



AEROSPACE



DIE & MOLD



MACHINE TOOL  
INDUSTRY



MEDICAL



# CUTTING TOOLS

## VISION PLUS END MILLS

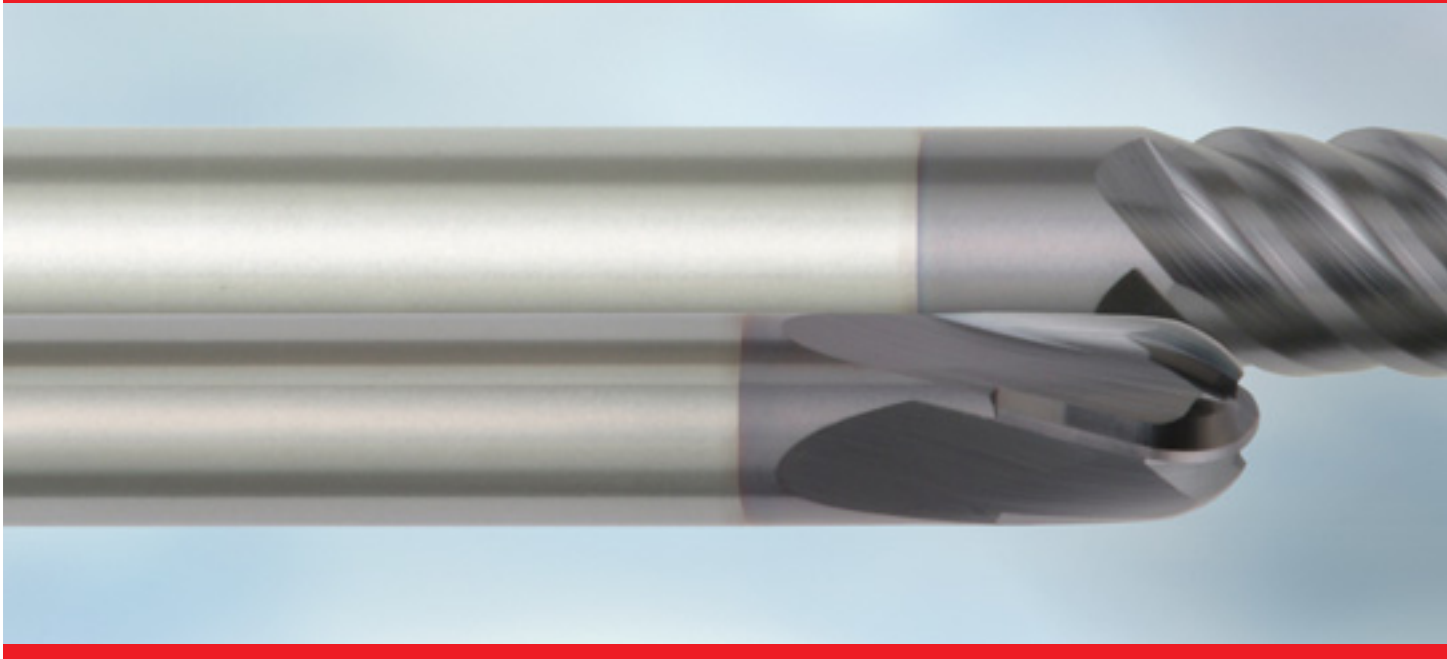


INCH VERSION

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## → VISION PLUS I

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Designed for optimum performance in machining hardened steels and ultra hardened materials, Vision Plus carbide end mills utilize special proprietary substrate materials, patented designs and a truly superb quality coating, combining a high level of hardness with extremely high stability. This enables maximum metal removal rates in materials up to 68 HRc, even in dry conditions, saving in coolant costs and protecting the environment.

- Perfect solutions for Die & Mold applications.
- Reduces machining costs by 50% compared to EDM.
- Excellent in long reach and Z-axis milling applications.
- Provides outstanding surface finish quality and straightness of deep walls.
- Available in many styles, including radius, ball nose, miniature, rib processing and roughing style tools.



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## MULTI PURPOSE CARBIDE END MILL FOR DIE AND MOLD SERIES 7S05 (7S05, 7515, 7525)

VISION PLUS



CUTTING DIA.	SHANK DIA.	LENGTH OF CUT	OVERALL LENGTH	FLUTES	AITIN
1/4	1/4	3/8	3	4	TM7S0507002
1/4	1/4	5/8	3	4	TM7S1507002
1/4	1/4	7/8	3	4	TM7S2507002
5/16	5/16	1/2	4	4	TM7S0508000
5/16	5/16	3/4	4	4	TM7S1508000
5/16	5/16	1 1/8	4	4	TM7S2508000
3/8	3/8	9/16	4	4	TM7S0510004
3/8	3/8	1 5/16	4	5	TM7S1510004
3/8	3/8	1 5/16	4	5	TM7S2510004
1/2	1/2	3/4	5	4	TM7S0513005
1/2	1/2	1 1/4	5	6	TM7S1513005
1/2	1/2	1 3/4	5	6	TM7S2513005
5/8	5/8	1 5/16	5	4	TM7S0516006
5/8	5/8	1 9/16	5	6	TM7S1516006
5/8	5/8	2 3/16	5	6	TM7S2516006
3/4	3/4	1 1/8	6	4	TM7S0519007
3/4	3/4	1 7/8	6	6	TM7S1519007
3/4	3/4	2 5/8	6	6	TM7S2519007
1	1	1 1/2	6	5	TM7S0525008
1	1	2 1/2	6	6	TM7S1525008
1	1	3 1/2	6	6	TM7S2525008

→ HIGH PERFORMANCE

→ St S → 30-ST<45 HRC → ST>45 HRC

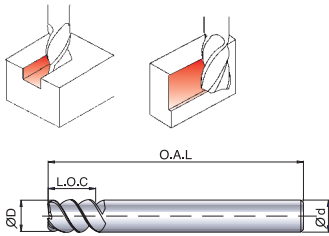
→ PREMIUM CARBIDE

→ HANITA Standard

→

→ 50°

→ Square End



- Provides maximum straightness and perpendicularity in deep cuts up to 3.5xD

# BALL NOSE CARBIDE END MILL FOR DIE AND MOLD

## SERIES 7S50/7S51

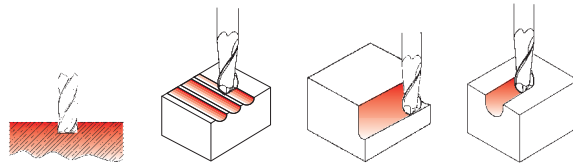
**HIGH PERFORMANCE**

CUTTING DIA.	SHANK DIA.	LENGTH OF CUT	OVERALL LENGTH	FLUTES	AITiN
1/8	1/8	1/4	3	2	TM7S5103001
3/16	3/16	5/16	3	2	TM7S5105000
1/4	1/4	3/8	4	2	TM7S5107002
5/16	5/16	7/16	4	2	TM7S5108003
3/8	3/8	1/2	4	4	TM7S5010004
1/2	1/2	5/8	5	4	TM7S5013005
5/8	5/8	3/4	5	4	TM7S5016006
3/4	3/4	7/8	6	4	TM7S5019007
1	1	1 1/8	6	4	TM7S5025008

VISION PLUS



St S
30>ST HRc
30<ST<45 HRc
ST>45 HRc
GENERAL PURPOSE



- PREMIUM CARBIDE**
- HANITA Standard**
- 15°**
- Ball Nose**

VISION PLUS

## Z-AXIS BULL NOSE CARBIDE ROUGHER FOR DIE AND MOLD SERIES 7S7R

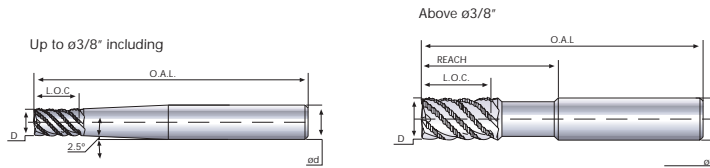
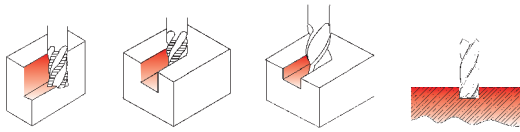
VISION PLUS



CUTTING DIA.	SHANK DIA.	LENGTH OF CUT	REAGE LENGTH	RADIUS	OVERALL LENGTH	FLUTES	AITiN
5/32	1/4	5/32	1.25	0.030	3	3	TM7S7R04002A
3/16	1/4	3/16	.92	0.030	3	3	TM7S7R05002A
1/4	3/8	1/4	1.70	0.030	4	4	TM7S7R07004A
5/16	3/8	5/16	1.04	0.030	4	4	TM7S7R08004A
3/8	1/2	3/8	1.82	0.030	5	4	TM7S7R10005A
1/2	5/8	1/2	1.95	0.040	5	4	TM7S7R13006A
5/8	5/8	5/8	1.89	0.040	5	6	TM7S7R16006A
3/4	3/4	3/4	2.27	0.050	6	6	TM7S7R19007A
1	1	1	3.01	0.050	6	6	TM7S7R25008A

→ HIGH PERFORMANCE

→ St S → 30<ST<45 HRc → ST>45 HRc



→ PREMIUM CARBIDE

→ HANITA Standard



→ 45°

Corner Radius



NEW GENERATION  
FLAT SHALLOW PROFILE

# Z-AXIS BALL NOSE CARBIDE FINISHER FOR DIE AND MOLD

## SERIES 7S5F

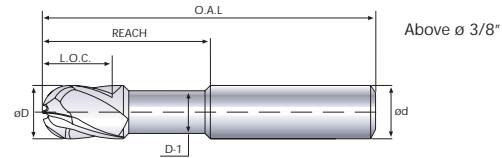
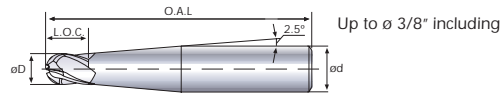
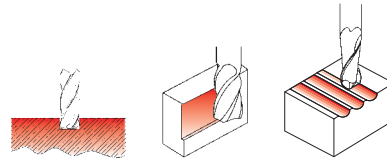
**HIGH PERFORMANCE**

CUTTING DIA.	SHANK DIA.	LENGTH OF CUT	REACE LENGTH	OVERALL LENGTH	FLUTES	AITiN
1/8	1/4	1/8	1.57	3	4	TM7S5F03002
5/32	1/4	5/32	1.25	3	4	TM7S5F04002
3/16	1/4	3/16	.92	3	4	TM7S5F05002
1/4	3/8	1/4	1.70	4	4	TM7S5F07004
5/16	3/8	5/16	1.04	4	4	TM7S5F08004
3/8	1/2	3/8	1.82	5	4	TM7S5F10005
1/2	5/8	1/2	1.95	5	4	TM7S5F13006
5/8	5/8	5/8	1.89	5	4	TM7S5F16006
3/4	3/4	3/4	2.27	6	4	TM7S5F19007

VISION PLUS



ST > 45 HRc    30 < ST < 45 HRc    St S



PREMIUM CARBIDE

HANITA Standard

15°

Ball Nose

VISION PLUS

- Eliminates spline surfaces
- Allows use of smaller tools for fine radius work

**RECOMMENDED CUTTING PARAMETERS**

**FORMULAS**

**Cutting Speed** SFM = D x .26 x RPM

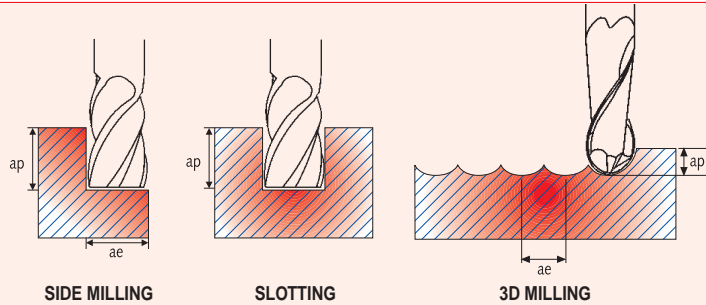
**Spindle Speed** RPM =  $\frac{\text{SFM} \times 3.82}{D}$

**Feed per Tooth** IPM = IPT x Z x RPM

**Table Feed** IPT =  $\frac{\text{IPM}}{Z \times \text{RPM}}$

**Formula Symbols:**

D Tool diameter  
 Z No. of Flutes  
 SFM Cutting Speed  
 IPT Feed per Tooth  
 RPM Spindle Speed  
 IPM Table Feed  
 π 3.1416



**SERIES 7S05/7S5F ROUGHING (7S05, 7515, 7525) |**

Material	Rockwell Hardness HRC	Regular Length		Slotting ap	Cutting Speed SFM AITIN	f Z - feed per tooth in inch D - Diameter in Inch							
		Side Milling				1/8	1/16	5/16	3/8	1/2	5/8	3/4	1
		ap	ae										
Steels	< 30	1 x D	0.2 x D	0.5 x D	650								
Steels	30-40	1 x D	0.2 x D	0.5 x D	600	0.0012	0.0020	0.0024	0.0033	0.0039	0.0055	0.0067	0.0075
Steels	40-45	1 x D	0.2 x D	0.5 x D	525	0.0010	0.0016	0.0022	0.0028	0.0031	0.0043	0.0051	0.0067
Steels	45-50	1 x D	0.2 x D	0.5 x D	400	0.0008	0.0012	0.0018	0.0022	0.0028	0.0035	0.0043	0.0055
Steels	50-55	1 x D	0.2 x D	0.5 x D	265	0.0006	0.0008	0.0012	0.0016	0.0018	0.0024	0.0030	0.0035
Steels	< 55	1 x D	0.2 x D	0.25 x D	230	0.0004	0.0006	0.0008	0.0012	0.0014	0.0020	0.0024	0.0028

**SERIES 7S05/7S5F FINISHING (7S05, 7515, 7525) |**

Material	Rockwell Hardness HRC	Regular Length		Cutting Speed SFM AITIN	f Z - feed per tooth in inch D - Diameter in Inch							
		Side Milling			1/8	1/16	5/16	3/8	1/2	5/8	3/4	1
		ap	ae									
Steels	< 30	1.5 x D	0.1 x D	650								
Steels	30-40	1.5 x D	0.1 x D	600	0.0012	0.0020	0.0024	0.0033	0.0039	0.0055	0.0067	0.0075
Steels	40-45	1.5 x D	0.1 x D	525	0.0010	0.0016	0.0022	0.0028	0.0031	0.0043	0.0051	0.0067
Steels	45-50	1.5 x D	0.1 x D	400	0.0008	0.0012	0.0018	0.0022	0.0028	0.0035	0.0043	0.0055
Steels	50-55	1.5 x D	0.1 x D	265	0.0006	0.0008	0.0012	0.0016	0.0018	0.0024	0.0030	0.0035
Steels	< 55	1.5 x D	0.1 x D	225	0.0004	0.0006	0.0008	0.0012	0.0014	0.0020	0.0024	0.0028

**SERIES 7S7R |**

Material	Rockwell Hardness HRC	Side Milling		Slotting ap	Cutting Speed SFM AITIN	f Z - feed per tooth in inch D - Diameter in Inch							
		ap	ae			1/8	3/16	1/6	5/16	3/8	1/2	5/8	3/4
		ap	ae										
Steels	< 30	0.8 x D	0.5 x D	0.8 x D	600								
Steels	30-40	0.8 x D	0.4 x D	0.8 x D	400	0.0006	0.0008	0.0010	0.0012	0.0016	0.0018	0.0024	0.0031
Steels	40-50	0.8 x D	0.4 x D	0.5 x D	265	0.0004	0.0006	0.0008	0.0010	0.0012	0.0016	0.0020	0.0028
Steels	50-60	0.8 x D	0.25 x D	0.3 x D	200	0.0003	0.0003	0.0004	0.0006	0.0008	0.0010	0.0012	0.0016
Steels	60-70	0.8 x D	0.2 x D	0.25 x D	130	0.0002	0.0003	0.0004	0.0004	0.0006	0.0008	0.0010	0.0012

**VISION MD** A unique pair of carbide end mills - one rougher and one finisher - designed for optimum productivity in multi- dimensional Die and Mold steel applications and for use in high speed machining conditions.

**VISION MD** is a machining concept. First, rough the part with double the diameter of the finisher, achieving more than double the stock removal rate. Then finish the part with a uniquely designed four flute ball nose cutter at very fast speeds and feeds. The result - incredibly fast stock removal, superior surface finishes and outstanding tool life.

**Typical Mold Cavity - Complex Part  
Material P-20 55 HRc**

**Total Time to Machine Part**

Roughing	Semi Finishing	Finishing	Conventional Milling Methods
1" 2 Flute Indexable	3/4" 2 Flute Ball Nose Carbide End Mill	1/2" 2 Flute Ball Nose Carbide End Mill	

Roughing & Semi Finishing	Finishing	Vision MD
MD Rougher	MD Finisher	

Use 2 tools instead of 3

**30% LESS CYCLE TIME**

**Vision MD Rougher vs Conventional Carbide Rougher**

Conventional Solid Carbide Rougher

Vision MD Rougher

Wear after machining 400 linear inches

**25% LESS WEAR**

**VISION MD ROUGHER VS. CONVENTIONAL CARBIDE ROUGHER**

Tool Diameter	5/8"
Material	H13
Hardness	57HRC
Cutting Speed	200SFM
Feed Rate	0.0012
WOC	0.15 D
DOC	1D