



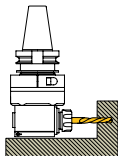
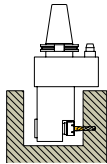
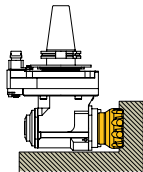
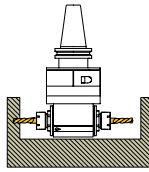
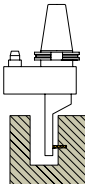
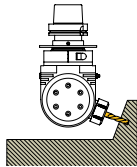
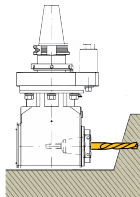
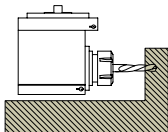
WINKELKÖPFE | MEHRSPINDELKÖPFE  
ANGLE HEADS | MULTISPINDLE HEADS

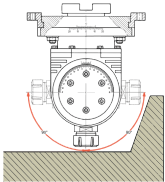
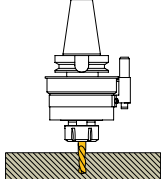
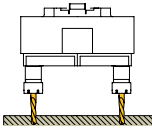

MOTION LINE

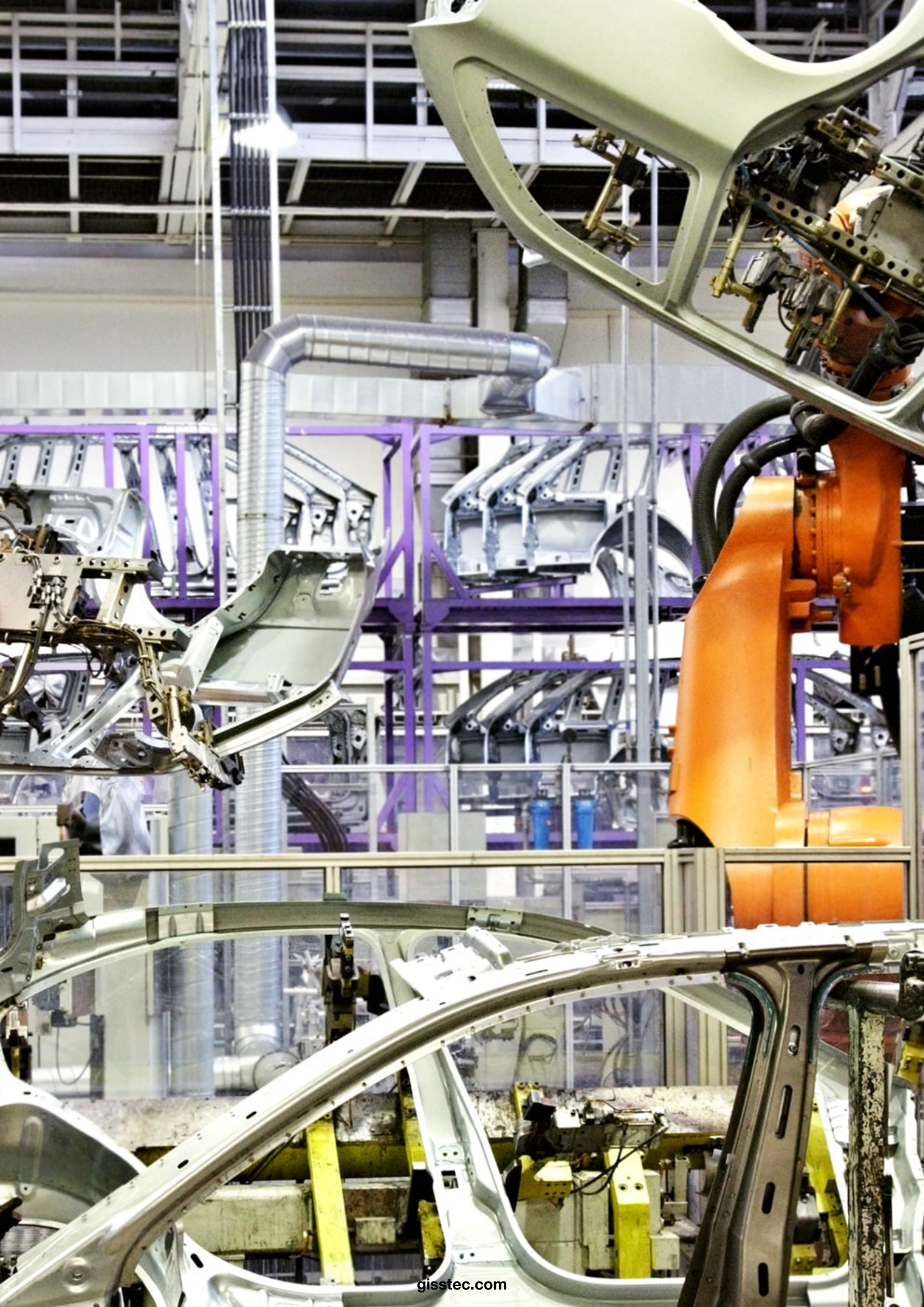


STRUCTURAL CAP. 2x TONS

77MSA0905- #335 #1

|             |  |           |   |
|-------------|--|-----------|---|
| <b>GA</b>   | <b>90° Angle Head<br/>90° Winkelkopf</b>   | <b>6</b>  |    |
| <b>GA-L</b> | <b>90° Angle Head Extended<br/>90° Winkelkopf Verlängert</b>                           | <b>10</b> |    |
| <b>GA-X</b> | <b>90° Angle Head with ISO30/40 Output<br/>90° Winkelkopf mit ISO30/40 -Ausführung</b> | <b>12</b> |    |
| <b>GD</b>   | <b>90° Double Output Angle Head<br/>90° Doppel-Winkelkopf</b>                          | <b>13</b> |   |
| <b>GS</b>   | <b>90° Slim Angle Head<br/>90° Winkelkopf, schmale Bauform</b>                         | <b>16</b> |  |
| <b>GT</b>   | <b>Tilting Head<br/>Schwenkkopf</b>  | <b>20</b> |  |
| <b>HP</b>   | <b>High Performance Angle Head<br/>Hochleistungs-Winkelkopf</b>                        | <b>23</b> |  |
| <b>GA-F</b> | <b>90° Angle Head with Flange Connection<br/>90° Winkelkopf mit Flanschverbindung</b>  | <b>42</b> |  |

|              |   |           |   |
|--------------|---|-----------|---|
| <b>GT-FX</b> | <b>Tilting Head With Flange Connection - GT-FX Series<br/>Schwenkkopf mit Flanschverbindung - GT-FX Serie</b> | <b>47</b> |  |
| <b>SC</b>    | <b>Spindle Speeder<br/>Schnelllaufspindel</b>   | <b>49</b> |  |
| <b>MS</b>    | <b>Adjustable Multispindle Head<br/>Verstellbarer Mehrspindelkopf</b>   | <b>52</b> |  |
|              | <b>Technical Information<br/>Technische Informationen</b>   | <b>56</b> |  |





GA



GA-X



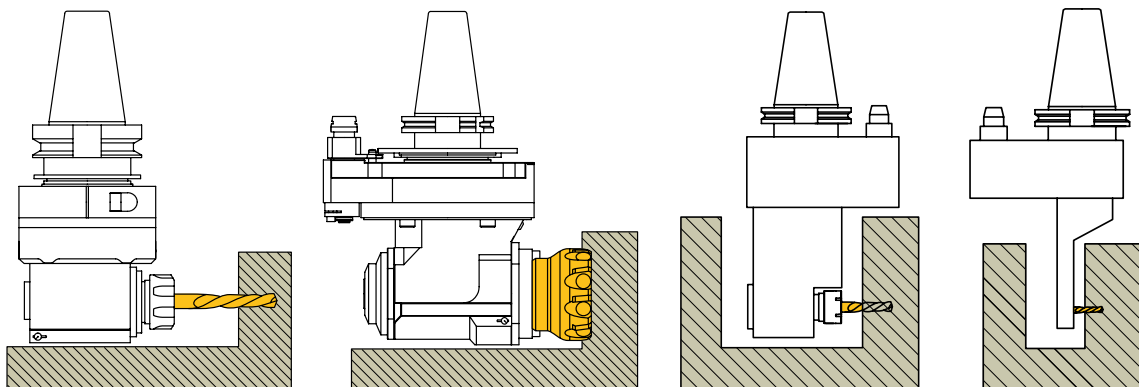
GA-L

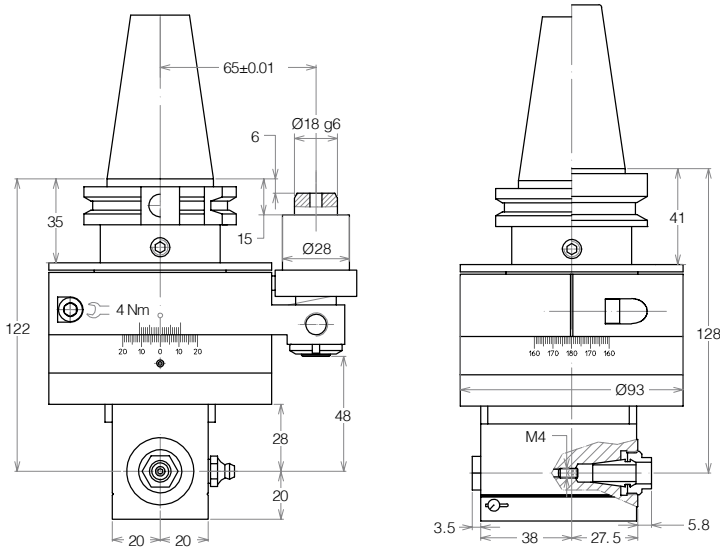
Features

For drilling, tapping and milling operations  
Usable on both CNC and conventional machine tools  
Heat-treated aluminium or steel main body  
Compact and rigid construction  
Coolant feed through stop-bar pin  
Orientation ring and stop-bar pin 360° rotatable

Merkmale

Bohren, gewindebohren und fräsen  
Verwendbar mit CNC- und Universalfräsmaschinen  
Gehäuse aus wärmebehandelter Aluminium- oder Stahllegierung  
Kompakte und rigide Bauform  
Kühlmittelzufuhr durch Anschlagstift  
Skalenring und Anschlagstift können um 360° rotiert werden





### GA-11

SK40 / BT40 / CAT 40 / HSK63

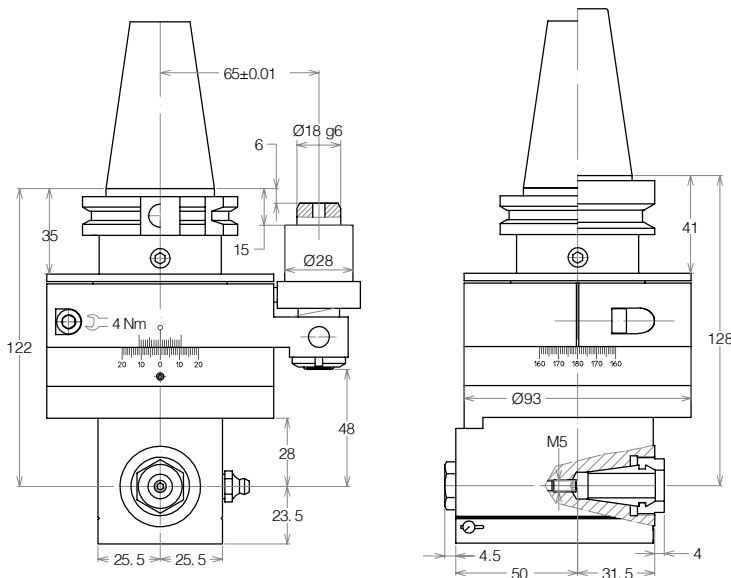
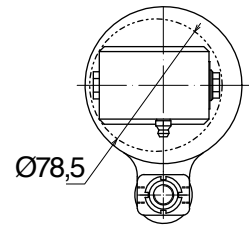
**ER11**    **8.000 RPM**    **13 Nm**

| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|
|----------------------|-------------------|----------------------|

330 N    3,5 kg    1:1

Bohren  
Drilling

Gewinde  
Tapping



### GA-16

SK40 / BT40 / CAT 40 / HSK63

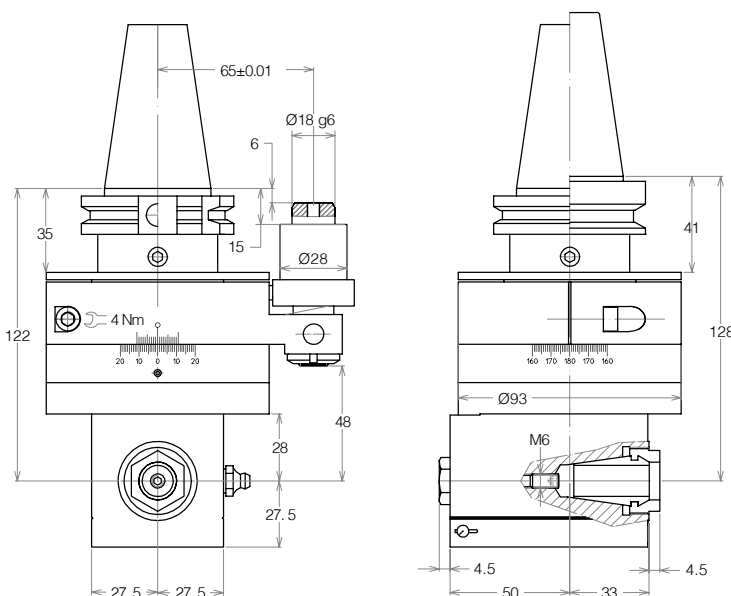
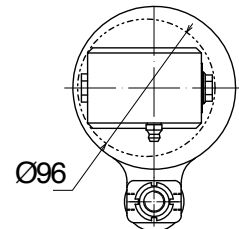
**ER16**    **7.000 RPM**    **27 Nm**

| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|
|----------------------|-------------------|----------------------|

450 N    4 kg    1:1

Bohren  
Drilling

Gewinde  
Tapping



### GA-20

SK40 / BT40 / CAT 40 / HSK63

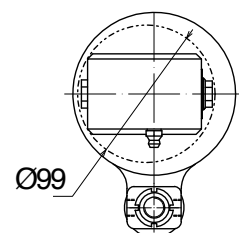
**ER20**    **7.000 RPM**    **27 Nm**

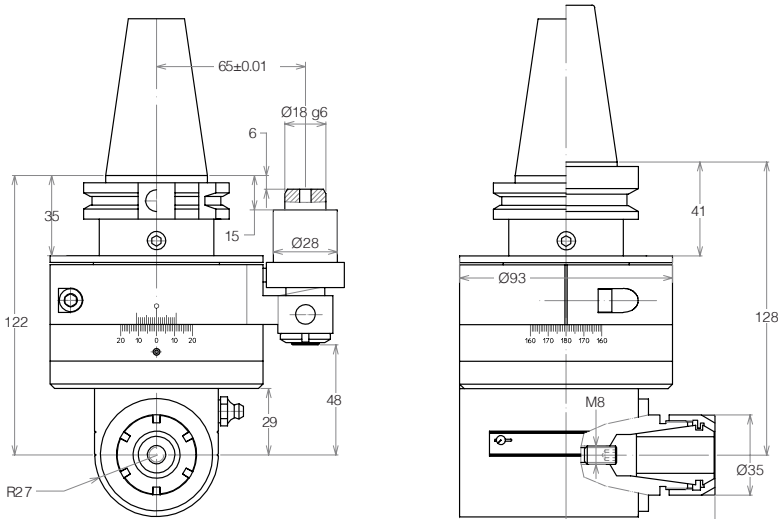
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|
|----------------------|-------------------|----------------------|

450 N    4,1 kg    1:1

Bohren  
Drilling

Gewinde  
Tapping





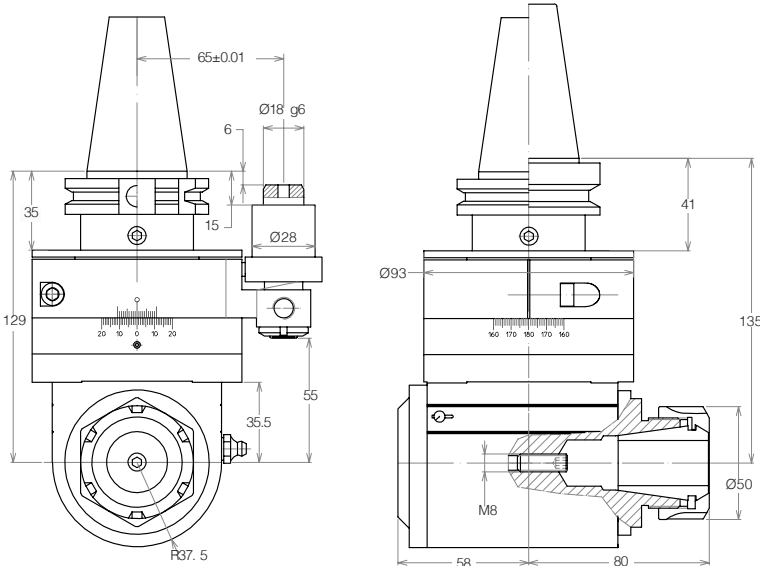
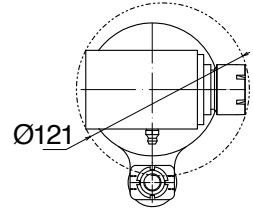
### GA-25

SK40 / BT40 / CAT 40 / HSK63

|      |           |       |
|------|-----------|-------|
| ER25 | 6.000 RPM | 30 Nm |
|------|-----------|-------|

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
| 450 N                | 4,5 kg            | 1:1                  |

- Bohren  
Drilling Ø16
- Gewinde  
Tapping M12



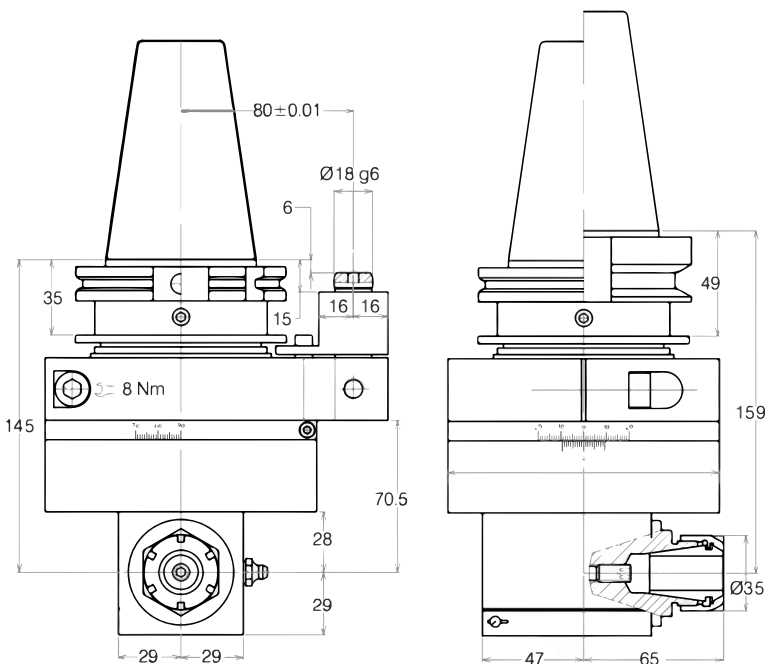
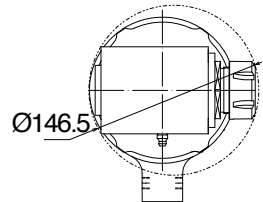
### GA-32

SK40 / BT40 / CAT 40 / HSK63

|      |           |       |
|------|-----------|-------|
| ER32 | 4.000 RPM | 66 Nm |
|------|-----------|-------|

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
| 1200 N               | 7 kg              | 1:1                  |

- Bohren  
Drilling Ø20
- Gewinde  
Tapping M16



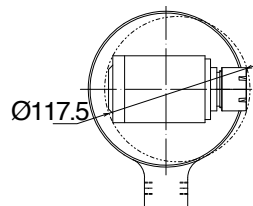
### GA-25

SK50 / BT50 / CAT 50 / HSK100

|      |           |       |
|------|-----------|-------|
| ER25 | 6.000 RPM | 30 Nm |
|------|-----------|-------|

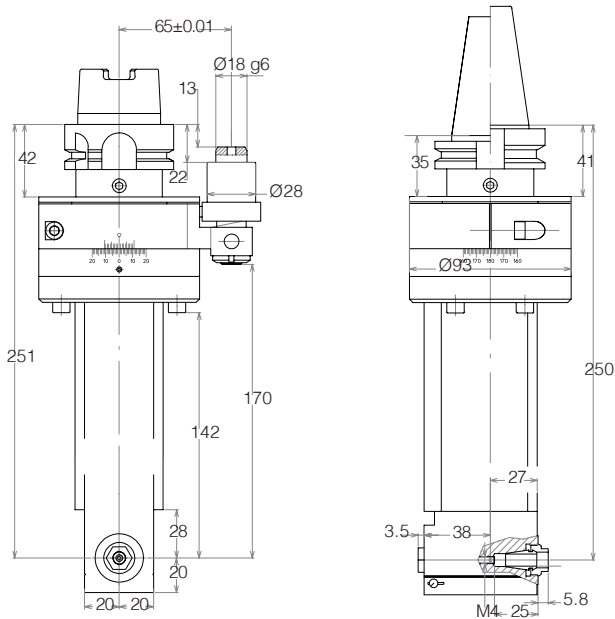
|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
| 1000 N               | 9,2 kg            | 1:1                  |

- Bohren  
Drilling Ø16
- Gewinde  
Tapping M12









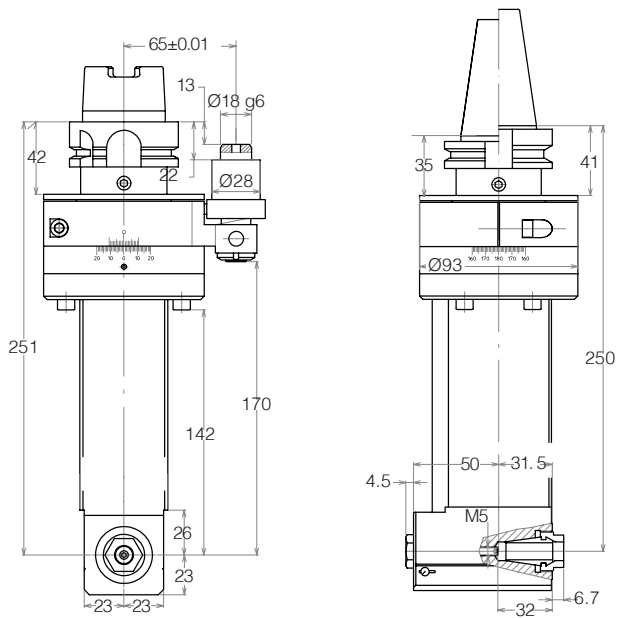
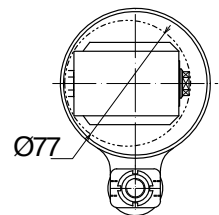
## GA-L11

SK40 / BT40 / CAT 40 / HSK63

**ER11**    **8.000 RPM**    **13 Nm**

| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|
| 180 N                | 4,9 kg            | 1:1                  |

- Bohren  
Drilling
- Gewinde  
Tapping



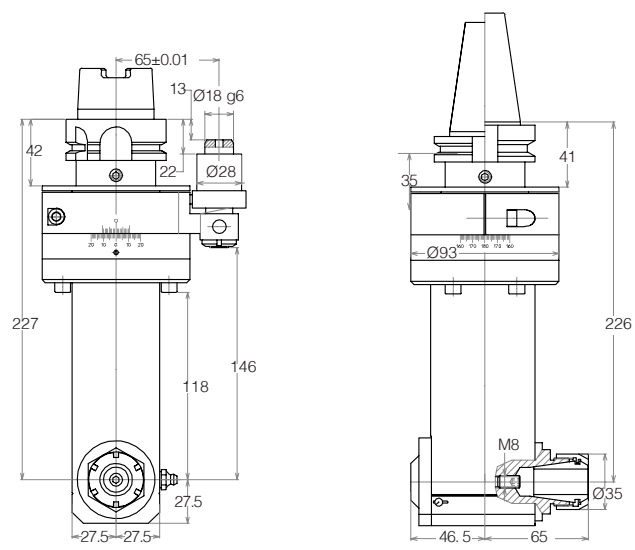
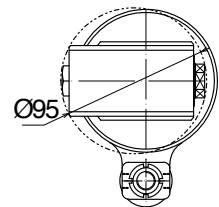
## GA-L16

SK40 / BT40 / CAT 40 / HSK63

**ER16**    **7.000 RPM**    **27 Nm**

| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|
| 180 N                | 5,5 kg            | 1:1                  |

- Bohren  
Drilling
- Gewinde  
Tapping



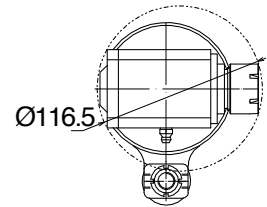
## GA-L25

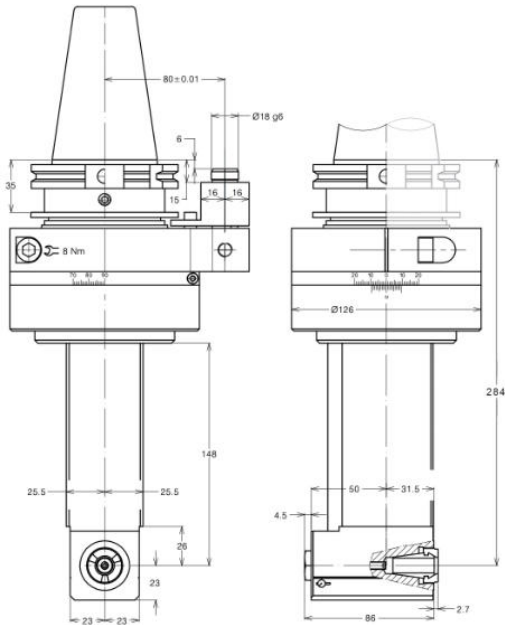
SK40 / BT40 / CAT 40 / HSK63

**ER25**    **6.000 RPM**    **30 Nm**

| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|
| 230 N                | 6,5 kg            | 1:1                  |

- Bohren  
Drilling
- Gewinde  
Tapping





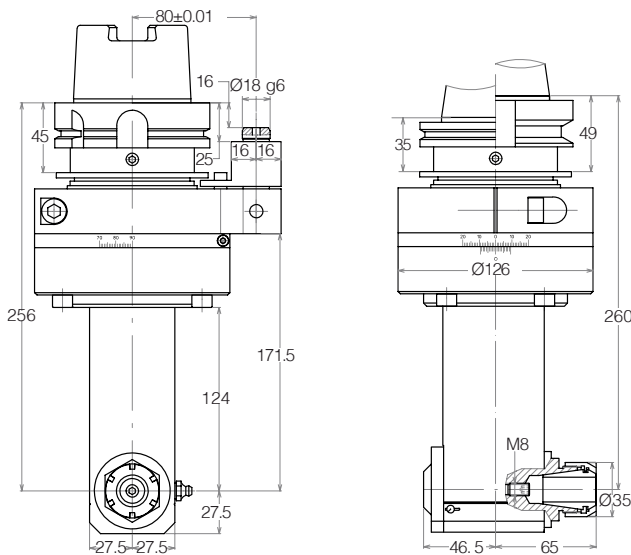
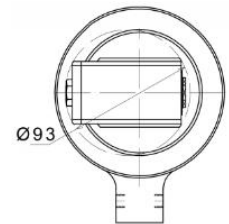
## GA-L16

SK50 / BT50 / CAT 50 / HSK100

|      |           |       |
|------|-----------|-------|
| ER16 | 9.000 RPM | 27 Nm |
|------|-----------|-------|

| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|
| 400 N                | 9,5 kg            | 1:1                  |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø10 |
| Gewinde<br>Tapping | M8  |



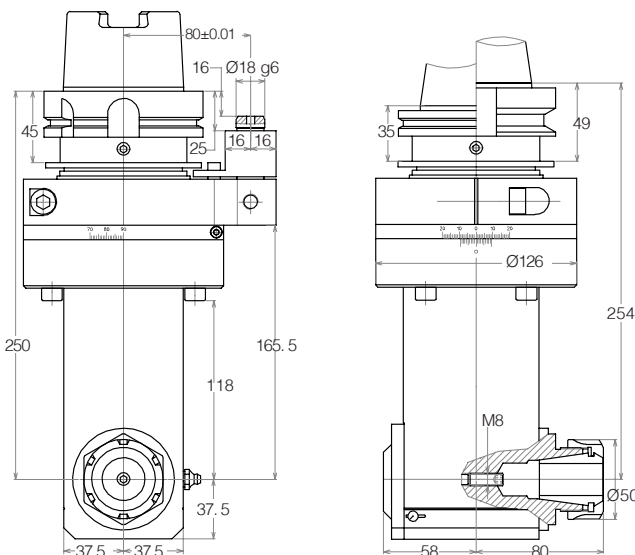
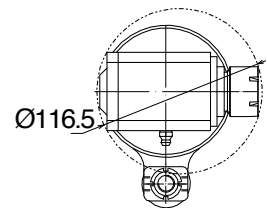
## GA-L25

SK50 / BT50 / CAT 50 / HSK100

|      |           |       |
|------|-----------|-------|
| ER25 | 6.000 RPM | 30 Nm |
|------|-----------|-------|

| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|
| 450 N                | 11,3 kg           | 1:1                  |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø16 |
| Gewinde<br>Tapping | M12 |



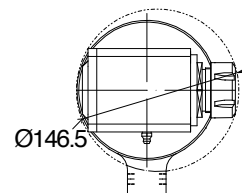
## GA-L32

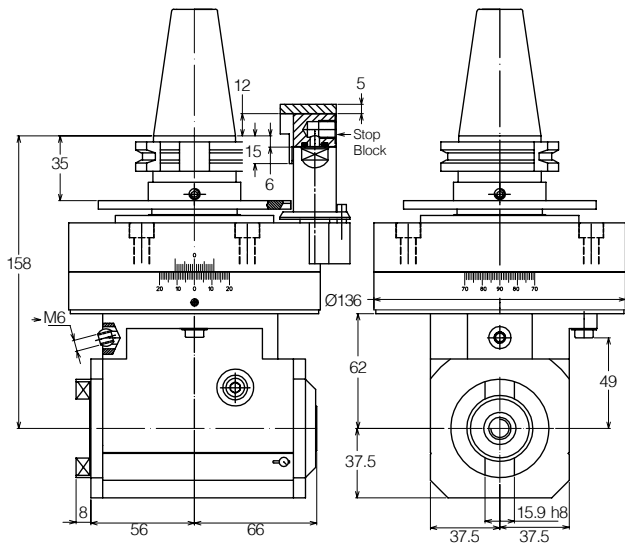
SK50 / BT50 / CAT 50 / HSK100

|      |           |       |
|------|-----------|-------|
| ER32 | 4.000 RPM | 66 Nm |
|------|-----------|-------|

| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|
| 450 N                | 15,7 kg           | 1:1                  |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø20 |
| Gewinde<br>Tapping | M16 |





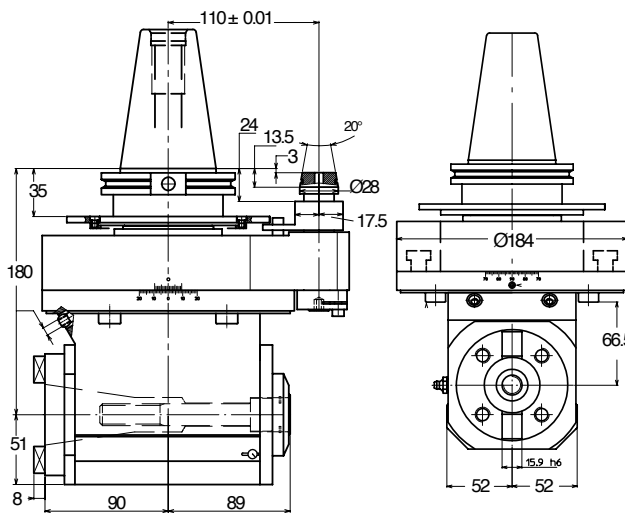
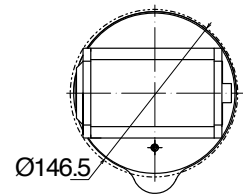
### GA-X30

SK40 / BT40 / CAT 40 / HSK63

|       |           |       |
|-------|-----------|-------|
| ISO30 | 3.500 RPM | 40 Nm |
|-------|-----------|-------|

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
| 750 N                | 7,4 kg            | 1:1                  |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø20 |
| Gewinde<br>Tapping | M16 |



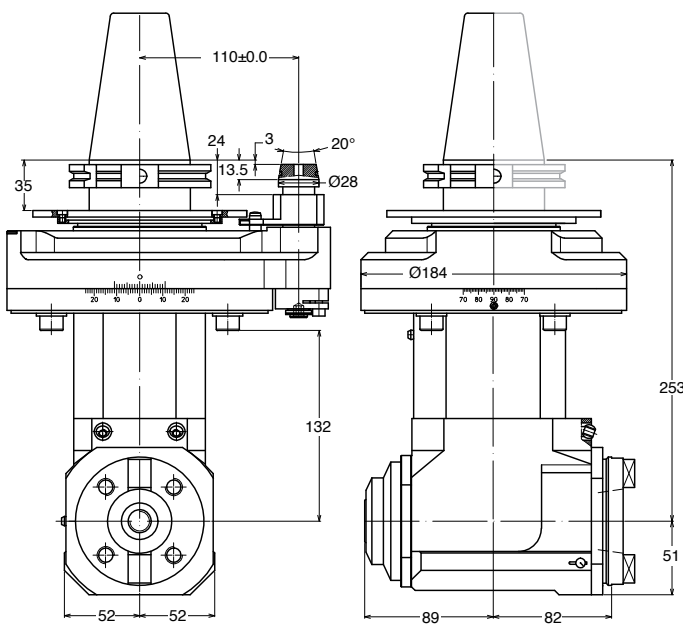
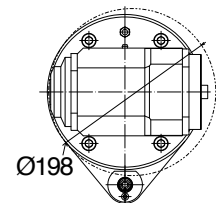
### GA-X40

SK50 / BT50 / CAT 50 / HSK100

|       |           |        |
|-------|-----------|--------|
| ISO40 | 4.000 RPM | 110 Nm |
|-------|-----------|--------|

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
| 1250 N               | 22,5 kg           | 1:1                  |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø26 |
| Gewinde<br>Tapping | M20 |



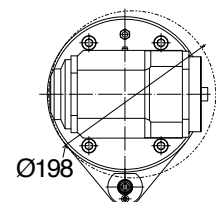
### GA-X40L

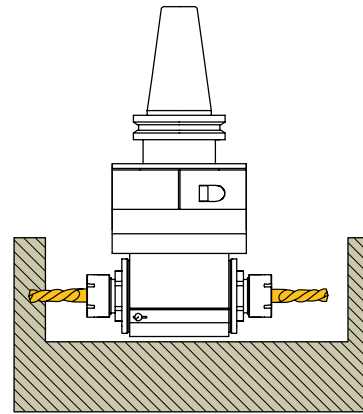
SK50 / BT50 / CAT 50 / HSK100

|       |           |        |
|-------|-----------|--------|
| ISO40 | 3.000 RPM | 110 Nm |
|-------|-----------|--------|

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
| 800 N                | 26,5 kg           | 1:1                  |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø26 |
| Gewinde<br>Tapping | M20 |



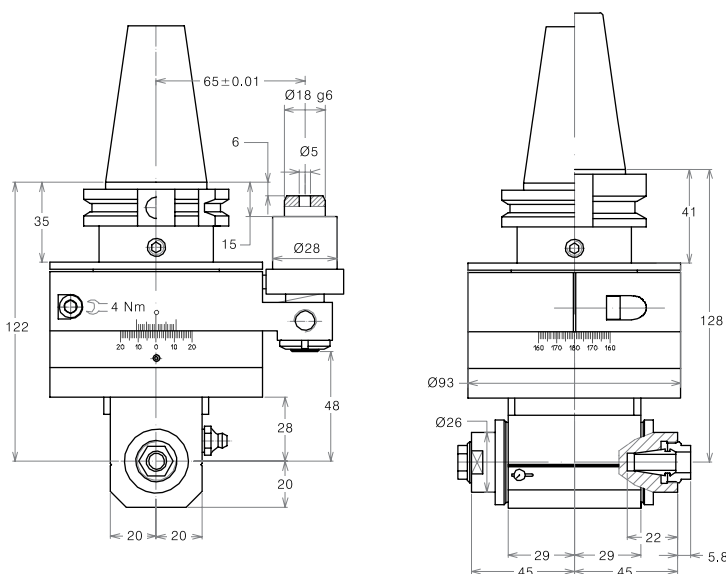


### Features

- For drilling, tapping and milling operations
- Two opposing spindles
- Usable on both CNC and conventional machine tools
- Heat-treated aluminium or steel main body
- Coolant feed through stop-bar pin
- Orientation ring and stop-bar pin 360° rotatable

### Merkmale

- Bohren, Gewindebohren, Fräsen
- Doppelspindlig
- Verwendbar mit CNC- und herkömmlichen Werkzeugmaschinen
- Hauptkörper aus wärmebehandelter Aluminium- oder Stahllegierung
- Kühlmittelzufuhr durch Anschlagstift
- Skalenring und Anschlagstift können um 360° rotiert werden



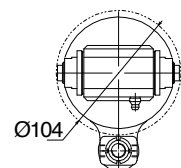
## GD-11

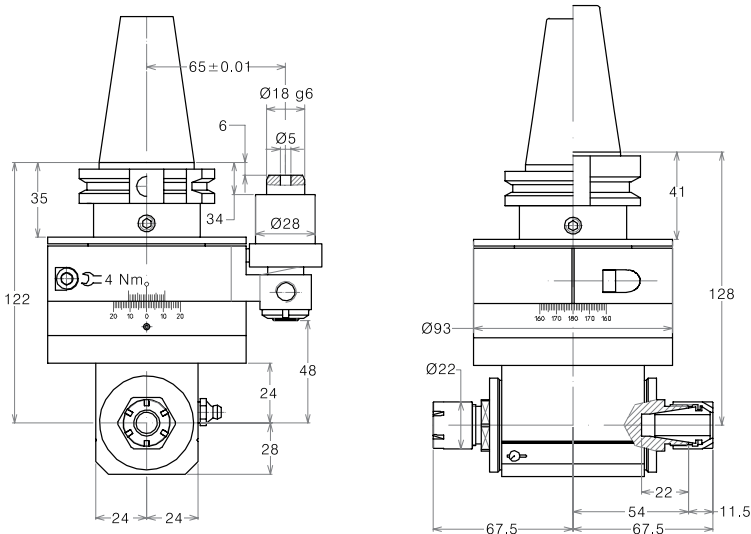
SK40 / BT40 / CAT 40 / HSK63

ER11 8.000 RPM 13 Nm

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
| 330 N                | 4 kg              | 1:1                  |

- Bohren  
Drilling
- Gewinde  
Tapping





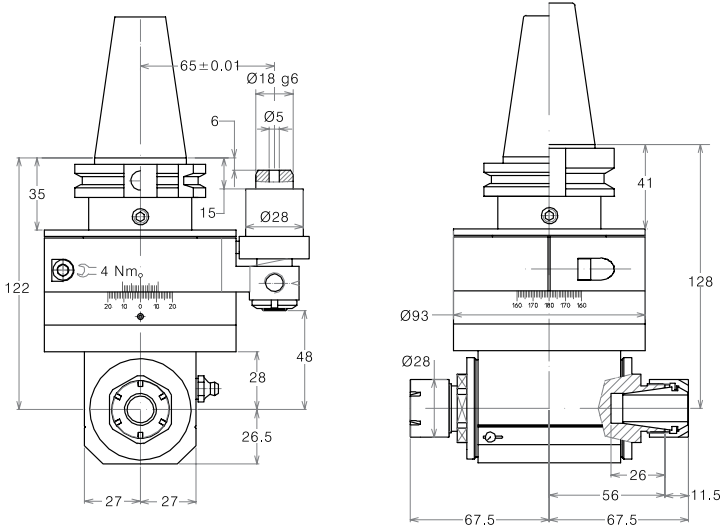
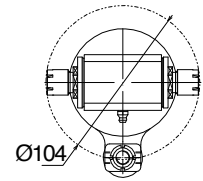
### GD-16

SK40 / BT40 / CAT 40 / HSK63

**ER16**    **7.000 RPM**    **27 Nm**

| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|
| 450 N                | 5 kg              | 1:1                  |

- Bohren  
Drilling    **Ø10**
- Gewinde  
Tapping    **M8**



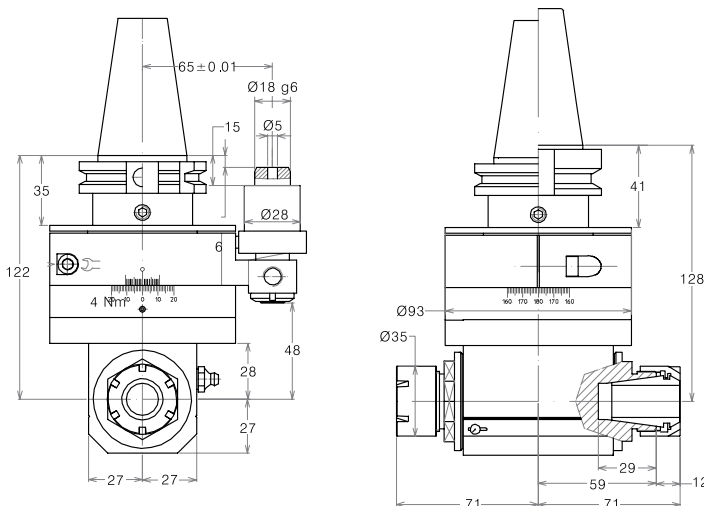
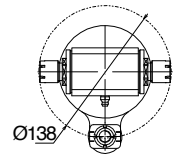
### GD-20

SK40 / BT40 / CAT 40 / HSK63

**ER20**    **7.000 RPM**    **27 Nm**

| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|
| 450 N                | 5,1 kg            | 1:1                  |

- Bohren  
Drilling    **Ø13**
- Gewinde  
Tapping    **M10**



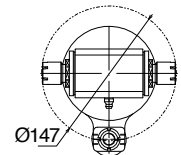
### GD-25

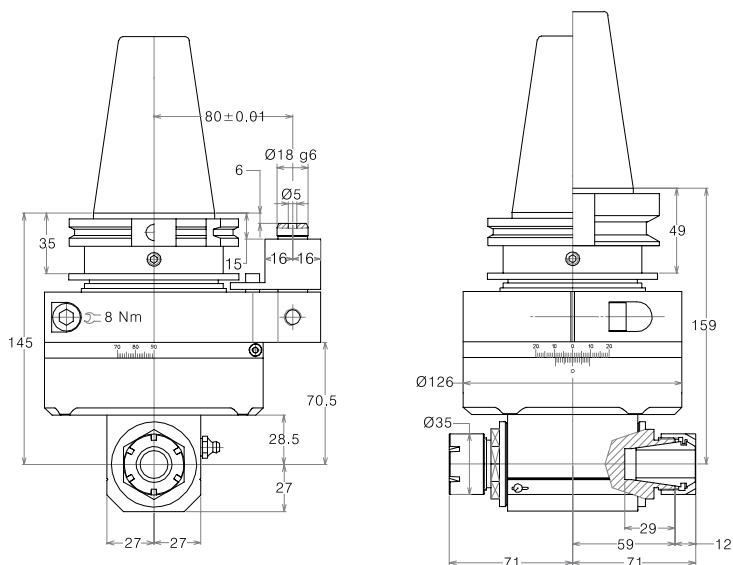
SK40 / BT40 / CAT 40 / HSK63

**ER25**    **6.000 RPM**    **30 Nm**

| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|
| 450 N                | 5,5 kg            | 1:1                  |

- Bohren  
Drilling    **Ø16**
- Gewinde  
Tapping    **M12**





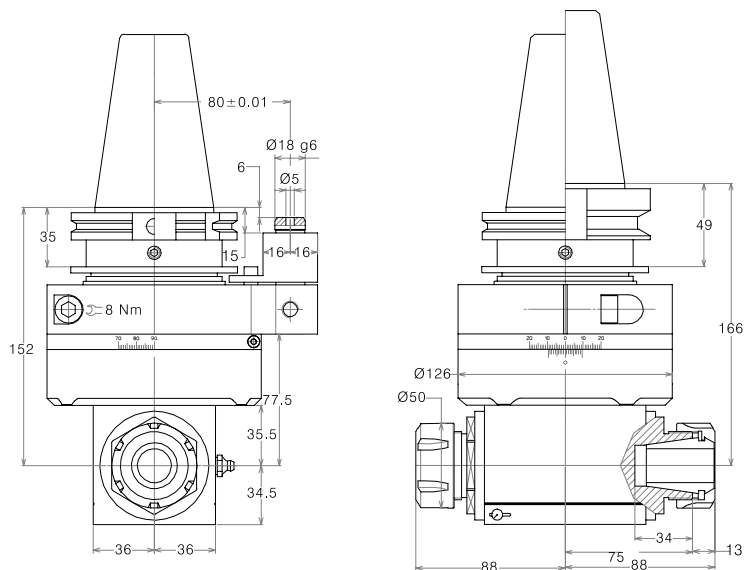
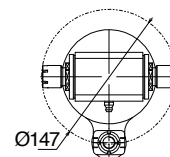
## GD-25

SK50 / BT50 / CAT 50 / HSK100

**ER25**    **6.000 RPM**    **30 Nm**

| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|
| 850 N                | 11 kg             | 1:1                  |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø16 |
| Gewinde<br>Tapping | M12 |



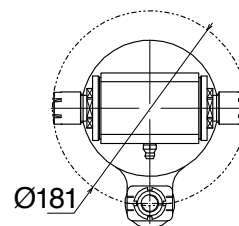
## GD-32

SK50 / BT50 / CAT 50 / HSK100

**ER32**    **4.000 RPM**    **66 Nm**

| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|
| 1200 N               | 11,2 kg           | 1:1                  |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø20 |
| Gewinde<br>Tapping | M16 |

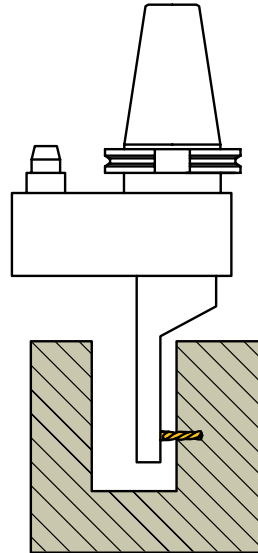




GS-3

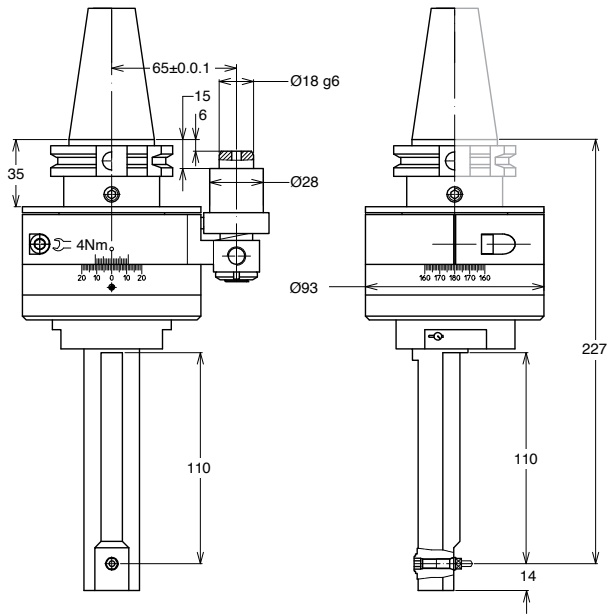


GS-11



| Features  | Merkmale   |
|---|--|
| <p>For drilling, tapping and light milling operations</p> <p>For cutting operations inside small bores</p> <p>Usable on both CNC and conventional machine tools</p> <p>Heat-treated aluminium or steel main body</p> <p>Compact and rigid construction</p> <p>Coolant feed through stop-bar pin</p> | <p>Für Bohrungen, Gewindebohren und leichte Fräsbearbeitungen</p> <p>Kleine Eintauchdurchmesser und große Eintauchtiefe</p> <p>Verwendbar mit CNC- und Universalwerkzeugmaschinen</p> <p>Gehäuse aus wärmebehandelter Aluminium- oder Stahllegierung</p> <p>Kompakte und rigide Bauform</p> <p>Kühlmittelezufuhr durch Anschlagstift</p> |





### GS-3

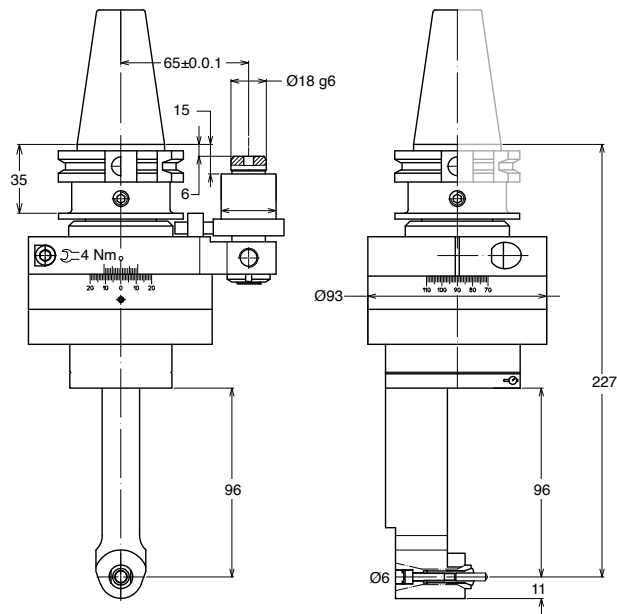
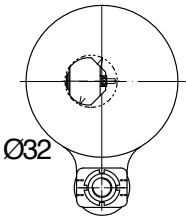
SK40 / BT40 / CAT 40 / HSK163

**6023E**    **8.000 RPM**    **4,5 Nm**

Gewicht / Weight    Übersetzung / Ratio

5 kg    1:1,1

Bohren / Drilling   



### GS-6

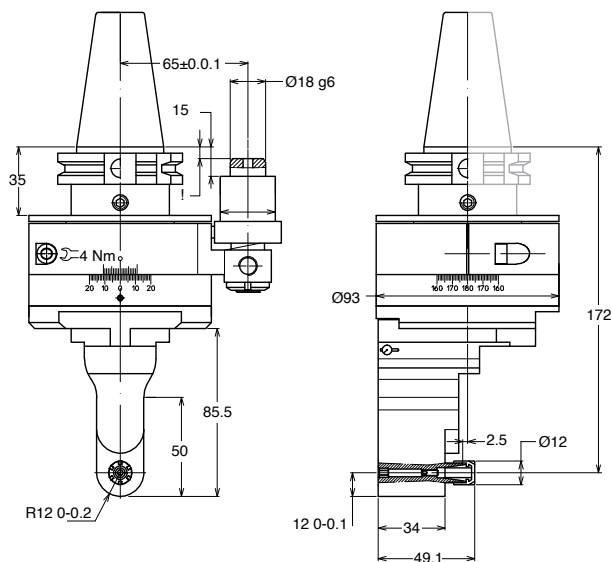
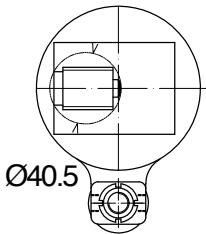
SK40 / BT40 / CAT 40 / HSK163

**P6-78-155**    **7.000 RPM**    **4,5 Nm**

Gewicht / Weight    Übersetzung / Ratio

5,1 kg    1:1

Bohren / Drilling   



### GS-8

SK40 / BT40 / CAT 40 / HSK163

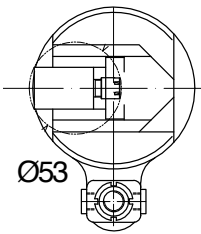
**ER8**    **10.000 RPM**    **12 Nm**

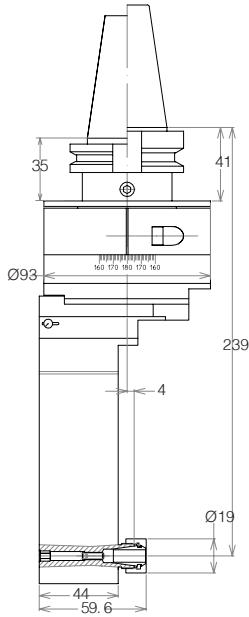
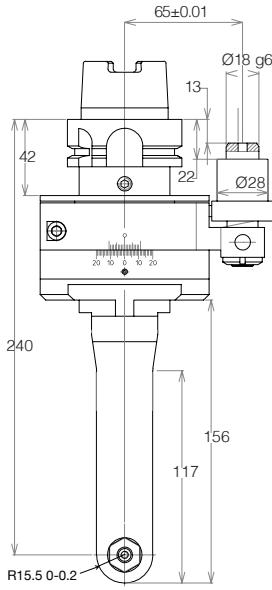
Gewicht / Weight    Übersetzung / Ratio

5,1 kg    1:1,5

Bohren / Drilling   

Gewinde / Tapping   





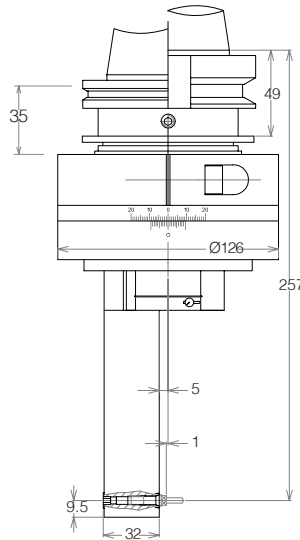
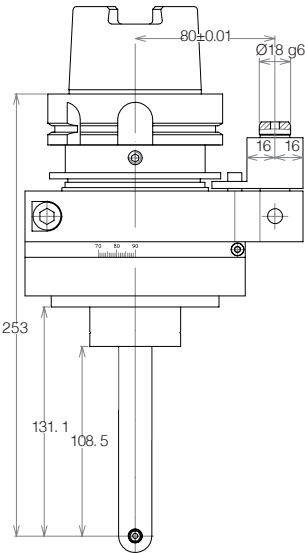
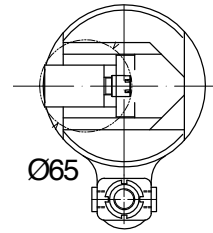
### GS-11

SK40 / BT40 / CAT 40 / HSK63

ER11 7.000 RPM 12 Nm

| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|
| 220 N                | 5 kg              | 1:1                  |

- Bohren  
Drilling Ø7
- Gewinde  
Tapping M6



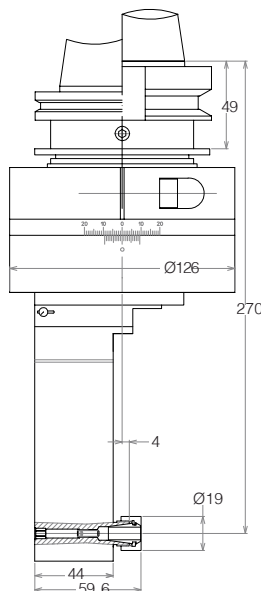
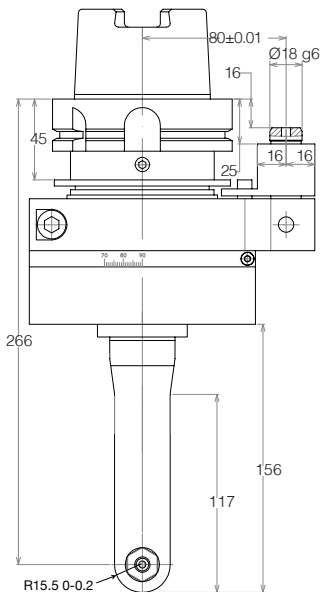
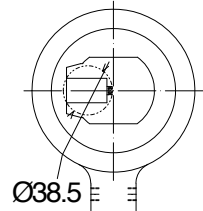
### GS-3

SK50 / BT50 / CAT 50 / HSK100

6023e 8.000 RPM 4,5 Nm

| Gewicht<br>Weight | Übersetzung<br>Ratio |
|-------------------|----------------------|
| 10,5 kg           | 1:1,1                |

- Bohren  
Drilling Ø3



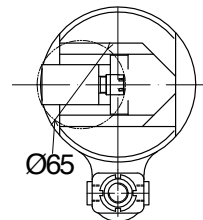
### GS-11

SK50 / BT50 / CAT 50 / HSK100

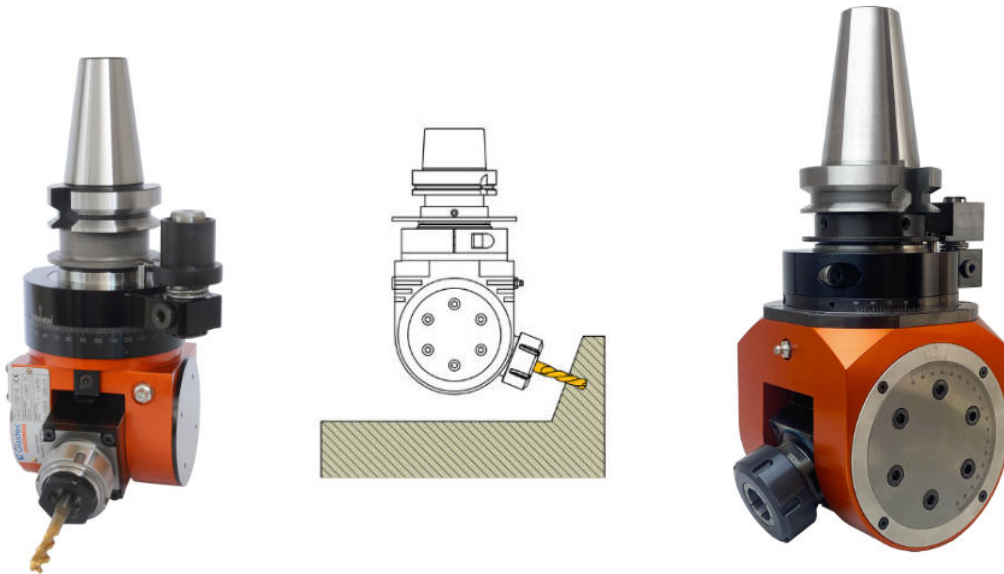
ER11 7.000 RPM 12 Nm

| Gewicht<br>Weight | Übersetzung<br>Ratio |
|-------------------|----------------------|
| 10,5 kg           | 1:1                  |

- Bohren  
Drilling Ø7
- Gewinde  
Tapping M6





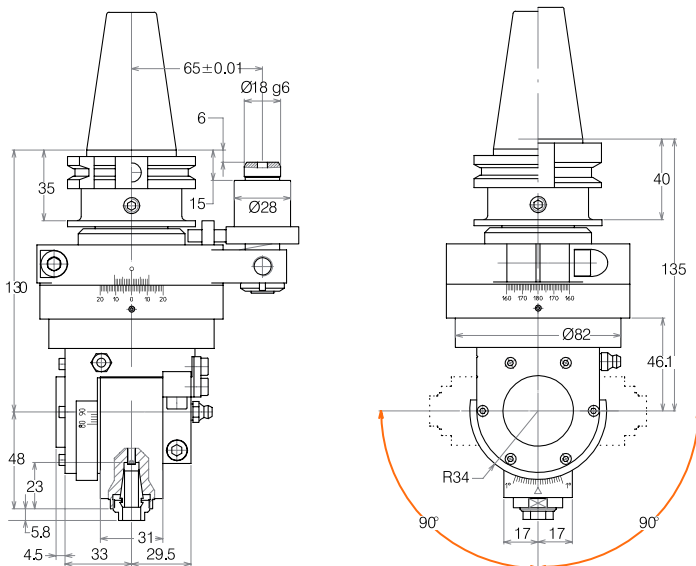


Features

- For drilling, tapping and light milling operations
- +/- 90° tilting spindle axis
- Usable on both CNC and conventional machine tools
- Heat-treated aluminium or steel main body
- Compact and rigid construction
- Coolant feed through stop-bar pin
- Orientation ring and stop-bar pin 360° rotatable

Merkmale

- Bohren, Gewindebohren und Fräsen +/- 90° verstellbarer Schwenkkopf
- Verwendbar mit CNC- und Universalwerkzeugmaschinen
- Hauptkörper aus wärmebehandelter Aluminiumlegierung
- Kompakte und rigide Bauform
- Kühlmittelezufuhr durch Anschlagstift
- Skalenring und Anschlagstift können um 360° rotiert werden



**GT-11**

SK40 / BT40 / CAT 40 / HSK63

|      |            |      |
|------|------------|------|
| ER11 | 12.000 RPM | 5 Nm |
|------|------------|------|

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|

300 N      4,1 kg      1:1



- Bohren  
Drilling
- Gewinde  
Tapping

## GT-16

SK40 / BT40 / CAT 40 / HSK63

**ER16**    **12.000 RPM**    **12 Nm**

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
| 350 N                | 4 kg              | 1:1                  |

|                    |   |
|--------------------|---|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |

## GT-20

SK40 / BT40 / CAT 40 / HSK63

**ER20**    **12.000 RPM**    **13 Nm**

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
| 350 N                | 5 kg              | 1:1                  |



|                    |   |
|--------------------|---|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |

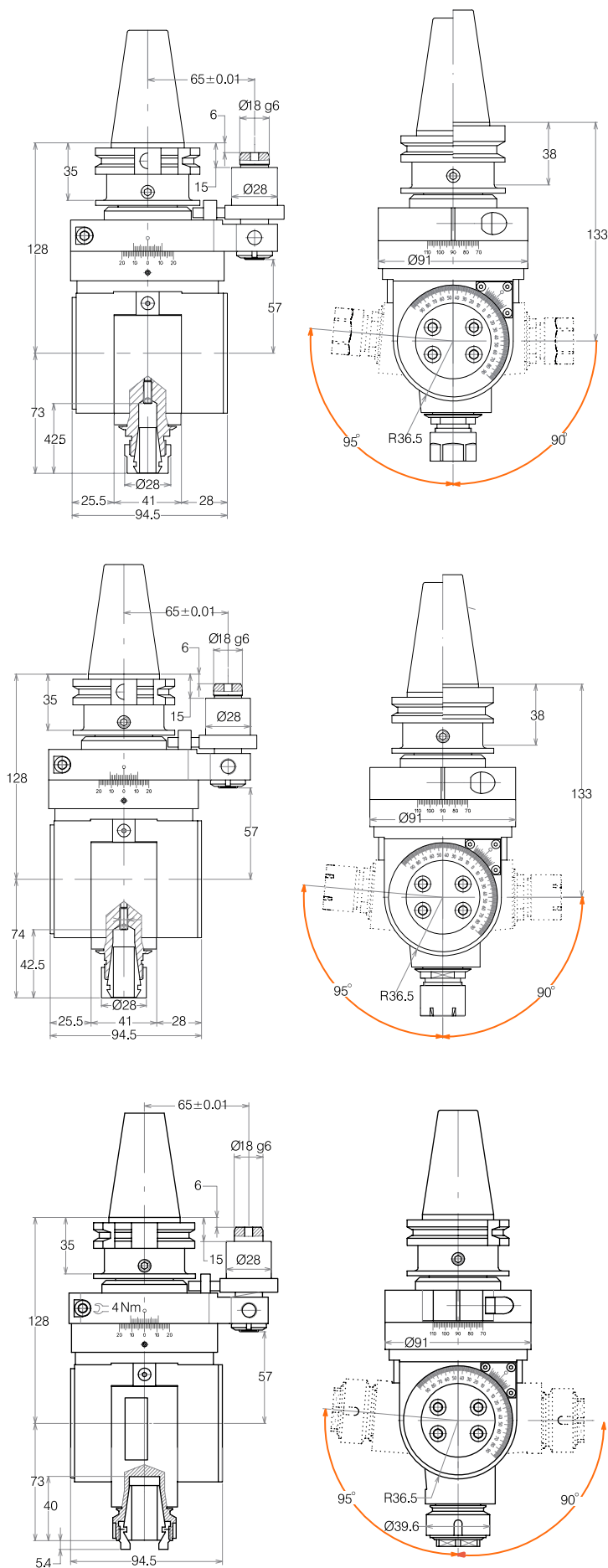
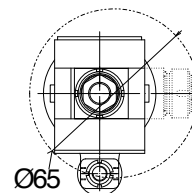
## GT-25

SK40 / BT40 / CAT 40 / HSK63

**ER25**    **6.000 RPM**    **14 Nm**

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
| 500 N                | 5 kg              | 1:1                  |

|                    |   |
|--------------------|---|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



## GT-25

SK50 / BT50 / CAT 50 / HSK100

ER25

6.000 RPM

27 Nm

Schubkraft  
Thrust

Gewicht  
Weight

Übersetzung  
Ratio

1000 N

13 kg

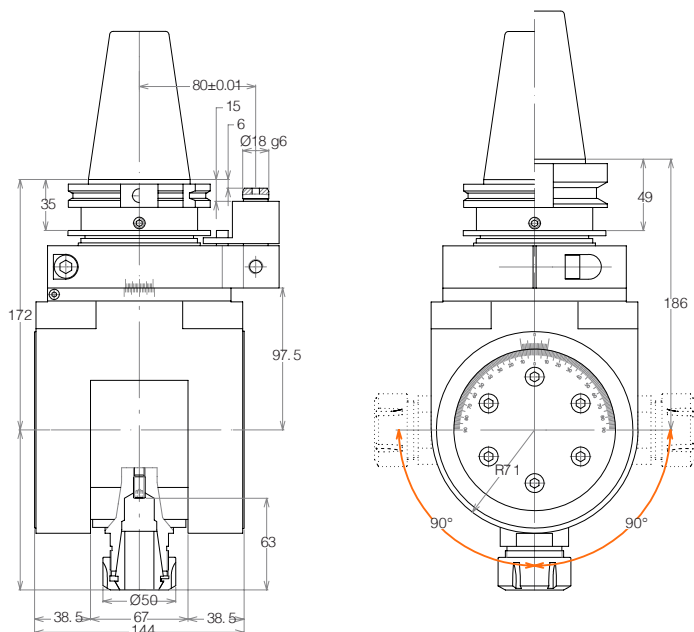
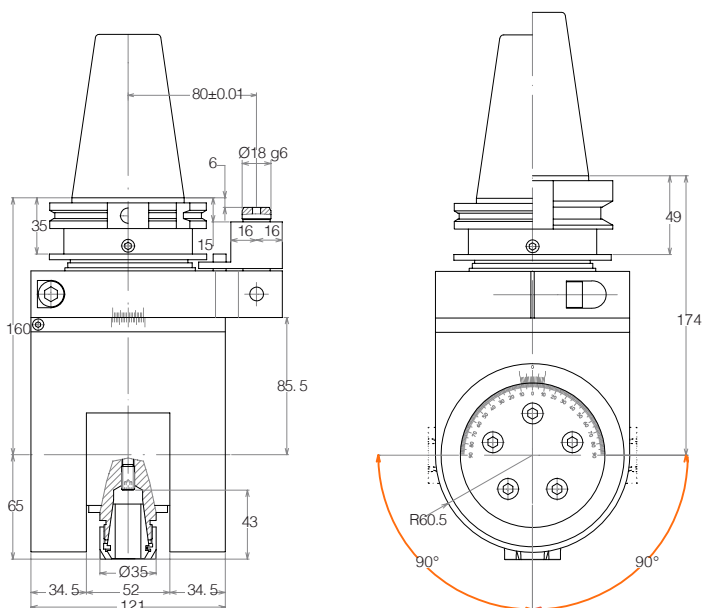
1:1

Bohren  
Drilling

Ø16

Gewinde  
Tapping

M12



## GT-32

SK50 / BT50 / CAT 50 / HSK100

ER32

5.000 RPM

50 Nm

Schubkraft  
Thrust

Gewicht  
Weight

Übersetzung  
Ratio

1200 N

17 kg

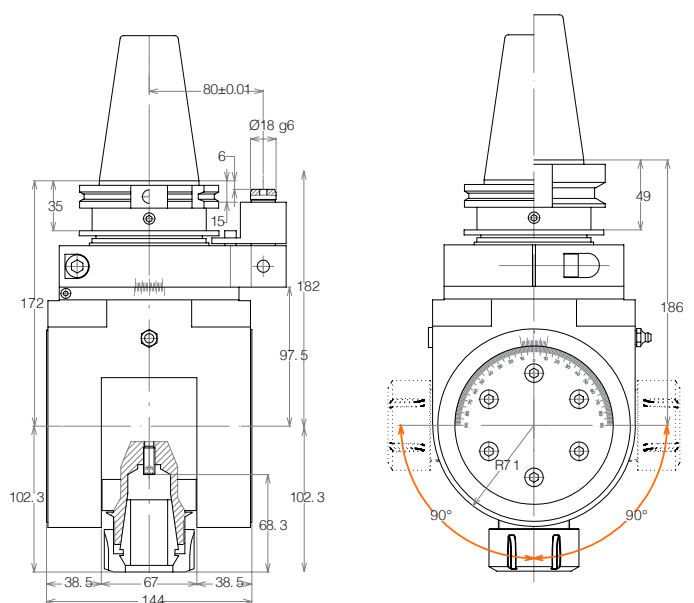
1:1

Bohren  
Drilling

Ø20

Gewinde  
Tapping

M16



## GT-40

SK50 / BT50 / CAT 50 / HSK100

ER40

3.500 RPM

55 Nm

Schubkraft  
Thrust

Gewicht  
Weight

Übersetzung  
Ratio

1200 N

17 kg

1:1

Bohren  
Drilling

Ø26

Gewinde  
Tapping

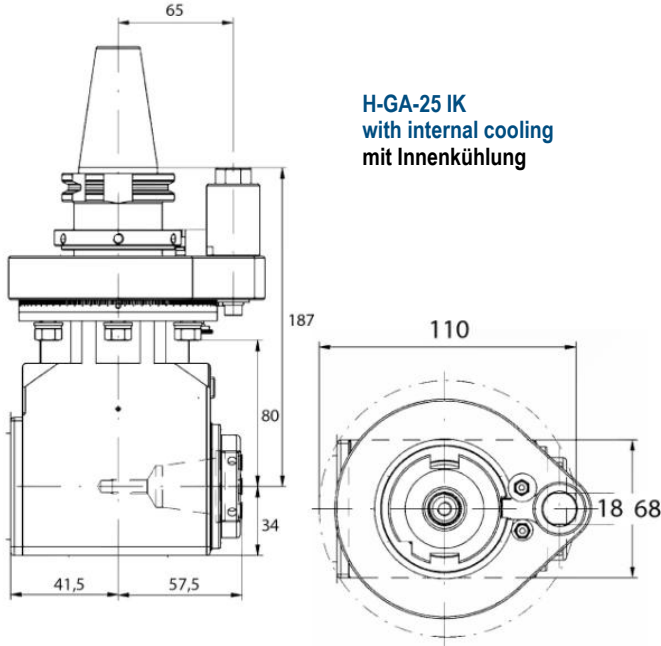
M20



| Types   | Ausführungen  |
|---|---|
| <ul style="list-style-type: none"> <li>90° angle</li> <li>Offset type</li> <li>Double Output</li> <li>Slim design</li> <li>Adjustable 0-98°</li> <li>Modular</li> </ul> | <ul style="list-style-type: none"> <li>90°-Festwinkel</li> <li>Zurückversetzt</li> <li>Doppelspindlig</li> <li>Schlanke Bauform</li> <li>Schwenkbar 0-98°</li> <li>Modular</li> </ul> |

MODULAR QUICK CHANGE SYSTEM FOR ANGLE HEADS  
MODULARES SCHENELLWECHSELSYSTEM FÜR WINKELKÖPFE





**H-GA-25 IK**  
with internal cooling  
mit Innenkühlung

## H-GA-25

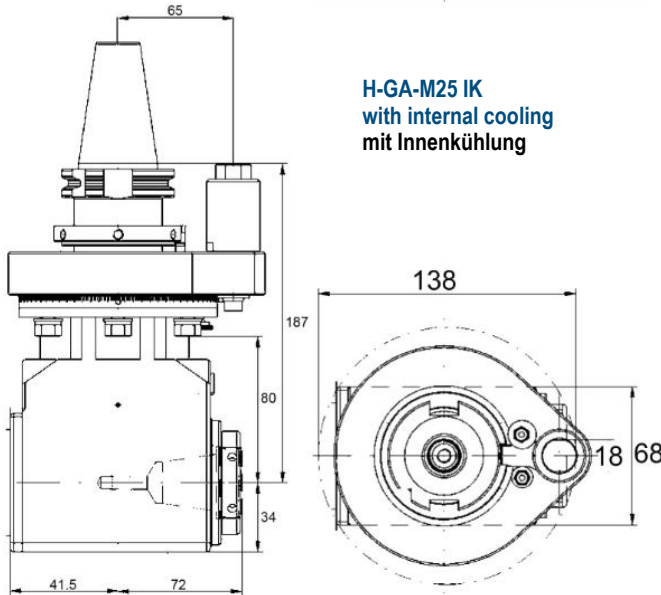
SK40 / BT40 / CAT 40 / HSK63

|      |           |       |
|------|-----------|-------|
| ER25 | 8.000 RPM | 30 Nm |
|------|-----------|-------|

|                   |                      |
|-------------------|----------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio |
|-------------------|----------------------|

6,5 kg 1:1

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



**H-GA-M25 IK**  
with internal cooling  
mit Innenkühlung

## H-GA-M25

**Modular**

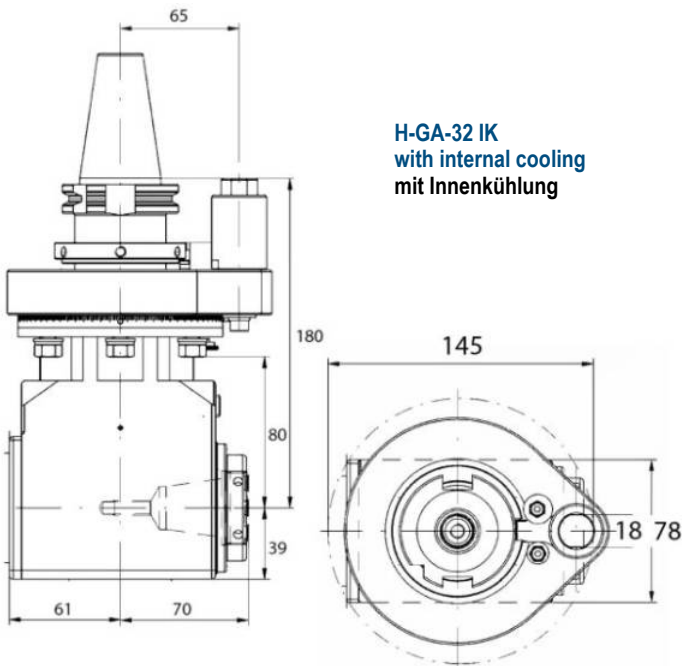
SK40 / BT40 / CAT 40 / HSK63

|      |           |       |
|------|-----------|-------|
| ER25 | 8.000 RPM | 30 Nm |
|------|-----------|-------|

|                   |                      |                            |
|-------------------|----------------------|----------------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio | Adaptertyp<br>Adapter Type |
|-------------------|----------------------|----------------------------|

6,5 kg 1:1 GM25

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



**H-GA-32 IK**  
with internal cooling  
mit Innenkühlung

## H-GA-32

SK40 / BT40 / CAT 40 / HSK63

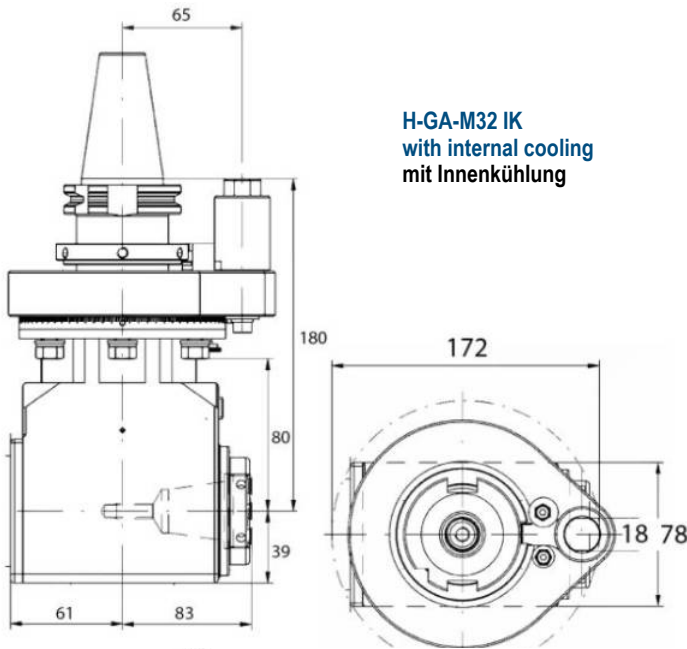
|      |           |       |
|------|-----------|-------|
| ER32 | 6.500 RPM | 70 Nm |
|------|-----------|-------|

|                   |                      |
|-------------------|----------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio |
|-------------------|----------------------|

8 kg 1:1

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |





**H-GA-M32 IK**  
 with internal cooling  
 mit Innenkühlung

### H-GA-M32

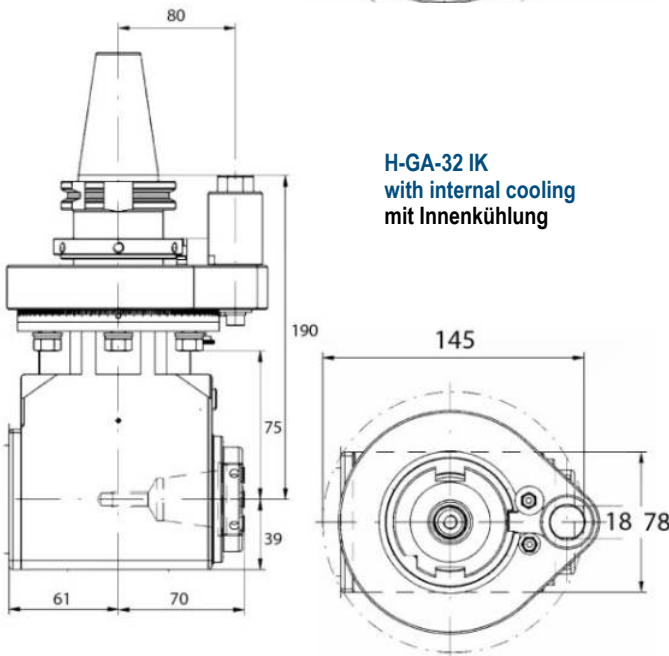
Modular

SK40 / BT40 / CAT 40 / HSK63

|      |           |       |
|------|-----------|-------|
| ER32 | 6.500 RPM | 70 Nm |
|------|-----------|-------|

|                   |                      |                            |
|-------------------|----------------------|----------------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio | Adaptertyp<br>Adapter Type |
| 8 kg              | 1:1                  | GM32                       |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø20 |
| Gewinde<br>Tapping | M16 |



**H-GA-32 IK**  
 with internal cooling  
 mit Innenkühlung

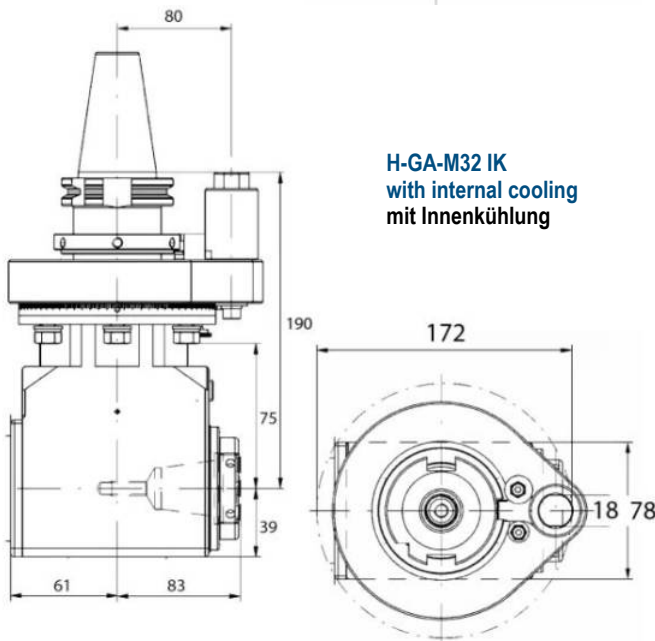
### H-GA-32

SK50 / BT50 / CAT 50 / HSK100

|      |           |       |
|------|-----------|-------|
| ER32 | 6.500 RPM | 70 Nm |
|------|-----------|-------|

|                   |                      |
|-------------------|----------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio |
| 12 kg             | 1:1                  |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø20 |
| Gewinde<br>Tapping | M16 |



**H-GA-M32 IK**  
 with internal cooling  
 mit Innenkühlung

### H-GA-M32

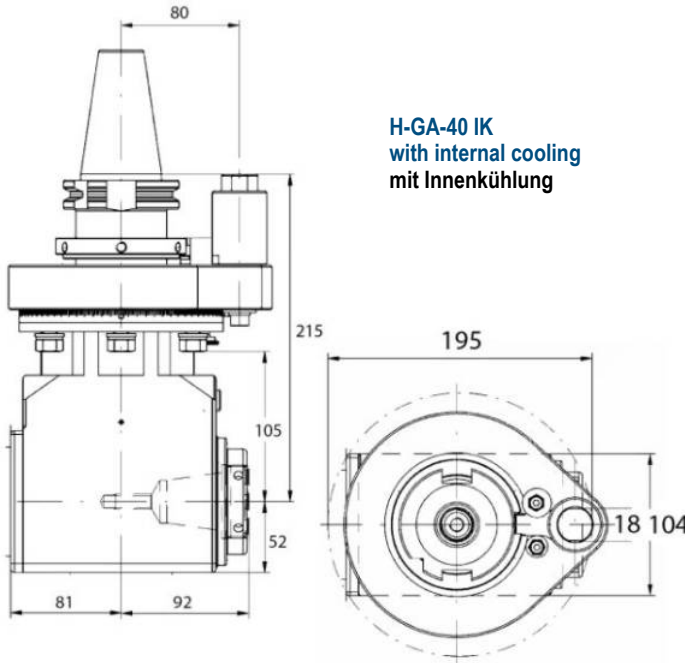
Modular

SK50 / BT50 / CAT 50 / HSK100

|      |           |       |
|------|-----------|-------|
| ER32 | 6.500 RPM | 70 Nm |
|------|-----------|-------|

|                   |                      |                            |
|-------------------|----------------------|----------------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio | Adaptertyp<br>Adapter Type |
| 12 kg             | 1:1                  | GM32                       |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø20 |
| Gewinde<br>Tapping | M16 |



**H-GA-40 IK**  
 with internal cooling  
 mit Innenkühlung

## H-GA-40

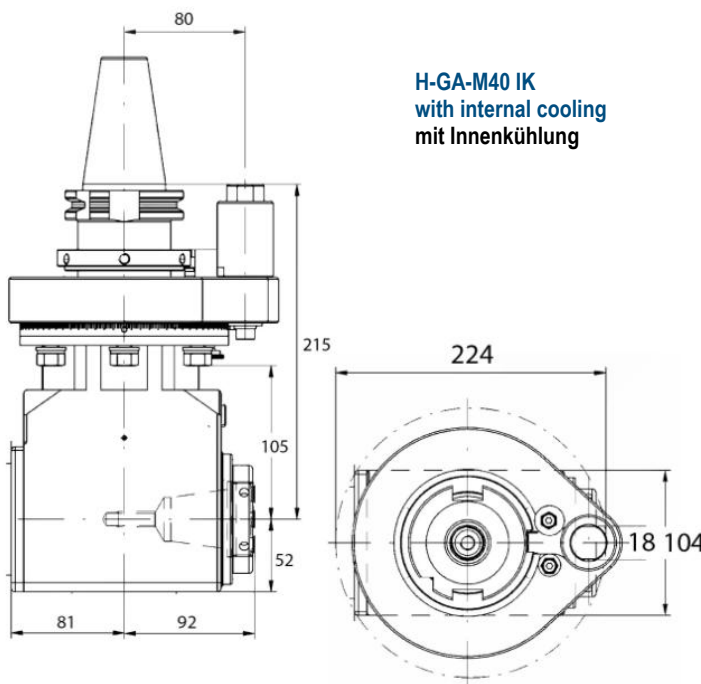
SK50 / BT50 / CAT 50 / HSK100

|      |           |        |
|------|-----------|--------|
| ER40 | 5.000 RPM | 150 Nm |
|------|-----------|--------|

|                   |                      |
|-------------------|----------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio |
|-------------------|----------------------|

18 kg      1:1

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



**H-GA-M40 IK**  
 with internal cooling  
 mit Innenkühlung

## H-GA-M40

**Modular**

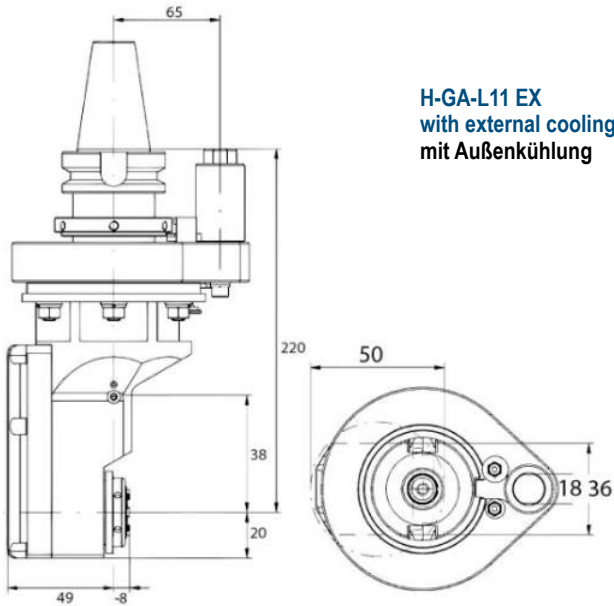
SK50 / BT50 / CAT 50 / HSK100

|      |           |        |
|------|-----------|--------|
| ER40 | 5.000 RPM | 150 Nm |
|------|-----------|--------|

|                   |                      |                            |
|-------------------|----------------------|----------------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio | Adaptertyp<br>Adapter Type |
|-------------------|----------------------|----------------------------|

18 kg      1:1      GM40

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |





**H-GA-L11 EX**  
 with external cooling  
 mit Außenkühlung

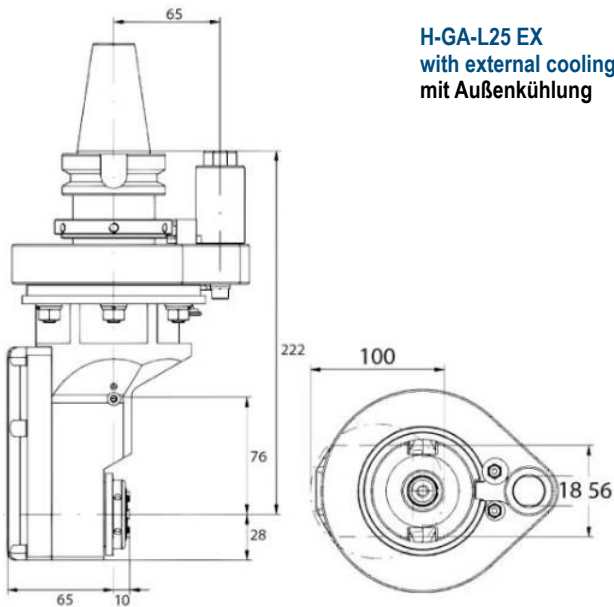
## H-GA-L11

SK40 / BT40 / CAT 40 / HSK63

**ER11**    **12.000 RPM**    **6 Nm**

|                   |                      |
|-------------------|----------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio |
| 7 kg              | 1:1,67               |

|                    |   |
|--------------------|---|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |





**H-GA-L25 EX**  
 with external cooling  
 mit Außenkühlung

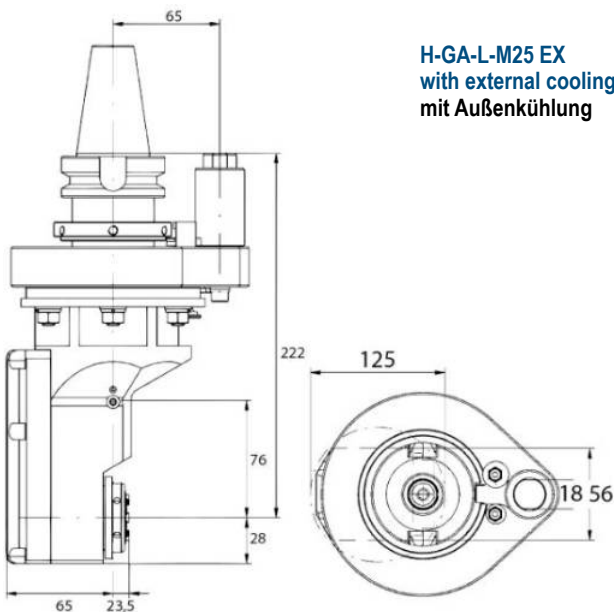
## H-GA-L25

SK40 / BT40 / CAT 40 / HSK63

**ER25**    **8.000 RPM**    **30 Nm**

|                   |                      |
|-------------------|----------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio |
| 6,5 kg            | 1:1                  |

|                    |   |
|--------------------|---|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



**H-GA-L-M25 EX**  
 with external cooling  
 mit Außenkühlung



## H-GA-L-M25

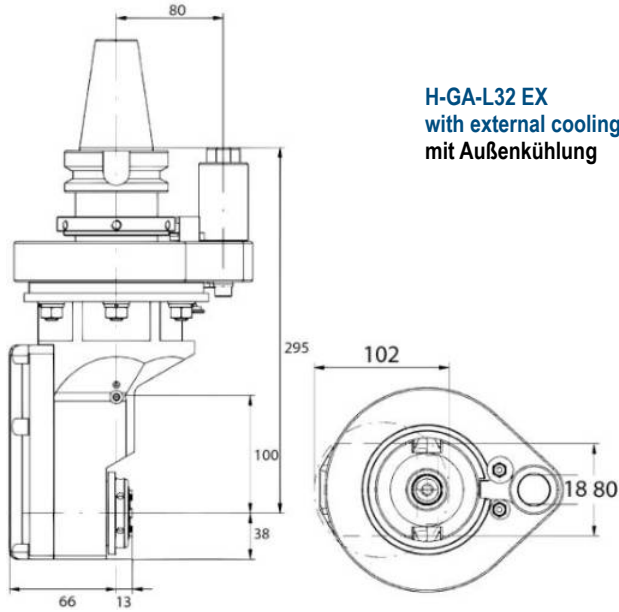
**Modular**

SK40 / BT40 / CAT 40 / HSK63

**ER25**    **8.000 RPM**    **30 Nm**

|                   |                      |                            |
|-------------------|----------------------|----------------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio | Adaptertyp<br>Adapter Type |
| 6,5 kg            | 1:1                  | GM25                       |

|                    |   |
|--------------------|---|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



**H-GA-L32 EX**  
 with external cooling  
 mit Außenkühlung

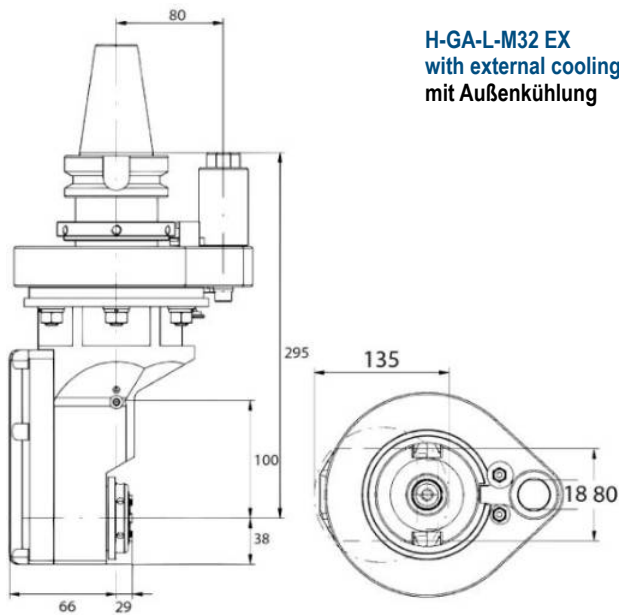
## H-GA-L32

SK50 / BT50 / CAT 50 / HSK100

**ER32**    **6.000 RPM**    **70 Nm**

|                   |                      |
|-------------------|----------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio |
| 13,5 kg           | 1:1                  |

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



**H-GA-L-M32 EX**  
 with external cooling  
 mit Außenkühlung

## H-GA-L M32

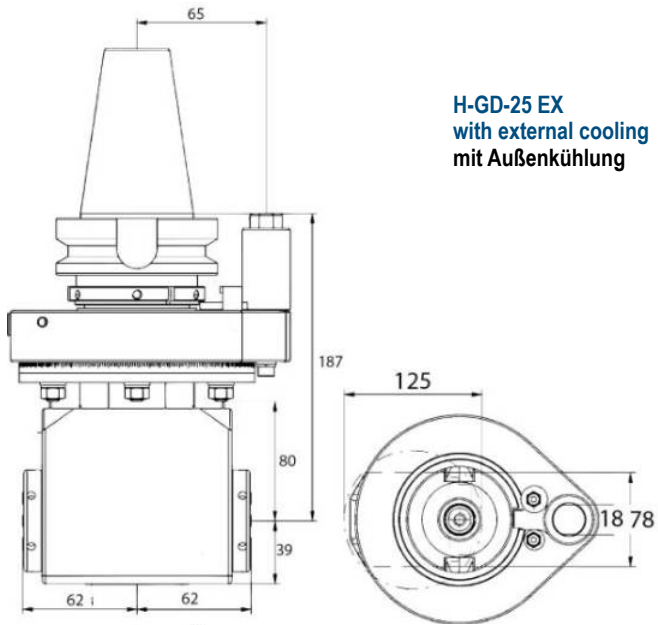
**Modular**

SK50 / BT50 / CAT 50 / HSK100

**ER32**    **6.000 RPM**    **70 Nm**

|                   |                      |                            |
|-------------------|----------------------|----------------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio | Adaptertyp<br>Adapter Type |
| 13,5 kg           | 1:1                  | GM32                       |

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



**H-GD-25 EX**  
with external cooling  
mit Außenkühlung

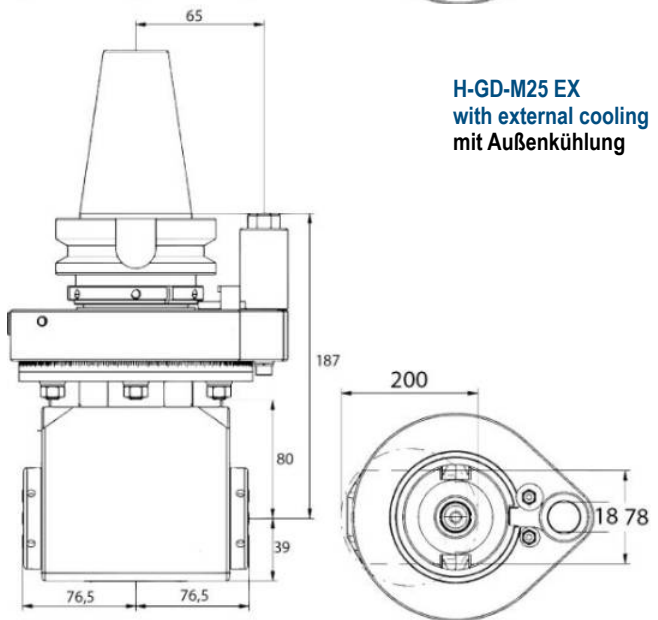
## H-GD-25

SK40 / BT40 / CAT 40 / HSK63

|      |           |       |
|------|-----------|-------|
| ER25 | 8.000 RPM | 30 Nm |
|------|-----------|-------|

|                   |                      |
|-------------------|----------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio |
| 7,5 kg            | 1:1                  |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø16 |
| Gewinde<br>Tapping | M12 |



**H-GD-M25 EX**  
with external cooling  
mit Außenkühlung

## H-GD-M25

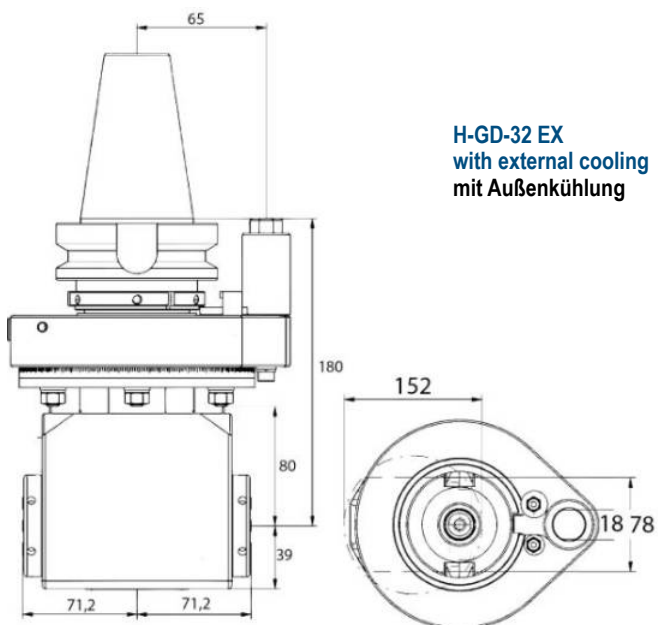
**Modular**

SK40 / BT40 / CAT 40 / HSK63

|      |           |       |
|------|-----------|-------|
| ER25 | 8.000 RPM | 30 Nm |
|------|-----------|-------|

|                   |                      |                            |
|-------------------|----------------------|----------------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio | Adaptertyp<br>Adapter Type |
| 7,5 kg            | 1:1                  | GM25                       |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø16 |
| Gewinde<br>Tapping | M12 |



**H-GD-32 EX**  
with external cooling  
mit Außenkühlung

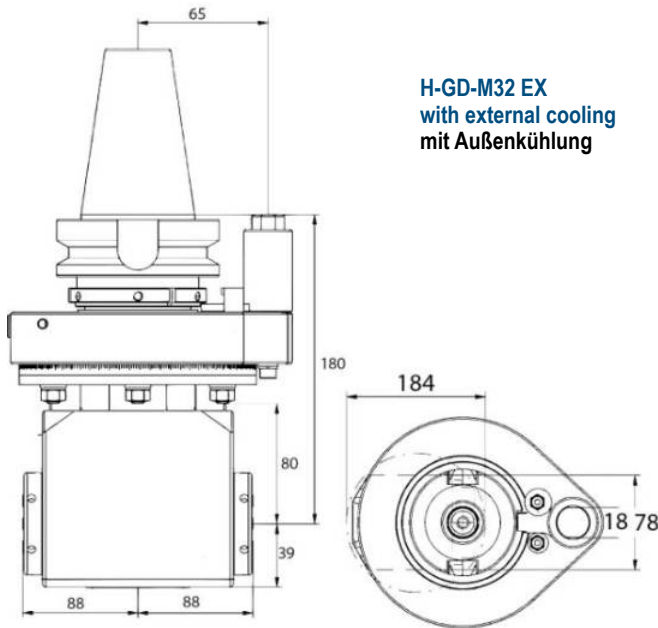
## H-GD-32

SK40 / BT40 / CAT 40 / HSK63

|      |           |       |
|------|-----------|-------|
| ER32 | 6.500 RPM | 70 Nm |
|------|-----------|-------|

|                   |                      |
|-------------------|----------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio |
| 8,5 kg            | 1:1                  |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø20 |
| Gewinde<br>Tapping | M16 |



**H-GD-M32 EX**  
with external cooling  
mit Außenkühlung

## H-GD-M32

**Modular**

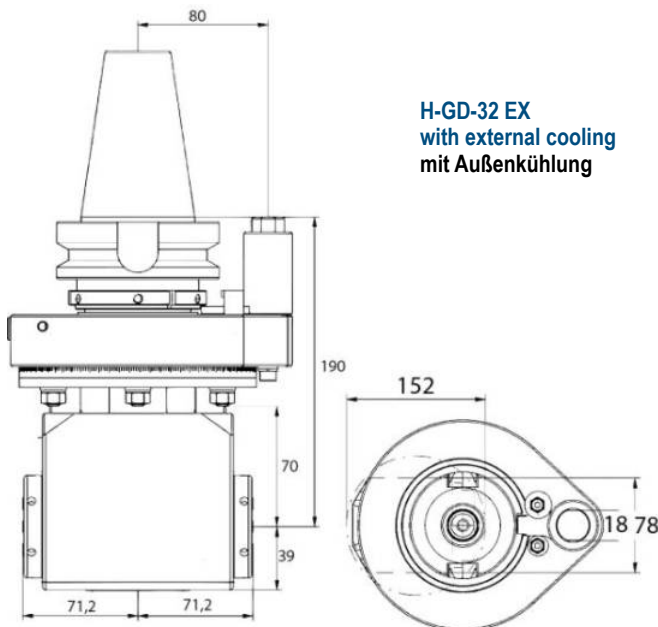
SK40 / BT40 / CAT 40 / HSK63

|      |           |       |
|------|-----------|-------|
| ER32 | 6.500 RPM | 70 Nm |
|------|-----------|-------|

|                   |                      |                            |
|-------------------|----------------------|----------------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio | Adaptertyp<br>Adapter Type |
|-------------------|----------------------|----------------------------|

|        |     |      |
|--------|-----|------|
| 8,5 kg | 1:1 | GM32 |
|--------|-----|------|

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



**H-GD-32 EX**  
with external cooling  
mit Außenkühlung

## H-GD-32

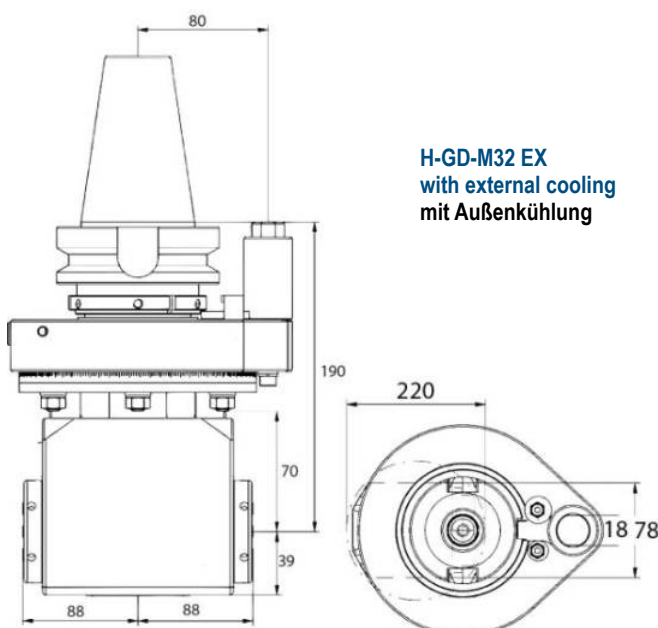
SK50 / BT50 / CAT 50 / HSK100

|      |           |       |
|------|-----------|-------|
| ER32 | 6.500 RPM | 70 Nm |
|------|-----------|-------|

|                   |                      |
|-------------------|----------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio |
|-------------------|----------------------|

|         |     |
|---------|-----|
| 13,5 kg | 1:1 |
|---------|-----|

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



**H-GD-M32 EX**  
with external cooling  
mit Außenkühlung

## H-GD-M32

**Modular**

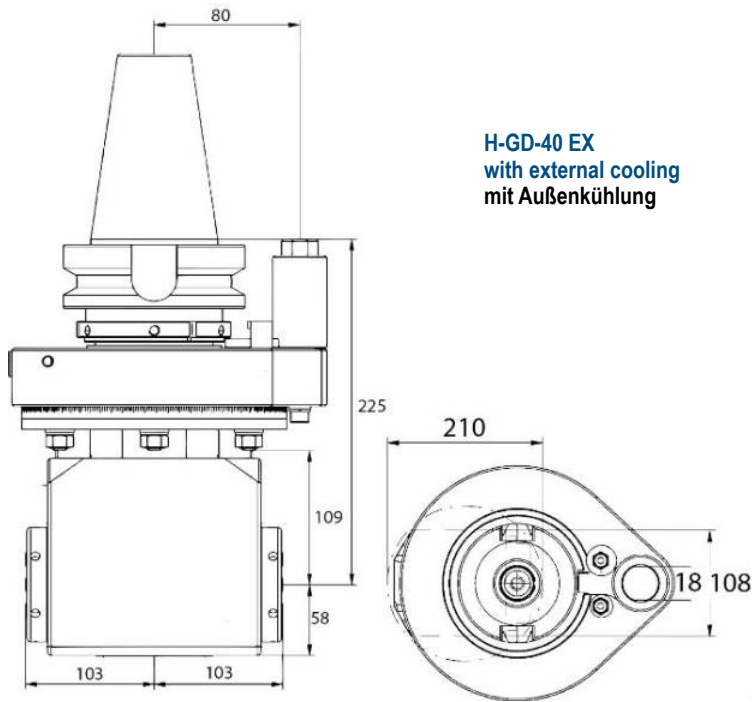
SK50 / BT50 / CAT 50 / HSK100

|      |           |       |
|------|-----------|-------|
| ER32 | 6.500 RPM | 70 Nm |
|------|-----------|-------|

|                   |                      |                            |
|-------------------|----------------------|----------------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio | Adaptertyp<br>Adapter Type |
|-------------------|----------------------|----------------------------|

|         |     |      |
|---------|-----|------|
| 13,5 kg | 1:1 | GM32 |
|---------|-----|------|

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



## H-GD-40

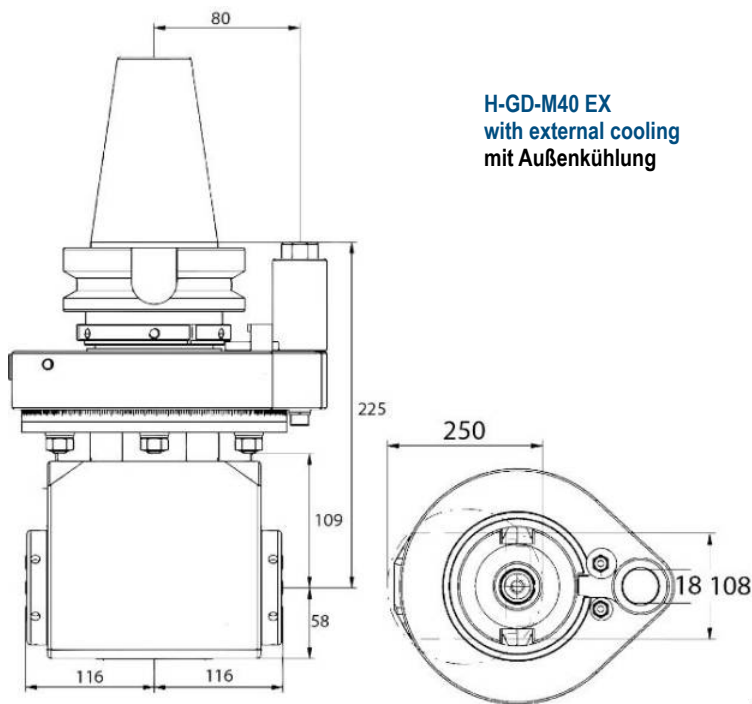
SK50 / BT50 / CAT 50 / HSK100

|      |           |        |
|------|-----------|--------|
| ER40 | 4.000 RPM | 150 Nm |
|------|-----------|--------|

|                   |                      |
|-------------------|----------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio |
|-------------------|----------------------|

20 kg 1:1

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



## H-GD-M40

Modular

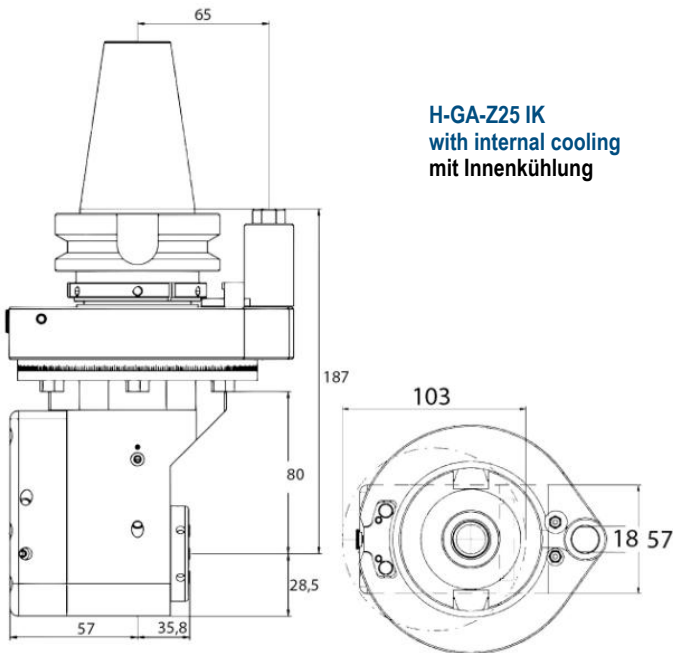
SK50 / BT50 / CAT 50 / HSK100

|      |           |        |
|------|-----------|--------|
| ER40 | 4.000 RPM | 150 Nm |
|------|-----------|--------|

|                   |                      |                            |
|-------------------|----------------------|----------------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio | Adaptertyp<br>Adapter Type |
|-------------------|----------------------|----------------------------|

20 kg 1:1 GM40

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



**H-GA-Z25 IK**  
with internal cooling  
mit Innenkühlung



## H-GA-Z25

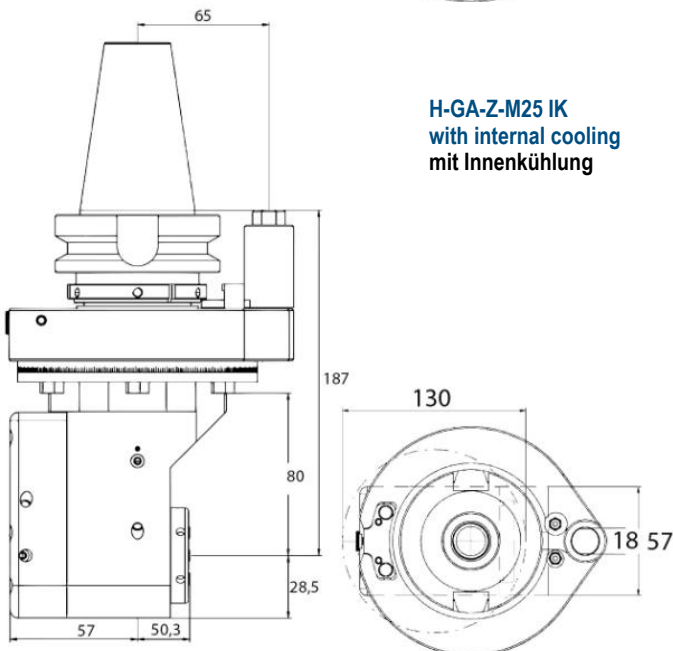
SK40 / BT40 / CAT 40 / HSK63

**ER25**    **8.000 RPM**    **30 Nm**

Gewicht    Übersetzung  
Weight    Ratio

6,5 kg    1:1

Bohren      
Drilling      
Gewinde      
Tapping   



**H-GA-Z-M25 IK**  
with internal cooling  
mit Innenkühlung

## H-GA-Z-M25



**Modular**

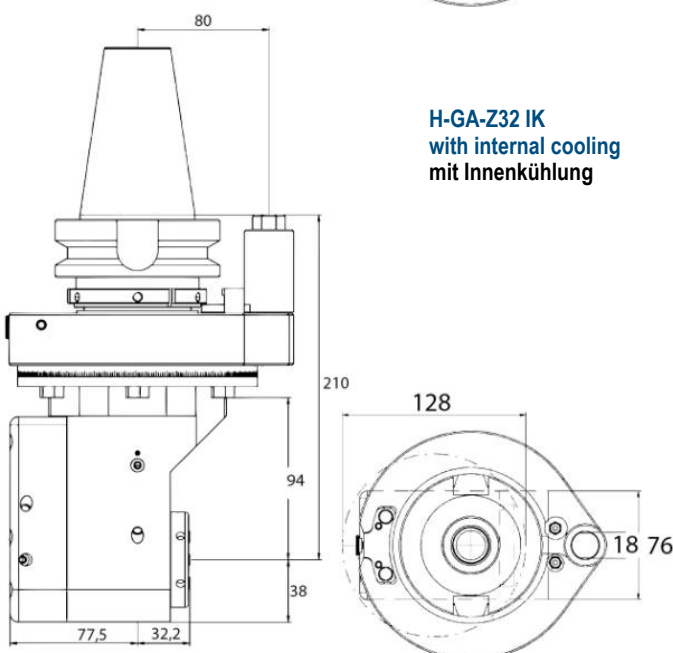
SK40 / BT40 / CAT 40 / HSK63

**ER25**    **8.000 RPM**    **30 Nm**

Gewicht    Übersetzung    Adaptertyp  
Weight    Ratio    Adapter Type

6,5 kg    1:1    GM25

Bohren      
Drilling      
Gewinde      
Tapping   



**H-GA-Z32 IK**  
with internal cooling  
mit Innenkühlung



## H-GA-Z32

SK50 / BT50 / CAT 50 / HSK100

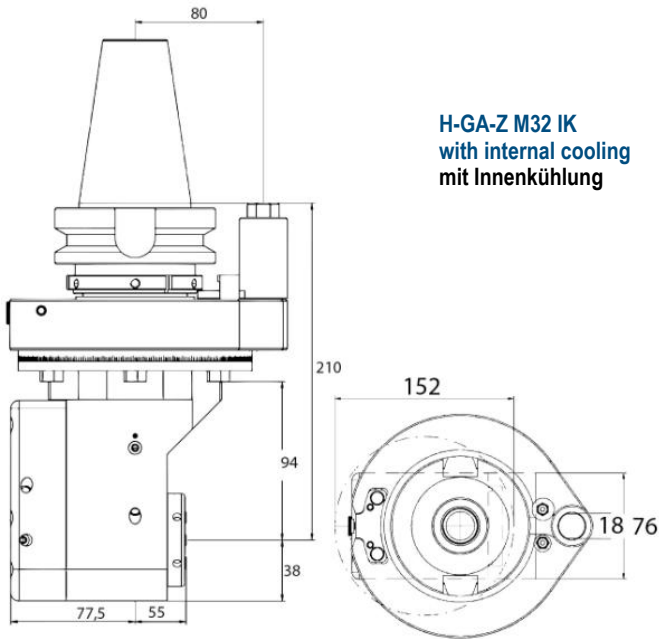
**ER32**    **6.000 RPM**    **70 Nm**

Gewicht    Übersetzung  
Weight    Ratio

14 kg    1:1

Bohren      
Drilling      
Gewinde      
Tapping





**H-GA-Z M32 IK**  
with internal cooling  
mit Innenkühlung

## H-GA-Z-M32

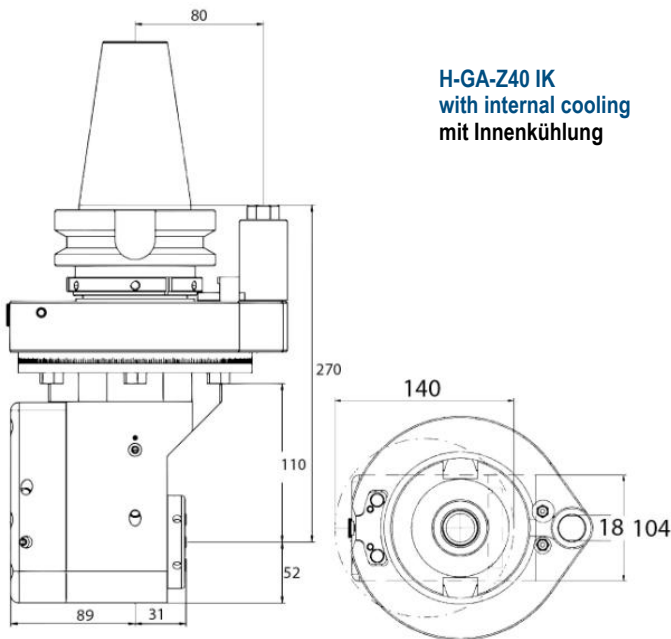
**Modular**

SK50 / BT50 / CAT 50 / HSK100

|             |                  |              |
|-------------|------------------|--------------|
| <b>ER32</b> | <b>6.000 RPM</b> | <b>70 Nm</b> |
|-------------|------------------|--------------|

|                   |                      |                            |
|-------------------|----------------------|----------------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio | Adaptertyp<br>Adapter Type |
| 14 kg             | 1:1                  | GM32                       |

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



**H-GA-Z40 IK**  
with internal cooling  
mit Innenkühlung

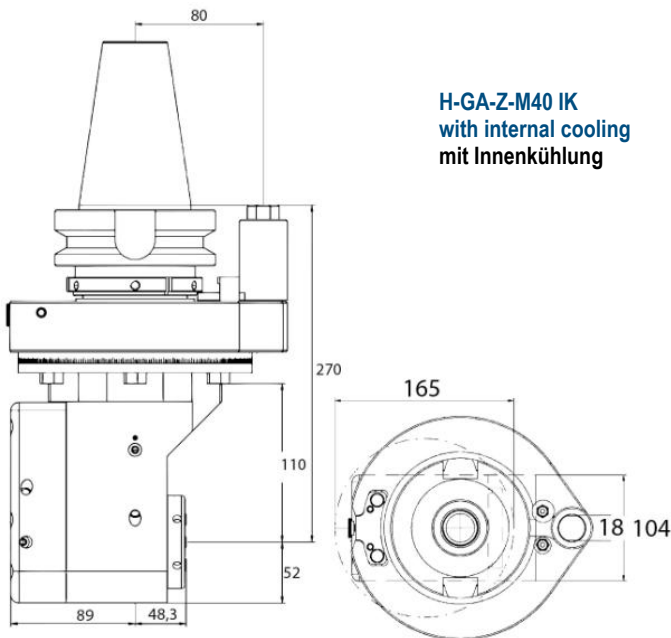
## H-GA-Z40

SK50 / BT50 / CAT 50 / HSK100

|             |                  |               |
|-------------|------------------|---------------|
| <b>ER40</b> | <b>5.000 RPM</b> | <b>150 Nm</b> |
|-------------|------------------|---------------|

|                   |                      |
|-------------------|----------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio |
| 19 kg             | 1:1                  |

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



**H-GA-Z-M40 IK**  
with internal cooling  
mit Innenkühlung

## H-GA-Z-M40

**Modular**

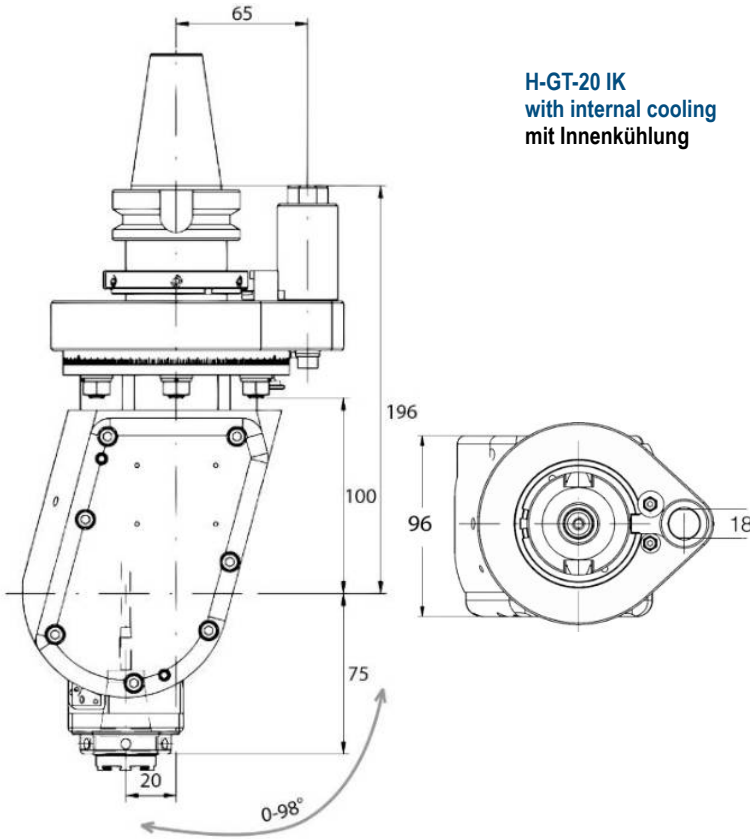
SK50 / BT50 / CAT 50 / HSK100

|             |                  |               |
|-------------|------------------|---------------|
| <b>ER40</b> | <b>5.000 RPM</b> | <b>150 Nm</b> |
|-------------|------------------|---------------|

|                   |                      |                            |
|-------------------|----------------------|----------------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio | Adaptertyp<br>Adapter Type |
| 19 kg             | 1:1                  | GM40                       |

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |

**H-GT-20 IK**  
 with internal cooling  
 mit Innenkühlung



**H-GT-20**

Max. 8.000 RPM

|                   |     |
|-------------------|-----|
| Übersetzung Ratio | 1:1 |
|-------------------|-----|

**H-GT-20-HS High Speed**

Max. 15.000 RPM

|                   |        |
|-------------------|--------|
| Übersetzung Ratio | 1:2,25 |
|-------------------|--------|

SK40 / BT40 / CAT40 / HSK63

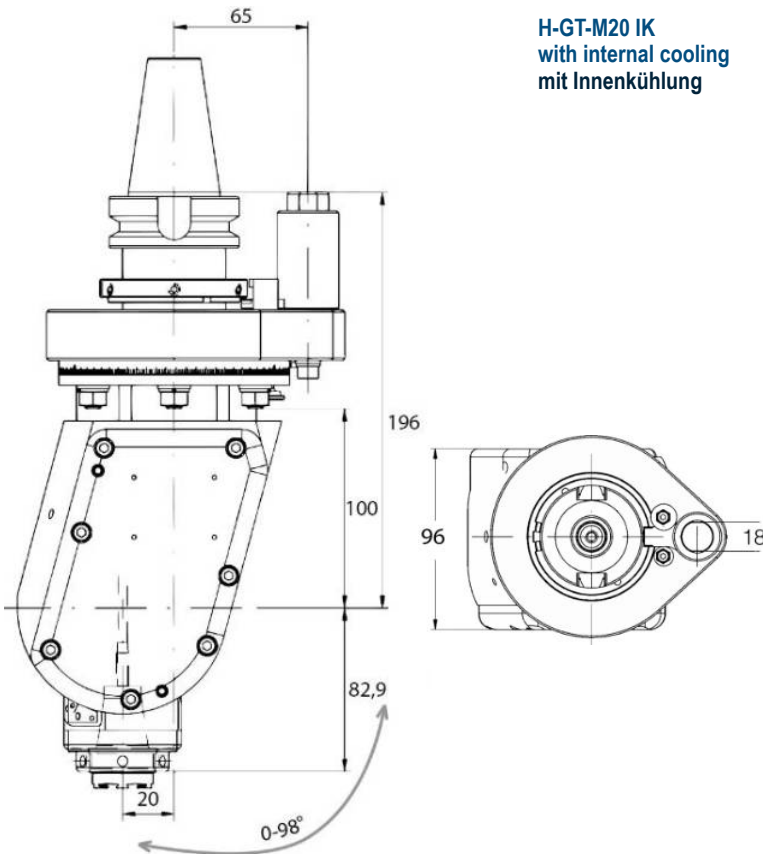
**ER20 15 Nm**

|                |  |
|----------------|--|
| Gewicht Weight |  |
|----------------|--|

8 kg



**H-GT-M20 IK**  
 with internal cooling  
 mit Innenkühlung



**H-GT-M20 Modular**

Max. 8.000 RPM

|                   |     |
|-------------------|-----|
| Übersetzung Ratio | 1:1 |
|-------------------|-----|

**H-GT-M20-HS High Speed**

Max. 15.000 RPM

|                   |        |
|-------------------|--------|
| Übersetzung Ratio | 1:2,25 |
|-------------------|--------|

SK40 / BT40 / CAT40 / HSK63

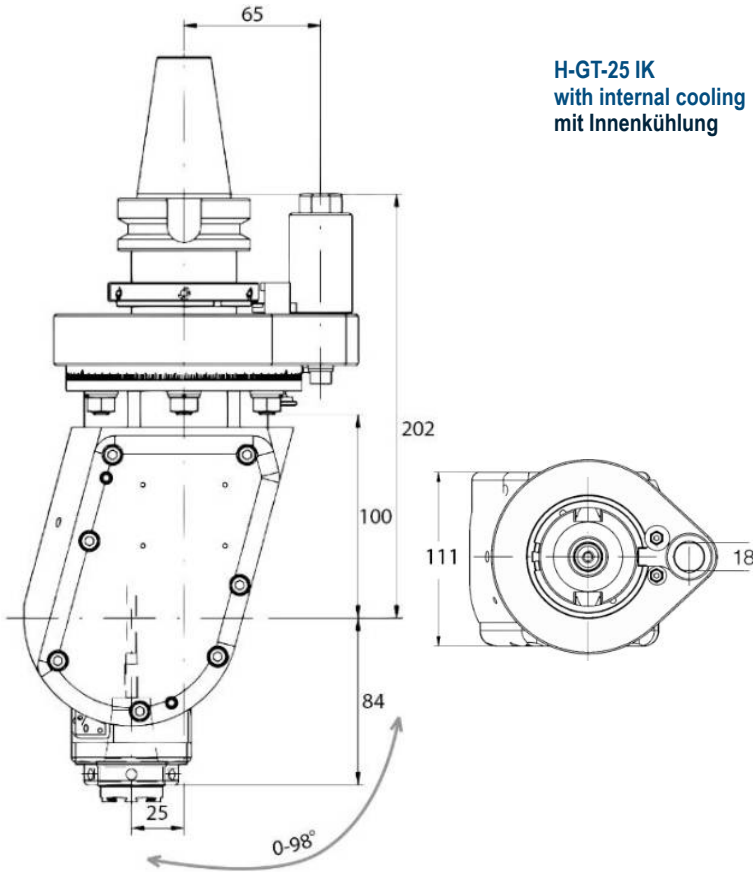
**ER20 15 Nm**

|                |                         |
|----------------|-------------------------|
| Gewicht Weight | Adaptertyp Adapter Type |
|----------------|-------------------------|

8 kg

GM20





**H-GT-25 IK**  
with internal cooling  
mit Innenkühlung

### H-GT-25

Max. 7.000 RPM

Übersetzung Ratio 1:1

### HS-GT-25 High Speed

Max. 13.500 RPM

Übersetzung Ratio 1:2,25

SK40 / BT40 / CAT40 / HSK63

**ER25**

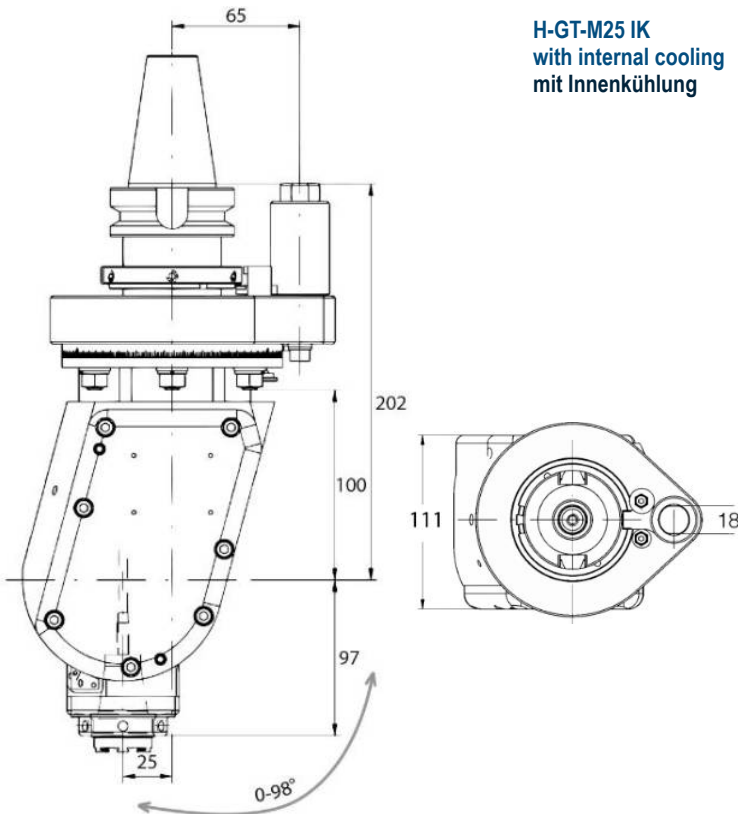
**30 Nm**

Gewicht Weight

9,6 kg

Bohren Drilling

Gewinde Tapping



**H-GT-M25 IK**  
with internal cooling  
mit Innenkühlung

### H-GT-M25 Modular

Max. 7.000 RPM

Übersetzung Ratio 1:1

### HS-GT-M25 High Speed Modular

Max. 13.500 RPM

Übersetzung Ratio 1:2,25

SK40 / BT40 / CAT40 / HSK63

**ER25**

**30 Nm**

Gewicht Weight

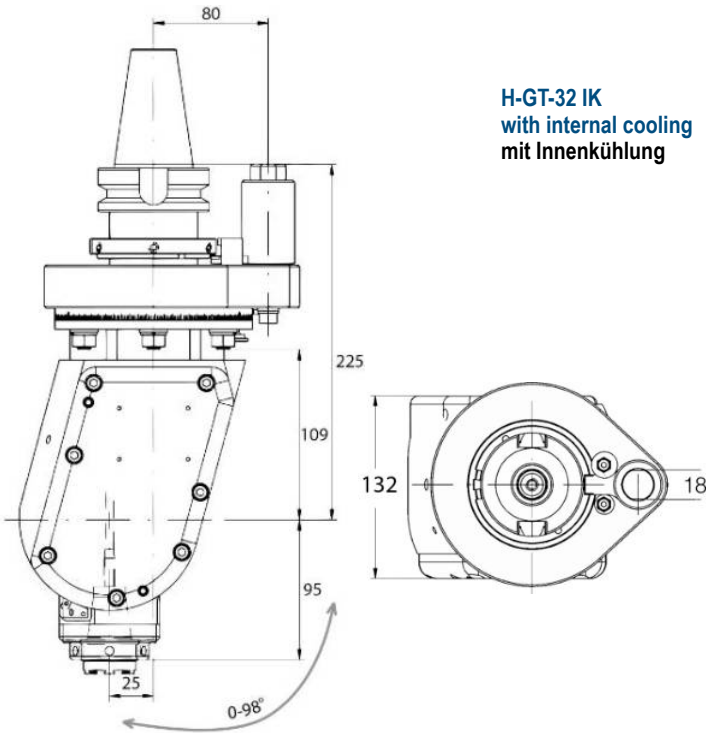
Adaptertyp Adapter Type

9,6 kg

GM25

Bohren Drilling

Gewinde Tapping



**H-GT-32 IK**  
with internal cooling  
mit Innenkühlung

## H-GT-32

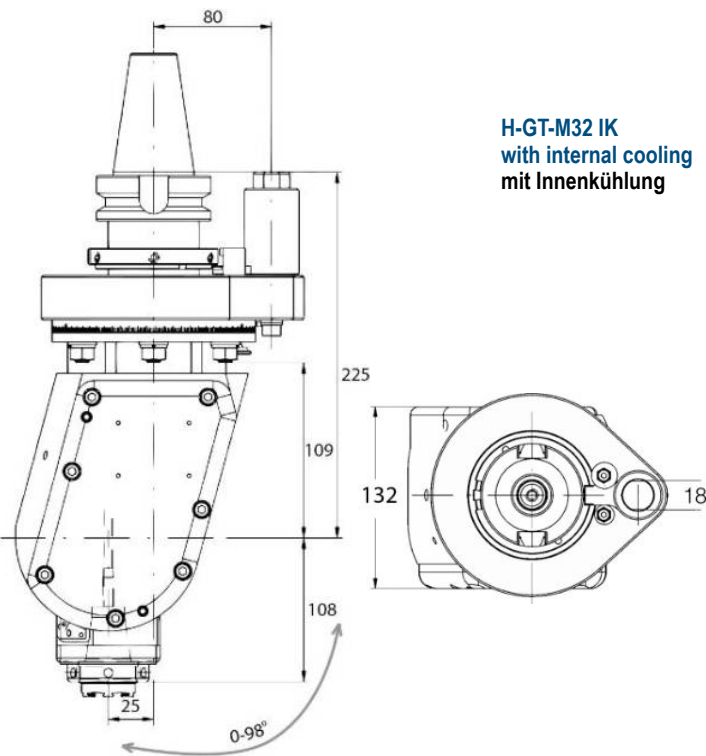
SK50 / BT50 / CAT 50 / HSK100

|      |           |       |
|------|-----------|-------|
| ER32 | 6.000 RPM | 70 Nm |
|------|-----------|-------|

|                   |                      |
|-------------------|----------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio |
|-------------------|----------------------|

16 kg 1:1

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



**H-GT-M32 IK**  
with internal cooling  
mit Innenkühlung

## H-GT-M32

**Modular**

SK50 / BT50 / CAT 50 / HSK100

|      |           |       |
|------|-----------|-------|
| ER32 | 6.000 RPM | 70 Nm |
|------|-----------|-------|

|                   |                      |                            |
|-------------------|----------------------|----------------------------|
| Gewicht<br>Weight | Übersetzung<br>Ratio | Adaptertyp<br>Adapter Type |
|-------------------|----------------------|----------------------------|

16 kg 1:1

GM32

|                    |  |
|--------------------|--|
| Bohren<br>Drilling |  |
| Gewinde<br>Tapping |  |



Collet Chucks  
Spannzangenaufnahmen



Weldon Toolholders  
Whistle-Notch-Aufnahmen



Combination Shell End Mill Arbors  
Kombi-Aufsteckfräsdorne

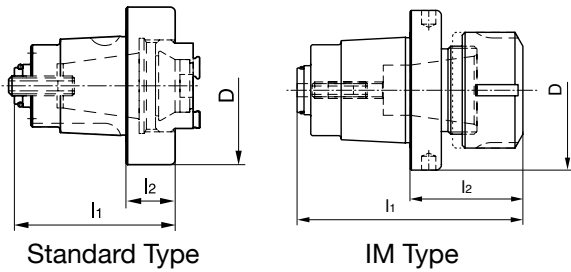
### Features

- Insert the toolholder into the spindle of the modular angle head
- 3 balls inside the modular interface guide the toolholder into the proper position
- Turn the toolholder until it is locked
- Clamp the sleeve nut by using the one hand key
- To unclamp the toolholder just follow all steps in reverse order
- The axial and conical surface guarantee highest concentricity
- All toolholders are with internal coolant and available in different sizes

### Merkmale

- Die Werkzeugaufnahme in die Spindel des modularen Winkelkopfes einsetzen
- 3 Kugeln innerhalb der modularen Schnittstelle führen die Aufnahme in die richtige Position
- Die Aufnahme bis zum Einrasten drehen
- Die Überwurfmutter mittels Einhandschlüssel spannen
- Schnellwechselsystem lässt sich in umgekehrter Reihenfolge einfach lösen
- Die Plan- und Kegelanlage garantieren höchste Rundlaufgenauigkeit
- Alle Werkzeugaufnahmen besitzen innere Kühlmittelzufuhr und sind in verschiedenen Größen und Längen lieferbar

### Collet Chucks Spannzangenaufnahmen



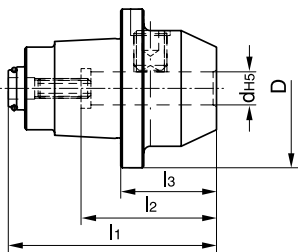
Standard Type



IM Type

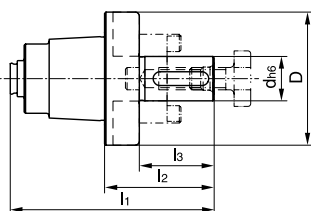
| Artikelnr.<br>Code | Spannzange<br>Collet | L1<br>mm | L2<br>mm | D  |
|--------------------|----------------------|----------|----------|----|
| 215.02.110         | GM20-ER16            | 64,5     | 38       | 42 |
| 215.02.110-IM      | GM20-ER16            | 41,5     | 15       | 42 |
| 215.02.113-IM      | GM20-ER20            | 59       | 32       | 42 |

### Weldon Toolholders Whistle-Notch-Aufnahmen



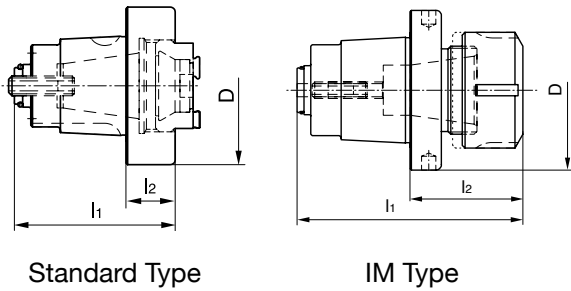
| Artikelnr.<br>Code | Größe<br>Size | L1<br>mm | L2<br>mm | L3<br>mm | d<br>mm | D  |
|--------------------|---------------|----------|----------|----------|---------|----|
| 215.04.106         | GM20-W06      | 52,5     | 37       | 26       | 6       | 42 |
| 215.04.108         | GM20-W08      | 52,5     | 37       | 26       | 8       | 42 |
| 215.04.110         | GM20-W10      | 55,5     | 41       | 29       | 10      | 42 |
| 215.04.112         | GM20-W12      | 57,5     | 46       | 31       | 12      | 42 |

### Combination Shell End Mill Arbors Kombi-Aufsteckfräsdorne



| Artikelnr.<br>Code | Größe<br>Size | L1<br>mm | L2<br>mm | L3<br>mm | d<br>mm | D  |
|--------------------|---------------|----------|----------|----------|---------|----|
| 215.11.116         | GM20-K16      | 66       | 39,5     | 27       | 16      | 42 |

### Collet Chucks Spannzangenahmen



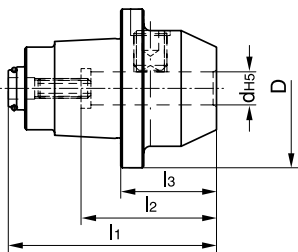
Standard Type



IM Type

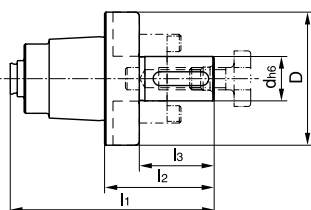
| Artikelnr.<br>Code | Spannzange<br>Collet | L1<br>mm | L2<br>mm | D  |
|--------------------|----------------------|----------|----------|----|
| 215.02.210         | GM25-ER16            | 73       | 39       | 48 |
| 215.02.213         | GM25-ER20            | 80       | 46,6     | 48 |
| 215.02.210-IM      | GM25-ER16            | 45       | 11       | 48 |
| 215.02.213-IM      | GM25-ER20            | 49       | 15       | 48 |
| 215.02.216-IM      | GM25-ER25            | 55       | 21       | 48 |

### Weldon Toolholders Whistle-Notch-Aufnahmen



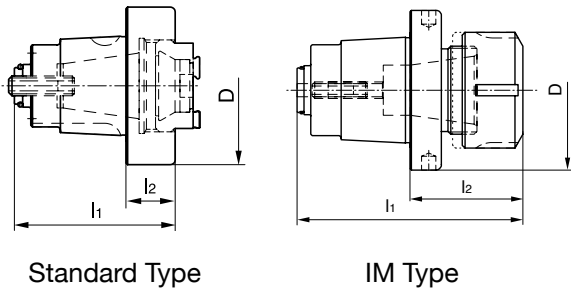
| Artikelnr.<br>Code | Größe<br>Size | L1<br>mm | L2<br>mm | L3<br>mm | d<br>mm | D  |
|--------------------|---------------|----------|----------|----------|---------|----|
| 215.04.206         | GM25-W06      | 60       | 37       | 26       | 6       | 48 |
| 215.04.208         | GM25-W08      | 60       | 37       | 26       | 8       | 48 |
| 215.04.210         | GM25-W10      | 63       | 41       | 29       | 10      | 48 |
| 215.04.212         | GM25-W12      | 65       | 46       | 31       | 12      | 48 |
| 215.04.214         | GM25-W14      | 65       | 46       | 31       | 14      | 48 |
| 215.04.216         | GM25-W16      | 68       | 49       | 34       | 16      | 48 |

### Combi Shell End Mill Arbors Kombi-Aufsteckfräsdorne



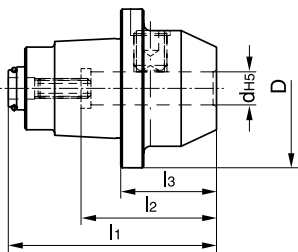
| Artikelnr.<br>Code | Größe<br>Size | L1<br>mm | L2<br>mm | L3<br>mm | d<br>mm | D  |
|--------------------|---------------|----------|----------|----------|---------|----|
| 215.11.216         | GM25-K16      | 73,5     | 39,5     | 25       | 16      | 48 |

### Collet Chucks Spannzangenahmen



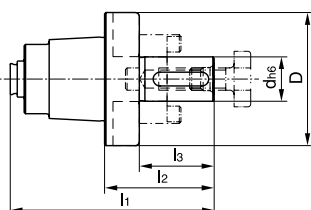
| Artikelnr.<br>Code | Spannzange<br>Collet | L1<br>mm | L2<br>mm | D  |
|--------------------|----------------------|----------|----------|----|
| 215.02.316         | GM32-ER25            | 82       | 41       | 58 |
| 215.02.320         | GM32-ER32            | 88       | 47       | 58 |
| 215.02.316-IM      | GM32-ER25            | 55       | 14       | 58 |
| 215.02.320-IM      | GM32-ER32            | 59       | 18       | 58 |

### Weldon Toolholders Whistle-Notch-Aufnahmen



| Artikelnr.<br>Code | Größe<br>Size | L1<br>mm | L2<br>mm | L3<br>mm | d<br>mm | D  |
|--------------------|---------------|----------|----------|----------|---------|----|
| 215.04.306         | GM32-W06      | 65       | 37       | 24       | 6       | 58 |
| 215.04.308         | GM32-W08      | 66       | 37       | 25       | 8       | 58 |
| 215.04.310         | GM32-W10      | 70       | 41       | 29       | 10      | 58 |
| 215.04.312         | GM32-W12      | 73       | 46       | 32       | 12      | 58 |
| 215.04.314         | GM32-W14      | 73       | 46       | 32       | 14      | 58 |
| 215.04.316         | GM32-W16      | 74       | 49       | 33       | 16      | 58 |
| 215.04.320         | GM32-W20      | 78       | 51       | 37       | 20      | 58 |

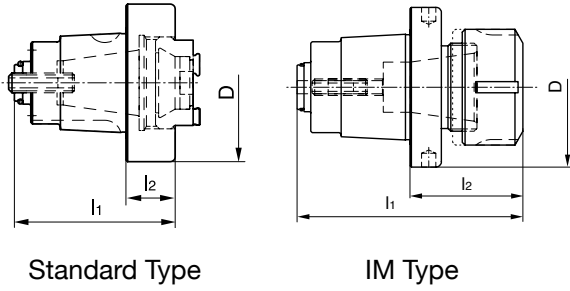
### Combi Shell End Mill Arbors Kombi-Aufsteckfräsdorne



| Artikelnr.<br>Code | Größe<br>Size | L1<br>mm | L2<br>mm | L3<br>mm | d<br>mm | D  |
|--------------------|---------------|----------|----------|----------|---------|----|
| 215.11.316         | GM32-K16      | 82       | 41       | 27       | 16      | 58 |
| 215.11.322         | GM32-K22      | 88       | 47       | 31       | 22      | 58 |



### Collet Chucks Spannzangenahmen



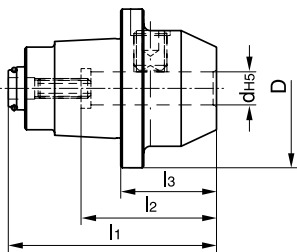
Standard Type



IM Type

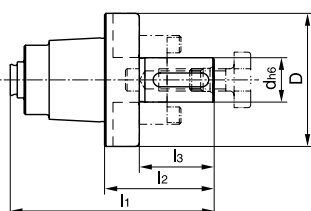
| Artikelnr.<br>Code | Spannzange<br>Collet | L1<br>mm | L2<br>mm | D  |
|--------------------|----------------------|----------|----------|----|
| 215.02.420         | GM40-ER32            | 96       | 47       | 75 |
| 215.02.426         | GM40-ER40            | 94       | 45,5     | 75 |
| 215.02.420-IM      | GM40-ER32            | 63       | 14       | 75 |
| 215.02.426-IM      | GM40-ER40            | 69       | 20       | 75 |

### Weldon Toolholders Whistle-Notch-Aufnahmen

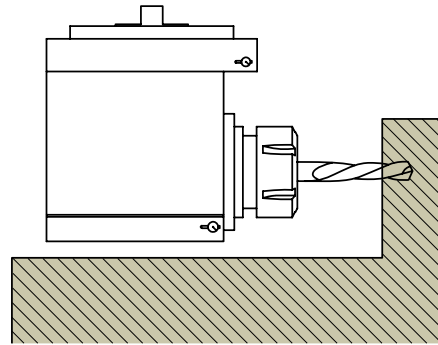


| Artikelnr.<br>Code | Größe<br>Size | L1<br>mm | L2<br>mm | L3<br>mm | d<br>mm | D  |
|--------------------|---------------|----------|----------|----------|---------|----|
| 215.04.406         | GM40-W06      | 81       | 37       | 32       | 6       | 75 |
| 215.04.408         | GM40-W08      | 82       | 37       | 33       | 8       | 75 |
| 215.04.410         | GM40-W10      | 85       | 41       | 36       | 10      | 75 |
| 215.04.412         | GM40-W12      | 88       | 46       | 39,5     | 12      | 75 |
| 215.04.414         | GM40-W14      | 88,5     | 46       | 39,5     | 14      | 75 |
| 215.04.416         | GM40-W16      | 91       | 49       | 42       | 16      | 75 |
| 215.04.420         | GM40-W20      | 93       | 51       | 44       | 20      | 75 |
| 215.04.425         | GM40-W25      | 110      | 59       | 61       | 25      | 75 |

### Combi Shell End Mill Arbors Kombi-Aufsteckfräsdorne

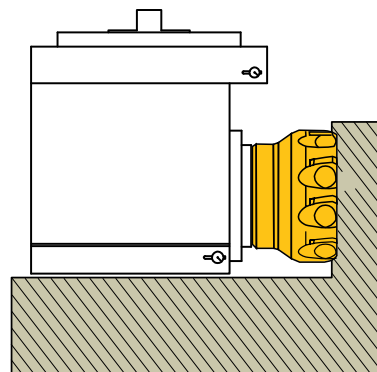


| Artikelnr.<br>Code | Größe<br>Size | L1<br>mm | L2<br>mm | L3<br>mm | d<br>mm | D  |
|--------------------|---------------|----------|----------|----------|---------|----|
| 215.11.422         | GM40-K22      | 88       | 47       | 31       | 22      | 75 |
| 215.11.427         | GM40-K27      | 98       | 49       | 33       | 27      | 75 |



Suitable for all machine types by using a connection kit  
 Verwendbar mit allen Maschinentypen mithilfe einer Anschlusschnittstelle

SK30, SK40, SK50, BT30, BT40, BT50, HSK63A, HSK100A  
 Transfer Machines / Transferanlagen

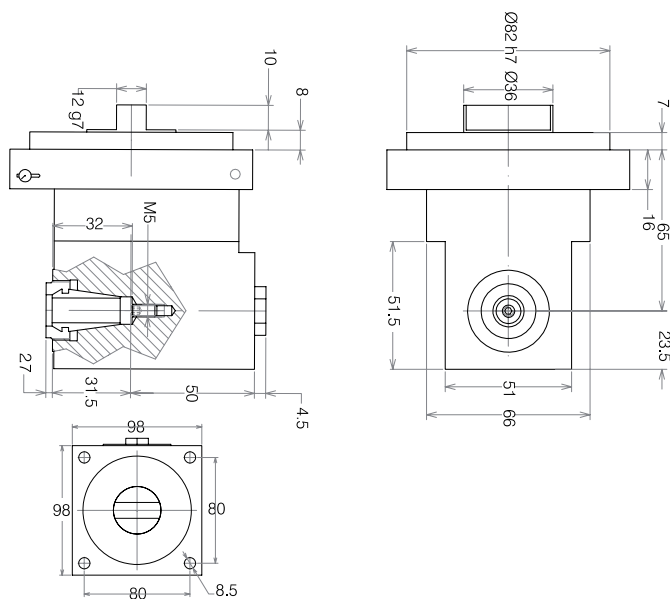


### Features

For drilling, tapping and milling operations  
 Usable on both CNC and conventional machine tools  
 Heat-treated aluminium or steel main body  
 Compact and rigid construction

### Merkmale

Bohren, Gewindebohren und Fräsen  
 Flanschverbindung mit der Spindel;  
 manueller Wechsel  
 Hauptkörper aus wärmebehandelter  
 Aluminium- oder Stahllegierung  
 Kompakte und rigide Bauform



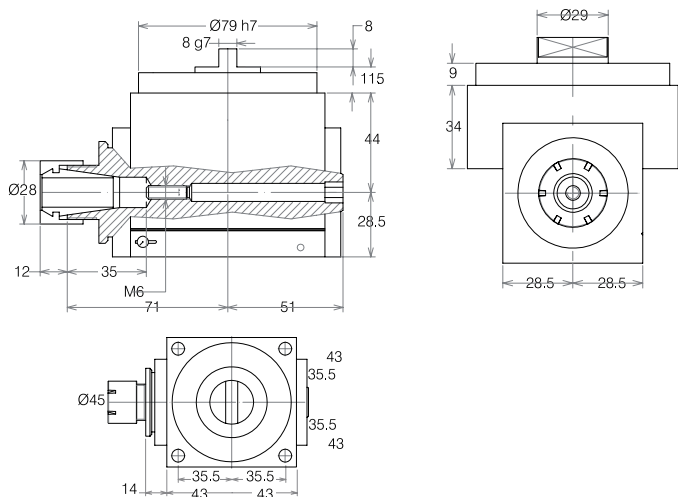
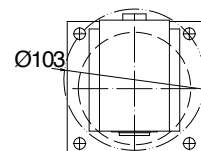
### GA-F16-S

|      |           |        |
|------|-----------|--------|
| ER16 | 6.000 RPM | 3,4 kW |
|------|-----------|--------|

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|

700 N      2 kg      1:1

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø10 |
| Gewinde<br>Tapping | M8  |



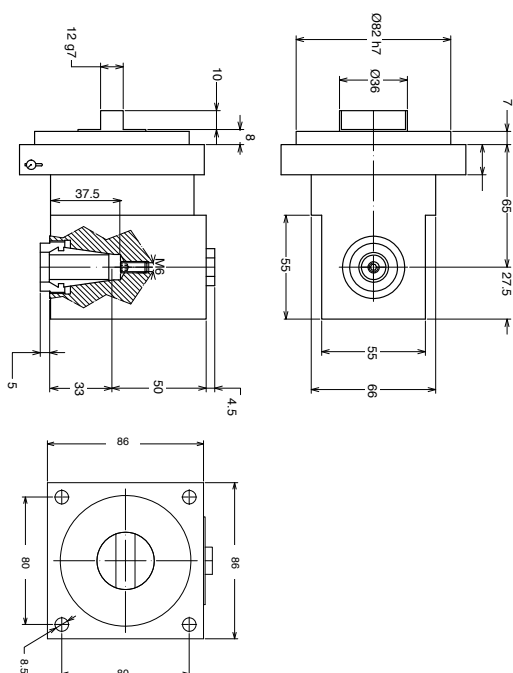
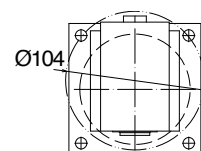
### GA-F20

|      |           |        |
|------|-----------|--------|
| ER20 | 3.000 RPM | 2,5 kW |
|------|-----------|--------|

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|

1400 N      2,4 kg      1:1

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø13 |
| Gewinde<br>Tapping | M10 |



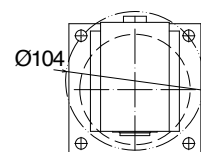
### GA-F20-S

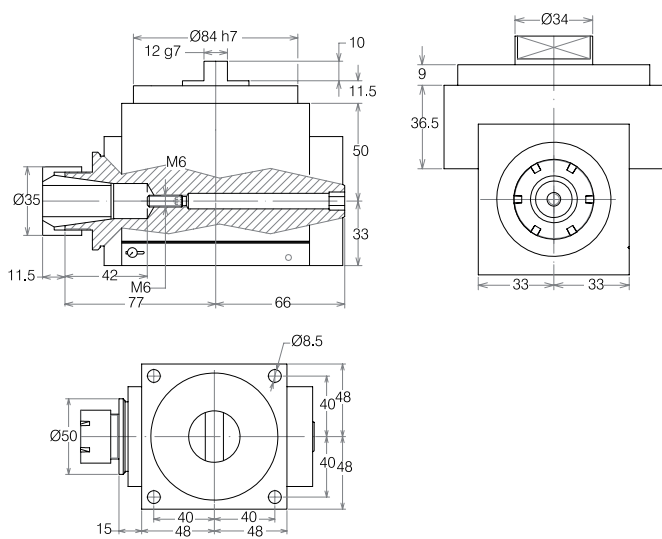
|      |           |        |
|------|-----------|--------|
| ER20 | 6.000 RPM | 3,4 kW |
|------|-----------|--------|

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
|----------------------|-------------------|----------------------|

700 N      2 kg      1:1

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø13 |
| Gewinde<br>Tapping | M10 |



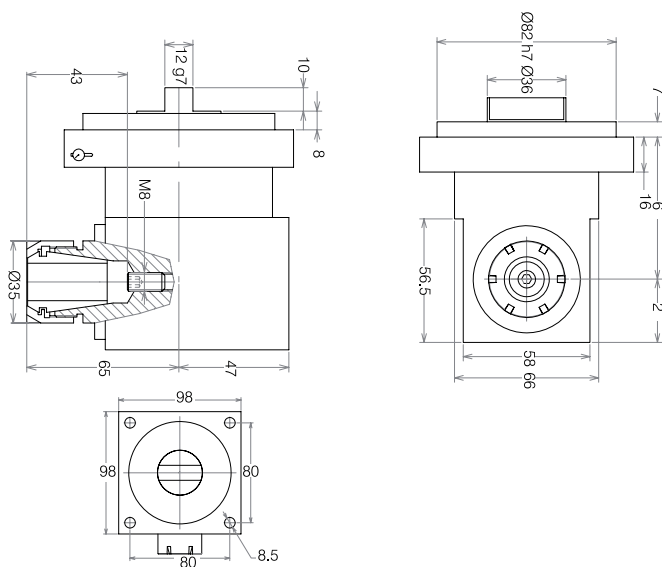


## GA-F25

|      |           |        |
|------|-----------|--------|
| ER25 | 3.000 RPM | 4,2 kW |
|------|-----------|--------|

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
| 1400 N               | 3 kg              | 1:1                  |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø16 |
| Gewinde<br>Tapping | M12 |

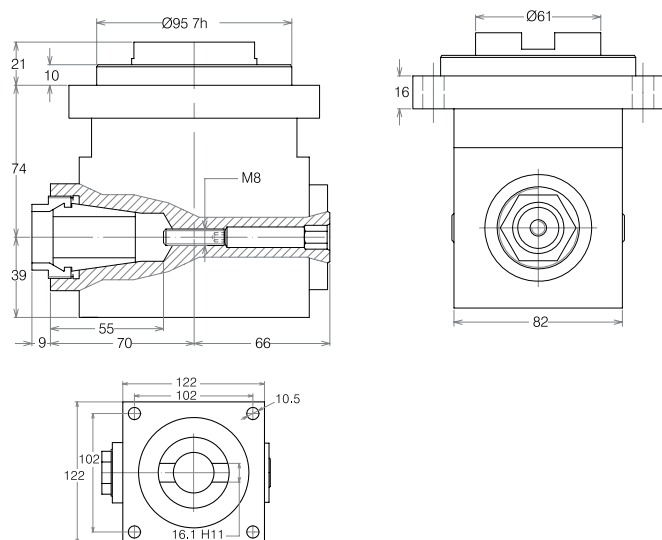
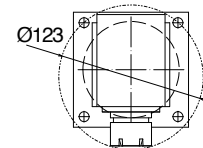


## GA-F25-S

|      |           |        |
|------|-----------|--------|
| ER25 | 6.000 RPM | 3,2 kW |
|------|-----------|--------|

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
| 1000 N               | 2,3 kg            | 1:1                  |

|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø16 |
| Gewinde<br>Tapping | M12 |

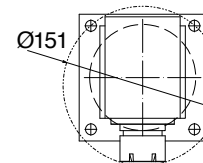


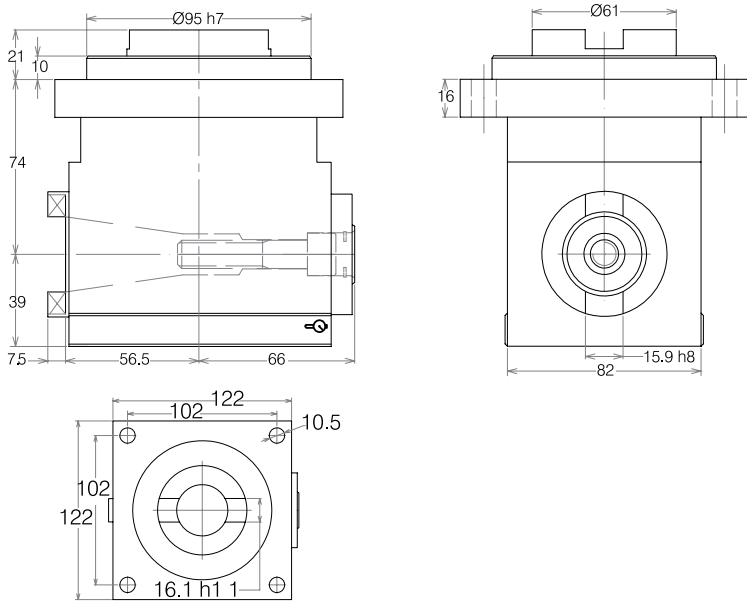
## GA-F32

|      |           |       |
|------|-----------|-------|
| ER32 | 3.000 RPM | 47 Nm |
|------|-----------|-------|

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
| 1500 N               | 7,7 kg            | 1:1                  |

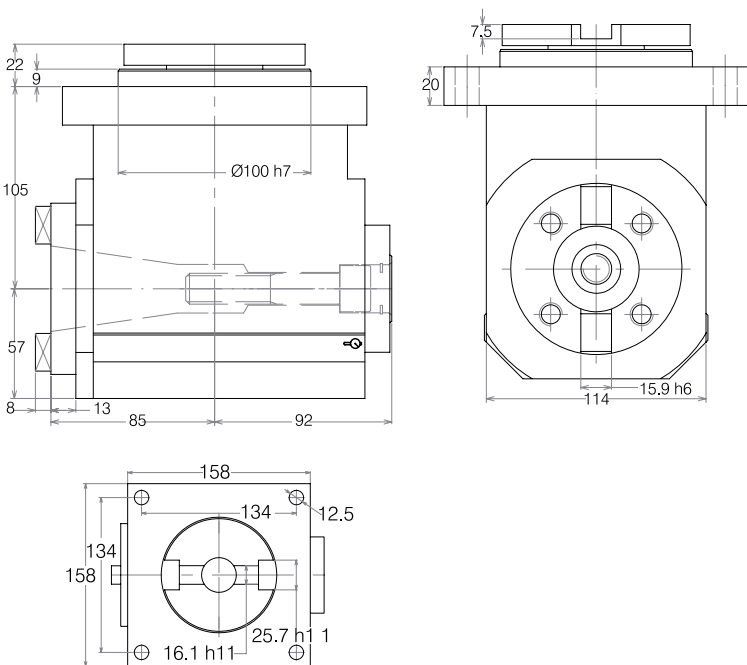
|                    |     |
|--------------------|-----|
| Bohren<br>Drilling | Ø20 |
| Gewinde<br>Tapping | M16 |





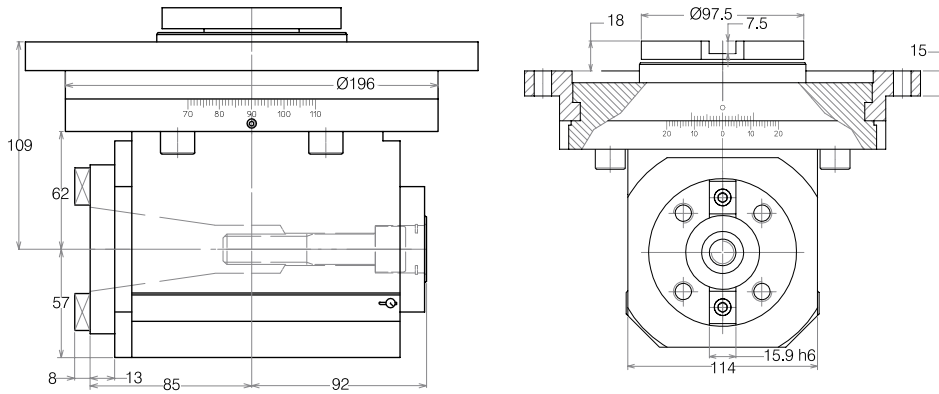
### GA-FX30

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| <b>ISO30</b>         | <b>3.000 RPM</b>  | <b>4 kW</b>          |
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
| 1500 N               | 7,7 kg            | 1:1                  |
| Bohren<br>Drilling   | Ø20               |                      |
| Gewinde<br>Tapping   | M16               |                      |



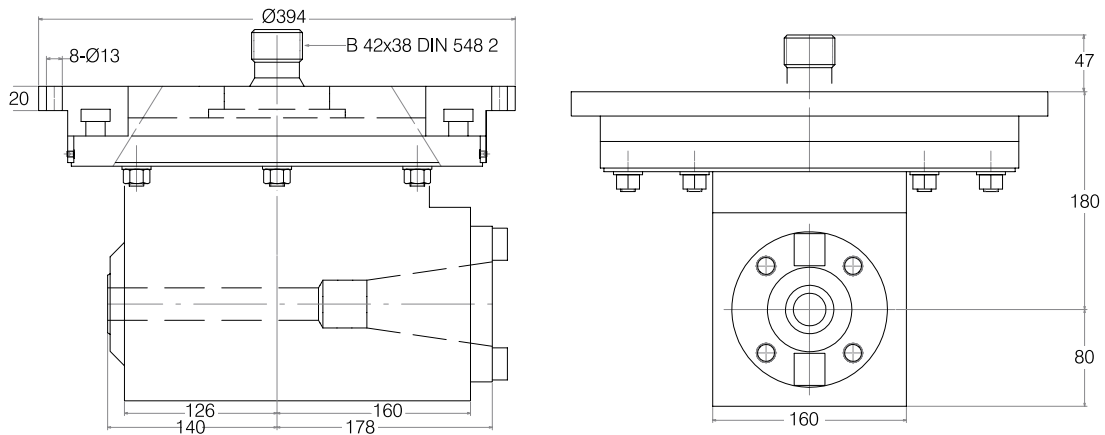
### GA-FX40

|                      |                   |                      |
|----------------------|-------------------|----------------------|
| <b>ISO40</b>         | <b>3.000 RPM</b>  | <b>105 Nm</b>        |
| Schubkraft<br>Thrust | Gewicht<br>Weight | Übersetzung<br>Ratio |
| 5000 N               | 22 kg             | 1,5:1                |
| Bohren<br>Drilling   | Ø26               |                      |
| Gewinde<br>Tapping   | M20               |                      |



### GA-FX40 ROTATE

|                      |                    |                      |
|----------------------|--------------------|----------------------|
| ISO40                | 3.000 RPM          | 105 Nm               |
| Schubkraft<br>Thrust | Gewicht<br>Weight  | Übersetzung<br>Ratio |
| 5000 N               | 26 kg              | 1,5:1                |
| Bohren<br>Drilling   | Gewinde<br>Tapping |                      |
| Ø26                  | M20                |                      |



### GA-FX50

|                    |                      |        |
|--------------------|----------------------|--------|
| ISO50              | 3.000 RPM            | 340 Nm |
| Gewicht<br>Weight  | Übersetzung<br>Ratio |        |
| 40 kg              | 1:1                  |        |
| Bohren<br>Drilling | Gewinde<br>Tapping   |        |
| Ø45                | M36                  |        |



### Features

For drilling, tapping and milling operations  
Used with a flange interface with the spindle for manual loading  
Directly clamp a variety of toolholders such as collet chuck, milling chuck, weldon holder, hydraulic chuck.

Versions:

**GT-FX40:**

SK40, BT40 / HSK63 output spindle

**GT-FX50:**

SK50, BT50 / HSK100 output spindle

### Merkmale

Bohren, Gewindebohren und Fräsen  
Flanschverbindung mit der Spindel;  
manueller Wechsel  
Direkte Spannung von Werkzeughaltern wie Spannzangenfutter, Kraftspannfutter, Weldonaufnahme, Hydrodehnfutter.

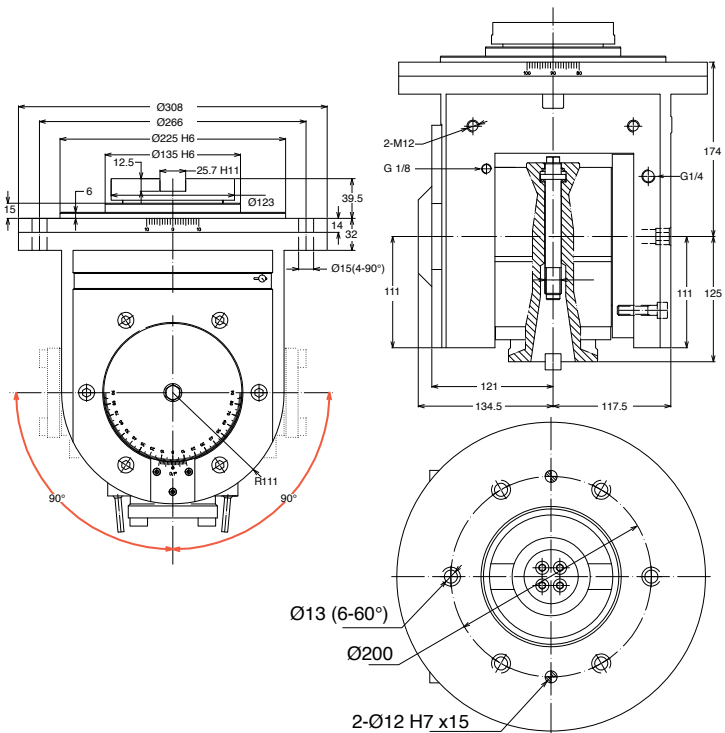
Versionen:

**GT-FX40:**

SK40, BT40 / HSK63 Ausführung

**GT-FX50:**

SK50, BT50 / HSK100 Ausführung



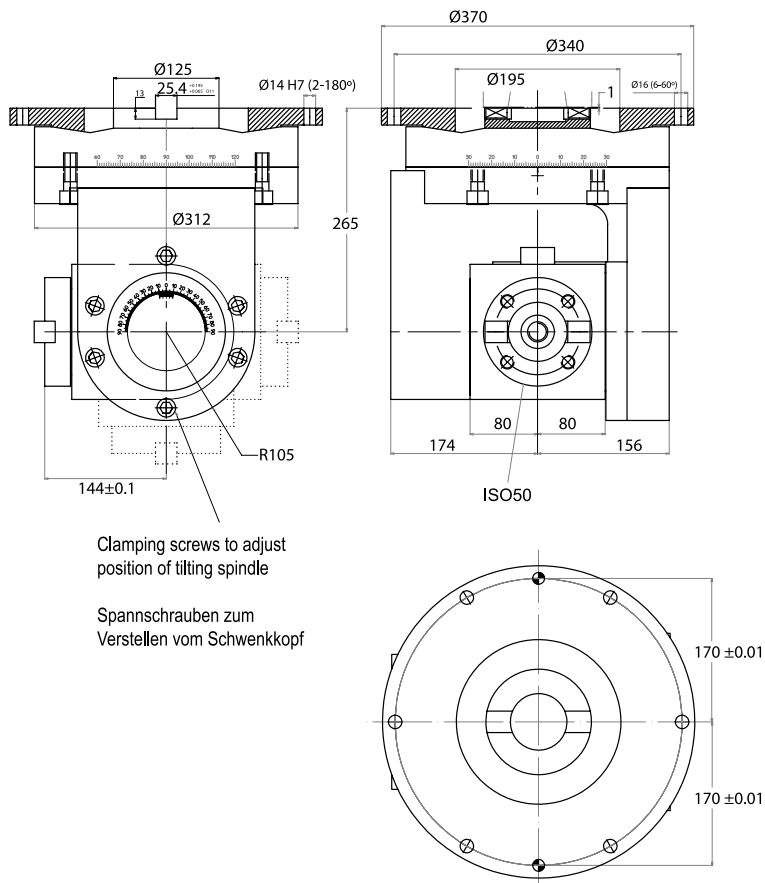
## GT-FX40

ISO40 3.500 RPM 210 Nm

Übersetzung  
Ratio

1:1

|                    |                  |
|--------------------|------------------|
| Bohren<br>Drilling | $\varnothing 32$ |
| Gewinde<br>Tapping | M26              |



## GT-FX50

ISO50 3.000 RPM 260 Nm

Übersetzung  
Ratio

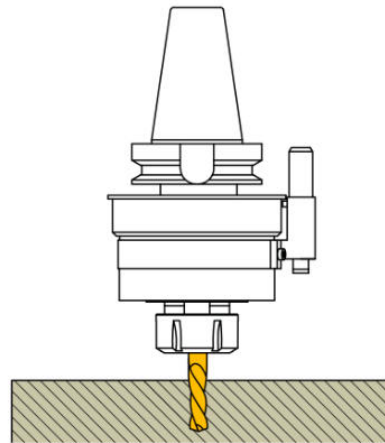
1:1

|                    |                  |
|--------------------|------------------|
| Bohren<br>Drilling | $\varnothing 45$ |
| Gewinde<br>Tapping | M36              |

Clamping screws to adjust  
position of tilting spindle

Spannschrauben zum  
Verstellen vom Schwenkkopf



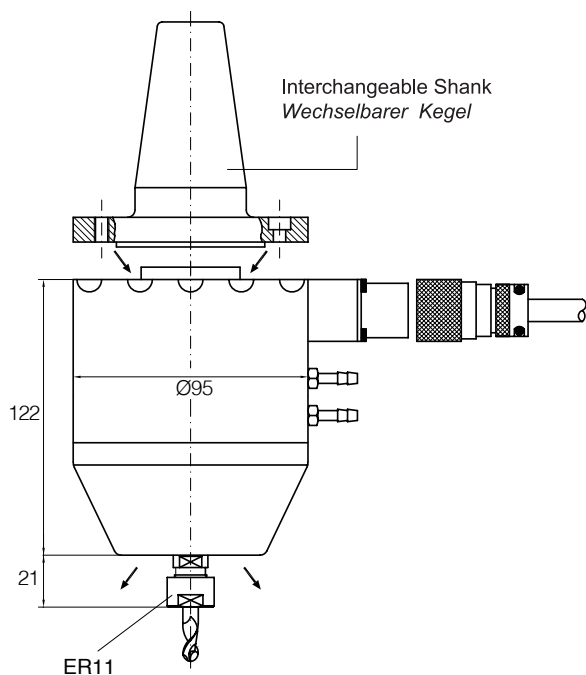


**Features**

For drilling, light milling operations and for finishing on steel, aluminium, plastic and wood  
 Interchangeable shank  
 Usable on both CNC and conventional machine tools  
 Heat-treated steel alloy main housing  
 Coolant feed through stop-bar pin

**Merkmale**

Für Bohrungen, leichte Fräsbearbeitungen und Schlichten von Stahl, Aluminium, Kunststoff und Holz  
 Wechselbarer Kegelschaft verwendbar mit CNC- und Universalwerkzeugmaschinen  
 Hauptkörper aus wärmebehandelter Stahllegierung  
 Kühlmittelzufuhr durch Anschlagstift



**SE-11 electric / elektro**

Max. 44.000 RPM      Cont. / Dauernd

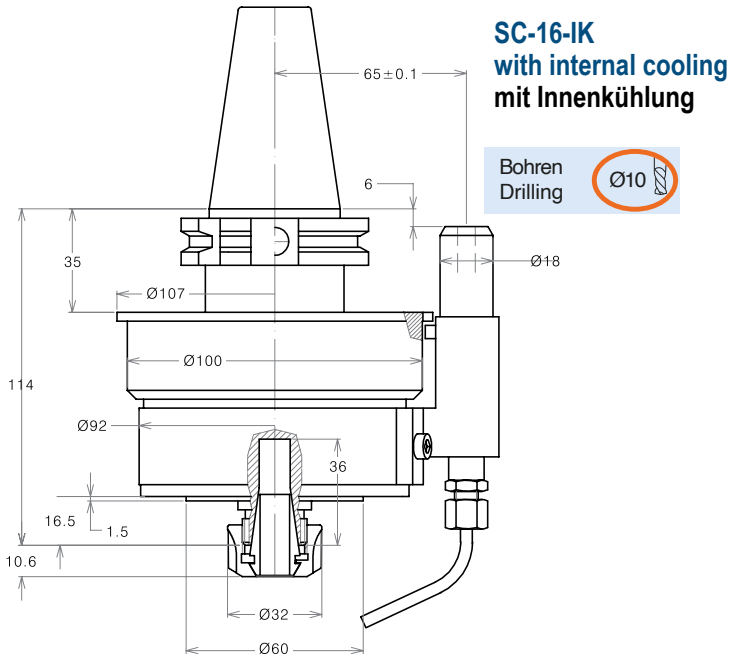
Max. 60.000 RPM      Cont. / Dauernd

SK40 / BT40 / CAT40 / HSK63

SK50 / BT50 / CAT50 / HSK100

**ER11      3,5 Kg**

| RPM | 44.000 | 60.000 |
|-----|--------|--------|
| Hz  | 750    | 1.000  |
| KW  | 1      | 1,6    |
| Nm  | 0,2    | 0,2    |



**SC-16 ceramic/ keramisch**

Max. 30.000 RPM

Max. 24.000 RPM

Cont. / Dauernd

**S-16**

Max. 24.000 RPM

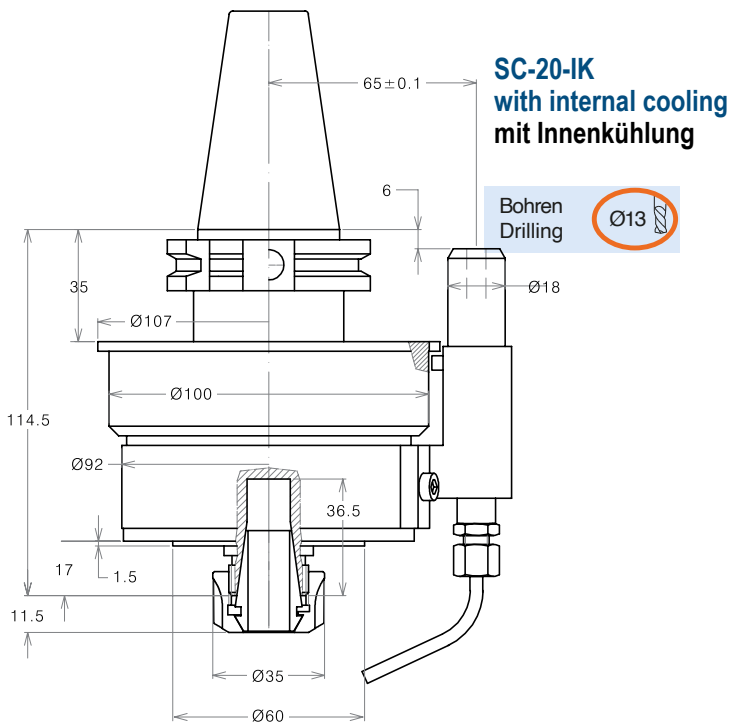
Max. 19.200 RPM

Cont. / Dauernd

SK40 / BT40 / CAT40 / HSK63

SK50 / BT50 / CAT50 / HSK100 \*

|                   |                    |                   |
|-------------------|--------------------|-------------------|
| <b>ER16</b>       | <b>1,7 Kw</b>      |                   |
| Schubkraft Thrust | Gewicht Weight     | Übersetzung Ratio |
| 380 N             | 3,8 kg<br>* 6,2 kg | 1:4,8             |



**SC-20 ceramic/ keramisch**

Max. 24.000 RPM

Max. 19.200 RPM

Cont. / Dauernd

**S-20**

Max. 19.000 RPM

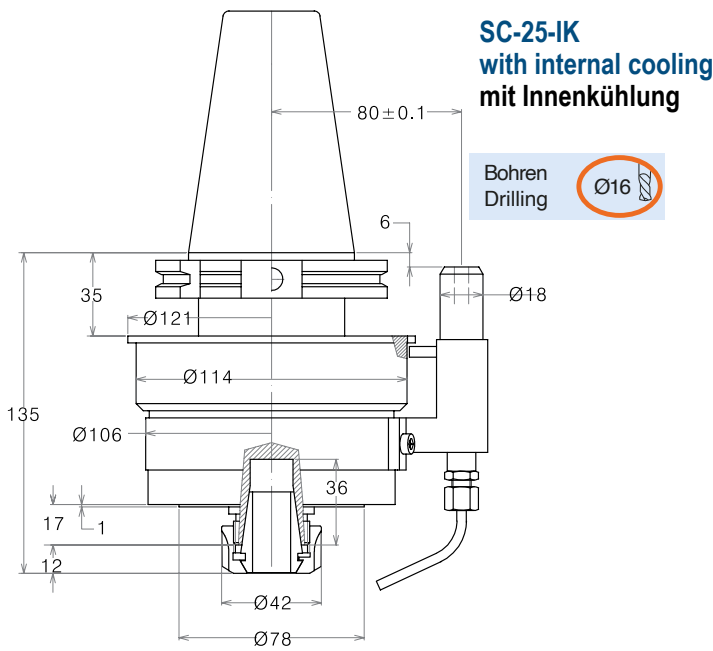
Max. 15.360 RPM

Cont. / Dauernd

SK40 / BT40 / CAT40 / HSK63

SK50 / BT50 / CAT50 / HSK100 \*

|                   |                 |                   |
|-------------------|-----------------|-------------------|
| <b>ER20</b>       | <b>1,7 Kw</b>   |                   |
| Schubkraft Thrust | Gewicht Weight  | Übersetzung Ratio |
| 610 N             | 4kg<br>* 6,4 kg | 1:4,8             |



**SC-25 ceramic/ keramisch**

Max. 18.000 RPM

Max. 15.000 RPM

Cont. / Dauernd

**S-25**

Max. 15.000 RPM

Max. 12.000 RPM

Cont. / Dauernd

SK50 / BT50 / CAT50 / HSK100

ER25

3,6 Kw

Schubkraft  
Thrust

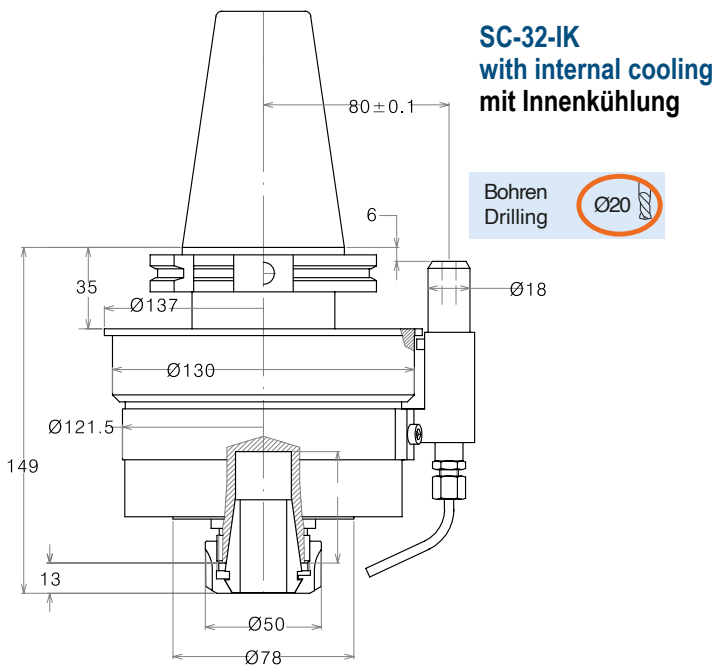
Gewicht  
Weight

Übersetzung  
Ratio

630 N

8 kg

1:4,8



**SC-32 ceramic/ keramisch**

Max. 12.000 RPM

Cont. / Dauernd

**S-32**

Max. 9.600 RPM

Cont. / Dauernd

SK50 / BT50 / CAT50 / HSK100

ER32

4,4 Kw

Schubkraft  
Thrust

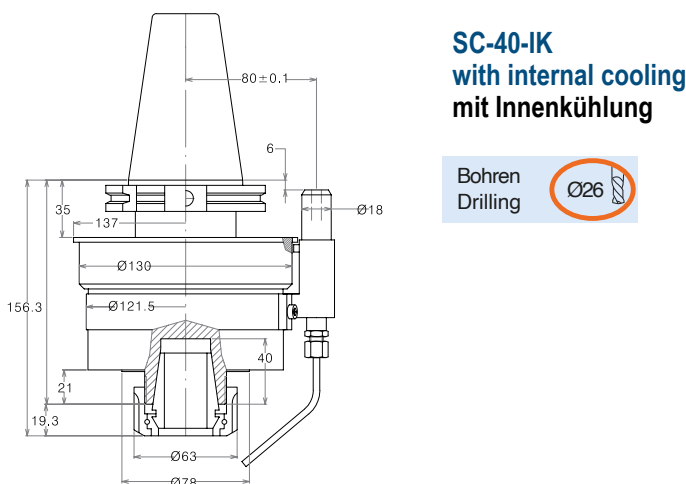
Gewicht  
Weight

Übersetzung  
Ratio

900 N

8 kg

1:4,8



**S-40**

SK50 / BT50 / CAT50 / HSK100

ER40

9,600 RPM

4,4 Kw

Schubkraft  
Thrust

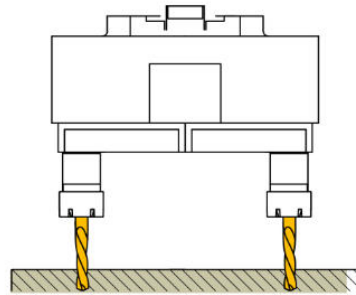
Gewicht  
Weight

Übersetzung  
Ratio

1100 N

9,6 kg

1:4,8

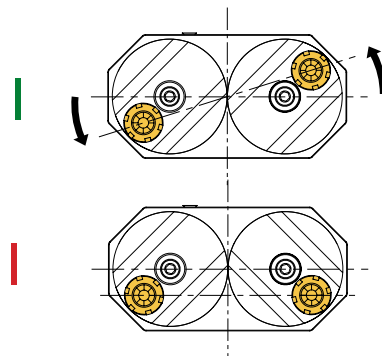
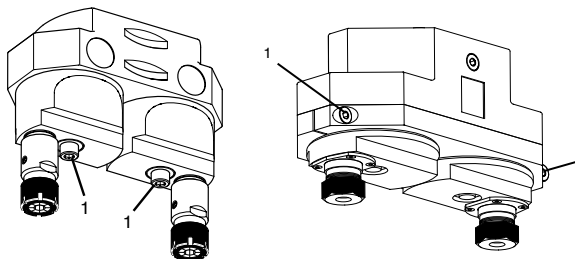


Features

Drilling, tapping and countersinking  
 Usable on conventional machines and drill presses by using a connection kit  
 Heat-treated aluminium alloy main housing  
 Compact and lightweight construction

Merkmale

Bohren, Gewindebohren und Senken  
 Verwendbar mit  
 Universalwerkzeugmaschinen und  
 Standbohrern  
 Hauptgehäuse aus wärmebehandelter  
 Aluminiumlegierung  
 Kompakt und leicht

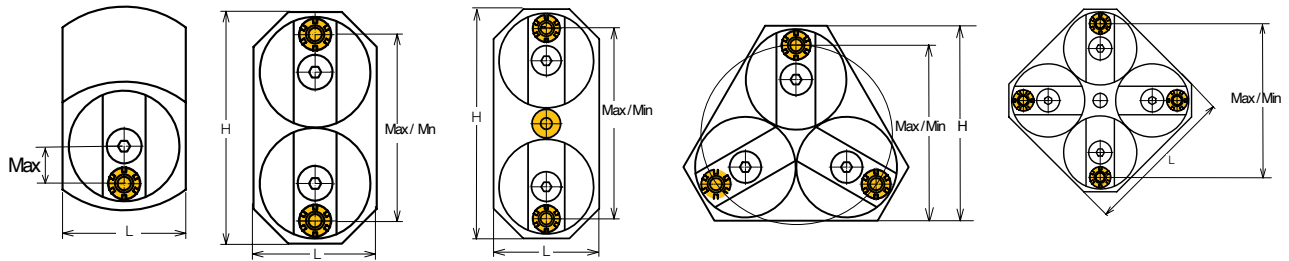


How to Use

To set up the centre distance between the spindles, unscrew screw 1 of each spindle unit and rotate them in the same direction, until the required distance is obtained.  
 In order to balance the forces during machining operation, position the spindles as shown in the figure.  
 At the end of this operation fasten screw 1 of each spindle unit using a torque wrench.

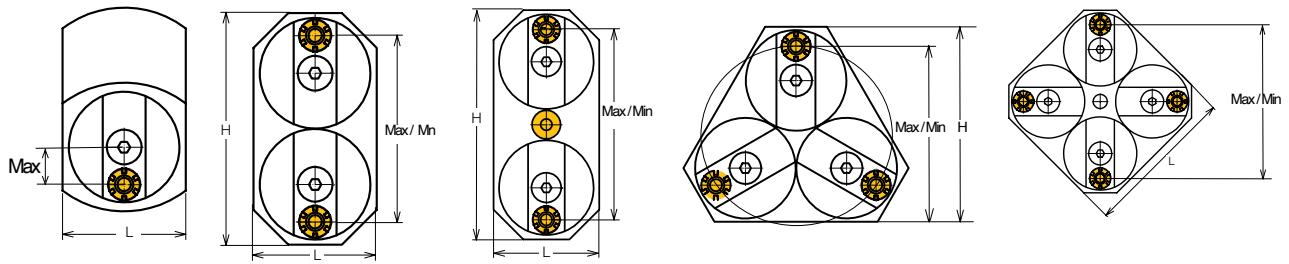
Einsatz

Um den passenden Abstand zwischen den Spindeln einzustellen, lockern Sie die Schraube 1 von jeder Spindeleinheit und drehen Sie diese in dieselbe Richtung, bis der gewünschte Abstand erreicht ist.  
 Um während der Verarbeitungsprozesse die Kraft auszugleichen, stellen Sie die Spindeln ein, wie auf dem Bild.  
 Anschließend klemmen Sie Schraube 1 jeder Spindel mittels Drehmomentschlüssels.



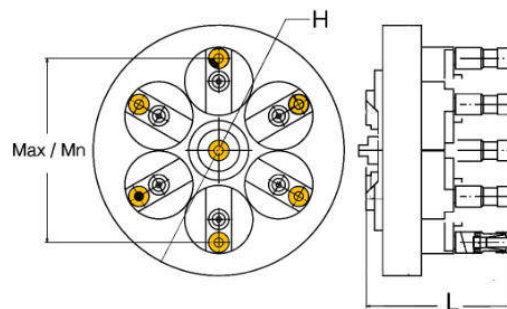
| Code     | ER   | Min    | Max    | H     | L     | RPM  | Kw   | N    | Ratio | kg  |
|----------|------|--------|--------|-------|-------|------|------|------|-------|-----|
| MS8-1    | ER8  | 0      | 28     | -     | 46    | 3500 | 0,18 | 195  | 1:1   | 0,5 |
| MS8-2    | ER8  | 13,5   | 69,5   | 87    | 46    |      |      |      |       | 0,9 |
| MS8-3L   | ER8  | 27     | 83     | 100   | 46    |      |      |      |       | 1   |
| MS8-3    | ER8  | 19,9   | 75,9   | 80    | -     |      |      |      |       | 1,3 |
| MS8-4    | ER8  | 30,7   | 86,7   | 85    | -     | 1750 |      |      | 1:2   | 1,8 |
| MS11-1   | ER11 | 0      | 56     | -     | 80    | 3000 | 0,34 | 490  | 1:1   | 1,8 |
| MS11-2   | ER11 | 18     | 130    | 154   | 80    |      |      |      |       | 2,4 |
| MS11-3L  | ER11 | 36     | 148    | 173   | 80    |      |      |      |       | 2,8 |
| MS11-3   | ER11 | 29,5   | 141,5  | 144,5 | -     |      |      |      |       | 3,5 |
| MS11-4   | ER11 | 49     | 161    | 154   | 0     |      |      |      | 1:2   | 4,6 |
| MS16-1   | ER16 | 0      | 50     | -     | 80    | 3000 | 0,56 | 735  | 1:1   | 3,3 |
| MS16-2   | ER16 | 24     | 124    | 154   | 80    |      |      |      |       | 3,3 |
| MS16-2W  | ER16 | 106,25 | 206,25 | 264   | 108   |      |      |      |       | 6   |
| MS16-3L  | ER16 | 48,5   | 148,5  | 178,5 | 80    |      |      |      |       | 3,6 |
| MS16-3   | ER16 | 35,5   | 135,5  | 144,5 | -     |      |      |      |       | 4,9 |
| MS16-4   | ER16 | 55     | 155    | 185   | -     |      |      |      |       | 6,6 |
| MS-16-4W | ER16 | 139    | 239    | 306,9 | 162,5 |      |      |      |       | -   |
| MS20-1   | ER20 | 0      | 53     | -     | 88    | 3000 | 1,5  | 1500 | 1:1   | 2,5 |
| MS20-2   | ER20 | 29     | 135    | 170   | 88    |      |      |      |       | 3,6 |
| MS20-3L  | ER20 | 63     | 169    | 204   | 88    |      |      |      |       | 4,9 |
| MS20-3   | ER20 | 42     | 148    | 159,5 | -     |      |      |      |       | 5,5 |
| MS20-4   | ER20 | 63     | 169    | 170   | -     | 7,5  |      |      |       |     |
| MS25-1   | ER25 | 0      | 64     | -     | 124   | 2500 | 1,1  | 1135 | 1:1   | 4,4 |
| MS25-2   | ER25 | 37     | 165    | 212   | 111   |      |      |      |       | 6,3 |
| MS25-3L  | ER25 | 79     | 207    | 254   | 111   |      |      |      |       | 7,7 |
| MS25-3   | ER25 | 53     | 181    | 199   | -     |      |      |      |       | 9,2 |
| MS25-4   | ER25 | 79     | 207    | 212   | -     | 12,2 |      |      |       |     |

- MS: Drilling, tapping / Bohren, Gewindebohren
- MS-W: Drilling, tapping at a wider distance / Bohren, Gewindebohren mit hohem Abstand



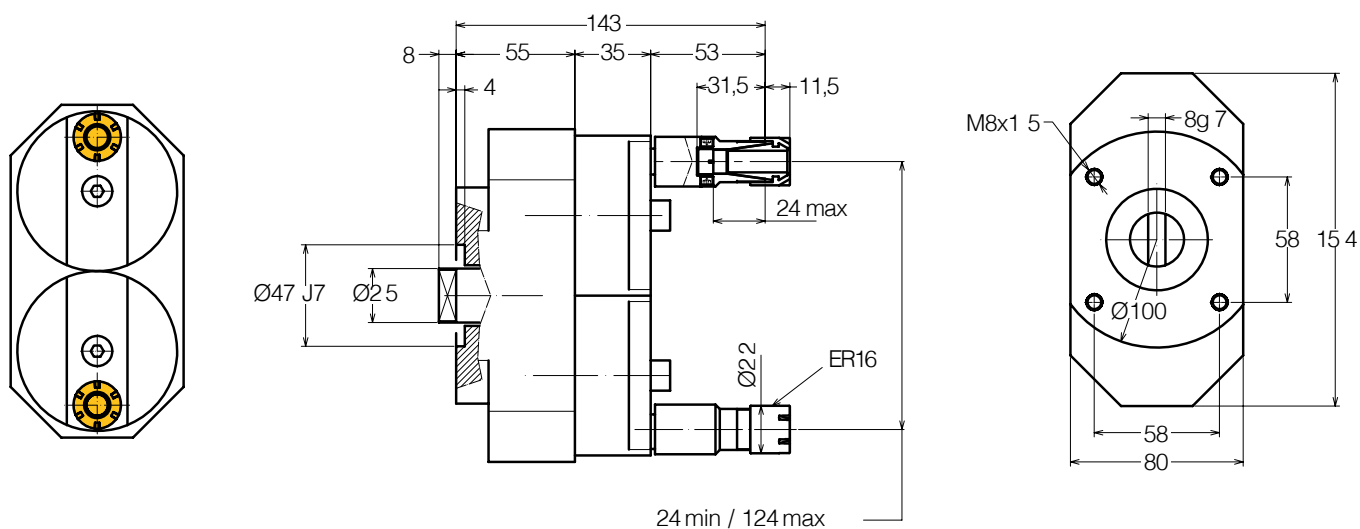
| Code   | ER   | Min  | Max   | H   | L   | RPM  | Kw  | N    | Ratio | kg   |
|--------|------|------|-------|-----|-----|------|-----|------|-------|------|
| MF20-2 | ER20 | 37,5 | 169,5 | 236 | 124 | 2000 | 2   | 1000 | 1:1   | 9,5  |
| MF25-2 | ER25 | 45   | 201   | 278 | 140 | 2000 | 2,5 | 1500 | 1:1   | 13,7 |

MF: Milling, drilling, tapping / Fräsen, Bohren, Gewindebohren

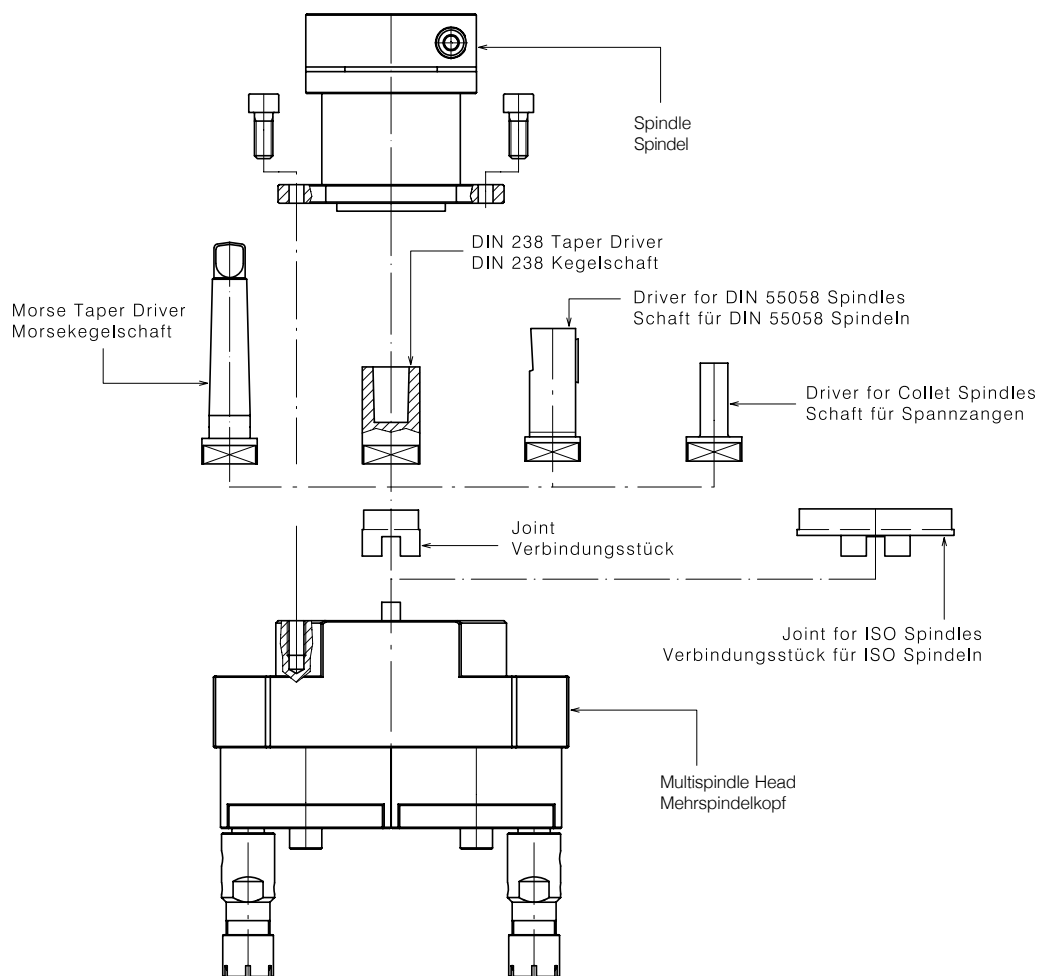


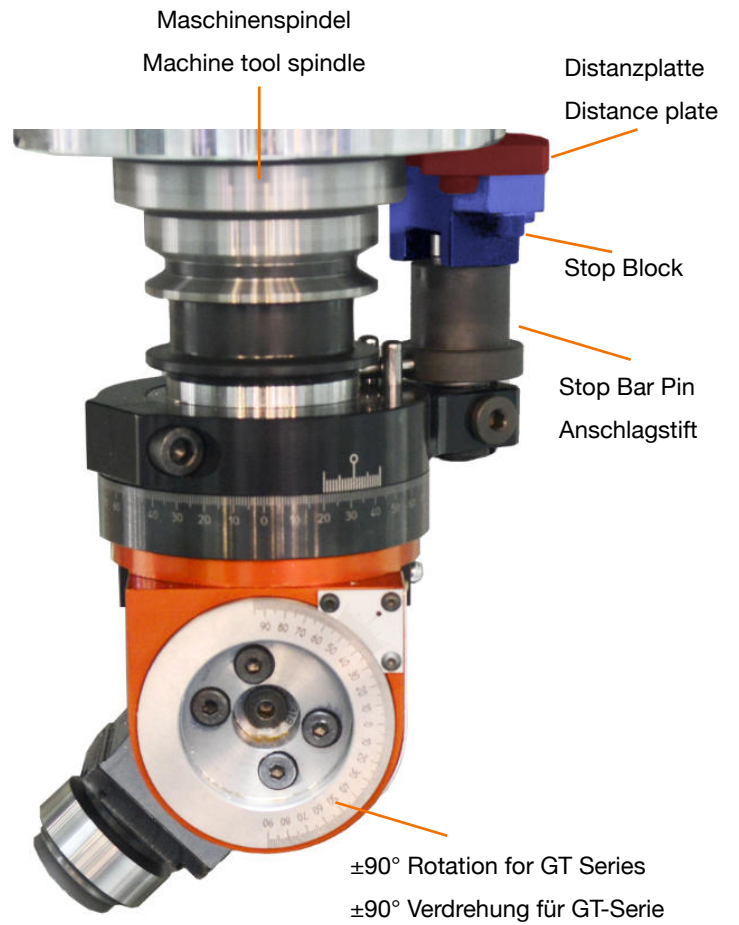
| Code   | ER   | Min | Max | H   | L     | RPM  | Kw   | N   | Ratio | kg |
|--------|------|-----|-----|-----|-------|------|------|-----|-------|----|
| MS8-7  | ER8  | 56  | 112 | 148 | 104,1 | 3500 | 0,18 | 195 | 1:1   | -  |
| MS11-7 | ER11 | 94  | 206 | 272 | 150,5 | 3000 | 0,34 | 490 | 1:1   | -  |
| MS16-7 | ER16 | 100 | 200 | 272 | 167,5 | 3000 | 0,56 | 753 | 1:1   | -  |

MS: Drilling, tapping / Bohren, Gewindebohren



## How to Connect to a Machine Maschinenverbindung





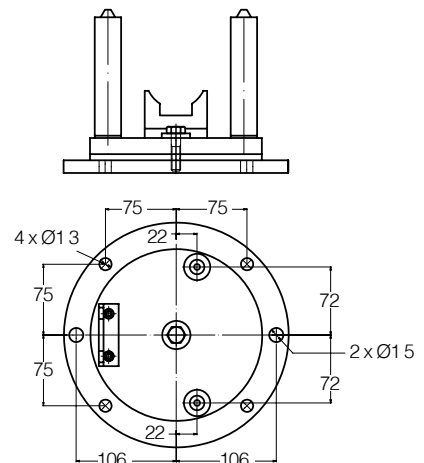
Conical Stop Bar Pin  
 Konischer Anschlagstift



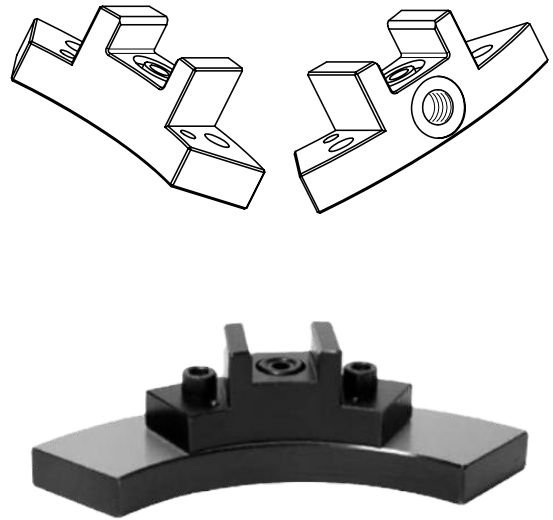
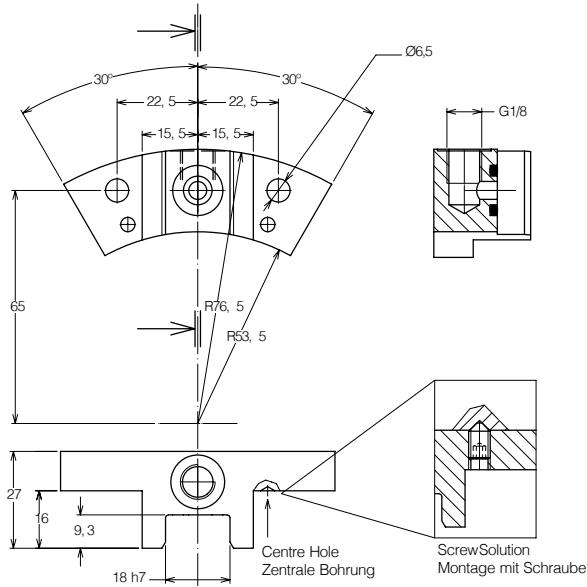
HSK63 Output  
 HSK63 Abtrieb

Pick-up Station for GA-X  
 Aufnahmevorrichtung für GA-X

Pick-up Station for GA-X  
 Aufnahmevorrichtung für GA-X







**Angle heads are supplied optionally with a standard stop block or a custom-made stop block to be installed on the spindle nose:**

Check H Dimension

Using the formula  $H - A = P$  calculate plate height (P)

- if  $P < 5$  make the height of supplied plate smaller

- if  $P > 5$  produce and use a thicker plate

Mount the stop block and the plate if necessary to the spindle nose on the opposite side of the ATC arm

**Winkelköpfe werden optional mit einem Standard-Stop-Block oder einem maßgefertigten Stop-Block geliefert, der an die Spindelnase montiert wird:**

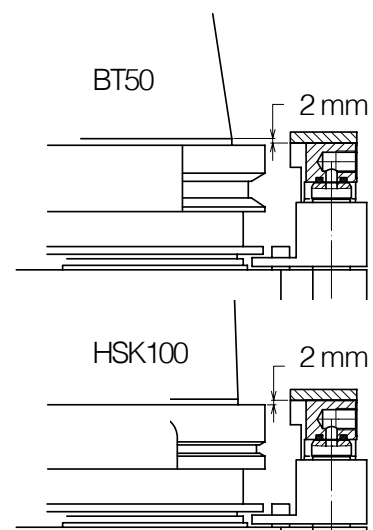
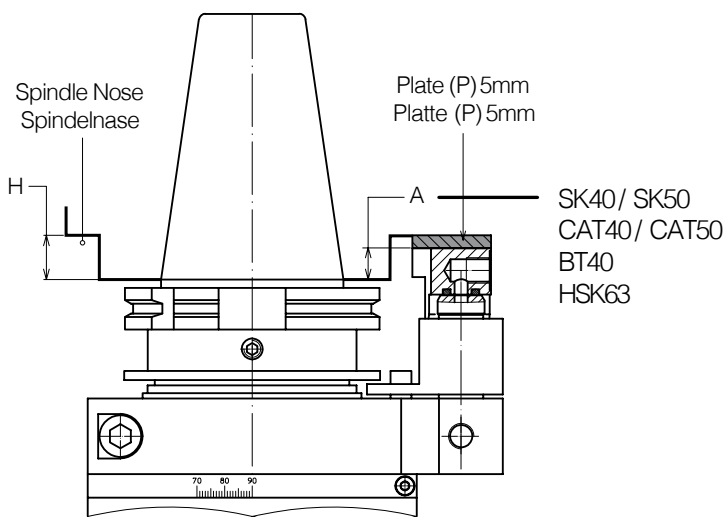
Maß H kalkulieren

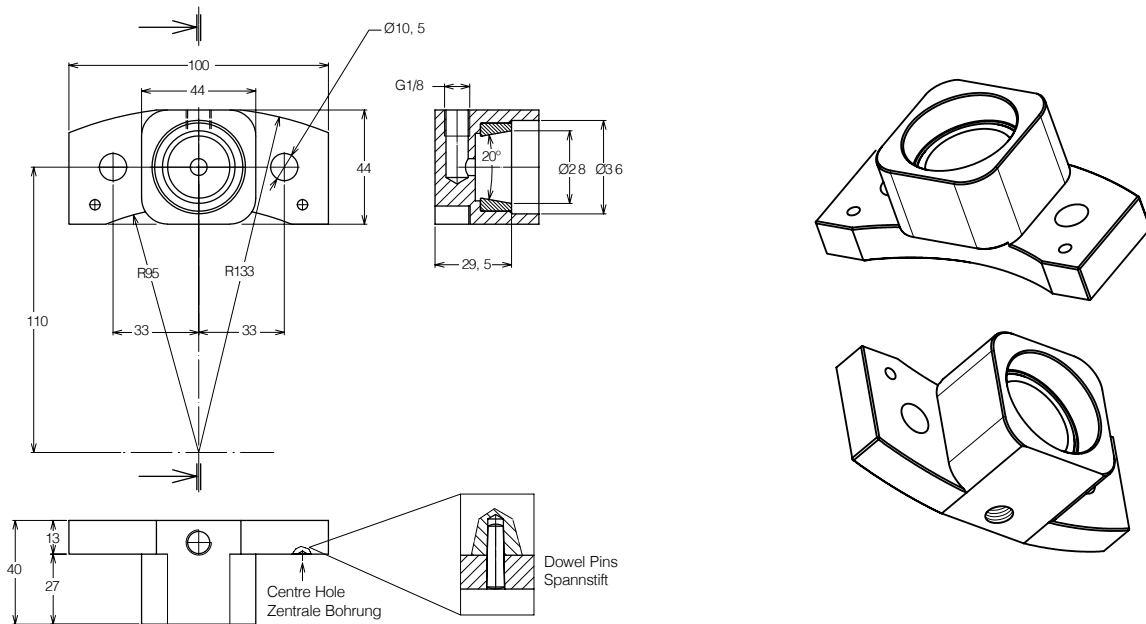
Mit der Formel  $H - A = P$  Plattenhöhe (P) ausrechnen

- wenn  $P < 5$ , gelieferte Platte dementsprechend abschleifen

- wenn  $P > 5$ , eine höhere Platte fertigen und einsetzen

Stop-Block und wenn nötig die Platte an die Spindelnase gegenüber automatischen Werkzeugwechslers montieren





**Angle heads are supplied optionally with a standard stop block or a custom-made stop block to be installed on the spindle nose:**

Check H Dimension

Using the formula  $H - A = P$  calculate plate height (P)

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Mount the stop block and the plate if necessary to the spindle nose on the opposite side of the ATC arm

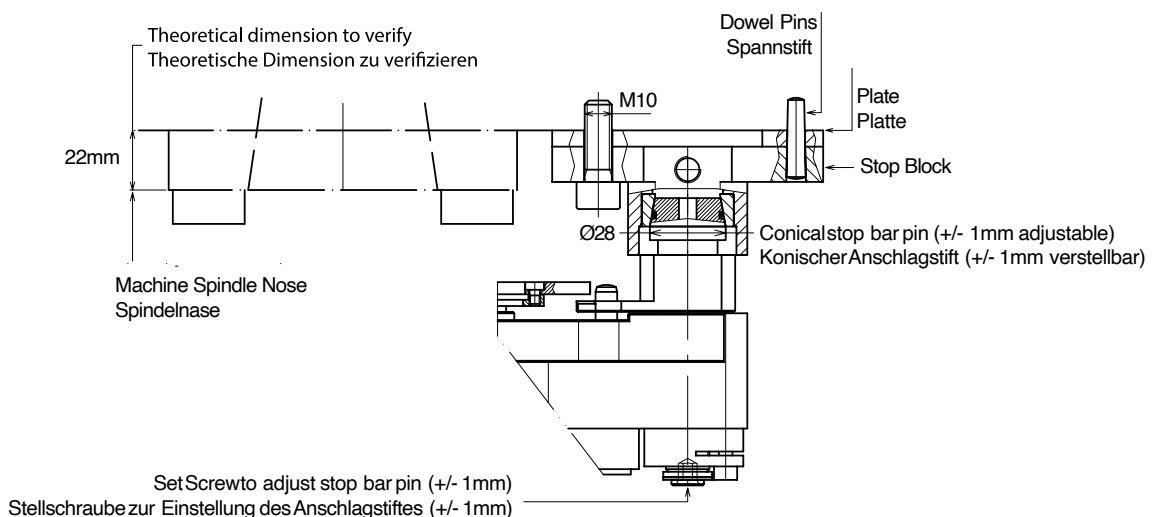
**Winkelköpfe werden optional mit einem Standard-Stop-Block oder einem maßgefertigten Stop-Block geliefert, der an die Spindelnase montiert wird:**

Maß H kalkulieren

Mit der Formel  $H - A = P$  Plattenhöhe (P) ausrechnen

- wenn  $P < 5$ , gelieferte Platte dementsprechend abschleifen
- wenn  $P > 5$ , eine höhere Platte fertigen und einsetzen

Stop-Block und wenn nötig die Platte an die Spindelnase gegenüber automatischen Werkzeugwechslers montieren





**Gisstec GmbH**

Ackerstr. 20  
40233 Düsseldorf  
Germany

+49 211 2486 3666

[info@gisstec.com](mailto:info@gisstec.com)

[www.gisstec.com](http://www.gisstec.com)

[shop.gisstec.com](http://shop.gisstec.com)