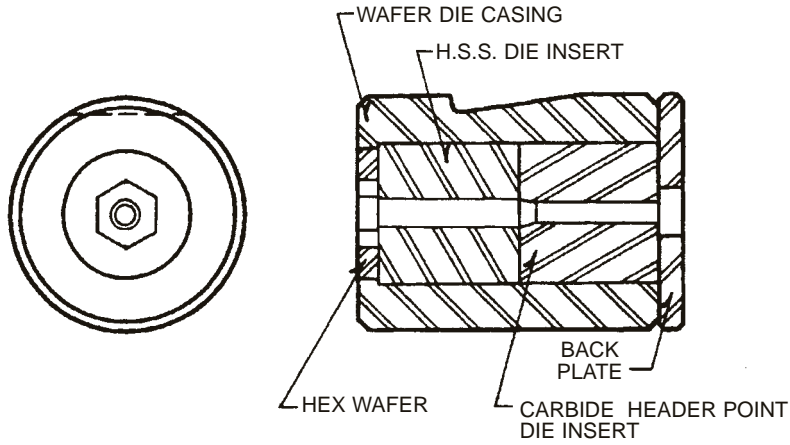
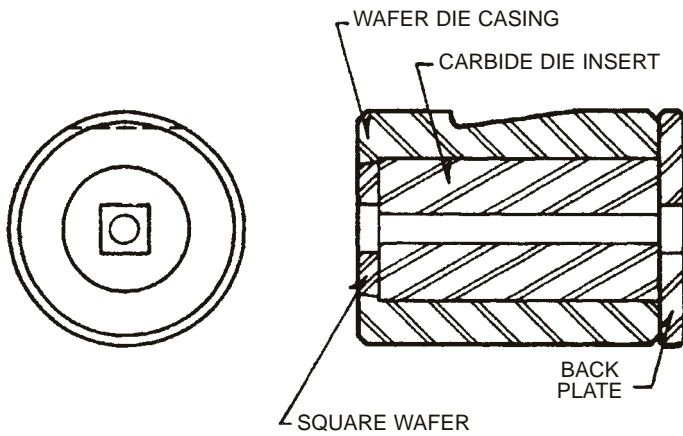


**WAFER-TYPE HEADER DIE ASSEMBLY TOOLING**

**INDENTED HEX HEAD ASSEMBLY**



**ROUND HEAD SQUARE NECK ASSEMBLY  
(CARRIAGE BOLT & DIN 603)**

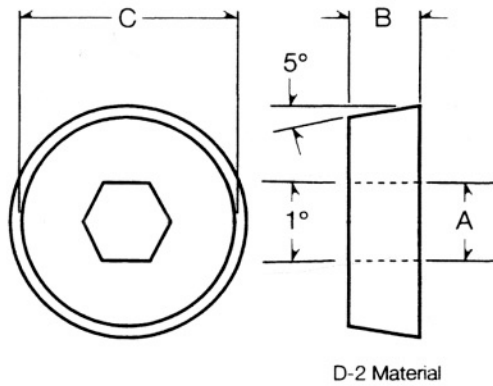


SEE FOLLOWING FOR PAGES DIMENSIONS AND PART NUMBERS

**WARNING**

Any heading punch may break or shatter under improper use. Government regulations require use of safety glasses and other appropriate safety equipment at all times in the vicinity of use.

**HEXAGON WAFERS**



**IFI STANDARD**

SCREW SIZE	CODE	A	B	C
2	HW-20	.120	.040	.445
3	HW-30	.182	.044	.445
4	HW-40	.182	.049	.445
5	HW-50	.182	.058	.445
6	HW-60	.245	.067	.445
6	HW-60-1	.245	.080	.445
6	HW-60-2	.245	.067	.671
6	HW-60-3	.245	.080	.671
7	HW-70	.245	.080	.671
8	HW-80	.245	.096	.671
10	HW-100	.306	.106	.671
12	HW-120	.306	.139	.671
14 & 1/4	HW-140	.368	.172	.671
14 & 1/4	HW-140-1	.430	.172	.671
14 & 1/4	HW-140-2	.430	.172	.875
14 & 1/4	HW-140-3	.368	.172	.875
5/16	HW-5160	.490	.207	.875
3/8	HW-380	.554	.270	.875

**IFI METRIC STANDARD**

NOMINAL HEX(mm)	CODE	A(mm)	A	B	C
3.2	MHW-3.2	3.05	.120	.040	.445
4	MHW-4	3.84	.151	.044	.445
5	MHW-5	4.85	.191	.050	.445
5.5	MHW-5.5	5.36	.211	.080	.445
7	MHW-7	6.83	.269	.096	.671
8	MHW-8	7.82	.308	.105	.671
8	MHW-8-1	7.82	.308	.139	.671
10	MHW-10	9.83	.387	.172	.875
13	MHW-13	12.78	.503	.208	.875

**DIN 558**

NOMINAL SIZE(mm)	CODE	A	B	C
M4	HW-558-4	.267	.100	.875
M5	HW-558-5	.303	.128	.875
M6	HW-558-6	.383	.147	.875
M8	HW-558-8	.502	.206	.875
M10	HW-558-10	.658	.265	1.125
M12	HW-558-12	.749	.305	1.250

WAFERS CAN BE MADE ON SPECIAL ORDER TO YOUR SPECIFICATIONS

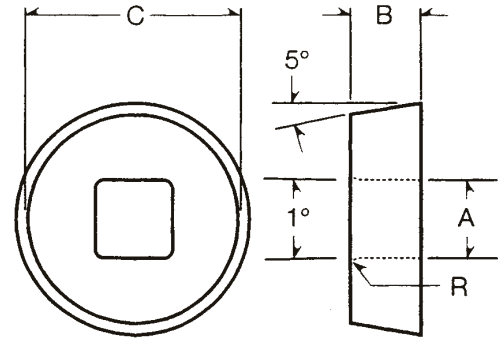
**WARNING**

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**SQUARE & FILLISTER WAFERS**

**CARRIAGE BOLT**

SCREW SIZE	CODE	A	B	C
10	SW-100	.190	.115	.671
1/4	SW-140	.249	.146	.671
5/16	SW-5160	.310	.177	.875
3/8	SW-380	.380	.209	.875



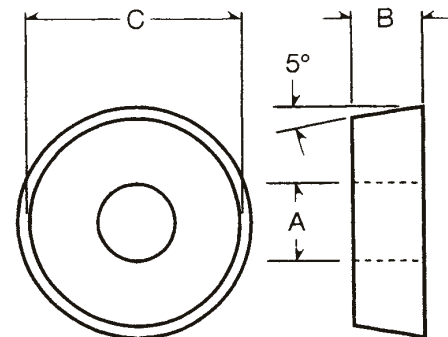
D-2 Material

**DIN 603**

NOMINAL SIZE(mm)	CODE	A	B	C
M5	SW-603-5	.193	.138	.875
M6	SW-603-6	.232	.158	.875
M8	SW-603-8	.310	.197	.875
M10	SW-603-10	.380	.236	1.125
M12	SW-603-12	.457	.135	1.250

**FILLISTER**

SCREW SIZE	CODE	A	B	C
1	FW-10	.111	.042	.445
2	FW-20	.132	.048	.445
3	FW-30	.153	.057	.445
4	FW-40	.174	.065	.445
4	FW-40-1	.174	.065	.671
5	FW-50	.196	.074	.445
5	FW-50-1	.196	.074	.671
6	FW-60	.217	.082	.445
6	FW-60-1	.217	.082	.671
7	FW-70	.238	.090	.671
8	FW-80	.260	.098	.671
10	FW-100	.302	.114	.671
10	FW-100-1	.302	.114	.875
12	FW-120	.345	.128	.671
1/4	FW-140	.400	.149	.671
1/4	FW-140-1	.400	.149	.875
5/16	FW-5160	.504	.186	.875
3/8	FW-380	.606	.227	.875



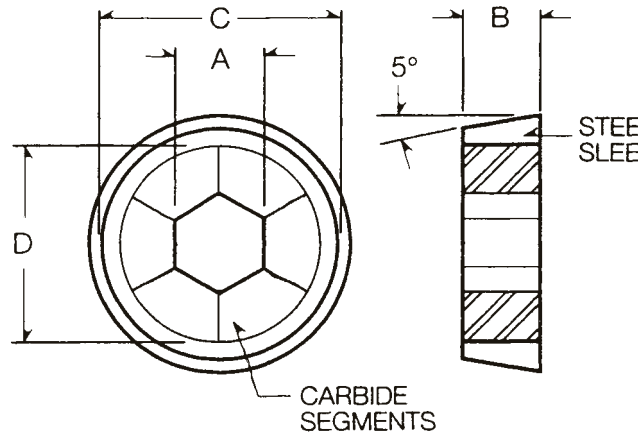
D-2 Material

WAFERS CAN BE MADE ON SPECIAL ORDER TO YOUR SPECIFICATIONS

**WARNING**

Any heading punch may break or shatter under improper use. Government regulations require use of safety glasses and other appropriate safety equipment at all times in the vicinity of use.

**CARBIDE SEGMENTED HEXAGON WAFERS**



**AMERICAN STANDARD**

SCREW SIZE	CODE	A	B	C	D
8	CSHW-80	.245	.096	.875	.500
10	CSHW-100	.306	.106	.875	.500
12	CSHW-120	.306	.139	.875	.500
14 & 1/4	CSHW-140	.368	.172	1.000	.625
14 & 1/4	CSHW-140-1	.430	.172	1.000	.625
5/16	CSHW-5160	.490	.207	1.125	.750
3/8	CSHW-380	.554	.270	1.125	.750

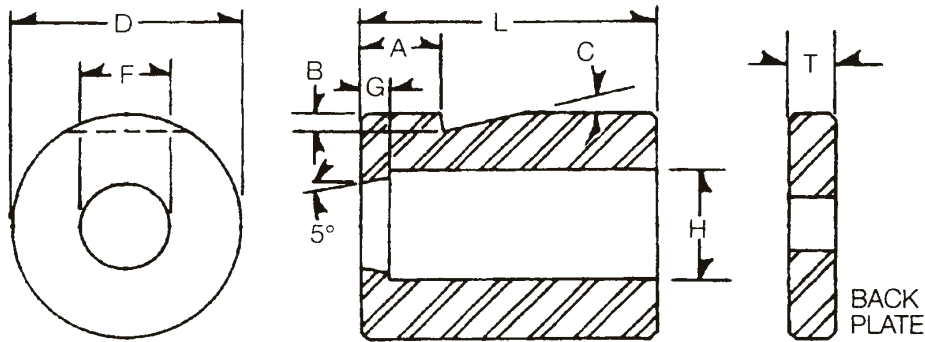
**METRIC STANDARD**

NOMINAL HEX(mm)	CODE	A(mm)	A	B	C	D
7	CSHW-7MM	6.83	.269	.096	.875	.500
8	CSHW-8MM	7.82	.308	.105	.875	.500
8	CSHW-8-1MM	7.82	.308	.139	.875	.500
10	CSHW-10MM	9.83	.387	.172	1.000	.625
13	CSHW-13MM	12.78	.503	.208	1.125	.750

**WARNING**

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**WAFER DIE CASINGS**



**A.I.S.I. H-13 MATERIAL**

SIZE	CODE NO.	D	L	A	B	C	T	H	F	G
1/8 National	W12DC	.997	1-1/4	1/8	1/8	8°	1/8	.550	.443	.081
1/8 Headmaster	W12DC-3	1.122	1	5/16	3/32	10°	3/8	.550	.443	.078
0 Toggle	W12DC-4	1.122	7/8	5/16	3/32	5°	1/4	.550	.443	.081
3/16 National	W18DC-1	1.247	1-5/8	1/2	3/32	4°	1/8	.737	.668	.101
H20A Nakashimada	W18DC-3	1.497	2-1/2	7/8	5/32	10°	1/4	.862	.668	.129
3/16 Waterbury	W18DC-3	1.497	2-1/2	7/8	5/32	10°	1/2	.862	.668	.129
3/16 HiPro	W18DC-9	1.247	1-1/4	5/16	1/16	5°	5/8	.737	.668	.091
3/16 Headmaster	W18DC-9	1.247	1-1/4	5/16	1/16	5°	5/8	.737	.668	.091
3/16 Headmaster	W18DC-16	1.247	1-1/2	1/4	1/16	5°	3/8	.737	.668	.091
3/16 Hartford	W25DC	1.497	2	9/32	3/32	4°	1/4	.862	.668	.165
1 Toggle	W18DC-15	1.247	1-1/4	7/16	1/16	5°	3/8	.737	.668	.101
SP-01 Sacma	W18DC-1	1.247	1-5/8	1/2	3/32	4°	1/8	.737	.668	.101
SP-01 Sacma	W18DC-16	1.247	1-1/2	1/4	1/16	5°	3/8	.737	.668	.091
1/4 National	W25DC	1.497	2	9/32	3/32	4°	1/4	.862	.668	.165
1/4 Waterbury	W25DC-18	1.997	2-27/32	1-1/16	3/16	10°	21/32	.987	.871	.200
2 Toggle	W25DC-17	1.497	2	9/16	1/16	5°	1/2	.862	.668	.101
SP-11 Sacma	W18DC-19	1.497	2	9/32	3/32	4°	—	.987	.871	.178
SP-11 Sacma	W25DC	1.497	2	9/32	3/32	4°	—	.862	.668	.165
5/16 HiPro	W31DC	1.997	2	3/8	1/8	5°	1/2	.987	.871	.200
5/16 HiPro	W31DC-11	1.997	2	3/8	1/8	5°	1/2	.862	.668	.174
5/16 National	W31DC-1	2.122	2-3/8	7/16	3/16	10°	3/8	1.237	.871	.200
5/16 National	W31DC-12	2.122	2-1/2	1/2	1/8	5°	3/8	.987	.871	.174
5/16 Hartford	W31DC-1	2.122	2-3/8	7/16	3/16	10°	3/8	1.237	.871	.200
5/16 Hartford	W31DC-12	2.122	2-1/2	1/2	1/8	5°	3/8	.987	.871	.174
SP-21 Sacma	W31DC-19	1.997	2-1/2	3/8	1/8	5°	—	.987	.871	.200

WAFER DIE CASINGS CAN BE MADE ON SPECIAL ORDER FOR ANY SIZES NOT LISTED.

SPECIFY CASING DIAMETER AND "T" DIMENSION WHEN ORDERING BACKING PLATES.

**WARNING**

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