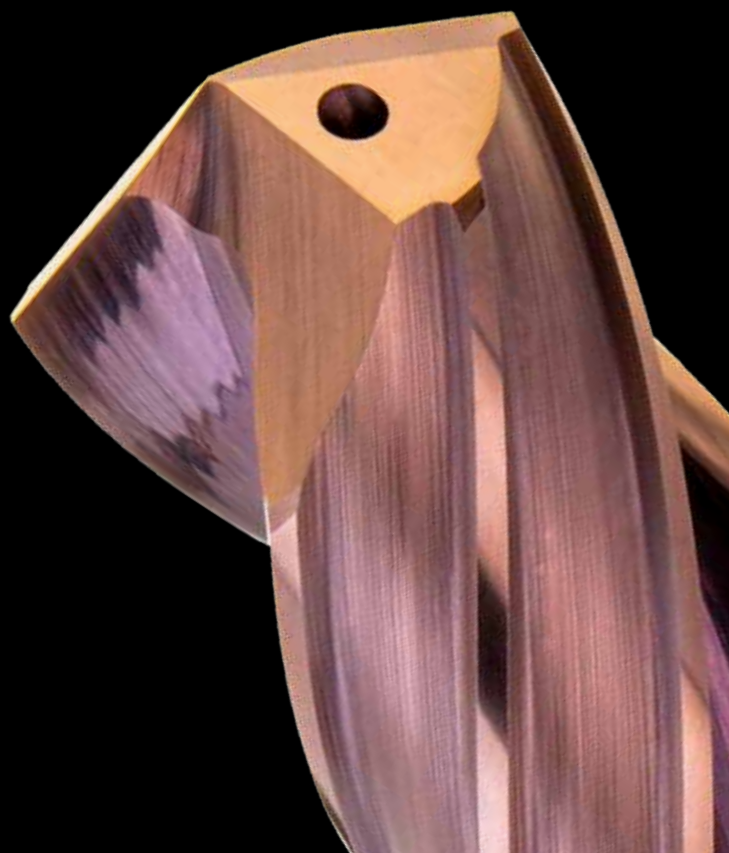
Digital Cataloque 05

INNOVATION | QUALITY | PRODUCTIVITY

YOUR CHALLENGE OUR SOLUTION

High Performance Solid Carbide Tools



deltamill Milling Technology

deltadrill Drilling Technology


CUTTING
EDGE
TECHNOLOGY

Uw uitdaging?
Onze oplossing!

Het is alweer 14 jaar geleden toen wij met onze missie begonnen! Een missie met als uitdaging één van de beste VHM frezen en VHM boren programma te ontwikkelen die meedoet in de top van de markt maar betaalbaar en bereikbaar is voor iedereen. Nu 14jaar verder mogen we wel zeggen dat we inmiddels een betrouwbaar merk zijn geworden met sublieme prijs/kwaliteitverhouding. Top bedrijven uit de Nederlandse en Europese maakindustrie weten de weg naar ons te vinden. Continu streven we naar nieuwe en nog betere oplossingen voor uw verspaningsuitdagingen van morgen. Ons programma is weer verder uitgebreid met nieuwe innovatieve hoogwaardige frezen en boren.
Onze hoogwaardige frezen worden in Duitsland geproduceerd van Duits hardmetaal en voorzien van de beste coatingen uit Duitsland. We doen absoluut geen concessie als het om kwaliteit gaat.

Wat is nieuw?

Teveel om specifiek te benoemen, in de inhoudsopgave ziet u in één oogopslag wat nieuw is. Één van onze innovaties waar we erg trots op zijn is onze **ALUMINATOR-Serie**, hoogwaardige frezen voor bewerking van Aluminium in 3xD 4xD 5xD & 6xD neklengtes in zowel ruw als finish uitvoering. Een Unieke combo voor de hightech Aluminium CNC-frezer!

Mogen we vriendelijk uitnodigen om samen met ons de uitdaging aan te gaan en wacht niet langer uw machine standaard te voorzien van onze frezen.

Uw toekomstige uitdaging, is onze oplossing van vandaag.

Your challenge?
Our solution!

It's been 14 years since we started our mission! A mission with the challenge of developing one of the best solid carbide milling and solid carbide drilling program that competes at the top of the market but is affordable and accessible to everyone. Now 12 years later, we can say that we have become a reliable brand with a sublime price/quality ratio. Top companies from the Dutch and European manufacturing industry know their way to us. We continuously strive for new and even better solutions for your machining challenges of tomorrow. Our program has been further expanded with new innovative high-quality milling and drilling tools. Our high-quality cutters are produced in Germany from German carbide and provided with the best coatings from Germany. We absolutely make no concessions when it comes to quality.

What's new?

Too many to mention, see the product overview and you will see what new is.
One of our innovations that we are very proud of is our **ALUMINATOR Series**, high-quality milling cutters for machining Aluminum in 3xD 4xD 5xD & 6xD neck lengths in both rough and finish versions. A unique combo for the high-tech Aluminum CNC-milling operator!

May we kindly invite you to take up the challenge with us and don't wait any longer to install our milling cutters as standard in your machines.

Your future challenge, is our solution today!

Inhoudsopgave hoogwaardige VHM HPC frezen
Index high quality SC HPC endmills

P-SERIE	Art.nr.	Serie		Lengte / Length	Z
	D3900	AGRESSOR UNI		Standard	3
	D4900	AGRESSOR UNI		Standard	4
	D4900R	AGRESSOR UNI		Standard	4
	D4902R	AGRESSOR UNI		Long	4
	D4903R	AGRESSOR UNI		Extra long	4
	D4900P	AGRESSOR PERFORMER	New	Standard	4
	D5900R	AGRESSOR UNI	New	Standard	5
	D6910	XTREMA UNI		Standard	6
	D6913	XTREMA UNI		3xD	6
	D6913R	XTREMA UNI		3xD	6
	D6914	XTREMA UNI	New	4xD	6
	D6915	XTREMA UNI		5xD	6
	D6900	AGRESSOR FINISHER		Standard	6
	D6902	AGRESSOR FINISHER		3xD	6
	D6902-4D	AGRESSOR FINISHER	New	4xD	6

M-SERIE	Art.nr.	Serie		Lengte / Length	Z
	D5923	XTREMA INOX	NEW	3xD	5

N-SERIE	Art.nr.	Serie		Lengte / Length	Z
	D3930	AGRESSOR ALU		3xD	3
	D3932	AGRESSOR ALU		6xD	3
	D3930DLC	AGRESSOR ALU		3xD	3
	D3933	ALUMINATOR SMOOTHER	New	3xD	3
	D3934	ALUMINATOR SMOOTHER	New	4xD	3
	D3935	ALUMINATOR SMOOTHER	New	5xD	3
	D3936	ALUMINATOR SMOOTHER	New	6xD	3
	D3933I	ALUMINATOR SMOOTHER	New	3xD	3
	D3934I	ALUMINATOR SMOOTHER	New	4xD	3
	D3935I	ALUMINATOR SMOOTHER	New	5xD	3

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Materiaalgroepen / Materialgroups																		Pagina / Page
P1.1	P2.2	P3.2	P4.2	M1.1	M2.1	M3.1	K1.2	N1.1	N1.4	N1.5	S1.1	S1.2	S1.3	S2.2	H1.1	H1.2	H1.3	H1.4	
●	●	●	●	●	●	●	●				●	●	○	○					12
●	●	●	●	●	●	●	●				●	●	○	○					14
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●	●	●	●	●	●	●	●				●	●	○	○					18
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●	●	●	●	●	●	●	●				●	●	○	○					42

Materiaalgroepen / Materialgroups																		Pagina / Page
P1.1	P2.2	P3.2	P4.2	M1.1	M2.1	M3.1	K1.2	N1.1	N1.4	N1.5	S1.1	S1.2	S1.3	S2.2	H1.1	H1.2	H1.3	H1.4	
●	●	●	●	●	●	●													36

Materiaalgroepen / Materialgroups																		Pagina / Page
P1.1	P2.2	P3.2	P4.2	M1.1	M2.1	M3.1	K1.2	N1.1	N1.4	N1.5	S1.1	S1.2	S1.3	S2.2	H1.1	H1.2	H1.3	H1.4	
								●	●	●									44
								●	●	●									46
								●	●	●									48
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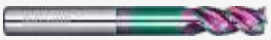
								●	●	●									54
								●	●	●									56
								●	●	●									58
								●	●	●									60
								●	●	●									62

Inhoudsopgave hoogwaardige VHM HPC frezen
Index high quality SC HPC endmills

N-SERIE

	Art.nr.	Serie		Lengte / Length	Z
	D3936I	ALUMINATOR SMOOTHER	New	6xD	3
	D3933R	ALUMINATOR ROUGHER	New	3xD	3
	D3934R	ALUMINATOR ROUGHER	New	4xD	3
	D3935R	ALUMINATOR ROUGHER	New	5xD	3
	D3936R	ALUMINATOR ROUGHER	New	6xD	3
	D4933	XTREMA ALU		3xD	4
	D4934	XTREMA ALU		4xD	4
	D6933	AGRESSOR FINISHER		3xD	6
	D6935	AGRESSOR FINISHER		6xD	6
	D3936ALF	AGRESSOR FINISHER	New	6xD	3

S-SERIE

	Art.nr.	Serie		Lengte / Length	Z
	D4950	AGRESSOR TITAN		2xD	4
	D5950	AGRESSOR TITAN		2xD	5
	D5953	AGRESSOR TITAN		3xD	5

H-SERIE

	Art.nr.	Serie		Lengte / Length	Z
	D4960	AGRESSOR HARD		2xD	4
	D6560(R)	AGRESSOR HARD		2xD	6
	D2862	AGRESSOR HARD	New	3xD	2

P-SERIE

	Art.nr.	Serie		Lengte / Length	Z
	D2380	UNILINE		Standard	2
	D4060	UNILINE	New	Standard	4
	D4090	UNILINE		Standard	4
	D4120	UNILINE	New	Standard	4
	D2090	UNILINE		Standard	2
	D4080	UNILINE		Standard	4

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Materiaalgroepen / Materialgroups																		Pagina / Page
P1.1	P2.2	P3.2	P4.2	M1.1	M2.1	M3.1	K1.2	N1.1	N1.4	N1.5	S1.1	S1.2	S1.3	S2.2	H1.1	H1.2	H1.3	H1.4	
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								●	●	●									66
								●	●	●									68
								●	●	●									70
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								●	●	●									78
								●	●	●									80
								●	●	●									82

Materiaalgroepen / Materialgroups																		Pagina / Page
P1.1	P2.2	P3.2	P4.2	M1.1	M2.1	M3.1	K1.2	N1.1	N1.4	N1.5	S1.1	S1.2	S1.3	S2.2	H1.1	H1.2	H1.3	H1.4	
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				●	●	●					●	●	●	●					86
				●	●	●					●	●	●	●					88

Materiaalgroepen / Materialgroups																		Pagina / Page
P1.1	P2.2	P3.2	P4.2	M1.1	M2.1	M3.1	K1.2	N1.1	N1.4	N1.5	S1.1	S1.2	S1.3	S2.2	H1.1	H1.2	H1.3	H1.4	
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															●	●	●	●	94

Materiaalgroepen / Materialgroups																		Pagina / Page
P1.1	P2.2	P3.2	P4.2	M1.1	M2.1	M3.1	K1.2	N1.1	N1.4	N1.5	S1.1	S1.2	S1.3	S2.2	H1.1	H1.2	H1.3	H1.4	
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●	●	●	●	●	●	●	●												104
●	●	●	●	●	●	●	●				●	●							106

Inhoudsopgave hoogwaardige VHM boren
Index high quality SC drills

P-SERIE

	Art.nr.	Serie		Lengte / Length	Z
	D20003	SPEEDDRILL S2	New	3xD	2
	D20005	SPEEDDRILL S2	New	5xD	2
	D21003	SPEEDDRILL S2	New	3xD	2
	D21705	SPEEDDRILL S4		5xD	2
	D21708	SPEEDDRILL S4		8xD	2

M-SERIE

	Art.nr.	Serie		Lengte / Length	Z
	D18003	SPEEDDRILL U2		3xD	2
	D18005	SPEEDDRILL U2		5xD	2
	D18708	SPEEDDRILL U4	New	8xD	2
	D18712	SPEEDDRILL U4	New	12xD	2
	D18720	DEEPDRILL U6	New	20xD	2
	D18730	DEEPDRILL U6	New	30xD	2

N-SERIE

	Art.nr.	Serie		Lengte / Length	Z
	D28705	SPEEDDRILL A4		5xD	2
	D28708	SPEEDDRILL A4		8xD	2

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Materiaalgroepen / Materialgroups																		Pagina / Page
P1.1	P2.2	P3.2	P4.2	M1.1	M2.1	M3.1	K1.2	N1.1	N1.4	N1.5	S1.1	S1.2	S1.3	S2.2	H1.1	H1.2	H1.3	H1.4	
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●	●	●	●				●												112
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Materiaalgroepen / Materialgroups																		Pagina / Page
P1.1	P2.2	P3.2	P4.2	M1.1	M2.1	M3.1	K1.2	N1.1	N1.4	N1.5	S1.1	S1.2	S1.3	S2.2	H1.1	H1.2	H1.3	H1.4	
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Materiaalgroepen / Materialgroups																		Pagina / Page
P1.1	P2.2	P3.2	P4.2	M1.1	M2.1	M3.1	K1.2	N1.1	N1.4	N1.5	S1.1	S1.2	S1.3	S2.2	H1.1	H1.2	H1.3	H1.4	
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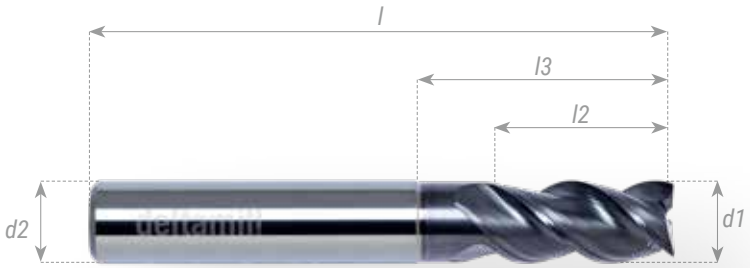
								●	●	●									134

FREZEN
ENDMILLS

deltamill
Milling Technology

VHM HPC Universeel Frees Z3
SC HPC universal endmill Z3



AGRESSOR UNI

HPC | UNIVERSAL | HB | Vario | Unequal | 3 | NECK RELIEF | Cx45° | COATING TiALN | WET

Code	Ød1	Ød2	l2	l3	l	z	c	€
D3900-0100BT	1,0	6,0	2,5	5	57	3	0,1	46,00
D3900-0150BT	1,5	6,0	4	7,5	57	3	0,1	46,00
D3900-0200BT	2,0	6,0	5	10	57	3	0,1	46,00
D3900-0250BT	2,5	6,0	6,5	12,5	57	3	0,1	46,00
D3900-0300BT	3,0	6,0	8	15	57	3	0,1	46,00
D3900-0400BT	4,0	6,0	11	16	57	3	0,1	46,00
D3900-0500BT	5,0	6,0	13	19	57	3	0,1	46,00
D3900-0600BT	6,0	6,0	13	19	57	3	0,1	46,00
D3900-0800BT	8,0	8,0	19	25	63	3	0,2	62,00
D3900-1000BT	10,0	10,0	22	30	72	3	0,2	87,00
D3900-1200BT	12,0	12,0	26	36	83	3	0,2	119,00
D3900-1600BT	16,0	16,0	32	42	92	3	0,2	aanvraag
D3900-2000BT	20,0	20,0	38	52	104	3	0,2	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
P1.1 Steel < 800N/mm²	3.0	190	4	0.015	3	3
	4.0	190	4	0.020	4	4
	5.0	190	4	0.025	5	5
	6.0	190	4	0.030	6	6
	8.0	190	4	0.035	8	8
	10.0	190	4	0.045	10	10
	12.0	190	4	0.055	12	12
	16.0	190	4	0.070	16	16
	20.0	190	4	0.090	20	20
	25.0	190	4	0.100	25	25
P2.2 Heat Treatable steel < 1100N/mm²	3.0	100	4	0.010	3	3
	4.0	100	4	0.015	4	4
	5.0	100	4	0.018	5	5
	6.0	100	4	0.020	6	6
	8.0	100	4	0.030	8	8
	10.0	100	4	0.040	10	10
	12.0	100	4	0.050	12	12
	16.0	100	4	0.060	16	16
	20.0	100	4	0.080	20	20
	25.0	100	4	0.100	25	25
P4.2 Cold working tool steel < 12% Chrom	3.0	90	4	0.010	3	3
	4.0	90	4	0.015	4	4
	5.0	90	4	0.020	5	5
	6.0	90	4	0.025	6	6
	8.0	90	4	0.035	8	8
	10.0	90	4	0.045	10	10
	12.0	90	4	0.050	12	12
	16.0	90	4	0.060	16	16
	20.0	90	4	0.075	20	20
	25.0	90	4	0.090	25	25
M2.1 Stainless steel Austenitic 303-304-316	3.0	80	4	0.007	3	3
	4.0	80	4	0.010	4	4
	5.0	80	4	0.015	5	5
	6.0	80	4	0.020	6	6
	8.0	80	4	0.025	8	8
	10.0	80	4	0.030	10	10
	12.0	80	4	0.035	12	12
	16.0	80	4	0.045	16	16
	20.0	80	4	0.065	20	20
	25.0	80	4	0.080	25	25
S1.2 Titanium Alloys Ti Grade 3-4	3.0	50	4	0.008	3	3
	4.0	50	4	0.012	4	4
	5.0	50	4	0.016	5	5
	6.0	50	4	0.020	6	6
	8.0	50	4	0.025	8	8
	10.0	50	4	0.040	10	10
	12.0	50	4	0.045	12	12
	16.0	50	4	0.055	16	16
	20.0	50	4	0.070	20	20
	25.0	50	4	0.090	25	25
S2.2 Inconel 625	3.0	35	4	0.005	3	3
	4.0	35	4	0.008	4	4
	5.0	35	4	0.010	5	5
	6.0	35	4	0.012	6	6
	8.0	35	4	0.015	8	8
	10.0	35	4	0.020	10	10
	12.0	35	4	0.025	12	12
	16.0	35	4	0.035	16	16
	20.0	35	4	0.045	20	20
	25.0	35	4	0.055	25	25
K1.2 Cast iron	3.0	150	4	0.015	3	3
	4.0	150	4	0.020	4	4
	5.0	150	4	0.030	5	5
	6.0	150	4	0.040	6	6
	8.0	150	4	0.045	8	8
	10.0	150	4	0.050	10	10
	12.0	150	4	0.060	12	12
	16.0	150	4	0.080	16	16
	20.0	150	4	0.100	20	20
	25.0	150	4	0.150	25	25

Correctie
Correction

Ae	Ap	Vc	fz
Ae= <0,4xD	1xD	+20%	+20%
Ae= <0,4xD	1,5xD	+10%	+10%
Ae= <0,05xD	2xD	+20%	-

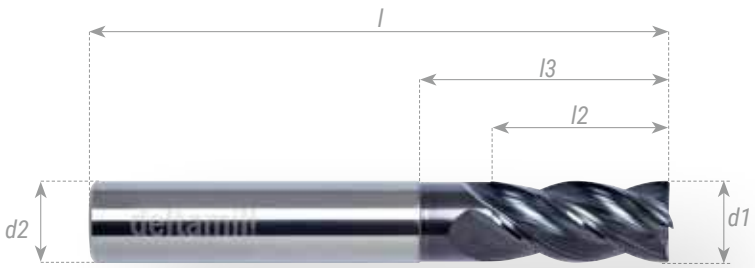
Slotting Ap1xD
and Ae1xD

Contour Ap<1,5xD
and Ae<0,4xD

Finish Ap<2xD
and Ae 0,05xD

VHM HPC Universeel frees Z4

SC HPC Universal endmill Z4



AGRESSOR UNI

Code	Ød1	Ød2	l2	l3	l	z	c	€
D4900-0300BA	3,0	6,0	8	-	57	4	0,1	42,00
D4900-0400BA	4,0	6,0	11	-	57	4	0,1	42,00
D4900-0500BA	5,0	6,0	13	18	57	4	0,1	42,00
D4900-0600BA	6,0	6,0	13	18	57	4	0,1	42,00
D4900-0800BA	8,0	8,0	21	25	63	4	0,2	53,00
D4900-1000BA	10,0	10,0	22	30	72	4	0,2	80,00
D4900-1200BA	12,0	12,0	26	36	83	4	0,3	111,00
D4900-1600BA	16,0	16,0	36	42	92	4	0,3	aanvraag
D4900-2000BA	20,0	20,0	41	52	103	4	0,3	aanvraag
D4900-2500BA	25,0	25,0	55	66	126	4	0,4	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

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Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
P1.1 Steel < 800N/mm²	3.0	180	4	0.015	3	3
	4.0	180	4	0.020	4	4
	5.0	180	4	0.030	5	5
	6.0	180	4	0.030	6	6
	8.0	180	4	0.040	8	8
	10.0	180	4	0.065	10	10
	12.0	180	4	0.070	12	12
	16.0	180	4	0.090	16	16
	20.0	180	4	0.110	20	20
	25.0	180	4	0.150	25	25
P2.2 Heat Treatable steel < 1100N/mm²	3.0	140	4	0.010	3	3
	4.0	140	4	0.015	4	4
	5.0	140	4	0.020	5	5
	6.0	140	4	0.025	6	6
	8.0	140	4	0.030	8	8
	10.0	140	4	0.050	10	10
	12.0	140	4	0.060	12	12
	16.0	140	4	0.070	16	16
	20.0	140	4	0.080	20	20
	25.0	140	4	0.090	25	25
P3.2 High Alloy steels < 1600N/mm²	3.0	60	4	0.010	3	3
	4.0	60	4	0.020	4	4
	5.0	60	4	0.025	5	5
	6.0	60	4	0.030	6	6
	8.0	60	4	0.040	8	8
	10.0	60	4	0.060	10	10
	12.0	60	4	0.070	12	12
	16.0	60	4	0.085	16	16
	20.0	60	4	0.100	20	20
	25.0	60	4	0.120	25	25
P4.2 Cold working tool steel 12% Chrom	3.0	80	4	0.010	3	3
	4.0	80	4	0.015	4	4
	5.0	80	4	0.020	5	5
	6.0	80	4	0.025	6	6
	8.0	80	4	0.030	8	8
	10.0	80	4	0.050	10	10
	12.0	80	4	0.060	12	12
	16.0	80	4	0.065	16	16
	20.0	80	4	0.085	20	20
	25.0	80	4	0.095	25	25
M2.1 Stainless steel Austenitic 303-304-316	3.0	80	4	0.008	3	3
	4.0	80	4	0.010	4	4
	5.0	80	4	0.015	5	5
	6.0	80	4	0.020	6	6
	8.0	80	4	0.025	8	8
	10.0	80	4	0.030	10	10
	12.0	80	4	0.040	12	12
	16.0	80	4	0.050	16	16
	20.0	80	4	0.070	20	20
	25.0	80	4	0.100	25	25
K1.2 Cast iron	3.0	150	4	0.015	3	3
	4.0	150	4	0.020	4	4
	5.0	150	4	0.025	5	5
	6.0	150	4	0.030	6	6
	8.0	150	4	0.050	8	8
	10.0	150	4	0.070	10	10
	12.0	150	4	0.080	12	12
	16.0	150	4	0.090	16	16
	20.0	150	4	0.100	20	20
	25.0	150	4	0.150	25	25

Correctie
Correction

Ae	Ap	Vc	fz
Ae= <0,4xD	1xD	+20%	+20%
Ae= <0,4xD	1,5xD	+10%	+10%
Ae= <0,05xD	2xD	+20%	+100%

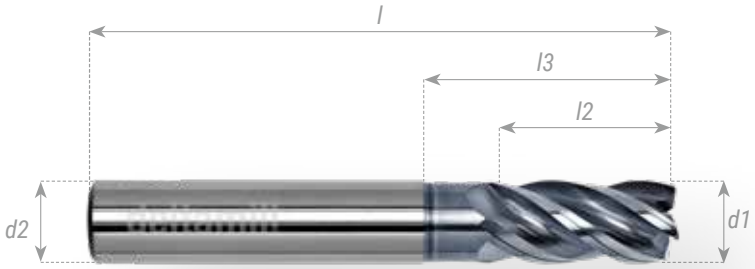
Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,4xD

Finish Ap<2xD
en Ae 0,05xD

VHM HPC Universeel frees Z4

Solid Carbide HPC universal endmill Z4



AGRESSOR UNI

HPC | UNIVERSAL | HB | Vario | Unequal | 4 | NECK RELIEF | r | COATING AlCrN | WET | AIR

Code	Ød1	Ød2	l2	l3	l	z	r	€
D4900-0300RBA	3,0	6,0	8	14	57	4	0,3	42,00
D4900-0400RBA	4,0	6,0	11	16	57	4	0,3	42,00
D4900-0500RBA	5,0	6,0	13	18	57	4	0,3	42,00
D4900-0600RBA	6,0	6,0	13	20	57	4	0,3	42,00
D4900-0800RBA	8,0	8,0	21	25	63	4	0,3	53,00
D4900-0805RBA	8,0	8,0	21	25	63	4	0,5	53,00
D4900-0810RBA	8,0	8,0	21	25	63	4	1,0	53,00
D4900-1000RBA	10,0	10,0	22	30	72	4	0,3	80,00
D4900-1005RBA	10,0	10,0	22	30	72	4	0,5	80,00
D4900-1010RBA	10,0	10,0	22	30	72	4	1,0	80,00
D4900-1020RBA	10,0	10,0	22	30	72	4	2,0	80,00
D4900-1200RBA	12,0	12,0	26	36	83	4	0,5	110,00
D4900-1210RBA	12,0	12,0	26	36	83	4	1,0	110,00
D4900-1220RBA	12,0	12,0	26	36	83	4	2,0	110,00
D4900-1605RBA	16,0	16,0	36	42	92	4	0,5	aanvraag
D4900-1610RBA	16,0	16,0	36	42	92	4	1,0	aanvraag
D4900-1620RBA	16,0	16,0	36	42	92	4	2,0	aanvraag
D4900-2000RBA	20,0	20,0	38	55	104	4	1,0	aanvraag
D4900-2500RBA	25,0	25,0	45	65	120	4	1,0	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
P1.1 Steel < 800N/mm²	3.0	180	4	0.015	3	3
	4.0	180	4	0.020	4	4
	5.0	180	4	0.030	5	5
	6.0	180	4	0.030	6	6
	8.0	180	4	0.040	8	8
	10.0	180	4	0.065	10	10
	12.0	180	4	0.070	12	12
	16.0	180	4	0.090	16	16
	20.0	180	4	0.110	20	20
	25.0	180	4	0.150	25	25
P2.2 Heat Treatable steel < 1100N/mm²	3.0	140	4	0.010	3	3
	4.0	140	4	0.015	4	4
	5.0	140	4	0.020	5	5
	6.0	140	4	0.025	6	6
	8.0	140	4	0.030	8	8
	10.0	140	4	0.050	10	10
	12.0	140	4	0.060	12	12
	16.0	140	4	0.070	16	16
	20.0	140	4	0.080	20	20
	25.0	140	4	0.090	25	25
P3.2 High Alloy steels < 1600N/mm²	3.0	60	4	0.010	3	3
	4.0	60	4	0.020	4	4
	5.0	60	4	0.025	5	5
	6.0	60	4	0.030	6	6
	8.0	60	4	0.040	8	8
	10.0	60	4	0.060	10	10
	12.0	60	4	0.070	12	12
	16.0	60	4	0.085	16	16
	20.0	60	4	0.100	20	20
	25.0	60	4	0.120	25	25
P4.2 Cold working tool steel 12% Chrom	3.0	80	4	0.010	3	3
	4.0	80	4	0.015	4	4
	5.0	80	4	0.020	5	5
	6.0	80	4	0.025	6	6
	8.0	80	4	0.030	8	8
	10.0	80	4	0.050	10	10
	12.0	80	4	0.060	12	12
	16.0	80	4	0.065	16	16
	20.0	80	4	0.085	20	20
	25.0	80	4	0.095	25	25
M2.1 Stainless steel Austenitic 303-304-316	3.0	80	4	0.008	3	3
	4.0	80	4	0.010	4	4
	5.0	80	4	0.015	5	5
	6.0	80	4	0.020	6	6
	8.0	80	4	0.025	8	8
	10.0	80	4	0.030	10	10
	12.0	80	4	0.040	12	12
	16.0	80	4	0.050	16	16
	20.0	80	4	0.070	20	20
	25.0	80	4	0.100	25	25
K1.2 Cast iron	3.0	150	4	0.015	3	3
	4.0	150	4	0.020	4	4
	5.0	150	4	0.025	5	5
	6.0	150	4	0.030	6	6
	8.0	150	4	0.050	8	8
	10.0	150	4	0.070	10	10
	12.0	150	4	0.080	12	12
	16.0	150	4	0.090	16	16
	20.0	150	4	0.100	20	20
	25.0	150	4	0.150	25	25

Correctie
Correction

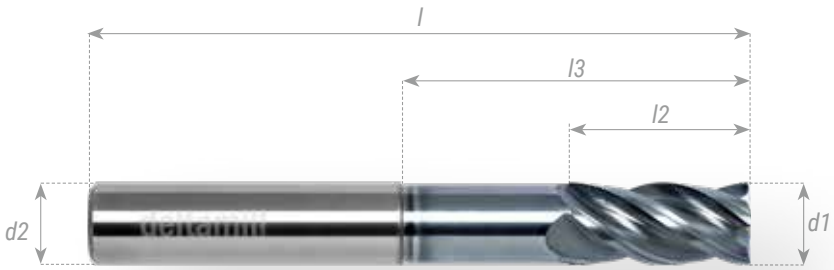
Ae	Ap	Vc	fz
Ae= <0,4xD	1xD	+20%	+20%
Ae= <0,4xD	1,5xD	+10%	+10%
Ae= <0,05xD	2xD	+20%	+100%

Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,4xD

Finish Ap<2xD
en Ae 0,05xD

VHM HPC Universeel frees lang Z4
SC HPC Universal endmill long Z4



AGRESSOR UNI

HPC | UNIVERSAL | HB | Vario | Unequal | 4 | NECK RELIEF | r | COATING AlCrN | WET | AIR

Code	Ød1	Ød2	l2	l3	l	z	r	€
D4902-0300RBA	3,0	6,0	8	20	57	4	0,3	45,00
D4902-0402RBA	4,0	6,0	11	22	57	4	0,2	49,00
D4902-0400RBA	4,0	6,0	11	22	57	4	0,3	45,00
D4902-0502RBA	5,0	6,0	13	26	62	4	0,2	54,00
D4902-0500RBA	5,0	6,0	13	26	62	4	0,3	49,00
D4902-0602RBA	6,0	6,0	13	26	62	4	0,2	54,00
D4902-0600RBA	6,0	6,0	13	26	62	4	0,5	49,00
D4902-0802RBA	8,0	8,0	19	34	70	4	0,2	71,00
D4902-0800RBA	8,0	8,0	19	34	70	4	0,5	67,00
D4902-1002RBA	10,0	10,0	22	40	80	4	0,2	99,00
D4902-1000RBA	10,0	10,0	22	40	80	4	0,5	93,00
D4902-1202RBA	12,0	12,0	26	50	95	4	0,2	156,00
D4902-1200RBA	12,0	12,0	26	50	95	4	0,5	144,00
D4902-1610RBA	16,0	16,0	32	55	105	4	1,0	aanvraag
D4902-1602RBA	16,0	16,0	32	75	125	4	0,2	aanvraag
D4902-1611RBA	16,0	16,0	32	75	125	4	1,0	aanvraag
D4902-2000RBA	20,0	20,0	38	70	124	4	1,0	aanvraag
D4902-2001RBA	20,0	20,0	38	92	140	4	1,0	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
P1.1 Steel < 800N/mm²	3.0	180	4	0.015	1,5	3
	4.0	180	4	0.020	2	4
	5.0	180	4	0.030	2,5	5
	6.0	180	4	0.030	3	6
	8.0	180	4	0.040	4	8
	10.0	180	4	0.065	5	10
	12.0	180	4	0.070	6	12
	16.0	180	4	0.090	8	16
	20.0	180	4	0.110	10	20
	25.0	180	4	0.150	12,5	25
P2.2 Heat Treatable steel < 1100N/mm²	3.0	140	4	0.010	1,5	3
	4.0	140	4	0.015	2	4
	5.0	140	4	0.020	2,5	5
	6.0	140	4	0.025	3	6
	8.0	140	4	0.030	4	8
	10.0	140	4	0.050	5	10
	12.0	140	4	0.060	6	12
	16.0	140	4	0.070	8	16
	20.0	140	4	0.080	10	20
	25.0	140	4	0.090	12,5	25
P3.2 High Alloy steels < 1600N/mm²	3.0	60	4	0.010	1,5	3
	4.0	60	4	0.020	2	4
	5.0	60	4	0.025	2,5	5
	6.0	60	4	0.030	3	6
	8.0	60	4	0.040	4	8
	10.0	60	4	0.060	5	10
	12.0	60	4	0.070	6	12
	16.0	60	4	0.085	8	16
	20.0	60	4	0.100	10	20
	25.0	60	4	0.120	12,5	25
P4.2 Cold working tool steel 12% Chrom	3.0	80	4	0.010	1,5	3
	4.0	80	4	0.015	2	4
	5.0	80	4	0.020	2,5	5
	6.0	80	4	0.025	3	6
	8.0	80	4	0.030	4	8
	10.0	80	4	0.050	5	10
	12.0	80	4	0.060	6	12
	16.0	80	4	0.065	8	16
	20.0	80	4	0.085	10	20
	25.0	80	4	0.095	12,5	25
M2.1 Stainless steel Austenitic 303-304-316	3.0	80	4	0.008	1,5	3
	4.0	80	4	0.010	2	4
	5.0	80	4	0.015	2,5	5
	6.0	80	4	0.020	3	6
	8.0	80	4	0.025	4	8
	10.0	80	4	0.030	5	10
	12.0	80	4	0.040	6	12
	16.0	80	4	0.050	8	16
	20.0	80	4	0.070	10	20
	25.0	80	4	0.100	12,5	25
K1.2 Cast iron	3.0	150	4	0.015	1,5	3
	4.0	150	4	0.020	2	4
	5.0	150	4	0.025	2,5	5
	6.0	150	4	0.030	3	6
	8.0	150	4	0.050	4	8
	10.0	150	4	0.070	5	10
	12.0	150	4	0.080	6	12
	16.0	150	4	0.090	8	16
	20.0	150	4	0.100	10	20
	25.0	150	4	0.150	12,5	25

Correctie
Correction

Ae	Ap	Vc	fz
Ae= <0,4xD	1xD	+20%	+20%
Ae= <0,4xD	1,5xD	+10%	+10%
Ae= <0,05xD	2xD	+20%	+100%

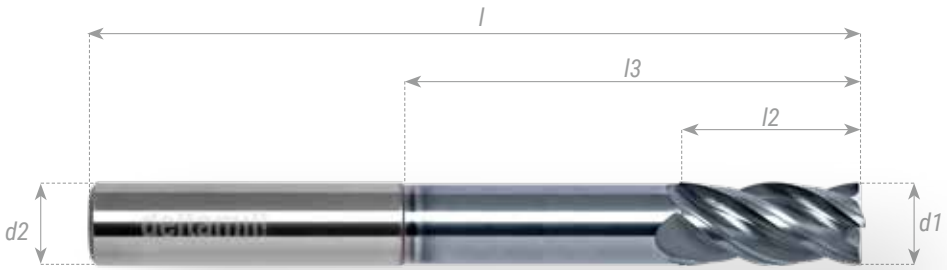
Slotting Ap0,5xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

Finish Ap<2xD
en Ae 0,05xD

VHM HPC Universeel frees extra lang Z4

SC HPC Universal endmill extra long Z4



AGRESSOR UNI

HPC | UNI VERSAL | HB | Vario | Unequal | 4 | NECK RELIEF | r | COATING AlCrN | WET | AIR

Code	Ød1	Ød2	l2	l3	l	z	r	€
D4903-0300RBA	3,0	6,0	8	25	63	4	0,3	52,00
D4903-0400RBA	4,0	6,0	11	30	66	4	0,3	55,00
D4903-0500RBA	5,0	6,0	13	35	72	4	0,3	58,00
D4903-0600RBA	6,0	6,0	13	40	76	4	0,3	61,00
D4903-0800RBA	8,0	8,0	19	48	84	4	0,3	81,00
D4903-1000RBA	10,0	10,0	22	60	100	4	0,5	127,00
D4903-1200RBA	12,0	12,0	26	75	120	4	0,5	185,00
D4903-1600RBA	16,0	16,0	32	100	150	4	1,0	aanvraag

95 Herslijp- en hercoatservice
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
P1.1 Steel < 800N/mm²	3.0	180	4	0.015	1,5	3
	4.0	180	4	0.020	2	4
	5.0	180	4	0.030	2,5	5
	6.0	180	4	0.030	3	6
	8.0	180	4	0.040	4	8
	10.0	180	4	0.065	5	10
	12.0	180	4	0.070	6	12
	16.0	180	4	0.090	8	16
	20.0	180	4	0.110	10	20
	25.0	180	4	0.150	12,5	25
P2.2 Heat Treatable steel < 1100N/mm²	3.0	140	4	0.010	1,5	3
	4.0	140	4	0.015	2	4
	5.0	140	4	0.020	2,5	5
	6.0	140	4	0.025	3	6
	8.0	140	4	0.030	4	8
	10.0	140	4	0.050	5	10
	12.0	140	4	0.060	6	12
	16.0	140	4	0.070	8	16
	20.0	140	4	0.080	10	20
	25.0	140	4	0.090	12,5	25
P3.2 High Alloy steels < 1600N/mm²	3.0	60	4	0.010	1,5	3
	4.0	60	4	0.020	2	4
	5.0	60	4	0.025	2,5	5
	6.0	60	4	0.030	3	6
	8.0	60	4	0.040	4	8
	10.0	60	4	0.060	5	10
	12.0	60	4	0.070	6	12
	16.0	60	4	0.085	8	16
	20.0	60	4	0.100	10	20
	25.0	60	4	0.120	12,5	25
P4.2 Cold working tool steel 12% Chrom	3.0	80	4	0.010	1,5	3
	4.0	80	4	0.015	2	4
	5.0	80	4	0.020	2,5	5
	6.0	80	4	0.025	3	6
	8.0	80	4	0.030	4	8
	10.0	80	4	0.050	5	10
	12.0	80	4	0.060	6	12
	16.0	80	4	0.065	8	16
	20.0	80	4	0.085	10	20
	25.0	80	4	0.095	12,5	25
M2.1 Stainless steel Austenitic 303-304-316	3.0	80	4	0.008	1,5	3
	4.0	80	4	0.010	2	4
	5.0	80	4	0.015	2,5	5
	6.0	80	4	0.020	3	6
	8.0	80	4	0.025	4	8
	10.0	80	4	0.030	5	10
	12.0	80	4	0.040	6	12
	16.0	80	4	0.050	8	16
	20.0	80	4	0.070	10	20
	25.0	80	4	0.100	12,5	25
K1.2 Cast iron	3.0	150	4	0.015	1,5	3
	4.0	150	4	0.020	2	4
	5.0	150	4	0.025	2,5	5
	6.0	150	4	0.030	3	6
	8.0	150	4	0.050	4	8
	10.0	150	4	0.070	5	10
	12.0	150	4	0.080	6	12
	16.0	150	4	0.090	8	16
	20.0	150	4	0.100	10	20
	25.0	150	4	0.150	12,5	25

Correctie
Correction

Ae	Ap	Vc	fz
Ae= <0,4xD	1xD	+20%	+20%
Ae= <0,4xD	1,5xD	+10%	+10%
Ae= <0,05xD	2xD	+20%	+100%

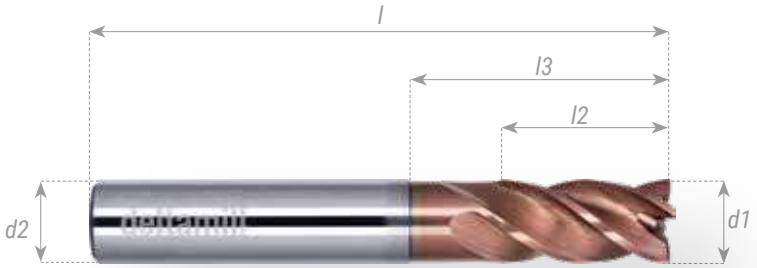
Slotting Ap0,5xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

Finish Ap<2xD
en Ae 0,05xD

VHM HPC Performer frees Z4

SC HPC Performer endmill Z4



AGRESSOR PERFORMER

HPC | UNIVERSAL | HB | Vario | Unequal | 4 | NECK RELIEF | r | COATING TiALN | WET | AIR

Code	Ød1	Ød2	l2	l3	l	z	r	€
D4900-0300P	3,0	6,0	8	-	57	4	0,1	42,00
D4900-0400P	4,0	6,0	11	-	57	4	0,1	42,00
D4900-0500P	5,0	6,0	13	18	57	4	0,1	42,00
D4900-0600P	6,0	6,0	13	18	57	4	0,1	42,00
D4900-0800P	8,0	8,0	21	25	63	4	0,2	53,00
D4900-1000P	10,0	10,0	22	30	72	4	0,2	80,00
D4900-1200P	12,0	12,0	26	36	83	4	0,3	110,00
D4900-1600P	16,0	16,0	36	42	92	4	0,3	aanvraag
D4900-2000P	20,0	20,0	41	52	103	4	0,3	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	slotting fz mm	ap mm	ae mm	trochidal fz mm ae=10% x D	drilling fz mm
P1.1 Steel < 800N/mm²	3.0	180	4	0.015	3	3	0.03	0.015
	4.0	180	4	0.020	4	4	0.06	0.020
	5.0	180	4	0.030	5	5	0.08	0.030
	6.0	180	4	0.030	6	6	0.09	0.030
	8.0	180	4	0.040	8	8	0.11	0.040
	10.0	180	4	0.065	10	10	0.14	0.065
	12.0	180	4	0.070	12	12	0.18	0.070
	16.0	180	4	0.090	16	16	0.21	0.090
	20.0	180	4	0.110	20	20	0.24	0.110
P2.2 Heat Treatable steel < 1100N/mm²	3.0	140	4	0.010	3	3	0.01	0.010
	4.0	140	4	0.015	4	4	0.04	0.015
	5.0	140	4	0.020	5	5	0.05	0.020
	6.0	140	4	0.025	6	6	0.08	0.025
	8.0	140	4	0.030	8	8	0.10	0.030
	10.0	140	4	0.050	10	10	0.13	0.050
	12.0	140	4	0.060	12	12	0.16	0.060
	16.0	140	4	0.070	16	16	0.19	0.070
	20.0	140	4	0.080	20	20	0.21	0.080
P3.2 High Alloy steels < 1600N/mm²	3.0	60	4	0.010	3	3	0.01	0.010
	4.0	60	4	0.020	4	4	0.04	0.020
	5.0	60	4	0.025	5	5	0.05	0.025
	6.0	60	4	0.030	6	6	0.08	0.030
	8.0	60	4	0.040	8	8	0.10	0.040
	10.0	60	4	0.060	10	10	0.13	0.060
	12.0	60	4	0.070	12	12	0.16	0.070
	16.0	60	4	0.085	16	16	0.19	0.085
	20.0	60	4	0.100	20	20	0.21	0.100
P4.2 Cold working tool steel 12% Chrom	3.0	80	4	0.010	3	3	0.01	0.010
	4.0	80	4	0.015	4	4	0.04	0.015
	5.0	80	4	0.020	5	5	0.05	0.020
	6.0	80	4	0.025	6	6	0.08	0.025
	8.0	80	4	0.030	8	8	0.10	0.030
	10.0	80	4	0.050	10	10	0.13	0.050
	12.0	80	4	0.060	12	12	0.16	0.060
	16.0	80	4	0.065	16	16	0.19	0.065
	20.0	80	4	0.085	20	20	0.21	0.085
M2.1 Stainless steel Austenitic 303-304-316	3.0	80	4	0.008	3	3	0.03	0.008
	4.0	80	4	0.010	4	4	0.04	0.010
	5.0	80	4	0.015	5	5	0.05	0.015
	6.0	80	4	0.020	6	6	0.06	0.020
	8.0	80	4	0.025	8	8	0.07	0.025
	10.0	80	4	0.030	10	10	0.09	0.030
	12.0	80	4	0.040	12	12	0.11	0.040
	16.0	80	4	0.050	16	16	0.13	0.050
	20.0	80	4	0.070	20	20	0.19	0.070
K1.2 Cast iron	3.0	150	4	0.015	3	3	0.01	0.015
	4.0	150	4	0.020	4	4	0.04	0.020
	5.0	150	4	0.025	5	5	0.05	0.025
	6.0	150	4	0.030	6	6	0.08	0.030
	8.0	150	4	0.050	8	8	0.10	0.050
	10.0	150	4	0.070	10	10	0.13	0.070
	12.0	150	4	0.080	12	12	0.16	0.080
	16.0	150	4	0.090	16	16	0.19	0.090
	20.0	150	4	0.100	20	20	0.21	0.100

Correctie
Correction

Ae	Ap	Vc	fz
Ae= <0,4xD	1xD	+20%	+20%
Ae= <0,4xD	1,5xD	+10%	+10%

Drilling Ap1xD

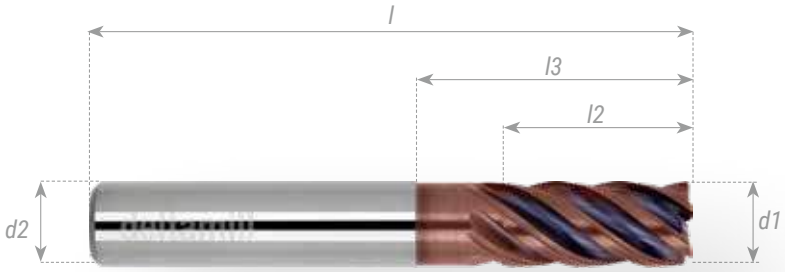
Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,4xD

Finish Ap<2xD
en Ae 0,05xD

VHM HPC Universal frees Z5

SC HPC Universal endmill Z5



AGRESSOR UNI

HPC | UNIVERSAL | HB | Vario | Unequal | 5 | NECK RELIEF | r | COATING AlCrN | WET | AIR

Code	Ød1	Ød2	l2	l3	l	z	r	€
D5900-0805RBA	8,0	8,0	19	25	63	5	0,5	65,00
D5900-1005RBA	10,0	10,0	22	31	72	5	0,5	96,00
D5900-1205RBA	12,0	12,0	26	38	84	5	0,5	137,00
D5900-1605RBA	16,0	16,0	35	50	100	5	0,5	aanvraag
D5901-1610RBA	16,0	16,0	35	65	117	5	1,0	aanvraag
D5902-1610RBA	16,0	16,0	35	82	135	5	1,0	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

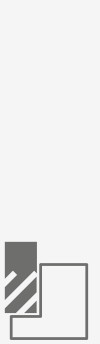
Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
P1.1 Steel < 800N/mm²	3.0	220	5	0.015	3	3
	4.0	220	5	0.020	4	4
	5.0	220	5	0.030	5	5
	6.0	220	5	0.030	6	6
	8.0	220	5	0.040	8	8
	10.0	220	5	0.065	10	10
	12.0	220	5	0.070	12	12
	16.0	220	5	0.090	16	16
	20.0	220	5	0.110	20	20
	25.0	220	5	0.150	25	25
P2.2 Heat Treatable steel < 1100N/mm²	3.0	150	5	0.010	3	3
	4.0	150	5	0.015	4	4
	5.0	150	5	0.020	5	5
	6.0	150	5	0.025	6	6
	8.0	150	5	0.030	8	8
	10.0	150	5	0.050	10	10
	12.0	150	5	0.060	12	12
	16.0	150	5	0.070	16	16
	20.0	150	5	0.080	20	20
	25.0	150	5	0.090	25	25
P3.2 High Alloy steels < 1600N/mm²	3.0	70	5	0.010	3	3
	4.0	70	5	0.020	4	4
	5.0	70	5	0.025	5	5
	6.0	70	5	0.030	6	6
	8.0	70	5	0.040	8	8
	10.0	70	5	0.060	10	10
	12.0	70	5	0.070	12	12
	16.0	70	5	0.085	16	16
	20.0	70	5	0.100	20	20
	25.0	70	5	0.120	25	25
P4.2 Cold working tool steel 12% Chrom	3.0	80	5	0.010	3	3
	4.0	80	5	0.015	4	4
	5.0	80	5	0.020	5	5
	6.0	80	5	0.025	6	6
	8.0	80	5	0.030	8	8
	10.0	80	5	0.050	10	10
	12.0	80	5	0.060	12	12
	16.0	80	5	0.065	16	16
	20.0	80	5	0.085	20	20
	25.0	80	5	0.095	25	25
M2.1 Stainless steel Austenitic 303-304-316	3.0	120	5	0.008	3	3
	4.0	120	5	0.010	4	4
	5.0	120	5	0.015	5	5
	6.0	120	5	0.020	6	6
	8.0	120	5	0.025	8	8
	10.0	120	5	0.030	10	10
	12.0	120	5	0.040	12	12
	16.0	120	5	0.050	16	16
	20.0	120	5	0.070	20	20
	25.0	120	5	0.100	25	25
K1.2 Cast iron	3.0	180	5	0.015	3	3
	4.0	180	5	0.020	4	4
	5.0	180	5	0.025	5	5
	6.0	180	5	0.030	6	6
	8.0	180	5	0.050	8	8
	10.0	180	5	0.070	10	10
	12.0	180	5	0.080	12	12
	16.0	180	5	0.090	16	16
	20.0	180	5	0.100	20	20
	25.0	180	5	0.150	25	25

Correctie
Correction

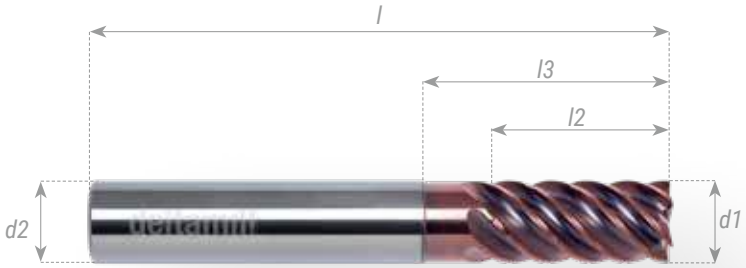
Ae	Ap	Vc	fz
Ae= <0,4xD	1xD	+20%	+20%
Ae= <0,4xD	1,5xD	+10%	+10%
Ae= <0,05xD	2xD	+20%	+100%



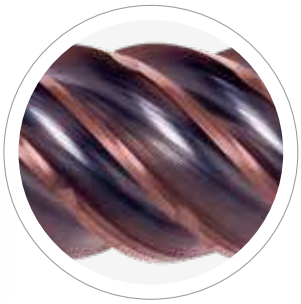
Contour Ap<1,5xD
en Ae<0,5xD

Finish Ap<2xD
en Ae 0,05xD

VHM Trochoidaal frees 2xD
SC Trochoidal endmill 2xD



XTREMA UNI



UPC | UNI VERSAL | HB | Unequal | 6 | CHIP BREAKER | NECK RELIEF L3 | Cx45° | COATING HEX | WET | AIR

Code	Ød1	Ød2	l2	l3	l	z	c	€
D6910-0300HEX	3,0	6,0	8	15	57	5	0,1	63,00
D6910-0400HEX	4,0	6,0	11	16	57	5	0,1	63,00
D6910-0500HEX	5,0	6,0	13	19	57	6	0,1	63,00
D6910-0600HEX	6,0	6,0	13	19	57	6	0,1	63,00
D6910-0800HEX	8,0	8,0	19	25	63	6	0,2	97,00
D6910-1000HEX	10,0	10,0	22	30	72	6	0,2	115,00
D6910-1200HEX	12,0	12,0	26	36	83	6	0,3	146,00
D6910-1600HEX	16,0	16,0	32	42	92	6	0,3	aanvraag
D6910-2000HEX	20,0	20,0	38	52	103	6	0,3	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

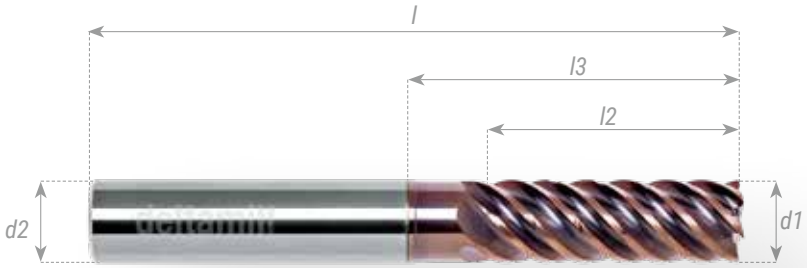
Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	Max. contacthoek Max. contactangle	ap mm	fz mm ae= 5% x D	fz mm ae= 10% x D	fz mm ae= 15% x D	hm* mm
P1.1 Steel < 800N/mm²	3.0	300	5	50°	8	0.05	0.03	0.02	0.010
	4.0	300	5	50°	11	0.08	0.06	0.05	0.015
	5.0	300	6	50°	13	0.10	0.08	0.07	0.020
	6.0	300	6	50°	13	0.13	0.09	0.08	0.030
	8.0	300	6	50°	19	0.16	0.11	0.09	0.050
	10.0	300	6	50°	22	0.20	0.14	0.12	0.054
	12.0	300	6	50°	26	0.25	0.18	0.15	0.057
	16.0	300	6	50°	32	0.29	0.21	0.17	0.065
	20.0	300	6	50°	38	0.34	0.24	0.19	0.075
P2.2 Heat Treatable steel < 1100N/mm²	3.0	240	5	50°	8	0.04	0.01	0.005	0.008
	4.0	240	5	50°	11	0.07	0.04	0.02	0.013
	5.0	240	6	50°	13	0.09	0.05	0.03	0.018
	6.0	240	6	50°	13	0.11	0.08	0.06	0.025
	8.0	240	6	50°	19	0.14	0.10	0.08	0.032
	10.0	240	6	50°	22	0.18	0.13	0.10	0.040
	12.0	240	6	50°	26	0.23	0.16	0.13	0.051
	16.0	240	6	50°	32	0.27	0.19	0.15	0.060
	20.0	240	6	50°	38	0.29	0.21	0.17	0.065
P3.2 High Alloy steels < 1600N/mm²	3.0	210	5	50°	8	0.04	0.01	0.005	0.008
	4.0	210	5	50°	11	0.07	0.04	0.02	0.013
	5.0	210	6	50°	13	0.09	0.05	0.03	0.018
	6.0	210	6	50°	13	0.11	0.08	0.06	0.025
	8.0	210	6	50°	19	0.14	0.10	0.08	0.032
	10.0	210	6	50°	22	0.18	0.13	0.10	0.040
	12.0	210	6	50°	26	0.23	0.16	0.13	0.051
	16.0	210	6	50°	32	0.27	0.19	0.15	0.060
	20.0	210	6	50°	38	0.29	0.21	0.17	0.065
P4.2 Cold working tool steel 12% Chrom	3.0	230	5	45°	8	0.04	0.01	0.005	0.008
	4.0	230	5	45°	11	0.07	0.04	0.02	0.013
	5.0	230	6	45°	13	0.09	0.05	0.03	0.018
	6.0	230	6	45°	13	0.11	0.08	0.06	0.025
	8.0	230	6	45°	19	0.14	0.10	0.08	0.032
	10.0	230	6	45°	22	0.18	0.13	0.10	0.040
	12.0	230	6	45°	26	0.23	0.16	0.13	0.051
	16.0	230	6	45°	32	0.27	0.19	0.15	0.060
	20.0	230	6	45°	38	0.29	0.21	0.17	0.065
M2.1 Stainless steel Austenitic 303-304-316	3.0	170	5	45°	8	0.04	0.03	0.025	0.015
	4.0	170	5	45°	11	0.05	0.04	0.03	0.025
	5.0	170	6	45°	13	0.07	0.05	0.035	0.045
	6.0	170	6	45°	13	0.08	0.06	0.05	0.045
	8.0	170	6	45°	19	0.10	0.07	0.06	0.045
	10.0	170	6	45°	22	0.13	0.09	0.07	0.075
	12.0	170	6	45°	26	0.16	0.11	0.09	0.075
	16.0	170	6	45°	32	0.19	0.13	0.11	0.090
	20.0	170	6	45°	38	0.27	0.19	0.15	0.125
K1.2 Cast iron	3.0	290	5	50°	8	0.04	0.01	0.005	0.008
	4.0	290	5	50°	11	0.07	0.04	0.02	0.013
	5.0	290	6	50°	13	0.09	0.05	0.03	0.018
	6.0	290	6	50°	13	0.11	0.08	0.06	0.025
	8.0	290	6	50°	19	0.14	0.01	0.08	0.032
	10.0	290	6	50°	22	0.18	0.13	0.10	0.040
	12.0	290	6	50°	26	0.23	0.16	0.13	0.051
	16.0	290	6	50°	32	0.27	0.19	0.15	0.060
	20.0	290	6	50°	38	0.29	0.21	0.17	0.065
	25.0	290	6	50°	76	0.33	0.23	0.18	0.080

*hm= gemiddelde spaandikte
*hm= average chip thickness

Trochoidal Max Ap
Ae max 15% x D

VHM Trochoidaal frees 3xD
SC Trochoidal endmill 3xD



XTREMA UNI

UPC | UNI VERSAL | HB | Unequal | 6 | CHIP BREAKER | NECK RELIEF | Cx45° | COATING HEX | WET | AIR

Code	Ød1	Ød2	l2	l3	l	z	c	€
D6913-0300HEX	3,0	6,0	14	23	62	5	0,1	73,00
D6913-0400HEX	4,0	6,0	15	23	62	5	0,1	73,00
D6913-0500HEX	5,0	6,0	16	24	62	6	0,1	73,00
D6913-0600HEX	6,0	6,0	19	24	62	6	0,1	73,00
D6913-0800HEX	8,0	8,0	25	30	68	6	0,2	106,00
D6913-1000HEX	10,0	10,0	31	38	80	6	0,2	140,00
D6913-1200HEX	12,0	12,0	37	46	93	6	0,3	172,00
D6913-1600HEX	16,0	16,0	49	58	108	6	0,3	aanvraag
D6913-2000HEX	20,0	20,0	61	74	126	6	0,3	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

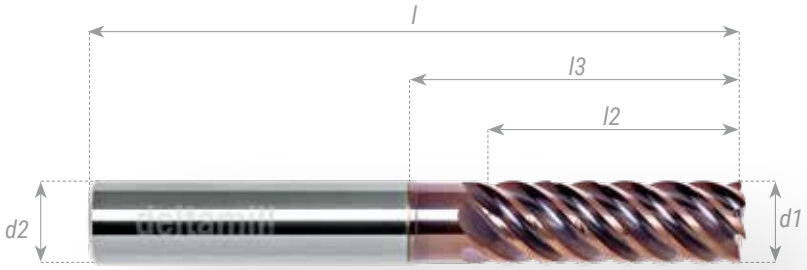
Mat.	ØD	Vc M/min	Z	Max. contacthoek Max. contactangle	ap mm	fz mm ae= 5% x D	fz mm ae= 10% x D	fz mm ae= 15% x D	hm* mm
P1.1 Steel < 800N/mm²	3.0	300	5	50°	14	0.050	0.030	0.020	0.010
	4.0	300	5	50°	15	0.080	0.060	0.050	0.015
	5.0	300	6	50°	16	0.100	0.080	0.070	0.020
	6.0	300	6	50°	19	0.130	0.090	0.080	0.030
	8.0	300	6	50°	25	0.160	0.110	0.090	0.050
	10.0	300	6	50°	31	0.200	0.140	0.120	0.054
	12.0	300	6	50°	37	0.250	0.180	0.150	0.057
	16.0	300	6	50°	49	0.290	0.210	0.170	0.065
	20.0	300	6	50°	61	0.340	0.240	0.190	0.075
P2.2 Heat Treatable steel < 1100N/mm²	3.0	240	5	50°	14	0.040	0.010	0.005	0.008
	4.0	240	5	50°	15	0.070	0.040	0.020	0.013
	5.0	240	6	50°	16	0.090	0.050	0.030	0.018
	6.0	240	6	50°	19	0.110	0.080	0.060	0.025
	8.0	240	6	50°	25	0.140	0.100	0.080	0.032
	10.0	240	6	50°	31	0.180	0.130	0.100	0.040
	12.0	240	6	50°	37	0.230	0.160	0.130	0.051
	16.0	240	6	50°	49	0.270	0.190	0.150	0.060
	20.0	240	6	50°	61	0.290	0.210	0.170	0.065
P3.2 High Alloy steels < 1600N/mm²	3.0	210	5	50°	14	0.040	0.010	0.005	0.008
	4.0	210	5	50°	15	0.070	0.040	0.020	0.013
	5.0	210	6	50°	16	0.090	0.050	0.030	0.018
	6.0	210	6	50°	19	0.110	0.080	0.060	0.025
	8.0	210	6	50°	25	0.140	0.010	0.080	0.032
	10.0	210	6	50°	31	0.180	0.130	0.100	0.040
	12.0	210	6	50°	37	0.230	0.160	0.130	0.051
	16.0	210	6	50°	49	0.270	0.190	0.150	0.060
	20.0	210	6	50°	61	0.290	0.210	0.170	0.065
P4.2 Cold working tool steel 12% Chrom	3.0	230	5	45°	14	0.040	0.010	0.005	0.008
	4.0	230	5	45°	15	0.070	0.040	0.020	0.013
	5.0	230	6	45°	16	0.090	0.050	0.030	0.018
	6.0	230	6	45°	19	0.110	0.080	0.060	0.025
	8.0	230	6	45°	25	0.140	0.100	0.080	0.032
	10.0	230	6	45°	31	0.180	0.130	0.100	0.040
	12.0	230	6	45°	37	0.230	0.160	0.130	0.051
	16.0	230	6	45°	49	0.270	0.190	0.150	0.060
	20.0	230	6	45°	61	0.290	0.210	0.170	0.065
M2.1 Stainless steel Austenitic 303-304-316	3.0	170	5	45°	14	0.040	0.030	0.025	0.015
	4.0	170	5	45°	15	0.050	0.040	0.030	0.025
	5.0	170	6	45°	16	0.070	0.050	0.035	0.045
	6.0	170	6	45°	19	0.080	0.060	0.050	0.045
	8.0	170	6	45°	25	0.100	0.070	0.060	0.045
	10.0	170	6	45°	31	0.130	0.090	0.070	0.075
	12.0	170	6	45°	37	0.160	0.110	0.090	0.075
	16.0	170	6	45°	49	0.190	0.130	0.110	0.090
	20.0	170	6	45°	61	0.270	0.190	0.150	0.125
K1.2 Cast iron	3.0	290	5	50°	14	0.040	0.010	0.005	0.008
	4.0	290	5	50°	15	0.070	0.040	0.020	0.013
	5.0	290	6	50°	16	0.090	0.050	0.030	0.018
	6.0	290	6	50°	19	0.110	0.080	0.060	0.025
	8.0	290	6	50°	25	0.140	0.010	0.080	0.032
	10.0	290	6	50°	31	0.180	0.130	0.100	0.040
	12.0	290	6	50°	37	0.230	0.160	0.130	0.051
	16.0	290	6	50°	49	0.270	0.190	0.150	0.060
	20.0	290	6	50°	61	0.290	0.210	0.170	0.065
	25.0	290	6	50°	76	0.330	0.230	0.180	0.080

*hm= gemiddelde spaandikte
*hm= average chip thickness

Trochoidal Max Ap and Ae max 15%

VHM Trochoidaal frees 3xD, Radius

SC Trochoidal endmill 3xD, Radius



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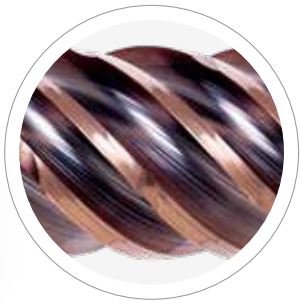


UPC | UNIVERSAL | HB | Unequal | 6 | CHIP BREAKER | NECK RELIEF | r | COATING HEX | WET | AIR

Code	Ød1	Ød2	l2	l3	l	z	r	€
D6913-0605RHEX	6,0	6,0	19	23	62	6	0,5	88,00
D6913-0610RHEX	6,0	6,0	19	23	62	6	1,0	88,00
D6913-0805RHEX	8,0	8,0	25	30	68	6	0,5	122,00
D6913-0810RHEX	8,0	8,0	25	30	68	6	1,0	122,00
D6913-1005RHEX	10,0	10,0	31	38	80	6	0,5	158,00
D6913-1010RHEX	10,0	10,0	31	38	80	6	1,0	158,00
D6913-1020RHEX	10,0	10,0	31	38	80	6	2,0	158,00
D6913-1205RHEX	12,0	12,0	37	46	93	6	0,5	198,00
D6913-1210RHEX	12,0	12,0	37	46	93	6	1,0	198,00
D6913-1220RHEX	12,0	12,0	37	46	93	6	2,0	198,00
D6913-1610RHEX	16,0	16,0	49	68	108	6	1,0	aanvraag
D6913-1610R-4D	16,0	16,0	49	58	120	6	1,0	aanvraag
D6913-1620RHEX	16,0	16,0	49	58	108	6	2,0	aanvraag
D6913-2010RHEX	20,0	20,0	61	74	126	6	1,0	aanvraag
D6913-2010R-4D	20,0	20,0	61	83	135	6	1,0	aanvraag
D6913-2020RHEX	20,0	20,0	61	74	126	6	2,0	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

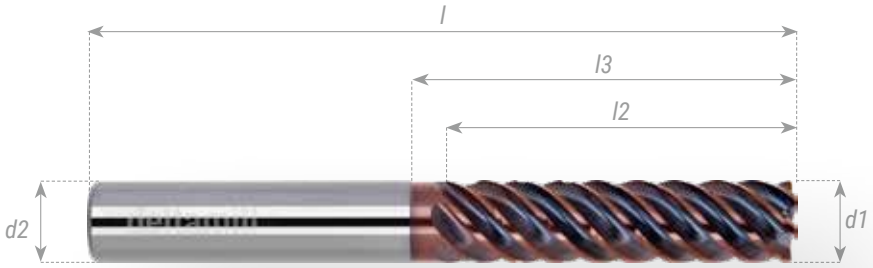
Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	Max. contacthoek Max. contactangle	ap mm	fz mm ae= 5% x D	fz mm ae= 10% x D	fz mm ae= 15% x D	hm* mm
P1.1 Steel < 800N/mm²	6.0	300	6	50°	19	0.130	0.090	0.080	0.030
	8.0	300	6	50°	25	0.160	0.110	0.090	0.050
	10.0	300	6	50°	31	0.200	0.140	0.120	0.054
	12.0	300	6	50°	37	0.250	0.180	0.150	0.057
	16.0	300	6	50°	49	0.290	0.210	0.170	0.065
	20.0	300	6	50°	61	0.340	0.240	0.190	0.075
P2.2 Heat Treatable steel < 1100N/mm²	6.0	240	6	50°	19	0.110	0.080	0.060	0.025
	8.0	240	6	50°	25	0.140	0.100	0.080	0.032
	10.0	240	6	50°	31	0.180	0.130	0.100	0.040
	12.0	240	6	50°	37	0.230	0.160	0.130	0.051
	16.0	240	6	50°	49	0.270	0.190	0.150	0.060
	20.0	240	6	50°	61	0.290	0.210	0.170	0.065
P3.2 High Alloy steels < 1600N/mm²	6.0	210	6	50°	19	0.110	0.080	0.060	0.025
	8.0	210	6	50°	25	0.140	0.100	0.080	0.032
	10.0	210	6	50°	31	0.180	0.130	0.100	0.040
	12.0	210	6	50°	37	0.230	0.160	0.130	0.051
	16.0	210	6	50°	49	0.270	0.190	0.150	0.060
	20.0	210	6	50°	61	0.290	0.210	0.170	0.065
P4.2 Cold working tool steel 12% Chrom	6.0	230	6	45°	19	0.110	0.080	0.060	0.025
	8.0	230	6	45°	25	0.140	0.100	0.080	0.032
	10.0	230	6	45°	31	0.180	0.130	0.100	0.040
	12.0	230	6	45°	37	0.230	0.160	0.130	0.051
	16.0	230	6	45°	49	0.270	0.190	0.150	0.060
	20.0	230	6	45°	61	0.290	0.210	0.170	0.065
M2.1 Stainless steel Austenitic 303-304-316	6.0	170	6	45°	19	0.080	0.060	0.050	0.045
	8.0	170	6	45°	25	0.100	0.070	0.060	0.045
	10.0	170	6	45°	31	0.130	0.090	0.070	0.075
	12.0	170	6	45°	37	0.160	0.110	0.090	0.075
	16.0	170	6	45°	49	0.190	0.130	0.110	0.090
	20.0	170	6	45°	61	0.270	0.190	0.150	0.125
K1.2 Cast iron	6.0	290	6	50°	19	0.110	0.080	0.060	0.025
	8.0	290	6	50°	25	0.140	0.010	0.080	0.032
	10.0	290	6	50°	31	0.180	0.130	0.100	0.040
	12.0	290	6	50°	37	0.230	0.160	0.130	0.051
	16.0	290	6	50°	49	0.270	0.190	0.150	0.060
	20.0	290	6	50°	61	0.290	0.210	0.170	0.065
	25.0	290	6	50°	76	0.330	0.230	0.180	0.080

**hm= gemiddelde spaandikte*
**hm= average chip thickness*

Trochoidal Max Ap and Ae max 15%

VHM Trochoidaal frees 4xD
SC Trochoidal endmill 4xD



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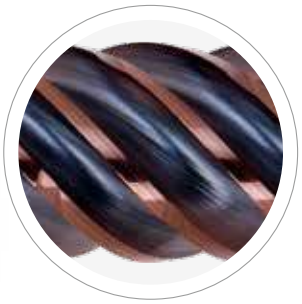


UPC | UNI VERSAL | HB | Unequal | 6 | CHIP BREAKER | NECK RELIEF | Cx45° | COATING HEX | WET | AIR

Code	Ød1	Ød2	l2	l3	l	z	r	€
D6914-0600HEX	6,0	6,0	26	35	72	6	0,2	81,00
D6914-0800HEX	8,0	8,0	34	45	80	6	0,2	112,00
D6914-1000HEX	10,0	10,0	42	55	90	6	0,2	154,00
D6914-1200HEX	12,0	12,0	50	55	103	6	0,3	210,00
D6914-1600HEX	16,0	16,0	66	75	125	6	0,3	aanvraag
D6914-2000HEX	20,0	20,0	82	90	140	6	0,3	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

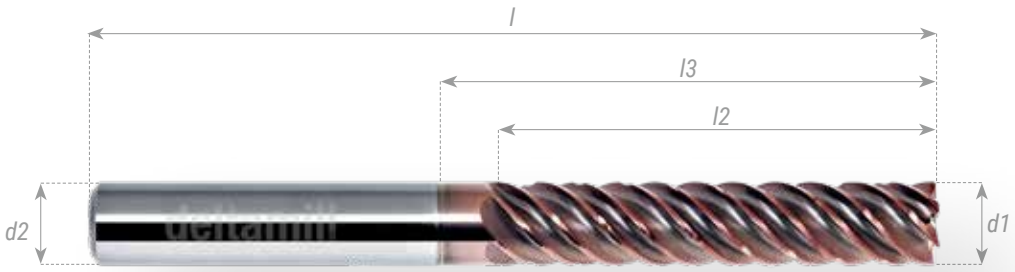
Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	Max. contacthoek Max. contactangle	ap mm	fz mm ae= 5% x D	fz mm ae= 10% x D	fz mm ae= 15% x D	hm* mm
P1.1 Steel < 800N/mm²	6.0	300	6	50°	24	0.130	0.090	0.080	0.030
	8.0	300	6	50°	32	0.160	0.110	0.090	0.050
	10.0	300	6	50°	40	0.200	0.140	0.120	0.054
	12.0	300	6	50°	48	0.250	0.180	0.150	0.057
	16.0	300	6	50°	64	0.290	0.210	0.170	0.065
	20.0	300	6	50°	80	0.340	0.240	0.190	0.075
P2.2 Heat Treatable steel < 1100N/mm²	6.0	240	6	50°	13	0.110	0.080	0.060	0.025
	8.0	240	6	50°	19	0.140	0.100	0.080	0.032
	10.0	240	6	50°	22	0.180	0.130	0.100	0.040
	12.0	240	6	50°	26	0.230	0.160	0.130	0.051
	16.0	240	6	50°	32	0.270	0.190	0.150	0.060
	20.0	240	6	50°	38	0.290	0.210	0.170	0.065
P3.2 High Alloy steels < 1600N/mm²	6.0	240	6	50°	13	0.110	0.080	0.060	0.025
	8.0	240	6	50°	19	0.140	0.100	0.080	0.032
	10.0	240	6	50°	22	0.180	0.130	0.100	0.040
	12.0	240	6	50°	26	0.230	0.160	0.130	0.051
	16.0	240	6	50°	32	0.270	0.190	0.150	0.060
	20.0	240	6	50°	38	0.290	0.210	0.170	0.065
P4.2 Cold working tool steel 12% Chrom	6.0	230	6	45°	13	0.110	0.080	0.060	0.025
	8.0	230	6	45°	19	0.140	0.100	0.080	0.032
	10.0	230	6	45°	22	0.180	0.130	0.100	0.040
	12.0	230	6	45°	26	0.230	0.160	0.130	0.051
	16.0	230	6	45°	32	0.270	0.190	0.150	0.060
	20.0	230	6	45°	38	0.290	0.210	0.170	0.065
M2.1 Stainless steel Austenitic 303-304-316	6.0	170	6	45°	13	0.080	0.060	0.050	0.045
	8.0	170	6	45°	19	0.100	0.070	0.060	0.045
	10.0	170	6	45°	22	0.130	0.090	0.070	0.075
	12.0	170	6	45°	26	0.160	0.110	0.090	0.075
	16.0	170	6	45°	32	0.190	0.130	0.110	0.090
	20.0	170	6	45°	38	0.270	0.150	0.150	0.125
K1.2 Cast iron	6.0	290	6	50°	13	0.110	0.080	0.060	0.025
	8.0	290	6	50°	19	0.140	0.010	0.080	0.032
	10.0	290	6	50°	22	0.180	0.130	0.100	0.040
	12.0	290	6	50°	26	0.230	0.160	0.130	0.051
	16.0	290	6	50°	32	0.270	0.190	0.150	0.060
	20.0	290	6	50°	38	0.290	0.210	0.170	0.065
	25.0	290	6	50°	76	0.330	0.230	0.180	0.080

*hm= gemiddelde spaandikte
*hm= average chip thickness

Trochoidal Max Ap
Ae max 15% x D

VHM Trochoidaal frees 5xD
SC Trochoidal endmill 5xD



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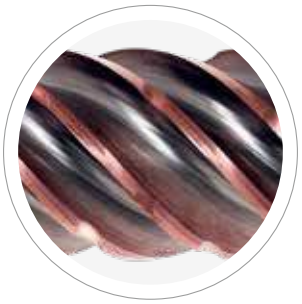


UPC | UNI VERSAL | HB | Unequal | 6 | CHIP BREAKER | NECK RELIEF | Cx45° | COATING HEX | WET | AIR

Code	Ød1	Ød2	l2	l3	l	z	r	€
D6915-0600HEX	6,0	6,0	32	-	70	6	0,2	85,00
D6915-0800HEX	8,0	8,0	42	-	80	6	0,2	121,00
D6915-1000HEX	10,0	10,0	52	-	100	6	0,2	158,00
D6915-1200HEX	12,0	12,0	62	-	116	6	0,3	221,00
D6915-1600HEX	16,0	16,0	82	-	140	6	0,3	aanvraag
D6915-2000HEX	20,0	20,0	102	-	163	6	0,3	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

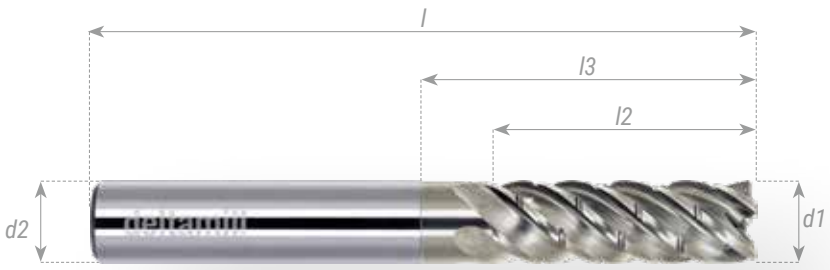
Mat.	ØD	Vc M/min	Z	Max. contacthoek Max. contactangle	ap mm	fz mm ae= 5% x D	fz mm ae= 10% x D	fz mm ae= 15% x D	hm* mm
P1.1 Steel < 800N/mm²	6.0	300	6	50°	30	0.130	0.090	0.080	0.030
	8.0	300	6	50°	40	0.160	0.110	0.090	0.050
	10.0	300	6	50°	50	0.200	0.140	0.120	0.054
	12.0	300	6	50°	60	0.250	0.180	0.150	0.057
	16.0	300	6	50°	80	0.290	0.210	0.170	0.065
	20.0	300	6	50°	100	0.340	0.240	0.190	0.075
P2.2 Heat Treatable steel < 1100N/mm²	6.0	240	6	50°	30	0.110	0.080	0.060	0.025
	8.0	240	6	50°	40	0.140	0.100	0.080	0.032
	10.0	240	6	50°	50	0.180	0.130	0.100	0.040
	12.0	240	6	50°	60	0.230	0.160	0.130	0.051
	16.0	240	6	50°	80	0.270	0.190	0.150	0.060
	20.0	240	6	50°	100	0.290	0.210	0.170	0.065
P3.2 High Alloy steels < 1600N/mm²	6.0	240	6	50°	30	0.110	0.080	0.060	0.025
	8.0	240	6	50°	40	0.140	0.100	0.080	0.032
	10.0	240	6	50°	50	0.180	0.130	0.100	0.040
	12.0	240	6	50°	60	0.230	0.160	0.130	0.051
	16.0	240	6	50°	80	0.270	0.190	0.150	0.060
	20.0	240	6	50°	100	0.290	0.210	0.170	0.065
P4.2 Cold working tool steel 12% Chrom	6.0	230	6	45°	30	0.110	0.080	0.060	0.025
	8.0	230	6	45°	40	0.140	0.100	0.080	0.032
	10.0	230	6	45°	50	0.180	0.130	0.100	0.040
	12.0	230	6	45°	60	0.230	0.160	0.130	0.051
	16.0	230	6	45°	80	0.270	0.190	0.150	0.060
	20.0	230	6	45°	100	0.290	0.210	0.170	0.065
M2.1 Stainless steel Austenitic 303-304-316	6.0	170	6	45°	30	0.080	0.060	0.050	0.045
	8.0	170	6	45°	40	0.100	0.070	0.060	0.045
	10.0	170	6	45°	50	0.130	0.090	0.070	0.075
	12.0	170	6	45°	60	0.160	0.110	0.090	0.075
	16.0	170	6	45°	80	0.190	0.130	0.110	0.090
	20.0	170	6	45°	100	0.270	0.150	0.150	0.125
K1.2 Cast iron	6.0	290	6	50°	30	0.110	0.080	0.060	0.025
	8.0	290	6	50°	40	0.140	0.010	0.080	0.032
	10.0	290	6	50°	50	0.180	0.130	0.100	0.040
	12.0	290	6	50°	60	0.230	0.160	0.130	0.051
	16.0	290	6	50°	80	0.270	0.190	0.150	0.060
	20.0	290	6	50°	100	0.290	0.210	0.170	0.065

*hm= gemiddelde spaandikte
*hm= average chip thickness

Trochoidal Max Ap and Ae max 15%

VHM Trochoidaal frees INOX 3xD

SC Trochoidal endmill INOX 3xD



XTREMA INOX

UPC | INOX | HB | Unequal | 5 | CHIP BREAKER | NECK RELIEF L3 | Cx45° | COATING Si2 Silber | WET

Code	Ød1	Ød2	l2	l3	l	z	c	€
D5923-0600SI2	6,0	6,0	19	24	62	5	0,1	96,00
D5923-0800SI2	8,0	8,0	25	30	68	5	0,2	114,00
D5923-1000SI2	10,0	10,0	31	38	80	5	0,2	153,00
D5923-1200SI2	12,0	12,0	37	47	93	5	0,3	185,00
D5923-1600SI2	16,0	16,0	49	58	108	5	0,3	aanvraag
D5923-2000SI2	20,0	20,0	61	74	126	5	0,3	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

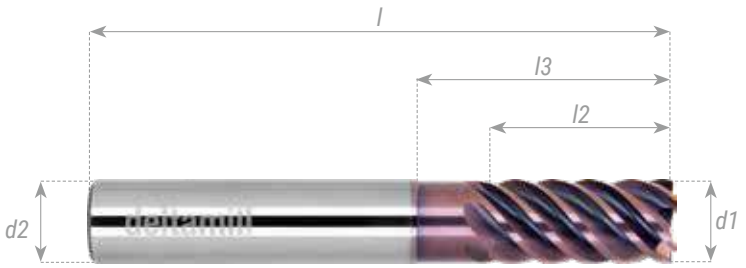
Mat.	ØD	Vc M/min	Z	Max. contacthoek Max. contactangle	ap mm	fz mm ae= 5% x D	fz mm ae= 10% x D	fz mm ae= 15% x D	hm* mm
M1.1 Stainless Steel Ferritic	6.0	180	5	45°	18	0.08	0.06	0.05	0.045
	8.0	180	5	45°	24	0.10	0.07	0.06	0.045
	10.0	180	5	45°	30	0.13	0.09	0.07	0.075
	12.0	180	5	45°	36	0.16	0.17	0.09	0.075
	16.0	180	5	45°	48	0.19	0.13	0.11	0.090
	20.0	180	5	45°	60	0.27	0.19	0.15	0.125
M1.2 Stainless steel Martensitic	6.0	185	5	45°	18	0.08	0.06	0.05	0.045
	8.0	185	5	45°	24	0.10	0.07	0.06	0.045
	10.0	185	5	45°	30	0.13	0.09	0.07	0.075
	12.0	185	5	45°	36	0.16	0.17	0.09	0.075
	16.0	185	5	45°	48	0.19	0.13	0.11	0.090
	20.0	185	5	45°	60	0.27	0.19	0.15	0.125
M1.3 Stainless steel Hardenable	6.0	185	5	45°	18	0.08	0.06	0.05	0.045
	8.0	185	5	45°	24	0.10	0.07	0.06	0.045
	10.0	185	5	45°	30	0.13	0.09	0.07	0.075
	12.0	185	5	45°	36	0.16	0.17	0.09	0.075
	16.0	185	5	45°	48	0.19	0.13	0.11	0.090
	20.0	185	5	45°	60	0.27	0.19	0.15	0.125
M2.1 Stainless steel Austenitic	6.0	170	5	45°	18	0.08	0.06	0.05	0.045
	8.0	170	5	45°	24	0.10	0.07	0.06	0.045
	10.0	170	5	45°	30	0.13	0.09	0.07	0.075
	12.0	170	5	45°	36	0.16	0.17	0.09	0.075
	16.0	170	5	45°	48	0.19	0.13	0.11	0.090
	20.0	170	5	45°	60	0.27	0.19	0.15	0.125
M3.1 Stainless steel Duplex	6.0	185	5	45°	18	0.08	0.06	0.05	0.045
	8.0	185	5	45°	24	0.10	0.07	0.06	0.045
	10.0	185	5	45°	30	0.13	0.09	0.07	0.075
	12.0	185	5	45°	36	0.16	0.17	0.09	0.075
	16.0	185	5	45°	48	0.19	0.13	0.11	0.090
	20.0	185	5	45°	60	0.27	0.19	0.15	0.125

**hm= gemiddelde spaandikte*
**hm= average chip thickness*

Trochoidal Max Ap
and Ae max 15% x D

VHM HPC Finish Frees 2xD

SC HPC endmill for finishing 2xD



AGRESSOR FINISHER

HPC | UNIVERSAL | HB | Vario | Unequal | 6 | NECK RELIEF | SHARP | COATING TiALN | WET | AIR

Code	Ød1	Ød2	l2	l3	l	z	c	€
D6900-0300BA	3,0	6,0	8	14	57	6	-	49,00
D6900-0400BA	4,0	6,0	11	16	57	6	-	49,00
D6900-0500BA	5,0	6,0	13	17	57	6	-	49,00
D6900-0600BA	6,0	6,0	13	20	57	6	-	49,00
D6900-0800BA	8,0	8,0	19	25	63	6	-	68,00
D6900-1000BA	10,0	10,0	22	30	72	6	-	93,00
D6900-1200BA	12,0	12,0	26	36	83	6	-	131,00
D6900-1600BA	16,0	16,0	32	42	92	8	-	aanvraag
D6900-2000BA	20,0	20,0	38	52	104	8	-	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

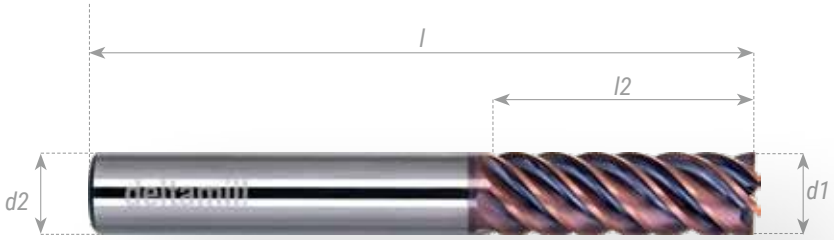
Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
P1.1 Steel < 800N/mm²	3.0	220	6	0.01	6	0.15
	4.0	220	6	0.015	8	0.20
	5.0	220	6	0.02	10	0.25
	6.0	220	6	0.025	12	0.30
	8.0	220	6	0.04	16	0.40
	10.0	220	6	0.05	20	0.50
	12.0	220	6	0.06	24	0.60
	16.0	220	6	0.08	32	0.80
	20.0	220	6	0.10	40	1.00
P2.2 Heat Treatable steel < 1100N/mm²	3.0	200	6	0.01	6	0.15
	4.0	200	6	0.015	8	0.20
	5.0	200	6	0.02	10	0.25
	6.0	200	6	0.025	12	0.30
	8.0	200	6	0.04	16	0.40
	10.0	200	6	0.05	20	0.50
	12.0	200	6	0.06	24	0.60
	16.0	200	6	0.08	32	0.80
	20.0	200	6	0.10	40	1.00
P3.2 High Alloy steels < 1600N/mm²	3.0	180	6	0.01	6	0.15
	4.0	180	6	0.015	8	0.20
	5.0	180	6	0.02	10	0.25
	6.0	180	6	0.025	12	0.30
	8.0	180	6	0.04	16	0.40
	10.0	180	6	0.05	20	0.50
	12.0	180	6	0.06	24	0.60
	16.0	180	6	0.08	32	0.80
	20.0	180	6	0.10	40	1.00
P4.2 Cold working tool steel 12% Chrom	3.0	170	6	0.01	6	0.15
	4.0	170	6	0.015	8	0.20
	5.0	170	6	0.02	10	0.25
	6.0	170	6	0.025	12	0.30
	8.0	170	6	0.04	16	0.40
	10.0	170	6	0.05	20	0.50
	12.0	170	6	0.06	24	0.60
	16.0	170	6	0.08	32	0.80
	20.0	170	6	0.10	40	1.00
M2.1 Stainless steel Austenitic 303-304-316	3.0	100	6	0.01	6	0.15
	4.0	100	6	0.02	8	0.20
	5.0	100	6	0.025	10	0.25
	6.0	100	6	0.025	12	0.30
	8.0	100	6	0.03	16	0.40
	10.0	100	6	0.04	20	0.50
	12.0	100	6	0.05	24	0.60
	16.0	100	6	0.07	32	0.80
	20.0	100	6	0.09	40	1.00
K1.2 Cast iron	3.0	220	6	0.015	6	0.15
	4.0	220	6	0.02	8	0.20
	5.0	220	6	0.025	10	0.25
	6.0	220	6	0.035	12	0.30
	8.0	220	6	0.05	16	0.40
	10.0	220	6	0.07	20	0.50
	12.0	220	6	0.08	24	0.60
	16.0	220	6	0.10	32	0.80
	20.0	220	6	0.12	40	1.00

Finish Ap<max
en Ae 0,05xD

VHM HPC Finish frees 3xD

SC HPC endmill for finishing 3xD



AGRESSOR FINISHER

HPC | UNI VERSAL | HB | Vario | Unequal | 6 | NECK RELIEF | SHARP | COATING TiALN | WET | AIR

Code	Ød1	Ød2	l2	l3	l	z	c	€
D6902-0400BA	4,0	6,0	16	-	62	6	-	51,00
D6902-0500BA	5,0	6,0	18	-	62	6	-	51,00
D6902-0600BA	6,0	6,0	18	-	62	6	-	51,00
D6902-0800BA	8,0	8,0	24	-	68	6	-	74,00
D6902-1000BA	10,0	10,0	30	-	80	6	-	104,00
D6902-1200BA	12,0	12,0	36	-	93	6	-	152,00
D6902-1600BA	16,0	16,0	48	-	108	8	-	aanvraag
D6902-2000BA	20,0	20,0	60	-	126	8	-	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

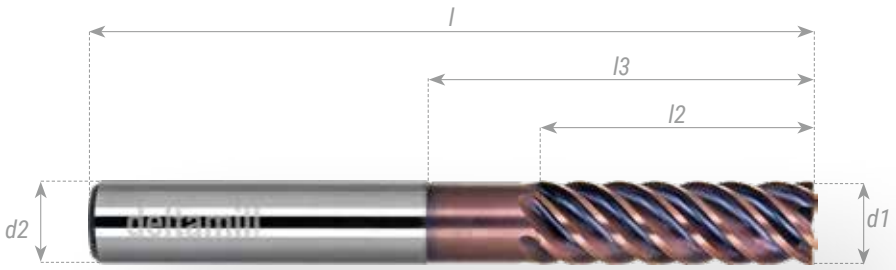
Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
P1.1 Steel < 800N/mm²	3.0	220	6	0.01	6	0.15
	4.0	220	6	0.015	8	0.20
	5.0	220	6	0.02	10	0.25
	6.0	220	6	0.025	12	0.30
	8.0	220	6	0.04	16	0.40
	10.0	220	6	0.05	20	0.50
	12.0	220	6	0.06	24	0.60
	16.0	220	6	0.08	32	0.80
	20.0	220	6	0.10	40	1.00
P2.2 Heat Treatable steel < 1100N/mm²	3.0	200	6	0.01	6	0.15
	4.0	200	6	0.015	8	0.20
	5.0	200	6	0.02	10	0.25
	6.0	200	6	0.025	12	0.30
	8.0	200	6	0.04	16	0.40
	10.0	200	6	0.05	20	0.50
	12.0	200	6	0.06	24	0.60
	16.0	200	6	0.08	32	0.80
	20.0	200	6	0.10	40	1.00
P3.2 High Alloy steels < 1600N/mm²	3.0	180	6	0.01	6	0.15
	4.0	180	6	0.015	8	0.20
	5.0	180	6	0.02	10	0.25
	6.0	180	6	0.025	12	0.30
	8.0	180	6	0.04	16	0.40
	10.0	180	6	0.05	20	0.50
	12.0	180	6	0.06	24	0.60
	16.0	180	6	0.08	32	0.80
	20.0	180	6	0.10	40	1.00
P4.2 Cold working tool steel 12% Chrom	3.0	170	6	0.01	6	0.15
	4.0	170	6	0.015	8	0.20
	5.0	170	6	0.02	10	0.25
	6.0	170	6	0.025	12	0.30
	8.0	170	6	0.04	16	0.40
	10.0	170	6	0.05	20	0.50
	12.0	170	6	0.06	24	0.60
	16.0	170	6	0.08	32	0.80
	20.0	170	6	0.10	40	1.00
M2.1 Stainless steel Austenitic 303-304-316	3.0	100	6	0.01	6	0.15
	4.0	100	6	0.02	8	0.20
	5.0	100	6	0.025	10	0.25
	6.0	100	6	0.025	12	0.30
	8.0	100	6	0.03	16	0.40
	10.0	100	6	0.04	20	0.50
	12.0	100	6	0.05	24	0.60
	16.0	100	6	0.07	32	0.80
	20.0	100	6	0.09	40	1.00
K1.2 Cast iron	3.0	220	6	0.015	6	0.15
	4.0	220	6	0.02	8	0.20
	5.0	220	6	0.025	10	0.25
	6.0	220	6	0.035	12	0.30
	8.0	220	6	0.05	16	0.40
	10.0	220	6	0.07	20	0.50
	12.0	220	6	0.08	24	0.60
	16.0	220	6	0.10	32	0.80
	20.0	220	6	0.12	40	1.00

Finish Ap<max
en Ae 0,05xD

VHM HPC Finish frees 3xD (nek 4xD)

SC- HPC endmill for finishing 3xD (Neckrelief 4xD



AGRESSOR FINISHER

HPC | UNI VERSAL | HB | Vario | Unequal | 6 | NECK RELIEF | r | COATING TiALN | WET | AIR

Code	Ød1	Ød2	l2	l3	l	z	r	€
D6902-0600-4D	6,0	6,0	19	26	72	6	-	64,00
D6902-0800-4D	8,0	8,0	27	35	80	6	-	87,00
D6902-1000-4D	10,0	10,0	32	45	90	6	-	127,00
D6902-1005-4D	10,0	10,0	32	45	90	6	0,5	156,00
D6902-1010-4D	10,0	10,0	32	45	90	6	1,0	156,00
D6902-1200-4D	12,0	12,0	39	55	103	6	-	162,00
D6902-1205-4D	12,0	12,0	39	55	103	6	0,5	185,00
D6902-1210-4D	12,0	12,0	39	55	103	6	1,0	185,00
D6902-1600-4D	16,0	16,0	50	66	115	6	-	aanvraag
D6902-1610-4D	16,0	16,0	50	66	115	6	1,0	aanvraag
D6902-2000-4D	20,0	20,0	63	80	130	6	-	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

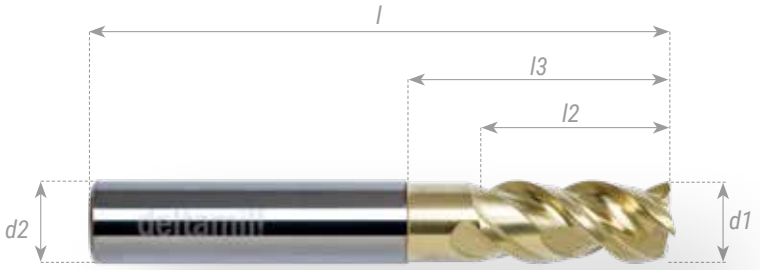
Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
P1.1 Steel < 800N/mm²	3.0	220	6	0.01	6	0.15
	4.0	220	6	0.015	8	0.20
	5.0	220	6	0.02	10	0.25
	6.0	220	6	0.025	12	0.30
	8.0	220	6	0.04	16	0.40
	10.0	220	6	0.05	20	0.50
	12.0	220	6	0.06	24	0.60
	16.0	220	6	0.08	32	0.80
	20.0	220	6	0.10	40	1.00
P2.2 Heat Treatable steel < 1100N/mm²	3.0	200	6	0.01	6	0.15
	4.0	200	6	0.015	8	0.20
	5.0	200	6	0.02	10	0.25
	6.0	200	6	0.025	12	0.30
	8.0	200	6	0.04	16	0.40
	10.0	200	6	0.05	20	0.50
	12.0	200	6	0.06	24	0.60
	16.0	200	6	0.08	32	0.80
	20.0	200	6	0.10	40	1.00
P3.2 High Alloy steels < 1600N/mm²	3.0	180	6	0.01	6	0.15
	4.0	180	6	0.015	8	0.20
	5.0	180	6	0.02	10	0.25
	6.0	180	6	0.025	12	0.30
	8.0	180	6	0.04	16	0.40
	10.0	180	6	0.05	20	0.50
	12.0	180	6	0.06	24	0.60
	16.0	180	6	0.08	32	0.80
	20.0	180	6	0.10	40	1.00
P4.2 Cold working tool steel 12% Chrom	3.0	170	6	0.01	6	0.15
	4.0	170	6	0.015	8	0.20
	5.0	170	6	0.02	10	0.25
	6.0	170	6	0.025	12	0.30
	8.0	170	6	0.04	16	0.40
	10.0	170	6	0.05	20	0.50
	12.0	170	6	0.06	24	0.60
	16.0	170	6	0.08	32	0.80
	20.0	170	6	0.10	40	1.00
M2.1 Stainless steel Austenitic 303-304-316	3.0	100	6	0.01	6	0.15
	4.0	100	6	0.02	8	0.20
	5.0	100	6	0.025	10	0.25
	6.0	100	6	0.025	12	0.30
	8.0	100	6	0.03	16	0.40
	10.0	100	6	0.04	20	0.50
	12.0	100	6	0.05	24	0.60
	16.0	100	6	0.07	32	0.80
	20.0	100	6	0.09	40	1.00
K1.2 Cast iron	3.0	220	6	0.015	6	0.15
	4.0	220	6	0.02	8	0.20
	5.0	220	6	0.025	10	0.25
	6.0	220	6	0.035	12	0.30
	8.0	220	6	0.05	16	0.40
	10.0	220	6	0.07	20	0.50
	12.0	220	6	0.08	24	0.60
	16.0	220	6	0.10	32	0.80
	20.0	220	6	0.12	40	1.00

Finish Ap<max
en Ae 0,05xD

VHM HPC Frees
SC HPC endmill



AGRESSOR ALU

HPC | ALU | HA HB | Vario | Unequal | 3 | NECK RELIEF | POLISH FLUTE | Cx45° | COATING ZrN | WET

Code	Ød1	Ød2	l2	l3	l	z	c	€
D3930-0300(A)(B)ZOX	3,0	6,0	8	12	57	3	0,1	55,00
D3930-0400(A)(B)ZOX	4,0	6,0	13	17	57	3	0,1	55,00
D3930-0500(A)(B)ZOX	5,0	6,0	13	18	57	3	0,1	55,00
D3930-0600(A)(B)ZOX	6,0	6,0	16	19	57	3	0,2	55,00
D3930-0800(A)(B)ZOX	8,0	8,0	21	25	63	3	0,2	73,00
D3930-1000(A)(B)ZOX	10,0	10,0	22	30	72	3	0,2	115,00
D3930-1200(A)(B)ZOX	12,0	12,0	26	36	83	3	0,2	140,00
D3930-1600(A)(B)ZOX	16,0	16,0	36	42	92	3	0,2	aanvraag
D3930-2000(A)(B)ZOX	20,0	10,0	41	52	104	3	0,2	aanvraag

Te bestellen in zowel Cilindrische (HA) AZOX als met Weldon (HB) BZOX
You can order in cilindrical (HA) AZOX or with Weldon-flat (HB) BZOX

Uitlopend artikel, nieuw artikel zie D3933-Serie
Expiring article, new article see D3933-Serie

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.		ØD	Vc M/min	Z	fz mm	ap mm	ae mm
N1.1	Aluminium wrought alloys	3.0	600	3	0.020	3	3
		4.0	600	3	0.035	4	4
		5.0	600	3	0.040	5	5
		6.0	600	3	0.045	6	6
		8.0	600	3	0.060	8	8
		10.0	600	3	0.065	10	10
		12.0	600	3	0.070	12	12
		16.0	600	3	0.090	16	16
		20.0	600	3	0.120	20	20
N1.4	Aluminium cast alloys 6-12% Si	3.0	360	3	0.015	3	3
		4.0	360	3	0.030	4	4
		5.0	360	3	0.035	5	5
		6.0	360	3	0.040	6	6
		8.0	360	3	0.050	8	8
		10.0	360	3	0.060	10	10
		12.0	360	3	0.070	12	12
		16.0	360	3	0.120	16	16
		20.0	360	3	0.170	20	20
N1.5	Aluminium cast alloys <12%Si	3.0	240	3	0.015	3	3
		4.0	240	3	0.030	4	4
		5.0	240	3	0.035	5	5
		6.0	240	3	0.040	6	6
		8.0	240	3	0.050	8	8
		10.0	240	3	0.060	10	10
		12.0	240	3	0.070	12	12
		16.0	240	3	0.120	16	16
		20.0	240	3	0.170	20	20
N2.1	Copper	3.0	150	3	0.010	3	3
		4.0	150	3	0.020	4	4
		5.0	150	3	0.025	5	5
		6.0	150	3	0.030	6	6
		8.0	150	3	0.040	8	8
		10.0	150	3	0.050	10	10
		12.0	150	3	0.060	12	12
		16.0	150	3	0.080	16	16
		20.0	150	3	0.120	20	20
N2.2	Brass	3.0	240	3	0.015	3	3
		4.0	240	3	0.030	4	4
		5.0	240	3	0.035	5	5
		6.0	240	3	0.040	6	6
		8.0	240	3	0.050	8	8
		10.0	240	3	0.060	10	10
		12.0	240	3	0.070	12	12
		16.0	240	3	0.120	16	16
		20.0	240	3	0.170	20	20
N2.3	Bronze	3.0	150	3	0.010	3	3
		4.0	150	3	0.020	4	4
		5.0	150	3	0.025	5	5
		6.0	150	3	0.030	6	6
		8.0	150	3	0.040	8	8
		10.0	150	3	0.050	10	10
		12.0	150	3	0.060	12	12
		16.0	150	3	0.080	16	16
		20.0	150	3	0.120	20	20
N2.5	Ampco	3.0	55	3	0.008	3	3
		4.0	55	3	0.015	4	4
		5.0	55	3	0.020	5	5
		6.0	55	3	0.025	6	6
		8.0	55	3	0.030	8	8
		10.0	55	3	0.040	10	10
		12.0	55	3	0.050	12	12
		16.0	55	3	0.065	16	16
		20.0	55	3	0.100	20	20

Correctie
Correction

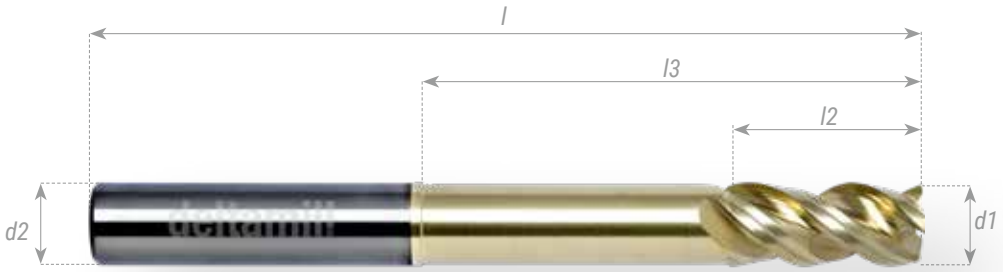
Ae	Ap	Vc	fz
Ae= <0,4xD	1 x D	+20%	+20%
Ae= <0,4xD	1,5 x D	+10%	+10%
Ae= <0,05xD	2 x D	-	+100%

Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

Finish Ap<2xD
en Ae 0,05xD

VHM HPC Frees extra lang
SC HPC endmill extra long



AGRESSOR ALU

HPC | ALU | HA HB | Vario | Unequal | 3 | NECK RELIEF | POLISH FLUTE | Cx45° | COATING ZrN | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D3932-0300(A)(B)ZOX	3,0	6,0	8	20	60	3	0,1	61,00
D3932-0400(A)(B)ZOX	4,0	6,0	11	22	65	3	0,1	67,00
D3932-0500(A)(B)ZOX	5,0	6,0	13	26	76	3	0,1	85,00
D3932-0600(A)(B)ZOX	6,0	6,0	16	42	80	3	0,2	85,00
D3932-0800(A)(B)ZOX	8,0	8,0	21	62	100	3	0,2	100,00
D3932-1000(A)(B)ZOX	10,0	10,0	25	62	100	3	0,2	140,00
D3932-1200(A)(B)ZOX	12,0	12,0	26	73	120	3	0,2	170,00
D3932-1600(A)(B)ZOX	16,0	16,0	36	100	150	3	0,2	aanvraag
D3932-2000(A)(B)ZOX	20,0	20,0	41	100	150	3	0,2	aanvraag

Te bestellen in zowel Cilindrische (HA) AZOX als met Weldon (HB) BZOX
You can order in cilindrical (HA) AZOX or with Weldon-flat (HB) BZOX

Uitlopend artikel, nieuw artikel zie D3936-Serie
Expiring article, new article see D3933-Serie

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.		ØD	Vc M/min	Z	fz mm	ap mm	ae mm
N1.1	Aluminium wrought alloys	3.0	300	3	0.020	3	3
		4.0	300	3	0.035	4	4
		5.0	300	3	0.040	5	5
		6.0	300	3	0.045	6	6
		8.0	300	3	0.060	8	8
		10.0	300	3	0.065	10	10
		12.0	300	3	0.070	12	12
		16.0	300	3	0.090	16	16
		20.0	300	3	0.120	20	20
N1.4	Aluminium cast alloys 6-12% Si	3.0	200	3	0.010	3	3
		4.0	200	3	0.020	4	4
		5.0	200	3	0.025	5	5
		6.0	200	3	0.030	6	6
		8.0	200	3	0.040	8	8
		10.0	200	3	0.050	10	10
		12.0	200	3	0.055	12	12
		16.0	200	3	0.090	16	16
		20.0	200	3	0.140	20	20
N1.5	Aluminium cast alloys <12%Si	3.0	130	3	0.010	3	3
		4.0	130	3	0.020	4	4
		5.0	130	3	0.025	5	5
		6.0	130	3	0.030	6	6
		8.0	130	3	0.040	8	8
		10.0	130	3	0.050	10	10
		12.0	130	3	0.055	12	12
		16.0	130	3	0.090	16	16
		20.0	130	3	0.140	20	20
N2.1	Copper	3.0	80	3	0.080	3	3
		4.0	80	3	0.015	4	4
		5.0	80	3	0.020	5	5
		6.0	80	3	0.025	6	6
		8.0	80	3	0.030	8	8
		10.0	80	3	0.040	10	10
		12.0	80	3	0.050	12	12
		16.0	80	3	0.065	16	16
		20.0	80	3	0.100	20	20
N2.2	Brass	3.0	130	3	0.010	3	3
		4.0	130	3	0.020	4	4
		5.0	130	3	0.025	5	5
		6.0	130	3	0.030	6	6
		8.0	130	3	0.040	8	8
		10.0	130	3	0.050	10	10
		12.0	130	3	0.055	12	12
		16.0	130	3	0.090	16	16
		20.0	130	3	0.140	20	20
N2.3	Bronze	3.0	80	3	0.080	3	3
		4.0	80	3	0.015	4	4
		5.0	80	3	0.020	5	5
		6.0	80	3	0.025	6	6
		8.0	80	3	0.030	8	8
		10.0	80	3	0.040	10	10
		12.0	80	3	0.050	12	12
		16.0	80	3	0.065	16	16
		20.0	80	3	0.100	20	20
N2.5	Ampco	3.0	50	3	0.080	3	3
		4.0	50	3	0.015	4	4
		5.0	50	3	0.020	5	5
		6.0	50	3	0.025	6	6
		8.0	50	3	0.030	8	8
		10.0	50	3	0.040	10	10
		12.0	50	3	0.050	12	12
		16.0	50	3	0.065	16	16
		20.0	50	3	0.100	20	20

Correctie
Correction

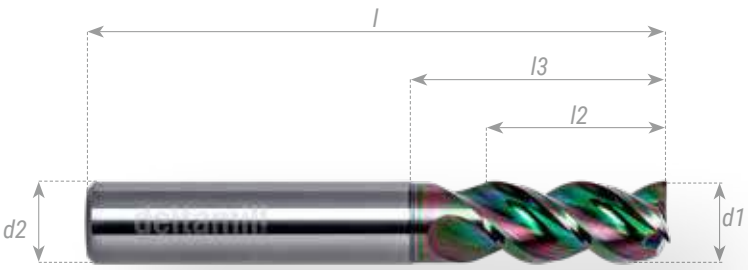
Ae	Ap	Vc	fz
Ae= <0,4xD	1 x D	+20%	+20%
Ae= <0,4xD	1,5 x D	+10%	+10%
Ae= <0,05xD	2 x D	-	+100%

Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

Finish Ap<2xD
en Ae 0,05xD

VHM UPC Frees
SC UPC endmill



AGRESSOR ALU

UPC | ALU | HA | Vario | 3 | NECK RELIEF | POLISH FLUTE | SHARP | COATING DLC | WET

Code	Ød1	Ød2	l2	l3	l	z	c/r	€
D3930-0100DLC	1,0	4,0	1,5	-	38	3	-	49,00
D3930-0200DLC	2,0	4,0	2,5	-	38	3	-	49,00
D3930-0300DLC	3,0	6,0	8	13	57	3	-	61,00
D3930-0400DLC	4,0	6,0	11	17	57	3	-	61,00
D3930-0500DLC	5,0	6,0	13	18	57	3	-	61,00
D3930-0600DLC	6,0	6,0	13	18	57	3	-	61,00
D3930-0800DLC	8,0	8,0	21	25	64	3	-	85,00
D3930-1000DLC	10,0	10,0	22	30	72	3	-	115,00
D3930-1200DLC	12,0	12,0	26	36	83	3	-	152,00
D3930-1600DLC	16,0	16,0	36	42	92	3	-	aanvraag
D3930-2000DLC	20,0	20,0	41	52	104	3	-	aanvraag
D3930-2500DLC	25,0	25,0	55	66	126	3	-	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.		ØD	Vc M/min	Z	fz mm	ap mm	ae mm
N1.1	Aluminium wrought alloys	3.0	500	3	0.008	3	3
		4.0	500	3	0.015	4	4
		5.0	500	3	0.015	5	5
		6.0	500	3	0.025	6	6
		8.0	500	3	0.030	8	8
		10.0	500	3	0.040	10	10
		12.0	500	3	0.050	12	12
		16.0	500	3	0.065	16	16
		20.0	500	3	0.065	20	20
N1.4	Aluminium cast alloys 6-12% Si	3.0	460	3	0.015	3	3
		4.0	460	3	0.030	4	4
		5.0	460	3	0.035	5	5
		6.0	460	3	0.040	6	6
		8.0	460	3	0.050	8	8
		10.0	460	3	0.060	10	10
		12.0	460	3	0.070	12	12
		16.0	460	3	0.120	16	16
		20.0	460	3	0.170	20	20
N1.5	Aluminium cast alloys <12%Si	3.0	240	3	0.015	3	3
		4.0	240	3	0.030	4	4
		5.0	240	3	0.035	5	5
		6.0	240	3	0.040	6	6
		8.0	240	3	0.050	8	8
		10.0	240	3	0.060	10	10
		12.0	240	3	0.070	12	12
		16.0	240	3	0.120	16	16
		20.0	240	3	0.170	20	20
N2.1	Copper	3.0	150	3	0.010	3	3
		4.0	150	3	0.020	4	4
		5.0	150	3	0.025	5	5
		6.0	150	3	0.030	6	6
		8.0	150	3	0.040	8	8
		10.0	150	3	0.050	10	10
		12.0	150	3	0.060	12	12
		16.0	150	3	0.080	16	16
		20.0	150	3	0.120	20	20
N2.2	Brass	3.0	240	3	0.015	3	3
		4.0	240	3	0.030	4	4
		5.0	240	3	0.035	5	5
		6.0	240	3	0.040	6	6
		8.0	240	3	0.050	8	8
		10.0	240	3	0.060	10	10
		12.0	240	3	0.070	12	12
		16.0	240	3	0.120	16	16
		20.0	240	3	0.170	20	20
N2.3	Bronze	3.0	150	3	0.010	3	3
		4.0	150	3	0.020	4	4
		5.0	150	3	0.025	5	5
		6.0	150	3	0.030	6	6
		8.0	150	3	0.040	8	8
		10.0	150	3	0.050	10	10
		12.0	150	3	0.060	12	12
		16.0	150	3	0.080	16	16
		20.0	150	3	0.120	20	20
N2.5	Ampco	3.0	55	3	0.008	3	3
		4.0	55	3	0.015	4	4
		5.0	55	3	0.020	5	5
		6.0	55	3	0.025	6	6
		8.0	55	3	0.030	8	8
		10.0	55	3	0.040	10	10
		12.0	55	3	0.050	12	12
		16.0	55	3	0.065	16	16
		20.0	55	3	0.100	20	20

Correctie
Correction

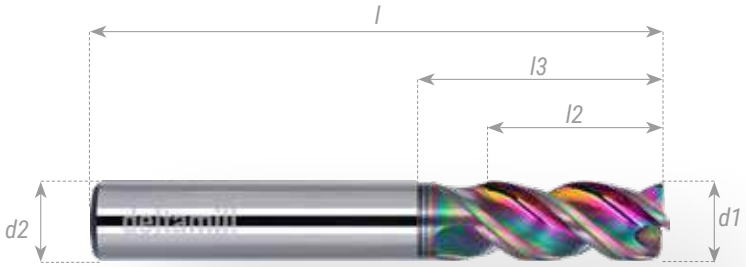
Ae	Ap	Vc	fz
Ae= <0,4xD	1 x D	+20%	+20%
Ae= <0,4xD	1,5 x D	+10%	+10%
Ae= <0,05xD	2 x D	-	+100%

Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

Finish Ap<2xD
en Ae 0,05xD

VHM UPC Frees 3xD neklengte
SC UPC endmill 3xD neckrelief



ALUMINATOR SMOOTHER

UPC | ALU | HA | 3 | NECK RELIEF | r | POLISH FLUTE | COATING DLC | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D3933-0300DLC	3,0	6,0	6	9	58	3	0,1	75,00
D3933-0400DLC	4,0	6,0	8	12	58	3	0,1	73,00
D3933-0500DLC	5,0	6,0	9	15	58	3	0,2	70,00
D3933-0600DLC	6,0	6,0	13	18	58	3	0,2	70,00
D3933-0800DLC	8,0	8,0	21	25	63	3	0,2	88,00
D3933-1000DLC	10,0	10,0	22	30	72	3	0,2	135,00
D3933-1200DLC	12,0	12,0	26	36	84	3	0,2	153,00
D3933-1600DLC	16,0	16,0	36	48	100	3	0,2	aanvraag
D3933-2000DLC	20,0	20,0	41	60	110	3	0,2	aanvraag

Andere diameters op aanvraag.
Other dimensions on request.

Ook leverbaar met interne koeling zie D3933IDLC - page 58
Also available with intern coolant see D3933IDLC - page 58

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

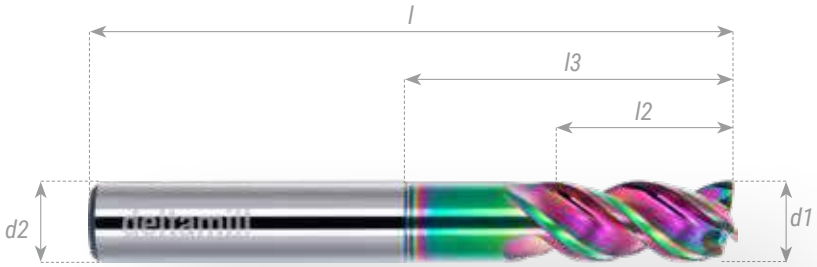
Mat.	ØD	Vc M/min	Z	fz mm Ae 1xD Ap 2xD	ap mm	ae mm	fz mm Ae 0,6xD Ap 2xD	drilling fz mm
N1.1 Aluminium wrought alloys	3,0	550	3	0.03	6	3	0.05	0.03
	4,0	550	3	0.035	8	4	0.06	0.035
	5,0	550	3	0.04	10	5	0.07	0.04
	6.0	550	3	0.05	12	6	0.09	0.05
	8.0	550	3	0.06	16	8	0.11	0.06
	10.0	550	3	0.07	20	10	0.13	0.07
	12.0	550	3	0.08	24	12	0.15	0.08
	16.0	550	3	0.12	32	16	0.16	0.12
	20.0	550	3	0.18	40	20	0.22	0.18
N1.4 Aluminium cast alloys 6-12% Si	3,0	550	3	0.03	6	3	0.05	0.03
	4,0	550	3	0.035	8	4	0.06	0.035
	5,0	550	3	0.04	9	5	0.07	0.04
	6.0	550	3	0.05	12	6	0.09	0.05
	8.0	550	3	0.06	16	8	0.11	0.06
	10.0	550	3	0.07	20	10	0.13	0.07
	12.0	550	3	0.08	24	12	0.15	0.08
	16.0	550	3	0.12	32	16	0.16	0.12
	20.0	550	3	0.18	40	20	0.22	0.18
N1.5 Aluminium cast alloys <12%Si	3,0	400	3	0.03	6	3	0.05	0.03
	4,0	400	3	0.035	8	4	0.06	0.035
	5,0	400	3	0.04	9	5	0.07	0.04
	6.0	400	3	0.05	12	6	0.09	0.05
	8.0	400	3	0.06	16	8	0.11	0.06
	10.0	400	3	0.07	20	10	0.13	0.07
	12.0	400	3	0.08	24	12	0.15	0.08
	16.0	400	3	0.12	32	16	0.16	0.12
	20.0	400	3	0.18	40	20	0.22	0.18
N2.1 Copper	3,0	300	3	0.03	6	3	0.05	0.03
	4,0	300	3	0.035	8	4	0.06	0.035
	5,0	300	3	0.04	9	5	0.07	0.04
	6.0	300	3	0.05	12	6	0.09	0.05
	8.0	300	3	0.06	16	8	0.11	0.06
	10.0	300	3	0.07	20	10	0.13	0.07
	12.0	300	3	0.08	24	12	0.15	0.08
	16.0	300	3	0.12	32	16	0.16	0.12
	20.0	300	3	0.18	40	20	0.22	0.18
N2.5 Ampco	3,0	180	3	0.03	6	3	0.05	0.03
	4,0	180	3	0.035	8	4	0.06	0.035
	5,0	180	3	0.04	9	5	0.07	0.04
	6.0	180	3	0.05	12	6	0.09	0.05
	8.0	180	3	0.06	16	8	0.11	0.06
	10.0	180	3	0.07	20	10	0.13	0.07
	12.0	180	3	0.08	24	12	0.15	0.08
	16.0	180	3	0.12	32	16	0.16	0.12
	20.0	180	3	0.18	40	20	0.22	0.18

Drilling Ap1xD

Slotting Ap1xD
en Ae1xD

Contour Ap<2,0xD
en Ae<0,6xD

VHM UPC Frees 4xD neklengte
SC UPC endmill 4xD neckrelief



ALUMINATOR SMOOTHER

UPC | ALU | HA | 3 | NECK RELIEF | r | POLISH FLUTE | COATING DLC | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D3934-0300DLC	3,0	6,0	6	12	58	3	0,1	75,00
D3934-0400DLC	4,0	6,0	8	16	58	3	0,1	75,00
D3934-0500DLC	5,0	6,0	9	20	62	3	0,2	101,00
D3934-0600DLC	6,0	6,0	13	24	62	3	0,2	101,00
D3934-0800DLC	8,0	8,0	21	34	68	3	0,2	120,00
D3934-1000DLC	10,0	10,0	22	40	80	3	0,2	161,00
D3934-1200DLC	12,0	12,0	26	48	94	3	0,2	187,00
D3934-1600DLC	16,0	16,0	36	64	113	3	0,2	aanvraag
D3934-2000DLC	20,0	20,0	41	80	131	3	0,2	aanvraag

Andere diameters op aanvraag.
Other dimensions on request.

Ook leverbaar met interne koeling zie D3934IDLC - page 60
Also available with intern coolant see D3934IDLC - page 60

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

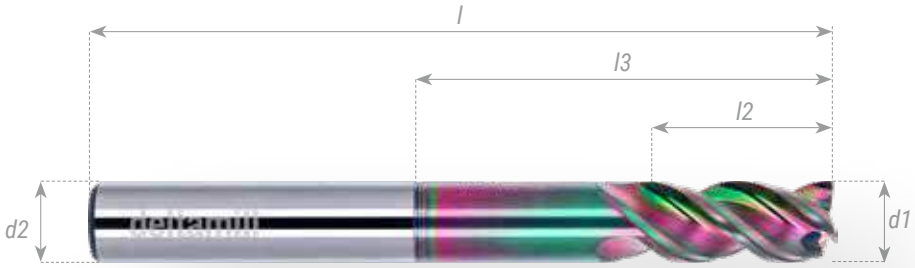
Mat.	ØD	Vc M/min	Z	fz mm Ae 1xD Ap 2xD	ap mm	ae mm	fz mm Ae 0,6xD Ap 2xD	drilling fz mm
N1.1 Aluminium wrought alloys	3,0	550	3	0.03	6	3	0.05	0.03
	4,0	550	3	0.035	8	4	0.06	0.035
	5,0	550	3	0.04	10	5	0.07	0.04
	6.0	550	3	0.05	12	6	0.09	0.05
	8.0	550	3	0.06	16	8	0.11	0.06
	10.0	550	3	0.07	20	10	0.13	0.07
	12.0	550	3	0.08	24	12	0.15	0.08
	16.0	550	3	0.12	32	16	0.16	0.12
	20.0	550	3	0.18	40	20	0.22	0.18
N1.4 Aluminium cast alloys 6-12% Si	3,0	550	3	0.03	6	3	0.05	0.03
	4,0	550	3	0.035	8	4	0.06	0.035
	5,0	550	3	0.04	9	5	0.07	0.04
	6.0	550	3	0.05	12	6	0.09	0.05
	8.0	550	3	0.06	16	8	0.11	0.06
	10.0	550	3	0.07	20	10	0.13	0.07
	12.0	550	3	0.08	24	12	0.15	0.08
	16.0	550	3	0.12	32	16	0.16	0.12
	20.0	550	3	0.18	40	20	0.22	0.18
N1.5 Aluminium cast alloys <12%Si	3,0	400	3	0.03	6	3	0.05	0.03
	4,0	400	3	0.035	8	4	0.06	0.035
	5,0	400	3	0.04	9	5	0.07	0.04
	6.0	400	3	0.05	12	6	0.09	0.05
	8.0	400	3	0.06	16	8	0.11	0.06
	10.0	400	3	0.07	20	10	0.13	0.07
	12.0	400	3	0.08	24	12	0.15	0.08
	16.0	400	3	0.12	32	16	0.16	0.12
	20.0	400	3	0.18	40	20	0.22	0.18
N2.1 Copper	3,0	300	3	0.03	6	3	0.05	0.03
	4,0	300	3	0.035	8	4	0.06	0.035
	5,0	300	3	0.04	9	5	0.07	0.04
	6.0	300	3	0.05	12	6	0.09	0.05
	8.0	300	3	0.06	16	8	0.11	0.06
	10.0	300	3	0.07	20	10	0.13	0.07
	12.0	300	3	0.08	24	12	0.15	0.08
	16.0	300	3	0.12	32	16	0.16	0.12
	20.0	300	3	0.18	40	20	0.22	0.18
N2.5 Ampco	3,0	180	3	0.03	6	3	0.05	0.03
	4,0	180	3	0.035	8	4	0.06	0.035
	5,0	180	3	0.04	9	5	0.07	0.04
	6.0	180	3	0.05	12	6	0.09	0.05
	8.0	180	3	0.06	16	8	0.11	0.06
	10.0	180	3	0.07	20	10	0.13	0.07
	12.0	180	3	0.08	24	12	0.15	0.08
	16.0	180	3	0.12	32	16	0.16	0.12
	20.0	180	3	0.18	40	20	0.22	0.18

Drilling Ap1xD

Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

VHM UPC Frees 5xD neklengte
SC UPC endmill 5xD neckrelief



ALUMINATOR SMOOTHER

UPC | ALU | HA | 3 | NECK RELIEF | r | POLISH FLUTE | COATING DLC | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D3935-0300DLC	3,0	6,0	6	15	62	3	0,2	101,00
D3935-0400DLC	4,0	5,0	8	20	62	3	0,2	101,00
D3935-0500DLC	5,0	5,0	9	25	70	3	0,2	107,00
D3935-0600DLC	6,0	6,0	13	30	70	3	0,2	107,00
D3935-0800DLC	8,0	8,0	21	40	80	3	0,2	135,00
D3935-1000DLC	10,0	10,0	22	50	91	3	0,2	187,00
D3935-1200DLC	12,0	12,0	26	60	106	3	0,2	250,00
D3935-1600DLC	16,0	16,0	36	81	131	3	0,2	aanvraag
D3935-2000DLC	20,0	20,0	41	100	151	3	0,2	aanvraag

Andere diameters op aanvraag.
Other dimensions on request.

Ook leverbaar met interne koeling zie D3935IDLC - page 62
Also available with intern coolant see D3935IDLC - page 62

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

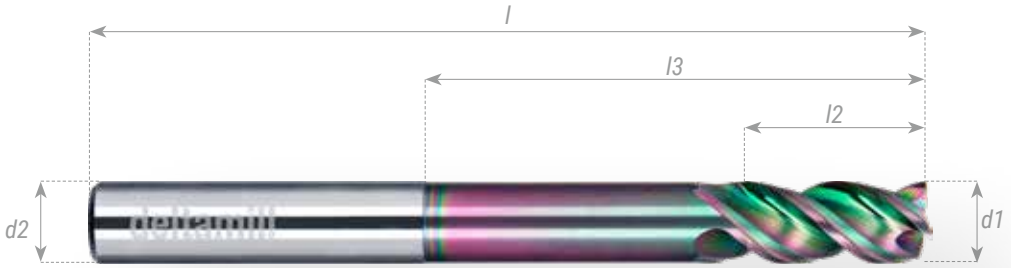
Mat.	ØD	Vc M/min	Z	fz mm Ae 1xD Ap 1xD	ap mm	ae mm	fz mm Ae 0,6xD	drilling fz mm
N1.1 Aluminium wrought alloys	3.0	450	3	0.015	6	3	0.03	0.015
	4.0	450	3	0.02	8	4	0.04	0.02
	5.0	450	3	0.025	10	5	0.06	0.025
	6.0	450	3	0.035	12	6	0.07	0.035
	8.0	450	3	0.04	16	8	0.08	0.04
	10.0	450	3	0.05	20	10	0.10	0.05
	12.0	450	3	0.06	24	12	0.11	0.06
	16.0	450	3	0.09	32	16	0.12	0.09
	20.0	450	3	0.13	40	20	0.16	0.13
N1.4 Aluminium cast alloys 6-12% Si	3.0	400	3	0.015	3	3	0.03	0.015
	4.0	400	3	0.02	4	4	0.04	0.02
	5.0	400	3	0.025	5	5	0.06	0.025
	6.0	400	3	0.035	6	6	0.07	0.035
	8.0	400	3	0.04	8	8	0.08	0.04
	10.0	400	3	0.05	10	10	0.10	0.05
	12.0	400	3	0.06	12	12	0.11	0.06
	16.0	400	3	0.09	16	16	0.12	0.09
	20.0	400	3	0.13	20	20	0.16	0.13
N1.5 Aluminium cast alloys <12%Si	3.0	300	3	0.015	3	3	0.03	0.015
	4.0	300	3	0.02	4	4	0.04	0.02
	5.0	300	3	0.025	5	5	0.06	0.025
	6.0	300	3	0.035	6	6	0.07	0.035
	8.0	300	3	0.04	8	8	0.08	0.04
	10.0	300	3	0.05	10	10	0.10	0.05
	12.0	300	3	0.06	12	12	0.11	0.06
	16.0	300	3	0.09	16	16	0.12	0.09
	20.0	300	3	0.13	20	20	0.16	0.13
N2.1 Copper	3.0	200	3	0.015	3	3	0.03	0.015
	4.0	200	3	0.02	4	4	0.04	0.02
	5.0	200	3	0.025	5	5	0.06	0.025
	6.0	200	3	0.035	6	6	0.07	0.035
	8.0	200	3	0.04	8	8	0.08	0.04
	10.0	200	3	0.05	10	10	0.10	0.05
	12.0	200	3	0.06	12	12	0.11	0.06
	16.0	200	3	0.09	16	16	0.12	0.09
	20.0	200	3	0.13	20	20	0.16	0.13
N2.5 Ampco	3.0	100	3	0.015	3	3	0.03	0.015
	4.0	100	3	0.02	4	4	0.04	0.02
	5.0	100	3	0.025	5	5	0.06	0.025
	6.0	100	3	0.035	6	6	0.07	0.035
	8.0	100	3	0.04	8	8	0.08	0.04
	10.0	100	3	0.05	10	10	0.10	0.05
	12.0	100	3	0.06	12	12	0.11	0.06
	16.0	100	3	0.09	16	16	0.12	0.09
	20.0	100	3	0.13	20	20	0.16	0.13

Drilling Ap1xD

Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

VHM UPC Frees 6xD neklengte
SC UPC endmill 6xD neckrelief



ALUMINATOR SMOOTHER

UPC | ALU | HA | 3 | NECK RELIEF | r | POLISH FLUTE | COATING DLC | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D3936-0300DLC	3,0	6,0	6	18	62	3	0,2	101,00
D3936-0400DLC	4,0	6,0	8	24	70	3	0,2	107,00
D3936-0500DLC	5,0	6,0	9	30	70	3	0,2	107,00
D3936-0600DLC	6,0	6,0	13	36	75	3	0,2	94,00
D3936-0800DLC	8,0	8,0	21	48	90	3	0,2	146,00
D3936-1000DLC	10,0	10,0	22	60	100	3	0,2	213,00
D3936-1200DLC	12,0	12,0	26	72	120	3	0,2	302,00
D3936-1600DLC	16,0	16,0	36	96	145	3	0,2	aanvraag
D3936-2000DLC	20,0	20,0	41	120	170	3	0,2	aanvraag

Andere diameters op aanvraag.
Other dimensions on request.

Ook leverbaar met interne koeling zie D3936IDLC - page 64
Also available with intern coolant see D3936IDLC - page 64

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm Ae 1xD Ap 1xD	ap mm	ae mm	fz mm Ae 0,6xD	drilling fz mm
N1.1 Aluminium wrought alloys	3.0	450	3	0.015	6	3	0.03	0.015
	4.0	450	3	0.02	8	4	0.04	0.02
	5.0	450	3	0.025	10	5	0.06	0.025
	6.0	450	3	0.035	12	6	0.07	0.035
	8.0	450	3	0.04	16	8	0.08	0.04
	10.0	450	3	0.05	20	10	0.10	0.05
	12.0	450	3	0.06	24	12	0.11	0.06
	16.0	450	3	0.09	32	16	0.12	0.09
	20.0	450	3	0.13	40	20	0.16	0.13
N1.4 Aluminium cast alloys 6-12% Si	3.0	400	3	0.015	3	3	0.03	0.015
	4.0	400	3	0.02	4	4	0.04	0.02
	5.0	400	3	0.025	5	5	0.06	0.025
	6.0	400	3	0.035	6	6	0.07	0.035
	8.0	400	3	0.04	8	8	0.08	0.04
	10.0	400	3	0.05	10	10	0.10	0.05
	12.0	400	3	0.06	12	12	0.11	0.06
	16.0	400	3	0.09	16	16	0.12	0.09
	20.0	400	3	0.13	20	20	0.16	0.13
N1.5 Aluminium cast alloys <12%Si	3.0	300	3	0.015	3	3	0.03	0.015
	4.0	300	3	0.02	4	4	0.04	0.02
	5.0	300	3	0.025	5	5	0.06	0.025
	6.0	300	3	0.035	6	6	0.07	0.035
	8.0	300	3	0.04	8	8	0.08	0.04
	10.0	300	3	0.05	10	10	0.10	0.05
	12.0	300	3	0.06	12	12	0.11	0.06
	16.0	300	3	0.09	16	16	0.12	0.09
	20.0	300	3	0.13	20	20	0.16	0.13
N2.1 Copper	3.0	200	3	0.015	3	3	0.03	0.015
	4.0	200	3	0.02	4	4	0.04	0.02
	5.0	200	3	0.025	5	5	0.06	0.025
	6.0	200	3	0.035	6	6	0.07	0.035
	8.0	200	3	0.04	8	8	0.08	0.04
	10.0	200	3	0.05	10	10	0.10	0.05
	12.0	200	3	0.06	12	12	0.11	0.06
	16.0	200	3	0.09	16	16	0.12	0.09
	20.0	200	3	0.13	20	20	0.16	0.13
N2.5 Ampco	3.0	100	3	0.015	3	3	0.03	0.015
	4.0	100	3	0.02	4	4	0.04	0.02
	5.0	100	3	0.025	5	5	0.06	0.025
	6.0	100	3	0.035	6	6	0.07	0.035
	8.0	100	3	0.04	8	8	0.08	0.04
	10.0	100	3	0.05	10	10	0.10	0.05
	12.0	100	3	0.06	12	12	0.11	0.06
	16.0	100	3	0.09	16	16	0.12	0.09
	20.0	100	3	0.13	20	20	0.16	0.13

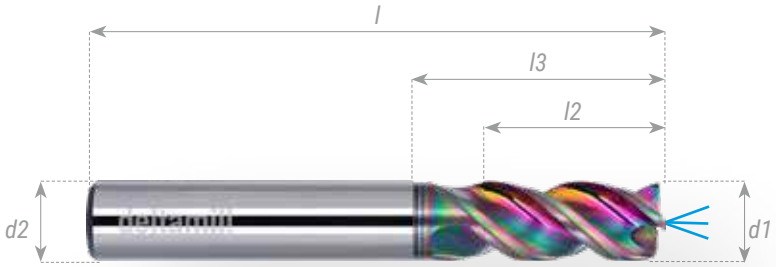
Drilling Ap1xD

Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

VHM UPC Frees 3xD neklengte, kopkoeling

SC UPC endmill 3xD neckrelief, coolant



ALUMINATOR SMOOTHER

UPC | ALU | HA | 3 | NECK RELIEF | r | POLISH FLUTE | COATING DLC | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D3933-0300DLCI	3,0	6,0	6	9	58	3	0,1	88,00
D3933-0400DLCI	4,0	6,0	8	12	58	3	0,1	86,00
D3933-0500DLCI	5,0	6,0	9	15	58	3	0,2	83,00
D3933-0600DLCI	6,0	6,0	13	18	58	3	0,2	83,00
D3933-0800DLCI	8,0	8,0	21	25	63	3	0,2	104,00
D3933-1000DLCI	10,0	10,0	22	30	72	3	0,2	161,00
D3933-1200DLCI	12,0	12,0	26	36	84	3	0,2	187,00
D3933-1600DLCI	16,0	16,0	36	48	100	3	0,2	aanvraag
D3933-2000DLCI	20,0	20,0	41	60	110	3	0,2	aanvraag

Andere diameters op aanvraag.
Other dimensions on request.

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm Ae 1xD Ap 1xD	ap mm	ae mm	fz mm Ae 0,6xD	drilling fz mm
N1.1 Aluminium wrought alloys	3,0	550	3	0.03	6	3	0.05	0.03
	4,0	550	3	0.035	8	4	0.06	0.035
	5,0	550	3	0.04	10	5	0.07	0.04
	6.0	550	3	0.05	12	6	0.09	0.05
	8.0	550	3	0.06	16	8	0.11	0.06
	10.0	550	3	0.07	20	10	0.13	0.07
	12.0	550	3	0.08	24	12	0.15	0.08
	16.0	550	3	0.12	32	16	0.16	0.12
	20.0	550	3	0.18	40	20	0.22	0.18
N1.4 Aluminium cast alloys 6-12% Si	3,0	550	3	0.03	6	3	0.05	0.03
	4,0	550	3	0.035	8	4	0.06	0.035
	5,0	550	3	0.04	9	5	0.07	0.04
	6.0	550	3	0.05	12	6	0.09	0.05
	8.0	550	3	0.06	16	8	0.11	0.06
	10.0	550	3	0.07	20	10	0.13	0.07
	12.0	550	3	0.08	24	12	0.15	0.08
	16.0	550	3	0.12	32	16	0.16	0.12
	20.0	550	3	0.18	40	20	0.22	0.18
N1.5 Aluminium cast alloys <12%Si	3,0	400	3	0.03	6	3	0.05	0.03
	4,0	400	3	0.035	8	4	0.06	0.035
	5,0	400	3	0.04	9	5	0.07	0.04
	6.0	400	3	0.05	12	6	0.09	0.05
	8.0	400	3	0.06	16	8	0.11	0.06
	10.0	400	3	0.07	20	10	0.13	0.07
	12.0	400	3	0.08	24	12	0.15	0.08
	16.0	400	3	0.12	32	16	0.16	0.12
	20.0	400	3	0.18	40	20	0.22	0.18
N2.1 Copper	3,0	300	3	0.03	6	3	0.05	0.03
	4,0	300	3	0.035	8	4	0.06	0.035
	5,0	300	3	0.04	9	5	0.07	0.04
	6.0	300	3	0.05	12	6	0.09	0.05
	8.0	300	3	0.06	16	8	0.11	0.06
	10.0	300	3	0.07	20	10	0.13	0.07
	12.0	300	3	0.08	24	12	0.15	0.08
	16.0	300	3	0.12	32	16	0.16	0.12
	20.0	300	3	0.18	40	20	0.22	0.18
N2.5 Ampco	3,0	180	3	0.03	6	3	0.05	0.03
	4,0	180	3	0.035	8	4	0.06	0.035
	5,0	180	3	0.04	9	5	0.07	0.04
	6.0	180	3	0.05	12	6	0.09	0.05
	8.0	180	3	0.06	16	8	0.11	0.06
	10.0	180	3	0.07	20	10	0.13	0.07
	12.0	180	3	0.08	24	12	0.15	0.08
	16.0	180	3	0.12	32	16	0.16	0.12
	20.0	180	3	0.18	40	20	0.22	0.18

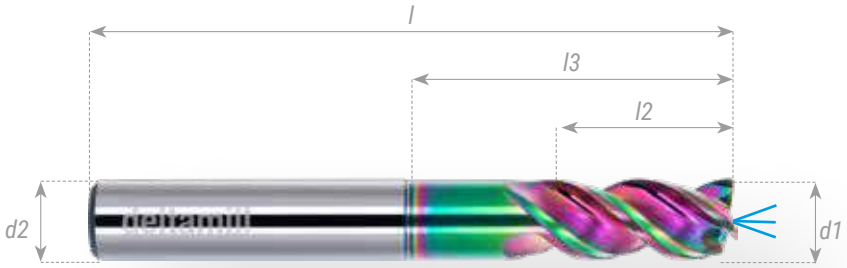
Drilling Ap1xD

Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

VHM UPC Frees 4xD neklengte, kopkoeling

SC UPC endmill 4xD neckrelief, coolant



ALUMINATOR SMOOTHER

UPC | ALU | HA | 3 | NECK RELIEF | r | POLISH FLUTE | COATING DLC | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D3934-0300DLCI	3,0	6,0	6	12	58	3	0,1	88,00
D3934-0400DLCI	4,0	6,0	8	16	58	3	0,1	83,00
D3934-0500DLCI	5,0	6,0	9	20	62	3	0,2	109,00
D3934-0600DLCI	6,0	6,0	13	24	62	3	0,2	109,00
D3934-0800DLCI	8,0	8,0	21	34	68	3	0,2	146,00
D3934-1000DLCI	10,0	10,0	22	40	80	3	0,2	192,00
D3934-1200DLCI	12,0	12,0	26	48	94	3	0,2	224,00
D3934-1600DLCI	16,0	16,0	36	64	113	3	0,2	aanvraag
D3934-2000DLCI	20,0	20,0	41	80	131	3	0,2	aanvraag

Andere diameters op aanvraag.
Other dimensions on request.

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm Ae 1xD Ap 1xD	ap mm	ae mm	fz mm Ae 0,6xD	drilling fz mm
N1.1 Aluminium wrought alloys	3,0	550	3	0.03	6	3	0.05	0.03
	4,0	550	3	0.035	8	4	0.06	0.035
	5,0	550	3	0.04	10	5	0.07	0.04
	6.0	550	3	0.05	12	6	0.09	0.05
	8.0	550	3	0.06	16	8	0.11	0.06
	10.0	550	3	0.07	20	10	0.13	0.07
	12.0	550	3	0.08	24	12	0.15	0.08
	16.0	550	3	0.12	32	16	0.16	0.12
	20.0	550	3	0.18	40	20	0.22	0.18
N1.4 Aluminium cast alloys 6-12% Si	3,0	550	3	0.03	6	3	0.05	0.03
	4,0	550	3	0.035	8	4	0.06	0.035
	5,0	550	3	0.04	9	5	0.07	0.04
	6.0	550	3	0.05	12	6	0.09	0.05
	8.0	550	3	0.06	16	8	0.11	0.06
	10.0	550	3	0.07	20	10	0.13	0.07
	12.0	550	3	0.08	24	12	0.15	0.08
	16.0	550	3	0.12	32	16	0.16	0.12
	20.0	550	3	0.18	40	20	0.22	0.18
N1.5 Aluminium cast alloys <12%Si	3,0	400	3	0.03	6	3	0.05	0.03
	4,0	400	3	0.035	8	4	0.06	0.035
	5,0	400	3	0.04	9	5	0.07	0.04
	6.0	400	3	0.05	12	6	0.09	0.05
	8.0	400	3	0.06	16	8	0.11	0.06
	10.0	400	3	0.07	20	10	0.13	0.07
	12.0	400	3	0.08	24	12	0.15	0.08
	16.0	400	3	0.12	32	16	0.16	0.12
	20.0	400	3	0.18	40	20	0.22	0.18
N2.1 Copper	3,0	300	3	0.03	6	3	0.05	0.03
	4,0	300	3	0.035	8	4	0.06	0.035
	5,0	300	3	0.04	9	5	0.07	0.04
	6.0	300	3	0.05	12	6	0.09	0.05
	8.0	300	3	0.06	16	8	0.11	0.06
	10.0	300	3	0.07	20	10	0.13	0.07
	12.0	300	3	0.08	24	12	0.15	0.08
	16.0	300	3	0.12	32	16	0.16	0.12
	20.0	300	3	0.18	40	20	0.22	0.18
N2.5 Ampco	3,0	180	3	0.03	6	3	0.05	0.03
	4,0	180	3	0.035	8	4	0.06	0.035
	5,0	180	3	0.04	9	5	0.07	0.04
	6.0	180	3	0.05	12	6	0.09	0.05
	8.0	180	3	0.06	16	8	0.11	0.06
	10.0	180	3	0.07	20	10	0.13	0.07
	12.0	180	3	0.08	24	12	0.15	0.08
	16.0	180	3	0.12	32	16	0.16	0.12
	20.0	180	3	0.18	40	20	0.22	0.18

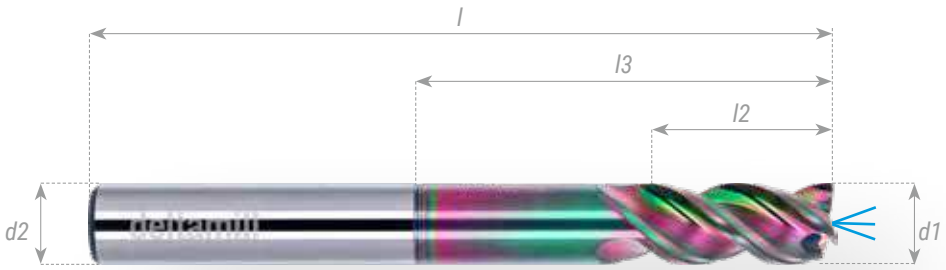
Drilling Ap1xD

Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

VHM UPC Frees 5xD neklengte, kopkoeling

SC UPC endmill 5xD neckrelief, coolant



ALUMINATOR SMOOTHER

UPC | ALU | HA | 3 | NECK RELIEF | r | POLISH FLUTE | COATING DLC | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D3935-0300DLCI	3,0	6,0	6	15	62	3	0,2	109,00
D3935-0400DLCI	4,0	5,0	8	20	62	3	0,2	109,00
D3935-0500DLCI	5,0	5,0	9	25	70	3	0,2	120,00
D3935-0600DLCI	6,0	6,0	13	30	70	3	0,2	99,00
D3935-0800DLCI	8,0	8,0	21	40	80	3	0,2	161,00
D3935-1000DLCI	10,0	10,0	22	50	91	3	0,2	224,00
D3935-1010DLCI	10,0	10,0	22	50	91	3	1,0	224,00
D3935-1020DLCI	10,0	10,0	22	50	91	3	2,0	224,00
D3935-1200DLCI	12,0	12,0	26	60	106	3	0,2	302,00
D3935-1210DLCI	12,0	12,0	26	60	106	3	1,0	302,00
D3935-1220DLCI	12,0	12,0	26	60	106	3	2,0	302,00
D3935-1600DLCI	16,0	16,0	36	81	131	3	0,2	aanvraag
D3935-1610DLCI	16,0	16,0	36	81	131	3	1,0	aanvraag
D3935-1620DLCI	16,0	16,0	36	81	131	3	2,0	aanvraag
D3935-1650DLCI	16,0	16,0	36	81	131	3	5,0	aanvraag
D3935-2000DLCI	20,0	20,0	41	100	151	3	0,2	aanvraag

Andere diameters op aanvraag.
Other dimensions on request.

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm Ae 1xD Ap 1xD	ap mm	ae mm	fz mm Ae 0,6xD	drilling fz mm
N1.1 Aluminium wrought alloys	3.0	450	3	0.015	6	3	0.03	0.015
	4.0	450	3	0.02	8	4	0.04	0.02
	5.0	450	3	0.025	10	5	0.06	0.025
	6.0	450	3	0.035	12	6	0.07	0.035
	8.0	450	3	0.04	16	8	0.08	0.04
	10.0	450	3	0.05	20	10	0.10	0.05
	12.0	450	3	0.06	24	12	0.11	0.06
	16.0	450	3	0.09	32	16	0.12	0.09
	20.0	450	3	0.13	40	20	0.16	0.13
N1.4 Aluminium cast alloys 6-12% Si	3.0	400	3	0.015	3	3	0.03	0.015
	4.0	400	3	0.02	4	4	0.04	0.02
	5.0	400	3	0.025	5	5	0.06	0.025
	6.0	400	3	0.035	6	6	0.07	0.035
	8.0	400	3	0.04	8	8	0.08	0.04
	10.0	400	3	0.05	10	10	0.10	0.05
	12.0	400	3	0.06	12	12	0.11	0.06
	16.0	400	3	0.09	16	16	0.12	0.09
	20.0	400	3	0.13	20	20	0.16	0.13
N1.5 Aluminium cast alloys <12%Si	3.0	300	3	0.015	3	3	0.03	0.015
	4.0	300	3	0.02	4	4	0.04	0.02
	5.0	300	3	0.025	5	5	0.06	0.025
	6.0	300	3	0.035	6	6	0.07	0.035
	8.0	300	3	0.04	8	8	0.08	0.04
	10.0	300	3	0.05	10	10	0.10	0.05
	12.0	300	3	0.06	12	12	0.11	0.06
	16.0	300	3	0.09	16	16	0.12	0.09
	20.0	300	3	0.13	20	20	0.16	0.13
N2.1 Copper	3.0	200	3	0.015	3	3	0.03	0.015
	4.0	200	3	0.02	4	4	0.04	0.02
	5.0	200	3	0.025	5	5	0.06	0.025
	6.0	200	3	0.035	6	6	0.07	0.035
	8.0	200	3	0.04	8	8	0.08	0.04
	10.0	200	3	0.05	10	10	0.10	0.05
	12.0	200	3	0.06	12	12	0.11	0.06
	16.0	200	3	0.09	16	16	0.12	0.09
	20.0	200	3	0.13	20	20	0.16	0.13
N2.5 Ampco	3.0	100	3	0.015	3	3	0.03	0.015
	4.0	100	3	0.02	4	4	0.04	0.02
	5.0	100	3	0.025	5	5	0.06	0.025
	6.0	100	3	0.035	6	6	0.07	0.035
	8.0	100	3	0.04	8	8	0.08	0.04
	10.0	100	3	0.05	10	10	0.10	0.05
	12.0	100	3	0.06	12	12	0.11	0.06
	16.0	100	3	0.09	16	16	0.12	0.09
	20.0	100	3	0.13	20	20	0.16	0.13

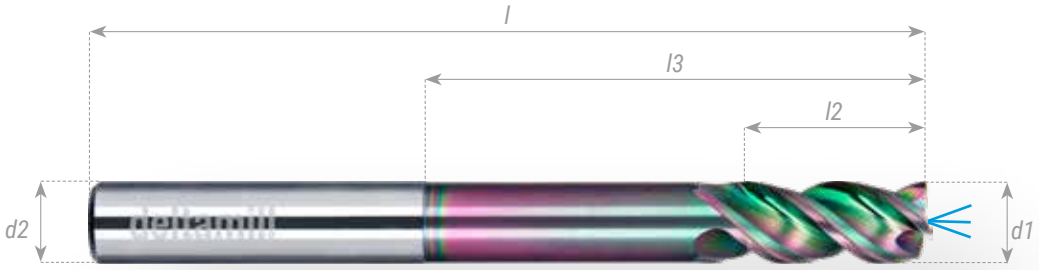
Drilling Ap1xD

Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

VHM UPC Frees 6xD neklengte, kopkoeling

SC UPC endmill 6xD neckrelief, coolant



ALUMINATOR SMOOTHER

UPC | ALU | HA | 3 | NECK RELIEF | r | POLISH FLUTE | COATING DLC | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D3936-0300DLCI	3,0	6,0	6	18	62	3	0,2	109,00
D3936-0400DLCI	4,0	6,0	8	24	70	3	0,2	120,00
D3936-0500DLCI	5,0	6,0	9	30	70	3	0,2	120,00
D3936-0600DLCI	6,0	6,0	13	36	75	3	0,2	130,00
D3936-0800DLCI	8,0	8,0	21	48	90	3	0,2	177,00
D3936-1000DLCI	10,0	10,0	22	60	100	3	0,2	255,00
D3936-1200DLCI	12,0	12,0	26	72	120	3	0,2	354,00
D3936-1600DLCI	16,0	16,0	36	96	145	3	0,2	aanvraag
D3936-2000DLCI	20,0	20,0	41	120	170	3	0,2	aanvraag

Andere diameters op aanvraag.
Other dimensions on request.

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm Ae 1xD Ap 1xD	ap mm	ae mm	fz mm Ae 0,6xD	drilling fz mm
N1.1 Aluminium wrought alloys	3.0	450	3	0.015	6	3	0.03	0.015
	4.0	450	3	0.02	8	4	0.04	0.02
	5.0	450	3	0.025	10	5	0.06	0.025
	6.0	450	3	0.035	12	6	0.07	0.035
	8.0	450	3	0.04	16	8	0.08	0.04
	10.0	450	3	0.05	20	10	0.10	0.05
	12.0	450	3	0.06	24	12	0.11	0.06
	16.0	450	3	0.09	32	16	0.12	0.09
	20.0	450	3	0.13	40	20	0.16	0.13
N1.4 Aluminium cast alloys 6-12% Si	3.0	400	3	0.015	3	3	0.03	0.015
	4.0	400	3	0.02	4	4	0.04	0.02
	5.0	400	3	0.025	5	5	0.06	0.025
	6.0	400	3	0.035	6	6	0.07	0.035
	8.0	400	3	0.04	8	8	0.08	0.04
	10.0	400	3	0.05	10	10	0.10	0.05
	12.0	400	3	0.06	12	12	0.11	0.06
	16.0	400	3	0.09	16	16	0.12	0.09
	20.0	400	3	0.13	20	20	0.16	0.13
N1.5 Aluminium cast alloys <12%Si	3.0	300	3	0.015	3	3	0.03	0.015
	4.0	300	3	0.02	4	4	0.04	0.02
	5.0	300	3	0.025	5	5	0.06	0.025
	6.0	300	3	0.035	6	6	0.07	0.035
	8.0	300	3	0.04	8	8	0.08	0.04
	10.0	300	3	0.05	10	10	0.10	0.05
	12.0	300	3	0.06	12	12	0.11	0.06
	16.0	300	3	0.09	16	16	0.12	0.09
	20.0	300	3	0.13	20	20	0.16	0.13
N2.1 Copper	3.0	200	3	0.015	3	3	0.03	0.015
	4.0	200	3	0.02	4	4	0.04	0.02
	5.0	200	3	0.025	5	5	0.06	0.025
	6.0	200	3	0.035	6	6	0.07	0.035
	8.0	200	3	0.04	8	8	0.08	0.04
	10.0	200	3	0.05	10	10	0.10	0.05
	12.0	200	3	0.06	12	12	0.11	0.06
	16.0	200	3	0.09	16	16	0.12	0.09
	20.0	200	3	0.13	20	20	0.16	0.13
N2.5 Ampco	3.0	100	3	0.015	3	3	0.03	0.015
	4.0	100	3	0.02	4	4	0.04	0.02
	5.0	100	3	0.025	5	5	0.06	0.025
	6.0	100	3	0.035	6	6	0.07	0.035
	8.0	100	3	0.04	8	8	0.08	0.04
	10.0	100	3	0.05	10	10	0.10	0.05
	12.0	100	3	0.06	12	12	0.11	0.06
	16.0	100	3	0.09	16	16	0.12	0.09
	20.0	100	3	0.13	20	20	0.16	0.13

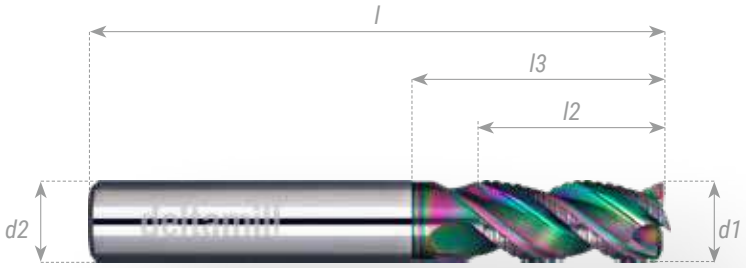
Drilling Ap1xD

Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

VHM UPC Ruwfrees Frees 3xD neklengte

SC UPC Roughing endmill 3xD neckrelief



ALUMINATOR ROUGHER

Speciale Ruwvertanding
Special Roughing profile

UPC | ALU | HA | 3 | SPECIAL ROUGHING PROFILE | NECK RELIEF | r | POLISH FLUTE | COATING DLC | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D3933R-0600DLC	6,0	6,0	13	18	58	3	0,2	72,00
D3933R-0800DLC	8,0	8,0	21	25	63	3	0,2	105,00
D3933R-1000DLC	10,0	10,0	22	30	72	3	0,3	154,00
D3933R-1200DLC	12,0	12,0	26	36	62	3	0,4	176,00
D3932R-1600DLC*	16,0	16,0	36	42	84	3	0,6	aanvraag
D3933R-1600DLC	16,0	16,0	36	48	84	3	0,6	aanvraag
D3932R-2000DLC*	20,0	20,0	41	52	100	3	0,6	aanvraag
D3933R-2000DLC	20,0	20,0	41	60	100	3	0,6	aanvraag

*** 2xD uitvoering**
2xD version

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	ap mm	fz mm Ae 1xD	fz mm Ae 0,6xD	drilling fz mm
N1.1 Aluminium wrought alloys	6.0	550	3	12	0.05	0.09	0.05
	8.0	550	3	16	0.06	0.11	0.06
	10.0	550	3	20	0.07	0.13	0.07
	12.0	550	3	24	0.08	0.15	0.08
	16.0	550	3	32	0.12	0.16	0.12
	20.0	550	3	40	0.18	0.22	0.18
N1.4 Aluminium cast alloys 6-12% Si	6.0	500	3	12	0.05	0.09	0.05
	8.0	500	3	16	0.06	0.11	0.06
	10.0	500	3	20	0.07	0.13	0.07
	12.0	500	3	24	0.08	0.15	0.08
	16.0	500	3	32	0.12	0.16	0.12
	20.0	500	3	40	0.18	0.22	0.18
N1.5 Aluminium cast alloys <12%Si	6.0	400	3	12	0.05	0.09	0.05
	8.0	400	3	16	0.06	0.11	0.06
	10.0	400	3	20	0.07	0.13	0.07
	12.0	400	3	24	0.08	0.15	0.08
	16.0	400	3	32	0.12	0.16	0.12
	20.0	400	3	40	0.18	0.22	0.18
N2.1 Copper	6.0	300	3	12	0.05	0.09	0.05
	8.0	300	3	16	0.06	0.11	0.06
	10.0	300	3	20	0.07	0.13	0.07
	12.0	300	3	24	0.08	0.15	0.08
	16.0	300	3	32	0.12	0.16	0.12
	20.0	300	3	40	0.18	0.22	0.18
N2.5 Ampco	6.0	180	3	12	0.05	0.09	0.05
	8.0	180	3	16	0.06	0.11	0.06
	10.0	180	3	20	0.07	0.13	0.07
	12.0	180	3	24	0.08	0.15	0.08
	16.0	180	3	32	0.12	0.16	0.12
	20.0	180	3	40	0.18	0.22	0.18

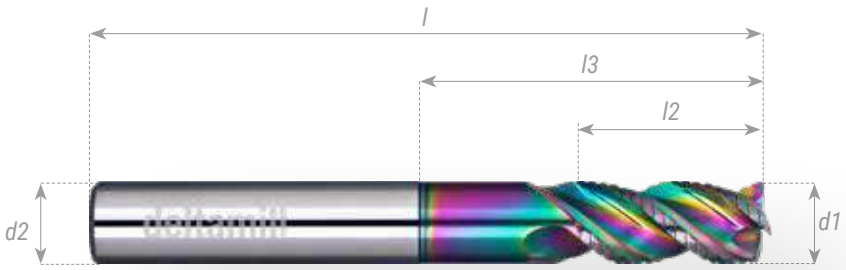
Drilling Ap1xD

Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

VHM UPC Ruwfrees Frees 4xD neklengte

SC UPC Roughing endmill 4xD neckrelief



ALUMINATOR ROUGHER

Speciale Ruwvertanding
Special Roughing profile

UPC | ALU | HA | 3 | SPECIAL ROUGHING PROFILE | NECK RELIEF | r | POLISH FLUTE | COATING DLC | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D3934R-0800DLC	8,0	8,0	21	34	68	3	0,2	132,00
D3934R-1000DLC	10,0	10,0	22	40	80	3	0,3	182,00
D3934R-1200DLC	12,0	12,0	26	48	94	3	0,4	215,00
D3934R-1600DLC	16,0	16,0	36	64	113	3	0,6	aanvraag
D3934R-2000DLC	20,0	20,0	41	80	131	3	0,6	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	ap mm	fz mm Ae 1xD	fz mm Ae 0,6xD	drilling fz mm
N1.1 Aluminium wrought alloys	6.0	550	3	12	0.05	0.09	0.05
	8.0	550	3	16	0.06	0.11	0.06
	10.0	550	3	20	0.07	0.13	0.07
	12.0	550	3	24	0.08	0.15	0.08
	16.0	550	3	32	0.12	0.16	0.12
	20.0	550	3	40	0.18	0.22	0.18
N1.4 Aluminium cast alloys 6-12% Si	6.0	500	3	12	0.05	0.09	0.05
	8.0	500	3	16	0.06	0.11	0.06
	10.0	500	3	20	0.07	0.13	0.07
	12.0	500	3	24	0.08	0.15	0.08
	16.0	500	3	32	0.12	0.16	0.12
	20.0	500	3	40	0.18	0.22	0.18
N1.5 Aluminium cast alloys <12%Si	6.0	400	3	12	0.05	0.09	0.05
	8.0	400	3	16	0.06	0.11	0.06
	10.0	400	3	20	0.07	0.13	0.07
	12.0	400	3	24	0.08	0.15	0.08
	16.0	400	3	32	0.12	0.16	0.12
	20.0	400	3	40	0.18	0.22	0.18
N2.1 Copper	6.0	300	3	12	0.05	0.09	0.05
	8.0	300	3	16	0.06	0.11	0.06
	10.0	300	3	20	0.07	0.13	0.07
	12.0	300	3	24	0.08	0.15	0.08
	16.0	300	3	32	0.12	0.16	0.12
	20.0	300	3	40	0.18	0.22	0.18
N2.5 Ampco	6.0	180	3	12	0.05	0.09	0.05
	8.0	180	3	16	0.06	0.11	0.06
	10.0	180	3	20	0.07	0.13	0.07
	12.0	180	3	24	0.08	0.15	0.08
	16.0	180	3	32	0.12	0.16	0.12
	20.0	180	3	40	0.18	0.22	0.18

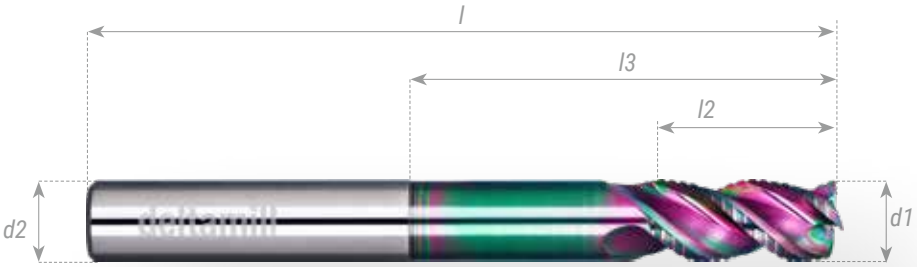
Drilling Ap1xD

Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

VHM UPC Ruwfrees Frees 5xD

SC UPC Roughing endmill 5xD



ALUMINATOR ROUGHER

Speciale Ruwvertanding
Special Roughing profile

UPC | ALU | HA | 3 | SPECIAL ROUGHING PROFILE | NECK RELIEF | r | POLISH FLUTE | COATING DLC | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D3935R-0600DLC	6,0	6,0	13	18	58	3	0,2	96,00
D3935R-0800DLC	8,0	8,0	21	40	80	3	0,2	154,00
D3935R-1000DLC	10,0	10,0	22	50	91	3	0,3	209,00
D3935R-1200DLC	12,0	12,0	26	60	106	3	0,4	270,00
D3935R-1600DLC	16,0	16,0	36	81	131	3	0,6	aanvraag
D3935R-2000DLC	20,0	20,0	41	100	151	3	0,6	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	ap mm	fz mm Ae 1xD	fz mm Ae 0,6xD	drilling fz mm
N1.1 Aluminium wrought alloys	6.0	450	3	6	0.035	0.07	0.035
	8.0	450	3	8	0.04	0.08	0.04
	10.0	450	3	10	0.05	0.10	0.05
	12.0	450	3	12	0.06	0.11	0.06
	16.0	450	3	16	0.09	0.12	0.09
	20.0	450	3	20	0.13	0.16	0.13
N1.4 Aluminium cast alloys 6-12% Si	6.0	400	3	6	0.035	0.07	0.035
	8.0	400	3	8	0.04	0.08	0.04
	10.0	400	3	10	0.05	0.10	0.05
	12.0	400	3	12	0.06	0.11	0.06
	16.0	400	3	16	0.09	0.12	0.09
	20.0	400	3	20	0.13	0.16	0.13
N1.5 Aluminium cast alloys <12%Si	6.0	300	3	6	0.035	0.07	0.035
	8.0	300	3	8	0.04	0.08	0.04
	10.0	300	3	10	0.05	0.10	0.05
	12.0	300	3	12	0.06	0.11	0.06
	16.0	300	3	16	0.09	0.12	0.09
	20.0	300	3	20	0.13	0.16	0.13
N2.1 Copper	6.0	200	3	6	0.035	0.07	0.035
	8.0	200	3	8	0.04	0.08	0.04
	10.0	200	3	10	0.05	0.10	0.05
	12.0	200	3	12	0.06	0.11	0.06
	16.0	200	3	16	0.09	0.12	0.09
	20.0	200	3	20	0.13	0.16	0.13
N2.5 Ampco	6.0	100	3	6	0.035	0.07	0.035
	8.0	100	3	8	0.04	0.08	0.04
	10.0	100	3	10	0.05	0.10	0.05
	12.0	100	3	12	0.06	0.11	0.06
	16.0	100	3	16	0.09	0.12	0.09
	20.0	100	3	20	0.13	0.16	0.13

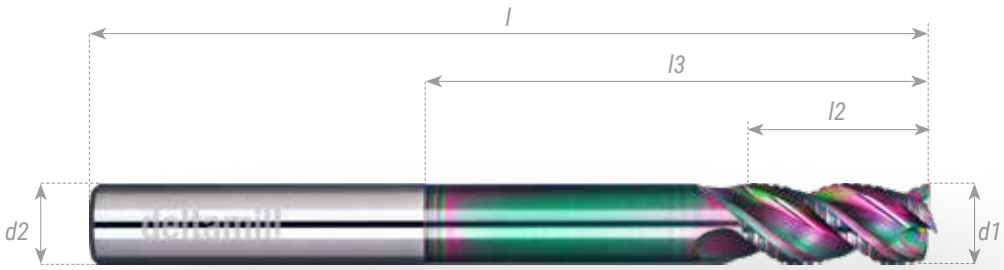
Drilling Ap1xD

Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

VHM UPC Ruwfrees Frees 6xD

Solid carbide UPC Roughing endmill 6xD



ALUMINATOR ROUGHER

Speciale Ruwvertanding
Special Roughing profile

UPC | ALU | HA | 3 | SPECIAL ROUGHING PROFILE | NECK RELIEF | r | POLISH FLUTE | COATING DLC | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D3936R-1000DLC	10,0	10,0	22	60	100	3	0,3	237,00
D3936R-1200DLC	12,0	12,0	26	72	120	3	0,4	325,00
D3936R-1600DLC	16,0	16,0	36	96	145	3	0,6	aanvraag
D3936R-2000DLC	20,0	20,0	41	120	170	3	0,6	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	ap mm	fz mm Ae 1xD	fz mm Ae 0,6xD	drilling fz mm
N1.1 Aluminium wrought alloys	6.0	450	3	6	0.035	0.07	0.035
	8.0	450	3	8	0.04	0.08	0.04
	10.0	450	3	10	0.05	0.10	0.05
	12.0	450	3	12	0.06	0.11	0.06
	16.0	450	3	16	0.09	0.12	0.09
	20.0	450	3	20	0.13	0.16	0.13
N1.4 Aluminium cast alloys 6-12% Si	6.0	400	3	6	0.035	0.07	0.035
	8.0	400	3	8	0.04	0.08	0.04
	10.0	400	3	10	0.05	0.10	0.05
	12.0	400	3	12	0.06	0.11	0.06
	16.0	400	3	16	0.09	0.12	0.09
	20.0	400	3	20	0.13	0.16	0.13
N1.5 Aluminium cast alloys <12%Si	6.0	300	3	6	0.035	0.07	0.035
	8.0	300	3	8	0.04	0.08	0.04
	10.0	300	3	10	0.05	0.10	0.05
	12.0	300	3	12	0.06	0.11	0.06
	16.0	300	3	16	0.09	0.12	0.09
	20.0	300	3	20	0.13	0.16	0.13
N2.1 Copper	6.0	200	3	6	0.035	0.07	0.035
	8.0	200	3	8	0.04	0.08	0.04
	10.0	200	3	10	0.05	0.10	0.05
	12.0	200	3	12	0.06	0.11	0.06
	16.0	200	3	16	0.09	0.12	0.09
	20.0	200	3	20	0.13	0.16	0.13
N2.5 Ampco	6.0	100	3	6	0.035	0.07	0.035
	8.0	100	3	8	0.04	0.08	0.04
	10.0	100	3	10	0.05	0.10	0.05
	12.0	100	3	12	0.06	0.11	0.06
	16.0	100	3	16	0.09	0.12	0.09
	20.0	100	3	20	0.13	0.16	0.13

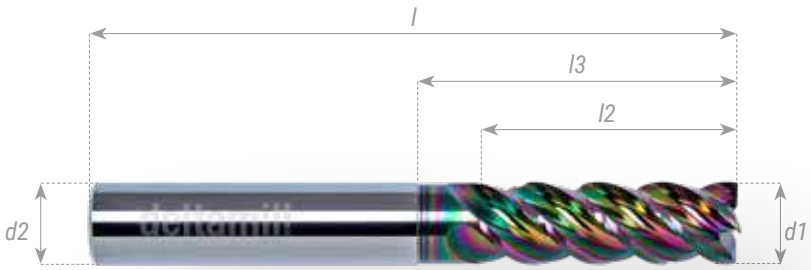
Drilling Ap1xD

Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

VHM UPC Trochoidaal Frees 3xD

SC UPC Trochoidal endmill 3xD



XTREMA UNI

UPC | ALU | HB | 4 | CHIP BREAKER | NECK RELIEF | Cx45° | POLISH FLUTE | COATING DLC | WET

Code	Ød1	Ød2	l2	l3	l	z	c	€
D4933-0300DLC	3,0	6,0	14	23	62	4	0,1	82,00
D4933-0400DLC	4,0	6,0	15	23	62	4	0,1	82,00
D4933-0500DLC	5,0	6,0	16	24	62	4	0,1	82,00
D4933-0600DLC	6,0	6,0	19	24	62	4	0,1	82,00
D4933-0800DLC	8,0	8,0	25	30	68	4	0,2	119,00
D4933-1000DLC	10,0	10,0	31	38	80	4	0,2	155,00
D4933-1200DLC	12,0	12,0	37	46	93	4	0,3	191,00
D4933-1600DLC	16,0	16,0	49	58	108	4	0,3	aanvraag
D4933-2000DLC	20,0	20,0	61	74	126	4	0,3	aanvraag

95 Herslijp- en hercoatservice
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

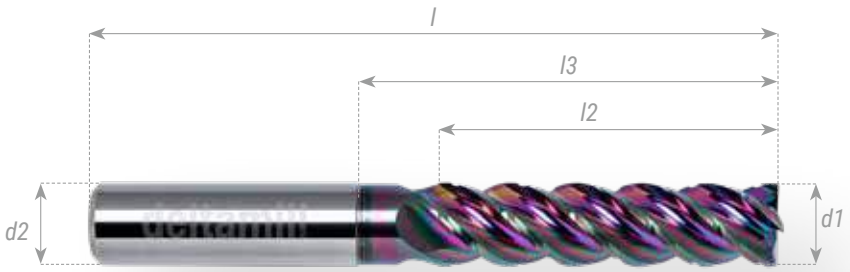
Mat.	ØD	Vc M/min	Z	Max. contacthoek Max. contactangle	ap mm	fz mm ae= 5% x D	fz mm ae= 10% x D	fz mm ae= 20% x D	hm* mm
N1.1 Aluminium wrought alloys	3.0	500	4	60°	14	0.224	0.158	0.112	0.050
	4.0	500	4	60°	15	0.358	0.253	0.179	0.080
	5.0	500	4	60°	16	0.447	0.316	0.224	0.100
	6.0	500	4	60°	19	0.581	0.411	0.291	0.130
	8.0	500	4	60°	25	0.626	0.442	0.313	0.140
	10.0	500	4	60°	31	0.671	0.474	0.335	0.140
	12.0	500	4	60°	37	0.716	0.506	0.358	0.160
	16.0	500	4	60°	49	0.894	0.632	0.447	0.200
	20.0	500	4	60°	61	1.073	0.759	0.537	0.240
N1.4 Aluminium cast alloys 6-12% Si	3.0	500	4	60°	14	0.224	0.158	0.112	0.050
	4.0	500	4	60°	15	0.358	0.253	0.179	0.080
	5.0	500	4	60°	16	0.447	0.316	0.224	0.100
	6.0	500	4	60°	19	0.581	0.411	0.291	0.130
	8.0	500	4	60°	25	0.626	0.442	0.313	0.140
	10.0	500	4	60°	31	0.671	0.474	0.335	0.140
	12.0	500	4	60°	37	0.716	0.506	0.358	0.160
	16.0	500	4	60°	49	0.894	0.632	0.447	0.200
	20.0	500	4	60°	61	1.073	0.759	0.537	0.240
N1.5 Aluminium cast alloys <12%Si	3.0	450	4	60°	14	0.224	0.158	0.112	0.050
	4.0	450	4	60°	15	0.358	0.253	0.179	0.080
	5.0	450	4	60°	16	0.447	0.316	0.224	0.100
	6.0	450	4	60°	19	0.581	0.411	0.291	0.130
	8.0	450	4	60°	25	0.626	0.442	0.313	0.140
	10.0	450	4	60°	31	0.671	0.474	0.335	0.140
	12.0	450	4	60°	37	0.716	0.506	0.358	0.160
	16.0	450	4	60°	49	0.894	0.632	0.447	0.200
	20.0	450	4	60°	61	1.073	0.759	0.537	0.240
N2.1 Copper	3.0	300	4	60°	14	0.224	0.158	0.112	0.050
	4.0	300	4	60°	15	0.313	0.221	0.157	0.070
	5.0	300	4	60°	16	0.402	0.285	0.201	0.090
	6.0	300	4	60°	19	0.492	0.348	0.246	0.110
	8.0	300	4	60°	25	0.537	0.379	0.269	0.120
	10.0	300	4	60°	31	0.581	0.411	0.291	0.130
	12.0	300	4	60°	37	0.626	0.443	0.313	0.140
	16.0	300	4	60°	49	0.805	0.569	0.402	0.180
	20.0	300	4	60°	61	0.894	0.632	0.447	0.200
N2.5 Ampco	3.0	150	4	60°	14	0.188	0.133	0.094	0.042
	4.0	150	4	60°	15	0.246	0.174	0.123	0.055
	5.0	150	4	60°	16	0.313	0.221	0.157	0.070
	6.0	150	4	60°	19	0.380	0.269	0.190	0.085
	8.0	150	4	60°	25	0.537	0.379	0.268	0.120
	10.0	150	4	60°	31	0.626	0.443	0.313	0.140
	12.0	150	4	60°	37	0.738	0.522	0.369	0.165
	16.0	150	4	60°	49	0.859	0.429	0.429	0.192
	20.0	150	4	60°	61	1.073	0.759	0.537	0.240

**hm= gemiddelde spaandikte*
**hm= average chip thickness

Trochoidal Max Ap and Ae max 15%

VHM UPC Trochoidaal Frees 4xD

SC UPC Trochoidal Endmill 4xD



XTREMA UNI

UPC | ALU | HB | 4 | CHIP BREAKER | NECK RELIEF l3 | Cx45° | POLISH FLUTE | COATING DLC | WET

Code	Ød1	Ød2	l2	l3	l	z	c	€
D4934-0600DLC	6,0	6,0	25	30	71	4	0,1	85,00
D4934-0800DLC	8,0	8,0	33	40	80	4	0,2	122,00
D4934-1000DLC	10,0	10,0	41	50	95	4	0,2	163,00
D4934-1200DLC	12,0	12,0	49	60	109	4	0,3	211,00
D4934-1600DLC	16,0	16,0	65	80	132	4	0,3	aanvraag
D4934-2000DLC	20,0	20,0	82	100	154	4	0,3	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

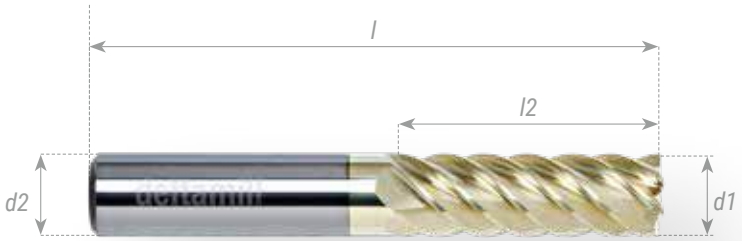
Mat.	ØD	Vc M/min	Z	Max. contacthoek Max. contactangle	ap mm	fz mm ae= 5% x D	fz mm ae= 10% x D	fz mm ae= 20% x D	hm* mm
N1.1 Aluminium wrought alloys	3.0	500	4	60°	14	0.224	0.158	0.112	0.050
	4.0	500	4	60°	15	0.358	0.253	0.179	0.080
	5.0	500	4	60°	16	0.447	0.316	0.224	0.100
	6.0	500	4	60°	19	0.581	0.411	0.291	0.130
	8.0	500	4	60°	25	0.626	0.442	0.313	0.140
	10.0	500	4	60°	31	0.671	0.474	0.335	0.140
	12.0	500	4	60°	37	0.716	0.506	0.358	0.160
	16.0	500	4	60°	49	0.894	0.632	0.447	0.200
	20.0	500	4	60°	61	1.073	0.759	0.537	0.240
N1.4 Aluminium cast alloys 6-12% Si	3.0	500	4	60°	14	0.224	0.158	0.112	0.050
	4.0	500	4	60°	15	0.358	0.253	0.179	0.080
	5.0	500	4	60°	16	0.447	0.316	0.224	0.100
	6.0	500	4	60°	19	0.581	0.411	0.291	0.130
	8.0	500	4	60°	25	0.626	0.442	0.313	0.140
	10.0	500	4	60°	31	0.671	0.474	0.335	0.140
	12.0	500	4	60°	37	0.716	0.506	0.358	0.160
	16.0	500	4	60°	49	0.894	0.632	0.447	0.200
	20.0	500	4	60°	61	1.073	0.759	0.537	0.240
N1.5 Aluminium cast alloys <12%Si	3.0	450	4	60°	14	0.224	0.158	0.112	0.050
	4.0	450	4	60°	15	0.358	0.253	0.179	0.080
	5.0	450	4	60°	16	0.447	0.316	0.224	0.100
	6.0	450	4	60°	19	0.581	0.411	0.291	0.130
	8.0	450	4	60°	25	0.626	0.442	0.313	0.140
	10.0	450	4	60°	31	0.671	0.474	0.335	0.140
	12.0	450	4	60°	37	0.716	0.506	0.358	0.160
	16.0	450	4	60°	49	0.894	0.632	0.447	0.200
	20.0	450	4	60°	61	1.073	0.759	0.537	0.240
N2.1 Copper	3.0	300	4	60°	14	0.224	0.158	0.112	0.050
	4.0	300	4	60°	15	0.313	0.221	0.157	0.070
	5.0	300	4	60°	16	0.402	0.285	0.201	0.090
	6.0	300	4	60°	19	0.492	0.348	0.246	0.110
	8.0	300	4	60°	25	0.537	0.379	0.269	0.120
	10.0	300	4	60°	31	0.581	0.411	0.291	0.130
	12.0	300	4	60°	37	0.626	0.443	0.313	0.140
	16.0	300	4	60°	49	0.805	0.569	0.402	0.180
	20.0	300	4	60°	61	0.894	0.632	0.447	0.200
N2.5 Ampco	3.0	150	4	60°	14	0.188	0.133	0.094	0.042
	4.0	150	4	60°	15	0.246	0.174	0.123	0.055
	5.0	150	4	60°	16	0.313	0.221	0.157	0.070
	6.0	150	4	60°	19	0.380	0.269	0.190	0.085
	8.0	150	4	60°	25	0.537	0.379	0.268	0.120
	10.0	150	4	60°	31	0.626	0.443	0.313	0.140
	12.0	150	4	60°	37	0.738	0.522	0.369	0.165
	16.0	150	4	60°	49	0.859	0.429	0.429	0.192
	20.0	150	4	60°	61	1.073	0.759	0.537	0.240

**hm= gemiddelde spaandikte*
**hm= average chip thickness*

Trochoidal Max Ap and Ae max 15%

VHM HPC Finish Frees 3xD

SC HPC endmill for finishing 3xD



AGRESSOR FINISHER

HPC | ALU | HA | Vario | Unequal | 6 | SHARP | COATING ZrN | POLISH FLUTE | WET

Code	Ød1	Ød2	l2	l3	l	z	c/r	€
D6933-0600AZOX	6,0	6,0	18	-	62	6	-	70,00
D6933-0800AZOX	8,0	8,0	24	-	68	6	-	97,00
D6933-1000AZOX	10,0	10,0	30	-	80	6	-	126,00
D6933-1200AZOX	12,0	12,0	36	-	93	6	-	164,00
D6933-1600AZOX	16,0	16,0	48	-	108	6	-	aanvraag
D6933-2000AZOX	20,0	20,0	60	-	126	6	-	aanvraag

95 Herslijp- en hercoatservice
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

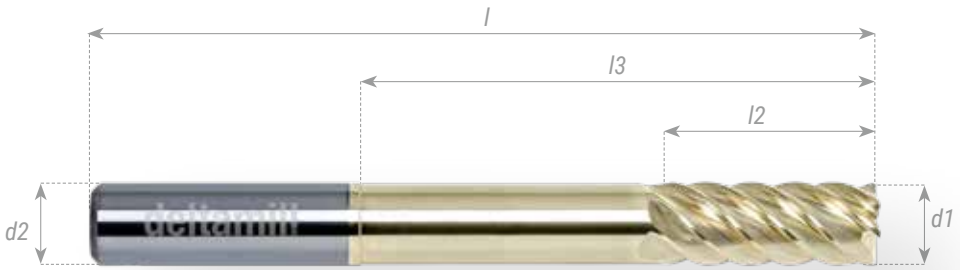
Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
N1.1 Aluminium wrought alloys	6.0	500	6	0.025	18	0.3
	8.0	500	6	0.035	24	0.4
	10.0	500	6	0.045	30	0.5
	12.0	500	6	0.050	36	0.6
	16.0	500	6	0.060	48	0.8
	20.0	500	6	0.070	60	1.0
N1.4 Aluminium cast alloys	6.0	300	6	0.015	6	0.3
	8.0	300	6	0.020	8	0.4
	10.0	300	6	0.025	10	0.5
	12.0	300	6	0.030	12	0.6
	16.0	300	6	0.050	16	0.8
	20.0	300	6	0.060	20	1.0
N1.5 Aluminium cast alloys	6.0	240	6	0.015	6	0.3
	8.0	240	6	0.020	8	0.4
	10.0	240	6	0.025	10	0.5
	12.0	240	6	0.030	12	0.6
	16.0	240	6	0.050	16	0.8
	20.0	240	6	0.060	20	1.0
N2.1 Copper	6.0	150	6	0.015	6	0.3
	8.0	150	6	0.020	8	0.4
	10.0	150	6	0.025	10	0.5
	12.0	150	6	0.030	12	0.6
	16.0	150	6	0.050	16	0.8
	20.0	150	6	0.060	20	1.0
N2.2 Brass	6.0	240	6	0.015	6	0.3
	8.0	240	6	0.020	8	0.4
	10.0	240	6	0.025	10	0.5
	12.0	240	6	0.030	12	0.6
	16.0	240	6	0.050	16	0.8
	20.0	240	6	0.060	20	1.0
N2.3 Bronze	6.0	150	6	0.015	6	0.3
	8.0	150	6	0.020	8	0.4
	10.0	150	6	0.025	10	0.5
	12.0	150	6	0.030	12	0.6
	16.0	150	6	0.050	16	0.8
	20.0	150	6	0.060	20	1.0
N2.5 Ampco	6.0	100	6	0.015	6	0.3
	8.0	100	6	0.020	8	0.4
	10.0	100	6	0.025	10	0.5
	12.0	100	6	0.030	12	0.6
	16.0	100	6	0.050	16	0.8
	20.0	100	6	0.060	20	1.0

Finish Ap<3xD
en Ae 0,05xD

VHM HPC Finiseer Frees lang 5xD

SC HPC endmill for finishing long 5xD



AGRESSOR FINISHER

HPC | ALU | HA | Vario | Unequal | NECK RELIEF | SHARP | 6 | POLISH FLUTE | COATING ZrN | WET

Code	Ød1	Ød2	l2	l3	l	z	c/r	€
D6935-0600BZOX	6,0	6,0	16	42	80	6	-	79,00
D6935-0800BZOX	8,0	8,0	19	62	100	6	-	103,00
D6935-1000BZOX	10,0	10,0	25	58	100	6	-	170,00
D6935-1200BZOX	12,0	12,0	30	72	120	6	-	242,00
D6935-1600BZOX	16,0	16,0	40	100	150	6	-	aanvraag
D6935-2000BZOX	20,0	20,0	50	100	150	6	-	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

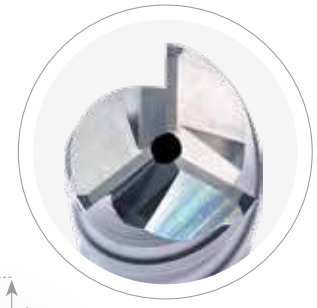
Verspanings parameters
Cutting Data

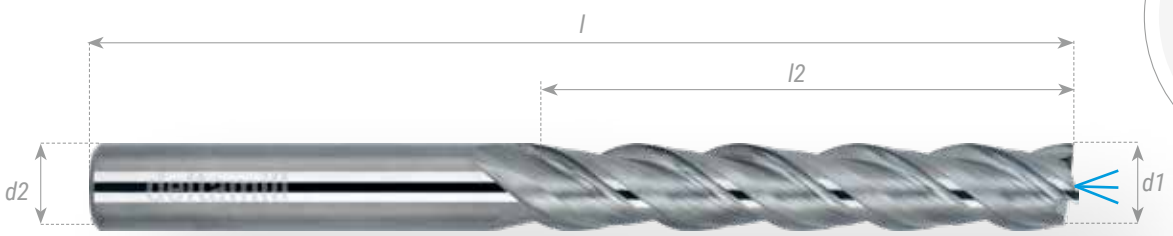
Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
N1.1 Aluminium wrought alloys	6.0	500	6	0.020	16	0.3
	8.0	500	6	0.030	19	0.4
	10.0	500	6	0.040	25	0.5
	12.0	500	6	0.045	30	0.6
	16.0	500	6	0.055	40	0.8
	20.0	500	6	0.065	50	1.0
N1.4 Aluminium cast alloys	6.0	300	6	0.015	16	0.3
	8.0	300	6	0.020	19	0.4
	10.0	300	6	0.025	25	0.5
	12.0	300	6	0.030	30	0.6
	16.0	300	6	0.045	40	0.8
	20.0	300	6	0.055	50	1.0
N1.5 Aluminium cast alloys	6.0	240	6	0.015	16	0.3
	8.0	240	6	0.020	19	0.4
	10.0	240	6	0.025	25	0.5
	12.0	240	6	0.030	30	0.6
	16.0	240	6	0.045	40	0.8
	20.0	240	6	0.055	50	1.0
N2.1 Copper	6.0	150	6	0.015	16	0.3
	8.0	150	6	0.020	19	0.4
	10.0	150	6	0.025	25	0.5
	12.0	150	6	0.030	30	0.6
	16.0	150	6	0.045	40	0.8
	20.0	150	6	0.055	50	1.0
N2.2 Brass	6.0	240	6	0.015	16	0.3
	8.0	240	6	0.020	19	0.4
	10.0	240	6	0.025	25	0.5
	12.0	240	6	0.030	30	0.6
	16.0	240	6	0.045	40	0.8
	20.0	240	6	0.055	50	1.0
N2.3 Bronze	6.0	150	6	0.015	16	0.3
	8.0	150	6	0.020	19	0.4
	10.0	150	6	0.025	25	0.5
	12.0	150	6	0.030	30	0.6
	16.0	150	6	0.045	40	0.8
	20.0	150	6	0.055	50	1.0
N2.5 Ampco	6.0	100	6	0.015	16	0.3
	8.0	100	6	0.020	19	0.4
	10.0	100	6	0.025	25	0.5
	12.0	100	6	0.030	30	0.6
	16.0	100	6	0.045	40	0.8
	20.0	100	6	0.055	50	1.0

Finish Ap<2xD
en Ae 0,05xD

D3936ALF
N-SERIE

VHM HPC Frees ALU-Finisher Koelkanaal 6xD
SC HPC ALU Longflute Finisher Coolant hole 6xD





AGRESSOR ALU

HPC | ALU | HA | Vario | Unequal | 3 | NECK RELIEF | POLISH FLUTE | Cx45° | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D3936-1002ALF	10,0	10,0	62	-	115	3	0,1	283,00
D3936-1202ALF	12,0	12,0	74	-	134	3	0,1	442,00
D3936-1602ALF	16,0	16,0	98	-	166	3	0,1	aanvraag

Andere diameters op aanvraag.
Other dimensions on request.

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

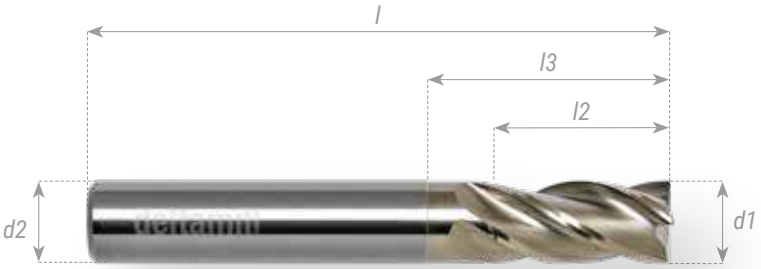
Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
N1.1 Aluminium wrought alloys	6.0	600	3	0.06	36	0,03
	8.0	600	3	0.06	48	0,04
	10.0	600	3	0.07	60	0,05
	12.0	600	3	0.08	72	0,06
	16.0	600	3	0.12	96	0,08
N1.4 Aluminium cast alloys 6-12% Si	6.0	400	3	0.06	36	0,03
	8.0	400	3	0.06	48	0,04
	10.0	400	3	0.07	60	0,05
	12.0	400	3	0.08	72	0,06
	16.0	400	3	0.12	96	0,08
N1.5 Aluminium cast alloys <12%Si	6.0	320	3	0.06	36	0,03
	8.0	320	3	0.06	48	0,04
	10.0	320	3	0.07	60	0,05
	12.0	320	3	0.08	72	0,06
	16.0	320	3	0.12	96	0,08
N2.1 Copper	6.0	200	3	0.06	36	0,03
	8.0	200	3	0.06	48	0,04
	10.0	200	3	0.07	60	0,05
	12.0	200	3	0.08	72	0,06
	16.0	200	3	0.12	96	0,08

Finish Ap<6xD
en Ae 0,005xD

VHM HPC Frees Titaan

SC HPC endmill Titan



AGRESSOR TITAN

Code	Ød1	Ød2	l2	l3	l	z	r	€
D4950-0400SI2	4,0	6,0	11	17	57	4	0,1	44,00
D4950-0500SI2	5,0	6,0	13	19	57	4	0,1	44,00
D4950-0600SI2	6,0	6,0	13	19	57	4	0,1	44,00
D4950-0800SI2	8,0	8,0	21	25	63	4	0,2	56,00
D4950-1000SI2	10,0	10,0	22	30	72	4	0,2	84,00
D4950-1200SI2	12,0	12,0	26	36	83	4	0,2	116,00
D4950-1600SI2	16,0	16,0	36	42	92	4	0,3	aanvraag
D4950-2000SI2	20,0	20,0	41	52	104	4	0,3	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
S1.1 Pure Titanium Ti99,5 / Ti Grade 1	3.0	100	4	0.015	3	3
	4.0	100	4	0.020	4	4
	5.0	100	4	0.025	5	5
	6.0	100	4	0.030	6	6
	8.0	100	4	0.035	8	8
	10.0	100	4	0.045	10	10
	12.0	100	4	0.055	12	12
	16.0	100	4	0.080	8	16
	20.0	100	4	0.095	10	20
S1.2 Titanium alloys Ti Grade 3 & 4	3.0	90	4	0.010	3	3
	4.0	90	4	0.015	4	4
	5.0	90	4	0.020	5	5
	6.0	90	4	0.025	6	6
	8.0	90	4	0.030	8	8
	10.0	90	4	0.040	10	10
	12.0	90	4	0.050	12	12
	16.0	90	4	0.065	8	16
	20.0	90	4	0.080	10	20
S1.3 Titanium alloys TiAl6V4 / Grade 5	3.0	70	4	0.007	3	3
	4.0	70	4	0.010	4	4
	5.0	70	4	0.015	5	5
	6.0	70	4	0.020	6	6
	8.0	70	4	0.025	8	8
	10.0	70	4	0.035	10	10
	12.0	70	4	0.040	12	12
	16.0	70	4	0.050	8	16
	20.0	70	4	0.065	10	20
S2.2 Inconel 625	3.0	50	4	0.010	1,5	3
	4.0	50	4	0.015	2	4
	5.0	50	4	0.020	2,5	5
	6.0	50	4	0.025	3	6
	8.0	50	4	0.030	4	8
	10.0	50	4	0.035	5	10
	12.0	50	4	0.040	6	12
	16.0	50	4	0.050	8	16
	20.0	50	4	0.060	10	20
S2.3 Inconel 718	3.0	40	4	0.005	1,5	3
	4.0	40	4	0.008	2	4
	5.0	40	4	0.012	2,5	5
	6.0	40	4	0.015	3	6
	8.0	40	4	0.020	4	8
	10.0	40	4	0.025	5	10
	12.0	40	4	0.030	6	12
	16.0	40	4	0.040	8	16
	20.0	40	4	0.060	10	20
M1.2 Stainless steel 303-304-316	3.0	100	5	0,012	1,5	1,5
	4.0	100	5	0,015	2	2
	5.0	100	5	0,020	2,5	2,5
	6.0	100	5	0,025	3	3
	8.0	100	5	0,030	4	4
	10.0	100	5	0,035	5	5
	12.0	100	5	0,040	6	6
	16.0	100	5	0,050	8	8
	20.0	100	5	0,07	10	10

Correctie
Correction

Ae	Ap	Vc	fz
Ae= <0,4xD	1 x D	20%	20%
Ae= <0,4xD	1,5 x D	10%	10%
Ae= <0,05xD	2 x D	-	100%

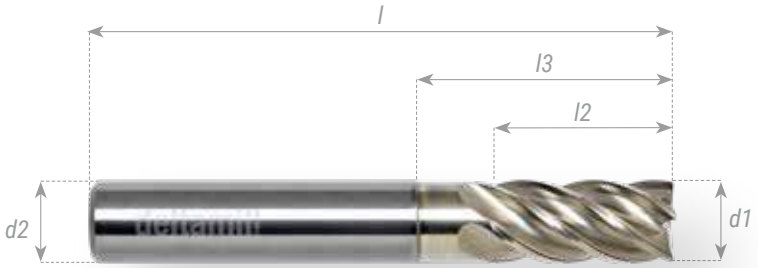
Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,5xD

Finish Ap<2xD
en Ae 0,05xD

VHM HPC Frees Titaan

SC HPC endmill Titan



AGRESSOR TITAN

HPC | TITAN | HB | Vario | Unequal | 5 | r | COATING Si2 Silber | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D5950-0400SI2	4,0	6,0	11	17	57	5	0,1	44,00
D5950-0500SI2	5,0	6,0	13	19	57	5	0,1	44,00
D5950-0600SI2	6,0	6,0	13	19	57	5	0,1	44,00
D5950-0800SI2	8,0	8,0	21	25	63	5	0,2	56,00
D5950-1000SI2	10,0	10,0	22	30	72	5	0,2	84,00
D5950-1200SI2	12,0	12,0	26	36	83	5	0,2	116,00
D5950-1600SI2	16,0	16,0	36	42	92	5	0,3	aanvraag
D5950-2000SI2	20,0	20,0	41	52	104	5	0,3	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
S1.1 Pure Titanium Ti99,5 / Ti Grade 1	3.0	100	5	0.015	3	1,5
	4.0	100	5	0,030	4	2
	5.0	100	5	0,025	5	2,5
	6.0	100	5	0.030	6	3
	8.0	100	5	0.035	8	4
	10.0	100	5	0.045	10	5
	12.0	100	5	0.055	12	6
	16.0	100	5	0.080	8	8
	20.0	100	5	0.095	10	10
S1.2 Titanium alloys Ti Grade 3 & 4	3.0	90	5	0,007	3	1,5
	4.0	90	5	0,010	4	2
	5.0	90	5	0,015	5	2,5
	6.0	90	5	0,020	6	3
	8.0	90	5	0,025	8	4
	10.0	90	5	0,035	10	5
	12.0	90	5	0,040	12	6
	16.0	90	5	0,050	8	8
	20.0	90	5	0,065	10	10
S2.2 Inconel 625	3.0	50	5	0,010	3	1,5
	4.0	50	5	0,015	4	2
	5.0	50	5	0,020	5	2,5
	6.0	50	5	0,025	6	3
	8.0	50	5	0,030	8	4
	10.0	50	5	0,035	10	5
	12.0	50	5	0,040	12	6
	16.0	50	5	0,050	8	8
	20.0	50	5	0,060	10	10
S2.3 Inconel 718	3.0	40	5	0,005	1,5	1,5
	4.0	40	5	0,008	2	2
	5.0	40	5	0,012	2,5	2,5
	6.0	40	5	0,015	3	3
	8.0	40	5	0,020	4	4
	10.0	40	5	0,025	5	5
	12.0	40	5	0,030	6	6
	16.0	40	5	0,040	8	8
	20.0	40	5	0,050	10	10
M1.2 Stainless steel 303-304-316	3.0	100	5	0,012	1,5	1,5
	4.0	100	5	0,015	2	2
	5.0	100	5	0,020	2,5	2,5
	6.0	100	5	0,025	3	3
	8.0	100	5	0,030	4	4
	10.0	100	5	0,035	5	5
	12.0	100	5	0,040	6	6
	16.0	100	5	0,050	8	8
	20.0	100	5	0,07	10	10

Correctie
Correction

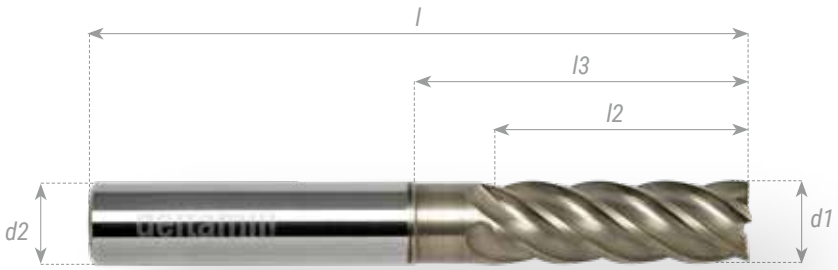
Ae	Ap	Vc	fz
Ae= <0,4xD	1 x D	+20%	+20%
Ae= <0,4xD	1,5 x D	+10%	+10%
Ae= <0,05xD	2 x D	-	+100%

Contour Ap<1,5xD
en Ae<0,5xD

Finish Ap<2xD
en Ae 0,05xD

VHM HPC Trochoidaal Frees 3xD Titaan

SC UPC Trochoidal Endmill 3xD Titan



AGRESSOR TITAN

HPC | TITAN | HB | 5 | NECK RELIEF | r | COATING Si2 Silber | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D5953-0300SI2	3,0	6,0	14	23	62	5	0,1	69,00
D5953-0400SI2	4,0	6,0	15	23	62	5	0,1	69,00
D5953-0500SI2	5,0	6,0	16	24	62	5	0,1	69,00
D5953-0600Si2	6,0	6,0	19	24	62	5	0,1	69,00
D5953-0800SI2	8,0	8,0	25	30	68	5	0,2	101,00
D5953-1000SI2	10,0	10,0	31	38	80	5	0,2	133,00
D5953-1200SI2	12,0	12,0	37	46	93	5	0,3	164,00
D5953-1600SI2	16,0	16,0	49	58	108	5	0,3	aanvraag
D5953-2000SI2	20,0	20,0	61	74	126	5	0,3	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

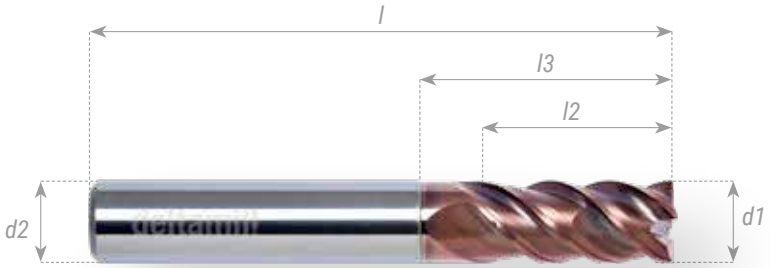
Mat.	ØD	Vc M/min	Z	Max. contacthoek Max. contactangle	ap mm	fz mm ae= 5% x D	fz mm ae= 10% x D	fz mm ae= 15% x D	hm* mm
S1.1 Pure Titanium Ti99,5 / Ti Grade 1	3.0	150	5	40°	14	0.030	0.010	0.005	0.002
	4.0	150	5	40°	15	0.040	0.020	0.010	0.003
	5.0	150	5	40°	16	0.050	0.030	0.020	0.005
	6.0	150	5	40°	19	0.060	0.040	0.030	0.010
	8.0	150	5	40°	25	0.070	0.050	0.040	0.015
	10.0	150	5	40°	31	0.090	0.060	0.040	0.015
	12.0	150	5	40°	37	0.110	0.080	0.070	0.025
	16.0	150	5	40°	49	0.157	0.111	0.090	0.035
	20.0	150	5	40°	61	0.220	0.150	0.130	0.049
S1.2 Titanium alloys Ti Grade 3 & 4	3.0	130	5	40°	14	0.030	0.010	0.005	0.002
	4.0	130	5	40°	15	0.040	0.020	0.010	0.003
	5.0	130	5	40°	16	0.050	0.030	0.020	0.005
	6.0	130	5	40°	19	0.060	0.040	0.030	0.010
	8.0	130	5	40°	25	0.070	0.050	0.040	0.015
	10.0	130	5	40°	31	0.090	0.060	0.040	0.015
	12.0	130	5	40°	37	0.110	0.080	0.070	0.025
	16.0	130	5	40°	49	0.157	0.111	0.090	0.035
	20.0	130	5	40°	61	0.220	0.150	0.130	0.049
S1.3 Titanium alloys TiAl6V4 / Grade 5	3.0	110	5	40°	14	0.010	0.005	0.005	0.004
	4.0	110	5	40°	15	0.020	0.010	0.010	0.006
	5.0	110	5	40°	16	0.030	0.020	0.020	0.008
	6.0	110	5	40°	19	0.040	0.030	0.030	0.010
	8.0	110	5	40°	25	0.050	0.040	0.030	0.012
	10.0	110	5	40°	31	0.070	0.050	0.040	0.015
	12.0	110	5	40°	37	0.080	0.060	0.050	0.019
	16.0	110	5	40°	49	0.117	0.083	0.070	0.026
	20.0	110	5	40°	61	0.160	0.120	0.090	0.036
S2.2 Inconel 625	3.0	90	5	40°	14	0.010	0.005	0.005	0.004
	4.0	90	5	40°	15	0.020	0.010	0.010	0.006
	5.0	90	5	40°	16	0.030	0.020	0.020	0.008
	6.0	90	5	40°	19	0.040	0.030	0.030	0.010
	8.0	90	5	40°	25	0.050	0.040	0.030	0.012
	10.0	90	5	40°	31	0.070	0.050	0.040	0.015
	12.0	90	5	40°	37	0.080	0.060	0.050	0.019
	16.0	90	5	40°	49	0.117	0.083	0.070	0.026
	20.0	90	5	40°	61	0.160	0.012	0.090	0.036
S2.3 Inconel 718	3.0	70	5	40°	14	0.010	0.005	0.005	0.004
	4.0	70	5	40°	15	0.020	0.010	0.010	0.006
	5.0	70	5	40°	16	0.030	0.020	0.020	0.008
	6.0	70	5	40°	19	0.040	0.030	0.030	0.010
	8.0	70	5	40°	25	0.050	0.040	0.030	0.012
	10.0	70	5	40°	31	0.070	0.050	0.040	0.015
	12.0	70	5	40°	37	0.080	0.060	0.050	0.019
	16.0	70	5	40°	49	0.117	0.083	0.070	0.026
	20.0	70	5	40°	61	0.160	0.090	0.090	0.036

*hm= gemiddelde spaandikte
*hm= average chip thickness

Trochoidal Max Ap and Ae max 15%

VHM HPC Frees <60 HRC

Solid Carbide HPC endmill <60 HRC



AGRESSOR HARD

HPC | HRC HARD | HB | Vario | Unequal | 4 | Cx45° | COATING TiALN | WET

Code	Ød1	Ød2	l2	l3	l	z	c	€
D4960-0300BT	3,0	6,0	8	-	57	4	0,1	42,00
D4960-0400BT	4,0	6,0	11	-	57	4	0,1	42,00
D4960-0500BT	5,0	6,0	13	18	57	4	0,1	42,00
D4960-0600BT	6,0	6,0	13	18	57	4	0,1	42,00
D4960-0800BT	8,0	8,0	21	25	64	4	0,2	53,00
D4960-1000BT	10,0	10,0	22	30	72	4	0,2	80,00
D4960-1200BT	12,0	12,0	26	36	83	4	0,3	111,00
D4960-1600BT	16,0	16,0	36	42	92	4	0,3	aanvraag
D4960-2000BT	20,0	20,0	41	52	104	4	0,3	aanvraag

95 Herslijp- en hercoatservice
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
P3.2 High Alloy steels < 1600N/mm²	3.0	120	4	0.010	3	3
	4.0	120	4	0.015	4	4
	5.0	120	4	0.020	5	5
	6.0	120	4	0.025	6	6
	8.0	120	4	0.030	8	8
	10.0	120	4	0.035	10	10
	12.0	120	4	0.040	12	12
	16.0	120	4	0.050	8	16
	20.0	120	4	0.060	10	20
H1.1 Hardened steel < 52 HRC	3.0	75	4	0.008	3	3
	4.0	75	4	0.010	4	4
	5.0	75	4	0.012	5	5
	6.0	75	4	0.017	6	6
	8.0	75	4	0.020	8	8
	10.0	75	4	0.025	10	10
	12.0	75	4	0.030	12	12
	16.0	75	4	0.040	8	16
	20.0	75	4	0.050	10	20
H1.2 Hardened steel < 56 HRC	3.0	55	4	0.008	3	3
	4.0	55	4	0.010	4	4
	5.0	55	4	0.012	5	5
	6.0	55	4	0.017	6	6
	8.0	55	4	0.020	8	8
	10.0	55	4	0.025	10	10
	12.0	55	4	0.030	12	12
	16.0	55	4	0.040	8	16
	20.0	55	4	0.050	10	20
H1.3 Hardened steel < 60 HRC	3.0	30	4	0.004	1.5	3
	4.0	30	4	0.006	2	4
	5.0	30	4	0.007	2.5	5
	6.0	30	4	0.008	3	6
	8.0	30	4	0.010	4	8
	10.0	30	4	0.015	5	10
	12.0	30	4	0.020	6	12
	16.0	30	4	0.030	5	16
	20.0	30	4	0.040	6	20
H1.4 Hardened steel < 63 HRC	3.0	25	4	0.004	1.5	3
	4.0	25	4	0.006	2	4
	5.0	25	4	0.007	2.5	5
	6.0	25	4	0.008	3	6
	8.0	25	4	0.010	4	8
	10.0	25	4	0.015	5	10
	12.0	25	4	0.020	6	12
	16.0	25	4	0.030	5	16
	20.0	25	8	0.040	6	20

Correctie
Correction

Ae	Ap	Vc	fz
Ae= <0,4xD	1 x D	+20%	+20%
Ae= <0,4xD	1,5 x D	+10%	+10%
Ae= <0,05xD	2 x D	-	+100%

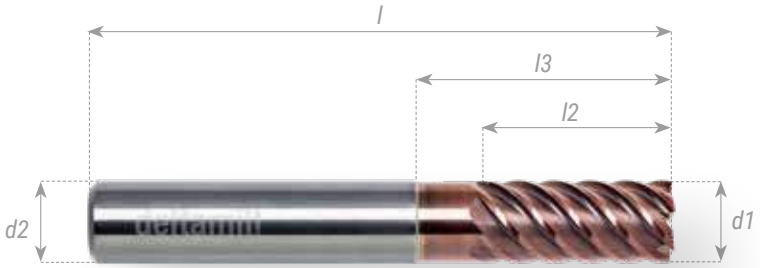
Slotting Ap1xD
en Ae1xD

Contour Ap<1,5xD
en Ae<0,4xD

Finish Ap<2xD
en Ae 0,05xD

VHM HPC Finiseer Frees <63 HRC

Solid Carbide HPC endmill for finishing <63 HRC



AGRESSOR HARD

HPC | HRC HARD | HA | 6 | NECK RELIEF | SHARP | COATING TiALN | AIR

Code	Ød1	Ød2	l2	l3	l	z	r	€
D6560-0400BT	4,0	6,0	11	-	57	6	-	49,00
D6560-0405RBT	4,0	6,0	11	-	57	6	0,5	55,00
D6560-0500BT	5,0	6,0	13	18	57	6	-	49,00
D6560-0505RBT	5,0	6,0	13	18	57	6	0,5	55,00
D6560-0600BT	6,0	6,0	13	18	57	6	-	49,00
D6560-0605RBT	6,0	6,0	13	18	57	6	0,5	55,00
D6560-0800BT	8,0	8,0	21	25	64	6	-	68,00
D6560-0805RBT	8,0	8,0	21	25	64	6	0,5	75,00
D6560-0810RBT	8,0	8,0	21	25	64	6	1,0	75,00
D6560-1000BT	10,0	10,0	22	30	72	6	-	93,00
D6560-1005RBT	10,0	10,0	22	30	72	6	0,5	110,00
D6560-1010RBT	10,0	10,0	22	30	72	6	1,0	110,00
D6560-1200BT	12,0	12,0	26	36	83	6	-	122,00
D6560-1205RBT	12,0	12,0	26	36	83	6	0,5	139,00
D6560-1210RBT	12,0	12,0	26	36	83	6	1,0	139,00
D6560-1220RBT	12,0	12,0	26	36	83	6	2,0	139,00
D6560-1600BT	16,0	16,0	36	42	92	8	-	aanvraag
D6560-1605RBT	16,0	16,0	36	42	92	8	0,5	aanvraag
D6560-1610RBT	16,0	16,0	36	42	92	8	1,0	aanvraag
D6560-1620RBT	16,0	16,0	36	42	92	8	2,0	aanvraag
D6560-2000BT	20,0	20,0	41	52	104	8	-	aanvraag

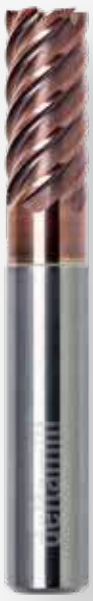
95 Herslijp- en hercoatservice
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

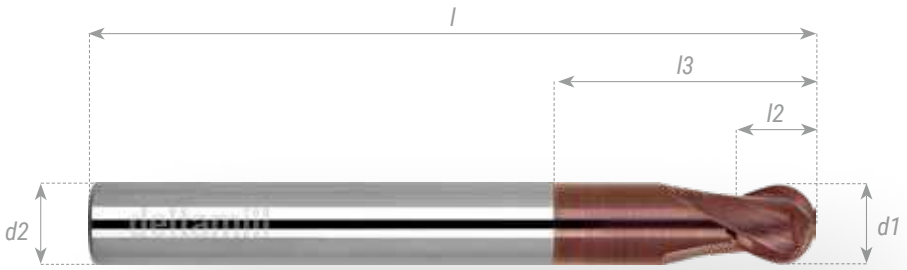
Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
H1.1 Hardened steel < 48 HRC	3.0	80	6	0.010	4.5	0.10
	4.0	80	6	0.015	6	0.11
	5.0	80	6	0.020	7.5	0.12
	6.0	80	6	0.025	9	0.13
	8.0	80	6	0.035	12	0.15
	10.0	80	6	0.040	15	0.15
	12.0	80	6	0.050	18	0.15
	16.0	80	8	0.070	24	0.20
	20.0	80	8	0.100	30	0.30
H1.2 Hardened steel < 52 HRC	3.0	75	6	0.010	4.5	0.10
	4.0	75	6	0.015	6	0.11
	5.0	75	6	0.020	7.5	0.12
	6.0	75	6	0.025	9	0.13
	8.0	75	6	0.035	12	0.15
	10.0	75	6	0.040	15	0.15
	12.0	75	6	0.050	18	0.15
	16.0	75	8	0.070	24	0.20
	20.0	75	8	0.100	30	0.30
H1.2 Hardened steel < 56 HRC	3.0	70	6	0.010	4.5	0.10
	4.0	70	6	0.015	6	0.11
	5.0	70	6	0.020	7.5	0.12
	6.0	70	6	0.025	9	0.13
	8.0	70	6	0.035	12	0.15
	10.0	70	6	0.040	15	0.15
	12.0	70	6	0.050	18	0.15
	16.0	70	8	0.070	24	0.20
	20.0	70	8	0.100	30	0.30
H1.3 Hardened steel < 60 HRC	3.0	60	6	0.010	4.5	0.10
	4.0	60	6	0.015	6	0.11
	5.0	60	6	0.020	7.5	0.12
	6.0	60	6	0.025	9	0.13
	8.0	60	6	0.035	12	0.15
	10.0	60	6	0.040	15	0.15
	12.0	60	6	0.050	18	0.15
	16.0	60	8	0.070	24	0.20
	20.0	60	8	0.100	30	0.30
H1.4 Hardened steel < 63 HRC	3.0	45	6	0.010	4.5	0.10
	4.0	45	6	0.015	6	0.11
	5.0	45	6	0.020	7.5	0.12
	6.0	45	6	0.025	9	0.13
	8.0	45	6	0.035	12	0.15
	10.0	45	6	0.040	15	0.15
	12.0	45	6	0.050	18	0.15
	16.0	45	8	0.070	24	0.20
	20.0	45	8	0.100	30	0.30

Finish Ap<1,5xD



VHM HSC 3D Bolkop Frees <63 HRC

Solid Carbide HSC 3D Ball endmill <63 HRC



AGRESSOR HARD

HPC | HRC HARD | HA | 6 | NECK RELIEF | COATING TiALN | AIR

Code	Ød1	Ød2	l2	l3	l	z	r	€
D2862-0300BT	3,0	6,0	3	9	51	2	1,5	80,00
D2862-0400BT	4,0	6,0	4	12	57	2	2,0	78,00
D2862-0500BT	5,0	6,0	5	15	57	2	2,5	78,00
D2862-0600BT	6,0	6,0	6	18	76	2	3,0	83,00
D2862-0800BT	8,0	8,0	8	24	76	2	4,0	117,00
D2862-1000BT	10,0	10,0	10	30	100	2	5,0	177,00
D2862-1200BT	12,0	12,0	12	36	100	2	6,0	182,00

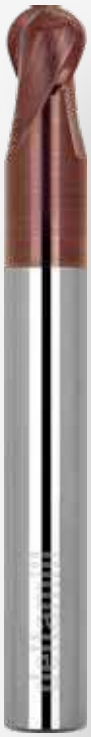
95 Herslijp- en hercoatservice
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

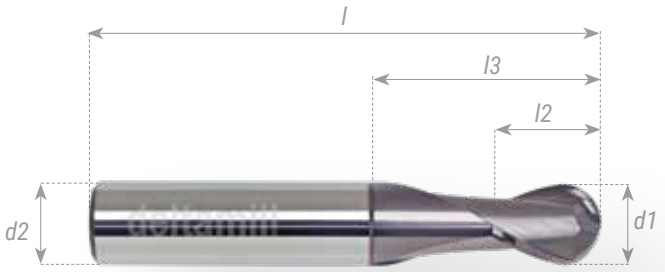
Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
H1.1 Hardened steel < 48 HRC	3.0	160	2	0.025	0.15	0.12
	4.0	160	2	0.035	0.20	0.16
	5.0	160	2	0.040	0.25	0.20
	6.0	160	2	0.050	0.30	0.24
	8.0	160	2	0.060	0.40	0.32
	10.0	160	2	0.065	0.50	0.40
	12.0	160	2	0.070	0.60	0.48
H1.2 Hardened steel < 52 HRC	3.0	150	2	0.025	0.15	0.12
	4.0	150	2	0.035	0.20	0.16
	5.0	150	2	0.040	0.25	0.20
	6.0	150	2	0.050	0.30	0.24
	8.0	150	2	0.060	0.40	0.32
	10.0	150	2	0.065	0.50	0.40
	12.0	150	2	0.070	0.60	0.48
H1.3 Hardened steel > 60 HRC	3.0	110	2	0.025	0.09	0.09
	4.0	110	2	0.035	0.12	0.12
	5.0	110	2	0.040	0.15	0.15
	6.0	110	2	0.050	0.18	0.18
	8.0	110	2	0.060	0.24	0.24
	10.0	110	2	0.065	0.30	0.30
	12.0	110	2	0.070	0.36	0.36
H1.4 Hardened steel < 60 HRC	3.0	100	2	0.025	0.06	0.06
	4.0	100	2	0.035	0.08	0.08
	5.0	100	2	0.040	0.10	0.10
	6.0	100	2	0.050	0.12	0.12
	8.0	100	2	0.060	0.16	0.16
	10.0	100	2	0.065	0.20	0.20
	12.0	100	2	0.070	0.24	0.24

Finish Ap<1,5xD



VHM Volradius frees

Solid carbide Fullradius endmill



UNILINE

Code	Ød1	Ød2	l2	l3	l	z	r	€
D2380-0100BT	1,0	6,0	4	8	54	2	0,5	49,00
D2380-0200BT	2,0	6,0	5	10	54	2	1,0	49,00
D2380-0300BT	3,0	6,0	5	15	54	2	1,5	49,00
D2380-0400BT	4,0	6,0	8	20	54	2	2,0	49,00
D2380-0500BT	5,0	6,0	9	20	54	2	2,5	49,00
D2380-0600BT	6,0	6,0	10	25	54	2	3,0	49,00
D2380-0800BT	8,0	8,0	12	25	58	2	4,0	60,00
D2380-1000BT	10,0	10,0	14	25	66	2	5,0	88,00
D2380-1200BT	12,0	12,0	16	30	73	2	6,0	123,00
D2380-1600BT	16,0	16,0	22	30	82	2	8,0	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

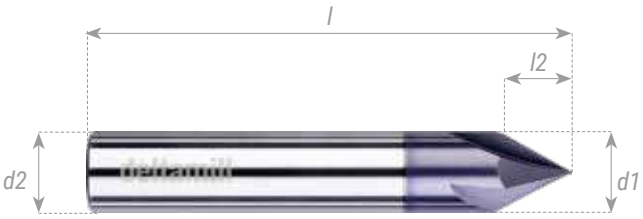
Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm	d eff. mm
P1.1 Steel < 800N/mm²	1.0	180	2	0.005	0.03	0.06	0.34
	2.0	180	2	0.010	0.06	0.12	0 68
	3.0	180	2	0.015	0.09	0.18	1.02
	4.0	180	2	0.020	0.12	0.24	1.36
	5.0	180	2	0.025	0.15	0.30	1.71
	6.0	180	2	0.030	0.18	0.36	2.05
	8.0	180	2	0.040	0.24	0.48	2.73
	10.0	180	2	0.045	0.30	0.60	3.41
	12.0	180	2	0.050	0.36	0.72	4.09
P2.2 Heat Treatable steel <1100N/mm²	1.0	120	2	0.004	0.03	0.06	0.34
	2.0	120	2	0.008	0.06	0.12	0 68
	3.0	120	2	0.012	0.09	0.18	1.02
	4.0	120	2	0.016	0.12	0.24	1.36
	5.0	120	2	0.020	0.15	0.30	1.71
	6.0	120	2	0.026	0.18	0.36	2.05
	8.0	120	2	0.030	0.24	0.48	2.73
	10.0	120	2	0.035	0.30	0.60	3.41
	12.0	120	2	0.040	0.36	0.72	4.09
P3.2 High Alloy steels < 1600N/mm²	1.0	100	2	0.004	0.03	0.06	0.34
	2.0	100	2	0.008	0.06	0.12	0 68
	3.0	100	2	0.012	0.09	0.18	1.02
	4.0	100	2	0.016	0.12	0.24	1.36
	5.0	100	2	0.020	0.15	0.30	1.71
	6.0	100	2	0.026	0.18	0.36	2.05
	8.0	100	2	0.030	0.24	0.48	2.73
	10.0	100	2	0.035	0.30	0.60	3.41
	12.0	100	2	0.040	0.36	0.72	4.09
M2.1 Stainless steel < 1600N/mm²	1.0	90	2	0.003	0.03	0.06	0.34
	2.0	90	2	0.005	0.06	0.12	0 68
	3.0	90	2	0.008	0.09	0.18	1.02
	4.0	90	2	0.010	0.12	0.24	1.36
	5.0	90	2	0.012	0.15	0.30	1.71
	6.0	90	2	0.016	0.18	0.36	2.05
	8.0	90	2	0.020	0.24	0.48	2.73
	10.0	90	2	0.025	0.30	0.60	3.41
	12.0	90	2	0.030	0.36	0.72	4.09
K1.2 Cast iron	1.0	200	2	0.010	0.03	0.06	0.34
	2.0	200	2	0.015	0.06	0.12	0 68
	3.0	200	2	0.020	0.09	0.18	1.02
	4.0	200	2	0.030	0.12	0.24	1.36
	5.0	200	2	0.035	0.15	0.30	1.71
	6.0	200	2	0.045	0.18	0.36	2.05
	8.0	200	2	0.055	0.24	0.48	2.73
	10.0	200	2	0.065	0.30	0.60	3.41
	12.0	200	2	0.070	0.36	0.72	4.09

Slotting Ap0,03xD
en Ae0,06xD

Contour Ap0,03xD
en Ae0,06xD

VHM 60° universeel afschuin frees
SC 60° universal *chamfering endmill*



UNILINE

UNI VERSAL | HA | 4 | COATING TiALN | WET

Code	Ød1	Ød2	l2	l3	l	z	α	€
D4060-0600AT	6,0	6,0	3	-	57	4	60°	75,00
D4060-0800AT	8,0	8,0	4	-	60	4	60°	101,00
D4060-1000AT	10,0	10,0	5	-	70	4	60°	132,00
D4060-1200AT	12,0	12,0	6	-	70	4	60°	179,00
D4060-1600AT	16,0	16,0	8	-	80	4	60°	aanvraag

95 Herslijp- en hercoatservice
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
P1.1 Steel < 800N/mm²	4.0	150	4	0.020	2	2
	6.0	150	4	0.030	3	3
	8.0	150	4	0.040	4	4
	10.0	150	4	0.050	5	5
	12.0	150	4	0.060	6	6
	16.0	150	4	0.080	8	8
P2.2 Heat Treatable steel <1300N/mm²	4.0	120	4	0.020	2	2
	6.0	120	4	0.030	3	3
	8.0	120	4	0.040	4	4
	10.0	120	4	0.050	5	5
	12.0	120	4	0.060	6	6
	16.0	120	4	0.080	8	8
P3.2 High Alloy steels < 800N/mm²	4.0	80	4	0.020	2	2
	6.0	80	4	0.030	3	3
	8.0	80	4	0.040	4	4
	10.0	80	4	0.050	5	5
	12.0	80	4	0.060	6	6
	16.0	80	4	0.080	8	8
M2.1 Stainless steel < 1600N/mm²	4.0	40	4	0.010	2	2
	6.0	40	4	0.015	3	3
	8.0	40	4	0.018	4	4
	10.0	40	4	0.020	5	5
	12.0	40	4	0.025	6	6
	16.0	40	4	0.035	8	8
K1.2 Cast iron	4.0	150	4	0.015	2	2
	6.0	150	4	0.020	3	3
	8.0	150	4	0.025	4	4
	10.0	150	4	0.030	5	5
	12.0	150	4	0.035	6	6
	16.0	150	4	0.045	8	8

Contour Ap<0,5xD
en Ae<0,5xD

VHM 90° afschuin frees
SC 90° chamfering endmill

UNILINE

UNI VERSAL | HA | 4 | COATING TiALN | WET

Code	Ød1	Ød2	l2	l3	l	z	α	€
D4090-0400AT	4,0	4,0	2	-	50	4	90°	41,00
D4090-0600AT	6,0	6,0	3	-	60	4	90°	46,00
D4090-0800AT	8,0	8,0	4	-	60	4	90°	67,00
D4090-1000AT	10,0	10,0	5	-	70	4	90°	96,00
D4090-1200AT	12,0	12,0	6	-	70	4	90°	110,00
D4090-1600AT	16,0	16,0	8	-	80	4	90°	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
P1.1 Steel < 800N/mm²	4.0	150	4	0.020	2	2
	6.0	150	4	0.030	3	3
	8.0	150	4	0.040	4	4
	10.0	150	4	0.050	5	5
	12.0	150	4	0.060	6	6
	16.0	150	4	0.080	8	8
P2.2 Heat Treatable steel <1300N/mm²	4.0	120	4	0.020	2	2
	6.0	120	4	0.030	3	3
	8.0	120	4	0.040	4	4
	10.0	120	4	0.050	5	5
	12.0	120	4	0.060	6	6
	16.0	120	4	0.080	8	8
P3.2 High Alloy steels < 800N/mm²	4.0	80	4	0.020	2	2
	6.0	80	4	0.030	3	3
	8.0	80	4	0.040	4	4
	10.0	80	4	0.050	5	5
	12.0	80	4	0.060	6	6
	16.0	80	4	0.080	8	8
M2.1 Stainless steel < 1600N/mm²	4.0	40	4	0.010	2	2
	6.0	40	4	0.015	3	3
	8.0	40	4	0.018	4	4
	10.0	40	4	0.020	5	5
	12.0	40	4	0.025	6	6
	16.0	40	4	0.035	8	8
K1.2 Cast iron	4.0	150	4	0.015	2	2
	6.0	150	4	0.020	3	3
	8.0	150	4	0.025	4	4
	10.0	150	4	0.030	5	5
	12.0	150	4	0.035	6	6
	16.0	150	4	0.045	8	8

Contour Ap<0,5xD
en Ae<0,5xD

VHM 120° afschuin frees
SC 120° chamfering endmill

UNILINE

UNI VERSAL | HA | 4 | COATING TiALN | WET

Code	Ød1	Ød2	l2	l3	l	z	α	€
D4120-0800AT	8,0	8,0	4	-	60	4	120	75,00
D4120-1000AT	10,0	10,0	5	-	70	4	120	102,00
D4120-1200AT	12,0	12,0	6	-	70	4	120	110,00

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
P1.1 Steel < 800N/mm²	4.0	150	4	0.020	2	2
	6.0	150	4	0.030	3	3
	8.0	150	4	0.040	4	4
	10.0	150	4	0.050	5	5
	12.0	150	4	0.060	6	6
	16.0	150	4	0.080	8	8
P2.2 Heat Treatable steel <1300N/mm²	4.0	120	4	0.020	2	2
	6.0	120	4	0.030	3	3
	8.0	120	4	0.040	4	4
	10.0	120	4	0.050	5	5
	12.0	120	4	0.060	6	6
	16.0	120	4	0.080	8	8
P3.2 High Alloy steels < 800N/mm²	4.0	80	4	0.020	2	2
	6.0	80	4	0.030	3	3
	8.0	80	4	0.040	4	4
	10.0	80	4	0.050	5	5
	12.0	80	4	0.060	6	6
	16.0	80	4	0.080	8	8
M2.1 Stainless steel < 1600N/mm²	4.0	40	4	0.010	2	2
	6.0	40	4	0.015	3	3
	8.0	40	4	0.018	4	4
	10.0	40	4	0.020	5	5
	12.0	40	4	0.025	6	6
	16.0	40	4	0.035	8	8
K1.2 Cast iron	4.0	150	4	0.015	2	2
	6.0	150	4	0.020	3	3
	8.0	150	4	0.025	4	4
	10.0	150	4	0.030	5	5
	12.0	150	4	0.035	6	6
	16.0	150	4	0.045	8	8

Contour Ap<0,5xD
en Ae<0,5xD

VHM Multi-V frees

Solid carbide Multi-V endmill

UNILINE

UNI VERSAL | HA | 2 | WET

Code	Ød1	Ød2	l2	l3	l	z	α	€
D2090-0300AB	3,0	6,0	8	-	57	2	90	70,00
D2090-0400AB	4,0	6,0	12	-	57	2	90	70,00
D2090-0600AB	6,0	6,0	13	-	57	2	90	70,00
D2090-0800AB	8,0	8,0	19	-	63	2	90	86,00
D2090-1000AB	10,0	10,0	22	-	72	2	90	112,00
D2090-1200AB	12,0	12,0	26	-	83	2	90	138,00
D2090-1600AB	16,0	16,0	32	-	92	2	90	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

Mat.	ØD	Vc M/min	Z	fz mm	ap mm	ae mm
P1.1 Steel < 800N/mm²	3.0	70	2	0.010	1,5	1,5
	4.0	70	2	0.015	2,0	2,0
	6.0	70	2	0.020	3,0	3,0
	8.0	70	2	0.025	4,0	4,0
	10.0	70	2	0.030	5,0	5,0
	12.0	70	2	0.035	6,0	6,0
	16.0	70	2	0.045	8,0	8,0
P2.2 Heat Treatable steel <1100N/mm²	3.0	60	2	0.010	1,5	1,5
	4.0	60	2	0.015	2,0	2,0
	6.0	60	2	0.020	3,0	3,0
	8.0	60	2	0.025	4,0	4,0
	10.0	60	2	0.030	5,0	5,0
	12.0	60	2	0.035	6,0	6,0
	16.0	60	2	0.045	8,0	8,0
M2.1 Stainless steel < 1600N/mm²	3.0	40	2	0.008	1,5	1,5
	4.0	40	2	0.010	2,0	2,0
	6.0	40	2	0.015	3,0	3,0
	8.0	40	2	0.018	4,0	4,0
	10.0	40	2	0.020	5,0	5,0
	12.0	40	2	0.025	6,0	6,0
	16.0	40	2	0.035	8,0	8,0
N1.1 Aluminium wrought alloys	3.0	175	2	0.010	1,5	1,5
	4.0	175	2	0.020	2,0	2,0
	6.0	175	2	0.030	3,0	3,0
	8.0	175	2	0.040	4,0	4,0
	10.0	175	2	0.050	5,0	5,0
	12.0	175	2	0.060	6,0	6,0
	16.0	175	2	0.080	8,0	8,0
N1.4 Aluminium casrt alloys 6-12% Si	3.0	175	2	0.010	1,5	1,5
	4.0	175	2	0.020	2,0	2,0
	6.0	175	2	0.030	3,0	3,0
	8.0	175	2	0.040	4,0	4,0
	10.0	175	2	0.050	5,0	5,0
	12.0	175	2	0.060	6,0	6,0
	16.0	175	2	0.080	8,0	8,0
K1.2 Cast iron	3.0	70	2	0.010	1,5	1,5
	4.0	70	2	0.015	2,0	2,0
	6.0	70	2	0.020	3,0	3,0
	8.0	70	2	0.025	4,0	4,0
	10.0	70	2	0.030	5,0	5,0
	12.0	70	2	0.035	6,0	6,0
	16.0	70	2	0.045	8,0	8,0

Contour Ap<0,5xD
en Ae<0,5xD

VHM Holradius frees

Solid Carbide Corner rounding endmill

UNILINE

UNI VERSAL | HA | 4 | r | COATING TiALN | WET

Code	Ød1	Ød2	l2	l3	l	z	r	€
D4080-0805AT	8,0	8,0	-	-	70	4	0,5	96,00
D4080-0810AT	8,0	8,0	-	-	70	4	1,0	96,00
D4080-1015AT	10,0	10,0	-	-	75	4	1,5	127,00
D4080-1020AT	10,0	10,0	-	-	75	4	2,0	127,00
D4080-1225AT	12,0	12,0	-	-	75	4	2,5	153,00
D4080-1230AT	12,0	12,0	-	-	75	4	3,0	153,00
D4080-1240AT	12,0	12,0	-	-	75	4	4,0	153,00
D4080-1650AT	16,0	16,0	-	-	80	4	5,0	aanvraag

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Verspanings parameters
Cutting Data

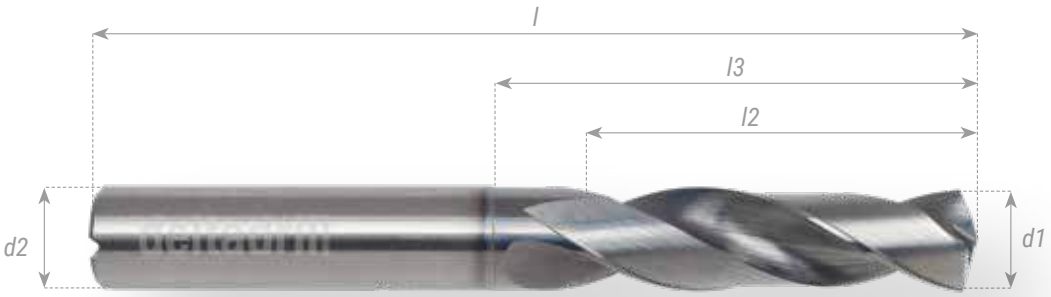
Mat.	ØD	R	Vc M/min	Z	fz mm	ap mm	ae mm
P1.1 Steel < 800N/mm²	8.0	0.5	150	4	0.030	0.5	0.5
	8.0	1.0	150	4	0.030	1.0	1.0
	10.0	1.5	150	4	0.040	1.5	1.5
	10.0	2.0	150	4	0.040	2.0	2.0
	12.0	3.0	150	4	0.050	3.0	3.0
	12.0	4.0	150	4	0.050	4.0	4.0
	16.0	5.0	150	4	0.080	5.0	5.0
P2.2 Heat Treatable steel <1100N/mm²	8.0	0.5	120	4	0.030	0.5	0.5
	8.0	1.0	120	4	0.030	1.0	1.0
	10.0	1.5	120	4	0.040	1.5	1.5
	10.0	2.0	120	4	0.040	2.0	2.0
	12.0	3.0	120	4	0.050	3.0	3.0
	12.0	4.0	120	4	0.050	4.0	4.0
	16.0	5.0	120	4	0.080	5.0	5.0
P3.2 High Alloy steels < 1600N/mm²	8.0	0.5	80	4	0.030	0.5	0.5
	8.0	1.0	80	4	0.030	1.0	1.0
	10.0	1.5	80	4	0.040	1.5	1.5
	10.0	2.0	80	4	0.040	2.0	2.0
	12.0	3.0	80	4	0.050	3.0	3.0
	12.0	4.0	80	4	0.050	4.0	4.0
	16.0	5.0	80	4	0.080	5.0	5.0
M2.1 Stainless steel < 1600N/mm²	8.0	0.5	40	4	0.030	0.5	0.5
	8.0	1.0	40	4	0.030	1.0	1.0
	10.0	1.5	40	4	0.040	1.5	1.5
	10.0	2.0	40	4	0.040	2.0	2.0
	12.0	3.0	40	4	0.050	3.0	3.0
	12.0	4.0	40	4	0.050	4.0	4.0
	16.0	5.0	40	4	0.080	5.0	5.0
K1.2 Cast iron	8.0	0.5	150	4	0.030	0.5	0.5
	8.0	1.0	150	4	0.030	1.0	1.0
	10.0	1.5	150	4	0.040	1.5	1.5
	10.0	2.0	150	4	0.040	2.0	2.0
	12.0	3.0	150	4	0.050	3.0	3.0
	12.0	4.0	150	4	0.050	4.0	4.0
	16.0	5.0	150	4	0.080	5.0	5.0

Contour Ap = max. r
en Ae = max. r

BOREN
DRILLS

deltadrill
Drilling Technology

VHM Boren Staal 3xD
Solid carbide Drills Steel 3xD



SPEEDDRILL S2

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D20003-0300	3	6	62	20	14	33,00
D20003-0310	3,1	6	62	20	14	33,00
D20003-0320	3,2	6	62	20	14	33,00
D20003-0330	3,3	6	62	20	14	33,00
D20003-0340	3,4	6	62	20	14	33,00
D20003-0350	3,5	6	62	20	14	33,00
D20003-0360	3,6	6	62	20	14	33,00
D20003-0370	3,7	6	62	20	14	33,00
D20003-0380	3,8	6	66	24	17	33,00
D20003-0390	3,9	6	66	24	17	33,00
D20003-0400	4	6	66	24	17	33,00
D20003-0410	4,1	6	66	24	17	33,00
D20003-0420	4,2	6	66	24	17	33,00
D20003-0430	4,3	6	66	24	17	33,00
D20003-0440	4,4	6	66	24	17	33,00
D20003-0450	4,5	6	66	24	17	33,00
D20003-0460	4,6	6	66	24	17	33,00
D20003-0465	4,65	6	66	24	17	33,00
D20003-0470	4,7	6	66	24	17	33,00
D20003-0480	4,8	6	66	28	20	33,00
D20003-0490	4,9	6	66	28	20	33,00
D20003-0500	5	6	66	28	20	33,00
D20003-0510	5,1	6	66	28	20	33,00
D20003-0520	5,2	6	66	28	20	33,00
D20003-0530	5,3	6	66	28	20	33,00
D20003-0540	5,4	6	66	28	20	33,00
D20003-0550	5,5	6	66	28	20	33,00
D20003-0555	5,55	6	66	28	20	33,00
D20003-0560	5,6	6	66	28	20	33,00
D20003-0570	5,7	6	66	28	20	33,00
D20003-0580	5,8	6	66	28	20	33,00

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D20003-0590	5,9	6	66	28	20	33,00
D20003-0600	6	6	66	28	20	33,00
D20003-0610	6,1	8	79	34	24	42,00
D20003-0620	6,2	8	79	34	24	42,00
D20003-0630	6,3	8	79	34	24	42,00
D20003-0640	6,4	8	79	34	24	42,00
D20003-0650	6,5	8	79	34	24	42,00
D20003-0660	6,6	8	79	34	24	42,00
D20003-0670	6,7	8	79	34	24	42,00
D20003-0680	6,8	8	79	34	24	42,00
D20003-0690	6,9	8	79	34	24	42,00
D20003-0700	7	8	79	34	24	42,00
D20003-0710	7,1	8	79	41	29	42,00
D20003-0720	7,2	8	79	41	29	42,00
D20003-0730	7,3	8	79	41	29	42,00
D20003-0740	7,4	8	79	41	29	42,00
D20003-0750	7,5	8	79	41	29	42,00
D20003-0760	7,6	8	79	41	29	42,00
D20003-0770	7,7	8	79	41	29	42,00
D20003-0780	7,8	8	79	41	29	42,00
D20003-0790	7,9	8	79	41	29	42,00
D20003-0800	8	8	79	41	29	42,00
D20003-0810	8,1	10	89	47	35	57,00
D20003-0820	8,2	10	89	47	35	57,00
D20003-0830	8,3	10	89	47	35	57,00
D20003-0840	8,4	10	89	47	35	57,00
D20003-0850	8,5	10	89	47	35	57,00
D20003-0860	8,6	10	89	47	35	57,00
D20003-0870	8,7	10	89	47	35	57,00
D20003-0880	8,8	10	89	47	35	57,00
D20003-0890	8,9	10	89	47	35	57,00

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Boorpunt - *Drill point*

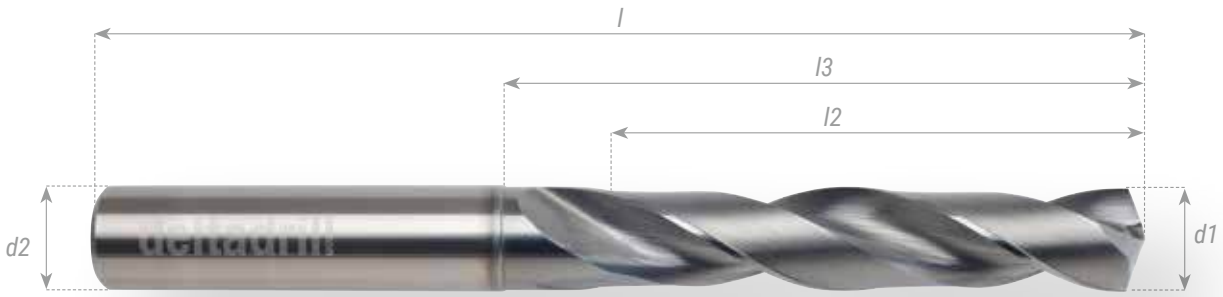
Materiaal - *Material*

Spiraal/ Helix	30°
Tophoek/point angle	140°
Punt/point	Kegelmantel/releived cone
Hartmetaal/solid carbide	Fijnkorrel/ Finegrain 8-10% Co
Coating/coating	GTX-Speed
Koeling/coolant	Buiten / external
Schacht/shaft	DIN 6535 HA

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D20003-0900	9	10	89	47	35	57,00
D20003-0910	9,1	10	89	47	35	57,00
D20003-0920	9,2	10	89	47	35	57,00
D20003-0925	9,25	10	89	47	35	57,00
D20003-0930	9,3	10	89	47	35	57,00
D20003-0940	9,4	10	89	47	35	57,00
D20003-0950	9,5	10	89	47	35	57,00
D20003-0960	9,6	10	89	47	35	57,00
D20003-0970	9,7	10	89	47	35	57,00
D20003-0980	9,8	10	89	47	35	57,00
D20003-0990	9,9	10	89	47	35	57,00
D20003-1000	10	10	89	47	35	57,00
D20003-1020	10,2	12	102	55	40	79,00
D20003-1050	10,5	12	102	55	40	79,00
D20003-1080	10,8	12	102	55	40	79,00
D20003-1100	11	12	102	55	40	79,00
D20003-1150	11,5	12	102	55	40	79,00
D20003-1180	11,8	12	102	55	40	79,00
D20003-1200	12	12	102	55	40	79,00
D20003-1250	12,5	14	107	60	43	99,00
D20003-1280	12,8	14	107	60	43	99,00
D20003-1300	13	14	107	60	43	99,00
D20003-1350	13,5	14	107	60	43	99,00
D20003-1380	13,8	14	107	60	43	99,00
D20003-1400	14	14	107	60	43	99,00
D20003-1450	14,5	16	115	65	45	135,00
D20003-1480	14,8	16	115	65	45	135,00
D20003-1500	15	16	115	65	45	135,00
D20003-1550	15,5	16	115	65	45	135,00
D20003-1580	15,8	16	115	65	45	135,00
D20003-1600	16	16	115	65	45	135,00

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D20003-1650	16,5	18	123	73	51	203,00
D20003-1680	16,8	18	123	73	51	203,00
D20003-1700	17	18	123	73	51	203,00
D20003-1750	17,5	18	123	73	51	203,00
D20003-1780	17,8	18	123	73	51	203,00
D20003-1800	18	18	123	73	51	203,00
D20003-1850	18,5	20	131	79	55	221,00
D20003-1880	18,8	20	131	79	55	221,00
D20003-1900	19	20	131	79	55	221,00
D20003-1950	19,5	20	131	79	55	221,00
D20003-1980	19,8	20	131	79	55	221,00
D20003-2000	20	20	131	79	55	221,00

VHM Boren Staal 5xD
Solid carbide Drills Steel 5xD



SPEEDDRILL S2

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D20005-0300	3,0	6	66	28	23	40,00
D20005-0310	3,1	6	66	28	23	40,00
D20005-0320	3,2	6	66	28	23	40,00
D20005-0330	3,3	6	66	28	23	40,00
D20005-0340	3,4	6	66	28	23	40,00
D20005-0350	3,5	6	66	28	23	40,00
D20005-0360	3,6	6	66	28	23	40,00
D20005-0370	3,7	6	66	28	23	40,00
D20005-0380	3,8	6	74	36	29	40,00
D20005-0390	3,9	6	74	36	29	40,00
D20005-0400	4,0	6	74	36	29	40,00
D20005-0410	4,1	6	74	36	29	40,00
D20005-0420	4,2	6	74	36	29	40,00
D20005-0430	4,3	6	74	36	29	40,00
D20005-0440	4,4	6	74	36	29	40,00
D20005-0450	4,5	6	74	36	29	40,00
D20005-0460	4,6	6	74	36	29	40,00
D20005-0470	4,7	6	74	36	29	40,00
D20005-0480	4,8	6	82	44	35	40,00
D20005-0490	4,9	6	82	44	35	40,00
D20005-0500	5,0	6	82	44	35	40,00
D20005-0510	5,1	6	82	44	35	40,00
D20005-0520	5,2	6	82	44	35	40,00
D20005-0530	5,3	6	82	44	35	40,00
D20005-0540	5,4	6	82	44	35	40,00
D20005-0550	5,5	6	82	44	35	40,00
D20005-0560	5,6	6	82	44	35	40,00
D20005-0570	5,7	6	82	44	35	40,00
D20005-0580	5,8	6	82	44	35	40,00
D20005-0590	5,9	6	82	44	35	40,00
D20005-0600	6,0	6	82	44	35	40,00

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D20005-0610	6,1	8	91	53	43	48,00
D20005-0620	6,2	8	91	53	43	48,00
D20005-0630	6,3	8	91	53	43	48,00
D20005-0640	6,4	8	91	53	43	48,00
D20005-0650	6,5	8	91	53	43	48,00
D20005-0660	6,6	8	91	53	43	48,00
D20005-0670	6,7	8	91	53	43	48,00
D20005-0680	6,8	8	91	53	43	48,00
D20005-0690	6,9	8	91	53	43	48,00
D20005-0700	7,0	8	91	53	43	48,00
D20005-0710	7,1	8	91	53	43	48,00
D20005-0720	7,2	8	91	53	43	48,00
D20005-0730	7,3	8	91	53	43	48,00
D20005-0740	7,4	8	91	53	43	48,00
D20005-0750	7,5	8	91	53	43	48,00
D20005-0760	7,6	8	91	53	43	48,00
D20005-0770	7,7	8	91	53	43	48,00
D20005-0780	7,8	8	91	53	43	48,00
D20005-0790	7,9	8	91	53	43	48,00
D20005-0800	8,0	8	91	53	43	48,00
D20005-0810	8,1	10	103	61	49	59,00
D20005-0820	8,2	10	103	61	49	59,00
D20005-0830	8,3	10	103	61	49	59,00
D20005-0840	8,4	10	103	61	49	59,00
D20005-0850	8,5	10	103	61	49	59,00
D20005-0860	8,6	10	103	61	49	59,00
D20005-0870	8,7	10	103	61	49	59,00
D20005-0880	8,8	10	103	61	49	59,00
D20005-0890	8,9	10	103	61	49	59,00
D20005-0900	9,0	10	103	61	49	59,00
D20005-0910	9,1	10	103	61	49	59,00

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
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Boorpunt - *Drill point*

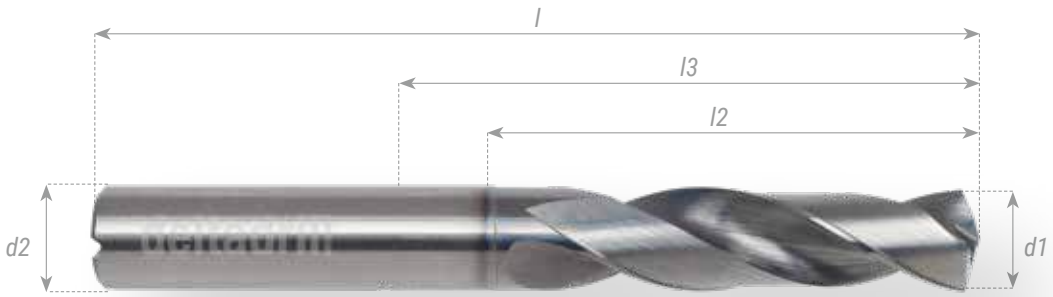
Materiaal - *Material*

Spiraal/ Helix	30°
Tophoek/point angle	140°
Punt/point	Kegelmantel/releived cone
Hartmetaal/solid carbide	Fijnkorrel/ Finegrain 8-10% Co
Coating/coating	GTX-Speed
Koeling/coolant	Buiten / external
Schacht/shaft	DIN 6535 HA

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D20005-0920	9,2	10	103	61	49	59,00
D20005-0930	9,3	10	103	61	49	59,00
D20005-0940	9,4	10	103	61	49	59,00
D20005-0950	9,5	10	103	61	49	59,00
D20005-0960	9,6	10	103	61	49	59,00
D20005-0970	9,7	10	103	61	49	59,00
D20005-0980	9,8	10	103	61	49	59,00
D20005-0990	9,9	10	103	61	49	59,00
D20005-1000	10,0	10	103	61	49	59,00
D20005-1020	10,2	12	118	71	56	85,00
D20005-1050	10,5	12	118	71	56	85,00
D20005-1080	10,8	12	118	71	56	85,00
D20005-1100	11,0	12	118	71	56	85,00
D20005-1150	11,5	12	118	71	56	85,00
D20005-1180	11,8	12	118	71	56	85,00
D20005-1200	12,0	12	118	71	56	85,00
D20005-1250	12,5	14	124	77	60	110,00
D20005-1280	12,8	14	124	77	60	110,00
D20005-1300	13,0	14	124	77	60	110,00
D20005-1350	13,5	14	124	77	60	110,00
D20005-1380	13,8	14	124	77	60	110,00
D20005-1400	14,0	14	124	77	60	110,00
D20005-1450	14,5	16	133	83	63	150,00
D20005-1480	14,8	16	133	83	63	150,00
D20005-1500	15,0	16	133	83	63	150,00
D20005-1550	15,5	16	133	83	63	150,00
D20005-1580	15,8	16	133	83	63	150,00
D20005-1600	16,0	16	133	83	63	150,00
D20005-1650	16,5	18	143	93	71	223,00
D20005-1680	16,8	18	143	93	71	223,00
D20005-1700	17,0	18	143	93	71	223,00

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D20005-1750	17,5	18	143	93	71	223,00
D20005-1780	17,8	18	143	93	71	223,00
D20005-1800	18,0	18	143	93	71	223,00
D20005-1850	18,5	20	153	101	77	256,00
D20005-1880	18,8	20	153	101	77	256,00
D20005-1900	19,0	20	153	101	77	256,00
D20005-1950	19,5	20	153	101	77	256,00
D20005-1980	19,8	20	153	101	77	256,00
D20005-2000	20,0	20	153	101	77	256,00

VHM Boren Staal 3xD
Solid carbide Drills Steel 3xD



SPEEDDRILL S2

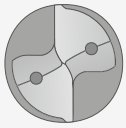
Art. nr.	Ød1	Ød2	l1	l3	l2	€
D21003-0300	3	6	62	20	14	46,00
D21003-0310	3,1	6	62	20	14	46,00
D21003-0320	3,2	6	62	20	14	46,00
D21003-0330	3,3	6	62	20	14	46,00
D21003-0340	3,4	6	62	20	14	46,00
D21003-0350	3,5	6	62	20	14	46,00
D21003-0360	3,6	6	62	20	14	46,00
D21003-0370	3,7	6	62	20	14	46,00
D21003-0380	3,8	6	66	24	17	46,00
D21003-0390	3,9	6	66	24	17	46,00
D21003-0400	4	6	66	24	17	46,00
D21003-0410	4,1	6	66	24	17	46,00
D21003-0420	4,2	6	66	24	17	46,00
D21003-0430	4,3	6	66	24	17	46,00
D21003-0440	4,4	6	66	24	17	46,00
D21003-0450	4,5	6	66	24	17	46,00
D21003-0460	4,6	6	66	24	17	46,00
D21003-0470	4,7	6	66	24	17	46,00
D21003-0480	4,8	6	66	28	20	46,00
D21003-0490	4,9	6	66	28	20	46,00
D21003-0500	5	6	66	28	20	46,00
D21003-0510	5,1	6	66	28	20	46,00
D21003-0520	5,2	6	66	28	20	46,00
D21003-0530	5,3	6	66	28	20	46,00
D21003-0540	5,4	6	66	28	20	46,00
D21003-0550	5,5	6	66	28	20	46,00
D21003-0560	5,6	6	66	28	20	46,00
D21003-0570	5,7	6	66	28	20	46,00
D21003-0580	5,8	6	66	28	20	46,00
D21003-0590	5,9	6	66	28	20	46,00
D21003-0600	6	6	66	28	20	46,00

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D21003-0610	6,1	8	79	34	24	57,00
D21003-0620	6,2	8	79	34	24	57,00
D21003-0630	6,3	8	79	34	24	57,00
D21003-0640	6,4	8	79	34	24	57,00
D21003-0650	6,5	8	79	34	24	57,00
D21003-0660	6,6	8	79	34	24	57,00
D21003-0670	6,7	8	79	34	24	57,00
D21003-0680	6,8	8	79	34	24	57,00
D21003-0690	6,9	8	79	34	24	57,00
D21003-0700	7	8	79	34	24	57,00
D21003-0710	7,1	8	79	41	29	57,00
D21003-0720	7,2	8	79	41	29	57,00
D21003-0730	7,3	8	79	41	29	57,00
D21003-0740	7,4	8	79	41	29	57,00
D21003-0750	7,5	8	79	41	29	57,00
D21003-0760	7,6	8	79	41	29	57,00
D21003-0770	7,7	8	79	41	29	57,00
D21003-0780	7,8	8	79	41	29	57,00
D21003-0790	7,9	8	79	41	29	57,00
D21003-0800	8	8	79	41	29	57,00
D21003-0810	8,1	10	89	47	35	74,00
D21003-0820	8,2	10	89	47	35	74,00
D21003-0830	8,3	10	89	47	35	74,00
D21003-0840	8,4	10	89	47	35	74,00
D21003-0850	8,5	10	89	47	35	74,00
D21003-0860	8,6	10	89	47	35	74,00
D21003-0870	8,7	10	89	47	35	74,00
D21003-0880	8,8	10	89	47	35	74,00
D21003-0890	8,9	10	89	47	35	74,00
D21003-0900	9	10	89	47	35	74,00
D21003-0910	9,1	10	89	47	35	74,00

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Boorpunt - *Drill point*



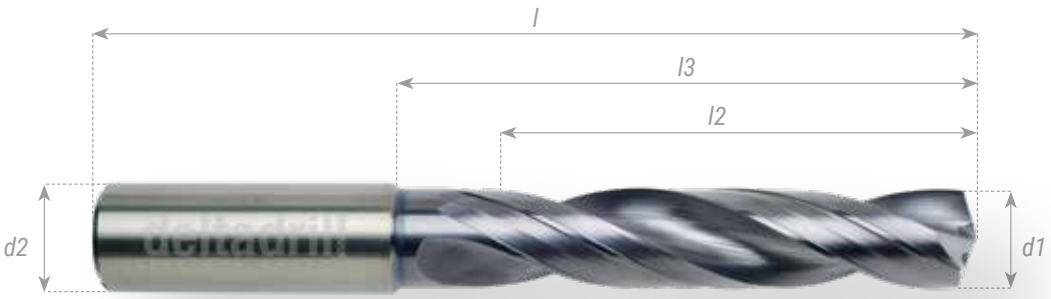
Materiaal - *Material*

Spiraal/ Helix	30°
Tophoek/point angle	140°
Punt/point	Kegelmantel/releived cone
Hartmetaal/solid carbide	Fijnkorrel/ Finegrain 8-10% Co
Coating/coating	GTX-Speed
Koeling/coolant	Inwendig/internal
Schacht/shaft	DIN 6535 HA

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D21003-0920	9,2	10	89	47	35	74,00
D21003-0930	9,3	10	89	47	35	74,00
D21003-0940	9,4	10	89	47	35	74,00
D21003-0950	9,5	10	89	47	35	74,00
D21003-0960	9,6	10	89	47	35	74,00
D21003-0970	9,7	10	89	47	35	74,00
D21003-0980	9,8	10	89	47	35	74,00
D21003-0990	9,9	10	89	47	35	74,00
D21003-1000	10	10	89	47	35	74,00
D21003-1020	10,2	12	102	55	40	99,00
D21003-1030	10,3	12	102	55	40	99,00
D21003-1050	10,5	12	102	55	40	99,00
D21003-1080	10,8	12	102	55	40	99,00
D21003-1100	11	12	102	55	40	99,00
D21003-1120	11,2	12	102	55	40	99,00
D21003-1140	11,4	12	102	55	40	99,00
D21003-1150	11,5	12	102	55	40	99,00
D21003-1170	11,7	12	102	55	40	99,00
D21003-1180	11,8	12	102	55	40	99,00
D21003-1200	12	12	102	55	40	99,00
D21003-1210	12,1	12	102	55	40	99,00
D21003-1220	12,2	12	102	55	40	99,00
D21003-1250	12,5	14	107	60	43	145,00
D21003-1280	12,8	14	107	60	43	145,00
D21003-1290	12,9	14	107	60	43	145,00
D21003-1300	13	14	107	60	43	145,00
D21003-1310	13,1	14	107	60	43	145,00
D21003-1320	13,2	14	107	60	43	145,00
D21003-1330	13,3	14	107	60	43	145,00
D21003-1350	13,5	14	107	60	43	145,00
D21003-1360	13,6	14	107	60	43	145,00

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D21003-1380	13,8	14	107	60	43	145,00
D21003-1400	14	14	107	60	43	145,00
D21003-1450	14,5	16	115	65	45	181,00
D21003-1480	14,8	16	115	65	45	181,00
D21003-1500	15	16	115	65	45	181,00
D21003-1520	15,2	16	115	65	45	181,00
D21003-1530	15,3	16	115	65	45	181,00
D21003-1550	15,5	16	115	65	45	181,00
D21003-1580	15,8	16	115	65	45	181,00
D21003-1600	16	16	115	65	45	181,00
D21003-1650	16,5	18	123	73	51	255,00
D21003-1680	16,8	18	123	73	51	255,00
D21003-1700	17	18	123	73	51	255,00
D21003-1705	17,05	18	123	73	51	255,00
D21003-1730	17,3	18	123	73	51	255,00
D21003-1750	17,5	18	123	73	51	255,00
D21003-1755	17,55	18	123	73	51	255,00
D21003-1780	17,8	18	123	73	51	255,00
D21003-1800	18	18	123	73	51	255,00
D21003-1830	18,3	20	131	79	55	294,00
D21003-1850	18,5	20	131	79	55	294,00
D21003-1880	18,8	20	131	79	55	294,00
D21003-1900	19	20	131	79	55	294,00
D21003-1930	19,3	20	131	79	55	294,00
D21003-1950	19,5	20	131	79	55	294,00
D21003-1980	19,8	20	131	79	55	294,00
D21003-2000	20	20	131	79	55	294,00

VHM Boren Staal 5xD
Solid carbide Drills Steel 5xD



SPEEDDRILL S4

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D21705-0300	3	6	66	28	23	64,00
D21705-0310	3,1	6	66	28	23	64,00
D21705-0320	3,2	6	66	28	23	64,00
D21705-0330	3,3	6	66	28	23	64,00
D21705-0340	3,4	6	66	28	23	64,00
D21705-0350	3,5	6	66	28	23	64,00
D21705-0360	3,6	6	66	28	23	64,00
D21705-0370	3,7	6	66	28	23	64,00
D21705-0380	3,8	6	74	36	29	64,00
D21705-0390	3,9	6	74	36	29	64,00
D21705-0400	4	6	74	36	29	64,00
D21705-0410	4,1	6	74	36	29	64,00
D21705-0420	4,2	6	74	36	29	64,00
D21705-0430	4,3	6	74	36	29	64,00
D21705-0440	4,4	6	74	36	29	64,00
D21705-0450	4,5	6	74	36	29	64,00
D21705-0460	4,6	6	74	36	29	64,00
D21705-0470	4,7	6	74	36	29	64,00
D21705-0480	4,8	6	82	44	35	64,00
D21705-0490	4,9	6	82	44	35	64,00
D21705-0500	5	6	82	44	35	64,00
D21705-0510	5,1	6	82	44	35	64,00
D21705-0520	5,2	6	82	44	35	64,00
D21705-0530	5,3	6	82	44	35	64,00
D21705-0540	5,4	6	82	44	35	64,00
D21705-0550	5,5	6	82	44	35	64,00
D21705-0560	5,6	6	82	44	35	64,00
D21705-0570	5,7	6	82	44	35	64,00
D21705-0580	5,8	6	82	44	35	64,00
D21705-0590	5,9	6	82	44	35	64,00
D21705-0600	6	6	82	44	35	64,00

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D21705-0610	6,1	8	91	53	43	72,00
D21705-0620	6,2	8	91	53	43	72,00
D21705-0630	6,3	8	91	53	43	72,00
D21705-0640	6,4	8	91	53	43	72,00
D21705-0650	6,5	8	91	53	43	72,00
D21705-0660	6,6	8	91	53	43	72,00
D21705-0670	6,7	8	91	53	43	72,00
D21705-0680	6,8	8	91	53	43	72,00
D21705-0690	6,9	8	91	53	43	72,00
D21705-0700	7	8	91	53	43	72,00
D21705-0710	7,1	8	91	53	43	72,00
D21705-0720	7,2	8	91	53	43	72,00
D21705-0730	7,3	8	91	53	43	72,00
D21705-0740	7,4	8	91	53	43	72,00
D21705-0750	7,5	8	91	53	43	72,00
D21705-0760	7,6	8	91	53	43	72,00
D21705-0770	7,7	8	91	53	43	72,00
D21705-0780	7,8	8	91	53	43	72,00
D21705-0790	7,9	8	91	53	43	72,00
D21705-0800	8	8	91	53	43	72,00
D21705-0810	8,1	10	103	61	49	86,00
D21705-0820	8,2	10	103	61	49	86,00
D21705-0830	8,3	10	103	61	49	86,00
D21705-0840	8,4	10	103	61	49	86,00
D21705-0850	8,5	10	103	61	49	86,00
D21705-0860	8,6	10	103	61	49	86,00
D21705-0870	8,7	10	103	61	49	86,00
D21705-0880	8,8	10	103	61	49	86,00
D21705-0890	8,9	10	103	61	49	86,00
D21705-0900	9	10	103	61	49	86,00
D21705-0910	9,1	10	103	61	49	86,00

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Boorpunt - *Drill point*

Materiaal - *Material*

Spiraal/ Helix	30°
Tophoek/point angle	140°
Punt/point	Kegelmantel/releived cone
Geleidefasen/Guide lands	4
Hartmetaal/solid carbide	Fijnkorrel/ Finegrain 8-10% Co
Coating/coating	GTX-Speed
Koeling/coolant	Inwendig/internal
Schacht/shaft	DIN 6535 HA

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D21705-0920	9,2	10	103	61	49	86,00
D21705-0930	9,3	10	103	61	49	86,00
D21705-0940	9,4	10	103	61	49	86,00
D21705-0950	9,5	10	103	61	49	86,00
D21705-0960	9,6	10	103	61	49	86,00
D21705-0970	9,7	10	103	61	49	86,00
D21705-0980	9,8	10	103	61	49	86,00
D21705-0990	9,9	10	103	61	49	86,00
D21705-1000	10	10	103	61	49	86,00
D21705-1020	10,2	12	118	71	56	126,00
D21705-1050	10,5	12	118	71	56	126,00
D21705-1080	10,8	12	118	71	56	126,00
D21705-1100	11	12	118	71	56	126,00
D21705-1150	11,5	12	118	71	56	126,00
D21705-1180	11,8	12	118	71	56	126,00
D21705-1200	12	12	118	71	56	126,00
D21705-1250	12,5	14	124	77	60	168,00
D21705-1280	12,8	14	124	77	60	168,00
D21705-1300	13	14	124	77	60	168,00
D21705-1350	13,5	14	124	77	60	168,00
D21705-1380	13,8	14	124	77	60	168,00
D21705-1400	14	14	124	77	60	168,00
D21705-1450	14,5	16	133	83	63	203,00
D21705-1480	14,8	16	133	83	63	203,00
D21705-1500	15	16	133	83	63	203,00
D21705-1550	15,5	16	133	83	63	203,00
D21705-1580	15,8	16	133	83	63	203,00
D21705-1600	16	16	133	83	63	203,00
D21705-1650	16,5	18	143	93	71	274,00
D21705-1680	16,8	18	143	93	71	274,00
D21705-1700	17	18	143	93	71	274,00

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D21705-1750	17,5	18	143	93	71	274,00
D21705-1780	17,8	18	143	93	71	274,00
D21705-1800	18	18	143	93	71	274,00
D21705-1850	18,5	20	153	101	77	345,00
D21705-1880	18,8	20	153	101	77	345,00
D21705-1900	19	20	153	101	77	345,00
D21705-1950	19,5	20	153	101	77	345,00
D21705-1980	19,8	20	153	101	77	345,00
D21705-2000	20	20	153	101	77	345,00

VHM Boren Staal 8xD

Solid carbide Drills Steel 8xD

SPEEDDRILL S4

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D21708-0300	3	6	72	34	29	87,00
D21708-0310	3,1	6	72	34	29	87,00
D21708-0320	3,2	6	72	34	29	87,00
D21708-0330	3,3	6	72	34	29	87,00
D21708-0340	3,4	6	72	34	29	87,00
D21708-0350	3,5	6	72	34	29	87,00
D21708-0360	3,6	6	72	34	29	87,00
D21708-0370	3,7	6	72	34	29	87,00
D21708-0380	3,8	6	81	43	36	87,00
D21708-0390	3,9	6	81	43	36	87,00
D21708-0400	4	6	81	43	36	87,00
D21708-0410	4,1	6	81	43	36	87,00
D21708-0420	4,2	6	81	43	36	87,00
D21708-0430	4,3	6	81	43	36	87,00
D21708-0440	4,4	6	81	43	36	87,00
D21708-0450	4,5	6	81	43	36	87,00
D21708-0460	4,6	6	81	43	36	87,00
D21708-0470	4,7	6	81	43	36	87,00
D21708-0480	4,8	6	95	57	48	87,00
D21708-0490	4,9	6	95	57	48	87,00
D21708-0500	5	6	95	57	48	87,00
D21708-0510	5,1	6	95	57	48	87,00
D21708-0520	5,2	6	95	57	48	87,00
D21708-0530	5,3	6	95	57	48	87,00
D21708-0540	5,4	6	95	57	48	87,00
D21708-0550	5,5	6	95	57	48	87,00
D21708-0560	5,6	6	95	57	48	87,00
D21708-0570	5,7	6	95	57	48	87,00
D21708-0580	5,8	6	95	57	48	87,00
D21708-0590	5,9	6	95	57	48	87,00
D21708-0600	6	6	95	57	48	87,00

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D21708-0610	6,1	8	114	76	64	118,00
D21708-0620	6,2	8	114	76	64	118,00
D21708-0630	6,3	8	114	76	64	118,00
D21708-0640	6,4	8	114	76	64	118,00
D21708-0650	6,5	8	114	76	64	118,00
D21708-0660	6,6	8	114	76	64	118,00
D21708-0670	6,7	8	114	76	64	118,00
D21708-0680	6,8	8	114	76	64	118,00
D21708-0690	6,9	8	114	76	64	118,00
D21708-0700	7	8	114	76	64	118,00
D21708-0710	7,1	8	114	76	64	118,00
D21708-0720	7,2	8	114	76	64	118,00
D21708-0730	7,3	8	114	76	64	118,00
D21708-0740	7,4	8	114	76	64	118,00
D21708-0750	7,5	8	114	76	64	118,00
D21708-0760	7,6	8	114	76	64	118,00
D21708-0770	7,7	8	114	76	64	118,00
D21708-0780	7,8	8	114	76	64	118,00
D21708-0790	7,9	8	114	76	64	118,00
D21708-0800	8	8	114	76	64	118,00
D21708-0810	8,1	10	142	95	80	164,00
D21708-0820	8,2	10	142	95	80	164,00
D21708-0830	8,3	10	142	95	80	164,00
D21708-0840	8,4	10	142	95	80	164,00
D21708-0850	8,5	10	142	95	80	164,00
D21708-0860	8,6	10	142	95	80	164,00
D21708-0870	8,7	10	142	95	80	164,00
D21708-0880	8,8	10	142	95	80	164,00
D21708-0890	8,9	10	142	95	80	164,00
D21708-0900	9	10	142	95	80	164,00
D21708-0910	9,1	10	142	95	80	164,00

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Boorpunt - *Drill point*

Materiaal - *Material*

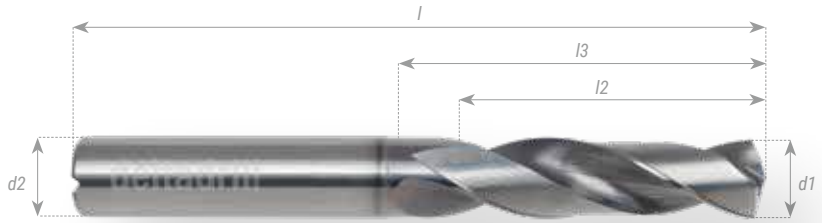
Spiraal/ Helix	30°
Tophoek/point angle	140°
Punt/point	Kegelmantel/releived cone
Geleidefasen/Guide lands	4
Hartmetaal/solid carbide	Fijnkorrel/ Finegrain 8-10% Co
Coating/coating	GTX-Speed
Koeling/coolant	Inwendig/internal
Schacht/shaft	DIN 6535 HA

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D21708-0920	9,2	10	142	95	80	164,00
D21708-0930	9,3	10	142	95	80	164,00
D21708-0940	9,4	10	142	95	80	164,00
D21708-0950	9,5	10	142	95	80	164,00
D21708-0960	9,6	10	142	95	80	164,00
D21708-0970	9,7	10	142	95	80	164,00
D21708-0980	9,8	10	142	95	80	164,00
D21708-0990	9,9	10	142	95	80	164,00
D21708-1000	10	10	142	95	80	164,00
D21708-1020	10,2	12	162	114	96	209,00
D21708-1050	10,5	12	162	114	96	209,00
D21708-1080	10,8	12	162	114	96	209,00
D21708-1100	11	12	162	114	96	209,00
D21708-1150	11,5	12	162	114	96	209,00
D21708-1180	11,8	12	162	114	96	209,00
D21708-1200	12	12	162	114	96	209,00
D21708-1250	12,5	14	178	133	112	263,00
D21708-1280	12,8	14	178	133	112	263,00
D21708-1300	13	14	178	133	112	263,00
D21708-1350	13,5	14	178	133	112	263,00
D21708-1380	13,8	14	178	133	112	263,00
D21708-1400	14	14	178	133	112	263,00
D21708-1450	14,5	16	203	152	128	349,00
D21708-1480	14,8	16	203	152	128	349,00
D21708-1500	15	16	203	152	128	349,00
D21708-1550	15,5	16	203	152	128	349,00
D21708-1580	15,8	16	203	152	128	349,00
D21708-1600	16	16	203	152	128	349,00
D21708-1650	16,5	18	222	171	144	485,00
D21708-1680	16,8	18	222	171	144	485,00
D21708-1700	17	18	222	171	144	485,00

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D21708-1750	17,5	18	222	171	144	485,00
D21708-1780	17,8	18	222	171	144	485,00
D21708-1800	18	18	222	171	144	485,00
D21708-1850	18,5	20	243	190	160	605,00
D21708-1880	18,8	20	243	190	160	605,00
D21708-1900	19	20	243	190	160	605,00
D21708-1950	19,5	20	243	190	160	605,00
D21708-1980	19,8	20	243	190	160	605,00
D21708-2000	20	20	243	190	160	605,00

VHM Boren universeel 3xD
Solid carbide Drills universal 3xD

De universeelboor voor alle materialen, zeer geschikt voor INOX.
The universal drill voor all materials, the best chioce for INOX.



SPEEDDRILL U2

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D18003-0300	3	6	62	20	14	46,00
D18003-0310	3,1	6	62	20	14	46,00
D18003-0320	3,2	6	62	20	14	46,00
D18003-0330	3,3	6	62	20	14	46,00
D18003-0340	3,4	6	62	20	14	46,00
D18003-0350	3,5	6	62	20	14	46,00
D18003-0360	3,6	6	62	20	14	46,00
D18003-0370	3,7	6	62	20	14	46,00
D18003-0380	3,8	6	66	24	17	46,00
D18003-0390	3,9	6	66	24	17	46,00
D18003-0400	4	6	66	24	17	46,00
D18003-0410	4,1	6	66	24	17	46,00
D18003-0420	4,2	6	66	24	17	46,00
D18003-0430	4,3	6	66	24	17	46,00
D18003-0440	4,4	6	66	24	17	46,00
D18003-0450	4,5	6	66	24	17	46,00
D18003-0460	4,6	6	66	24	17	46,00
D18003-0465	4,65	6	66	24	17	46,00
D18003-0470	4,7	6	66	24	17	46,00
D18003-0480	4,8	6	66	28	20	46,00
D18003-0490	4,9	6	66	28	20	46,00
D18003-0500	5	6	66	28	20	46,00
D18003-0510	5,1	6	66	28	20	46,00
D18003-0520	5,2	6	66	28	20	46,00
D18003-0530	5,3	6	66	28	20	46,00
D18003-0540	5,4	6	66	28	20	46,00
D18003-0550	5,5	6	66	28	20	46,00
D18003-0555	5,55	6	66	28	20	46,00
D18003-0560	5,6	6	66	28	20	46,00
D18003-0570	5,7	6	66	28	20	46,00
D18003-0580	5,8	6	66	28	20	46,00

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D18003-0590	5,9	6	66	28	20	46,00
D18003-0600	6	6	66	28	20	46,00
D18003-0610	6,1	8	79	34	24	57,00
D18003-0620	6,2	8	79	34	24	57,00
D18003-0630	6,3	8	79	34	24	57,00
D18003-0640	6,4	8	79	34	24	57,00
D18003-0650	6,5	8	79	34	24	57,00
D18003-0660	6,6	8	79	34	24	57,00
D18003-0670	6,7	8	79	34	24	57,00
D18003-0680	6,8	8	79	34	24	57,00
D18003-0690	6,9	8	79	34	24	57,00
D18003-0700	7	8	79	34	24	57,00
D18003-0710	7,1	8	79	41	29	57,00
D18003-0720	7,2	8	79	41	29	57,00
D18003-0730	7,3	8	79	41	29	57,00
D18003-0740	7,4	8	79	41	29	57,00
D18003-0750	7,5	8	79	41	29	57,00
D18003-0760	7,6	8	79	41	29	57,00
D18003-0770	7,7	8	79	41	29	57,00
D18003-0780	7,8	8	79	41	29	57,00
D18003-0790	7,9	8	79	41	29	57,00
D18003-0800	8	8	79	41	29	57,00
D18003-0810	8,1	10	89	47	35	74,00
D18003-0820	8,2	10	89	47	35	74,00
D18003-0830	8,3	10	89	47	35	74,00
D18003-0840	8,4	10	89	47	35	74,00
D18003-0850	8,5	10	89	47	35	74,00
D18003-0860	8,6	10	89	47	35	74,00
D18003-0870	8,7	10	89	47	35	74,00
D18003-0880	8,8	10	89	47	35	74,00
D18003-0890	8,9	10	89	47	35	74,00

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Boorpunt - *Drill point*

Materiaal - *Material*

Spiraal/ Helix	30°
Tophoek/point angle	140°
Punt/point	4-vlaks slijping/4-facet
Hartmetaal/solid carbide	Fijnkorrel/ Finegrain 8-10% Co
Coating/coating	GTX-Speed
Koeling/coolant	Inwendig/internal
Schacht/shaft	DIN 6535 HA

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D18003-0900	9	10	89	47	35	74,00
D18003-0910	9,1	10	89	47	35	74,00
D18003-0920	9,2	10	89	47	35	74,00
D18003-0925	9,25	10	89	47	35	74,00
D18003-0930	9,3	10	89	47	35	74,00
D18003-0940	9,4	10	89	47	35	74,00
D18003-0950	9,5	10	89	47	35	74,00
D18003-0960	9,6	10	89	47	35	74,00
D18003-0970	9,7	10	89	47	35	74,00
D18003-0980	9,8	10	89	47	35	74,00
D18003-0990	9,9	10	89	47	35	74,00
D18003-1000	10	10	89	47	35	74,00
D18003-1020	10,2	12	102	55	40	99,00
D18003-1030	10,3	12	102	55	40	99,00
D18003-1050	10,5	12	102	55	40	99,00
D18003-1080	10,8	12	102	55	40	99,00
D18003-1100	11	12	102	55	40	99,00
D18003-1120	11,2	12	102	55	40	99,00
D18003-1130	11,3	12	102	55	40	99,00
D18003-1140	11,4	12	102	55	40	99,00
D18003-1150	11,5	12	102	55	40	99,00
D18003-1170	11,7	12	102	55	40	99,00
D18003-1180	11,8	12	102	55	40	99,00
D18003-1200	12	12	102	55	40	99,00
D18003-1210	12,1	14	107	60	43	145,00
D18003-1220	12,2	14	107	60	43	145,00
D18003-1250	12,5	14	107	60	43	145,00
D18003-1280	12,8	14	107	60	43	145,00
D18003-1290	12,9	14	107	60	43	145,00
D18003-1300	13	14	107	60	43	145,00
D18003-1310	13,1	14	107	60	43	145,00

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D18003-1320	13,2	14	107	60	43	145,00
D18003-1330	13,3	14	107	60	43	145,00
D18003-1350	13,5	14	107	60	43	145,00
D18003-1360	13,5	14	107	60	43	145,00
D18003-1380	13,8	14	107	60	43	145,00
D18003-1400	14	14	107	60	43	145,00
D18003-1450	14,5	16	115	65	45	181,00
D18003-1480	14,8	16	115	65	45	181,00
D18003-1500	15	16	115	65	45	181,00
D18003-1550	15,5	16	115	65	45	181,00
D18003-1580	15,8	16	115	65	45	181,00
D18003-1600	16	16	115	65	45	181,00
D18003-1650	16,5	18	123	73	51	255,00
D18003-1680	16,8	18	123	73	51	255,00
D18003-1700	17	18	123	73	51	255,00
D18003-1750	17,5	18	123	73	51	255,00
D18003-1780	17,8	18	123	73	51	255,00
D18003-1800	18	18	123	73	51	255,00
D18003-1850	18,5	20	131	79	55	294,00
D18003-1880	18,8	20	131	79	55	294,00
D18003-1900	19	20	131	79	55	294,00
D18003-1950	19,5	20	131	79	55	294,00
D18003-1980	19,8	20	131	79	55	294,00
D18003-2000	20	20	131	79	55	294,00

VHM Boren universeel 5xD
Solid Carbide Drills universal 5xD

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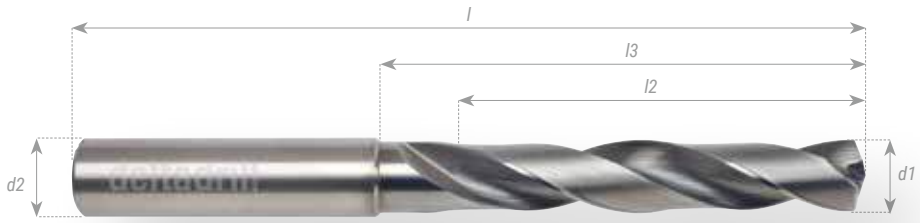

SPEEDDRILL U2

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D18005-0300	3	6	66	28	23	58,00
D18005-0310	3,1	6	66	28	23	58,00
D18005-0320	3,2	6	66	28	23	58,00
D18005-0330	3,3	6	66	28	23	58,00
D18005-0340	3,4	6	66	28	23	58,00
D18005-0350	3,5	6	66	28	23	58,00
D18005-0360	3,6	6	66	28	23	58,00
D18005-0370	3,7	6	66	28	23	58,00
D18005-0380	3,8	6	74	36	29	58,00
D18005-0390	3,9	6	74	36	29	58,00
D18005-0400	4	6	74	36	29	58,00
D18005-0410	4,1	6	74	36	29	58,00
D18005-0420	4,2	6	74	36	29	58,00
D18005-0430	4,3	6	74	36	29	58,00
D18005-0440	4,4	6	74	36	29	58,00
D18005-0450	4,5	6	74	36	29	58,00
D18005-0460	4,6	6	74	36	29	58,00
D18005-0470	4,7	6	74	36	29	58,00
D18005-0480	4,8	6	82	44	35	58,00
D18005-0490	4,9	6	82	44	35	58,00
D18005-0500	5	6	82	44	35	58,00
D18005-0510	5,1	6	82	44	35	58,00
D18005-0520	5,2	6	82	44	35	58,00
D18005-0530	5,3	6	82	44	35	58,00
D18005-0540	5,4	6	82	44	35	58,00
D18005-0550	5,5	6	82	44	35	58,00
D18005-0560	5,6	6	82	44	35	58,00
D18005-0570	5,7	6	82	44	35	58,00
D18005-0580	5,8	6	82	44	35	58,00
D18005-0590	5,9	6	82	44	35	58,00
D18005-0600	6	6	82	44	35	58,00

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D18005-0610	6,1	8	91	53	43	65,00
D18005-0620	6,2	8	91	53	43	65,00
D18005-0630	6,3	8	91	53	43	65,00
D18005-0640	6,4	8	91	53	43	65,00
D18005-0650	6,5	8	91	53	43	65,00
D18005-0660	6,6	8	91	53	43	65,00
D18005-0670	6,7	8	91	53	43	65,00
D18005-0680	6,8	8	91	53	43	65,00
D18005-0690	6,9	8	91	53	43	65,00
D18005-0700	7	8	91	53	43	65,00
D18005-0710	7,1	8	91	53	43	65,00
D18005-0720	7,2	8	91	53	43	65,00
D18005-0730	7,3	8	91	53	43	65,00
D18005-0740	7,4	8	91	53	43	65,00
D18005-0750	7,5	8	91	53	43	65,00
D18005-0760	7,6	8	91	53	43	65,00
D18005-0770	7,7	8	91	53	43	65,00
D18005-0780	7,8	8	91	53	43	65,00
D18005-0790	7,9	8	91	53	43	65,00
D18005-0800	8	8	91	53	43	65,00
D18005-0810	8,1	10	103	61	49	78,00
D18005-0820	8,2	10	103	61	49	78,00
D18005-0830	8,3	10	103	61	49	78,00
D18005-0840	8,4	10	103	61	49	78,00
D18005-0850	8,5	10	103	61	49	78,00
D18005-0860	8,6	10	103	61	49	78,00
D18005-0870	8,7	10	103	61	49	78,00
D18005-0880	8,8	10	103	61	49	78,00
D18005-0890	8,9	10	103	61	49	78,00
D18005-0900	9	10	103	61	49	78,00
D18005-0910	9,1	10	103	61	49	78,00

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
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Boorpunt - *Drill point*

Materiaal - *Material*

Spiraal/ Helix	30°
Tophoek/point angle	140°
Punt/point	4-vlaks slijping/4-facet
Hartmetaal/solid carbide	Fijnkorrel/ Finegrain 8-10% Co
Coating/coating	GTX-Speed
Koeling/coolant	Inwendig/internal
Schacht/shaft	DIN 6535 HA

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D18005-0920	9,2	10	103	61	49	78,00
D18005-0930	9,3	10	103	61	49	78,00
D18005-0940	9,4	10	103	61	49	78,00
D18005-0950	9,5	10	103	61	49	78,00
D18005-0960	9,6	10	103	61	49	78,00
D18005-0970	9,7	10	103	61	49	78,00
D18005-0980	9,8	10	103	61	49	78,00
D18005-0990	9,9	10	103	61	49	78,00
D18005-1000	10	10	103	61	49	78,00
D18005-1010	10,1	12	118	71	56	113,00
D18005-1020	10,2	12	118	71	56	113,00
D18005-1030	10,3	12	118	71	56	113,00
D18005-1040	10,4	12	118	71	56	113,00
D18005-1050	10,5	12	118	71	56	113,00
D18005-1060	10,6	12	118	71	56	113,00
D18005-1070	10,7	12	118	71	56	113,00
D18005-1080	10,8	12	118	71	56	113,00
D18005-1090	10,9	12	118	71	56	113,00
D18005-1100	11	12	118	71	56	113,00
D18005-1110	11,1	12	118	71	56	113,00
D18005-1120	11,2	12	118	71	56	113,00
D18005-1130	11,3	12	118	71	56	113,00
D18005-1140	11,4	12	118	71	56	113,00
D18005-1150	11,5	12	118	71	56	113,00
D18005-1160	11,6	12	118	71	56	113,00
D18005-1170	11,7	12	118	71	56	113,00
D18005-1180	11,8	12	118	71	56	113,00
D18005-1190	11,9	12	118	71	56	113,00
D18005-1200	12	12	118	71	56	113,00
D18005-1250	12,5	14	124	77	60	151,00
D18005-1280	12,8	14	124	77	60	151,00

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D18005-1300	13	14	124	77	60	151,00
D18005-1350	13,5	14	124	77	60	151,00
D18005-1380	13,8	14	124	77	60	151,00
D18005-1400	14	14	124	77	60	151,00
D18005-1450	14,5	16	133	83	63	185,00
D18005-1480	14,8	16	133	83	63	185,00
D18005-1500	15	16	133	83	63	185,00
D18005-1550	15,5	16	133	83	63	185,00
D18005-1580	15,8	16	133	83	63	185,00
D18005-1600	16	16	133	83	63	185,00
D18005-1650	16,5	18	143	93	71	264,00
D18005-1680	16,8	18	143	93	71	264,00
D18005-1700	17	18	143	93	71	264,00
D18005-1750	17,5	18	143	93	71	264,00
D18005-1780	17,8	18	143	93	71	264,00
D18005-1800	18	18	143	93	71	264,00
D18005-1850	18,5	20	153	101	77	315,00
D18005-1880	18,8	20	153	101	77	315,00
D18005-1900	19	20	153	101	77	315,00
D18005-1950	19,5	20	153	101	77	315,00
D18005-1980	19,8	20	153	101	77	315,00
D18005-2000	20	20	153	101	77	315,00

VHM Boren universeel 8xD
Solid carbide Drills universal 8xD

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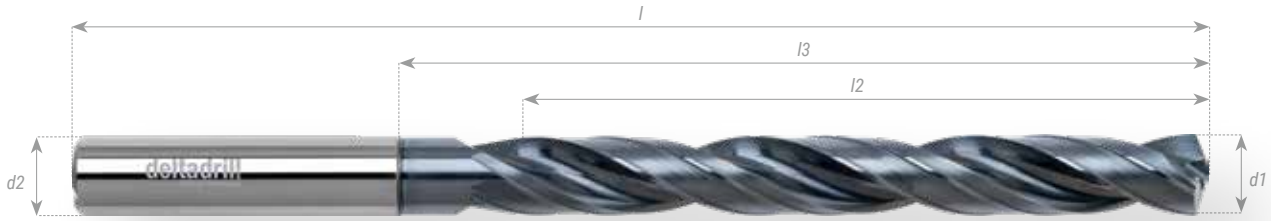
The universal drill voor all materials, the best chioce for INOX.



SPEEDDRILL U4

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D18708-0300	3	6	72	34	29	87,00
D18708-0310	3,1	6	72	34	29	87,00
D18708-0320	3,2	6	72	34	29	87,00
D18708-0330	3,3	6	72	34	29	87,00
D18708-0340	3,4	6	72	34	29	87,00
D18708-0350	3,5	6	72	34	29	87,00
D18708-0360	3,6	6	72	34	29	87,00
D18708-0370	3,7	6	72	34	29	87,00
D18708-0380	3,8	6	81	43	36	87,00
D18708-0390	3,9	6	81	43	36	87,00
D18708-0400	4	6	81	43	36	87,00
D18708-0410	4,1	6	81	43	36	87,00
D18708-0420	4,2	6	81	43	36	87,00
D18708-0430	4,3	6	81	43	36	87,00
D18708-0440	4,4	6	81	43	36	87,00
D18708-0450	4,5	6	81	43	36	87,00
D18708-0460	4,6	6	81	43	36	87,00
D18708-0470	4,7	6	81	43	36	87,00
D18708-0480	4,8	6	95	57	48	87,00
D18708-0490	4,9	6	95	57	48	87,00
D18708-0500	5	6	95	57	48	87,00
D18708-0510	5,1	6	95	57	48	87,00
D18708-0520	5,2	6	95	57	48	87,00
D18708-0530	5,3	6	95	57	48	87,00
D18708-0540	5,4	6	95	57	48	87,00
D18708-0550	5,5	6	95	57	48	87,00
D18708-0560	5,6	6	95	57	48	87,00
D18708-0570	5,7	6	95	57	48	87,00
D18708-0580	5,8	6	95	57	48	87,00
D18708-0590	5,9	6	95	57	48	87,00
D18708-0600	6	6	95	57	48	87,00

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D18708-0610	6,1	8	114	76	64	118,00
D18708-0620	6,2	8	114	76	64	118,00
D18708-0630	6,3	8	114	76	64	118,00
D18708-0640	6,4	8	114	76	64	118,00
D18708-0650	6,5	8	114	76	64	118,00
D18708-0660	6,6	8	114	76	64	118,00
D18708-0670	6,7	8	114	76	64	118,00
D18708-0680	6,8	8	114	76	64	118,00
D18708-0690	6,9	8	114	76	64	118,00
D18708-0700	7	8	114	76	64	118,00
D18708-0710	7,1	8	114	76	64	118,00
D18708-0720	7,2	8	114	76	64	118,00
D18708-0730	7,3	8	114	76	64	118,00
D18708-0740	7,4	8	114	76	64	118,00
D18708-0750	7,5	8	114	76	64	118,00
D18708-0760	7,6	8	114	76	64	118,00
D18708-0770	7,7	8	114	76	64	118,00
D18708-0780	7,8	8	114	76	64	118,00
D18708-0790	7,9	8	114	76	64	118,00
D18708-0800	8	8	114	76	64	118,00
D18708-0810	8,1	10	142	95	80	164,00
D18708-0820	8,2	10	142	95	80	164,00
D18708-0830	8,3	10	142	95	80	164,00
D18708-0840	8,4	10	142	95	80	164,00
D18708-0850	8,5	10	142	95	80	164,00
D18708-0860	8,6	10	142	95	80	164,00
D18708-0870	8,7	10	142	95	80	164,00
D18708-0880	8,8	10	142	95	80	164,00
D18708-0890	8,9	10	142	95	80	164,00
D18708-0900	9	10	142	95	80	164,00
D18708-0910	9,1	10	142	95	80	164,00

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Boorpunt - *Drill point*

Materiaal - *Material*

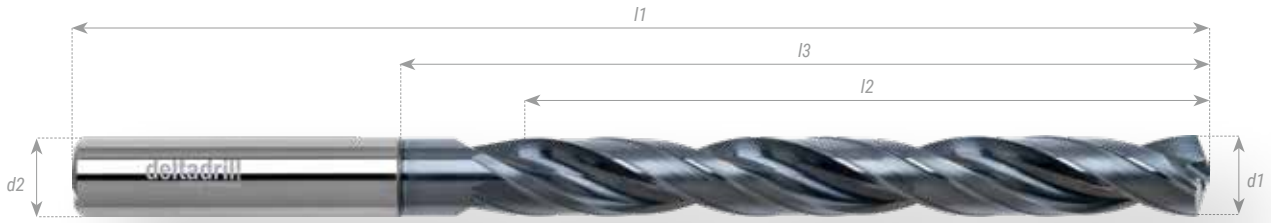
Spiraal/ Helix	30°
Tophoek/point angle	140°
Punt/point	4-vlaks slijping/4-facet
Hartmetaal/solid carbide	Fijnkorrel/ Finegrain 8-10% Co
Coating/coating	GTX-Speed
Koeling/coolant	Inwendig/internal
Schacht/shaft	DIN 6535 HA

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D18708-0920	9,2	10	142	95	80	164,00
D18708-0930	9,3	10	142	95	80	164,00
D18708-0940	9,4	10	142	95	80	164,00
D18708-0950	9,5	10	142	95	80	164,00
D18708-0960	9,6	10	142	95	80	164,00
D18708-0970	9,7	10	142	95	80	164,00
D18708-0980	9,8	10	142	95	80	164,00
D18708-0990	9,9	10	142	95	80	164,00
D18708-1000	10	10	142	95	80	164,00
D18708-1020	10,2	12	162	114	96	209,00
D18708-1050	10,5	12	162	114	96	209,00
D18708-1080	10,8	12	162	114	96	209,00
D18708-1100	11,0	12	162	114	96	209,00
D18708-1150	11,5	12	162	114	96	209,00
D18708-1180	11,8	12	162	114	96	209,00
D18708-1200	12	12	162	114	96	209,00
D18708-1250	12,5	14	178	133	112	263,00
D18708-1280	12,8	14	178	133	112	263,00
D18708-1300	13	14	178	133	112	263,00
D18708-1350	13,5	14	178	133	112	263,00
D18708-1380	13,8	14	178	133	112	263,00
D18708-1400	14	14	178	133	112	263,00
D18708-1450	14,5	16	203	152	128	349,00
D18708-1480	14,8	16	203	152	128	349,00
D18708-1500	15	16	203	152	128	349,00
D18708-1550	15,5	16	203	152	128	349,00
D18708-1580	15,8	16	203	152	128	349,00
D18708-1600	16	16	203	152	128	349,00
D18708-1650	16,5	18	222	171	144	485,00
D18708-1680	16,8	18	222	171	144	485,00
D18708-1700	17	18	222	171	144	485,00

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D18708-1750	17,5	18	222	171	144	485,00
D18708-1780	17,8	18	222	171	144	485,00
D18708-1800	18	18	222	171	144	485,00
D18708-1850	18,5	20	243	190	160	605,00
D18708-1880	18,8	20	243	190	160	605,00
D18708-1900	19	20	243	190	160	605,00
D18708-1950	19,5	20	243	190	160	605,00
D18708-1980	19,8	20	243	190	160	605,00
D18708-2000	20	20	243	190	160	605,00

VHM Boren universeel 12xD
Solid carbide Drills universal 12xD

De universeelboor voor alle materialen, zeer geschikt voor INOX.
The universal drill voor all materials, the best chioce for INOX.



SPEEDDRILL U4

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D18712-0300	3	6	92	54	48	127,00
D18712-0350	3,5	6	92	54	48	127,00
D18712-0400	4	6	102	64	58	127,00
D18712-0450	4,5	6	102	64	58	127,00
D18712-0500	5	6	116	78	70	127,00
D18712-0550	5,5	6	116	78	70	127,00
D18712-0600	6	6	116	78	70	127,00
D18712-0650	6,5	8	146	108	94	137,00
D18712-0700	7	8	146	108	94	137,00
D18712-0750	7,5	8	146	108	94	137,00
D18712-0800	8	8	146	108	94	137,00
D18712-0850	8,5	10	162	120	110	184,00
D18712-0900	9	10	162	120	110	184,00
D18712-0950	9,5	10	162	120	110	184,00
D18712-1000	10	10	162	120	110	184,00
D18712-1100	11	12	204	156	142	248,00
D18712-1200	12	12	204	156	142	248,00

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

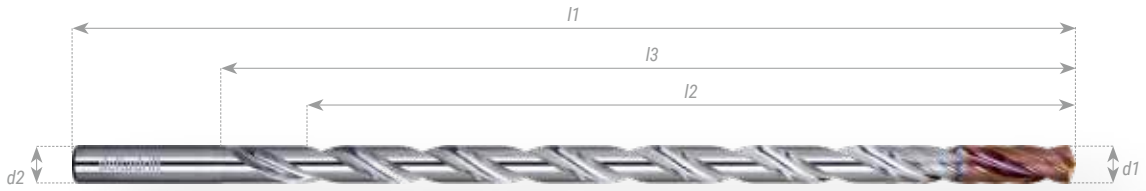
Boorpunt - *Drill point*

Materiaal - *Material*

Spiraal/ Helix	30°
Tophoek/point angle	140°
Punt/point	4-vlaks slijping/4-facet
Hartmetaal/solid carbide	Fijnkorrel/ Finegrain 8-10% Co
Coating/coating	GTX-Speed
Koeling/coolant	Inwendig/internal
Schacht/shaft	DIN 6535 HA

VHM diepgatboren universeel 20xD
Solid carbide deepdrills universal 20xD

De universeelboor voor alle materialen.
The universal drill voor all materials.



6-Fasen
6-Margins

DEEPDRILL U6

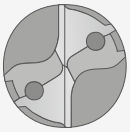
Art. nr.	Ød1	Ød2	l2	l3	l1	€
D18720-0200	2,0	4	40	50	92	182,00
D18720-0220	2,2	4	44	70	112	182,00
D18720-0230	2,3	4	44	70	112	182,00
D18720-0240	2,4	4	44	70	112	182,00
D18720-0250	2,5	4	44	70	112	182,00
D18720-0270	2,7	4	44	70	112	182,00
D18720-0280	2,8	4	44	70	112	182,00
D18720-0300	3,0	6	60	80	120	277,00
D18720-0320	3,2	6	64	80	120	277,00
D18720-0330	3,3	6	66	80	120	277,00
D18720-0350	3,5	6	70	80	120	277,00
D18720-0380	3,8	6	76	90	130	277,00
D18720-0400	4,0	6	80	90	130	277,00
D18720-0420	4,2	6	84	110	160	337,00
D18720-0450	4,5	6	90	110	160	337,00
D18720-0480	4,8	6	96	120	160	337,00
D18720-0500	5,0	6	100	120	160	337,00
D18720-0550	5,5	6	110	140	185	349,00
D18720-0580	5,8	6	116	140	185	349,00
D18720-0600	6,0	6	120	140	185	349,00
D18720-0650	6,5	8	130	160	210	391,00
D18720-0680	6,8	8	136	160	210	391,00
D18720-0700	7,0	8	140	160	210	391,00
D18720-0750	7,5	8	150	180	230	439,00
D18720-0780	7,8	8	156	180	230	439,00
D18720-0800	8,0	8	160	180	230	439,00
D18720-0850	8,5	10	170	195	260	523,00
D18720-0880	8,8	10	176	230	290	541,00
D18720-0900	9,0	10	180	230	290	541,00
D18720-0950	9,5	10	190	230	290	541,00
D18720-0980	9,8	10	196	230	290	541,00

Art. nr.	Ød1	Ød2	l2	l3	l1	€
D18720-1000	10,0	10	200	230	290	541,00
D18720-1020	10,2	12	204	268	315	598,00
D18720-1050	10,5	12	210	268	315	598,00
D18720-1080	10,8	12	216	268	315	598,00
D18720-1100	11,0	12	220	268	315	598,00
D18720-1150	11,5	12	230	268	315	598,00
D18720-1180	11,8	12	236	268	315	598,00
D18720-1200	12,0	12	240	268	315	598,00

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Boorpunt - *Drill point*

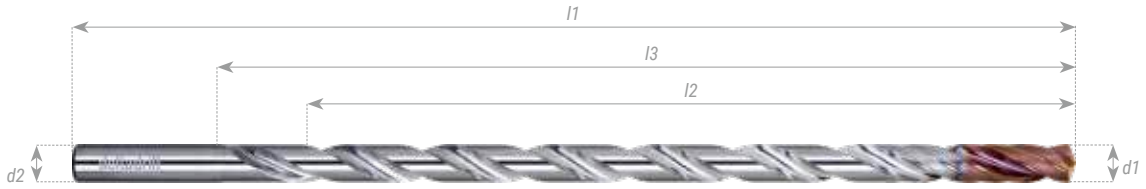


Materiaal - *Material*

Spiraal/ Helix	30° Gepolijst / Polished
Tophoek/point angle	140°
Punt/point	4-vlaks / 4-facet
Geleidefasen / Guide lands	6
Hartmetaal/solid carbide	Fijnkorrel / Finegrain 8-10% Co
Coating/coating	HEX-Speed
Koeling/coolant	Inwendig / internal
Schacht/shaft	DIN 6535 HA

VHM diepgatboren universeel 30xD
Solid carbide deepdrills universal 30xD

De universeelboor voor alle materialen.
The universal drill voor all materials.



6-Fasen
Gepolijst groeven
6-Margins
Pilished flutes

DEEPDRILL U6

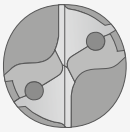
Art. nr.	Ød1	Ød2	l2	l3	l1	€
D18730-0200	2,0	4	60	70	115	267,00
D18730-0210	2,1	4	63	70	115	267,00
D18730-0220	2,2	4	66	70	115	267,00
D18730-0230	2,3	4	69	74	115	291,00
D18730-0240	2,4	4	72	90	138	291,00
D18730-0250	2,5	4	75	90	138	291,00
D18730-0270	2,7	4	81	90	138	291,00
D18730-0280	2,8	4	84	90	138	291,00
D18730-0300	3,0	6	90	105	150	407,00
D18730-0320	3,2	6	96	105	150	407,00
D18730-0330	3,3	6	99	135	185	421,00
D18730-0350	3,5	6	105	135	185	421,00
D18730-0380	3,8	6	114	135	185	421,00
D18730-0400	4,0	6	120	135	185	421,00
D18730-0420	4,2	6	126	135	185	421,00
D18730-0450	4,5	6	135	165	215	438,00
D18730-0480	4,8	6	144	165	215	438,00
D18730-0500	5,0	6	150	165	215	438,00
D18730-0550	5,5	6	165	180	230	446,00
D18730-0580	5,8	6	174	180	230	446,00
D18730-0600	6,0	6	180	195	250	446,00
D18730-0650	6,5	8	195	215	280	502,00
D18730-0680	6,8	8	204	230	280	523,00
D18730-0700	7,0	8	210	230	280	523,00
D18730-0750	7,5	8	225	230	280	523,00
D18730-0780	7,8	8	234	265	315	583,00
D18730-0800	8,0	8	240	265	315	583,00
D18730-0850	8,5	10	255	295	350	634,00
D18730-0880	8,8	10	264	330	380	712,00
D18730-0900	9,0	10	270	330	380	712,00

Art. nr.	Ød1	Ød2	l2	l3	l1	€
D18730-0950	9,5	10	285	330	380	712,00
D18730-0980	9,8	10	294	330	380	712,00
D18730-1000	10,0	10	300	330	380	712,00

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Boorpunt - *Drill point*

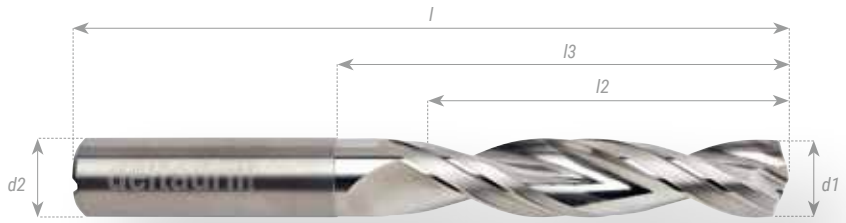


Materiaal - *Material*

Spiraal/ Helix	30° Gepolijst / Polished
Tophoek/point angle	140°
Punt/point	4-vlaks / 4-facet
Geleidefasen / Guide lands	6
Hartmetaal/solid carbide	Fijnkorrel / Finegrain 8-10% Co
Coating/coating	GTX-Speed
Koeling/coolant	Inwendig / internal
Schacht/shaft	DIN 6535 HA

VHM Boren Aluminium 5xD

Solid carbide Drills Aluminium 5xD



SPEEDDRILL A4

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D28705-0300	3	6	66	28	23	64,00
D28705-0310	3,1	6	66	28	23	64,00
D28705-0320	3,2	6	66	28	23	64,00
D28705-0330	3,3	6	66	28	23	64,00
D28705-0340	3,4	6	66	28	23	64,00
D28705-0350	3,5	6	66	28	23	64,00
D28705-0360	3,6	6	66	28	23	64,00
D28705-0370	3,7	6	66	28	23	64,00
D28705-0380	3,8	6	74	36	29	64,00
D28705-0390	3,9	6	74	36	29	64,00
D28705-0400	4	6	74	36	29	64,00
D28705-0410	4,1	6	74	36	29	64,00
D28705-0420	4,2	6	74	36	29	64,00
D28705-0430	4,3	6	74	36	29	64,00
D28705-0440	4,4	6	74	36	29	64,00
D28705-0450	4,5	6	74	36	29	64,00
D28705-0460	4,6	6	74	36	29	64,00
D28705-0470	4,7	6	74	36	29	64,00
D28705-0480	4,8	6	82	44	35	64,00
D28705-0490	4,9	6	82	44	35	64,00
D28705-0500	5	6	82	44	35	64,00
D28705-0510	5,1	6	82	44	35	64,00
D28705-0520	5,2	6	82	44	35	64,00
D28705-0530	5,3	6	82	44	35	64,00
D28705-0540	5,4	6	82	44	35	64,00
D28705-0550	5,5	6	82	44	35	64,00
D28705-0560	5,6	6	82	44	35	64,00
D28705-0570	5,7	6	82	44	35	64,00
D28705-0580	5,8	6	82	44	35	64,00
D28705-0590	5,9	6	82	44	35	64,00
D28705-0600	6	6	82	44	35	64,00

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D28705-0610	6,1	8	91	53	43	72,00
D28705-0620	6,2	8	91	53	43	72,00
D28705-0630	6,3	8	91	53	43	72,00
D28705-0640	6,4	8	91	53	43	72,00
D28705-0650	6,5	8	91	53	43	72,00
D28705-0660	6,6	8	91	53	43	72,00
D28705-0670	6,7	8	91	53	43	72,00
D28705-0680	6,8	8	91	53	43	72,00
D28705-0690	6,9	8	91	53	43	72,00
D28705-0700	7	8	91	53	43	72,00
D28705-0710	7,1	8	91	53	43	72,00
D28705-0720	7,2	8	91	53	43	72,00
D28705-0730	7,3	8	91	53	43	72,00
D28705-0740	7,4	8	91	53	43	72,00
D28705-0750	7,5	8	91	53	43	72,00
D28705-0760	7,6	8	91	53	43	72,00
D28705-0770	7,7	8	91	53	43	72,00
D28705-0780	7,8	8	91	53	43	72,00
D28705-0790	7,9	8	91	53	43	72,00
D28705-0800	8	8	91	53	43	72,00
D28705-0810	8,1	10	103	61	49	86,00
D28705-0820	8,2	10	103	61	49	86,00
D28705-0830	8,3	10	103	61	49	86,00
D28705-0840	8,4	10	103	61	49	86,00
D28705-0850	8,5	10	103	61	49	86,00
D28705-0860	8,6	10	103	61	49	86,00
D28705-0870	8,7	10	103	61	49	86,00
D28705-0880	8,8	10	103	61	49	86,00
D28705-0890	8,9	10	103	61	49	86,00
D28705-0900	9	10	103	61	49	86,00
D28705-0910	9,1	10	103	61	49	86,00

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Boorpunt - *Drill point*

Materiaal - *Material*

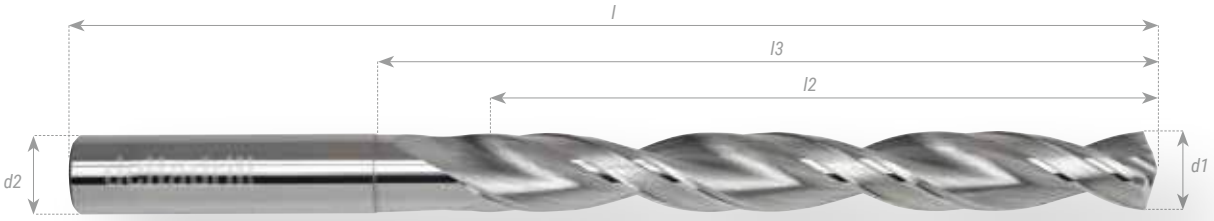
Spiraal	30° rechts
Tophoek	140°
Punt	4-vlaks slijping
Hartmetaal	Fijnkorrel 6-8% Co
Coating	Blank gepolijste spiraalgroeven
Koeling	Inwendig
Schacht	DIN 6535 HA

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D28705-0920	9,2	10	103	61	49	86,00
D28705-0930	9,3	10	103	61	49	86,00
D28705-0940	9,4	10	103	61	49	86,00
D28705-0950	9,5	10	103	61	49	86,00
D28705-0960	9,6	10	103	61	49	86,00
D28705-0970	9,7	10	103	61	49	86,00
D28705-0980	9,8	10	103	61	49	86,00
D28705-0990	9,9	10	103	61	49	86,00
D28705-1000	10	10	103	61	49	86,00
D28705-1020	10,2	12	118	71	56	126,00
D28705-1050	10,5	12	118	71	56	126,00
D28705-1080	10,8	12	118	71	56	126,00
D28705-1100	11	12	118	71	56	126,00
D28705-1150	11,5	12	118	71	56	126,00
D28705-1180	11,8	12	118	71	56	126,00
D28705-1200	12	12	118	71	56	126,00
D28705-1250	12,5	14	124	77	60	168,00
D28705-1280	12,8	14	124	77	60	168,00
D28705-1300	13	14	124	77	60	168,00
D28705-1350	13,5	14	124	77	60	168,00
D28705-1380	13,8	14	124	77	60	168,00
D28705-1400	14	14	124	77	60	168,00
D28705-1450	14,5	16	133	83	63	203,00
D28705-1480	14,8	16	133	83	63	203,00
D28705-1500	15	16	133	83	63	203,00
D28705-1550	15,5	16	133	83	63	203,00
D28705-1580	15,8	16	133	83	63	203,00
D28705-1600	16	16	133	83	63	203,00
D28705-1650	16,5	18	143	93	71	274,00
D28705-1680	16,8	18	143	93	71	274,00
D28705-1700	17	18	143	93	71	274,00

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D28705-1750	17,5	18	143	93	71	274,00
D28705-1780	17,8	18	143	93	71	274,00
D28705-1800	18	18	143	93	71	274,00
D28705-1850	18,5	20	153	101	77	345,00
D28705-1880	18,8	20	153	101	77	345,00
D28705-1900	19	20	153	101	77	345,00
D28705-1950	19,5	20	153	101	77	345,00
D28705-1980	19,8	20	153	101	77	345,00
D28705-2000	20	20	153	101	77	345,00

VHM Boren Aluminium 8xD

Solid carbide Drills Aluminium 8xD



SPEEDDRILL A4

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D28708-0300	3	6	72	34	29	87,00
D28708-0310	3,1	6	72	34	29	87,00
D28708-0320	3,2	6	72	34	29	87,00
D28708-0330	3,3	6	72	34	29	87,00
D28708-0340	3,4	6	72	34	29	87,00
D28708-0350	3,5	6	72	34	29	87,00
D28708-0360	3,6	6	72	34	29	87,00
D28708-0370	3,7	6	72	34	29	87,00
D28708-0380	3,8	6	81	43	36	87,00
D28708-0390	3,9	6	81	43	36	87,00
D28708-0400	4	6	81	43	36	87,00
D28708-0410	4,1	6	81	43	36	87,00
D28708-0420	4,2	6	81	43	36	87,00
D28708-0430	4,3	6	81	43	36	87,00
D28708-0440	4,4	6	81	43	36	87,00
D28708-0450	4,5	6	81	43	36	87,00
D28708-0460	4,6	6	81	43	36	87,00
D28708-0470	4,7	6	81	43	36	87,00
D28708-0480	4,8	6	95	57	48	87,00
D28708-0490	4,9	6	95	57	48	87,00
D28708-0500	5	6	95	57	48	87,00
D28708-0510	5,1	6	95	57	48	87,00
D28708-0520	5,2	6	95	57	48	87,00
D28708-0530	5,3	6	95	57	48	87,00
D28708-0540	5,4	6	95	57	48	87,00
D28708-0550	5,5	6	95	57	48	87,00
D28708-0560	5,6	6	95	57	48	87,00
D28708-0570	5,7	6	95	57	48	87,00
D28708-0580	5,8	6	95	57	48	87,00
D28708-0590	5,9	6	95	57	48	87,00
D28708-0600	6	6	95	57	48	87,00

Art. nr.	Ød1	Ød2	l1	l3	l2	€
D28708-0610	6,1	8	114	76	64	118,00
D28708-0620	6,2	8	114	76	64	118,00
D28708-0630	6,3	8	114	76	64	118,00
D28708-0640	6,4	8	114	76	64	118,00
D28708-0650	6,5	8	114	76	64	118,00
D28708-0660	6,6	8	114	76	64	118,00
D28708-0670	6,7	8	114	76	64	118,00
D28708-0680	6,8	8	114	76	64	118,00
D28708-0690	6,9	8	114	76	64	118,00
D28708-0700	7	8	114	76	64	118,00
D28708-0710	7,1	8	114	76	64	118,00
D28708-0720	7,2	8	114	76	64	118,00
D28708-0730	7,3	8	114	76	64	118,00
D28708-0740	7,4	8	114	76	64	118,00
D28708-0750	7,5	8	114	76	64	118,00
D28708-0760	7,6	8	114	76	64	118,00
D28708-0770	7,7	8	114	76	64	118,00
D28708-0780	7,8	8	114	76	64	118,00
D28708-0790	7,9	8	114	76	64	118,00
D28708-0800	8	8	114	76	64	118,00
D28708-0810	8,1	10	142	95	80	164,00
D28708-0820	8,2	10	142	95	80	164,00
D28708-0830	8,3	10	142	95	80	164,00
D28708-0840	8,4	10	142	95	80	164,00
D28708-0850	8,5	10	142	95	80	164,00
D28708-0860	8,6	10	142	95	80	164,00
D28708-0870	8,7	10	142	95	80	164,00
D28708-0880	8,8	10	142	95	80	164,00
D28708-0890	8,9	10	142	95	80	164,00
D28708-0900	9	10	142	95	80	164,00
D28708-0910	9,1	10	142	95	80	164,00

95 **Herslijp- en hercoatservice**
Sharpening and recoating service

Andere uitvoeringen zijn snel leverbaar
Other versions are available quickly

Boorpunt - *Drill point*

Materiaal - *Material*

Spiraal	30° rechts
Tophoek	140°
Punt	4-vlaks slijping
Hartmetaal	Fijnkorrel 6-8% Co
Coating	Blank gepolijste spiraalgroeven
Koeling	Inwendig
Schacht	DIN 6535 HA

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D28708-0920	9,2	10	142	95	80	164,00
D28708-0930	9,3	10	142	95	80	164,00
D28708-0940	9,4	10	142	95	80	164,00
D28708-0950	9,5	10	142	95	80	164,00
D28708-0960	9,6	10	142	95	80	164,00
D28708-0970	9,7	10	142	95	80	164,00
D28708-0980	9,8	10	142	95	80	164,00
D28708-0990	9,9	10	142	95	80	164,00
D28708-1000	10	10	142	95	80	164,00
D28708-1020	10,2	12	162	114	96	209,00
D28708-1050	10,5	12	162	114	96	209,00
D28708-1080	10,8	12	162	114	96	209,00
D28708-1100	11	12	162	114	96	209,00
D28708-1150	11,5	12	162	114	96	209,00
D28708-1180	11,8	12	162	114	96	209,00
D28708-1200	12	12	162	114	96	209,00
D28708-1250	12,5	14	178	133	112	263,00
D28708-1280	12,8	14	178	133	112	263,00
D28708-1300	13	14	178	133	112	263,00
D28708-1350	13,5	14	178	133	112	263,00
D28708-1380	13,8	14	178	133	112	263,00
D28708-1400	14	14	178	133	112	263,00
D28708-1450	14,5	16	203	152	128	349,00
D28708-1480	14,8	16	203	152	128	349,00
D28708-1500	15	16	203	152	128	349,00
D28708-1550	15,5	16	203	152	128	349,00
D28708-1580	15,8	16	203	152	128	349,00
D28708-1600	16	16	203	152	128	349,00
D28708-1650	16,5	18	222	171	144	485,00
D28708-1680	16,8	18	222	171	144	485,00
D28708-1700	17	18	222	171	144	485,00

Art. nr.	*Ød1*	*Ød2*	*l1*	*l3*	*l2*	*€*
D28708-1750	17,5	18	222	171	144	485,00
D28708-1780	17,8	18	222	171	144	485,00
D28708-1800	18	18	222	171	144	485,00
D28708-1850	18,5	20	243	190	160	605,00
D28708-1880	18,8	20	243	190	160	605,00
D28708-1900	19	20	243	190	160	605,00
D28708-1950	19,5	20	243	190	160	605,00
D28708-1980	19,8	20	243	190	160	605,00
D28708-2000	20	20	243	190	160	605,00

Snijwaarden VHM boren
Cutting values SC drills

SPEEDDRILL S4

D20003 - D20005 - D21003 - 21705 - D21708

Mat.	Pull [N/mm²]	Bijvoorbeeld	Vc M/min	Voeding/Omw. f					
				Ø6	Ø8	Ø10	Ø12	Ø16	Ø20
Steel	< 600 N/mm²	St37, C22, GS38	100-120	0,15	0,20	0,25	0,30	0,36	0,40
	< 700 N/mm²	St52, C35, GS52	90-110	0,15	0,20	0,25	0,30	0,36	0,40
	< 700 N/mm²	St70, C45, GS62	80-100	0,15	0,20	0,25	0,30	0,36	0,40
	< 900 N/mm²	16MnCr5, 42CrMo4	80-95	0,15	0,20	0,25	0,30	0,36	0,40
	< 1000 N/mm²	90MnCrV8, 100Cr6	65-80	0,14	0,18	0,22	0,26	0,30	0,35
	> 1000 N/mm²	X210Cr12, 34CrAlNi7	45-65	0,12	0,16	0,2	0,24	0,30	0,35
Cast iron	< 200 HB	GG20, GG25, GTS45	100-130	0,22	0,28	0,34	0,38	0,44	0,50
	< 250 HB	GG30, GTW40	90-120	0,20	0,25	0,30	0,35	0,40	0,45
	>250 HB	GG40, GTS70	80-100	0,20	0,25	0,30	0,35	0,40	0,45
	< 600 N/mm²	GGG40, GGG50	90-120	0,20	0,25	0,30	0,35	0,40	0,45
	> 600 N/mm²	GGG60,GGV (CGI)	70-90	0,18	0,22	0,25	0,30	0,35	0,40

*** Voor de S2 uitvoeringen (zonder binnenkoeling) de snijsnelheid met circa 25% reduceren.**
** For de S2 Version (without internal coolant)) reduce the speed with 25%.*

SPEEDDRILL A4

D28705 - D28708

Mat.	Pull [N/mm²]	Bijvoorbeeld	Vc M/min	Voeding/Omw. f					
				Ø6	Ø8	Ø10	Ø12	Ø16	Ø20
Aluminium / brass copper / bronze									
		AlCuMgPb, AlMgSi 0.5	200-350	0,3	0,4	0,5	0,55	0,7	0,8
		GD-AlSi9Cu3, AlSi7Mg0.6	200-350	0,3	0,4	0,5	0,55	0,7	0,8
		GB.AlSi12(Cu)	180-250	0,24	0,32	0,4	0,45	0,55	0,6
			120-200	0,18	0,24	0,3	0,35	0,4	0,5

SPEEDDRILL U2

D18003 - D18005

Mat.	Pull [N/mm²]	Bijvoorbeeld	Vc* M/min	Voeding/Omw. f					
				Ø6	Ø8	Ø10	Ø12	Ø16	Ø20
Steel	< 600 N/mm²	St37, C22, GS38	80-100	0,15	0,20	0,25	0,30	0,36	0,40
	< 700 N/mm²	St52, C35, GS52	70-90	0,15	0,20	0,25	0,30	0,36	0,40
	< 700 N/mm²	St70, C45, GS62	65-85	0,15	0,20	0,25	0,30	0,36	0,40
	< 900 N/mm²	16MnCr5, 42CrMo4	70-90	0,15	0,20	0,25	0,30	0,36	0,40
	< 1000 N/mm²	90MnCrV8, 100Cr6	65-80	0,14	0,18	0,22	0,26	0,30	0,35
	> 1000 N/mm²	X210Cr12, 34CrAlNi7	45-65	0,12	0,16	0,2	0,24	0,30	0,35
Stainless steel									
		X5 CrNi 18 9 (V2A)	30-60	0,10	0,12	0,14	0,16	0,20	0,28
		X10 CrNiMoTi 18 10							
Cast iron	< 200 HB	GG20, GG25, GTS45	80-100	0,22	0,28	0,34	0,38	0,44	0,50
	< 250 HB	GG30, GTW40	70-90	0,20	0,25	0,30	0,35	0,40	0,45
	>250 HB	GG40, GTS70	65-85	0,20	0,25	0,30	0,35	0,40	0,45
	< 600 N/mm²	GGG40, GGG50	70-90	0,20	0,25	0,30	0,35	0,40	0,45
	> 600 N/mm²	GGG60,GGV (CGI)	65-80	0,18	0,22	0,25	0,30	0,35	0,40
Aluminium / brass copper / bronze									
		AlCuMgPb, AlMgSi 0.5	180-250	0,18	0,24	0,30	0,35	0,40	0,50
		GD-AlSi9Cu3, AlSi7Mg0.6	180-250	0,18	0,24	0,30	0,35	0,40	0,50
		GB.AlSi12(Cu)	160-220	0,18	0,24	0,30	0,35	0,40	0,50
			120-200	0,18	0,24	0,30	0,35	0,40	0,50
Titanium / Inconel alloys									
		Ti6Al4V	20-50	0,10	0,12	0,14	0,16	0,20	0,25
		Inconel, Monel, Hasteloy	20-45	0,10	0,12	0,14	0,16	0,18	0,25

Snijwaarden VHM boren
Cutting values SC drills

SPEEDDRILL U4

D18708 - D18712

Mat.	Pull [N/mm²]	Bijvoorbeeld	Vc* M/min	Voeding/Omw. f					
				Ø6	Ø8	Ø10	Ø12	Ø16	Ø20
Steel	< 600 N/mm²	St37, C22, GS38	60-80	0,15	0,20	0,25	0,30	0,36	0,40
	< 700 N/mm²	St52, C35, GS52	60-80	0,15	0,20	0,25	0,30	0,36	0,40
	< 700 N/mm²	St70, C45, GS62	55-75	0,15	0,20	0,25	0,30	0,36	0,40
	< 900 N/mm²	16MnCr5, 42CrMo4	50-70	0,15	0,20	0,25	0,30	0,36	0,40
	< 1000 N/mm²	90MnCrV8, 100Cr6	50-701	0,14	0,18	0,22	0,26	0,30	0,35
	> 1000 N/mm²	X210Cr12, 34CrAlNi7	40-60	0,12	0,16	0,2	0,24	0,30	0,35
Stainless steel									
		X5 CrNi 18 9 (V2A)	25-50	0,10	0,12	0,14	0,16	0,20	0,28
		X10 CrNiMoTi 18 10							
Cast iron	< 200 HB	GG20, GG25, GTS45	70-90	0,22	0,28	0,34	0,38	0,44	0,50
	< 250 HB	GG30, GTW40	60-80	0,20	0,25	0,30	0,35	0,40	0,45
	>250 HB	GG40, GTS70	55-75	0,20	0,25	0,30	0,35	0,40	0,45
	< 600 N/mm²	GGG40, GGG50	60-75	0,20	0,25	0,30	0,35	0,40	0,45
	> 600 N/mm²	GGG60,GGV (CGI)	50-65	0,18	0,22	0,25	0,30	0,35	0,40
Aluminium / brass copper / bronze									
		AlCuMgPb, AlMgSi 0.5	120-200	0,18	0,24	0,30	0,35	0,40	0,50
		GD-AlSi9Cu3, AlSi7Mg0.6	120-200	0,18	0,24	0,30	0,35	0,40	0,50
		GB.AlSi12(Cu)	100-180	0,18	0,24	0,30	0,35	0,40	0,50
			80-150	0,18	0,24	0,30	0,35	0,40	0,50
Titanium / Inconel alloys									
		Ti6Al4V	20-35	0,08	0,12	0,14	0,16	0,20	0,25
		Inconel, Monel, Hasteloy	20-30	0,07	0,10	0,12	0,15	0,18	0,22

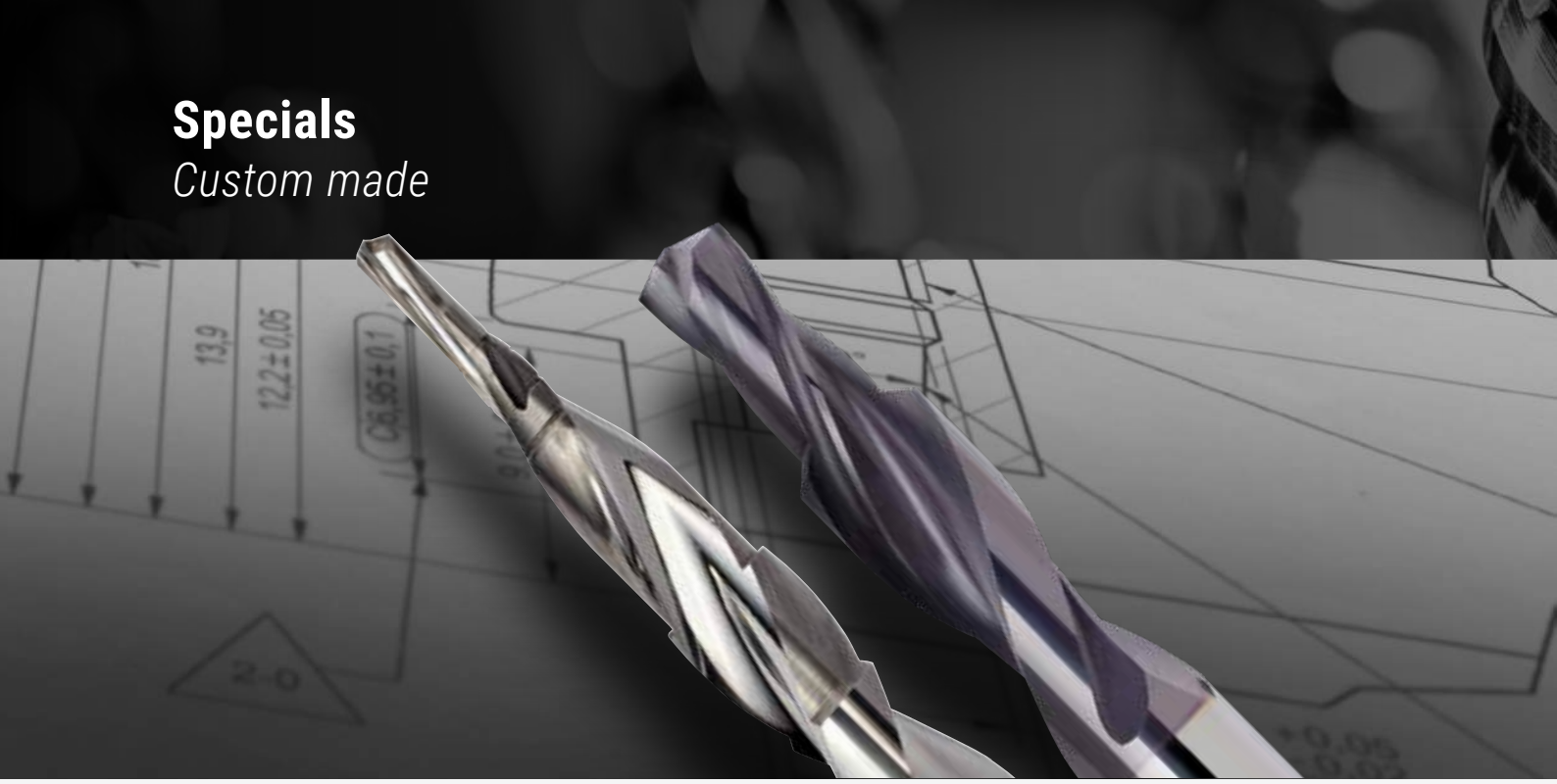
DEEPDRILL U6

D18720 - D18730

Mat.	Pull [N/mm²]	Bijvoorbeeld	Vc* M/min	Voeding/Omw. f					
				Ø6	Ø8	Ø10	Ø12	Ø16	Ø20
Steel	< 600 N/mm²	St37, C22, GS38	90-110	0,15	0,20	0,25	0,30	0,36	0,40
	< 700 N/mm²	St52, C35, GS52	90-110	0,15	0,20	0,25	0,30	0,36	0,40
	< 700 N/mm²	St70, C45, GS62	70-90	0,15	0,20	0,25	0,30	0,36	0,40
	< 900 N/mm²	16MnCr5, 42CrMo4	70-90	0,15	0,20	0,25	0,30	0,36	0,40
	< 1000 N/mm²	90MnCrV8, 100Cr6	60-75	0,14	0,18	0,22	0,26	0,30	0,35
	> 1000 N/mm²	X210Cr12, 34CrAlNi7	60-75	0,12	0,16	0,2	0,24	0,30	0,35
Stainless steel									
		X5 CrNi 18 9 (V2A)	50-70	0,10	0,12	0,14	0,16	0,20	0,28
		X10 CrNiMoTi 18 10	50-70						
Cast iron	< 200 HB	GG20, GG25, GTS45	75-90	0,22	0,28	0,34	0,38	0,44	0,50
	< 250 HB	GG30, GTW40	75-90	0,20	0,25	0,30	0,35	0,40	0,45
	>250 HB	GG40, GTS70	60-75	0,20	0,25	0,30	0,35	0,40	0,45
	< 600 N/mm²	GGG40, GGG50	60-75	0,20	0,25	0,30	0,35	0,40	0,45
	> 600 N/mm²	GGG60,GGV (CGI)	60-75	0,18	0,22	0,25	0,30	0,35	0,40

TECHNISCHE GEGEVENS
TECHNICAL DATA

Specials
Custom made



VHM special tools
Wij zijn uw juiste partner voor speciale boren en frezen, verzinken en ruimen. Wij produceren op zeer moderne CNC slijpcentra ieder type special voor uw toepassing.

Profiteer van onze jarenlange ervaring en zeer snelle levertijden tegen zeer aantrekkelijke prijzen. Wij slijpen de voor u beste geometrie, op het beste hardmetaal voorzien van de nieuwste generaties High-End coatingen!

48-uur Special service
In overleg bieden wij als topservice een 48-uurs spoeddienst. Als de special voorzien moet worden van coating zijn we gebonden aan een extra levertijd van circa 3 werkdagen. Alle specials kunnen voorzien worden van een meet-rapport.

Project engineering
Naast het leveren van standaardgereedschappen leggen wij ons toe op project engineering. Dit houdt in dat wij samen met u onderzoeken of uw productieproces geoptimaliseerd kan worden door bijvoorbeeld het inzetten van veel snellere gereedschappen. Ook kunnen we uw bewerkingsstrategie onder de loep nemen om zo uw productie te optimaliseren.

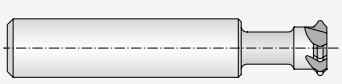
Solid carbide custom made tools
We are your right partner for custom made tools. We produce every type of special for your custom application on the latest modern CNC grinders.

Benefit from our years of experience and very fast delivery times at attractive prices.We grind the best geometry, on the best carbide with the latest generations of High-end coatings. Also we can suplly the endmills with the latest drag-finishing technology for edge preparation!

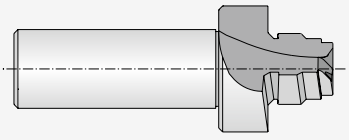
48-hours delivery!
In consultation, we offer a 48-hour emergency service as top service. If the special needs to be provided with a coating then the delivery is a few days later. We can also provide the custom made tool with a measuring report.

Project engineering
In addition to supplying standard endmills we also apply to project engineering. This means that together with you we will investigate whether a production process can be optimized by applying adapted endmills that have been specifically produced. We can also examine your machining strategy to optimize your production process

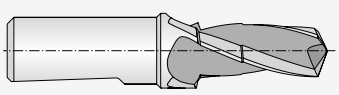
Voorbeeld 1 - *Example 1*



Voorbeeld 2 - *Example 2*



Voorbeeld 3 - *Example 3*



Herslijpen & hercoaten

Re-sharpening & re-coating

Herslijpen & hercoaten

Om zeker te zijn van een 100% goede frees/boor bieden wij u tegen zeer aantrekkelijke prijzen een hersijpservice aan. Middels een herslijpformulier kunt u uw gereedschappen naar ons sturen en kunt u uw tools in topconditie terugverwachten. Wij weten als geen ander volgens welke geometrie de tools moeten worden geslepen. Zo haalt u economisch het meeste voordeel uit onze tools. Vraag naar onze prijzen!

Re-sharpening & re-coating

In order to be sure of a 100% good endmill after resharpening, we offer you a re-sharpening service. You can send us the endmills by packet service and you can expect a 100% good re-sharpened endmill. We know the geometry of the endmills like no other. This is how you get the most economic benefit from our endmill cutters.

Materiaallijst
List of materials

Code	Rm N/mm²	A 5 %	HRC	HB	Mat. - Nr.	DIN
P1.1	**Free - machining steels**					
	> 500	9			1.0711	9 S 20
	380 - 570	8			1.0715	9 SMn 28
	380 - 570	8			1.0718	9 SMnPb 28
	360 - 530	9			1.0721	10 S 20
	360 - 530	9			1.0722	10 SPb 20
	380 - 570	8			1.0723	15 S 20
	390 - 590	7			1.0736	9 SMn 36
	390 - 580	7			1.0737	9 SMnPb 36
	580 - 730	8			1.0726	35 S 20
	660 - 800	7			1.0727	45 S 20
	740 - 880	7			1.0728	60 S 20
P1.1	**Alloyed structural steels**					
	440 - 590	24			1.5415	15 Mo 3
	450 - 590	21			1.5423	16 Mo 5
	490 - 640	20			1.5622	14 Ni 6
	530 - 710	20			1.5680	12 Ni 19
	450 - 660	20			1.7335	13 CrMo 4 4
	540 - 690	20			1.7337	16 CrMo 4 4
	480 - 630	18			1.7380	10 CrMo 9 10
	700 -850	16			1.7709	21 CrMoV 5 7
	490 - 640	20			1.7715	14 MoV 6 3
P1.1	**Construction steels**					
	> 500	25			1.0037	St 37 - 2
	410 - 560	21			1.0044	St 44 - 2
	340 - 470	25			1.0116	St 37 - 3
	410 - 560	21			1.0144	St 44 - 3
	470 - 610	19			1.0050	St 50 - 2
	490 - 630	21			1.0570	St 52 - 3
	570 - 710	15			1.0060	St 60 - 2
	340 - 470	25		< 82	1.0038	RSt37 -2
P1.2	**Steel castings**					
	> 380	25			1.0420	GS - 38
	700 - 800				1.1118	GS - 24 Mn 6
	480 - 620	20			1.1120	GS - 20 Mn 5
	> 500	22			1.5419	GS - 22 Mo 4
	> 500				1.5633	GS - 24 Ni 8
	> 500				1.5681	GS - 10 Ni 19
	> 500				1.6309	GS - 20 Mn MoNi 5 5
	> 850	10			1.6582	GS - 34 CrNiMo 6
	> 800	11			1.6748	GS - 40 NiCrMo 6 5 6
	> 800				1.6750	GS - 20 NiCrMo 3 7
	> 800				1.6760	GS - 22 NiMoCr 5 6

Code	Rm N/mm²	A 5 %	HRC	HB	Mat. - Nr.	DIN
P1.2	490 - 640	20			1.7357	GS - 17 CrMo 5 5
	> 500	18			1.7379	GS - 18 CrMo 9 10
P1.1	**Case hardening steels**					
	> 500	15		< 82	1.0301	C 10
	> 500	13		< 82	1.0401	C 15
	> 500	14		< 82	1.1121	CK 10
	> 500	13		< 82	1.1141	CK 15
	> 500	15		< 82	1.7012	13 Cr 2
	500 -700	10		82 - 96	1.7015	15 Cr 3
	500 - 700	11		82 - 96	1.5732	14 NiCr 10
	700 - 850	10	< 24		1.5752	14 NiCr 14
	700 - 850	7	< 24		1.5860	14 NiCr 18
	700 - 850	9	< 24		1.5919	15 CrNi 6
	700 - 850	7	< 24		1.5920	18 NiCr 8
	700 - 850	10	< 24		1.6523	21 NiCrMo 2
	700 - 850	8	< 24		1.6587	17 CrNiMo 6
	700 - 850	10	< 24		1.7131	16 MnCr 5
	700 - 850	10	< 24		1.7139	16 MnCrS 5
	700 - 850	8	< 24		1.7147	20 MnCr 5
	700 - 850	8	< 24		1.7149	20 MnCrS 5
	700 - 850	10	< 24		1.7262	15 CrMo 5
	700 - 850	8	< 24		1.7264	20 CrMo 5
	700 - 850	8	< 24		1.7271	23 CrMoB 3 3
	500 - 700	10	< 24		1.7311	20 CrMo 2
	700 - 850	10	< 24		1.7321	20 MoCr 4
	700 - 850	10	< 24		1.7323	20 MoCrS 4
	700 - 850	8	< 24		1.7325	25 MoCr 4
	700 - 850	8	< 24		1.7326	25 MoCrS 4
	< 500	13		< 82	1.0402	C22
P2.1	**Spring steels**					
	< 850	6	< 24		1.0904	55 Si 7
	< 850	6	< 24		1.0961	60 SiCr 7
	< 850	6	< 24		1.1231	CK 67
	< 850	6	< 24		1.1248	CK 75
	< 850	6	< 24		1.1274	CK 101
	< 850	5	< 24		1.7103	67 SiCr 5
	< 850	6	< 24		1.7176	55 Cr 3
	< 850	10	< 24		1.8159	50 CrV 4
	< 850	6	< 24		1.5026	55 Si 7
P2.2	**Alloyed heat - treatable steels**					
	< 800	22	< 21		1.1133	20 Mn 5
	< 800	11	< 21		1.7735	14 CrMoV 6 9
	< 800		< 21		1.3505	100 Cr 6

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Code	Rm N/mm²	A 5 %	HRC	HB	Mat. - Nr.	DIN
P2.2	< 800	12	< 21		1.5120	38 MnSi 4
	< 800	12	< 21		1.5121	46 MnSi 4
	< 800	12	< 21		1.5141	53 MnSi 4
	< 800	13	< 21		1.5710	36 NiCr 6
	< 800		< 21		1.6546	40 NiCrMo 2 2
	< 800		< 21		1.6565	40 NiCrMo 6
	< 800	14	< 21		1.7003	38 Cr 2
	< 800	12	< 21		1.7006	46 Cr 2
	< 800	15	< 21		1.7020	32 Cr 2
	< 800	14	< 21		1.7030	28 Cr 4
	< 800	14	< 21		1.7033	34 Cr 4
	< 800	14	< 21		1.7218	25 CrMo 4
	< 800	12	< 21		1.7220	34 CrMo 4
	< 800	10	< 21		1.7223	41 CrMo 4
	< 800	10	< 21		1.7225	42 CrMo 4
	< 800	9	< 21		1.7228	50 CrMo 4
	> 800 - 1000	12	> 21 -30		1.1157	40 Mn 4
	> 800 - 1000	14	> 21 -30		1.1165	30 Mn 5
	> 800 - 1000	10	> 21 -30		1.1167	36 Mn 5
	> 800 - 1000	13	> 21 -30		1.1170	28 Mn 5
	> 800 - 1000	12	> 21 -30		1.3561	44 Cr 2
	> 800 - 1000	12	> 21 -30		1.3563	43 CrMo 4
	> 800 - 1000	11	> 21 -30		1.3565	48 CrMo 4
	> 800 - 1000	12	> 21 -30		1.5120	38 MnSi 4
	> 800 - 1000	12	> 21 -30		1.5121	46 MnSi 4
	> 800 - 1000	12	> 21 -30		1.5122	37 MnSi 4
	> 800 - 1000	11	> 21 -30		1.5131	50 MnSi 4
	> 800 - 1000	12	> 21 -30		1.5141	53 MnSi 4
	> 800 - 1000	11	> 21 -30		1.5223	42 MnV 7
	> 800 - 1000	13	> 21 -30		1.5710	36 NiCr 6
	> 800 - 1000	12	> 21 -30		1.5736	36 NiCr 10
	> 800 - 1000	11	> 21 -30		1.5755	31 NiCr 14
	> 800 - 1000	11	> 21 -30		1.6511	36 CrNiMo 4
	> 800 - 1000	13	> 21 -30		1.6513	28 NiCrMo 4
	> 800 - 1000	14	> 21 -30		1.7003	38 Cr 2
	> 800 - 1000	13	> 21 -30		1.7006	46 Cr 2
	> 800 - 1000	12	> 21 -30		1.7030	28 Cr 4
	> 800 - 1000	14	> 21 -30		1.7033	34 Cr 4
	> 800 - 1000	13	> 21 -30		1.7034	37 Cr 4
	> 800 - 1000	12	> 21 -30		1.7035	41 Cr 4
	> 800 - 1000	14	> 21 -30		1.7218	25 CrMo 4
	> 800 - 1000	14	> 21 -30		1.7220	34 CrMo 4
	> 800 - 1000		> 21 -30		1.7223	41 CrMo 4
	> 800 - 1000	12	> 21 -30		1.7225	42 CrMo 4
	> 800 - 1000	13	> 21 -30		1.7228	50 CrMo 4
	> 800 - 1000	13	> 21 -30		1.7561	42 CrV 6

Code	Rm N/mm²	A 5 %	HRC	HB	Mat. - Nr.	DIN
P2.2	> 800 - 1000	11	> 21 -30		1.7735	14 CrMoV 6 9
	> 800 - 1000	10	> 24 -30		1.8159	50 CrV 4
P2.3	**Alloyed heat - treatable steels**					
	> 1000 - 1300	10	> 30 -40		1.3563	43 CrMo 4
	> 1000 - 1300	9	> 30 -40		1.3565	48 CrMo 4
	> 1000 - 1300	11	> 30 -40		1.5120	38 MnSi 4
	> 1000 - 1300	11	> 30 -40		1.5121	46 MnSi 4
	> 1000 - 1300	11	> 30 -40		1.5122	37 MnSi 4
	> 1000 - 1300	10	> 30 -40		1.5223	42 MnV 7
	> 1000 - 1300	11	> 30 -40		1.5710	36 NiCr 6
	> 1000 - 1300		> 30 -40		1.5736	36 NiCr 10
	> 1000 - 1300	7	> 30 -40		1.5864	35 NiCr 18
	> 1000 - 1300	10	> 30 -40		1.6511	36 CrNiMo 4
	> 1000 - 1300	9	> 30 -40		1.6580	30 CrNiMo 8
	> 1000 - 1300	9	> 30 -40		1.6582	34 CrNiMo 6
	> 1000 - 1300	12	> 30 -40		1.7033	34 Cr 4
	> 1000 - 1300	11	> 30 -40		1.7034	37 Cr 4
	> 1000 - 1300	11	> 30 -40		1.7035	41 Cr 4
	> 1000 - 1300		> 30 -40		1.7045	42 Cr 4
	> 1000 - 1300	12	> 30 -40		1.7218	25 CrMo 4
	> 1000 - 1300	11	> 30 -40		1.7220	34 CrMo 4
	> 1000 - 1300	11	> 30 -40		1.7223	41 CrMo 4
	> 1000 - 1300	10	> 30 -40		1.7225	42 CrMo 4
	> 1000 - 1300	9	> 30 -40		1.7228	50 CrMo 4
	> 1000 - 1300	9	> 30 -40		1.7361	32 CrMo 12
	> 1000 - 1300	10	> 30 -40		1.7561	42 CrV 6
	> 1000 - 1300	9	> 30 -40		1.7707	30 CrMoV 9
	> 1000 - 1300	10	> 30 -40		1.7735	14 CrMoV 6 9
	> 1000 - 1300	9	> 30 -40		1.8159	50 CrV 4
	> 1000 - 1300	8	> 30 -40		1.8161	58 CrV 4
P2.2	**Unalloyed heat - treatable steels**					
	< 800	20	< 21		1.0402	C 22
	< 800	19	< 21		1.0406	C 25
	< 800	17	< 21		1.0501	C 35
	< 800	14	< 21		1.0503	C 45
	< 800	16	< 21		1.0511	C 40
	< 800	18	< 21		1.0528	C 30
	< 800	20	< 21		1.1151	Ck 22
	< 800	19	< 21		1.1158	Ck 25
	< 800	18	< 21		1.1178	Ck 30
	< 800	17	< 21		1.1181	Ck 35
	< 800	16	< 21		1.1186	Ck 40
	< 800	14	< 21		1.1191	Ck 45
	> 800 - 1000	12	> 21 -30		1.0535	C 55

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Code	Rm N/mm²	A 5 %	HRC	HB	Mat. - Nr.	DIN
P2.2	> 800 - 1000	13	> 21 -30		1.0540	C 50
	> 800 - 1000	11	> 21 -30		1.0601	C 60
	> 800 - 1000	12	> 21 -30		1.1203	Ck 55
	> 800 - 1000	13	> 21 -30		1.1206	Ck 50
	> 800 - 1000	11	> 21 -30		1.1221	Ck 60
P4.2	**Cold work tool steels**					
	760		19		1.2067	100 Cr 6
	750		99	99	1.2101	62 SiMnCr 4
	760		19		1.2103	58 SiCr 8
	760		19		1.2108	90 CrSi 5
	720			97	1.2162	21 MnCr 5
	730			98	1.2210	115 CRV 3
	730			98	1.2330	35 CrMo 4
	750			99	1.2332	47 CrMo 4
	760		19		1.2419	105 WCr 6
	720			97	1.2510	100 MnCrW 4
	730			98	1.2516	120 W 4
	750			99	1.2542	45 WCrV 7
	750			99	1.2550	60 WCrV 7
	830		23		1.2721	50 NiCr 13
	670			95	1.2735	15 NiCr 14
	710			97	1.2762	75 CrMoNiW 6 7
	750			99	1.2826	60 MnSiCr 4
	760		19		1.2833	100 V 1
	730			98	1.2842	90 MnCrV 8
	830		23		1.2080	X 210 Cr 12
	380			63	1.2341	X 6 CrMo 4
	760		19		1.2363	X 100 CrMoV 5 1
	640 - 840	18			1.5662	X 8 Ni9
	760		19		1.2379	X 155 CrVMo12 1
	760		19		1.2436	X 210 CrW 12
	760		19		1.2601	X 165 CrMoV 12
P4.1	**Unalloyed tool steels**					
	640			93	1.1520	C 70 W 1
	640			93	1.1525	C 80 W 1
	640			93	1.1545	C 105 W 1
	640			93	1.1620	C 70 W 2
	640			93	1.1625	C 80 W 2
	640			93	1.1645	C 105 W 2
	660			94	1.1654	C 110 W
	710			97	1.1663	C 125 W
	760		19		1.1673	C 135 W
	640			93	1.1730	C 45 W
	760		19		1.1740	C 60 W

Code	Rm N/mm²	A 5 %	HRC	HB	Mat. - Nr.	DIN
	730			98	1.1744	C 67 W
	730			98	1.1750	C 75 W
	570			88	1.1820	C 55 W
	750			99	1.1830	C 85 W
P3.1	**Hot work tool steels**					
	< 770				1.2311	40 CrMnMo 7
	< 770				1.2312	40 CrMnMoS 8 6
	< 770				1.2711	54 NiCrMoV 6
	< 800				1.2713	55 NiCrMoV 6
	< 800				1.2738	40 CrMnNiMo 8
	< 840				1.2744	57 NiCrMoV 77
	< 860				1.2764	X 19 NiCrMo 4
	< 870				1.2767	X 45 NiCrMo 4
	< 770				1.2083	X 42 Cr 13
	< 800				1.2343	X 38 CrMoV 5 1
	< 800				1.2344	X 40 CrMoV 5 1
	< 800				1.2365	X 32 CrMoV 3 3
	< 800				1.2567	X 30 WCrV 5 3
	< 800				1.2581	X 30 WCrV 9 3
	< 770				1.2885	X 32 CrMoV 3 3 3
	< 840				1.2316	X 36 CrMo 17
	1080	16	> 29		Toolox 33	
	1250	10	43		Hardox 400	
	1450	13	45		Toolox 44	
P3.2	**Nitriding steels**					
	< 1000	14	< 30		1.8504	34 CrAl 6
	< 1000	12	< 30		1.8506	34 CrAlS 5
	< 1000	14	< 30		1.8507	34 CrAlMo 5
	< 1000	12	< 30		1.8509	41 CrAlMo 7
	> 1000	10	> 30		1.8515	31 CrMo 12
	> 1000	9	> 30		1.8519	31 CrMoV 9
	> 1000	10	> 30		1.8521	15 CrMoV 5 9
	> 1000	8	> 30		1.8523	39 CrMoV 13 9
	> 1000	12	> 30		1.8550	34 CrAlNi 7
M1.1	**Stainless steels - ferritic**					
	400 - 600	17			1.4002	X 6 CrAl 13
	380 - 560	25			1.4512	X 5 CrTi 12
	400 - 600	19			1.4000	X 6 Cr 13
	450 - 600	18			1.4016	X 6 Cr 17
	500 - 700	12			1.4742	X 10 CrAlSi 18
	450 - 630	18			1.4113	X 6 CrMo 17
	420 - 600	23			1.4510	X 3 CrTi 17
	400 - 600	20			1.4521	X 2 CrMoTi 18-2

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Code	Rm N/mm²	A 5 %	HRC	HB	Mat. - Nr.	DIN
M1.1	450 - 650	15			1.4724	X 10 CrAlSi 13
	520 - 720	15			1.4762	X 10 CrAl 24
M2.1	**Stainless steels - austenitic**					
	750 - 950	40			1.4372	X 12 CrMnNiN 17 -7 - 5
	680 - 880	35			1.4373	X 12 CrMnNiN 18 - 9 - 5
	600 - 950	40			1.4310	X 10 CrNi 18 - 8; X 12 CrNi 17 7
	630 - 850	35			1.4318	X 2 CrNiN 18 - 7
	500 - 700	35			1.4305	X 10 CrNiS 18 9
	600 - 951	36			1.4350	X 5 CrNi 18 9
	520 - 720	45			1.4301	X 5 CrNi 18 9
	460 - 680	45			1.4306	X 2 CrNi 19 11
	550 - 750	40			1.4311	X 2 CrNiN 18 10
	510 - 710	45			1.4948	X 6 CrNi 18 - 11
	520 -700	45			1.4307	X 2 CrNi 18 - 9
	500 - 750	40			1.4315	X 5 CrNiN 19 - 9
	500 - 650	45			1.4303	X 5 CrNi 18 - 12
	500 - 700	33			1.4833	X 12 CrNi 23 - 13
	500 - 700	33			1.4845	X 8 CrNi 25 - 21
	550 - 750	30			1.4841	X 15 CrNiSi 25 - 21
	520 - 680	40			1.4401	X 5 CrNiMo 18 10
	530 -730	40			1.4436	X 5 CrNiMo 17 13 3
	520 - 680	40			1.4404	X 2 CrNiMo 17 13 2
	520 - 700	40			1.4435	X 2 CrNiMo 18 14 3
	520 - 700	40			1.4432	X 2 CrNiMo 17 - 12 - 3
	580 - 780	40			1.4406	X 2 CrNiMoN 17 12 2
	580 - 780	35			1.4429	X 2 CrNiMoN 17 13 3
	490 - 740	40			1.4573	X 10 CrNiMoTi 18 12
	520 - 690	40			1.4571	X 6 CrNiMoTi 17 12 2
	520 - 720	40			1.4580	X 6 CrNiMoNb 17 12 2
	550 - 700	35			1.4438	X 2 CrNiMo 18 16 4
	580 - 780	35			1.4439	X 2 CrNiMoN 17 - 13 - 5
	490 - 740	40			1.4583	X 10 CrNiMoNb 18 12
	500 - 720	40			1.4541	X 6 CrNiTi 18 10
	500 - 720	40			1.4878	X 8 CrNiTi 18 - 10
	500 - 720	40			1.4550	X 6 CrNiNb 18 10
	500 - 700	40			1.4563	X 1 NiCrMoCu 31 - 27 - 4
	520 - 730	35			1.4539	X 1 NiCrMoCu 25 - 20 - 5
	550 - 750	30			1.4864	X 12 NiCrSi 35 - 16
	620 - 880	20			1.4460	X 8 CrNiMo 27 5
	500 - 740	30			1.4546	X 5 CrNiNb 18 10
M3.1	**Stainless steels - duplex**					
	340 - 950	20			1.4462	X 2 CrNiMoN 22 - 5 - 3
	630 - 850	20			1.4362	X 2 CrNiN 23-4
	730 - 1000	15			1.4410	X 2 CrNiMoN 25 - 7 - 4

Code	Rm N/mm²	A 5 %	HRC	HB	Mat. - Nr.	DIN
M3.1	730 - 1000	17			1.4507	X 2 CrNiMoCuN 25-6-3
	730 - 1000	17			1.4507	X 2 CrNiMoCuN 25-6-3
M1.2	**Stainless steels - martensitic**					
	> 600	20			1.4006	X 10 Cr 13
	650 - 850	12			1.4005	X 12 CrS 13
	> 700	15			1.4021	X 20 Cr 13
	> 740	15			1.4028	X 30 Cr 13
	> 760	12			1.4031	X 38 Cr 13
	> 780	12			1.4034	X 46 Cr 13
	> 850	12			1.4116	X 50 CrMoV 15
	> 900	12			1.4122	X 39 CrMo 17-1
	780 - 1100	11			1.4313	X 5 CrNi 13 4
	840 - 1100	14			1.4418	X 4 CrNiMo 6-5-1
	> 650	14			1.4024	X15Cr13
	640 - 840	11			1.4104	X 14 CrMoS 17
	750 - 950	14			1.4057	X 17 CrNi 16 2
					1.4747	X 80 CrNiSi 20
	< 900				1.4125	X 105 CrMo 17
M1.3	**Stainless steels - hardened**					
	> 1275	5			1.4542	X 5 CrNiCuNb 16 - 4
	> 1030	19			1.4568	X7CrNiAl 17 - 7
S2.1	**Nickel-/Cobalt - alloys**					
	900 - 1100	14			1.4718	X 45 CrSi 9 3
	500 - 750	30			1.4828	X 15 CrNiSi 20 12
	550 - 800	30			1.4841	X15 CrNiSi 25 20
	500 - 750	35			1.4845	X 12 CrNi 25 21
	550 - 800	30			1.4864	X 12 NiCrSi 36 16
	950 - 1200	8			1.4871	X 53 CrMnNiN 21 9
	500 - 750	30			1.4876	X 10 NiCrAlTi 33 20
	500 - 750	40			1.4878	X 12 CrNiTi 18 9
	500 - 700	35			2.4360	NiCu30Fe
	620 - 850	17			2.4375	NiCu30Al
	> 690	40			2.4685	G-NiMo28
	> 740	42			2.4610	NiMo16Cr16Ti
	> 760	40			2.4617	G-NiMo30
	700 - 800	26			2.4630; 2.4951	NiCr20Ti
	800 - 1000	12			2.4631	NiCr20TiAl
S2.2	**Nickel-/Cobalt - alloys**					
	1200	17			2.4632	NiCr20Co 1 8 Ti
	1180	25			2.4634	NiCo20Cr15MoAlTi
	< 770	15			2.4662	NiCr13Mo6Ti3

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Code	Rm N/mm²	A 5 %	HRC	HB	Mat. - Nr.	DIN
S2.2	900 - 1200				2.4670	
	900 - 1200				2.4674	
	1270	23			2.6554	
	890	50			2.4856	NiCr22Mo9Nb
S2.3	< 1400	25			2.4668	NiCr19FeNbMo
S1.1	**Pure titanium, Titanium**					
	290 - 410	30			3.7025	Ti99.5 / Ti Gr. 1
S1.2	380 - 540	20			3.7035	Ti99.4 / Ti Gr. 2
	460 - 590	18			3.7055	Ti99.3 / Ti Gr. 3
	540 - 740	16			3.7065	Ti99.2 / Ti Gr. 4
	390 - 540	20			3.7235	Ti 2 Pd / Ti Gr.2 Pd
S1.3	> 890	> 10			3.7165	TiAl6V482 / Ti Gr. 5
	> 1000	9			3.7185	TiAl 4 Mo 4 Sn 2
K1.1	**Cast iron - lamellar graphite**					
	100 - 200				0.6010	EN - JL 100 (GG - 10)
	150 - 250				0.6015	EN - JL 150 (GG - 15)
	200 - 300				0.6020	EN - JL 200 (GG - 20)
	250 - 350				0.6025	EN - JL 250 (GG - 25)
	300 - 400				0.6030	EN - JL 300 (GG - 30)
	350 - 450				0.6035	EN - JL 350 (GG - 35)
	400 - 500				0.6040	EN - JL Z (GG - 40)
	> 170				0.6655	GGL - NiCuCr 15 6 2
	> 170	2			0.6660	GGL - NiCr 20 - 2
	> 190	1			0.6676	GGL - NiCr 30 - 3
	> 170				0.6680	GGL - NiSiCr 30 - 5 - 5
K1.2	**Cast iron - nodular graphite**					
	370 - 400	14			0.7040	EN (-GJS - 400) 15
	420 - 500	7			0.7050	EN (-GJS - 500) 7
	550 - 600	3			0.7060	EN (-GJS - 600) 3
	660 - 700	2			0.7070	EN - GJS - 700 - 2 (GGG - 70)
	800	2			0.7080	EN - GJS - 800 - 2 (GGG - 80)
	370 - 480	7			0.7660	GGG - NiCr 20 2
	> 390	7			0.7661	GGG - NiCr 20 3
	370 - 450	20			0.7670	EN - GJSA - XNi22
	440 - 480	25			0.7673	EN - GJSA - XNiMn23 - 4
	370 - 480	7			0.7676	EN - GJSA - XNiCr30 - 3
	> 370	13			0.7677	GGG - NiCr 30 1
	390 - 500	1			0.7680	EN - GJSA - XNiSiCr 30 - 5 - 5
	370 - 420	20			0.7683	EN - GJSA - XNi35
	370 - 450	7			0.7685	EN - GJSA - XNiCr35 - 3

Code	Rm N/mm²	A 5 %	HRC	HB	Mat. - Nr.	DIN
K1.3	**Cast iron - vermicular graphitegraphite**					
	300 - 375	1.5				EN - GJV 300
	350 - 425	1.5				EN - GJV 350
	400 - 475	1.0				EN - GJV 400
	450 - 525	1.0				EN - GJV 450
	500 - 575	0.5				EN - GJV 500
K2.1	**Malleable cast iron**					
	> 350	10			0.8135	EN - GJBM 350 - 10
	> 450	6			0.8145	EN - GJMB 450 - 6
	> 550	4			0.8155	EN - GJMB 550 - 4
	> 650	2			0.8165	EN - GJMB 650 - 2
	> 700	2			0.8170	EN - GJMB 700 - 2
	270 - 360	3			0.8035	EN - GJMW - 350 - 4
	300 - 420	4			0.8040	EN - GJMW - 400 - 5
	330 - 480	4			0.8045	EN - GJMW - 450 - 7
	490 - 570	3			0.8055	EN - GJMW - 550 - 4
K3.1	**Hard casting**					
	< 1400		< 45		0.9620	GJH - X 260 NiCr 4 - 2
	< 1400		< 45		0.9625	GJH - X 330 NiCr 4 - 2
	< 1400		< 45		0.9630	GJH - X 300 CrNiSi 9 - 5 - 2
	< 1400		< 45		0.9635	GJH - X 300 CrMo 15 - 3
	1000	5				GJS - 1000 - 5
	1200	2				GJS - 1200 - 2
	1400	1				GJS - 1400 - 1
H1.1	**Hardened steels**					
	1250 - 1550	8	< 50		Weldox 1100	
H1.2	1600 - 1800		< 55		Hardox 500	
	1820 - 1900		< 55		Hardox 550	
	~ 1850		< 55		1.2713	55 NiCrMoV 6
H1.3	1995 - 2300		< 60		Armox 600T	
	~ 2100		< 60		1.2542	45 WCrV 7
H1.4			< 63		Ferro - Titanit	
			< 63		1.2379	X 155 CrVMo12 1
			< 66		HSSE	
			< 66		1.2436	X 210 CrW 12
N1.1	**Aluminium unalloyed**					
	65 - 150	< 40			3.0225	Al99.5
	40 - 100	< 33			3.0305	Al99.9

Materiaallijst
List of materials

Code	Rm N/mm²	A 5 %	HRC	HB	Mat. - Nr.	DIN
N1.1	**Aluminium wrought alloys - not hardened**					
	100 - 125	> 1			3.0505	AlMn0.5Mg0.5
	80 - 230	> 2			3.0515	AlMn 1
	115 - 290	4			3.0525	AlMn1Mg0.5
	100 - 205	> 4			3.3315	AlMg 1
	180 - 310	> 3			3.3535	AlMg 3
N1.2	**Aluminium wrought alloys - hardened**					
	150 - 400	> 2			3.1325	AlCuMg 1
	180 - 460	> 3			3.1355	AlCuMg 2
	130 - 360	> 2			3.2315	AlMgSi 1
	130 - 270	> 8			3.3206	AlMgSi 0.5
	120 - 300	> 2			3.3211	AlMg 1 SiCu
	410 - 490	> 3			3.4345	AlZnMgCu 0.5
	180 - 560	> 1			3.4365	AlZnMgCu 1.5
N1.2	**Aluminium cast alloys Si < 5%**					
	280 - 300	< 1			3.2134	G - AlSiCu 1 Mg
	140 - 300	> 2			3.3241	G - AlMg3Si
	200	1			3.3292	GD - AlMg9
	140 - 210	> 4			3.3541	GD - AlMg3
N1.4	**Aluminium cast alloys Si < 5 - 12%**					
	160 - 200	1			3.2161	G - AlSi8Cu3
	230 - 360	> 2			3.2373	G - AlSi9Mg
	240 - 350	< 3			3.2163	G - AlSi9Cu3
	150 - 340	> 1			3.2381	G - AlSi10Mg
	160	1			3.2383	G - AlSi10Mg (Cu)
	150 - 170	5			3.2581	G - AlSi 1 2
	150 - 290	> 1			3.2583	G - AlSi 1 2 (Cu)
N1.5	**Aluminium cast alloys Si > 12%**					
	165 - 370	< 1				G - AlSi 17 Cu 4 Mg
	180 - 220	< 1				G - AlSi 18 CuNiMg
	200 - 240	< 1				G - AlSi 21 CuNiMg
	230 - 300	< 1.5				G - AlSi 25 CuNiMg
N2.1	**Pure copper, low alloyed copper**					
	< 600	> 10			2.0240	CuZn15
	< 800	> 10			2.0265	CuZn30
N2.2	**Copper-zinc alloys (brass) (long chipping)**					
	< 800	> 10			2.0321	CuZn37
	< 800	> 12			2.0335	CuZn36
	340 - 480	25			2.0360	CuZn40

Code	Rm N/mm²	A 5 %	HRC	HB	Mat. - Nr.	DIN
N2.2	**Copper-zinc alloys (brass) (short chipping)**					
	340 - 570	> 11			2.0401	CuZn39Pb3
N2.4	**Copper-tin alloys (bronze) (long-chipping)**					
	< 900	50			2.1016	CuSn4
	390 - 620	> 15			2.1030	CuSn8P
N2.3	**Copper-zinc alloys (bronze) (short-chipping)**					
	200 - 250	6			2.1097	G - CuSn5ZnPb
	230 - 320	12			2.1090.01	G - CuSn7ZnPb
	280	18			2.1086.01	G - CuSn10Zn
	600 - 650	7			2.0975	G - CuAl10Ni
N2.5	**Copper-Aluminium alloys**					
	> 550	40			Ampco 8	
	> 750	1			Ampco 21	
	> 500	0			Ampco 25	
	> 810	15			Ampco 45	
	> 1000	8			Ampco M-4	
N3.1	**Magnesium, wrought alloys**					
	> 270	6			3.5612	MgAl 6 Zn
	> 240	2			3.5912	G - MgAl9Zn 1
N4.1	**Synthetics**					
					Bakelit	
					Pertinax	
N4.2					PMMA	
					POM	
					PVC	
N4.3	**Fibre - reinforced synthetics**					
	155 - 365				GFK	Fibreglass
	190 - 210				CFK uni.	Carbon fibre
	190 - 210				CFK multi.	Carbon fibre
					AFK	Aramide fibre
					BFK	Bore fibre
					MFK	Metal fibre
					SFK	Synthetic fibre
N4.5	**Sandwich**					
					P - M - H	Plastic-Metal-Wood
					Honeycomb	
					Metal	

Notities
Notes

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