

DELTON USA

Universal Spade Bits that fit into other suppliers holders.



HSS - Co HSS - Carbide, Coated & Uncoated

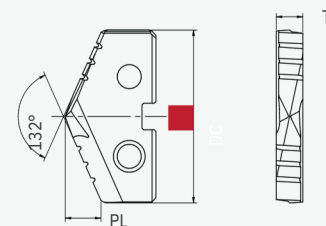
SPADE DRILL INSERT DENOMINATION

0 - M 0130 - 15 XH

	0 -		M	0130 -	15	XH
	COUPLING Code			INSERT	GRADE	TIP
COUPLING	METRIC	INCH	METRIC or INCH	DIAMETER		GEOMETRY
Y	9.50~11.49	0.374"~0.452"	M- metric	M0130- 13mm	10 - HSS	XH-Standard drill tip
Z	11.50~12.97	0.453"~0.511"			15 - Co HSS	VH-Double vertex angle drill tip CH-Cast iron drill tip SC-Non-ferrous metal drill point
0	12.98~17.85	0.511"~0.703"	I-inch	I0750- 0.75"	25 - High Cobalt HSS	
1	17.86~24.6	0.703"~0.969"				
2	24.61~35.5	0.969"~1.398"				
3	35.51~47.99	1.398"~1.889"				
4	48.00~65.00	1.89"~2.559"				
5	63.5~76.99	2.5"~3.031"				
6	77.00~89.09	3.031"~3.507"				
7	89.1~101.6	3.508"~4"				
8	101.61~114.3	4"~4.5"				

PLEASE CONTACT DELTON USA FOR THE QUOTE, ORDER AND DELIVERY:
sales@delton-usa.com, 248-881-1847

- Diameter range: 13~114.3 mm.
- Drilling accuracy: IT10~IT11.
- HPM10- HSS for steel with hardness below HB275.



(Unit): mm

Product code	SIZE			COUPLING	STOCK	Product code	SIZE			COUPLING	STOCK
	DC	PL	T				DC	PL	T		
0-M0130-10XH	13.00	2.9	3.18	00	▲	2-M0330-10XH	33.00	7.3	4.76	25	▲
0-M0135-10XH	13.50	3.0			▲	2-M0340-10XH	34.00	7.6			▲
0-M0140-10XH	14.00	3.1			▲	2-M0350-10XH	35.00	7.8			▲
0-M0145-10XH	14.50	3.2			▲	3-M0360-10XH	36.00	8.0	6.35	30	▲
0-M0150-10XH	15.00	3.3			▲	3-M0370-10XH	37.00	8.2			▲
0-M0155-10XH	15.50	3.5	3.18	05	▲	3-M0380-10XH	38.00	8.5			▲
0-M0160-10XH	16.00	3.6			▲	3-M0390-10XH	39.00	8.7			▲
0-M0165-10XH	16.50	3.7			▲	3-M0400-10XH	40.00	8.9			▲
0-M0170-10XH	17.00	3.8			▲	3-M0410-10XH	41.00	9.1			▲
0-M0175-10XH	17.50	3.9			▲	3-M0420-10XH	42.00	9.3	6.35	35	▲
1-M0180-10XH	18.00	4.0	3.97	10	▲	3-M0430-10XH	43.00	9.6			▲
1-M0185-10XH	18.50	4.1			▲	3-M0440-10XH	44.00	9.8			▲
1-M0190-10XH	19.00	4.2			▲	3-M0450-10XH	45.00	10.0			▲
1-M0195-10XH	19.50	4.3			▲	3-M0460-10XH	46.00	10.2			▲
1-M0200-10XH	20.00	4.5			▲	3-M0470-10XH	47.00	10.5			▲
1-M0205-10XH	20.50	4.6	3.97	15	▲	4-M0480-10XH	48.00	10.7	7.94	40	▲
1-M0210-10XH	21.00	4.7			▲	4-M0490-10XH	49.00	10.9			▲
1-M0215-10XH	21.50	4.8			▲	4-M0500-10XH	50.00	11.1			▲
1-M0220-10XH	22.00	4.9			▲	4-M0510-10XH	51.00	11.4			▲
1-M0230-10XH	23.00	5.1			▲	4-M0520-10XH	52.00	11.6			▲
1-M0240-10XH	24.00	5.3	4.76	20	▲	4-M0530-10XH	53.00	11.8	7.94	45	▲
2-M0250-10XH	25.00	5.6			▲	4-M0540-10XH	54.00	12.0			▲
2-M0260-10XH	26.00	5.8			▲	4-M0550-10XH	55.00	12.2			▲
2-M0270-10XH	27.00	6.0			▲	4-M0560-10XH	56.00	12.5			▲
2-M0280-10XH	28.00	6.2			▲	4-M0570-10XH	57.00	12.7			▲
2-M0290-10XH	29.00	6.5	4.76	25	▲	4-M0580-10XH	58.00	12.9			▲
2-M0300-10XH	30.00	6.7			▲	4-M0590-10XH	59.00	13.1			▲
2-M0310-10XH	31.00	6.9			▲	4-M0600-10XH	60.00	13.4			▲
2-M0320-10XH	32.00	7.1			▲	4-M0610-10XH	61.00	13.6			▲

▲ Stocked △ Non-Stocked

Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	Al ALLOY	CAST Al ALLOY	COPPER ALLOY	SUPER ALLOY	Ti ALLOY	HARDENED STEEL	HARDENED STEEL
	<500N	<750N	<1400N	<1100N	<900N	<750N	<1100N	Si<12%	Si>12%	<750N	<1100N	<1100N	<1400N	<1600N
10XH	●	●	○	○	○	○		○	○	○				

● VERY SUITABLE ○ SUITABLE

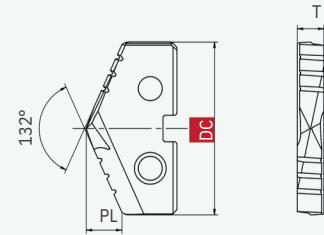
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*-10XH

HSS INSERT OF SPADE DRILL



- Diameter range: 13~114.3 mm.
- Drilling accuracy: IT10~IT11.
- HPM10-HSS for steel with hardness below HB275.



T=11.11 drill tip angle is 144 °

(Unit): mm

Product code	SIZE			COUPLING	STOCK	Product code	SIZE			COUPLING	STOCK
	DC	PL	T				DC	PL	T		
4-M0620-10XH	62.00	13.8	7.94	45	▲	8-M1080-10XH	108.00	17.5	11.11	80	▲
4-M0630-10XH	63.00	14.0			▲	8-M1100-10XH	110.00	17.9			▲
4-M0640-10XH	64.00	14.2			▲	8-M1120-10XH	112.00	18.2			▲
4-M0650-10XH	65.00	14.5			▲	8-M1140-10XH	114.00	18.5			▲
5-M0640-10XH	64.00	10.4	11.11	50	▲	▲ Stocked △ Non-Stocked					
5-M0650-10XH	65.00	10.6			▲						
5-M0660-10XH	66.00	10.7			▲						
5-M0680-10XH	68.00	11.0			▲						
5-M0770-10XH	70.00	11.4			▲						
5-M0720-10XH	72.00	11.7			▲						
5-M0740-10XH	74.00	12.0			▲						
5-M0760-10XH	76.00	12.3			▲						
6-M0770-10XH	77.00	12.5	11.11	55	▲						
6-M0780-10XH	78.00	12.7			▲						
6-M0800-10XH	80.00	13.0			▲						
6-M0820-10XH	82.00	13.3			▲						
6-M0840-10XH	84.00	13.6			▲						
6-M0860-10XH	86.00	14.0			▲						
6-M0880-10XH	88.00	14.3			▲						
6-M0890-10XH	89.00	14.5			▲						
7-M0900-10XH	90.00	14.6	11.11	70	▲						
7-M0920-10XH	92.00	14.9			▲						
7-M0940-10XH	94.00	15.3			▲						
7-M0960-10XH	96.00	15.6			▲						
7-M0980-10XH	98.00	15.9			▲						
7-M1000-10XH	100.00	16.2			▲						
8-M1020-10XH	102.00	16.6	11.11	80	▲						
8-M1040-10XH	104.00	16.9			▲						
8-M1060-10XH	106.00	17.2			▲						

▲ Stocked △ Non-Stocked

Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	AI ALLOY	CAST AI ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
10XH	●	●	○	○	○	○	○	○	○	○	○	○	○	○

● VERY SUITABLE ○ SUITABLE

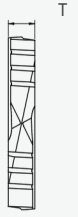
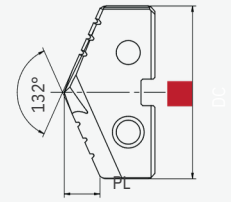
PLEASE CONTACT DELTON USA FOR THE QUOTE, ORDER AND DELIVERY:
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*-15XH

HSS-Co INSERT OF SPADE DRILL



- Diameter range: 13~114.3 mm.
- Drilling accuracy: IT10~IT11.
- HPM15- HSS-Co for steel with hardness below HB350.



(Unit): mm

Product code	SIZE			COUPLING	STOCK	Product code	SIZE			COUPLING	STOCK
	DC	PL	T				DC	PL	T		
0-M0130-15XH	13.00	2.9	3.18	00	▲	2-M0330-15XH	33.00	7.3	4.76	25	▲
0-M0135-15XH	13.50	3.0			▲	2-M0340-15XH	34.00	7.6			▲
0-M0140-15XH	14.00	3.1			▲	2-M0350-15XH	35.00	7.8			▲
0-M0145-15XH	14.50	3.2			▲	3-M0360-15XH	36.00	8.0	6.35	30	▲
0-M0150-15XH	15.00	3.3			▲	3-M0370-15XH	37.00	8.2			▲
0-M0155-15XH	15.50	3.5	3.18	05	▲	3-M0380-15XH	38.00	8.5			▲
0-M0160-15XH	16.00	3.6			▲	3-M0390-15XH	39.00	8.7			▲
0-M0165-15XH	16.50	3.7			▲	3-M0400-15XH	40.00	8.9			▲
0-M0170-15XH	17.00	3.8			▲	3-M0410-15XH	41.00	9.1			▲
0-M0175-15XH	17.50	3.9			▲	3-M0420-15XH	42.00	9.3	6.35	35	▲
1-M0180-15XH	18.00	4.0	3.97	10	▲	3-M0430-15XH	43.00	9.6			▲
1-M0185-15XH	18.50	4.1			▲	3-M0440-15XH	44.00	9.8			▲
1-M0190-15XH	19.00	4.2			▲	3-M0450-15XH	45.00	10.0			▲
1-M0195-15XH	19.50	4.3			▲	3-M0460-15XH	46.00	10.2			▲
1-M0200-15XH	20.00	4.5			▲	3-M0470-15XH	47.00	10.5			▲
1-M0205-15XH	20.50	4.6	3.97	15	▲	4-M0480-15XH	48.00	10.7	7.94	40	▲
1-M0210-15XH	21.00	4.7			▲	4-M0490-15XH	49.00	10.9			▲
1-M0215-15XH	21.50	4.8			▲	4-M0500-15XH	50.00	11.1			▲
1-M0220-15XH	22.00	4.9			▲	4-M0510-15XH	51.00	11.4			▲
1-M0230-15XH	23.00	5.1			▲	4-M0520-15XH	52.00	11.6			▲
1-M0240-15XH	24.00	5.3	4.76	20	▲	4-M0530-15XH	53.00	11.8	7.94	45	▲
2-M0250-15XH	25.00	5.6			▲	4-M0540-15XH	54.00	12.0			▲
2-M0260-15XH	26.00	5.8			▲	4-M0550-15XH	55.00	12.2			▲
2-M0270-15XH	27.00	6.0			▲	4-M0560-15XH	56.00	12.5			▲
2-M0280-15XH	28.00	6.2			▲	4-M0570-15XH	57.00	12.7			▲
2-M0290-15XH	29.00	6.5	4.76	25	▲	4-M0580-15XH	58.00	12.9	7.94	45	▲
2-M0300-15XH	30.00	6.7			▲	4-M0590-15XH	59.00	13.1			▲
2-M0310-15XH	31.00	6.9			▲	4-M0600-15XH	60.00	13.4			▲
2-M0320-15XH	32.00	7.1			▲	4-M0610-15XH	61.00	13.6			▲

▲ Stocked △ Non-Stocked

Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	AI ALLOY	CAST AI ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
	<500N	<750N	<1400N	<1100N	<900N	<750N	<1100N	Si<12%	Si>12%	<750N	<1100N	<1100N	<1400N	<1600N
15XH	●	●	●	●	●	○	○	○	○	○	○			

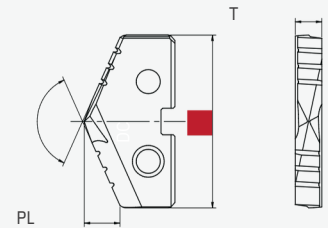
● VERY SUITABLE ○ SUITABLE

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- Diameter range: 13~114.3 mm.
- Drilling accuracy: IT10~IT11.
- HPM15- HSS-Co for steel with hardness below HB350.



132°



T=11.11 drill tip angle is 144°

						(Unit): mm					
Product code	SIZE			COUPLING	STOCK	Product code	SIZE			COUPLING	STOCK
	DC	PL	T				DC	PL	T		
4-M0620-15XH	62.00	13.8	7.94	45	▲	8-M1080-15XH	108.00	17.5	11.11	80	▲
4-M0630-15XH	63.00	14.0			▲	8-M1100-15XH	110.00	17.9			▲
4-M0640-15XH	64.00	14.2			▲	8-M1120-15XH	112.00	18.2			▲
4-M0650-15XH	65.00	14.5			▲	8-M1140-15XH	114.00	18.5			▲
5-M0640-15XH	64.00	10.4	11.11	50	▲	▲ Stocked △Non-Stocked					
5-M0650-15XH	65.00	10.6			▲						
5-M0660-15XH	66.00	10.7			▲						
5-M0680-15XH	68.00	11.0			▲						
5-M0770-15XH	70.00	11.4			▲						
5-M0720-15XH	72.00	11.7			▲						
5-M0740-15XH	74.00	12.0			▲						
5-M0760-15XH	76.00	12.3			▲						
6-M0770-15XH	77.00	12.5	11.11	55	▲						
6-M0780-15XH	78.00	12.7			▲						
6-M0800-15XH	80.00	13.0			▲						
6-M0820-15XH	82.00	13.3			▲						
6-M0840-15XH	84.00	13.6			▲						
6-M0860-15XH	86.00	14.0			▲						
6-M0880-15XH	88.00	14.3			▲						
6-M0890-15XH	89.00	14.5			▲						
7-M0900-15XH	90.00	14.6	11.11	70	▲						
7-M0920-15XH	92.00	14.9			▲						
7-M0940-15XH	94.00	15.3			▲						
7-M0960-15XH	96.00	15.6			▲						
7-M0980-15XH	98.00	15.9			▲						
7-M1000-15XH	100.00	16.2			▲						
8-M1020-15XH	102.00	16.6	11.11	80	▲						
8-M1040-15XH	104.00	16.9			▲						
8-M1060-15XH	106.00	17.2			▲						

▲ Stocked △ Non-Stocked

Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	AI ALLOY	CAST AI ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
15XH	●	●	●	●	●	○	○	○	○	○	○	○	○	○

● VERY SUITABLE ○ SUITABLE

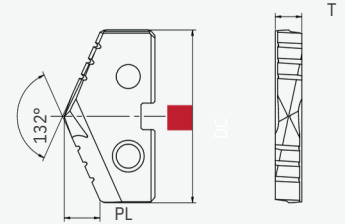
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*-25XH

HIGH Co HSS INSERT OF SPADE DRILL



- Diameter range: 9.5~65 mm.
- Drilling accuracy: IT10~IT11.
- HPM25-High Co HSS for steel with hardness below HB400.



(Unit): mm

Product code	SIZE			COUPLING	STOCK	Product code	SIZE			COUPLING	STOCK
	DC	PL	T				DC	PL	T		
Y-M0095-25XH	9.50	2.1	2.38	Y0	▲	1-M0230-25XH	23.00	5.1	3.97	15	▲
Y-M0098-25XH	9.80	2.2			▲	1-M0240-25XH	24.00	5.3			▲
Y-M0100-25XH	10.00	2.2			▲	2-M0250-25XH	25.00	5.6	4.76	20	▲
Y-M0102-25XH	10.20	2.3			▲	2-M0260-25XH	26.00	5.8			▲
Y-M0105-25XH	10.50	2.3			▲	2-M0270-25XH	27.00	6.0			▲
Y-M0108-25XH	10.80	2.4			▲	2-M0280-25XH	28.00	6.2			▲
Y-M0110-25XH	11.00	2.4			▲	2-M0290-25XH	29.00	6.5			▲
Z-M0115-25XH	11.50	2.6	2.38	Z0	▲	2-M0300-25XH	30.00	6.7	4.76	25	▲
Z-M0120-25XH	12.00	2.7			▲	2-M0310-25XH	31.00	6.9			▲
Z-M0125-25XH	12.50	2.8			▲	2-M0320-25XH	32.00	7.1			▲
O-M0130-25XH	13.00	2.9	3.18	00	▲	2-M0330-25XH	33.00	7.3			▲
O-M0135-25XH	13.50	3.0			▲	2-M0340-25XH	34.00	7.6			▲
O-M0140-25XH	14.00	3.1			▲	2-M0350-25XH	35.00	7.8			▲
O-M0145-25XH	14.50	3.2			▲	3-M0360-25XH	36.00	8.0	6.35	30	▲
O-M0150-25XH	15.00	3.3			▲	3-M0370-25XH	37.00	8.2			▲
O-M0155-25XH	15.50	3.5	3.18	05	▲	3-M0380-25XH	38.00	8.5			▲
O-M0160-25XH	16.00	3.6			▲	3-M0390-25XH	39.00	8.7			▲
O-M0165-25XH	16.50	3.7			▲	3-M0400-25XH	40.00	8.9			▲
O-M0170-25XH	17.00	3.8			▲	3-M0410-25XH	41.00	9.1			▲
O-M0175-25XH	17.50	3.9			▲	3-M0420-25XH	42.00	9.3	6.35	35	▲
1-M0180-25XH	18.00	4.0	3.97	10	▲	3-M0430-25XH	43.00	9.6			▲
1-M0185-25XH	18.50	4.1			▲	3-M0440-25XH	44.00	9.8			▲
1-M0190-25XH	19.00	4.2			▲	3-M0450-25XH	45.00	10.0			▲
1-M0195-25XH	19.50	4.3			▲	3-M0460-25XH	46.00	10.2			▲
1-M0200-25XH	20.00	4.5			▲	3-M0470-25XH	47.00	10.5			▲
1-M0205-25XH	20.50	4.6			▲	4-M0480-25XH	48.00	10.7	7.94	40	▲
1-M0210-25XH	21.00	4.7			▲	4-M0500-25XH	50.00	11.1			▲
1-M0215-25XH	21.50	4.8			▲	4-M0510-25XH	51.00	11.4			▲
1-M0220-25XH	22.00	4.9	3.97	15	▲	4-M0520-25XH	52.00	11.6			▲

▲ Stocked △ Non-Stocked

Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	Al ALLOY	CAST Al ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
25XH	<500N ●	<750N ●	<1400N ●	<1100N ●	<900N ●	<750N ●	<1100N ●	Si<12% ○	Si>12% ○	<750N ○	<1100N ○	<1100N ○	<1400N ●	<1600N ○

● VERY SUITABLE ○ SUITABLE

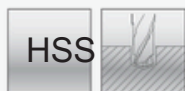
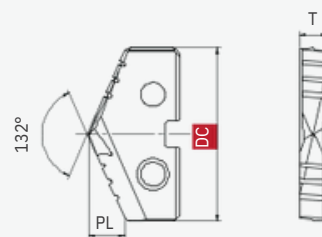
PLEASE CONTACT DELTON USA FOR THE QUOTE, ORDER AND DELIVERY:
sales@delton-usa.com, 248-881-1847

*-25XH

HIGH Co HSS INSERT OF SPADE DRILL



- Diameter range: 9.5~65 mm.
- Drilling accuracy: IT10~IT11.
- HPM25-High Co HSS for steel with hardness below HB400.



(Unit): mm

Product code	SIZE			COUPLING	STOCK
	DC	PL	T		
4-M0530-25XH	53.00	11.8	7.94	40	▲
4-M0540-25XH	54.00	12.0			▲
4-M0550-25XH	55.00	12.2			▲
4-M0560-25XH	56.00	12.5	7.94	45	▲
4-M0570-25XH	57.00	12.7			▲
4-M0580-25XH	58.00	12.9			▲
4-M0590-25XH	59.00	13.1			▲
4-M0600-25XH	60.00	13.4			▲
4-M0610-25XH	61.00	13.6			▲
4-M0620-25XH	62.00	13.8			▲
4-M0630-25XH	63.00	14.0			▲
4-M0640-25XH	64.00	14.2			▲
4-M0650-25XH	65.00	14.5			▲

▲ Stocked △ Non-Stocked

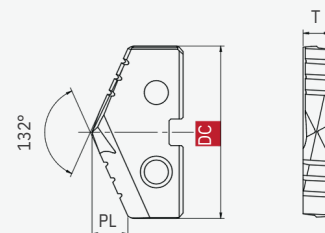
Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	Al ALLOY	CAST Al ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
25XH	●	●	●	●	●	●	●	○	○	○	○	○	●	○

● VERY SUITABLE ○ SUITABLE

PLEASE CONTACT DELTON USA FOR THE QUOTE, ORDER AND DELIVERY:
sales@delton-usa.com, 248-881-1847

- Diameter range: 9.5~47.0mm.
- Drilling accuracy: IT10~IT11.



(Unit): mm

Product code	SIZE			COUPLING	STOCK	Product code	SIZE			COUPLING	STOCK
	DC	PL	T				DC	PL	T		
Y-M0095-50XH	9.50	2.1	2.38	Y0	▲	1-M0220-50XH	22.00	4.9	3.97	15	▲
Y-M0098-50XH	9.80	2.2			▲	1-M0230-50XH	23.00	5.1			▲
Y-M0100-50XH	10.00	2.2			▲	1-M0240-50XH	24.00	5.3			▲
Y-M0102-50XH	10.20	2.3			▲	2-M0250-50XH	25.00	5.6	4.76	20	▲
Y-M0105-50XH	10.50	2.3			▲	2-M0260-50XH	26.00	5.8			▲
Y-M0108-50XH	10.80	2.4			▲	2-M0270-50XH	27.00	6.0			▲
Y-M0110-50XH	11.00	2.4			▲	2-M0280-50XH	28.00	6.2			▲
Z-M0115-50XH	11.50	2.6	2.38	Z0	▲	2-M0290-50XH	29.00	6.5			▲
Z-M0120-50XH	12.00	2.7			▲	2-M0300-50XH	30.00	6.7	4.76	25	▲
Z-M0125-50XH	12.50	2.8			▲	2-M0310-50XH	31.00	6.9			▲
O-M0130-50XH	13.00	2.9	3.18	00	▲	2-M0320-50XH	32.00	7.1			▲
O-M0135-50XH	13.50	3.0			▲	2-M0330-50XH	33.00	7.3			▲
O-M0140-50XH	14.00	3.1			▲	2-M0340-50XH	34.00	7.6			▲
O-M0145-50XH	14.50	3.2			▲	2-M0350-50XH	35.00	7.8			▲
O-M0150-50XH	15.00	3.3			▲	3-M0360-50XH	36.00	8.0	6.35	30	▲
O-M0155-50XH	15.50	3.5		05	▲	3-M0370-50XH	37.00	8.2			▲
O-M0160-50XH	16.00	3.6			▲	3-M0380-50XH	38.00	8.5			▲
O-M0165-50XH	16.50	3.7			▲	3-M0390-50XH	39.00	8.7			▲
O-M0170-50XH	17.00	3.8			▲	3-M0400-50XH	40.00	8.9			▲
O-M0175-50XH	17.50	3.9			▲	3-M0410-50XH	41.00	9.1			▲
1-M0180-50XH	18.00	4.0	3.97	10	▲	3-M0420-50XH	42.00	9.3	6.35	35	▲
1-M0185-50XH	18.50	4.1			▲	3-M0430-50XH	43.00	9.6			▲
1-M0190-50XH	19.00	4.2			▲	3-M0440-50XH	44.00	9.8			▲
1-M0195-50XH	19.50	4.3			▲	3-M0450-50XH	45.00	10.0			▲
1-M0200-50XH	20.00	4.5			▲	3-M0460-50XH	46.00	10.2			▲
1-M0205-50XH	20.50	4.6			▲	3-M0470-50XH	47.00	10.5			▲
1-M0210-50XH	21.00	4.7			▲						
1-M0215-50XH	21.50	4.8			▲						

▲ Stocked △ Non-Stocked

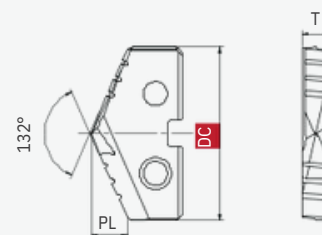
Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	Al ALLOY	CAST Al ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
50XH	●	●	●	●	●	○	○	○	○	○	●	●	●	○

● VERY SUITABLE ○ SUITABLE

PLEASE CONTACT DELTON USA FOR THE QUOTE, ORDER AND DELIVERY:
sales@delton-usa.com, 248-881-1847

- Diameter range: 9.5~47.0mm.
- Drilling accuracy: IT10~IT11.



(Unit): mm

Product code	SIZE			COUPLING	STOCK	Product code	SIZE			COUPLING	STOCK
	DC	PL	T				DC	PL	T		
Y-M0095-50CH	9.50	2.1	2.38	Y0	▲	1-M0220-50CH	22.00	4.9	3.97	15	▲
Y-M0098-50CH	9.80	2.2			▲	1-M0230-50CH	23.00	5.1			▲
Y-M0100-50CH	10.00	2.2			▲	1-M0240-50CH	24.00	5.3			▲
Y-M0102-50CH	10.20	2.3			▲	2-M0250-50CH	25.00	5.6	4.76	20	▲
Y-M0105-50CH	10.50	2.3			▲	2-M0260-50CH	26.00	5.8			▲
Y-M0108-50CH	10.80	2.4			▲	2-M0270-50CH	27.00	6.0			▲
Y-M0110-50CH	11.00	2.4			▲	2-M0280-50CH	28.00	6.2			▲
Z-M0115-50CH	11.50	2.6	2.38	Z0	▲	2-M0290-50CH	29.00	6.5			▲
Z-M0120-50CH	12.00	2.7			▲	2-M0300-50CH	30.00	6.7	4.76	25	▲
Z-M0125-50CH	12.50	2.8			▲	2-M0310-50CH	31.00	6.9			▲
O-M0130-50CH	13.00	2.9	3.18	00	▲	2-M0320-50CH	32.00	7.1			▲
O-M0135-50CH	13.50	3.0			▲	2-M0330-50CH	33.00	7.3			▲
O-M0140-50CH	14.00	3.1			▲	2-M0340-50CH	34.00	7.6			▲
O-M0145-50CH	14.50	3.2			▲	2-M0350-50CH	35.00	7.8			▲
O-M0150-50CH	15.00	3.3			▲	3-M0360-50CH	36.00	8.0	6.35	30	▲
O-M0155-50CH	15.50	3.5	3.18	05	▲	3-M0370-50CH	37.00	8.2			▲
O-M0160-50CH	16.00	3.6			▲	3-M0380-50CH	38.00	8.5			▲
O-M0165-50CH	16.50	3.7			▲	3-M0390-50CH	39.00	8.7			▲
O-M0170-50CH	17.00	3.8			▲	3-M0400-50CH	40.00	8.9			▲
O-M0175-50CH	17.50	3.9			▲	3-M0410-50CH	41.00	9.1	6.35	35	▲
1-M0180-50CH	18.00	4.0	3.97	10	▲	3-M0420-50CH	42.00	9.3			▲
1-M0185-50CH	18.50	4.1			▲	3-M0430-50CH	43.00	9.6			▲
1-M0190-50CH	19.00	4.2			▲	3-M0440-50CH	44.00	9.8			▲
1-M0195-50CH	19.50	4.3			▲	3-M0450-50CH	45.00	10.0			▲
1-M0200-50CH	20.00	4.5			▲	3-M0460-50CH	46.00	10.2			▲
1-M0205-50CH	20.50	4.6			▲	3-M0470-50CH	47.00	10.5			▲
1-M0210-50CH	21.00	4.7			▲						
1-M0215-50CH	21.50	4.8			▲						

▲ Stocked △ Non-Stocked

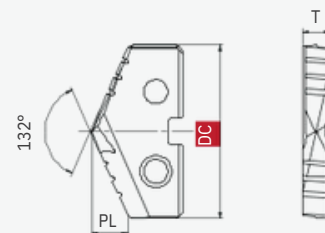
Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	Al ALLOY	CAST Al ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
50CH	<500N ○	<750N ○	<1400N ○	<1100N	<900N	<750N ●	<1100N ●	Si<12% ○	Si>12% ○	<750N	<1100N	<1100N	<1400N	<1600N

● VERY SUITABLE ○ SUITABLE

PLEASE CONTACT DELTON USA FOR THE QUOTE, ORDER AND DELIVERY:
sales@delton-usa.com, 248-881-1847

- Diameter range: 9.5~47.0mm.
- Drilling accuracy: IT10~IT11.



(Unit): mm

Product code	SIZE			COUPLING	STOCK	Product code	SIZE			COUPLING	STOCK
	DC	PL	T				DC	PL	T		
Y-M0095-50SC	9.50	2.1	2.38	Y0	▲	1-M0220-50SC	22.00	4.9	3.97	15	▲
Y-M0098-50SC	9.80	2.2			▲	1-M0230-50SC	23.00	5.1			▲
Y-M0100-50SC	10.00	2.2			▲	1-M0240-50SC	24.00	5.3			▲
Y-M0102-50SC	10.20	2.3			▲	2-M0250-50SC	25.00	5.6	4.76	20	▲
Y-M0105-50SC	10.50	2.3			▲	2-M0260-50SC	26.00	5.8			▲
Y-M0108-50SC	10.80	2.4			▲	2-M0270-50SC	27.00	6.0			▲
Y-M0110-50SC	11.00	2.4			▲	2-M0280-50SC	28.00	6.2			▲
Z-M0115-50SC	11.50	2.6	2.38	Z0	▲	2-M0290-50SC	29.00	6.5			▲
Z-M0120-50SC	12.00	2.7			▲	2-M0300-50SC	30.00	6.7	4.76	25	▲
Z-M0125-50SC	12.50	2.8			▲	2-M0310-50SC	31.00	6.9			▲
O-M0130-50SC	13.00	2.9	3.18	00	▲	2-M0320-50SC	32.00	7.1			▲
O-M0135-50SC	13.50	3.0			▲	2-M0330-50SC	33.00	7.3			▲
O-M0140-50SC	14.00	3.1			▲	2-M0340-50SC	34.00	7.6			▲
O-M0145-50SC	14.50	3.2			▲	2-M0350-50SC	35.00	7.8			▲
O-M0150-50SC	15.00	3.3			▲	3-M0360-50SC	36.00	8.0	6.35	30	▲
O-M0155-50SC	15.50	3.5		05	▲	3-M0370-50SC	37.00	8.2			▲
O-M0160-50SC	16.00	3.6			▲	3-M0380-50SC	38.00	8.5			▲
O-M0165-50SC	16.50	3.7			▲	3-M0390-50SC	39.00	8.7			▲
O-M0170-50SC	17.00	3.8			▲	3-M0400-50SC	40.00	8.9			▲
O-M0175-50SC	17.50	3.9			▲	3-M0410-50SC	41.00	9.1			▲
1-M0180-50SC	18.00	4.0	3.97	10	▲	3-M0420-50SC	42.00	9.3	6.35	35	▲
1-M0185-50SC	18.50	4.1			▲	3-M0430-50SC	43.00	9.6			▲
1-M0190-50SC	19.00	4.2			▲	3-M0440-50SC	44.00	9.8			▲
1-M0195-50SC	19.50	4.3			▲	3-M0450-50SC	45.00	10.0			▲
1-M0200-50SC	20.00	4.5			▲	3-M0460-50SC	46.00	10.2			▲
1-M0205-50SC	20.50	4.6			▲	3-M0470-50SC	47.00	10.5			▲
1-M0210-50SC	21.00	4.7			▲						
1-M0215-50SC	21.50	4.8			▲						

▲ Stocked △ Non-Stocked

Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	Al ALLOY	CAST Al ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
50SC	<500N	<750N	<1400N	<1100N	<900N	<750N	<1100N	Si<12%	Si>12%	<750N	<1100N	<1100N	<1400N	<1600N

● VERY SUITABLE ○ SUITABLE

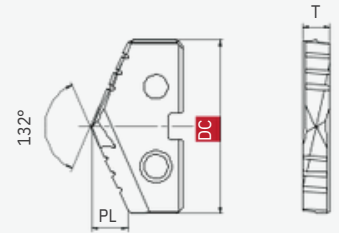
PLEASE CONTACT DELTON USA FOR THE QUOTE, ORDER AND DELIVERY:
sales@delton-usa.com, 248-881-1847

*-10XH

HSS INSERT OF SPADE DRILL



- Diameter range: 9/16"~4-1/2" .
- Drilling accuracy: IT10~IT11.
- HPM10- HSS for steel with hardness below HB275.



T=7/16"(11.11) drill tip angle is 144 °



(Unit): inch

Product code	SIZE			COUPLING	STOCK	Product code	SIZE			COUPLING	STOCK
	DC	PL	T				DC	PL	T		
0-I0562-10XH	9/16"	14.29	0.126 1/8" (3.18)	00	▲	4-I2312-10XH	2-5/16"	58.74	0.516	45	▲
0-I0625-10XH	5/8"	15.88	1/8" (3.18)	05	▲	4-I2375-10XH	2-3/8"	60.33	0.528		▲
0-I0687-10XH	11/16"	17.46	0.154		▲	4-I2437-10XH	2-7/16"	61.91	0.543		▲
1-I0750-10XH	3/4"	19.05	5/32" (3.97)	10	▲	4-I2500-10XH	2-1/2"	63.50	0.555		▲
1-I0812-10XH	13/16"	20.64	0.181		▲	4-I2562-10XH	2-9/16"	65.09	0.571		▲
1-I0875-10XH	7/8"	22.23	5/32" (3.97)	15	▲	5-I2500-10XH	2-1/2"	63.50	0.406	50	▲
1-I0937-10XH	15/16"	23.81	0.209		▲	5-I2562-10XH	2-9/16"	65.09	0.417		▲
2-I1000-10XH	1"	25.40	0.224		▲	5-I2625-10XH	2-5/8"	66.68	0.425		▲
2-I1062-10XH	1-1/16"	26.99	3/16" (4.76)	20	▲	5-I2812-10XH	2-13/16"	71.44	0.457		▲
2-I1125-10XH	1-1/8"	28.58	0.252		▲	5-I2875-10XH	2-7/8"	73.03	0.469		▲
2-I1187-10XH	1-3/16"	30.16	0.264		▲	5-I2937-10XH	2-15/16"	74.61	0.476		▲
2-I1250-10XH	1-1/4"	31.75	0.28		▲	5-I3000-10XH	3"	76.20	0.488		▲
2-I1312-10XH	1-5/16"	33.34	3/16" (4.76)	25	▲	5-I3031-10XH	3-1/32"	76.99	0.492		▲
2-I1343-10XH	1-11/32"	34.13	0.299		▲	6-I3062-10XH	3-1/16"	77.79	0.496	55	▲
2-I1375-10XH	1-3/8"	34.93	0.307		▲	6-I3125-10XH	3-1/8"	79.38	0.508		▲
3-I1437-10XH	1-7/16"	36.51	0.319		▲	6-I3187-10XH	3-3/16"	80.96	0.52		▲
3-I1500-10XH	1-1/2"	38.10	0.335	30	▲	6-I3250-10XH	3-1/4"	82.55	0.528		▲
3-I1562-10XH	1-9/16"	39.69	0.346		▲	6-I3312-10XH	3-5/16"	84.14	0.539		▲
3-I1625-10XH	1-5/8"	41.28	0.362		▲	6-I3375-10XH	3-3/8"	85.73	0.547		▲
3-I1687-10XH	1-1/16"	42.68	0.374		▲	6-I3437-10XH	3-7/16"	87.31	0.559		▲
3-I1750-10XH	1-3/4"	44.45	0.390		▲	6-I3500-10XH	3-1/2"	88.90	0.567		▲
3-I1812-10XH	1-3/16"	46.04	0.402	35	▲	7-I3531-10XH	3-17/32"	89.96	0.575	70	▲
3-I1875-10XH	1-7/8"	47.63	0.417		▲	7-I3562-10XH	3-9/16"	90.49	0.579		▲
4-I1937-10XH	1-15/16"	49.21	0.433		▲	7-I3625-10XH	3-5/8"	92.08	0.591		▲
4-I2000-10XH	2"	50.80	0.445		▲	7-I3687-10XH	3-11/16"	93.66	0.598		▲
4-I2062-10XH	2-1/16"	52.39	0.461	40	▲	7-I3750-10XH	3-3/4"	95.25	0.61		▲
4-I2125-10XH	2-1/8"	53.98	0.472		▲	7-I3812-10XH	3-13/16"	96.84	0.618		▲
4-I2187-10XH	2-3/16"	55.56	0.488		▲	7-I3875-10XH	3-7/8"	98.43	0.63		▲
4-I2250-10XH	2-1/4"	57.15	5/16" (7.94)	45	▲	7-I3937-10XH	3-15/16"	100.01	0.638		▲

▲ Stocked △ Non-Stocked

Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	Al ALLOY	CAST Al ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
10XH	●	●	○	○	○	○	○	○	○	○	○	○	○	○

● VERY SUITABLE ○ SUITABLE

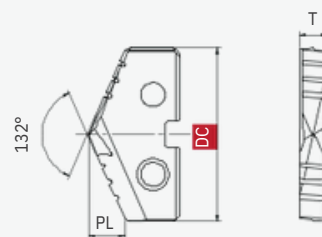
PLEASE CONTACT DELTON USA FOR THE QUOTE, ORDER AND DELIVERY:
sales@delton-usa.com, 248-881-1847

*-10XH

HSS INSERT OF SPADE DRILL



- Diameter range: 9/16"~4-1/2" .
- Drilling accuracy: IT10~IT11.
- HPM10-HSS for steel with hardness below HB275.



T= 7/16"(11.11) drill tip angle is 144 °



(Unit): inch

Product code	SIZE			COUPLING	STOCK
	DC	PL	T		
7-I4000-10XH	4"	101.60	0.65	7/16" (11.11)	70 ▲
8-I4125-10XH	4-1/8"	104.78	0.669	80	▲
8-I4250-10XH	4-1/4"	107.95	0.689		▲
8-I4500-10XH	4-1/2"	114.30	0.732		▲

▲ Stocked △ Non-Stocked

Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	Al ALLOY	CAST Al ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
10XH	●	●	○	○	○	○	○	○	○	○	○	○	○	○

● VERY SUITABLE ○ SUITABLE

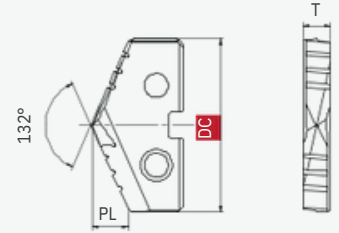
PLEASE CONTACT DELTON USA FOR THE QUOTE, ORDER AND DELIVERY:
sales@delton-usa.com, 248-881-1847

*-15XH

HSS-Co INSERT OF SPADE DRILL



- Diameter range: 9/16"~4-1/2" .
- Drilling accuracy: IT10~IT11.
- HPM15- HSS-Co for steel with hardness below HB350.



T=7/16"(11.11) drill tip angle is 144 °



(Unit): inch

Product code	SIZE			COUPLING	STOCK	Product code	SIZE			COUPLING	STOCK
	DC	PL	T				DC	PL	T		
0-I0562-15XH	9/16"	14.29	0.126	00	▲	4-I2312-15XH	2-5/16"	58.74	0.516		▲
0-I0625-15XH	5/8"	15.88	0.138	05	▲	4-I2375-15XH	2-3/8"	60.33	0.528	45	▲
0-I0687-15XH	11/16"	17.46	0.154		▲	4-I2437-15XH	2-7/16"	61.91	0.543		▲
1-I0750-15XH	3/4"	19.05	0.165	10	▲	4-I2500-15XH	2-1/2"	63.50	0.555		▲
1-I0812-15XH	13/16"	20.64	0.181		▲	4-I2562-15XH	2-9/16"	65.09	0.571		▲
1-I0875-15XH	7/8"	22.23	0.193	15	▲	5-I2500-15XH	2-1/2"	63.50	0.406	50	▲
1-I0937-15XH	15/16"	23.81	0.209		▲	5-I2562-15XH	2-9/16"	65.09	0.417		▲
2-I1000-15XH	1"	25.40	0.224	20	▲	5-I2625-15XH	2-5/8"	66.68	0.425		▲
2-I1062-15XH	1-1/16"	26.99	0.236		▲	5-I2812-15XH	2-13/16"	71.44	0.457		▲
2-I1125-15XH	1-1/8"	28.58	0.252	25	▲	5-I2875-15XH	2-7/8"	73.03	0.469		▲
2-I1187-15XH	1-3/16"	30.16	0.264		▲	5-I2937-15XH	2-15/16"	74.61	0.476		▲
2-I1250-15XH	1-1/4"	31.75	0.28		▲	5-I3000-15XH	3"	76.20	0.488		▲
2-I1312-15XH	1-5/16"	33.34	0.291		▲	5-I3031-15XH	3-1/32"	76.99	0.492		▲
2-I1343-15XH	1-11/32"	34.13	0.299	30	▲	6-I3062-15XH	3-1/16"	77.79	0.496	55	▲
2-I1375-15XH	1-3/8"	34.93	0.307		▲	6-I3125-15XH	3-1/8"	79.38	0.508		▲
3-I1437-15XH	1-7/16"	36.51	0.319		▲	6-I3187-15XH	3-3/16"	80.96	0.52		▲
3-I1500-15XH	1-1/2"	38.10	0.335		▲	6-I3250-15XH	3-1/4"	82.55	0.528		▲
3-I1562-15XH	1-9/16"	39.69	0.346	35	▲	6-I3312-15XH	3-5/16"	84.14	0.539		▲
3-I1625-15XH	1-5/8"	41.28	0.362		▲	6-I3375-15XH	3-3/8"	85.73	0.547		▲
3-I1687-15XH	1-1/16"	42.68	0.374		▲	6-I3437-15XH	3-7/16"	87.31	0.559		▲
3-I1750-15XH	1-3/4"	44.45	0.390		▲	6-I3500-15XH	3-1/2"	88.90	0.567		▲
3-I1812-15XH	1-13/16"	46.04	0.402	40	▲	7-I3531-15XH	3-17/32"	89.96	0.575	70	▲
3-I1875-15XH	1-7/8"	47.63	0.417		▲	7-I3562-15XH	3-9/16"	90.49	0.579		▲
4-I1937-15XH	1-15/16"	49.21	0.433		▲	7-I3625-15XH	3-5/8"	92.08	0.591		▲
4-I2000-15XH	2"	50.80	0.445		▲	7-I3687-15XH	3-11/16"	93.66	0.598		▲
4-I2062-15XH	2-1/16"	52.39	0.461	45	▲	7-I3750-15XH	3-3/4"	95.25	0.61		▲
4-I2125-15XH	2-1/8"	53.98	0.472		▲	7-I3812-15XH	3-13/16"	96.84	0.618		▲
4-I2187-15XH	2-3/16"	55.56	0.488		▲	7-I3875-15XH	3-7/8"	98.43	0.63		▲
4-I2250-15XH	2-1/4"	57.15	0.5		▲	7-I3937-15XH	3-15/16"	100.01	0.638		▲

▲ Stocked △ Non-Stocked

Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	Al ALLOY	CAST Al ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED D STEEL
15XH	●	●	●	●	●	○	○	○	○	○	○	○	○	○

● VERY SUITABLE ○ SUITABLE

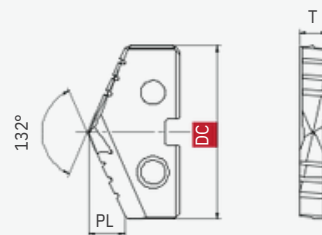
PLEASE CONTACT DELTON USA FOR THE QUOTE, ORDER AND DELIVERY:
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*-15XH

HSS-Co INSERT OF SPADE DRILL



- Diameter range: 9/16"~4-1/2" .
- Drilling accuracy: IT10~IT11.
- HPM15-Powder HSS-Co for steel with hardness below HB350.



T= 7/16"(11.11) drill tip angle is 144 °



(Unit): inch

Product code	SIZE			COUPLING	STOCK
	DC	PL	T		
7-I4000-15XH	4"	101.60	0.65 7/16" (11.11)	70	▲
8-I4125-15XH	4-1/8"	104.78	0.669	80	▲
8-I4250-15XH	4-1/4"	107.95	0.689 7/16" (11.11)		▲
8-I4500-15XH	4-1/2"	114.30	0.732		▲

▲ Stocked △ Non-Stocked

Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	Al ALLOY	CAST Al ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
	<500N	<750N	<1400N	<1100N	<900N	<750N	<1100N	Si<12%	Si>12%	<750N	<1100N	<1100N	<1400N	<1600N
15XH	●	●	●	●	●	○	○	○	○	○	○	○	○	○

● VERY SUITABLE ○ SUITABLE

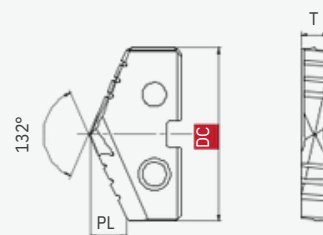
PLEASE CONTACT DELTON USA FOR THE QUOTE, ORDER AND DELIVERY:
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*-25XH

HIGH Co HSS INSERT OF SPADE DRILL



- Diameter range: 1"~2-11/32".
- Special blade for armor guard plate of construction machinery.
- HPM25-High Co HSS for steel with hardness below HB400.



(Unit): inch

Product code	SIZE			COUPLING	STOCK	Product code	SIZE			COUPLING	STOCK		
	DC	PL	T				DC	PL	T				
Y-I0375-25XH	3/8"	9.53	0.083	Y0	▲	4-I1937-25XH	1-15/16"	49.21	0.433	5/16" (7.94)	40	▲	
Y-I0421-25XH	27/64"	10.72	0.094		▲	4-I2000-25XH	2"	50.80	0.445			▲	
Y-I0437-25XH	7/16"	11.11	0.098		▲	4-I2062-25XH	2-1/16"	52.39	0.461			▲	
Z-I0453-25XH	29/64"	11.51	0.102	Z0	▲	4-I2125-25XH	2-1/8"	53.98	0.472	5/16" (7.94)	45	▲	
Z-I0484-25XH	31/64"	12.30	0.106		▲	4-I2187-25XH	2-3/16"	55.56	0.488			▲	
Z-I0500-25XH	1/2"	12.70	0.11		▲	4-I2250-25XH	2-1/4"	57.15	0.5			5/16" (7.94)	45
0-I0562-25XH	9/16"	14.29	0.126	1/8" (3.18)	00	▲	4-I2312-25XH	2-5/16"	58.74	0.516	▲		
0-I0625-25XH	5/8"	15.88	0.138	1/8" (3.18)	05	▲	4-I2375-25XH	2-3/8"	60.33	0.528	▲		
0-I0687-25XH	11/16"	17.46	0.154	▲		4-I2437-25XH	2-7/16"	61.91	0.543	▲			
1-I0750-25XH	3/4"	19.05	0.165	5/32" (3.97)	10	▲	4-I2500-25XH	2-1/2"	63.50	0.555	▲		
1-I0812-25XH	13/16"	20.64	0.181	▲		4-I2562-25XH	2-9/16"	65.09	0.571	▲			
1-I0875-25XH	7/8"	22.23	0.193	5/32" (3.97)	15	▲	▲ Stocked △Non-Stocked						
1-I0937-25XH	15/16"	23.81	0.209	▲									
2-I1000-25XH	1"	25.40	0.224	3/16" (4.76)	20	▲							
2-I1062-25XH	1-1/16"	26.99	0.236			▲							
2-I1125-25XH	1-1/8"	28.58	0.252			▲							
2-I1187-25XH	1-3/16"	30.16	0.264	3/16" (4.76)	25	▲							
2-I1250-25XH	1-1/4"	31.75	0.28			▲							
2-I1312-25XH	1-5/16"	33.34	0.291			▲							
2-I1343-25XH	1-11/32"	34.13	0.299			▲							
2-I1375-25XH	1-3/8"	34.93	0.307			▲							
3-I1437-25XH	1-7/16"	36.51	0.319	1/4" (6.35)	30	▲							
3-I1500-25XH	1-1/2"	38.10	0.335			▲							
3-I1562-25XH	1-9/16"	39.69	0.346			▲							
3-I1625-25XH	1-5/8"	41.28	0.362			▲							
3-I1687-25XH	1-1/16"	42.68	0.374	1/4" (6.35)	35	▲							
3-I1750-25XH	1-3/4"	44.45	0.39			▲							
3-I1812-25XH	1-13/16"	46.04	0.402			▲							
3-I1875-25XH	1-7/8"	47.63	0.417			▲							

Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	Al ALLOY	CAST Al ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
25XH	●	●	●	●	●	●	●	○	○	○	○	○	●	○

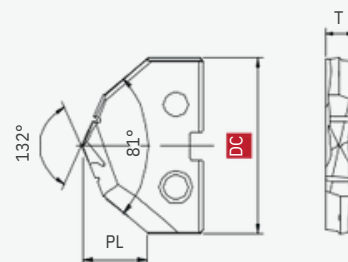
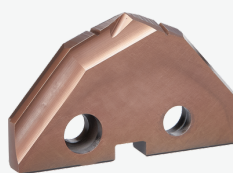
● VERY SUITABLE ○ SUITABLE

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*-25VH HIGH Co HSS INSERT OF SPADE DRILL WITH DOUBLE TIP ANGLES



- Diameter range: 1"~2-11/32".
- Special blade for armor guard plate of construction machinery.
- HPM25-High Co HSS for steel with hardness below HB400.



(Unit): inch

Product code	SIZE					COUPLING	STOCK
	DC	PL	T				
2-I1000-25VH	1"	25.40	0.366			20	△
2-I1187-25VH	1-3/16"	30.16	0.433	3/16" (4.76)		25	▲
2-I1344-25VH	1-11/32"	34.13	0.528			25	▲
3-I1562-25VH	1-9/16"	39.69	0.555	1/4" (6.35)		30	△
3-I1750-25VH	1-3/4"	44.45	0.642			35	△
4-I2344-25VH	2-11/32"	59.53	0.858	5/16" (7.94)		45	△

▲ Stocked △ Non-Stocked

Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	Al ALLOY	CAST Al ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
25VH	●	●	○											

● VERY SUITABLE ○ SUITABLE

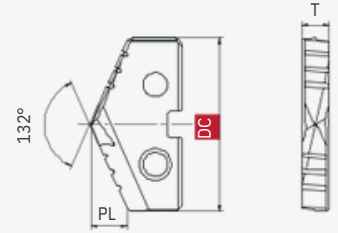
PLEASE CONTACT DELTON USA FOR THE QUOTE, ORDER AND DELIVERY:
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*-50XH

CARBIDE INSERT OF SPADE DRILL



- Diameter range: 3/8"~1-3/8".
- Drilling accuracy: IT10~IT11.



(Unit): inch

Product code	SIZE			COUPLING	STOCK	Product code	SIZE			COUPLING	STOCK			
	DC	PL	T				DC	PL	T					
Y-I0375-50XH	3/8"	9.53	0.083	Y0	▲	3-I1437-50XH	1-7/16"	36.51	8.1	1/4" (6.35)	30	▲		
Y-I0421-50XH	27/64"	10.72	0.094		3-I1500-50XH	1-1/2"	38.10	8.5	▲					
Y-I0437-50XH	7/16"	11.11	0.098		3-I1562-50XH	1-9/16"	39.69	8.8	▲					
Z-I0453-50XH	29/64"	11.51	0.102		3-I1625-50XH	1-5/8"	41.28	9.2	▲					
Z-I0484-50XH	31/64"	12.30	0.106	Z0	▲	3-I1687-50XH	1-1/16"	42.68	9.5	1/4" (6.35)	35	▲		
Z-I0500-50XH	1/2"	12.70	0.11		3-I1750-50XH	1-3/4"	44.45	9.9	▲					
O-I0562-50XH	9/16"	14.29	0.126	1/8" (3.18)	00	3-I1812-50XH	1-13/16"	46.04	10.2			▲		
O-I0625-50XH	5/8"	15.88	0.138	1/8" (3.18)	05	3-I1875-50XH	1-7/8"	47.63	10.6			▲		
O-I0687-50XH	11/16"	17.46	0.154											
1-I0750-50XH	3/4"	19.05	0.165	5/32"	10									
1-I0812-50XH	13/16"	20.64	0.181	(3.97)										
1-I0875-50XH	7/8"	22.23	0.193	5/32"	15									
1-I0937-50XH	15/16"	23.81	0.209	(3.97)										
2-I1000-50XH	1" 1-	25.40	0.224	3/16" (4.76)	20									
2-I1062-50XH	1/16" 1-	26.99	0.236											
2-I1125-50XH	1/8" 1-	28.58	0.252											
2-I1187-50XH	3/16" 1-	30.16	0.264	3/16" (4.76)	25									
2-I1250-50XH	1/4" 1-	31.75	0.28											
2-I1312-50XH	5/16" 1-	33.34	0.291											
2-I1343-50XH	11/32"	34.13	0.299											
2-I1375-50XH	1-3/8"	34.93	0.307											

▲ Stocked △Non-Stocked

▲ Stocked △ Non-Stocked

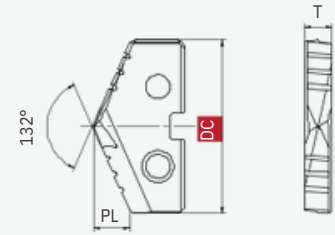
Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	Al ALLOY	CAST Al ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
	<500N	<750N	<1400N	<1100N	<900N	<750N	<1100N	Si<12%	Si>12%	<750N	<1100N	<1100N	<1400N	<1600N
50XH	●	●	●	●	●	○	○	○	○	○	●	●	●	

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- Diameter range: 3/8"~1-3/8".
- Drilling accuracy: IT10~IT11.



(Unit): inch

Product code	SIZE			COUPLING	STOCK
	DC	PL	T		
Y-I0375-50CH	3/8"	9.53	0.083	Y0	▲
Y-I0421-50CH	27/64"	10.72	0.094		▲
Y-I0437-50CH	7/16"	11.11	0.098		▲
Z-I0453-50CH	29/64"	11.51	0.102	Z0	▲
Z-I0484-50CH	31/64"	12.30	0.106		▲
Z-I0500-50CH	1/2"	12.70	0.11		▲
O-I0562-50CH	9/16"	14.29	1/8" (3.18)	00	▲
O-I0625-50CH	5/8"	15.88	1/8" (3.18)	05	▲
O-I0687-50CH	11/16"	17.46	1/8" (3.18)		▲
1-I0750-50CH	3/4"	19.05	5/32" (3.97)	10	▲
1-I0812-50CH	13/16"	20.64	5/32" (3.97)		▲
1-I0875-50CH	7/8"	22.23	5/32" (3.97)	15	▲
1-I0937-50CH	15/16"	23.81	5/32" (3.97)		▲
2-I1000-50CH	1"	25.40	0.224	20	▲
2-I1062-50CH	1-1/16"	26.99	3/16" (4.76)		▲
2-I1125-50CH	1-1/8"	28.58	3/16" (4.76)		▲
2-I1187-50CH	1-3/16"	30.16	0.264	25	▲
2-I1250-50CH	1-1/4"	31.75	0.28		▲
2-I1312-50CH	1-5/16"	33.34	0.291		▲
2-I1343-50CH	1-11/32"	34.13	0.299		▲
2-I1375-50CH	1-3/8"	34.93	0.307		▲

Product code	SIZE			COUPLING	STOCK
	DC	PL	T		
3-I1437-50CH	1-7/16"	36.51	8.1	30	▲
3-I1500-50CH	1-1/2"	38.10	8.5		▲
3-I1562-50CH	1-9/16"	39.69	8.8		▲
3-I1625-50CH	1-5/8"	41.28	9.2		▲
3-I1687-50CH	1-1/16"	42.68	9.5	35	▲
3-I1750-50CH	1-3/4"	44.45	9.9		▲
3-I1812-50CH	1-13/16"	46.04	10.2		▲
3-I1875-50CH	1-7/8"	47.63	10.6		▲

▲ Stocked △ Non-Stocked

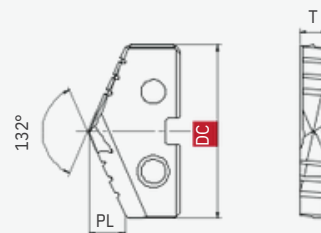
Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	Al ALLOY	CAST Al ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
50CH	<500N ○	<750N ○	<1400N ○	<1100N	<900N	<750N ●	<1100N ●	Si<12% ○	Si>12% ○	<750N	<1100N	<1100N	<1400N	<1600N

● VERY SUITABLE ○ SUITABLE

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- Diameter range: 3/8"~1-3/8" .
- Drilling accuracy: IT10~IT11.



(Unit): inch

Product code	SIZE			COUPLING	STOCK	Product code	SIZE			COUPLING	STOCK
	DC	PL	T				DC	PL	T		
Y-I0375-50SC	3/8"	9.53	0.083	Y0	▲	3-I1437-50SC	1-7/16"	36.51	8.1	30	▲
Y-I0421-50SC	27/64"	10.72	0.094		▲	3-I1500-50SC	1-1/2"	38.10	8.5		▲
Y-I0437-50SC	7/16"	11.11	0.098		▲	3-I1562-50SC	1-9/16"	39.69	8.8		▲
Z-I0453-50SC	29/64"	11.51	0.102	Z0	▲	3-I1625-50SC	1-5/8"	41.28	9.2		▲
Z-I0484-50SC	31/64"	12.30	0.106		▲	3-I1687-50SC	1-1/16"	42.68	9.5	35	▲
Z-I0500-50SC	1/2"	12.70	0.11		▲	3-I1750-50SC	1-3/4"	44.45	9.9		▲
O-I0562-50SC	9/16"	14.29	0.126	00	▲	3-I1812-50SC	1-13/16"	46.04	10.2		▲
O-I0625-50SC	5/8"	15.88	0.138		▲	3-I1875-50SC	1-7/8"	47.63	10.6		▲
O-I0687-50SC	11/16"	17.46	0.154		▲						
1-I0750-50SC	3/4"	19.05	0.165	10	▲						
1-I0812-50SC	13/16"	20.64	0.181		▲						
1-I0875-50SC	7/8"	22.23	0.193		▲						
1-I0937-50SC	15/16"	23.81	0.209	15	▲						
2-I1000-50SC	1"	25.40	0.224		▲						
2-I1062-50SC	1-1/16"	26.99	0.236		▲						
2-I1125-50SC	1-1/8"	28.58	0.252	20	▲						
2-I1187-50SC	1-3/16"	30.16	0.264		▲						
2-I1250-50SC	1-1/4"	31.75	0.28		▲						
2-I1312-50SC	1-5/16"	33.34	0.291		▲						
2-I1343-50SC	1-11/32"	34.13	0.299		▲						
2-I1375-50SC	1-3/8"	34.93	0.307	25	▲						

▲ Stocked △ Non-Stocked

Application recommendation

ISO	P	P	P	P	M	K	K	N	N	N	S	S	H	H
WORKPIECE MATERIAL	Mild steel	STRUCTURAL STEEL	ALLOY STEEL	TOOL STEEL	STAINLESS STEEL	CAST IRON	DUCTILE CAST IRON	Al ALLOY	CAST Al ALLOY	COPPER ALLOY	SUPER ALLOY	TITANIUM ALLOY	HARDENED STEEL	HARDENED STEEL
50SC	<500N	<750N	<1400N	<1100N	<900N	<750N	<1100N	Si<12%	Si>12%	<750N	<1100N	<1100N	<1400N	<1600N

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APPLICATION CASE 1

Workpiece material : ZG20Mn
Machine: Drilling machine
Coolant: Emulsion (5bar)
Drilling diameter: 42.0mm
Hole depth: 280mm (through hole)
Parameter: $V_c=33\text{m/min}$
 $f_n=0.25\text{mm/r}$



Productivity: The twist drill can machine 8 holes/hr. The spade drill can drill 12 holes/hr. Productivity is increased by 50%.

APPLICATION CASE 2

Workpiece material : PD3 (HRC32)
Machine: Vertical machining center
Coolant: Emulsion (5bar)
Drilling diameter: 31.0mm
Hole depth: 17mm (through hole)
Parameter: $V_c=40\text{m/min}$ $f_n=0.20\text{mm/r}$



Tool life: the twist drill can only finish one hole, but the spade drill can make 80 holes continuously.

APPLICATION CASE 3

Workpiece material : Carbon structural steel
Machine: Drilling machine
Coolant: Emulsion 1bar (without high pressure water pump)
Drilling diameter: 26.0mm
Hole depth: 14mm*4 (stacked)
Parameter: $V_c=40.8\text{m/min}$ $f_n=0.20\text{mm/r}$



Machining precision: the hole tolerance of twist drill: H11-H10, the hole tolerance of spade drill: H9-H10. The productivity of spade drill is 100%-150% higher than twist drill's productivity.

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CUTTING PARAMETERS --HSS



ISO	WORKPIECE MATERIAL		HEAT TREATMENT	BRINELL HARDNESS HB	TENSILE STRENGTH N/mm²		CUTTING SPEED Vc(m/min)			FEED RATE fn (mm/rev)																								
										9.5-12.5mm			13.0-17.5mm			18.0-24.00mm			25.0-35.0mm			36.0-47.0mm			48.0-65.0mm			66.0-114.0mm						
							MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	
P	NON-ALLOY STEEL LOW CARBON STEEL	≤0.25% C	ANNEALED	100-150	370-500		38	54	70	0.09	0.12	0.17	0.13	0.17	0.23	0.17	0.22	0.31	0.21	0.28	0.39	0.26	0.34	0.47	0.29	0.39	0.54	0.36	0.48	0.66				
		≥0.25% C	ANNEALED	175-225	600-775		35	50	64	0.07	0.09	0.12	0.1	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34	0.23	0.31	0.43	0.27	0.36	0.5	0.31	0.42	0.57				
		≤0.55% C	QUENCHED AND TEMPERED	225-275	775-940		32	45	59	0.07	0.09	0.12	0.1	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34	0.23	0.31	0.43	0.27	0.36	0.5	0.31	0.42	0.57				
		≥0.55% C	ANNEALED	275-325	940-1090		25	36	47	0.05	0.07	0.10	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29	0.21	0.28	0.39	0.25	0.33	0.45	0.29	0.38	0.53				
			QUENCHED AND TEMPERED	300	1000		22	32	41	0.04	0.06	0.08	0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.26	0.35	0.22	0.30	0.41	0.26	0.34	0.47				
	LOW ALLOY STEEL		ANNEALED	175-225	600-775		33	47	62	0.07	0.09	0.12	0.1	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34	0.22	0.3	0.41	0.25	0.33	0.45	0.29	0.38	0.53				
			ANNEALED	225-275	775-940		32	45	59	0.07	0.09	0.12	0.09	0.12	0.17	0.13	0.17	0.23	0.19	0.25	0.34	0.22	0.3	0.41	0.25	0.33	0.45	0.29	0.38	0.53				
			ANNEALED	275-325	940-1090		28	41	53	0.05	0.07	0.1	0.08	0.1	0.14	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.26	0.35	0.22	0.3	0.41	0.26	0.34	0.47				
			TEMPERED	325-375	1090-1265		24	34	44	0.04	0.06	0.08	0.08	0.1	0.14	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.26	0.35	0.22	0.3	0.41	0.26	0.34	0.47				
	HIGH ALLOY STEEL, TOOL STEEL, CAST STEEL		ANNEALED	225-300	600-1020		22	32	41	0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.13	0.17	0.23	0.19	0.25	0.34	0.22	0.30	0.41	0.26	0.34	0.47				
			TEMPERED	300-350	1020-1180		19	27	35	0.05	0.07	0.1	0.09	0.12	0.17	0.12	0.16	0.22	0.13	0.17	0.23	0.19	0.25	0.34	0.22	0.30	0.41	0.26	0.34	0.47				
	STAINLESS STEEL FERRITIC/MARTENSITIC		FERRTIC	185-275	640-940		16	23	29	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22	0.13	0.17	0.23	0.19	0.25	0.34	0.21	0.28	0.39	0.26	0.34	0.47				
			MARTENSITIC	275-350	940-1180		19	27	35	0.07	0.09	0.12	0.09	0.12	0.17	0.10	0.14	0.19	0.10	0.14	0.19	0.16	0.21	0.29	0.19	0.25	0.34	0.23	0.31	0.43				
M	STAINLESS STEEL AUSTENITIC		ANNEALED	135-185	480-640		18	25	32	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34	0.21	0.28	0.39	0.26	0.34	0.47				
			CAST	185-275	640-940		18	25	32	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19	0.16	0.21	0.29	0.19	0.25	0.34	0.23	0.31	0.43				
	DUPLEX STAINLESS STEEL	N<0.1%	>60% FERRTIC	135-185	480-640		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
		N≥0.1%	<60% FERRTIC	185-275	640-940		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
K	GREY CAST IRON		FERRTIC	120-150	430-500		38	54	70	0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47	0.31	0.42	0.57	0.35	0.47	0.65	0.39	0.52	0.72				
			PEARLITIC	150-200	500-700		35	50	64	0.08	0.10	0.14	0.14	0.19	0.26	0.19	0.25	0.34	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59	0.36	0.48	0.66				
	CAST IRON NODULAR		FERRTIC	200-220	700-755		32	45	59	0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29	0.21	0.28	0.39	0.23	0.31	0.43	0.27	0.36	0.50	0.31	0.42	0.57				
			PEARLITIC	220-260	755-890		32	45	59	0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.25	0.34	0.22	0.30	0.41	0.26	0.34	0.47				
	DUCTILE CAST IRON		FERRTIC	120-150	430-500		32	45	59	0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47	0.31	0.42	0.57	0.35	0.47	0.65	0.39	0.52	0.72				
			PEARLITIC	260-320	890-1020		32	45	59	0.05	0.07	0.10	0.08	0.10	0.14	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.25	0.34	0.21	0.28	0.39				

Note:

1. If it's an interrupted cut, the feed rate should be reduced by 30 to 50%.
- 2.The above recommended cutting parameters are based on 20 series. When the other series are used, the cutting parameters need to be appropriately reduced according to the machining condition.
- Parameter: 20 series=100% of the parameters, 30 and 40 series=below 80% of the parameters, ≥50series=below 70% of parameters.

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CUTTING PARAMETERS--HSS



ISO	WORKPIECE MATERIAL		HEAT TREATMENT	BRINELL HARDNESS HB	TENSILE STRENGTH N/mm ²		CUTTING SPEED Vc(m/min)			FEED RATE fn (mm/rev)																						
										9.5-12.5mm			13.0-17.5mm			18.0-24.00mm			25.0-35.0mm			36.0-47.0mm			48.0-65.0mm			66.0-114.0mm				
							MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC
N	WROUGHT ALUMINIUM		NON-AGED	30	100		47	68	88	0.05	0.07	0.10	0.08	0.10	0.14	0.13	0.17	0.23	0.16	0.21	0.29	0.29	0.38	0.53	0.32	0.43	0.59	0.32	0.43	0.59		
			AGED	180	600		41	59	76	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59	0.32	0.43	0.59		
	CAST ALUMINIUM		NON-AGED	30	100		47	68	88	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.26	0.34	0.47	0.29	0.38	0.53	0.32	0.43	0.59	0.32	0.43	0.59		
			AGED	180	600		41	59	76	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59	0.32	0.43	0.59		
		<12% Si	HIGH TEMPERATURE	—	—		41	59	76	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59	0.32	0.43	0.59		
		>12% Si																														
	ALUMINIUM BRONZE		FREE CUTTING	100-200	370-670		47	68	88	0.08	0.10	0.14	0.14	0.19	0.26	0.19	0.25	0.34	0.23	0.31	0.43	0.29	0.38	0.53	0.34	0.45	0.62	0.36	0.48	0.66		
			BRASS	200-250	670-855		47	68	88	0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29	0.19	0.25	0.34	0.22	0.30	0.41	0.26	0.34	0.47		
			ELECTROLYTIC COPPER	100	370		47	68	88	0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47	0.31	0.42	0.57	0.36	0.48	0.66	0.39	0.52	0.72		
	NON METALLIC		PLASTIC FIBER	—	—		47	68	88	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59	0.32	0.43	0.59		
HARD RUBBER			60	200		47	68	88	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43	0.29	0.38	0.53	0.32	0.43	0.59	0.32	0.43	0.59			
S	HIGH TEMP. ALLOY HASTELLOY B, INCONEL 600,		ANNEALED	140-220	480-755		14	20	27	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29	0.19	0.26	0.35	—	—	—		
			AGED	223-310	755-990		11	16	21	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29	—	—	—		
			ANNEALED	250	—		11	16	21	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29	0.19	0.26	0.35	—	—	—		
			AGED	350	—		11	16	21	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29	—	—	—		
			CAST	320	—		11	16	21	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29	—	—	—		
	TITANIUM ALLOY		—	320	RM 400		11	16	21	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29	0.19	0.26	0.35	—	—	—		
			α+β ALLOY AGED	—	RM 1050		11	16	21	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23	0.16	0.21	0.29	—	—	—		
H	WEAR PLATE		HARDED	400	1365		7	10	13	0.04	0.06	0.08	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22	0.16	0.21	0.29	0.21	0.28	0.39	0.23	0.31	0.43		
			HARDED	500	1600		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
			HARDENED STEEL		HARDED	300-400	1020-1365		9	13	16	0.04	0.06	0.08	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22	0.16	0.21	0.29	0.21	0.28	0.39	0.23	0.31	0.43
					HARDED	400-500	1365+		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Note:

- 1. If it's an interrupted cut, the feed rate should be reduced by 30 to 50%.
- 2.The above recommended cutting parameters are based on 20 series. When the other series are used, the cutting parameters need to be appropriately reduced according to the machining condition.

Parameter: 20 series=100% of the parameters, 30 and 40 series=below 80% of the parameters, ≥50series=below 70% of parameters.

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CUTTING PARAMETERS--CARBIDE

ISO	WORKPIECE MATERIAL		HEAT TREATMENT	BRINELL HARDNESS HB	TENSILE STRENGTH N/mm ²		CUTTING SPEED Vc(m/min)			FEED RATE fn (mm/rev)											
										Ø 9.5-12.5mm			Ø 13.0-17.5mm			Ø 18.0-24.00mm			Ø 25.0-35.0mm		
							MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX
P	NON-ALLOY STEEL LOW CARBON STEEL	<0.25% C	ANNEALED	100-150	370-500		75	94	117	0.09	0.12	0.17	0.13	0.17	0.23	0.17	0.22	0.31	0.21	0.28	0.39
		≥0.25% C	ANNEALED	175-225	600-775		55	69	86	0.07	0.09	0.12	0.1	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34
		<0.55% C	QUENCHED AND TEMPERED	225-275	775-940		49	61	76	0.07	0.09	0.12	0.1	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34
		≥0.55% C	ANNEALED	275-325	940-1090		41	51	64	0.05	0.07	0.10	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29
	LOW ALLOY STEEL		QUENCHED AND TEMPERED	300	1000		41	51	64	0.04	0.06	0.08	0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29
			ANNEALED	175-225	600-775		54	67	84	0.07	0.09	0.12	0.1	0.14	0.19	0.13	0.17	0.23	0.19	0.25	0.34
			ANNEALED	225-275	775-940		49	61	76	0.07	0.09	0.12	0.09	0.12	0.17	0.13	0.17	0.23	0.19	0.25	0.34
			ANNEALED	275-325	940-1090		45	56	70	0.05	0.07	0.1	0.08	0.1	0.14	0.12	0.16	0.22	0.16	0.21	0.29
	HIGH ALLOY STEEL, TOOL STEEL, CAST STEEL		TEMPERED	325-375	1090-1265		40	50	62	0.04	0.06	0.08	0.08	0.1	0.14	0.12	0.16	0.22	0.16	0.21	0.29
			ANNEALED	225-300	600-1020		40	50	62	0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.13	0.17	0.23
	STAINLESS STEEL FERRITIC/MARTENSITIC		TEMPERED	300-350	1020-1180		30	38	47	0.05	0.07	0.1	0.09	0.12	0.17	0.12	0.16	0.22	0.13	0.17	0.23
			FERRITIC	185-275	640-940		37	46	58	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22	0.13	0.17	0.23
M	STAINLESS STEEL AUSTENITIC		MARTENSITIC	275-350	940-1180		29	36	45	0.07	0.09	0.12	0.09	0.12	0.17	0.10	0.14	0.19	0.10	0.14	0.19
			ANNEALED	135-185	480-640		37	46	58	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23
	DUPLEX STAINLESS STEEL		CAST	185-275	640-940		29	36	45	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19
		N<0.1%	>60% FERRITIC	135-185	480-640		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
K	GREY CAST IRON	N≥0.1%	<60% FERRITIC	185-275	640-940		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			FERRITIC	120-150	430-500		78	98	122	0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47
	NODULAR CAST IRON		PEARLITIC	150-200	500-700		75	94	117	0.08	0.10	0.14	0.14	0.19	0.26	0.19	0.25	0.34	0.23	0.31	0.43
			FERRITIC	200-220	700-755		67	84	105	0.08	0.10	0.14	0.12	0.16	0.22	0.16	0.21	0.29	0.21	0.28	0.39
	DUCTILE CAST IRON		PEARLITIC	220-260	755-890		58	72	90	0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29
			FERRITIC	120-150	430-500		75	94	117	0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47
			PEARLITIC	260-320	890-1020		52	66	82	0.05	0.07	0.10	0.08	0.10	0.14	0.09	0.12	0.17	0.12	0.16	0.22

Note:

1. If it's an interrupted cut, the feed rate should be reduced by 30 to 50%.
- 2.The above recommended cutting parameters are based on 20 series. When the other series are used, the cutting parameters need to be appropriately reduced according to the machining condition.

Parameter: 20 series=100% of the parameters, 30 and 40 series=below 80% of the parameters, ≥50series=below 70% of parameters.

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CUTTING PARAMETERS--CARBIDE

ISO	WORKPIECE MATERIAL		HEAT TREATMENT	BRINELL HARDNESS HB	TENSILE STRENGTH N/mm²		CUTTING SPEED Vc(m/min)			FEED RATE fn (mm/rev)											
										Ø 9.5-12.5mm			Ø 13.0-17.5mm			Ø 18.0-24.00mm			Ø 25.0-35.0mm		
							MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX	MIN	REC	MAX			
N	WROUGHT ALUMINIUM		NON-AGING ALLOY	30	100		105	150	195	0.05	0.07	0.10	0.08	0.10	0.14	0.13	0.17	0.23	0.16	0.21	0.29
			AGED ALLOY	180	600		91	130	169	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43
	CAST ALUMINIUM		NON-AGING ALLOY	30	100		105	150	195	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.26	0.34	0.47
			AGED ALLOY	180	600		91	130	169	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43
			HIGH TEMPERATURE	—	—		91	130	169	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43
			ALUMINIUM BRONZE		FREE CUTTING	100-200	370-670		105	150	195	0.08	0.10	0.14	0.14	0.19	0.26	0.19	0.25	0.34	0.23
	BRASS	200-250			670-855		105	150	195	0.07	0.09	0.12	0.09	0.12	0.17	0.12	0.16	0.22	0.16	0.21	0.29
	ELECTROLYTIC COPPER	100			370		105	150	195	0.09	0.12	0.17	0.16	0.21	0.29	0.21	0.28	0.39	0.26	0.34	0.47
	NON METALLIC		PLASTIC FIBER	—	—		105	150	195	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43
			HARD RUBBER	60	200		105	150	195	0.10	0.14	0.19	0.17	0.22	0.31	0.21	0.28	0.39	0.23	0.31	0.43
S	HIGH TEMP ALLOY		ANNEALED	140-220	480-755		19	24	30	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23
			AGED	223-310	755-990		15	18	23	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19
			ANNEALED	250	—		19	24	30	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23
			AGED	350	—		15	18	23	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19
			CAST	320	—		15	18	23	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19
	TITANIUM ALLOY		—	320	RM 400		22	27	34	0.04	0.06	0.08	0.09	0.12	0.17	0.10	0.14	0.19	0.13	0.17	0.23
			α+β AGED ALLOY	—	RM 1050		17	21	26	0.04	0.06	0.08	0.08	0.10	0.14	0.09	0.12	0.17	0.10	0.14	0.19
H	WEAR PLATE		HARDENED	400	1365		23	29	36	0.04	0.06	0.08	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22
			HARDENED	500	1600		19	24	30	0.02	0.03	0.04	0.07	0.09	0.12	0.09	0.12	0.17	0.10	0.14	0.19
	HARDENED STEEL		HARDENED	300-400	1020-1365		24	30	38	0.04	0.06	0.08	0.08	0.10	0.14	0.10	0.14	0.19	0.12	0.16	0.22
			HARDENED	400-500	1365+		19	24	30	0.02	0.03	0.04	0.07	0.09	0.12	0.09	0.12	0.17	0.10	0.14	0.19

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