



HSS non-step extra long drills 10D, 15D and 20D

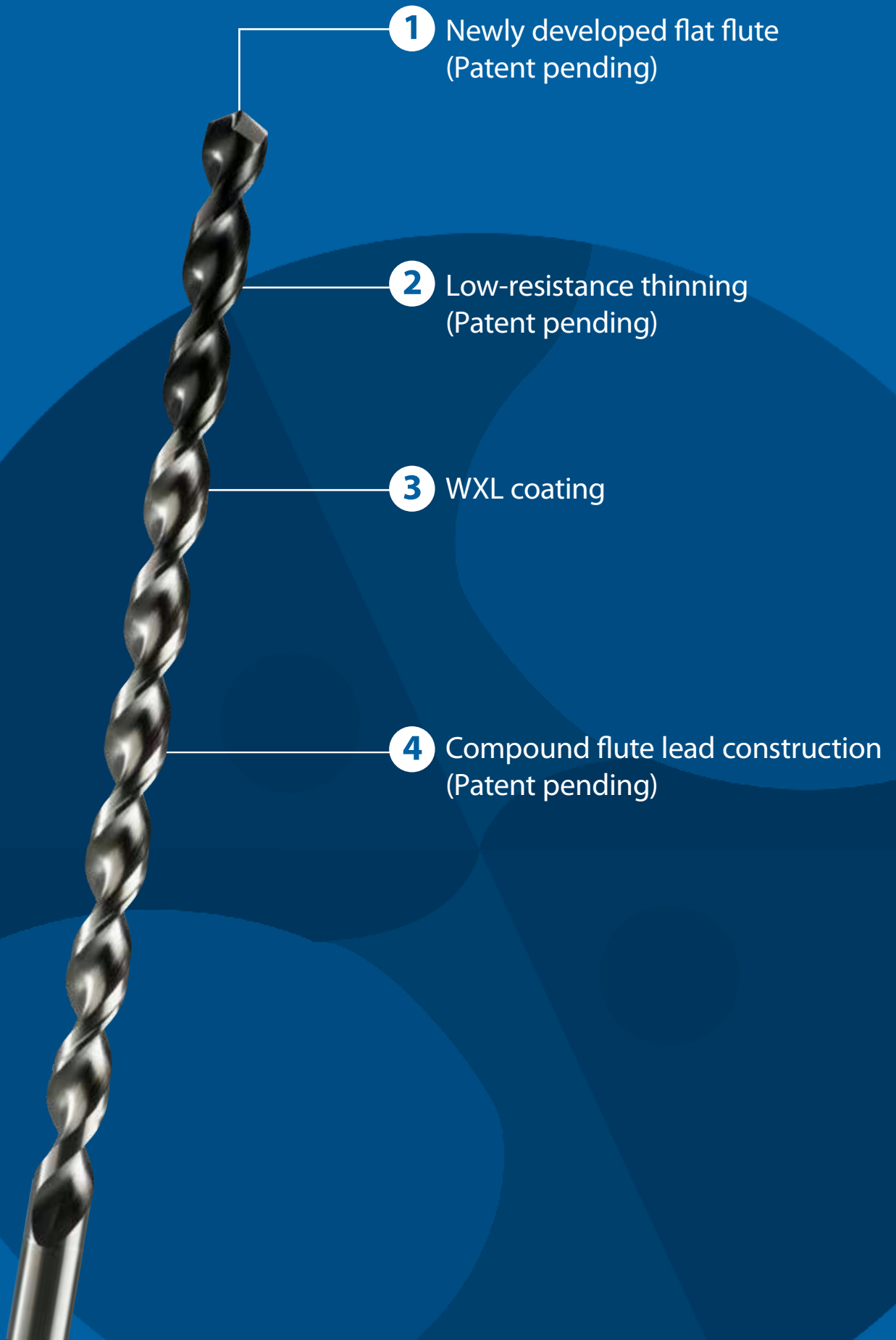
# TDXL

Volume 5



# FEATURES: TDXL

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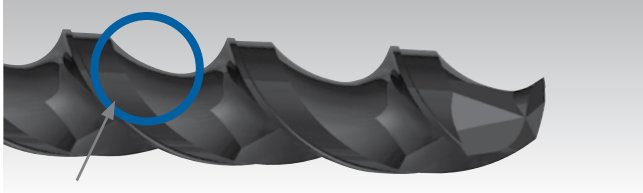


# HSS EXTRA-LONG DRILL

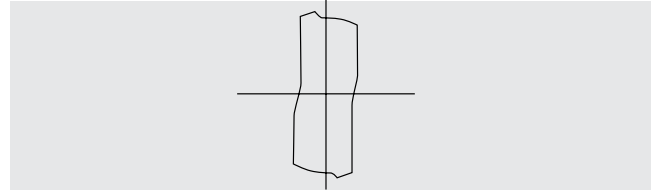
## 1 New flute shape (Pat. P.) dramatically improves chip evacuation

The TDXL can perform non-step drilling from 10D up to 20D.

### Flute form

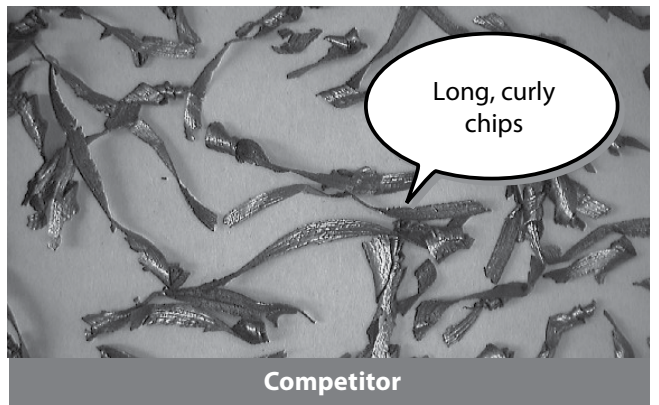
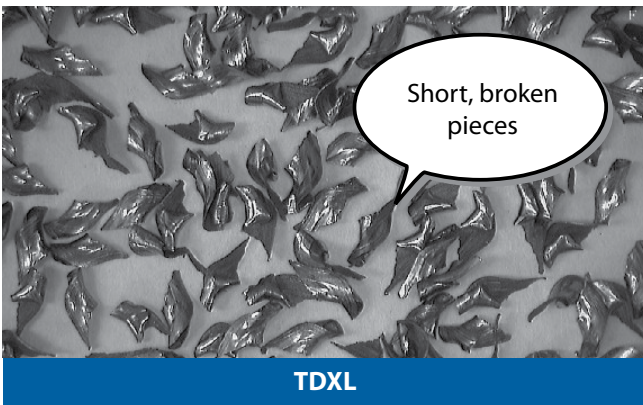


Highly rigid, wide flutes with smooth curves



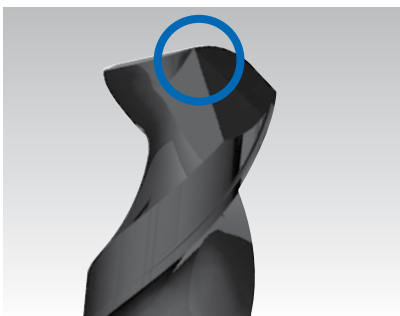
Newly developed flat flute (Pat. P.)

### Chip shape when drilling S50C



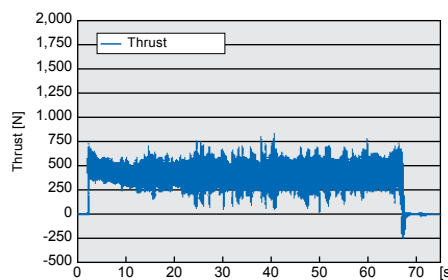
## 2 The newly developed thinning (Pat. P.) exhibited half the thrust resistance (in-house comparison)

### Thinning Form



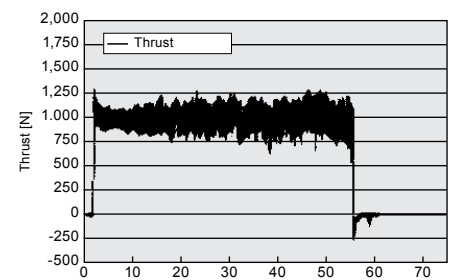
Sharp and low-thrust new thinning form

### Thrust Resistance



**TDXL**

TDXL was tested at a depth of 20xD



**Competitor**

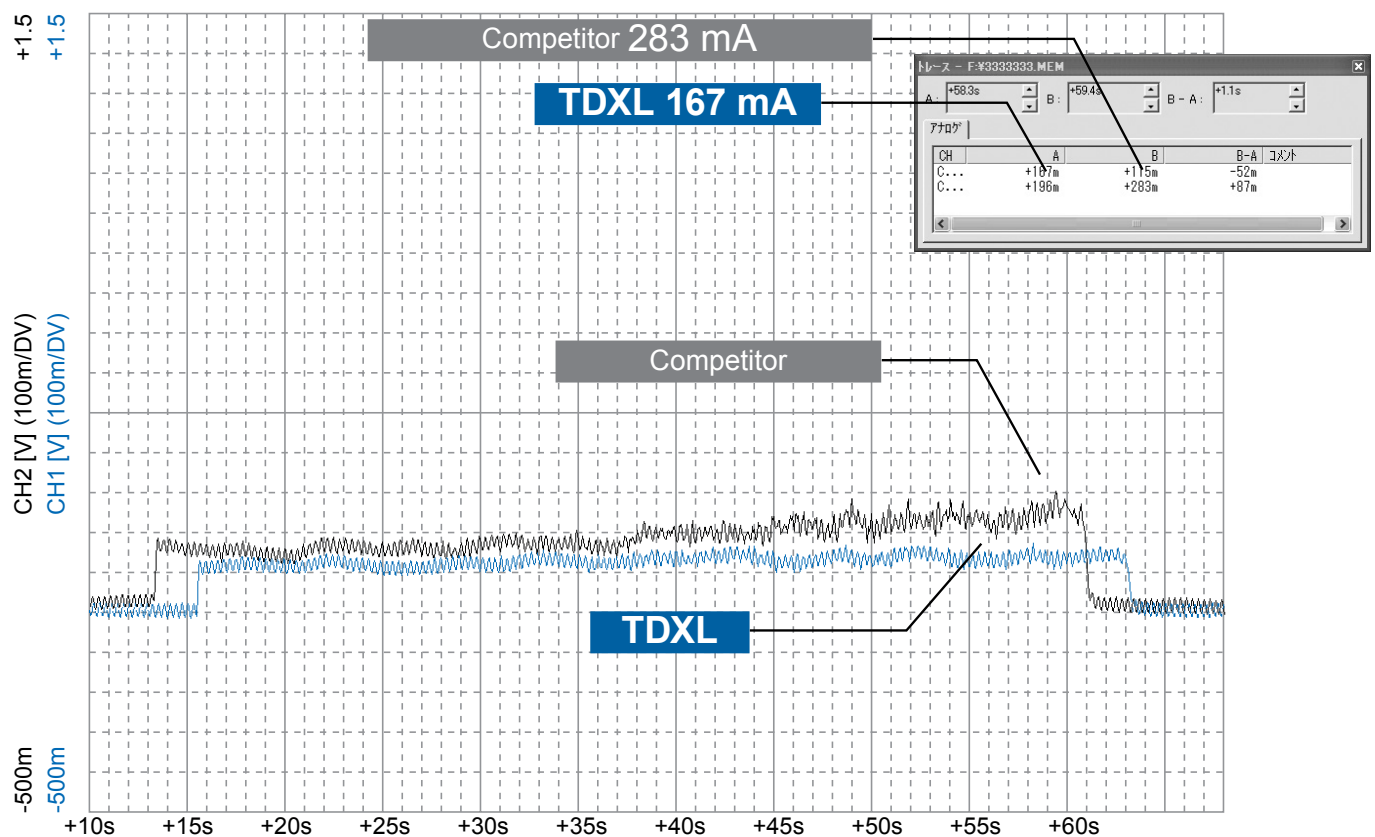
The competitor's product with a shorter flute was tested at a depth of 15xD

# HSS EXTRA-LONG DRILL

## ③ Newly developed compound flute lead construction (Pat. P.)

The newly conceived flute design widens in the middle, significantly improving chip evacuation. Thanks to this, it is capable of non-step drilling of up to 20xD.

stable drilling power (spindle amperage)

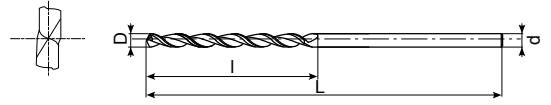


## Cutting conditions

Vc	C≤0,2% S50C・S35C 500 ~ 710 N/mm <sup>2</sup>		SCM SCr・SNCM 710 ~ 900 N/mm <sup>2</sup>		SKD SKD・SK・DH31・DAC 710 ~ 900 N/mm <sup>2</sup>		GGG FCD400・FCD500 ~ 500 N/mm <sup>2</sup>		GG FC200・FC300 ~ 300 N/mm <sup>2</sup>	
	S (min <sup>-1</sup> )	F (mm/rev.)	S (min <sup>-1</sup> )	F (mm/rev.)	S (min <sup>-1</sup> )	F (mm/rev.)	S (min <sup>-1</sup> )	F (mm/rev.)	S (min <sup>-1</sup> )	F (mm/rev.)
1,6	4.000	0,016~0,03	4.000	0,016~0,03	2.700	0,016~0,03	3.600	0,01~0,03	4.150	0,03~0,05
2	3.200	0,02~0,05	3.200	0,02~0,04	2.200	0,02~0,04	2.850	0,01~0,04	3.350	0,04~0,06
3	2.200	0,03~0,08	2.200	0,03~0,08	1.500	0,03~0,07	1.900	0,02~0,08	2.250	0,06~0,10
4	1.600	0,04~0,10	1.600	0,04~0,10	1.150	0,04~0,09	1.460	0,02~0,10	1.650	0,08~0,13
5	1.300	0,05~0,13	1.300	0,05~0,13	900	0,05~0,12	1.150	0,03~0,13	1.350	0,10~0,16
6	1.100	0,06~0,15	1.100	0,06~0,15	750	0,06~0,14	955	0,04~0,15	1.100	0,12~0,19
8	800	0,08~0,20	800	0,08~0,20	550	0,08~0,18	715	0,05~0,20	835	0,16~0,26
10	650	0,10~0,25	650	0,10~0,25	450	0,10~0,23	575	0,06~0,25	670	0,20~0,32
12	550	0,13~0,30	550	0,12~0,30	380	0,12~0,28	475	0,07~0,30	555	0,24~0,38

# TDXL-10D

Drilling | HSS | 10xD



- HSS-Co drill with WXL coating
- Up to 10xD
- For steels, cast iron and cast aluminium
- 103 sizes



EDP	D	L	l	d	Price
8622816	1,6	70	26	1,6	
8622818	1,8	75	26	1,8	
8622820	2	75	26	2	
8622821	2,1	75	33	2,1	
8622822	2,2	75	33	2,2	
8622823	2,3	75	33	2,3	
8622824	2,4	75	33	2,4	
8622825	2,5	75	33	2,5	
8622826	2,6	90	40	2,6	
8622827	2,7	90	40	2,7	
8622828	2,8	90	40	2,8	
8622829	2,9	90	40	2,9	
8622830	3	90	40	3	
8622831	3,1	100	45	3,1	
8622832	3,2	100	45	3,2	
8622833	3,3	100	45	3,3	
8622834	3,4	100	50	3,4	
8622835	3,5	100	50	3,5	
8622836	3,6	100	50	3,6	
8622837	3,7	100	50	3,7	
8622838	3,8	100	50	3,8	
8622839	3,9	100	50	3,9	
8622840	4	100	50	4	
8622841	4,1	115	55	4,1	
8622842	4,2	115	55	4,2	
8622843	4,3	115	60	4,3	
8622844	4,4	115	60	4,4	
8622845	4,5	115	60	4,5	
8622846	4,6	115	60	4,6	
8622847	4,7	115	60	4,7	
8622848	4,8	115	65	4,8	
8622849	4,9	115	65	4,9	
8622850	5	115	65	5	
8622851	5,1	128	70	5,1	
8622852	5,2	128	70	5,2	
8622853	5,3	128	70	5,3	
8622854	5,4	128	78	5,4	
8622855	5,5	128	78	5,5	
8622856	5,6	128	78	5,6	
8622857	5,7	128	78	5,7	
8622858	5,8	128	78	5,8	
8622859	5,9	128	78	5,9	
8622860	6	128	78	6	
8622861	6,1	140	78	6,1	
8622862	6,2	140	87	6,2	

EDP	D	L	l	d	Price
8622863	6,3	140	87	6,3	
8622864	6,4	140	87	6,4	
8622865	6,5	140	87	6,5	
8622866	6,6	140	87	6,6	
8622867	6,7	140	87	6,7	
8622868	6,8	140	90	6,8	
8622869	6,9	140	90	6,9	
8622870	7	140	90	7	
8622871	7,1	155	100	7,1	
8622872	7,2	155	100	7,2	
8622873	7,3	155	100	7,3	
8622874	7,4	155	100	7,4	
8622875	7,5	155	100	7,5	
8622876	7,6	155	105	7,6	
8622877	7,7	155	105	7,7	
8622878	7,8	155	105	7,8	
8622879	7,9	155	105	7,9	
8622880	8	155	105	8	
8622881	8,1	165	110	8,1	
8622882	8,2	165	110	8,2	
8622883	8,3	165	110	8,3	
8622884	8,4	165	110	8,4	
8622885	8,5	165	110	8,5	
8622886	8,6	165	115	8,6	
8622887	8,7	165	115	8,7	
8622888	8,8	165	115	8,8	
8622889	8,9	165	115	8,9	
8622890	9	165	115	9	
8622891	9,1	190	125	9,1	
8622892	9,2	190	125	9,2	
8622893	9,3	190	125	9,3	
8622894	9,4	190	125	9,4	
8622895	9,5	190	125	9,5	
8622896	9,6	190	130	9,6	
8622897	9,7	190	130	9,7	
8622898	9,8	190	130	9,8	
8622899	9,9	190	130	9,9	
8622900	10	190	130	10	
8622901	10,1	205	140	10,1	
8622902	10,2	205	140	10,2	
8622903	10,3	205	140	10,3	
8622904	10,4	205	140	10,4	
8622905	10,5	205	140	10,5	
8622906	10,6	205	145	10,6	
8622907	10,7	205	145	10,7	

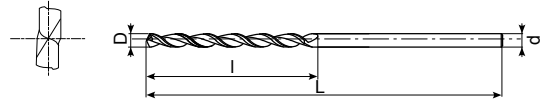
Drilling | HSS  
10xD





# TDXL-15D

Drilling | HSS | 15xD



- HSS-Co drill with WXL coating
- Up to 15xD
- For steels, cast iron and cast aluminium
- 68 sizes



EDP	D	L	l	d	Price
8623016	1,6	70	30	1,6	
8623018	1,8	75	34	1,8	
8623020	2	80	36	2	
8623021	2,1	80	38	2,1	
8623022	2,2	80	40	2,2	
8623023	2,3	85	42	2,3	
8623024	2,4	85	44	2,4	
8623025	2,5	85	46	2,5	
8623026	2,6	100	48	2,6	
8623027	2,7	100	50	2,7	
8623028	2,8	100	50	2,8	
8623029	2,9	105	54	2,9	
8623030	3	105	54	3	
8623031	3,1	110	56	3,1	
8623032	3,2	110	58	3,2	
8623033	3,3	110	60	3,3	
8623034	3,4	115	62	3,4	
8623035	3,5	115	64	3,5	
8623036	3,6	115	66	3,6	
8623037	3,7	120	68	3,7	
8623038	3,8	120	70	3,8	
8623039	3,9	120	70	3,9	
8623040	4	120	72	4	
8623041	4,1	135	74	4,1	
8623042	4,2	135	76	4,2	
8623043	4,3	140	78	4,3	
8623044	4,4	140	80	4,4	
8623045	4,5	140	82	4,5	
8623046	4,6	145	84	4,6	
8623047	4,7	145	86	4,7	
8623048	4,8	145	86	4,8	
8623049	4,9	150	88	4,9	
8623050	5	150	90	5	
8623051	5,1	150	92	5,1	
8623052	5,2	155	94	5,2	
8623053	5,3	155	96	5,3	
8623054	5,4	155	98	5,4	
8623055	5,5	155	100	5,5	
8623056	5,6	160	102	5,6	
8623057	5,7	165	104	5,7	
8623058	5,8	165	106	5,8	
8623060	6	170	108	6	
8623062	6,2	170	112	6,2	
8623063	6,3	175	114	6,3	
8623065	6,5	200	118	6,5	

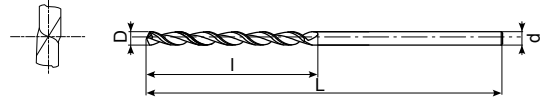
EDP	D	L	l	d	Price
8623066	6,6	200	120	6,6	
8623068	6,8	200	124	6,8	
8623069	6,9	200	126	6,9	
8623070	7	200	126	7	
8623071	7,1	200	128	7,1	
8623075	7,5	205	136	7,5	
8623080	8	215	144	8	
8623081	8,1	215	146	8,1	
8623082	8,2	220	148	8,2	
8623085	8,5	225	154	8,5	
8623086	8,6	225	156	8,6	
8623088	8,8	230	160	8,8	
8623090	9	230	162	9	
8623093	9,3	240	168	9,3	
8623095	9,5	240	172	9,5	
8623097	9,7	245	176	9,7	
8623098	9,8	245	178	9,8	
8623100	10	250	180	10	
8623105	10,5	270	190	10,5	
8623110	11	280	200	11	
8623115	11,5	290	208	11,5	
8623118	11,8	295	214	11,8	
8623120	12	300	216	12	

Drilling | HSS  
15xD



# TDXL-20D

Drilling | HSS | 20xD



- HSS-Co drill with WXL coating
- Up to 20xD
- For steels, cast iron and cast aluminium
- 48 sizes

<b>P</b> ○ C: ≤0,2%	<b>P</b> ● C: 0,25-0,4%	<b>P</b> ● C: ≥0,45%	<b>P</b> ● SCM	<b>K</b> ● GG	<b>K</b> ● GGG	<b>N</b> ● AC,ADC
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HSS-Co	WXL	40°	h7	120°	h8
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Drilling | HSS  
20xD

EDP	D	L	l	d	Price
8623216	1,6	85	38	1,6	
8623218	1,8	85	42	1,8	
8623220	2	85	46	2	
8623221	2,1	90	50	2,1	
8623222	2,2	90	52	2,2	
8623223	2,3	95	54	2,3	
8623224	2,4	95	56	2,4	
8623225	2,5	100	58	2,5	
8623226	2,6	110	60	2,6	
8623227	2,7	115	64	2,7	
8623228	2,8	115	66	2,8	
8623229	2,9	120	68	2,9	
8623230	3	120	70	3	
8623231	3,1	125	72	3,1	
8623232	3,2	125	74	3,2	
8623233	3,3	125	76	3,3	
8623234	3,4	130	80	3,4	
8623235	3,5	130	82	3,5	
8623237	3,7	135	86	3,7	
8623238	3,8	140	88	3,8	
8623240	4	140	92	4	
8623241	4,1	155	96	4,1	
8623242	4,2	155	98	4,2	
8623243	4,3	160	100	4,3	

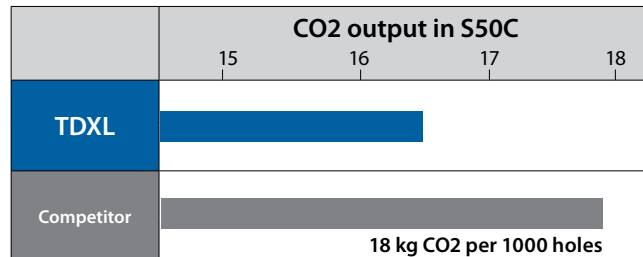
EDP	D	L	l	d	Price
8623245	4,5	165	104	4,5	
8623246	4,6	165	106	4,6	
8623248	4,8	170	112	4,8	
8623250	5	175	116	5	
8623251	5,1	180	118	5,1	
8623252	5,2	180	120	5,2	
8623255	5,5	185	128	5,5	
8623257	5,7	190	132	5,7	
8623258	5,8	200	134	5,8	
8623260	6	200	138	6	
8623263	6,3	200	146	6,3	
8623265	6,5	225	150	6,5	
8623268	6,8	225	158	6,8	
8623269	6,9	230	160	6,9	
8623270	7	230	162	7	
8623275	7,5	245	174	7,5	
8623280	8	255	184	8	
8623281	8,1	255	188	8,1	
8623282	8,2	260	190	8,2	
8623285	8,5	265	196	8,5	
8623290	9	275	208	9	
8623300	10	300	230	10	
8623310	11	350	254	11	
8623320	12	350	276	12	



## Lower CO2 output than competitors

<b>Tool</b>	<b>TDXL 10 X 10 D</b>
<b>Work Material</b>	S50C (DIN CK50 AISI 1050)
<b>Drilling Speed</b>	25 m/min (796 min <sup>-1</sup> )
<b>Feed</b>	176 mm/min (0,22mm/rev) NON STEP
<b>Depth of holes</b>	100 mm (10D) (Blind)
<b>Coolant</b>	Water Soluble
<b>Machine</b>	Vertical Machining Center

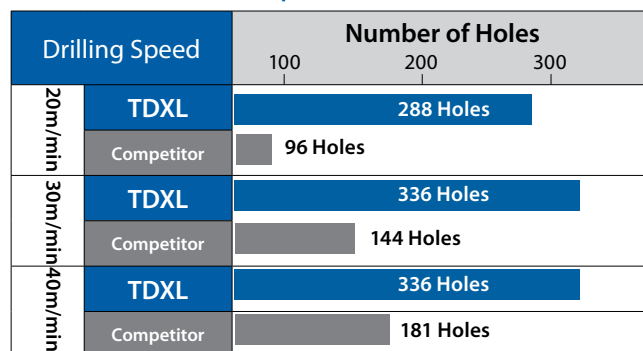
Compared to the competitor's product, cut CO2 by 0,96 kg or 5,4% per 1000 holes !!



## Compared to the competitor's product, the maximum thrust value is stable. Durability is 1,8 to 3 times greater!

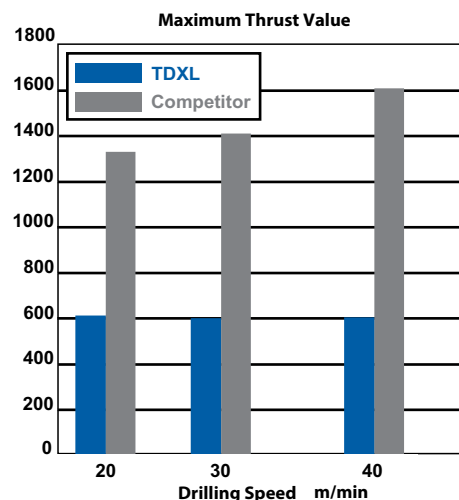
<b>Tool</b>	<b>TDXL 7 X 15 D</b>
<b>Work Material</b>	S50C (DIN CK50 AISI 1050)
<b>Drilling Speed</b>	20 ~ 40 m/min (910 ~ 1.820min <sup>-1</sup> )
<b>Feed</b>	127 ~ 255 mm/min (0,14mm/rev) NON STEP
<b>Depth of holes</b>	99 mm (14 D) (Blind)
<b>Coolant</b>	Water Soluble
<b>Machine</b>	Horizontal Machining Center

Tool runhout under 2µm

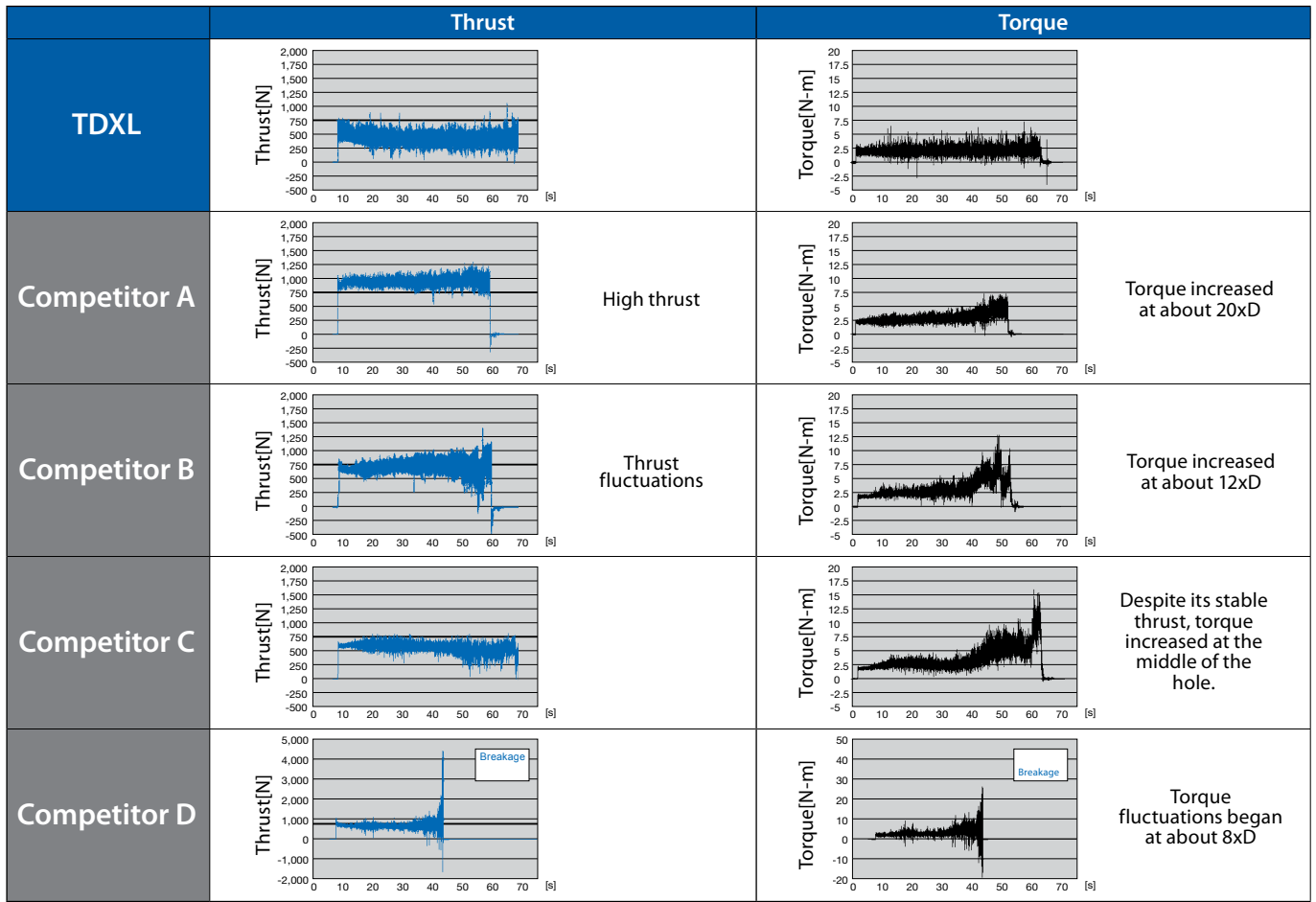


### • Drill for pilot hole

<b>Tool</b>	<b>EX-GDS Ø 7,1</b>
<b>Depth of Holes</b>	14 mm



# PROCESSING EXAMPLES



**Compared to the competitor's product, the maximum thrust value is stable. Durability is 1,8 to 3 times greater!**

<b>Tool</b>	<b>TDXL 6x20D</b>
<b>Work Material</b>	SCM420H (Similar DIN 15CrMo5)
<b>Drilling Speed</b>	24m/min (1,273min <sup>-1</sup> )
<b>Feed</b>	190mm/min (0.15mm/rev) (Up to 112 holes) Non-step
	229mm/min (0.18mm/rev) (Until tool life) Non-Step
<b>Depth of holes</b>	120mm (20D) (Through)
<b>Coolant</b>	Water Soluble
<b>Machine</b>	Horizontal Machining Center

• Drill for pilot hole

<b>Tool</b>	<b>EX-GDS Ø 6,1</b>
<b>Depth of Holes</b>	15 mm

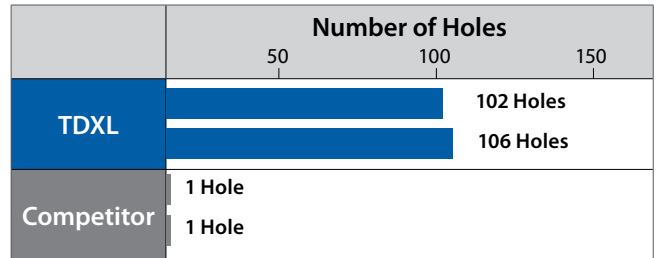
	Number of Holes			
	100	200	300	400
Competitor A	112 Holes			
Competitor B	112 Holes			
<b>TDXL</b>	<b>392 Holes</b>			

• Wear Condition



## Compared to the competitor's product, our drill was capable of drilling an overwhelming number of holes!

<b>Tool</b>	TDXL 1,6x20D	
<b>Work Material</b>	S50C (DIN CK50 AISI 1050)	
<b>Drilling Speed</b>	20 m/min (3.980 min <sup>-1</sup> )	
<b>Feed</b>	64 mm/min (0,016mm/rev) Non-step Up to 8 mm from beginning of hole	
	92 mm/min (0,023mm/rev) Non-step After 8 mm	
<b>Depth of holes</b>	32 mm (20 D)	Blind
<b>Coolant</b>	Water Soluble	
<b>Machine</b>	Vertical Machining Center	

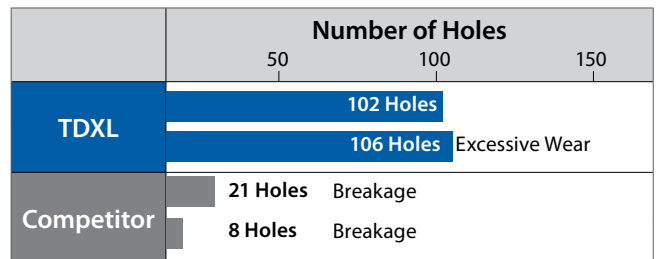


- Drill for pilot hole

<b>Tool</b>	EX-GDS Ø 1,65
<b>Depth of Holes</b>	4,8 mm

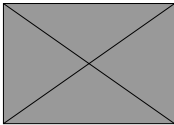
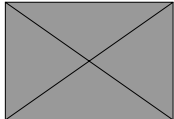
## Stable non-step drilling is possible even for material with 30 HRC

<b>Tool</b>	TDXL 10x10D	
<b>Work Material</b>	SCM 440 (30 HRC)	
<b>Drilling Speed</b>	16 m/min (509 min <sup>-1</sup> )	
<b>Feed</b>	112 mm/min (0,22mm/rev) Non-step	
<b>Depth of holes</b>	100 mm (10 D)	Blind
<b>Coolant</b>	Water Soluble	
<b>Machine</b>	Vertical Machining Center	



- Drill for pilot hole

<b>Tool</b>	EX-GDS Ø 10,1
<b>Depth of Holes</b>	20 mm

<b>Competitor</b>		Competitor after 8 holes
<b>TDXL</b>		TDXL after 93 holes 



shaping your dreams

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