



MEMBER MINMETALS CORP.



# ZCC

ZHUZHOU CEMENTED CARBIDE GROUP CO.,LTD.

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## BUTTONS & INSERTS & STUDS PRODUCTS

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# ABOUT US

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1954

A large, light grey circular graphic with a white ring in the center, containing the year '1954' in white text.

## FOUNDATION

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One of the 156 major projects that China constructed in 1954 in its "First Five-Year Plan."

1955

A large, light grey circular graphic with a white ring in the center, containing the year '1955' in white text.

## THE FIRST CARBIDE INSERT

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China's 1st piece of cemented carbide insert was born in ZCC.

2001

A large, light grey circular graphic with a white ring in the center, containing the year '2001' in white text.

## FIRST INTRODUCTION OF HIP TECHNOLOGY

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The HIP technology was adopted for the first time in China, and the grade of YK05 was put into mass production.



**CEMENTED CARBIDE  
OUTPUT TO A HIGHTER LEVEL**

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China's 1st factory specializing  
in the production of  
carbide buttons.



**NEW BUSINESS DIVISION**

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The original drill bit alloy plant  
and tungsten cobalt alloy plant to  
form a new business Division specializing  
in the production of drilling  
cemented carbide.

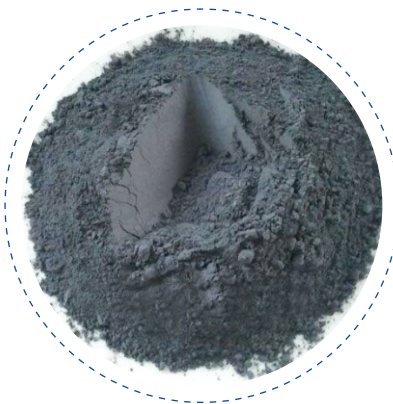
Zhuzhou Cemented Carbide Group Co., Ltd. (ZCC) is one of the 156 major projects that China constructed during the First Five-Year Plan (1954). It is China's professional base in production, scientific research, sales and export of cemented carbide. Its main products fall into 3 major categories: cemented carbide, tungsten and molybdenum products, and tantalum and niobium products. They are widely used in industries of metallurgy, machinery, mining, petroleum-chemistry, electronics, etc.



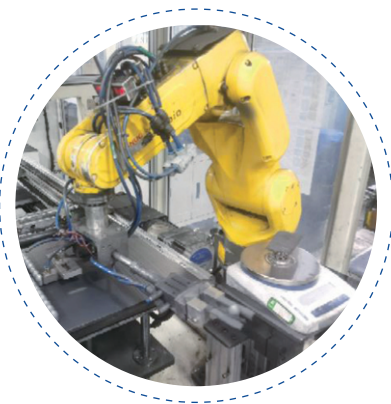
# OUR PROCESS

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At the beginning of 2017, Zhuzhou cemented carbide group started the re-form and merged the original bit alloy plant and tungsten cobalt alloy plant to form a new bit alloy business division specializing in the production of drilling cemented carbide. Currently, with 200 professional employees and two production workshops, the output and sales volume of bit alloy business division exceeded 1700 tons per year, and nearly one-third will be exported to worldwide-famous mining and oil field drill bit manufacturers.



POWDER



FORMING



SINTERING



MACHINING



INSPECTION



PACKAGING

# OUR QUALITY

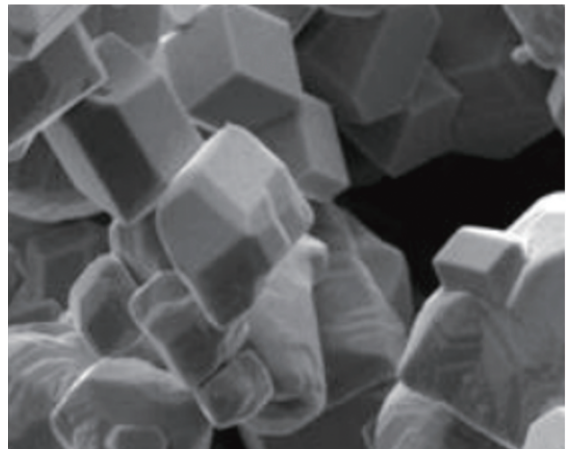
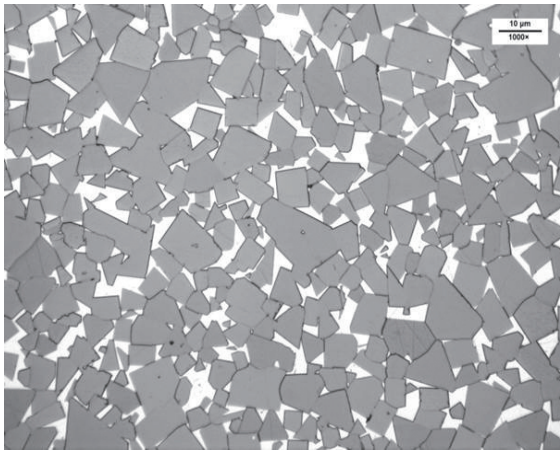
THE ONLY "STATE KEY LABORATORY" OF CEMENTED CARBIDE



GEOMETRY



METALLURGY





OIL FIELD

# APPLIC



MINING





INFRASTRUCTURE

ATION



GEOLOGICAL PROSPECTING

# WE HAVE THE RIGHT PRODUCTION!

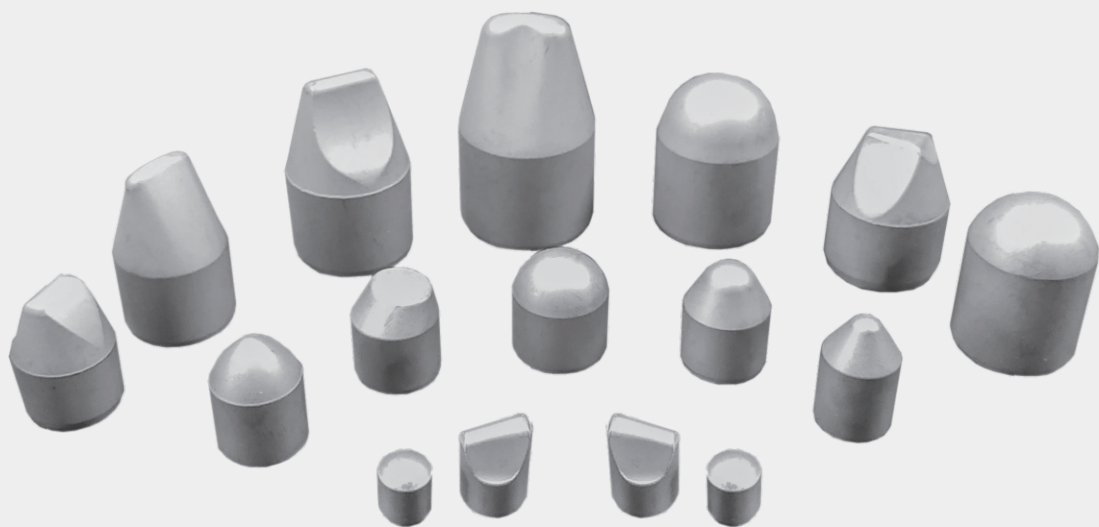


# BUTTONS

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# CARBIDE BUTTONS



## Carbide Buttons For Impact Drill Bits

Product Category	Grade	Co%	Density (g/cm <sup>3</sup> )	Hardness (HRA/HV3)	TRS (N/mm <sup>2</sup> )	Application area
Carbide buttons for high air pressure	YK05	6	14.94	1440	3000	The mainly popularized grade, suitable for all kinds of cemented carbide post-button, showing good impact resistance and wear resistance, applicable to a wide range of rock stratum, and capable of providing a high drilling rate in soft and medium-hard rock strata drilling.
	KD10	6.15	14.9	1420	2900	The grade of new composite cemented carbide spherical button, showing high wear resistance and good crack propagation resistance at the same time, further improving the reliability and durability of spherical button products, suitable for all kinds of rock conditions, especially for hard rock stratum and rock stratum with large impact energy.
	KD20C	7	14.81	1400	3200	Complementary grade, with an impact resistance better than that of YK05, suitable for hard rock stratum.
Carbide buttons for medium and low air pressure	KD10H	6	14.93	1410	2800	Suitable for medium and low air pressure DTH bits for drilling of medium and hard rock strata.
	KD10B	6.5	14.88	1390	2900	Suitable for medium and low air pressure DTH bit, showing good toughness, applicable to the drilling of medium and hard rock strata and conglomerate rock.
	KD30D	8	14.71	1310	3000	Suitable for welding drill bit applicable to the drilling of rock stratum of medium hardness and above.



## Carbide Buttons For Tri-cone Drill Bits

Product Category	Grade	Co%	Density (g/cm <sup>3</sup> )	Hardness (HRA/HV3)	TRS (N/mm <sup>2</sup> )	Application area
Carbide buttons for mining tri-cone drill bits	KD30	10	14.51	88.5	3300	Suitable for assembling mining tri-cone drill bits with both high wear resistance and toughness.
	KD40E	10	14.5	87.6	2900	Suitable for assembling mining tri-cone drill bits.
	YG11C	11.5	14.36	87.2	3000	Suitable for assembling mining tri-cone drill bits, used in medium to hard rock formations.
	YG13C	13	14.22	86.7	3000	Suitable for assembling mining tri-cone drill bits, used in medium to hard rock formations.
Carbide buttons for oil field tri-cone drill bits	KD10F	6	14.92	90.8	2670	Suitable for assembling oil field tri-cone drill bits.
	KD30F	11	14.43	88.8	2600	Suitable for assembling oil field tri-cone drill bits.
	KD40F	10	14.53	88.1	2840	Suitable for assembling oil field tri-cone drill bits.
	KD60F	12	14.30	86.2	2520	Suitable for assembling oil field tri-cone drill bits.
	KD60C	12	14.30	85.5	2400	Suitable for assembling oil field tri-cone drill bits.
	KD50C	14	14.12	86.1	2430	Suitable for assembling oil field tri-cone drill bits.
	KD60D	16	13.90	83.8	2350	Suitable for assembling oil field tri-cone drill bits.



## Code key for types of buttons

- Buttons are divided into the following 8 categories based on the shape of the top part  
**Q** Spherical    **Z** Conical    **D** Parabolic    **P** Flat top  
**T** Flat cone    **X** Wedged    **B** Side wedged    **S** Spoon
- The types of buttons are indicated with capital letters "S" or "Y" and the letter indicating the shape of the top part plus numerals.

<b>(G)</b>	<b>S</b>	<b>Q</b>	<b>18</b>	<b>26</b>	<b>- E</b>	<b>15</b>	<b>Q / A</b>
①	②	③	④	⑤	⑥	⑦	⑧
<b>(G)</b>	<b>Y</b>	<b>Z</b>	<b>18.2</b>	<b>25</b>	<b>- X</b>	<b>12</b>	<b>Q / A</b>

- Finish grinding
  - Specification of series: "S" indicates the series of imported cemented carbide buttons with their dimensional specifications and "Y" indicates the series of cemented carbide buttons in accordance with the dimensional specifications specified by customers.
  - It indicates the shape of the top part of the buttons See 1 above
  - It indicates the diameter of the buttons in mm. Only 2-digit integers are to be taken and zero is added before the integer if there is only 1 digit.
  - It indicates the height of the button in mm. Only 2-digit integers are to be taken and a zero is added before one integer if there is only 1 digit.
  - It indicates the angle of the chamfered bottom of the button.
    - E- The included angle in relation to the axle center line is 15-18 degrees;
    - F- The included angle in relation to the axle center line is 30 degrees °( Exceptional example: F2 indicates 0.7x30°); G- The included angle in relation to the axle center line is 45 degrees;
    - X- The included angle in relation to the axle center line is other values or other bottom shapes.
  - It indicates the height of the bottom chamfer and numerals are 10 times that of height in mm and zero is added before the integer if there is only 1 digit.
  - It indicates the status of the gas containing hole at the bottom of the button.
    - Q-Spherical hole, Z-Conical hole, J- Sharp hole, No letter here if there is no hole.
  - Code for non-standard product, to be set by manufacturer as needed.
- Note: If Digit 5 and Digit 6 are both defaulted, it means a post-button product with double chamfers.

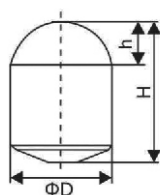
## *Tolerances for diameters and heights of buttons*

Diameter (D)		Height (H)	
Nominal size	Allowed tolerance	Nominal size	Allowed tolerance
≤10	±0.10	≤11	±0.10
		11~18	±0.15
>10	±0.15	18~25	±0.15
		>25	±0.20





## Q types (Spherical)

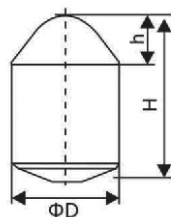


TYPE	Basic dimensions		
	D	H	h
SQ0812	8.25	12.30	2.67
SQ1015	10.25	15.00	3.31
SQ1217	12.35	17.10	4.07
SQ1420	14.35	20.00	4.71
SQ1621	16.35	21.00	5.35
SQ1826	18.35	26.10	7.81
SQ1928	19.35	28.50	8.07
SQ2028	20.50	28.00	7.61
SQ2230	22.25	30.12	9.20
SQ2435	24.35	35.00	10.39
SQ2536	25.50	36.00	10.90

The dimensions and shapes can be customized according to the customer's requirements.

The product can be used on impact bits for rock drilling, DTH bits, tri-cone drill bits, and is applicable to the drilling of extremely hard rock stratum.

## Z types (Conical)

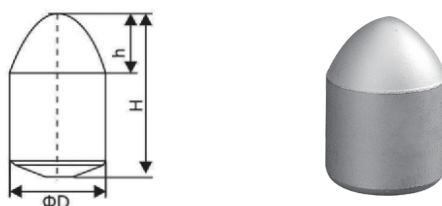


TYPE	Basic dimensions		
	D	H	h
SZ0812	8.25	12.20	3.52
SZ1016	10.25	16.30	5.22
SZ1320	13.35	22.20	5.85
SZ1424	14.38	24.00	8.27
SZ1520	15.00	20.00	8.91
SZ1625	16.30	25.00	8.80
SZ1828	18.25	28.00	10.14
SZ1925	19.00	25.00	6.50
SZ2536	25.77	36.00	18.45

The dimensions and shapes can be customized according to the customer's requirements.

The product can be used on impact bits for rock drilling, DTH bits, tri-cone drill bits, and is applicable to the drilling of hard rock stratum.

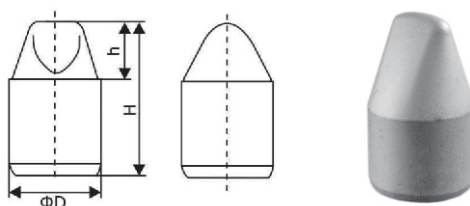
## D types (Parabolic)



TYPE	Basic dimensions		
	D	H	h
SD0711	7.25	11.00	3.93
SD0913	9.25	13.00	5.00
SD1117	11.30	17.00	6.13
SD1218	12.35	18.00	7.60
SD1422	14.35	22.00	7.40
SD1625	16.33	24.60	9.77
SD1829	18.25	29.00	10.44
SD1930	19.22	30.00	9.95
SD2032	20.28	32.12	12.50
SD2233	22.31	33.00	12.76

The dimensions and shapes can be customized according to the customer's requirements. The product can be used on DTH bits, tri-cone drill bits, and is applicable to the drilling of middle hard rock stratum.

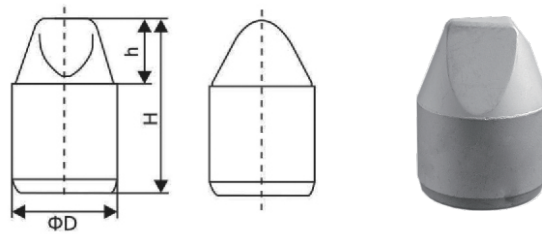
## X types (Wedged)



TYPE	Basic dimensions		
	D	H	h
SX1014-E18	10.37	14.00	6.00
SX1318-E17Z	13.15	18.00	7.50
SX1418A-E20	14.30	18.00	8.00
SX1620A-E20	16.35	19.50	10.00
SX1724-E18Z	17.20	24.00	11.50
SX1827-E19	18.37	27.00	12.00
SX2236	22.47	36.00	18.00

The dimensions and shapes can be customized according to the customer's requirements. The product can be used on special-shaped DTH bits, tri-cone drill bits and is applicable to the high-speed drilling of soft rock stratum with a low probability of button breakage.

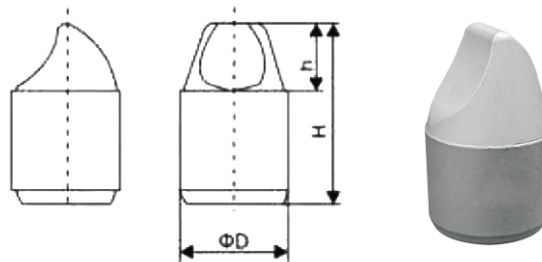
## B types (Side Wedged)



TYPE	Basic dimensions		
	D	H	h
SB1215A-E15	12.35	15.00	6.00
SB1418-E18	14.37	18.00	5.50
SB1419-E14Q	14.30	19.60	8.40
SB1620-E19	16.37	20.60	7.20
SB1825-E20Q	18.25	25.20	10.80
SB1924-E21	19.375	24.05	9.05
SB2333B-E22	23.37	33.50	15.00
SB2941	28.90	42.00	20.91

The dimensions and shapes can be customized according to the customer's requirements.

## S types (Spoon)

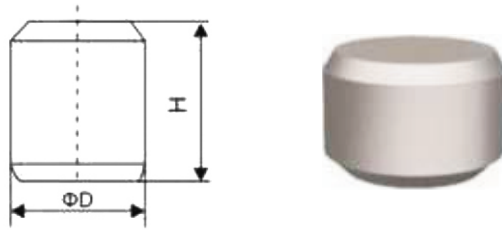


TYPE	Basic dimensions		
	D	H	h
SS1418-E20	14.30	18.00	8.10
SS1620-E20	16.35	19.50	11.10
SS2444-E22	24.37	44.00	22.00

The dimensions and shapes can be customized according to the customer's requirements.

The product can be used on tri-cone drill bits and is applicable to the high-speed drilling of soft rock stratum.

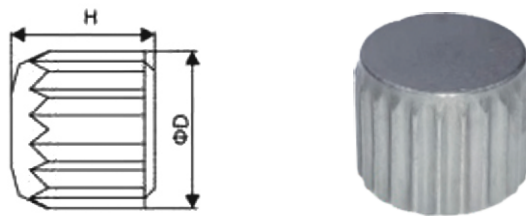
## P types (Flat top)



TYPE	Basic dimensions	
	D	H
SP0807-E15	8.25	6.90
SP1010-E20	10.35	10.00
SP1212-E18	12.37	12.00
Sp1515-G15	15.00	15.00

The dimensions and shapes can be customized according to the customer's requirements. The product can be used on tri-cone drill bits, diamond bits, and hole stabilizers, etc. to reduce the wear of friction surface.

## Serrated inserts



TYPE	Basic dimensions	
	D	H
YP08.107-F	8.17	7.40
YP9.708-F	9.75	8.00
YP14.813-F	14.80	13.7

The dimensions and shapes can be customized according to the customer's requirements.

# CARBIDE ENGINEERING BUTTONS



# Carbide Engineering Buttons For Excavating Tools

Product Category	Grade	Co%	Density (g/cm <sup>3</sup> )	Hardness (HRA/HV3)	TRS (N/mm <sup>2</sup> )	Application area
For pavement milling inserts	KC30	6	14.93	87.5	2200	Milling of asphalt pavement and cement stabilized base.
	KC35	6	14.93	88.1	2300	Milling of cement pavement.
For excavation and Wear-resistant accessories	KC60	10	14.49	85.8	2300	Rotary excavating under general working conditions.
	KC55	9	14.60	86.6	2400	Rotary excavating of intact medium-hard rock stratum.
	KW60	8.5	14.65	85.3	1950	Rotary excavating in complex hard rock stratum.
	KW55	5.5	86.5	14.95	1600	Suitable for coal mining and roadway excavation under complex working conditions of super hard rock.
	YG11C	11.5	14.36	87.0	3000	Requiring engineering accessories with high wear resistance.
	YG13C	13	14.22	86.3	3000	Wear-resistant and impact-resistant engineering accessories for bits of small tunneling and horizontal directional drills.
	YG15C	15	14.02	85.7	2900	Engineering accessories for casing drill bits and double-wheel milling plate teeth.



# Code key for types of engineering buttons

## Model designation

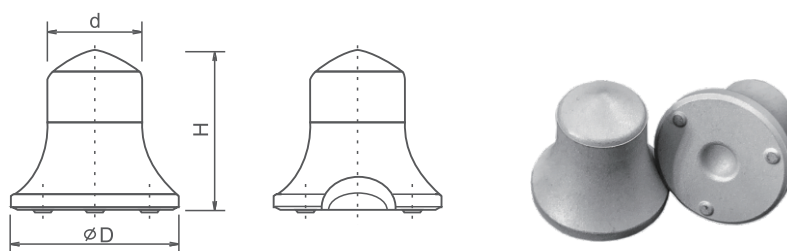
**Y J 16.0 26 - X 10 Q**

① ② ③ ④ ⑤ ⑥ ⑦

- ① Series type: "S" refers to regular models, "Y" indicates cemented carbide engineering button series customized according to the dimensional requirements specified by customers, and "X" refers to the cemented carbide pavement milling product series.
- ② Indication: Type J — engineering button, Type L — pavement asphalt milling series, Type S — cement pavement milling series.
- ③ Engineering button diameter in mm: expressed by two integers with one decimal, with "0" in the front in case of less than two integers.
- ④ Engineering button height in mm: two integers only, with "0" in the front in case of less than two integers.
- ⑤ Chamfer angle at the bottom of the engineering buttons.
  - E — an included angle of 15° or 18° with the axis.
  - F — an included angle of 30° with the axis.
  - G — an included angle of 45° with the axis.
  - X — an included angle of other values with the axis, or other bottom shapes.
- ⑥ Chamfer height at the bottom of the engineering button, expressed by a number 10 times the height (in mm), and with "0" in the front in case of less than two digits.
- ⑦ Air hole at the bottom of the engineering buttons.
  - Q — spherical hole, using default value when there is no air hole.

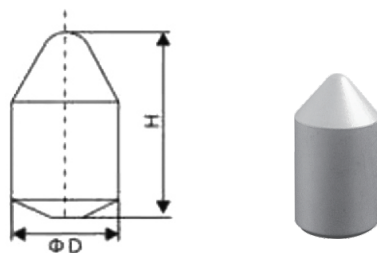


## Pavement milling buttons



TYPE	Basic dimensions		
	D	H	d
YJ15.615	15.60	15.00	8.50
YJ16.016	16.00	16.50	8.50
YJ17.517	17.50	17.00	9.50
YJ18.417	18.40	17.30	10.50
YJ18.817	18.80	17.50	10.50
YJ19.018	19.00	18.00	11.50
YJ19.518	19.00	17.50	11.50
YJ20.020	20.00	19.50	11.50
YJ20.420	20.40	20.30	11.00
YJ20.620	20.60	19.50	11.70
YJ20.820	20.80	19.80	11.70
YJ22.023	22.00	23.00	11.50

The dimensions and shapes can be customized according to the customer's requirements.

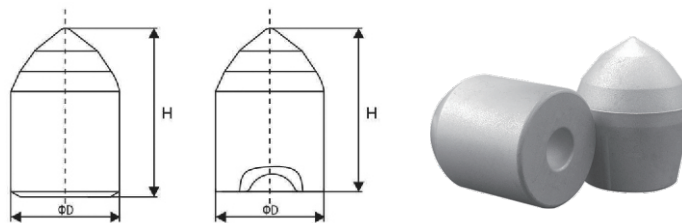


TYPE	Basic dimensions	
	D	H
YJ12.018	12.00	18.00
YJ12.724	12.70	24.50
YJ13.024	13.00	24.50
YJ13.025	13.00	25.00
YJ13.425	13.40	25.00
YJ14.025	14.00	25.00
YJ15.326	15.30	26.50

The dimensions and shapes can be customized according to the customer's requirements.



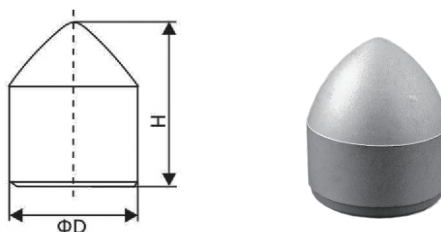
## Engineering rotary excavating buttons



TYPE	Basic dimensions	
	D	H
YJ17.023	17.00	23.00
YJ18.024	18.00	24.00
YJ19.025	19.00	25.00
YJ20.026	20.00	26.00
YJ20.527	20.50	27.00
YJ21.027	21.00	27.00
YJ22.028	22.00	28.00
YJ23.530	23.50	30.00
YJ24.032	24.00	32.00
YJ25.031	25.00	31.00
YJ25.532	25.50	32.00
YJ28.035	28.00	35.00
YJ29.5036	29.50	36.00
YJ30.038	30.00	38.00

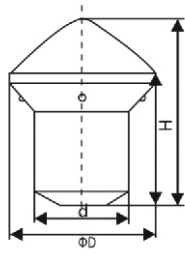
The dimensions and shapes can be customized according to the customer's requirements.

## Mining buttons



TYPE	Basic dimensions	
	D	H
YJ16.026	16.00	26.00
YJ17.030	17.00	30.00
YJ19.032	19.00	19.00
YJ20.032	20.00	32.00
YJ22.034	22.00	34.00
YJ25.040	25.00	40.00
YJ27.036	27.00	36.00
YJ30.044	30.00	44.00

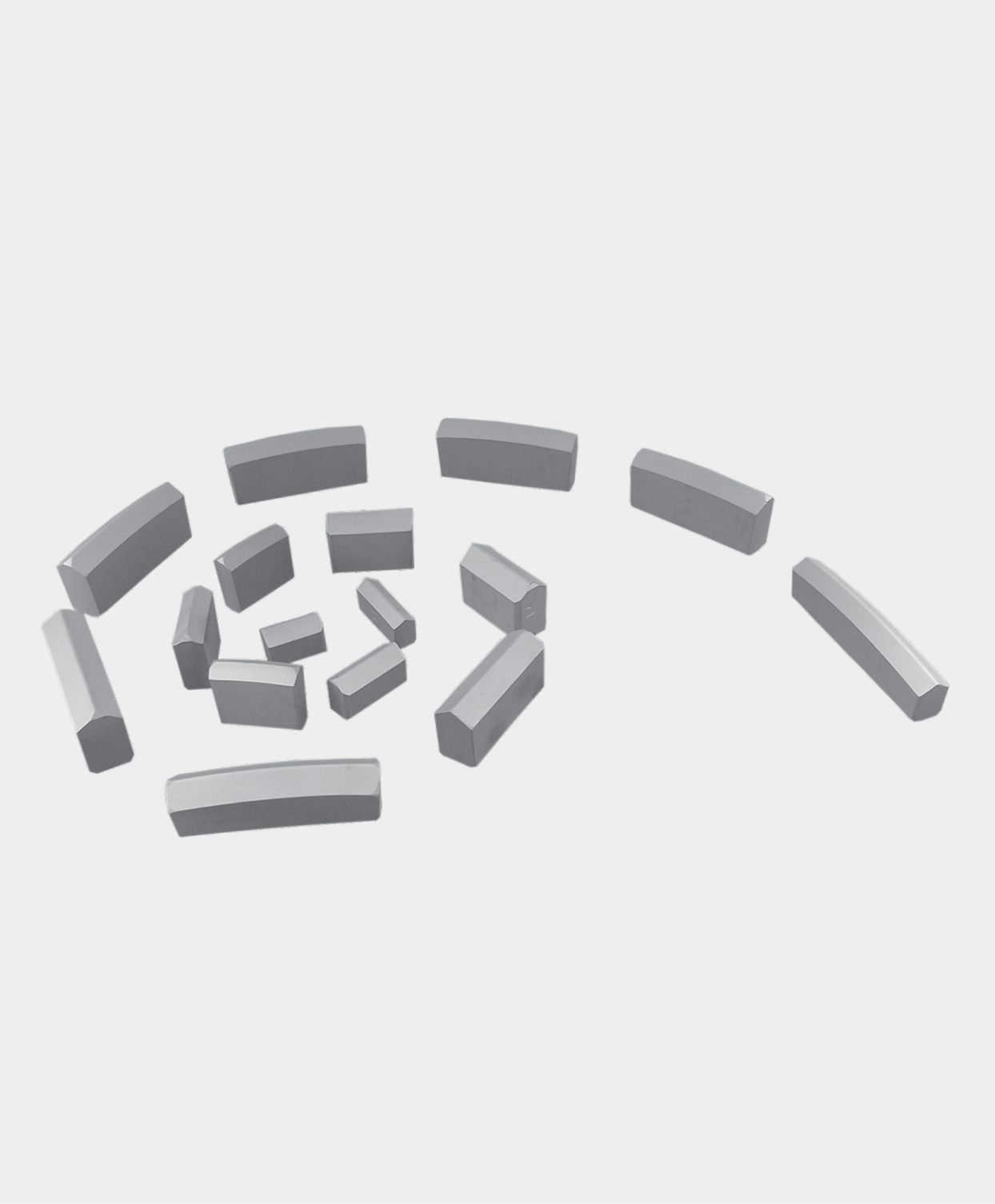
The dimensions and shapes can be customized according to the customer's requirements.



TYPE	Basic dimensions		
	D	H	d
YJ18.533	18.50	33.00	12.00
YJ20.025	20.00	25.00	15.00
YJ22.028	22.00	28.00	14.00
YJ24.934	24.90	34.00	17.20
YJ25.028	25.00	28.00	20.00
YJ30.035	30.00	35.00	24.50
YJ33.039	33.00	39.00	24.60
YJ35.045	35.00	45.00	28.40

The dimensions and shapes can be customized according to the customer's requirements.

# CARBIDE INSERTS

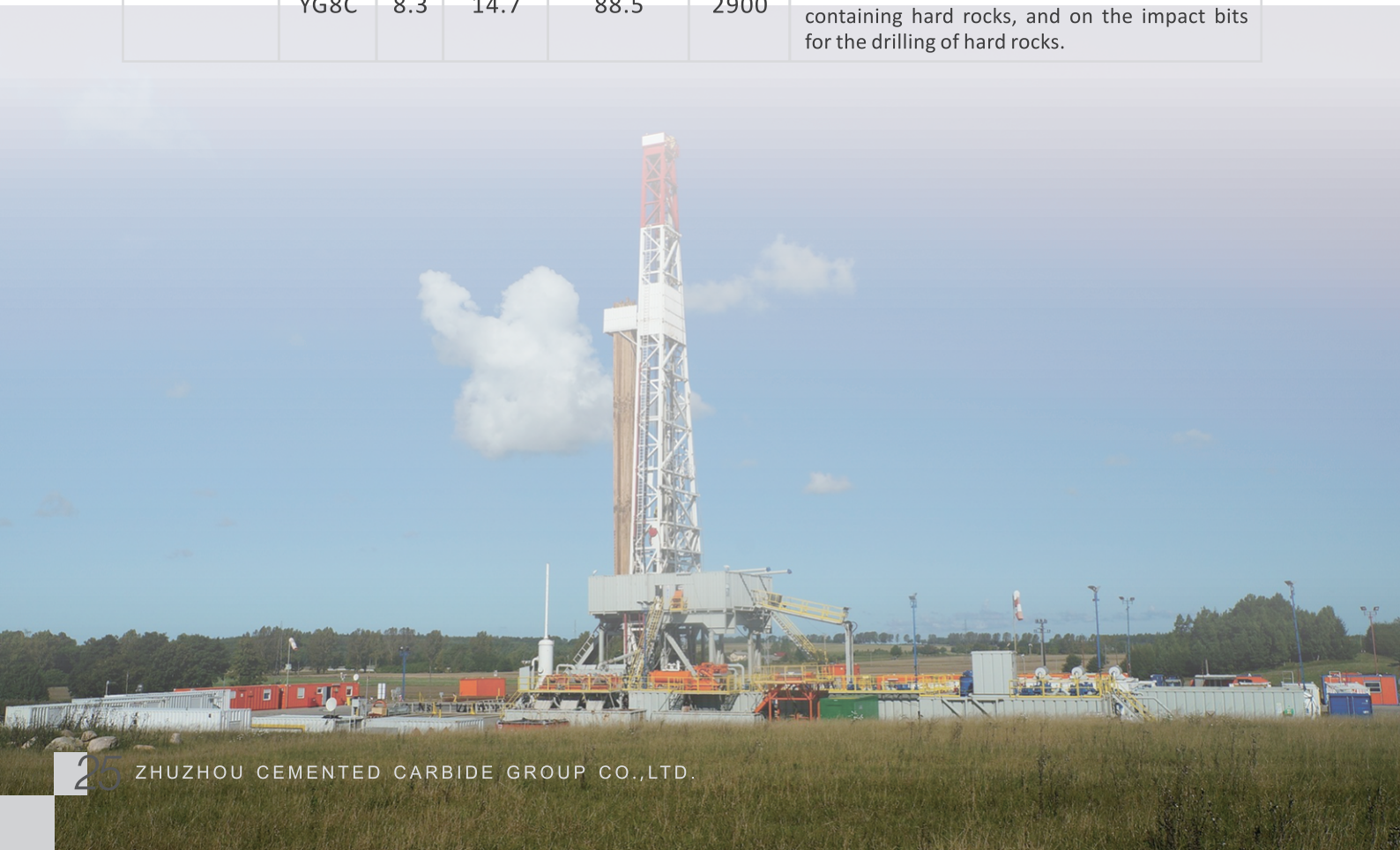


## Carbide inserts For Mining Tools

Product Category	Grade	Co%	Density (g/cm <sup>3</sup> )	Hardness (HRA/HV3)	TRS (N/mm <sup>2</sup> )	Application area
Brazing Sheet	YK15.6	9	14.61	87.7	2800	Suitable on impact rotary rock drill bit for medium-duty rock drills, applicable to the drilling of medium-hard and hard rock strata with f = 14-15.
	YK20	10	14.52	87.2	2900	Suitable on impact rotary rock drill bit for medium-duty rock drills, applicable to the drilling of comparatively hard and hard rock strata with f = 15-18.
	YG11C	11.5	11.36	87.2	3000	Suitable on impact rotary rock drill bit for heavy-duty rock drills, applicable to the drilling of hard rock strata with f = 18 or above.

## Carbide inserts For Geological Prospecting

Product Category	Grade	Co%	Density (g/cm <sup>3</sup> )	Hardness (HRA/HV3)	TRS (N/mm <sup>2</sup> )	Application area
Carbide inserts for Geological Exploration	YG6	6	14.95	90.5	2700	Suitable on electric coal drill bits for the drilling of coal and anthracite beds without pyrite and the drilling of schist, sylvite, rock salt, and other similar strata without silicification.
	YG8	7.8	14.76	89.8	3000	Suitable on core bits, oil well bits, and drag bits for geological exploration, applicable to the drilling of soft rocks and coal beds with f = 8 or below, and also to the natural stone processing and concrete drilling.
	YG8C	8.3	14.7	88.5	2900	Suitable on cutting pick bits for the drilling of rocks with f = 14 and below and coal beds containing hard rocks, and on the impact bits for the drilling of hard rocks.



## Brazing sheets are divided into two categories

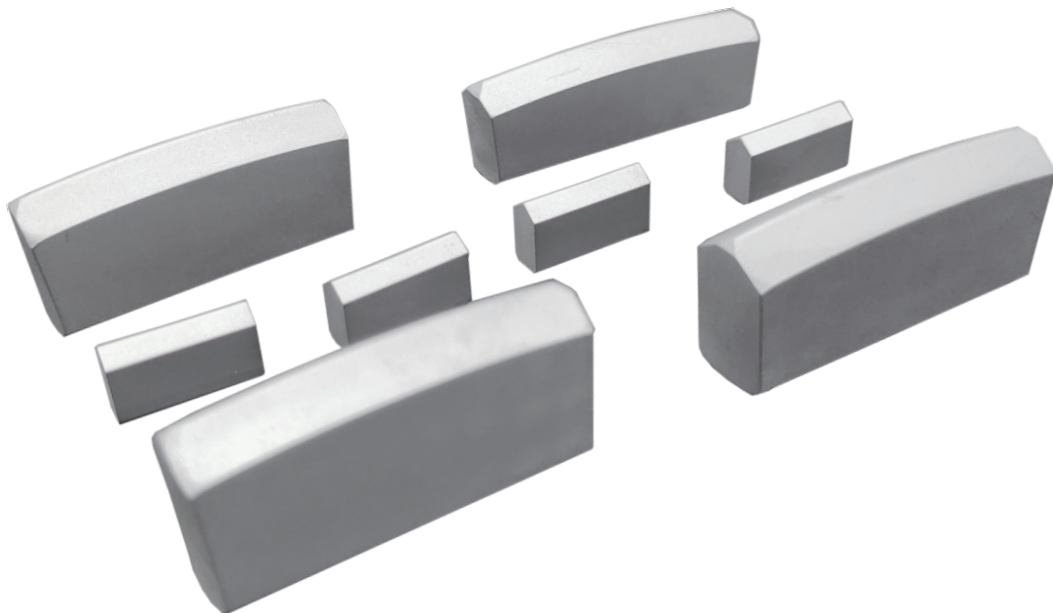
Type KAP — straight brazing sheet

Type KBP — cross brazing sheet

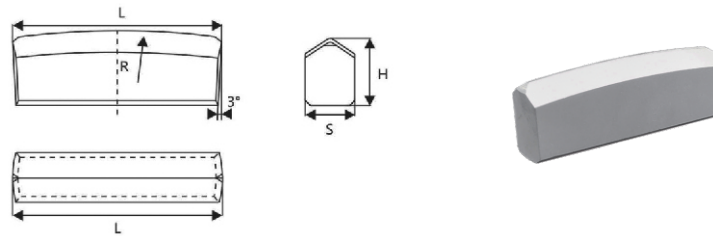
**KA P 40\* 13\* 9.5 B/ XJ**

① ② ③ ④ ⑤ ⑥ ⑦

- ① Series type: "KA" refers to the sheets for straight cemented carbide bits, and "KB" refers to the sheets for cross or X cemented carbide bits;
- ② Code of roughcast information;
- ③ Brazing sheet length, in mm;
- ④ Brazing sheet height, in mm;
- ⑤ Brazing sheet thickness, in mm;
- ⑥ No chamfering;
- ⑦ Product information.



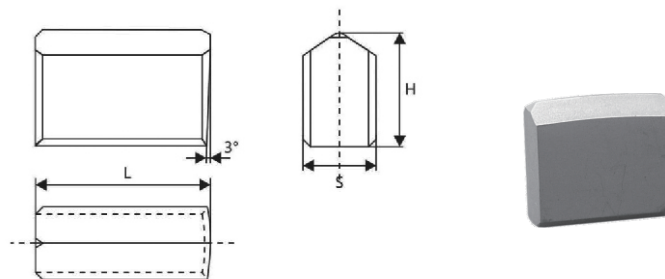
## Straight Brazing Sheet



TYPE	Basic dimensions		
	L	H	S
KAP20*10.5*6.5	20.00	10.50	6.50
KAP40*12.7*9.7	40.00	12.70	9.70
KAP40*13*9.2T	40.00	13.00	9.20
KAP40*13*9.5	40.00	13.00	9.50
KAP42*13.3*9	42.00	13.30	9.00

The dimensions and shapes can be customized according to the customer's requirements.

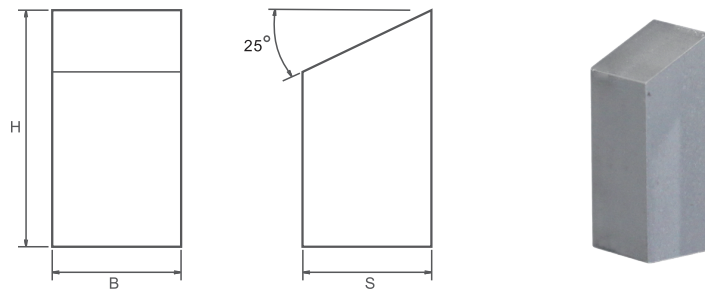
## Cross Brazing Sheet



TYPE	Basic dimensions		
	L	H	S
KBP14*10*8	14.00	10.00	8.00
KBP24*16*10	24.00	16.00	10.00
KBP37*8*7.2	37.00	7.20	8.00

The dimensions and shapes can be customized according to the customer's requirements.

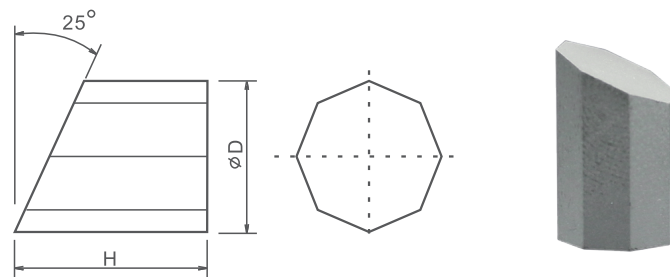
## T21, for core bits for comparatively hard rock stratum drilling



TYPE	Basic dimensions		
	B	H	S
T2105C	5.00	13.00	5.00
T2107	7.50	10.00	3.00
T2108	8.50	8.00	3.00
T2110	10.00	14.00	4.00

The dimensions and shapes can be customized according to the customer's requirements.

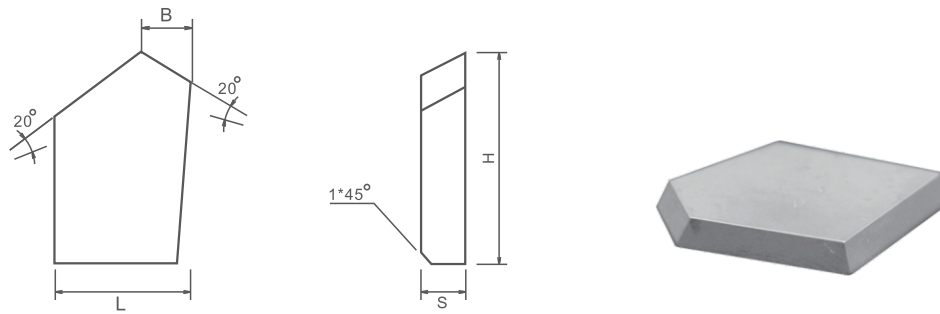
## T30, for core bits for hard rock stratum drilling



TYPE	Basic dimensions	
	D	H
T3005	5.00	10.00
T3007	7.00	10.00
T3010	10.00	16.00

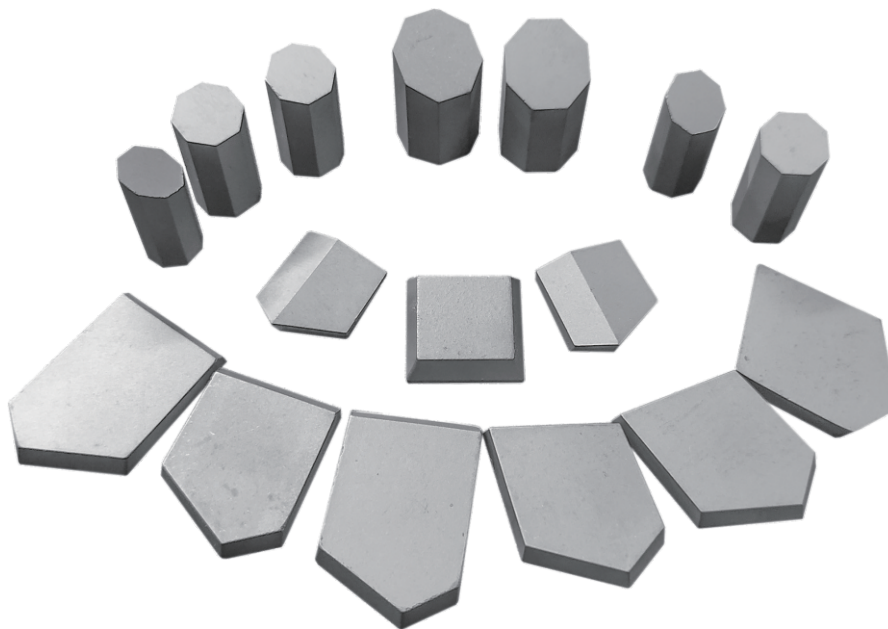
The dimensions and shapes can be customized according to the customer's requirements.

# TWP, for drill bits for rotary drilling of coal beds and soft rock stratum



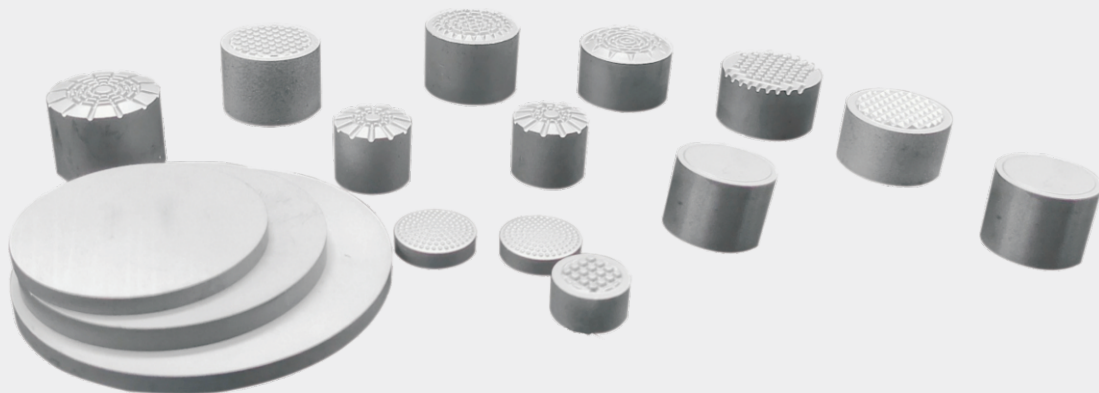
TYPE	Basic dimensions		
	B	H	S
TWP121173	5.00	19.00	3.00
TWP121174	5.00	19.00	3.00
TWP133002	5.00	22.00	3.00
TWP133003	5.00	22.00	3.00
TWP143004	5.00	20.00	2.30
TWP143005	5.00	20.00	2.30

The dimensions can be customized according to the customer's requirements.





# CARBIDE SUBSTRATES

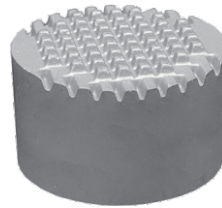
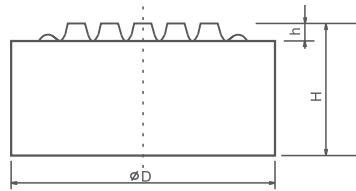


## Carbide Substrates For PDC Bits

Product Category	Grade	Co%	Density (g/cm <sup>3</sup> )	Hardness (HRA/HV3)	TRS (N/mm <sup>2</sup> )	Application area
Carbide substrate for cutting and oil	KE20	13	14.26	88.6	3500	The mainly popularized grade, suitable for the diamond composite sheet substrate for oil fields and cutting.
	YK10.1	11.5	14.41	88.5	3300	Suitable for the diamond composite sheet substrate for oil fields and cutting.
	KE25A	8	14.71	88.9	3140	Suitable for the diamond composite sheet substrate for cutting.
	KD30	10	14.51	88.4	3130	Suitable for the diamond composite sheet substrate for cutting.
Carbide substrate for mines.	KE65	16.5	13.88	85.2	2900	The mainly popularized grade, suitable for the diamond composite sheet substrate for mines.



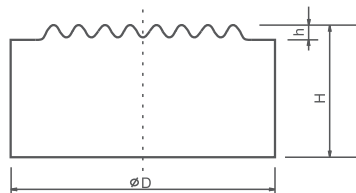
## Grid Substrates



TYPE	Basic dimensions		
	D	H	h
ZFP9.25x7.6W	9.25	7.6	0.6
ZFP11.35x7.0W	11.35	7.0	0.6
ZFP14.7x12.5W	14.70	12.5	1.0
ZFP15.0x12.2W	15.0	12.2	0.55
ZFP18.0x12.5W	18	12.5	1.0
ZFP20.9x15.8W	20.9	15.8	1.0
ZFP23.6x12.5W	23.6	18.0	0.5
ZFP34.2x17.8W8	24.40	17.90	0.55

The dimensions and shapes can be customized according to the customer's requirements. It is suitable for the diamond composite sheet substrate.

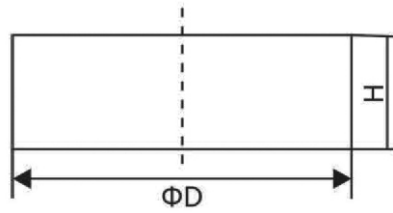
## Linear Substrates



TYPE	Basic dimensions		
	D	H	h
ZFP14.6x4.2Z2	14.6	4.2	1.8
ZFP14.6x12.5Z2	14.6	12.5	1.8
ZFP18.0x12.9Z	18.0	12.9	0.6
ZFP20.3x8.3Z5	20.7	8.3	1.6
ZFP37.2x5.0Z1	37.45	4.0	0.32

The dimensions and shapes can be customized according to the customer's requirements.

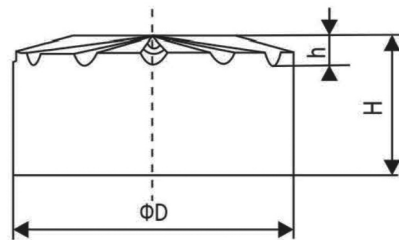
## Planar Substrates



TYPE	Basic dimensions	
	D	H
ZFP9.5x7.8P	9.5	7.6
ZFP11.0x5.5P	11.0	5.5
ZFP13.7x3.8P	13.7	3.8
ZFP14.6x4.1P	14.6	4.1
ZFP15.5x4.0P	15.5	4.0
ZFP33.9x7.0P	33.9	7.0
ZFP45.0x3.9P	45	3.9
ZFP55.0x3.5P	55	3.5
ZFP62.0x3.5P	62	3.5
ZFP64.6x3.5P	64.6	3.5
ZFP77.4x6.0P	77.4	6.0

The dimensions and shapes can be customized according to the customer's requirements.

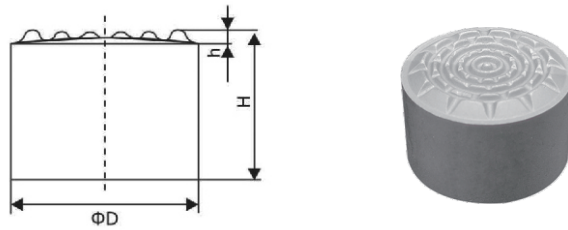
## Radial Substrates



TYPE	Basic dimensions		
	D	H	h
ZFP14.6x4.8F	14.60	4.8	1.6
ZFP14.6x7.5F	14.60	7.5	1.6
ZFP16.76x12.0F	16.76	12.0	1.6
ZFP21.0x7.8F1	21.00	7.8	1.6

The dimensions and shapes can be customized according to the customer's requirements.

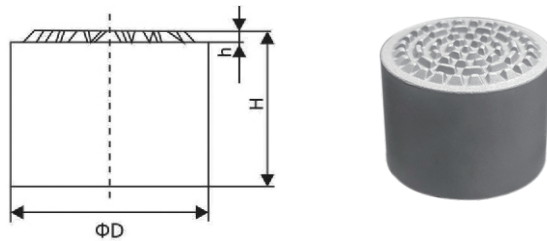
## Annular Substrates



TYPE	Basic dimensions		
	D	H	h
ZFP15.0x12.2H2	15.1	12.3	0.863
ZFP17.65x12.5HL	17.75	12.6	0.7
ZFP17.8x12.2H	17.9	12.3	1.024

The dimensions and shapes can be customized according to the customer's requirements.

## Special Shape Substrates



TYPE	Basic dimensions		
	D	H	h
ZFP14.7x12.5S	14.7	12.5	0.9
ZFP14.8x12.5S1	14.8	12.5	1.0
ZFP18.0x12.5S1	18.0	12.5	1.0
ZFP21.0x12.8S3	21.1	12.8	1.0

The dimensions and shapes can be customized according to the customer's requirements.

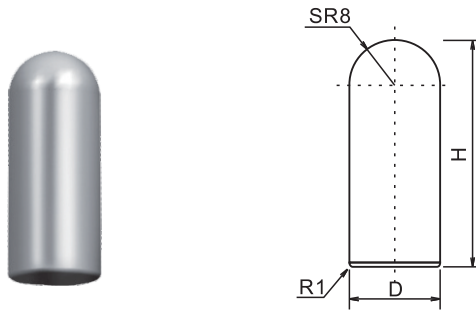
# CARBIDE STUDS FOR HPGR



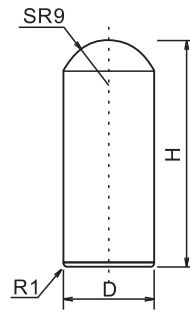
## Carbide Studs For HPGR

Product Category	Grade	Co%	Density (g/cm <sup>3</sup> )	Hardness (HRA/HV3)	TRS (N/mm <sup>2</sup> )	Application area
Carbide Studs	YG11	11	14.43	88.0	3200	Suitable for crushing iron ore, steel slag and pebbles
	KZ35	15	13.95	88.0	3500	Suitable for crushing and fine grinding of iron ore and sintered agglomerates
	YG15	14.9	14.05	87.0	3300	Suitable for occasions where the size of the pressure roller is large and bears a large load
	KZ45	18	13.79	87.0	3400	Suitable for crushing cement raw meal, clinker, mixture, bauxite
	YG15C	15	14.02	85.5	2900	Suitable for crushing cement mixture, steel slag, iron ore, bauxite
	YG20	20	13.56	85.0	3400	Suitable for crushing raw cement, steel slag and mixture

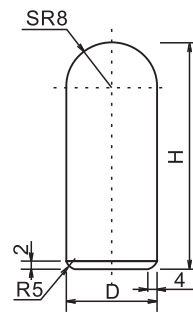
## Types of carbide studs for HPGR



TYPE	D		H	
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance
LWG095569	16	-0.06 ~ -0.04	40	±0.2
LWG095568	16	-0.06 ~ -0.04	45	±0.2

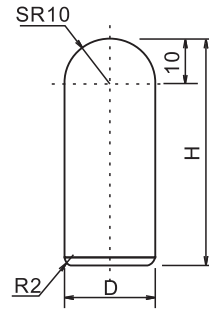


TYPE	D		H	
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance
LWG125141	16.55	$\pm 0.009$	36	$\pm 0.2$
LWG125142	17.05	$\pm 0.01$	40	$\pm 0.2$

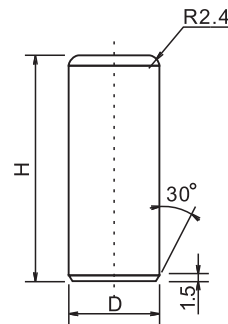


TYPE	D		H	
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance
LWG125101	16	$-0.06 \sim -0.04$	40	$-0.5 \sim 0$
LWG125102	16	$-0.06 \sim -0.04$	45	$-0.5 \sim 0$

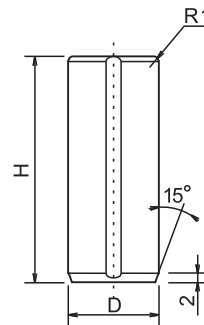




TYPE	D		H	
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance
LWG115161	20	-0.04 ~ -0.02	40	±0.2



TYPE	D		H	
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance
LWG135050	16	-0.06 ~ -0.04	45	±0.2

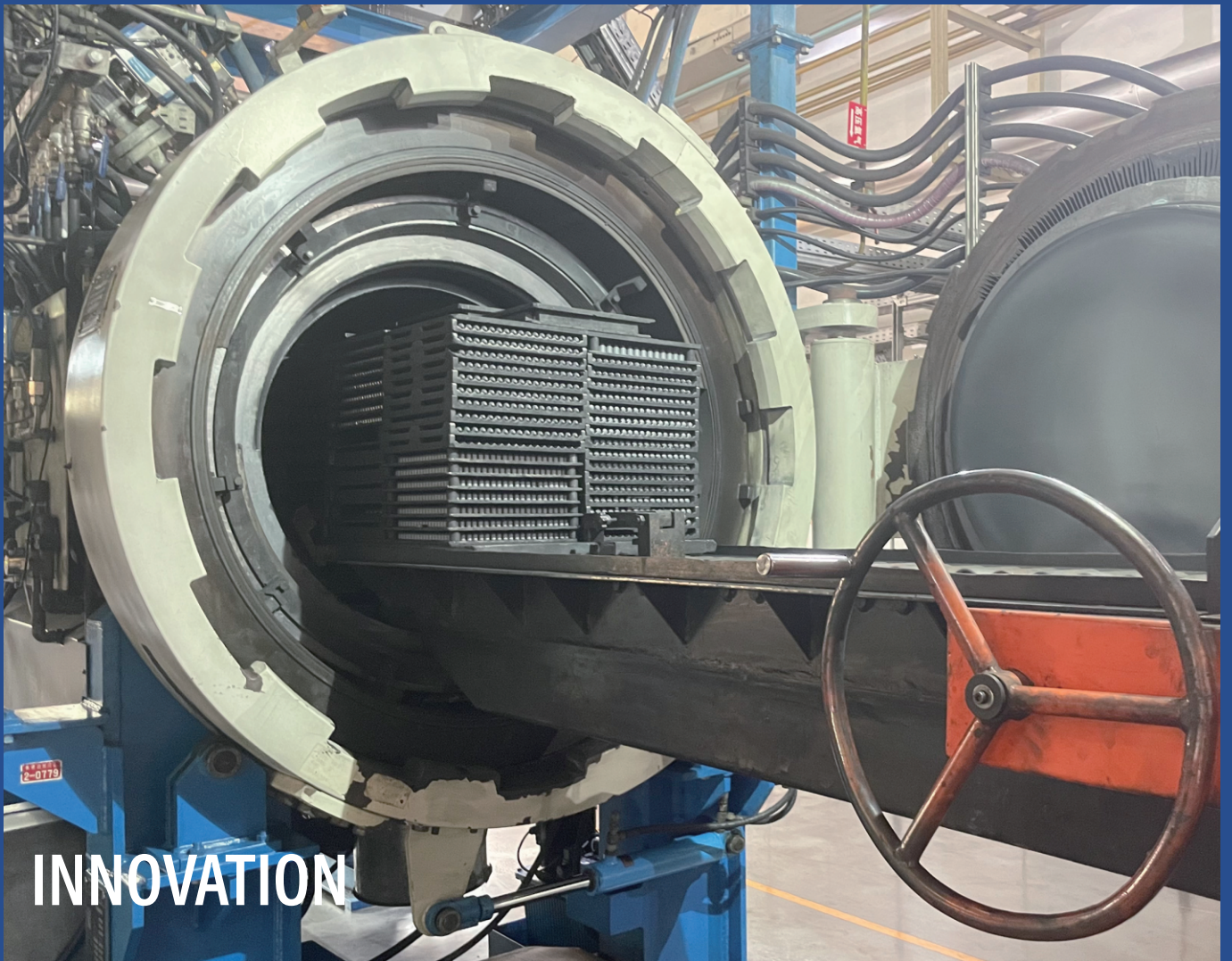
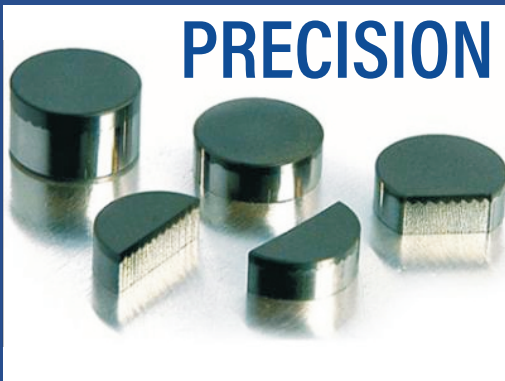
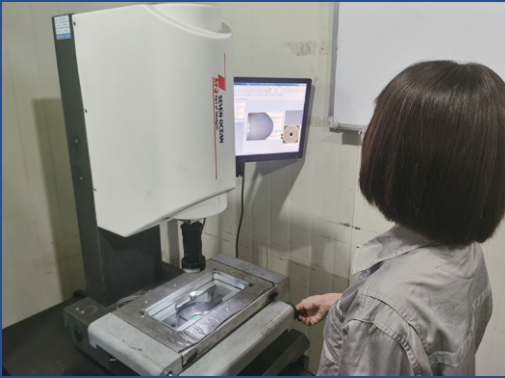


TYPE	D		H	
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance
LWG125087	15	+0.046 ~ +0.028	30	±0.1

More types are available on request!







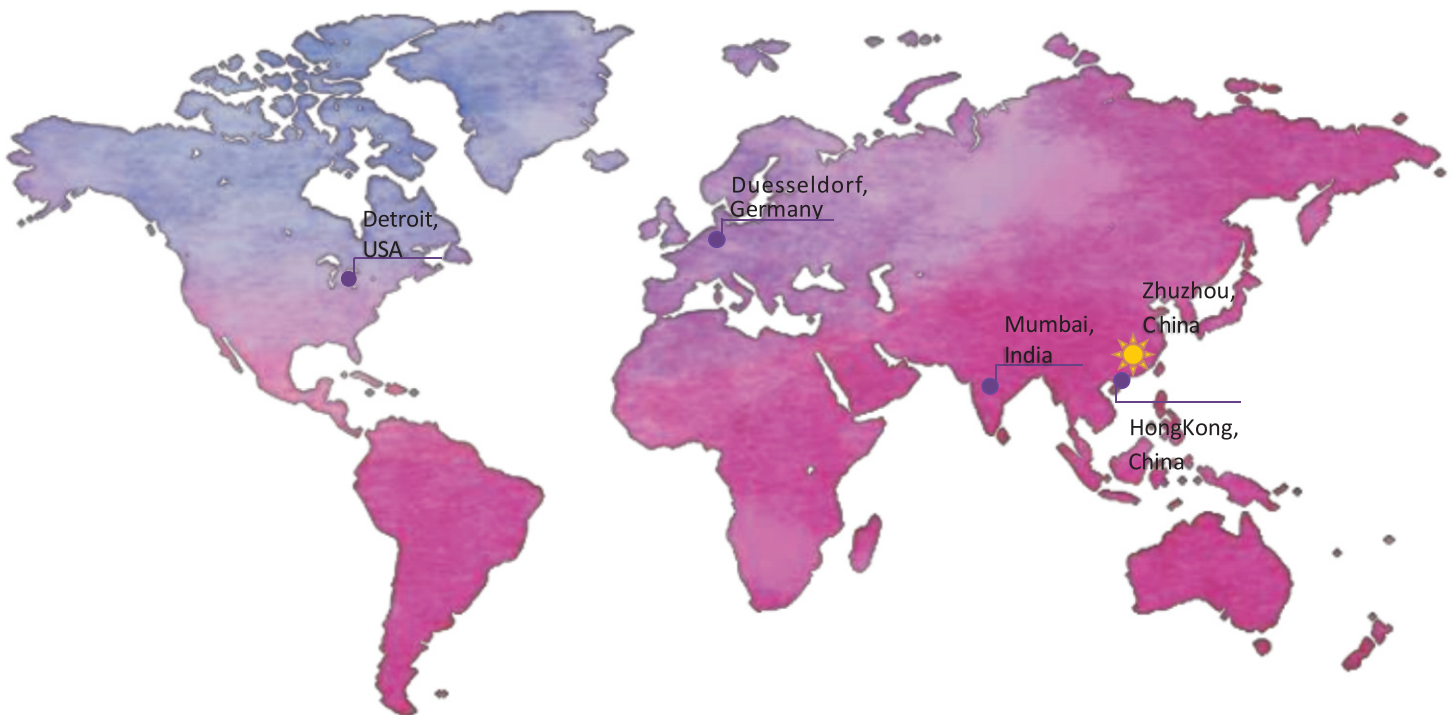


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2022 VERSION