
International Standard



3189/2

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**Sockets for wire ropes for general purposes —
Part 2: Special requirements for sockets produced
by forging or machined from the solid**

Douilles pour câbles en acier d'usages courants — Partie 2: Exigences particulières concernant les douilles forgées ou usinées à partir d'une masse solide

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 3189/2 was prepared by Technical Committee ISO/TC 111, *Round steel link chains, lifting hooks and accessories*.

ITeH STANDARD PREVIEW
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ISO 3189-2:1985

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Socketts for wire ropes for general purposes — Part 2: Special requirements for socketts produced by forging or machined from the solid

1 Scope and field of application

This part of ISO 3189 specifies the special requirements for materials and method of manufacture of socketts produced by forging or by machining from the solid. The general characteristics, critical dimensions, prototype test requirements, general quality control and conditions of acceptance are dealt with in ISO 3189/1.

2 References

ISO 261, *ISO general purpose metric screw threads — General plan.*

ISO 643, *Steels — Micrographic determination of the ferritic or austenitic grain size.*

ISO 965, *ISO general purpose metric screw threads — Tolerances.*

ISO 3189/1, *Socketts for wire ropes for general purposes — Part 1: General characteristics and conditions of acceptance.*

3 General conditions of acceptance

Socketts shall comply with the requirements of ISO 3189/1 as well as with those in this part of ISO 3189.

4 Materials and heat treatment

4.1 Quality of material

The steel used shall be produced by the open hearth or electric process, or by oxygen blown process.

It shall be fully killed and, when heat-treated, be capable of producing in the finished socket the mechanical properties required by this specification.

In its finished state as supplied to the socket-maker, the steel shall meet the following requirements, as determined by check analysis on the finished socket.

Its sulfur and phosphorus content shall be restricted as follows:

	Cast analysis	Check analysis
Sulfur, max.	0,045 %	0,050 %
Phosphorus, max.	0,040 %	0,045 %

The steel shall be made in conformity with a suitable deoxidation practice to obtain an austenitic grain size of 5 or finer, when tested in accordance with ISO 643.

This could be achieved, for example, by ensuring that it contains sufficient aluminium, or an equivalent element, to permit the manufacture of socketts stabilized against strain age embrittlement during service; a minimum value of 0,020 % metallic aluminium is given for guidance.

Within the above limitations, it is the responsibility of the socket-maker to select steel so that the finished socket, suitably heat-treated, meets the mechanical properties specified in this part of ISO 3189.

4.2 Heat treatment

Socketts shall, after forging or gas cutting, be subjected to a suitable heat treatment.

5 Socket manufacture

Socketts complying with this part of ISO 3189 shall be (open) type I or (closed) type II, and shall conform to the critical dimensions specified in ISO 3189/1 (see table 1 and figures 1 and 2).

5.1 Bodies

Bodies for this type of socket shall be produced in one piece by drop forging, hand forging or machining from the solid; the body shall be neatly and cleanly made. All flashes or fins produced in manufacture shall be removed. All sharp edges shall be suitably radiused. Welding shall not be permitted.

For bodies machined from the solid, machine gas cutting may be used to assist in rough shaping. An adequate excess of material shall be left after gas cutting for the removal of surface defects by machining or, in the case of the edges of the lugs and the continued edges around the top of the basket, by grinding.

The pin holes shall be drilled or otherwise machined in one operation to ensure, as far as is practicable, that the centreline of the holes is at right angles to the centreline of the socket basket.

5.2 Pins

The pins shall be forged, forged and machined, or machined from the bar, and may be threaded or plain, according to the purchaser's requirements.

The length of the plain portion of a threaded type pin shall be such that the nut will tighten against the shoulder of the pin and not against the outside face of the socket lug.

The threads on pins and associated nuts shall comply with the coarse pitch series, specified in ISO 261, and tolerance class 6g, specified in ISO 965.

A suitable safety device, such as a split cotter pin, shall be provided to prevent nuts accidentally becoming displaced.

6 Special quality control for forged sockets and sockets machined from the solid

The general quality control requirements specified in ISO 3189/1 shall be met. In addition, if requested by the purchaser, the following tests shall be carried out.

6.1 Magnetic flaw or dye penetrant method

If requested by the purchaser, each socket shall be subjected to an approved method of particle crack detection. All external and internal surfaces shall be examined, and cracks, rips or other detrimental defects shall not be accepted.

6.2 Radiographic tests

If requested by the purchaser, radiographic tests shall be carried out. The number of samples shall be in accordance with the following table.

Lot or batch size (Number of sockets)	Sample size (Number of sockets)
2 to 8	2
9 to 15	3
16 to 25	5
26 to 50	8
51 to 90	13
91 to 150	20
151 to 280	32
281 to 500	50
501 to 1 200	80
1 201 to 3 200	125
3 201 to 10 000	200

Acceptable levels of defect should be agreed between the purchaser and the manufacturer.

6.3 Ultrasonic tests

If requested by the purchaser as an alternative to the magnetic flaw or dye penetrant method and the radiographic test, the sockets shall be subjected to ultrasonic tests. In such cases, the test method and the acceptable levels of defect shall be the subject of agreement between the purchaser and the manufacturer.