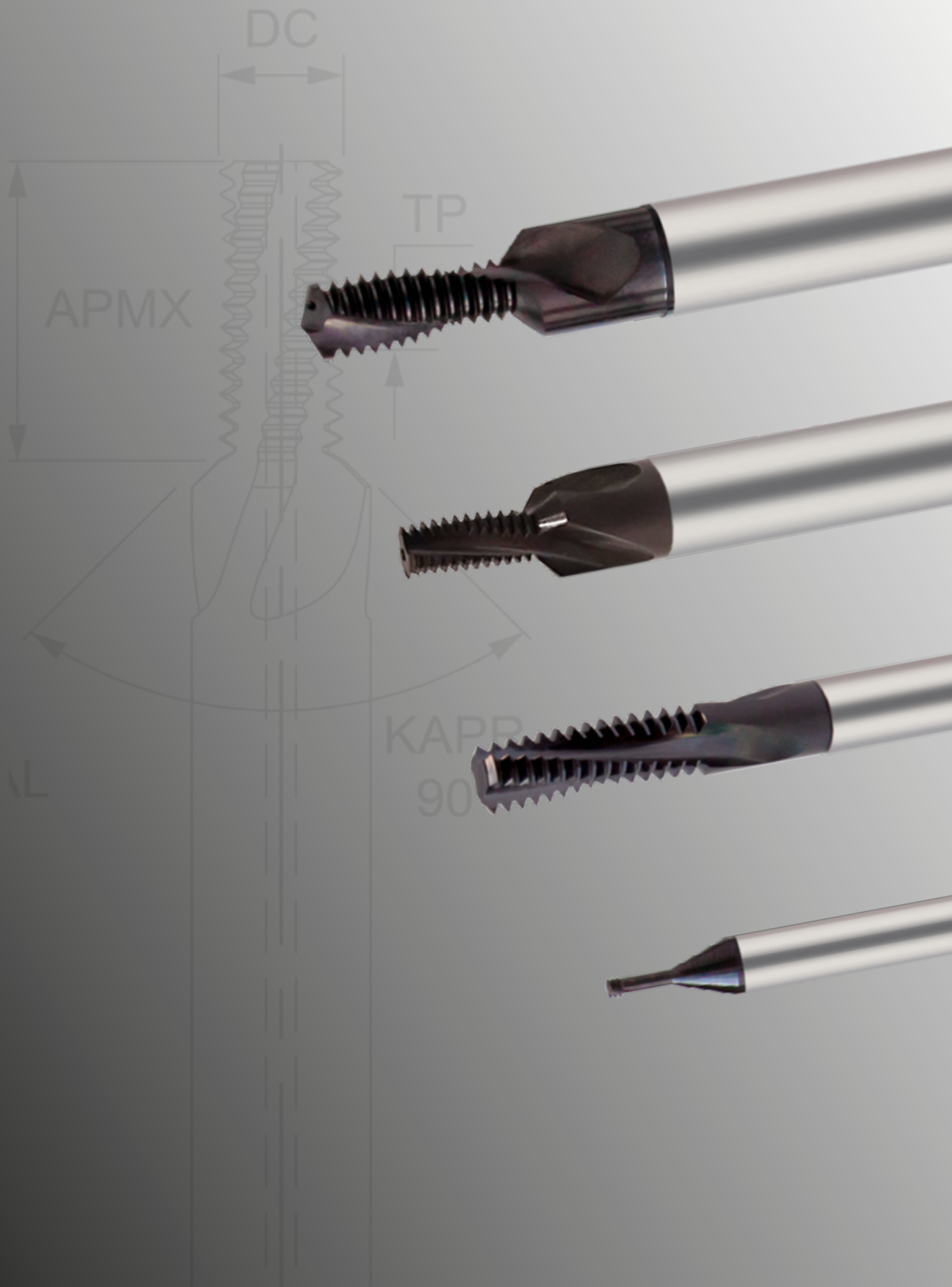


THREAD MILLING





INDEXABLE THREAD MILLS

Series (TSYC)	Item	Description	Page No.
GTM		External/Internal Ø14 - 43mm	P.3

THROUGH COOLANT, DRILL & CHAMFER THREAD MILLS

198323		Metric M6 - M14	P.4
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THROUGH COOLANT & CHAMFER THREAD MILLS

192323		Metric M6 - M16	P.7
193323		Metric Fine M8 - M16	P.8
194323		UNC 1/4" - 3/4"	P.9
195323		UNF 1/4" - 3/4"	P.10
196323		NPT 1/16" - 3/8"	P.6

THROUGH COOLANT THREAD MILLS

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191323		Metric Fine M8 - M20	P.12
183523		BSP 1/16" - 1"	P.13

SOLID THREAD MILLS

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183423		NPT 1/8" - 2.1/2"	P.14
183623		BSP 1/2" - 3/4"	P.13

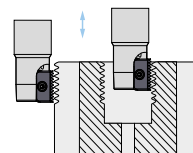
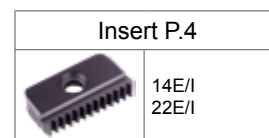
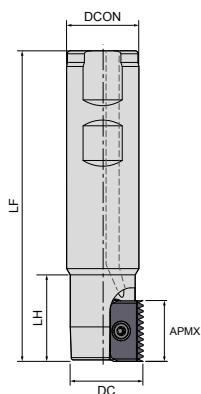
SOLID MINIATURE THREAD MILLS

186323		Metric M1 - M12	P.19
188323		Metric <HRc62 M2 - M12	P.20
187323		UNC No.1 - 7/16"	P.21
189323		UNC <HRc62 No.2 - 7/16"	P.22
		Cutting Data	P.23-24



THREAD MILLING HOLDERS

GTM



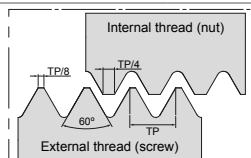
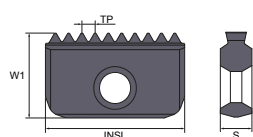
EDP Code	Description		DC	DCON	LH	LF	APMX	ZEFP	Insert	Screw	Wrench
TMH0001	GTM.14201WM-14	•	14	20	25	100	14	1	14E/I	TXS2506.1	TXW08
TMH0002	GTM.18201WM-21	•	18	20	30	100	21	1	22E/I	TXS4011	TXW15
TMH0003	GTM.21251WL-21	•	21	25	40	125	21	1			
TMH0004	GTM.25201WL-21	•	25	20	30	125	21	1			
TMH0005	GTM.28251WS-21	•	28	25	30	90	21	1			
TMH0006	GTM.38323WS-21	•	38	32	30	90	21	3			
TMH0007	GTM.38323WL-21	•	38	32	30	120	21	3			
TMH0008	GTM.43323WS-21	•	43	32	30	90	21	3			



THREAD MILLING

THREAD MILLING INSERTS, METRIC

► EDP Code TM..... Example: C14I 0.5ISO ET302 = TM00001



P	●
M	●
K	●
N	○
S	○
H	○

METRIC	INTERNAL & EXTERNAL	TP	INSL	W1	S	ET302
						PVD
	C14I 0.5ISO ET302	0.5	14	7.5	3.1	● 00001
	C14I 0.75ISO ET302	0.75	14	7.5	3.1	● 00002
	C14I 1.0ISO ET302	1.0	14	7.5	3.1	● 00003
	C14I 1.25ISO ET302	1.25	14	7.5	3.1	● 00004
	C14I 1.5ISO ET302	1.5	14	7.5	3.1	● 00005
	C14I 1.75ISO ET302	1.75	14	7.5	3.1	● 00006
	C14I 2.0ISO ET302	2.0	14	7.5	3.1	● 00007
	C14I 2.5ISO ET302	2.5	14	7.5	3.1	● 00008
	C21I 1.0ISO ET302	1.0	21	12	4.7	● 00016
	C21I 1.5ISO ET302	1.5	21	12	4.7	● 00017
	C21I 1.75ISO ET302	1.75	21	12	4.7	● 00018
	C21I 2.0ISO ET302	2.0	21	12	4.7	● 00019
	C21I 2.5ISO ET302	2.5	21	12	4.7	● 00020
	C21I 3.0ISO ET302	3.0	21	12	4.7	● 00021
	C21I 3.5ISO ET302	3.5	21	12	4.7	● 00022
	C14E 0.75ISO ET302	0.75	14	7.5	3.1	● 00009
	C14E 1.0ISO ET302	1.0	14	7.5	3.1	● 00010
	C14E 1.25ISO ET302	1.25	14	7.5	3.1	● 00011
	C14E 1.5ISO ET302	1.5	14	7.5	3.1	● 00012
	C14E 1.75ISO ET302	1.75	14	7.5	3.1	● 00013
	C14E 2.0ISO ET302	2.0	14	7.5	3.1	● 00014
	C14E 2.5ISO ET302	2.5	14	7.5	3.1	● 00015
	C21E 1.0ISO ET302	1.0	21	12	4.7	● 00023
	C21E 1.5ISO ET302	1.5	21	12	4.7	● 00024
	C21E 2.0ISO ET302	2.0	21	12	4.7	● 00025
	C21E 2.5ISO ET302	2.5	21	12	4.7	● 00026
	C21E 3.0ISO ET302	3.0	21	12	4.7	● 00027

► Other threadforms available to order

ISO		P			M		K		N	S	H
MATERIAL		Non-alloy steel <25 HRC	Low alloy steel 25-35 HRC	High alloy steel, Tool steel 35-45 HRC	Ferritic / Martensitic Stainless steel	Austenitic Stainless steel	Grey Cast iron	Nodular Cast iron	Aluminium & Non-ferrous material	Heat Resistant and Super Alloys	Hardened steel <55 HRC
VDI GROUP		1-5	6-9	10-11	12-13	14	15-16	17-20	21-30	31-37	38-41
Vc (m/min)	ET302	75 - 175	80 - 155	70 - 135	75 - 130	70 - 120	55 - 110	55 - 110	80 - 275	15 - 60	20 - 40



THROUGH COOLANT, DRILL & CHAMFER, METRIC

MG
HM

BSG
EUROPA
STD



TiAIN
COATED

Series No. 198323

► cutting conditions : p.23-24

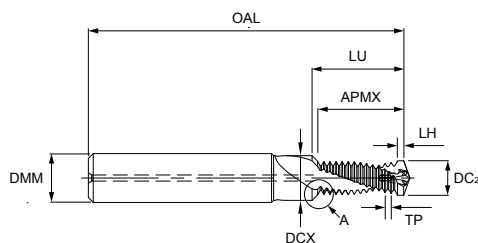
Shank to DIN6535HA

Helix angle : 15°

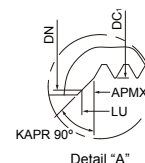
Thread length : 2xDC

90° countersink

140° drill point



SIG 140°
ULDR 2



Detail "A"

EUROPA CODE ORDCODE	NOMINAL DIA. TD	PITCH TP	CUTTER DIA. DC ₁	DRILL DIA. DC ₂	THREAD LENGTH APMX	EFF. LENGTH LU	EFF. DIA. DN	MAX. C'SINK DCX	SHANK DIA. DMM	DRILL LENGTH LH	O/ALL LENGTH OAL
1983230600	M6	1.0	4.75	5.0	13.0	14.68	6.3	6.6	8	1.0	62
1983230800	M8	1.25	6.35	6.75	16.27	18.48	8.3	9.0	10	1.25	74
1983231000	M10	1.5	7.95	8.5	21.05	23.77	10.3	11.0	12	1.5	79
1983231200	M12	1.75	9.95	10.25	24.21	27.25	12.3	13.5	14	1.5	89
1983231400	M14	2.0	11.2	12.0	29.58	33.32	14.3	15.5	16	1.5	102

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary						●	●	●	●	●						
○ Secondary																



THREAD MILLING

THROUGH COOLANT, CHAMFER, NPT


MG
HM

BSG
EUROPA
STD

FHA 15°

CNSC 1

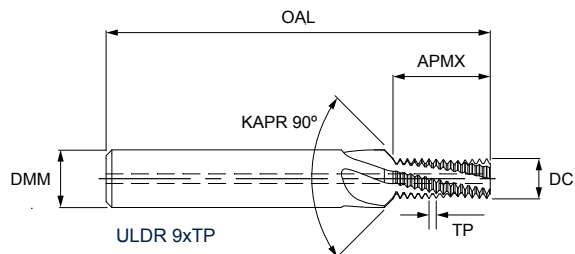
TCDMM
h6

THFT
NPT60

TiAIN
COATED

Series No. 196323

► cutting conditions : p.23-24

Shank to DIN6535HA
Helix angle : 15°
Thread length : 9xTP
90° countersink


EUROPA CODE ORDCODE	NOMINAL DIA. TD	TPI TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NO. OF FLUTES NOF
1963230040	1/16	27	5.9	64	8.9	10	3
1963230080	1/8	27	7.8	70	8.9	12	4
1963230160	1/4	18	10.05	81	13.4	16	4
1963230240	3/8	18	13.45	81	13.4	18	4

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary ○ Secondary	●	●	●	○	○	●	●	●	●	●			○	○		



THROUGH COOLANT, CHAMFER, METRIC

MG
HM

BSG
EUROPA
STD

TiAIN
COATED

Series No. 192323

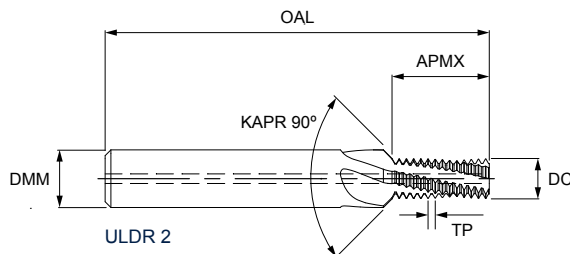
► cutting conditions : p.23-24

Shank to DIN6535HA

Helix angle : 15°

Thread length : 2xDC

90° countersink



EUROPA CODE ORDCODE	NOMINAL DIA. TD	PITCH TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NO. OF FLUTES NOF
1923230600	M6	1.0	4.8	62	12.4	8	3
1923230800	M8	1.25	6.5	74	16.8	10	3
1923231000	M10	1.5	8.2	80	20.15	12	4
1923231200	M12	1.75	9.9	90	25.25	14	4
1923231400	M14	2.0	11.6	100	28.85	16	4
1923231600	M16	2.0	13.6	102	32.85	18	4

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary	●	●	●	○	○	●	●	●	●	●			○	○		
○ Secondary				●	●											



THREAD MILLING

THROUGH COOLANT, CHAMFER, METRIC FINE


MG
HM

BSG
EUROPA
STD

FHA 15°

CNSC 1

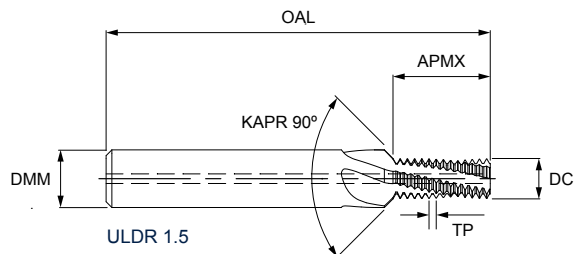
TCDMM
h6

THFT
M60

TiAIN
COATED

Series No. 193323

► cutting conditions : p.23-24

Shank to DIN6535HA
Helix angle : 15°
Thread length : 1.5xDC
90° countersink


EUROPA CODE ORDCODE	NOMINAL DIA. TD	PITCH TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NO. OF FLUTES NOF
1933230801	M8	1.0	6.7	74	12.4	10	3
1933231000	M10	1.25	8.3	80	15.9	12	4
1933231001	M10	1.0	8.7	80	15.4	12	4
1933231200	M12	1.5	10.0	90	18.65	14	4
1933231201	M12	1.25	10.3	80	18.3	14	4
1933231202	M12	1.0	10.7	90	18.4	14	4
1933231400	M14	1.5	12.0	100	21.65	16	4
1933231600	M16	1.5	14.0	102	24.65	18	5

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary ○ Secondary	●	●	●	○	○	●	●	●	●	●			○	○		



THROUGH COOLANT, CHAMFER, UNC

MG
HM

BSG
EUROPA
STD

FHA 15°

CNSC 1

TCDMM
h6

THFT
UN60

TiAIN
COATED

Series No. 194323

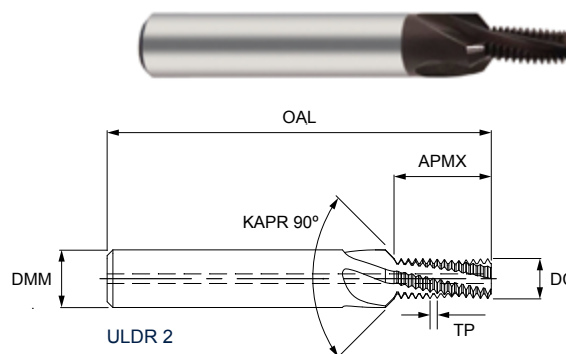
► cutting conditions : p.23-24

Shank to DIN6535HA

Helix angle : 15°

Thread length : 2xDC

90° countersink



EUROPA CODE ORDCODE	NOMINAL DIA. TD	TPI TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NO. OF FLUTES NOF
1943230160	1/4	20	4.8	62	13.3	8	3
1943230200	5/16	18	6.2	74	16.18	10	3
1943230240	3/8	16	7.6	80	19.8	12	4
1943230280	7/16	14	8.9	80	22.62	12	4
1943230320	1/2	13	10.3	90	26.32	14	4
1943230360	9/16	12	11.7	100	30.63	16	4
1943230400	5/8	11	13.1	102	33.41	18	4
1943230480	3/4	10	16.0	110	39.29	20	5

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary ○ Secondary	●	●	●	○	○	●	●	●	●	●			○	○		



THREAD MILLING

THROUGH COOLANT, CHAMFER, UNF


MG
HM

BSG
EUROPA
STD

FHA 15°

CNSC 1

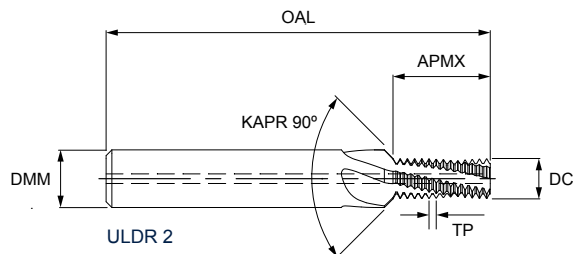
TCDMM
h6

THFT
UN60

TiAIN
COATED

Series No. 195323

► cutting conditions : p.23-24

Shank to DIN6535HA
Helix angle : 15°
Thread length : 1.5xDC
90° countersink


EUROPA CODE ORDCODE	NOMINAL DIA. TD	TPI TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NO. OF FLUTES NOF
1953230160	1/4	28	5.1	62	13.21	8	3
1953230200	5/16	24	6.5	74	16.37	10	3
1953230240	3/8	24	8.1	80	19.54	12	4
1953230280	7/16	20	9.4	80	22.19	12	4
1953230320	1/2	20	11.0	90	26	14	4
1953230360	9/16	18	12.4	100	28.88	16	4
1953230400	5/8	18	14.0	102	33.12	18	5
1953230480	3/4	16	17.0	110	38.86	20	5

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary ○ Secondary	●	●	●	○	○	●	●	●	●	●			○	○		



THROUGH COOLANT METRIC

MG
HM

BSG
EUROPA
STD

FHA 15°

CNSC 1

TCDDMM
h6

THFT
M60

TiAIN
COATED

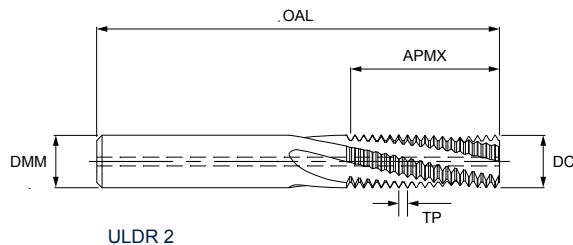
Series No. 190323

► cutting conditions : p.23-24

Shank to DIN6535HA

Helix angle : 15°

Thread length : 2xDC



EUROPA CODE ORDCODE	NOMINAL DIA. TD	PITCH TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NO. OF FLUTES NOF
1903230600	M6	1.0	4.5	57	13	6	3
1903230800	M8	1.25	6	65	17.5	6	3
1903231000	M10	1.5	7.5	72	21	8	4
1903231200	M12	1.75	9.5	80	26.25	10	4
1903231400	M14	2.0	10	83	30	10	4
1903231600	M16	2.0	12	92	34	12	4
1903232000	M20	2.5	16	105	42.5	16	5

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary ○ Secondary	●	●	●	○	○	●	●	●	●	●			○	○		



THREAD MILLING

THROUGH COOLANT METRIC FINE


MG
HM

BSG
EUROPA
STD

FHA 15°

CNSC 1

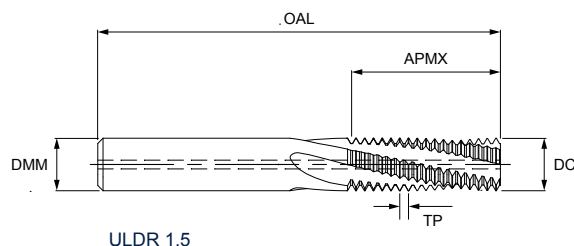
TCDMM
h6

THFT
M60

TiAIN
COATED

Series No. 191323

► cutting conditions : p.23-24

Shank to DIN6535HA
Helix angle : 15°
Thread length : 1.5xDC


EUROPA CODE ORDCODE	NOMINAL DIA. TD	PITCH TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NO. OF FLUTES NOF
1913230800	M8	1.0	6	57	13	6	3
1913230801	M8	0.75	6	57	12.75	6	3
1913231000	M10	1.0	8	63	16	8	4
1913231200	M12	1.5	9.5	72	19.5	10	4
1913231201	M12	1.25	9.5	72	18.75	10	4
1913231202	M12	1.0	9.5	72	19	10	4
1913231400	M14	1.5	10	83	22.5	10	4
1913231401	M14	1.0	10	83	22	10	4
1913231600	M16	1.5	12	83	25.5	12	4
1913231601	M16	1.0	12	83	25	12	4
1913231800	M18	1.5	14	92	28.5	14	5
1913231801	M18	1.0	14	92	28	14	5
1913232000	M20	1.5	16	92	31.5	16	5
1913232001	M20	1.0	16	92	31	16	5

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary ○ Secondary	●	●	●	○	○	●	●	●	●	●			○	○		



THROUGH COOLANT BSP

MG
HMBSG
EUROPA
STDTiAIN
COATED

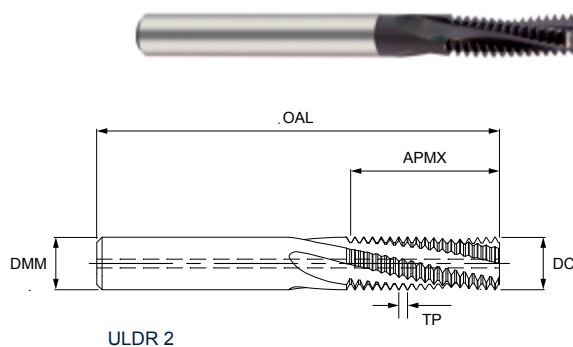
Series No. 183523

► cutting conditions : p.23-24

Shank to DIN6535HA

Helix angle : 15°

Thread length : 2xDC



EUROPA CODE ORDCODE	NOMINAL DIA. TD	TPI TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NO. OF FLUTES NOF
1835230040	1/16	28	5.9	65	16.3	6	3
1835230080	1/8	28	7.9	70	20.0	8	4
1835230160	1/4	19	9.9	80	26.7	10	4
1835230240	3/8	19	13.9	92	33.4	14	4
1835230320	1/2	14	15.9	104	43.5	16	5
1835230480	3/4	14	17.9	100	34.5	18	5
1835230640	1	11	19.9	100	34.6	20	5

SOLID BSP

MG
HMBSG
EUROPA
STDTiAIN
COATED

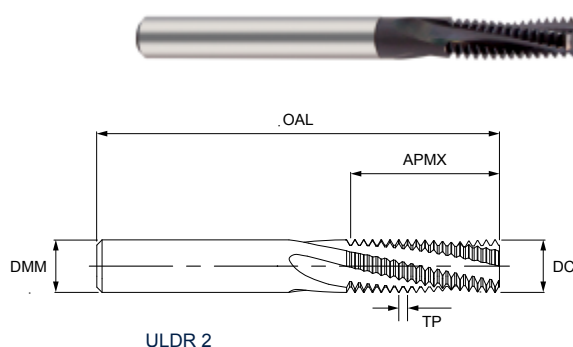
Series No. 183623

► cutting conditions : p.23-24

Shank to DIN6535HA

Helix angle : 15°

Thread length : 2xDC



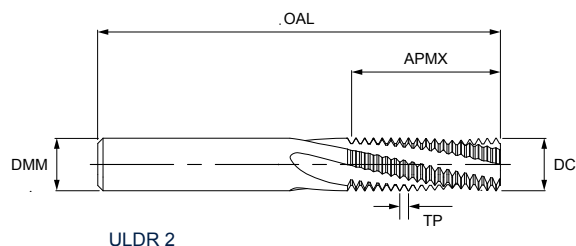
EUROPA CODE ORDCODE	NOMINAL DIA. TD	TPI TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NO. OF FLUTES NOF
1836230320	1/2-3/4	14	15.9	100	19.96	16	4

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary	●	●	●	○	○	●	●	●	●	●			○	○		
○ Secondary																



THREAD MILLING

SOLID NPT


**MG
HM**
**BSG
EUROPA
STD**
FHA 15°
CNSC 0
**TCDMM
h6**
**THFT
NPT60**
**TiAIN
COATED**

Series No. 183423

► cutting conditions : p.23-24

 Shank to DIN6535HA
 Helix angle : 15°
 Thread length : 2xDC

EUROPA CODE ORDCODE	NOMINAL DIA. TD	TPI TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NO. OF FLUTES NOF
1834230080	1/8	27	7.6	60	9.41	8	4
1834230160	1/4-3/8	18	9.9	70	14.1	10	4
1834230320	1/2-3/4	14	15.9	100	19.96	16	4
1834230640	1-2.1/2	11.5	15.9	100	26.5	16	4

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary ○ Secondary	●	●	●	○	○	●	●	●	●	●			○	○		



SOLID METRIC

MG
HM

BSG
EUROPA
STD

TiAIN
COATED

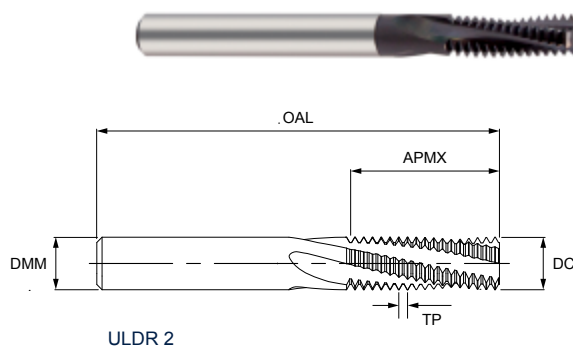
Series No. 180323

► cutting conditions : p.23-24

Shank to DIN6535HA

Helix angle : 15°

Thread length : 2xDC



EUROPA CODE ORDCODE	NOMINAL DIA. TD	PITCH TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NO. OF FLUTES NOF
1803230300	M3	0.5	2.2	57	5	6	3
1803230400	M4	0.7	2.9	57	7	6	3
1803230500	M5	0.8	3.8	57	8	6	3
1803230600	M6	1.0	4.5	57	13	6	3
1803230800	M8	1.25	6.0	65	17.5	6	3
1803231000	M10	1.5	7.5	72	21	8	4
1803231200	M12	1.75	9.5	80	26.25	10	4
1803231400	M14	2.0	10.0	83	30	10	4
1803231600	M16	2.0	12.0	92	34	12	4

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary ○ Secondary	●	●	●	○	○	●	●	●	●	●			○	○		



SOLID METRIC FINE


MG
HM

BSG
EUROPA
STD

FHA 15°

CNSC 0

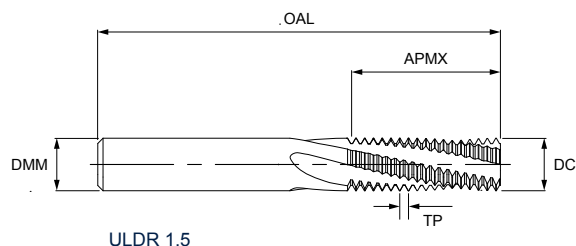
TCDMM
h6

THFT
M60

TiAIN
COATED

Series No. 181323

► cutting conditions : p.23-24

Shank to DIN6535HA
Helix angle : 15°
Thread length : 1.5xDC


EUROPA CODE ORDCODE	NOMINAL DIA. TD	PITCH TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NO. OF FLUTES NOF
1813230800	M8	1.0	6.0	57	13	6	3
1813230801	M8	0.75	6.0	57	12.75	6	3
1813231000	M10	1.0	8.0	63	16	8	4
1813231200	M12	1.5	9.5	72	19.5	10	4
1813231201	M12	1.25	9.5	72	18.75	10	4
1813231202	M12	1.0	9.5	72	19	10	4
1813231400	M14	1.5	10.0	83	22.5	10	4
1813231401	M14	1.0	10.0	83	22	10	4
1813231600	M16	1.5	12.0	83	25.5	12	4
1813231601	M16	1.0	12.0	83	25	12	4
1813231800	M18	1.5	14.0	92	28.5	14	5
1813231801	M18	1.0	14.0	92	28	14	5
1813232000	M20	1.5	16.0	92	31.5	16	5
1813232001	M20	1.0	16.0	92	31	16	5

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary	●	●	●	○	○	●	●	●	●	●			○	○		
○ Secondary				●	●											



SOLID UNC

MG
HM

BSG
EUROPA
STD



TiAIN
COATED

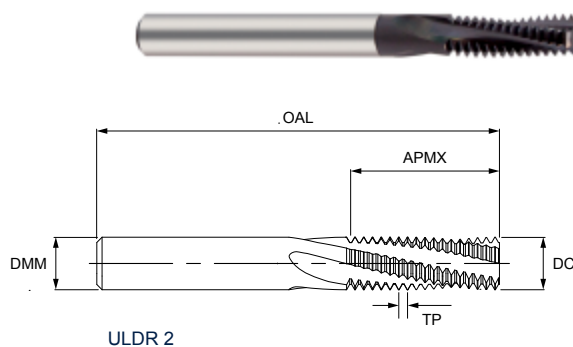
Series No. 182323

► cutting conditions : p.23-24

Shank to DIN6535HA

Helix angle : 15°

Thread length : 2xDC



EUROPA CODE ORDCODE	NOMINAL DIA. TD	TPI TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NO. OF FLUTES NOF
1823230160	1/4	20	4.5	57	14	6	3
1823230200	5/16	18	5.8	65	16.9	6	3
1823230240	3/8	16	7.0	72	20.6	8	4
1823230280	7/16	14	8.0	72	23.6	8	4
1823230320	1/2	13	9.5	80	27.4	10	4
1823230360	9/16	12	10.0	83	31.8	10	4
1823230400	5/8	11	12.0	92	34.6	12	4
1823230480	3/4	10	14.0	104	40.6	14	5
1823230560	7/8	9	15.9	100	39.51	16	4
1823230640	1"	8	19.2	120	38.1	20	4
1823230720	1.1/8	7	19.9	120	43.54	20	4

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary ○ Secondary	●	●	●	○	○	●	●	●	●	●			○	○		



THREAD MILLING

SOLID UNF



MG
HM

BSG
EUROPA
STD

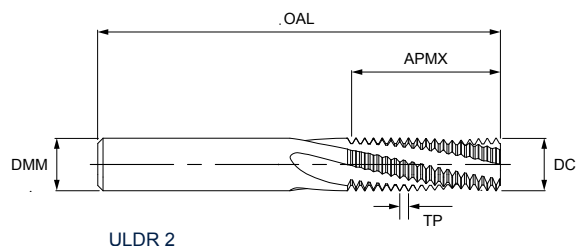
FHA 15°

CNSC 0

TCDMM
h6

THFT
UN60

TiAIN
COATED



Series No. 183323

► cutting conditions : p.23-24

Shank to DIN6535HA
Helix angle : 15°
Thread length : 2xDC

EUROPA CODE ORDCODE	NOMINAL DIA. TD	TPI TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NO. OF FLUTES NOF
1833230160	1/4	28	5.0	57	13.6	6	3
1833230200	5/16	24	6.0	65	16.9	6	3
1833230240	3/8	24	8.0	72	20.1	8	4
1833230280	7/16	20	8.0	72	24.1	8	4
1833230320	1/2	20	10.0	80	26.7	10	4
1833230360	9/16	18	12.0	83	29.6	12	4
1833230400	5/8	18	12.0	92	33.9	12	4
1833230480	3/4	16	14.0	104	39.7	14	5
1833230560	7/8	14	15.9	100	39.91	16	4
1833230640	1-1.1/2	12	15.9	100	38.1	16	4

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary ○ Secondary	●	●	●	○	○	●	●	●	●	●			○	○		



MINIATURE METRIC

MG
HMBSG
EUROPA
STDTiAIN
COATED

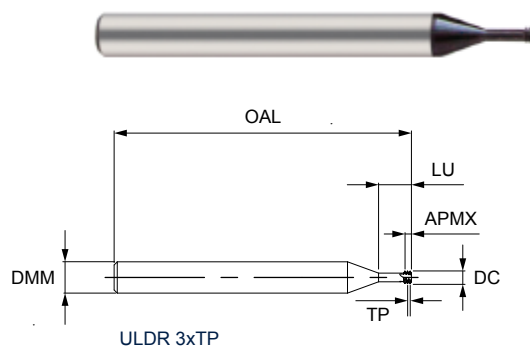
Series No. 186323

► cutting conditions : p.23-24

Shank to DIN6535HA

Helix angle : 15°

Thread length : 3xTP



EUROPA CODE ORDCODE	NOMINAL DIA. TD	PITCH TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NECK LENGTH LU	NO. OF FLUTES NOF
1863230160	M1.6	0.35	1.18	30	1.05	3	3.4	3
1863230200	M2	0.4	1.52	57	1.2	6	4.2	3
1863230220	M2.2	0.45	1.66	57	1.35	6	4.6	3
1863230250	M2.5	0.45	1.96	57	1.35	6	5.3	3
1863230300	M3	0.5	2.4	57	1.5	6	6.3	3
1863230400	M4	0.7	3.16	57	2.1	6	8.4	3
1863230500	M5	0.8	4.04	57	2.4	6	10.5	3
1863230600	M6	1	4.8	57	3	6	12.6	3
1863230800	M8	1.25	6.5	63	3.75	8	16.8	3
1863231000	M10	1.5	8.2	73	4.5	10	21	3
1863231200	M12	1.75	9.9	73	5.25	10	25.2	3

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary ○ Secondary	●	●	●	○	○	●	●	●	●	●			○	○		



MINIATURE METRIC <HRC62


MG
HM

BSG
EUROPA
STD

FHA 0°

CNSC 0

TCDMM
h6

THFT
M60

TiAIN
COATED

Series No. 188323

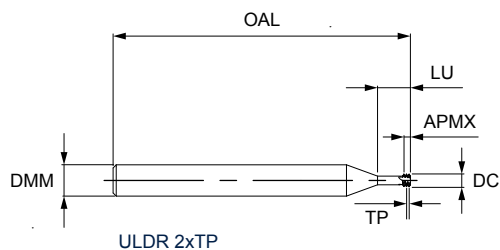
► cutting conditions : p.23-24

Shank to DIN6535HA

Straight flute

Thread length : 2xTP

Left hand cut (M04)

For hard materials up to HRC62


EUROPA CODE ORDCODE	NOMINAL DIA. TD	PITCH TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NECK LENGTH LU	NO. OF FLUTES NOF
1883230200	M2	0.4	1.52	57	0.8	6	4.2	4
1883230220	M2.2	0.45	1.66	57	0.9	6	4.6	4
1883230250	M2.5	0.45	1.96	57	0.9	6	5.3	4
1883230300	M3	0.5	2.4	57	1.0	6	6.3	4
1883230400	M4	0.7	3.16	57	1.4	6	8.4	4
1883230500	M5	0.8	4.04	57	1.6	6	10.5	4
1883230600	M6	1.0	4.8	57	2.0	6	12.6	5
1883230800	M8	1.25	6.5	63	2.5	8	16.8	5
1883231000	M10	1.5	8.2	73	3.0	10	21.0	6
1883231200	M12	1.75	9.9	73	3.5	10	25.2	6

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary ○ Secondary	○	○	○	○	○	●	●						●	○	●	●



MINIATURE UNC

MG
HM

BSG
EUROPA
STD



TiAIN
COATED



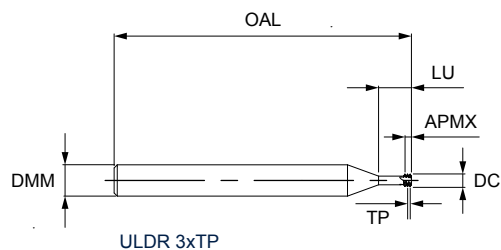
Series No. 187323

► cutting conditions : p.23-24

Shank to DIN6535HA

Helix angle : 15°

Thread length : 3xTP



EUROPA CODE ORDCODE	NOMINAL DIA. TD	TPI TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NECK LENGTH LU	NO. OF FLUTES NOF
1873230100	No.1	64	1.38	57	1.19	6	3.9	3
1873230200	No.2	56	1.64	57	1.36	6	4.6	3
1873230400	No.4	40	2.08	57	1.91	6	6	3
1873230600	No.6	32	2.55	57	2.38	6	7.4	3
1873230800	No.8	32	3.21	57	2.38	6	8.7	3
1873231000	No.10	24	3.56	57	3.18	6	10.1	3
1873231200	No.12	24	4.22	57	3.18	6	11.5	3
1873230160	1/4	20	4.83	57	3.81	6	13.3	3
1873239200	5/16	18	6.24	63	4.23	8	16.7	3
1873230240	3/8	16	7.62	63	4.76	8	20	3
1873230280	7/16	14	8.94	73	5.44	10	23.3	3

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary ○ Secondary	●	●	●	○	○	●	●	●	●	●			○	○		



THREAD MILLING

MINIATURE UNC <HRC62


MG
HM

BSG
EUROPA
STD


Series No. 189323

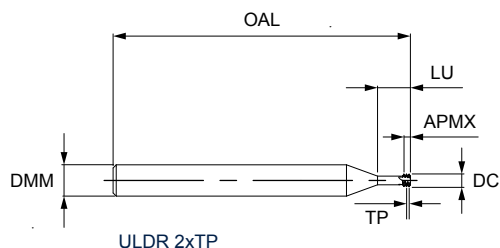
► cutting conditions : p.23-24

Shank to DIN6535HA

Straight flute

Thread length : 2xTP

Left hand cut (M04)

For hard materials up to HRC62


EUROPA CODE ORDCODE	NOMINAL DIA. TD	TPI TP	CUTTER DIA. DC	O/ALL LENGTH OAL	THREAD LENGTH APMX	SHANK DIA. DMM	NECK LENGTH LU	NO. OF FLUTES NOF
1893230200	No.2	56	1.64	57	0.91	6	4.6	4
1893230400	No.4	40	2.08	57	1.27	6	6.0	4
1893230600	No.6	32	2.55	57	1.59	6	7.4	4
1893230800	No.8	32	3.21	57	1.59	6	8.7	4
1893231000	No.10	24	3.56	57	2.12	6	10.1	4
1893231200	No.12	24	4.22	57	2.12	6	11.5	4
1893230160	1/4	20	4.83	57	2.54	6	13.3	5
1893239200	5/16	18	6.24	63	2.82	8	16.7	5
1893230240	3/8	16	7.62	63	3.18	8	20.0	6
1893230280	7/16	14	8.94	73	3.63	10	23.3	6

ISO	P			M		K		N					S		H	
VDI GROUP	1-5	6-9	10-11	12, 13	14	15-16	17-20	21-25	26-28	29.1	29.2	30	31-35	36-37	38-39	40-41
● Primary ○ Secondary	○	○	○	○	○	●	●						●	○	●	●



THREAD MILL CUTTING DATA

Through Coolant, Solid and Miniature Thread Mills

VDI MATERIAL GROUP			HRc	vc (m/min)	fz (mm/tooth)		VDI MATERIAL GROUP		HRc	vc (m/min)	fz (mm/tooth)		
					Cutter diameter ≤ Ø8.0	Cutter diameter > Ø8.0					Cutter diameter ≤ Ø8.0	Cutter diameter > Ø8.0	
P	1-5	Non-alloy Steel	<25	100 (80-120)	0.03 (0.02 - 0.04)	0.07 (0.04 - 0.1)	N	21-25	Aluminium & Aluminium alloys		200 (100-300)	0.05 (0.03 - 0.07)	0.075 (0.05 - 0.1)
	6-9	Low alloy Steel	25-35	100 (80-120)	0.03 (0.02 - 0.04)	0.07 (0.04 - 0.1)		26-28	Copper & Copper alloys		200 (100-300)	0.05 (0.03 - 0.07)	0.075 (0.05 - 0.1)
	10-11	High alloy Steel, Tool Steel	35-45	80 (60-100)	0.03 (0.02 - 0.04)	0.07 (0.04 - 0.1)		29.1	Thermosetting Plastics, Acrylics		200 (100-300)	0.05 (0.03 - 0.07)	0.075 (0.05 - 0.1)
M	12-14	Stainless Steel		60 (40-80)	0.015 (0.01 - 0.02)	0.04 (0.02 - 0.06)	S	31-35	HRSA Fe & Ni/Co Based		40 (20-60)	0.015 (0.01 - 0.02)	0.04 (0.02 - 0.06)
K	15-20	Cast Iron		75 (50-100)	0.03 (0.02 - 0.04)	0.07 (0.04 - 0.1)		36-37	Titanium & Titanium alloys		40 (20-60)	0.015 (0.01 - 0.02)	0.04 (0.02 - 0.06)

Miniature Thread Mills <HRc62

VDI MATERIAL GROUP			HRc	vc (m/min)	fz (mm/tooth)		VDI MATERIAL GROUP			HRc	vc (m/min)	fz (mm/tooth)	
					Cutter diameter ≤ Ø8.0	Cutter diameter > Ø8.0						Cutter diameter ≤ Ø8.0	Cutter diameter > Ø8.0
P	6-9	Low alloy Steel	25-35	100 (80-120)	0.03 (0.02 - 0.04)	0.05 (0.04 - 0.06)	S	36-37	Titanium & Titanium alloys		40 (20-60)	0.025 (0.02 - 0.03)	0.04 (0.03 - 0.05)
	10-11	High alloy Steel, Tool Steel	35-45	100 (80-120)	0.03 (0.02 - 0.04)	0.05 (0.04 - 0.06)		38	Hardened Steel	40-55	45 (25-70)	0.04 (0.03 - 0.05)	0.06 (0.05 - 0.07)
M	12-14	Stainless Steel		60 (40-80)	0.03 (0.02 - 0.04)	0.05 (0.04 - 0.06)		39	Hardened Steel	55-62	40 (25-60)	0.03 (0.02 - 0.04)	0.05 (0.04 - 0.06)
K	15-20	Cast Iron		75 (50-100)	0.04 (0.03 - 0.05)	0.06 (0.05 - 0.07)		40	Chilled Cast Iron	≤42	45 (25-70)	0.02 (0.01 - 0.03)	0.04 (0.03 - 0.05)
S	31-35	HRSA Fe & Ni/Co Based		40 (20-60)	0.025 (0.02 - 0.03)	0.04 (0.03 - 0.05)		41	Hardened Cast Iron	≤55	45 (25-70)	0.02 (0.01 - 0.03)	0.04 (0.03 - 0.05)



THREAD MILL CUTTING DATA

Drill and Chamfer Thread Mills							
VDI MATERIAL GROUP		HRC	V _c (m/min)	Thread milling f _z (mm/tooth)		Drilling f _n (mm/rev)	
				Cutter diameter ≤ Ø8.0	Cutter diameter > Ø8.0	Cutter diameter ≤ Ø8.0	Cutter diameter > Ø8.0
K	15-20	Cast Iron	115 (80-150)	0.055 (0.03 - 0.08)	0.1 (0.08 - 0.12)	0.15 (0.1 - 0.2)	0.225 (0.2 - 0.25)
N	21-25	Aluminium & Aluminium alloys	200 (100-300)	0.075 (0.05 - 0.1)	0.125 (0.1 - 0.15)	0.15 (0.1 - 0.2)	0.25 (0.2 - 0.3)
	26-28	Copper & Copper alloys	200 (100-300)	0.075 (0.05 - 0.1)	0.125 (0.1 - 0.15)	0.15 (0.1 - 0.2)	0.25 (0.2 - 0.3)
	29.1	Thermosetting Plastics, Acrylics	115 (80-150)	0.075 (0.05 - 0.1)	0.125 (0.1 - 0.15)	0.15 (0.1 - 0.2)	0.25 (0.2 - 0.3)

Programme data.

G Codes for Thread Milling

G00 Fast Feed Linear	G41 Cutter Radius Compensation Left	M08 Coolant On
G01 Linear Movement	G42 Cutter Radius Compensation Right	X Horizontal Co-ordinate
G02 Circular/Helical Interpolation C.W.	G43 Tool Length Compensation Plus	Y Horizontal Co-ordinate
G03 Circular/Helical Interpolation A.C.W.	G49 Tool Length Compensation Cancel	Z Vertical Co-ordinate
G17 X, Y Plane (Vertical Machining)	G90 Absolute Command	I X Co-ordinate to Center of Arc Travel
G18 Z, X Plane (Horizontal Machining)	G91 Incremental Command	J Y Co-ordinate to Center of Arc Travel
G19 Y, Z Plane (Using 90 Head)	M03 Clockwise Rotation of Spindle	S Spindle Speed R.P.M.
G40 Cutter Radius Compensation Cancel	M05 Spindle stop	F Feed mm/min

CNC Internal Thread Milling

```

G90      G00      X ·      Y ·      Z5      S ·
G91      G00      Z · (A3+2)
Y · (A5)
G41      G01      X · (A6)  F ·
G03      X · (A6)  Y · (A6)  Z · (A4)  I · (A6)  J0
G03      X0       Y0       Z · (A2)  I0       J · (A1)
G03      X · (A6)  Y · (A6)  Z · (A4)  I0       J · (A6)
G00      G40      X · (A6)  Y · (A5)
G90      Z5
  
```

Explanation of Parameters

A1 : 1/2 Nominal Thread Diameter 1/2D
 A2 : Thread Pitch
 A3 : Thread Depth
 A4 : 1/4P (for climb milling and right-hand thread)
 A5 : Beginning of Contour in Y 0.5xP
 A6 : Arc Off (A1 - A5)

Step 1

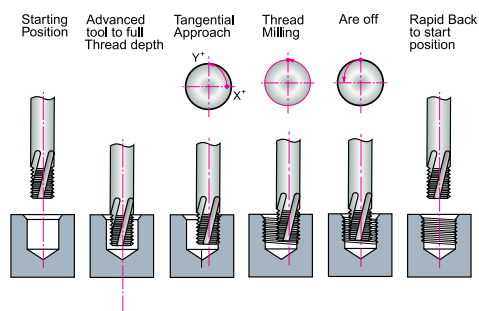
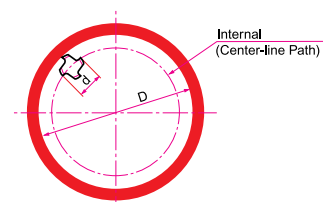
Calculate RPM from cutting speed: $n = \frac{v_c \cdot 1000}{\pi \cdot \varnothing}$

Step 2

Calculate feed per revolution: $f_1 = n \cdot f_z \cdot z$

Step 3

Calculate feed at tool centre line: $f_2 = \frac{f_1 \cdot (D - \varnothing)}{D}$



v_c - cutting speed (m/min)
 n - RPM (rev/min)
 f_z - feed rate (mm/tooth)
 f - feed rate (mm/rev)
 z - No. of teeth
 f₁ - feed at cutting edge
 f₂ - feed at centre line
 D - thread major diameter