

## Driven Tools

CERATIZIT offers an extensive range of driven tool holders to suit the turrets and machines of the leading manufacturers. There are virtually no limits to the types available. Below is a small selection of our holder portfolio.

### Examples from our driven tooling range



*Axial drilling and milling head*



*Radial drilling and milling head*



*Double radial drilling and milling head*



*Rear offset radial drilling and milling head*



*Double axial drilling and milling head*



*Offset axial drilling and milling head*



*Swivel head*



*Modular milling*

### Summary of machine turret manufacturers and interfaces for which CERATIZIT can supply driven tools

- |              |           |                          |                 |
|--------------|-----------|--------------------------|-----------------|
| ▲ Sauter     | ▲ DIN1809 | ▲ Baruffaldi Toem        | ▲ BMT (bolt on) |
| ▲ Baruffaldi | ▲ DIN5480 | ▲ Bevel gear milling     |                 |
| ▲ Diplomatic | ▲ DIN5482 | ▲ Spline / tooth milling |                 |

### Technical Advice

Are you interested in our driven tools ? If so please contact your technical sales engineer who will be glad to assist you. Alternatively, you can contact our office based internal technical sales engineers who can be reached on our freephone number.

### Enquiry Form

Should you have questions about driven tools you can find a detailed questionnaire on our website in the download area. Carefully complete the form and send it via e-mail or printed fax.

## Modular quick-change system for driven tools

You want to optimize your setup time? CERATIZIT offers you several options!  
With each axial and radial driven tool you are prepared through the exchange of different modules for different machining demands.

### Varia VX

#### The new quick change system for heavy duty machining

The face & taper contact interface ensures maximum concentricity.  
The torque is transmitted via a form-fitting polygon, which can transmit up to 200 Nm.

Clamping and releasing takes place via a segmented gear wheel equipped with 3 multifunctional cams. When tightened with a radially mounted clamping screw, the 3-point clamping pulls the tool evenly into its operating position. When releasing the tool force is applied mechanically via a sliding cam and the tool is released for removal from the adapter.



#### The advantages at a glance

- ▲ Cutting tools are preset off the machine
- ▲ Quick change thanks to only one clamping point
- ▲ No risk of injury when changing tools
- ▲ Transverse force-free clamping of the tools
- ▲ Safe torque transmission
- ▲ No loose parts



## System Preci-Flex® – The stable solution for long tool life and high surface quality

The internal cone of the driven tool is suitable for any commercial type ER collets. Through taper & face contact  $\leq 0.01$  mm system concentricity and  $\leq 0.005$  mm repeatability is achieved and four plane-side clamp screws achieve maximum system stability and rigidity.



The program includes base holders for the collet sizes ER20, ER25, ER32, ER40 and ER50 and collet holders with male or female nut, adapters Weldon, Whistle Notch, shrink, boring bars, Shell mill arbors, hydraulic chucks, Test arbors and blanks.  
Also available for static VDI holders and rotating SK and HSK holders.

## Solidfix® – The quick way to change ( $\leq 20$ seconds), a module

Solidfix® Modules can be mounted with one hand. Simply insert the module, so that twisting the security bayonet retains the module. Tighten with an allen-key through 180 ° rotation.

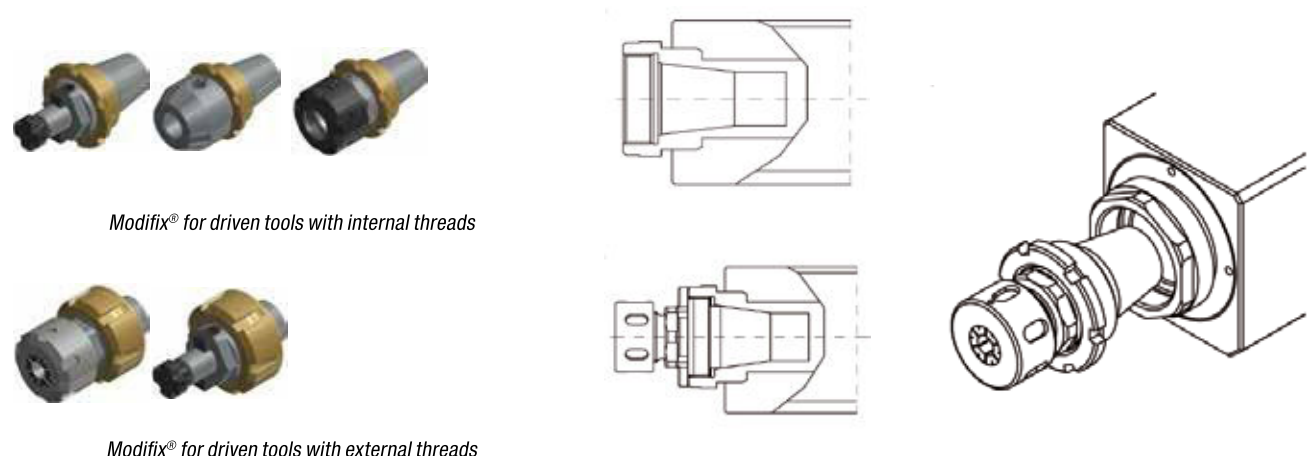
Through centering taper and large square face a concentricity of  $\leq 0.005$  mm is obtained at 30 mm distance from the end face.



The program includes basic holders in accordance with the collet sizes ER11M, ER16M, ER20, ER25, ER32 and ER40 and collet holders with male or female nut, Weldon, Whistle Notch, shrink, boring adapters, Shell mill arbors, hydraulic chucks, control pins, blanks and plugs. Also available for static VDI holders and rotating SK and HSK holders.

## Modifix® – The universal solution for driven standard collet chucks

Modifix® adapters are available for both collet chucks with internal and external locknut. You use your existing collet holder driven units and only require the relevant Modifix® adapter. It offers high flexibility and low investment.



*Modifix® for driven tools with internal threads*

*Modifix® for driven tools with external threads*

The program includes adapters for the collet sizes ER20, ER25, ER32 and ER40. Collet holders, Weldon tool holders and Shell mill arbors are available.

## Quick-Change

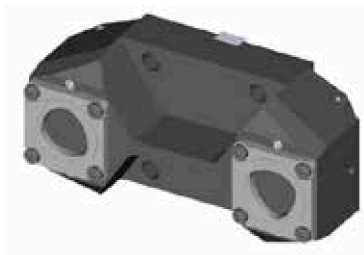


The tool holder range comprises both innovative and technologically proven solutions for all common CNC turning centres. We offer solutions that are perfectly tailored to the make of machine, regardless of whether the machine has a BMT, VDI or other connection type.

Every Quick-Change system has a standardised interface to DIN/ISO requirements and is available for HSK-T 40/63/100 and PSC 40/50/63 sizes. The tool change itself is carried out quickly and easily, minimising idle times and thus boosting productivity.



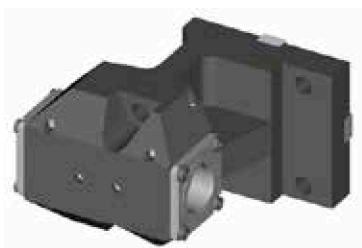
Tool holder single and straight



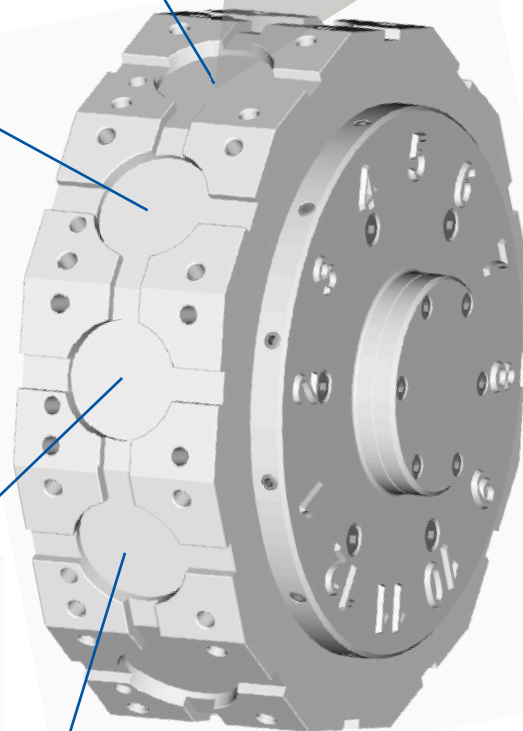
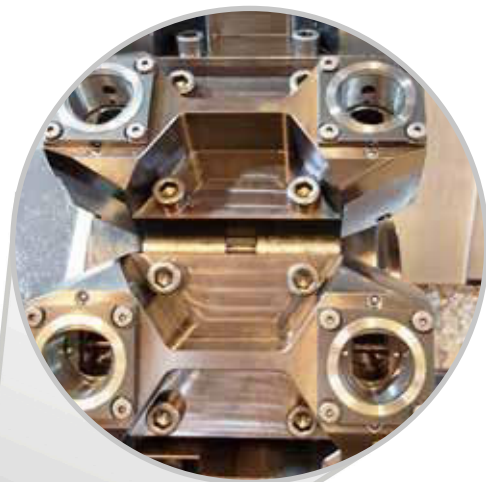
Tool holder double and straight



Single angle tool holder



Double angle tool holder



Turret BMT/VDI/...

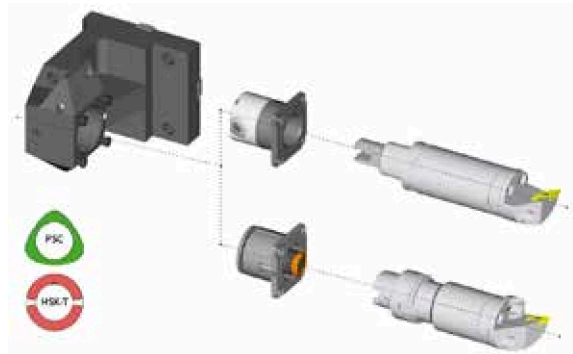
## HSK/PSC clamping units



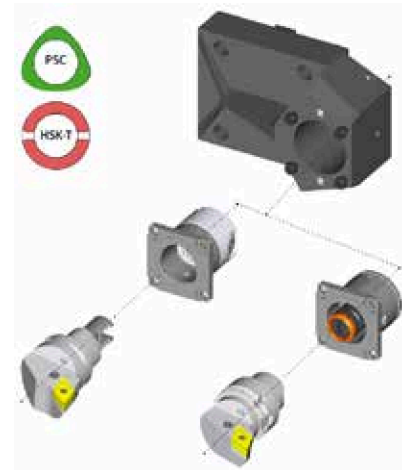
The tool holders are fitted with either an HSK or PSC clamping unit.



Clamping units are available in sizes HSK 40/63/100 and PSC 40/50/63.

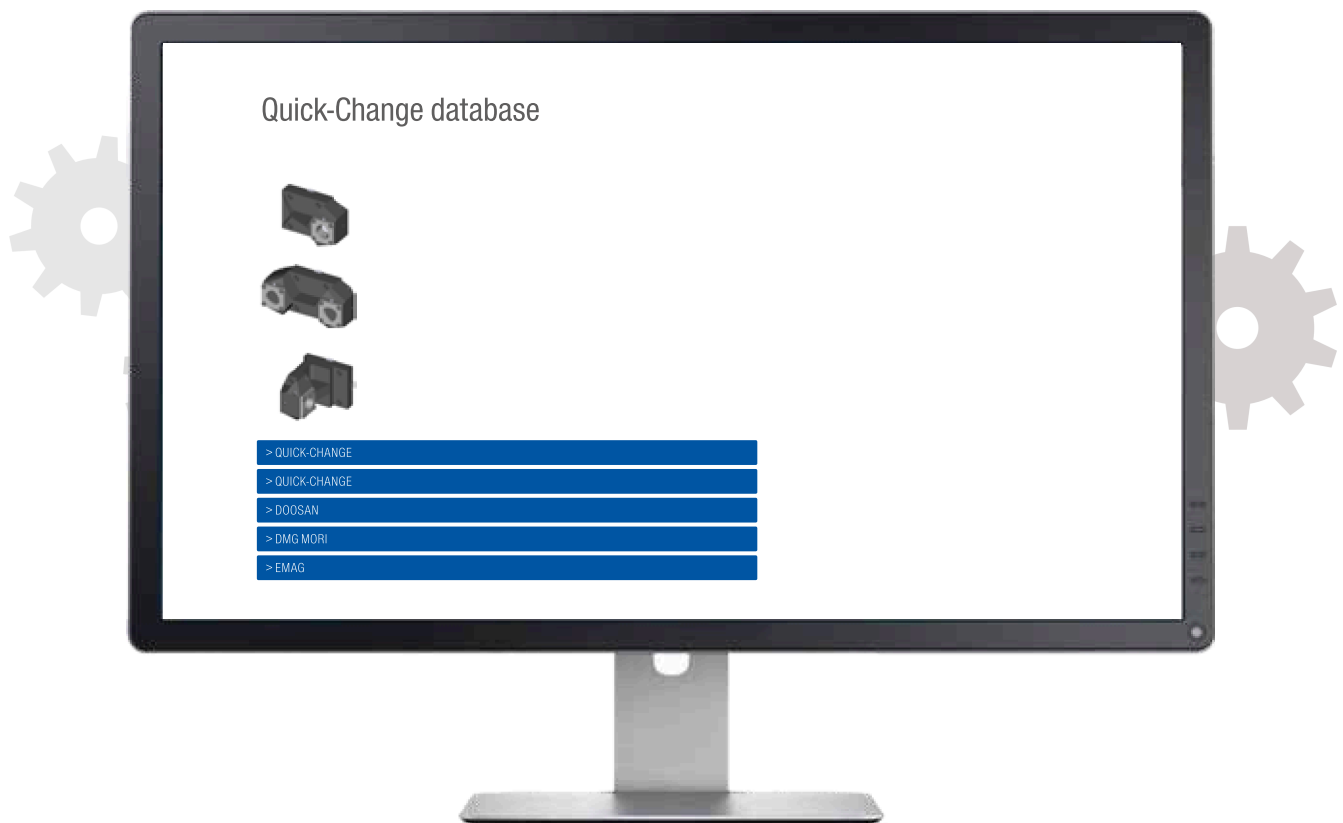


The toolholders permit the flexibility to be adapted to the customer's requirements.



## Online database

Our Quick-Change tool holders are individually adapted to turning machines to ensure the greatest-possible levels of flexibility and efficiency. Using the online database, systems of previously specified machine types can be evaluated in order to obtain an initial overview.



## Information on enquiry process

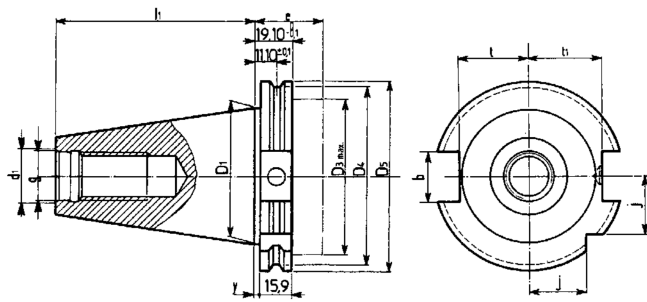
To make the enquiry process as easy as possible, please use our enquiry form to enter the most important machine data and information on the machining process. Please fill in this form carefully and send it to us via email or fax.

→ [cutting.tools/en/download](https://cuttingtools.ceratizit.com/en/download)

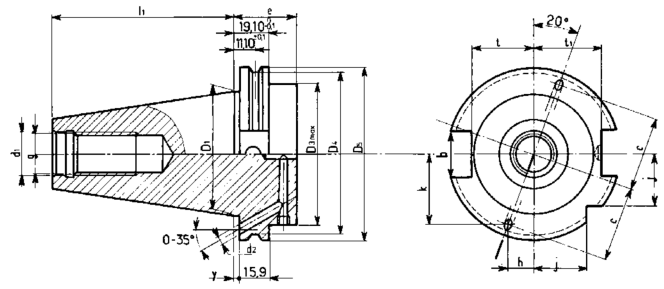
If you have any questions regarding the ordering process or the form itself, your Technical Sales Engineer will be happy to help.

# Technical data for steep taper tools

## DIN 69871 Form A

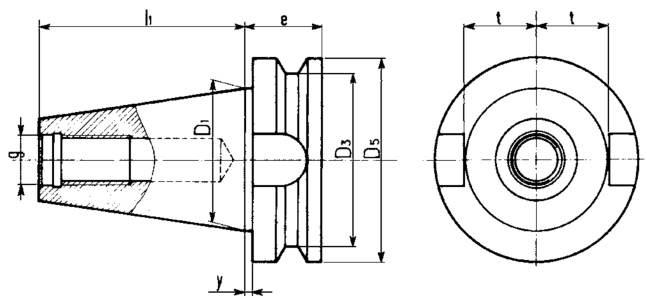


## DIN 69871 Form B



	D <sub>1</sub> mm	D <sub>3 max</sub> mm	D <sub>4</sub> mm	D <sub>5</sub> mm	l <sub>1 0</sub> <sup>+0.2</sup> mm	g	d <sub>1</sub> H7 mm	e mm	y ±0.1 mm	t mm	t <sub>1</sub> mm	j mm	d <sub>2</sub> mm	h mm	k mm	c mm	b mm
<b>SK 30</b>	31,75	45	44,30	50	47,8	M 12	13	35	3,2	16,4	19	15					16,1
<b>SK 40</b>	44,45	50	56,25	63,55	68,4	M 16	17	35	3,2	22,8	25	18,5	4	9,2	25,4	27	16,1
<b>SK 50</b>	69,85	80	91,25	97,5	101,75	M 24	25	35	3,2	35,5	37,7	30	6	14,4	39,5	42	25,7

## MAS-BT



Maximum recommended rpm for steep taper toolholders:

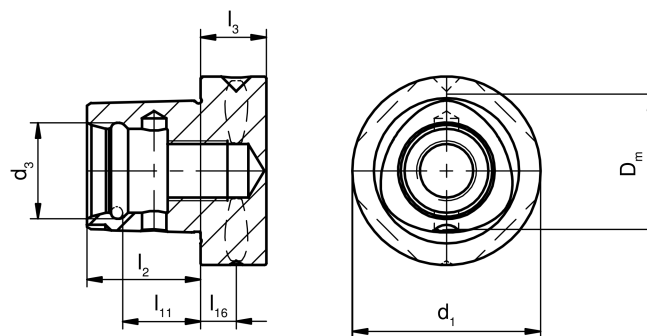
SK / BT 30 to 20,000 1/min.

SK / BT 40 to 20,000 1/min.

SK / BT 50 to 16,000 1/min.

	D <sub>1</sub> mm	D <sub>3</sub> mm	D <sub>5</sub> mm	l <sub>1</sub> mm	g	e mm	t mm	y mm	b mm
<b>BT 30</b>	31,75	38	46	48,4	M 12	22	16,3	2	16,1
<b>BT 40</b>	44,45	53	63	65,4	M 16	27	22,5	2	16,1
<b>BT 50</b>	69,85	85	100	101,8	M 24	38	35,3	3,2	25,7

# Technical Data for Polygon shank adapters

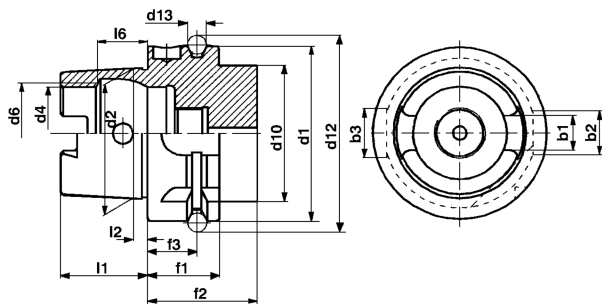


Shank size	d <sub>1</sub> mm	d <sub>3</sub> ±0.05 mm	l <sub>2</sub> ±0.1 mm	l <sub>3</sub> mm	l <sub>11</sub> ±0.1 mm	l <sub>16</sub> mm	D <sub>m</sub> mm
<b>32</b>	32	16,5	19	15	13,5	9	22
<b>40</b>	40	20	24	20	17,5	12	28
<b>50</b>	50	24	30	20	22	12	35
<b>63</b>	63	32	38	22	26	12	44
<b>80</b>	80	38	48	30	34	12	55



## Technical Data for HSK Adapters

### HSK DIN 69893 A+C



**i** Maximum rpm recommended for HSK adapters:

HSK-A 32 to 50.000  $1/\text{min.}$   
 HSK-A 40 to 42.000  $1/\text{min.}$   
 HSK-A 50 to 30.000  $1/\text{min.}$   
 HSK-A 63 to 25.000  $1/\text{min.}$   
 HSK-A 100 to 16.000  $1/\text{min.}$

	b <sub>1</sub> mm	b <sub>2</sub> mm	b <sub>3</sub> mm	d <sub>1</sub> mm	d <sub>2</sub> mm	d <sub>4</sub> mm	d <sub>6</sub> mm	d <sub>10</sub> mm	d <sub>12</sub> mm	d <sub>13</sub> mm	f <sub>1</sub> mm	f <sub>2</sub> mm	f <sub>3</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	l <sub>6</sub> mm
<b>HSK 32</b>	7,05	7	9	32	24	17	19	26	37	4	20	35	16	16	3,2	8,92
<b>HSK 40</b>	8,05	9	11	40	30	21	23	34	45	4	20	35	16	20	4	11,42
<b>HSK 50</b>	10,54	12	14	50	38	26	29	42	59,3	7	26	42	18	25	5	14,13
<b>HSK 63</b>	12,54	16	18	63	48	34	37	53	72,3	7	26	42	18	32	6,3	18,13
<b>HSK 100</b>	20,02	20	22	100	75	53	58	88	109,75	7	29	45	20	50	10	28,56

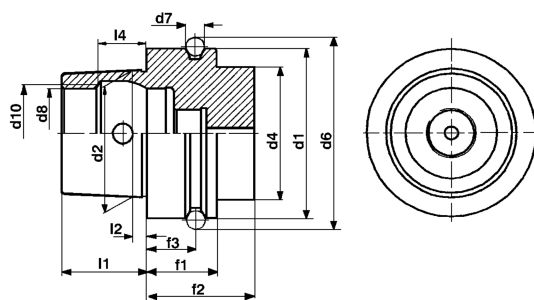
### DIN 69893 Form A

- ▲ Applied for machining centres, milling and special machines with automatic tool change
- ▲ **Central axial coolant supply via the coolant pipe**
- ▲ Torque transmission via 2 driving grooves at the taper end
- ▲ 2 grooves on the flange for the tool magazine, positioning notch, bore for data storage medium DIN 69873 in the flange

### DIN 69893 Form C

- ▲ Applied for machine spindles without automatic tool change as well as tool extensions and reducers
- ▲ **Central axial coolant supply via the coolant pipe**
- ▲ Torque transmission via 2 driving grooves at the taper end

### HSK DIN 69893 E



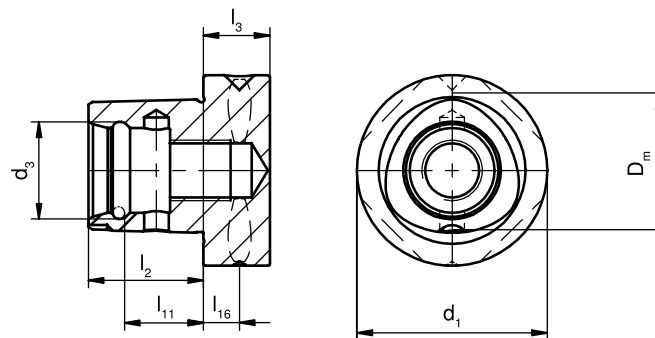
	d <sub>1</sub> mm	d <sub>2</sub> mm	d <sub>4</sub> mm	d <sub>6</sub> mm	d <sub>7</sub> mm	d <sub>8</sub> mm	d <sub>10</sub> mm	f <sub>1</sub> mm	f <sub>2</sub> mm	f <sub>3</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	l <sub>4</sub> mm
<b>HSK 40</b>	40	30	34	45	4	21	23	20	35	16	20	4	11,42
<b>HSK 50</b>	50	38	42	59,3	7	26	29	26	42	18	25	5	14,13
<b>HSK 63</b>	63	48	53	72,3	7	34	37	26	42	18	32	6,3	18,13

### DIN 69893 Form E

- ▲ Applied for high rpm (HSC) for high speed spindles with automatic tool change
- ▲ Rotation symmetrical, without driving grooves
- ▲ Torque transmission through friction
- ▲ **Possibility of central coolant supply via coolant pipe**

## Technical Information for Polygon Shank Adapters

To dimensions of ISO 26623-1



Shank size	$d_1$	$d_3$ $\pm 0,05$	$l_2$ $\pm 0,1$	$l_3$	$l_{11}$ $\pm 0,1$	$l_{16}$	$D_m$
<b>32</b>	32	16,5	19	15	13,5	9	22
<b>40</b>	40	20	24	20	17,5	12	28
<b>50</b>	50	24	30	20	22	12	35
<b>63</b>	63	32	38	22	26	12	44
<b>80</b>	80	38	48	30	34	12	55

### Advantages of the PSC interface

The repeatability of the PSC shank is  $\pm 2$  microns



The tapered polygon in conjunction with the tight tolerance provides backlash-free centering also acts as pull back. The PSC cone has very high rigidity and bending strength. The main advantages of this interface are the transmittable torque stability, the resistance against radial forces acting on the tool and the exact center height. This means high feed rates can be achieved on large material cross sections. The PSC interface is ideally suited for all machining operations such as drilling, turning and milling.



## High Pressure Chuck – Ideal for the MonsterMill Solid Carbide Milling Cutters

### HPC milling with optimum damping

High pressure clamping with optimum damping properties was the aim in the development of the high-pressure chuck. Here, all applications over a continuous operation test were covered over thousands of machining operations. In addition, extensive continuous pressure and positive pressure tests, and vibration measurements were carried out directly on the machine spindle.

### The main technical characteristics of the high-pressure Milling Chuck are

- ▲ High damping properties
- ▲ Spindle-friendly
- ▲ Maximum stability and strength
- ▲ High holding force and torque transmission
- ▲ 3 µm radial run-out
- ▲ Balanced to G2,5 at  $n_{\max}$  25.000 1/min.
- ▲ Short tool change time
- ▲ No additional peripherals required
- ▲ MMS suitable
- ▲ Maintenance free

### Clamping of shanks with flats possible with or without reduction sleeve

HSS shank DIN1835 and  
Solid Carbide shank DIN6535



### Clamping Force Comparison with Different Systems

This comparison shows the higher retention forces of the Milling Chuck. Especially with larger diameters high holding force is important when HPC machining so that the tool is not pulled out of the holder.

Milling Chuck now offers this process reliability.

Shank diameter in mm	16	18	20	25	32
Holder Type	Maximum transmissible torque with shank tolerance h6 in Nm				
Shrink fit adapter	200	290	450	530	700
Standard hydraulic chucks	160	200	330	400	650
High Pressure Milling Chuck	280 - 380	360 - 450	550 - 650	650 - 750	800 - 890

**i** Minimum clamping depth the same as for hydraulic chucks



### The main applications for Milling Chuck

- ▲ HPC Milling
- ▲ HSC Milling
- ▲ Hard Machining
- ▲ Drilling
- ▲ Reaming

### Key Benefits

- ▲ Increased Process Security
- ▲ Longer Tool Life
- ▲ Improved Surface Quality
- ▲ Extended spindle life

## Transmittable torques and static clamping torques

Static clamping moments of the CentroP collet chuck with different torque values measured at the tightening nut

Clamping diameter (d1 h6)	2	3	3,5	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	mm
ER 16 torque moment 30 Nm	2	3,5	5																						Nm
ER 16 torque moment 50 Nm				12	20	30	45	60	72	80															Nm
ER 25 torque moment 40 Nm				10	20	40																			Nm
ER 25 torque moment 75 Nm							62	75	85	95															Nm
ER 25 torque moment 90 Nm											122	145	160	175	190	200									Nm
ER 32 torque moment 60 Nm				20	30	40																			Nm
ER 32 torque moment 120 Nm							75	90	110	120	135	150	160	180	190										Nm
ER 32 torque moment 140 Nm																220	240	260	280	300					Nm
ER 40 torque moment 70 Nm				60	75	90	100																		Nm
ER 40 torque moment 110 Nm							110	125	140	150															Nm
ER 40 torque moment 150 Nm											200	220	240	260	300	350									Nm
ER 40 torque moment 200 Nm																		420	440	460	480	515	530		Nm
OZ 462 E torque moment 200 Nm				10	35	55	75	95	120	140	160	185	205	230	250	270	295	315	340						Nm

## Permissible transmitted torque (Md) for Hydraulic Chucks

### For direct clamping

Clamping diameter (d1 h6)	6	8	10	12	14	16	18	20	25	32	mm
Md with shank at minimum size	20	30	47	80	100	160	200	330	400	650	Nm
Md with shank at maximum size	30	45	85	140	160	230	270	400	470	730	Nm

### For clamping with reduction Ø 32 mm

Clamping diameter (d1 h6)	6	8	10	12	14	16	18	20	25	mm
Md with shank at minimum size	30	45	60	120	120	180	220	250	330	Nm
Md with shank at maximum size	45	65	110	170	170	230	300	320	440	Nm

### For clamping with reduction Ø 20 mm

Clamping diameter (d1 h6)	3	4	5	6	8	10	12	14	16	mm
Md with shank at minimum size	6	9	16	30	55	90	120	135	190	Nm
Md with shank at maximum size	10	12	22	40	75	120	150	170	260	Nm

### For clamping with reduction Ø 12 mm

Clamping diameter (d1 h6)	3	4	5	6	8	mm
Md with shank at minimum size	3	4	7	12	18	Nm
Md with shank at maximum size	4	8	12	20	26	Nm

### Minimum shank clamping depths for hydraulic chucks

Shank diameter	6	8	10	12	14	16	18	20	25	32	mm
Minimum clamping depth	27	27	31	36	36	39	39	41	47	51	mm

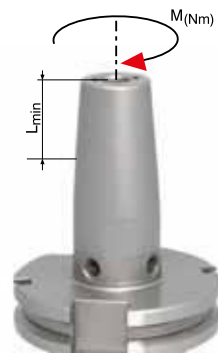
## Permissible transmitted torque (Md) for high pressure chuck

### Minimum shank clamping depths for high pressure chuck

Shank diameter	16	18	20	25	32	mm
Minimum clamping depth	39	39	41	47	51	mm

### For direct clamping

Clamping diameter (d1 h6)	16	18	20	25	32	mm
Md with shank at minimum size	280	360	550	650	800	Nm
Md with shank at maximum size	380	450	650	750	890	Nm



## Minimum permissible shank torques and clamping depths for shrink fit holders

Shank diameter	3	4	5	6	8	10	12	14	16	18	20	25	32	mm
Minimum clamping depth	12	16	20	26	26	31	37	37	40	40	42	48	52	mm
Permissible torque moment	4	11	17	24	45	82	145	190	200	290	450	530	700	Nm