



ANGLE HEADS  
WINKELKÖPFE  
AÇILI KAFALAR



MULTISPINDLE HEADS  
MEHRSPINDELKÖPFE  
ÇOK MİLLİ KAFALAR



SPINDLE SPEEDERS  
SCHNELLHAUFSPINDEL  
HIZ KAFALARI

2015

TECHNOLOGY IN MOTION

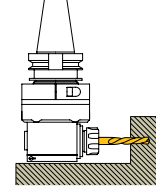




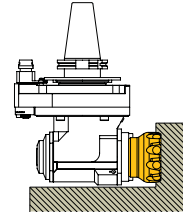


# CONTENTS INHALT İÇİNDEKİLER

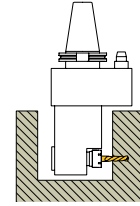
**GA** 90° Angle Head 5  
90° -Winkelkopf  
90° Açılı Kafa



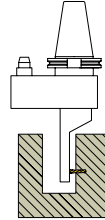
**GA-X** 90° Angle Head with ISO30/40 Output 8  
90° -Winkelkopf mit ISO30/40 -Abtriebsspindel  
90° Açılı Kafa ISO30/40 Çıkışlı



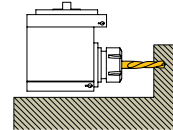
**GA-L** 90° Angle Head Extended 9  
90° -Winkelkopf Verlängert  
90° Açılı Kafa Uzatmalı



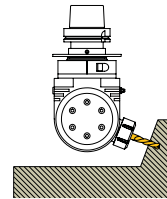
**GS** 90° Slim Angle Head 10  
90° -Winkelkopf, schmale Bauform  
90° İnce Açılı Kafa



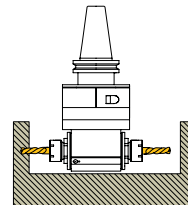
**GA-F** 90° Angle Head with Flange Connection 12  
90° -Winkelkopf mit Flanschverbindung  
90° Flanş Bağlantılı Açılı Kafa



**GT** Tilting Head 15  
Schwenkkopf  
Ayarlanabilir Açılı Kafa



**GD** 90° Double Output Angle Head 20  
90° Doppel-Winkelkopf  
90° Çift Çıkışlı Açılı Kafa

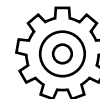
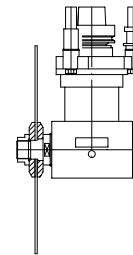
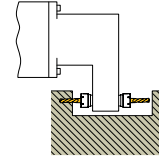
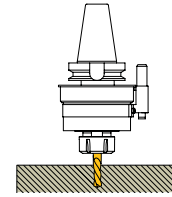
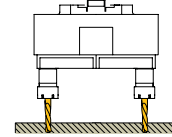
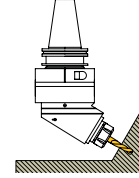


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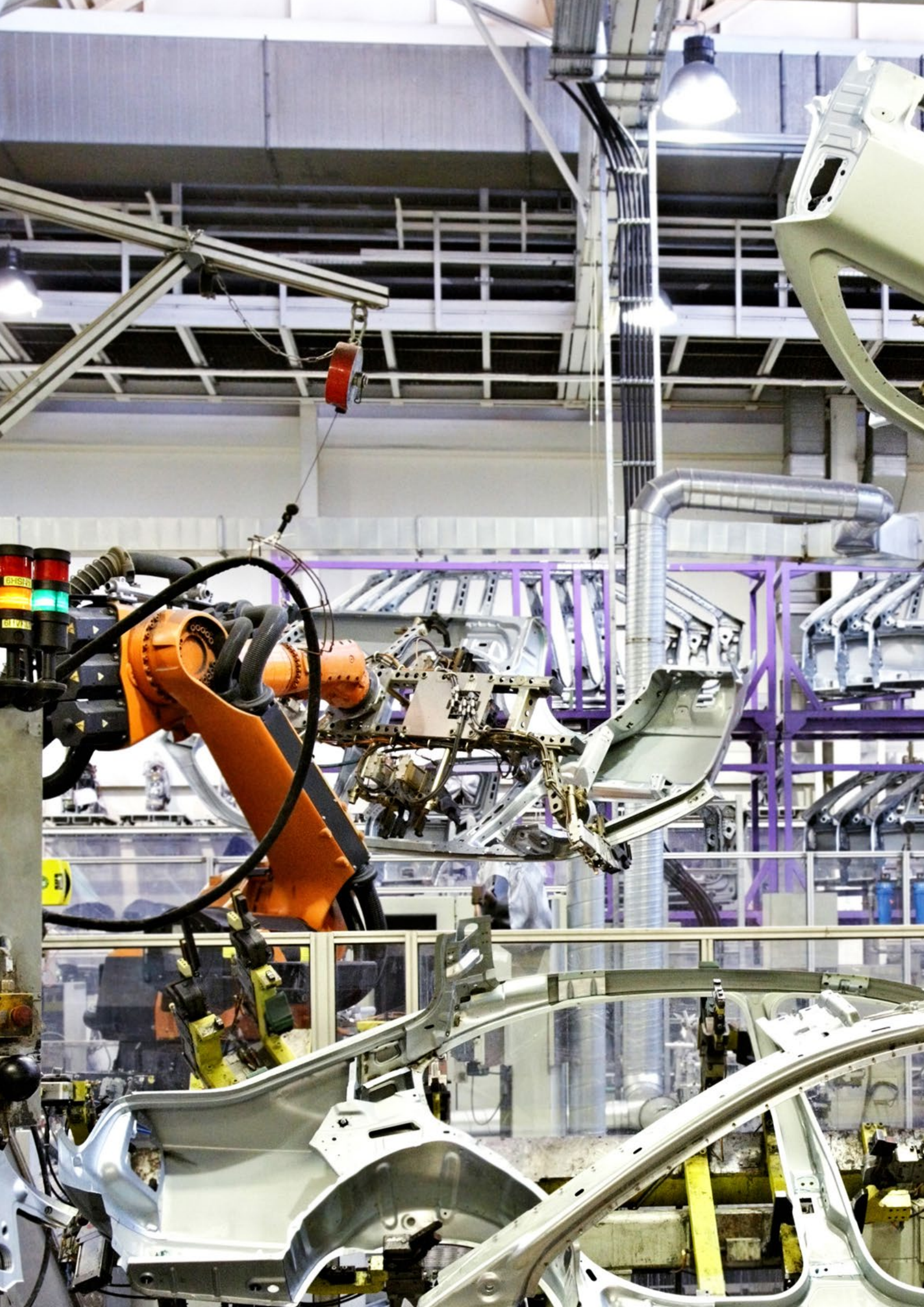
## INHALT

## İÇİNDEKİLER

|                                                                                     |                                                                                                                                       |           |  |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-----------|--|
| <b>GM</b>                                                                           | <b>Modular Angle Head with Fixed Angle</b><br><b>Modularer Winkelkopf mit festem Winkel</b><br><b>Modüler Sistem Sabit Açılı Kafa</b> | <b>22</b> |  |
| <b>MS</b>                                                                           | <b>Multiple Adjustable Head</b><br><b>Verstellbarer Mehrspindelkopf</b><br><b>Ayarlanabilir Çok Millî Kafa</b>                        | <b>24</b> |  |
| <b>SC</b>                                                                           | <b>Spindle Speeder</b><br><b>Schnelllaufspindel</b><br><b>Hız Kafası</b>                                                              | <b>27</b> |  |
| <b>Z</b>                                                                            | <b>Special Solutions</b><br><b>Sonderlösungen</b><br><b>Özel Kafalar</b>                                                              | <b>30</b> |  |
| <b>A</b>                                                                            | <b>Aggregates</b><br><b>Wechselaggregate</b><br><b>Ağaç İşleme için Açılı Kafalar</b>                                                 | <b>34</b> |  |
|  | <b>Technical Information</b><br><b>Technische Informationen</b><br><b>Teknik Bilgiler</b>                                             | <b>37</b> |  |











GA



GA-X



GA-L

## Features

For drilling, tapping and light 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

Für Bohrungen, Gewindebohren und leichte Fräsbearbeitungen

Verwendbar mit CNC- und herkömmlichen Werkzeugmaschinen

Hauptkörper aus wärmebehandelter Aluminium- oder Stahllegierung

Kompakte und rigide Bauform

Kühlmittelzufuhr durch Anschlagstift

Skalenring und Anschlagstift können um 360° rotiert werden

## Özellikler

Delik delme, kılavuz çekme ve frezeleme operasyonları için

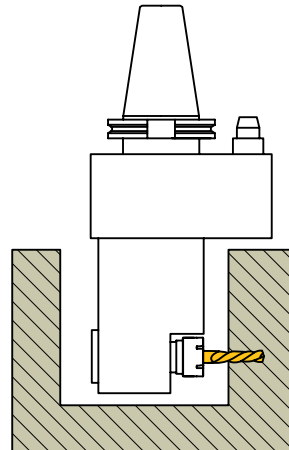
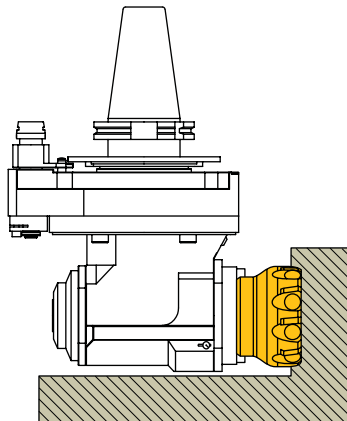
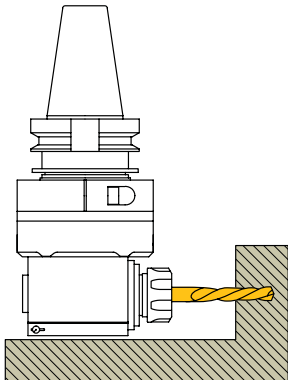
Üniversal ve CNC tezgahlarda kullanılabilir

Isıl işlem görmüş alüminyum veya çelik alaşımlı gövde

Kompakt ve rijit gövde

İndeks kolundan su vermeli

İndeks kolu ve skala 360° fener mili ekseninde ayarlanabilir



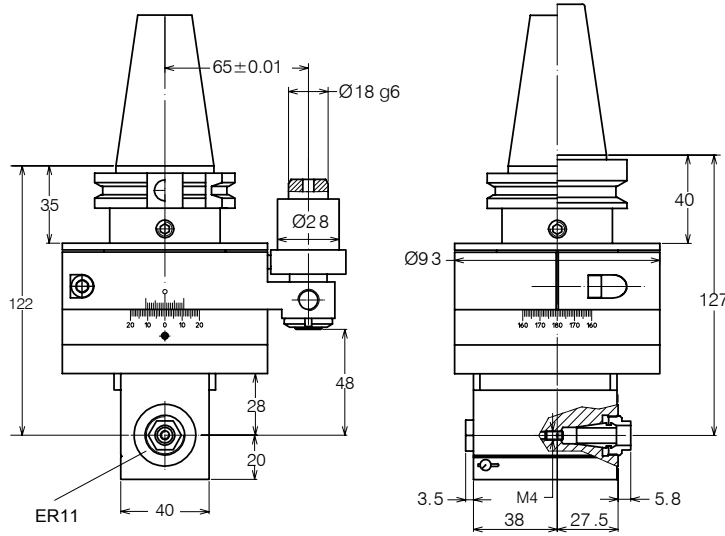
90° Angle Head - GA Series

GA



90°-Winkelkopf - GA-Serie

90° Açılı Kafa - GA Serisi



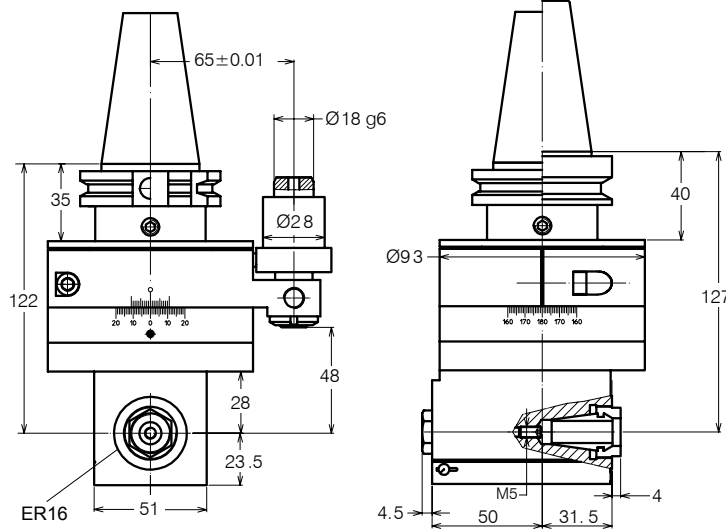
**GA-11**

SK40 / BT40 / CAT40 / HSK63

ER11  
8.000 RPM

1,9 KW Power / Kraft / Güç  
330 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
3,5 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
10 Nm @ 1.000 RPM  
5 Nm @ 4.000 RPM  
4 Nm @ 6.000 RPM



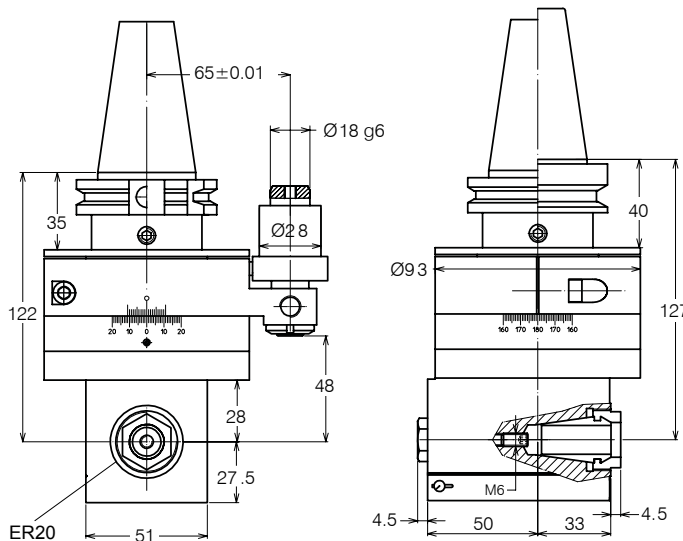
**GA-16**

SK40 / BT40 / CAT40 / HSK63

ER16  
7.000 RPM

3,4 KW Power / Kraft / Güç  
450 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
4 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
27 Nm @ 500 RPM  
16 Nm @ 2.000 RPM  
11 Nm @ 4.000 RPM



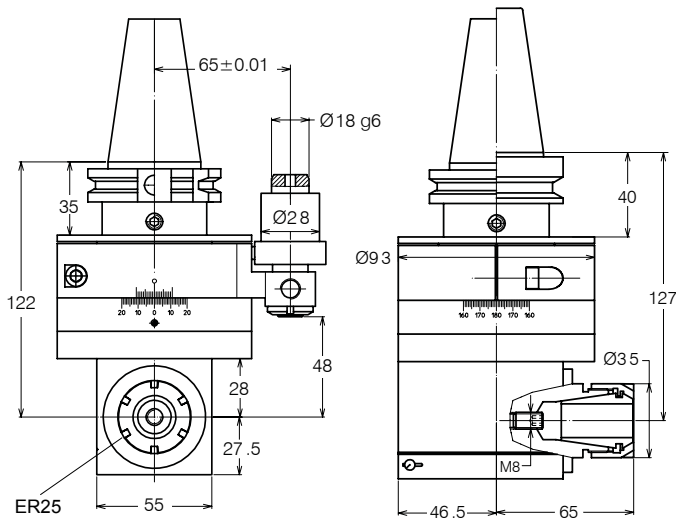
**GA-20**

SK40 / BT40 / CAT40 / HSK63

ER20  
6.000 RPM

3,4 KW Power / Kraft / Güç  
450 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
4,1 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
27 Nm @ 500 RPM  
16 Nm @ 2.000 RPM  
11 Nm @ 4.000 RPM



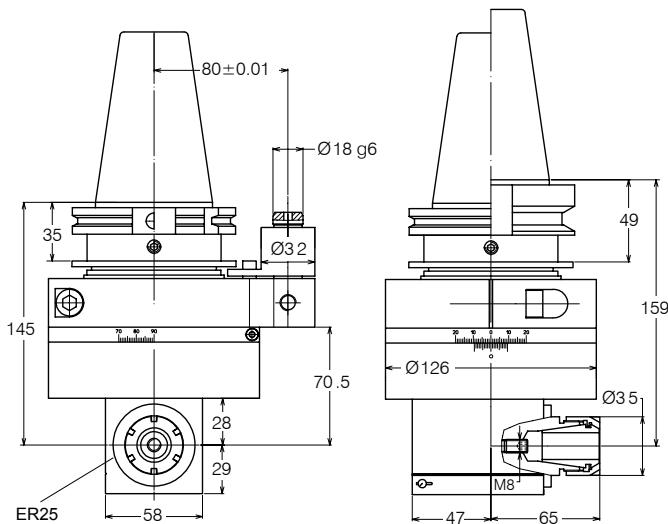
## GA-25

SK40 / BT40 / CAT40 / HSK63

ER25  
5.000 RPM

3,2 KW Power / Kraft / Güç  
450 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
4,5 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
27 Nm @ 500 RPM  
16 Nm @ 2.000 RPM  
11 Nm @ 4.000 RPM



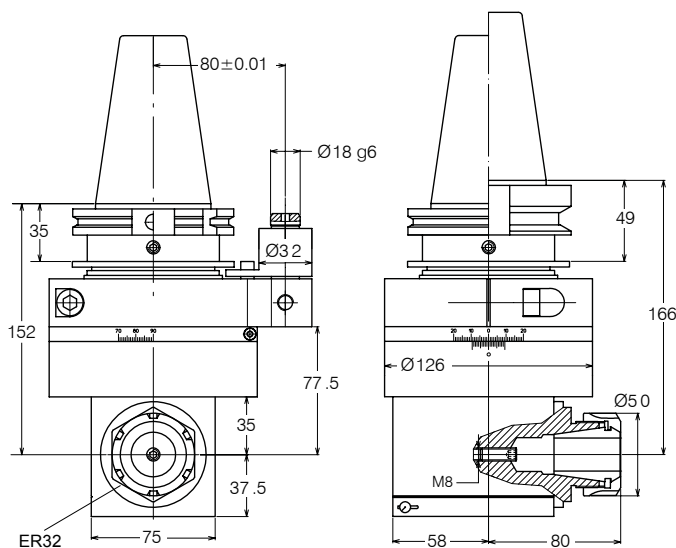
## GA-25

SK50 / BT50 / CAT50 / HSK100

ER25  
5.000 RPM

4,2 KW Power / Kraft / Güç  
1000 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
9,2 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
27 Nm @ 500 RPM  
16 Nm @ 2.000 RPM  
11 Nm @ 4.000 RPM



## GA-32

SK50 / BT50 / CAT50 / HSK100

ER32  
4.000 RPM

5 KW Power / Kraft / Güç  
1200 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
11,2 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
52 Nm @ 500 RPM  
32 Nm @ 2.000 RPM  
18 Nm @ 4.000 RPM





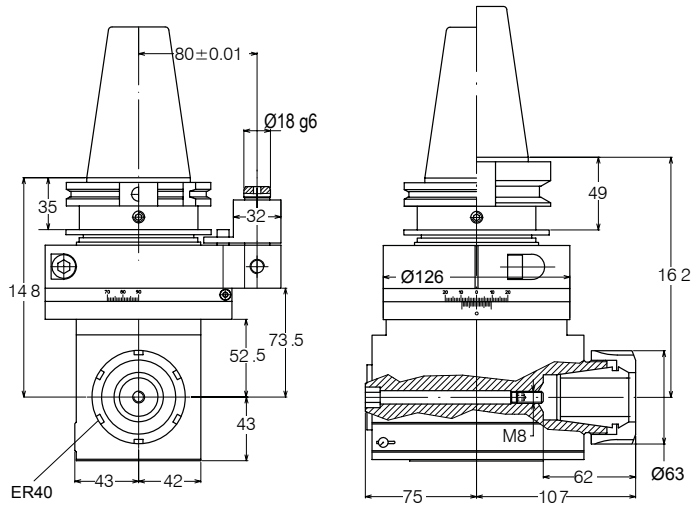
90° Angle Head with ISO30/40 Output - GA-X Series

**GA-X**



90°-Winkelkopf mit ISO30/40 -Abtriebsspindel - GA-X-Serie

90° Açılı Kafa ISO30/40 Çıkışlı - GA-X Serisi



**GA-40**

SK50 / BT50 / CAT50 / HSK100

ER40

2.500 RPM

6,8 KW Power / Kraft / Güç

1350 N Thrust / Schubkraft / Eksenel Kuvvet

1:1 Ratio / Übersetzung / Çevrim Oranı

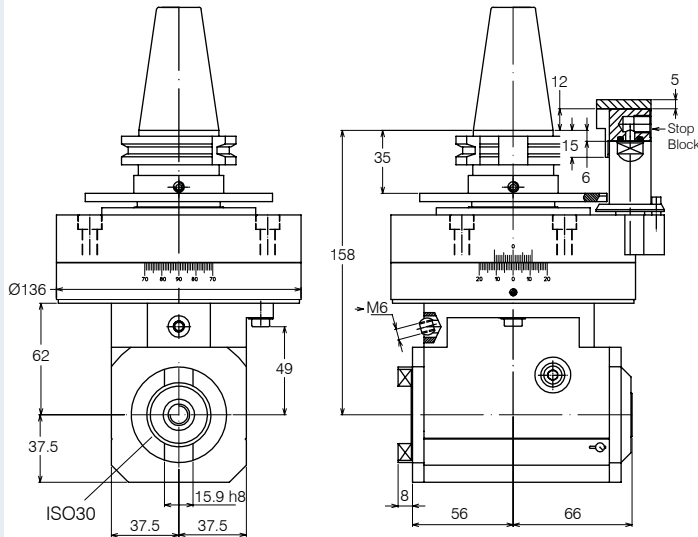
14,6 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork

80 Nm @ 500 RPM

42 Nm @ 2.000 RPM

28 Nm @ 3.500 RPM



**GA-X30**

SK40 / BT40 / CAT40 / HSK63

ISO30

3.500 RPM

4 KW Power / Kraft / Güç

700 N Thrust / Schubkraft / Eksenel Kuvvet

1:1 Ratio / Übersetzung / Çevrim Oranı

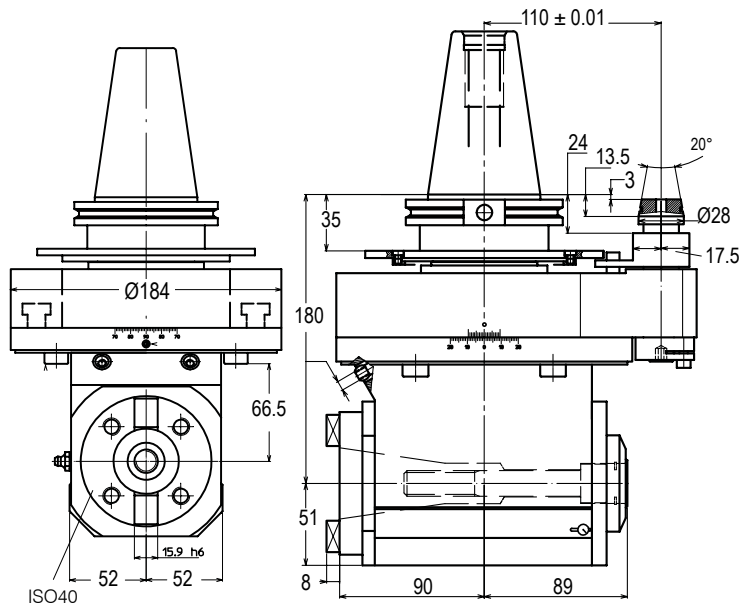
9 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork

63 Nm @ 500 RPM

49 Nm @ 1.000 RPM

31 Nm @ 2.000 RPM



**GA-X40**

SK50 / BT50 / CAT50 / HSK100

ISO40

3.000 RPM

8,4 KW Power / Kraft / Güç

1250 N Thrust / Schubkraft / Eksenel Kuvvet

1:1 Ratio / Übersetzung / Çevrim Oranı

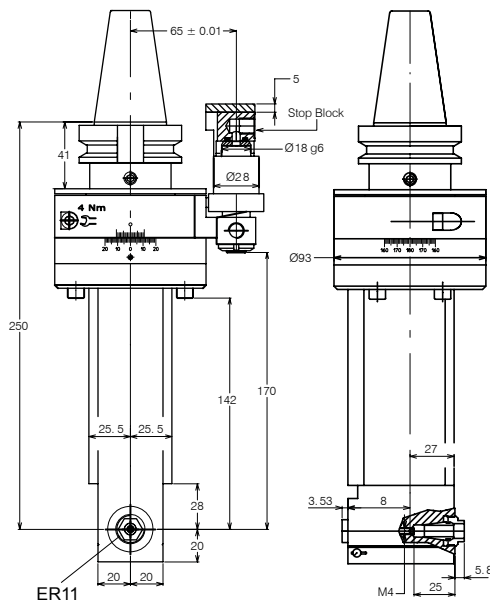
22,9 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork

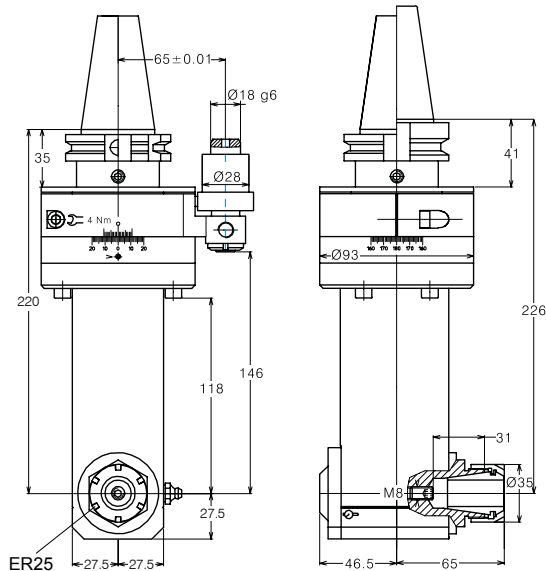
137 Nm @ 500 RPM

102 Nm @ 1.000 RPM

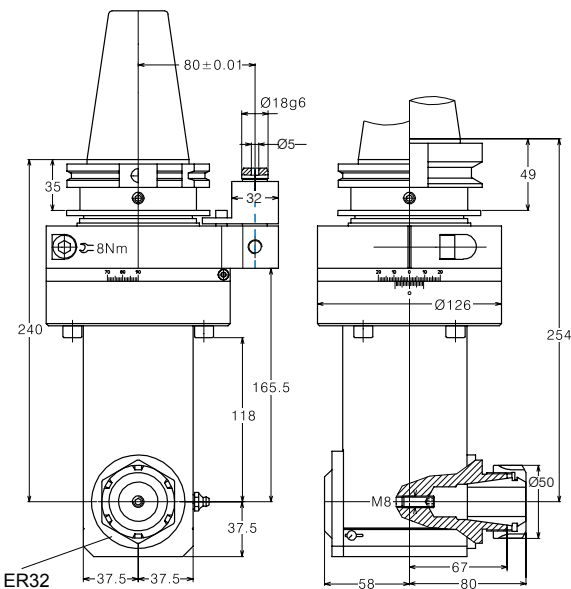
67 Nm @ 2.000 RPM



ER11



ER25



ER32

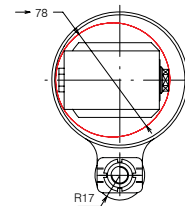
## GA-L11

SK40 / BT40 / CAT40 / HSK63

ER11  
8.000 RPM

3,2 KW Power / Kraft / Güç  
130 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
6 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
10 Nm @ 1.000 RPM  
5 Nm @ 4.000 RPM  
4 Nm @ 6.000 RPM



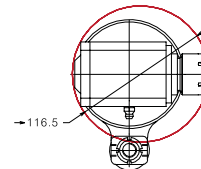
## GA-L25

SK40 / BT40 / CAT40 / HSK63

ER25  
5.000 RPM

3,2 KW Power / Kraft / Güç  
180 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
7,5 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
27 Nm @ 500 RPM  
16 Nm @ 2.000 RPM  
11 Nm @ 4.000 RPM



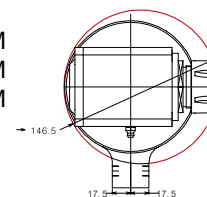
## GA-L32

SK50 / BT50 / CAT50 / HSK100

ER32  
4.000 RPM

5 KW Power / Kraft / Güç  
350 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
15,7 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
52 Nm @ 500 RPM  
32 Nm @ 2.000 RPM  
18 Nm @ 4.000 RPM





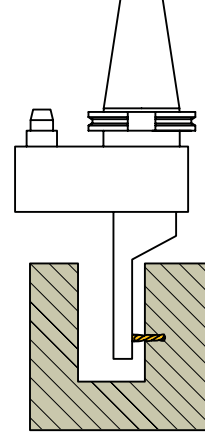
90° Slim Angle Head - GS Series

GS



90°-Winkelkopf Schmale Bauform - GS-Serie

90° İnce Açılı Kafa - GS Serisi



**Features**

For drilling, tapping and light milling operations

For cutting operations inside small bores

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

**Merkmale**

Für Bohrungen, Gewindebohren und leichte Fräsbearbeitungen

Für Bearbeitungen in kleineren Bohrungen

Verwendbar mit CNC- und herkömmlichen Werkzeugmaschinen

Hauptkörper aus wärmebehandelter Aluminium- oder Stahllegierung

Kompakte und rigide Bauform

Kühlmittelzufuhr durch Anschlagstift

**Özellikler**

Delik delme, kılavuz çekme ve frezeleme operasyonları için

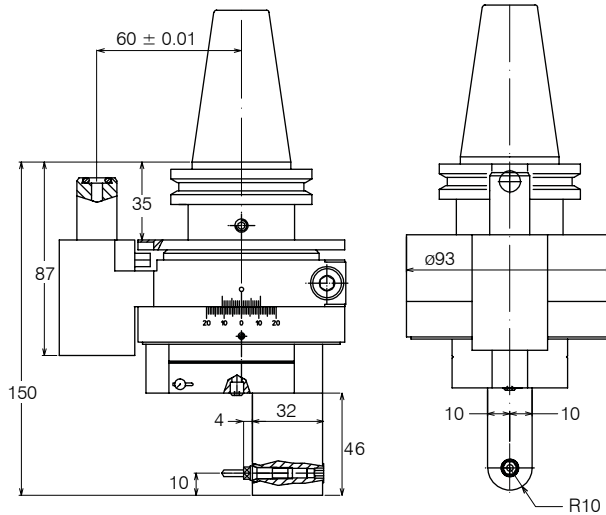
Yanaşması zor yerlerdeki operasyonlar için

Üniversal ve CNC tezgahlarda kullanılabilir

Isıl işlem görmüş alüminyum veya çelik alaşımlı gövde

Kompakt ve rijit gövde

İndeks kolundan su vermeli



**GS-2**

SK40 / BT40 / CAT40 / HSK63

6.000 RPM

Ø 3 Max Tool Ø / Max Werkzeug Ø / Maks Kesici Ø  
1:1 Ratio / Übersetzung / Çevrim Oranı  
6,5 kg Weight / Gewicht / Ağırlık

Ø42  
Min. Workpiece Ø without tool  
Min. Werkstück Ø ohne Werkzeug  
Min. İş Parçası Ø kesici takımsız

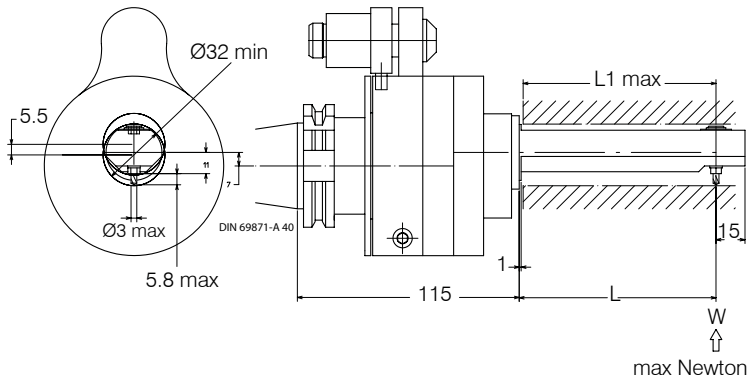


## 90° Slim Angle Head - GS Series

### 90°-Winkelkopf Schmale Bauform - GS-Serie

### 90° İnce Açılı Kafa - GS Serisi

GS



## GS-3

SK40 / BT40 / CAT40 / HSK63

6.000 RPM

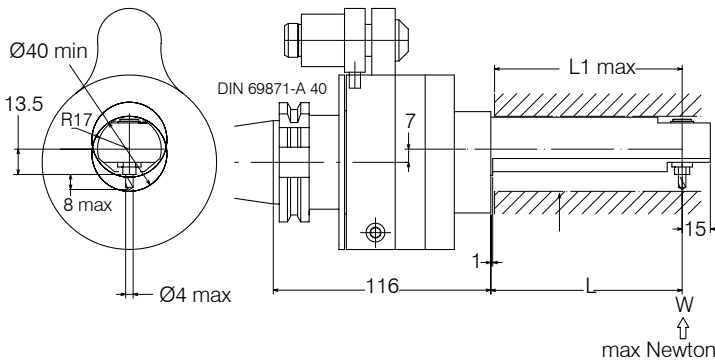
Ø 3

Max. Tool Ø  
Max. Werkzeug Ø  
Maks. Kesici Ø

Ø32

Min. Workpiece Ø  
Min. Werkstück Ø  
Min. İş Parçası Ø

| L   | L1  | W  |
|-----|-----|----|
| 102 | 100 | 55 |
| 122 | 120 | 35 |
| 132 | 130 | 25 |



## GS-4

SK40 / BT40 / CAT40 / HSK63

6.000 RPM

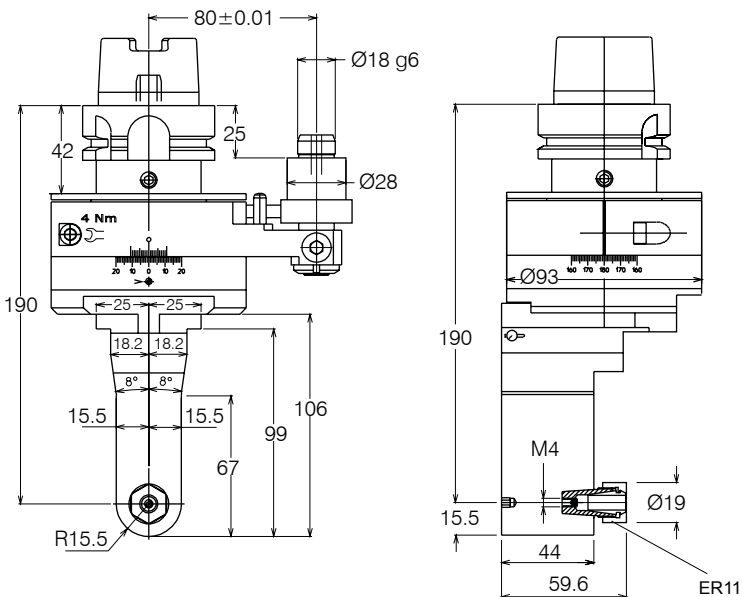
Ø 4

Max. Tool Ø  
Max. Werkzeug Ø  
Maks. Kesici Ø

Ø40

Min. Workpiece Ø  
Min. Werkstück Ø  
Min. İş Parçası Ø

| L   | L1  | W   |
|-----|-----|-----|
| 102 | 100 | 100 |
| 122 | 120 | 70  |
| 132 | 130 | 55  |



## GS-11

SK40 / BT40 / CAT40 / HSK63

ER11

6.000 RPM

1:1

Ratio / Übersetzung / Çevrim Oranı

Ø65

Min. Workpiece Ø without tool  
Min. Werkstück Ø ohne Werkzeug  
Min. İş Parçası Ø kesici takımsız

TECHNOLOGY IN MOTION

Gisstec  
MOTION LINE



90° Angle Head with Flange Connection - GA-F Series

GA-F

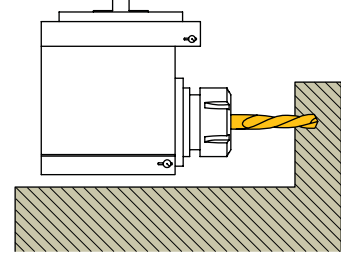


90°-Winkelkopf mit Flanschverbindung - GA-F-Serie

90° Flanş Bağlantılı Açılı Kafa - GA-F Serisi



**GA-F**

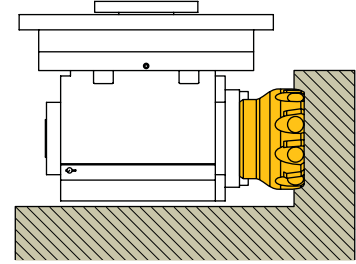


Suitable for all machine types by using a connection kit  
Verwendbar mit allen Maschinentypen mithilfe einer Anschlussschnittstelle  
Bağlantı adaptörü ile tüm tezgahlarda kullanılabilir

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



**GA-FX**



**Features**

For drilling, tapping and milling operations

Used with a flange interface with the spindle for manual loading

Heat-treated aluminium or steel main body

Compact and rigid construction

**Merkmale**

Für Bohrungen, Gewindebohren und Fräsbearbeitungen

Flanschverbindung mit der Spindel; manueller Wechsel

Hauptkörper aus wärmebehandelter Aluminium- oder Stahllegierung

Kompakte und rigide Bauform

**Özellikler**

Delik delme, kılavuz çekme ve frezeleme operasyonları için

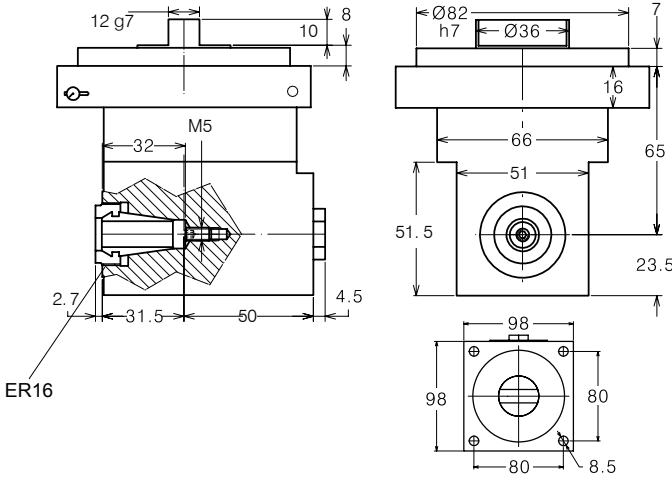
Fener miliyle flanş bağlantısı ile kullanılır, el ile takılıp sökülür

Isıl işlem görmüş alüminyum veya çelik alaşımlı gövde

Kompakt ve rijit gövde





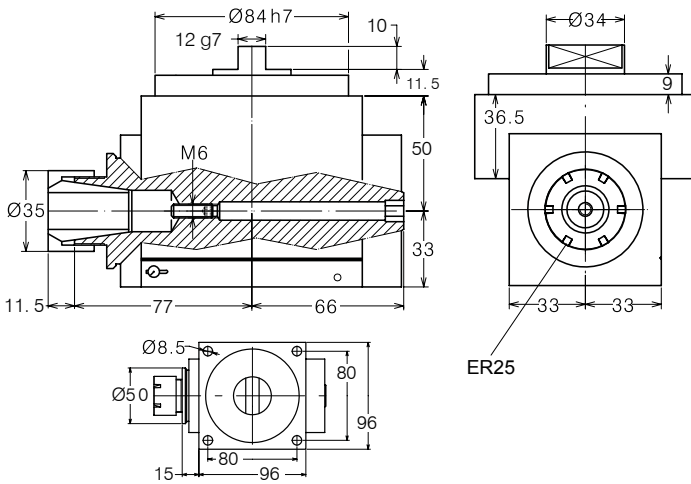


## GA-F16

ER16  
5.000 RPM

3,4 KW Power / Kraft / Güç  
700 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
2,3 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
27 Nm @ 500 RPM  
16 Nm @ 2.000 RPM  
11 Nm @ 4.000 RPM

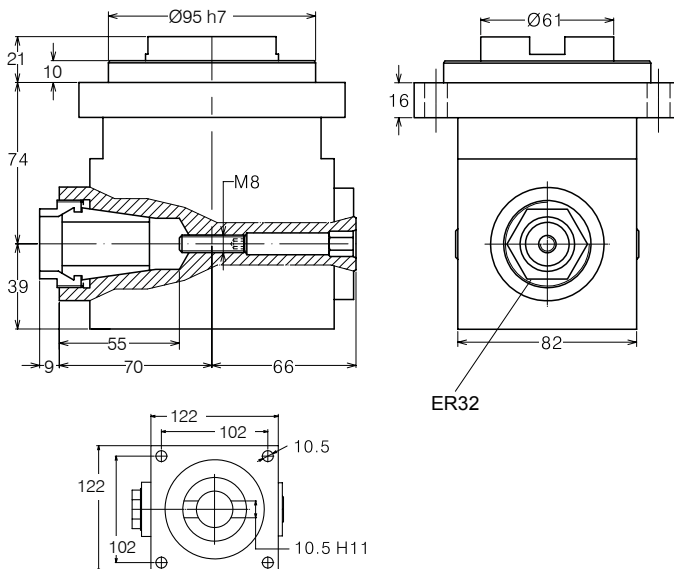


## GA-F25

ER25  
2.500 RPM

4,2 KW Power / Kraft / Güç  
1400 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
3 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
27 Nm @ 500 RPM  
16 Nm @ 2.000 RPM  
11 Nm @ 4.000 RPM



## GA-F32

ER32  
3.000 RPM

5 KW Power / Kraft / Güç  
1500 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
7.7 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
80 Nm @ 500 RPM  
38 Nm @ 2.000 RPM  
29 Nm @ 3.000 RPM



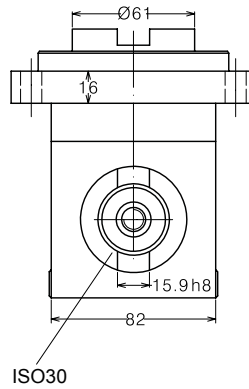
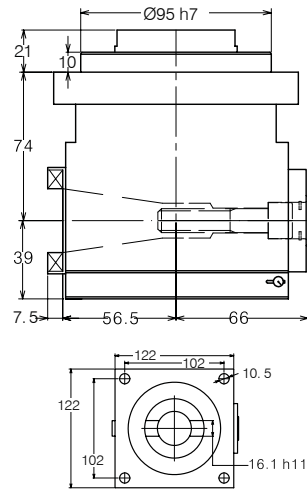
90° Angle Head with Flange Connection - GA-FX Series

**GA-FX**



90°-Winkelkopf mit Flanschverbindung - GA-FX-Serie

90° Flanş Bağlantılı Açılı Kafa - GA-FX Serisi

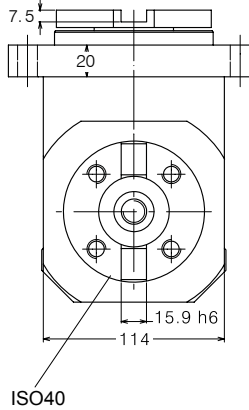
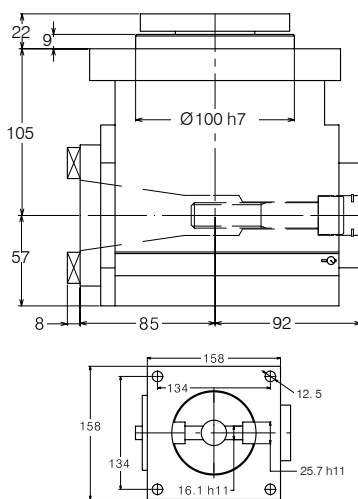


**GA-FX30**

ISO30  
3.000 RPM

4 KW Power / Kraft / Güç  
1500 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
7,7 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
63 Nm @ 500 RPM  
49 Nm @ 1.000 RPM  
31 Nm @ 2.000 RPM

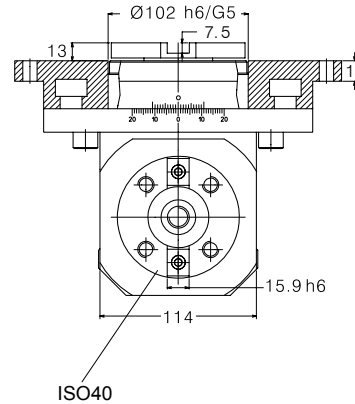
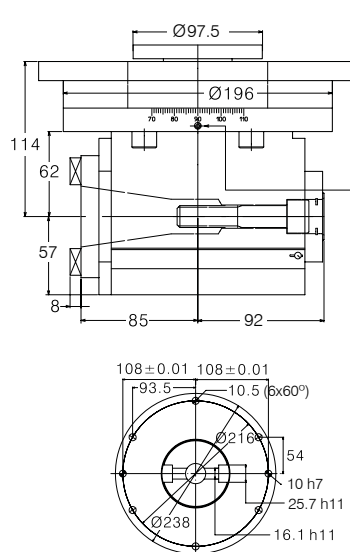


**GA-FX40**

ISO40  
2.000 RPM

5 KW Power / Kraft / Güç  
2200 N Thrust / Schubkraft / Eksenel Kuvvet  
1,5 : 1 Ratio / Übersetzung / Çevrim Oranı  
22 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
137 Nm @ 500 RPM  
102 Nm @ 1.000 RPM  
67 Nm @ 2.000 RPM



**GA-FX40 Rotate**

ISO40  
2.000 RPM

5 KW Power / Kraft / Güç  
2200 N Thrust / Schubkraft / Eksenel Kuvvet  
1,5 : 1 Ratio / Übersetzung / Çevrim Oranı  
26 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
137 Nm @ 500 RPM  
102 Nm @ 1.000 RPM  
67 Nm @ 2.000 RPM

Option / Option / Opsiyon

**GA-FX63-1K**

With Internal Cooling, HSK63 Output  
Mit Innenkühlung, HSK63-Abtrieb  
İçten Su Vermeli, HSK63 Çıkışlı



## Features

For drilling, tapping and light milling operations

+/- 90° tilting spindle axis

Usable on both CNC and conventional machine tools

Heat-treated aluminium main body

Compact and light construction

Coolant feed through stop-bar pin

Orientation ring and stop-bar pin 360° rotatable

## Merkmale

Für Bohrungen, Gewindebohren und leichte Fräsbearbeitungen

+/- 90° verstellbarer Schwenkkopf

Verwendbar mit CNC- und herkömmlichen Werkzeugmaschinen

Hauptkörper aus wärmebehandelter Aluminiumlegierung

Kompakte und leichte Bauform

Kühlmittelzufuhr durch Anschlagstift

Skalenring und Anschlagstift können um 360° rotiert werden

## Özellikler

Delik delme, kılavuz çekme ve frezeleme operasyonları için

+/- 90° ayarlanabilir açılı kullanım

Üniversal ve CNC tezgahlarda kullanılabilir

Isıl işlem görmüş alüminyum alaşımlı gövde

Kompakt ve hafif gövde

İndeks kolundan su vermeli

İndeks kolu ve skala 360° fener mili ekseninde ayarlanabilir



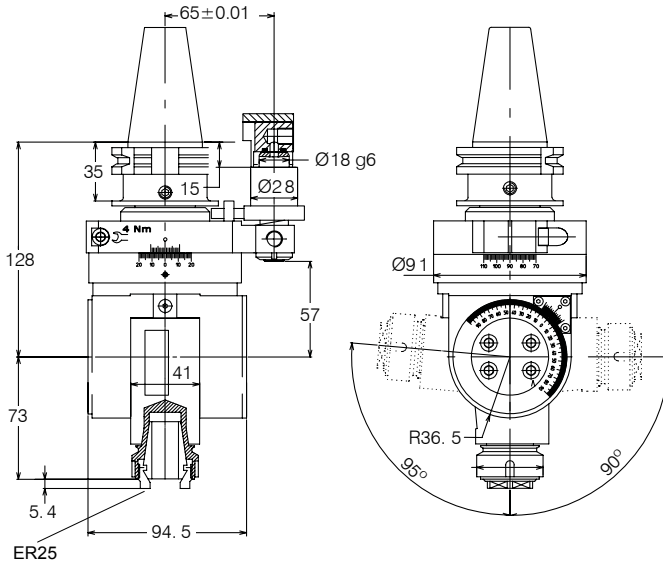






# Schwenkkopf - GT-Serie

## Ayarlanabilir Açılı Kafa - GT Serisi



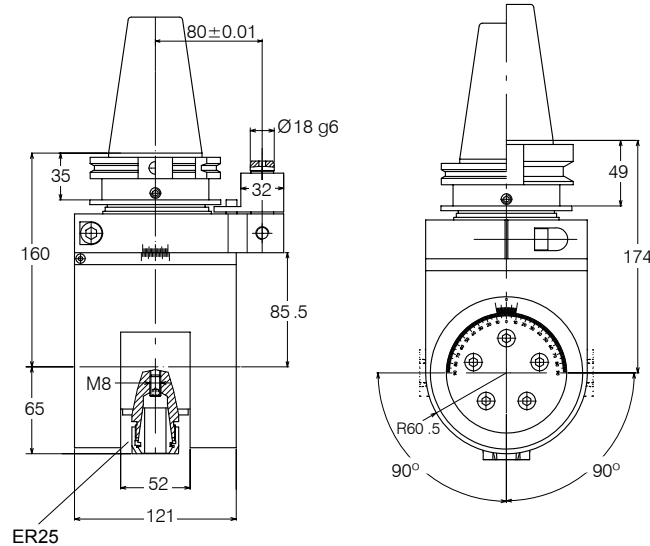
### GT-25

SK40 / BT40 / CAT40 / HSK63

ER25  
5.000 RPM

3 KW Power / Kraft / Güç  
500 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
5 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
19 Nm @ 500 RPM  
12 Nm @ 2.000 RPM  
7 Nm @ 5.000 RPM



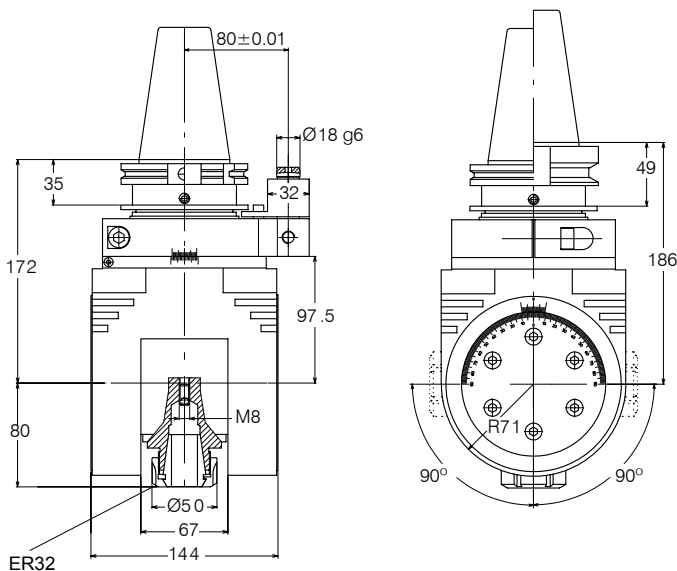
### GT-25

SK50 / BT50 / CAT50 / HSK100

ER25  
4.000 RPM

3,2 KW Power / Kraft / Güç  
1000 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
13 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
25 Nm @ 500 RPM  
15 Nm @ 2.000 RPM  
10 Nm @ 4.000 RPM



### GT-32

SK50 / BT50 / CAT50 / HSK100

ER32  
3.000 RPM

5 KW Power / Kraft / Güç  
1200 N Thrust / Schubkraft / Eksenel Kuvvet  
1:1 Ratio / Übersetzung / Çevrim Oranı  
17 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
48 Nm @ 500 RPM  
26 Nm @ 2.000 RPM  
20 Nm @ 3.000 RPM





## Features

GT-FX Heads are custom manufactured and specifications such as size, torque and speed can be modified as per user needs

For drilling, tapping and milling operations

Used with a flange interface with the spindle for manual loading

Heat-treated aluminium or steel main body

Compact and rigid construction

## Merkmale

GT-FX-Schwenkköpfe sind maßgefertigt und die Spezifikationen wie Größe, Drehmoment und Drehzahl können modifiziert werden

Für Bohrungen, Gewindebohren und Fräsbearbeitungen

Flanschverbindung mit der Spindel; manueller Wechsel

Hauptkörper aus wärmebehandelter Aluminium- oder Stahllegierung

Kompakte und rigide Bauform

## Özellikler

GT-FX Kafalar özel üretim olup, kafa boyutları, tork ve devir gibi özellikler müşteri ihtiyaçlarına uygun olarak modifiye edilebilir

Delik delme, kılavuz çekme ve frezeleme operasyonları için

Fener mili flanş bağlantısı ile kullanılır, el ile takılıp sökülür

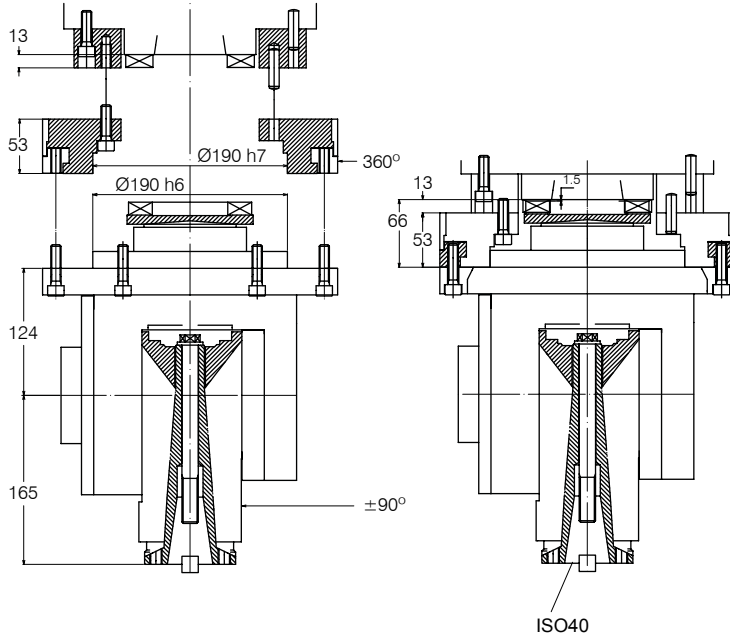
Isıl işlem görmüş alüminyum veya çelik alaşımlı gövde

Kompakt ve rijit gövde



Schwenkkopf mit Flanschverbindung - GT-FX-Serie

Flanş Bağlantılı Ayarlanabilir Açılı Kafa - GT-FX Serisi



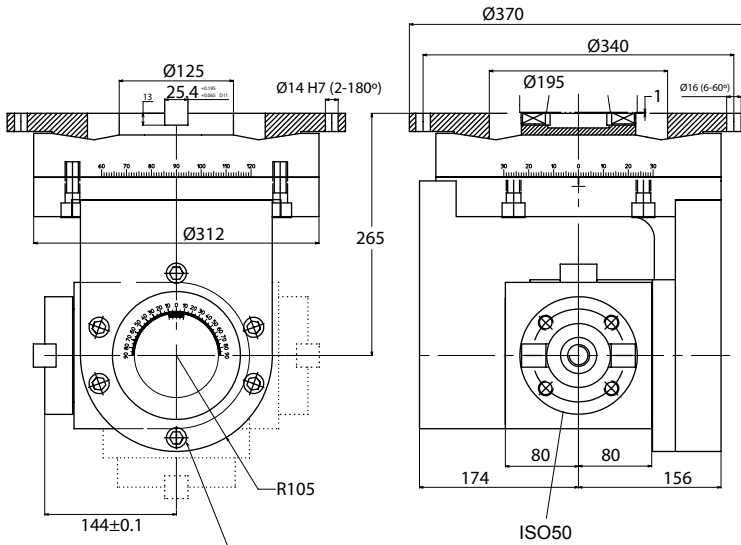
GT-FX40

ISO40  
2.500 RPM

1:1 Ratio / Übersetzung / Çevrim Oranı  
60 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork  
135 Nm @ 500 RPM  
100 Nm @ 1.000 RPM

Option / Option / Opsiyon  
15° Indexing / Indexierung / İndeksleme



GT-FX50

ISO50  
2.000 RPM

1:1 Ratio / Übersetzung / Çevrim Oranı  
140 kg Weight / Gewicht / Ağırlık  
15° Indexing / Indexierung / İndeksleme

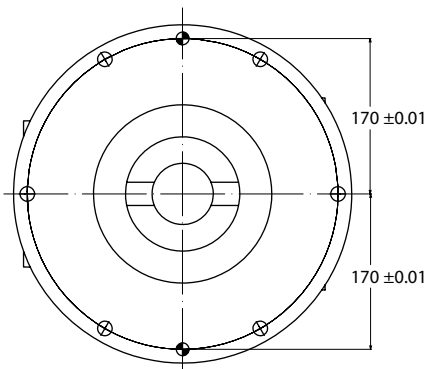
Torque / Drehkraft / Tork  
200 Nm @ 500 RPM  
150 Nm @ 1.000 RPM

Option / Option / Opsiyon  
5° Indexing / Indexierung / İndeksleme

Clamping screws to adjust  
position of tilting spindle

Spannschrauben zum  
Verstellen vom Schwenkkopf

Çıkış milinin açısını ayarlamak  
için sıkma civataları



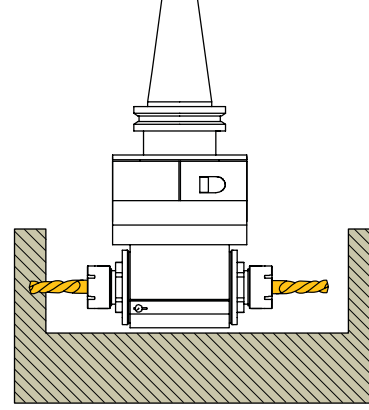
90° Double Output Angle Head - GD Series

GD



90° Doppel-Winkelkopf - GD-Serie

90° Çift Çıkışlı Açılı Kafa - GD Serisi



**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**

Für Bohrungen, Gewindebohren und Fräsbearbeitung

Beidseitiger Antrieb

Verwendbar mit CNC- und herkömmlichen Werkzeugmaschinen

Hauptkörper aus wärmebehandelter Aluminium- oder Stahllegierung

Kühlmittelzufuhr durch Anschlagstift

Skalenring und Anschlagstift können um 360° rotiert werden

**Özellikler**

Delik delme, kılavuz çekme ve frezeleme operasyonları için

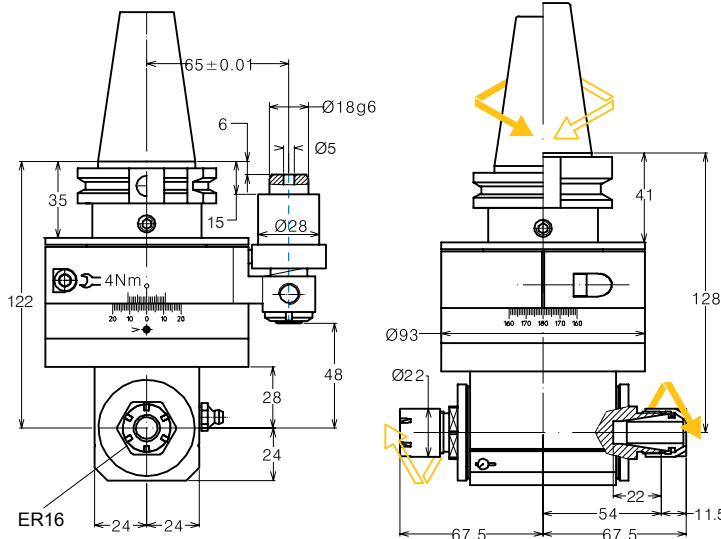
Çift pens başlığı çıkışlı

Üniversal ve CNC tezgahlarda kullanılabilir

Isıl işlem görmüş alüminyum veya çelik alaşımlı gövde

İndeks kolundan su vermeli

İndeks kolu ve skala 360° fener mili ekseninde ayarlanabilir



**GD-16**

SK40 / BT40 / CAT40 / HSK63

ER16

7.000 RPM

3,4 KW

Power / Kraft / Güç

450 N

Thrust / Schubkraft / Eksenel Kuvvet

1:1

Ratio / Übersetzung / Çevrim Oranı

5 kg

Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork

18 Nm @ 1.000 RPM

13 Nm @ 2.000 RPM

9 Nm @ 4.000 RPM





90° Doppel-Winkelkopf - GD-Serie

90° Çift Çıkışlı Açılı Kafa - GD Serisi

**GD-25**

SK40 / BT40 / CAT40 / HSK63

ER25

5.000 RPM

3,2 KW Power / Kraft / Güç

1000 N Thrust / Schubkraft / Eksenel Kuvvet

1:1 Ratio / Übersetzung / Çevrim Oranı

5,5 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork

27 Nm @ 500 RPM

16 Nm @ 2.000 RPM

11 Nm @ 4.000 RPM

**GD-25**

SK50 / BT50 / CAT50 / HSK100

ER25

5.000 RPM

3,2 KW Power / Kraft / Güç

850 N Thrust / Schubkraft / Eksenel Kuvvet

1:1 Ratio / Übersetzung / Çevrim Oranı

11 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork

27 Nm @ 500 RPM

16 Nm @ 2.000 RPM

11 Nm @ 4.000 RPM

**GD-32**

SK50 / BT50 / CAT50 / HSK100

ER32

4.000 RPM

5 KW Power / Kraft / Güç

1200 N Thrust / Schubkraft / Eksenel Kuvvet

1:1 Ratio / Übersetzung / Çevrim Oranı

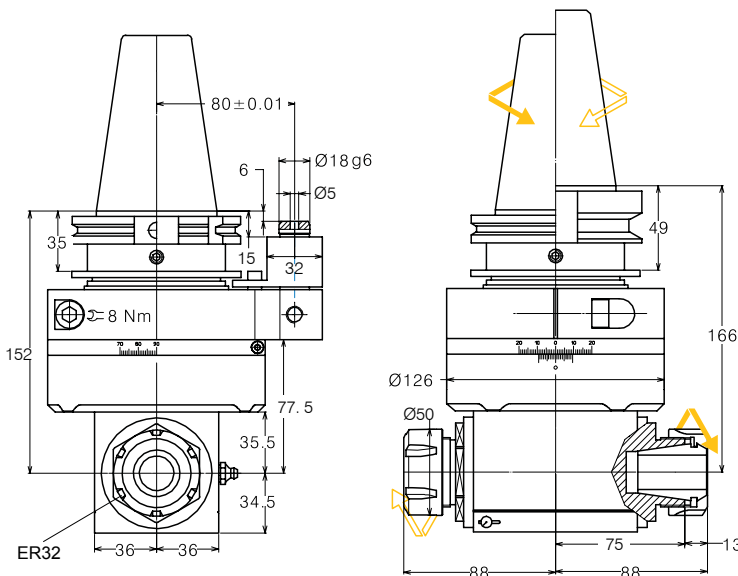
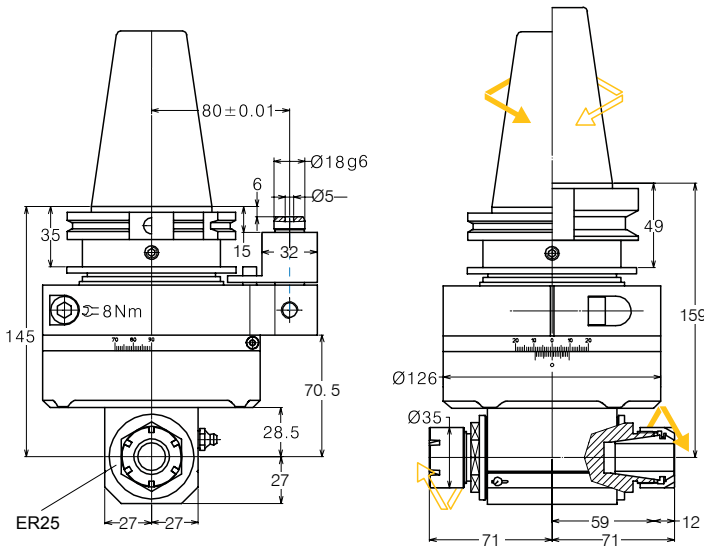
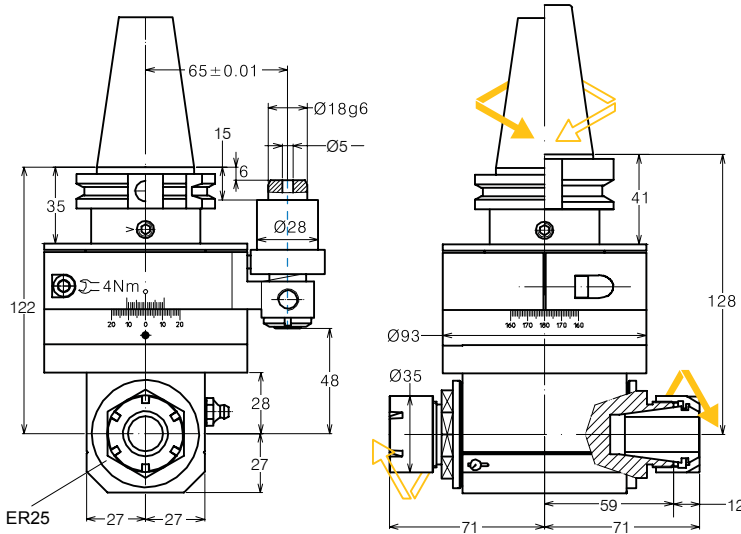
11,2 kg Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork

52 Nm @ 500 RPM

32 Nm @ 2.000 RPM

18 Nm @ 4.000 RPM



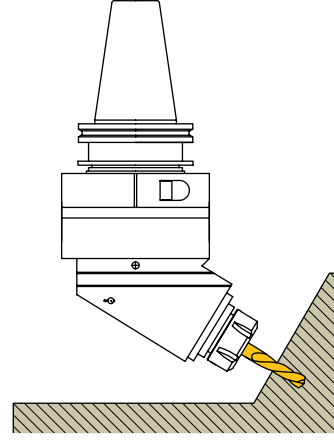
**Modular Angle Head with Fixed Angle - GM Series**

**GM**



**Modularer Winkelkopf mit festem Winkel - GM-Serie**

**Modüler Sistem Sabit Açılı Kafa - GM Serisi**



**Features**

For drilling, tapping and milling operations

Fixed angle body with interchangeable shank

Usable on both CNC and conventional machine tools

Heat-treated aluminium main body

Compact and rigid construction

Coolant feed through stop-bar pin

Orientation ring and stop-bar pin 360° rotatable

**Merkmale**

*Für Bohrungen, Gewindebohren und Fräsbearbeitungen*

*Gehäuse mit festem Winkel und austauschbarem Kegelschaft*

*Verwendbar mit CNC- und herkömmlichen Werkzeugmaschinen*

*Hauptkörper aus wärmebehandelter Aluminiumlegierung*

*Kompakte und rigide Bauform*

*Kühlmittelzufuhr durch Anschlagstift*

*Skalenring und Anschlagstift können um 360° rotiert werden*

**Özellikler**

Delik delme, kılavuz çekme ve frezeleme operasyonları için

Sabit ara açılı gövde ve değiştirilebilir modüler konik

Üniversal ve CNC tezgahlarda kullanılabilir

Isıl işlem görmüş alüminyum alaşımlı gövde

Kompakt ve rijit gövde

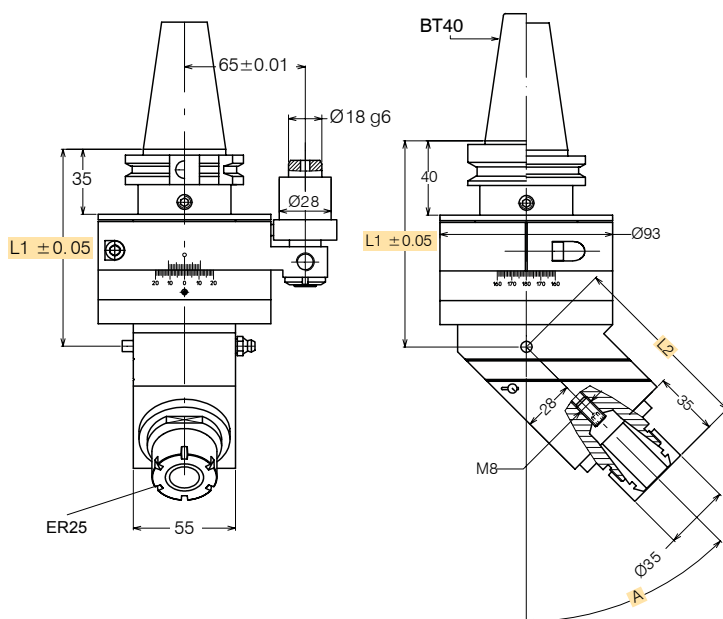
İndeks kolundan su vermeli

İndeks kolu ve skala 360° fener mili ekseninde ayarlanabilir



## Modularer Winkelkopf mit festem Winkel - GM-Serie

## Modüler Sistem Sabit Açılı Kafa - GM Serisi



## GM-25

SK40 / BT40 / CAT40 / HSK63

ER25

5.000 RPM

3 KW

Power / Kraft / Güç

450 N

Thrust / Schubkraft / Eksenel Kuvvet

1:1

Ratio / Übersetzung / Çevrim Oranı

5 kg

Weight / Gewicht / Ağırlık

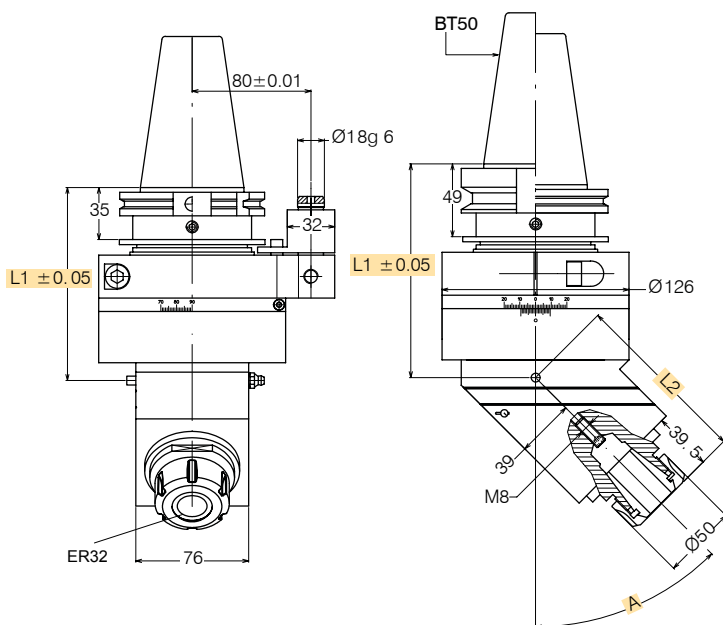
Torque / Drehkraft / Tork

23 Nm @ 1.000 RPM

17 Nm @ 2.000 RPM

10 Nm @ 5,000 RPM

| A         | L1<br>SK / CAT | L1<br>BT | L2  |
|-----------|----------------|----------|-----|
| 2° - 30°  | 102            | 107      | 96  |
| 31° - 60° | 106            | 111      | 100 |
| 61° - 90° | 115            | 120      | 108 |



# GM-32

SK50 / BT50 / CAT50 / HSK100

ER32

3.000 RPM

5 KW

Power / Kraft / Güç

1200 N

Thrust / Schubkraft / Eksenel Kuvvet

1:1

Ratio / Übersetzung / Cevrim Oran

11 kg

Weight / Gewicht / Ağırlık

Torque / Drehkraft / Tork

45 Nm @ 1.000 RPM

31 Nm @ 2.000 RPM

23 Nm @ 3.000 RPM

| A         | L1<br>SK / CAT | L1<br>BT | L2  |
|-----------|----------------|----------|-----|
| 2° - 30°  | 125            | 139      | 113 |
| 31° - 60° | 130            | 144      | 120 |
| 61° - 90° | 142            | 156      | 130 |

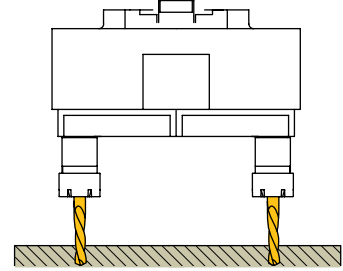
Multiple Adjustable Head - MS Series

MS



Verstellbarer Mehrspindelkopf - MS-Serie

Ayarlanabilir Çok Milli Kafa - MS Serisi



**Features**

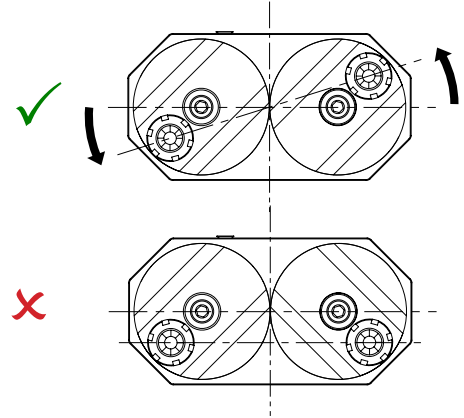
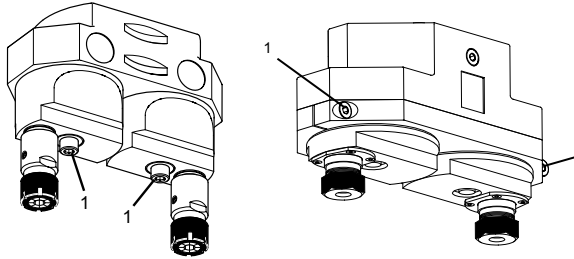
- Drilling, tapping and countersinking
- Usable on conventional machines by using a connection kit
- Heat-treated aluminium alloy main housing
- Compact and lightweight construction

**Merkmale**

- Für Bohrungen, Gewindebohren und Senken
- Verwendbar mit herkömmlichen Werkzeugmaschinen
- Hauptgehäuse aus wärmebehandelter Aluminiumlegierung
- Kompakt und leicht

**Özellikler**

- Delik delme ve kılavuz çekme operasyonları
- Üniversal tezgahlarda ara bağlantı elemanları ile kullanılır
- Isıl işlem görmüş alüminyum alaşımlı gövde
- Kompakt ve hafif



**Setting Up**

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, the positioning of the spindles must be followed as shown. At the end of this operation fasten screw 1 of each spindle unit using a torque wrench.

**Einstellung**

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 notwendige Abstand erreicht ist.

Um während der Verarbeitungsprozesse die Kraft auszugleichen, stellen Sie die Spindeln ein. Anschließend klemmen Sie Schraube 1 jedes Spindels mittels Drehmomentschlüssels.

**Ayarlar**

Pens başlıkları arasındaki mesafeyi ayarlamak için 1 nolu vidayı her başlık üzerinde gevşetin ve istediğiniz mesafeye gelene kadar aynı yönde çevirin.

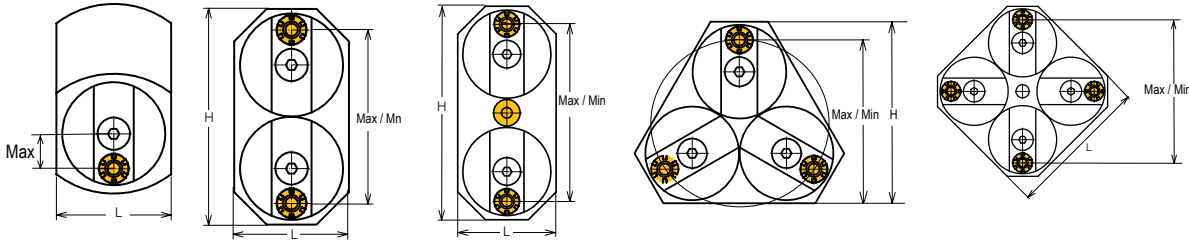
Operasyon sırasında güçleri dengelemek için pens başlıklarını şekildeki gibi pozisyonlayın. 1 nolu vidayı sıkarak pens başlıklarını sabitleyin.





## Verstellbarer Mehrspindelkopf - MS-Serie

## Ayarlanabilir Çok Milli Kafa - MS Serisi



| 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  |      |      |      | 1:2   | 1    |
| MS8-3   | ER8  | 19,9  | 75,9  | 80    | -   |      |      |      |       | 1,3  |
| MS8-4   | ER8  | 30,7  | 86,7  | 85    | -   | 1750 |      |      |       | 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  |      |      |      | 1:2   | 2,8  |
| MS11-3  | ER11 | 29,5  | 141,5 | 144,5 | -   |      |      |      |       | 3,5  |
| MS11-4  | ER11 | 49    | 161   | 154   | 0   |      |      |      |       | 4,6  |
| MS16-1  | ER16 | 0     | 53    | -     | 80  | 3000 | 0,56 | 735  | 1:1   | 3,3  |
| MS16-2  | ER16 | 24    | 124   | 154   | 80  |      |      |      |       | 3,3  |
| MS16-3L | ER16 | 24,25 | 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  |
| 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 |
| 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   | 12   |

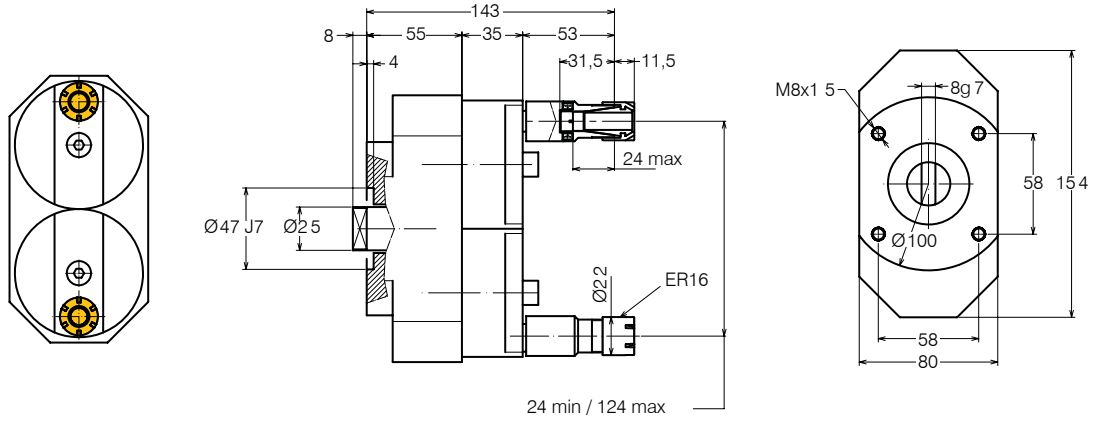
\*MS: Drilling, Tapping / Bohren, Gewindeschneiden / Delik Delme, Kılavuz Çekme

\*MF: Milling, Drilling, Tapping / Fräsen, Bohren, Gewindeschneiden / Frezeleme, Delik Delme, Kılavuz Çekme



Verstellbarer Mehrspindelkopf - MS-Serie

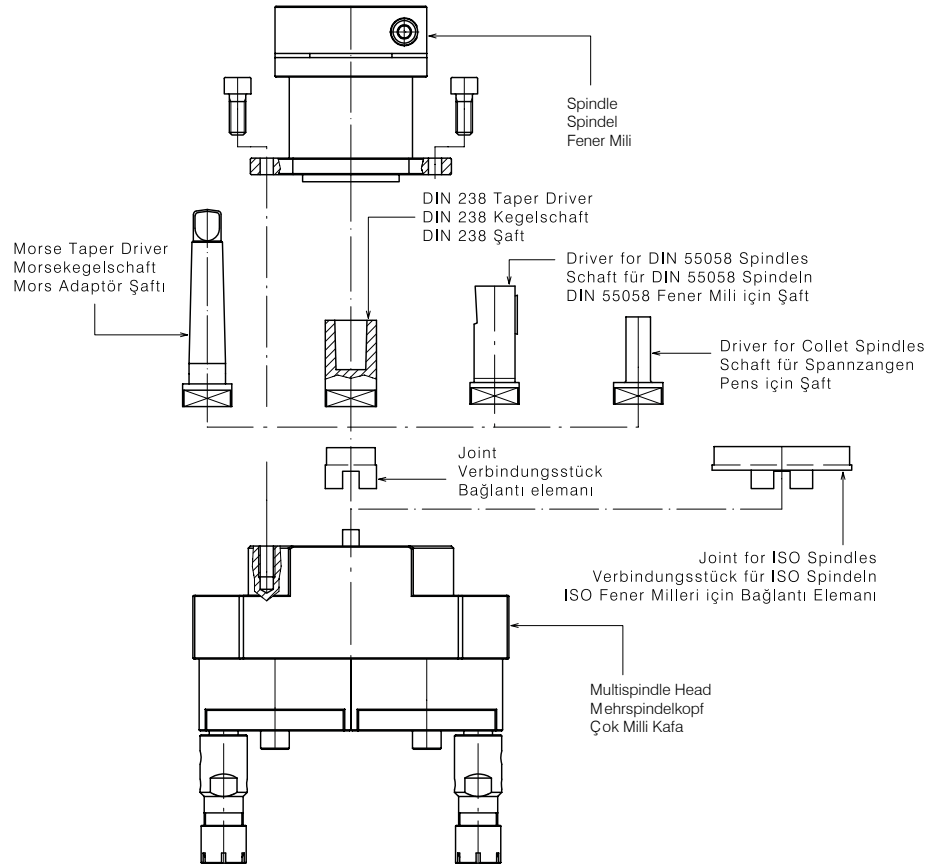
Ayarlanabilir Çok Milli Kafa - MS Serisi

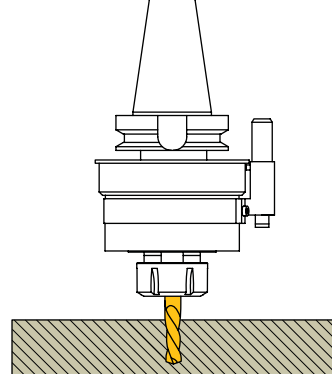


How to connect to a machine

Maschinenverbindung

Tezgaha bağlama şekli





## 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 herkömmlichen Werkzeugmaschinen

Hauptkörper aus wärmebehandelter Stahllegierung

Kühlmittelzufuhr durch Anschlagstift

## Özellikler

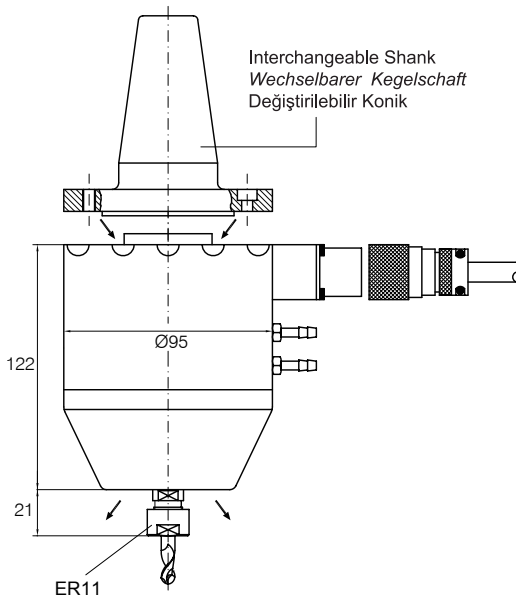
Delik delme, hafif frezeleme ve çelik, alüminyum, plastik ve ağaç üzerinde finiş operasyonları için

Değiştirilebilir modüler konik

Üniversal ve CNC tezgahlarda kullanılabilir

Isıl işlem görmüş çelik alaşımlı gövde

İndeks kolundan su vermeli



### SE-11 electric / elektro / elektrikli

Max. 28.000 RPM Cont. / Dauernd / Sürekli

Max. 44.000 RPM Cont. / Dauernd / Sürekli

Max. 60.000 RPM Cont. / Dauernd / Sürekli

SK40 / BT40 / CAT40 / HSK63

SK50 / BT50 / CAT50 / HSK100

ER11

3,5 kg Weight / Gewicht / Ağırlık

| RPM | 28.000 | 44.000 | 60.000 |
|-----|--------|--------|--------|
| Hz  | 500    | 750    | 1.000  |
| KW  | 0,8    | 1      | 1,6    |
| Nm  | 0,3    | 0,2    | 0,2    |



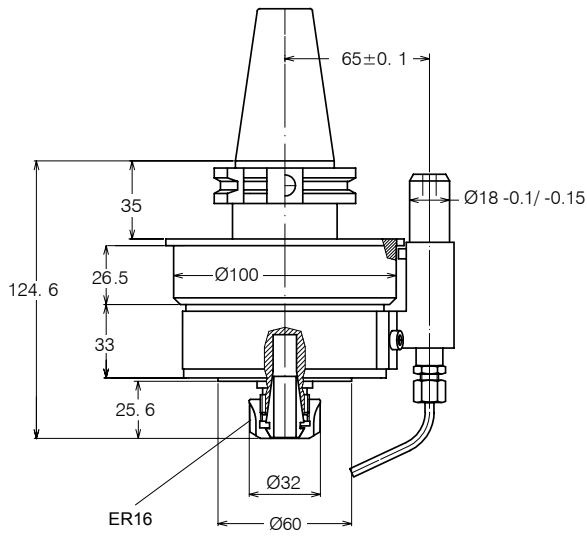
Spindle Speeder - SC Series

SC



Schnelllaufspindel - SC-Serie

Hız Kafası - SC Serisi



**SC-16** ceramic / keramisch / seramik

Max. 30.000 RPM

Max. 24.000 RPM Cont. / Dauernd / Sürekli

**S-16**

Max. 24.000 RPM

Max. 20.000 RPM Cont. / Dauernd / Sürekli

SK40 / BT40 / CAT40 / HSK63 / HSK80

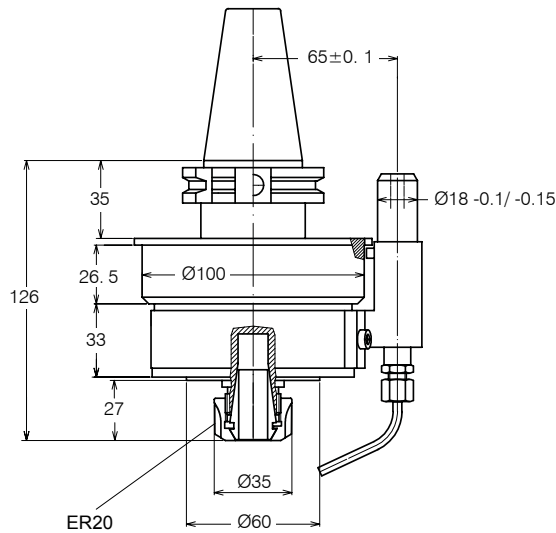
**ER16**

1,7 KW Power / Kraft / Güç

380 N Thrust / Schubkraft / Eksenel Kuvvet

1:4,8 Ratio / Übersetzung / Çevrim Oranı

3,8 kg Weight / Gewicht / Ağırlık



**SC-20** ceramic / keramisch / seramik

Max. 24.000 RPM

Max. 19.000 RPM Cont. / Dauernd / Sürekli

**S-20**

Max. 19.000 RPM

Max. 15.000 RPM Cont. / Dauernd / Sürekli

SK40 / BT40 / CAT40 / HSK63 / HSK80

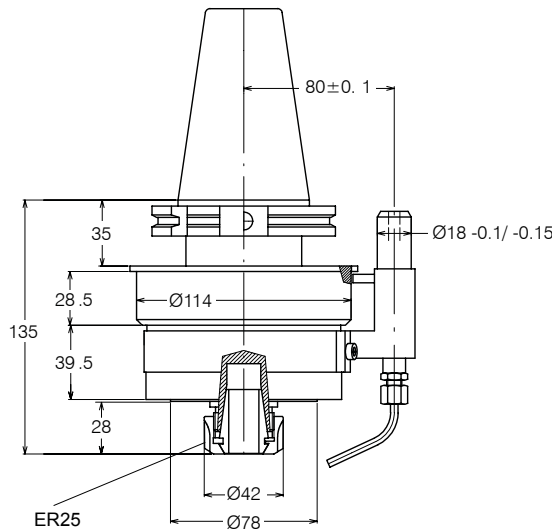
**ER20**

1,7 KW Power / Kraft / Güç

610 N Thrust / Schubkraft / Eksenel Kuvvet

1:4,8 Ratio / Übersetzung / Çevrim Oranı

4 kg Weight / Gewicht / Ağırlık



**SC-25** ceramic / keramisch / seramik

Max. 18.000 RPM

Max. 15.000 RPM Cont. / Dauernd / Sürekli

**S-25**

Max. 15.000 RPM

Max. 12.000 RPM Cont. / Dauernd / Sürekli

SK50 / BT50 / CAT50 / HSK80 / HSK100

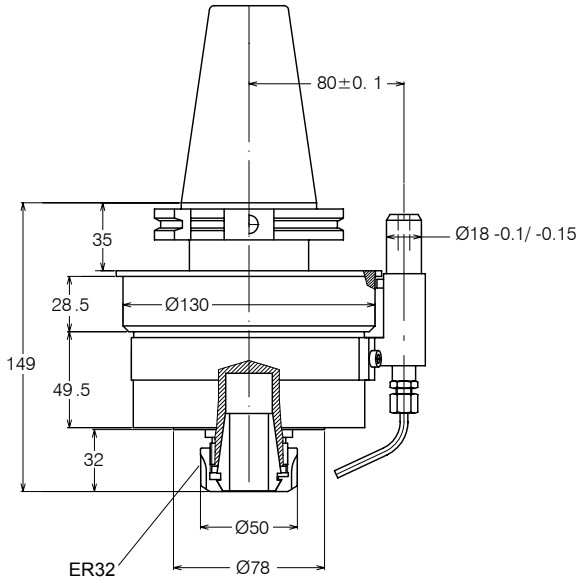
**ER25**

3,6 KW Power / Kraft / Güç

630 N Thrust / Schubkraft / Eksenel Kuvvet

1:4,8 Ratio / Übersetzung / Çevrim Oranı

8 kg Weight / Gewicht / Ağırlık



### S-32

SK50 / BT50 / CAT50 / HSK80 / HSK100

Max. 9.600 RPM Cont. / Dauernd / Sürekli

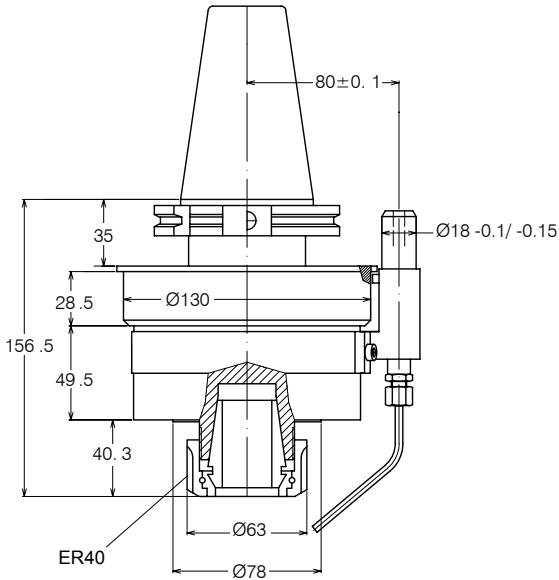
ER32

4,4 KW Power / Kraft / Güç

900 N Thrust / Schubkraft / Eksenel Kuvvet

1:4,8 Ratio / Übersetzung / Çevrim Oranı

8 kg Weight / Gewicht / Ağırlık



### S-40

SK50 / BT50 / CAT50 / HSK80 / HSK100

Max. 9.600 RPM Cont. / Dauernd / Sürekli

ER40

4,4 KW Power / Kraft / Güç

1100 N Thrust / Schubkraft / Eksenel Kuvvet

1:4,8 Ratio / Übersetzung / Çevrim Oranı

9,6 kg Weight / Gewicht / Ağırlık

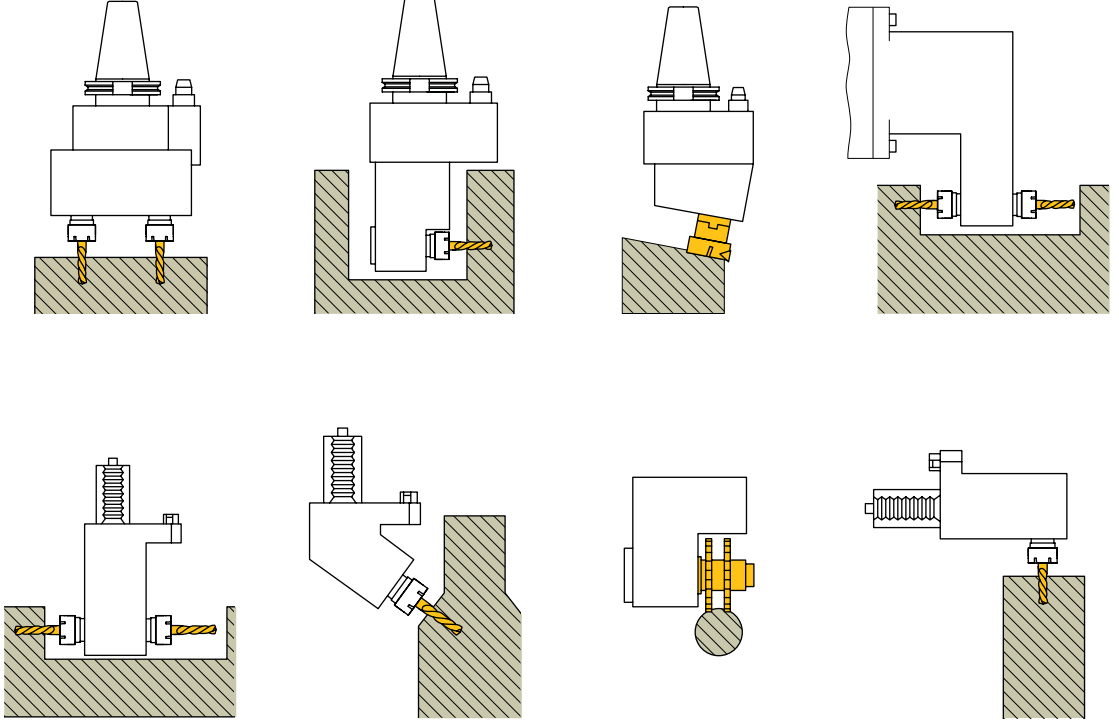






Sonderlösungen - Z-Serie

Özel Çözümler - Z Serisi



Special angle heads, multispindle heads, spindle speeders and driven tools custom developed according to workpiece drawings and machine specifications for drilling, tapping, light milling, heavy milling operations

Examples:

Customise length and size

Increase torque for heavy operations by increasing input/output ratio

Increase speed for fine operations by decreasing input/output ratio

Use a multiple number of linear or angled output spindles

Use a custom output, e.g. weldon, shell mill holder, combi mill holder

*Sonderwinkelköpfe, -mehrspeindelköpfe, -schnelllaufspindel und angetriebene Werkzeuge entwickelt anhand Werkstückzeichnungen für Bohrungen, Gewindebohren, leichte und schwere Fräsbearbeitungen*

Beispiele:

*Sonderlängen und -maße*

*Drehmoment erhöhen mit einem höheren Übersetzungsverhältnis für schwere Bearbeitungen*

*Geschwindigkeit erhöhen mit einem niedrigeren Übersetzungsverhältnis*

*Lineare oder abgewinkelte Mehrspindeln einsetzen*

*Verschiedene Abtriebsspindeln so wie Weldon, Aufsteckfräsdorn, usw.*

İş parçası resmine ve tezgah özelliklerine göre özel geliştirilmiş, delik delme, kılavuz çekme, hafif ve ağır frezeleme operasyonları yapan özel açılı kafalar, çok millî kafalar, hız kafaları ve tahrikli takımlar

Örnekler:

Özel boy ve ölçüler

Çevrim oranını artırarak ağır operasyonlar için torku yükseltme

Çevrim oranını azaltarak hassas operasyonlar için hızı yükseltme

Doğrusal veya açılı birden fazla çıkış kullanma

Veldon ve alın kamalı malafa gibi farklı çıkışlar kullanma





### Special Milling and Drilling Head Sonderbohr- und Fräskopf Özel Delik Delme ve Frezeleme Kafası

Automotive / Autoindustrie / Otomotiv

SK40 DIN 69871  
Max. 2.500 RPM

|                  |                                     |
|------------------|-------------------------------------|
| 1 x Ø11, 1 x Ø22 | Output / Abtrieb / Çıkış            |
| 1 : 1            | Ratio / Übersetzung / Çevrim Oranı  |
| 70 x 134 x 222   | Dimensions / Abmessungen / Boyutlar |
| 7 kg             | Weight / Gewicht / Ağırlık          |



### Angle Head with ISO 50 Output Winkelkopf mit ISO 50 Spindelaufnahme ISO 50 Çıkışlı Açılı Kafa

Machinery / Maschinenbau / Makina Sektörü

SK50 DIN 69871  
Max. 2.600 RPM

|                       |                                     |
|-----------------------|-------------------------------------|
| ISO 50                | Output / Abtrieb / Çıkış            |
| Steel / Stahl / Çelik | Main Housing / Gehäuse / Gövde      |
| 1,5 : 1               | Ratio / Übersetzung / Çevrim Oranı  |
| 320 x 164 x 510       | Dimensions / Abmessungen / Boyutlar |
| 102 kg                | Weight / Gewicht / Ağırlık          |



### 2 Spindle Special Drilling Head Sonderbohrkopf Çift Çıkışlı Özel Kafa

Aerospace / Luftfahrtindustrie / Havacılık

Max. 2.000 RPM

|                 |                                     |
|-----------------|-------------------------------------|
| 2 x ER25        | Output / Abtrieb / Çıkış            |
| 1 : 1           | Ratio / Übersetzung / Çevrim Oranı  |
| 120 x 420 x 210 | Dimensions / Abmessungen / Boyutlar |
| 19 kg           | Weight / Gewicht / Ağırlık          |



Special Multispindle Heads - Z Series

Z



Sondermehrspindelköpfe - Z-Serie

Özel Çok Milli Kafalar - Z Serisi



**4 Spindle Fixed Drilling Head**

**Mehrspindelkopf**

**4 Çıkışlı Özel Çoklu Kafa**

Engine Technology / *Motortechnologie* / Motor Teknolojisi

SK50 DIN 69871

Max. 2.500 RPM

4 x ER25

1 : 1,7

142 x 156 x 212

13 kg

Output / Abtrieb / Çıkış

Ratio / Übersetzung / Çevrim Oranı

Dimensions / Abmessungen / Boyutlar

Weight / Gewicht / Ağırlık



**4 Spindle Fixed Drilling Head**

**Mehrspindelkopf**

**4 Çıkışlı Özel Çoklu Kafa**

Valve Technology / *Armaturtechnologie* / Valf Teknolojisi

Transfer Machine / *Transferanlage* / Transfer Tezgahı

Max. 2.500 RPM

1 x Ø6, 3 x Ø5

1 : 1,9

118 x 170

4 kg

Output / Abtrieb / Çıkış

Ratio / Übersetzung / Çevrim Oranı

Dimensions / Abmessungen / Boyutlar

Weight / Gewicht / Ağırlık



**7 Spindle Drilling and Chamfering Head**

**Mehrspindelkopf zum Bohren und Anfasen**

**7 Çıkışlı Delik Delme ve Pah Kırma Kafası**

Automotive / *Autoindustrie* / Otomotiv

Max. 4.500 RPM

7 x HSK63A

2 : 1

460 x 603 x 250

285 kg

Output / Abtrieb / Çıkış

Ratio / Übersetzung / Çevrim Oranı

Dimensions / Abmessungen / Boyutlar

Weight / Gewicht / Ağırlık



**11 Spindle Fixed Drilling Head**

**Mehrspindelkopf mit 11 Spindeln**

**11 Çıkışlı Özel Kafa**

Automotive / *Autoindustrie* / Otomotiv

Max. 1.900 RPM

11 x Ø12 Weldon

1 : 2

240 x 240 x 205

17 kg

Output / Abtrieb / Çıkış

Ratio / Übersetzung / Çevrim Oranı

Dimensions / Abmessungen / Boyutlar

Weight / Gewicht / Ağırlık



### Reversed Drilling Driven Tool Sonderbohrkopf Özel Tahrikli Takım

Automotive / Autoindustrie / Otomotiv

VDI 30  
Max. 4.000 RPM

ER20  
Steel / *Stahl* / Çelik  
1 : 1

Output / Abtrieb / Çıkış  
Main Housing / Gehäuse / Gövde  
Ratio / Übersetzung / Çevrim Oranı



### Extended Driven Tool Verlängerter Bohr- und Fräskopf Uzatmalı Tahrikli Takım

Automotive / Autoindustrie / Otomotiv

Max. 4.000 RPM

Ø6 Weldon  
1 : 2  
Steel / *Stahl* / Çelik

Output / Abtrieb / Çıkış  
Ratio / Übersetzung / Çevrim Oranı  
Main Housing / Gehäuse / Gövde



### 3 Spindle Special Driven Tool Axial Bohr- und Fräskopf mit 3 Spindeln 3 Çıkışlı Özel Tahrikli Takım

Electronic / *Elektronik* / Elektronik

VDI 50  
Max. 1.500 RPM

3 x ER25  
1 : 1

Output / Abtrieb / Çıkış  
Ratio / Übersetzung / Çevrim Oranı



### 6 Spindle Axial Driven Tool Axial Bohr- und Fräskopf mit 6 Spindeln 6 Çıkışlı Eksenel Tahrikli Takım

Automotive / Autoindustrie / Otomotiv

Max. 4.500 RPM

6 x HSK-C50  
1 : 1  
Steel / *Stahl* / Çelik

Output / Abtrieb / Çıkış  
Ratio / Übersetzung / Çevrim Oranı  
Main Housing / Gehäuse / Gövde



Aggregate Heads for Woodworking - A Series

A



Winkelaggregate zur Holzbearbeitung - A-Serie

Ağaç İşleme için Açılı Kafalar - A Serisi



**Features**

For drilling, tapping and milling operations

90° fixed angle aggregates with 1 output, 2 outputs and four outputs, tilting heads, fixed angle heads

Heat-treated aluminium main body

Compact and light construction

Orientation ring and stop-bar pin 360° rotatable

**Merkmale**

Für Bohrungen, Gewindebohren und Fräsbearbeitungen

90°-Winkelaggregate mit einer Spindel, zwei Spindeln und vier Spindeln, verstellbarer Schwenkkopf und Aggregate mit festem Winkel

Hauptkörper aus wärmebehandelter Aluminiumlegierung

Kompakte und leichte Bauform

Skalenring und Anschlagstift können um 360° rotiert werden

**Özellikler**

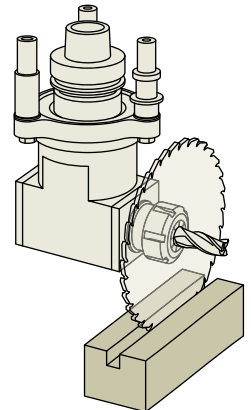
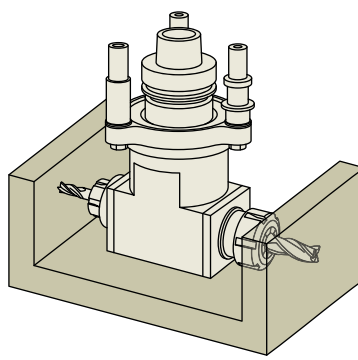
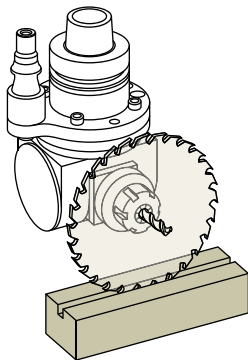
Delik delme, kılavuz çekme ve frezeleme operasyonları için

90° sabit açılı tek çıkışlı, çift çıkışlı ve dört çıkışlı kafalar, ayarlanabilir açılı kafalar, sabit ara açılı kafalar

Isıl işlem görmüş alüminyum alaşımlı gövde

Kompakt ve hafif gövde

İndeks kolu ve skala 360° fener mili ekseninde ayarlanabilir

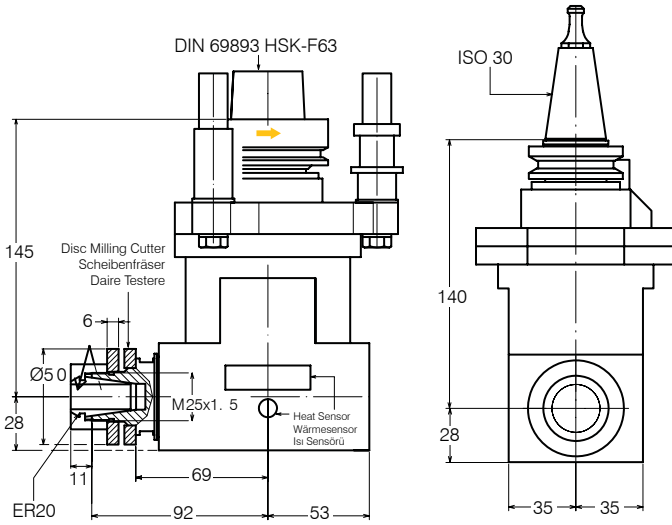






Winkelaggregate zur Holzbearbeitung - A-Serie

Ağaç İşleme için Açılı Kafalar - A Serisi

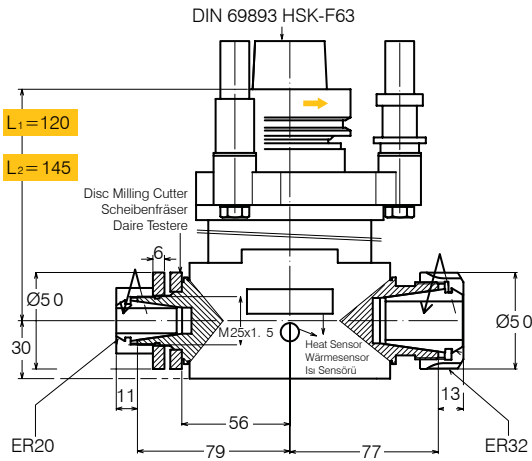


**AA-20**

HSK-F63 / ISO30

ER20  
9.000 RPM

1 : 1,5 Ratio / Übersetzung / Çevrim Oranı  
5,5 kg Weight / Gewicht / Ağırlık



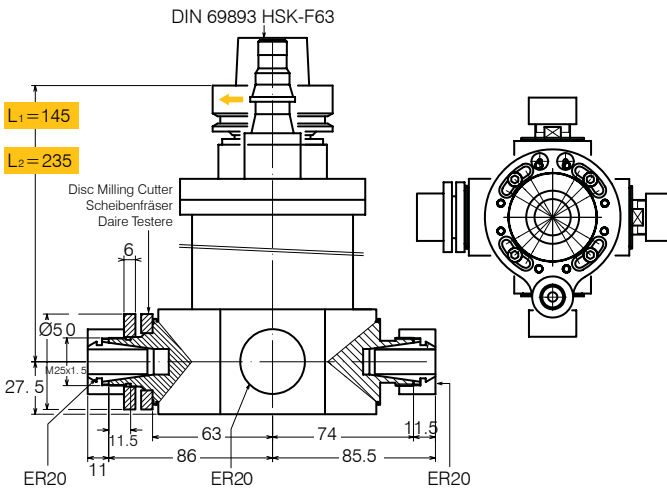
**AD-20-32**

HSK-F63

15.000 RPM  
ER20 + ER32

L<sub>1</sub> = 120  
1 : 1,5 Ratio / Übersetzung / Çevrim Oranı  
6,5 kg Weight / Gewicht / Ağırlık

L<sub>2</sub> = 145  
1 : 1,5 Ratio / Übersetzung / Çevrim Oranı  
7 kg Weight / Gewicht / Ağırlık



**A4-20**

HSK-F63

9.000 RPM  
4 x ER20

L<sub>1</sub> = 145  
1 : 1,5 Ratio / Übersetzung / Çevrim Oranı  
6,5 kg Weight / Gewicht / Ağırlık

L<sub>2</sub> = 235  
1 : 1,5 Ratio / Übersetzung / Çevrim Oranı  
8,8 kg Weight / Gewicht / Ağırlık



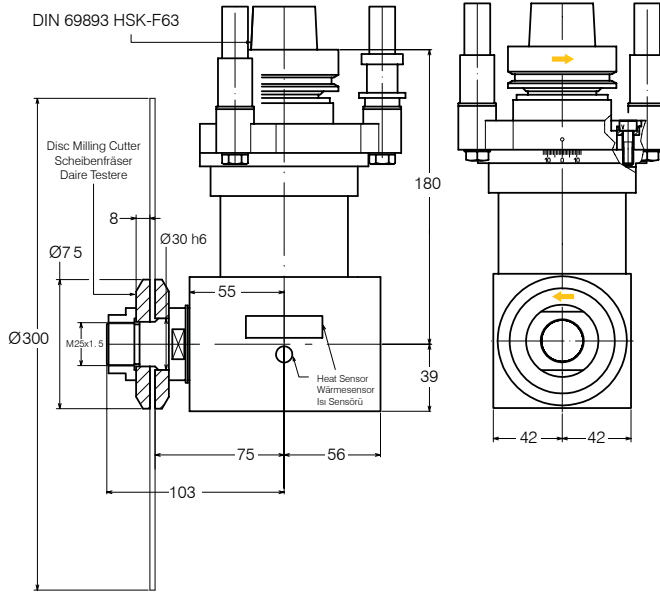
Aggregate Heads for Woodworking - A Series

A



Winkelaggregate zur Holzbearbeitung - A-Serie

Ağaç İşleme için Açılı Kafalar - A Serisi

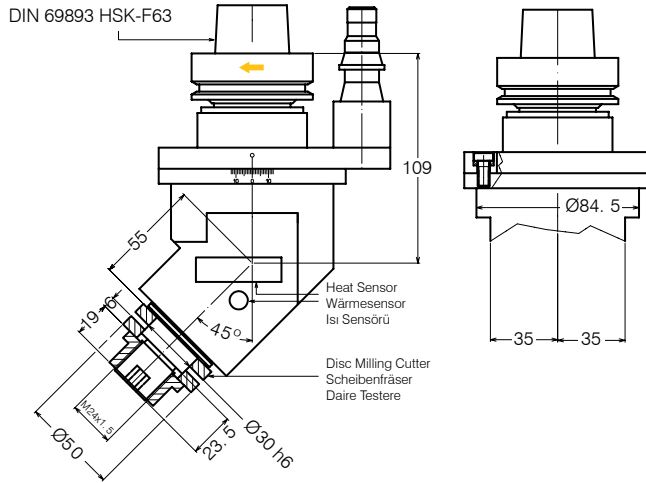


**AAF-30**

HSK-F63

Ø30  
5.000 RPM

2 : 1 Ratio / Übersetzung / Çevrim Oranı  
7,5 kg Weight / Gewicht / Ağırlık

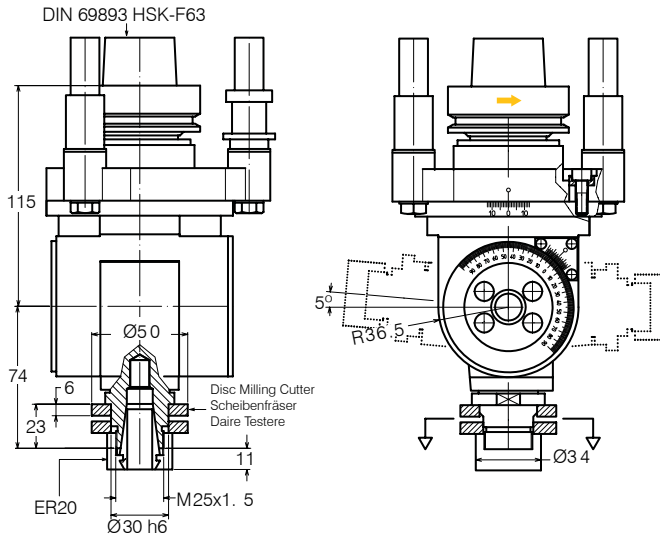


**AMF-30**

HSK-F63

Ø30  
9.000 RPM

1 : 1 Ratio / Übersetzung / Çevrim Oranı  
4,2 kg Weight / Gewicht / Ağırlık



**AT-20**

HSK-F63

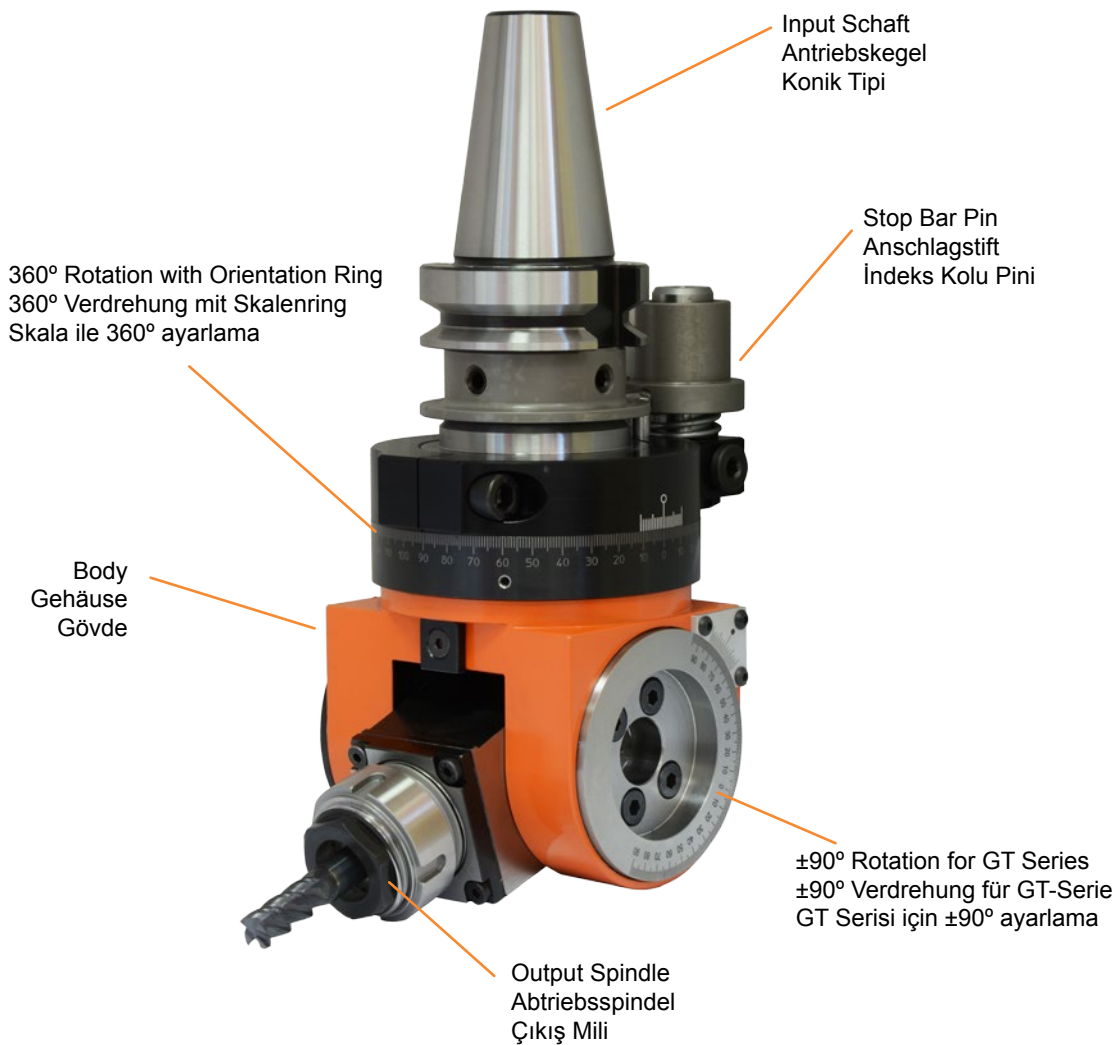
ER20

12.000 RPM

1 : 1,5 Ratio / Übersetzung / Çevrim Oranı  
4,3 kg Weight / Gewicht / Ağırlık

15.000 RPM

1 : 1 Ratio / Übersetzung / Çevrim Oranı  
4,4 kg Weight / Gewicht / Ağırlık



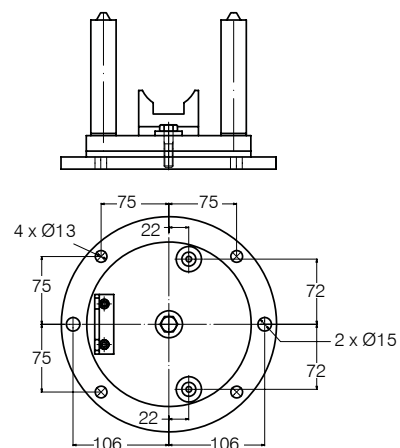
Conical Stop Bar Pin  
Konischer Anschlagstift  
Konik Indeks Kolu Pini



HSK63 Output  
 HSK63 Abtrieb  
 HSK63 Çıkış

Cradle for GA-X  
-Aufnahmevorrichtung für GA-X  
GA-X için Fikstür

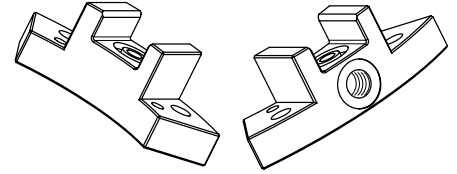
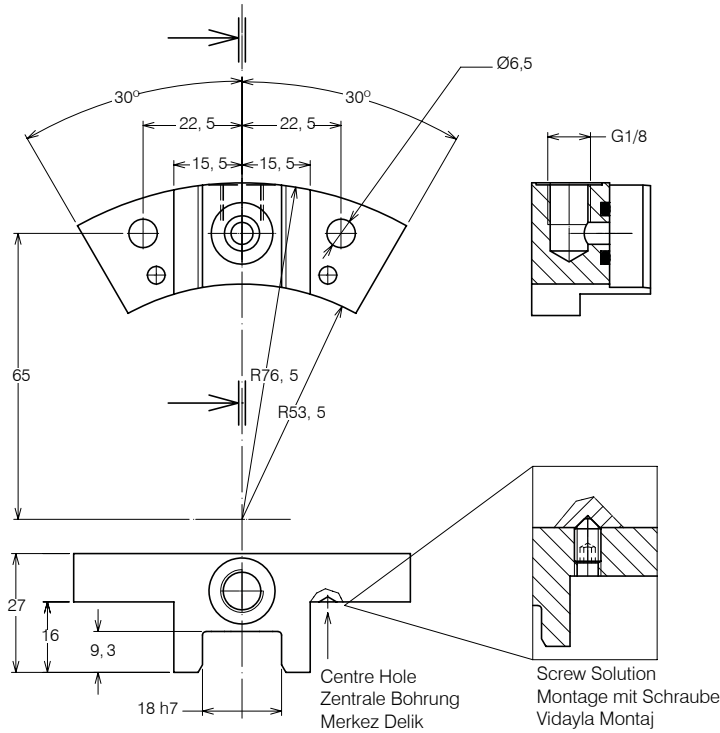
**Cradle for GA-X**  
**Aufnahmevorrichtung für GA-X**  
**GA-X için Fikstür**





Technische Informationen - Standard Stop-Block Montage

Teknik Bilgiler - Standart Stop Bloğu Montajı



Angle heads are supplied with a stop block to be installed on the spindle nose:

Check H Dimension

Using the formula  $H - A = P$  calculate plate thickness (P)  
- if  $P < 5$  make the thickness 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 mit einem Stop-block geliefert, der an die Spindelnase montiert wird:*

*Maß H kalkulieren*

*Mit der Formel  $H - A = P$  Plattenhöhe (P) ausrechnen  
- wenn  $P < 5$ , die Höhe von gelieferter Platte verringern  
- wenn  $P > 5$ , eine höhere Platte fertigen und einsetzen*

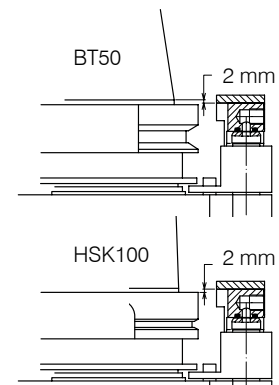
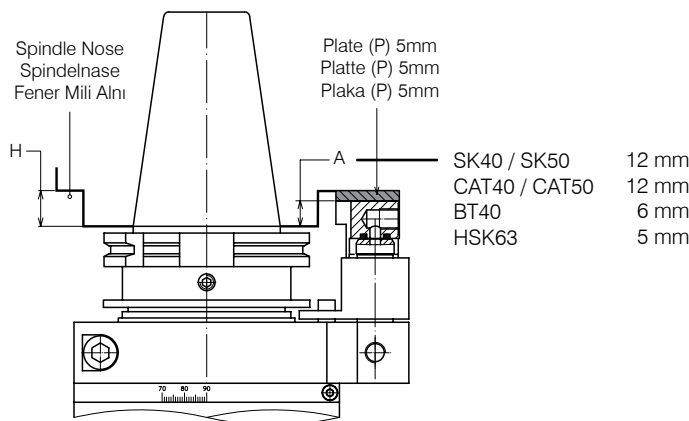
*Stop-block und wenn nötig die Platte an die Spindelnase gegenüber automatischen Werkzeugwechslers montieren*

Açılı kafaların yanında verilen stop bloğu fener milinin altına montaj edilip kullanılır:

H mesafesini kontrol edin

H - A = P formülünü kullanarak Plaka yüksekliğini (P) hesaplayın  
-  $P < 5$  ise birlikte gelen plakanın yüksekliğini azaltın  
-  $P > 5$  ise yüksekliği daha fazla olan bir plaka kullanın

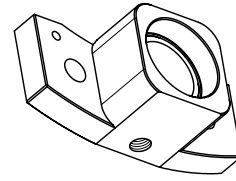
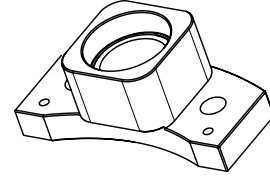
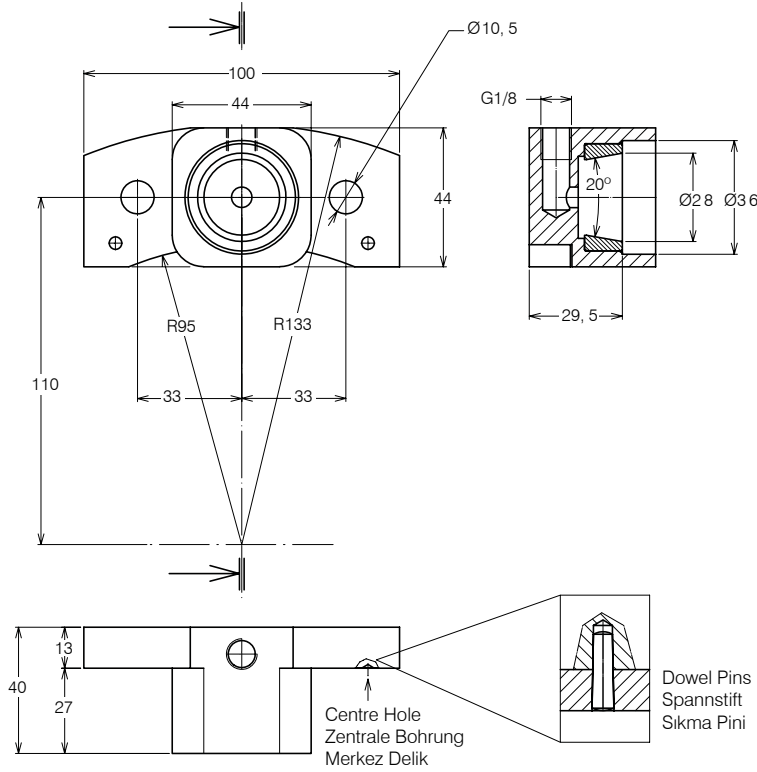
Stop bloğu ve gereklyse plakayı ATC kolunun tam karşı tarafına gelecek şekilde fener milinin altına monte edin





## Technische Informationen - Konischer Stop-Block Montage

### Teknik Bilgiler - Konik Stop Bloğu Montajı



Angle heads are supplied with a stop block to be installed on the spindle nose:

Check H Dimension

Using the formula  $H - A = P$  calculate plate thickness (P)  
- if  $P < 5$  make the thickness 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 mit einem Stop-block geliefert, der an die Spindelnase montiert wird:*

*Maß H kalkulieren*

*Mit der Formel  $H - A = P$  Plattenhöhe (P) ausrechnen  
- wenn  $P < 5$ , die Höhe von gelieferter Platte verringern  
- wenn  $P > 5$ , eine höhere Platte fertigen und einsetzen*

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

Açılı kafaların yanında verilen stop bloğu fener milinin altına montaj edilip kullanılır:

H mesafesini kontrol edin

H - A = P formülünü kullanarak Plaka yüksekliğini (P) hesaplayın  
-  $P < 5$  ise birlikte gelen plakanın yüksekliğini azaltın  
-  $P > 5$  ise yüksekliği daha fazla olan bir plaka kullanın

Stop bloğu ve gerekliyse plakayı ATC kolunun tam karşı tarafına gelecek şekilde fener milinin altına monte edin

