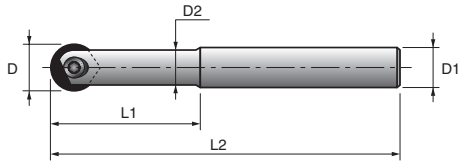
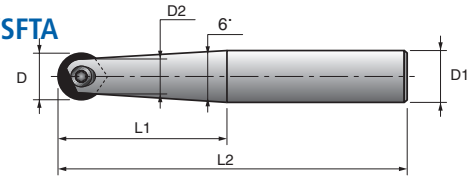


### STYLE CY/SFCY



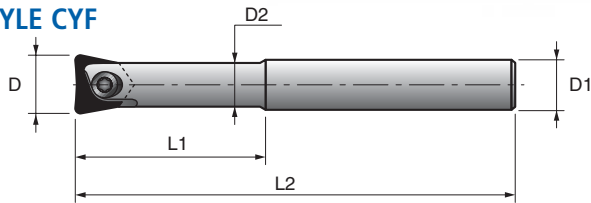
### STYLE TA/SFTA



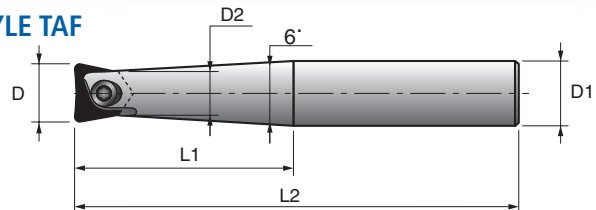
Tool Ordering No.	Size Ø D	Shank Ø D1	Neck Ø D2	Neck Length L1	Total Length L2	Use with Insert Style	Insert Screw	Insert Torx Key
TAV 0250-3.75-0500	1/4	1/2	.225	1 1/4	3 3/4	⑤	MS 06N	T7
TAV 0312-3.75-0500	5/16	1/2	.281	1 1/4	3 3/4	⑤	MS 08N	T7
CY 0375-4.0-0375	3/8	3/8	.337	3/4	4	③/④	MS 10	T15
CY 0375-4.0-0500	3/8	1/2	.337	1	4	③/④	MS 10	T15
TA 0375-6.0-0500	3/8	1/2	.337	1 3/4	6	③/④	MS 10	T15
SFCY 0500-4.0-0500	1/2	1/2	.440	1 1/4	4	②/③	MS 12	T20
SFCY 0500-5.0-0500	1/2	1/2	.440	1 1/2	5	②/③	MS 12	T20
SFCY 0500-6.0-0500	1/2	1/2	.440	1 3/4	6	②/③	MS 12	T20
<b>SFCY 0500-6.0-12 NEW</b>	<b>1/2</b>	<b>12mm</b>	<b>.440</b>	<b>1 3/4</b>	<b>6</b>	<b>②/③</b>	<b>MS 12</b>	<b>T20</b>
SFTA 0500-7.5-0625	1/2	5/8	.440	2	7 1/2	②/③	MS 12	T20
SFCY 0625-5.0-0625	5/8	5/8	.550	1 3/8	5	②/③	MS 16	T20
SFCY 0625-6.25-0625	5/8	5/8	.550	2	6 1/4	②/③	MS 16	T20
SFTA 0625-7.5-0750	5/8	3/4	.550	2 1/4	7 1/2	②/③	MS 16	T20
SFCY 0750-4.5-0750	3/4	3/4	.675	1 3/4	4 1/2	②/③	MS 20	T20
SFCY 0750-6.0-0750	3/4	3/4	.675	2	6	②/③	MS 20	T20
SFCY 0750-7.5-0750	3/4	3/4	.675	2 3/8	7 1/2	②/③	MS 20	T20
SFCY 0750-9.0-0750	3/4	3/4	.675	2 3/8	9	②/③	MS 20	T20
SFTA 0750-8.0-1000	3/4	1	.675	3 1/2	8	②/③	MS 20	T20
SFTA 0750-10.0-1000	3/4	1	.675	3 1/2	10	②/③	MS 20	T20
SFCY 1000-6.0-1000	1	1	.882	1 3/4	6	②/③	MS 25	T20
<b>SFCY 1000-6.0-25 NEW</b>	<b>1</b>	<b>25mm</b>	<b>.882</b>	<b>1 3/4</b>	<b>6</b>	<b>②/③</b>	<b>MS 25</b>	<b>T20</b>
SFCY 1000-8.0-1000	1	1	.882	2 1/2	8	②/③	MS 25	T20
SFCY 1000-10.0-1000	1	1	.882	2 3/4	10	②/③	MS 25	T20
<b>SFCY 1000-10.0-25 NEW</b>	<b>1</b>	<b>25mm</b>	<b>.882</b>	<b>2 3/4</b>	<b>10</b>	<b>②/③</b>	<b>MS 25</b>	<b>T20</b>
SFTA 1000-10.0-1250	1	1 1/4	.882	4	10	②/③	MS 25	T20
SFTA 1000-12.5-1250	1	1 1/4	.882	4	12 1/2	②/③	MS 25	T20
SFTA 1000-15.0-1250	1	1 1/4	.882	4	15	②/③	MS 25	T20
SFCY 1250-7.5-1250	1 1/4	1 1/4	1.125	2 1/4	7 1/2	②/③	MS 32	T30
SFCY 1250-10.0-1250	1 1/4	1 1/4	1.125	3	10	②/③	MS 32	T30
SFTA 1250-9.0-1500	1 1/4	1 1/2	1.125	4	9	②/③	MS 32	T30
SFTA 1250-12.0-1500	1 1/4	1 1/2	1.125	4	12	②/③	MS 32	T30

For your shrink fit and long reach requirements please see pages 9,10, 21 & 22 for our carbide shank products.

### STYLE CYF



### STYLE TAF



Tool Ordering No.	Size Ø D	Shank Ø D1	Neck Ø D2	Neck Length L1	Total Length L2	Use with Insert Style	Insert Screw	Insert Torx Key
TAV 0250-3.75-0500	1/4	1/2	.225	1 1/4	3 3/4	⑤	MS 06N	T7
TAV 0312-3.75-0500	5/16	1/2	.281	1 1/4	3 3/4	⑤	MS 08N	T7
CYF 0375-4.0-0375	3/8	3/8	.337	3/4	4	④	MS 10	T15
CY 0375-4.0-0375	3/8	3/8	.337	3/4	4	③/④	MS 10	T15
CY 0375-4.0-0500	3/8	1/2	.337	1	4	③/④	MS 10	T15
TA 0375-6.0-0500	3/8	1/2	.337	1 3/4	6	③/④	MS 10	T15
TAF 0375-6.0-0500	3/8	1/2	.337	1 3/4	6	④	MS 10	T15
CYF 0500-4.0-0500	1/2	1/2	.440	1 1/4	4	④	MS 12	T20
CYF 0500-6.0-0500	1/2	1/2	.440	1 3/4	6	④	MS 12	T20
<b>CYF 0500-6.0-12 NEW</b>	<b>1/2</b>	<b>12mm</b>	<b>.440</b>	<b>1 3/4</b>	<b>6</b>	④	<b>MS 12</b>	<b>T20</b>
TAF 0500-7.5-0625	1/2	5/8	.440	2	7 1/2	④	MS 12	T20
CYF 0625-6.25-0625	5/8	5/8	.550	2	6 1/4	④	MS 16	T20
TAF 0625-7.5-0750	5/8	3/4	.550	2 1/4	7 1/2	④	MS 16	T20
CYF 0750-6.0-0750	3/4	3/4	.675	2	6	④	MS 20	T20
CYF 0750-9.0-0750	3/4	3/4	.675	2 3/8	9	④	MS 20	T20
TAF 0750-10.0-1000	3/4	1	.675	3 1/2	10	④	MS 20	T20
CYF 1000-6.0-1000	1	1	.882	1 3/4	6	④	MS 25	T20
<b>CYF 1000-6.0-25 NEW</b>	<b>1</b>	<b>25mm</b>	<b>.882</b>	<b>1 3/4</b>	<b>6</b>	④	<b>MS 25</b>	<b>T20</b>
CYF 1000-8.0-1000	1	1	.882	2 1/2	8	④	MS 25	T20
CYF 1000-10.0-1000	1	1	.882	2 3/4	10	④	MS 25	T20
<b>CYF 1000-10.0-25 NEW</b>	<b>1</b>	<b>25mm</b>	<b>.882</b>	<b>2 3/4</b>	<b>10</b>	④	<b>MS 25</b>	<b>T20</b>
TAF 1000-10.0-1250	1	1 1/4	.882	4	10	④	MS 25	T20
TAF 1000-12.5-1250	1	1 1/4	.882	4	12 1/2	④	MS 25	T20
TAF 1000-15.0-1250	1	1 1/4	.882	4	15	④	MS 25	T20
CYF 1250-7.5-1250	1 1/4	1 1/4	1.125	2 1/4	7 1/2	④	MS 32	T30
CYF 1250-10.0-1250	1 1/4	1 1/4	1.125	3	10	④	MS 32	T30
TAF 1250-9.0-1500	1 1/4	1 1/2	1.125	4	9	④	MS 32	T30
TAF 1250-12.0-1500	1 1/4	1 1/2	1.125	4	12	④	MS 32	T30

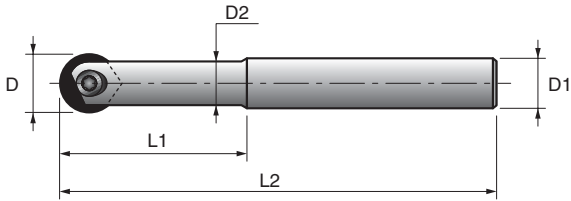
For your shrink fit and long reach requirements please see pages 9,10, 21 & 22 for our carbide shank products.

# LONG REACH SOLID CARBIDE SHANKS



A  TOOLING SYSTEMS CO.

## INCH



Millstar's long solid carbide tool shank cutters provide the user with deep milling solutions for up to ten times diameter in reach. MILLSTAR's Carbide Tool Shanks provide many user benefits:

- **Increased stiffness** – for more aggressive metal removal and long reach, deep milling.
- **Large cutting insert choice** – the variety of available cutting geometry, tool coatings, and insert shapes and sizes assures best milling results at lowest machining cost per part.
- **Minimized deflection** – to machine closer to net shape and tight tolerance.
- **Vibration reducing** – for smoother surface finish, improved tool life, longer spindle life.
- **Minimized cutter run out** – improved milling results in soft to fully hardened (to 65 HRC) materials.
- **Smaller shank to cutter diameter** – several sizes have full-length side clearance to machine straight walls.
- **Safe high speed milling** – highest tool stiffness and least deflection when compared with steel and heavy metal tool shanks result in process reliability and highest safety for operator and machine.
- **Shank diameters (h6)** – all tool shanks are heat shrink-fit tool adapter compatible.



Tool Ordering No.	Size Ø D	Insert Style	Overall Length L2	Neck Length L1	Shank Ø D1 (h6)	Neck D2 inch	Nose Taper	Screw/wrench
CBTAV 0250-6.0-0500*	.250"	⑤	6.125	1.181 taper	.500	.224	6° (3°/side)	MS 06N / T7
CBTAV 0250-6.0-0500 LT*	.250"	⑤	6.125	2.750 taper	.500	.224	6° (3°/side)	MS 06N / T7
CBTAV 0312-6.0-0500*	.312"	⑤	6.125	1.181 taper	.500	.285	6° (3°/side)	MS 08N / T7
CBTA 0375-6.0-0500	.375"	③/④	6.125	1.181 taper	.500	.337	6° (3°/side)	MS 10 / T15
CBSFCY 0500-6.0-0500	.500"	②/③	6.625	1.145	.500	.440	–	MS 12 / T20
CBCYF 0500-6.0-0500	.500"	④	6.625	1.145	.500	.440	–	MS 12 / T20
CBSFCY 0500-6.0-12**	.500"	②/③	6.625	1.145	12mm	.440	–	MS 12 / T20
CBCYF 0500-6.0-12**	.500"	④	6.625	1.145	12mm	.440	–	MS 12 / T20
CBSFCY 0625-6.0-0625	.625"	②/③	6.750	1.325	.625	.550	–	MS 16 / T20
CBCYF 0625-6.0-0625	.625"	④	6.750	1.325	.625	.550	–	MS 16 / T20
CBSFCY 0750-8.0-18 **	.750"	②/③	8.875	1.5	18mm	17.95mm	–	MS 20 / T20
CBCYF 0750-8.0-18 **	.750"	④	8.875	1.5	18mm	17.95mm	–	MS 20 / T20
CBSFCY 0750-8.0-0750	.750"	②/③	8.875	1.512	.750	.675	–	MS 20 / T20
CBCYF 0750-8.0-0750	.750"	④	8.875	1.512	.750	.675	–	MS 20 / T20
CBSFCY 1000-8.0-1000	1.000"	②/③	9.125	1.866	1.00	.882	–	MS 25 / T20
CBCYF 1000-8.0-1000	1.000"	④	9.125	1.866	1.00	.882	–	MS 25 / T20
CBSFCY 1000-8.0-25**	1.000"	②/③	9.125	1.866	25mm	.882	–	MS 25 / T20
CBCYF 1000-8.0-25**	1.000"	④	9.125	1.866	25mm	.882	–	MS 25 / T20

\*-.250" and .312" diameter holders use new insert style ⑤. Part number VRBS and VBD, page 5 & 7.

\*\*-Tools with smaller shank diameter than cutter diameter for full-length side clearance.

Shrink Fit heads are interchangeable between inch and metric. For metric refer to page 22.

### ③ ④ ⑤ Shrink Fit System

Millstar's Shrink System offers versatility, strength and accuracy. The carbide shanks and heads are interchangeable between inch and metric versions. Metric heads fit on inch shanks and inch heads fit on metric shanks. The 12mm and 1/2 inch shanks will accept any head that is the same diameter or smaller (see chart for connectivity). The carbide shank offers strength and

rigidity and the shrink tolerances offer better accuracy than screw on type systems. These tools are designed for high speed machining and hard metal machining and will allow for better tool life as well as better surface finishes.



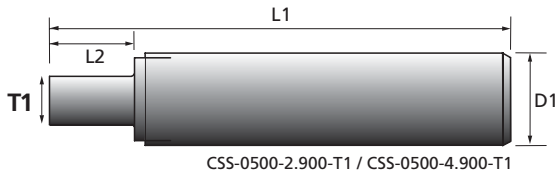
All diameters are available in short and long length versions.

### Shanks for Shrink Fit Heads

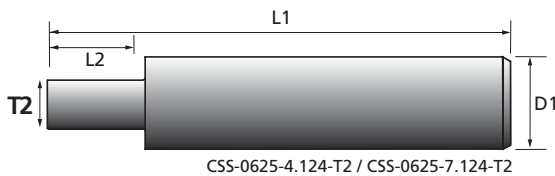
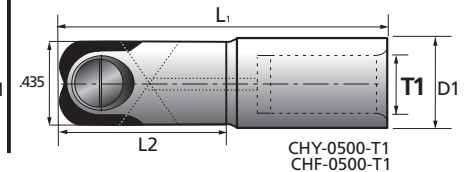
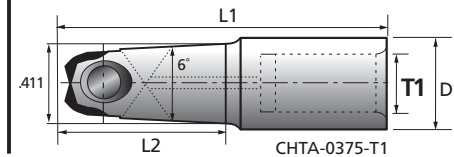
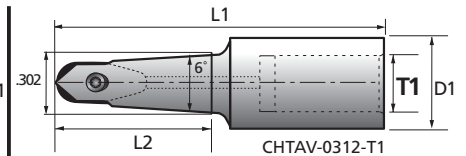
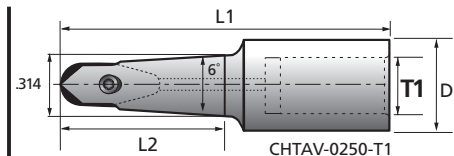
Tool Ordering No.	Shank Ø D1	Length L1	Length L2
CSS-0500-2.9-T1	.5000	2.900	.600
CSS-0500-4.9-T1	.5000	4.900	.600
CSS-0625-4.1-T2	.6250	4.100	.650
CSS-0625-7.1-T2	.6250	7.100	.650
CSS-0750-3.8-T3	.7500	3.800	.700
CSS-0750-6.8-T3	.7500	6.800	.700

### Shrink Fit Heads

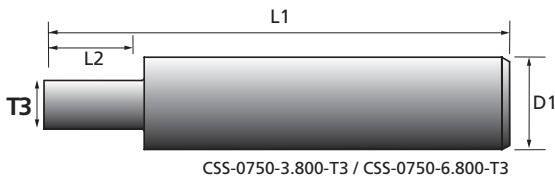
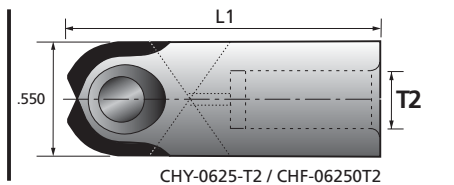
Tool Ordering No.	D1	Length L1	Length L2	Use With Insert Style
CHTAV-0250-T1	.460	1.700	.879	⑤
CHTAV-0312-T1	.460	1.700	.827	⑤
CHTA-0375-T1	.460	1.700	.845	③/④
CHY-0500-T1	.460	1.700	.857	③
CHY-0625-T2	.550	1.500		③
CHY-0750-T3	.675	1.900		③
CHF-0500-T1	.460	1.700	.857	④
CHF-0625-T2	.550	1.500		④
CHF-0750-T3	.675	1.900		④



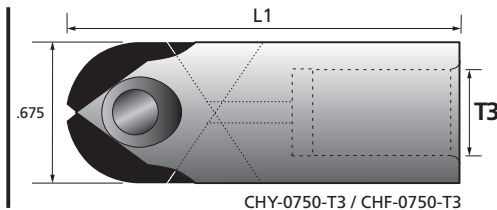
Used with Shrink Fit Heads:  
 CHTAV-0250-T1 CHTAV-0312-T1 CHTA-0375-T1 CHY-0500-T1  
 CHF-0500-T1



Used with Shrink Fit Heads:  
 CHF-0625-T2 CHY-0625-T2



Used with Shrink Fit Heads:  
 CHF-0750-T3 CHY-0750-T3



# TOROID "BUTTON CUTTER" SHANK & ARBOR STYLE FACE MILLS



A *Cole* TOOLING SYSTEMS CO.

## INCH

### High Performance Milling from Heavy Roughing to Fine Finishing.

Millstar face mills are equally useful on newer high velocity machines and older slower equipment and will optimize milling performance of all your machine tools. The hardened tool bodies can be run at aggressive spindle speed and feed rates, when used with Millstar's precision ground, strong and thick, round inserts with proven hard, high performance TLN tool coating.

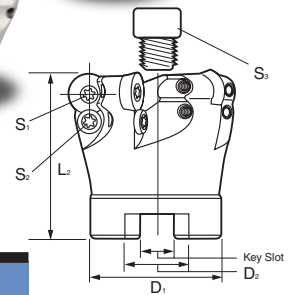
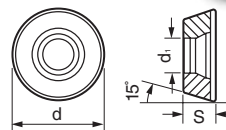
The tools provide for precision finish results, minimal tool deflection and run-out. Excellent milling results can be achieved in roughing, semi finishing and fine finishing in Z-level, profiling or raster cuts, as well as in linear or circular interpolation milling or ramping.

The tools may be used with coolant, but we recommend dry, mist or MQL (minimum quantity lubrication) milling with strong air blast when high speed or hard machining steel, particularly in the higher hardness range (> 45HRC / 425 HBN). Please refer to FAQs (frequently asked questions) about milling on our website [www.millstar.com](http://www.millstar.com).



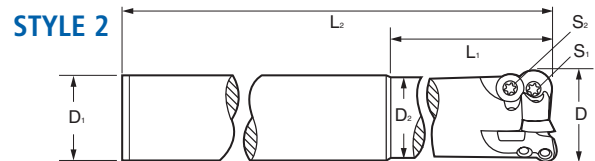
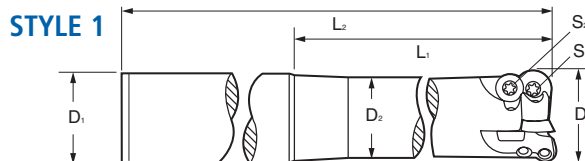
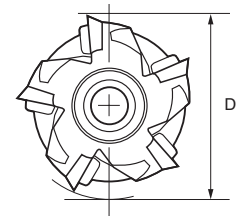
### Insert Style

Tool Ordering No.	Diameter d	Thickness S	Diameter d1	Coating
FMI-1003	.393"/10mm	.125	.153	TLN
FMI-12T3	.472"/12mm	.156	.154	TLN
FMI-1604	.629/16mm	.205	.1875	TLN



### Arbor Style

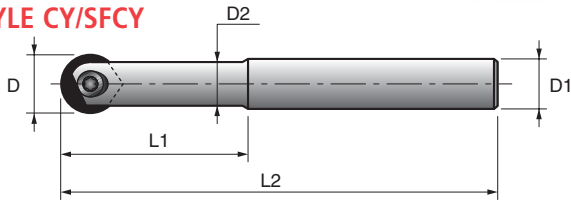
Tool Ordering No.	Cutting Diameter D	Neck Diameter D1	No. of Flutes	Overall Length L2	Insert Required	Insert Screw S1	Face Clamp Screw S2	Mounting Screw S3	Bore Diameter D2	Drive Key
FMA 2000/5	2.0	1.57	5	2.0	FMI-12T3	FMIS-1	FMIS-2	FMIS-4	.75	.312
FMA 2500/5	2.5	1.57	5	2.0	FMI-12T3	FMIS-1	FMIS-2	FMIS-4	1.0	.375
FMA 3000/5	3.0	1.57	5	2.0	FMI-12T3	FMIS-1	FMIS-2	FMIS-4	1.0	.375



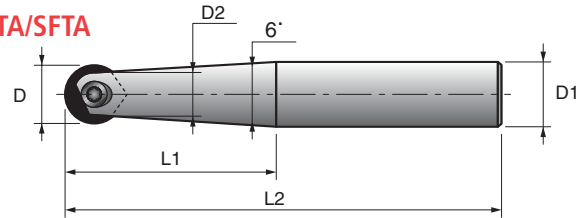
### Shank Style

Tool Ordering No.	Cutting Ø D	Shank Ø D1	Neck Ø D2	No. of Flutes	Neck Length L1	Shank Style	OAL L2	Insert Required	Insert Screw S1	Face Clamp Screw S2
FM-1000/2-6.0-1000	1.00	1.00	.882	2	3.0	1	6.0	FMI-12T3	FMIS-1	FMIS-2
FM-1250/3-6.0-1000	1.25	1.00	.882	3	1.5	2	6.0	FMI-12T3	FMIS-1	FMIS-2
FM-1500/4-6.0-1250	1.50	1.25	1.125	4	1.5	2	6.0	FMI-12T3	FMIS-1	FMIS-2

**STYLE CY/SFCY**



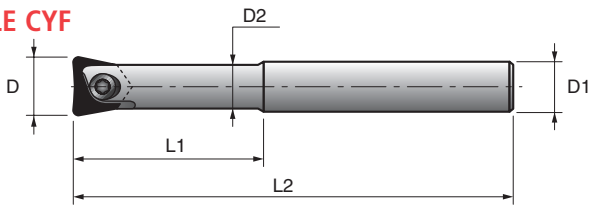
**STYLE TA/SFTA**



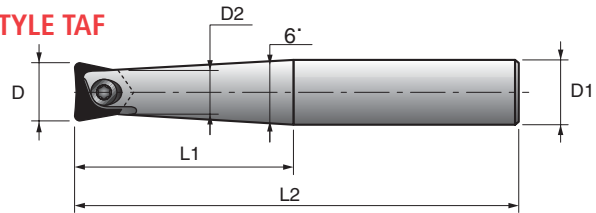
Tool Ordering No.	Size Ø D	Shank Ø D1	Neck Ø D2	Neck Length L1	Total Length L2	Use with Insert Style	Insert Screw	Insert Torx Key
<b>TAV 06-095-12 NEW</b>	<b>6</b>	<b>12</b>	<b>5,7</b>	<b>30</b>	<b>95</b>	⑤	<b>MS 06N</b>	<b>T7</b>
<b>TAV 08-095-12 NEW</b>	<b>8</b>	<b>12</b>	<b>7,5</b>	<b>32</b>	<b>95</b>	⑤	<b>MS 08N</b>	<b>T7</b>
CY 10-100-10	10	10	9	19	100	③/④	MS 10	T15
CY 10-100-12	10	12	9	25	100	③/④	MS 10	T15
TA 10-125-12	10	12	9	35	125	③/④	MS 10	T15
TA 10-150-12	10	12	9	35	150	③/④	MS 10	T15
SFCY 12-125-12	12	12	10,8	36	125	②/③	MS 12	T20
SFCY 12-150-12	12	12	10,8	46	150	②/③	MS 12	T20
SFTA 12-190-16	12	16	10,8	60	190	②/③	MS 12	T20
SFCY 14-125-16	14	16	12,6	36	125	②/③	MS 16	T20
SFCY 16-160-16	16	16	14,4	50	160	②/③	MS 16	T20
SFTA 16-190-20	16	20	14,4	57	190	②/③	MS 16	T20
SFCY 20-150-20	20	20	18	50	150	②/③	MS 20	T20
SFCY 20-190-20	20	20	18	61	190	②/③	MS 20	T20
SFTA 20-200-25	20	25	18	80	200	②/③	MS 20	T20
SFCY 22-200-25	22	25	19,8	50	200	②/③	MS 25	T20
SFCY 25-150-25	25	25	22,5	50	150	②/③	MS 25	T20
SFCY 25-200-25	25	25	22,5	64	200	②/③	MS 25	T20
SFCY 25-250-25	25	25	22,5	64	250	②/③	MS 25	T20
SFTA 25-250-32	25	32	22,5	100	250	②/③	MS 25	T20
SFTA 25-315-32	25	32	22,5	100	315	②/③	MS 25	T20
SFCY 30/32-190-32	30 & 32	32	27,2	57	190	②/③	MS 32	T30
SFCY 30/32-250-32	30 & 32	32	27,2	76	250	②/③	MS 32	T30
SFTA 30/32-250-40	30 & 32	40	27,2	120	250	②/③	MS 32	T30
SFCY 30/32-300-32	30 & 32	32	27,2	57	300	②/③	MS 32	T30
SFTA 30/32-250-42	30 & 32	42	27,2	120	250	②/③	MS 32	T30

For your shrink fit and long reach requirements please see pages 9,10, 21 & 22 for our carbide shank products.

**STYLE CYF**



**STYLE TAF**



Tool Ordering No.	Size Ø D	Shank Ø D1	Neck Ø D2	Neck Length L1	Total Length L2	Use with Insert Style	Insert Screw	Insert Torx Key
<b>TAV 06-095-12 NEW</b>	<b>6</b>	<b>12</b>	<b>5,7</b>	<b>30</b>	<b>95</b>	<b>⑤</b>	<b>MS 06N</b>	<b>T7</b>
<b>TAV 08-095-12 NEW</b>	<b>8</b>	<b>12</b>	<b>7,5</b>	<b>32</b>	<b>95</b>	<b>⑤</b>	<b>MS 08N</b>	<b>T7</b>
CYF 10-100-10	10	10	9	19	100	④	MS 10	T15
CY 10-100-10	10	10	9	19	100	③/④	MS 10	T15
CY 10-100-12	10	12	9	25	100	③/④	MS 10	T15
TA 10-125-12	10	12	9	35	125	③/④	MS 10	T15
TA 10-150-12	10	12	9	35	150	③/④	MS 10	T15
TAF 10-150-12	10	12	9	35	150	④	MS 10	T15
CYF 12-125-12	12	12	10,8	36	125	④	MS 12	T20
CYF 12-150-12	12	12	10,8	46	150	④	MS 12	T20
TAF 12-190-16	12	16	10,8	60	190	④	MS 12	T20
CYF 16-160-16	16	16	14,4	50	160	④	MS 16	T20
TAF 16-190-20	16	20	14,4	57	190	④	MS 16	T20
CYF 20-150-20	20	20	18	50	150	④	MS 20	T20
CYF 20-200-20	20	20	18	61	200	④	MS 20	T20
TAF 20-200-25	20	25	18	80	200	④	MS 20	T20
CYF 25-150-25	25	25	22,5	50	150	④	MS 25	T20
CYF 25-200-25	25	25	22,5	64	200	④	MS 25	T20
TAF 25-250-32	25	32	22,5	100	250	④	MS 25	T20
TAF 25-315-32	25	32	22,5	100	315	④	MS 25	T20
CYF 30/32-190-32	32	32	28,6	57	190	④	MS 32	T30
CYF 30/32-250-32	32	32	28,6	76	250	④	MS 32	T30
TAF 30/32-250-40	32	40	28,6	120	250	④	MS 32	T30

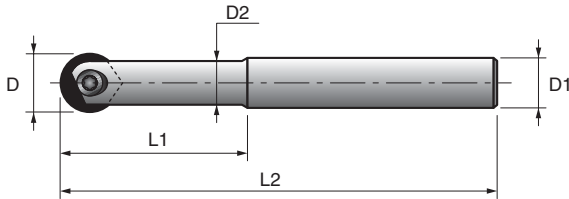
For your shrink fit and long reach requirements please see pages 9, 10, 21 & 22 for our carbide shank products.

# LONG REACH SOLID CARBIDE SHANKS



## METRIC

A  TOOLING SYSTEMS CO.



Millstar's long solid carbide tool shank cutters provide the user with deep milling solutions for up to ten times diameter in reach. MILLSTAR's Carbide Tool Shanks provide many user benefits:

- **Increased stiffness** – for more aggressive metal removal and long reach, deep milling.
- **Large cutting insert choice** – the variety of available cutting geometry, tool coatings, and insert shapes and sizes assures best milling results at lowest machining cost per part.
- **Minimized deflection** – to machine closer to net shape and tight tolerance.
- **Vibration reducing** – for smoother surface finish, improved tool life, longer spindle life.
- **Minimized cutter run out** – improved milling results in soft to fully hardened (to 65 HRC) materials.
- **Smaller shank to cutter diameter** – several sizes have full-length side clearance to machine straight walls.
- **Safe high speed milling** – highest tool stiffness and least deflection when compared with steel and heavy metal tool shanks result in process reliability and highest safety for operator and machine.
- **Shank diameters (h6)** – all tool shanks are heat shrink-fit tool adapter compatible.



Tool Ordering No.	Size Ø D	Insert Style	Overall Length L2	Neck Length L1/taper	Shank Ø D1 (h6)	Neck D2 mm	Nose Taper	Screw/wrench
CBTAV 06-75-12*	6	⑤	75	35 / 1.5°	12	5,7	3° (1.5°/side)	MS 06N / T7
CBTAV 06-150-12*	6	⑤	155	30 / 6°	12	5,7	6° (3°/side)	MS 06N / T7
CBTAV 06-150-12 LT*	6	⑤	155	70 / 6°	12	5,7	6° (3°/side)	MS 06N / T7
CBCYV 06-115-12***	6	⑤	115	30 cyl. + 45 / 1.5°	12	5,7	2° (1°/side)	MS 06N / T7
CBTAV 08-80-12*	8	⑤	80	40 / 1.5°	12	7,5	3° (1.5°/side)	MS 08N / T7
CBTAV 08-150-12*	8	⑤	155	30 / 6°	12	7,5	6° (3°/side)	MS 08N / T7
CBCYV 08-100-12***	8	⑤	100	30 cyl. + 30 / 1.5°	12	7,5	2° (1°/side)	MS 08N / T7
CBCY 10-150-10	10	③/④	150	32	10	9,0	–	MS 10 / T15
CBTA 10-150-12	10	③/④	165	30 / 6°	12	9,0	6° (3°/side)	MS 10 / T15
CBSFCY 12-150-12	12	②/③	165	52	12	10,8	–	MS 12 / T20
CBCYF 12-150-12	12	④	165	52	12	10,8	–	MS 12 / T20
CBSFCY 0500-6.0-12**	12,7 (0.5")	②/③	165	29	12	11,2	–	MS 12 / T20
CBCYF 0500-6.0-12**	12,7 (0.5")	④	165	29	12	11,2	–	MS 12 / T20
CBSFCY 16-150-16	16	②/③	170	52	16	14,4	–	MS 16 / T20
CBCYF 16-150-16	16	④	170	52	16	14,4	–	MS 16 / T20
CBSFCY 0750-8.0-18**	19,05/(0.750")	②/③	225	38	18	17,95	–	MS 20 / T20
CBCYF 0750-8.0-18**	19,05/(0.750")	④	225	38	18	17,95	–	MS 20 / T20
CBSFCY 20-200-20	20	②/③	225	77	20	18,0	–	MS 20 / T20
CBCYF 20-200-20	20	④	225	77	20	18,0	–	MS 20 / T20
CBSFCY 25-200-25	25	②/③	230	93	25	22,5	–	MS 25 / T20
CBCYF 25-200-25	25	④	230	93	25	22,5	–	MS 25 / T20
CBSFCY 1000-8.0-25**	25,4 (1.0")	②/③	230	47	25	22,5	–	MS 25 / T20
CBCYF 1000-8.0-25**	25,4 (1.0")	④	230	47	25	22,5	–	MS 25 / T20
CBSFCY 30-190-32	30 & 32	②/③	200	57	32	27,2	–	MS 32 / T30

\*- 6mm and 8mm diameter holders use new insert style ⑤. Part number VRBS and VBD.

\*\*-Tools with smaller shank diameter than cutter diameter for full-length side clearance.

\*\*\*-Due to the delicate, slender design and the potential for misapplication of this tool, Millstar does not warrant this tool for breakage.

Shrink Fit heads are interchangeable between inch and metric. For inch refer to page 10.



### ③ ④ ⑤ Shrink Fit System

Millstar's Shrink System offers versatility, strength and accuracy. The carbide shanks and heads are interchangeable between inch and metric versions. Metric heads fit on inch shanks and inch heads fit on metric shanks. The 12mm and 1/2 inch shanks will accept any head that is the same diameter or smaller (see chart for connectivity). The carbide shank offers strength and

rigidity and the shrink tolerances offer better accuracy than screw on type systems. These tools are designed for high speed machining and hard metal machining and will allow for better tool life as well as better surface finishes.

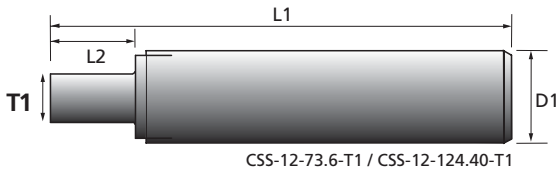
All diameters are available in short and long length versions.

### Shanks for Shrink Fit Heads

Tool Ordering No.	Shank Ø D1	Length L1	Length L2
CSS-12-73.6-T1	12	73,6	15,24
CSS-12-124.4-T1	12	124,4	15,24
CSS-16-104.8-T2	16	104,8	16,51
CSS-16-180.9-T2	16	180,8	16,51
CSS-20-96.5-T3	20	96,5	17,78
CSS-20-172.7-T3	20	172,7	17,78

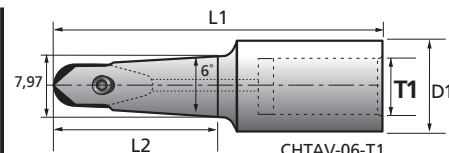
### Shrink Fit Heads

Tool Ordering No.	D1	Length L1	Length L2	Use With Insert Style
CHTAV-06-T1	11,7	43,2	22,3	⑤
CHTAV-08-T1	11,7	43,2	20,9	⑤
CHTA-10-T1	11,7	43,2	21,5	③/④
CHY-12-T1	11,7	43,2	21,5	③
CHY-16-T2	14,0	38,2		③
CHY-20-T3	17,1	48,3		③
CHF-12-T1	11,7	43,2	21,5	④
CHF-16-T2	14,0	38,2		④
CHF-20-T3	17,1	48,3		④

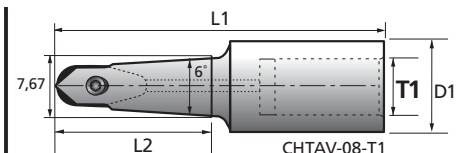


CSS-12-73.6-T1 / CSS-12-124.40-T1

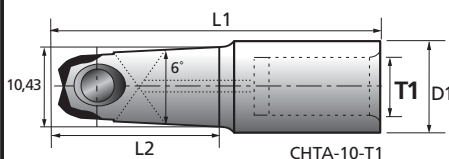
Used with Shrink Fit Heads:  
 CHTAV-06-T1 CHTAV-08-T1 CHTA-10-T1 CHTAFV-06-T1  
 CHY-12-T1 CHF-12-T1  
 CHTAFV-08-T1 CHTAF-10-T1



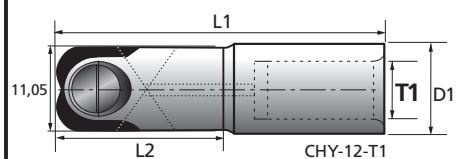
CHTAV-06-T1



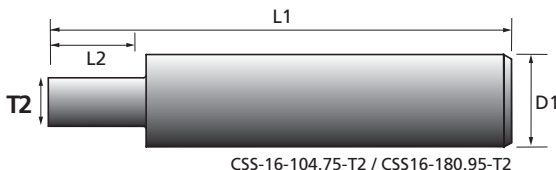
CHTAV-08-T1



CHTA-10-T1

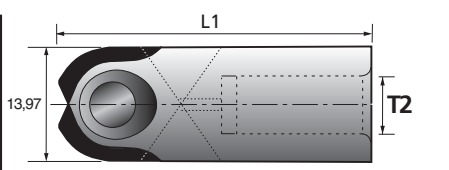


CHY-12-T1  
CHF-12-T1

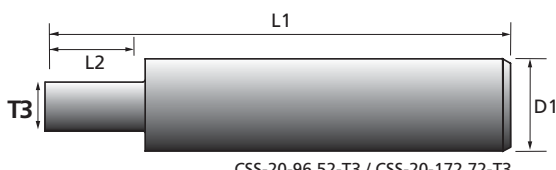


CSS-16-104.75-T2 / CSS16-180.95-T2

Used with Shrink Fit Heads:  
 CHF-16-T2 CHY-16-T2

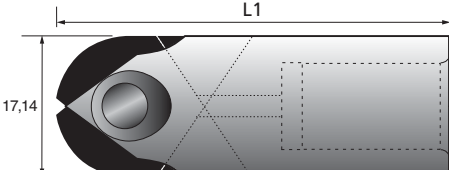


CHY-16-T2 / CHF-16-T2



CSS-20-96.52-T3 / CSS-20-172.72-T3

Used with Shrink Fit Heads:  
 CHF-20-T3 CHY-20-T3



CHY-20-T3 / CHF-20-T3

# TOROID "BUTTON CUTTER" SHANK & ARBOR STYLE FACE MILLS



A *Cole* TOOLING SYSTEMS CO.

## METRIC

### High Performance Milling from Heavy Roughing to Fine Finishing.

Millstar face mills are equally useful on newer high velocity machines and older slower equipment and will optimize milling performance of all your machine tools. The hardened tool bodies can be run at aggressive spindle speed and feed rates, when used with Millstar's precision ground, strong and thick, round inserts with proven hard, high performance TLN tool coating.

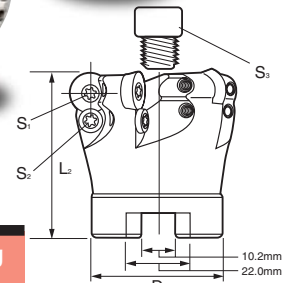
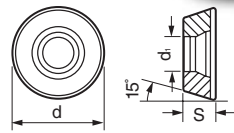
The tools provide for precision finish results, minimal tool deflection and run-out. Excellent milling results can be achieved in roughing, semi finishing and fine finishing in Z-level, profiling or raster cuts, as well as in linear or circular interpolation milling or ramping.

The tools may be used with coolant, but we recommend dry, mist or MQL (minimum quantity lubrication) milling with strong air blast when high speed or hard machining steel, particularly in the higher hardness range (> 45HRC / 425 HBN). Please refer to FAQs (frequently asked questions) about milling on our website [www.millstar.com](http://www.millstar.com).



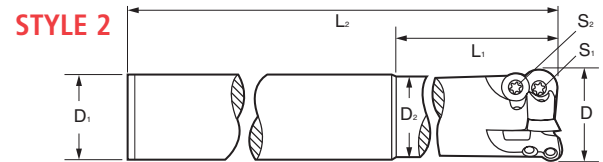
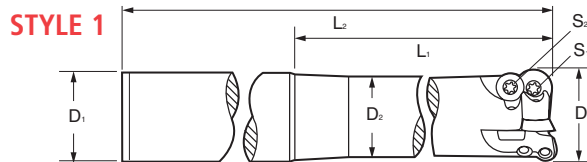
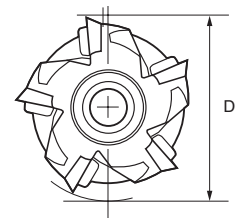
### Insert Style

Tool Ordering No.	Diameter d	Thickness S	Diameter d1	Coating
FMI-1003	10mm	3,18mm	3,88mm	TLN
FMI-12T3	12mm	3,97mm	3,9mm	TLN
FMI-1604	16mm	4,77mm	5,2mm	TLN



### Arbor Style

Tool Ordering No.	Cutting Diameter D	Neck Diameter D1	No. of Flutes	Overall Length L2	Insert Required	Insert Screw S1	Face Clamp Screw S2	Mounting Screw S3
FMA 50/5	50mm	40mm	5	50mm	FMI-12T3	FMIS-1	FMIS-2	FMIS-3
FMA 52/5	52mm	40mm	5	50mm	FMI-12T3	FMIS-1	FMIS-2	FMIS-3
FMA 63/5	63mm	40mm	5	50mm	FMI-12T3	FMIS-1	FMIS-2	FMIS-3
FMA 52/4-16	52mm	40mm	4	50mm	FMI-1604	FMIS-1	FMIS-2	FMIS-3
FMA 63/5-16	63mm	40mm	5	50mm	FMI-1604	FMIS-1	FMIS-2	FMIS-3



### Shank Style

Tool Ordering No.	Cutting Ø D	Shank Ø D1	Neck Ø D2	No. of Flutes	Neck Length L1	Shank Style	OAL L2	Insert Required	Insert Screw S1	Face Clamp Screw S2
FM 25/2-180-25	25mm	25mm	23mm	2	100mm	1	180mm	FMI-12T3	FMIS-1	FMIS-2
FM 32/3-180-25	32mm	25mm	24mm	3	42mm	2	180mm	FMI-12T3	FMIS-1	FMIS-2
FM 32/3-180-32	32mm	32mm	29mm	3	100mm	1	180mm	FMI-12T3	FMIS-1	FMIS-2
FM 40/4-180-32	40mm	32mm	31mm	4	42mm	2	180mm	FMI-12T3	FMIS-1	FMIS-2
FM 42/4-180-32	42mm	32mm	31mm	4	42mm	2	180mm	FMI-12T3	FMIS-1	FMIS-2
FM 32/2-180-32-16	32mm	32mm	31mm	2	42mm	2	180mm	FMI-1604	FMIS-1	FMIS-2
FM 40/3-180-32-16	40mm	32mm	31mm	3	42mm	2	180mm	FMI-1604	FMIS-1	FMIS-2