

# CARBIDE DRILLS

## SOLID

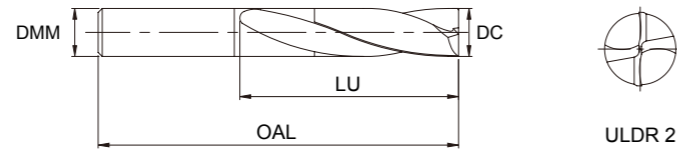


# BF DRILL FLAT BOTTOM



## Series No. 809323

▶ cutting conditions : p.59



**Application :**  
Drilling into steel in general, cast steel, cast iron, stainless steel and non-ferrous materials.

**Advantage :**  
180° point angle enables drilling of flat, inclined and curved surfaces.  
Optimised flute design for excellent chip evacuation.  
High strength cutting edge for improved tool life.  
Minimised burrs at entrance and exit of thin plate.

EUROPA CODE ORDCODE	OD DC	SD DMM	FL.LTH LU	O/ALL OAL
8093230300	3.0	6.0	16	50
8093230310	3.1			
8093230320	3.2			
8093230330	3.3			
8093230340	3.4			
8093230350	3.5	6.0	18	50
8093230360	3.6			
8093230370	3.7			
8093230380	3.8			
8093230390	3.9			
8093230400	4.0	6.0	20	60
8093230410	4.1			
8093230420	4.2			
8093230430	4.3			
8093230440	4.4			
8093230450	4.5	6.0	22	60
8093230460	4.6			
8093230470	4.7			
8093230480	4.8			
8093230490	4.9			
8093230500	5.0	6.0	24	60
8093230510	5.1			
8093230520	5.2			
8093230530	5.3			

EUROPA CODE ORDCODE	OD DC	SD DMM	FL.LTH LU	O/ALL OAL
8093230540	5.4	6.0	24	60
8093230550	5.5			
8093230560	5.6			
8093230570	5.7			
8093230580	5.8			
8093230590	5.9	6.0	26	60
8093230600	6.0			
8093230610	6.1			
8093230620	6.2			
8093230630	6.3			
8093230640	6.4	8.0	28	70
8093230650	6.5			
8093230660	6.6			
8093230670	6.7			
8093230680	6.8			
8093230690	6.9	8.0	30	70
8093230700	7.0			
8093230710	7.1			
8093230720	7.2			
8093230730	7.3			
8093230740	7.4	8.0	34	70
8093230750	7.5			
8093230760	7.6			
8093230770	7.7			

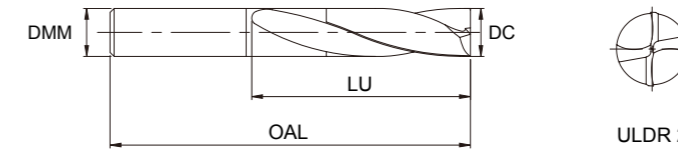
ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	●	●	●	●	●	●	●	●						
○ Good														

# BF DRILL FLAT BOTTOM



## Series No. 809323

▶ cutting conditions : p.59



**Application :**  
Drilling into steel in general, cast steel, cast iron, stainless steel and non-ferrous materials.

**Advantage :**  
180° point angle enables drilling of flat, inclined and curved surfaces.  
Optimised flute design for excellent chip evacuation.  
High strength cutting edge for improved tool life.  
Minimised burrs at entrance and exit of thin plate.

EUROPA CODE ORDCODE	OD DC	SD DMM	FL.LTH LU	O/ALL OAL
8093230780	7.8	8.0	34	70
8093230790	7.9			
8093230800	8.0			
8093230810	8.1			
8093230820	8.2			
8093230830	8.3	10.0	38	80
8093230840	8.4			
8093230850	8.5			
8093230860	8.6			
8093230870	8.7			
8093230880	8.8	10.0	40	80
8093230890	8.9			
8093230900	9.0			
8093230910	9.1			
8093230920	9.2			
8093230930	9.3	10.0	42	80
8093230940	9.4			
8093230950	9.5			
8093230960	9.6			
8093230970	9.7			
8093230980	9.8	10.0	45	80
8093230990	9.9			
8093231000	10.0			
8093231020	10.2			
8093231020	10.2			

EUROPA CODE ORDCODE	OD DC	SD DMM	FL.LTH LU	O/ALL OAL
8093231050	10.5	12.0	48	90
8093231080	10.8			
8093231100	11.0			
8093231150	11.5	12.0	50	90
8093231180	11.8	12.0	52	90
8093231190	11.9			
8093231200	12.0			
8093231250	12.5	14.0	54	100
8093231300	13.0	14.0	56	100
8093231350	13.5	14.0	58	100
8093231400	14.0			
8093231450	14.5	16.0	62	105
8093231500	15.0			
8093231550	15.5			
8093231600	16.0			
8093231650	16.5	18.0	70	125
8093231700	17.0			
8093231750	17.5			
8093231800	18.0			
8093231850	18.5	20.0	75	135
8093231900	19.0			
8093231950	19.5			
8093232000	20.0			

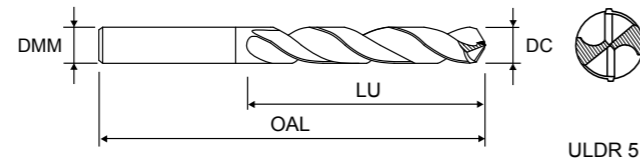
ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	●	●	●	●	●	●	●	●						
○ Good														

# CF DRILL



## Series No. 850390

▶ cutting conditions : p.58



**Application :**  
For improved hole quality in composite materials.

**Advantage :**  
Special point geometry for improved hole quality.  
Minimal burr and delamination at entry/exit point.  
Diamond coated for increased tool life.

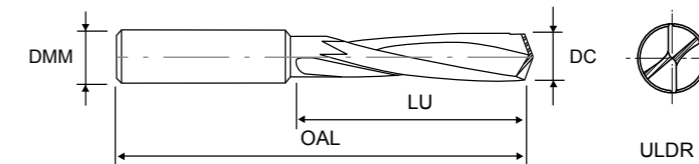
EUROPA CODE ORDCODE	OD DC	SD DMM	FL.LTH LU	O/ALL OAL
8503900250	2.5	6.0	24	66
8503900300	3.0	6.0	28	66
8503900400	4.0	6.0	36	74
8503900500	5.0	6.0	44	82
8503900600	6.0	6.0	44	82
8503900800	8.0	8.0	53	91
8503900900	9.0	10.0	61	103
8503901000	10.0	10.0	61	103
8503901100	11.0	12.0	71	118
8503901200	12.0	12.0	71	118

# PULSAR DRILL



## Series No. 821223

▶ cutting conditions : p.58



**Application :**  
For drilling High Hardened Steels (Quenched Steels, Tempered Steels) Under HRC70

**Advantage :**  
Special Design  
Minimized cutting load through special point thinning  
Good chip removal  
Powerful Drilling

EUROPA CODE ORDCODE	OD DC	SD DMM	FL.LTH LU	O/ALL OAL
8212230300	3.0	3	16	46
8212230330	3.3	4	18	48
8212230340	3.4	4	20	50
8212230350	3.5	4	20	50
8212230400	4.0	4	22	52
8212230420	4.2	6	25	65
8212230430	4.3	6	28	68
8212230440	4.4	6	28	68
8212230450	4.5	6	28	68
8212230500	5.0	6	32	72
8212230510	5.1	6	32	72
8212230520	5.2	6	32	72
8212230550	5.5	6	35	75
8212230600	6.0	6	35	75
8212230650	6.5	8	40	80
8212230680	6.8	8	45	85
8212230690	6.9	8	45	85

EUROPA CODE ORDCODE	OD DC	SD DMM	FL.LTH LU	O/ALL OAL
8212230700	7.0	8	45	85
8212230750	7.5	8	45	85
8212230800	8.0	8	50	98
8212230850	8.5	10	50	98
8212230860	8.6	10	57	105
8212230880	8.8	10	57	105
8212230900	9.0	10	57	105
8212230950	9.5	10	57	105
8212231000	10.0	10	63	111
8212231020	10.2	12	63	111
8212231030	10.3	12	63	111
8212231050	10.5	12	63	111
8212231080	10.8	12	71	119
8212231100	11.0	12	71	119
8212231150	11.5	12	71	119
8212231200	12.0	12	71	119
8212231400	14.0	14	77	125

ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	○ Good										●			

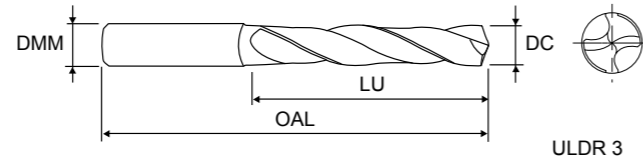
ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	○ Good		●											●

# GP DRILL 3xD



## Series No. 807323

▶ cutting conditions : p.60



### Application :

Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, stainless steel

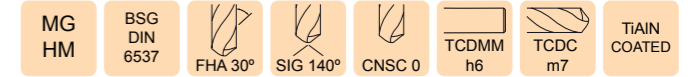
### Advantage :

Self centering, centre drilling is not required  
Excellent positioning, bush is not necessary  
Special Design, reaming is not required  
Good chip removal, powerful drilling

EUROPA CODE ORDCODE	OD DC	SD DMM	FL.LTH LU	O/ALL OAL
8073230300	3.0	6.0	20	62
8073230310	3.1	6.0	20	62
8073230320	3.2	6.0	20	62
8073230330	3.3	6.0	20	62
8073230340	3.4	6.0	20	62
8073230350	3.5	6.0	20	62
8073230360	3.6	6.0	20	62
8073230370	3.7	6.0	20	62
8073230380	3.8	6.0	24	66
8073230390	3.9	6.0	24	66
8073230400	4.0	6.0	24	66
8073230410	4.1	6.0	24	66
8073230420	4.2	6.0	24	66
8073230430	4.3	6.0	24	66
8073230440	4.4	6.0	24	66
8073230450	4.5	6.0	24	66
8073230460	4.6	6.0	24	66
8073230470	4.7	6.0	24	66
8073230480	4.8	6.0	28	66
8073230490	4.9	6.0	28	66
8073230500	5.0	6.0	28	66
8073230510	5.1	6.0	28	66
8073230520	5.2	6.0	28	66
8073230530	5.3	6.0	28	66
8073230540	5.4	6.0	28	66
8073230550	5.5	6.0	28	66
8073230560	5.6	6.0	28	66
8073230570	5.7	6.0	28	66
8073230580	5.8	6.0	28	66

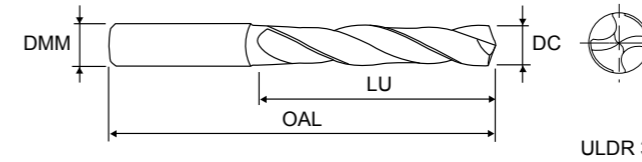
ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	●	●	●	○	○	●	●							

# GP DRILL 3xD



## Series No. 807323

▶ cutting conditions : p.60



### Application :

Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, stainless steel

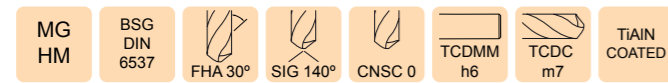
### Advantage :

Self centering, centre drilling is not required  
Excellent positioning, bush is not necessary  
Special Design, reaming is not required  
Good chip removal, powerful drilling

EUROPA CODE ORDCODE	OD DC	SD DMM	FL.LTH LU	O/ALL OAL
8073230880	8.8	10.0	47	89
8073230890	8.9	10.0	47	89
8073230900	9.0	10.0	47	89
8073230910	9.1	10.0	47	89
8073230920	9.2	10.0	47	89
8073230930	9.3	10.0	47	89
8073230940	9.4	10.0	47	89
8073230950	9.5	10.0	47	89
8073230960	9.6	10.0	47	89
8073230970	9.7	10.0	47	89
8073230980	9.8	10.0	47	89
8073230990	9.9	10.0	47	89
8073231000	10.0	10.0	47	89
8073231010	10.1	12.0	55	102
8073231020	10.2	12.0	55	102
8073231030	10.3	12.0	55	102
8073231040	10.4	12.0	55	102
8073231050	10.5	12.0	55	102
8073231060	10.6	12.0	55	102
8073231070	10.7	12.0	55	102
8073231080	10.8	12.0	55	102
8073231090	10.9	12.0	55	102
8073231100	11.0	12.0	55	102
8073231110	11.1	12.0	55	102
8073231120	11.2	12.0	55	102
8073231130	11.3	12.0	55	102
8073231140	11.4	12.0	55	102
8073231150	11.5	12.0	55	102
8073231160	11.6	12.0	55	102

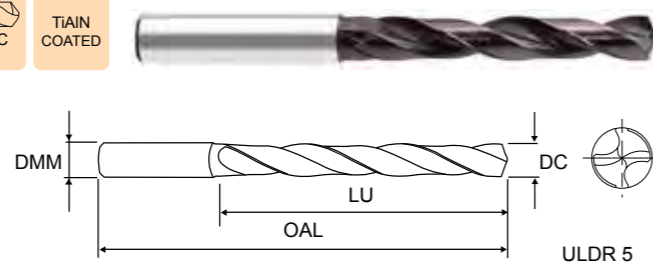
ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	●	●	●	○	○	●	●							

# GP DRILL 5xD



## Series No. 808323

▶ cutting conditions : p.60



**Application :**  
Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, stainless steel

**Advantage :**  
Self centering, centre drilling is not required  
Excellent positioning, bush is not necessary  
Special Design, reaming is not required  
Good chip removal, powerful drilling

EUROPA CODE ORDCODE	OD DC	SD DMM	FL.LTH LU	O/ALL OAL
8083230100	1.0	3.0	8	55
8083230110	1.1	3.0	12	55
8083230120	1.2	3.0	12	55
8083230130	1.3	3.0	12	55
8083230140	1.4	3.0	12	55
8083230150	1.5	3.0	16	55
8083230160	1.6	3.0	16	55
8083230170	1.7	3.0	16	55
8083230180	1.8	3.0	16	55
8083230190	1.9	3.0	16	55
8083230200	2.0	4.0	21	57
8083230210	2.1	4.0	21	57
8083230220	2.2	4.0	21	57
8083230230	2.3	4.0	21	57
8083230240	2.4	4.0	21	57
8083230250	2.5	4.0	21	57
8083230260	2.6	4.0	21	57
8083230270	2.7	4.0	21	57
8083230280	2.8	4.0	21	57
8083230290	2.9	4.0	21	57
8083230300	3.0	6.0	28	66
8083230310	3.1	6.0	28	66
8083230320	3.2	6.0	28	66
8083230330	3.3	6.0	28	66
8083230340	3.4	6.0	28	66
8083230350	3.5	6.0	28	66
8083230360	3.6	6.0	28	66
8083230370	3.7	6.0	28	66
8083230380	3.8	6.0	36	74
8083230390	3.9	6.0	36	74
8083230400	4.0	6.0	36	74
8083230410	4.1	6.0	36	74
8083230420	4.2	6.0	36	74
8083230430	4.3	6.0	36	74

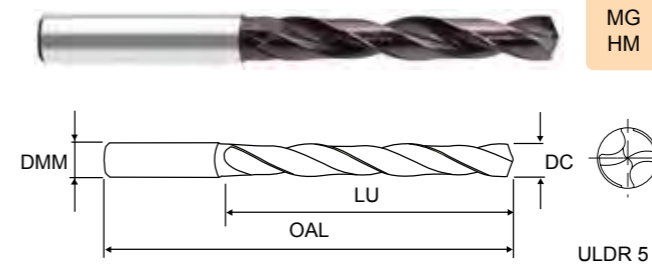
ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	●	●	●	○	○	●	●							

# GP DRILL 5xD



## Series No. 808323

▶ cutting conditions : p.60



**Application :**  
Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, stainless steel

**Advantage :**  
Self centering, centre drilling is not required  
Excellent positioning, bush is not necessary  
Special Design, reaming is not required  
Good chip removal, powerful drilling

EUROPA CODE ORDCODE	OD DC	SD DMM	FL.LTH LU	O/ALL OAL
8083230780	7.8	8.0	53	91
8083230790	7.9	8.0	53	91
8083230800	8.0	8.0	53	91
8083230810	8.1	10.0	61	103
8083230820	8.2	10.0	61	103
8083230830	8.3	10.0	61	103
8083230840	8.4	10.0	61	103
8083230850	8.5	10.0	61	103
8083230860	8.6	10.0	61	103
8083230870	8.7	10.0	61	103
8083230880	8.8	10.0	61	103
8083230890	8.9	10.0	61	103
8083230900	9.0	10.0	61	103
8083230910	9.1	10.0	61	103
8083230920	9.2	10.0	61	103
8083230930	9.3	10.0	61	103
8083230940	9.4	10.0	61	103
8083230950	9.5	10.0	61	103
8083230960	9.6	10.0	61	103
8083230970	9.7	10.0	61	103
8083230980	9.8	10.0	61	103
8083230990	9.9	10.0	61	103
8083231000	10.0	10.0	61	103
8083231010	10.1	12.0	71	118
8083231020	10.2	12.0	71	118
8083231030	10.3	12.0	71	118
8083231040	10.4	12.0	71	118
8083231050	10.5	12.0	71	118
8083231060	10.6	12.0	71	118
8083231070	10.7	12.0	71	118
8083231080	10.8	12.0	71	118
8083231090	10.9	12.0	71	118
8083231100	11.0	12.0	71	118
8083231110	11.1	12.0	71	118

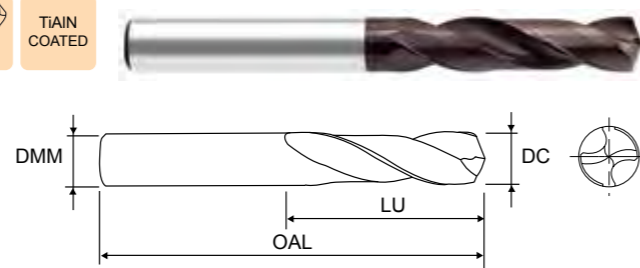
ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	●	●	●	○	○	●	●							

# STUB DRILL TiAIN



## Series No. 802323

▶ cutting conditions : p.60



**Application :**  
Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, stainless steel

**Advantage :**  
Self centering, centre drilling is not required  
Excellent positioning, bush is not necessary  
Special Design, reaming is not required  
Good chip removal, powerful drilling

EUROPA CODE ORDCODE	OD = SD DC = DMM	FL.LTH LU	O/ALL OAL
8023230300	3.0	16	46
8023230310	3.1	18	49
8023230320	3.2		
8023230330	3.3		
8023230340	3.4	20	52
8023230350	3.5		
8023230360	3.6		
8023230370	3.7		
8023230380	3.8	22	55
8023230390	3.9		
8023230400	4.0		
8023230410	4.1		
8023230420	4.2		
8023230430	4.3	24	58
8023230440	4.4		
8023230450	4.5		
8023230460	4.6		
8023230470	4.7		
8023230480	4.8		
8023230490	4.9	26	62
8023230500	5.0		
8023230510	5.1		
8023230520	5.2		

EUROPA CODE ORDCODE	OD = SD DC = DMM	FL.LTH LU	O/ALL OAL
8023230530	5.3	26	62
8023230540	5.4	28	66
8023230550	5.5		
8023230560	5.6		
8023230570	5.7		
8023230580	5.8	31	70
8023230590	5.9		
8023230600	6.0		
8023230610	6.1		
8023230620	6.2		
8023230630	6.3		
8023230640	6.4	34	74
8023230650	6.5		
8023230660	6.6		
8023230670	6.7		
8023230680	6.8		
8023230690	6.9		
8023230700	7.0		
8023230710	7.1		
8023230720	7.2		
8023230730	7.3		
8023230740	7.4		
8023230750	7.5		

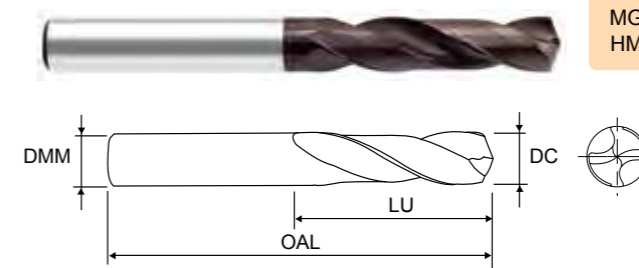
ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	●	●	●	○	○	●	●							

# STUB DRILL TiAIN



## Series No. 802323

▶ cutting conditions : p.60



**Application :**  
Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, stainless steel

**Advantage :**  
Self centering, centre drilling is not required  
Excellent positioning, bush is not necessary  
Special Design, reaming is not required  
Good chip removal, powerful drilling

EUROPA CODE ORDCODE	OD = SD DC = DMM	FL.LTH LU	O/ALL OAL
8023230760	7.6	37	79
8023230770	7.7		
8023230780	7.8		
8023230790	7.9		
8023230800	8.0		
8023230810	8.1		
8023230820	8.2		
8023230830	8.3		
8023230840	8.4		
8023230850	8.5		
8023230860	8.6	40	84
8023230870	8.7		
8023230880	8.8		
8023230890	8.9		
8023230900	9.0		
8023230910	9.1		
8023230920	9.2		
8023230930	9.3		
8023230940	9.4	43	89
8023230950	9.5		
8023230960	9.6		
8023230970	9.7		
8023230980	9.8		

EUROPA CODE ORDCODE	OD = SD DC = DMM	FL.LTH LU	O/ALL OAL
8023230990	9.9	43	89
8023231000	10.0		
8023231020	10.2		
8023231050	10.5		
8023231100	11.0	47	95
8023231150	11.5		
8023231200	12.0	51	102
8023231300	13.0		
8023231350	13.5	54	107
8023231400	14.0		
8023231450	14.5	56	111
8023231500	15.0		
8023231550	15.5	58	115
8023231600	16.0		
8023231650	16.5	60	119
8023231700	17.0		
8023231750	17.5	62	123
8023231800	18.0		
8023231850	18.5	64	127
8023231900	19.0		
8023231950	19.5	66	131
8023232000	20.0		

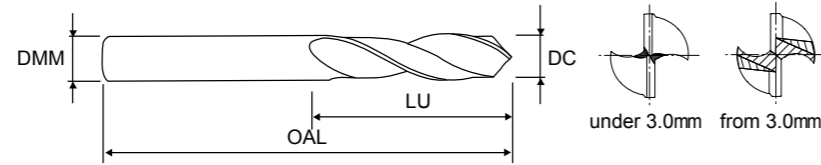
ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	●	●	●	○	○	●	●							

# STUB DRILL



## Series No. 800303

▶ cutting conditions : p.60



### Application :

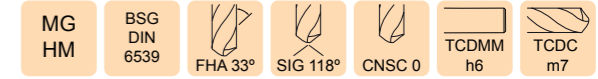
Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, stainless steel

EUROPA CODE ORDCODE	OD = SD DC = DMM	FL.LTH LU	O/ALL OAL
8003030100	1.0	6	26
8003030110	1.1	7	28
8003030120	1.2	8	30
8003030130	1.3		
8003030140	1.4	9	32
8003030150	1.5		
8003030160	1.6	10	34
8003030170	1.7		
8003030180	1.8	11	36
8003030190	1.9		
8003030200	2.0	12	38
8003030210	2.1		
8003030220	2.2	13	40
8003030230	2.3		
8003030240	2.4	14	43
8003030250	2.5		
8003030260	2.6	16	46
8003030270	2.7		
8003030280	2.8	16	46
8003030290	2.9		
8003030300	3.0	18	49
8003030310	3.1		
8003030320	3.2	18	49
8003030330	3.3		
8003030340	3.4	20	52
8003030350	3.5		
8003030360	3.6	20	52
8003030370	3.7		
8003030380	3.8	22	55
8003030390	3.9		
8003030400	4.0	22	55

EUROPA CODE ORDCODE	OD = SD DC = DMM	FL.LTH LU	O/ALL OAL
8003030410	4.1	22	55
8003030420	4.2		
8003030430	4.3	24	58
8003030440	4.4		
8003030450	4.5	24	58
8003030460	4.6		
8003030470	4.7	26	62
8003030480	4.8		
8003030490	4.9	26	62
8003030500	5.0		
8003030510	5.1	28	66
8003030520	5.2		
8003030530	5.3	28	66
8003030540	5.4		
8003030550	5.5	31	70
8003030560	5.6		
8003030570	5.7	31	70
8003030580	5.8		
8003030590	5.9	31	70
8003030600	6.0		
8003030610	6.1	31	70
8003030620	6.2		
8003030630	6.3	31	70
8003030640	6.4		
8003030650	6.5	31	70
8003030660	6.6		
8003030670	6.7	31	70

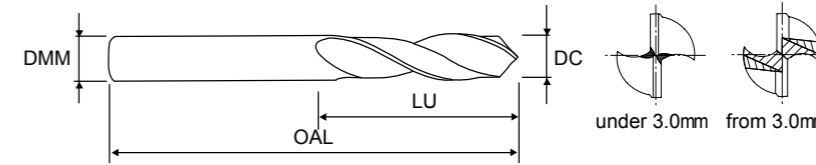
ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	●	●	●	○		●	●							

# STUB DRILL



## Series No. 800303

▶ cutting conditions : p.60



### Application :

Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, stainless steel

EUROPA CODE ORDCODE	OD = SD DC = DMM	FL.LTH LU	O/ALL OAL
8003030680	6.8	34	74
8003030690	6.9		
8003030700	7.0	34	74
8003030710	7.1		
8003030720	7.2	34	74
8003030730	7.3		
8003030740	7.4	37	79
8003030750	7.5		
8003030760	7.6	37	79
8003030770	7.7		
8003030780	7.8	37	79
8003030790	7.9		
8003030800	8.0	37	79
8003030810	8.1		
8003030820	8.2	40	84
8003030830	8.3		
8003030840	8.4	40	84
8003030850	8.5		
8003030860	8.6	40	84
8003030870	8.7		

EUROPA CODE ORDCODE	OD = SD DC = DMM	FL.LTH LU	O/ALL OAL
8003030880	8.8	40	84
8003030890	8.9		
8003030900	9.0	40	84
8003030910	9.1		
8003030920	9.2	40	84
8003030930	9.3		
8003030940	9.4	43	89
8003030950	9.5		
8003030960	9.6	43	89
8003030970	9.7		
8003030980	9.8	43	89
8003030990	9.9		
8003031000	10.0	47	95
8003031020	10.2		
8003031050	10.5	47	95
8003031100	11.0		
8003031150	11.5	51	102
8003031200	12.0		
8003031300	13.0	51	102

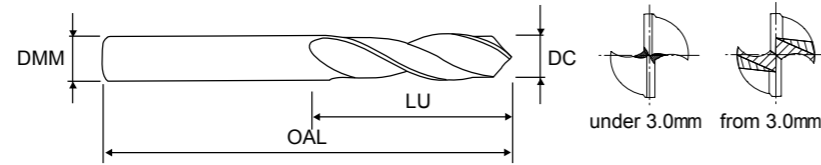
ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	●	●	●	○		●	●							

# JOBBER DRILL



## Series No. 801303

▶ cutting conditions : p.60



**Application :**  
Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, stainless steel

EUROPA CODE ORDCODE	OD = SD DC = DMM	FL.LTH LU	O/ALL OAL
8013030100	1.0	12	34
8013030110	1.1	14	36
8013030120	1.2	16	38
8013030130	1.3		
8013030140	1.4	18	40
8013030150	1.5		
8013030160	1.6	20	43
8013030170	1.7		
8013030180	1.8	22	46
8013030190	1.9		
8013030200	2.0	24	49
8013030210	2.1		
8013030220	2.2	27	53
8013030230	2.3		
8013030240	2.4	30	57
8013030250	2.5		
8013030260	2.6		

EUROPA CODE ORDCODE	OD = SD DC = DMM	FL.LTH LU	O/ALL OAL
8013030270	2.7	33	61
8013030280	2.8		
8013030290	2.9		
8013030300	3.0		
8013030310	3.1	36	65
8013030320	3.2		
8013030330	3.3		
8013030340	3.4		
8013030350	3.5	39	70
8013030360	3.6		
8013030370	3.7		
8013030380	3.8		
8013030390	3.9	43	75
8013030400	4.0		
8013030410	4.1		
8013030420	4.2		
8013030430	4.3	47	80

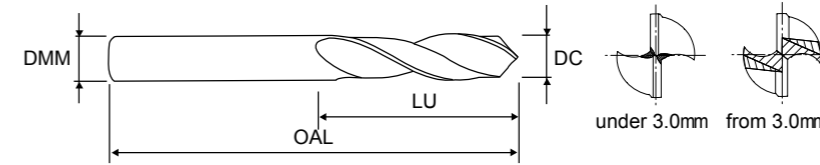
ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	●	●	●	○		●	●							
○ Good														

# JOBBER DRILL



## Series No. 801303

▶ cutting conditions : p.60



**Application :**  
Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, stainless steel

EUROPA CODE ORDCODE	OD = SD DC = DMM	FL.LTH LU	O/ALL OAL
8013030440	4.4	47	80
8013030450	4.5		
8013030460	4.6		
8013030470	4.7		
8013030480	4.8	52	86
8013030490	4.9		
8013030500	5.0		
8013030510	5.1		
8013030520	5.2	57	93
8013030530	5.3		
8013030540	5.4		
8013030550	5.5		
8013030560	5.6	57	93
8013030570	5.7		
8013030580	5.8		
8013030590	5.9		
8013030600	6.0		

EUROPA CODE ORDCODE	OD = SD DC = DMM	FL.LTH LU	O/ALL OAL
8013030610	6.1	63	101
8013030620	6.2		
8013030630	6.3		
8013030640	6.4		
8013030650	6.5	69	109
8013030680	6.8		
8013030700	7.0		
8013030800	8.0		
8013030850	8.5	75	117
8013031000	10.0		
8013031020	10.2	87	133
8013031050	10.5		
8013031100	11.0	94	142
8013031150	11.5		
8013031200	12.0	101	151
8013031300	13.0		

ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	●	●	●	○		●	●							
○ Good														

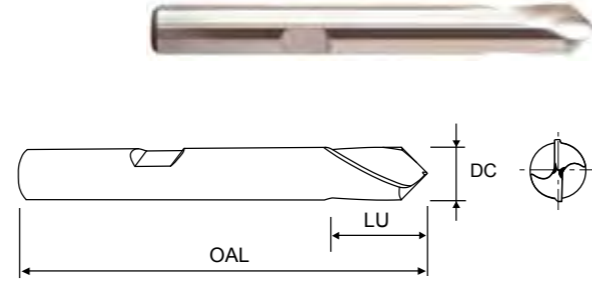


# SPOTTING DRILL 90°



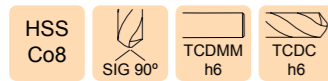
## Series No. 806303

▶ cutting conditions : p.60



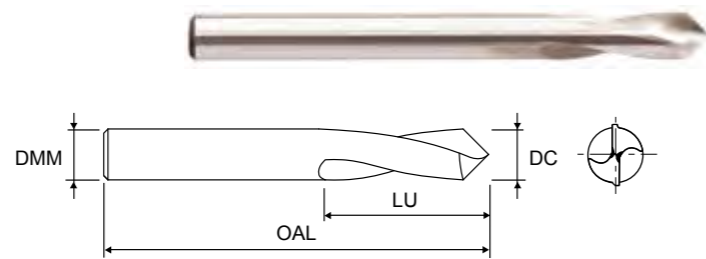
**Application :**  
For more precise centering work on NC/CNC machine.  
A larger diameter than the subsequent drilling tool allows for centering and chamfering simultaneously.  
**142° also available on request**

EUROPA CODE ORDCODE	OD DC	SD DMM	FL.LTH LU	O/ALL OAL
8063030600	6.0	6.0	13	50
8063030800	8.0	8.0	23	60
8063031000	10.0	10.0	24	70
8063031200	12.0	12.0		
8063031600	16.0	16.0	29	75
8063032000	20.0	20.0	35	100



## Series No. 821402

▶ cutting conditions : p.62



EUROPA CODE ORDCODE	OD DC	SD DMM	FL.LTH LU	O/ALL OAL
8214020300	3.0	3.0	12	46
8214020400	4.0	4.0	12	55
8214020500	5.0	5.0	15	60
8214020600	6.0	6.0	20	66
8214020800	8.0	8.0	25	79
8214021000	10.0	10.0	25	89
8214021200	12.0	12.0	30	102
8214021600	16.0	16.0	35	115
8214022000	20.0	20.0	40	131

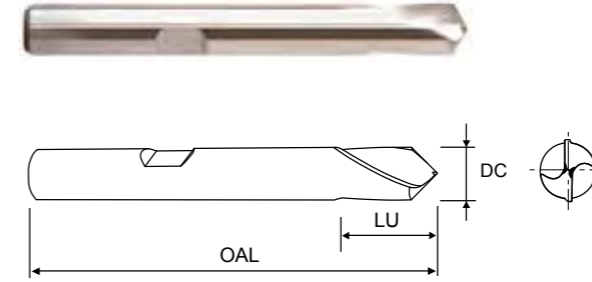
ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	●	●	●	○	○	●	●	○	○			○	○	

# SPOTTING DRILL 120°



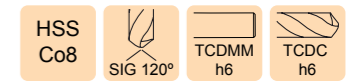
## Series No. 806403

▶ cutting conditions : p.60



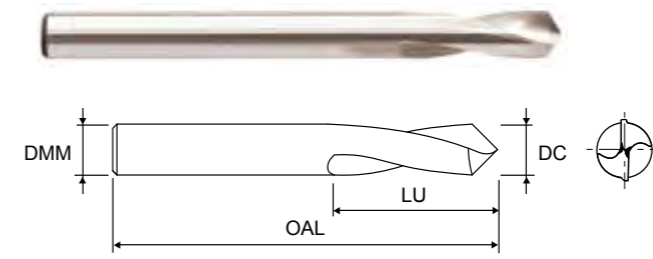
**Application :**  
For more precise centering work on NC/CNC machine.  
A larger diameter than the subsequent drilling tool allows for centering and chamfering simultaneously.  
**142° also available on request**

EUROPA CODE ORDCODE	OD DC	SD DMM	FL.LTH LU	O/ALL OAL
8064030600	6.0	6.0	13	50
8064030800	8.0	8.0	23	60
8064031000	10.0	10.0	24	70
8064031200	12.0	12.0		
8064031600	16.0	16.0	29	75
8064032000	20.0	20.0	35	100



## Series No. 822402

▶ cutting conditions : p.62



EUROPA CODE ORDCODE	OD DC	SD DMM	FL.LTH LU	O/ALL OAL
8224020300	3.0	3.0	12	46
8224020400	4.0	4.0	12	55
8224020500	5.0	5.0	15	60
8224020600	6.0	6.0	20	66
8224020800	8.0	8.0	25	79
8224021000	10.0	10.0	25	89
8224021200	12.0	12.0	30	102
8224021600	16.0	16.0	35	115
8224022000	20.0	20.0	40	131

ISO	P			M		K		N				S		H
VDI	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	31-35	36-37	38-39
EMG	11-12	13-14	15	21-22	23	31-32	33-34	71-74	61-64	81-82	83	51-53	41-43	16
● Excellent	●	●	●	○	○	●	●	○	○			○	○	

# CUTTING DATA



823323, 825323, 828323 (Inox)



ISO	VDI	v <sub>c</sub> (m/min)	f <sub>n</sub> (mm/rev)													
			ø1.0 -1.9	ø2.0 -2.9	ø3.0 -3.9	ø4.0 -4.9	ø5.0 -5.9	ø6.0 -6.9	ø7.0 -7.9	ø8.0 -9.9	ø10.0 -11.9	ø12.0 -13.5	ø14.0 -15.5	ø16.0 -17.5	ø18.0 -19.5	ø20.0
<b>P</b>	1-5	115 (105-125)	0.02	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.10	0.12	0.15	0.20	0.22	0.24
	6-9	105 (95-115)	0.02	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.10	0.12	0.15	0.20	0.22	0.24
	10-11	95 (85-105)	0.02	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.10	0.12	0.15	0.20	0.22	0.24
<b>M</b>	12-13	65 (60-70)	0.02	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.10	0.12	0.16	0.20	0.22	0.24
	14	40 (35-45)	0.02	0.03	0.03	0.03	0.03	0.04	0.05	0.06	0.08	0.10	0.12	0.15	0.17	0.19
<b>S</b>	31-32	30 (25-35)	0.05	0.05	0.06	0.08	0.08	0.10	0.10	0.11	0.12	0.14	0.14	0.15	0.15	0.15
	33-35	25 (20-30)	0.03	0.03	0.04	0.06	0.06	0.08	0.08	0.09	0.10	0.12	0.12	0.13	0.13	0.13
	36	45 (40-50)	0.01	0.02	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.10	0.12	0.14	0.16	0.18
	37	40 (35-45)	0.01	0.02	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.10	0.12	0.14	0.16	0.18
<b>N</b>	21-24	210 (200-220)	0.04	0.08	0.12	0.18	0.20	0.25	0.28	0.30	0.40	0.50	0.60	0.80	1.00	1.20
	25	165 (155-175)	0.03	0.06	0.10	0.15	0.18	0.25	0.28	0.30	0.35	0.40	0.50	0.60	0.70	0.80

- ▶ For 8xD drills reduce feed rate by 15%
- ▶ For recommended coolant pressure refer to p.64

803323, 804323, 805323 (T/Coolant)



ISO	VDI	v <sub>c</sub> (m/min)	f <sub>n</sub> (mm/rev)													
			ø1.0 -1.9	ø2.0 -2.9	ø3.0 -3.9	ø4.0 -4.9	ø5.0 -5.9	ø6.0 -6.9	ø7.0 -7.9	ø8.0 -9.9	ø10.0 -11.9	ø12.0 -13.5	ø14.0 -15.5	ø16.0 -17.5	ø18.0 -19.5	ø20.0
<b>P</b>	1-5	140 (130-150)	0.05	0.07	0.16	0.17	0.18	0.20	0.22	0.25	0.30	0.33	0.36	0.39	0.42	0.45
	6-9	125 (115-135)	0.05	0.07	0.16	0.17	0.18	0.20	0.22	0.25	0.30	0.33	0.36	0.39	0.42	0.45
	10-11	110 (100-120)	0.05	0.07	0.16	0.17	0.18	0.20	0.22	0.25	0.30	0.33	0.36	0.39	0.42	0.45
<b>K</b>	15-16	240 (230-250)	0.15	0.07	0.16	0.17	0.18	0.20	0.22	0.25	0.30	0.33	0.36	0.39	0.42	0.45
	17-20	150 (140-160)	0.15	0.07	0.16	0.17	0.18	0.20	0.22	0.25	0.30	0.33	0.36	0.39	0.42	0.45

- ▶ For 8xD drills reduce feed rate by 15%
- ▶ For diameters below 3.0mm reduce cutting speed by 40%
- ▶ For recommended coolant pressure refer to p.64

# CUTTING DATA

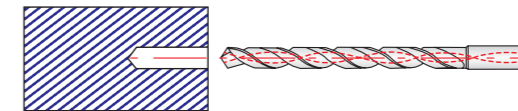


810323, 815323, 820323, 826323, 860323 (MQL)

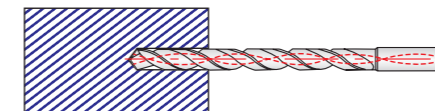


ISO	VDI	v <sub>c</sub> (m/min)	f <sub>n</sub> (mm/rev)													
			ø1.0 -1.9	ø2.0 -2.9	ø3.0 -3.9	ø4.0 -4.9	ø5.0 -5.9	ø6.0 -6.9	ø7.0 -7.9	ø8.0 -9.9	ø10.0 -11.9	ø12.0 -13.5	ø14.0 -15.5	ø16.0 -17.5	ø18.0 -19.5	ø20.0
<b>P</b>	1-5	95 (65-125)	-	-	0.09	0.12	0.15	0.18	-	0.22	0.28	0.33	0.37	-	-	-
	6-9	85 (60-115)	-	-	0.09	0.12	0.15	0.18	-	0.22	0.28	0.33	0.37	-	-	-
	10-11	75 (50-100)	-	-	0.09	0.12	0.15	0.18	-	0.22	0.28	0.33	0.37	-	-	-
<b>K</b>	15-16	95 (65-125)	-	-	0.09	0.12	0.15	0.18	-	0.22	0.28	0.33	0.37	-	-	-
	17-20	70 (60-80)	-	-	0.09	0.12	0.15	0.18	-	0.22	0.28	0.33	0.37	-	-	-

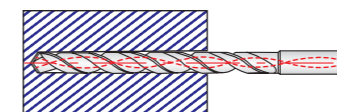
- ▶ For 25xD and 30xD drills reduce cutting speed by up to 25%
- ▶ For recommended coolant pressure refer to p.64



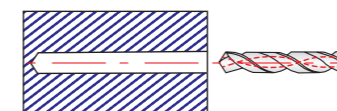
1. Guide drilling should be carried out with 5xD drill 0.1mm larger than finished hole diameter and drilled between 3xD and 5xD depth.



2. For main drilling, reduce to 300RPM and feed in at 400mm/min while entering pilot hole.



3. Just before the end of the pilot hole, reduce feed rate to zero and increase the RPM according to the recommended cutting condition shown in the chart above.



4. Increase feed rate and drill to depth without step drilling.



5. When extracting drill after drilling, reduce to 300RPM and feed rate of 1000mm/min when drill reaches pilot hole depth.

6. When exiting hole reduce feed by 50%.

v<sub>c</sub> - cutting speed (m/min)  
n - RPM (rev/min)  
f<sub>n</sub> - feed rate (mm/rev)  
ø - drill diameter (mm)

$$\text{To calculate RPM from cutting speed: } n = \frac{v_c \cdot 1000}{\pi \cdot \phi}$$

$$\text{To calculate cutting speed from RPM: } v_c = \frac{n \cdot \pi \cdot \phi}{1000}$$

All recommendations are based on ideal machining conditions. Adjustments may need to be made according to your set-up. The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.

# CUTTING DATA



821223 (Pulsar HRC70)



ISO	VDI	Hardness HRC	v <sub>c</sub> (m/min)	f <sub>n</sub> (mm/rev)												
				ø3.0 -3.9	ø4.0 -4.9	ø5.0 -5.9	ø6.0 -6.9	ø7.0 -7.9	ø8.0 -9.9	ø10.0 -11.9	ø12.0 -13.5	ø14.0 -15.5	ø16.0 -17.5	ø18.0 -19.5	ø20.0	
<b>P</b>	10-11	35-45	20 (16-24)	0.05	0.05	0.05	0.05	-	0.05	0.05	0.05	0.05	-	-	-	
<b>H</b>	38-39	45-55	18 (14-22)	0.04	0.04	0.04	0.04	-	0.04	0.04	0.04	0.04	-	-	-	
		55-65	13 (10-16)	0.04	0.04	0.04	0.04	-	0.04	0.04	0.04	0.04	-	-	-	
		65-70	10 (8-13)	0.04	0.04	0.04	0.04	-	0.04	0.04	0.04	0.04	-	-	-	

843303, 845303, 848303 (Alu-XP)



ISO	VDI	v <sub>c</sub> (m/min)	f <sub>n</sub> (mm/rev)													
			ø1.0 -1.9	ø2.0 -2.9	ø3.0 -3.9	ø4.0 -4.9	ø5.0 -5.9	ø6.0 -6.9	ø7.0 -7.9	ø8.0 -9.9	ø10.0 -11.9	ø12.0 -13.5	ø14.0 -15.5	ø16.0 -17.5	ø18.0 -19.5	ø20.0
<b>N</b>	21-24	140 (80-200)	-	-	0.20	0.30	0.40	0.50	0.50	0.60	0.60	0.70	0.70	0.80	0.90	1.00
	25	140 (80-200)	-	-	0.15	0.20	0.25	0.30	0.30	0.35	0.35	0.40	0.40	0.40	0.40	0.40

- For 8xD drills reduce feed rate by 15%
- For recommended coolant pressure refer to p.64

850390 (CFRP)



ISO	VDI	v <sub>c</sub> (m/min)	f <sub>n</sub> (mm/rev)													
			ø1.0 -1.9	ø2.0 -2.9	ø3.0 -3.9	ø4.0 -4.9	ø5.0 -5.9	ø6.0 -6.9	ø7.0 -7.9	ø8.0 -9.9	ø10.0 -11.9	ø12.0 -13.5	ø14.0 -15.5	ø16.0 -17.5	ø18.0 -19.5	ø20.0
<b>N</b>	29.2	125 (100-150)	-	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.07	-	-	-	-

v<sub>c</sub> - cutting speed (m/min)  
 n - RPM (rev/min)  
 f<sub>n</sub> - feed rate (mm/rev)  
 ø - drill diameter (mm)

$$\text{To calculate RPM from cutting speed: } n = \frac{v_c \cdot 1000}{\pi \cdot \phi}$$

$$\text{To calculate cutting speed from RPM: } v_c = \frac{n \cdot \pi \cdot \phi}{1000}$$

All recommendations are based on ideal machining conditions. Adjustments may need to be made according to your set-up. The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.

# CUTTING DATA



803366, 805366 (High Feed)



ISO	VDI	v <sub>c</sub> (m/min)	f <sub>n</sub> (mm/rev)											
			ø5.0 -5.9	ø6.0 -6.9	ø7.0 -7.9	ø8.0 -8.9	ø9.0 -9.9	ø10.0 -11.9	ø12.0 -13.5	ø14.0 -15.5	ø16.0 -17.5	ø18.0 -19.5	ø20.0	
<b>P</b>	1-5	100 (90-110)	0.22	0.27	0.31	0.36	0.40	0.45	0.54	0.63	0.64	0.72	0.79	
	6-9	75 (70-80)	0.22	0.27	0.31	0.36	0.40	0.45	0.51	0.59	0.60	0.67	0.74	
<b>K</b>	15-16	100 (90-110)	0.26	0.31	0.37	0.42	0.47	0.52	0.63	0.72	0.73	0.81	0.89	
	17-20	80 (70-90)	0.22	0.27	0.31	0.36	0.40	0.45	0.54	0.62	0.64	0.72	0.80	

- For recommended coolant pressure refer to p.64

809323 (Flat Bottom)



ISO	VDI	v <sub>c</sub> (m/min)	f <sub>n</sub> (mm/rev)												
			ø3.0 -3.9	ø4.0 -4.9	ø5.0 -5.9	ø6.0 -6.9	ø7.0 -7.9	ø8.0 -9.9	ø10.0 -11.9	ø12.0 -13.5	ø14.0 -15.5	ø16.0 -17.5	ø18.0 -19.5	ø20.0	
<b>P</b>	1-5	70 (35-75)	0.05	0.07	0.08	0.09	0.10	0.12	0.17	0.21	0.24	0.28	0.31	0.34	
	6-9	38 (35-40)	0.05	0.06	0.08	0.09	0.10	0.12	0.15	0.18	0.20	0.24	0.27	0.31	
	10-11	25 (22-28)	0.03	0.04	0.05	0.06	0.07	0.08	0.10	0.12	0.14	0.16	0.18	0.20	
<b>M</b>	14	30 (25-35)	0.02	0.03	0.04	0.05	0.05	0.06	0.08	0.10	0.11	0.12	0.13	0.15	
<b>K</b>	15-20	68 (65-70)	0.04	0.06	0.07	0.09	0.10	0.12	0.15	0.18	0.20	0.24	0.27	0.30	
<b>N</b>	21-24	165 (150-180)	0.06	0.08	0.10	0.12	0.14	0.16	0.20	0.24	0.28	0.32	0.36	0.40	

809323 - Recommended cutting conditions for inclined surfaces

Surface angle	Cutting conditions	
	RPM	Feed
0° - 15°	100%	100%
15° - 30°	100%	50%
> 30°	70%	30%

# CUTTING DATA



802323, 807323, 808323 (TiAIN)



ISO	VDI	v <sub>c</sub> (m/min)	f <sub>n</sub> (mm/rev)													
			ø1.0 -1.9	ø2.0 -2.9	ø3.0 -3.9	ø4.0 -4.9	ø5.0 -5.9	ø6.0 -6.9	ø7.0 -7.9	ø8.0 -9.9	ø10.0 -11.9	ø12.0 -13.5	ø14.0 -15.5	ø16.0 -17.5	ø18.0 -19.5	ø20.0
<b>P</b>	1-5	<b>100</b> (100-120)	0.04	0.06	0.13	0.14	0.15	0.17	0.19	0.22	0.25	0.27	0.29	0.31	0.33	0.35
	6-9	<b>95</b> (85-105)	0.04	0.06	0.13	0.14	0.15	0.17	0.19	0.22	0.25	0.27	0.29	0.31	0.33	0.35
	10-11	<b>80</b> (70-90)	0.04	0.06	0.13	0.14	0.15	0.17	0.19	0.22	0.25	0.27	0.29	0.31	0.33	0.35
<b>K</b>	15-16	<b>240</b> (180-200)	0.04	0.06	0.13	0.14	0.15	0.17	0.19	0.22	0.25	0.27	0.29	0.31	0.33	0.35
	17-20	<b>120</b> (110-130)	0.04	0.16	0.13	0.14	0.15	0.17	0.19	0.22	0.25	0.27	0.29	0.31	0.33	0.35

- ▶ For 5xD drills reduce feed rate by 15%
- ▶ For diameters below 3.0mm reduce cutting speed by 40%

800303, 801303, 806303, 806403



ISO	VDI	v <sub>c</sub> (m/min)	f <sub>n</sub> (mm/rev)													
			ø1.0 -1.9	ø2.0 -2.9	ø3.0 -3.9	ø4.0 -4.9	ø5.0 -5.9	ø6.0 -6.9	ø7.0 -7.9	ø8.0 -9.9	ø10.0 -11.9	ø12.0 -13.5	ø14.0 -15.5	ø16.0 -17.5	ø18.0 -19.5	ø20.0
<b>P</b>	1-5	<b>70</b> (65-75)	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.11	0.13	0.15	-	-	-	-
	6-9	<b>50</b> (45-55)	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.11	0.13	0.15	-	-	-	-
	10-11	<b>40</b> (35-45)	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.11	0.13	0.15	-	-	-	-
<b>M</b>	12-13	<b>35</b> (30-40)	0.03	0.04	0.04	0.05	0.06	0.07	0.08	0.10	0.12	0.13	-	-	-	-
<b>K</b>	15-16	<b>90</b> (80-100)	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.13	0.17	0.20	-	-	-	-
	17-20	<b>60</b> (50-70)	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.13	0.17	0.20	-	-	-	-

v<sub>c</sub> - cutting speed (m/min)  
 n - RPM (rev/min)  
 f<sub>n</sub> - feed rate (mm/rev)  
 ø - drill diameter (mm)

$$\text{To calculate RPM from cutting speed: } n = \frac{v_c \cdot 1000}{\pi \cdot \phi}$$

$$\text{To calculate cutting speed from RPM: } v_c = \frac{n \cdot \pi \cdot \phi}{1000}$$

All recommendations are based on ideal machining conditions. Adjustments may need to be made according to your set-up. The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.

# CUTTING DATA



820434, 810434 (HPD-SUS)



ISO	VDI	v <sub>c</sub> (m/min)	f <sub>n</sub> (mm/rev)													
			ø1.0 -1.9	ø2.0 -2.9	ø3.0 -3.9	ø4.0 -4.9	ø5.0 -5.9	ø6.0 -6.9	ø7.0 -7.9	ø8.0 -9.9	ø10.0 -11.9	ø12.0 -13.5	ø14.0 -15.5	ø16.0 -17.5	ø18.0 -19.5	ø20.0
<b>P</b>	1-5	<b>35</b> (30-40)	-	0.08	0.13	0.14	0.16	0.18	0.20	0.22	0.26	0.32	0.36	0.40	0.45	0.47
	6-9	<b>30</b> (25-35)	-	0.08	0.13	0.14	0.16	0.18	0.20	0.22	0.26	0.32	0.36	0.40	0.45	0.47
	10-11	<b>25</b> (20-30)	-	0.08	0.13	0.14	0.16	0.18	0.20	0.22	0.26	0.32	0.36	0.40	0.45	0.47
<b>M</b>	12-13	<b>18</b> (15-20)	-	0.07	0.08	0.10	0.15	0.18	0.21	0.24	0.30	0.36	0.44	0.48	0.50	0.53
	14	<b>15</b> (13-18)	-	0.03	0.04	0.06	0.08	0.09	0.10	0.12	0.15	0.18	0.23	0.26	0.29	0.33
<b>N</b>	21-24	<b>80</b> (70-90)	-	0.09	0.13	0.18	0.22	0.26	0.30	0.34	0.40	0.50	0.55	0.62	0.70	0.75
	25	<b>32</b> (30-35)	-	0.06	0.08	0.10	0.13	0.15	0.17	0.20	0.25	0.30	0.33	0.35	0.40	0.40
	29.1	<b>32</b> (30-35)	-	0.06	0.08	0.10	0.13	0.15	0.17	0.20	0.25	0.30	0.33	0.35	0.40	0.40

- ▶ For 810434 drills reduce feed rate by 15%

820422, 821422 (SABRE)



ISO	VDI	v <sub>c</sub> (m/min)	f <sub>n</sub> (mm/rev)													
			ø1.0 -1.9	ø2.0 -2.9	ø3.0 -3.9	ø4.0 -4.9	ø5.0 -5.9	ø6.0 -6.9	ø7.0 -7.9	ø8.0 -9.9	ø10.0 -11.9	ø12.0 -13.5	ø14.0 -15.5	ø16.0 -17.5	ø18.0 -19.5	ø20.0
<b>P</b>	1-5	<b>35</b> (30-40)	0.04	0.06	0.12	0.15	0.18	0.20	0.22	0.24	0.27	0.29	-	-	-	-
	6-9	<b>30</b> (25-35)	0.03	0.05	0.09	0.13	0.16	0.18	0.19	0.20	0.24	0.26	-	-	-	-
	10-11	<b>25</b> (20-30)	0.03	0.05	0.09	0.13	0.16	0.18	0.19	0.20	0.24	0.26	-	-	-	-
<b>M</b>	12-13	<b>18</b> (15-20)	0.06	0.08	0.09	0.11	0.17	0.19	0.22	0.26	0.33	0.39	-	-	-	-
	14	<b>15</b> (13-18)	0.03	0.04	0.05	0.07	0.09	0.10	0.12	0.14	0.17	0.20	-	-	-	-
<b>S</b>	31-35	<b>4</b> (3-6)	0.01	0.03	0.05	0.07	0.09	0.10	0.11	0.13	0.16	0.19	-	-	-	-
	36-37	<b>4</b> (3-6)	0.01	0.03	0.05	0.07	0.09	0.10	0.11	0.13	0.16	0.19	-	-	-	-

- ▶ For 821422 drills reduce feed rate by 15%

# CUTTING DATA



816327, 817327, 819327



ISO	VDI	v <sub>c</sub> (m/min)	f <sub>n</sub> (mm/rev)													
			ø1.0 -1.9	ø2.0 -2.9	ø3.0 -3.9	ø4.0 -4.9	ø5.0 -5.9	ø6.0 -6.9	ø7.0 -7.9	ø8.0 -9.9	ø10.0 -11.9	ø12.0 -13.5	ø14.0 -15.5	ø16.0 -17.5	ø18.0 -19.5	ø20.0
<b>P</b>	1-5	<b>18</b> (15-20)	-	0.04	0.05	0.06	0.06	0.08	0.09	0.10	0.13	-	-	-	-	-
	6-9	<b>13</b> (10-15)	-	0.04	0.05	0.06	0.06	0.08	0.09	0.10	0.13	-	-	-	-	-
	10-11	<b>11</b> (8-13)	-	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.10	-	-	-	-	-
<b>K</b>	15-16	<b>23</b> (20-25)	-	0.07	0.10	0.13	0.13	0.16	0.18	0.20	0.25	-	-	-	-	-
	17-20	<b>10</b> (7-12)	-	0.06	0.08	0.10	0.10	0.13	0.15	0.17	0.21	-	-	-	-	-
<b>N</b>	21-24	<b>33</b> (30-35)	-	0.06	0.07	0.08	0.09	0.10	0.11	0.13	0.16	-	-	-	-	-

821402, 822402 (Spotting Drills)



ISO	VDI	v <sub>c</sub> (m/min)	f <sub>n</sub> (mm/rev)								
			ø3.0	ø4.0	ø5.0	ø6.0	ø8.0	ø10.0	ø12.0	ø16.0	ø20.0
<b>P</b>	1-5	<b>20</b> (25-25)	0.050	0.055	0.063	0.080	0.130	0.145	0.160	0.200	0.240
	6-9	<b>18</b> (15-20)	0.045	0.050	0.060	0.075	0.125	0.140	0.150	0.210	0.230
	10-11	<b>15</b> (10-20)	0.045	0.050	0.060	0.075	0.125	0.140	0.150	0.210	0.230
<b>M</b>	12-14	<b>8</b> (6-10)	0.050	0.055	0.063	0.080	0.130	0.145	0.160	0.200	0.240
<b>K</b>	15-20	<b>8</b> (6-10)	0.050	0.055	0.063	0.080	0.130	0.145	0.160	0.200	0.240
<b>S</b>	31-35	<b>5</b> (4-6)	0.025	0.031	0.038	0.045	0.075	0.090	0.100	0.120	0.140
	36-37	<b>5</b> (4-6)	0.025	0.031	0.038	0.045	0.075	0.090	0.100	0.120	0.140
<b>N</b>	21-25	<b>40</b> (40-45)	0.063	0.070	0.076	0.120	0.180	0.200	0.225	0.275	0.325
	26-27	<b>30</b> (25-35)	0.063	0.070	0.076	0.120	0.180	0.200	0.225	0.275	0.325

v<sub>c</sub> - cutting speed (m/min)  
 n - RPM (rev/min)  
 f<sub>n</sub> - feed rate (mm/rev)  
 ø - drill diameter (mm)

$$\text{To calculate RPM from cutting speed: } n = \frac{v_c \cdot 1000}{\pi \cdot \phi}$$

$$\text{To calculate cutting speed from RPM: } v_c = \frac{n \cdot \pi \cdot \phi}{1000}$$

All recommendations are based on ideal machining conditions. Adjustments may need to be made according to your set-up. The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.