

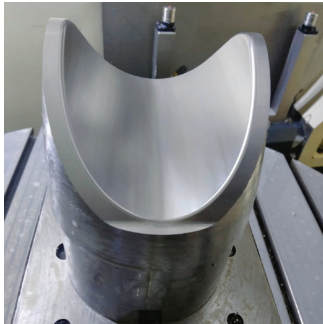
DH-S

**Solid Carbide tools for
High Hardened Machining**



Application

Finishing in Die and Mould



General Engineering Industries



Features

- Works on materials from 50-68 Hrc
- Available in
 - 4 flute (standard and long lengths)
 - 2 flute ballnose (standard and long lengths)
 - 4 flute corner radius (standard and long lengths)
- Can compete with all competitors on performance

Benefits

- Works on Die and mould applications as well as stainless steels with high chromium content
- Higher helix and negative rake allows for smoother operation
- Can be even used with coolant as well for certain materials



	Item Description	dia	shank	wl	oal	stock
4 Flute Square Mills Standard & Long	EM1N4D4DH-S	1	4	3	50	
	EM1N4F6DH-S	1	4	6	50	•
	EM1.5N4D4DH-S	1.5	4	4	50	•
	EM2.5N4D4DH-S	2.5	4	8	50	•
	EM3N4DH-S	3	3	9	50	•
	EM3N4D4DH-S	3	4	8	50	•
	EM3L4D4DH-S	3	4	16	75	
	EM4N4DH-S	4	4	10	50	•
	EM4L4DH-S	4	4	16	75	•
	EM5N4DH-S	5	5	13	50	•
	EM5N4D6DH-S	5	6	13	50	•
	EM5L4D6DH-S	5	6	25	75	
	EM6N4DH-S	6	6	15	50	•
	EM6L4DH-S	6	6	24	75	•
	EM6LR4DH-S	6	6	24	100	•
	EM6XL4DH-S	6	6	50	150	
	EM8N4DH-S	8	8	20	60	•
	EM8L4DH-S	8	8	25	75	•
	EM8LR4DH-S	8	8	32	100	•
	EM8XL4DH-S	8	8	60	150	
	EM10N4DH-S	10	10	24	75	•
	EM10LR4DH-S	10	10	40	100	•
	EM10XL4DH-S	10	10	75	150	
	EM12N4DH-S	12	12	24	75	•
EM12LR4DH-S	12	12	40	100	•	
EM12XL4DH-S	12	12	75	150		
EM16N4DH-S	16	16	40	100	•	
EM16XL4DH-S	16	16	75	150		
2 Flute Ballnose Standard & Long	BN0.8N2F6DH-S	R0.4	4	6	50	
	BN1N2D4DH-S	R0.5	4	2	50	•
	BN1N2F6DH-S	R0.5	4	6	50	
	BN1N2F10DH-S	R0.5	4	10	50	
	BN1.5N2D4DH-S	R0.75	4	4	50	•
	BN1.5N2F10DH-S	R0.75	4	10	50	
	BN1.5N2F12DH-S	R0.75	4	12	50	
	BN2N2D4DH-S	R1	4	4	50	•
	BN2N2F10DH-S	R1	4	10	50	
	BN2N2F12DH-S	R1	4	12	50	
	BN2.5N2D4DH-S	R1.25	4	6	50	
	BN3N2D4DH-S	R1.5	4	6	50	•
	BN3N2F12DH-S	R1.5	4	12	50	
	BN3N2F20DH-S	R1.5	4	20	50	
	BN3XL2D4DH-S	R1.5	4	8	100	
	BN4N2DH-S	R2.0	4	8	50	•
	BN4N2F20DH-S	R2	4	20	60	•
	BN4L2DH-S	R2	4	10	75	•
	BN4XL2DH-S	R2	4	10	100	•

	Item Description	dia	shank	wl	oal	stock
2 Flute Ballnose Standard & Long	BN5N2D6DH-S	R2.5	6	10	50	•
	BN6N2DH-S	R3	6	12	50	•
	BN6L2DH-S	R3	6	12	75	
	BN6LR2DH-S	R3	6	12	100	•
	BN8N2DH-S	R4	8	16	60	•
	BN8L2DH-S	R4	8	16	75	
	BN8LR2DH-S	R4	8	16	100	•
	BN10N2DH-S	R5.0	10	20	75	•
	BN10LR2DH-S	R5	10	20	100	•
	BN12N2DH-S	R6.0	12	25	75	•
	BN12LR2DH-S	R6	12	24	100	•
4 Flute Corner Radius Endmills Standard & Long	EM3N4CR0.5/CR1D-4DH-S	3R0.5/R1	4	6	50	
	EM4N4CR0.5/CR1DH-S	4R0.5/R1	4	8	50	
	EM5N4CR0.5/CR1D-6DH-S	5R0.5/R1	6	10	50	
	EM6N4CR0.5/CR1DH-S	6R0.5/R1	6	12	50	•
	EM6L4CR0.5/CR1DH-S	6R0.5/R1	6	20	75	
	EM6LR4CR0.5/CR1DH-S	6R0.5/R1	6	20	100	
	EM8N4CR0.5/CR1DH-S	8R0.5/R1	8	16	60	•
	EM8L4CR0.5/CR1DH-S	8R0.5/R1	8	20	75	
	EM8LR4CR0.5/CR1DH-S	8R0.5/R1	8	20	100	
	EM10N4CR0.5/CR1DH-S	10R0.5/R1	10	20	75	•
	EM10L4CR0.5/CR1DH-S	10R0.5/R1	10	20	100	•
	EM10XL4CR0.5/CR1DH-S	10R0.5/R1	10	30	150	
	EM12N4CR0.5/CR1DH-S	12R0.5/R1	12	24	75	•
	EM12L4CR0.5DH-S	12R0.5/R1	12	24	100	•
EM12XL4CR0.5/CR1DH-S	12R0.5/R1	12	30	150		

Parameters for Ballnose

$\alpha > 15^\circ$								
MATERIAL	D1 (MM)	Z	VC (M/MIN)	FZ (MM)	AP (MM)	AE (MM)	N (MIN-1)	VF (MM/MIN)
HARDENED STEEL (55 ~ 62 HRC), AISI H13, AISI D2 SKH, SKS ETC	0.3	2	38	0.000 ~ 0.001	$\leq 0.05D(\text{MAX}0.5)$	$\leq 0.1D$	40000	20 ~ 80
	0.4	2	50	0.000 ~ 0.002	$\leq 0.05D(\text{MAX}0.5)$	$\leq 0.1D$	40000	20 ~ 160
	0.8	2	101	0.002 ~ 0.003	$\leq 0.05D(\text{MAX}0.5)$	$\leq 0.1D$	40000	160 ~ 240
	0.8	2	101	0.002 ~ 0.003	$\leq 0.05D(\text{MAX}0.5)$	$\leq 0.1D$	40000	160 ~ 240
	1	2	126	0.002 ~ 0.004	$\leq 0.05D(\text{MAX}0.5)$	$\leq 0.1D$	40000	160 ~ 320
	1.5	2	175 ~ 188	0.004 ~ 0.006	$\leq 0.05D(\text{MAX}0.5)$	$\leq 0.1D$	37080 ~ 40000	300 ~ 480
	2	2	175 ~ 251	0.006 ~ 0.008	$\leq 0.05D(\text{MAX}0.5)$	$\leq 0.2D$	27810 ~ 40000	330 ~ 640
	2.5	2	175 ~ 262	0.008 ~ 0.010	$\leq 0.05D(\text{MAX}0.5)$	$\leq 0.2D$	22250 ~ 33370	360 ~ 670
	3	2	175 ~ 262	0.010 ~ 0.012	$\leq 0.05D(\text{MAX}0.5)$	$\leq 0.2D$	18540 ~ 27810	370 ~ 670
	4	2	175 ~ 262	0.013 ~ 0.015	$\leq 0.05D(\text{MAX}0.5)$	$\leq 0.2D$	13900 ~ 20860	360 ~ 630
	5	2	175 ~ 262	0.017 ~ 0.019	$\leq 0.05D(\text{MAX}0.5)$	$\leq 0.2D$	11120 ~ 16680	380 ~ 630
	6	2	175 ~ 262	0.021 ~ 0.023	$\leq 0.05D(\text{MAX}0.5)$	$\leq 0.2D$	9270 ~ 13900	390 ~ 640
	8	2	175 ~ 262	0.026 ~ 0.029	$\leq 0.05D(\text{MAX}0.5)$	$\leq 0.2D$	6950 ~ 10430	360 ~ 600
10	2	175 ~ 262	0.031 ~ 0.034	$\leq 0.05D(\text{MAX}0.5)$	$\leq 0.2D$	5560 ~ 8340	340 ~ 570	

HARDENED STEEL (55 ~ 62 HRC), AISI H13, AISI D2 SKH, SKS ETC	12	2	175 ~ 262	0.036 ~ 0.040	≤0.05D(MAX0.5)	≤0.2D	4630 ~ 6950	330 ~ 560
	14	2	175 ~ 262	0.041 ~ 0.046	≤0.05D(MAX0.5)	≤0.2D	3970 ~ 5960	330 ~ 550
	16	2	175 ~ 262	0.047 ~ 0.051	≤0.05D(MAX0.5)	≤0.2D	3480 ~ 5210	330 ~ 530
	18	2	175 ~ 262	0.052 ~ 0.057	≤0.05D(MAX0.5)	≤0.2D	3090 ~ 4630	320 ~ 530
	20	2	175 ~ 262	0.057 ~ 0.063	≤0.05D(MAX0.5)	≤0.2D	2780 ~ 4170	320 ~ 530
MATERIAL	D1 (MM)	Z	VC (M/ MIN)	FZ (MM)	AP (MM)	AE (MM)	N (MIN-1)	VF (MM/MIN)
HARDENED STEEL (63~68 HRC) AISI D2	0.3	2	38	0.000 ~ 0.000	≤0.05D(MAX0.5)	≤0.1D	40000	20 ~ 80
	0.4	2	50	0.000 ~ 0.000	≤0.05D(MAX0.5)	≤0.1D	40000	20 ~ 80
	0.8	2	101	0.000 ~ 0.001	≤0.05D(MAX0.5)	≤0.1D	40000	20 ~ 80
	0.8	2	101	0.000 ~ 0.001	≤0.05D(MAX0.5)	≤0.1D	40000	20 ~ 80
	1	2	105 ~ 126	0.001 ~ 0.001	≤0.05D(MAX0.5)	≤0.1D	33370 ~ 40000	70 ~ 80
	1.5	2	105 ~ 175	0.001 ~ 0.002	≤0.05D(MAX0.5)	≤0.1D	22250 ~ 37080	40 ~ 150
	2	2	105 ~ 175	0.002 ~ 0.002	≤0.05D(MAX0.5)	≤0.2D	16680 ~ 27810	70 ~ 110
	2.5	2	105 ~ 175	0.002 ~ 0.003	≤0.05D(MAX0.5)	≤0.2D	13350 ~ 22250	50 ~ 130
	3	2	105 ~ 175	0.003 ~ 0.004	≤0.05D(MAX0.5)	≤0.2D	11120 ~ 18540	70 ~ 150
	4	2	105 ~ 175	0.004 ~ 0.005	≤0.05D(MAX0.5)	≤0.2D	8340 ~ 13900	70 ~ 140
	5	2	105 ~ 175	0.006 ~ 0.006	≤0.05D(MAX0.5)	≤0.2D	6670 ~ 11120	80 ~ 130
	6	2	105 ~ 175	0.007 ~ 0.008	≤0.05D(MAX0.5)	≤0.2D	5560 ~ 9270	80 ~ 150
	8	2	105 ~ 175	0.009 ~ 0.010	≤0.05D(MAX0.5)	≤0.2D	4170 ~ 6950	80 ~ 140
	10	2	105 ~ 175	0.010 ~ 0.011	≤0.05D(MAX0.5)	≤0.2D	3340 ~ 5560	70 ~ 120
	12	2	105 ~ 175	0.012 ~ 0.013	≤0.05D(MAX0.5)	≤0.2D	2780 ~ 4630	70 ~ 120
	14	2	105 ~ 175	0.014 ~ 0.015	≤0.05D(MAX0.5)	≤0.2D	2380 ~ 3970	70 ~ 120
	16	2	105 ~ 175	0.016 ~ 0.017	≤0.05D(MAX0.5)	≤0.2D	2090 ~ 3480	70 ~ 120
	18	2	105 ~ 175	0.017 ~ 0.019	≤0.05D(MAX0.5)	≤0.2D	1850 ~ 3090	60 ~ 120
20	2	105 ~ 175	0.019 ~ 0.021	≤0.05D(MAX0.5)	≤0.2D	1670 ~ 2780	60 ~ 120	

Parameters for Endmill

SQUARE ENDMILL								
MATERIAL	D1 (MM)	Z	VC (M/ MIN)	FZ (MM)	AP (MM)	AE (MM)	N (MIN-1)	VF (MM/MIN)
HARDENED STEEL (63~68 HRC) AISI D2	1	4	30 ~ 50	0.001 ~ 0.002	≤ 1.0 D	≤ 0.3 D	9550 ~ 15920	40 ~ 130
	1.5	4	30 ~ 50	0.002 ~ 0.003	≤ 1.0 D	≤ 0.3 D	6370 ~ 10610	50 ~ 130
	2	4	30 ~ 50	0.003 ~ 0.004	≤ 1.0 D	≤ 0.3 D	4770 ~ 7960	60 ~ 130
	2.5	4	30 ~ 50	0.004 ~ 0.005	≤ 1.0 D	≤ 0.3 D	3820 ~ 6370	60 ~ 130
	3	4	30 ~ 50	0.005 ~ 0.006	≤ 1.0 D	≤ 0.5 D (MAX0.5)	3180 ~ 5310	60 ~ 130
	4	4	30 ~ 50	0.007 ~ 0.008	≤ 1.0 D	≤ 0.5 D (MAX0.5)	2390 ~ 3980	70 ~ 130
	5	4	30 ~ 50	0.009 ~ 0.010	≤ 1.0 D	≤ 0.5 D (MAX0.5)	1910 ~ 3180	70 ~ 130
	6	4	30 ~ 50	0.011 ~ 0.012	≤ 1.0 D	≤ 0.5 D (MAX0.5)	1590 ~ 2650	70 ~ 130
	8	4	30 ~ 50	0.013 ~ 0.015	≤ 1.0 D	≤ 0.5 D (MAX0.5)	1190 ~ 1990	60 ~ 120
	10	4	30 ~ 50	0.016 ~ 0.018	≤ 1.0 D	≤ 0.5 D (MAX0.5)	950 ~ 1590	60 ~ 110
	12	4	30 ~ 50	0.019 ~ 0.021	≤ 1.0 D	≤ 0.5 D (MAX0.5)	800 ~ 1330	60 ~ 110
	14	4	30 ~ 50	0.021 ~ 0.024	≤ 1.0 D	≤ 0.5 D (MAX0.5)	680 ~ 1140	60 ~ 110
	16	4	30 ~ 50	0.024 ~ 0.026	≤ 1.0 D	≤ 0.5 D (MAX0.5)	600 ~ 990	60 ~ 100
	18	4	30 ~ 50	0.027 ~ 0.029	≤ 1.0 D	≤ 0.5 D (MAX0.5)	530 ~ 880	60 ~ 100
	20	4	30 ~ 50	0.029 ~ 0.032	≤ 1.0 D	≤ 0.5 D (MAX0.5)	480 ~ 800	60 ~ 100
	22	4	30 ~ 50	0.032 ~ 0.035	≤ 1.0 D	≤ 0.5 D (MAX0.5)	430 ~ 720	60 ~ 100
25	4	30 ~ 50	0.036 ~ 0.040	≤ 1.0 D	≤ 0.5 D (MAX0.5)	380 ~ 640	50 ~ 100	

SQUARE ENDMILL								
MATERIAL	D1 (MM)	Z	VC (M/MIN)	FZ (MM)	AP (MM)	AE (MM)	N (MIN-1)	VF (MM/MIN)
HARDEDNED STEEL (63~68 HRC) AISI D2	1	4	24 ~ 40	0.001 ~ 0.002	≤ 1.0 D	≤ 0.3 D	7640 ~ 12730	30 ~ 100
	1.5	4	24 ~ 40	0.002 ~ 0.003	≤ 1.0 D	≤ 0.3 D	5090 ~ 8490	40 ~ 100
	2	4	24 ~ 40	0.003 ~ 0.004	≤ 1.0 D	≤ 0.3 D	3820 ~ 6370	50 ~ 100
	2.5	4	24 ~ 40	0.004 ~ 0.005	≤ 1.0 D	≤ 0.3 D	3060 ~ 5090	50 ~ 100
	3	4	24 ~ 40	0.005 ~ 0.006	≤ 1.0 D	≤ 0.5 D (MAX0.5)	2550 ~ 4240	50 ~ 100
	4	4	24 ~ 40	0.007 ~ 0.008	≤ 1.0 D	≤ 0.5 D (MAX0.5)	1910 ~ 3180	50 ~ 100
	5	4	24 ~ 40	0.009 ~ 0.010	≤ 1.0 D	≤ 0.5 D (MAX0.5)	1530 ~ 2550	60 ~ 100
	6	4	24 ~ 40	0.011 ~ 0.012	≤ 1.0 D	≤ 0.5 D (MAX0.5)	1270 ~ 2120	60 ~ 100
	8	4	24 ~ 40	0.013 ~ 0.015	≤ 1.0 D	≤ 0.5 D (MAX0.5)	950 ~ 1590	50 ~ 100
	10	4	24 ~ 40	0.016 ~ 0.018	≤ 1.0 D	≤ 0.5 D (MAX0.5)	760 ~ 1270	50 ~ 90
	12	4	24 ~ 40	0.019 ~ 0.021	≤ 1.0 D	≤ 0.5 D (MAX0.5)	640 ~ 1060	50 ~ 90
	14	4	24 ~ 40	0.021 ~ 0.024	≤ 1.0 D	≤ 0.5 D (MAX0.5)	550 ~ 910	50 ~ 90
	16	4	24 ~ 40	0.024 ~ 0.026	≤ 1.0 D	≤ 0.5 D (MAX0.5)	480 ~ 800	50 ~ 80
	18	4	24 ~ 40	0.027 ~ 0.029	≤ 1.0 D	≤ 0.5 D (MAX0.5)	420 ~ 710	50 ~ 80
	20	4	24 ~ 40	0.029 ~ 0.032	≤ 1.0 D	≤ 0.5 D (MAX0.5)	380 ~ 640	40 ~ 80
	22	4	24 ~ 40	0.032 ~ 0.035	≤ 1.0 D	≤ 0.5 D (MAX0.5)	350 ~ 580	40 ~ 80
25	4	24 ~ 40	0.036 ~ 0.040	≤ 1.0 D	≤ 0.5 D (MAX0.5)	310 ~ 510	40 ~ 80	

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