Tooling technology

Metal machining





BENZ **TOOLING**

At BENZ Tooling our maxim "Innovation. Precision. Passion." is far more than just a marketing formula. Rather, it describes the core goals of our business while also outlining the reasons why we have been able to compete in the market successfully with tool systems for metal machining, woodworking and composite material processing for more than 75 years.

Innovations are important to us. But we also recognize that they can be successful only if they precisely meet the needs of our customers. This is why we have maintained a strict focus on our customers for many years. We ensure that our developments and innovations simplify your production processes and lower your manufacturing costs - and ultimately improve your competitiveness as a result.

INNOVATION. With an eye on what is currently within the bounds of feasibility, we strive to always make use of innovative technologies. And we keep in close contact with our customers to ensure we already know today what our customers will need tomorrow. Technical progress is ingrained into our very identity, which means you can always find smart, detailed solutions in our product range.

PRECISION. We ensure our products have the highest level of precision and reliability. This is vital in our industry. Our customers also rely on absolute precision during production – and need to be able to put all their trust in us. But production is not the only area where we strive for precision. We also seek minimal tolerances and maximum accuracy in other areas as well - from development to sales to delivery.

PASSION. BENZ precision products are composed of a vast array of different individual parts. They are the result of great care that starts in the design phase and even includes the selection of raw materials. Primarily, however, they are the expression of our employee's experience and passion to do good work. We are tool specialists through and through and we are willing to move mountains to reach the perfect solution and to ensure the satisfaction of our customers.

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BENZ TOOLING — YOUR PARTNER COMPLETE MACHINING FOR ALL SECTORS

Angle heads for your application – from standard to custom-made solutions

Do you have an application where an angle head is suitable for machining a workpiece? Then you are right to come to BENZ Tooling. Because our goal is to optimize your production sequence.

As a partner working with CNC machining, we have many years of experience in manufacturing units for machining centers. We know what we are talking about. And we implement what we say.

This is reflected in our products, featuring high performance, machining precision and quality.

BENZ angle heads help you with the economical complete machining of your workpieces by minimizing the number of tool set-ups and the machining time, thus reducing your production costs.

Besides an extensive standard program, we also offer unique, custom-made solutions. In close cooperation with you as a customer we develop the individual answer to your needs. We maintain close contact with machinery manufacturers and therefore have the necessary know-how to develop the exceptional. Challenge us!















BENZ ANGLE HEADS ADDED VALUE FOR YOUR MACHINE

Angle heads are additional modules that extend the functional scope of your machine tool. They are used in the machining process mainly for cyclical applications. A machining step is usually followed by a rest period for the unit. The machining of the workpiece is then continued with a newly inserted tool. All BENZ standard units are specially designed for this.

YOUR ADVANTAGES

Reduction of machining time / production costs

BENZ angle heads enable the complete machining of complex workpieces on a machine.

Machining of hard-to-reach areas

Even locations on workpieces that are difficult to access or were previously inaccessible can be machined with angle heads.

Simplification of the machining procedure

Elaborate and complicated machining procedures can be simplified considerably by using BENZ angle heads.

Usable in all common machine concepts

BENZ angle heads are designed for use in all common machining centres with automatic or manual tool change.

Optimally designed for the machining task

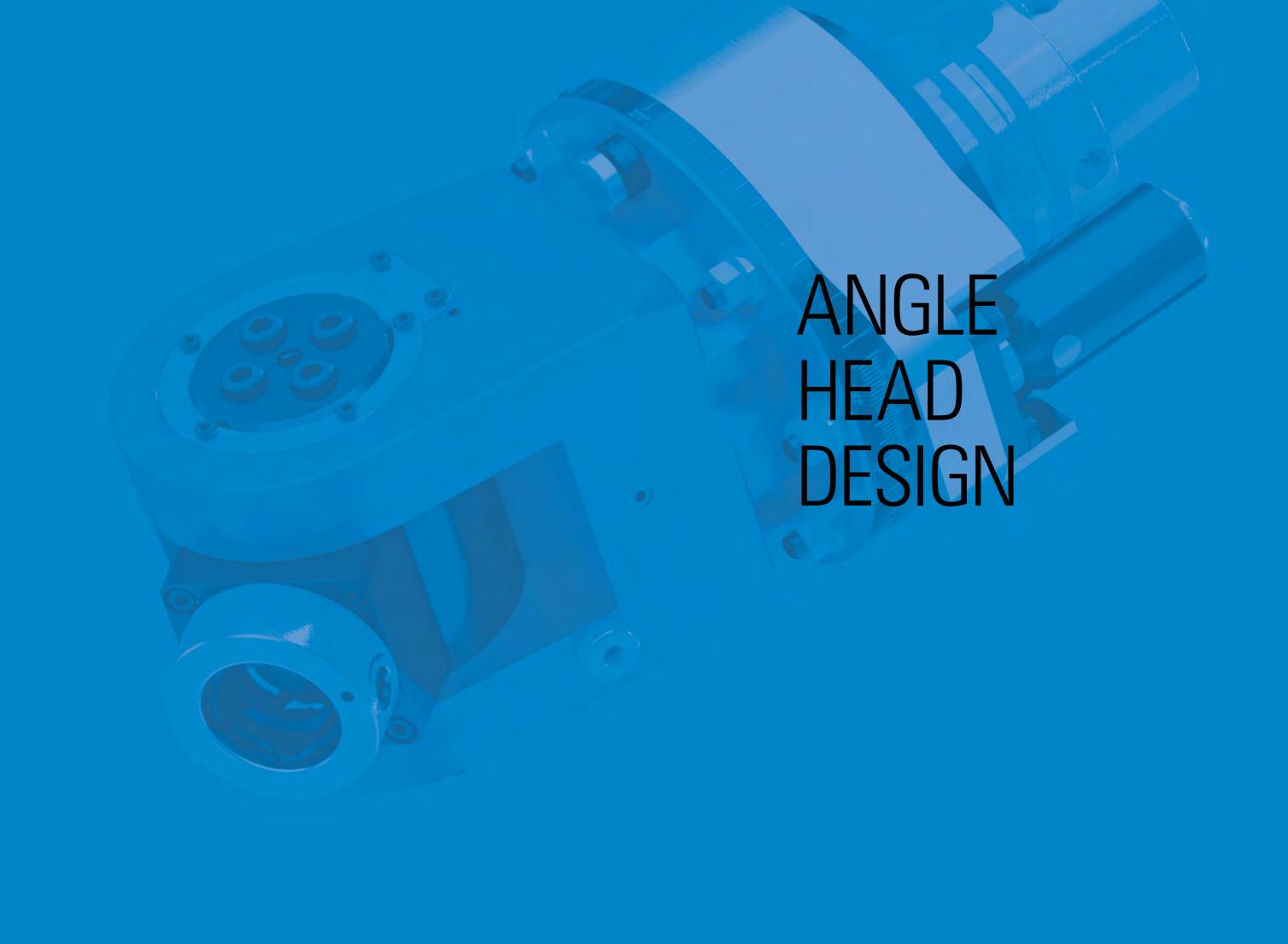
BENZ angle heads are perfectly matched by our specialists to your individual requirements. We have a suitable solution for every challenge!

High torque transmission / fewer wear parts

The transmission of high torques and fewer wear parts are realised by using angular gears made up of a crown wheel and spur wheel.

Compact, modular design

BENZ angle heads have an extremely compact design and consist of components including the output spindle (tool holding/clamping system), angle head, torque arm and taper. Together we prepare the angle head suitable for your work task.





BENZ ANGLE HEADS UNLIMITED POSSIBILITIES

BENZ SELECT LINE
PREDEFINED STANDARD

Most popular angle head configurations Page 12

CUSTOMIZABLE PRODUCTS ADAPTABLE

Adaptable standard angle heads Page 14 UNIQUE SOLUTIONS CUSTOM-MADE

Individual products for your needs Page 16

BENZ SELECT LINE PREDFINED ANGLE HEADS

Quick delivery, attractive pricing and BENZ Solidfix®

Our most popular angle heads MONO WSX and FORTE WWX are available in the BENZ Select Line program.

BENZ Select Line products are equipped with our quick-change system BENZ Solidfix®.

Your benefits: even more flexibility and further cost savings – all in the well-known BENZ quality.

BENZ Select Line products are available as BLP version (BENZ locking pin) and TLP version (tapered locking pin).







BLP EDITION



TLP EDITION



CUSTOMIZABLE PRODUCTS ADAPTABLE ANGLE HEADS

"Plug & Play" with customized standard

Would you like to purchase an angle head and start machining immediately? With the modular component system from BENZ Tooling, this is no longer a challenge.

Using standard components a wide selection of front heads in various sizes and for the most common output spindles allows you to configure the angle head you need for your machining operation. To ensure that the angle head fits your machine perfectly, we create a customized torque arm – in close cooperation with the machine manufacturer.

Thanks to years of experience and in line with the motto "as much standard as possible, as much customization as needed", we make sure that you don't lose time during assembly and can start processing straight away.



DESIGN TYPES

The combination of the machine, the cutting tools used and your workpiece determine which product design is the best for you.

BENZ angle heads are available in various sizes with different parameters. The choice is yours!

See all variations on page 44.







UNIQUE SOLUTIONS CUSTOM-MADE ANGLE HEADS

We love the challenge and the exceptional

Do you need an angle head that does not match the standard parameters? No problem!

Custom-made products and highly complex new developments are our strength – prompt, affordable and always in the well-known BENZ quality.

Extreme conditions anywhere in the world: our tried and tested components and systems provide you with limitless possibilities.

We develop and produce your angle head made to measure for

- your specific working piece
- your specific machine
- your specific working conditions

See already realized custom-made solutions from page 97.

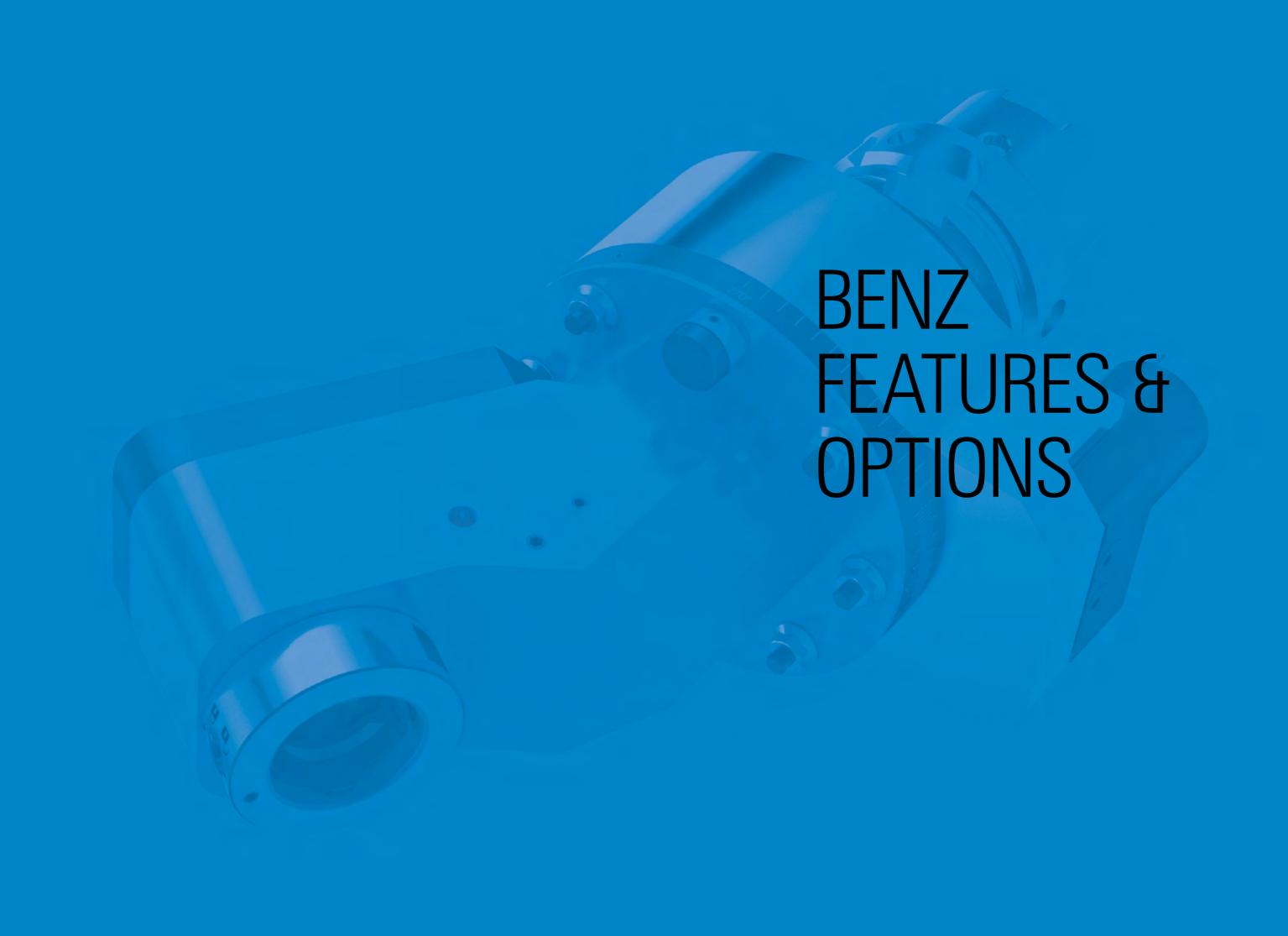


What can we do for you?



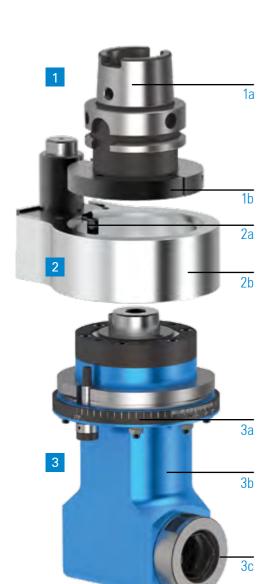


- We define the best possible solution and develop an appropriate concept based on your requirements.
- Your angle head is a high quality piece of work and is produced and assembled at the BENZ factory by experienced employees.
- Your contact partner starts implementation after coordinating the solution proposal.
- Your angle head is subjected to various performance tests before it leaves our factory.



ANGLE HEADS SYSTEM DESIGN

GENERAL SYSTEM DESIGN



1 Drive

1a Taper

- holds angle head in machine
- all common tapers available: see p. 21

1b Locking disc

 ensures the exact angle setting of the taper in relation to torque arm, locking sleeve and locking pin

2 Torque arm

2a Locking pin

- lock of taper and locking disc
- prevents turning of drive and enables precise depositing in tool magazine
- the stop block unlocks the angle head

2b Torque arm

- secures angle head against turning during machining by fixing it to the machine spindle
- standard torque arm (e.g. BENZ Select Line p. 34)
- customized torque arm adapted to the machine model of the customer

3 Front head

3a Scale ring (360°)

- manual, stepless turning of angle head at a desired working angle
- fixing using clamping screws

3b Housing

 different types, sizes and designs available for delivery according to application: see p. 44

3c Output spindle

- holds the cutting tool
- all common output spindles possible: see p. 21
- discover the BENZ modular quick-change systems for an optimal solution

COMPONENT VARIANTS

Front head - Design / Size

design and size are matched with respective machining case

Design



Sizes













Torque arm

primarily a machine-related design alternative: BENZ standard torque arm or even customized





Output spindle

all common output spindles can be realized

BENZ Standard













Taper

all common tapers can be realized







SK N DIN 69871







OPTIONAL: EQUIPMENT VERSIONS

Stop block Additional support



page 24



page 25

Coolant supply



page 26







BENZ i.TAG

page 30

Individual customer requirements, e.g. tapers, output spindles, etc. not listed here, can be realised on request. Please contact us!

BENZ MODULAR QUICK CHANGE SYSTEMS BENZ SOLIDFIX® | BENZ CAPTO™

An investment worth making

Beside higher rpms and higher accuracy the reduction of set up and machine down times is the main focus in the manufacturing industry. An important success factor is the integration of a modular tool interface.

The basic principle and the biggest advantage of modular tooling systems is that tools can be pre-set, set up and be ready for use on the machine by the operator, all while he is already in the process of machining other parts. The pre-set adapters then can be changed in a flash in the machine.

You as the customer increase the valuable production time of your machine while at the same time saving costs: Due to the modular design only the adapters are being changed – the base tool holder stays in the machine. This reduces the necessity of buying additional tools to a minimum.

With BENZ Solidfix® and BENZ CAPTO™ you have two of the most advanced and sophisticated modular quick change sytems available to you.

BENZ SOLIDFIX®



BENZ CAPTO™



PERFORMANCE, PRECISION, HANDLING, SAFETY,



Minimises setup and non-productive time / increases productivity

by changing the preset tool within seconds



Low investment overhead,

because the angle head remains on the machine and only an adapter needs to be changed, fewer angle heads are needed overall



Easy handlingOne-hand operation

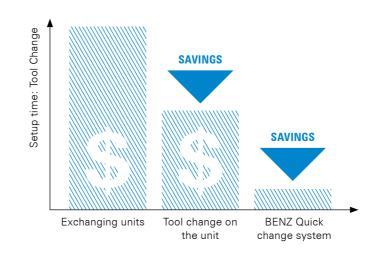
One-hand operation without a special tool



Operating safety

Cannot become detached accidentally

SAVINGS WITH BENZ QUICK CHANGE SYSTEMS



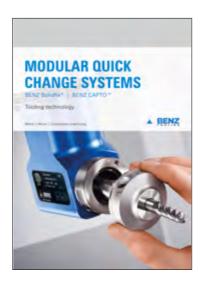
Reduce setup time = Save costs

Long machine standstill times arise for a tool change where the complete unit is taken out of the machine. By changing the cutting tool directly on the unit, setup times can already be reduced by 40%.

The optimum can be achieved with modular quick-change systems. Here the cutting tool is measured outside of the machine in the presetting device. Replacing the adapter therefore only requires a few seconds. You save 90% of your original setup costs! You also reduce your reject rate as the first part is already a good part.

OUTPUT SPINDLES ACCESSORIES

Please see our catalog for detailed information on our modular quick change system as well as all accessories



- adapters BENZ Solidfix[®]
- adapters BENZ CAPTO™
- accessories for collet chucks
- wrenches
- miscellaneous

DOWNLOAD CATALOG



PERFECTLY FIT SECURED AND STABLE

BENZ STOP BLOCK

Lock and unlock block

BENZ stop block mounted on the machine spindle secures your unit against rotation during machining, enables fast positioning via the torque arm and guarantees high positioning accuracy during manual or automatic tool change.

The design is standardised according to ISO 9524.

by the user. In this case, the hole pattern is provided by the user. For this purpose, please observe our latest angle head operating instructions.

BENZ stop blocks can be adjusted to the machine

We will be happy to help you with the adjustment of the stop block. Please contact us.

1 2 3

1 Spacer block

- regulates the distance between stop block and machine
- matched to the specific machine

2 Stop block

- locks or unlocks the angle head at the machine spindle
- the slot at the stop block holds the locking bolt of the torque arm

3 Torque arm

- increases the rigidity between angle head and machine spindle
- usually adapted to the respective machine
- alternative: BENZ standard torque arm

BLP EDITION

TLP EDITION





Technical data for BENZ stop block see in section BENZ Select Line from page 36

HOW TO INSTALL



ADDITIONAL SUPPORT

Support for optimal machining results

An additional support increases the stiffness between the machine spindle and the unit. It ensures optimum force transmission from the machine spindle to the tool. The vibrations that occur during machining are reduced. This leads to better workpiece quality and a longer service life of the aggregate.

Versions









torque arm

torque arm with 3-point support

torque arm with 4-point support

mechanical/hydraulic additional support

i

The need for an additional support depends on the respective machining case. Please contact us. We will be happy to advise you.

EQUIPMENT VERSIONS COOLING

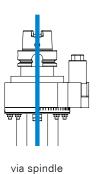
Several types and methods of tool cooling

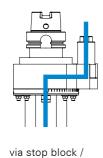
Cooling the cutting edge and the coolant itself have a significant impact on the quality of the workpiece, the life of your cutting tool and therefore on your costs. Depending on the machine load and specifications, we offer following cooling options.

Water coolant: max. 100 bar MQL: max. 8 bar

WATER COOLING

Coolant supply from the machine





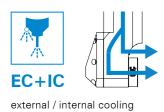
torque arm

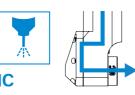
Coolant supply to the cutting edge





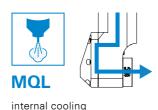
external cooling







internal cooling



MOL – MINIMUM QUANTITY LUBRICATION



transfer nozzle

length adjustment screw

Less lubricants - great benefits

Reducing lubricant consumption not only cuts costs, moreover, it protects the environment and improves working conditions.

By reducing residues, MQL also helps to extend the service life of tools and eases cleaning and disposal. Essentially, minimum quantity lubrication offers an efficient and sustainable lubrication solution.

BENZ angle heads can be equipped with MQL on

BENZ MQL technology – optimal MQL flow

BENZ Tooling designed angle heads especially for MQL to always provide the right MQL quantity to the cutting tool.

By using a special, separate curved pipe (without corners and edges) the MQL is directly transported into the cutting tool.

Without baggings and undesired droplet formation this ensures an optimal MQL flow.

cutting tool with MQL shaft

Perfect media transfer by customized interfaces

Furthermore we are offering specific adjustment screws for your cutting tool. This secures the perfect interface and transfer of the MQL from the head into the cutting tool.

BENZ MQL angle heads are offered with colletspindle or with the modular quick change system BENZ Solidfix® for even more flexiblity.

GEARBOX LIFETIME LUBRICATION

GREASE LUBRICATING

Cyclical machining

All BENZ units are equipped with grease lubrication as a standard feature.

By using grease, long-lasting and durable lubrication is achieved. This type of lubrication permits effective load-carrying capacity, which reduces the wear and friction properties of the gearbox and thus increases the service life of the components.



In addition, the grease provides additional sealing and thus protects against the intrusion of dirt and other impurities into the gearbox.

Due to the permanent grease lubrication, no additional grease needs to be applied during the entire service life.

The installation position of the angle head is not relevant with this type of lubrication.

OIL MIST LUBRICATION - UNIQUE SOLUTIONS

es Constitution of the Con

Continuous machining and highest speeds

Oil mist lubrication is a state-of-the-art lubrication technology that produces fine oil droplets in an air stream, ensuring efficient and consistent distribution of the lubricant in the gearbox.

This approach allows the lubrication of hard-toreach areas that are often neglected by other lubrication methods.

Additionally, the oil mist airflow creates a cooling effect, which contributes to better temperature control of the lubricated parts and also makes it possible to drive at high speeds.

Oil mist lubricated BENZ units can be used in continuous operation – without any breaks – and are suitable for high load volumes.

In case your existing machine cannot provide oil mist, we will be happy to offer you a suitable oil mist unit – please get in touch with us.

The installation position of the angle head is not relevant for this type of lubrication.

This technology is used exclusively in our unique, custom-made solutions.

More benefits

- additional sealing effect due to overpressure in the unit
- permanent renewal of the lubricant
- adjustable lubricant quantity
- significant extension of the service life of the angle head due to good corrosion protection







With BENZ i.tag your tool always carries all important information with it!

BENZ i.tag DIGITAL NAME PLATE

That black dot with NFC logo on your tool catches your eye and you wonder what it is?

You have discovered BENZ i.tag, the Digital Nameplate! Simply scan the dot (tag) with your smartphone and access your product data anytime and anywhere.

BENEFITS

- + time saving: Technical data & documents always at hand and available
- + quick and easy handling via smartphone, no special software required
- + contact the service team directly via online form, direct phone call or e-mail
- + worldwide availability, link can be sent

- + save storage and logistics costs (no more paper documents)
- + you work sustainably and protect the environment by saving paper
- + your tool data is safely managed: BENZ i.tag can be read out, but does not collect or send any data itself





Find the NFC tag





Scan the NFC tag







Get access to

Use the

1 PREPARE SCAN

Activate on your smartphone



NFC



Internet connection via WLAN or mobile data

Installed on your smartphone



PDF Viewer App

2 SCAN CORRECTLY



The NFC sensor of your smartphone is usually located around the camera or in the center.

Hold this area to the NFC tag of the tool.

Once the scan is successful, the data and documents automatically open in the browser

3 ALL AT A GLANCE

- tool data
- technical data
- documents (e.g. operating instructions)
- direct contact to service
- videos (if available)

4 DOWNLOAD, SHARE, CONTACT



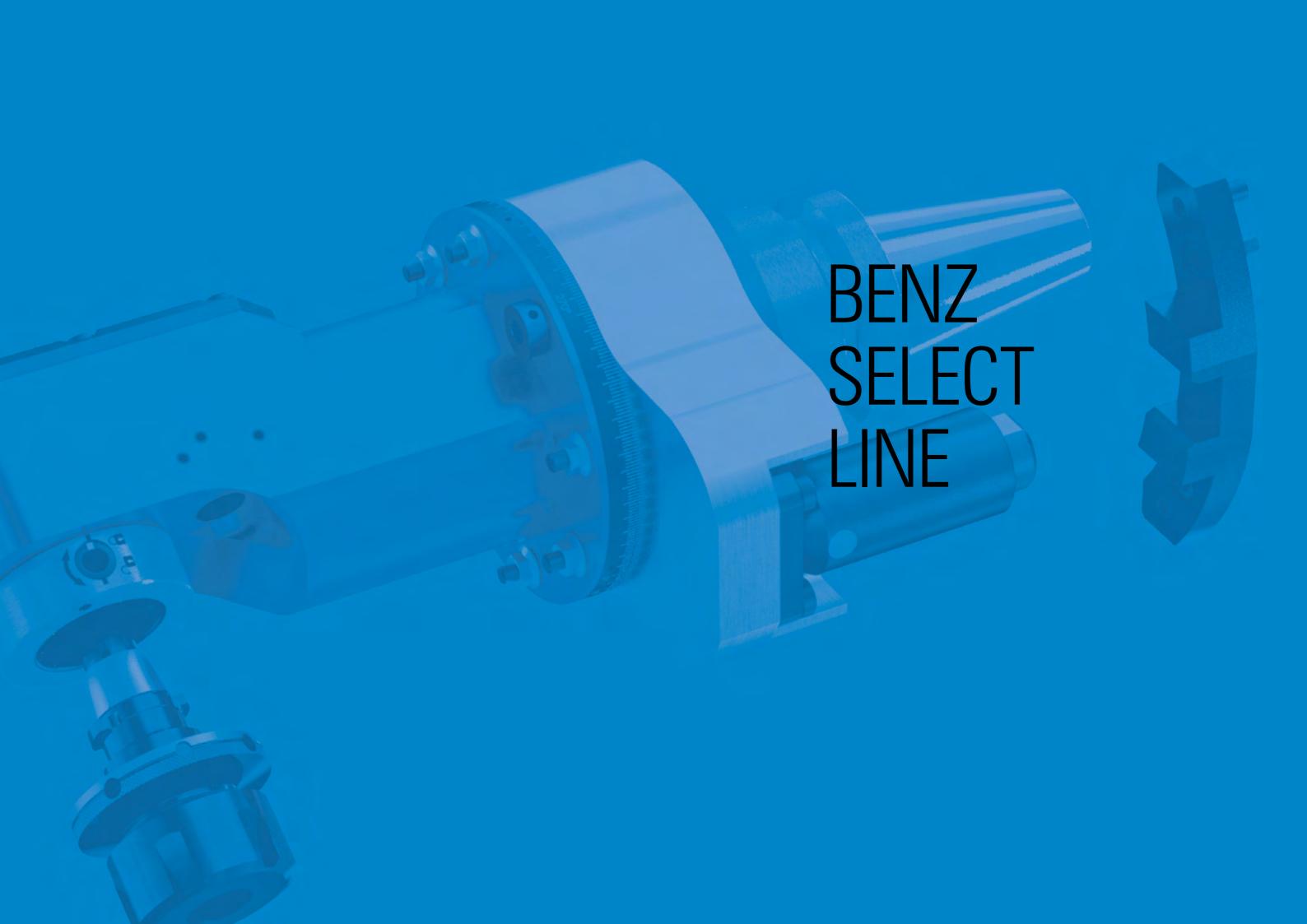
View, download or share documents. Quickly clarify questions with PDF search function.



Share i.tag link with co-workers: Access to all stored data



Get in a contact with the service (by online-form, direct-telephone or e-mail).



BENZ SELECT LINE PRODUCT OVERVIEW

DESIGNS



MONO WSX

Angle head 90°

Machining: without spatial constraint

page 36



FORTE WWX

Angle head 90° reset output spindle

Machining: for spatial constraint / maximum useable tool length page 38



3

FORTE WWX (EC+IC)

Angle head 90° reset output spindle

Machining: for spatial constraint / maximum useable tool length page 40

ORDER INFORMATION

BLP EDITION



TLP EDITION Technical data



LOCKING

BLP EDITION







Stop block

TLP EDITION





Stop block

detailed information about detailed information about BENZ Stop block from page 36

TAPERS







Steep taper MAS BT



Steep taper

ADAPTER





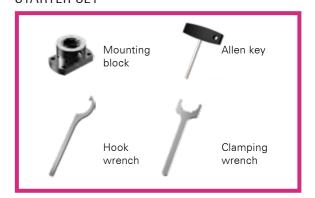


BENZ Solidfix® S3 Collect chuck adapter S4 Collect chuck adapter

all SELECT LINE products including all Select Line pro-adapter and stop block

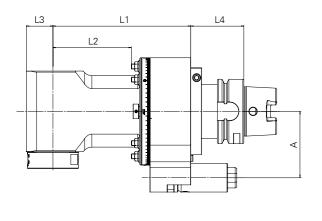
ACCESSORIES OPTIONAL

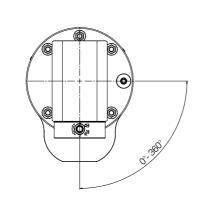
STARTER SET



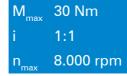
BENZ SELECT LINE – MONO WSX

TECHNICAL DATA







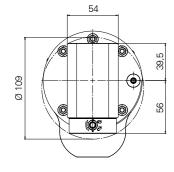




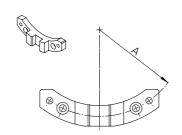


OUTPUT SPINDLE

BENZ Solidfix®-S3







| Stop block Size | Technical data A [mm] |
|-----------------------|-----------------------|
| HSK-A63 | 65 80 |
| HSK-A100* | 80 110 |
| SK40 CAT40 | 65 80 |
| SK50 CAT50* | 80 110 |
| BT40 | 65 80 |
| BT50 | 80 110 |
| *for BLP edition only | |

for easy commissioning – starter set available

FRONT HEAD

| | Technica | Technical data | | |
|--------------|----------|----------------|------|--|
| Type Size | L1 | L2 | (KG) | |
| Size | [mm] | [mm] | (KG) | |
| 05 | 135 | 73,5 | 5,6 | |

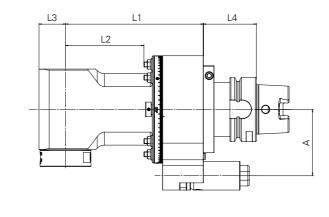
+OUTPUT SPINDLE

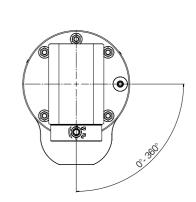
| | Technical d | lata |
|--------------|-------------|-------|
| Type Size | L3 | 凤 |
| Size | [mm] | +(KG) |
| S3 | 26 | 0 |

+TAPER

| | Technical o | lata |
|--------------|-------------|------|
| Type Size | L4 [mm] | + KG |
| HSK-A63 | 52 | C |
| HSK-A100 | 55 | 1,7 |
| SK40 CAT40 | 45 | 0,1 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3,5 |
| | | |

TECHNICAL DATA





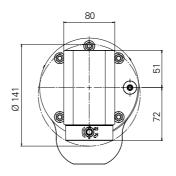


BENZ SELECT LINE - MONO WSX

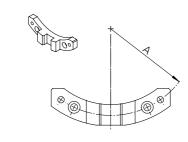


OUTPUT SPINDLE

BENZ Solidfix®-S4







| | Technical data |
|-----------------------|----------------|
| Stop block | Α |
| Size | [mm] |
| HSK-A63 | 65 80 |
| HSK-A100* | 80 110 |
| SK40 CAT40 | 65 80 |
| SK50 CAT50* | 80 110 |
| BT40 | 65 80 |
| BT50 | 80 110 |
| *for BLP edition only | |

for easy commissioning - starter set available

FRONT HEAD

| | Technica | l data | |
|-------|----------|--------|----|
| Турее | L1 | L2 | F |
| Size | [mm] | [mm] | (K |
| 07 | 150 | 88 | 8 |

+OUTPUT SPINDLE

| | Technical (| data |
|--------------|-------------|------|
| Type Size | L3 | |
| Size | [mm] | +(KG |
| S4 | 35 | C |

+MACHINE CONNECTION

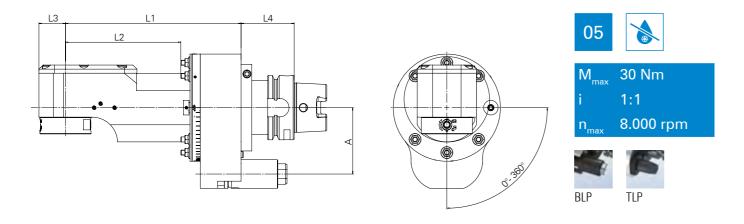
| | Technical dat | а |
|--------------|---------------|-------|
| Type Size | L4 [mm] | + (KG |
| HSK-A63 | 52 | (|
| HSK-A100 | 55 | 1,9 |
| SK40 CAT40 | 45 | 0, |
| SK50 CAT50 | 45 | 2, |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3, |
| | | |

BENZ SELECT LINE – FORTE WWX

ANGLE HEAD

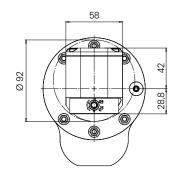
BENZ SELECT LINE — FORTE WWX

TECHNICAL DATA

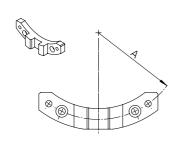


OUTPUT SPINDLE

BENZ Solidfix®-S3



Stop block



| | lechnical data |
|-----------------------|----------------|
| Stop block | Α |
| Size | [mm] |
| HSK-A63 | 65 80 |
| HSK-A100* | 80 110 |
| SK40 CAT40 | 65 80 |
| SK50 CAT50* | 80 110 |
| BT40 | 65 80 |
| BT50 | 80 110 |
| *for BLP edition only | |

i

for easy commissioning – starter set available

FRONT HEAD

| | Technica | Technical data | | |
|--------------|----------|----------------|------|--|
| Type Size | L1 | L2 | (KG) | |
| Size | [mm] | [mm] | (KG) | |
| 05 | 172 | 110,5 | 5,8 | |

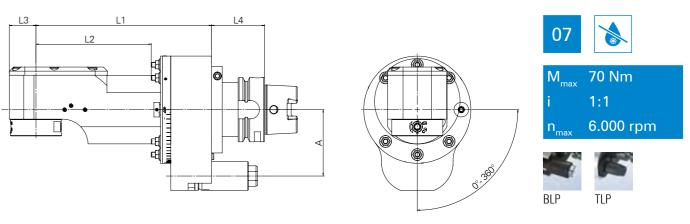
+OUTPUT SPINDLE

| | Technical of | data |
|--------------|--------------|-------|
| Type Size | L3 | |
| Size | [mm] | +(KG) |
| S3 | 26 | 0 |

+TAPER

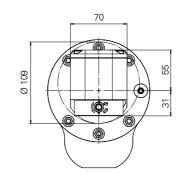
| | Technical da | ta |
|--------------|--------------|------|
| Type Size | L4 [mm] | + KG |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,7 |
| SK40 CAT40 | 45 | 0,1 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3,5 |
| | | |

TECHNICAL DATA

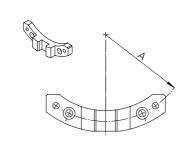


OUTPUT SPINDLE

BENZ Solidfix®-S4



Stop block



| recillical data |
|-----------------|
| Α |
| [mm] |
| 65 80 |
| 80 110 |
| 65 80 |
| 80 110 |
| 65 80 |
| 80 110 |
| |
| |

i

for easy commissioning - starter set available

FRONT HEAD

| | Technica | l data | |
|--------------|----------|--------|-----|
| Type Size | L1 | L2 | 厂 |
| Size | [mm] | [mm] | (KG |
| 07 | 200 | 138 | 8, |

+OUTPUT SPINDLE

| | Technical | data |
|--------------|-----------|------|
| Type Size | L3 | JE |
| Size | [mm] | +(K |
| S4 | 35 | |

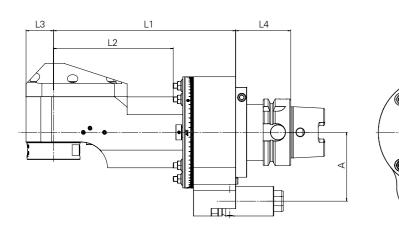
+TAPER

| | Technical data | |
|--------------|----------------|--------|
| Type Size | L4 [mm] | + (KG) |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,9 |
| SK40 CAT40 | 45 | 0,1 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,5 |
| BT50 | 60 | 3,7 |
| | | |

BENZ SELECT LINE - FORTE WWX (EC+IC)

BENZ SELECT LINE - FORTE WWX (EC+IC)

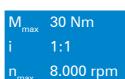
TECHNICAL DATA









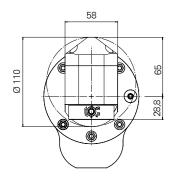




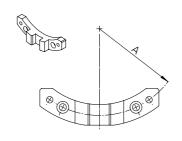


OUTPUT SPINDLE

BENZ Solidfix®-S3







| Stop block Size | Technical data A [mm] |
|-----------------------|-----------------------|
| HSK-A63 | 65 80 |
| HSK-A100* | 80 110 |
| SK40 CAT40 | 65 80 |
| SK50 CAT50* | 80 110 |
| BT40 | 65 80 |
| BT50 | 80 110 |
| *for BLP edition only | |

i ·

for easy commissioning - starter set available

FRONT HEAD

| | Technica | l data | |
|--------------|----------|--------|------|
| Type Size | L1 | L2 | (KG) |
| Size | [mm] | [mm] | (KG) |
| 05 | 172 | 110,5 | 5,9 |

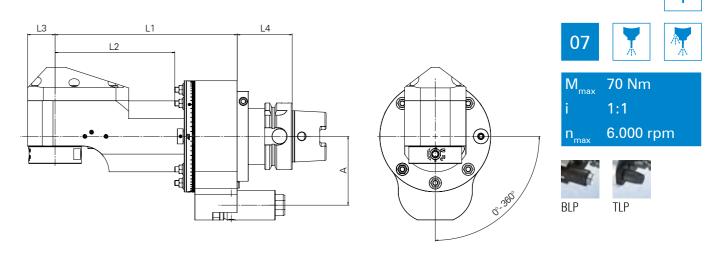
+OUTPUT SPINDLE

| | Technical d | ata |
|--------------|-------------|-------|
| Type Size | L3 | |
| Size | [mm] | +(KG) |
| S3 | 26 | 0 |

+TAPER

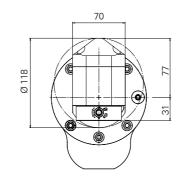
| | Technical da | ta |
|--------------|--------------|-------|
| Type Size | L4 [mm] | + (KG |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,7 |
| SK40 CAT40 | 45 | 0,1 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3,5 |
| | | |

TECHNICAL DATA

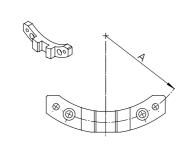


OUTPUT SPINDLE

BENZ Solidfix®-S4







| Stop Size | block | Technical data A [mm] |
|--------------|----------------|-----------------------|
| HSK | C-A63 | 65 80 |
| HSK | C-A100* | 80 110 |
| SK4 | 0 CAT40 | 65 80 |
| SK5 | 0 CAT50* | 80 110 |
| BT4 | 0 | 65 80 |
| BT5 | 0 | 80 110 |
| *for Bl | P edition only | |

i

for easy commissioning - starter set available

FRONT HEAD

| | Technica | l data | |
|--------------|----------|--------|-----|
| Type Size | L1 | L2 | F |
| Size | [mm] | [mm] | (KI |
| 07 | 200 | 138 | 8, |

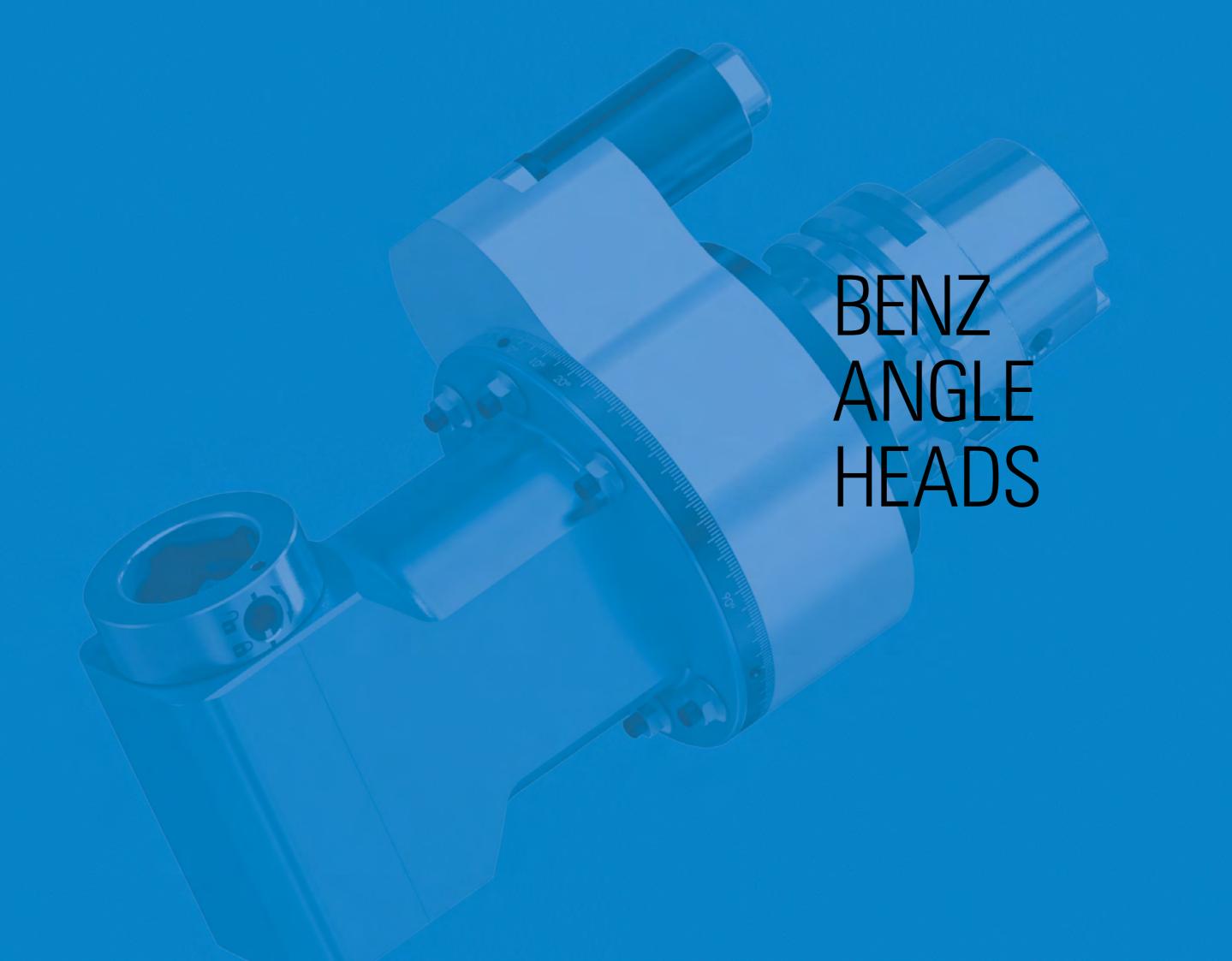
+OUTPUT SPINDLE

| | Technical | data |
|--------------|-----------|------|
| Type Size | L3 | 戶 |
| Size | [mm] | +(KG |
| S4 | 35 | (|

+TAPER

| | Technical d | ata |
|--------------|-------------|------|
| Type Size | L4 [mm] | + KG |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,9 |
| SK40 CAT40 | 45 | 0,1 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,5 |
| BT50 | 60 | 3,7 |
| | | |

2



BENZ ANGLE HEADS PRODUCT OVERVIEW

DESIGNS



MONO WSX

Angle head 90°

Machining: without spatial constraint

page 46



DUO WZX

Angle head 90° output spindle on both sides

Machining: in opposite direction / with different tools

page 54



SLIM WGX

Angle head 90° narrow design

Machining: for spatial constraint / maximum useable tool length

page 72



SLIM WG-S / WGX-S

Angle head 90° extremely narrow design

Machining: for extreme spatial constraint / maximum useable tool length

page 78



FORTE WWX (EC)

Angle head 90° reset output spindle

Machining: for spatial constraint / maximum useable tool length

page 62



FORTE WWX (IC)

Angle head 90° reset output spindle

Machining: for spatial constraint / maximum useable tool length

page 68



7

FLEX WDX

Angle head 0°-100° with flexible angle / stepless adjustment Machining: in any variable position

page 88



8

FIX WFX

Angle head 0°-120° with fixed angle

Machining: special machining at fixed angle

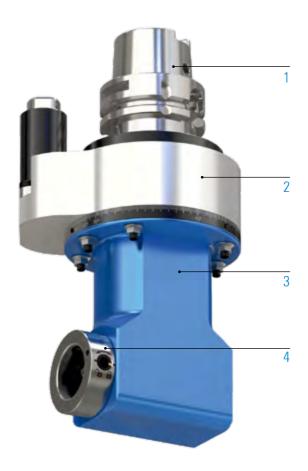
page 94

ANGLE HEAD MONO WSX

ANGLE HEAD 90° – SINGLE OUTPUT SPINDLE

Angle head for machining without spatial constraint

Feasible on request: external cooling (EC), internal cooling (IC) or EC/IC combination



1 TAPER







DIN 69893









Steep taper

Capto®

KM™

2 TORQUE ARM

optional: customized torque arm more information on page 25

3 FRONT HEAD (SIZE)











4 OUTPUT SPINDLE



















КМ™

Milling arbor

MACHINING



drilling



milling



SPECIFICATIONS



amount of output spindles



axis angle



change the angle head



grease lubrication



without cooling



external cooling (on request)



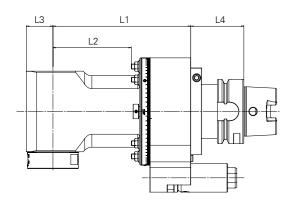
internal cooling (on request)

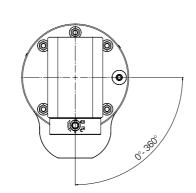


exteral / internal cooling (on request)

MONO WSX

TECHNICAL DATA



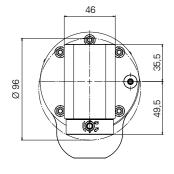


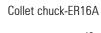


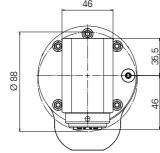
M_{max} 15 Nmi 1:1n_{max} 10.000 rpm

OUTPUT SPINDLE

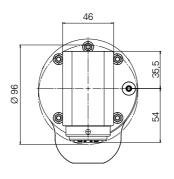
BENZ Solidfix®-S2







Collet chuck-ER20A



i .

technical data for other output spindles on request

FRONT HEAD

| | Technica | l data | |
|--------------|----------|--------|------|
| Type Size | L1 | L2 | (KG) |
| Size | [mm] | [mm] | (KG) |
| 04 | 145 | 93,5 | 4,1 |

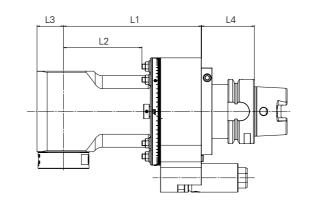
+OUTPUT SPINDLE

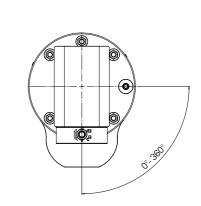
| | Technical data | |
|--------------|----------------|------|
| Type Size | L3 [mm] | + KG |
| S2 | 24 | 0 |
| ER16A | 24 | 0 |
| ER20A | 24 | 0 |

+TAPER

| | Technical data | |
|-------------------------|----------------|------|
| Type Size | L4 [mm] | + KG |
| HSK-A63 | 52 | C |
| HSK-A100 | 55 | 1,5 |
| Capto C6 SK40 CAT40 | 45 | 0,1 |
| Capto C8 | 45 | 0,9 |
| SK50 CAT50 | 45 | 2 |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3,3 |
| | | |

TECHNICAL DATA





05



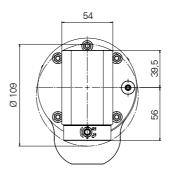
MONO WSX

M_{max} 30 Nm i 1:1

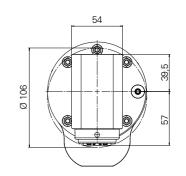
n_{max} 8.000 rpm

OUTPUT SPINDLE

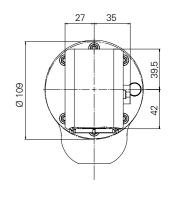
BENZ Solidfix®-S3



Collet chuck-ER25A



BENZ CAPTO™-C3



i

technical data for other output spindles on request

FRONT HEAD

| | Technical | data | |
|--------------|------------|------------|----|
| Type Size | L1 [mm] | L2 [mm] | K |
| 05 | 88* | 26,5 | 4, |
| | 135 | 73,5 | 5, |
| | 195 | 133,5 | 6, |
| | | | |

+OUTPUT SPINDLE

| | Technical data | |
|--------------|----------------|--------|
| Type Size | L3 | |
| Size | [mm] | + (KG) |
| S3 | 26 | 0 |
| ER25A | 26 | 0 |
| C3 | 30,5 | 1 |
| | | |

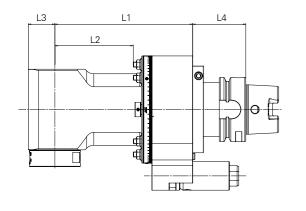
+TAPER

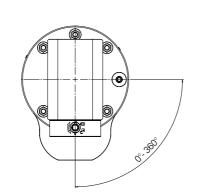
| | Technical data | |
|-------------------------|----------------|------|
| Type Size | L4 [mm] | + KG |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,7 |
| Capto C6 SK40 CAT40 | 45 | 0,1 |
| Capto C8 | 45 | 1,0 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3,5 |

^{*} short size: output spindle BENZ CAPTO™ not possible

MONO WSX

TECHNICAL DATA



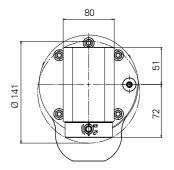


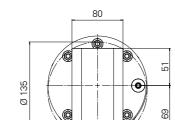


M_{max} 70 Nm i 1:1 n_{max} 6.000 rpm

OUTPUT SPINDLE

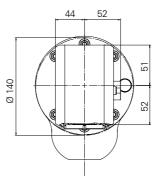
BENZ Solidfix®-S4





Collet chuck-ER32A







technical data for other output spindles on request

FRONT HEAD

| | Technica | l data | |
|--------------|----------|--------|------|
| Type Size | L1 | L2 | (KG) |
| Size | [mm] | [mm] | (KG) |
| 07 | 105 | 43,5 | 7,5 |
| | 150 | 88 | 8,7 |
| | 215 | 153,5 | 10,1 |

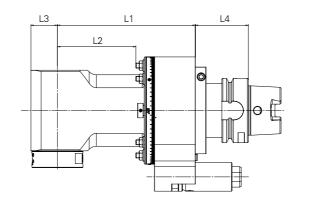
+OUTPUT SPINDLE

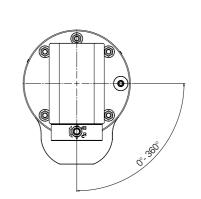
| Technical data | |
|----------------|------------------------|
| L3 | |
| [mm] | + (KG) |
| 35 | 0 |
| 35 | 0 |
| 37 | 0,5 |
| | L3 [mm] 35 35 |

+TAPER

| | Technical data | |
|-------------------------|----------------|--------|
| Type Size | L4 [mm] | + (KG) |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,9 |
| Capto C6 SK40 CAT40 | 45 | 0,1 |
| Capto C8 | 45 | 1,0 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,5 |
| BT50 | 60 | 3,5 |
| | | |

TECHNICAL DATA





15



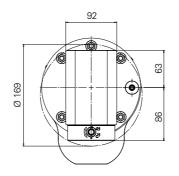
MONO WSX

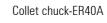
M_{max} 150 Nm i 1:1

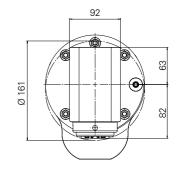
n_{max} 4.000 rpm

OUTPUT SPINDLE

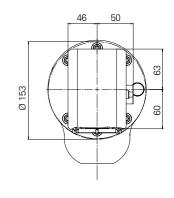
BENZ Solidfix®-S5







BENZ CAPTO™-C5



i

technical data for other output spindles on request

FRONT HEAD

| | Technical data | | |
|--------------|----------------|-------|-----|
| Type Size | L1 | L2 | (KG |
| Size | [mm] | [mm] | (KG |
| 15 | 155 | 85,5 | 14, |
| | 225 | 155,5 | 16, |
| | 298 | 228,5 | 19, |
| | | | |

+OUTPUT SPINDLE

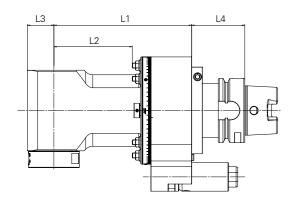
| | Technical data | |
|--------------|----------------|--------|
| Type Size | L3 | |
| Size | [mm] | + (KG) |
| S5 | 40 | 0 |
| ER40A | 40 | 0 |
| C5 | 44 | 0 |
| | | |

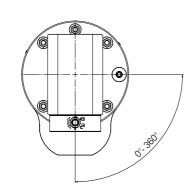
+TAPER

| | Technical o | lata |
|--------------|-------------|-------|
| Type Size | L4 [mm] | + (KG |
| HSK-A100 | 55 | (|
| Capto C8 | 45 | -0,8 |
| SK50 CAT50 | 45 | 0,3 |
| BT50 | 60 | 2,9 |

MONO WSX

TECHNICAL DATA

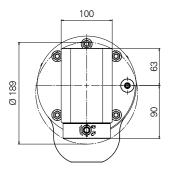




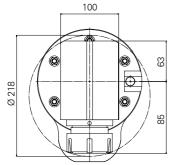
M_{max} 230 Nm 3.000 rpm

OUTPUT SPINDLE

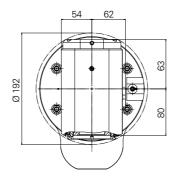
BENZ Solidfix®-S5







BENZ CAPTO™-C6



technical data for other output spindles on request

FRONT HEAD

| | Technica | | |
|--------------|----------|------|------|
| Type Size | L1 | L2 | (KG) |
| Size | [mm] | [mm] | (KG) |
| 20 | 171 | 101 | 19,0 |
| | 241 | 171 | 21,5 |
| | 311 | 241 | 24.8 |

+OUTPUT SPINDLE

| | Technical data | |
|--------------|----------------|--------|
| Type Size | L3 | ⊥ (KG) |
| Size | [mm] | + (KG) |
| S5 | 45 | -0,5 |
| ER50 | 45 | 0 |
| C6 | 50 | 0.5 |

+TAPER

| | Technical data | |
|--------------|----------------|------|
| Type Size | L4 [mm] | + KG |
| HSK-A100 | 55 | 0 |
| Capto C8 | 45 | -0,8 |
| SK50 CAT50 | 45 | 0,3 |
| BT50 | 60 | 1,9 |
| | | |

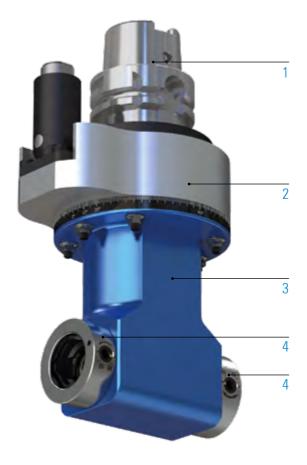


ANGLE HEAD DUO WZX

ANGLE HEAD 90° – OUTPUT SPINDLE ON BOTH SIDES

Angle head with two output spindles arranged opposite each other and running in opposite directions

Feasible on request: external cooling (EC)



1 TAPER









DIN 69893

Steep taper MAS BT







Steep taper CAT

Capto®

KM™

2 TORQUE ARM

optional: customized torque arm more information on page 25

3 FRONT HEAD (SIZE)











4 OUTPUT SPINDLE



















Milling arbor





MACHINING



drilling



milling



SPECIFICATIONS



amount of output spindles



axis angle

change the

angle head





external cooling

without cooling



grease lubrication

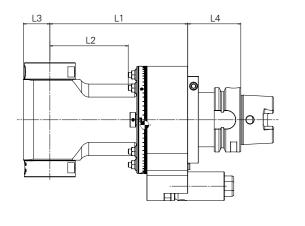


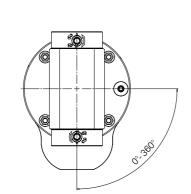
DUO WZX

TECHNICAL DATA

DUO WZX

ANGLE HEAD



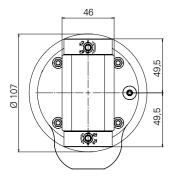


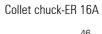


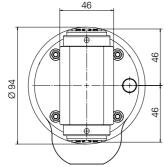
M_{max} 15 Nm 1:1 10.000 rpm

OUTPUT SPINDLE

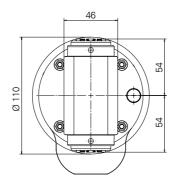
BENZ Solidfix®-S2







Collet chuck-ER 20A



technical data for other output spindles on request

FRONT HEAD

| | Technica | l data | |
|--------------|----------|--------|------|
| Type Size | L1 | L2 | (KG) |
| Size | [mm] | [mm] | (KG) |
| 04 | 145 | 93,5 | 4,8 |

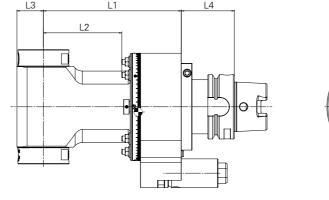
+OUTPUT SPINDLE

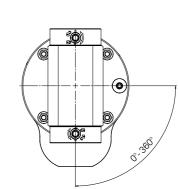
| | Technical data | |
|--------------|----------------|-----|
| Type Size | L3 [mm] | +KG |
| S2 | 24 | 0 |
| ER16A | 24 | 0 |
| ER 20A | 24 | 0 |

+TAPER

| | Technical da | | |
|-------------------------|--------------|-------|--|
| Type Size | L4 [mm] | + (KG | |
| HSK-A63 | 52 | (| |
| HSK-A100 | 55 | 3 | |
| Capto C6 SK40 CAT40 | 45 | 0, | |
| Capto C8 | 45 | 2,4 | |
| SK50 CAT50 | 45 | 3,6 | |
| BT40 | 53 | -0,2 | |
| BT50 | 60 | 2,8 | |
| | | | |

TECHNICAL DATA





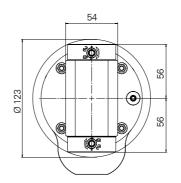




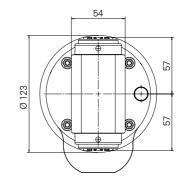
M_{max} 30 Nm 1:1 8.000 rpm

OUTPUT SPINDLE

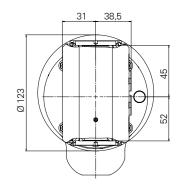
BENZ Solidfix®-S3



Collet chuck-ER 25A



BENZ CAPTO ™-C3



technical data for other output spindles on request

FRONT HEAD

| | Technical data | | |
|--------------|----------------|-------|----|
| Type Size | L1 | L2 | F |
| Size | [mm] | [mm] | (K |
| 05 | 88* | 26,5 | 5 |
| | 135 | 73,5 | 6 |
| | 195 | 133,5 | 6 |
| | | | |

+OUTPUT SPINDLE

| | Technical data | |
|--------------|----------------|--------|
| Type Size | L3 | , (KG) |
| Size | [mm] | +(KG) |
| S3 | 26 | 0 |
| ER25A | 26 | 0 |
| C3 | 30,5 | 0,5 |

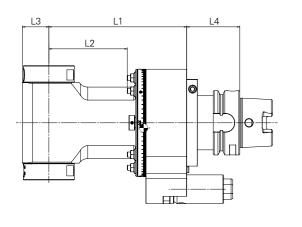
+TAPER

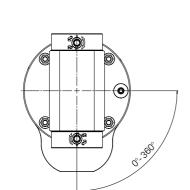
| | Technical data | |
|-------------------------|----------------|------|
| Type Size | L4 [mm] | + KG |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 3 |
| Capto C6 SK40 CAT40 | 45 | 0,1 |
| Capto C8 | 45 | 2,4 |
| SK50 CAT50 | 45 | 3,6 |
| BT40 | 53 | -0,1 |
| BT50 | 60 | 3,1 |

^{*} short size: output spindle BENZ CAPTO™ not possible

ANGLE HEAD DUO WZX

TECHNICAL DATA



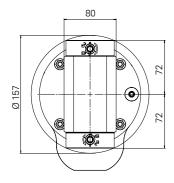


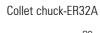


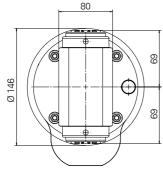
M_{max} 70 Nm i 1:1 n_{max} 6.000 rpm

OUTPUT SPINDLE

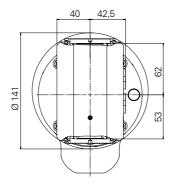
BENZ Solidfix®-S4











i

technical data for other output spindles on request

FRONT HEAD

| | Technical data | | |
|--------------|----------------|-------|------|
| Type Size | L1 | L2 | (KG) |
| Size | [mm] | [mm] | (KG) |
| 07 | 105 | 43,5 | 8,4 |
| | 150 | 88,5 | 9,4 |
| | 215 | 153,5 | 11.1 |

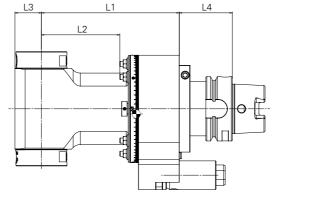
+OUTPUT SPINDLE

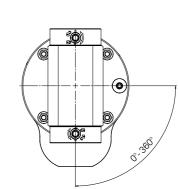
| Technical data | |
|----------------|------------------------|
| L3 | _ (KG) |
| [mm] | + (KG) |
| 35 | 0 |
| 35 | 0 |
| 37 | 1,0 |
| | L3 [mm] 35 35 |

+TAPER

| Technical d | lata |
|-------------|--|
| L4 [mm] | + KG |
| 52 | 0 |
| 55 | 1,9 |
| 45 | 0,1 |
| 45 | 1,0 |
| 45 | 2,2 |
| 53 | 0,5 |
| 60 | 3,5 |
| | L4 [mm] 52 55 45 45 45 53 |

TECHNICAL DATA





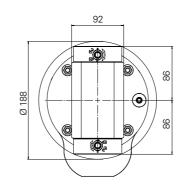
5



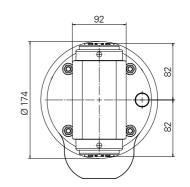
M_{max} 150 Nm i 1:1 n_{max} 4.000 rpm

OUTPUT SPINDLE

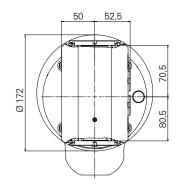
BENZ Solidfix®-S5



Collet chuck-ER40A



BENZ CAPTO™-C5



i

technical data for other output spindles on request

FRONT HEAD

| | Technica | l data | |
|--------------|----------|--------|------|
| Type Size | L1 | L2 | (KG |
| 2176 | [mm] | [mm] | (KG |
| 15 | 155 | 85,5 | 14,7 |
| | 225 | 155,5 | 16,9 |
| | 298 | 228,5 | 19,2 |
| | | | |

+OUTPUT SPINDLE

| | Technical | data |
|--------------|-----------|--------|
| Type Size | L3 | |
| Size | [mm] | + (KG) |
| S5 | 40 | 0 |
| ER40A | 40 | 0 |
| C5 | 44 | 5,5 |

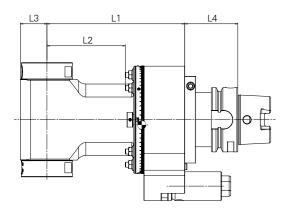
+TAPER

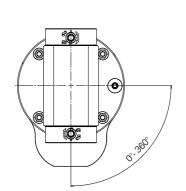
| | Technical d | lata |
|--------------|-------------|------|
| Type Size | L4 | , (K |
| OIZC | [mm] | + @ |
| HSK-A100 | 55 | |
| Capto C8 | 45 | -0 |
| SK50 CAT50 | 45 | 0 |
| BT50 | 60 | 2 |
| | | |

NOTES

ANGLE HEAD DUO WZX

TECHNICAL DATA



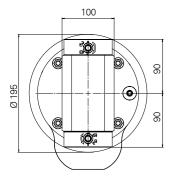


M_{max} 230 Nm

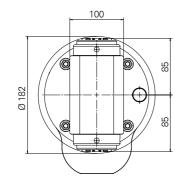
3.000 rpm

OUTPUT SPINDLE

BENZ Solidfix®-S5







technical data for other output spindles on request

FRONT HEAD

| | Technica | l data | |
|--------------|----------|--------|------|
| Type Size | L1 | L2 | (KG |
| Size | [mm] | [mm] | (KG |
| 20 | 171 | 101 | 18 |
| | 241 | 171 | 20,3 |
| | 311 | 241 | 24,1 |

+OUTPUT SPINDLE

| | Technical data | | |
|--------------|----------------|--------|--|
| Type Size | L3 | 凤 | |
| Size | [mm] | + (KG) | |
| S5 | 45 | 0,5 | |
| ER40A | 45 | 0 | |
| | | | |

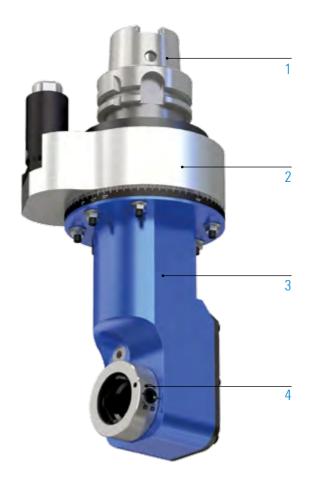
+TAPER

| | Technical da | ata |
|--------------|--------------|--------|
| Type Size | L4 | |
| Size | [mm] | + (KG) |
| HSK-A100 | 55 | 0 |
| Capto C8 | 45 | -0,8 |
| SK50 CAT50 | 45 | 0,3 |
| BT50 | 60 | 1,9 |
| | | |

ANGLE HEAD FORTE WWX

ANGLE HEAD 90° - RESET OUTPUT SPINDLE

Angle head for machining for spatial constraint / maximum useable tool length Product versions: external cooling (EC), internal cooling (IC) or EC/IC combination



1 TAPER







DIN 69893

Steep taper









Steep taper CAT

Capto®

KM™

2 TORQUE ARM

optional: customized torque arm more information on page 25

3 FRONT HEAD (SIZE)









4 OUTPUT SPINDLE



Solidfix®





CAPTO™









Milling arbor



MACHINING





milling



SPECIFICATIONS



amount of output spindles



axis angle



change the angle head



grease lubrication



without cooling



external cooling



internal cooling



exteral / internal cooling



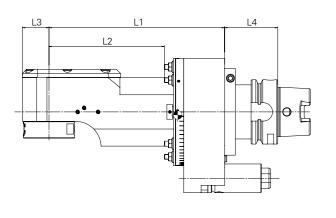
MQL

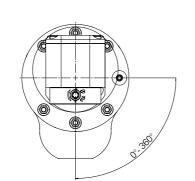
M_{max} 70 Nm 1:1

TECHNICAL DATA

ANGLE HEAD

FORTE WWX (EC)

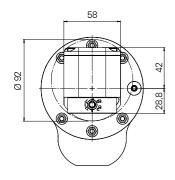


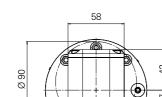


30 Nm 1:1 8.000 rpm

OUTPUT SPINDLE

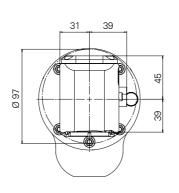
BENZ Solidfix®-S3





Collet chuck-ER 25A





BENZ CAPTO™-C3

technical data for other output spindles on request

FRONT HEAD

| Technical data | | | |
|----------------|------|-------|------|
| Type Size | L1 | L2 | (KG) |
| Size | [mm] | [mm] | (KG) |
| 05 | 125 | 63,5 | 5,0 |
| | 172 | 110,5 | 5,8 |
| | 232 | 170,5 | 6,6 |

+OUTPUT SPINDLE

| | Technical data | |
|--------------|----------------|--------|
| Type Size | L3 [mm] | + (KG) |
| S3 | 26 | 0 |
| ER25A | 26 | 0 |
| C3 | 30 | 0,6 |

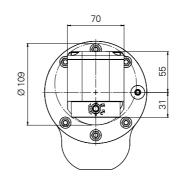
+TAPER

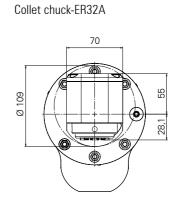
| | Technical o | lata |
|-------------------------|-------------|--------|
| Type Size | L4 [mm] | + (KG) |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,7 |
| Capto C6 SK40 CAT40 | 45 | 0,1 |
| Capto C8 | 45 | 1 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3,5 |
| | | |

OUTPUT SPINDLE

TECHNICAL DATA

BENZ Solidfix®-S4





BENZ CAPTO™-C4

technical data for other output spindles on request

FRONT HEAD

| | Technica | l data | |
|--------------|----------|--------|-----|
| Type Size | L1 | L2 | |
| Size | [mm] | [mm] | (KG |
| 07 | 155 | 93,5 | 7,6 |
| | 200 | 138,5 | 8,6 |
| | 253 | 191,5 | 9,2 |
| | | | |

+OUTPUT SPINDLE

| | Technical data | |
|--------------|----------------|--------|
| Type Size | L3 | 凤 |
| Size | [mm] | + (KG) |
| S4 | 35 | 0 |
| ER32A | 35 | 0 |
| C4 | 35 | 1 |
| | | |

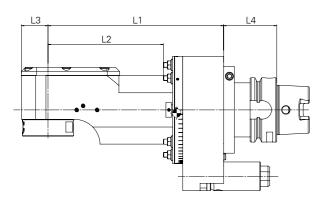
+TAPER

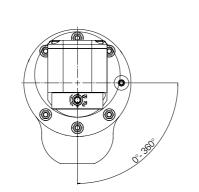
| | Technical data | |
|-------------------------|----------------|------|
| Type Size | L4 [mm] | + KG |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,9 |
| Capto C6 SK40 CAT40 | 45 | 0,1 |
| Capto C8 | 45 | 1 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,5 |
| BT50 | 60 | 3,7 |

FORTE WWX (EC)

ANGLE HEAD

TECHNICAL DATA





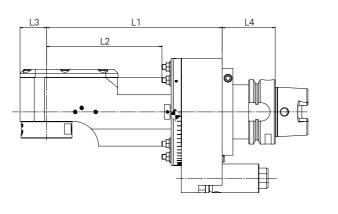


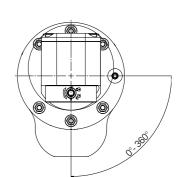


M_{max} 150 Nm 1:1

4.000 rpm

TECHNICAL DATA







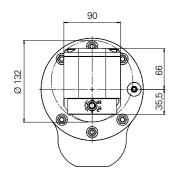


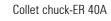
M_{max} 230 Nm 1:1

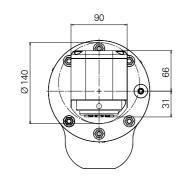
3.000 rpm

OUTPUT SPINDLE

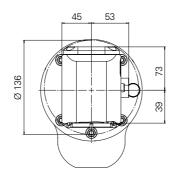
BENZ Solidfix®-S5







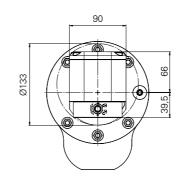
BENZ CAPTO™-C5



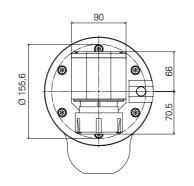
technical data for other output spindles on request

OUTPUT SPINDLE

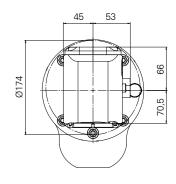
BENZ Solidfix®-S5







BENZ CAPTO ™-C6



technical data for other output spindles on request

FRONT HEAD

| | Technica | l data | |
|--------------|----------|--------|------|
| Type Size | L1 | L2 | (KG) |
| Size | [mm] | [mm] | (KG) |
| 15 | 195 | 125,5 | 14,2 |
| | 232 | 162,5 | 14,8 |
| | | | |

+OUTPUT SPINDLE

| | Technical | Technical data | |
|--------------|------------|----------------|--|
| Type Size | L3 [mm] | + KG | |
| S5 | 40 | 0 | |
| ER40A | 40 | 0 | |
| C5 | 42 | 2,1 | |

+TAPER

| | Technical data | |
|--------------|----------------|------|
| Type Size | L4 [mm] | + KG |
| HSK-A100 | 55 | 0 |
| Capto C8 | 45 | -0,8 |
| SK50 CAT50 | 45 | 0,3 |
| BT50 | 60 | 1,8 |

FRONT HEAD

| | Technical data | | |
|--------------|----------------|-------|------|
| Type Size | L1 | L2 | (KG |
| Size | [mm] | [mm] | (KG |
| 20 | 200 | 135,5 | 17,4 |
| | 237 | 172,5 | 16,7 |
| | 337 | 272,5 | 21,9 |
| | | | |

+OUTPUT SPINDLE

| | Technical data | |
|--------------|----------------|--------|
| Type Size | L3 | , (KG) |
| Size | [mm] | +(KG) |
| S5 | 45 | 0 |
| ER50 | 45 | 0 |
| C6 | 50 | 6 |

+TAPER

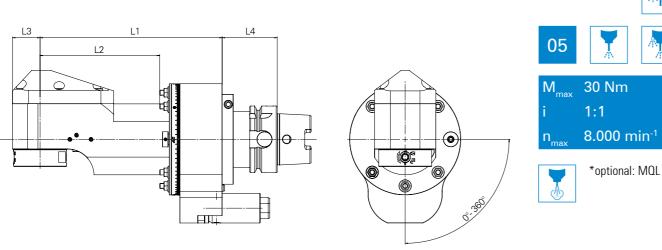
| | Technical data | ı |
|--------------|----------------|-----|
| Type Size | L4 [mm] | , (|
| HSK-A100 | 55 | |
| Capto C8 | 45 | -(|
| SK50 CAT50 | 45 | (|
| BT50 | 60 | : |
| | | |

FORTE WWX (IC)

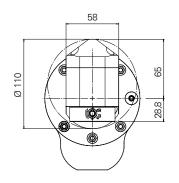
ANGLE HEAD

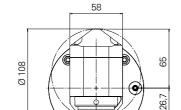
FORTE WWX (IC)

TECHNICAL DATA

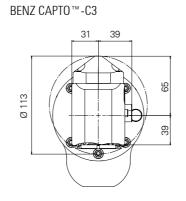


OUTPUT SPINDLE
BENZ Solidfix®-S3





Collet chuck-ER 25A



technical data for other output spindles on request

FRONT HEAD

| | Technical data | | |
|--------------|----------------|-------|------|
| Type Size | L1 | L2 | (KG) |
| Size | [mm] | [mm] | (KG) |
| 05 | 125 | 63,5 | 5,2 |
| | 172 | 110,5 | 5,9 |
| | 232 | 170.5 | 6.7 |

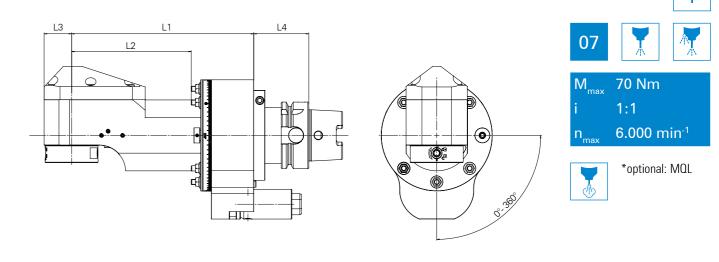
+OUTPUT SPINDLE

| Technical data | |
|----------------|------------------------|
| L3 | |
| [mm] | + (KG) |
| 26 | 0 |
| 26 | 0 |
| 30 | 0,6 |
| | L3 [mm] 26 26 |

+TAPER

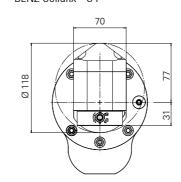
| | Technical data | |
|-------------------------|----------------|------|
| Type Size | L4 [mm] | + KG |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,7 |
| Capto C6 SK40 CAT40 | 45 | 0,1 |
| Capto C8 | 45 | 1 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3,5 |
| | | |

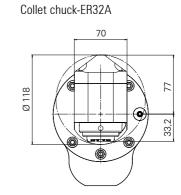
TECHNICAL DATA

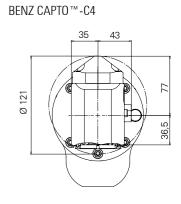


OUTPUT SPINDLE

BENZ Solidfix®-S4







technical data for other output spindles on request

FRONT HEAD

| | Technica | | |
|--------------|----------|-------|-----|
| Type Size | L1 | L2 | 凤 |
| Size | [mm] | [mm] | KG |
| 07 | 155 | 93,5 | 7,5 |
| | 200 | 138 | 8,7 |
| | 253 | 191,5 | 10 |
| | | | |

+OUTPUT SPINDLE

| | Technical data | |
|--------------|----------------|-------|
| Type Size | L3 | |
| Size | [mm] | + (KG |
| S4 | 35 | (|
| ER32A | 35 | (|
| C4 | 35 | 0,5 |
| | | |

+TAPER

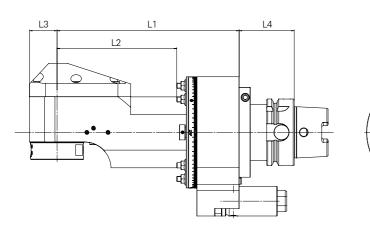
| | Technical data | | |
|-------------------------|----------------|-------|--|
| Type Size | L4 [mm] | + (KG | |
| HSK-A63 | 52 | (| |
| HSK-A100 | 55 | 1,9 | |
| Capto C6 SK40 CAT40 | 45 | 0,1 | |
| Capto C8 | 45 | • | |
| SK50 CAT50 | 45 | 2,2 | |
| BT40 | 53 | 0,5 | |
| BT50 | 60 | 3,7 | |
| | | | |

FORTE WWX (IC)

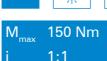
ANGLE HEAD

FORTE WWX (IC)

TECHNICAL DATA







1:1 4.000 min⁻¹

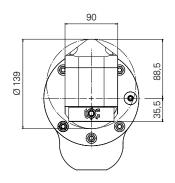


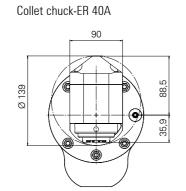
M_{max} 230 Nm 1:1

3.000 min⁻¹

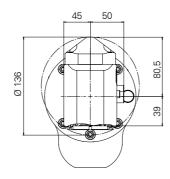
OUTPUT SPINDLE

BENZ Solidfix®-S5





BENZ CAPTO™-C5



technical data for other output spindles on request

FRONT HEAD

| | Technica | l data | |
|--------------|----------|--------|------|
| Type Size | L1 | L2 | (KG) |
| Size | [mm] | [mm] | (KG) |
| 15 | 195 | 125,5 | 14,1 |
| | 232 | 161 | 16,3 |
| | 000 | 000 5 | 40.7 |

+OUTPUT SPINDLE

| | Technical | Technical data | |
|--------------|-----------|----------------|--|
| Type Size | L3 | | |
| Size | [mm] | + (KG) | |
| S5 | 40 | 0 | |
| ER40A | 40 | 0 | |
| C5 | 42 | 0,5 | |

+TAPER

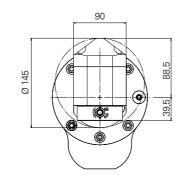
| | Technical data | |
|--------------|----------------|--------|
| Type Size | L4 | |
| Size | [mm] | + (KG) |
| HSK-A100 | 55 | 0 |
| Capto C8 | 45 | -0,8 |
| SK50 CAT50 | 45 | 0,3 |
| BT50 | 60 | 1,8 |
| | | |

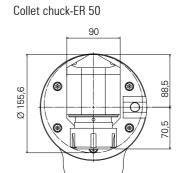
OUTPUT SPINDLE

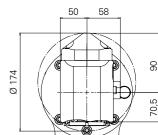
TECHNICAL DATA

L2

BENZ Solidfix®-S5







technical data for other output spindles on request

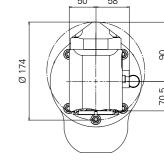
FRONT HEAD

| | Technical data | | |
|--------------|----------------|-------|------|
| Type Size | L1 | L2 | (KG |
| Size | [mm] | [mm] | (KG |
| 20 | 200 | 135,5 | 17,6 |
| | 237 | 172,5 | 18,6 |
| | 337 | 272.5 | 20,4 |

+OUTPUT SPINDLE

| | Technical data | |
|--------------|----------------|-------|
| Type Size | L3 | |
| Size | [mm] | + (KG |
| S5 | 45 | C |
| ER50 | 45 | C |
| C6 | 50 | 3,3 |
| | | |

BENZ CAPTO ™-C6



+TAPER

| | Technical data | |
|--------------|----------------|------|
| Type Size | L4 [mm] | + (K |
| HSK-A100 | 55 | |
| Capto C8 | 45 | -0 |
| SK50 CAT50 | 45 | 0 |
| BT50 | 60 | 2 |
| | | |

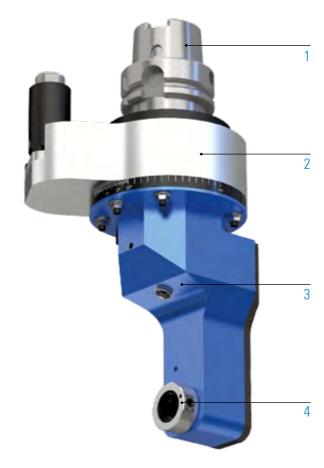
ANGLE HEAD SLIM WGX

ANGLE HEAD 90° – NARROW DESIGN

Angle head for machining for spatial constraint / maximum useable tool length

Product version: external cooling (EC)

Feasible on request: internal cooling (IC) or EC/IC combination



1 TAPER









DIN 69893

Steep taper Steep taper MAS BT







Steep taper

Capto®

KM™

2 TORQUE ARM

optional: customized torque arm more information on page 25

3 FRONT HEAD (SIZE)





4 OUTPUT SPINDLE





Solidfix®

MACHINING





milling



SPECIFICATIONS



amount of output spindles



axis angle



change the angle head



grease lubrication



without cooling



external cooling



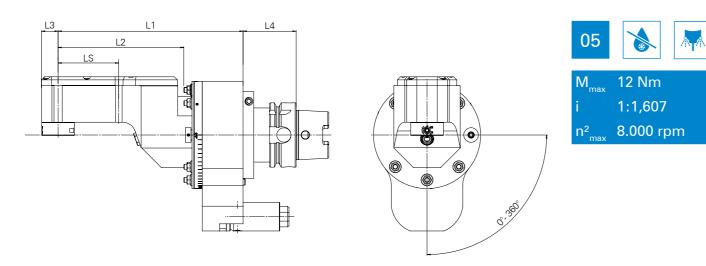
internal cooling (on request)



exteral / internal cooling (on request)

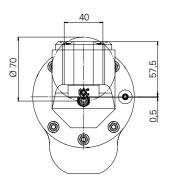
SLIM WGX

TECHNICAL DATA

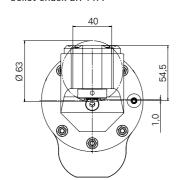


OUTPUT SPINDLE

BENZ Solidfix®-S1



Collet chuck-ER 11A



FRONT HEAD

| | Technic | al data | | |
|--------------|---------|---------|------|------|
| Type Size | L1 | L2 | LS | (KG) |
| Size | [mm] | [mm] | [mm] | (KG) |
| 05 / | 149 | 91 | 24 | 4,7 |
| L3=16 | 181 | 123 | 56 | 4,9 |
| | 213 | 155 | 88 | 5.1 |

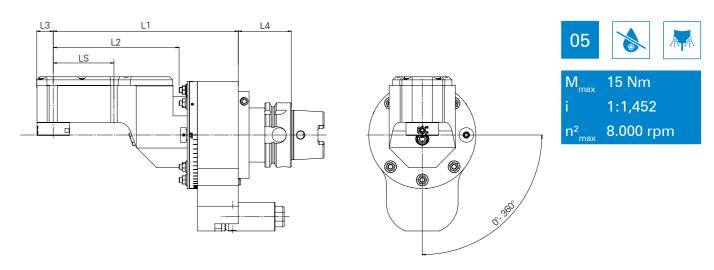
+OUTPUT SPINDLE

| | Technical data | | |
|--------------|----------------|------|--|
| Type Size | L3 [mm] | + KG | |
| S1 | 16 | 0 | |
| ER11A | 16 | 0 | |

+TAPER

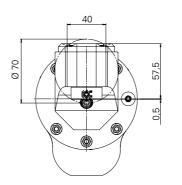
| Type Size | Technical of L4 [mm] | lata + KG |
|-------------------------|----------------------|--------------|
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,7 |
| Capto C6 SK40 CAT40 | 45 | 0,1 |
| Capto C8 | 45 | 1,0 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3,5 |

TECHNICAL DATA

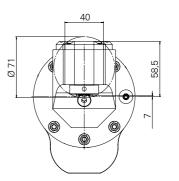


OUTPUT SPINDLE

BENZ Solidfix®-S1



Collet chuck-ER 16A



FRONT HEAD

| | Technica | al data | | |
|-------|----------|---------|------|-----|
| Туре | L1 | L2 | LS | |
| Size | [mm] | [mm] | [mm] | (KG |
| 05 / | 150 | 92,5 | 25,5 | į |
| L3=18 | 182 | 124,5 | 57,5 | 5,2 |
| | 214 | 156,5 | 89,5 | 5,4 |
| | | | | |

+OUTPUT SPINDLE

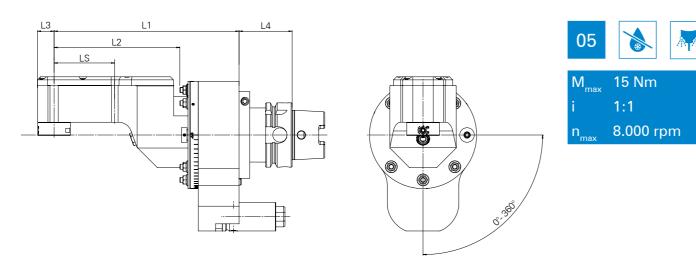
| Technical dat | | |
|---------------|------------------|--|
| L3 | , (KG) | |
| [mm] | +(KG) | |
| 18 | 0 | |
| 18 | 0 | |
| | L3 [mm] 18 | |

+TAPER

| | Technical data | |
|-------------------------|----------------|------|
| Type Size | L4 [mm] | + KG |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,7 |
| Capto C6 SK40 CAT40 | 45 | 0,1 |
| Capto C8 | 45 | 1,0 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3,5 |
| | | |

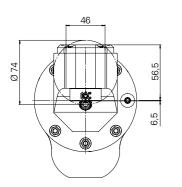
SLIM WGX

TECHNICAL DATA

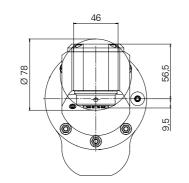


OUTPUT SPINDLE

BENZ Solidfix®-S2



Collet chuck-ER20A



FRONT HEAD

| | Technica | al data | | |
|--------------|----------|---------|------|------|
| Type Size | L1 | L2 | LS | (KG) |
| Size | [mm] | [mm] | [mm] | (KG) |
| 05 / | 156 | 98 | 31 | 5,5 |
| L3=23 | 188 | 130 | 63 | 5,6 |
| | 220 | 162 | 95 | 5.7 |

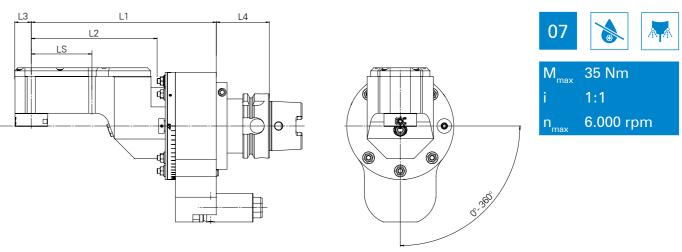
+OUTPUT SPINDLE

| | Technical data | |
|--------------|----------------|------|
| Type Size | L3 [mm] | + KG |
| S2 | 23 | 0 |
| ER20A | 23 | 0 |

+TAPER

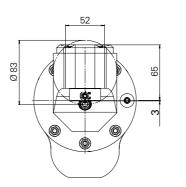
| | Technical o | data |
|-------------------------|-------------|--------|
| Type Size | L4 [mm] | + (KG) |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,7 |
| Capto C6 SK40 CAT40 | 45 | 0,1 |
| Capto C8 | 45 | 1,0 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3,5 |

TECHNICAL DATA

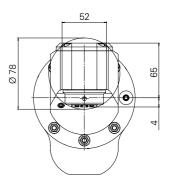


OUTPUT SPINDLE

BENZ Solidfix®-S3



Collet chuck-ER25A



FRONT HEAD

| | Technica | al data | | |
|--------------|----------|---------|------|-----|
| Type Size | L1 | L2 | LS | 同 |
| Size | [mm] | [mm] | [mm] | (KG |
| 07 / | 178 | 116 | 54 | 7, |
| L3=26 | 215 | 153 | 85 | 7,9 |
| | 290 | 228 | 160 | : |
| | | | | |

+OUTPUT SPINDLE

| | Technical data | | |
|--------------|----------------|--------|--|
| Type Size | L3 | ⊥ (KG) | |
| Size | [mm] | +(KG) | |
| S3 | 26 | 0 | |
| ER25A | 26 | 0 | |

+TAPER

| | Technical data | |
|-------------------------|----------------|------|
| Type Size | L4 [mm] | + KG |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,9 |
| Capto C6 SK40 CAT40 | 45 | 0,1 |
| Capto C8 | 45 | 1,0 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,5 |
| BT50 | 60 | 3,5 |

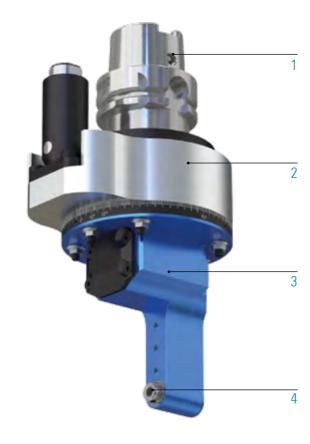
ANGLE HEAD SLIM WGX-S

ANGLE HEAD 90° – EXTREMLY NARROW DESIGN

Angle head for machining for extreme spatial constraint / maximum useable tool length

Product version: external cooling (EC)

Feasible on request: internal cooling (IC) or EC/IC combination



1 TAPER







DIN 69893

Steep taper MAS BT





Steep taper

Capto®

KM™

2 TORQUE ARM

optional: customized torque arm more information on page 25

3 FRONT HEAD (SIZE)





4 OUTPUT SPINDLE





Collet chuck Notch

MACHINING



drilling



SPECIFICATIONS



amount of output spindles



axis angle



change the angle head



grease lubrication



without cooling



external cooling



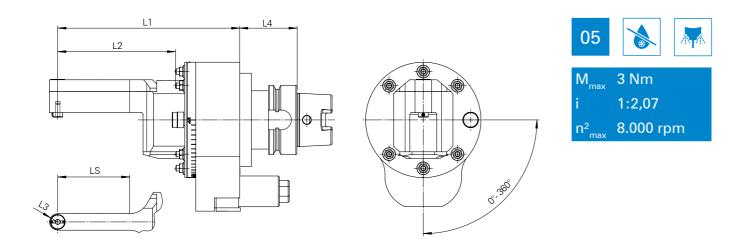
internal cooling (on request)



exteral / internal cooling (on request)

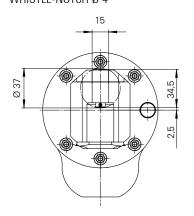
SLIM WGX-S (WHISTLE NOTCH SIMILAR DIN1835-E)

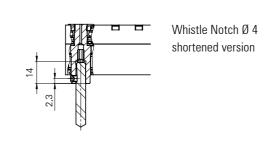
TECHNICAL DATA



OUTPUT SPINDLE

WHISTLE-NOTCH Ø 4





FRONT HEAD

| | Technical data | | | |
|--------------|----------------|------|------|------|
| Type Size | L1 | L2 | LS | (KG) |
| Size | [mm] | [mm] | [mm] | (KG) |
| 05 / | 166 | 107 | 65 | 5,1 |
| L3=7,5 | | | | |

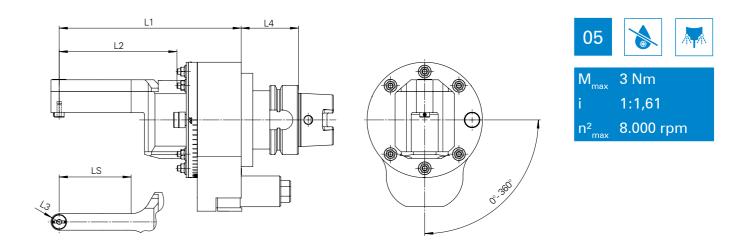
+OUTPUT SPINDLE

| | Technical data | | |
|---------|----------------|--------|--|
| Type | L3 | 凤 | |
| Size | [mm] | + (KG) | |
| WNØ4/U1 | 7.5 | 0 | |

+TAPER

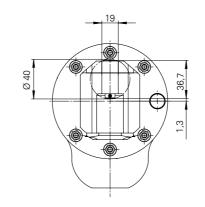
| | Technical data | |
|-------------------------|----------------|-------|
| Type Size | L4 [mm] | + (KG |
| HSK-A63 | 52 | (|
| HSK-A100 | 55 | 1, |
| Capto C6 SK40 CAT40 | 45 | 0, |
| Capto C8 | 45 | 1,0 |
| SK50 CAT50 | 45 | 2, |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3, |

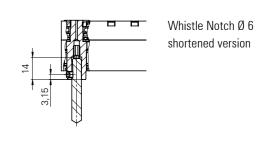
TECHNICAL DATA



OUTPUT SPINDLE

WHISTLE-NOTCH Ø 6





FRONT HEAD

| | Technic | al data | | |
|--------------|---------|---------|------|-----|
| Type Size | L1 | L2 | LS | (KG |
| Size | [mm] | [mm] | [mm] | (KG |
| L3=9.5 | 172 | 113 | 73 | 5, |

+OUTPUT SPINDLE

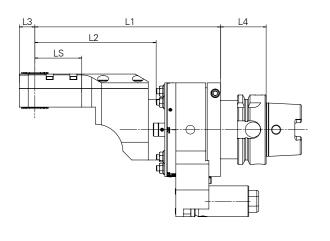
| | | Technical data | | |
|--|--------------|----------------|-------|--|
| | Type Size | L3 | F | |
| | Size | [mm] | + (KG | |
| | WNØ6/U3 | 9,5 | | |
| | | | | |

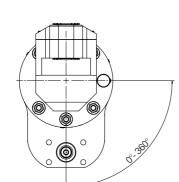
| + | ГД | PF | R |
|---|----|----|---|

| | Technical data | |
|-------------------------|----------------|------|
| Type Size | L4 [mm] | + (K |
| HSK-A63 | 52 | |
| HSK-A100 | 55 | 1 |
| Capto C6 SK40 CAT40 | 45 | 0 |
| Capto C8 | 45 | 1 |
| SK50 CAT50 | 45 | 2 |
| BT40 | 53 | 0 |
| BT50 | 60 | 3 |
| | | |

SLIM WG-S (NANN COLLET CHUCK)

TECHNICAL DATA







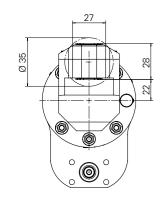


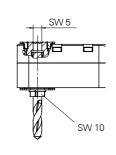


M_{max} 8 Nm 1:1,708 10.000 rpm

OUTPUT SPINDLE

NANN COLLET CHUCK Clamping range 1-4 mm





FRONT HEAD

| | Technica | al data | | |
|--------------|----------|---------|------|------|
| Type Size | L1 | L2 | LS | (KG) |
| Size | [mm] | [mm] | [mm] | (KG) |
| 04 / | 154 | 103 | 50 | 3,7 |
| L3=11,5 | 199 | 148 | 95 | 3,8 |
| | 244 | 193 | 140 | 3.9 |

www.benztooling.com

+OUTPUT SPINDLE

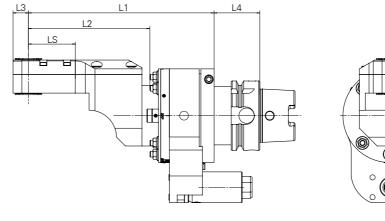
| | Technical data | |
|--------------|----------------|--------|
| Type Size | L3 | 凤 |
| Size | [mm] | + (KG) |
| EE0-1-4 / | 11.5 | 0 |
| 6043E* | 11,5 | U |

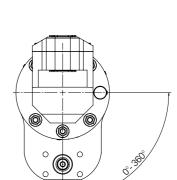
+TAPER

| | Technical data | |
|-------------------------|----------------|------|
| Type Size | L4 [mm] | + KG |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,5 |
| Capto C6 SK40 CAT40 | 45 | 0,1 |
| Capto C8 | 45 | 0,9 |
| SK50 CAT50 | 45 | 2 |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3,3 |
| | | |

* Collet-Ø available in 0,1mm steps

TECHNICAL DATA



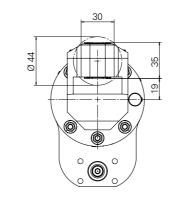


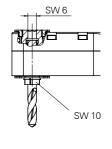


M_{max} 10 Nm 1:1,367 8.000 rpm

OUTPUT SPINDLE

NANN COLLET CHUCK Clamping range 1-6 mm





FRONT HEAD

| | Technic | al data | | |
|--------------|---------|---------|------|-----|
| Type Size | L1 | L2 | LS | (KG |
| Size | [mm] | [mm] | [mm] | (KG |
| 04 / | 158 | 108 | 57 | 3, |
| L3=14 | 205 | 153 | 103 | 3,8 |
| | 251 | 205 | 149 | 3,9 |
| | | | | |

+OUTPUT SPINDLE

| Technical | data |
|-----------|--------|
| L3 | 凤 |
| [mm] | + (KG) |
| 1.4 | 0 |
| 14 | U |
| | |

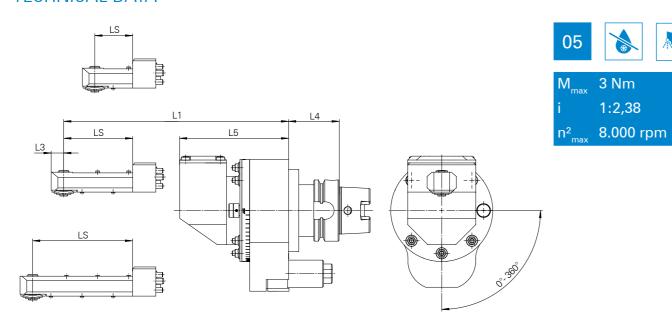
+TAPER

| | lechnical data | | |
|-------------------------|----------------|-------|--|
| Type Size | L4 | , (KG | |
| 0120 | [mm] | + (| |
| HSK-A63 | 52 | (| |
| HSK-A100 | 55 | 1,! | |
| Capto C6 SK40 CAT40 | 45 | 0, | |
| Capto C8 | 45 | 0,9 | |
| SK50 CAT50 | 45 | 2 | |
| BT40 | 53 | 0,4 | |
| BT50 | 60 | 3,3 | |
| | | | |

^{*} Collet-Ø available in 0,1mm steps

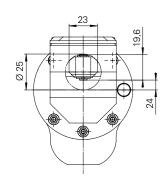
SLIM WGX-S (SCREW-IN CUTTING TOOL)

TECHNICAL DATA

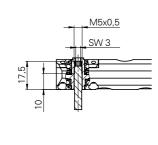


OUTPUT SPINDLE

Special admission



Tool fitting dimensions



FRONT HEAD

| | Technic | | | |
|--------------|---------|------|------|------|
| Type Size | L1 | LS | L5 | (KG) |
| Size | [mm] | [mm] | [mm] | (KG) |
| 05 / | 167 | 31 | 112 | 6,4 |
| Ø=25 | 193 | 57 | 112 | 6,5 |
| | 232 | 96 | 112 | 6,6 |

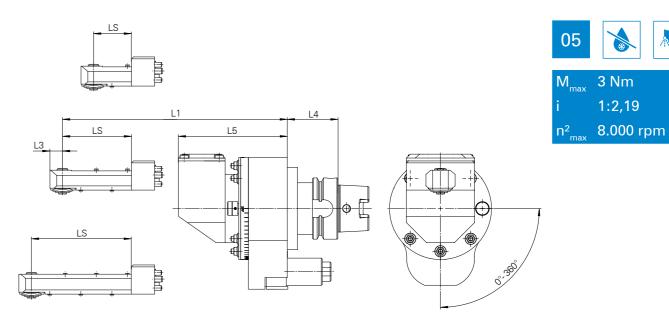
+OUTPUT SPINDLE

| | Technical | data |
|--------------|-----------|--------|
| Type Size | L3 | 凤 |
| Size | [mm] | + (KG) |
| Ø=5 | 12,5 | 0 |

+TAPER

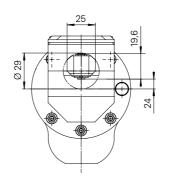
| | Technical data | |
|-------------------------|----------------|-------|
| Type Size | L4 [mm] | + (KG |
| HSK-A63 | 52 | (|
| HSK-A100 | 55 | 1,7 |
| Capto C6 SK40 CAT40 | 45 | 0, |
| Capto C8 | 45 | 1,0 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3, |

TECHNICAL DATA

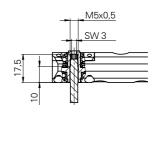


OUTPUT SPINDLE

Special admission



Tool fitting dimensions



FRONT HEAD

| | Technic | Technical data | | | |
|--------------|---------|----------------|------|------|--|
| Type Size | L1 | LS | L5 | (KG) | |
| Size | [mm] | [mm] | [mm] | (KG) | |
| 05 / | 168 | 32 | 112 | 6,4 | |
| Ø=29 | 207 | 71 | 112 | 6,5 | |
| | 233 | 97 | 112 | 6,6 | |
| | | | | | |

+OUTPUT SPINDLE

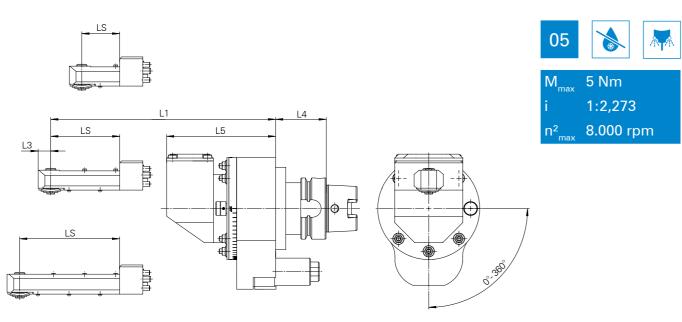
| Technical data | |
|----------------|------------|
| L3 | |
| [mm] | + (KG |
| 13,5 | C |
| | L3 [mm] |

+TAPER

| | Technical data | | |
|-------------------------|----------------|-------------|--|
| Type Size | L4 [mm] | + KG | |
| HSK-A63 | 52 | 0 | |
| HSK-A100 | 55 | 1,7 | |
| Capto C6 SK40 CAT40 | 45 | 0,1 | |
| Capto C8 | 45 | 1,0 | |
| SK50 CAT50 | 45 | 2,2 | |
| BT40 | 53 | 0,4 | |
| BT50 | 60 | 3,5 | |
| | | | |

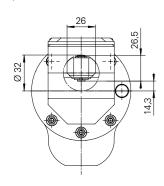
SLIM WGX-S (SCREW-IN CUTTING TOOL)

TECHNICAL DATA

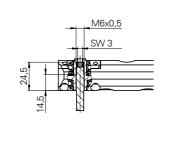


OUTPUT SPINDLE

Special admission



Tool fitting dimensions



FRONT HEAD

| Technical data | | | | |
|----------------|------|------|------|------|
| Type Size | L1 | LS | L5 | 凤 |
| Size | [mm] | [mm] | [mm] | (KG) |
| 05 / | 173 | 37 | 112 | 3,8 |
| Ø=32 | 205 | 69 | 112 | 4 |
| | 231 | 95 | 112 | 12 |

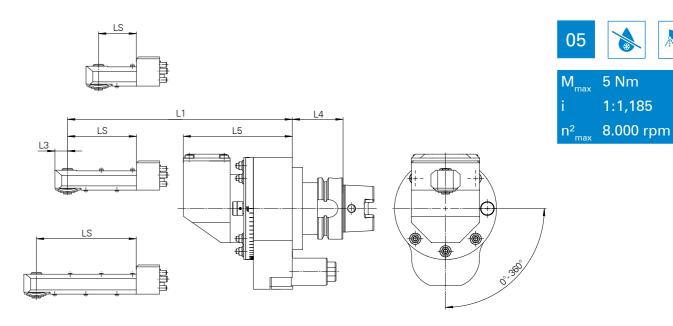
+OUTPUT SPINDLE

| | Technical | data |
|--------------|-----------|--------|
| Type Size | L3 | |
| Size | [mm] | + (KG) |
| Ø=6 | 12 | 0 |

+TAPER

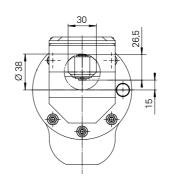
| | Technical data | |
|-------------------------|----------------|-------|
| Type Size | L4 [mm] | + (KG |
| HSK-A63 | 52 | (|
| HSK-A100 | 55 | 1,7 |
| Capto C6 SK40 CAT40 | 45 | 0, |
| Capto C8 | 45 | 1,0 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3, |

TECHNICAL DATA

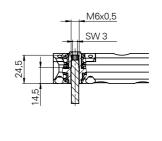


OUTPUT SPINDLE

Special admission



Tool fitting dimensions



FRONT HEAD

| | Technical data | | | |
|--------------|----------------|------|------|----|
| Type Size | L1 | LS | L5 | F |
| Size | [mm] | [mm] | [mm] | (K |
| 05 / | 175 | 39 | 112 | 6 |
| Ø=38 | 207 | 71 | 112 | 6 |
| | 239 | 103 | 112 | 6 |
| | | | | |

+OUTPUT SPINDLE

| | | Technical da | ata |
|--|--------------|--------------|-------|
| | Type Size | L3 | |
| | Size | [mm] | + (KG |
| | Ø=6 | 13 | (|
| | | | |

+TAPER

| | Technical of | data |
|-------------------------|--------------|------|
| Type Size | L4 [mm] | + KG |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,7 |
| Capto C6 SK40 CAT40 | 45 | 0,1 |
| Capto C8 | 45 | 1,0 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3,5 |
| | | |

ANGLE HEAD 0-100° - WITH FLEXIBLE ANGLE / STEPLESS ADJUSTMENT

Angle head for machining in any variable position



1 TAPER







HSK DIN 69893

Steep taper

Steep taper MAS BT







Steep taper

Capto®

КМ™

2 TORQUE ARM

optional: customized torque arm more information on page 25

3 FRONT HEAD (SIZE)







4 OUTPUT SPINDLE



Solidfix®









Milling arbor

MACHINING



drilling



SPECIFICATIONS



amount of output spindles



axis angle



change the angle head



grease lubrication



without cooling



external cooling



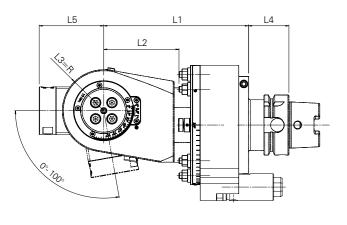
internal cooling

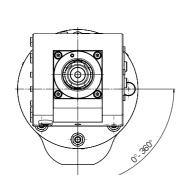
FLEX WDX

TECHNICAL DATA

FLEX WDX

ANGLE HEAD











8.000 rpm

TECHNICAL DATA

L2







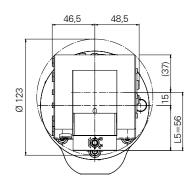




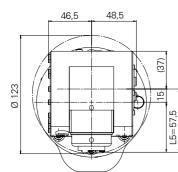
6.000 min⁻¹

OUTPUT SPINDLE – 90° SWIVELED

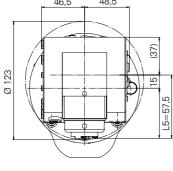
BENZ Solidfix®-S2







technical data for other output spindles on request



FRONT HEAD

| | Technica | l data | |
|--------------|----------|--------|-----|
| Type Size | L1 | L2 | (KG |
| Size | [mm] | [mm] | (KG |
| 05 | 130 | 68,5 | 6,6 |

+OUTPUT SPINDLE

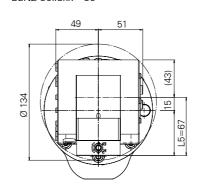
| | Technic | | |
|--------------|---------|------|------|
| Type Size | L3 | L5 | |
| Size | [mm] | [mm] | (KG) |
| S4 | 37 | 56 | 0 |
| ER32A | 37 | 57,5 | 0 |

+TAPER

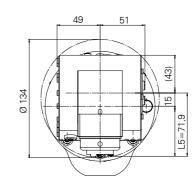
| | Technical of | data |
|-------------------------|--------------|------|
| Type Size | L4 [mm] | + KG |
| HSK-A63 | 52 | 0 |
| HSK-A100 | 55 | 1,7 |
| Capto C6 SK40 CAT40 | 45 | 0,1 |
| Capto C8 | 45 | 1 |
| SK50 CAT50 | 45 | 2,2 |
| BT40 | 53 | 0,4 |
| BT50 | 60 | 3,5 |

OUTPUT SPINDLE – 90° SWIVELED

BENZ Solidfix®-S3



Collet chuck-ER25A



technical data for other output spindles on request

FRONT HEAD

| | Technica | l data | |
|--------------|----------|--------|-----|
| Type Size | L1 | L2 | F |
| Size | [mm] | [mm] | (KG |
| 07 | 140 | 77,5 | 8, |

+OUTPUT SPINDLE

| | Technic | al data | |
|--------------|---------|---------|------|
| Type Size | L3 | L5 | P |
| Size | [mm] | [mm] | (KG) |
| S4 | 43 | 67 | 0 |
| ER32A | 43 | 71,9 | 0 |

+TAPER

| | Technical da | ata |
|-------------------------|--------------|-----|
| Туре | L4 | |
| Size | [mm] | + |
| HSK-A63 | 52 | |
| HSK-A100 | 55 | |
| Capto C6 SK40 CAT40 | 45 | |
| Capto C8 | 45 | |
| SK50 CAT50 | 45 | |
| BT40 | 53 | |
| BT50 | 60 | |
| | | |

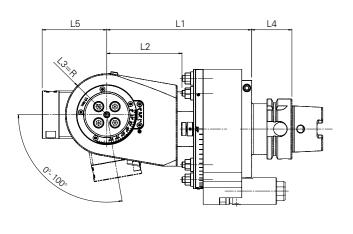
1,9 0,1

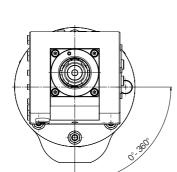
2,2 0,5 1,8

www.benztooling.com

FLEX WDX

TECHNICAL DATA





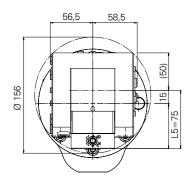




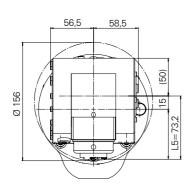
M_{max} 90 Nm i 1:1 n_{max} 4.000 rpm

OUTPUT SPINDLE – 90° SWIVELED

BENZ Solidfix®-S4







technical data for other output spindles on request

FRONT HEAD

| | Technica | l data | | |
|--------------|----------|--------|------|--|
| Type Size | L1 | L2 | (KG) | |
| Size | [mm] | [mm] | (KG) | |
| 15 | 180 | 109 | 15,5 | |

+OUTPUT SPINDLE

| | rechnic | cai data | | |
|--------------|---------|----------|------|--|
| Type Size | L3 | L5 | (KG) | |
| Size | [mm] | [mm] | (KG) | |
| S4 | 50 | 75 | 0 | |
| ER32A | 50 | 73,2 | 0 | |

+TAPER

| | Technical data | |
|--------------|----------------|-------|
| Type Size | L4 | |
| Size | [mm] | + (KG |
| HSK-A100 | 55 | 0 |
| Capto C8 | 45 | -0,8 |
| SK50 CAT50 | 45 | 0,3 |
| BT50 | 60 | 1,8 |
| | | |



ANGLE HEAD FIX WFX

ANGLE HEAD $\neq 90^{\circ}$ – WITH FIXED ANGLE

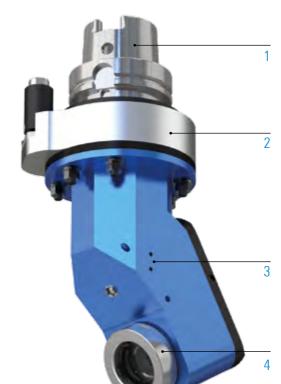
Angle head for special machining with fixed angle

All dimensions and weights depend on the machining angle selected.

Precise data is only available on request.







1 TAPER







DIN 69893

Steep taper

Steep taper MAS BT



Steep taper CAT

Capto®

KM™

2 TORQUE ARM

optional: customized torque arm more information on page 25

3 FRONT HEAD (SIZE)











4 OUTPUT SPINDLE



Solidfix®













Milling arbor



КМ™

PERFORMANCE DATA



30 Nm 1:1 8.000 rpm

OUTPUT SPINDLE S3 | ER25A

07

70 Nm 1:1 6.000 rpm

OUTPUT SPINDLE S4 | ER32A

150 Nm 4.000 rpm

OUTPUT SPINDLE S5 | ER40A

M_{max} 230 Nm 1:1 3.000 rpm

OUTPUT SPINDLE S5 | ER40A

MACHINING



drilling



milling



tapping

SPECIFICATIONS



amount of output spindles



axis angle



change the angle head



grease lubrication



without cooling



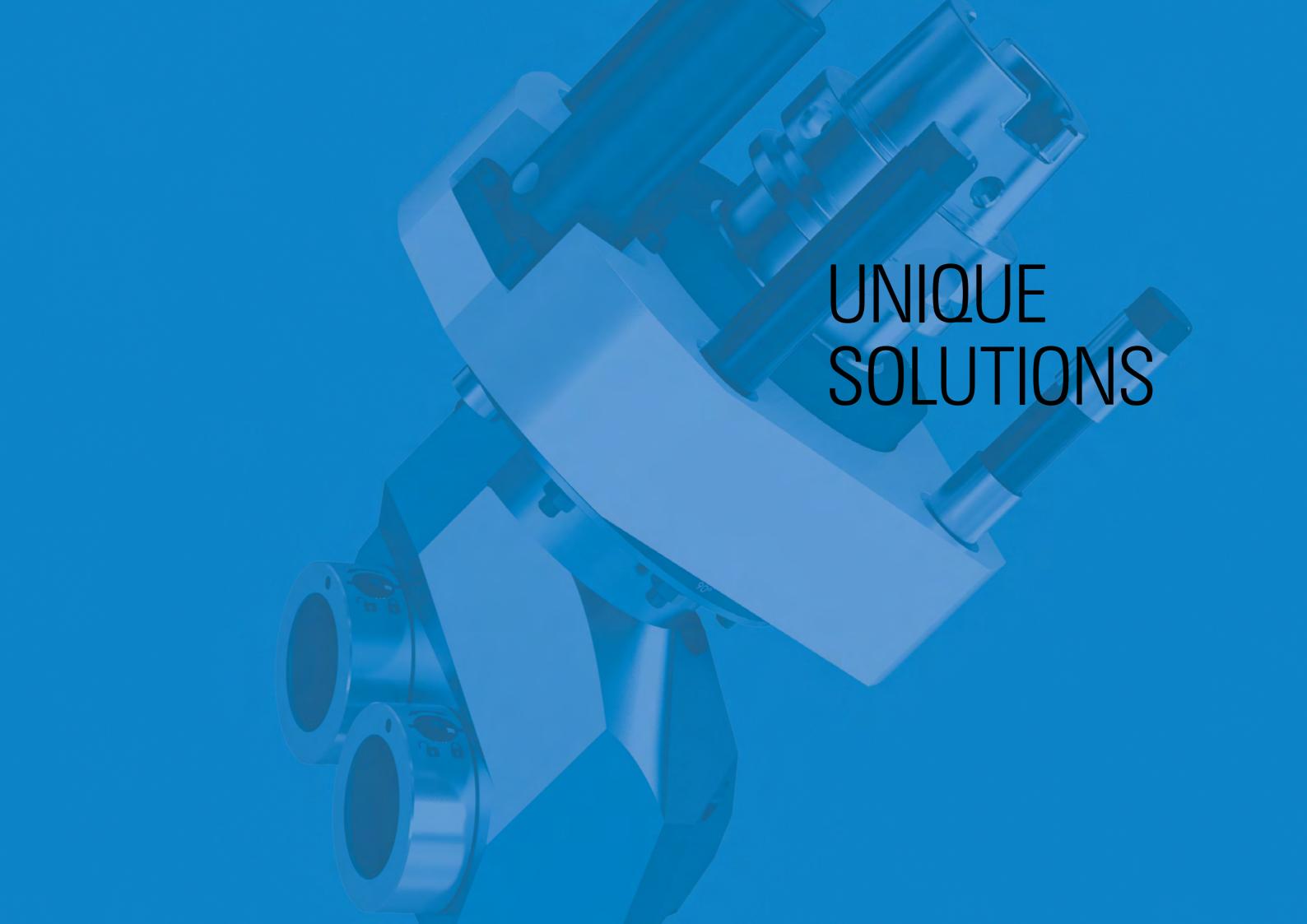
external cooling



internal cooling

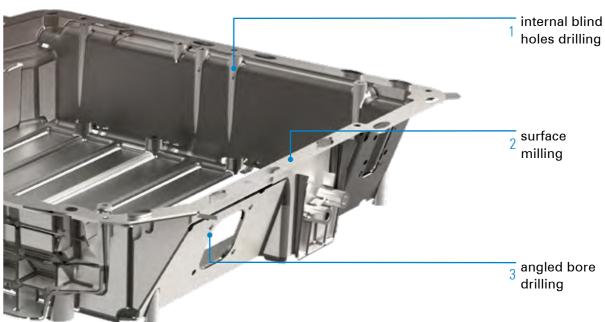


exteral / internal cooling





PROCESSING OF BATTERY TANK



UNITS IN APPLICATION









ELECTRIC MOBILITY DRIVING THE FUTURE

The industry of the future

Electric mobility is enjoying high growth rates as it combines sustainability aspects with the need for mobility.

In the last decade, the number of electric cars sold worldwide has increased more than tenfold – from 0.8 million units in 2010 to 9.3 million units in 2021.

(Source: Fraunhofer Battery Update 7.12.22)

A continuing trend that, in addition to the e-mobility industry, is also having a significant impact on many suppliers.

In particular, our angle heads with minimum quantity lubrication are frequently used in the field of electromobility. More information about MQL you can find on page 27.

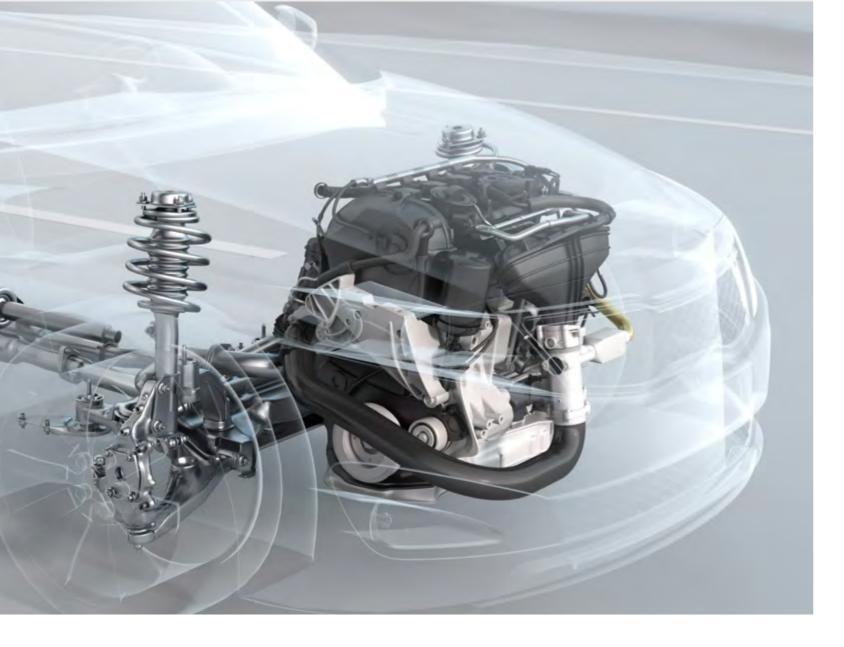
MORE SPECIAL SOLUTIONS



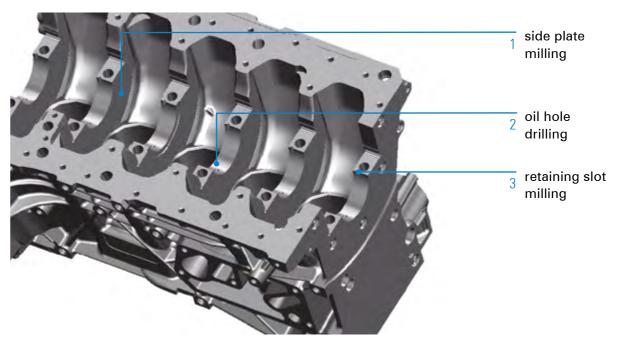








PROCESSING OF ENGINE BLOCK



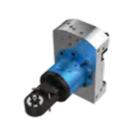
UNITS IN APPLICATION







MORE SPECIAL SOLUTIONS







AUTOMOTIVE: TECHNICAL SOLUTIONS AT THE HIGHEST LEVEL

Innovative technologies on the cutting edge of what is possible

For the machining of components in the automotive industry, BENZ Tooling offers technical solutions at the highest level! You benefit from the ambition of our engineering team, because technical innovation is ingrained into our very identity.

BENZ units create an essential competitive edge.

They are not only designed for high quantities in series production, but also shorten the machining cycle for each component.



PROCESSING OF BRAKE CALIPER



BRAKE CALIPERS MACHINING IN SMALLEST SPACES

Highest precision in the tightest space...

... is the greatest challenge in the production of brake calipers – both in the area of passenger and commercial vehicles as well as motorcycles.

Especially modern models of high-performance vehicles with electronic brake systems can be very complex to machine.

With BENZ angle heads you are perfectly prepared for these challenges.

We offer the right solution for machining almost all functional surfaces. Additionally, you will not only achieve a clean and precise result, but also an economical one.

UNITS IN APPLICATION







MORE SPECIAL SOLUTIONS







PROCESSING OF TURBINE HOUSINGS



BENZ ANGLE HEADS FOR MACHINING IN THE AEROSPACE INDUSTRY

UNITS IN APPLICATION







SOARING FLIGHTS IN AEROSPACE TECHNOLOGY

Precision, reliability, lightweight.

The aerospace industry demands extreme precision and reliability from technology and materials. In aircraft construction and in the production of aerospace components, there is one crucial thing above all: lightness.

For this reason, aluminum and composites are used particularly frequently in this industry. BENZ Tooling offers various solutions for processing highly complex components in the aerospace industry.

MORE SPECIAL SOLUTIONS

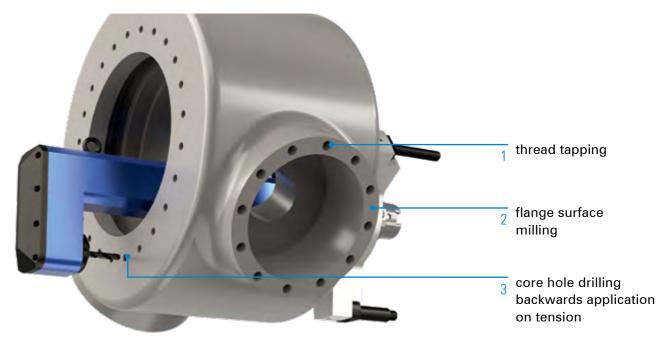








PROCESSING OF ROTOR HUB



WIND POWER FOR ENVIRONMENTAL CONTRIBUTION

Robust precision for wind turbines

Wind turbines have to meet extraordinary requirements in terms of statics and durability of the individual components.

Despite their robust construction, the manufacturing of wind turbines is real precision work.

Many classic metalworking operations such as milling, drilling and tapping come into play here.

BENZ exchangable units guarantee high time savings and a low error rate in your individual production processes.

UNITS IN APPLICATION







MORE SPECIAL SOLUTIONS







Services: customized, value-retaining, cost-effective

BENZ TOOLING SERVICE

service@benztooling.com



Service installers come to your site anywhere in the world



Competent service employees answer your questions and help with issues

BENZ SERVICES FOR YOUR BENEFIT

Rapid Repair Kits

Promptly solved

- reduce downtime costs due to a machine standstill
- all critical wear and special parts available for a prompt repair
- assembly of your individual Rapid Repair Kit
- offer and order processing
- attractive pricing

Service evaluation and repair

Expertly solved

- quick and professional analysis of damage
- findings and recommended repairs within 5 working days
- you decide based on the recommendation how to proceed
- on request: general overhaul

Preventive maintenance

Precautionary solved

- preventively reduce unplanned downtimes
- increase the unit's lifetime
- maintenance of a perfect product condition
- can be done during a shutdown
- on request: general overhaul

Worldwide on-site service Globally solved

- professinal assembly / product briefing
- troubleshooting
- repair on-site (if possible)
- regular maintenance

BENZ PRODUCT WORLD

TOOLING & MACHINE TOOLING TECHNOLOGY

TOOLING TECHNOLOGY





TOOLS FOR TURNING CENTERS LIVE TOOLS / STATIC TOOLS

- Radial heads 90°
- Radial heads ≠ 90°
- Axial heads
- Swivel heads
- Multi-spindle heads
- **Broaching units**
- Static tools

COMPONENTS. Our comprehensive tool concepts for turning centers and milling centers are ideal for nearly every application. Providing a technological advantage is our goal.

SPECIFIC TO THE CUSTOMER. Our modular approach enables customized configurations. SYSTEMS. We develop special customer-specific tools for OEM and end customers on request.



TOOLS FOR MACHINING CENTERS

- Angle heads 90°
- Angle heads ≠ 90°
- Swivel heads
- Multi-spindle heads
- **Broaching units**
- High-speed spindles
- Rotating tool holders

KNOWLEDGE AND EXPERIENCE. Our knowledge of the metalworking industry and decades of development partnership make us ideal for new tasks anywhere in the world.

COMPONENTS. We deliver a vast array of standard components from stock and develop innovative, customized systems for OEM and end customers. **VARIETY.** Whether in machining centers in the automotive, aerospace or wind energy industries, units from BENZ can be used anywhere. Numerous customers choose us as their systems and innovation partner.



TOOLS FOR MACHINING CENTERS

- Angle heads 90°
- Swivel heads
- Multi-spindle heads
- Multi-axis heads
- Sanding units
- Floating head units
- Rotating tool holders

FOR ANY APPLICATION. Cost-effectively process and machine wood, composites and aluminium: We provide series production angle heads for drilling, milling, sawing and grinding in addition to other units for special applications. FROM BASIC TO HIGH-END. BENZ units are available in a variety of performance classes, making them ideal for everything from light machining to high-performance continuous operation.

SYSTEMS. We have the solution for your special applications: Customized BENZ units for machining centers. Put us to the test!

MACHINE TOOLING TECHNOLOGY







SERVICE



MULTI-SPINDLE HEADS AND LARGE DRILL HEADS

- Large angle heads
- Large drill heads
- XXL multi-spindle heads

- Multiple-spindle drill heads
- Motor spindles
- Swivel axes

SYSTEM TECHNOLOGY

- 5-axis technology
- C-axes
- Z-axes

SERVICE

- Service evaluation and repair
- Rapid Repair Kit
- Preventive maintenance
- Spare part management
- Worldwide on-site service

DEVELOPMENT PARTNER, We accompany you from brainstorming to inspection of the final machine, always to your expectations.

Our assortment ranges from compact heads to XXL units. SYSTEMS. BENZ stands for high-end solutions in the fields of machine tooling technology, specialty solutions, custom assemblies and mechanical modules. We manufacture and configure multiple-

spindle and large-angle heads as well as large drill heads. COMPONENTS. Attachment units complete our range.

COMPONENTS. Our range includes standard products in an assortment of shapes and sizes. THE PERFECT ADDITION. Our system additions provide you with even more efficiency. Perfect your existing solutions with BENZ products!

SYSTEMS. We develop the technology of tomorrow. Your individual requirements for the efficiency of your machine tools and the suitability of the tools in use provide our benchmark for new, innovative solutions.

DO NOT LOSE A SECOND. Speed is the order of the day when unexpected breakdowns occur. Our service center ensures Immediate assistance around the world. We ensure your machine has as little downtime as possible. SERVICE QUALITY. We guarantee top service quality reflecting our expertise as a manufacturer. FORESIGHT. We go one step further: Preventive maintenance, customized Rapid Repair Kit and our spare part management service ensure you have the best setup to face any emergency. We look to the future to keep you at your peak.

PICTOGRAMS AND ABBREVIATIONS **OVERVIEW**

ANGLE HEADS SPECIFICATION Change the unit Automatic Manual BENZ standard the angle heads can also be angle heads can generally manually changed be automatically changed Machining **Drilling** Milling **Tapping** the angle head is suitable the angle head is suitable the angle head is suitable for drilling operations for milling operations for threading operations Number of output spindles **2** (tool holding fixtures) 2 the angle head has one the angle head has two output spindle output spindles Axis angle 0° 0° 90° 100° 120° 0° bis $+100^{\circ}$ 0°-120° **MQL-internal** angle head for machining angle head for machining angle head for machining the tool is cooled using tasks at 90° angle tasks at flexible angle. Any tasks in fixed angular an internal line directly through the spindle angle can be set. position Coolant supply for cutting edge External (EC) Internal (IC) Combination No coolant supply the tool is cooled via an the tool is cooled using an the cooling of the tool the angle head does not have a coolant supply as external line internal line directly through is combined -(coolant nozzle) the spindle internally and externally standard Types of cooling (coolants) and Lubrications Water cooling MQL Air cooling Lubrication grease | MQL the tool cutting edge is the tool cutting edge the tool cutting edge is cooled with water is cooled with minimal cooled with air

Information α Angle Computer-aided CAD Video design Important information Computerized **CNC Numerical Control** Advantages **EASY** SAFF Ø Diameter Degrees Time Cost Easy Safe savings savings handling handling Kilograms kg **Sectors** L (1-5) Length Automotive Two-wheeler Machine $\boldsymbol{p}_{\text{max.}}$ Pressure construction Revolutions per min-1 minute Millimeters mm Medical **Plastics** Wind power Nm Newton meters technology Revolutions per \mathbf{n}_{max} minute **Services** Pressure (bar) Services for example e.g.

ABBREVIATIONS

Explanation of the weight composition of the angle heads

GENERAL SPECIFICATION

The weights specified on the product pages always refer to the configuration with an HSK-taper, a standard torque arm and the BENZ Solidfix® output spindle.

The deviations of alternative tool holders and/or alternative machine connections are specified in the tables and have to be added to the original weight.

The weight of a quick-change adapter and that of a tool cutter are not considered.

quantity lubrication (oil/air)

ARE YOU ALREADY FAMILIAR WITH OUR EXPERTISE?

- + teams of experts with industry experience
- + internationally networked through world-wide locations and partners
- + the highest quality for all products and services
- + precise, customer-specific solutions
- + constant development of our industry expertise

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BENZ GmbH Werkzeugsysteme

Kinzigpark 3 77723 Gengenbach Germany

+1 704-529-5300 info@benztooling.com www.benztooling.com

