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**Powerful, extremely capable and exceptionally durable. Plus top marks for processing precision. Simply great - through and through!**







## LIVE CENTERS - FACE DRIVERS

|                             |                |      |
|-----------------------------|----------------|------|
| Revolving tailstock centres |                | 2004 |
| Revolving centering tapers  |                | 2022 |
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| Constant face drivers CoB   |                | 2041 |

**Please note:**

The delivery time specified in the catalogue is valid from 01.01.2012

# Operation Guide

Workpiece weight max. kg

Operation Guide

| MT       | 50                          | 100                          | 150                           | 200                          | 250                            | 300                         | 350                           | 400                          | 500                            | 600                      | 650                      | 700                          | 750                         | 800                          |
|----------|-----------------------------|------------------------------|-------------------------------|------------------------------|--------------------------------|-----------------------------|-------------------------------|------------------------------|--------------------------------|--------------------------|--------------------------|------------------------------|-----------------------------|------------------------------|
| <b>1</b> | 604 HM<br>n=7000<br>RO=0,05 | 601 N<br>n=7000<br>RO=0,05   |                               |                              |                                |                             |                               |                              |                                |                          |                          |                              |                             |                              |
|          | 624 HZ<br>n=7000<br>RO=0,05 | 604 H<br>n=7000<br>RO=0,05   |                               |                              |                                |                             |                               |                              |                                |                          |                          |                              |                             |                              |
|          |                             | 604 HVL<br>n=7000<br>RO=0,01 |                               |                              |                                |                             |                               |                              |                                |                          |                          |                              |                             |                              |
| <b>2</b> | 614<br>n=7000<br>RO=0,01    | 604 HM<br>n=7000<br>RO=0,005 | 600-20<br>n=7000<br>RO=0,008  | 600<br>n=7000<br>RO=0,005    |                                |                             |                               |                              |                                |                          |                          |                              |                             |                              |
|          |                             | 624 HZ<br>n=7000<br>RO=0,005 | 604 HVL<br>n=7000<br>RO=0,005 | 601 N<br>n=7000<br>RO=0,005  |                                |                             |                               |                              |                                |                          |                          |                              |                             |                              |
|          |                             | 664<br>n=12000<br>RO=0,01    | 604 HMG<br>n=7000<br>RO=0,005 | 604 H<br>n=7000<br>RO=0,005  |                                |                             |                               |                              |                                |                          |                          |                              |                             |                              |
|          |                             |                              |                               | 604 HP<br>n=7000<br>RO=0,003 |                                |                             |                               |                              |                                |                          |                          |                              |                             |                              |
|          |                             |                              |                               | 604 HG<br>n=7000<br>RO=0,005 |                                |                             |                               |                              |                                |                          |                          |                              |                             |                              |
| <b>3</b> |                             | 664<br>n=4000<br>RO=0,01     | 615<br>n=8000<br>RO=0,01      |                              | 604 HM<br>n=6300<br>RO=0,005   | 601 N<br>n=6300<br>RO=0,005 | 600-20<br>n=7000<br>RO=0,008  | 600<br>n=7000<br>RO=0,005    | 604 HP<br>n=5000<br>RO=0,003   |                          |                          |                              |                             |                              |
|          |                             |                              | 614<br>n=5000<br>RO=0,01      |                              | 624 HZ<br>n=5000<br>RO=0,005   |                             | 604 HMG<br>n=6300<br>RO=0,005 | 604 H<br>n=5000<br>RO=0,005  | 604 HG<br>n=5000<br>RO=0,005   |                          |                          |                              |                             |                              |
|          |                             |                              |                               |                              | 652 AC VL<br>n=4000<br>RO=0,01 |                             | 604 HVL<br>n=5000<br>RO=0,005 |                              |                                |                          |                          |                              |                             |                              |
|          |                             |                              |                               |                              |                                |                             | 652 AC<br>n=4000<br>RO=0,01   |                              |                                |                          |                          |                              |                             |                              |
| <b>4</b> |                             |                              |                               |                              | 664<br>n=9000<br>RO=0,01       | 615<br>n=7000<br>RO=0,01    |                               | 624 HZ<br>n=3800<br>RO=0,005 | 604 HVL<br>n=3800<br>RO=0,005  |                          |                          | 600-20<br>n=6300<br>RO=0,008 | 601-N<br>n=3800<br>RO=0,005 | 600<br>n=6300<br>RO=0,005    |
|          |                             |                              |                               |                              | 614<br>n=3800<br>RO=0,01       |                             |                               |                              | 604 HM<br>n=3800<br>RO=0,005   |                          |                          |                              |                             | 604 H<br>n=3800<br>RO=0,005  |
|          |                             |                              |                               |                              |                                |                             |                               |                              | 604 HMG<br>n=3800<br>RO=0,005  |                          |                          |                              |                             | 604 HP<br>n=3800<br>RO=0,003 |
|          |                             |                              |                               |                              |                                |                             |                               |                              | 652 AC VL<br>n=3500<br>RO=0,01 |                          |                          |                              |                             | 604 HG<br>n=3800<br>RO=0,003 |
|          |                             |                              |                               |                              |                                |                             |                               |                              |                                |                          |                          |                              |                             | 652 AC<br>n=3500<br>RO=0,01  |
|          |                             |                              |                               |                              |                                |                             |                               |                              |                                |                          |                          |                              |                             | 663<br>n=10000<br>RO=0,05    |
| <b>5</b> |                             |                              |                               |                              | 664<br>n=9000<br>RO=0,01       |                             |                               |                              |                                | 615<br>n=5000<br>RO=0,01 | 614<br>n=3000<br>RO=0,01 |                              |                             |                              |
|          |                             |                              |                               |                              |                                |                             |                               |                              |                                |                          |                          |                              |                             |                              |
|          |                             |                              |                               |                              |                                |                             |                               |                              |                                |                          |                          |                              |                             |                              |
|          |                             |                              |                               |                              |                                |                             |                               |                              |                                |                          |                          |                              |                             |                              |
| <b>6</b> |                             |                              |                               |                              |                                |                             |                               |                              |                                |                          |                          |                              |                             | 614<br>n=2600<br>RO=0,015    |
|          |                             |                              |                               |                              |                                |                             |                               |                              |                                |                          |                          |                              |                             |                              |

# Operation Guide

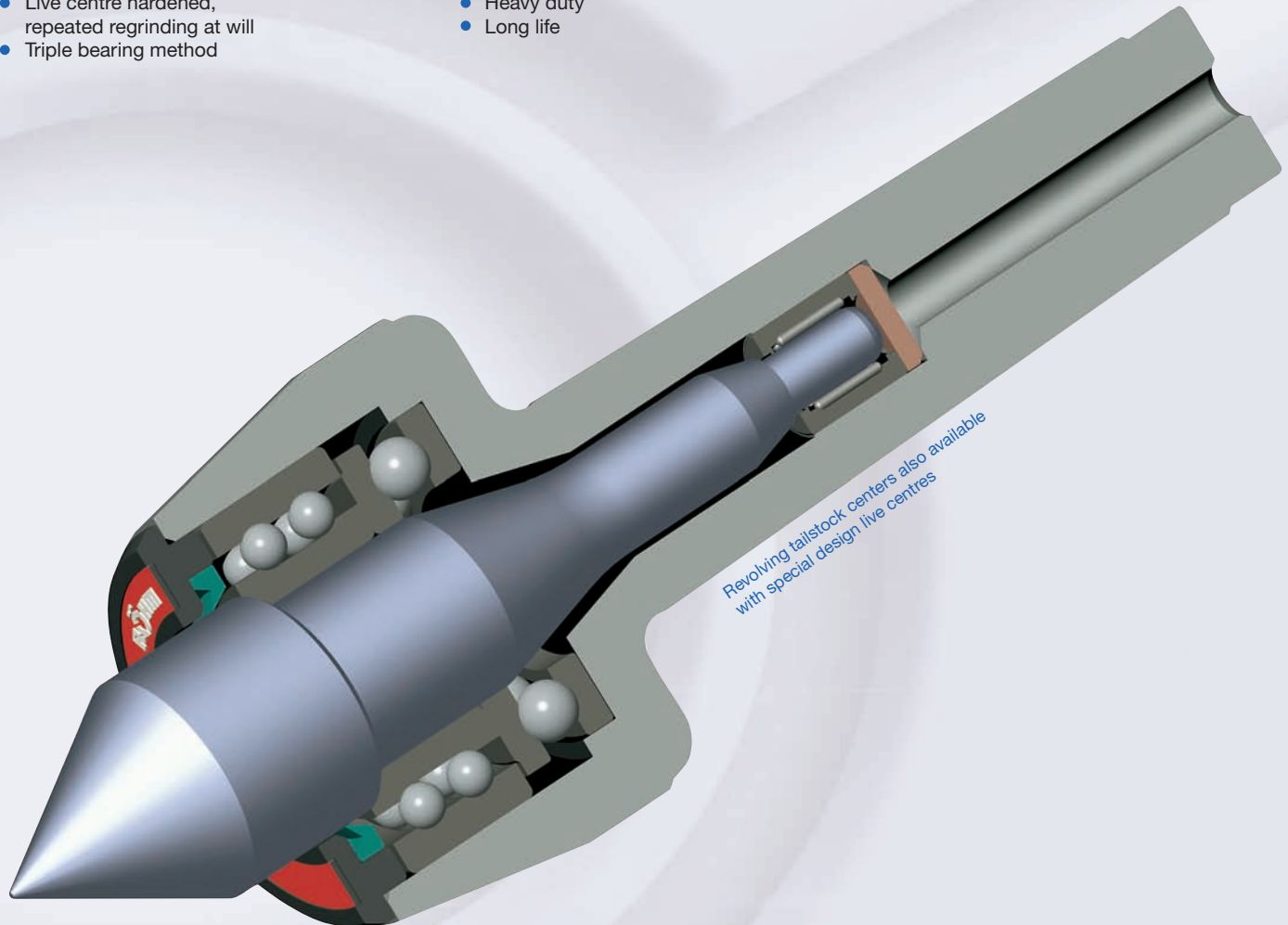
Workpiece weight max. kg

[illegible]

## Technical features MKS

### Advantages:

- Different models suitable to various applications
- Body hardened and ground
- Live centre hardened, repeated regrinding at will
- Triple bearing method
- High runout accuracy
- Life-time lubricated
- High speeds
- Heavy duty
- Long life



**Reliable lip seal** protects bearing space from ingress by dirt and coolant. Reduced friction heating up.

**High-precision roller bearings**

**Big secure support surface** essential for full axial bearing load.

**Shaft bore hole** for easy efficient dismounting.

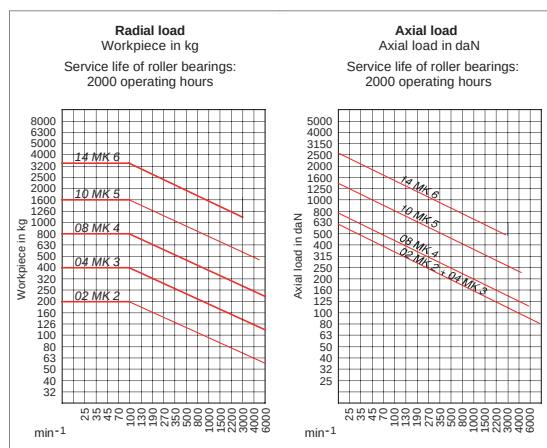
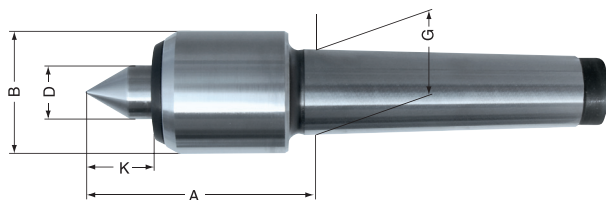
**High-precision needle bearing**

**Live centre** made of wear-resistant tool steel drop-forged and through-hardened to withstand repeated regrinding, shank-bedded.

**Drop-forged body** with high load capacity due to uniform fibre flow; hardened and ground. Modern head design with bevelling for unhindered approach of tool holder and lathe tools.

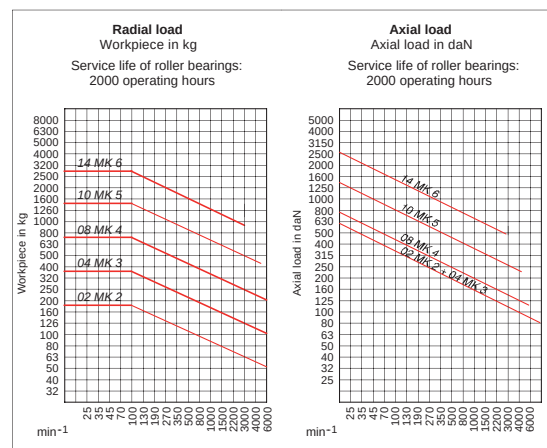
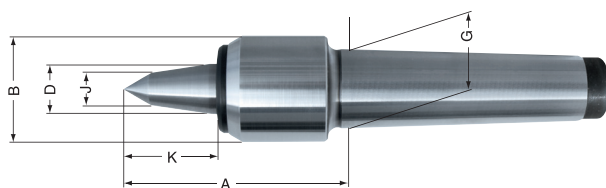
**Shaft ground true** to gauge size.

## MKS - Tip angle 60°



Tool group A06  
Type 600  
with **small casing diameter**

| Item no.                     | 005336 ● | 005429 ● | 005469 ● | 005490 ● | 005547 ● |
|------------------------------|----------|----------|----------|----------|----------|
| Mount MT                     | 2        | 3        | 4        | 5        | 6        |
| Size                         | 02       | 04       | 08       | 10       | 14       |
| A                            | 62       | 62       | 75,5     | 104      | 143      |
| B                            | 32       | 34       | 42       | 58       | 80       |
| D                            | 15       | 15       | 20       | 30       | 42       |
| G                            | 17,78    | 23,825   | 31,267   | 44,399   | 63,348   |
| K                            | 18       | 18       | 25       | 34       | 49       |
| Weight approx. g             | 300      | 400      | 1000     | 2600     | 7100     |
| Workpiece weight max. kg     | 200      | 400      | 800      | 1600     | 3500     |
| Concentricity deviation      | 0,005    | 0,005    | 0,005    | 0,01     | 0,02     |
| Speed max. min <sup>-1</sup> | 7000     | 7000     | 6300     | 4300     | 3000     |
| Spare live centres           | 005339   | 005432   | 005472   | 005493   | 005550   |

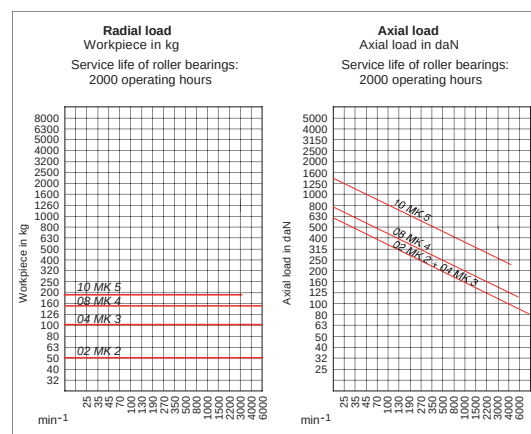
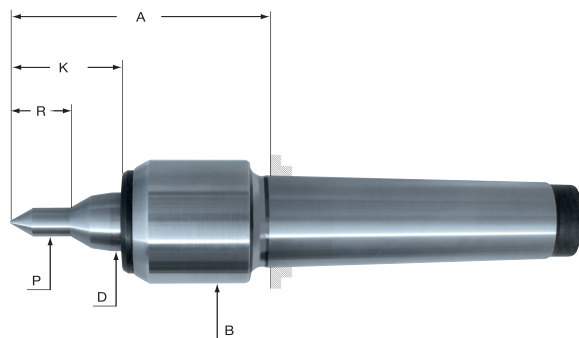


Tool group A06  
Type 600-20  
with **extended live centre**

| Item no.                     | 362080 ● | 362081 ● | 362082 ● | 362083 ● | 362084 ● |
|------------------------------|----------|----------|----------|----------|----------|
| Mount MT                     | 2        | 3        | 4        | 5        | 6        |
| Size                         | 02       | 04       | 08       | 10       | 14       |
| A                            | 73       | 74       | 88,5     | 119      | 164      |
| B                            | 32       | 34       | 42       | 58       | 80       |
| D                            | 15       | 15       | 20       | 30       | 42       |
| G                            | 17,78    | 23,825   | 31,267   | 44,399   | 63,348   |
| K                            | 29       | 30       | 38       | 49       | 70       |
| J                            | 10       | 11       | 13       | 14       | 18       |
| Weight approx. g             | 320      | 460      | 1000     | 2600     | 7100     |
| Workpiece weight max. kg     | 170      | 340      | 700      | 1400     | 3000     |
| Concentricity deviation      | 0,008    | 0,008    | 0,008    | 0,01     | 0,02     |
| Speed max. min <sup>-1</sup> | 7000     | 7000     | 6300     | 4300     | 3000     |
| Spare live centres           | 362085   | 362086   | 362087   | 362088   | 362089   |

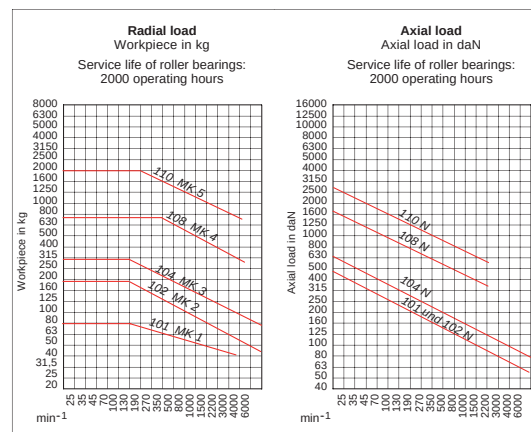
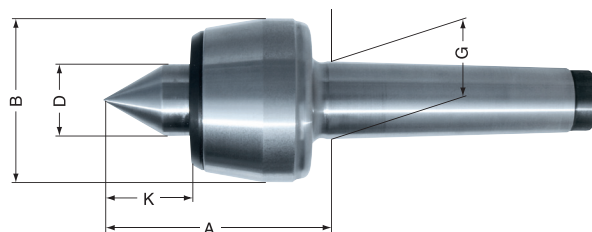


## MKS - Tip angle 60°



Tool group A06  
Type 600-20  
with **profiled centre point**

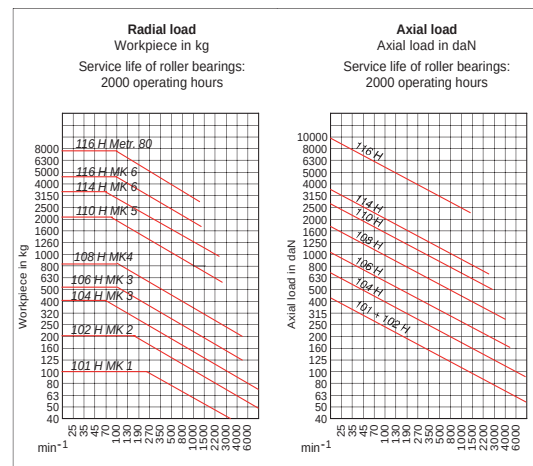
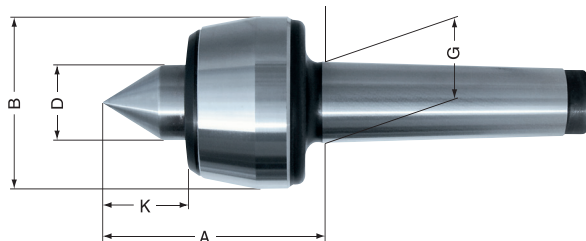
| Item no.                     | 552606 | 552607 | 552608 | 552609 |
|------------------------------|--------|--------|--------|--------|
| Mount MT                     | 2      | 3      | 4      | 5      |
| Size                         | 02     | 04     | 08     | 10     |
| A                            | 73     | 74     | 88,5   | 119    |
| B                            | 32     | 34     | 42     | 58     |
| D                            | 15     | 15     | 20     | 30     |
| K                            | 29     | 30     | 38     | 49     |
| P                            | 6      | 8      | 10     | 12     |
| R                            | 12     | 16     | 20     | 26     |
| Workpiece weight max. kg     | 50     | 100    | 150    | 180    |
| Speed max. min <sup>-1</sup> | 7000   | 7000   | 6300   | 4300   |
| Spare live centres           | 552814 | 552815 | 552755 | 552816 |



Tool group A06  
Type 601 N **standard design**,  
body only ground

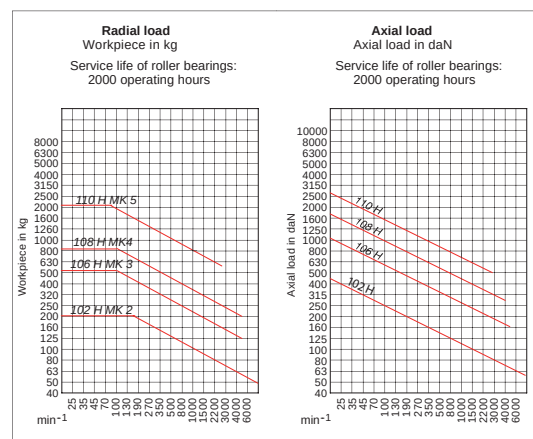
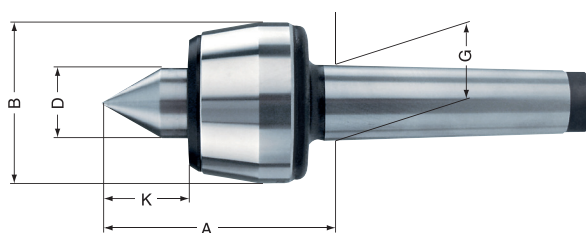
| Item no.                     | 061740 | 043395 | 043111 | 042310 | 042171 | 042839 |
|------------------------------|--------|--------|--------|--------|--------|--------|
| Mount MT                     | 0      | 1      | 2      | 3      | 4      | 5      |
| Size                         | 100    | 101    | 102    | 104    | 108    | 110    |
| A                            | 44     | 60,5   | 65     | 70,5   | 102,5  | 129    |
| B                            | 25     | 36     | 45     | 50     | 70     | 90     |
| D                            | 10     | 15     | 20     | 22     | 32     | 40     |
| G                            | 9,045  | 12,065 | 17,78  | 23,825 | 31,267 | 44,399 |
| K                            | 11     | 17     | 24     | 27,5   | 41     | 50,5   |
| Weight approx. g             | 200    | 400    | 500    | 800    | 2300   | 4700   |
| Workpiece weight max. kg     | 10     | 80     | 180    | 300    | 750    | 1800   |
| Concentricity deviation      | 0,01   | 0,005  | 0,005  | 0,005  | 0,005  | 0,005  |
| Speed max. min <sup>-1</sup> | 15000  | 7000   | 7000   | 6300   | 3800   | 3000   |
| Spare live centres           | 005660 | 043398 | 005728 | 005780 | 005796 | 005806 |

## MKS - Tip angle 60°



Tool group A06  
Type 604 H  
**body hardened and ground**

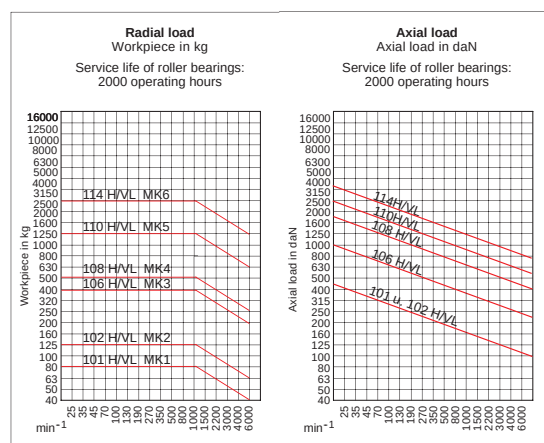
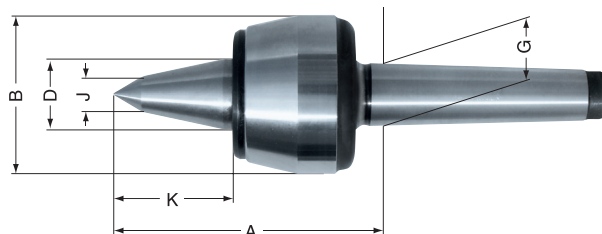
| Item no.                     | 043400 | 043115 | 042315 | 042776 | 042175 | 042843 | 043532 | 093439 | 093440   |
|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|----------|
| Mount MT                     | 1      | 2      | 3      | 3      | 4      | 5      | 6      | MK 6   | Metr. 80 |
| Size                         | 101    | 102    | 104    | 106    | 108    | 110    | 114    | 116    | 116      |
| A                            | 60,5   | 65     | 70,5   | 79,5   | 102,5  | 129    | 152    | 196    | 196      |
| B                            | 36     | 45     | 50     | 60     | 70     | 90     | 105    | 140    | 140      |
| D                            | 15     | 20     | 22     | 25     | 32     | 40     | 50     | 60     | 60       |
| G                            | 12,065 | 17,78  | 23,825 | 23,825 | 31,267 | 44,399 | 63,348 | 63,348 | 80       |
| K                            | 17     | 24     | 27,5   | 31     | 41     | 50,5   | 57,5   | 67     | 68       |
| Weight approx. g             | 400    | 500    | 800    | 1300   | 2300   | 4700   | 10200  | 17800  | 23000    |
| Workpiece weight max. kg     | 100    | 200    | 400    | 500    | 800    | 2000   | 3500   | 5000   | 8500     |
| Concentricity deviation      | 0,005  | 0,005  | 0,005  | 0,005  | 0,005  | 0,005  | 0,01   | 0,01   | 0,015    |
| Speed max. min <sup>-1</sup> | 7000   | 7000   | 6300   | 5000   | 3800   | 3000   | 2600   | 1500   | 1500     |
| Spare live centres           | 043398 | 005728 | 005780 | 005896 | 005796 | 005806 | 005911 | 093458 | 093464   |



Tool group A06  
Type 604 HP  
**precision version**

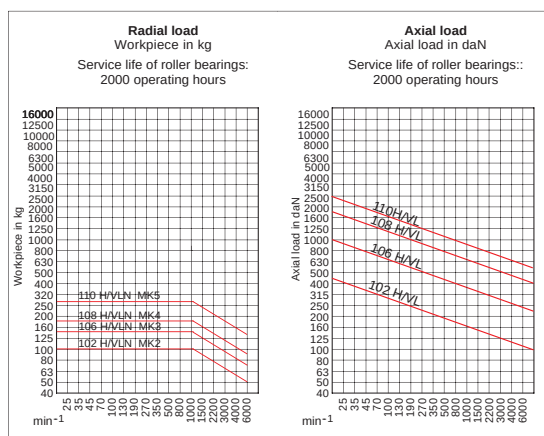
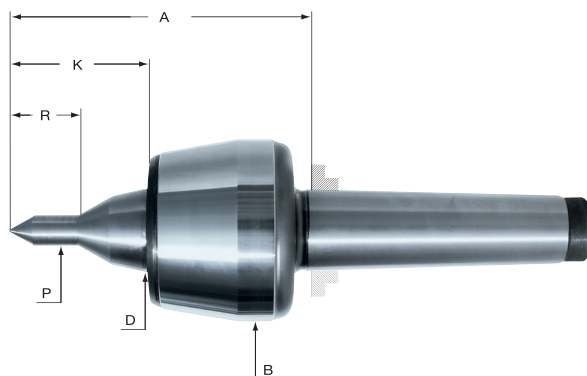
| Item no.                     | 082392 | 318227 | 082394 | 082395 |
|------------------------------|--------|--------|--------|--------|
| Mount MT                     | 2      | 3      | 4      | 5      |
| Size                         | 102    | 106    | 108    | 110    |
| A                            | 65     | 82     | 102,5  | 129    |
| B                            | 45     | 55     | 70     | 90     |
| D                            | 20     | 25     | 32     | 40     |
| G                            | 17,78  | 23,825 | 31,267 | 44,399 |
| K                            | 24     | 30,5   | 41     | 50,5   |
| Weight approx. g             | 500    | 1300   | 2300   | 4700   |
| Workpiece weight max. kg     | 200    | 500    | 800    | 2000   |
| Concentricity deviation      | 0,003  | 0,003  | 0,003  | 0,003  |
| Speed max. min <sup>-1</sup> | 7000   | 5000   | 3800   | 3000   |
| Spare live centres           | 005728 | 324478 | 005796 | 005806 |

## MKS - Tip angle 60°



Tool group A06  
Type 604 HVL  
with **extended live centre**

| Item no.                     | 058668 | 058669 | 058670 | 058671 | 058672 | 058673 |
|------------------------------|--------|--------|--------|--------|--------|--------|
| Mount MT                     | 1      | 2      | 3      | 4      | 5      | 6      |
| Size                         | 101    | 102    | 106    | 108    | 110    | 114    |
| A                            | 70,5   | 75     | 95,5   | 114,5  | 143,5  | 172,5  |
| B                            | 36     | 45     | 60     | 70     | 90     | 105    |
| D                            | 15     | 20     | 25     | 32     | 40     | 50     |
| G                            | 12,065 | 17,78  | 23,825 | 31,267 | 44,399 | 63,348 |
| K                            | 27     | 34     | 47     | 53     | 65     | 78     |
| J                            | 9      | 10     | 12     | 14     | 16     | 18     |
| Weight approx. g             | 400    | 500    | 1300   | 2300   | 4800   | 10200  |
| Workpiece weight max. kg     | 80     | 140    | 400    | 500    | 1200   | 2500   |
| Concentricity deviation      | 0,01   | 0,005  | 0,005  | 0,005  | 0,005  | 0,01   |
| Speed max. min <sup>-1</sup> | 7000   | 7000   | 5000   | 3800   | 3000   | 2600   |
| Spare live centres           | 068722 | 068723 | 068724 | 068725 | 068727 | 068728 |

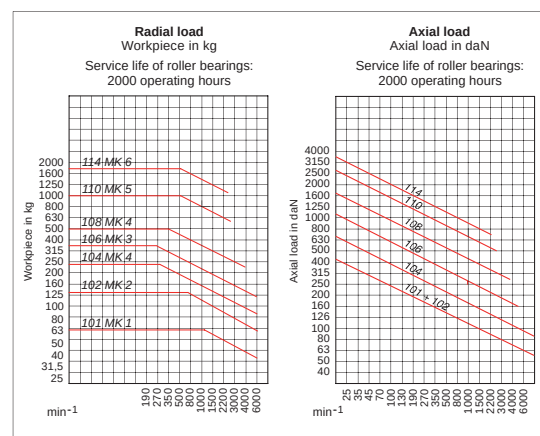
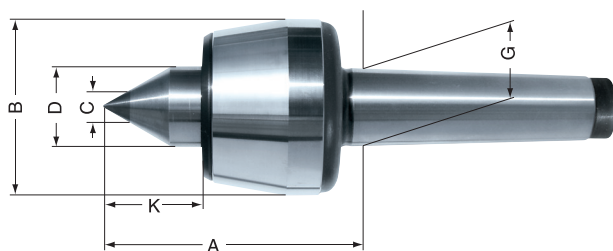


Tool group A06  
Type 604 HVLN  
with **profiled centre point**

| Item no.                     | 552629 | 552630 | 552631 | 552632 |
|------------------------------|--------|--------|--------|--------|
| Mount MT                     | 2      | 3      | 4      | 5      |
| Size                         | 102    | 106    | 108    | 110    |
| A                            | 75     | 95,5   | 114,5  | 143,5  |
| B                            | 45     | 60     | 70     | 90     |
| D                            | 20     | 25     | 32     | 40     |
| K                            | 34     | 47     | 53     | 65     |
| P                            | 8      | 10     | 12     | 14     |
| R                            | 16     | 20     | 26     | 30     |
| Workpiece weight max. kg     | 100    | 150    | 180    | 280    |
| Speed max. min <sup>-1</sup> | 7000   | 5000   | 3800   | 3000   |
| Spare live centres           | 552817 | 552818 | 552792 | 552819 |

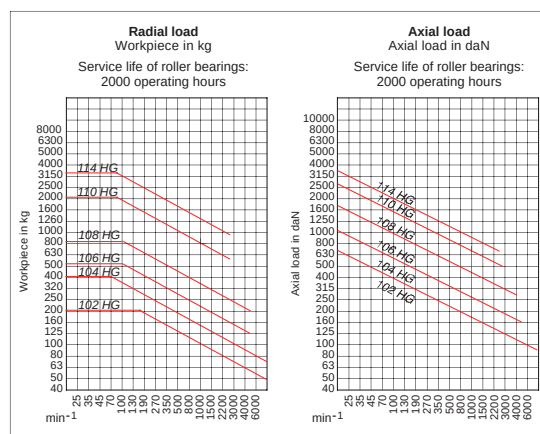
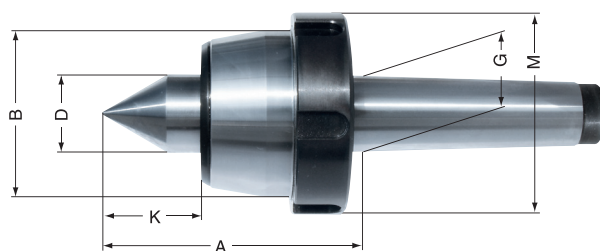


## MKS - Tip angle 60°



Tool group A06  
Type 604 HM  
with **carbide insert**

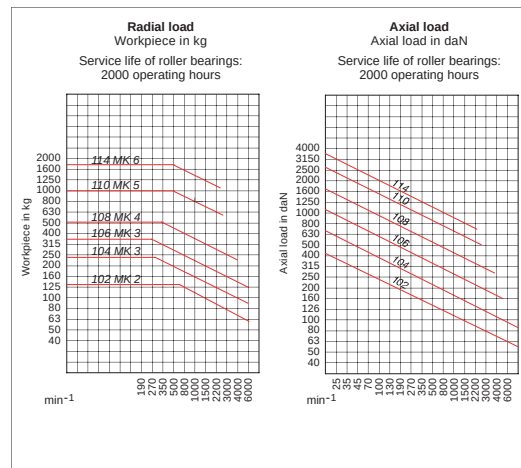
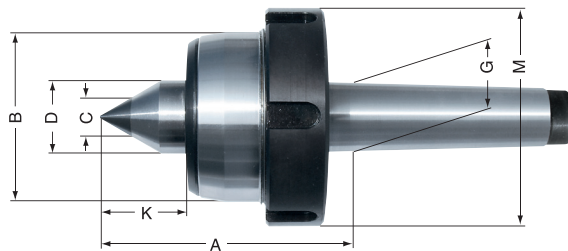
| Item no.                     | 225297 | 032140 | 090089 | 237413 | 093306 | 221016 | 221017 |
|------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Mount MT                     | 1      | 2      | 3      | 3      | 4      | 5      | 6      |
| Size                         | 101    | 102    | 104    | 106    | 108    | 110    | 114    |
| A                            | 60,5   | 65     | 70,5   | 79,5   | 102,5  | 129    | 152    |
| B                            | 36     | 45     | 50     | 60     | 70     | 90     | 105    |
| C                            | 7      | 11     | 11     | 14     | 14     | 18     | 18     |
| D                            | 15     | 20     | 22     | 25     | 32     | 40     | 50     |
| G                            | 12,065 | 17,78  | 23,825 | 23,825 | 31,267 | 44,399 | 63,348 |
| K                            | 17     | 24     | 27,5   | 31     | 41     | 50,5   | 57,5   |
| Weight approx. g             | 400    | 600    | 900    | 1300   | 2300   | 4700   | 10000  |
| Workpiece weight max. kg     | 60     | 120    | 240    | 360    | 500    | 1000   | 1800   |
| Concentricity deviation      | 0,005  | 0,005  | 0,005  | 0,005  | 0,005  | 0,005  | 0,01   |
| Speed max. min <sup>-1</sup> | 7000   | 7000   | 6300   | 5000   | 3800   | 3000   | 2600   |
| Spare live centres           | 097545 | 032141 | 090090 | 090330 | 090214 | 221033 | 221034 |



Tool group A06  
Type 604 HG  
with **draw-off nut**

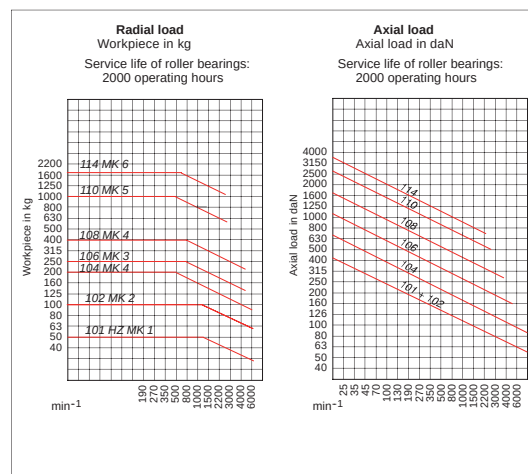
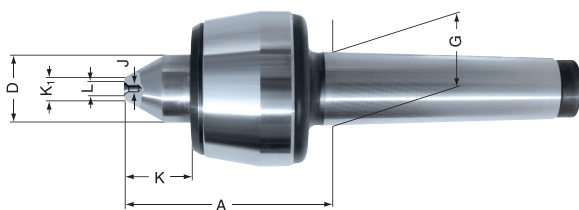
| Item no.                     | 221018 | 221019 | 205036 | 207148 | 074390 | 221020 |
|------------------------------|--------|--------|--------|--------|--------|--------|
| Mount MT                     | 2      | 3      | 3      | 4      | 5      | 6      |
| Size                         | 102    | 104    | 106    | 108    | 110    | 114    |
| A                            | 65     | 70,5   | 79,5   | 102,5  | 129    | 152    |
| B                            | 45     | 50     | 60     | 70     | 90     | 105    |
| D                            | 20     | 22     | 25     | 32     | 40     | 50     |
| G                            | 17,78  | 23,825 | 23,825 | 31,267 | 44,399 | 63,348 |
| K                            | 24     | 27,5   | 31     | 41     | 50,5   | 57,5   |
| M                            | 56     | 62     | 74     | 82     | 105    | 120    |
| Weight approx. g             | 600    | 1000   | 1400   | 2400   | 5200   | 10500  |
| Workpiece weight max. kg     | 200    | 400    | 500    | 800    | 2000   | 3500   |
| Concentricity deviation      | 0,005  | 0,005  | 0,005  | 0,005  | 0,005  | 0,01   |
| Speed max. min <sup>-1</sup> | 7000   | 6300   | 5000   | 3800   | 3000   | 2600   |
| Spare live centres           | 005728 | 005780 | 005896 | 005796 | 005806 | 005911 |

## MKS - Tip angle 60°



Tool group A06  
Type 604 HMG  
with **draw-off nut** and **carbide insert**

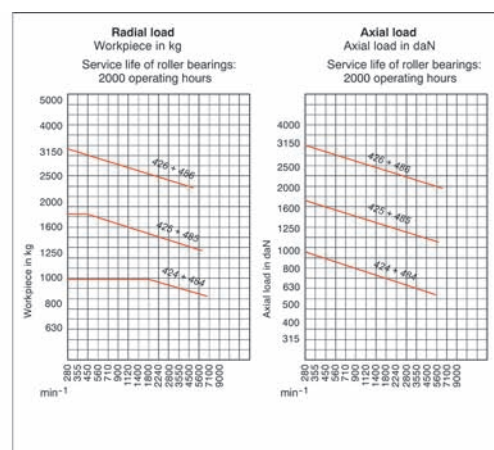
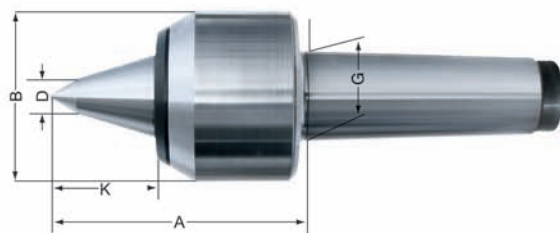
| Item no.                     | 221021 | 221022 | 221023 | 221024 | 221025 | 221026 |
|------------------------------|--------|--------|--------|--------|--------|--------|
| Mount MT                     | 2      | 3      | 3      | 4      | 5      | 6      |
| Size                         | 102    | 104    | 106    | 108    | 110    | 114    |
| A                            | 65     | 70,5   | 79,5   | 102,5  | 129    | 152    |
| B                            | 45     | 50     | 60     | 70     | 90     | 105    |
| C                            | 11     | 11     | 14     | 14     | 18     | 18     |
| D                            | 20     | 22     | 25     | 32     | 40     | 50     |
| G                            | 17,78  | 23,825 | 23,825 | 31,265 | 44,399 | 63,348 |
| K                            | 24     | 27,5   | 31     | 41     | 50,5   | 57,5   |
| M                            | 56     | 62     | 74     | 82     | 105    | 120    |
| Weight approx. g             | 600    | 1000   | 1400   | 2400   | 5200   | 10500  |
| Workpiece weight max. kg     | 120    | 240    | 360    | 500    | 1000   | 1800   |
| Concentricity deviation      | 0,005  | 0,005  | 0,005  | 0,005  | 0,005  | 0,01   |
| Speed max. min <sup>-1</sup> | 7000   | 6300   | 5000   | 3800   | 3000   | 2600   |
| Spare live centres           | 032141 | 090090 | 090330 | 090214 | 221033 | 221034 |



Tool group A06  
Type 624 HZ with **centre bore**

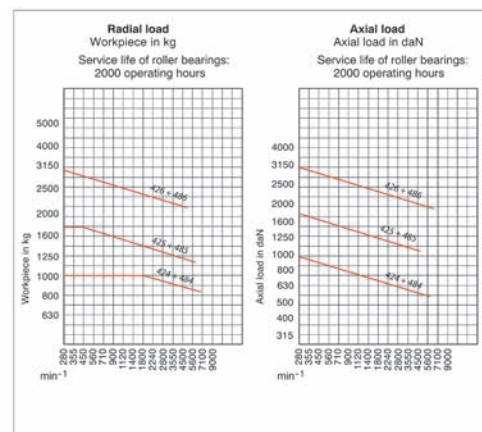
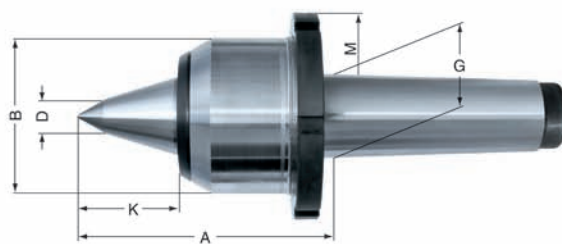
| Item no.                     | 221260 | 221261 | 221262 | 221263 | 221264 | 221265 | 221266 |
|------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Mount MT                     | 1      | 2      | 3      | 3      | 4      | 5      | 6      |
| Size                         | 101    | 102    | 104    | 106    | 108    | 110    | 114    |
| A                            | 56,5   | 60     | 65     | 72     | 92     | 115    | 135    |
| D                            | 15     | 20     | 22     | 25     | 32     | 40     | 50     |
| G                            | 12,065 | 17,78  | 23,825 | 23,825 | 31,267 | 44,399 | 63,348 |
| J                            | 1      | 1,5    | 2      | 2,5    | 3,15   | 5      | 6,3    |
| K                            | 13     | 19     | 21,5   | 23,5   | 30     | 36     | 40,5   |
| K1                           | 5      | 6      | 7      | 9      | 12     | 16     | 20     |
| L                            | 3      | 4      | 5      | 6,5    | 8      | 12     | 16     |
| Weight approx. g             | 400    | 500    | 900    | 1300   | 2300   | 4700   | 10000  |
| Workpiece weight max. kg     | 50     | 100    | 200    | 250    | 400    | 1000   | 1700   |
| Concentricity deviation      | 0,005  | 0,005  | 0,005  | 0,005  | 0,005  | 0,005  | 0,01   |
| Speed max. min <sup>-1</sup> | 7000   | 7000   | 6300   | 5000   | 3800   | 3000   | 2600   |
| Spare live centres           | 221267 | 221268 | 221269 | 221270 | 221271 | 221272 | 221273 |

## MKS - Tip angle 60°



Tool group A06  
Type 640-20  
for **high load** at high speeds

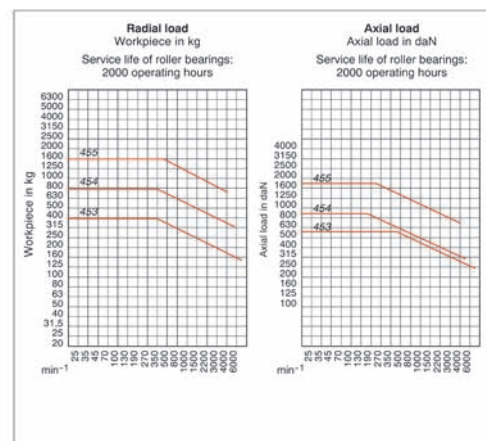
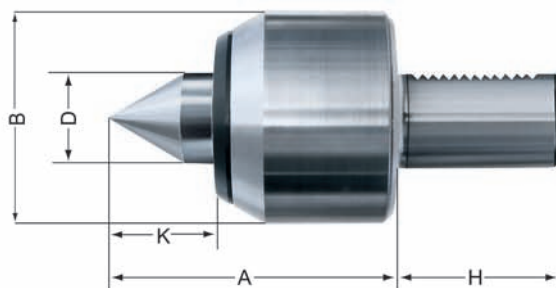
| Item no.                     | 303598 ● | 303599 ● | 301696 ● |
|------------------------------|----------|----------|----------|
| Mount MT                     | 4        | 5        | 6        |
| Size                         | 424      | 425      | 426      |
| A                            | 122      | 150      | 180      |
| B                            | 70       | 95       | 120      |
| D                            | 16       | 20       | 26       |
| G                            | 31,267   | 44,399   | 63,348   |
| K                            | 44       | 59       | 77       |
| Weight approx. g             | 2600     | 5500     | 11500    |
| Workpiece weight max. kg     | 1000     | 2000     | 3000     |
| Concentricity deviation      | 0,005    | 0,005    | 0,005    |
| Speed max. min <sup>-1</sup> | 7000     | 6000     | 4800     |
| Spare live centres           | 306202   | 306182   | 301978   |



Tool group A06  
Type 640-80  
with **draw-off nut**

| Item no.                     | 304521 ● | 304522 ● | 304523 ● |
|------------------------------|----------|----------|----------|
| Mount MT                     | 4        | 5        | 6        |
| Size                         | 484      | 485      | 486      |
| A                            | 122      | 150      | 180      |
| B                            | 70       | 95       | 120      |
| D                            | 16       | 20       | 26       |
| G                            | 31,267   | 44,399   | 63,348   |
| K                            | 44       | 59       | 77       |
| M                            | 100      | 125      | 155      |
| Weight approx. g             | 2800     | 5400     | 12300    |
| Workpiece weight max. kg     | 1000     | 2000     | 3000     |
| Concentricity deviation      | 0,005    | 0,005    | 0,005    |
| Speed max. min <sup>-1</sup> | 7000     | 6000     | 4800     |
| Spare live centres           | 306202   | 306182   | 301978   |

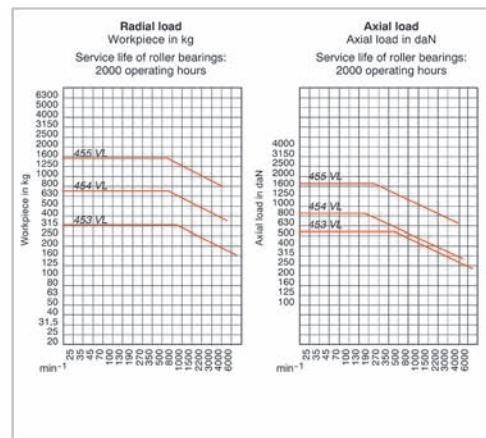
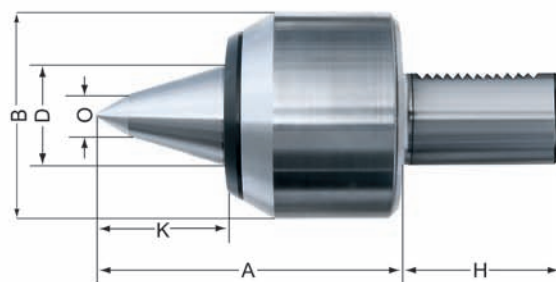
## MKS - Tip angle 60°



Tool group A06  
Type 645-00  
with shank VDI 3425/DIN 69880  
live center spring-loaded

| Item no.                     | 664630 | 664631 | 664632 |
|------------------------------|--------|--------|--------|
| Shank-Ø                      | 30     | 40     | 50     |
| Size                         | 453    | 454    | 455    |
| A                            | 90     | 102    | 135    |
| B                            | 68     | 83     | 98     |
| D                            | 25     | 32     | 40     |
| H                            | 55     | 63     | 78     |
| K                            | 31,5   | 39     | 49     |
| Weight approx. g             | 2200   | 3600   | 8400   |
| Spring way <sup>1)</sup>     | 1,7    | 2      | 2,2    |
| Axial load max.              | 580    | 900    | 1800   |
| Workpiece weight max. kg     | 400    | 800    | 1600   |
| Concentricity deviation      | 0,01   | 0,01   | 0,01   |
| Speed max. min <sup>-1</sup> | 7000   | 5500   | 4000   |

<sup>1)</sup> at max. axial load

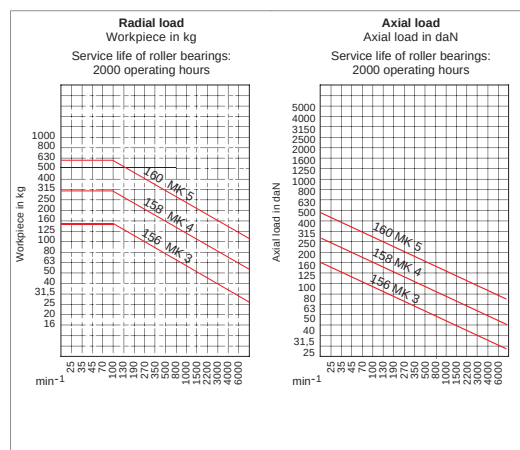
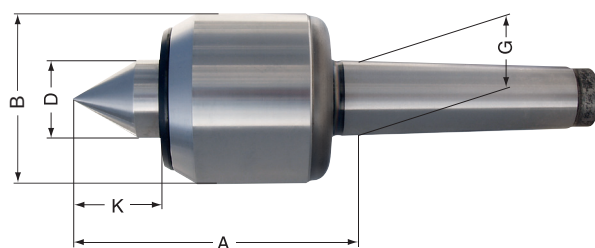


Tool group A06  
Type 645-20  
with shank VDI 3425/DIN 69880  
with extended and spring-loaded  
live centre

| Item no.                     | 664633 | 664634 | 664635 |
|------------------------------|--------|--------|--------|
| Shank-Ø                      | 30     | 40     | 50     |
| Size                         | 453    | 454    | 455    |
| A                            | 105    | 116    | 152    |
| B                            | 68     | 83     | 98     |
| D                            | 25     | 32     | 40     |
| H                            | 55     | 63     | 78     |
| O                            | 11     | 14     | 15     |
| K                            | 46,5   | 53     | 66     |
| Weight approx. g             | 2300   | 3700   | 8500   |
| Spring way <sup>1)</sup>     | 1,7    | 2      | 2,2    |
| Axial load max.              | 580    | 900    | 1800   |
| Workpiece weight max. kg     | 300    | 650    | 1400   |
| Concentricity deviation      | 0,01   | 0,01   | 0,01   |
| Speed max. min <sup>-1</sup> | 7000   | 5500   | 4000   |

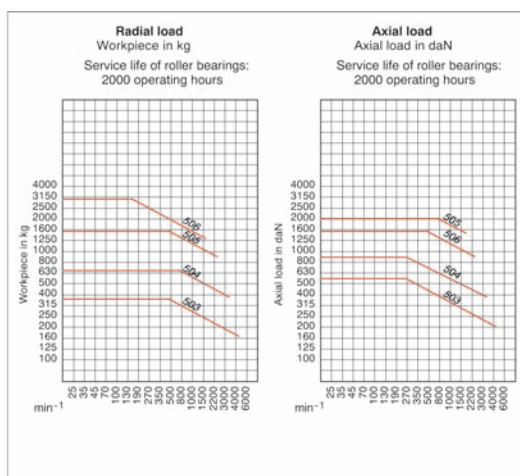
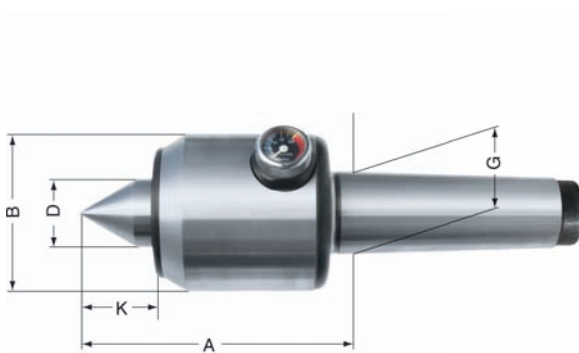
<sup>1)</sup> at max. axial load

## MKS - Tip angle 60°



Tool group A06  
Type 615  
with **impact damping**

| Item no.                     | 060779 ● | 060846 ● | 060881 ● |
|------------------------------|----------|----------|----------|
| Mount MT                     | 3        | 4        | 5        |
| Size                         | 156      | 158      | 160      |
| A                            | 97       | 113,5    | 148      |
| B                            | 60       | 70       | 95       |
| D                            | 25       | 32       | 40       |
| G                            | 23,825   | 31,267   | 44,399   |
| K                            | 31,5     | 39,5     | 49,5     |
| Weight approx. g             | 1500     | 2500     | 7100     |
| Workpiece weight max. kg     | 150      | 300      | 600      |
| Concentricity deviation      | 0,01     | 0,01     | 0,01     |
| Speed max. min <sup>-1</sup> | 8000     | 7000     | 5000     |
| Spare live centres           | 009841   | 010175   | 012677   |



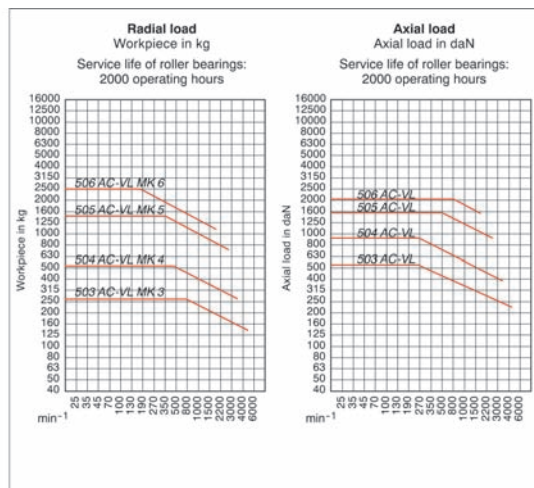
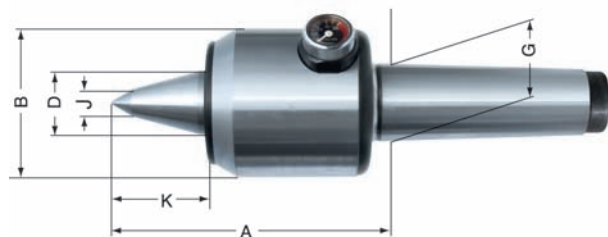
Tool group A06  
Type 652 AC  
with **pressure display**  
and **length compensation**  
as counter centre with face drivers

| Item no.                     | 060798 ● | 060874 ● | 060906 ● | 060915 ● |
|------------------------------|----------|----------|----------|----------|
| Mount MT                     | 3        | 4        | 5        | 6        |
| Size                         | 503      | 504      | 505      | 506      |
| A                            | 105      | 123,5    | 160,5    | 202      |
| B                            | 64       | 72       | 95       | 120      |
| D                            | 25       | 32       | 40       | 52       |
| G                            | 23,825   | 31,267   | 44,399   | 63,348   |
| K                            | 31,5     | 39       | 49       | 59       |
| Weight approx. g             | 2100     | 3500     | 8300     | 17000    |
| Spring way <sup>1)</sup>     | 1,6      | 2        | 1,8      | 2,7      |
| Axial load max.              | 550      | 900      | 1500     | 2000     |
| Workpiece weight max. kg     | 400      | 800      | 1600     | 3200     |
| Concentricity deviation      | 0,01     | 0,01     | 0,01     | 0,015    |
| Speed max. min <sup>-1</sup> | 4000     | 3500     | 2500     | 1800     |
| Spare live centres           | 009192   | 009205   | 009325   | 009413   |

<sup>1)</sup> at max. axial load



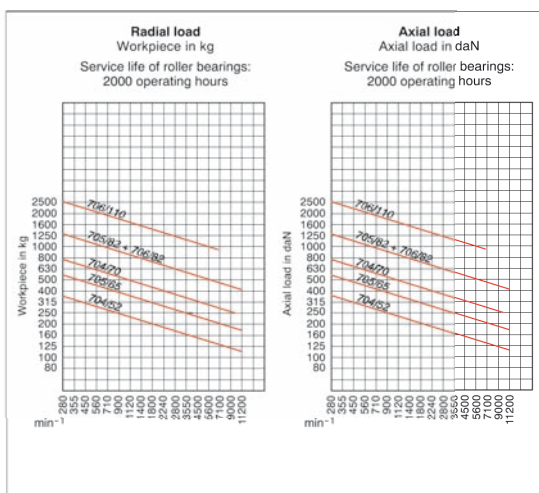
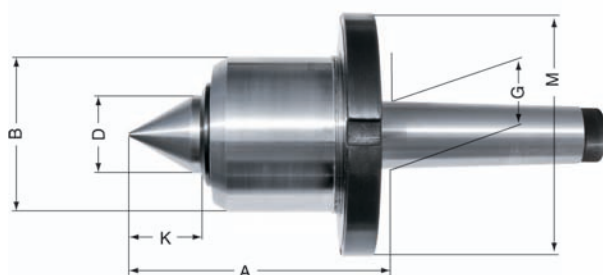
## MKS - Tip angle 60°



Tool group A06  
Type 652-AC-VL  
with **extended live centre**

| Item no.                     | 079920 ● | 079921 ● | 079922 ● | 079923 ● |
|------------------------------|----------|----------|----------|----------|
| Mount MT                     | 3        | 4        | 5        | 6        |
| Size                         | 503      | 504      | 505      | 506      |
| A                            | 120      | 137,5    | 177,5    | 223      |
| B                            | 64       | 72       | 95       | 120      |
| D                            | 25       | 32       | 40       | 52       |
| G                            | 23,825   | 31,267   | 44,399   | 63,348   |
| K                            | 46,5     | 53       | 66       | 80       |
| J                            | 11       | 14       | 15       | 24       |
| Weight approx. g             | 2200     | 3600     | 8400     | 17500    |
| Spring way <sup>1)</sup>     | 1,6      | 2        | 1,8      | 2,7      |
| Axial load max.              | 550      | 900      | 1500     | 2000     |
| Workpiece weight max. kg     | 260      | 550      | 1100     | 2500     |
| Concentricity deviation      | 0,01     | 0,01     | 0,01     | 0,015    |
| Speed max. min <sup>-1</sup> | 4000     | 3500     | 2500     | 1800     |
| Spare live centres           | 079924   | 079925   | 079926   | 079927   |

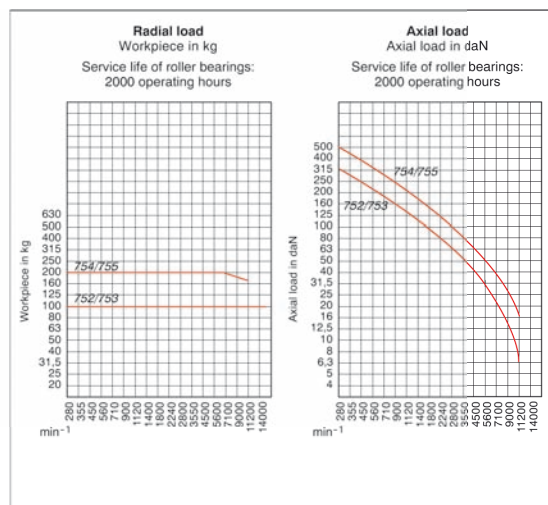
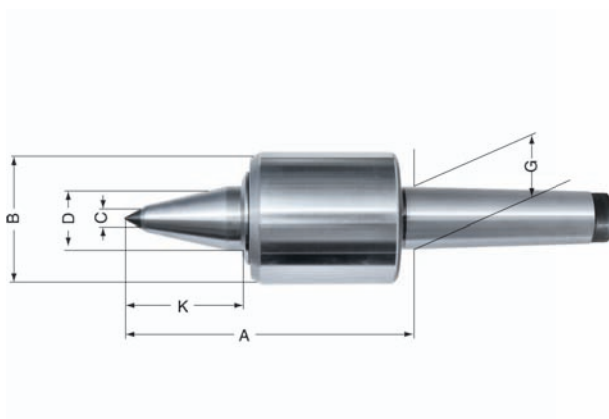
<sup>1)</sup> at max. axial load



Tool group A06  
Type 663  
for especially **high speeds**,  
different head diameters at same  
size of shank

| Item no.                     | 340911 ● | 340910 ● | 338595 ● | 338594 ● | 344808 ▲ | 344809 ▲ |
|------------------------------|----------|----------|----------|----------|----------|----------|
| Mount MT                     | 4        | 4        | 5        | 5        | 6        | 6        |
| Size                         | 704/52   | 704/70   | 705/65   | 705/82   | 706/110  | 706/82   |
| A                            | 90       | 110      | 100      | 130      | 168      | 133      |
| B                            | 52       | 70       | 65       | 82       | 110      | 82       |
| D                            | 25       | 35       | 32       | 40       | 55       | 40       |
| G                            | 31,267   | 31,267   | 44,399   | 44,399   | 63,348   | 63,348   |
| K                            | 28       | 38       | 34       | 41       | 58       | 41       |
| M                            | 80       | 110      | 100      | 115      | 150      | 115      |
| Weight approx. g             | 1900     | 2300     | 4000     | 5200     | 12000    | 8400     |
| Workpiece weight max. kg     | 360      | 800      | 560      | 1250     | 2500     | 1250     |
| Concentricity deviation      | 0,005    | 0,005    | 0,005    | 0,005    | 0,005    | 0,005    |
| Speed max. min <sup>-1</sup> | 15000    | 10000    | 12000    | 10000    | 7000     | 10000    |
| Spare live centres           | 344924   | 344923   | 338895   | 338901   | 344925   | 338901   |

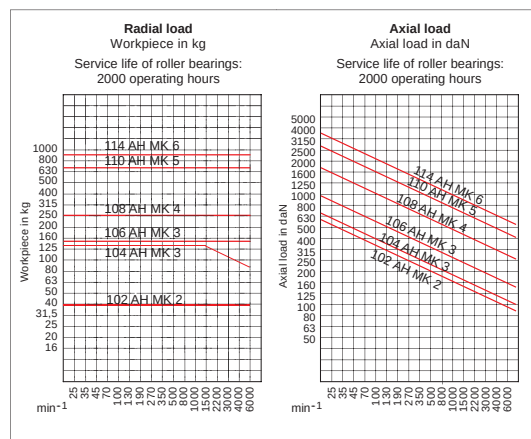
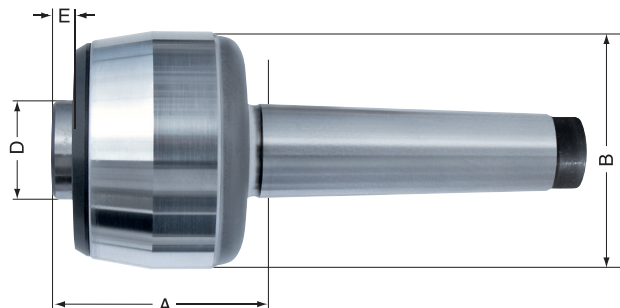
## MKS - Tip angle 60°



Tool group A06  
Type 664  
**extended NC-centre**  
with **carbide insert**,  
for high speed, powerful, for small  
and medium components

| Item no.                     | 772389 | 772390 | 772391 | 772392 |
|------------------------------|--------|--------|--------|--------|
| Mount MT                     | 2      | 3      | 4      | 5      |
| Size                         | 752    | 753    | 754    | 755    |
| A                            | 99     | 99     | 141    | 141    |
| B                            | 45     | 45     | 66     | 66     |
| C                            | 7      | 7      | 11     | 11     |
| D                            | 20     | 20     | 32     | 32     |
| G                            | 17,78  | 23,825 | 31,267 | 44,399 |
| K                            | 40     | 40     | 63     | 63     |
| Weight approx. g             | 1200   | 1600   | 2600   | 5000   |
| Workpiece weight max. kg     | 100    | 100    | 250    | 250    |
| Concentricity deviation      | 0,01   | 0,01   | 0,01   | 0,01   |
| Speed max. min <sup>-1</sup> | 12000  | 12000  | 9000   | 9000   |
| Spare live centres           | 790267 | 790267 | 790291 | 790291 |

## MKS - interchangeable inserts



Tool group A06  
Type 614  
**Revolving tailstock centers 100 A**  
for interchangeable inserts

| Item no.                         | 061030 | 061031 | 061032 | 061038 | 061039 | 061040 |
|----------------------------------|--------|--------|--------|--------|--------|--------|
| Mount MT                         | 2      | 3      | 3      | 4      | 5      | 6      |
| Size                             | 102    | 104    | 106    | 108    | 110    | 114    |
| A                                | 45     | 48     | 55     | 67     | 85     | 101    |
| B                                | 45     | 50     | 60     | 70     | 90     | 105    |
| D                                | 20     | 22     | 25     | 32     | 40     | 50     |
| E                                | 4      | 4,5    | 5      | 5      | 6      | 6      |
| Concentricity deviation          | 0,01   | 0,01   | 0,01   | 0,01   | 0,01   | 0,015  |
| Workpiece weight max. kg         | 40     | 130    | 150    | 250    | 650    | 900    |
| Weight without inserts approx. g | 440    | 750    | 1100   | 1900   | 4400   | 8600   |
| Weight                           | 900    | 1700   | 2200   | 3700   | 8000   | -      |
| Speed max. min <sup>-1</sup>     | 7000   | 6300   | 5000   | 3800   | 3000   | 2600   |
| Spare live spindle               | 009836 | 009838 | 009843 | 009870 | 009872 | 009874 |

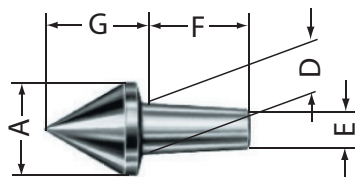


Tool group A06  
Type 614-00  
**complete** with all inserts in  
a sturdy wooden case

| Item no.                 | 061702 | 061703 | 061704 | 061705 | 061706 |
|--------------------------|--------|--------|--------|--------|--------|
| Mount MT                 | 2      | 3      | 3      | 4      | 5      |
| Size                     | 102    | 104    | 106    | 108    | 110    |
| Workpiece weight max. kg | 40     | 130    | 150    | 250    | 650    |
| Weight                   | 900    | 1700   | 2200   | 3700   | 8000   |

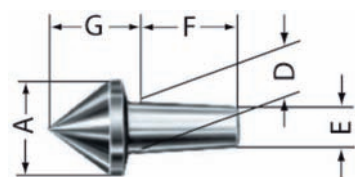
## Interchangeable inserts

Tool group A06  
Type 616 Interchangeable inserts **60°**



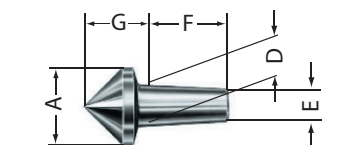
| Item no. | Size | A  | D  | E    | F  | G    |
|----------|------|----|----|------|----|------|
| 070725   | 102  | 16 | 7  | 5,2  | 18 | 20   |
| 070728   | 104  | 20 | 12 | 9,6  | 24 | 24   |
| 070731   | 106  | 24 | 12 | 9,6  | 24 | 27,5 |
| 070734   | 108  | 28 | 15 | 12   | 30 | 31,5 |
| 070737   | 110  | 38 | 22 | 18,5 | 35 | 43   |
| 070740   | 114  | 50 | 28 | 24   | 40 | 54   |

Tool group A06  
Type 616 Interchangeable inserts **75°**



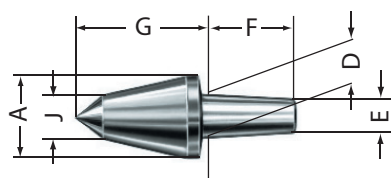
| Item no. | Size | A  | D  | E    | F  | G    |
|----------|------|----|----|------|----|------|
| 070726   | 102  | 16 | 7  | 5,2  | 18 | 17   |
| 070729   | 104  | 20 | 12 | 9,6  | 24 | 19,5 |
| 070732   | 106  | 24 | 12 | 9,6  | 24 | 22,5 |
| 070735   | 108  | 28 | 15 | 12   | 30 | 25,5 |
| 070738   | 110  | 38 | 22 | 18,5 | 35 | 35   |
| 070741   | 114  | 50 | 28 | 24   | 40 | 44   |

Tool group A06  
Type 616 Interchangeable inserts **90°**



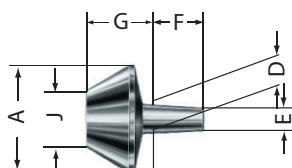
| Item no. | Size | A  | D  | E    | F  | G    |
|----------|------|----|----|------|----|------|
| 070727   | 102  | 16 | 7  | 5,2  | 18 | 14,5 |
| 070730   | 104  | 20 | 12 | 9,6  | 24 | 16,5 |
| 070733   | 106  | 24 | 12 | 9,6  | 24 | 19   |
| 070736   | 108  | 28 | 15 | 12   | 30 | 21,5 |
| 070739   | 110  | 38 | 22 | 18,5 | 35 | 29   |
| 070742   | 114  | 50 | 28 | 24   | 40 | 36   |

Tool group A06  
Type 616 Interchangeable inserts **60°VL**



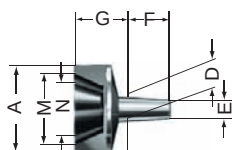
| Item no. | Size     | A  | D  | E    | F  | G  | J    |
|----------|----------|----|----|------|----|----|------|
| 070719   | 102      | 14 | 7  | 5,2  | 18 | 25 | 6    |
| 070720   | 104; 106 | 18 | 12 | 9,6  | 24 | 30 | 8    |
| 070721   | 108      | 26 | 15 | 12   | 30 | 43 | 12   |
| 070722   | 110      | 32 | 22 | 18,5 | 35 | 55 | 13   |
| 070723   | 114      | 42 | 28 | 24   | 40 | 70 | 18,5 |

Tool group A06  
Type 616 Interchangeable inserts for tubular workpieces **60°**



| Item no. | Size | A   | D  | E    | F  | G    | J  |
|----------|------|-----|----|------|----|------|----|
| 070700   | 102  | 25  | 7  | 5,2  | 18 | 21   | 10 |
| 070701   | 104  | 35  | 12 | 9,6  | 24 | 26   | 15 |
| 070702   | 106  | 45  | 12 | 9,6  | 24 | 27   | 25 |
| 070703   | 108  | 55  | 15 | 12   | 30 | 31,5 | 30 |
| 070704   | 110  | 70  | 22 | 18,5 | 35 | 39   | 40 |
| 070705   | 114  | 100 | 28 | 24   | 40 | 52   | 55 |

Tool group A06  
Type 616 Interchangeable inserts **A** for centerless workpieces **60°**

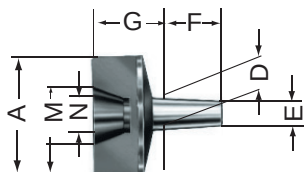


| Item no. | Size | A   | D  | E    | F  | G  | M  | N  |
|----------|------|-----|----|------|----|----|----|----|
| 070707   | 102  | 25  | 7  | 5,2  | 18 | 18 | 20 | 10 |
| 070708   | 104  | 35  | 12 | 9,6  | 24 | 24 | 30 | 15 |
| 070709   | 106  | 45  | 12 | 9,6  | 24 | 25 | 40 | 25 |
| 070710   | 108  | 55  | 15 | 12   | 30 | 30 | 48 | 30 |
| 070711   | 110  | 70  | 22 | 18,5 | 35 | 39 | 63 | 40 |
| 070712   | 114  | 100 | 28 | 24   | 40 | 52 | 90 | 55 |

## Interchangeable inserts

Tool group A06

Type 616 Interchangeable inserts **B** for centerless workpieces **60°**



| Item no. | Size | A  | D  | E    | F  | G  | M  | N  |
|----------|------|----|----|------|----|----|----|----|
| 228620 ● | 102  | 16 | 7  | 5,2  | 18 | 12 | 12 | 6  |
| 228621 ● | 106  | 22 | 12 | 9,6  | 24 | 16 | 18 | 10 |
| 228622 ● | 108  | 40 | 15 | 12   | 30 | 25 | 35 | 20 |
| 308632 ● | 110  | 52 | 22 | 18,5 | 35 | 30 | 45 | 30 |

Tool group A06

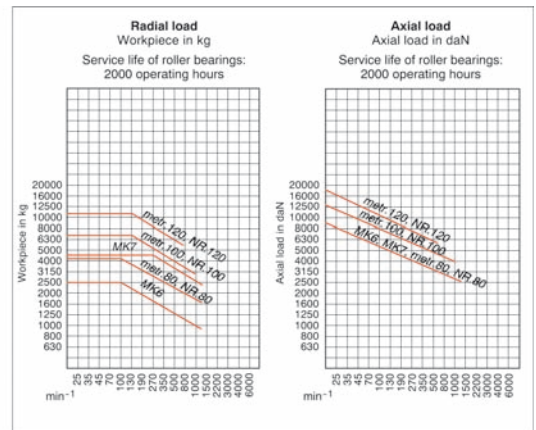
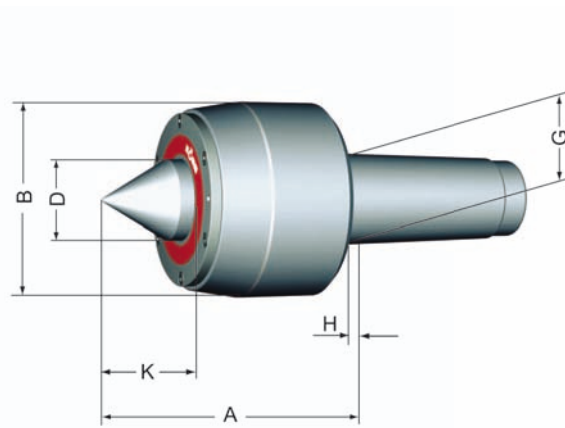
Type 616 **Extractor**



| Item no. | For size    |
|----------|-------------|
| 061707 ● | 102         |
| 061708 ● | 104/106/108 |
| 061709 ● | 110/114     |

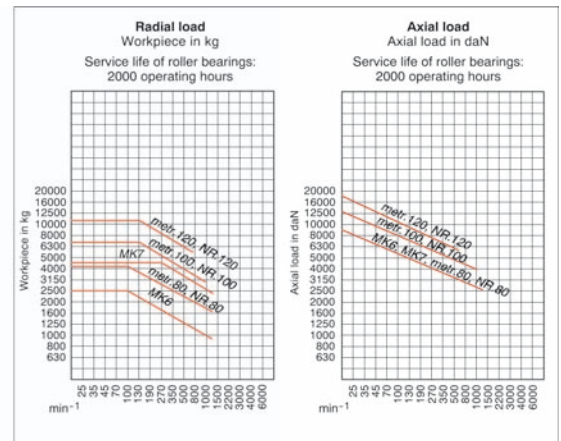
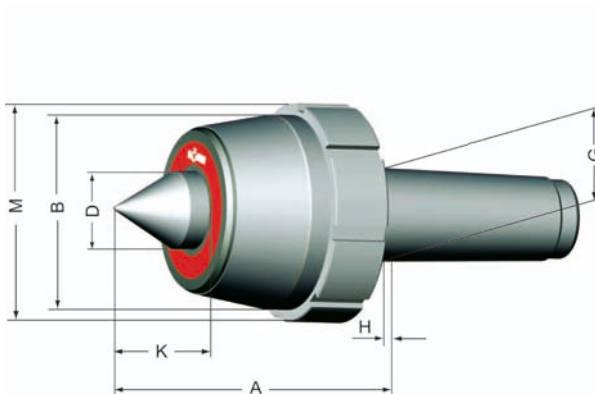


## MKS heavy



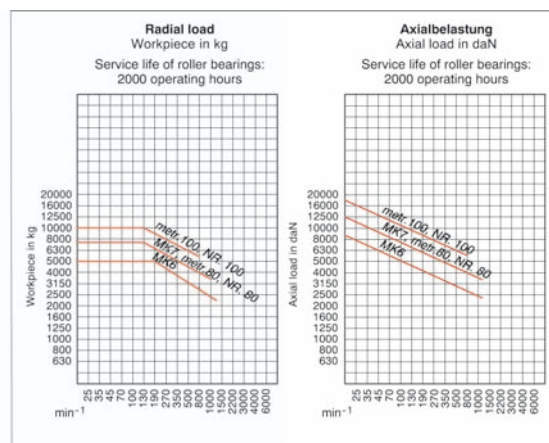
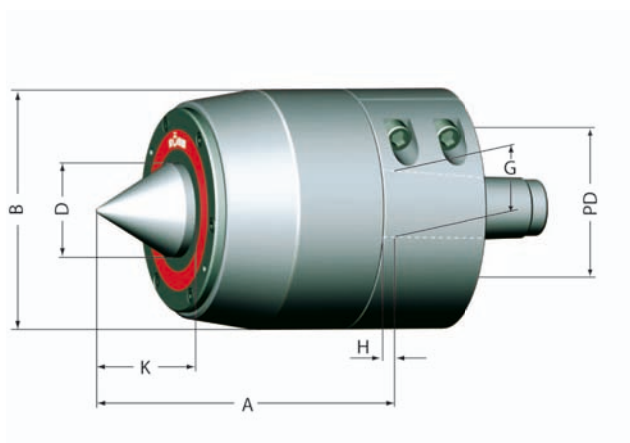
Tool group A06  
Type 604  
without draw-off nut

| Item no.                 | 093439 | 466229 | 093440   | 058674           | 018801           | 093446        | 058675         | 466230         |
|--------------------------|--------|--------|----------|------------------|------------------|---------------|----------------|----------------|
| Mount                    | MK 6   | MK 7   | Metr. 80 | Metr. 100 (1:20) | Metr. 120 (1:20) | Nr. 80 (1:10) | Nr. 100 (1:10) | Nr. 120 (1:10) |
| A                        | 196    | 215    | 196      | 257              | 274              | 196           | 257            | 274            |
| B                        | 140    | 150    | 140      | 200              | 245              | 140           | 200            | 245            |
| D                        | 60     | 70     | 60       | 85               | 110              | 60            | 85             | 110            |
| G                        | 63,348 | 83,061 | 80       | 100              | 120              | 80            | 100            | 120            |
| H                        | 13     | 15     | 13       | 14               | 15               | 13            | 14             | 15             |
| K                        | 67     | 77     | 68       | 86               | 102              | 66            | 86             | 102            |
| Workpiece weight max. kg | 5000   | 9000   | 8500     | 13000            | 22000            | 8500          | 13000          | 22000          |
| Concentricity deviation  | 0,01   | 0,01   | 0,015    | 0,01             | 0,01             | 0,01          | 0,01           | 0,01           |



Tool group A06  
Type 604 MA  
with draw-off nut

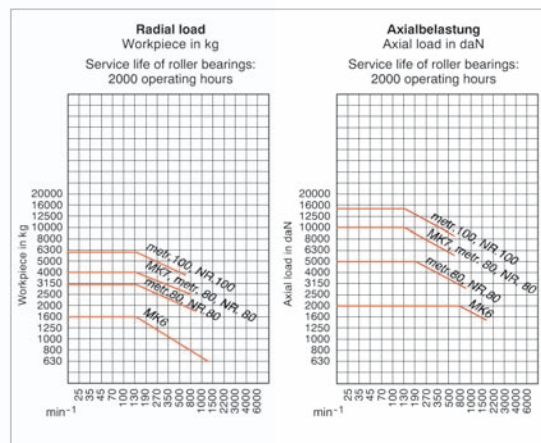
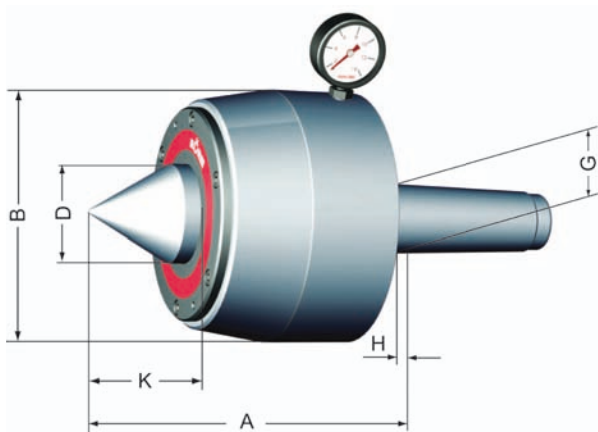
| Item no.                 | 466231 | 466232 | 466233          | 466234           | 466235           | 466236        | 466237         | 466238         |
|--------------------------|--------|--------|-----------------|------------------|------------------|---------------|----------------|----------------|
| Mount                    | MK 6   | MK 7   | Metr. 80 (1:20) | Metr. 100 (1:20) | Metr. 120 (1:20) | Nr. 80 (1:10) | Nr. 100 (1:10) | Nr. 120 (1:10) |
| A                        | 196    | 215    | 196             | 257              | 274              | 196           | 257            | 274            |
| B                        | 140    | 150    | 140             | 200              | 245              | 140           | 200            | 245            |
| D                        | 60     | 70     | 60              | 85               | 110              | 60            | 85             | 110            |
| G                        | 63,348 | 83,061 | 80              | 100              | 120              | 80            | 100            | 120            |
| H                        | 13     | 15     | 13              | 14               | 15               | 13            | 14             | 15             |
| K                        | 66     | 77     | 66              | 86               | 102              | 66            | 86             | 102            |
| M                        | 158    | 168    | 158             | 224              | 270              | 158           | 224            | 270            |
| Workpiece weight max. kg | 5000   | 9000   | 8500            | 13000            | 22000            | 8500          | 13000          | 22000          |
| Concentricity deviation  | 0,01   | 0,01   | 0,01            | 0,01             | 0,01             | 0,01          | 0,01           | 0,01           |



Tool group A06  
Type 604  
with tailstock support

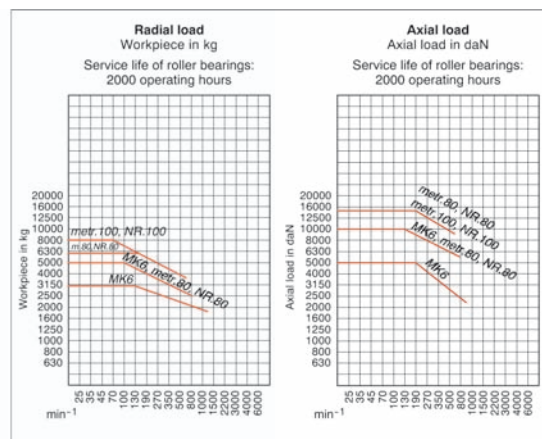
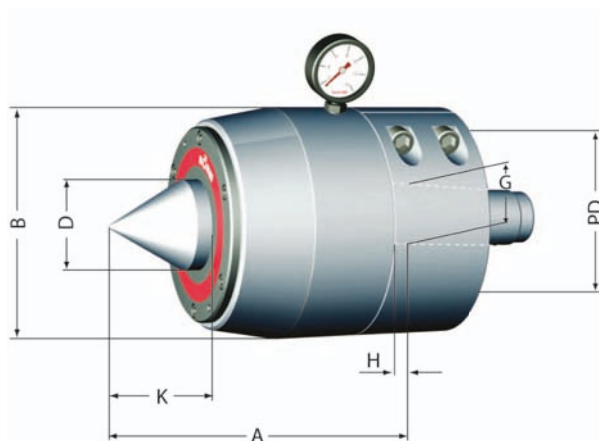
| Item no.                 | 466239 ▲ | 466240 ▲ | 466241 ▲        | 466242 ▲         | 466243 ▲      | 466244 ▲       |
|--------------------------|----------|----------|-----------------|------------------|---------------|----------------|
| Mount                    | MK 6     | MK 7     | Metr. 80 (1:20) | Metr. 100 (1:20) | Nr. 80 (1:10) | Nr. 100 (1:10) |
| A                        | 254      | 270      | 269             | 298              | 269           | 298            |
| B                        | 230      | 240      | 240             | 260              | 240           | 260            |
| D                        | 85       | 95       | 95              | 108              | 95            | 108            |
| G                        | 63,348   | 83,061   | 80              | 100              | 80            | 100            |
| H                        | 13       | 15       | 13              | 14               | 13            | 14             |
| K                        | 86       | 92       | 92              | 102              | 92            | 102            |
| max. PD 1)               | 170      | 180      | 180             | 200              | 180           | 200            |
| Workpiece weight max. kg | 10000    | 15000    | 15000           | 20000            | 15000         | 20000          |
| Concentricity deviation  | 0,01     | 0,01     | 0,01            | 0,01             | 0,01          | 0,01           |

1) Tailstock dia. according to customers details



Tool group A06  
Type 652  
with length compensation  
and pressure indicator

| Item no.                 | 466245 ▲ | 466246 ▲        | 466247 ▲        | 466248 ▲         | 466249 ▲      | 466250 ▲      | 466251 ▲       |
|--------------------------|----------|-----------------|-----------------|------------------|---------------|---------------|----------------|
| Mount                    | MK 7     | Metr. 80 (1:20) | Metr. 80 (1:20) | Metr. 100 (1:20) | Nr. 80 (1:10) | Nr. 80 (1:10) | Nr. 100 (1:10) |
| A                        | 278      | 209             | 276             | 310              | 209           | 276           | 310            |
| B                        | 195      | 145             | 195             | 230              | 145           | 195           | 230            |
| D                        | 85       | 60              | 85              | 100              | 60            | 85            | 100            |
| G                        | 83,061   | 80              | 80              | 100              | 80            | 80            | 100            |
| H                        | 15       | 13              | 13              | 14               | 13            | 13            | 14             |
| K                        | 88       | 62              | 88              | 96               | 62            | 88            | 96             |
| Workpiece weight max. kg | 8000     | 6000            | 8000            | 12000            | 6000          | 8000          | 12000          |
| Concentricity deviation  | 0,015    | 0,015           | 0,015           | 0,015            | 0,015         | 0,015         | 0,015          |
| Spring way max.          | 4,5      | 3,4             | 4,5             | 4,5              | 3,4           | 4,5           | 4,5            |
| Axial pressure max.      | 10000    | 5000            | 10000           | 14000            | 5000          | 10000         | 14000          |



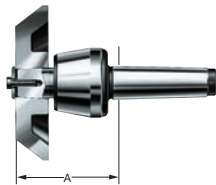
Tool group A06  
Type 652  
with **length compensation**,  
**pressure indicator**  
and **tailstock support**

| Item no.                 | 466252 ▲ | 466253 ▲ | 466254 ▲        | 466255 ▲        | 466256 ▲         | 466257 ▲      | 466258 ▲      | 466259 ▲       |
|--------------------------|----------|----------|-----------------|-----------------|------------------|---------------|---------------|----------------|
| Mount                    | MK 6     | MK 6     | Metr. 80 (1:20) | Metr. 80 (1:20) | Metr. 100 (1:20) | Nr. 80 (1:10) | Nr. 80 (1:10) | Nr. 100 (1:10) |
| A                        | 209      | 278      | 278             | 310             | 310              | 278           | 310           | 310            |
| B                        | 210      | 240      | 240             | 290             | 290              | 240           | 290           | 290            |
| D                        | 60       | 85       | 85              | 100             | 100              | 85            | 100           | 100            |
| G                        | 63,348   | 63,348   | 80              | 80              | 100              | 80            | 80            | 100            |
| H                        | 13       | 13       | 13              | 13              | 14               | 13            | 13            | 14             |
| K                        | 62       | 88       | 88              | 96              | 96               | 88            | 96            | 96             |
| max. PD 1)               | 150      | 180      | 180             | 220             | 220              | 180           | 220           | 220            |
| Workpiece weight max. kg | 6000     | 10000    | 10000           | 12000           | 15000            | 10000         | 12000         | 15000          |
| Concentricity deviation  | 0,015    | 0,015    | 0,015           | 0,015           | 0,015            | 0,015         | 0,015         | 0,015          |
| Spring way max.          | 3,4      | 4,5      | 4,5             | 4,5             | 4,5              | 4,5           | 4,5           | 4,5            |
| Axial pressure max.      | 5000     | 10000    | 10000           | 14000           | 14000            | 10000         | 14000         | 14000          |

1) Tailstock dia. according to customers details

## MZK

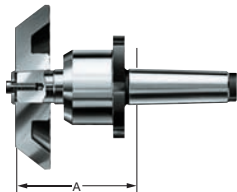
Tool group A06  
Type 608-00 Revolving centering tapers



| Item no. | Size | Mount MT | A   | Workpiece weight max. kg | Weight |
|----------|------|----------|-----|--------------------------|--------|
| 304562 ● | 108  | 4        | 103 | 800                      | 2200   |
| 304563 ● | 110  | 5        | 128 | 1600                     | 4800   |
| 304564 ● | 114  | 6        | 159 | 3000                     | 12000  |

Including fixing screw and washer, without insert

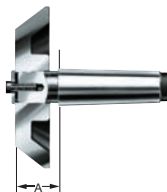
Tool group A06  
Type 640-90 Revolving centering tapers **with draw-off nut**, for high load



| Item no. | Size | Mount MT | A   | Workpiece weight max. kg | Weight |
|----------|------|----------|-----|--------------------------|--------|
| 304583 ● | 494  | 4        | 118 | 1000                     | 3200   |
| 304584 ● | 495  | 5        | 140 | 2000                     | 6500   |
| 304585 ■ | 496  | 6        | 168 | 3500                     | 13500  |

Including fixing screw and washer, without insert

Tool group A07  
Type 698-00 **Fixed shafts**

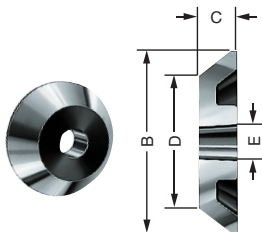


| Item no. | Mount MT | A  | Workpiece weight max. kg | Weight |
|----------|----------|----|--------------------------|--------|
| 304580 ● | 4        | 45 | 2000                     | 800    |
| 304581 ● | 5        | 60 | 4800                     | 2000   |
| 304582 ● | 6        | 70 | 12000                    | 5500   |

Including fixing screw and washer, without insert

## Accessories MZK

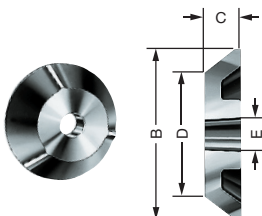
Tool group A06  
Type 608-20  
Suitable **inserts** for centering tapers **AZ**  
Standard version, taper 75°



| Item no.               | Size | for MT | B   | C  | D   | E  | Weight |
|------------------------|------|--------|-----|----|-----|----|--------|
| 304565 <sup>1)</sup> ● | 1    | 4      | 60  | 68 | 5   | 32 | 900    |
| 304566 ●               | 2    | 4      | 100 | 45 | 45  | 32 | 1500   |
| 304567 ●               | 3    | 4      | 150 | 45 | 95  | 32 | 4100   |
| 304568 ●               | 4    | 4      | 200 | 45 | 145 | 32 | 6000   |
| 304569 ●               | 5    | 4      | 250 | 45 | 195 | 32 | 8500   |
| 304570 ●               | 1    | 5      | 100 | 43 | 45  | 40 | 1500   |
| 304571 ●               | 2    | 5      | 150 | 43 | 95  | 40 | 4400   |
| 304572 ●               | 3    | 5      | 200 | 43 | 145 | 40 | 6100   |
| 304573 ●               | 4    | 5      | 250 | 43 | 195 | 40 | 8100   |
| 304574 ●               | 5    | 5      | 300 | 43 | 245 | 40 | 11600  |
| 304575 ●               | 1    | 6      | 150 | 54 | 95  | 50 | 3000   |
| 304576 ●               | 2    | 6      | 200 | 54 | 145 | 50 | 8100   |
| 304577 ●               | 3    | 6      | 250 | 54 | 195 | 50 | 11100  |
| 304578 ●               | 4    | 6      | 300 | 54 | 245 | 50 | 14000  |
| 304579 ●               | 5    | 6      | 350 | 54 | 295 | 50 | 18800  |

<sup>1)</sup> Without fixing by screw and washer

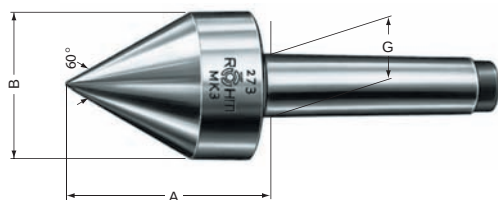
Tool group A06  
Type 608-40  
Suitable **inserts** for centering tapers **AZR**  
with three support surfaces, for rough pieces 75°



| Item no. | Size | for MT | B   | C  | D   | E  | Weight |
|----------|------|--------|-----|----|-----|----|--------|
| 304736 ■ | 2    | 4      | 100 | 45 | 45  | 32 | 1500   |
| 304737 ■ | 3    | 4      | 150 | 45 | 95  | 32 | 4100   |
| 304738 ■ | 4    | 4      | 200 | 45 | 145 | 32 | 6000   |
| 304739 ■ | 5    | 4      | 250 | 45 | 195 | 32 | 8500   |
| 304740 ■ | 1    | 5      | 100 | 43 | 45  | 40 | 1500   |
| 304741 ■ | 2    | 5      | 150 | 43 | 95  | 40 | 4400   |
| 304742 ■ | 3    | 5      | 200 | 43 | 145 | 40 | 6100   |
| 304743 ■ | 4    | 5      | 250 | 43 | 195 | 40 | 8100   |
| 304744 ■ | 5    | 5      | 300 | 43 | 245 | 40 | 11600  |
| 304745 ■ | 1    | 6      | 150 | 54 | 95  | 50 | 3000   |
| 304746 ■ | 2    | 6      | 200 | 54 | 145 | 50 | 8100   |
| 304747 ■ | 3    | 6      | 250 | 54 | 195 | 50 | 11100  |
| 304748 ■ | 4    | 6      | 300 | 54 | 245 | 50 | 14000  |
| 304749 ■ | 5    | 6      | 350 | 54 | 295 | 50 | 18800  |

### Tool group A06

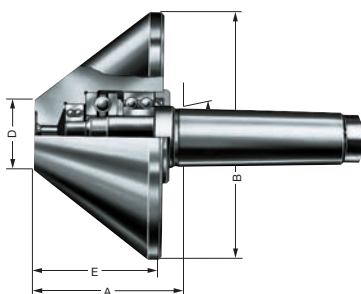
Type 627 Revolving centering taper, **pointed**  
as centering taper for tubular workpieces and as a revolving tailstock centre  
to machine normal workpieces



| Item no. | Size | Mount MT | A     | B   | G      | Workpiece weight max. kg | Concentricity deviation | Weight |
|----------|------|----------|-------|-----|--------|--------------------------|-------------------------|--------|
| 010613   | 272  | 2        | 61    | 42  | 17,78  | 200                      | 0,01                    | 400    |
| 010635   | 273  | 3        | 79    | 56  | 23,825 | 400                      | 0,008                   | 1100   |
| 010638   | 274  | 4        | 100   | 64  | 31,267 | 800                      | 0,008                   | 1600   |
| 010642   | 275  | 5        | 115,5 | 78  | 44,399 | 1600                     | 0,008                   | 3600   |
| 306396   | 276  | 6        | 153   | 105 | 63,348 | 2500                     | 0,008                   | 10000  |

### Tool group A06

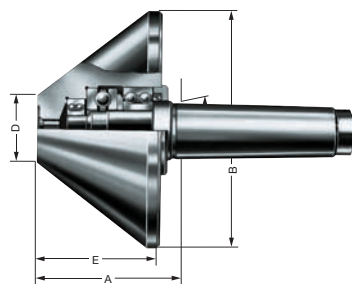
Type 617 Revolving tailstock center, **cone truncated, 60°**



| Item no. | Size | Mount MT | A    | B   | D  | E  | Workpiece weight max. kg | Concentricity deviation | Weight |
|----------|------|----------|------|-----|----|----|--------------------------|-------------------------|--------|
| 301615   | 171  | 1        | 64   | 50  | 20 | 52 | 100                      | 0,008                   | 900    |
| 301616   | 171a | 2        | 65   | 50  | 20 | 52 | 200                      | 0,008                   | 1200   |
| 301556   | 172  | 2        | 77   | 80  | 30 | 64 | 300                      | 0,008                   | 2000   |
| 301557   | 172a | 3        | 77   | 80  | 30 | 64 | 400                      | 0,008                   | 2200   |
| 221605   | 173  | 3        | 96,5 | 120 | 30 | 83 | 600                      | 0,008                   | 4200   |
| 301558   | 172b | 4        | 78,5 | 80  | 30 | 64 | 400                      | 0,008                   | 2300   |
| 044023   | 173a | 4        | 98   | 120 | 30 | 83 | 800                      | 0,008                   | 4500   |
| 090483   | 173b | 5        | 99   | 120 | 30 | 83 | 800                      | 0,008                   | 5300   |

### Tool group A06

Type 618 Revolving tailstock center, **cone truncated, 75°**



| Item no. | Size | Mount MT | A     | B   | D   | E   | Workpiece weight max. kg | Concentricity deviation | Weight |
|----------|------|----------|-------|-----|-----|-----|--------------------------|-------------------------|--------|
| 301559   | 172  | 2        | 80    | 80  | 20  | 67  | 300                      | 0,008                   | 2000   |
| 301560   | 172a | 3        | 80    | 80  | 20  | 67  | 400                      | 0,008                   | 2000   |
| 062211   | 173  | 3        | 85,5  | 120 | 30  | 72  | 600                      | 0,008                   | 4200   |
| 301561   | 172b | 4        | 81,5  | 80  | 20  | 67  | 400                      | 0,008                   | 2400   |
| 062224   | 173a | 4        | 87    | 120 | 30  | 72  | 800                      | 0,008                   | 4300   |
| 062299   | 174  | 4        | 107   | 170 | 50  | 90  | 1200                     | 0,01                    | 9700   |
| 062232   | 173b | 5        | 88    | 120 | 30  | 72  | 800                      | 0,008                   | 5100   |
| 063614   | 174a | 5        | 106   | 170 | 50  | 90  | 1600                     | 0,01                    | 10600  |
| 063662   | 175  | 5        | 146,5 | 250 | 75  | 130 | 2000                     | 0,01                    | 34000  |
| 063633   | 174b | 6        | 107,5 | 170 | 50  | 90  | 1600                     | 0,01                    | 13300  |
| 063656   | 175a | 6        | 148   | 250 | 75  | 130 | 2000                     | 0,01                    | 37000  |
| 063680   | 176  | 6        | 184   | 350 | 120 | 168 | 4000                     | 0,015                   | 82000  |





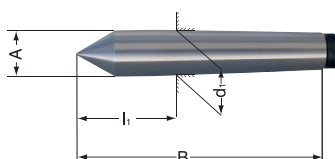
Dead centres DIN 806 and DIN 807 completely hardened and ground (with carbide-tipped ground only). Different types available.

Dead centres are manufactured with a concentricity of 5 micrometers. Versions with a concentricity of 3 micrometers or better are available for an extra charge.

#### Technical features:

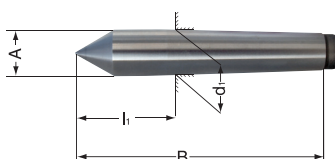
- completely hardened and ground
- high concentricity
- heavy duty

Tool group A07  
Type 665 **DIN 806, full point**  
material: tool steel



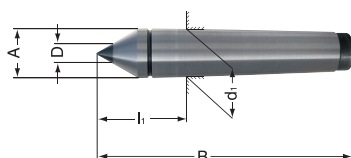
| Item no. | Mount MT | A    | B   | d1     | l1   | Weight |
|----------|----------|------|-----|--------|------|--------|
| 013706   | 0        | 9,2  | 70  | 9,045  | 20   | 30     |
| 013707   | 1        | 12,2 | 80  | 12,065 | 26,5 | 60     |
| 013709   | 2        | 18   | 100 | 17,78  | 36   | 150    |
| 013711   | 3        | 24,1 | 125 | 23,825 | 44   | 340    |
| 013712   | 4        | 31,6 | 160 | 31,267 | 57,5 | 760    |
| 013715   | 5        | 44,7 | 200 | 44,399 | 70,5 | 1920   |
| 013718   | 6        | 63,8 | 270 | 63,348 | 88   | 5200   |

Tool group A07  
Type 666 **DIN 806, full point**  
material: SS-high speed steel, from MT 4 only point in SS



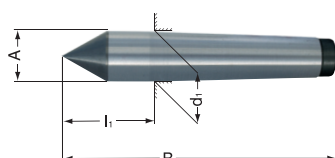
| Item no. | Mount MT | A    | B   | d1     | l1   | Weight |
|----------|----------|------|-----|--------|------|--------|
| 013790   | 0        | 9,2  | 70  | 9,045  | 20   | 30     |
| 013791   | 1        | 12,2 | 80  | 12,065 | 26,5 | 60     |
| 013792   | 2        | 18   | 100 | 17,78  | 36   | 150    |
| 013793   | 3        | 24,1 | 125 | 23,825 | 44   | 340    |
| 013794   | 4        | 31,6 | 160 | 31,267 | 57,5 | 760    |
| 013797   | 5        | 44,7 | 200 | 44,399 | 70,5 | 1920   |
| 013799   | 6        | 63,8 | 270 | 63,348 | 88   | 5200   |

Tool group A07  
Type 667 **DIN 806, full point, ground only**  
**carbide-tipped**



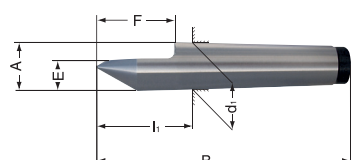
| Item no. | Mount MT | A    | B   | D  | d1     | l1   | Weight |
|----------|----------|------|-----|----|--------|------|--------|
| 017169   | 0        | 9,2  | 70  | 5  | 9,045  | 20   | 30     |
| 017170   | 1        | 12,2 | 80  | 7  | 12,065 | 26,5 | 55     |
| 017171   | 2        | 18   | 100 | 7  | 17,78  | 36   | 155    |
| 017172   | 3        | 24,1 | 125 | 11 | 23,825 | 44   | 360    |
| 017173   | 4        | 31,6 | 160 | 14 | 31,267 | 57,5 | 770    |
| 017174   | 5        | 44,7 | 200 | 18 | 44,399 | 70,5 | 1950   |
| 017175   | 6        | 63,8 | 270 | 18 | 63,348 | 88   | 5200   |

Tool group A07  
Type 677 **DIN 806, full point, ground only**  
**carbide-tipped full point**



| Item no. | Mount MT | A    | B   | d1     | l1   | Weight |
|----------|----------|------|-----|--------|------|--------|
| 326786   | 2        | 18   | 100 | 17,78  | 36   | 175    |
| 306402   | 3        | 24,1 | 125 | 23,825 | 44   | 400    |
| 221398   | 4        | 31,6 | 160 | 31,267 | 57,5 | 855    |
| 326816   | 5        | 44,7 | 200 | 44,399 | 70,5 | 2160   |

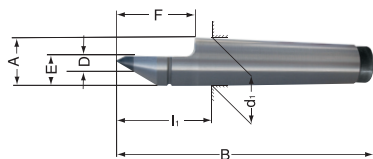
Tool group A07  
Type 668 **DIN 806, half point**  
material: tool steel



| Item no. | Mount MT | A    | B   | E    | F  | d1     | l1   | Weight |
|----------|----------|------|-----|------|----|--------|------|--------|
| 013867   | 1        | 12,2 | 80  | 7,6  | 22 | 12,065 | 26,5 | 55     |
| 013868   | 2        | 18   | 100 | 11   | 30 | 17,78  | 36   | 145    |
| 013870   | 3        | 24,1 | 125 | 15   | 38 | 23,825 | 44   | 310    |
| 013871   | 4        | 31,6 | 160 | 21   | 50 | 31,267 | 57,5 | 710    |
| 013997   | 5        | 44,7 | 200 | 29,4 | 63 | 44,399 | 70,5 | 1925   |
| 013999   | 6        | 63,8 | 270 | 42   | 79 | 63,348 | 88   | 4800   |

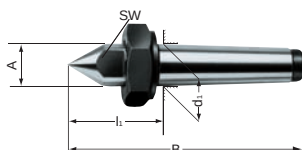


Tool group A07  
Type 670 **DIN 806, half point**, ground only  
**carbide-tipped**



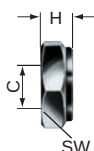
| Item no. | Mount MT | A    | B   | D  | E    | F  | d1     | I1   | Weight |
|----------|----------|------|-----|----|------|----|--------|------|--------|
| 027438 ● | 1        | 12,2 | 80  | 7  | 76   | 22 | 12,065 | 26,5 | 55     |
| 027439 ● | 2        | 18   | 100 | 7  | 11   | 30 | 17,78  | 36   | 150    |
| 027440 ● | 3        | 24,1 | 125 | 11 | 15   | 38 | 23,825 | 44   | 335    |
| 026571 ● | 4        | 31,6 | 160 | 14 | 21   | 50 | 31,267 | 57,5 | 750    |
| 027441 ■ | 5        | 44,7 | 200 | 18 | 29,4 | 63 | 44,399 | 70,5 | 1830   |

Tool group A07  
Type 671 similar **DIN 807, full point** with draw-off nut  
material: tool steel



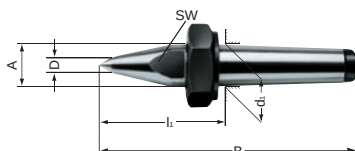
| Item no. | Mount MT | A    | B   | C       | d1     | I1   | Key-width SW | Weight |
|----------|----------|------|-----|---------|--------|------|--------------|--------|
| 005361 ● | 1        | 12,2 | 90  | M16x1,5 | 12,065 | 36,5 | 10           | 140    |
| 005553 ● | 2        | 18   | 112 | M22x1,5 | 17,78  | 48   | 14           | 300    |
| 005654 ● | 3        | 24,1 | 138 | M27x1,5 | 23,825 | 57   | 19           | 580    |
| 005357 ● | 4        | 31,6 | 175 | M36x1,5 | 31,267 | 72,5 | 27           | 800    |
| 005381 ● | 5        | 44,7 | 217 | M48x1,5 | 44,399 | 87,5 | 36           | 2900   |
| 005426 ● | 6        | 63,8 | 290 | M68x1,5 | 63,348 | 108  | 55           | 7200   |

Tool group A07  
Type 671 **Draw-off nut**



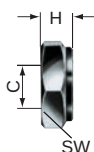
| Item no. | C       | H    | Key-width SW | Weight |
|----------|---------|------|--------------|--------|
| 005363 ● | M16x1,5 | 12   | 24           | 26     |
| 005555 ● | M22x1,5 | 15,5 | 32           | 55     |
| 005656 ● | M27x1,5 | 175  | 41           | 110    |
| 005359 ● | M36x1,5 | 21   | 55           | 240    |
| 005383 ● | M48x1,5 | 23   | 75           | 480    |
| 005428 ● | M68x1,5 | 25,5 | 100          | 900    |

Tool group A07  
Type 672 similar **DIN 807, full point** with draw-off nut, with extended point  
material: tool steel



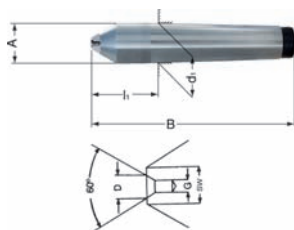
| Item no. | Mount MT | A    | B     | C       | D  | d1     | I1  | Key-width SW | Weight |
|----------|----------|------|-------|---------|----|--------|-----|--------------|--------|
| 249575 ● | 2        | 18   | 118   | M22x1,5 | 10 | 17,78  | 54  | 14           | 300    |
| 249576 ● | 3        | 24,1 | 148   | M27x1,5 | 10 | 23,825 | 67  | 19           | 600    |
| 249577 ● | 4        | 31,6 | 186,5 | M36x1,5 | 14 | 31,267 | 84  | 27           | 1285   |
| 249578 ● | 5        | 44,7 | 242   | M48x1,5 | 16 | 44,399 | 112 | 36           | 3000   |
| 249579 ● | 6        | 63,8 | 330   | M68x1,5 | 20 | 63,348 | 148 | 55           | 7900   |

Tool group A07  
Type 671 **Draw-off nut**



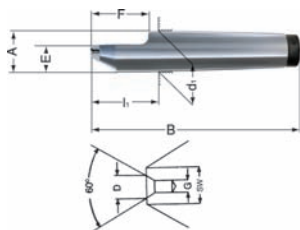
| Item no. | C       | H    | Key-width SW | Weight |
|----------|---------|------|--------------|--------|
| 005555 ● | M22x1,5 | 15,5 | 32           | 55     |
| 005656 ● | M27x1,5 | 175  | 41           | 110    |
| 005359 ● | M36x1,5 | 21   | 55           | 240    |
| 005383 ● | M48x1,5 | 23   | 75           | 480    |
| 005428 ● | M68x1,5 | 25,5 | 100          | 900    |

Tool group A07  
Type 673 **full point** with centre bore  
material: tool steel



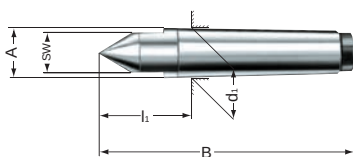
| Item no. | Mount MT | A    | B    | D   | G    | d1     | I1   | Weight |
|----------|----------|------|------|-----|------|--------|------|--------|
| 015001 ■ | 1        | 12,2 | 77   | 2,5 | 1    | 12,065 | 23,5 | 60     |
| 015003 ■ | 2        | 18   | 95,5 | 4   | 1,6  | 17,78  | 31,5 | 170    |
| 015004 ● | 3        | 24,1 | 120  | 5   | 2    | 23,825 | 39   | 350    |
| 015005 ■ | 4        | 31,6 | 153  | 6,5 | 2,5  | 31,267 | 50,5 | 800    |
| 015006 ■ | 5        | 44,7 | 191  | 8   | 3,19 | 44,399 | 61,5 | 1900   |

Tool group A07  
Typ 674 **half point** with centre bore  
material: tool steel



| Item no. | Mount MT | A    | B    | D   | E    | F  | G    | d1     | l1   | Weight |
|----------|----------|------|------|-----|------|----|------|--------|------|--------|
| 015009 ● | 1        | 12,2 | 77   | 2,5 | 8,6  | 19 | 1    | 12,065 | 23,5 | 55     |
| 015010 ● | 2        | 18   | 95,5 | 4   | 12   | 26 | 1,6  | 17,78  | 31,5 | 150    |
| 015011 ● | 3        | 24,1 | 120  | 5   | 15,7 | 32 | 2    | 23,825 | 39   | 310    |
| 015022 ■ | 4        | 31,6 | 153  | 6,5 | 20,8 | 42 | 2,5  | 31,267 | 50,5 | 705    |
| 015023 ■ | 5        | 44,7 | 191  | 8   | 29,4 | 53 | 3,15 | 44,399 | 61,5 | 1800   |

Tool group A07  
Type 695 **DIN 806, full point** with spanner flat  
material: tool steel



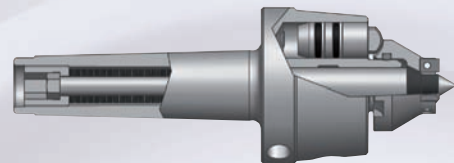
| Item no. | Mount MT | A    | B   | d1     | l1   | Key-width SW | Weight |
|----------|----------|------|-----|--------|------|--------------|--------|
| 015028 ■ | 1        | 12,2 | 80  | 12,065 | 26,5 | 10           | 55     |
| 015032 ● | 2        | 18   | 100 | 17,78  | 36   | 14           | 145    |
| 015039 ● | 3        | 24,1 | 125 | 23,825 | 44   | 19           | 340    |
| 015042 ● | 4        | 31,6 | 160 | 31,267 | 57,5 | 27           | 740    |
| 015040 ● | 5        | 44,7 | 200 | 44,399 | 70,5 | 36           | 1860   |

## Overview

### CoA

For efficient high-precision turning of workpieces along their whole length without rechucking. The modular principle design allows the unlimited exchange of driver disks and centres. The hydraulic or mechanical compensation system guarantees equal clamping forces even on uneven workpiece faces. The spring cushioned centre allows the axial stop at the face of the workpiece.

Clamping diameter 8-80 mm  
Max. workpiece weight 100 kg



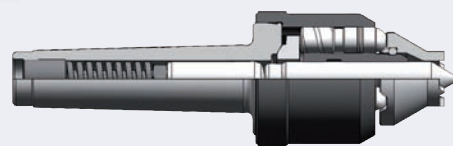
### CoE

#### New Product!

For efficient high-precision turning of workpieces along their whole length without rechucking. In the same operation there may be also milled a groove or toothing. This could save a retooling, i. e. to a vice, which may turn out to be both time and money saving.

The modular principle design allows the unlimited exchange of driver disks and centres. The mechanical compensation system guarantees equal clamping forces even on uneven workpiece faces. The spring cushioned centre allows the axial stop at the face of the workpiece.

Clamping diameter 8-80 mm  
Max. workpiece weight 100 kg



### CoM

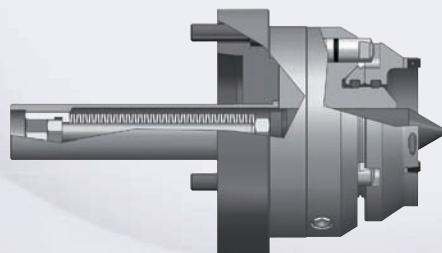
With spring loaded centre, attachable driver disk and mechanical compensation system.

Adaptor flange with disk spring package or basic body with morse taper.

For the clamping of big and heavy workpieces.

Clamping diameter 50-250 mm

Max. workpiece weight 500 kg



### CoB

For the clamping of big and heavy workpieces. Also for extremely uneven faces.

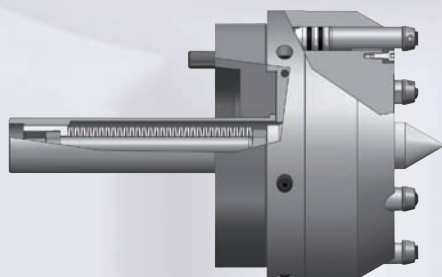
Basic body with morse taper or adaptor flange with disk spring package.

Different driver heads with interchangeable driver pins and hydraulic compensation system.

Rigid and axial adjustable spring loaded centres.

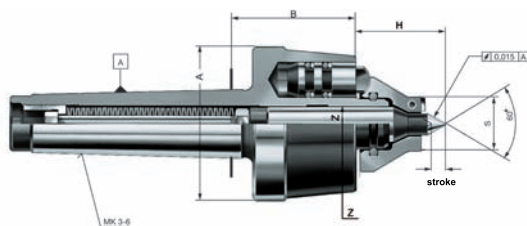
Max. workpiece weight: 500 kg

With intensified disk spring package: 1000 kg



### CoK

Our power operated Constant face driver CoK will be found in product group steady rests page 6335



For rational turning of workpieces on their entire length without reclamping with high precision.

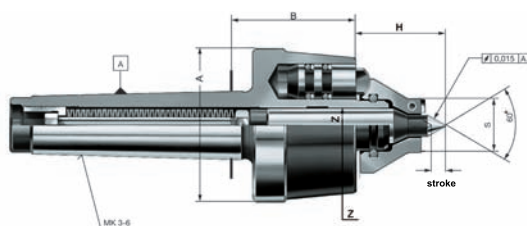
Developed according to the modular system, therefore universal exchange of driving discs and centres possible.  
One set consists of one basic body, one driving disc and suitable centre.

### Technical features:

- hydraulic pressure compensation provides a uniform clamping force also on uneven faces of workpieces
- the spring loaded centre provides a longitudinal workpiece stop on the front side
- workpiece weight max. 100 kg
- approx. value for an axially admitted total load of the 3 supporting pistons: 2000 daN

Tool group A14  
Type 680-50 **Basic body** with **Morse taper** (all basic bodies without centre) CoA **hydraulic**

| Item no. | MT | A  | B    | H               | Z  | Stroke Centres | Weight approx. g |
|----------|----|----|------|-----------------|----|----------------|------------------|
| 088173 ● | 3  | 70 | 54   | max. 45 min. 26 | 16 | 10             | 1600             |
| 088174 ● | 4  | 70 | 56,5 | max. 45 min. 26 | 16 | 15             | 1800             |
| 088175 ● | 5  | 70 | 56,5 | max. 45 min. 26 | 16 | 15             | 2800             |
| 088176 ■ | 6  | 70 | 56,5 | max. 45 min. 26 | 16 | 15             | 4400             |



For rational turning of workpieces on their entire length without reclamping with high precision.

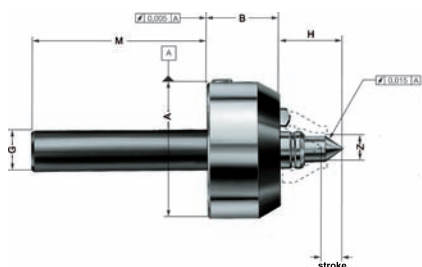
Developed according to the modular system, therefore universal exchange of driving discs and centres possible.  
One set consists of one basic body, one driving disc and suitable centre.

### Technical features:

- hydraulic pressure compensation provides a uniform clamping force also on uneven faces of workpieces
- the spring loaded centre provides a longitudinal workpiece stop on the front side
- workpiece weight max. 100 kg
- approx. value for an axially admitted total load of the 3 supporting pistons: 2000 daN

Tool group A14  
Type 680-55 **Basic body** with **Morse taper**, with **draw-off nut**, CoA **hydraulic**

| Item no. | MT | A  | B    | H               | Z  | Stroke Centres | Weight approx. g |
|----------|----|----|------|-----------------|----|----------------|------------------|
| 088177 ■ | 3  | 70 | 54   | max. 45 min. 26 | 16 | 10             | 1800             |
| 088178 ● | 4  | 70 | 56,5 | max. 45 min. 26 | 16 | 15             | 2200             |
| 088179 ● | 5  | 70 | 56,5 | max. 45 min. 26 | 16 | 15             | 3000             |
| 088180 ● | 6  | 70 | 56,5 | max. 45 min. 26 | 16 | 15             | 4600             |



For rational turning of workpieces on their entire length without reclamping with high precision.

For clamping in lathe chucks with unstepped jaws

Developed according to the modular system, therefore universal exchange of driving discs and centres possible.  
One set consists of one basic body, one driving disc and suitable centre.

### Technical features:

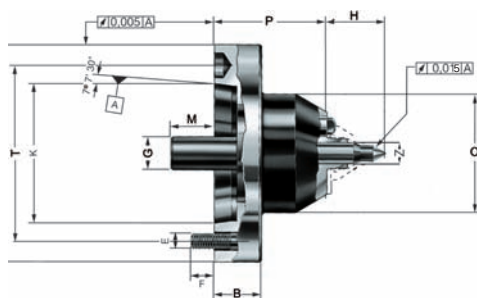
- hydraulic or mechanical pressure compensation provides a uniform clamping force also on uneven faces of workpieces
- the spring loaded centre provides a longitudinal workpiece stop on the front side
- workpiece weight max. 100 kg

Tool group A14  
Type 680-65 **Basic body** for clamping in lathe chucks, with **spring set**, CoA **mechanical / hydraulic**

| Item no.               | A  | B  | G  | H               | M   | Z  | Stroke Centres | Weight approx. g |
|------------------------|----|----|----|-----------------|-----|----|----------------|------------------|
| 088074 <sup>1)</sup> ● | 85 | 45 | 25 | max. 45 min. 26 | 110 | 16 | 15             | 2300             |
| 313085 <sup>2)</sup> ■ | 85 | 45 | 25 | max. 45 min. 26 | 110 | 16 | 15             | 2300             |

<sup>1)</sup> with hydraulic compensation

<sup>2)</sup> with mechanical compensation



For rational turning of workpieces on their entire length without reclamping with high precision.

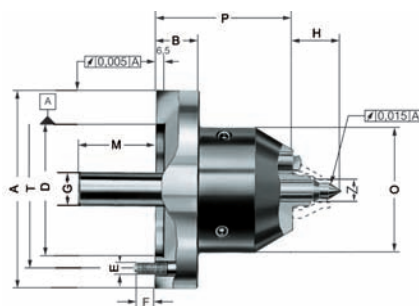
Developed according to the modular system, therefore universal exchange of driving discs and centres possible.  
One set consists of one basic body, one driving disc and suitable centre.

### Technical features:

- mechanic pressure compensation provides a uniform clamping force also on uneven faces of workpieces
- the spring loaded centre provides a longitudinal workpiece stop on the front side
- workpiece weight max. 100 kg

Tool group A14  
Type 681-85  
**Basic body with short taper ISO 702-1 (DIN 55026) mechanical compensation, with spring set, CoA mechanical**

| Item no. | Taper | A   | B  | E    | F  | G  | H               | K       | M  | O  | P  | T     | Z  | Stroke Centres | Weight approx. g |
|----------|-------|-----|----|------|----|----|-----------------|---------|----|----|----|-------|----|----------------|------------------|
| 313905   | 5     | 133 | -  | M 10 | 15 | 25 | max. 45 min. 26 | 82,563  | 32 | 90 | 86 | 104,8 | 16 | 11             | 6500             |
| 313906   | 6     | 165 | 35 | M 12 | 18 | 25 | max. 45 min. 26 | 106,375 | 32 | 90 | 86 | 133,4 | 16 | 11             | 7000             |
| 313907   | 8     | 210 | 40 | M 16 | 23 | 25 | max. 45 min. 26 | 139,719 | 32 | 90 | 86 | 171,4 | 16 | 11             | 8100             |



For rational turning of workpieces on their entire length without reclamping with high precision.

Developed according to the modular system, therefore universal exchange of driving discs and centres possible.  
One set consists of one basic body, one driving disc and suitable centre.

### Technical features:

- hydraulic respectively mechanical pressure compensation provides a uniform clamping force also on uneven faces of workpieces
- the spring loaded centre provides a longitudinal workpiece stop on the front side
- workpiece weight max. 100 kg

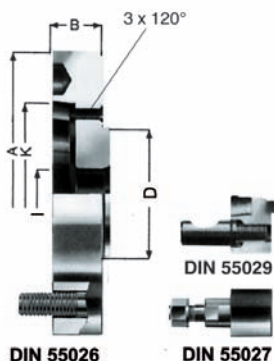
Tool group A14  
Type 680-60  
**Basic body flange type, with spring set, CoA mechanical / hydraulic**

| Item no.             | A   | B  | D   | E    | F  | G  | H               | M  | O  | P  | T   | Z  | Stroke Centres | Weight approx. g |
|----------------------|-----|----|-----|------|----|----|-----------------|----|----|----|-----|----|----------------|------------------|
| 088046 <sup>1)</sup> | 142 | 30 | 100 | M 10 | 15 | 25 | max. 45 min. 26 | 61 | 90 | 98 | 120 | 16 | 15             | 7300             |
| 313910 <sup>2)</sup> | 142 | 30 | 100 | M 10 | 15 | 25 | max. 45 min. 26 | 61 | 90 | 98 | 120 | 16 | 15             | 7300             |

<sup>1)</sup> with hydraulic compensation

<sup>2)</sup> with mechanical compensation

# Adapter plate CoA



Tool group A14  
Type 688-87  
Adapter plate **short taper**  
without spring set

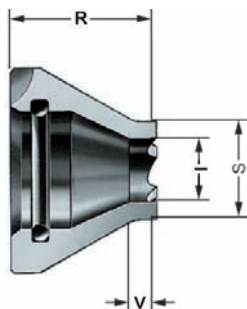
| Item no. | Design    | Taper | A   | B  | D   | I  | K       | Weight approx.<br>kg |
|----------|-----------|-------|-----|----|-----|----|---------|----------------------|
| 088485   | DIN 55026 | 5     | 140 | 30 | 100 | 38 | 82,563  | 3,1                  |
| 088486   | DIN 55026 | 6     | 167 | 35 | 100 | 38 | 106,39  | 4,8                  |
| 088487   | DIN 55026 | 8     | 216 | 40 | 100 | 38 | 139,735 | 8,7                  |
| 088488   | DIN 55026 | 11    | 280 | 45 | 100 | 38 | 196,885 | 17                   |
| 088480   | DIN 55027 | 5     | 140 | 30 | 100 | 38 | 82,563  | 3,1                  |
| 088481   | DIN 55027 | 6     | 167 | 35 | 100 | 38 | 106,39  | 4,8                  |
| 088482   | DIN 55027 | 8     | 216 | 40 | 100 | 38 | 139,735 | 8,7                  |
| 088483   | DIN 55027 | 11    | 280 | 45 | 100 | 38 | 196,885 | 17                   |
| 088495   | DIN 55029 | 5     | 140 | 30 | 100 | 38 | 82,563  | 3,1                  |
| 088496   | DIN 55029 | 6     | 167 | 35 | 100 | 38 | 106,39  | 4,8                  |
| 088497   | DIN 55029 | 8     | 216 | 40 | 100 | 38 | 139,735 | 8,7                  |
| 088498   | DIN 55029 | 11    | 280 | 45 | 100 | 38 | 196,885 | 17                   |



## Accessories CoA

Tool group A14

Type 680-10 **Driving discs**, toothed  
right-hand rotation

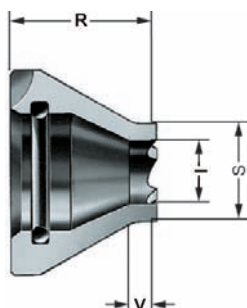


| Item no. | Clamping circuit Ø S | Approx. turning range | I   | R  | V  | Matching center point Ø Y | Weight approx. g |
|----------|----------------------|-----------------------|-----|----|----|---------------------------|------------------|
| 088061 ● | 8                    | 9-16                  | 4,5 | 38 | 4  | 4                         | 150              |
| 088062 ● | 10                   | 11-20                 | 4,5 | 38 | 4  | 4                         | 180              |
| 088063 ● | 12                   | 13-24                 | 7   | 36 | 4  | 6                         | 160              |
| 088064 ● | 16                   | 17-32                 | 11  | 33 | 4  | 10                        | 160              |
| 088065 ● | 20                   | 21-40                 | 13  | 30 | 4  | 12                        | 200              |
| 088066 ● | 25                   | 26-50                 | 17  | 30 | 8  | 16                        | 170              |
| 088067 ● | 32                   | 33-64                 | 22  | 30 | 10 | 16                        | 190              |

Driving discs with carbide toothing, friction lining or diamant granulation on request

Tool group A14

Type 680-20 **Driving discs**, toothed  
left-hand rotation

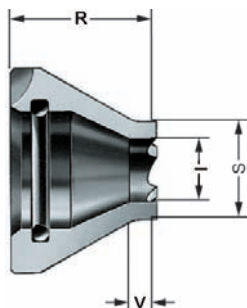


| Item no. | Clamping circuit Ø S | Approx. turning range | I   | R  | V  | Matching center point Ø Y | Weight approx. g |
|----------|----------------------|-----------------------|-----|----|----|---------------------------|------------------|
| 088081 ● | 8                    | 9-16                  | 4,5 | 38 | 4  | 4                         | 150              |
| 088082 ● | 10                   | 11-20                 | 4,5 | 38 | 4  | 4                         | 180              |
| 088083 ● | 12                   | 13-24                 | 7   | 36 | 4  | 6                         | 160              |
| 088084 ● | 16                   | 17-32                 | 11  | 33 | 4  | 10                        | 160              |
| 088085 ● | 20                   | 21-40                 | 13  | 30 | 4  | 12                        | 200              |
| 088086 ● | 25                   | 26-50                 | 17  | 30 | 8  | 16                        | 170              |
| 088087 ● | 32                   | 33-64                 | 22  | 30 | 10 | 16                        | 190              |

Driving discs with carbide toothing on request

Tool group A14

Type 680-30 **Driving discs**, toothed  
right- and left-hand rotation

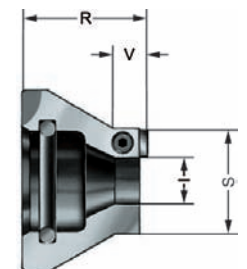


| Item no. | Clamping circuit Ø S | Approx. turning range | I   | R  | V | Matching center point Ø Y | Weight approx. g |
|----------|----------------------|-----------------------|-----|----|---|---------------------------|------------------|
| 088541 ● | 8                    | 9-16                  | 4,5 | 38 | 4 | 4                         | 120              |
| 088542 ● | 10                   | 11-20                 | 4,5 | 38 | 4 | 4                         | 120              |
| 088543 ● | 12                   | 13-24                 | 7   | 36 | 4 | 6                         | 120              |
| 088544 ● | 16                   | 17-32                 | 11  | 33 | 4 | 10                        | 120              |

Driving discs with carbide toothing on request

Tool group A14

Type 680-11 **Driving discs**, with interchangeable hard metal driving plates 6 x 3,2  
right-hand rotation

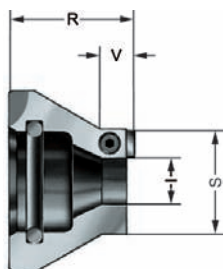


| Item no. | Clamping circuit Ø S | Approx. turning range | I    | R  | V  | Matching center point Ø Y | Weight approx. g |
|----------|----------------------|-----------------------|------|----|----|---------------------------|------------------|
| 089065 ● | 20 H                 | 21-40                 | 7    | 30 | 5  | 6                         | 125              |
| 089066 ● | 25 H                 | 26-50                 | 11   | 30 | 8  | 10                        | 140              |
| 089067 ● | 32 H                 | 33-64                 | 17,5 | 30 | 10 | 16                        | 200              |

## Accessories CoA

Tool group A14

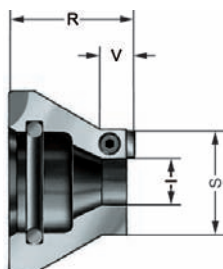
Type 680-21 **Driving discs**, with interchangeable hard metal driving plates 6 x 3,2  
**left-hand rotation**



| Item no. | Clamping circuit Ø S | Approx. turning range | I   | R  | V  | Matching center point Ø Y | Weight approx. g |
|----------|----------------------|-----------------------|-----|----|----|---------------------------|------------------|
| 089085 ● | 20 H                 | 21-40                 | 7   | 30 | 5  | 6                         | 125              |
| 089086 ● | 25 H                 | 26-50                 | 11  | 30 | 8  | 10                        | 140              |
| 089087 ● | 32 H                 | 33-64                 | 175 | 30 | 10 | 16                        | 200              |

Tool group A14

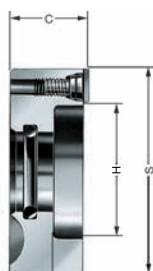
Type 680-31 **Driving discs**, with interchangeable hard metal driving plates 6 x 3,2  
**right- and left-hand rotation**



| Item no. | Clamping circuit Ø S | Approx. turning range | I   | R  | V  | Matching center point Ø Y | Weight approx. g |
|----------|----------------------|-----------------------|-----|----|----|---------------------------|------------------|
| 088545 ● | 20 H                 | 21-40                 | 7   | 30 | 5  | 6                         | 125              |
| 088546 ● | 25 H                 | 26-50                 | 11  | 30 | 8  | 10                        | 140              |
| 088547 ● | 32 H                 | 33-64                 | 175 | 30 | 10 | 16                        | 200              |

Tool group A14

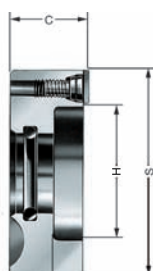
Type 680-12 **Driving discs**, with interchangeable hard metal driving plates 6 x 3,2 which can be used on 4 sides  
**right-hand rotation**



| Item no. | Clamping circuit Ø S | Approx. turning range | H  | C  | Matching center point Ø Y | Weight approx. g |
|----------|----------------------|-----------------------|----|----|---------------------------|------------------|
| 088068 ● | 40                   | 41-80                 | 20 | 24 | 16                        | 600              |
| 088069 ● | 50                   | 51-100                | 28 | 24 | 16                        | 240              |
| 088070 ● | 63                   | 64-126                | 41 | 24 | 16                        | 400              |
| 088071 ● | 80                   | 81-160                | 58 | 24 | 16                        | 600              |

Tool group A14

Type 680-22 **Driving discs**, with interchangeable hard metal driving plates 6 x 3,2 which can be used on 4 sides  
**left-hand rotation**

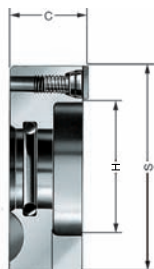


| Item no. | Clamping circuit Ø S | Approx. turning range | H  | C  | Matching center point Ø Y | Weight approx. g |
|----------|----------------------|-----------------------|----|----|---------------------------|------------------|
| 088088 ● | 40                   | 41-80                 | 20 | 24 | 16                        | 600              |
| 088089 ● | 50                   | 51-100                | 28 | 24 | 16                        | 240              |
| 088090 ● | 63                   | 64-126                | 41 | 24 | 16                        | 400              |
| 088091 ● | 80                   | 81-160                | 58 | 24 | 16                        | 600              |

## Accessories CoA

Tool group A14

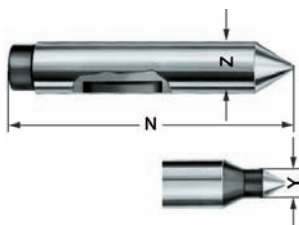
Type 680-32 **Driving discs**, with interchangeable hard metal driving plates 6 x 3,2 which can be used on 4 sides right- **and** left-hand rotation



| Item no. | Clamping circuit Ø S | Approx. turning range | H  | C  | Matching center point Ø Y | Weight approx. g |
|----------|----------------------|-----------------------|----|----|---------------------------|------------------|
| 088548 ● | 40                   | 41-80                 | 20 | 24 | 16                        | 600              |
| 088549 ● | 50                   | 51-100                | 28 | 24 | 16                        | 240              |
| 088550 ● | 63                   | 64-126                | 41 | 24 | 16                        | 400              |
| 088551 ● | 80                   | 81-160                | 58 | 24 | 16                        | 600              |

Tool group A14

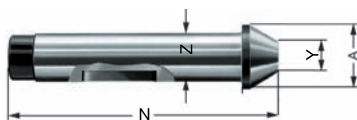
Type 680-40 **Centres**, CoA



| Item no. | Clamping circuit Ø | N   | Y  | Z  | Weight approx. g |
|----------|--------------------|-----|----|----|------------------|
| 088351 ● | 8-10               | 90  | 4  | 16 | 110              |
| 088352 ● | 12                 | 90  | 6  | 16 | 110              |
| 088353 ● | 16                 | 90  | 10 | 16 | 110              |
| 088354 ● | 20                 | 90  | 12 | 16 | 110              |
| 088355 ● | 25-80              | 90  | 16 | 16 | 120              |
| 086758 ● | 25-80              | 110 | 16 | 16 | 150              |

Tool group A14

Type 680-45, **Centres with head**, CoA



| Item no. | Taper Ø |    | N  | Z  | Weight approx. g |
|----------|---------|----|----|----|------------------|
|          | A       | Y  |    |    |                  |
| 086619 ● | 21      | 10 | 90 | 16 | 136              |
| 086620 ● | 27      | 16 | 90 | 16 | 153              |
| 688878 ● | 34      | 23 | 90 | 16 | 190              |
| 086621 ● | 40      | 29 | 90 | 16 | 210              |
| 688880 ● | 48      | 37 | 90 | 16 | 250              |
| 086622 ● | 56      | 45 | 90 | 16 | 312              |

Tool group A14

Type 680-90 **Hard metal driving plates**  
right- **or** left-hand rotation



| Item no. | Size    | Clamping circuit Ø | Weight approx. g |
|----------|---------|--------------------|------------------|
| 088810 ● | 6x3,2   | 20-32              | 2                |
| 088209 ● | 9,5x3,2 | 40-80              | 4                |

Tool group A14

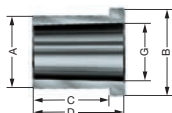
Type 680-93 **Hard metal driving plates**  
right- **and** left-hand rotation



| Item no. | Size    | Clamping circuit Ø | Weight approx. g |
|----------|---------|--------------------|------------------|
| 088970 ● | 6x3,2   | 20-32              | 2                |
| 087931 ● | 9,5x3,2 | 40-80              | 4                |

Tool group A14

Type 680-72 **Mounting sleeve**  
for the clamping of a face driver in lathe chuck



| Item no. | MT inside | A  | B  | C  | D  | G      | Weight approx. g |
|----------|-----------|----|----|----|----|--------|------------------|
| 085033 ● | 3         | 31 | 39 | 32 | 40 | 23,825 | 150              |
| 085034 ● | 4         | 39 | 47 | 42 | 50 | 31,267 | 250              |
| 085035 ● | 5         | 54 | 62 | 52 | 60 | 44,399 | 480              |
| 085036 ● | 6         | 75 | 83 | 62 | 70 | 63,448 | 1050             |



# Accessories CoA

Tool group C15  
Type 0167-Y  
**Threaded pin**



| Item no. | Size    | Clamping circuit Ø | Weight approx. g |
|----------|---------|--------------------|------------------|
| 234695 ● | M 4 x 6 | 20                 | 1                |
| 048205 ● | M 5 x 8 | 25+32              | 1                |
| 088205 ● | M 5 x 8 | 40-80              | 2                |

Tool group C15  
Type 5191-Y  
**O-ring**



| Item no. | Size       |
|----------|------------|
| 006252 ● | 21,82x3,53 |

Tool group A14  
Type 680  
**ROHM slide rule** to calculate axial tailstock loading



| Item no. | Weight approx. g |
|----------|------------------|
| 088230 ● | 35               |

# CoA Assortments

Tool group A14

Type 680 **Basic equipment** in a carton

hydraulic, clamping dia. 12 + 32 mm, turning range 13-64 mm



| Item no. | MT | right-hand rotation | left-hand rotation | with draw-off nut | Weight approx. g |
|----------|----|---------------------|--------------------|-------------------|------------------|
| 088553 ● | 3  | •                   |                    |                   | 2100             |
| 088557 ● | 3  | •                   |                    | •                 | 2400             |
| 088573 ● | 3  |                     | •                  |                   | 2100             |
| 088577 ● | 3  |                     | •                  | •                 | 2400             |
| 088554 ● | 4  | •                   |                    |                   | 2400             |
| 088558 ▲ | 4  | •                   |                    | •                 | 2700             |
| 088574 ▲ | 4  |                     | •                  |                   | 2400             |
| 088578 ▲ | 4  |                     | •                  | •                 | 2700             |
| 088555 ● | 5  | •                   |                    |                   | 3300             |
| 088559 ▲ | 5  | •                   |                    | •                 | 3600             |
| 088575 ▲ | 5  |                     | •                  |                   | 3300             |
| 088579 ▲ | 5  |                     | •                  | •                 | 3600             |
| 088556 ▲ | 6  | •                   |                    |                   | 4900             |
| 088560 ▲ | 6  | •                   |                    | •                 | 5200             |
| 088576 ▲ | 6  |                     | •                  |                   | 4900             |
| 088580 ▲ | 6  |                     | •                  | •                 | 5200             |

Tool group A14

Type 680 **Small assortment** in wooden box

hydraulic, clamping dia. 12-50 mm, turning range 13-100 mm



| Item no. | MT | right-hand rotation | left-hand rotation | with draw-off nut | Weight approx. g |
|----------|----|---------------------|--------------------|-------------------|------------------|
| 088501 ● | 3  | •                   |                    |                   | 3900             |
| 088511 ● | 3  | •                   |                    | •                 | 4200             |
| 088521 ● | 3  |                     | •                  |                   | 3900             |
| 088531 ▲ | 3  |                     | •                  | •                 | 4200             |
| 088502 ● | 4  | •                   |                    |                   | 4300             |
| 088512 ▲ | 4  | •                   |                    | •                 | 4600             |
| 088522 ● | 4  |                     | •                  |                   | 4300             |
| 088532 ▲ | 4  |                     | •                  | •                 | 4600             |
| 088503 ● | 5  | •                   |                    |                   | 4900             |
| 088513 ▲ | 5  | •                   |                    | •                 | 5200             |
| 088523 ▲ | 5  |                     | •                  |                   | 4900             |
| 088533 ▲ | 5  |                     | •                  | •                 | 5200             |
| 088504 ● | 6  | •                   |                    |                   | 6600             |
| 088514 ▲ | 6  | •                   |                    | •                 | 6800             |
| 088524 ▲ | 6  |                     | •                  |                   | 6600             |
| 088534 ▲ | 6  |                     | •                  | •                 | 6800             |

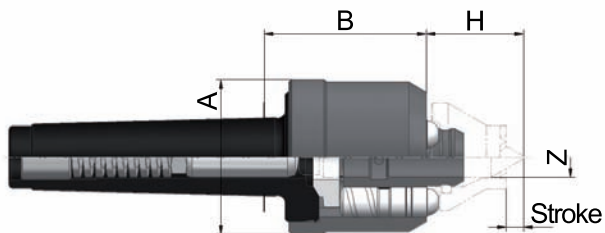
Tool group A14

Type 680 **Large assortment** in wooden box

hydraulic, clamping dia. 10-80 mm, turning range 11-160 mm



| Item no. | MT | right-hand rotation | left-hand rotation | with draw-off nut | Weight approx. g |
|----------|----|---------------------|--------------------|-------------------|------------------|
| 088218 ● | 3  | •                   |                    |                   | 5600             |
| 088223 ● | 3  |                     | •                  |                   | 5600             |
| 088233 ● | 3  | •                   |                    | •                 | 5900             |
| 088238 ● | 3  |                     | •                  | •                 | 5900             |
| 088219 ▲ | 4  | •                   |                    |                   | 6000             |
| 088224 ▲ | 4  |                     | •                  |                   | 6000             |
| 088234 ● | 4  | •                   |                    | •                 | 6300             |
| 088239 ▲ | 4  |                     | •                  | •                 | 6300             |
| 088220 ▲ | 5  | •                   |                    |                   | 6600             |
| 088225 ▲ | 5  |                     | •                  |                   | 6600             |
| 088235 ▲ | 5  | •                   |                    | •                 | 6900             |
| 088240 ▲ | 5  |                     | •                  | •                 | 6900             |
| 088221 ▲ | 6  | •                   |                    |                   | 8300             |
| 088226 ▲ | 6  |                     | •                  |                   | 8300             |
| 088236 ▲ | 6  | •                   |                    | •                 | 8500             |
| 088241 ▲ | 6  |                     | •                  | •                 | 8500             |



For rational turning of workpieces on their entire length without reclamping with high precision.

Developed according to the modular system, therefore universal exchange of driving discs and centres possible.  
One set consists of one basic body, one driving disc and suitable centre.

### Technical features:

- mechanic pressure compensation provides a uniform clamping force also on uneven faces of workpieces
- the spring loaded centre provides a longitudinal workpiece stop on the front side
- workpiece weight max. 100 kg
- Clamping circuit Ø 8-80 mm
- approx. value for an axially admitted total load of the 3 supporting pistons: 900 daN

### Customer advantage:

- Face driver for turning and milling
- Compensating driving plates with radial freedom of movement
- Easy mechanical compensation of the driving plates
- Stable and consistent length stop
- High runout concentricity
- Easy to maintain

Tool group A14  
Type 684-90

**Basic body with morse taper**  
(all basic bodies without centre)

CoE

**mechanical**

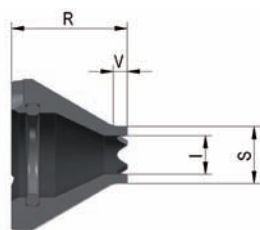
| Item no. | MT | A  | B  | H               | Z  | Stroke | Centres | Weight approx. g |
|----------|----|----|----|-----------------|----|--------|---------|------------------|
| 310065   | 3  | 62 | 65 | max. 38 min. 26 | 16 | 10     |         | 1800             |
| 310066   | 4  | 62 | 65 | max. 38 min. 26 | 16 | 10     |         | 1900             |
| 310068   | 5  | 62 | 65 | max. 38 min. 26 | 16 | 10     |         | 2000             |

## Accessories CoE

Tool group A14

Type 684-30 **Driving discs**, toothed

right- **and** left-hand rotation, free from play



| Item no. | Clamping circuit Ø S | Approx. turning range | I   | R  | V  | Matching center point Ø Y | Weight approx. g |
|----------|----------------------|-----------------------|-----|----|----|---------------------------|------------------|
| 1209000  | 8                    | 9-16                  | 4,5 | 38 | 4  | 4                         | 120              |
| 1209001  | 10                   | 11-20                 | 4,5 | 38 | 4  | 4                         | 120              |
| 1209002  | 12                   | 13-24                 | 7   | 36 | 4  | 6                         | 120              |
| 1209003  | 16                   | 17-32                 | 11  | 33 | 4  | 10                        | 120              |
| 1209004  | 20                   | 21-40                 | 13  | 30 | 4  | 12                        | 120              |
| 1209005  | 25                   | 26-50                 | 17  | 30 | 8  | 16                        | 130              |
| 1209006  | 32                   | 33-64                 | 22  | 30 | 10 | 16                        | 160              |

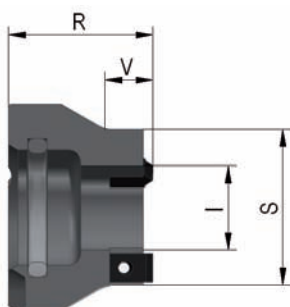
Driving discs with carbide toothing on request

Tool group A14

Type 684-31 **Driving discs**,

with interchangeable hard metal driving plates 6 x 3,2

right- **and** left-hand rotation, free from play



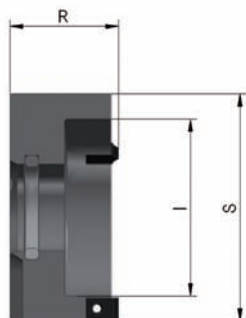
| Item no. | Clamping circuit Ø S | Approx. turning range | I    | R  | V  | Matching center point Ø Y | Weight approx. g |
|----------|----------------------|-----------------------|------|----|----|---------------------------|------------------|
| 1209007  | 20                   | 21-40                 | 7    | 30 | 8  | 6                         | 125              |
| 1209008  | 25                   | 26-50                 | 11   | 30 | 8  | 10                        | 140              |
| 1209009  | 32                   | 33-64                 | 17,5 | 30 | 10 | 16                        | 160              |
| 1209010  | 40                   | 41-80                 | 27   | 30 | 16 | 16                        | 180              |



## Accessories CoE

Tool group A14

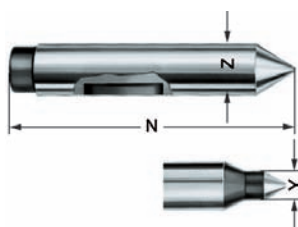
Type 684-31 **Driving discs**, with interchangeable hard metal driving plates 6 x 3,2 which can be used on 4 sides right- **and** left-hand rotation, free from play



| Item no. | Clamping circuit Ø S | Approx. turning range | I  | R  | Matching center point ØY | Weight approx. g |
|----------|----------------------|-----------------------|----|----|--------------------------|------------------|
| 1209011  | 50                   | 51-100                | 36 | 30 | 16                       | 260              |
| 1209012  | 63                   | 64-126                | 49 | 30 | 16                       | 420              |
| 1209013  | 80                   | 81-160                | 66 | 30 | 16                       | 680              |

Tool group A14

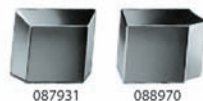
Type 684-40 **Centres**, CoE



| Item no. | Clamping circuit Ø | N  | Y  | Z  | Weight approx. g |
|----------|--------------------|----|----|----|------------------|
| 1209016  | 8-10               | 90 | 4  | 16 | 110              |
| 1209017  | 12                 | 90 | 16 | 6  | 110              |
| 1209018  | 16                 | 90 | 6  | 16 | 110              |
| 1209019  | 20                 | 90 | 12 | 16 | 110              |
| 1209020  | 25-80              | 90 | 16 | 16 | 120              |

Tool group A14

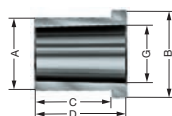
Type 680-93 **Hard metal driving plates**  
right- **and** left-hand rotation



| Item no. | Size  | Clamping circuit Ø | Weight approx. g |
|----------|-------|--------------------|------------------|
| 088970   | 6x3,2 | 20-32              | 2                |

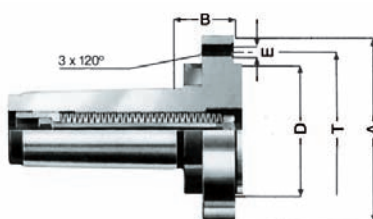
Tool group A14

Type 680-72 **Mounting sleeve**  
for the clamping of a face driver in lathe chuck



| Item no. | MT inside | A  | B  | C  | D  | G      | Weight approx. g |
|----------|-----------|----|----|----|----|--------|------------------|
| 085033   | 3         | 31 | 39 | 32 | 40 | 23,825 | 150              |
| 085034   | 4         | 39 | 47 | 42 | 50 | 31,267 | 250              |
| 085035   | 5         | 54 | 62 | 52 | 60 | 44,399 | 480              |

# CoM

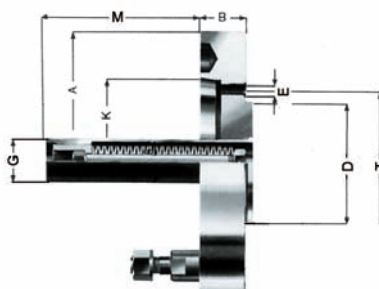


Tool group A14  
Type 688

**Basic body with morse taper  
and draw-off nut  
mechanical / hydraulic**

| Item no. | MT | A   | B  | D   | E    | T   | Weight approx. g |
|----------|----|-----|----|-----|------|-----|------------------|
| 088295   | 5  | 140 | 45 | 100 | M 10 | 120 | 5800             |
| 088296   | 6  | 140 | 45 | 100 | M 10 | 120 | 7480             |

# Adapter plate CoM

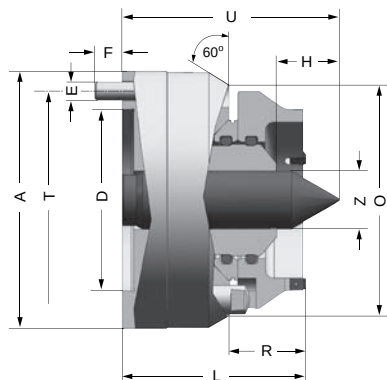


Tool group A14  
Type 688

**Adapter plate short taper  
with spring set**

| Item no. | Taper | Design    | A   | B  | D   | E    | G    | K       | M   | T   | Weight approx. g |
|----------|-------|-----------|-----|----|-----|------|------|---------|-----|-----|------------------|
| 088331   | 5     | DIN 55026 | 140 | 30 | 100 | M 10 | 37,5 | 82,563  | 144 | 120 | 4500             |
| 088332   | 6     | DIN 55026 | 165 | 35 | 100 | M 10 | 37,5 | 106,39  | 139 | 120 | 7000             |
| 088333   | 8     | DIN 55026 | 216 | 40 | 100 | M 10 | 37,5 | 139,735 | 134 | 120 | 11500            |
| 088334   | 11    | DIN 55026 | 280 | 45 | 100 | M 10 | 37,5 | 196,885 | 129 | 120 | 23000            |
| 088335   | 5     | DIN 55027 | 140 | 30 | 100 | M 10 | 37,5 | 82,563  | 144 | 120 | 5500             |
| 088336   | 6     | DIN 55027 | 165 | 35 | 100 | M 10 | 37,5 | 106,39  | 139 | 120 | 7000             |
| 088337   | 8     | DIN 55027 | 216 | 40 | 100 | M 10 | 37,5 | 139,735 | 134 | 120 | 11500            |
| 088338   | 11    | DIN 55027 | 280 | 45 | 100 | M 10 | 37,5 | 196,885 | 129 | 120 | 23000            |
| 088339   | 5     | DIN 55029 | 140 | 30 | 100 | M 10 | 37,5 | 82,563  | 144 | 120 | 4500             |
| 088340   | 6     | DIN 55029 | 165 | 35 | 100 | M 10 | 37,5 | 106,39  | 139 | 120 | 7000             |
| 088341   | 8     | DIN 55029 | 216 | 40 | 100 | M 10 | 37,5 | 139,735 | 134 | 120 | 11500            |
| 088342   | 11    | DIN 55029 | 280 | 45 | 100 | M 10 | 37,5 | 196,885 | 129 | 120 | 23000            |

## Driving head CoM



For clamping large and heavy workpieces, even with extremely uneven faces.

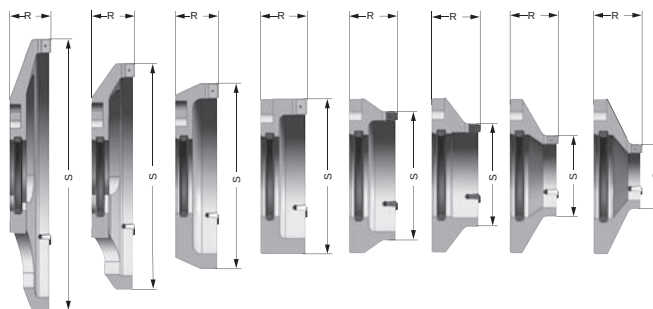
### Technical features:

- spring loaded, rigid centre, axially adjustable
- basic body with morse taper or adapter plate with cup spring set
- workpiece weight max. 500 kg
- slip-on driving discs - clamping diameter 50-250 mm
- mechanical compensation

Tool group A14  
Type 687  
Face driving head  
with cylindrical centre mount  
mechanical

| Item no. | A   | D   | E    | F  | H  | L   | O   | R  | T   | U   | Z  |
|----------|-----|-----|------|----|----|-----|-----|----|-----|-----|----|
| 689080   | 142 | 100 | M 10 | 15 | 35 | 102 | 128 | 38 | 120 | 120 | 32 |

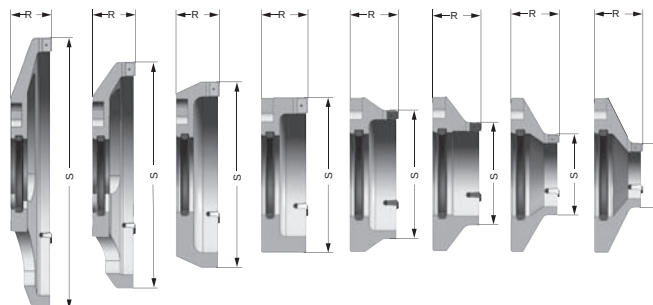
## Driving discs CoM



Tool group A14  
Type 687-13  
**Driving discs**  
with interchangeable hard metal  
driving plates  
**right-hand rotation**

| Item no.             | Clamping circuit Ø S | R  | Hard metal driving plate | Weight approx. g |
|----------------------|----------------------|----|--------------------------|------------------|
| 689461               | 50                   | 48 | 6 x 5T                   | 1400             |
| 689462               | 63                   | 45 | 6 x 5T                   | 1500             |
| 689463               | 80                   | 38 | 6 x 5T                   | 1500             |
| 689464               | 100                  | 38 | 6 x 5T                   | 1400             |
| 689465               | 125                  | 38 | 12 x 5T                  | 1800             |
| 689466               | 160                  | 38 | 12 x 5T                  | 2500             |
| 689467 <sup>1)</sup> | 200                  | 38 | 12 x 5T                  | 2500             |
| 689468 <sup>1)</sup> | 250                  | 38 | 12 x 5T                  | 3200             |

<sup>1)</sup> Weight reduced



Tool group A14  
Type 687-23  
**Driving discs**  
with interchangeable hard metal  
driving plates  
**left-hand rotation**

| Item no.             | Clamping circuit Ø S | R  | Hard metal driving plate | Weight approx. g |
|----------------------|----------------------|----|--------------------------|------------------|
| 689091               | 50                   | 48 | 6 x 5T                   | 1400             |
| 689092               | 63                   | 45 | 6 x 5T                   | 1500             |
| 689093               | 80                   | 38 | 6 x 5T                   | 1500             |
| 689094               | 100                  | 38 | 6 x 5T                   | 1400             |
| 689095               | 125                  | 38 | 12 x 5T                  | 1800             |
| 689096               | 160                  | 38 | 12 x 5T                  | 2500             |
| 689097 <sup>1)</sup> | 200                  | 38 | 12 x 5T                  | 2500             |
| 689098 <sup>1)</sup> | 250                  | 38 | 12 x 5T                  | 3200             |

<sup>1)</sup> Weight reduced

# Accessories CoM

Tool group A14  
Type 688-40 **Centres**



| Item no. | N   | Z  | Weight approx. g |
|----------|-----|----|------------------|
| 088292 ● | 120 | 32 | 620              |
| 088293 ● | 140 | 32 | 750              |

Tool group A14  
Type 680-90 **Hard metal driving plates**  
right- or left-hand rotation



| Item no. | Size     | Weight approx. g |
|----------|----------|------------------|
| 312675 ● | 6 x 5 T  | 3                |
| 312911 ● | 12 x 5 T | 6                |

Tool group C15  
Type 0167-Y  
**Threaded pin**



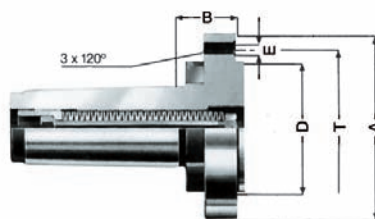
| Item no. | Size     | Clamping circuit Ø | Weight approx. g |
|----------|----------|--------------------|------------------|
| 048205 ● | M 5 x 8  | 25+32              | 1                |
| 036461 ● | M 5 x 10 |                    | 1                |

Tool group C15  
Type 5191-Y  
**O-ring**



| Item no. | Size       |
|----------|------------|
| 006283 ■ | 59,69x5,33 |

## CoB

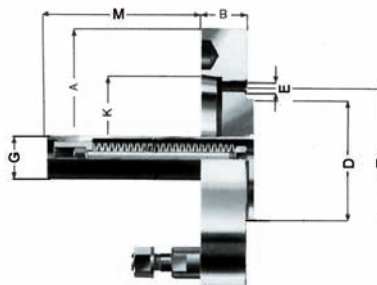


Tool group A14  
Type 688

**Basic body with morse taper**  
and **draw-off nut**  
mechanical / hydraulic

| Item no. | MT | A   | B  | D   | E    | T   | Weight approx. g |
|----------|----|-----|----|-----|------|-----|------------------|
| 088295   | 5  | 140 | 45 | 100 | M 10 | 120 | 5800             |
| 088296   | 6  | 140 | 45 | 100 | M 10 | 120 | 7480             |

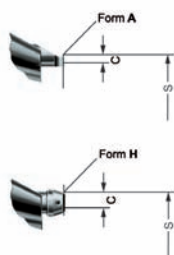
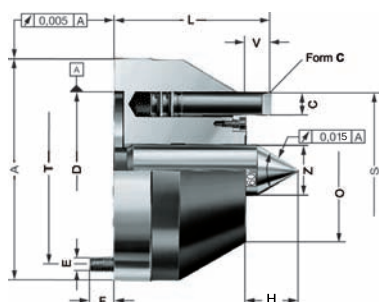
## Adapter plate CoB



Tool group A14  
Type 688 Adapter plate **short**  
**taper with spring set**

| Item no. | Taper | Design    | A   | B  | D   | E    | G    | K       | M   | T   | Weight approx. g |
|----------|-------|-----------|-----|----|-----|------|------|---------|-----|-----|------------------|
| 088331   | 5     | DIN 55026 | 140 | 30 | 100 | M 10 | 37,5 | 82,563  | 144 | 120 | 4500             |
| 088332   | 6     | DIN 55026 | 165 | 35 | 100 | M 10 | 37,5 | 106,39  | 139 | 120 | 7000             |
| 088333   | 8     | DIN 55026 | 216 | 40 | 100 | M 10 | 37,5 | 139,735 | 134 | 120 | 11500            |
| 088334   | 11    | DIN 55026 | 280 | 45 | 100 | M 10 | 37,5 | 196,885 | 129 | 120 | 23000            |
| 088335   | 5     | DIN 55027 | 140 | 30 | 100 | M 10 | 37,5 | 82,563  | 144 | 120 | 5500             |
| 088336   | 6     | DIN 55027 | 165 | 35 | 100 | M 10 | 37,5 | 106,39  | 139 | 120 | 7000             |
| 088337   | 8     | DIN 55027 | 216 | 40 | 100 | M 10 | 37,5 | 139,735 | 134 | 120 | 11500            |
| 088338   | 11    | DIN 55027 | 280 | 45 | 100 | M 10 | 37,5 | 196,885 | 129 | 120 | 23000            |
| 088339   | 5     | DIN 55029 | 140 | 30 | 100 | M 10 | 37,5 | 82,563  | 144 | 120 | 4500             |
| 088340   | 6     | DIN 55029 | 165 | 35 | 100 | M 10 | 37,5 | 106,39  | 139 | 120 | 7000             |
| 088341   | 8     | DIN 55029 | 216 | 40 | 100 | M 10 | 37,5 | 139,735 | 134 | 120 | 11500            |
| 088342   | 11    | DIN 55029 | 280 | 45 | 100 | M 10 | 37,5 | 196,885 | 129 | 120 | 23000            |

## Driving heads CoB



For clamping large and heavy workpieces, even with extremely uneven faces.

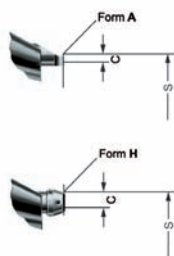
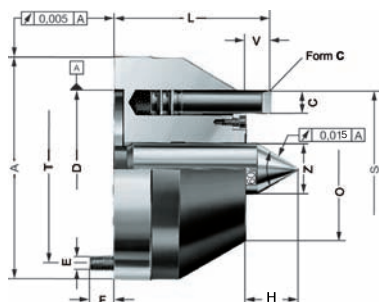
With hydraulic compensation - interchangeable driving pins  
Workpiece weight with single layer disk spring package: 500 kg  
Workpiece weight with double layer disk spring package: 1000 kg

### Technical features:

- bolt-on face driver heads with interchangeable driving pins
- driving pins can be changed to allow right-hand or left-hand rotation
- spring loaded, rigid centre, axially adjustable

Tool group A14  
Type 688-10  
Face Driving Head **size 1** CoB;  
**hydraulic**  
**right-hand rotation**

| Item no. | S  | Approx. turning range | A   | C    | D   | E    | F  | H               | L   | O  | T   | V  | Z  | Pin      | Weight approx. kg |
|----------|----|-----------------------|-----|------|-----|------|----|-----------------|-----|----|-----|----|----|----------|-------------------|
| 088301   | 63 | 65-125                | 142 | 6    | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 72 | 120 | 16 | 25 | 6 x 16 A | 7                 |
| 088361   | 75 | 80-150                | 142 | 9,5  | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 72 | 120 | 16 | 25 | 6 x 16 H | 7                 |
| 088302   | 80 | 82-160                | 142 | 14,5 | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 72 | 120 | 16 | 25 | 6 x 16 C | 7                 |



For clamping large and heavy workpieces, even with extremely uneven faces.

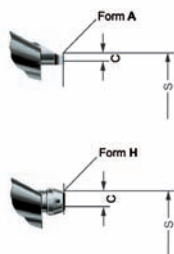
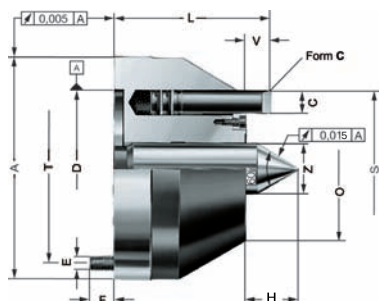
With hydraulic compensation - interchangeable driving pins  
Workpiece weight with single layer disk spring package: 500 kg  
Workpiece weight with double layer disk spring package: 1000 kg

### Technical features:

- bolt-on face driver heads with interchangeable driving pins
- driving pins can be changed to allow right-hand or left-hand rotation
- spring loaded, rigid centre, axially adjustable

Tool group A14  
Type 688-10  
Face Driving Head **size 2** CoB;  
**hydraulic**  
**right-hand rotation**

| Item no. | S   | Approx. turning range | A   | C    | D   | E    | F  | H               | L   | O  | T   | V  | Z  | Pin      | Weight approx. kg |
|----------|-----|-----------------------|-----|------|-----|------|----|-----------------|-----|----|-----|----|----|----------|-------------------|
| 088303   | 83  | 85-165                | 142 | 6    | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 92 | 120 | 16 | 32 | 6 x 16 A | 8,2               |
| 088362   | 95  | 100-190               | 142 | 9,5  | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 92 | 120 | 16 | 32 | 6 x 16 H | 8,2               |
| 088304   | 100 | 102-200               | 142 | 14,5 | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 92 | 120 | 16 | 32 | 6 x 16 C | 8,2               |



For clamping large and heavy workpieces, even with extremely uneven faces.

With hydraulic compensation - interchangeable driving pins  
Workpiece weight with single layer disk spring package: 500 kg  
Workpiece weight with double layer disk spring package: 1000 kg

### Technical features:

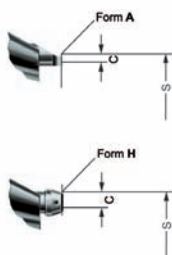
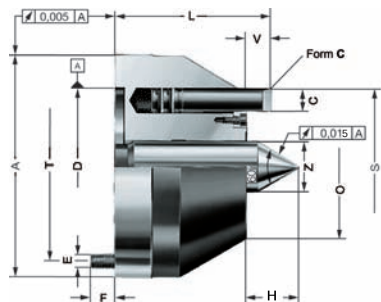
- bolt-on face driver heads with interchangeable driving pins
- driving pins can be changed to allow right-hand or left-hand rotation
- spring loaded, rigid centre, axially adjustable

Tool group A14  
Type 688-10  
Face Driving Head **size 3** CoB;  
**hydraulic**  
**right-hand rotation**

| Item no. | S   | Approx. turning range | A   | C    | D   | E    | F  | H               | L   | O   | T   | V  | Z  | Pin      | Weight approx. kg |
|----------|-----|-----------------------|-----|------|-----|------|----|-----------------|-----|-----|-----|----|----|----------|-------------------|
| 088305   | 108 | 110-215               | 142 | 6    | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 117 | 120 | 16 | 32 | 6 x 16 A | 9,5               |
| 088363   | 120 | 125-240               | 142 | 9,5  | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 117 | 120 | 16 | 32 | 6 x 16 H | 9,5               |
| 088306   | 125 | 127-250               | 142 | 14,5 | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 117 | 120 | 16 | 32 | 6 x 16 C | 9,5               |



## Driving heads CoB



For clamping large and heavy workpieces, even with extremely uneven faces.

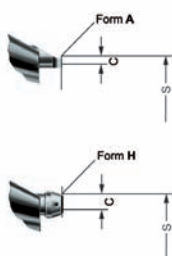
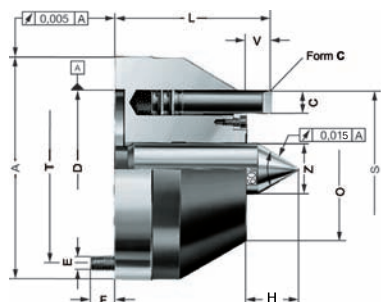
With hydraulic compensation - interchangeable driving pins  
Workpiece weight with single layer disk spring package: 500 kg  
Workpiece weight with double layer disk spring package: 1000 kg

### Technical features:

- bolt-on face driver heads with interchangeable driving pins
- driving pins can be changed to allow right-hand or left-hand rotation
- spring loaded, rigid centre, axially adjustable

Tool group A14  
Type 688-10  
Face Driving Head **size 4** CoB;  
**hydraulic**  
**right-hand rotation**

| Item no. | S   | Approx. turning range | A   | C    | D   | E    | F  | H               | L   | O   | T   | V  | Z  | Pin      | Weight approx. kg |
|----------|-----|-----------------------|-----|------|-----|------|----|-----------------|-----|-----|-----|----|----|----------|-------------------|
| 088307   | 143 | 145-285               | 182 | 6    | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 152 | 120 | 16 | 32 | 6 x 16 A | 16                |
| 088364   | 155 | 160-310               | 182 | 9,5  | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 152 | 120 | 16 | 32 | 6 x 16 H | 16                |
| 088308   | 160 | 162-320               | 182 | 14,5 | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 152 | 120 | 16 | 32 | 6 x 16 C | 16                |



For clamping large and heavy workpieces, even with extremely uneven faces.

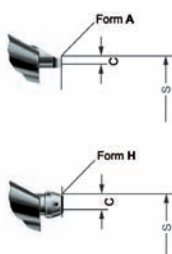
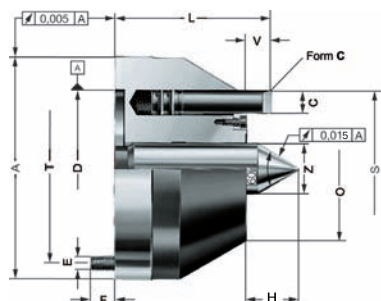
With hydraulic compensation - interchangeable driving pins  
Workpiece weight with single layer disk spring package: 500 kg  
Workpiece weight with double layer disk spring package: 1000 kg

### Technical features:

- bolt-on face driver heads with interchangeable driving pins
- driving pins can be changed to allow right-hand or left-hand rotation
- spring loaded, rigid centre, axially adjustable

Tool group A14  
Type 688-20  
Face Driving Head **size 1** CoB;  
**hydraulic**  
**left-hand rotation**

| Item no. | S  | Approx. turning range | A   | C    | D   | E    | F  | H               | L   | O  | T   | V  | Z  | Pin      | Weight approx. kg |
|----------|----|-----------------------|-----|------|-----|------|----|-----------------|-----|----|-----|----|----|----------|-------------------|
| 088321   | 63 | 65-125                | 142 | 6    | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 72 | 120 | 16 | 25 | 6 x 16 A | 7                 |
| 088381   | 75 | 80-150                | 142 | 9,5  | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 72 | 120 | 16 | 25 | 6 x 16 H | 7                 |
| 088322   | 80 | 82-160                | 142 | 14,5 | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 72 | 120 | 16 | 25 | 6 x 16 C | 7                 |



For clamping large and heavy workpieces, even with extremely uneven faces.

With hydraulic compensation - interchangeable driving pins  
Workpiece weight with single layer disk spring package: 500 kg  
Workpiece weight with double layer disk spring package: 1000 kg

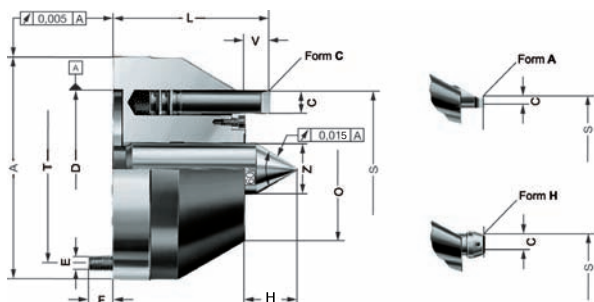
### Technical features:

- bolt-on face driver heads with interchangeable driving pins
- driving pins can be changed to allow right-hand or left-hand rotation
- spring loaded, rigid centre, axially adjustable

Tool group A14  
Type 688-20  
Face Driving Head **size 2** CoB;  
**hydraulic**  
**left-hand rotation**

| Item no. | S   | Approx. turning range | A   | C    | D   | E    | F  | H               | L   | O  | T   | V  | Z  | Pin      | Weight approx. kg |
|----------|-----|-----------------------|-----|------|-----|------|----|-----------------|-----|----|-----|----|----|----------|-------------------|
| 088323   | 83  | 85-165                | 142 | 6    | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 92 | 120 | 16 | 32 | 6 x 16 A | 8,2               |
| 088382   | 95  | 100-190               | 142 | 9,5  | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 92 | 120 | 16 | 32 | 6 x 16 H | 8,2               |
| 088324   | 100 | 102-200               | 142 | 14,5 | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 92 | 120 | 16 | 32 | 6 x 16 C | 8,2               |

## Driving heads CoB



For clamping large and heavy workpieces, even with extremely uneven faces.

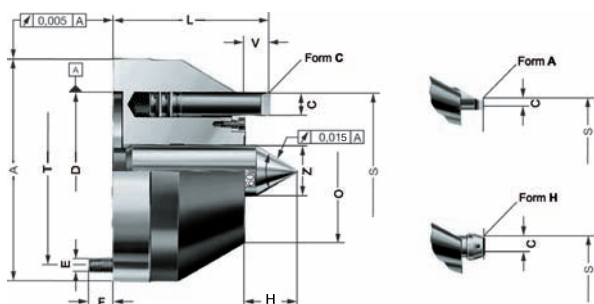
With hydraulic compensation - interchangeable driving pins  
Workpiece weight with single layer disk spring package: 500 kg  
Workpiece weight with double layer disk spring package: 1000 kg

### Technical features:

- bolt-on face driver heads with interchangeable driving pins
- driving pins can be changed to allow right-hand or left-hand rotation
- spring loaded, rigid centre, axially adjustable

Tool group A14  
Type 688-20  
Face Driving Head **size 3** CoB;  
**hydraulic**  
**left-hand rotation**

| Item no. | S   | Approx. turning range | A   | C    | D   | E    | F  | H               | L   | O   | T   | V  | Z  | Pin      | Weight approx. kg |
|----------|-----|-----------------------|-----|------|-----|------|----|-----------------|-----|-----|-----|----|----|----------|-------------------|
| 088325   | 108 | 110-215               | 142 | 6    | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 117 | 120 | 16 | 32 | 6 x 16 A | 9,5               |
| 088383   | 120 | 125-240               | 142 | 9,5  | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 117 | 120 | 16 | 32 | 6 x 16 H | 9,5               |
| 088326   | 125 | 127-250               | 142 | 14,5 | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 117 | 120 | 16 | 32 | 6 x 16 C | 9,5               |



For clamping large and heavy workpieces, even with extremely uneven faces.

With hydraulic compensation - interchangeable driving pins  
Workpiece weight with single layer disk spring package: 500 kg  
Workpiece weight with double layer disk spring package: 1000 kg

### Technical features:

- bolt-on face driver heads with interchangeable driving pins
- driving pins can be changed to allow right-hand or left-hand rotation
- spring loaded, rigid centre, axially adjustable

Tool group A14  
Type 688-20  
Face Driving Head **size 4** CoB;  
**hydraulic**  
**left-hand rotation**

| Item no. | S   | Approx. turning range | A   | C    | D   | E    | F  | H               | L   | O   | T   | V  | Z  | Pin      | Weight approx. kg |
|----------|-----|-----------------------|-----|------|-----|------|----|-----------------|-----|-----|-----|----|----|----------|-------------------|
| 088327   | 143 | 145-285               | 182 | 6    | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 152 | 120 | 16 | 32 | 6 x 16 A | 16                |
| 088384   | 155 | 160-310               | 182 | 9,5  | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 152 | 120 | 16 | 32 | 6 x 16 H | 16                |
| 088328   | 160 | 162-320               | 182 | 14,5 | 100 | M 10 | 15 | max. 45 min. 18 | 102 | 152 | 120 | 16 | 32 | 6 x 16 C | 16                |

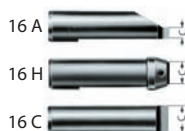
# Accessories CoB

Tool group A14  
Type 688-40 **Centres**



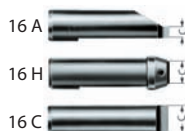
| Item no. | N   | Z  | Weight approx. g |
|----------|-----|----|------------------|
| 088291 ● | 120 | 25 | 390              |
| 088292 ● | 120 | 32 | 620              |
| 088293 ● | 140 | 32 | 750              |

Tool group C15  
Type 689-91  
**driving pins**, right-hand rotation



| Item no. | Diameter | Size | C    | Length | Weight approx. g |
|----------|----------|------|------|--------|------------------|
| 085383 ● | 16       | 16 A | 6    | 60     | 80               |
| 088100 ● | 16       | 16 H | 9,5  | 60     | 90               |
| 085052 ● | 16       | 16 C | 14,5 | 60     | 85               |

Tool group C15  
Type 689-92  
**driving pins**, left-hand rotation



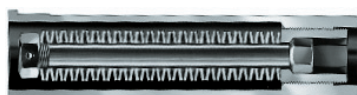
| Item no. | Diameter | Size | C    | Length | Weight approx. g |
|----------|----------|------|------|--------|------------------|
| 085016 ● | 16       | 16 A | 6    | 60     | 80               |
| 088099 ● | 16       | 16 H | 9,5  | 60     | 90               |
| 085051 ● | 16       | 16 C | 14,5 | 60     | 85               |

Tool group A14  
Type 680-90 **Hard metal driving plates**  
right- or left-hand rotation



| Item no. | Size    | Clamping circuit Ø | Weight approx. g |
|----------|---------|--------------------|------------------|
| 088209 ● | 9,5x3,2 | 40-80              | 4                |

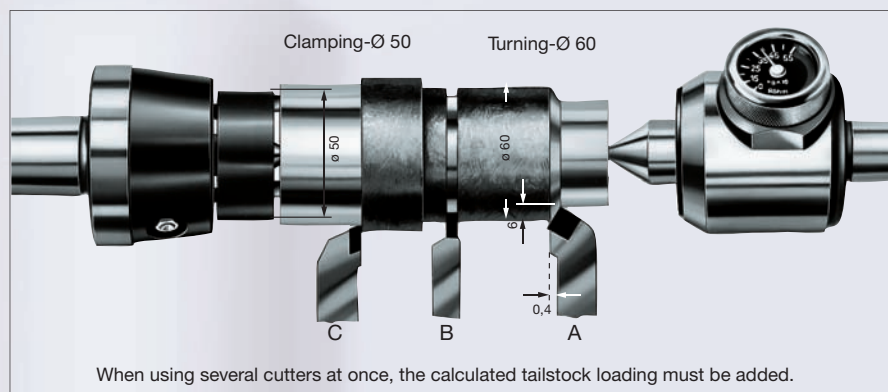
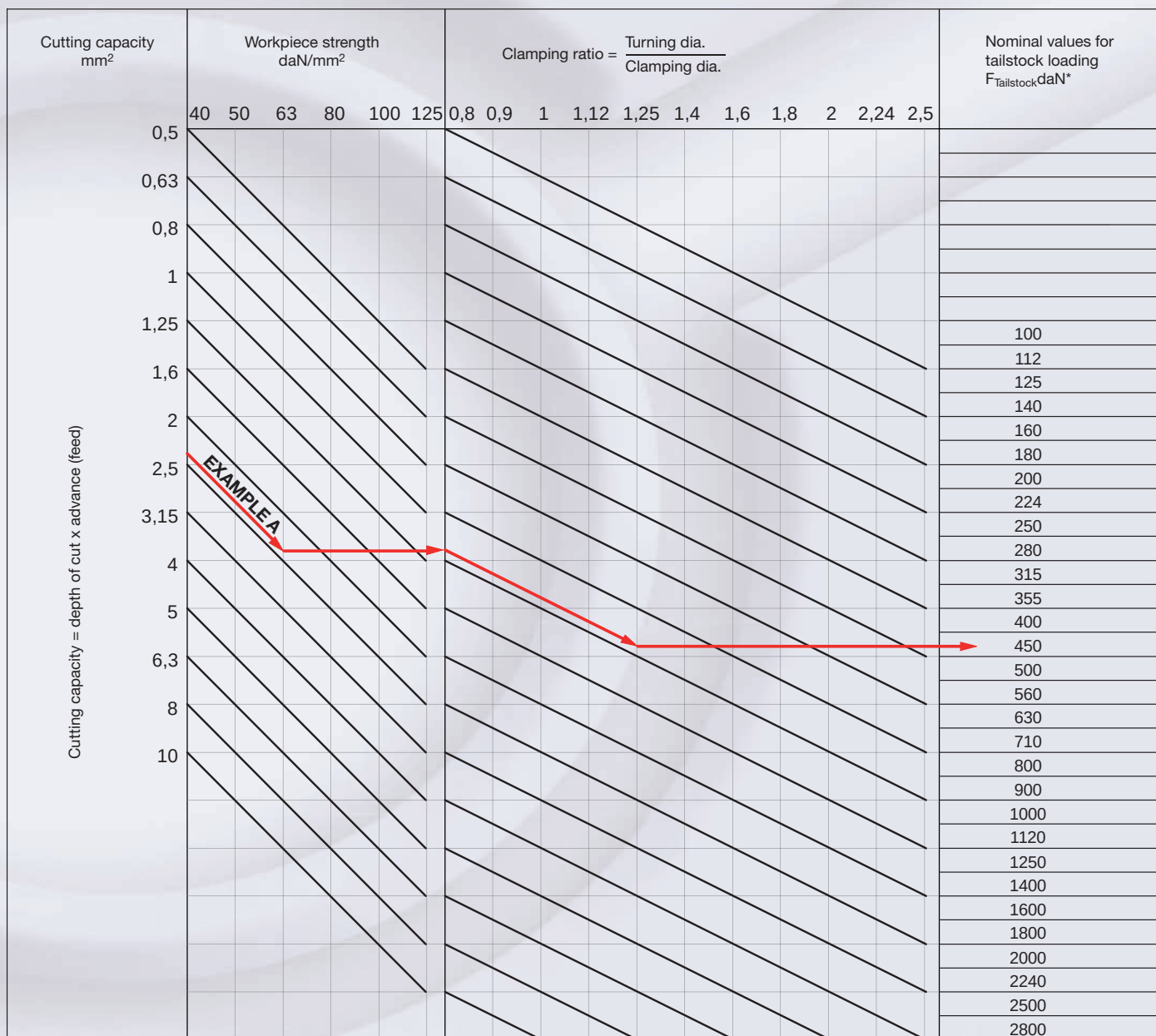
Tool group A14  
Type 688-89  
**Sleeve with spring set**, suitable for adapter plates



| Item no. | Workpiece weight max. kg | Weight approx. g |
|----------|--------------------------|------------------|
| 086806 ● | 500                      | 800              |
| 087286 ● | 1000                     | 800              |

# Clamping power diagramm

Clamping power diagramm



## Example

- A** Turning against the headstock
1. Cutting capacity:  $6 \times 0,4 = 2,4 \text{ mm}^2$
  2. Workpiece strength:  $= 63 \text{ daN/mm}^2$
  3. Clamping ratio:  $60 : 50 = 1,2$
  4. Tailstock loading from graph:  $F_{\text{Tailstock}} = 450 \text{ daN}$
- \* Conversation factor for:**
- B** Radial grooving  $F_{\text{Tailstock}} \times 1,5$
- C** Turning against tailstock  $F_{\text{Tailstock}} \times 2$

| Workpiece strength | 40                                          | 50                               | 63                                    | 80                                         | 100                                      | 125                                              |
|--------------------|---------------------------------------------|----------------------------------|---------------------------------------|--------------------------------------------|------------------------------------------|--------------------------------------------------|
| Material           | St 34-37<br>9-15 S 20<br>GG 14-35<br>GGG-38 | St 42<br>C 10<br>GG 40<br>GGG-42 | St 50<br>C 15-22<br>22 S 20<br>GGG-50 | St 60-70<br>C 35-45<br>16 MnCr 5<br>GGG-60 | 20 MnCr 5<br>C 60<br>15 CrNi 6<br>GGG-80 | 18CrNi 8<br>30 CrMoV 9<br>50 CrMo 4<br>105 WCr 6 |

The RÖHM slide rule, Item No. 88231 may also be used for easy calculation of the axial clamping power.

