

**American National Standard**

*for Cutting Tools —  
Carbide Seats Used  
with Indexable Inserts  
for Clamp-Type Holders*

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SPONSOR

**Cemented Carbide Producers' Association**

Approved December 29, 1999



**ANSI®**  
**B212.2-1984**  
(R-1999)

American National Standard  
for Cutting Tools —

**Carbide Seats Used  
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for Clamp-Type Holders**

Secretariat

**Cemented Carbide Producers' Association**

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**American National Standards Institute, Inc.**

# American National Standard

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**Foreword** (This Foreword is not part of American National Standard B212.2-1984)

The first edition of this standard, American National Standard for Precision Indexable Insert Cartridges, ANSI B94.46-1973, was originally developed by Technical Committee 1, Carbide and Oxide Tools of American National Standards Committee B94, Cutting Tools, Holders, Drivers and Bushings in conjunction with ISO/TC 29/WG 9 Committee. The standard was submitted to American National Standards Committee B94, Cutting Tools, Holders, Drivers and Bushings and was approved by letter ballot. The Secretariat, the American Society of Mechanical Engineers, approved the standard. The standard was approved by American National Standards Institute on April 8, 1983, and designated ANSI B94.46-1973.

On September 21, 1983, the Cemented Carbide Producers Association held an organizational meeting for the purpose of forming an Accredited Standards Committee for Cemented Carbides. All requirements for the formation of that committee, as contained in the American National Standards Institute Procedures for the Development and Coordination of American National Standards, effective September 1, 1982, were submitted to ANSI on October 5, 1983. The proposed committee was designated Accredited Standards Committee B212. Within the B212 Committee, Technical Subcommittee TC-1 was formed. The scope of this committee is the standardization of blanks and inserts composed of carbide, ceramic, and compacted diamond/CBN; the standardization of the tools and holders for these blanks and inserts as used for turning (both internal and external) including nomenclature, classification, size, tolerances and identification.

As a result of the accreditation of the B212 Committee, the designation for the standard was changed. The American National Standard for Cutting Tools – ANSI B212.2 is a revision and redesignation of ANSI B94.46-1973.

This Standard covers dimensional specifications and styles of solid sintered carbide seats excluding seats used in conjunction with inserts that are locked by a pin. This revision takes into account changes that have taken place in the cutting tool industry since 1973 and incorporates present technology for cutting tools. This revision is in conformance with applicable ISO standards.

Suggestions for improvement of this standard will be welcome. They should be sent to the Cemented Carbide Producers' Association, 30200 Detroit Avenue, Westlake, Ohio 44145-1967.

This standard was processed and approved for submittal to ANSI by Accredited Standards Committee for Cemented Carbides, B212. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the B212 Committee had the following members:

J. Jeffery Wherry, Secretary

<i>Organization Represented</i>	<i>Name of Representative</i>
Abrasive Technologies, Inc. ....	Robert Bancroft
Allison Transmission .....	J. Sandler
The Association for Manufacturing Technology (AMT) .....	Anthony M. Bratkovich, P.E.
Carboloy, Inc. ....	Don Reinert
Caterpillar, Inc. ....	J.R. Diener
Cemented Carbide Producers' Association .....	J. Jeffery Wherry

<i>Organization Represented</i>	<i>Name of Representative</i>
Greenleaf Corporation .....	Donald R. Hughes
Ingersoll Cutting Tool Company .....	Jim Schultz
Kennametal, Inc. ....	Lee Yothers
Machining Research, Inc. ....	John D. Christopher
Metal Cutting Tools, Inc. ....	Fred Shallenberger
Society of Carbide & Tool Engineers .....	to be announced
United States Cutting Tool Institute .....	Charles Stockinger
Valenite, Inc. ....	James J. Robinson

The Subcommittee (TC-1) of Standards Committee B212 that will be responsible for developing future revisions has the following members:

James R. Diener, Chairman	Richard Black	James Robinson
J. Jeffery Wherry, Secretary	Jeff Burton	Mike Powell
	Keith Crawford	J. Sandler
	Victor Gallagher	Jim Schultz
	Donald R. Hughes	Fred Shallenberger
	R.V. Leverenz	Don Reinert
	Joseph Ley	Gerry Rhodes
	Thomas Morey	Gary W. Roderick
	Robert Packer	Lee Yothers

American National Standard  
for Cutting Tools —

# Carbide Seats Used with Indexable Inserts for Clamp-Type Holders

## 1 Scope

This Standard covers dimensional specifications and styles of solid sintered carbide seats excluding seats used in conjunction with inserts that are locked by a pin.

The values stated in U.S. customary units are to be regarded as the standard.

## 2 Definitions

**2.1 carbide:** a sintered material of refractory metals, suitable as a seat material.

**2.2 seat:** a carbide solid which is mechanically held for use as a support for the cutting insert.

**2.3 inscribed circle (I.C.):** the largest circle that can be encompassed within the periphery of an insert.

## 3 General

Standard styles and designation of the seats are shown in Tables 1 through 8.

## 4 Identification system of seats

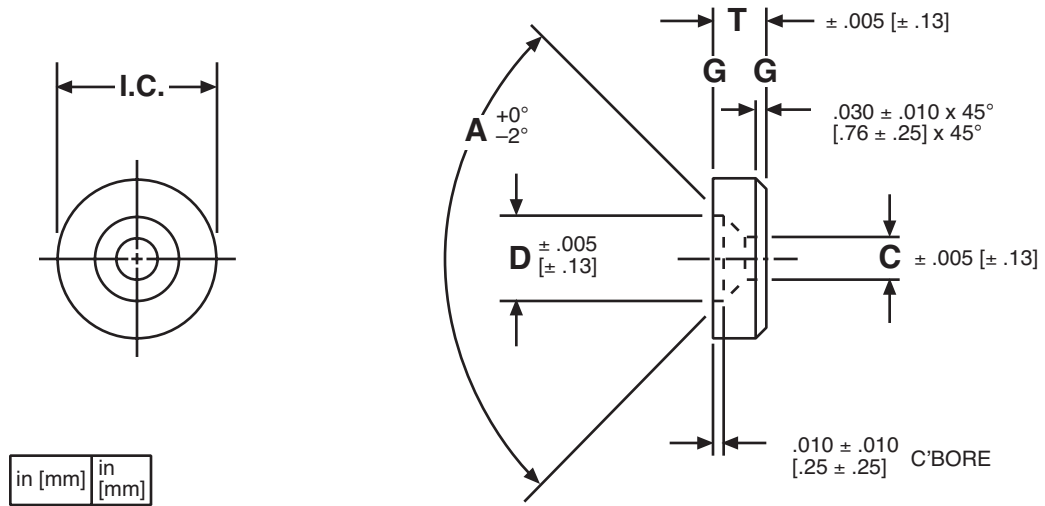
The system for identification in this document covers only the seats listed in this Standard.

The identification of the seats consists of six positions. Each position defines a characteristic of the seat in the following order:

First Position	Second Position	Third Position	Fourth Position	Fifth Position	Sixth Position
Identity S – Seat	Shape R – Round S – Square T – Triangle C – 80° Diamond D – 55° Diamond V – 35° Diamond	Relief Angle N – Negative P – Positive	Ref. Insert Inscribed Circle (I.C.)  Number of 1/8" (3.18 mm) of I.C.	Seat Thickness  Number of 1/32" (0.79 mm) of Thickness	Ref. Insert Radius  Number of 1/64" (0.40 mm) of Radius

Example: Seat No. SRN332

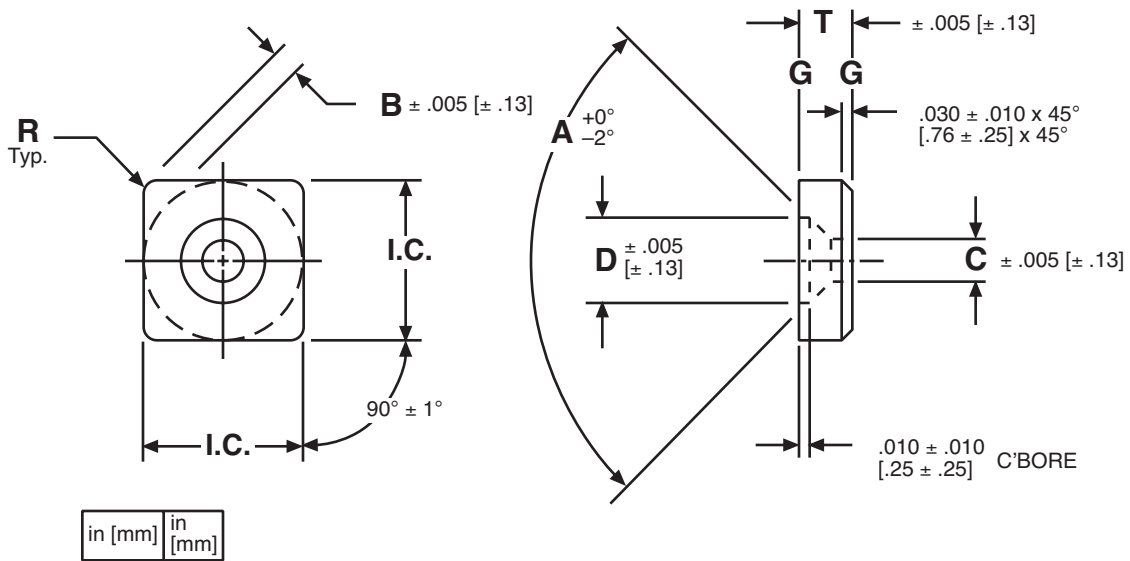
- S – Seat
- R – Round Shape
- N – Negative Relief Angle
- 3 – 3/8" (9.52 mm) Inscribed Circle
- 3 – 3/32" (2.38 mm) Seat Thickness
- 2 – 2/64" (0.79 mm) Insert Radius



**G** - Surfaces to be flat within .002 [.05] max. concavity in free state. Grinding of these surfaces is manufacturer's option.

**Table 1 – Seats for round negative inserts**

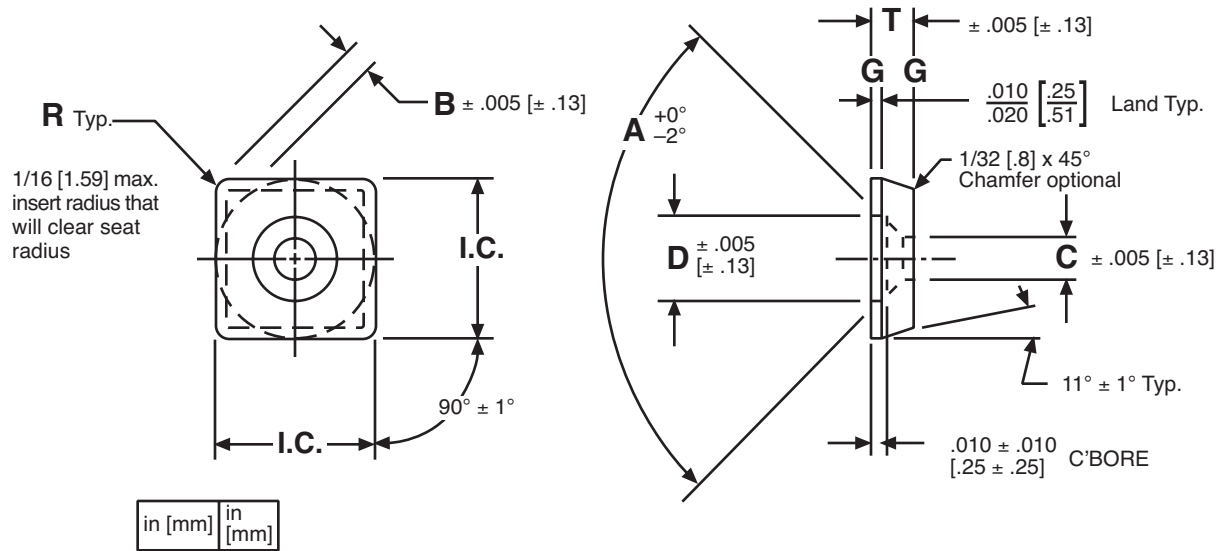
Seat No.	Ref. Insert I.C.		Seat I.C.		A	T		D		C		Screw Size Ref.
	in	mm	in	mm		in	mm	in	mm	in	mm	
SRN34	0.375	9.52	0.367 ± 0.003	9.32 ± 0.07	82°	0.125	3.17	0.275	6.98	0.130	3.30	4
SRN44	0.500	12.70	0.491 ± 0.004	12.47 ± 0.10	82°	0.125	3.17	0.275	6.98	0.130	3.30	4
SRN46	0.500	12.70	0.491 ± 0.004	12.47 ± 0.10	82°	0.187	4.75	0.275	6.98	0.130	3.30	4



**G** - Surfaces to be flat within .002 [.05] max. concavity in free state. Grinding of these surfaces is manufacturer's option.

**Table 2 – Seats for square negative inserts**

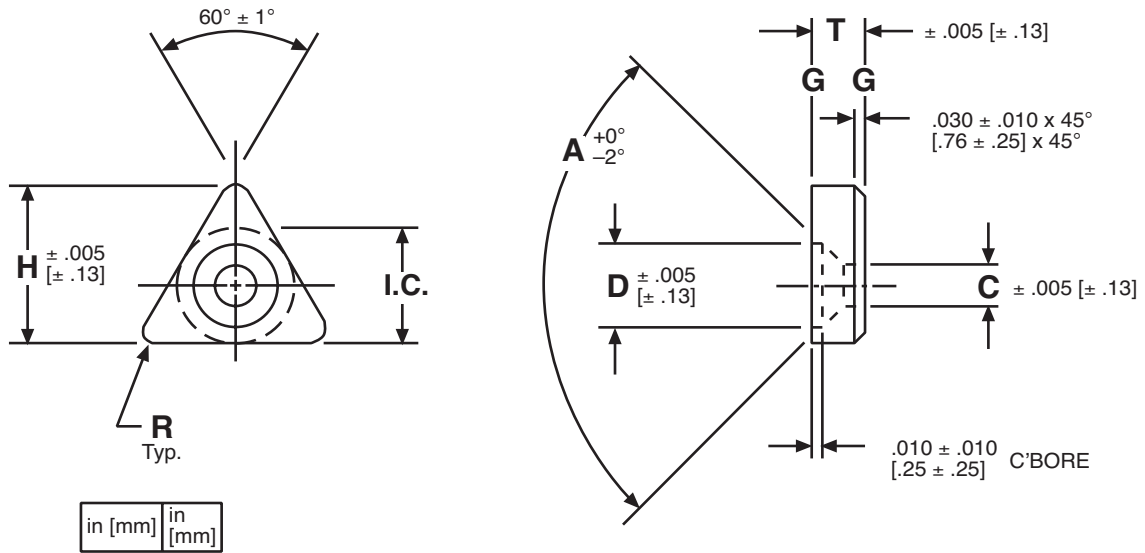
Seat No.	Ref. Insert I.C.		Seat I.C.		B		R		A	T		D		C		Screw Size Ref.
	in	mm	in	mm	in	mm	in	mm		in	mm	in	mm	in	mm	
SSN342	0.375	9.52	0.367 ± 0.003	9.32 ± 0.07	0.060	1.52	0.038	0.96	82°	0.125	3.17	0.275	6.98	0.130	3.30	4
SSN443	0.500	12.70	0.491 ± 0.004	12.47 ± 0.10	0.079	2.01	0.053	1.35	82°	0.125	3.17	0.275	6.98	0.130	3.30	4
SSN463	0.500	12.70	0.491 ± 0.004	12.47 ± 0.10	0.079	2.01	0.053	1.35	82°	0.187	4.75	0.275	6.98	0.130	3.30	4
SSN644	0.750	19.05	0.739 ± 0.006	18.77 ± 0.15	0.125	3.17	0.068	1.73	82°	0.125	3.17	0.380	9.65	0.180	4.57	8
SSN664	0.750	19.05	0.739 ± 0.006	18.77 ± 0.15	0.125	3.17	0.068	1.73	82°	0.187	4.75	0.380	9.65	0.180	4.57	8
SSN684	0.750	19.05	0.739 ± 0.006	18.77 ± 0.15	0.125	3.17	0.068	1.73	82°	0.250	6.35	0.380	9.65	0.180	4.57	8
SSN866	1.000	25.40	0.989 ± 0.006	25.12 ± 0.15	0.163	4.14	0.100	2.54	82°	0.187	4.75	0.430	10.92	0.210	5.33	10
SSN886	1.000	25.40	0.989 ± 0.006	25.12 ± 0.15	0.163	4.14	0.100	2.54	82°	0.250	6.35	0.430	10.92	0.210	5.33	10



**G** - Surfaces to be flat within .002 [.05] max. concavity in free state. Grinding of these surfaces is manufacturer's option.

**Table 3 – Seats for square positive inserts**

Seat No.	Ref. Insert I.C.		Seat I.C.		B		R		A	T		D		C		Screw Size Ref.
	in	mm	in	mm	in	mm	in	mm		in	mm	in	mm	in	mm	
SSP332	0.375	9.52	0.296 ± 0.003	7.52 ± 0.07	0.045	1.14	0.038	0.96	82°	0.094	2.39	0.275	6.98	0.130	3.30	4
SSP342	0.375	9.52	0.296 ± 0.003	7.52 ± 0.07	0.045	1.14	0.038	0.96	82°	0.125	3.17	0.275	6.98	0.130	3.30	4
SSP443	0.500	12.70	0.421 ± 0.004	10.69 ± 0.10	0.071	1.80	0.038	0.96	82°	0.125	3.17	0.275	6.98	0.130	3.30	4
SSP463	0.500	12.70	0.446 ± 0.004	11.33 ± 0.10	0.076	1.93	0.038	0.96	82°	0.187	4.75	0.275	6.98	0.130	3.30	4
SSP644	0.750	19.05	0.671 ± 0.006	17.04 ± 0.15	0.128	3.25	0.026	0.66	82°	0.125	3.17	0.380	9.65	0.180	4.57	8

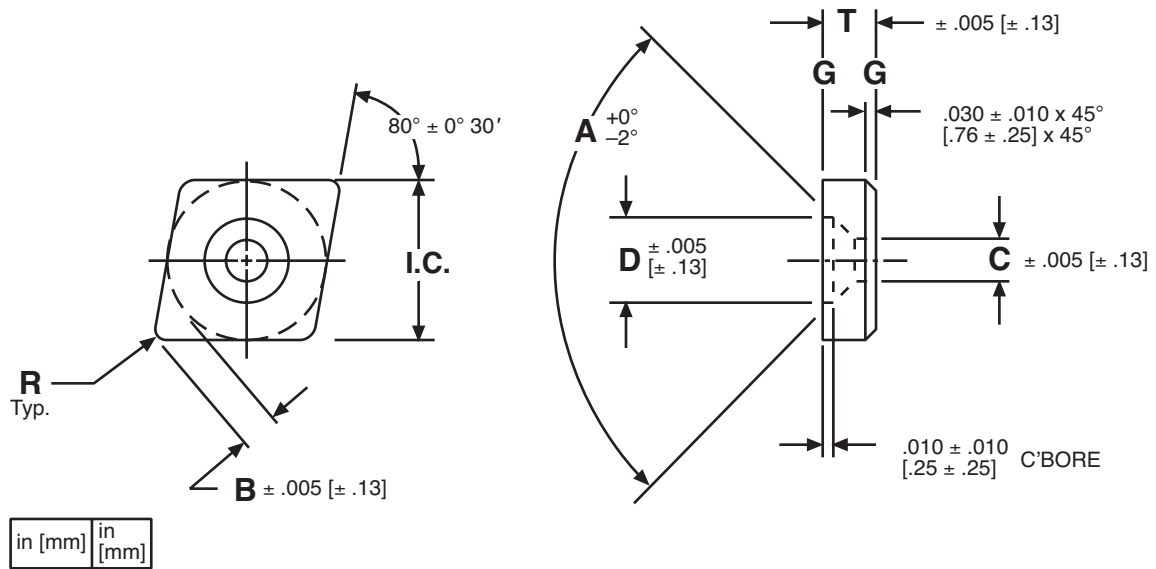


**G** - Surfaces to be flat within .002 [.05] max. concavity in free state. Grinding of these surfaces is manufacturer's option.

**Table 4 – Seats for triangle negative inserts**

Seat No.	Ref. Insert I.C.		Seat I.C.		H		R		A	T		D		C		Screw Size Ref.
	in	mm	in	mm	in	mm	in	mm		in	mm	in	mm	in	mm	
STN242	0.250	6.35	0.243 ± 0.002	6.17 ± 0.05	0.333	8.46	0.038	0.96	30°	0.125	3.17	0.170	4.32	0.125	3.17	4
STN342	0.375	9.52	0.367 ± 0.003	9.32 ± 0.07	0.519	13.18	0.038	0.96	82°	0.125	3.17	0.275	6.98	0.130	3.30	4
STN362	0.375	9.52	0.367 ± 0.003	9.32 ± 0.07	0.519	13.18	0.038	0.96	82°	0.187	4.75	0.275	6.98	0.130	3.30	4
STN443	0.500	12.70	0.491 ± 0.004	12.47 ± 0.10	0.690	17.53	0.053	1.35	82°	0.125	3.17	0.380	9.65	0.180	4.57	8
STN463	0.500	12.70	0.491 ± 0.004	12.47 ± 0.10	0.690	17.53	0.053	1.35	82°	0.187	4.75	0.380	9.65	0.180	4.57	8
STN483	0.500	12.70	0.491 ± 0.004	12.47 ± 0.10	0.690	17.53	0.053	1.35	82°	0.250	6.35	0.380	9.65	0.180	4.57	8
STN564	0.625	15.88	0.615 ± 0.005	15.62 ± 0.12	0.860	21.84	0.068	1.73	82°	0.187	4.75	0.380	9.65	0.180	4.57	8
STN684	0.750	19.05	0.671 ± 0.006	17.04 ± 0.15	1.052	26.72	0.068	1.73	82°	0.250	6.35	0.380	9.65	0.180	4.57	8
STN8104	1.000	25.40	0.989 ± 0.006	25.12 ± 0.15	1.427	36.24	0.068	1.73	82°	0.312	7.92	0.430	10.92	0.210	5.33	10

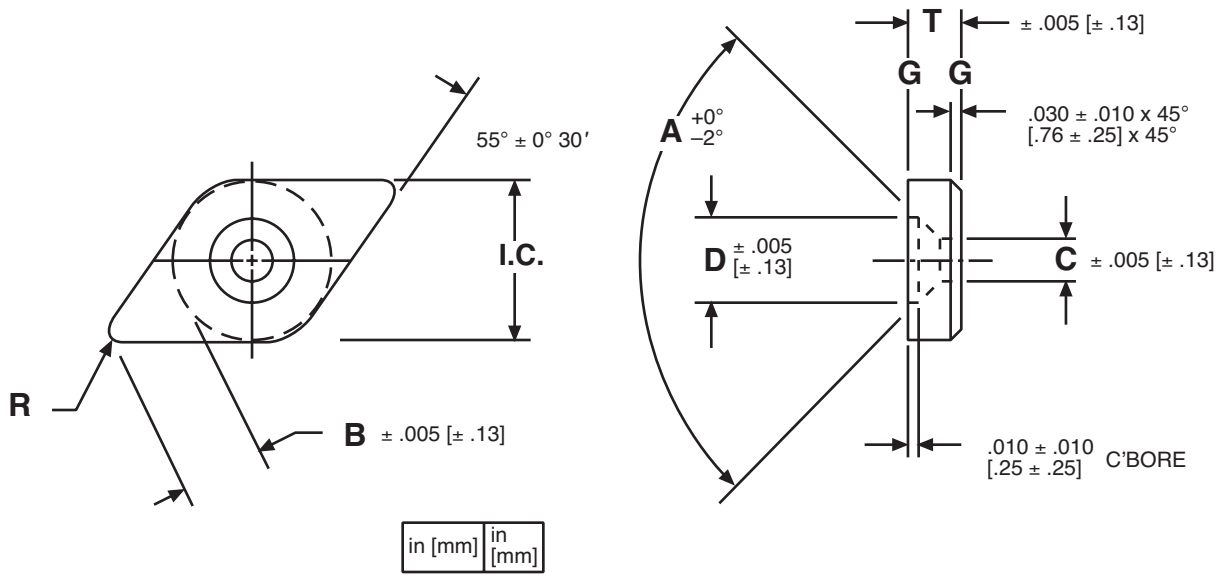




**G** - Surfaces to be flat within .002 [.05] max. concavity in free state. Grinding of these surfaces is manufacturer's option.

**Table 6 – Seats for 80° diamond negative inserts**

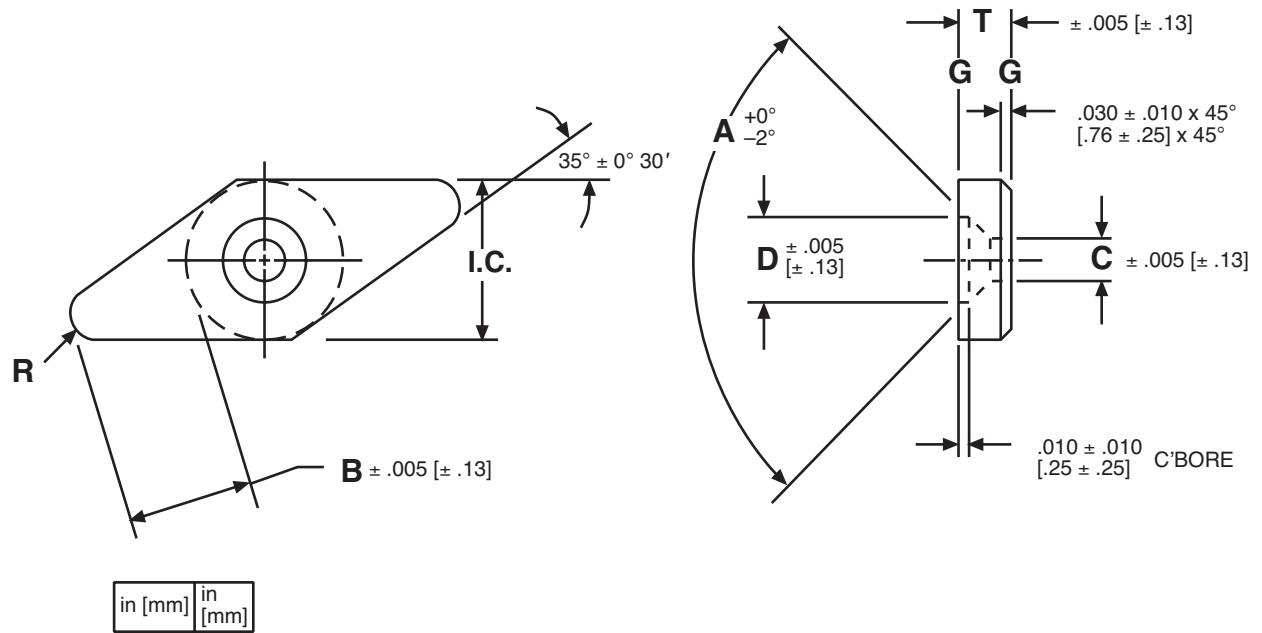
Seat No.	Ref. Insert I.C.		Seat I.C.		B		R		A	T		D		C		Screw Size Ref.
	in	mm	in	mm	in	mm	in	mm		in	mm	in	mm	in	mm	
SCN442	0.500	12.70	0.491 ± 0.004	12.47 ± 0.10	0.115	2.92	0.038	0.96	82°	0.125	3.17	0.275	6.98	0.130	3.30	4
SCN643	0.750	19.05	0.739 ± 0.006	18.77 ± 0.15	0.177	4.50	0.053	1.35	82°	0.125	3.17	0.380	9.65	0.180	4.57	8
SCN663	0.750	19.05	0.739 ± 0.006	18.77 ± 0.15	0.177	4.50	0.053	1.35	82°	0.188	4.78	0.380	9.65	0.180	4.57	8



**G** - Surfaces to be flat within .002 [.05] max. concavity in free state. Grinding of these surfaces is manufacturer's option.

**Table 7 – Seats for 55° diamond negative inserts**

Seat No.	Ref. Insert I.C.		Seat I.C.		B		R		A	T		D		C		Screw Size Ref.
	in	mm	in	mm	in	mm	in	mm		in	mm	in	mm	in	mm	
SDN442	0.500	12.70	0.491 ± 0.004	12.47 ± 0.10	0.242	6.15	0.038	0.96	82°	0.125	3.17	0.275	6.98	0.130	3.30	4
SDN543	0.625	15.88	0.615 ± 0.005	15.62 ± 0.12	0.297	7.54	0.053	1.35	82°	0.125	3.17	0.380	9.65	0.180	4.57	8



**G** - Surfaces to be flat within .002 [.05] max. concavity in free state. Grinding of these surfaces is manufacturer's option.

**Table 8 – Seats for 35° diamond negative inserts**

Seat No.	Ref. Insert I.C.		Seat I.C.		B		R		A	T		D		C		Screw Size Ref.
	in	mm	in	mm	in	mm	in	mm		in	mm	in	mm	in	mm	
SVN442	0.500	12.70	0.491 ± 0.004	12.47 ± 0.10	0.482	12.24	0.038	0.96	82°	0.125	3.17	0.275	6.98	0.130	3.30	4