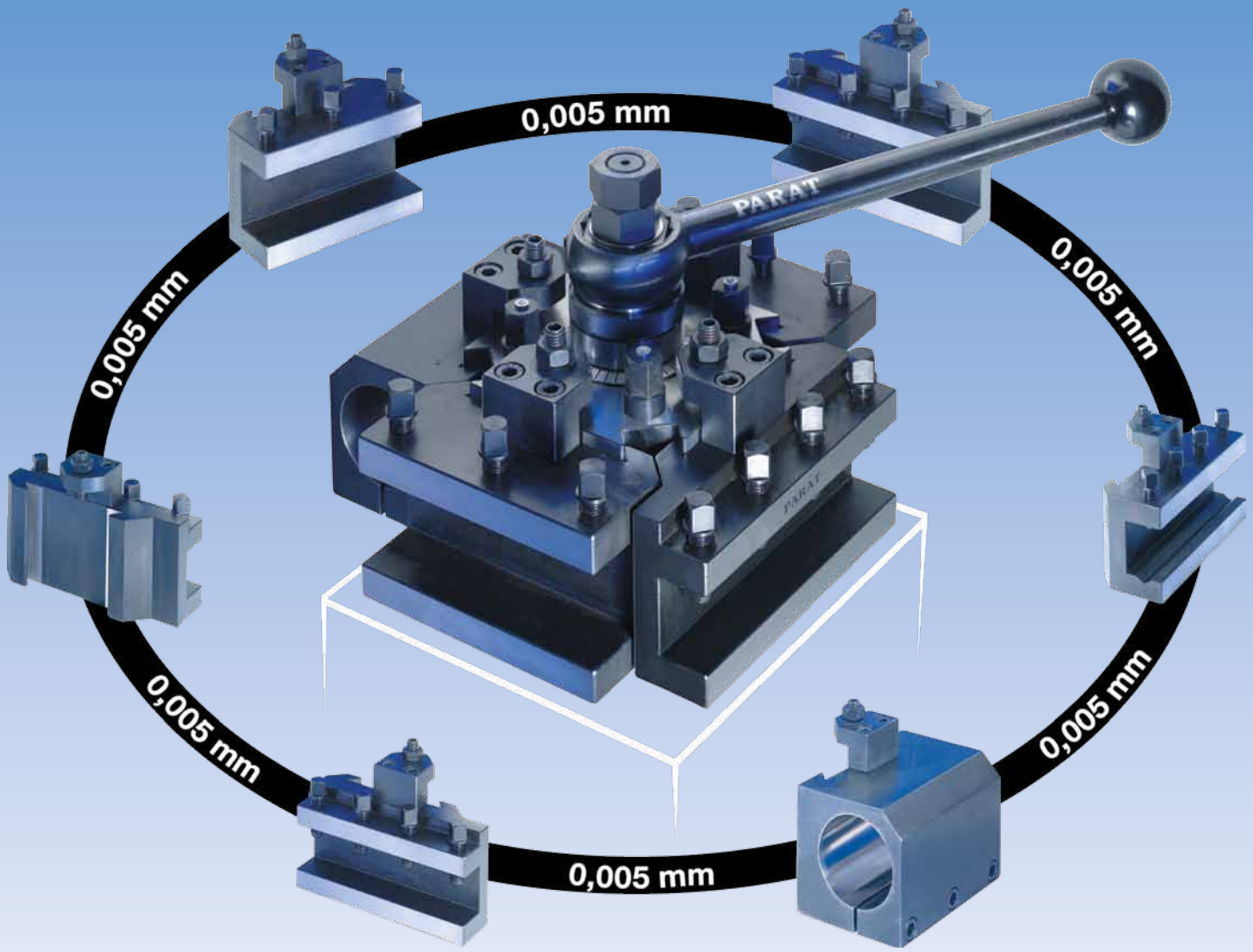
PARAT 4-WAY-INDEXING-QUICK-CHANGE TURRET-TOOLPOST

TURNING INSTEAD OF MEASURING

Indexing accuracy 0,005 mm (0,0002")
Internal and external operations in one setting Quick-clamping
System with 40 Positions in divisions of 9°. Five sizes available



Trautwein Vertriebs-GmbH
PARAT

The PARAT 4-Way Turret

The production of precision turned components places extremely high demands on the machine and tooling system, without losing ease of operation.
The continuous development of conventional and cycle-controlled lathes has significantly increased the range of features. Nevertheless, the importance of the correct tooling system to make full use of the gained advantages is often overlooked.

When different tools are required for internal and external precision tolerances, the importance of the flexibility and stability of the tool system used becomes quickly clear.

In such cases, the dimensions of the tools themselves as well as the means of handling of heavier tools can quickly cause problems.

With its four tool stations and indexing accuracy of 0.005 mm PARAT turret provides the ideal solution.

For external machining, 4 tool stations are available that enable the exchange of tool holders with a weight of up to 12.3 kg (without tools). This reduces to a minimum a procedure that would otherwise be both tiring and time consuming for the operator.

When outer and inner machining are combined to turn both precision tolerances in one setting, up to three clamping points are available.
Particularly with long drilling rods, the elimination of the need to change the tool holder is particularly advantageous.

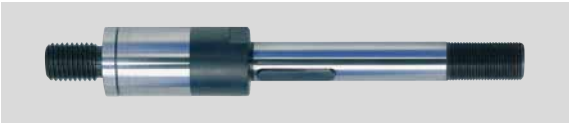
The opening and clamping of the PARAT turret occurs through a threadless quick clamping nut in conjunction with a quick clamping lever.
The different tool holders are individually clamped through four eccentric elements.

We would especially like to draw attention to the threaded clamping bolt as well the clamping bolt

PARAT 4-Way Indexing Turret Head

PARAT 4-Way Indexing Head from underneath

PARAT Clamping bolt with collar and feather key



PARAT Clamping bolt with thread and expanding zone

PARAT Quick Clamping Nut

PARAT Operating Tools

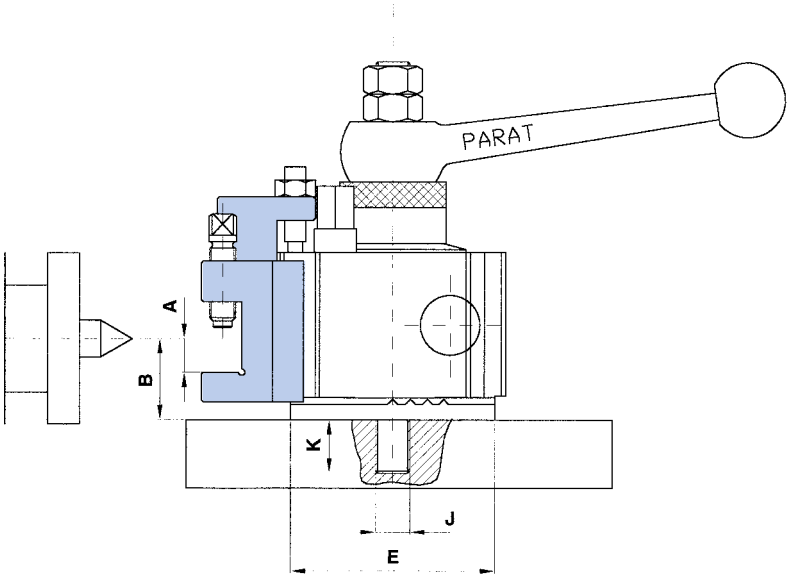
PARAT Precision Ground Coupling

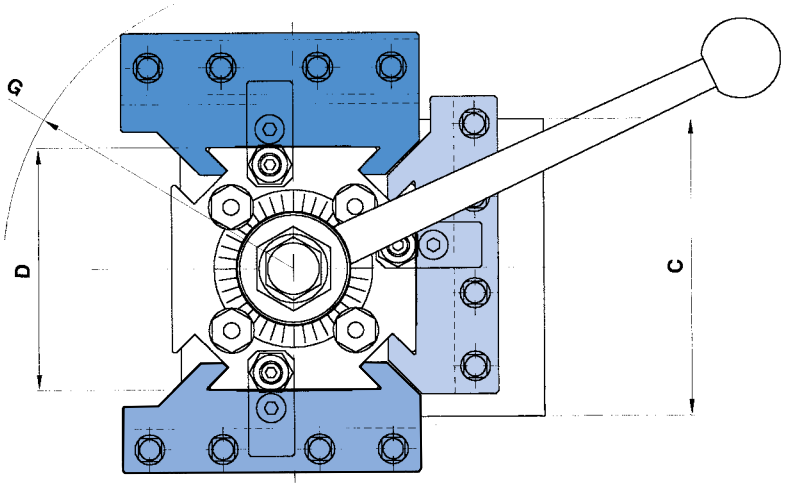
with threads and internal coolant facility. The design of these clamping bolts makes a significant contribution to operating safety. A special expansion joint ensures that, in case of a collision, most of the energy is absorbed and, consequently, there is no subsequent damage to other machine components.
Usually an exchange of the clamping bolt is sufficient to enable machining to be restarted in the required quality.

To ensure optimum acceptance of a large variety of different tools, a wide range of tool holders are available.
Of particular importance here is the partly machined tool holder. This is a tool holder that is supplied with a dovetail guide that is already hardened and ground. The non-machined part of the holder can, however, be finished according to the specific requirements of the special tool to be held.

We can, of course, also supply on request custom tool holders with special sizes or designs suitable for specific technical demands.

As we are sure of the quality of our PARAT turret, we offer our customer a 5 year – manufacturer's warranty for the turret and tool holders (excluding wear and tear parts).





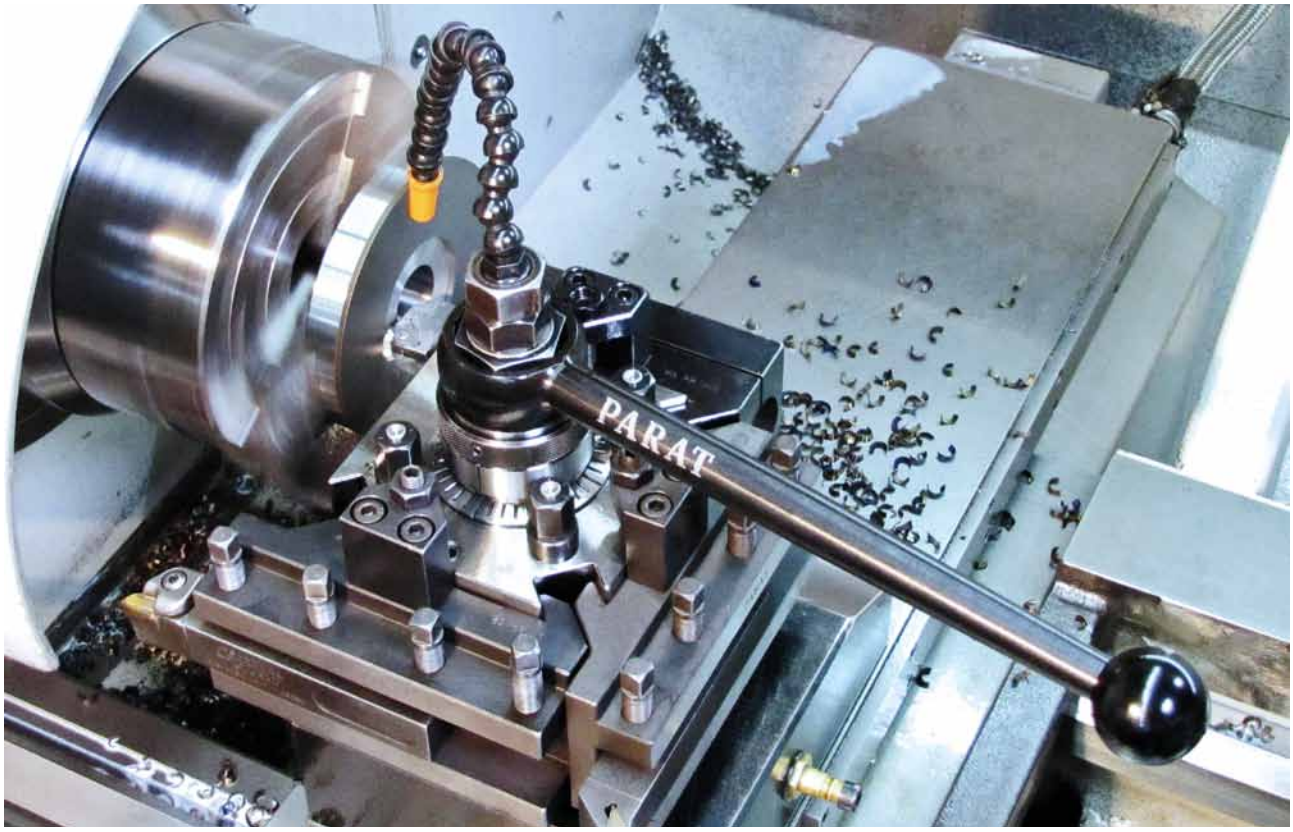
New – installation service in our factory

Technical data to define suitable size

Technical data		mm/inches Size 1	mm/inches Size 2	mm/inches Size 3	mm/inches Size 4	mm/inches Size 5
Approx. drive power of the lathe	kw/hp	6/8	15/20	25/33	45/60	65/87
Approx. torque at the main spindle	Nm/lb/ft	150/110	700/516	1500/1106	7000/5162	12000/8850
Max. cutting tool cross section	A	□12/0.4724 □20/0.7874	□25/0.9842	□40/1.5748	□50/1.9685	□50/1.9865
Height of cutting edge	B	30/1.1811 35/1.3779	40/1.5748	60/2.3622	80/3.1496	90/3.5430
Min. support width	C	90 - 100/ 3.5433	110 - 150/ 4.3307	150 - 180/ 5.9055	200 - 250/ 7.874	200 - 300/ 7.874
Basic square toolpost	D	□84/3.3070	□106/4.1732	□134/5.2755	□154/6.0629	□204/8.0315
Precision coupling	E	Ø 80/3.1496	Ø 100/3.9370	Ø 132/5.1968	Ø 150/5.9055	Ø 195/7.6772
Swing diameter with tool holder	G	Ø 180/7.0866	Ø 240/9.4488	Ø 300/11.811	Ø 350/13.7795	Ø 446/17.5590
Standard clamping bolt	J (H7)	20/0.7874	25/0.9842	35/1.3779	35/1.3779	45/1.7716
with collar and feather key	K	15/0.5905	18/0.7086	25/0.9842	30/1.1811	35/1.3779
Clamping bolt with thread	**J**	M 14	M 16	M 20	M 24	M 30 x 2
Clamping bolt with thread and internal cooling	**J**	M 16	M 20	M 24	M 24	M 30 x 2
Thread length mm	K	21/0.8267	25/0.9842	30/1.1811	35/1.3779	35/1.3779
Approx. weight in kg/lbs without tool holder		3/6.6	6,5/14.3	14/30.9	21/46.3	42/92.6

Advantages of Using the PARAT 4-Way Turret

- High reproducible accuracy of 0.005 mm when turning out and back in
- No additional finishing cuts with fits
- Less opening of the sliding guard
- Fewer exchanges of the tool holder
- Fast and simple exchange through eccentric clamping
- Clamping bolt with high shock absorption and expansion zone on the thread to reduce forces in case of accidents
- Clamping bolt with coolant bore, which enables a shorter coolant hose
- Wide range of quick-change holders for all tools
- 5 year manufacturer's warranty



Internal coolant

The clamping bolt with internal coolant facility can be utilized for all new but also existing PARAT 4-Way Turret Indexing Systems (option at extra cost).

The above mentioned facility consists of the following elements:

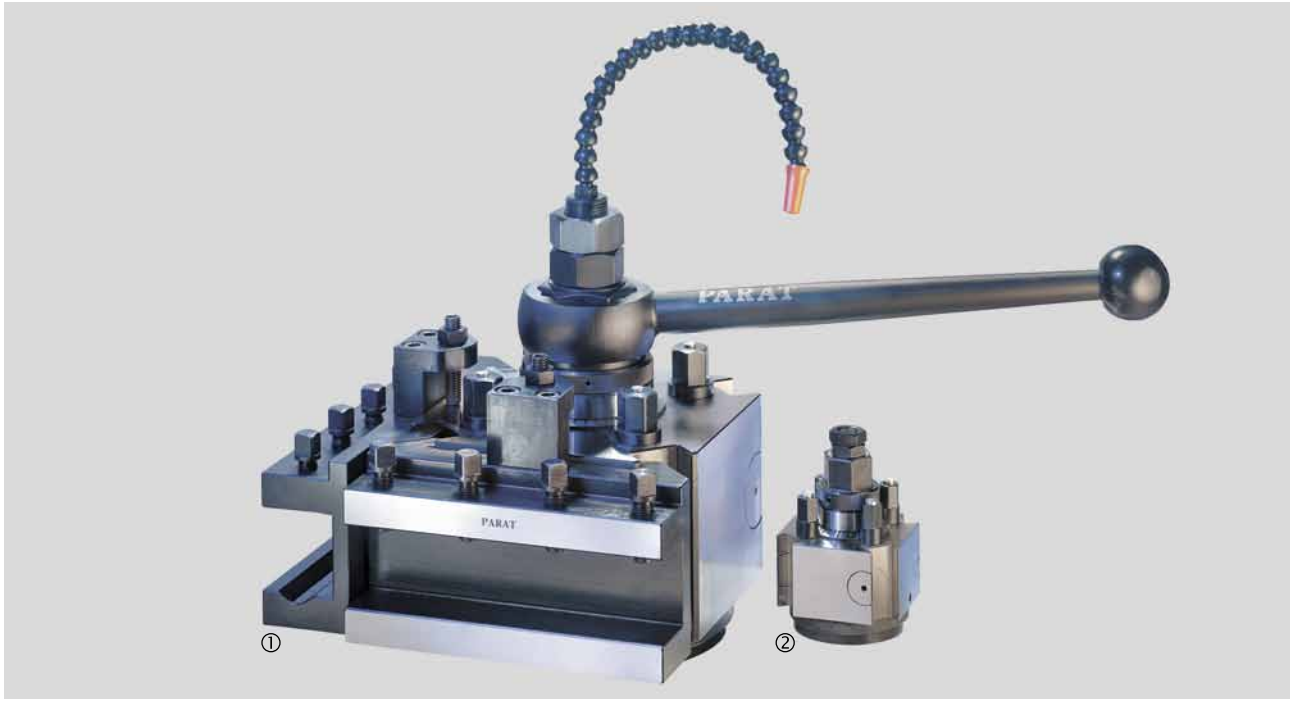
- One Clamping Bolt with internal boretwo threaded connectors
- One coolant hose
- One straight connector for coolant supply
- One elbow connector for coolant supply
- One plug screw (as illustrated on left)

PARAT clamping with IC

Data:

Size	Thread/ Measurement "J"
2	M 20 x 2,5
3	M 24 x 3
4	M 24 x 3
5	M 30 x 2

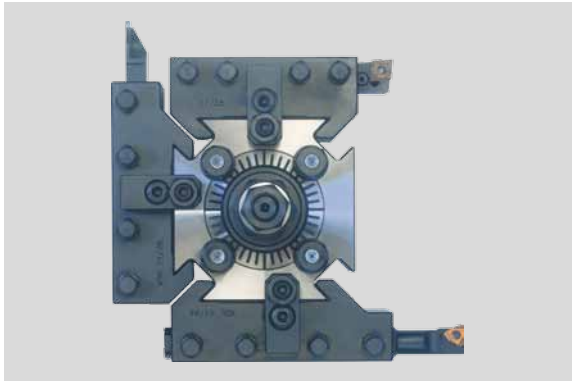
PARAT 4-Way Indexing Turret System Size 5 for turning machines with higher motor power



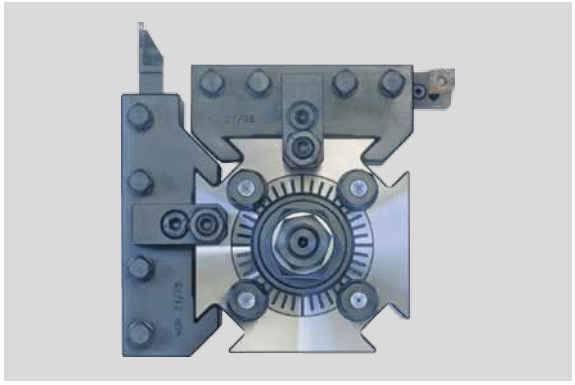
①PARAT Turret RD 5 ②PARAT Turret RD 1

Lengthened PARAT toolholders utilized correctly

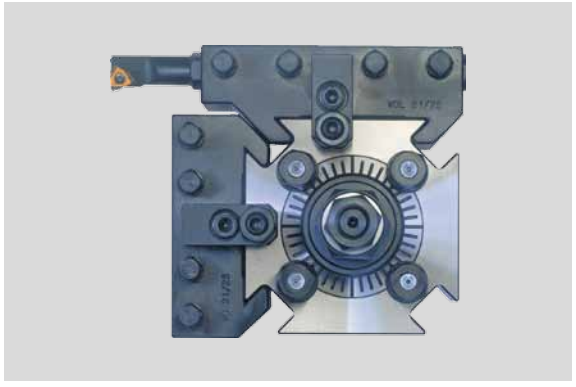
4 examples of how to clamp cutting tools efficiently with short overhang



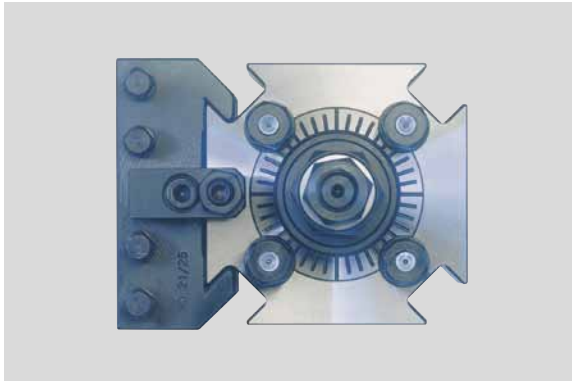
Type RD 2 with toolholder WD 2/25



Type RD 2 with toolholder WD 2/25 and WDR 2/25



Type RD 2 with toolholder WD 2/25 and WDL 2/25



Type RD 2 with toolholder WD 2/25 and WDR 2/25 and WDL 2/25

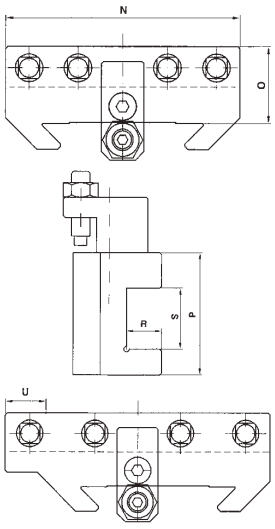
PARAT toolholders for 4-Way Indexing Tu

4-Way Indexing Turret
Type RD

Universal System
Type UD

Size	Toolholder WD Universal	Toolholder WDL Internal machining	Toolholder WDR External machining	Toolh Inter
Type RD 1 Type UD 1	WD 1/12 WD 1/20	WDL 1/12 WDL 1/20	WDR 1/12 WDR 1/20	WDP
Type RD 2 Type UD 2	WD 2/25	WDL 2/25	WDR 2/25	WDP
Type RD 3 Type UD 3	WD 3/32 WD 3/40	WDL 3/32 WDL 3/40	WDR 3/32 WDR 3/40	WDP
Type RD 4	WD 4/40 WD 4/50	WDL 4/40 WDL 4/50	WDR 4/40 WDR 4/50	WDP
Type RD 5	WD 5/50	WDL 5/50	WDR 5/50	WDP

Toolholders

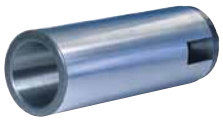


Technical data

Size	Type	mm/inches N	mm/inches O	mm/inches P	mm/inches R	mm/inches S	mm/inches U	kg/lbs.
1	WD 1/12	84/3.3070	24/0.9448	47/1.8503	14/0.5512	22/0.8661	–	0,7/1.54
	WDL 1/12	100/3.9370	24/0.9448	47/1.8503	14/0.5512	22/0.8661	16/0.6299	0,8/1.76
	WDR 1/12	100/3.9370	24/0.9448	47/1.8503	14/0.5512	22/0.8661	16/0.6299	0,8/1.76
	WD 1/20	84/3.3070	33/1.2992	52/2.0472	20/0.7874	22/0.8661	–	0,8/1.76
	WDL 1/20	100/3.9370	33/1.2992	52/2.0472	20/0.7874	22/0.8661	16/0.6299	0,9/1.98
	WDR 1/20	100/3.9370	33/1.2992	52/2.0472	20/0.7874	22/0.8661	16/0.6299	0,9/1.98
	WDPL 1/12	100/3.9370	28/1.1023	47/1.8503	16/0.6299	22/0.8661	16/0.6299	0,9/1.98
	WB 1/30	84/3.3070	39/1.5354	47/1.8503	Ø30/1.1811	–	–	0,8/1.76
	WBW 1/30	84/3.3070	39/1.5354	47/1.8503	–	–	–	1,4/3.1
2	WD 2/25	110/4.3307	36/1.4330	66/2.5984	19/0.7480	33/1.2992	–	1,9/4.19
	WDL 2/25	130/5.1181	36/1.4173	66/2.5984	19/0.7480	33/1.2992	20/0.7874	2,1/4.63
	WDR 2/25	130/5.1181	36/1.4173	66/2.5984	19/0.7480	33/1.2992	20/0.7874	2,1/4.63
	WDPL 2/25	130/5.1181	50/1.9685	62/2.4409	31/1.2205	33/1.2992	20/0.7874	2,3/5.07
	WB 2/40	110/4.3307	51/2.0078	63/2.4802	Ø40/1.5748	–	–	1,8/3.97
	WBW 2/40	110/4.3307	51/2.0078	63/2.4802	–	–	–	3,2/7
3	WD 3/32	140/5.5118	44/1.7322	76/2.9921	25/0.9842	33/1.2992	–	3,0/6.61
	WDL 3/32	165/6.4961	44/1.7322	76/2.9921	25/0.9842	33/1.2992	25/0.9842	3,4/7.50
	WDR 3/32	165/6.4961	44/1.7322	76/2.9921	25/0.9842	33/1.2992	25/0.9842	3,4/7.50
	WDPL 3/32	165/6.4961	53/2.0866	66/2.5984	Ø31/1.2204	33/1.2992	25/0.9842	3,6/7.94
	WD 3/40	140/5.5118	44/1.7322	76/2.9921	25/0.9842	43/1.6929	–	3,1/6.8
	WDL 3/40	165/6.4961	44/1.7322	76/2.9921	25/0.9842	43/1.6929	25/0.9842	3,4/7.50

urret and Universal Quick Change System




holder WDPL nal machining	**Toolholder WB** Internal machining	**Toolholder WBW** For individually akjustment	**Boring Sleeve MK**	**Sleeve slottet (for dia. Ø)**
L 1/12	WB 1/30	WBW 1/30	MK 1/30 MK 2/30	8, 10, 12, 15, 16, 20, 25
L 2/25	WB 2/40	WBW 2/40	MK 3/40 MK 4/40	10, 12, 15, 16, 20, 25, 32
L 3/32	WB 3/40 WB 3/50	WBW 3/40 WBW 3/50	MK 3/40 MK 4/40 MK 3/50 MK 4/50	20, 25, 32, 40
L 4/40	WB 4/60	WBW 4/60	MK 4/60 MK 5/60	25, 32, 40, 50
L 5/50	WB 5/80	WBW 5/80	MK 4/60 MK 5/60 + adapter for Ø 80	25, 32, 40, 50 + adapter for Ø 80

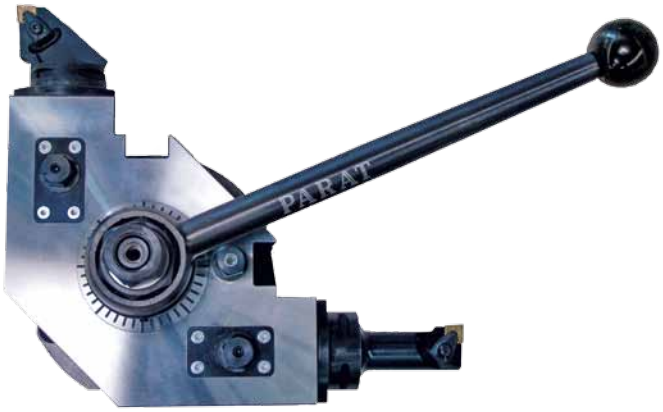
Technical data

Size	Type	mm/inches N	mm/inches O	mm/inches P	mm/inches R	mm/inches S	mm/inches U	kg/lbs.
3	WDR 3/40	165/6.4961	44/1.7322	76/2.9921	25/0.9842	43/1.6929	25/0.9842	3,4/7.50
	WB 3/40	140/5.5118	53/2.0866	66/2.5984		–	–	2,7/5.96
	WB 3/50	140/5.5118	63/2.4803	76/2.9921		–	–	3,5/7.72
	WBW 3/40	140/5.5118	53/2.0866	66/2.5984	–	–	–	4,3/9.5
	WBW 3/50	140/5.5118	63/2.4803	76/2.9921	–	–	–	5,7/12.6
4	WD 4/40	160/6.2992	53/2.0866	96/3.7795	30/1.1811	44/1.7322	–	5,0/11.03
	WDL 4/40	190/7.4803	53/2.0866	96/3.7795	30/1.1811	44/1.7322	30/1.1811	5,8/12.80
	WDR 4/40	190/7.4803	53/2.0866	96/3.7795	30/1.1811	44/1.7322	30/1.1811	5,8/12.80
	WDPL 4/40	190/7.4803	63/2.4803	96/3.7795	40/1.5748	52/2.0472	30/1.1811	6,5/14.34
	WD 4/50	160/6.2992	63/2.4803	96/3.7795	40/1.5748	54/2.1259	–	5,5/12.14
	WDL 4/50	190/7.4803	63/2.4803	96/3.7795	40/1.5748	54/2.1259	30/1.1811	6,0/13.24
	WDR 4/50	190/7.4803	63/2.4803	96/3.7795	40/1.5748	54/2.1259	30/1.1811	6,0/13.24
	WB 4/60	160/6.2992	77/3.0314	96/3.7795	Ø60/2.3621	–	–	6,0/13.24
	WBW 4/60	160/6.2992	81/3.1889	96/3.7795	–	–	–	10,0/22.0
5	WD 5/50	220/8.6614	67/2.6377	114/4.4881	40/1.5748	54/2.1259	–	9,6/21.18
	WDL 5/50	260/10.2359	67/2.6377	114/4.4881	40/1.5748	54/2.1259	40/1.5748	10,6/23.39
	WDR 5/50		67/2.6377	114/4.4881	40/1.5748	54/2.1259	40/1.5748	10,6/23.39
	WDPL 5/50		74/2.9133	114/4.4881	51/2.0078	54/2.1259	40/1.5748	10,5/23.17
	WB 5/80	220/8.6614		120/4.7244	Ø80	–	–	13,2/29.1
	WBW 5/80	220/8.6614		120/4.7244	–	–	–	23,5/51.8

PARAT SRD Turret with PSC- or KM holders

SRD with PSC (Capto)

Internal coolant supply through the main body to the tool cutting edge



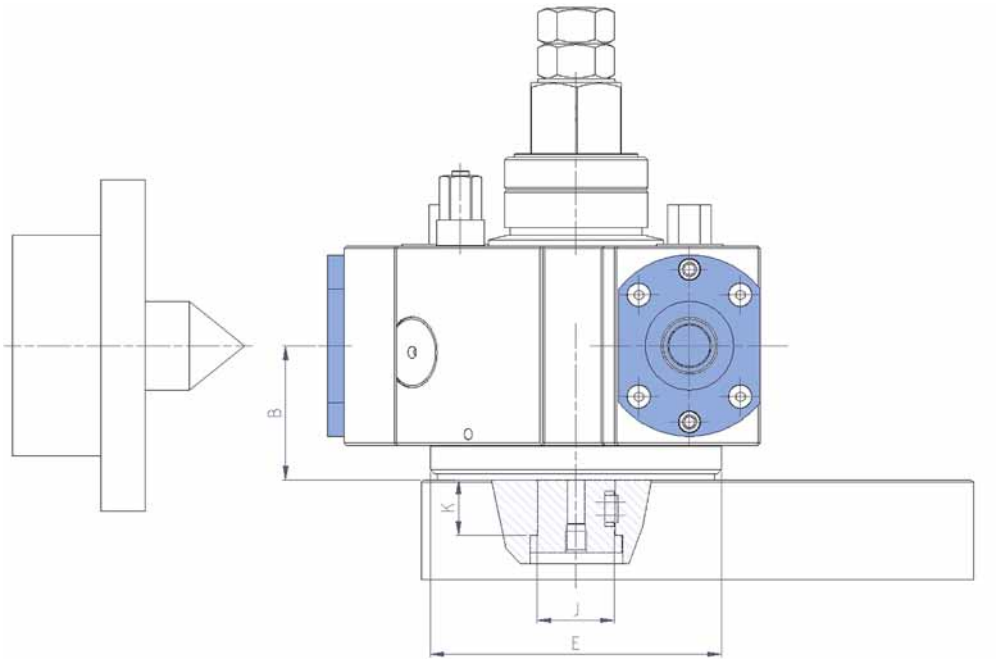
The Parat SRD Turret

Developed for holding two modular clamping points in a L-arrangement on the basis of the proven PARAT 4-way turret, with an accuracy that is particularly suitable for these holders. A choice of PSC or KM holders are available.

To ensure optimum cooling, the internal coolant facility enables the coolant to be through the clamping bolt to the cutting edge of the tool. The special L-arrangment with the diagonal PARAT clamping point means that when using long drilling bars there is no risk of collision with the sliding cover. Consequently, the complete turning diameter of the machine remains available.

Lengthened quick-change tool holders enable your standard tools to be used in conjunction with the diagonal PARAT clamping point as they ensure that your tools have the optimum clearance.

Patented 90 degree arrangement of the tools for optimum safety. No risk of collisions with longer tools.



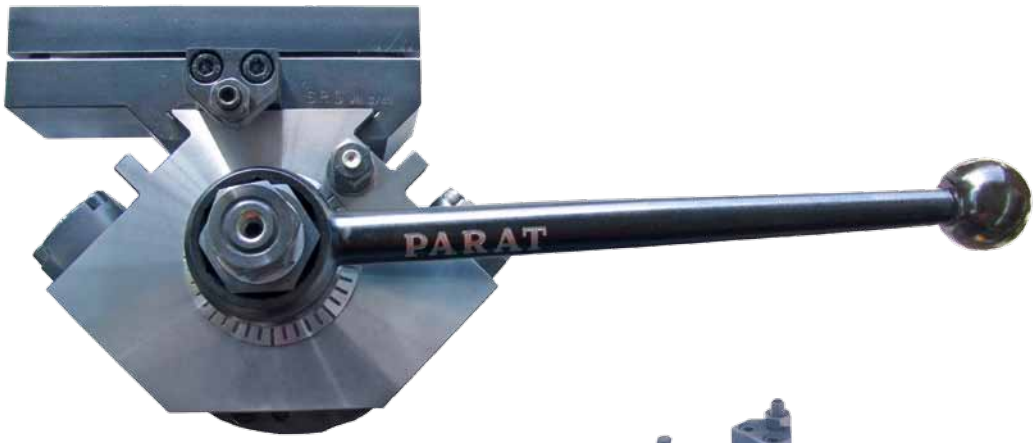
Technical data to define suitable size

Description		mm/inches Size 2	mm/inches Size 3	mm/inches Size 4	mm/inches Size 5
Approx. drive power of the lathe	kw/hp	15/20	25/33	45/60	65/87
Approx. torque at the main spindle	Nm/lb/ft	700/516	1500/1106	7000/5162	12000/8850
Max. cutting tool cross section		□25/0.9842	□40/1.5748	□50/1.9685	□50/1.9865
Height of cutting edge	B	47,8/1.8819	60,8/2.3937	78,1/3.0748	88,1/3.4685
Min. support width	C	110 - 150/4.3307	150 - 180/5.9055	200 - 250/7.874	200 - 300/7.874
Basic square toolpost	E	Ø 100/3.9370	Ø 132/5.1968	Ø 150/5.9055	Ø 195/7.6772
SRD turning circle	G	Ø 290/11.4173	Ø 360/14.1732	Ø 412/16.2205	Ø 522/20.5512
Clamping bolt	J (H7)	25/0.9842	35/1.3779	35/1.3779	45/1.7716
with collar and feather key	K	18/0.7086	25/0.9842	30/1.1811	35/1.3779
Approx. weight in kg/lbs without tool holder		9,4/20.7	19,5/43	30,5/67,2	55/121,3

Technical data

Size	Type	Art.-No.
2	SRD 2 with PSC32	P12000-C3
2	SRD 2 with PSC40	P12000-C4
3	SRD 3 with PSC40	P13000-C4
3	SRD 3 with PSC50	P13000-C5
4	SRD 4 with PSC50	P14000-C5
4	SRD 4 with PSC63	P14000-C6
5	SRD 5 with PSC63	P15000-C6
5	SRD 5 with PSC80	P15000-C8
2	SRD 2 with KM40	P12000-KM40
3	SRD 3 with KM40	P13000-KM40
3	SRD 3 with KM50	P13000-KM50
4	SRD 4 with KM50	P14000-KM50
4	SRD 4 with KM63	P14000-KM63
5	SRD 5 with KM63	P15000-KM63

PARAT toolholders for Turret SRD



WDL-SRD

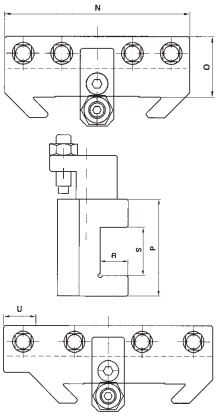
WDR-SRD

WB-SRD

Technical data

Size	site of lengthening	Type
2	right	WDR 2/25 SRD
2	left	WDL 2/25 SRD
2	left	WB 2/40 SRD
3	right	WDR 3/32 SRD
3	left	WDL 3/32 SRD
3	left	WB 3/40 SRD
3	left	WB 3/50 SRD
4	right	WDR 4/40 SRD
4	left	WDL 4/40 SRD
4	left	WB 4/60 SRD
5	right	WDR 5/50 SRD
5	left	WDL 5/50 SRD
5	left	WB 5/80 SRD

Toolholders



Size	Type	mm/inches N	mm/inches O	mm/inches P	mm/inches R	mm/inches S	mm/inches U	kg/lbs.
2	WDR 2/25 SRD	170/6.6929	36/1.4173	66/2.5984	19/0.7480	33/1.2992	60/2.3622	2,5/5.5
	WDL 2/25 SRD	170/6.6929	36/1.4173	66/2.5984	19/0.7480	33/1.2992	60/2.3622	2,5/5.5
	WB 2/40 SRD	170/6.6929	51/2.0079	63/2.4803	Ø 40/1.5748	-	60/2.3622	2,6/5.7
3	WDR 3/32 SRD	210/8.2677	44/1.7323	76/2.9921	25/0.9843	33/1.2992	70/2.7559	4,1/9
	WDL 3/32 SRD	210/8.2677	44/1.7323	76/2.9921	25/0.9843	33/1.2992	70/2.7559	4,1/9
	WB 3/40 SRD	210/8.2677	53/2.0866	66/2.5984	Ø 40/1.5748	-	70/2.7559	3,6/7.9
	WB 3/50 SRD	210/8.2677	63/2.4803	66/2.5984	Ø 40/1.5748	-	70/2.7559	4,5/9.9
4	WDR 4/40 SRD	240/9.4488	53/2.0866	96/3.7795	30/1.1811	44/1.7323	80/3.1496	6,5/14.3
	WDL 4/40 SRD	240/9.4488	53/2.0866	96/3.7795	30/1.1811	44/1.7323	80/3.1496	6,5/14.3
	WB 4/60 SRD	240/9.4488	77/3.0315	96/3.7795	Ø 60/2.3622		80/3.1496	7,7/16.9
5	WDR 5/50 SRD	310/12.2047	67/2.6378	114/4.4882	40/1.5748	54/2.1260	90/3.5433	12/26.5
	WDL 5/50 SRD	310/12.2047	67/2.6378	114/4.4882	40/1.5748	54/2.1260	90/3.5433	12/26.5
	WB 5/80 SRD	310/12.2047	103/4.0551	120/4.7244	Ø 80/3.1496	-	90/3.5433	17,7/39

PARAT special toolholders for 4-Way Indexing Turret and Universal Quick Change System

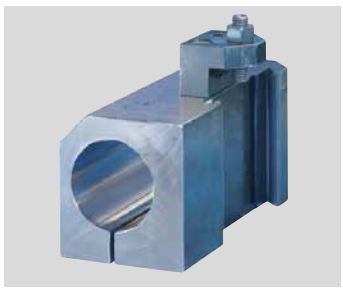
4-Way Turret RD

Size	Toolholder WB with PSC	Toolholder with KM	Toolholder with VDI
	PSC32 - C3 - D 32 mm	–	VDI 20
	PSC40 - C4 - D 40 mm	KM 40 - D40 mm	VDI 30
	PSC50 - C5 - D 50 mm	KM 50 - D50 mm	VDI 40
	PSC63 - C6 - D 63 mm	KM 63 - D63 mm	VDI 60
	PSC80 - C8 - D 80 mm	–	–
RD 1	–	–	–
RD 2	WB 2 with PSC32 R	WB 2 with KM40 R	WB 2 VDI 20
	WB 2 with PSC32 L	WB 2 with KM40 L	
	WB 2 with PSC40 R	WB 2 with KM40 R	WB 2 VDI 30
	WB 2 with PSC40 L	WB 2 with KM40 L	
RD 3	WB 3 with PSC40 R	WB 3 with KM40 R	
	WB 3 with PSC40 L	WB 3 with KM40 L	WB 3 VDI 30
	WB 3 with PSC50 R	WB 3 with KM50 R	WB 3 VDI 40
	WB 3 with PSC50 L	WB 3 with KM50 L	
RD 4	WB 4 with PSC50 R	WB 4 with KM50 R	
	WB 4 with PSC50 L	WB 4 with KM50 L	WB 4 VDI 40
	WB 4 with PSC63 R	WB 4 with KM63 R	WB 4 VDI 60
	WB 4 with PSC63 L	WB 4 with KM63 L	
RD 5	WB 5 with PSC63 R	WB 5 with KM63 R	WB 5 VDI 60
	WB 5 with PSC63 L	WB 5 with KM63 L	
	WB 5 with PSC80 R		
	WB 5 with PSC80 L		

Size WB with special bore
WB 4/80
WB 4/2 Zoll
WB 5/60
WB 5/100

Size SP for large swing- dia. over bed of machine

WB 2/60
WB 3/60
WB 3/2 Zoll



Size WB lengthened toward left

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