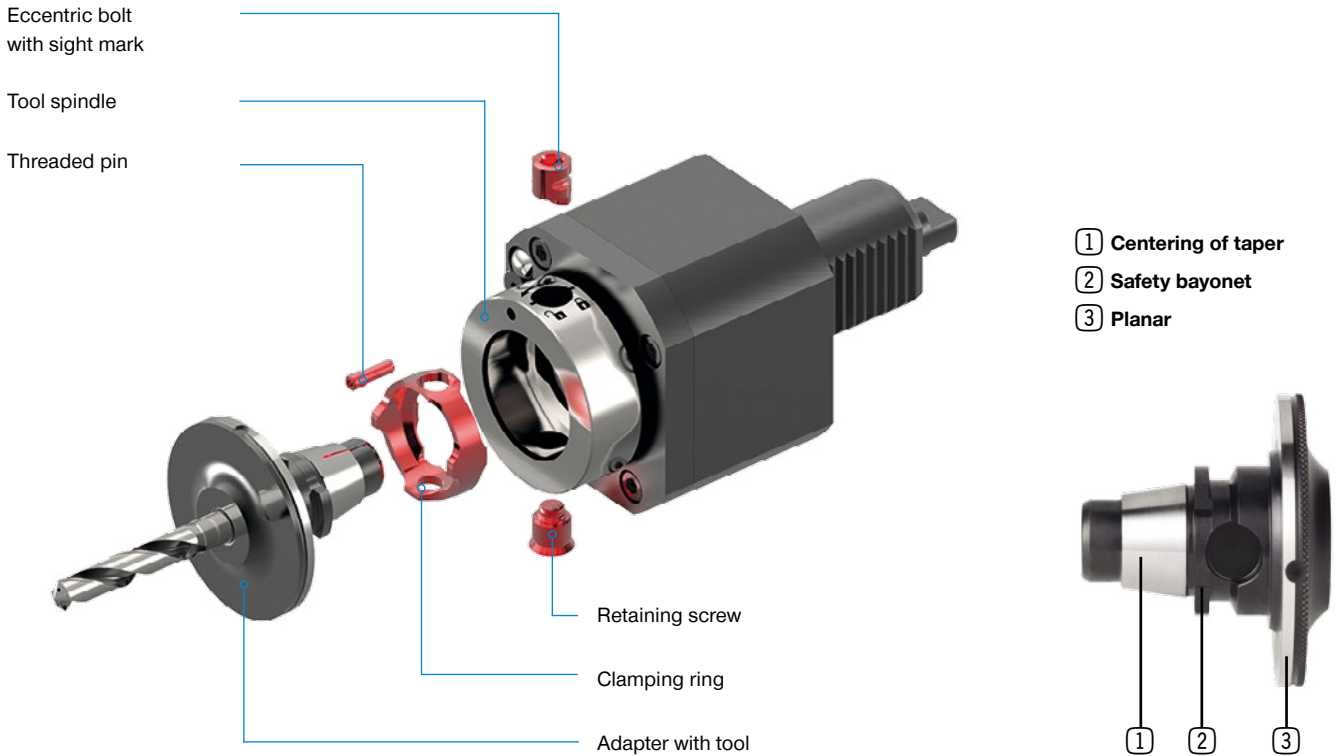


MODULAR QUICK CHANGE SYSTEM

BENZ SOLIDFIX®

► SYSTEM DESIGN



► 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 µm 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



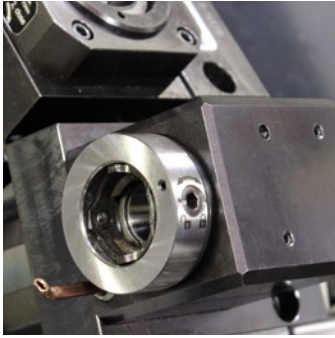
▶ BENZ Solidfix® - in use

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

BENZ SOLIDFIX®
TOOL ADAPTERS



5

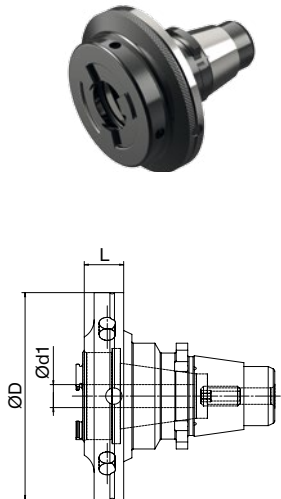
Tool adapters / BENZ Solidfix®

BENZ SOLIDFIX®

TOOL ADAPTERS

Collet chuck 8° Type ER inside clamping nut

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



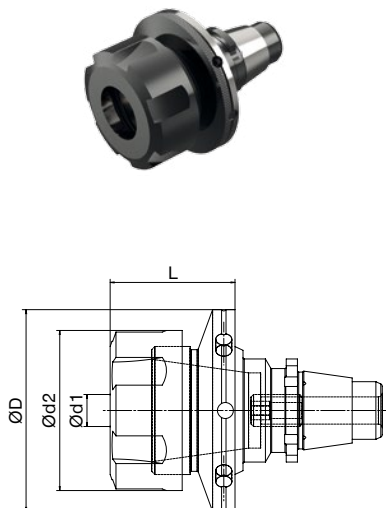
▶ Technical data

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

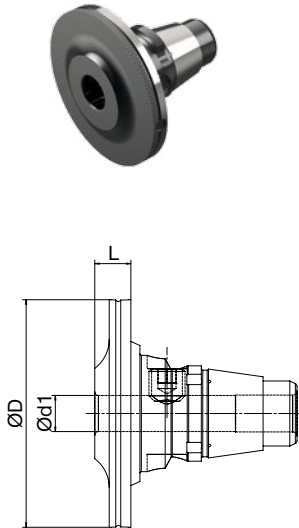
- ▶ see page 40ff.

BENZ SOLIDFIX®

TOOL ADAPTERS

Weldon for parallel shanks DIN 1835 B short design

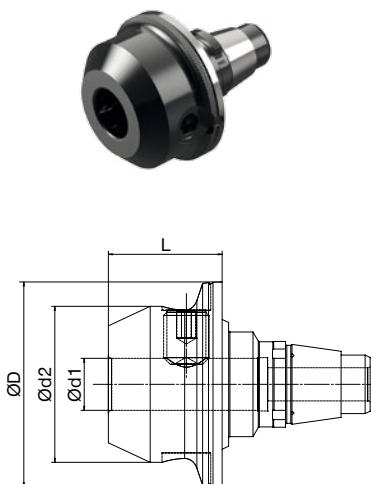
- ▶ minimum construction length
- ▶ MQL-capable adapters available upon request



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

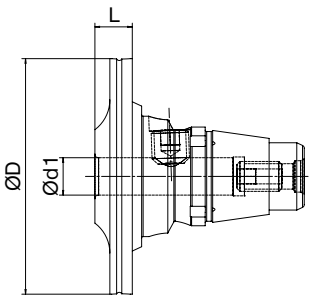
- ▶ minimum construction length
- ▶ MQL-capable adapters available upon request



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

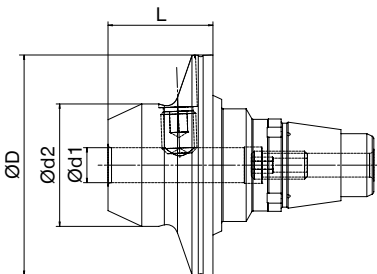


▶ Technical data

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



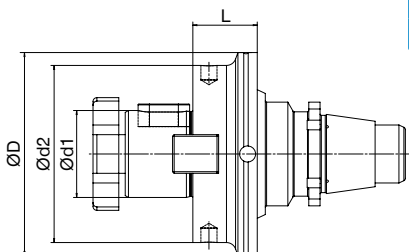
▶ Technical data

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



► Technical data

Order No.	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

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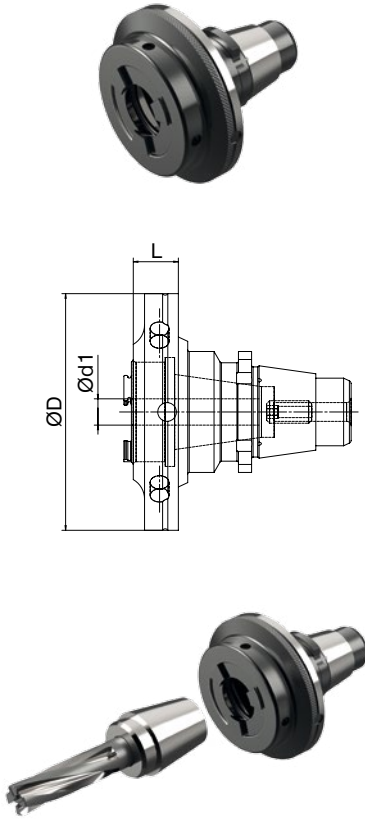
► ACCESSORIES

► 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

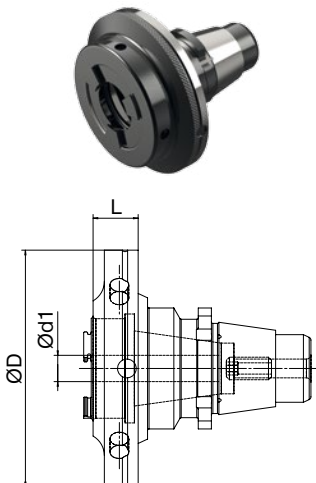
Order No.	Size	Type	D	d1	L
691.1560330	S1	TER 16	32	3	30*
691.1560430	S1	TER 16	32	4	30*
691.1560630	S1	TER 16	32	6	30*
692.1560313	S2	TER 16	40	3	13
692.1560413	S2	TER 16	40	4	13
692.1560613	S2	TER 16	40	6	13
692.1560813	S2	TER 16	40	8	13
693.1560614	S3	TER 20	50	6	14
693.1560814	S3	TER 20	50	8	14
693.1561014	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

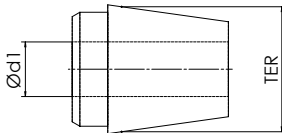
Order No.	Size	Type	D	d1	L
691.130M230UP	S1	ER 16M	32	1-10	30
692.130E3A13UP	S2	ER 16	40	1-10	13
693.130E4A14UP	S3	ER 20	50	2-13	14
694.130E5A20UP	S4	ER 25	63	2-16	20
695.130E6A22UP	S5	ER 32	75	2-20	22

BENZ SOLIDFIX®

TOOL ADAPTERS

TER-shrinking collet

▶ alternative collet chuck sizes



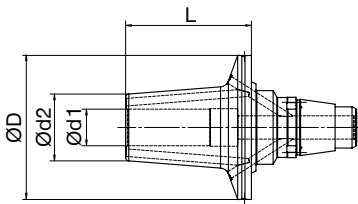
▶ Technical data

Order No.	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

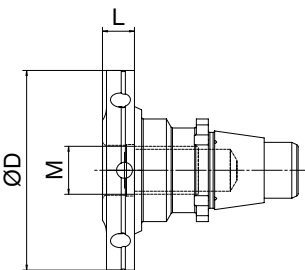
Technical data

Order No.	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



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

Technical data

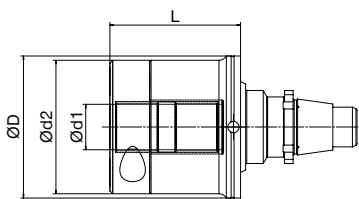
Order No.	Size	D	M	L
693.2861008	S3	50	M10	8
693.2861208	S3	50	M12	8
694.2861209	S4	63	M12	9
694.2861609	S4	63	M16	9

BENZ SOLIDFIX®

TOOL ADAPTERS

Hydro clamping chuck Hydrostar

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



Order No.
693.15816Z46
694.15820Z47
695.15825Z57

▶ Technical data					
Size	D	d1	d2	L	
S3	50	16	47	46	
S4	63	20	59	47	
S5	75	25	70	57	

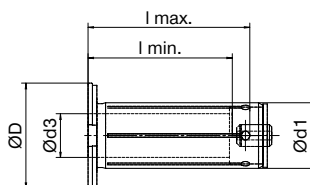


Monobloc design available on request

▶ ACCESSORIES

5

Collet chuck - Reducing sleeve



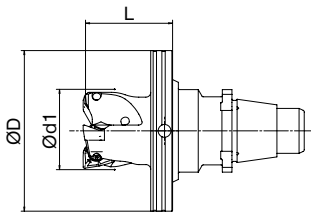
Order No.
B158-1604
B158-1608
B158-1610
B158-1612
B158-2004
B158-2006
B158-2008
B158-2010
B158-2012
B158-2014
B158-2506
B158-2508
B158-2510
B158-2512
B158-2514
B158-2516
B158-2520

▶ Technical data					
Size	D	d1	d3	l min	l max
S3	24	16	4	27-34	
S3	24	16	8	27-34	
S3	24	16	10	31-35	
S3	24	16	12	31-35	
S4	29	20	4	27-34	
S4	29	20	6	35-46	
S4	29	20	8	35-46	
S4	29	20	10	35-46	
S4	29	20	12	35-46	
S4	29	20	14	35-46	
S5	34	25	6	36-44	
S5	34	25	8	36-44	
S5	34	25	10	40-44	
S5	34	25	12	45-50	
S5	34	25	14	45-50	
S5	34	25	16	48-50	
S5	34	25	20	50-50	

Square shoulder / Plunge mill



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



▶ Technical data

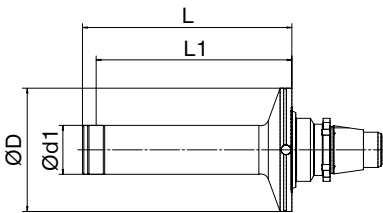
Order No.	Size	D	d1	L
693.65025028S001	S3	50	25	28
694.65032033S001	S4	63	32	33

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

Test arbor



- ▶ Scope of supply: case with test certificate



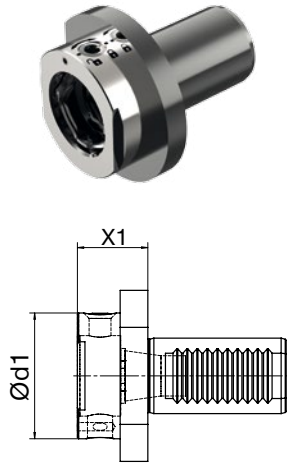
▶ Technical data

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

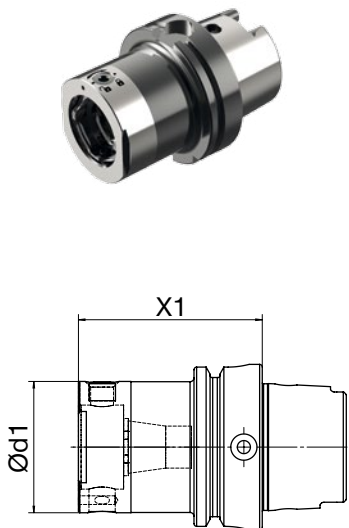
Master shank VDI



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

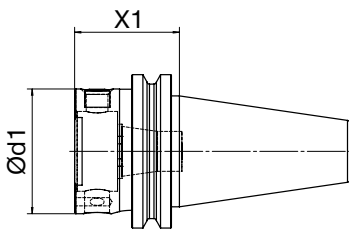
► Internal coolant ready (coolant supply transfer needed)



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)

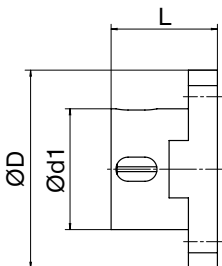


▶ Technical data

Order No.	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



▶ Technical data

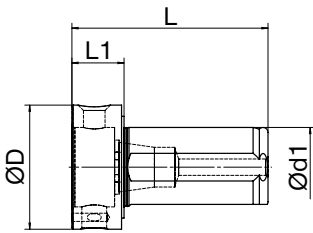
Order No.	Size	D	d1	L
B300-4-S1	S1	62	31	30
B300-4-S2	S2	67	40	38
B300-4-S3	S3	82	50	44
B300-4-S4	S4	96	65	50
B300-4-S5	S5	116	75	60

BENZ SOLIDFIX®

TOOL ADAPTERS

Reducing sleeve

► used for boring bars or combination holders

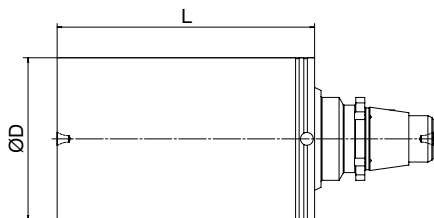


Order No.	Technical data				
	Size	D	d1	L	L1
B570-25S2	S2	40	25	65	17
B570-32S3	S3	50	32	79	21
B570-40S4	S4	63	40	94	22

Blank

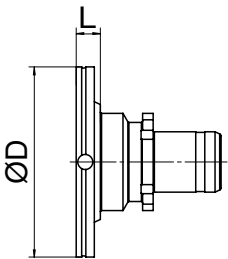
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Tool adapters / BENZ Solidfix®



Order No.	Technical data		
	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

▶ Technical data

Order No.	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