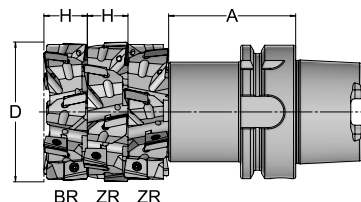


# MULTIRING MM90



Especially suitable for materials  
which are difficult to machine  
Extremely smooth running  
Optimum precision paired with maximum Q



## Tool holders MM90

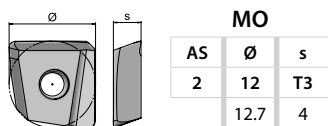
| D   | SK50<br>DIN69871 | A   | kg   | HSK-A63       | A  | kg   | HSK-A100      | A  | kg   |
|-----|------------------|-----|------|---------------|----|------|---------------|----|------|
| 66  | 09A.5050.015     | 49  | 3.00 | -             | -  | -    | -             | -  | -    |
| 66  | -                | -   | -    | 09E.6350.1060 | 60 | 1.10 | -             | -  | -    |
| 80  | 09A.5063.008     | 49  | 3.21 | 09E.6363.1060 | 60 | 1.28 | 09E.1063.1080 | 80 | 3.11 |
| 80  | 09A.5063.031     | 100 | 4.30 | -             | -  | -    | -             | -  | -    |
| 80  | 09A.5063.021     | 150 | 5.36 | -             | -  | -    | -             | -  | -    |
| 100 | 09A.5080.006     | 49  | 3.56 | -             | -  | -    | 09E.1080.1080 | 80 | 3.77 |
| 100 | 09A.5080.025     | 100 | 5.35 | -             | -  | -    | -             | -  | -    |

## Intermediate rings ZR | bottom rings BR MM90

| D   | ZR<br>Article | H    | z <sub>eff</sub> | BR<br>Article | H    | z <sub>eff</sub> | INS<br>Article               | Qty.   | Weight<br>per ring in kg |
|-----|---------------|------|------------------|---------------|------|------------------|------------------------------|--------|--------------------------|
| 66  | 12M.6619.081  | 19.2 | 4                | 12M.6620.082  | 20.5 | 4                | MOGU12T310.L<br>MOGU12T310.R | 3<br>3 | < 0.5                    |
| 80  | 12M.8019.081  | 19.2 | 4                | 12M.8020.082  | 20.5 | 4                | MOGU12T310.L<br>MOGU12T310.R | 3<br>3 | < 1.0                    |
| 100 | 12M.1019.081  | 19.2 | 4                | 12M.1020.082  | 20.5 | 4                | MOGU12T310.L<br>MOGU12T310.R | 3<br>3 | < 1.0                    |

Other dimensions upon request

# INS SHAPE MO



Matching of machining parameters  
with the AV material groups

| Article    | Designation                                | Recomm.<br>$a_e$<br>0.2 x D | Steel   |         |         |         |         |         |        |
|------------|--|-----------------------------|---------|---------|---------|---------|---------|---------|--------|
|            |  |                             | A22     | A21     | A20     | A19     | A18     | A17     | A16    |
| MO..12T3.. | MO.12T3.082.01 SKY77<br>MOGU 12T310 TL-28  | $h_{max}$                   | 0.18    | 0.18    | 0.18    | 0.16    | 0.14    | 0.12    | 0.10   |
|            |  | $v_c$                       | 200-280 | 190-230 | 180-220 | 160-210 | 140-180 | 110-140 | -      |
|            | MO.12T3.082.01 AV1077<br>MOGU 12T310 TL-28 | $h_{max}$                   | -       | -       | 0.18    | 0.16    | 0.14    | 0.12    | 0.10   |
|            |  | $v_c$                       | -       | -       | 180-210 | 160-200 | 140-180 | 110-140 | 80-110 |
| MO..12T3.. | MO.12T3.081.01 SKY77<br>MOGU 12T310 TR-28  | $h_{max}$                   | 0.18    | 0.18    | 0.18    | 0.16    | 0.14    | 0.12    | 0.10   |
|            |  | $v_c$                       | 200-280 | 190-230 | 180-220 | 160-210 | 140-180 | 110-140 | -      |
|            | MO.12T3.081.01 AV1077<br>MOGU 12T310 TR-28 | $h_{max}$                   | -       | -       | 0.18    | 0.16    | 0.14    | 0.12    | 0.10   |
|            |  | $v_c$                       | -       | -       | 180-210 | 160-200 | 140-180 | 110-140 | 80-110 |

| Article    | Designation                               | Recomm.<br>$a_e$<br>0.2 x D | Cast iron |         |         |         |         |         |
|------------|---|-----------------------------|-----------|---------|---------|---------|---------|---------|
|            |   |                             | D21       | D20     | D19     | D18     | D17     | D16     |
| MO..12T3.. | MO.12T3.082.01 SKY77<br>MOGU 12T310 TL-28 | $h_{max}$                   | 0.22      | 0.22    | 0.20    | 0.18    | 0.16    | 0.13    |
|            |   | $v_c$                       | 200-280   | 200-260 | 180-230 | 170-210 | 160-190 | 140-180 |
| MO..12T3.. | MO.12T3.081.01 SKY77<br>MOGU 12T310 TR-28 | $h_{max}$                   | 0.22      | 0.22    | 0.20    | 0.18    | 0.16    | 0.13    |
|            |   | $v_c$                       | 200-280   | 200-260 | 180-230 | 170-210 | 160-190 | 140-180 |

| Article    | Designation                                | Recomm.<br>$a_e$<br>0.2 x D | Stainless steels |         |        |     | NF metals |         |         |
|------------|--|-----------------------------|------------------|---------|--------|-----|-----------|---------|---------|
|            |  |                             | C12              | C11     | C10    | C09 | E82       | E81     | E80     |
| MO..12T3.. | MO.12T3.082.01 SKY77<br>MOGU 12T310 TL-28  | $h_{max}$                   | -                | -       | -      | -   | 0.25      | 0.23    | 0.20    |
|            |  | $v_c$                       | -                | -       | -      | -   | 280-450   | 250-350 | 250-350 |
|            | MO.12T3.082.01 AV1077<br>MOGU 12T310 TL-28 | $h_{max}$                   | 0.12             | 0.10    | 0.08   | -   | 0.25      | 0.23    | 0.20    |
|            |  | $v_c$                       | 120-170          | 100-150 | 80-140 | -   | 280-450   | 250-350 | 250-350 |
| MO..12T3.. | MO.12T3.081.01 SKY77<br>MOGU 12T310 TR-28  | $h_{max}$                   | -                | -       | -      | -   | 0.25      | 0.23    | 0.20    |
|            |  | $v_c$                       | -                | -       | -      | -   | 280-450   | 250-350 | 250-350 |
|            | MO.12T3.081.01 AV1077<br>MOGU 12T310 TR-28 | $h_{max}$                   | 0.12             | 0.10    | 0.08   | -   | 0.25      | 0.23    | 0.20    |
|            |  | $v_c$                       | 120-170          | 100-150 | 80-140 | -   | 280-450   | 250-350 | 250-350 |

Parameters vibration-/surface-dependent

| INS         |              |       |
|-------------|--------------|-------|
| MO..12T3... | 08B.0309.001 | TX208 |