

NORIS UNI ECO_{NOMICKÝ}

- optimalizovaná geometria pre univerzálne použitie
- dlhá životnosť vďaka HSSE-PM substrátu
- vysoká spoľahlivosť procesu
- excelentný pomer cena - výkon
- redukovávajú skládové zásoby - univerzálne použitie

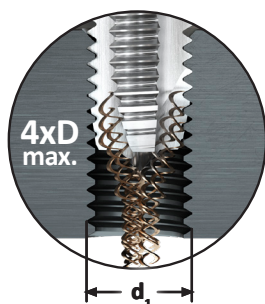
HSSE-PM

- Vysoká tvrdosť
 - Homogénna štruktúra
- vysoká odolnosť voči opotrebeniu → mimoriadna húževnatosť

TIN

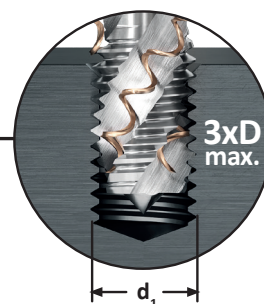
- vysoká odolnosť voči opotrebeniu
- univerzálne použitie

NORIS STABIL UNI ECO



Špeciálna geometria reznej hrany závitníkov NORIS STABIL pre priebežné otvory až do 4xD zabraňuje efektívne zacviknutiu špôn pri rezaní závitov.

NORIS SALOREX UNI ECO



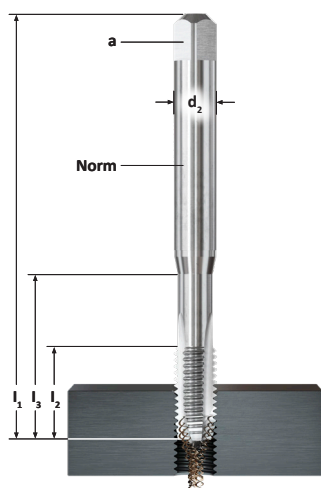
NORIS SALOREX závitník bol špeciálne vyvinutý pre rezanie závitov v slepom otvore až do 3xD. Vysoký sklon skrutkovice zaručuje výborný odvod špôn pri rezaní závitov.

PREHĽAD SORTIMENTU

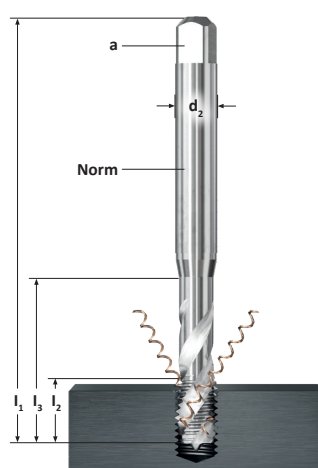
Odporúčané rezné rýchlosti (V_c - m/min) sú štandardné hodnoty a musia byť prispôbené individuálne podľa pracovných podmienok

1.1	Cold-extrusion steels	RFe40 RFe100 St 2 St 3 StW22 StW24 IF 18 DC03 DD11 DX53D CR2 HR2
1.2	Free-machining steels, construction steels	9 SMnPB 28 10 SPb 20 15 S 20 9 SMn 36 S355 15 Mo 3 16 Mo 5 14 Ni 6 13 CrMo 4 4 10 CrMo 9 10 14 MoV 6 3 St 37 St 44 St 50 St52
1.3	Construction steels, alloyed steels	S690 St60 St70 S960 60 S 20 21 CrMoV 5 7 12 Ni 19 17 Cr 3 C15 C22 GS-17 CrMo 5 5 GS-20 Mn MoNi 5 5
1.4	Heat-treat. steels, cold working steels	C45 Ck45 C60 Ck60 C70 36 CrNiMo 4 36 NiCr 6 42 CrMo 4 90 MnCrV 8 100 Cr 6 X6 CrMo 4 X153 CrMoV 12 X210 CrW 12
1.5	Heat-treat. steels, hot working steels	36 CrNiMo 4 36 NiCr 6 42 CrMo 4 39 CrMoV 13 9 34 CrAlNi 7 40 CrMnMoS 8 6 55 NiCrMoV 6 X32 CrMoV 3 3 X38 CrMoV 5 1 X20 CoCrWMo 10 9
R	CORROSION AND ACID PROOF STEELS	
1.1	Corrosion and acid proof steels	X6 Cr 17 X2 CrMoTi 18 2 X5 CrNi 18 9 X5 CrNiMo 18 10 X5 CrNi 18 12 X8 CrNi 25 21 X12 CrNi 23 13 X2 CrNiMo 17 13 2 X6 CrNiMoTi 17 12 2
1.2	Corrosion and acid proof steels	X13 Cr 13 X50 CrMoV 15 X80 CrNiSi 20 X2 CrNiN 23 4 X39 CrMo 17 1 X4 CrNiMo 16 5 1 X105 CrMo 17 X4 CrNiCuNb 16 4
1.3	Corrosion and acid proof steels	X5 CrNiCuNb 16 4 X7 CrNiAl 17 7 X2 CrNiMoN 22 5 3 X2 CrNiMoN 25 7 4 X2 CrNiMoCuN 25 6 3
F	CAST MATERIALS	
1.1	Cast iron	GG15 / EN-GJL-150 GG20 / EN-GJL-200 GG25 / EN-GJL-250 GG30 / EN-GJL-300
1.2	Cast iron with nodular graphite	GGG40 / EN-GJS-400-15 GGG50 / EN-GJS-500-7 GGG60 / EN-GJS-600-2 GGG70 / EN-GJS-700-2 GGG80 / EN-GJS-800-7 GGG90 / EN-GJS-900-4
1.3	Cast iron with vermicular graphite	GGV-300 / EN-GJV 300 GGV 350 / EN-GJV 350 GGV 400 / EN-GJV 400 GGV 450 / EN-GJV 450 GGV 500 / EN-GJV 500 GGV 550 / EN-GJV 550
2.1	Malleable cast iron	EN-GJMW-350-04 EN-GJMW-450-07 EN-GJMW-550-04 EN-GJMB-350-10 EN-GJMB-450-06 EN-GJMB-550-04 EN-GJMB-650-02 EN-GJMB-800-01
3.1	Hard castings up to 400 HB	GJH-X 260 NiCr 4 2 GJH-X 330 NiCr 4 2 GJH-X CrNiSi 9 5 2 GJH-X 300 CrMo 15 3 ADI 800 / EN-GJS-800-8 ADI 1000 / EN-GJS-1000-5
N	NON FERROUS MATERIALS	
1.1	Aluminium wrought alloys	Al99,9 Al99,8 Al99,7 Al99,5 Al99 AlMn0,5Mg0,5 AlMn1 AlMn1Mg0,5 AlMg1 AlMg3 AlSiMg4,5Mn
1.2	Aluminium wrought alloys	AlMgSi1 AlCuBiPb AlCuMg1 AlCuSiMn AlMg1SiCu AlZnMgCu0,5 AlZnMgCu1,5 AlCu4PbMg
1.3	Aluminium cast alloys (long-chipping)	G-AlSi5Cu1Mg G-AlCu4MgTi G-AlMg3Si GD-ALMG9 GD-ALMG3
1.4	Aluminium cast alloys	G-AlSi7Mg G-AlSi9Mg G-AlSi9Cu3 G-AlSi10Mg G-AlSi10Mg(Cu) G-AlSi12 G-AlSi12(Cu)
1.5	Aluminium cast alloys (short-chipping)	G-AlSi12,5MgCuNi G-AlSi17Cu4Mg G-AlSi18CuNiMg G-AlSi21CuNiMg G-AlSi25CuNiMg
2.1	Pure copper	CuZn15 CuZn30 E-Cu58 CuBe2Pb CuBe2 CuNi2Be CuZr
2.2	Copper-zinc alloys (brass) (long-chip.)	CuZn37 Ms63 / CuZn36Pb1,5 Ms60 / CuZn40 CuZn36Pb2As CuZn36Pb3 Ms63 / CuZn37Pb0,5
2.3	Copper-zinc alloys (brass) (short-chip.)	Ms58 / CuZn39Pb3 ECOBRASS / CuZn21Si3P Ms58 / CuZn39Pb2 CuZn40Mn1Pb Ms58 / CuZn40Pb2
2.4	Copper-alum./Copper-nickel-alloys (long-chip.)	CuAl8Fe3 CuNi10Fe1Mn AMPCO 8
2.5	Copper-alum./Copper-nickel-alloys (short-chip.)	AMPCO 21 AMPCO 25 AMPCO 45 AMPCO M4 CuAl10Fe5Ni5-C CuAl10Ni5Fe4 CuNi9Sn2
2.6	Copper-Tin alloys (bronze) (long-chip.)	CuSn4 CuSn8P CuSn7Zn2Pb3 Rg7 / CuSn7Zn4Pb7 Rg10 / G-CuSn10Zn CuSn4 CuSn8
2.7	Copper-Tin alloys (bronze) (short-chip.)	CuSn3Zn8Pb5 Rg5 / CuSn5Zn5Pb5 CuSn10-C CuSn12Ni2-C
3.1	Magnesium wrought alloys	ENMG-P-63 / MgAl6Zn ENMB-21120 / G-MgAl9Zn1 ENMG-P-62 / MgAl3Zn ENMG-P-63 / MgAl6Zn ENMG-P-43 / MgZn3Zr MgZn6Zr
3.2	Zinc alloys	Z400 / ZnAl4 Z410 / ZnAl4Cu1 Z430 / ZnAl4Cu3
4.1	Duroplastics (short-chipping)	Bakelit Pertinax
4.2	Thermoplastics (long-chipping)	PMMA / POM / PVC
4.3	Fibre-reinforced synthetics	GFK CFK unidirektional CFK multidirektional AFK

NORIS STABIL UNI ECO



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SURFACE										TIN
MATERIAL										HSSE-PM
CHAMFER FORM										B / 4-5
d ₁	P		NORM	l ₁	l ₂	l ₃	d ₂	a		ISO2
M 3	0,5	2,5	DIN 371	56	11	18	3,5	2,7		6ED0D00001
M 4	0,7	3,3	DIN 371	63	13	21	4,5	3,4		6ED0D00002
M 5	0,8	4,2	DIN 371	70	15	25	6	4,9		6ED0D00003
M 6	1	5,0	DIN 371	80	17	30	6	4,9		6ED0D00004
M 8	1,25	6,8	DIN 371	90	20	35	8	6,2		6ED0D00005
M 10	1,5	8,5	DIN 371	100	22	39	10	8		6ED0D00006
M 12	1,75	10,2	DIN 376	110	24	-	9	7		7ED0D00007
M 16	2	14,0	DIN 376	110	27	-	12	9		7ED0D00008
M 20	2,5	17,5	DIN 376	140	32	-	16	12		7ED0D00009
M 24	3	21,0	DIN 376	160	34	-	18	14,5		7ED0D00010

SURFACE										TIN
MATERIAL										HSSE-PM
CHAMFER FORM										C / 2-3
d ₁	P		NORM	l ₁	l ₂	l ₃	d ₂	a		ISO2
M 3	0,5	2,5	DIN 371	56	5	18	3,5	2,7		6ES2D00001
M 4	0,7	3,3	DIN 371	63	7	21	4,5	3,4		6ES2D00002
M 5	0,8	4,2	DIN 371	70	8	25	6	4,9		6ES2D00003
M 6	1	5	DIN 371	80	10	30	6	4,9		6ES2D00004
M 8	1,25	6,8	DIN 371	90	14	35	8	6,2		6ES2D00005
M 10	1,5	8,5	DIN 371	100	16	39	10	8		6ES2D00006
M 12	1,75	10,2	DIN 376	110	18	-	9	7		7ES2D00007
M 16	2	14	DIN 376	110	22	-	12	9		7ES2D00008
M 20	2,5	17,5	DIN 376	140	25	-	16	12		7ES2D00009
M 24	3	21	DIN 376	160	30	-	18	14,5		7ES2D00010

Vc (m/min)	
< 400 N/mm ²	15 - 18
< 600 N/mm ²	12 - 15
< 850 N/mm ²	10 - 12
< 1100 N/mm ²	8 - 10
< 1400 N/mm ²	

Vc (m/min)	
< 850 N/mm ²	8 - 10
< 1100 N/mm ²	6 - 8
< 1400 N/mm ²	

Vc (m/min)	
< 400 N/mm ²	15 - 20
< 1000 N/mm ²	12 - 15
< 500 N/mm ²	10 - 12
< 800 N/mm ²	15 - 20
< 1400 N/mm ²	

Vc (m/min)	
< 350 N/mm ²	12 - 15
< 600 N/mm ²	12 - 15
< 5% Si	12 - 15
5%-12% Si	10 - 12
> 12% Si	
< 500 N/mm ²	
< 600 N/mm ²	12 - 15
< 600 N/mm ²	
< 880 N/mm ²	6 - 15
< 880 N/mm ²	
< 800 N/mm ²	6 - 15
< 500 N/mm ²	
< 600 N/mm ²	

Vc (m/min)	
< 400 N/mm ²	15 - 18
< 600 N/mm ²	12 - 15
< 850 N/mm ²	10 - 12
< 1100 N/mm ²	8 - 10
< 1400 N/mm ²	

Vc (m/min)	
< 850 N/mm ²	8 - 10
< 1100 N/mm ²	6 - 8
< 1400 N/mm ²	

Vc (m/min)	
< 400 N/mm ²	15 - 20
< 1000 N/mm ²	12 - 15
< 500 N/mm ²	10 - 12
< 800 N/mm ²	15 - 20
< 1400 N/mm ²	

Vc (m/min)	
< 350 N/mm ²	12 - 15
< 600 N/mm ²	12 - 15
< 5% Si	12 - 15
5%-12% Si	10 - 12
> 12% Si	
< 500 N/mm ²	
< 600 N/mm ²	12 - 15
< 600 N/mm ²	
< 880 N/mm ²	6 - 15
< 880 N/mm ²	
< 800 N/mm ²	6 - 15
< 500 N/mm ²	
< 600 N/mm ²	