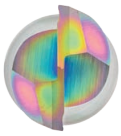
Cooling	
Tolerance	d04
Coating	AlphaSlide Rainbow

Strategy	HSC
Application	
Features	HA

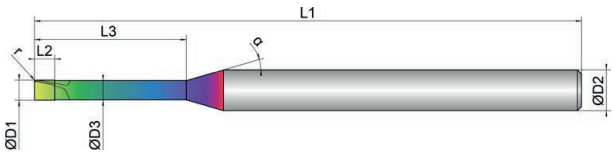
Expert

- Optimized face geometry for excellent surfaces and highest dimensional accuracy
- Defined microbevel for support and stabilization
- Polished chip space for ideal chip evacuation



- Multipass milling of 3D contours

- Tolerance D1: -0.001/-0.006 mm
- Tolerance D3: 0/-0.02 mm
- Radius tolerance r: 0/-0.003 mm (measured from 0-90°)



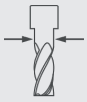
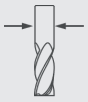
Roughing

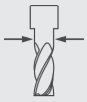
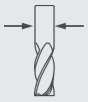
inappropriate — optimal

Finishing

inappropriate — optimal

EXN1-M16-0063	D1 mm ø	D3 mm ø	L2 mm	L3 mm	L1 mm	D2 mm ø	z #	r mm	°	α °
0,4X1	0.4	0.38	0.4	1.0	50.0	4.0	2	0.10	30	16
0,4X2	0.4	0.38	0.4	2.0	50.0	4.0	2	0.10	30	16
0,4X3	0.4	0.38	0.4	3.0	50.0	4.0	2	0.10	30	16
0,4X4	0.4	0.38	0.4	4.0	50.0	4.0	2	0.10	30	16
0,4X6	0.4	0.38	0.4	6.0	50.0	4.0	2	0.10	30	16
0,4X8	0.4	0.38	0.4	8.0	50.0	4.0	2	0.10	30	16
0,5X1	0.5	0.48	0.5	1.0	50.0	4.0	2	0.10	30	16
0,5X2	0.5	0.48	0.5	2.0	50.0	4.0	2	0.10	30	16
0,5X3	0.5	0.48	0.5	3.0	50.0	4.0	2	0.10	30	16
0,5X4	0.5	0.48	0.5	4.0	50.0	4.0	2	0.10	30	16
0,5X6	0.5	0.48	0.5	6.0	50.0	4.0	2	0.10	30	16
0,5X8	0.5	0.48	0.5	8.0	50.0	4.0	2	0.10	30	16
0,5X10	0.5	0.48	0.5	10.0	50.0	4.0	2	0.10	30	16

EXN1-M16-0063	D1  mm ø	D3  mm ø	L2  mm	L3  mm	L1  mm	D2  mm ø	z  #	r  mm	 °	α  °
0,6X3	0.6	0.58	0.6	3.0	50.0	4.0	2	0.10	30	16
0,6X4	0.6	0.58	0.6	4.0	50.0	4.0	2	0.10	30	16
0,6X6	0.6	0.58	0.6	6.0	50.0	4.0	2	0.10	30	16
0,6X8	0.6	0.58	0.6	8.0	50.0	4.0	2	0.10	30	16
0,6X10	0.6	0.58	0.6	10.0	50.0	4.0	2	0.10	30	16
0,8X2	0.8	0.78	0.8	2.0	50.0	4.0	2	0.10	30	16
0,8X4	0.8	0.78	0.8	4.0	50.0	4.0	2	0.10	30	16
0,8X6	0.8	0.78	0.8	6.0	50.0	4.0	2	0.10	30	16
0,8X8	0.8	0.78	0.8	8.0	50.0	4.0	2	0.10	30	16
0,8X10	0.8	0.78	0.8	10.0	50.0	4.0	2	0.10	30	16
0,8X12	0.8	0.78	0.8	12.0	50.0	4.0	2	0.10	30	16
1X2	1.0	0.95	1.0	2.0	50.0	4.0	2	0.10	30	16
1X3	1.0	0.95	1.0	3.0	50.0	4.0	2	0.10	30	16
1X4	1.0	0.95	1.0	4.0	50.0	4.0	2	0.10	30	16
1X5	1.0	0.95	1.0	5.0	50.0	4.0	2	0.10	30	16
1X6	1.0	0.95	1.0	6.0	50.0	4.0	2	0.10	30	16
1X8	1.0	0.95	1.0	8.0	50.0	4.0	2	0.10	30	16
1X10	1.0	0.95	1.0	10.0	50.0	4.0	2	0.10	30	16
1X12	1.0	0.95	1.0	12.0	54.0	4.0	2	0.10	30	16
1X15	1.0	0.95	1.0	15.0	60.0	4.0	2	0.10	30	16
1X20	1.0	0.95	1.0	20.0	60.0	4.0	2	0.10	30	16
1X25	1.0	0.95	1.0	25.0	70.0	4.0	2	0.10	30	16
1X30	1.0	0.95	1.0	30.0	70.0	4.0	2	0.10	30	16
1,2X5	1.2	1.14	1.2	5.0	50.0	4.0	2	0.10	30	16
1,2X10	1.2	1.14	1.2	10.0	50.0	4.0	2	0.10	30	16
1,2X15	1.2	1.14	1.2	15.0	54.0	4.0	2	0.10	30	16
1,2X20	1.2	1.14	1.2	20.0	60.0	4.0	2	0.10	30	16

EXN1-M16-0063	D1  mm ø	D3  mm ø	L2  mm	L3  mm	L1  mm	D2  mm ø	z  #	r  mm	 °	α  °
1,5X4	1.5	1.44	1.5	4.0	50.0	4.0	2	0.10	30	16
1,5X6	1.5	1.44	1.5	6.0	50.0	4.0	2	0.10	30	16
1,5X8	1.5	1.44	1.5	8.0	50.0	4.0	2	0.10	30	16
1,5X10	1.5	1.44	1.5	10.0	50.0	4.0	2	0.10	30	16
1,5X12	1.5	1.44	1.5	12.0	54.0	4.0	2	0.10	30	16
1,5X15	1.5	1.44	1.5	15.0	54.0	4.0	2	0.10	30	16
1,5X20	1.5	1.44	1.5	20.0	60.0	4.0	2	0.10	30	16
1,5X25	1.5	1.44	1.5	25.0	60.0	4.0	2	0.10	30	16
1,5X30	1.5	1.44	1.5	30.0	70.0	4.0	2	0.10	30	16
1,8X8	1.8	1.74	1.8	8.0	50.0	4.0	2	0.10	30	16
1,8X10	1.8	1.74	1.8	10.0	50.0	4.0	2	0.10	30	16
1,8X15	1.8	1.74	1.8	15.0	50.0	4.0	2	0.10	30	16
1,8X20	1.8	1.74	1.8	20.0	54.0	4.0	2	0.10	30	16
2X4	2.0	1.91	2.0	4.0	50.0	4.0	2	0.10	30	16
2X6	2.0	1.91	2.0	6.0	50.0	4.0	2	0.10	30	16
2X8	2.0	1.91	2.0	8.0	50.0	4.0	2	0.10	30	16
2X10	2.0	1.91	2.0	10.0	50.0	4.0	2	0.10	30	16
2X12	2.0	1.91	2.0	12.0	54.0	4.0	2	0.10	30	16
2X15	2.0	1.91	2.0	15.0	54.0	4.0	2	0.10	30	16
2X20	2.0	1.91	2.0	20.0	60.0	4.0	2	0.10	30	16
2X25	2.0	1.91	2.0	25.0	70.0	4.0	2	0.10	30	16
2X30	2.0	1.91	2.0	30.0	70.0	4.0	2	0.10	30	16
2X35	2.0	1.91	2.0	35.0	80.0	4.0	2	0.10	30	16
2X40	2.0	1.91	2.0	40.0	80.0	4.0	2	0.10	30	16

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	Material	Strength (N/mm²)	Dimension	Ø 0.4x1			Ø 0.4x8			Ø 0.5x1			Ø 0.5x10		
			Infeed in mm	ae= 1xD ap= 0.2xD	ae= 0.25xD ap= L2 max	ae= 0.1xD ae= 0.1xD	ae= 1xD ap= 0.02xD	ae= 0.03xD ap= L2 max	ae= 0.01xD ae= 0.01xD	ae= 1xD ap= 0.2xD	ae= 0.25xD ap= L2 max	ae= 0.1xD ae= 0.1xD	ae= 1xD ap= 0.02xD	ae= 0.03xD ap= L2 max	ae= 0.01xD ae= 0.01xD
			Application												
N			Feed (mm/Z)	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
			Vc (m/min)												
1.1	Aluminium, alloyed	<500	500	0.012	0.016	0.018	0.005	0.007	0.009	0.016	0.02	0.022	0.009	0.013	0.015
1.2	Aluminium, alloyed	<600	480	0.012	0.016	0.018	0.005	0.007	0.009	0.016	0.02	0.022	0.009	0.013	0.015
2.1-2.3	Aluminium, casted	<600	450	0.011	0.015	0.017	0.004	0.006	0.008	0.015	0.018	0.021	0.008	0.012	0.014
3.1-3.3	Cooper, alloyed	<650	220	0.01	0.014	0.016	0.003	0.005	0.007	0.014	0.016	0.02	0.007	0.011	0.013
4.1	Magnesium, alloyed	<250	500	0.012	0.016	0.018	0.005	0.007	0.009	0.016	0.02	0.022	0.009	0.013	0.015
5.1	Thermoplastic	<100	400	0.011	0.015	0.017	0.004	0.006	0.008	0.015	0.018	0.021	0.008	0.012	0.014
5.2	Duroplastic	<150	350	0.01	0.014	0.016	0.003	0.005	0.007	0.014	0.016	0.02	0.007	0.011	0.013

	Material	Strength (N/mm²)	Dimension	Ø 0.6x3			Ø 0.6x10			Ø 0.8x2			Ø 0.8x12		
			Infeed in mm	ae= 1xD ap= 0.2xD	ae= 0.25xD ap= L2 max	ae= 0.1xD ae= 0.1xD	ae= 1xD ap= 0.03xD	ae= 0.04xD ap= L2 max	ae= 0.015xD ae= 0.015xD	ae= 1xD ap= 0.2xD	ae= 0.25xD ap= L2 max	ae= 0.1xD ae= 0.1xD	ae= 1xD ap= 0.05xD	ae= 0.06xD ap= L2 max	ae= 0.03xD ae= 0.03xD
			Application												
N			Feed (mm/Z)	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
			Vc (m/min)												
1.1	Aluminium, alloyed	<500	500	0.016	0.02	0.022	0.012	0.015	0.017	0.016	0.02	0.022	0.012	0.015	0.017
1.2	Aluminium, alloyed	<600	480	0.016	0.02	0.022	0.012	0.015	0.017	0.016	0.02	0.022	0.012	0.015	0.017
2.1-2.3	Aluminium, casted	<600	450	0.015	0.018	0.021	0.011	0.014	0.016	0.015	0.018	0.021	0.011	0.014	0.016
3.1-3.3	Cooper, alloyed	<650	220	0.014	0.016	0.02	0.01	0.013	0.015	0.014	0.016	0.02	0.01	0.013	0.015
4.1	Magnesium, alloyed	<250	500	0.016	0.02	0.022	0.012	0.015	0.017	0.016	0.02	0.022	0.012	0.015	0.017
5.1	Thermoplastic	<100	400	0.015	0.018	0.021	0.011	0.014	0.016	0.015	0.018	0.021	0.011	0.014	0.016
5.2	Duroplastic	<150	350	0.014	0.016	0.02	0.01	0.013	0.015	0.014	0.016	0.02	0.01	0.013	0.015

	Material	Strength (N/mm²)	Dimension	Ø 1x2			Ø 1x30			Ø 1.2x5			Ø 1.2x20		
			Infeed in mm	ae= 1xD ap= 0.2xD	ae= 0.25xD ap= L2 max	ae= 0.1xD ae= 0.1xD	ae= 1xD ap= 0.01xD	ae= 0.015xD ap= L2 max	ae= 0.01xD ae= 0.01xD	ae= 1xD ap= 0.2xD	ae= 0.25xD ap= L2 max	ae= 0.1xD ae= 0.1xD	ae= 1xD ap= 0.03xD	ae= 0.04xD ap= L2 max	ae= 0.015xD ae= 0.015xD
			Application												
N			Feed (mm/Z)	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
			Vc (m/min)												
1.1	Aluminium, alloyed	<500	500	0.025	0.03	0.035	0.01	0.015	0.02	0.025	0.03	0.035	0.02	0.025	0.03
1.2	Aluminium, alloyed	<600	480	0.025	0.03	0.035	0.01	0.015	0.02	0.025	0.03	0.035	0.02	0.025	0.03
2.1-2.3	Aluminium, casted	<600	450	0.022	0.027	0.032	0.008	0.013	0.017	0.022	0.027	0.032	0.017	0.022	0.027
3.1-3.3	Cooper, alloyed	<650	220	0.019	0.024	0.029	0.006	0.011	0.014	0.019	0.024	0.029	0.014	0.019	0.024
4.1	Magnesium, alloyed	<250	500	0.025	0.03	0.035	0.01	0.015	0.02	0.025	0.03	0.035	0.02	0.025	0.03
5.1	Thermoplastic	<100	400	0.022	0.027	0.032	0.008	0.013	0.017	0.022	0.027	0.032	0.017	0.022	0.027
5.2	Duroplastic	<150	350	0.019	0.024	0.029	0.006	0.011	0.014	0.019	0.024	0.029	0.014	0.019	0.024

NOTE | Values in the table are the shortest and the longest overhang length (L3) of each dimension; please calculate fz, ap and ae depending on the given values.
 ae/ap(max) = 0.5x corner radius!

			Dimension	Ø1.5x4			Ø1.5x30			Ø1.8x8			Ø1.8x20		
			Infeed in mm	ae= 1xD ap= 0.2xD	ae= 0.25xD ap= L2 max	ae= 0.1xD ae= 0.1xD	ae= 1xD ap= 0.02xD	ae= 0.03xD ap= L2 max	ae= 0.01xD ae= 0.01xD	ae= 1xD ap= 0.2xD	ae= 0.25xD ap= L2 max	ae= 0.1xD ae= 0.1xD	ae= 1xD ap= 0.1xD	ae= 0.13xD ap= L2 max	ae= 0.05xD ae= 0.05xD
			Application												
	Material	Strength (N/mm²)	Feed (mm/Z)	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
N			Vc (m/min)												
1.1	Aluminium, alloyed	<500	500	0.025	0.03	0.035	0.015	0.02	0.025	0.03	0.035	0.04	0.025	0.03	0.035
1.2	Aluminium, alloyed	<600	480	0.025	0.03	0.035	0.015	0.02	0.025	0.03	0.035	0.04	0.025	0.03	0.035
2.1-2.3	Aluminium, casted	<600	450	0.022	0.027	0.032	0.013	0.017	0.022	0.027	0.031	0.035	0.022	0.026	0.03
3.1-3.3	Cooper, alloyed	<650	220	0.019	0.024	0.029	0.011	0.014	0.019	0.024	0.027	0.03	0.019	0.022	0.025
4.1	Magnesium, alloyed	<250	500	0.025	0.03	0.035	0.015	0.02	0.025	0.03	0.035	0.04	0.025	0.03	0.035
5.1	Thermoplastic	<100	400	0.022	0.027	0.032	0.013	0.017	0.022	0.027	0.031	0.035	0.022	0.026	0.03
5.2	Duroplastic	<150	350	0.019	0.024	0.029	0.011	0.014	0.019	0.024	0.027	0.03	0.019	0.022	0.025

			Dimension	Ø2x4			Ø2x40		
			Infeed in mm	ae= 1xD ap= 0.2xD	ae= 0.25xD ap= L2 max	ae= 0.1xD ae= 0.1xD	ae= 1xD ap= 0.01xD	ae= 0.015xD ap= L2 max	ae= 0.01xD ae= 0.010xD
			Application						
	Material	Strength (N/mm²)	Feed (mm/Z)	fz	fz	fz	fz	fz	fz
N			Vc (m/min)						
1.1	Aluminium, alloyed	<500	500	0.03	0.035	0.04	0.02	0.025	0.03
1.2	Aluminium, alloyed	<600	480	0.03	0.035	0.04	0.02	0.025	0.03
2.1-2.3	Aluminium, casted	<600	450	0.027	0.031	0.035	0.017	0.021	0.025
3.1-3.3	Cooper, alloyed	<650	220	0.024	0.027	0.03	0.014	0.017	0.02
4.1	Magnesium, alloyed	<250	500	0.03	0.035	0.04	0.02	0.025	0.03
5.1	Thermoplastic	<100	400	0.027	0.031	0.035	0.017	0.021	0.025
5.2	Duroplastic	<150	350	0.024	0.027	0.03	0.014	0.017	0.02

NOTE | Values in the table are the shortest and the longest overhang length (L3) of each dimension; please calculate fz, ap and ae depending on the given values.
ae/ap(max) = 0.5x corner radius!