corresponding contours of the clamping cartridge and the machine spindle or the adapter match each other. The KS clamping cartridge can only be inserted into the machine spindle or into the adapter in one position.



Locking the KS clamping cartridge

5. Insert the KS clamping cartridge into the machine spindle or the adapter in the correct position.
6. Rotate the KS assembly tool clockwise until the lug of the KS clamping cartridge audibly and noticeably engages.
7. Press the ball head of the KS assembly tool down to pull the assembly tool back off.

# Notes on setting and handling KS flange adapter

## Installing the KS clamping cartridge in the machine spindle, the chuck or adapter with the assembly tool



1. Insert clamping cartridge in the spindle or in the adapter.



2. Fit socket to the clamping cartridge.



3. Turn clockwise until the lug on the clamping cartridge engages with the clamping pin.

### Clamping the tool

Tightening torque and clamping force for the individual nominal sizes of the KS clamping cartridge, standard design.

| Nominal size           | HSK32 | HSK40 | HSK50 | HSK63 | HSK80 | HSK100 | HSK125 | HSK160 |
|------------------------|-------|-------|-------|-------|-------|--------|--------|--------|
| Tightening torque [Nm] | 6     | 7     | 15    | 20    | 30    | 50     | 70     | 110    |
| Clamping force [kN]    | 11    | 14    | 21    | 30    | 40    | 50     | 70     | 115    |

Tightening torque and clamping force for the individual nominal sizes of the KS clamping cartridge, high-pressure design

| Nominal size           | HSK32 | HSK40 | HSK50 | HSK63 | HSK80 | HSK100 |
|------------------------|-------|-------|-------|-------|-------|--------|
| Tightening torque [Nm] | 6     | 7     | 15    | 20    | 30    | 50     |
| Clamping force [kN]    | 11    | 14    | 21    | 30    | 40    | 50     |

Tightening torque and clamping force for the individual nominal sizes of the KS clamping cartridge, MQL design

| Nominal size           | HSK32 | HSK40 | HSK50 | HSK63 | HSK80 | HSK100 |
|------------------------|-------|-------|-------|-------|-------|--------|
| Tightening torque [Nm] |       | 6     | 15    | 20    | 30    | 50     |
| Clamping force [kN]    |       | 11    | 21    | 30    | 40    | 50     |

### Notes on the use of the KS clamping system

When operating spindles or adapters that are equipped with a clamping cartridge and that are operated without a tool, a cap should always be used. In this way the system and user are protected and soiling is prevented. In case of tool usage with low radial loads, e.g. drilling and reaming operations, it is allowed to drop approx. 25% below the maximum tightening torque.

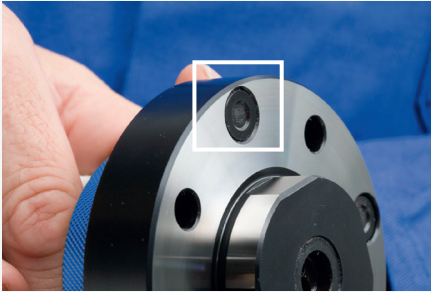
### Maintenance and care

During each tool change, the taper should be cleaned using a taper wiper.

The clamping cartridge should be regreased after extended use. This interval depends on the frequency of tool changing, the type of machining and the coolant. However, regreasing should take place at least once every six months.

## Notes on setting and handling KS flange adapter

### Assembling and aligning KS flange adapters and MAPAL module adaptors with radial and angular alignment



1. Clean face surfaces on flange adapter and adapter. Ensure that the face surface on the alignment screw does not protrude beyond the face surface in the flange adapter.



2. Insert flange adapter. Place fastening screws in contact.



3. Clean taper and face surface on the test arbor carefully. Insert test arbor or tool.



4. Position the dial gauge at radial run-out checkpoint. On MAPAL tools, it is also possible to use the HSK collar for alignment. Take lowest measuring point and set dial gauge to "zero". Align radially.



5. For the angular alignment, the dial gauge is positioned at the upper point to be checked or approx. 100 mm from the connection. Align angularly using alignment screws. Do not loosen the alignment screws after actuation.

6. Once the angular alignment is set to  $< 3 \mu\text{m}$ , check the radial alignment again at the radial run-out checkpoint on the collar and correct if necessary. Should it be necessary to correct the radial alignment, check the angular alignment again afterwards.

| Nominal size HSK | Max. Operating speed* [min <sup>-1</sup> ] |
|------------------|--|
| 32               | 50.000                                     |
| 40               | 42.000                                     |
| 50               | 30.000                                     |
| 63               | 24.000                                     |
| 80               | 20.000                                     |
| 100              | 16.000                                     |

\* The lowest permissible maximum operating speed of the individual components must always be observed.

| Nominal size | Cover ring Material number | Max. Operating speed* [min <sup>-1</sup> ] |
|--------------|----------------------------|--|
| HSK-C032     | 30326065                   | 42.500                                     |
|              | 30326064                   | 69.000                                     |
| HSK-C040     | 30326067                   | 39.000                                     |
|              | 30325937                   | 43.500                                     |
|              | 30326066                   | 57.000                                     |
| HSK-C050     | 30326069                   | 34.000                                     |
|              | 30325938                   | 37.500                                     |
|              | 30326068                   | 48.000                                     |
| HSK-C063     | 30326071                   | 26.000                                     |
|              | 30325939                   | 30.500                                     |
|              | 30326070                   | 39.000                                     |
| HSK-C080     | 30326073                   | 24.000                                     |
|              | 30326072                   | 29.000                                     |
| HSK-C100     | 30326062                   | 14.000                                     |
|              | 30326061                   | 20.000                                     |
| HSK-C125     | 30326063                   | 14.500                                     |

\* The lowest permissible maximum operating speed of the individual components must always be observed.

## INFORMATION

The maximum operating speed of the HSK interface is determined by a number of factors. For example, the length of the supporting taper, the interference between the taper shank and taper mount and also the clamping system used have a major influence. For applications at high speeds, it is therefore necessary to determine the maximum operating speed on a case-by-case basis. The adjacent values can be used as a rough guide.

## INFORMATION

The maximum operating speeds of other sizes of special cover rings are available on request.

## Anzugsmomente

| Nominal size | Module diameter [mm] | Fastening screw          | Tightening torque [Nm] |
|--------------|----------------------|--------------------------|------------------------|
| HSK32        | 60                   | ISO 4762 – M5x16 – 12.9  | 8,7                    |
| HSK40        | 70                   | ISO 4762 – M6x20 – 12.9  | 15                     |
| HSK50        | 80                   | ISO 4762 – M6x20 – 12.9  | 15                     |
| HSK63        | 100                  | ISO 4762 – M8x25 – 12.9  | 36                     |
| HSK80        | 117                  | ISO 4762 – M8x25 – 12.9  | 36                     |
| HSK100       | 140                  | ISO 4762 – M10x30 – 12.9 | 72                     |

The basis for the maximum tightening torque of the cylinder head screws in accordance with DIN 912 is the general DIN standard for property class 10.9.

MAPAL only uses cylinder head screws in accordance with ISO 4762 with the property class 12.9.