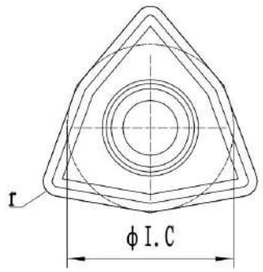
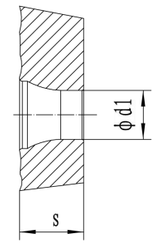
1. Rough processing drills for most machines
2. It is more economical and practical, and has a huge advantage in both cost and machining time compared with common twist drills.
3. Water outlet holes inside for better blade cooling during machining.
4. Inserts with different edges for different workpiece materials.

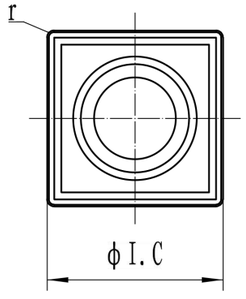


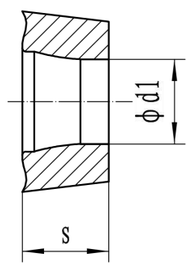






	IC	s	r	d1	Hole Diameter
WCMT 030208	5.56	2.38	0.8	2.8	14-20.5
WCMT 040208	6.35	2.38	0.8	2.9	21-24.5
WCMT 050308	7.94	3.18	0.8	3.4	25-31.5
WCMT 06T308	9.52	3.97	0.8	3.8	32-42.5
WCMT 080412	12.7	4.76	1.2	4.4	43-57.5



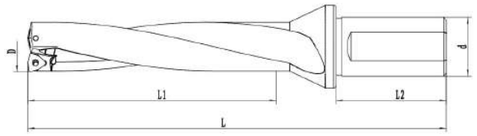




	IC	s	r	d1	Hole Diameter
SPMG 050204	5	2.38	0.4	2.2	13-15
SPMG 060204	6	2.38	0.4	2.6	15.5-21.5
SPMG 07T308	7.94	3.97	0.8	2.8	22-27
SPMG 090408	9.8	4.3	0.8	4.23	27.5-33
SPMG 110408	11.5	4.76	0.8	4.4	33.5-40.5
SPMG 140512	14.3	5.2	1.2	5.75	41-51

2x Diameter WC U Drill

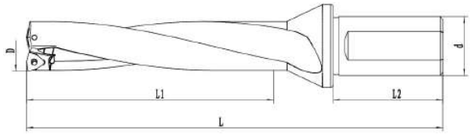




Model	D	L1	L	L2	d
ZD02-14.0-XP25-WC03-02	14	28	106	56	25
ZD02-14.5-XP25-WC03-02	14.5	29	107		
ZD02-15.0-XP25-WC03-02	15	30	108		
ZD02-15.5-XP25-WC03-02	15.5	31	109		
ZD02-16.0-XP25-WC03-02	16	32	110		
ZD02-16.5-XP25-WC03-02	16.5	33	111		
ZD02-17.0-XP25-WC03-02	17	34	112		
ZD02-17.5-XP25-WC03-02	17.5	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
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		
ZD02-28.0-XP32-WC05-02	28	56	147		
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		

2x Diameter WC U Drill

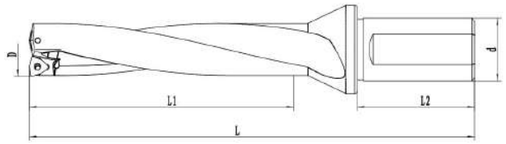




Model	D	L1	L	L2	d
ZD02-32.0-XP32-WC06-02	32	64	155	60	32
ZD02-32.5-XP32-WC06-02	32.5	65	156		
ZD02-33.0-XP32-WC06-02	33	66	157		
ZD02-33.5-XP32-WC06-02	33.5	67	158		
ZD02-34.0-XP32-WC06-02	34	68	159		
ZD02-34.5-XP32-WC06-02	34.5	69	160		
ZD02-35.0-XP32-WC06-02	35	70	161		
ZD02-35.5-XP32-WC06-02	35.5	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
ZD02-44.0-XP40-WC08-02	44	88	188		
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		
ZD02-59.0-XP40-WC06-04	59	118	218		
ZD02-60.0-XP40-WC06-04	60	120	220		

3x Diameter WC U Drill

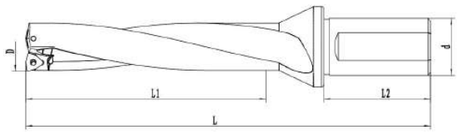




Model	D	L1	L	L2	d
ZD03-14.0-XP25-WC03-02	14	42	120	56	25
ZD03-14.5-XP25-WC03-02	14.5	43.5	122		
ZD03-15.0-XP25-WC03-02	15	45	123		
ZD03-15.5-XP25-WC03-02	15.5	46.5	124		
ZD03-16.0-XP25-WC03-02	16	48	126		
ZD03-16.5-XP25-WC03-02	16.5	49.5	127		
ZD03-17.0-XP25-WC03-02	17	51	129		
ZD03-17.5-XP25-WC03-02	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	137		
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		
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	60	32
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		
ZD03-28.5-XP32-WC05-02	28.5	85.5	176		
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		

3x Diameter WC U Drill

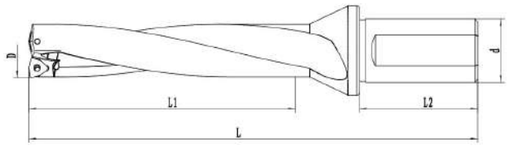




Model	D	L1	L	L2	d
ZD03-32.0-XP32-WC06-02	32	96	187	60	32
ZD03-32.5-XP32-WC06-02	32.5	97.5	188		
ZD03-33.0-XP32-WC06-02	33	99	190		
ZD03-33.5-XP32-WC06-02	33.5	100.5	191		
ZD03-34.0-XP32-WC06-02	34	102	193		
ZD03-34.5-XP32-WC06-02	34.5	103.5	194		
ZD03-35.0-XP32-WC06-02	35	105	196		
ZD03-35.5-XP32-WC06-02	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		
ZD03-39.5-XP32-WC06-02	39.5	118.5	209		
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
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		
ZD03-59.0-XP40-WC06-04	59	177	277		
ZD03-60.0-XP40-WC06-04	60	180	280		

4x Diameter WC U Drill

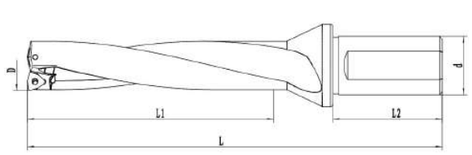




Model	D	L1	L	L2	d
ZD04-14.0-XP25-WC03-02	14	56	134	56	25
ZD04-14.5-XP25-WC03-02	14.5	58	136		
ZD04-15.0-XP25-WC03-02	15	60	138		
ZD04-15.5-XP25-WC03-02	15.5	62	140		
ZD04-16.0-XP25-WC03-02	16	64	142		
ZD04-16.5-XP25-WC03-02	16.5	66	144		
ZD04-17.0-XP25-WC03-02	17	68	146		
ZD04-17.5-XP25-WC03-02	17.5	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		
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
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		
ZD04-28.0-XP32-WC05-02	28	112	203		
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		

4x Diameter WC U Drill

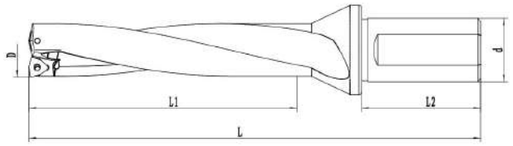




Model	D	L1	L	L2	d
ZD04-32.0-XP32-WC06-02	32	128	219	60	32
ZD04-32.5-XP32-WC06-02	32.5	130	221		
ZD04-33.0-XP32-WC06-02	33	132	223		
ZD04-33.5-XP32-WC06-02	33.5	134	225		
ZD04-34.0-XP32-WC06-02	34	136	227		
ZD04-34.5-XP32-WC06-02	34.5	138	229		
ZD04-35.0-XP32-WC06-02	35	140	231		
ZD04-35.5-XP32-WC06-02	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		
ZD04-43.0-XP40-WC08-02	43	172	272	65	40
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		
ZD04-59.0-XP40-WC06-04	59	236	336		
ZD04-60.0-XP40-WC06-04	60	240	340		

5x Diameter WC U Drill

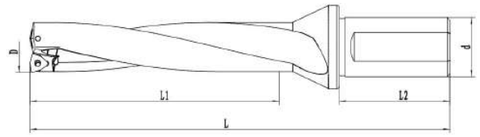




Model	D	L1	L	L2	d
ZD05-14.0-XP25-WC03-02	14	70	148	56	25
ZD05-14.5-XP25-WC03-02	14.5	72.5	150		
ZD05-15.0-XP25-WC03-02	15	75	153		
ZD05-15.5-XP25-WC03-02	15.5	77.5	155		
ZD05-16.0-XP25-WC03-02	16	80	158		
ZD05-16.5-XP25-WC03-02	16.5	82.5	160		
ZD05-17.0-XP25-WC03-02	17	85	163		
ZD05-17.5-XP25-WC03-02	17.5	87.5	165		
ZD05-18.0-XP25-WC03-02	18	90	168		
ZD05-18.5-XP25-WC03-02	18.5	92.5	170		
ZD05-19.0-XP25-WC03-02	19	95	173		
ZD05-19.5-XP25-WC03-02	19.5	97.5	175		
ZD05-20.0-XP25-WC03-02	20	100	179		
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
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		

5x Diameter WC U Drill

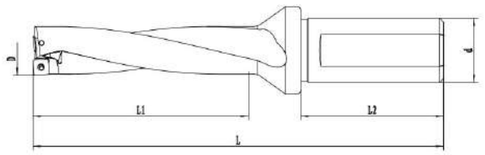




Model	D	L1	L	L2	d
ZD05-32.5-XP32-WC06-02	32.5	162.5	253	60	32
ZD05-33.0-XP32-WC06-02	33	165	256		
ZD05-33.5-XP32-WC06-02	33.5	167.5	258		
ZD05-34.0-XP32-WC06-02	34	170	261		
ZD05-34.5-XP32-WC06-02	34.5	172.5	263		
ZD05-35.0-XP32-WC06-02	35	175	266	60	32
ZD05-35.5-XP32-WC06-02	35.5	177.5	268		
ZD05-36.0-XP32-WC06-02	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		
ZD05-43.0-XP40-WC08-02	43	215	315	65	40
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		

2x Diameter SP U Drill

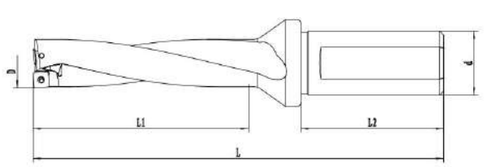




Model	D	L1	L	L2	d
ZD02-13.0-XP25-SP05-02	13	26	104	56	25
ZD02-13.5-XP25-SP05-02	13.5	27	105		
ZD02-14.0-XP25-SP05-02	14	28	106		
ZD02-14.5-XP25-SP05-02	14.5	29	107		
ZD02-15.0-XP25-SP05-02	15	30	108		
ZD02-15.5-XP25-SP06-02	15.5	31	109		
ZD02-16.0-XP25-SP06-02	16	32	110		
ZD02-16.5-XP25-SP06-02	16.5	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		
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
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		
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		

2x Diameter SP U Drill

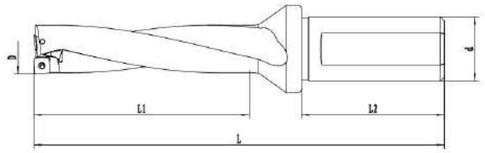




Model	D	L1	L	L2	d
ZD02-31.5-XP32-SP09-02	31.5	63	154	60	32
ZD02-32.0-XP32-SP09-02	32	64	155		
ZD02-32.5-XP32-SP09-02	32.5	65	156		
ZD02-33.0-XP32-SP09-02	33	66	157		
ZD02-33.5-XP32-SP11-02	33.5	67	158		
ZD02-34.0-XP32-SP11-02	34	68	159		
ZD02-34.5-XP32-SP11-02	34.5	69	160		
ZD02-35.0-XP32-SP11-02	35	70	161		
ZD02-35.5-XP32-SP11-02	35.5	71	162		
ZD02-36.0-XP32-SP11-02	36	72	163		
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		
ZD02-42.0-XP32-SP14-02	42	84	175		
ZD02-43.0-XP40-SP14-02	43	86	186	65	40
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		

3x Diameter SP U Drill

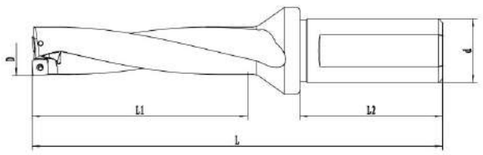




Model	D	L1	L	L2	d
ZD03-13.0-XP25-SP05-02	13	39	117	56	25
ZD03-13.5-XP25-SP05-02	13.5	40.5	118		
ZD03-14.0-XP25-SP05-02	14	42	120		
ZD03-14.5-XP25-SP05-02	14.5	43.5	122		
ZD03-15.0-XP25-SP05-02	15	45	123		
ZD03-15.5-XP25-SP06-02	15.5	46.5	124		
ZD03-16.0-XP25-SP06-02	16	48	126		
ZD03-16.5-XP25-SP06-02	16.5	19.5	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		
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	60	32
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		
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		

3x Diameter SP U Drill

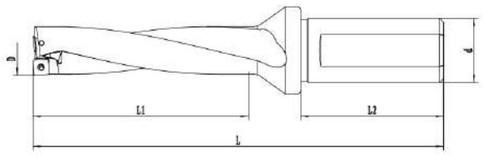




Model	D	L1	L	L2	d
ZD03-31.5-XP32-SP09-02	31.5	94.5	185	60	32
ZD03-32.0-XP32-SP09-02	32	96	187		
ZD03-32.5-XP32-SP09-02	32.5	97.5	188		
ZD03-33.0-XP32-SP09-02	33	99	190		
ZD03-33.5-XP32-SP11-02	33.5	100.5	191		
ZD03-34.0-XP32-SP11-02	34	102	193		
ZD03-34.5-XP32-SP11-02	34.5	103.5	194		
ZD03-35.0-XP32-SP11-02	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		
ZD03-42.0-XP32-SP14-02	42	126	217		
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	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		
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	174	274		
ZD03-59.0-XP40-SP09-04	59	177	277		
ZD03-60.0-XP40-SP09-04	60	180	280		

4x Diameter SP U Drill

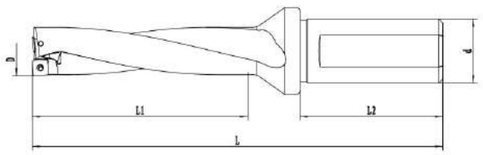




Model	D	L1	L	L2	d
ZD04-13.0-XP25-SP05-02	13	52	130	56	25
ZD04-13.5-XP25-SP05-02	13.5	54	132		
ZD04-14.0-XP25-SP05-02	14	56	134		
ZD04-14.5-XP25-SP05-02	14.5	58	136		
ZD04-15.0-XP25-SP05-02	15	60	138		
ZD04-15.5-XP25-SP06-02	15.5	62	140		
ZD04-16.0-XP25-SP06-02	16	64	142		
ZD04-16.5-XP25-SP06-02	16.5	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		
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
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		

4x Diameter SP U Drill

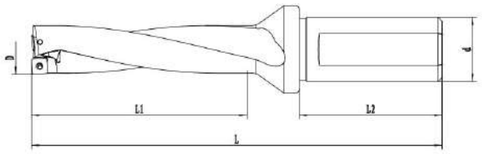




Model	D	L1	L	L2	d
ZD04-31.5-XP32-SP09-02	31.5	126	217	60	32
ZD04-32.0-XP32-SP09-02	32	128	219		
ZD04-32.5-XP32-SP09-02	32.5	130	221		
ZD04-33.0-XP32-SP09-02	33	132	223		
ZD04-33.5-XP32-SP11-02	33.5	134	225		
ZD04-34.0-XP32-SP11-02	34	136	227		
ZD04-34.5-XP32-SP11-02	34.5	138	229		
ZD04-35.0-XP32-SP11-02	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		
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		
ZD04-42.0-XP32-SP14-02	42	168	259		
ZD04-43.0-XP40-SP14-02	43	172	272	65	40
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		

5x Diameter SP U Drill

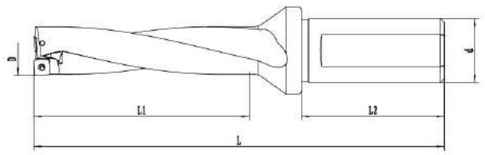




Model	D	L1	L	L2	d
ZD05-14.0-XP25-SP05-02	14	70	148	56	25
ZD05-14.5-XP25-SP05-02	14.5	72.5	150		
ZD05-15.0-XP25-SP05-02	15	75	153		
ZD05-15.5-XP25-SP06-02	15.5	77.5	155		
ZD05-16.0-XP25-SP06-02	16	80	158		
ZD05-16.5-XP25-SP06-02	16.5	82.5	160		
ZD05-17.0-XP25-SP06-02	17	85	163		
ZD05-17.5-XP25-SP06-02	17.5	87.5	165		
ZD05-18.0-XP25-SP06-02	18	90	168		
ZD05-18.5-XP25-SP06-02	18.5	92.5	170		
ZD05-19.0-XP25-SP06-02	19	95	173		
ZD05-19.5-XP25-SP06-02	19.5	97.5	175		
ZD05-20.0-XP25-SP06-02	20	100	179		
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
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		

5x Diameter SP U Drill





Model	D	L1	L	L2	d
ZD05-32.5-XP32-SP09-02	32.5	162.5	253	60	32
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	60	32
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	65	40
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		

Blind Hole Bottom Dimension Description



Shape of SP Inserts

Model	Wave Height(a)
SPMG050204	0.30mm
SPMG060204	0.40mm
SPMG07T308	0.50mm
SPMG090408	0.70mm
SPMG110408	0.80mm
SPMG140512	0.90mm



Quadrilateral Insert
Shallow Hole Drill



Shape of WC Inserts

Model	Wave Height(a)
WCMT030208	0.50mm
WCMT040208	0.70mm
WCMT050308	0.80mm
WCMT06T308	0.95mm
WCMT080412	1.25mm



Shallow Hole Drilling with Equilateral Unequal Hexagonal Inserts

Drill Rotation Speed

$$n = \frac{Vc \times 1000}{\pi \times Dc}$$

Vc(m/min): Line Speed
Dc(mm): Insert Diameter
n(rev/min): Rotation Speed

For example,
Insert Line Speed=100m/min,
Drill Diameter=20mm, so the rotation speed:

$$n = \frac{100 \times 1000}{3.14 \times 20} = 1600 \text{rev/min}$$

Feed Rate

$$Vf = Fr \times n$$

Vf(mm/min): Feed Rate
Fr(mm/rev): Feed per Revolution
n(rev/min): Spindle Speed

For example,
Spindle Speed=1600rev/min, Feed per Revolution=0.1mm/rev, so the Feed Rate:

$$Vf = Fr \times n = 1600 \times 0.1 = 160 mm/\text{min}$$

Processing Time

$$Tc = \frac{H}{Vf} \times 60$$

Tc(s): Processing Time
H(mm): Hole Depth

For example,
Hole Diameter=20mm, Hole Depth=40mm, Feed Rate=140mm/min, so the Processing Time:

$$Tc = \frac{H}{Vf} \times 60 = \frac{40}{140} \times 60 = 17s$$