



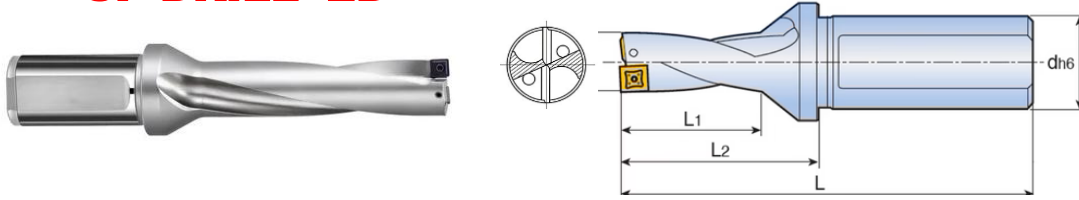
HOLE MAKING

INDEXABLE DRILL

SR NO	APPLICATION	PAGE NO
1	SPMG UDRILL 2/3/4/5D	E01-E09
2	SPMT & XOMT UDRILL 2/3/4 D	E10-E16
3	QCMT UDRILL 2.5/3.5 D	E17-E18
4	K-DRILL 3/5/8/10D	E19-E20
5	WCMT UDRILL 2/3/4/5D	E21-E29

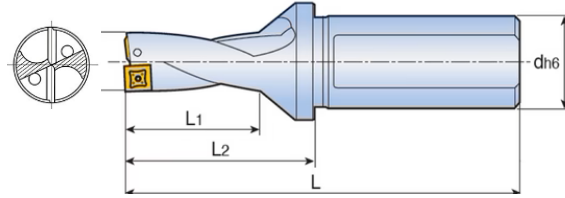


SP DRILL 2D



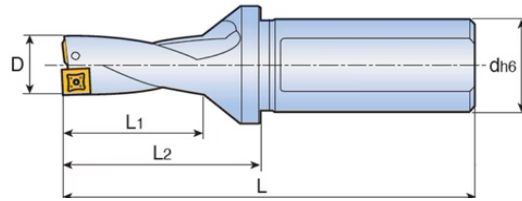
Designation	Dimension (mm)					Insert	Spare Parts	
	D	dh6	L2	L1	L		Screw	Torx
SP12.5-2D-C20	12.5	20	44	26	94	SPMG 050204 DG/DQ	M2*5	TD 6P
SP13-2D-C20	13.0	20	44	26	94		M2*5	TD 6P
SP13.5-2D-C20	13.5	20	46	28	96		M2*5	TD 6P
SP14-2D-C20	14.0	20	46	28	96		M2*5	TD 6P
SP14.5-2D-C20	14.5	20	49	30	99		M2*5	TD 6P
SP15-2D-C20	15.0	20	49	30	99		M2*5	TD 6P
SP15.5-2D-C25	15.5	25	52	32	108	SPMG 060204 DG/DQ	M2.2*5	TD 7
SP16-2D-C25	16.0	25	52	32	108		M2.2*5	TD 7
SP16.5-2D-C25	16.5	25	54	34	110		M2.2*5	TD 7
SP17-2D-C25	17.0	25	54	34	110		M2.2*5	TD 7
SP17.5-2D-C25	17.5	25	57	36	113		M2.2*5	TD 7
SP18-2D-C25	18.0	25	57	36	113		M2.2*5	TD 7
SP18.5-2D-C25	18.5	25	59	38	115		M2.2*5	TD 7
SP19-2D-C25	19.0	25	59	38	115		M2.2*5	TD 7
SP19.5-2D-C25	19.5	25	63	40	119		M2.2*5	TD 7
SP20-2D-C25	20.0	25	63	40	119		M2.2*5	TD 7
SP20.5-2D-C25	20.5	25	65	42	121		M2.2*5	TD 7
SP21-2D-C25	21.0	25	65	42	121		M2.2*5	TD 7
SP21.5-2D-C25	21.5	25	67	44	123		M2.2*5	TD 7
SP22-2D-C25	22.0	25	67	44	123		M2.2*5	TD 8
SP22.5-2D-C25	22.5	25	71	46	131	M2.5*5	TD 8	
SP23-2D-C25	23.0	25	71	46	131	M2.5*5	TD 8	
SP23.5-2D-C25	23.5	25	74	48	134	M2.5*5	TD 8	
SP24-2D-C25	24.0	25	74	48	134	M2.5*5	TD 8	
SP24.5-2D-C25	24.5	25	77	50	137	M2.5*5	TD 8	
SP25-2D-C25	25.0	25	77	50	137	M2.5*5	TD 8	
SP25.5-2D-C25	25.5	25	79	52	139	M2.5*5	TD 8	
SP26-2D-C25	26.0	25	79	52	139	M2.5*5	TD 8	
SP26.5-2D-25	26.5	25	81	54	141	M2.5*5	TD 8	
SP27-2D-C25	27.0	25	81	54	141	M2.5*5	TD 8	
SP27.5-2D-C25	27.5	25	84	56	144	M2.5*5	TD 8	

SP DRILL 2D



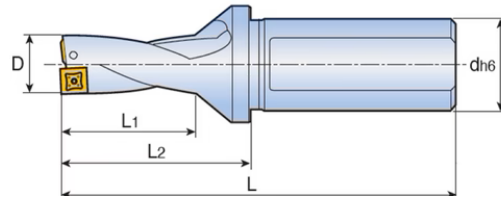
Designation	Dimension (mm)					Insert	Spare Parts	
	D	dh6	L2	L1	L		Screw	Torx
SP28-2D-C32	28.0	32	84	56	144	SPMG 090408 DG/DQ	M3.5*8	TD 10
SP28.5-2D-C32	28.5	32	86	58	146		M3.5*8	TD10
SP29-2D-C32	29.0	32	86	58	146		M3.5*8	TD10
SP29.5-2D-C32	29.5	32	91	60	151		M3.5*8	TD10
SP30-2D-C32	30.0	32	91	60	151		M3.5*8	TD10
SP30.5-2D-C32	30.5	32	94	62	154		M3.5*8	TD10
SP31-2D-C32	31.0	32	94	62	154		M3.5*8	TD10
SP31.5-2D-C32	31.5	32	96	64	156		M3.5*8	TD10
SP32-2D-C32	32.0	32	96	64	156		M3.5*8	TD10
SP32.5-2D-C40	32.5	40	99	66	159		M3.5*8	TD10
SP33-2D-C40	33.0	40	99	66	159	M3.5*8	TD10	
SP34-2D-C40	34.0	40	101	68	161	SPMG 110408 DG/DQ	M4*10	TD15
SP35-2D-C40	35.0	40	104	70	164		M4*10	TD15
SP36-2D-C40	36.0	40	107	72	177		M4*10	TD15
SP37-2D-C40	37.0	40	110	74	180		M4*10	TD15
SP38-2D-C40	38.0	40	113	76	183		M4*10	TD15
SP39-2D-C40	39.0	40	115	78	185		M4*10	TD15
SP40-2D-C40	40.0	40	118	80	188		M4*10	TD15
SP41-2D-C40	41.0	40	121	82	191	M4*10	TD15	
SP42-2D-C40	42.0	40	123	84	193	SPMG 140512 DG/DQ	M5*12	TD20
SP43-2D-C40	43.0	40	126	86	196		M5*12	TD20
SP44-2D-C40	44.0	40	128	88	198		M5*12	TD20
SP45-2D-C40	45.0	40	132	90	202		M5*12	TD20
SP46-2D-C40	46.0	40	135	92	205		M5*12	TD20
SP47-2D-C40	47.0	40	137	94	207		M5*12	TD20
SP48-2D-C40	48.0	40	140	96	210		M5*12	TD20
SP49-2D-C40	49.0	40	142	98	212		M5*12	TD20
SP50-2D-C40	50.0	40	145	100	215		M5*12	TD20

SP DRILL 3D



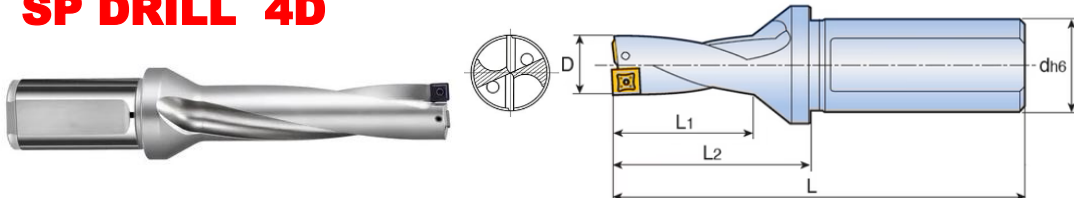
Designation	Dimension (mm)					Insert	Spare Parts	
	D	dh6	L2	L1	L		Screw	Torx
SP12.5-3D-C20	12.5	20	57	39	107	SPMG 050204 DG/DQ	M2*5	TD 6P
SP13-3D-C20	13.0	20	57	39	107		M2*5	TD 6P
SP13.5-3D-C20	13.5	20	60	42	110		M2*5	TD 6P
SP14-3D-C20	14.0	20	60	42	110		M2*5	TD 6P
SP14.5-3D-C20	14.5	20	64	45	114		M2*5	TD 6P
SP15-3D-C20	15.0	20	64	45	114		M2*5	TD 6P
SP15.5-3D-C25	15.5	25	68	48	124		M2.2*5	TD 7
SP16-3D-C25	16.0	25	68	48	124		M2.2*5	TD 7
SP16.5-3D-C25	16.5	25	71	51	127		M2.2*5	TD 7
SP17-3D-C25	17.0	25	71	51	127		M2.2*5	TD 7
SP17.5-3D-C25	17.5	25	75	54	131	SPMG 060204 DG/DQ	M2.2*5	TD 7
SP18-3D-C25	18.0	25	75	54	131		M2.2*5	TD 7
SP18.5-3D-C25	18.5	25	78	57	134		M2.2*5	TD 7
SP19-3D-C25	19.0	25	78	57	134		M2.2*5	TD 7
SP19.5-3D-C25	19.5	25	83	60	139		M2.2*5	TD 7
SP20-3D-C25	20.0	25	83	60	139		M2.2*5	TD 7
SP20.5-3D-C25	20.5	25	86	63	142		M2.2*5	TD 7
SP21-3D-C25	21.0	25	86	63	142		M2.2*5	TD 7
SP21.5-3D-C25	21.5	25	89	66	145		M2.2*5	TD 7
SP22-3D-C25	22.0	25	89	66	145		M2.5*6	TD 8
SP22.5-3D-C25	22.5	25	94	69	150	SPMG 07T308 DG/DQ	M2.5*6	TD 8
SP23-3D-C25	23.0	25	94	69	150		M2.5*6	TD 8
SP23.5-3D-C25	23.5	25	98	72	154		M2.5*6	TD 8
SP24-3D-C25	24.0	25	98	72	154		M2.5*6	TD 8
SP24.5-3D-C25	24.5	25	102	75	158		M2.5*6	TD 8
SP25-3D-C25	25.0	25	102	75	158		M2.5*6	TD 8
SP25.5-3D-C25	25.5	25	105	78	161		M2.5*6	TD 8
SP26-3D-C25	26.0	25	105	78	161		M2.5*6	TD 8
SP26.5-3D-C25	26.5	25	108	81	164		M2.5*6	TD 8
SP27-3D-C25	27.0	25	108	81	164		M2.5*6	TD 8
SP27.5-3D-C25	27.5	25	112	84	168	M2.5*6	TD 8	

SP DRILL 3D



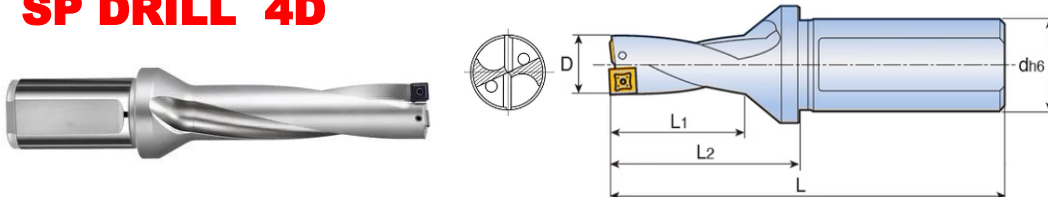
Designation	Dimension (mm)					Insert	Spare Parts	
	D	dh6	L2	L1	L		Screw	Torx
SP28-3D-C32	28.0	32	112	84	172	SPMG 090408 DG/DQ	M3.5*8	TD 10
SP28.5-3D-C32	28.5	32	115	87	171		M3.5*8	TD 10
SP29-3D-C32	29.0	32	115	87	175		M3.5*8	TD 10
SP29.5-3D-C32	29.5	32	121	90	181		M3.5*8	TD 10
SP30-3D-C32	30.0	32	121	90	181		M3.5*8	TD 10
SP30.5-3D-C32	30.5	32	125	93	185		M3.5*8	TD 10
SP31-3D-C32	31.0	32	125	93	185		M3.5*8	TD 10
SP31.5-3D-C32	31.5	32	128	96	188		M3.5*8	TD 10
SP32-3D-C32	32.0	32	128	96	188		M3.5*8	TD 10
SP32.5-3D-C40	32.5	40	132	99	202		M3.5*8	TD 10
SP33-3D-C40	33.0	40	132	99	202	M4*10	TD 10	
SP34-3D-C40	34.0	40	135	102	205	SPMG 110408 DG/DQ	M4*10	TD 15
SP35-3D-C40	35.0	40	139	105	209		M4*10	TD 15
SP36-3D-C40	36.0	40	143	108	213		M4*10	TD 15
SP37-3D-C40	37.0	40	147	111	217		M4*10	TD 15
SP37.5-3D-C40	37.5	40	151	114	221		M4*10	TD 15
SP38-3D-C40	38.0	40	151	114	221		M4*10	TD 15
SP39-3D-C40	39.0	40	154	117	224		M4*10	TD 15
SP40-3D-C40	40.0	40	158	120	228		M4*10	TD 15
SP40.5-3D-C40	40.5	40	162	123	232		M4*10	TD 15
SP41-3D-C40	41.0	40	162	123	232		M4*10	TD 15
SP42-3D-C40	42.0	40	165	126	235	SPMG 140512 DG/DQ	M5*12	TD 20
SP43-3D-C40	43.0	40	169	129	239		M5*12	TD 20
SP44-3D-C40	44.0	40	172	132	242		M5*12	TD 20
SP45-3D-C40	45.0	40	177	135	247		M5*12	TD 20
SP46-3D-C40	46.0	40	181	138	251		M5*12	TD 20
SP47-3D-C40	47.0	40	184	141	254		M5*12	TD 20
SP48-3D-C40	48.0	40	188	144	258		M5*12	TD 20
SP49-3D-C40	49.0	40	191	147	261		M5*12	TD 20
SP50-3D-C40	50.0	40	195	150	265		M5*12	TD 20

SP DRILL 4D



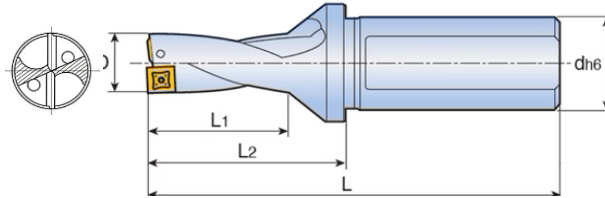
Designation	Dimension (mm)					Insert	Spare Parts	
	D	dh6	L2	L1	L		Screw	Torx
SP12.5-4D-C20	12.5	20	70	52	120	SPMG 050204 DG/DQ	M	TD 6P
SP13-4D-C20	13.0	20	70	52	120		M2*5	TD 6P
SP13.5-4D-C20	13.5	20	74	56	124		M2*5	TD 6P
SP14-4D-C20	14.0	20	74	56	124		M2*5	TD 6P
SP14.5-4D-C20	14.5	20	79	60	129		M2*5	TD 6P
SP15-4D-C20	15.0	20	79	60	129		M2*5	TD 6P
SP15.5-4D-C25	15.5	25	84	64	140	SPMG 060204 DG/DQ	M2.2*5	TD 7
SP16-4D-C25	16.0	25	84	64	140		M2.2*5	TD 7
SP16.5-4D-C25	16.5	25	88	68	144		M2.2*5	TD 7
SP17-4D-C25	17.0	25	88	68	144		M2.2*5	TD 7
SP17.5-4D-C25	17.5	25	93	72	149		M2.2*5	TD 7
SP18-4D-C25	18.0	25	93	72	149		M2.2*5	TD 7
SP18.5-4D-C25	18.5	25	97	76	153		M2.2*5	TD 7
SP19-4D-C25	19.0	25	97	76	153		M2.2*5	TD 7
SP19.5-4D-C25	19.5	25	103	80	159		M2.2*5	TD 7
SP20-4D-C25	20.0	25	103	80	159		M2.2*5	TD 7
SP20.5-4D-C25	20.5	25	107	84	163		M2.2*5	TD 7
SP21-4D-C25	21.0	25	107	84	163		M2.2*5	TD 7
SP21.5-4D-C25	21.5	25	111	88	167		M2.2*5	TD 7
SP22-4D-C25	22.0	25	111	88	167		M2.5*6	TD 8
SP22.5-4D-C25	22.5	25	117	92	173	M2.5*6	TD 8	
SP23-4D-C25	23.0	25	117	92	173	M2.5*6	TD 8	
SP23.5-4D-C25	23.5	25	122	96	178	M2.5*6	TD 8	
SP24-4D-C25	24.0	25	122	96	178	M2.5*6	TD 8	
SP24.5-4D-C25	24.5	25	127	100	183	M2.5*6	TD 8	
SP25-4D-C25	25.0	25	127	100	183	M2.5*6	TD 8	
SP25.5-4D-C32	25.5	32	131	104	187	M2.5*6	TD 8	
SP26-4D-C32	26.0	32	131	104	187	M2.5*6	TD 8	
SP26.5-4D-C32	26.5	32	135	108	191	M2.5*6	TD 8	
SP27-4D-C32	27.0	32	135	108	191	M2.5*6	TD 8	
SP27.5-4D-C32	27.5	32	140	112	196	M2.5*6	TD 8	

SP DRILL 4D



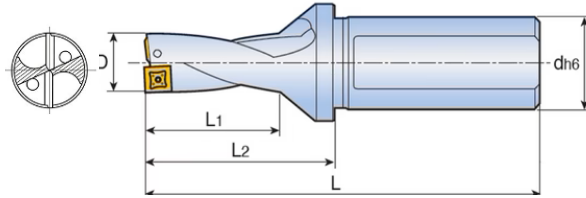
Designation	Dimension (mm)					Insert	Spare Parts		
	D	dh6	L2	L1	L		Screw	Torx	
SP28-4D-C32	28.0	32	140	112	196	SPMG 090408 DG/DQ	M3.5*8	TD 10	
SP28.5-4D-C32	28.5	32	144	116	204		M3.5*8	TD 10	
SP29-4D-C32	29.0	32	144	116	204		M3.5*8	TD 10	
SP29.5-4D-C32	29.5	32	151	120	211		M3.5*8	TD 10	
SP30-4D-C32	30.0	32	151	120	211		M3.5*8	TD 10	
SP30.5-4D-C32	30.5	32	156	124	216		M3.5*8	TD 10	
SP31-4D-C32	31.0	32	156	124	216		M3.5*8	TD 10	
SP31.5-4D-C32	31.5	32	160	128	220		M3.5*8	TD 10	
SP32-4D-C32	32.0	32	160	128	220		M3.5*8	TD 10	
SP32-4D-C40	32.0	40	160	128	230		M3.5*8	TD 10	
SP32.5-4D-C40	32.5	40	165	132	235		M3.5*8	TD 10	
SP33-4D-C40	33.0	40	165	132	235		M3.5*8	TD 10	
SP34-4D-40	34.0	40	169	136	239		SPMG 140512 DG/DQ	M4*10	TD 15
SP35-4D-C40	35.0	40	174	140	244			M4*10	TD 15
SP36-4D-C40	36.0	40	179	144	249			M4*10	TD 15
SP37-4D-C40	37.0	40	184	148	254			M4*10	TD 15
SP38-4D-C40	38.0	40	189	152	259	M4*10		TD 15	
SP39-4D-C40	39.0	40	193	156	263	M4*10		TD 15	
SP40-4D-C40	40.0	40	198	160	268	M4*10		TD 15	
SP41-4D-C40	41.0	40	203	164	273	M4*10		TD 15	
SP42-4D-C40	42.0	40	207	168	277	M5*12		TD 20	
SP43-4D-C40	43.0	40	212	172	282	M5*12		TD 20	
SP44-4D-C40	44.0	40	216	176	286	M5*12	TD 20		
SP45-4D-C40	45.0	40	222	180	292	M5*12	TD 20		
SP46-4D-C40	46.0	40	227	184	297	M5*12	TD 20		
SP47-4D-C40	47.0	40	231	188	301	M5*12	TD 20		
SP48-4D-C40	48.0	40	236	192	306	M5*12	TD 20		
SP49-4D-40	49.0	40	240	196	310	M5*12	TD 20		
SP50-4D-C40	50.0	40	245	200	315	M5*12	TD 20		

SP DRILL 5D

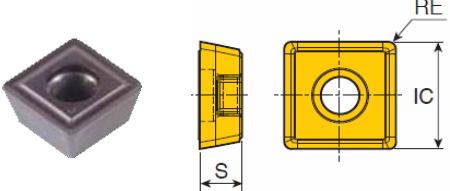


Designation	Dimension (mm)					Insert	Spare Parts	
	D	dh6	L2	L1	L		Screw	Torx
SP12.5-5D-C20	12.5	20	83	65	133	SPMG 050204 DG/DQ	M2*5	TD 6P
SP13-5D-C20	13.0	20	83	65	133		M2*5	TD 6P
SP13.5-5D-C20	13.5	20	88	70	138		M2*5	TD 6P
SP14-5D-C20	14.0	20	88	70	138		M2*5	TD 6P
SP14.5-5D-C20	14.5	20	94	75	144		M2*5	TD 6P
SP15-5D-C20	15.0	20	94	75	144	SPMG 060204 DG/DQ	M2*5	TD 6P
SP15.5-5D-C25	15.5	25	100	80	156		M2.2*5	TD 7
SP16-5D-C25	16.0	25	100	80	156		M2.2*5	TD 7
SP16.5-5D-C25	16.5	25	105	85	161		M2.2*5	TD 7
SP17-5D-C25	17.0	25	105	85	161		M2.2*5	TD 7
SP17.5-5D-C25	17.5	25	111	90	167		M2.2*5	TD 7
SP18-5D-C25	18.0	25	111	90	167		M2.2*5	TD 7
SP18.5-5D-C25	18.5	25	116	95	172		M2.2*5	TD 7
SP19-5D-C25	19.0	25	116	95	172		M2.2*5	TD 7
SP19.5-5D-C25	19.5	25	123	100	179		M2.2*5	TD 7
SP20-5D-C25	20.0	25	123	100	179		M2.2*5	TD 7
SP20.5-5D-C25	20.5	25	128	105	184		M2.2*5	TD 7
SP21-5D-C25	21.0	25	128	105	184		M2.2*5	TD 7
SP21.5-5D-C25	21.5	25	133	110	189		M2.2*5	TD 7
SP22-5D-C25	22.0	25	133	110	189		M2.5*6	TD 8
SP22.5-5D-C25	22.5	25	140	115	200	SPMG 07T308 DG/DQ	M2.5*6	TD 8
SP23-5D-C32	23.0	32	140	115	200		M2.5*6	TD 8
SP23.5-5D-C32	23.5	32	146	120	206		M2.5*6	TD 8
SP24-5D-C32	24.0	32	146	120	206		M2.5*6	TD 8
SP24.5-5D-C32	24.5	32	152	125	212		M2.5*6	TD 8
SP25-5D-C32	25.0	32	152	125	212		M2.5*6	TD 8
SP25.5-5D-C32	25.5	32	157	130	217		M2.5*6	TD 8
SP26-5D-C32	26.0	32	157	130	217		M2.5*6	TD 8
SP26.5-5D-C32	26.5	32	162	135	222		M2.5*6	TD 8
SP27-5D-C32	27.0	32	162	135	222		M2.5*6	TD 8
SP27.5-5D-C32	27.5	32	168	140	228	M2.5*6	TD 8	

SP DRILL 5D



Designation	Dimension (mm)					Insert	Spare Parts	
	D	dh6	L2	L1	L		Screw	Torx
SP28-5D-C32	28.0	32	168	140	228	SPMG 090408 DG/DQ	M3.5*8	TD 10
SP28.5-5D-C32	28.5	32	173	145	233		M3.5*8	TD 10
SP29-5D-C32	29.0	32	173	145	233		M3.5*8	TD 10
SP29.5-5D-32	29.5	32	181	150	241		M3.5*8	TD 10
SP30-5D-C32	30.0	32	181	150	241		M3.5*8	TD 10
SP31-5D-C32	31.0	32	187	155	247		M3.5*8	TD 10
SP32-5D-C32	32.0	32	192	160	252		M3.5*8	TD 10
SP33-5D-C40	33.0	40	198	165	268		M3.5*8	TD 10
SP34-5D-C40	34.0	40	203	170	273	SPMG 140512 DG/DQ	M4*10	TD 15
SP35-5D-C40	35.0	40	209	175	279		M4*10	TD 15
SP36-5D-C40	36.0	40	215	180	285		M4*10	TD 15
SP37-5D-C40	37.0	40	221	185	291		M4*10	TD 15
SP38-5D-C40	38.0	40	227	190	297		M4*10	TD 15
SP39-5D-C40	39.0	40	232	195	302		M4*10	TD 15
SP40-5D-C40	40.0	40	238	200	308		M4*10	TD 15
SP41-5D-C40	41.0	40	244	205	314		M4*10	TD 15
SP42-5D-C40	42.0	40	249	210	319	SPMG 140512 DG/DQ	M5*12	TD 20
SP43-5D-C40	43.0	40	255	215	325		M5*12	TD 20
SP44-5D-C40	44.0	40	260	220	330		M5*12	TD 20
SP45-5D-C40	45.0	40	267	225	337		M5*12	TD 20
SP46-5D-C40	46.0	40	273	230	343		M5*12	TD 20
SP47-5D-C40	47.0	40	278	235	348		M5*12	TD 20
SP48-5D-C40	48.0	40	284	240	354		M5*12	TD 20
SP49-5D-C40	49.0	40	289	245	359		M5*12	TD 20
SP50-5D-C40	50.0	40	295	250	365	M5*12	TD 20	

Designation	Dimension (mm)				Drill range	
	IC	S	R	D1		
SPMG 050204 DG	5.00	2.38	0.4	2.25	12.5-15.0	
SPMG 060204 DG	6.00	2.38	0.4	2.61	15.5-21.5	
SPMG 07T308 DG	7.94	3.97	0.8	2.85	22.0-27.5	
SPMG 090408 DG	9.80	4.30	0.8	4.05	28.0-33.0	
SPMG 110408 DG	11.50	4.80	0.8	4.45	34.0-41.0	
SPMG 120408 DG	12.70	4.76	0.8	4.37	74.0-80.0	
SPMG 140512 DG	14.30	5.20	1.2	5.75	42.0-50.0	

INSERT GRADE

AS9030 :General Purpose

AS1007 : alloy steel

AS3035 : AVOVE 45HRC

Calculations for Drilling

Cutting Speed	$V_c = \frac{\pi \times D \times n}{1,000}$	$V_c =$ Cutting Speed (m/min)
Spindle Speed	$n = V_c \div \pi \div D \times 1,000$	$\pi =$ 3.14 [The Circular Constant]
Feed	$V_f = n \times fz \times Z$	$D =$ Diameter (mm)
Feed per Tooth	$fz = \frac{V_f}{n \times Z}$	$n =$ Spindle Speed (min^{-1})
		$V_f =$ Feed (mm/min)
		$fz =$ Feed per Tooth (mm/tooth)
		$Z =$ Number of Flutes

Indexable Insert Drill Cutting Condition

Recommended Cutting Parameters (2D & 3D)

	Workpiece Material	Hard HB	VC (m/min)	f (mm/rev)				
				13-18	18.5-29	29.5-36	37-55	56-68
P	SS400,S15C	125	145 (115-190)	0.07 (0.03-0.11)	0.07 (0.03-0.11)	0.07 (0.03-0.12)	0.10 (0.05-0.14)	0.11 (0.06-0.16)
	S45C	180	130 (85-170)	0.12 (0.07-0.22)	0.12 (0.07-0.22)	0.13 (0.07-0.24)	0.15 (0.08-0.27)	0.16 (0.09-0.30)
	S45C	270	105 (70-140)	0.10 (0.05-0.17)	0.10 (0.05-0.17)	0.11 (0.05-0.18)	0.12 (0.06-0.20)	0.07 (0.07-0.22)
	S15C,S75C,SCM,SNCM	180	120 (85-155)	0.09 (0.04-0.13)	0.07 (0.04-0.13)	0.07 (0.04-0.15)	0.08 (0.05-0.16)	0.09 (0.06-0.18)
	S15C,S75C,SCM,SNCM	300	105 (70-140)	0.10 (0.05-0.16)	0.10 (0.05-0.16)	0.11 (0.05-0.17)	0.12 (0.06-0.19)	0.13 (0.07-0.20)
	SKD,SKT,SKH	200	115 (85-140)	0.12 (0.07-0.22)	0.12(0.07-0.22)	0.13 (0.07-0.24)	0.15 (0.08-0.27)	0.16 (0.09-0.22)
	SKD,SKT,SKH	325	85 (70-105)	0.10 (0.05-0.17)	0.10 (0.05-0.17)	0.11 (0.05-0.18)	0.12 (0.06-0.20)	0.13 (0.07-0.22)
M	SUS403	200	120 (85-155)	0.10 (0.05-0.17)	0.10 (0.05-0.17)	0.11 (0.05-0.18)	0.12 (0.06-0.20)	0.13 (0.08-0.22)
	SUS403	240	105 (80-130)	0.10 (0.05-0.17)	0.10 (0.05-0.17)	0.11 (0.05-0.18)	0.12 (0.06-0.20)	0.13 (0.08-0.22)
	SUS304,SUS316	180	120 (85-155)	0.10 (0.05-0.17)	0.10 (0.05-0.17)	0.11 (0.5-0.18)	0.12 (0.06-0.20)	0.13 (0.08-0.22)
K	Gray Cast Iron		140 (105-170)	0.19 (0.08-0.30)	0.20 (0.09-0.34)	0.22 (0.10-0.37)	0.24 (0.11-0.41)	0.27 (0.12-0.45)
	Nodular Cast Iron		105 (80-130)	0.19 (0.08-0.30)	0.20 (0.09-0.34)	0.22 (0.10-0.37)	0.24 (0.11-0.41)	0.27 (0.12-0.45)
S	Heat Resistant Alloy	200	45 (25-60)	0.10 (0.05-0.17)	0.10 (0.05-0.17)	0.11 (0.05-0.18)	0.12 (0.06-0.20)	0.13 (0.07-0.22)
N	Non Ferrous Metals		200 (155-240)	0.10 (0.05-0.16)	0.10 (0.05-0.16)	0.11 (0.05-0.17)	0.12 (0.06-0.19)	0.13 (0.07-0.20)

Recommended Cutting Parameters (4D) : Parameter decrease 15%

Recommended Cutting Parameters (5D) : Parameter decrease 20%

TYPE	Allowable Error
2D	(+/-)0.05 to 0.15
3D	(+/-) 0 to 0.20
4D	(+/-) 0 to 0.25
5D	(+/-) 0 to 0.25