

JIS

JAPANESE INDUSTRIAL STANDARD

Functional elbow units

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Functional elbow units

T 9219-1992

1. Scope This Japanese Industrial Standard specifies the functional elbow units for adults (hereafter referred to as the "elbow units").

Remarks 1. The cited standards in this Standard are as follows:

JIS B 0205 Metric coarse screw threads

JIS B 0207 Metric fine screw threads

2. The units and numerical values given in { } in this Standard are based on the traditional units and are appended for informative reference.

2. Definitions For the purpose of this Standard, the following definitions apply:

The names of parts of elbow units are specified in the Attached Fig. 1.

- (1) lock device A device which locks the elbow unit at a certain bending angle
- (2) lock cable A cable which activates a lock device and which locks or unlocks elbow units
- (3) brachium connecting part A joint between a prosthesis brachium and an elbow unit
- (4) forearm connecting part A joint between an elbow unit and a prosthesis forearm
- (5) rotating disk A device which is attached to the upper surface of the elbow unit, and which gives rotation around the central axis of brachium
- (6) stepless lock type A type where the elbow bending angle can be locked at any point over the entire mobile range
- (7) stepped lock type A type where the elbow bending angle can be locked at certain intervals of angle over the entire mobile range

3. Classification and symbol The classification and symbol shall be specified in Table 1.

Table 1

Classification	Structure	
	Single axis	Multiple axis
Stepless lock type	FS	FP
Stepped lock type	AS	AP

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4. Performance

4.1 General conditions The general conditions shall be specified as follows.

- (1) The elbow units can bend the forearm connecting part smoothly around the axis in the range of 135 degrees or over.
- (2) The stepped lock type shall have ten or more locking positions over the entire mobile range.
- (3) The lock device can be operated smoothly by pulling and releasing of a lock cable. The device locks and unlocks alternately.
- (4) Tension of lock cable and cable stroke distance required for operation of a lock device shall be specified in Table 2.

Table 2

Force required to unlock N {kgf}	At no-load	5 to 15 {0.5 to 1.5}
	At load	5 to 30 {0.5 to 3.0}
Cable stroke distance required to lock or unlock mm		5 to 20
Play of elbow joint when locked mm	Extension direction	5 or under
	Lateral direction	5 or under

- (5) A lock device shall not unlock when operated at the hand portion.
- (6) The rotating disk shall have a rotating range of 65 degrees or over, and shall be so constructed as to set the rotating resistance anywhere in the range of 1 N·m to 30 N·m {0.1 kgf·m to 3 kgf·m}.
- (7) The rotating disk shall be so constructed as not to change the torque easily during operation which has been set in the range specified in (6).

4.2 Static strength The elbow units shall be, when tested according to 9.1, free from excessive play, permanent deformation, breakage, malfunction, and other significant defects.

4.3 Durability The durability shall be specified as follows.

- (1) The elbow units shall be, when tested according to 9.2, free from excessive play, permanent deformation, breakage, malfunction, noise, and other significant defects, and shall meet the requirements specified in Table 2.
- (2) After testing according to 9.2, and then according to 9.1.3, the elbow units shall not be unlocked.

5. Shape and dimensions

5.1 Elbow axis width, length of brachium, and length of forearm The elbow axis width (l_1), length of brachium (l_2), and length of forearm (l_3)(¹) shall be specified in Fig. 1 and Table 3.