GM 300 MQL 4-POINT CLAMPING SET ASSEMBLY INSTRUCTIONS

GM 300 MQL 4-point clamping set, Guh. no. 4930

Assembly instructions:

1. From the operating side ("red marker point") turn back the threaded spindle with hexagon key SW_S (table 1, Guh. no. 4912) to the limit stop and then open clockwise by approx. 1/2 rotation.
2. Unlock the ejector with the hexagon key SW_A (table 1) anti-clockwise approx. 90°, "tilt" the hexagon key and withdraw the ejector. Remove O-ring 1.

⚠ **Note: Never operate the threaded spindle with the ejector removed, because the position of the clamping jaws will no longer be correct.**

3. With existing spindle contours (direct installation or adaptor) to Guhring standard insert the spindle adapter Guh. no. 4934 to the limit stop in the retention spindle.
4. Screw the retention spindle into the basic clamping body to the limit stop (detachable).The standard metric thread must be lubricated (recommended: MoS_2 assembly paste)
5. Screw the clamping set into the spindle until the drivers hit the spindle base.
6. Axially insert the hexagon clamping key SW_B (table 1) through the basic clamping body
7. Turn back the basic clamping body (do not permit the retention spindle to turn simultaneously) until the "red marker point" and spindle notch (heart) are aligned.
8. Retain the basic clamping body in this position and tighten the retention spindle clockwise to the specified torque MD (table 1). If required, we recommend the torque support, Guh. no. 4963 (see *fig. 1*).
9. Withdraw the hexagon clamping key, fit O-ring 1 to the face, push in the assembled ejector to the limit stop and lock into the basic clamping body by turning the hexagon key SW_A approx. 90° clockwise

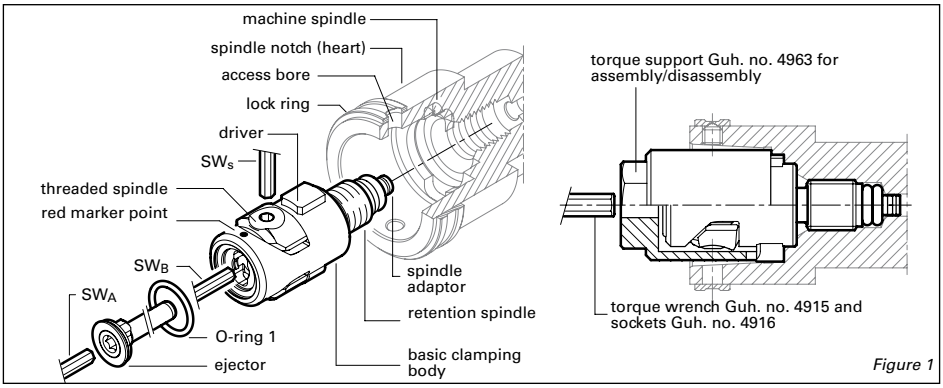

Figure 1

Disassembly instructions:

1. From the operating side ("red marker point") turn back the threaded spindle with hexagon key SW_S (table 1, Guh. no. 4912) to the limit stop and then open clockwise by approx. 1/2 rotation.
2. Unlock ejector via hexagon key SW_A (table 1), "tilt" the hexagon key and withdraw the ejector.
3. Axially insert the hexagon clamping key SW_B (table 1) through the basic clamping body
4. Loosen the retention spindle anticlockwise (if required, we recommend our torque support Guh. no. 4963) and unscrew the clamping set from the spindle.
5. Insert the ejector again and lock.

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Operating instructions: Clamping the HSK interface

1. Prior to fitting the HSK shank, ensure the contact surfaces of the holder and the machine spindle are clean. Apply conical wiper, Guh. no. 4914, or HSK wiper, Guh. no. 4947, respectively.
2. Turn the lock ring, Guh. no. 4953, until the access bore to the clamping screw is open.
3. Turn back the clamping jaw over the threaded spindle with hexagon key SW_S (table 1, Guh. no. 4912) until the limit stop is felt.
4. Install the HSK shank (connecting position see *figure 2*).
5. With the hexagon key SW_S (Guh. no. 4912) or torque wrench (Guh. no. 4915) tighten the clamping screw clockwise to the torque M_A (table 1) specified below.
6. Withdraw the clamping key and close the access bore with the lock ring, to protect against contamination.

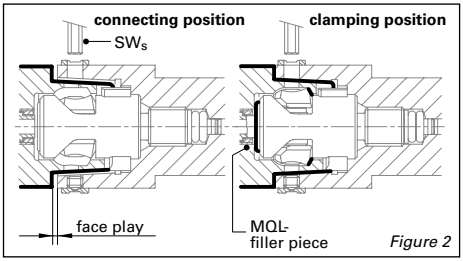

Figure 2

⚠ **Note:**
4-point clamping sets must only be rotationally operated or supplied with coolant with a fully clamped HSK shank. When not in use machine spindles should be fitted with a HSK-C sealing plug (Guh. no. 4985).

HSK size	SW_S	**max.** permissible torque M_A [Nm]	**min.** permissible torque M_A [Nm]	**max.** draw-in force Guhring [kN]	**min.** draw-in force to DIN [kN]	SW_B	torque M_D [Nm]	SW_A
32	2.5	3	2.5	8.5	5	4	10	3
40	3	6	4.5	12.5	6.8	5	20	4
50	4	12	10	24	11	6	42	5
63	5	24	20	32	18	8	82	6
80	6	40	32	45	28	10	135	8
100	8	60	54	53	45	12	190	10

Table 1

Maintenance

Guhring's HSK clamping sets are designed for optimal accuracy, clamping force and tool life. However, care and maintenance is required in order to preserve these attributes. A criterion for a perfect function is the achieved draw-in force. Guhring's clamping force instrument, Guh. no. 4974, is applied to measure and determine this value.

⚠ **Note:**
If the draw-in force falls below the minimum value according to DIN 69893-1, appendix 1, it is paramount to replace the clamping set or to service it to regain its functionality. In this case, the contact surfaces of the clamping jaws and the threads of the clamping screw must be lubricated with Molykote assembly paste G-N Plus.

For maximum load, we recommend to apply the maximum torque possible. For less load the torque may be reduced to the minimum permissible torque. As a rule, a torque wrench must be applied with the clamping sets.
The draw-in force may be approximately 15% lower dependent on temperature and lubrication.
MoS_2 paste: Guhring mat. no. 400118396

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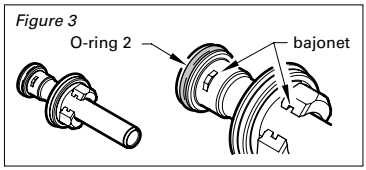
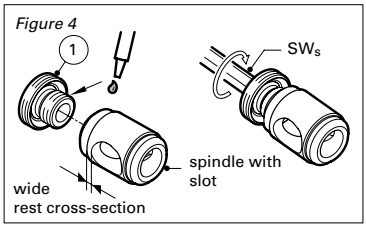
Procedure

1. Assembly of ejector (if required):
   Fit O-ring 2 in the recess of the ejector tube (lubricate lightly) and insert together into the ejector cover until the tube and the cover are aligned. Observe bajonet position! Lock the tube in the cover: Rotate tube by approx. 90°. *Figure 3*



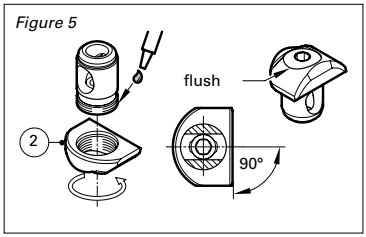
2. Degrease the spindle with the slot, a clamping screw and a clamping jaw.

3. Wet the small thread of the degreased clamping screw with **Loctite 648** and with **SW_s** screw anticlockwise into spindle to the limit stop (tight) Ma. = 3 Nm (from the side of the wider rest cross-section between slot and outside edge). *Figure 4*



4. Also wet the large thread of the fitted clamping screw with **Loctite 648**.

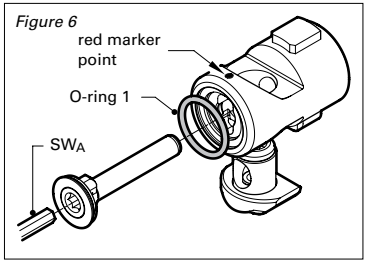
5. Screw the degreased clamping jaw clockwise on the clamping screw (from point 3) until the clamping screw is laterally flush with the clamping jaw or is slightly sunken into the clamping jaw. Hereby, the front edge (straight edge) of the clamping jaw is square to the slot. *Figure 5*



6. Lubricate both contact surfaces inside the basic clamping body with MoS_2 paste.

7. Insert the unit (*figure 5*) into the basic body (opposite red point). Hereby, the spindle to the clamping jaw must no longer turn.

8. Axially fit O-ring 1 and axially insert the assembled ejector into the basic clamping body to the limit stop, lock with hexagon key, Guh. no. 4912 (**SW_A** in ejector tube) clockwise approx. 90°. *Figure 6*



9. Lubricate the thread of the second clamping screw and second clamping jaw with MoS_2 paste.

MoS_2 paste: Guhring mat. no. 400118396

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10. With **HSK 32, 40, 63, 80 and 100** screw the second clamping screw into the clamping jaw (1/4 rotation) (*figure 7),* then fit the clamping screw with the clamping jaw onto the spindle in the basic clamping body and via the **SW_S** of the clamping screw, screw into the spindle anticlockwise to the block. *Figure 8.* With **HSK 50** screw the second clamping screw into the spindle (1/4 rotation); fit the second clamping jaw onto the clamping screw and via the **SW_S** of the clamping screw, screw into the spindle anticlockwise to the limit stop. *Figure 8a*

⚠ ➤ When screwing-in, laterally position the clamping jaw (the clamping jaw must not turn and tilt).
➤ When screwing-in ensure that both threads engage **immediately**!
➤ The clamping jaws must abut the bottom of the milled notch in the basic clamping body. *Figure 9*

⚠ **Functionality test: The tool shank must fit effortlessly via the clamping set**

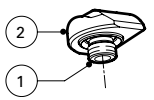
11. Should the clamping screw protrude too far out of the clamping jaw it will be impossible to fit the tool shank. Screw the clamping screw (actuating side) clockwise into the clamping jaw until it audibly jumps one turn of the thread. Then, screw the clamping jaw anticlockwise to the limit stop.

⚠ ➤ When screwing-in, laterally position the clamping jaw (the clamping jaw must not turn and jam).

12. Lubricate the fine thread of the retention spindle with MoS_2 paste and screw clockwise into basic clamping body to the block (detachable). *Figure 10*

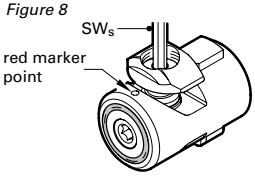
⚠ **Functionality test: Unlock the ejector with the hexagonal key (SW_A), "tilt" the hexagonal key and withdraw the ejector. Insert the haxagonal key (SW_B) axially through the basic clamping body and turn the retention spindle. If it is not possible to turn the hexagonal key, the slot is not square to the clamping jaw (see point 5). Then, complete the clamping set again.**

Figure 7

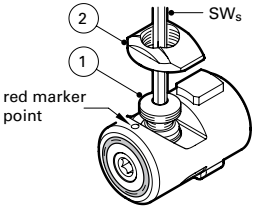


HSK 32
HSK 40
HSK 63
HSK 80

Figure 8



HSK 32
HSK 40
HSK 63
HSK 80



HSK 50

Figure 8a

Figure 9

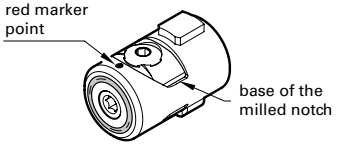
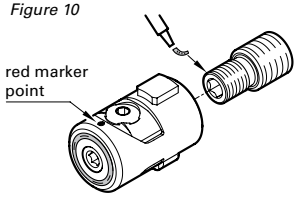


Figure 10



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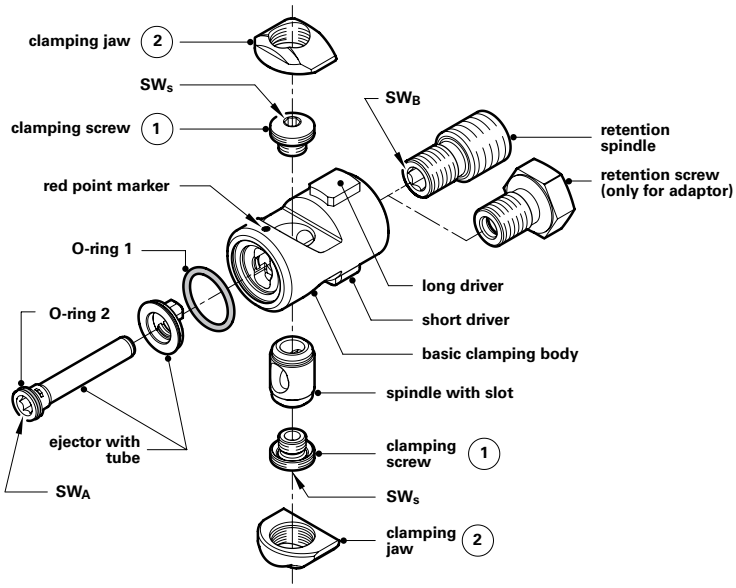

for HSK-C	SW_S	SW_A	O-ring 1 NBR70	4931 spindle with clamping jaw	4932 ejector with tube	4933 retention spindle	4935* retention screw
32	2.5	3	10.82 x 1.78	24,000	24,000	24,000	24,000
40	3	4	13.0 x 2.0	30,000	30,000	30,000	30,000
50	4	5	16.0 x 2.0	38,000	38,000	38,000	38,000
63	5	6	20.3 x 2.4	48,000	48,000	48,000	48,000
80	6	8	24.0 x 3.0	60,000	60,000	60,000	60,000
100	8	10	32.2 x 3.0	75,000	75,000	75,000	75,000

* Guh. no. 4935 only apply with spindle adaptor (in front) Guh. no. 4386 and 4387

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