

U DRILL SERIES

4 Cutting Edges Offer Highly Economical
Drilling with Enhanced Stability



TOTIME U drill, featuring uniquely designed insert, offers highly economical drilling with enhanced stability and long tool life.

Inserts:

Available in the sizes SPMX/GX05,06,07,09,11 and 14
Each has 4 cutting edges

Drill bodies:

ZD: Available in L/D=2, 3,4 and 5 in metric shank sizes
from $\varnothing D_c$ 13 to 60mm Tolerance: $-0.1 \sim +0.2$ mm

Grades:

TI620: First choice for general purpose

TN200: Suitable for Non-ferrous metal processing

TZ650:

New PVD coating Suitable for medium and high speed machining of general-purpose materials, with high wear resistance and impact resistance.



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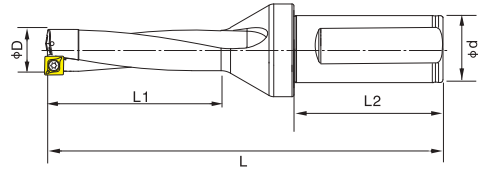
Grade	Application	ISO
TI620	First choice for Carbon Steel and Alloy Steel(HRC 20-30),Cast Iron	P K
TZ650	New PVD coating suitable for medium and high speed machining of Carbon Steel and Alloy Steel (HRC 30~40)	P
TM450	First choice for Carbon Steel and Alloy Steel (HRC ≤ 20),Stainless Steel	P M
TN200	Suitable for Non-ferrous metal processing	N

Feature

● Twisted Cooling Holes
Twisted coolant hole in the drill body increases coolant flow which improves chip evacuation, resulting in excellent surface finish.

● Drill Body
The use of high rigidity materials in the drill body greatly improves the wear resistance and stability of the drill body.

(Dia.<25mm)

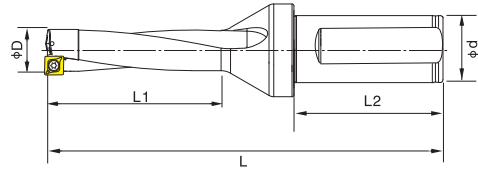


2D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD02-13.0-XP25-SP05-02	13	26	104	56	25	SP□X050204	ST0205	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	39	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	60	32	SP□X07T308	ST2506	T8	●
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			●			
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			●			
ZD02-27.0-XP32-SP07-02	27	54	145	60	32	SP□X090408	ST3508	T15	●
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						●
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			●			
ZD02-33.5-XP32-SP11-02	33.5	67	158			●			
ZD02-34.0-XP32-SP11-02	34	68	159	SP□X110408	ST4010	●			
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			●			
ZD02-35.5-XP32-SP11-02	35.5	71	162			●			

● Stock ○ Non-stock



2D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD02-36.0-XP32-SP11-02	36	72	163	60	32	SP□X110408	ST4010	T15	●
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						●
ZD02-39.0-XP32-SP11-02	39	78	169						●
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						65
ZD02-42.0-XP32-SP14-02	42	84	175	●					
ZD02-43.0-XP40-SP14-02	43	86	186	●					
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	SP□X090408	ST3508	T15	●		
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				●		

● Stock ○ Non-stock

Carbide Drills

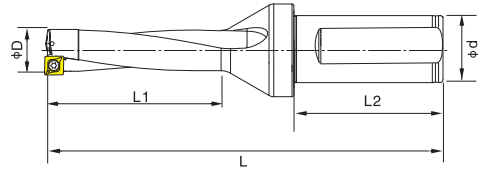
U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

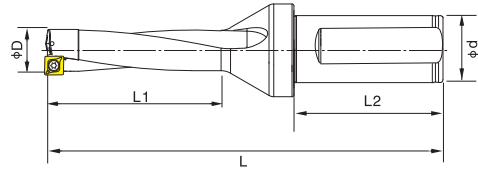


3D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD03-13.0-XP25-SP05-02	13	39	117	56	25	SP□X050204	ST0205	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						●
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	60	32	SP□X07T308	ST2506	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			●			
ZD03-27.0-XP32-SP07-02	27	81	172	60	32	SP□X090408	ST3508	T15	●
ZD03-27.5-XP32-SP09-02	27.5	82.5	173						●
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			●			
ZD03-34.0-XP32-SP11-02	34	102	193	SP□X110408	ST4010	T15	●		
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				●		
ZD03-35.5-XP32-SP11-02	35.5	106.5	197				●		

● Stock ○ Non-stock



3D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD03-36.0-XP32-SP11-02	36	108	199	60	32	SP□X110408	ST4010	T15	●
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						65
ZD03-42.0-XP32-SP14-02	42	126	217	●					
ZD03-43.0-XP40-SP14-02	43	129	229	●					
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	238	●					
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	SP□X090408	ST3508	T15	●		
ZD03-52.0-XP40-SP09-04	52	156	256				●		
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	175	274				●		
ZD03-59.0-XP40-SP09-04	59	177	277				●		
ZD03-60.0-XP40-SP09-04	60	180	280				●		

● Stock ○ Non-stock

Carbide Drills

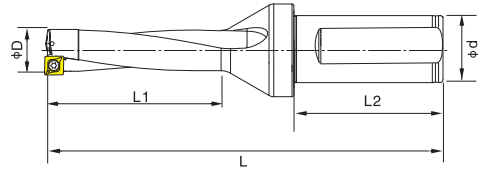
U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

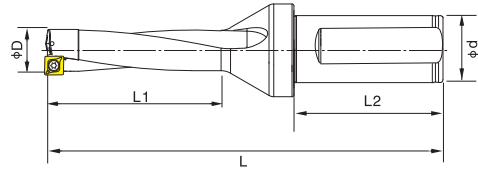


4D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock		
	D	L1	L	L2	d						
ZD04-13.0-XP25-SP05-02	13	52	130	56	25	SP□X050204	ST0205	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						●		
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			60	32	SP□X07T308	ST2506	T8	●
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	60	32			SP□X090408	ST3508	T15	●
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								●
ZD04-27.0-XP32-SP07-02	27	108	199			●					
ZD04-27.5-XP32-SP09-02	27.5	110	201			●					
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	●							
ZD04-34.0-XP32-SP11-02	34	136	227	SP□X110408	ST4010		●				
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				●				

● Stock ○ Non-stock



4D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD04-36.0-XP32-SP11-02	36	144	235	60	32	SP□X110408	ST4010	T15	●
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						●
ZD04-39.0-XP32-SP11-02	39	156	247						●
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						65
ZD04-42.0-XP32-SP14-02	42	168	259	●					
ZD04-43.0-XP40-SP14-02	43	172	272	●					
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	SP□X090408	ST3508	T15	●		
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				●		

● Stock ○ Non-stock

Carbide Drills

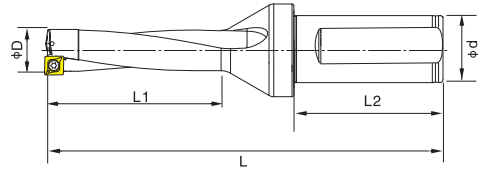
U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

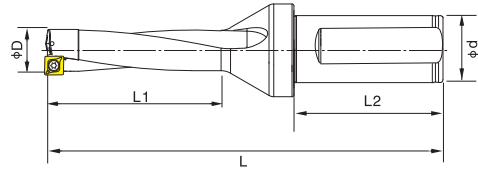


5D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD05-20.0-XP25-SP06-02	20	100	179	56	25	SPOX060204	ST2205	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	SPOX07T308	ST2506	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	SPOX090408	ST3508	T15	●		
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				●		
ZD05-34.0-XP32-SP11-02	34	170	261				●		
ZD05-34.5-XP32-SP11-02	34.5	172.5	263				●		
ZD05-35.0-XP32-SP11-02	35	175	266	SPOX110408	ST4010	T15	●		
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	SPOX140512	ST5010	T20	●		
ZD05-41.0-XP32-SP14-02	41	205	296				●		
ZD05-42.0-XP32-SP14-02	42	210	301				●		
							●		

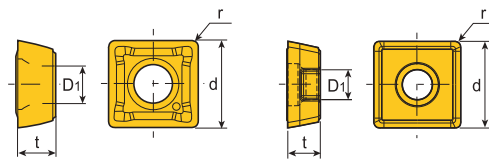
● Stock ○ Non-stock



5D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock	
	D	L1	L	L2	d					
ZD05-43.0-XP40-SP14-02	43	215	315	65	40	SP□X140512	ST5010	T20	●	
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□X090408	ST3508	T15	●



Size	Dimension (mm)			
	d	t	r	D1
05	5.00	2.38	0.4	2.25
06	6.00	2.38	0.4	2.61
07	7.94	3.97	0.8	2.85
09	9.80	4.30	0.8	4.05
11	11.50	4.80	0.8	4.45
14	14.30	5.20	1.2	5.75

Insert	Designation	Material				Stock	
		TI620		TZ650	TM450		TN200
		P (HRC20-30)	K	P (HRC30-40)	P (HRC≤20)		M
	SPMX050204	●		●	●	●	
	SPMX060204	●		●	●	●	
	SPMX07T308	●		●	●	●	
	SPMX090408	●		●	●	●	
	SPMX110408	●		●	●	●	
	SPMX140512	●		●	●	●	
	SPGX050204					●	
	SPGX060204					●	
	SPGX07T308					●	
	SPGX090408					●	
	SPGX110408					●	
	SPGX140512					●	

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

Cutting Conditions

Unit (mm)

ISO	Material	Condition	First Choice	Hardness		Cutting speed	Feed (mm/rev) vs. drill diameter Drill length 2,3,4xD					
				HB	Vc(m/min)		SP..05	SP..06	SP..07	SP..09	SP..11	SP..14
P	Non-alloy steel, cast steel,	<0.25%C	Annealed	TM450	125	200-280	0.04-0.06	0.04-0.06	0.04-0.08	0.04-0.08	0.06-0.10	0.06-0.12
		>=0.25%C	Annealed	TI620	190	120-190	0.05-0.08	0.06-0.10	0.06-0.12	0.07-0.13	0.08-0.15	0.08-0.16
	free cutting steel	<0.55%C	Quenched and tempered	TZ650	250	110-180	0.06-0.12	0.08-0.15	0.10-0.18	0.12-0.22	0.12-0.24	0.13-0.25
		>=0.55%C	Annealed		220	110-180	0.06-0.12	0.08-0.15	0.10-0.18	0.12-0.22	0.12-0.24	0.13-0.25
	Low alloy steel and cast steel (Less than 5% of alloying elements)	0.55-0.80%	Quenched and tempered	TZ650	300	110-180	0.06-0.12	0.08-0.15	0.10-0.18	0.12-0.22	0.12-0.24	0.13-0.25
					200	120-190	0.06-0.12	0.08-0.14	0.10-0.18	0.12-0.20	0.12-0.20	0.13-0.20
		Annealed	TZ650	275	120-160	0.06-0.15	0.06-0.15	0.08-0.18	0.08-0.18	0.08-0.18	0.08-0.18	
				300	120-160	0.06-0.15	0.06-0.15	0.08-0.18	0.08-0.18	0.08-0.18	0.08-0.18	
	"High alloy steel, cast steel and tool steel"	Annealed	Quenched and tempered	TZ650	200	120-180	0.06-0.10	0.06-0.10	0.08-0.12	0.08-0.14	0.08-0.14	0.08-0.14
					325	120-180	0.06-0.10	0.08-0.12	0.10-0.15	0.12-0.15	0.12-0.18	0.13-0.18
M	"Stainless steel and cast steel"	Ferritic / martensitic	TM450	200	110-230	0.05-0.10	0.06-0.12	0.08-0.15	0.09-0.16	0.10-0.17	0.11-0.18	
		Martensitic		240	110-230	0.05-0.10	0.06-0.12	0.08-0.15	0.09-0.16	0.10-0.17	0.11-0.18	
		Austenitic		180	110-230	0.05-0.10	0.06-0.12	0.08-0.15	0.09-0.16	0.10-0.17	0.11-0.18	
K	Grey cast iron	-	TI620	250	120-200	0.09-0.3	0.09-0.33	0.1-0.36	0.1-0.37	0.01-0.38	0.12-0.48	
N	Aluminium Alloy	-	TN200	-	200-320	0.06-0.17	0.06-0.17	0.06-0.18	0.07-0.20	0.07-0.20	0.08-0.22	
	Copper Alloy	-		-	200-320	0.06-0.17	0.06-0.17	0.06-0.18	0.07-0.20	0.07-0.20	0.08-0.22	

ISO	Material	Condition	First Choice	Hardness		Cutting speed	Feed (mm/rev) vs. drill diameter Drill length 5xD					
				HB	Vc(m/min)		SP..05	SP..06	SP..07	SP..09	SP..11	SP..14
P	Non-alloy steel, cast steel,	<0.25%C	Annealed	TM450	125	200-280	0.04-0.05	0.04-0.05	0.04-0.06	0.04-0.07	0.06-0.08	0.06-0.10
		>=0.25%C	Annealed	TI620	190	120-190	0.06-0.08	0.06-0.08	0.06-0.10	0.07-0.12	0.08-0.13	0.08-0.14
	free cutting steel	<0.55%C	Quenched and tempered	TZ650	250	110-180	0.06-0.10	0.08-0.13	0.10-0.16	0.12-0.20	0.12-0.22	0.13-0.23
		>=0.55%C	Annealed		220	110-180	0.06-0.10	0.08-0.13	0.10-0.16	0.12-0.20	0.12-0.22	0.13-0.23
	Low alloy steel and cast steel (Less than 5% of alloying elements)	0.55-0.80%	Quenched and tempered	TZ650	300	110-180	0.06-0.10	0.08-0.13	0.10-0.16	0.12-0.20	0.12-0.22	0.13-0.23
					200	120-190	0.06-0.10	0.08-0.12	0.10-0.16	0.12-0.18	0.12-0.18	0.13-0.18
		Annealed	TZ650	275	120-160	0.06-0.12	0.06-0.13	0.08-0.16	0.08-0.16	0.08-0.17	0.08-0.17	
				300	120-160	0.06-0.12	0.06-0.13	0.08-0.16	0.08-0.16	0.08-0.17	0.08-0.17	
	"High alloy steel, cast steel and tool steel"	Annealed	Quenched and tempered	TZ650	200	120-180	0.06-0.08	0.06-0.08	0.08-0.10	0.08-0.12	0.08-0.12	0.08-0.12
					325	120-180	0.08-0.09	0.08-0.10	0.10-0.13	0.12-0.13	0.12-0.15	0.12-0.16
M	"Stainless steel and cast steel"	Ferritic / martensitic	TM450	200	110-230	0.05-0.09	0.06-0.10	0.08-0.13	0.09-0.15	0.10-0.15	0.10-0.17	
		Martensitic		240	110-230	0.05-0.09	0.06-0.10	0.08-0.13	0.09-0.15	0.10-0.15	0.10-0.17	
		Austenitic		180	110-230	0.05-0.09	0.06-0.10	0.08-0.13	0.09-0.15	0.10-0.15	0.10-0.17	
K	Grey cast iron	-	TI620	250	120-200	0.09-0.3	0.09-0.33	0.1-0.36	0.1-0.37	0.01-0.38	0.12-0.48	
N	Aluminium Alloy	-	TN200	-	200-320	0.05-0.15	0.05-0.15	0.06-0.16	0.06-0.16	0.06-0.20	0.08-0.18	
	Copper Alloy	-		-	180-280	0.05-0.15	0.05-0.15	0.06-0.16	0.06-0.16	0.07-0.20	0.08-0.18	

Cutting Conditions

Workingpiece Type		Pump Body	Sealing Case
Drill		ZD02-20.0-XP25-SP06-02	ZD03-18.0-XP25-SP06-02
Insert		SPMX060204	SPMX060204
Grade		TM450	TI 620
Work Material		SUS304	S45C
Cutting Conditions	Cutting Speed: Vc(m/min)	100	120
	Feed: f(mm/rev)	0.075	0.1
	Feed Rate: Vf(mm/min)	120	212
	Drilling depth: H(mm)	30	40/20
	Cooling Form:	Wet	Wet
	Machine:	Vertical M/C	Vertical M/C
Result			

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

Cutting Conditions

Workingpiece Type		Pipe Joint	Case
Drill		ZD02-15.0-XP25-SP05-02	ZD02-13.0-XP25-SP05-02
Insert		SPMX050204	SPMX050204
Grade		TM450	TZ650
Work Material		SUS316	42CrMo4(HRC30)
Cutting Conditions	Cutting Speed: Vc(m/min)	120	150
	Feed: f(mm/rev)	0.1	0.1
	Feed Rate: Vf(mm/min)	255	368
	Drilling depth: H(mm)	20	15
	Cooling Form	Wet	Wet
	Machine	NC lathe	M/C
Result			

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

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