

U S A S T A N D A R D

INDEXABLE (Throw-Away) Insert Holders

USAS B94.26 - 1969

(Partial Revision of B80.1-1959)

Sponsor

The American Society of Mechanical Engineers

Published by

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

United Engineering Center

345 East 47th Street

New York, N. Y. 10017

USA STANDARD

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FOREWORD

The material contained in this Standard was developed by Technical Committee 1, Carbide and Oxide Tools of USA Standards Committee B94, Cutting Tools, Holders, Drivers, and Bushings, after a thorough investigation of all factors involved. It is based on sound Engineering practice and reflects the requirements of the industry.

The Standard was submitted to USA Standards Committee B94, Cutting Tools, Holders, Drivers and Bushings on December 28, 1968 and was approved by letter ballot on March 25, 1969. The sponsor, The American Society of Mechanical Engineers approved the Standard on July 25, 1969. The Standard was approved by USA Standards Institute on September 10, 1969 and designated USAS B94.26-1969.

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A. W. Wherry, Cemented Carbide Producers Ass'n, 2130 Keith Building, Cleveland, Ohio 44115

CONTENTS

	Page
1. Scope	1
2. Definitions	1
3. General	1

TABLES

Clamp Type Holders for Inserts for Negative Rake Holders

No.

1. Round, Style G	3
2. Triangle, Style A	4
3. Triangle, Style B	5
4. Triangle, Style D	6
5. Triangle, Style E	7
6. Triangle, Style F	8
7. Triangle, Style G	9
8. Square, Style B	10
9. Square, Style S	11
10. Square, Style D	12
11. Square, Style K	13
12. Triangle, Style A	14
13. Triangle, Style B	15
14. Triangle, Style E	16
15. Triangle, Style F	17
16. Triangle, Style G	18
17. Square, Style B	19
18. Square, Style A	20
19. Square, Style A	21

TABLES (Cont'd)

Pin Type Holders for Inserts for Negative Rake Holders

20. Round, Style A	22
21. Triangle, Style A	23
22. Triangle, Style B	24
23. Triangle, Style E	25
24. Triangle, Style F	26
25. Triangle, Style G	27
26. Triangle, Style D	28
27. Square, Style B	29
28. Square, Style D	30
29. Square, Style K	31
30. 80° Diamond, Style G	32
31. 80° Diamond, Style L	33
32. Triangle, Style F	34
33. 80° Diamond, Style M	35
34. 80° Diamond, Style B	36
35. 80° Diamond, Style B	37
36. 55° Diamond, Style J	38
37. 55° Diamond, Style N	39
38. 55° Diamond, Style P	40
39. 55° Diamond, Style H	41
40. 55° Diamond, Style J	42

USA STANDARD

INDEXABLE (THROW-AWAY) INSERT HOLDERS

1. Scope

This standard covers dimensional specifications, styles and designations of holders for indexable (throw-away) inserts.

2. Definitions

2.1 Insert

A carbide solid which is mechanically held for use as a cutting tool.

2.2 Indexable (Throw-Away) Insert

An insert with a number of cutting surfaces, all of which are used until dull and the insert is discarded.

2.3 Holder

A tool holder with the cutting insert mechanically held in place.

2.4 Position Accuracy

The location of the cutting edge from the locating surfaces of the holder.

3. General

3.1 Standard styles, sizes and designations of the holders are given in Tables

3.2 Identification System of Holders

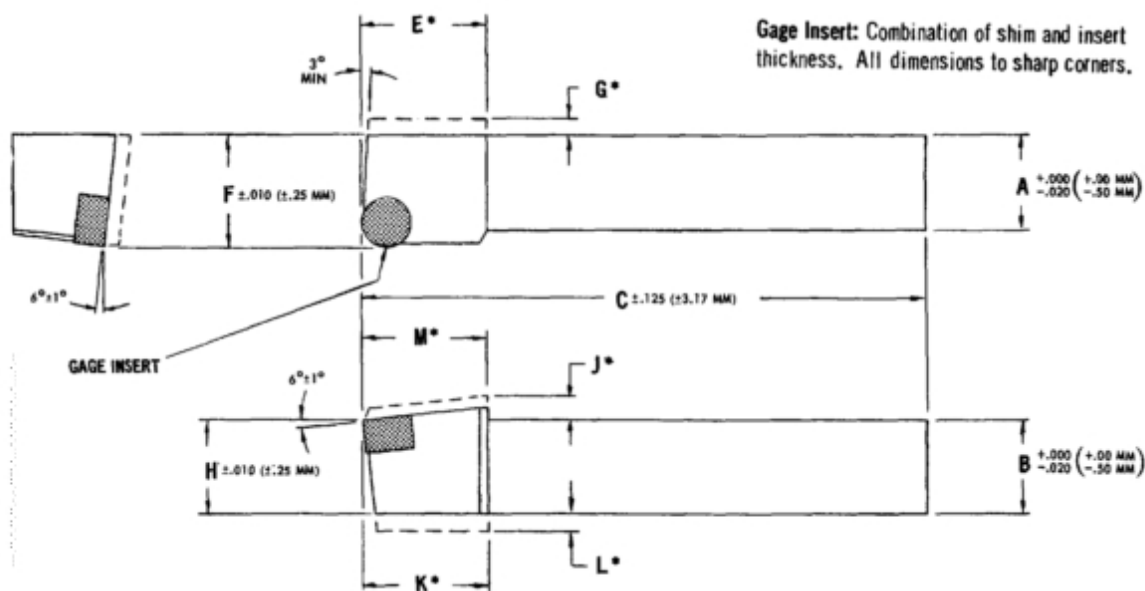
The identification system of the holder consists of 8 positions. Each position defines a characteristic of the holder in the following order on Page

Examples of the identification system are:

CCLNL-86-4U Mechanically clamped holder, Diamond Insert 80° , -5° SCEA, Negative Rake, Left Hand, $1 \times 1\frac{1}{2}$ " Shank Cross Section, $\frac{1}{2}$ IC Insert, Position Accuracy-U.

PCLNR-86-4U Lock pin holder, Diamond 80° , -5° SCEA, Negative Rake, Right Hand, $1 \times 1\frac{1}{2}$ " Shank Cross Section, $\frac{1}{2}$ IC Insert, Position Accuracy-N.

FIRST POSITION	SECOND POSITION	THIRD POSITION	FOURTH POSITION	FIFTH POSITION	SIXTH POSITION	SEVENTH POSITION	EIGHTH POSITION
Method of Holding Horizontally Mounted Insert	Insert Shape	Holder Style	Rake Angle	Hand of Tool	Holder Size	Insert Size I.C.	Position Accuracy
<p>P-With Locking Pin (Insert with Hole in Center)</p> <p>C-Clamp (Normally Top Clamping)</p>	<p>V-Diamond 35°</p> <p>C-Diamond 80°</p> <p>D-Diamond 55°</p> <p>T-Triangle</p> <p>S-Square</p> <p>R-Round</p>	<p>A-Straight Shank With 0° Side Cutting Edge Angle</p> <p>B-Straight Shank With 15° Side Cutting Edge Angle</p> <p>D-Straight Shank With 45° Side Cutting Edge Angle</p> <p>E-Straight Shank With 30° Side Cutting Edge Angle</p> <p>F-Offset Shank With 0° End Cutting Edge Angle</p> <p>G-Offset Shank With 0° Side Cutting Edge Angle</p> <p>H-Straight Shank With 38° Side Cutting Edge Angle</p> <p>J-Offset Shank With Neg. 3° Side Cutting Edge Angle</p> <p>K-Offset Shank With 15° End Cutting Edge Angle</p> <p>L-Offset Shank With Neg. 5° Side Cutting Edge Angle</p> <p>M-Straight Shank With 40° Side Cutting Edge Angle</p> <p>N-Straight Shank With 27° Side Cutting Edge Angle</p> <p>P-Straight Shank With 27 1/2° Side Cutting Edge Angle</p> <p>S-Offset Shank With 45° Side Cutting Edge Angle</p>	<p>P-Positive Rake</p> <p>N-Negative Rake</p>	<p>R-Right Hand</p> <p>L-Left Hand</p> <p>E-Either Hand</p>	<p>The sixth position shall be a significant two digit number which indicates the holder cross section. For shanks 5/8 square and over the number will represent the number of sixteenths of width and height. For shanks under 5/8 square the number of sixteenths of cross section will be preceded by a zero. For rectangular holders the first digit represents the number of eighths of width and the second digit the number of quarters of height, except the following tool holder.</p> <p>1 1/4 x 1 1/2" which is given the number 91.</p>	<p>Number of 1/8th of I.C.</p>	<p>The tolerance of the position accuracy of the gage insert cutting edge as determined by the width (f), length (c) and height (h) of the holder. The tolerances listed below are for the accumulative tolerance of the tool holder with the gage insert.</p> <p>Code Letter: U</p> <p>Tolerance:</p> <p>Width ±0.010 (f)</p> <p>Length ±0.010 (c)</p> <p>Height ±0.010 (h)</p>

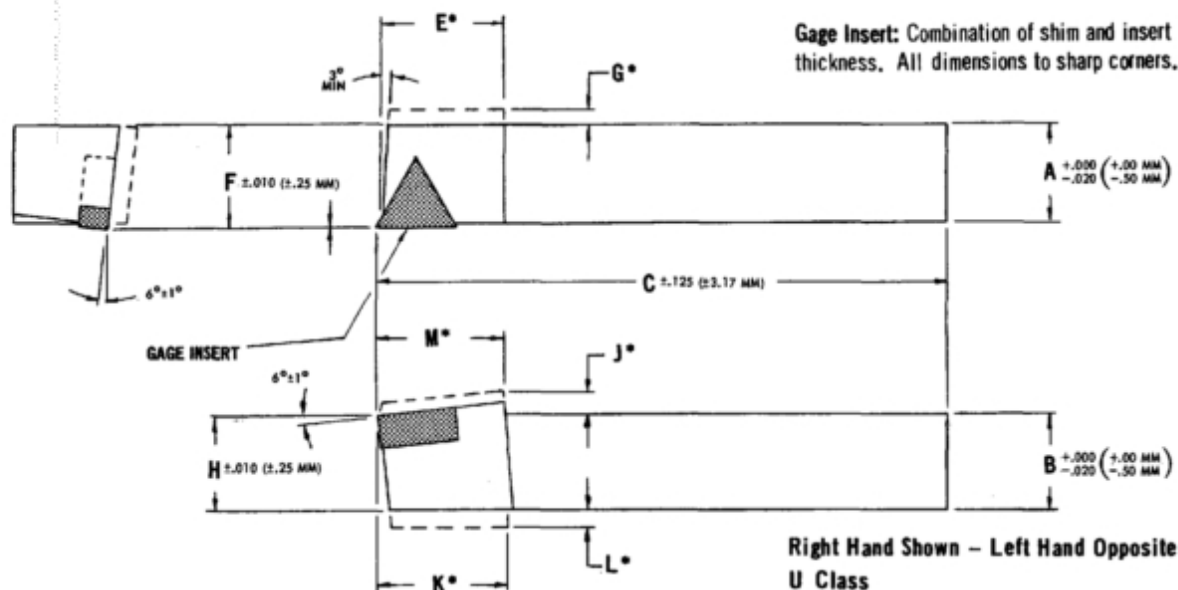


Right Hand Shown – Left Hand Opposite
U Class

* In cases where specific applications require detailed dimensions they can be obtained from the supplier.
Clamping method and clearance angles to be manufacturer's practice.

Table 1. Clamp Type Holder For Round Insert, Style G for Negative Rake Holders

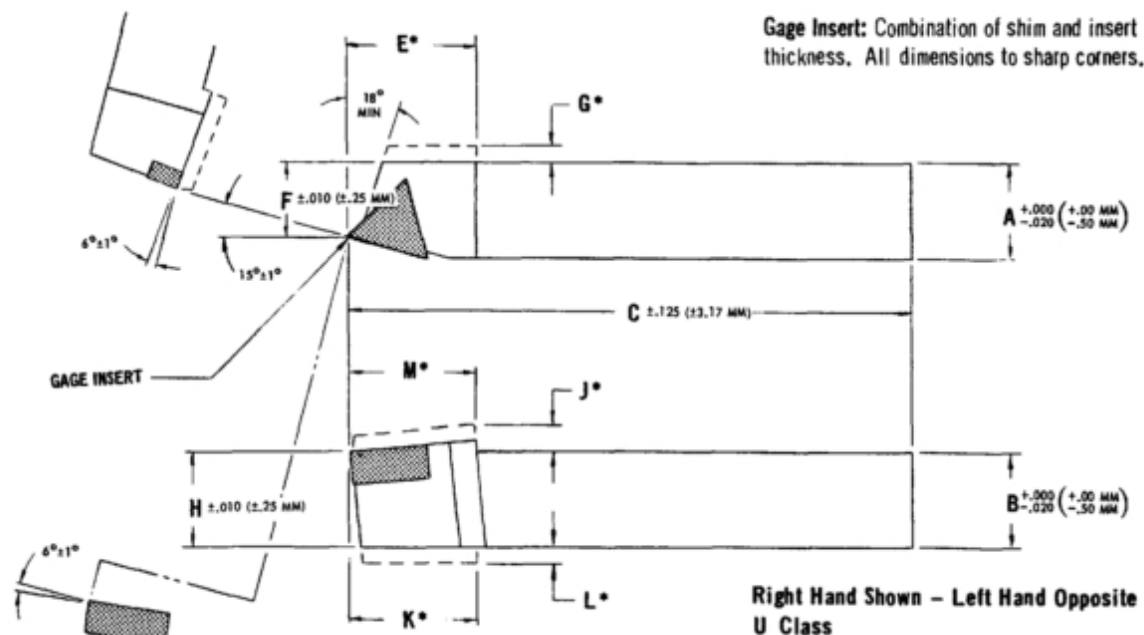
HOLDER DESIGNATION	HOLDER DIMENSIONS										GAGE INSERT	
	A		B		C		F		H			
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
CRGNR-10-3U CRGNL-10-3U	0.625	15.87	0.625	15.87	4.500	114.30	0.750	19.05	0.625	15.87	0.375	9.52
CRGNR-12-3U CRGNL-12-3U	0.750	19.05	0.750	19.05	4.500	114.30	0.875	22.25	0.750	19.05	0.375	9.52
CRGNR-64-3U CRGNL-64-3U	0.750	19.05	1.000	25.40	6.000	152.40	0.875	22.25	1.000	25.40	0.375	9.52
CRGNR-65-3U CRGNL-65-3U	0.750	19.05	1.250	31.75	6.000	152.40	0.875	22.25	1.250	31.75	0.375	9.52
CRGNR-16-3U CRGNL-16-3U	1.000	25.40	1.000	25.40	6.000	152.40	1.125	28.57	1.000	25.40	0.375	9.52
CRGNR-16-4U CRGNL-16-4U	1.000	25.40	1.000	25.40	6.000	152.40	1.125	28.57	1.000	25.40	0.500	12.70
CRGNR-85-4U CRGNL-85-4U	1.000	25.40	1.250	31.75	6.000	152.40	1.125	28.57	1.250	31.75	0.500	12.70
CRGNR-86-4U CRGNL-86-4U	1.000	25.40	1.500	38.10	8.000	203.20	1.125	28.57	1.500	38.10	0.500	12.70



* In cases where specific applications require detailed dimensions they can be obtained from the supplier.
Clamping method and clearance angles to be manufacturer's practice.

Table 2. Clamp Type Holder For Triangle Insert, Style A for Negative Rake Holders

HOLDER DESIGNATION	HOLDER DIMENSIONS										GAGE INSERT	
	A		B		C		F		H			
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
CTANR-08-2U CTANL-08-2U	0.500	12.70	0.500	12.70	4.500	114.30	0.516	13.01	0.500	12.70	0.250	6.35
CTANR-10-2U CTANL-10-2U	0.625	15.87	0.625	15.87	4.500	114.30	0.641	16.28	0.625	15.87	0.250	6.35
CTANR-55-2U CTANL-55-2U	0.625	15.87	1.250	31.75	6.000	152.40	0.641	16.28	1.250	31.75	0.250	6.35
CTANR-12-2U CTANL-12-2U	0.750	19.05	0.750	19.05	4.500	114.30	0.766	19.45	0.750	19.05	0.250	6.35
CTANR-12-3U CTANL-12-3U	0.750	19.05	0.750	19.05	4.500	114.30	0.766	19.45	0.750	19.05	0.375	9.52
CTANR-64-3U CTANL-64-3U	0.750	19.05	1.000	25.40	6.000	152.40	0.766	19.45	1.000	25.40	0.375	9.52
CTANR-65-3U CTANL-65-3U	0.750	19.05	1.250	31.75	6.000	152.40	0.766	19.45	1.250	31.75	0.375	9.52
CTANR-16-3U CTANL-16-3U	1.000	25.40	1.000	25.40	6.000	152.40	1.016	25.80	1.000	25.40	0.375	9.52
CTANR-85-3U CTANL-85-3U	1.000	25.40	1.250	31.75	6.000	152.40	1.016	25.80	1.250	31.75	0.375	9.52
CTANR-16-4U CTANL-16-4U	1.000	25.40	1.000	25.40	6.000	152.40	1.016	25.80	1.000	25.40	0.500	12.70
CTANR-85-4U CTANL-85-4U	1.000	25.40	1.250	31.75	6.000	152.40	1.016	25.80	1.250	31.75	0.500	12.70
CTANR-86-4U CTANL-86-4U	1.000	25.40	1.500	38.10	8.000	203.20	1.016	25.80	1.500	38.10	0.500	12.70
CTANR-20-4U CTANL-20-4U	1.250	31.75	1.250	31.75	7.000	177.80	1.266	32.15	1.250	31.75	0.500	12.70
CTANR-20-5U CTANL-20-5U	1.250	31.75	1.250	31.75	7.000	177.80	1.266	32.15	1.250	31.75	0.625	15.87
CTANR-24-5U CTANL-24-5U	1.500	38.10	1.500	38.10	8.000	203.20	1.516	38.50	1.500	38.10	0.625	15.87

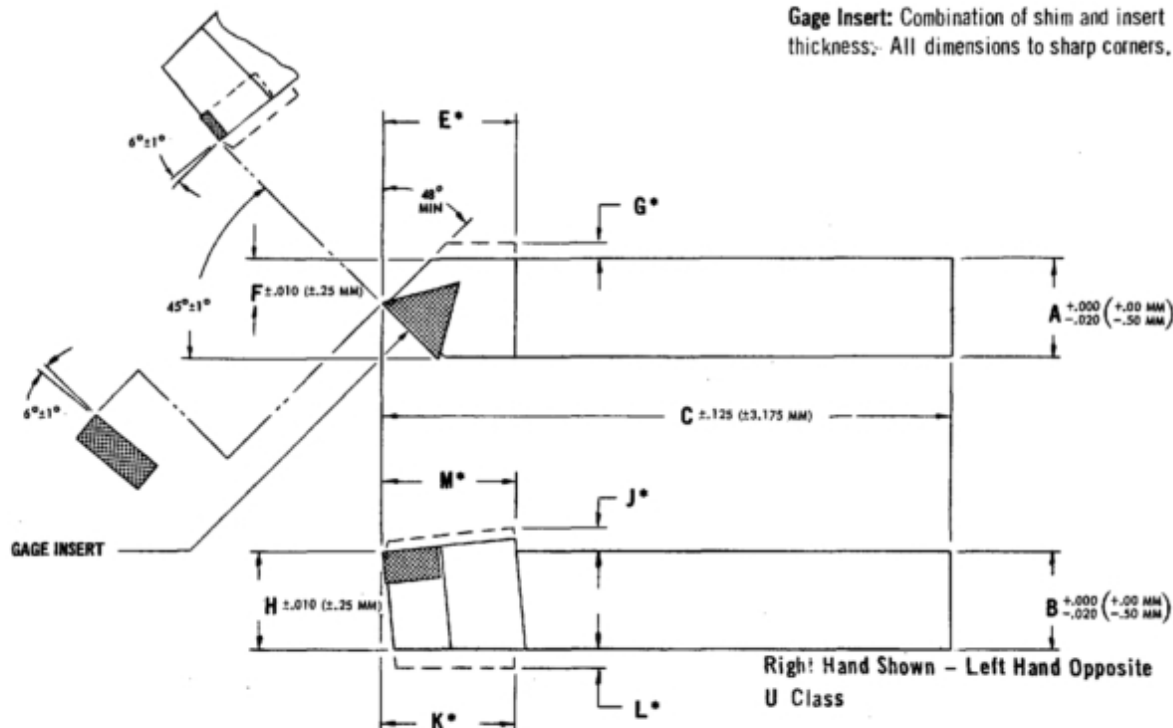


* In cases where specific applications require detailed dimensions they can be obtained from the supplier.
Clamping method and clearance angles to be manufacturer's practice.

Table 3. Clamp Type Holder For Triangle Insert, Style B for Negative Rake Holders

HOLDER DESIGNATION	HOLDER DIMENSIONS										GAGE INSERT	
	A		B		C		F		H			
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
CTBNR-08-2U CTBNL-08-2U	0.500	12.70	0.500	12.70	4.500	114.30	0.359	9.11	0.500	12.70	0.250	6.35
CTBNR-10-2U CTBNL-10-2U	0.625	15.87	0.625	15.87	4.500	114.30	0.484	12.29	0.625	15.87	0.250	6.35
CTBNR-10-3U CTBNL-10-3U	0.625	15.87	0.625	15.87	4.500	114.30	0.468	11.88	0.625	15.87	0.375	9.52
CTBNR-12-3U CTBNL-12-3U	0.750	19.05	0.750	19.05	4.500	114.30	0.593	15.06	0.750	19.05	0.375	9.52
CTBNR-64-3U CTBNL-64-3U	0.750	19.05	1.000	25.40	6.000	152.40	0.593	15.06	1.000	25.40	0.375	9.52
CTBNR-65-3U CTBNL-65-3U	0.750	19.05	1.250	31.75	6.000	152.40	0.593	15.06	1.250	31.75	0.375	9.52
CTBNR-16-3U CTBNL-16-3U	1.000	25.40	1.000	25.40	6.000	152.40	0.812	20.62	1.000	25.40	0.375	9.52
CTBNR-85-3U CTBNL-85-3U	1.000	25.40	1.250	31.75	6.000	152.40	0.812	20.62	1.250	31.75	0.375	9.52
CTBNR-85-4U CTBNL-85-4U	1.000	25.40	1.250	31.75	6.000	152.40	0.781	19.83	1.250	31.75	0.500	12.70
CTBNR-86-4U CTBNL-86-4U	1.000	25.40	1.500	38.10	8.000	203.20	0.781	19.83	1.500	38.10	0.500	12.70
CTBNR-20-4U CTBNL-20-4U	1.250	31.75	1.250	31.75	7.000	177.80	1.031	26.18	1.250	31.75	0.500	12.70
CTBNR-20-5U CTBNL-20-5U	1.250	31.75	1.250	31.75	7.000	177.80	1.000	25.40	1.250	31.75	0.625	15.87
CTBNR-24-5U CTBNL-24-5U	1.500	38.10	1.500	38.10	8.000	203.20	1.250	31.75	1.500	38.10	0.625	15.87

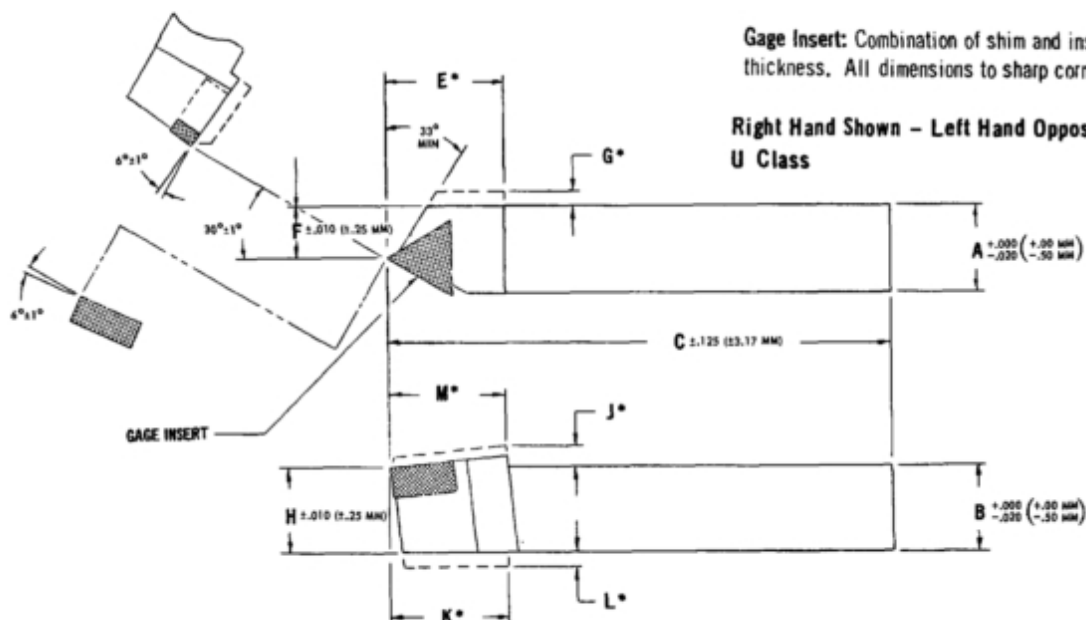
Gage Insert: Combination of shim and insert thickness. All dimensions to sharp corners.



* In cases where specific applications require detailed dimensions they can be obtained from the supplier.
Clamping method and clearance angles to be manufacturer's practice.

Table 4. Clamp Type Holder For Triangle Insert, Style D for Negative Rake Holders

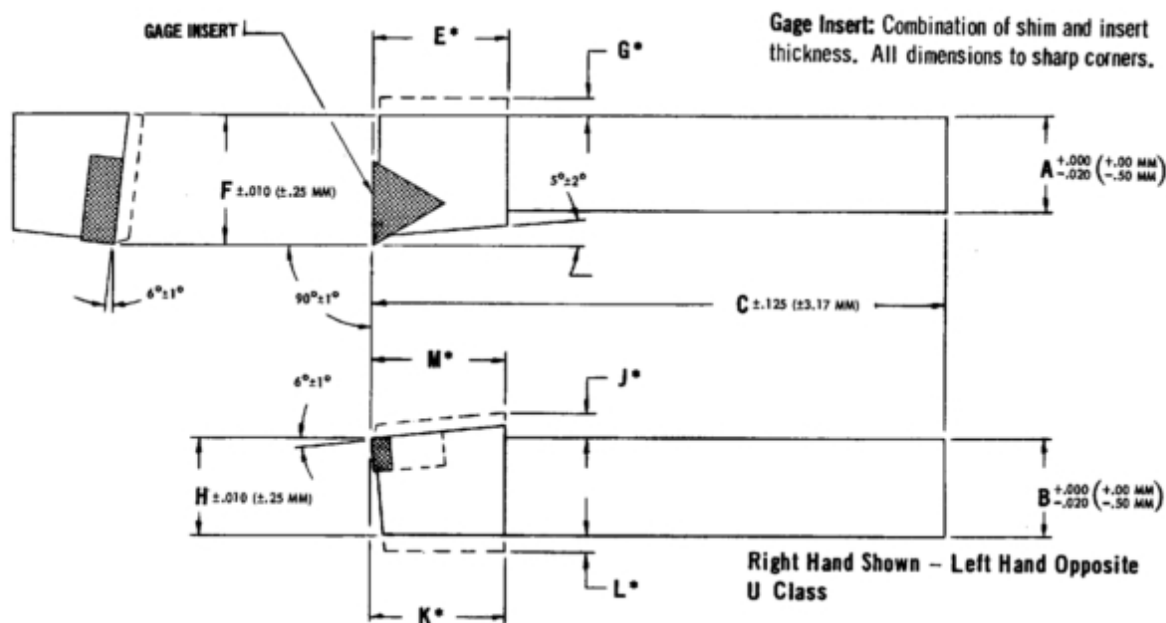
HOLDER DESIGNATION	HOLDER DIMENSIONS										GAGE INSERT	
	A		B		C		F		H			
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
CTDNR-12-3U CTDNL-12-3U	0.750	19.05	0.750	19.05	4.500	114.30	0.296	7.51	0.750	19.05	0.375	9.52
CTDNR-64-3U CTDNL-64-3U	0.750	19.05	1.000	25.40	6.000	152.40	0.296	7.51	1.000	25.40	0.375	9.52
CTDNR-16-3U CTDNL-16-3U	1.000	25.40	1.000	25.40	6.000	152.40	0.609	15.46	1.000	25.40	0.375	9.52
CTDNR-85-3U CTDNL-85-3U	1.000	25.40	1.250	31.75	6.000	152.40	0.609	15.46	1.250	31.75	0.375	9.52
CTDNR-85-4U CTDNL-85-4U	1.000	25.40	1.250	31.75	6.000	152.40	0.640	16.25	1.250	31.75	0.500	12.70
CTDNR-86-4U CTDNL-86-4U	1.000	25.40	1.500	38.10	7.000	177.80	0.640	16.25	1.500	38.10	0.500	12.70



* In cases where specific applications require detailed dimensions they can be obtained from the supplier.
Clamping method and clearance angles to be manufacturer's practice.

Table 5. Clamp Type Holder For Triangle Insert, Style E for Negative Rake Holders

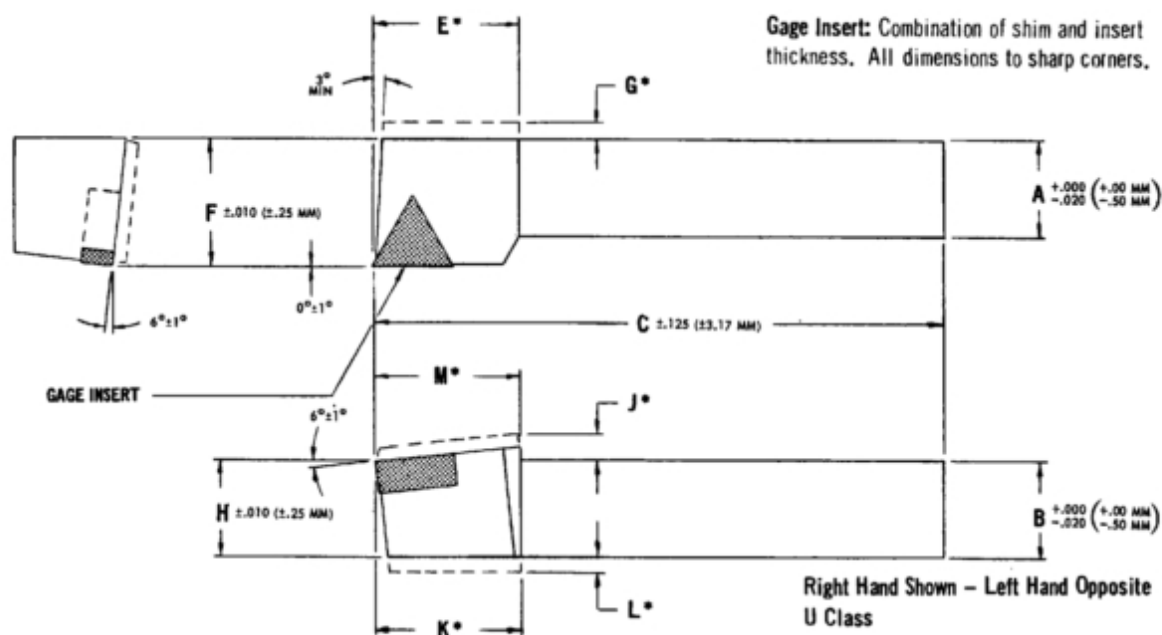
HOLDER DESIGNATION	HOLDER DIMENSIONS										GAGE INSERT	
	A		B		C		F		H			
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
CTENR-08-2U CTENL-08-2U	0.500	12.70	0.500	12.70	4.500	114.30	0.437	11.09	0.500	12.70	0.250	6.35
CTENR-10-2U CTENL-10-2U	0.625	15.87	0.625	15.87	4.500	114.30	0.437	11.09	0.625	15.87	0.250	6.35
CTENR-10-3U CTENL-10-3U	0.625	15.87	0.625	15.87	4.500	114.30	0.437	11.09	0.625	15.87	0.375	9.52
CTENR-12-3U CTENL-12-3U	0.750	19.05	0.750	19.05	4.500	114.30	0.437	11.09	0.750	19.05	0.375	9.52
CTENR-64-3U CTENL-64-3U	0.750	19.05	1.000	25.40	6.000	152.40	0.437	11.09	1.000	25.40	0.375	9.52
CTENR-65-3U CTENL-65-3U	0.750	19.05	1.250	31.75	6.000	152.40	0.437	11.09	1.250	31.75	0.375	9.52
CTENR-16-3U CTENL-16-3U	1.000	25.40	1.000	25.40	6.000	152.40	0.687	17.44	1.000	25.40	0.375	9.52
CTENR-85-3U CTENL-85-3U	1.000	25.40	1.250	31.75	6.000	152.40	0.687	17.44	1.250	31.75	0.375	9.52
CTENR-85-4U CTENL-85-4U	1.000	25.40	1.250	31.75	6.000	152.40	0.594	15.08	1.250	31.75	0.500	12.70
CTENR-86-4U CTENL-86-4U	1.000	25.40	1.500	38.10	8.000	203.20	0.594	15.08	1.500	38.10	0.500	12.70
CTENR-20-4U CTENL-20-4U	1.250	31.75	1.250	31.75	7.000	177.80	0.844	21.43	1.250	31.75	0.500	12.70
CTENR-86-5U CTENL-86-5U	1.000	25.40	1.500	38.10	8.000	203.20	0.750	19.05	1.500	38.10	0.625	15.87
CTENR-24-5U CTENL-24-5U	1.500	38.10	1.500	38.10	7.000	177.80	1.000	25.40	1.500	38.10	0.625	15.87



* In cases where specific applications require detailed dimensions they can be obtained from the supplier.
Clamping method and clearance angles to be manufacturer's practice.

Table 6. Clamp Type Holder For Triangle Insert, Style F for Negative Rake Holders

HOLDER DESIGNATION		HOLDER DIMENSIONS										GAGE INSERT	
		A		B		C		F		H			
		IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
CTFNR-10-2U	CTFNL-10-2U	0.625	15.87	0.625	15.87	4.500	114.30	0.875	22.25	0.625	15.87	0.250	6.35
CTFNR-12-2U	CTFNL-12-2U	0.750	19.05	0.750	19.05	4.500	114.30	1.000	25.40	0.750	19.05	0.250	6.35
CTFNR-64-2U	CTFNL-64-2U	0.750	19.05	1.000	25.40	6.000	152.40	1.000	25.40	1.000	25.40	0.250	6.35
CTFNR-10-3U	CTFNL-10-3U	0.625	15.87	0.625	15.87	4.500	114.30	0.875	22.25	0.625	15.87	0.375	9.52
CTFNR-12-3U	CTFNL-12-3U	0.750	19.05	0.750	19.05	4.500	114.30	1.000	25.40	0.750	19.05	0.375	9.52
CTFNR-64-3U	CTFNL-64-3U	0.750	19.05	1.000	25.40	6.000	152.40	1.000	25.40	1.000	25.40	0.375	9.52
CTFNR-65-3U	CTFNL-65-3U	0.750	19.05	1.250	31.75	6.000	152.40	1.000	25.40	1.250	31.75	0.375	9.52
CTFNR-16-3U	CTFNL-16-3U	1.000	25.40	1.000	25.40	6.000	152.40	1.250	31.75	1.000	25.40	0.375	9.52
CTFNR-85-3U	CTFNL-85-3U	1.000	25.40	1.250	31.75	6.000	152.40	1.250	31.75	1.250	31.75	0.375	9.52
CTFNR-85-4U	CTFNL-85-4U	1.000	25.40	1.250	31.75	6.000	152.40	1.250	31.75	1.250	31.75	0.500	12.70
CTFNR-86-4U	CTFNL-86-4U	1.000	25.40	1.500	38.10	7.000	177.80	1.250	31.75	1.500	38.10	0.500	12.70
CTFNR-20-4U	CTFNL-20-4U	1.250	31.75	1.250	31.75	7.000	177.80	1.500	38.10	1.250	31.75	0.500	12.70
CTFNR-24-4U	CTFNL-24-4U	1.500	38.10	1.500	38.10	8.000	203.20	1.750	44.45	1.500	38.10	0.500	12.70
CTFNR-86-5U	CTFNL-86-5U	1.000	25.40	1.500	38.10	7.000	177.80	1.250	31.75	1.500	38.10	0.625	15.87
CTFNR-24-5U	CTFNL-24-5U	1.500	38.10	1.500	38.10	8.000	203.20	1.750	44.45	1.500	38.10	0.625	15.87



* In cases where specific applications require detailed dimensions they can be obtained from the supplier.
Clamping method and clearance angles to be manufacturer's practice.

Table 7. Clamp Type Holder For Triangle Insert, Style G for Negative Rake Holders

HOLDER DESIGNATION	HOLDER DIMENSIONS										GAGE INSERT	
	A		B		C		F		H			
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
CTGNR-10-2U CTGNL-10-2U	0.625	15.87	0.625	15.87	4.500	114.30	0.875	22.25	0.625	15.87	0.250	6.35
CTGNR-64-2U CTGNL-64-2U	0.750	19.05	1.000	25.40	6.000	152.40	1.000	25.40	1.000	25.40	0.250	6.35
CTGNR-12-3U CTGNL-12-3U	0.750	19.05	0.750	19.05	4.500	114.30	1.000	25.40	0.750	19.05	0.375	9.52
CTGNR-16-3U CTGNL-16-3U	1.000	25.40	1.000	25.40	6.000	152.40	1.250	31.75	1.000	25.40	0.375	9.52
CTGNR-85-3U CTGNL-85-3U	1.000	25.40	1.250	31.75	6.000	152.40	1.250	31.75	1.250	31.75	0.375	9.52
CTGNR-16-4U CTGNL-16-4U	1.000	25.40	1.000	25.40	6.000	152.40	1.250	31.75	1.000	25.40	0.500	12.70
CTGNR-85-4U CTGNL-85-4U	1.000	25.40	1.250	31.75	6.000	152.40	1.250	31.75	1.250	31.75	0.500	12.70
CTGNR-86-4U CTGNL-86-4U	1.000	25.40	1.500	38.10	8.000	203.20	1.250	31.75	1.500	38.10	0.500	12.70
CTGNR-20-4U CTGNL-20-4U	1.250	31.75	1.250	31.75	7.000	177.80	1.500	38.10	1.250	31.75	0.500	12.70
CTGNR-24-5U CTGNL-24-5U	1.500	38.10	1.500	38.10	8.000	203.20	1.750	44.45	1.500	38.10	0.625	15.87