

下穴径
DRILL HOLE SIZE

下穴径の大きさは、タッピング作業の難易を大きく左右すると言っても過言ではありません。
おねじのねじ山とめねじのねじ溝が、かみ合う高さや基準山形の高さとの比率をひっかかり率といい、次式で表わされます。

The Drill Hole diameter (or Thread Overlap Ratio) substantially affects tapping operations.
cf. Thread Overlap Ratio = percentage of thread overlap (a) to basic overlap (h)

ひっかかり率 ★ Formula ★

$$\text{Percentage of thread engagement} = \frac{(\text{おねじ外径の基準寸法}) - (\text{下穴径})}{2 \times (\text{基準のひっかかりの高さ})} \times 100$$

(basic major dia. of external thread) - (drill hole dia.)
2x(basic height of thread engagement)

めねじの下穴を加工するときは、このひっかかり率を考慮して穴あけをしなければなりません。
めねじの内径は下穴径に等しいので、ピッチP、おねじの外径d、ひっかかり率を定めれば、下穴径はメートル、ユニファイねじの場合、おねじの山の基準高さは0.541266Pなので

Because the minor dia. of the internal thread is equal to the Drill Hole diameter, the Drill diameter is calculated using the following formula (Metric and Unified Threads:)

下穴径 (メートルねじ、ユニファイねじ) ★ Formula ★

$$\text{下穴径} = d - 2 \times (0.541266P) \times \left(\frac{\text{ひっかかり率}}{100} \right)$$

Drill Hole diameter = d - 2 × (0.541266P) × (Percentage of thread engagement / 100)

で求められます。

d:おねじ外径 d:Major diameter of External thread (mm)
P:ピッチ P:Pitch (mm)

図1 ひっかかり率
おねじは基準山形の形をしている場合

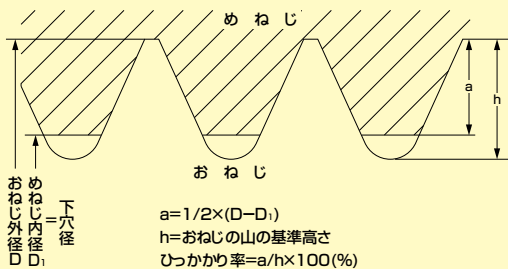
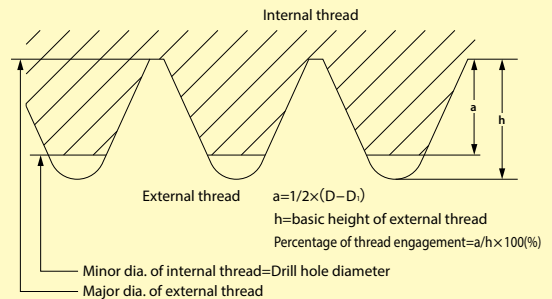


FIGURE 1. Percentage of thread engagement
When external thread profile is equal to basic profile



ねじ下穴径表 RECOMMENDED DRILL HOLE SIZE

インサートねじ用はP.869を参照下さい。For screw thread insert: Please refer to p.869

メートルねじ Metric screw threads

JIS B 0209-1:2007(単位: mm)
JIS B 8031-2007(Unit: mm)

| ねじの呼び Thread size | 推奨下穴径 Recommended drill hole dia. | 最小下穴径 Min. drill hole dia. | | 最大下穴径 Max. drill hole dia. | | | |
|----------------------|---|-------------------------------|---------|-------------------------------|------|------|--|
| | | 各精度共通 | 旧JIS2級用 | 4H用 | 5H用 | 6H用 | |
| M 1 × 0.25 | 0.75 | 0.73 | 0.78 | 0.77 | 0.78 | 0.8 | |
| * 1 × 0.2 | 0.8 | 0.79 | — | 0.82 | 0.83 | 0.84 | |
| 1.1 × 0.25 | 0.85 | 0.83 | 0.88 | 0.87 | 0.88 | 0.9 | |
| * 1.1 × 0.2 | 0.9 | 0.89 | — | 0.92 | 0.93 | 0.94 | |
| 1.2 × 0.25 | 0.95 | 0.93 | 0.98 | 0.97 | 0.98 | 1 | |
| * 1.2 × 0.2 | 1 | 0.99 | — | 1.02 | 1.03 | 1.04 | |
| 1.4 × 0.3 | 1.1 | 1.08 | 1.14 | 1.12 | 1.14 | 1.16 | |
| * 1.4 × 0.2 | 1.2 | 1.19 | — | 1.22 | 1.23 | 1.24 | |
| 1.6 × 0.35 | 1.25 | 1.23 | 1.32 | 1.28 | 1.3 | 1.32 | |
| * 1.6 × 0.2 | 1.4 | 1.39 | — | 1.42 | 1.43 | 1.44 | |
| * 1.7 × 0.35 | 1.35 | — | — | 1.38 | 1.4 | 1.42 | |
| * 1.7 × 0.3 | 1.4 | — | — | 1.42 | 1.44 | 1.46 | |
| * 1.7 × 0.25 | 1.45 | — | — | 1.47 | 1.48 | 1.5 | |
| * 1.7 × 0.2 | 1.5 | — | — | 1.52 | 1.53 | 1.54 | |
| 1.8 × 0.35 | 1.45 | 1.43 | 1.52 | 1.48 | 1.5 | 1.52 | |
| * 1.8 × 0.2 | 1.6 | 1.59 | — | 1.62 | 1.63 | 1.64 | |
| 2 × 0.4 | 1.6 | 1.57 | 1.67 | 1.63 | 1.65 | 1.67 | |
| * 2 × 0.25 | 1.75 | 1.73 | — | 1.77 | 1.78 | 1.8 | |
| 2.2 × 0.45 | 1.75 | 1.72 | 1.83 | 1.79 | 1.81 | 1.83 | |
| * 2.2 × 0.25 | 1.95 | 1.93 | — | 1.97 | 1.98 | 2 | |
| * 2.3 × 0.4 | 1.9 | — | — | 1.93 | 1.95 | 1.97 | |
| * 2.3 × 0.35 | 1.95 | — | — | 1.98 | 2 | 2.02 | |
| * 2.3 × 0.25 | 2.05 | — | — | 2.07 | 2.08 | 2.1 | |
| 2.5 × 0.45 | 2.05 | 2.02 | 2.13 | 2.09 | 2.11 | 2.13 | |
| 2.5 × 0.35 | 2.15 | 2.13 | 2.22 | 2.18 | 2.2 | 2.22 | |
| * 2.6 × 0.45 | 2.15 | — | — | 2.19 | 2.22 | 2.23 | |
| * 2.6 × 0.35 | 2.25 | — | — | 2.28 | 2.3 | 2.32 | |
| * 3 × 0.6 | 2.4 | 2.35 | 2.42 | 2.45 | 2.47 | 2.51 | |
| 3 × 0.5 | 2.5 | 2.46 | 2.59 | 2.54 | 2.57 | 2.59 | |
| 3 × 0.35 | 2.65 | 2.63 | 2.72 | 2.68 | 2.7 | 2.72 | |
| 3.5 × 0.6 | 2.9 | 2.85 | 3.01 | 2.95 | 2.97 | 3.01 | |
| * 3.5 × 0.5 | 3 | 2.96 | — | 3.04 | 3.07 | 3.09 | |
| 3.5 × 0.35 | 3.15 | 3.13 | 3.22 | 3.18 | 3.2 | 3.22 | |
| 4 × 0.75 | 3.25 | 3.19 | 3.32 | 3.3 | 3.33 | 3.37 | |
| 4 × 0.7 | 3.3 | 3.25 | 3.42 | 3.35 | 3.38 | 3.42 | |
| 4 × 0.5 | 3.5 | 3.46 | 3.59 | 3.54 | 3.57 | 3.59 | |
| 4.5 × 0.75 | 3.75 | 3.69 | 3.87 | 3.8 | 3.83 | 3.87 | |
| 4.5 × 0.5 | 4 | 3.96 | 4.09 | 4.04 | 4.07 | 4.09 | |
| * 5 × 0.9 | 4.1 | — | — | 4.15 | 4.19 | 4.23 | |
| 5 × 0.8 | 4.2 | 4.14 | 4.33 | 4.25 | 4.29 | 4.33 | |
| * 5 × 0.75 | 4.25 | 4.19 | — | 4.3 | 4.33 | 4.37 | |
| 5 × 0.5 | 4.5 | 4.46 | 4.59 | 4.54 | 4.57 | 4.59 | |
| * 5.5 × 0.9 | 4.6 | — | — | 4.65 | 4.69 | 4.73 | |
| * 5.5 × 0.75 | 4.75 | — | — | 4.8 | 4.83 | 4.87 | |
| 5.5 × 0.5 | 5 | 4.96 | 5.09 | 5.04 | 5.07 | 5.09 | |
| 6 × 1 | 5 | 4.92 | 5.15 | 5.06 | 5.1 | 5.15 | |
| 6 × 0.75 | 5.25 | 5.19 | 5.37 | 5.3 | 5.33 | 5.37 | |
| * 6 × 0.5 | 5.5 | — | — | 5.54 | 5.57 | 5.59 | |
| 7 × 1 | 6 | 5.92 | 6.15 | 6.06 | 6.1 | 6.15 | |
| 7 × 0.75 | 6.25 | 6.19 | 6.37 | 6.3 | 6.33 | 6.37 | |

推奨下穴径は、旧JIS2級めねじ用です。
※ JIS規格にないめねじの下穴径は、参考値です。

赤字 = JIS並目ねじ

Red character = JIS coarse pitch thread

(単位: mm)
(Unit: mm)

| ねじの呼び Thread size | 推奨下穴径 Recommended drill hole dia. | 最小下穴径 Min. drill hole dia. | | 最大下穴径 Max. drill hole dia. | | | |
|----------------------|---|-------------------------------|---------|-------------------------------|-------|-------|--|
| | | 各精度共通 | 旧JIS2級用 | 4H用 | 5H用 | 6H用 | |
| * 7 × 0.5 | 6.5 | — | — | 6.54 | 6.57 | 6.59 | |
| 8 × 1.25 | 6.75 | 6.65 | 6.91 | 6.81 | 6.85 | 6.91 | |
| 8 × 1 | 7 | 6.92 | 7.15 | 7.06 | 7.1 | 7.15 | |
| 8 × 0.75 | 7.25 | 7.19 | 7.37 | 7.3 | 7.33 | 7.37 | |
| * 8 × 0.5 | 7.5 | — | — | 7.54 | 7.57 | 7.59 | |
| 9 × 1.25 | 7.75 | 7.65 | 7.91 | 7.81 | 7.85 | 7.91 | |
| 9 × 1 | 8 | 7.92 | 8.15 | 8.06 | 8.1 | 8.15 | |
| 9 × 0.75 | 8.25 | 8.19 | 8.37 | 8.3 | 8.33 | 8.37 | |
| * 9 × 0.5 | 8.5 | — | — | 8.54 | 8.57 | 8.59 | |
| 10 × 1.5 | 8.5 | 8.38 | 8.67 | 8.52 | 8.61 | 8.67 | |
| 10 × 1.25 | 8.75 | 8.65 | 8.91 | 8.81 | 8.85 | 8.91 | |
| 10 × 1 | 9 | 8.92 | 9.15 | 9.06 | 9.1 | 9.15 | |
| 10 × 0.75 | 9.25 | 9.19 | 9.37 | 9.3 | 9.33 | 9.37 | |
| * 10 × 0.5 | 9.5 | — | — | 9.54 | 9.57 | 9.59 | |
| 11 × 1.5 | 9.5 | 9.38 | 9.67 | 9.52 | 9.61 | 9.67 | |
| 11 × 1.25 | 9.75 | 9.65 | 9.8 | 9.81 | 9.85 | 9.91 | |
| 11 × 1 | 10 | 9.92 | 10.15 | 10.06 | 10.1 | 10.15 | |
| 11 × 0.75 | 10.25 | 10.19 | 10.37 | 10.3 | 10.33 | 10.37 | |
| * 11 × 0.5 | 10.5 | — | — | 10.54 | 10.57 | 10.59 | |
| 12 × 1.75 | 10.25 | 10.11 | 10.44 | 10.31 | 10.37 | 10.44 | |
| 12 × 1.5 | 10.5 | 10.38 | 10.67 | 10.56 | 10.61 | 10.67 | |
| 12 × 1.25 | 10.75 | 10.65 | 10.91 | 10.81 | 10.85 | 10.91 | |
| 12 × 1 | 11 | 10.92 | 11.15 | 11.06 | 11.1 | 11.15 | |
| * 12 × 0.75 | 11.25 | — | — | 11.3 | 11.33 | 11.37 | |
| * 12 × 0.5 | 11.5 | — | — | 11.54 | 11.57 | 11.59 | |
| * 13 × 1.75 | 11.25 | — | — | 11.31 | 11.37 | 11.44 | |
| * 13 × 1.5 | 11.5 | — | — | 11.56 | 11.61 | 11.67 | |
| * 13 × 1.25 | 11.75 | — | — | 11.81 | 11.85 | 11.91 | |
| * 13 × 1 | 12 | — | — | 12.06 | 12.1 | 12.15 | |
| * 13 × 0.75 | 12.3 | — | — | 12.3 | 12.33 | 12.37 | |
| * 13 × 0.5 | 12.5 | — | — | 12.54 | 12.57 | 12.59 | |
| 14 × 2 | 12 | 11.84 | 12.21 | 12.07 | 12.13 | 12.21 | |
| 14 × 1.5 | 12.5 | 12.38 | 12.67 | 12.56 | 12.61 | 12.67 | |
| 14 × 1.25 | 12.75 | 12.65 | — | — | — | 12.91 | |
| 14 × 1 | 13 | 12.92 | 13.15 | 13.06 | 13.1 | 13.15 | |
| * 14 × 0.75 | 13.3 | — | — | 13.3 | 13.33 | 13.37 | |
| * 14 × 0.5 | 13.5 | — | — | 13.54 | 13.57 | 13.59 | |
| * 15 × 2 | 13 | — | — | 13.07 | 13.13 | 13.21 | |
| 15 × 1.5 | 13.5 | 13.4 | 13.6 | 13.56 | 13.61 | 13.67 | |
| 15 × 1.25 | 13.8 | 13.7 | 13.9 | 13.81 | 13.85 | 13.91 | |
| 15 × 1 | 14 | 13.95 | 14.15 | 14.06 | 14.1 | 14.15 | |
| * 15 × 0.75 | 14.3 | — | — | 14.3 | 14.33 | 14.37 | |
| * 15 × 0.5 | 14.5 | — | — | 14.54 | 14.57 | 14.59 | |
| 16 × 2 | 14 | 13.9 | 14.2 | 14.07 | 14.13 | 14.21 | |
| 16 × 1.5 | 14.5 | 14.4 | 14.6 | 14.56 | 14.61 | 14.67 | |
| * 16 × 1.25 | 14.75 | 14.65 | — | — | — | 14.91 | |
| 16 × 1 | 15 | 14.95 | 15.15 | 15.06 | 15.1 | 15.15 | |
| * 16 × 0.75 | 15.25 | 15.19 | — | — | — | 15.37 | |
| 16 × 0.5 | 15.5 | 15.46 | 15.52 | 15.54 | 15.57 | 15.59 | |
| * 17 × 2 | 15 | — | — | 15.07 | 15.13 | 15.21 | |

The recommended tap limit corresponds to the old JIS class 2 internal thread standard.
※ Recommended drill hole diameters that are not listed in JIS are reference values.

ドリル
DRILLS

タップ
TAPS

TAP LIMIT AND
DRILL HOLE SIZE
精度と
下穴径

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THREADS (UK)
管用平行
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CENTER TAP
マシニング
タップ

DRILL TAP
ドリル
タップ

ねじ下穴径表 RECOMMENDED DRILL HOLE SIZE

インサートねじ用はP.869を参照下さい。For screw thread insert: Please refer to p.869

メートルねじ Metric screw threads

JIS B 0209-1:2007(単位: mm)
JIS B 8031-2007(Unit: mm)

赤字 = JIS 並目ねじ
Red character = JIS coarse pitch thread

(単位: mm)
(Unit: mm)

| ねじの呼び Thread size | 推奨下穴径 Recommended drill hole dia. | 最小下穴径 Min. drill hole dia. | 最大下穴径 Max. drill hole dia. | | | |
|----------------------|---|-------------------------------|-------------------------------|----------|-------|-------|
| | | | 各精度共通 | 旧 JIS2級用 | 4H用 | 5H用 |
| 17 X 1.5 | 15.5 | 15.4 | 15.68 | 15.56 | 15.61 | 15.67 |
| * 17 X 1.25 | 15.8 | — | — | 15.81 | 15.85 | 15.91 |
| 17 X 1 | 16 | 15.95 | 16.15 | 16.06 | 16.1 | 16.15 |
| * 17 X 0.75 | 16.3 | — | — | 16.3 | 16.33 | 16.37 |
| * 17 X 0.5 | 16.5 | — | — | 16.54 | 16.57 | 16.59 |
| 18 X 2.5 | 15.5 | 15.3 | 15.7 | 15.57 | 15.64 | 15.74 |
| 18 X 2 | 16 | 15.9 | 16.2 | 16.07 | 16.13 | 16.21 |
| 18 X 1.5 | 16.5 | 16.4 | 16.6 | 16.56 | 16.61 | 16.67 |
| * 18 X 1.25 | 16.75 | 16.65 | — | 16.81 | 16.85 | 16.91 |
| 18 X 1 | 17 | 16.95 | 17.15 | 17.06 | 17.1 | 17.15 |
| * 18 X 0.75 | 17.25 | 17.19 | — | 17.3 | 17.33 | 17.37 |
| 18 X 0.5 | 17.5 | 17.46 | 17.52 | 17.54 | 17.57 | 17.59 |
| * 19 X 2.5 | 16.5 | — | — | 16.57 | 16.64 | 16.74 |
| * 19 X 2 | 17 | — | — | 17.07 | 17.13 | 17.21 |
| * 19 X 1.5 | 17.5 | — | — | 17.56 | 17.61 | 17.67 |
| * 19 X 1.25 | 17.8 | — | — | 17.81 | 17.85 | 17.91 |
| * 19 X 1 | 18 | — | — | 18.06 | 18.1 | 18.15 |
| * 19 X 0.75 | 18.3 | — | — | 18.3 | 18.33 | 18.37 |
| * 19 X 0.5 | 18.5 | — | — | 18.54 | 18.57 | 18.59 |
| 20 X 2.5 | 17.5 | 17.3 | 17.7 | 17.57 | 17.64 | 17.74 |
| 20 X 2 | 18 | 17.9 | 18.2 | 18.07 | 18.13 | 18.21 |
| 20 X 1.5 | 18.5 | 18.4 | 18.6 | 18.56 | 18.61 | 18.67 |
| * 20 X 1.25 | 18.75 | 18.65 | — | 18.81 | 18.85 | 18.91 |
| 20 X 1 | 19 | 18.95 | 19.15 | 19.06 | 19.1 | 19.15 |
| 20 X 0.5 | 19.5 | 19.46 | 19.52 | 19.54 | 19.57 | 19.59 |
| * 21 X 2.5 | 18.5 | — | — | 18.57 | 18.64 | 18.74 |
| * 21 X 1.5 | 19.5 | — | — | 19.56 | 19.61 | 19.67 |
| * 21 X 1 | 20 | — | — | 20.06 | 20.1 | 20.15 |
| 22 X 2.5 | 19.5 | 19.3 | 19.7 | 19.57 | 19.64 | 19.74 |
| 22 X 2 | 20 | 19.9 | 20.2 | 20.07 | 20.13 | 20.21 |
| 22 X 1.5 | 20.5 | 20.4 | 20.6 | 20.56 | 20.61 | 20.67 |
| 22 X 1 | 21 | 20.95 | 21.15 | 21.06 | 21.1 | 21.15 |
| 22 X 0.5 | 21.5 | 21.46 | 21.52 | 21.54 | 21.57 | 21.59 |
| * 23 X 2.5 | 20.5 | — | — | 20.57 | 20.64 | 20.74 |
| * 23 X 2 | 21 | — | — | 21.07 | 21.13 | 21.21 |
| * 23 X 1.5 | 21.5 | — | — | 21.56 | 21.61 | 21.67 |
| * 23 X 1 | 22 | — | — | 22.06 | 22.1 | 22.15 |
| 24 X 3 | 21 | 20.8 | 21.2 | 21.06 | 21.15 | 21.25 |
| * 24 X 2.5 | 21.5 | 21.29 | — | 21.57 | 21.64 | 21.74 |
| 24 X 2 | 22 | 21.9 | 22.2 | 22.07 | 22.13 | 22.21 |
| 24 X 1.5 | 22.5 | 22.4 | 22.6 | 22.56 | 22.61 | 22.67 |
| * 24 X 1.25 | 22.75 | 22.65 | — | 22.81 | 22.85 | 22.91 |
| 24 X 1 | 23 | 22.95 | 23.15 | 23.06 | 23.1 | 23.15 |
| * 25 X 3 | 22 | — | — | 22.06 | 22.15 | 22.25 |
| 25 X 2 | 23 | 22.9 | 23.2 | 23.07 | 23.13 | 23.21 |
| 25 X 1.5 | 23.5 | 23.4 | 23.6 | 23.56 | 23.61 | 23.67 |
| 25 X 1 | 24 | 23.95 | 24.15 | 24.06 | 24.1 | 24.15 |
| * 26 X 3 | 23 | — | — | 23.06 | 23.15 | 23.25 |
| * 26 X 2 | 24 | — | — | 24.07 | 24.13 | 24.21 |
| 26 X 1.5 | 24.5 | 24.4 | 24.6 | 24.56 | 24.61 | 24.67 |

| ねじの呼び Thread size | 推奨下穴径 Recommended drill hole dia. | 最小下穴径 Min. drill hole dia. | 最大下穴径 Max. drill hole dia. | | | |
|----------------------|---|-------------------------------|-------------------------------|----------|-------|-------|
| | | | 各精度共通 | 旧 JIS2級用 | 4H用 | 5H用 |
| 26 X 1 | 25 | 24.95 | 25.15 | 25.06 | 25.1 | 25.15 |
| 27 X 3 | 24 | 23.8 | 24.2 | 24.06 | 24.15 | 24.25 |
| * 27 X 2.5 | 24.5 | — | — | 24.57 | 24.64 | 24.74 |
| 27 X 2 | 25 | 24.9 | 25.2 | 25.07 | 25.13 | 25.21 |
| 27 X 1.5 | 25.5 | 25.4 | 25.6 | 25.56 | 25.61 | 25.67 |
| 27 X 1 | 26 | 25.95 | 26.15 | 26.06 | 26.1 | 26.15 |
| * 28 X 3 | 25 | — | — | 25.06 | 25.15 | 25.25 |
| 28 X 2 | 26 | 25.9 | 26.2 | 26.07 | 26.13 | 26.21 |
| 28 X 1.5 | 26.5 | 26.4 | 26.6 | 26.56 | 26.61 | 26.67 |
| 28 X 1 | 27 | 26.95 | 27.15 | 27.06 | 27.1 | 27.15 |
| 30 X 3.5 | 26.5 | 26.3 | 26.7 | 26.56 | 26.66 | 26.77 |
| 30 X 3 | 27 | 26.8 | 27.2 | 27.06 | 27.15 | 27.25 |
| 30 X 2 | 28 | 27.9 | 28.2 | 28.07 | 28.13 | 28.21 |
| 30 X 1.5 | 28.5 | 28.4 | 28.6 | 28.56 | 28.61 | 28.67 |
| 30 X 1 | 29 | 28.95 | 29.15 | 29.06 | 29.1 | 29.15 |
| * 32 X 3 | 29 | — | — | 29.06 | 29.15 | 29.25 |
| 32 X 2 | 30 | 29.9 | 30.2 | 30.07 | 30.13 | 30.21 |
| 32 X 1.5 | 30.5 | 30.4 | 30.6 | 30.56 | 30.61 | 30.67 |
| 32 X 1 | 31 | 30.95 | 31.15 | 31.06 | 31.1 | — |
| 33 X 3.5 | 29.5 | 29.3 | 29.7 | 29.56 | 29.66 | 29.77 |
| 33 X 3 | 30 | 29.8 | 30.2 | 30.06 | 30.15 | 30.25 |
| 33 X 2 | 31 | 30.9 | 31.2 | 31.07 | 31.13 | 31.21 |
| 33 X 1.5 | 31.5 | 31.4 | 31.6 | 31.56 | 31.61 | 31.67 |
| * 33 X 1 | 32 | — | — | 32.06 | 32.1 | 32.15 |
| * 34 X 3 | 31 | — | — | 31.06 | 31.15 | 31.25 |
| * 34 X 2 | 32 | — | — | 32.07 | 32.13 | 32.21 |
| * 34 X 1.5 | 32.5 | — | — | 32.56 | 32.61 | 32.67 |
| * 34 X 1 | 33 | — | — | 33.06 | 33.1 | 33.15 |
| * 35 X 3 | 32 | — | — | 32.06 | 32.15 | 32.25 |
| * 35 X 2 | 33 | — | — | 33.07 | 33.13 | 33.2 |
| 35 X 1.5 | 33.5 | 33.4 | 33.6 | 33.56 | 33.61 | 33.67 |
| * 35 X 1 | 34 | — | — | 34.06 | 34.1 | 34.15 |
| 36 X 4 | 32 | 31.7 | 32.2 | 32.04 | 32.14 | 32.27 |
| 36 X 3 | 33 | 32.8 | 33.2 | 33.06 | 33.15 | 33.25 |
| 36 X 2 | 34 | 33.9 | 34.2 | 34.07 | 34.13 | 34.21 |
| 36 X 1.5 | 34.5 | 34.4 | 34.6 | 34.56 | 34.61 | 34.67 |
| * 36 X 1 | 35 | — | — | 35.06 | 35.1 | 35.15 |
| * 37 X 1.5 | 35.5 | — | — | 35.56 | 35.61 | 35.67 |
| * 37 X 1 | 36 | — | — | 36.06 | 36.1 | 36.15 |
| * 38 X 4 | 34 | — | — | 34.04 | 34.14 | 34.27 |
| * 38 X 3 | 35 | — | — | 35.06 | 35.15 | 35.25 |
| * 38 X 2 | 36 | — | — | 36.07 | 36.13 | 36.21 |
| 38 X 1.5 | 36.5 | 36.4 | 36.6 | 36.56 | 36.61 | 36.67 |
| 38 X 1 | 37 | 36.95 | 37.15 | 37.06 | 37.1 | 37.15 |
| 39 X 4 | 35 | 34.7 | 35.2 | 35.04 | 35.14 | 35.27 |
| 39 X 3 | 36 | 35.8 | 36.2 | 36.06 | 36.15 | 36.25 |
| 39 X 2 | 37 | 36.9 | 37.2 | 37.07 | 37.13 | 37.21 |
| 39 X 1.5 | 37.5 | 37.4 | 37.6 | 37.56 | 37.61 | 37.67 |
| * 39 X 1 | 38 | — | — | 38.06 | 38.1 | 38.15 |
| * 40 X 4 | 36 | — | — | 36.04 | 36.14 | 36.27 |

推奨下穴径は、旧 JIS2級めねじ用です。
* JIS 規格にないめねじの下穴径は、参考値です。

The recommended tap limit corresponds to the old JIS class 2 internal thread standard.
* Recommended drill hole diameters that are not listed in JIS are reference values.

ねじ下穴径表 RECOMMENDED DRILL HOLE SIZE

インサートねじ用はP.869を参照下さい。For screw thread insert: Please refer to p.869

メートルねじ Metric screw threads

JIS B 0209-1:2007(単位:mm)
JIS B 8031-2007(Unit:mm)

赤字 = JIS並目ねじ
Red character = JIS coarse pitch thread

(単位:mm)
(Unit:mm)

| ねじの呼び Thread size | 推奨下穴径 Recommended drill hole dia. | 最大下穴径 Max. drill hole dia. | | | | |
|----------------------|---|-------------------------------|-------|---------|-------|-------|
| | | 最小下穴径 Min. drill hole dia. | 各精度共通 | 旧JIS2級用 | 4H用 | 5H用 |
| 40 X 3 | 37 | 36.8 | 37.2 | 37.06 | 37.15 | 37.25 |
| 40 X 2 | 38 | 37.9 | 38.2 | 38.07 | 38.13 | 38.21 |
| 40 X 1.5 | 38.5 | 38.4 | 38.6 | 38.56 | 38.61 | 38.67 |
| ※ 40 X 4 | 39 | — | — | 39.06 | 39.1 | 39.15 |
| 42 X 4.5 | 37.5 | 37.2 | 37.7 | 37.55 | 37.65 | 37.79 |
| 42 X 4 | 38 | 37.7 | 38.2 | 38.04 | 38.14 | 38.27 |
| 42 X 3 | 39 | 38.8 | 39.2 | 39.06 | 39.15 | 39.25 |
| 42 X 2 | 40 | 39.9 | 40.2 | 40.07 | 40.13 | 40.21 |
| 42 X 1.5 | 40.5 | 40.4 | 40.6 | 40.56 | 40.61 | 40.67 |
| 42 X 1 | 41 | 40.95 | 41.03 | 41.06 | 41.1 | 41.15 |
| 45 X 4.5 | 40.5 | 40.2 | 40.7 | 40.55 | 40.65 | 40.79 |
| 45 X 4 | 41 | 40.7 | 41.2 | 41.04 | 41.14 | 41.27 |
| 45 X 3 | 42 | 41.8 | 42.2 | 42.06 | 42.15 | 42.25 |
| 45 X 2 | 43 | 42.9 | 43.2 | 43.07 | 43.13 | 43.21 |
| 45 X 1.5 | 43.5 | 43.4 | 43.6 | 43.56 | 43.61 | 43.67 |
| ※ 45 X 1 | 44 | — | — | 44.06 | 44.1 | 44.15 |
| ※ 46 X 1.5 | 44.5 | — | — | 44.56 | 44.61 | 44.67 |
| 48 X 5 | 43 | 42.6 | 43.2 | 43.03 | 43.14 | 43.29 |
| 48 X 4 | 44 | 43.7 | 44.2 | 44.04 | 44.14 | 44.27 |
| 48 X 3 | 45 | 44.8 | 45.2 | 45.06 | 45.15 | 45.25 |
| 48 X 2 | 46 | 45.9 | 46.2 | 46.07 | 46.13 | 46.21 |
| 48 X 1.5 | 46.5 | 46.4 | 46.6 | 46.56 | 46.61 | 46.67 |
| ※ 48 X 1 | 47 | — | — | 47.06 | 47.1 | 47.15 |
| ※ 50 X 5 | 45 | — | — | 45.03 | 45.14 | 45.29 |
| ※ 50 X 4 | 46 | 45.7 | — | 46 | 46.1 | 46.2 |
| 50 X 3 | 47 | 46.8 | 47.2 | 47.06 | 47.15 | 47.25 |
| 50 X 2 | 48 | 47.9 | 48.2 | 48.07 | 48.13 | 48.21 |
| 50 X 1.5 | 48.5 | 48.4 | 48.6 | 48.56 | 48.61 | 48.67 |
| ※ 50 X 1 | 49 | — | — | 49.1 | 49.1 | 49.15 |
| 52 X 5 | 47 | 46.6 | 47.2 | 47 | 47.1 | 47.2 |
| 52 X 4 | 48 | 47.7 | 48.2 | 48 | 48.1 | 48.2 |
| 52 X 3 | 49 | 48.8 | 49.2 | 49 | 49.1 | 49.2 |
| 52 X 2 | 50 | 49.9 | 50.2 | 50 | 50.1 | 50.2 |
| 52 X 1.5 | 50.5 | 50.4 | 50.6 | 50.5 | 50.6 | 50.6 |
| 55 X 4 | 51 | 50.7 | 51.2 | 51 | 51.1 | 51.2 |
| 55 X 3 | 52 | 51.8 | 52.2 | 52 | 52.1 | 52.2 |
| 55 X 2 | 53 | 52.9 | 53.2 | 53 | 53.1 | 53.2 |
| 55 X 1.5 | 53.5 | 53.4 | 53.6 | 53.5 | 53.6 | 53.6 |
| 56 X 5.5 | 50.5 | 50.1 | 50.7 | 50.5 | 50.6 | 50.7 |
| 56 X 4 | 52 | 51.7 | 52.2 | 52 | 52.1 | 52.2 |
| 56 X 3 | 53 | 52.8 | 53.2 | 53 | 53.1 | 53.2 |
| 56 X 2 | 54 | 53.9 | 54.2 | 54 | 54.1 | 54.2 |
| 56 X 1.5 | 54.5 | 54.4 | 54.6 | 54.5 | 54.6 | 54.6 |
| 58 X 4 | 54 | 53.7 | 54.2 | 54 | 54.1 | 54.2 |
| 58 X 3 | 55 | 54.8 | 55.2 | 55 | 55.1 | 55.2 |
| 58 X 2 | 56 | 55.9 | 56.2 | 56 | 56.1 | 56.2 |
| 58 X 1.5 | 56.5 | 56.4 | 56.6 | 56.5 | 56.6 | 56.6 |
| 60 X 5.5 | 54.5 | 54.1 | 54.7 | 54.5 | 54.6 | 54.7 |
| 60 X 4 | 56 | 55.7 | 56.2 | 56 | 56.1 | 56.2 |
| 60 X 3 | 57 | 56.8 | 57.2 | 57 | 57.1 | 57.2 |

| ねじの呼び Thread size | 推奨下穴径 Recommended drill hole dia. | 最大下穴径 Max. drill hole dia. | | | | |
|----------------------|---|-------------------------------|-------|---------|------|------|
| | | 最小下穴径 Min. drill hole dia. | 各精度共通 | 旧JIS2級用 | 4H用 | 5H用 |
| 60 X 2 | 58 | 57.9 | 58.2 | 58 | 58.1 | 58.2 |
| 60 X 1.5 | 58.5 | 58.4 | 58.6 | 58.5 | 58.6 | 58.6 |
| 62 X 4 | 58 | 57.7 | 58.2 | 58 | 58.1 | 58.2 |
| 62 X 3 | 59 | 58.8 | 59.2 | 59 | 59.1 | 59.2 |
| 62 X 2 | 60 | 59.9 | 60.2 | 60 | 60.1 | 60.2 |
| 62 X 1.5 | 60.5 | 60.4 | 60.6 | 60.5 | 60.6 | 60.6 |
| 64 X 6 | 58 | 57.6 | 58.3 | 58 | 58.1 | 58.2 |
| 64 X 4 | 60 | 59.7 | 60.2 | 60 | 60.1 | 60.2 |
| 64 X 3 | 61 | 60.8 | 61.2 | 61 | 61.1 | 61.2 |
| 64 X 2 | 62 | 61.9 | 62.2 | 62 | 62.1 | 62.2 |
| 64 X 1.5 | 62.5 | 62.4 | 62.6 | 62.5 | 62.6 | 62.6 |
| 65 X 4 | 61 | 60.7 | 61.2 | 61 | 61.1 | 61.2 |
| 65 X 3 | 62 | 61.8 | 62.2 | 62 | 62.1 | 62.2 |
| 65 X 2 | 63 | 62.9 | 63.2 | 63 | 63.1 | 63.2 |
| 65 X 1.5 | 63.5 | 63.4 | 63.6 | 63.5 | 63.6 | 63.6 |
| 68 X 6 | 62 | 61.6 | 62.3 | 62 | 62.1 | 62.2 |
| 68 X 4 | 64 | 63.7 | 64.2 | 64 | 64.1 | 64.2 |
| 68 X 3 | 65 | 64.8 | 65.2 | 65 | 65.1 | 65.2 |
| 68 X 2 | 66 | 65.9 | 66.2 | 66 | 66.1 | 66.2 |
| 68 X 1.5 | 66.5 | 66.4 | 66.6 | 66.5 | 66.6 | 66.6 |
| 70 X 6 | 64 | 63.6 | 64.3 | 64 | 64.1 | 64.3 |
| 70 X 4 | 66 | 65.7 | 66.2 | 66 | 66.1 | 66.2 |
| 70 X 3 | 67 | 66.8 | 67.2 | 67 | 67.1 | 67.2 |
| 70 X 2 | 68 | 67.9 | 68.2 | 68 | 68.1 | 68.2 |
| 72 X 6 | 66 | 65.6 | 66.3 | 66 | 66.1 | 66.3 |
| 72 X 4 | 68 | 67.7 | 68.2 | 68 | 68.1 | 68.2 |
| 72 X 3 | 69 | 68.8 | 69.2 | 69 | 69.1 | 69.2 |
| 72 X 2 | 70 | 69.9 | 70.2 | 70 | 70.1 | 70.2 |
| 75 X 4 | 71 | 70.7 | 71.2 | 71 | 71.1 | 71.2 |
| 75 X 3 | 72 | 71.8 | 72.2 | 72 | 72.1 | 72.2 |
| 75 X 2 | 73 | 72.9 | 73.2 | 73 | 73.1 | 73.2 |
| 76 X 2 | 74 | 73.9 | 74.2 | 74 | 74.1 | 74.2 |
| 80 X 6 | 74 | 73.6 | 74.3 | 74 | 74.1 | 74.3 |
| 80 X 4 | 76 | 75.7 | 76.2 | 76 | 76.1 | 76.2 |
| 80 X 3 | 77 | 76.8 | 77.2 | 77 | 77.1 | 77.2 |
| 80 X 2 | 78 | 77.9 | 78.2 | 78 | 78.1 | 78.2 |
| 85 X 6 | 79 | 78.6 | 79.3 | 79 | 79.1 | 79.3 |
| 85 X 4 | 81 | 80.7 | 81.2 | 81 | 81.1 | 81.2 |
| 85 X 3 | 82 | 81.8 | 82.2 | 82 | 82.1 | 82.2 |
| 85 X 2 | 83 | 82.9 | 83.2 | 83 | 83.1 | 83.2 |
| 90 X 6 | 84 | 83.6 | 84.3 | 84 | 84.1 | 84.3 |
| 90 X 4 | 86 | 85.7 | 86.2 | 86 | 86.1 | 86.2 |
| 90 X 2 | 88 | 87.9 | 88.2 | 88 | 88.1 | 88.2 |
| 95 X 6 | 89 | 88.6 | 89.3 | 89 | 89.1 | 89.3 |
| 95 X 4 | 91 | 90.7 | 91.2 | 91 | 91.1 | 91.2 |
| 95 X 2 | 93 | 92.9 | 93.2 | 93 | 93.1 | 93.2 |
| 100 X 6 | 94 | 93.6 | 94.3 | 94 | 94.1 | 94.3 |
| 100 X 4 | 96 | 95.7 | 96.2 | 96 | 96.1 | 96.2 |
| 100 X 2 | 98 | 97.9 | 98.2 | 98 | 98.1 | 98.2 |

推奨下穴径は、旧JIS2級めねじ用です。
※ JIS規格にないめねじの下穴径は、参考値です。

The recommended tap limit corresponds to the old JIS class 2 internal thread standard.
※ Recommended drill hole diameters that are not listed in JIS are reference values.

ドリル
タップ
ゲージ
丸ダイス
転造工具
各種製品
索引
THREAD MILL
スレッド
ミル
FLUTELESS
TAP
溝なし
タップ
SPIRAL FLUTED
TAP
スパイラル
タップ
SPIRAL POINTED
TAP
ポイント
タップ
HAND TAP
ハンド
タップ
TAPER PIPE
THREADS (UK)
管用テーパ
タップ(英式)
PARALLEL PIPE
THREADS (UK)
管用平行
タップ(英式)
TAPER PIPE
THREADS (ANSI)
管用テーパ
タップ(米式)
PARALLEL PIPE
THREADS (ANSI)
管用平行
タップ(米式)
INSERT SCREW
THREAD TAP
インサート
ねじ用
NUT TAP
ナット
タップ
MACHINING
CENTER TAP
中心部用
タップ
DRILL TAP
ドリル
タップ

ねじ下穴径表 RECOMMENDED DRILL HOLE SIZE

インサートねじ用はP.869を参照下さい。For screw thread insert : Please refer to p.869

ユニファイねじ Unified screw threads

(単位 : mm)
(Unit : mm)

| ねじの呼び Thread size | 推奨下穴径 Recommended drill hole dia. | JIS2B級用 JIS class 2B drill hole dia. | | |
|--|---|---|-------------------------------|-------|
| | | 最小下穴径 Min. drill hole dia. | 最大下穴径 Max. drill hole dia. | |
| No. 0 - 80UNF | 1.25 | 1.19 | 1.3 | |
| 1 - 64UNC | 1.5 | 1.43 | 1.57 | |
| 1 - 72UNF | 1.55 | 1.48 | 1.61 | |
| 2 - 56UNC | 1.79 | 1.7 | 1.87 | |
| 2 - 64UNF | 1.84 | 1.76 | 1.91 | |
| 3 - 48UNC | 2.05 | 1.95 | 2.14 | |
| 3 - 56UNF | 2.11 | 2.03 | 2.19 | |
| 4 - 40UNC | 2.27 | 2.16 | 2.38 | |
| 4 - 48UNF | 2.37 | 2.28 | 2.45 | |
| 5 - 40UNC | 2.59 | 2.49 | 2.69 | |
| 5 - 44UNF | 2.65 | 2.56 | 2.74 | |
| 6 - 32UNC | 2.77 | 2.65 | 2.89 | |
| 6 - 40UNF | 2.92 | 2.82 | 3.02 | |
| 8 - 32UNC | 3.42 | 3.31 | 3.53 | |
| 8 - 36UNF | 3.51 | 3.41 | 3.6 | |
| 10 - 24UNC | 3.81 | 3.69 | 3.93 | |
| 10 - 32UNF | 4.07 | 3.97 | 4.16 | |
| 12 - 24UNC | 4.47 | 4.35 | 4.59 | |
| 12 - 28UNF | 4.61 | 4.5 | 4.72 | |
| 1/4 - 20UNC | 5.12 | 4.98 | 5.25 | |
| 1/4 - 28UNF | 5.47 | 5.36 | 5.58 | |
| ※ 1/4 - 32UNEF | 5.59 | 5.49 | 5.68 | |
| 5/16 - 18UNC | 6.57 | 6.41 | 6.73 | |
| 5/16 - 24UNF | 6.91 | 6.79 | 7.03 | |
| ※ 5/16 - 32UNEF | 7.18 | 7.09 | 7.26 | |
| 3/8 - 16UNC | 7.98 | 7.8 | 8.15 | |
| ※ 3/8 - 20UN | 8.3 | 8.16 | 8.43 | |
| 3/8 - 24UNF | 8.51 | 8.39 | 8.63 | |
| ※ 3/8 - 32UNEF | 8.77 | 8.67 | 8.86 | |
| 7/16 - 14UNC | 9.35 | 9.15 | 9.55 | |
| 7/16 - 20UNF | 9.88 | 9.73 | 10.03 | |
| SPRAL POINTED TAP ポイント タップ | 1/2 - 13UNC | 10.81 | 10.6 | 11.02 |
| 1/2 - 20UNF | 11.47 | 11.33 | 11.6 | |
| 5/16 - 12UNC | 12.2 | 12 | 12.4 | |
| 5/16 - 18UNF | 12.9 | 12.8 | 13 | |
| 5/8 - 11UNC | 13.6 | 13.4 | 13.8 | |
| 5/8 - 18UNF | 14.5 | 14.4 | 14.6 | |
| ※ 5/8 - 24UNEF | 14.9 | 14.8 | 14.9 | |
| PARALLEL PIPE THREADS (UK) 管用平行 タップ(英式) | 3/4 - 10UNC | 16.6 | 16.4 | 16.8 |
| 3/4 - 16UNF | 17.5 | 17.4 | 17.6 | |
| ※ 3/4 - 20UNEF | 17.8 | 17.7 | 17.9 | |
| TAPER PIPE THREADS (ANSI) 管用テーパ タップ(米式) | 7/8 - 9UNC | 19.5 | 19.2 | 19.7 |
| 7/8 - 14UNF | 20.5 | 20.3 | 20.6 | |
| ※ 7/8 - 20UNEF | 21 | 20.9 | 21.1 | |
| 1 - 8UNC | 22.3 | 22 | 22.6 | |
| 1 - 12UNF | 23.4 | 23.2 | 23.5 | |
| ※ 1 - 14UNS | 23.7 | 23.5 | 23.8 | |
| ※ 1 1/16 - 12UN | 24.9 | 24.7 | 25.1 | |
| 1 1/8 - 7UNC | 25 | 24.7 | 25.3 | |
| ※ 1 1/8 - 8UN | 25.5 | 25.2 | 25.7 | |
| 1 1/8 - 12UNF | 26.5 | 26.3 | 26.7 | |
| 1 1/4 - 7UNC | 28.2 | 27.9 | 28.5 | |
| ※ 1 1/4 - 8UN | 28.7 | 28.4 | 28.9 | |
| 1 1/4 - 12UNF | 29.7 | 29.5 | 29.9 | |

※ JIS規格にないめねじの推奨下穴径は、参考値です。
JIS B 1004-1975による。
基準山形及び諸数値はメートルねじと同じ。

(単位 : mm)
(Unit : mm)

| ねじの呼び Thread size | 推奨下穴径 Recommended drill hole dia. | JIS2B級用 JIS class 2B drill hole dia. | |
|----------------------|---|---|-------------------------------|
| | | 最小下穴径 Min. drill hole dia. | 最大下穴径 Max. drill hole dia. |
| ※ 1 1/16 - 12UN | 31.3 | 31.1 | 31.4 |
| 1 3/8 - 6UNC | 30.8 | 30.4 | 31.1 |
| ※ 1 3/8 - 8UN | 31.8 | 31.5 | 32.1 |
| 1 3/8 - 12UNF | 32.9 | 32.7 | 33 |
| 1 1/2 - 6UNC | 33.9 | 33.6 | 34.2 |
| ※ 1 1/2 - 8UN | 35 | 34.7 | 35.3 |
| 1 1/2 - 12UNF | 36.1 | 35.9 | 36.2 |
| ※ 1 5/8 - 5UNS | 36.2 | 35.8 | 36.6 |
| ※ 1 5/8 - 8UN | 38.2 | 37.9 | 38.4 |
| ※ 1 5/8 - 12UN | 39.2 | 39 | 39.4 |
| 1 3/4 - 5UNC | 39.4 | 39 | 39.8 |
| ※ 1 3/4 - 8UN | 41.4 | 41.1 | 41.6 |
| ※ 1 3/4 - 12UN | 42.4 | 42.2 | 42.6 |
| ※ 1 7/8 - 8UN | 44.5 | 44.2 | 44.8 |
| 2 - 4.5UNC | 45.1 | 44.7 | 45.5 |
| ※ 2 - 8UN | 47.7 | 47.4 | 48 |
| ※ 2 - 12UN | 48.8 | 48.6 | 48.9 |
| 2 1/4 - 4.5UNC | 51.5 | 51.1 | 51.9 |
| 2 1/2 - 4UNC | 57.1 | 56.7 | 57.5 |
| ※ 2 1/2 - 8UN | 60.4 | 60.1 | 60.7 |
| 2 3/4 - 4UNC | 63.5 | 63 | 63.9 |
| ※ 2 3/4 - 8UN | 66.8 | 66.5 | 67 |
| 3 - 4UNC | 69.8 | 69.4 | 70.2 |
| ※ 3 - 8UN | 73.1 | 72.8 | 73.4 |
| 3 1/4 - 4UNC | 76.2 | 75.7 | 76.6 |
| 3 1/2 - 4UNC | 82.5 | 82.1 | 82.9 |
| ※ 3 1/2 - 8UN | 85.8 | 85.5 | 86.1 |
| 3 3/4 - 4UNC | 88.9 | 88.4 | 89.3 |
| 4 - 4UNC | 95.2 | 94.8 | 95.6 |
| ※ 4 - 8UN | 98.5 | 98.2 | 98.8 |
| ※ 4 1/4 - 4UN | 101.6 | 101.1 | 102 |
| ※ 4 1/4 - 6UN | 103.8 | 103.4 | 104.1 |
| ※ 4 1/4 - 8UN | 104.9 | 104.6 | 105.1 |
| ※ 4 1/2 - 4UN | 107.9 | 107.5 | 108.3 |
| ※ 4 1/2 - 6UN | 110.1 | 109.8 | 110.4 |
| ※ 4 1/2 - 8UN | 111.2 | 110.9 | 111.5 |
| ※ 4 3/4 - 4UN | 126.3 | 137.8 | 114.7 |
| ※ 4 3/4 - 6UN | 116.5 | 116.1 | 116.8 |
| ※ 4 3/4 - 8UN | 117.6 | 117.3 | 117.8 |
| ※ 5 - 4UN | 120.6 | 120.2 | 121 |
| ※ 5 - 6UN | 122.8 | 122.5 | 123.1 |
| ※ 5 - 8UN | 123.9 | 123.6 | 124.2 |
| ※ 5 1/4 - 4UN | 127 | 126.5 | 127.4 |
| ※ 5 1/4 - 6UN | 129.2 | 128.8 | 129.5 |
| ※ 5 1/4 - 8UN | 130.3 | 130 | 130.5 |
| ※ 5 1/2 - 4UN | 133.3 | 132.9 | 133.7 |
| ※ 5 1/2 - 6UN | 134.5 | 135.2 | 133.8 |
| ※ 5 1/2 - 8UN | 136.6 | 136.3 | 136.9 |
| ※ 5 3/4 - 4UN | 139.7 | 139.2 | 140.1 |
| ※ 5 3/4 - 6UN | 141.9 | 141.5 | 142.2 |
| ※ 5 3/4 - 8UN | 143 | 142.7 | 143.2 |
| ※ 6 - 4UN | 146 | 145.6 | 146.4 |
| ※ 6 - 6UN | 148.2 | 147.9 | 148.5 |
| ※ 6 - 8UN | 149.3 | 149 | 149.6 |

※ Recommended drill hole diameters that are not listed in JIS are reference values.
In accordance to JIS B 1004-1975.
Thread value are the same as metric standard.

ねじ下穴径表 RECOMMENDED DRILL HOLE SIZE

航空宇宙用UNJねじ UNJ thread for aircraft and aerospace industry

ISO 3161 Third edition 1999-12-01による。(単位: mm)
MIL-S-8879C 25 July 1991による。(Unit: mm)

| ねじの呼び Thread size | 推奨下穴径 Recommended drill hole dia. | 3B級用 3B drill hole dia. | |
|----------------------|---|-------------------------------|-------------------------------|
| | | 最小下穴径 Min. drill hole dia. | 最大下穴径 Max. drill hole dia. |
| No. 6 - 32UNJC | 2.84 | 2.74 | 2.93 |
| 6 - 40UNJF | 2.97 | 2.89 | 3.05 |
| 8 - 32UNJC | 3.5 | 3.4 | 3.59 |
| 8 - 36UNJF | 3.57 | 3.48 | 3.66 |
| 10 - 24UNJC | 3.93 | 3.8 | 4.06 |
| 10 - 32UNJF | 4.16 | 4.06 | 4.25 |
| 1/4 - 20UNJC | 5.25 | 5.12 | 5.38 |
| 1/4 - 28UNJF | 5.57 | 5.47 | 5.66 |

| ねじの呼び Thread size | 推奨下穴径 Recommended drill hole dia. | 3B級用 3B drill hole dia. | |
|----------------------|---|-------------------------------|-------------------------------|
| | | 最小下穴径 Min. drill hole dia. | 最大下穴径 Max. drill hole dia. |
| 5/16 - 18UNJC | 6.7 | 6.57 | 6.83 |
| 5/16 - 24UNJF | 7.01 | 6.91 | 7.1 |
| 3/8 - 16UNJC | 8.12 | 7.98 | 8.25 |
| 3/8 - 24UNJF | 8.59 | 8.5 | 8.67 |
| 7/16 - 14UNJC | 9.49 | 9.35 | 9.63 |
| 7/16 - 20UNJF | 9.98 | 9.88 | 10.08 |
| 1/2 - 13UNJC | 10.95 | 10.8 | 11.09 |
| 1/2 - 20UNJF | 11.57 | 11.47 | 11.66 |

ミシンねじ Screw threads for sewing machines

(単位: mm)
(Unit: mm)

| ねじの呼び Thread size | ドリル径 Drill dia. | 2級ねじ 下穴径 JIS class 2 drill hole dia. | 2級めねじ内径 JIS class 2 Internal thread minor dia. | |
|----------------------|--------------------|---|---|--------------|
| | | | 最小寸法 Min. | 最大寸法 Max. |
| SM 1/16 - 80 | 1.25 | 1.28(75%) | 1.211 | 1.281 |
| 5/64 - 64 | 1.55 | 1.57(80%) | 1.513 | 1.593 |
| 3/32 - 100 | 2.1 | 2.15(70%) | 2.081 | 2.156 |
| 3/32 - 56 | 1.85 | 1.91(80%) | 1.841 | 1.936 |
| 1/8 - 44 | 2.5 | 2.58(80%) | 2.485 | 2.605 |
| 1/8 - 40 | 2.45 | 2.52(80%) | 2.421 | 2.551 |
| 9/64 - 40 | 2.85 | 2.91(80%) | 2.818 | 2.948 |
| 11/64 - 40 | 3.65 | 3.71(80%) | 3.612 | 3.742 |
| 3/16 - 32 | 3.9 | 3.94(80%) | 3.82 | 3.98 |
| 3/16 - 28 | 3.7 | 3.82(80%) | 3.684 | 3.844 |
| 3/16 - 24 | 3.55 | 3.59(85%) | 3.498 | 3.658 |
| 7/32 - 32 | 4.7 | 4.73(80%) | 4.614 | 4.774 |
| 15/64 - 28 | 4.9 | 5.01(80%) | 4.875 | 5.055 |
| 1/4 - 40 | 5.6 | 5.69(80%) | 5.596 | 5.726 |
| 1/4 - 28 | 5.3 | 5.41(80%) | 5.272 | 5.452 |

(単位: mm)
(Unit: mm)

| ねじの呼び Thread size | ドリル径 Drill dia. | 2級ねじ 下穴径 JIS class 2 drill hole dia. | 2級めねじ内径 JIS class 2 Internal thread minor dia. | |
|----------------------|--------------------|---|---|--------------|
| | | | 最小寸法 Min. | 最大寸法 Max. |
| SM 1/4 - 24 | 5.1 | 5.25(80%) | 5.086 | 5.266 |
| 5/32 - 28 | 6.1 | 6.2 (80%) | 6.066 | 6.256 |
| 5/32 - 20 | 5.7 | 5.82(80%) | 5.634 | 5.824 |
| 5/16 - 28 | 6.9 | 6 (80%) | 6.86 | 7.05 |
| 5/16 - 24 | 6.7 | 6.84(80%) | 6.674 | 6.864 |
| 5/16 - 18 | 6.3 | 6.38(85%) | 6.254 | 6.444 |
| 11/32 - 28 | 7.6 | 7.79(80%) | 7.653 | 7.843 |
| 3/8 - 28 | 8.5 | 8.58(80%) | 8.447 | 8.637 |
| 3/8 - 18 | 7.9 | 7.97(85%) | 7.843 | 8.053 |
| 7/16 - 28 | 10.1 | 10.17(80%) | 10.034 | 10.224 |
| 7/16 - 16 | 9.3 | 9.36(85%) | 9.22 | 9.44 |
| 1/2 - 28 | 11.7 | 11.76(80%) | 11.622 | 11.812 |
| 1/2 - 20 | 11.3 | 11.38(80%) | 11.19 | 11.41 |
| 1/2 - 12 | 10.3 | 10.36(85%) | 10.18 | 10.42 |

ウィット並目ねじ Whitworth Coarse screw threads

(単位: mm)
(Unit: mm)

| ねじの呼び Thread size | 山数 Number of thread | 内径最小 Internal thread min. minor dia. | 内径最大 Internal thread max. minor dia. |
|----------------------|------------------------|---|---|
| W 1/8 | 40 | 2.452 | 2.602 |
| 5/32 | 32 | 3.073 | 3.253 |
| 3/16 | 24 | 3.567 | 3.807 |
| 1/4 | 20 | 4.914 | 5.204 |
| 5/16 | 18 | 6.34 | 6.67 |
| 3/8 | 16 | 7.733 | 8.113 |
| 7/16 | 14 | 9.048 | 9.508 |
| 1/2 | 12 | 10.31 | 10.83 |
| 9/16 | 12 | 11.898 | 12.418 |
| 5/8 | 11 | 13.257 | 13.817 |
| 3/4 | 10 | 16.178 | 16.778 |
| 7/8 | 9 | 19.031 | 19.691 |
| 1 | 8 | 21.814 | 22.514 |
| 1 1/8 | 7 | 24.469 | 25.229 |

| ねじの呼び Thread size | 山数 Number of thread | 内径最小 Internal thread min. minor dia. | 内径最大 Internal thread max. minor dia. |
|----------------------|------------------------|---|---|
| 1 1/4 | 7 | 27.644 | 28.404 |
| 1 3/8 | 6 | 30.123 | 30.923 |
| 1 1/2 | 6 | 33.298 | 34.098 |
| 1 5/8 | 5 | 35.529 | 36.409 |
| 1 3/4 | 5 | 38.704 | 39.584 |
| 1 7/8 | 4 1/2 | 41.237 | 42.227 |
| 2 | 4 1/2 | 44.412 | 45.402 |
| 2 1/8 | 4 | 46.783 | 47.893 |
| 2 1/4 | 4 | 49.958 | 51.068 |
| 2 3/8 | 4 | 53.133 | 54.243 |
| 2 1/2 | 4 | 56.308 | 57.418 |
| 2 3/4 | 3 1/2 | 61.636 | 62.816 |
| 2 7/8 | 3 1/2 | 64.81 | 65.99 |
| 3 | 3 1/2 | 67.986 | 69.166 |

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ねじ下穴径表 RECOMMENDED DRILL HOLE SIZE

管用テーパねじ(英式)

Taper pipe threads

(単位: mm)
(Unit: mm)

| ねじ Thread | | JIS B 0203 | | | | JIS B 2301 | |
|-------------------|------------------|--|------------------------|--|------------------------|----------------------------------|------------------------|
| | | テーパめねじ Rc(PT) Taper internal threads (PT) | | 平行めねじ Rp(PS) Parallel internal threads (PS) | | テーパめねじ Taper internal threads | |
| 呼び Thread size | 外径 Major dia. | 計算値 calculated value | 下穴径 Drill hole dia. | 計算値 calculated value | 下穴径 Drill hole dia. | 計算値 calculated value | 下穴径 Drill hole dia. |
| 1/16 | 7.723 | 6.23 | 6.2 | 6.49 | 6.5 | — | — |
| 1/8 | 9.728 | 8.235 | 8.2 | 8.495 | 8.5 | 8.191 | 8.2 |
| 1/4 | 13.157 | 10.941 | 10.9 | 11.341 | 11.4 | 10.945 | 10.9 |
| 3/8 | 16.662 | 14.428 | 14.4 | 14.846 | 14.9 | 14.388 | 14.4 |
| 1/2 | 20.955 | 17.95 | 18 | 18.489 | 18.5 | 17.943 | 18 |
| 3/4 | 26.441 | 23.349 | 23 | 23.975 | 24 | 23.305 | 23 |
| 1 | 33.249 | 29.423 | 29 | 30.111 | 30 | 29.353 | 29 |
| 1 1/4 | 41.91 | 37.94 | 38 | 38.772 | 39 | 37.89 | 38 |
| 1 1/2 | 47.803 | 43.833 | 44 | 44.565 | 45 | 43.72 | 43 |
| 2 | 59.614 | 55.412 | 55 | 56.476 | 56 | 55.406 | 55 |
| 2 1/2 | 75.184 | 70.701 | 71 | 72.009 | 72 | 70.788 | 70 |
| 3 | 87.884 | 83.201 | 83 | 84.709 | 85 | 83.364 | 83 |
| 3 1/2 | 100.33 | 95.547 | 96 | 97.155 | 97 | 95.747 | 95 |
| 4 | 113.03 | 107.834 | 108 | 109.855 | 110 | 108.322 | 108 |
| 5 | 138.43 | 133.11 | 133 | 135.255 | 135 | 133.597 | 133 |
| 6 | 163.83 | 158.51 | 159 | 160.655 | 161 | 158.81 | 158 |
| 7 | 189.23 | 183.36 | 183 | 185.954 | 186 | — | — |
| 8 | 214.63 | 208.56 | 209 | 211.354 | 212 | — | — |
| 9 | 240.03 | 233.96 | 234 | 236.754 | 237 | — | — |
| 10 | 265.43 | 259.166 | 259 | 262.154 | 262 | — | — |
| 12 | 316.23 | 309.747 | 310 | 312.875 | 313 | — | — |

1982年、ISO導入によりJISの管用ねじ規格が改正され、ねじの呼び記号が変更されましたが、ねじ精度の変更はないため、タップは新旧記号のものを共用することが可能です。

The JIS pipe thread standard was revised in 1982 to meet ISO standards. Although thread symbols changed, the limits were not changed. Therefore, it is still acceptable to use taps with both new and old symbols.

(JIS B 0202-1982)
(JIS B 0203-1982)

| 種類 Type | 旧記号 Previous Symbol | 新記号 New Symbol |
|---|------------------------|-------------------|
| 耐密用 テーパめねじ Taper pipe threads for pressure-tight joints | PT | Rc |
| 耐密用 平行めねじ Parallel pipe threads for pressure-tight joints | PS | Rp |
| 機械的結合用 平行めねじ Parallel pipe threads for mechanical joints | PF | G |

- JIS B 0203テーパめねじの計算値は継手の端面に基準値があるときに、有効ねじ部の小径位置の山頂1山が不完全山になるのを許される場合のストレート穴である。
- JIS B 2301テーパめねじの計算値は継手の端面に基準値があるときに、小径位置の山頂が完全山にならない場合のストレート穴である。
- PT、PSの1/16はJIS B 0203-1982のRc、Rpめねじに準じている。

- Calculated value of JIS B 0203 taper thread refers to the diameter of the straight hole in case that the last one thread at the small diameter position in useful threads is allowed to be incomplete when the reference is on the end surface of the joint.
- Calculated value of JIS B 2301 taper thread refers to the diameter of the straight hole in case that the last thread at the small diameter position needs to be complete when the reference is on the end surface of the joint.
- The values for 1/16 of OT and PS conform to those of Rc and Rp threads under JIS B 0203-1982.

管用平行ねじ(英式)

Parallel pipe threads

(単位: mm)
(Unit: mm)

| ねじ Thread | | 下穴径最小 (ひっかかり率%) Drill hole dia min. | 下穴径最大 (ひっかかり率%) Drill hole dia max. |
|-------------------|------------------|---|---|
| 呼び Thread size | 外径 Major dia. | | |
| G 1/16 | 7.723 | 6.561 (100) | 6.843 (80) |
| G(PF) 1/8 | 9.728 | 8.566 // | 8.848 // |
| 1/4 | 13.157 | 11.445 // | 11.89 (75) |
| 3/8 | 16.662 | 14.95 // | 15.395 // |
| 1/2 | 20.955 | 18.631 // | 19.172 (80) |
| 5/8 | 22.911 | 20.587 // | 21.128 // |
| 3/4 | 26.441 | 24.117 // | 24.658 // |
| 7/8 | 30.201 | 27.877 // | 28.418 // |
| 1 | 33.249 | 30.291 // | 30.931 // |
| 1 1/8 | 37.897 | 34.939 // | 35.579 // |
| 1 1/4 | 41.91 | 38.952 // | 39.592 (85) |
| 1 3/8 | 44.323 | 41.365 // | 42.005 (80) |
| 1 1/2 | 47.803 | 44.845 // | 45.485 // |
| 1 3/4 | 53.746 | 50.788 // | 51.428 // |
| 2 | 59.614 | 56.656 // | 57.296 // |
| 2 1/2 | 75.184 | 72.226 // | 72.866 // |
| 3 | 87.884 | 84.926 // | 85.566 // |
| 3 1/2 | 100.33 | 97.372 // | 98.012 // |
| 4 | 113.03 | 110.072 // | 110.712 // |

管用平行ねじ(PF) ニューロールタップ(英式)

Parallel pipe threads (Nu-Roll tap)

(単位: mm)
(Unit: mm)

| ねじ Thread | | RH 精度 RH Limits | 最小~最大(ひっかかり率%) Min. ~ Max. (Thread Overlap Ratio:%) |
|-------------------|--------------------|--------------------|--|
| 呼び Thread size | 外径 d Major dia. | | |
| PF 1/8 | 9.728 | 6 | 9.24 ~ 9.35 (100 ~ 80) |
| 1/4 | 13.157 | 7 | 12.41 ~ 12.62 (100 ~ 75) |
| 3/8 | 16.662 | 7 | 15.92 ~ 16.12 (100 ~ 75) |
| 1/2 | 20.955 | 8 | 19.93 ~ 20.15 (100 ~ 80) |
| 3/4 | 26.441 | 8 | 25.41 ~ 25.64 (100 ~ 80) |
| 1 | 33.249 | 10 | 31.919 ~ 32.205 (100 ~ 80) |

ねじ下穴径表 RECOMMENDED DRILL HOLE SIZE

アメリカ標準管用ねじ(NPT・NPSC)

American pipe threads

(単位: mm()はinch)
(Unit: mm()=inch)

| ねじ Thread | テーパねじ (NPT) | | | | 平行ねじ (NPSC) | | |
|--------------|-------------------|------------------|--|---|--------------------|----------|---------------|
| | 呼び Thread size | 外径 Major dia. | ドリル径 Drill dia. | | ドリル径 Drill dia. | | |
| | | | リーマを 使用する場合 Where Reamer is used | リーマを 使用しない場合 Where Reamer is not used | | | |
| 1/16 | 7.77 | — | 5.94 (0.234) | — | 6.15 (0.242) | 1/4 | 6.35 (0.25) |
| 1/8 | 10.117 | 2 1/64 | 8.33 (0.328) | — | 8.43 (0.332) | 1 1/32 | 8.74 (0.344) |
| 1/4 | 13.426 | 2 7/64 | 10.72 (0.422) | 7 1/6 | 11.13 (0.438) | 7 1/6 | 11.13 (0.438) |
| 3/8 | 16.866 | 9 1/6 | 14.27 (0.562) | 9 1/6 | 14.27 (0.562) | 3 7/64 | 14.68 (0.578) |
| 1/2 | 20.98 | 1 1/16 | 17.48 (0.688) | 4 5/64 | 17.86 (0.703) | 2 3/32 | 18.26 (0.719) |
| 3/4 | 26.325 | 5 7/64 | 22.63 (0.891) | 2 9/32 | 23.01 (0.906) | 5 9/64 | 23.42 (0.922) |
| 1 | 32.934 | 1 1/8 | 28.58 (1.125) | 1 9/64 | 28.98 (1.141) | 1 5/32 | 29.36 (1.156) |
| 1 1/4 | 41.689 | 1 15/32 | 37.31 (1.469) | 1 3 1/64 | 37.69 (1.484) | 1 1/2 | 38.1 (1.5) |
| 1 1/2 | 47.76 | 1 4 5/64 | 43.26 (1.703) | 1 2 3/32 | 43.66 (1.719) | 1 3/4 | 44.45 (1.75) |
| 2 | 59.797 | 2 1 1/64 | 55.17 (2.172) | 2 3 1/6 | 55.58 (2.188) | 2 7/32 | 56.36 (2.219) |
| 2 1/2 | 72.273 | 2 3 7/64 | 65.48 (2.578) | 2 3 9/64 | 66.27 (2.609) | 2 2 1/32 | 67.46 (2.656) |

ドリル径は、アメリカ管用ねじANSI/ASME B1.20.1-1983 Pipe Threads, General Purpose (Inch) 付属書推奨ドリル径より抜粋したものです。The drill sizes are quoted from ANSI/ASME B1.20.1-1983 Pipe Threads, General Purpose (Inch) Appendix.

ドライシールアメリカ標準管用ねじ(NPTF・NPSC)

American dryseal pipe threads

(単位: mm()はinch)
(Unit: mm()=inch)

| ねじ Thread | テーパねじ (NPTF) | | | | 平行ねじ (NPSC) | | |
|--------------|-------------------|------------------|--|---|--------------------|--------|---------------|
| | 呼び Thread size | 外径 Major dia. | ドリル径 Drill dia. | | ドリル径 Drill dia. | | |
| | | | リーマを 使用する場合 Where Reamer is used | リーマを 使用しない場合 Where Reamer is not used | | | |
| 1/16 | 7.77 | — | 5.94 (0.234) | — | 6.15 (0.242) | — | 6.25 (0.246) |
| 1/8 | 10.117 | 2 1/64 | 8.33 (0.328) | — | 8.43 (0.332) | — | 8.61 (0.339) |
| 1/4 | 13.426 | 2 7/64 | 10.72 (0.422) | 7 1/6 | 11.13 (0.438) | 7 1/6 | 11.13 (0.438) |
| 3/8 | 16.866 | 9 1/6 | 14.3 (0.563) | 9 1/6 | 14.27 (0.562) | 3 7/64 | 14.68 (0.578) |
| 1/2 | 20.98 | 1 1/16 | 17.48 (0.688) | 4 5/64 | 17.86 (0.703) | 4 5/64 | 17.86 (0.703) |
| 3/4 | 26.325 | 5 7/64 | 22.63 (0.891) | 2 9/32 | 23.01 (0.906) | 5 9/64 | 23.42 (0.922) |
| 1 | 32.934 | 1 1/8 | 28.58 (1.125) | 1 9/64 | 28.98 (1.141) | 1 5/32 | 29.36 (1.156) |
| 1 1/4 | 41.689 | 1 15/32 | 37.31 (1.469) | 1 3 1/64 | 37.69 (1.484) | — | — |
| 1 1/2 | 47.76 | 1 4 5/64 | 43.26 (1.703) | 1 2 3/32 | 43.66 (1.719) | — | — |
| 2 | 59.797 | 2 1 1/64 | 55.17 (2.172) | 2 3 1/6 | 55.58 (2.188) | — | — |
| 2 1/2 | 72.273 | 2 3 7/64 | 65.48 (2.578) | 2 3 9/64 | 66.27 (2.609) | — | — |

ドリル径は、ANSI B1.20.3-1976 Dryseal Pipe Threads, (Inch) より抜粋したものです。The drill sizes are quoted from ANSI B1.20.3-1976 Dryseal Pipe Threads (Inch) Appendix.

ユニファイ並目ねじ (ニューロールタップ)

Unified Coarse screw threads (Nu-Roll tap)

(単位: mm)
(Unit: mm)

| ねじの呼び Thread size | 2B 級ねじ用下穴径 for JIS class 2B drill hole dia. | | | 3B 級ねじ用下穴径 for JIS class 3B drill hole dia. | | |
|----------------------|--|--------------------|-------------------------|--|--------------------|-------------------------|
| | RH 精度 RH Limits | 最小~最大 (ひっかけり率%) | | RH 精度 RH Limits | 最小~最大 (ひっかけり率%) | |
| | | Min. ~ Max. | (Thread Overlap Ratio%) | | Min. ~ Max. | (Thread Overlap Ratio%) |
| No. 1 - 64UNC | 3 | 1.66 ~ 1.7 | (100~65) | 2 | 1.65 ~ 1.69 | (100~65) |
| No. 2 - 56 | 4 | 1.96 ~ 2.02 | (100~65) | 3 | 1.95 ~ 2.01 | (100~65) |
| No. 3 - 48 | 4 | 2.25 ~ 2.32 | (100~65) | 3 | 2.23 ~ 2.31 | (100~65) |
| No. 4 - 40 | 5 | 2.52 ~ 2.6 | (100~70) | 3 | 2.5 ~ 2.58 | (100~70) |
| No. 5 - 40 | 5 | 2.86 ~ 2.93 | (100~70) | 3 | 2.83 ~ 2.91 | (100~70) |
| No. 6 - 32 | 5 | 3.09 ~ 3.17 | (100~75) | 3 | 3.06 ~ 3.14 | (100~75) |
| No. 8 - 32 | 5 | 3.75 ~ 3.83 | (100~75) | 4 | 3.74 ~ 3.82 | (100~75) |
| No.10 - 24 | 6 | 4.26 ~ 4.35 | (100~80) | 4 | 4.24 ~ 4.32 | (100~80) |
| No.12 - 24 | 6 | 4.92 ~ 5.01 | (100~80) | 4 | 4.9 ~ 4.96 | (100~85) |
| 1/4 - 20 | 6 | 5.66 ~ 5.76 | (100~80) | 4 | 5.64 ~ 5.74 | (100~80) |
| 5/16 - 18 | 7 | 7.18 ~ 7.29 | (100~80) | 5 | 7.15 ~ 7.24 | (100~85) |
| 3/8 - 16 | 7 | 8.66 ~ 8.78 | (100~80) | 5 | 8.63 ~ 8.73 | (100~85) |
| 7/16 - 14 | 7 | 10.11 ~ 10.25 | (100~80) | 5 | 10.08 ~ 10.19 | (100~85) |
| 1/2 - 13 | 8 | 11.62 ~ 11.78 | (100~80) | 6 | 11.6 ~ 11.68 | (100~90) |
| 9/16 - 12 | 10 | 13.14 ~ 13.27 | (100~85) | 8 | 13.11 ~ 13.24 | (100~85) |
| 5/8 - 11 | 11 | 14.62 ~ 14.76 | (100~85) | 8 | 14.58 ~ 14.67 | (100~90) |
| 3/4 - 10 | 12 | 17.67 ~ 17.88 | (100~80) | 9 | 17.63 ~ 17.74 | (100~90) |
| 7/8 - 9 | 12 | 20.68 ~ 20.85 | (100~85) | 9 | 20.64 ~ 20.75 | (100~90) |
| 1 - 8 | 13 | 23.65 ~ 23.84 | (100~85) | 10 | 23.61 ~ 23.74 | (100~90) |

1. 上表の下穴径は、被削材等により異なりますので、目安として下さい。
2. 下穴径は被削材・硬さ・形状寸法等により盛上がり性が多少変わりますので、試し加工の上決定下さい。
3. 耐久性を考慮すると、下穴径は大きめの方が有利です。目的に合わせて選定下さい。
4. 下穴曲がり、うねり、心ずれ等があると、トラブルの原因になりますのでご注意ください。

1. The proper drill hole size may change due to material variety. Use the recommended drill hole size as a benchmark.
2. As the hole diameter may vary by behavior of plasticity depending on the material, hardness and shapes of workpiece, the hole diameter should be determined through trial tapping prior to final machining.
3. A larger drill hole size is better for extending tool life. Select a drill hole size based on your particular application.
4. To avoid tapping trouble, correct hole must be maintained free from warp, deformation, stagger and the like.

ユニファイ細目ねじ (ニューロールタップ)

Unified Fine screw threads (Nu-Roll tap)

(単位: mm)
(Unit: mm)

| ねじの呼び Thread size | 2B 級ねじ用下穴径 for JIS class 2B drill hole dia. | | | 3B 級ねじ用下穴径 for JIS class 3B drill hole dia. | | |
|----------------------|--|--------------------|-------------------------|--|--------------------|-------------------------|
| | RH 精度 RH Limits | 最小~最大 (ひっかけり率%) | | RH 精度 RH Limits | 最小~最大 (ひっかけり率%) | |
| | | Min. ~ Max. | (Thread Overlap Ratio%) | | Min. ~ Max. | (Thread Overlap Ratio%) |
| No. 0 - 80UNF | 3 | 1.38 ~ 1.41 | (100~65) | 2 | 1.36 ~ 1.4 | (100~65) |
| No. 1 - 72 | 3 | 1.68 ~ 1.72 | (100~65) | 2 | 1.67 ~ 1.71 | (100~65) |
| No. 2 - 64 | 3 | 1.98 ~ 2.04 | (100~65) | 2 | 1.97 ~ 2.03 | (100~65) |
| No. 3 - 56 | 4 | 2.29 ~ 2.35 | (100~65) | 3 | 2.28 ~ 2.34 | (100~65) |
| No. 4 - 48 | 4 | 2.57 ~ 2.64 | (100~70) | 3 | 2.56 ~ 2.63 | (100~70) |
| No. 5 - 44 | 5 | 2.89 ~ 2.96 | (100~70) | 3 | 2.87 ~ 2.94 | (100~70) |
| No. 6 - 40 | 5 | 3.19 ~ 3.26 | (100~70) | 3 | 3.16 ~ 3.22 | (100~75) |
| No. 8 - 36 | 5 | 3.8 ~ 3.88 | (100~75) | 4 | 3.79 ~ 3.86 | (100~75) |
| No.10 - 32 | 5 | 4.41 ~ 4.48 | (100~80) | 4 | 4.4 ~ 4.46 | (100~80) |
| No.12 - 28 | 5 | 5 ~ 5.08 | (100~80) | 4 | 4.99 ~ 5.06 | (100~80) |
| 1/4 - 28 | 5 | 5.86 ~ 5.93 | (100~80) | 4 | 5.85 ~ 5.92 | (100~80) |
| 5/16 - 24 | 6 | 7.38 ~ 7.46 | (100~80) | 5 | 7.36 ~ 7.43 | (100~85) |
| 3/8 - 24 | 6 | 8.96 ~ 9.05 | (100~80) | 5 | 8.95 ~ 9.02 | (100~85) |
| 7/16 - 20 | 7 | 10.44 ~ 10.54 | (100~80) | 5 | 10.41 ~ 10.49 | (100~85) |
| 1/2 - 20 | 7 | 12.02 ~ 12.12 | (100~80) | 5 | 12 ~ 12.05 | (100~90) |
| 9/16 - 18 | 9 | 13.55 ~ 13.66 | (100~80) | 7 | 13.53 ~ 13.58 | (100~90) |
| 5/8 - 18 | 9 | 15.14 ~ 15.25 | (100~80) | 7 | 15.11 ~ 15.17 | (100~90) |
| 3/4 - 16 | 10 | 18.22 ~ 18.32 | (100~85) | 7 | 18.18 ~ 18.25 | (100~90) |
| 7/8 - 14 | 11 | 21.27 ~ 21.38 | (100~85) | 8 | 21.23 ~ 21.27 | (100~95) |
| 1 - 12 | 12 | 24.28 ~ 24.41 | (100~85) | 9 | 24.24 ~ 24.32 | (100~90) |

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ドリル
タップ

ねじ下穴径表(溝なしタップ用) RECOMMENDED DRILL HOLE SIZE (FOR FLUTELSS TAPS)

メートルねじ (ハイロールドタップ) Metric screw threads (Hi-Roll tap)

赤字 = JIS 並目ねじ
Red character = JIS coarse pitch thread (単位 : mm) (Unit : mm)

| ねじの呼び Thread size | 旧JIS1級ねじ for JIS class 1 drill hole dia. | | 旧JIS2級ねじ for JIS class 2 drill hole dia. | | 4H | | 5H | | 6H | |
|----------------------|---|--|---|--|--------------------|--|--------------------|--|--------------------|--|
| | RH 精度 (H/mm) | 最小~最大(ひっかり率) Min. ~ Max. (Thread Overlap Ratio) | RH 精度 (H/mm) | 最小~最大(ひっかり率) Min. ~ Max. (Thread Overlap Ratio) | RH 精度 (H/mm) | 最小~最大(ひっかり率) Min. ~ Max. (Thread Overlap Ratio) | RH 精度 (H/mm) | 最小~最大(ひっかり率) Min. ~ Max. (Thread Overlap Ratio) | RH 精度 (H/mm) | 最小~最大(ひっかり率) Min. ~ Max. (Thread Overlap Ratio) |
| M 1 × 0.25 | 2 | 0.858 ~ 0.879 (100%~85%) | 4 | 0.858 ~ 0.887 (100%~80%) | 2 | 0.860 ~ 0.879 (100%~85%) | 4 | 0.858 ~ 0.886 (100%~80%) | — | — |
| 1.2 × 0.25 | 2 | 1.058 ~ 1.079 // | 4 | 1.058 ~ 1.087 // | 2 | 1.060 ~ 1.079 // | 4 | 1.058 ~ 1.086 // | — | — |
| 1.4 × 0.3 | 2 | 1.23 ~ 1.26 // | 4 | 1.23 ~ 1.26 // | 2 | 1.230 ~ 1.255 // | 4 | 1.230 ~ 1.263 // | 4 | 1.230 ~ 1.263 (100%~80%) |
| 1.6 × 0.35 | 2 | 1.40 ~ 1.44 (100%~80%) | 4 | 1.40 ~ 1.45 (100%~75%) | 2 | 1.410 ~ 1.431 // | 4 | 1.402 ~ 1.441 // | 4 | 1.402 ~ 1.451 (100%~75%) |
| ※ 1.7 × 0.35 | — | — | 4 | *1.50 ~ 1.55 // | — | — | — | — | — | — |
| 1.8 × 0.35 | 2 | 1.60 ~ 1.64 (100%~80%) | 4 | 1.60 ~ 1.65 // | 2 | 1.610 ~ 1.631 (100%~85%) | 4 | 1.602 ~ 1.641 (100%~80%) | 4 | 1.602 ~ 1.651 (100%~75%) |
| 2 × 0.4 | 2 | 1.77 ~ 1.82 // | 4 | 1.77 ~ 1.82 (100%~80%) | 2 | 1.78 ~ 1.80 (100%~86%) | 4 | 1.78 ~ 1.81 // | 4 | 1.78 ~ 1.81 (100%~80%) |
| 2 × 0.25 | 2 | 1.858 ~ 1.887 // | — | — | — | — | 4 | 1.858 ~ 1.886 // | — | — |
| ※ 2.3 × 0.4 | — | — | 4 | *2.07 ~ 2.13 (100%~75%) | — | — | — | — | — | — |
| 2.5 × 0.45 | 3 | 2.24 ~ 2.30 (100%~80%) | 5 | 2.24 ~ 2.31 // | 3 | 2.25 ~ 2.28 (100%~86%) | 3 | 2.25 ~ 2.30 (100%~75%) | 5 | 2.25 ~ 2.30 (100%~75%) |
| ※ 2.6 × 0.45 | — | — | 5 | *2.34 ~ 2.41 // | — | — | — | — | — | — |
| ※ 3 × 0.6 | 3 | 2.72 ~ 2.73 (100%~90%) | 5 | 2.66 ~ 2.73 (100%~90%) | — | — | — | — | — | — |
| 3 × 0.5 | 5 | 2.72 ~ 2.77 (100%~80%) | 6 | 2.72 ~ 2.78 (100%~75%) | 3 | 2.72 ~ 2.75 (100%~85%) | 5 | 2.72 ~ 2.77 (100%~80%) | 6 | 2.72 ~ 2.78 (100%~75%) |
| 3 × 0.35 | 3 | 2.80 ~ 2.84 // | 5 | 2.80 ~ 2.85 // | 3 | 2.81 ~ 2.83 // | 3 | 2.81 ~ 2.84 // | 5 | 2.81 ~ 2.85 // |
| 3.5 × 0.6 | 3 | 3.16 ~ 3.21 (100%~85%) | 5 | 3.16 ~ 3.25 // | 3 | 3.16 ~ 3.21 // | 5 | 3.16 ~ 3.21 (100%~85%) | 5 | 3.16 ~ 3.24 // |
| ※ 4 × 0.75 | 3 | 3.57 ~ 3.64 // | 6 | 3.57 ~ 3.64 (100%~85%) | — | — | — | — | — | — |
| 4 × 0.7 | 6 | 3.60 ~ 3.66 // | 7 | 3.60 ~ 3.66 // | 4 | 3.61 ~ 3.65 (100%~87%) | 6 | 3.61 ~ 3.66 (100%~85%) | 7 | 3.61 ~ 3.66 (100%~85%) |
| 4 × 0.5 | 3 | 3.71 ~ 3.77 (100%~80%) | 6 | 3.71 ~ 3.79 (100%~75%) | 3 | 3.72 ~ 3.75 (100%~85%) | 5 | 3.72 ~ 3.77 (100%~80%) | 6 | 3.72 ~ 3.78 (100%~75%) |
| ※ 5 × 0.9 | 3 | 4.49 ~ 4.59 (100%~85%) | 7 | 4.49 ~ 4.59 (100%~85%) | — | — | — | — | — | — |
| 5 × 0.8 | 3 | 4.55 ~ 4.62 // | 8 | 4.55 ~ 4.64 (100%~80%) | 5 | 4.55 ~ 4.60 (100%~88%) | 6 | 4.55 ~ 4.61 (100%~85%) | 8 | 4.55 ~ 4.63 (100%~80%) |
| 5 × 0.5 | 3 | 4.72 ~ 4.77 (100%~80%) | 6 | 4.72 ~ 4.79 (100%~75%) | 3 | 4.72 ~ 4.75 (100%~85%) | 5 | 4.72 ~ 4.77 (100%~80%) | 6 | 4.72 ~ 4.78 (100%~75%) |
| 6 × 1 | 4 | 5.43 ~ 5.52 (100%~85%) | 7 | 5.43 ~ 5.55 (100%~80%) | 4 | 5.44 ~ 5.50 (100%~88%) | 7 | 5.44 ~ 5.51 (100%~85%) | 7 | 5.44 ~ 5.54 (100%~80%) |
| 6 × 0.75 | 3 | 5.57 ~ 5.64 // | 7 | 5.57 ~ 5.66 // | 5 | 5.58 ~ 5.63 (100%~87%) | 7 | 5.58 ~ 5.63 // | 7 | 5.58 ~ 5.65 // |

4H~6HはJIS B 0209-2001による。
並目サイズはJIS B 0209-1982付属書1による。
細目サイズはJIS B 0211-1982付属書による。
*印はJIS B 0209-1982付属書2による。
※印はJIS廃止サイズです。

1. 上表の下穴径は、被削材等により異なりますので、目安として下さい。
2. 下穴径は被削材・硬さ・形状寸法等により盛上がり性が多少変わりますので、試し加工の上決定下さい。
3. 耐久性を考慮すると、下穴径は大きめの方が有利です。目的に合わせて選定下さい。
4. 下穴曲がり、うねり、心ずれ等があると、トラブルの原因になりますのでご注意下さい。

4H - 6H corresponds to JIS B 0209-2001.
Coarse thread sizes correspond to the appendix 1 of JIS B 0209-1982.
Fine pitch thread sizes correspond to the appendix of JIS B 0211-1982.
*Corresponds to the appendix 2 of JIS B 0209-1982.
※Size abolished by JIS.

1. The proper drill hole size may change due to material variety. Use the recommended drill hole size as a benchmark.
2. As the hole diameter may vary by behavior of plasticity depending on the material, hardness and shapes of workpiece, the hole diameter should be determined through trial tapping prior to final machining.
3. A larger drill hole size is better for extending tool life. Select a drill hole size based on your particular application.
4. To avoid tapping trouble, correct hole must be maintained free from warp, deformation, stagger and the like.

ドリル
DRILLS

タップ
TAPS

TAP LIMIT AND
DRILL HOLE SIZE
精度と
下穴径

ゲージ
GAUGES

丸ダイス
ROUND DIES

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TAPER PIPE
THREADS (ANSI)
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INSERT SCREW
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MACHINING
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DRILL TAP
ドリル
タップ

ねじ下穴径表(インサートねじ用) RECOMMENDED DRILL HOLE SIZE (FOR SCREW THREAD INSERT)

一般ねじ用はP.860を参照下さい。For general screw thread : Please refer to p.860

メートル並目ねじ Metric Coarse screw threads

(単位: mm)
(Unit: mm)

| ねじの呼び Thread size | タップ下穴径 Drill hole dia. | | 適用ドリル径 Suitable Drill dia. |
|----------------------|---------------------------|--------------|-------------------------------|
| | 最小寸法 Min. | 最大寸法 Max. | |
| M 2 × 0.4 (2.520) | 2.09 | 2.18 | 2.15 |
| 2.5 × 0.45 (3.085) | 2.6 | 2.69 | 2.65 |
| 2.6 × 0.45 (3.185) | 2.7 | 2.79 | 2.75 |
| 3 × 0.5 (3.650) | 3.11 | 3.2 | 3.15 |
| 4 × 0.7 (4.909) | 4.16 | 4.29 | 4.25 |
| 5 × 0.8 (6.039) | 5.18 | 5.33 | 5.25 |
| 6 × 1 (7.300) | 6.22 | 6.4 | 6.3 |
| 8 × 1.25 (9.624) | 8.28 | 8.48 | 8.4 |
| 10 × 1.5 (11.948) | 10.33 | 10.56 | 10.45 |
| 12 × 1.75 (14.274) | 12.38 | 12.64 | 12.5 |
| 14 × 2 (16.598) | 14.44 | 14.73 | 14.6 |
| 16 × 2 (18.598) | 16.44 | 16.73 | 16.6 |
| 18 × 2.5 (21.248) | 18.55 | 18.89 | 18.7 |
| 20 × 2.5 (23.248) | 20.55 | 20.89 | 20.7 |
| 22 × 2.5 (25.248) | 22.55 | 22.89 | 22.7 |
| 24 × 3 (27.898) | 24.65 | 25.05 | 24.8 |
| 27 × 3 (30.898) | 27.65 | 28.05 | 27.8 |
| 30 × 3.5 (34.547) | 30.76 | 31.2 | 31 |

メートル細目ねじ Metric Fine screw threads

(単位: mm)
(Unit: mm)

| ねじの呼び Thread size | タップ下穴径 Drill hole dia. | | 適用ドリル径 Suitable Drill dia. |
|----------------------|---------------------------|--------------|-------------------------------|
| | 最小寸法 Min. | 最大寸法 Max. | |
| M 10 × 1 (11.300) | 10.22 | 10.4 | 10.3 |
| 10 × 1.25 (11.624) | 10.28 | 10.48 | 10.4 |
| 12 × 1.25 (13.624) | 12.28 | 12.48 | 12.4 |
| 12 × 1.5 (13.948) | 12.33 | 12.56 | 12.5 |
| 14 × 1.5 (15.948) | 14.33 | 14.56 | 14.5 |
| 16 × 1.5 (17.948) | 16.33 | 16.56 | 16.5 |
| 18 × 1.5 (19.948) | 18.33 | 18.56 | 18.5 |
| 20 × 1.5 (21.948) | 20.33 | 20.56 | 20.5 |
| 20 × 2 (22.598) | 20.44 | 20.73 | 20.6 |
| 22 × 1.5 (23.948) | 22.33 | 22.56 | 22.5 |
| 24 × 1.5 (25.948) | 24.33 | 24.56 | 24.5 |
| 24 × 2 (26.598) | 24.44 | 24.73 | 24.6 |
| 27 × 1.5 (28.948) | 27.33 | 27.56 | 27.4 |
| 30 × 1.5 (31.948) | 30.33 | 30.56 | 30.5 |

ユニファイ並目ねじ Unified Coarse screw threads

(単位: mm)
(Unit: mm)

| ねじの呼び Thread size | タップ下穴径 Drill hole dia. | | 適用ドリル径 Suitable Drill dia. |
|------------------------|---------------------------|--------------|-------------------------------|
| | 最小寸法 Min. | 最大寸法 Max. | |
| No. 2 - 56UNC (2.773) | 2.28 | 2.44 | 2.35 |
| No. 3 - 48 (3.202) | 2.63 | 2.83 | 2.75 |
| No. 4 - 40 (3.670) | 2.99 | 3.18 | 3.1 |
| No. 5 - 40 (4.000) | 3.31 | 3.52 | 3.4 |
| No. 6 - 32 (4.536) | 3.68 | 3.87 | 3.75 |
| No. 8 - 32 (5.197) | 4.33 | 4.52 | 4.45 |
| No. 10 - 24 (6.201) | 5.06 | 5.28 | 5.2 |
| No. 12 - 24 (6.861) | 5.72 | 5.92 | 5.8 |
| 1/4 - 20 (8.000) | 6.63 | 6.86 | 6.75 |
| 3/16 - 18 (9.771) | 8.25 | 8.48 | 8.4 |
| 3/8 - 16 (11.587) | 9.87 | 10.12 | 10 |
| 7/16 - 14 (13.469) | 11.51 | 11.78 | 11.65 |
| 1/2 - 13 (15.238) | 13.13 | 13.39 | 13.3 |
| 5/8 - 12 (17.038) | 14.74 | 15.05 | 14.9 |
| 5/8 - 11 (18.875) | 16.38 | 16.67 | 16.5 |
| 3/4 - 10 (22.350) | 19.6 | 19.9 | 19.8 |
| 7/8 - 9 (25.891) | 22.84 | 23.16 | 23 |
| 1 - 8 (29.524) | 26.09 | 26.46 | 26.3 |

ユニファイ細目ねじ Unified Fine screw threads

(単位: mm)
(Unit: mm)

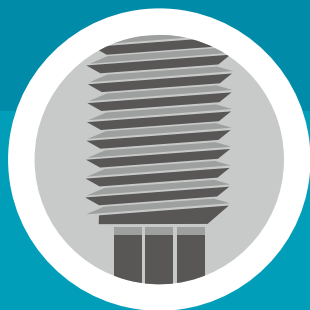
| ねじの呼び Thread size | タップ下穴径 Drill hole dia. | | 適用ドリル径 Suitable Drill dia. |
|------------------------|---------------------------|--------------|-------------------------------|
| | 最小寸法 Min. | 最大寸法 Max. | |
| No. 4 - 48UNF (3.532) | 2.96 | 3.15 | 3.05 |
| No. 6 - 40 (4.330) | 3.65 | 3.81 | 3.75 |
| No. 8 - 36 (5.083) | 4.33 | 4.49 | 4.4 |
| No. 10 - 32 (5.857) | 5 | 5.18 | 5.1 |
| No. 12 - 28 (6.665) | 5.67 | 5.89 | 5.8 |
| 1/4 - 28 (7.528) | 6.55 | 6.72 | 6.65 |
| 5/16 - 24 (9.313) | 8.17 | 8.35 | 8.25 |
| 3/8 - 24 (10.900) | 9.76 | 9.93 | 9.85 |
| 7/16 - 20 (12.762) | 11.39 | 11.58 | 11.5 |
| 1/2 - 20 (13.350) | 12.98 | 13.17 | 13.1 |
| 5/8 - 18 (16.121) | 14.58 | 14.8 | 14.7 |
| 5/8 - 18 (17.708) | 16.18 | 16.38 | 16.3 |
| 3/4 - 16 (21.112) | 19.4 | 19.6 | 19.5 |
| 7/8 - 14 (24.582) | 22.62 | 22.84 | 22.7 |
| 1 - 12 (28.150) | 25.86 | 26.11 | 26 |

メートルねじ(ニューロールタップ) Metric screw threads (Nu-Roll taps)

(単位: mm)
(Unit: mm)

| ねじの呼び Thread size | RH 精度 RH Limits | 最小~最大(ひっかかり率 %) Min.-Max. (Threads Overlap Ratio: %) |
|----------------------|--------------------|---|
| M 2 × 0.4 (2.520) | 2 | 2.31 ~ 2.33 (100 ~80) |
| 2.5 × 0.45 (3.085) | 2 | 2.84 ~ 2.87 (100 ~80) |
| 2.6 × 0.45 (3.185) | 2 | 2.94 ~ 2.97 (100 ~80) |
| 3 × 0.5 (3.650) | 3 | 3.39 ~ 3.43 (100 ~80) |
| 4 × 0.7 (4.909) | 4 | 4.54 ~ 4.58 (100 ~85) |
| 5 × 0.8 (6.039) | 4 | 5.61 ~ 5.66 (100 ~85) |
| 6 × 1 (7.300) | 4 | 6.75 ~ 6.81 (100 ~85) |

| ねじの呼び Thread size | RH 精度 RH Limits | 最小~最大(ひっかかり率 %) Min.-Max. (Threads Overlap Ratio: %) |
|----------------------|--------------------|---|
| 8 × 1.25 (9.624) | 5 | 8.93 ~ 9.01 (100 ~85) |
| 10 × 1.5 (11.948) | 5 | 11.11 ~ 11.17 (100 ~90) |
| 10 × 1.25 (11.624) | 5 | 10.93 ~ 11.01 (100 ~85) |
| 12 × 1.75 (14.274) | 5 | 13.28 ~ 13.35 (100 ~90) |
| 12 × 1.5 (13.948) | 5 | 13.11 ~ 13.17 (100 ~90) |
| 12 × 1.25 (13.624) | 5 | 12.93 ~ 13.01 (100 ~85) |



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ゲージの材料にはコバルトを含有するものがあります。
There are some gauges which include cobalt.

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