

MAPAL Floating Tools Power Reamer



Perfect for you.

The Floating Principle

Reaming has been used for fine machining bores with excellent results from the very start of cutting technology. One of the main reasons lies in the wide range of uses for this method on all kinds of machines with both rotating or stationary tool.

In most applications reaming is the final operation and is intended to produce bores to a high level of dimensional accuracy and a good surface finish. With conventional reaming tools this task is not always easy to fulfill. Oval oversize, taper widening, ridges, chatter marks, sticking because of over-heating or jams and actual blade fracturing are everyday problems which repeatedly produce scraps.

When producing close-fit bores, the problem frequently occurs that the axis of the machining tool does not match the axis of the bore to be produced.

There are various reasons for this problem in aligning the axes, depending on the machining method:

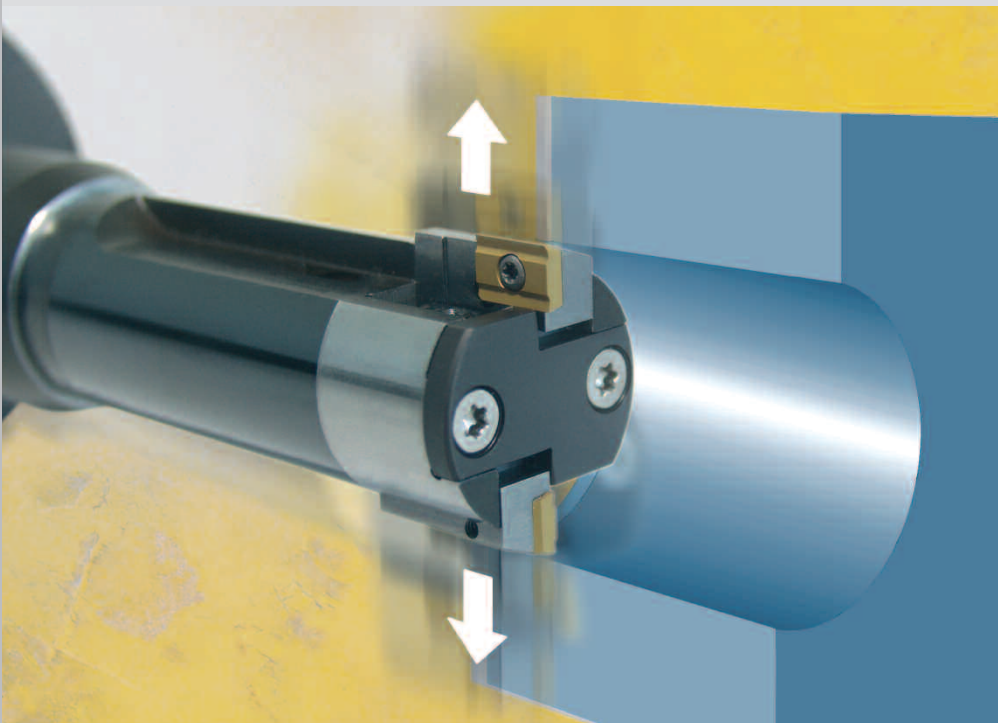
- Between producing the rough bore in the correct position and finish machining the close-fit bore, the machining position of the workpiece is changed either once or several times. The positional errors which this causes can only be minimised at considerable expense.
- The workpiece to be used may seem sufficiently rigid for the purpose but is not enough for the operation. The repeatable accuracy of the machine when tools are changed is no longer at optimum level because of the wear which has been produced.

In all these cases producing close-fit bores with rigid tools is difficult and time consuming. The best solution in these cases is a specially designed tool

which follows the correct alignment of the bore without any forces being applied to the walls of the bore due to axial alignment errors.

Tools with floating chucks, for whose use the total mass of the reamer and the moveable chuck section needs to be moved into the bore axis as quickly as possible, are consequently only suitable for rotating use with certain limitations. The self-centring, floating reaming tools, however, meet these demands ideally for a close-fit bore which is accurate in position and form and has the highest surface quality. The reaming cartridge, which is set to the required fit to high precision, with two cutter bodies lying opposite one another, follows the bore axis of the workpiece.

The reaming blade geometry means that the cutting forces produced constantly centre the radially moving reaming cartridge in the bore axis. The resulting close-fit bores meet the highest quality requirements and provide particularly high production reliability.

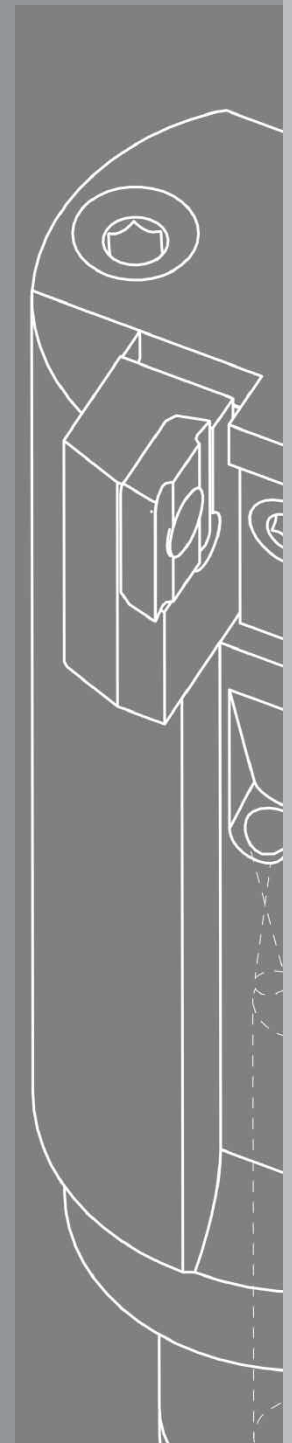


The Floating Principle

- Self-centering
- Wide adjustment range
- Adjustment of axial alignment errors
- Replaceable inserts
- Extremely easy adjustment
- Through holes and blind bores with the same tool
- For stationary and rotating applications



The Floating Principle	2
Power reaming	4
Features and efficiency of the Power Reamer	5
Dimension table for Power Reamer	6
Order examples	
Indexable inserts for Power Reamer	7
Modular System	8
Combination summary	9
Basic holder	10
Reducing elements/extensions	11
Spare parts for Power Reamer	12
Spare parts for Modular System	13
Recommendations for cutting values	14
Handling Instructions – setting gauge PL 19-150	15



The Power Reamer

The Power Reamer is the result of a chain of developments over many years and represents a pioneering advance in the reaming tool sector.

The Power Reamers' special design features allow them to achieve cutting speeds for rotating tools which were not thought possible for floating reaming tools.

The principal features are:

- the allocation of the cutting edges in the central plane between the sliding planes for the reaming cartridge
- the optimised directing of cutting forces onto the reaming cartridge's supports
- the minimised weight of the radially moving reaming cartridge resulting from its lightweight construction
- the central coolant supply directly onto the cutting edges, with a permissible coolant pressure of up to 40 bar.

One particularly important aspect for a good working result is easy entry by the tool into the bore. With the Power Reamer this is achieved by means of the new patented blade design. Guiding surfaces are ground in front of the main cutting edges on the inserts. These are non-cutting chamfers which to a large extent centre the tool as soon as it enters the bore. The main cutting edges are then engaged and these take up the remaining difference in cutting pressure to produce the final centring.

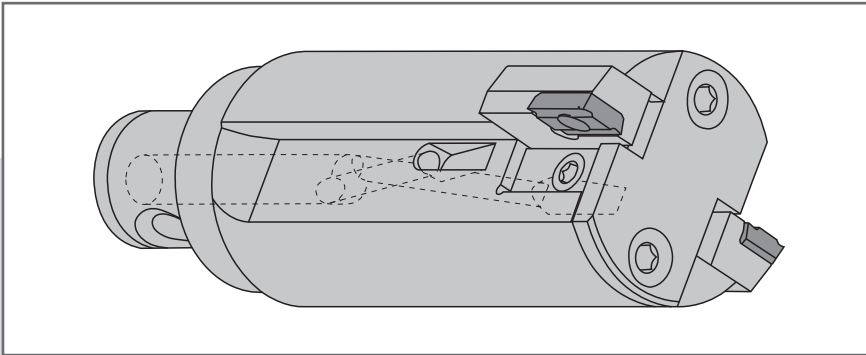
The design of the Power Reamer allows machining to be carried out with the same tool both for through holes (including shoulders) and blind bores. Unlike other floating tools this can be used for machining bores with axial symmetric interrupted cuts if the axial length of the interrupted cut does not exceed 6 mm. The Power Reamer machines bore depths of up to eight times the diameter.

The Power Reamer is fitted with indexable inserts and, for sizes P 19 – K 25 to P 23 – K 25 with single bladed reaming inserts. These inserts can be supplied for all current workpiece materials and are easy to order using an insert reference code. Adjustment of the angular position of the cutting edge ready for operation is carried out by tightening the holding screw.

Compared to any adjustable or re-adjustable tools from competitors, the Power Reamer is particularly outstanding because it is set to the working diameter to high precision away from the machine and in the simplest possible way, using an extremely easy-to-use setting gauge. Adjustment of floating play is not required as this is automatically aligned during dimensional adjustment.



Features of the Power Reamer



- Maximum cutting speeds for stationary and rotating applications
- No support pads up to 8 x D
- Replaceable inserts
- Indexable inserts for all current materials
- Extremely easy, high precision dimensional adjustment away from the machine using setting gauge
- Minimum non-productive machine time due to simple changing procedure for reamers which have already been set
- Wide adjustment range
- Through holes and blind bores with the same tool
- No floating holder required
- Adjustment of axial alignment errors up to 0.05 mm
- Guiding surfaces for optimum bore entry
- Automatic adjustment of radial play
- Self-centring of radially moving reaming block
- Minimised imbalance for rotating application
- High productivity
- High production reliability

Efficiency of Power Reamer

The Power Reamer is equally suited for use as a **rotating tool** on machining centres and boring mills and as a **stationary tool** on any kind of turning machines. Its machining values are determined by the application conditions. Where there is an uncomplicated machine spindle, short overhang length for the tool, rigid workpiece and optimum workpiece clamping set-up, the following cutting speeds can be achieved:

Grey cast iron: 200 m/min
Steel: 300 m/min
Light metal: 500 m/min

Achievable quality:
Surface quality up to $R_z 2 \mu\text{m}$
Tolerance IT6
Roundness $3 \mu\text{m}$

Feed rates lie between:
0.3 and 0.8 mm/rev.

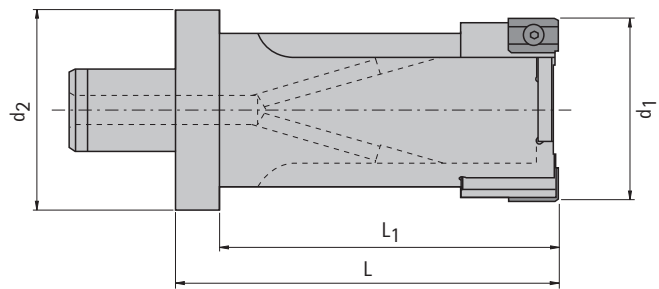
The recommended allowance is:
0.2 mm +/- 0.1 mm in the diameter

One particular strength of the Power Reamers lies in the facility to use them for machining to fit even under difficult conditions, e. g.

- on machines whose spindles no longer have the necessary accuracy for single-blade machining to fit because of wear
- on unstable workpieces which are liable to vibrate and which present particular problems for single-blade machining to fit.

However, the machining values may need to be reduced for applications under difficult conditions.

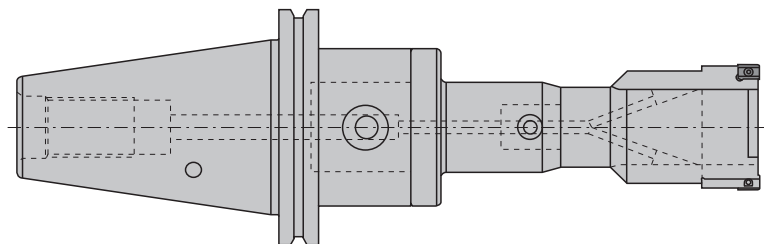
Power Reamer



Machining diameter d_1 from – to mm	Reamer without indexable insert Reference code	d_2 mm	L mm	L_1 mm	Weight kg	Order-No.	Avail- ability
19 – 21	P 19 – K 25*	25	85	77	0,167	50025736	
21 – 23	P 21 – K 25*	25	93	85	0,207	50025737	
23 – 25	P 23 – K 25*	25	101	93	0,262	50025738	
25 – 28	P 25 – K 23	23	65		0,207	50025739	
28 – 32	P 28 – K 25	25	65		0,248	30175170	
32 – 36	P 32 – K 25	25	70		0,337	50025751	
36 – 42	P 36 – K 25	25	70		0,394	50025752	
42 – 48	P 42 – K 32	32	75		0,611	50025753	
48 – 56	P 48 – K 32	32	80		0,772	50025754	
56 – 64	P 56 – K 40	40	85		1,220	50025755	
64 – 74	P 64 – K 50	50	90		1,718	50025756	
74 – 84	P 74 – K 63	63	95		2,697	50025757	
84 – 98	P 84 – K 63	63	105		3,223	50025758	
98 – 112	P 98 – K 63	63	110		4,099	50025759	
112 – 130	P 112 – K 63	63	125		5,373	50025760	
130 – 148	P 130 – K 63	63	125		6,573	50025761	

*insert with one cutting edge

Order example for Power Reamer



System elements	Reference code	Order No.
Reamer	P 48 – K 32	50025754
Indexable insert	PCGT080218-CGKRW-A	50025765
Reducing element	HRK 32-60-K 63	10077340
Basic holder	HK 63-56-50DIA	10077923

Power Reamer

Selection of cutting materials

Tensile strength [N/mm ²]	Material	Carbide uncoated AHS-K	Carbide coated CGKRW-A	Carbide coated G-A	Cermet uncoated CRS-C
P R _m 340-500	Structural, free cutting and case hardened steel	☐	☐		■
	Structural, free cutting and case hardened steel		☐		■
	Nitride steel, heat treated steel		☐		■
	High alloy steel		■		☐
M R _m 750-1100	Stainless steel		■		☐
K R _m 300-800	Spheroidal graphite cast iron	☐	■		
	Grey cast iron	☐	☐	■	
N R _m 150-500	Aluminium alloys	■			

■ 1st choice
☐ alternative

Indexable inserts for Power Reamers

for machining diameter	Design	Reference code	Cutting material	Order no.	Avail-ability
19 - 25	Insert with one cutting edge	PCGX080218	AHS-K	50025763	
19 - 25	Insert with one cutting edge	PCGX080218	CGKRW-A	50025762	
19 - 25	Insert with one cutting edge	PCGX080218	CRS-C	50025764	
25 - 148	Indexable insert	PCGT080218	AHS-K	50025767	
25 - 148	Indexable insert	PCGT080218	CGKRW-A	50025765	
25 - 148	Indexable insert	PCGT080215	G-A	30233789	
25 - 148	Indexable insert	PCGT080218	CRS-C	50025766	

Order example for indexable insert

Machining diameter Material	32 mm Aluminium alloy
Indexable insert	PCGT080218-AHS-K
Order No.	50025767

● available ex stock Germany

The modular tool system

The modular tool system is particularly distinguished by high static and dynamic rigidity and the replaceable accuracy of the system components to within just a few microns. All modular system components are designed for internal coolant supply so that the coolant can be directed straight onto the cutting edge.

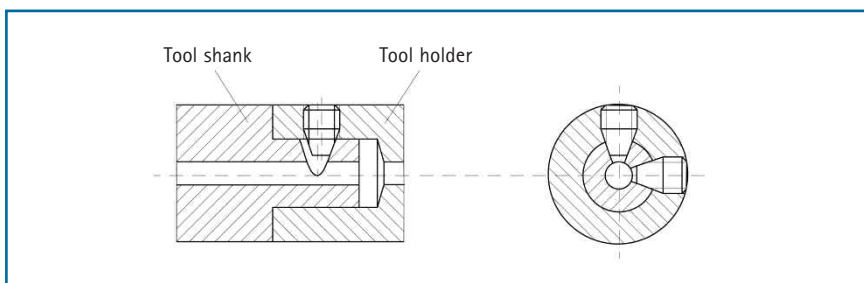
Because of the symmetrical construction of the system tools and the high dynamic rigidity of the modular con-

nection, the system tools can also be used for high speed machining.

The connection point is formed by a shank with a flat annular surface and a cylindrical spigot and a tool holder with a cylindrical hole and a flat face. The spigot is provided with a tapered hole (or from connection size K 50 with two holes) in which conical threaded pins engage which are screwed into the holder. By tightening the conical pins, tool holder and shank

are clamped positively together. For connections with system diameter K 90, two additional key blocks are allocated to ensure good torque transmission.

One significant advantage when fitting the system parts is provided by the appropriate order reference codes for the modular system tools: the shanks and holders are each coded with the external diameters of the connections. The connection point on the workpiece side of the system tool is always shown on the left of the code, the connection on the machine side is always on the right. This is shown in context in the example below.

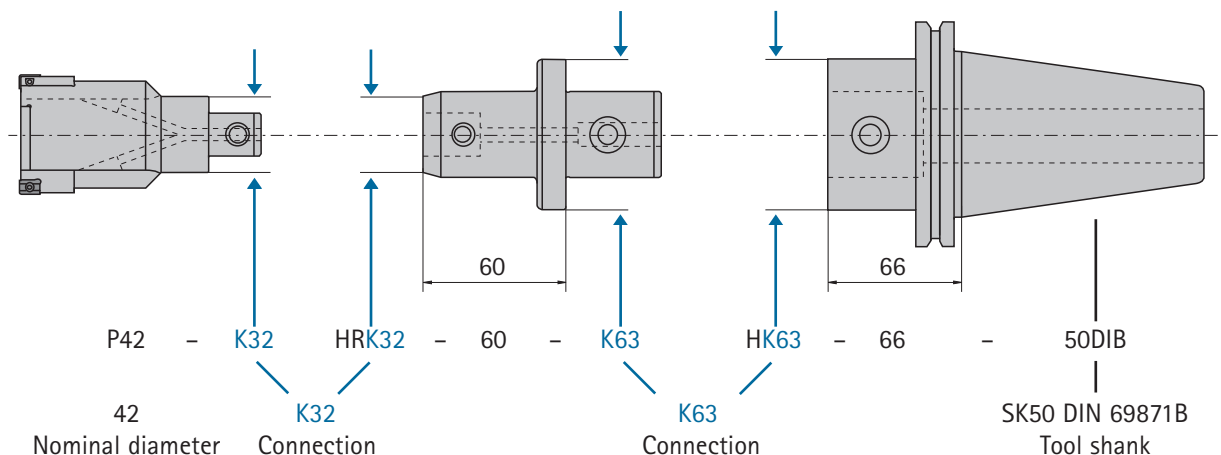


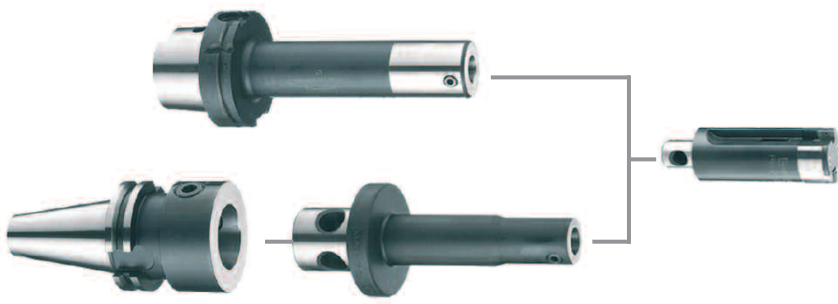
Example: A reaming tool type P consists of the following items:

- Indexable inserts: carbide or carbide coated and Cermet for optimum cutting of all current materials
- Reamer: for the relevant diameter range for holding indexable inserts
- Extensions: for adapting the tool to the relevant workpiece dimensions
- Reducing elements: where the connection for the tool is smaller than that for the basic holder
- Basic holder: as a connection between tool and the machine with more than 12 different tool shanks

The external diameter of the connection is part of the ordering code (shown in the example as K 32 and K 63), making it very easy to identify the combination options.



























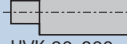



Reamer Reducing element Basic holder





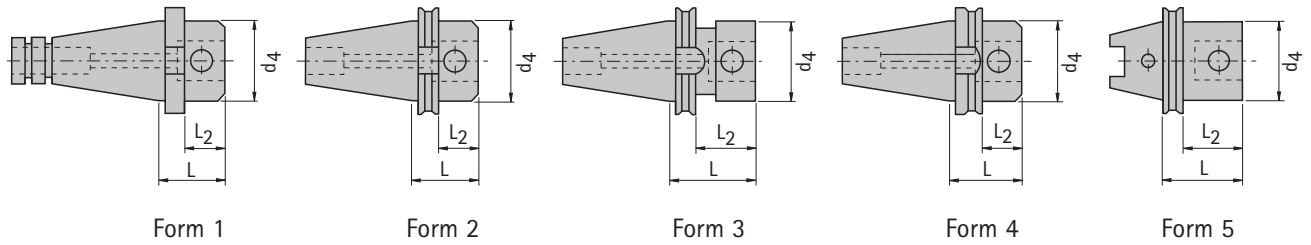
Modular System

Combination summary

Basic holder Reference code			Basic holder HK	Extensions HVK	Reducing elements HRK	Extensions HVK
d ₄ mm	L mm	Taper				
HK 63	- 48	- 40	 HK 63-...	 HVK 63-120 HVK 63-140	 HRK 23-60-K 63  HRK 25-120-K 63  HRK 25-60-K 63  HRK 25-30-K 63  HRK 32-120-K 63  HRK 32-60-K 63  HRK 40-120-K 63 HRK 40-140-K 63  HRK 40-60-K 63  HRK 50-120-K 63  HRK 50-40-K 63  HRK 63-80-K 80  HRK 63-80-K 90  HRK 80-80-K 90	 HVK 23-40  HVK 25-40  HVK 32-40  HVK 40-40  HVK 50-40  HVK 80-80  HVK 80-150  HVK 90-100  HVK 90-200
HK 63	- 52	- 50				
HK 63	- 52	- 50 VDA				
HK 63	- 52	- 50 MAK				
HK 63	- 56	- 50 DIA				
HK 63	- 64	- 40 BT				
HK 63	- 65	- MK5				
HK 63	- 66	- 40 DIA				
HK 63	- 66	- 40 DIB				
HK 63	- 66	- 45 DIB				
HK 63	- 66	- 50 DIB				
HK 63	- 72	- 50 ANC				
HK 63	- 75	- 50 BT				
HK 63	- 80	- 63 HSKA				
HK 63	- 80	- 100 HSKA				
HK 63	- 82	- 40 ANC				
HK 63	- 56	- C6				
HK 80	- 52	- 50				
HK 80	- 52	- 50 VDA				
HK 80	- 56	- 50 DIA				
HK 80	- 66	- 50 DIB				
HK 80	- 72	- 50 ANC				
HK 80	- 75	- 50 BT				
HK 80	- 80	- 100 HSKA				
HK 80	- 56	- C6				
HK 80	- 50	- C8				
HK 90	- 60	- 50	 HK 90-...	 HVK 90-100  HVK 90-200	 HRK 80-80-K 90	 HVK 90-100  HVK 90-200
HK 90	- 65	- 60				
HK 90	- 75	- 50 BAT				
HK 90	- 75	- 50 DIA				
HK 90	- 75	- 50 DIB				
HK 90	- 100	- 100 HSKA				

Modular System

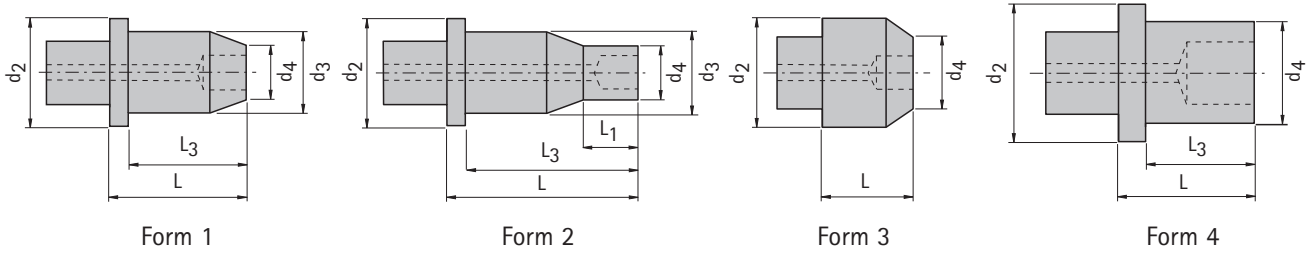
Basic holder with internal coolant supply



Basic holder Reference code			Form	Execution	L ₂ mm	Coolant hole	Weight kg	Order No.	Avail- ability
d ₄ mm	L mm	Taper							
HK 25	- 30	- MK3		DIN 228 B*			0,4	10077287	
HK 25	- 30	- MK4		DIN 228 B*			0,5	10077288	
HK 32	- 35	- MK4		DIN 228 B*			0,7	10077289	
HK 40	- 50	- MK4		DIN 228 B*			1,0	10077290	
HK 40	- 50	- MK5		DIN 228 B*			1,4	10077291	
HK 50	- 50	- MK4		DIN 228 B*			1,0	10077292	
HK 50	- 50	- MK5		DIN 228 B*			1,8	10077294	
HK 63	- 48	- 40	1	DIN 2080		X	1,3	10077295	
HK 63	- 52	- 50	1	DIN 2080	35	X	3,2	10077296	
HK 63	- 52	- 50 VDA	2	DIN 2080	35	X	3,1	10077922	
HK 63	- 52	- 50 MAK	2	MAKINO	35	X	3,0	10077297	
HK 63	- 56	- 50 DIA	2	DIN 69871 AD	35	X	3,1	10077923	
HK 63	- 64	- 40 BT	3	MAS 403 BT		X	1,5	10077924	
HK 63	- 65	- MK5		DIN 228 B*		X	2,2	10077302	
HK 63	- 66	- 40 DIA	3	DIN 69871 AD		X	1,5	10077925	
HK 63	- 66	- 40 DIB	3	DIN 69871 B*		X	1,5	10077926	
HK 63	- 66	- 45 DIB	3	DIN 69871 B*	45	X	2,3	10077305	
HK 63	- 66	- 50 DIB	4	DIN 69871 B*	45	X	3,8	10077927	
HK 63	- 72	- 50 ANC	2	ANSI CAT M24	50	X	3,5	10077307	
HK 63	- 75	- 50BT	4	MAS 403 BT	35	X	4,1	10077308	
HK 63	- 80	- 63 HSKA	5	HSK-A**	60	X	1,6	10077929	
HK 63	- 80	- 100 HSKA	5	HSK-A**	60	X	2,9	10077928	
HK 63	- 82	- 40 ANC	3	ANSI CAT M16		X	1,7	10077311	
HK 63	- 56	- C6		Coromant Capto		X	1,1	10077300	
HK 80	- 52	- 50	1	DIN 2080	35	X	3,8	10077313	
HK 80	- 52	- 50 VDA	2	VDI 2814 A	35	X	3,6	10077314	
HK 80	- 56	- 50 DIA	4	DIN 69871AD	35	X	3,6	10077315	
HK 80	- 80	- 100 HSKA	5	HSK-A**	60	X	2,5	10077320	
HK 80	- 66	- 50 DIB	4	DIN 69871 B*	45	X	4,0	10077317	
HK 80	- 72	- 50 ANC	3	ANSI CAT M24	50	X	4,0	10077318	
HK 80	- 75	- 50 BT	4	MAS 403 BT	35	X	4,7	10077319	
HK 80	- 56	- C6		Coromant Capto		X	1,3	10077316	
HK 80	- 50	- C8		Coromant Capto		≈	1,9	10077312	
HK 90	- 60	- 50	1	DIN 2080		X	4,0	10077322	
HK 90	- 65	- 60	1	DIN 2080		X	11,6	10077323	
HK 90	- 75	- 50 BT	2	MAS 403 BT		X	4,6	10077324	
HK 90	- 75	- 50 DIA	3	DIN 69871 AD		X	4,4	10077325	
HK 90	- 75	- 50 DIB	3	DIN 69871 B		X	4,2	10077326	
HK 90	- 100	- 100 HSKA	5	HSK-A**		X	4,4	10077321	

Modular System

Reducing elements HRK with internal coolant supply

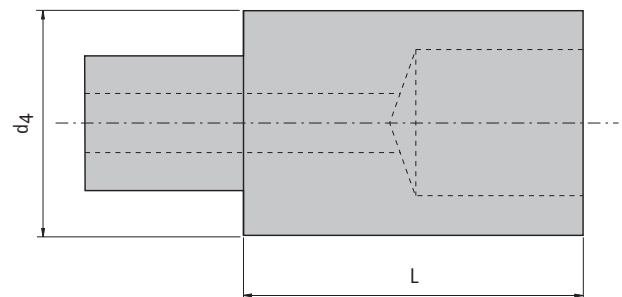


Reducing elements Reference code			Form	d3 mm	L1 mm	L3 mm	Weight kg	Order No.	Avail- ability
d4 mm	L mm	d2 mm							
HRK 23	- 60 -	K63	4			45	0,7	10077172	
HRK 25	- 30 -	K63	1	28		15	0,6	10077337	
HRK 25	- 60 -	K63	1	28		45	0,8	10077338	
HRK 25	- 120 -	K63	2	28	40	105	1,1	10077336	
HRK 32	- 60 -	K63	1	36		45	0,9	10077340	
HRK 32	- 120 -	K63	2	36	40	105	1,3	10077339	
HRK 40	- 60 -	K63	1	48		45	1,2	10077342	
HRK 40	- 120 -	K63	1	48		105	2,0	10077341	
HRK 40	- 140 -	K63	1	48		125	2,2	10077335	
HRK 50	- 40 -	K63	3				1,0	10077344	
HRK 50	- 120 -	K63	3				2,9	10077343	
HRK 63	- 80 -	K80	3				3,1	10077345	

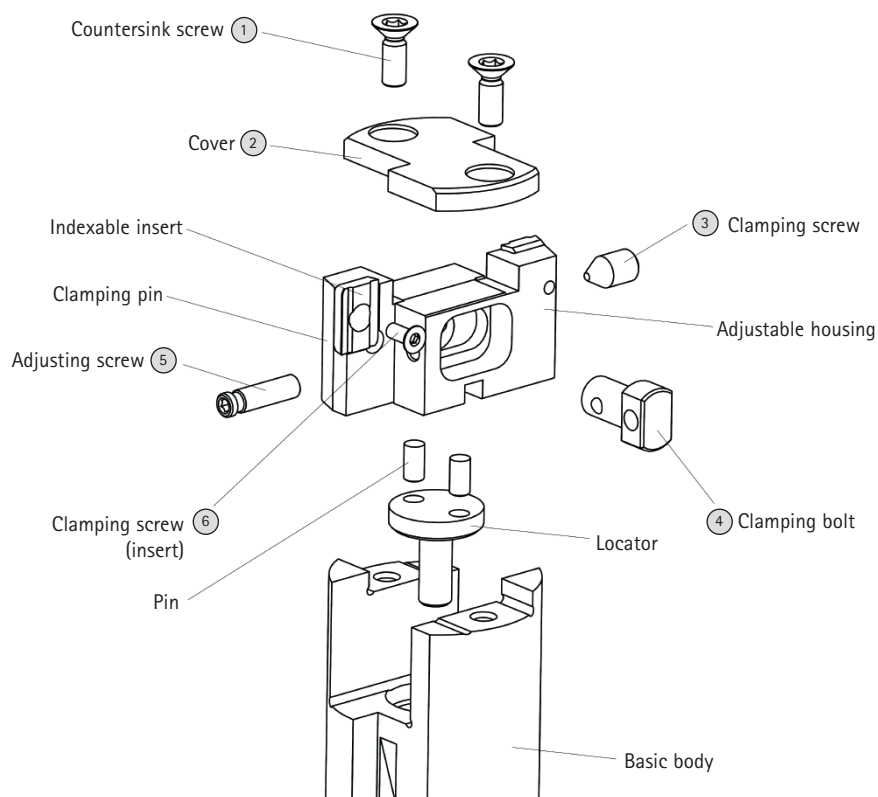
Modular System

Extensions HVK with internal coolant supply

Extensions Reference code		Weight kg	Order No.	Avail- ability
d4 mm	L mm			
HVK 23	- 40	0,1	10077350	
HVK 25	- 40	0,1	10077930	
HVK 32	- 40	0,2	10077931	
HVK 40	- 40	0,4	10078769	
HVK 50	- 40	0,6	10078770	
HVK 63	- 60	1,3	10078773	
HVK 63	- 120	2,8	10078771	
HVK 63	- 140	3,3	10078772	
HVK 80	- 80	3,0	10078775	
HVK 80	- 150	5,7	10078774	



Spare parts for Power Reamer



Power Reamer Reference code	2 Cover Order No.	Avail-ability	5 Adjusting screw Order No.	Avail-ability
P 19	10077510		10077478	
P 21	10077511		10077478	
P 23	10077512		10077478	
P 25	10077513		10077479	
P 28	10077514		10077480	
P 32	10077515		10077480	
P 36	10077516		10077481	
P 42	10077517		10077481	
P 48	10077518		10077482	
P 56	10077519		10077482	
P 64	10077520		10077483	
P 74	10077521		10077483	
P 84	10077522		10077484	
P 98	10077523		10077484	
P 112	10077524		10077485	
P 130	10077859		10077485	

Power Reamer Reference code	①		③		④	
	Countersink screw Order No.	Avail- ability	Countersink screw Order No.	Avail- ability	Clamping bolt Order No.	Avail- ability
P19 - P23	10077505		10077496		10077525	
P25 - P32	10077506		10077497		10077526	
P36 - P42	10077506		10077498		10077526	
P48	10077507		10077499		10077527	
P56 - P64	10077507		10077500		10077527	
P74	10077507		10077501		10077527	
P84	10077509		10077502		10077528	
P98 - P112	10077509		10077503		10077528	
P130	10077509		10077504		10077528	

Power Reamer Reference code	⑥	
	Clamping screw (insert) Order No.	Avail- ability
P19 - P130	10078785	

Spare parts for modular system

Basic holder Reference code	Extension Reference code	Reducing element Reference code	Clamping screw Order no.	Avail- ability	Screwdriver Order no.	Avail- ability
-	HVK 23	HRK 23	10077494		10078779	
HK 25	HVK 25	HRK 25	10077486		10078779	
HK 32	HVK 32	HRK 32	10077487		10078779	
HK 40, MK 4/5	HVK 40	-	10077488		10078780	
HK 40-Z...	HVK 40	HRK 40	10077490		10078780	
HK 50	HVK 50	HRK 50	10077491		10078781	
HK 63	HVK 63	HRK 63	10077492		10078782	
HK 80	HVK 80	HRK 80	10077493		10078782	

Power Reamer machining values

	Material (Germany/DIN)	Tensile strength (N/mm ²)	Recommended cutting material	Cutting depth a_p (mm)	Feed per revolution f (mm/rev.)	Cutting speed v_c (m/min) for overhang length/diameter $L/D \leq 3^*$ for reaming diameter			
						19 - 25 mm	25 - 48 mm	48 - 84 mm	84 - 148 mm
P	Structural, free cutting and case hardened steel C15, St37, 9SMn28, Gs40, St52-3, 17CrNiMo6	340 - 500	AHS-K	0,1	0,5 - 0,7	40 - 60	40 - 60	30 - 60	30 - 60
			CGKRW-A	0,1	0,5 - 0,7	60 - 80	60 - 80	40 - 80	40 - 80
	CRS-C	0,1	0,5 - 0,7	200 - 300	200 - 300	200 - 300	200 - 300		
	CGKRW-A	0,1	0,4 - 0,6	60 - 80	60 - 80	40 - 80	40 - 80		
	500 - 800	CGKRW-A	0,1	0,4 - 0,6	60 - 80	60 - 80	40 - 80	40 - 80	
		CRS-C	0,1	0,4 - 0,6	200 - 300	200 - 300	200 - 300	200 - 300	
	Nitride steel, heat treated steel C15, C60, 34CrNiMo6, 42CrMo4, 51CrV4	750 - 1100	CGKRW-A	0,1	0,4 - 0,6	80 - 120	80 - 120	80 - 120	80 - 120
			CRS-C	0,1	0,4 - 0,6	200 - 300	200 - 300	200 - 300	200 - 300
	High alloy steel X155CrVMo121 G-X10CrNi18-8 G-X5CrNiNb189	900 - 1300	CGKRW-A	0,1	0,3 - 0,5	60	60 - 80	60 - 80	50 - 60
			CRS-C	0,1	0,3 - 0,4	60	60	60	60
M	Stainless steels	750 - 1100	CGKRW-A	0,05 - 0,1	0,3 - 0,4	20 - 40	20 - 40	20 - 40	20 - 40
			CRS-C	0,05 - 0,1	0,3 - 0,4	60	60	60	60
K	Grey cast iron	150 - 500	AHS-K	0,1 - 0,15	0,3 - 0,5	60	60	60	40
	CGKRW-A		0,1 - 0,15	0,5 - 0,7	80 - 100				
	G-A		0,1 - 0,15	0,5 - 0,8		60 - 80	60 - 80	80 - 100	
	Spheroidal graphite cast iron SGI30 - SGI70	300 - 800	CGKRW-A	0,1	0,3 - 0,5	100	180	140	120
N	Aluminium alloys G-AlZn10Si8Mg GAlSi10Mg AlCuMgPb		AHS-K	0,1 - 0,15	0,3 - 0,4	180 - 300	220 - 400	200 - 350	160 - 250

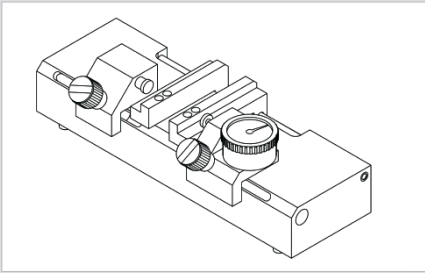
1st choice

*For overhang lengths $L/D > 3$ the following cutting speeds are recommended:

Cutting material	L/D ratio		
	< 5	< 8	< 10
AHS-K	0,8	0,5	0,4
CGKRW-A	0,8	0,4	0,3
G-A	0,8	0,4	0,3
CRS-C	0,8	0,4	0,3

v_c = value in table above ($L/D \leq 3$) x correction factor

Power Reamer – Handling Instructions



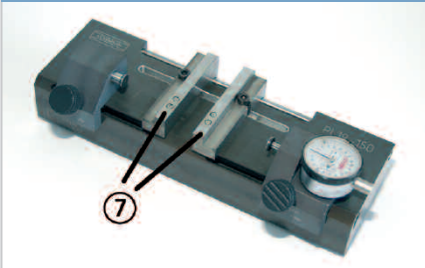
Setting gauge PL 19–150
(Order No. 10077932)

Setting the Power Reamer on the setting gauge is carried out by first bringing the gauge to the nominal dimension with the aid of a plug gauge.
The reamer is then placed on the cross slides of the gauge, which is provided with magnets, and rotated into position with the maximum value displayed on the dial indicator.

The clamping on the reaming cartridge is then released, the reaming cartridge diameter set to nominal dimension and the reaming cartridge clamped again. Once this simple setting procedure has been carried out, the Power Reamer is ready for use.

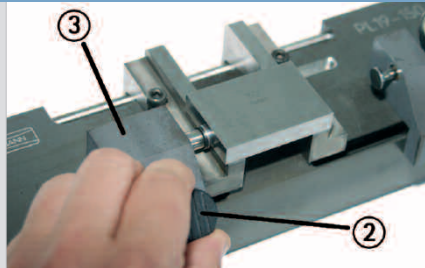
The cutting edge geometry and floating play do not need further adjustment!

Adjusting the setting gauge to nominal dimension using plug limit gauges or slip gauges

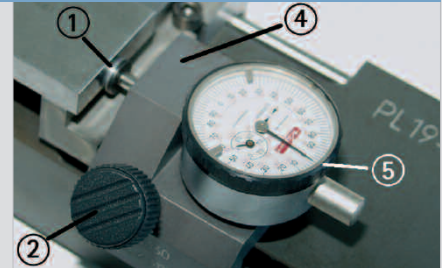


Position the cross slides (7) centrally on the setting gauge and secure with the clamping screws, so that the reaming cartridge can move freely in the placed reamer.

For P 19 – P 32 only 1 cross slide is used (tilt the second cross slide away).
For P 36 – P 130 use both cross slides.

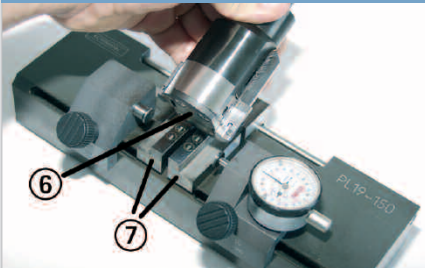


Position the slip gauge with the good side on the cross slides and align this exactly centrally. Push stop (3) against the slip gauge and tighten clamping screw (2).



Push the measuring block (4) against the slip gauge until the measuring surface (1) is held securely and the small pointer on the dial indicator (5) is at 0.2. Tighten the clamping screw (2) and set the graduated ring on the dial indicator with the large pointer at 0.

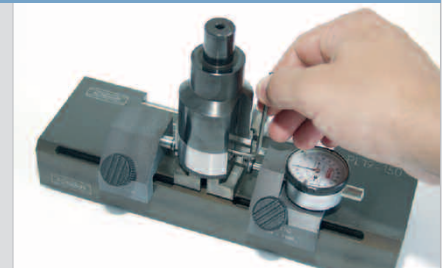
Setting the reamer to dimension



Position the reamer with cover (6) on the magnetic cross slides (7).
The reaming cartridges must move freely!



Push the tool between the measuring surfaces and calculate the largest dimension by rotating the reamer.



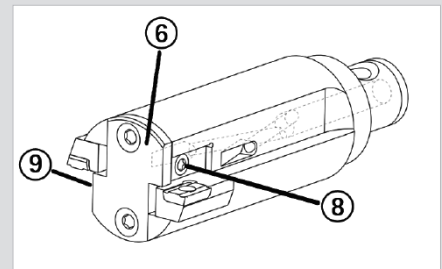
Release clamping screw "K" (8) and lightly tension.



Set the reamer with the adjusting screw (9) in the ⊞-direction to the nominal dimension for the pre-adjusted slip gauge and then tighten clamping screw "K" (8).



The reamer is now ready to use.
No further adjustment is required.





MAPAL Präzisionswerkzeuge Dr. Kress KG

P.O. Box 1520 • D-73405 Aalen
Phone 07361 585-0 • Fax 07361 5 85-1 50
info@de.mapal.com • www.mapal.com

POW-H-E-01-010-01A-0908-WD Printed in Germany/Right of technical modifications reserved.