

# ***FORNAX***

***Cutting Tools***

**SOLID ENDMILL &  
SOLID CARBIDE DRILL &  
CUSTOM TOOLS**

**MINI CATALOGUE**

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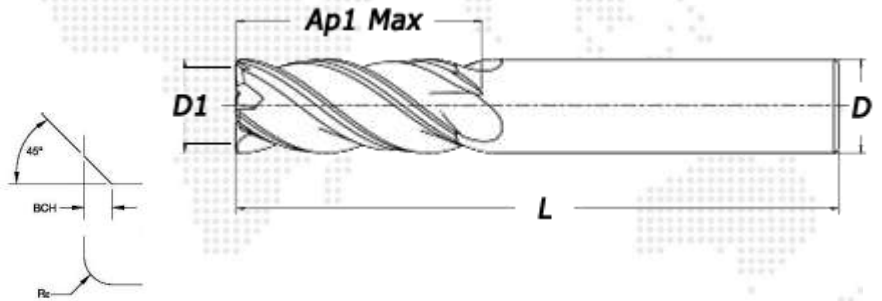
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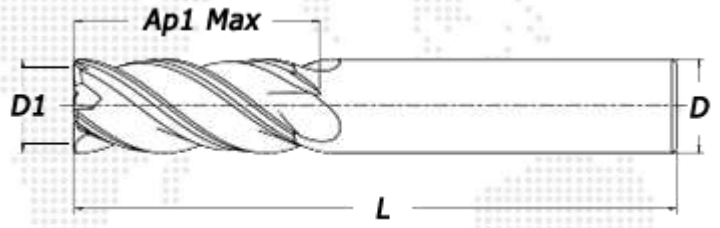
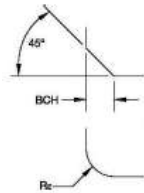
### Application



### Workpiece Material



Sap Number	Description	Grade	D1	D	Ap1 Max	L	Re	BCH	Z
7101000	HPEM03030080500000004	FP15PE	3	3	8	50	0	0	4
7101009	HPEM04040100500000004	FP15PE	4	4	10	50	0	0	4
7101018	HPEM05050120500000004	FP15PE	5	5	12	50	0	0	4
7101027	HPEM06060130570000004	FP15PE	6	6	13	57	0	0	4
7101036	HPEM08080190630000004	FP15PE	8	8	19	63	0	0	4
7101045	HPEM10100220720000004	FP15PE	10	10	22	72	0	0	4
7101054	HPEM12120280830000004	FP15PE	12	12	28	83	0	0	4
7101055	HPEM12120300830000004	FP15PE	12	12	30	83	0	0	4
7101063	HPEM14140280830000004	FP15PE	14	14	28	83	0	0	4
7101072	HPEM16160320920000004	FP15PE	16	16	32	92	0	0	4
7101073	HPEM16160400920000004	FP15PE	16	16	40	92	0	0	4
7101081	HPEM18180320920000004	FP15PE	18	18	32	92	0	0	4
7101090	HPEM20200381040000004	FP15PE	20	20	38	104	0	0	4



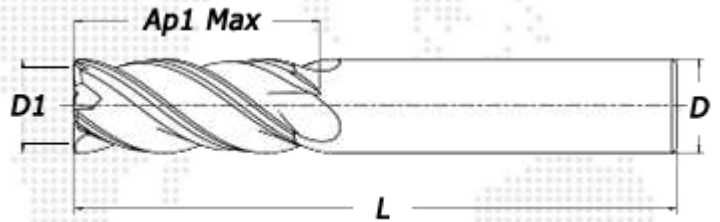
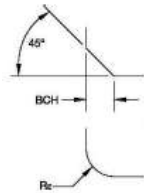
## Application



## Workpiece Material



Sap Number	Description	Grade	D1	D	Ap1 Max	L	Re	BCH	Z
7101099	HPEM03030080500000104	FP15PE	3	3	8	50	0,1	4	
7101108	HPEM04040100500000104	FP15PE	4	4	10	50	0,1	4	
7101117	HPEM05050120500000154	FP15PE	5	5	12	50	0,15	4	
7101126	HPEM06060130570000254	FP15PE	6	6	13	57	0,25	4	
7101135	HPEM08080190630000304	FP15PE	8	8	19	63	0,3	4	
7101144	HPEM10100220720000354	FP15PE	10	10	22	72	0,35	4	
7101153	HPEM12120280830000404	FP15PE	12	12	28	83	0,4	4	
7101154	HPEM12120300830000404	FP15PE	12	12	30	83	0,4	4	
7101162	HPEM14140280830000454	FP15PE	14	14	28	83	0,45	4	
7101171	HPEM16160320920000504	FP15PE	16	16	32	92	0,5	4	
7101172	HPEM16160400920000504	FP15PE	16	16	40	92	0,5	4	
7101180	HPEM18180320920000604	FP15PE	18	18	32	92	0,6	4	
7101189	HPEM20200381040000604	FP15PE	20	20	38	104	0,6	4	



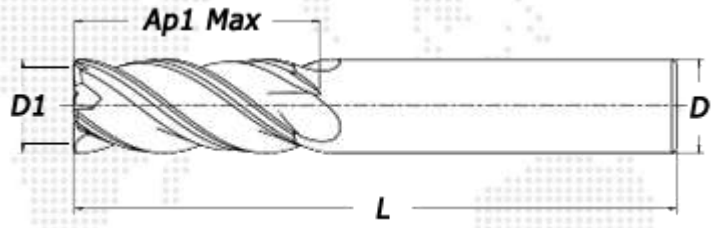
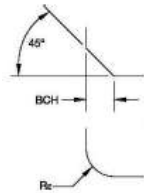
### Application



### Workpiece Material



Sap Number	Description	Grade	D1	D	Ap1 Max	L	Re	BCH	Z
7101198	HPEM03030080500050004	FP15PE	3	3	8	50	0,5		4
7101207	HPEM04040100500050004	FP15PE	4	4	10	50	0,5		4
7101216	HPEM05050120500050004	FP15PE	5	5	12	50	0,5		4
7101225	HPEM06060130570050004	FP15PE	6	6	13	57	0,5		4
7101234	HPEM08080190630050004	FP15PE	8	8	19	63	0,5		4
7101243	HPEM10100220720050004	FP15PE	10	10	22	72	0,5		4
7101252	HPEM12120280830050004	FP15PE	12	12	28	83	0,5		4
7101253	HPEM12120300830050004	FP15PE	12	12	30	83	0,5		4
7101261	HPEM14140280830050004	FP15PE	14	14	28	83	0,5		4
7101270	HPEM16160320920050004	FP15PE	16	16	32	92	0,5		4
7101271	HPEM16160400920050004	FP15PE	16	16	40	92	0,5		4
7101279	HPEM18180320920050004	FP15PE	18	18	32	92	0,5		4
7101288	HPEM20200381040050004	FP15PE	20	20	38	104	0,5		4



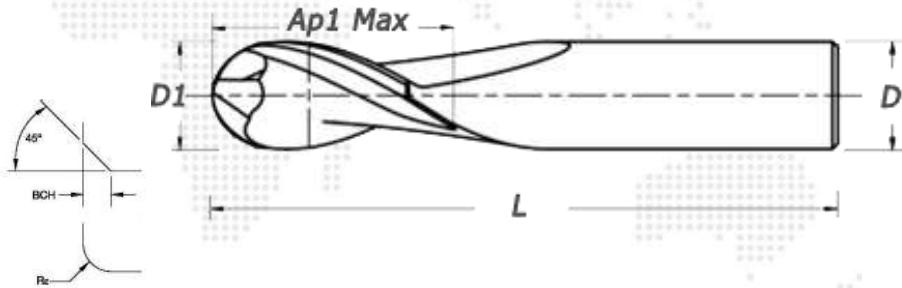
### Application



### Workpiece Material



Sap Number	Description	Grade	D1	D	Ap1 Max	L	Re	BCH	Z
7101297	HPEM03030080500100004	FP15PE	3	3	8	50	1		4
7101306	HPEM04040100500100004	FP15PE	4	4	10	50	1		4
7101315	HPEM05050120500100004	FP15PE	5	5	12	50	1		4
7101324	HPEM06060130570100004	FP15PE	6	6	13	57	1		4
7101333	HPEM08080190630100004	FP15PE	8	8	19	63	1		4
7101342	HPEM10100220720100004	FP15PE	10	10	22	72	1		4
7101351	HPEM12120280830100004	FP15PE	12	12	28	83	1		4
7101352	HPEM12120300830100004	FP15PE	12	12	30	83	1		4
7101360	HPEM14140300830100004	FP15PE	14	14	30	83	1		4
7101369	HPEM16160320920100004	FP15PE	16	16	32	92	1		4
7101370	HPEM16160400920100004	FP15PE	16	16	40	92	1		4
7101378	HPEM18180320920100004	FP15PE	18	18	32	92	1		4
7101387	HPEM20200381040100004	FP15PE	20	20	38	104	1		4



### Application



### Workpiece Material



Sap Number	Description	Grade	D1	D	Ap1 Max	L	Re	BCH	Z
7101396	HPEM03030070500150002	FP15PE	3	3	7	50	1,5		2
7101405	HPEM04040080500200002	FP15PE	4	4	8	50	2		2
7101414	HPEM05050100500250002	FP15PE	5	5	10	50	2,5		2
7101423	HPEM06060100570300002	FP15PE	6	6	10	57	3		2
7101432	HPEM08080160630400002	FP15PE	8	8	16	63	4		2
7101441	HPEM10100190720500002	FP15PE	10	10	19	72	5		2
7101450	HPEM12120220830600002	FP15PE	12	12	22	83	6		2
7101459	HPEM14140220830700002	FP15PE	14	14	22	83	7		2
7101468	HPEM16160260920800002	FP15PE	16	16	26	92	8		2
7101477	HPEM18180260920900002	FP15PE	18	18	26	92	9		2
7101486	HPEM20200311041000002	FP15PE	20	20	31	104	10		2



# FORNAX

Cutting Tools



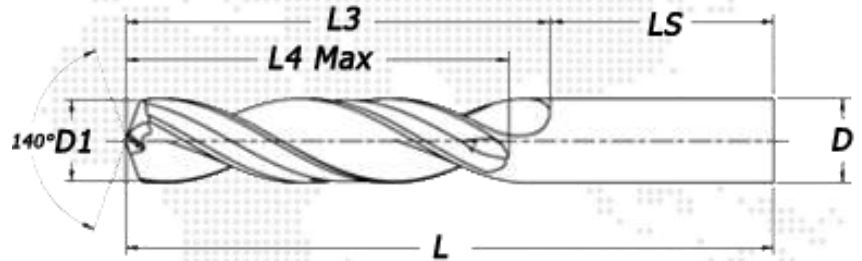
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103030	HPD103A03000	FP20PD	3	14	20	62	36	6
5104030	HPD104A03000	FP20PD	3	14	20	62	36	6
5103031	HPD103A03100	FP20PD	3,1	14	20	62	36	6
5104031	HPD104A03100	FP20PD	3,1	14	20	62	36	6
5103032	HPD103A03200	FP20PD	3,2	14	20	62	36	6
5104032	HPD104A03200	FP20PD	3,2	14	20	62	36	6
5103033	HPD103A03300	FP20PD	3,3	14	20	62	36	6
5104033	HPD104A03300	FP20PD	3,3	14	20	62	36	6
5103034	HPD103A03400	FP20PD	3,4	14	20	62	36	6
5104034	HPD104A03400	FP20PD	3,4	14	20	62	36	6
5103035	HPD103A03500	FP20PD	3,5	14	20	62	36	6
5104035	HPD104A03500	FP20PD	3,5	14	20	62	36	6
5103036	HPD103A03600	FP20PD	3,6	14	20	62	36	6
5104036	HPD104A03600	FP20PD	3,6	14	20	62	36	6
5103037	HPD103A03700	FP20PD	3,7	14	20	62	36	6
5104037	HPD104A03700	FP20PD	3,7	14	20	62	36	6
5103038	HPD103A03800	FP20PD	3,8	17	24	66	36	6
5104038	HPD104A03800	FP20PD	3,8	17	24	66	36	6



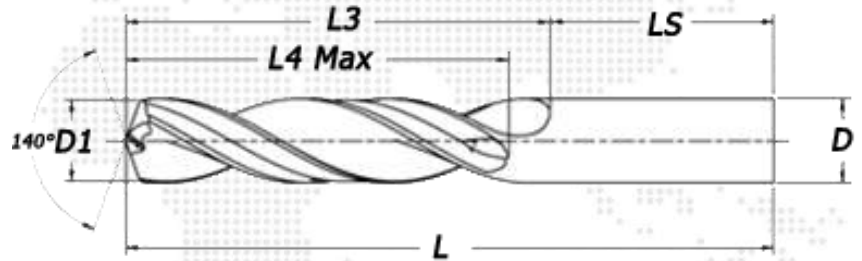
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103039	HPD103A03900	FP20PD	3,9	17	24	66	36	6
5104039	HPD104A03900	FP20PD	3,9	17	24	66	36	6
5103040	HPD103A04000	FP20PD	4	17	24	66	36	6
5104040	HPD104A04000	FP20PD	4	17	24	66	36	6
5103041	HPD103A04100	FP20PD	4,1	17	24	66	36	6
5104041	HPD104A04100	FP20PD	4,1	17	24	66	36	6
5103042	HPD103A04200	FP20PD	4,2	17	24	66	36	6
5104042	HPD104A04200	FP20PD	4,2	17	24	66	36	6
5103043	HPD103A04300	FP20PD	4,3	17	24	66	36	6
5104043	HPD104A04300	FP20PD	4,3	17	24	66	36	6
5103044	HPD103A04400	FP20PD	4,4	17	24	66	36	6
5104044	HPD104A04400	FP20PD	4,4	17	24	66	36	6
5103045	HPD103A04500	FP20PD	4,5	17	24	66	36	6
5104045	HPD104A04500	FP20PD	4,5	17	24	66	36	6
5103046	HPD103A04600	FP20PD	4,6	17	24	66	36	6
5104046	HPD104A04600	FP20PD	4,6	17	24	66	36	6
5103047	HPD103A04700	FP20PD	4,7	17	24	66	36	6
5104047	HPD104A04700	FP20PD	4,7	17	24	66	36	6



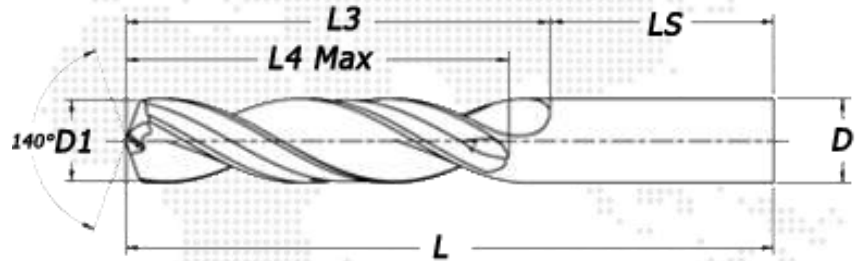
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103048	HPD103A04800	FP20PD	4,8	20	28	66	36	6
5104048	HPD104A04800	FP20PD	4,8	20	28	66	36	6
5103049	HPD103A04900	FP20PD	4,9	20	28	66	36	6
5104049	HPD104A04900	FP20PD	4,9	20	28	66	36	6
5103050	HPD103A05000	FP20PD	5	20	28	66	36	6
5104050	HPD104A05000	FP20PD	5	20	28	66	36	6
5103051	HPD103A05100	FP20PD	5,1	20	28	66	36	6
5104051	HPD104A05100	FP20PD	5,1	20	28	66	36	6
5103052	HPD103A05200	FP20PD	5,2	20	28	66	36	6
5104052	HPD104A05200	FP20PD	5,2	20	28	66	36	6
5103053	HPD103A05300	FP20PD	5,3	20	28	66	36	6
5104053	HPD104A05300	FP20PD	5,3	20	28	66	36	6
5103054	HPD103A05400	FP20PD	5,4	20	28	66	36	6
5104054	HPD104A05400	FP20PD	5,4	20	28	66	36	6
5103055	HPD103A05500	FP20PD	5,5	20	28	66	36	6
5104055	HPD104A05500	FP20PD	5,5	20	28	66	36	6
5103056	HPD103A05600	FP20PD	5,6	20	28	66	36	6
5104056	HPD104A05600	FP20PD	5,6	20	28	66	36	6



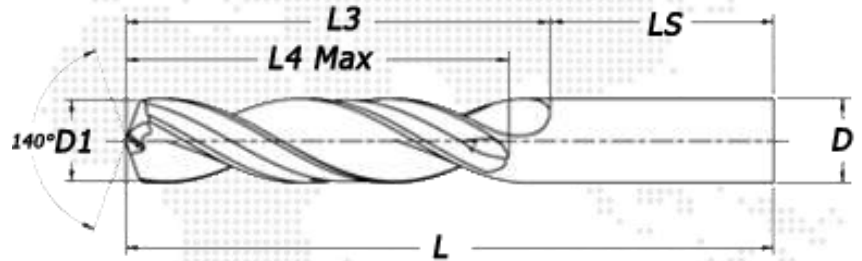
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103057	HPD103A05700	FP20PD	5,7	20	28	66	36	6
5104057	HPD104A05700	FP20PD	5,7	20	28	66	36	6
5103058	HPD103A05800	FP20PD	5,8	20	28	66	36	6
5104058	HPD104A05800	FP20PD	5,8	20	28	66	36	6
5103059	HPD103A05900	FP20PD	5,9	20	28	66	36	6
5104059	HPD104A05900	FP20PD	5,9	20	28	66	36	6
5103060	HPD103A06000	FP20PD	6	20	28	66	36	6
5104060	HPD104A06000	FP20PD	6	20	28	66	36	6
5103061	HPD103A06100	FP20PD	6,1	24	34	79	36	8
5104061	HPD104A06100	FP20PD	6,1	24	34	79	36	8
5103062	HPD103A06200	FP20PD	6,2	24	34	79	36	8
5104062	HPD104A06200	FP20PD	6,2	24	34	79	36	8
5103063	HPD103A06300	FP20PD	6,3	24	34	79	36	8
5104063	HPD104A06300	FP20PD	6,3	24	34	79	36	8
5103064	HPD103A06400	FP20PD	6,4	24	34	79	36	8
5104064	HPD104A06400	FP20PD	6,4	24	34	79	36	8
5103065	HPD103A06500	FP20PD	6,5	24	34	79	36	8
5104065	HPD104A06500	FP20PD	6,5	24	34	79	36	8

# FORNAX

Cutting Tools



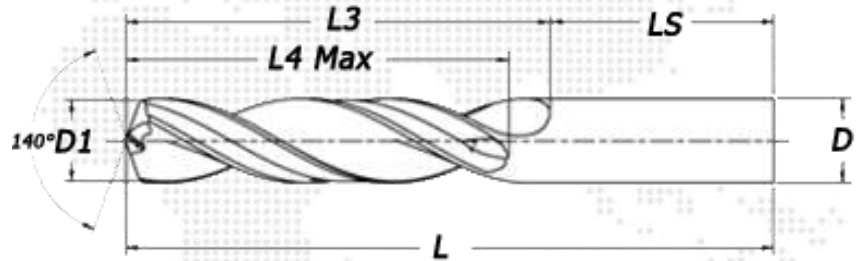
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103066	HPD103A06600	FP20PD	6,6	24	34	79	36	8
5104066	HPD104A06600	FP20PD	6,6	24	34	79	36	8
5103067	HPD103A06700	FP20PD	6,7	24	34	79	36	8
5104067	HPD104A06700	FP20PD	6,7	24	34	79	36	8
5103068	HPD103A06800	FP20PD	6,8	24	34	79	36	8
5104068	HPD104A06800	FP20PD	6,8	24	34	79	36	8
5103069	HPD103A06900	FP20PD	6,9	24	34	79	36	8
5104069	HPD104A06900	FP20PD	6,9	24	34	79	36	8
5103070	HPD103A07000	FP20PD	7	24	34	79	36	8
5104070	HPD104A07000	FP20PD	7	24	34	79	36	8
5103071	HPD103A07100	FP20PD	7,1	29	41	79	36	8
5104071	HPD104A07100	FP20PD	7,1	29	41	79	36	8
5103072	HPD103A07200	FP20PD	7,2	29	41	79	36	8
5104072	HPD104A07200	FP20PD	7,2	29	41	79	36	8
5103073	HPD103A07300	FP20PD	7,3	29	41	79	36	8
5104073	HPD104A07300	FP20PD	7,3	29	41	79	36	8
5103074	HPD103A07400	FP20PD	7,4	29	41	79	36	8
5104074	HPD104A07400	FP20PD	7,4	29	41	79	36	8

# FORNAX

Cutting Tools



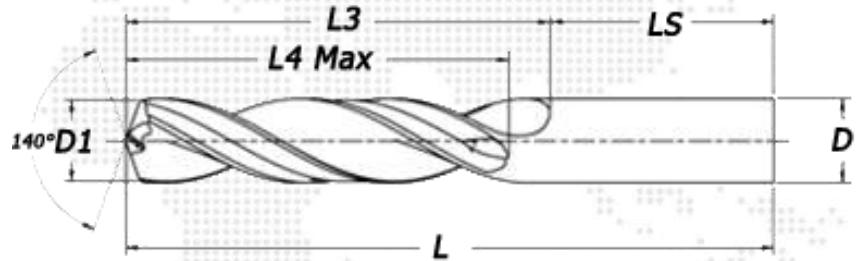
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103075	HPD103A07500	FP20PD	7,5	29	41	79	36	8
5104075	HPD104A07500	FP20PD	7,5	29	41	79	36	8
5103076	HPD103A07600	FP20PD	7,6	29	41	79	36	8
5104076	HPD104A07600	FP20PD	7,6	29	41	79	36	8
5103077	HPD103A07700	FP20PD	7,7	29	41	79	36	8
5104077	HPD104A07700	FP20PD	7,7	29	41	79	36	8
5103078	HPD103A07800	FP20PD	7,8	29	41	79	36	8
5104078	HPD104A07800	FP20PD	7,8	29	41	79	36	8
5103079	HPD103A07900	FP20PD	7,9	29	41	79	36	8
5104079	HPD104A07900	FP20PD	7,9	29	41	79	36	8
5103080	HPD103A08000	FP20PD	8	29	41	79	36	8
5104080	HPD104A08000	FP20PD	8	29	41	79	36	8
5103081	HPD103A08100	FP20PD	8,1	35	47	89	40	10
5104081	HPD104A08100	FP20PD	8,1	35	47	89	40	10
5103082	HPD103A08200	FP20PD	8,2	35	47	89	40	10
5104082	HPD104A08200	FP20PD	8,2	35	47	89	40	10
5103083	HPD103A08300	FP20PD	8,3	35	47	89	40	10
5104083	HPD104A08300	FP20PD	8,3	35	47	89	40	10

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Cutting Tools



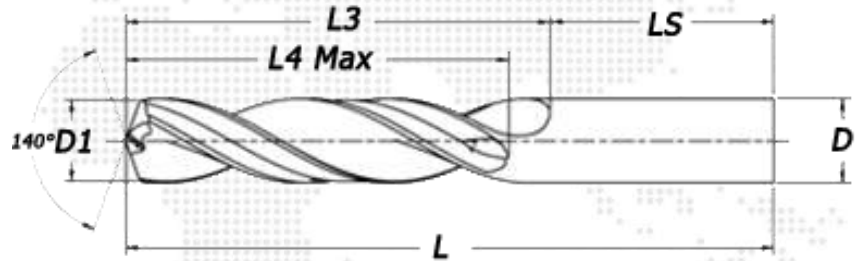
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103084	HPD103A08400	FP20PD	8,4	35	47	89	40	10
5104084	HPD104A08400	FP20PD	8,4	35	47	89	40	10
5103085	HPD103A08500	FP20PD	8,5	35	47	89	40	10
5104085	HPD104A08500	FP20PD	8,5	35	47	89	40	10
5103086	HPD103A08600	FP20PD	8,6	35	47	89	40	10
5104086	HPD104A08600	FP20PD	8,6	35	47	89	40	10
5103087	HPD103A08700	FP20PD	8,7	35	47	89	40	10
5104087	HPD104A08700	FP20PD	8,7	35	47	89	40	10
5103088	HPD103A08800	FP20PD	8,8	35	47	89	40	10
5104088	HPD104A08800	FP20PD	8,8	35	47	89	40	10
5103089	HPD103A08900	FP20PD	8,9	35	47	89	40	10
5104089	HPD104A08900	FP20PD	8,9	35	47	89	40	10
5103090	HPD103A09000	FP20PD	9	35	47	89	40	10
5104090	HPD104A09000	FP20PD	9	35	47	89	40	10
5103091	HPD103A09100	FP20PD	9,1	35	47	89	40	10
5104091	HPD104A09100	FP20PD	9,1	35	47	89	40	10
5103092	HPD103A09200	FP20PD	9,2	35	47	89	40	10
5104092	HPD104A09200	FP20PD	9,2	35	47	89	40	10



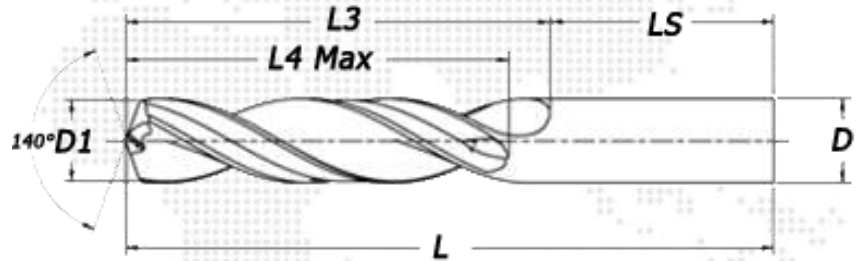
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103093	HPD103A09300	FP20PD	9,3	35	47	89	40	10
5104093	HPD104A09300	FP20PD	9,3	35	47	89	40	10
5103094	HPD103A09400	FP20PD	9,4	35	47	89	40	10
5104094	HPD104A09400	FP20PD	9,4	35	47	89	40	10
5103095	HPD103A09500	FP20PD	9,5	35	47	89	40	10
5104095	HPD104A09500	FP20PD	9,5	35	47	89	40	10
5103096	HPD103A09600	FP20PD	9,6	35	47	89	40	10
5104096	HPD104A09600	FP20PD	9,6	35	47	89	40	10
5103097	HPD103A09700	FP20PD	9,7	35	47	89	40	10
5104097	HPD104A09700	FP20PD	9,7	35	47	89	40	10
5103098	HPD103A09800	FP20PD	9,8	35	47	89	40	10
5104098	HPD104A09800	FP20PD	9,8	35	47	89	40	10
5103099	HPD103A09900	FP20PD	9,9	35	47	89	40	10
5104099	HPD104A09900	FP20PD	9,9	35	47	89	40	10
5103100	HPD103A10000	FP20PD	10	35	47	89	40	10
5104100	HPD104A10000	FP20PD	10	35	47	89	40	10
5103101	HPD103A10100	FP20PD	10,1	40	55	102	45	12
5104101	HPD104A10100	FP20PD	10,1	40	55	102	45	12



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Cutting Tools



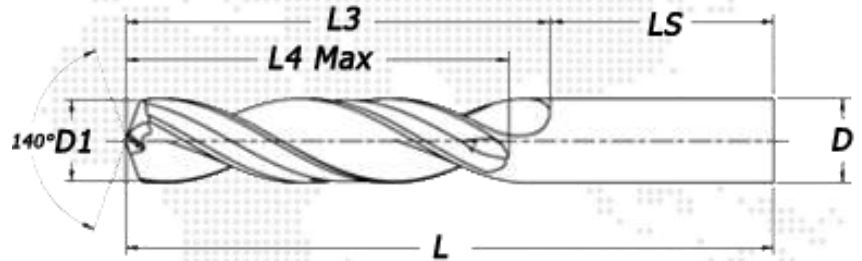
**3XD**



103A – External Coolant



104A – Internal Coolant



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103102	HPD103A10200	FP20PD	10,2	40	55	102	45	12
5104102	HPD104A10200	FP20PD	10,2	40	55	102	45	12
5103103	HPD103A10300	FP20PD	10,3	40	55	102	45	12
5104103	HPD104A10300	FP20PD	10,3	40	55	102	45	12
5103104	HPD103A10400	FP20PD	10,4	40	55	102	45	12
5104104	HPD104A10400	FP20PD	10,4	40	55	102	45	12
5103105	HPD103A10500	FP20PD	10,5	40	55	102	45	12
5104105	HPD104A10500	FP20PD	10,5	40	55	102	45	12
5103106	HPD103A10600	FP20PD	10,6	40	55	102	45	12
5104106	HPD104A10600	FP20PD	10,6	40	55	102	45	12
5103107	HPD103A10700	FP20PD	10,7	40	55	102	45	12
5104107	HPD104A10700	FP20PD	10,7	40	55	102	45	12
5103108	HPD103A10800	FP20PD	10,8	40	55	102	45	12
5104108	HPD104A10800	FP20PD	10,8	40	55	102	45	12
5103109	HPD103A10900	FP20PD	10,9	40	55	102	45	12
5104109	HPD104A10900	FP20PD	10,9	40	55	102	45	12
5103110	HPD103A11000	FP20PD	11	40	55	102	45	12
5104110	HPD104A11000	FP20PD	11	40	55	102	45	12

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Cutting Tools



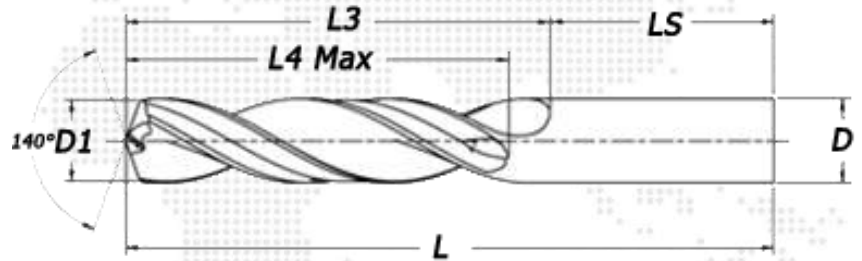
**3XD**



103A – External Coolant



104A – Internal Coolant



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103111	HPD103A11100	FP20PD	11,1	40	55	102	45	12
5104111	HPD104A11100	FP20PD	11,1	40	55	102	45	12
5103112	HPD103A11200	FP20PD	11,2	40	55	102	45	12
5104112	HPD104A11200	FP20PD	11,2	40	55	102	45	12
5103113	HPD103A11300	FP20PD	11,3	40	55	102	45	12
5104113	HPD104A11300	FP20PD	11,3	40	55	102	45	12
5103114	HPD103A11400	FP20PD	11,4	40	55	102	45	12
5104114	HPD104A11400	FP20PD	11,4	40	55	102	45	12
5103115	HPD103A11500	FP20PD	11,5	40	55	102	45	12
5104115	HPD104A11500	FP20PD	11,5	40	55	102	45	12
5103116	HPD103A11600	FP20PD	11,6	40	55	102	45	12
5104116	HPD104A11600	FP20PD	11,6	40	55	102	45	12
5103117	HPD103A11700	FP20PD	11,7	40	55	102	45	12
5104117	HPD104A11700	FP20PD	11,7	40	55	102	45	12
5103118	HPD103A11800	FP20PD	11,8	40	55	102	45	12
5104118	HPD104A11800	FP20PD	11,8	40	55	102	45	12
5103119	HPD103A11900	FP20PD	11,9	40	55	102	45	12
5104119	HPD104A11900	FP20PD	11,9	40	55	102	45	12

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Cutting Tools



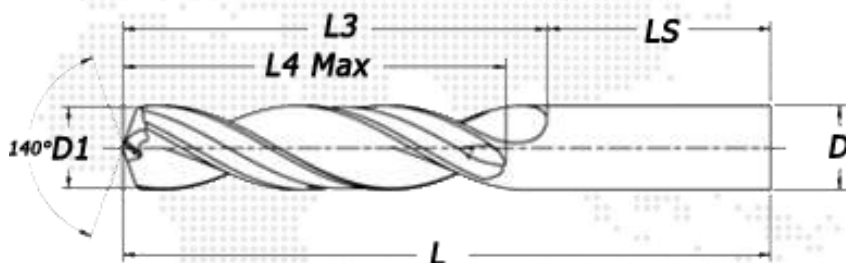
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103120	HPD103A12000	FP20PD	12	40	55	102	45	12
5104120	HPD104A12000	FP20PD	12	40	55	102	45	12
5103121	HPD103A12100	FP20PD	12,1	43	60	107	45	14
5104121	HPD104A12100	FP20PD	12,1	43	60	107	45	14
5103122	HPD103A12200	FP20PD	12,2	43	60	107	45	14
5104122	HPD104A12200	FP20PD	12,2	43	60	107	45	14
5103123	HPD103A12300	FP20PD	12,3	43	60	107	45	14
5104123	HPD104A12300	FP20PD	12,3	43	60	107	45	14
5103124	HPD103A12400	FP20PD	12,4	43	60	107	45	14
5104124	HPD104A12400	FP20PD	12,4	43	60	107	45	14
5103125	HPD103A12500	FP20PD	12,5	43	60	107	45	14
5104125	HPD104A12500	FP20PD	12,5	43	60	107	45	14
5103126	HPD103A12600	FP20PD	12,6	43	60	107	45	14
5104126	HPD104A12600	FP20PD	12,6	43	60	107	45	14
5103127	HPD103A12700	FP20PD	12,7	43	60	107	45	14
5104127	HPD104A12700	FP20PD	12,7	43	60	107	45	14
5103128	HPD103A12800	FP20PD	12,8	43	60	107	45	14
5104128	HPD104A12800	FP20PD	12,8	43	60	107	45	14

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Cutting Tools



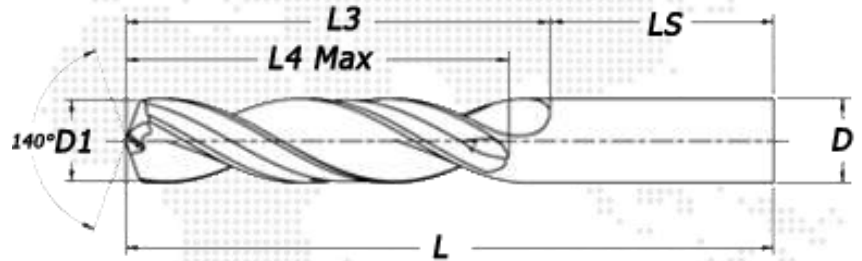
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103129	HPD103A12900	FP20PD	12,9	43	60	107	45	14
5104129	HPD104A12900	FP20PD	12,9	43	60	107	45	14
5103130	HPD103A13000	FP20PD	13	43	60	107	45	14
5104130	HPD104A13000	FP20PD	13	43	60	107	45	14
5103131	HPD103A13100	FP20PD	13,1	43	60	107	45	14
5104131	HPD104A13100	FP20PD	13,1	43	60	107	45	14
5103132	HPD103A13200	FP20PD	13,2	43	60	107	45	14
5104132	HPD104A13200	FP20PD	13,2	43	60	107	45	14
5103133	HPD103A13300	FP20PD	13,3	43	60	107	45	14
5104133	HPD104A13300	FP20PD	13,3	43	60	107	45	14
5103134	HPD103A13400	FP20PD	13,4	43	60	107	45	14
5104134	HPD104A13400	FP20PD	13,4	43	60	107	45	14
5103135	HPD103A13500	FP20PD	13,5	43	60	107	45	14
5104135	HPD104A13500	FP20PD	13,5	43	60	107	45	14
5103136	HPD103A13600	FP20PD	13,6	43	60	107	45	14
5104136	HPD104A13600	FP20PD	13,6	43	60	107	45	14
5103137	HPD103A13700	FP20PD	13,7	43	60	107	45	14
5104137	HPD104A13700	FP20PD	13,7	43	60	107	45	14

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Cutting Tools



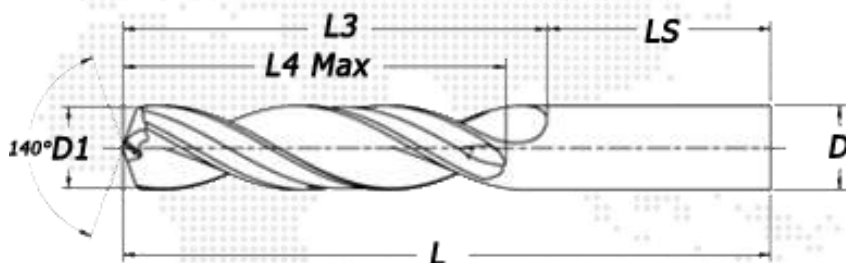
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103138	HPD103A13800	FP20PD	13,8	43	60	107	45	14
5104138	HPD104A13800	FP20PD	13,8	43	60	107	45	14
5103139	HPD103A13900	FP20PD	13,9	43	60	107	45	14
5104139	HPD104A13900	FP20PD	13,9	43	60	107	45	14
5103140	HPD103A14000	FP20PD	14	43	60	107	45	14
5104140	HPD104A14000	FP20PD	14	43	60	107	45	14
5103141	HPD103A14100	FP20PD	14,1	45	65	115	48	16
5104141	HPD104A14100	FP20PD	14,1	45	65	115	48	16
5103142	HPD103A14200	FP20PD	14,2	45	65	115	48	16
5104142	HPD104A14200	FP20PD	14,2	45	65	115	48	16
5103143	HPD103A14300	FP20PD	14,3	45	65	115	48	16
5104143	HPD104A14300	FP20PD	14,3	45	65	115	48	16
5103144	HPD103A14400	FP20PD	14,4	45	65	115	48	16
5104144	HPD104A14400	FP20PD	14,4	45	65	115	48	16
5103145	HPD103A14500	FP20PD	14,5	45	65	115	48	16
5104145	HPD104A14500	FP20PD	14,5	45	65	115	48	16
5103146	HPD103A14600	FP20PD	14,6	45	65	115	48	16
5104146	HPD104A14600	FP20PD	14,6	45	65	115	48	16



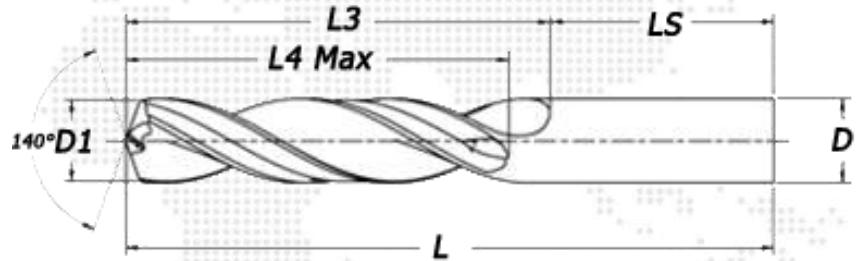
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103147	HPD103A14700	FP20PD	14,7	45	65	115	48	16
5104147	HPD104A14700	FP20PD	14,7	45	65	115	48	16
5103148	HPD103A14800	FP20PD	14,8	45	65	115	48	16
5104148	HPD104A14800	FP20PD	14,8	45	65	115	48	16
5103149	HPD103A14900	FP20PD	14,9	45	65	115	48	16
5104149	HPD104A14900	FP20PD	14,9	45	65	115	48	16
5103150	HPD103A15000	FP20PD	15	45	65	115	48	16
5104150	HPD104A15000	FP20PD	15	45	65	115	48	16
5103151	HPD103A15100	FP20PD	15,1	45	65	115	48	16
5104151	HPD104A15100	FP20PD	15,1	45	65	115	48	16
5103152	HPD103A15200	FP20PD	15,2	45	65	115	48	16
5104152	HPD104A15200	FP20PD	15,2	45	65	115	48	16
5103153	HPD103A15300	FP20PD	15,3	45	65	115	48	16
5104153	HPD104A15300	FP20PD	15,3	45	65	115	48	16
5103154	HPD103A15400	FP20PD	15,4	45	65	115	48	16
5104154	HPD104A15400	FP20PD	15,4	45	65	115	48	16
5103155	HPD103A15500	FP20PD	15,5	45	65	115	48	16
5104155	HPD104A15500	FP20PD	15,5	45	65	115	48	16



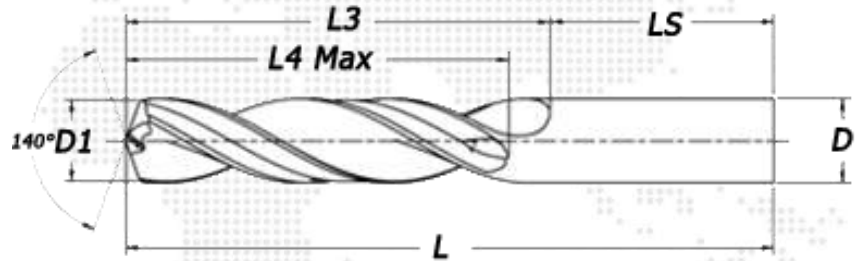
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103156	HPD103A15600	FP20PD	15,6	45	65	115	48	16
5104156	HPD104A15600	FP20PD	15,6	45	65	115	48	16
5103157	HPD103A15700	FP20PD	15,7	45	65	115	48	16
5104157	HPD104A15700	FP20PD	15,7	45	65	115	48	16
5103158	HPD103A15800	FP20PD	15,8	45	65	115	48	16
5104158	HPD104A15800	FP20PD	15,8	45	65	115	48	16
5103159	HPD103A15900	FP20PD	15,9	45	65	115	48	16
5104159	HPD104A15900	FP20PD	15,9	45	65	115	48	16
5103160	HPD103A16000	FP20PD	16	45	65	115	48	16
5104160	HPD104A16000	FP20PD	16	45	65	115	48	16
5103161	HPD103A16100	FP20PD	16,1	51	73	123	48	18
5104161	HPD104A16100	FP20PD	16,1	51	73	123	48	18
5103162	HPD103A16200	FP20PD	16,2	51	73	123	48	18
5104162	HPD104A16200	FP20PD	16,2	51	73	123	48	18
5103163	HPD103A16300	FP20PD	16,3	51	73	123	48	18
5104163	HPD104A16300	FP20PD	16,3	51	73	123	48	18
5103164	HPD103A16400	FP20PD	16,4	51	73	123	48	18
5104164	HPD104A16400	FP20PD	16,4	51	73	123	48	18

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Cutting Tools



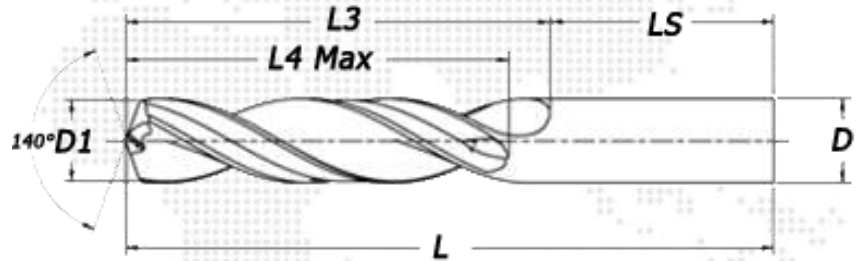
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103165	HPD103A16500	FP20PD	16,5	51	73	123	48	18
5104165	HPD104A16500	FP20PD	16,5	51	73	123	48	18
5103166	HPD103A16600	FP20PD	16,6	51	73	123	48	18
5104166	HPD104A16600	FP20PD	16,6	51	73	123	48	18
5103167	HPD103A16700	FP20PD	16,7	51	73	123	48	18
5104167	HPD104A16700	FP20PD	16,7	51	73	123	48	18
5103168	HPD103A16800	FP20PD	16,8	51	73	123	48	18
5104168	HPD104A16800	FP20PD	16,8	51	73	123	48	18
5103169	HPD103A16900	FP20PD	16,9	51	73	123	48	18
5104169	HPD104A16900	FP20PD	16,9	51	73	123	48	18
5103170	HPD103A17000	FP20PD	17	51	73	123	48	18
5104170	HPD104A17000	FP20PD	17	51	73	123	48	18
5103171	HPD103A17100	FP20PD	17,1	51	73	123	48	18
5104171	HPD104A17100	FP20PD	17,1	51	73	123	48	18
5103172	HPD103A17200	FP20PD	17,2	51	73	123	48	18
5104172	HPD104A17200	FP20PD	17,2	51	73	123	48	18
5103173	HPD103A17300	FP20PD	17,3	51	73	123	48	18
5104173	HPD104A17300	FP20PD	17,3	51	73	123	48	18





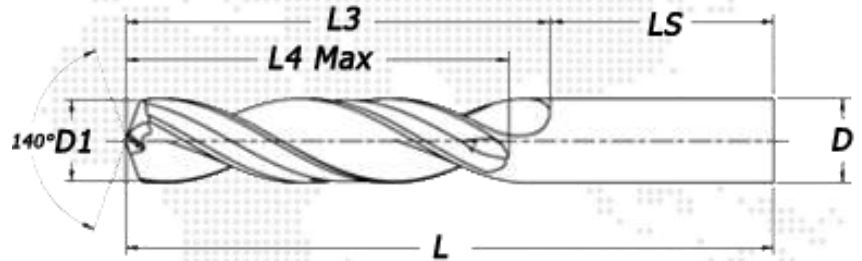
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103174	HPD103A17400	FP20PD	17,4	51	73	123	48	18
5104174	HPD104A17400	FP20PD	17,4	51	73	123	48	18
5103175	HPD103A17500	FP20PD	17,5	51	73	123	48	18
5104175	HPD104A17500	FP20PD	17,5	51	73	123	48	18
5103176	HPD103A17600	FP20PD	17,6	51	73	123	48	18
5104176	HPD104A17600	FP20PD	17,6	51	73	123	48	18
5103177	HPD103A17700	FP20PD	17,7	51	73	123	48	18
5104177	HPD104A17700	FP20PD	17,7	51	73	123	48	18
5103178	HPD103A17800	FP20PD	17,8	51	73	123	48	18
5104178	HPD104A17800	FP20PD	17,8	51	73	123	48	18
5103179	HPD103A17900	FP20PD	17,9	51	73	123	48	18
5104179	HPD104A17900	FP20PD	17,9	51	73	123	48	18
5103180	HPD103A18000	FP20PD	18	51	73	123	48	18
5104180	HPD104A18000	FP20PD	18	51	73	123	48	18
5103181	HPD103A18100	FP20PD	18,1	55	79	131	50	20
5104181	HPD104A18100	FP20PD	18,1	55	79	131	50	20
5103182	HPD103A18200	FP20PD	18,2	55	79	131	50	20
5104182	HPD104A18200	FP20PD	18,2	55	79	131	50	20

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Cutting Tools



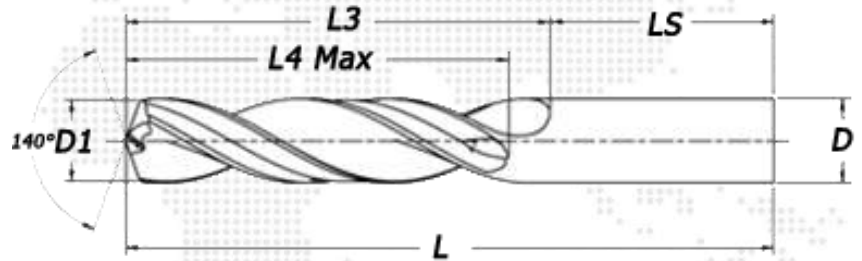
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103183	HPD103A18300	FP20PD	18,3	55	79	131	50	20
5104183	HPD104A18300	FP20PD	18,3	55	79	131	50	20
5103184	HPD103A18400	FP20PD	18,4	55	79	131	50	20
5104184	HPD104A18400	FP20PD	18,4	55	79	131	50	20
5103185	HPD103A18500	FP20PD	18,5	55	79	131	50	20
5104185	HPD104A18500	FP20PD	18,5	55	79	131	50	20
5103186	HPD103A18600	FP20PD	18,6	55	79	131	50	20
5104186	HPD104A18600	FP20PD	18,6	55	79	131	50	20
5103187	HPD103A18700	FP20PD	18,7	55	79	131	50	20
5104187	HPD104A18700	FP20PD	18,7	55	79	131	50	20
5103188	HPD103A18800	FP20PD	18,8	55	79	131	50	20
5104188	HPD104A18800	FP20PD	18,8	55	79	131	50	20
5103189	HPD103A18900	FP20PD	18,9	55	79	131	50	20
5104189	HPD104A18900	FP20PD	18,9	55	79	131	50	20
5103190	HPD103A19000	FP20PD	19	55	79	131	50	20
5104190	HPD104A19000	FP20PD	19	55	79	131	50	20
5103191	HPD103A19100	FP20PD	19,1	55	79	131	50	20
5104191	HPD104A19100	FP20PD	19,1	55	79	131	50	20

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Cutting Tools



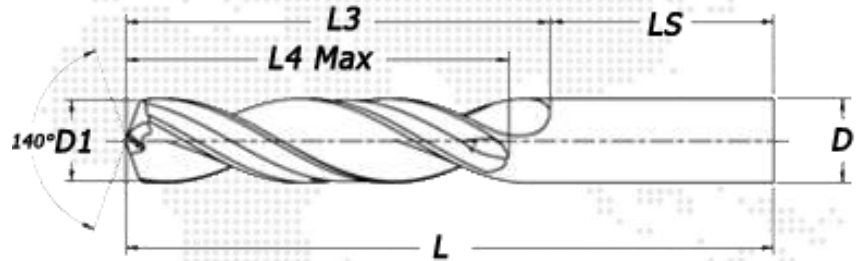
103A – External Coolant



104A – Internal Coolant



**3XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5103192	HPD103A19200	FP20PD	19,2	55	79	131	50	20
5104192	HPD104A19200	FP20PD	19,2	55	79	131	50	20
5103193	HPD103A19300	FP20PD	19,3	55	79	131	50	20
5104193	HPD104A19300	FP20PD	19,3	55	79	131	50	20
5103194	HPD103A19400	FP20PD	19,4	55	79	131	50	20
5104194	HPD104A19400	FP20PD	19,4	55	79	131	50	20
5103195	HPD103A19500	FP20PD	19,5	55	79	131	50	20
5104195	HPD104A19500	FP20PD	19,5	55	79	131	50	20
5103196	HPD103A19600	FP20PD	19,6	55	79	131	50	20
5104196	HPD104A19600	FP20PD	19,6	55	79	131	50	20
5103197	HPD103A19700	FP20PD	19,7	55	79	131	50	20
5104197	HPD104A19700	FP20PD	19,7	55	79	131	50	20
5103198	HPD103A19800	FP20PD	19,8	55	79	131	50	20
5104198	HPD104A19800	FP20PD	19,8	55	79	131	50	20
5103199	HPD103A19900	FP20PD	19,9	55	79	131	50	20
5104199	HPD104A19900	FP20PD	19,9	55	79	131	50	20
5103200	HPD103A20000	FP20PD	20	55	79	131	50	20
5104200	HPD104A20000	FP20PD	20	55	79	131	50	20



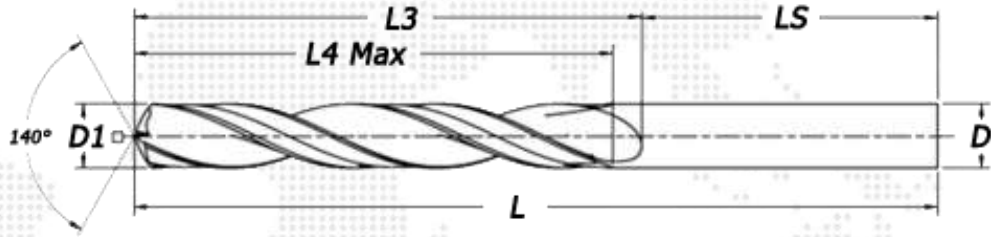
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105030	HPD105A03000	FP20PD	3	23	28	66	36	6
5106030	HPD106A03000	FP20PD	3	23	28	66	36	6
5105031	HPD105A03100	FP20PD	3,1	23	28	66	36	6
5106031	HPD106A03100	FP20PD	3,1	23	28	66	36	6
5105032	HPD105A03200	FP20PD	3,2	23	28	66	36	6
5106032	HPD106A03200	FP20PD	3,2	23	28	66	36	6
5105033	HPD105A03300	FP20PD	3,3	23	28	66	36	6
5106033	HPD106A03300	FP20PD	3,3	23	28	66	36	6
5105034	HPD105A03400	FP20PD	3,4	23	28	66	36	6
5106034	HPD106A03400	FP20PD	3,4	23	28	66	36	6
5105035	HPD105A03500	FP20PD	3,5	23	28	66	36	6
5106035	HPD106A03500	FP20PD	3,5	23	28	66	36	6
5105036	HPD105A03600	FP20PD	3,6	23	28	66	36	6
5106036	HPD106A03600	FP20PD	3,6	23	28	66	36	6
5105037	HPD105A03700	FP20PD	3,7	23	28	66	36	6
5106037	HPD106A03700	FP20PD	3,7	23	28	66	36	6
5105038	HPD105A03800	FP20PD	3,8	29	36	74	36	6
5106038	HPD106A03800	FP20PD	3,8	29	36	74	36	6



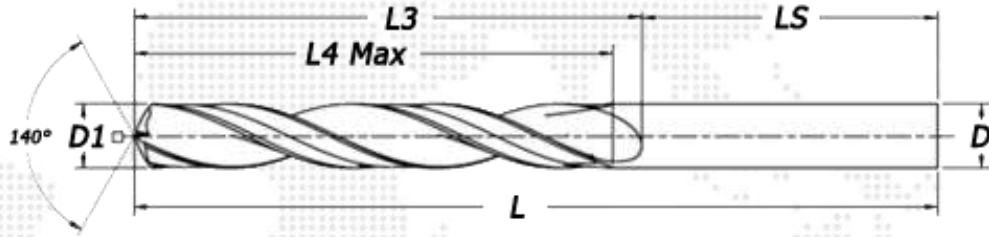
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105039	HPD105A03900	FP20PD	3,9	29	36	74	36	6
5106039	HPD106A03900	FP20PD	3,9	29	36	74	36	6
5105040	HPD105A04000	FP20PD	4	29	36	74	36	6
5106040	HPD106A04000	FP20PD	4	29	36	74	36	6
5105041	HPD105A04100	FP20PD	4,1	29	36	74	36	6
5106041	HPD106A04100	FP20PD	4,1	29	36	74	36	6
5105042	HPD105A04200	FP20PD	4,2	29	36	74	36	6
5106042	HPD106A04200	FP20PD	4,2	29	36	74	36	6
5105043	HPD105A04300	FP20PD	4,3	29	36	74	36	6
5106043	HPD106A04300	FP20PD	4,3	29	36	74	36	6
5105044	HPD105A04400	FP20PD	4,4	29	36	74	36	6
5106044	HPD106A04400	FP20PD	4,4	29	36	74	36	6
5105045	HPD105A04500	FP20PD	4,5	29	36	74	36	6
5106045	HPD106A04500	FP20PD	4,5	29	36	74	36	6
5105046	HPD105A04600	FP20PD	4,6	29	36	74	36	6
5106046	HPD106A04600	FP20PD	4,6	29	36	74	36	6
5105047	HPD105A04700	FP20PD	4,7	29	36	74	36	6
5106047	HPD106A04700	FP20PD	4,7	29	36	74	36	6



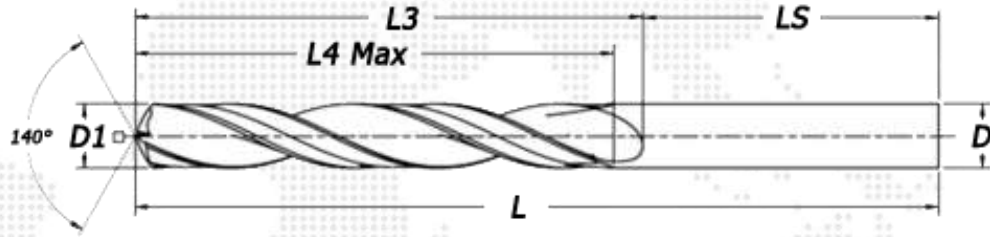
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105048	HPD105A04800	FP20PD	4,8	35	44	82	36	6
5106048	HPD106A04800	FP20PD	4,8	35	44	82	36	6
5105049	HPD105A04900	FP20PD	4,9	35	44	82	36	6
5106049	HPD106A04900	FP20PD	4,9	35	44	82	36	6
5105050	HPD105A05000	FP20PD	5	35	44	82	36	6
5106050	HPD106A05000	FP20PD	5	35	44	82	36	6
5105051	HPD105A05100	FP20PD	5,1	35	44	82	36	6
5106051	HPD106A05100	FP20PD	5,1	35	44	82	36	6
5105052	HPD105A05200	FP20PD	5,2	35	44	82	36	6
5106052	HPD106A05200	FP20PD	5,2	35	44	82	36	6
5105053	HPD105A05300	FP20PD	5,3	35	44	82	36	6
5106053	HPD106A05300	FP20PD	5,3	35	44	82	36	6
5105054	HPD105A05400	FP20PD	5,4	35	44	82	36	6
5106054	HPD106A05400	FP20PD	5,4	35	44	82	36	6
5105055	HPD105A05500	FP20PD	5,5	35	44	82	36	6
5106055	HPD106A05500	FP20PD	5,5	35	44	82	36	6
5105056	HPD105A05600	FP20PD	5,6	35	44	82	36	6
5106056	HPD106A05600	FP20PD	5,6	35	44	82	36	6

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Cutting Tools



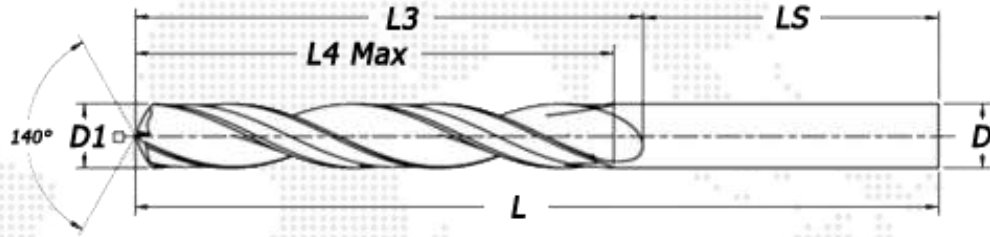
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105057	HPD105A05700	FP20PD	5,7	35	44	82	36	6
5106057	HPD106A05700	FP20PD	5,7	35	44	82	36	6
5105058	HPD105A05800	FP20PD	5,8	35	44	82	36	6
5106058	HPD106A05800	FP20PD	5,8	35	44	82	36	6
5105059	HPD105A05900	FP20PD	5,9	35	44	82	36	6
5106059	HPD106A05900	FP20PD	5,9	35	44	82	36	6
5105060	HPD105A06000	FP20PD	6	35	44	82	36	6
5106060	HPD106A06000	FP20PD	6	35	44	82	36	6
5105061	HPD105A06100	FP20PD	6,1	43	53	91	36	8
5106061	HPD106A06100	FP20PD	6,1	43	53	91	36	8
5105062	HPD105A06200	FP20PD	6,2	43	53	91	36	8
5106062	HPD106A06200	FP20PD	6,2	43	53	91	36	8
5105063	HPD105A06300	FP20PD	6,3	43	53	91	36	8
5106063	HPD106A06300	FP20PD	6,3	43	53	91	36	8
5105064	HPD105A06400	FP20PD	6,4	43	53	91	36	8
5106064	HPD106A06400	FP20PD	6,4	43	53	91	36	8
5105065	HPD105A06500	FP20PD	6,5	43	53	91	36	8
5106065	HPD106A06500	FP20PD	6,5	43	53	91	36	8

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Cutting Tools



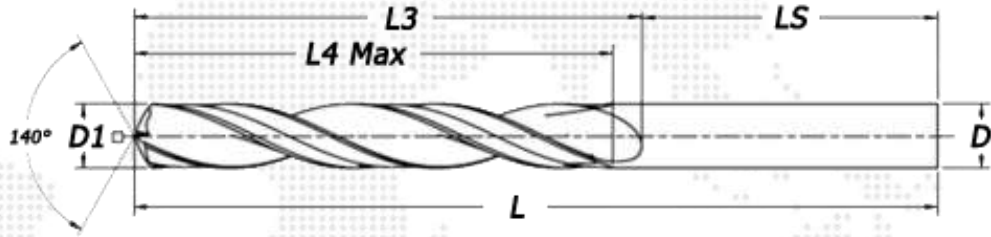
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105066	HPD105A06600	FP20PD	6,6	43	53	91	36	8
5106066	HPD106A06600	FP20PD	6,6	43	53	91	36	8
5105067	HPD105A06700	FP20PD	6,7	43	53	91	36	8
5106067	HPD106A06700	FP20PD	6,7	43	53	91	36	8
5105068	HPD105A06800	FP20PD	6,8	43	53	91	36	8
5106068	HPD106A06800	FP20PD	6,8	43	53	91	36	8
5105069	HPD105A06900	FP20PD	6,9	43	53	91	36	8
5106069	HPD106A06900	FP20PD	6,9	43	53	91	36	8
5105070	HPD105A07000	FP20PD	7	43	53	91	36	8
5106070	HPD106A07000	FP20PD	7	43	53	91	36	8
5105071	HPD105A07100	FP20PD	7,1	43	53	91	36	8
5106071	HPD106A07100	FP20PD	7,1	43	53	91	36	8
5105072	HPD105A07200	FP20PD	7,2	43	53	91	36	8
5106072	HPD106A07200	FP20PD	7,2	43	53	91	36	8
5105073	HPD105A07300	FP20PD	7,3	43	53	91	36	8
5106073	HPD106A07300	FP20PD	7,3	43	53	91	36	8
5105074	HPD105A07400	FP20PD	7,4	43	53	91	36	8
5106074	HPD106A07400	FP20PD	7,4	43	53	91	36	8





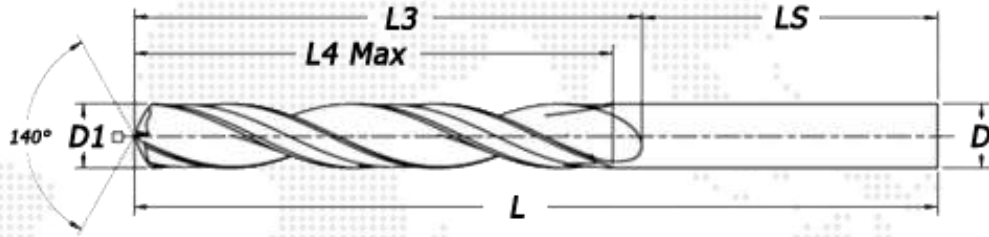
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105075	HPD105A07500	FP20PD	7,5	43	53	91	36	8
5106075	HPD106A07500	FP20PD	7,5	43	53	91	36	8
5105076	HPD105A07600	FP20PD	7,6	43	53	91	36	8
5106076	HPD106A07600	FP20PD	7,6	43	53	91	36	8
5105077	HPD105A07700	FP20PD	7,7	43	53	91	36	8
5106077	HPD106A07700	FP20PD	7,7	43	53	91	36	8
5105078	HPD105A07800	FP20PD	7,8	43	53	91	36	8
5106078	HPD106A07800	FP20PD	7,8	43	53	91	36	8
5105079	HPD105A07900	FP20PD	7,9	43	53	91	36	8
5106079	HPD106A07900	FP20PD	7,9	43	53	91	36	8
5105080	HPD105A08000	FP20PD	8	43	53	91	36	8
5106080	HPD106A08000	FP20PD	8	43	53	91	36	8
5105081	HPD105A08100	FP20PD	8,1	49	61	103	40	10
5106081	HPD106A08100	FP20PD	8,1	49	61	103	40	10
5105082	HPD105A08200	FP20PD	8,2	49	61	103	40	10
5106082	HPD106A08200	FP20PD	8,2	49	61	103	40	10
5105083	HPD105A08300	FP20PD	8,3	49	61	103	40	10
5106083	HPD106A08300	FP20PD	8,3	49	61	103	40	10



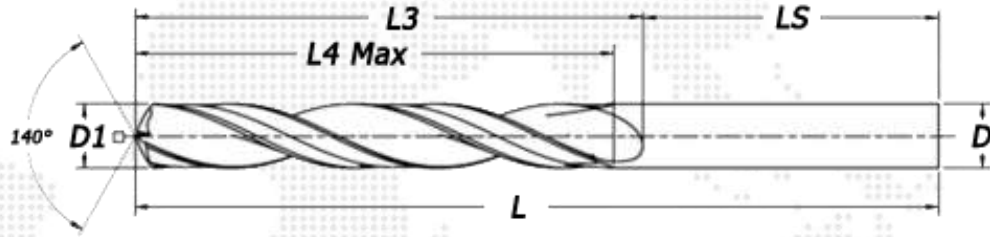
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105084	HPD105A08400	FP20PD	8,4	49	61	103	40	10
5106084	HPD106A08400	FP20PD	8,4	49	61	103	40	10
5105085	HPD105A08500	FP20PD	8,5	49	61	103	40	10
5106085	HPD106A08500	FP20PD	8,5	49	61	103	40	10
5105086	HPD105A08600	FP20PD	8,6	49	61	103	40	10
5106086	HPD106A08600	FP20PD	8,6	49	61	103	40	10
5105087	HPD105A08700	FP20PD	8,7	49	61	103	40	10
5106087	HPD106A08700	FP20PD	8,7	49	61	103	40	10
5105088	HPD105A08800	FP20PD	8,8	49	61	103	40	10
5106088	HPD106A08800	FP20PD	8,8	49	61	103	40	10
5105089	HPD105A08900	FP20PD	8,9	49	61	103	40	10
5106089	HPD106A08900	FP20PD	8,9	49	61	103	40	10
5105090	HPD105A09000	FP20PD	9	49	61	103	40	10
5106090	HPD106A09000	FP20PD	9	49	61	103	40	10
5105091	HPD105A09100	FP20PD	9,1	49	61	103	40	10
5106091	HPD106A09100	FP20PD	9,1	49	61	103	40	10
5105092	HPD105A09200	FP20PD	9,2	49	61	103	40	10
5106092	HPD106A09200	FP20PD	9,2	49	61	103	40	10

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Cutting Tools



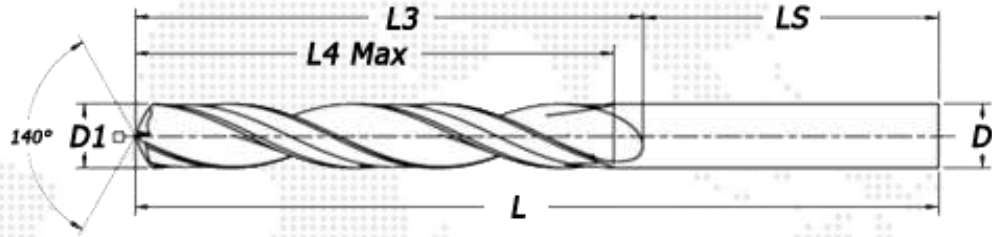
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105093	HPD105A09300	FP20PD	9,3	49	61	103	40	10
5106093	HPD106A09300	FP20PD	9,3	49	61	103	40	10
5105094	HPD105A09400	FP20PD	9,4	49	61	103	40	10
5106094	HPD106A09400	FP20PD	9,4	49	61	103	40	10
5105095	HPD105A09500	FP20PD	9,5	49	61	103	40	10
5106095	HPD106A09500	FP20PD	9,5	49	61	103	40	10
5105096	HPD105A09600	FP20PD	9,6	49	61	103	40	10
5106096	HPD106A09600	FP20PD	9,6	49	61	103	40	10
5105097	HPD105A09700	FP20PD	9,7	49	61	103	40	10
5106097	HPD106A09700	FP20PD	9,7	49	61	103	40	10
5105098	HPD105A09800	FP20PD	9,8	49	61	103	40	10
5106098	HPD106A09800	FP20PD	9,8	49	61	103	40	10
5105099	HPD105A09900	FP20PD	9,9	49	61	103	40	10
5106099	HPD106A09900	FP20PD	9,9	49	61	103	40	10
5105100	HPD105A10000	FP20PD	10	49	61	103	40	10
5106100	HPD106A10000	FP20PD	10	49	61	103	40	10
5105101	HPD105A10100	FP20PD	10,1	56	71	118	45	12
5106101	HPD106A10100	FP20PD	10,1	56	71	118	45	12

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Cutting Tools



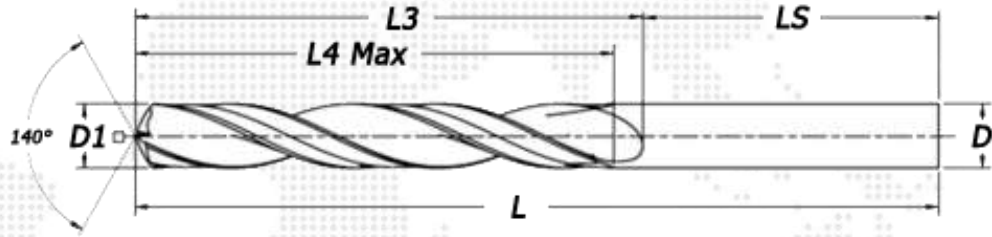
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105102	HPD105A10200	FP20PD	10,2	56	71	118	45	12
5106102	HPD106A10200	FP20PD	10,2	56	71	118	45	12
5105103	HPD105A10300	FP20PD	10,3	56	71	118	45	12
5106103	HPD106A10300	FP20PD	10,3	56	71	118	45	12
5105104	HPD105A10400	FP20PD	10,4	56	71	118	45	12
5106104	HPD106A10400	FP20PD	10,4	56	71	118	45	12
5105105	HPD105A10500	FP20PD	10,5	56	71	118	45	12
5106105	HPD106A10500	FP20PD	10,5	56	71	118	45	12
5105106	HPD105A10600	FP20PD	10,6	56	71	118	45	12
5106106	HPD106A10600	FP20PD	10,6	56	71	118	45	12
5105107	HPD105A10700	FP20PD	10,7	56	71	118	45	12
5106107	HPD106A10700	FP20PD	10,7	56	71	118	45	12
5105108	HPD105A10800	FP20PD	10,8	56	71	118	45	12
5106108	HPD106A10800	FP20PD	10,8	56	71	118	45	12
5105109	HPD105A10900	FP20PD	10,9	56	71	118	45	12
5106109	HPD106A10900	FP20PD	10,9	56	71	118	45	12
5105110	HPD105A11000	FP20PD	11	56	71	118	45	12
5106110	HPD106A11000	FP20PD	11	56	71	118	45	12

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Cutting Tools



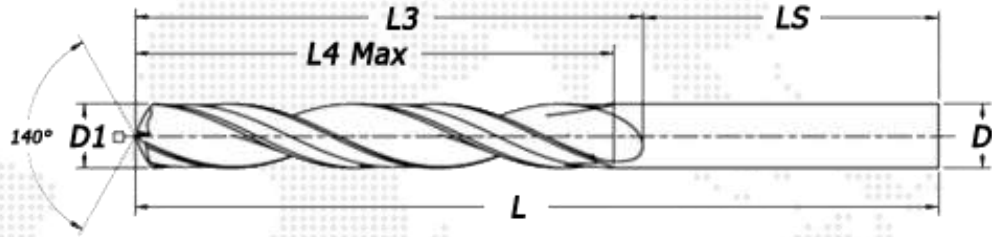
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105111	HPD105A11100	FP20PD	11,1	56	71	118	45	12
5106111	HPD106A11100	FP20PD	11,1	56	71	118	45	12
5105112	HPD105A11200	FP20PD	11,2	56	71	118	45	12
5106112	HPD106A11200	FP20PD	11,2	56	71	118	45	12
5105113	HPD105A11300	FP20PD	11,3	56	71	118	45	12
5106113	HPD106A11300	FP20PD	11,3	56	71	118	45	12
5105114	HPD105A11400	FP20PD	11,4	56	71	118	45	12
5106114	HPD106A11400	FP20PD	11,4	56	71	118	45	12
5105115	HPD105A11500	FP20PD	11,5	56	71	118	45	12
5106115	HPD106A11500	FP20PD	11,5	56	71	118	45	12
5105116	HPD105A11600	FP20PD	11,6	56	71	118	45	12
5106116	HPD106A11600	FP20PD	11,6	56	71	118	45	12
5105117	HPD105A11700	FP20PD	11,7	56	71	118	45	12
5106117	HPD106A11700	FP20PD	11,7	56	71	118	45	12
5105118	HPD105A11800	FP20PD	11,8	56	71	118	45	12
5106118	HPD106A11800	FP20PD	11,8	56	71	118	45	12
5105119	HPD105A11900	FP20PD	11,9	56	71	118	45	12
5106119	HPD106A11900	FP20PD	11,9	56	71	118	45	12

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Cutting Tools



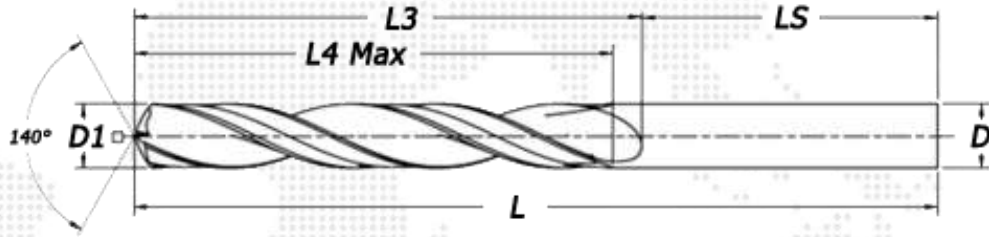
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105120	HPD105A12000	FP20PD	12	56	71	118	45	12
5106120	HPD106A12000	FP20PD	12	56	71	118	45	12
5105121	HPD105A12100	FP20PD	12,1	60	77	124	45	14
5106121	HPD106A12100	FP20PD	12,1	60	77	124	45	14
5105122	HPD105A12200	FP20PD	12,2	60	77	124	45	14
5106122	HPD106A12200	FP20PD	12,2	60	77	124	45	14
5105123	HPD105A12300	FP20PD	12,3	60	77	124	45	14
5106123	HPD106A12300	FP20PD	12,3	60	77	124	45	14
5105124	HPD105A12400	FP20PD	12,4	60	77	124	45	14
5106124	HPD106A12400	FP20PD	12,4	60	77	124	45	14
5105125	HPD105A12500	FP20PD	12,5	60	77	124	45	14
5106125	HPD106A12500	FP20PD	12,5	60	77	124	45	14
5105126	HPD105A12600	FP20PD	12,6	60	77	124	45	14
5106126	HPD106A12600	FP20PD	12,6	60	77	124	45	14
5105127	HPD105A12700	FP20PD	12,7	60	77	124	45	14
5106127	HPD106A12700	FP20PD	12,7	60	77	124	45	14
5105128	HPD105A12800	FP20PD	12,8	60	77	124	45	14
5106128	HPD106A12800	FP20PD	12,8	60	77	124	45	14

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Cutting Tools



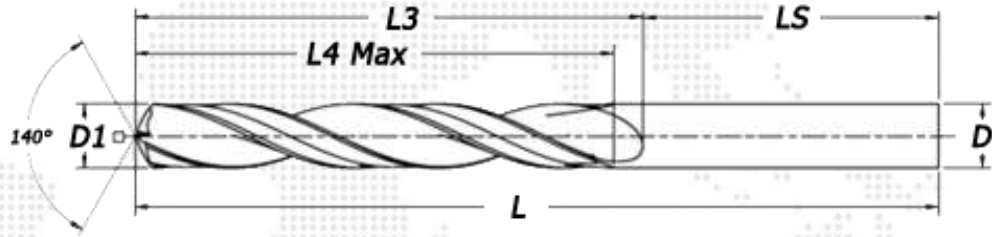
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105129	HPD105A12900	FP20PD	12,9	60	77	124	45	14
5106129	HPD106A12900	FP20PD	12,9	60	77	124	45	14
5105130	HPD105A13000	FP20PD	13	60	77	124	45	14
5106130	HPD106A13000	FP20PD	13	60	77	124	45	14
5105131	HPD105A13100	FP20PD	13,1	60	77	124	45	14
5106131	HPD106A13100	FP20PD	13,1	60	77	124	45	14
5105132	HPD105A13200	FP20PD	13,2	60	77	124	45	14
5106132	HPD106A13200	FP20PD	13,2	60	77	124	45	14
5105133	HPD105A13300	FP20PD	13,3	60	77	124	45	14
5106133	HPD106A13300	FP20PD	13,3	60	77	124	45	14
5105134	HPD105A13400	FP20PD	13,4	60	77	124	45	14
5106134	HPD106A13400	FP20PD	13,4	60	77	124	45	14
5105135	HPD105A13500	FP20PD	13,5	60	77	124	45	14
5106135	HPD106A13500	FP20PD	13,5	60	77	124	45	14
5105136	HPD105A13600	FP20PD	13,6	60	77	124	45	14
5106136	HPD106A13600	FP20PD	13,6	60	77	124	45	14
5105137	HPD105A13700	FP20PD	13,7	60	77	124	45	14
5106137	HPD106A13700	FP20PD	13,7	60	77	124	45	14

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Cutting Tools



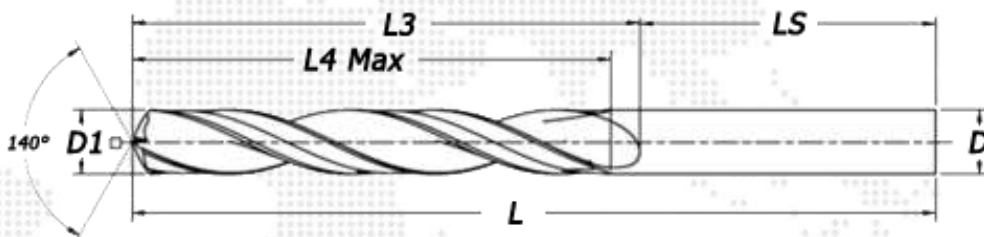
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105138	HPD105A13800	FP20PD	13,8	60	77	124	45	14
5106138	HPD106A13800	FP20PD	13,8	60	77	124	45	14
5105139	HPD105A13900	FP20PD	13,9	60	77	124	45	14
5106139	HPD106A13900	FP20PD	13,9	60	77	124	45	14
5105140	HPD105A14000	FP20PD	14	60	77	124	45	14
5106140	HPD106A14000	FP20PD	14	60	77	124	45	14
5105141	HPD105A14100	FP20PD	14,1	63	83	133	48	16
5106141	HPD106A14100	FP20PD	14,1	63	83	133	48	16
5105142	HPD105A14200	FP20PD	14,2	63	83	133	48	16
5106142	HPD106A14200	FP20PD	14,2	63	83	133	48	16
5105143	HPD105A14300	FP20PD	14,3	63	83	133	48	16
5106143	HPD106A14300	FP20PD	14,3	63	83	133	48	16
5105144	HPD105A14400	FP20PD	14,4	63	83	133	48	16
5106144	HPD106A14400	FP20PD	14,4	63	83	133	48	16
5105145	HPD105A14500	FP20PD	14,5	63	83	133	48	16
5106145	HPD106A14500	FP20PD	14,5	63	83	133	48	16
5105146	HPD105A14600	FP20PD	14,6	63	83	133	48	16
5106146	HPD106A14600	FP20PD	14,6	63	83	133	48	16



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Cutting Tools



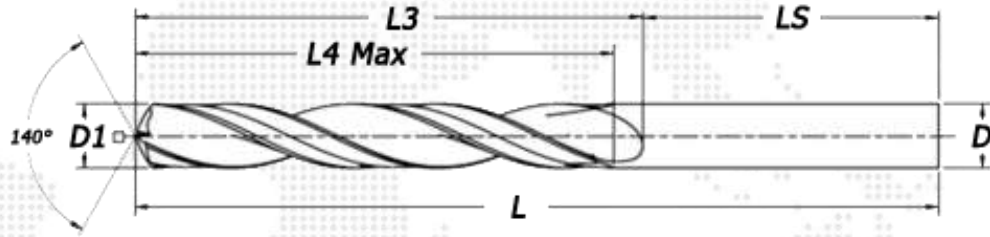
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105147	HPD105A14700	FP20PD	14,7	63	83	133	48	16
5106147	HPD106A14700	FP20PD	14,7	63	83	133	48	16
5105148	HPD105A14800	FP20PD	14,8	63	83	133	48	16
5106148	HPD106A14800	FP20PD	14,8	63	83	133	48	16
5105149	HPD105A14900	FP20PD	14,9	63	83	133	48	16
5106149	HPD106A14900	FP20PD	14,9	63	83	133	48	16
5105150	HPD105A15000	FP20PD	15	63	83	133	48	16
5106150	HPD106A15000	FP20PD	15	63	83	133	48	16
5105151	HPD105A15100	FP20PD	15,1	63	83	133	48	16
5106151	HPD106A15100	FP20PD	15,1	63	83	133	48	16
5105152	HPD105A15200	FP20PD	15,2	63	83	133	48	16
5106152	HPD106A15200	FP20PD	15,2	63	83	133	48	16
5105153	HPD105A15300	FP20PD	15,3	63	83	133	48	16
5106153	HPD106A15300	FP20PD	15,3	63	83	133	48	16
5105154	HPD105A15400	FP20PD	15,4	63	83	133	48	16
5106154	HPD106A15400	FP20PD	15,4	63	83	133	48	16
5105155	HPD105A15500	FP20PD	15,5	63	83	133	48	16
5106155	HPD106A15500	FP20PD	15,5	63	83	133	48	16

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Cutting Tools



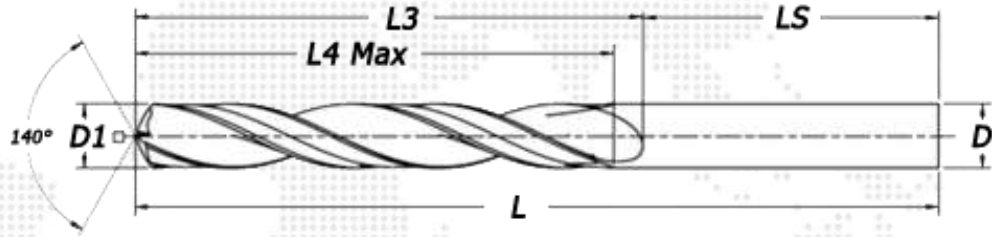
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105156	HPD105A15600	FP20PD	15,6	63	83	133	48	16
5106156	HPD106A15600	FP20PD	15,6	63	83	133	48	16
5105157	HPD105A15700	FP20PD	15,7	63	83	133	48	16
5106157	HPD106A15700	FP20PD	15,7	63	83	133	48	16
5105158	HPD105A15800	FP20PD	15,8	63	83	133	48	16
5106158	HPD106A15800	FP20PD	15,8	63	83	133	48	16
5105159	HPD105A15900	FP20PD	15,9	63	83	133	48	16
5106159	HPD106A15900	FP20PD	15,9	63	83	133	48	16
5105160	HPD105A16000	FP20PD	16	63	83	133	48	16
5106160	HPD106A16000	FP20PD	16	63	83	133	48	16
5105161	HPD105A16100	FP20PD	16,1	71	93	143	48	18
5106161	HPD106A16100	FP20PD	16,1	71	93	143	48	18
5105162	HPD105A16200	FP20PD	16,2	71	93	143	48	18
5106162	HPD106A16200	FP20PD	16,2	71	93	143	48	18
5105163	HPD105A16300	FP20PD	16,3	71	93	143	48	18
5106163	HPD106A16300	FP20PD	16,3	71	93	143	48	18
5105164	HPD105A16400	FP20PD	16,4	71	93	143	48	18
5106164	HPD106A16400	FP20PD	16,4	71	93	143	48	18

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Cutting Tools



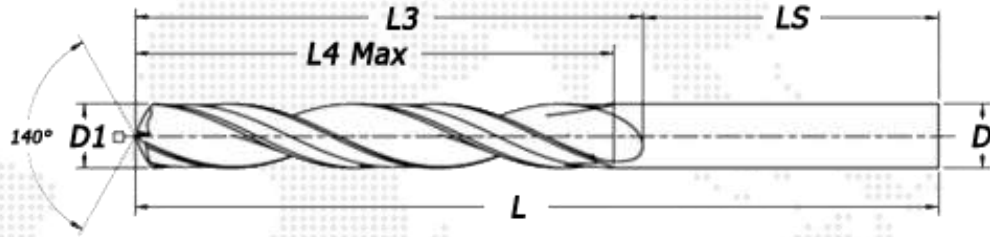
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105165	HPD105A16500	FP20PD	16,5	71	93	143	48	18
5106165	HPD106A16500	FP20PD	16,5	71	93	143	48	18
5105166	HPD105A16600	FP20PD	16,6	71	93	143	48	18
5106166	HPD106A16600	FP20PD	16,6	71	93	143	48	18
5105167	HPD105A16700	FP20PD	16,7	71	93	143	48	18
5106167	HPD106A16700	FP20PD	16,7	71	93	143	48	18
5105168	HPD105A16800	FP20PD	16,8	71	93	143	48	18
5106168	HPD106A16800	FP20PD	16,8	71	93	143	48	18
5105169	HPD105A16900	FP20PD	16,9	71	93	143	48	18
5106169	HPD106A16900	FP20PD	16,9	71	93	143	48	18
5105170	HPD105A17000	FP20PD	17	71	93	143	48	18
5106170	HPD106A17000	FP20PD	17	71	93	143	48	18
5105171	HPD105A17100	FP20PD	17,1	71	93	143	48	18
5106171	HPD106A17100	FP20PD	17,1	71	93	143	48	18
5105172	HPD105A17200	FP20PD	17,2	71	93	143	48	18
5106172	HPD106A17200	FP20PD	17,2	71	93	143	48	18
5105173	HPD105A17300	FP20PD	17,3	71	93	143	48	18
5106173	HPD106A17300	FP20PD	17,3	71	93	143	48	18

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Cutting Tools



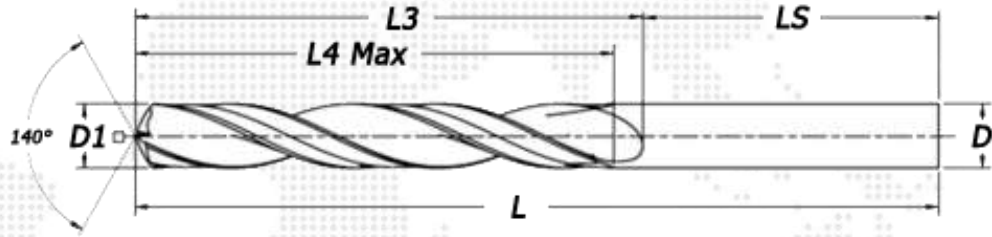
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105174	HPD105A17400	FP20PD	17,4	71	93	143	48	18
5106174	HPD106A17400	FP20PD	17,4	71	93	143	48	18
5105175	HPD105A17500	FP20PD	17,5	71	93	143	48	18
5106175	HPD106A17500	FP20PD	17,5	71	93	143	48	18
5105176	HPD105A17600	FP20PD	17,6	71	93	143	48	18
5106176	HPD106A17600	FP20PD	17,6	71	93	143	48	18
5105177	HPD105A17700	FP20PD	17,7	71	93	143	48	18
5106177	HPD106A17700	FP20PD	17,7	71	93	143	48	18
5105178	HPD105A17800	FP20PD	17,8	71	93	143	48	18
5106178	HPD106A17800	FP20PD	17,8	71	93	143	48	18
5105179	HPD105A17900	FP20PD	17,9	71	93	143	48	18
5106179	HPD106A17900	FP20PD	17,9	71	93	143	48	18
5105180	HPD105A18000	FP20PD	18	71	93	143	48	18
5106180	HPD106A18000	FP20PD	18	71	93	143	48	18
5105181	HPD105A18100	FP20PD	18,1	77	101	153	50	20
5106181	HPD106A18100	FP20PD	18,1	77	101	153	50	20
5105182	HPD105A18200	FP20PD	18,2	77	101	153	50	20
5106182	HPD106A18200	FP20PD	18,2	77	101	153	50	20

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Cutting Tools



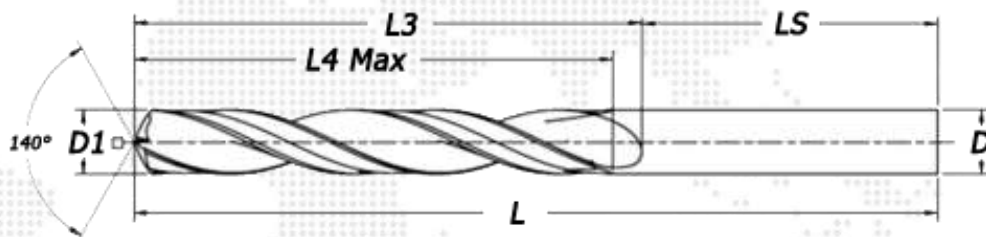
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105183	HPD105A18300	FP20PD	18,3	77	101	153	50	20
5106183	HPD106A18300	FP20PD	18,3	77	101	153	50	20
5105184	HPD105A18400	FP20PD	18,4	77	101	153	50	20
5106184	HPD106A18400	FP20PD	18,4	77	101	153	50	20
5105185	HPD105A18500	FP20PD	18,5	77	101	153	50	20
5106185	HPD106A18500	FP20PD	18,5	77	101	153	50	20
5105186	HPD105A18600	FP20PD	18,6	77	101	153	50	20
5106186	HPD106A18600	FP20PD	18,6	77	101	153	50	20
5105187	HPD105A18700	FP20PD	18,7	77	101	153	50	20
5106187	HPD106A18700	FP20PD	18,7	77	101	153	50	20
5105188	HPD105A18800	FP20PD	18,8	77	101	153	50	20
5106188	HPD106A18800	FP20PD	18,8	77	101	153	50	20
5105189	HPD105A18900	FP20PD	18,9	77	101	153	50	20
5106189	HPD106A18900	FP20PD	18,9	77	101	153	50	20
5105190	HPD105A19000	FP20PD	19	77	101	153	50	20
5106190	HPD106A19000	FP20PD	19	77	101	153	50	20
5105191	HPD105A19100	FP20PD	19,1	77	101	153	50	20
5106191	HPD106A19100	FP20PD	19,1	77	101	153	50	20

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Cutting Tools



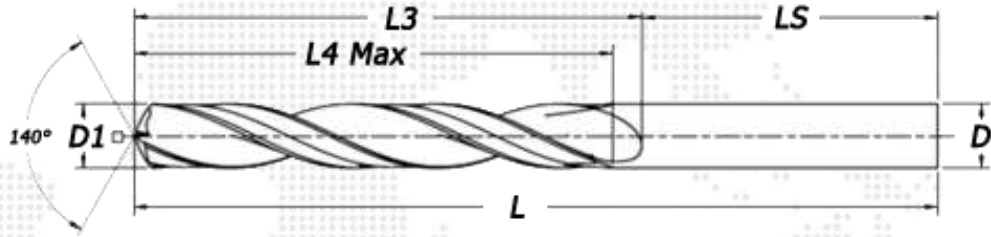
105A – External Coolant



106A – Internal Coolant



**5XD**



Workpiece Material



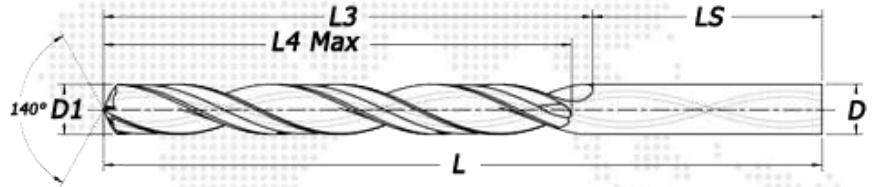
Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5105192	HPD105A19200	FP20PD	19,2	77	101	153	50	20
5106192	HPD106A19200	FP20PD	19,2	77	101	153	50	20
5105193	HPD105A19300	FP20PD	19,3	77	101	153	50	20
5106193	HPD106A19300	FP20PD	19,3	77	101	153	50	20
5105194	HPD105A19400	FP20PD	19,4	77	101	153	50	20
5106194	HPD106A19400	FP20PD	19,4	77	101	153	50	20
5105195	HPD105A19500	FP20PD	19,5	77	101	153	50	20
5106195	HPD106A19500	FP20PD	19,5	77	101	153	50	20
5105196	HPD105A19600	FP20PD	19,6	77	101	153	50	20
5106196	HPD106A19600	FP20PD	19,6	77	101	153	50	20
5105197	HPD105A19700	FP20PD	19,7	77	101	153	50	20
5106197	HPD106A19700	FP20PD	19,7	77	101	153	50	20
5105198	HPD105A19800	FP20PD	19,8	77	101	153	50	20
5106198	HPD106A19800	FP20PD	19,8	77	101	153	50	20
5105199	HPD105A19900	FP20PD	19,9	77	101	153	50	20
5106199	HPD106A19900	FP20PD	19,9	77	101	153	50	20
5105200	HPD105A20000	FP20PD	20	77	101	153	50	20
5106200	HPD106A20000	FP20PD	20	77	101	153	50	20



108A – Internal Coolant



**8XD**



Workpiece Material



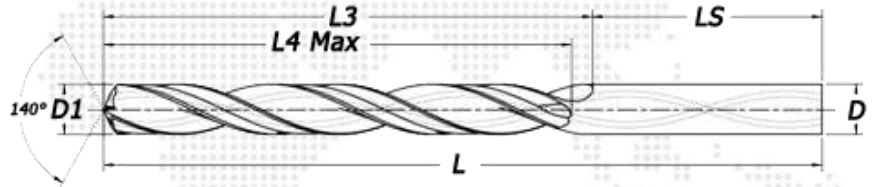
Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5108030	HPD108A03000	FP20PD	3	33	40	78	36	6
5108031	HPD108A03100	FP20PD	3,1	33	40	78	36	6
5108032	HPD108A03200	FP20PD	3,2	33	40	78	36	6
5108033	HPD108A03300	FP20PD	3,3	33	40	78	36	6
5108034	HPD108A03400	FP20PD	3,4	33	40	78	36	6
5108035	HPD108A03500	FP20PD	3,5	33	49	78	36	6
5108036	HPD108A03600	FP20PD	3,6	33	40	78	36	6
5108037	HPD108A03700	FP20PD	3,7	33	40	78	36	6
5108038	HPD108A03800	FP20PD	3,8	41	49	87	36	6
5108039	HPD108A03900	FP20PD	3,9	41	40	87	36	6
5108040	HPD108A04000	FP20PD	4	41	40	87	36	6
5108041	HPD108A04100	FP20PD	4,1	41	49	87	36	6
5108042	HPD108A04200	FP20PD	4,2	41	49	87	36	6
5108043	HPD108A04300	FP20PD	4,3	41	49	87	36	6
5108044	HPD108A04400	FP20PD	4,4	41	49	87	36	6
5108045	HPD108A04500	FP20PD	4,5	41	49	87	36	6
5108046	HPD108A04600	FP20PD	4,6	41	49	87	36	6



108A – Internal Coolant



**8XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5108047	HPD108A04700	FP20PD	4,7	41	56	87	36	6
5108048	HPD108A04800	FP20PD	4,8	48	56	94	36	6
5108049	HPD108A04900	FP20PD	4,9	48	56	94	36	6
5108050	HPD108A05000	FP20PD	5	48	56	94	36	6
5108051	HPD108A05100	FP20PD	5,1	48	56	94	36	6
5108052	HPD108A05200	FP20PD	5,2	48	56	94	36	6
5108053	HPD108A05300	FP20PD	5,3	48	56	94	36	6
5108054	HPD108A05400	FP20PD	5,4	48	56	94	36	6
5108055	HPD108A05500	FP20PD	5,5	48	56	94	36	6
5108056	HPD108A05600	FP20PD	5,6	48	56	94	36	6
5108057	HPD108A05700	FP20PD	5,7	48	56	94	36	6
5108058	HPD108A05800	FP20PD	5,8	48	67	94	36	6
5108059	HPD108A05900	FP20PD	5,9	48	67	94	36	6
5108060	HPD108A06000	FP20PD	6	48	67	94	36	6
5108061	HPD108A06100	FP20PD	6,1	57	67	105	36	8
5108062	HPD108A06200	FP20PD	6,2	57	67	105	36	8
5108063	HPD108A06300	FP20PD	6,3	57	56	105	36	8

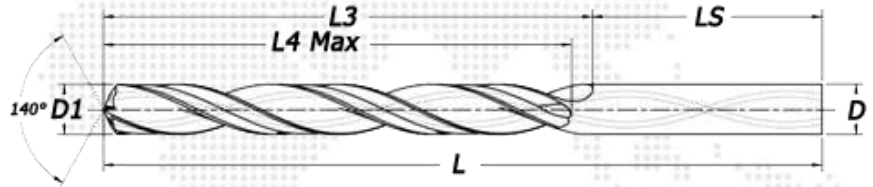




108A – Internal Coolant



**8XD**



Workpiece Material



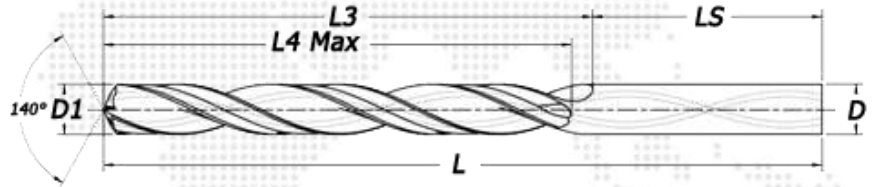
Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5108064	HPD108A06400	FP20PD	6,4	57	67	105	36	8
5108065	HPD108A06500	FP20PD	6,5	57	67	105	36	8
5108066	HPD108A06600	FP20PD	6,6	57	67	105	36	8
5108067	HPD108A06700	FP20PD	6,7	57	67	105	36	8
5108068	HPD108A06800	FP20PD	6,8	57	67	105	36	8
5108069	HPD108A06900	FP20PD	6,9	57	67	105	36	8
5108070	HPD108A07000	FP20PD	7	57	72	105	36	8
5108071	HPD108A07100	FP20PD	7,1	61	72	110	36	8
5108072	HPD108A07200	FP20PD	7,2	61	72	110	36	8
5108073	HPD108A07300	FP20PD	7,3	61	72	110	36	8
5108074	HPD108A07400	FP20PD	7,4	61	72	110	36	8
5108075	HPD108A07500	FP20PD	7,5	61	72	110	36	8
5108076	HPD108A07600	FP20PD	7,6	61	80	110	36	8
5108077	HPD108A07700	FP20PD	7,7	61	80	110	36	8
5108078	HPD108A07800	FP20PD	7,8	61	80	110	36	8
5108079	HPD108A07900	FP20PD	7,9	61	80	110	36	8
5108080	HPD108A08000	FP20PD	8	61	80	110	36	8



108A – Internal Coolant



**8XD**



Workpiece Material



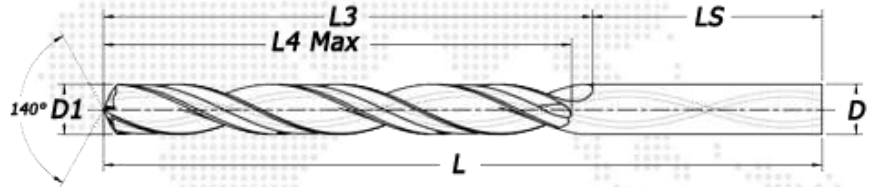
Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5108081	HPD108A08100	FP20PD	8,1	68	80	122	40	10
5108082	HPD108A08200	FP20PD	8,2	68	80	122	40	10
5108083	HPD108A08300	FP20PD	8,3	68	80	122	40	10
5108084	HPD108A08400	FP20PD	8,4	68	72	122	40	10
5108085	HPD108A08500	FP20PD	8,5	68	80	122	40	10
5108086	HPD108A08600	FP20PD	8,6	68	80	122	40	10
5108087	HPD108A08700	FP20PD	8,7	68	72	122	40	10
5108088	HPD108A08800	FP20PD	8,8	68	72	122	40	10
5108089	HPD108A08900	FP20PD	8,9	68	72	122	40	10
5108090	HPD108A09000	FP20PD	9	68	72	122	40	10
5108091	HPD108A09100	FP20PD	9,1	68	80	122	40	10
5108092	HPD108A09200	FP20PD	9,2	68	80	122	40	10
5108093	HPD108A09300	FP20PD	9,3	68	80	122	40	10
5108094	HPD108A09400	FP20PD	9,4	68	80	122	40	10
5108095	HPD108A09500	FP20PD	9,5	68	80	122	40	10
5108096	HPD108A09600	FP20PD	9,6	68	80	122	40	10
5108097	HPD108A09700	FP20PD	9,7	68	80	122	40	10



108A – Internal Coolant



**8XD**



Workpiece Material



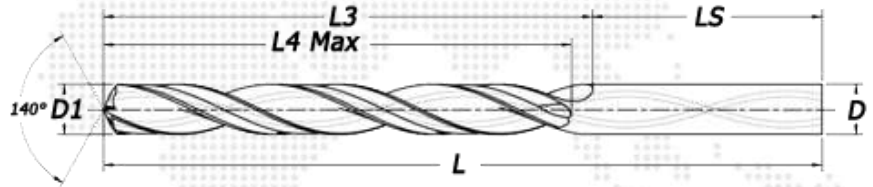
Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5108098	HPD108A09800	FP20PD	9,8	68	80	122	40	10
5108099	HPD108A09900	FP20PD	9,9	68	80	122	40	10
5108100	HPD108A10000	FP20PD	10	68	80	122	40	10
5108101	HPD108A10100	FP20PD	10,1	79	94	141	45	12
5108102	HPD108A10200	FP20PD	10,2	79	94	141	45	12
5108103	HPD108A10300	FP20PD	10,3	79	94	141	45	12
5108104	HPD108A10400	FP20PD	10,4	79	94	141	45	12
5108105	HPD108A10500	FP20PD	10,5	79	94	141	45	12
5108106	HPD108A10600	FP20PD	10,6	79	94	141	45	12
5108107	HPD108A10700	FP20PD	10,7	79	94	141	45	12
5108108	HPD108A10800	FP20PD	10,8	79	94	141	45	12
5108109	HPD108A10900	FP20PD	10,9	79	94	141	45	12
5108110	HPD108A11000	FP20PD	11	79	94	141	45	12
5108111	HPD108A11100	FP20PD	11,1	79	94	141	45	12
5108112	HPD108A11200	FP20PD	11,2	79	94	141	45	12
5108113	HPD108A11300	FP20PD	11,3	79	94	141	45	12
5108114	HPD108A11400	FP20PD	11,4	79	94	141	45	12



108A – Internal Coolant



**8XD**



Workpiece Material



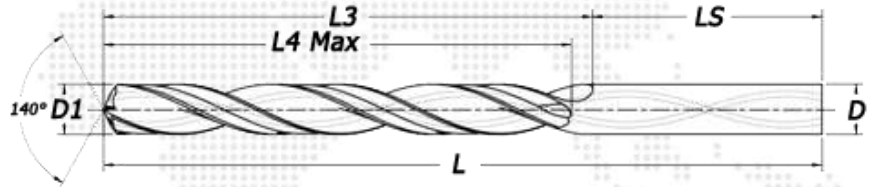
Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5108115	HPD108A11500	FP20PD	11,5	79	94	141	45	12
5108116	HPD108A11600	FP20PD	11,6	79	94	141	45	12
5108117	HPD108A11700	FP20PD	11,7	79	94	141	45	12
5108118	HPD108A11800	FP20PD	11,8	79	94	141	45	12
5108119	HPD108A11900	FP20PD	11,9	79	94	141	45	12
5108120	HPD108A12000	FP20PD	12	79	94	141	45	12
5108121	HPD108A12100	FP20PD	12,1	91	108	155	45	14
5108122	HPD108A12200	FP20PD	12,2	91	108	155	45	14
5108123	HPD108A12300	FP20PD	12,3	91	108	155	45	14
5108124	HPD108A12400	FP20PD	12,4	91	108	155	45	14
5108125	HPD108A12500	FP20PD	12,5	91	108	155	45	14
5108126	HPD108A12600	FP20PD	12,6	91	108	155	45	14
5108127	HPD108A12700	FP20PD	12,7	91	108	155	45	14
5108128	HPD108A12800	FP20PD	12,8	91	108	155	45	14
5108129	HPD108A12900	FP20PD	12,9	91	108	155	45	14
5108130	HPD108A13000	FP20PD	13	91	108	155	45	14
5108131	HPD108A13100	FP20PD	13,1	91	108	155	45	14



108A – Internal Coolant



**8XD**



Workpiece Material



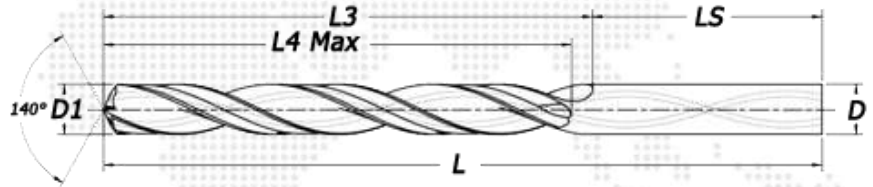
Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5108132	HPD108A13200	FP20PD	13,2	91	108	155	45	14
5108133	HPD108A13300	FP20PD	13,3	91	108	155	45	14
5108134	HPD108A13400	FP20PD	13,4	91	108	155	45	14
5108135	HPD108A13500	FP20PD	13,5	91	108	155	45	14
5108136	HPD108A13600	FP20PD	13,6	91	108	155	45	14
5108137	HPD108A13700	FP20PD	13,7	91	108	155	45	14
5108138	HPD108A13800	FP20PD	13,8	91	108	155	45	14
5108139	HPD108A13900	FP20PD	13,9	91	108	155	45	14
5108140	HPD108A14000	FP20PD	14	91	108	155	45	14
5108141	HPD108A14100	FP20PD	14,1	101	121	171	48	16
5108142	HPD108A14200	FP20PD	14,2	101	121	171	48	16
5108143	HPD108A14300	FP20PD	14,3	101	121	171	48	16
5108144	HPD108A14400	FP20PD	14,4	101	121	171	48	16
5108145	HPD108A14500	FP20PD	14,5	101	121	171	48	16
5108146	HPD108A14600	FP20PD	14,6	101	121	171	48	16
5108147	HPD108A14700	FP20PD	14,7	101	121	171	48	16
5108148	HPD108A14800	FP20PD	14,8	101	121	171	48	16



108A – Internal Coolant



**8XD**



Workpiece Material



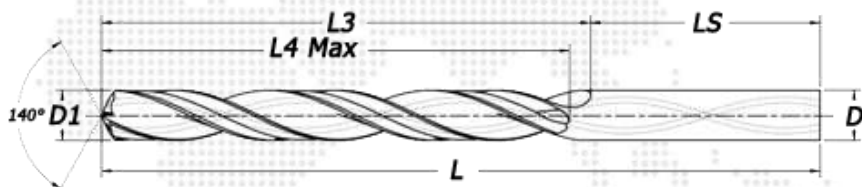
Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5108149	HPD108A14900	FP20PD	14,9	101	121	171	48	16
5108150	HPD108A15000	FP20PD	15	101	121	171	48	16
5108151	HPD108A15100	FP20PD	15,1	101	121	171	48	16
5108152	HPD108A15200	FP20PD	15,2	101	121	171	48	16
5108153	HPD108A15300	FP20PD	15,3	101	121	171	48	16
5108154	HPD108A15400	FP20PD	15,4	101	121	171	48	16
5108155	HPD108A15500	FP20PD	15,5	101	121	171	48	16
5108156	HPD108A15600	FP20PD	15,6	101	121	171	48	16
5108157	HPD108A15700	FP20PD	15,7	101	121	171	48	16
5108158	HPD108A15800	FP20PD	15,8	101	121	171	48	16
5108159	HPD108A15900	FP20PD	15,9	101	121	171	48	16
5108160	HPD108A16000	FP20PD	16	101	121	171	48	16
5108161	HPD108A16100	FP20PD	16,1	113	135	185	48	18
5108162	HPD108A16200	FP20PD	16,2	113	135	185	48	18
5108163	HPD108A16300	FP20PD	16,3	113	135	185	48	18
5108164	HPD108A16400	FP20PD	16,4	113	135	185	48	18
5108165	HPD108A16500	FP20PD	16,5	113	135	185	48	18



108A – Internal Coolant



**8XD**



Workpiece Material



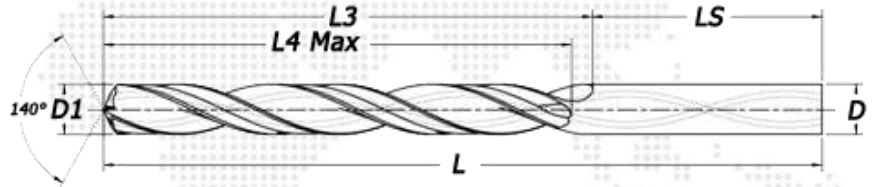
Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5108166	HPD108A16600	FP20PD	16,6	113	135	185	48	18
5108167	HPD108A16700	FP20PD	16,7	113	135	185	48	18
5108168	HPD108A16800	FP20PD	16,8	113	135	185	48	18
5108169	HPD108A16900	FP20PD	16,9	113	135	185	48	18
5108170	HPD108A17000	FP20PD	17	113	135	185	48	18
5108171	HPD108A17100	FP20PD	17,1	113	135	185	48	18
5108172	HPD108A17200	FP20PD	17,2	113	135	185	48	18
5108173	HPD108A17300	FP20PD	17,3	113	135	185	48	18
5108174	HPD108A17400	FP20PD	17,4	113	135	185	48	18
5108175	HPD108A17500	FP20PD	17,5	113	135	185	48	18
5108176	HPD108A17600	FP20PD	17,6	113	135	185	48	18
5108177	HPD108A17700	FP20PD	17,7	113	135	185	48	18
5108178	HPD108A17800	FP20PD	17,8	113	135	185	48	18
5108179	HPD108A17900	FP20PD	17,9	113	135	185	48	18
5108180	HPD108A18000	FP20PD	18	113	135	185	48	18
5108181	HPD108A18100	FP20PD	18,1	124	148	200	50	20
5108182	HPD108A18200	FP20PD	18,2	124	148	200	50	20



108A – Internal Coolant



**8XD**



Workpiece Material



Sap Number	Catalog Number	Grade	D1	L4 Max.	L3	L	LS	D
5108183	HPD108A18300	FP20PD	18,3	124	148	200	50	20
5108184	HPD108A18400	FP20PD	18,4	124	148	200	50	20
5108185	HPD108A18500	FP20PD	18,5	124	148	200	50	20
5108186	HPD108A18600	FP20PD	18,6	124	148	200	50	20
5108187	HPD108A18700	FP20PD	18,7	124	148	200	50	20
5108188	HPD108A18800	FP20PD	18,8	124	148	200	50	20
5108189	HPD108A18900	FP20PD	18,9	124	148	200	50	20
5108190	HPD108A19000	FP20PD	19	124	148	200	50	20
5108191	HPD108A19100	FP20PD	19,1	124	148	200	50	20
5108192	HPD108A19200	FP20PD	19,2	124	148	200	50	20
5108193	HPD108A19300	FP20PD	19,3	124	148	200	50	20
5108194	HPD108A19400	FP20PD	19,4	124	148	200	50	20
5108195	HPD108A19500	FP20PD	19,5	124	148	200	50	20
5108196	HPD108A19600	FP20PD	19,6	124	148	200	50	20
5108197	HPD108A19700	FP20PD	19,7	124	148	200	50	20
5108198	HPD108A19800	FP20PD	19,8	124	148	200	50	20
5108199	HPD108A19900	FP20PD	19,9	124	148	200	50	20
5108200	HPD108A20000	FP20PD	20	124	148	200	50	20



## Drill For More Materials..



**P**

**Steel**

Workpiece Material



**M S**

**Stainless Steel/ Super Alloys**

Workpiece Material



**K**

**Cast Iron**

Workpiece Material



**N**

**Aluminium**

Workpiece Material

Workpiece Materials	3xD	5xD	8xD	Grade
P	103A/ 104A	105A/ 106A	108A	FP20PD
M-S	203A/ 204A	205A/ 206A	208A	FM20PD
K	303A/ 304A	305A/ 306A	308A	FK20PD
N	403A/ 404A	405A/ 406A	408A	POLISHED *Optional Coating

## Endmill For More Materials..



**P M K**

**Steel/Stainless Steel/  
Cast Iron**

Workpiece Material



**S**

**Titanium/  
Super Alloys**

Workpiece Material



**H**

**Hard Materials**

Workpiece Material



**N**

**Aluminium**

Workpiece Material

Workpiece Materials	Description	Grade
P-M-K	HPEM	FP15PE
S	HPSM	FS10PE
H	HPHM	FH30PE
N	HPNM	POLISHED <small>*Optional Coating</small>

## Custom Tools..



FORNAX Cutting Tools is the 2022 finalist of the ANCA Tool of the Year. Our team designed and created custom tool to show our capabilities. This tool is a multifunctional tool designed to take the place of four separate cutting tools.

- 1) "Crown of the king" is work like a punch tool.
- 2) High performance finish tool for composite material.
- 3) "Sharp form" on rear side of the parts that tool work on.
- 4) Half circle thread tool with perfect precision.

All the time we designed for customer's increased profitability by reducing tool changes. Also enhanced geometries in a combined process for better performance and tool life. We are constantly pushing the boundaries of what is possible.

Think local, design global...

Producing the special tools that our customers need to do their unique work is just the easiest step of the FORNAX abilities.



Range starts;  
0,5mm



Our engineers help identify your opportunities to increase value, cost reduction, improve quality and performance, and enhance manufacturing operations.



Check Out for more custom tools..



## **Why FORNAX Cutting Tools?**

Challenges in the custom tool supply process and order...

**challenges substances your manufacturing operation faces including:**



**SHORTENED  
DELIVERY TIMES**

**&**



**INCREASE  
PRODUCTIVITY**

**&**



**COST  
REDUCTION**

Special cutting tools demands need special solutions.

You need a quick, innovative, service and result-oriented partner –



**FORNAX**  
Cutting Tools



**Get a special tool quote in only minutes or less.**

- Cost-reducing solutions
- Process improvements
- Alternative coatings
- Laser etching and special packing
- Comprehensive supply chain management
- Customer service in constant contact