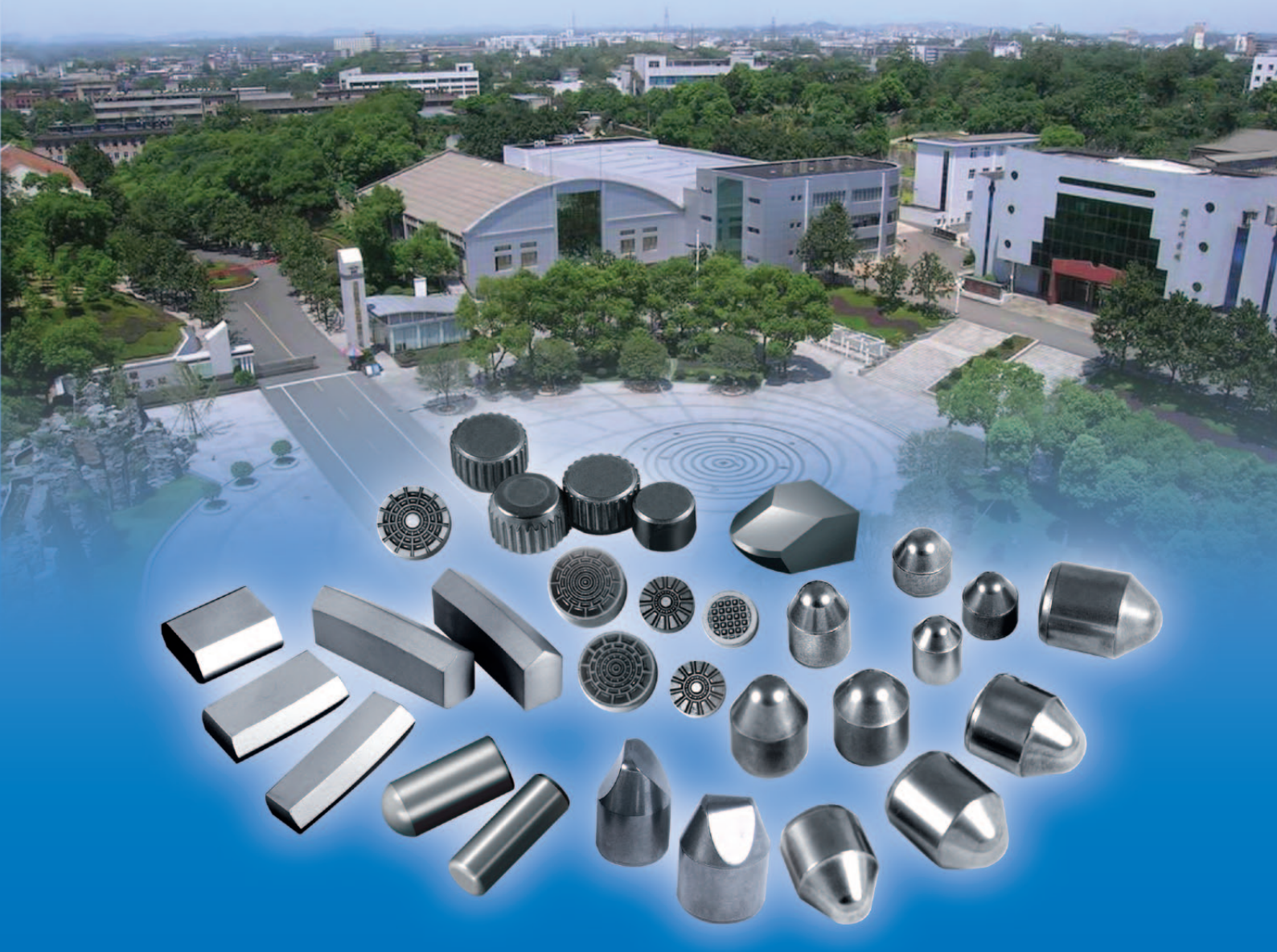
ZCC

60
1954—2014

Cemented Carbide

- Carbide buttons
- Carbide inserts for mining tools
- Carbide inserts for tunnel boring machine toolings
- Carbide studs for HPGR



Zhuzhou Cemented Carbide Group Corp. Ltd.
www.zccamerica.com

World's Tools, Sharp Tools for Wealth.

Enterprise Spirit

Pursuing a Perfect Mastery. Aiming at Unlimited Progress.

Key Philosophy

Good Faith Creates Values.

Introduction of ZCC

Zhuzhou Cemented Carbide Group Corp. Ltd. (ZCC) has been a leading manufacturer of cemented carbide products in China since built in 1954. It produces about 5,000 tons of cemented carbides, more than 10,000 tons of APT, tungsten powder, tungsten carbide powder, ready to press powder, and 800tons of Cobalt powder annually. Meanwhile, ZCC also owns separate plants to produce Molybdenum, Tantalum and Niobium products.

ZCC has different business sectors which are for Hard Material, Cutting inserts and tools, Tungsten & Molybdenum, Cobalt, Tantalum &Niobium products.

The hard material sector is the biggest one in ZCC. Its annual production capability is around 600tons of carbide rolls and anvils, 1000tons of carbide rods, 600tons of mining and road milling buttons, 500tons of carbide molds and dies, a few hundred tons for special products and wear parts.

Carbide buttons and carbide inserts, important products in ZCC's production range and the focus of this catalogue, are widely used in oil field drilling bits, mining tools and tunnel boring machine toolings.

The "Diamond Brand" trademark was named as "China's Renowned Trademark" in 1999, and "Diamond Brand" cemented carbide was awarded as "China's Famous Brand" in 2004.

ZCC has established a global sales network since 2001. With branches in America, Europe, HongKong, and a liaison office in India, ZCC has been providing better local services for our customers around the world:

America: Zhuzhou Cemented Carbide Works USA Inc.
4651 Platt Lane, Ann Arbor, MI 48108 USA
Tel: +1-734-302-0125 Fax: +1-734-302-0126

E-mail: salesdepartment@zccamerica.com

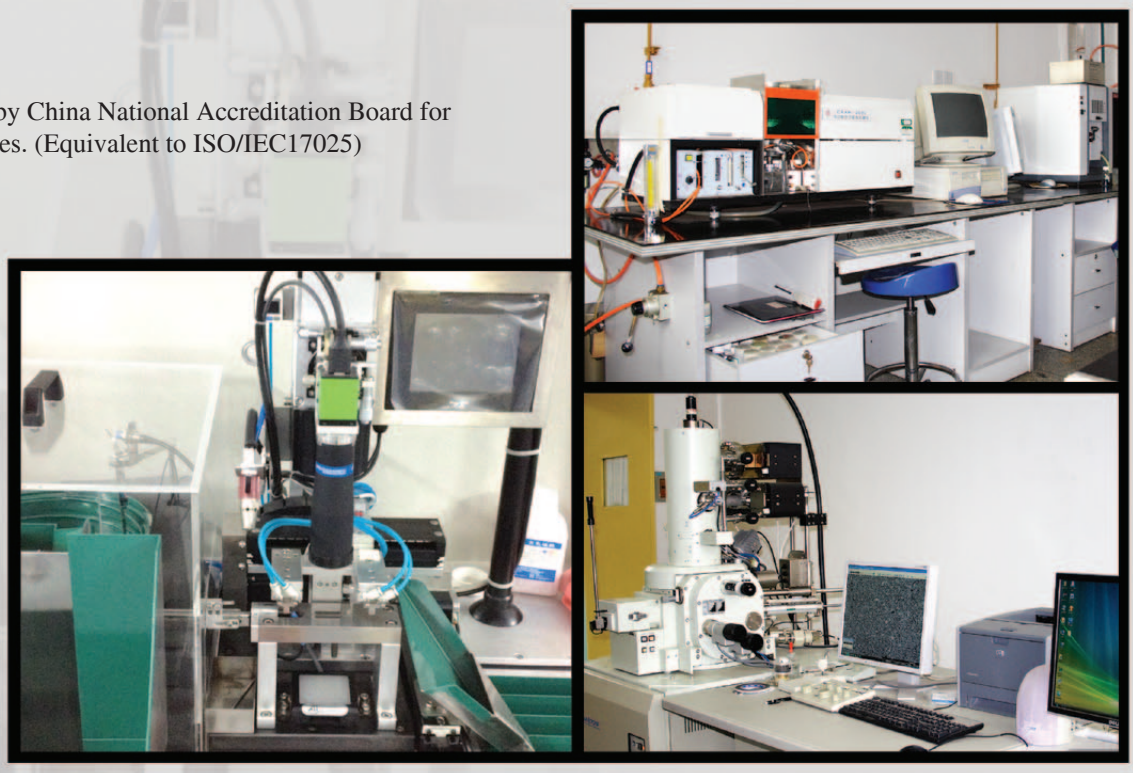
Website: www.zccamerica.com

For more information, please login
ZCC website: www.zccamerica.com

R & D Center

Testing Center

Accepted by China National Accreditation Board for Laboratories. (Equivalent to ISO/IEC17025)



Production Plants

CONTENT

Carbide button grades

Grades of buttons for rock drilling bits

Grade	Co %	Density (g/cm³)	Hardness (HRA/HV30)	TRS (N/mm²)	Recommended applications
KD05	5.5	14.90~15.10	1380~1500	≥2800	High hardness and wear resistance, suitable for making various parabolic buttons.
YK05	6.0	14.82~14.98	1370~1490	≥2300	Suitable for making various sizes of buttons with fine resistance to impact and wear for drilling soft and medium hard formations at a higher speed rate.
KD10	6.2	14.80~15.00	1320~1470	≥2000	High toughness, suitable for making buttons for high air pressure DTH bits drilling medium hard and hard rock formations.
KD10B	6.5	14.75~14.95	1300~1460	≥2300	Mainly for making buttons for low air pressure bits in mining.
KD20C	7.0	14.70~14.90	1320~1450	≥2500	With more cobalt content and toughness than that of grade YK05, it is a tougher alternative to grade YK05 to avoid risk of breakage of bits at high speed drilling rate.
YK10.5	7.5	14.70~14.85	89.0~90.5	≥2600	Mainly for making buttons for DTH bits in various sizes of conical, parabolic and spherical buttons.
YK10	8.0	14.60~14.76	1200~1320	≥2340	Mainly for making buttons of medium and small sizes for bits drilling soft and medium hard rock formations, also for making inserts for other drill bits.
YG8C	8.3	14.55~14.75	≥87.5	≥2000	Mainly for making buttons of medium & small sizes for drilling soft and medium hard rock formations.

Grades of buttons for oil & gas drilling bits

Grade	Co %	Density (g/cm³)	Hardness (HRA/HV30)	TRS (N/mm²)	Recommended applications
KD20A	9.0	14.53~14.73	89.0~90.0	≥2400	For making buttons for tri-cone drill bits with both high wear resistance and toughness.
KD20	9.5	14.44~14.60	1155~1275	≥2400	For making buttons for tri-cone drill bits with both high wear resistance and toughness.
YKH20	10.0	14.45~14.60	87.5~89.5	≥2600	For making gauge row buttons of various tri-cone drill bits.
KD20B	10.0	14.43~14.63	88.8~89.5	≥2300	For making buttons for tri-cone drill bits with both high wear resistance and toughness.
KD30	10.0	14.43~14.63	88.1~89.1	≥2000	For making buttons for tri-cone drill bits with both high wear resistance and toughness.
KD40	10.0	14.40~14.60	87.2~88.2	≥2900	Used in buttons for bits drilling in medium hard to soft rock formations.
YG11C	11.5	14.25~14.45	86.5~88.0	≥2400	Coarse grade, used for inserts for bits drilling in medium hard to hard rock formations.
KD45	12.0	14.23~14.43	86.8~87.7	≥2500	Medium coarse grade, used for inserts for bits drilling in hard rock formations.
YG13C	13.0	14.15~14.35	85.5~87.0	≥2450	Mainly used for making cemented carbide buttons for drilling medium hard and hard rock formations.
KD50	14.8	13.95~14.10	85.2~86.1	≥2200	Medium coarse grade, used for inserts for bits drilling in hard rock formations.
YKH60	16.0	13.85~14.00	85.0~87.0	≥2700	Used for buttons for inner rows in bits drilling in medium hard to soft rock formations.
KD60	16.0	13.85~14.00	85.0~86.5	≥2500	Used for buttons for inner rows in bits drilling in medium hard to soft rock formations.

Carbide button grades

Grades of substrates for PDC bits

Grade	Co %	Density (g/cm³)	Hardness (HRA/HV30)	TRS (N/mm²)	Recommended applications
YK10.1	11.5	14.25~14.55	≥87.0	≥2400	For making substrate for PDC cutter in oil drilling or for substrates for carbide inserts.
KE20	13.0	14.10~14.30	88.0~89.5	≥2700	For making substrate for PDC cutter in oil drilling or for substrates for carbide inserts.
YK30.1	13.0	14.10~14.30	≥87.0	≥2480	For making substrate for PDC cutter in oil drilling or for substrates for carbide inserts.
KE40	16.0	13.80~14.00	86.2~88.0	≥2500	For making substrate for PDC cutter in mining.
YKH60F	16.0	13.85~14.00	86.3~87.8	≥2700	For making substrate for PDC cutter in oil drilling or for substrates for carbide inserts.
YKH60M	16.5	13.75~13.95	84.5~86.0	≥2640	For making substrate for PDC cutter in mining.
YG16C	16.5	13.75~13.95	≥84.0	≥2640	For making substrate for PDC cutter in mining.

Grades of buttons for excavating tools

Grade	Co %	Density (g/cm³)	Hardness (HRA/HV30)	TRS (N/mm²)	Recommended applications
YK05	6.0	14.82~14.98	1370~1490	≥2300	With excellent resistance to impact and wear, suitable for making buttons for bits drilling most cases of hard rock formations.
KW06A	6.0	14.85~15.00	1250~1350	≥2300	Extra coarse grain size, suitable for making buttons for road planning picks.
KW06	6.0	14.88~15.02	1190~1260	≥2400	Extra coarse grain size, suitable for making buttons for road planning picks.
KC40	6.5	14.80~14.95	86.7~88.5	≥2000	Extra coarse grain size, suitable for making buttons for road planning picks.
KC50	8.0	14.60~14.80	86.0~87.5	≥1900	Extra coarse grain size, suitable for making buttons for road planning picks.
KW10	9.5	14.40~14.70	950~1050	≥2000	Extra coarse grain size, for making buttons for picks for trenching, crushing, coal mining etc.
KC50A	10	14.40~14.60	84.7~86.5	≥2000	Extra coarse grain size, suitable for making buttons for road planning picks.

Code key for types of buttons

- Buttons are divided into the following 11 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
F Sharp claw	J Auger tips	Others	

- The types of buttons are indicated with capital letters “S” or “Y” and the letter indicating the shape of the top part plus numerals.

(G)	S	Q	18	26	A	-	E	15	Q
①	②	③	④	⑤	⑥		⑦	⑧	⑨
(G)	Y	Z	18.2	25	A	-	X	12	Q

① Finish grinding

② Specification of series: “S” indicates the series of imported cemented carbide buttons with their dimensional specificationsand “Y” indicates the series of cemented carbide buttons in accordance with the dimensional specifications specified bycustomers.

③ It indicates the shape of the top part of the buttons See 1 above

④ 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.

⑤ 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.

⑥ It indicates the special structure of the top part and the structure of standard top parts is omittid here.

⑦ 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.

⑧ 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.

⑨ It indicates the status of the gas containing hole at the bottom of the button Q Spherical Z Conical J Pointed hole No letter here if there is no hole.

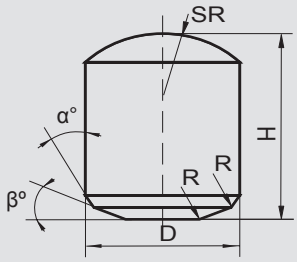
Note: It indicates the series of buttons with double chamfers

Tolerances for diameters and heights of buttons

mm

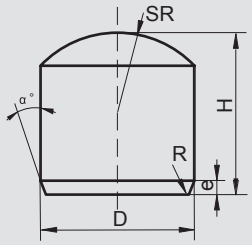
Diameter (D)		Height (H)	
Nominal size	Allowed tolerance	Nominal size	Allowed tolerance
≤10	±0.10	≤11	±0.10
		11~18	±0.15
>10	±0.15	18~25	±0.15
		>25	±0.20

Q types(spherical)



Type	Dimensions (mm)		Angles		
	D	H	SR	α°	β°
SQ0809	8.25	9	4.4	20	26.5
SQ0812	8.25	12.3	4.4	20	26.5
SQ0813	8.25	13.3	4.4	20	26.5
SQ0913	9.25	13.5	5	20	26.5
SQ0914	9.25	14	5	20	26.5
SQ0915	9.25	15	5	20	26.5
SQ1014	10.25	14	5.5	20	26.5
SQ1015	10.25	15	5.5	20	26.5
SQ1016	10.25	16.3	5.5	20	26.5
SQ1017	10.25	17.3	5.5	20	26.5
SQ1019	10.25	19	5.5	20	26.5
SQ1116	11.30	16	6	20	26.5
SQ1117	11.30	17	6	20	26.5
SQ1119	11.30	19	6	20	26.5
SQ1217	12.35	17.1	6.6	20	26.5
SQ1218	12.35	18	6.6	20	26.5
SQ1219	12.35	19	6.6	20	26.5
SQ1222	12.35	22.2	6.6	20	26.5
SQ1318	13.35	18	7	20	26.5
SQ1320	13.35	20	7	20	26.5
SQ1322	13.35	22	7	20	26.5
SQ1420	14.35	20	7.7	20	14.5
SQ1422	14.35	22.2	7.7	20	14.5
SQ1423	14.35	23	7.7	20	14.5
SQ1622	16.35	22	8.8	20	14.5
SQ1624	16.35	24	8.8	20	14.5
SQ1625	16.35	25	8.8	20	14.5

Q types(spherical)

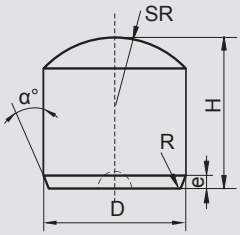


Type	Dimensions (mm)		Angles		
	D	H	SR	α°	βº
SQ0812-F2	8.25	12.3	4.4	30	0.7
SQ0813-F2	8.25	13.3	4.4	30	0.7
SQ0913-F2	9.25	13.5	5	30	0.7
SQ0914-F2	9.25	14	5	30	0.7
SQ0915-F2	9.25	15	5	30	0.7
SQ1013-F2	10.25	13	5.5	30	0.7
SQ1014-F2	10.25	14	5.5	30	0.7
SQ1016-F2	10.25	16.3	5.5	30	0.7
SQ1114-F2	11.30	14	6	30	0.7
SQ1116-F2	11.30	16	6	30	0.7
SQ1117-F2	11.30	17	6	30	0.7
SQ1216-F2	12.35	16	6.6	30	0.7
SQ1217-F2	12.35	17	6.6	30	0.7
SQ1219-F2	12.35	19	6.6	30	0.7
SQ1221-F2	12.35	21	6.6	30	0.7
SQ1318-F2	13.35	18	7	30	0.7
SQ1320-F2	13.25	20	7	30	0.7
SQ1419-F2	14.35	19	7.7	30	0.7
SQ1420-F2	14.35	20	7.7	30	0.7
SQ1422-F2	14.35	22.2	7.7	30	0.7
SQ1619-F2	16.45	19.1	8.8	30	0.7
SQ1623-F2	16.35	23	8.8	30	0.7
YQ1625-F2	16.35	25	8.8	30	0.7
YQ11.712-E10	11.72	12.5	6.05	18	1
YQ13.819-E22	13.8	19.1	6.9	18	2.2
YQ13.822-E22	13.8	22.1	6.9	18	2.2
YQ14.016-E15	14	16	7.5	15	1.5

To be continued

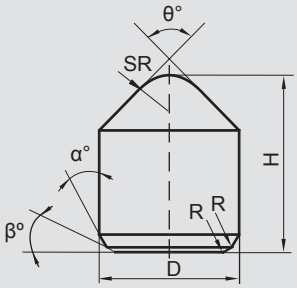
Type	Dimensions (mm)		Angles		
	D	H	SR	α°	β°
YQ14.318-E20	14.3	18	7.2	18	2
YQ14.322-E20	14.3	22	7.2	18	2
YQ14.822-E20	14.8	22.1	7.4	18	2.2
YQ15.217-E20	15.2	17	7.73	18	2
YQ16.221-E24	16.15	21.1	8	18	2.4
YQ16.324-E20	16.3	23.8	8.33	15	2
YQ16.332-E20	16.3	32	8.33	15	2
YQ16.922-E24	16.9	21.7	8.5	18	2.4
YQ16.928-E20	16.9	28.4	8.5	15	2
YQ16.929-E24	16.9	28.7	8.5	18	2.4
YQ1721-E20	17	21.5	8.5	18	2
YQ1728-E20	17	28.5	8.5	18	2

Q types(spherical)



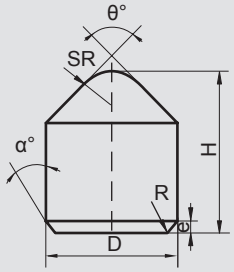
Type	Dimensions (mm)		Angles		
	D	H	SR	α°	β°
SQ1826-X18Q	18.25	26	9.2	1.8	48
SQ1825-X12Q	18.25	25	9.2	1.2	20
SQ1623-E15Q	16.35	23	8.75	1.5	18
SQ1320-E15Q	13.35	19.9	7	1.5	18
SQ1314-E15Q	13.35	14	7	1.5	18
SQ1421-E15Q	14.38	21	7.7	1.5	18
SQ1420-E15Q	14.38	20	7.7	1.5	18
SQ1422-E15Q	14.38	22	7.7	1.5	18
YQ14.320-E30Q	14.3	20	7.2	3	18
YQ15.921-E15Q	15.95	21	7.94	1.5	18

Z types(conical)



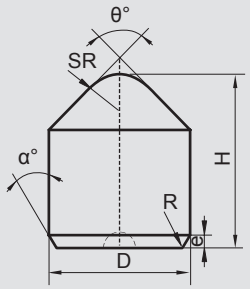
Type	Dimensions (mm)		Angles			
	D	H	SR	θ°	α°	β°
SZ0710H	7.25	10.75	2.8	70	20	26.5
SZ0711	7.25	11	2.8	70	20	26.5
SZ0812	8.25	12.2	3	70	20	26.5
SZ0915A	9.25	15	3	55	20	26.5
SBZ1016	10.25	16.2	4	70	20	27.5
SZ1116	11.3	15.9	4	52	20	26.5
SZ1117	11.3	17	4	60	20	27.25
SZ1118	11.3	18	4	52	20	26.5
SZ1218A	12.35	17.9	4.8	55	20	27.5
SZ1218B	12.35	18	4	55	20	26.5
SZ1320B	13.35	19.9	4	55	20	27
SZ1420A	14.38	20	5	55	20	14.5
SZ1422A	14.38	21.9	5	55	20	14.5
SZ1424	14.0	24	3	67	20	14.5

Z types(conical)



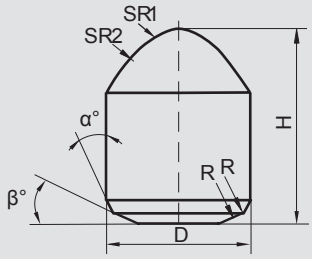
Type	Dimensions (mm)		Angles			
	D	H	SR	e	θ°	α°
SZ0711-F2	7.25	11	2.8	0.7	70	30
SZ0812-E15	8.25	12	3	1.5	70	18
SZ0812-F2	8.25	12	3	0.7	70	30
SZ0812-F2	8.25	12	3	0.7	70	30
SZ0814D-F2	8.25	14	3.5	0.7	36.2	30
SZ0914A-F2	9.25	14	3	0.7	55	30
SZ0914D-F2	9.25	14	3.5	0.7	36.2	30
SZ0914-F2	9.25	14	3	0.7	70	30
SZ0914-F2	9.25	14	3	0.7	55	30
SZ0915-F2	9.25	15	3	0.7	55	30
SZ1018-F2	10.25	16.3	4	0.7	52	30
SZ1218B-F2	12.35	18	4	0.7	55	30
SZ1218-E15	12.35	18	4.8	1.5	70	18
SZ1219-F2	12.35	19	4.8	0.7	70	30
SZ1222-E15	14.38	22	5	1.5	71	18
SZ1222-F2	12.35	22.2	4.8	0.7	70	30
SZ1320-F2	13.35	20	4.8	0.7	70	30
SZ1320T-F2	13.35	20	4.8	0.7	50	30
YZ9.614A-E10	9.6	14.1	4.2	1	70	18
YZ12.218-E15	12.22	18	4.8	1.5	70	18
YA12.220-F2	12.22	20	1.5	1.5	82	18
YZ12.228-G15	12.22	28	1.5	1.5	82	45
YZ13.122-E17	13.1	21.5	3.96	1.7	55	18
YZ13.218A-E20	13.2	17.5	4.5	2	48	18
YZ14.219A-E20	14.2	19	4.5	2	49	18
YZ15.221A-E20	15.2	21	5	2	45	18
YZ16.025-X30	16	25.3	1.91	3	77	61
YZ17.621-G15	17.6	21.4	3.29	1.5	82	45

Z types(conical)



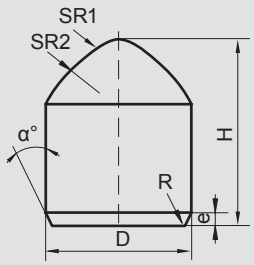
Type	Dimensions (mm)		Angles			
	D	H	SR	e	θ°	α°
SZ1420-G10Q	14.35	20.1	5	1	52	45
SZ1825A-E12Q	18.23	25	6	1.2	55	20
SZ1926B-E21Q	19.35	26	7.5	2.1	42	18
YZ12.217D-E15Q	12.22	17	4.3	1.5	50	18
YZ12.217E-E15Q	12.22	17	3.2	1.5	58	18
YZ12.217F-E15Q	12.22	17	4.9	1.5	57	18
YZ14.220D-E15Q	14.2	20	5.8	1.5	43	18
YZ14.220T-E15Q	14.2	20	5	1.5	45	18

D types(parabolic)



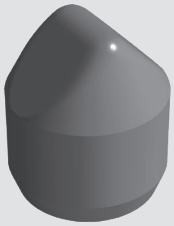
Type	Dimensions (mm)		Angles			
	D	H	SR_1	SR_2	α°	β°
SD1016	10.25	16	2.71	12.29	20	26.5
SD1319	13.25	19	4	11.2	18	27
SD1218	12.35	18	3	12	25	25
SD0913	9.25	13	2.5	11	20	28
SD0915	9.25	15	2.5	11	20	28
SD0914	9.25	14	2.5	11	20	28
SD0611	6.3	11	1.54	7.43	20	26.5
SD0712	7.25	12	1.91	8.65	20	26.5
SD0814	8.25	14	2.17	9.85	20	26.5
SD1017	10.25	17	1.71	12.29	20	26.5
SD1118	11.3	18	2.98	13.48	20	27.25
SD0813	8.25	13.26	3.1	9.06	20	28

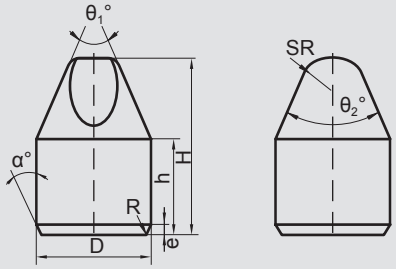
D types(parabolic)



Type	Dimensions (mm)		Angles			
	D	H	SR_1	SR_2	e	α°
YD7.210-G07	7	10	1.8	9	0.7	45
YD11.216-E11	11.2	15.6	5	11	1.1	18
YD18.029-G07	18	28.6	1.6	50	0.7	45
YD18.930-X39	18.85	19.7	1.5	23.6	3.9	60

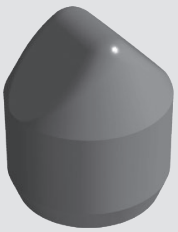
X types(wedged)

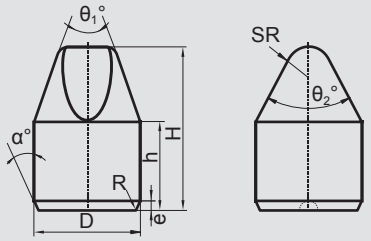




Typ	Dimensions (mm)				Angles			
	D	H	h	e	SR	α°	θ_1°	θ_2°
SX0810A-E08	8.25	10	6.5	0.8	2	18	90	45
SX10.213-F2	10.25	13	9	1.6	2.5	18	90	45
SX11.314-F2	11.3	14.1	8.1	1.3	3.5	20	75	43
SX11.315-F2	11.3	15	8	1.5	2.75	18	60	45
SX11.317-F2	11.3	17.13	9.13	1.3	3	20	53	40
SX1117C-E11	11.3	17.8	10.1	1.1	3.15	18	50	35
SX12.214-F2	12.22	14	7.5	1.5	3	18	90	40
SX12.215-F2	12.22	15	9	1.5	3	18	90	45
SX12.216-F2	12.22	16	9	1.5	3.5	18	60	40
SX14.318-F2	14.375	18	10.8		3	20	70	40
SX1422-E14	14.35	22	11	1.4	2.5	18	53	24
SX16.321-F2	16.35	21	11	2	2.6	18	70	45
SX16.323-F2	16.35	23	12	2	3	18	60	36
SX19.327-F2	19.35	27	14	2.2	2.25	20	65.5	30
SX19.330-F2	19.35	30	16.95	2.2	2.25	20	61	30
YX9.214-E09	9.25	14.6	8.3	0.9	2.55	18	35	50
YX10.215Y-E10	10.25	15.2	8.2	1	1.77	18	40	60
YX10.216-E10	10.25	16.2	9.2	1	2.82	18	35	50
YX11.519-E14	11.5	18.5	10.55	1.4	3.13	18	35	50
YX14.222-E15	14.15	22	12	1.8	2.5	18	26	58
YX14.316A-E20	14.3	16	10	2	3.5	18	45	90
YX16.223-E18	16.15	23	12	2.1	3	18	26	60
YX19.230-E20	19.2	30	17	2.3	3	18	26	62
YX22.236-E20	22.2	36	19	2.3	3	18	26	57

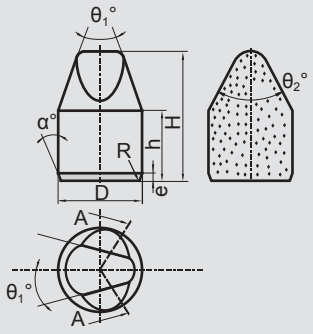
X types(wedged)





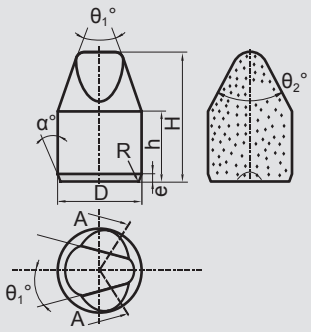
Type	Dimensions (mm)				Angles			
	D	H	h	e	SR	α°	θ_1°	θ_2°
SX12.219B-E12Q	12.2	19.4	11	1.2	2.87	18	55	40
SX16.224-E14Q	16.2	24.2	13	1.4	2.79	18	60	40
YX12.216-E12Q	12.2	16	9	1.2	3.5	18	40	60
YX13.218-E15Q	13.2	18.4	10.4	1.5	5.2	18	35	70
YX14.217-E13Q	14.25	17	9.97	1.33	3	18	40	80
YX14.219-E14Q	14.2	19	11	1.4	3	18	40	70
YX14.219S-E13Q	14.25	19	10.97	1.33	2.5	18	40	88
YX14.220-E14Q	14.2	19.8	11.4	1.4	2.4	18	40	70
YX16.224-E14Q	16.2	24.2	12.95	1.4	2.79	18	40	60
YX16.225-E14Q	16.2	25.2	12.5	1.4	2.5	18	24	55
YX20.233-E24Z	20.2	33	33	2.4	3.2	18	28	57

B types(side wedged)



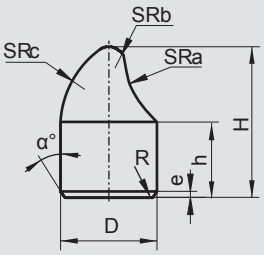
Type	Dimensions (mm)				Angles		
	D	H	h	e	α°	θ_1°	θ_2°
SB1215A-E15	12.35	15	9	1.5	18	40	66
SB15.220-F1	15.2	19.8	11.8	1.5	18	40	66
SB15.421-F2	15.4	21.1	13.4	1.5	18	40	75
SB16.231-F1	16.2	21.2	13	1.5	18	40	66
SB1924-E21	19.38	24	15	2.15	18	40	70
SB20.226-F1	20.2	26.3	16.25	2	18	40	72
YB15.219-E20	15.2	19	11	2	18	36	67
YB16.221A-E20	16.2	21	12	2	18	36	56

B types(side wedged)



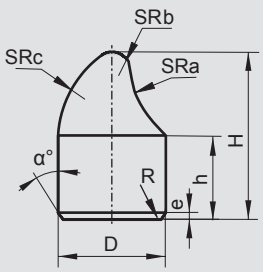
Type	Dimensions (mm)				Angles		
	D	H	h	e	α°	θ_1°	θ_2°
SB19.225-E20Q	19	25.2	15.4	2	18	40	65
SB1924-E20Q	19.35	24	15	2.15	18	40	70
YB15.220A-E15Q	15.2	19.8	11.8	1.5	18	40	66

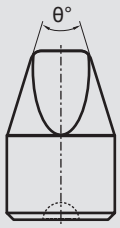
S types(Spoon)



Type	Dimensions (mm)				Angles				
	D	H	h	e	α°	SRa	SRb	SRc	θ°
SS12.214-F2	12.22	14	7.5	1.5	18	11	2.5	20	36
SS12.215-F2	12.22	15	8.5	1.5	18	11	2.5	20	36
SS14.318-F2	14.3	18	9.9	2	18	8	2.5	16	36
SS16.223-F2	16.2	23	11.8	1.9	18	15	2.5	23	30
SS16.321-F2	16.35	21	9.9	2	18	15	2.5	23	30
SS16.323-F2	16.35	23	11.9	2	18	15	2.5	23	30
SS16.324-F2	16.2	24.08	13	1.4	18	11	1.5	18	30
SS19.330-F2	19.35	30	17	2	18	16	3	26	30
YS9.715-E09	9.7	15.4	8.75	0.9	18	8	9.56	0.8	30
YS10.717-E10	10.73	17	9.65	1	18	8	10.5	1	30
YS14.220-E20	14.2	20	11	2	18	10	16	3	36
YS15.223-E20	15.2	23	12	2	18	18	15	3	36
YS18.828-E12	18.85	28.1	15.6	1.2	18	16	25	3	29

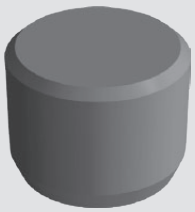
S types(Spoon)

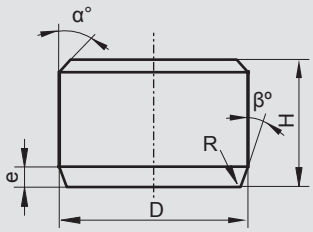




Type	Dimensions (mm)				Angles				
	D	H	h	e	α°	SRa	SRb	SRc	θ°
SS12.319C-F12Q	12.35	19.4	11	1.2	30	9	1.2	11.9	30
SS16.324A-E14Q	16.2	24	11.8	1.4	18	11	1.5	18	30
SS1623P-E15Q	16.35	23.1	11.8	1.5	18	18	3	20	40
SS19.330-E20Q	19.35	30	17	2	18	16	3	25	30
SS1928S-E20Q	19.35	28	14	2	18	25	2	28	30
SS1929-E20Q	19.35	28.8	15.5	2	18	14	2	18	30
SS1930C-E20Q	19.35	30	15	2	18	28	2	30	24
SS1933A-E20Q	19.35	32.6	17.4	2	18	16	2	18	36
YS14.220-E14Q	14.2	20.5	10.5	1.4	18	9.77	16	1.5	36
YS14.221A-E14Q	14.2	21.2	13	1.4	18	9.5	14	1.5	30
YS14.221-E14Q	14.2	21.2	11.4	1.4	18	9.5	16	1.5	30
YS14.221N-E14Q	14.2	21	13	1.4	18	6	14	3	36
YS14.222S-E13Q	14.25	22	11.97	1.33	18	12	20	2.5	10
YS16.222-E14Q	16.2	20.7	13	1.4	18	9.62	18	1.5	30
YS16.223A-E14Q	16.2	23	11.71	1.4	18	16	25	2.2	30
YS16.223S-E14Q	16.2	23	11.7	1.4	18	16	25	2.2	30
YS16.223-E14Q	16.2	23	11.71	1.4	18	11	18	2	30
YS16.223N-E14Q	16.2	22.5	11.9	1.4	18	12	25	2.5	36
YS16.225S-E13Q	16.25	24.5	12.96	1.33	18	16	20	2.5	30
YS16.226-E14Q	16.2	26	14	1.4	18	20	28	2	30
YS16.227C-E14Q	16.2	27.4	14.6	1.4	18	13	18	1.5	36
YS17.124-E20Z	17.15	24	13.1	2	18	15	25	3	40
YS18.729-E20Q	18.7	29	15	2	18	24	20	3	30
YS18.828-E12Q	18.85	28.1	15.6	1.2	18	16	25	3	29
YS18.878-E12Q	18.85	28.1	15.6	1.2	18	16	25	3	29
YS20.232P-E20Q	20.2	32	17	2	18	28	22	3	30

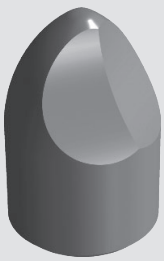
P types(flat top)

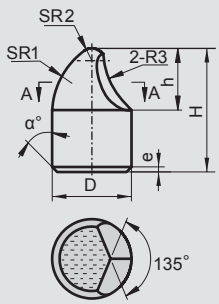




Type	Dimensions (mm)			Angles	
	D	H	e	α°	β°
SP7.27-F2	7.22	7	1.5	45	18
SP8.27-F2	8.25	6.9	1.5	45	18
SP9.68-F5	9.62	8.5	1.5	45	18
SP10.29-F2	10.25	9.5	1.6	45	18
SP10.28-F2	10.25	8	1.6	45	18
SP10.310	10.35	10	1.5	30	30
YP5.25-E05	5.2	5.0	0.5	45	18
YP11.39-E15	11.3	9	1.5	45	18
YP9.28-E15	9.25	8.1	1.5	45	18
YP5.27-E25	5.2	7	2.5		18

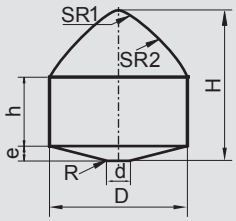
F types(sharp claw)





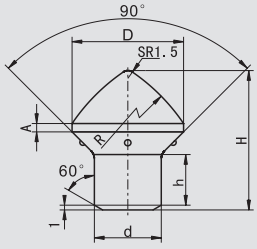
Type	Dimensions (mm)			Angles				
	D	H	h	SR_1	SR_2	2-R3	e	α°
SF1420-E15	14.35	20.00	10.00	12.00	2.00	14.00	1.5	18
SF1621-E15	16.35	21.00	10.00	14.00	2.50	16.00	1.5	18
SF1625-E15	16.35	25.00	12.50	16.00	2.50	18.00	1.5	18

J types(auger tips)



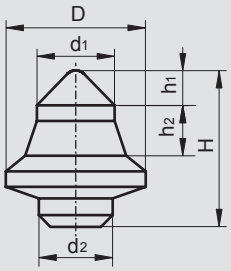
Type	Dimensions (mm)				Angles		
	D	d	H	h	SR_1	SR_2	e
YJ2428-X35	24	4	28	12.5	1.5	30	3.5
YJ15.725	15.75	4	25	12.5	1	25	3.5

JC types(auger tips)



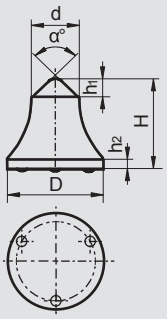
Type	Dimensions (mm)							
	D		H		H	h	R	A
	Dim.	Tol.	Dim.	Tol.				
JC-Ø1822	18	-0.1 -0.4	10	-0.1 -0.4	22	8.0	30	1.5
JC-Ø2025	20		12		25	10.0	35	1.5
JC-Ø2027	20		12		27	10.5	35	4.0
JC-Ø2228	22		14		28	12.0	40	1.5

Other types (Point attack bits)



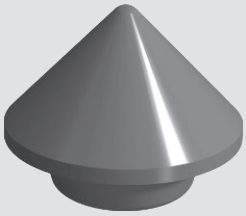
Type	Dimensions (mm)					
	D	d_1	d_2	H	h_1	h_2
MP31622	18.0	10.0	9.5	20.15	4.5	6.5

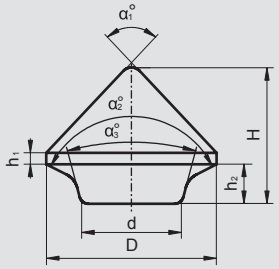
Other types (Point attack bits)



Type	Dimensions (mm)					
	D	d	H	h_1	h_2	α°
3T10416T	16.07	8.0	15.08	3.00	1.8	92
3T10427T	18.75	9.5	17.76	3.75	1.5	83
3T10434T	17.86	9.6	17.16	3.84	1.6	82

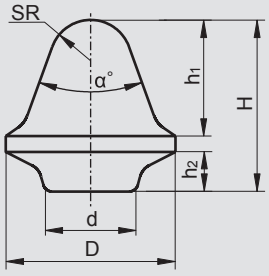
Other types (Point attack bits)





Type	Dimensions (mm)					Angles		
	D	d	H	h_1	h_2	α_1°	α_2°	α_3°
JGQ25/61-3	15.0	8.8	11.0	1.0	3.5	95	126	30

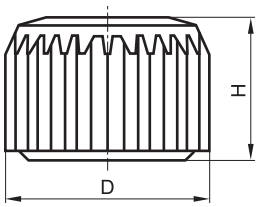
Other types (Point attack bits)



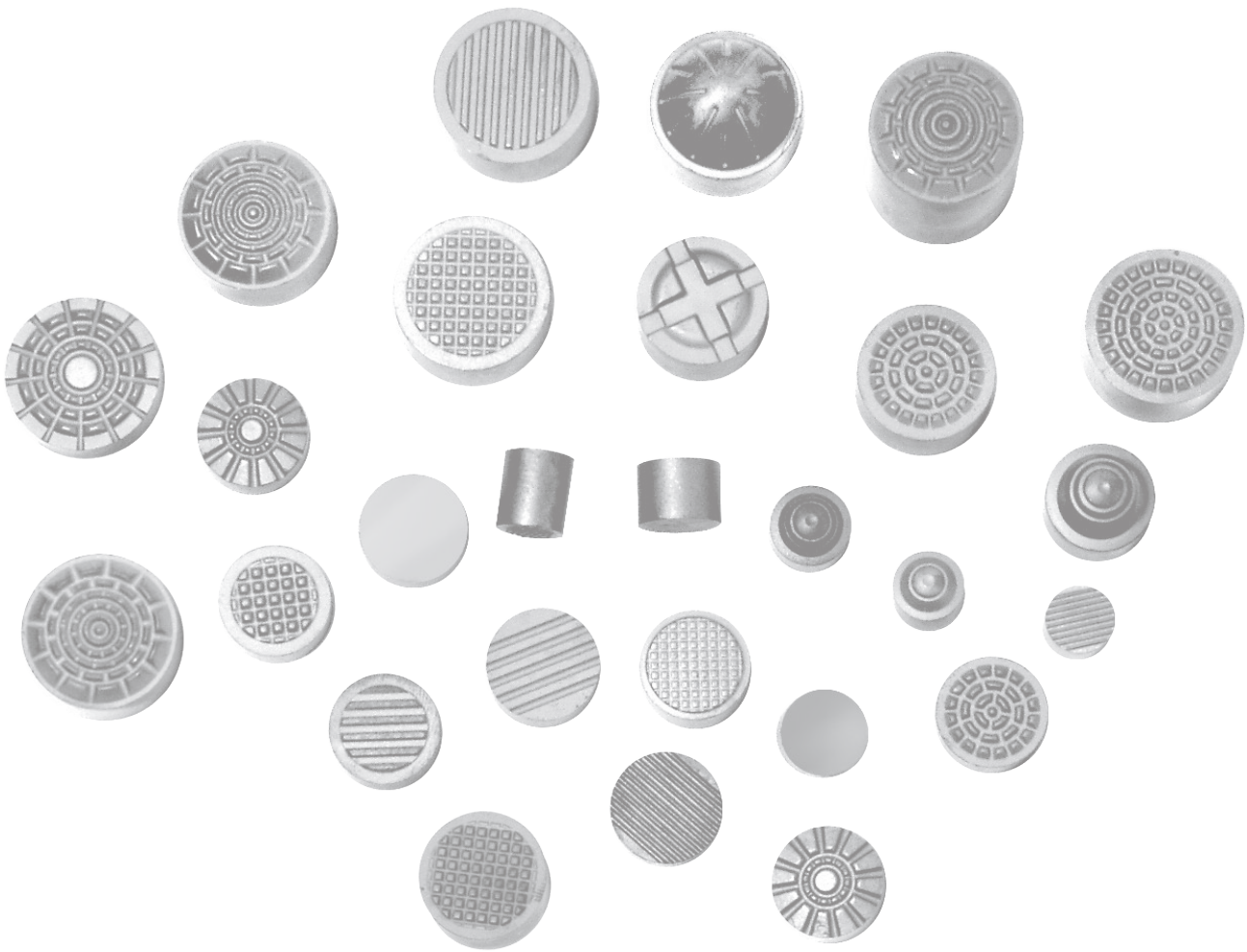
Type	Dimensions (mm)					Angles	
	D	d	H	h_1	h_2	SR	α°
MA97111-2	16.4	8.8	16.6	11.3	3.8	4.0	40

Serrated inserts

Wear-resistant buttons suitable for preventing wear of steel body surfaces

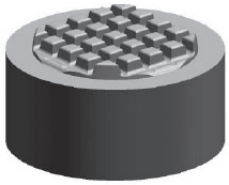


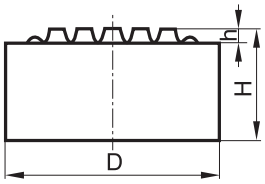
Type	Dimensions (mm)	
	D	H
SP0606F-Z	6.55	6.05
SP0805F-Z	8.12	4.75
SP0907F-Z	9.75	6.86
SP1109F-VR	11.34	8.84
SP12.909F-Z	12.93	8.84



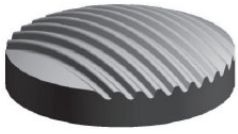
Substrates

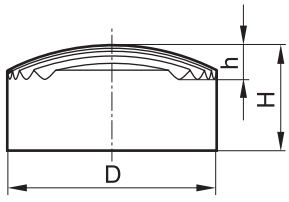
Suitable for substrates of diamond complex bits



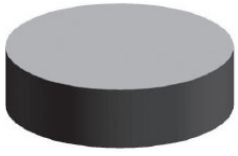


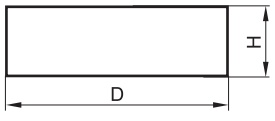
Type	Dimensions (mm)		
	D	H	h
ZFP9.25×7.6W	9.25	7.6	0.6
ZFP10.8×7.6W	10.80	7.6	0.6
ZFP11.35×7.0W	11.35	7.0	0.6
ZFP12.75×12.7W	12.75	12.7	1.0
ZFP14.7×12.5W	14.70	12.5	1.0





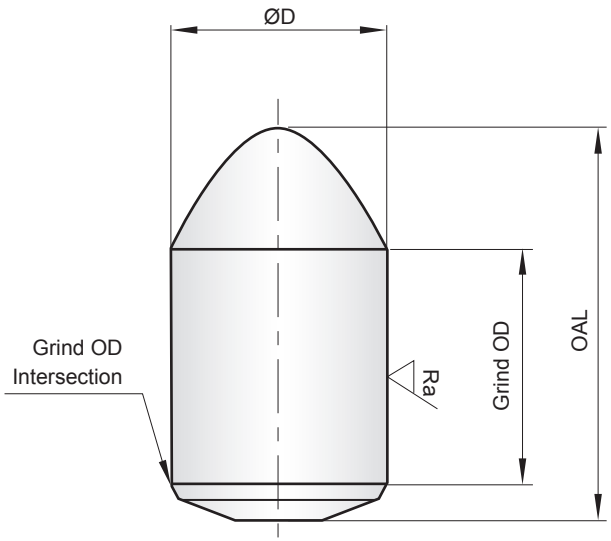
Type	Dimensions (mm)		
	D	H	h
ZFP14.6×4.2Z2	14.6	4.2	1.8
ZFP14.6×12.5Z2	14.6	12.5	1.8





Type	Dimensions (mm)	
	D	H
ZFP9.5×7.8P	9.5	7.6
ZFP11.0×5.5P	11.0	5.5
ZFP13.7×3.8P	13.7	3.8
ZFP14.6×4.1P	14.6	4.1
ZFP15.5×4.0P	15.5	4.0

Ground finished tungsten carbide buttons



Ground buttons

Grind OD roughness Ra		
Microinches		Micrometers
32		0.8
16	Typical	0.4
8		0.2
4		0.1

OD tolerance within 6-10 micron.
Grind OD and bevel intersection to be blend radii while burrs and steps prohibited.

Size(ΦD) series	
Imperial inch	Metric mm
5/32	
	4
3/16	
	5
7/32	
1/4	
	7
9/32	
5/16	
	8
11/32	
	9
3/8	
	10
13/32	
	11
7/16	
15/32	
	12
1/2	
	13
	14
9/16	
	15
5/8	
	16
	17
11/16	
	18
	19
3/4	
	20
	22
7/8	
	25
1.000	

Carbide inserts for mining tools

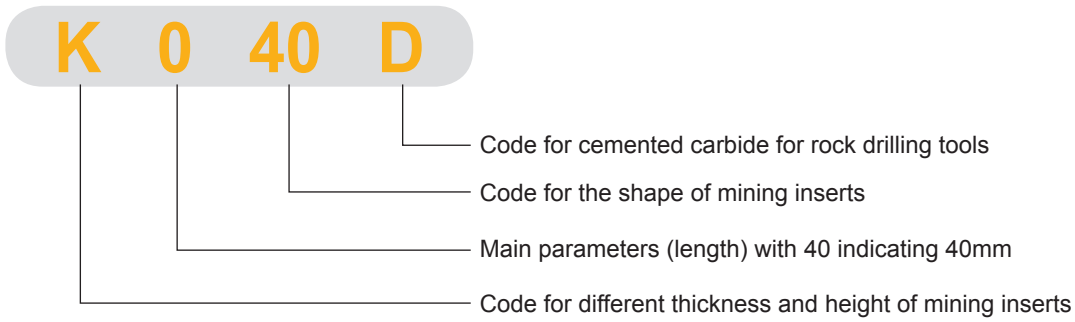
Grades of carbide inserts for mining tools

Grade	Co %	Density (g/cm³)	Hardness (HRA)	TRS (N/mm²)	Recommended applications
YG8	7.8	14.74	89.0	≥2350	It is suitable for making geological prospecting drill bits and mining inserts for light electrical drills for drilling soft rock and coal formations and drill bits for drilling un-silicated rock formations.
YG8C	8.3	14.69	87.5	≥2850	
YK15	9.0	14.52~14.70	≥87.0	≥2200	Suitable for embedding rotary percussive drill bits of light rock drilling machines for drilling soft to medium rock formations of class f=14-16
YK15.6	9.0	14.52~14.70	≥86.5	≥2300	Suitable for embedding rotary percussive drill bits of medium rock drilling machines for drilling medium to hard rock formations of class f=14-16
YK25.6	9.2	14.50~14.70	≥87.0	≥2500	With a unique structure, it has a higher lifetime and drilling speed. It is suitable for embedding rotary drill bits of medium drilling machines for drilling medium hard and rather hard rock formations of class f=14-16.
YK20	9.8	14.40~14.60	≥86.5	≥2460	Suitable for embedding rotary percussive drill bits of medium rock drilling machines for drilling medium to hard rock formations of class f=14-16
YK020	10.0	14.35~14.60	≥87.0	≥2300	It is an economical grade and it is suitable for embedding rotary percussive drill bits after application on a scale in Gansu and Shandong, etc. And it is suitable for drilling rock formations of class 16 with a good ratio of performances and prices.
YG10C	10.0	14.60	86.0	≥2460	Suitable for embedding rotary percussive drill bits of medium rock drilling machines for drilling medium to hard rock formations of class f=14-16
YK25.1	10.0	14.56	87.5	≥1910	It is suitable for inserts for heavy duty rock excavating machines for drilling hard and super hard rock formations and it can also be used for making tri-cone button bits.
YK20.2	10.5	14.35~14.55	≥87.0	≥2550	It combines the advantages of the wear resistance of YK15.6 and toughness of YK20 with rather good stability. The product is suitable for drilling rock formations of class 15-17 after application on a scale in Chenzhou, Hunan and Gansu, etc., with a good drilling speed as compared with the same category of products.
YG11C	11.4	14.25~14.45	≥86.5	≥2400	Suitable for embedding rotary percussive drill bits of heavy rock drilling machines for drilling hard rock formations of class f=18 or above.
YK40	13	14.40	85.5	≥2400	With super toughness and corresponding wear resistance, it is suitable for mining inserts in mine prospecting, in heavy duty rock drilling machines and depth drilling bits for drilling hard and super hard rock formations and it can also be used for other button bits.
YK50	15	14.20	85.0	≥2350	

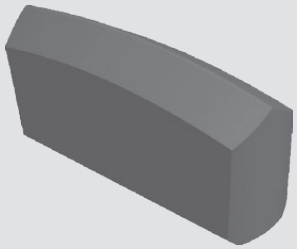
Code key for type specifications

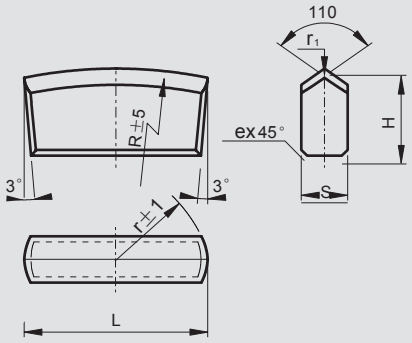
The type of mining inserts consists of letter K and numeral 0 (or 1) and numerals indicating main parameters. A, B, D, etc., is added after the type description of the mining inserts if the main parameters are the same with differences in the height (H), thickness (S) and (R).

K040D



Type K0 mining inserts



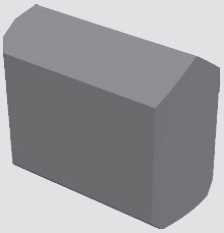


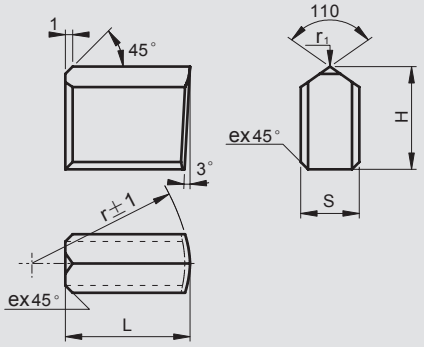
Type	Dimensions (mm)										Approximate unit weight
	L		H		S		R	r	r_1	e	
	Basic dimensions	Allowed tolerances	Basic dimensions	Allowed tolerances	Basic dimensions	Allowed tolerances					
K026D	26	±0.6	12	±0.35	6	0 -0.5	50	13	0.5-1.0	0.5-1.0	22.7
K026B	26		15	±0.45	8		50	13			37.9
K026	26		19		8		180	13			46.9
K028D	28		12	±0.35	6		80	14			24
K028B	28		15	±0.45	8		80	14			40.5
K028	28		18		8		180	14			51
K030D	30		13	±0.35	8		80	15			36.9
K030B	30		15	±0.45	8		80	15			42.3
K030	30		18		8		180	15			51.2
K032E	32		12	±0.35	8		80	16			36.3
K032D	32		13		8		80	16			38.5
K032B	32		15	±0.45	8		180	16			47.5
K032	32		18		8		180	16			57
K034E	34		12	±0.35	8		80	17			39.2
K034D	34		13		8		80	17			41.4
K034B	34		15	±0.45	10		180	17			62.6
K034	34		18		10		180	17			74
K036E	36		12.5	±0.35	8		120	18			43.3
K036D	36		13.5	±0.45	9.2		80	18			53.2
K036A	36		15		8		80	18			52

To be continued

Type	Dimensions (mm)										Approximate unit weight
	L		H		S		R	r	r_1	e	
	Basic dimensions	Allowed tolerances	Basic dimensions	Allowed tolerances	Basic dimensions	Allowed tolerances					
K036B	36	±0.6	15	±0.45	10	0 -0.5	180	18	0.5-1.0	0.5-1.0	66
K036	36		18		10		180	18			80
K038H	38	±0.7	12	±0.35	10		180	19			53.5
K038E	38		13	±0.35	9		180	19			53.5
K038D	38		13.5	±0.45	9.2		120	19			56.6
K038D1	38		13.5		8		180	19			50.4
K038A	38		15		8		120	19			56
K038B	38		15		10		180	19			69
K038	38		18		10		180	19			83
K040H	40		12	±0.35	10		180	20			56.5
K040D	40		13.5	±0.45	9.2		120	20			59.1
K040F	40		14		9		120	20			62.2
K040A	40		15		8		120	20			59
K040B	40		15		10		180	20			73
K040	40		18		10		180	20			89
K042E	42		12	±0.35	7		150	21			43.1
K042H	42		12		10		180	21			59.6
K042D	42		13.5	±0.45	9.2		120	21			62
K042B	42		15		10		180	21			77
K042	42		18		10		180	21			93
K043H	43	±1.0	12	±0.35	10		180	21.5			61.6
K043D	43		13.5	±0.45	9.2		120	21.5			63.6
K043A	43		15		8		120	21.5			63.7
K043B	43		15		10		180	21.5			79
K044B	44		15		10		120	22			83
K044	44		18		10		180	22			98
K046B	46		15		10		160	23			85
K046	46		18		10		180	23			101
K049B	49		15		10		160	24.5			88.2
K049	49		18		10		180	24.5			108

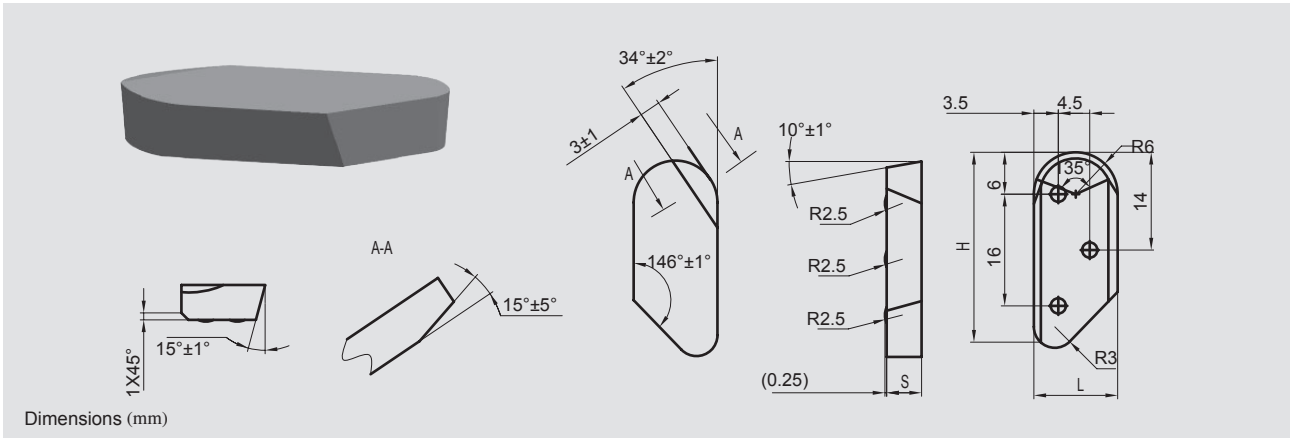
Type K1 for embedding cross and x-shaped drill bits





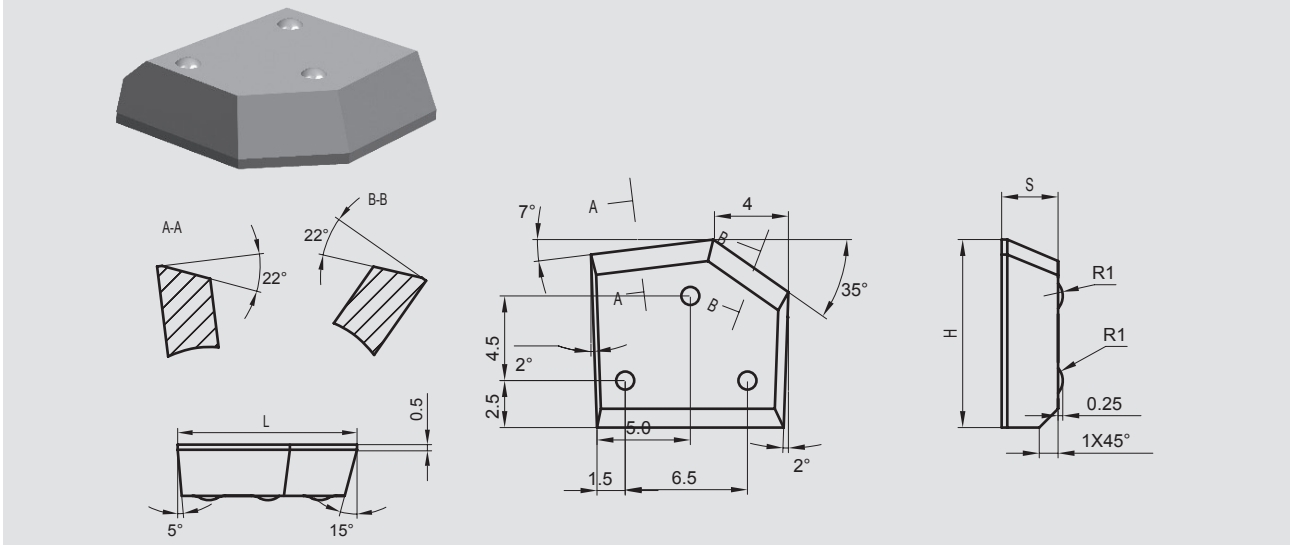
Type	Dimensions (mm)									Approximate unit weight
	L		H		S		r	r_1	e	
	Basic dimensions	Allowed tolerances	Basic dimensions	Allowed tolerances	Basic dimensions	Allowed tolerances				
K106	6	±0.25	12	±0.35	6	0 -0.5	20	1	1	5.3
K107	7		12		6		20			6.1
K108	8		12		6		20			7
K109	9		12		8		20			10.4
K110	10		12		8		20			11.3
K111	11	±0.35	12		8		20			13
K112	12		12		8		20			13.9
K113	13		12		8		20			15.5
K114	14	±0.45	12		8		20			16.6
K115	15		12		8		20			17.8
K115H	15		14	±0.45	8		20			20.4
K116D	16		19	±0.25	8		20			13.7
K116	16		14	±0.45	8		20			22.7
K117	17		14		8		20			24
K117H	17		16		10		20			33.6
K118	18		12	±0.35	8		20			21
K119	19	±0.5	14	±0.45	8		22			27
K119H	19		16		10		22			37.5
K120	20		16		10		23			39
K121B	21		14		10		24			35.9
K121	21		16		10		24			41
K122D	22		9	±0.25	8		25			26.4
K122B	22		14	±0.45	10		25			38.5
K122	22		16		10		25			44
K124	24		16	±0.45	10		27			48.5
K126	26	±0.6	16		10		29			52.5
K128	28		16		10		31			56.5
K130	30		9	±0.25	8		32			36.5
K131	31		16	±0.45	10		34			64
K133	33		12	±0.35	8		36			39.5
K134	34		12		10		37			50.2
K135	35	±0.7	13	±0.45	10		35			56.5
K136	36		16		10		39			73.5

Types for making auger tips in excavators



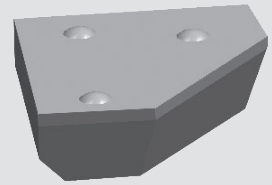
Dimensions (mm)

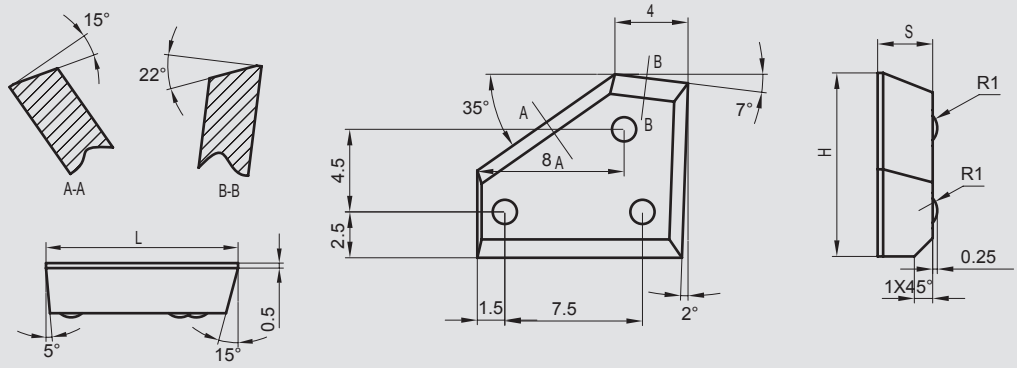
Type	L		H		S		Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	
HWP117130	12	±0.3	28	±0.3	5	±0.2	19.32



Dimensions (mm)

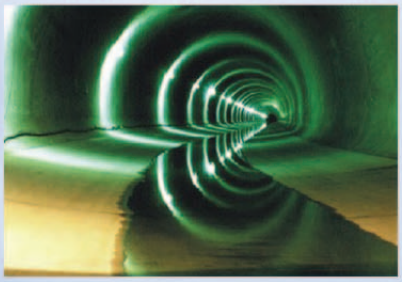
Type	L		H		S		Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	
HWP127045	10.5	±0.4	10	±0.3	3	±0.2	3.70





Dimensions (mm)

Type	L		H		S		Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	
HWP127046	11.5	±0.4	10	±0.3	3	±0.2	3.80



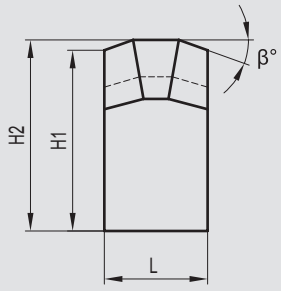
Carbide inserts for tunnel boring machine toolings

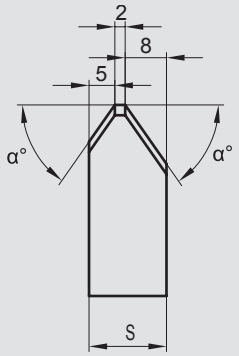
Selection of material grades for the toolings

Different mateial grades for toothed toolings (scrapers)are selected based on the different geological conditions and the performances of the toolings on the tool body. There is a wide range of grades for excavating applications developed by the corporation for customers to choose. Listed below are only the properties of some conventional grades for tunnel boring machine toolings.

Grade	Co %	Density (g/cm³)	Hardness (HRA)	TRS (N/mm²)	Recommended applications
YG8	7.8	14.74	89.0	≥2350	For making inserts for rock drilling bits and excavating tools
YA85	8.0	14.75	87.5	≥2000	
YK25	10	14.60	87.6	≥2600	
YG11C	11.3	14.40	86.5	≥2260	
YG13C	13	14.35	85.5	≥2500	

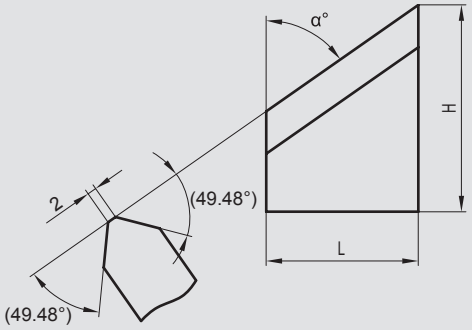
Types of carbide inserts for tunnel boring machine toolings

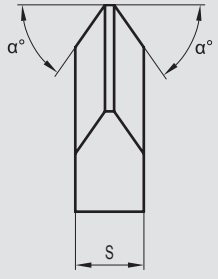




Dimensions (mm)

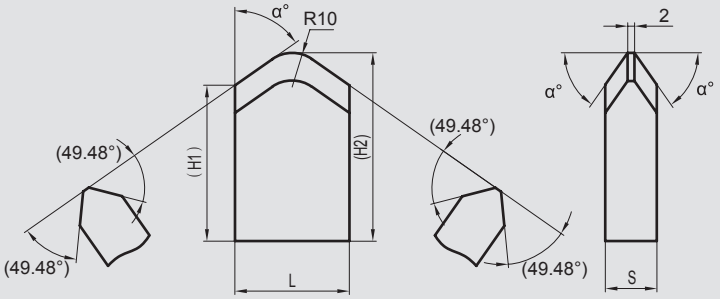
Type	L		H1		H2		S		α°	β°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
LEP097043	20	0 -1	35	+1 0	37	+1 0	15	+0.6 0	55°	19°45'	141.06





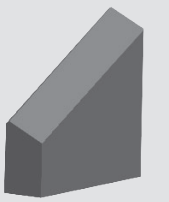
Dimensions (mm)

Type	L		H		S		α°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance		
LEP097055	33.3	0 -1	45.3	±0.5	15	+0.6 0	55°	215.29



Dimensions (mm)

Type	L		H1		H2		S		α°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance		
LEP097056	33.3	0 -1.3	45.3	±0.5	54.58	±0.5	15	+1 0	55°	339.85



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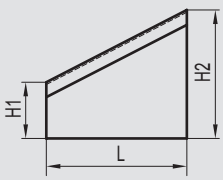
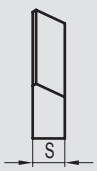
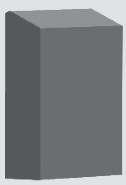
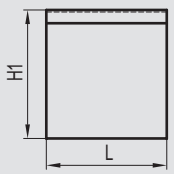
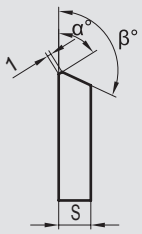




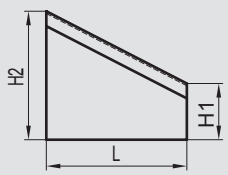


LEP097058

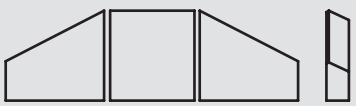




LEP097059



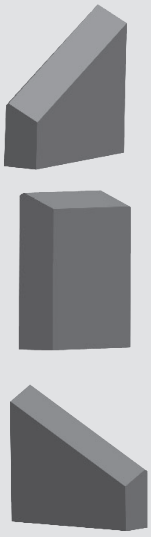
Sketch

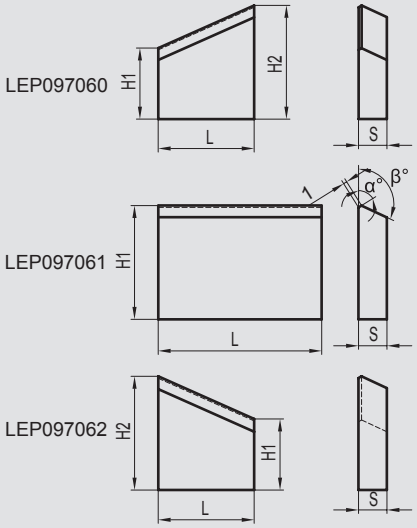


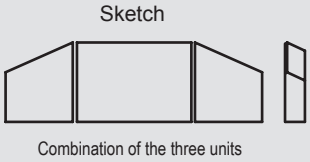
Combination of the three units

Dimensions (mm)

Type	L		H1		H2		S		α°	β°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
LEP097057	35	0 -1.0	14	+1.2 0	32	+1.2 0	8	+0.4 0			96.82
LEP097058	30	0 -1.0	32	+0.8 -0.4			8	+0.4 0	58°	115°	114.63
LEP097059	35	0 -1.0	14	+1.2 0	32	+1.2 0	8	+0.4 0			96.82

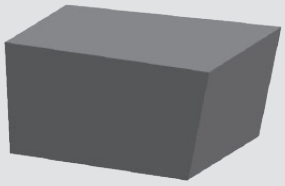


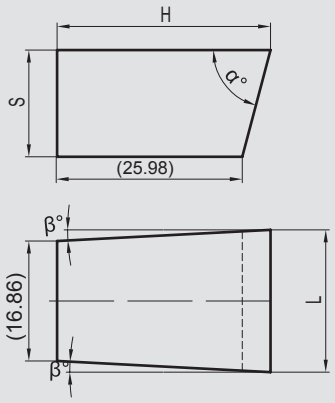




Dimensions (mm)

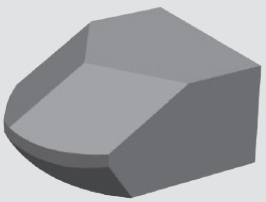
Type	L		H1		H2		S		α°	β°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
LEP097060	27	0 -1.0	20	+0.8 0	32	+0.8 -0.4	8	+0.4 0			83.90
LEP097061	46	0 -1.2	32	+0.8 -0.4			8	+0.4 0	58°	115°	176.42
LEP097062	27	0 -1.0	20	+0.8 0	32	+0.8 -0.4	8	+0.4 0			83.90

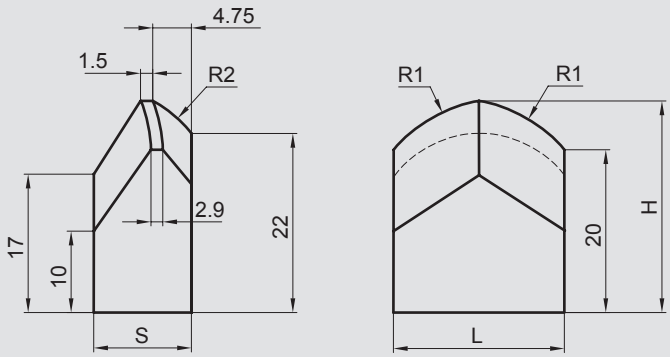




Dimensions (mm)

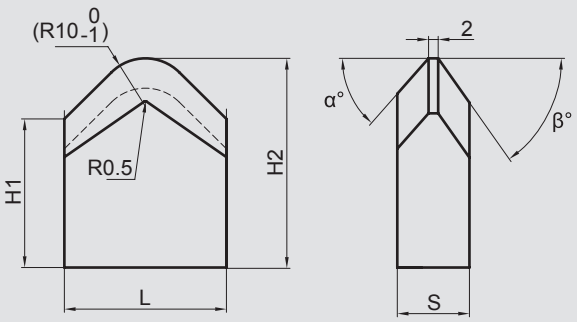
Type	L		H		S		α°	β°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
LEP107020	20	0 -1	30	+1 0	15	+0.6 0	75°	3°	112.15





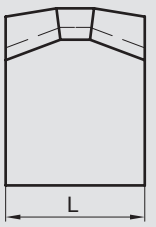
Dimensions (mm)

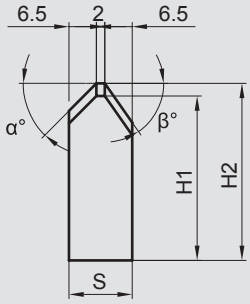
Type	L		H		S		R1	R2	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
LEP128034	21	0 -1	26	+1 0	12	+0.6 0	18	15	75.59



Dimensions (mm)

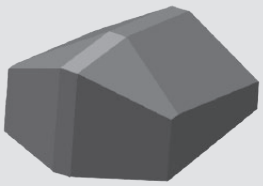
Type	L		H1		H2		S		α°	β°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
LEP128035	33.7	0 -1	30.9	+1 0	43.5	+1 0	15	+0.6 0	47°	55°	252.85

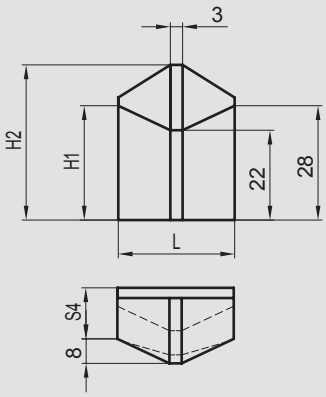


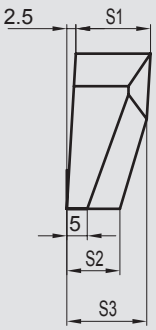


Dimensions (mm)

Type	L		H1		H2		S		α°	β°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
LEP128036	33	0 -1	39	+1 0	42	+1 0	15	+0.6 0	45°	55°	272.32

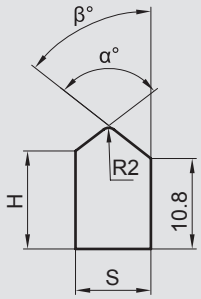


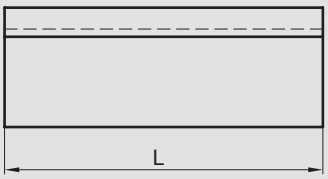




Dimensions (mm)

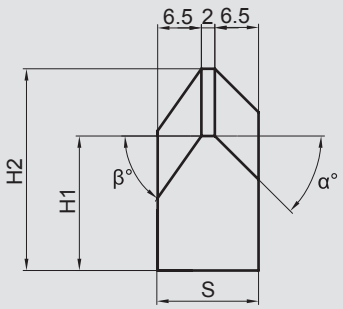
Type	L		H1		H2		S1		S2		S3		S4		Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	
LEP128037	28.5	0 -0.5	30	+1 0	38	+1 0	18	+0.8 0	13	+0.8 0	19	+0.8 0	12.5	+0.8 0	187.65

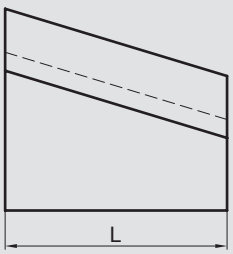




Dimensions (mm)

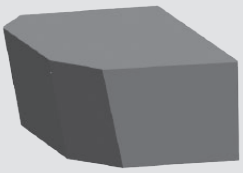
Type	L		H		S		α°	β°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
LEP128038	38	0 -1	11.7	+0.6 0	9	+0.6 0	105°	52°	66.35

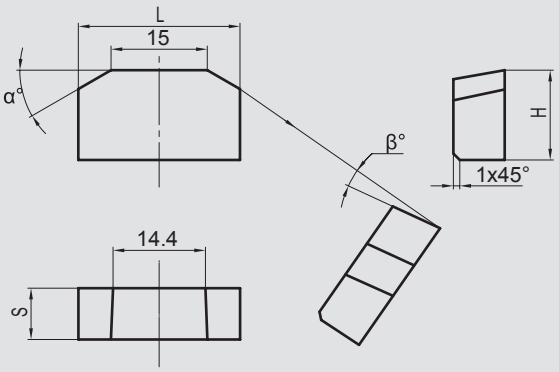




Dimensions (mm)

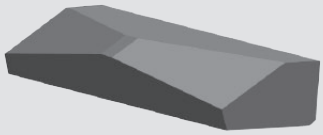
Type	L		H1		H2		S		α°	β°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
LEP128039	33	0 -1	30	+1 0	39	+1 0	15	+0.6 0	45°	55°	236.10

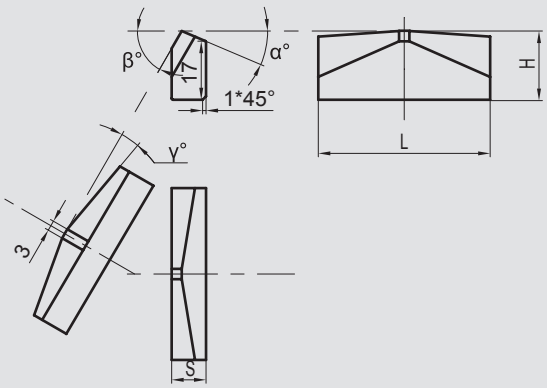




Dimensions (mm)

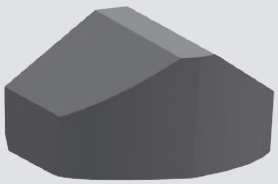
Type	L		H		S		α°	β°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance			
ZWP081099	25.2	±0.3	14	±0.3	8	±0.2	30°	10°	35.95

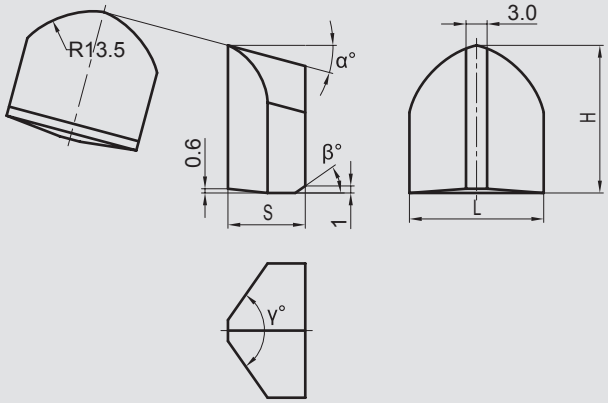




Dimensions (mm)

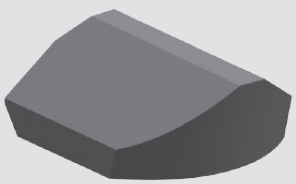
Type	L		H		S		α°	β°	γ°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance				
ZWP081100	50	±0.3	20	±0.15	10	±0.15	23°	60°	10°	120.40

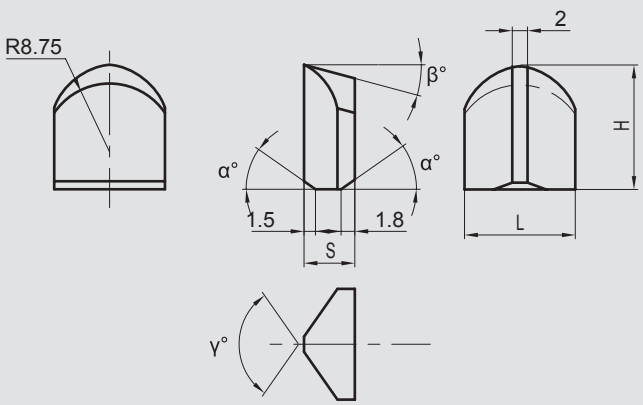




Dimensions (mm)

Type	L		H		S		α°	β°	γ°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance				
ZWP081101	19.1	±0.2	21.0	±0.25	11.0	±0.2	15°	35°	110°	40.99





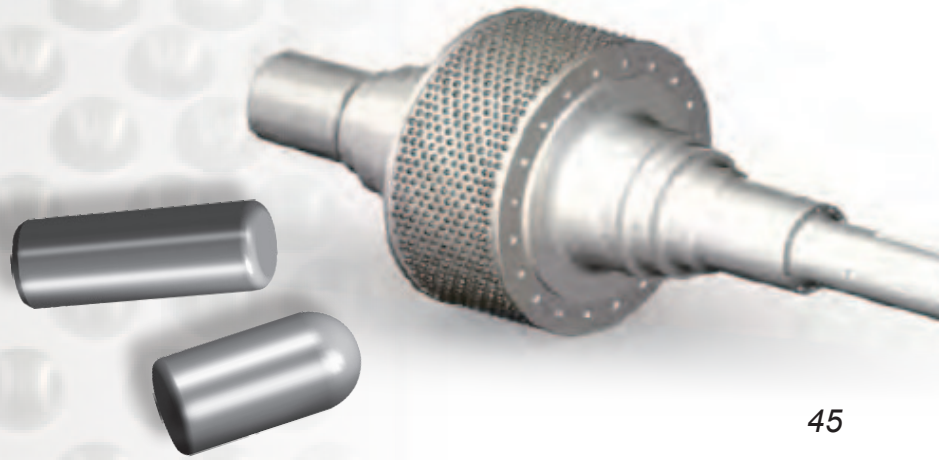
Dimensions (mm)

Type	L		H		S		α°	β°	γ°	Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance				
ZWP097296	14.5	±0.20	16.3	±0.25	6.65	±0.20	35°	15°	110°	14.10

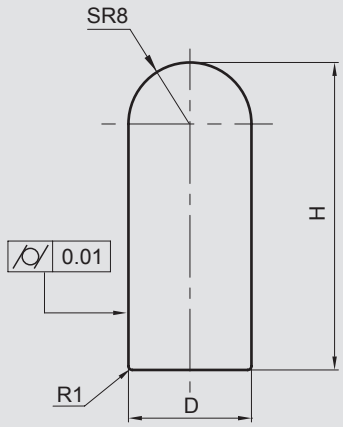
Carbide studs for HPGR

Grades of carbide studs

Grade	Co %	Density (g/cm³)	Hardness (HRA)	TRS (N/mm²)
YG20 (Traditional)	20	13.45~13.65	≥84.5	≥2480
KZ40A New	16	13.85~14.05	86.6~88.6	≥2800
KZ45 New	18	13.65~13.95	86.3~88.3	≥2900
KD40C New	20	13.30~13.45	87.0~88.0	≥3000

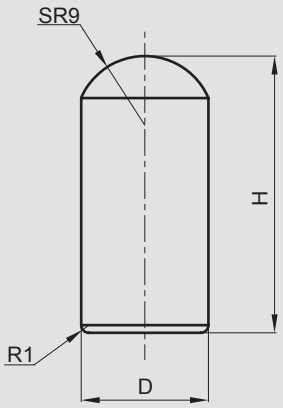


Types of carbide studs for HPGR



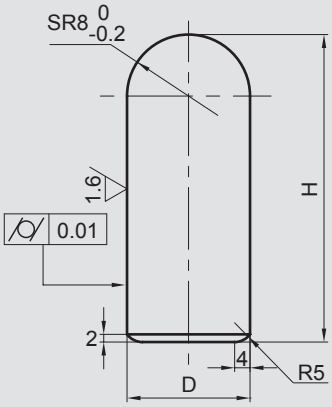
Dimensions (mm)

Type	D		H		Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	
LWG095569	16	-0.04 -0.06	40	±0.2	108.75g
LWG095568	16	-0.04 -0.06	45	±0.2	123.25g



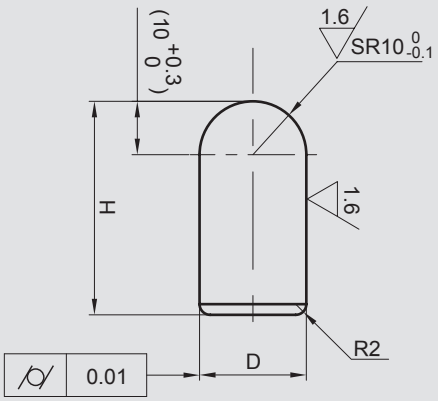
Dimensions (mm)

Type	D		H		Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	
LWG125141	16.55	±0.009	36		104.84g
LWG125142	17.05	±0.01	40		123.98g



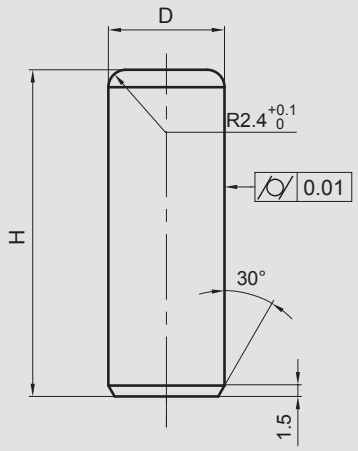
Dimensions (mm)

Type	D		H		Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	
LWG125101	16	-0.04 -0.06	40	0 -0.5	107.30g
LWG125102	16	-0.04 -0.06	45	0 -0.5	121.80g



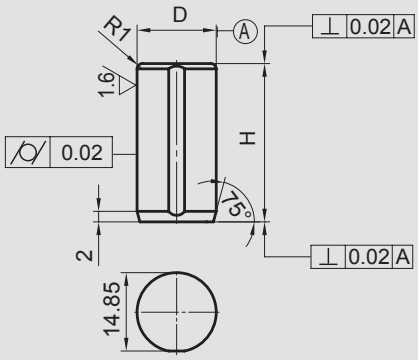
Dimensions (mm)

Type	D		H		Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	
LWG115161	20	-0.02 -0.04	40	±0.2	166.75g



Dimensions (mm)

Type	D		H		Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	
LWG135050	16	-0.04 -0.06	45	±0.2	129.92g



Dimensions (mm)

Type	D		H		Approximate unit weight
	Basic dimensions	Allowed tolerance	Basic dimensions	Allowed tolerance	
LWG125087	15	+0.046 +0.028	30	±0.1	75.40g

How to find us

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