



Tooling technology Machine tooling technology

BENZ Modular quick change systems
+ BENZ Solidfix®
+ BENZ CAPTO™

METAL MACHINING

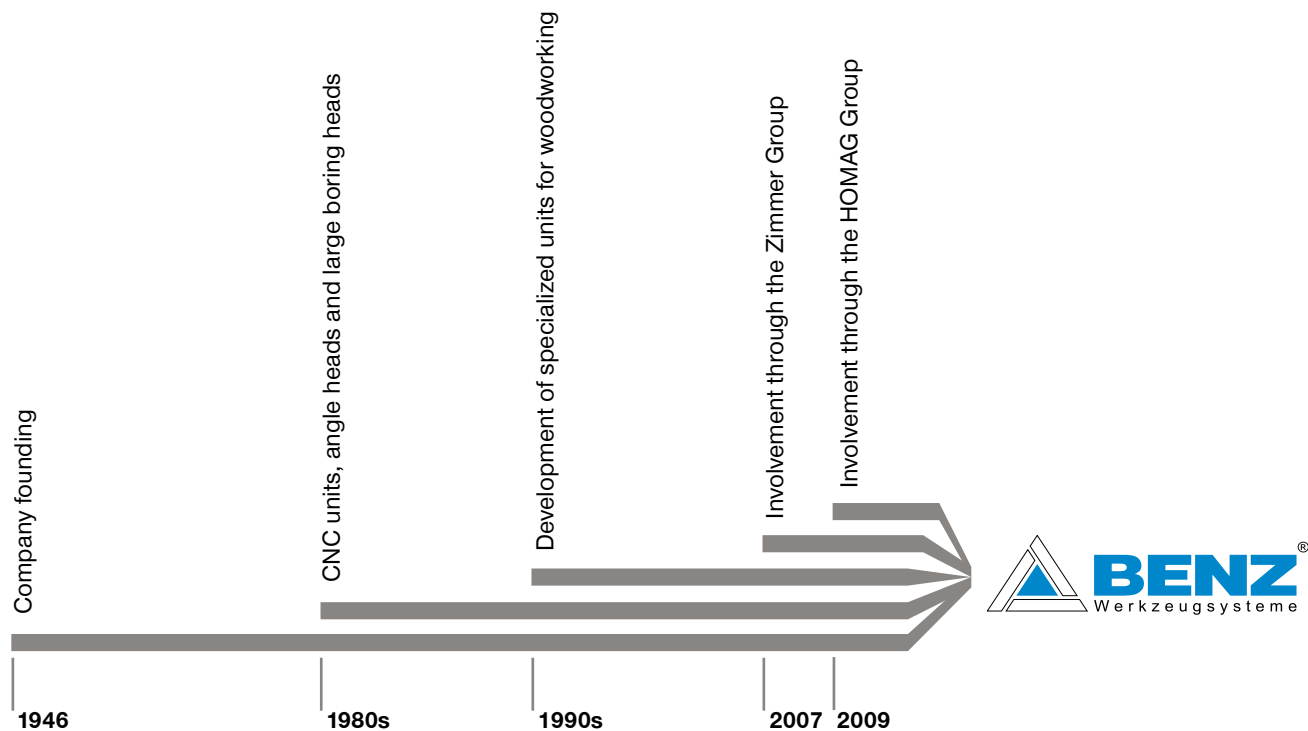


AT BENZ WERKZEUGSYSTEME, OUR MAXIM, “INNOVATION. PRECISION. PASSION.” IS FAR MORE THAN JUST A MARKETING FORMULA. RATHER, IT DESCRIBES THE CORE GOALS OF OUR BUSINESS WHILE ALSO OUTLINING THE REASONS WHY WE HAVE BEEN ABLE TO COMPETE IN THE MARKET SUCCESSFULLY WITH TOOL SYSTEMS FOR WOODWORKING, METAL MACHINING AND COMPOSITE MATERIAL PROCESSING FOR MORE THAN 30 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.



BENZ GMBH WERKZEUGSYSTEME



**BENZ PRECISION PRODUCTS PROVIDE REFINED SOLUTIONS, INNOVATIVE TECHNOLOGY AND THE HIGHEST LEVEL OF QUALITY. WHAT IS THE SECRET TO THIS SUCCESS?
OUR EMPLOYEES AND THEIR INVALUABLE EXPERTISE MAKE THE DIFFERENCE.**

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.

PRODUCT GROUPS

TOOLING AND MACHINE TOOLING TECHNOLOGY

TOOLING TECHNOLOGY



LIVE TOOLS/ TOOL HOLDERS

- + Radial heads 90°
- + Radial heads ≠ 90°
- + Axial heads
- + Swivel heads
- + Multi-spindle heads
- + Broaching units
- + Rotating tool holders
- + Static tool holders

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.

EXCHANGEABLE UNITS

- + Angle heads 90°
- + Angle heads ≠ 90°
- + Swivel heads
- + Multi-spindle heads
- + Broaching units
- + High-speed spindles

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.

EXCHANGEABLE UNITS

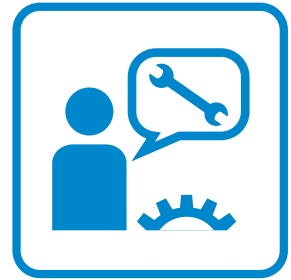
- + Angle heads 90°
- + Swivel heads
- + Multi-spindle heads
- + Multi-axis heads
- + Sanding units
- + Floating head units

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



MULTI-SPINDLE HEADS AND LARGE DRILL HEADS

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

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 multi-spindle and large-angle heads as well as large drill heads.

Components. Attachment units complete our range.

SYSTEM TECHNOLOGY

- + Multiple-spindle drill heads
- + Motor spindles
- + Motors
- + 5-axis technology
- + C-axes
- + Swivel axes
- + Rotary distributors
- + Z-axes

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.

SERVICE

- + Repair service
- + ExpressService
- + Customized crash package
- + Preventive maintenance
- + Spare part management
- + Global service
- + Service hotline

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 crash packages 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.

TOOLING AND MACHINE TOOLING TECHNOLOGY

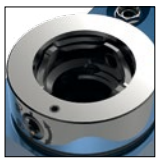
EXCHANGEABLE UNITS

LIVE TOOLS

MULTI-SPINDLE HEADS AND LARGE DRILL HEADS

SYSTEM TECHNOLOGY

BENZ MODULAR QUICK CHANGE SYSTEMS IN OVERVIEW



BENZ MODULAR QUICK CHANGE SYSTEMS

BENZ SOLIDFIX® BENZ CAPTO™

1 Pages 8-9



BENZ SOLIDFIX® SYSTEM DESIGN

2 Pages 10-13



BENZ CAPTO™ SYSTEM DESIGN

3 Pages 14-17



ADAPTER SEARCH ENGINE

4 Pages 18-19



BENZ SOLIDFIX® TOOL ADAPTER

5 Pages 20-34



BENZ CAPTO™ TOOL ADAPTER

6 Pages 35-39



ACCESSORIES MODULAR QUICK CHANGE SYSTEMS

7 Pages 40-45

BENZ MODULAR QUICK CHANGE SYSTEMS

BENZ SOLIDFIX® AND BENZ CAPTO™

1

► CHALLENGE: REDUCTION OF SET-UP TIME AND PROCESS OPTIMIZATION

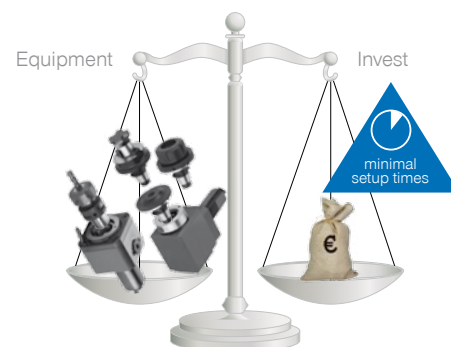
An investment worth making

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.

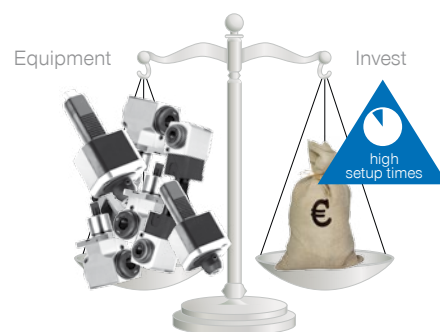
The basic principle and the biggest advantage of modular tooling systems is that tools can be pre-set, set up and be ready for use on the machine by the operator, all while he is already in the process of machining other parts. The pre-set adapters then can be changed in a flash in the machine.

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 systems available to you.



Equipment-Investment comparison modular tool systems with non modular



► ABOUT THE PRODUCTS

FIELD OF APPLICATIONS

BENZ Solidfix® and BENZ CAPTO™

Are you looking for a quick change system that can be used in all areas of your production? The modular Quick Change Systems made by BENZ can be used in Live Tools as well as right angle heads, even Multi-spindle heads. BENZ Solidfix® and BENZ CAPTO™ are not only suited for large batch manufacturing but are especially cost effective when machines have to be re-tooled frequently due to manufacture of small lots or specialty parts. You save time and money.

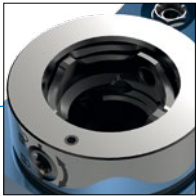
Can be used on all common

- lathes
- turning-/milling centers
- machining centers
- transfer lines

APPLICATION



► SYSTEM BENEFITS



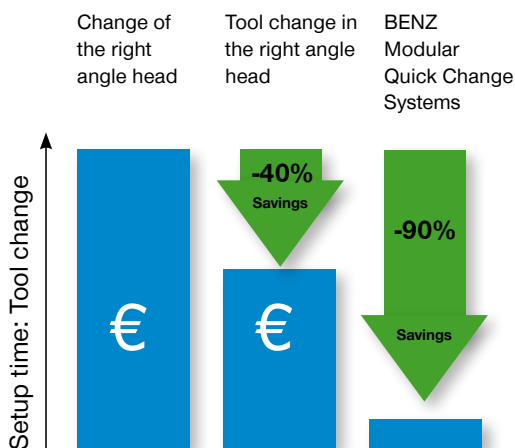
BENZ Solidfix®
tool holding fixture



BENZ CAPTO™
tool holding fixture



- **modular design**
via basic tool and exchange unit with various tool holders
- **minimize setup- and nonproductive time**
via change of the pre-set tool within seconds
- **much lower investment**
as the basic tool stays on the machine and only the adapters are changed in total fewer basic tools are needed
- **simple handling**
by one-hand operation, without special tools
- **operator safety**
tool cannot fall out



Reducing setup time = reducing costs

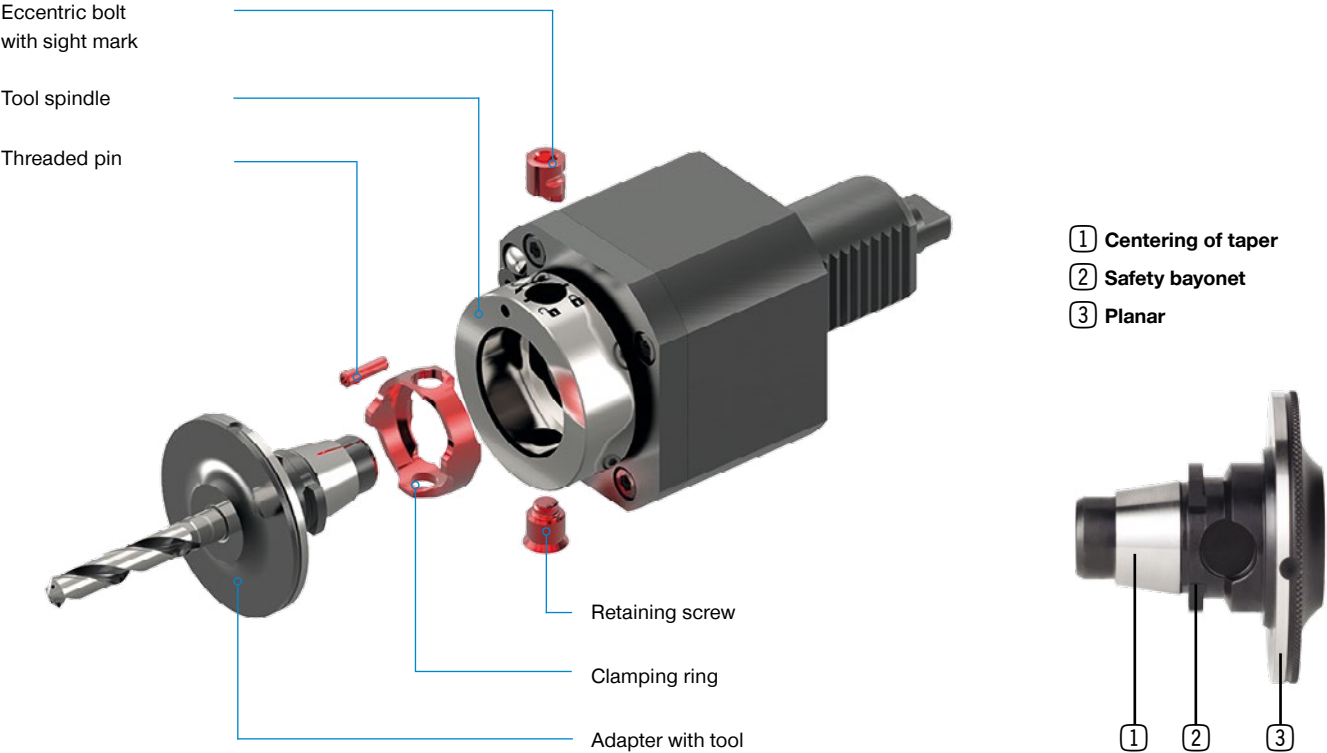
During normal tool change the complete tool has to be taken out of the machine. This causes long machine down times. By doing the tool change directly on the head the set up costs can already be reduced by 40%. The optimum in savings can be reached by using the modular quick change systems BENZ Solidfix® and BENZ CAPTO™. With this system the tool is set up in the adapter outside the machine and then changed in the machine within seconds. You save 90% of your original set-up costs!

MODULAR QUICK CHANGE SYSTEM

BENZ SOLIDFIX®

SYSTEM DESIGN

2
BENZ Solidfix® / Modular Quick Change System



ABOUT BENZ SOLIDFIX®

FIELD OF APPLICATIONS

User friendly, stable and very precise

By combining taper concentricity with no backlash with an extremely large planar surface, combined with high torque, BENZ Solidfix® offers a maximum in stability and rigidity, which is even capable of withstanding the demands of milling. The high torque transmission and the highest possible rpms also stress the effectiveness. This is supported by a special clamping mechanism which works centrally, without lateral forces, which in combination with the compact, highly precise components used achieves optimal values for concentricity, rigidity and accuracy in repeatability. Because of its compact design the system is ideal for tools with internal cooling.

SYSTEM OVERVIEW

Technical data

Size	T* [Nm]	Wrench size	Recommended VDI combination**
S1	25	SW 3	VDI 20
S2	50	SW 4	VDI 25
S3	100	SW 5	VDI 30
S4	200	SW 6	VDI 40
S5	400	SW 6	VDI 50

*transmittable torque of interface

** clamping system also for comparable BMT/CDI tools

▶ PRODUCT BENEFITS



All aces in one hand

Performance

- ▶ compact design
- ▶ large planar contact surface
- ▶ high rigidity (milling capable)
- ▶ high transmission of torque
- ▶ high speed (balancing-neutral design)

Precision

- ▶ high concentricity: $< 5 \mu\text{m}$ auf 30 mm
- ▶ high repeatability
- ▶ central, cross-force-free transmission of forces
- ▶ play-free centering of taper

Handling

- ▶ quick change, change in < 20 seconds
- ▶ one-hand operation
- ▶ simple handling without the need of special tools
- ▶ resistance controlled clamping (180°) - no need to observe torque
- ▶ ejection feature

Safety

- ▶ securing device via safety bayonet
- ▶ self-locking clamp function
- ▶ avoidance of operating errors
- ▶ fulfills machinery directive 2006/42/EG



Video



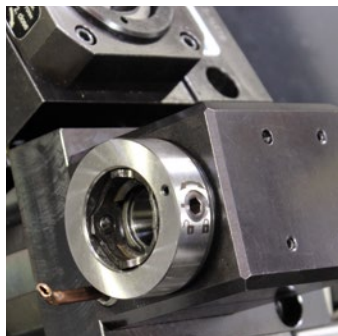
▶ BENZ Solidfix® - in use

Scan the adjacent QR code with a smartphone and see a demonstration of BENZ Solidfix® in action. Alternatively, you can visit our YouTube channel to view the video: www.youtube.com/BENZWerkzeugsysteme

MODULAR QUICK CHANGE SYSTEM

BENZ SOLIDFIX®

► TOOL CHANGE



► Step 1: Familiarize yourself with the system

In order to change an adapter in the angle head/live tool the operation unit needs to be in a loose position.



Loose position:

Marking is sitting on open lock



Clamped position:

Marking is sitting on closed lock



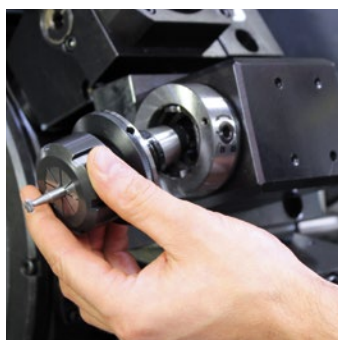
► Step 2: Inserting the adapter

Insert the adapter into the tool spindle. The adapter cannot fall out due to a special safety mechanism which holds the tool in place, even if not clamped yet. This prevents injuries during set up of the tools in the machine.



► Step 3: Resistance controlled clamping

The modular quick change system BENZ Solidfix® can be operated with just one hand without any special tools - a standard hex key is sufficient. By simply turning the clamping screw 180 degrees (up to its end position) the tool adapter (meaning the tool) is clamped.



► Step 4: Loosening and changing the adapter

After loosening the locking mechanism with a hex key and turning the tool adapter 90 degrees (a bayonet style safety mechanism prevents the tool from falling out after opening the lock) the adapter can be removed. A specialized eject feature ensures that the adapter does not get stuck in the spindle. The tool change can be done in less than 20 seconds.

► APPLICATION SAMPLE

MACHINING CENTER

Tool change for an angle head with BENZ Solidfix®.



► APPLICATION SAMPLE

CNC TURRET

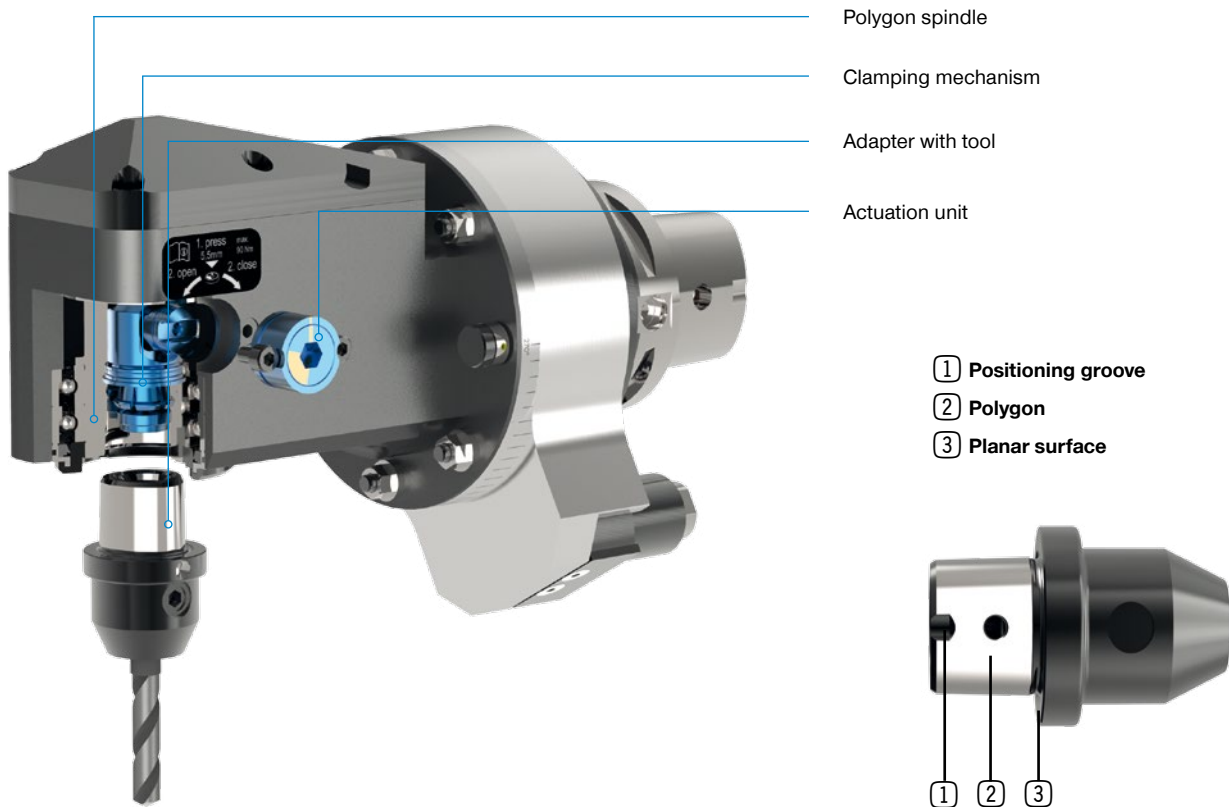
Tool Change for a driven tool with BENZ Solidfix® on the CNC turret. Above: Right Angle tool with BENZ CAPTO™ interface



MODULAR QUICK CHANGE SYSTEM

BENZ CAPTO™

SYSTEM DESIGN



ABOUT BENZ CAPTO™

FIELD OF APPLICATIONS

Increase of efficiency and machining quality

The modular quick change system BENZ CAPTO™ guarantees an extremely compact design by being integrated into the spindle. Special clamping kinetics for clamping forces are noticeably below the required range of ISO/DIS 26623-2. BENZ CAPTO™ can be used for milling, drilling and turning, with up to 100 bar coolant pressure. The system is especially suited for heavy duty milling and machining.

SYSTEM OVERVIEW

Technical data

Size	T [Nm]	Wrench size	Recommended VDI combination **
C3	320	SW 6	VDI 30
C4	580	SW 8	VDI 40
C5	1000	SW 10	VDI 50
C6	2000	SW 12	VDI 60

* transmittable torque of the polygon

** clamping system also for comparable BMT/CDI tools

► PRODUCT BENEFITS



All aces in one hand

Performance

- compact design/short implementation
- special clamping kinetics for clamping forces are noticeably below the required range of ISO/DIS 26623-2
- pressure of coolant up to 100 bar
- ideal for heavy milling

Precision

- stability and rigidity with high flexibility at the same time
- compact shape guarantees high cutting speeds and surface quality

Handling

- fast tool change with additional locking mechanism (ratcheted)
- optically visible clamping position 100°
- starting torque: 50 Nm (C4)

Safety

- from 75 degrees onwards the clamping process is already so secure that the tool can be used in production
- visual markings > correct clamping of the tool is easily seen
- additional safety function > prevents uncontrolled falling out of the tool holder



Video



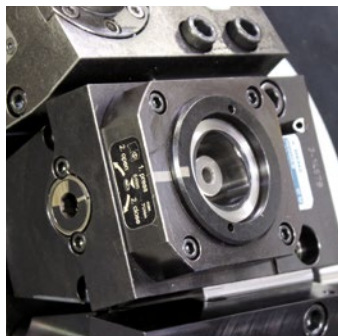
► BENZ CAPTO™ - in use

Scan the adjacent QR code with a smartphone and see a demonstration of BENZ CAPTO™ in action. Alternatively, you can visit our YouTube channel to view the video: www.youtube.com/BENZWerkzeugsysteme

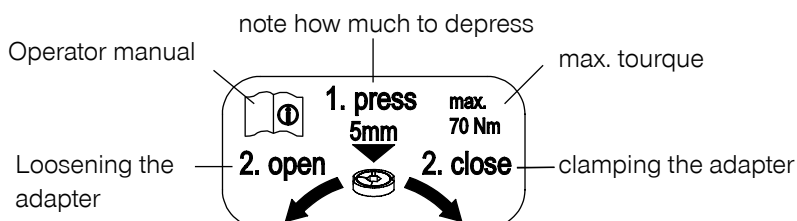
MODULAR QUICK CHANGE SYSTEM

BENZ CAPTO™

► TOOL CHANGE



► Step 1: Familiarize yourself with the symbols



► Step 2: Cleaning of tool holder with compressed air

Clean the tool insert. Please note: Only clean around the edges of the Polygon. Never blow air centrally into the clamping mechanism!



► Step 3: Inserting the adapter

Inserting the adapter into the tool holder (in release position). The adapter is held in the base by a locking mechanism.



The locking mechanism holds the tool in the base



► Step 4: Loosening and changing the adapter

Align the marks on the adapter and the tool insert. The adapter is held in the base by a locking mechanism.

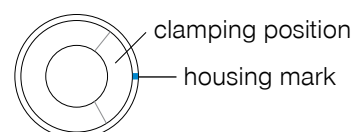
Note: this step is only necessary for Live Tools. Static BENZ CAPTO™ tools have a fixed polygon position.

► TOOL CHANGE



► Step 5: Clamping of the adapter

To do this press the mechanism and at the same time rotate by approx. 100 degree clockwise in the “close” direction. Optimal clamping force is achieved when applying the recommended torque. The tool is already clamped securely as soon as a 75 degree angle is achieved. Important: the mark on the housing has to be within the marked self-locking area.



► Step 6: Loosening the adapter

After machining you can loosen the adapter by pressing the mechanism and at the same time rotating counterclockwise in the “open” direction. This means the mark on the housing and the mark on the tool insert have to be lined up again. The adapter will be held in the tool after loosening until you take it out.

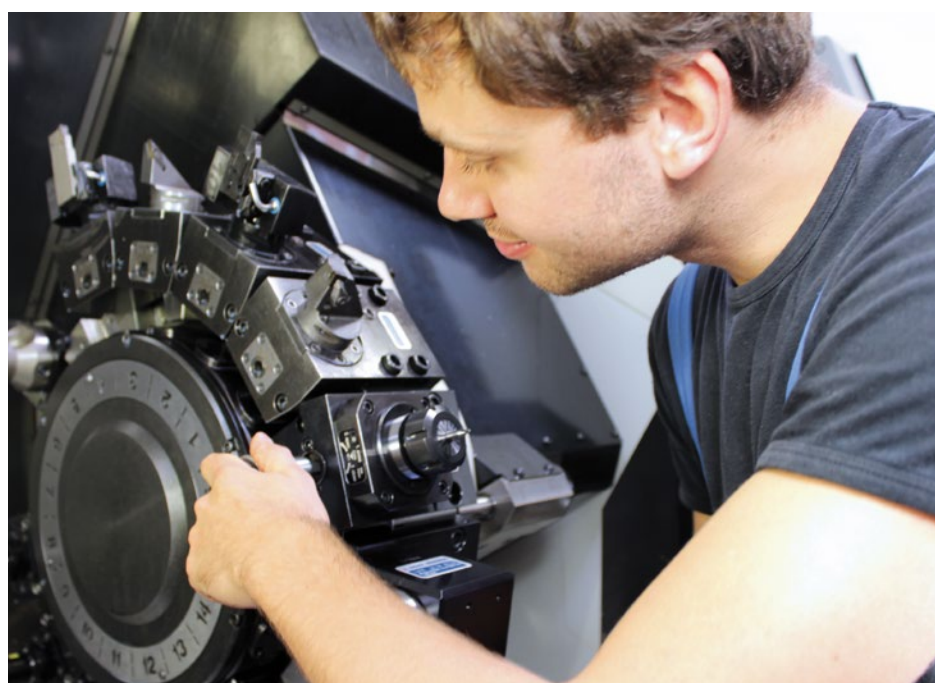
Note for clamping and un-clamping: for static Benz CAPTO™ tools it is sufficient to simply rotate, no pressure needs to be applied.

► SAMPLE APPLICATION

QUICK CHANGE



Tool Change for a driven tool with Modular Quick Change System BENZ CAPTO™.












YOUR ADAPTER SEARCH ENGINE

► TOOL ADAPTERS

Tool adapter	► BENZ Solidfix®		► BENZ CAPTO™	
	S1 - S2 - S3 - S4 - S5	Page	C3 - C4 - C5 - C6	Page
Collet chuck 8° Type ER		22		37
Weldon for parallel shanks DIN 1835 B		23		36
Whistle Notch for parallel shanks DIN 1835 E		24		
Milling machine arbor		25		37
Collet chuck with TER-shrinking collet		26-27		
Shrink fit chuck		28		
Threaded arbor (screw-on type)		28		
Hydro clamping chuck		29		
Square shoulder / Plunge mill		30		

► TOOL ADAPTERS

Tool adapter	► BENZ Solidfix®		► BENZ CAPTO™	
	S1 - S2 - S3 - S4 - S5	Page	C3 - C4 - C5 - C6	Page
Test arbor		30		
Master shanks VDI DIN 69880 HSK Form A ISO 12164 SK DIN 69871 AD		31-32		
Assembly block		32		
Reducing sleeve		33		
Blank		33		38
Closing plug		34		38
Accessories		40-44		

► **Additional adapters on request**
Please contact our sales team

BENZ SOLIDFIX®

TOOL ADAPTERS

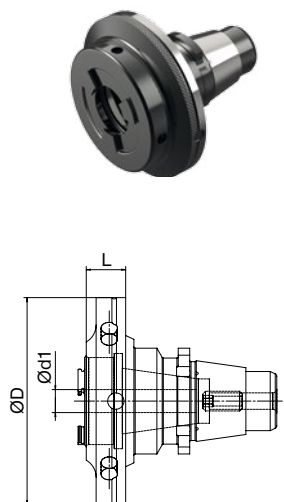


BENZ SOLIDFIX®

TOOL ADAPTERS

Collet chuck 8° Type ER inside clamping nut

- ▶ inside clamping nut
- ▶ MQL-capable adapters available upon request



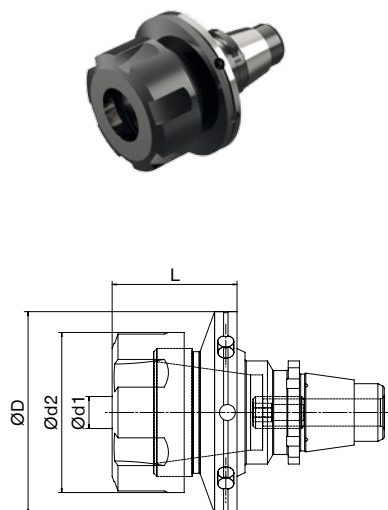
▶ Technical data

Order No.	Size	Type	D	d1	d2	L
691.130E1A09	S1	ER11	32	1-7	-	9
692.130E3A13	S2	ER16	40	1-10	-	13
693.130E3A10	S3	ER16	50	1-10	-	10
693.130E4A14	S3	ER20	50	2-13	-	14
694.130E4A12	S4	ER20	63	2-13	-	12
694.130E5A20	S4	ER25	63	2-16	-	20
695.130E6A22	S5	ER32	75	2-20	-	22

Collet not included in scope of supply

Collet chuck 8° Type ER external clamping nut

- ▶ external clamping nut
- ▶ MQL-capable adapters available upon request



▶ Technical data

Order No.	Size	Type	D	d1	d2	L
691.130M120	S1	ER11M	32	1-7	16	20
691.130M230	S1	ER16M	32	1-10	22	30
692.130M331	S2	ER20M	40	2-13	28	31
692.130E431	S2	ER20	40	2-13	34	31
693.130E534	S3	ER25	50	2-16	42	34
694.130E639	S4	ER32	63	2-20	50	39
695.130E746	S5	ER40	75	3-26	63	46

Collet not included in scope of supply

▶ ACCESSORIES

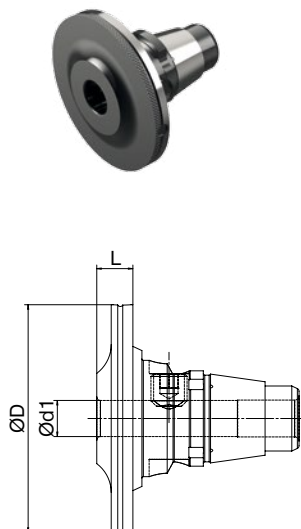
- ▶ see page 40ff.

BENZ SOLIDFIX®

TOOL ADAPTERS

Weldon for parallel shanks DIN 1835 B short design

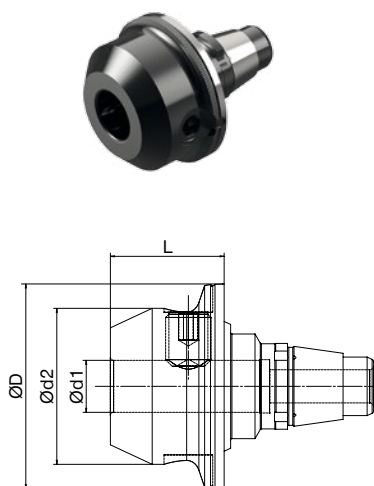
- ▶ minimum construction length
- ▶ MQL-capable adapters available upon request



Order No.	Technical data				
	Size	D	d1	d2	L
691.1400304	S1	32	3	-	4
691.1400405	S1	32	4	-	5
692.1400405	S2	40	4	-	5
692.1400607	S2	40	6	-	7
693.1400606	S3	50	6	-	6
693.1400808	S3	50	8	-	8
694.1400607	S4	63	6	-	7
694.1400808	S4	63	8	-	8
694.1401010	S4	63	10	-	10
694.1401212	S4	63	12	-	12
695.1400610	S5	75	6	-	10
695.1400810	S5	75	8	-	10
695.1401010	S5	75	10	-	10
695.1401210	S5	75	12	-	10
695.1401612	S5	75	16	-	12

Weldon for parallel shanks DIN 1835 B Standard design

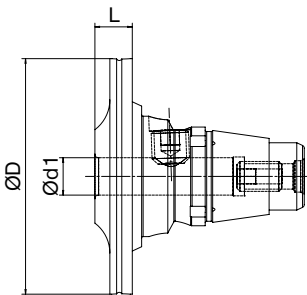
- ▶ minimum construction length
- ▶ MQL-capable adapters available upon request



Order No.	Technical data				
	Size	D	d1	d2	L
691.1400624	S1	32	6	25	24
692.1400825	S2	40	8	28	25
693.1401028	S3	50	10	35	28
693.1401232	S3	50	12	42	32
693.1401635	S3	50	16	48	35
694.1401432	S4	63	14	48	32
694.1401635	S4	63	16	48	35
694.1402038	S4	63	20	52	38
695.1402038	S5	75	20	52	38
695.1402540	S5	75	25	65	40

Whistle Notch for parallel shanks DIN 1835 E short design

- ▶ minimum construction length
- ▶ MQL-capable adapters available upon request

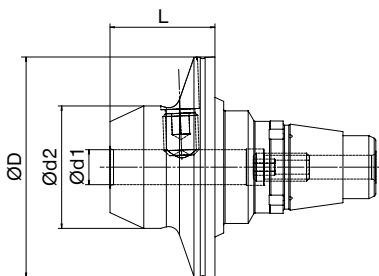


▶ Technical data

Order No.	Size	D	d1	d2	L
692.1410609	S2	40	6	-	9
693.1410606	S3	50	6	-	6
693.1410808	S3	50	8	-	8
694.1410607	S4	63	6	-	7
694.1410808	S4	63	8	-	8
694.1411010	S4	63	10	-	10
694.1411212	S4	63	12	-	12
695.1410610	S5	75	6	-	10
695.1410810	S5	75	8	-	10
695.1411010	S5	75	10	-	10
695.1411210	S5	75	12	-	10
695.1411612	S5	75	16	-	12

Whistle Notch for parallel shanks DIN 1835 E Standard design

- ▶ minimum construction length
- ▶ MQL-capable adapters available upon request



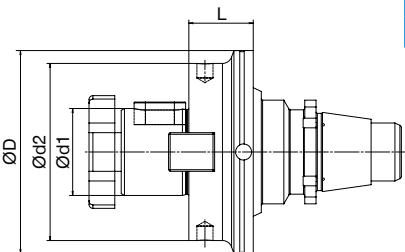
▶ Technical data

Order No.	Size	D	d1	d2	L
691.1410624	S1	32	6	25	24
692.1410825	S2	40	8	28	25
693.1411028	S3	50	10	35	28
693.1411232	S3	50	12	42	32
693.1411635	S3	50	16	48	35
694.1411432	S4	63	14	48	32
694.1411635	S4	63	16	48	35
694.1412038	S4	63	20	52	38
695.1412038	S5	75	20	52	38
695.1412540	S5	75	25	65	40

BENZ SOLIDFIX®

TOOL ADAPTERS

Milling machine arbor



Order No.	Technical data				
	Size	D	d1	d2	L
692.2311611	S2	40	16	34	11
693.2311612	S3	50	16	34	12
693.2312214	S3	50	22	48	14
694.2312214	S4	63	22	48	14
694.2312714	S4	63	27	55	14
695.2312212	S5	75	22	48	12
695.2312714	S5	75	27	55	14
695.2313215	S5	75	32	62	15

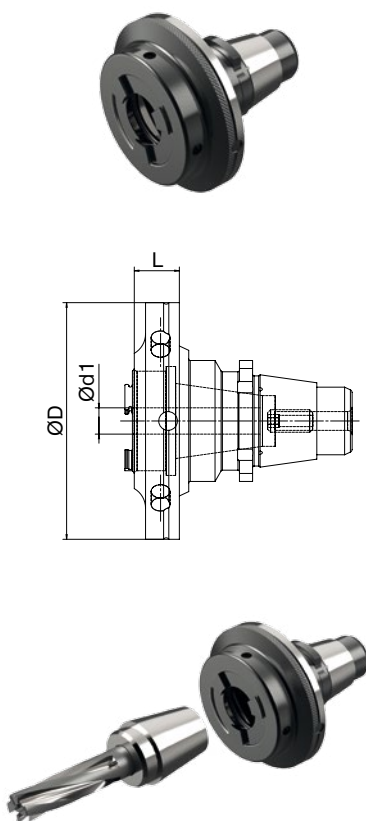
ACCESSORIES

▶ see page 43

Collet chuck with TER-shrinking collet

► Scope of supply: Ultra-precision collet with TER-collet chuck

► Partner: **diebold**
Goldring-Werkzeuge
Spindeltechnologie



► Technical data

Order No.	Size	Type	D	d1	L
691.1560330	S1	TER 16	32	3	30*
691.1560430	S1	TER 16	32	4	30*
691.1560630	S1	TER 16	32	6	30*
692.1560313	S2	TER 16	40	3	13
692.1560413	S2	TER 16	40	4	13
692.1560613	S2	TER 16	40	6	13
692.1560813	S2	TER 16	40	8	13
693.1560614	S3	TER 20	50	6	14
693.1560814	S3	TER 20	50	8	14
693.1561014	S3	TER 20	50	10	14
694.1560620	S4	TER 25	63	6	20
694.1560820	S4	TER 25	63	8	20
694.1561020	S4	TER 25	63	10	20
694.1561220	S4	TER 25	63	12	20
695.1560622	S5	TER 32	75	6	22
695.1560822	S5	TER 32	75	8	22
695.1561022	S5	TER 32	75	10	22
695.1561222	S5	TER 32	75	12	22
695.1561622	S5	TER 32	75	16	22

* Size S1: Utilization of a collet chuck with external mini nut

► INDIVIDUAL COMPONENTS

Ultra-precision collet with TER-collet chuck

► UP-collet chucks: differ versus standard collet chucks by being extremely precise for high speed machining



► Technical data

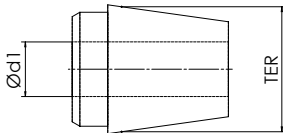
Order No.	Size	Type	D	d1	L
691.130M230UP	S1	ER 16M	32	1-10	30
692.130E3A13UP	S2	ER 16	40	1-10	13
693.130E4A14UP	S3	ER 20	50	2-13	14
694.130E5A20UP	S4	ER 25	63	2-16	20
695.130E6A22UP	S5	ER 32	75	2-20	22

BENZ SOLIDFIX®

TOOL ADAPTERS

TER-shrinking collet

▶ alternative collet chuck sizes

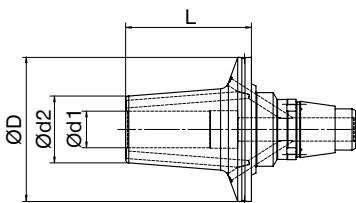


Order No.	Technical data		
	Size	Type	d1
B134-426E-0300DS	S1/ S2	TER 16	3
B134-426E-0400DS	S1/ S2	TER 16	4
B134-426E-0600DS	S1/ S2	TER 16	6
B134-426E-0800DS	S2	TER 16	8
B134-428E-0600DS	S3	TER 20	6
B134-428E-0800DS	S3	TER 20	8
B134-428E-1000DS	S3	TER 20	10
B134-430E-0600DS	S4	TER 25	6
B134-430E-0800DS	S4	TER 25	8
B134-430E-1000DS	S4	TER 25	10
B134-430E-1200DS	S4	TER 25	12
B134-470E-0600DS	S5	TER 32	6
B134-470E-0800DS	S5	TER 32	8
B134-470E-1000DS	S5	TER 32	10
B134-470E-1200DS	S5	TER 32	12
B134-470E-1600DS	S5	TER 32	16

▶ ACCESSORIES

▶ see page 44

Shrink fit chuck



- ▶ one piece shrink chuck
- ▶ coolant centrally or via hole in the sleeve

Order No.	Technical data				
	Size	D	d1	d2	L
693.1520645KB	S3	50	6	21	45
693.1520845KB	S3	50	8	21	45
693.1521050KB	S3	50	10	24	50
693.1521255KB	S3	50	12	24	55
694.1520650KB	S4	63	6	21	50
694.1520850KB	S4	63	8	21	50
694.1521050KB	S4	63	10	24	50
694.1521255KB	S4	63	12	24	55
694.1521455KB	S4	63	14	29	55
694.1521655KB	S4	63	16	29	55
694.1522060KB	S4	63	20	33	60
695.1522065KB	S5	75	20	33	65
695.1522570KB	S5	75	25	44	70

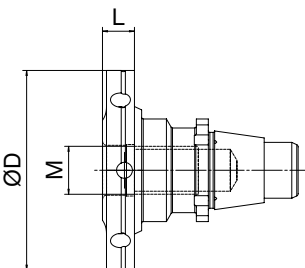
without coolant holes on request

MQL shrink fit chuck on request

Base holder for Threaded arbor (screw-on type) short design

5

Tool adapters / BENZ Solidfix®



- ▶ Base holder fits all standard threaded arbors (e.g. Seco, Kennametal...)

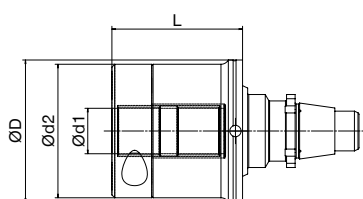
Order No.	Technical data			
	Size	D	M	L
693.2861008	S3	50	M10	8
693.2861208	S3	50	M12	8
694.2861209	S4	63	M12	9
694.2861609	S4	63	M16	9

BENZ SOLIDFIX®

TOOL ADAPTERS

Hydro clamping chuck Hydrostar

► only for shanks DIN 1835 type A and DIN 6535 type HA



Order No.	Technical data				
	Size	D	d1	d2	L
693.15816Z46	S3	50	16	47	46
694.15820Z47	S4	63	20	59	47
695.15825Z57	S5	75	25	70	57

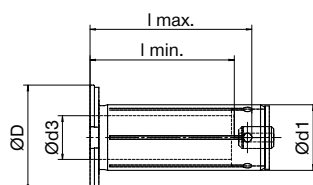


Monobloc design available on request

► ACCESSORIES

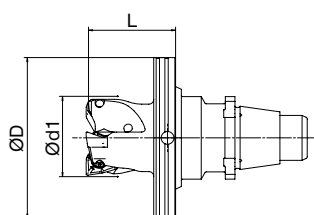
5

Collet chuck - Reducing sleeve



Order No.	Technical data				
	Size	D	d1	d3	l min l max
B158-1604	S3	24	16	4	27-34
B158-1608	S3	24	16	8	27-34
B158-1610	S3	24	16	10	31-35
B158-1612	S3	24	16	12	31-35
B158-2004	S4	29	20	4	27-34
B158-2006	S4	29	20	6	35-46
B158-2008	S4	29	20	8	35-46
B158-2010	S4	29	20	10	35-46
B158-2012	S4	29	20	12	35-46
B158-2014	S4	29	20	14	35-46
B158-2506	S5	34	25	6	36-44
B158-2508	S5	34	25	8	36-44
B158-2510	S5	34	25	10	40-44
B158-2512	S5	34	25	12	45-50
B158-2514	S5	34	25	14	45-50
B158-2516	S5	34	25	16	48-50
B158-2520	S5	34	25	20	50-50

Square shoulder / Plunge mill



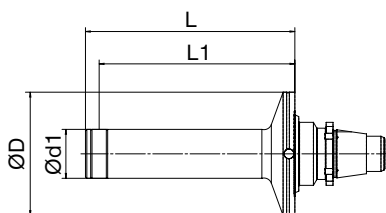
- Cooperation with **ph HORN ph**
- Scope of supply: without inserts

► Technical data

Order No.	Size	D	d1	L
693.65025028S001	S3	50	25	28
694.65032033S001	S4	63	32	33

The matching inserts type DA32 can be supplied by our partner PH Horn.

Test arbor



- Scope of supply: case with test certificate

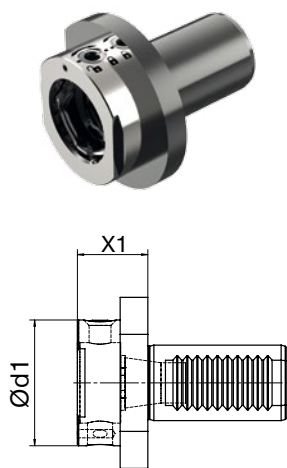
► Technical data

Order No.	Size	D	d1	L	L1
691.2471255	S1	32	12	55	50
692.2471668	S2	40	16	68	63
693.2472087	S3	50	20	87	80
694.24725107	S4	63	25	107	100
695.24732134	S5	75	32	134	125

BENZ SOLIDFIX®

TOOL ADAPTERS

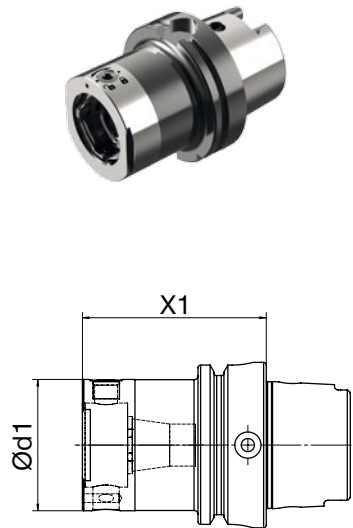
Master shank VDI



Order No.	Technical data				
	VDI	Size	d1	X1	IC
112.251S1022VE	VDI 20	S1	32	22	
325.251S2025VE	VDI 25	S2	40	25	
113.251S2025VE	VDI 30	S2	40	25	
113.251S3032R	VDI 30	S3	50	32	x
114.251S3028VE	VDI 40	S3	50	28	
114.251S4032R	VDI 40	S4	63	32	x
115.251S5032VE	VDI 50	S5	75	32	
115.251S5040R	VDI 50	S5	75	40	x

Master shank HSK

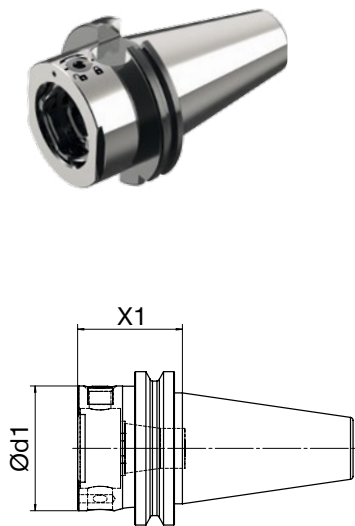
► Internal coolant ready (coolant supply transfer needed)



Order No.	Technical data			
	HSK	Size	d1	X1
711.251S1055VE	HSK 63	S1	32	55
711.251S2062VE	HSK 63	S2	40	62
711.251S3070VE	HSK 63	S3	50	70
711.251S4075VE	HSK 63	S4	63	75
711.251S5080VE	HSK 63	S5	75	80
713.251S4080VE	HSK 100	S4	63	80
713.251S5090VE	HSK 100	S5	75	90

Master shank SK

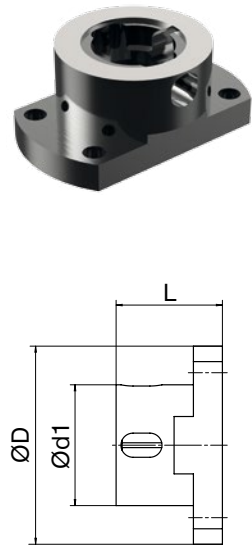
► internal coolant ready (precision pull stud)



Order No.	Technical data			
	SK	Size	d1	X1
090.251S1030VE	SK 30	S1	32	30
090.251S2040VE	SK 30	S2	40	40
040.251S3042VE	SK 40	S3	50	42
040.251S4055VE	SK 40	S4	63	55
040.251S5060VE	SK 40	S5	75	60
042.251S3037VE	SK 50	S3	50	37
042.251S4040VE	SK 50	S4	63	40
042.251S5052VE	SK 50	S5	75	52

Assembly block

► Note: no integrated clamping mechanism



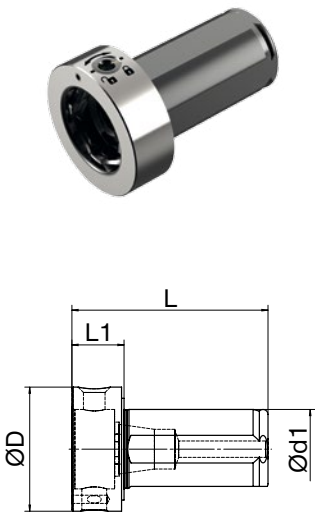
Order No.	Technical data			
	Size	D	d1	L
B300-4-S1	S1	62	31	30
B300-4-S2	S2	67	40	38
B300-4-S3	S3	82	50	44
B300-4-S4	S4	96	65	50
B300-4-S5	S5	116	75	60

BENZ SOLIDFIX®

TOOL ADAPTERS

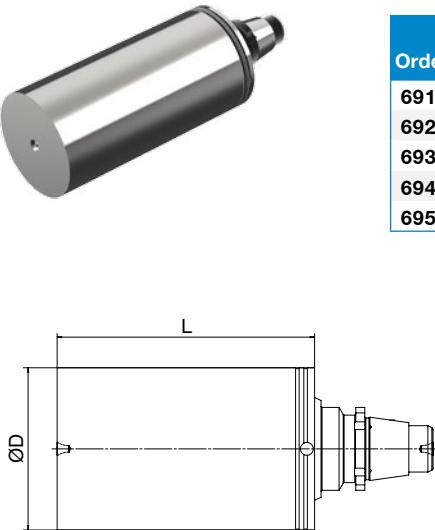
Reducing sleeve

► used for boring bars or combination holders



	► Technical data				
Order No.	Size	D	d1	L	L1
B570-25S2	S2	40	25	65	17
B570-32S3	S3	50	32	79	21
B570-40S4	S4	63	40	94	22

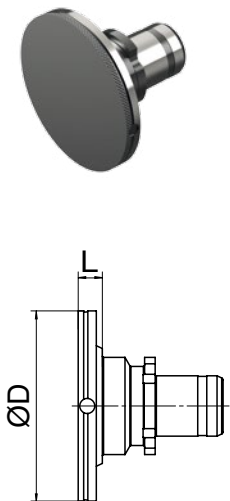
Blank



	▶ Technical data		
Order No.	Size	D	L
691.1023263	S1	32	63
692.1024080	S2	40	80
693.10250100	S3	50	100
694.10263125	S4	63	125
695.10275160	S5	75	160

Closing plug

► made of steel



Order No.	Technical data		
	Size	D	L
691.581S	S1	32	3,5
692.581S	S2	40	4
693.581S	S3	50	5
694.581S	S4	63	6
695.581S	S5	75	8



**BENZ ANGLE HEAD WITH MODULAR QUICK
CHANGE SYSTEM BENZ SOLIDFIX® IN PRO-
CESSING**

BENZ CAPTO™

TOOL ADAPTERS

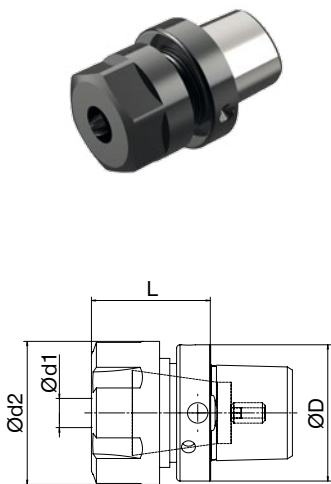


BENZ CAPTO™

TOOL ADAPTERS

Collet chuck 8° Type ER

- ▶ external clamping nut
- ▶ without gripper groove!



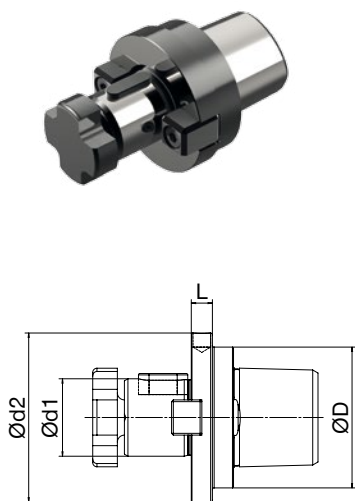
Order No.	Technical data					
	Size	Type	D	d1	d2	L
550.130E330	C3	ER16	32	1-10	28	30
550.130E435	C3	ER20	32	2-13	34	35
550.130E544	C3	ER25	32	2-16	42	44
551.130E432	C4	ER20	40	2-13	34	32
551.130E535	C4	ER25	40	2-16	42	35
551.130E652	C4	ER32	40	2-20	50	52
552.130E534	C5	ER25	50	2-16	42	34
552.130E641	C5	ER32	50	2-20	50	41
552.130E758	C5	ER40	50	3-26	63	58
553.130E640	C6	ER32	63	2-20	50	40
553.130E746	C6	ER40	63	3-26	63	46

ACCESSORIES

- ▶ see page 40ff.

Milling machine arbor

- ▶ without gripper groove!



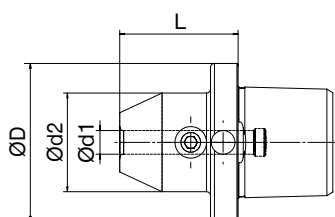
	► Technical data				
Order No.	Size	D	d1	d2	L
550.2311613	C3	32	16	34	13
550.2312217	C3	32	22	48	17
551.2312216	C4	40	22	48	16
551.2312719	C4	40	27	51	19
552.2312711	C5	50	27	55	11
552.2313222	C5	50	32	62	22
553.2312711	C6	63	27	63	11
553.2313216	C6	63	32	63	16

ACCESSORIES

- ▶ see page 43

Weldon for parallel shanks DIN 1835 B

► without gripper groove!



► Technical data

Order No.	Size	D	d1	d2	L
550.1400633	C3	32	6	25	33
550.1400833	C3	32	8	28	33
550.1401037	C3	32	10	35	37
550.1401242	C3	32	12	42	42
550.1401443	C3	32	14	44	43
550.1401651	C3	32	16	48	51
551.1400630	C4	40	6	25	30
551.1400830	C4	40	8	28	30
551.1401034	C4	40	10	35	34
551.1401239	C4	40	12	42	39
551.1401439	C4	40	14	44	39
551.1401643	C4	40	16	48	43
551.1401843	C4	40	18	50	43
551.1402045	C4	40	20	52	45
552.1400629	C5	50	6	25	29
552.1400829	C5	50	8	28	29
552.1401033	C5	50	10	35	33
552.1401238	C5	50	12	42	38
552.1401438	C5	50	14	44	38
552.1401641	C5	50	16	48	41
552.1401842	C5	50	18	50	42
552.1402044	C5	50	20	52	44
552.1402552	C5	50	25	65	52
553.1400628	C6	50	6	25	28
553.1400828	C6	50	8	28	28
553.1401032	C6	50	10	35	32
553.1401237	C6	50	12	42	37
553.1401437	C6	50	14	44	37
553.1401640	C6	50	16	48	40
553.1401841	C6	50	18	50	41
553.1402043	C6	50	20	52	43
553.1402552	C6	50	25	65	52

BENZ CAPTO™

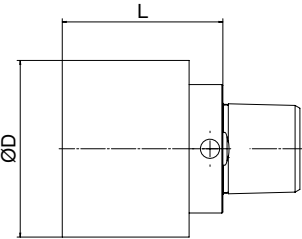
TOOL ADAPTERS

Blank



Order No.
550.1024750
551.1025763
552.1027267
553.1029267

▶ Technical data			
Size	D	L	
C3	47	50	
C4	57	63	
C5	72	67	
C6	92	67	



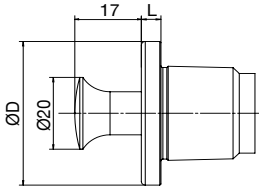
Closing plug (made out of steel)

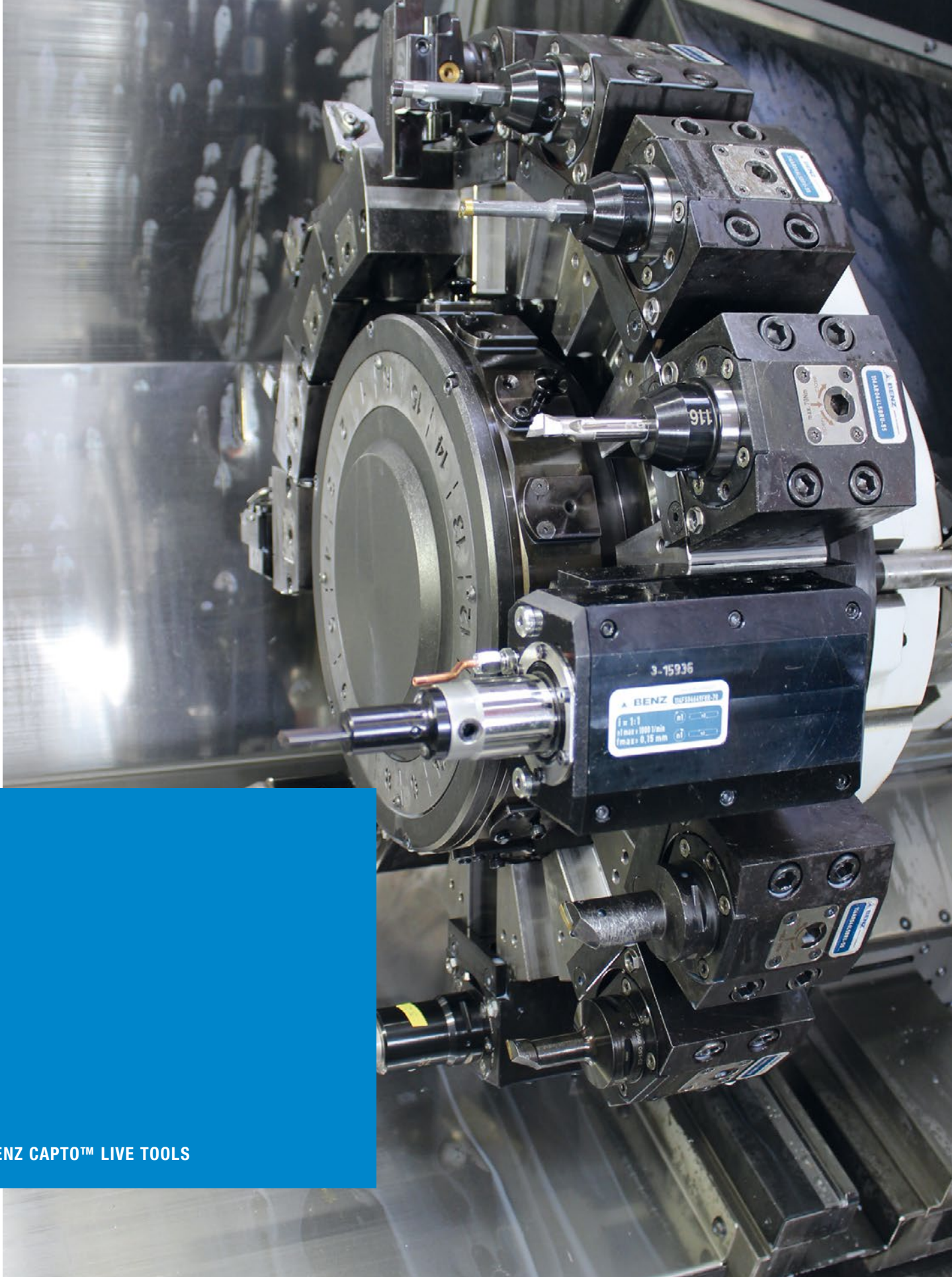
▶ made of steel



Order No.
550.581S
551.581S
552.581S
553.581S

▶ Technical data			
Size	D	L	
C3	32	5	
C4	40	5	
C5	50	6	
C6	63	7	





BENZ CAPTO™ LIVE TOOLS

6

Tool adapters / BENZ CAPTO™

ACCESSORIES

MODULAR SYSTEMS



ACCESSORIES

COLLET CHUCK ADAPTERS

Clamping wrench inside clamping nut



► Technical data	
Order No.	fits for collet chuck ER
B136-E1AX	11
B136-E3AX	16
B136-E4AX	20
B136-E5AX	25
B136-E6AX	32

Hook wrench DIN 1810B inside clamping nut



► Technical data	
Order No.	fits for Solidfix® Adapter
D01810B025028	S1 x ER11
D01810B034036	S2 x ER16
D01810B045050	S3 x ER16
D01810B040042	S3 x ER20
D01810B058062	S4 x ER20
D01810B045050	S4 x ER25
D01810B058062	S5 x ER32

Collet nuts for tools with internal coolant DIN 6499 System Regofix internal



► Technical data						
Order No.	ER	Clamping range	B	C	I1	I2
B135-E3AXC	16	1-10	12,5	M24 x 1	22,5	7,2
B135-E4AXC	20	1-13	13,5	M28 x 1,5	24,0	7,3
B135-E5AXC	25	2-16	13,8	M32 x 1,5	25,0	7,3
B135-E6AXC	32	2-20	14,9	M40 x 1,5	27,5	7,6
B135-E7AXC	40	4-26	16,6	M50 x 1,5	30,5	7,3

ACCESSORIES

COLLET CHUCK ADAPTERS

Clamping wrench external clamping nut



► Technical data	
Order No.	fits for collet chuck ER
B136-M1	11M
B136-M2	16M
B136-M3	20M
B136-E4	20
B136-E5	25
B136-E6	32
B136-E7	40

Hook wrench DIN 1810B external clamping nut



► Technical data	
Order No.	fits for Solidfix® Adapter
D01810B030032	S1 x ER11M
D01810B030032	S1x ER16M
D01810B040042	S2 x ER20M
D01810B040042	S2 x ER20
D01810B045050	S3 X ER25
D01810B058062	S4 x ER32
D01810B068075	S5 x ER40

Collet nuts for tools with internal coolant DIN 6499 System Regofix external



► Technical data				
Order No.	ER	Clamping range	d1	l1
B135-H3A	16	1-10	28	22,5
B135-H4A	20	1-13	34	24,0
B135-H5A	25	2-16	42	25,0
B135-H6A	32	2-20	50	27,5
B135-H7A	40	4-26	63	30,5

Seal Rings



Order No.
B137-E3-...
B137-E4-...
B137-E5-...
B137-E6-...
B137-E7-...

► Technical data			
	ER	fits clamping range	increments
	16	1-10	0,5 mm
	20	1-13	0,5 mm
	25	2-16	0,5 mm
	32	2-20	0,5 mm
	40	4-26	0,5 mm

► ORDER SAMPLE

HOW TO ORDER
CORRECTLY

► Get the right order
no. according to this
scheme:

Order No.	B137-	<input type="checkbox"/>	<input type="checkbox"/>
ER 32		E6	
ø 8-8,5 mm			0850

ACCESSORIES

MILLING MACHINE ARBOR

Hook wrenches



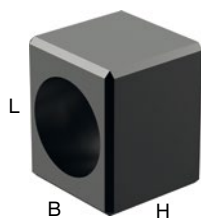
► Technical data		
Order No.	Size	Ø
D01810B040042	S2	40-42
D01810B045050	S3	45-50
D01810B058062	S4	58-62
D01810B068075	S5	68-75

Wrench DIN 6368 for Shell arbor wrenches



► Technical data	
Order No.	d1
D06368-080	16
D06368-100	22
D06368-120	27
D06368-160	32

Key block DIN 2097 for milling machine arbors



► Technical data				
Order No.	d1	L	B	H
B245-66	16	8,5	8	11
B245-81	22	11	10	8,6
B245-126	27	10	12	9,3
B245-117	32	12	14	14

ACCESSORIES

SHRINKING COLLET

Insert, Base holder

► Base holder and respective insert are needed!



► Technical data		
Order No.	Size	Type
B136-426E-DSE	S1 / S2	Insert TER 16
B136-428E-DSE	S3	Insert TER 20
B136-430E-DSE	S4	Insert TER 25
B136-470E-DSE	S5	Insert TER 32
B136-4XXE-DSG	S1 - S5	Base holder with length adjustment

Additional accessories

- Diebold-shrinking devices with stored parameters for shrinking of the TER-collet chucks
- fluid cooler FKS 03
- adapter rings

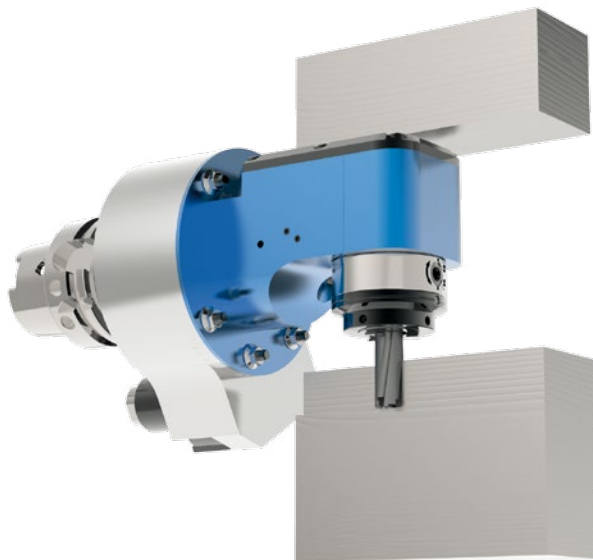
► **Additional accessories on request**
Please contact our sales team

BENZ MODULAR QUICK CHANGE SYSTEMS

PRODUCT SAMPLES

▶ PRODUCT SAMPLE

MACHINING CENTER



BENZ right angle head
FORTE WWX 90° recessed
with Modular Quick Chan-
ge System BENZ Solidfix®
HSK-A63 machine
connection

▶ PRODUCT SAMPLE

LATHE



Radial tool with Modular
Quick Change System
BENZ CAPTO™ with VDI
machine connection Sauter
Trifix Revolver with fixed
flange connection



QUICK AND EASY TOOL CHANGE WITH
BENZ SOLIDFIX®

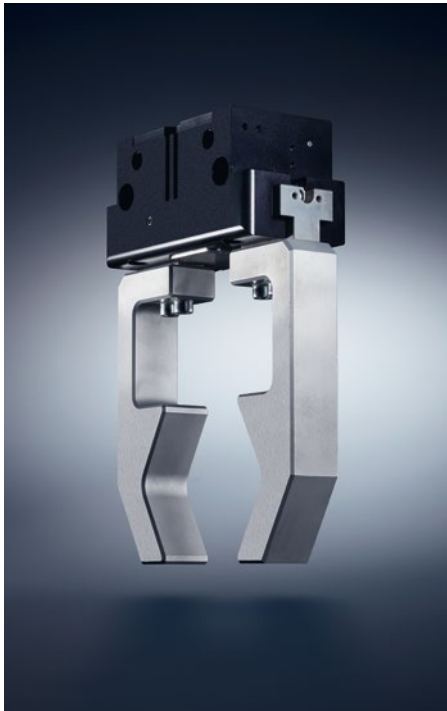
TECHNOLOGIES

ZIMMER GROUP

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WITH MORE THAN 30 YEARS OF EXPERIENCE AND INDUSTRY KNOWLEDGE, OUR PNEUMATIC, HYDRAULIC AND ELECTRICAL HANDLING COMPONENTS AND SYSTEMS ARE GLOBAL LEADERS.

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INDUSTRIAL DAMPING TECHNOLOGY AND SOFT CLOSE PRODUCTS EXEMPLIFY THE INNOVATION AND PIONEERING SPIRIT OF THE KNOW-HOW FACTORY.

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Whether standard or customized solutions, our products stand for the highest cycle rates and maximum energy absorption with minimal space requirements.

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WE DEVELOP LINEAR COMPONENTS AND SYSTEMS THAT ARE INDIVIDUALLY ADAPTED TO OUR CUSTOMERS' NEEDS.

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Individualized systems. The unique functionality and precision of our clamping and breaking elements open up numerous possibilities for custom applications such as active or semi-active braking and damping.

ZIMMER

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Werkzeugsysteme

BENZ[®]
Werkzeugsysteme



PROCESS TECHNOLOGY

MAXIMUM EFFICIENCY IS ESSENTIAL FOR SYSTEMS AND COMPONENTS USED IN PROCESS TECHNOLOGY. HIGH-LEVEL CUSTOM SOLUTIONS ARE OUR TRADE-MARK.

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ZIMMER GROUP DEVELOPS INNOVATIVE WOOD, METAL AND COMPOSITE PROCESSING TOOL SYSTEMS FOR ALL INDUSTRIES. NUMEROUS CUSTOMERS CHOOSE US AS THEIR SYSTEMS AND INNOVATION PARTNER.

Knowledge and experience. Industry knowledge and a decades-long development partnership for exchangeable assemblies, tool interfaces and tool systems make us the ideal choice for new challenges around the world.

Components. We deliver numerous standard components from stock and develop innovative, customized systems for OEM and end customers – far beyond just the metal- and wood-processing industries.

Variety. Whether you have machining centers, lathes or flexible production cells, the power tools, holders, assemblies and drilling heads of Zimmer Group are ready for action.

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AS A DRIVING FORCE IN OUR INDUSTRY, WE DELIVER HIGH-VALUE SOLUTIONS IN THE FIELD OF MECHANICAL ENGINEERING, FULLY ACCORDING TO THE NEEDS OF OUR CUSTOMERS.

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

Components. We deliver series products and modules, five-axis heads, motor spindles, gearbox swiveling heads, add-on assemblies and motors.

Systems. The Know-how Factory stands for solutions in the fields of mechanical engineering systems, specialty solutions, custom assemblies and mechanical modules. We manufacture and configure multiple-spindle and large-angle heads as well as large boring heads.

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USAGE NOTE

INDIVIDUAL

DECLARATION OF INCORPORATION IN TERMS OF THE EC DIRECTIVE 2006/42/EC ON MACHINERY (ANNEX II 1 B)

We hereby declare that our products meet the basic requirements of the Machinery Directive 2006/42/EC as an incomplete machine to the extent that this is possible as part of delivery.

We also declare that the specific technical documents were produced in accordance with Annex VII Part B of this Directive. We undertake to provide the market supervisory bodies with versions of the incomplete machine's special documents via our documentation department should they have reason to request them.

The incomplete machine also satisfies the stipulations of EC Directive 2004/108/EC on electromagnetic compatibility. The protective goals of EC Directive 2006/95/EC regarding electronic equipment have been met.

The incomplete machine may only be commissioned if it has been ascertained, if applicable, that the machine or system in which the incomplete machine is to be installed satisfies the requirements of Directive 2006/42/EC on Machinery and an EC declaration of conformity has been drawn up in accordance with Annex II.

BENZ GMBH WERKZEUGSYSTEME

BENZ PRECISION TOOLS PROVIDE REFINED SOLUTIONS, INNOVATIVE TECHNOLOGY AND THE HIGHEST LEVELS OF QUALITY IN PRECISION MACHINING.

AS PART OF THE ZIMMER GROUP, WE GO ONE STEP FURTHER. THE NEW **ZIMMER GROUP** UMBRELLA BRAND COMBINES THE COMPANIES ZIMMER GMBH, ZIMMER KUNSTSTOFFTECHNIK, ZIMMER DAEMPFUNGSYSTEME AND BENZ WERKZEUGSYSTEME INTO ONE PARTNER FOR YOUR PROJECTS: THE KNOW-HOW FACTORY.

CHALLENGE US. DISCOVER THE ENTIRE WORLD OF ZIMMER GROUP! IF YOU HAVE QUESTIONS ABOUT THE NEW ZIMMER GROUP AND OUR TECHNOLOGY, WE WOULD BE HAPPY TO ANSWER THEM.

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