

# International Standard



# 7320

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

## **Aerospace — Fluid systems port connection, seal and fitting end — Dimensions**

*Aéronautique et espace — Orifice fileté de raccordement, joint et élément à filetage extérieur dans les systèmes de fluides — Dimensions*

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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 7320 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*.

# Aerospace — Fluid systems port connection, seal and fitting end — Dimensions

## 1 Scope and field of application

This International Standard establishes a system for sealing the port connection of couplings used in the aerospace industry.

It lays down dimensions to achieve interchangeability of the port connection, the fitting end and a seal. The seal may be a standard O-ring or a special ring.

## 2 References

ISO 1101, *Technical drawings — Geometrical tolerancing — Tolerances of form, orientation, location and run-out — Generalities, definitions, symbols, indications on drawings.*

ISO 2692, *Technical drawings — Geometrical tolerancing — Maximum material principle.*<sup>1)</sup>

ISO 3601/1, *Fluid systems — Sealing devices — O-rings — Part 1 : Inside diameters, cross-sections, tolerances and size identification code.*<sup>2)</sup>

ISO 5855, *Aerospace construction — MJ threads.*

## 3 Sealing principle and assembly of the coupling

The coupling comprises three elements :

- the port element, including the internal thread (see 4.1);
- the fitting element, including an external thread and a groove intended to receive the O-ring (see 4.2) or a special seal; this element is screwed into the internal threaded element;
- the seal element, providing for maintaining system pressure without leakage [a standard O-ring (see 4.3) or a special seal].

1) At present at the stage of draft. (Revision of ISO 1101/2-1974.)

2) At present at the stage of draft. (Revision of ISO 3601/1-1978.)

4 Dimensions

4.1 Port connection

Remove burrs 0,1 to 0,4,  
unless otherwise specified

Dimensions and tolerance in millimetres, surface roughness values in micrometres

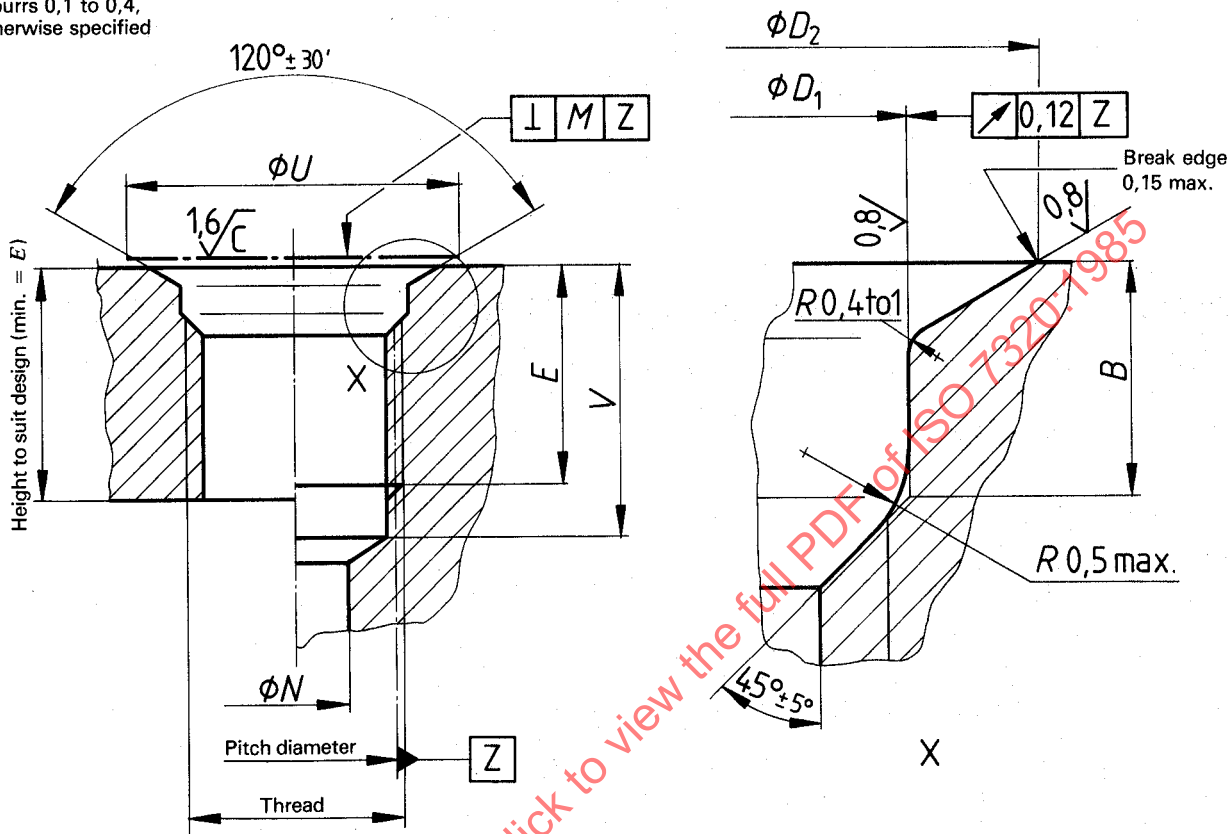


Figure 1 — Port connection configuration

Table 1 — Port connection dimensions

Dimensions and tolerances in millimetres

| DN <sup>1)</sup> | Thread <sup>2)</sup><br>4H5H | B<br>+ 0,4<br>0 | D <sub>1</sub> |             | D <sub>2</sub><br>+ 0,4<br>0 | E<br>min. | M    | N<br>min.            | U<br>min. | V<br>max. |      |
|------------------|------------------------------|-----------------|----------------|-------------|------------------------------|-----------|------|----------------------|-----------|-----------|------|
|                  |                              |                 | nom.           | tol.        |                              |           |      |                      |           |           |      |
| 3                | MJ8 × 1,00                   | 1,9             | 8,6            | + 0,10<br>0 | 11,3                         | 11,0      | 0,08 | Tube inside diameter | 15        | 14,5      |      |
| 4                |                              |                 |                |             | 13,3                         |           |      |                      |           |           | 18   |
| 5                |                              |                 |                |             | 15,1                         |           |      |                      |           |           | 20   |
| 6                | MJ12 × 1,25                  |                 | 12,4           |             |                              | 12,5      |      |                      |           | 23        | 20,5 |
| 8                | MJ14 × 1,50                  |                 | 14,6           | + 0,15<br>0 | 18,3                         | 16,0      | 0,10 |                      |           |           |      |
| 10               | MJ16 × 1,50                  |                 | 16,6           |             | 20,3                         |           |      |                      |           | 25        |      |
| 12               | MJ18 × 1,50                  |                 | 18,6           |             | 22,3                         |           |      |                      |           | 28        |      |
| 14               | MJ20 × 1,50                  |                 | 20,6           |             | 24,3                         |           |      |                      |           | 31        |      |
| 16               | MJ22 × 1,50                  |                 | 22,6           |             | 26,3                         |           |      |                      |           | 33        |      |
| 18               | MJ24 × 1,50                  |                 | 24,6           |             | 28,3                         |           |      |                      |           | 37        |      |
| 20               | MJ27 × 1,50                  |                 | 27,6           |             | 31,3                         |           |      |                      |           | 42        |      |
| 25               | MJ33 × 1,50                  |                 | 33,6           |             | 37,3                         |           |      |                      |           |           |      |
| 32               | MJ42 × 2,00                  | 4,3             | 43,0           |             | 47,1                         | 20,0      | 0,20 |                      |           | 56        | 26,0 |
| 40               | MJ50 × 2,00                  |                 | 51,0           |             | 55,1                         |           |      |                      | 61        |           |      |

1) DN = nominal size (outside diameter of the corresponding tube).

2) Threads in accordance with ISO 5855.

## 4.2 Fitting end

Remove burrs 0,1 to 0,4,  
unless otherwise specified

Dimensions and tolerances in millimetres, surface roughness values in micrometres

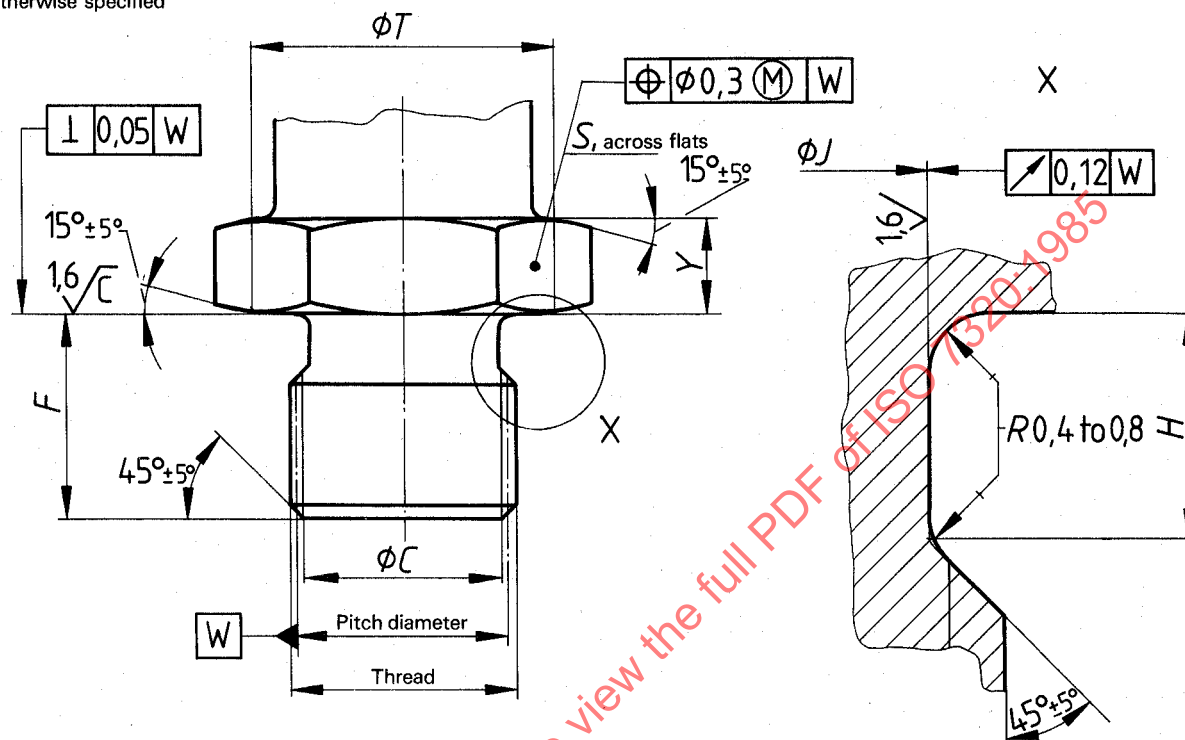


Figure 2 — Fitting end configuration

Table 2 — Fitting end dimensions

Dimensions and tolerances in millimetres

| DN <sup>1)</sup> | Thread <sup>2)</sup><br>4h6h | C<br>± 0,5 | F<br>0<br>− 0,2 | H<br>+ 0,4<br>0 | J           |             | S    |      | T<br>+ 0,5<br>0 | Y<br>min. |
|------------------|------------------------------|------------|-----------------|-----------------|-------------|-------------|------|------|-----------------|-----------|
|                  |                              |            |                 |                 | nom.        | tol.        | nom. | tol. |                 |           |
| 3                | MJ8 × 1,00                   | 6,2        | 10,0            | 1,9             | 6,3         | 0<br>− 0,08 | 14   | h13  | 13,8            | 3         |
| 4                |                              |            |                 |                 | 8,3         |             | 17   |      | 16,8            |           |
| 5                |                              |            |                 |                 | MJ10 × 1,00 |             | 8,2  |      | 10,1            |           |
| 6                | MJ12 × 1,25                  | 9,8        | 11,5            | 3,4             | 11,7        | 0<br>− 0,10 | 22   |      | 21,7            | 4         |
| 8                | MJ14 × 1,50                  | 11,5       | 13,7            |                 | 24          |             | 23,7 |      | 5               |           |
| 10               | MJ16 × 1,50                  | 13,5       | 15,7            |                 | 27          |             | 26,7 |      |                 |           |
| 12               | MJ18 × 1,50                  | 15,5       | 17,7            |                 | 30          |             | 29,7 |      |                 |           |
| 14               | MJ20 × 1,50                  | 17,5       | 19,7            |                 | 32          |             | 31,6 |      |                 |           |
| 16               | MJ22 × 1,50                  | 19,5       | 21,7            |                 | 36          |             | 35,4 | h14  |                 |           |
| 18               | MJ24 × 1,50                  | 21,5       | 24,7            |                 | 41          |             | 40,4 |      |                 |           |
| 20               | MJ27 × 1,50                  | 24,5       | 30,7            |                 | 50          |             | 49,4 |      | 6               |           |
| 25               | MJ33 × 1,50                  | 30,5       | 39,0            |                 | 0<br>− 0,15 | 60          | 59,3 |      |                 |           |
| 32               | MJ42 × 2,00                  | 38,9       | 19,0            | 4,3             | 47,0        |             |      |      |                 |           |
| 40               | MJ50 × 2,00                  | 46,9       |                 |                 |             |             |      |      |                 |           |

1) DN = nominal size (outside diameter of the corresponding tube).

2) Threads in accordance with ISO 5855.

4.3 O-ring seal

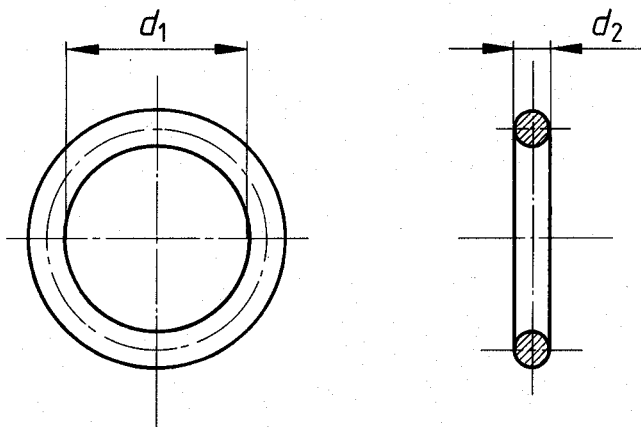


Figure 3 — O-ring seal configuration

Table 3 — Selection of O-ring seal sizes<sup>1)</sup>

Dimensions and tolerances in millimetres

| DN <sup>2)</sup> | d <sub>1</sub> |        | d <sub>2</sub> |        |
|------------------|----------------|--------|----------------|--------|
|                  | nom.           | tol.   | nom.           | tol.   |
| 3                | 6,00           | ± 0,13 | 1,80           | ± 0,08 |
| 4                |                |        |                |        |
| 5                |                |        |                |        |
| 6                | 8,00           | ± 0,14 | 2,65           | ± 0,09 |
| 8                | 9,50           | ± 0,15 |                |        |
| 10               | 11,20          | ± 0,16 |                |        |
| 12               | 13,20          | ± 0,17 |                |        |
| 14               | 15,00          | ± 0,18 |                |        |
| 16               | 17,00          | ± 0,20 |                |        |
| 18               | 19,00          | ± 0,21 |                |        |
| 20               | 21,20          | ± 0,22 |                |        |
| 25               | 23,60          | ± 0,24 |                |        |
| 32               | 30,00          | ± 0,27 |                |        |
| 40               | 37,50          | ± 0,32 | 3,55           | ± 0,10 |
|                  | 45,00          | ± 0,36 |                |        |

1) Selection taken from ISO 3601/1, Series A.

2) DN = nominal size (outside diameter of the corresponding tube).