

DIAGER[®]
INDUSTRIE

DiaReam

Your solutions for high-precision holes

Solid or insert reamers, fixed or adjustable



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DISCOVER SOLUTIONS FOR BORING
AND MUCH MORE

OUR 5 SEGMENTS

DIAGER[®]
INDUSTRIE



Drilling



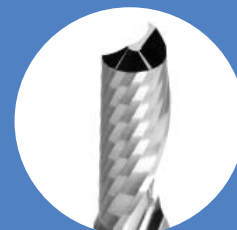
Milling



Reaming



Sharpening



Soft materials

**> NEW
2025**



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DIAGER INDUSTRIE,

TECHNICAL EXPERTISE AT THE SERVICE OF YOUR PERFORMANCE

70 YEARS
OF EXPERTISE
SERVING INDUSTRY

DIAGER[®]
INDUSTRIE

For nearly 70 years, Diager Industrie has been designing and manufacturing solid carbide rotary cutting tools in France. Based in Poligny, in the Jura region, our company stands out as a reference player in the production of standard or special drilling, milling, and reaming tools, designed for the most demanding industrial environments.



COMPLETE CONTROL OF THE VALUE CHAIN

From design to manufacturing, including testing and technical support, we control all production processes. Our fleet of 135 machining centers, including 45 CNC machines, allows us to ensure responsiveness, quality, and innovation



PARTNER FOR THE MOST DEMANDING INDUSTRIES

Our expertise is recognized by leading names in the mechanical, aerospace, space, and automotive industries. We don't just supply tools: we design comprehensive solutions tailored to your specific needs, for optimal performance on your production lines.



THE STRENGTH OF A GROUP, THE AGILITY OF AN EXPERT

Diager Industrie leverages the synergies of a strong group while maintaining the flexibility of a human-scale company. This duality allows us to respond precisely to your specifications, ensure the performance of our tools, and actively contribute to the competitiveness of your machining operations.



INNOVATION, RESPONSIBILITY, COMMITMENT:

OUR DNA

R&D AT THE HEART OF OUR DEVELOPMENT

Innovation is at the heart of our strategy. Every year, we invest in research and development to anticipate changes in your needs and design ever more efficient tools. Our R&D teams develop custom solutions, validated under real conditions thanks to our in-house testing platforms.

PROVIDER OF SOLUTIONS, NOT JUST TOOLS

Our experts don't just create tools; they also design the optimal machining processes for your applications. This comprehensive approach allows us to commit to the performance and profitability of our solutions, with complete control over costs and production times.

A QUALITY REQUIREMENT AT EVERY STAGE



At Diager Industrie, quality is a daily requirement, supported by concrete and measurable commitments. From the rigorous selection of raw materials to the final inspection of tools, every production step is governed by strict standards and complete traceability. Thanks to a state-of-the-art machine fleet and advanced inspection capabilities, we guarantee reliable, consistent tools that meet the most demanding specifications.

Certified ISO 9001 and ISO 14001, our quality management system follows a continuous improvement approach, dedicated to enhancing your industrial performance.

A RESPONSIBLE AND COMMITTED COMPANY



Aware of its impact, Diager Industrie acts daily to minimize its environmental footprint. We have implemented a rigorous environmental policy and integrate Corporate Social Responsibility (CSR) principles into all our strategic decisions. This approach, a true corporate philosophy, has been recognized through official certification.

SUPPORTING YOU, SUSTAINABLY

Choosing Diager Industrie means choosing a committed, attentive partner, fully focused on sustainable efficiency.

Our teams support you over the long term,
with close technical assistance,
to ensure the success of your industrial projects.



YOUR PARTNER IN FINE BORING FOR THE MOST DEMANDING INDUSTRIES

At DIAGER INDUSTRIE, we offer boring tools in various technologies and designs, engineered to meet the most stringent requirements of industrial sectors such as automotive and aerospace. **Our commitment: to guarantee you performance, reliability, and technical excellence at every stage of your machining process.**



A RANGE OF REAMERS FOR MICROMETRIC PRECISION

Our solutions are designed to meet your exact requirements, whether it concerns strict or more relaxed dimensional or geometric tolerances, the required surface finish quality, or economic aspects such as cycle time or tooling cost per part. All while ensuring reliable and capable results in production, from small to large series. Every machined part reflects our commitment to quality.



INNOVATION AT THE HEART OF OUR SOLUTIONS

Thanks to dynamic R&D, we integrate the latest technologies: optimized geometries, advanced coatings... For you, this means higher performance, reduced wear, and maximized productivity.



CUSTOM BORING SOLUTIONS, TAILORED TO YOUR CHALLENGES

Every application is unique: we develop custom tools for your complex parts, difficult materials, or specific production constraints.



RELIABILITY, DURABILITY, PROFITABILITY

Our tools are designed to last, reduce your cycle times and machining costs, while maintaining consistent quality.

The range DiaReam

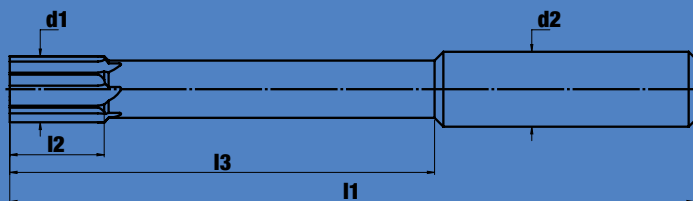
**DiaReam, A WIDE RANGE OF HIGH-PERFORMANCE REAMERS
FOR AN OPTIMIZED CHOICE ACCORDING TO THE APPLICATION**

Selection guide

DiaReam	High-precision solid carbide reamers	Universal solid carbide reamers	Reamers with fixed brazed inserts	Reamers with adjustable brazed inserts (expandable)	Expandable ring	Reamers with adjustable pad and blade	Stepped reamers, solid, brazed or screwed inserts
	2901 > 2903	2904 > 2907	2908 > 2910 2914 > 2915	2911 > 2913 2916 > 2917	2918 > 2921	Spécial	Spécial
PRODUCT							
Level of precision	IT7-8	IT7-9	IT7-8	IT6-7	IT6-7	IT5-7	IT7-10
Diameters Ø	3-20	3.765-20.250	5.6-60.5	5.6-60.5	50.6-205.6	8-200	20-200
Range	Semi-standard	standard and semi-standard	Semi-standard and special	Semi-standard and special	Semi-standard and special	Body = special Insert = semi-special	Body = special Insert = ISO
Dimensional / geometric precision quality	★★★★☆	★★★☆☆	★★★★	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆	★★★☆☆
Surface finish quality	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆	★★★☆☆
Tooling cost per part	★★★★★☆☆	★★★★★☆☆	★★★★	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆
Productivity (cycle time)	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆	★★★☆☆	★★★☆☆
Ease of implementation	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆	★★★☆☆	★★★★★☆☆
Initial investment savings (body + attachment + adjustment means)	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆	★★★★★☆☆	★★★☆☆	★★★☆☆
Reconditioning	✓	✓	✓	✓	✓	Body only	Body only
> FIND OUR PRODUCTS ON PAGE	8	9-10	11-13	12-14	15-16-17	22	22



HIGH-PRECISION SOLID CARBIDE



* without internal coolant

	d1 Ø	d2 Ø	l1	l2	l3	Z
Serie L	Ø3 – Ø4*	4	60	12	32	4
	Ø4.01 – Ø6	6	76	12	40	6
	Ø6.01 – Ø8	8	101	16	65	6
	Ø8.01 – Ø10	10	106	16	68	6
	Ø10.01 – Ø12	12	130	20	85	6
	Ø12.01 – Ø14	12	150	20	85	6
	Ø14.01 – Ø16	16	150	20	100	6
	Ø16.01 – Ø18	16	150	20	100	6
	Ø18.01 – Ø20	20	160	20	110	6
P	Low-carbon, low alloyed steels					
	High alloyed steels, tool steels, hardness <45 HRC					
M	Austenitic stainless steels					
	Martensitic stainless steels					
K	Gray or lamellar cast irons					
	Spheroidal graphite and ductile cast irons					
N	Non-ferrous metals, copper, aluminum alloys with Si <7%					
	Aluminum alloys with Si >7%					
S	Heat resistant alloys steel (base nickel, cobalt or chrome)					
	Titanium alloys, Titanium					
H	Heat-treated steels, HRC >45					

GEOMETRY

2901L	2902L	2903L
Through hole, straight flute	Through hole, straight flute	Through hole, left-hand helix
GS01	GS01	GS07
GS02	GS02	GS07
GS02	GS02	GS07
GS02	GS02	GS07
GS01	GS01	GS07
GS01	GS01	GS07
GS01	GS01	GS07
GS03	GS03	GS07
GS02	GS02	GS02
GS02	GS02	GS02
GS02	GS02	GS07



Uncoated carbide K10	Coated carbide AlCr	Coated carbide AlTiSi1	Coated carbide AlTiSi4
UWVK01	CWPK01	CWMP01	CWSM01
Grades			

■ Main application □ Additional application

Boring to be performed : Ø6.10 H7, 42CD4 (steel), length 45 mm, blind hole

Reference : 2901L- Ø6.10H7 - C - GS01 - CWPK01

Series	2901L
Ø Reamer diameter	6.10H7
Shank type*	C (Cylindrical)
Geometry	GS01
Cutting grade	CWPK01

Other required geometry (with end cutting, radius, etc.): to be specified
Reconditionable by us (re-sharpenable)

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Technical information Page 24-25

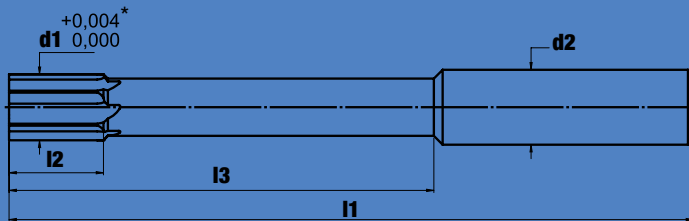
Cutting conditions Page 28-31

**C (Cylindrical) - W (Weldon) - N (Whistle notch)



CARBURE MONOBLOC UNIVERSAL

*Tolerance for uncoated reamers
Consult us to properly target the diameter of the reamer,
particularly in function of the type of coating.



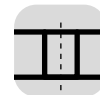
Intermediate reamer diameters produced: every 0.005 mm.

2904S

2905S

Through
hole,
straight
flute

Through
hole, left-
hand helix



Serie S	d1 Ø	d2 Ø	l1	l2	l3	Z	
	3.765 - 4.250	6	75	12	47	4	
	4.255 - 4.750	6	80	12	52	4	
	4.755 - 6.250	6	86	16	56	4	
	6.255 - 6.750	8	86	16	56	4	
	6.755 - 8.250	8	86	16	56	6	
	8.255 - 10.250	10	92	20	60	6	
	10.255 - 12.250	12	95	20	60	6	
	12.255 - 14.250	14	115	25	80	6	
	14.255 - 16.250	16	130	30	85	6	
	16.255 - 18.250	18	140	30	95	6	
	18.255 - 20.250	20	140	30	95	6	
P	Steels						GEOMETRY
M	Stainless steels						
K	Cast irons						
N	Non-ferrous materials						
S	Refractory alloyed steels (base nickel, cobalt or chrome) and Titanium						
H	Heat-treated steels >50 HRC						



Uncoated carbure

Coated carbide

Coated carbide

Coated carbide

UWVK01

CWPK01

CWMP01

CWSM01

Grades

GU01 (universel)

■ Main application □ Additional application

Boring to be performed : Ø10 H7, XC48 (steel), length 30 mm, through hole, through-spindle coolant

Reference : 2904S - Ø10.005 - C - GU01 - CWPK01

Series	2904S
Ø Reamer diameter	10.005
Shank type*	C (Cylindrical)
Geometry	GU01
Cutting grade	CWPK01

Standard product partly stocked uncoated (short lead time)
Reconditionable by us (re-sharpenable)

Attachments **Page 18-21**

Technical information **Page 24-25**

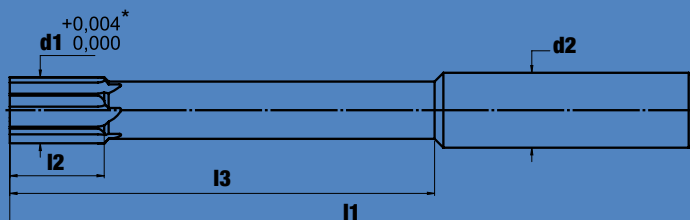
Cutting conditions **Page 28-31**

**C (Cylindrical) - W (Weldon) - N (Whistle notch)



UNIVERSAL SOLID CARBIDE

*Tolerance for uncoated reamers
Consult us to properly target the diameter of the reamer,
particularly in function of the type of coating.



Intermediate reamer diameters produced: every 0.005 mm.

2906S

Blind hole,
straight
flute



2907S

Blind hole,
straight
flute, end
cutting



Serie S	d1 Ø	d2 Ø	l1	l2	l3	Z	
	3.61 - 6.10	6	80	15	55	4	
	6.11 - 8.10	8	90	20	60	4	
	8.11 - 10.10	10	90	20	60	5	
	10.11 - 12.10	12	90	20	60	5	
	12.10 - 14.10	14	105	25	75	5	
	14.11 - 16.10	16	105	25	75	5	
	16.11 - 18.10	18	120	30	85	5	
	18.11 - 20.10	20	130	30	95	5	
P	Steels						GEOMETRY
M	Stainless steels						
K	Cast irons						
N	Non-ferrous materials						
S	Refractory alloyed steels (base nickel, cobalt or chrome) and Titanium						
H	Heat-treated steels >50 HRC						



GU01 (universal)

Uncoated carbide	Coated carbide	Coated carbide	Coated carbide	Grades
UWVK01	CWPK01	CWMP01	CWSM01	
☐	☒	☐	☐	
☐	☐	☒	☐	
☐	☒	☐	☐	
☒	☐	☐	☐	

■ Main application □ Additional application

Boring to be performed : Ø10 H7, length 40 mm, XC48 (steel), blind hole

Reference : 2906S - Ø10.010 - C - GU01 - CWPK01

Series	2906S
Ø Reamer diameter	10.010
Shank type*	C (Cylindrical)
Geometry	GU01
Cutting grade	CWPK01

Standard product partly stocked uncoated (short lead time)
Reconditionable by us (re-sharpenable)

Attachments **Page 18-21**

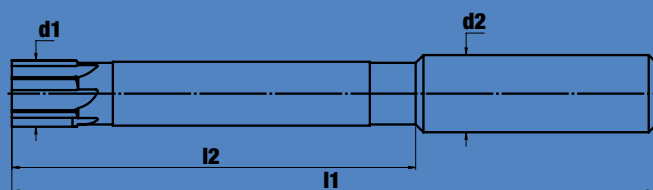
Technical information **Page 24-25**

Cutting conditions **Page 28-31**

**C (Cylindrical) - W (Weldon) - N (Whistle notch)



STEEL BODY WITH FIXED BRAZED INSERTS



Serie	d1 Ø	d2 Ø	l1	l2	Z	
L	5.600-8.899	12	130	85	4	
S			85	40		
L	8.900-9.899	12	130	85	6	
S			95	50		
L	9.900-15.899	12	160	115	6	
S			95	50		
L	15.900-18.899	16	180	130	6	
S			100	50		
L	18.900-25.899	20	200	140	6	
S			120	60		
L	25.900-32.599	25	210	150	6	
S			135	75		
L	32.600-40.599	25	210	150	8	
S			135	75		
L	40.600-50.599	25	210	150	8	
S			135	75		
L	50.600-60.599	32	210	150	8	
S			135	75		
P	Low-carbon, low alloyed steels					GEOMETRY SEE OTHERS POSSIBLE CHOICES IN PAGE 30
	High alloyed steels, tool steels, hardness <45 HRC					
M	Austenitic stainless steels					
	Martensitic stainless steels					
K	Gray or lamellar cast irons					
	Spheroidal graphite and ductile cast irons					
N	Non-ferrous metals, copper, aluminum alloys with Si <7%					
	Aluminum alloys with Si >7%					
S	Heat resistant alloys steel (base nickel, cobalt or chrome)					
	Titanium alloys, Titanium					
H	Heat-treated steels, HRC >45					

2908L	2909L	2910L
2908S	2909S	2910S

Blind hole,
straight
fluteBlind hole,
straight
fluteWithout
internal
coolant

Long serie

Short serie



Uncoated carbide	Coated carbide	Coated carbide	Coated carbide	Coated carbide	Uncoated cermet	Coated cermet	PCD	CBN
UWVK02	CWPK02	CWMP02	CWSM02	UCPK02	CCPK02	DIN01	BOH01	Grades
☐	☒	☐	☐	☒	☐	☐	☐	
☐	☒	☐	☐	☒	☐	☐	☐	
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☒ Main application ☐ Additional application

Boring to be performed : Ø14.05 H7, length 60 mm, in XC48 (steel), through hole, through-spindle coolant

Reference : 2909L - Ø14.05H7 - C - GB01 - UCPK02

Series	2909L
Ø Reamer diameter	14.05H7
Shank type*	C (Cylindrical)
Geometry	GB01
Cutting grade	UCPK02

Other required geometries (radius, specific geometry, ...) or end cutting to be specified
Reconditionable by us

Attachments **Page 18-21**

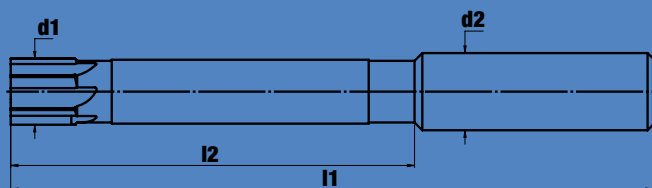
Technical information **Page 24-25**

Cutting conditions **Page 28-31**

*C (Cylindrical) - W (Weldon) - N (Whistle notch)

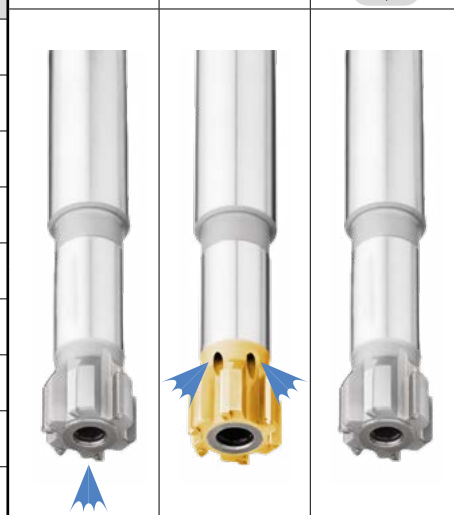


STEEL BODY WITH ADJUSTABLE BRAZED INSERTS (EXPANDABLE)



Serie	d1 Ø	d2 Ø	l1	l2	Z	
L	5.600-8.899	12	130	85	4	
S			85	40		
L	8.900-9.899	12	130	85	6	
S			95	50		
L	9.900-15.899	12	160	115	6	
S			95	50		
L	15.900-18.899	16	180	130	6	
S			100	50		
L	18.900-25.899	20	200	140	6	
S			120	60		
L	25.900-32.599	25	210	150	6	
S			135	75		
L	32.600-40.599	25	210	150	8	
S			135	75		
L	40.600-50.599	25	210	150	8	
S			135	75		
L	50.600-60.599	32	210	150	8	
S			135	75		
P	Low-carbon, low alloyed steels					GEOMETRY SEE OTHERS POSSIBLE CHOICES IN PAGE 30
	High alloyed steels, tool steels, hardness <45 HRC					
M	Austenitic stainless steels					
	Martensitic stainless steels					
K	Gray or lamellar cast irons					
	Spheroidal graphite and ductile cast irons					
N	Non-ferrous metals, copper, aluminum alloys with Si <7%					
	Aluminum alloys with Si >7%					
S	Heat resistant alloys steel (base nickel, cobalt or chrome)					
	Titanium alloys, Titanium					
H	Heat-treated steels, HRC >45					

2911L	2912L	2913L
2911S	2912S	2913S
Blind hole, straight flute	Through hole, straight flute	Straight flute without internal coolant



Long serie

Short serie



Carbure No revêtu	Coated carbide	Coated carbide	Coated carbide	Cermet No revêtu	Cermet revêtu	PCD	CBN
UWVK02	CWPK02	CWMP02	CWSM02	UCPK02	CCPK02	DIN01	BOH01
☐	☒	☐	☐	☒	☐	☐	☐
☐	☒	☐	☐	☒	☐	☐	☐
☐	☐	☒	☐	☐	☐	☐	☐
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☐	☐	☐	☐	☐	☐	☐	☒

Grades

☒ Main application
 ☐ Additional application

Boring to be performed : Ø12.5 H6, length 60 mm, GGG60 (cast iron), through hole, through-spindle coolant

Reference : 2912L - Ø12.5 H6 - C - GB01 - UCPK02

Series	2912L
Ø Reamer diameter	12.5H6
Shank type*	C (Cylindrical)
Geometry	GB01
Cutting grade	UCPK02

Other required geometries (radius, specific geometry, ...) or end cutting to be specified

Reconditionable by us

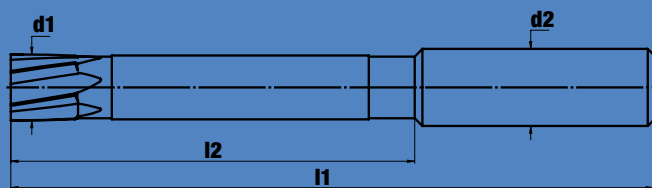
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*C (Cylindrical) - W (Weldon) - N (Whistle notch)



STEEL BODY WITH FIXED BRAZED INSERTS

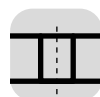
LEFT-HAND HELIX FLUTES



Serie	d1 Ø	d2 Ø	l1	l2	Z	
L	7.900 - 9.899	12	130	85	4	
S			85	40		
L	9.900 - 11.899	12	160	115	4	
S			95	50		
L	11.900 - 15.899	12	160	115	6	
S			95	50		
L	15.900 - 18.899	16	180	130	6	
S			100	50		
L	18.900 - 25.899	20	200	140	6	
S			120	60		
L	25.900 - 32.599	25	210	150	6	
S			135	75		
L	32.600 - 40.599	25	210	150	8	
S			135	75		
L	40.600 - 50.599	25	210	150	8	
S			135	75		
L	50.600 - 60.599	32	210	150	8	
S			135	75		
P	Low-carbon, low alloyed steels					GEOMETRY SEE OTHERS POSSIBLE CHOICES IN PAGE 30
	High alloyed steels, tool steels, hardness <45 HRC					
M	Austenitic stainless steels					
	Martensitic stainless steels					
K	Gray or lamellar cast irons					
	Spheroidal graphite and ductile cast irons					
N	Non-ferrous metals, copper, aluminum alloys with Si <7%					
	Aluminum alloys with Si >7%					
S	Heat resistant alloys steel (base nickel, cobalt or chrome)					
	Titanium alloys, Titanium					
H	Heat-treated steels, HRC >45					

2914L **2915L**
2914S **2915S**

Through
hole, left-
hand helix



Left-hand
helix without
internal
coolant



Long serie

Short serie



Uncoated carbide	Coated carbide	Coated carbide	Coated carbide	Coated carbide	Uncoated cermet	Cermet revêtu	PCD	CBN
UWNK02	CWPK02	CWMP02	CWSM02	UCPK02	CCPK02	DIN01	BOH01	
☐	☒	☐	☐	☒	☐	☐	☐	
☐	☒	☐	☐	☐	☒	☐	☐	
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☐	☐	☐	☐	☐	☐	☐	☐	

☒ Main application ☐ Additional application

Boring to be performed : **Ø8.1 ±0.02, length 20 mm, in 304L (stainless steel), through hole, through-spindle coolant**

Reference : **2914S - Ø8.1+/-0.02 - C - GB07 - CWMP02**

Series	2914S
Ø Reamer diameter	8.1+/-0.02
Shank type*	C (Cylindrical)
Geometry	GB07
Cutting grade	CWMP02

Other required geometries (radius, specific geometry, ...) or end cutting to be specified
 Reconditionable by us

Attachments **Page 18-21**

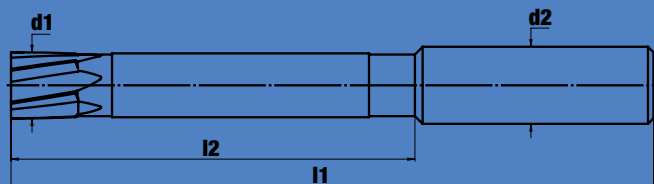
Technical information **Page 24-25**

Cutting conditions **Page 28-31**

*C (Cylindrical) - W (Weldon) - N (Whistle notch)



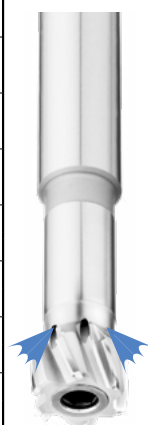
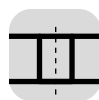
STEEL BODY WITH BRAZED ADJUSTABLE INSERTS (EXPANDABLE) LEFT-HAND HELIX FLUTES



Serie	d1 Ø	d2 Ø	l1	l2	Z	
L	7.900-9.899	12	130	85	4	
S			85	40		
L	9.900-11.899	12	160	115	6	
S			95	50		
L	11.900-15.899	12	160	115	6	
S			95	50		
L	15.900-18.899	16	180	130	6	
S			100	50		
L	18.900-25.899	20	200	140	6	
S			120	60		
L	25.900-32.599	25	210	150	6	
S			135	75		
L	32.600-40.599	25	210	150	8	
S			135	75		
L	40.600-50.599	25	210	150	8	
S			135	75		
L	50.600-60.599	32	210	150	8	
S			135	75		
P	Low-carbon, low alloyed steels					GEOMETRY SEE OTHERS POSSIBLE CHOICES IN PAGE 30
	High alloyed steels, tool steels, hardness <45 HRC					
M	Austenitic stainless steels					
	Martensitic stainless steels					
K	Gray or lamellar cast irons					
	Spheroidal graphite and ductile cast irons					
N	Non-ferrous metals, copper, aluminum alloys with Si <7%					
	Aluminum alloys with Si >7%					
S	Heat resistant alloys steel (base nickel, cobalt or chrome)					
	Titanium alloys, Titanium					
H	Heat-treated steels, HRC >45					

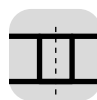
2916L
2916S

Through
hole, left-
hand helix
flute



2917L
2917S

Without
internal
coolant



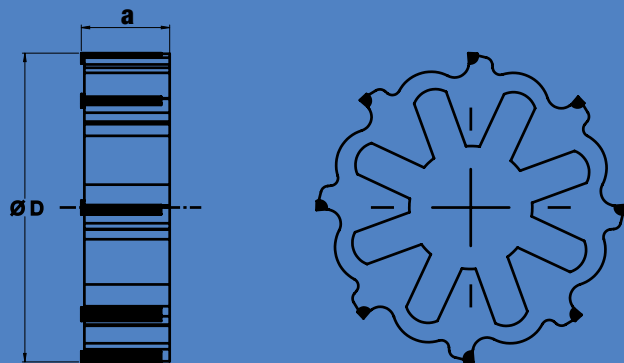
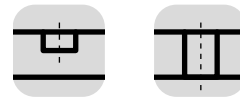
Long serie

Short serie



|--|

STEEL EXPANDABLE RING WITH BRAZED INSERTS


2918
**Blind and through hole,
straight flute**


Ø D	a	Z	
50.600-79.599	18.5	6	
79.600-100.599	18.5	8	
110.66-110.599	18.5	10	
110.6-205.599	18.5	12	



	Uncoated carbide	Coated carbide	Coated carbide	Coated carbide	Uncoated cermet	Coated cermet	PCD	CBN	
	UWNK02	CWPK02	CWMP02	CWSM02	UCPK02	CCPK02	DIN01	BOH01	Grades
GB01	☐	☒	☐		☒	☐			
GB02		☒	☐		☒	☐			
GB02			☒	☐					
GB02			☒	☐					
GB01	☐	☒							
GB01	☐	☒			☒	☐			
GB01	☒				☐		☒		
GB02	☒				☐		☒		
GB02	☐		☐	☒					
GB03	☐		☐	☒					
GB02	☐	☒						☒	

☒ Main application ☐ Additional application

 Boring to be performed : **Ø80H7, length 60 mm, FGL300, through hole, through-spindle coolant**

 Reference : **2918 - Ø80H7 - GB01 - CWPK02**

Serie	2918
Ø Reamer diameter	80H7
Geometry	GB01
Cutting grade	CWPK02

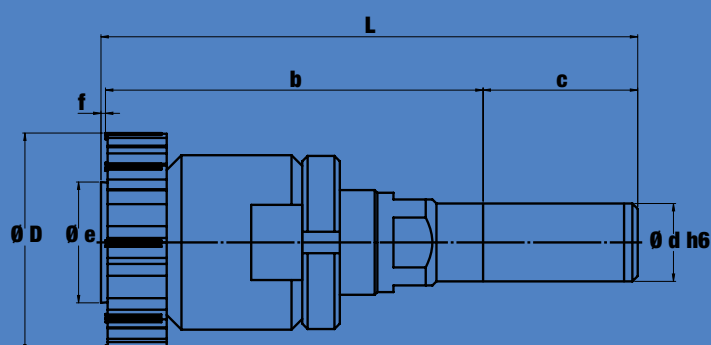
 Other required geometries (radius, specific geometry, ...) or end cutting to be specified
 Reconditionable by us

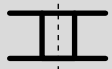
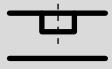
 Attachments **Page 18-21**

 Technical information **Page 24-25**

 Cutting conditions **Page 28-31**


EXPANDABLE RING – TOOL BODY

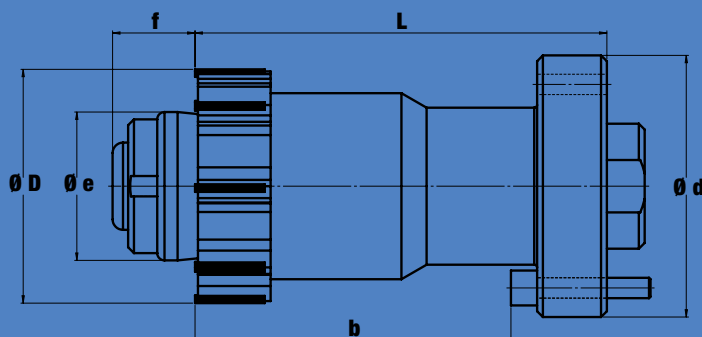


Serie	 Ref	 Ref	Ø D	L	b	c	Ø e	f	Ø d h6
S	2919A-S	2920A-S	50.600 – 60.599	166.5	105	60	27.8	1.5	20
L	2919A-L	2920A-L		275.5	214	60	27.8	1.5	20
S	2919B-S	2920B-S	60.600-70.599	166.5	105	60	37	1.5	25
L	2919B-L	2920B-L		298.5	237	60	37	1.5	25
S	2919C-S	2920C-S	70.600-79.599	166.5	105	60	37	1.5	25
L	2919C-L	2920C-L		298.5	237	60	37	1.5	25
S	2919D-S	2920D-S	79.600-90.599	166.5	105	60	53.2	1.5	32
L	2919D-L	2920D-L		301.5	240	60	53.2	1.5	32
S	2919E-S	2920E-S	90.600-100.599	166.5	105	60	53.2	1.5	32
L	2919E-L	2920E-L		301.5	240	60	53.2	1.5	32
S	2919F-S	2920F-S	100.600-110.599	166.5	105	60	70.4	1.5	32
L	2919F-L	2920F-L		301.5	240	60	70.4	1.5	32
S	2919G-S	2920G-S	110.600-115.599	166.5	105	60	77.4	1.5	32
L	2919G-L	2920G-L		301.5	240	60	77.4	1.5	32
S	2919H-S	2920H-S	115.600-125.599	166.5	105	60	83.4	1.5	32
L	2919H-L	2920H-L		301.5	240	60	83.4	1.5	32
S	2919I-S	2920I-S	125.600-132.599	166.5	105	60	87.4	1.5	32
L	2919I-L	2920I-L		301.5	240	60	87.4	1.5	32
S	2919J-S	2920J-S	132.600-139.599	166.5	105	60	87.4	1.5	32
L	2919J-L	2920J-L		301.5	240	60	87.4	1.5	32
S	2919K-S	2920K-S	139.600-145.599	166.5	105	60	99.4	1.5	32
L	2919K-L	2920K-L		301.5	240	60	99.4	1.5	32
S	2919L-S	2920L-S	145.600-150.599	166.5	105	60	104.4	1.5	32
L	2919L-L	2920L-L		301.5	240	60	104.4	1.5	32

Attachments, see Pages 18-21



EXPANDABLE RING – RADIAL/ANGULAR ADJUSTABLE TOOL BODY



Ref	Ø D	L	b	Ø e	f	Module Ø d
2921A	50.600 – 60.599	118	89	30.3	22.5	100
2921B	60.600 – 70.599	126	97	40	24.5	100
2921C	70.600 – 79.599	126	97	40	24.5	100
2921D	79.600 – 90.599	126	97	56.2	28.5	100
2921E	90.600 – 100.599	126	97	56.2	28.5	100
2921F	100.600 – 110.599	157	-	73.4	35.5	100
2921G	110.600 – 115.599	157	-	80.4	35.5	100
2921H	115.600 – 125.599	157	-	86.4	35.5	100
2921I	125.600 – 132.599	157	-	90.4	35.5	100
2921J	132.600 – 139.599	157	-	90.4	35.5	100
2921K	139.600 – 145.599	157	-	101.1	35.5	100
2921L	145.600 – 155.599	157	-	107.1	35.5	100
2921M	155.600 – 165.599	157	-	107.4	49.5	100
2921N	165.600 – 175.599	157	-	117.4	49.5	100
2921O	175.600 – 185.599	157	-	127.4	49.5	100
2921P	185.600 – 195.599	157	-	137	49.5	100
2921Q	195.600 – 205.599	157	-	145.4	49.5	100

Spindle attachments, see Pages 18-21



AIM FOR EXCELLENCE!



RADIAL/ANGULAR ADJUSTABLE ATTACHMENT

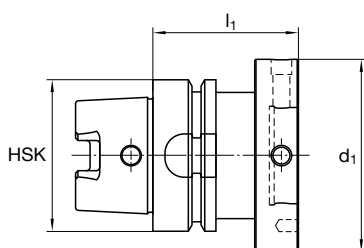
HSK-A	d1	l1	Ref
40	60	55	M_HSK-A40_60_55
50	60	60	M_HSK-A50_60_60
50	80	60	M_HSK-A50_80_60
50	70	60	M_HSK-A50_70_60
63	60	60	M_HSK-A63_60_60
63	80	60	M_HSK-A63_80_60
63	70	60	M_HSK-A63_70_60
63	100	65	M_HSK-A63_100_65
63	117	65	M_HSK-A63_117_65
80	60	50	M_HSK-A80_60_50
80	80	60	M_HSK-A80_80_60
80	70	60	M_HSK-A80_70_60
80	100	65	M_HSK-A80_100_65
80	117	65	M_HSK-A80_117_65
100	60	55	M_HSK-A100_60_55
100	70	55	M_HSK-A100_70_55
100	70	60	M_HSK-A100_70_60
100	70	80	M_HSK-A100_70_80
100	80	45	M_HSK-A100_80_45
100	80	55	M_HSK-A100_80_55
100	80	85	M_HSK-A100_80_85
100	80	130	M_HSK-A100_80_130
100	100	65	M_HSK-A100_100_65
100	100	170	M_HSK-A100_100_170
100	117	65	M_HSK-A100_117_65
100	140	75	M_HSK-A100_140_75

BT	d1	d2	l1	M	Ref
40	60	55	30	M 16	M_BT40_60_55_30
40	80	65	40	M 16	M_BT40_80_65_40
40	80	100	40	M 16	M_BT40_80_100_40
40	100	60	50	M 16	M_BT40_100_60_50
40	70	55	35	M 16	M_BT40_70_55_35
40	60	60	30	M 24	M_BT40_60_60_30
50	60	70	30	M 24	M_BT50_60_70_30
50	70	70	35	M 24	M_BT50_70_70_35
50	80	70	40	M 24	M_BT50_80_70_40
50	100	70	50	M 24	M_BT50_100_70_50
50	117	80	60	M 24	M_BT50_117_80_60
50	140	80	80	M 24	M_BT50_140_80_80

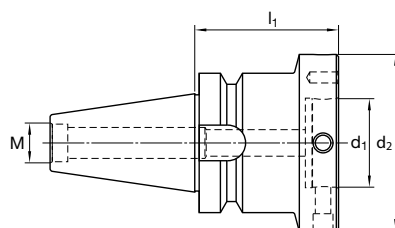
SK-SA	d1	l1	M	Ref
40	60	50	M 16	M_SK40_60_50
40	70	50	M 16	M_SK40_70_50
40	80	55	M 16	M_SK40_80_55
40	100	60	M 16	M_SK40_100_60
40	140	60	M 16	M_SK40_140_60
50	60	50	M 24	M_SK50_60_50
50	70	50	M 24	M_SK50_70_50
50	80	50	M 24	M_SK50_80_50
50	100	60	M 24	M_SK50_100_60
50	117	60	M 24	M_SK50_117_60
50	140	60	M 24	M_SK50_140_60



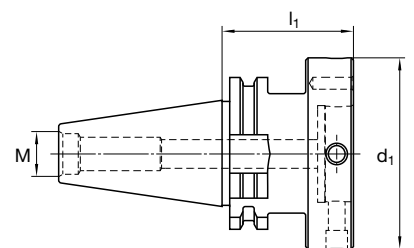
HSK-A



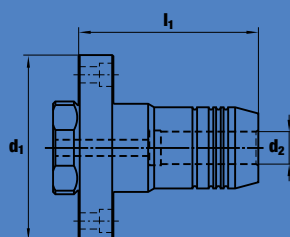
BT



SK-SA

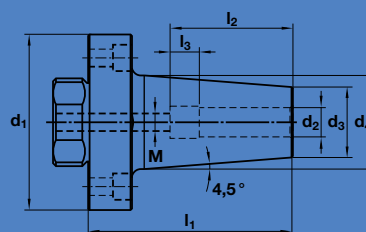


RADIAL/ANGULAR ADJUSTABLE ATTACHMENT – HYDRAULIC AND SHRINK-FIT CHUCK



**Module for
hydraulic chuck**

d1	d2	l1	Ref.
70	16	50	ModH-70-16-50
80	12	77.5	ModH-80-12-77.5
80	16	82.5	ModH-80-16-82.5
80	20	82.5	ModH-80-20-82.5
80	25	90	ModH-80-25-90
100	12	90	ModH-100-12-90
100	25	100	ModH-100-25-100
100	32	103	ModH-100-32-103
117	32	103	ModH-117-32-103
70	5/8"	50	ModH-70-5/8-50
80	1/2"	77.5	ModH-80-1/2-77.5
80	5/8"	82.5	ModH-80-5/8-82.5
80	3/4"	82.5	ModH-80-3/4-82.5
80	1"	90	ModH-80-1-90
100	1/2"	90	ModH-100-1/2-90
100	5/8"	90	ModH-100-5/8-90
100	3/4"	90	ModH-100-3/4-90
100	1"	100	ModH-100-1-100
100	1 1/4"	103	ModH-100-1 1/4-103
117	1 1/4"	103	ModH-117-1 1/4-103

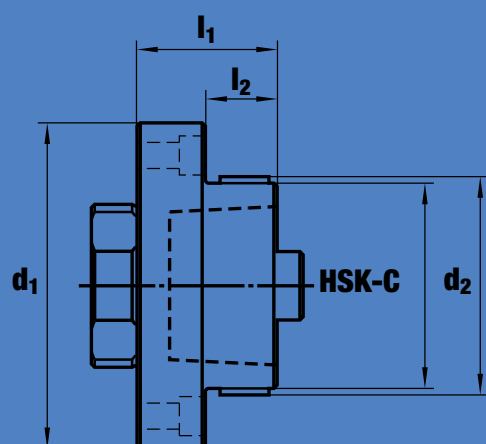


**Module for
shrink-fit chuck**

d1	d2	d3	d4	l1	l2	l3	M	Ref.
60	6	21	27	70	36	10	M 5	ModF-60-6-70
60	8	21	27	70	36	10	M 6	ModF-60-8-70
60	10	24	32	70	42	10	M 8x1	ModF-60-10-70
60	12	24	32	70	47	10	M 10x1	ModF-60-12-70
60	14	27	34	70	47	10	M 10x1	ModF-60-14-70
70	14	27	34	75	47	10	M 10x1	ModF-70-14-75
70	16	27	34	75	50	10	M 12x1	ModF-70-16-75
70	16	27	34	175	50	10	M 12x1	ModF-70-16-175
80	6	21	27	70	36	10	M 5	ModF-80-6-70
80	8	21	27	70	36	10	M 6	ModF-80-8-70
80	10	24	32	70	42	10	M 8x1	ModF-80-10-70
80	12	24	32	70	47	10	M 10x1	ModF-80-12-70
80	14	27	34	75	47	10	M 10x1	ModF-80-14-75
80	16	27	34	75	50	10	M 12x1	ModF-80-16-75
80	18	33	42	80	50	10	M 12x1	ModF-80-18-80
80	20	33	42	80	52	10	M 16x1	ModF-80-20-80
80	20	33	42	175	52	10	M 16x1	ModF-80-20-175
80	25	44	53	80	58	10	M 16x1	ModF-80-25-80
80	32	44	53	80	61	10	M 16x1	ModF-80-32-80
100	25	44	53	80	58	10	M 16x1	ModF-100-25-80
100	32	44	53	80	61	10	M 16x1	ModF-100-32-80

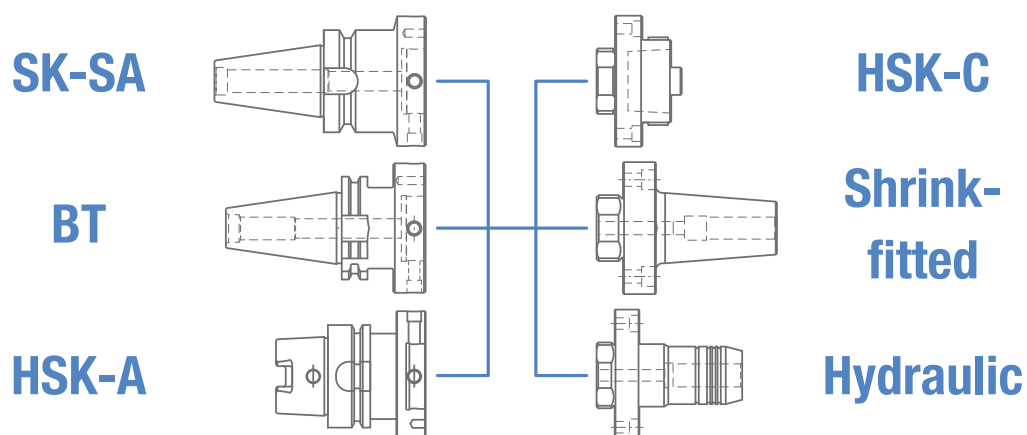


RADIAL/ANGULAR ADJUSTABLE ATTACHMENT – HSK-C CHUCK



Module for HSK-C chuck

HSK-C	d1	d2	l1	l2	Ref.
32	60	37	26	13	ModM-32-26
40	70	45	30	15	ModM-40-30
50	80	55	35	18	ModM-50-35
63	100	70	43	22	ModM-63-43
80	117	87	50	29	ModM-80-50
80	100	87	90	69	ModM-80-90
100	140	110	70	42	ModM-100-70
100	100	110	110	110	ModM-100-110

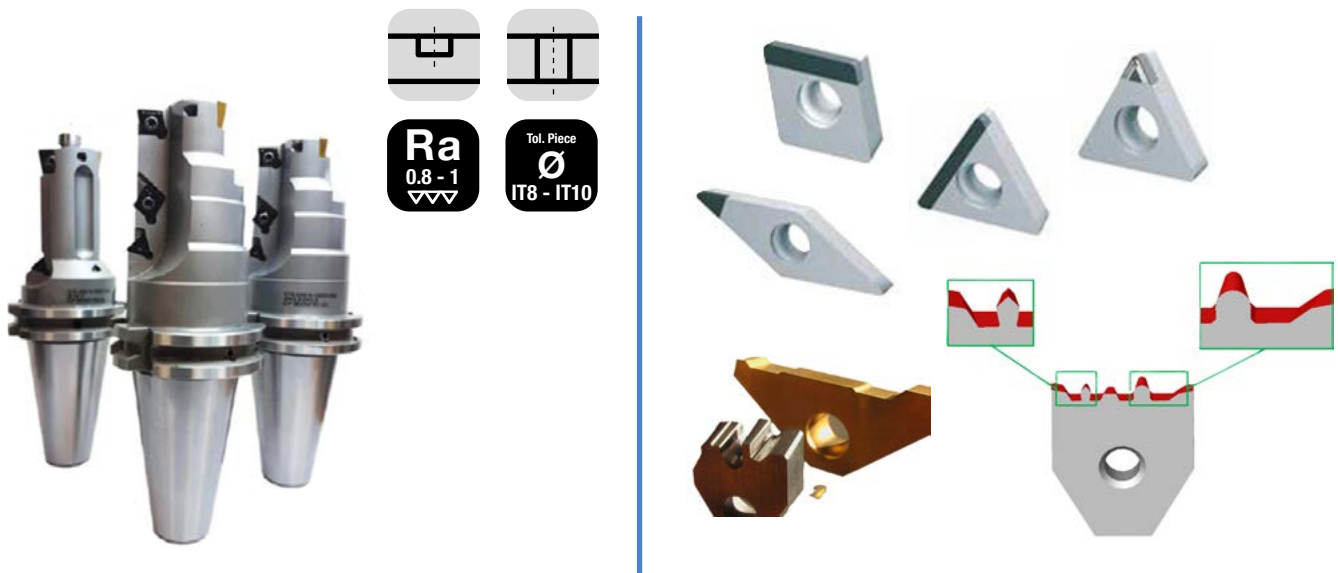


Adjustable chuck system



OTHER BORING TOOL TECHNOLOGIES

1. SPECIAL ISO INSERT BORING BARS (WITH CARTRIDGE OR DIRECT MOUNTING)



Special boring tools
with screwed or brazed inserts
(carbide or PCD). [Please contact us.](#)

Wide range of ISO inserts PCD/CBN.
ISO carbide/cermet inserts
from the carbide supplier of your choice.
[Please contact us.](#)

2. ADJUSTABLE BLADE REAMERS, WITH CARBIDE, CERMET, OR PCD PADS



Ra
0.2 - 0.8
▽▽▽

Tol. Piece
Ø
IT5 - IT7

Very high-precision adjustable blade reamers.
Wide range of carbide, cermet, or PCD blades
with geometry tailored to your applications. [Please contact us.](#)

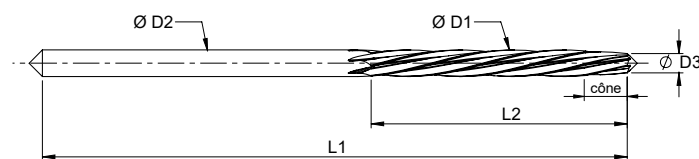


3. SPECIAL REAMERS



Special reamers, stepped solid or brazed inserts (carbide, cermet, or PCD). [Please contact us.](#)

4. HAND REAMERS, HSS



Hand reamers, American type, Paris style, tapered...
HSS reamers. [Please contact us.](#)

ADJUSTMENT PROCEDURE

ADJUSTABLE (EXPANDABLE) REAMERS

BASIC PRINCIPLES

> The solid carbide and brazed insert reamers are delivered at the ordered nominal diameter and tolerances.

- > Solid carbide = $\frac{2}{3}$ of tolerance
- > Expandable = $\frac{1}{2}$ of tolerance

We recommend measuring the boring and, if necessary, the reamer.



MEASUREMENT

> The reamer diameter can be checked with a micrometer. For an accurate measurement, the two measured edges must be diametrically opposite (they are marked with a dot).

> The reamer should be measured as close as possible to the tip, as the back taper may affect the measurement.

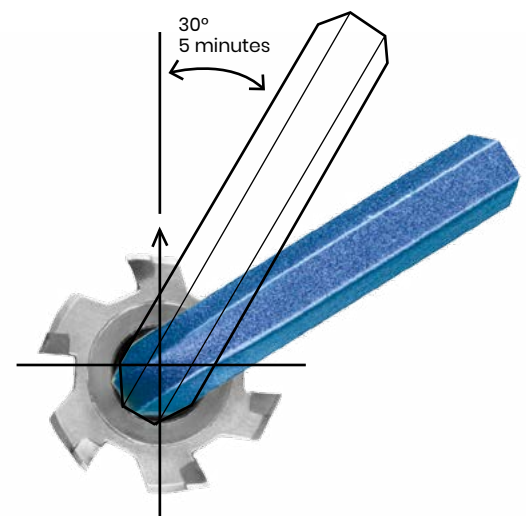
Be careful not to damage the lead angle (cutting edge).



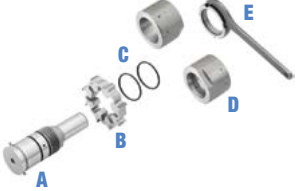
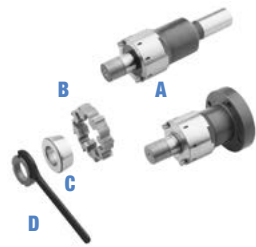
EXPANSION

> To adjust the expandable reamer, turn the screw clockwise with the key until the desired diameter is reached. 30° (i.e., 5 minutes) corresponds to a change of ± 6 to 12 microns depending on the reamer diameter.

> This adjustment should only be made to compensate for cutting edge wear. If the diameter is larger than the desired size, fully loosen the screw and repeat the operation.



OPERATING INSTRUCTIONS

TYPE 2919 - 2920			TYPE 2921		
1	Clean each part thoroughly.	 A Tool holder B Cutting ring C O-ring D Sleeve E Key and adjusting nut	1	Clean each part thoroughly and grease the thread of the tool holder (A).	 A Tool holder with pin B Cutting ring C Boring ring D Tapered sleeve E Wrench and adjusting nut
2	Slide the cutting ring (B) onto the tapered part of the tool holder (A). The pins on the tool holder and the mark on the cutting ring (B) must be aligned.		2	Position the cutting ring (B) on the tool holder (A) (cutting part facing forward). The mark on the tool holder (A) and the mark on the boring ring (B) must be aligned.	
3	For minimum lubrication only (MQL): insert the O-ring (C) into both grooves.		3	Slide the tapered sleeve (D) onto the tool holder.	
4	Slide the sleeve (D) and the adjusting nut (E) onto the tool holder, lightly tightening the adjusting nut.		4	Lightly tighten the adjusting nut (E) by hand in the direction of the arrow (check the symbol on the nut).	
5	The lubrication hole closest to the mark on the sleeve (D) must be aligned with the cutting edge of the cutting ring (B).	2919 2920  2 with wrench 1 with wrench	5	The lubrication hole closest to the mark on the tool holder (A) must be aligned with the chip relief on the boring ring (B).	
6	Before tightening the adjusting nut (E), bring the slots of the cutting ring (B) into contact with the pins on the tool holder in the direction of rotation.		6	Before tightening the adjusting nut (E), bring the slots of the boring ring (B) into contact with the pins on the tool holder against the direction of rotation.	
7	Tighten the adjusting nut (E) to the middle of the diameter tolerance.		7	Tighten the adjusting nut (E) to the middle of the diameter tolerance.	

BASIC PRINCIPLES

Upon delivery, all fixed cutting rings and those mounted on a tool holder are ground to the hole diameter and tolerance. Expandable cutting rings = 1/2 of the tolerance. We recommend measuring the hole and the cutting ring only if necessary. Do not measure loose or unmounted cutting rings.

MEASURING

The diameter of the cutting ring can be checked with any commercially available micrometer. The two teeth to be measured are opposite each other at 180° and their positions are marked. Due to the taper of the teeth, the reamer should be measured near the entry. Care must be taken not to damage the entry geometry.

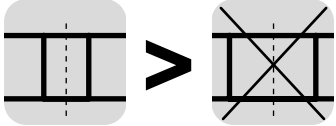
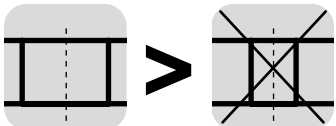
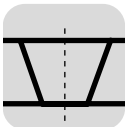
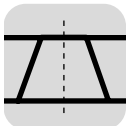
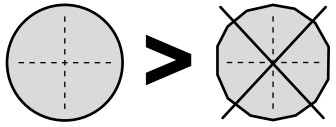
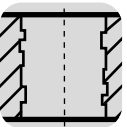
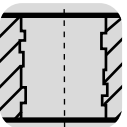
SIGNIFICANT

We recommend adjusting expandable boring rings to the middle of the tolerance. For spare parts requirements, [please contact us](#).



CORRECTIONS OF REAMING PROBLEMS

SOLVE YOUR PROBLEMS QUICKLY

REAMING PROBLEMS	
	Bore too big
	Bore too small
	Tapered downward
	Tapered upward
	Deformed with vibration marks or smearing
	Scratches, grooves ("feed marks")
	Poor surface finish
	Reamer is jamming



CAUSES

CORRECTIVE ACTIONS

- a) The reamer does not run true on the machine
- b) Buildup on the cutting edge
- c) Inappropriate lubricant
- d) The reamer is too large

- a) Correct the alignment, use an adjustable chuck or floating chuck
- b) Use a different lubricant, reduce cutting speed
- c) Adjust the lubricant (% oil, quality)
- c) Use a smaller reamer

- a) The reamer is too small
- b) The reamer is worn
- c) The lubricant is not appropriate
- d) Depth of cut is too small
- e) Cutting speed is too low or too high

- a) Use a smaller reamer or re-sharpen the current one to the correct diameter
- b) Recondition the reamer (sharpen or repair)
- c) Adjust the lubricant (% oil, quality, pressure...)
- d) Select the cut depth according to the given chart
- e) Select the cutting parameters according to the given chart

- a) Misalignment
- b) Back taper problem on the reamer

- a) Correct the alignment, use an adjustable chuck or floating chuck
- b) Reduce the feeds or use a geometry better suited to the application/material

- a) Misalignment

- a) Correct the alignment, use an adjustable or floating chuck

- a) Concentricity or alignment defect of the reamer in the machine
- b) Asymmetric cutting of the reamer
- c) Workpiece deformation due to clamping

- a) Correct the alignment, use an adjustable or floating chuck
- b) Improve drilling straightness, position, and quality
- c) Review the workpiece clamping

- a) The reamer does not run true in the machine
- b) Buildup on the edge or lands

- a) Use an adjustable chuck
- b) Reduce cutting speed or re-sharpen the reamer

- a) Worn or chipped edges
- c) The reamer does not run true on the machine
- d) Incorrect cutting conditions
- e) Poor coolant, chip clogging

- a) Recondition the tool
- c) Adjust the reamer using an adjustable chuck
- d) Refer to the cutting conditions in the catalog
- e) Increase lubrication pressure, use a through-spindle coolant reamer

- a) Reamer back taper is too small due to wear or loosening of the adjustment screw
- b) Cylindrical witness width is too large
- c) The lubricant is not appropriate

- a) Have the reamer repaired by the supplier
- b) Reamer geometry needs to be changed
- c) Adjust the lubricant (% oil, quality, pressure...)



CUTTING CONDITIONS

SOLID CARBIDE REAMERS

						Entry angles									
						Holes Throughs							Holes Blinds		
						Standard		Positioning accuracy	Surface roughness / feed	Surface roughness / feed	Chip control	Chip control	Chip-breaker	Standard	Positioning accuracy
						Straight flute	Left-hand helix	Straight flute	Straight flute	Left-hand helix	Straight flute	Left-hand helix	Straight flute	Straight flute	Straight flute
P	Unalloyed or low-carbon steel	1.0570 1.1730	St52-3 C45	-700 -800	S355J2G3 C45U	GS01	GS07	On request, please consult your DIAGER INDUSTRIE contact.					GS01		
		1.0715	9SMn28	-700	11SMn30	GS01	GS07						GS01		
		1.1191 1.7219	Ck45 26CrMo4	500-950	C45E 26CrMo4-2	GS01	GS07						GS01		
	Heat-treated steel	1.7225 1.8159	42CrMo4 51CrV4	500-950	42CrMo4 51CrV4	GS01	GS07						GS01		
	Pre-treated heat-treated steel	1.7225 1.6580	42CrMo4 30CrNiMo8	950-1400	42CrMo4 30CrNiMo8	GS02	GS07						GS02		
	Nitriding steel	1.8504 1.2344	34CrAl6 X40CrMoV5.1	950-1400 -900	34CrAl6 X40CrMoV5-1	GS02	GS07						GS02		
	Tool steel	1.2343 1.2379 1.2358 1.2080 1.2714 1.2311 1.2312 1.2316 1.2738	X38CrMoV5 1 X155CrVMo12 1 60CrMoV18-5 X210Cr12 55NiCrMoV7 40CrMnMo7 40CrMnNiMoS8.6 X38CrMo16 45CrMnNiMo8.6.4	950-1400 -950 850-1000 950-1400 1100-1350 -1100 -1150 -1100 950-1150	X37CrMoV5-1 X153CrMoV12-1 60CrMoV18-5 X210Cr12 55NiCrMoV7 40CrMnMo7 40CrMnNiMoS8-6 X38CrMo16 45CrMnNiMo8-6-4	GS02	GS07						GS02		
	M	Austenitic stainless steels	1.4301 1.4404 1.4571	X2CrNiMo17-12-2 X6CrNiMoTi17-12-2 X10CrNiMoTi18	500-950	X5CrNiMo18-10 X2CrNiMo17-12-2 X10CrNiMoTi18	GS02	GS07	On request, please consult your DIAGER INDUSTRIE contact.					GS02	
		Martensitic stainless steels	1.2709 1.4542 1.4568	X3NiCoMoTi18-9-5 X5CrNiCuNb16-4 X7CrNiAl17-7	800-1000	X3NiCoMoTi18-9-5 X5CrNiCuNb16-4 X7CrNiAl17-7	GS02	GS07						GS02	
	K	Gray cast iron	0.6025	GG25	100-400 (120-260 HB)	EN-GJ1-250	GS01	GS07	On request, please consult your DIAGER INDUSTRIE contact.					GS01	
Alloyed gray cast iron		0.6678	GGL-NiCr35 2	150-250 (160-230 HB)	EN-GJLA-XNiCr35-2	GS01	GS07	GS01							
Spheroidal graphite cast iron		0.7060 0.7070	GGG60 GGG70L	400-800 (120-310 HB)	EN-GJS-600-3 EN-GJS-700-2U	GS01	GS07	GS01							
Compacted graphite iron		0.8155	GTS55	350-700 (150-280 HB)	EN-GJMB-550-4	GS01	GS07	GS01							
N	Alliage de cuivre. bronze. maiton					GS03	GS07	On request, please consult your DIAGER INDUSTRIE contact.					GS03		
	Aluminum alloy <7%					GS03	GS07						GS03		
	Aluminum alloy <7%					GS03	GS07						GS03		
S	Titanium alloys, medium strength	3.7115 3.7164	TiAl5Sn2.5 TiAl6V4	-950	TiAl5Sn2-5 Ti6AlV4	GS02	GS07	On request, please consult your DIAGER INDUSTRIE contact.					GS02		
	Titanium alloys, high strength	3.7174	TiAl6Sn2	900-1400	TiAl6V6Sn2	GS02	GS07						GS02		
	Nickel-based refractory steels, medium strength	2.467	NiCr12Al6MoNb	-950	NiCr12Al6MoNb	GS02	GS07						GS02		
	Nickel-based refractory steels, high strength	2.4668	NiCr19Fe19NbMo	900-1400	Inconel 718 NiCr19Fe19Nb5Mo3	GS02	GS07						GS02		
	Cobalt-chrome alloy					GS02	GS07						GS02		
H	Highly alloyed cast iron		Ni-hard. Ampco	300-600 HB	Ni-hard. Ampco	GS02	GS07	On request, please consult your DIAGER INDUSTRIE contact.					GS02		
	Hardened steel			45-52 HRC		GS02	GS07						GS02		
				53-59 HRC		GS02	GS07						GS02		
				60-65 HRC		GS02	GS07						GS02		



		Depth of cut (Ap) and feed (Fz)												Cutting speed			
		For straight-flute reamers, geometries GS01-GS02. For left-hand helix reamers, geometry GS07, increase the feed by 25% recommended in this table.															
Surface roughness /feed	Chip-breaker	Reamer diameter												Carbide	Coated carbide		
		>Ø3 < Ø4		>Ø4 < Ø6.5		>Ø6.5 < Ø8		>Ø8 < Ø12		>Ø12 < Ø16		>Ø16 < Ø20		UWNNK01	CWPK01	CWMP01	CWSM01
Straight flute	Straight flute	Ap (Ø) mm	Fz mm/z	Ap (Ø) mm	Fz mm/z	Ap (Ø) mm	Fz mm/z	Ap (Ø) mm	Fz mm/z	Ap (Ø) mm	Fz mm/z	Ap (Ø) mm	Fz mm/z	m/min	m/min	m/min	m/min
On request, please consult your DIAGER INDUSTRIE contact		0.1 0.2	0.03 0.07	0.1 0.2	0.06 0.1	0.15 0.25	0.07 0.14	0.15 0.25	0.08 0.15	0.2 0.3	0.09 0.16	0.25 0.35	0.11 0.25	5-15	70-130	60-120	
		0.1 0.2	0.04 0.08	0.1 0.2	0.06 0.1	0.15 0.25	0.07 0.14	0.15 0.25	0.08 0.15	0.2 0.3	0.09 0.16	0.25 0.35	0.11 0.25	5-15	70-130	60-120	
		0.1 0.2	0.04 0.08	0.1 0.2	0.06 0.1	0.15 0.25	0.07 0.14	0.15 0.25	0.08 0.15	0.2 0.3	0.09 0.16	0.25 0.35	0.11 0.25	5-15	70-130	60-120	
		0.1 0.2	0.04 0.08	0.1 0.2	0.06 0.1	0.15 0.25	0.07 0.14	0.15 0.25	0.08 0.15	0.2 0.3	0.09 0.16	0.25 0.35	0.11 0.25	20-50	70-130	60-120	
		0.1 0.2	0.03 0.07	0.1 0.2	0.04 0.08	0.15 0.25	0.05 0.10	0.15 0.25	0.06 0.12	0.2 0.3	0.07 0.14	0.25 0.35	0.10 0.20	5-15	60-120	50-90	
		0.1 0.2	0.03 0.07	0.1 0.2	0.04 0.08	0.15 0.25	0.05 0.10	0.15 0.25	0.06 0.12	0.2 0.3	0.07 0.14	0.25 0.35	0.10 0.20	5-15	60-120	50-90	
		0.1 0.2	0.03 0.07	0.1 0.2	0.04 0.08	0.15 0.25	0.05 0.10	0.15 0.25	0.06 0.12	0.2 0.3	0.07 0.14	0.25 0.35	0.10 0.20	5-10	50-80	40-70	
On request, please consult your DIAGER INDUSTRIE contact		0.1 0.2	0.03 0.07	0.1 0.2	0.04 0.08	0.15 0.25	0.05 0.10	0.15 0.25	0.06 0.12	0.2 0.3	0.07 0.14	0.25 0.35	0.10 0.20	5-11		30-60	20-50
		0.1 0.2	0.03 0.07	0.1 0.2	0.04 0.08	0.15 0.25	0.05 0.10	0.15 0.25	0.06 0.12	0.2 0.3	0.07 0.14	0.25 0.35	0.10 0.20	5-12		30-60	15-45
On request, please consult your DIAGER INDUSTRIE contact		0.1 0.2	0.04 0.08	0.1 0.2	0.06 0.1	0.15 0.25	0.07 0.14	0.15 0.25	0.08 0.15	0.2 0.3	0.09 0.17	0.25 0.35	0.11 0.25	10-30	100-150		
		0.1 0.2	0.04 0.08	0.1 0.2	0.06 0.1	0.15 0.25	0.07 0.14	0.15 0.25	0.08 0.15	0.2 0.3	0.09 0.17	0.25 0.35	0.11 0.25	5-15	60-80		
		0.1 0.2	0.03 0.07	0.1 0.2	0.04 0.08	0.15 0.25	0.05 0.10	0.15 0.25	0.06 0.12	0.2 0.3	0.07 0.14	0.25 0.35	0.1 0.20	10-20	80-130		
		0.1 0.2	0.03 0.07	0.1 0.2	0.04 0.08	0.15 0.25	0.05 0.10	0.15 0.25	0.06 0.12	0.2 0.3	0.07 0.14	0.25 0.35	0.1 0.20	5-15	60-100		
On request, please consult your DIAGER INDUSTRIE contact		0.1 0.2	0.04 0.08	0.1 0.2	0.05 0.1	0.15 0.25	0.07 0.14	0.15 0.25	0.08 0.15	0.2 0.3	0.09 0.16	0.25 0.35	0.1 0.20	15-30			
		0.1 0.2	0.04 0.08	0.1 0.2	0.05 0.1	0.15 0.25	0.07 0.14	0.15 0.25	0.08 0.15	0.2 0.3	0.09 0.16	0.25 0.35	0.1 0.20	20-40			
		0.1 0.2	0.04 0.08	0.1 0.2	0.05 0.1	0.15 0.25	0.07 0.14	0.15 0.25	0.08 0.15	0.2 0.3	0.09 0.16	0.25 0.35	0.1 0.20	15-30			
On request, please consult your DIAGER INDUSTRIE contact		0.1 0.2	0.03 0.07	0.1 0.2	0.04 0.08	0.15 0.25	0.05 0.10	0.15 0.25	0.06 0.12	0.2 0.3	0.07 0.14	0.25 0.35	0.08 0.16	5-15		15-25	20-30
		0.1 0.2	0.03 0.07	0.1 0.2	0.04 0.08	0.15 0.25	0.05 0.10	0.15 0.25	0.06 0.12	0.2 0.3	0.07 0.14	0.25 0.35	0.08 0.16	5-15		15-25	20-30
		0.1 0.2	0.03 0.07	0.1 0.2	0.04 0.08	0.15 0.25	0.05 0.10	0.15 0.25	0.06 0.12	0.2 0.3	0.07 0.14	0.25 0.35	0.08 0.16			20-50	10-30
		0.1 0.2	0.03 0.07	0.1 0.2	0.04 0.08	0.15 0.25	0.05 0.10	0.15 0.25	0.06 0.12	0.2 0.3	0.07 0.14	0.25 0.35	0.08 0.16			20-50	10-30
		0.1 0.2	0.03 0.07	0.1 0.2	0.04 0.08	0.15 0.25	0.05 0.10	0.15 0.25	0.06 0.12	0.2 0.3	0.07 0.14	0.25 0.35	0.08 0.16			20-50	10-30
On request, please consult your DIAGER INDUSTRIE contact		0.1 0.2	0.03 0.07	0.1 0.2	0.04 0.08	0.15 0.25	0.05 0.10	0.15 0.25	0.06 0.12	0.2 0.3	0.07 0.14	0.25 0.35	0.08 0.16	10-20	40-60	40-60	
		0.1 0.2	0.04 0.08	0.1 0.2	0.08 0.12	0.15 0.25	0.07 0.15	0.15 0.25	0.07 0.16	0.2 0.3	0.08 0.15	0.25 0.35	0.09 0.17	5-15	60-80	60-80	
		0.1 0.2	0.03 0.07	0.1 0.2	0.04 0.08	0.15 0.25	0.05 0.10	0.15 0.25	0.06 0.12	0.2 0.3	0.07 0.14	0.25 0.35	0.08 0.16	5-10	30-40	30-40	
		0.1 0.2	0.03 0.07	0.1 0.2	0.04 0.08	0.15 0.25	0.05 0.10	0.15 0.25	0.06 0.12	0.2 0.3	0.07 0.14	0.25 0.35	0.08 0.16	5-10	30	30	



CUTTING CONDITIONS

BRAZED INSERT REAMERS

						Entry angles										
						Holes throughs								Holes Blinds		
						Standard		Positioning accuracy	Surface roughness / feed	Surface roughness / feed	Chip control	Chip control	Chip-breaker	Standard	Positioning accuracy	
						Straight flute	Left-hand helix	Straight flute	Straight flute	Left-hand helix	Straight flute	Left-hand helix	Straight flute	Straight flute	Straight flute	
P	Unalloyed or low-carbon steel	1.0570 1.1730	St52-3 C45	-700 -800	S355J2G3 C45U	GB01	GB06	GB08	GB03	GB06	GB10	GB06	GB20	GB01	GB08	
		1.0715	9SMn28	-700	11SMn30	GB01	GB06	GB08	GB03	GB06	GB10	GB06	GB20	GB01	GB08	
		1.1191 1.7219	Ck45 26CrMo4	500-950	C45E 26CrMo4-2	GB01	GB06	GB08	GB03	GB06	GB10	GB06	GB20	GB01	GB08	
	Heat-treated steel	1.7225 1.8159	42CrMo4 51CrV4	500-950	42CrMo4 51CrV4	GB01	GB06	GB08	GB03	GB06	GB10	GB06	GB20	GB01	GB08	
	Pre-treated heat-treated steel	1.7225 1.6580	42CrMo4 30CrNiMo8	950-1400	42CrMo4 30CrNiMo8	GB01	GB06	GB08	GB03	GB06	GB10	GB06	GB20	GB01	GB08	
	Nitriding steel	1.8504 1.2344	34CrAl6 X40CrMoV5.1	950-1400 -900	34CrAl6 X40CrMoV5-1	GB01	GB06	GB08	GB03	GB06	GB10	GB06	GB20	GB01	GB08	
M	Tool steel	1.2343 1.2379 1.2358 1.2080 1.2714 1.2311 1.2312 1.2316 1.2738	X38CrMoV5 1 X155CrVMo12 1 60CrMoV18-5 X210Cr12 55NiCrMoV7 40CrMnMo7 40CrMnNiMoS8.6 X38CrMo16 45CrMnNiMo8.6.4	950-1400 -950 850-1000 950-1400 1100-1350 -1100 -1150 -1100 950-1150	X37CrMoV5-1 X153CrMoV12-1 60CrMoV18-5 X210Cr12 55NiCrMoV7 40CrMnMo7 40CrMnNiMoS8-6 X38CrMo16 45CrMnNiMo8-6-4	GB01	GB06	GB08	GB03	GB06	GB10	GB06	GB20	GB01	GB08	
		1.4301 1.4404 1.4571	X2CrNiMo17-12-2 X6CrNiMoTi17-12-2 X10CrNiMoTi18	500-950	X5CrNiMo18-10 X2CrNiMo17-12-2 X10CrNiMoTi18	GB02	GB07	GB09	GB04	GB07	GB10	GB07	GB20	GB02	GB09	
		1.2709 1.4542 1.4568	X3NiCoMoTi18-9-5 X5CrNiCuNb16-4 X7CrNiAl17-7	800-1000	X3NiCoMoTi18-9-5 X5CrNiCuNb16-4 X7CrNiAl17-7	GB02	GB07	GB09	GB04	GB07	GB10	GB07	GB20	GB02	GB09	
		Gray cast iron	0.6025	GG25	100-400 (120-260 HB)	EN-GJI-250	GB01		GB08	GB03					GB01	GB08
		Alloyed gray cast iron	0.6678	GGL-NiCr35 2	150-250 (160-230 HB)	EN-GJLA-XNiCr35-2	GB01		GB08	GB03					GB01	GB08
		Spheroidal graphite cast iron	0.7060 0.7070	GGG60 GGG70L	400-800 (120-310 HB)	EN-GJS-600-3 EN-GJS-700-2U	GB01	GB06	GB08	GB03	GB06	GB10	GB06	GB20	GB01	GB08
K	Compacted graphite iron	0.8155	GTS55	350-700 (150-280 HB)	EN-GJMB-550-4	GB01	GB06	GB08	GB03	GB06	GB10	GB06		GB01	GB08	
	Copper alloy, bronze, brass					GB01 GB12(PCD)	GB06	GB08	GB03	GB06	GB10	GB06		GB01 GB12(PCD)	GB08	
	Aluminum alloy <7%					GB02 GB12(PCD)	GB07	GB09	GB04	GB07	GB10	GB07		GB02 GB12(PCD)	GB09	
	Aluminum alloy <7%					GB02 GB12(PCD)	GB07		GB04	GB07				GB02 GB12(PCD)	GB09	
N	Titanium alloys, medium strength	3.7115 3.7164	TiAl5Sn2.5 TiAl6V4	-950	TiAl5Sn2-5 Ti6AlV4	GB05								GB05		
	Titanium alloys, high strength	3.7174	TiAl6Sn2	900-1400	TiAl6V6Sn2	GB05								GB05		
	Nickel-based refractory steels, medium strength	2.467	NiCr12Al6MoNb	-950	NiCr12Al6MoNb	GB02								GB02		
	Aciers réfractaires à base de nickel, moyenne résistance	2.4668	NiCr19Fe19NbMo	900-1400	Inconel 718 NiCr19Fe19Nb5Mo3	GB02								GB02		
	Cobalt-chrome alloy					GB02								GB02		
S	Highly alloyed cast iron		Ni-hard. Ampco	300-600 HB	Ni-hard. Ampco	GB02		GB09						GB02	GB09	
	Hardened steel			45-52 HRC		GB02		GB09						GB02	GB09	
				53-59 HRC		GB02		GB09						GB02	GB09	
				60-65 HRC		GB02		GB09						GB02	GB09	



		Depth of cut (Ap) and feed (Fz)																Cutting speed							
		For straight-flute reamers Geometries: GB01 GB02 GB03 GB04 GB08 GB09								For straight and helical-flute reamers Geometries: GB06 GB07 GB10															
Surface roughness /feed	Chip-breaker	Reamer diameter								Reamer diameter															
		< Ø12		< Ø19		< Ø32		>= Ø32		< Ø12		< Ø19		< Ø32		>= Ø32		UWNK02	CWPK02	CWMP02	CWSM02	UCPK02	CCPK02	DIN01	
		Ap (Ø) mm	Fz mm/z	Ap (Ø) mm	Fz mm/z	Ap (Ø) mm	Fz mm/z	Ap (Ø) mm	Fz mm/z	Ap (Ø) mm	Fz mm/z	Ap (Ø) mm	Fz mm/z	Ap (Ø) mm	Fz mm/z	Ap (Ø) mm	Fz mm/z	m/min	m/min	m/min	m/min	m/min	m/min	m/min	
Straight flute	Straight flute																								
GB03	GB20	0.1 0.2	0.05 0.13	0.1 0.25	0.06 0.16	0.1 0.3	0.09 0.2	0.2 0.4	0.11 0.22	0.1 0.2	0.08 0.2	0.1 0.25	0.09 0.24	0.1 0.3	0.14 0.30	0.2 0.4	0.17 0.33	5-15	70-130	60-120		130-180	130-180		
GB03	GB20	0.1 0.2	0.05 0.13	0.1 0.25	0.06 0.16	0.1 0.3	0.09 0.2	0.2 0.4	0.11 0.22	0.1 0.2	0.08 0.2	0.1 0.25	0.09 0.24	0.1 0.3	0.14 0.30	0.2 0.4	0.17 0.33	5-15	70-130	60-120		130-180	130-180		
GB03	GB20	0.1 0.2	0.05 0.13	0.1 0.25	0.06 0.16	0.1 0.3	0.09 0.2	0.2 0.4	0.11 0.22	0.1 0.2	0.08 0.2	0.1 0.25	0.09 0.24	0.1 0.3	0.14 0.30	0.2 0.4	0.17 0.33	5-15	70-130	60-120		130-180	130-180		
GB03	GB20	0.1 0.2	0.05 0.13	0.1 0.25	0.06 0.16	0.1 0.3	0.09 0.2	0.2 0.4	0.11 0.22	0.1 0.2	0.08 0.2	0.1 0.25	0.09 0.2	0.1 0.3	0.11 0.24	0.2 0.4	0.12 0.3	20-50	70-130	60-120		130-180	130-180		
GB03	GB20	0.1 0.2	0.05 0.13	0.1 0.25	0.06 0.14	0.1 0.3	0.07 0.16	0.2 0.4	0.08 0.2	0.1 0.2	0.08 0.2	0.1 0.25	0.09 0.2	0.1 0.3	0.11 0.24	0.2 0.4	0.12 0.3	5-15	60-120	50-90		110-160	110-160		
GB03	GB20	0.1 0.2	0.05 0.13	0.1 0.25	0.06 0.14	0.1 0.3	0.07 0.16	0.2 0.4	0.08 0.2	0.1 0.2	0.08 0.2	0.1 0.25	0.09 0.2	0.1 0.3	0.11 0.24	0.2 0.4	0.12 0.3	5-15	60-120	50-90		110-160	110-160		
GB03	GB20	0.1 0.2	0.05 0.13	0.1 0.25	0.06 0.14	0.1 0.3	0.07 0.16	0.2 0.4	0.08 0.2	0.1 0.2	0.06 0.15	0.1 0.25	0.08 0.18	0.1 0.3	0.09 0.21	0.2 0.4	0.11 0.23	5-10	50-80	40-70		80-120	80-120		
GB04	GB20	0.1 0.2	0.04 0.1	0.1 0.25	0.05 0.12	0.1 0.3	0.06 0.14	0.2 0.4	0.07 0.15	0.1 0.2	0.06 0.15	0.1 0.25	0.08 0.18	0.1 0.3	0.11 0.23	0.2 0.4	0.12 0.3	5-11		20-50	30-60				
GB04	GB20	0.1 0.2	0.04 0.1	0.1 0.25	0.05 0.12	0.1 0.3	0.06 0.14	0.2 0.4	0.07 0.15	0.1 0.2	0.06 0.15	0.1 0.25	0.08 0.18	0.1 0.3	0.11 0.23	0.2 0.4	0.12 0.3	5-12		15-45	30-60				
GB03		0.1 0.2	0.06 0.14	0.1 0.25	0.08 0.2	0.1 0.3	0.1 0.26	0.2 0.4	0.12 0.33									10-30	80-130		100-150				
GB03		0.1 0.2	0.06 0.14	0.1 0.25	0.08 0.18	0.1 0.3	0.1 0.24	0.2 0.4	0.12 0.3									5-15	50-70		60-80				
GB03	GB20	0.1 0.2	0.06 0.14	0.1 0.25	0.08 0.2	0.1 0.3	0.1 0.26	0.2 0.4	0.12 0.33	0.1 0.2	0.08 0.16	0.1 0.25	0.1 0.23	0.1 0.3	0.13 0.31	0.2 0.4	0.16 0.4	10-20	70-120		80-130	100-200	100-200		
GB03		0.1 0.2	0.06 0.14	0.1 0.25	0.08 0.18	0.1 0.3	0.1 0.24	0.2 0.4	0.12 0.3	0.1 0.2	0.08 0.16	0.1 0.25	0.1 0.23	0.1 0.3	0.13 0.31	0.2 0.4	0.16 0.4	5-15	50-90		60-100	70-160	70-160		
GB03		0.1 0.2	0.06 0.12	0.1 0.25	0.08 0.18	0.1 0.3	0.1 0.24	0.2 0.4	0.1 0.3	0.1 0.2	0.08 0.16	0.1 0.25	0.1 0.23	0.1 0.3	0.12 0.3	0.2 0.4	0.13 0.35	15-30				100-300	100-300	400-1000	
GB04		0.1 0.2	0.06 0.12	0.1 0.25	0.08 0.18	0.1 0.3	0.1 0.24	0.2 0.4	0.1 0.3	0.1 0.2	0.08 0.16	0.1 0.25	0.1 0.23	0.1 0.3	0.12 0.3	0.2 0.4	0.13 0.35	20-40				50-200	50-200	400-1000	
GB04		0.1 0.2	0.06 0.12	0.1 0.25	0.08 0.18	0.1 0.3	0.1 0.24	0.2 0.4	0.1 0.3									15-30						400-1000	
		0.1 0.2	0.05 0.11	0.1 0.25	0.07 0.17	0.1 0.3	0.1 0.24	0.2 0.4	0.11 0.28									5-15			<30				
		0.1 0.2	0.05 0.11	0.1 0.25	0.07 0.17	0.1 0.3	0.1 0.24	0.2 0.4	0.11 0.28									5-15			<30				
		0.1 0.2	0.05 0.11	0.1 0.25	0.07 0.17	0.1 0.3	0.1 0.24	0.2 0.4	0.11 0.28										20-20	10-30					
		0.1 0.2	0.05 0.11	0.1 0.25	0.07 0.17	0.1 0.3	0.1 0.24	0.2 0.4	0.11 0.28										20-20	10-30					
		0.1 0.2	0.05 0.11	0.1 0.25	0.07 0.17	0.1 0.3	0.1 0.24	0.2 0.4	0.11 0.28										20-20	10-30					
		0.1 0.2	0.04 0.1	0.1 0.25	0.05 0.13	0.1 0.3	0.07 0.16	0.2 0.4	0.09 0.18									10-20	40-60						
		0.1 0.2	0.04 0.1	0.1 0.25	0.05 0.13	0.1 0.3	0.07 0.16	0.2 0.4	0.09 0.18									5-15	60-80						
		0.1 0.2	0.04 0.1	0.1 0.25	0.05 0.13	0.1 0.3	0.07 0.16	0.2 0.4	0.09 0.18									5-10	30-40						
		0.1 0.2	0.04 0.1	0.1 0.25	0.05 0.13	0.1 0.3	0.07 0.16	0.2 0.4	0.09 0.18									5-10	30						



DESIGN YOUR TOOL

**YOUR CUSTOM CUTTING TOOLS
WITH PRECISION, INNOVATION, AND PERFORMANCE,
TO MEET YOUR MOST DEMANDING REQUIREMENTS.**

QUESTIONNAIRE TO DEFINE YOUR BORING TOOL				
Company		Client contact name		
Address		Email		
Country		Phone number		
1. WORKPIECE MATERIAL			3. TOOL HOLDER AND LUBRICATION	
Standard designation		Morse taper	CM :	
Heat treatment		Cylindrical shank	ø :	
Hardness (HRC, HB, HV...)		Other type of attachment		
2. BORING CHARACTERISTICS				
ø and part tolerance:		Machine spindle	☐ Horizontal	☐ Vertical
ø of pre-boring (drilling)		Tool	☐ Fixed	☐ Rotary
Pre-boring method		Through-spindle coolant	☐ Yes	☐ No
			4. COOLANT	
Hole	☐ Through	☐ Blind	Type (Emulsion, full oil, MQL...)	
Boring bottom to be machined	☐ Yes	☐ No	Concentration	
Intersecting holes	☐ Yes	☐ No	Available coolant pressure	
If yes, interrupted cutting length			5. MACHINE	
ø of pre-boring (drilling)		Manufacturer and model		
Surface finish Ra / Rt / Rz		Feed	☐ Fixed	☐ Variable
Circularity tolerance		Rotation	☐ Fixed	☐ Variable
Cylindricity tolerance		Spindle runout defect	☐ Low	☐ Significant
Other quality requirements			6. PRODUCTION VOLUME	
			Number of holes per year	
			Target performance (cycle time, quality, tool/piece cost....)	



7. PART DRAWING

Please provide us with a part drawing
or make a sketch of the boring to be performed



[illegible]

**IT IS ALSO PART OF OUR
KNOW-HOW IN DESIGN**



**AND THE SUPPLY
OF SPECIAL PCD TOOLS
FOR DRILLING,
MILLING, AND REAMING!**



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