



Designation: F 2062 – 00

Standard Specification for Square Drive Interconnections on Surgical Instruments¹

This standard is issued under the fixed designation F 2062; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification applies to interconnections of surgical instruments used for drilling, tapping, driving, or placing of medical devices during surgery.

1.2 This specification includes dimensions and tolerances for both driving and driven elements.

1.3 The values stated in SI units are to be regarded as the standard. Inch-pound values are in separate tables.

1.4 The specifications given in ASME B107.4M-1995 are designed for industrial applications and are considered to loose for surgical applications. Springs used for industrial applications are generally made from carbon steel and are capable of higher loads than their stainless steel counterparts. The specifications given in this standard have been written to lessen the chance of accidental disengagement of surgical instruments. This accidental disengagement could injure the patient or end user, or damage or contaminate the instrument.

2. Referenced Documents

2.1 ASTM Standards:

F 899 Specification for Stainless Steel Billet, Bar, and Wire for Surgical Instruments²

2.2 Other Standard:

ASME B107.4M-1995 (Revision of ANSI B107.4-1982), Driving and Spindle Ends for Portable Hand, Impact, Air, and Electric Tools Percussion Tools Excluded³

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *drilling*—the act of forming a hole.

3.1.2 *driving*—the act of turning, pushing, or pulling a surgical instrument to place a medical device during surgery.

3.1.3 *square drive*—a male or female interconnection with four driving surfaces that are of equal width and perpendicular to each other.

3.1.4 *tapping*—the act of forming threads.

4. Material

4.1 This specification is intended to apply only to stainless steel instruments that conform to Specification F 899. If other types of materials are used to interconnect with stainless steel instruments, then they should adhere to this specification.

5. Gage Use and Design

5.1 Tables 1-8 are descriptive and not restrictive, and are not intended to preclude the manufacture of product or gages which are otherwise in accordance with this specification.

5.2 Manufacturers may use gages with tighter dimensions or tolerances than shown herein to ensure device acceptance.

5.3 The extreme size for all limit (GO and NO-GO) gages shall not exceed the extreme limits of interconnections specified within this specification. All variations (manufacturing tolerance, calibration error, wear allowance, and so forth) in the gages, whatever their cause or purpose, shall bring these gages within the extreme limits of the gage size specified in this specification. Thus, a gage representing a minimum limit may be larger, but never smaller, than the minimum size specified for the interconnection in this specification; likewise, a gage representing a maximum limit may be smaller, but never larger, than the maximum size specified for the interconnection in this specification.

6. Keywords

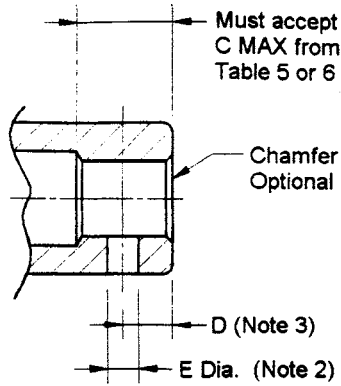
6.1 instrument; interconnection; square drive; surgical

¹ This specification is under the jurisdiction of ASTM Committee F04 on Medical and Surgical Materials and Devices and is the direct responsibility of Subcommittee F04.33 on Medical/Surgical Instruments.

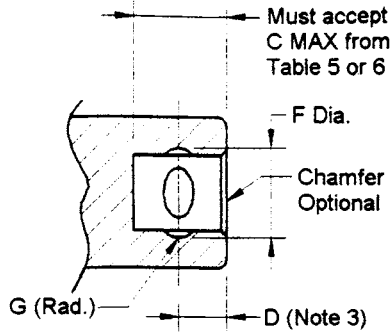
Current edition approved Nov. 10, 2000. Published February 2001.

² *Annual Book of ASTM Standards*, Vol 13.01.

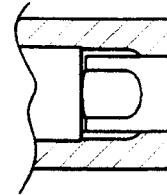
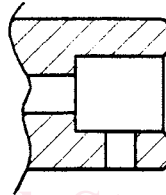
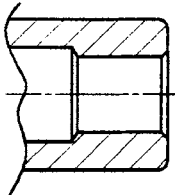
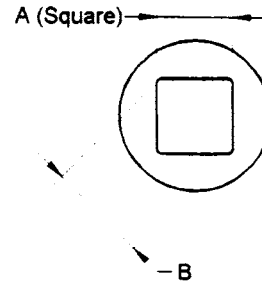
³ Available from American Society of Mechanical Engineers, 345 E. 47th St. New York, NY 10017



DESIGN A
CROSS HOLE TYPE



DESIGN B
RECESS TYPE



OPTIONAL CROSS SECTIONS

NOTES:

- (1) Square tolerances shall be such as to insure acceptance when gauged with gages conforming to Table 2.
- (2) Design A requires cross hole to be on one, two, or four sides. Recess Design B must require radius G to be on all four sides.
- (3) D MAX (Tables 1 & 2) doesn't equal D MIN (Tables 5 & 6); however, due to edge radius, plunger diameter, and square dimension interactions, no interference or interchangeability problem exists.

TABLE 1 Square Drive Specifications – Female End, mm

Drive Size		A (square)		B	D (Note 3)		E (Note 2)	F (diameter)		G (radius)	
mm	in.	max	min	min	max	min	min	max	min	max	min
4.76	0.1875	4.88	4.80	6.68	3.30	3.05	1.98	6.25	6.15	1.32	1.07
6.35	0.2500	6.48	6.38	8.51	3.94	3.43	2.29	7.75	7.49	1.73	1.47
9.53	0.3750	9.70	9.60	13.13	5.84	5.33	4.32	10.92	10.41	2.41	2.16

TABLE 2 Square Drive Specifications – Female End, in.

Drive Size		A (square)		B	D (Note 3)		E (Note 2)	F (diameter)		G (radius)	
in.	mm	max	min	min	max	min	min	max	min	max	min
0.1875	4.76	0.192	0.189	0.263	0.130	0.120	0.078	0.246	0.242	0.052	0.042
0.2500	6.35	0.255	0.251	0.335	0.155	0.135	0.090	0.305	0.295	0.068	0.058
0.3750	9.53	0.382	0.378	0.517	0.230	0.210	0.170	0.430	0.410	0.095	0.085