



**BTC CARBIDE**

**TÜV**  
AUSTRIA  
ISO 9001 - 2015

METALWORKING ❖

OIL AND GAS ❖

MOLDING ❖

MINING ❖

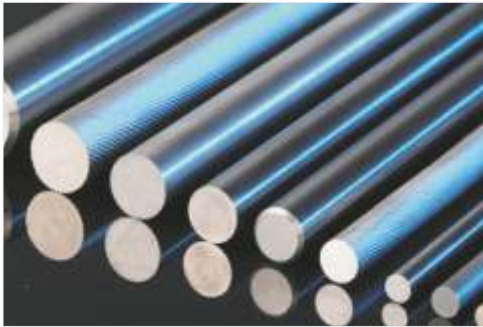
SPECIAL PREFORMS ❖

LUBRICANTS & CUTTING FLUIDS ❖



# ❖ BTC CARBIDE FOR METALWORKING

## Solid Carbide Rods



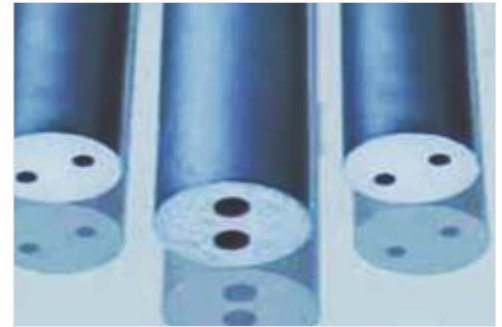
**Carbide Rods without hole**  
 Standard Grades : BT10 / BT10X / BT25  
 Submicron grain size, with all HIP treatment.

## Coolant Hole Rods



**Carbide Rods with single hole**  
 Standard grades : BT10 and BT10X  
 Submicron grain size, with all HIP treatment

## Coolant Hole Rods



**Carbide Rods with two parallel holes**  
 Standard grades : BT10 and BT10X  
 Submicron grain size, with all HIP treatment

## Helical Coolant Rods



**Threaded Carbide Rods with two helical holes**  
 Available Grades ( Type 2H - 30° ) : BT10 / BT10X  
 Available Grades ( Type 2H - 40° ) : BT10 / BT10X  
 Submicron grain size, with all HIP treatment

## Helical Coolant Rods



**Threaded Carbide Rods with three helical holes**  
 ( Type 3H - 30° )  
 Three Helical Coolant Duct :  
 Available grades : BT10 / BT10X

## Preformed Hob Blanks



**Preformed Hob Blanks**  
 Fully customized according to your drawings  
 Standard Grades : BT10  
 Submicron grain size, with all HIP treatment

## Gun Drill Blanks



**Blanks with round & kidney shaped coolant ducts**  
 Standard Grades : BT10 / BT10X  
 Submicron grain size, with all HIP treatment.

## Carbide Preforms



Fully customized according to your drawings  
 Standard Grades : BT10 / BT10X / BT25  
 Submicron grain size, with all HIP treatment

## Slitting Saw



**Slitting Saw**  
 Fully customized according to your drawings  
 Standard Grades : BT10  
 Submicron grain size, with all HIP treatment

## ❖ BTC CARBIDE FOR MOLDING

### Carbide Blanks (EDM)



We offer various type of carbide blanks with different grades for semi - conductor and stamping dies.

### Cold Punching Die Core



We offer various type of carbide cold punching / cold forging dies and cores with different grades

### Wire Drawings Dies



We offer various type of wire drawing dies with different grades

## ❖ BTC CARBIDE FOR MINING

### Carbide Button Inserts



BTC offers a wide ranges of grades with approved excellent performance, i.e. the superior grade BTCCR10 for hard and super hard rock, BTCE20 for complex medium soft rock, BTCE40T for coal mining.

### Carbide Button Inserts ( Conical )



Efficient processing, good high - temperature stability  
Easy to weld, no crack or chipping  
Smooth surface of stone after processing

### Carbide Button Inserts (Chiesel)



High stability, long life circle, good abrasive and corrosion resistance  
High quality, high hardness, purity with virgin material

### Carbide Inserts For Tunnel Boring



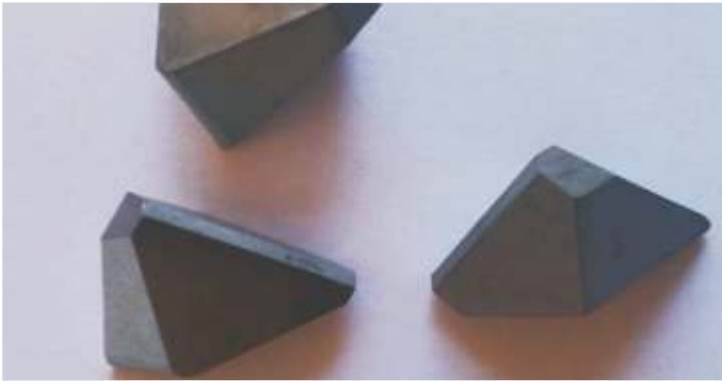
BTC offers a wide ranges of grades with approved excellent performance, i.e. the superior grade BTCCR10 for hard and super hard rock, BTCE20 for complex medium soft rock, BTCE40T for coal mining.

# BTC CARBIDE TECHNICAL SPECIFICATIONS

Grades	Cobalt %	Hardness		T.R.S	Density	Grain Size Microns	ISO Code
		HRA	HV10	> N/mm <sup>2</sup>	g/cm <sup>3</sup>		
BTCS43	12	92.5	1720	4500	14.2	Ultrafine	iso
	Excellent grade for most of the cutting applications for materials up to 50-58 HRC. Excellent for Carbon Steel Stainless Steel, Titanium Alloy, Tempered Steel. Suitable for drilling, milling & reaming.					0.4 to 0.5	K40
BT20	10	92.5	1600	3900	14.35	Ultrafine	iso
	Excellent grade for most of the cutting applications for materials up to 55 HRC and forged steels, Stainless Steel and Titanium. Suitable for drilling, milling and reaming.					0.4 to 0.5	K30
BT10	10	91.8	1600	3800	14.45	Submicron	iso
	Excellent grade for most of the cutting applications for materials up to 52 HRC. forged steels, Stainless Steels, Suitable for drilling, milling and reaming.					0.6 to 0.8	K30
BT12	12	92.2	1660	4000	14.15	Ultrafine	iso
	Excellent wear resistance. Suitable for cutting Stainless Steel, Titanium Alloys, Nickel Base. Suitable for Milling and Drilling.					0.4 to 0.5	K40
BT25	12	92.0	1600	3900	14.1	Submicron	iso
	Excellent grade for cutting stainless steels, titanium and/or nickel based alloys.					0.6 to 0.8	K40
BT10X	10	91.2	1596	3600	14.35	Micron	iso
	Economical and suitable grade for most of the cutting applications for materials up to 35 HRC and cast iron, aluminum and low alloyed steels. Suitable for drilling, milling, reaming & slitting saws.					0.8 to 1.0	K30
BT9	9	94.0	2050	4000	14.5	Superfine	iso
	High wear resistance and higher impact strength, Excellent for critical applications of composite materials including cfrp, graphite and hardened steels above 60 HRC					0.2 to 0.4	K30
BT8	8	93.2	1860	3300	14.6	Ultrafine	iso
	High edge sharpness retention properties due to ultra fine grain structure. Excellent for machining extremely high performance machining of non ferrous materials up to 60 HRC. Suitable for finish and/or semi finish milling and gear cutting.					0.4 to 0.6	K20
BT6	6	93.1	1840	2800	14.85	Submicron	iso
	Harder grade for machining aluminum alloys, graphite, composite materials. Excellent for applications like milling, reaming and diamond cutting.					0.6 - 0.8	K10

## ❖ BTC SPECIAL PRODUCTS

### Tungsten Carbide Insert Blanks



Tungsten carbide insert blanks with very complex shape and design, developed for machining of refractory bricks used in furnaces.

### Tungsten Carbide Slitting saw



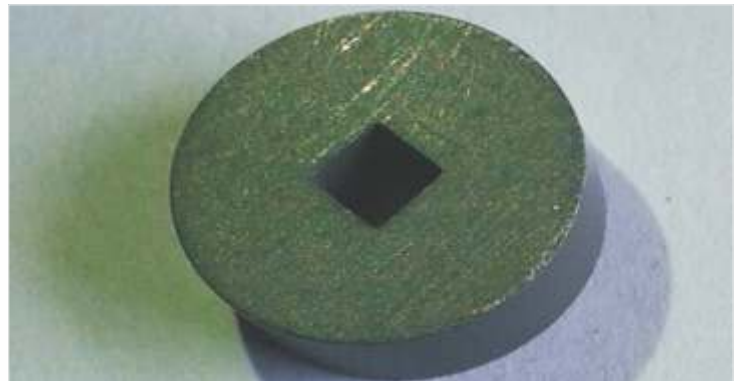
Tungsten Carbide Slitting saw with just 0.5 mm allowance all over. No wire cutting required. Brings down machining and through put time by 80%.

### Tungsten Carbide Seal



Tungsten Carbide seal for concrete pumps. The cross section size is 550 mm long x 250 mm width and a wall thickness of 5 mm.

### Solid Carbide Die



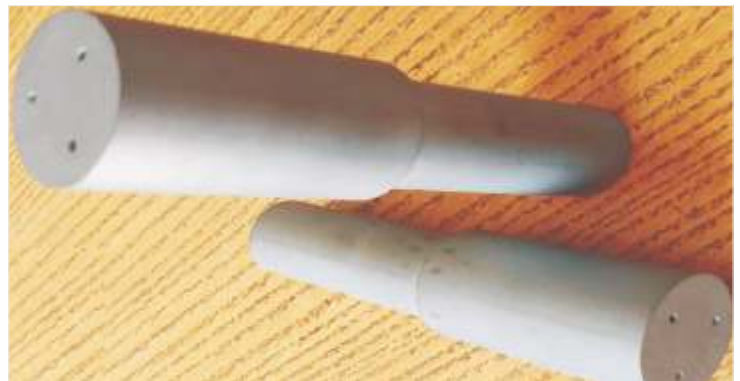
Solid Carbide Die with square hole in sintered and unground condition.

### Solid Carbide Step Drills



Preforms for solid carbide step drills with female center at one end and male center on the drill point.

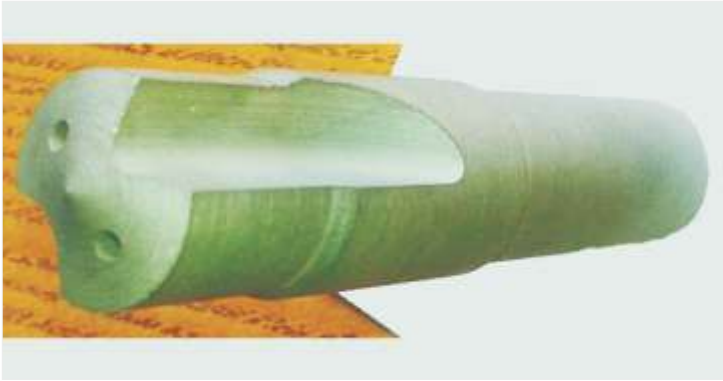
### Solid Carbide Drill Pre-Form



Solid Carbide Drill preform for 3 fluted drills with ready thru coolant holes for all 3 flutes.

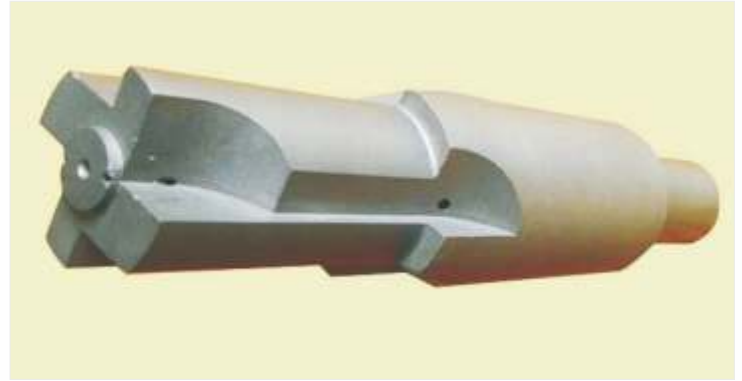
## ❖ BTC SPECIAL PRODUCTS

### Solid Carbide Two Coolant Hole



Solid Carbide setup drill preform blank with two coolant hole in sintered and unground condition.

### PCD Drill Body



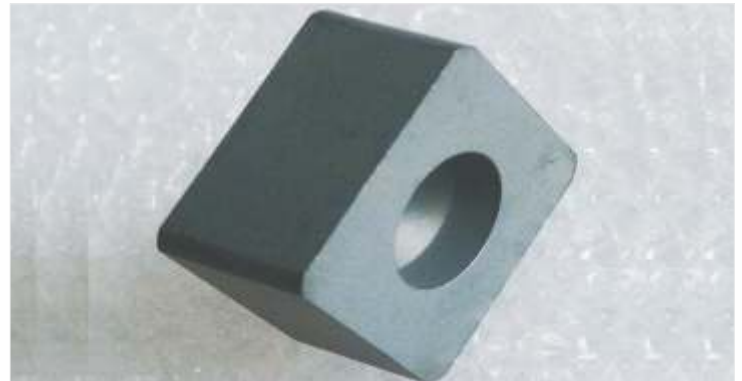
Solid carbide preforms with coolant holes at 3 steps in sintered and unground condition, grinding allowance 0.5 mm on All Sides.

### PCD Reamer Body Carbide Preform Blank



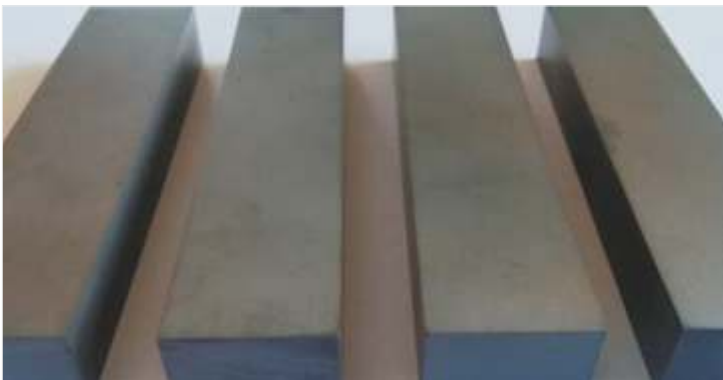
Carbide preform blank in sintered unground condition. Saves blank cost and reduces machining time drastically.

### Tungsten Carbide Shims



Tungsten carbide shims to required shape and form with center hole in sintered condition.

### Tungsten Carbide Sticks



Carbide sticks for cutting crown wheel and pinion face teeth with extreme conditions with total contact depth as much as 15 mm deep and dry cutting condition without any type of coolant.

### Tungsten Carbide Cores



Tungsten carbide core for military applications

## PROCESS

Tungsten Carbide, It should be referred as Cemented Carbide, is manufactured by powder metallurgy methods. The tungsten carbide powders are mixed with a binder metal, which is normally cobalt or nickel in 3 - 28%, compacted in a die and then sintered in a furnace generally between 1350-1450°C. In addition to the traditional sintered carbide, BTC is also able to offer the Pre-forming parts which is suitable for complicate shapes or small batches which is hard to afford to make a new die. By our variety of forming routes, BTC is able to produce the tungsten carbide parts up to 500 mm in length and up to 200 mm in diameter, with minimum order quantity starts from 5 pc.

### Grade Design



BTC grades are designed based on application requirements. Our process start with powder mixing. Raw materials includes WC, Co and other elements.

### RTP Ball Milling



Wide variety of BTC designed grades from superfine to coarse grain size are available. Grade with different grain size are ball-milled, sieved, granulated inseparated systems to avoid grain contamination.

### Spray Drying



Spray drying process makes the powder into superior homogeneous particle sizes with good flowability and as a result, the dimension variation on sintered blank is minimum.

### Extrusion



The rods with or without coolant holes, including Helical types, are formed by extrusion pressing. Our automatic extrusion systems and technical know-how helps to achieve consistent dimentions and other properties.

### Direct Pressing



Due to our comprehensive and variable forming solutions, we are able to produce the various type of rods by extrusion pressing, and also the direct pressing of blanks such as rotary burr blanks, disc cutters etc. Special developed grades based on applications, high precision press tools designed built in house, offer tighter tolerance control, which ensures higher performance of products delivered to you.

### Preforming



Turning, milling, drilling, cutting can be applied on green blanks ( half sintered condition ) in order to preform the part to net shape according to customer's drawing, which can greatly enhance customer's productivity for special and complicated tools.

### Drying Process



This process removes the plasticizer in the blanks using a vacuum drying furnace.

### Sintering



Green blanks (half sintered condition) are sintered at temperature around 1400°C (cobalt melting) to become super hard and tough. BTC utilizes HIP (hot isostatic pressure) sintering furnace which gives carbide maximum, toughness to meet the most critical working applications.

### Machining



Rod blanks need to be centerless ground, to achieve precision tolerance h6/h5. In addition, upon customer's request we offer length cutting, chamfer, slot, cylindrical grinding services etc..

### Inspection



The key properties are monitored from raw material, RTP and raw sintered parts in our laboratory for quality and performance guarantee. Diameter, roundness, run-out, roughness, pitch, TK, concentricity, inspection will be done before the parts are shipped to the customer.

## CONTACT US

---



### **Banyan Tooling Consultants India LLP**

Survey No. 128/2, F Wing, Unit Nos. 3/4/19/20

Steel India Complex (Sanghvi Compound)

Mohan Nagar, Chinchwad, Pune - 411019 (MH) India

**+91 9823064461 | +91 7304348999 | +91 9834991747**

**GSTIN/UIN: 27AAMFB9559K1ZO**



✉ [nandkishore.shetty@banyantoolingconsultants.com](mailto:nandkishore.shetty@banyantoolingconsultants.com)

✉ [vedant.shetty@banyantoolingconsultants.com](mailto:vedant.shetty@banyantoolingconsultants.com)

✉ [sudhir.lagad@banyantoolingconsultants.com](mailto:sudhir.lagad@banyantoolingconsultants.com)

✉ [sales@banyantoolingconsultants.com](mailto:sales@banyantoolingconsultants.com)

Follow us :   