



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

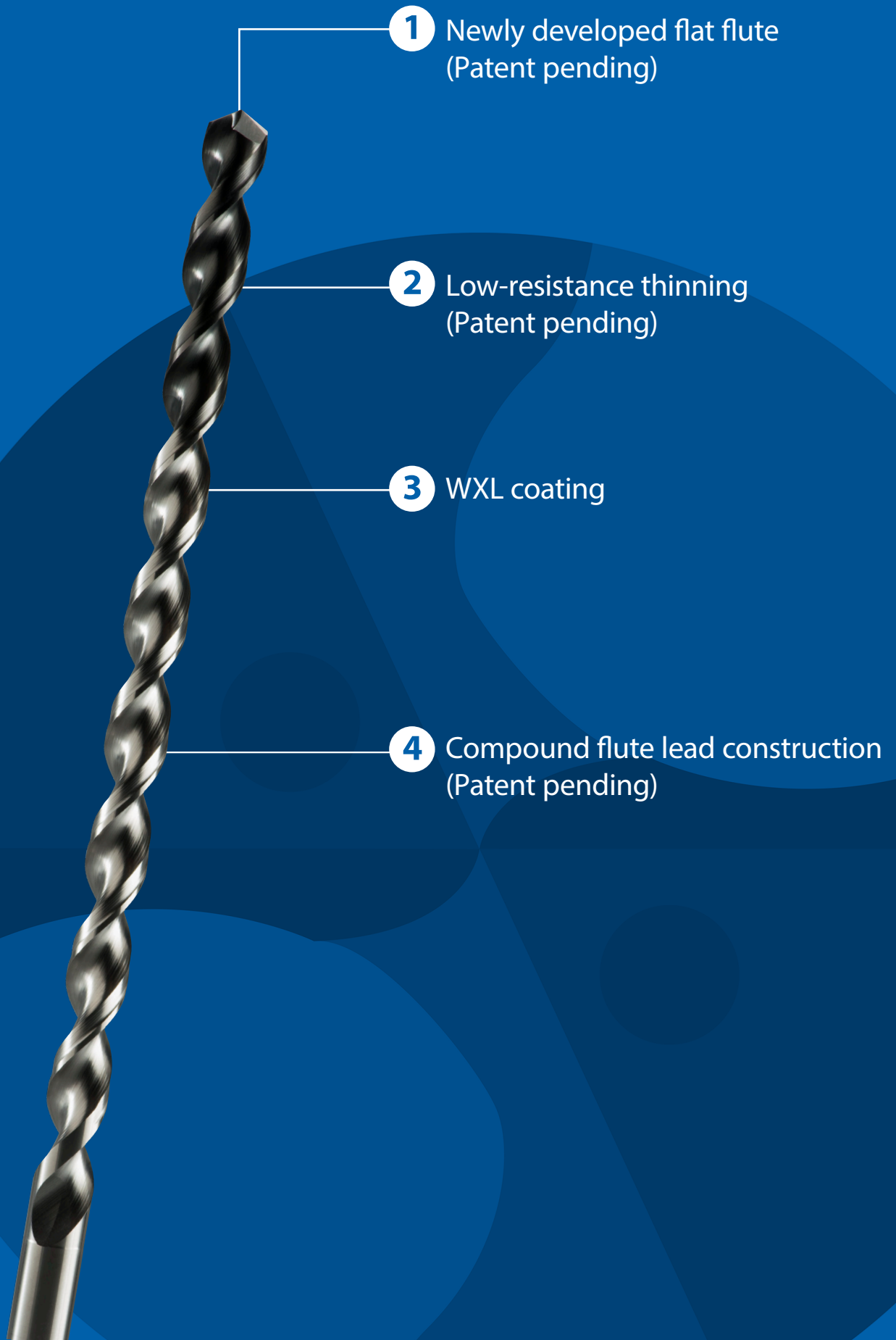
# TDXL

Volume 5.1



# FEATURES: TDXL

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**1** Newly developed flat flute  
(Patent pending)

**2** Low-resistance thinning  
(Patent pending)

**3** WXL coating

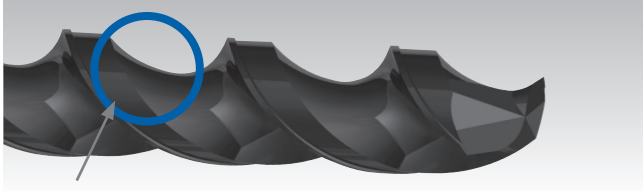
**4** Compound flute lead construction  
(Patent pending)

# HSS EXTRA-LONG DRILL

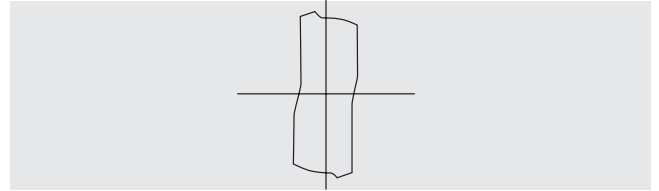
## 1 New flute shape (Pat. P.) dramatically improves chip evacuation

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

### Flute form

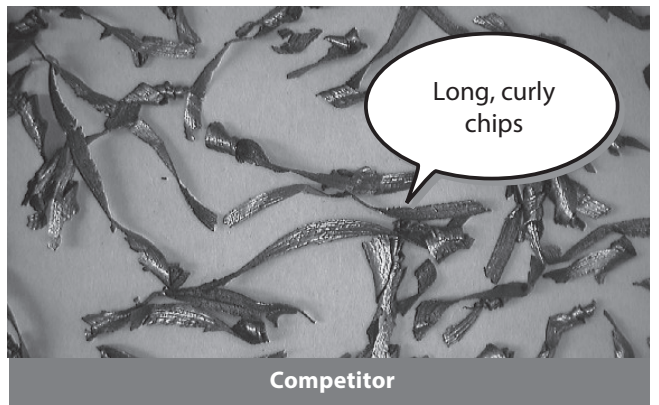
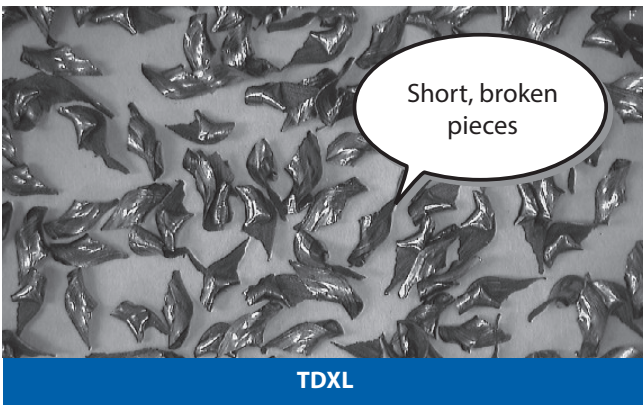


Highly rigid, wide flutes with smooth curves



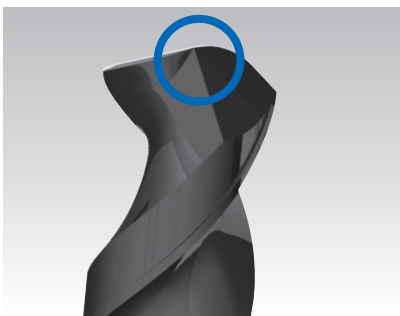
Newly developed flat flute (Pat. P.)

### Chip shape when drilling S50C



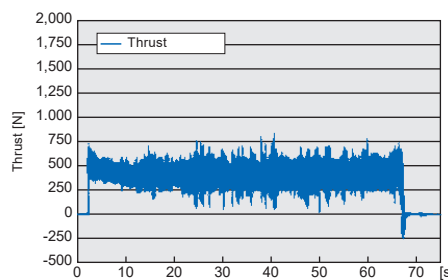
## 2 The newly developed thinning (Pat. P.) exhibited half the thrust resistance (in-house comparison)

### Thinning Form



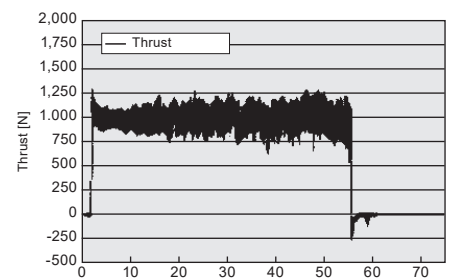
Sharp and low-thrust new thinning form

### Thrust Resistance



TDXL

TDXL was tested at a depth of 20xD



Competitor

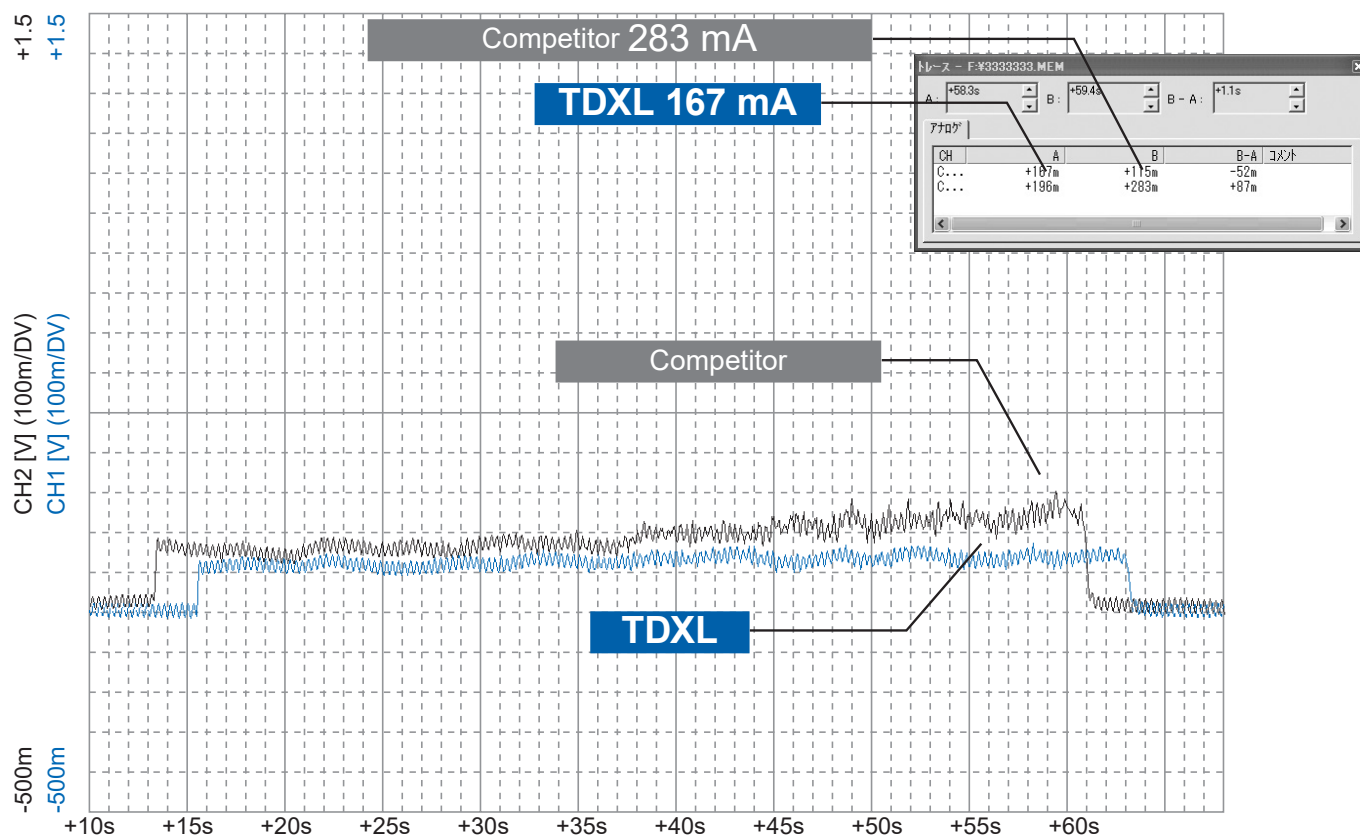
The competitor's product with a shorter flute was tested at a depth of 15xD

# 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)

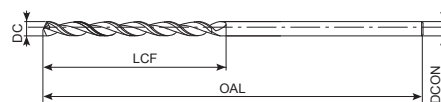
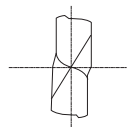


## Cutting conditions

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	DC	LCF	OAL	DCON
8622816	1,6	26	70	1,6
8622818	1,8	26	75	1,8
8622820	2	26	75	2
8622821	2,1	33	75	2,1
8622822	2,2	33	75	2,2
8622823	2,3	33	75	2,3
8622824	2,4	33	75	2,4
8622825	2,5	33	75	2,5
8622826	2,6	40	90	2,6
8622827	2,7	40	90	2,7
8622828	2,8	40	90	2,8
8622829	2,9	40	90	2,9
8622830	3	40	90	3
8622831	3,1	45	100	3,1
8622832	3,2	45	100	3,2
8622833	3,3	45	100	3,3
8622834	3,4	50	100	3,4
8622835	3,5	50	100	3,5
8622836	3,6	50	100	3,6
8622837	3,7	50	100	3,7
8622838	3,8	50	100	3,8
8622839	3,9	50	100	3,9
8622840	4	50	100	4
8622841	4,1	55	115	4,1
8622842	4,2	55	115	4,2
8622843	4,3	60	115	4,3
8622844	4,4	60	115	4,4
8622845	4,5	60	115	4,5
8622846	4,6	60	115	4,6
8622847	4,7	60	115	4,7
8622848	4,8	65	115	4,8
8622849	4,9	65	115	4,9
8622850	5	65	115	5
8622851	5,1	70	128	5,1
8622852	5,2	70	128	5,2
8622853	5,3	70	128	5,3
8622854	5,4	78	128	5,4
8622855	5,5	78	128	5,5
8622856	5,6	78	128	5,6
8622857	5,7	78	128	5,7
8622858	5,8	78	128	5,8
8622859	5,9	78	128	5,9
8622860	6	78	128	6
8622861	6,1	87	140	6,1
8622862	6,2	87	140	6,2
8622863	6,3	87	140	6,3

EDP	DC	LCF	OAL	DCON
8622864	6,4	87	140	6,4
8622865	6,5	87	140	6,5
8622866	6,6	87	140	6,6
8622867	6,7	87	140	6,7
8622868	6,8	90	140	6,8
8622869	6,9	90	140	6,9
8622870	7	90	140	7
8622871	7,1	100	155	7,1
8622872	7,2	100	155	7,2
8622873	7,3	100	155	7,3
8622874	7,4	100	155	7,4
8622875	7,5	100	155	7,5
8622876	7,6	105	155	7,6
8622877	7,7	105	155	7,7
8622878	7,8	105	155	7,8
8622879	7,9	105	155	7,9
8622880	8	105	155	8
8622881	8,1	110	165	8,1
8622882	8,2	110	165	8,2
8622883	8,3	110	165	8,3
8622884	8,4	110	165	8,4
8622885	8,5	110	165	8,5
8622886	8,6	115	165	8,6
8622887	8,7	115	165	8,7
8622888	8,8	115	165	8,8
8622889	8,9	115	165	8,9
8622890	9	115	165	9
8622891	9,1	125	190	9,1
8622892	9,2	125	190	9,2
8622893	9,3	125	190	9,3
8622894	9,4	125	190	9,4
8622895	9,5	125	190	9,5
8622896	9,6	130	190	9,6
8622897	9,7	130	190	9,7
8622898	9,8	130	190	9,8
8622899	9,9	130	190	9,9
8622900	10	130	190	10
8622901	10,1	140	205	10,1
8622902	10,2	140	205	10,2
8622903	10,3	140	205	10,3
8622904	10,4	140	205	10,4
8622905	10,5	140	205	10,5
8622906	10,6	145	205	10,6
8622907	10,7	145	205	10,7
8622908	10,8	145	205	10,8
8622909	10,9	145	205	10,9

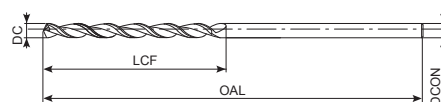
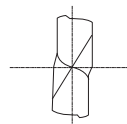
Drilling | HSS  
10xD





# TDXL-15D

Drilling | HSS | 15xD



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



EDP	DC	LCF	OAL	DCON
8623016	1,6	30	70	1,6
8623018	1,8	34	75	1,8
8623020	2	36	80	2
8623021	2,1	38	80	2,1
8623022	2,2	40	80	2,2
8623023	2,3	42	85	2,3
8623024	2,4	44	85	2,4
8623025	2,5	46	85	2,5
8623026	2,6	48	100	2,6
8623027	2,7	50	100	2,7
8623028	2,8	50	100	2,8
8623029	2,9	54	105	2,9
8623030	3	54	105	3
8623031	3,1	56	110	3,1
8623032	3,2	58	110	3,2
8623033	3,3	60	110	3,3
8623034	3,4	62	115	3,4
8623035	3,5	64	115	3,5
8623036	3,6	66	115	3,6
8623037	3,7	68	120	3,7
8623038	3,8	70	120	3,8
8623039	3,9	70	120	3,9
8623040	4	72	120	4
8623041	4,1	74	135	4,1
8623042	4,2	76	135	4,2
8623043	4,3	78	140	4,3
8623044	4,4	80	140	4,4
8623045	4,5	82	140	4,5
8623046	4,6	84	145	4,6
8623047	4,7	86	145	4,7
8623048	4,8	86	145	4,8
8623049	4,9	88	150	4,9
8623050	5	90	150	5
8623051	5,1	92	150	5,1
8623052	5,2	94	155	5,2
8623053	5,3	96	155	5,3
8623054	5,4	98	155	5,4
8623055	5,5	100	155	5,5
8623056	5,6	102	160	5,6
8623057	5,7	104	165	5,7
8623058	5,8	106	165	5,8
8623060	6	108	170	6
8623062	6,2	112	170	6,2
8623063	6,3	114	175	6,3
8623065	6,5	118	200	6,5
8623066	6,6	120	200	6,6

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

Drilling | HSS  
15XD



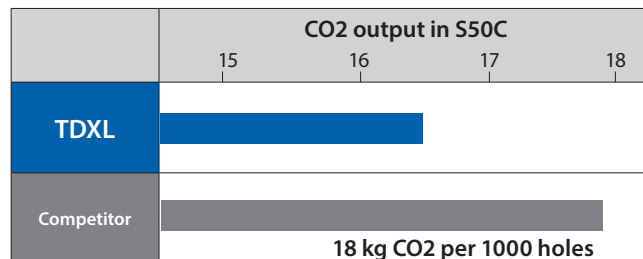




## Lower CO2 output than competitors

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

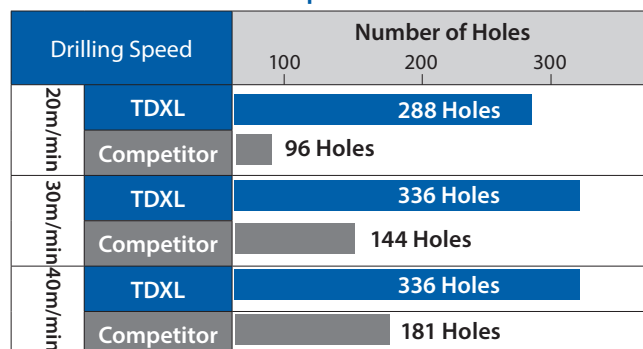
Compared to the competitor's product, cut CO2 by 0,96 kg or 5,4% per 1000 holes !!



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

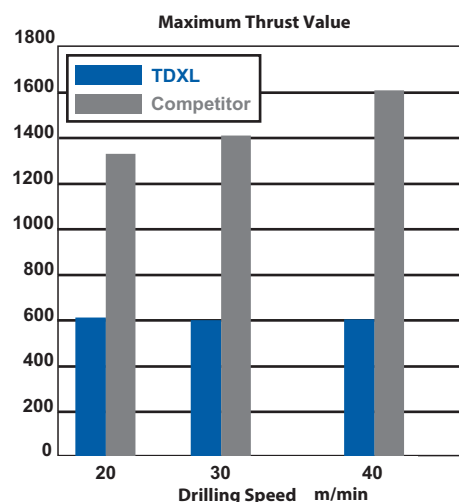
Tool	TDXL 7 X 15 D
Work Material	S50C (DIN CK50 AISI 1050)
Drilling Speed	20 ~ 40 m/min (910 ~ 1.820min <sup>-1</sup> )
Feed	127 ~ 255 mm/min (0,14mm/rev) NON STEP
Depth of holes	99 mm (14 D) (Blind)
Coolant	Water Soluble
Machine	Horizontal Machining Center

Tool runhout under 2µm

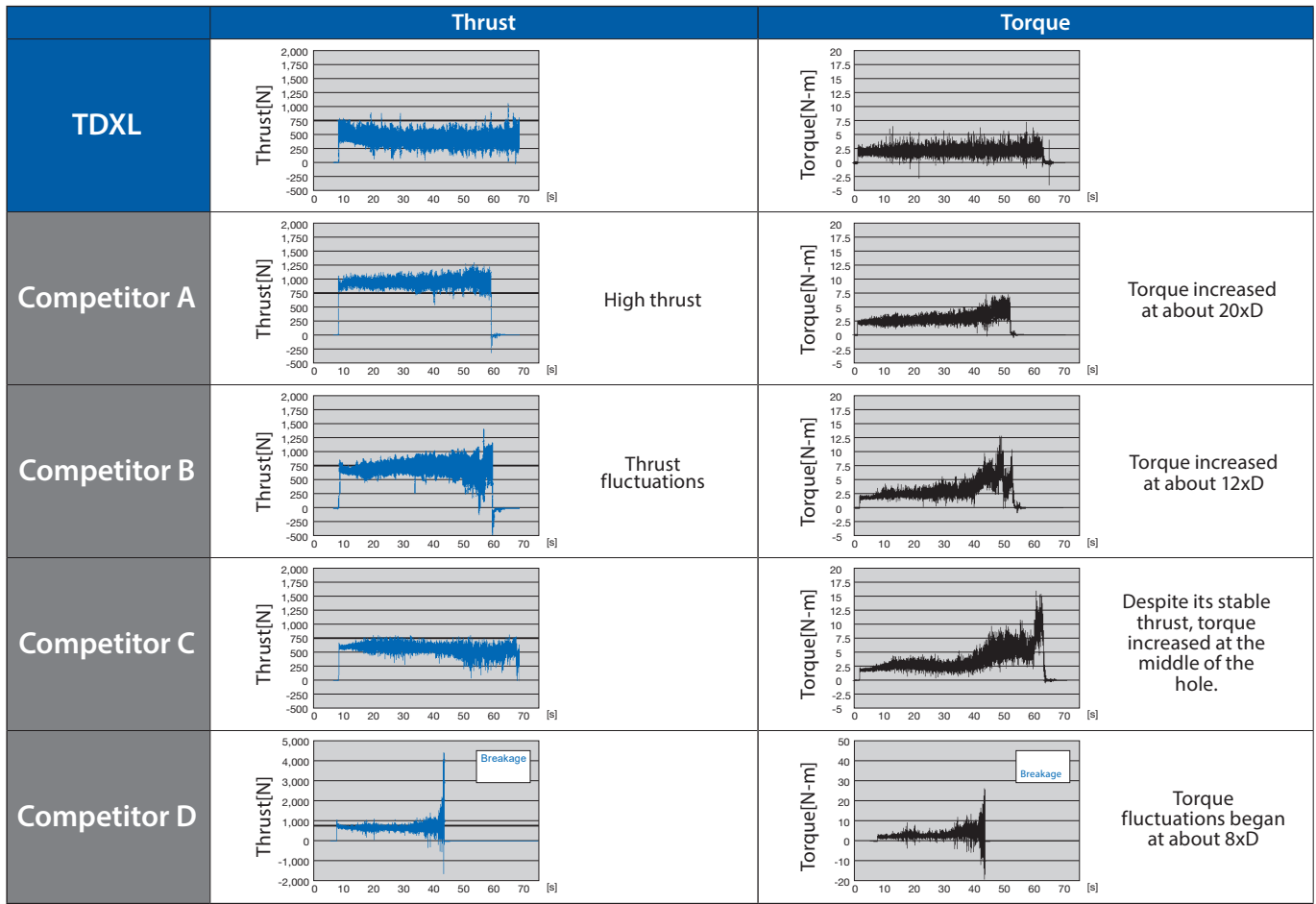


### • Drill for pilot hole

Tool	EX-GDS Ø7,1
Depth of Holes	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

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

• Drill for pilot hole

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

• 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	

	Number of Holes		
	50	100	150
<b>TDXL</b>	102 Holes		
	106 Holes		
<b>Competitor</b>	1 Hole		
	1 Hole		

- Drill for pilot hole

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


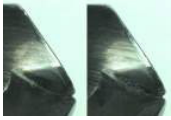
## Stable non-step drilling is possible even for material with 30 HRC

<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	

	Number of Holes		
	50	100	150
<b>TDXL</b>	102 Holes		
	106 Holes Excessive Wear		
<b>Competitor</b>	21 Holes Breakage		
	8 Holes Breakage		

- 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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