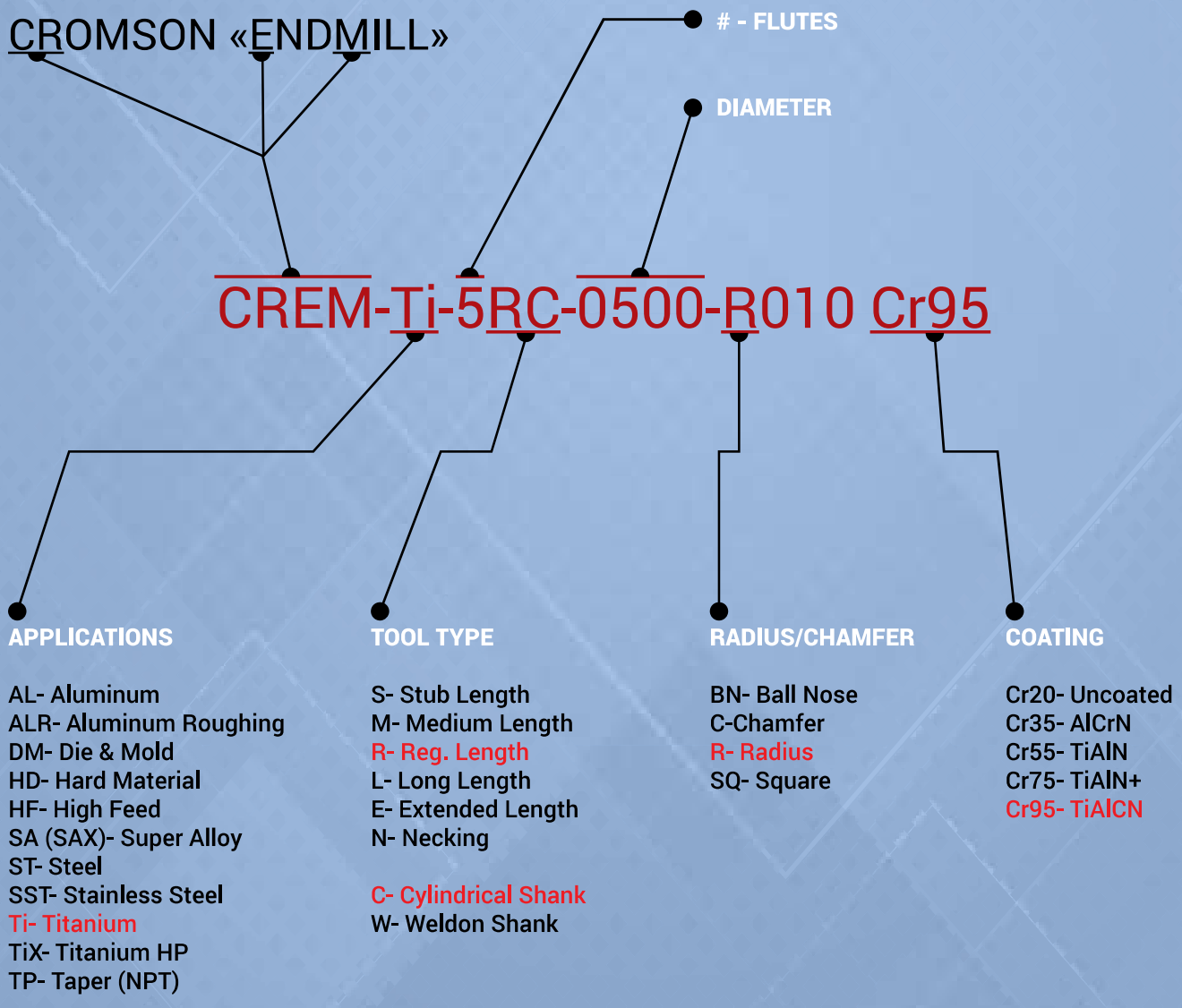
DISCOVER OUR

MILLING

Milling NOMENCLATURE



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	PERFOR-MANCE 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


Stub Length


Regular Length


Long/ Extra Length


Ramping


Trochoidal plunging


Shallow ramping

Trochoidal milling Opt.


Center Cutting

Square end


Finishing


Channel

Corner Radius

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 sustrate 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.

BOOSTER
SA SERIES

- Optimized geometry combined with an advanced coating allows high feed rates in stainless steel, super alloys and titanium, resulting in increased productivity and lower cost per part
- Our Cr95 coating lowers cutting temperature by an average of 150 degrees in lab testing
- Produces excellent surface finishes and chip control
- h6 tolerance for conventional and shrink fit applications
- Available in stub, standard and extra long lengths

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	325 375
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	225 275
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
Titanium alloy 6Al4V	Slotting Peripheral - Rough	0.5 x D 1 x D	1 x D 0.5 x D	250 300
High temperature alloy Inconel, haynes, stellite. hastelloy	Slotting	.25 x D 1 x D	1 x D .25 x D	70 95

CARBIDE END MILL - SQUARE OR RADIUS

TECHNICAL DETAILS

Tool Diameter Range	0.250-1.000 in 6.00-25.00 mm
Shank tolerance	h6
Cutter tolerance	(+0.00-0.002 in) +0.00-0.05 mm
Number of flutes	5. 7 or 9
Coating	TiAlCN (PVD)
Center cutting	Yes
Variable pitch	Variable
Variable helix	Standard
Helix angle	-

EDP Cromson	Cromson Description	Diam.	Length of cut	Overall length	Chamfer / radius	Cromson Grade	# Flutes
73000970	CREM-SA-5SC-0250-R0015-Cr95	.250	.375	2.500	.015	Cr95	5
73000975	CREM-SA-5LC-0250-R0015-Cr95	.250	1.000	3.000	.015	Cr95	5
73000980	CREM-SA-5SC-0250-SQ-Cr95	.250	.375	2.500	---	Cr95	5
73000985	CREM-SA-5LC-0250-SQ-Cr95	.250	1.000	3.000	---	Cr95	5
73000990	CREM-SA-7RC-0375-R0015-Cr95	.375	.750	2.500	.015	Cr95	7
73000995	CREM-SA-7LC-0375-R0015-Cr95	.375	1.125	3.000	.015	Cr95	7
73001000	CREM-SA-7RC-0375-SQ-Cr95	.375	.750	2.500	---	Cr95	7
73001005	CREM-SA-7SC-0500-R0015-Cr95	.500	.625	2.500	.015	Cr95	7
73001010	CREM-SA-7SC-0500-R0030-Cr95	.500	.625	2.500	.030	Cr95	7
73001015	CREM-SA-7SC-0500-R0060-Cr95	.500	.625	2.500	.060	Cr95	7
73001020	CREM-SA-7LC-0500-R0015-Cr95	.500	1.500	4.000	.015	Cr95	7
73001025	CREM-SA-7LC-0500-R0030-Cr95	.500	1.500	4.000	.030	Cr95	7
73001030	CREM-SA-7LC-0500-R0060-Cr95	.500	1.500	4.000	.060	Cr95	7
73001035	CREM-SA-7MC-0500-R0015-Cr95	.500	1.000	3.000	.015	Cr95	7
73001040	CREM-SA-7MC-0500-R0030-Cr95	.500	1.000	3.000	.030	Cr95	7
73001045	CREM-SA-7MC-0500-R0060-Cr95	.500	1.000	3.000	.060	Cr95	7
73001050	CREM-SA-7MC-0500-SQ-Cr95	.500	1.000	3.000	---	Cr95	7
73001055	CREM-SA-7EC-0500-SQ-Cr95	.500	1.500	4.000	---	Cr95	7
73001060	CREM-SA-7RC-0500-SQ-Cr95	.500	1.250	3.000	---	Cr95	7
73001065	CREM-SA-7RC-0500-R0015-Cr95	.500	1.250	3.000	.015	Cr95	7
73001070	CREM-SA-7RC-0500-R0030-Cr95	.500	1.250	3.000	.030	Cr95	7
73001075	CREM-SA-7RC-0500-R0120-Cr95	.500	1.250	3.000	.120	Cr95	7
73001080	CREM-SA-9SC-0625-R0030-Cr95	.625	0.750	3.500	.030	Cr95	9
73001085	CREM-SA-9SC-0625-R0060-Cr95	.625	0.750	3.500	.060	Cr95	9
73001090	CREM-SA-9LC-0625-R0030-Cr95	.625	1.875	5.000	.030	Cr95	9
73001095	CREM-SA-9LC-0625-R0060-Cr95	.625	1.875	5.000	.060	Cr95	9
73001100	CREM-SA-9SC-0625-SQ-Cr95	.625	.750	3.500	---	Cr95	9
73001105	CREM-SA-9SC-0750-R0060-Cr95	.750	1.000	4.000	.060	Cr95	9
73001110	CREM-SA-9SC-0750-R0090-Cr95	.750	1.000	4.000	.090	Cr95	9
73001115	CREM-SA-9SC-0750-R0120-Cr95	.750	1.000	4.000	.120	Cr95	9
73001120	CREM-SA-9LC-0750-R0060-Cr95	.750	2.250	5.000	.060	Cr95	9

BOOSTER - SA

HARDNESS (HRC) 10 40 70

EDP Cromson	Cromson Description	Diam.	Length of cut	Overall length	Chamfer / radius	Cromson Grade	# Flutes
73001125	CREM-SA-9LC-0750-R0090-Cr95	.750	2.250	5.000	.090	Cr95	9
73001130	CREM-SA-9LC-0750-R0120-Cr95	.750	2.250	5.000	.120	Cr95	9
73001135	CREM-SA-9RC-0750-R0015-Cr95	.750	1.625	4.000	.015	Cr95	9
73001140	CREM-SA-9RC-0750-R0060-Cr95	.750	1.625	4.000	.060	Cr95	9
73001145	CREM-SA-9RC-0750-R0120-Cr95	.750	1.625	4.000	.120	Cr95	9
73001150	CREM-SA-9RC-0750-R0090-Cr95	.750	1.625	4.000	.090	Cr95	9
73001155	CREM-SA-9SC-0750-SQ-Cr95	.750	1.000	4.000	---	Cr95	9
73001160	CREM-SA-9RC-0750-SQ-Cr95	.750	1.625	4.000	---	Cr95	9
73001165	CREM-SA-9LC-0750-SQ-Cr95	.750	2.250	5.000	---	Cr95	9
73001170	CREM-SA-9SC-1000-R0060-Cr95	1000	1.250	4.000	.060	Cr95	9
73001175	CREM-SA-9SC-1000-R0090-Cr95	1000	1.250	4.000	.090	Cr95	9
73001180	CREM-SA-9SC-1000-R0120-Cr95	1000	1.250	4.000	.120	Cr95	9
73001185	CREM-SA-9RC-1000-R0060-Cr95	1000	3.000	6.000	.060	Cr95	9
73001190	CREM-SA-9RC-1000-R0090-Cr95	1000	3.000	6.000	.090	Cr95	9
73001195	CREM-SA-9RC-1000-R0120-Cr95	1000	3.000	6.000	.120	Cr95	9
73001200	CREM-SA-9RC-1000-SQ-Cr95	1000	3.000	6.000	---	Cr95	9
73001205	CREM-SA-5RC-6-SQ-Cr95	6.00	20.00	76.00	---	Cr95	5
73001210	CREM-SA-5RC-6-R05-Cr95	6.00	20.00	76.00	.50	Cr95	5
73001215	CREM-SA-5RC-6-R1-Cr95	6.00	20.00	76.00	1.00	Cr95	5
73001220	CREM-SA-7RC-8-SQ-Cr95	8.00	22.00	76.00	---	Cr95	7
73001225	CREM-SA-7RC-8-R05-Cr95	8.00	22.00	76.00	.50	Cr95	7
73001230	CREM-SA-7RC-8-R1-Cr95	8.00	22.00	76.00	1,00	Cr95	7
73001235	CREM-SA-7LC-8-R05-Cr95	8.00	30.00	76.00	.50	Cr95	7
73001240	CREM-SA-7MC-10-R05-Cr95	10.00	20.00	64.00	.50	Cr95	7
73001245	CREM-SA-7RC-10-R05-Cr95	10.00	30.00	76.00	.50	Cr95	7
73001250	CREM-SA-7RC-10-SQ-Cr95	10.00	30.00	76.00	---	Cr95	7
73001255	CREM-SA-7SC-12-R05-Cr95	12.00	16.00	63.00	.50	Cr95	7
73001260	CREM-SA-7SC-12-R25-Cr95	12.00	16.00	63.00	2.50	Cr95	7
73001265	CREM-SA-7LC-12-R05-Cr95	12.00	36.00	100.00	.50	Cr95	7
73001270	CREM-SA-7SC-12-R1-Cr95	12.00	16.00	63.00	1.00	Cr95	7
73001275	CREM-SA-7LC-12-R1-Cr95	12.00	36.00	100.00	1.00	Cr95	7
73001280	CREM-SA-7LC-12-SQ-Cr95	12.00	36.00	100.00	---	Cr95	7
73001285	CREM-SA-9SC-16-R15-Cr95	16.00	20.00	89.00	1.50	Cr95	9
73001290	CREM-SA-9LC-16-R15-Cr95	16.00	48.00	125.00	1.50	Cr95	9
73001295	CREM-SA-9SC-16-SQ-Cr95	16.00	20.00	89.00	---	Cr95	9
73001300	CREM-SA-9LC-16-SQ-Cr95	16.00	48.00	125.00	---	Cr95	9
73001305	CREM-SA-9SC-20-R15-Cr95	20.00	25.00	100.00	1.50	Cr95	9
73001310	CREM-SA-9SC-20-R25-Cr95	20.00	25.00	100.00	2.50	Cr95	9
73001315	CREM-SA-9SC-20-R3-Cr95	20.00	25.00	100.00	3.00	Cr95	9
73001320	CREM-SA-9RC-20-R15-Cr95	20.00	60.00	125.00	1.50	Cr95	9
73001325	CREM-SA-9RC-20-R25-Cr95	20.00	60.00	125.00	2.50	Cr95	9
73001330	CREM-SA-9RC-20-R3-Cr95	20.00	60.00	125.00	3.00	Cr95	9
73001335	CREM-SA-9SC-25-R15-Cr95	25.00	32.00	100.00	1.50	Cr95	9
73001340	CREM-SA-9SC-25-R25-Cr95	25.00	32.00	100.00	2.50	Cr95	9
73001345	CREM-SA-9SC-25-R3-Cr95	25.00	32.00	100.00	3.00	Cr95	9
73001350	CREM-SA-9RC-25-R15-Cr95	25.00	75.00	150.00	1.50	Cr95	9
73001355	CREM-SA-9RC-25-R25-Cr95	25.00	75.00	150.00	2.50	Cr95	9
73001360	CREM-SA-9RC-25-R3-Cr95	25.00	75.00	150.00	3.00	Cr95	9

BOOSTER-SA					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	325 375	.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	225 275	.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	300 375	.0006 .0008	.0012 .0016	.0018 .0024	.0025 .0032	.0031 .0040	.0037 .0048	.0050 .0064
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	.0005 .0007	.0011 .0015	.0016 .0023	.0022 .0032	.0027 .0037	.0033 .0045	.0044 .0064
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	.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	250 300	.0005 .0006	.0010 .0012	.0015 .0017	.0020 .0023	.0025 .0029	.0030 .0035	.0040 .0046
High temperature alloy Inconel, haynes, stellite, hastelloy	Slotting	.25 x D 1 x D	1 x D .25 x D	70 95	.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.*