

DISCOVER OUR

# MILLING



# Milling

## NOMENCLATURE

CROMSON «ENDMILL»

# - FLUTES

DIAMETER

CREM-Ti-5RC-0500-R010 Cr95

### APPLICATIONS

AL- Aluminum  
ALR- Aluminum Roughing  
DM- Die & Mold  
HD- Hard Material  
HF- High Feed  
SA (SAX)- Super Alloy  
ST- Steel  
SST- Stainless Steel  
**Ti- Titanium**  
TiX- Titanium HP  
TP- Taper (NPT)

### TOOL TYPE

S- Stub Length  
M- Medium Length  
**R- Reg. Length**  
L- Long Length  
E- Extended Length  
N- Necking  
  
**C- Cylindrical Shank**  
W- Weldon Shank




















### RADIUS/CHAMFER

BN- Ball Nose  
C- Chamfer  
**R- Radius**  
SQ- Square

### COATING

Cr20- Uncoated  
Cr35- AlCrN  
Cr55- TiAlN  
Cr75- TiAlN+  
**Cr95- TiAlCN**

# Summary application chart-Milling




























































Work Material	Type of Cut	Axial DOC	Radial DOC	Speed (SFM)	RECORD ST	STAR SST	ALLIANCE TI
Low carbon steel <= 38HRc 1018, 12L14, 8620	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D 0.5 x D	350 425			
Medium carbon steels <= 38HRc 4140, 4340	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D 0.5 x D	325 375			
Tool & die steels <= 38HRc A2, D2, O1, S7, P20, H13	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D 0.5 x D	325 375			
Tool steel 39HRc to 48HRc	Slotting Peripheral - Rough	.75 x D 1 x D	1 x D 0.5 x D	225 275			
Easy to machine stainless steel 416, 410, 302, 303	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D 0.5 x D	300 375			
Moderately difficult stainless steel 304, 316, invar, kovar	Slotting Peripheral - Rough	.75 x D 1 x D	1 x D 0.5 x D	275 350			
Difficult to machine stainless steel 316L, 17-4PH, 15-5PH, 13-8Mo	Slotting Peripheral - Rough	0.5 x D 1 x D	1 x D 0.5 x D	250 300			
Cast iron Grey	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D 0.5 x D	400 500			
Cast iron Ductile	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D 0.5 x D	300 400			
Cast iron Malleable	Slotting Peripheral - Rough	.75 x D 1 x D	1 x D .75 x D	250 325			
Aluminum alloys 2024, 6061, 7075	Slotting	1 x D	1 x D 0.5 x D	800 1000			
Titanium alloys 6Al4V	Slotting Peripheral - Rough	0.5 x D 1 x D	1 x D 0.5 x D	250 300			
High temperature alloys Inconel, haynes, stellite, hastelloy	Slotting	.25 x D 1 x D	1 x D .25 x D	70 95			



Highly recommended

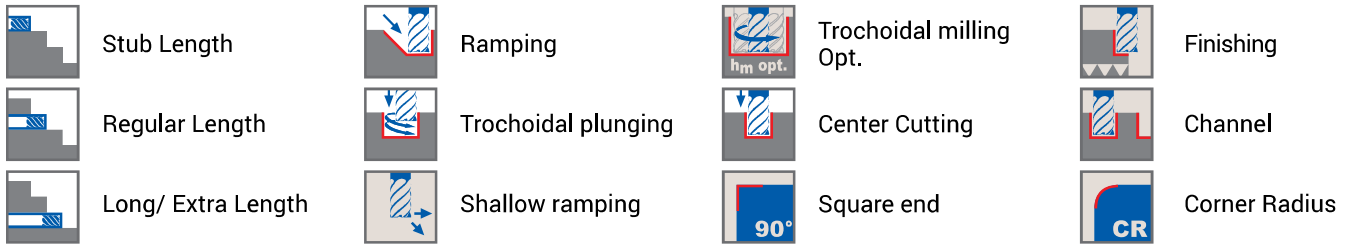


Suitable for some applications

PISTON HD	TURBINE SRGH	OXYGEN HF	TAPER-MILL TP	DRIVER DM	MOTION AL	BOSS ALR	MAGNAT STX	PERFORMANCE TIX	BOOSTER SA
									
									
									
									
									
									
									
									
									
									
									
									
									

\*\* The machining values shown are guidelines.  
The optimum data for a particular machining process should be determined in trials or during machining.

# Explanation of Milling symbols



# Grades chart & Milling application

**CROMSON** offers a variety of coating upon special request to meet the demands of every customer's needs and unique application demands. Through extensive testing, research and real world applications, CROMSON has worked to develop a full range of high performance coatings. These coating options allow us to address a multitude of situations with optimal results.

Please refer to the chart below for the various coatings available.

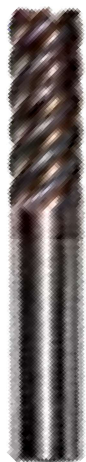
CROMSON GRADE	Cr20	Cr35	Cr55	Cr75	Cr95
Proprietary	Uncoated	AlCrN	TiAlN	TiAlN+	TiAlCN
Coating process		PVD	PVD	PVD	PVD
Layer structure		Nano structure	Nano structure	Nano structure	Nano structure
Hardness (HV)		3000	3300	3300	3060
Coefficient of friction (fetting)		0.25	0.30-0.35	0.25	0.35
Thermal stability (C)		1100	900	900	1000
General Information		New generation PVD coating providing a high level of wear and abrasion resistance in combination with a micro grain carbide substrate for use in all ferrous materials at elevated cutting speed.	A thick PVD coating on a balanced wear resistance/tough fine grain carbide substrate provides users with predictable consistent results in general purpose applications in all materials.	In combination with a tough submicron grain carbide substrate and advanced PVD coating technology a high level of security and wear resistance is seen in demanding applications in titanium and steel up to 52 HRC.	New generation PVD coating providing a high level of wear. lower coefficient of friction combination with a micro grain carbide substrate for use in stainless steel and nickel-based high temperature alloys.



## CARBIDE END MILL

# PISTON HD SERIES

- ⊙ Primary and secondary relief angle design to finish all materials up to 60 HRc hardness
- ⊙ Ultra fine carbide rod is selected to achieve optimum results
- ⊙ Controlled edge preparation and post coat process assure a longer tool life
- ⊙ Corner protection will also give an edge on this series
- ⊙ h6 tolerance for conventional and shrink fit applications
- ⊙ Available in standard lengths
- ⊙ Cr75 TiAlN+ (PVD) coating design for high heat applications like titanium



Work Material	Type of Cut	Axial DOC	Radial DOC	Speed (SFM)
Medium carbon steel <= 38HRc 4140, 4340	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D 0.5 x D	325
Tool & die steel <= 38HRc A2, D2, O1, S7, P20, H13	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D 0.5 x D	325 375
Tool steel 39HRc to 48HRc	Slotting Peripheral - Rough	.75 x D 1 x D	1 x D 0.5 x D	225
Difficult to machine stainless steel 316L, 17-4PH, 15-5PH, 13-8Mo	Slotting Peripheral - Rough	0.5 x D 1 x D	1 x D 0.5 x D	250
High temperature alloy Inconel, haynes, stellite, hastelloy	Slotting	.25 x D 1 x D	1 x D .25 x D	70

CARBIDE END MILL - SQUARE OR RADIUS

TECHNICAL DETAILS

Tool Diameter Range 0.250-0.750 in

Shank tolerance h6  
 Cutter tolerance (+0.00-0.002 in) +0.00-0.05 mm  
 Number of flutes 6  
 Coating TiAlN+ (PVD)  
 Center cutting Yes  
 Variable pitch Standard  
 Variable helix Standard  
 Helix angle 50°



70  
55  
0 HARDNESS (HRC)



EDP Cromson	Cromson Description	Diam.	Length of cut	Overall length	Chamfer / radius	Cromson Grade	# Flutes
72001810	CREM-HD-6RC-0250- SQ Cr75	1/4	3/4	2.1/2	---	Cr75	6
72001815	CREM-HD-6RC-0250-R020- Cr75	1/4	3/4	2.1/2	.020	Cr75	6
72001820	CREM-HD-6RC-0312- SQ Cr75	5/16	13/16	2.1/2	---	Cr75	6
72001825	CREM-HD-6RC-0312-R020- Cr75	5/16	13/16	2.1/2	.020	Cr75	6
72001830	CREM-HD-6RC-0375- SQ Cr75	3/8	1	3	---	Cr75	6
72001835	CREM-HD-6RC-0375-R030- Cr75	3/8	1	3	.030	Cr75	6
72001840	CREM-HD-6RC-0437- SQ Cr75	7/16	1	2.3/4	---	Cr75	6
72001845	CREM-HD-6RC-0437-R030- Cr75	7/16	1	2.3/4	.030	Cr75	6
72001850	CRRM-HD-6RC-0500- SQ Cr75	1/2	1.1/4	3	---	Cr75	6
72001855	CRRM-HD-6RC-0500-R030- Cr75	1/2	1.1/4	3	.030	Cr75	6
72001860	CRRM-HD-6RC-0625- SQ Cr75	5/8	1.5/8	3.1/2	---	Cr75	6
72001865	CRRM-HD-6RC-0625-R030- Cr75	5/8	1.5/8	3.1/2	.030	Cr75	6
72001870	CRRM-HD-6RC-0750- SQ Cr75	3/4	1.5/8	4	---	Cr75	6
72001875	CRRM-HD-6RC-0750-R030- Cr75	3/4	1.5/8	4	.030	Cr75	6

PISTON-HD		Feed (inches Per Tooth)									
Work Material	Type of Cut	Axial DOC	Radial DOC	Speed (SFM)	1/8	1/4	3/8	1/2	5/8	3/4	1
Low carbon steel <= 38Hrc 1018, 12L14, 8620	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D 0.5 x D								
Medium carbon steel <= 38Hrc 4140, 4340	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D 0.5 x D	325	.0006 .0008	.0013 .0017	.0020 .0026	.0027 .0035	.0034 .0044	.0040 .0053	.0054 .0070
Tool & die steel <= 38Hrc A2, D2, O1, S7, P20, H13	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D 0.5 x D	325 375	.0006 .0008	.0013 .0017	.0020 .0026	.0027 .0035	.0034 .0044	.0040 .0053	.0054 .0070
Tool steel 39Hrc to 48Hrc	Slotting Peripheral - Rough	.75 x D 1 x D	1 x D 0.5 x D	225	.0005 .0006	.0010 .0012	.0015 .0017	.0020 .0023	.0025 .0029	.0030 .0035	.0040 .0046
Easy to machine stainless steel 416, 410, 302, 303	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D 0.5 x D								
Moderately difficult stainless steel 304, 316, invar, kovar	Slotting Peripheral - Rough	.75 x D 1 x D	1 x D 0.5 x D								
Difficult to machine stainless steel 316L, 17-4PH, 15-5PH, 13-8Mo	Slotting Peripheral - Rough	0.5 x D 1 x D	1 x D 0.5 x D	250	.0004 .0005	.0009 .0011	.0012 .0016	.0018 .0022	.0022 .0028	.0027 .0033	.0036 .0044
Cast iron Grey	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D 0.5 x D								
Cast iron Ductile	Slotting Peripheral - Rough	1 x D 1.5 x D	1 x D 0.5 x D								
Cast iron Malleable	Slotting Peripheral - Rough	.75 x D 1 x D	1 x D .75 x D								
Aluminum alloy 2024, 6061, 7075	Slotting	1 x D	1 x D 0.5 x D								
Titanium alloy 6Al4V	Slotting Peripheral - Rough	0.5 x D 1 x D	1 x D 0.5 x D								
High temperature alloy Inconel, haynes, stellite, hastelloy	Slotting	.25 x D 1 x D	1 x D .25 x D	70	.0004 .0005	.0008 .0009	.0012 .0014	.0015 .0018	.0019 .0022	.0024 .0028	.0030 .0036

\*\* The machining values shown are guidelines. The optimum data for a particular machining process should be determined in trials or during machining.