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WIDIA MANCHESTER[®]

PRODUCT CATALOG
Form No. 453

Octicut[®]
Threading

Ranger[™]
Face Grooving

Chipmaker[®]
O.D. & I.D. Grooving

Separator[®]
Cutoff

MTC[™]
Cutoff & Grooving

WIDIA

MANCHESTER[®]

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Ranger™ Toolholders & Inserts
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Octicut® Threading Inserts
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S-LOC™ Inserts & Toolholders

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Manchester Insert Carbide Grades

C2 (-20)

A general purpose tungsten carbide for use on cast irons, non-ferrous alloys and many high temperature alloys.

C5 (-50)

A general purpose alloyed tungsten carbide for steel cutting.

GC (-30)

A multiphase CVD coating with TiN as the outermost layer over a general purpose carbide substrate. For use on carbon steels and alloy steels.

M24 (-15)

A multiphase CVD coating with Al₂O₃ as its primary constituent, over a hard, wear resistant tungsten carbide substrate. Its capabilities extend over the entire range of cast irons at moderate to high speeds.

M240 (-21)

An advanced multiphase CVD coating with Al₂O₃ as its primary constituent, over a hard wear resistant tungsten carbide substrate. Its capabilities extend over the entire range of cast irons at moderate to high speeds.

M40 (-36)

A premium, single phase PVD TiN coating over a tough, specially formulated substrate that performs well under extremely low to moderate speed conditions found on screw machines. Ideal for carbon steels, alloy steels, most stainless steels and many high temperature alloys.

M43 (-13)

A tough, shock resistant fine grained carbide substrate combined with a second generation PVD TiAlN coating that increases oxidation resistance and the ability to handle higher speeds and feeds.

M433B (-48)

An advanced TiAlN coating with excellent resistance to material welding over a carbide substrate that has superior toughness. This is an ideal grade for 300 series stainless and aerospace materials.

M45 (-33)

A premium PVD TiCN coated, shock resistant carbide designed for low to moderate speeds. Excellent resistance to welding and BUE, along with improved abrasion resistance make this an ideal grade for austenitic stainless steel, low carbon steel and high temperature alloys.

M50 (-37)

A premium, single phase PVD TiN coating over a tough, specially formulated substrate that performs well in speed ranges higher than possible with grade M40. Ideal for carbon steels, alloy steels, bearing steels and martensitic stainless steels.

M53 (-47)

A premium, second generation PVD TiAlN coating over a tough, general purpose, steel cutting substrate. An ideal general purpose grade for use in carbon steels, alloy steels, stainless steels and high temperature alloys.

M70 (-40)

A mixed ceramic grade of TiC and Al₂O₃. Its fine grain structure and high temperature hardness make it well suited for light to moderate duty applications in both soft and hardened cast irons and steels.

M74 (-42)

A TiC+TiN general purpose cermet capable of machining at speeds above those of carbide. Especially useful for improved finish and tool life on alloy or stainless steels.

M93 (-34)

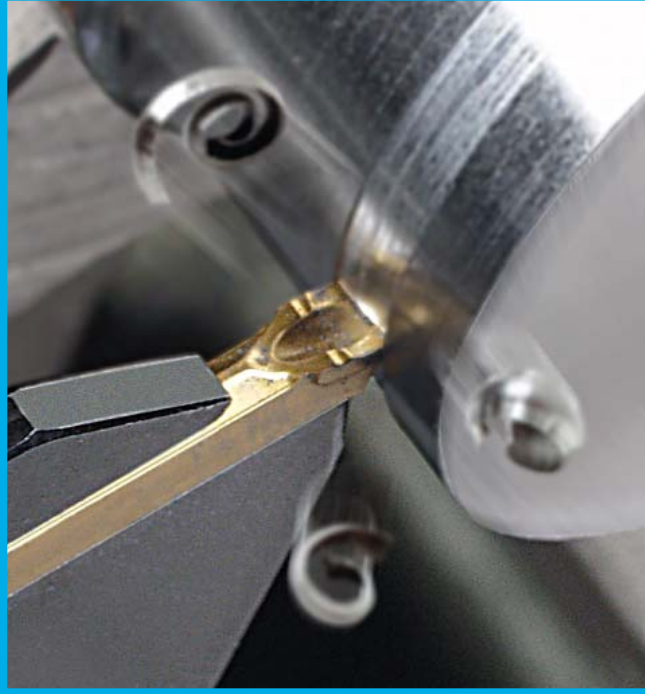
A tough, fine grain carbide substrate with excellent deformation resistance combined with a second generation TiAlN coating that offers superior resistance to welding and oxidation at speeds and feeds beyond those of any other PVD coating.

CBNCI (-80)

A high content Cubic Boron Nitride composite with metallic second phase for machining cast iron in both hardened and soft states and sintered irons (powdered metals).

CBNHT (-81)

A mixed phase, moderate content Cubic Boron Nitride Ceramic composite for use on hardened steels greater than 45 Rockwell C.



MTC™ and SLS™ Toolholder and Insert Systems

Octicut®
Threading

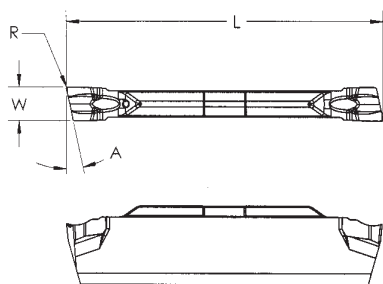
Ranger™
Face Grooving

Chipmaker®
O.D. & I.D. Grooving

Separator®
Cutoff

MTC™
Cutoff & Grooving

MTC-SX™ INSERT



Right Hand Shown

**MTC-SEPARATOR® Xtra™ —**

a new industry standard in Cutoff tool technology

MTC-SX™-Ultra —

an enhanced version of MTC-SX™. Ideal for 300 series stainless, Tool Steel, Titanium and Nickel Based alloys like Inconel at moderate speeds and feeds.

- ▶ Double ended for extended life
- ▶ Specifically designed to increase cutoff speeds and feeds
- ▶ Application-specific geometry minimizes cutting pressure, extending the life of the tool
- ▶ Delivers superior surface finishes

MTC-SX™ inserts are available in TiN (M40), TiAlN (M43), TiCN (M45) & TiAlN (M93) except 1.5mm inserts, which are available in M45 only. MTC-SX™-Ultra inserts are available in M433B only.

MTC-SX™ and MTC-SX™-Ultra Inserts**INCH**

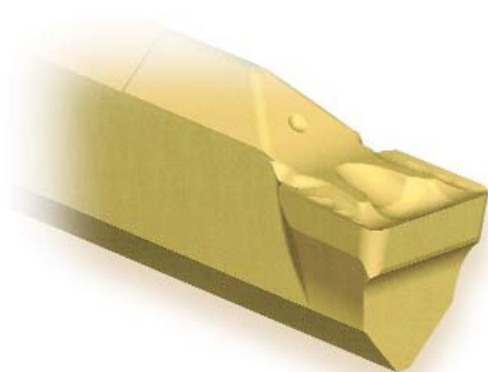
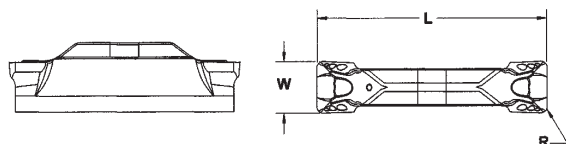
MTC-SX™ Part No.	MTC-SX™-Ultra Part No.	W	L	A	Hand	R
583-106	583-140	.094	.875	0°	N	.005
583-107	583-141	.094	.875	5°	RH	.005
583-108	583-142	.094	.875	5°	LH	.005
583-109	583-143	.094	.875	12°	RH	.005
583-110	583-144	.094	.875	12°	LH	.005
583-111	583-145	.125	1.000	0°	N	.006
583-112	583-146	.125	1.000	5°	RH	.006
583-113	583-147	.125	1.000	5°	LH	.006
583-114	583-148	.125	1.000	12°	RH	.006
583-115	583-149	.125	1.000	12°	LH	.006

MTC-SX™ and MTC-SX™-Ultra Inserts**METRIC**

MTC-SX™ Part No.	MTC-SX™-Ultra Part No.	W mm	L mm	A	Hand	R mm
583-160	583-165	1.5	19.3	0°	N	.08
583-161	583-166	1.5	19.3	5°	RH	.08
583-162	583-167	1.5	19.3	5°	LH	.08
583-163	583-168	1.5	19.3	12°	RH	.08
583-164	583-169	1.5	19.3	12°	LH	.08
583-125	583-170	2	19.3	0°	N	.08
583-126	583-171	2	19.3	5°	RH	.08
583-127	583-172	2	19.3	5°	LH	.08
583-128	583-173	2	19.3	12°	RH	.08
583-129	583-174	2	19.3	12°	LH	.08
583-130	583-150	2.5	22.2	0°	N	.13
583-131	583-151	2.5	22.2	5°	RH	.13
583-132	583-152	2.5	22.2	5°	LH	.13
583-133	583-153	2.5	22.2	12°	RH	.13
583-134	583-154	2.5	22.2	12°	LH	.13
583-135	583-155	3	25.4	0°	N	.17
583-136	583-156	3	25.4	5°	RH	.17
583-137	583-157	3	25.4	5°	LH	.17
583-138	583-158	3	25.4	12°	RH	.17
583-139	583-159	3	25.4	12°	LH	.17
583-175	583-180	4	25.4	0°	N	.17
583-176	583-181	4	25.4	5°	RH	.17
583-177	583-182	4	25.4	5°	LH	.17
583-178	583-183	4	25.4	12°	RH	.17
583-179	583-184	4	25.4	12°	LH	.17

MTC-PT™ INSERT

MTC-PTN™ INSERT



- ▶ Deep grooving tool for Plunge and Turn operations
- ▶ High positive rake geometry for low cutting force, especially in soft materials
- ▶ Cuts in both axial and radial directions
- ▶ Delivers excellent chip control over the full range of DOC when Turning



- ▶ Neutral geometry
- ▶ Ideal for Cast Iron applications

MTC-PT™ Inserts

INCH

Part Number O.D./FG	Part Number I.D.	W	L	R
582-125	582-125	.094	.875	.006
582-126	582-126	.094	.875	.015
582-101	582-101	.125	1.000	.010
582-102	582-102	.125	1.000	.030
582-103	582-103	.156	1.000	.010
582-104	582-104	.156	1.000	.030
582-105	582-105	.188	1.125	.010
582-106	582-106	.188	1.125	.030
582-107	582-107	.250	1.125	.010
582-108	582-108	.250	1.125	.030
582-110	582-110	.312	1.13	.030
582-148	582-148	.312	1.13	.060

MTC-PT™ Inserts

METRIC

Part Number O.D./FG	Part Number I.D.	W mm	L mm	R mm
582-129**	582-131*	2	19.3	.15
582-130**	—	2	19.3	.3
582-127	582-127	2.5	22.2	.15
582-128	582-128	2.5	22.2	.4
582-113	582-113	3	25.4	.3
582-114	582-114	3	25.4	.6
582-115	582-115	4	25.4	.3
582-116	582-116	4	25.4	.6
582-117	582-117	5	28.6	.3
582-118	582-118	5	28.6	.6
582-119	582-119	6	28.6	.3
582-120	582-120	6	28.6	.6
582-122	582-122	8	28.6	0.60
582-149	582-149	8	28.6	1.50

MTC-PT™ inserts are available in TiAlN (M43), TiCN (M45) & TiAlN (M93). * Exclusively for I.D. Application.

** Not for I.D. Application.

MTC-PTN™ Inserts

INCH

Part Number O.D./FG	Part Number I.D.	W	L	R
582-132	582-132	.188	1.13	.010
582-133	582-133	.188	1.13	.030
582-137	582-137	.250	1.13	.030
582-138	582-138	.250	1.13	.060
582-143	582-143	.312	1.13	.030
582-144	582-144	.312	1.13	.060

MTC-PTN™ Inserts

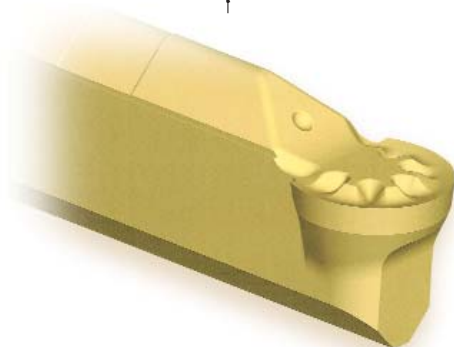
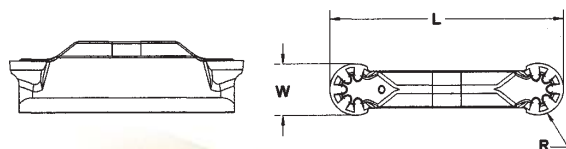
METRIC

Part Number O.D./FG	Part Number I.D.	W mm	L mm	R mm
582-134	582-134	5	28.6	0.30
582-135	582-135	5	28.6	0.60
582-140	582-140	6	28.6	0.60
582-141	582-141	6	28.6	1.50
582-146	582-146	8	28.6	0.60
582-147	582-147	8	28.6	1.60

MTC-PTN™ inserts are available in AlOX (M240).

MTC-PC™ INSERT

MTC-PCN™ INSERT



- ▶ Designed with full nose radius geometry for Plunge and Contour operations
- ▶ Effective cutting edge geometry exceeds 180° for increased versatility
- ▶ Superior chip control

MTC-PC™ Inserts

INCH

Part Number O.D./FG	Part Number I.D.	W	L	R
581-101	581-101	.125	1.00	FNR
581-102	581-102	.156	1.00	FNR
581-103	581-103	.188	1.13	FNR
581-104	581-104	.250	1.13	FNR
581-105	581-105	.312	1.13	FNR

MTC-PC™ Inserts

METRIC

Part Number O.D./FG	Part Number I.D.	W mm	L mm	R mm
581-107	581-107	3	25.4	FNR
581-108	581-108	4	25.4	FNR
581-109	581-109	5	28.6	FNR
581-110	581-110	6	28.6	FNR
581-111	581-111	8	28.6	FNR

MTC-PC™ inserts are available in TiAlN (M43), TiCN (M45) & TiAlN (M93).



- ▶ Neutral Geometry
- ▶ Effective cutting edge geometry exceeds 180° for increased versatility
- ▶ Ideal for Cast Iron applications

MTC-PCN™ Inserts

INCH

Part Number O.D./FG	Part Number I.D.	W	L	R
581-114	581-114	.188	1.13	FNR
581-116	581-116	.250	1.13	FNR
581-118	581-118	.312	1.13	FNR

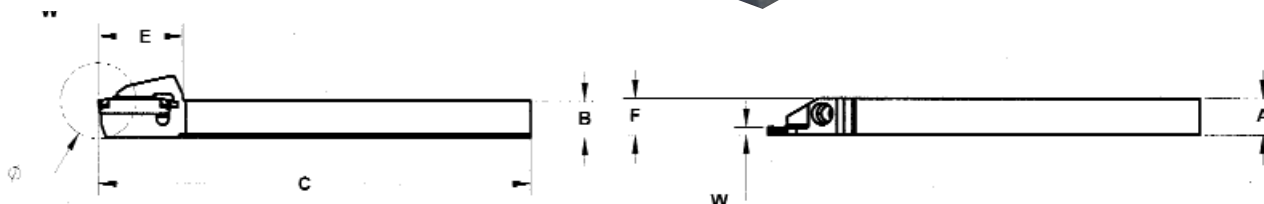
MTC-PCN™ Inserts

METRIC

Part Number O.D./FG	Part Number I.D.	W mm	L mm	R mm
581-115	581-115	5	28.6	FNR
581-117	581-117	6	28.6	FNR
581-119	581-119	8	28.6	FNR

MTC-PCN™ inserts are available in AIOX (M240)

MTC™ Toolholder System for Swiss Style CNC Machines



- ▶ Double V design:
 - offers maximum insert stability
 - optimizes insert positioning
 - provides "operator friendly" insert indexing

MTC™ Toolholder System								INCH
Bar Capacity								
Left Hand	W	Diameter	A	B	C	E	F	Right Hand
250-312*	1.5mm	20mm	.375	.375	4.500	.880	.375	250-311*
250-314*	1.5mm	20mm	.500	.500	4.500	.880	.500	250-313*
250-316	1.5mm	26mm	.620	.625	5.000	.950	.625	250-315
250-318	1.5mm	26mm	.745	.750	5.000	.950	.750	250-317
250-322*	2mm	20mm	.375	.375	4.500	.880	.375	250-321*
250-324*	2mm	20mm	.500	.500	4.500	.880	.500	250-323*
250-326	2mm	26mm	.619	.625	5.000	.950	.625	250-325
250-328	2mm	26mm	.744	.750	5.000	.950	.750	250-327

MTC™ Toolholder System								METRIC
Bar Capacity								
Left Hand	W	Diameter	A	B	C	E	F	Right Hand
250-402*	1.5mm	20mm	10mm	10mm	100mm	22.4mm	10mm	250-401*
250-404*	1.5mm	20mm	12mm	12mm	100mm	22.4mm	12mm	250-403*
250-406	1.5mm	26mm	15.8mm	16mm	125mm	24.1mm	16mm	250-405
250-408	1.5mm	26mm	19.8mm	20mm	125mm	24.1mm	20mm	250-407
250-412*	2mm	20mm	10mm	10mm	100mm	22.4mm	10mm	250-411*
250-414*	2mm	20mm	12mm	12mm	100mm	22.4mm	12mm	250-413*
250-416	2mm	26mm	15.8mm	16mm	125mm	24.1mm	16mm	250-415
250-418	2mm	26mm	19.8mm	20mm	125mm	24.1mm	20mm	250-417

*Insert exterior edge in line with toolholder edge.

NOTE: All MTC™ Toolholders for Swiss Style CNC Machines use MTC-SX™ or MTC-SX™-Ultra inserts.

Replacement Hardware

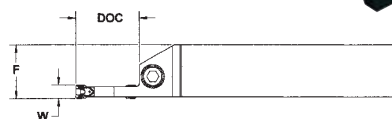
INCH / METRIC

Clamp Screw

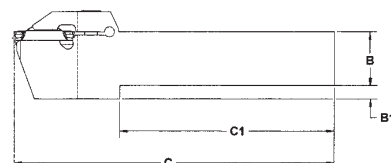
606-249 Hex Screw

644-102 Torx Screw

MTC™ Integrated Shank Toolholder System



Right Hand Shown



- ▶ Double V design:
 - offers maximum insert stability
 - optimizes insert positioning
 - provides "operator friendly" insert indexing
- ▶ Integral shank toolholders are available in stub or extended DOC, right or left hand.
- ▶ Integral shank toolholders are available in stub or extended DOC.

MTC™ Toolholder System

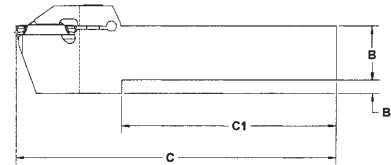
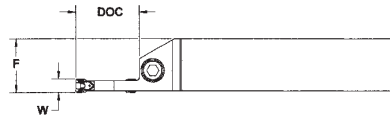
INCH

Left Hand	W	DOC	B	B1	C	C1	F	Right Hand
250-302	2mm	1.062 Dia.	.375	.13	4.500	3.50	.375	250-301
250-110	.094	1.062 Dia.	.375	.13	4.500	3.50	.375	250-109
250-304	2mm	1.250 Dia.	.500	.19	4.500	3.50	.500	250-303
250-112	.094	1.250 Dia.	.500	.19	4.500	3.29	.500	250-111
250-306	2mm	.650	.625	.25	5.000	4.06	.625	250-305
250-114	.094	.750	.625	.25	5.000	3.48	.625	250-113
250-118	.125	.440	.625	-	5.000	-	.625	250-117
250-120	.125	.875	.625	.25	5.000	3.36	.625	250-119
250-182	.156	.440	.625	-	5.000	-	.625	250-181
250-124	.188	.560	.625	-	5.000	-	.625	250-123
250-126	.188	1.000	.625	.25	5.500	3.66	.625	250-125
250-308	2mm	.650	.750	-	5.000	-	.750	250-307
250-190	.094	.420	.750	-	5.000	-	.750	250-189
250-116	.094	.750	.750	.25	5.000	3.48	.750	250-115
250-128	.125	.440	.750	-	5.000	-	.750	250-127
250-130	.125	.875	.750	.25	5.000	3.36	.750	250-129
250-184	.156	.440	.750	-	5.000	-	.750	250-183
250-134	.188	.560	.750	-	5.000	-	.750	250-133
250-136	.188	1.000	.750	.25	5.500	3.66	.750	250-135
250-138	.250	.560	.750	-	5.000	-	.750	250-137
250-320	1.5mm	.650	1.000	-	6.000	-	1.000	250-319
250-310	2mm	.650	1.000	-	6.000	-	1.000	250-309
250-192	.094	.420	1.000	-	6.000	-	1.000	250-191
250-194	.094	.750	1.000	-	6.000	-	1.000	250-193
250-142	.125	.440	1.000	-	6.000	-	1.000	250-141
250-144	.125	.875	1.000	-	6.000	-	1.000	250-143
250-146	.156	.875	1.000	-	6.000	-	1.000	250-145
250-148	.188	.560	1.000	-	6.000	-	1.000	250-147
250-150	.188	1.000	1.000	-	6.000	-	1.000	250-149
250-152	.250	.560	1.000	-	6.000	-	1.000	250-151
250-154	.250	1.000	1.000	-	6.000	-	1.000	250-153
250-156	.312	0.560	1.000		1.000	6	1.450	250-155
250-158	.312	1.000	1.000		1.000	6	1.830	250-157
250-176	.312	0.560	1.250		1.250	6	1.450	250-175
250-178	.312	1.000	1.250		1.250	6	1.830	250-177

NOTE:

- .375 and .500 toolholders require clamp screw 606-249
- All .094, .125 & .156 toolholders with shanks .625 and larger require clamp screw 619-205
- All .188, .250 & .312 toolholders require clamp screw 619-168

MTC™ Integrated Shank Toolholder System



Right Hand Shown

- ▶ Double V design:
 - offers maximum insert stability
 - optimizes insert positioning
 - provides "operator friendly" insert indexing
- ▶ Integral shank toolholders are available in stub or extended DOC, right or left hand.
- ▶ Integral shank toolholders are available in stub or extended DOC.

MTC™ Toolholder System

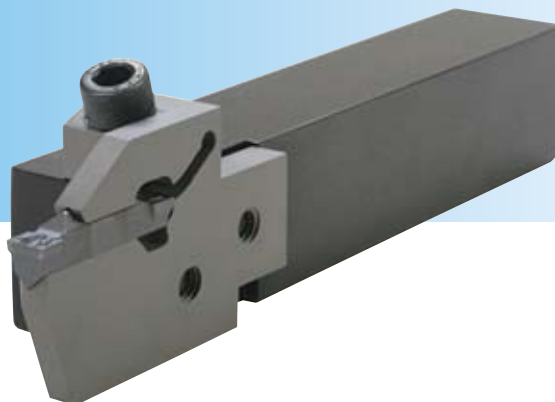
METRIC

Left Hand	W	DOC	B	B1	C	C1	F	Right Hand
250-202	2mm	26mm Dia.	10mm	3mm	100mm	75mm	10mm	250-201
250-210	2.5mm	26mm Dia.	10mm	3mm	100mm	74mm	10mm	250-209
250-204	2mm	32mm Dia.	12mm	6mm	100mm	75mm	12mm	250-203
250-212	2.5mm	32mm Dia.	12mm	5mm	100mm	69mm	12mm	250-211
250-206	2mm	16.5mm	16mm	6mm	125mm	101mm	16mm	250-205
250-214	2.5mm	19mm	16mm	5mm	125mm	86mm	16mm	250-213
250-218	3mm	11mm	16mm	-	125mm	-	16mm	250-217
250-220	3mm	22mm	16mm	5mm	125mm	83mm	16mm	250-219
250-282	4mm	11mm	16mm	-	125mm	-	16mm	250-281
250-222	4mm	22mm	16mm	5mm	125mm	83mm	16mm	250-221
250-224	5mm	14mm	16mm	-	125mm	-	16mm	250-223
250-208	2mm	16.5mm	20mm	-	125mm	-	20mm	250-207
250-216	2.5mm	19mm	20mm	6mm	125mm	86mm	20mm	250-215
250-228	3mm	11mm	20mm	-	125mm	-	20mm	250-227
250-230	3mm	22mm	20mm	5mm	125mm	83mm	20mm	250-229
250-284	4mm	11mm	20mm	-	125mm	-	20mm	250-283
250-234	5mm	14mm	20mm	-	125mm	-	20mm	250-233
250-236	5mm	25mm	20mm	5mm	140mm	93mm	20mm	250-235
250-238	6mm	14mm	20mm	-	140mm	-	20mm	250-237
250-410	1.5mm	16.5mm	25mm	-	150mm	-	25mm	250-409
250-296	2mm	16.5mm	25mm	-	150mm	-	25mm	250-295
250-294	2.5mm	19mm	25mm	-	150mm	-	25mm	250-293
250-242	3mm	11mm	25mm	-	150mm	-	25mm	250-241
250-244	3mm	22mm	25mm	-	150mm	-	25mm	250-243
250-246	4mm	22mm	25mm	-	150mm	-	25mm	250-245
250-248	5mm	14mm	25mm	-	150mm	-	25mm	250-247
250-250	5mm	25mm	25mm	-	150mm	-	25mm	250-249
250-252	6mm	14mm	25mm	-	150mm	-	25mm	250-251
250-254	6mm	25mm	25mm	-	150mm	-	25mm	250-253
250-256	8mm	14mm	25mm	-	150mm	-	25mm	250-255
250-258	8mm	25mm	25mm	-	150mm	-	25mm	250-257
250-276	8mm	14mm	32mm	-	150mm	-	32mm	250-275
250-278	8mm	25mm	32mm	-	150mm	-	32mm	250-277

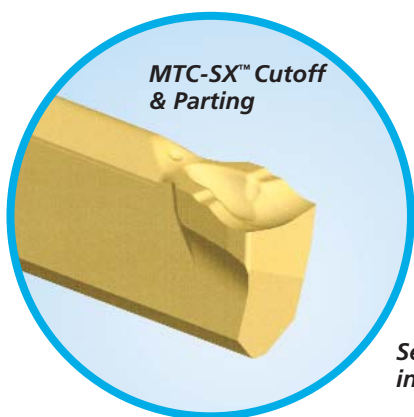
NOTE:

- 10mm and 12mm toolholders require clamp screw 606-249
- All 2.5mm, 3mm & 4mm toolholders with shanks 16mm and larger require clamp screw 619-205
- All 5mm, 6mm & 8mm toolholders require clamp screw 619-168

MTC™ SLS™ Cutoff/Parting Toolholder System



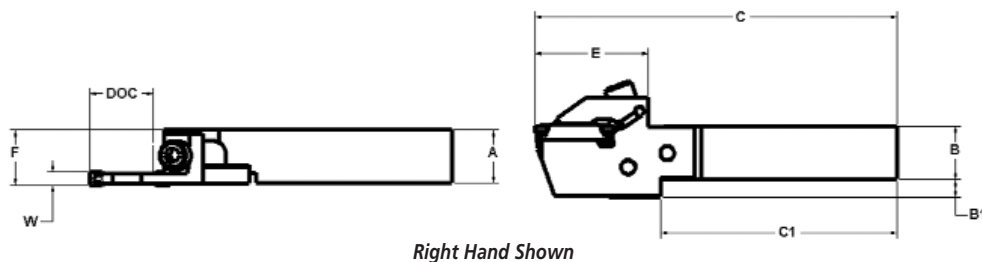
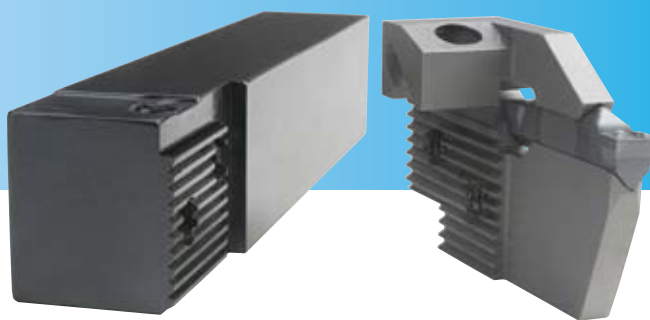
- ▶ One MTC™-SLS™ toolholder will accommodate the full range of SX insert widths, both inch and metric.



See page A2 for MTC-SX™ insert selections

MTC™ SLS™ Cutoff/Parting											INCH	
Left Hand Toolholder	Cartridge	WOC	DOC	A	B	F	C	C1	B1	E	Cartridge	Right Hand Toolholder
253-102	348-102	1.5mm	0.65	.750	.625	0.75	4.78	3.33	0.25	1.2	348-101	253-101
"	348-104	2mm	0.65	"	"	0.75	4.78	"	"	1.4	348-103	"
"	348-106	0.094	0.75	"	"	0.75	4.9	"	"	1.5	348-105	"
"	348-108	0.125	.875	"	"	0.75	5	"	"	1.5	348-107	"
253-104	348-102	1.5mm	0.65	0.75	0.75	0.75	4.78	3.33	0.25	1.2	348-101	253-103
"	348-104	2mm	0.65	"	"	0.75	4.78	"	"	1.2	348-103	"
"	348-106	0.094	0.75	"	"	0.75	4.9	"	"	1.4	348-105	"
"	348-108	0.125	.875	"	"	0.75	5	"	"	1.5	348-107	"
"	348-110	0.156	.875	"	"	0.78	5	"	"	1.5	348-109	"
253-108	348-102	1.5mm	0.65	1.00	1.00	1.00	5.78	NA	NA	1.2	348-101	253-107
"	348-104	2mm	0.65	"	"	1.00	5.78	NA	NA	1.2	348-103	"
"	348-106	0.094	0.75	"	"	1.00	5.9	NA	NA	1.4	348-105	"
"	348-108	0.125	.875	"	"	1.00	6	NA	NA	1.5	348-107	"
"	348-110	0.156	.875	"	"	1.03	6	NA	NA	1.5	348-109	"

MTC™ SLS™ Cutoff/Parting Toolholder System

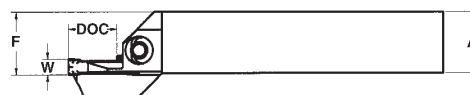
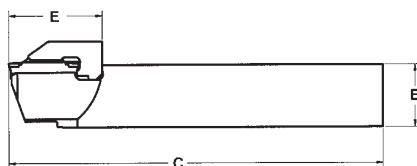
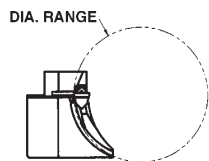
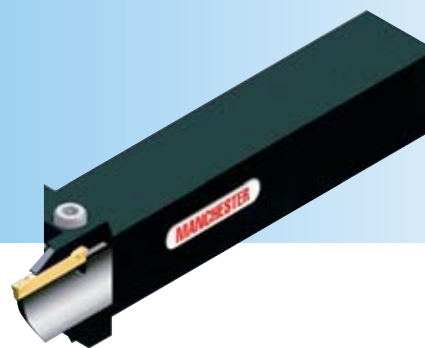


MTC™ SLS™ Cutoff/Parting											INCH	
Left Hand Toolholder	Cartridge	WOC	DOC	A	B	F	C	C1	B1	E	Cartridge	Right Hand Toolholder
253-202	348-102	1.5	16.5	20	16	20	119.5	82.6	5.4	30.5	348-101	253-201
"	348-104	2	16.5	"	"	"	119.5	"	"	30.5	348-103	"
"	348-106	2.5	19.1	"	"	"	122.5	"	"	35.6	348-105	"
"	348-108	3	22.2	"	"	"	125	"	"	38.1	348-107	"
253-204	348-102	1.5	16.5	20	20	20	119.5	82.6	5.4	30.5	348-101	253-203
"	348-104	2	16.5	"	"	"	119.5	"	"	30.5	348-103	"
"	348-106	2.5	19.1	"	"	"	122.5	"	"	35.6	348-105	"
"	348-108	3	22.2	"	"	"	125	"	"	38.1	348-107	"
"	348-110	4	22.2	"	"	20.8	125	"	"	38.1	348-109	"
253-208	348-102	1.5	0.65	25	25	25	144.4	NA	NA	30.5	348-101	253-207
"	348-104	2	0.65	"	"	25	144.4	NA	NA	30.5	348-103	"
"	348-106	2.5	0.75	"	"	25	147.5	NA	NA	35.6	348-105	"
"	348-108	3	.875	"	"	25	150	NA	NA	38.1	348-107	"
"	348-110	4	.875	"	"	25.8	150	NA	NA	38.1	348-109	"

MTC™ SLS™ Cutoff/Parting Misc. Hardware

Toolholders	Support Blade Screw	Clamp Screw
253-101 to 253-104	606-255	619-168
253-201 to 253-204	"	"
253-105 to 253-108	619-419	619-168
253-205 to 253-208	"	"

MTC™ Face Grooving Integral Shank System



Right Hand Shown

- ▶ Double V design:
 - offers maximum insert stability
 - optimizes insert positioning
 - provides "operator friendly" insert indexing
- ▶ Insert cutting edge for the MTC™ Face Grooving System is positioned $+.030''$ above center.
- ▶ The MTC™ Face Grooving System is not designed to cut at diameters of less than $.850''$.

MTC™ Face Grooving System – Curve Out Style

INCH

Counter Clockwise		Diameter							Clockwise
Left Hand	W	DOC	Range	A	B	C	F	E	Right Hand
251-118	.125	.500	1.5-2	.99	1.000	6.000	1.000	1.343	251-117
251-120	.125	.625	2-2.75	.99	1.000	6.000	1.000	1.343	251-119
251-122	.125	.625	2.75-4	.99	1.000	6.000	1.000	1.343	251-121
251-124	.125	.750	4-8	.99	1.000	6.000	1.000	1.438	251-123
251-134	.188	.625	1.5-2	.99	1.000	6.000	1.000	1.500	251-133
251-136	.188	.750	2-2.75	.99	1.000	6.000	1.000	1.500	251-135
251-138	.188	.750	2.75-4	.99	1.000	6.000	1.000	1.655	251-137
251-140	.188	1.000	4-8	.99	1.000	6.000	1.000	1.655	251-139
251-150	.250	.625	1.5-2	.99	1.000	6.000	1.000	1.500	251-149
251-152	.250	.750	2-2.75	.99	1.000	6.000	1.000	1.500	251-151
251-154	.250	.750	2.75-4	.99	1.000	6.000	1.000	1.655	251-153
251-156	.250	1.000	4-8	.99	1.000	6.000	1.000	1.655	251-155

MTC™ Face Grooving System – Curve Out Style

METRIC

Counter Clockwise		Diameter							Clockwise
Left Hand	W	DOC	Range	A	B	C	F	E	Right Hand
251-218	3mm	13mm	38-52mm	24.6mm	25mm	150mm	25mm	34mm	251-217
251-220	3mm	16mm	52-70mm	24.6mm	25mm	150mm	25mm	34mm	251-219
251-222	3mm	16mm	70-100mm	24.6mm	25mm	150mm	25mm	34mm	251-221
251-224	3mm	19mm	100-205mm	24.6mm	25mm	150mm	25mm	36.5mm	251-223
251-234	5mm	16mm	38-52mm	24.6mm	25mm	150mm	25mm	38mm	251-233
251-236	5mm	19mm	52-70mm	24.6mm	25mm	150mm	25mm	38mm	251-235
251-238	5mm	19mm	70-100mm	24.6mm	25mm	150mm	25mm	42mm	251-237
251-240	5mm	25mm	100-205mm	24.6mm	25mm	150mm	25mm	42mm	251-239
251-250	6mm	16mm	38-52mm	24.6mm	25mm	150mm	25mm	38mm	251-249
251-252	6mm	19mm	52-70mm	24.6mm	25mm	150mm	25mm	38mm	251-251
251-254	6mm	19mm	70-100mm	24.6mm	25mm	150mm	25mm	42mm	251-253
251-256	6mm	25mm	100-205mm	24.6mm	25mm	150mm	25mm	42mm	251-255

Toolholder supplied with clamp.

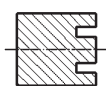
Blade Style

Part Shape

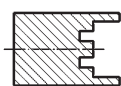
Left Hand

Right Hand

Curve In



SHAPE I



SHAPE IV

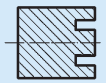


CW LH

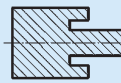


CCW RH

Curve Out



SHAPE I



SHAPE II

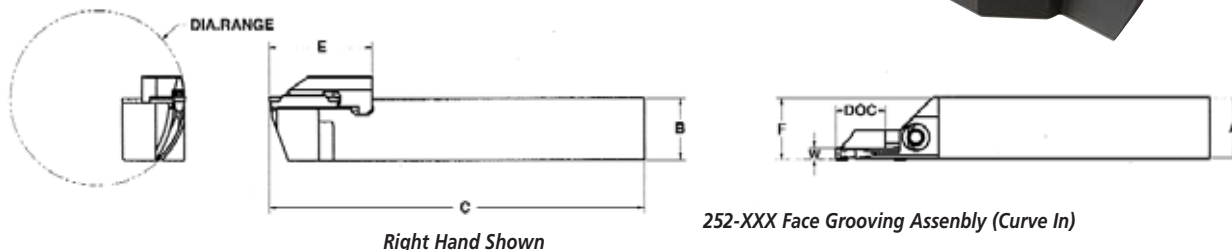


CCW LH



CW RH

MTC™ Face Grooving Integral Shank System



Features and Benefits

- ▶ Designed using state of the art Finite Element Analysis techniques to generate the most rigid face grooving tools in the industry.
- ▶ This exceptional rigidity delivers high quality finishes even on tough applications.
- ▶ Broad product offering includes unique counter clockwise right hand and clockwise left hand rotation holders along with standard clockwise right hand and counter clockwise left hand rotation.
- ▶ Only four MTC™ toolholders are required to effectively machine face grooves from 1-1/2" to 8" outside diameter range.
- ▶ Uses MTC-PT™ and MTC-PCT™ inserts with patented geometry that provides superior chip control in the plunge, turn and profiling operations.

MTC™ Face Grooving System – Curve In Style

INCH

Clockwise Left Hand	W	DOC	Diameter Range	A	B	C	F	Counter Clockwise Right Hand	E
252-110	.125	.625	2.75-4	.99	1.000	6.000	1.000	252-109	1.343
252-112	.125	.750	4-8	.99	1.000	6.000	1.000	252-111	1.438
252-118	.188	.750	2.75-4	.99	1.000	6.000	1.000	252-117	1.655
252-120	.188	1.000	4-8	.99	1.000	6.000	1.000	252-119	1.655
252-126	.250	.750	2.75-4	.99	1.000	6.000	1.000	252-125	1.655
252-128	.250	1.000	4-8	.99	1.000	6.000	1.000	252-127	1.655

Toolholder supplied with clamp.

Replacement Clamps

INCH

Left Hand	W	Diameter Range	Right Hand
446-101	.188 & .250	1.5-2.75	446-102
446-103	.188 & .250	2.75-8	446-104

MTC™ Face Grooving System – Curve In Style

METRIC

Clockwise Left Hand	W	DOC	Diameter Range	A	B	C	F	Counter Clockwise Right Hand	E
252-210	3mm	16mm	70-100mm	24.6mm	25mm	150mm	25mm	252-209	34mm
252-212	3mm	19mm	100-205mm	24.6mm	25mm	150mm	25mm	252-211	36.5mm
252-218	5mm	19mm	70-100mm	24.6mm	25mm	150mm	25mm	252-217	42mm
252-220	5mm	25mm	100-205mm	24.6mm	25mm	150mm	25mm	252-219	42mm
252-226	6mm	19mm	70-100mm	24.6mm	25mm	150mm	25mm	252-225	42mm
252-228	6mm	25mm	100-205mm	24.6mm	25mm	150mm	25mm	252-227	42mm

Toolholder supplied with clamp.

Replacement Clamps

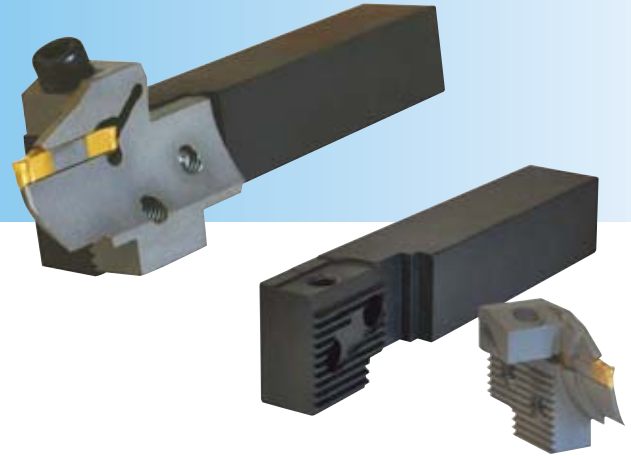
METRIC

Left Hand	W	Diameter Range	Right Hand
446-101	5 & 6	38-70	446-102
446-103	5 & 6	70-205	446-104

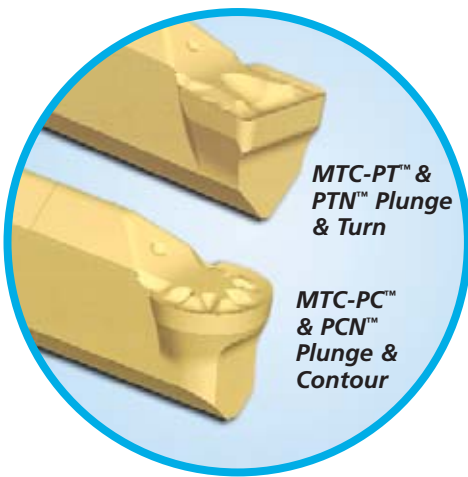
NOTE:

- .125/3mm toolholders require clamp screw 619-205
- .188/5mm and .250/6mm toolholders require clamp screw 619-168

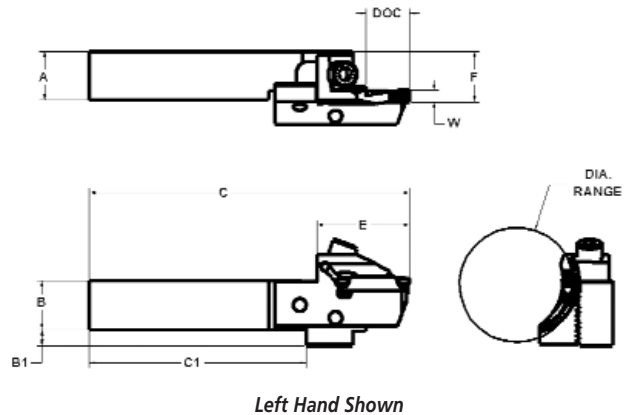
MTC™ SLS™ Face Grooving System



- This series of SLS Face Grooving cartridges is designed to clear a hub or protrusion in the center of the workpiece.



See pages A3 and A4 for MTC-PT™/PTN™ and MTC-PC™/PCN™ insert selections



MTC™ SLS™ Face Grooving														INCH
Left Hand Toolholder	Cartridge	WOC	DOC	Diameter Range	Sweep	A	B	F	C	C1	B1	E	Cartridge	Right Hand Toolholder
253-104	349-105	.125	0.50	1.5 - 2	Out	0.75	0.75	0.75	4.83	3.33	0.25	1.33	349-101	253-103
"	349-106	"	.625	2 - 2.75	"	"	"	"	4.83	"	"	1.33	349-102	"
"	349-107	"	.625	2.75 - 4	"	"	"	"	4.83	"	"	1.33	349-103	"
"	349-108	"	0.75	4 - 8	"	"	"	"	4.925	"	"	1.425	349-104	"
"	349-113	.156	0.50	1.5 - 2	Out	"	"	0.78	4.83	"	"	1.33	349-109	"
"	349-114	"	.625	2 - 2.75	"	"	"	"	4.83	"	"	1.33	349-110	"
"	349-115	"	.625	2.75 - 4	"	"	"	"	4.83	"	"	1.33	349-111	"
"	349-116	"	0.75	4 - 8	"	"	"	"	4.925	"	"	1.425	349-112	"
"	349-121	.188	.625	1.5 - 2	Out	"	"	0.78	4.925	"	"	1.425	349-117	"
"	349-122	"	0.75	2 - 2.75	"	"	"	"	4.925	"	"	1.425	349-118	"
"	349-123	"	0.75	2.75 - 4	"	"	"	"	5.08	"	"	1.58	349-119	"
"	349-124	"	1.00	4 - 8	"	"	"	"	5.08	"	"	1.58	349-120	"

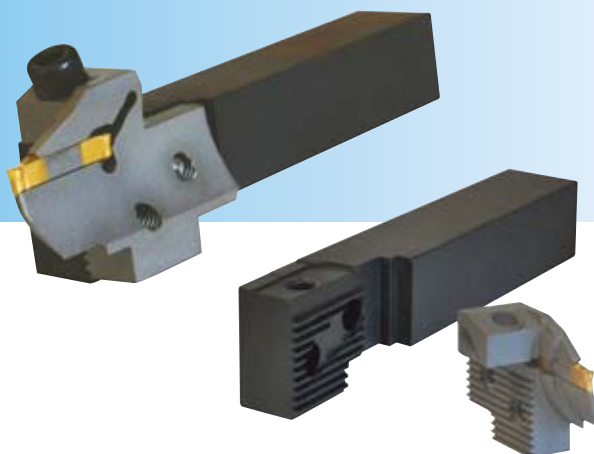
MTC™ SLS™ Face Grooving System

MTC™ SLS™ Face Grooving														INCH	
Left Hand Toolholder	Cartridge	WOC	DOC	Diameter Range	Sweep	A	B	F	C	C1	B1	E	Cartridge	Right Hand Toolholder	
253-108	349-105	.125	0.50	1.5 - 2	Out	0.75	0.75	0.75	4.83	3.33	0.25	1.33	349-101	253-107	
"	349-106	"	.625	2 - 2.75	"	"	"	"	4.83	"	"	1.33	349-102	"	
"	349-107	"	.625	2.75 - 4	"	"	"	"	4.83	"	"	1.33	349-103	"	
"	349-108	"	0.75	4 - 8	"	"	"	"	4.925	"	"	1.425	349-104	"	
"	349-113	.156	0.50	1.5 - 2	Out	"	"	0.78	4.83	"	"	1.33	349-109	"	
"	349-114	"	.625	2 - 2.75	"	"	"	"	4.83	"	"	1.33	349-110	"	
"	349-115	"	.625	2.75 - 4	"	"	"	"	4.83	"	"	1.33	349-111	"	
"	349-116	"	0.75	4 - 8	"	"	"	"	4.925	"	"	1.425	349-112	"	
"	349-121	.188	.625	1.5 - 2	Out	"	"	0.78	4.925	"	"	1.425	349-117	"	
"	349-122	"	0.75	2 - 2.75	"	"	"	"	4.925	"	"	1.425	349-118	"	
"	349-123	"	0.75	2.75 - 4	"	"	"	"	5.08	"	"	1.58	349-119	"	
"	349-124	"	1.00	4 - 8	"	"	"	"	5.08	"	"	1.58	349-120	"	
"	349-129	.250	.625	1.2 - 2	Out	"	"	1.11	5.925	"	"	1.425	349-125	"	
"	349-130	"	0.75	2 - 2.75	"	"	"	"	5.925	"	"	1.425	349-126	"	
"	349-131	"	0.75	2.75 - 4	"	"	"	"	6.08	"	"	1.58	349-127	"	
"	349-132	"	1.00	4 - 8	"	"	"	"	6.08	"	"	1.58	349-128	"	
253-106	349-105	.125	0.50	1.5 - 2	Out	1.25	1.25	1.25	5.83	NA	NA	1.33	349-101	253-105	
"	349-106	"	.625	2 - 2.75	"	"	"	"	5.83	"	"	1.33	349-102	"	
"	349-107	"	.625	2.75 - 4	"	"	"	"	5.83	"	"	1.33	349-103	"	
"	349-108	"	0.75	4 - 8	"	"	"	"	5.925	"	"	1.425	349-104	"	
"	349-113	.156	0.50	1.5 - 2	Out	"	"	1.28	5.83	"	"	1.33	349-109	"	
"	349-114	"	.625	2 - 2.75	"	"	"	"	5.83	"	"	1.33	349-110	"	
"	349-115	"	.625	2.75 - 4	"	"	"	"	5.83	"	"	1.33	349-111	"	
"	349-116	"	0.75	4 - 8	"	"	"	"	5.925	"	"	1.425	349-112	"	
"	349-121	.188	.625	1.5 - 2	Out	"	"	1.28	5.925	"	"	1.425	349-117	"	
"	349-122	"	0.75	2 - 2.75	"	"	"	"	5.925	"	"	1.425	349-118	"	
"	349-123	"	0.75	2.75 - 4	"	"	"	"	6.08	"	"	1.58	349-119	"	
"	349-124	"	1.00	4 - 8	"	"	"	"	6.08	"	"	1.58	349-120	"	
"	349-129	.250	.625	1.5 - 2	Out	"	"	1.36	5.925	"	"	1.425	349-125	"	
"	349-130	"	0.75	2 - 2.75	"	"	"	"	5.925	"	"	1.425	349-126	"	
"	349-131	"	0.75	2.75 - 4	"	"	"	"	6.08	"	"	1.58	349-127	"	
"	349-132	"	1.00	4 - 8	"	"	"	"	6.08	"	"	1.58	349-128	"	

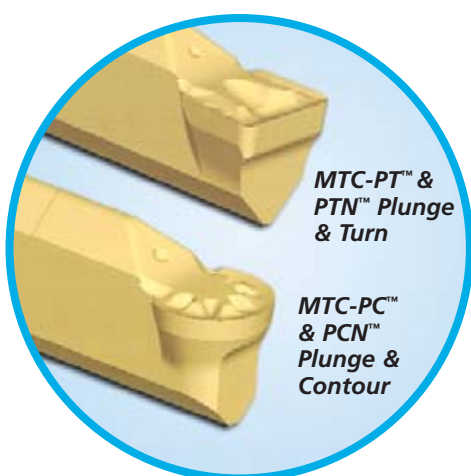
MTC™ SLS™ Face Grooving Misc. Hardware

Toolholders	Support Blade Screw	Clamp Screw
253-101, 253-104	606-255	619-168
253-201, 253-204	"	"
253-105, 253-108	619-419	619-168
253-205, 253-208	"	"

MTC™ SLS™ Face Grooving System



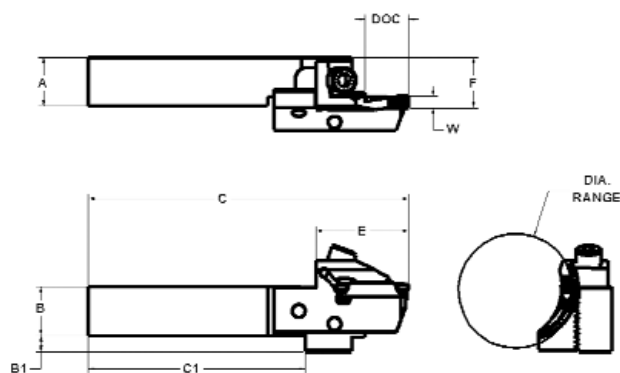
- This series of SLS™ Face Grooving cartridges is designed to clear a hub or protrusion in the center of the workpiece.



MTC-PT™ & PTN™ Plunge & Turn

MTC-PC™ & PCN™ Plunge & Contour

See pages A3 and A4 for MTC-PT™/PTN™ and MTC-PC™/PCN™ insert selections



Left Hand Shown

MTC™ SLS™ Face Grooving													METRIC	
Left Hand Toolholder	Cartridge	WOC	DOC	Diameter Range	Sweep	A	B	F	C	C1	B1	E	Cartridge	Right Hand Toolholder
253-204	349-105	3	13	38 - 52mm	Out	20	20	20	120.7	82.6	5.4	33.8	349-101	253-203
"	349-106	"	16	52 - 70mm	"	"	"	"	120.7	"	"	33.8	349-102	"
"	349-107	"	16	70 - 100mm	"	"	"	"	120.7	"	"	33.8	349-103	"
"	349-108	"	19	100 - 205mm	"	"	"	"	123.1	"	"	36.2	349-104	"
"	349-113	4	13	38 - 52mm	Out	"	"	20.8	120.7	"	"	33.8	349-109	"
"	349-114	"	16	52 - 70mm	"	"	"	"	120.7	"	"	33.8	349-110	"
"	349-115	"	16	70 - 100mm	"	"	"	"	120.7	"	"	33.8	349-111	"
"	349-116	"	19	100 - 205mm	"	"	"	"	123.1	"	"	36.2	349-112	"
"	349-121	5	16	38 - 52mm	Out	"	"	20.8	123.1	"	"	36.2	349-117	"
"	349-122	"	19	52 - 70mm	"	"	"	"	123.1	"	"	36.2	349-118	"
"	349-123	"	19	70 - 100mm	"	"	"	"	127	"	"	40.1	349-119	"
"	349-124	"	25	100 - 205mm	"	"	"	"	127	"	"	40.1	349-120	"

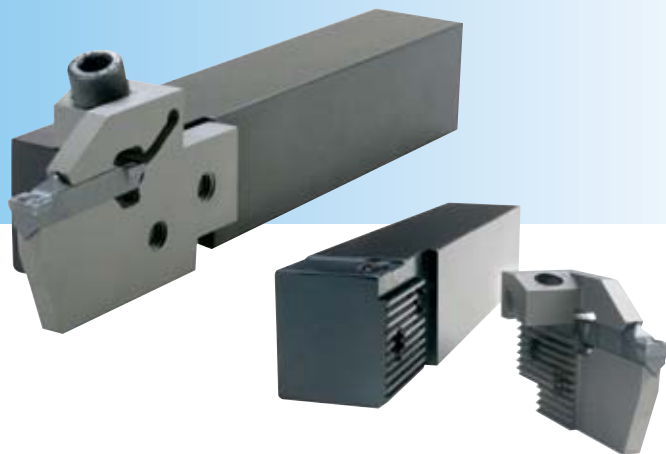
MTC™ SLS™ Face Grooving System

MTC™ SLS™ Face Grooving														METRIC	
Left Hand Toolholder	Cartridge	WOC	DOC	Diameter Range	Sweep	A	B	F	C	C1	B1	E	Cartridge	Right Hand Toolholder	
253-208	349-105	3	13	38 - 52mm	Out	25	25	25	145.7	NA	NA	33.8	349-101	253-207	
"	349-106	"	16	52 - 70mm	"	"	"	"	145.7	"	"	33.8	349-102	"	
"	349-107	"	16	70 - 100mm	"	"	"	"	145.7	"	"	33.8	349-103	"	
"	349-108	"	19	100 - 205mm	"	"	"	"	148.1	"	"	36.2	349-104	"	
"	349-113	4	13	38 - 52mm	Out	"	"	25.8	145.7	"	"	33.8	349-109	"	
"	349-114	"	16	52 - 70mm	"	"	"	"	145.7	"	"	33.8	349-110	"	
"	349-115	"	16	70 - 100mm	"	"	"	"	145.7	"	"	33.8	349-111	"	
"	349-116	"	19	100 - 205mm	"	"	"	"	148.1	"	"	36.2	349-112	"	
"	349-121	5	16	38 - 52mm	Out	"	"	25.8	148.1	"	"	36.2	349-117	"	
"	349-122	"	19	52 - 70mm	"	"	"	"	148.1	"	"	36.2	349-118	"	
"	349-123	"	19	70 - 100mm	"	"	"	"	152	"	"	40.1	349-119	"	
"	349-124	"	25	100 - 205mm	"	"	"	"	152	"	"	40.1	349-120	"	
"	349-129	6	16	38 - 52mm	Out	"	"	27.7	148.1	"	"	36.2	349-125	"	
"	349-130	"	19	52 - 70mm	"	"	"	"	148.1	"	"	36.2	349-126	"	
"	349-131	"	19	70 - 100mm	"	"	"	"	152	"	"	40.1	349-127	"	
"	349-132	"	25	100 - 205mm	"	"	"	"	152	"	"	40.1	349-128	"	
253-206	349-105	3	13	38 - 52mm	Out	32	32	32	145.7	NA	NA	33.8	349-101	253-205	
"	349-106	"	16	52 - 70mm	"	"	"	"	145.7	"	"	33.8	349-102	"	
"	349-107	"	16	70 - 100mm	"	"	"	"	145.7	"	"	33.8	349-103	"	
"	349-108	"	19	100 - 205mm	"	"	"	"	148.1	"	"	36.2	349-104	"	
"	349-113	4	13	38 - 52mm	Out	"	"	32.8	145.7	"	"	33.8	349-109	"	
"	349-114	"	16	52 - 70mm	"	"	"	"	145.7	"	"	33.8	349-110	"	
"	349-115	"	16	70 - 100mm	"	"	"	"	145.7	"	"	33.8	349-111	"	
"	349-116	"	19	100 - 205mm	"	"	"	"	148.1	"	"	36.2	349-112	"	
"	349-121	5	16	38 - 52mm	Out	"	"	32.8	148.1	"	"	36.2	349-117	"	
"	349-122	"	19	52 - 70mm	"	"	"	"	148.1	"	"	36.2	349-118	"	
"	349-123	"	19	70 - 100mm	"	"	"	"	152	"	"	40.1	349-119	"	
"	349-124	"	25	100 - 205mm	"	"	"	"	152	"	"	40.1	349-120	"	
"	349-129	6	16	38 - 52mm	Out	"	"	34.7	148.1	"	"	36.2	349-125	"	
"	349-130	"	19	52 - 70mm	"	"	"	"	148.1	"	"	36.2	349-126	"	
"	349-131	"	19	70 - 100mm	"	"	"	"	152	"	"	40.1	349-127	"	
"	349-132	"	25	100 - 205mm	"	"	"	"	152	"	"	40.1	349-128	"	

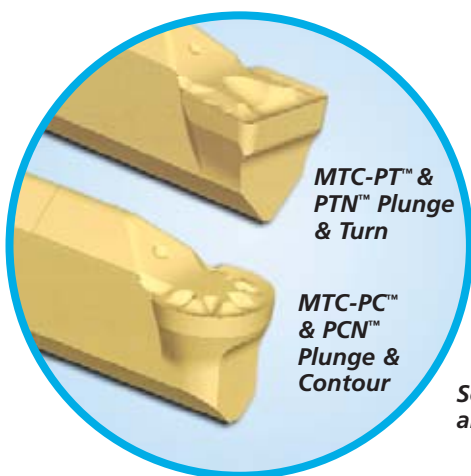
MTC™ SLS™ Face Grooving Misc. Hardware

Toolholders	Support Blade Screw	Clamp Screw
253-101, 253-104	606-255	619-168
253-201, 253-204	"	"
253-105, 253-108	619-419	619-168
253-205, 253-208	"	"

MTC™ SLS™ O.D. Grooving/Profiling System



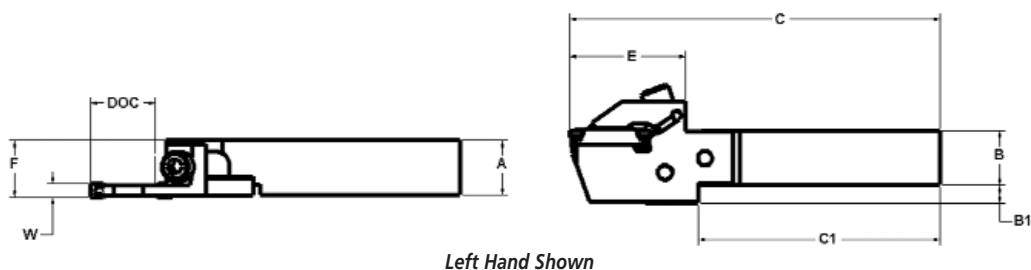
- The SLS™ cartridge will accommodate the MTC-PT™ and PTN™ inserts for Plunging and Turning and the MTC-PC™ and PCN™ inserts for Profiling.



See pages A3 and A4 for MTC-PT™/PTN™ and MTC-PC™/PCN™ insert selections

MTC™ SLS™ O.D. Grooving/Parting											INCH	
Left Hand Toolholder	Cartridge	WOC	DOC	A	B	F	C	C1	B1	E	Cartridge	Right Hand Toolholder
253-102	348-104	2mm	0.65	0.75	.625	0.75	4.78	3.33	0.25	1.20	348-103	253-101
"	348-106	.094	0.75	"	"	"	4.90	"	"	1.40	348-105	"
"	348-108	.125	.875	"	"	"	5	"	"	1.50	348-107	"
253-104	348-104	2mm	0.65	0.75	0.75	0.75	4.78	3.33	0.25	1.20	348-103	253-103
"	348-106	.094	0.75	"	"	0.75	4.90	"	"	1.40	348-105	"
"	348-108	.125	.875	"	"	0.75	5	"	"	1.50	348-107	"
"	348-110	.156	.875	"	"	0.78	5	"	"	1.50	348-109	"
"	348-112	.188	1.00	"	"	0.78	5.10	"	"	1.60	348-111	"
253-108	348-104	2mm	0.65	1.00	1.00	1.00	5.78	NA	NA	1.20	348-103	253-107
"	348-106	.094	0.75	"	"	1.00	5.90	"	"	1.40	348-105	"
"	348-108	.125	.875	"	"	1.00	6	"	"	1.50	348-107	"
"	348-110	.156	.875	"	"	1.03	6	"	"	1.50	348-109	"
"	348-112	.188	1.00	"	"	1.03	6.10	"	"	1.60	348-111	"
"	348-114	.250	1.00	"	"	1.05	6.10	"	"	1.60	348-113	"
253-106	348-104	2mm	0.65	1.25	1.25	1.25	5.78	NA	NA	1.20	348-103	253-105
"	348-106	.094	0.75	"	"	1.25	5.90	"	"	1.40	348-105	"
"	348-108	.125	.875	"	"	1.25	6	"	"	1.50	348-107	"
"	348-110	.156	.875	"	"	1.28	6	"	"	1.50	348-109	"
"	348-112	.188	1.00	"	"	1.28	6.10	"	"	1.60	348-111	"
"	348-114	.250	1.00	"	"	1.30	6.10	"	"	1.60	348-113	"

MTC™ SLS™ O.D. Grooving/Profiling System

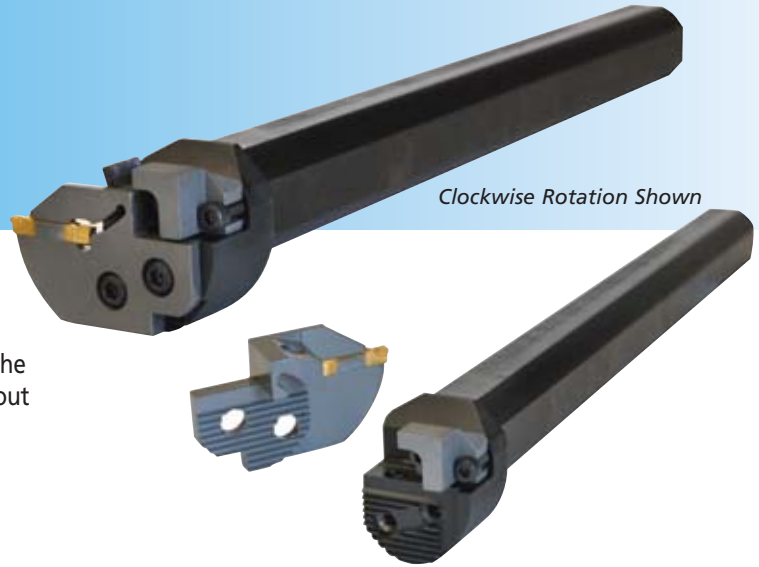


MTC™ SLS™ O.D. Grooving/Parting											METRIC	
Left Hand Toolholder	Cartridge	WOC	DOC	A	B	F	C	C1	B1	E	Cartridge	Right Hand Toolholder
253-202	348-104	2	16.5	20	16	20	119.5	82.6	5.40	30.5	348-103	253-201
"	348-106	2.50	19.1	"	"	"	122.5	"	"	35.6	348-105	"
"	348-108	3	22.2	"	"	"	125	"	"	38.1	348-107	"
253-204	348-104	2	16.5	20	20	20	119.5	82.6	5.40	30.5	348-103	253-203
"	348-106	2.50	19.1	"	"	20	122.5	"	"	35.6	348-105	"
"	348-108	3	22.2	"	"	20	125	"	"	38.1	348-107	"
"	348-110	4	22.2	"	"	20.8	125	"	"	38.1	348-109	"
"	348-112	5	25.4	"	"	20.8	127.5	"	"	40.6	348-111	"
253-208	348-104	2	16.5	25	25	25	144.4	NA	NA	30.5	348-103	253-207
"	348-106	2.50	19.1	"	"	25	147.5	"	"	35.6	348-105	"
"	348-108	3	22.2	"	"	25	150	"	"	38.1	348-107	"
"	348-110	4	22.2	"	"	25.8	150	"	"	38.1	348-109	"
"	348-112	5	25.4	"	"	25.8	152.5	"	"	40.6	348-111	"
"	348-114	6	25.4	"	"	26.1	152.5	"	"	40.6	348-113	"
253-206	348-104	2	16.5	32	32	32	144.4	NA	NA	30.5	348-103	253-205
"	348-106	2.50	19.1	"	"	32	147.5	"	"	35.6	348-105	"
"	348-108	3	22.2	"	"	32	150	"	"	38.1	348-107	"
"	348-110	4	22.2	"	"	32.8	150	"	"	38.1	348-109	"
"	348-112	5	25.4	"	"	32.8	152.5	"	"	40.6	348-111	"
"	348-114	6	25.4	"	"	33.1	152.5	"	"	40.6	348-113	"

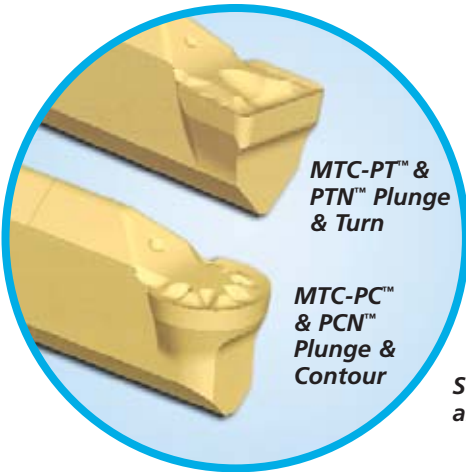
MTC™ SLS™ O.D. Grooving/Profiling Misc. Hardware

Toolholders	Support Blade Screw	Clamp Screw
253-101, 253-104	606-255	619-168
253-201, 253-204	"	"
253-105, 253-108	619-419	619-168
253-205, 253-208	"	"

MTC™ SLS™ I.D. Grooving System



- ▶ The SLS™ I.D. Grooving cartridge provides the economy of replaceable components without sacrificing rigidity.

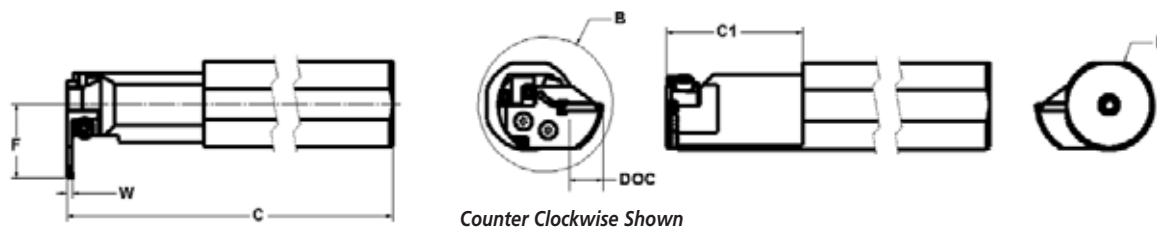


See pages A3 and A4 for MTC-PT™/PTN™ and MTC-PC™/PCN™ insert selections

MTC™ SLS™ I.D. Grooving										INCH
Left Hand Toolholder	Cartridge	W	Min. Dia. Enter B	DOC	D	F	C	C1	Cartridge	Right Hand Toolholder
254-102	350-104	2mm	2.25	0.50	1	1.30	8	NA	350-103	254-101
"	350-106	.094	2.25	.625	"	1.42	"	"	350-105	"
"	350-108	.125	2.375	0.75	"	1.52	"	"	350-107	"
"	350-110	.156	2.375	0.75	"	1.52	"	"	350-109	"
254-104	350-104	2mm	2.25	0.50	1.25	1.3	10	NA	350-103	254-103
"	350-106	.094	2.25	.625	"	1.42	"	"	350-105	"
"	350-108	.125	2.375	0.75	"	1.52	"	"	350-107	"
"	350-110	.156	2.375	0.75	"	1.52	"	"	350-109	"
"	350-112	.188	2.5	0.85	"	1.62	"	"	350-111	"
254-106	350-104	2mm	2.25	0.50	1.50	1.3	12	NA	350-103	254-105
"	350-106	.094	2.25	.625	"	1.42	"	"	350-105	"
"	350-108	.125	2.375	0.75	"	1.52	"	"	350-107	"
"	350-110	.156	2.375	0.75	"	1.52	"	"	350-109	"
"	350-112	.188	2.5	0.85	"	1.62	"	"	350-111	"
"	350-114	0.25	2.5	0.85	"	1.62	"	"	350-113	"
254-108	350-104	2mm	2.25	0.50	2	1.42	12	3	350-103	254-107
"	350-106	.094	2.25	.625	"	1.54	"	"	350-105	"
"	350-108	.125	2.375	0.75	"	1.64	"	"	350-107	"
"	350-110	.156	2.375	0.75	"	1.64	"	"	350-109	"
"	350-112	.188	2.5	0.85	"	1.74	"	"	350-111	"
"	350-114	0.25	2.5	0.85	"	1.74	"	"	350-113	"

NOTE:
All Toolholders Inch/Metric Have 1/4 NPT Tap For Coolant Adaptor.

MTC™ SLS™ I.D. Grooving System



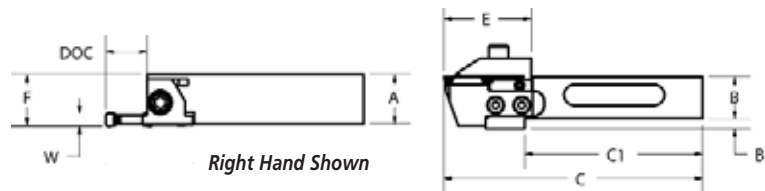
MTC™ SLS™ I.D. Grooving										METRIC
Left Hand Toolholder	Cartridge	W	Min. Dia. Enter B	DOC	D	F	C	C1	Cartridge	Right Hand Toolholder
254-202	350-104	2	57.5	13	25	33	200	NA	350-103	254-201
"	350-106	2.5	57.5	16	"	36.1	"	"	350-105	"
"	350-108	3	60.5	19	"	38.6	"	"	350-107	"
"	350-110	4	60.5	19	"	38.6	"	"	350-109	"
254-204	350-104	2	57.5	13	32	33	250	NA	350-103	254-203
"	350-106	2.5	57.5	16	"	36.1	"	"	350-105	"
"	350-108	3	60.5	19	"	38.6	"	"	350-107	"
"	350-110	4	60.5	19	"	38.6	"	"	350-109	"
"	350-112	5	63.5	21.5	"	41.15	"	"	350-111	"
254-206	350-104	2	57.5	13	40	33	300	NA	350-103	254-205
"	350-106	2.5	57.5	16	"	36.1	"	"	350-105	"
"	350-108	3	60.5	19	"	38.6	"	"	350-107	"
"	350-110	4	60.5	19	"	38.6	"	"	350-109	"
"	350-112	5	63.5	21.5	"	41.15	"	"	350-111	"
"	350-114	6	63.5	21.5	"	41.15	"	"	350-113	"
254-208	350-104	2	57.5	13	50	36	300	76	350-103	254-207
"	350-106	2.5	57.5	16	"	39.1	"	"	350-105	"
"	350-108	3	60.5	19	"	41.6	"	"	350-107	"
"	350-110	4	60.5	19	"	41.6	"	"	350-109	"
"	350-112	5	63.5	21.5	"	44.15	"	"	350-111	"
"	350-114	6	63.5	21.5	"	44.15	"	"	350-113	"

NOTE:

All Toolholders Inch/Metric Have 1/4 NPT Tap For Coolant Adaptor.

MTC™ SLS™ I.D. Grooving Misc. Replacement Hardware Inch/Metric				
Coolant Spout Left Hand	Support Blade Screw	Clamp Screw	Coolant Support Screw	Coolant Spout Right Hand
614-126	606-256	619-168	619-151	614-125

MTC™ Conversion Components



- ▶ Get more!
More speed and feed.
More chip control.
More tool life.
More Depth of Cut.
- ▶ A support blade, a clamp and a stop mount to existing Square Shank and Right Angle O.D. Grooving Toolholders to create a mounting area comparable to that of MTC™ Integral Shank Toolholders. Once the components are installed, MTC™ inserts can be used in the toolholder.
- ▶ Ideal for use with 5/16 and 8 mm width MTC PT™/PC™ and PTN™/PCN™ inserts.
- ▶ These components allow MTC™ style inserts to be used with existing Deep Grooving toolholders.

MTC™ Deep Grooving Toolholders

INCH

Left Hand Toolholder	Doc	A	B	F	C	C1	B1	E	Right Hand Toolholder
203-352	0.81	1.20	1.00	1.25	6	4.25	0.25	1.94	203-287
203-271	0.81	1.45	1.25	1.50	5.75	NA	NA	1.94	—
—	0.81	1.20	1.25	1.25	6.50	NA	NA	1.94	203-245
203-232	0.81	1.45	1.25	1.50	6	NA	NA	1.94	203-231
203-233	0.81	1.95	1.50	2	6.50	NA	NA	1.94	203-112

MTC™ Deep Grooving Toolholders

METRIC

Left Hand Toolholder	Doc	A	B	F	C	C1	B1	E	Right Hand Toolholder
203-354	19	32	25	32.8	165	123	7	49.2	203-353
203-356	19	32	32	32.8	185	NA	NA	49.2	203-355

Replacement Conversion Components for MTC™ Deep Grooving Toolholder

INCH

Left Hand Blade	Clamp	Stop	WOC	DOC	Stop	Clamp	Right Hand Blade
346-104	445-104	601-136	.125	0.87	601-136	445-103	346-103
346-106	445-106	601-136	.156	0.87	601-136	445-105	346-105
346-108	445-108	601-137	.188	1.00	601-137	445-107	346-107
346-110	445-110	601-137	.250	1.00	601-137	445-109	346-109
346-112	445-112	601-137	.312	1.00	601-137	445-111	346-111

Replacement Conversion Components for MTC™ Deep Grooving Toolholder

METRIC

Left Hand Blade	Clamp	Stop	WOC	DOC	Stop	Clamp	Right Hand Blade
346-104	445-104	601-136	3	22	601-136	445-103	346-103
346-106	445-106	601-136	4	22	601-136	445-105	346-105
346-108	445-108	601-137	5	25	601-137	445-107	346-107
346-110	445-110	601-137	6	25	601-137	445-109	346-109
346-112	445-112	601-137	8	25	601-137	445-111	346-111

MTC™ Replacement Hardware

Toolholders	Support Blade Screw	Clamp Screw	Stop Screw
Inch Holders	606-160	619-110	619-101
Metric Holders	606-222	619-161	619-162

Application Guidelines

Material	Grade	(SX) SFM	IPR	Plunge SFM	(PC) IPR	Contour SFM	IPR	Plunge SFM	(PT) IPR	Turn SFM	IPR
Carbon Steels Low Carbon Less than .30% C AISI 1000,1100 and 1200 Series	M40	100-350	.003-.008	100-350	.003-.005	150-350	.007-.020	100-350	.003-.008	100-350	.004-.012
	M43	250-700	.003-.008	250-700	.003-.005	250-700	.007-.020	250-700	.003-.008	250-700	.007-.012
	M45	125-400	.003-.008	125-400	.003-.005	125-400	.007-.020	125-400	.003-.008	125-400	.004-.012
	M93	400-900	.003-.008	400-900	.003-.005	400-900	.007-.020	400-900	.003-.008	400-900	.004-.012
Carbon Steels High Carbon Greater than .30% C AISI 1000,1100 and 1200 Series	M40	100-350	.003-.008	100-350	.003-.005	100-350	.007-.020	100-350	.003-.010	100-350	.004-.012
	M43	250-700	.003-.008	250-700	.003-.005	250-700	.007-.020	250-700	.003-.010	250-700	.004-.012
	M45	125-400	.003-.008	125-400	.003-.005	125-400	.007-.020	125-400	.003-.010	125-400	.004-.012
	M93	-	-	250-700	.003-.005	250-700	.007-.020	250-700	.003-.010	250-700	.004-.012
Alloy Steels Low Carbon Less than .30% C AISI 1300, 4000, 5000, 6000, 8000 and 9000 Series	M40	100-350	.003-.008	100-350	.003-.005	100-350	.007-.020	100-350	.003-.009	100-350	.004-.012
	M43	250-700	.003-.008	250-700	.003-.005	250-700	.007-.020	250-700	.003-.010	250-700	.004-.012
	M45	125-400	.003-.008	125-400	.003-.005	125-400	.007-.020	125-400	.003-.009	125-400	.004-.012
	M93	400-900	.003-.008	400-900	.003-.005	400-900	.007-.020	400-900	.003-.009	400-900	.004-.012
Alloy Steels High Carbon Greater than .30% C AISI 1300, 4000, 5000, 6000, 8000 and 9000 Series	M40	100-350	.003-.008	100-350	.003-.005	100-350	.007-.020	100-350	.003-.010	100-350	.004-.012
	M43	250-700	.003-.008	250-700	.003-.005	250-700	.007-.020	250-700	.003-.010	250-700	.004-.012
	M45	125-400	.003-.008	125-400	.003-.005	125-400	.007-.020	125-400	.003-.010	125-400	.004-.012
	M93	400-900	.003-.008	400-900	.003-.005	400-900	.007-.020	400-900	.003-.010	400-900	.004-.012
Tool Steels Examples A-2, D-2, M-2 H-2, O-2	M40	100-250	.003-.005	100-200	.003-.005	100-200	.007-.015	100-200	.003-.007	100-200	.004-.010
	M43	150-300	.003-.006	150-350	.003-.005	150-700	.007-.015	150-300	.003-.007	150-300	.004-.010
	M45	125-250	.003-.005	125-250	.003-.005	125-250	.007-.015	125-250	.003-.007	125-250	.004-.010
	M93	200-350	.003-.006	250-450	.003-.005	250-450	.007-.015	250-450	.003-.007	250-450	.004-.010
Martensitic Stainless Steel 400 Series	M40	100-300	.003-.005	100-300	.003-.005	100-300	.007-.020	100-300	.003-.006	100-300	.004-.012
	M43	250-450	.003-.007	250-450	.003-.005	250-450	.007-.020	250-450	.003-.007	250-450	.004-.012
	M45	125-350	.003-.005	125-350	.003-.005	125-350	.007-.020	125-350	.003-.009	125-350	.004-.012
	M433B	250-450	.003-.006	-	-	-	-	-	-	-	-
Austenitic Stainless Steel 300 Series	M40	100-200	.003-.006	100-200	.003-.005	100-200	.007-.015	100-200	.003-.006	100-200	.003-.009
	M43	150-300	.003-.006	150-300	.003-.005	150-300	.007-.015	150-300	.003-.006	150-300	.004-.009
	M45	125-250	.003-.006	125-350	.003-.005	125-350	.007-.015	125-350	.003-.006	125-350	.003-.009
	M433B	150-300	.003-.006	-	-	-	-	-	-	-	-
Low Machinability Alloys Iron, Nickel and Cobalt based Example: Inconel, Hastelloy, A286	M40	50-125	.002-.005	50-125	.002-.004	50-125	.005-.012	50-125	.003-.006	50-125	.003-.007
	M43	70-200	.002-.005	70-200	.002-.004	70-200	.005-.012	70-200	.003-.006	70-200	.003-.007
	M45	70-150	.002-.005	70-125	.002-.004	70-125	.005-.012	70-125	.003-.006	70-125	.003-.007
	M433B	70-200	.002-.004	-	-	-	-	-	-	-	-
Non Ferrous Free Machining Materials Aluminum, Copper and Zinc based	M40	400+	.002-.010	400+	.003-.006	400+	.007-.020	400+	.003-.012	400+	.003-.015
	M43	450+	.002-.010	450+	.003-.007	450+	.007-.020	450+	.003-.012	450+	.003-.015
	M45	400+	.002-.010	400+	.003-.006	400+	.007-.020	400+	.003-.012	400+	.003-.015
	M93	500+	.002-.010	-	-	-	-	-	-	-	-
Titanium	M40	75-125	.002-.005	100-150	.002-.003	100-149	.005-.012	100-149	.003-.005	100-149	.003-.008
	M43	125-225	.002-.005	150-225	.002-.004	150-225	.005-.012	150-225	.003-.006	150-225	.003-.008
	M45	100-175	.002-.005	125-175	.002-.004	125-175	.005-.012	125-175	.003-.006	125-175	.003-.008
	M433B	125-225	.002-.005	-	-	-	-	-	-	-	-
Cast Irons Gray, Soft (20-30 Rc)	M40	400-500	.002-.010	400-600	.003-.008	400-600	.007-.020	400-600	.003-.010	400-600	.003-.010
	M43	400-600	.002-.010	-	-	-	-	-	-	-	-
	M45	400-500	.002-.010	450-700	.003-.008	450-700	.007-.020	450-700	.003-.010	450-700	.003-.010
	M93	800-900	.002-.008	-	-	-	-	-	-	-	-
	M240	-	-	700-1200	.004-.020	700-1200	.004-.020	700-1200	.002-.010	700-1200	.002-.010

WIDIA



MANCHESTER[®]



Separator[®] Cutoff Tools

MTC[™]
Cutoff & Grooving

Separator[®]
Cutoff

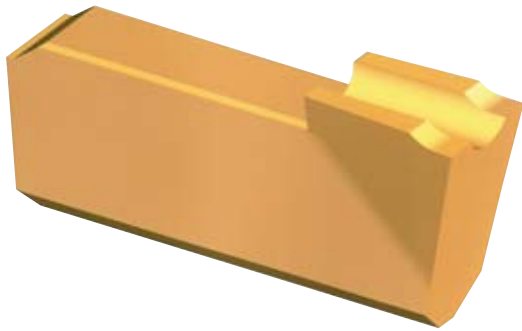
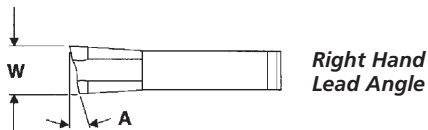
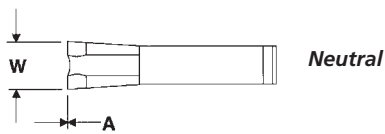
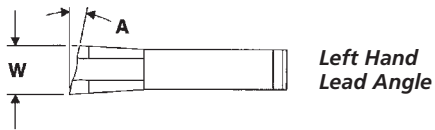
Chipmaker[®]
O.D. & I.D. Grooving

Ranger[™]
Face Grooving

Octicut[®]
Threading

SEPARATOR® CLASSIC INSERTS

Neutral, Right and Left Hand Lead Angles



Separator® Classic Inserts			INCH
Part Number	W	A	Hand
507-196	1/16	0°	N
507-197	1/16	4°	R
507-213	1/16	4°	L
507-214	1/16	12°	R
507-140	3/32	0°	N
507-143	3/32	4°	R
507-144	3/32	4°	L
507-151	3/32	12°	R
507-152	3/32	12°	L
507-161	3/32	18°	R
507-117	1/8	0°	N
507-128	1/8	4°	R
507-129	1/8	4°	L
507-146	1/8	12°	R
507-154	1/8	12°	L
507-155	1/8	18°	R
507-116	3/16	0°	N
507-119*	3/16	0°	N
507-124	3/16	4°	R
507-126*	3/16	4°	R
507-125	3/16	4°	L
507-127*	3/16	4°	L
507-176	3/16	12°	R
507-118	1/4	0°	N
507-120*	1/4	0°	N
507-131	1/4	4°	R
507-133*	1/4	4°	R
507-132	1/4	4°	L
507-134*	1/4	4°	L

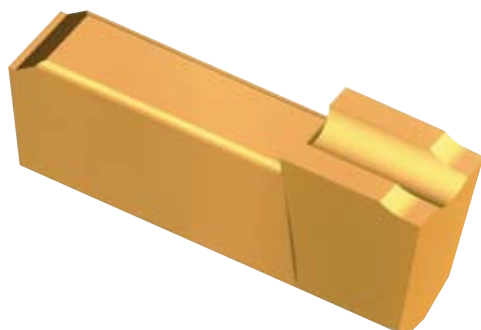
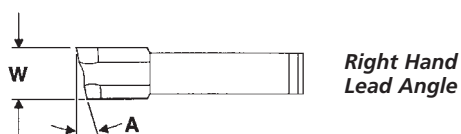
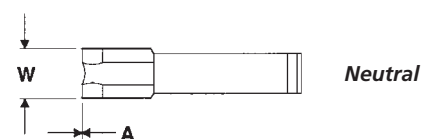
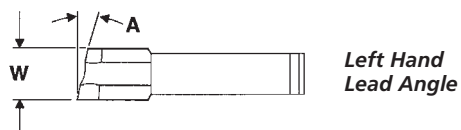
Separator® Classic Inserts			METRIC
Part Number	W mm	A	Hand
507-315	2	0°	N
507-316	2	4°	R
507-317	2	4°	L
507-318	2	12°	R
507-319	2	12°	L
507-320	2	18°	R
507-321	2	18°	L
507-202	3	0°	N
507-203	3	4°	R
507-204	3	4°	L
507-205	3	12°	R
507-206	3	18°	R
507-148	4	0°	N
507-149	4	4°	R
507-150	4	4°	L
507-201	4	12°	R

Separator® Inserts are available in TiN (M40), TiAlN (M43), TiCN (M45), TiN (M50), TiAlN (M93) & Uncoated (C2 & C5).

*Available in Grade C2 only.

SEPARATOR® F²

Neutral, Right and Left Hand Lead Angles



Separator® F ²			INCH
Part Number	W	A	Hand
507-240	3/32	0°	N
507-241	3/32	4°	R
507-254	3/32	4°	L
507-242	3/32	12°	R
507-255	3/32	12°	L
507-243	3/32	18°	R
507-256	3/32	18°	L
507-244	1/8	0°	N
507-245	1/8	4°	R
507-257	1/8	4°	L
507-246	1/8	12°	R
507-258	1/8	12°	L
507-247	1/8	18°	R
507-259	1/8	18°	L
507-251	3/16	0°	N
507-252	3/16	4°	R
507-262	3/16	4°	L
507-253	3/16	12°	R
507-263	3/16	12°	L

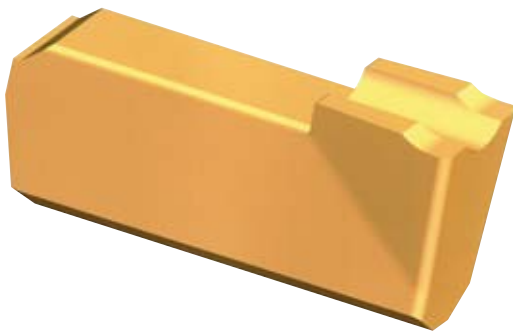
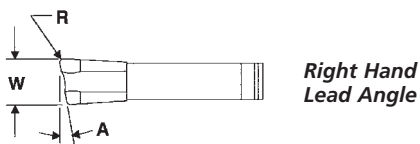
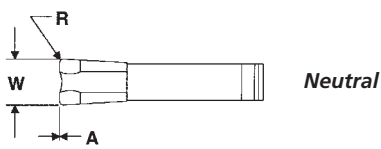
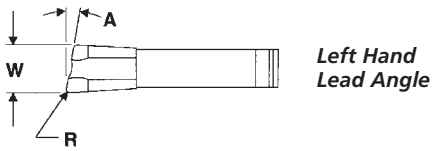
Separator® F ²			METRIC
Part Number	W mm	A	Hand
507-288	3	0°	N
507-289	3	4°	R
507-292	3	4°	L
507-290	3	12°	R
507-293	3	12°	L
507-291	3	18°	R
507-294	3	18°	L
507-248	4	0°	N
507-249	4	4°	R
507-260	4	4°	L
507-250	4	12°	R
507-261	4	12°	L

Separator® Inserts are available in TiN (M40), TiAlN (M43) & TiCN (M45).

Note: Additional lead angles and custom chip breakers on request.

SEPARATOR® G²

Neutral, Right and Left Hand Lead Angles



Separator® G ²				INCH
Part Number	W	A	Hand	R
507-227	3/32	0°	N	.007
507-228	3/32	5°	R	.007
507-229	3/32	5°	L	.007
507-231	1/8	0°	N	.009
507-232	1/8	5°	R	.009
507-233	1/8	5°	L	.009
507-237	3/16	0°	N	.009
507-238	3/16	5°	R	.009
507-239	3/16	5°	L	.009

Separator® G ²				METRIC
Part Number	W mm	A	Hand	R mm
507-267	3	0°	N	0.23
507-268	3	5°	R	0.23
507-269	3	5°	L	0.23
507-234	4	0°	N	0.23
507-235	4	5°	R	0.23
507-236	4	5°	L	0.23

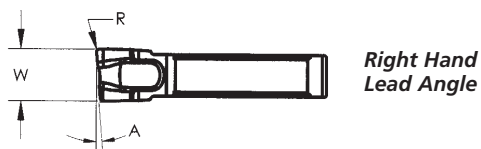
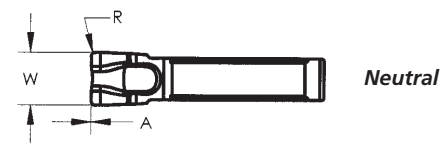
Separator® Inserts are available in TiAlN (M43), TiCN (M45) & TiAlN (M93).

Note: Custom chip breakers on request.

See Section A – MTC™ Products for additional Cutoff tools.

SEPARATOR® S²

Neutral, Right and Left Hand Lead Angles



Separator® S²

INCH

Part Number	W	A	Hand	R
507-275	3/32	0°	N	.007
507-301	3/32	5°	R	.001
507-276	3/32	5°	R	.007
507-277	3/32	5°	L	.007
507-278	1/8	0°	N	.010
507-298	1/8	5°	R	.001
507-279	1/8	5°	R	.010
507-280	1/8	5°	L	.010
507-281	3/16	0°	N	.010
507-282	3/16	5°	R	.010
507-283	3/16	5°	L	.010

Separator® S²

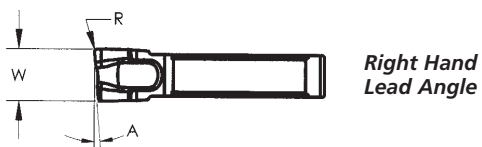
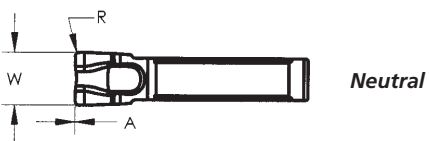
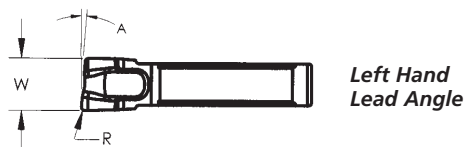
METRIC

Part Number	W mm	A	Hand	R mm
507-295	3	0°	N	0.25
507-296	3	5°	R	0.25
507-297	3	5°	L	0.25
507-378	4	0°	N	0.25
507-379	4	5°	R	0.25
507-380	4	5°	L	0.25

Separator® S² Inserts are available in TiAlN (M43), TiCN (M45), TiAlN (M93).

SEPARATOR® S² -Ultra

Neutral, Right and Left Hand Lead Angles



Separator® S ² -Ultra				INCH
Part Number	W	A	Hand	R
507-329	3/32	0°	N	0.006
507-330	3/32	5°	R	0.006
507-331	3/32	5°	L	0.006
507-332	1/8	0°	N	0.006
507-333	1/8	5°	R	0.006
507-334	1/8	5°	L	0.006

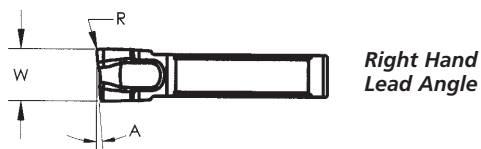
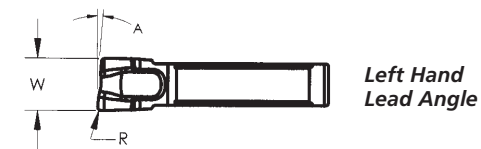
Separator® S ² -Ultra				METRIC
Part Number	W mm	A	Hand	R mm
507-348	2.5	0°	N	0.15
507-349	2.5	5°	R	0.15
507-350	2.5	5°	L	0.15
507-351	3	0°	N	0.15
507-352	3	5°	R	0.15
507-353	3	5°	L	0.15

Separator® S² -Ultra Inserts are available in TiAlN (M433B).

See Section A – MTC™ Products for additional Cutoff tools.

SEPARATOR® X²

Neutral, Right and Left Hand Lead Angles



Separator® X²

INCH

Part Number	W	A	Hand	R
507-305	3/32	0°	N	.005
507-306	3/32	5°	R	.005
507-307	3/32	5°	L	.005
507-308	1/8	0°	N	.005
507-309	1/8	5°	R	.005
507-310	1/8	5°	L	.005

Separator® X²

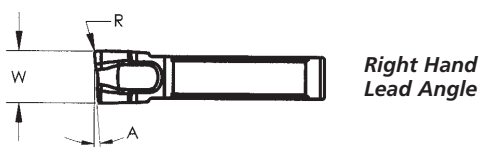
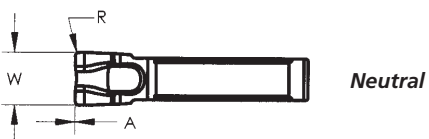
METRIC

Part Number	W mm	A	Hand	R mm
507-363	2.5	0°	N	0.13
507-364	2.5	5°	R	0.13
507-365	2.5	5°	L	0.13
507-372	3.0	0°	N	0.15
507-373	3.0	5°	R	0.15
507-374	3.0	5°	L	0.15

Separator® X² Inserts are available in TiAlN (M43), TiCN (M45) & TiAlN (M93).

SEPARATOR® X² -Ultra

Neutral, Right and Left Hand Lead Angles



Separator® X ² -Ultra				INCH
Part Number	W	A	Hand	R
507-354	3/32	0°	N	0.005
507-355	3/32	5°	R	0.005
507-356	3/32	5°	L	0.005
507-357	1/8	0°	N	0.005
507-358	1/8	5°	R	0.005
507-359	1/8	5°	L	0.005

Separator® X ² -Ultra				METRIC
Part Number	W mm	A	Hand	R mm
507-382	2.0	0°	N	0.02
507-383	2.0	5°	R	0.02
507-384	2.0	5°	L	0.02
507-366	2.5	0°	N	0.13
507-367	2.5	5°	R	0.13
507-368	2.5	5°	L	0.13
507-369	3.0	0°	N	0.15
507-370	3.0	5°	R	0.15
507-371	3.0	5°	L	0.15

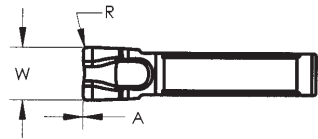
Separator® X² -Ultra Inserts are available in TiAlN (M433B).

See Section A – MTC™ Products for additional Cutoff tools.

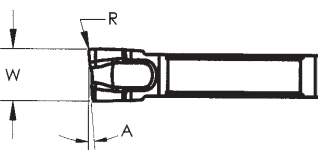
SEPARATOR® D²

SEPARATOR® GT

Neutral (Square Front)



Neutral



*Right Hand
Lead Angle*

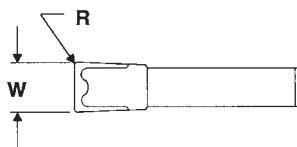


Separator® D²

INCH

Part Number	W	A	Hand	R
507-393	3/32	0°	N	0.010
507-394	3/32	5°	R	0.010
507-396	1/8	0°	N	0.010
507-397	1/8	5°	R	0.010
507-399	3/16	0°	N	0.015
507-400	3/16	5°	R	0.015

Separator® D² Inserts are available in TiCN (M45).

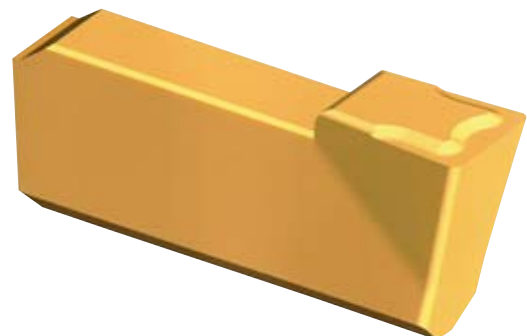


Separator® GT

INCH

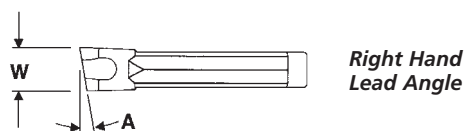
Part Number	W	A	Hand	R
524-101	3/32	0°	N	.010
524-102	1/8	0°	N	.010
524-103	3/16	0°	N	.010

Separator® GT Inserts are available in TiN (M40), TiAlN (M43), TiCN (M45) & TiAlN (M93).

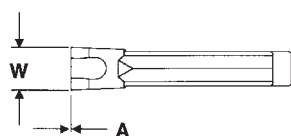


SEPARATOR® PL

Neutral and Right Hand Lead Angles
Sharp Corner



*Right Hand
Lead Angle*



Neutral



Separator® PL *INCH*

Part Number	W	A	Hand
512-108	3/32	0°	N
512-109	3/32	5°	R
512-110*	3/32	12°	R
512-115	1/8	0°	N
512-116	1/8	5°	R
512-117*	1/8	12°	R
512-129	3/16	0°	N
512-130	3/16	5°	R

Separator® PL *METRIC*

Part Number	W mm	A	Hand
512-213	2.5	0°	N
512-214	2.5	5°	R
512-215*	2.5	12°	R
512-216	3	0°	N
512-217	3	5°	R
512-218*	3	12°	R
512-122	4	0°	N
512-123	4	5°	R

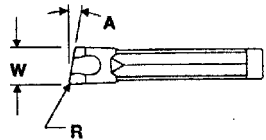
* No chipbreaker

Separator® PL Inserts are available in TiN (M40), TiAlN (M43) & TiCN (M45).
See pages B26 and B27 for Separator® PL Blades.

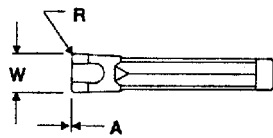
See Section A – MTC™ Products for additional Cutoff tools.

SEPARATOR® PL

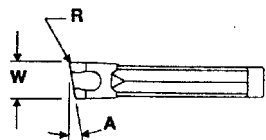
Neutral, Right and Left Hand Lead Angles
Corner Radius



*Left Hand
Lead Angle*



Neutral



*Right Hand
Lead Angle*



Separator® PL				INCH
Part Number	W	A	Hand	R
512-157	3/32	0°	N	.006
512-158	3/32	5°	R	.006
512-161	3/32	5°	L	.006
512-164	1/8	0°	N	.006
512-165	1/8	5°	R	.006
512-168	1/8	5°	L	.006
512-178	3/16	0°	N	.008
512-179	3/16	5°	R	.008
512-182	3/16	5°	L	.008

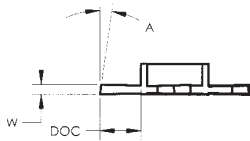
Separator® PL				METRIC
Part Number	W mm	A	Hand	R mm
512-192	2.5	0°	N	0.15
512-193	2.5	5°	R	0.15
512-196	2.5	5°	L	0.15
512-199	3	0°	N	0.15
512-200	3	5°	R	0.15
512-203	3	5°	L	0.15
512-171	4	0°	N	0.15
512-172	4	5°	R	0.15
512-175	4	5°	L	0.15
512-206	5	0°	N	0.20
512-207	5	5°	R	0.20
512-210	5	5°	L	0.20

Separator® PL Inserts are available in TiN (M40), TiAlN (M43), TiCN (M45), TiAlN (M53) & TiAlN (M93).

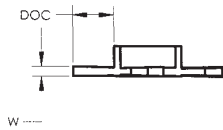
See pages B26 and B27 for Separator® PL Blades.

SEPARATOR® QUATTRO™

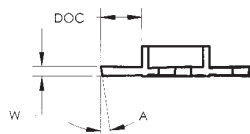
Narrow Cutoff Tools for CNC and Screw Machines



*Left Hand
Lead Angle*



Neutral



*Right Hand
Lead Angle*



Separator® Quattro™

INCH

Part Number		A	W	DOC
Left Hand	Right Hand			
571-442		0°	.031	.110
	571-446	0°	.031	.110
	571-450	4°	.031	.110
	571-454	18°	.031	.110
571-444		0°	.062	.265
	571-448	0°	.062	.265
	571-452	4°	.062	.265
	571-456	18°	.062	.265
571-458		0°	.094	.265
	571-461	0°	.094	.265
	571-464	4°	.094	.265
	571-467	18°	.094	.265

Separator® Quattro™

METRIC

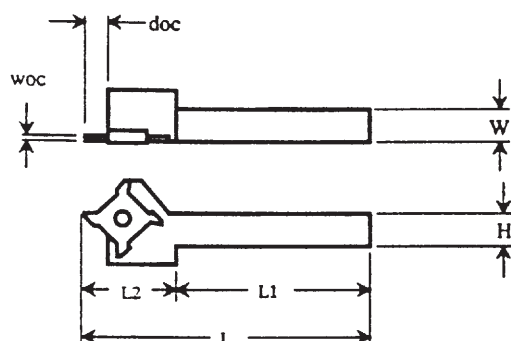
Part Number		A	W	DOC
Left Hand	Right Hand			
571-420		0°	1	2.79
	571-421	0°	1	2.79
	571-422	4°	1	2.79
	571-423	18°	1	2.79
571-443		0°	1.5	6.73
	571-447	0°	1.5	6.73
	571-451	4°	1.5	6.73
	571-455	18°	1.5	6.73
571-445		0°	2	6.73
	571-449	0°	2	6.73
	571-453	4°	2	6.73
	571-457	18°	2	6.73
571-424		0°	2.5	6.73
	571-425	0°	2.5	6.73
	571-426	4°	2.5	6.73
	571-427	18°	2.5	6.73
571-459		0°	3	6.73
	571-462	0°	3	6.73
	571-465	4°	3	6.73
	571-468	18°	3	6.73

Separator® Quattro™ Inserts are available in TiAlN (M43) & TiCN (M45).

See Section A – MTC™ Products for additional Cutoff tools.

SEPARATOR® QUATTRO™ TOOLHOLDERS

Square Shank Toolholders



Right Hand Shown

Separator® Quattro™						INCH
Part Number	R/L	W	H	L	L1	L2
245-432	R	.375	.375	3	1-7/8	1-1/8
245-433	R	.500	.500	3-1/2	2-3/8	1-1/8
245-434	R	.625	.625	4-1/2	—	—
245-435	R	.750	.750	4-1/2	—	—
245-481	R	1.000	1.000	5-3/4	—	—
245-436	L	.375	.375	3	1-7/8	1-1/8
245-437	L	.500	.500	3-1/2	2-3/8	1-1/8
245-438	L	.625	.625	4-1/2	—	—
245-439	L	.750	.750	4-1/2	—	—
245-482	L	1.000	1.000	5-3/4	—	—

See page B12 for inserts.

Replacement Hardware		INCH
Insert Screw		Wrench
644-108		644-111

Separator® Quattro™						METRIC
Part Number	R/L	W	H	L	L1	L2
245-444	R	10	10	100	70	30
245-445	R	12	12	125	95	30
245-446	R	16	16	125	—	—
245-447	R	20	20	125	—	—
245-440	L	10	10	100	70	30
245-441	L	12	12	125	95	30
245-442	L	16	16	125	—	—
245-443	L	20	20	125	—	—

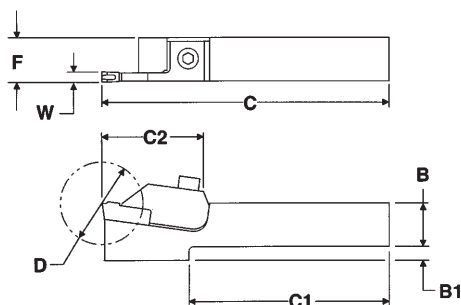
See page B12 for inserts.

Replacement Hardware		METRIC
Insert Screw		Wrench
644-108		644-111

Note: Toolholders can accept right hand and left hand inserts.

SEPARATOR®

Integral Shank Tooling



Right Hand Shown



LH



RH

Separator® Integral Shank Tooling

INCH

Left Hand	Clamp	W	D	B	B ₁	C	C ₁	C ₂	F	Clamp	Right Hand
206-174	435-153	3/32	1-1/16	.375	.125	2.63	1.81	1.00	.375	435-152	206-173
206-176	435-153	3/32	1-1/16	.500	0	6.00	0	1.00	.500	435-152	206-175
206-168	435-141	3/32	1-1/2	.625	0	4.50	0	1.25	.625	435-140	206-167
206-172	435-141	3/32	1-1/2	.750	0	4.50	0	1.25	.750	435-140	206-171
206-146	435-131	1/8	1.00	.500	0	6.00	0	1.00	.500	435-130	206-145
206-170	435-127	1/8	1-1/2	.625	0	4.50	0	1.25	.625	435-126	206-169
206-140	435-127	1/8	1-1/2	.750	0	4.50	0	1.25	.750	435-126	206-139

Note: Above toolholders are supplied with clamp. See pages B2-B9 for inserts.

Replacement Hardware

INCH

Toolholders	Clamp Screw
3/8 & 1/2 Shank Tools	619-122
5/8 & 3/4 Shank Tools	619-123

Separator® Integral Shank Tooling

METRIC

Left Hand	Clamp	W	D	B	B ₁	C	C ₁	C ₂	F	Clamp	Right Hand
206-451	435-203	2	20	10	2	75	55	25	10	435-200	206-445
206-452	435-203	2	20	12	0	90	0	25	12	435-200	206-446
206-453	435-204	2	26	10	0	150	130	25	10	435-201	206-447
206-454	435-204	2	26	12	0	150	0	25	12	435-201	206-448
206-455	435-205	2	38	16	0	100	0	38	16	435-202	206-449
206-456	435-205	2	38	20	0	125	0	38	20	435-202	206-450
206-264	435-171	2.5	20	10	2	75	55	25	10	435-170	206-263
206-266	435-171	2.5	20	12	0	90	0	25	12	435-170	206-265
206-272	435-153	2.5	26	10	2	150	130	25	10	435-152	206-279
206-273	435-153	2.5	26	12	0	150	0	25	12	435-152	206-280
206-275	435-141	2.5	38	16	0	100	0	38	16	435-140	206-282
206-277	435-141	2.5	38	20	0	125	0	38	20	435-140	206-284
206-274	435-131	3.0	26	12	0	150	0	25	12	435-130	206-281
206-276	435-127	3.0	38	16	0	100	0	38	16	435-126	206-283
206-278	435-127	3.0	38	20	0	125	0	38	20	435-126	206-285

Note: Above toolholders are supplied with clamp. See pages B2-B9 for inserts.

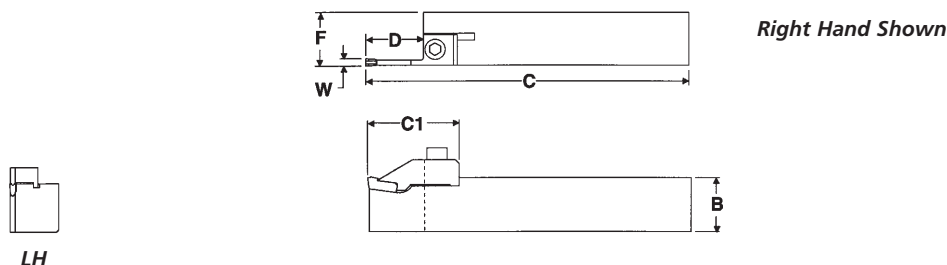
Replacement Hardware

METRIC

Toolholders	Clamp Screw
10x10mm & 12x12mm Shank Tools	619-154
16x16mm & 20x20mm Shank Tools	619-152

SEPARATOR®

Extended Capacity Integral Shank



Separator® Extended Capacity Integral Shank

INCH

Left Hand	Clamp	W	D	B	C	C ₁	F	Clamp	Right Hand
206-422	435-181	1/8	1.00	1.00	6.00	1.68	1.00	435-180	206-420
206-423	435-181	3/16	1.00	1.00	6.00	1.68	1.00	435-180	206-421

Note: Above toolholders are supplied with clamp. See pages B2-B9 for inserts.

Replacement Hardware

INCH

Clamp Screw

619-164

Separator® Extended Capacity Integral Shank

METRIC

Left Hand	Clamp	W	D	B	C	C ₁	F	Clamp	Right Hand
206-419	435-181	3	25	25	150	42.6	25	435-180	206-417
206-424	435-181	4	25	25	150	42.6	25	435-180	206-418

Note: Above toolholders are supplied with clamp. See pages B2-B9 for inserts.

Replacement Hardware

METRIC

Clamp Screw

619-168

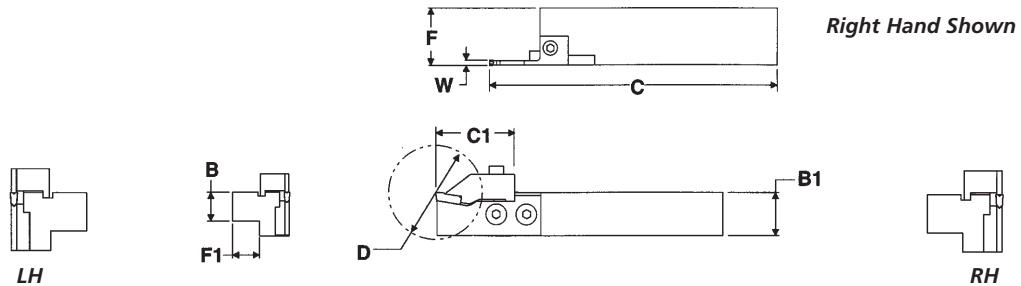
See Section A – MTC™ Products for additional Cutoff tools.

SEPARATOR®

CNC Style Toolholders

1/2" and 3/4" Shank Tools

12mm and 20mm Square Shank



Separator® 1/2" and 3/4" Shank Tools

INCH

Left Hand	D	B	B ₁	C	C ₁	F	F ₁	Right Hand
206-180	1-5/8	.500	.750	4.5	1.38	1.00	.460	206-179
206-178*	1-5/8	.750	.750	4.5	1.38	.750	0	206-178*

*Note: 206-178 is used for both right and left hand. See pages B2-B9 for inserts.

Components

INCH

Left Hand			Right Hand	
Support Blade	Clamp	W	Clamp	Support Blade
333-112	435-195	2 mm	435-194	333-111
333-103	435-156	2.5 mm	435-154	333-101
333-103	435-156	3/32	435-154	333-101
333-104	435-157	1/8	435-155	333-102

Replacement Hardware

INCH

Support Blade Screws	Clamp Screw
606-167	619-124

Separator® 12mm and 20mm Square Shank

METRIC

Left Hand	D	B	B ₁	C	C ₁	F	F ₁	Right Hand
206-519	41	12	12	125	35	25	12	206-518
206-523	41	20	20	125	35	20	0	206-522

Toolholder supplied without support blade and clamp. See pages B2-B9 for inserts.

Components

METRIC

Left Hand			Right Hand	
Support Blade	Clamp	W mm	Clamp	Support Blade
333-112	435-195	2	435-194	333-111
333-103	435-156	2.5	435-154	333-101
333-104	435-157	3	435-155	333-102

Replacement Hardware

METRIC

Support Blade Screws	Clamp Screw
606-247	619-390

SEPARATOR®

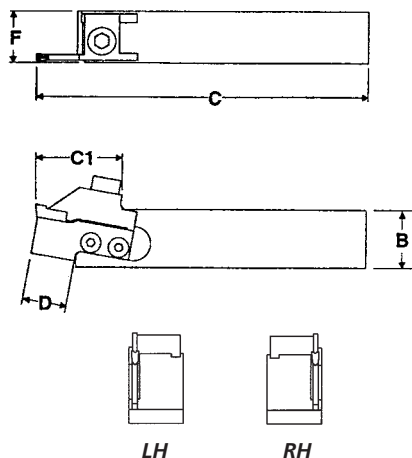
CNC Style Toolholders

1" and 1-1/4" Square Shank Tools

25mm and 32mm Square Shank Tools



Right Hand Shown



Separator® 1" and 1-1/4" Square Shank Tools **INCH**

Left Hand	D*	B	C*	C ₁ *	F**	Right Hand
206-142	13/16	1.00	6.00	1.50	1.25	206-141
206-144	13/16	1.25	6.00	1.50	1.50	206-143

*For 3/32" WOC, "D" is 1/2" and subtract .288 from "C" dimension.

**Add .031 for 3/16" WOC. See pages B2-B9 for inserts.

Components

INCH

Left Hand Support Blade	Clamp	W	DOC	Clamp	Right Hand Support Blade
331-124	435-197	2 mm	12.7	435-196	331-123
331-118	435-143	2.5 mm	12.7	435-142	331-117
331-118	435-143	3/32	1/2	435-142	331-117
331-102	435-129	1/8	13/16	435-128	331-101
331-104	435-129	3/16	13/16	435-128	331-103

Replacement Hardware

INCH

Support Blade Screws	Clamp Screw
606-164	619-121

Separator® 25mm & 32mm Square Shank Tools **METRIC**

Left Hand	D*	B	C*	C ₁	F	Right Hand
206-262	20	25	150	38	25	206-271
206-440	20	32	150	38	32	206-439

*For 2.5mm WOC, "D" is 12.7mm and subtract 7.3mm from "C" dimension. Toolholder supplied without support blade and clamp.

For 2mm and 2.5mm WOC, subtract 7.3mm from "C" dimension.

See pages B2-B9 for inserts.

Components

METRIC

Left Hand Support Blade	Clamp	W mm	DOC mm	Clamp	Right Hand Support Blade
331-124	435-197	2	12.7	435-196	331-123
331-118	435-143	2.5	12.7	435-142	331-117
331-102	435-129	3	20.6	435-128	331-101
331-110	435-129	4	20.6	435-128	331-109

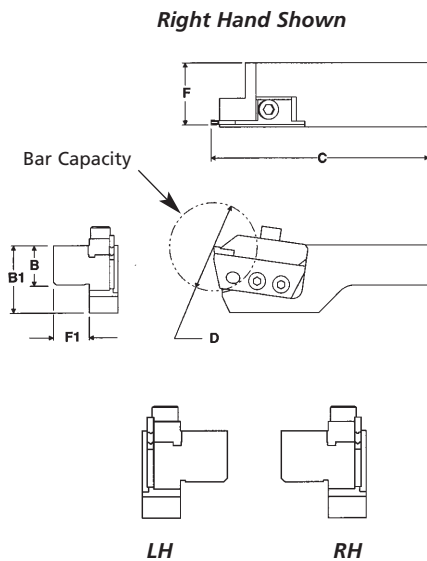
Replacement Hardware

METRIC

Support Blade Screws	Clamp Screw
606-200	619-161

SEPARATOR®

Universal Style Toolholders
2-1/4" Bar Capacity
56mm Bar Capacity



Separator® 2-1/4" Bar Capacity

INCH

Left Hand	D	B	B ₁	C	F*	F ₁	Right Hand
206-118**	2.25	.750	1.72	4.50	1.50	.810	206-128**
—	2.25	1.00	1.72	5.62	1.60	.900	206-114
206-136	2.25	1.00	1.72	5.00	1.75	1.06	206-123
206-108	2.25	1.00	1.72	6.00	1.75	1.06	206-113

*"F" dimension is based on 3/16" WOC.

**3/4" shank holders 206-118 and 206-128 use different clamps.

See pages B2-B9 for inserts.

Components

INCH

W	Left Hand Clamp	Clamp For 206-118**	LH & RH Support Blade	Clamp For 206-128**	Right Hand Clamp
3/32	435-149	435-151	310-109	435-150	435-148
1/8	435-104	435-110	310-102	435-116	435-101
3/16	435-105	435-109	310-108	435-117	435-102

Replacement Hardware

INCH

Support Blade Screws	Clamp Screw
606-171	619-112

Separator® 56mm Bar Capacity

METRIC

Left Hand	D	B	B ₁	C	F*	F ₁	Right Hand
206-410	56	25	44	150	43	27	206-408
206-442**	56	20	44	125	38	21	206-441**

*"F" dimension is based on 1/8" WOC.

**20mm shank holders 206-442 and 206-441 use different clamps.

Toolholder supplied without support blade and clamp.

See pages B2-B9 for inserts.

Components

METRIC

Left Hand			Right Hand		
W	Clamp For	Clamp For	L&R	Clamp For	Clamp For
mm	206-410	206-442**	Support Blade	206-441**	206-408
2.5	435-149	435-151	310-109	435-150	435-148
3	435-104	435-110	310-102	435-116	435-101
4	435-105	435-109	310-108	435-117	435-102

Replacement Hardware

METRIC

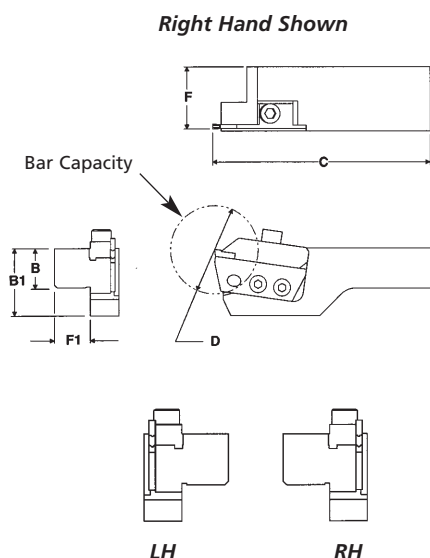
Support Blade Screws	Clamp Screw
619-163	619-155

SEPARATOR®

Universal Style Toolholders

3" Bar Capacity

76mm Bar Capacity



Separator® 3" Bar Capacity INCH

Left Hand	D	B	B ₁	C	F*	F ₁	Right Hand
206-122	3.00	1.00	2.22	5.00	1.84	1.19	—
206-110	3.00	1.00	2.22	5.55	1.73	1.07	—
—	3.00	1.00	2.22	6.00	1.62	.97	206-115
—	3.00	1.00	2.22	6.00	1.72	1.06	206-116
206-119	3.00	1.00	2.22	6.00	1.76	1.10	—
206-120	3.00	1.25	2.22	4.21	1.85	1.19	—
206-124	3.00	1.25	2.22	6.00	1.95	1.28	—
—	3.00	1.25	2.22	6.25	1.85	1.19	206-121

*"F" dimension is based on 3/16" WOC.

See pages B2-B9 for inserts.

Components INCH

W	Left Hand Clamp	LH & RH Support Blade	Right Hand Clamp
1/8	435-137	309-111	435-136
3/16	435-106	309-105	435-103
1/4	435-107	309-106	435-108

Replacement Hardware INCH

Support Blade Screws	Clamp Screw
606-171	619-112

See extended capacity charts in technical section.

Separator® 76mm Bar Capacity METRIC

Left Hand	D	B	B ₁	C	F	F ₁	Right Hand
206-412	76	25	56	160	44	27	206-411
206-444	76	32	56	160	50	33	206-443

Toolholder supplied without support blade and clamp.

See pages B2-B9 for inserts.

Components METRIC

W mm	Left Hand Clamp	LH & RH Support Blade	Right Hand Clamp
3	435-137	309-111	435-136
4	435-106	309-105	435-103

Replacement Hardware METRIC

Support Blade Screws	Clamp Screw
619-163	619-155

ACME GRIDLEY TOOLHOLDERS

NOTE: All holders in this section are right hand or inner type (components toward the spindle).
Left hand or outer type holders are available upon request.

Machine			Toolholder						
			Capacity						
				Width					
Model	Capacity	Position	Depth	3/32	1/8	.160	3/16	Toolholder Number	Component Group*
RA-6	7/16	5	To Center		•			206-145	1
				•				206-175	1
RA-6 RAN-6	9/16, 1	2 & 5	To Center	•	•	•	•	206-331	2
RN-6	5/8	5	To Center	•	•	•	•	206-331	2
RA-6	1-1/4	2 & 5	.50	•				206-310	2
			To Center		•	•	•		
		5DD	To Center	•	•			206-388	5
RB-6	1-5/8, 2	2	.50	•	•	•	•	206-372	3
			.50	•				206-311	2
			.81		•	•	•		
			To Center	•	•	•	•	206-319	3
		5	.50	•				206-312	2
			.81		•	•	•		
			To Center	•	•	•	•	206-320	3
RB-6	2-5/8	2	.50	•	•	•	•	206-375	3
			.50	•				206-313	2
			.81		•	•	•		
			To Center	•	•	•		206-321	4
		5	.50	•	•	•	•	206-376	3
			.50	•				206-314	2
			.81		•	•	•		
			To Center		•	•	•	206-322	4
RB-6	3-1/2	2 & 5	.50	•	•	•	•	206-377	3
			.50	•				206-315	2
			.81		•	•	•		
			1.44**		•	•	•	206-323	4
RB-6	4	2	.50	•	•	•	•	206-379	3
			.50	•				206-316	2
			.81		•	•	•		
			1.37**		•	•	•	206-324	4
		5	.50	•	•	•	•	206-378	3
			.50	•				206-317	2
			.81		•	•	•		
			1.37**		•	•	•	206-325	4
RB-6	6	5	.50	•	•	•	•	206-380	3
			.50	•				206-318	2
			.81		•	•	•		
			1.12**		•	•	•	206-326	4
RA-8	3/4	3 & 6	To Center	•	•	•	•	206-332	2
RB-8 RBN-8	1-1/4	3 & 6	.50	•				206-329	2
			To Center		•	•	•		
		7DD	To Center	•	•			206-388	5
RB-8 RBN-8	1-5/8	3 & 6	.50	•				206-329	2
			To Center		•	•	•		
		7DD	.50	•	•			206-388	5
RB-8	1-5/8, 2	3 & 6	.50	•	•	•	•	206-377	3
			.50	•				206-315	2
			.81		•	•	•		
			To Center	•	•	•	•	206-330	3
RB-8	2-5/8, 3-1/2	3 & 6	.50	•	•	•	•	206-377	3
			.50	•				206-315	2
			.81		•	•	•		
			1.44**		•	•	•	206-323	4
RB-8	4	6	.50	•	•	•	•	206-380	3
			.50	•				206-318	2
			.81		•	•	•		
			1.37**		•	•	•	206-326	4

* See Component Group Listings on pages B22 and B23.

**Available Depth Of Cut At Machine Capacity

CONOMATIC TOOLHOLDERS

NOTE: All holders in this section are right hand or inner type (components toward the spindle).
Left hand or outer type holders are available upon request.

Machine			Toolholder						
			Capacity						
Number of Spindles	Capacity	Shank Height		Width				Toolholder Number	Component Group*
			Depth	3/32	1/8	.160	3/16		
4	7/8	1-1/2	To Center	•	•	•	•	206-345	2
				•	•	•	•	206-381	3
	1, 1-1/4, 1-1/2	1-3/4	.50	•	•	•	•	206-382	3
			.50	•				206-346	2
			To Center		•	•	•		
			.50	•	•	•	•	206-382	3
	2	1-3/4	.50	•				206-346	2
			.81		•	•	•		
			To Center	•	•	•	•	206-350	3
			.50	•	•	•	•	206-383	3
	2-1/4, 2-5/8	2-1/2	.50	•				206-347	2
			.81		•	•	•		
			To Center		•	•	•	206-353	4
			.50	•	•	•	•	206-384	3
	2-1/4	3	.50	•				206-348	2
			.81		•	•	•		
			To Center	•	•	•	•	206-352	3
			.50	•	•	•	•	206-384	3
	2-5/8, 3-1/2	3	.50	•				206-348	2
			.81		•	•	•		
1.44**				•	•	•	206-354	4	
				•	•	•	206-381	3	
6	1, 1-1/4	1-1/2	.50	•	•	•	•	206-381	3
			.50	•				206-345	2
			To Center		•	•	•		
	1, 1-1/4 1-3/8, 1-5/8	1-3/4	.50	•	•	•	•	206-382	3
			.50	•				206-346	2
			To Center		•	•	•		
	2	1-3/4	.50	•	•	•	•	206-382	3
			.50	•				206-346	2
			.81		•	•	•		
			To Center	•	•	•	•	206-350	3
6	2-1/4	2-1/2	.50	•	•	•	•	206-383	3
			.50	•				206-347	2
			.81		•	•	•		
			To Center	•	•	•	•	206-351	3
	2-5/8, 3, 3-1/2, 4	2-1/2	.50	•	•	•	•	206-383	3
			.50	•				206-347	2
			.81		•	•	•		
			1.37**		•	•	•	206-353	4
	3-1/2, 4, 4-1/4	3	.50	•	•	•	•	206-384	3
			.50	•				206-348	2
.81				•	•	•			
1.34**				•	•	•	206-354	4	
8	1, 1-1/4, 1-1/2, 1-5/8	1-3/4	.50	•	•	•	•	206-382	3
			.50	•				206-346	2
			To Center		•	•	•		
	1-7/8	1-3/4	.50	•	•	•	•	206-382	3
			.50	•				206-346	2
			.81		•	•	•		
			To Center	•	•	•	•	206-350	3
			.50	•	•	•	•	206-383	3
	2-1/4	2-1/2	.50	•				206-347	2
			.81		•	•	•		
			To Center		•	•	•	206-351	3
			.50	•	•	•	•	206-384	3
		3	.50	•				206-348	2
			.81		•	•	•		
			To Center	•	•	•	•	206-352	3
	2-5/8, 3	2-1/2	.50	•	•	•	•	206-383	3
			.50	•				206-347	2
			.81		•	•	•		
To Center				•	•	•	206-353	4	

* See Component Group Listings on pages B22 and B23.

**Available Depth Of Cut At Machine Capacity

NEW BRITAIN TOOLHOLDERS

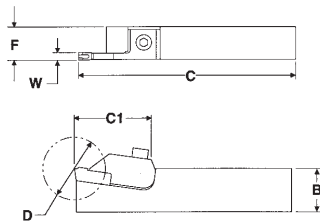
COMPONENT GROUP 1

COMPONENT GROUP 2

NOTE: All holders in this section are right hand or inner type (components toward the spindle).
Left hand or outer type holders are available upon request.

Machine			Toolholder					
Model	Capacity	Center Height	Capacity				Toolholder Number	Component Group*
			Depth	3/32	1/8	.160	3/16	
42	3	1.358	.50	•				206-365
			.81	•	•	•	•	206-368
			1.03	•	•	•	•	206-368
450	5-1/4	1.468	.50	•				206-364
			.81	•	•	•	•	206-364
60	1	1.330	To Center	•	•	•	•	206-370
52, 60, 61, 62, 602	1, 1-1/4, 1-5/8, 2-1/4	1.358	.50	•				206-365
			.81	•	•	•	•	206-365
			To Center	•	•	•	•	206-368
626, 627	2-5/8, 2-3/4	1.468	.50	•				206-364
			.81	•	•	•	•	206-364
			1.07**	•	•	•	•	206-367
82, 812, 816, 817	2	1.343	.50	•				206-366
			.81	•	•	•	•	206-366
			To Center	•	•	•	•	206-369
826	2-5/8	1.468	.50	•				206-364
			.81	•	•	•	•	206-364

* See Component Group Listings on pages B22 and B23. **Available Depth Of Cut At Machine Capacity

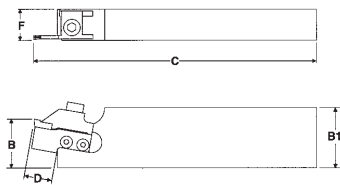


Component Group 1

Holder	W	D	B	C	C ₁	F	Clamp	Clamp Screw
206-175	3/32	1.06	.500	6.00	1.00	.500	435-152	619-122
206-145	1/8	1.00	.500	6.00	1.00	.500	435-130	619-122

Note: Above toolholders are supplied with clamp.

See pages B2-B9 for inserts.



Component Group 2

Holder	D	B	B ₁	C*	F**
206-310	13/16	1.385	1.813	8.50	.938
206-311	13/16	2.182	2.700	8.00	.938
206-312	13/16	1.369	1.860	8.00	.938
206-313	13/16	1.697	2.375	9.00	.938
206-314	13/16	1.854	2.375	9.00	.938
206-315	13/16	2.260	2.438	9.50	.938
206-316	13/16	2.338	2.338	9.00	.938
206-317	13/16	2.244	2.438	10.00	.938
206-318	13/16	2.166	2.781	10.50	.938
206-329	13/16	1.291	1.984	8.00	.938
206-331	13/16	1.005	1.250	5.50	.938
206-332	13/16	1.223	1.312	5.50	.938
206-345	13/16	1.500	1.500	8.00	.938
206-346	13/16	1.750	1.750	8.00	.938
206-347	13/16	2.500	2.500	9.00	.938
206-348	13/16	3.000	3.000	9.00	.938
206-364	13/16	1.468	1.750	7.50	.900
206-365	13/16	1.358	1.438	7.50	.900
206-366	13/16	1.343	1.438	7.50	.900
206-370	13/16	1.330	1.438	6.50	.938

Components

WOC	DOC	Support Blade	Clamp
3/32	1/2	331-117	435-142
3mm and 1/8	13/16	331-101	435-128
4mm	13/16	331-109	435-128
3/16	13/16	331-103	435-128

Replacement Hardware

Support Blade Screws	Clamp Screw
606-164	619-121

* For 3/32" WOC, "D" is 1/2" and subtract .288 from "C" dimension.

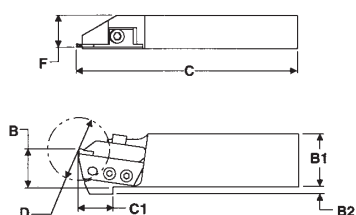
** Add .031 for 3/16" WOC. See pages B2-B9 for inserts.

COMPONENT GROUP 3

COMPONENT GROUP 4

COMPONENT GROUP 5

NOTE: All holders in this section are right hand or inner type (components toward the spindle).
Left hand or outer type holders are available upon request.



Components

WOC	Support Blade	Clamp
3/32	310-109	435-148
3mm and 1/8	310-102	435-101
4mm and 3/16	310-108	435-102

Replacement Hardware

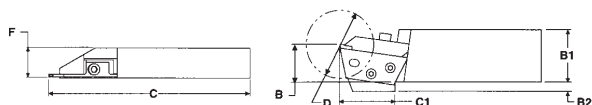
Support Blade Screws	Clamp Screw
606-171	619-112

Component Group 3

Holder	D	B	B ₁	B ₂	C	C ₁	F**
206-319	2.25	2.182	2.700	—	8.00	—	1.156
206-320	2.25	1.369	1.860	.240	8.00	1.250	1.156
206-330	2.25	2.260	2.750	—	9.50	—	1.156
206-350	2.25	1.750	1.750	—	9.00	—	1.156
206-351	2.25	2.500	2.500	—	9.00	—	1.156
206-352	2.25	3.000	3.000	—	9.00	—	1.156
206-367	2.25	1.468	1.750	—	7.50	—	.900
206-368	2.25	1.358	1.438	.188	7.50	1.250	.900
206-369	2.25	1.343	1.438	.188	7.50	1.250	.900
206-372*	1.00	2.182	2.700	—	8.00	—	1.156
206-375*	1.00	1.697	2.375	—	9.00	—	1.156
206-376*	1.00	1.854	2.375	—	9.00	—	1.156
206-377*	1.00	2.260	2.438	—	9.50	—	1.156
206-378*	1.00	2.244	2.438	—	10.00	—	1.156
206-379*	1.00	2.338	2.438	—	10.00	—	1.156
206-380*	1.00	2.166	2.781	—	10.50	—	1.156
206-381*	1.00	1.500	1.500	—	8.00	—	1.156
206-382*	1.00	1.750	1.750	—	8.00	—	1.156
206-383*	1.00	2.500	2.500	—	10.50	—	1.156
206-384*	1.00	3.000	3.000	—	10.50	—	1.156

*Three support blade screws required.

**"F" dimension is based on 3/16" W.O.C. Subtract .083 for 3/32" W.O.C. and .053 for 1/8" W.O.C. See pages B2-B9 for inserts.



Components

WOC	Support Blade	Clamp
3mm and 1/8	309-111	435-136
4mm and 3/16	309-105	435-103

Replacement Hardware

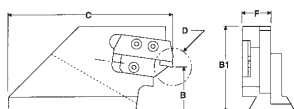
Support Blade Screws	Clamp Screw
606-171	619-112

Component Group 4

Holder	D	B	B ₁	B ₂	C	C ₁	F**
206-321	3.00	1.697	2.313	.375	9.00	2.50	1.156
206-322	3.00	1.854	2.375	.218	9.00	2.50	1.156
206-323	3.00	2.260	2.438	—	9.50	—	1.156
206-324	3.00	2.338	2.438	—	10.00	—	1.156
206-325	3.00	2.244	2.438	—	10.00	—	1.156
206-326	3.00	2.166	2.781	—	10.50	—	1.156
206-353	3.00	2.500	2.500	—	9.00	—	1.156
206-354	3.00	3.000	3.000	—	9.00	—	1.156

*Three support blade screws required.

**"F" dimension is based on 3/16" W.O.C. Subtract .083 for 3/32" W.O.C. and .053 for 1/8" W.O.C. See pages B2-B9 for inserts.



Components

WOC	Support Blade	Clamp
3/32	311-108	409-170
3mm and 1/8	311-104	409-168

Component Group 5

Holder	D	B	B ₁	C	F*
206-388	1.250	1.523	2.88	5.50	1.25

*"F" dimension is based on 3/16" W.O.C.

See pages B2-B9 for inserts.

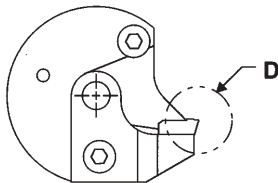
Replacement Hardware

Support Blade Screws	Clamp Screw
619-130	619-125

DAVENPORT

SEPARATOR® QUATTRO™ TOOLHOLDERS

Davenport Holder



Separator® Holder
Left Hand Shown

Davenport

INCH

Machine Toolholder Model	D	Width of Cut	Support Blade No.	Clamp No.	Application—Capacity (D.O.C.)
B	206-188	5/8 1/16	331-120	409-169	5/8" Bar Stock
		3/4 3/32	331-119	409-169	3/4" Bar Stock

See pages B2-B9 for inserts.

Replacement Hardware

INCH

Support Blade & Clamp Screw	Dowel
606-205	606-103

Davenport

METRIC

D	Width of Cut	Support Blade No.	Clamp No.	Application—Capacity (D.O.C.)
15.9	2	331-125	409-169	15.9 Bar Stock

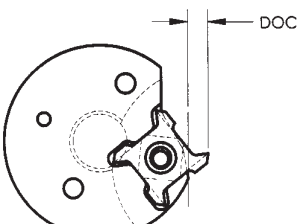
Toolholder supplied without support blade and clamp.

See page B2 for inserts.

Replacement Hardware

METRIC

Support Blade & Clamp Screw	Dowel
606-205	606-103



Quattro™ Holder
Left Hand Shown

Separator® Quattro™ - Davenport Holder **INCH / METRIC**

LH	Toolholder	RH
245-431		245-448

The toolholders will accept both RH and LH inserts.

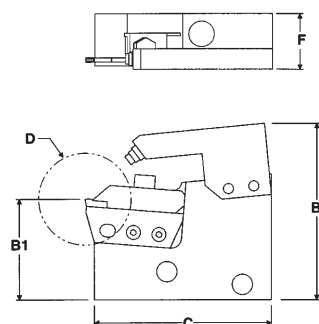
See page B12 for inserts.

Replacement Hardware

INCH / METRIC

Insert Screw	Wrench
644-120	644-111

MODERN CUTOFF MACHINES



Right Hand Shown

Separator® 3" Bar Capacity INCH

Holder	D	B	B ₁	C	F
206-158	2.25	2.50	4.31	4.64	1.36
206-166	3.00	2.50	4.31	4.81	1.36
206-186	1.00	2.50	4.31	4.64	1.36

See pages B2-B9 for inserts.

For Bar Stock INCH

Toolholder No.*	Width	Components		Application — Capacity (D.O.C.)
		Support Blade No.	Clamp No.	
206-158	3/32"	310-109	435-148	2-1/4" Bar Stock To Center
	1/8"	310-102	435-101	
	4mm and 3/16"	310-108	435-102	
206-166	1/8"	309-111	435-136	3" Bar Stock To Center
	4mm and 3/16"	309-105	435-103	

*Toolholder is provided with coolant spout.

For Tubing INCH

Toolholder No.*	Width of Cut	Components		1" Thru 8" Diameter Tubing (Depth of Cut At Stated Diameter)							
		Support Blade No.	Clamp No.	1"	2"	3"	4"	5"	6"	7"	8"
206-186	3/32"	310-109	435-148	Ctr.	.600	.550	.500	.450	.425	.400	.380
	1/8"	310-102	435-101								
	4mm and 3/16"	310-108	435-102								

*Toolholder is provided with coolant spout.

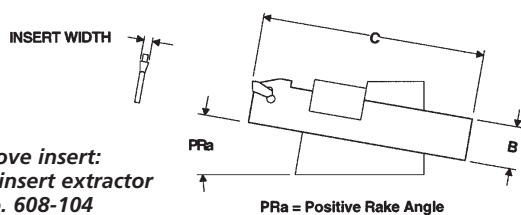
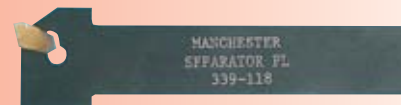
Replacement Hardware INCH

Support Blade Screw	Clamp Screw	Coolant Nozzle	Coolant Spout
606-171	619-139	614-123	614-122

Note: When using the 435-102, a 619-112 clamp screw should be used.

SEPARATOR® PL

HSS Replacement Blades



To remove insert:
Use PL insert extractor
Part No. 608-104

HSS Replacement Blades **INCH**

Part Number	Insert Width	PRa	B	C
339-102	3/32	0°-2°	1/2	3.75
339-103	1/8			
339-107	3/32	3°-7°	11/16	3.75
339-108	1/8			
339-111	3/32	0°-2°	7/8	4.25
339-112	1/8			
339-117	3/32	3°-7°	1-1/8	4.25
339-118	1/8			
339-123	1/8	0°-2°	1-1/8	4.25
339-128	1/8			
339-130	3/16	3°-7°	1-1/8	4.25
339-138	1/8			
339-140	3/16	3°-7°	1-1/8	4.25
339-140	3/16			

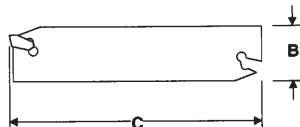
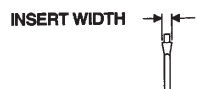
HSS Replacement Blades **METRIC**

Part Number	Insert Width mm	PRa	B	C
339-102	2.5	0°-2°	12.7	95
339-103	3			
339-107	2.5	3°-7°	17.4	95
339-108	3			
339-111	2.5	0°-2°	22.2	108
339-112	3			
339-117	2.5	3°-7°	28.5	108
339-118	3			
339-119	4	3°-7°	28.5	108
339-123	3			
339-128	3	3°-7°	28.5	108
339-129	4			
339-138	3	3°-7°	28.5	108
339-139	4			

See pages B10 and B11 for inserts.

SEPARATOR® PL

Double End



To remove insert:
Use PL insert extractor
Part No. 608-104

Double End			INCH
Part Number	Insert Width	B	C
340-104	3/32	1-1/32	4-5/16
340-105	1/8		
340-107	3/16		
340-109	3/32	1-1/4	5-7/8
340-110	1/8		
340-112	3/16		
Double End			METRIC
Part Number	Insert Width mm	B	C
340-104	2.5	26	110
340-105	3		
340-106	4		
340-107	5	32	150
340-109	2.5		
340-110	3		
340-111	4		
340-112	5		

See pages B10 and B11 for inserts.

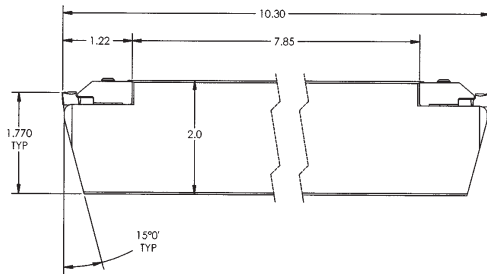
See Section A – MTC™ Products for additional Cutoff tools.

DAG BLADES

Deep Application Grooving

CUTOFF & O.D. GROOVING

Chipmaker® Single End Inserts

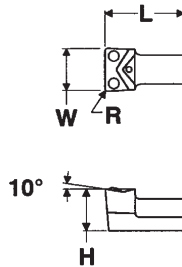


DAG Blades	INCH / METRIC
Width of Cut	Blade No.
.250	341-101
6mm	341-101
.312	341-102
8mm	341-102

Note: Above blade supplied with 2 clamps.

Replacement Hardware INCH

DAG Blade	Clamp No.	Clamp Screw
341-101	442-101	619-170
341-102	442-102	619-170

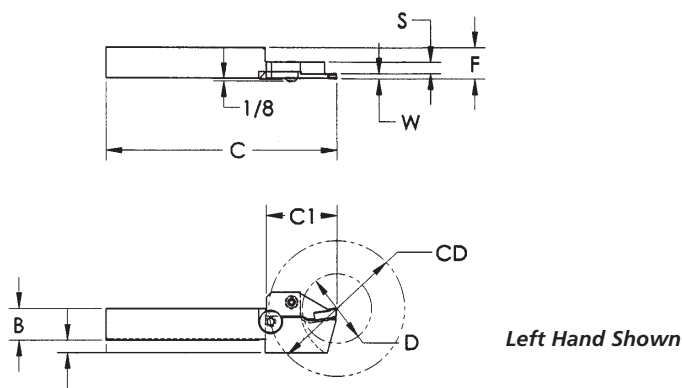


Chipmaker® Single End Inserts	INCH			
Insert Number	W	L	R	H
507-182	.250	.490	.010	1/4
507-183	.250	.490	.030	1/4
507-185	.312	.550	.010	11/32
507-186	.312	.550	.030	11/32

Chipmaker® Single End Inserts	METRIC			
Part Number	W mm	L mm	R mm	H mm
507-386	6	12.5	0.3	6.3
507-387	6	12.5	0.6	6.3
507-388	8	14	0.3	8.7
507-389	8	14	0.6	8.7

Available in grades TiN (M40), TiCN (M45) & TiAlN (M93).

SEPARATOR® SUB-SPINDLE



Separator® Sub-Spindle

INCH

Left Hand	Clamp No.	W	D	CD	B	B1	C	C1	S	F	Clamp No.	Right Hand
206-503	409-185	3/32	1-5/8	3.25	.750	.300	5-1/2	1.670	5/16	.750	409-184	206-502
206-505	409-187	1/8	1-5/8	3.25	.750	.300	5-1/2	1.670	9/32	.750	409-186	206-504
206-501	409-183	1/8	2-5/8	4.00	1.00	0	6.00	2.375	3/8	1.00	409-182	206-500

See pages B2-B9 for inserts.

Replacement Hardware

INCH

Holder	206-502	206-503	206-504	206-505	206-500	206-501
Pivot Screw	619-174	619-174	619-174	619-174	619-174	619-174
Washer	613-139	613-139	613-139	613-139	613-139	613-139
Clamp Screw	619-177	619-177	619-176	619-176	619-175	619-175

Separator® Sub-Spindle

METRIC

Left Hand	W	D	CD	B	B1	C	C1	S	F	Right Hand
206-509	2.5	42	83	20	8	140	43	8	20	206-508
206-511	3	42	83	20	8	140	43	7.2	20	206-510
206-507	3	66.7	102	25	—	150	60	9.5	25	206-506

Above toolholders are supplied with clamp. See pages B2-B9 for inserts.

Replacement Hardware

METRIC

Holder	206-508	206-509	206-510	206-511	206-506	206-507
Pivot Screw	619-382	619-382	619-382	619-382	619-382	619-382
Washer	613-139	613-139	613-139	613-139	613-139	613-139
Clamp Screw	606-245	606-245	606-244	606-244	606-243	606-243

WIDIA



MANCHESTER[®]



Chipmaker®
O.D. & I.D.
Grooving

Octicut®
Threading

Ranger™
Face Grooving

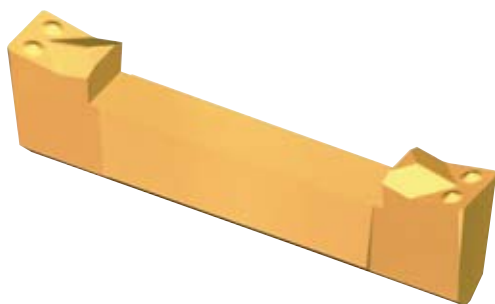
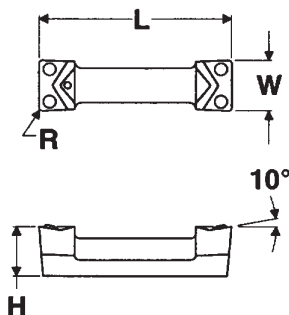
Chipmaker®
O.D. & I.D. Grooving

Separator®
Cutoff

MTC™
Cutoff & Grooving

O.D. GROOVING

Chipmaker® Inserts



Chipmaker® Inserts

INCH

Part Number	W	L	R	H
508-238	.126	7/8	.010	1/4
508-244	.126	7/8	.030	1/4
508-241	.156	7/8	.010	1/4
508-245	.156	7/8	.030	1/4
508-239	.188	1.0	.010	1/4
508-246	.188	1.0	.030	1/4
508-240	.250	1.0	.010	1/4
508-247	.250	1.0	.030	1/4
508-242	.312	1-1/8	.010	11/32
508-248	.312	1-1/8	.030	11/32
508-243	.376	1-1/8	.010	11/32
508-249	.376	1-1/8	.030	11/32

Chipmaker® Inserts

METRIC

Part Number	W mm	L mm	R mm	H mm
508-256	3	22.2	0.3	6.35
508-257	3	22.2	0.6	6.35
508-258	4	22.2	0.3	6.35
508-259	4	22.2	0.6	6.35
508-260	5	25.4	0.3	6.35
508-261	5	25.4	0.6	6.35
508-262	6	25.4	0.3	6.35
508-263	6	25.4	0.6	6.35
508-279	8	28.6	0.3	8.70
508-280	8	28.6	0.6	8.70

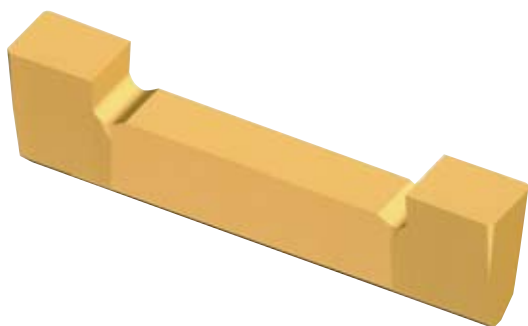
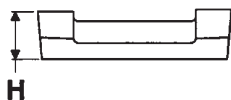
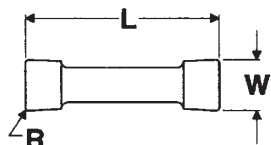
Chipmaker® Inserts are available in TiN (M40), TiAlN (M43), TiCN (M45), TiN (M50) & TiAlN (M93).

See pages C7-C13 and C21 for Holders.

See Section A – MTC™ Products for additional OD Grooving tools.

O.D. GROOVING

Central Neutral Rake Inserts (O.D.)



Central Neutral Rake Inserts

INCH

Part Number	W	L	R	H
508-301	.126	7/8	.010	1/4
508-307	.126	7/8	.030	1/4
508-313	.126	7/8	FNR	1/4
508-302	.156	7/8	.010	1/4
508-308	.156	7/8	.030	1/4
508-314	.156	7/8	FNR	1/4
508-303	.188	1.0	.010	1/4
508-309	.188	1.0	.030	1/4
508-315	.188	1.0	FNR	1/4
508-304	.250	1.0	.010	1/4
508-310	.250	1.0	.030	1/4
508-340	.250	1.0	.060	1/4
508-316	.250	1.0	FNR	1/4
508-305	.312	1-1/8	.010	11/32
508-311	.312	1-1/8	.030	11/32
508-341	.312	1-1/8	.060	11/32
508-317	.312	1-1/8	FNR	11/32
508-306	.376	1-1/8	.010	11/32
508-312	.376	1-1/8	.030	11/32
508-318	.376	1-1/8	FNR	11/32

Central Neutral Rake Inserts

METRIC

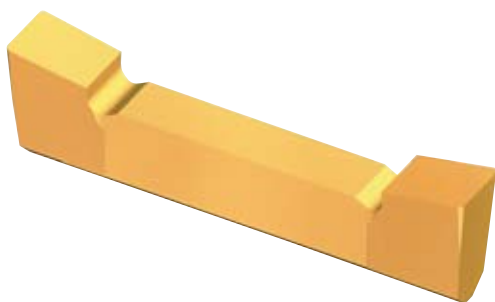
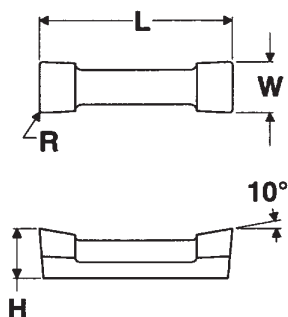
Part Number	W mm	L mm	R mm	H mm
508-446	3	22.2	0.3	6.35
508-447	3	22.2	0.6	6.35
508-448	3	22.2	FNR	6.35
508-449	4	22.2	0.3	6.35
508-450	4	22.2	0.6	6.35
508-451	4	22.2	FNR	6.35
508-452	5	25.4	0.3	6.35
508-453	5	25.4	0.6	6.35
508-454	5	25.4	FNR	6.35
508-456	6	25.4	0.3	6.35
508-457	6	25.4	0.6	6.35
508-458	6	25.4	FNR	6.35

Central Neutral Rake Inserts are available in Uncoated (C2 & C5), TiN+TiC+TiN (GC) & Al₂O₃ (M24). Some inserts available in TiN (M40 & M50). FNR = Full Nose Radius.

See pages C7-C13 and C21 for Holders.

O.D. GROOVING

Central Positive Rake Inserts (O.D.)



Central Positive Rake Inserts

INCH

Part Number	W	L	R	H
508-319	.126	7/8	.010	1/4
508-325	.126	7/8	.030	1/4
508-331	.126	7/8	FNR	1/4
508-320	.156	7/8	.010	1/4
508-326	.156	7/8	.030	1/4
508-332	.156	7/8	FNR	1/4
508-321	.188	1.0	.010	1/4
508-327	.188	1.0	.030	1/4
508-333	.188	1.0	FNR	1/4
508-322	.250	1.0	.010	1/4
508-328	.250	1.0	.030	1/4
508-334	.250	1.0	FNR	1/4
508-323	.312	1-1/8	.010	11/32
508-329	.312	1-1/8	.030	11/32
508-335	.312	1-1/8	FNR	11/32
508-324	.376	1-1/8	.010	11/32
508-330	.376	1-1/8	.030	11/32
508-336	.376	1-1/8	FNR	11/32

Central Positive Rake Inserts

METRIC

Part Number	W mm	L mm	R mm	H mm
508-461	3	22.2	0.3	6.35
508-462	3	22.2	0.6	6.35
508-463	3	22.2	FNR	6.35
508-464	4	22.2	0.3	6.35
508-465	4	22.2	0.6	6.35
508-466	4	22.2	FNR	6.35
508-467	5	25.4	0.3	6.35
508-468	5	25.4	0.6	6.35
508-469	5	25.4	FNR	6.35
508-470	6	25.4	0.3	6.35
508-471	6	25.4	0.6	6.35
508-472	6	25.4	FNR	6.35

Central Positive Rake Inserts are available in Uncoated (C2 & C5) & TiN+TiC+TiN (GC). Some inserts available in TiN (M40 & 50).

FNR = Full Nose Radius.

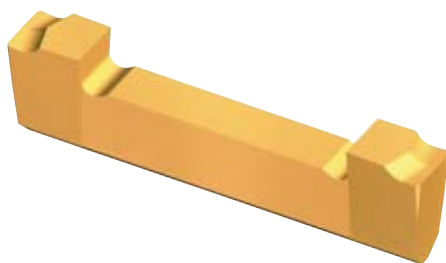
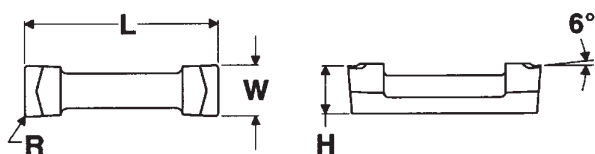
See pages C7-C13 and C21 for Holders.

See Section A – MTC™ Products for additional OD Grooving tools.

O.D. GROOVING

Chipmaker® 95 Inserts

Chipmaker® Single End Inserts



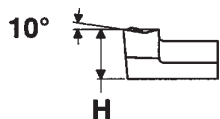
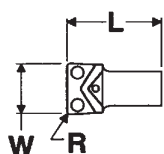
Chipmaker® 95 Inserts *INCH*

Part Number	W	L	R	H
508-403	.126	7/8	.010	1/4
508-404	.126	7/8	.030	1/4
508-405	.126	7/8	FNR	1/4
508-412	.188	1.0	.010	1/4
508-413	.188	1.0	.030	1/4
508-422	.250	1.0	.010	1/4
508-423	.250	1.0	.030	1/4
508-424	.250	1.0	.060	1/4

Chipmaker® 95 Inserts *METRIC*

Part Number	W mm	L mm	R mm	H mm
508-435	8	28.6	.76	8.70
508-436	8	28.6	1.52	8.70

Chipmaker® 95 Inserts are available in TiN (M40) & TiAlN (M53).
See pages C7-C13 and C21 for Holders.



Chipmaker® Single End Inserts *INCH*

Part Number	W	L	R	H
507-182	.250	.490	.010	1/4
507-183	.250	.490	.030	1/4
507-185	.312	.550	.010	11/32
507-186	.312	.550	.030	11/32

Chipmaker® Single End Inserts *METRIC*

Part Number	W mm	L mm	R mm	H mm
507-386	6	12.5	0.3	6.3
507-387	6	12.5	0.6	6.3
507-388	8	14	0.3	8.7
507-389	8	14	0.6	8.7

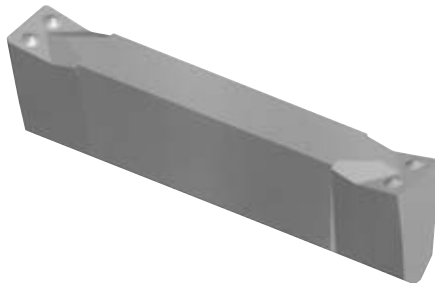
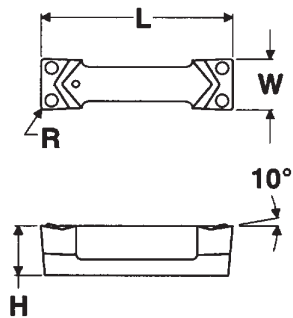
Chipmaker® Single End Inserts are available in TiN (M40), TiAlN (M93).
See pages C14 and C15 for Holders.

O.D. GROOVING

Chipmaker® Cermet Inserts

Ceramic Inserts

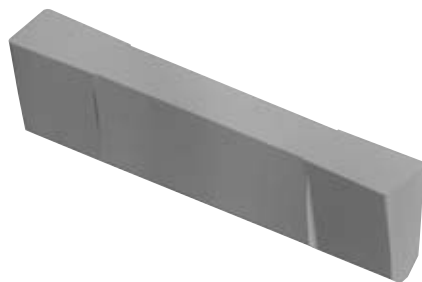
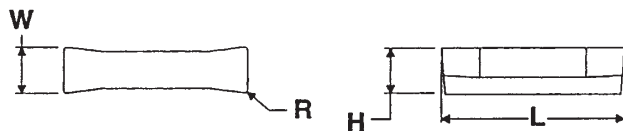
Cubic Boron Nitride (CBN) Inserts (O.D.)



Chipmaker® Cermet Inserts				INCH
Part Number	W	L	R	H
505-238	.126	7/8	.010	1/4
505-244	.126	7/8	.030	1/4
505-241	.156	7/8	.010	1/4
505-245	.156	7/8	.030	1/4
505-239	.188	1.0	.010	1/4
505-246	.188	1.0	.030	1/4
505-240	.250	1.0	.010	1/4
505-247	.250	1.0	.030	1/4

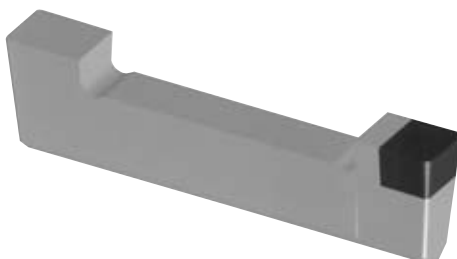
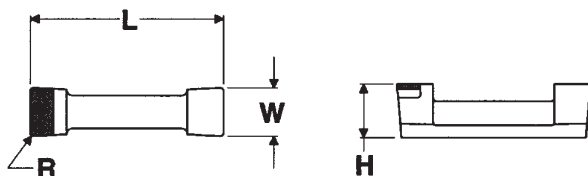
Chipmaker® Cermet Inserts				METRIC
Part Number	W mm	L mm	R mm	H mm
505-256	3	22.2	0.3	6

Chipmaker® Cermet Inserts are available in TiC+TiN (M74).
See pages C7 and C11-C13 for Holders.



Ceramic Inserts				INCH
Part Number	W	L	R	H
505-110	.126	7/8	.010	1/4
505-116	.188	1.0	.010	1/4
505-119	.250	1.0	.010	1/4

Ceramic Inserts are available in TiC (M70).
See pages C7 and C11-C13 for Holders.

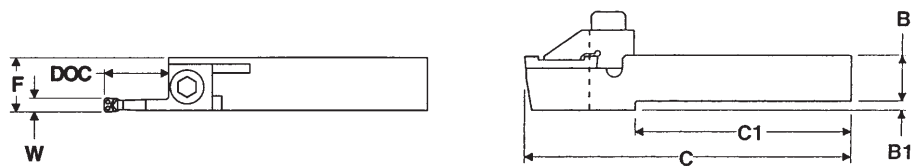


Cubic Boron Nitride (CBN) Inserts				INCH
Part Number	W	L	R	H
528-301	.126	7/8	.010	1/4
528-303	.188	1.0	.010	1/4
528-304	.250	1.0	.010	1/4

Cubic Boron Nitride Inserts are available in CBN-CI and CBN-HT.
See pages C7-C13 and C21 for Holders.

O.D. GROOVING

TGT Toolholders



Right Hand Shown

TGT Toolholders												INCH
Left Hand	Clamp	Clamp for Cermet/Ceramic	W	DOC	B	B ₁	C	C ₁	F	Clamp for Cermet/Ceramic	Clamp	Right Hand
236-127	441-103	437-149	.126	.750	.625	.125	4.50	3.12	.75	437-147	441-101	236-125
236-128	441-104	437-150	.188	.875	.625	.125	4.50	3.12	.75	437-148	441-102	236-126
236-110	441-103	437-149	.126	.750	.750	—	5.00	—	.75	437-147	441-101	236-107
236-111	441-104	437-150	.188	.875	.750	—	5.00	—	.75	437-148	441-102	236-108
236-112	441-104	437-150	.250	.875	.750	—	5.00	—	.75	437-148	441-102	236-109
236-104	441-103	437-149	.126	.750	1.00	—	5.00	—	1.00	437-147	441-101	236-101
236-105	441-104	437-150	.188	.875	1.00	—	5.00	—	1.00	437-148	441-102	236-102
236-106	441-104	437-150	.250	.875	1.00	—	5.00	—	1.00	437-148	441-102	236-103

Note: Above toolholders are supplied with clamps.

Toolholders with clamp for ceramic insert should be ordered with suffix "C." Example: 236-125C.

See pages C2-C6 for inserts.

See Section A – MTC™ Products for additional OD Grooving tools.

Replacement Hardware

INCH

Clamp Screw

619-168

TGT Toolholders												METRIC
Left Hand	Clamp	Clamp for Cermet/Ceramic	W	DOC	B	B ₁	C	C ₁	F	Clamp for Cermet/Ceramic	Clamp	Right Hand
236-215	441-103	437-149	3	19	16	4	115	79	20	437-147	441-101	236-213
236-216	441-104	437-150	5	22	16	4	115	79	20	437-148	441-102	236-214
236-210	441-103	437-149	3	19	20	—	125	—	20	437-147	441-101	236-207
236-211	441-104	437-150	5	22	20	—	125	—	20	437-148	441-102	236-208
236-212	441-104	437-150	6	22	20	—	125	—	20	437-148	441-102	236-209
236-204	441-103	437-149	3	19	25	—	150	—	25	437-147	441-101	236-201
236-205	441-104	437-150	5	22	25	—	150	—	25	437-148	441-102	236-202
236-206	441-104	437-150	6	22	25	—	150	—	25	437-148	441-102	236-203

Note: Above toolholders are supplied with clamps.

Toolholders with clamp for ceramic insert should be ordered with suffix "C." Example: 236-125C.

See pages C2-C6 for inserts.

Replacement Hardware

METRIC

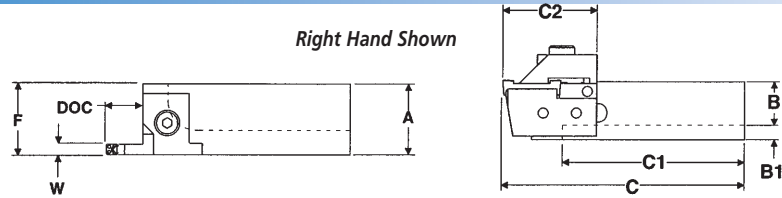
Clamp Screw

619-168

O.D. GROOVING

Square Shank

5/16" and 1/2" Depth of Cut Toolholders



Square Shank – 5/16" and 1/2" Depth of Cut Toolholders

INCH

Left Hand	DOC	A	B	B ₁	C	C ₁	C ₂	F*	Right Hand
203-333	5/16	.750	.750	.250	4.00	2.97	1.032	1.00	203-331
203-334	5/16	.750	.750	.250	4.50	3.75	1.032	1.00	203-332
203-345	5/16	1.212	.750	.250	4.00	3.25	1.440	1.25	203-343
	1/2	1.212	.750	.250	4.18	3.25	1.625	1.25	
203-346	5/16	1.212	.750	.250	4.50	3.75	1.440	1.25	203-344
	1/2	1.212	.750	.250	4.68	3.75	1.625	1.25	
203-234	5/16	1.212	1.00	—	4.00	—	1.440	1.25	203-219
	1/2	1.212	1.00	—	4.18	—	1.625	1.25	
203-275	5/16	1.212	1.00	—	5.00	—	1.440	1.25	203-223
	1/2	1.212	1.00	—	5.18	—	1.625	1.25	
203-285	5/16	1.212	1.00	—	6.00	—	1.440	1.25	203-281
	1/2	1.212	1.00	—	6.18	—	1.625	1.25	
203-308	5/16	1.212	1.25	—	6.00	—	1.440	1.25	203-235
	1/2	1.212	1.25	—	6.18	—	1.625	1.25	
203-277	5/16	1.462	1.25	—	6.00	—	1.440	1.50	203-250
	1/2	1.462	1.25	—	6.18	—	1.625	1.50	

*Add .113 when using 5/16" and 3/8" WOC inserts. See pages C2-C6 for inserts.

Replacement Hardware

INCH

Support Blade Screws	Clamp Screw for 203-331, -332, -333, -334	Clamp Screw	Stop Screw
619-102	619-121	619-111	619-102

Components for 5/16" Depth of Cut

INCH

W*	Left Hand			Stop	Right Hand		
	Support Blade	Clamp	203-333 & -334		Clamp	203-331 & -332	Clamp
.126	308-123	407-118	407-182	601-101	407-180	407-101	308-106
.156	308-124	407-119	407-182	601-101	407-180	407-102	308-107
.188	308-125	407-120	407-183	601-102	407-181	407-103	308-108
.250	308-126	407-121	407-183	601-102	407-181	407-104	308-109
.312	308-127	407-122	—	601-103	—	407-105	308-110
.376	308-128	407-123	—	601-103	—	407-106	308-111

*Note: Maximum recommended width of cut for 3/4" Shank Holder is 1/4".

Components for 1/2" Depth of Cut

INCH

W*	Left Hand			Stop	Right Hand		
	Support Blade	Clamp	Clamp for Cermet/Ceramic		Clamp for Cermet/Ceramic	Clamp	Support Blade
.126	308-130	407-124	437-129	601-104	437-123	407-107	308-113
.156	308-143	407-129	437-130	601-104	437-124	407-108	308-114
.188	308-131	407-125	437-131	601-105	437-125	407-109	308-115
.250	308-137	407-127	437-132	601-105	437-126	407-110	308-116
.312	308-145	407-130	—	601-106	—	407-111	308-117
.376	308-132	407-126	—	601-106	—	407-112	308-118

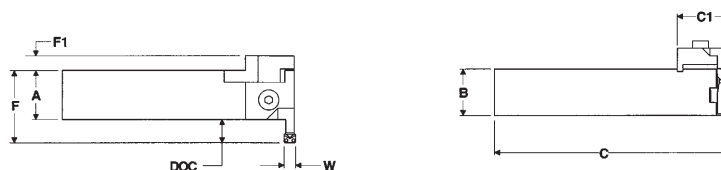
*Note: Maximum recommended width of cut for 3/4" Shank Holder is 1/4".

See pages C2-C6 for inserts.

O.D. GROOVING

Right Angle

5/16" and 1/2" Depth of Cut Toolholders



Right Hand Shown

Right Angle – 5/16" and 1/2" Depth of Cut Toolholders INCH

Left Hand	DOC	A	B	C*	C ₁	F	F ₁	Right Hand
204-110	5/16	1.058	1.00	5.00	1.082	1.37	.317	204-101
	1/2	1.058	1.00	5.00	1.082	1.56	.317	
204-111	5/16	1.375	1.25	6.00	1.082	1.70	—	204-109
	1/2	1.375	1.25	6.00	1.082	1.88	—	

*Add .113 when using 5/16" and 3/8" WOC inserts.
See pages C2-C6 for inserts.

Replacement Hardware INCH

Support Blade Screws	Clamp Screw	Stop Screw 204-101 & -110	Stop Screw 204-109 & -111	Wrench
619-103	619-111	619-102	619-103	608-101

See Section A –
MTC™ Products
for additional
OD Grooving tools.

Components for 5/16" Depth of Cut INCH

W*	Left Hand Support Blade	Left Hand Clamp	Stop	Right Hand Clamp	Right Hand Support Blade
.126	308-123	407-118	601-101	407-101	308-106
.156	308-124	407-119	601-101	407-102	308-107
.188	308-125	407-120	601-102	407-103	308-108
.250	308-126	407-121	601-102	407-104	308-109
.312	308-127	407-122	601-103	407-105	308-110
.376	308-128	407-123	601-103	407-106	308-111

*Note: Maximum recommended width of cut for 3/4" Shank Holder is 1/4".

Components for 1/2" Depth of Cut INCH

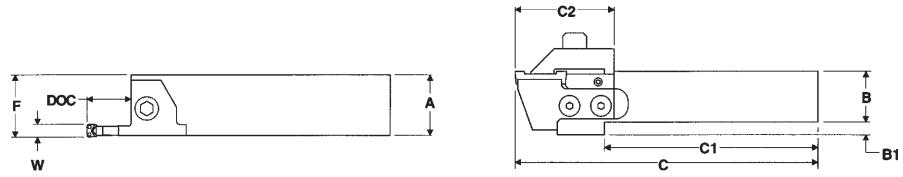
W*	Left Hand Support Blade	Left Hand Clamp	Clamp for Cermet/Ceramic	Stop	Clamp for Cermet/Ceramic	Right Hand Clamp	Right Hand Support Blade
.126	308-130	407-124	437-129	601-104	437-123	407-107	308-113
.156	308-143	407-129	437-130	601-104	437-124	407-108	308-114
.188	308-131	407-125	437-131	601-105	437-125	407-109	308-115
.250	308-137	407-127	437-132	601-105	437-126	407-110	308-116
.312	308-145	407-130	—	601-106	—	407-111	308-117
.376	308-132	407-126	—	601-106	—	407-112	308-118

*Note: Maximum recommended width of cut for 3/4" Shank Holder is 1/4".
See pages C2-C6 for inserts.

O.D. GROOVING

Square Shank

5/8" or 13/16" Depth of Cut Toolholders



Right Hand Shown

Square Shank – 5/8" or 13/16" Depth of Cut Toolholders INCH

Left Hand	DOC	A	B	B ₁	C	C ₁	C ₂	F	Right Hand
203-352	5/8	1.199	1.00	.250	5.81	4.25	1.750	1.250	203-287
	13/16	1.199	1.00	.250	6.00	4.25	1.937	1.250	
203-271	5/8	1.449	1.25	—	5.56	—	1.750	1.500	—
	13/16	1.449	1.25	—	5.75	—	1.937	1.500	
—	5/8	1.199	1.25	—	6.31	—	1.750	1.250	203-245
	13/16	1.199	1.25	—	6.50	—	1.937	1.250	
203-232	5/8	1.449	1.25	—	5.81	—	1.750	1.500	203-231
	13/16	1.449	1.25	—	6.00	—	1.937	1.500	
203-233	5/8	1.949	1.50	—	6.31	—	1.750	2.000	203-112
	13/16	1.949	1.50	—	6.50	—	1.937	2.000	

See pages C2-C6 for inserts.

Components for 5/8" Depth of Cut INCH

W	Left Hand			Stop	Right Hand		
	Support Blade	Clamp	Clamp for Cermet/Ceramic		Clamp for Cermet/Ceramic	Clamp	Support Blade
.126	308-148	407-133	437-137	601-112	437-135	407-131	308-146
.156	308-149	407-134	437-138	601-112	437-136	407-132	308-147

Components for 13/16" Depth of Cut INCH

W	Left Hand			Stop	Right Hand		
	Support Blade	Clamp	Clamp for Cermet/Ceramic		Clamp for Cermet/Ceramic	Clamp	Support Blade
.188	308-150	407-135	437-143	601-107	437-139	407-113	308-119
.250	308-151	407-144	437-144	601-107	437-140	407-143	308-120
.312	308-152	407-137	—	601-108	—	407-115	308-121
.376	308-153	407-138	—	601-108	—	407-116	308-122

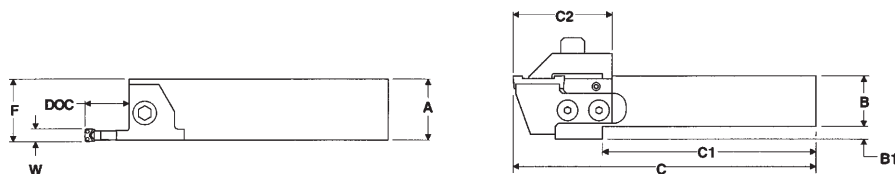
Replacement Hardware INCH

Support Blade Screw	Clamp Screw	Stop Screw
606-160	619-110	619-101

O.D. GROOVING

Square Shank

14.3mm and 19mm Depth of Cut Toolholders



Right Hand Shown

Square Shank – 14.3mm and 19mm Depth of Cut Toolholders

METRIC

Left Hand	DOC	A	B	B ₁	C	C ₁	C ₂	F	Right Hand
203-354	14.3	32	25	7	160	123	44.4	32.8	203-353
	19	32	25	7	165	123	49.2	32.8	
203-356	14.3	32	32	—	180	—	44.4	32.8	203-355
	19	32	32	—	185	—	49.2	32.8	

Toolholders supplied without support blade, clamp and stop.
See pages C2-C6 for inserts.

Components for 14.3mm Depth of Cut

METRIC

W mm	Support Blade	Left Hand Clamp	Clamp for Cermet/Ceramic	Stop	Right Hand Clamp for Cermet/Ceramic	Clamp	Support Blade
3	308-148	407-133	437-137	601-112	437-135	407-131	308-146
4	308-149	407-134	437-138	601-112	437-136	407-132	308-147

See Section A –
MTC™ Products
for additional
OD Grooving tools.

Components for 19mm Depth of Cut

METRIC

W mm	Support Blade	Left Hand Clamp	Clamp for Cermet/Ceramic	Stop	Right Hand Clamp for Cermet/Ceramic	Clamp	Support Blade
5	308-150	407-135	437-143	601-107	437-139	407-113	308-119
6	308-151	407-144	437-144	601-107	437-140	407-143	308-120
8	308-152	407-137	—	601-108	—	407-115	308-121
9.55	308-153	407-138	—	601-108	—	407-116	308-122

Replacement Hardware

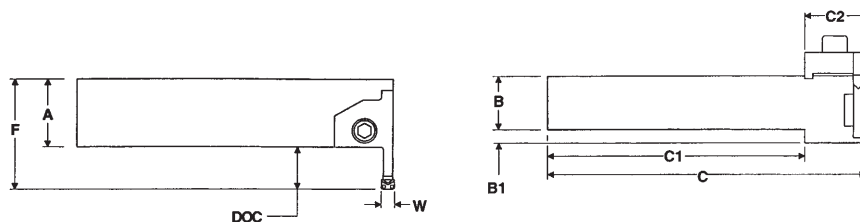
METRIC

Support Blade Screw	Clamp Screw	Stop Screw
606-222	619-161	619-162

O.D. GROOVING

Right Angle

5/8" and 13/16" Depth of Cut Toolholders



Right Hand Shown

Right Angle – 5/8" and 13/16" Depth of Cut Toolholders INCH

Left Hand	DOC	A	B	B ₁	C	C ₁	C ₂	F	Right Hand
204-270	5/8	1.312	1.00	.250	6.00	4.85	1.140	1.938	204-269
	13/16	1.312	1.00	.250	6.00	4.85	1.140	2.125	
204-215	5/8	1.312	1.25	—	6.00	—	1.140	1.938	204-214
	13/16	1.312	1.25	—	6.00	—	1.140	2.125	
204-259	5/8	1.500	1.50	—	6.00	—	1.140	2.125	204-258
	13/16	1.500	1.50	—	6.00	—	1.140	2.312	

See pages C2-C6 for inserts.

Components for 5/8" Depth of Cut INCH

W	Left Hand			Stop	Right Hand		
	Support Blade	Clamp	Clamp for Cermet/Ceramic		Clamp for Cermet/Ceramic	Clamp	Support Blade
.126	308-148	407-133	437-137	601-112	437-135	407-131	308-146
.156	308-149	407-134	437-138	601-112	437-136	407-132	308-147

Components for 13/16" Depth of Cut INCH

W	Left Hand			Stop	Right Hand		
	Support Blade	Clamp	Clamp for Cermet/Ceramic		Clamp for Cermet/Ceramic	Clamp	Support Blade
.188	308-150	407-135	437-143	601-107	437-139	407-113	308-119
.250	308-151	407-144	437-144	601-107	437-140	407-143	308-120
.312	308-152	407-137	—	601-108	—	407-115	308-121
.376	308-153	407-138	—	601-108	—	407-116	308-122

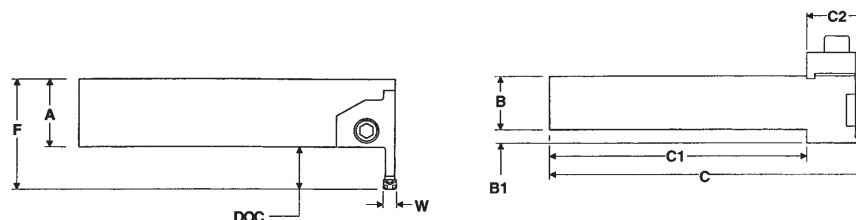
Replacement Hardware INCH

Support Blade Screw	Clamp Screw	Stop Screw
606-160	619-110	619-101

O.D. GROOVING

Right Angle

14.3mm and 19mm Depth of Cut Toolholders



Right Hand Shown

Right Angle – 14.3mm and 19mm Depth of Cut Toolholders

METRIC

Left Hand	DOC	A	B	B ₁	C	C ₁	C ₂	F	Right Hand
204-272	16	35	25	7	166	137	29	51	204-271
	20	35	25	7	166	137	29	55	
204-274	16	35	32	—	166	—	29	51	204-273
	20	35	32	—	166	—	29	55	

Toolholders supplied without support blade, clamp and stop.
See pages C2-C6 for inserts.

Components for 14.3mm Depth of Cut

METRIC

W mm	Support Blade	Left Hand Clamp	Clamp for Cermet/Ceramic	Stop	Clamp for Cermet/Ceramic	Right Hand Clamp	Support Blade
3	308-148	407-133	437-137	601-112	437-135	407-131	308-146
4	308-149	407-134	437-138	601-112	437-136	407-132	308-147

See Section A –
MTC™ Products
for additional
OD Grooving tools.

Components for 19mm Depth of Cut

METRIC

W mm	Support Blade	Left Hand Clamp	Clamp for Cermet/Ceramic	Stop	Clamp for Cermet/Ceramic	Right Hand Clamp	Support Blade
5	308-150	407-135	437-143	601-107	437-139	407-113	308-119
6	308-151	407-144	437-144	601-107	437-140	407-143	308-120
8	308-152	407-137		601-108		407-115	308-121
9.55	308-153	407-138		601-108		407-116	308-122

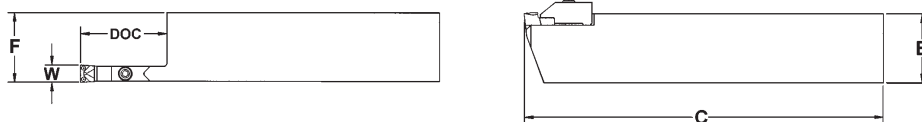
Replacement Hardware

METRIC

Support Blade Screw	Clamp Screw	Stop Screw
606-222	619-161	619-162

O.D. GROOVING

TGT Toolholders Extended Capacity



Right Hand Shown

TGT Toolholders Extended Capacity INCH

Left Hand	Clamp	W	DOC	B	C	F	Clamp	Right Hand
237-103	442-101	.250	1.50	1.00	6.50	1.00	442-101	237-101
237-104	442-102	.312	1.50	1.00	6.50	1.00	442-102	237-102
237-107	442-101	.250	1.50	1.25	6.50	1.25	442-101	237-105
237-108	442-102	.312	1.50	1.25	6.50	1.25	442-102	237-106

Note: Above toolholders are supplied with clamps.
See page C5 for inserts.

Replacement Hardware INCH

TGT Extended Capacity	Clamp Screw
442-101	619-170
442-102	619-170

TGT Toolholders Extended Capacity METRIC

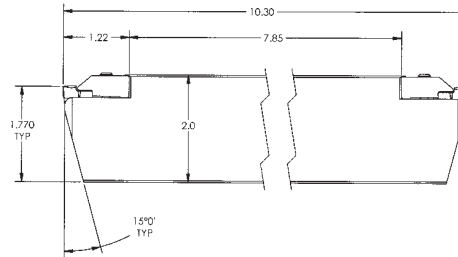
Left Hand	Clamp	W	DOC	B	C	F	Clamp	Right Hand
237-203	442-101	6	38	25	165	25	442-101	237-201
237-204	442-102	8	38	25	165	25	442-102	237-202
237-207	442-101	6	38	32	180	32	442-101	237-205
237-208	442-102	8	38	32	180	32	442-102	237-206

Note: Above toolholders are supplied with clamps.
See page C5 for inserts.

Replacement Hardware METRIC

TGT Extended Capacity	Clamp Screw
442-101	619-170
442-102	619-170

DAG BLADES



Dimensions are shown in drawing.

Right Hand Shown

DAG Blades				INCH
Width of Cut	Blade No.	Clamp No.	Insert No.	Radius
.250	341-101	442-101	507-182	.010
.250	341-101	442-101	507-183	.030
.312	341-102	442-102	507-185	.010
.312	341-102	442-102	507-186	.030

Available in TiN (M40) & TiAlN (M93).

Replacement Hardware

INCH

DAG Blades	Clamp Screw
341-101	619-170
341-102	619-170

DAG Blades				METRIC
Width of Cut	Blade No.	Clamp No.	Insert No.	Radius
6	341-101	442-101	507-386	0.3
6	341-101	442-101	507-387	0.6
8	341-102	442-102	507-388	0.3
8	341-102	442-102	507-389	0.6

Available in TiN (M40) & TiAlN (M93).

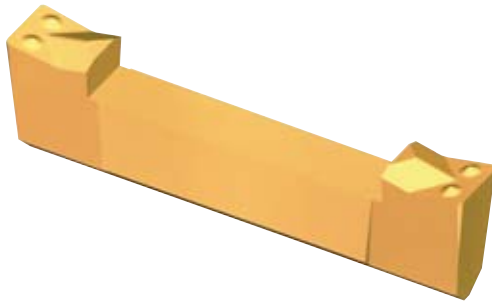
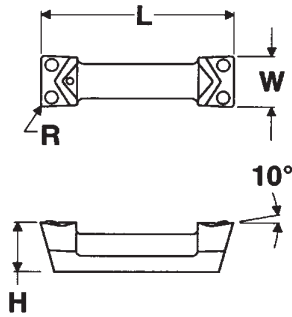
Replacement Hardware

METRIC

DAG Blades	Clamp Screw
341-101	619-170
341-102	619-170

I.D. GROOVING

Chipmaker® Inserts (I.D.)



Chipmaker® Inserts (I.D.)						INCH
I.D. Grooving Toolholders	Part Number	W	L	R	H	
204-265	507-172**	.126	7/16	.010	1/4	
204-262, 204-263	508-250	.126	7/8	.010	1/4	
	508-276*	.125	7/8	FNR	1/4	
204-264, 204-217	508-251	.188	1.0	.010	1/4	
204-261	508-252	.250	1.0	.010	1/4	
	508-238	.126	7/8	.010	1/4	
	508-244	.126	7/8	.030	1/4	
	508-239	.188	1.0	.010	1/4	
204-218	508-246	.188	1.0	.030	1/4	
204-256	508-240	.250	1.0	.010	1/4	
	508-247	.250	1.0	.030	1/4	

Chipmaker® Inserts (I.D.)						METRIC
I.D. Grooving Toolholders	Part Number	W mm	L mm	R mm	H mm	
226-250	507-200**	3	11.1	0.3	6.35	
226-261, 226-252,	508-264	3	22.2	0.3	6.35	
226-262	508-265	5	25.4	0.3	6.35	
	508-256	3	22.2	0.3	6.35	
	508-257	3	22.2	0.6	6.35	
226-265	508-260	5	25.4	0.3	6.35	
226-255	508-261	5	25.4	0.6	6.35	
	508-262	6	25.4	0.3	6.35	
	508-263	6	25.4	0.6	6.35	

Chipmaker Inserts are available in Uncoated (C2 & C5), TiN+TiC+TiN (GC), TiN (M40) & TiN (M50) & TiAlN (93).

*Available only in TiCN (M45).

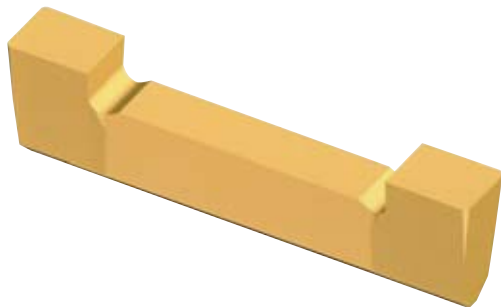
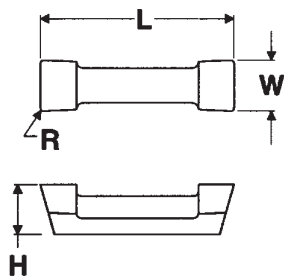
**Single end chipmaker.

FNR = Full Nose Radius.

I.D. GROOVING

Central Neutral Inserts (I.D.)

Central Positive Inserts (I.D.)



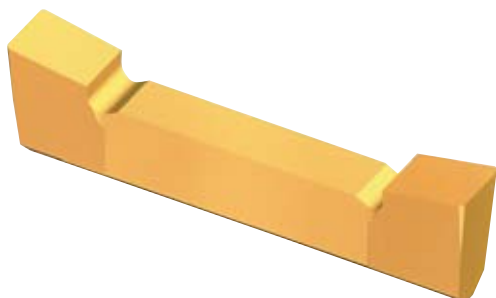
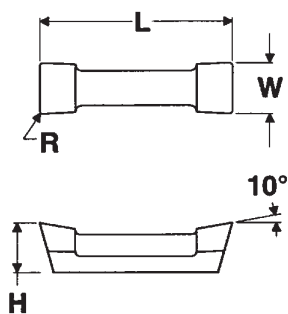
Central Neutral Inserts (I.D.)

INCH

I.D. Grooving Toolholders	Part Number	W	L	R	H
204-218 204-256	508-301	.126	7/8	.010	1/4
	508-307	.126	7/8	.030	1/4
	508-313	.126	7/8	FNR	1/4
	508-303	.188	1.0	.010	1/4
	508-309	.188	1.0	.030	1/4
	508-315	.188	1.0	FNR	1/4
	508-304	.250	1.0	.010	1/4
	508-310	.250	1.0	.030	1/4
	508-316	.250	1.0	FNR	1/4

Central Neutral Inserts are available in Uncoated (C2 & C5), TiN+TiC+TiN (GC), Al_2O_3 (M24), TiN (M40) & TiN (M50).

FNR = Full Nose Radius.



Central Positive Inserts (I.D.)

INCH

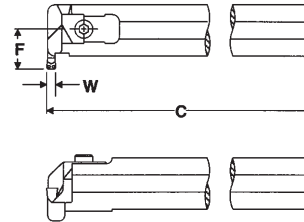
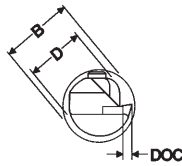
I.D. Grooving Toolholders	Part Number	W	L	R	H
204-261,204-262 204-263,204-264 204-217	508-337	.126	7/8	.010	1/4
	508-338	.188	1.0	.010	1/4
	508-339	.250	1.0	.010	1/4
	508-319	.126	7/8	.010	1/4
	508-325	.126	7/8	.030	1/4
	508-331	.126	7/8	FNR	1/4
	508-321	.188	1.0	.010	1/4
	508-327	.188	1.0	.030	1/4
	508-333	.188	1.0	FNR	1/4
	508-322	.250	1.0	.010	1/4
204-218 204-256	508-328	.250	1.0	.030	1/4
	508-334	.250	1.0	FNR	1/4

Central Positive Inserts are available in Uncoated (C2 & C5), TiN+TiC+TiN (GC), TiN (M40) & TiN (M50).

FNR = Full Nose Radius.

I.D. GROOVING

Replaceable End Toolholders
For 1" Dia. Holes and Larger



Left Hand Shown

Replaceable End Toolholders

INCH

Counter Clockwise Left Hand	Min. Enter Diameter		Bar Diameter		Clockwise Right Hand
	DOC	B	C	D	
204-265	5/32	1.00	7.56	.750	204-265

*Note: These bars use a single end insert.
See page C16 for inserts.*

Components

INCH

W	Counter Clockwise Left Hand		Clockwise Right Hand	
	Support Blade	Clamp	Clamp	Support Blade
.126	308-202	407-189	407-196	308-216

Replacement Hardware

INCH

Support Blade Screws	Clamp Screw
606-197	619-122

Replaceable End Toolholders

METRIC

Counter Clockwise Left Hand	Min. Enter Diameter		Bar Diameter		Clockwise Right Hand
	DOC	B	C	D	
226-250	4	25	250	20	226-250

*Note: These toolholders use a single end insert. Toolholders supplied without support blade and clamp.
See page C16 for inserts.*

Components

METRIC

W mm	Counter Clockwise Left Hand		Clockwise Right Hand	
	Support Blade	Clamp	Clamp	Support Blade
3	308-202	407-189	407-196	308-216

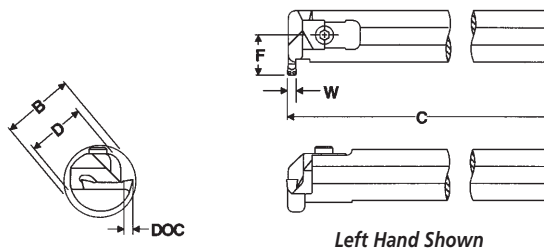
Replacement Hardware

METRIC

Support Blade Screws	Clamp Screw
606-223	619-151

I.D. GROOVING

Replaceable End Toolholders
For 1-1/4" Dia. Holes and Larger



Replaceable End Toolholders						INCH
Counter Clockwise Left Hand	DOC	Min. Enter Diameter	C	Bar Diameter	F	Clockwise Right Hand
204-262	5/32	1-1/4	12.0	1.00	.688	204-262
204-263	7/32	1-5/8	14.0	1.25	.875	204-264

See pages C16 and C17 for inserts.

Components					INCH
W	Counter Clockwise Left Hand		Clockwise Right Hand		
	Support Blade	Clamp	Clamp	Support Blade	
.126	308-193	407-177	407-186	308-199	
.188	308-194	407-178	407-187	308-200	

Replacement Hardware			INCH
Support Blade Screws	Clamp Screw	Clamp Spring	
606-192	619-120	700-101	

Replaceable End Toolholders						METRIC
Counter Clockwise Left Hand	DOC	Min. Enter Diameter	C	Bar Diameter	F	Clockwise Right Hand
226-261	4	32	250	25	17.5	226-261
226-262	5	41	300	32	22.2	226-252

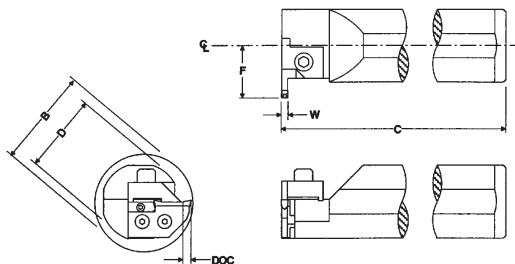
Toolholders supplied without support blade and clamp. See pages C16 and C17 for inserts.

Components					METRIC
W mm	Counter Clockwise Left Hand		Clockwise Right Hand		
	Support Blade	Clamp	Clamp	Support Blade	
3	308-193	407-177	407-186	308-199	
5	308-194	407-178	407-187	308-200	

Replacement Hardware			METRIC
Support Blade Screws	Clamp Screw	Clamp Spring	
606-225	619-152	700-101	

I.D. GROOVING

Replaceable End Toolholders
For 2-1/2" Dia. Holes and Larger



Left Hand Shown

Replaceable End Toolholders						INCH
Counter Clockwise Left Hand	DOC	Min. Enter Diameter B	C	Bar Diameter D	F	Clockwise Right Hand
204-217	1/4	2-1/2	12.0	2.00	1.312	204-261

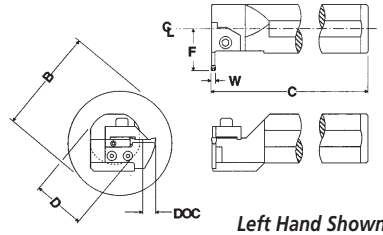
See pages C16 and C17 for inserts.

Components				INCH / METRIC	
W	Counter Clockwise Left Hand Support Blade	Clamp	Stop	Clockwise Right Hand Clamp	Support Blade
.126" and 3mm	308-156	407-124	601-117	407-107	308-180
.188" and 5mm	308-155	407-125	601-116	407-109	308-181
.250" and 6mm	308-154	407-127	601-116	407-110	308-182

Replacement Hardware			INCH
Support Blade Screws	Clamp Screw	Stop Screw	
606-174	619-121	619-145	

I.D. GROOVING

Replaceable End Toolholders
For 4" Dia. Holes and Larger



Replaceable End Toolholders

INCH

Counter Clockwise Left Hand	DOC	Min. Enter Diameter B	C	Bar Diameter D	F	Clockwise Right Hand
204-218	5/16*	4.00	12.0	2.00	1.375	204-256
	1/2	4.00	12.0	2.00	1.562	

*.126" width has 5/16" DOC. See pages C2-C6 for inserts.

Components

INCH

W	Counter Clockwise Left Hand Support Blade	Clamp	Stop	Clockwise Right Hand Clamp	Support Blade
.126	308-157	407-133	601-112	407-131	308-188
.188	308-159	407-135	601-107	407-113	308-183
.250	308-160	407-144	601-107	407-143	308-184

Replacement Hardware

INCH

Support Blade Screws	Clamp Screw	Stop Screw
606-160	619-110	619-101

Replaceable End Toolholders

METRIC

Counter Clockwise Left Hand	DOC	Min. Enter Diameter B	C	Bar Diameter D	F	Clockwise Right Hand
226-265	8*	100	350	50	34,7	226-255
	12,5	100	350	50	38,9	

* 3mm WOC has 8mm DOC. Toolholders supplied without support blade and clamp. See pages C2-C6 for inserts.

Components

METRIC

W mm	Counter Clockwise Left Hand Support Blade	Clamp	Stop	Clockwise Right Hand Clamp	Support Blade
3	308-157	407-133	601-112	407-131	308-188
5	308-159	407-135	601-107	407-113	308-183
6	308-160	407-144	601-107	407-143	308-184

* 3mm WOC has 8mm DOC.

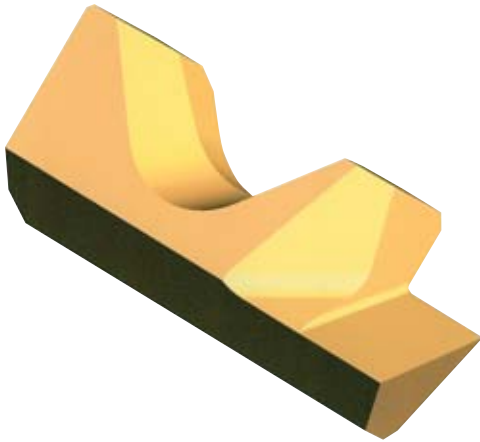
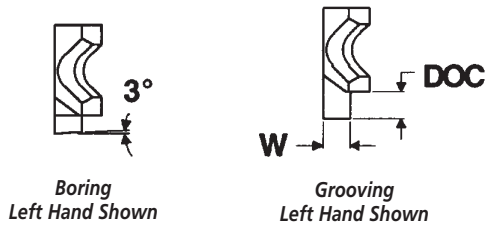
Replacement Hardware

METRIC

Support Blade Screws	Clamp Screw	Stop Screw
606-222	619-161	619-162

O.D. GROOVING

S-LOC™ Insert (I.D. Boring and Grooving)



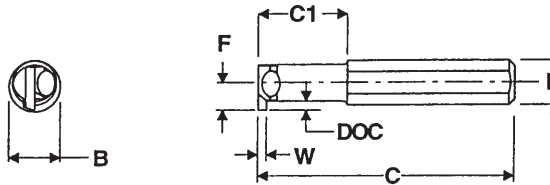
S-LOC™ Inserts				INCH
Left Hand Insert	W	DOC	Description	Right Hand Insert
510-102	—	—	Boring	510-105
510-113	.040/.042	.062	Grooving	510-124
510-114	.046/.049	.062	Grooving	510-125
510-115	.052/.055	.062	Grooving	510-126
510-116	.056/.058	.062	Grooving	510-127
510-117	.063/.065	.094	Grooving	510-128
510-118	.070/.072	.094	Grooving	510-129
510-119	.074/.079	.094	Grooving	510-130
510-120	.086/.089	.094	Grooving	510-131
510-101	.093/.095	.094	Grooving	510-104
510-121	.097/.100	.094	Grooving	510-132
510-122	.103/.105	.094	Grooving	510-133
510-123	.105/.108	.094	Grooving	510-134

S-LOC™ Inserts are available in Uncoated (C2 & C5), TiN+TiC+TiN (GC) & TiN (M40).

See page C23 for Holders.

I.D. GROOVING

S-LOC™ Toolholders



Left Hand Shown

S-LOC™ Toolholders							INCH
Counter Clockwise Left Hand	DOC (Max)	Min. Enter Diameter B	C	C ₁	Bar Diameter D	F*	Clockwise Right Hand
218-119	.094	.560	6.0	1.0	.500	.312	218-119
218-121	.094	.560	6.0	1.5	.625	.312	218-121
218-122	.094	.780	6.0	0	.625	.419	218-123
218-124	.094	.940	8.0	0	.750	.510	218-124

*For inserts with .062" DOC subtract .032". See page C22 for inserts.

Replacement Hardware

INCH

Locking Clamp Screws
606-190

S-LOC™ Toolholders							METRIC
Counter Clockwise Left Hand	DOC (Max)*	Min. Enter Diameter B	C	C ₁	Bar Diameter D	F	Clockwise Right Hand
218-134	2.4	14.2	150	25	12	8	218-134
218-142	2.4	14.2	150	38	16	8	218-142
218-143	2.4	24.0	200	—	20	13	218-143

*Refer to insert table for specific DOC. See page C22 for inserts.

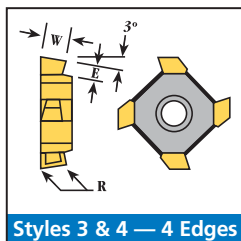
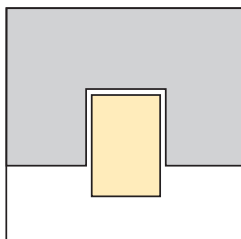
Replacement Hardware

METRIC

Locking Clamp Screws
606-193

O.D./I.D. GROOVIDEX® INSERTS

External/Internal Grooving



Styles 3 & 4 — 4 Edges

Right Hand Shown

External/Internal Grooving Inserts

INCH

Left Hand MTC No.	Width	IC	Dimensions W E R			Style	Right Hand MTC No.
571-122	0.031	7/16	0.031	0.050	0.005	3	571-131
571-194	0.062	7/16	0.062	0.125	0.008	3	571-138
571-128	0.094	7/16	0.094	0.125	0.008	3	571-141
571-130	0.125	7/16	0.125	0.125	0.008	3	571-143
571-147	0.062	9/16	0.062	0.125	0.008	4	571-170
571-153	0.094	9/16	0.094	0.180	0.010	4	571-177
571-159	0.125	9/16	0.125	0.180	0.010	4	571-183
571-163	0.156	9/16	0.156	0.180	0.010	4	571-185
571-164	0.188	9/16	0.188	0.190	0.020	4	571-188

External/Internal Grooving Inserts

METRIC

Left Hand MTC No.	Width mm	IC mm	Dimensions W mm E mm R mm			Style	Right Hand MTC No.
571-285	1.0	11.1	1.0	1.3	0.15	3	571-284
571-287	1.5	11.1	1.5	3.2	0.2	3	571-286
571-289	2.0	11.1	2.0	3.2	0.2	3	571-288
571-291	3.0	11.1	3.0	3.2	0.2	3	571-290
571-293	2.0	14.3	2.0	3.2	0.2	4	571-292
571-295	3.0	14.3	3.0	4.6	0.2	4	571-294
571-297	4.0	14.3	4.0	4.6	0.25	4	571-296

External/Internal Grooving Inserts are available in Grades TiCN (M45), TiN (M40), TiN (M50) and TiAlN (M93). Call for availability.

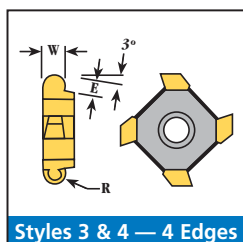
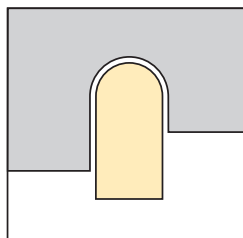
See pages C26-C28 for Holders.

See Section A – MTC™ Products for additional OD Grooving tools.

O.D./I.D. GROOVIDEX® INSERTS

External/Internal Grooving

Full Nose Radius



Right Hand Shown

External/Internal Grooving (Full Nose Radius) Inserts

INCH

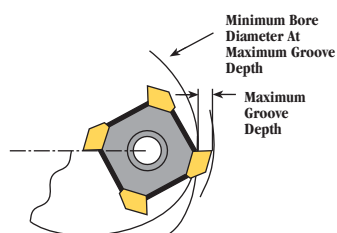
Left Hand MTC No.	Width	IC	Dimensions W E R			Style	Right Hand MTC No.
571-123	0.062	7/16	0.062	0.125	.031	3	571-132
571-124	0.094	7/16	0.094	0.125	.047	3	571-135
571-126	0.125	7/16	0.125	0.125	.062	3	571-139
571-146	0.094	9/16	0.094	0.180	.047	4	571-169
571-148	0.125	9/16	0.125	0.180	.062	4	571-171

External/Internal Grooving Inserts are available in Grades TiCN (M45), TiN (M40), TiN (M50) and TiAlN (M93). Call for availability.
See pages C26-C28 for Holders.

Depth of Cut Limits with Standard Inserts

INTERNAL GROOVING

Internal Groove Depth vs. Insert Interference



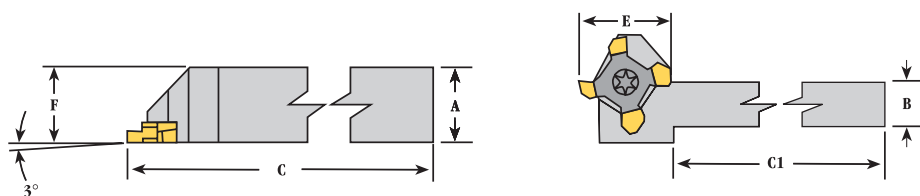
NOTE: Internal grooving depth limits are a function of insert clearance versus bore diameters.

Left Hand	Max. Groove Depth	Min. Bore Diameter	Right Hand
571-122	0.050	0.950	571-131
571-194	0.125	1.050	571-138
571-128	0.125	1.050	571-141
571-130	0.125	1.050	571-143
571-147	0.125	1.450	571-170
571-153	0.180	1.750	571-177
571-159	0.180	1.750	571-183
571-163	0.180	1.750	571-185
571-164	0.190	1.750	571-188

GROOVIDEX® EXTERNAL GROOVING

External Toolholders

Fixed Pocket



Right Hand Shown

External Grooving Fixed Pocket

INCH

Left Hand MTC No.	A	B	C	C ₁	E	F	Insert Style	Right Hand MTC No.
245-202	0.37	3/8	4	3.23	3/4	3/8	3	245-201
245-204	0.49	1/2	5	—	3/4	1/2	3	245-203
245-206	0.62	5/8	5	—	3/4	5/8	3	245-205
245-208	0.74	3/4	5	—	3/4	3/4	3	245-207
245-210	0.99	1	6	—	3/4	1	3	245-209
245-214	0.62	5/8	5	—	1	5/8	4	245-213
245-216	0.74	3/4	5	—	1	3/4	4	245-215
245-218	0.99	1	6	—	1	1	4	245-217

External Grooving Fixed Pocket

METRIC

Left Hand MTC No.	A mm	B mm	C mm	C ₁ mm	E mm	F mm	Insert Style	Right Hand MTC No.
245-302	9.8	10	100	80.4	19	10	3	245-301
245-304	11.7	12	125	—	19	12	3	245-303
245-306	15.7	16	125	—	19	16	3	245-305
245-308	19.7	20	125	—	19	20	3	245-307
245-310	24.7	25	150	—	19	25	3	245-309
245-316	19.7	20	125	—	25.4	20	4	245-315
245-318	24.7	25	150	—	25.4	25	4	245-317

NOTE: Holder Supplied with screw, less insert.
See pages C24 and C25 for inserts.

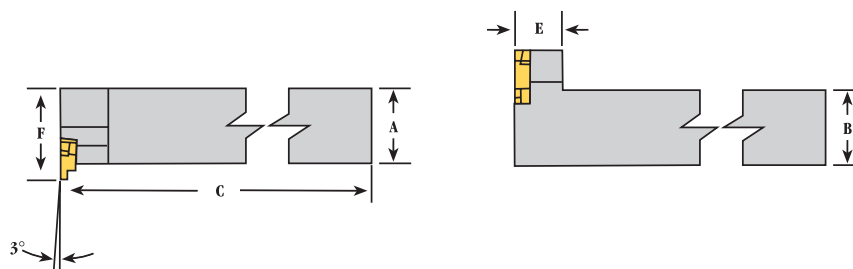
Replacement Hardware

INCH / METRIC

Insert Screw	Wrench	Insert Style
644-107	644-110	3
644-108	644-111	4

GROOVIDEX® EXTERNAL GROOVING

Angle Head Style



Left Hand Shown

External Type Angle Head Style

INCH

Left Hand MTC No.	A	B	C	E	F	Insert Style	Right Hand MTC No.
245-222	0.63	5/8	5	1/2	0.78	3	245-221
245-224	0.75	3/4	5	1/2	0.91	3	245-223
245-226	1.00	1	6	1/2	1.16	3	245-225
245-230	0.82	5/8	5	5/8	1.03	4	245-229
245-232	0.82	3/4	5	5/8	1.03	4	245-231
245-234	1.01	1	6	5/8	1.22	4	245-233

External Type Angle Head Style

METRIC

Left Hand MTC No.	A mm	B mm	C mm	E mm	F mm	Insert Style	Right Hand MTC No.
245-324	20	20	125	12.7	24	3	245-323
245-326	25	25	150	12.7	29	3	245-325
245-332	20.7	20	125	15.9	26	4	245-331
245-334	25	25	150	15.9	30.3	4	245-333

NOTE: Holder Supplied with screw, less insert.
See pages C24 and C25 for inserts.

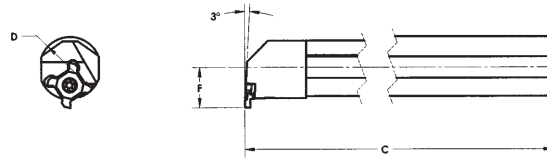
Replacement Hardware

INCH / METRIC

Insert Screw	Wrench	Insert Style
644-107	644-110	3
644-108	644-111	4

INTERNAL BARS

Internal Grooving Fixed Pocket with Clamp



Left Hand Shown

Internal Grooving Fixed Pocket with Clamp						INCH
Left Hand MTC No.	D	C	F	Min. Bore	Style	Right Hand MTC No.
244-222	0.750	7	0.510	0.950	3	244-221
244-224	1.000	8	0.650	1.150	3	244-223
244-228	1.000	8	0.850	1.450	4	244-227

NOTE: Coolant port standard feature. Bar furnished complete with hardware, less insert. See pages C24 and C25 for inserts and depth of cut.

Replacement Hardware

INCH

Insert Screw	Wrench
644-107	644-110



Ranger™ Face Grooving

MTC™
Cutoff & Grooving

Separator®
Cutoff

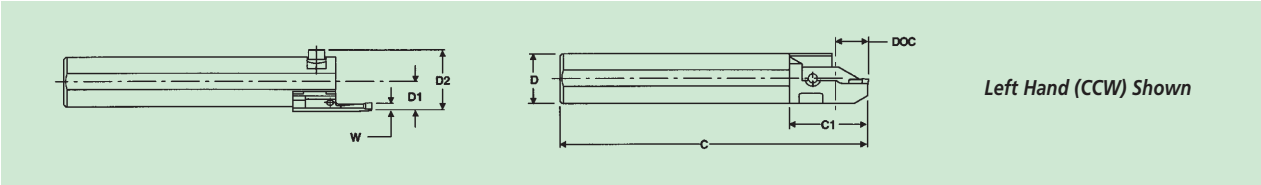
Chipmaker®
O.D. & I.D. Grooving

Ranger™
Face Grooving

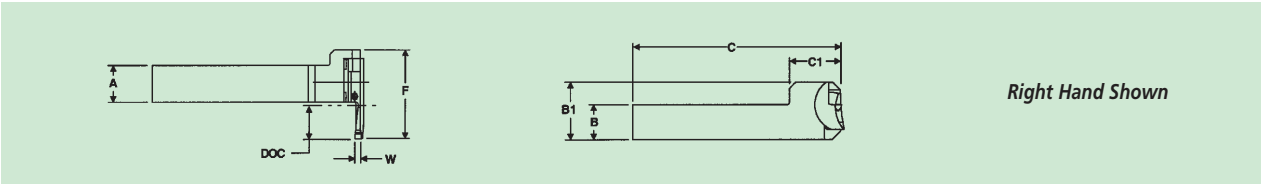
Octicut®
Threading

RANGER™
 2-1/4" O.D. To 16" O.D. (57mm O.D. TO 400mm O.D.)
 Range With One Assembly

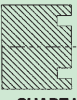
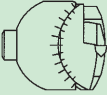
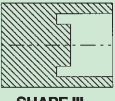
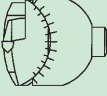
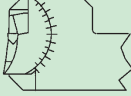
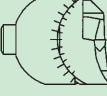
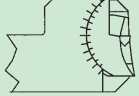
ROUND SHANK TOOLHOLDER
 (Inch & Metric)



SQUARE RIGHT ANGLE SHANK HOLDER
 (Inch & Metric)



THE RANGER™
 Adjustable Face Grooving
 2-1/4" O.D. to 16" O.D. with One Assembly

Blade Style	Part Shape		Rotation	Shank	Holder Style	
					Round	Square
A	 SHAPE I	 SHAPE III	CCW	RH		
B	 SHAPE I	 SHAPE III	CW	LH		
C	 SHAPE I	 SHAPE II	CCW	LH		
D	 SHAPE I	 SHAPE II	CW	RH		

RANGER™

Inch Shank Toolholders

Ranger™ Toolholders													INCH
Blade Style	Rotation	Part No.	Shank Style	Hand	A	B	B ₁	C	C ₁	D	D ₁	D ₂	F
A,B,C,D	CCW	235-110	Round	LH/RH	—	—	—	9.00	2.31	1.00	.80	1.78	—
A,B,C,D	CCW	235-109	Round	LH/RH	—	—	—	9.00	2.31	1.25	.80	1.78	—
A,B,C,D	CCW	235-101	Round	LH/RH	—	—	—	9.00	2.31	1.50	.80	1.78	—
C	CCW	235-103	Sq. Rt. Angle	LH	1.06	.75	1.96	6.00	1.87	—	—	—	2.56
C	CCW	235-104	Sq. Rt. Angle	LH	1.06	1.00	1.96	6.00	1.87	—	—	—	2.56
C	CCW	235-105	Sq. Rt. Angle	LH	1.06	1.25	1.96	6.00	1.87	—	—	—	2.56
D	CW	235-106	Sq. Rt. Angle	RH	1.06	.75	1.96	6.00	1.87	—	—	—	2.56
D	CW	235-107	Sq. Rt. Angle	RH	1.06	1.00	1.96	6.00	1.87	—	—	—	2.56
D	CW	235-108	Sq. Rt. Angle	RH	1.06	1.25	1.96	6.00	1.87	—	—	—	2.56

See components below and page D5 for inserts.

NOTE: Toolholders supplied with support blade screw.

Components					INCH
Blade Style	Rotation	Hand	W	DOC	Cartridge Part No.
A	CCW	RH	.126	.75	338-121
A	CCW	RH	.188	1.00	338-122
A	CCW	RH	.250	1.00	338-131
B	CW	LH	.126	.75	338-123
B	CW	LH	.188	1.00	338-124
B	CW	LH	.250	1.00	338-132
C	CCW	LH	.126	.75	338-125
C	CCW	LH	.188	1.00	338-126
C	CCW	LH	.250	1.00	338-127
D	CW	RH	.126	.75	338-128
D	CW	RH	.188	1.00	338-129
D	CW	RH	.250	1.00	338-130

NOTE: Cartridges are supplied complete with clamp and clamp screw.

Replacement Hardware			INCH
Shank Style	Round	Square	
Support Blade Screw	619-155	606-218	
Clamp Screw	606-219	606-219	
Washer	613-135	—	
Nut	—	613-137	

RANGER™

Metric Shank Toolholders

Ranger™ Toolholders													METRIC
Blade Style	Rotation	Part No.	Shank Style	Hand	A	B	B ₁	C	C ₁	D	D ₁	D ₂	F
A,B,C,D	CCW CW	235-201	Round	LH/RH	—	—	—	200	62	25	20.3	45.2	—
A,B,C,D	CCW CW	235-202	Round	LH/RH	—	—	—	200	62	30	20.3	45.2	—
A,B,C,D	CCW CW	235-203	Round	LH/RH	—	—	—	200	62	32	20.3	45.2	—
C	CCW	235-204	Sq. Rt. Angle	LH	27	20	49	152	46	—	—	—	65
C	CCW	235-205	Sq. Rt. Angle	LH	27	25	49	152	46	—	—	—	65
C	CCW	235-206	Sq. Rt. Angle	LH	27	32	49	152	46	—	—	—	65
D	CW	235-207	Sq. Rt. Angle	RH	27	20	49	152	46	—	—	—	65
D	CW	235-208	Sq. Rt. Angle	RH	27	25	49	152	46	—	—	—	65
D	CW	235-209	Sq. Rt. Angle	RH	27	32	49	152	46	—	—	—	65

See components below and page D5 for inserts.

NOTE: Toolholders supplied with support blade screw.

Components

METRIC

Blade Style	Rotation	Hand	W	DOC	Cartridge Part No.
A	CCW	RH	3.2	19	338-221
A	CCW	RH	4.8	25	338-222
A	CCW	RH	6.35	25	338-231
B	CW	LH	3.2	19	338-223
B	CW	LH	4.8	25	338-224
B	CW	LH	6.35	25	338-232
C	CCW	LH	3.2	19	338-225
C	CCW	LH	4.8	25	338-226
C	CCW	LH	6.35	25	338-227
D	CW	RH	3.2	19	338-228
D	CW	RH	4.8	25	338-229
D	CW	RH	6.35	25	338-230

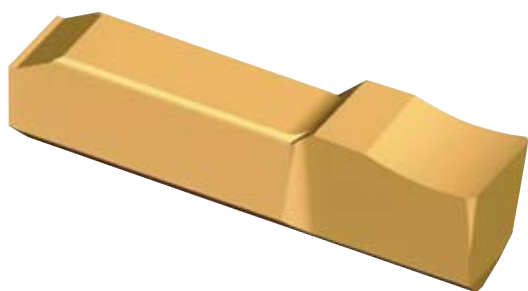
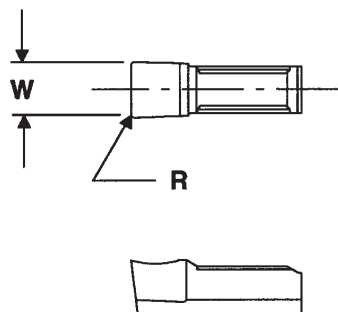
NOTE: Cartridges are supplied complete with clamp and clamp screw.

Replacement Hardware

METRIC

Shank Style	Round	Square
Support Blade Screw	619-155	606-218
Clamp Screw	606-219	606-219
Washer	613-135	—
Nut	—	613-137

Ranger™ Inserts



Ranger™ Inserts				INCH
Blade Style	Rotation	W	R	Insert Part No.
A,C	CCW	.126	.010	506-101
A,C	CCW	.126	.010	526-101
A,C	CCW	.126	FNR	506-104
A,C	CCW	.126	FNR	526-104
B,D	CW	.126	.010	506-102
B,D	CW	.126	.010	526-102
B,D	CW	.126	FNR	506-105
B,D	CW	.126	FNR	526-105
A,B,C,D	CCW CW	.188	.010	506-103
A,B,C,D	CCW CW	.188	.010	526-103
A,B,C,D	CCW CW	.188	FNR	506-106
A,B,C,D	CCW CW	.188	FNR	526-106
A,B,C,D	CCW CW	.250	.010	506-107
A,B,C,D	CCW CW	.250	FNR	506-108

Ranger™ 506 Series Inserts are available in Uncoated (C2 and C5), TiN (M40), TiAlN (M43) and Al₂O₃ (M24). 526 Series Inserts are available in CBN (CBNHT and CBNCL) grades only.

See Section A – MTC™ Products for additional Face Grooving tools.

SMALL DIAMETER FACE GROOVING

1-1/4" O.D. to 3-1/2" O.D.

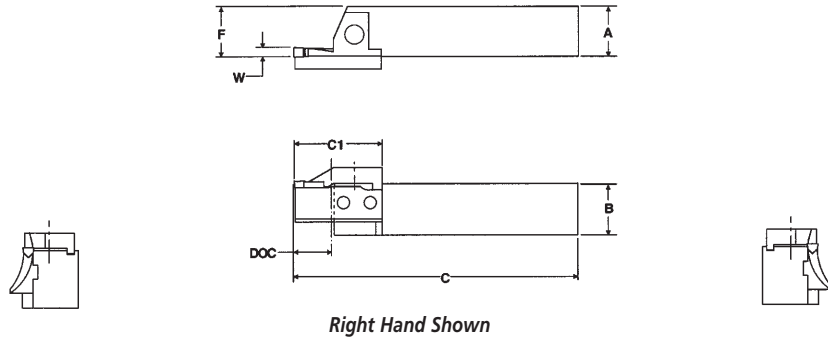
Square Shank Toolholder



SMALL DIAMETER FACE GROOVING

1-1/4" O.D. to 3-1/2" O.D.

Right Angle Toolholder

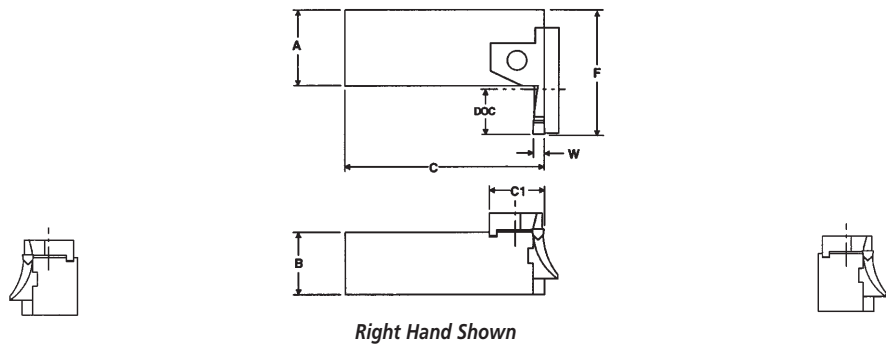


1-1/4" O.D. to 3-1/2" O.D. Square Shank Toolholder

INCH

Counter Clockwise Left Hand	A	B	C	C ₁	F	Clockwise Right Hand
203-347	1.00	.75	5.00	1.72	1.00	203-347
203-351	1.00	1.00	6.00	1.72	1.00	203-350

See page D7 for components and page D8 for inserts.



1-1/4" O.D. to 3-1/2" O.D. Right Angle Toolholder

INCH

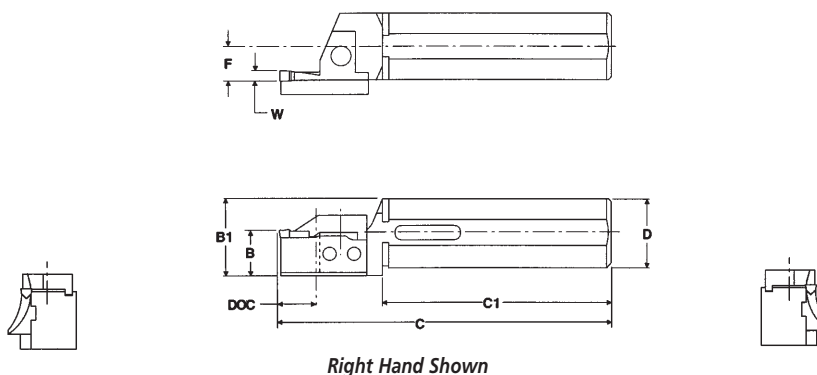
Counter Clockwise Left Hand	A	B	C	C ₁	F	Clockwise Right Hand
204-266	1.12	.75	4.50	.87	1.90	204-266
204-268	1.12	1.00	6.00	.87	2.00	204-267

NOTE: All toolholders designed to position inserts .050" above machine centerline which will limit tool's ability to turn smaller than 15/16" diameter.
See page D7 for components and page D8 for inserts.

SMALL DIAMETER FACE GROOVING

1-1/4" O.D. to 3-1/2" O.D.

Round Shank Toolholder



1-1/4" O.D. to 3-1/2" O.D. Round Shank Toolholder

INCH

Counter Clockwise Left Hand	B	B ₁	C	C ₁	D	F	Clockwise Right Hand
203-349	.75	1.34	6.50	4.50	1.25	.62	203-348

NOTE: All toolholders designed to position inserts .050" above machine centerline which will limit tool's ability to turn smaller than 15/16" diameter.
See pages D8 for inserts.

Components for Small Diameter Face Grooving

INCH

Major O.D. Range	W	Counter Clockwise Left Hand Support Blade*	Clamp	DOC	Clockwise Right Hand Clamp	Support Blade*
1.25-1.50	.126	334-101	436-101	.500	436-103	334-111
1.50-1.87	.126	334-102	436-101	.500	436-103	334-112
1.87-2.50	.126	334-103	436-101	.750	436-103	334-113
	.188	334-107	436-102	.750	436-104	334-117
2.50-3.50	.126	334-104	436-101	.750	436-103	334-114
	.188	334-108	436-102	.750	436-104	334-118

*Support blades must be cleared for FNR inserts.

Replacement Hardware

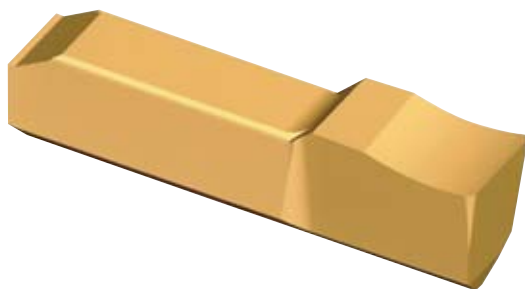
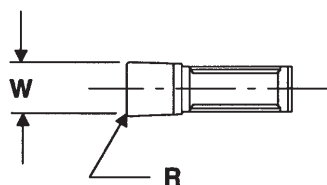
INCH

Support Blade Screws	Clamp Screw
606-167	619-147

See Section A – MTC™ Products for additional Face Grooving tools.

SMALL DIAMETER FACE GROOVING

Inserts



Small Diameter Face Grooving Inserts

INCH

Rotation	W	R	Insert Part No.
CCW(LH)	.126	.010	506-101
CCW(LH)	.126	.010	526-101
CCW(LH)	.126	FNR	506-104
CCW(LH)	.126	FNR	526-104
CW(RH)	.126	.010	506-102
CW(RH)	.126	.010	526-102
CW(RH)	.126	FNR	506-105
CW(RH)	.126	FNR	526-105
CCW(LH) CW(RH)	.188	.010	506-103
CCW(LH) CW(RH)	.188	.010	526-103
CCW(LH) CW(RH)	.188	FNR	506-106
CCW(LH) CW(RH)	.188	FNR	526-106

Small Diameter Face Grooving 506 Series Inserts are available in Uncoated (C2 and C5), TiN+TiC+TiN (GC), TiN (M40), TiAlN (M43) and Al₂O₃ (M24). 526 Series Inserts are available in CBN (CBNHT and CBNCI) grades only.

See Section A – MTC™ Products for additional Face Grooving tools.

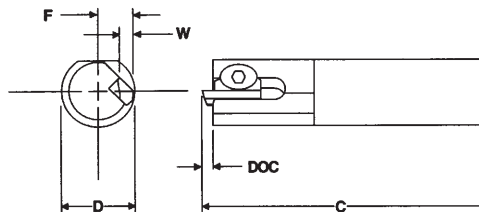
FACE GROOVING

1/2" and Larger O.D.

S-LOC™ Toolholders

FACE GROOVING

S-LOC™ Inserts



Right Hand Shown

1/2" and Larger O.D. S-LOC™ Toolholders

INCH

Counter Clockwise Left Hand	DOC	C	D	F	Clockwise Right Hand
218-126	.094	6.00	.625	.250	218-125

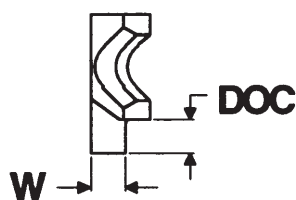
NOTE: Toolholders will not enter a bore and groove at bore diameter.

Replacement Hardware

INCH

Locking Clamp Screw

606-190



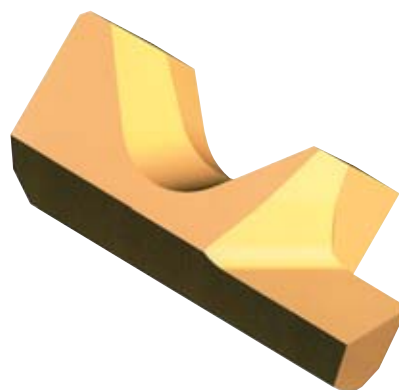
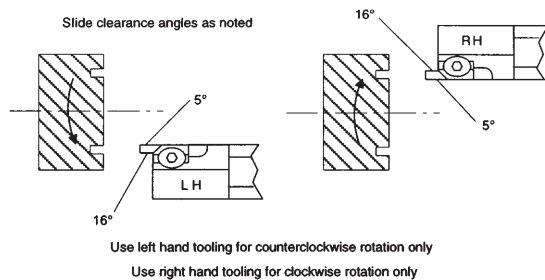
Left Hand Shown

Face Grooving S-LOC™ Inserts

INCH

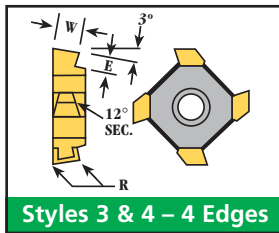
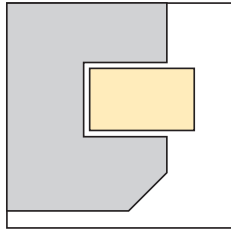
Counter Clockwise Left Hand Part No.	W	DOC	Clockwise Right Hand Part No.
510-135	.078	.094	510-136
510-107	.094	.094	510-108
510-137	.102	.094	510-138

Face Grooving S-LOC™ Inserts are available in Uncoated (C2 and C5), and TiN (M40).



GROOVIDEX® GROOVING INSERTS

Face Grooving



Styles 3 & 4 – 4 Edges

Right Hand Shown

Face Grooving Inserts

INCH

Left Hand MTC No.	Width	Dimensions		E	R	Style	Right Hand MTC No.
IC	W						
571-125	0.062	7/16	0.062	0.125	0.008	3	571-137
571-127	0.094	7/16	0.094	0.125	0.008	3	571-140
571-129	0.125	7/16	0.125	0.125	0.008	3	571-142
571-198	0.094	9/16	0.094	0.180	0.010	4	571-176
571-158	0.125	9/16	0.125	0.180	0.010	4	571-204
571-165	0.188	9/16	0.188	0.190	0.020	4	571-206

NOTE: Right hand inserts are for clockwise rotating parts and left hand inserts are to be used on counter clockwise rotating parts. The minimum outside groove diameter for standard Style 3 inserts is 1.000". For Style 4 inserts, the minimum outside groove diameter is 1.375". Standard inserts may be modified to clear smaller outside diameters upon request.

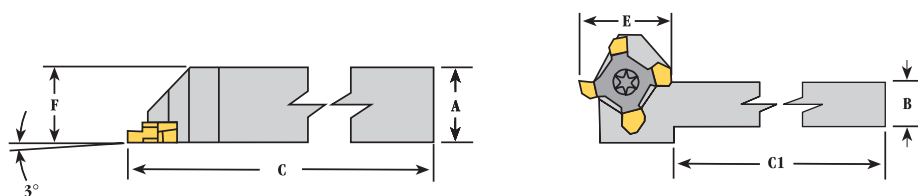
Face Grooving Inserts are available in TiN (M40), TiCN (M45), TiN (M50) and TiAlN (M93).

See Section A – MTC™ Products for additional Face Grooving tools.

GROOVIDEX® FACE GROOVING

External Toolholders

Fixed Pocket



Right Hand Shown

External Grooving Fixed Pocket

INCH

Left Hand MTC No.	A	B	C	C ₁	E	F	Insert Style	Right Hand MTC No.
245-202	0.37	3/8	4	3.23	3/4	3/8	3	245-201
245-204	0.49	1/2	5	—	3/4	1/2	3	245-203
245-206	0.62	5/8	5	—	3/4	5/8	3	245-205
245-208	0.74	3/4	5	—	3/4	3/4	3	245-207
245-210	0.99	1	6	—	3/4	1	3	245-209
245-214	0.62	5/8	5	—	1	5/8	4	245-213
245-216	0.74	3/4	5	—	1	3/4	4	245-215
245-218	0.99	1	6	—	1	1	4	245-217

External Grooving Fixed Pocket

METRIC

Left Hand MTC No.	A mm	B mm	C mm	C ₁ mm	E mm	F mm	Insert Style	Right Hand MTC No.
245-302	9.8	10	100	80.4	19	10	3	245-301
245-304	11.7	12	125	—	19	12	3	245-303
245-306	15.7	16	125	—	19	16	3	245-305
245-308	19.7	20	125	—	19	20	3	245-307
245-310	24.7	25	150	—	19	25	3	245-309
245-316	19.7	20	125	—	25.4	20	4	245-315
245-318	24.7	25	150	—	25.4	25	4	245-317

NOTE: Holder supplied with screw, less insert.
See page D10 for inserts.

Replacement Hardware

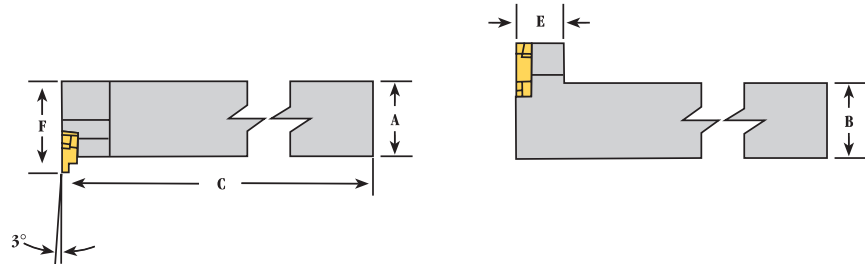
INCH / METRIC

Insert Screw	Wrench	Insert Style
644-107	644-110	3
644-108	644-111	4

GROOVIDEX® FACE GROOVING

External Toolholders

Angle Head Style



Left Hand Shown

External Type Angle Head Style

INCH

Left Hand MTC No.	A	B	C	E	F	Insert Style	Right Hand MTC No.
245-222	0.63	5/8	5	1/2	0.78	3	245-221
245-224	0.75	3/4	5	1/2	0.91	3	245-223
245-226	1.00	1	6	1/2	1.16	3	245-225
245-230	0.82	5/8	5	5/8	1.03	4	245-229
245-232	0.82	3/4	5	5/8	1.03	4	245-231
245-234	1.01	1	6	5/8	1.22	4	245-233

External Type Angle Head Style

METRIC

Left Hand MTC No.	A mm	B mm	C mm	E mm	F mm	Insert Style	Right Hand MTC No.
245-324	20	20	125	12.7	24	3	245-323
245-326	25	25	150	12.7	29	3	245-325
245-332	20.7	20	125	15.9	26	4	245-331
245-334	25	25	150	15.9	30.3	4	245-333

NOTE: Holder supplied with screw, less insert.
See page D10 for inserts.

Replacement Hardware

INCH / METRIC

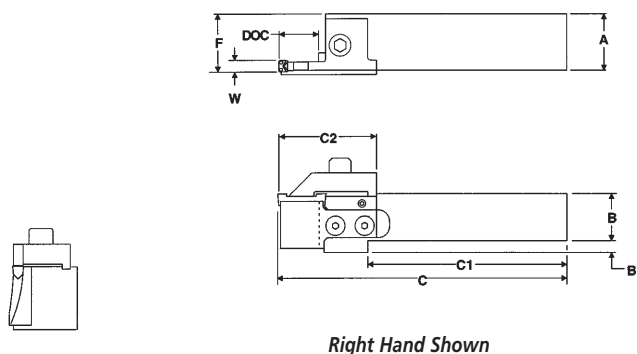
Insert Screw	Wrench	Insert Style
644-107	644-110	3
644-108	644-111	4

FACE GROOVING

3" and Larger O.D.

Square Shank

13/16" Depth of Cut



Right Hand Shown

Square Shank – 13/16" Depth of Cut

INCH

Counter Clockwise Left Hand	DOC	A	B	B ₁	C	C ₁	C ₂	F*	Clockwise Right Hand
203-352	13/16	1.199	1.00	.250	6.19	4.25	2.125	1.250	203-287
203-271	13/16	1.449	1.25	—	5.94	—	2.125	1.500	—
—	13/16	1.199	1.25	—	6.69	—	2.125	1.250	203-245
203-232	13/16	1.449	1.25	—	6.19	—	2.125	1.500	203-231
203-233	13/16	1.949	1.50	—	6.69	—	2.125	2.000	203-112

*"F" dimension shown is over handed insert.
See pages D18 and D19 for inserts.

Components

INCH

O.D.Range	W	Counter Clockwise Left Hand Support Blade*	Clamp	Stop	Clockwise Right Hand Clamp	Support Blade*
3-4	.250	327-148	430-108	601-129	430-111	327-160
	.312	327-152	430-109	601-130	430-112	327-164
4-6	.250	327-149	430-108	601-129	430-111	327-161
	.312	327-153	430-109	601-130	430-112	327-165
6-12	.250	327-150	430-108	601-129	430-111	327-162
	.312	327-154	430-109	601-130	430-112	327-166
12-18	.250	327-151	430-108	601-129	430-111	327-163
	.312	327-155	430-109	601-130	430-112	327-167
18 & Up	.250	327-209	430-108	601-129	430-111	327-208
	.312	327-155	430-109	601-130	430-112	327-167

*Support blades must be cleared for FNR inserts.

Replacement Hardware

INCH

Support Blade Screws	Clamp Screw	Stop Screw
606-160	619-110	619-101

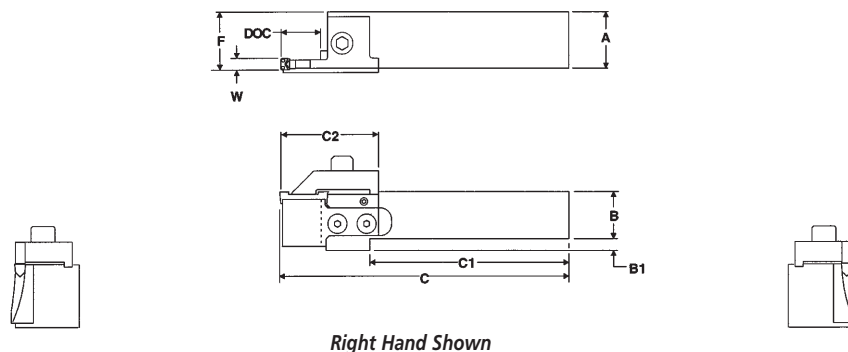
See Section A – MTC™ Products for additional Face Grooving tools.

FACE GROOVING

70mm and Larger O.D.

Square Shank

20.6mm Depth of Cut



Right Hand Shown

Square Shank – 20.6mm Depth of Cut

METRIC

Counter Clockwise Left Hand	DOC	A	B	B ₁	C	C ₁	C ₂	F	Clockwise Right Hand
203-354	20.6	32	25	7	189	123	54	33	203-353
203-356	20.6	32	32	—	209	—	54	33	203-355

Toolholders supplied without support blade and clamp.
See pages D18 and D19 for inserts.

Components

METRIC

O.D.Range	W	Counter Clockwise Left Hand			Clockwise Right Hand	
		Support Blade	Clamp	Stop	Clamp	Support Blade
70-100	6	327-148	430-108	601-129	430-111	327-160
	8	327-152	430-109	601-130	430-112	327-164
100-150	6	327-149	430-108	601-129	430-111	327-161
	8	327-153	430-109	601-130	430-112	327-165
150-300	6	327-150	430-108	601-129	430-111	327-162
	8	327-154	430-109	601-130	430-112	327-166
300-450	6	327-151	430-108	601-129	430-111	327-163
	8	327-155	430-109	601-130	430-112	327-167
450 & Up	6	327-209	430-108	601-129	430-111	327-208
	8	327-155	430-109	601-130	430-112	327-167

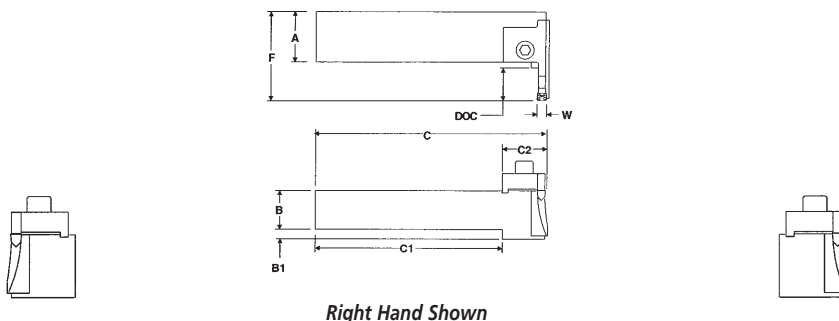
Replacement Hardware

METRIC

Support Blade Screws	Clamp Screw	Stop Screw
606-222	619-161	619-162

FACE GROOVING

Right Angle Toolholders



Right Angle Toolholders

INCH

Counter Clockwise Left Hand	DOC	A	B	B ₁	C	C ₁	C ₂	F*	Clockwise Right Hand
204-270	13/16	1.312	1.00	.250	6.00	4.85	1.140	2.313	204-269
204-215	13/16	1.312	1.25	—	6.00	—	1.140	2.313	204-214
204-259	13/16	1.500	1.50	—	6.00	—	1.140	2.500	204-258

*"F" dimension shown is over handed insert.
See pages D18 and D19 for inserts.

Components

INCH

O.D.Range	W	Counter Clockwise Left Hand Support Blade*	Clamp	Stop	Clockwise Right Hand Clamp	Support Blade*
3-4	.250	327-148	430-108	601-129	430-111	327-160
	.312	327-152	430-109	601-130	430-112	327-164
4-6	.250	327-149	430-108	601-129	430-111	327-161
	.312	327-153	430-109	601-130	430-112	327-165
6-12	.250	327-150	430-108	601-129	430-111	327-162
	.312	327-154	430-109	601-130	430-112	327-166
12-18	.250	327-151	430-108	601-129	430-111	327-163
	.312	327-155	430-109	601-130	430-112	327-167
18 & Up	.250	327-209	430-108	601-129	430-111	327-208
	.312	327-155	430-109	601-130	430-112	327-167

*Support blades must be cleared for FNR inserts.

Replacement Hardware

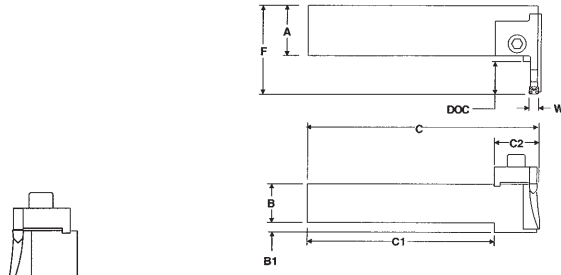
INCH

Support Blade Screws	Clamp Screw	Stop Screw
606-160	619-110	619-101

See Section A – MTC™ Products for additional Face Grooving tools.

FACE GROOVING

Right Angle Toolholders



Right Hand Shown

Right Angle Toolholders

METRIC

Counter Clockwise Left Hand	DOC	A	B	B ₁	C	C ₁	C ₂	F	Clockwise Right Hand
204-272	20.6	35	25	7	166	137	29	59	204-271
204-274	20.6	35	32	—	166	—	29	59	204-273

Toolholders supplied without support blade and clamp.
See pages D18 and D19 for inserts.

Components

METRIC

O.D.Range	W	Counter Clockwise Left Hand Support Blade	Clamp	Stop	Clockwise Right Hand Clamp	Support Blade
70-100	6	327-148	430-108	601-129	430-111	327-160
	8	327-152	430-109	601-130	430-112	327-164
100-150	6	327-149	430-108	601-129	430-111	327-161
	8	327-153	430-109	601-130	430-112	327-165
150-300	6	327-150	430-108	601-129	430-111	327-162
	8	327-154	430-109	601-130	430-112	327-166
300-450	6	327-151	430-108	601-129	430-111	327-163
	8	327-155	430-109	601-130	430-112	327-167
450 & Up	6	327-209	430-108	601-129	430-111	327-208
	8	327-155	430-109	601-130	430-112	327-167

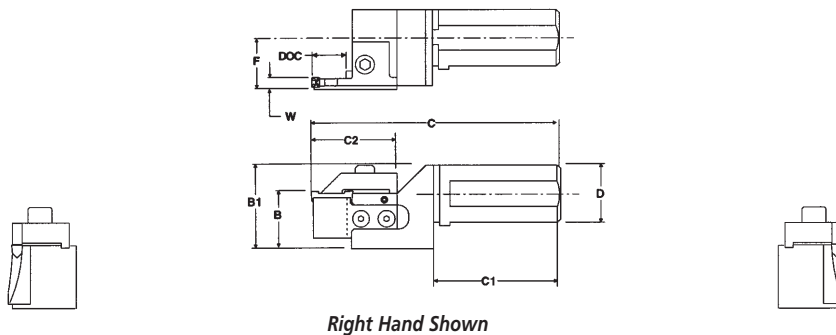
Replacement Hardware

METRIC

Support Blade Screws	Clamp Screw	Stop Screw
606-222	619-161	619-162

FACE GROOVING

Round Shank Toolholders



Round Shank Toolholders

INCH

Counter Clockwise Left Hand	DOC	D	B	B ₁	C	C ₁	C ₂	F*	Clockwise Right Hand
203-335	13/16	2.00	1.43	2.37	10.00	7.00	1.140	1.200	203-336
203-340	13/16	1.50	1.43	2.15	9.75	7.00	1.140	1.000	203-341

*"F" dimension shown is over handed insert.

See pages D18 and D19 for inserts.

Components

INCH

O.D.Range	W	Counter Clockwise Left Hand			Clockwise Right Hand	
		Support Blade*	Clamp	Stop	Clamp	Support Blade*
3-4	.250	327-148	430-108	601-129	430-111	327-160
	.312	327-152	430-109	601-130	430-112	327-164
4-6	.250	327-149	430-108	601-129	430-111	327-161
	.312	327-153	430-109	601-130	430-112	327-165
6-12	.250	327-150	430-108	601-129	430-111	327-162
	.312	327-154	430-109	601-130	430-112	327-166
12-18	.250	327-151	430-108	601-129	430-111	327-163
	.312	327-155	430-109	601-130	430-112	327-167
18 & Up	.250	327-209	430-108	601-129	430-111	327-208
	.312	327-155	430-109	601-130	430-112	327-167

*Support blades must be cleared for FNR inserts.

Replacement Hardware

INCH

Support Blade Screws	Clamp Screw	Stop Screw
606-160	619-110	619-101

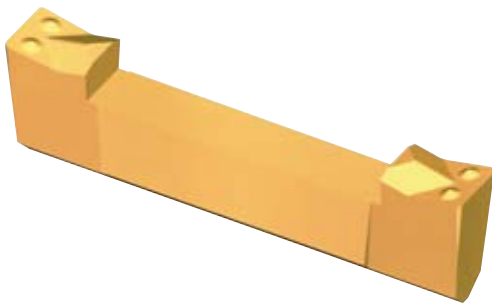
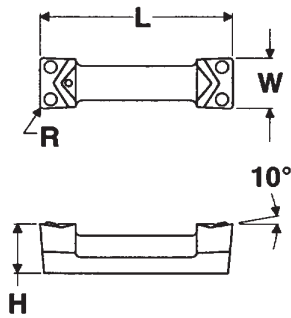
See Section A – MTC™ Products for additional Face Grooving tools.

FACE GROOVING

Chipmaker® Inserts

FACE GROOVING

Chipmaker® 95 Inserts



Chipmaker® Inserts

INCH

Part Number	W	L	R	H
508-240	.250	1.0	.010	1/4
508-247	.250	1.0	.030	1/4
508-242	.312	1-1/8	.010	11/32
508-248	.312	1-1/8	.030	11/32

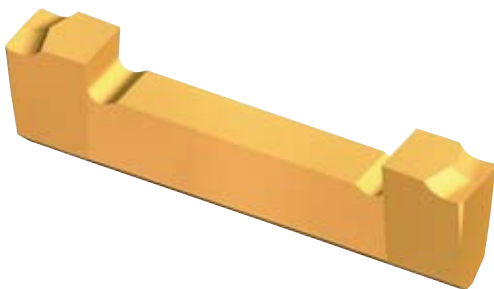
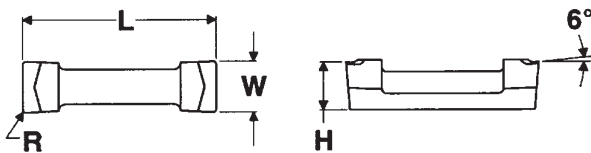
Chipmaker® Inserts

METRIC

Part Number	W mm	L mm	R mm	H mm
508-262	6	25.4	0.3	6.35
508-263	6	25.4	0.6	6.35
508-279	8	28.6	0.3	8.70
508-280	8	28.6	0.6	8.70

Chipmaker® Inserts are available in TiN (M40), TiAlN (M43), TiCN (M45), TiN (M50) & TiAlN (M93).

See pages D13-D17 for Holders.



Chipmaker® 95 Inserts

INCH

Part Number	W	L	R	H
508-422	.250	1.0	.010	1/4
508-423	.250	1.0	.030	1/4
508-424	.250	1.0	.060	1/4

Chipmaker® 95 Inserts

METRIC

Part Number	W mm	L mm	R mm	H mm
508-435	8	1-1/8	.030	11/32
508-436	8	1-1/8	.060	11/32

Chipmaker® 95 Inserts are available in TiN (M40) & TiAlN (M53).

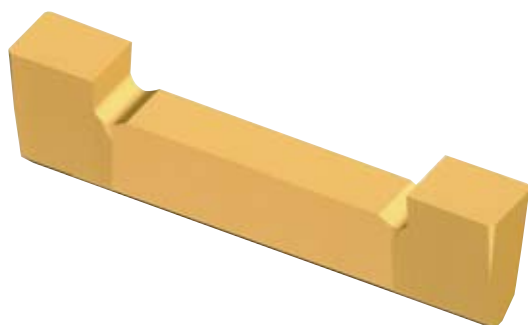
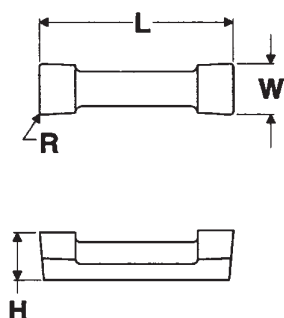
See pages D13-D17 for Holders.

FACE GROOVING

Central Neutral Rake Inserts (O.D.)

FACE GROOVING

Central Positive Rake Inserts (O.D.)



Central Neutral Rake Inserts

INCH

Part Number	W	L	R	H
508-310	.250	1.0	.030	1/4
508-340	.250	1.0	.060	1/4
508-316	.250	1.0	FNR	1/4
508-305	.312	1-1/8	.010	11/32
508-311	.312	1-1/8	.030	11/32
508-341	.312	1-1/8	.060	11/32
508-317	.312	1-1/8	FNR	11/32

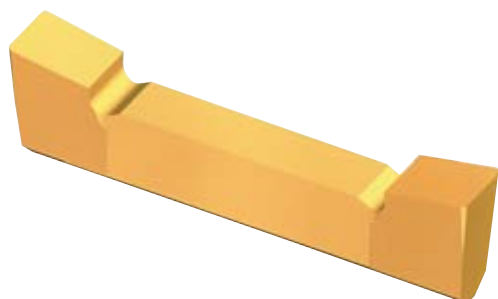
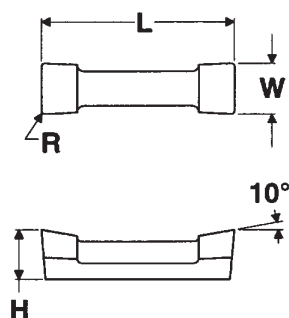
Central Neutral Rake Inserts

METRIC

Part Number	W mm	L mm	R mm	H mm
508-456	6	25.4	0.3	6.35
508-457	6	25.4	0.6	6.35
508-458	6	25.4	FNR	6.35

Central Neutral Rake Inserts are available in Uncoated (C2 & C5), TiN+TiC+TiN (GC) & Al₂O₃ (M24). Some inserts available in TiN (M40 & M50). FNR = Full Nose Radius.

See pages D13-D17 for Holders.



Central Positive Rake Inserts

INCH

Part Number	W	L	R	H
508-322	.250	1.0	.010	1/4
508-328	.250	1.0	.030	1/4
508-334	.250	1.0	FNR	1/4
508-323	.312	1-1/8	.010	11/32
508-329	.312	1-1/8	.030	11/32
508-335	.312	1-1/8	FNR	11/32

Central Positive Rake Inserts

METRIC

Part Number	W mm	L mm	R mm	H mm
508-470	6	25.4	0.3	6.35
508-471	6	25.4	0.6	6.35
508-472	6	25.4	FNR	6.35

Central Positive Rake Inserts are available in Uncoated (C2 & C5) & TiN+TiC+TiN (GC). Some inserts available in TiN (M40 & M50).

FNR = Full Nose Radius.

See pages D13-D17 for Holders.

WIDIA



MANCHESTER[®]



**Octicut®
Threading**

**Octicut®
Threading**

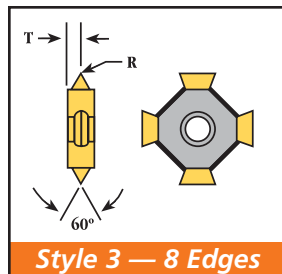
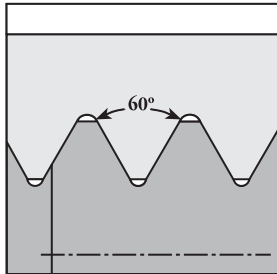
**Ranger™
Face Grooving**

**Chipmaker®
O.D. & I.D. Grooving**

**Separator®
Cutoff**

**MTC™
Cutoff & Grooving**

OCTICUT® THREADING INSERTS



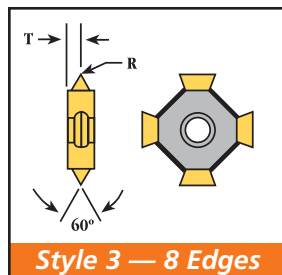
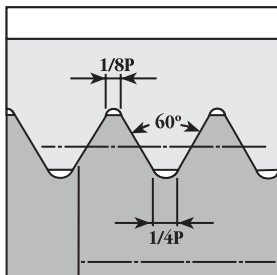
60° Partial Profile – External/Internal

INCH

Pitch TPI	Pitch MM	MTC No.	IC	Dimensions T	R	Style
32-8	.75-3 ISO	570-226	7/16	0.078	0.003	3
14-8	1.75-3 ISO	570-228	7/16	0.078	0.007	3

Octicut® Threading Inserts are available in TiN (M40), TiCN (M45), TiN (M50) and TiAlN (M93).

NOTE: Neutral shown. A separate operation is required to finish correct major/minor diameter.



60° UN – External Full Profile

INCH

Left Hand MTC No.	Pitch TPI	IC	Dimensions T	R	Style	Right Hand MTC No.
570-290	32	7/16	0.016	0.004	3	570-170
570-288	28	7/16	0.024	0.004	3	570-168
570-145	24	7/16	0.036	0.005	3	570-166
570-144	20	7/16	0.029	0.006	3	570-163
570-182	18	7/16	0.050	0.007	3	570-160
570-143	16	7/16	0.047	0.008	3	570-157
570-142	14	7/16	0.042	0.009	3	570-154
570-280	13	7/16	0.040	0.009	3	570-152

60° UN – External Full Profile – Neutral

INCH

Pitch TPI	MTC No.	IC	Dimensions T	R	Style
12	570-180	7/16	0.078	0.010	3

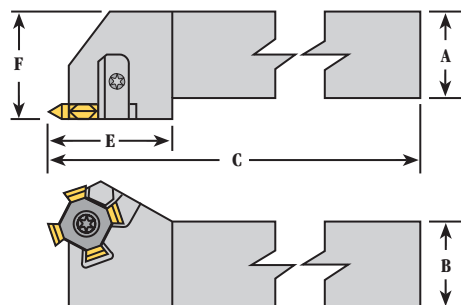
Octicut® Threading Inserts are available in TiN (M40), TiCN (M45), TiN (M50) and TiAlN (M93).

NOTE: Neutral insert shown.

EXTERNAL TOOLHOLDERS

Miniature Series External Threading

Fixed Pocket With Clamp



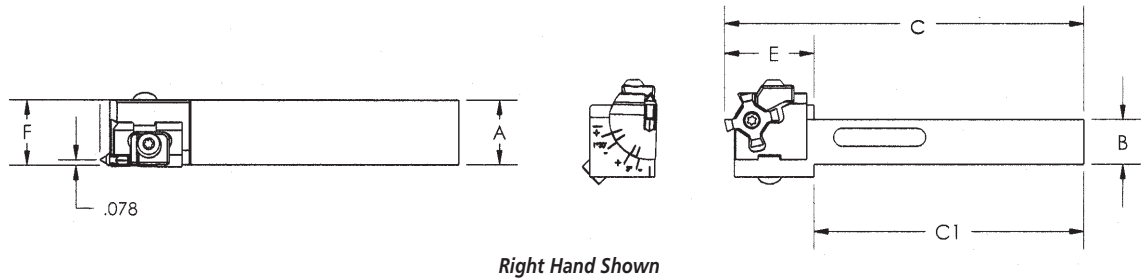
Right Hand Shown

Miniature Series External Threading Fixed Pocket with Clamp								INCH
Left Hand MTC No.	Helix Angle	A	B	Basic Dimensions		F	Insert Style	Right Hand MTC No.
245-107	+2°	3/8	3/8	4.000	0.780	0.500	3	245-110
245-108	+2°	1/2	1/2	5.000	0.780	0.625	3	245-111
245-109	+2°	5/8	5/8	5.000	0.780	0.750	3	245-112

NOTE: Holder supplied complete with hardware, less insert.
See page E2 for inserts.

Replacement Hardware				INCH
Insert Screw	Clamp	Clamp Screw	Wrench	
644-107	444-103	644-101	644-110	

ADJUSTABLE HELIX THREADING SYSTEM



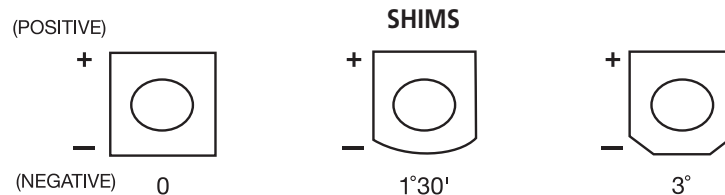
Square Shank							INCH
Left Hand Part No.	A	B	C	C1	E	F	Right Hand Part No.
248-104	0.90	0.75	5	3.74	1.26	0.91	248-103
248-106	0.99	1	6	—	1.26	1	248-105

Square Shank							METRIC
Left Hand Part No.	A	B	C	C1	E	F	Right Hand Part No.
248-204	22.8	20	125	92.9	32	23	248-203
248-206	23.8	25	150	—	32	24	248-205

Cartridges are supplied with shims to lock in the helix setting required. Shim #615-139. See page E2 for inserts.

Adjustable Helix Cartridge		INCH / METRIC
Left Hand Part No.	Insert Style	Right Hand Part No.
345-151	3	345-150

Cartridges can be used with inch or metric holders and inch or metric inserts. Cartridges are supplied with shims to lock in the helix setting required. Shim #615-139. See page F8 for Helix Angle Chart and Technical Recommendations.



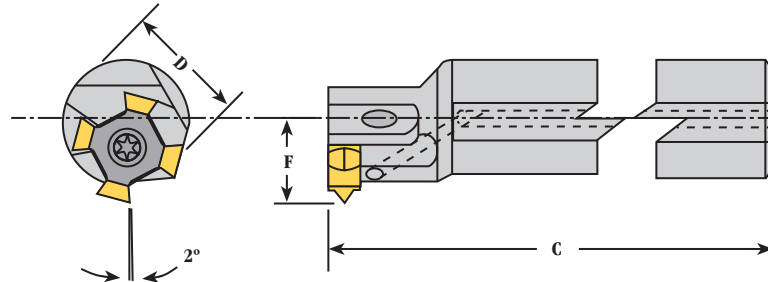
Replacement Hardware

INCH / METRIC

LH Clamp	Cartridge Screw	Clamp Screw	Insert Screw	RH Clamp
444-105	606-250	644-101	644-107	444-104

INTERNAL BARS

Internal Threading Fixed Pocket With Clamp



Left Hand Shown

Internal Threading Fixed Pocket with Clamp							INCH
Left Hand MTC No.	Helix Angle	D	C	F	Min. Bore	Insert Style	Right Hand MTC No.
244-104	1.5°	0.750	7	0.510	0.950	3	244-106
244-105	1.5°	1.000	8	0.650	1.150	3	244-107

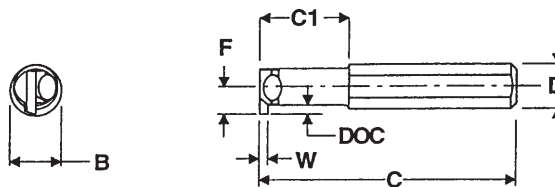
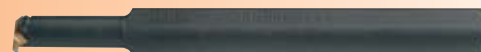
NOTE: Left Hand shown. Coolant port standard feature. Bar furnished complete, less insert.
See page E2 for inserts.

Replacement Hardware				INCH
Insert Screw	Clamp	Clamp Screw	Wrench	
644-107	444-103	644-101	644-110	

I.D. THREADING

S-LOC™ Toolholders

S-LOC™ Inserts



Left Hand Shown

S-LOC™ Toolholders

INCH

Counter Clockwise Left Hand	Min. Enter Diameter B	C	C ₁	Bar Diameter D	F	Clockwise Right Hand
218-119	.560	6.0	1.0	.500	.312	218-119
218-121	.560	6.0	1.5	.625	.312	218-121
218-122	.780	6.0	0	.625	.419	218-123
218-124	.940	8.0	0	.750	.510	218-124

Replacement Hardware

INCH

Locking Clamp Screws

606-190

S-LOC™ Toolholders

METRIC

Counter Clockwise Left Hand	DOC (Max)*	Min. Enter Diameter B	C	C ₁	Bar Diameter D	F	Clockwise Right Hand
218-134	2.4	14.2	150	25	12	8	218-134
218-142	2.4	14.2	150	38	16	8	218-142
218-143	2.4	24.0	200	—	20	13	218-143

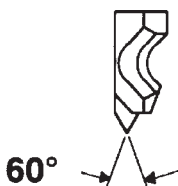
*Refer to insert table for specific DOC.

Replacement Hardware

METRIC

Locking Clamp Screws

606-193



Left Hand Shown



S-LOC™ Threading Inserts

INCH

Left Hand Insert	Description	Right Hand Insert
510-103*	Threading	510-106*

S-LOC™ Inserts are available in Uncoated (C2 & C5), TiN+TiC+TiN (GC) & TiN (M40).

* Minimum 10 threads per inch.



Technical Information

CHOOSING THE APPROPRIATE SEPARATOR® CUTOFF INSERT

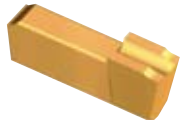
Separator® Classic

A good general purpose insert for carbon steels, alloy steels and most stainless steels. The Separator Classic chip breaker is designed to perform well at moderate to slow speeds and feeds. The Classic offers standard high lead angles and sharp corners making it the first choice when choosing an insert for nib free cutoff.



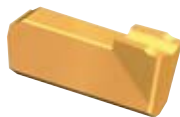
Separator® F²

This insert offers superior flatness and finish on a wide variety of materials. Ideal for thick wall parts or cutting off larger diameter parts to center. The Separator F² performs well at slow to moderate speeds and feeds.



Separator® G²

This insert has a corner radius and a slightly more open chip breaker. It's an ideal general purpose insert for CNC machine cutoff applications. Performs well at moderate speeds and feeds on carbon steels, alloy steels and most stainless steels.



Separator® D²

This insert has a high positive dish style chipbreaker. The chip breaker geometry has excellent edge strength for high feed rate applications. The neutral (0 degree lead) version can be used for grooving applications.



Separator® S²

This high positive rake with more open chip breaker allows for increased speeds and feeds for the moderate to high speed applications. The geometry also includes wipers and a corner radius that provides superior flatness and finish. This insert is also available with sharp corners. This geometry works well on a variety of materials although it's greatest strengths can be seen on Stainless Steels and soft gummy steels.



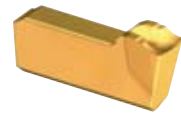
Separator® S²-Ultra

The S²-Ultra is an enhanced version of the S² and is ideal for 300 series stainless, Nickel Based alloys, Tool Steel, Inconel and Titanium at moderate to high speeds and feeds.



Separator® X²

This insert has the same geometry as the MTC-SX™. This chip control geometry offers the widest range of speed and feed capability and provides excellent flatness and finish. This chip breaker cuts with the least amount of tool pressure, extends tool life. The geometry also includes wipers and a corner radius. This geometry works well on a variety of materials.



Separator® X²-Ultra

This insert has the same geometry as the MTC-SX™. The X²-Ultra is an enhanced version of the X² and is ideal for stainless steels, Nickel Based alloys, Tool Steel, Inconel and Titanium.



The inserts listed thus far are single end inserts that go into standard componentized and integral shank holders with up to 3" bar capacity capability. Greater depths of cut and bar capacity can be achieved through customizing and/or special systems. If necessary these Separator inserts can be customized for a particular application.

Separator® PL

This insert is Pressure Locked into a blade style system that allows for varying depths of cut depending on the blade extension from the holder. This insert has a good general purpose chip breaker and is available in sharp corner or corner radius. Ideal for medium to slow speed conditions on a wide variety of materials.



MTC-SX™

This double ended insert is the latest Separator design. The chip control geometry offers the widest range of speed and feed capability and provides excellent flatness and finish. This chip breaker cuts with the least amount of tool pressure, extends tool life. The longer insert and double V offer maximum insert stability. Operator friendly insert indexing. This insert fits into standard and componentized holders capable of up to 25mm depth of cut.



MTC-SX™-Ultra

The SX-Ultra is an enhanced version of the SX and is ideal for 300 series stainless, Nickel Based alloys, Tool Steel, Inconel and Titanium at moderate speeds and feeds.



To improve chip control:

- ◆ Use an insert with aggressive chip control geometry. See Table 1, or call Tech. Support.
- ◆ Adjust feed rate up or down to accommodate chip formation.
- ◆ Use a 0° or smallest lead available.
- ◆ Use ample amounts of well-directed coolant. (See *Illustration A*.)
- ◆ Maintain sharp cutting edge and corners.

Table 1: Insert Selection For Aggressive Chip Control Requirements

Width	Insert No.	Grade
3/32"	507-207	M45
3mm	507-314	M45
1/8"	507-224	M45
4mm	507-225	M45
3/16"	507-226	M45

To improve flatness of cutoff surfaces:

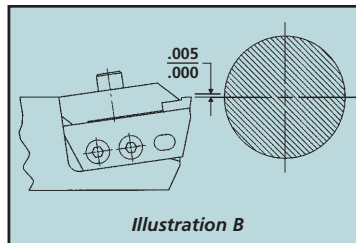
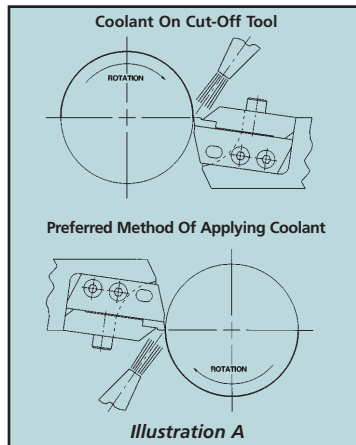
- ◆ Maintain 90° (perpendicular alignment) position between cutoff tool and work piece.
- ◆ For low to moderate speed (sfpm) use Separator F².
- ◆ For moderate to high-speed (sfpm) use Separator S² or SX.
- ◆ Use strongest tool holder system possible.
- ◆ Use 0° lead angle inserts when possible. If lead angle inserts are needed, reduce the feed rate.
- ◆ Check for minimum overhang of holder and blade.
- ◆ Set up for minimum work piece overhang (distance out of chuck).
- ◆ Reduce feed rate.
- ◆ Maintain sharp edge and corners on cutoff insert.
- ◆ Increase speed (rpm).
- ◆ Use ample amounts of well-directed coolant. (See *Illustration A*.)
- ◆ Maintain proper tool center height .000" to .005" above center. (See *Illustration B*.)

To improve surface finish:

- ◆ For low to moderate speed (sfpm) use Separator F².
- ◆ For moderate to high-speed (sfpm) use Separator S² or SX.
- ◆ Avoid overly aggressive chip control.
- ◆ Increase speed.
- ◆ Reduce lead angle.
- ◆ Decrease the feed rate.
- ◆ Corner radius too large or small.
- ◆ Use a coated grade.
- ◆ Use coolant. (See *Illustration A*.)

To minimize edge chipping:

- ◆ Check to see if tool is significantly above or below center.
- ◆ Reduce feed prior to part drop off.
- ◆ Use Separator S², SX or D².
- ◆ Choose the proper speed associated with the insert grade used.
- ◆ Call Tech. Support to see if a larger hone size is needed.
- ◆ Eliminate chatter.
- ◆ Avoid chip re-cutting.
- ◆ Check for these part and machine problems:
 - Slide is loose.
 - Slide travel is irregular.
 - Bar/tube I.D. and/or O.D. is out of round.
 - Bar/tube is bent.
 - Thin wall collapses (deforms) in the cut.
 - Part is unstable.
 - Cutoff through unturned stock.
 - Excessive tool overhang.
 - Bent or partly attached flash ring.

**To eliminate chatter:**

- ◆ Minimize tool blade and holder overhang.
- ◆ Minimize part overhang.
- ◆ Use strongest tool holder system.
- ◆ Use a narrower width of insert.
- ◆ Chip breaker might be too aggressive, call Tech. Support.
- ◆ Adjust speed up or down.
- ◆ Adjust feed rate up or down.
- ◆ Have work piece held rigidly.
- ◆ With a longer part, support with steady rest or live center.
- ◆ Avoid machine dwell.
- ◆ Use S² or SX to reduce cutting forces.

To reduce the cutoff nib on a solid bar or I.D. burr on tubing:

- ◆ Check tool height. Insert cutting edge should be on center to .002" above centerline of work piece.
- ◆ To reduce nib on part, use a high lead angle type insert. Lead angle on a cutoff insert reduces the nib, which remains on the work piece. *Caution: The higher the lead the more tool side deflection.*
- ◆ Use the narrowest possible cutoff insert. This will minimize the cutoff burr length.
- ◆ Reduce feed rate at the end of a cut.
- ◆ On most tubing type parts a 4° or 5° lead angle will be sufficient.
- ◆ Add support to a long slender type part.
- ◆ Maintain proper sub-spindle alignment.
- ◆ If nib or burr persist, call Tech. Support about reducing hone size.
- ◆ Use small or no corner radius.

To eliminate built-up edge:

- ◆ Select proper grade for insert.
- ◆ Increase speed (rpm).
- ◆ Use ample amounts of well-directed coolant. (See *Illustration A* on H3.)

Chamfer and cutoff operations:

- ◆ Use Separator G², S², SX and D².
- ◆ Groove or breakdown work piece surface being machined.
- ◆ Machine the chamfer.

For jobs requiring a chamfer on both ends of the part, begin by plunging to a depth just beyond the depth of the chamfers. Then, return to the part O.D. and profile each chamfer individually. Finish the cut off after completion of the second chamfer.

- ◆ Cutoff the work piece. (See *Illustration C*.)

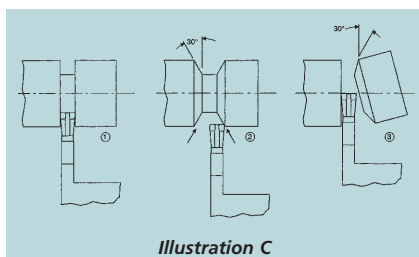
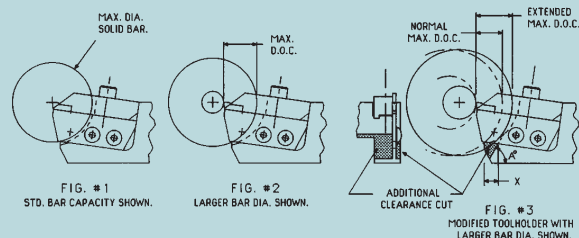


Illustration C

Modifications For Increased Depths Of Cut



CAPACITY CHART FOR 2-1/4" DIA. BAR CAPACITY TOOLING.

BAR DIA.	2.5	3.0	3.5	4.0	4.5	5.0	6.0	NOTE.
MAX. D.O.C.	0.94	0.75	0.62	0.56	0.50	0.47	0.44	WITH NO MODIFICATION ON TOOLHOLDER.
	1.12	1.03	0.97	0.91	0.87	0.84	0.78	WITH MODIFICATION X = 40 ON TOOLHOLDER. A = 60°

CAPACITY CHART FOR 3.0" DIA. BAR CAPACITY TOOLING.

BAR DIA.	3.5	4.0	4.5	5.0	6.0	NOTE.
MAX. D.O.C.	1.12	1.00	0.88	0.78	0.69	WITH NO MODIFICATION ON TOOLHOLDER.
	1.44	1.37	1.31	1.25	1.12	WITH MODIFICATION X = 38 ON TOOLHOLDER. A = 55°

Separator P/L

The Separator P/L insert should be placed in the blade finger tight, then properly seated by lightly tapping with either a rubber or plastic hammer. If none is available, a wood block should be placed over the cutting edge prior to seating with the hammer. (See *Illustration D*.)

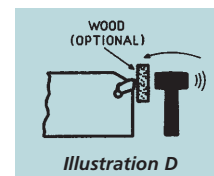


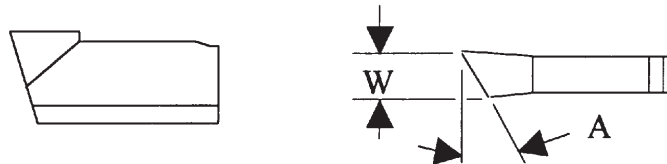
Illustration D

CUTOFF FLAT TOP SEPARATOR® INSERTS

Flat Top Separator® inserts have no chip breaker, no center channel and no corner radii. The flat top Separator® insert mounts into all standrd Manchester Separator® cutoff toolholders.

Advantages a Flat Top Separator® gives you:

- ◆ Less cutting tool pressure than a Separator® Classic. This helps when trying to obtain a nib free part.
- ◆ 507-189 and 507-122 can be used to produce OD grooves with a flat bottom.
- ◆ Flat top inserts provide better finishes on brass, bronze, and most non-ferrous materials than an insert with a chip breaker.



Standard Flat Top Separator® Inserts					INCH		
Part Number	Width W	Lead Angle A	Hand	C2	Grades C5	M20	M40
507-189	1/16	0°	N				•
507-141	3/32	4°	R	•	•		
507-179*	3/32	18°	R				•
507-122	1/8	0°	N	•			
507-180*	1/8	18°	R			•	

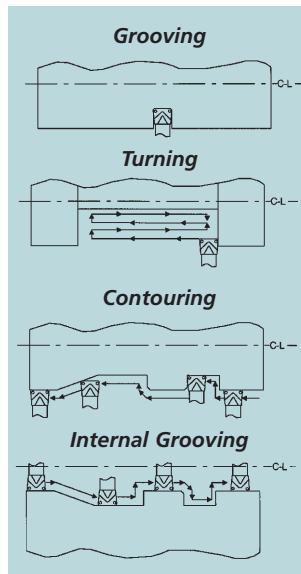
Standard Flat Top Separator® Inserts					METRIC		
Part Number	Width W mm	Lead Angle A	Hand		Grades M20		
507-338	2.4	0°	N		•		
507-339	2.4	4°	R		•		
507-340	2.4	4°	L		•		
507-341	2.4	12°	R		•		
507-342	2.4	12°	L		•		
507-343	3	0°	N		•		
507-344	3	4°	R		•		
507-345	3	4°	L		•		
507-346	3	12°	R		•		
507-347	3	12°	L		•		

*Has no back taper clearance on lead side for improved flatness and finish.

•Indicates grade availability.

Application Information:

- ◆ Insure that the machine and the workpiece setups are as rigid as possible.
- ◆ The first choice for rigidity in toolholder selection is the use of integral shank holders.
- ◆ Use the holder with the shortest possible depth of cut for the application. This is extremely important in applications that involve significant amounts of turning.
- ◆ Toolholder overhang out of the block should be as short as possible.
- ◆ Inserts should cut as close to center as possible. They should never be more than .010" above center. If measurements are in doubt, a facing cut will corroborate center line position.
- ◆ For turning and profiling applications, use 1/2 the insert width as a starting point recommendation for depth of cut. Adjust based on material machinability and feed rate. Select a smaller corner radius to improve chip control.
- ◆ The MTC-PT™ offers the widest range of chip control in the Plunge and Turn operation.
- ◆ Chipmaker inserts are effective in the plunge mode up to .008 IPR and operate efficiently in the turning mode up to .012 IPR.
- ◆ Chipmaker 95 inserts are most effective in the plunge mode at heavier feed rates up to .015 IPR. CM-95 is capable of delivering chip control with corner radii of .060" and larger.
- ◆ Use cutoff guidelines, where applicable, for finish, chatter, and edge chipping related problems.
- ◆ When changing inserts, make sure the new insert locates securely against the positive stop.
- ◆ Plunge grooving with the MTC-PT™ system yields excellent chip control in most materials at productive speeds and feeds.
- ◆ The Manchester grooving system is sufficiently rigid to turn in both directions at the same feed rates. This allows continuous cutting when roughing a wide groove as shown.
- ◆ Manchester grooving system rigidity allows profiling cuts to be made at productive speeds and feeds along with excellent surface finishes. The MTC-PT™ and Chipmaker® permit chip control in all modes of operation.



Application Information:

- ◆ When changing inserts, be sure the new insert locates against the positive stop located on the clamp.
- ◆ Never tighten the insert clamping screw without an insert in the pocket. Permanent damage to the clamp could occur.
- ◆ Toolholder projection length out of the tool block should be as short as possible to maintain rigidity.
- ◆ Slower speeds and feeds are recommended compared to O.D. grooving

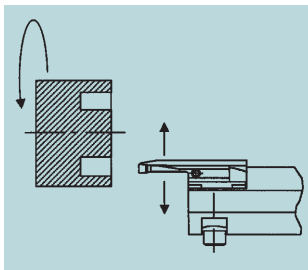
Face Grooving Ranges Per Setting

Given Diameter Setting	Plunge Range At Diameter Setting	
	Smallest O.D.	Largest O.D.
2-1/4	2-1/4	2-3/8
2-1/2	2-3/8	2-5/8
2-3/4	2-9/16	2-15/16
3.0	2-5/8	3-3/8
3-1/2	3-1/16	3-15/16
4.0	3-1/2	4-1/2
5.0	4-1/4	5-3/4
6.0	5.0	7.0
8.0	6-1/2	9-1/2
10.0	8.0	11.0
11.0-16.0	9.0	16.0

Note: This chart is a general guide for face groove entry at outside diameters both smaller and larger than each given OD setting on the tool.
Example: If the tool is adjusted for 4.0 inch OD, plunge cuts from 3-1/2 inch OD to 4-1/2 inch OD can be made without changing the 4.0 inch OD setting.

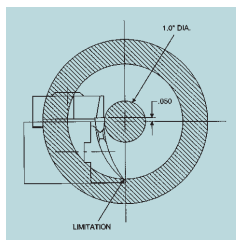
Widening A Face Groove

Additional clearance is generated on the workpiece after the first groove cut. Without further adjustment, the tool may then be used to widen the groove toward the center, or toward the O.D. of the workpiece.



Small Diameter Face Grooving Clearances

The cutting edge of the small diameter face grooving system is +.050" above center. This is done to improve cutting clearances. This tool should not be repositioned on center. When facing toward center, this system does not have sufficient clearance to cut at diameters of less than 1".

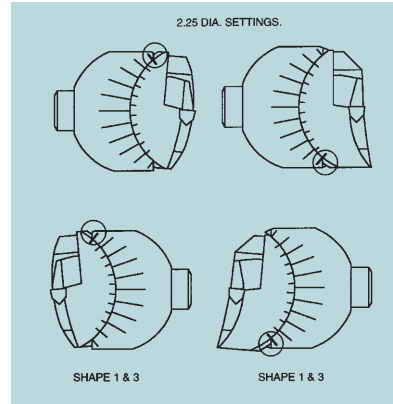


Adjusting Information for Ranger™ Tooling

The following instructions are for style 1 Ranger tools. Instructions for style 2 tools are in [brackets].

- ◆ Appropriate diameter range setting can be accomplished as follows:

Step 1 Loosen the support blade locking screw and rotate the support blade so that the 2.25 mark is above the top line on the toolholder. [Below the line on toolholder for style 2.]



Step 2:

Slowly rotate the support blade down until the 2.25 mark is aligned with the top line of the toolholder. [Rotate the support blade up until the 2.25 mark is aligned with the bottom line on the toolholder for style 2.] At this point, the support blade assembly is properly aligned to cut face grooves at 2.250 inch OD.

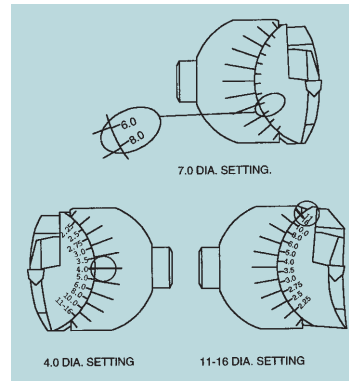
For diameters larger than 2.25 OD, continue to rotate the support blade in the same direction until the desired diameter range has been aligned.

Example: The 7.0 inch diameter setting falls between the 6.0 inch and the 8.0 inch diameter settings.

Step 3: Tighten the support blade screw.

Inspect the scale to ensure that the desired diameter range is aligned.

Note: It is important that these instructions are followed. Failure to do so may result in damage to the tool and the workpiece.



Octicut®

Adjustable Helix Threading System

The choice of production method is dependent upon the part's shape, the part's stability and the flow of chips.

The tool is fed in the direction toward the chuck. This method is the most common and provides for the greatest stability.

The tool is fed away from the chuck. This method is less common and requires sufficient clamping of workpiece and rigidity of set up. An advantage of this method is that it provides superior chip evacuation in internal threading.

This method requires the use of a N3.0 or N1.5 negative helix.

To determine the correct threading helix angle, refer to the chart below. The grid triangle on the left side of the chart provides appropriate helix selection for reverse threading. The grid triangle on the right side of the chart provides appropriate helix selection for normal threading.

Use the chart to cross-reference the thread diameter and the Pitch/TPI being machined. Apply the appropriate helix angle to the Adjustable Helix Threading System shown on page E4.

Adjustable Helix Threading System — Helix Angle Chart

RH Toolholder, RH Neg. Helix *LH Bar, LH Neg. Helix* *LH Toolholder, LH Neg. Helix.* *RH Bar, RH Neg. Helix*

[illegible]

The diagrams show the relationship between thread type, toolholder, and bar helix. In all cases, the toolholder and bar helix must match the thread's handedness. For Right Hand (RH) threads, both the toolholder and bar must have Right Hand (RH) Positive Helix. For Left Hand (LH) threads, both the toolholder and bar must have Left Hand (LH) Positive Helix. Arrows indicate the direction of rotation and feed.

Selection Guidelines

Adjustable Helix Threading System

3. SELECT APPROPRIATE THREADING INSERT

Full Profile Inserts

The advantage of full profile threading inserts is that they provide a perfect thread with a complete profile without burrs.

Partial Profile Inserts

The advantage of partial profile inserts is that single insert may be utilized to cover a variety of thread pitches and can be utilized for external and internal applications.

4. SELECT INSERT GRADE/CUTTING SPEED

To determine recommended cutting speed (SFM) and grade, refer to chart below.

AISI Material Designation	Recommended Cutting Speed Ft/Min			
	M40	M45	M50	M93
Low Carbon Steels 1010, 1015, 1018, 1022, 1025, 1140 12L13, 12L14, 1035, 1040, 1042	100-350	125-400	350-600	450-750
High Carbon Steels 1095, 4130, 4140, 6150, 8620	100-300	125-350	250-400	350-500
High Alloy Steels O1, S1, W1, 4340, H13 A2, D2, M2, M7, M35	100-225	100-250	250-350	300-450
Free Machining Stainless Steels 303, 410, 410S, 416, 430	100-300	125-350	300-400	300-400
Difficult Machining Stainless Steels 304, 348, 420, 440C, 15-5PH, 17-4PH 310, 316, 316L, 317, 318, 321, 660	100-200	125-250	—	200-400
Cast Iron, Grey Iron, Alloy Cast Iron A48-20B, A47-32510, A48-25B, 60/40/18 A48-50B, , A48-60B	250-400	250-400	400-600	400-700
Nickel, Cobalt and Iron Based Superalloys under 38 Rc	100-200	100-250	125-250	150-300
Brass	200-500	250-500	400-700	400-700
Bronze	200-500	250-500	300-400	350-500
Copper	200-500	250-500	—	225-300
Aluminum	200-500	500-900	350-500	500-900
Titanium	75-175	100-200	200-300	150-250

Preferred selection shown in shaded box. If two selections are shown, check for stock status.

THREADING TECHNICAL RECOMMENDATIONS

Octicut®

Selection Guidelines

6. SELECT NUMBER OF PASSES/INFEEED PER PASS

The following tables provide basic recommendations for threading in free machining steels with a hardness of below 320 HB (32Rc). The total number of passes may be adjusted slightly higher or lower for optimum performance as refined by trial.

If insert breakage should occur, the number of passes should be increased. If flank wear is excessive, the number of passes should be reduced.

UN Threads, External

Pitch TPI	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32
Tot. depth in.	0.130	0.107	0.092	0.082	0.072	0.065	0.060	0.055	0.051	0.047	0.041	0.037	0.033	0.028	0.024	0.021
Pass 1 inch	0.017	0.014	0.014	0.012	0.011	0.011	0.011	0.011	0.010	0.009	0.009	0.009	0.008	0.007	0.007	0.007
2	0.016	0.013	0.013	0.011	0.010	0.010	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006
3	0.014	0.011	0.010	0.010	0.008	0.008	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.006	0.004	0.005
4	0.012	0.009	0.009	0.008	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.003
5	0.010	0.009	0.008	0.007	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.003	
6	0.009	0.008	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003			
7	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.003					
8	0.008	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.003	0.003						
9	0.007	0.006	0.006	0.005	0.005	0.004	0.003									
10	0.007	0.006	0.005	0.005	0.004	0.003										
11	0.007	0.005	0.004	0.004	0.003											
12	0.006	0.005	0.003	0.003												
13	0.005	0.004														
14	0.004	0.004														

UN Threads, Internal

Pitch TPI	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32
Tot. depth in.	0.118	0.097	0.084	0.074	0.065	0.059	0.054	0.049	0.045	0.042	0.037	0.033	0.030	0.025	0.022	0.019
Pass 1 inch	0.017	0.014	0.013	0.012	0.011	0.011	0.011	0.011	0.010	0.009	0.009	0.009	0.008	0.007	0.007	0.007
2	0.015	0.013	0.013	0.011	0.010	0.010	0.009	0.009	0.008	0.007	0.007	0.007	0.006	0.006	0.005	0.005
3	0.013	0.010	0.009	0.009	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.004
4	0.011	0.008	0.008	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.003	0.003
5	0.009	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.003	0.004	0.003	0.003	
6	0.008	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003			
7	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003					
8	0.007	0.006	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003						
9	0.006	0.005	0.005	0.004	0.004	0.004	0.003									
10	0.006	0.005	0.005	0.004	0.004	0.003										
11	0.005	0.005	0.004	0.004	0.003											
12	0.005	0.004	0.003	0.003												
13	0.005	0.004														
14	0.004	0.004														

THREADING TECHNICAL RECOMMENDATIONS

Octicut®

Selection Guidelines

ISO Metric Threads, External

Pitch TPI	5.0	4.5	4.0	3.5	3.0	2.5	2.0	1.75	1.5	1.25	1.0	.75	.50
Tot. depth in.	0.126	0.113	0.100	0.088	0.076	0.063	0.049	0.044	0.037	0.032	0.026	0.019	0.014
Pass 1 inch	0.016	0.015	0.013	0.013	0.011	0.011	0.009	0.008	0.008	0.008	0.008	0.006	0.005
2	0.015	0.013	0.013	0.012	0.010	0.009	0.009	0.008	0.008	0.007	0.006	0.006	0.004
3	0.013	0.011	0.010	0.010	0.008	0.008	0.007	0.007	0.007	0.006	0.005	0.004	0.003
4	0.011	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.006	0.004	0.004	0.003	0.002
5	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003		
6	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.003	0.003			
7	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003					
8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003					
9	0.007	0.007	0.006	0.006	0.005	0.004							
10	0.007	0.006	0.005	0.005	0.004	0.003							
11	0.006	0.006	0.005	0.004	0.004								
12	0.006	0.005	0.004	0.003	0.003								
13	0.005	0.005	0.004										
14	0.004	0.004	0.003										

ISO Metric Threads, Internal

Pitch TPI	5.0	4.5	4.0	3.5	3.0	2.5	2.0	1.75	1.5	1.25	1.0	.75	.50
Tot. depth in.	0.117	0.104	0.092	0.081	0.070	0.058	0.045	0.041	0.033	0.030	0.024	0.018	0.012
Pass 1 inch	0.017	0.015	0.013	0.013	0.011	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.004
2	0.016	0.013	0.012	0.012	0.010	0.010	0.008	0.007	0.007	0.007	0.006	0.005	0.003
3	0.013	0.011	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.006	0.004	0.004	0.003
4	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002
5	0.009	0.008	0.007	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003		
6	0.008	0.007	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003			
7	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.003					
8	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003					
9	0.006	0.006	0.005	0.005	0.004	0.004							
10	0.006	0.005	0.005	0.004	0.004	0.003							
11	0.005	0.005	0.004	0.004	0.004								
12	0.005	0.005	0.004	0.003	0.003								
13	0.005	0.004	0.004										
14	0.004	0.004	0.003										

Selection Guidelines

7. SELECT INFEEED METHOD

In practice, always consider the workpiece material, the machine tool and the thread pitch in determining the preferred method of infeed.

For short chipping materials and when threading fine pitches, the infeed method selected is less critical.

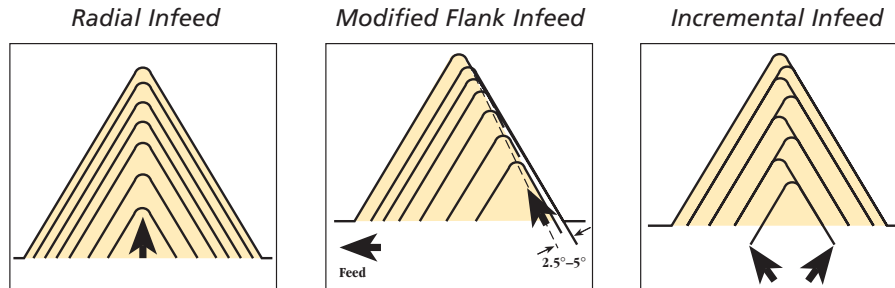
When threading long chipping materials and coarse pitches, the infeed method selected becomes more critical.

Following are shown three basic selections of infeed method.

Radial Infeed is the only method available on manual machines. It is the preferred method in work hardening materials.

Modified Flank Infeed is the preferred method on all CNC Turning Centers. If this method cannot be applied use Standard Flank Infeed.

Incremental Infeed is less common and requires a special CNC program. This method is most suitable for long part run applications.



HELIX SELECTION FOR COMMON EXTERNAL THREADS

The following charts may be used for Quick Reference in selecting the Correct External Threading Helix for Common External Threads when threading toward the chuck, using the "normal threading" method.

Helix Angle Chart For Standard External UN Threads

	PITCH (TPI)													
	32	28	24	20	18	16	14	13	12	11	10	9	8	7
1/4	P3.0	P3.0												
5/16	P1.5		P3.0											
3/8	P1.5		P3.0			P3.0								
7/16		P1.5		P3.0			P3.0							
1/2		P1.5		P1.5				P3.0						
9/16			P1.5		P1.5				P3.0					
5/8			P1.5		P1.5					P3.0				
3/4				P1.5		P1.5					P3.0			
7/8				P1.5			P1.5					P3.0		
1				P1.5					P1.5				P3.0	
1-1/8					P1.5				P1.5					P3.0
1-1/4					P1.5				P1.5					P3.0

Helix Angle Chart For Standard External ISO Metric Threads

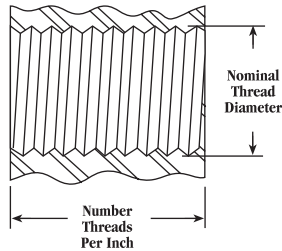
	PITCH (mm)							
	1.0	1.25	1.5	1.75	2.0	2.5	3.0	3.5
6	P3.0							
7	P3.0							
8	P3.0	P3.0						
10		P3.0	P3.0					
12		P1.5		P3.0				
14			P1.5		P3.0			
16			P1.5		P3.0			
18			P1.5			P3.0		
20			P1.5			P3.0		
22			P1.5			P3.0		
24				P1.5			P3.0	
27				P1.5			P3.0	

Selection Guidelines

Limits With Standard Inserts

INTERNAL THREADING

Pitch Range vs. Internal Diameter



Unified "J" Series Thread

The controlled root radius thread form (MIL-S-8879A) is defined for the external thread only.

To machine the corresponding internal thread, choose any internal full profile UN threading insert (per desired pitch).

Refer to Tables II-VII in MIL-S-8879A for the correct "J" thread minor diameter values on internal thread.

Nominal Thread Size	Insert Style 3/Range of TPI
1"	32-24
1-1/16"	32-18
1-1/8"	32-14
1-1/4"	32-12
1-5/16"	32-10
1-3/8"	32-10
1-7/16"	32-10
1-1/2"	32-8
1-9/16"	32-8
1-5/8"	32-8
1-3/4"	32-8
1-7/8"	32-8
2"	32-8
2-1/4"	32-8
2-1/2"	32-8
2-3/4"	32-8
3"	32-8

** Requires insert and internal bar modification. A more coarse pitch per nominal thread size may be attained dependent on thread form and type of material.*

APPLICATIONS*

Material	Grade	Cutoff (Separator)		Grooving		Face Grooving	
		SFM	IPR	SFM	IPR	SFM	IPR
Carbon Steels	M40	100-350	.001-.004	100-350	.002-.004**	100-350	.001-.004
Low Carbon (less than .30% C)	M43	250-700	.001-.004	250-700	.002-.007		
AISI 1000, 1100 and 1200 Series	M45	125-400	.001-.004	125-400	.002-.004		
	M50	250-700	.001-.004	250-700	.002-.004	250-400	.001-.004
	M53			250-700	.004-.010**		
	M74			700-900	.001-.004		
	M93	300-800	.001-.004	300-900	.002-.007		
	C5	250-500	.001-.004	250-500	.002-.004	250-400	.001-.004
	GC	350-700	.001-.004	350-700	.002-.004	350-400	.001-.004
Carbon Steels	M40	100-350	.002-.005	100-350	.002-.005**	100-350	.002-.005
High Carbon (Greater than .30%C)	M43	250-700	.003-.007	250-700	.002-.005		
AISI 1000, 1100 and 1200 Series	M45	125-400	.002-.005	125-400	.002-.005		
	M50	250-700	.003-.007	250-500	.003-.006	250-400	.003-.006
	M53			250-600	.004-.012**		
	M74			700-900	.001-.004		
	M93	300-800	.003-.007	300-800	.003-.008		
	C5	250-450	.003-.006	250-450	.003-.006	250-400	.003-.006
	GC	350-700	.003-.005	250-550	.003-.006	350-400	.003-.005
Alloy Steels	M40	100-350	.001-.005	100-350	.002-.005**	100-350	.001-.005
Low Carbon (Less than .30%C)	M43	250-700	.002-.007	250-700	.003-.007		
AISI 1300, 4000, 5000, 6000, 8000 and 9000 Series	M45	125-400	.001-.005	125-400	.002-.005		
	M50	250-600	.002-.007	250-600	.002-.007	250-400	.002-.006
	M53			250-600	.004-.012**		
	M74			700-900	.001-.004		
	M93	300-800	.002-.007	300-900	.003-.007		
	C5	250-500	.002-.006	250-500	.002-.006	250-400	.002-.006
	GC	350-600	.002-.005	300-600	.002-.005	300-400	.002-.005
Alloy Steels	M40	100-300	.002-.005	100-300	.002-.005**	100-300	.002-.005
High Carbon (Greater than .30%C)	M43	250-600	.003-.006	250-600	.003-.008		
AISI 1300, 4000, 5000, 6000, 8000 and 9000 Series	M45	125-400	.002-.005	125-400	.002-.005		
	M50	250-600	.003-.006	250-500	.003-.005	250-400	.003-.006
	M53			250-600	.004-.012**		
	M74			700-900	.001-.004		
	M93	300-800	.003-.006	300-800	.003-.008		
	C5	250-450	.003-.005	250-450	.003-.006	250-400	.003-.005
	GC	350-600	.003-.005	250-550	.003-.005	350-400	.003-.005
Tool Steels	M40	100-200	.002-.005	100-200	.002-.005**	100-200	.002-.005
Example A-2, D-2, M-2, H-13	M43	150-300	.003-.006	150-350	.003-.007		
	M45	125-250	.002-.005	125-250	.002-.005		
	M50	150-300	.003-.006	150-300	.003-.005	150-300	.003-.006
	M53			250-350	.004-.008**		
	M74			400-600	.002-.004		
	M93	200-370	.003-.006	250-450	.003-.007		
	C5	180-250	.003-.006	180-250	.003-.005	180-250	.003-.006
	GC	220-300	.003-.005	220-300	.003-.005	220-300	.003-.005

APPLICATIONS

Material	Grade	Cutoff (Separator)		Grooving		Face Grooving	
		SFM	IPR	SFM	IPR	SFM	IPR
Martensitic Stainless Steels 400 Series	M40	100-300	.001-.004	100-300	.002-.004**	100-300	.001-.004
	M43	250-450	.002-.007	250-450	.003-.007		
	M45	125-350	.002-.004	125-350	.002-.004		
	M50	250-500	.002-.007	250-500	.002-.007	250-400	.002-.006
	M53			350-500	.004-.012**		
	M74			400-600	.002-.004		
	M93	300-500	.002-.007				
	C5	250-400	.002-.006	250-400	.002-.006	250-400	.002-.006
	GC	350-500	.002-.006	350-500	.002-.005	350-400	.002-.006
Austenitic Stainless Steels 300 Series	M40	100-200	.001-.005	100-200	.002-.005**	100-200	.001-.005
	M43	150-300	.002-.005	150-300	.003-.006		
	M45	125-250	.001-.005	125-250	.002-.005		
	M53			200-350	.004-.007		
	M74			300-500	.001-.003		
	M93			200-350	.002-.005		
	C2	200-250	.0025-.004	200-250	.0025-.004	200-250	.0025-.004
Low Machinability Alloys Iron, Nickel and Cobalt based Example: Inconel™, Hastelloy™	M40	50-125	.002-.005	50-125	.002-.005	50-125	.002-.005
	M43	70-200	.002-.005				
	M45	70-150	.002-.005	70-125	.002-.005		
	M93	90-240	.002-.004				
	C2	70-175	.003-.004	70-175	.003-.004	70-175	.003-.004
Non Ferrous Free Machining Materials—Aluminum, Copper And Zinc Based	M40	400+	.002-.010	400+	.002-.010	400+	.002-.010
	M43	450+	.002-.010	450+	.002-.010		
	M45	400+	.002-.010	400+	.002-.010		
	M93	500+	.002-.010				
	C2	500+	.002-.010	500+	.002-.010	500+	.002-.010
Titanium	M40	100-150	.002-.005	100-150	.002-.005	100-150	.002-.005
	M43	150-225	.002-.005				
	M45	125-175	.002-.005	125-175	.002-.005		
	M93	170-250	.002-.004				
	C2	150-250	.002-.004	150-250	.002-.004	150-250	.002-.004
Cast Irons Grey, Soft (20-30 Rc)	M40	400-500	.002-.010	400-600	.002-.010	400-500	.002-.010
	M43	400-600	.002-.010	500-800	.002-.010		
	M45	400-500	.002-.010	450-700	.002-.010		
	M93	800-1000	.002-.008				
	C2	500-600	.002-.008	500-800	.002-.008	500-600	.002-.008
	AlOx			800-1200	.002-.010	800-1200	.002-.008

*For MTC applications, see page A21

**Feed rates higher for Chipmaker® 95

Inconel is a trademark of Huntington Alloys.

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CBN GROOVING APPLICATIONS

Material	Grade	SFM	IPR
Gray Cast Iron (180-270 Bhn)	CBN-CI	1500-3000	.002-.010
Hard Cast Iron (>400 Bhn)	CBN-CI	250-500	.002-.010
Hardened Steel (>450 Bhn)	CBN-HT	300-450	.002-.006
Superalloys (>350 Bhn)	CBN-CI	550-800	.002-.010
Sintered Iron	CBN-CI	300-600	.002-.010

CERAMIC GROOVING APPLICATIONS

Material	Grade	SFM	IPR
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Hard Cast Iron (>400 Bhn)	M70	100-800	.002-.008
Hardened Steel	M70	100-400	.002-.005
Superalloys	M70	400-800	.002-.007

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