



# TOOL-FLO

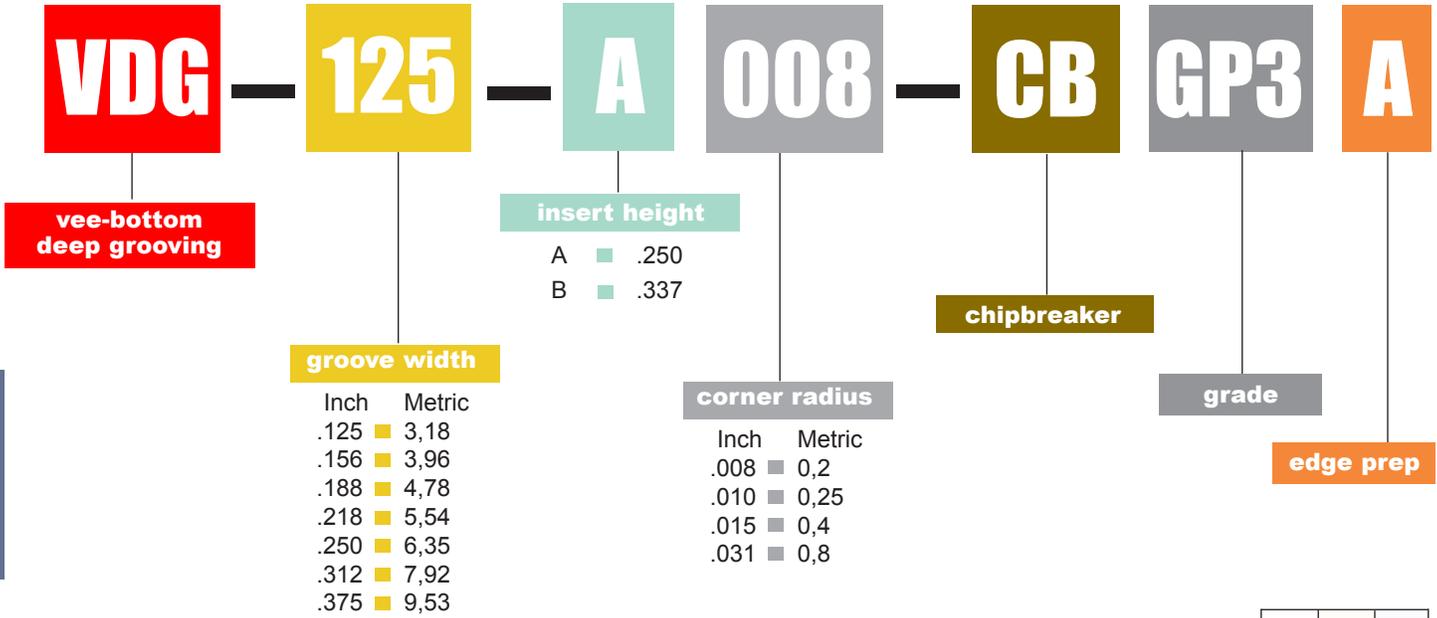


## DEEP GROOVING

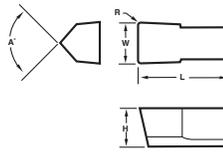
# DEEP GROOVING



## Deep Grooving Insert Nomenclature Chart



## DEEP GROOVING VDG

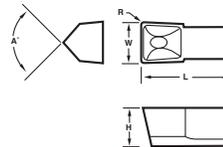


Description	EDP Code	W		R	L	H	A	Grade						
		Inch	Metric					C3	C6H	GP3	GP50	AC3	AC50	
VDG-125-A008	882125A08	.125	3,18	.008	.500	.250	90°							
VDG-125-A015	82125A	.125	3,18	.015	.500	.250	90°	●	●	●	●	●	●	●
VDG-156-A008	82156A08	.156	3,96	.008	.500	.250	90°	●	●	●	●	●	●	●
VDG-156-A015	82156A	.156	3,96	.015	.500	.250	90°	●	●	●	●	●	●	●
VDG-188-A008	82188A08	.188	4,78	.008	.500	.250	90°	●	●	●	●	●	●	●
VDG-188-A015	82188A	.188	4,78	.015	.500	.250	90°	●	●	●	●	●	●	●
VDG-188-A031	82188A31	.188	4,78	.031	.500	.250	90°	●	●	●	●	●	●	●
VDG-218-A015	82218A	.218	5,54	.015	.500	.250	90°	●	●	●	●	●	●	●
VDG-250-B015	82250B	.250	6,35	.015	.500	.337	90°	●	●	●	●	●	●	●
VDG-250-B031	82250B31	.250	6,35	.031	.500	.337	90°	●	●	●	●	●	●	●
VDG-312-B015	82312B	.312	7,92	.015	.500	.337	90°	●	●	●	●	●	●	●
VDG-312-B031	82312B31	.312	7,92	.031	.500	.337	90°	●	●	●	●	●	●	●
VDG-375-B015	82375B	.375	9,53	.015	.500	.337	90°	●	●	●	●	●	●	●
VDG-375-B031	82375B31	.375	9,53	.031	.500	.337	90°	●	●	●	●	●	●	●

## DEEP GROOVING VDG-CB

w/patented chipbreaker

Exclusive patented design!



Description	EDP Code	W		R	L	H	A	Grade						
		Inch	Metric					C3	C6H	GP3	GP50	AC3	AC50	
VDG-125-A008-CB	82125A08C	.125	3,18	.008	.500	.250	90°			●		●	●	●
VDG-125-A015-CB	82125AC	.125	3,18	.015	.500	.250	90°			●		●	●	●
VDG-156-A008-CB	82156A08C	.156	3,96	.008	.500	.250	90°			●		●	●	●
VDG-156-A015-CB	82156AC	.156	3,96	.015	.500	.250	90°			●		●	●	●
VDG-188-A008-CB	82188A08C	.188	4,78	.008	.500	.250	90°			●		●	●	●
VDG-188-A015-CB	82188AC	.188	4,78	.015	.500	.250	90°			●		●	●	●
VDG-188-A031-CB	82188A31C	.188	4,78	.031	.500	.250	90°			●		●	●	●
VDG-218-A015-CB	82218AC	.218	5,54	.015	.500	.250	90°			●		●	●	●
VDG-250-B015-CB	82250BC	.250	6,35	.015	.500	.337	90°			●		●	●	●
VDG-250-B031-CB	82250B31C	.250	6,35	.031	.500	.337	90°			●		●	●	●
VDG-312-B015-CB	82312BC	.312	7,92	.015	.500	.337	90°			●		●	●	●
VDG-312-B031-CB	82312B31C	.312	7,92	.031	.500	.337	90°			●		●	●	●
VDG-375-B015-CB	82375BC	.375	9,53	.015	.500	.337	90°			●		●	●	●
VDG-375-B031-CB	82375B31C	.375	9,53	.031	.500	.337	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.

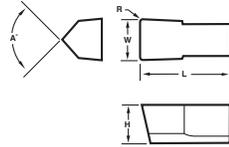
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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



# DEEP GROOVING

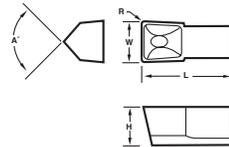
## DEEP GROOVING VDG METRIC



Description	EDP Code	W		R	L	H	A	Coating						
		Metric	Inch					C3	C6H	GP3	GP50	AC3	AC50	
VDG-3M-A02	823M02	3,00	.118	0,2	12,7	6,35	90°							
VDG-3M-A04	823M04	3,00	.118	0,4	12,7	6,35	90°			●	●	●	●	●
VDG-4M-A02	824M02	4,00	.157	0,2	12,7	6,35	90°			●	●	●	●	●
VDG-4M-A04	824M04	4,00	.157	0,4	12,7	6,35	90°			●	●	●	●	●
VDG-5M-A02	825M02	5,00	.197	0,2	12,7	6,35	90°			●	●	●	●	●
VDG-5M-A04	825M04	5,00	.197	0,4	12,7	6,35	90°			●	●	●	●	●
VDG-6M-B04	826M04	6,00	.236	0,4	12,7	8,55	90°			●	●	●	●	●
VDG-6M-B08	826M08	6,00	.236	0,8	12,7	8,55	90°			●	●	●	●	●
VDG-8M-B04	828M04	8,00	.315	0,4	12,7	8,55	90°			●	●	●	●	●
VDG-8M-B08	828M08	8,00	.315	0,8	12,7	8,55	90°			●	●	●	●	●

## DEEP GROOVING VDG-CB METRIC w/patented chipbreaker

Exclusive patented design!



Description	EDP Code	W		R	L	H	A	Coating						
		Metric	Inch					C3	C6H	GP3	GP50	AC3	AC50	
VDG-3M-A02-CB	823M02C	3,00	.118	0,2	12,7	6,35	90°			●	●	●	●	●
VDG-3M-A04-CB	823M04C	3,00	.118	0,4	12,7	6,35	90°			●	●	●	●	●
VDG-4M-A02-CB	824M02C	4,00	.157	0,2	12,7	6,35	90°			●	●	●	●	●
VDG-4M-A04-CB	824M04C	4,00	.157	0,4	12,7	6,35	90°			●	●	●	●	●
VDG-5M-A02-CB	825M02C	5,00	.197	0,2	12,7	6,35	90°			●	●	●	●	●
VDG-5M-A04-CB	825M04C	5,00	.197	0,4	12,7	6,35	90°			●	●	●	●	●
VDG-6M-B04-CB	826M04C	6,00	.236	0,4	12,7	8,55	90°			●	●	●	●	●
VDG-6M-B08-CB	826M08C	6,00	.236	0,8	12,7	8,55	90°			●	●	●	●	●
VDG-8M-B04-CB	828M04C	8,00	.315	0,4	12,7	8,55	90°			●	●	●	●	●
VDG-8M-B08-CB	828M08C	8,00	.315	0,8	12,7	8,55	90°			●	●	●	●	●

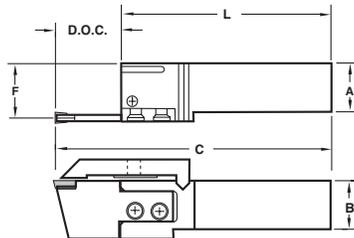
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up-to-date grade offering.

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

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

## EXTERNAL STRAIGHT HOLDER CEDVOR/L

RH holders use RH components



RH SHOWN



Most holders available with coolant port  
(ie: Add CP to end of description)

Description	EDP Code	A	B	L	F	Clamp Screw	Anvil Screw
CEDVOR-16	91951600	1	1	5.190	1.150	SB90	SF95
CEDVOL-16	91901600	1	1	5.190	1.150	SB90	SF95
CEDVOR-20	91952000	1-1/4	1-1/4	5.190	1.150	SB90	SF95
CEDVOL-20	91902000	1-1/4	1-1/4	5.190	1.150	SB90	SF95
CEDVOR-24	91952400	1-1/2	1-1/2	5.190	1.400	SB90	SF95
CEDVOL-24	91902400	1-1/2	1-1/2	5.190	1.400	SB90	SF95

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

## METRIC

Description	EDP Code	A	B	L	F	Clamp Screw	Anvil Screw
CEDVOR-25M	91962500	25,0	25,0	132,0	28,5	SB90	SF95
CEDVOL-25M	91912500	25,0	25,0	132,0	28,5	SB90	SF95
CEDVOR-32M	91963200	32,0	32,0	132,0	28,5	SB90	SF95
CEDVOL-32M	91913200	32,0	32,0	132,0	28,5	SB90	SF95
CEDVOR-40M	91964000	40,0	40,0	132,0	36,0	SB90	SF95
CEDVOL-40M	91914000	40,0	40,0	132,0	36,0	SB90	SF95

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

DEEP GROOVING

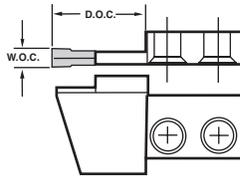
# DEEP GROOVING



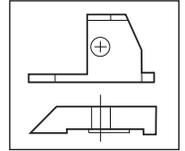
## COMPONENTS

### DGAHR/L

Anvils for CEDVOR/L



RH SHOWN

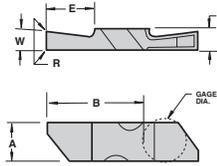


Description	EDP Code	Insert	DOC	WOC	Clamp
DGAHR-113	9263113	VDG	1.250	.125	DGCHR-132
DGAHL-113	9262113	VDG	1.250	.125	DGCHL-132
DGAHR-138	9263138	VDG	1.375	.170-.188	DGCHR-382
DGAHL-138	9262138	VDG	1.375	.170-.188	DGCHL-382
DGAHR-248	9263248	VDG	1.500	.218	DGCHR-482
DGAHL-248	9262248	VDG	1.500	.218	DGCHL-482
DGAHR-258	9263258	VDG	1.500	.250-.312	DGCHR-500
DGAHL-258	9262258	VDG	1.500	.250-.312	DGCHL-500
DGAHR-268	9263268	VDG	1.750	.350-.375	DGCHR-582
DGAHL-268	9262268	VDG	1.750	.350-.375	DGCHL-582

## DEEP GROOVING FLGT

Double ended

Exclusive TOOL-FLO design!



Description	EDP Code	W		R	T	E	A	B	Gage Dia						
		Inch	Metric							C3	C6H	GP3	GP50	AC3	AC50
FLGT-3094R	6332094R	.094	2,39	.005/.010	.195	.275	.344	.855	.3750			●	●	●	●
FLGT-3094L	6332094L	.094	2,39	.005/.010	.195	.275	.344	.855	.3750			●	●	●	●
FLGT-3125R	6332125R	.125	3,18	.005/.010	.195	.437	.344	.855	.3750			●	●	●	●
FLGT-3125L	6332125L	.125	3,18	.005/.010	.195	.437	.344	.855	.3750			●	●	●	●
FLGT-3189R	6332189R	.189	4,80	.020/.025	.195	.437	.344	.855	.3750			●	●	●	●
FLGT-3189L	6332189L	.189	4,80	.020/.025	.195	.437	.344	.855	.3750			●	●	●	●
FLGT-4125R	6342125R	.125	3,18	.005/.010	.255	.550	.453	1.136	.3750			●	●	●	●
FLGT-4125L	6342125L	.125	3,18	.005/.010	.255	.550	.453	1.136	.3750			●	●	●	●
FLGT-4189R	6342189R	.189	4,80	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●
FLGT-4189L	6342189L	.189	4,80	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●
FLGT-4250R	6342250R	.250	6,35	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●
FLGT-4250L	6342250L	.250	6,35	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●

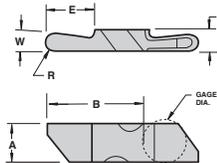
## METRIC

Description	EDP Code	W		R	T	E	A	B	Gage Dia						
		Metric	Inch							C3	C6H	GP3	GP50	AC3	AC50
FLGT-330R	633230R	3,00	.118	.005/.010	.195	.275	.344	.855	.3750			●	●	●	●
FLGT-330L	633230L	3,00	.118	.005/.010	.195	.275	.344	.855	.3750			●	●	●	●
FLGT-340R	633240R	4,00	.157	.005/.010	.195	.437	.344	.855	.3750			●	●	●	●
FLGT-340L	633240L	4,00	.157	.005/.010	.195	.437	.344	.855	.3750			●	●	●	●
FLGT-450R	6344250R	5,00	.197	.020/.025	.255	.550	.453	1.136	.3750		●	●	●	●	●
FLGT-450L	6344250L	5,00	.197	.020/.025	.255	.550	.453	1.136	.3750		●	●	●	●	●
FLGT-460R	6344260R	6,00	.236	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●
FLGT-460L	6344260L	6,00	.236	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●

## FLRT

Full Nose Radius - Double ended

Exclusive TOOL-FLO design!



Description	EDP Code	W		R	T	E	A	B	Gage Dia						
		Inch	Metric							C3	C6H	GP3	GP50	AC3	AC50
FLRT-3062R	6337062R	.125	3,18	.062	.195	.437	.344	.855	.3750			●	●	●	●
FLRT-3062L	6337062L	.125	3,18	.062	.195	.437	.344	.855	.3750			●	●	●	●
FLRT-3094R	6337094R	.189	4,80	.094	.195	.437	.344	.855	.3750			●	●	●	●
FLRT-3094L	6337094L	.189	4,80	.094	.195	.437	.344	.855	.3750			●	●	●	●
FLRT-4062R	6347062R	.125	3,18	.062	.255	.550	.453	1.136	.3750			●	●	●	●
FLRT-4062L	6347062L	.125	3,18	.062	.255	.550	.453	1.136	.3750			●	●	●	●
FLRT-4094R	6347094R	.189	4,80	.094	.255	.550	.453	1.136	.3750			●	●	●	●
FLRT-4094L	6347094L	.189	4,80	.094	.255	.550	.453	1.136	.3750			●	●	●	●
FLRT-4125R	6347125R	.250	6,35	.125	.255	.550	.453	1.136	.3750			●	●	●	●
FLRT-4125L	6347125L	.250	6,35	.125	.255	.550	.453	1.136	.3750			●	●	●	●

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.

Cast Iron				▲		●
Non-Ferrous	●					
Stainless/High Temp		▲			●	
Steel			▲		●	



# DEEP GROOVING

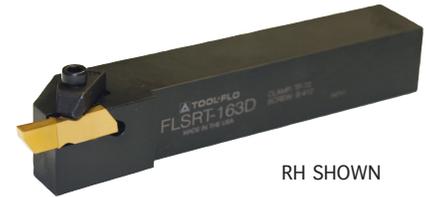
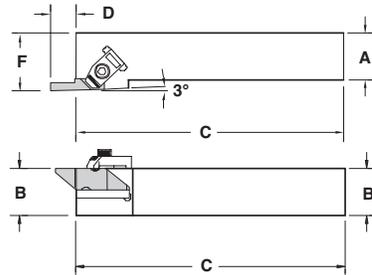
## EXTERNAL HOLDER

### FLSR/LT

For double ended FLGT/FLRT inserts  
Inch

*Exclusive TOOL-FLO design!*

Most holders available with coolant port  
(ie: Add CP to end of description)



RH SHOWN

Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLSRT-163D	93431616D	FLGT-3R	1.000	1.000	6.000	.440	1.250	TF-72	S-412
FLSLT-163D	93421616D	FLGT-3L	1.000	1.000	6.000	.440	1.250	TF-73	S-412
FLSRT-203D	93432016D	FLGT-3R	1.250	1.250	6.000	.440	1.500	TF-72	S-412
FLSLT-203D	93422016D	FLGT-3L	1.250	1.250	6.000	.440	1.500	TF-73	S-412
FLSRT-164D	93431620D	FLGT-4R	1.000	1.000	6.000	.560	1.250	TF-72	S-412
FLSLT-164D	93421620D	FLGT-4L	1.000	1.000	6.000	.560	1.250	TF-73	S-412
FLSRT-204D	93432020D	FLGT-4R	1.250	1.250	6.000	.560	1.500	TF-72	S-412
FLSLT-204D	93422020D	FLGT-4L	1.250	1.250	6.000	.560	1.500	TF-73	S-412

## METRIC

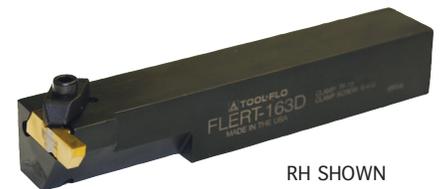
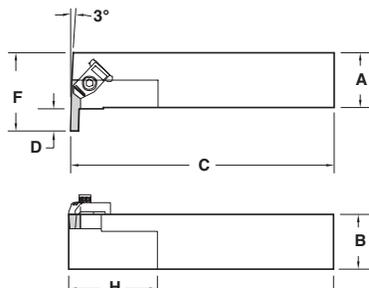
Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLSRT-2525M3	934325M16	FLGT/RT-3R	25,0	25,0	152,4	11,2	32,0	TF-72	S-412
FLSLT-2525M3	934225M16	FLGT/RT-3L	25,0	25,0	152,4	11,2	32,0	TF-73	S-412
FLSRT-3232M3	934332M16	FLGT/RT-3R	32,0	32,0	152,4	11,2	40,0	TF-72	S-412
FLSLT-3232M3	934232M16	FLGT/RT-3L	32,0	32,0	152,4	11,2	40,0	TF-73	S-412
FLSRT-2525M4	934325M20	FLGT/RT-4R	25,0	25,0	152,4	14,2	32,0	TF-72	S-412
FLSLT-2525M4	934225M20	FLGT/RT-4L	25,0	25,0	152,4	14,2	32,0	TF-73	S-412
FLSRT-3232M4	934332M20	FLGT/RT-4R	32,0	32,0	152,4	14,2	40,0	TF-72	S-412
FLSLT-3232M4	934232M20	FLGT/RT-4L	32,0	32,0	152,4	14,2	40,0	TF-73	S-412

## FLER/LT

For double ended FLGT/FLRT inserts

*Exclusive TOOL-FLO design!*

Most holders available with coolant port  
(ie: Add CP to end of description)



RH SHOWN

Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLERT-163D	93111616D	FLGT-3L	1.000	1.000	6.000	.440	1.250	TF-72	S-412
FLELT-163D	93011616D	FLGT-3R	1.000	1.000	6.000	.440	1.250	TF-73	S-412
FLERT-203D	93112016D	FLGT-3L	1.250	1.250	6.000	.440	1.500	TF-72	S-412
FLELT-203D	93012016D	FLGT-3R	1.250	1.250	6.000	.440	1.500	TF-73	S-412
FLERT-164D	93111620D	FLGT-4L	1.000	1.000	6.000	.560	1.250	TF-72	S-412
FLELT-164D	93011620D	FLGT-4R	1.000	1.000	6.000	.560	1.250	TF-73	S-412
FLERT-204D	93112020D	FLGT-4L	1.250	1.250	6.000	.560	1.500	TF-72	S-412
FLELT-204D	93012020D	FLGT-4R	1.250	1.250	6.000	.560	1.500	TF-73	S-412

# DEEP GROOVING

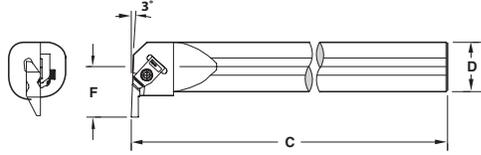


## INTERNAL BAR

A\_FLER/LT

For double ended FLGT/FLRT inserts  
Inch

Exclusive TOOL-FLO design!



Most holders available with coolant port  
(ie: Add CP to end of description)

Description	EDP Code	Insert	D	C	F	Min. Bore	Clamp	Clamp Screw
A20-FLERT3	96552016	FLGT/RT-3L	1.250	14.000	1.082	1.807	TF-73	S-412
A20-FLELT3	96452016	FLGT/RT-3R	1.250	14.000	1.082	1.807	TF-72	S-412
A24-FLERT3	96552416	FLGT/RT-3L	1.500	14.000	1.207	2.057	TF-73	S-412
A24-FLELT3	96452416	FLGT/RT-3R	1.500	14.000	1.207	2.057	TF-72	S-412
A28-FLERT4	96552820	FLGT/RT-4L	1.750	14.000	1.500	2.475	TF-73	S-412
A28-FLELT4	96452820	FLGT/RT-4R	1.750	14.000	1.500	2.475	TF-72	S-412

## METRIC

Description	EDP Code	Insert	D	C	F	Min. Bore	Clamp	Clamp Screw
A32M-FLERT3	96442016	FLGT/RT-3L	32,0	350,0	27,48	46,0	TF-72	S-412
A32M-FLELT3	96432016	FLGT/RT-3R	32,0	350,0	27,48	46,0	TF-73	S-412
A40M-FLERT3	96442416	FLGT/RT-3L	40,0	350,0	31,60	54,15	TF-72	S-412
A40M-FLELT3	96432416	FLGT/RT-3R	40,0	350,0	31,60	54,15	TF-73	S-412
A50M-FLERT4	96442820	FLGT/RT-4L	50,0	350,0	40,87	68,43	TF-72	S-412
A50M-FLELT4	96432820	FLGT/RT-4R	50,0	350,0	40,87	68,43	TF-73	S-412

## Recommended SFM & IPR for Deep Grooving Applications

Workpiece Group	Uncoated		TiN PVD Coated		AlTiN PVD Coated		Feed/IPR	
	C3	GP3	GP50	AT3	AT50	Neutral Rake	Chipbreaker	
Free Machining Carbon Steels	---	200-400	200-600	250-450	<b>400-800</b>	.004-.010	.005-.014	
Plain Carbon Steels	---	200-400	200-600	250-450	<b>400-800</b>	.004-.010	.005-.014	
Alloy Steels 190-330 HB	---	200-400	200-500	250-400	<b>400-800</b>	.004-.010	.005-.014	
Alloy Steels 330-450 HB	---	200-350	200-450	250-400	<b>400-750</b>	.003-.009	.005-.012	
Martensitic/Ferritic Stainless Steel 400 Series	---	200-400	200-500	250-450	<b>350-700</b>	.004-.010	.005-.014	
Austenitic Stainless 300 Series	200-300	200-500	---	<b>250-700</b>	---	.003-.009	.004-.008	
Gray Cast Iron 190-330 HB	100-300	200-600	---	<b>250-700</b>	---	.004-.010	---	
Gray Cast Iron 330-450 HB	100-250	200-500	---	<b>200-600</b>	---	.003-.009	---	
Alloy / Ductile Irons	100-250	200-400	200-500	200-450	<b>300-700</b>	.004-.010	.005-.014	
Free Machining Aluminum Alloys	500-1500	300-2000	---	<b>600-2500</b>	---	.005-.012	.008-.016	
High-Silicon Aluminum Alloys	---	---	---	---	---	---	---	
Copper / Zinc / Brass	200-700	200-900	---	<b>400-1000</b>	---	.005-.012	.007-.016	
Non-Metallics	400-1400	300-1500	---	<b>400-1500</b>	---	.005-.012	---	
High Temperature Alloys 200-260 HB	80-130	100-200	---	<b>100-250</b>	---	.003-.006	.004-.007	
High Temperature Alloys 260-450 HB	50-100	100-175	---	<b>100-200</b>	---	.003-.006	.004-.007	
Titanium Alloys (Ti 6Al-4V)	100-200	150-300	---	<b>100-300</b>	---	.003-.006	.004-.008	

Bold print items denote the top choices for the materials listed, provided it can be machined within the SFM 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 SFM.

DEEP GROOVING