

INDEXABLE DRILLING

MULTI-MAT™



LAMINA
TECHNOLOGIES

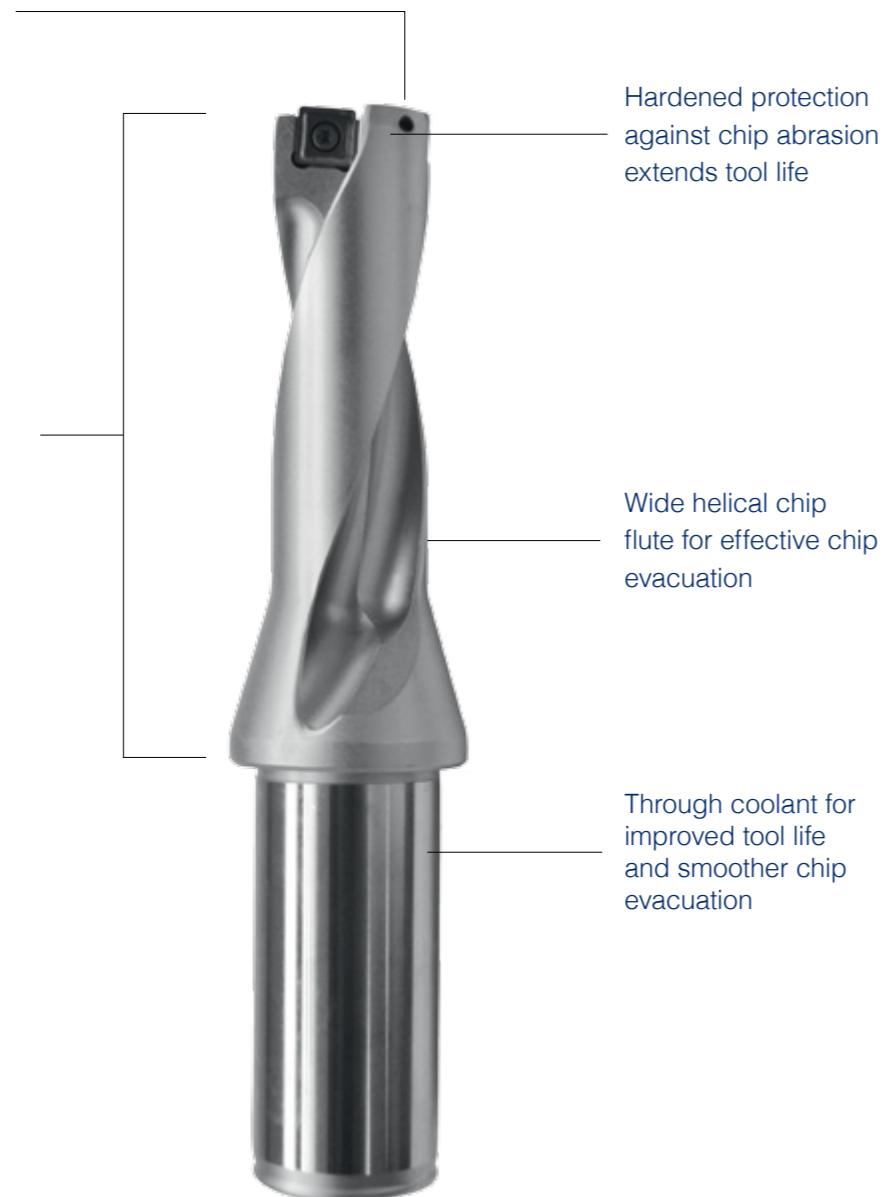
INDEXABLE DRILLING

Multi-Mat™ indexable drilling solutions for general drilling needs in a variety of materials.

Lamina Technologies offers a range of high quality drill bodies. Combining our drill bodies with the Lamina pioneering Multi-Mat™ inserts increases your productivity while decreasing your stock of redundant tools and reducing your machining down time.

Diameter range
Ø12.5 - Ø41

Available in drill depths of
2xD, 3xD, 4xD



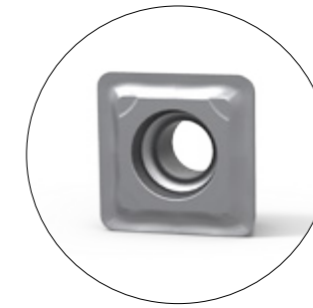
Hardened protection against chip abrasion extends tool life

Wide helical chip flute for effective chip evacuation

Through coolant for improved tool life and smoother chip evacuation

DRILLING INSERTS

Our SPMG Multi-Mat™ drilling inserts are designed with optimized grade and geometry for high performance in steel, stainless steel, cast iron and hardened metals. Our inserts are also suitable for super alloys and aluminum.



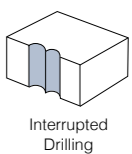
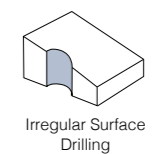
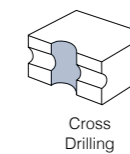
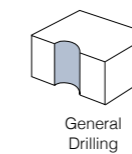
- Same insert for both inner and outer pocket
- Multi-Mat™ grade and geometry provide more versatility and reduced stock of unused inserts.
- 4 cutting edges

DESIGNATION	L	S	R	DIRECTION	CATALOG #
SPMG 050204 NN LT 30	5.0	2.38	0.40	Neutral	M3003882
SPMG 060204 NN LT 30	6.0	2.38	0.40	Neutral	M3002913
SPMG 07T308 NN LT 30	7.94	3.97	0.80	Neutral	M3002914
SPMG 090408 NN LT 30	9.80	4.30	0.80	Neutral	M3002915
SPMG 110408 NN LT 30	11.50	4.80	0.80	Neutral	M3003883

RECOMMENDED

SUITABLE

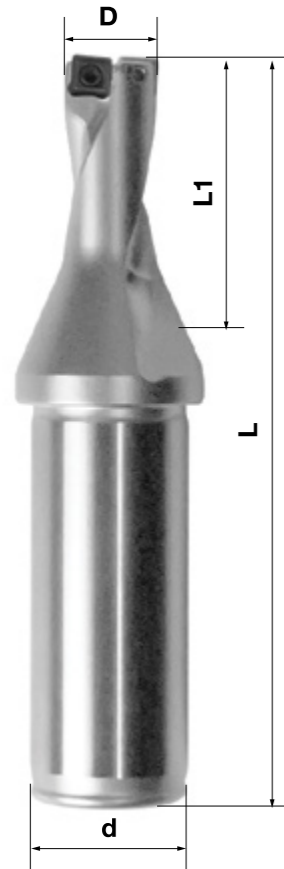
APPLICATION GUIDE



MATERIAL GUIDE

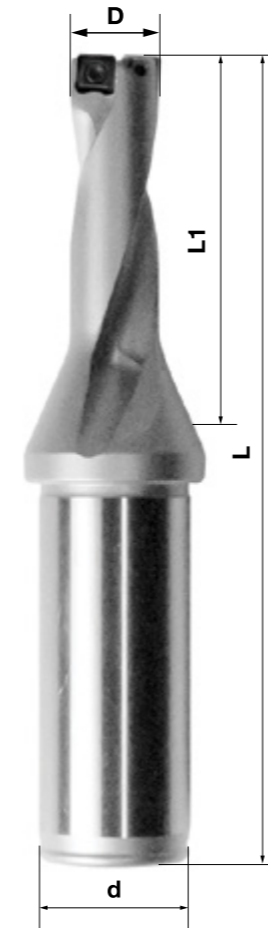


DRILL BODIES 2 X D



INSERT	DRILL BODIES	D	d	L	L1	CATALOG #
SPMG 050204	LT DR125 S05-2D	12.5	20	94	26	M2003704
	LT DR130 S05-2D	13.0	20	94	26	M2003705
	LT DR135 S05-2D	13.5	20	96	28	M2003706
	LT DR140 S05-2D	14.0	20	96	28	M2003707
	LT DR145 S05-2D	14.5	20	99	30	M2003708
	LT DR150 S05-2D	15.0	20	99	30	M2003709
SPMG 060204	LT DR160 S06-2D	16.0	25	108	32	M2003247
	LT DR170 S06-2D	17.0	25	110	34	M2003248
	LT DR175 S06-2D	17.5	25	113	36	M2003695
	LT DR180 S06-2D	18.0	25	113	36	M2003249
	LT DR185 S06-2D	18.5	25	115	38	M2003696
	LT DR190 S06-2D	19.0	25	115	38	M2003250
	LT DR200 S06-2D	20.0	25	119	40	M2003251
	LT DR210 S06-2D	21.0	25	121	42	M2003252
	LT DR220 S07-2D	22.0	25	123	44	M2003253
	LT DR230 S07-2D	23.0	32	131	46	M2003255
SPMG 07T308	LT DR240 S07-2D	24.0	32	134	48	M2003256
	LT DR250 S07-2D	25.0	32	137	50	M2003257
	LT DR260 S07-2D	26.0	32	139	52	M2003258
	LT DR265 S07-2D	26.5	32	141	54	M2003698
	LT DR270 S07-2D	27.0	32	141	54	M2003259
	LT DR280 S09-2D	28.0	32	144	56	M2003260
SPMG 090408	LT DR290 S09-2D	29.0	32	146	58	M2003261
	LT DR295 S09-2D	29.5	32	151	60	M2003699
	LT DR300 S09-2D	30.0	32	151	60	M2003262
	LT DR310 S09-2D	31.0	32	154	60	M2003263
	LT DR320 S09-2D	32.0	32	156	64	M2003264
	LT DR330 S09-2D	33.0	32	159	66	M2003265
SPMG 110408	LT DR340 S11-2D	34.0	40	171	68	M2003710
	LT DR350 S11-2D	35.0	40	174	70	M2003711
	LT DR360 S11-2D	36.0	40	177	72	M2003712
	LT DR370 S11-2D	37.0	40	180	74	M2003713
	LT DR380 S11-2D	38.0	40	183	76	M2003714
	LT DR390 S11-2D	39.0	40	185	78	M2003715
	LT DR400 S11-2D	40.0	40	188	80	M2003716
	LT DR410 S11-2D	41.0	40	191	82	M2003717

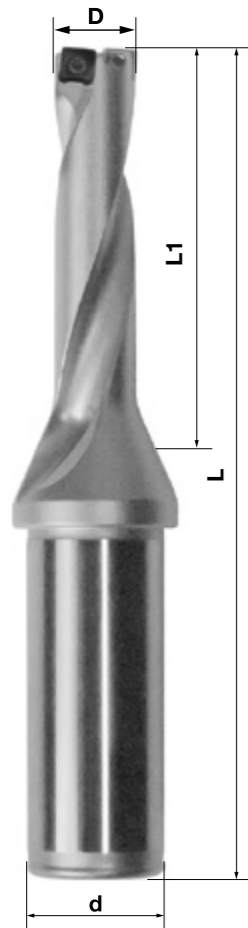
DRILL BODIES 3 X D



INSERT	DRILL BODIES	D	d	L	L1	CATALOG #
SPMG 050204	LT DR125 S05-3D	12.5	20	107	39	M2003718
	LT DR130 S05-3D	13.0	20	107	39	M2003719
	LT DR135 S05-3D	13.5	20	110	42	M2003720
	LT DR140 S05-3D	14.0	20	110	42	M2003721
	LT DR145 S05-3D	14.5	20	114	45	M2003722
	LT DR150 S05-3D	15.0	20	114	45	M2003723
SPMG 060204	LT DR160 S06-3D	16.0	25	124	48	M2003266
	LT DR170 S06-3D	17.0	25	127	51	M2003267
	LT DR175 S06-3D	17.5	25	131	54	M2003700
	LT DR180 S06-3D	18.0	25	131	54	M2003268
	LT DR185 S06-3D	18.5	25	134	57	M2003701
	LT DR190 S06-3D	19.0	25	134	57	M2003269
	LT DR200 S06-3D	20.0	25	139	60	M2003270
	LT DR210 S06-3D	21.0	25	142	63	M2003271
	LT DR220 S07-3D	22.0	25	145	66	M2003272
	LT DR230 S07-3D	23.0	32	154	69	M2003273
SPMG 07T308	LT DR240 S07-3D	24.0	32	158	72	M2003274
	LT DR250 S07-3D	25.0	32	162	75	M2003275
	LT DR260 S07-3D	26.0	32	165	78	M2003276
	LT DR265 S07-3D	26.5	32	168	81	M2003702
	LT DR270 S07-3D	27.0	32	168	81	M2003277
	LT DR280 S09-3D	28.0	32	172	84	M2003278
SPMG 090408	LT DR290 S09-3D	29.0	32	175	87	M2003280
	LT DR295 S09-3D	29.5	32	181	90	M2003703
	LT DR300 S09-3D	30.0	32	181	90	M2003281
	LT DR310 S09-3D	31.0	32	185	93	M2003282
	LT DR320 S09-3D	32.0	32	188	96	M2003283
	LT DR330 S09-3D	33.0	32	192	99	M2003284
SPMG 110408	LT DR340 S11-3D	34.0	40	205	102	M2003724
	LT DR350 S11-3D	35.0	40	209	105	M2003725
	LT DR360 S11-3D	36.0	40	213	108	M2003726
	LT DR370 S11-3D	37.0	40	217	111	M2003727
	LT DR380 S11-3D	38.0	40	221	114	M2003728
	LT DR390 S11-3D	39.0	40	224	117	M2003729
	LT DR400 S11-3D	40.0	40	228	120	M2003730
	LT DR410 S11-3D	41.0	40	232	123	M2003731

DRILL BODIES 4 X D*

SPARE PARTS



INSERT	DRILL BODIES	D	d	L	L1	CATALOG #
SPMG 050204	LT DR125 S05-4D	12.5	20	120	52	M2003732
	LT DR130 S05-4D	13.0	20	120	52	M2003733
	LT DR135 S05-4D	13.5	20	124	56	M2003434
	LT DR140 S05-4D	14.0	20	124	56	M2003735
	LT DR145 S05-4D	14.5	20	129	60	M2003736
	LT DR150 S05-4D	15.0	20	129	60	M2003737
SPMG 060204	LT DR155 S06-4D	15.5	25	140	64	M2003746
	LT DR160 S06-4D	16.0	25	140	64	M2003747
	LT DR165 S06-4D	16.5	25	144	68	M2003748
	LT DR170 S06-4D	17.0	25	144	68	M2003749
	LT DR175 S06-4D	17.5	25	149	72	M2003750
	LT DR180 S06-4D	18.0	25	149	72	M2003751
	LT DR185 S06-4D	18.5	25	153	76	M2003752
	LT DR190 S06-4D	19.0	25	153	76	M2004380
	LT DR195 S06-4D	19.5	25	159	80	M2003753
	LT DR200 S06-4D	20.0	25	159	80	M2003754
	LT DR205 S06-4D	20.5	25	163	84	M2003755
	LT DR210 S06-4D	21.0	25	163	84	M2003756
	LT DR215 S06-4D	21.5	25	167	88	M2003757
	SPMG 07T308	LT DR220 S07-4D	22.0	25	167	88
LT DR225 S07-4D		22.5	32	177	92	M2003759
LT DR230 S07-4D		23.0	32	177	92	M2003760
LT DR235 S07-4D		23.5	32	182	96	M2003761
LT DR240 S07-4D		24.0	32	182	96	M2004381
LT DR245 S07-4D		24.5	32	187	100	M2003762
LT DR250 S07-4D		25.0	32	187	100	M2003763
LT DR255 S07-4D		25.5	32	191	104	M2003764
LT DR260 S07-4D		26.0	32	191	104	M2003765
LT DR265 S07-4D		26.5	32	195	108	M2003766
SPMG 090408	LT DR270 S07-4D	27.0	32	195	108	M2003767
	LT DR275 S07-4D	27.5	32	200	112	M2003768
	LT DR280 S09-4D	28.0	32	200	112	M2003769
	LT DR285 S09-4D	28.5	32	204	116	M2003770
	LT DR290 S09-4D	29.0	32	204	116	M2003771
	LT DR295 S09-4D	29.5	32	211	120	M2003772
	LT DR300 S09-4D	30.0	32	211	120	M2003773
	LT DR310 S09-4D	31.0	32	216	124	M2003774
	LT DR320 S09-4D	32.0	32	220	128	M2003775
	LT DR330 S09-4D	33.0	32	225	132	M2003776
SPMG 110408	LT DR340 S11-4D	34.0	40	239	136	M2003738
	LT DR350 S11-4D	35.0	40	244	140	M2003739
	LT DR360 S11-4D	36.0	40	249	144	M2003740
	LT DR370 S11-4D	37.0	40	254	148	M2003741
	LT DR380 S11-4D	38.0	40	259	152	M2003742
	LT DR390 S11-4D	39.0	40	263	156	M2003743
	LT DR400 S11-4D	40.0	40	268	160	M2003744
	LT DR410 S11-4D	41.0	40	273	164	M2003745

SPARE PARTS FOR DRILL BODIES FOR INSERT	KEY	SCREW
SPMG 050204 NN LT 30	M2004169	M2003820
SPMG 060204 NN LT 30	M2004169	M2003823
SPMG 07T308 NN LT 30	M2002912	M2003824
SPMG 090408 NN LT 30	M2000602	M2003821
SPMG 110408 NN LT 30	M2000602	M2003822

MACHINING CONDITIONS

Material Group	Gr. N°	VDI Group	Material Examples	Hardness	SPMG 050204 NN		SPMG 060204 NN		SPMG 07T308 NN		SPMG 090408 NN		SPMG 110408 NN		Cutting Speed - LT 30	
					Feed [mm/z]		Feed [mm/z]		Feed [mm/z]		Feed [mm/z]		Feed [mm/z]		V _c [m/min]	
					min	max	min	max	min	max	min	max	min	max	min	max
Non Alloyed	1	1	C35, Ck45, 1020, 1045, 1060, 28Mn6	125 HB	0.04	0.09	0.04	0.09	0.06	0.11	0.06	0.11	0.08	0.14	180	270
				190 HB												230
				250 HB												200
Low Alloyed	2	4, 6	42CrMo4, S150, Ck60, 4140, 4340, 100Cr06	180 HB	0.04	0.09	0.04	0.09	0.06	0.11	0.06	0.11	0.07	0.14	120	230
				230 HB												190
				280 HB												170
				350 HB												150
				220 HB												170
High Alloyed	3	10	X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	280 HB	0.05	0.09	0.05	0.09	0.09	0.11	0.09	0.11	0.07	0.12	70	150
				320 HB												130
				350 HB												100
				180 HB												170
				240 HB												150
Austenitic	4	14	304, 316, X5CrNi18-9	180 HB	0.04	0.09	0.04	0.09	0.06	0.11	0.06	0.11	0.06	0.11	170	230
				240 HB												120
Duplex	5	14	X2CrNi23-4, S31500	290 HB	0.05	0.08	0.05	0.08	0.09	0.10	0.09	0.10	0.06	0.09	70	120
				310 HB												120
Ferritic & Martensitic	6	12	410, X6Cr17, 17-4PH, 430	200 HB	0.05	0.08	0.05	0.08	0.09	0.10	0.09	0.10	0.09	0.10	100	150
				42 HRC												60
Grey	7	15	GG20, GG40, EN-GJL-250, N030B	150 HB	0.07	0.09	0.07	0.10	0.10	0.12	0.10	0.12	0.10	0.15	150	230
				200 HB												210
				250 HB												170
Malleable & Nodular	8	17, 19	GGG40, GGG70, 50005	150 HB	0.07	0.09	0.07	0.10	0.10	0.12	0.10	0.12	0.10	0.14	120	200
				200 HB												170
				250 HB												150
Fe, Ni & Co based	9	31, 32	Incoloy 800, Inconel 700, Stellite 21	240 HB	0.04	0.07	0.04	0.07	0.06	0.09	0.06	0.09	0.06	0.10	30	40
				250 HB												20
				350 HB												40
Ti based	10	36	TiAl6V4, T40	-	0.04	0.07	0.04	0.07	0.06	0.09	0.06	0.09	0.06	0.09	30	40
				-												30
Steel	11	38	X100 CrMo13, 440C, G-X260Ni-Cr42	45 HRc	0.04	0.07	0.04	0.07	0.06	0.09	0.06	0.09	0.06	0.09	40	90
				50 HRc												70
				55 HRc												60
Chilled Cast Iron	12	40	Ni-Hard 2	400 HB	0.04	0.07	0.04	0.07	0.06	0.09	0.06	0.09	0.06	0.09	40	60
				55 HRc												30
White Cast Iron	13	41	G-X300CrMo15	55 HRc	0.04	0.07	0.04	0.07	0.06	0.09	0.06	0.09	0.06	0.09	30	50
NF Aluminium	14	25	AlSi12	130 HB	0.04	0.09	0.04	0.09	0.06	0.11	0.06	0.11	0.06	0.11	200	400



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