



カタログ
CATALOGUE

精密工具用
超硬素材

CARBIDES
FOR PRECISION CUTTING TOOLS

EDITION 2022

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ベルリンから超硬素材 – 伝統と革新の融合

Carbide from Berlin – tradition and innovation combined

「BERLIN CARBIDE」ブランドは最高品質の超硬素材をドイツの首都ベルリンから世界へ供給いたします。

ドイツ最大の工具メーカー「Gühring KG」の超硬製造部門の「G-ELIT 精密ツール有限会社」は航空宇宙産業、自動車産業、機械メーカー及び家電産業のアプリケーション向けに様々な用途超硬材種を製造しています。

ベルリン市内の200社の大手企業のひとつである「G-ELIT社」は、歴史的遺産建築として登録された建物を製造工場として利用し、400人の従業員で年間約1600トン超硬材を製造しています。バウハウス様式の全面ガラス張りの工場は美しく、他に類を見ない魅力をもっています。

The brand "BERLIN CARBIDE" delivers the highest carbide grade quality to meet customer demands worldwide directly from Germany's capital.

As part of "Gühring KG", the largest German tool manufacturer, the carbide division of "G-ELIT Präzisionswerkzeuge GmbH" produces a wide range of cemented carbide grades for applications in the area of aerospace, automotive, engineering and consumer electronics.

In our heritage-protected production hall as one of the 200 largest Berlin companies, we produce in the middle of the capital with a team of around 400 employees about 1,600 tonnes of carbide per year. The fully glazed facades in Bauhaus style give our production facility its own incomparable charm.

工場の歴史ある庭や建物の伝統を守りつつ、我々は日々お客様の要求に応じた製品の開発と生産に取り組んでいます。当社は、柔軟な対応性をもつ成型部門と最新鋭の半自動押出機及び乾式プレス機の導入により、お客様のご要望に応じた回転切削工具用の丸棒や特殊形状の超硬素材、また複雑な超硬金型やその構成部品を供給することも可能です。

宜しければ自分の目で確認して頂くためドイツの首都のベルリンにある我々の工場に来て下さい。お待ちしております。

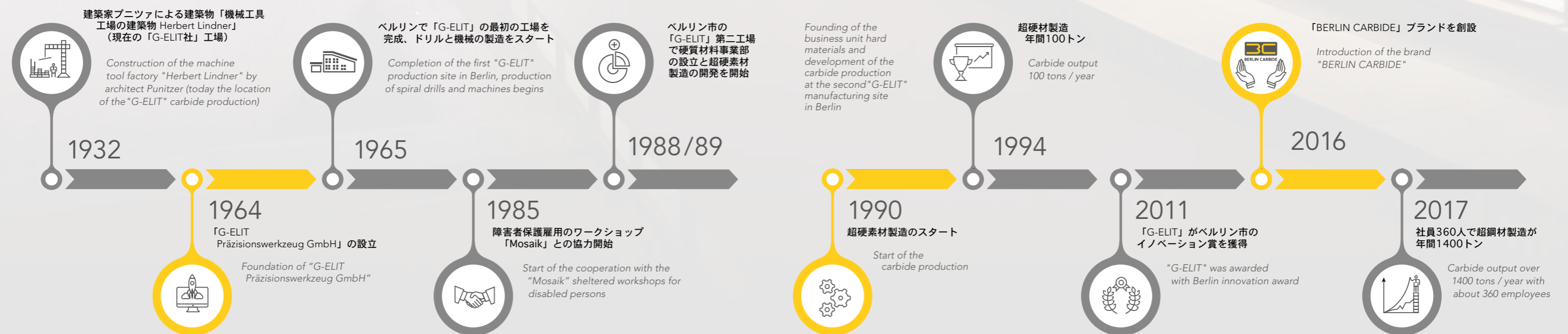
With a view of the countryside into the historical factory garden, we pursue on the one hand the tradition of the terrain and the buildings, but on the other hand at the same time we stand up for the future and your demands.

Whether blanks for rotating cutting tools or customised geometries, our state-of-the-art, advanced and semi-automated extrusion and dry presses, combined with the flexible preforming department, allow us to create even the most challenging moulded and component parts.

You are invited to convince yourself of our performance on site and visit us in the federal capital Berlin!



マイルストーン | Milestones



超硬合金の製造工程

From the powder to the carbide blank



混合と粉砕

最初は、タングステンカーバイド、コバルトと添加物を独自のレシピにより混合します。その後、この混合物を数時間ボールミルで粉砕した後、スプレードライ工程やふるいにかけることにより、各製品に合わせた大きさの粒状にします。

MIXING & MILLING

Firstly tungsten carbide, cobalt and doping elements are mixed according to our special recipes. This mixture is then ball-milled for several hours and afterwards sieved or spray-dried to get powder or granulate for our different production technologies.

ニーディング

有機添加剤を使用し、ニーディングすることにより押出成形可能な粘土のような状態に可塑性します。

KNEADING

With the help of organic additives, the powder is plasticised in our kneaders into a clay-like dough that can be extruded.

押し出しプレス

最新のプレス技術により、多種多様な内部および外部形状を成形します。

EXTRUDING

Through our innovative pressing technology different inner and outer geometries can be realized out of the plasticised mixture.

乾燥

その後、添加された液体の一部を当社の恒温槽および乾燥炉で厳密に管理された条件下でゆっくり取り除きます。乾燥時間は外径により異なります。

DRYING

Subsequently, part of the added liquids must be slowly removed from the product under strictly controlled conditions in our climate chamber and special drying furnaces. The drying time depends on the outer diameter.

焼結

コバルトは約1380℃で溶融して、炭化タングステン粒子間の隙間に流れ込みます。Sinter-HIPプロセスにより、非多孔質の成形部品が得られ、製品の収縮率は最大25%です。

SINTERING

The cobalt melts at about 1380 °C and flows into the free spaces between the tungsten carbide grains. Sinter-HIP process results in non-porous molded parts and shrinkage of the products amounts up to 25%.

研磨

最後に厳格な検査を合格した丸棒は倉庫に保管されるか、センタレス研磨部門により研磨されます。

GRINDING

After passing a last rigorous inspection the rods are then either stocked in our warehouse or refined in our centerless-grinding department.



ドライプレス

粉末から成形体にする打抜きおよび型抜きプレスにより異なる形状の部品を1分あたり最大10個成形します。

DRY-PRESSING

From the powder to the green body: Within seconds punches and dies press parts of different geometries into shape - up to 10 pieces per minute.

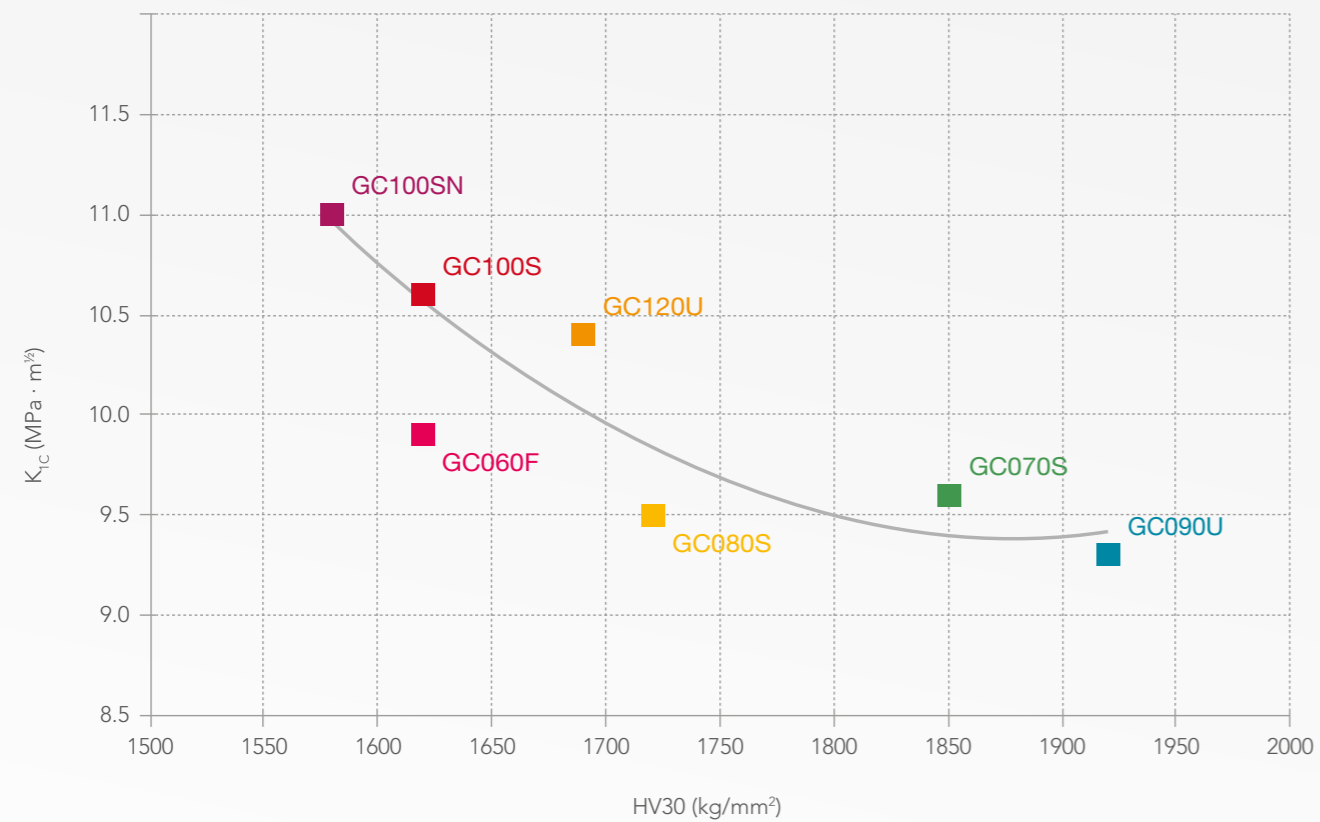
技術データ

Technical data

材種 Grade		GC100SN	GC060F	GC100S	GC120U	GC080S	GC070S	GC090U
ISO規格 Classification		K20-K40	K15-K20	K20-K40	K20-K30	K20	K10	K05-K10
コバルト含有量 Co	%	10.0	6.0	10.0	12.0	8.0	7.0	9.0
タングステンカーバイド 及びその他添加物 WC incl. doping	%	90.0	94.0	90.0	88.0	92.0	93.0	91.0
密度 Density	g/cm ³	14.50	14.95	14.45	14.05	14.55	14.70	14.35
ビカース硬さ HV30 Hardness HV30	kg/mm ²	1580	1620	1620	1690	1720	1850	1920
破壊靱性値 K _{IC} Fracture toughness	MPa · m ^{1/2}	11.0	9.9	10.6	10.4	9.5	9.6	9.3
曲げ強さ Transverse rupture strength	N/mm ²	4100	3200	4100	4200	3800	3500	3800
平均粒径 Average grain size	μm	0.70	1.20	0.60	0.50	0.70	0.70	0.20

破壊靱性と硬度

Fracture toughness vs. hardness



アプリケーション

Applications

材種 Grade		GC100SN	GC060F	GC100S	GC120U	GC080S	GC070S	GC090U
	ISO							
ドリル Drilling		•	•	•	•	•		•
エンドミル End Milling		•		•	•	•		•
リーマ Reaming							•	
タップ Tapping		•	•	•	•		•	
炭素鋼 carbon steel	P	•		•				
低合金鋼 low-alloyed steel	P	•		•	•			
高合金鋼 high-alloyed steel (tool and sectional steel)	P				•		•	•
オーステナイト系ステンレス austenitic stainless steel	M	•		•	•	•	•	
フェライト系とマルテンサイト系ステンレス ferritic & martensitic stainless steel	M			•	•		•	
ねずみ鑄鉄 grey cast iron	K			•	•	•		
可鍛鑄鉄 malleable cast iron	K			•	•	•		
アルミ合金 aluminium alloys	N					•		•
銅合金 copper alloys	N			•				
耐熱合金 (Fe-/Ni-/Co-/Ti-ベース) superalloys (Fe-/Ni-/Co-/Ti-based)	S	•		•	•		•	
高硬度鋼 (ホワイト・チルド鑄鉄) hardened metals (white/chilled cast iron)	H				•	•		•
GRP GRP					•		•	•
CFRP CFRP					•			•
複合材 composite materials				•	•		•	•
プラスチック plastics				•				•
非鉄金属 non-ferrous metals						•		
木材 wood				•		•		
グラファイト graphite			•*					•

* ダイヤモンドコーティング | * Diamond Coating

航空宇宙産業、自動車産業、機械産業や家電産業 –
我々はお客様の全てのアプリケーションに最良のソリューションをご提供いたします。

Aerospace, automotive, engineering or consumer electronics – we provide the right solution for each of your applications.



未研磨材

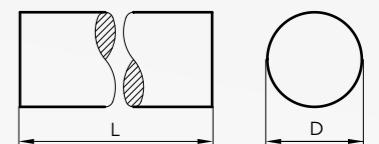
Rods, raw



D mm	Code	GC060F	GC100S		GC120U	GC080S	GC070S	GC090U
		7021	7014	7352	7367	7022	7016	7187
		330mm	330mm	415mm	330mm	330mm	330mm	330mm
1.2 +0.30	1.200		•					•
1.7 +0.30	1.700		•					•
2.2 +0.30	2.200	•	•			•	•	•
2.7 +0.30	2.700	•	•			•	•	•
3.2 +0.30	3.200	•	•		•	•	•	•
3.7 +0.30	3.700	•	•			•	•	•
4.2 +0.30	4.200	•	•		•	•	•	•
4.7 +0.30	4.700	•	•			•	•	•
5.2 +0.30	5.200	•	•		•	•	•	•
5.7 +0.30	5.700	•	•			•	•	•
6.2 +0.30	6.200	•	•	•	•	•	•	•
6.7 +0.30	6.700	•	•			•	•	•
7.2 +0.30	7.200	•	•			•	•	•
7.7 +0.30	7.700		•					•
8.2 +0.30	8.200	•	•	•	•	•	•	•
8.7 +0.30	8.700	•	•			•	•	•
9.2 +0.30	9.200	•	•			•	•	•
9.7 +0.30	9.700	•	•					•
10.2 +0.40	10.200	•	•	•	•	•	•	•
10.7 +0.40	10.700		•			•		•
11.2 +0.40	11.200	•	•			•	•	•
11.7 +0.40	11.700		•					•
12.2 +0.50	12.200	•	•	•	•	•	•	•
12.7 +0.50	12.700		•			•		•
13.2 +0.50	13.200	•	•			•	•	•
13.7 +0.50	13.700		•					•
14.2 +0.60	14.200	•	•	•	•	•	•	•
14.7 +0.60	14.700		•					•
15.2 +0.60	15.200	•	•			•		•
15.7 +0.60	15.700		•					•
16.2 +0.60	16.200	•	•	•	•	•	•	•
16.7 +0.60	16.700	•	•					•
17.2 +0.60	17.200	•	•					•
17.7 +0.60	17.700		•					•
18.2 +0.60	18.200	•	•	•	•	•	•	•
18.7 +0.60	18.700		•					•

D mm	Code	GC060F	GC100S		GC120U	GC080S	GC070S	GC090U
		7021	7014	7352	7367	7022	7016	7187
		330mm	330mm	415mm	330mm	330mm	330mm	330mm
19.2 +0.60	19.200		•					•
19.7 +0.60	19.700		•					
20.2 +0.60	20.200	•	•	•	•	•	•	
20.7 +0.60	20.700		•					
21.2 +0.60	21.200	•	•					
22.2 +0.60	22.200	•	•					
23.2 +0.60	23.200		•					
24.2 +0.70	24.200		•					
25.2 +0.70	25.200	•	•	•	•	•	•	•
26.2 +0.70	26.200		•			•		
27.2 +0.70	27.200		•					
28.2 +0.80	28.200		•					
29.2 +0.80	29.200		•					
30.2 +0.80	30.200		•	•				
32.2 +0.80	32.200	•	•	•		•		
34.2 +0.80	34.200		•					
35.2 +0.80	35.200		•					
36.2 +0.80	36.200		•					
38.2 +0.80	38.200		•					
40.2 +0.80	40.200		•					

寸法 | Dimensioning



研磨材 径公差 h6

Rods, ground to tolerance h6



D h6 mm	Code	GC060F	GC100S	GC120U	GC080S	GC090U		
		7031	7075	7354	7085	7372	7032	7187
		330mm	330mm	415mm	100mm	330mm	330mm	330mm
1.0	1.000		•					
1.5	1.500		•					
2.0	2.000		•					
3.0	3.000	•	•		•	•	•	•
3.5	3.500	•	•					
4.0	4.000	•	•		•	•	•	•
4.5	4.500		•					
5.0	5.000	•	•		•	•	•	•
5.5	5.500	•	•					
6.0	6.000	•	•	•	•	•	•	•
6.5	6.500		•					
7.0	7.000		•		•			•
7.5	7.500		•					
8.0	8.000	•	•	•	•	•	•	•
8.5	8.500		•					
9.0	9.000		•		•	•	•	•
9.5	9.500		•					•
10.0	10.000	•	•	•	•	•	•	•
10.5	10.500		•					
11.0	11.000		•					
11.5	11.500		•					
12.0	12.000	•	•	•	•	•	•	•
12.5	12.500		•					
13.0	13.000	•	•					•
14.0	14.000	•	•	•	•	•	•	•
15.0	15.000		•		•			
16.0	16.000	•	•	•	•	•	•	•
17.0	17.000		•					
18.0	18.000	•	•	•	•	•	•	•
19.0	19.000		•					
20.0	20.000	•	•	•	•	•	•	•
21.0	21.000		•					
22.0	22.000		•					
23.0	23.000		•					
24.0	24.000		•					
25.0	25.000	•	•	•	•	•	•	•

D h6 mm	Code	GC060F	GC100S	GC120U	GC080S	GC090U		
		7031	7075	7354	7085	7372	7032	7187
		330mm	330mm	415mm	100mm	330mm	330mm	330mm
26.0	26.000		•					
27.0	27.000		•					
28.0	28.000		•					
30.0	30.000		•					
31.0	31.000		•					
32.0	32.000		•				•	
34.0	34.000		•					
35.0	35.000		•					
36.0	36.000		•					
40.0	40.000		•					

研磨材 径公差 h6 インチサイズ

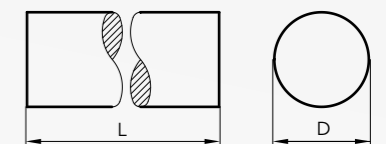
■ インチ単位

Rods, ground to tolerance h6

■ in inches

D h6 inches/mm	Code	GC100S
		7932
		330mm/13inches
1/8 3.175	3.170	•
3/16 4.763	4.760	•
1/4 6.350	6.350	•
5/16 7.938	7.930	•
3/8 9.525	9.520	•
7/16 11.113	11.110	•
1/2 12.700	12.700	•
9/16 14.288	14.280	•
5/8 15.875	15.870	•
3/4 19.050	19.050	•
7/8 22.225	22.220	•
1 25.400	25.400	•

寸法 | Dimensioning



未研磨材

■ オイルホール付き 1穴センターストレート

Rods, raw

■ with 1 central coolant duct

D mm	d mm	a mm	Code	GC100S	GC100S	GC070S
				7387	7987	7380
				330mm	415mm	330mm
4.5 +0.30	0.60 ±0.10	0.07	4.500	•		
6.3 +0.30	1.00 ±0.15	0.07	6.300	•	•	
6.3 +0.30	1.80 ±0.15	0.07	6.301	•		
8.3 +0.30	1.30 ±0.15	0.07	8.300	•	•	
8.3 +0.30	2.50 ±0.20	0.07	8.301	•		
10.3 +0.40	2.00 ±0.20	0.10	10.300	•	•	
10.3 +0.40	3.00 ±0.25	0.10	10.301	•		
12.3 +0.40	2.00 ±0.20	0.10	12.300	•	•	
12.3 +0.40	3.00 ±0.25	0.10	12.301	•		
13.3 +0.40	2.00 ±0.20	0.12	13.300	•		
14.3 +0.40	2.00 ±0.20	0.12	14.300	•	•	
14.3 +0.40	3.00 ±0.25	0.12	14.301	•		
14.3 +0.40	1.50 ±0.20	0.12	14.302	•		
16.3 +0.50	2.00 ±0.20	0.12	16.300	•	•	
16.3 +0.50	2.50 ±0.20	0.12	16.301	•		
16.3 +0.50	4.00 ±0.30	0.12	16.302	•		
16.3 +0.50	3.00 ±0.25	0.12	16.304	•	•	
18.3 +0.50	3.00 ±0.25	0.15	18.300	•	•	
20.3 +0.50	3.00 ±0.25	0.15	20.300	•	•	
22.3 +0.50	3.00 ±0.25	0.15	22.300	•		
24.3 +0.50	4.00 ±0.30	0.15	24.300	•		
25.3 +0.50	4.00 ±0.30	0.15	25.300	•	•	
25.3 +0.50	3.00 ±0.25	0.15	25.301	•	•	
26.3 +0.50	4.00 ±0.30	0.15	26.300	•		
28.3 +0.50	4.00 ±0.30	0.15	28.300	•		
30.3 +0.50	5.00 ±0.35	0.15	30.300	•		
32.3 +0.50	5.00 ±0.35	0.15	32.300	•	•	
4.5 +0.30	1.00 ±0.10	0.07	4.500			•
6.3 +0.30	1.30 ±0.15	0.07	6.300			•
8.3 +0.30	2.00 ±0.20	0.07	8.300			•
10.3 +0.40	2.50 ±0.25	0.10	10.300			•
12.3 +0.40	3.00 ±0.25	0.10	12.300			•
14.3 +0.40	3.00 ±0.25	0.12	14.300			•
16.3 +0.50	3.50 ±0.30	0.12	16.300			•
18.3 +0.50	3.50 ±0.30	0.15	18.300			•
20.3 +0.50	4.00 ±0.30	0.15	20.300			•

研磨材 径公差 h6

■ オイルホール付き 1穴センターストレート

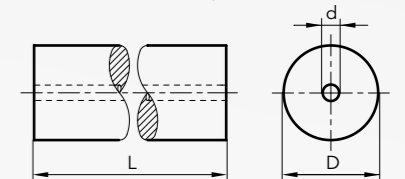
Rods, ground to tolerance h6

■ with 1 central coolant duct

D h6 mm	d mm	a mm	Code	GC100S
				7339
				330mm
4.0	0.60 ±0.10	0.07	4.000	•
6.0	1.00 ±0.15	0.07	6.000	•
6.0	1.80 ±0.15	0.07	6.001	•
8.0	1.30 ±0.15	0.07	8.000	•
8.0	2.50 ±0.20	0.07	8.001	•
10.0	2.00 ±0.20	0.10	10.000	•
10.0	3.00 ±0.25	0.10	10.001	•
12.0	2.00 ±0.20	0.10	12.000	•
12.0	3.00 ±0.25	0.10	12.001	•
14.0	2.00 ±0.20	0.12	14.000	•
14.0	3.00 ±0.25	0.12	14.001	•
16.0	2.00 ±0.20	0.12	16.000	•
16.0	2.50 ±0.20	0.12	16.001	•
16.0	4.00 ±0.30	0.12	16.002	•
16.0	3.00 ±0.25	0.12	16.004	•
18.0	3.00 ±0.25	0.15	18.000	•
20.0	3.00 ±0.25	0.15	20.000	•
22.0	3.00 ±0.25	0.15	22.000	•
24.0	4.00 ±0.30	0.15	24.000	•
25.0	4.00 ±0.30	0.15	25.000	•
25.0	3.00 ±0.30	0.15	25.001	•
26.0	4.00 ±0.30	0.15	26.000	•
28.0	4.00 ±0.30	0.15	28.000	•
30.0	5.00 ±0.35	0.15	30.000	•
32.0	5.00 ±0.35	0.15	32.000	•



寸法 | Dimensioning



未研磨材

■ オイルホール付き 2穴パラレルストレート

Rods, raw

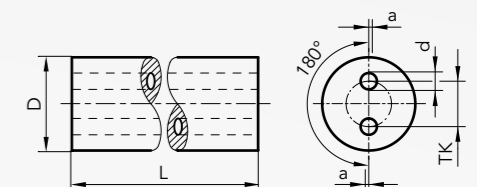
■ with 2 parallel coolant ducts



D mm	TK mm	d mm	a mm	Code	GC100S	
					7301	7309
					330mm	415mm
4.2 +0.30	1.80 -0.15	0.80 ±0.10	0.10	4.200	•	
4.2 +0.30	2.25 -0.15	0.60 -0.05	0.10	4.201	•	
5.2 +0.30	2.00 -0.15	0.80 ±0.10	0.13	5.200	•	
6.3 +0.30	1.50 -0.20	0.80 ±0.10	0.15	6.300	•	
6.3 +0.30	3.00 -0.20	1.00 ±0.10	0.15	6.301	•	•
6.3 +0.30	1.50 -0.20	0.60 ±0.10	0.15	6.302	•	
6.3 +0.30	1.55 -0.20	0.65 ±0.15	0.08	6.303	•	
6.3 +0.30	1.70 -0.10	0.70 ±0.10	0.15	6.304	•	
6.3 +0.30	2.00 -0.15	0.80 ±0.05	0.15	6.305	•	
6.3 +0.30	2.40 -0.30	1.00 ±0.15	0.15	6.306	•	
7.3 +0.30	1.80 -0.20	0.80 ±0.10	0.15	7.300	•	
7.3 +0.30	3.50 -0.20	1.00 ±0.15	0.15	7.301	•	
8.3 +0.30	1.50 -0.20	0.80 ±0.15	0.15	8.300	•	•
8.3 +0.30	2.60 -0.30	1.00 ±0.15	0.20	8.301	•	•
8.3 +0.30	4.00 -0.30	1.00 ±0.15	0.15	8.302	•	•
8.3 +0.30	2.00 -0.30	0.80 ±0.15	0.15	8.303	•	
9.3 +0.30	2.60 -0.30	1.00 ±0.15	0.20	9.300	•	
9.3 +0.30	4.00 -0.30	1.40 ±0.15	0.20	9.301	•	
10.3 +0.30	2.60 -0.30	1.00 ±0.15	0.20	10.300	•	•
10.3 +0.30	5.00 -0.30	1.40 ±0.15	0.20	10.301	•	•
10.3 +0.30	3.50 -0.20	1.20 ±0.15	0.15	10.302	•	
11.3 +0.40	3.50 -0.30	1.20 ±0.15	0.28	11.300	•	
11.3 +0.40	5.00 -0.30	1.40 ±0.15	0.28	11.301	•	
12.3 +0.40	3.50 -0.30	1.20 ±0.15	0.30	12.300	•	•
12.3 +0.40	6.00 -0.30	1.75 ±0.15	0.30	12.301	•	•
13.3 +0.40	3.50 -0.30	1.20 ±0.15	0.34	13.300	•	
13.3 +0.40	6.00 -0.30	1.75 ±0.15	0.34	13.301	•	
14.3 +0.40	5.00 -0.30	1.50 ±0.15	0.37	14.300	•	•
14.3 +0.40	7.00 -0.30	1.75 ±0.15	0.37	14.301	•	•
15.3 +0.40	5.00 -0.30	1.50 ±0.15	0.40	15.300	•	
15.3 +0.40	7.00 -0.30	2.00 ±0.20	0.40	15.301	•	
16.3 +0.40	5.00 -0.30	1.50 ±0.15	0.40	16.300	•	•
16.3 +0.40	8.00 -0.30	2.00 ±0.20	0.40	16.301	•	•
17.3 +0.50	6.20 -0.30	2.00 ±0.20	0.47	17.300	•	
17.3 +0.50	8.00 -0.30	2.00 ±0.20	0.47	17.301	•	

D mm	TK mm	d mm	a mm	Code	GC100S	
					7301	7309
					330mm	415mm
18.3 +0.50	6.20 -0.30	2.00 ±0.20	0.50	18.300	•	•
18.3 +0.50	9.00 -0.30	2.00 ±0.20	0.50	18.301	•	•
19.3 +0.50	6.20 -0.30	2.00 ±0.20	0.50	19.300	•	
19.3 +0.50	9.00 -0.30	2.00 ±0.20	0.50	19.301	•	
20.4 +0.50	3.50 -0.30	1.50 ±0.15	0.34	20.402	•	
20.4 +0.50	6.20 -0.40	2.00 ±0.20	0.50	20.400	•	•
20.4 +0.50	10.00 -0.40	2.50 ±0.25	0.50	20.401	•	•
21.4 +0.50	6.20 -0.40	2.00 ±0.20	0.50	21.400	•	
21.4 +0.50	10.00 -0.40	2.50 ±0.25	0.50	21.401	•	
22.4 +0.50	6.20 -0.40	2.00 ±0.20	0.50	22.400	•	
22.4 +0.50	11.00 -0.40	2.50 ±0.25	0.50	22.401	•	
23.4 +0.50	7.50 -0.40	2.00 ±0.20	0.50	23.400	•	
23.4 +0.50	11.00 -0.40	2.50 ±0.25	0.50	23.401	•	
24.4 +0.50	7.50 -0.40	2.00 ±0.20	0.50	24.400	•	
24.4 +0.50	12.00 -0.50	3.00 ±0.25	0.50	24.401	•	
25.4 +0.50	7.50 -0.40	2.00 ±0.20	0.50	25.400	•	•
25.4 +0.50	12.00 -0.50	3.00 ±0.25	0.50	25.401	•	•
26.4 +0.50	7.50 -0.40	2.00 ±0.20	0.50	26.400	•	
26.4 +0.50	13.00 -0.50	3.00 ±0.25	0.50	26.401	•	
28.4 +0.50	9.00 -0.40	2.50 ±0.25	0.50	28.400	•	
28.4 +0.50	14.00 -0.50	3.00 ±0.25	0.50	28.401	•	
30.4 +0.50	9.00 -0.40	2.50 ±0.25	0.50	30.401	•	
30.4 +0.50	14.00 -0.50	3.00 ±0.25	0.50	30.400	•	
32.4 +0.50	9.00 -0.40	2.50 ±0.25	0.50	32.400	•	•
32.4 +0.50	14.00 -0.50	3.00 ±0.25	0.50	32.401	•	•

寸法 | Dimensioning



研磨材 径公差 h6

■ オイルホール付き 2穴パラレルストレート

Rods, ground to tolerance h6

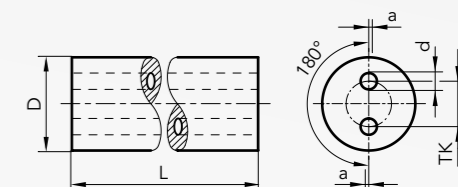
■ with 2 parallel coolant ducts



D h6 mm	TK mm	d mm	a mm	Code	GC100S 7302
330mm					
4.0	1.80 -0.15	0.80 ±0.10	0.10	4.000	•
5.0	2.00 -0.15	0.80 ±0.10	0.13	5.000	•
6.0	1.50 -0.20	0.80 ±0.10	0.15	6.000	•
6.0	3.00 -0.20	1.00 ±0.10	0.15	6.001	•
6.0	2.00 -0.15	0.80 ±0.05	0.15	6.005	•
6.0	2.40 -0.30	1.00 ±0.10	0.15	6.006	•
7.0	1.80 -0.20	0.80 ±0.10	0.15	7.000	•
7.0	3.50 -0.20	1.00 ±0.15	0.15	7.001	•
8.0	1.50 -0.20	0.80 ±0.15	0.15	8.000	•
8.0	2.60 -0.30	1.00 ±0.15	0.20	8.001	•
8.0	4.00 -0.30	1.00 ±0.15	0.15	8.002	•
8.0	2.00 -0.30	0.80 ±0.15	0.15	8.003	•
9.0	2.60 -0.30	1.00 ±0.15	0.20	9.000	•
9.0	4.00 -0.30	1.40 ±0.15	0.20	9.001	•
9.525	2.60 -0.30	1.00 ±0.15	0.20	9.520	•
9.525	5.00 -0.30	1.40 ±0.15	0.20	9.521	•
10.0	2.60 -0.30	1.00 ±0.15	0.20	10.000	•
10.0	5.00 -0.30	1.40 ±0.15	0.20	10.001	•
10.0	3.50 -0.20	1.20 ±0.15	0.15	10.002	•
11.0	3.50 -0.30	1.20 ±0.15	0.28	11.000	•
11.0	5.00 -0.30	1.40 ±0.15	0.28	11.001	•
12.0	3.50 -0.30	1.20 ±0.15	0.30	12.000	•
12.0	6.00 -0.30	1.75 ±0.15	0.30	12.001	•
12.700	3.50 -0.30	1.20 ±0.15	0.30	12.700	•
12.700	6.00 -0.30	1.75 ±0.15	0.30	12.701	•
13.0	3.50 -0.30	1.20 ±0.15	0.34	13.000	•
13.0	6.00 -0.30	1.75 ±0.15	0.34	13.001	•
14.0	5.00 -0.30	1.50 ±0.15	0.37	14.000	•
14.0	7.00 -0.30	1.75 ±0.15	0.37	14.001	•
15.0	5.00 -0.30	1.50 ±0.15	0.40	15.000	•
15.0	7.00 -0.30	2.00 ±0.20	0.40	15.001	•
15.875	5.00 -0.30	1.50 ±0.15	0.40	15.870	•
15.875	8.00 -0.30	2.00 ±0.20	0.40	15.871	•
16.0	5.00 -0.30	1.50 ±0.15	0.40	16.000	•
16.0	8.00 -0.30	2.00 ±0.20	0.40	16.001	•

D h6 mm	TK mm	d mm	a mm	Code	GC100S 7302
330mm					
17.0	6.20 -0.30	2.00 ±0.20	0.47	17.000	•
17.0	8.00 -0.30	2.00 ±0.20	0.47	17.001	•
18.0	6.20 -0.30	2.00 ±0.20	0.50	18.000	•
18.0	9.00 -0.30	2.00 ±0.20	0.50	18.001	•
19.0	9.00 -0.30	2.00 ±0.20	0.50	19.001	•
19.050	6.20 -0.30	2.00 ±0.20	0.50	19.050	•
19.050	9.00 -0.30	2.00 ±0.20	0.50	19.051	•
20.0	3.50 -0.30	1.50 ±0.15	0.34	20.002	•
20.0	6.20 -0.40	2.00 ±0.20	0.50	20.000	•
20.0	10.00 -0.40	2.50 ±0.25	0.50	20.001	•
21.0	6.20 -0.40	2.00 ±0.20	0.50	21.000	•
21.0	10.00 -0.40	2.50 ±0.25	0.50	21.001	•
22.0	6.20 -0.40	2.00 ±0.20	0.50	22.000	•
22.0	11.00 -0.40	2.50 ±0.25	0.50	22.001	•
23.0	11.00 -0.40	2.50 ±0.25	0.50	23.000	•
24.0	7.50 -0.40	2.00 ±0.20	0.50	24.000	•
24.0	12.00 -0.50	3.00 ±0.25	0.50	24.001	•
25.0	7.50 -0.40	2.00 ±0.20	0.50	25.000	•
25.0	12.00 -0.50	3.00 ±0.25	0.50	25.001	•
25.400	7.50 -0.40	2.00 ±0.20	0.50	25.402	•
26.0	13.00 -0.50	3.00 ±0.25	0.50	26.000	•
28.0	9.00 -0.40	2.50 ±0.25	0.50	28.000	•
28.0	14.00 -0.50	3.00 ±0.25	0.50	28.001	•
30.0	14.00 -0.50	3.00 ±0.25	0.50	30.000	•
30.0	9.00 -0.40	2.50 ±0.25	0.50	30.001	•
32.0	9.00 -0.40	2.50 ±0.25	0.50	32.000	•
32.0	14.00 -0.50	3.00 ±0.25	0.50	32.001	•

寸法 | Dimensioning



未研磨材

■ オイルホール付き 2穴15° ねじれ

Rods, raw

■ with 2 coolant ducts, 15° helix

D mm	TK mm	d mm	a mm	15° ±0.5° mm	Code	GC100S	
						7945	7947
						330mm	415mm
4.3 +0.30	2.10 ±0.10	0.60 ±0.10	0.10	46.90 +1.69/-1.59	4.300	•	
5.3 +0.30	2.60 ±0.15	0.70 ±0.10	0.13	58.62 +2.12/-1.98	5.300	•	
6.3 +0.30	2.60 -0.40	0.70 ±0.10	0.15	70.35 +2.54/-2.38	6.300	•	•
8.3 +0.30	3.60 -0.40	1.25 ±0.15	0.15	93.80 +3.38/-3.17	8.300	•	•
10.3 +0.30	4.80 -0.60	1.40 ±0.15	0.20	117.25 +4.23/-3.96	10.300	•	•
12.3 +0.40	6.25 -0.80	1.55 ±0.15	0.30	140.70 +5.08/-4.76	12.300	•	•
14.3 +0.40	6.70 -0.80	1.90 ±0.20	0.37	164.14 +5.92/-5.55	14.300	•	•
16.3 +0.40	8.00 -0.80	2.10 ±0.25	0.40	187.59 +6.77/-6.34	16.300	•	•
18.3 +0.40	9.00 -0.80	2.30 ±0.25	0.50	211.04 +7.61/-7.13	18.300	•	
20.3 +0.50	10.00 -1.00	2.50 ±0.30	0.50	234.49 +8.46/-7.93	20.300	•	
23.3 +0.50	12.00 -1.00	2.50 ±0.30	0.50	269.67 +9.73/-9.12	23.300	•	
26.3 +0.50	12.00 -1.00	2.50 ±0.30	0.50	304.84 +11.00/-10.31	26.300	•	

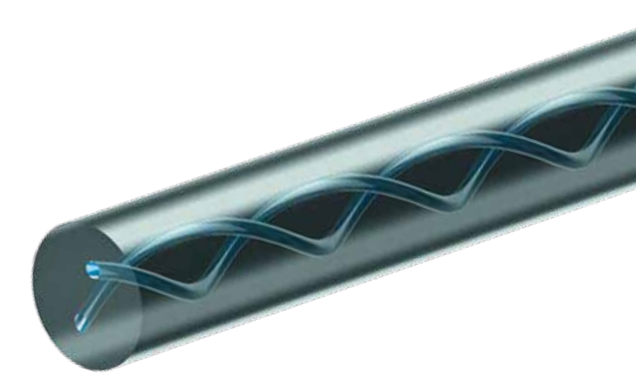
研磨材 径公差 h6

■ オイルホール付き 2穴15° ねじれ

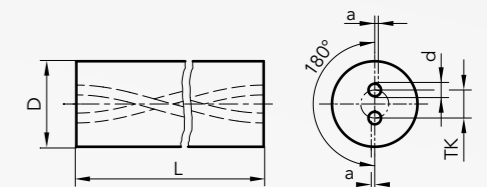
Rods, raw, ground to tolerance h6

■ with 2 coolant ducts, 15° helix

D h6 mm	TK mm	d mm	a mm	15° ±0.5° mm	Code	GC100S	
						7583	
						330mm	
6.0	2.60 -0.40	0.70 ±0.10	0.15	70.35 +2.54/-2.38	6.000	•	
8.0	3.60 -0.40	1.25 ±0.15	0.15	93.80 +3.38/-3.17	8.000	•	
10.0	4.80 -0.60	1.40 ±0.15	0.20	117.25 +4.23/-3.96	10.000	•	
12.0	6.25 -0.80	1.55 ±0.15	0.30	140.70 +5.08/-4.76	12.000	•	
14.0	6.70 -0.80	1.90 ±0.20	0.37	164.14 +5.92/-5.55	14.000	•	
16.0	8.00 -0.80	2.10 ±0.25	0.40	187.59 +6.77/-6.34	16.000	•	
18.0	9.00 -0.80	2.30 ±0.25	0.50	211.04 +7.61/-7.13	18.000	•	
20.0	10.00 -1.00	2.50 ±0.30	0.50	234.49 +8.46/-7.93	20.000	•	



寸法 | Dimensioning

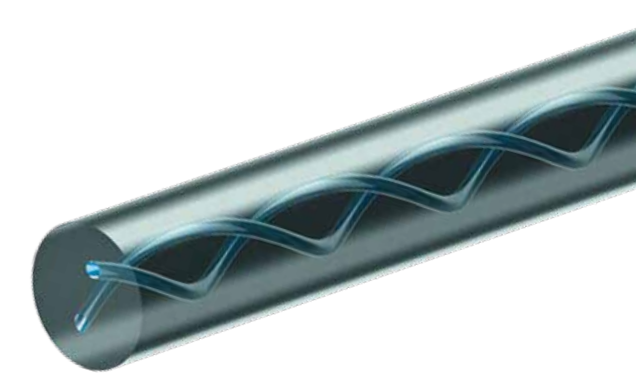


未研磨材

■ オイルホール付き 2穴30° ねじれ

Rods, raw

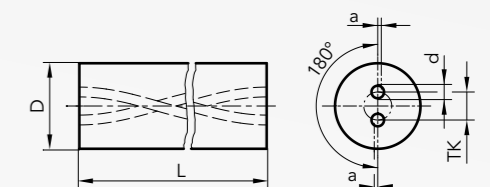
■ with 2 coolant ducts, 30° helix



D mm	TK mm	d mm	a mm	30° ±0.5° mm	Code	GC100S		GC080S
						7940	7353	7370
						330mm	415mm	330mm
3.3 +0.30	1.60 ±0.10	0.40 ±0.10	0.08	16.32 +0.33/-0.32	3.300	•		
3.8 +0.30	1.80 ±0.10	0.50 ±0.10	0.09	19.04 +0.39/-0.38	3.800	•		
4.3 +0.30	2.10 ±0.10	0.60 ±0.10	0.10	21.77 +0.45/-0.43	4.300	•		
4.8 +0.30	2.30 ±0.10	0.70 ±0.10	0.10	24.49 +0.50/-0.49	4.800	•		
5.3 +0.30	2.60 ±0.15	0.70 ±0.10	0.13	27.21 +0.56/-0.54	5.300	•		
5.8 +0.30	2.60 -0.40	0.70 ±0.10	0.14	29.93 +0.61/-0.59	5.800	•		
6.3 +0.30	2.60 -0.40	0.70 ±0.10	0.15	32.65 +0.67/-0.65	6.300	•	•	•
6.3 +0.30	2.00 -0.20	0.80 ±0.10	0.15	32.65 +0.67/-0.65	6.301	•		
6.3 +0.30	2.60 -0.40	0.90 ±0.10	0.15	32.65 +0.67/-0.65	6.302	•		
6.8 +0.30	3.50 -0.40	1.00 ±0.15	0.15	35.37 +0.72/-0.70	6.800	•		
7.3 +0.30	3.50 -0.40	1.00 ±0.15	0.15	38.09 +0.78/-0.76	7.300	•		
7.8 +0.30	3.50 -0.40	1.00 ±0.15	0.15	40.81 +0.84/-0.81	7.800	•		
8.3 +0.30	3.60 -0.40	1.25 ±0.15	0.15	43.53 +0.89/-0.86	8.300	•	•	•
8.3 +0.30	3.50 -0.40	0.90 ±0.10	0.15	43.53 +0.89/-0.86	8.301	•		
8.8 +0.30	3.60 -0.40	1.25 ±0.15	0.20	46.25 +0.95/-0.92	8.800	•		
9.3 +0.30	4.80 -0.60	1.40 ±0.15	0.20	48.97 +1.00/-0.97	9.300	•		
9.8 +0.30	4.80 -0.60	1.40 ±0.15	0.20	51.69 +1.06/-1.03	9.800	•		
10.3 +0.30	4.80 -0.60	1.40 ±0.15	0.20	54.41 +1.11/-1.08	10.300	•	•	•
10.3 +0.30	4.80 -0.60	0.90 ±0.10	0.20	54.41 +1.11/-1.08	10.301	•		
10.8 +0.40	4.80 -0.60	1.40 ±0.15	0.28	57.13 +1.17/-1.13	10.800	•		
11.3 +0.40	5.30 -0.80	1.40 ±0.15	0.28	59.86 +1.22/-1.19	11.300	•	•	
11.8 +0.40	5.80 -0.80	1.40 ±0.15	0.30	62.58 +1.28/-1.24	11.800	•		
12.3 +0.40	6.25 -0.80	1.55 ±0.15	0.30	65.30 +1.34/-1.30	12.300	•	•	•
12.3 +0.40	5.40 -0.80	1.50 ±0.15	0.30	65.30 +1.34/-1.30	12.301	•		
12.8 +0.40	6.25 -0.80	1.55 ±0.15	0.33	68.02 +1.39/-1.35	12.800	•		
13.3 +0.40	6.50 -0.80	1.75 ±0.20	0.34	70.74 +1.45/-1.40	13.300	•		
13.8 +0.40	6.50 -0.80	1.75 ±0.20	0.35	73.46 +1.50/-1.46	13.800	•		
14.3 +0.40	6.70 -0.80	1.90 ±0.20	0.37	76.18 +1.56/-1.51	14.300	•	•	•
14.8 +0.40	6.70 -0.80	1.90 ±0.20	0.39	78.90 +1.61/-1.57	14.800	•		
15.3 +0.40	7.40 -0.80	1.90 ±0.20	0.40	81.62 +1.67/-1.62	15.300	•		
15.8 +0.40	7.40 -0.80	1.90 ±0.20	0.40	84.34 +1.73/-1.67	15.800	•		
16.3 +0.40	8.00 -0.80	2.10 ±0.25	0.40	87.06 +1.78/-1.73	16.300	•	•	•
16.8 +0.50	8.00 -0.80	2.10 ±0.25	0.45	89.78 +1.84/-1.78	16.800	•		
17.3 +0.50	8.00 -0.80	2.10 ±0.25	0.47	92.50 +1.89/-1.84	17.300	•		
17.8 +0.50	8.00 -0.80	2.10 ±0.25	0.48	95.22 +1.95/-1.89	17.800	•		

D mm	TK mm	d mm	a mm	30° ±0.5° mm	Code	GC100S		GC080S
						7940	7353	7370
						330mm	415mm	330mm
18.3 +0.50	9.00 -0.80	2.30 ±0.25	0.50	97.95 +2.00/-1.94	18.300	•	•	•
18.8 +0.50	9.00 -0.80	2.30 ±0.25	0.50	100.67 +2.06/-2.00	18.800	•		
19.3 +0.50	9.00 -0.80	2.30 ±0.25	0.50	103.39 +2.12/-2.05	19.300	•		
19.8 +0.50	9.00 -0.80	2.30 ±0.25	0.50	106.11 +2.17/-2.11	19.800	•		
20.3 +0.50	10.00 -1.00	2.50 ±0.30	0.50	108.83 +2.23/-2.16	20.300	•	•	•
21.3 +0.50	10.00 -1.00	2.50 ±0.30	0.50	114.27 +2.34/-2.27	21.300	•		
22.3 +0.50	10.00 -1.00	2.50 ±0.30	0.50	119.71 +2.45/-2.38	22.300	•		•
23.3 +0.50	12.00 -1.00	2.50 ±0.30	0.50	125.15 +2.56/-2.48	23.300	•		
24.3 +0.50	12.00 -1.00	2.50 ±0.30	0.50	130.59 +2.67/-2.59	24.300	•		
25.3 +0.50	12.00 -1.00	2.50 ±0.30	0.50	136.03 +2.78/-2.70	25.300	•	•	•
26.3 +0.50	12.00 -1.00	2.50 ±0.30	0.50	141.48 +2.90/-2.81	26.300	•		
27.3 +0.50	14.30 -1.20	2.50 ±0.30	0.60	146.92 +3.01/-2.92	27.300	•		
28.3 +0.50	14.80 -1.20	2.50 ±0.30	0.60	152.36 +3.12/-3.02	28.300	•		
29.3 +0.50	15.40 -1.20	2.50 ±0.30	0.60	157.80 +3.23/-3.13	29.300	•		
30.3 +0.50	16.00 -1.20	2.50 ±0.30	0.70	163.24 +3.34/-3.24	30.300	•		
32.3 +0.50	17.20 -1.20	3.00 ±0.30	0.80	174.12 +3.56/-3.46	32.300	•	•	•
33.3 +0.50	17.80 -1.20	3.00 ±0.30	0.80	179.57 +3.67/-3.57	33.300	•		

寸法 | Dimensioning



未研磨材

■ オイルホール付き 2穴30° ねじれ

Rods, raw

■ with 2 coolant ducts, 30° helix

D mm	TK mm	d mm	a mm	ピッチ Pitch mm	Code	GC100S 7074
						700mm
12.8 +0.40	6.10 -0.80	1.40 ±0.15	0.30	57.40 ±1.94	12.301	•
12.8 +0.40	6.60 -0.80	1.50 ±0.15	0.30	62.80 ±2.19	12.300	•
14.8 +0.40	7.40 -0.80	1.70 ±0.20	0.37	71.00 ±2.44	14.300	•
16.8 +0.40	8.60 -0.80	1.90 ±0.25	0.40	81.90 ±2.94	16.300	•
18.8 +0.50	9.70 -0.80	2.20 ±0.25	0.40	92.80 ±3.33	18.300	•
20.8 +0.50	10.80 -1.00	2.50 ±0.30	0.40	103.70 ±3.66	20.300	•
25.8 +0.50	12.80 -1.00	2.70 ±0.30	0.40	122.70 ±4.84	25.300	•
30.8 +0.50	15.60 -1.20	3.30 ±0.30	0.40	149.90 ±6.04	30.300	•
32.8 +0.50	17.50 -1.20	3.70 ±0.30	0.40	169.00 ±6.93	32.300	•

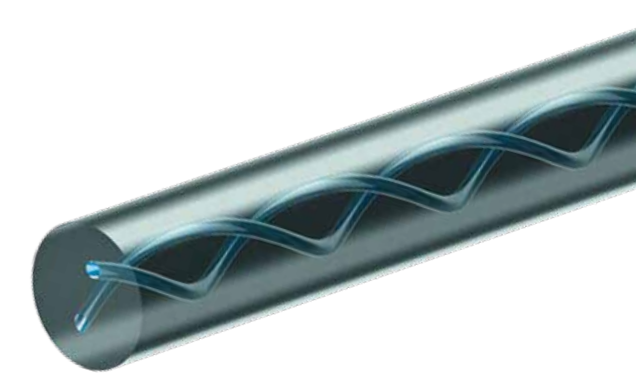
研磨材 径公差 h6

■ オイルホール付き 2穴30° ねじれ

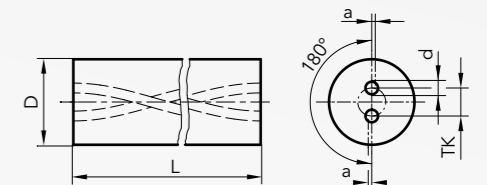
Rods, ground to tolerance h6

■ with 2 coolant ducts, 30° helix

D h6 mm	TK mm	d mm	a mm	30° ±0.5° mm	Code	GC100S	
						7328	7355
						330mm	415mm
6.0	2.60 -0.40	0.70 ±0.10	0.15	32.65 +0.67/-0.65	6.000	•	•
7.0	3.50 -0.40	1.00 ±0.15	0.15	38.09 +0.78/-0.76	7.000	•	
8.0	3.60 -0.40	1.25 ±0.15	0.15	43.53 +0.89/-0.86	8.000	•	•
9.0	4.80 -0.60	1.40 ±0.15	0.20	48.97 +1.00/-0.97	9.000	•	
10.0	4.80 -0.60	1.40 ±0.15	0.20	54.41 +1.11/-1.08	10.000	•	•
11.0	5.30 -0.80	1.40 ±0.15	0.28	59.86 +1.22/-1.19	11.000	•	
12.0	6.25 -0.80	1.55 ±0.15	0.30	65.30 +1.34/-1.30	12.000	•	•
13.0	6.50 -0.80	1.75 ±0.20	0.34	70.74 +1.45/-1.40	13.000	•	
14.0	6.70 -0.80	1.90 ±0.20	0.37	76.18 +1.56/-1.51	14.000	•	•
15.0	7.40 -0.80	1.90 ±0.20	0.40	81.62 +1.67/-1.62	15.000	•	
16.0	8.00 -0.80	2.10 ±0.20	0.40	87.06 +1.78/-1.73	16.000	•	•
17.0	8.00 -0.80	2.10 ±0.20	0.47	92.50 +1.89/-1.84	17.000	•	
18.0	9.00 -0.80	2.30 ±0.25	0.50	97.95 +2.00/-1.94	18.000	•	•
20.0	10.00 -1.00	2.50 ±0.25	0.50	108.83 +2.23/-2.16	20.000	•	•
21.0	10.00 -1.00	2.50 ±0.25	0.50	114.27 +2.34/-2.27	21.000	•	
22.0	10.00 -1.00	2.50 ±0.25	0.50	119.71 +2.45/-2.38	22.000	•	
24.0	12.00 -1.00	2.50 ±0.25	0.50	130.59 +2.67/-2.59	24.000	•	
25.0	12.00 -1.00	2.50 ±0.25	0.50	136.03 +2.78/-2.70	25.000	•	
26.0	12.00 -1.00	2.50 ±0.25	0.50	141.48 +2.90/-2.81	26.000	•	
28.0	14.80 -1.20	2.50 ±0.30	0.60	152.36 +3.12/-3.02	28.000	•	
30.0	16.00 -1.20	2.50 ±0.30	0.70	163.24 +3.34/-3.24	30.000	•	
32.0	17.20 -1.20	3.00 ±0.30	0.80	174.12 +3.56/-3.46	32.000	•	



寸法 | Dimensioning

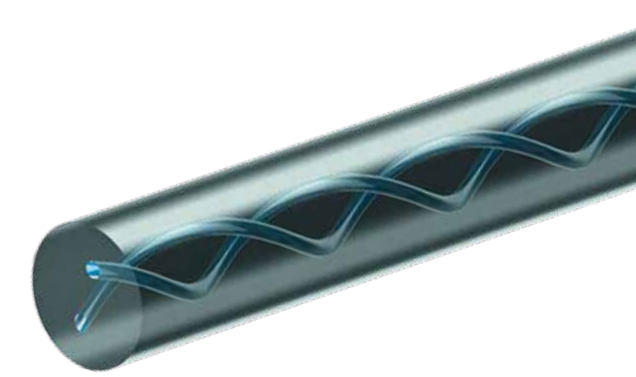


未研磨材

■ オイルホール付き 2穴40° ねじれ

Rods, raw

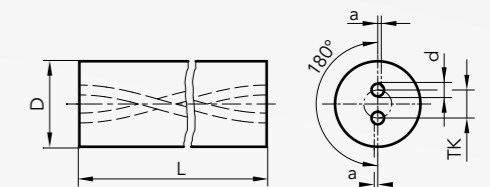
■ with 2 coolant ducts, 40° helix



D mm	TK mm	d mm	a mm	40° ±0.5° mm	Code	GC100S		GC080S
						7935	7385	7397
						330mm	415mm	330mm
6.3 +0.30	2.20 -0.40	0.50 ±0.15	0.15	22.46 +0.40/-0.39	6.300	•		•
6.3 +0.30	1.30 -0.20	0.30 ±0.05	0.10	22.46 +0.40/-0.39	6.301	•		
6.3 +0.30	1.40 -0.40	0.40 ±0.15	0.15	22.46 +0.40/-0.39	6.302	•		
6.8 +0.30	2.30 -0.40	0.50 ±0.15	0.15	24.34 +0.44/-0.43	6.800	•		
7.3 +0.30	2.40 -0.40	0.65 ±0.15	0.15	26.21 +0.47/-0.46	7.300	•		
7.8 +0.30	2.50 -0.40	0.65 ±0.15	0.15	28.08 +0.50/-0.49	7.800	•		
8.3 +0.30	2.70 -0.60	0.65 ±0.15	0.15	29.95 +0.54/-0.53	8.300	•		•
8.3 +0.30	1.70 -0.20	0.40 ±0.10	0.10	29.95 +0.54/-0.53	8.301	•		
8.8 +0.30	2.90 -0.60	0.65 ±0.15	0.20	31.82 +0.57/-0.56	8.800	•		
9.3 +0.30	3.20 -0.60	0.75 ±0.15	0.20	33.70 +0.60/-0.59	9.300	•		
9.8 +0.30	3.50 -0.60	0.75 ±0.15	0.20	35.57 +0.64/-0.62	9.800	•		
10.3 +0.40	3.50 -0.80	0.80 ±0.15	0.20	37.44 +0.67/-0.66	10.300	•	•	•
10.3 +0.40	2.10 -0.20	0.50 ±0.10	0.20	37.44 +0.67/-0.66	10.301	•		
10.3 +0.40	3.00 -0.40	1.00 ±0.20	0.20	37.44 +0.67/-0.66	10.302	•		
10.8 +0.40	3.50 -0.80	0.80 ±0.15	0.28	39.31 +0.70/-0.69	10.800	•		
11.3 +0.40	3.70 -0.80	0.80 ±0.15	0.28	41.18 +0.74/-0.72	11.300	•		
11.8 +0.40	4.00 -0.80	0.85 ±0.15	0.30	43.06 +0.77/-0.76	11.800	•		
12.3 +0.40	4.20 -0.80	0.90 ±0.20	0.30	44.93 +0.80/-0.79	12.300	•	•	•
12.3 +0.40	2.50 -0.40	0.60 ±0.10	0.20	44.93 +0.80/-0.79	12.301	•		
12.8 +0.40	4.35 -0.80	0.90 ±0.20	0.33	46.80 +0.84/-0.82	12.800	•		
13.3 +0.40	4.40 -0.80	0.90 ±0.20	0.34	48.67 +0.87/-0.85	13.300	•		
14.3 +0.40	4.70 -0.80	1.00 ±0.20	0.37	52.42 +0.94/-0.92	14.300	•	•	•
14.3 +0.40	2.90 -0.40	0.70 ±0.10	0.20	52.42 +0.94/-0.92	14.301	•		
14.8 +0.40	4.90 -0.80	1.10 ±0.20	0.39	54.29 +0.97/-0.95	14.800	•		
15.3 +0.50	5.10 -0.80	1.10 ±0.20	0.40	56.16 +1.01/-0.99	15.300	•		
16.3 +0.50	5.50 -0.80	1.20 ±0.20	0.40	59.90 +1.07/-1.05	16.300	•	•	•
16.3 +0.50	3.30 -0.40	0.80 ±0.10	0.20	59.90 +1.07/-1.05	16.301	•		
16.8 +0.50	5.75 -0.80	1.20 ±0.20	0.45	61.78 +1.11/-1.08	16.800	•		
17.3 +0.50	5.90 -0.80	1.20 ±0.25	0.47	63.65 +1.14/-1.12	17.300	•		
18.3 +0.50	6.30 -0.80	1.40 ±0.25	0.50	67.39 +1.21/-1.18	18.300	•	•	
18.3 +0.50	3.70 -0.40	0.90 ±0.15	0.20	67.39 +1.21/-1.18	18.301	•		

D mm	TK mm	d mm	a mm	40° ±0.5° mm	Code	GC100S		GC080S
						7935	7385	7397
						330mm	415mm	330mm
19.3 +0.50	6.70 -1.00	1.40 ±0.25	0.50	71.14 +1.27/-1.25	19.300	•		
20.3 +0.50	7.10 -1.00	1.50 ±0.25	0.50	74.88 +1.34/-1.31	20.300	•	•	•
20.3 +0.50	4.10 -0.40	1.00 ±0.15	0.20	74.88 +1.34/-1.31	20.301	•		
21.3 +0.50	7.40 -1.00	1.50 ±0.25	0.50	78.62 +1.41/-1.38	21.300	•		
22.3 +0.50	7.70 -1.00	1.70 ±0.25	0.50	82.37 +1.48/-1.44	22.300	•		
24.3 +0.50	8.00 -1.00	1.75 ±0.25	0.50	89.86 +1.61/-1.58	24.300	•		
25.3 +0.50	8.10 -1.00	1.75 ±0.25	0.50	93.60 +1.68/-1.64	25.300	•	•	•
25.3 +0.50	5.10 -0.60	1.30 ±0.15	0.20	93.60 +1.68/-1.64	25.301	•		
26.3 +0.50	8.20 -1.00	1.75 ±0.25	0.50	97.34 +1.74/-1.71	26.300	•		
28.3 +0.50	9.00 -1.20	2.00 ±0.30	0.50	104.83 +1.88/-1.84	28.300	•		
30.3 +0.50	10.00 -1.20	2.00 ±0.30	0.50	112.32 +2.01/-1.97	30.300	•		
32.3 +0.50	11.00 -1.20	2.00 ±0.30	0.50	119.81 +2.15/-2.10	32.300	•	•	
32.3 +0.50	6.50 -0.80	1.60 ±0.20	0.25	119.81 +2.15/-2.10	32.301	•		

寸法 | Dimensioning



研磨材 径公差 h6

■ オイルホール付き 2穴40° ねじれ

Rods, ground to tolerance h6

■ with 2 coolant ducts, 40° helix

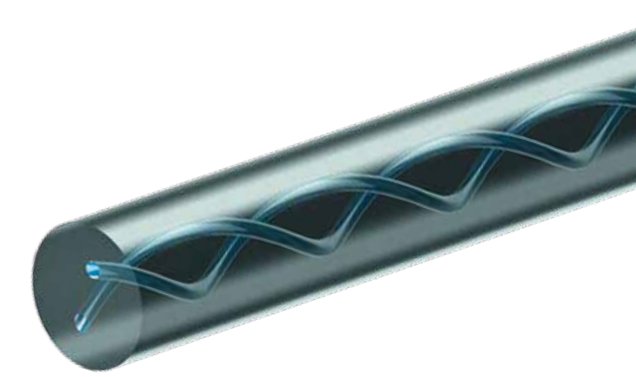
D h6 mm	TK mm	d mm	a mm	40° ±0.5° mm	Code	GC100S 7330
						330mm
6.0	2.20 -0.40	0.50 ±0.15	0.15	22.46 +0.40/-0.39	6.000	•
6.0	1.30 -0.20	0.30 ±0.05	0.10	22.46 +0.40/-0.39	6.001	•
6.0	1.40 -0.40	0.40 ±0.15	0.15	22.46 +0.40/-0.39	6.002	•
7.0	2.40 -0.40	0.65 ±0.15	0.15	26.21 +0.47/-0.46	7.000	•
8.0	2.70 -0.60	0.65 ±0.15	0.15	29.95 +0.54/-0.53	8.000	•
8.0	1.70 -0.20	0.40 ±0.10	0.10	29.95 +0.54/-0.53	8.001	•
9.0	3.20 -0.60	0.75 ±0.15	0.20	33.70 +0.60/-0.59	9.000	•
10.0	3.50 -0.80	0.80 ±0.15	0.20	37.44 +0.67/-0.66	10.000	•
10.0	2.10 -0.20	0.50 ±0.10	0.20	37.44 +0.67/-0.66	10.001	•
11.0	3.70 -0.80	0.80 ±0.15	0.28	41.18 +0.74/-0.72	11.000	•
12.0	4.20 -0.80	0.90 ±0.20	0.30	44.93 +0.80/-0.79	12.000	•
12.0	2.50 -0.40	0.60 ±0.10	0.20	44.93 +0.80/-0.79	12.001	•
13.0	4.40 -0.80	0.90 ±0.20	0.34	48.67 +0.87/-0.85	13.000	•
14.0	4.70 -0.80	1.00 ±0.20	0.37	52.42 +0.94/-0.92	14.000	•
14.0	2.90 -0.40	0.70 ±0.10	0.20	52.42 +0.94/-0.92	14.001	•
15.0	5.10 -0.80	1.10 ±0.20	0.40	56.16 +1.01/-0.99	15.000	•
16.0	5.50 -0.80	1.20 ±0.20	0.47	59.90 +1.07/-1.05	16.000	•
16.0	3.30 -0.40	0.80 ±0.10	0.20	59.90 +1.07/-1.05	16.001	•
18.0	6.30 -0.80	1.40 ±0.25	0.50	67.39 +1.21/-1.18	18.000	•
18.0	3.70 -0.40	0.90 ±0.15	0.20	67.39 +1.21/-1.18	18.001	•
20.0	7.10 -1.00	1.50 ±0.25	0.50	74.88 +1.34/-1.31	20.000	•
20.0	4.10 -1.00	1.00 ±0.15	0.20	74.88 +1.34/-1.31	20.001	•
22.0	7.70 -1.00	1.70 ±0.25	0.50	82.37 +1.48/-1.44	22.000	•
25.0	8.10 -1.00	1.75 ±0.25	0.50	93.60 +1.68/-1.64	25.000	•
25.0	5.10 -0.60	1.30 ±0.15	0.20	93.60 +1.68/-1.64	25.001	•
26.0	8.20 -1.00	1.75 ±0.25	0.50	97.34 +1.74/-1.71	26.000	•

超硬丸棒、黒皮

■ オイルホール付き 2穴マイクロツイストタイプ

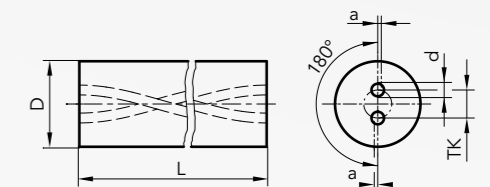
Rods, raw

■ with 2 coolant ducts, microtwisted



D mm	TK mm	d mm	a mm	ピッチ Pitch mm	Code	GC100S 7039
						330mm
4.3 +0.30	0.50 ±0.1	0.23 ±0.05	0.10	10.79 ±0.2	4.125	•
4.3 +0.30	0.80 ±0.1	0.23 ±0.05	0.10	11.12 ±0.2	4.165	•
4.3 +0.30	1.00 ±0.2	0.30 ±0.05	0.10	10.61 ±0.2	4.195	•
6.3 +0.30	1.00 ±0.2	0.45 ±0.05	0.15	12.79 ±0.3	6.225	•
6.3 +0.30	1.20 ±0.2	0.50 ±0.06	0.15	15.24 ±0.3	6.275	•
6.3 +0.30	1.50 ±0.2	0.55 ±0.07	0.15	17.68 ±0.3	6.325	•
6.3 +0.30	1.70 ±0.2	0.60 ±0.08	0.15	20.41 ±0.3	6.375	•
6.3 +0.30	2.00 ±0.2	0.70 ±0.10	0.15	23.13 ±0.3	6.425	•
6.3 +0.30	2.30 ±0.2	0.80 ±0.10	0.15	25.85 ±0.3	6.475	•
6.3 +0.30	2.60 ±0.2	0.90 ±0.10	0.15	28.57 ±0.3	6.525	•
6.3 +0.30	2.80 ±0.2	1.00 ±0.10	0.15	31.29 ±0.3	6.575	•

寸法 | Dimensioning



未研磨材

■ オイルホール付き 3穴30° ねじれ

Rods, raw

■ with 3 coolant ducts, 30° helix

D mm	TK mm	d mm	a	30° ±0.5° mm	Code	GC100S	
						7933	7383
						330mm	415mm
6.3 +0.30	2.90 -0.30	0.50 ±0.10	±4°	32.65 +0.67/-0.65	6.300	•	
6.8 +0.30	2.90 -0.30	0.50 ±0.10	±4°	35.37 +0.72/-0.70	6.800	•	
8.3 +0.30	4.00 -0.30	0.70 ±0.10	±4°	43.53 +0.89/-0.86	8.300	•	
8.8 +0.30	4.00 -0.30	0.70 ±0.10	±4°	46.25 +0.95/-0.92	8.800	•	
9.3 +0.30	5.10 -0.30	0.85 ±0.15	±4°	48.97 +1.00/-0.97	9.300	•	
10.3 +0.30	5.10 -0.30	0.85 ±0.15	±4°	54.41 +1.11/-1.08	10.300	•	•
10.8 +0.40	5.10 -0.50	0.85 ±0.15	±4°	57.13 +1.17/-1.13	10.800	•	
11.3 +0.40	5.70 -0.50	1.10 ±0.15	±4°	59.86 +1.22/-1.19	11.300	•	
11.8 +0.40	6.10 -0.50	1.10 ±0.15	±4°	62.58 +1.28/-1.24	11.800	•	
12.3 +0.40	6.30 -0.50	1.10 ±0.15	±4°	65.30 +1.34/-1.30	12.300	•	•
12.8 +0.40	6.30 -0.50	1.10 ±0.15	±4°	68.02 +1.39/-1.35	12.800	•	
13.3 +0.40	6.80 -0.50	1.20 ±0.15	±4°	70.74 +1.45/-1.40	13.300	•	
14.3 +0.40	7.30 -0.50	1.40 ±0.15	±4°	76.18 +1.56/-1.51	14.300	•	•
14.8 +0.40	7.60 -0.50	1.40 ±0.15	±4°	78.90 +1.61/-1.57	14.800	•	
15.3 +0.40	7.80 -0.50	1.40 ±0.15	±4°	81.62 +1.67/-1.62	15.300	•	
16.3 +0.40	8.30 -0.50	1.60 ±0.15	±4°	87.06 +1.78/-1.73	16.300	•	•
16.8 +0.50	8.30 -0.50	1.60 ±0.20	±4°	89.78 +1.84/-1.78	16.800	•	
17.3 +0.50	8.60 -0.50	1.60 ±0.20	±4°	92.50 +1.89/-1.84	17.300	•	
18.3 +0.50	9.50 -0.50	1.70 ±0.20	±4°	97.95 +2.00/-1.94	18.300	•	•
20.3 +0.50	10.20 -0.70	1.90 ±0.25	±4°	108.83 +2.23/-2.16	20.300	•	•
21.3 +0.50	11.10 -0.70	2.00 ±0.25	±4°	114.27 +2.34/-2.27	21.300	•	
22.3 +0.50	11.50 -0.70	2.00 ±0.25	±4°	119.71 +2.45/-2.38	22.300	•	
23.3 +0.50	11.80 -0.70	2.00 ±0.25	±4°	125.15 +2.56/-2.48	23.300	•	
24.3 +0.50	12.10 -0.70	2.00 ±0.25	±4°	130.59 +2.67/-2.59	24.300	•	
25.3 +0.50	12.50 -0.70	2.00 ±0.25	±4°	136.03 +2.78/-2.70	25.300	•	•
26.3 +0.50	13.10 -0.70	2.00 ±0.25	±4°	141.48 +2.90/-2.81	26.300	•	
27.3 +0.50	13.60 -0.90	2.50 ±0.30	±4°	146.92 +3.01/-2.92	27.300	•	
28.3 +0.50	14.10 -0.90	2.50 ±0.30	±4°	152.36 +3.12/-3.02	28.300	•	
29.3 +0.50	14.60 -0.90	2.50 ±0.30	±4°	157.80 +3.23/-3.13	29.300	•	
32.3 +0.50	16.10 -1.20	3.00 ±0.30	±4°	174.12 +3.56/-3.46	32.300	•	•
33.3 +0.50	16.60 -1.20	3.00 ±0.30	±4°	179.57 +3.67/-3.57	33.300	•	

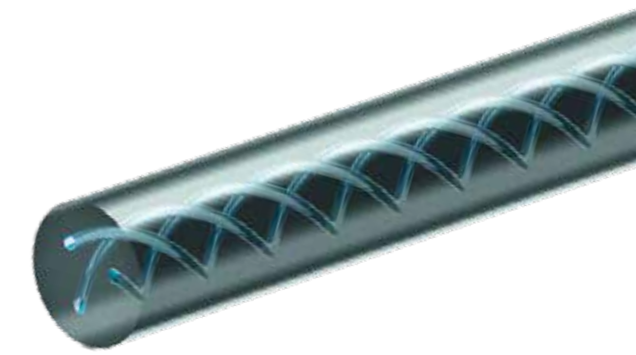
研磨超硬丸棒、h6

■ オイルホール付き 3穴30° ねじれ

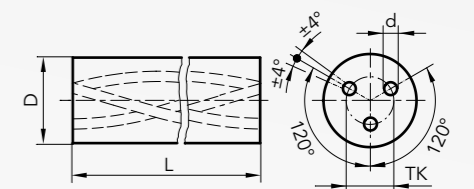
Rods, ground to tolerance h6

■ with 3 coolant ducts, 30° helix

D h6 mm	TK mm	d mm	a	30° ±0.5° mm	Code	GC100S	
						7933	7358
						330mm	
6.0	2.90 -0.30	0.50 ±0.10	±4°	32.65 +0.67/-0.65	6.000	•	
8.0	4.00 -0.30	0.70 ±0.10	±4°	43.53 +0.89/-0.86	8.000	•	
10.0	5.10 -0.30	0.85 ±0.15	±4°	54.41 +1.11/-1.08	10.000	•	
12.0	6.30 -0.50	1.10 ±0.15	±4°	65.30 +1.34/-1.30	12.000	•	
14.0	7.30 -0.50	1.40 ±0.15	±4°	76.18 +1.56/-1.51	14.000	•	
16.0	8.30 -0.50	1.60 ±0.15	±4°	87.06 +1.78/-1.73	16.000	•	
18.0	9.50 -0.50	1.70 ±0.20	±4°	97.95 +2.00/-1.94	18.000	•	
20.0	10.20 -0.70	1.90 ±0.25	±4°	108.83 +2.23/-2.16	20.000	•	
22.0	11.50 -0.70	2.00 ±0.25	±4°	119.71 +2.45/-2.38	22.000	•	
25.0	12.50 -0.70	2.00 ±0.25	±4°	136.03 +2.78/-2.70	25.000	•	
26.0	13.10 -0.70	2.00 ±0.25	±4°	141.48 +2.90/-2.81	26.000	•	
28.0	14.10 -0.90	2.50 ±0.30	±4°	152.36 +3.12/-3.02	28.000	•	
32.0	16.10 -1.20	3.00 ±0.30	±4°	174.12 +3.56/-3.46	32.000	•	



寸法 | Dimensioning



未研磨材

■ オイルホール付き 3穴40° ねじれ

Rods, raw

■ with 3 coolant ducts, 40° helix

D mm	TK mm	d mm	a	40° ±0.5° mm	Code	GC100S	
						7934	7384
						330mm	415mm
6.3 +0.30	2.20 -0.30	0.50 ±0.15	±4°	22.46 +0.40/-0.39	6.300	•	
8.3 +0.30	2.70 -0.30	0.65 ±0.15	±4°	29.95 +0.54/-0.53	8.300	•	•
8.8 +0.30	2.90 -0.30	0.65 ±0.15	±4°	31.82 +0.57/-0.56	8.800	•	
10.3 +0.40	3.50 -0.30	0.80 ±0.15	±4°	37.44 +0.67/-0.66	10.300	•	•
12.3 +0.40	4.20 -0.50	0.90 ±0.20	±4°	44.93 +0.80/-0.79	12.300	•	
12.8 +0.40	4.35 -0.50	0.90 ±0.20	±4°	46.80 +0.84/-0.82	12.800	•	
14.3 +0.40	4.70 -0.50	1.00 ±0.20	±4°	52.42 +0.94/-0.92	14.300	•	•
15.3 +0.50	5.10 -0.50	1.10 ±0.20	±4°	56.16 +1.01/-0.99	15.300	•	
15.8 +0.50	5.30 -0.50	1.10 ±0.20	±4°	58.03 +1.04/-1.02	15.800	•	
16.3 +0.50	5.50 -0.50	1.20 ±0.20	±4°	59.90 +1.07/-1.05	16.300	•	•
16.8 +0.50	5.75 -0.50	1.20 ±0.20	±4°	61.78 +1.11/-1.08	16.800	•	
18.3 +0.50	6.30 -0.50	1.40 ±0.25	±4°	67.39 +1.21/-1.18	18.300	•	
18.8 +0.50	6.50 -0.50	1.40 ±0.25	±4°	69.26 +1.24/-1.21	18.800	•	
19.3 +0.50	6.70 -0.70	1.40 ±0.25	±4°	71.14 +1.27/-1.25	19.300	•	
20.3 +0.50	7.10 -0.70	1.50 ±0.25	±4°	74.88 +1.34/-1.31	20.300	•	
21.3 +0.50	7.40 -0.70	1.50 ±0.25	±4°	78.62 +1.41/-1.38	21.300	•	
22.3 +0.50	7.70 -0.70	1.70 ±0.25	±4°	82.37 +1.48/-1.44	22.300	•	
24.3 +0.50	8.00 -0.90	1.75 ±0.25	±4°	89.86 +1.61/-1.58	24.300	•	
25.3 +0.50	8.10 -0.90	1.75 ±0.25	±4°	93.60 +1.68/-1.64	25.300	•	
26.3 +0.50	8.20 -0.90	1.75 ±0.25	±4°	97.34 +1.74/-1.71	26.300	•	
28.3 +0.50	9.00 -0.90	2.00 ±0.30	±4°	104.83 +1.88/-1.84	28.300	•	
30.3 +0.50	10.00 -1.10	2.00 ±0.30	±4°	112.32 +2.01/-1.97	30.300	•	
32.3 +0.50	11.00 -1.10	2.00 ±0.30	±4°	119.81 +2.15/-2.10	32.300	•	•

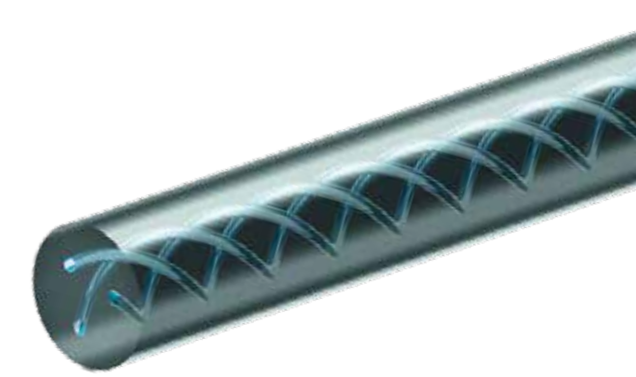
研磨材 径公差 h6

■ オイルホール付き 3穴40° ねじれ

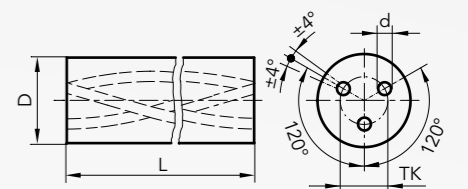
Rods, ground to tolerance h6

■ with 3 coolant ducts, 40° helix

D h6 mm	TK mm	d mm	a	40° ±0.5° mm	Code	GC100S	
						7934	7359
						330mm	
6.0	2.20 -0.30	0.50 ±0.15	±4°	22.46 +0.40/-0.39	6.000	•	
8.0	2.70 -0.30	0.65 ±0.15	±4°	29.95 +0.54/-0.53	8.000	•	
10.0	3.50 -0.30	0.80 ±0.15	±4°	37.44 +0.67/-0.66	10.000	•	
12.0	4.20 -0.50	0.90 ±0.20	±4°	44.93 +0.80/-0.79	12.000	•	
14.0	4.70 -0.50	1.00 ±0.20	±4°	52.42 +0.94/-0.92	14.000	•	
16.0	5.50 -0.50	1.20 ±0.20	±4°	59.90 +1.07/-1.05	16.000	•	
18.0	6.30 -0.50	1.40 ±0.25	±4°	67.39 +1.21/-1.18	18.000	•	
20.0	7.10 -0.70	1.50 ±0.25	±4°	74.88 +1.34/-1.31	20.000	•	
22.0	7.70 -0.70	1.70 ±0.25	±4°	82.37 +1.48/-1.44	22.000	•	
25.0	8.10 -0.90	1.75 ±0.25	±4°	93.60 +1.68/-1.64	25.000	•	



寸法 | Dimensioning



エンドミル用研磨材 径公差 h6

■ 内部標準による片側面取り

Milling cutter blanks, ground to tolerance h6

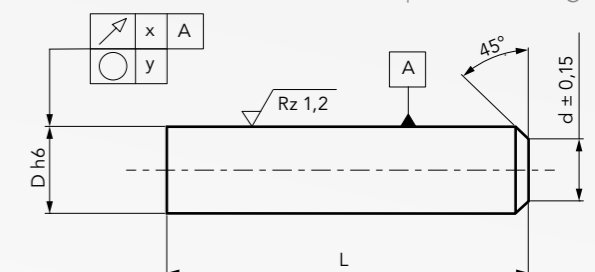
■ chamfered one end, to internal standard



D h6 mm	d mm	L mm	x mm	y mm	Code	GC100S 7540
2.0		32.5 +0.60	0.004	0.003	2.000	•
2.5		32.5 +0.60	0.004	0.003	2.500	•
3.0	2.4	32.5 +0.60	0.004	0.002	3.000	•
*3.0	2.4	39.5 +0.60	0.004	0.002	3.001	•
3.0	2.4	76.2 +0.90	0.008	0.002	3.002	•
3.0	2.4	38.3 +0.60	0.004	0.002	3.003	•
3.0	2.4	47.3 +0.70	0.005	0.002	3.004	•
3.0	2.4	52.3 +0.70	0.005	0.002	3.005	•
3.0	2.4	45.0 +0.70	0.005	0.002	3.007	•
3.5	2.9	32.5 +0.60	0.005	0.002	3.500	•
*4.0	3.4	51.0 +0.70	0.005	0.002	4.000	•
*4.0	3.4	40.5 +0.60	0.005	0.002	4.001	•
4.0	3.4	32.5 +0.60	0.005	0.002	4.002	•
4.0	3.4	76.2 +0.90	0.008	0.002	4.003	•
4.0	3.4	59.3 +0.80	0.008	0.002	4.004	•
4.0	3.4	63.5 +0.80	0.008	0.002	4.005	•
4.0	3.4	67.5 +0.80	0.008	0.002	4.006	•
*4.5	3.9	51.2 +0.70	0.005	0.002	4.500	•
*5.0	4.0	51.2 +0.70	0.005	0.002	5.000	•
5.0	4.0	76.2 +0.90	0.006	0.002	5.001	•
5.5	4.5	51.2 +0.70	0.005	0.002	5.500	•
*5.5	4.5	58.2 +0.80	0.006	0.002	5.501	•
*6.0	5.0	51.2 +0.70	0.006	0.002	6.000	•
*6.0	5.0	55.0 +0.70	0.006	0.002	6.001	•
*6.0	5.0	58.2 +0.80	0.006	0.002	6.002	•
6.0	5.0	39.0 +0.60	0.004	0.002	6.003	•
6.0	5.0	76.2 +0.90	0.008	0.002	6.004	•
6.0	5.0	37.2 +0.60	0.004	0.002	6.005	•
6.0	5.0	40.2 +0.60	0.005	0.002	6.006	•
6.0	5.0	46.2 +0.70	0.005	0.002	6.007	•
*6.0	5.0	66.2 +0.80	0.006	0.002	6.008	•
6.0	5.0	60.5 +0.80	0.006	0.003	6.009	•
6.0	5.0	63.0 +0.80	0.006	0.002	6.013	•
*6.5	4.5	61.5 +0.80	0.006	0.003	6.500	•
*7.0	5.0	61.5 +0.80	0.006	0.003	7.000	•
7.5	5.5	61.5 +0.80	0.006	0.003	7.500	•
*7.5	5.5	64.2 +0.80	0.006	0.003	7.501	•

D h6 mm	d mm	L mm	x mm	y mm	Code	GC100S 7540
*8.0	6.0	59.0 +0.80	0.006	0.003	8.000	•
*8.0	6.0	64.2 +0.80	0.006	0.003	8.001	•
8.0	6.0	44.0 +0.70	0.005	0.003	8.002	•
8.0	6.0	62.0 +0.80	0.006	0.003	8.003	•
8.0	6.0	76.2 +0.90	0.007	0.003	8.004	•
8.0	6.0	101.2 +1.00	0.008	0.003	8.005	•
8.0	6.0	56.2 +0.80	0.006	0.003	8.006	•
8.0	6.0	82.0 +0.90	0.008	0.003	8.007	•
8.0	6.0	87.2 +0.90	0.008	0.003	8.008	•
8.0	6.0	73.5 +0.90	0.008	0.003	8.015	•
8.5	6.5	62.0 +0.80	0.006	0.003	8.500	•
*8.5	6.5	68.2 +0.80	0.007	0.003	8.501	•
9.0	7.0	62.0 +0.80	0.006	0.003	9.000	•
*9.0	7.0	68.2 +0.80	0.007	0.003	9.001	•
*9.5	7.5	73.2 +0.90	0.008	0.003	9.501	•
*10.0	8.0	67.2 +0.80	0.007	0.003	10.000	•
10.0	8.0	71.0 +0.80	0.008	0.003	10.001	•
*10.0	8.0	73.2 +0.90	0.008	0.003	10.002	•
10.0	8.0	51.0 +0.70	0.005	0.003	10.003	•
10.0	8.0	101.2 +1.00	0.008	0.003	10.004	•
10.0	8.0	49.2 +0.70	0.005	0.003	10.005	•
10.0	8.0	56.2 +0.80	0.006	0.003	10.006	•
10.0	8.0	77.0 +0.90	0.008	0.003	10.007	•
*10.0	8.0	81.2 +0.90	0.008	0.003	10.008	•
10.0	8.0	91.2 +1.00	0.008	0.003	10.009	•
10.0	8.0	84.0 +0.90	0.008	0.003	10.012	•
11.0	9.0	72.0 +0.90	0.008	0.003	11.000	•
*11.0	9.0	84.2 +0.90	0.008	0.003	11.001	•

寸法 | Dimensioning



*DIN 6527 / 6528 標準ミーリングカッター用
*for milling cutters in accordance with DIN 6527 / 6528

エンドミル用研磨材 径公差 h6

■ 内部標準による片側面取り

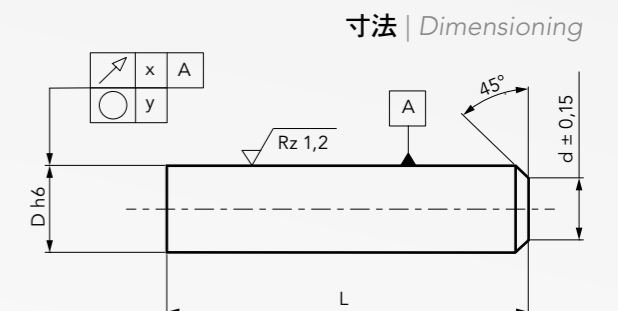
Milling cutter blanks, ground to tolerance h6

■ chamfered one end, to internal standard



D h6 mm	d mm	L mm	x mm	y mm	Code	GC100S 7540
*12.0	12.0	74.2 +0.90	0.008	0.003	12.000	•
*12.0	12.0	84.2 +0.90	0.008	0.003	12.001	•
12.0	12.0	70.0 +0.80	0.008	0.003	12.002	•
12.0	12.0	72.0 +0.90	0.008	0.003	12.003	•
12.0	12.0	101.2 +1.00	0.008	0.003	12.004	•
12.0	12.0	151.2 +1.50	0.010	0.003	12.005	•
12.0	12.0	56.2 +0.80	0.006	0.003	12.006	•
*12.0	12.0	94.2 +1.00	0.008	0.003	12.007	•
12.0	12.0	121.0 +1.20	0.010	0.003	12.008	•
12.0	10.0	110.0 +1.10	0.010	0.003	12.013	•
13.0	11.0	77.0 +0.90	0.008	0.003	13.000	•
*13.0	11.0	84.2 +0.90	0.008	0.003	13.001	•
*14.0	12.0	84.2 +0.90	0.008	0.003	14.000	•
*14.0	12.0	76.2 +0.90	0.008	0.003	14.001	•
14.0	12.0	151.2 +1.50	0.010	0.003	14.002	•
14.0	12.0	59.2 +0.80	0.008	0.003	14.003	•
14.0	12.0	101.2 +1.00	0.008	0.003	14.004	•
15.0	12.0	77.0 +0.90	0.008	0.003	15.000	•
*15.0	12.0	93.2 +1.00	0.008	0.003	15.001	•
*16.0	13.0	93.2 +1.00	0.008	0.003	16.000	•
*16.0	13.0	83.2 +0.90	0.008	0.003	16.001	•
16.0	13.0	75.0 +0.90	0.008	0.003	16.002	•
16.0	13.0	77.0 +0.90	0.008	0.003	16.003	•
16.0	13.0	151.2 +1.50	0.010	0.003	16.004	•
16.0	13.0	63.2 +0.80	0.008	0.003	16.005	•
*16.0	13.0	109.2 +1.10	0.009	0.003	16.006	•
16.0	13.0	126.0 +1.20	0.010	0.003	16.007	•
18.0	15.0	101.0 +1.00	0.009	0.003	18.000	•
*18.0	15.0	85.0 +0.90	0.008	0.003	18.001	•
*18.0	15.0	93.0 +1.00	0.008	0.003	18.002	•
18.0	15.0	151.2 +1.50	0.010	0.003	18.003	•
18.0	15.0	71.2 +0.90	0.008	0.003	18.004	•

D h6 mm	d mm	L mm	x mm	y mm	Code	GC100S 7540
*20.0	17.0	93.2 +1.00	0.008	0.004	20.000	•
*20.0	17.0	105.0 +1.00	0.008	0.004	20.001	•
20.0	17.0	100.0 +1.00	0.008	0.004	20.002	•
20.0	17.0	102.0 +1.00	0.008	0.004	20.003	•
20.0	17.0	151.2 +1.50	0.010	0.004	20.004	•
20.0	17.0	76.2 +0.90	0.008	0.004	20.005	•
20.0	17.0	127.2 +1.20	0.010	0.004	20.006	•
20.0	17.0	175.7 +2.10	0.011	0.004	20.007	•
25.0	22.0	103.0 +1.00	0.010	0.004	25.000	•
25.0	22.0	123.0 +1.20	0.010	0.004	25.001	•
25.0	22.0	151.2 +1.60	0.010	0.004	25.002	•
25.0	22.0	175.7 +2.10	0.011	0.004	25.003	•
32.0	28.0	134.2 +1.30	0.010	0.005	32.000	•
32.0	28.0	187.2 +2.40	0.012	0.005	32.001	•
32.0	28.0	311.5 +10.00	0.040	0.005	32.002	•



*DIN 6527 / 6528 標準ミーリングカッター用
*for milling cutters in accordance with DIN 6527 / 6528

エンドミル用研磨材 径公差 h6

■ 片側面取り

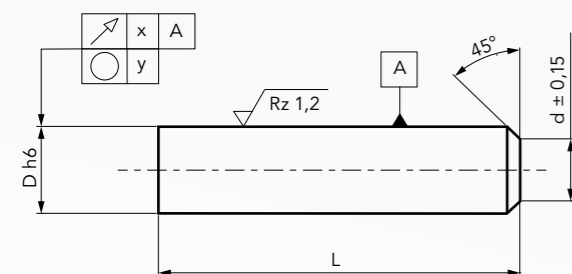
*Milling cutter blanks,
ground to tolerance h6*

■ chamfered one end



D h6 mm	d mm	L mm	x mm	y mm	Code	GC120U 7556
3.0	2.4	39.5 +0.60	0.004	0.002	3.000	•
4.0	3.4	51.0 +0.70	0.005	0.002	4.000	•
4.0	3.4	76.2 +0.90	0.008	0.002	4.001	•
6.0	5.0	57.5 +0.80	0.006	0.002	6.000	•
6.0	5.0	76.0 +0.90	0.008	0.002	6.001	•
6.0	5.0	80.5 +0.90	0.008	0.002	6.002	•
6.0	5.0	100.5 +1.00	0.008	0.002	6.003	•
8.0	6.0	63.5 +0.80	0.007	0.003	8.000	•
8.0	6.0	100.5 +1.00	0.008	0.003	8.001	•
8.0	6.0	120.5 +1.20	0.010	0.003	8.002	•
10.0	8.0	72.5 +0.90	0.008	0.003	10.000	•
10.0	8.0	101.0 +1.00	0.008	0.003	10.001	•
10.0	8.0	120.5 +1.20	0.010	0.003	10.002	•
10.0	8.0	150.5 +1.60	0.010	0.003	10.003	•
12.0	10.0	83.5 +0.90	0.008	0.003	12.000	•
12.0	10.0	151.0 +1.50	0.010	0.003	12.001	•
12.0	10.0	120.5 +1.20	0.010	0.003	12.002	•
14.0	12.0	84.0 +0.90	0.008	0.003	14.000	•
16.0	13.0	93.0 +1.00	0.008	0.003	16.000	•
16.0	13.0	151.0 +1.50	0.010	0.003	16.001	•
20.0	17.0	105.0 +1.00	0.008	0.004	20.000	•
20.0	17.0	151.0 +1.50	0.010	0.004	20.001	•

寸法 | Dimensioning



エンドミル用研磨材 径公差 h6

■ インチサイズ、片側面取り

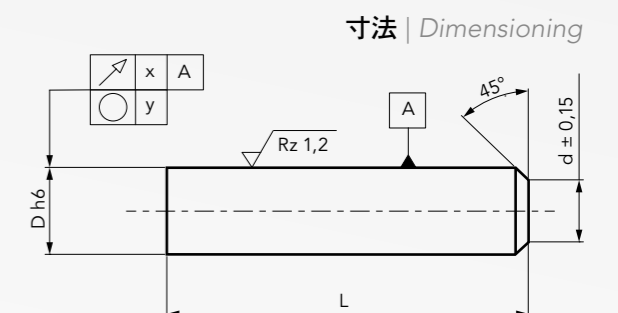
Milling cutter blanks, ground to tolerance h6

■ in inches, chamfered one end



D h6	d	L	x	y	Code	GC100SN
inches/mm	mm	inches/mm	mm	mm		7541
⅛ 3.175	2.575	1½ 38.1 +0.60	0.004	0.002	18.112	•
⅛ 3.175	2.575	2 50.8 +0.70	0.005	0.002	18.200	•
⅛ 3.175	2.575	3 76.2 +0.90	0.008	0.002	18.300	•
⅛ 3.175	2.575	4 101.6 +1.00	0.008	0.002	18.400	•
⅜ 4.763	3.763	1½ 38.1 +0.60	0.005	0.002	316.112	•
⅜ 4.763	3.763	2 50.8 +0.70	0.005	0.002	316.200	•
⅜ 4.763	3.763	2½ 63.5 +0.80	0.006	0.002	316.212	•
⅜ 4.763	3.763	3 76.2 +0.90	0.008	0.002	316.300	•
¼ 6.350	5.350	2 50.8 +0.70	0.005	0.003	14.200	•
¼ 6.350	5.350	2½ 63.5 +0.80	0.006	0.003	14.212	•
¼ 6.350	5.350	3 76.2 +0.90	0.008	0.003	14.300	•
¼ 6.350	5.350	3¼ 82.6 +0.90	0.008	0.003	14.314	•
¼ 6.350	5.350	4 101.6 +1.00	0.008	0.003	14.400	•
⅝ 7.938	5.938	2 50.8 +0.70	0.005	0.003	516.200	•
⅝ 7.938	5.938	2½ 63.5 +0.80	0.006	0.003	516.212	•
⅝ 7.938	5.938	3 76.2 +0.90	0.008	0.003	516.300	•
⅝ 7.938	5.938	4 101.6 +1.00	0.008	0.003	516.400	•
⅞ 9.525	7.525	2 50.8 +0.70	0.005	0.003	38.200	•
⅞ 9.525	7.525	2½ 63.5 +0.80	0.006	0.003	38.212	•
⅞ 9.525	7.525	3 76.2 +0.90	0.008	0.003	38.300	•
⅞ 9.525	7.525	3¼ 82.6 +0.90	0.008	0.003	38.314	•
⅞ 9.525	7.525	3½ 88.9 +1.00	0.008	0.003	38.312	•
⅞ 9.525	7.525	4 101.6 +1.00	0.008	0.003	38.400	•
⅞ 9.525	7.525	6 152.4 +1.60	0.010	0.003	38.600	•
7⁄16 11.113	9.113	2½ 63.5 +0.80	0.006	0.003	716.212	•
7⁄16 11.113	9.113	2¾ 69.9 +0.80	0.007	0.003	716.234	•
7⁄16 11.113	9.113	4 101.6 +1.00	0.008	0.003	716.400	•
7⁄16 11.113	9.113	4½ 114.3 +1.10	0.010	0.003	716.412	•
½ 12.700	10.700	2½ 63.5 +0.80	0.006	0.003	12.212	•
½ 12.700	10.700	3 76.2 +0.90	0.008	0.003	12.300	•
½ 12.700	10.700	3½ 88.9 +1.00	0.008	0.003	12.312	•
½ 12.700	10.700	4 101.6 +1.00	0.008	0.003	12.400	•
½ 12.700	10.700	4½ 114.3 +1.10	0.010	0.003	12.412	•
½ 12.700	10.700	5 127.0 +1.30	0.010	0.003	12.500	•
½ 12.700	10.700	6 152.4 +1.60	0.010	0.003	12.600	•
⅝ 14.288	12.288	3 76.2 +0.90	0.008	0.003	916.300	•

D h6	d	L	x	y	Code	GC100SN
inches/mm	mm	inches/mm	mm	mm		7541
⅝ 14.288	12.288	3½ 88.9 +1.00	0.008	0.003	916.312	•
⅝ 15.875	12.875	3 76.2 +0.90	0.008	0.004	58.300	•
⅝ 15.875	12.875	3½ 88.9 +1.00	0.008	0.004	58.312	•
⅝ 15.875	12.875	4 101.6 +1.00	0.008	0.004	58.400	•
⅝ 15.875	12.875	5 127.0 +1.30	0.010	0.004	58.500	•
⅝ 15.875	12.875	6 152.4 +1.60	0.010	0.004	58.600	•
¾ 19.050	16.050	3 76.2 +0.90	0.008	0.004	34.300	•
¾ 19.050	16.050	4 101.6 +1.00	0.008	0.004	34.400	•
¾ 19.050	16.050	5 127.0 +1.30	0.010	0.004	34.500	•
¾ 19.050	16.050	6 152.4 +1.60	0.010	0.004	34.600	•
7⁄8 22.225	19.225	4 101.6 +1.00	0.008	0.004	78.400	•
1 25.400	22.400	3 76.2 +0.90	0.008	0.005	1.300	•
1 25.400	22.400	4 101.6 +1.00	0.008	0.005	1.400	•
1 25.400	22.400	5 127.0 +1.30	0.010	0.005	1.500	•
1 25.400	22.400	6 152.4 +1.60	0.010	0.005	1.600	•
1 25.400	22.400	7 177.8 +2.10	0.010	0.005	1.700	•
1¼ 31.750	28.750	6 152.4 +1.60	0.010	0.005	114.600	•
1¼ 31.750	28.750	7½ 190.5 +2.50	0.010	0.005	114.712	•



エンドミル用研磨材 径公差 h6

■ 中心給油・ラジアル吐出オイルホール付き、片側面取り

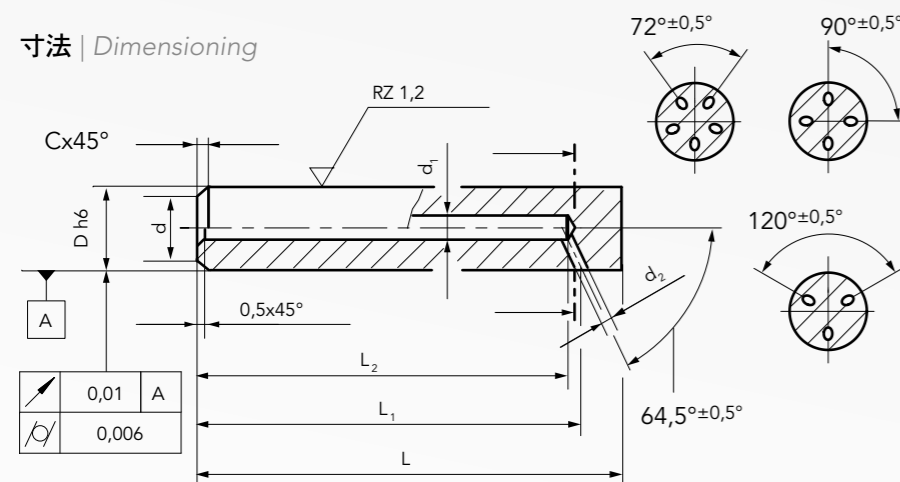
Milling cutter blanks,
ground to tolerance h6

■ with axial coolant duct, lat. exits, chamfered one end



D h6 mm	L mm	d mm	d ₁ mm	d ₂ mm	L ₁ mm	L ₂ mm	Code	GC100S		
								7923 3 exits	7924 4 exits	7925 5 exits
6.0	58.0 +0.80	5.0	1.75	1.0	55.0	54.6	6.058	•	•	
6.0	76.5 +0.90	5.0	1.75	1.0	73.0	72.6	6.076	•	•	
8.0	64.2 +0.80	6.0	1.75	1.2	60.0	59.1	8.064	•	•	
8.0	101.2 +1.00	6.0	1.75	1.2	97.0	96.1	8.101	•	•	•
10.0	67.2 +0.80	8.0	2.00	1.2	62.0	60.6	10.067		•	
10.0	73.2 +0.90	8.0	2.00	1.2	68.0	66.6	10.073	•	•	
10.0	101.2 +1.00	8.0	2.00	1.2	96.0	94.6	10.101	•	•	
12.0	74.2 +0.90	10.0	2.00	1.5	68.0	66.1	12.074		•	
12.0	84.2 +0.90	10.0	2.00	1.5	78.0	76.1	12.084	•	•	•
12.0	101.1 +1.00	10.0	2.00	1.5	95.0	93.1	12.101	•	•	•
14.0	84.2 +0.90	12.0	2.00	1.5	77.0	74.7	14.084	•	•	
14.0	101.2 +1.00	12.0	2.00	1.5	94.0	91.7	14.101	•	•	•
16.0	83.2 +0.90	13.0	4.00	1.5	75.0	72.2	16.083		•	•
16.0	93.2 +1.00	13.0	4.00	1.5	85.0	82.2	16.093	•	•	•
16.0	101.2 +1.00	13.0	4.00	1.5	93.0	90.2	16.101	•	•	•
18.0	93.0 +1.00	15.0	4.00	2.0	84.0	80.7	18.093	•	•	
18.0	102.0 +1.00	15.0	4.00	2.0	93.0	89.7	18.102	•	•	
18.0	151.3 +1.60	15.0	4.00	2.0	142.0	138.7	18.151	•	•	
20.0	93.2 +1.00	17.0	4.00	2.0	83.0	79.2	20.093	•	•	
20.0	105.0 +1.10	17.0	4.00	2.0	95.0	91.2	20.105	•	•	•
20.0	151.2 +1.60	17.0	4.00	2.0	141.0	137.2	20.151	•	•	•
25.0	122.0 +1.20	22.0	4.00	2.0	109.5	104.5	25.122	•	•	•
25.0	152.0 +1.60	22.0	4.00	2.0	139.5	134.5	25.152	•	•	•

寸法 | Dimensioning

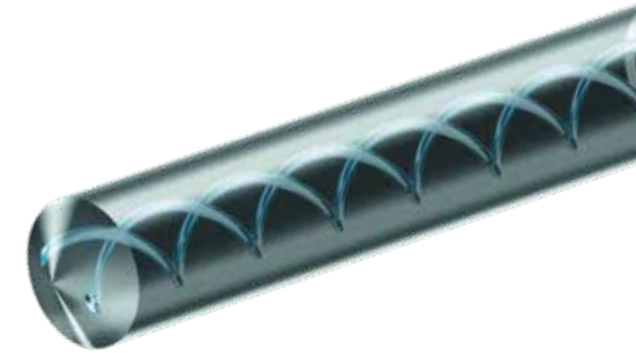


ドリル用研磨材 径公差 h6

■ 3 x D用 オイルホール付き 2穴30° ねじれ、片側面取り

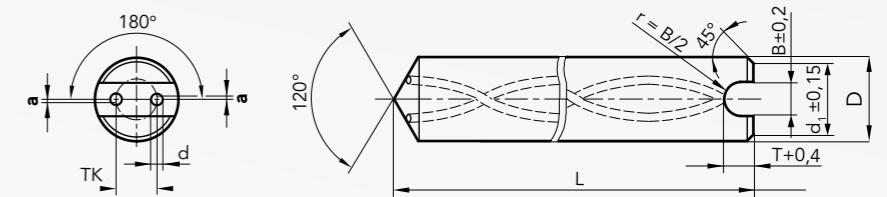
Drill blanks, ground to tolerance h6

■ 3 x D, with 2 coolant ducts, 30° helix, chamfered one end



D h6 mm	d1 mm	L mm	TK mm	B mm	T mm	d mm	a mm	30° ±0.5° mm	Code	3 x D
										GC100S 7915
6.0	4.8	67.0 +1.50	2.60 -0.40	1.0	1.20	0.70 ±0.10	0.15	32.65 +0.67/-0.65	6.000	•
6.0	4.8	67.0 +1.50	2.00 -0.20	1.0	1.20	0.80 ±0.10	0.15	32.65 +0.67/-0.65	6.001	•
6.0	4.8	63.0 +1.50	1.50 -0.20	1.0	1.20	0.60 ±0.05	0.08	*20.40 +0.42/-0.40	6.002	•
6.0	4.8	67.0 +1.50	2.00 -0.20	1.0	1.20	0.80 ±0.10	0.10	**25.84 +0.54/-0.51	6.003	•
6.0	4.8	63.0 +1.50	1.75 -0.20	1.0	1.20	0.40 ±0.05	0.15	20.40 +0.42/-0.40	6.004	•
6.0	4.8	67.0 +1.50	2.10 -0.20	1.0	1.20	0.50 ±0.05	0.15	25.84 +0.54/-0.51	6.005	•
6.0	4.8	67.0 +1.50	2.60 -0.40	1.0	1.20	0.60 ±0.10	0.15	25.84 +0.54/-0.51	6.006	•
8.0	6.8	80.5 +1.50	3.60 -0.60	1.5	1.75	1.25 ±0.15	0.15	43.53 +0.89/-0.86	8.000	•
10.0	8.8	90.5 +1.50	4.80 -0.80	2.0	1.90	1.40 ±0.15	0.20	54.41 +1.11/-1.08	10.000	•
12.0	10.5	104.0 +1.50	6.25 -0.80	2.0	2.05	1.55 ±0.15	0.30	65.30 +1.34/-1.30	12.000	•
12.0	10.5	77.0 +0.90	6.25 -0.80	2.0	2.05	1.55 ±0.15	0.30	65.30 +1.34/-1.30	12.001	•
14.0	12.5	109.0 +1.50	6.70 -0.80	2.5	2.40	1.90 ±0.20	0.37	76.18 +1.56/-1.51	14.000	•
16.0	14.5	117.5 +1.50	8.00 -0.80	2.5	2.60	2.10 ±0.25	0.40	87.06 +1.78/-1.73	16.000	•
18.0	16.5	125.5 +2.00	9.00 -0.80	3.0	2.80	2.30 ±0.25	0.50	97.95 +2.00/-1.94	18.000	•
20.0	18.5	134.0 +2.00	10.00 -1.00	3.0	3.00	2.50 ±0.30	0.50	108.83 +2.23/-2.16	20.000	•
25.0	23.0	150.0 +2.00	12.00 -1.00	3.0	3.00	2.50 ±0.30	0.50	136.03 +2.78/-2.70	25.000	•
25.0	23.0	157.7 +2.00	12.00 -1.00	3.0	3.00	2.50 ±0.30	0.50	136.03 +2.78/-2.70	25.001	•

寸法 | Dimensioning



ドリル用研磨材 径公差 h6

■ 5 x D用 オイルホール付き 2穴30° ねじれ、片側面取り

Drill blanks, ground to tolerance h6

■ 5 x D, with 2 coolant ducts, 30° helix, chamfered one end

5 x D

D h6 mm	d1 mm	L mm	TK mm	B mm	T mm	d mm	a mm	30° ±0.5° mm	Code	GC100S 7916
6.0	4.8	83.0 +1.50	2.60 -0.40	1.0	1.20	0.70 ±0.10	0.15	32.65 +0.67/-0.65	6.000	•
6.0	4.8	75.0 +1.50	2.00 -0.20	1.0	1.20	0.80 ±0.10	0.15	32.65 +0.67/-0.65	6.001	•
6.0	4.8	67.0 +1.50	1.50 -0.20	1.0	1.20	0.60 ±0.05	0.08	*20.40 +0.42/-0.40	6.002	•
6.0	4.8	75.0 +1.50	2.00 -0.20	1.0	1.20	0.80 ±0.10	0.10	**25.84 +0.54/-0.51	6.003	•
6.0	4.8	67.0 +1.50	1.75 -0.20	1.0	1.20	0.40 ±0.05	0.15	20.40 +0.42/-0.40	6.004	•
6.0	4.8	75.0 +1.50	2.10 -0.20	1.0	1.20	0.50 ±0.05	0.15	25.84 +0.54/-0.51	6.005	•
6.0	4.8	75.0 +1.50	2.60 -0.40	1.0	1.20	0.60 ±0.10	0.15	25.84 +0.54/-0.51	6.006	•
8.0	6.8	92.5 +1.50	3.60 -0.60	1.5	1.75	1.25 ±0.15	0.15	43.53 +0.89/-0.86	8.000	•
10.0	8.8	104.5 +1.50	4.80 -0.80	2.0	1.90	1.40 ±0.15	0.20	54.41 +1.11/-1.08	10.000	•
12.0	10.5	120.0 +2.00	6.25 -0.80	2.0	2.05	1.55 ±0.15	0.30	65.30 +1.34/-1.30	12.000	•
14.0	12.5	126.0 +2.00	6.70 -0.80	2.5	2.40	1.90 ±0.20	0.37	76.18 +1.56/-1.51	14.000	•
16.0	14.5	135.5 +2.00	8.00 -0.80	2.5	2.60	2.10 ±0.25	0.40	87.06 +1.78/-1.73	16.000	•
18.0	16.5	145.5 +2.00	9.00 -0.80	3.0	2.80	2.30 ±0.25	0.50	97.95 +2.00/-1.94	18.000	•
20.0	18.5	156.0 +2.00	10.00 -1.00	3.0	3.00	2.50 ±0.30	0.50	108.83 +2.23/-2.16	20.000	•
25.0	23.0	169.0 +2.00	12.00 -1.00	3.0	3.00	2.50 ±0.30	0.50	136.03 +2.78/-2.70	25.000	•
25.0	23.0	184.0 +2.00	12.00 -1.00	3.0	3.00	2.50 ±0.30	0.50	136.03 +2.78/-2.70	25.001	•

ドリル用研磨材 径公差 h6

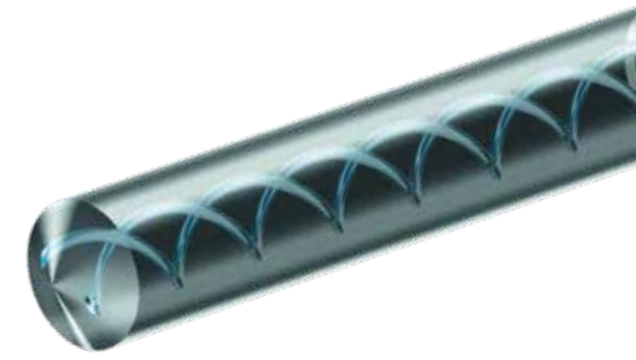
■ 7 x D用 オイルホール付き 2穴30° ねじれ、片側面取り

Drill blanks, ground to tolerance h6

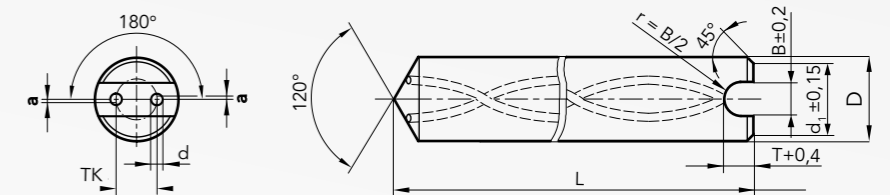
■ 7 x D, with 2 coolant ducts, 30° helix, chamfered one end

7 x D

D h6 mm	d1 mm	L mm	TK mm	B mm	T mm	d mm	a mm	30° ±0.5° mm	Code	GC100S 7349
6.0	4.8	98.0 +1.50	2.60 -0.20	1.0	1.20	0.70 ±0.10	0.15	32.65 +0.54/-0.51	6.000	•
6.0	4.8	91.0 +1.50	2.60 -0.20	1.0	1.20	0.70 ±0.10	0.15	32.65 +0.54/-0.51	6.001	•
6.0	4.8	76.0 +1.50	2.00 -0.20	1.0	1.20	0.80 ±0.10	0.15	32.65 +0.54/-0.51	6.002	•
6.0	4.8	86.0 +1.50	2.00 -0.20	1.0	1.20	0.80 ±0.10	0.15	32.65 +0.54/-0.51	6.003	•
6.0	4.8	71.0 +1.50	1.50 -0.20	1.0	1.20	0.60 ±0.05	0.15	20.40 +0.42/-0.40	6.004	•
6.0	4.8	76.0 +1.50	1.50 -0.20	1.0	1.20	0.60 ±0.05	0.15	20.40 +0.42/-0.40	6.005	•
6.0	4.8	76.0 +1.50	2.00 -0.20	1.0	1.20	0.80 ±0.10	0.15	25.84 +0.42/-0.40	6.008	•
6.0	4.8	86.0 +1.50	2.00 -0.20	1.0	1.20	0.80 ±0.10	0.15	25.84 +0.42/-0.40	6.009	•
6.0	4.8	71.0 +1.50	1.75 -0.20	1.0	1.20	0.40 ±0.05	0.15	20.40 +0.42/-0.40	6.010	•
6.0	4.8	76.0 +1.50	1.75 -0.20	1.0	1.20	0.40 ±0.05	0.15	20.40 +0.42/-0.40	6.011	•
6.0	4.8	76.0 +1.50	2.10 -0.20	1.0	1.20	0.50 ±0.05	0.15	25.84 +0.42/-0.40	6.012	•
6.0	4.8	86.0 +1.50	2.60 -0.40	1.0	1.20	0.60 ±0.10	0.15	25.84 +0.42/-0.40	6.013	•
8.0	6.8	107.5 +1.50	3.60 -0.40	1.5	1.75	1.25 ±0.15	0.15	43.53 +0.89/-0.86	8.000	•
8.0	6.8	117.5 +1.50	3.60 -0.40	1.5	1.75	1.25 ±0.15	0.15	43.53 +0.89/-0.86	8.001	•
10.0	8.8	132.5 +1.50	4.80 -0.60	2.0	1.90	1.40 ±0.15	0.20	54.41 +1.11/-1.08	10.000	•
10.0	8.8	140.5 +1.50	4.80 -0.60	2.0	1.90	1.40 ±0.15	0.20	54.41 +1.11/-1.08	10.001	•
12.0	10.5	157.0 +2.00	6.25 -0.80	2.0	2.05	1.55 ±0.15	0.30	65.30 +1.34/-1.30	12.000	•
12.0	10.5	165.0 +2.00	6.25 -0.80	2.0	2.05	1.55 ±0.15	0.30	65.30 +1.34/-1.30	12.001	•
14.0	12.5	184.0 +2.00	6.70 -0.80	2.5	2.40	1.90 ±0.20	0.37	76.18 +1.56/-1.51	14.000	•
16.0	14.5	206.5 +2.00	8.00 -0.80	2.5	2.60	2.10 ±0.25	0.40	87.06 +1.78/-1.73	16.000	•
18.0	16.5	225.5 +2.00	9.00 -0.80	3.0	2.80	2.30 ±0.25	0.50	97.95 +2.00/-1.94	18.000	•
20.0	18.5	247.0 +2.00	10.00 -1.00	3.0	3.00	2.50 ±0.30	0.50	108.83 +2.23/-2.16	20.000	•



寸法 | Dimensioning



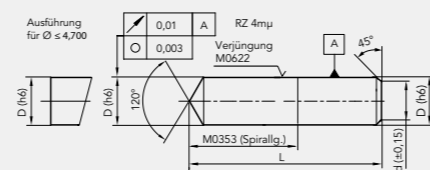
*30° 仕上げ径 3.75 まで
 **30° 仕上げ径 4.75 まで
 *30° for finished diameter up to 3.75
 **30° for finished diameter up to 4.75

特殊対応

On request

ドリル用研磨材 径公差 h6 Drill blanks, ground to tolerance h6

DIN 338
DIN 338

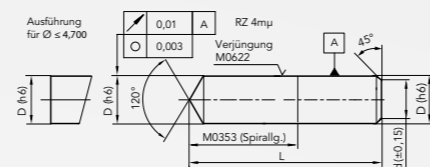


GC100S
7501

D h6: Ø 2,00–12,00mm、0,1mm単位のピッチ及びタッピング穴径サイズ
D h6: Ø 2.00–12.00mm in increments of 0.1 mm plus tapping hole size diameters

ドリル用研磨材 径公差 h6 Drill blanks, ground to tolerance h6

DIN 1897/6539
DIN 1897/6539



GC100S
7502

GC100S
7542

GC100S
7547

GC100S
7356

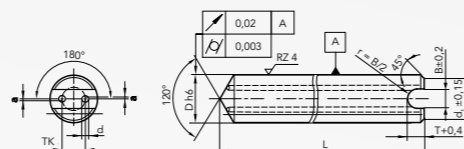
D h6: Ø 2,00–12,00mm、0,1mm単位のピッチ及びタッピング穴径サイズ
D h6: Ø 2.00–12.00mm in increments of 0.1 mm plus tapping hole size diameters

ドリル用研磨材 径公差 h6/h8 Drill blanks, ground to tolerance h6/h8

パラレル 2穴ストレート、制限されたピッチ円
with 2 parallel coolant ducts, restricted pitch circle

GC100S
7539 4xD

GC100S
7546 10xD



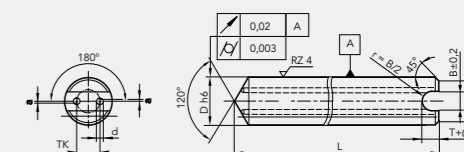
ドリル用研磨材 径公差 h6/h8 Drill blanks, ground to tolerance h6/h8

パラレル 2穴ストレート、標準ピッチ円
with 2 parallel coolant ducts, standard pitch circle

GC100S
7537 4xD

GC100S
7551 7xD

GC100S
7538 10xD



ドリル用研磨材 径公差 h6 Drill blanks, ground to tolerance h6

2穴30° ねじれ、片側面取り
with 2 coolant ducts, chamfered one end, 30° helix

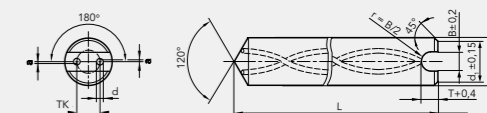
GC100S
7943 15xD

GC100S
7579 20xD

GC100S
7580 25xD

GC100S
7581 30xD

GC100S
7598 40xD



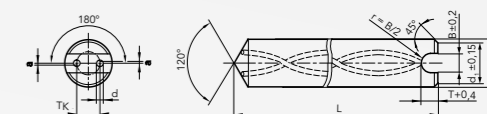
ドリル用研磨材 径公差 h6 Drill blanks, ground to tolerance h6

2穴40° ねじれ、片側面取り
with 2 coolant ducts, chamfered one end, 40° helix

GC100S
7567 3xD

GC100S
7568 5xD

GC100S
7569 7xD



その他特殊対応品

Our customised parts

我々は標準プログラムのみならず、あらゆる特別なアプリケーション用の超硬素材を提供いたします。弊社の「Customized Parts」のカタログもご覧になり、ご連絡下さい。我々のセールsteamはお客様のご要望にお答えいたします。我々はお客様ごとに個別の解決案をご提案することができます。

In addition to our standard range, we offer carbides for any specific application. Take a look at our catalogue for special and wear parts and contact us. Our sales team will be on hand to answer your questions – we provide your personal solution.



品質保証 Certified quality

我々は品質は原材料から始まると確信しています。それが、弊社の原材料サプライヤーに最も高い要求を行う理由です。粉末の準備から超硬製品まで、私たちはあなたの製品の高品質な製造を保証します。当社のDIN EN ISO 9001認証を受けた品質管理システムと、DIN EN ISO 50001による環境保護への貢献は未来志向の継続的な生産へとつながります。

We are convinced that quality starts with the raw material. That is why we place the highest demands on our suppliers. From powder preparation to grinding of sintered carbide products, we ensure a high-quality production of your products. Our quality management system certified according to DIN ISO 9001 and our contribution to environmental protection by certification to DIN EN ISO 50001 lead the way to a future-oriented and sustainable production.

仕入原料の品質管理 Incoming quality control

我々は原料から最高の品質を提供したいと考えます。そのため、原料は優良な業者から調達します。原料受け入れ後、自社で粒度分布、比表面積およびカーボンバランスを検査します。

We want to offer you the best quality – right from the start. Therefore our raw materials are sourced from reputable manufacturers. As soon as the goods are received, our laboratory checks the particle size distribution, the specific surface and the carbon balance of the powders.

冶金品質管理 Metallurgical quality control

製造工程全体における磁気的および物理的特性の適切な設定、ならびにさまざまな超硬材種の微細構造のスクリーニングによって、最終製品の品質が保証されます。

The proper setting of the magnetic and physical characteristics as well as the screening of the microstructure of the different carbide grades during the entire production process ensures high quality of our end products.

幾何学的品質管理 Geometrical quality control

幾何学的品質管理の一環として、さまざまな幾何学的数値（外径、ピッチ、オイルホール径、ピッチオフセットなど）を管理するため、革新的な測定技術と高解像度カメラシステムが使用されます。

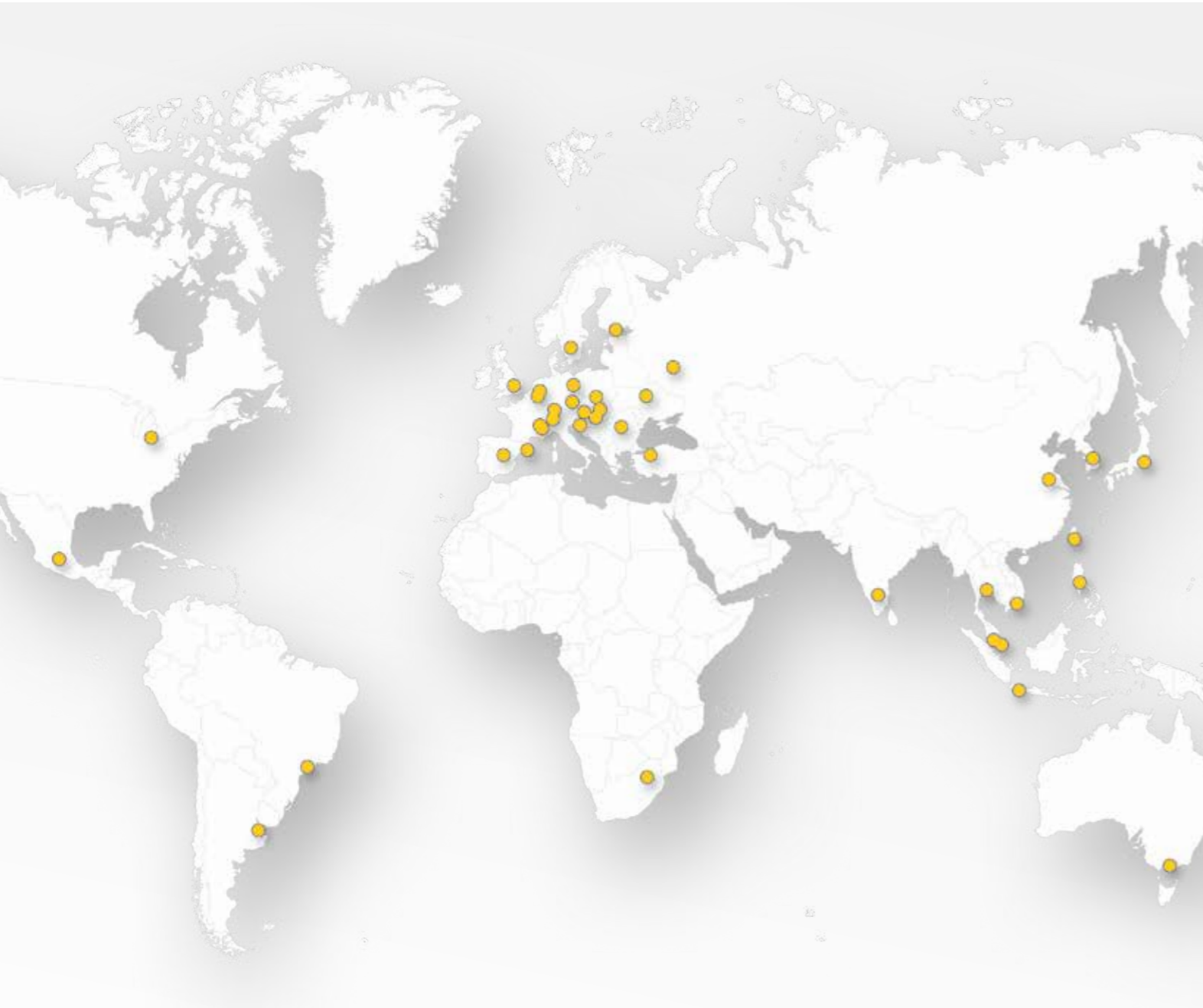
As part of geometric quality assurance, innovative measurement techniques and high-resolution camera systems are used to control the various geometric values (for example, outer diameter, pitch, cooling channel diameter, pitch offset, etc.).





グローバルセールスネットワーク

Represented worldwide



ドイツ最大の工具メーカーであるGühring KGとの提携により、当社は世界的な販売ネットワークがあります。お客様の近くでお客様の要求に合わせたオーダーメイドのソリューションを提供いたします。

Due to our affiliation to the Gühring KG, the largest German tool manufacturer, we are also part of the worldwide existing sales network with its numerous national subsidiaries and partners. Tailor-made solutions for your individual requirements – close to the customers – always on site.

- | | | | |
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超硬材種仕様 | Grade specifications

材種 Grade	GC100SN	GC060F	GC100S	GC120U	GC080S	GC070S	GC090U
ISO規格 Classification	K20-K40	K15-K20	K20-K40	K20-K30	K20	K10	K05-K10
コバルト含有量 Co %	10.0	6.0	10.0	12.0	8.0	7.0	9.0
HV30ピッカース硬さ Hardness HV30	1580	1620	1620	1690	1720	1850	1920
平均粒子径 Average Grain Size	0.70	1.20	0.60	0.50	0.70	0.70	0.20

公差 | Tolerances

L	↗	○
mm	mm	mm
330	$+10_0$	0.25
415	$+26_0$	0.35
700	$+70_0$	0.40

未研磨材

Rods, raw,
solid or with coolant ducts

D h6	↗	○
mm	mm	mm
6.0	0.10	0.002
8.0	0.06	0.003
10.0	0.06	0.003
12.0	0.03	0.003
14.0	0.03	0.003
16.0	0.03	0.003
18.0	0.02	0.003
20.0	0.03	0.004

研磨材 径公差 h6

415mm $+26_0$
Rods, ground to
tolerance h6, 415mm $+26_0$,
solid or with coolant ducts

研磨材 径公差 h6, 330mm $+10_0$

Rods, ground to tolerance h6,
330mm $+10_0$, solid or with coolant ducts

D h6	↗	○
mm	mm	mm
1.0	0.25	0.030
1.5	0.25	0.030
2.0	0.25	0.030
3.0	0.11	0.002
3.175	0.11	0.002
3.5	0.11	0.002
4.0	0.11	0.002
4.5	0.11	0.002
4.763	0.11	0.002
5.0	0.11	0.002
5.5	0.11	0.002
6.0	0.11	0.002
6.350	0.11	0.003
6.5	0.11	0.003
7.0	0.11	0.003
7.5	0.06	0.003
7.938	0.06	0.003
8.0	0.06	0.003
8.5	0.06	0.003
9.0	0.06	0.003
9.5	0.06	0.003
9.525	0.06	0.003

D h6	↗	○
mm	mm	mm
10.0	0.06	0.003
10.5	0.05	0.003
11.0	0.05	0.003
11.113	0.05	0.003
11.5	0.05	0.003
12.0	0.05	0.003
12.700	0.05	0.003
13.0	0.05	0.003
13.5	0.05	0.003
14.0	0.04	0.003
14.288	0.04	0.003
14.5	0.04	0.003
15.0	0.04	0.003
15.5	0.04	0.003
15.875	0.04	0.003
16.0	0.04	0.003
16.5	0.04	0.003
17.0	0.02	0.003
17.5	0.02	0.003
18.0	0.02	0.003
18.5	0.02	0.004

D h6	↗	○
mm	mm	mm
19.0	0.02	0.004
19.050	0.02	0.004
19.5	0.02	0.004
20.0	0.02	0.004
21.0	0.02	0.004
22.0	0.02	0.004
22.225	0.02	0.004
23.0	0.02	0.004
24.0	0.02	0.004
25.0	0.02	0.004
25.400	0.02	0.004
26.0	0.02	0.005
27.0	0.02	0.005
28.0	0.02	0.005
29.0	0.02	0.005
30.0	0.02	0.005
31.0	0.02	0.005
32.0	0.02	0.005
34.0	0.02	0.006
40.0	0.02	0.006

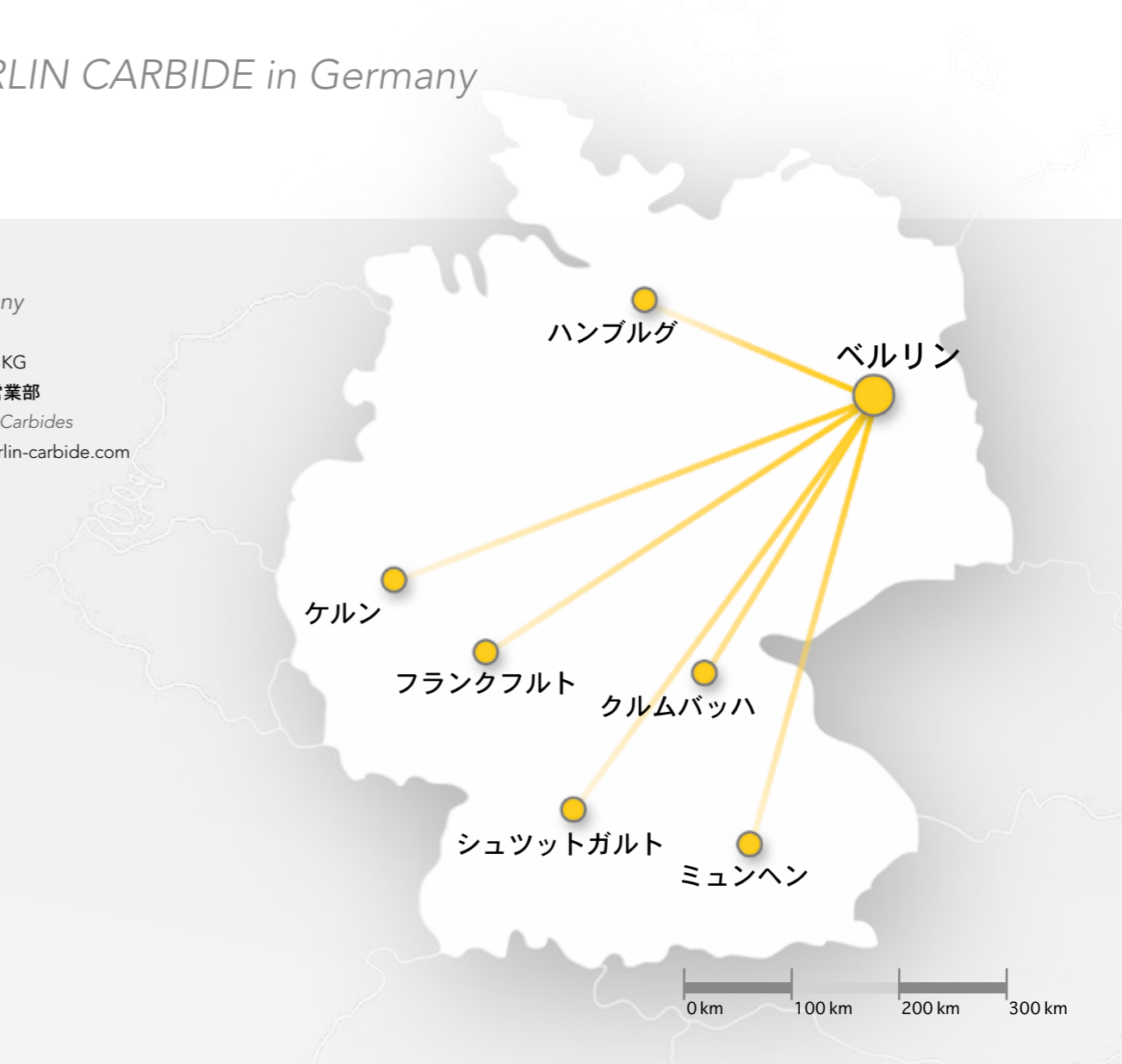
↗ 円筒度 | Circular run-out
○ 真円度 | Roundness

ドイツ国内のベルリンカーバイド

BERLIN CARBIDE in Germany

ドイツ
Germany

Gühring KG
超硬材営業部
Division Carbides
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製品一覧表 | Item overview

材種 Grade	GC100SN	GC060F	GC100S		GC120U	GC080S	GC070S	GC090S	ページ Page
ソリッド素材 Solid rods									
長さ Length	330mm	330mm	415mm	100mm	700mm	330mm	330mm	330mm	330mm
未研磨材 raw	7021	7014							14 - 15
研磨材 径公差 h6 ground h6	7031	7075	7354	7085		7372	7032		7187
研磨材 径公差 h6、インチサイズ ground h6, in inches		7932							17
オイルホール付き素材 Rods with coolant ducts									
長さ Length	330mm	330mm	415mm	100mm	700mm	330mm	330mm	330mm	330mm
未研磨材、1穴センターストレート raw, central		7387	7987				7380		18
研磨材 径公差 h6、1穴センターストレート ground h6, central		7339							19
未研磨材、2穴パラレルストレート raw, parallel		7301	7309						20 - 21
研磨材 h6、オイルホール付き2穴パラレル ground h6, parallel		7302							22 - 23
未研磨材、2穴15°ねじれ raw, 2x15°		7945	7947						24
研磨材 径公差 h6、2穴15°ねじれ ground h6, 2x15°		7583							25
未研磨材、2穴30°ねじれ raw, 2x30°		7940	7353		7074		7370		26 - 28
研磨材 径公差 h6、2穴40°ねじれ ground h6, 2x30°		7328	7355						29
未研磨材、2穴40°ねじれ raw, 2x40°		7935	7385				7397		30 - 31
研磨材 径公差 h6、2穴40°ねじれ ground h6, 2x40°		7330							32
マイクロツイストタイプ microtwisted		7039							33
未研磨材、3穴30°ねじれ raw, 3x30°		7933	7383						34
研磨材 径公差 h6、3穴30°ねじれ ground h6, 3x30°		7358							35
未研磨材、3穴40°ねじれ raw, 3x40°		7934	7384						36
研磨材 径公差 h6、3穴40°ねじれ ground h6, 3x40°		7359							37
エンドミル用素材 Milling cutter blanks									
研磨材 径公差 h6、片側面取り ground h6, chamfered one end		7540					7556		38 - 42
研磨材 径公差 h6、片側面取りインチサイズ ground h6, in inches, chamfered one end	7541								44
研磨材 径公差 h6、外径吐出 3オイルホール付き ground h6, axial coolant duct + 3 lat. exits		7923							46
研磨材 径公差 h6、外径吐出 5オイルホール付き ground h6, axial coolant duct + 4 lat. exits		7924							46
研磨材 径公差 h6、外径吐出 5オイルホール付き ground h6, axial coolant duct + 5 lat. exits		7925							46
ドリル用素材 Drill blanks									
研磨材 径公差 h6、3xD用、 2穴30°ねじれ、片側面取り ground h6, 3xD, 2x30°, chamfered one end		7915							47
研磨材 径公差 h6、5xD用、 2穴30°ねじれ、片側面取り ground h6, 5xD, 2x30°, chamfered one end		7916							48
研磨材 径公差 h6、7xD用、 2穴30°ねじれ、片側面取り ground h6, 7xD, 2x30°, chamfered one end		7349							49
特殊対応 On request									50 - 51





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