

MJ threads —

Part 3: Limit dimensions for fittings for fluid systems

ICS 49.030.10

National foreword

This British Standard reproduces verbatim ISO 5855-3:1999 and implements it as the UK national standard. It supersedes BS 6293-3:1994 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee ACE/12, Aerospace fasteners and fastening systems, to Subcommittee ACE/12/1, Aerospace fasteners and fastening systems (International), which has the responsibility to:

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Summary of pages

This document comprises a front cover, an inside front cover, the ISO title page, page ii, pages 1 to 6, an inside back cover and a back cover.

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Amendments issued since publication

| Amd. No. | Date | Comments |
|----------|------|----------|
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This British Standard, having been prepared under the direction of the Engineering Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 January 2000

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ISBN 0 580 34017 1

**INTERNATIONAL
STANDARD**

Second edition
1999-10-15

Aerospace — MJ threads —

Part 3:

Limit dimensions for fittings for fluid systems

Aéronautique et espace — Filetage MJ —

Partie 3: Dimensions limites pour raccordements de systèmes de fluides



Reference number
ISO 5855-3:1999(E)

Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 5855-3 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 4, *Aerospace fastener systems*.

This second edition cancels and replaces the first edition (ISO 5855-3:1988), of which it constitutes a technical revision.

ISO 5855 consists of the following parts, under the general title *Aerospace — MJ threads*:

- *Part 1: General requirements*
- *Part 2: Limit dimensions for bolts and nuts*
- *Part 3: Limit dimensions for fittings for fluid systems*

Aerospace — MJ threads —

Part 3:

Limit dimensions for fittings for fluid systems

1 Scope

This part of ISO 5855 specifies limit dimensions of MJ threads for fluid systems fittings for aerospace construction.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 5855. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 5855 are encouraged to investigate the possibility of applying the most recent edition of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 965-1:1998, *ISO general-purpose metric screw threads — Tolerances — Part 1: Principles and basic data*.

ISO 5855-1:1999, *Aerospace — MJ threads — Part 1: General requirements*.

3 Nominal diameters and pitches

See Table 1.

Table 1 — Nominal diameters and pitches

Dimensions in millimetres

| Nominal diameter <i>d</i> or <i>D</i> | Pitch <i>P</i> | Nominal diameter <i>d</i> or <i>D</i> | Pitch <i>P</i> |
|--|-------------------|--|-------------------|
| 8 | 1 | 27 | 1,5 |
| 10 | | 30 | |
| 12 | 1,25 | 33 | |
| 14 | 1,5 | 36 | |
| 16 | | 39 | |
| 18 | | 42 | 2 |
| 20 | | 48 | |
| 22 | 50 | | |
| 24 | | | |

4 Tolerance classes

See Table 2.

Table 2 — Tolerance classes

| Assembly | External threads | | Internal threads | |
|-------------------------------------|------------------|----|------------------|----|
| | d | | D_1 | |
| General case (clearance may be nil) | d | 6h | D_1 | 5H |
| | d_2 | 4h | D_2 | 4H |
| Requiring systematic clearance | d | 6g | D_1 | 5H |
| | d_2 | 4g | D_2 | 4H |

5 Provisions for coated threads

Before coating, the dimensions of the threads shall be compatible with the thickness of the coating selected and with the limit dimensions for finished parts specified in clause 6.

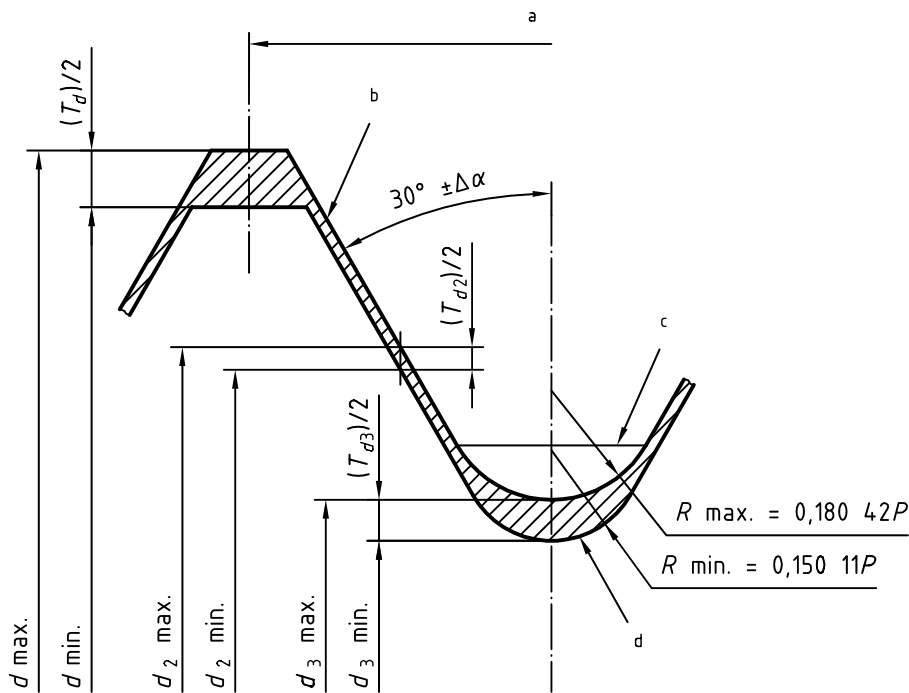
6 Limit dimensions for finished parts (coated or uncoated)

6.1 External threads

6.1.1 4h6h external threads

Figure 1 illustrates the position and the form of the limit profiles (maximum and minimum) in relation to the basic profile (see ISO 5855-1).

Tables 3 and 4 specify the limit dimensions.



- a Pitch $\pm \Delta P$
- b Basic and maximum profiles
- c Basic profile
- d Minimum profile

Figure 1 — Limit profiles for external threads (clearance may be nil)

Table 3 — Limit dimensions for 4h6h external threads

Dimensions in millimetres

| Thread designation | Major diameter d | | | Pitch diameter d_2 | | | Minor diameter d_3 | | |
|--------------------|-----------------------|--------|-----------------|-------------------------|--------|--------------------|-------------------------|--------|----------|
| | max. | min. | T_d (6h) a | max. | min. | T_{d2} (4h) a | max. | min. | T_{d3} |
| MJ8 × 1-4h6h | 8,00 | 7,82 | 0,18 | 7,350 | 7,279 | 0,071 | 6,845 | 6,713 | 0,132 |
| MJ10 × 1-4h6h | 10,00 | 9,82 | 0,18 | 9,350 | 9,279 | 0,071 | 8,845 | 8,713 | 0,132 |
| MJ12 × 1,25-4h6h | 12,000 | 11,788 | 0,212 | 11,188 | 11,103 | 0,085 | 10,557 | 10,396 | 0,161 |
| MJ14 × 1,5-4h6h | 14,000 | 13,764 | 0,236 | 13,026 | 12,936 | 0,09 | 12,268 | 12,087 | 0,181 |
| MJ16 × 1,5-4h6h | 16,000 | 15,764 | 0,236 | 15,026 | 14,936 | 0,09 | 14,268 | 14,087 | 0,181 |
| MJ18 × 1,5-4h6h | 18,000 | 17,764 | 0,236 | 17,026 | 16,936 | 0,09 | 16,268 | 16,087 | 0,181 |
| MJ20 × 1,5-4h6h | 20,000 | 19,764 | 0,236 | 19,026 | 18,936 | 0,09 | 18,268 | 18,087 | 0,181 |
| MJ22 × 1,5-4h6h | 22,000 | 21,764 | 0,236 | 21,026 | 20,936 | 0,09 | 20,268 | 20,087 | 0,181 |
| MJ24 × 1,5-4h6h | 24,000 | 23,764 | 0,236 | 23,026 | 22,931 | 0,095 | 22,268 | 22,082 | 0,186 |
| MJ27 × 1,5-4h6h | 27,000 | 26,764 | 0,236 | 26,026 | 25,931 | 0,095 | 25,268 | 25,082 | 0,186 |
| MJ30 × 1,5-4h6h | 30,000 | 29,764 | 0,236 | 29,026 | 28,931 | 0,095 | 28,268 | 28,082 | 0,186 |
| MJ33 × 1,5-4h6h | 33,000 | 32,764 | 0,236 | 32,026 | 31,931 | 0,095 | 31,268 | 31,082 | 0,186 |
| MJ36 × 1,5-4h6h | 36,000 | 35,764 | 0,236 | 35,026 | 34,931 | 0,095 | 34,268 | 34,082 | 0,186 |
| MJ39 × 1,5-4h6h | 39,000 | 38,764 | 0,236 | 38,026 | 37,931 | 0,095 | 37,268 | 37,082 | 0,186 |
| MJ42 × 2-4h6h | 42,00 | 41,72 | 0,28 | 40,701 | 40,595 | 0,106 | 39,691 | 39,463 | 0,228 |
| MJ48 × 2-4h6h | 48,00 | 47,72 | 0,28 | 46,701 | 46,589 | 0,112 | 45,691 | 45,457 | 0,234 |
| MJ50 × 2-4h6h | 50,00 | 49,72 | 0,28 | 48,701 | 48,589 | 0,112 | 47,691 | 47,457 | 0,234 |

a In accordance with ISO 965-1

Table 4 — Root radii for external threads

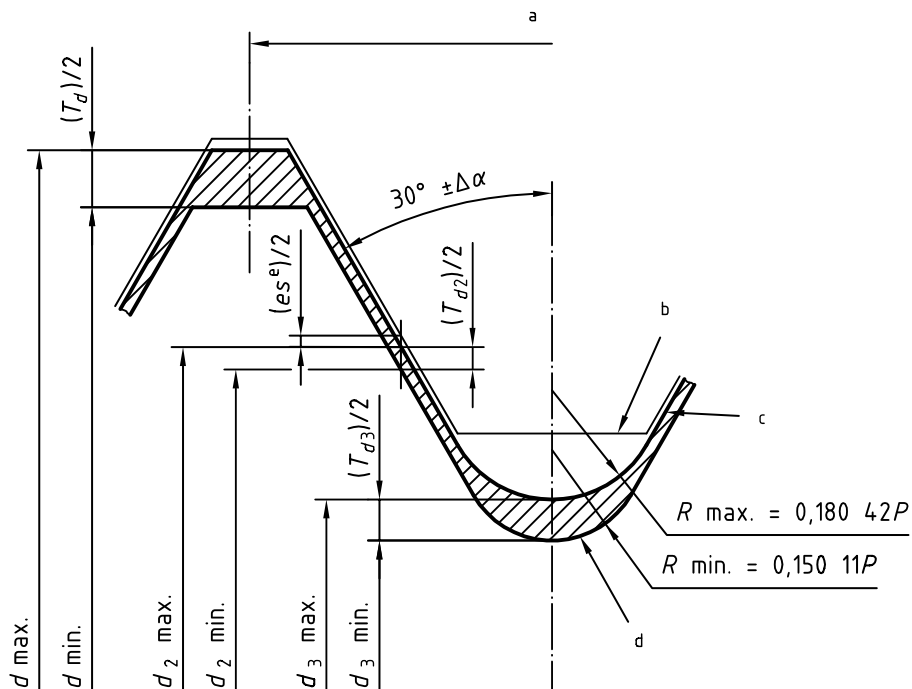
Dimensions in millimetres

| Pitch P | Root radius R | |
|--------------|--------------------|-------|
| | max. | min. |
| 1 | 0,18 | 0,15 |
| 1,25 | 0,226 | 0,188 |
| 1,5 | 0,271 | 0,225 |
| 2 | 0,361 | 0,300 |

6.1.2 4g6g external threads

Figure 2 illustrates the position and the form of the limit profiles (maximum and minimum) in relation to the basic profile (see ISO 5855-1).

Tables 4 and 5 specify the limit dimensions.



- a Pitch $\pm \Delta P$
- b Basic profile
- c Maximum profile
- d Minimum profile
- e es is the basic upper deviation, see ISO 965-1

Figure 2 — Limit profiles for external threads (systematic clearance)

Table 5 — Limit dimensions for 4g6g external threads

Dimensions in millimetres

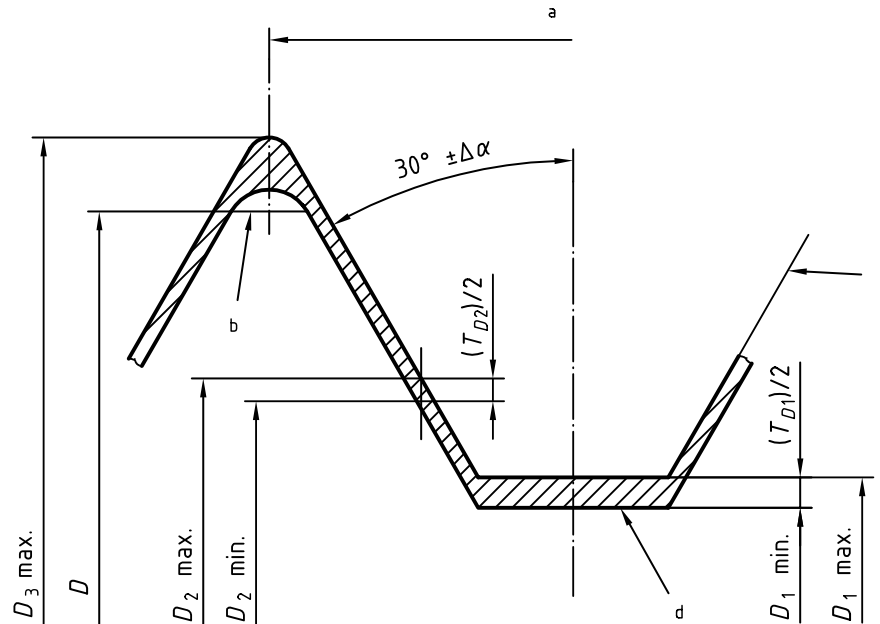
| Thread designation | Major diameter d | | | Pitch diameter d_2 | | | Minor diameter d_3 | | |
|--------------------|-----------------------|--------|----------------------------|-------------------------|--------|--------------------------------|-------------------------|--------|-----------|
| | max. | min. | T_d (6g) ^a | max. | min. | T_{d_2} (4g) ^a | max. | min. | T_{d_3} |
| | | | | | | | | | |
| MJ8 × 1-4g6g | 7,974 | 7,794 | 0,18 | 7,324 | 7,253 | 0,071 | 6,819 | 6,687 | 0,132 |
| MJ10 × 1-4g6g | 9,974 | 9,794 | 0,18 | 9,324 | 9,253 | 0,071 | 8,819 | 8,687 | 0,132 |
| MJ12 × 1,25-4g6g | 11,972 | 11,760 | 0,212 | 11,160 | 11,075 | 0,085 | 10,529 | 10,368 | 0,161 |
| MJ14 × 1,5-4g6g | 13,968 | 13,732 | 0,236 | 12,994 | 12,904 | 0,09 | 12,236 | 12,055 | 0,181 |
| MJ16 × 1,5-4g6g | 15,968 | 15,732 | 0,236 | 14,994 | 14,904 | 0,09 | 14,236 | 14,055 | 0,181 |
| MJ18 × 1,5-4g6g | 17,968 | 17,732 | 0,236 | 16,994 | 16,904 | 0,09 | 16,236 | 16,055 | 0,181 |
| MJ20 × 1,5-4g6g | 19,968 | 19,732 | 0,236 | 18,994 | 18,904 | 0,09 | 18,236 | 18,055 | 0,181 |
| MJ22 × 1,5-4g6g | 21,968 | 21,732 | 0,236 | 20,994 | 20,904 | 0,09 | 20,236 | 20,055 | 0,181 |
| MJ24 × 1,5-4g6g | 23,968 | 23,732 | 0,236 | 22,994 | 22,899 | 0,095 | 22,236 | 22,050 | 0,186 |
| MJ27 × 1,5-4g6g | 26,968 | 26,732 | 0,236 | 25,994 | 25,899 | 0,095 | 25,236 | 25,050 | 0,186 |
| MJ30 × 1,5-4g6g | 29,968 | 29,732 | 0,236 | 28,994 | 28,899 | 0,095 | 28,236 | 28,050 | 0,186 |
| MJ33 × 1,5-4g6g | 32,968 | 32,732 | 0,236 | 31,994 | 31,899 | 0,095 | 31,236 | 31,050 | 0,186 |
| MJ36 × 1,5-4g6g | 35,968 | 35,732 | 0,236 | 34,994 | 34,899 | 0,095 | 34,236 | 34,050 | 0,186 |
| MJ39 × 1,5-4g6g | 38,968 | 38,732 | 0,236 | 37,994 | 37,899 | 0,095 | 37,236 | 37,050 | 0,186 |
| MJ42 × 2-4g6g | 41,962 | 41,682 | 0,28 | 40,663 | 40,557 | 0,106 | 39,653 | 39,425 | 0,228 |
| MJ48 × 2-4g6g | 47,962 | 47,682 | 0,28 | 46,663 | 46,551 | 0,112 | 45,653 | 45,419 | 0,234 |
| MJ50 × 2-4g6g | 49,962 | 49,682 | 0,28 | 48,663 | 48,551 | 0,112 | 47,653 | 47,419 | 0,234 |

^a In accordance with ISO 965-1

6.2 Internal threads

Figure 3 illustrates the position and the form of the limit profiles (maximum and minimum) in relation to the basic profile (see ISO 5855-1).

Table 6 specifies the limit dimensions.



- a Pitch $\pm \Delta P$
- b Basic profile
- c Maximum profile
- d Basic and minimum profiles

Figure 3 — Limit profiles for internal threads

Table 6 — Limit dimensions for 4H5H internal threads

Dimensions in millimetres

| Thread designation | Major diameter D_3 ^a max. | Pitch diameter | | | Minor diameter | | |
|--------------------|--|----------------|--------|-------------------------------|----------------|--------|-------------------------------|
| | | D_2 | | T_{D2} (4H) ^b | D_1 | | T_{D1} (5H) ^b |
| | | max. | min. | | max. | min. | |
| MJ8 × 1-4H5H | 8,239 | 7,445 | 7,350 | 0,095 | 7,216 | 7,026 | 0,19 |
| MJ10 × 1-4H5H | 10,239 | 9,445 | 9,350 | 0,095 | 9,216 | 9,026 | 0,19 |
| MJ12 × 1,25-4H5H | 12,292 | 11,300 | 11,188 | 0,112 | 10,994 | 10,782 | 0,212 |
| MJ14 × 1,5-4H5H | 14,335 | 13,144 | 13,026 | 0,118 | 12,775 | 12,539 | 0,236 |
| MJ16 × 1,5-4H5H | 16,335 | 15,144 | 15,026 | 0,118 | 14,775 | 14,539 | 0,236 |
| MJ18 × 1,5-4H5H | 18,335 | 17,144 | 17,026 | 0,118 | 16,775 | 16,539 | 0,236 |
| MJ20 × 1,5-4H5H | 20,335 | 19,144 | 19,026 | 0,118 | 18,775 | 18,539 | 0,236 |
| MJ22 × 1,5-4H5H | 22,335 | 21,144 | 21,026 | 0,118 | 20,775 | 20,539 | 0,236 |
| MJ24 × 1,5-4H5H | 24,342 | 23,151 | 23,026 | 0,125 | 22,775 | 22,539 | 0,236 |
| MJ27 × 1,5-4H5H | 27,342 | 26,151 | 26,026 | 0,125 | 25,775 | 25,539 | 0,236 |
| MJ30 × 1,5-4H5H | 30,342 | 29,151 | 29,026 | 0,125 | 28,775 | 28,539 | 0,236 |
| MJ33 × 1,5-4H5H | 33,342 | 32,151 | 32,026 | 0,125 | 31,775 | 31,539 | 0,236 |
| MJ36 × 1,5-4H5H | 36,342 | 35,151 | 35,026 | 0,125 | 34,775 | 34,539 | 0,236 |
| MJ39 × 1,5-4H5H | 39,342 | 38,151 | 38,026 | 0,125 | 37,775 | 37,539 | 0,236 |
| MJ42 × 2-4H5H | 42,429 | 40,841 | 40,701 | 0,14 | 40,351 | 40,051 | 0,3 |
| MJ48 × 2-4H5H | 48,439 | 46,851 | 46,701 | 0,15 | 46,351 | 46,051 | 0,3 |
| MJ50 × 2-4H5H | 50,439 | 48,851 | 48,701 | 0,15 | 48,351 | 48,051 | 0,3 |

^a D_3 min. is not specified. However, it shall be greater than D (see Figure 3).
^b In accordance with ISO 965-1

6.3 Maximum permissible deviations on pitch (lead) and on half flank angle

Values given in Table 7 have been taken from Table 6 of ISO 5855-1:1999.

Table 7 — Maximum permissible deviations on pitch (lead) and on half flank angle

| Nominal diameter d or D mm | Pitch P mm | External thread | | Internal thread | |
|--------------------------------------|--------------------|-----------------|-----------------|-----------------|-----------------|
| | | ΔP | $\Delta \alpha$ | ΔP | $\Delta \alpha$ |
| | | μm | | μm | |
| 8 | 1 | 16,4 | 1° 5' | 21,9 | 1° 27' |
| 10 | | | | | |
| 12 | 1,5 | 20,8 | 0° 55' | 27,3 | 1° 12' |
| 14 | | | | | |
| 16 | | | | | |
| 18 | | | | | |
| 20 | | | | | |
| 22 | | | | | |
| 24 | | | | | |
| 27 | 2 | 25,9 | 0° 51' | 34,6 | 1° 8' |
| 30 | | | | | |
| 33 | | | | | |
| 36 | | | | | |
| 39 | | | | | |
| 42 | | | | | |
| 48 | | | | | |
| 50 | | | | | |

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