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FOR A BETTER US



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CODE KEY & FEATURES



ZD SHALLOW DRILL
TOOL TYPE

XP WELDON
SHANK TYPE & COUPLING STRUCTURE

W **S**
INSERT SHAPE

NO. OF INSERTS

ZD02 30.0 XP32 WC03 02

RATIO OF LENGTH & DIAMETER
02.D
03.D
04.D
05.D

TOOL DIAMETER
RANGE 13-60mm

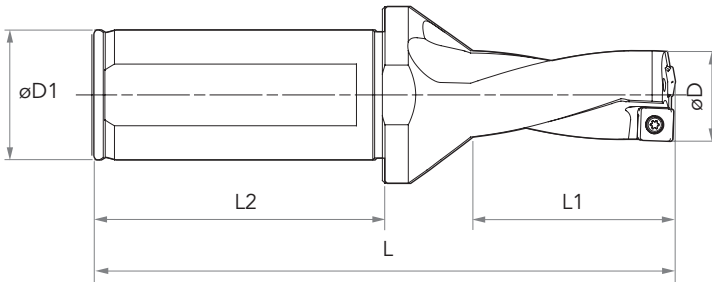
SHANK DIA
20, 25, 32, 40

CLEARANCE ANGLE

C	7
P	11

CUTTING LENGTH

CODE	LENGTH	
	W	S
03	3.8	-
04	4.3	-
05	5.4	-
06	6.5	6.35
08	8.7	8.0
09	-	9.925
12	-	12.7











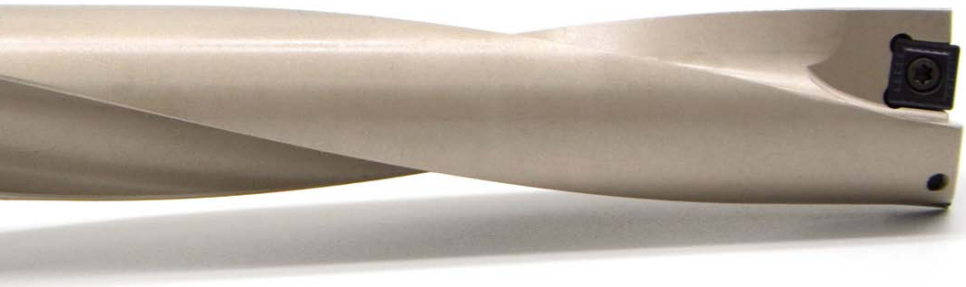
FEATURES

- Geometries and grades for all materials
- Wiper geometry for best surface finish
- Engineered special options diameter range available
- Available with internal coolant supply
- High tool body strength enables demanding plunge drilling operations
- Power efficient, productive solution with high metal removal rate



MACHINING

WORKPIECE		MACHINING
	Irregular face	Possible chipping and fracture of the insert. Reduce normal feed 25%.
	Convex side	Possible initial contact with central insert. Reduce feed 50% until both inserts are engaged.
	Concave side	Reduce feed 50% until both inserts are engaged
	Boring	Reduce feed 50% from normal conditions
	Ramping	Reduce feed 50% from normal conditions
	Machining cross holes	Reduce feed 50% in the overlapped section
	Machining overlapped holes	Reduce feed 50% from normal conditions
	Machining overlapped panels	Possible chipping and fracture of insert. Reduce normal feed 25%.



DRILLING FORMULAS

Knowing how to calculate drilling speeds and feeds is critical for efficient drilling.

Cutting speed, (V_c)m/min

$$V_c = \frac{D_c \times \pi \times n}{1000}$$

Spindle speed, (n) r/min

$$f_z = \frac{hex}{\sin \beta}$$

Penetration rate, (V_f)m/min

$$V_f = f_n \times n$$

Feed per revolution, (f_n) mm/rev

$$f_n = \frac{V_f}{n}$$

Metal removal rate, (Q) cm³/min

$$Q = \frac{D_c \times f_n \times V_c}{4}$$

Net power, (P_c) kW

$$P_c = \frac{f_n \times V_c \times D_c \times A_c}{240 \times 10^3}$$

Torque, lbf Nm

$$M_c = \frac{P_c \times 30 \times 10^3}{\pi \times n}$$

Specific cutting force, (K_c) N/mm²

$$K_c = k_{c1} \times (f_z \times \sin \kappa_r)^{\text{max}} \times (-\gamma)^{\text{max}}$$

Feed force, (F_f) N

$$F_f \approx 0.5 \times K_c \times \frac{D_c}{2} \times f_n \times \sin \kappa_r$$

Machining time, (T_c) min

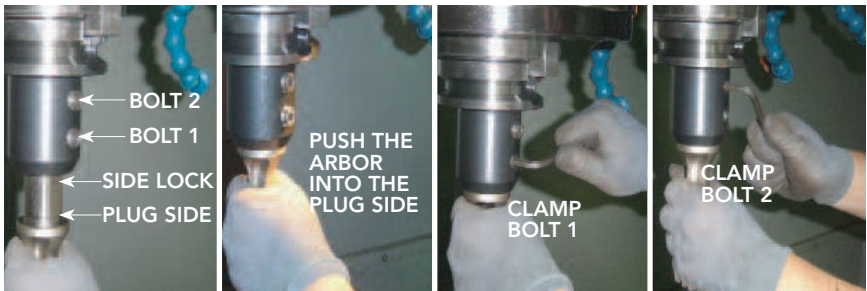
$$T_c = \frac{l_m}{V_f}$$



NP5330 GRADE

NICHE Universal grades, extremely efficient in covering materials including Steel, Stainless steels and Cast iron.

- PVD coating with optimal thermal resistance & added strength
- Tough carbide substrate designed for demanding application

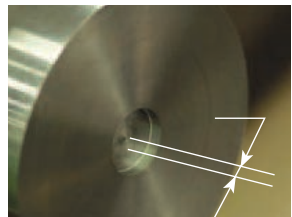
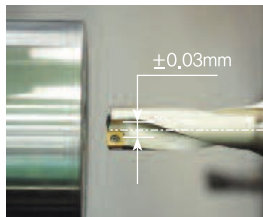
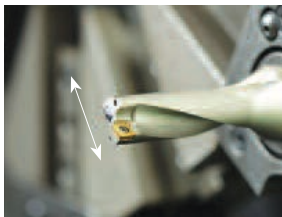


CLAMPING SIDE LOCK ARBORS

Insert the part of side lock of drill to the same direction of clamping the bolt to the arbor.

Push the plunge side of drill into the arbor.

Clamp bolt 1 first.
Clamp bolt 2 last.



SETTING A LATHE

Set the peripheral insert parallel to the X-Axis.
(Based on the side lock)

If the machined core is 0.5mm after machining 5mm, that is the proper setting.

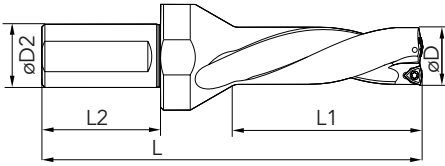
Side locks differ on all machine tool brands.



FAILURE	MACHINING	SOLUTION
Different diameters of one machined hole	Different diameters of one machined hole <ul style="list-style-type: none"> The end of hole diameter is bigger. 	<ul style="list-style-type: none"> Use more coolant and check the coolant evacuation Change the drill to one with small aspect ratio Change the cutting condition for better chip control
Enlarging or reducing hole diameter	Enlarging or reducing hole diameter	MILLING <ul style="list-style-type: none"> Use more coolant Check the coolant evacuation TURNING <ul style="list-style-type: none"> Check the center of drill and workpiece Rotate the drill to 180°
Chattering	Vibration while machining	<ul style="list-style-type: none"> Set the overhang of drill short Reduce the cutting speed and feed Stable clamping Check the torque of machine
Poor chip evacuation	Long chip	<ul style="list-style-type: none"> Mild steel/STS (Speed up, feed down) Alloy steel/carbon steel (Speed up, feed up)
	Short chip	<ul style="list-style-type: none"> Speed down, feed down, pressure of coolant up
Poor surface finish	Scratch on the machined side	<ul style="list-style-type: none"> Set the cutting condition for better chip control. Feed down or speed up Increase the coolant flow and check the coolant evacuation. Set the overhang of drill short and more stable clamping
Short tool life (insert)	Too much wear or chipping on insert	<ul style="list-style-type: none"> Check the cutting condition Use more coolant and check the coolant evacuation. Set the overhang of drill short and more stable clamping. Change the insert grade.

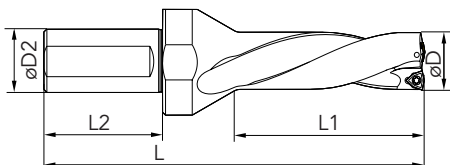


U-DRILLS-2D-WC



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD02-14.0-XP25-WC03-02	14	28	106	56	25	WC**030208	M2.5*6.5	T8
ZD02-14.5-XP25-WC03-02	14,5	29	107					
ZD02-15.0-XP25-WC03-02	15	30	108					
ZD02-15.5-XP25-WC03-02	15,5	31	109					
ZD02-16.0-XP25-WC03-02	16	32	110					
ZD02-16.5-XP25-WC03-02	16,5	33	111					
ZD02-17.0-XP25-WC03-02	17	34	112					
ZD02-17.5-XP25-WC03-02	17,5	35	113					
ZD02-18.0-XP25-WC03-02	18	36	114					
ZD02-18.5-XP25-WC03-02	18,5	37	115					
ZD02-19.0-XP25-WC03-02	19	38	116					
ZD02-19.5-XP25-WC03-02	19,5	39	117					
ZD02-20.0-XP25-WC03-02	20	40	119					
ZD02-20.5-XP25-WC03-02	20,5	41	120					
ZD02-21.0-XP25-WC04-02	21	42	121					
ZD02-21.5-XP25-WC04-02	21,5	43	122					
ZD02-22.0-XP25-WC04-02	22	44	123					
ZD02-22.5-XP25-WC04-02	22,5	45	124					
ZD02-23.0-XP25-WC04-02	23	46	125					
ZD02-23.5-XP25-WC04-02	23,5	47	126					
ZD02-24.0-XP25-WC04-02	24	48	127					
ZD02-24.5-XP25-WC04-02	24,5	49	128					
ZD02-25.0-XP32-WC05-02	25	50	141	60	32	WC**050308	M3*7	
ZD02-25.5-XP32-WC05-02	25,5	51	142					
ZD02-26.0-XP32-WC05-02	26	52	143					
ZD02-26.5-XP32-WC05-02	26,5	53	144					
ZD02-27.0-XP32-WC05-02	27	54	145					
ZD02-27.5-XP32-WC05-02	27,5	55	146					

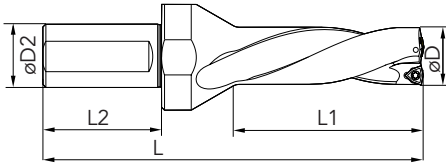
U-DRILLS-2D-WC



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH		
ZD02-28.0-XP32-WC05-02	28	56	147	60	32	WC**050308	M3*7	T8		
ZD02-28.5-XP32-WC05-02	28,5	57	148							
ZD02-29.0-XP32-WC05-02	29	58	149							
ZD02-29.5-XP32-WC05-02	29,5	59	150							
ZD02-30.0-XP32-WC05-02	30	60	151							
ZD02-30.5-XP32-WC05-02	30,5	61	152							
ZD02-31.0-XP32-WC05-02	31	62	153							
ZD02-31.5-XP32-WC05-02	31,5	63	154							
ZD02-32.0-XP32-WC06-02	32	64	155			60	32	WC**06T308	M3.5*8	T15
ZD02-32.5-XP32-WC06-02	32,5	65	156							
ZD02-33.0-XP32-WC06-02	33	66	157							
ZD02-33.5-XP32-WC06-02	33,5	67	158							
ZD02-34.0-XP32-WC06-02	34	68	159							
ZD02-34.5-XP32-WC06-02	34,5	69	160							
ZD02-35.0-XP32-WC06-02	35	70	161							
ZD02-35.5-XP32-WC06-02	35,5	71	162							
ZD02-36.0-XP32-WC06-02	36	72	163							
ZD02-36.5-XP32-WC06-02	36,5	73	164							
ZD02-37.0-XP32-WC06-02	37	74	165							
ZD02-37.5-XP32-WC06-02	37,5	75	166							
ZD02-38.0-XP32-WC06-02	38	76	167							
ZD02-38.5-XP32-WC06-02	38,5	77	168							
ZD02-39.0-XP32-WC06-02	39	78	169							
ZD02-39.5-XP32-WC06-02	39,5	79	170							
ZD02-40.0-XP32-WC06-02	40	80	171							
ZD02-41.0-XP32-WC06-02	41	82	173							
ZD02-42.0-XP32-WC06-02	42	84	175							
ZD02-43.0-XP40-WC08-02	43	86	186	65	40	WC**080412	M4*10			

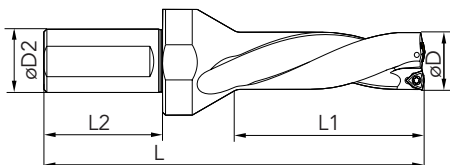


U-DRILLS-2D-WC



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD02-44.0-XP40-WC08-02	44	88	188	65	40	WC**080412	M4*10	T15
ZD02-45.0-XP40-WC08-02	45	90	190					
ZD02-46.0-XP40-WC08-02	46	92	192					
ZD02-47.0-XP40-WC08-02	47	94	194					
ZD02-48.0-XP40-WC08-02	48	96	196					
ZD02-49.0-XP40-WC08-02	49	98	198					
ZD02-50.0-XP40-WC08-02	50	100	200					
ZD02-51.0-XP40-WC08-02	51	102	202					
ZD02-52.0-XP40-WC08-02	52	104	204					
ZD02-53.0-XP40-WC08-02	53	106	206					
ZD02-54.0-XP40-WC08-02	54	108	208					
ZD02-55.0-XP40-WC08-02	55	110	210					
ZD02-56.0-XP40-WC08-02	56	112	212					
ZD02-57.0-XP40-WC08-02	57	114	214					
ZD02-58.0-XP40-WC06-04	58	116	216			WC**06T308	M3.5*8	
ZD02-59.0-XP40-WC06-04	59	118	218					
ZD02-60.0-XP40-WC06-04	60	120	220					

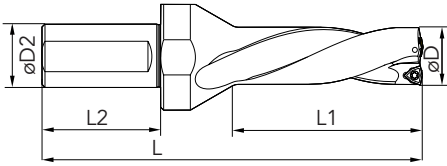
U-DRILLS-3D-WC



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH		
ZD03-14.0-XP25-WC03-02	14	42	120	56	25	WC**030208	M2.5*6.5	T8		
ZD03-14.5-XP25-WC03-02	14,5	43,5	122							
ZD03-15.0-XP25-WC03-02	15	45	123							
ZD03-15.5-XP25-WC03-02	15,5	46,5	124							
ZD03-16.0-XP25-WC03-02	16	48	126							
ZD03-16.5-XP25-WC03-02	16,5	49,5	127							
ZD03-17.0-XP25-WC03-02	17	51	129							
ZD03-17.5-XP25-WC03-02	17,5	52,5	130							
ZD03-18.0-XP25-WC03-02	18	54	132							
ZD03-18.5-XP25-WC03-02	18,5	55,5	133							
ZD03-19.0-XP25-WC03-02	19	57	135							
ZD03-19.5-XP25-WC03-02	19,5	58,5	135							
ZD03-20.0-XP25-WC03-02	20	60	139							
ZD03-20.5-XP25-WC03-02	20,5	61,5	140							
ZD03-21.0-XP25-WC04-02	21	63	142			60			32	WC**040208
ZD03-21.5-XP25-WC04-02	21,5	64,5	143							
ZD03-22.0-XP25-WC04-02	22	66	145							
ZD03-22.5-XP25-WC04-02	22,5	67,5	148							
ZD03-23.0-XP25-WC04-02	23	69	148							
ZD03-23.5-XP25-WC04-02	23,5	70,5	149							
ZD03-24.0-XP25-WC04-02	24	72	151							
ZD03-24.5-XP25-WC04-02	24,5	73,5	152							
ZD03-25.0-XP32-WC05-02	25	75	166							
ZD03-25.5-XP32-WC05-02	25,5	76,5	167							
ZD03-26.0-XP32-WC05-02	26	78	169							
ZD03-26.5-XP32-WC05-02	26,5	79,5	170							
ZD03-27.0-XP32-WC05-02	27	81	172							
ZD03-27.5-XP32-WC05-02	27,5	82,5	173							
ZD03-28.0-XP32-WC05-02	28	84	175							

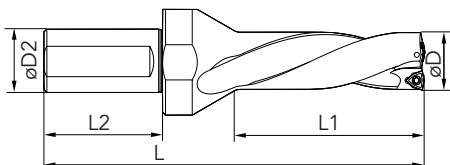


U-DRILLS-3D-WC



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD03-28.5-XP32-WC05-02	28,5	85,5	176	60	32	WC**050308	M3*7	T8
ZD03-29.0-XP32-WC05-02	29	87	178					
ZD03-29.5-XP32-WC05-02	29,5	88,5	179					
ZD03-30.0-XP32-WC05-02	30	90	181					
ZD03-30.5-XP32-WC05-02	30,5	91,5	182					
ZD03-31.0-XP32-WC05-02	31	93	184					
ZD03-31.5-XP32-WC05-02	31,5	94,5	185					
ZD03-32.0-XP32-WC06-02	32	96	187					
ZD03-32.5-XP32-WC06-02	32,5	97,5	188					
ZD03-33.0-XP32-WC06-02	33	99	190					
ZD03-33.5-XP32-WC06-02	33,5	100,5	191					
ZD03-34.0-XP32-WC06-02	34	102	193					
ZD03-34.5-XP32-WC06-02	34,5	103,5	194					
ZD03-35.0-XP32-WC06-02	35	105	196					
ZD03-35.5-XP32-WC06-02	35,5	106,5	197					
ZD03-36.0-XP32-WC06-02	36	108	199					
ZD03-36.5-XP32-WC06-02	36,5	109,5	200					
ZD03-37.0-XP32-WC06-02	37	111	202					
ZD03-37.5-XP32-WC06-02	37,5	112,5	203					
ZD03-38.0-XP32-WC06-02	38	114	205					
ZD03-38.5-XP32-WC06-02	38,5	115,5	206					
ZD03-39.0-XP32-WC06-02	39	117	206					
						WC**06T308	M3.5*8	T15

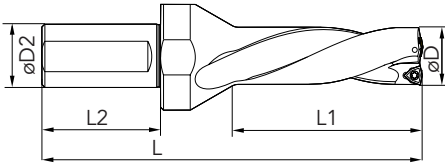
U-DRILLS-3D-WC



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD03-39.5-XP32-WC06-02	39,5	118,5	209	60	32	WC**06T308	M3.5*8	T15
ZD03-40.0-XP32-WC06-02	40	120	211					
ZD03-41.0-XP32-WC06-02	41	123	214					
ZD03-42.0-XP32-WC06-02	42	126	217					
ZD03-43.0-XP40-WC08-02	43	129	229	65	40	WC**080412	M4*10	
ZD03-44.0-XP40-WC08-02	44	132	232					
ZD03-45.0-XP40-WC08-02	45	135	235					
ZD03-46.0-XP40-WC08-02	46	138	238					
ZD03-47.0-XP40-WC08-02	47	141	241					
ZD03-48.0-XP40-WC08-02	48	144	244					
ZD03-49.0-XP40-WC08-02	49	147	247					
ZD03-50.0-XP40-WC08-02	50	150	250					
ZD03-51.0-XP40-WC08-02	51	153	253					
ZD03-52.0-XP40-WC08-02	52	156	256					
ZD03-53.0-XP40-WC08-02	53	159	259					
ZD03-54.0-XP40-WC08-02	54	162	262					
ZD03-55.0-XP40-WC08-02	55	165	265					
ZD03-56.0-XP40-WC08-02	56	168	268					
ZD03-57.0-XP40-WC08-02	57	171	271					
ZD03-58.0-XP40-WC06-04	58	174	274			WC**06T308	M3.5*8	
ZD03-59.0-XP40-WC06-04	59	177	277					
ZD03-60.0-XP40-WC06-04	60	180	280					

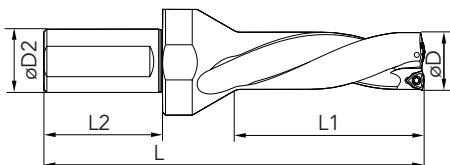


U-DRILLS-4D-WC



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD04-14.0-XP25-WC03-02	14	56	134	56	25	WC**030208	M2.5*6.5	T8
ZD04-14.5-XP25-WC03-02	14,5	58	136					
ZD04-15.0-XP25-WC03-02	15	60	138					
ZD04-15.5-XP25-WC03-02	15,5	62	140					
ZD04-16.0-XP25-WC03-02	16	64	142					
ZD04-16.5-XP25-WC03-02	16,5	66	144					
ZD04-17.0-XP25-WC03-02	17	68	146					
ZD04-17.5-XP25-WC03-02	17,5	70	148					
ZD04-18.0-XP25-WC03-02	18	72	150					
ZD04-18.5-XP25-WC03-02	18,5	74	152					
ZD04-19.0-XP25-WC03-02	19	76	154					
ZD04-19.5-XP25-WC03-02	19,5	78	155					
ZD04-20.0-XP25-WC03-02	20	80	159					
ZD04-20.5-XP25-WC03-02	20,5	82	161					
ZD04-21.0-XP25-WC04-02	21	84	163			WC**040208		
ZD04-21.5-XP25-WC04-02	21,5	86	165					
ZD04-22.0-XP25-WC04-02	22	88	167					
ZD04-22.5-XP25-WC04-02	22,5	90	169					
ZD04-23.0-XP25-WC04-02	23	92	171					
ZD04-23.5-XP25-WC04-02	23,5	94	173					
ZD04-24.0-XP25-WC04-02	24	96	175					
ZD04-24.5-XP25-WC04-02	24,5	98	177					
ZD04-25.0-XP32-WC05-02	25	100	191	60	32		WC**050308	M3*7
ZD04-25.5-XP32-WC05-02	25,5	102	193					
ZD04-26.0-XP32-WC05-02	26	104	195					
ZD04-26.5-XP32-WC05-02	26,5	106	197					
ZD04-27.0-XP32-WC05-02	27	108	199					
ZD04-27.5-XP32-WC05-02	27,5	110	201					

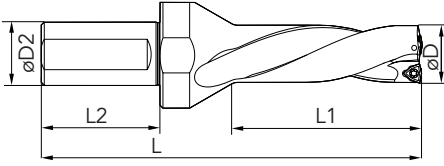
U-DRILLS-4D-WC



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD04-28.0-XP32-WC05-02	28	112	203	60	32	WC**050308	M3*7	T8
ZD04-28.5-XP32-WC05-02	28,5	114	205					
ZD04-29.0-XP32-WC05-02	29	116	207					
ZD04-29.5-XP32-WC05-02	29,5	118	209					
ZD04-30.0-XP32-WC05-02	30	120	211					
ZD04-30.5-XP32-WC05-02	30,5	122	213					
ZD04-31.0-XP32-WC05-02	31	124	215					
ZD04-31.5-XP32-WC05-02	31,5	126	217					
ZD04-32.0-XP32-WC06-02	32	128	219					
ZD04-32.5-XP32-WC06-02	32,5	130	221					
ZD04-33.0-XP32-WC06-02	33	132	223					
ZD04-33.5-XP32-WC06-02	33,5	134	225					
ZD04-34.0-XP32-WC06-02	34	136	227					
ZD04-34.5-XP32-WC06-02	34,5	138	229					
ZD04-35.0-XP32-WC06-02	35	140	231					
ZD04-35.5-XP32-WC06-02	35,5	142	233					
ZD04-36.0-XP32-WC06-02	36	144	235					
ZD04-36.5-XP32-WC06-02	36,5	146	237					
ZD04-37.0-XP32-WC06-02	37	148	239					
ZD04-37.5-XP32-WC06-02	37,5	150	241					
ZD04-38.0-XP32-WC06-02	38	152	243					
ZD04-38.5-XP32-WC06-02	38,5	154	245					
ZD04-39.0-XP32-WC06-02	39	156	247					
ZD04-39.5-XP32-WC06-02	39,5	158	249					
ZD04-40.0-XP32-WC06-02	40	160	251					
ZD04-41.0-XP32-WC06-02	41	164	255					
ZD04-42.0-XP32-WC06-02	42	168	259					

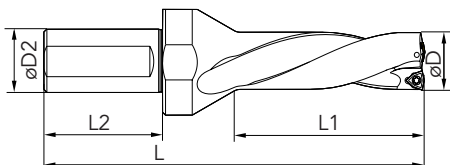


U-DRILLS-4D-WC



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD04-43.0-XP40-WC08-02	43	172	272	65	40	WC**080412	M4*10	T15
ZD04-44.0-XP40-WC08-02	44	176	276					
ZD04-45.0-XP40-WC08-02	45	180	280					
ZD04-46.0-XP40-WC08-02	46	184	284					
ZD04-47.0-XP40-WC08-02	47	188	288					
ZD04-48.0-XP40-WC08-02	48	192	292					
ZD04-49.0-XP40-WC08-02	49	196	296					
ZD04-50.0-XP40-WC08-02	50	200	300					
ZD04-51.0-XP40-WC08-02	51	204	304					
ZD04-52.0-XP40-WC08-02	52	208	308					
ZD04-53.0-XP40-WC08-02	53	212	312					
ZD04-54.0-XP40-WC08-02	54	216	316					
ZD04-55.0-XP40-WC08-02	55	220	320					
ZD04-56.0-XP40-WC08-02	56	224	324					
ZD04-57.0-XP40-WC08-02	57	228	328					
ZD04-58.0-XP40-WC06-04	58	232	332			WC**06T308	M3.5*8	
ZD04-59.0-XP40-WC06-04	59	236	336					
ZD04-60.0-XP40-WC06-04	60	240	340					

U-DRILLS-5D-WC



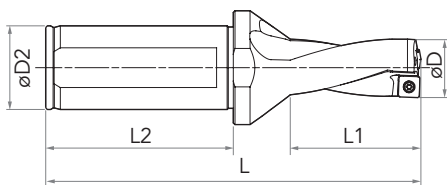
PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD05-20.0-XP25-WC03-02	20	100	179	56	25	WC**030208	M2.5*6.5	T8
ZD05-20.5-XP25-WC03-02	20,5	102,5	181					
ZD05-21.0-XP25-WC04-02	21	105	184					
ZD05-21.5-XP25-WC04-02	21,5	107,5	186					
ZD05-22.0-XP25-WC04-02	22	110	189					
ZD05-22.5-XP25-WC04-02	22,5	112,5	193					
ZD05-23.0-XP25-WC04-02	23	115	194					
ZD05-23.5-XP25-WC04-02	23,5	117,5	196					
ZD05-24.0-XP25-WC04-02	24	120	199					
ZD05-24.5-XP25-WC04-02	24,5	122,5	201					
ZD05-25.0-XP32-WC05-02	25	125	216	60	32	WC**040208	M3*7	
ZD05-25.5-XP32-WC05-02	25,5	127,5	218					
ZD05-26.0-XP32-WC05-02	26	130	221					
ZD05-26.5-XP32-WC05-02	26,5	132,5	223					
ZD05-27.0-XP32-WC05-02	27	135	226					
ZD05-27.5-XP32-WC05-02	27,5	137,5	228					
ZD05-28.0-XP32-WC05-02	28	140	231					
ZD05-28.5-XP32-WC05-02	28,5	142,5	233					
ZD05-29.0-XP32-WC05-02	29	145	236					
ZD05-29.5-XP32-WC05-02	29,5	147,5	238					
ZD05-30.0-XP32-WC05-02	30	150	241					
ZD05-30.5-XP32-WC05-02	30,5	152,5	243					
ZD05-31.0-XP32-WC05-02	31	155	246					
ZD05-31.5-XP32-WC05-02	31,5	157,5	248					
ZD05-32.0-XP32-WC06-02	32	160	251	WC**050308	M3*7			
ZD05-32.5-XP32-WC06-02	32,5	162,5	253					
ZD05-33.0-XP32-WC06-02	33	165	256					
ZD05-33.5-XP32-WC06-02	33,5	167,5	258					
						WC**06T308	M3.5*8	



U-DRILLS-5D-WC

PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD05-34.0-XP32-WC06-02	34	170	261	60	32	WC**06T308	M3.5*8	T8
ZD05-34.5-XP32-WC06-02	34,5	172,5	263					
ZD05-35.0-XP32-WC06-02	35	175	266					
ZD05-35.5-XP32-WC06-02	35,5	177,5	268					
ZD05-36.0-XP32-WC06-02	36	180	271					
ZD05-36.5-XP32-WC06-02	36,5	182,5	273					
ZD05-37.0-XP32-WC06-02	37	185	276					
ZD05-37.5-XP32-WC06-02	37,5	187,5	278					
ZD05-38.0-XP32-WC06-02	38	190	281					
ZD05-38.5-XP32-WC06-02	38,5	192,5	283					
ZD05-39.0-XP32-WC06-02	39	195	284					
ZD05-39.5-XP32-WC06-02	39,5	197,5	288					
ZD05-40.0-XP32-WC06-02	40	200	291					
ZD05-41.0-XP32-WC06-02	41	205	296					
ZD05-42.0-XP32-WC06-02	42	210	301	65	40	WC**080412	M4*10	T15
ZD05-43.0-XP40-WC08-02	43	215	315					
ZD05-44.0-XP40-WC08-02	44	220	320					
ZD05-45.0-XP40-WC08-02	45	225	325					
ZD05-46.0-XP40-WC08-02	46	230	330					
ZD05-47.0-XP40-WC08-02	47	235	335					
ZD05-48.0-XP40-WC08-02	48	240	340					
ZD05-49.0-XP40-WC08-02	49	245	345					
ZD05-50.0-XP40-WC08-02	50	250	350					
ZD05-51.0-XP40-WC08-02	51	255	355					
ZD05-52.0-XP40-WC08-02	52	260	360					
ZD05-53.0-XP40-WC08-02	53	265	365					
ZD05-54.0-XP40-WC08-02	54	270	370					
ZD05-55.0-XP40-WC08-02	55	275	375					
ZD05-56.0-XP40-WC08-02	56	280	380					
ZD05-57.0-XP40-WC08-02	57	285	385					
ZD05-58.0-XP40-WC06-04	58	290	390					
ZD05-59.0-XP40-WC06-04	59	295	395					
ZD05-60.0-XP40-WC06-04	60	300	400					
						WC**06T308	M3.5*8	

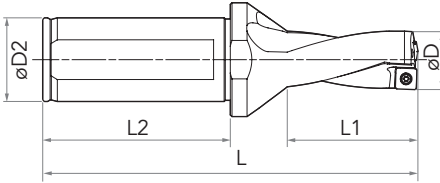
U-DRILLS-2D-SP



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD02-13.0-XP25-SP05-02	13	26	104	56	25	SP**050204	M2*5	T6
ZD02-13.5-XP25-SP05-02	13,5	27	105					
ZD02-14.0-XP25-SP05-02	14	28	106					
ZD02-14.5-XP25-SP05-02	14,5	29	107					
ZD02-15.0-XP25-SP05-02	15	30	108					
ZD02-15.5-XP25-SP06-02	15,5	31	109					
ZD02-16.0-XP25-SP06-02	16	32	110					
ZD02-16.5-XP25-SP06-02	16,5	33	111					
ZD02-17.0-XP25-SP06-02	17	34	112					
ZD02-17.5-XP25-SP06-02	17,5	35	113					
ZD02-18.0-XP25-SP06-02	18	36	114					
ZD02-18.5-XP25-SP06-02	18,5	37	115					
ZD02-19.0-XP25-SP06-02	19	38	116					
ZD02-19.5-XP25-SP06-02	19,5	38	117					
ZD02-20.0-XP25-SP06-02	20	40	119					
ZD02-20.5-XP25-SP06-02	20,5	41	120					
ZD02-21.0-XP25-SP06-02	21	42	121					
ZD02-21.5-XP25-SP06-02	21,5	43	122					
ZD02-22.0-XP25-SP07-02	22	44	123					
ZD02-22.5-XP25-SP07-02	22,5	45	124					
ZD02-23.0-XP25-SP07-02	23	46	125					
ZD02-23.5-XP25-SP07-02	23,5	47	126					
ZD02-24.0-XP25-SP07-02	24	48	127					
ZD02-24.5-XP25-SP07-02	24,5	49	128					
ZD02-25.0-XP32-SP07-02	25	50	141	60	32	SP**07T308	M2.5*6	T8
ZD02-25.5-XP32-SP07-02	25,5	51	142					
ZD02-26.0-XP32-SP07-02	26	52	143					
ZD02-26.5-XP32-SP07-02	26,5	53	144					

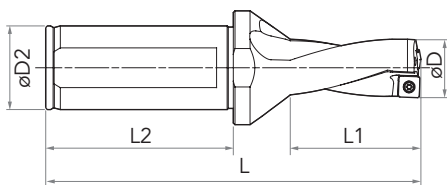


U-DRILLS-2D-SP



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH		
ZD02-27.0-XP32-SP07-02	27	54	145	60	32	SP**07T308	M2.5*6	T8		
ZD02-27.5-XP32-SP09-02	27,5	55	146							
ZD02-28.0-XP32-SP09-02	28	56	147							
ZD02-28.5-XP32-SP09-02	28,5	57	148							
ZD02-29.0-XP32-SP09-02	29	58	149							
ZD02-29.5-XP32-SP09-02	29,5	59	150							
ZD02-30.0-XP32-SP09-02	30	60	151			SP**090408	M3.5*8			
ZD02-30.5-XP32-SP09-02	30,5	61	152							
ZD02-31.0-XP32-SP09-02	31	62	153							
ZD02-31.5-XP32-SP09-02	31,5	63	154							
ZD02-32.0-XP32-SP09-02	32	64	155							
ZD02-32.5-XP32-SP09-02	32,5	65	156							
ZD02-33.0-XP32-SP09-02	33	66	157			60	65		SP**110408	M4*10
ZD02-33.5-XP32-SP11-02	33,5	67	158							
ZD02-34.0-XP32-SP11-02	34	68	159							
ZD02-34.5-XP32-SP11-02	34,5	69	160							
ZD02-35.0-XP32-SP11-02	35	70	161							
ZD02-35.5-XP32-SP11-02	35,5	71	162							
ZD02-36.0-XP32-SP11-02	36	72	163	60	65	SP**110408	M4*10			
ZD02-36.5-XP32-SP11-02	36,5	73	164							
ZD02-37.0-XP32-SP11-02	37	74	165							
ZD02-37.5-XP32-SP11-02	37,5	75	166							
ZD02-38.0-XP32-SP11-02	38	76	167							
ZD02-38.5-XP32-SP11-02	38,5	77	168							

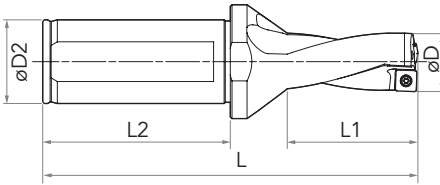
U-DRILLS-2D-SP



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD02-39.0-XP32-SP11-02	39	78	169	60	65	SP**110408	M4*10	T15
ZD02-39.5-XP32-SP11-02	39,5	79	170					
ZD02-40.0-XP32-SP11-02	40	80	171					
ZD02-41.0-XP32-SP14-02	41	82	173					
ZD02-42.0-XP32-SP14-02	42	84	175					
ZD02-43.0-XP40-SP14-02	43	86	186	65	40	SP**140512	M5*10	T20
ZD02-44.0-XP40-SP14-02	44	88	188					
ZD02-45.0-XP40-SP14-02	45	90	190					
ZD02-46.0-XP40-SP14-02	46	92	192					
ZD02-47.0-XP40-SP14-02	47	94	194					
ZD02-48.0-XP40-SP14-02	48	96	196					
ZD02-49.0-XP40-SP14-02	49	98	198					
ZD02-50.0-XP40-SP14-02	50	100	200					
ZD02-51.0-XP40-SP14-02	51	102	202					
ZD02-52.0-XP40-SP09-04	52	104	204					
ZD02-53.0-XP40-SP09-04	53	106	206					
ZD02-54.0-XP40-SP09-04	54	108	208					
ZD02-55.0-XP40-SP09-04	55	110	210					
ZD02-56.0-XP40-SP09-04	56	112	212					
ZD02-57.0-XP40-SP09-04	57	114	214					
ZD02-58.0-XP40-SP09-04	58	116	216					
ZD02-59.0-XP40-SP09-04	59	118	218					
ZD02-60.0-XP40-SP09-04	60	120	220					
						SP**090408	M3.5*8	T15

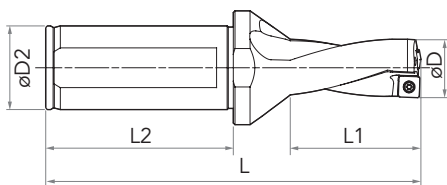


U-DRILLS-3D-SP



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH					
ZD03-13.0-XP25-SP05-02	13	39	117	56	25	SP**050204	M2*5	T6					
ZD03-13.5-XP25-SP05-02	13,5	40,5	118										
ZD03-14.0-XP25-SP05-02	14	42	120										
ZD03-14.5-XP25-SP05-02	14,5	43,5	122										
ZD03-15.0-XP25-SP05-02	15	45	123										
ZD03-15.5-XP25-SP06-02	15,5	46,5	124			56	25		SP**060204	M2.2*5			
ZD03-16.0-XP25-SP06-02	16	48	126										
ZD03-16.5-XP25-SP06-02	16,5	49,5	127										
ZD03-17.0-XP25-SP06-02	17	51	129										
ZD03-17.5-XP25-SP06-02	17,5	52,5	130										
ZD03-18.0-XP25-SP06-02	18	54	132										
ZD03-18.5-XP25-SP06-02	18,5	55,5	133										
ZD03-19.0-XP25-SP06-02	19	57	135										
ZD03-19.5-XP25-SP06-02	19,5	58,5	135										
ZD03-20.0-XP25-SP06-02	20	60	139										
ZD03-20.5-XP25-SP06-02	20,5	61,5	140										
ZD03-21.0-XP25-SP06-02	21	63	142										
ZD03-21.5-XP25-SP06-02	21,5	64,5	143										
ZD03-22.0-XP25-SP07-02	22	66	145						56	32	SP**07T308	M2.5*6	T8
ZD03-22.5-XP25-SP07-02	22,5	67,5	148										
ZD03-23.0-XP25-SP07-02	23	69	148										
ZD03-23.5-XP25-SP07-02	23,5	70,5	149										
ZD03-24.0-XP25-SP07-02	24	72	151										
ZD03-24.5-XP25-SP07-02	24,5	73,5	152										
ZD03-25.0-XP32-SP07-02	25	75	166										
ZD03-25.5-XP32-SP07-02	25,5	76,5	167										
ZD03-26.0-XP32-SP07-02	26	78	169										
ZD03-26.5-XP32-SP07-02	26,5	79,5	170										

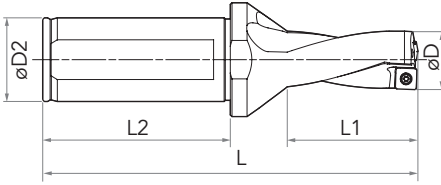
U-DRILLS-3D-SP



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH			
ZD03-27.0-XP32-SP07-02	27	81	172	60	32	SP**07T308	M2.5*6	T8			
ZD03-27.5-XP32-SP09-02	27,5	82,5	173			SP**090408	M3.5*8	T15			
ZD03-28.0-XP32-SP09-02	28	84	175								
ZD03-28.5-XP32-SP09-02	28,5	85,5	176								
ZD03-29.0-XP32-SP09-02	29	87	178								
ZD03-29.5-XP32-SP09-02	29,5	88,5	179								
ZD03-30.0-XP32-SP09-02	30	90	181								
ZD03-30.5-XP32-SP09-02	30,5	91,5	182								
ZD03-31.0-XP32-SP09-02	31	93	184								
ZD03-31.5-XP32-SP09-02	31,5	94,5	185								
ZD03-32.0-XP32-SP09-02	32	96	187								
ZD03-32.5-XP32-SP09-02	32,5	97,5	188								
ZD03-33.0-XP32-SP09-02	33	99	190								
ZD03-33.5-XP32-SP11-02	33,5	100,5	191						SP**110408	M4*10	T15
ZD03-34.0-XP32-SP11-02	34	102	193								
ZD03-34.5-XP32-SP11-02	34,5	103,5	194								
ZD03-35.0-XP32-SP11-02	35	105	196								
ZD03-35.5-XP32-SP11-02	35,5	106,5	197								
ZD03-36.0-XP32-SP11-02	36	108	199								
ZD03-36.5-XP32-SP11-02	36,5	109,5	200								
ZD03-37.0-XP32-SP11-02	37	111	202								
ZD03-37.5-XP32-SP11-02	37,5	112,5	203								
ZD03-38.0-XP32-SP11-02	38	114	205								
ZD03-38.5-XP32-SP11-02	38,5	115,5	206								
ZD03-39.0-XP32-SP11-02	39	117	206								
ZD03-39.5-XP32-SP11-02	39,5	118,5	209								
ZD03-40.0-XP32-SP11-02	40	120	211								
ZD03-41.0-XP32-SP14-02	41	123	214			SP**140512	M5*10	T20			

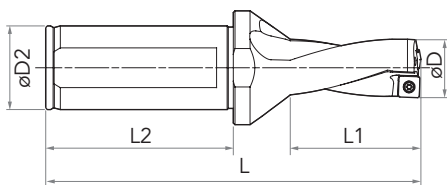


U-DRILLS-3D-SP



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD03-42.0-XP32-SP14-02	42	126	217	60	32	SP**140512	M5*10	T20
ZD03-43.0-XP40-SP14-02	43	129	229	65	40			
ZD03-44.0-XP40-SP14-02	44	132	232					
ZD03-45.0-XP40-SP14-02	45	135	235					
ZD03-46.0-XP40-SP14-02	46	138	328					
ZD03-47.0-XP40-SP14-02	47	141	241					
ZD03-48.0-XP40-SP14-02	48	144	244					
ZD03-49.0-XP40-SP14-02	49	147	247					
ZD03-50.0-XP40-SP14-02	50	150	250					
ZD03-51.0-XP40-SP14-02	51	153	253					
ZD03-52.0-XP40-SP09-04	52	156	256			65	40	SP**090408
ZD03-53.0-XP40-SP09-04	53	159	259					
ZD03-54.0-XP40-SP09-04	54	162	262					
ZD03-55.0-XP40-SP09-04	55	165	265					
ZD03-56.0-XP40-SP09-04	56	168	268					
ZD03-57.0-XP40-SP09-04	57	171	271					
ZD03-58.0-XP40-SP09-04	58	174	274					
ZD03-59.0-XP40-SP09-04	59	177	277					
ZD03-60.0-XP40-SP09-04	60	180	280					

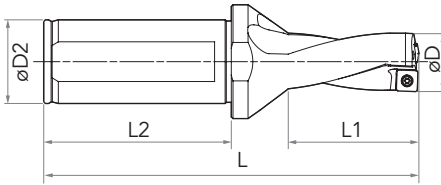
U-DRILLS-4D-SP



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH				
ZD04-13.0-XP25-SP05-02	13	52	130	56	25	SP**050204	M2*5	T6				
ZD04-13.5-XP25-SP05-02	13,5	54	132									
ZD04-14.0-XP25-SP05-02	14	56	134									
ZD04-14.5-XP25-SP05-02	14,5	58	136									
ZD04-15.0-XP25-SP05-02	15	60	138									
ZD04-15.5-XP25-SP06-02	15,5	62	140			56	25		SP**060204	M2.2*5		
ZD04-16.0-XP25-SP06-02	16	64	142									
ZD04-16.5-XP25-SP06-02	16,5	66	144									
ZD04-17.0-XP25-SP06-02	17	68	146									
ZD04-17.5-XP25-SP06-02	17,5	70	148									
ZD04-18.0-XP25-SP06-02	18	72	150									
ZD04-18.5-XP25-SP06-02	18,5	74	152									
ZD04-19.0-XP25-SP06-02	19	76	154									
ZD04-19.5-XP25-SP06-02	19,5	78	155									
ZD04-20.0-XP25-SP06-02	20	80	159									
ZD04-20.5-XP25-SP06-02	20,5	82	161									
ZD04-21.0-XP25-SP06-02	21	84	163									
ZD04-21.5-XP25-SP06-02	21,5	86	165									
ZD04-22.0-XP25-SP07-02	22	88	167						56	32	SP**07T308	M2.5*6
ZD04-22.5-XP25-SP07-02	22,5	90	169									
ZD04-23.0-XP25-SP07-02	23	92	171									
ZD04-23.5-XP25-SP07-02	23,5	94	173									
ZD04-24.0-XP25-SP07-02	24	96	175									
ZD04-24.5-XP25-SP07-02	24,5	98	177									
ZD04-25.0-XP32-SP07-02	25	100	191									
ZD04-25.5-XP32-SP07-02	25,5	102	193									
ZD04-26.0-XP32-SP07-02	26	104	195									
ZD04-26.5-XP32-SP07-02	26,5	106	197									

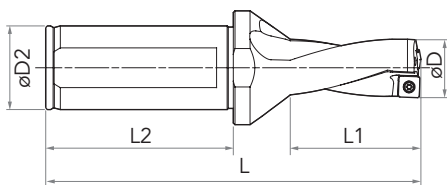


U-DRILLS-4D-SP



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD04-27.0-XP32-SP07-02	27	108	199	60	32	SP**07T308	M2.5*6	T8
ZD04-27.5-XP32-SP09-02	27,5	110	201			SP**090408	M3.5*8	T15
ZD04-28.0-XP32-SP09-02	28	112	203					
ZD04-28.5-XP32-SP09-02	28,5	114	205					
ZD04-29.0-XP32-SP09-02	29	116	207					
ZD04-29.5-XP32-SP09-02	29,5	118	209					
ZD04-30.0-XP32-SP09-02	30	120	211					
ZD04-30.5-XP32-SP09-02	30,5	122	213					
ZD04-31.0-XP32-SP09-02	31	124	215					
ZD04-31.5-XP32-SP09-02	31,5	126	217					
ZD04-32.0-XP32-SP09-02	32	128	219					
ZD04-32.5-XP32-SP09-02	32,5	130	221					
ZD04-33.0-XP32-SP09-02	33	132	223					
ZD04-33.5-XP32-SP11-02	33,5	134	225			SP**110408	M4*10	T15
ZD04-34.0-XP32-SP11-02	34	136	227					
ZD04-34.5-XP32-SP11-02	34,5	138	229					
ZD04-35.0-XP32-SP11-02	35	140	231					
ZD04-35.5-XP32-SP11-02	35,5	142	233					
ZD04-36.0-XP32-SP11-02	36	144	235					
ZD04-36.5-XP32-SP11-02	36,5	146	237					
ZD04-37.0-XP32-SP11-02	37	148	239					
ZD04-37.5-XP32-SP11-02	37,5	150	241					
ZD04-38.0-XP32-SP11-02	38	152	243					
ZD04-38.5-XP32-SP11-02	38,5	154	245					

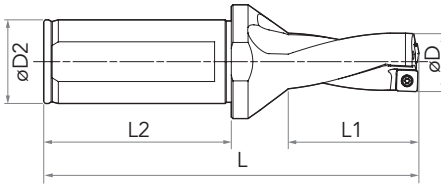
U-DRILLS-4D-SP



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD04-39.0-XP32-SP11-02	39	156	247	60	32	SP**110408	M4*10	T15
ZD04-39.5-XP32-SP11-02	39,5	158	249					
ZD04-40.0-XP32-SP11-02	40	160	251					
ZD04-41.0-XP32-SP14-02	41	164	255					
ZD04-42.0-XP32-SP14-02	42	168	259					
ZD04-43.0-XP40-SP14-02	43	172	272	65	40	SP**140512	M5*10	T20
ZD04-44.0-XP40-SP14-02	44	176	276					
ZD04-45.0-XP40-SP14-02	45	180	280					
ZD04-46.0-XP40-SP14-02	46	184	284					
ZD04-47.0-XP40-SP14-02	47	188	288					
ZD04-48.0-XP40-SP14-02	48	192	292					
ZD04-49.0-XP40-SP14-02	49	196	296					
ZD04-50.0-XP40-SP14-02	50	200	300					
ZD04-51.0-XP40-SP14-02	51	204	304					
ZD04-52.0-XP40-SP09-04	52	208	308					
ZD04-53.0-XP40-SP09-04	53	212	312					
ZD04-54.0-XP40-SP09-04	54	216	316					
ZD04-55.0-XP40-SP09-04	55	220	320					
ZD04-56.0-XP40-SP09-04	56	224	324					
ZD04-57.0-XP40-SP09-04	57	228	328					
ZD04-58.0-XP40-SP09-04	58	232	332					
ZD04-59.0-XP40-SP09-04	59	236	336					
ZD04-60.0-XP40-SP09-04	60	240	340					
						SP**090408	M3.5*8	T15



U-DRILLS-5D-SP

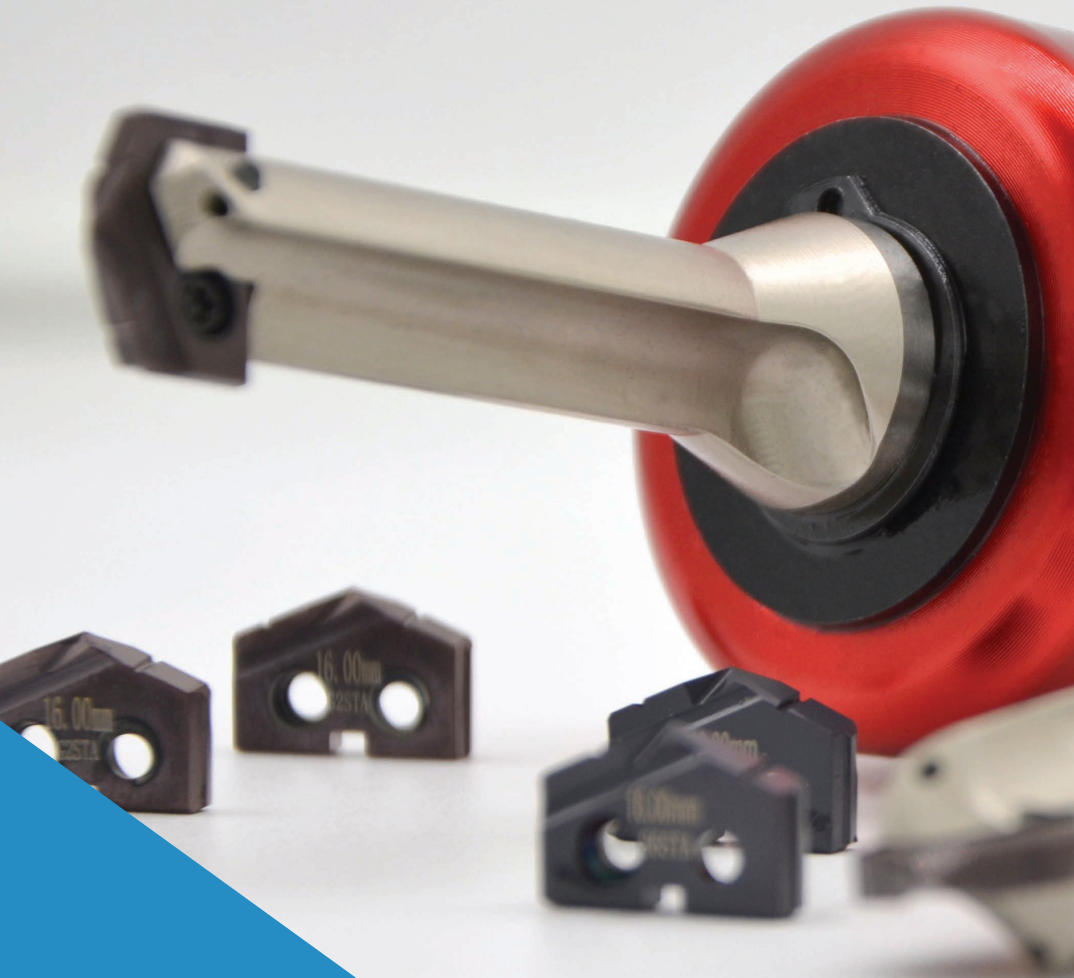


PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD05-20.0-XP25-SP06-02	20	100	179	56	25	SP**060204	M2.2*5	T6
ZD05-20.5-XP25-SP06-02	20,5	102,5	181					
ZD05-21.0-XP25-SP06-02	21	105	184					
ZD05-21.5-XP25-SP06-02	21,5	107,5	186					
ZD05-22.0-XP25-SP07-02	22	110	189					
ZD05-22.5-XP25-SP07-02	22,5	112,5	193					
ZD05-23.0-XP25-SP07-02	23	115	194					
ZD05-23.5-XP25-SP07-02	23,5	117,5	196					
ZD05-24.0-XP25-SP07-02	24	120	199					
ZD05-24.5-XP25-SP07-02	24,5	122,5	201					
ZD05-25.0-XP32-SP07-02	25	125	216	60	32	SP**07T308	M2.5*6	T8
ZD05-25.5-XP32-SP07-02	25,5	127,5	218					
ZD05-26.0-XP32-SP07-02	26	130	221					
ZD05-26.5-XP32-SP07-02	26,5	132,5	223					
ZD05-27.0-XP32-SP07-02	27	135	226					
ZD05-27.5-XP32-SP09-02	27,5	137,5	228					
ZD05-28.0-XP32-SP09-02	28	140	231					
ZD05-28.5-XP32-SP09-02	28,5	142,5	233					
ZD05-29.0-XP32-SP09-02	29	145	236					
ZD05-29.5-XP32-SP09-02	29,5	147,5	238					
ZD05-30.0-XP32-SP09-02	30	150	241					
ZD05-30.5-XP32-SP09-02	30,5	152,5	243					
ZD05-31.0-XP32-SP09-02	31	155	246					
ZD05-31.5-XP32-SP09-02	31,5	157,5	248					
ZD05-32.0-XP32-SP09-02	32	160	251					
ZD05-32.5-XP32-SP09-02	32,5	162,5	253					
ZD05-33.0-XP32-SP09-02	33	165	256					
ZD05-33.5-XP32-SP11-02	33,5	167,5	258	SP**090408	M3.5*8	T15		
				SP**110408	M4*10			

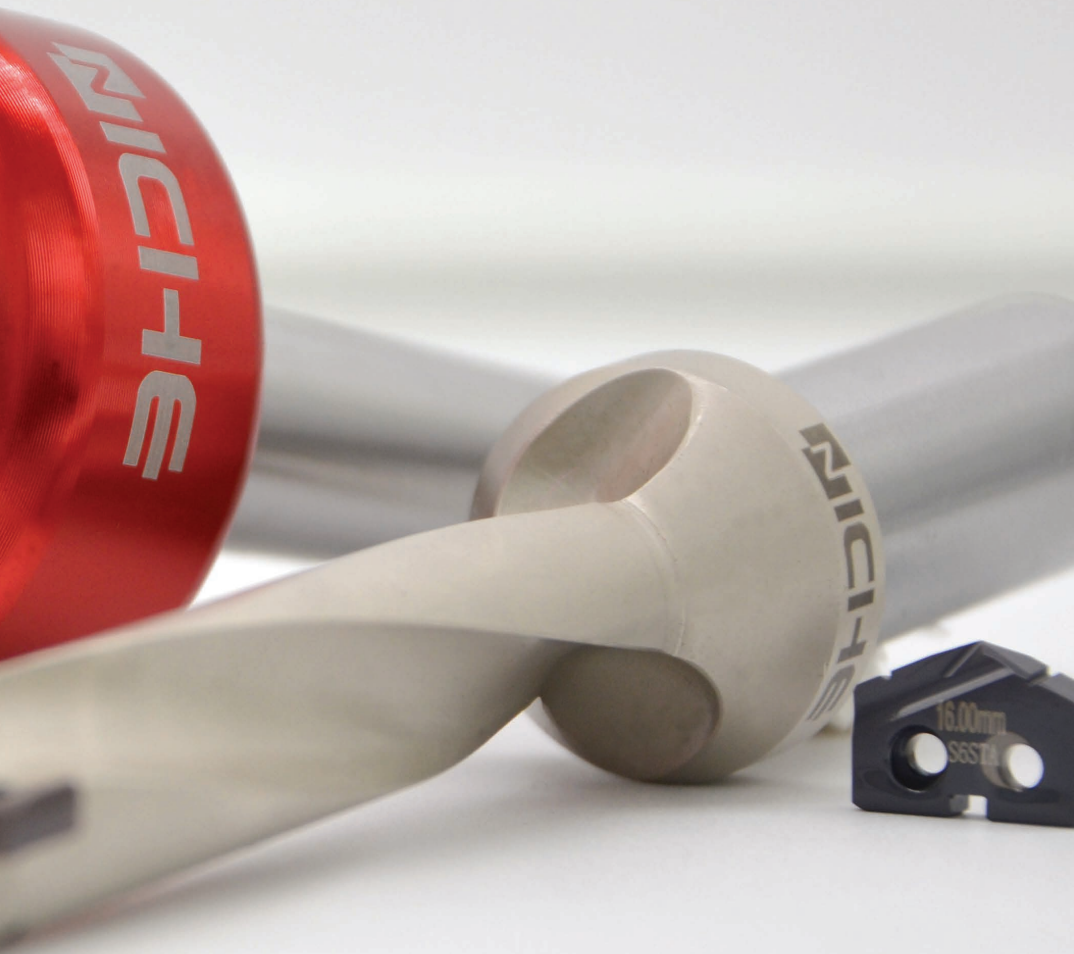
U-DRILLS-5D-SP



PRODUCT CODE	D	L1	L	L2	D2	INSERTS	SCREW	WRENCH
ZD05-34.0-XP32-SP11-02	34	170	261	60	32	SP**110408	M4*10	T15
ZD05-34.5-XP32-SP11-02	34,5	172,5	263					
ZD05-35.0-XP32-SP11-02	35	175	266					
ZD05-35.5-XP32-SP11-02	35,5	177,5	268					
ZD05-36.0-XP32-SP11-02	36	180	271					
ZD05-36.5-XP32-SP11-02	36,5	182,5	273					
ZD05-37.0-XP32-SP11-02	37	185	276					
ZD05-37.5-XP32-SP11-02	37,5	187,5	278					
ZD05-38.0-XP32-SP11-02	38	190	281					
ZD05-38.5-XP32-SP11-02	38,5	192,5	283					
ZD05-39.0-XP32-SP11-02	39	195	284					
ZD05-39.5-XP32-SP11-02	39,5	197,5	288					
ZD05-40.0-XP32-SP11-02	40	200	291					
ZD05-41.0-XP32-SP14-02	41	205	296					
ZD05-42.0-XP32-SP14-02	42	210	301					
ZD05-43.0-XP40-SP14-02	43	215	315					
ZD05-44.0-XP40-SP14-02	44	220	320					
ZD05-45.0-XP40-SP14-02	45	225	325					
ZD05-46.0-XP40-SP14-02	46	230	330					
ZD05-47.0-XP40-SP14-02	47	235	335					
ZD05-48.0-XP40-SP14-02	48	240	340					
ZD05-49.0-XP40-SP14-02	49	245	345					
ZD05-50.0-XP40-SP14-02	50	250	350					
ZD05-51.0-XP40-SP14-02	51	255	355					
ZD05-52.0-XP40-SP09-04	52	260	360					
ZD05-53.0-XP40-SP09-04	53	265	365					
ZD05-54.0-XP40-SP09-04	54	270	370					
ZD05-55.0-XP40-SP09-04	55	275	375					
ZD05-56.0-XP40-SP09-04	56	280	380					
ZD05-57.0-XP40-SP09-04	57	285	385					
ZD05-58.0-XP40-SP09-04	58	290	390					
ZD05-59.0-XP40-SP09-04	59	295	395					
ZD05-60.0-XP40-SP09-04	60	300	400					
						SP**090408	M3.5*8	T15



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SPADE DRILLS

PRODUCTIVE. POWERFUL.

Spade Drilling systems continue to evolve through innovations in tool holder design, insert geometries, coatings and coolants.



CODE KEY & GUIDELINES

SD SPADE DRILL
TOOL TYPE

H	HELIX
S	STRAIGHT

FLUTE SHAPE

XP	SIDE-LOCK
MT	MORSE

SHANK TYPE

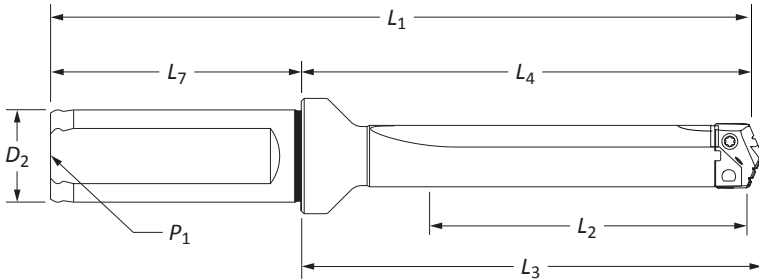
SD10 **H** **168** **XP32**

TOOL SERIES
10, 15, 20, 25

DRILL DEPTH

SHANK DIAMETER

TYPE	DIA	TYPE	DIA
XP	25	MT	2
	32		3
	40		4
	50		5



GUIDELINES

- Select the shortest tool holder possible for the application
- Ensure that the holder is held securely and is also within 0.003" (0.08mm) of the center line
- Inserts should be installed into the slot of the tool holder with the screws provided.
- The holder slot should be clean from dirt or debris
- Check that the insert outer diameter is a minimum of 0.012" (0.30mm) larger than the holder body dia
- Use the recommended cutting data section for guidance when selecting correct insert grades, along with speeds and feeds

NOTE: These cutting parameters are starting conditions only. No allowance for machine or component rigidity



SPADE DRILLS

Drilling systems continues to evolve, becoming more productive and powerful through product innovation within tool holder design, insert geometries, coatings and coolant dispersion.

FEATURES & BENEFITS

- Excellent hole size and finish
- Optimizes chip evacuation
- Wide range of geometry options available
- Reduce costs by decreasing set-up time and utilizing a single holder for the lives of multiple inserts
- Provide flexibility to quickly

APPLICABLE INDUSTRIES

- Aerospace
- Agriculture
- Automotive
- General Machining
- Renewable Energy
- Firearms

DIAMETER RANGE:

0.374"–4.507" (9.50mm–114.48mm)





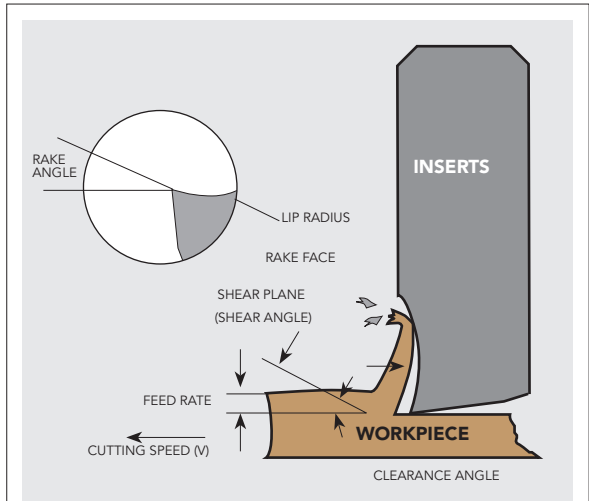
SPADE DRILLS

CHIP FORMATION

Achieving optimal chip formation is crucial. The quality of the chips being produced directly affects everything in the entire process: Cycle time, Tool life, Scrap rate, quality and condition of the final machined hole.

WEAR vs TOUGHNESS

When selecting a grade of cutting tool material for your application, both wear resistance and grade toughness should be considered. The greater the wear resistance a cutting tool material exhibits, the more likely chipping or fracture is to occur. This requires more rigid machining conditions. On the other hand, to effectively machine some materials, cobalt or carbide grades may be required. The graph will aid you in the selection of a cutting tool material with the right combination of wear resistance and toughness to make your application both efficient and cost effective.



QUICK TIPS FOR OPTIMAL PRECISION

- Check coolant flows adequately through the tool before beginning
- Drill a short hole 1 x D deep initially
- The chips produced should be short in length and material coloured, not straw or blue
- Measure the hole produced to check that it is within the desired tolerance
- If all is correct, continue to machine the remainder of the hole
- Ensure the drilling process is quiet and smooth with no chip packing



SPADE DRILLS





SIDE-LOCK XP



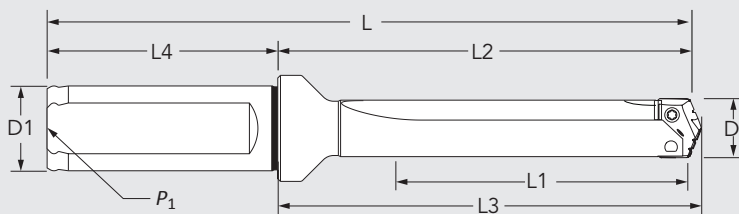
00 SERIES $\phi 13.0-\phi 17.5$

PRODUCT CODE	L1	L2	L3	L	D1	L4	P1	SCREW	WRENCH
SD00S-23-XP20	23	47,6	50,4	97,6	20	50	1/8	M2.5*6	T8
SD00S-35-XP20	35	63,5	66,3	113,5	20	50	1/8	M2.5*6	T8
SD00H-64-XP20	64	92,1	94,9	142,1	20	50	1/8	M2.5*6	T8
SD00H-114-XP20	114	142,9	145,7	192,9	20	50	1/8	M2.5*6	T8
SD00H-178-XP20	178	206,4	209,1	256,4	20	50	1/8	M2.5*6	T8
SD00S-240-XP20	240	268,6	271,3	318,6	20	50	1/8	M2.5*6	T8
SD00S-295-XP20	295	323,9	326,7	373,9	20	50	1/8	M2.5*6	T8
SD00S-387-XP20	387	416	418,8	466	20	50	1/8	M2.5*6	T8

05 SERIES $\phi 15.5-\phi 17.5$

PRODUCT CODE	L1	L2	L3	L	D1	L4	P1	SCREW	WRENCH
SD05S-23-XP20	23	47,6	50,4	97,6	20	50	1/8	M2.5*6	T8
SD05S-35-XP20	35	63,5	66,3	113,5	20	50	1/8	M2.5*6	T8
SD05H-64-XP20	64	92,1	94,9	142,1	20	50	1/8	M2.5*6	T8
SD05H-114-XP20	114	142,9	145,7	192,9	20	50	1/8	M2.5*6	T8
SD05H-178-XP20	178	206,4	209,1	256,4	20	50	1/8	M2.5*6	T8
SD05S-240-XP20	240	268,6	271,3	318,6	20	50	1/8	M2.5*6	T8
SD05S-295-XP20	295	323,9	326,7	373,9	20	50	1/8	M2.5*6	T8
SD05S-387-XP20	387	416	418,8	466	20	50	1/8	M2.5*6	T8

SPADE DRILLS



10 SERIES $\phi 17.6$ - $\phi 24.4$

PRODUCT CODE	L1	L2	L3	L	D1	L4	P1	SCREW	WRENCH
SD10S-48-XP25	48	75,8	79,4	131,8	25	56	1/8	M3*8	T8
SD10S-67-XP25	67	107,2	110,7	163,1	25	56	1/8	M3*8	T8
SD10H-118-XP25	118	154,8	158,4	210,8	25	56	1/8	M3*8	T8
SD10H-168-XP25	168	205,6	209,2	261,6	25	56	1/8	M3*8	T8
SD10H-218-XP25	218	255,3	258,9	311,3	25	56	1/8	M3*8	T8
SD10H-270-XP25	270	307,2	310,8	363,2	25	56	1/8	M3*8	T8
SD10S-365-XP25	365	402,2	405,8	458,2	25	56	1/8	M3*8	T8
SD10S-457-XP25	457	494,5	498,1	550,5	25	56	1/8	M3*8	T8
SD10S-569-XP25	569	602,5	606,1	658,5	25	56	1/8	M3*8	T8

15 SERIES $\phi 22.0$ - $\phi 24.4$

PRODUCT CODE	L1	L2	L3	L	D1	L4	P1	SCREW	WRENCH
SD15S-57-XP25	57	88,5	92,1	144,5	25	56	1/8	M3*8	T8
SD15S-67-XP25	67	107,2	110,7	163,1	25	56	1/8	M3*8	T8
SD15H-118-XP25	118	154,8	158,4	210,8	25	56	1/8	M3*8	T8
SD15H-168-XP25	168	205,6	209,2	261,6	25	56	1/8	M3*8	T8
SD15H-218-XP25	218	255,3	258,9	311,3	25	56	1/8	M3*8	T8
SD15H-270-XP25	270	307,2	310,8	363,2	25	56	1/8	M3*8	T8
SD15S-365-XP25	365	402,2	405,8	458,2	25	56	1/8	M3*8	T8
SD15S-457-XP25	457	494,5	498,1	550,5	25	56	1/8	M3*8	T8
SD15S-569-XP25	569	602,5	606,1	658,5	25	56	1/8	M3*8	T8



SIDE-LOCK XP



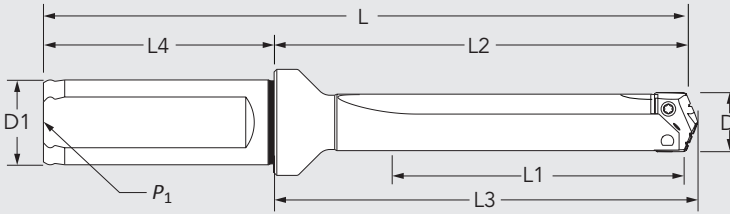
20 SERIES $\phi 24.5-\phi 35.0$

PRODUCT CODE	L1	L2	L3	L	D1	L4	P1	SCREW	WRENCH
SD20S-57-XP32	57	88,5	92,1	148,5	32	60	1/4	M3.5*10	T15
SD20S-86-XP32	86	128,6	132,2	188,6	32	60	1/4	M3.5*10	T15
SD20H-137-XP32	137	179,4	183	239,4	32	60	1/4	M3.5*10	T15
SD20H-187-XP32	187	230,2	233,8	290,2	32	60	1/4	M3.5*10	T15
SD20H-237-XP32	237	279,9	283,5	339,9	32	60	1/4	M3.5*10	T15
SD20H-289-XP32	289	331,8	335,4	391,8	32	60	1/4	M3.5*10	T15
SD20H-400-XP32	400	442,8	446,4	502,8	32	60	1/4	M3.5*10	T15
SD20S-400-XP32	400	442,8	446,4	502,8	32	60	1/4	M3.5*10	T15
SD20S-511-XP32	511	554,1	557,7	614,4	32	60	1/4	M3.5*10	T15
SD20S-692-XP32	692	735,1	738,7	795,1	32	60	1/4	M3.5*10	T15

25 SERIES $\phi 30.0-\phi 35.0$

PRODUCT CODE	L1	L2	L3	L	D1	L4	P1	SCREW	WRENCH
SD25S-92-XP32	92	123,4	127	183,4	32	60	1/4	M3.5*10	T15
SD25S-86-XP32	86	128,6	132,2	188,6	32	60	1/4	M3.5*10	T15
SD25H-137-XP32	137	179,4	183	239,4	32	60	1/4	M3.5*10	T15
SD25H-187-XP32	187	230,2	233,8	290,2	32	60	1/4	M3.5*10	T15
SD25H-237-XP32	237	279,9	283,5	339,9	32	60	1/4	M3.5*10	T15
SD25H-289-XP32	289	331,8	335,4	391,8	32	60	1/4	M3.5*10	T15
SD25H-400-XP32	400	442,8	446,4	502,8	32	60	1/4	M3.5*10	T15
SD25S-400-XP32	400	442,8	446,4	502,8	32	60	1/4	M3.5*10	T15
SD25S-511-XP32	511	554,1	557,7	614,4	32	60	1/4	M3.5*10	T15
SD25S-692-XP32	692	735,1	738,7	795,1	32	60	1/4	M3.5*10	T15

SPADE DRILLS



30 SERIES $\phi 35.1-\phi 47.9$

PRODUCT CODE	L1	L2	L3	L	D1	L4	P1	SCREW	WRENCH
SD30S-76-XP40	76	125	129,8	195	40	70	1/4	M5*10	T20
SD30S-121-XP40	121	173	177,8	243	40	70	1/4	M5*10	T20
SD30H-165-XP40	165	217,5	222,3	287,5	40	70	1/4	M5*10	T20
SD30H-210-XP40	210	261,9	266,7	331,9	40	70	1/4	M5*10	T20
SD30H-260-XP40	260	312,3	317,1	382,3	40	70	1/4	M5*10	T20
SD30S-349-XP40	349	401,6	406,4	471,6	40	70	1/4	M5*10	T20
SD30H-349-XP40	349	401,6	406,4	471,6	40	70	1/4	M5*10	T20
SD30S-559-XP40	559	611,1	615,9	681,1	40	70	1/4	M5*10	T20
SD30S-787-XP40	787	839,7	844,5	909,7	40	70	1/4	M5*10	T20

35 SERIES $\phi 42.0-\phi 47.9$

PRODUCT CODE	L1	L2	L3	L	D1	L4	P1	SCREW	WRENCH
SD35S-76-XP40	76	125	129,8	195	40	70	1/4	M5*10	T20
SD35S-121-XP40	121	173	177,8	243	40	70	1/4	M5*10	T20
SD35H-165-XP40	165	217,5	222,3	287,5	40	70	1/4	M5*10	T20
SD35H-210-XP40	210	261,9	266,7	331,9	40	70	1/4	M5*10	T20
SD35H-260-XP40	260	312,3	317,1	382,3	40	70	1/4	M5*10	T20
SD35S-349-XP40	349	401,6	406,4	471,6	40	70	1/4	M5*10	T20
SD35H-349-XP40	349	401,6	406,4	471,6	40	70	1/4	M5*10	T20
SD35S-559-XP40	559	611,1	615,9	681,1	40	70	1/4	M5*10	T20
SD35S-787-XP40	787	839,7	844,5	909,7	40	70	1/4	M5*10	T20



SIDE-LOCK XP



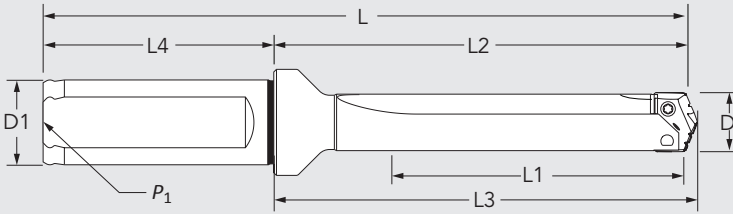
40 SERIES $\phi 48.0-\phi 65.28$

PRODUCT CODE	L1	L2	L3	L	D1	L4	P1	SCREW	WRENCH
SD40S-130-XP40	130	179,4	184,2	249,4	40	70	1/4	M5*15	T20
SD40H-232-XP40	232	281	285,8	351	40	70	1/4	M5*15	T20
SD40S-350-XP40	350	399,2	404	469,2	40	70	1/4	M5*15	T20
SD40H-350-XP40	350	399,2	404	469,2	40	70	1/4	M5*15	T20
SD40S-422-XP40	422	471,5	476,3	541,5	40	70	1/4	M5*15	T20
SD40H-422-XP40	422	471,5	476,3	541,5	40	70	1/4	M5*15	T20
SD40S-525-XP40	525	574,2	579	644,2	40	70	1/4	M5*15	T20
SD40S-625-XP40	625	674,7	679,5	744,7	40	70	1/4	M5*15	T20
SD40S-879-XP40	879	928,7	933,5	998,7	40	70	1/4	M5*15	T20

45 SERIES $\phi 56.0-\phi 65.28$

PRODUCT CODE	L1	L2	L3	L	D1	L4	P1	SCREW	WRENCH
SD45S-130-XP40	130	179,4	184,2	249,4	40	70	1/4	M5*15	T20
SD45H-232-XP40	232	281	285,8	351	40	70	1/4	M5*15	T20
SD45S-350-XP40	350	399,2	404	469,2	40	70	1/4	M5*15	T20
SD45H-350-XP40	350	399,2	404	469,2	40	70	1/4	M5*15	T20
SD45H-422-XP40	422	471,5	476,3	541,5	40	70	1/4	M5*15	T20
SD45S-422-XP40	422	471,5	476,3	541,5	40	70	1/4	M5*15	T20
SD45S-525-XP40	525	574,2	579	644,2	40	70	1/4	M5*15	T20
SD45S-625-XP40	625	674,7	679,5	744,7	40	70	1/4	M5*15	T20
SD45S-879-XP40	879	928,7	933,5	998,7	40	70	1/4	M5*15	T20

SPADE DRILLS



50 SERIES $\phi 65.3-\phi 89.08$

PRODUCT CODE	L1	L2	L3	L	D1	L4	P1	SCREW	WRENCH
SD50S-171-XP50	171	235	240	315	50	80	1/2	M6*15	T25
SD50S-350-XP50	350	414	419	494	50	80	1/2	M6*15	T25
SD50S-660-XP50	660	724	729	804	50	80	1/2	M6*15	T25

70 SERIES $\phi 89.1-\phi 114.48$

PRODUCT CODE	L1	L2	L3	L	D1	L4	P1	SCREW	WRENCH
SD70S-200-XP50	200	275	280	355	50	80	1/2	M6*15	T25
SD70S-400-XP50	400	475	480	555	50	80	1/2	M6*15	T25
SD70S-800-XP50	800	875	880	955	50	80	1/2	M6*15	T25





MORSE TAPER **MT**

00 SERIES $\phi 13.0-\phi 17.5$

PRODUCT CODE	L1	L2	L3	L	A	B	COOLING RING	SCREW	WRENCH
SD00S-35-MT2	35	55,5	95,4	167,3	MT2	1/16	MT2R	M2.5*6	T8
SD00H-63-MT2	63	84,1	124	195,9	MT2	1/16	MT2R	M2.5*6	T8
SD00H-114-MT2	114	135	174,8	246,7	MT2	1/16	MT2R	M2.5*6	T8
SD00H-178-MT2	178	198,5	238,3	310,2	MT2	1/16	MT2R	M2.5*6	T8

05 SERIES $\phi 15.5-\phi 17.5$

PRODUCT CODE	L1	L2	L3	L	A	B	COOLING RING	SCREW	WRENCH
SD05S-35-MT2	35	55,5	95,4	167,3	MT2	1/16	MT2R	M2.5*6	T8
SD05H-63-MT2	63	84,1	124	195,9	MT2	1/16	MT2R	M2.5*6	T8
SD05H-114-MT2	114	135	174,8	246,7	MT2	1/16	MT2R	M2.5*6	T8
SD05H-178-MT2	178	198,5	238,3	310,2	MT2	1/16	MT2R	M2.5*6	T8

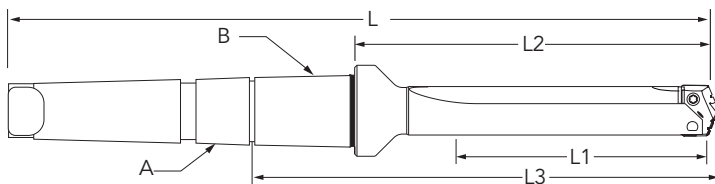
10 SERIES $\phi 17.6-\phi 24.4$

PRODUCT CODE	L1	L2	L3	L	A	B	COOLING RING	SCREW	WRENCH
SD10S-70-MT3	70	98,4	149	239	MT3	1/8	MT3R	M3*8	T8
SD10H-121-MT3	121	149,2	199,8	289,8	MT3	1/8	MT3R	M3*8	T8
SD10H-171-MT3	171	200	250,6	340,7	MT3	1/8	MT3R	M3*8	T8
SD10H-222-MT3	222	250,5	301,1	391,2	MT3	1/8	MT3R	M3*8	T8
SD10H-273-MT3	273	301,6	352,2	442,3	MT3	1/8	MT3R	M3*8	T8

15 SERIES $\phi 22.0-\phi 24.4$

PRODUCT CODE	L1	L2	L3	L	A	B	COOLING RING	SCREW	WRENCH
SD15S-70-MT3	70	98,4	149	239	MT3	1/8	MT3R	M3*8	T8
SD15H-121-MT3	121	149,2	199,8	289,8	MT3	1/8	MT3R	M3*8	T8
SD15H-171-MT3	171	200	250,6	340,7	MT3	1/8	MT3R	M3*8	T8
SD15H-222-MT3	222	250,5	301,1	391,2	MT3	1/8	MT3R	M3*8	T8
SD15H-273-MT3	273	301,6	352,2	442,3	MT3	1/8	MT3R	M3*8	T8

SPADE DRILLS



20 SERIES $\phi 24.5-\phi 35.0$

PRODUCT CODE	L1	L2	L3	L	A	B	COOLING RING	SCREW	WRENCH
SD20S-86-MT4	86	114,3	172,9	286,3	MT4	1/4	MT4R	M3.5*10	T15
SD20H-137-MT4	137	165,1	223,7	337,1	MT4	1/4	MT4R	M3.5*10	T15
SD20H-187-MT4	187	215,9	274,5	387,9	MT4	1/4	MT4R	M3.5*10	T15
SD20H-237-MT4	237	265,6	324,2	437,6	MT4	1/4	MT4R	M3.5*10	T15
SD20H-289-MT4	289	317,5	376,1	489,5	MT4	1/4	MT4R	M3.5*10	T15
SD20S-400-MT4	400	428,5	487,1	600	MT4	1/4	MT4R	M3.5*10	T15
SD20H-400-MT4	400	428,5	487,1	600	MT4	1/4	MT4R	M3.5*10	T15

25 SERIES $\phi 30.0-\phi 35.0$

PRODUCT CODE	L1	L2	L3	L	A	B	COOLING RING	SCREW	WRENCH
SD25S-86-MT4	86	114,3	172,9	286,3	MT4	1/4	MT4R	M3.5*10	T15
SD25H-137-MT4	137	165,1	223,7	337,1	MT4	1/4	MT4R	M3.5*10	T15
SD25H-187-MT4	187	215,9	274,5	387,9	MT4	1/4	MT4R	M3.5*10	T15
SD25H-237-MT4	237	265,6	324,2	437,6	MT4	1/4	MT4R	M3.5*10	T15
SD25H-289-MT4	289	317,5	376,1	489,5	MT4	1/4	MT4R	M3.5*10	T15
SD25S-400-MT4	400	428,5	487,1	600	MT4	1/4	MT4R	M3.5*10	T15
SD25H-400-MT4	400	428,5	487,1	600	MT4	1/4	MT4R	M3.5*10	T15





MORSE TAPER **MT**

30 SERIES $\phi 35.1-\phi 47.9$

PRODUCT CODE	L1	L2	L3	L	A	B	COOLING RING	SCREW	WRENCH
SD30S-121-MT4	121	152,4	211,7	324,4	MT4	1/4	MT4R	M5*10	T20
SD30H-165-MT4	165	196,9	256,2	368,9	MT4	1/4	MT4R	M5*10	T20
SD30H-209-MT4	209	241,3	300,6	413,3	MT4	1/4	MT4R	M5*10	T20
SD30H-260-MT4	260	291,8	351,1	463,8	MT4	1/4	MT4R	M5*10	T20
SD30H-349-MT4	349	381	440,3	553	MT4	1/4	MT4R	M5*10	T20
SD30S-349-MT4	349	381	440,3	553	MT4	1/4	MT4R	M5*10	T20
SD30S-559-MT4	559	590,6	649,9	762,5	MT4	1/4	MT4R	M5*10	T20
SD30S-787-MT4	787	819,2	878,5	991,1	MT4	1/4	MT4R	M5*10	T20

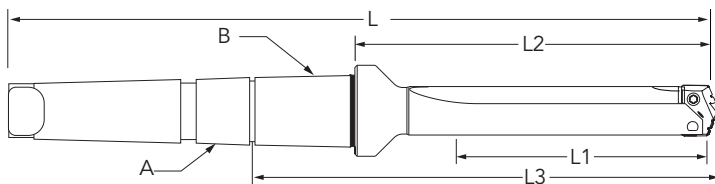
35 SERIES $\phi 42.0-\phi 47.9$

PRODUCT CODE	L1	L2	L3	L	A	B	COOLING RING	SCREW	WRENCH
SD35S-121-MT4	121	152,4	211,7	324,4	MT4	1/4	MT4R	M5*10	T20
SD35H-165-MT4	165	196,9	256,2	368,9	MT4	1/4	MT4R	M5*10	T20
SD35H-209-MT4	209	241,3	300,6	413,3	MT4	1/4	MT4R	M5*10	T20
SD30H-260-MT4	260	291,8	351,1	463,8	MT4	1/4	MT4R	M5*10	T20
SD35H-349-MT4	349	381	440,3	553	MT4	1/4	MT4R	M5*10	T20
SD35S-349-MT4	349	381	440,3	553	MT4	1/4	MT4R	M5*10	T20
SD35S-559-MT4	559	590,6	649,9	762,5	MT4	1/4	MT4R	M5*10	T20
SD35S-787-MT4	787	819,2	878,5	991,1	MT4	1/4	MT4R	M5*10	T20

40 SERIES $\phi 48.0-\phi 65.28$

PRODUCT CODE	L1	L2	L3	L	A	B	COOLING RING	SCREW	WRENCH
SD40S-130-MT5	130	165,1	225	369,4	MT5	1/4	MT5R1	M5*15	T20
SD40H-232-MT5	232	266,7	326,6	471	MT5	1/4	MT5R1	M5*15	T20
SD40S-350-MT5	350	384,9	444,8	589,2	MT5	1/4	MT5R1	M5*15	T20
SD40H-350-MT5	350	384,9	444,8	589,2	MT5	1/4	MT5R1	M5*15	T20
SD40H-422-MT5	422	457,2	517,1	661,5	MT5	1/4	MT5R1	M5*15	T20
SD40S-422-MT5	422	457,2	517,1	661,5	MT5	1/4	MT5R1	M5*15	T20
SD40S-625-MT5	625	660,4	720,3	864,7	MT5	1/4	MT5R1	M5*15	T20
SD40S-879-MT5	879	914,4	974,3	1119	MT5	1/4	MT5R1	M5*15	T20

SPADE DRILLS



45 SERIES $\phi 56.0-\phi 65.28$

PRODUCT CODE	L1	L2	L3	L	A	B	COOLING RING	SCREW	WRENCH
SD45S-130-MT5	130	165,1	225	369,4	MT5	1/4	MT5R1	M5*15	T20
SD45H-232-MT5	232	266,7	326,6	471	MT5	1/4	MT5R1	M5*15	T20
SD45S-350-MT5	350	384,9	444,8	589,2	MT5	1/4	MT5R1	M5*15	T20
SD45H-350-MT5	350	384,9	444,8	589,2	MT5	1/4	MT5R1	M5*15	T20
SD45H-422-MT5	422	457,2	517,1	661,5	MT5	1/4	MT5R1	M5*15	T20
SD45S-422-MT5	422	457,2	517,1	661,5	MT5	1/4	MT5R1	M5*15	T20
SD45S-625-MT5	625	660,4	720,3	864,7	MT5	1/4	MT5R1	M5*15	T20
SD45S-879-MT5	879	914,4	974,3	1119	MT5	1/4	MT5R1	M5*15	T20

50 SERIES $\phi 65.3-\phi 89.08$

PRODUCT CODE	L1	L2	L3	L	A	B	COOLING RING	SCREW	WRENCH
SD50S-171-MT5	171	215,9	287,3	430,2	MT5	1/2	MT5R2	M6*15	T25
SD50H-273-MT5	273	317,5	388,9	531,8	MT5	1/2	MT5R2	M6*15	T25
SD50S-464-MT5	464	508	579,4	722,3	MT5	1/2	MT5R2	M6*15	T25
SD50S-660-MT5	660	704,8	776,2	919,1	MT5	1/2	MT5R2	M6*15	T25
SD50S-889-MT5	889	933,4	1005	1148	MT5	1/2	MT5R2	M6*15	T25

70 SERIES $\phi 89.1-\phi 114.48$

PRODUCT CODE	L1	L2	L3	L	A	B	COOLING RING	SCREW	WRENCH
SD70S-171-MT5	171	225,4	296,8	439,7	MT5	1/2	MT5R2	M6*15	T25
SD70H-273-MT5	273	327	398,5	541,3	MT5	1/2	MT5R2	M6*15	T25
SD70S-556-MT5	556	609,6	681,1	823,9	MT5	1/2	MT5R2	M6*15	T25
SD70S-685-MT5	685	739,7	811,2	954	MT5	1/2	MT5R2	M6*15	T25
SD70S-939-MT5	939	993,7	1065,2	1208	MT5	1/2	MT5R2	M6*15	T25



ACCESSORIES



SPADE DRILL INSERTS

DIA	THICKNESS	MATERIAL			DIA	THICKNESS	MATERIAL		
		HSS-E	HSS-PM	CARBIDE			HSS-E	HSS-PM	CARBIDE
13,0	3,18	●	●	○	25,5	4,76	●	●	●
13,5		●	●	○	26,0		●	●	●
14,0		●	●	○	26,5		●	●	●
14,5		●	●	○	27,0		●	●	●
15,0		●	●	○	27,5		●	●	●
15,5		●	●	○	28,0		●	●	●
16,0		●	●	○	28,5		●	●	●
16,5		●	●	○	29,0		●	●	●
17,0		●	●	○	29,5		●	●	●
17,5		●	●	○	30,0		●	●	●
18,0	3,97	●	●	●	30,5		●	●	●
18,5		●	●	●	31,0		●	●	●
19,0		●	●	●	31,5		●	●	●
19,5		●	●	●	32,0		●	●	●
20,0		●	●	●	32,5		●	●	●
20,5		●	●	●	33,0		●	●	●
21,0		●	●	●	33,5		●	●	●
21,5		●	●	●	34,0		●	●	●
22,0		●	●	●	34,5		●	●	●
22,5		●	●	●	35,0		●	●	●
23,0	4,76	●	●	●	35,5	6,35	●	●	●
23,5		●	●	●	36,0		●	●	●
24,0		●	●	●	36,5		●	●	●
24,5		●	●	●	37,0		●	●	●
25,0		●	●	●	37,5		●	●	○



SPADE DRILL INSERTS

DIA	THICKNESS	MATERIAL			DIA	THICKNESS	MATERIAL			
		HSS-E	HSS-PM	CARBIDE			HSS-E	HSS-PM	CARBIDE	
38,0	6,35	●	●	○	61,0	7,94	●	●	○	
38,5		●	●	○	62,0		●	●	○	
39,0		●	●	○	63,0		●	●	○	
39,5		●	●	○	64,0		●	●	○	
40,0		●	●	○	63,0		●	●	○	
41,0		●	●	○	64,0		●	●	○	
42,0		●	●	○	65,0		●	●	○	
43,0		●	●	○	66,0		●	●	○	
44,0		●	●	○	67,0		●	●	○	
45,0		●	●	○	68,0		●	●	○	
46,0		●	●	○	69,0		●	●	○	
47,0		●	●	○	70,0		●	●	○	
48,0		7,94	●	●	○		71,0	●	●	○
49,0			●	●	○		72,0	●	●	○
50,0	●		●	○	73,0	●	●	○		
51,0	●		●	○	74,0	●	●	○		
52,0	●		●	○	75,0	●	●	○		
53,0	●		●	○	76,0	●	●	○		
54,0	●		●	○	77,0	●	●	○		
55,0	●		●	○	78,0	●	●	○		
56,0	●		●	○	79,0	●	●	○		
57,0	●		●	○	80,0	●	●	○		
58,0	●		●	○	81,0	●	●	○		
59,0	●		●	○	82,0	●	●	○		
60,0	●		●	○	83,0	●	●	○		



ACCESSORIES

SPADE DRILL INSERTS

DIA	THICKNESS	MATERIAL		
		HSS-E	HSS-PM	CARBIDE
84,0	11,11	●	●	○
85,0		●	●	○
86,0		●	●	○
87,0		●	●	○
88,0		●	●	○
89,0		●	●	○
90,0		●	●	○
91,0		●	●	○
92,0		●	●	○
93,0		●	●	○
94,0		●	●	●
93,0		●	●	●
94,0		●	●	●
95,0		●	●	●
96,0		●	●	●
97,0		●	●	●
98,0		●	●	●

DIA	THICKNESS	MATERIAL		
		HSS-E	HSS-PM	CARBIDE
99,0	11,11	●	●	●
100,0		●	●	●
101,0		●	●	●
102,0		●	●	●
103,0		●	●	●
104,0		●	●	●
105,0		●	●	●
106,0		●	●	●
107,0		●	●	●
108,0		●	●	●
109,0		●	●	●
110,0		●	●	●
111,0		●	●	●
112,0		●	●	●
113,0		●	●	●
114,0		●	●	●

COOLING RINGS

PRODUCT CODE	I.D. (A)	O.D. (B)	THICKNESS (C)	THREAD (D)	COOLING PIPE THREAD (D)
MT2R	19,4	49	22,5	M8*1.25	1/8"
MT3R	25,5	53	30	M8*1.25	1/8"
MT4R	32,5	63	36	M10*1.5	1/4"
MT5R1	48,5	76	36	M10*1.5	1/4"
MT5R2	60,1	95,3	44,5	M12*1.75	1/2"





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