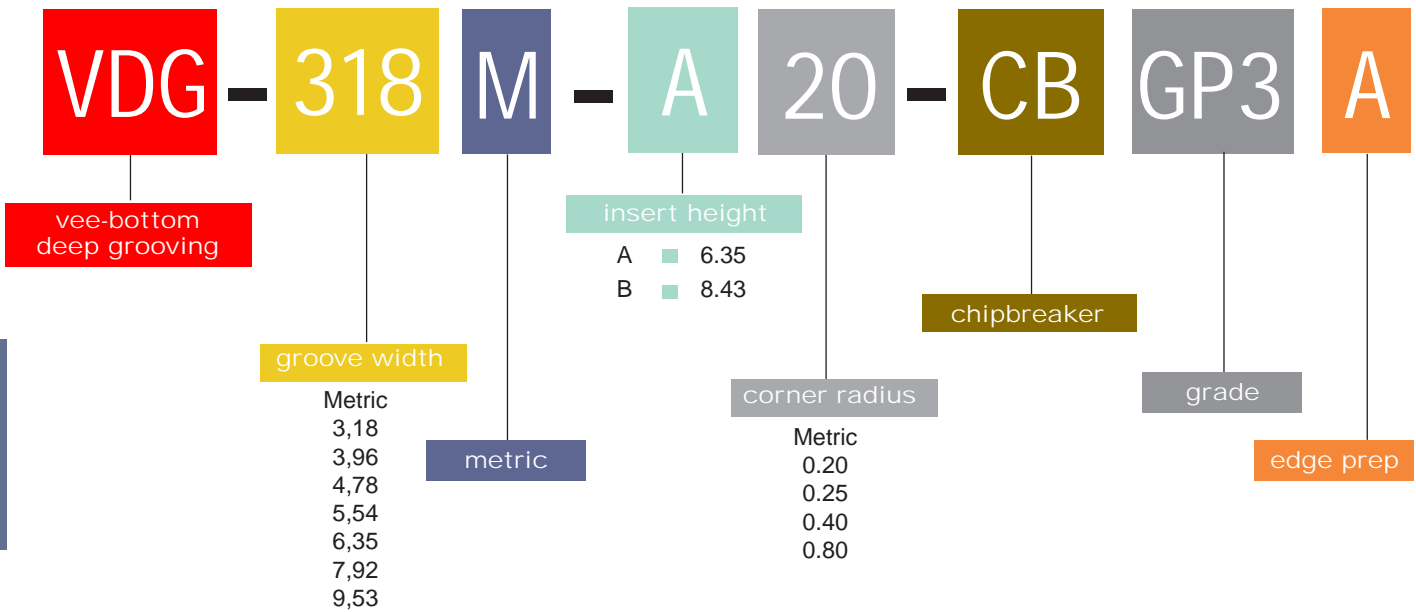


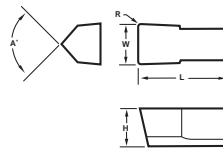
**DEEP
GROOVING**



Deep Grooving Insert Nomenclature Chart



DEEP GROOVING VDG

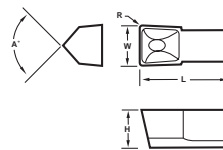


Description	EDP Code	W	R	L	H	A	Uncoated		TIN Coated		AlTiN Coated	
							C3	C6H	GP3	GP50	AC3	AC50
VDG-3M-A02	823M02	3.00 (.118)	0.2 (.008)	12.7	6.35	90°			●	●	●	●
VDG-3M-A04	823M04	3.00 (.118)	0.4 (.016)	12.7	6.35	90°			●	●	●	●
VDG-4M-A02	824M02	4.00 (.157)	0.2 (.008)	12.7	6.35	90°			●	●	●	●
VDG-4M-A04	824M04	4.00 (.157)	0.4 (.016)	12.7	6.35	90°			●	●	●	●
VDG-5M-A02	825M02	5.00 (.197)	0.2 (.008)	12.7	6.35	90°			●	●	●	●
VDG-5M-A04	825M04	5.00 (.197)	0.4 (.016)	12.7	6.35	90°			●	●	●	●
VDG-6M-B04	826M04	6.00 (.236)	0.4 (.016)	12.7	8.55	90°			●	●	●	●
VDG-6M-B08	826M08	6.00 (.236)	0.8 (.031)	12.7	8.55	90°			●	●	●	●
VDG-8M-B04	828M04	8.00 (.315)	0.4 (.016)	12.7	8.55	90°			●	●	●	●
VDG-8M-B08	828M08	8.00 (.315)	0.8 (.031)	12.7	8.55	90°			●	●	●	●

DEEP GROOVING VDG-CB

w/patented chipbreaker

Exclusive patented design!



Description	EDP Code	W	R	L	H	A	Uncoated		TIN Coated		AlTiN Coated	
							C3	C6H	GP3	GP50	AC3	AC50
VDG-3M-A02-CB	823M02C	3.00 (.118)	0.2 (.008)	12.7	6.35	90°			●	●	●	●
VDG-3M-A04-CB	823M04C	3.00 (.118)	0.4 (.016)	12.7	6.35	90°			●	●	●	●
VDG-4M-A02-CB	824M02C	4.00 (.157)	0.2 (.008)	12.7	6.35	90°			●	●	●	●
VDG-4M-A04-CB	824M04C	4.00 (.157)	0.4 (.016)	12.7	6.35	90°			●	●	●	●
VDG-5M-A02-CB	825M02C	5.00 (.197)	0.2 (.008)	12.7	6.35	90°			●	●	●	●
VDG-5M-A04-CB	825M04C	5.00 (.197)	0.4 (.016)	12.7	6.35	90°			●	●	●	●
VDG-6M-B04-CB	826M04C	6.00 (.236)	0.4 (.016)	12.7	8.55	90°			●	●	●	●
VDG-6M-B08-CB	826M08C	6.00 (.236)	0.8 (.016)	12.7	8.55	90°			●	●	●	●
VDG-8M-B04-CB	828M04C	8.00 (.315)	0.4 (.016)	12.7	8.55	90°			●	●	●	●
VDG-8M-B08-CB	828M08C	8.00 (.315)	0.8 (.016)	12.7	8.55	90°			●	●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up-to-date grade offering.

● High performance choice in optimal conditions.
 ▲ Recommended grade under general conditions.

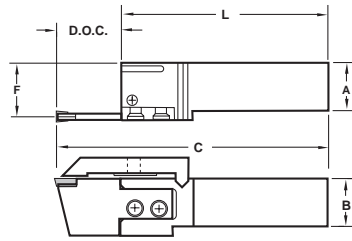
	C3	C6H	GP3	GP50	AC3	AC50
Cast Iron			▲	●		
Non-Ferrous			●	▲		
Stainless/High Temp			▲	●		
Steel				▲	●	



DEEP GROOVING

EXTERNAL STRAIGHT HOLDER CEDVOR/L

RH holders use RH components



RH SHOWN



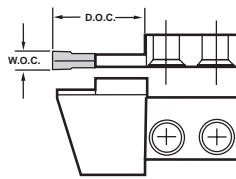
Description	EDP Code	A	B	L	F	Clamp Screw	Anvil Screw
CEDVOR-25M	91962500	25,0	25,0	132,0	28,5	SBM90	SFM90
CEDVOL-25M	91912500	25,0	25,0	132,0	28,5	SBM90	SFM90
CEDVOR-32M	91963200	32,0	32,0	132,0	28,5	SBM90	SFM90
CEDVOL-32M	91913200	32,0	32,0	132,0	28,5	SBM90	SFM90
CEDVOR-40M	91964000	40,0	40,0	132,0	36,0	SBM90	SFM90
CEDVOL-40M	91914000	40,0	40,0	132,0	36,0	SBM90	SFM90

*The "C" dimension is determined by the D.O.C. of the anvil.

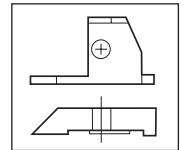
DEEP GROOVING

COMPONENTS DGAHR/L

Anvils for CEDVOR/L



RH SHOWN

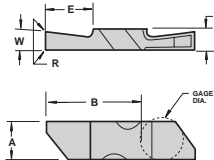


Description	EDP Code	Insert	DOC	WOC	Clamp
DGAHR-113	9263113	VDG	31.75	76.20 (3.00)	DGCHR-132
DGAHL-113	9262113	VDG	31.75	76.20 (3.00)	DGCHL-132
DGAHR-138	9263138	VDG	34.93	101.60 (4.00)	DGCHR-382
DGAHL-138	9262138	VDG	34.93	101.60 (4.00)	DGCHL-382
DGAHR-248	9263248	VDG	38.10	127.00 (5.00)	DGCHR-482
DGAHL-248	9262248	VDG	38.10	127.00 (5.00)	DGCHL-482
DGAHR-258	9263258	VDG	38.10	152.40 (6.00)	DGCHR-500
DGAHL-258	9262258	VDG	38.10	152.40 (6.00)	DGCHL-500
DGAHR-268M	9263268M	VDG	44.45	203.20 (8.00)	DGCHR-582M
DGAHL-268M	9262268M	VDG	44.45	203.20 (8.00)	DGCHL-582M

DEEP GROOVING FLGT

Double ended

Exclusive TOOL-FLO design!



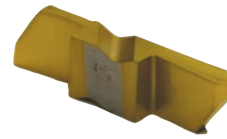
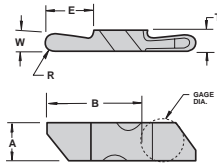
Description	EDP Code	W	R	T	E	A	B	Gage Dia	Coating					
									C3	C6H	GP3	GP50	AC3	AC50
FLGT-330R	633230R	3.00 (.118)	0.13/0.25	4.95	6.99	8.74	21.72	9.53			●	●	●	●
FLGT-330L	633230L	3.00 (.118)	0.13/0.25	4.95	6.99	8.74	21.72	9.53			●	●	●	●
FLGT-340R	633240R	4.00 (.157)	0.13/0.25	4.95	11.10	8.74	21.72	9.53			●	●	●	●
FLGT-340L	633240L	4.00 (.157)	0.13/0.25	4.95	11.10	8.74	21.72	9.53			●	●	●	●
FLGT-450R	6344250R	5.00 (.197)	0.51/0.64	6.48	13.97	11.51	28.85	9.53		●	●	●	●	●
FLGT-450L	6344250L	5.00 (.197)	0.51/0.64	6.48	13.97	11.51	28.85	9.53		●	●	●	●	●
FLGT-460R	6344260R	6.00 (.236)	0.51/0.64	6.48	13.97	11.51	28.85	9.53			●	●	●	●
FLGT-460L	6344260L	6.00 (.236)	0.51/0.64	6.48	13.97	11.51	28.85	9.53			●	●	●	●



FLRT

Full Nose Radius - Double ended

Exclusive TOOL-FLO design!



Description	EDP Code	W	R	T	E	A	B	Gage Dia	Uncoated		TiN Coated		AlTiN Coated	
									C3	C6H	GP3	GP50	AC3	AC50
FLRT-330R	6337062R	3.30 (.130)	1.57 (.065)	4.95	11.10	8.74	21.72	9.53						
FLRT-330L	6337062L	3.30 (.130)	1.57 (.065)	4.95	11.10	8.74	21.72	9.53			●	●	●	●
FLRT-350R	6337094R	5.00 (.197)	2.39 (.098)	4.95	11.10	8.74	21.72	9.53			●	●	●	●
FLRT-350L	6337094L	5.00 (.197)	2.39 (.098)	4.95	11.10	8.74	21.72	9.53			●	●	●	●
FLRT-4330R	6347062R	3.30 (.130)	1.57 (.065)	6.48	13.97	11.51	28.85	9.53			●	●	●	●
FLRT-4330L	6347062L	3.30 (.130)	1.57 (.065)	6.48	13.97	11.51	28.85	9.53			●	●	●	●
FLRT-450R	6347094R	5.00 (.197)	2.39 (.098)	6.48	13.97	11.51	28.85	9.53			●	●	●	●
FLRT-450L	6347094L	5.00 (.197)	2.39 (.098)	6.48	13.97	11.51	28.85	9.53			●	●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.	● High performance choice in optimal conditions.	Cast Iron		▲	●
	▲ Recommended grade under general conditions.	Non-Ferrous	●		▲
		Stainless/High Temp	▲	●	
		Steel		▲	●

DEEP GROOVING

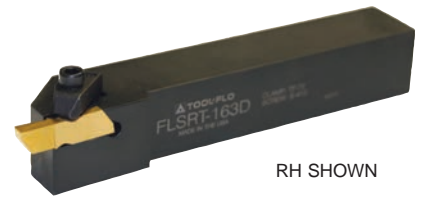
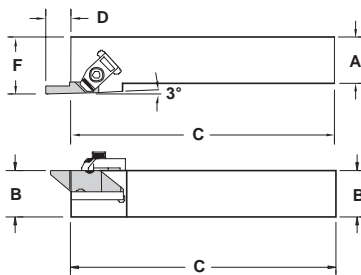
EXTERNAL HOLDER

FLSR/LT

For double ended FLGT/FLRT inserts

Inch

Exclusive TOOL-FLO design!



RH SHOWN

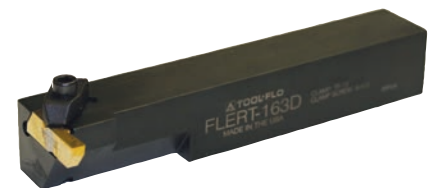
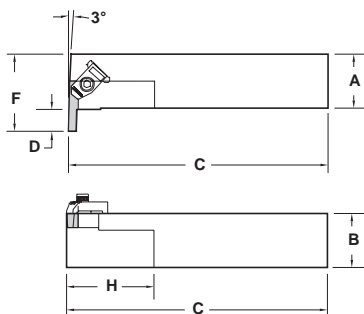
See page 60 for coolant fed clamps

Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLSRT-2525M3	934325M16	FL_T-3R	25.0	25.0	152.4	11.2	32.0	TF-72	SSM-51
FLSLT-2525M3	934225M16	FL_T-3L	25.0	25.0	152.4	11.2	32.0	TF-73	SSM-51
FLSRT-3232M3	934332M16	FL_T-3R	32.0	32.0	152.4	11.2	40.0	TF-72	SSM-51
FLSLT-3232M3	934232M16	FL_T-3L	32.0	32.0	152.4	11.2	40.0	TF-73	SSM-51
FLSRT-2525M4	934325M20	FL_T-4R	25.0	25.0	152.4	14.2	32.0	TF-72	SSM-51
FLSLT-2525M4	934225M20	FL_T-4L	25.0	25.0	152.4	14.2	32.0	TF-73	SSM-51
FLSRT-3232M4	934332M20	FL_T-4R	32.0	32.0	152.4	14.2	40.0	TF-72	SSM-51
FLSLT-3232M4	934232M20	FL_T-4L	32.0	32.0	152.4	14.2	40.0	TF-73	SSM-51

FLER/LT

For double ended FLGT/FLRT inserts

Exclusive TOOL-FLO design!



RH SHOWN

See page 60 for coolant fed clamps

Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLERT-2525M3	931125M16	FL_T-3L	25.00	25.00	152.00	11.18	31.75	TF-72	SSM-51
FLELT-2525M3	930125M16	FL_T-3R	25.00	25.00	152.00	11.18	31.75	TF-73	SSM-51
FLERT-3232M3	931132M16	FL_T-3L	32.00	32.00	152.00	11.18	38.10	TF-72	SSM-51
FLELT-3232M3	930132M16	FL_T-3R	32.00	32.00	152.00	11.18	38.10	TF-73	SSM-51
FLERT-2525M4D	931125M20	FL_T-4L	25.00	25.00	152.00	14.22	31.75	TF-72	SSM-51
FLELT-2525M4D	930125M20	FL_T-4R	25.00	25.00	152.00	14.22	31.75	TF-73	SSM-51
FLERT-3232M4D	931132M20	FL_T-4L	32.00	32.00	152.00	14.22	38.10	TF-72	SSM-51
FLELT-3232M4D	930132M20	FL_T-4R	32.00	32.00	152.00	14.22	38.10	TF-73	SSM-51



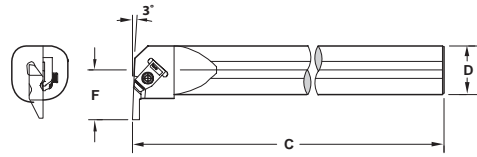
DEEP GROOVING

INTERNAL BAR

A_FLER/LT

For double ended FLGT/FLRT inserts
Inch

Exclusive TOOL-FLO design!



Description	EDP Code	Insert	D	C	F	Min. Bore	Clamp	Clamp Screw
A32M-FLERT3	96442016	FL_T-3L	32.0	350.0	27.48	46.00	TF-73	SSM-51
A32M-FLELT3	96432016	FL_T-3R	32.0	350.0	27.48	46.00	TF-72	SSM-51
A40M-FLERT3	96442416	FL_T-3L	40.0	350.0	31.60	54.15	TF-73	SSM-51
A40M-FLELT3	96432416	FL_T-3R	40.0	350.0	31.60	54.15	TF-72	SSM-51
A50M-FLERT4	96442820	FL_T-4L	50.0	350.0	40.87	68.43	TF-73	SSM-51
A50M-FLELT4	96432820	FL_T-4R	50.0	350.0	40.87	68.43	TF-72	SSM-51

DEEP GROOVING

Recommended M/MIN & MM/REV for Deep Grooving Applications

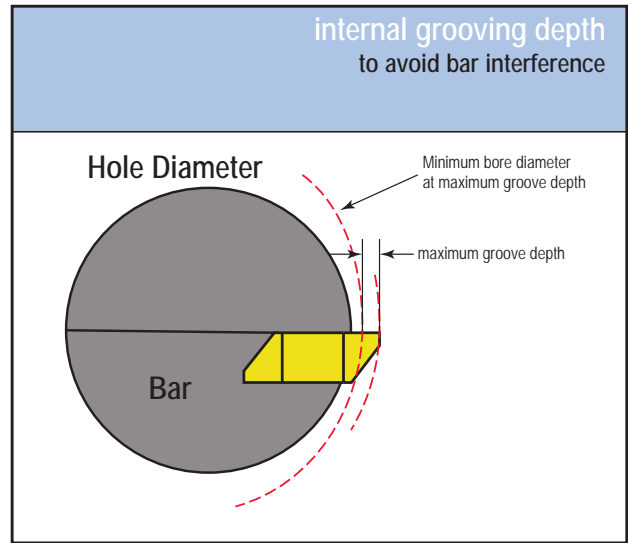
Workpiece Group	Uncoated	TiN PVD		AlTiN PVD		MM/REV	
	C3	GP3	GP50	AC3	AC50	Neutral Rake	Chipbreaker
	Free Machining Carbon Steels	---	60.96 - 121.92	60.96 - 182.88	76.20 - 137.16	121.92 - 243.84	.102 - .254
Plain Carbon Steels	---	60.96 - 121.92	60.96 - 182.88	76.20 - 137.16	121.92 - 243.84	.102 - .254	.127 - .356
Alloy Steels 190-330 HB	---	60.96 - 121.92	60.96 - 152.40	76.20 - 121.92	121.92 - 243.84	.102 - .254	.127 - .356
Alloy Steels 330-450 HB	---	60.96 - 106.68	60.96 - 137.16	76.20 - 121.92	121.92 - 228.60	.076 - .229	.127 - .305
Martensitic/Ferritic Stainless Steel 400 Series	---	60.96 - 121.92	60.96 - 152.40	76.20 - 137.16	106.68 - 215.60	.102 - .254	.127 - .356
Austenitic Stainless 300 Series	60.96 - 91.44	60.96 - 152.40	---	76.20 - 215.60	---	.076 - .229	.102 - .203
Gray Cast Iron 190-330 HB	30.48 - 91.44	60.96 - 182.88	---	76.20 - 215.60	---	.102 - .254	---
Gray Cast Iron 330-450 HB	30.48 - 76.20	60.96 - 152.40	---	60.96 - 182.88	---	.076 - .229	---
Alloy / Ductile Irons	30.48 - 76.20	60.96 - 121.92	60.96 - 152.40	60.96 - 137.16	91.44 - 215.60	.102 - .254	.127 - .356
Free Machining Aluminum Alloys	152.40 - 457.20	91.44 - 609.60	---	182.88 - 762.00	---	.127 - .305	.203 - .406
High-Silicon Aluminum Alloys	---	---	---	---	---	---	---
Copper / Zinc / Brass	60.96 - 215.60	60.96 - 274.32	---	121.92 - 304.80	---	.127 - .305	.178 - .406
Non-Metallics	121.92 - 426.72	91.44 - 457.20	---	121.92 - 457.20	---	.127 - .305	---
High Temperature Alloys 200-260 HB	24.38 - 39.62	30.48 - 60.96	---	30.48 - 76.20	---	.076 - .152	.102 - .178
High Temperature Alloys 260-450 HB	15.24 - 30.48	30.48 - 53.34	---	30.48 - 60.96	---	.076 - .152	.102 - .178
Titanium Alloys (Ti 6Al-4V)	30.48 - 60.96	45.72 - 91.44	---	30.48 - 91.44	---	.076 - .152	.102 - .203

Bold print items denote the top choices for the materials listed, provided it can be machined within the M/MIN stated under the appropriate machining conditions. For the best performance in optimal machining conditions, select the grade that will provide you with the highest allowable M/MIN.



Grooving Limits (Maximum Internal Groove Depth vs Minimum Bore Diameter)

internal grooving limitations FLG-# 2, 3, 4, 5 & 6 Inserts		
Insert	maximum groove depth (mm)	minimum bore diameter (mm)
FLG-2031R/L	1.27	18.54
FLG-2041R/L	1.27	18.54
FLG-2047R/L	1.27	18.54
FLG-2058R/L	1.27	18.54
FLG-2062R/L	2.59	44.45
FLG-2094R/L	2.49	38.10
FLG-2125R/L	2.03	25.40
FLG-3047R/L	2.39	44.45
FLG-3062R/L	2.39	44.45
FLG-3072R/L	2.29	41.28
FLG-3078R/L	1.91	34.93
FLG-3088R/L	1.91	34.93
FLG-3094R/L	3.81	60.33
FLG-3097R/L	3.81	60.33
FLG-3105R/L	3.81	60.33
FLG-3110R/L	3.68	53.98
FLG-3122R/L	3.68	53.98
FLG-3125R/L	3.51	47.63
FLG-3142R/L	3.51	47.63
FLG-3156R/L	3.18	41.28
FLG-3178R/L	3.18	41.28
FLG-3185R/L	2.79	34.93
FLG-3189R/L	2.79	34.93
FLG-4125R/L	3.81	69.85
FLG-4189R/L	6.22	127.00
FLG-4213R/L	6.10	114.30
FLG-4219R/L	5.54	82.55
FLG-4250R/L	5.08	63.50
FLG-5250R/L	9.17	15.81
FLG-5281R/L	8.74	10.81
FLG-5312R/L	8.31	18.54
FLG-5344R/L	7.47	18.54
FLG-5375R/L	6.53	44.45
FLG-6250R/L	6.35	38.10
FLG-6281R/L	6.22	25.40
FLG-6312R/L	6.10	38.10
FLG-6344R/L	5.54	38.10
FLG-6375R/L	5.08	41.28



NOTE: Internal grooving depth limits are a function of bar clearance versus bore diameter.

*The same maximum groove depth and minimum bore diameter values also apply to the FLG-CB and FLR (Full radius) inserts of the same size and groove width.