

UFO THREAD MILLING



Features

Available in materials



Cost
200~300%
SAVING

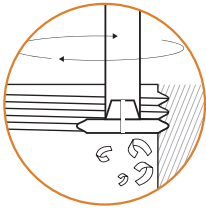
Applicable
Machines
CNC Milling machine

Efficiency
400%
UP

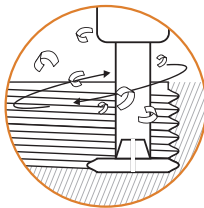
Durability
300%
UP



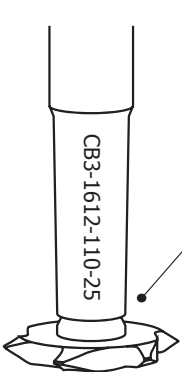
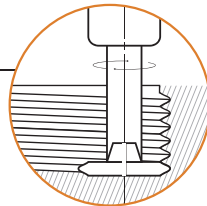
1 / Excellent chip evacuation



2 / High stability & Low cutting forces



3 / Same insert can make different pitches of thread.



Product Advantages

Indexable UFO thread mill - Excellent in chip evacuation and small cutting force.

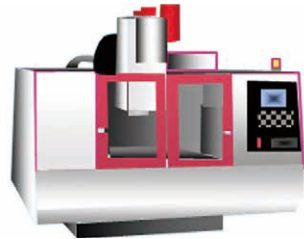
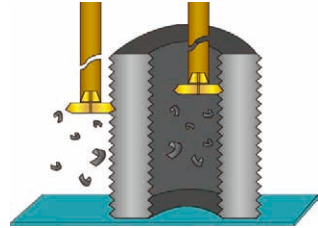
Insert Design

1. Yih Troun provides UFO thread milling inserts applicable to metric, UN and withworth both in full profile and partial profile. Full profile inserts are available from $\text{Ø}10/\text{pitch}1.0$; partial profile inserts are available from $\text{Ø}12/\text{pitch}1.0$.
2. Unique tapered polygon design to get the excellent stability in high speed machining.
3. The front-mounted insert are positioned in a taper seat for center-positioning, giving secure and continuous performance.
4. High productivity with many teeth (4-6 teeth).

New

UFO thread mill is the best choice for expensive components, it's excellent in chip evacuation, averts chip twining and tap breakage at the last stage of machining, exempts machines from unscheduled down time.

The UFO thread mill insert generates machining cutting force least from its single-point design. It's the first choice for medium to large threads milling in BT30 CNC machining centers, thin-walled components and unstable conditions such as milling thread with a long overhang.



Old

Machining with conventional HSS/ carbide solid tap gets problems easily in chip evacuation, tap breakage on the parts and machining stoppage,It takes time and cost to remove the breakage tap.



Advantages Of Partial Profile Ufo Thread Milling

FIG.1

Same UFO thread milling insert is applicable to a wide range of hole sizes and thread pitches.

If use taps, it needs different taps for different hole sizes and different pitches.

FIG.2

UFO thread milling achieves full-bottom threading in a blind hole with a least drill depth.

It's easy to fix thread tolerance by programme.

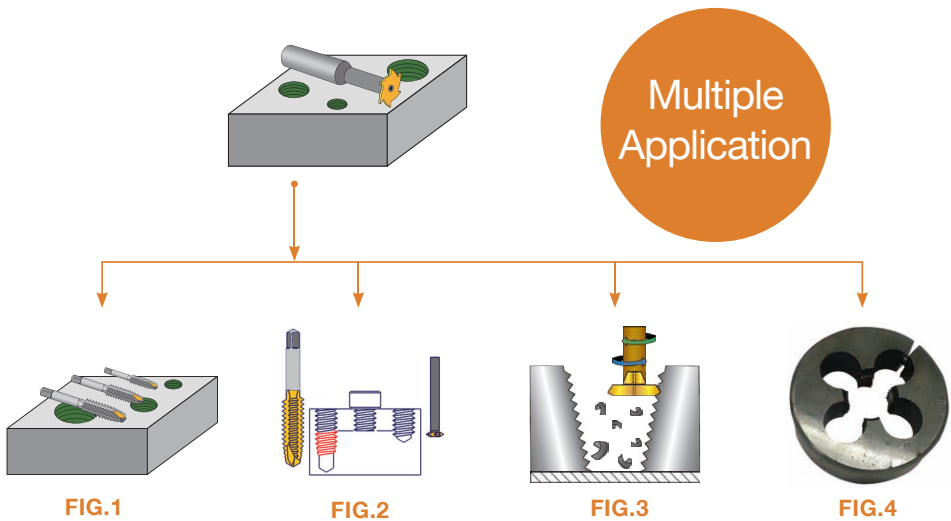
FIG.3

Same UFO thread milling inserts can be used in PT(NPT) thread.




It provides better tool life and less cutting force than PT tap.

FIG.4

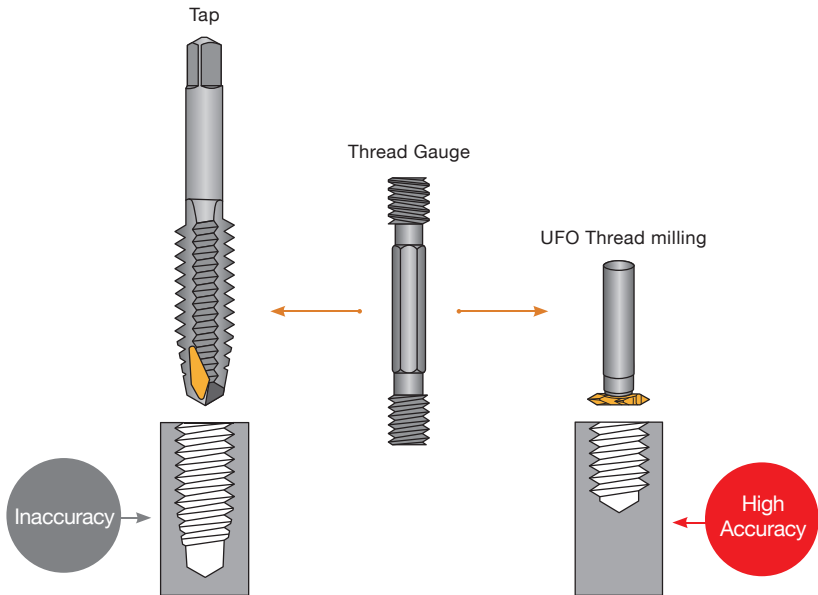
Same UFO thread milling insert is available for both external and internal threads.



Tools Comparison

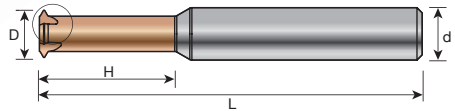
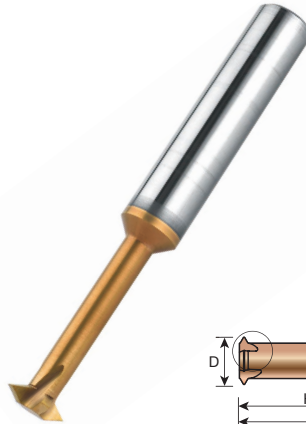
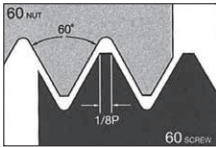
| UFO partial profile insert | Tap | Solid carbide thread milling | Thread milling insert |
|--|---|--|--|
|  |  |  |  |
| One insert applicable to a wide pitch range | Single pitch | Single pitch | Single pitch |
| | | expensive | |
| min dia. 12mm , 4~6 teeth | | | large size and less no. of tooth |
| | deeper pre-drilling hole is required | | |
| single cutting edge with multiple teeth results in less cutting force, available even in small horse power M/C | bigger horse power M/C is required in big hole machining | multiple pitches design results in higher cutting force and lower feed in machining difficult material | multiple pitches design results in higher cutting force and lower feed in machining difficult material |
| less cutting force in machining taper thread | additional taper tap is required | not available in taper thread | not available in taper thread |

Precise Thread By UFO Thread Milling



Solid Carbide Thread Milling - Partial Profile 60°

• Cutting Data P. 125

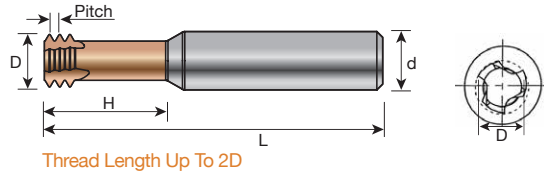
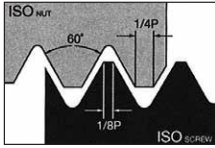


| Order code | Pitch Range | | D | H | T | d | L |
|------------|-------------|-------|------|-----|---|----|----|
| | MM | TPI | | | | | |
| AT0195-50 | 0.35-0.6 | 72-40 | 1.95 | 6.0 | 3 | 3 | 50 |
| AT0245-50 | 0.5-0.8 | 48-32 | 2.45 | 7.7 | 3 | 3 | 50 |
| AT0315-50 | 0.5-0.8 | 48-32 | 3.15 | 10 | 3 | 4 | 50 |
| AT0400-50 | 0.5-1.0 | 48-24 | 4.0 | 12 | 3 | 4 | 50 |
| AT0470-60 | 0.5-1.25 | 48-20 | 4.7 | 15 | 3 | 6 | 60 |
| AT0600-60 | 0.5-1.25 | 48-20 | 6.0 | 18 | 3 | 6 | 60 |
| AT0800-60 | 0.75-1.5 | 32-16 | 8.0 | 24 | 3 | 8 | 60 |
| AT1000-80 | 1.0-2.5 | 24-10 | 10 | 30 | 4 | 10 | 80 |



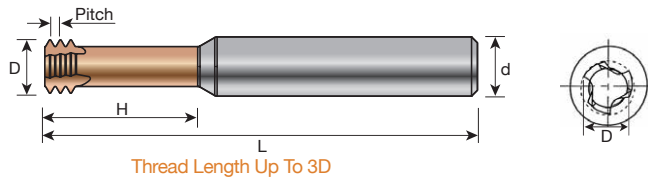
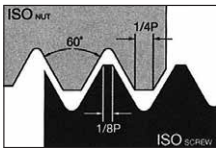
Solid Carbide Thread Milling 2D (Full-Profile) 60°

• Cutting Data P. 125



| Order code | Thread Size | Pitch | D | H | T | d | L |
|------------|-------------|-------|------|------|---|----|----|
| BT0240-50 | M3.0 X 0.5 | 0.5 | 2.4 | 6.4 | 3 | 4 | 50 |
| BT0275-50 | M3.5 X 0.6 | 0.6 | 2.75 | 7.4 | 3 | 4 | 50 |
| BT0315-60 | M4 X 0.7 | 0.7 | 3.15 | 8.6 | 3 | 6 | 60 |
| BT0400-60 | M5 X 0.8 | 0.8 | 4.0 | 12.0 | 3 | 6 | 60 |
| BT0475-60 | M6 X 1.0 | 1.0 | 4.75 | 13.0 | 3 | 6 | 60 |
| BT0600-60 | M8 X 1.25 | 1.25 | 6.5 | 17.3 | 3 | 8 | 60 |
| BT0790-60 | M10 X 1.5 | 1.5 | 7.9 | 22.0 | 3 | 8 | 60 |
| BT0950-80 | M12 X 1.75 | 1.75 | 9.5 | 25.5 | 3 | 10 | 80 |

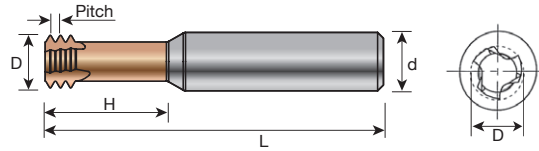
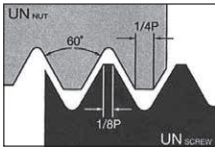
Solid Carbide Thread Milling 3D (Full-Profile) 60°



| Order code | Thread Size | Pitch | D | H | T | d | L |
|------------|-------------|-------|------|------|---|----|----|
| BTL0240-50 | M3.0 X 0.5 | 0.5 | 2.4 | 9.3 | 3 | 4 | 50 |
| BTL0315-60 | M4.0 X 0.7 | 0.7 | 3.15 | 12.4 | 3 | 6 | 60 |
| BTL0400-60 | M5 X 0.8 | 0.8 | 4.0 | 15.6 | 3 | 6 | 60 |
| BTL0475-60 | M6 X 1.0 | 1.0 | 4.75 | 19.0 | 3 | 6 | 60 |
| BTL0650-60 | M8 X 1.25 | 1.25 | 6.5 | 24.3 | 3 | 8 | 60 |
| BTL0790-60 | M10 X 1.5 | 1.5 | 7.9 | 31.0 | 3 | 8 | 60 |
| BTL0950-80 | M12 X 1.75 | 1.75 | 9.5 | 36.5 | 3 | 10 | 80 |

Solid Carbide Thread Milling 2D (Full-Profile) UN 60°

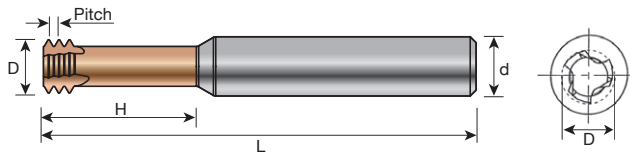
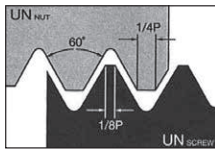
• Cutting Data P. 125



Thread Length Up To 2D

| Order code | UNC | UNF | T.P.I | D | H | T | d | L |
|------------|----------------|----------------|-------|------|------|---|----|----|
| UT404-50 | No.5 - 40 UNC | No.6 - 40 UNF | 40 | 2.46 | 7.1 | 3 | 4 | 50 |
| UT364-50 | - | No.8 - 36 UNF | 36 | 3.31 | 8.8 | 3 | 4 | 50 |
| UT324-50 | No.6 - 32 UNC | - | 32 | 2.57 | 7.3 | 3 | 4 | 50 |
| UT326-60 | No.8 - 32 UNC | No.10 - 32 UNF | 32 | 3.22 | 10.1 | 3 | 6 | 60 |
| UT286-60 | - | 1/4 - 28 UNF | 28 | 5.2 | 14 | 3 | 6 | 60 |
| UT246-60 | No.10 - 24 UNC | - | 24 | 3.55 | 10.4 | 3 | 6 | 60 |
| UT248-60 | - | 5/16 - 24 UNF | 24 | 6.65 | 16.7 | 3 | 8 | 60 |
| UT206-60 | 1/4 - 20 UNC | 7/16 - 20 UNF | 20 | 4.85 | 13.7 | 3 | 6 | 60 |
| UT208-60 | - | 7/16 - 20 UNF | 20 | 7.95 | 24 | 3 | 8 | 60 |
| UT186-60 | 5/16 - 18 UNC | - | 18 | 5.95 | 16.5 | 3 | 6 | 60 |
| UT168-60 | 3/8 - 16 UNC | - | 16 | 6.9 | 21 | 3 | 8 | 60 |
| UT148-60 | 7/16 - 14 UNC | - | 14 | 7.95 | 23.5 | 3 | 8 | 60 |
| UT1310-80 | 1/2 - 13 UNC | - | 13 | 9.3 | 27 | 3 | 10 | 80 |

Solid Carbide Thread Milling 3D (Full-Profile) UN 60°



Thread Length Up To 3D

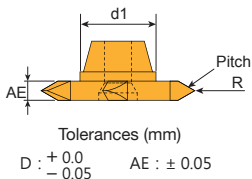
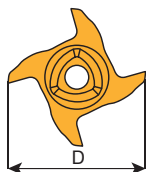
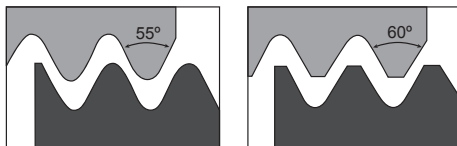
| Order code | UNC | UNF | T.P.I | D | H | T | d | L |
|------------|---------------|----------------|-------|------|------|---|---|----|
| UTL404-50 | No.5 - 40 UNC | No.6 - 40 UNF | 40 | 2.46 | 9.8 | 3 | 4 | 50 |
| UTL324-60 | No.6 - 32 UNC | - | 32 | 2.57 | 10.7 | 3 | 4 | 50 |
| UTL326-60 | No.8 - 32 UNC | No.10 - 32 UNF | 32 | 3.22 | 12.7 | 3 | 6 | 60 |
| UTL286-60 | - | 1/4 - 28 UNF | 28 | 5.2 | 19.3 | 3 | 6 | 60 |
| UTL248-60 | - | 5/16 - 24 UNF | 24 | 6.65 | 24.2 | 3 | 8 | 60 |
| UTL206-60 | 1/4 - 20 UNC | 7/16 - 20 UNF | 20 | 4.85 | 19.4 | 3 | 6 | 60 |



UFO Thread Milling Inserts (Partial Profile)

- Toolholders P. 24
- Cutting Data P. 126 - 127

External / Internal



Inserts 2 PCS / Box

| Dimensions (mm) | | | | | | | | |
|-----------------|-----|-----|----------|-------------|-------|----------|-----------------------|-------|
| D | d1 | AE | Pitch mm | Pitch t.p.i | Angle | R | Minimum hole diameter | |
| | | | | | | | MM | INCH |
| 12 | 6.5 | 3.2 | - | 16~10 | 55° | 0.08~0.1 | 16.51 | 0.65" |
| | | 2.0 | 1.0~1.5 | - | 60° | 0.05 | 14.00 | - |
| | | 3.2 | 1.75~2.5 | | | 0.08~0.1 | | |

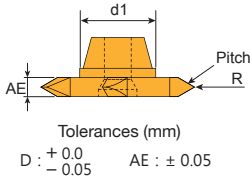
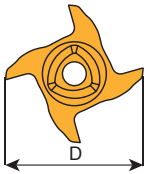
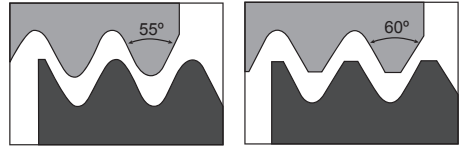
| Inserts | Order Code | Grades | | | | | | | | | | |
|---------------------------------|-------------------------|---------|------|------|--------|-----|------|----------|------|-----|--|--|
| | | Carbide | | | Cermet | | | Uncoated | | | | |
| | | B100 | C200 | C250 | F20 | F30 | CE25 | CE100 | CE60 | K10 | | CE |
| <p>55° BSW/BSF</p> | 3T1-0612-55-16~10TPI-E | | | | | | | | | | | <p>BSW Defined by: B.S.84:1956, DIN 259, ISO228/1:1982 BSF Defined by: B.S.2779:1956 Tolerance class: BSW- Medium class A, BSF-Medium class</p> |
| | 3T1-0612-55-16~10TPI-ME | | | | | | | | | | | |
| <p>60° ISO Metric(M,MF)</p> | 3T1-0612-60-1.0~1.5-E | | | | | | | | | | <p>Defined by: R262 (DIN 13) Tolerance class: 6g/6H</p> | |
| | 3T1-0612-60-1.75~2.5-E | | | | | | | | | | | |
| | 3T1-0612-60-1.0~1.5-ME | | | | | | | | | | | |
| | 3T1-0612-60-1.75~2.5-ME | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

- Steel Stainless Steel Steel/Stainless Steel/Super alloy Cast Iron Aluminum Steel/Cast Iron
- Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: 3T1-0612-55-16~10TPI-E,F20

UFO Thread Milling Inserts (Partial Profile)

- Toolholders P. 25
- Cutting Data P. 126 - 127

External / Internal



Inserts 2 PCS / Box

| Dimensions (mm) | | | | | | | | |
|-----------------|-----|-----|----------|-------------|-------|----------|-----------------------|------|
| D | d1 | AE | Pitch mm | Pitch t.p.i | Angle | R | Minimum hole diameter | |
| | | | | | | | MM | INCH |
| 15 | 7.9 | 4.0 | - | 11~8 | 55° | 0.08~0.1 | 17.78 | 0.7" |
| | | 2.0 | 1.0~1.5 | - | 60° | 0.05 | 17.00 | - |
| | | 4.0 | 1.75~3.0 | | | | | |

| Inserts | Order Code | Grades | | | | | | | | | | | |
|-----------------------------|-------------------------|---------|------|------|-----|-----|--------|-------|------|----------|--|----|--|
| | | Carbide | | | | | Cermet | | | Uncoated | | | |
| | | B100 | C200 | C250 | F20 | F30 | CE25 | CE100 | CE60 | K10 | | CE | |
| 55° BSW/BSF | 3T1-0815-55-11~8TPI-E | | | | | | | | | | | | No. 137P No. 137S BSW Defined by: B.S.84:1956 DIN 259, ISO228/1:1982 BSF Defined by: B.S.2779:1956 Tolerance class: BSW-Medium class A, BSF-Medium class |
| | 3T1-0815-55-11~8TPI-ME | ⊙ | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 60° ISO Metric(M,MF) | 3T1-0815-60-1.0~1.5-E | | | | | | | | | | | | Defined by: R262 (DIN 13) Tolerance class:6g/6H |
| | 3T1-0815-60-1.75~3.0-E | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | 3T1-0815-60-1.0~1.5-ME | ⊙ | | | | | | | | | | | |
| | 3T1-0815-60-1.75~3.0-ME | ⊙ | | | | | | | | | | | |

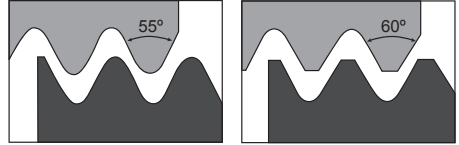
- ■ Steel ■ Stainless Steel ⊙ Steel/Stainless Steel/Super alloy ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron
- ⊙ Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: 3T1-0815-55-11~8TPI-E,F20



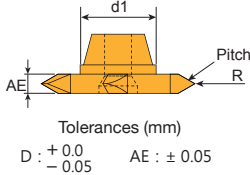
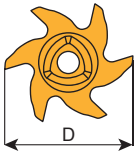
UFO Thread Milling Inserts (Partial Profile)

- Toolholders P. 26
- Cutting Data P. 126 - 127

External / Internal



Inserts 2 PCS / Box



| Dimensions (mm) | | | | | | | | |
|-----------------|-----|-----|----------|-------------|-------|----------|-----------------------|------|
| D | d1 | AE | Pitch mm | Pitch t.p.i | Angle | R | Minimum hole diameter | |
| | | | | | | | MM | INCH |
| 20 | 9.9 | 4.6 | - | 11~6 | 55° | 0.08~0.1 | 22.86 | 0.9" |
| | | 2.0 | 1.0~1.5 | - | 60° | 0.05 | 22.00 | - |
| | | 4.6 | 1.75~3.5 | | | 0.08~0.1 | | |

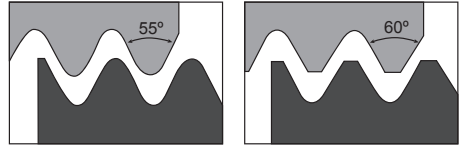
| Inserts | Order Code | Grades | | | | | | | | | | | | |
|---------------------------------|-------------------------|---------|------|------|-----|-----|--------|-------|----------|-----|--|----|---|---|
| | | Carbide | | | | | Cermet | | Uncoated | | | | | |
| | | B100 | C200 | C250 | F20 | F30 | CE25 | CE100 | CE60 | K10 | | CE | | |
| <p>55° BSW/BSF</p> | 3T1-1020-55-11~6TPI-E | | | | | | | | | | | | <p>BSW Defined by: B.S.84:1956, DIN 259, ISO228/1:1982 BSF Defined by: B.S.2779:1956 Tolerance class: BSW- Medium class A, BSF-Medium class</p> | |
| | 3T1-1020-55-11~6TPI-ME | ⊙ | | | | | | | | | | | | |
| <p>60° ISO Metric(M,MF)</p> | 3T1-1020-60-1.0~1.5-E | | | | | | | | | | | | | <p>Defined by: R262 (DIN 13) Tolerance class: 6g/6H</p> |
| | 3T1-1020-60-1.75~3.5-E | | | | | | | | | | | | | |
| | 3T1-1020-60-1.0~1.5-ME | ⊙ | | | | | | | | | | | | |
| | 3T1-1020-60-1.75~3.5-ME | ⊙ | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

- Steel Stainless Steel Steel/Stainless Steel/Super alloy Cast Iron Aluminum Steel/Cast Iron
- Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: 3T1-1020-55-11~6TPI-E,F20

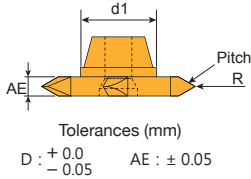
UFO Thread Milling Inserts (Partial Profile)

- Toolholders P. 27
- Cutting Data P. 126 - 127

External / Internal



Inserts 2 PCS / Box



| Dimensions (mm) | | | | | | | | | |
|-----------------|----|-----|----------|-------------|-------|----------|-----------------------|--------|--|
| D | d1 | AE | Pitch mm | Pitch t.p.i | Angle | R | Minimum hole diameter | | |
| | | | | | | | MM | INCH | |
| 25 | 12 | 4.6 | - | 11~5 | 55° | 0.08~0.1 | 28.58 | 1.125" | |
| | | 2.0 | 1.0~1.5 | - | 60° | 0.05 | 27.00 | - | |
| | | 4.6 | 1.75~5.0 | - | | 0.08~0.1 | | | |

| Inserts | Order Code | Grades | | | | | | | | | | | |
|-----------------------------|-------------------------|---------|------|------|-----|--------|------|----------|------|--|-----|----|---|
| | | Carbide | | | | Cermet | | Uncoated | | | | | |
| | | B100 | C200 | C250 | F20 | F30 | CE25 | CE100 | CE60 | | K10 | CE | |
| 55° BSW/BSF | 3T1-1225-55-11~5TPI-E | | | | | | | | | | | | BSW Defined by: B.S.84:1956, DIN 259, ISO228/1:1982 BSF Defined by: B.S.2779:1956 Tolerance class: BSW-Medium class A, BSF-Medium class |
| | 3T1-1225-55-11~5TPI-ME | ⊙ | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 60° ISO Metric(M,MF) | 3T1-1225-60-1.0~1.5-E | | | | | | | | | | | | Defined by: R262 (DIN 13) Tolerance class: 6g/6H |
| | 3T1-1225-60-1.75~5.0-E | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | 3T1-1225-60-1.0~1.5-ME | ⊙ | | | | | | | | | | | |
| | 3T1-1225-60-1.75~5.0-ME | ⊙ | | | | | | | | | | | |

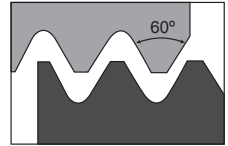
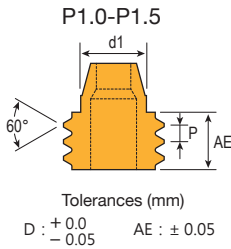
- ■ Steel ■ Stainless Steel ⊙ Steel/Stainless Steel/Super alloy ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron
- ⊙ Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: 3T1-1225-55-11~5TPI-E, F20





UFO Thread Milling Inserts(Full Profile)

- Toolholders P. 24
- Cutting Data P. 126 - 127

ISO



| Dimensions (mm) | | | | | | | |
|-----------------|-----|-----|----------|-------------|-------|-----------------------|------|
| D | d1 | AE | Pitch mm | Pitch t.p.i | Angle | Minimum hole diameter | |
| | | | | | | MM | INCH |
| 10 | 6.5 | 3.5 | 1.0 | - | 60° | 13 | - |
| | | 4.5 | 1.25 | - | | | |
| | | 5.0 | 1.5 | - | | | |

| Inserts | Order Code | Grades | | | | | | | |  | |
|---|------------------|---------|------|------|-----|-----|--------|------|----------|--|----|
| | | Carbide | | | | | Cermet | | Uncoated | | |
| | | B100 | C200 | C250 | F20 | F30 | CE100 | CE60 | K10 | | CE |
|  ISO Metric(M,MF) | 3T0610-ISO1.0-E | | | | | | | | | | |
| | 3T0610-ISO1.25-E | | | | | | | | | | |
| | 3T0610-ISO1.5-E | | | | | | | | | | |
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Defined by: R262 (DIN 13)
Tolerance class:6g/6H

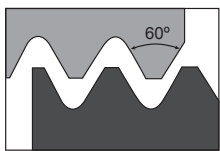
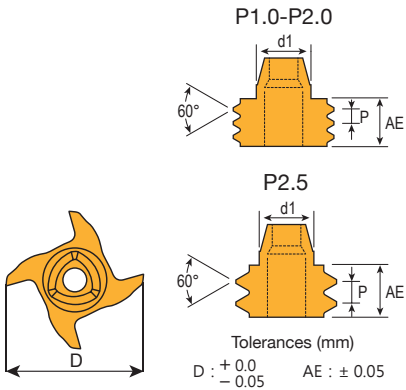
Inserts 2 PCS / Box

- ■ Steel ■ Stainless Steel ⊗ Steel/Stainless Steel/Super alloy ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron
- ⊗ Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: 3T0610-ISO1.0-E, F20

UFO Thread Milling Inserts (Full Profile)

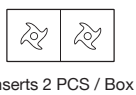
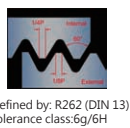
- Toolholders P. 24
- Cutting Data P. 126 - 127

ISO



| Dimensions (mm) | | | | | | |
|-----------------|-----|-----|----------|-------------|-------|-----------------------|
| D | d1 | AE | Pitch mm | Pitch t.p.i | Angle | Minimum hole diameter |
| | | | | | | MM INCH |
| 12 | 6.5 | 3.5 | 1.0 | - | 60° | 14 |
| | | 4.5 | 1.25 | - | | 16 |
| | | 5.0 | 1.5 | - | | |
| | | 6.5 | 2.0 | - | | |
| | | 5.5 | 2.5 | - | | |

| Inserts | Order Code | Grades | | | | | | | | | |
|-------------------------|-------------------|---------|------|------|-----|-----|--------|------|----------|--|----|
| | | Carbide | | | | | Cermet | | Uncoated | | |
| | | B100 | C200 | C250 | F20 | F30 | CE100 | CE60 | K10 | | CE |
| <p>ISO Metric(M,MF)</p> | 3T0612-ISO1.0-E | | | | | | | | | | |
| | 3T0612-ISO1.25-E | | | | | | | | | | |
| | 3T0612-ISO1.5-E | | | | | | | | | | |
| | 3T0612-ISO2.0-E | | | | | | | | | | |
| | 3T0612-ISO2.5-E | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | 3T0612-ISO1.0-ME | ⊙ | | | | | | | | | |
| | 3T0612-ISO1.25-ME | ⊙ | | | | | | | | | |
| | 3T0612-ISO1.5-ME | ⊙ | | | | | | | | | |
| 3T0612-ISO2.0-ME | ⊙ | | | | | | | | | | |
| 3T0612-ISO2.5-ME | ⊙ | | | | | | | | | | |
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- ■ Steel ■ Stainless Steel ⊙ Steel/Stainless Steel/Super alloy ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron
- ⊙ Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: 3T0612-ISO1.0-E, F20

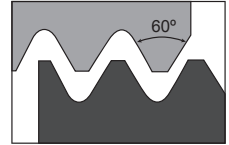
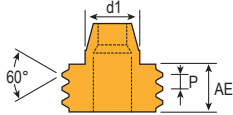


UFO Thread Milling Inserts (Full Profile)

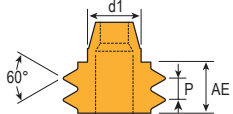
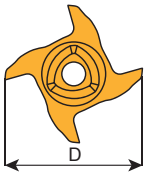
- Toolholders P. 24
- Cutting Data P. 126 - 127

UNC

TPI 16 - TPI 13





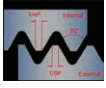
TPI 12 - TPI 10



Tolerances (mm)
 D : $\begin{matrix} +0.0 \\ -0.05 \end{matrix}$ AE : ± 0.05



| Dimensions (mm) | | | | | | | |
|-----------------|-----|-----|----------|-------------|-------|-----------------------|-------|
| D | d1 | AE | Pitch mm | Pitch t.p.i | Angle | Minimum hole diameter | |
| | | | | | | MM | INCH |
| 12 | 6.5 | 5.0 | - | 16 | 60° | 14 | 0.55" |
| | | 6.0 | - | 14 | | | |
| | | 6.5 | - | 13 | | | |
| | | 4.5 | - | 12 | | | |
| | | 5.0 | - | 11 | | | |
| | | 5.5 | - | 10 | | | |

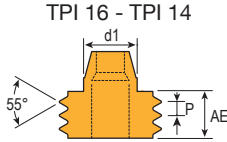
| Inserts | Order Code | Grades | | | | | | | |  | | |
|--|-----------------|---------|------|------|-----|-----|--------|------|----------|--|----|--|
| | | Carbide | | | | | Cermet | | Uncoated | | | |
| | | B100 | C200 | C250 | F20 | F30 | CE100 | CE60 | K10 | | CE | |
|  UNC/UNF | 3T0612-UNC16-E | | | | | | | | | | |  Defined by: R262 (DIN 13) Tolerance class: 6g/6H |
| | 3T0612-UNC14-E | | | | | | | | | | | |
| | 3T0612-UNC13-E | | | | | | | | | | | |
| | 3T0612-UNC12-E | | | | | | | | | | | |
| | 3T0612-UNC11-E | | | | | | | | | | | |
| | 3T0612-UNC10-E | | | | | | | | | | | |
| | 3T0612-UNC16-ME | | | | | | | | | | | * M.O.Q: 12PCS * Make-to-Order. |
| | 3T0612-UNC14-ME | | | | | | | | | | | |
| | 3T0612-UNC13-ME | | | | | | | | | | | |
| | 3T0612-UNC12-ME | | | | | | | | | | | |
| | 3T0612-UNC11-ME | | | | | | | | | | | |
| | 3T0612-UNC10-ME | | | | | | | | | | | |

- ■ Steel ■ Stainless Steel ■ Steel/Stainless Steel/Super alloy ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron
- ⊗ Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: 3T0612-UNC16-E,F20

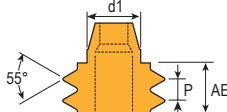
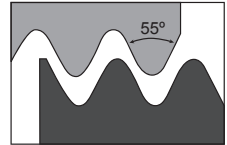
UFO Thread Milling Inserts (Full Profile)

- Toolholders P. 24
- Cutting Data P. 126 - 127

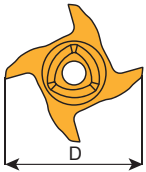
BSW



TPI 16 - TPI 14





TPI 12 - TPI 10

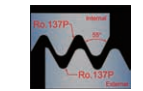


Tolerances (mm)
 D : $\begin{matrix} +0.0 \\ -0.05 \end{matrix}$ AE : ± 0.05



| Dimensions (mm) | | | | | | | |
|-----------------|-----|-----|----------|-------------|-------|-----------------------|-------|
| D | d1 | AE | Pitch mm | Pitch t.p.i | Angle | Minimum hole diameter | |
| | | | | | | MM | INCH |
| 12 | 6.5 | 5.0 | - | 16 | 55° | 16.51 | 0.65" |
| | | 5.5 | - | 14 | | | |
| | | 4.5 | - | 12 | | | |
| | | 5.0 | - | 11 | | | |
| | | 5.5 | - | 10 | | | |

| Inserts | Order Code | Grades | | | | | | | |  | |
|--|-----------------|---------|------|------|-----|-----|--------|------|----------|--|----|
| | | Carbide | | | | | Cermet | | Uncoated | | |
| | | B100 | C200 | C250 | F20 | F30 | CE100 | CE60 | K10 | | CE |
|  BSW/BSF | 3T0612-BSW16-E | | | | | | | | | | |
| | 3T0612-BSW14-E | | | | | | | | | | |
| | 3T0612-BSW12-E | | | | | | | | | | |
| | 3T0612-BSW11-E | | | | | | | | | | |
| | 3T0612-BSW10-E | | | | | | | | | | |
| | 3T0612-BSW16-ME | | | | | | | | | | |
| | 3T0612-BSW14-ME | | | | | | | | | | |
| | 3T0612-BSW12-ME | | | | | | | | | | |
| | 3T0612-BSW11-ME | | | | | | | | | | |
| | 3T0612-BSW10-ME | | | | | | | | | | |
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BSW Defined by:
 B.S.84:1956,
 DIN 259, ISO228/1:1982
 BSF Defined by:
 B.S.2779:1956
 Tolerance class: BSW-
 Medium class A, BSF-Medium class

* M.O.Q: 12PCS
 * Make-to-Order.

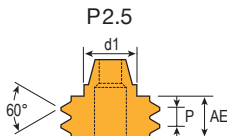
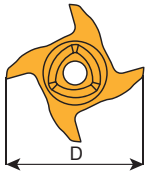
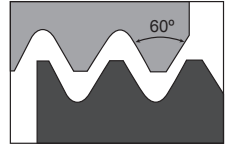
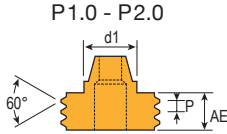
- ■ Steel ■ Stainless Steel ⊗ Steel/Stainless Steel/Super alloy ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron
- ⊗ Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, i.e.: 3T0612-BSW16-E,F20



UFO Thread Milling Inserts (Full Profile)

- Toolholders P. 25
- Cutting Data P. 126 - 127

ISO

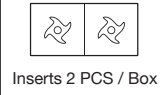
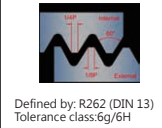


Tolerances (mm)
 D : +0.0
 -0.05 AE : ± 0.05



| Dimensions (mm) | | | | | | | |
|-----------------|-----|-----|----------|-------------|-------|-----------------------|------|
| D | d1 | AE | Pitch mm | Pitch t.p.i | Angle | Minimum hole diameter | |
| | | | | | | MM | INCH |
| 15 | 7.9 | 3.5 | 1.0 | - | 60° | 17 | - |
| | | 4.5 | 1.25 | - | | | |
| | | 5.0 | 1.5 | - | | | |
| | | 6.5 | 2.0 | - | | | |
| | | 5.5 | 2.5 | - | | | |

| Inserts | Order Code | Grades | | | | | | | | | |
|--------------------------|------------------|---------|------|------|-----|-----|--------|------|----------|--|----|
| | | Carbide | | | | | Cermet | | Uncoated | | |
| | | B100 | C200 | C250 | F20 | F30 | CE100 | CE60 | K10 | | CE |
| <p>ISO Metric (M,MF)</p> | 3T0815-ISO1.0-E | | | | | | | | | | |
| | 3T0815-ISO1.25-E | | | | | | | | | | |
| | 3T0815-ISO1.5-E | | | | | | | | | | |
| | 3T0815-ISO2.0-E | | | | | | | | | | |
| | 3T0815-ISO2.5-E | | | | | | | | | | |
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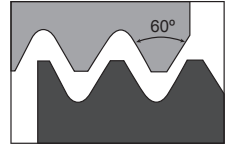
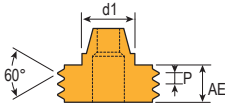
- Steel Stainless Steel Steel/Stainless Steel/Super alloy Cast Iron Aluminum Steel/Cast Iron
- Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: 3T0815-ISO1.0-E,F20

UFO Thread Milling Inserts (Full Profile)

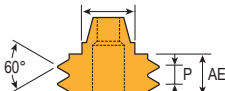
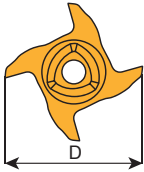
- Toolholders P. 25
- Cutting Data P. 126 - 127

UNC

TPI 16 - TPI 13



TPI 12 - TPI 10



Tolerances (mm)
 D : +0.0
 -0.05 AE : ± 0.05



| Dimensions (mm) | | | | | | | Minimum hole diameter | |
|-----------------|-----|-----|----------|-------------|-------|-------|-----------------------|--|
| D | d1 | AE | Pitch mm | Pitch t.p.i | Angle | MM | INCH | |
| 15 | 7.9 | 5.0 | - | 16 | 60° | 17.78 | 0.7" | |
| | | 6.0 | - | 14 | | | | |
| | | 6.5 | - | 13 | | | | |
| | | 4.5 | - | 12 | | | | |
| | | 5.0 | - | 11 | | | | |
| | | 5.5 | - | 10 | | | | |

| Inserts | Order Code | Grades | | | | | | | | | | |
|----------------|-----------------|---------|------|------|-----|-----|--------|------|----------|----|--|--|
| | | Carbide | | | | | Cermet | | Uncoated | | | |
| | | B100 | C200 | C250 | F20 | F30 | CE100 | CE60 | K10 | CE | | |
| <p>UNC/UNF</p> | 3T0815-UNC16-E | | | | | | | | | | | <p>Defined by: R262 (DIN 13) Tolerance class:6g/6H</p> |
| | 3T0815-UNC14-E | | | | | | | | | | | |
| | 3T0815-UNC13-E | | | | | | | | | | | |
| | 3T0815-UNC12-E | | | | | | | | | | | |
| | 3T0815-UNC11-E | | | | | | | | | | | |
| | 3T0815-UNC10-E | | | | | | | | | | | |
| | 3T0815-UNC16-ME | ⊙ | | | | | | | | | | |
| | 3T0815-UNC14-ME | ⊙ | | | | | | | | | | |
| | 3T0815-UNC13-ME | ⊙ | | | | | | | | | | |
| | 3T0815-UNC12-ME | ⊙ | | | | | | | | | | |
| | 3T0815-UNC11-ME | ⊙ | | | | | | | | | | |
| | 3T0815-UNC10-ME | ⊙ | | | | | | | | | | |

* M.O.Q: 12PCS
 * Make-to-Order.

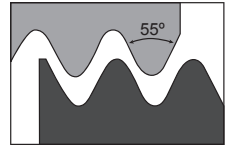
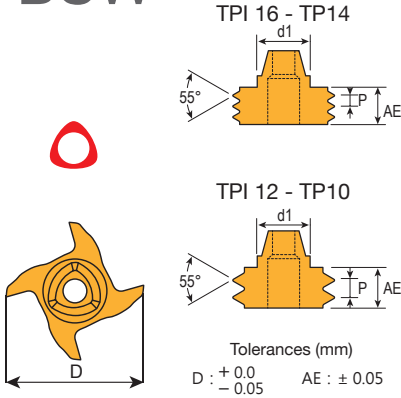
- ■ Steel ■ Stainless Steel ⊙ Steel/Stainless Steel/Super alloy ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron
- ⊙ Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, i.e.: 3T0815-UNC16-E,F20



UFO Thread Milling Inserts (Full Profile)

- Toolholders P. 25
- Cutting Data P. 126 - 127

BSW



| Dimensions (mm) | | | | | | | |
|-----------------|-----|-----|----------|-------------|-------|-----------------------|-------|
| D | d1 | AE | Pitch mm | Pitch t.p.i | Angle | Minimum hole diameter | |
| | | | | | | MM | INCH |
| 15 | 7.9 | 5.0 | - | 16 | 55° | 18.03 | 0.71" |
| | | 5.5 | - | 14 | | | |
| | | 4.5 | - | 12 | | | |
| | | 5.0 | - | 11 | | | |
| | | 5.5 | - | 10 | | | |

| Inserts | Order Code | Grades | | | | | | | |
|----------------|-----------------|---------|------|------|-----|-----|--------|------|----------|
| | | Carbide | | | | | Cermet | | Uncoated |
| | | B100 | C200 | C250 | F20 | F30 | CE100 | CE60 | K10 |
| <p>BSW/BSF</p> | 3T0815-BSW16-E | | | | | | | | |
| | 3T0815-BSW14-E | | | | | | | | |
| | 3T0815-BSW12-E | | | | | | | | |
| | 3T0815-BSW11-E | | | | | | | | |
| | 3T0815-BSW10-E | | | | | | | | |
| | 3T0815-BSW16-ME | ⊙ | | | | | | | |
| | 3T0815-BSW14-ME | ⊙ | | | | | | | |
| | 3T0815-BSW12-ME | ⊙ | | | | | | | |
| | 3T0815-BSW11-ME | ⊙ | | | | | | | |
| | 3T0815-BSW10-ME | ⊙ | | | | | | | |

BSW Defined by:
 B.S.84:1956
 DIN 259:ISO228/1:1982
 BSF Defined by:
 B.S.2779:1956
 Tolerance class: BSW-
 Medium
 class A, BSF-Medium class

* M.O.Q: 12PCS
 * Make-to-Order.

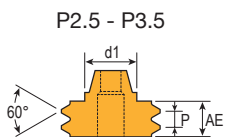
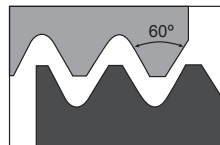
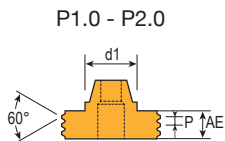
- ■ Steel ■ Stainless Steel ⊙ Steel/Stainless Steel/Super alloy ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron
- ⊙ Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: 3T1020-BSW16-E,F20

UFO Thread Milling Inserts (Full Profile)

- Toolholders P. 26
- Cutting Data P. 126 - 127

UFO Family

ISO



Tolerances (mm)
 D : +0.0
 -0.05 AE : ± 0.05



| Dimensions (mm) | | | | | | | |
|-----------------|-----|-----|----------|-------------|-------|-----------------------|------|
| D | d1 | AE | Pitch mm | Pitch t.p.i | Angle | Minimum hole diameter | |
| | | | | | | MM | INCH |
| 20 | 9.9 | 3.5 | 1.0 | - | 60° | 22 | - |
| | | 4.5 | 1.25 | - | | 24 | |
| | | 5.0 | 1.5 | - | | 26 | |
| | | 6.5 | 2.0 | - | | | |
| | | 5.5 | 2.5 | - | | | |
| | | 6.5 | 3.0 | - | | | |
| | | 7.5 | 3.5 | - | | | |

| Inserts | Order Code | Grades | | | | | | | | | |
|--------------------------|-------------------|---------|------|------|-----|-----|--------|------|----------|--|--|
| | | Carbide | | | | | Cermet | | Uncoated | | |
| | | B100 | C200 | C250 | F20 | F30 | CE100 | CE60 | K10 | | CE |
| <p>ISO Metric (M,MF)</p> | 3T1020-ISO1.0-E | | | | | | | | | | <p>Defined by: R262 (DIN 13) Tolerance class:6g/6H</p> <p>Inserts 2 PCS / Box</p> |
| | 3T1020-ISO1.25-E | | | | | | | | | | |
| | 3T1020-ISO1.5-E | | | | | | | | | | |
| | 3T1020-ISO2.0-E | | | | | | | | | | |
| | 3T1020-ISO2.5-E | | | | | | | | | | |
| | 3T1020-ISO3.0-E | | | | | | | | | | |
| | 3T1020-ISO3.5-E | | | | | | | | | | |
| | 3T1020-ISO1.0-ME | | | | | | | | | | |
| | 3T1020-ISO1.25-ME | | | | | | | | | | |
| | 3T1020-ISO1.5-ME | | | | | | | | | | |
| | 3T1020-ISO2.0-ME | | | | | | | | | | |
| | 3T1020-ISO2.5-ME | | | | | | | | | | |
| | 3T1020-ISO3.0-ME | | | | | | | | | | |
| | 3T1020-ISO3.5-ME | | | | | | | | | | |

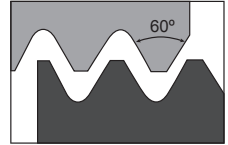
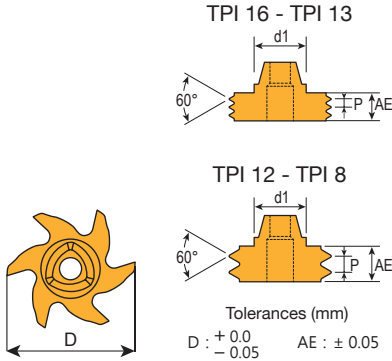
- ■ Steel ■ Stainless Steel ⊙ Steel/Stainless Steel/Super alloy ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron
- ⊙ Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: 3T1020-ISO1.0-E,F20



UFO Thread Milling Inserts (Full Profile)

- Toolholders P. 26
- Cutting Data P. 126 - 127

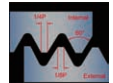
UNC



| Dimensions (mm) | | | | | | | |
|-----------------|-----|-----|----------|-------------|-------|-----------------------|------|
| D | d1 | AE | Pitch mm | Pitch t.p.i | Angle | Minimum hole diameter | |
| | | | | | | MM | INCH |
| 20 | 9.9 | 5.0 | - | 16 | 60° | 22.86 | 0.9" |
| | | 6.0 | - | 14 | | | |
| | | 6.5 | - | 13 | | | |
| | | 4.5 | - | 12 | | | |
| | | 5.0 | - | 11 | | | |
| | | 5.5 | - | 10 | | | |
| | | 6.0 | - | 9 | | | |
| | | 7.0 | - | 8 | | | |



| Inserts | Order Code | Grades | | | | | | | | E | | ME | |
|----------------|-----------------|---------|------|------|-----|-----|--------|------|----------|----|---|----|--|
| | | Carbide | | | | | Cermet | | Uncoated | | E | ME | |
| | | B100 | C200 | C250 | F20 | F30 | CE100 | CE60 | K10 | CE | | | |
| <p>UNC/UNF</p> | 3T1020-UNC16-E | | | | | | | | | | | | |
| | 3T1020-UNC14-E | | | | | | | | | | | | |
| | 3T1020-UNC13-E | | | | | | | | | | | | |
| | 3T1020-UNC12-E | | | | | | | | | | | | |
| | 3T1020-UNC11-E | | | | | | | | | | | | |
| | 3T1020-UNC10-E | | | | | | | | | | | | |
| | 3T1020-UNC9-E | | | | | | | | | | | | |
| | 3T1020-UNC8-E | | | | | | | | | | | | |
| | 3T1020-UNC16-ME | ☉ | | | | | | | | | | | |
| | 3T1020-UNC14-ME | ☉ | | | | | | | | | | | |
| | 3T1020-UNC13-ME | ☉ | | | | | | | | | | | |
| | 3T1020-UNC12-ME | ☉ | | | | | | | | | | | |
| | 3T1020-UNC11-ME | ☉ | | | | | | | | | | | |
| | 3T1020-UNC10-ME | ☉ | | | | | | | | | | | |
| | 3T1020-UNC9-ME | ☉ | | | | | | | | | | | |
| | 3T1020-UNC8-ME | ☉ | | | | | | | | | | | |



Defined by: R262 (DIN 13)
Tolerance class: 6g/6H

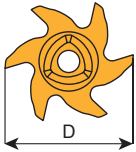
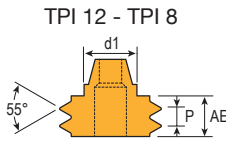
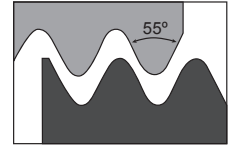
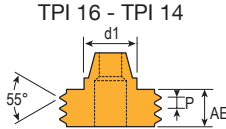
* M.O.Q: 12PCS
* Make-to-Order.

- ■ Steel ■ Stainless Steel ☉ Steel/Stainless Steel/Super alloy ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron
- ☉ Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: 3T1020-UNC16-E,F20

UFO Thread Milling Inserts (Full Profile)

- Toolholders P. 26
- Cutting Data P. 126 - 127


BSW




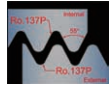
Tolerances (mm)
 D : $\begin{matrix} +0.0 \\ -0.05 \end{matrix}$ AE : ± 0.05



| Dimensions (mm) | | | | | | | |
|-----------------|-----|-----|----------|-------------|-------|-----------------------|------|
| D | d1 | AE | Pitch mm | Pitch t.p.i | Angle | Minimum hole diameter | |
| | | | | | | MM | INCH |
| 20 | 9.9 | 5.0 | - | 16 | 55° | 22.86 | 0.9" |
| | | 5.5 | - | 14 | | | |
| | | 4.5 | - | 12 | | | |
| | | 5.0 | - | 11 | | | |
| | | 5.5 | - | 10 | | | |
| | | 6.0 | - | 9 | | | |
| 7.0 | - | 8 | | | | | |

| Inserts | Order Code | Grades | | | | | | | |
|--|-----------------|---------|------|------|-----|-----|--------|------|----------|
| | | Carbide | | | | | Cermet | | Uncoated |
| | | B100 | C200 | C250 | F20 | F30 | CE100 | CE60 | K10 |
|  BSW/BSF | 3T1020-BSW16-E | | | | | | | | |
| | 3T1020-BSW14-E | | | | | | | | |
| | 3T1020-BSW12-E | | | | | | | | |
| | 3T1020-BSW11-E | | | | | | | | |
| | 3T1020-BSW10-E | | | | | | | | |
| | 3T1020-BSW9-E | | | | | | | | |
| | 3T1020-BSW8-E | | | | | | | | |
| | 3T1020-BSW16-ME | | | | | | | | |
| | 3T1020-BSW14-ME | | | | | | | | |
| | 3T1020-BSW12-ME | | | | | | | | |
| | 3T1020-BSW11-ME | | | | | | | | |
| | 3T1020-BSW10-ME | | | | | | | | |
| | 3T1020-BSW9-ME | | | | | | | | |
| | 3T1020-BSW8-ME | | | | | | | | |





BSW Defined by:
 B.S.84:1956,
 DIN 259, ISO228/1:1982
 BSF Defined by:
 B.S.2779:1956
 Tolerance class: BSW-
 Medium
 class A, BSF-Medium class

* M.O.Q: 12PCS
 * Make-to-Order.

- ■ Steel ■ Stainless Steel ⊗ Steel/Stainless Steel/Super alloy ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron
- ⊗ Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: 3T1020-BSW16-E,F20



TECHNICAL GUIDE

Thread Infeed Depth and Number of Passes Recommendation

Below recommended data are applicable to steel

• External ISO - metric threads

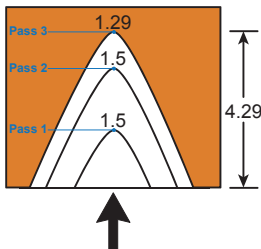
| Pitch(mm) | 6.0 | 5.5 | 5.0 | 4.5 | 4.0 | 3.5 | 3.0 | 2.5 | 2.0 | 1.75 | 1.5 | 1.25 | 1.0 | 0.80 | 0.75 | 0.50 |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Tot.inf.depth (mm) | 3,82 | 3,52 | 3,19 | 2,87 | 2,53 | 2,23 | 1,92 | 1,60 | 1,25 | 1,13 | 0,93 | 0,81 | 0,65 | 0,52 | 0,48 | 0,48 |
| Pass 1 (mm) | 1,50 | 1,50 | 1,30 | 1,60 | 1,53 | 1,23 | 1,0 | 1,60 | 1,25 | 1,13 | 0,93 | 0,81 | 0,65 | 0,52 | 0,48 | 0,48 |
| Pass 2 (mm) | 1,30 | 1,20 | 1,10 | 1,37 | 1,0 | 1,0 | 0,92 | - | - | - | - | - | - | - | - | - |
| Pass 3 (mm) | 1,02 | 0,82 | 0,79 | - | - | - | - | - | - | - | - | - | - | - | - | - |

• Internal ISO-metric threads

| Pitch(mm) | 6.0 | 5.5 | 5.0 | 4.5 | 4.0 | 3.5 | 3.0 | 2.5 | 2.0 | 1.75 | 1.5 | 1.25 | 1.0 | 0.80 | 0.75 | 0.50 |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Tot.inf.depth (mm) | 3,54 | 3,25 | 2,96 | 2,65 | 2,33 | 2,05 | 1,78 | 1,48 | 1,17 | 1,05 | 0,85 | 0,75 | 0,60 | 0,49 | 0,46 | 0,31 |
| Pass 1 (mm) | 1,50 | 1,30 | 1,60 | 1,50 | 1,33 | 1,10 | 1,0 | 1,48 | 1,17 | 1,05 | 0,85 | 0,75 | 0,60 | 0,49 | 0,46 | 0,31 |
| Pass 2 (mm) | 1,20 | 1,10 | 1,39 | 1,15 | 1,0 | 0,95 | 0,78 | - | - | - | - | - | - | - | - | - |
| Pass 3 (mm) | 0,84 | 0,85 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

• Internal-Inch threads

| Pitch TPI | 4.0 | 4.5 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10 | 11 | 12 | 14 | 16 | 18 | 19 | 20 | 26 | 28 |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Tot.inf.depth (mm) | 4,29 | 3,82 | 3,44 | 2,96 | 2,50 | 2,17 | 1,93 | 1,76 | 1,58 | 1,45 | 1,20 | 1,13 | 1,01 | 0,96 | 0,92 | 0,72 | 0,69 |
| Pass 1 (mm) | 1,50 | 1,50 | 1,50 | 1,60 | 1,40 | 1,20 | 1,10 | 1,76 | 1,58 | 1,45 | 1,20 | 1,13 | 1,01 | 0,96 | 0,92 | 0,72 | 0,69 |
| Pass 2 (mm) | 1,50 | 1,30 | 1,20 | 1,36 | 1,10 | 0,97 | 0,83 | - | - | - | - | - | - | - | - | - | - |
| Pass 3 (mm) | 1,29 | 1,02 | 0,74 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



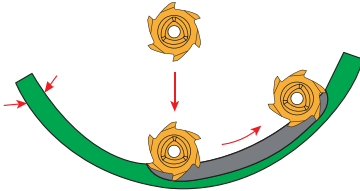
Example of thread infeed method

- To stainless steel, the infeed depth per pass should be decreased.
- The threading insert nose radius is relatively small and can be easily damaged if it is overloaded.

Technical Guide

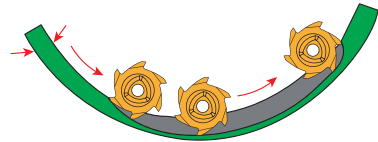
Internal Thread

①



Plunging is not recommended

②



Ramping is the best choice

Highly Recommended

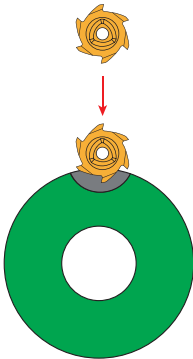
UFO Family

① Plunging to mill : Fz reduce to 50%

② Ramping to mill : Fz remain 100%

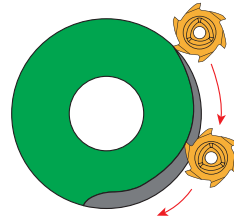
External Thread

①



Plunging is not recommended

②



Ramping is the best choice

Highly Recommended



About Thread Milling

In order to perform a thread milling operation, a milling machine with three-axis control capable of helical interpolation is required. Helical interpolation is a CNC function, producing movement along helical paths. This helical motion combines circular movements in the X and Y planes and perpendicular linear motions in the Z plane simultaneously. For example, the path from point A to point B (Fig.A) on the surface of the cylinder making a circular movement in the xy plane with a linear displacement in the Z direction.

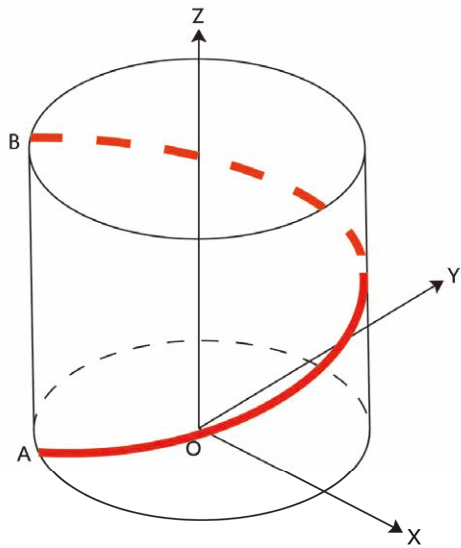
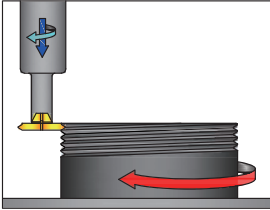


Fig. A

Thread Milling Methods

External

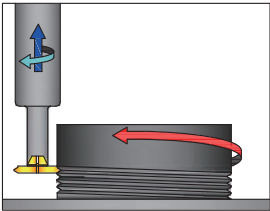
FIG.1



Right Hand Thread-Climb Milling



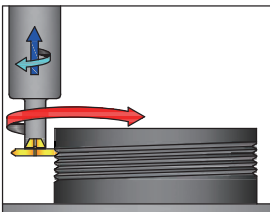
FIG.2



Left Hand Thread- Climb Milling

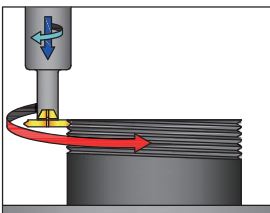


FIG.3



Right Hand Thread-
Conventional Milling

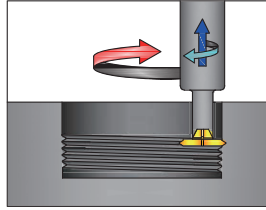
FIG.4



Left Hand Thread-
Conventional Milling

Internal

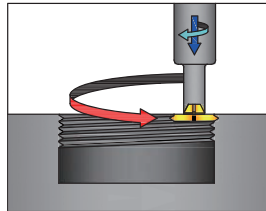
FIG.1



Right Hand Thread-Climb Milling



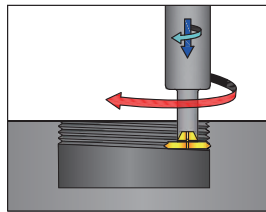
FIG.2



Left Hand Thread-Climb Milling

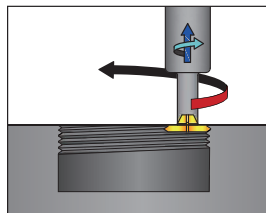


FIG.3



Right Hand Thread-
Conventional Milling

FIG.4



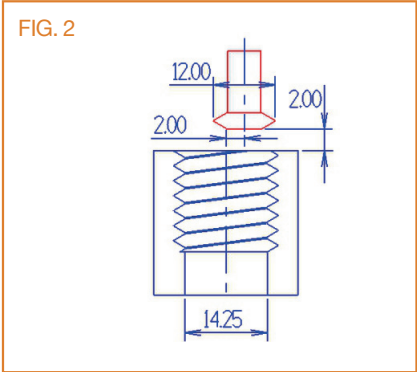
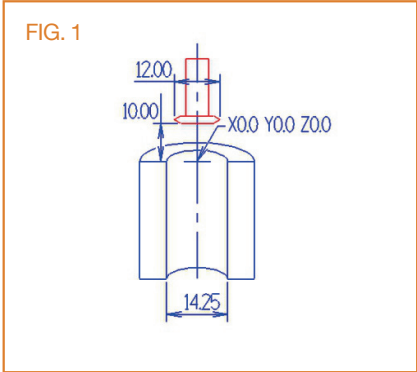
Left Hand Thread-
Conventional Milling



Internal Thread Milling Example CNC Code - Partial Profile Programm

Method 1/Tool offset-cutter compensation

- Insert code / 3T1-0612-60-1.0~2.5
- Milling / Climb milling / Internal thread
- Thread / M16x2.0P
- CNC programme / Fancu / Mitsubishi



Fanuc

```

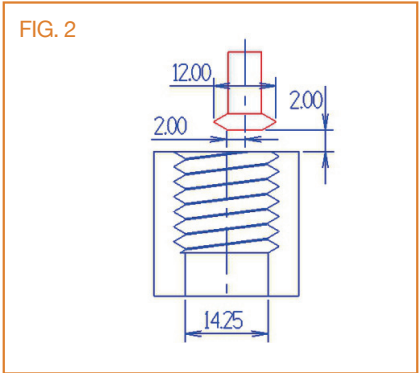
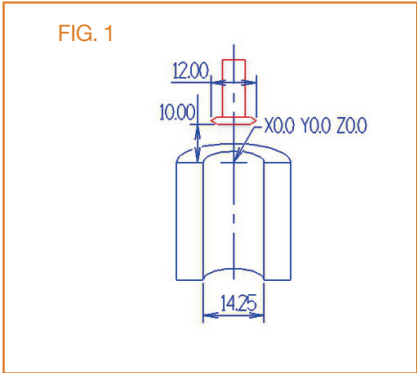
G90 G0 G54 X0.0 Y0.0
G43 Z10.0 H1 S3978 M3 (On centerline of workpiece Fig1)
M7
G00 Z1.0 (Move to the starting point Fig 2)
G01 Z-6.0 F200
G41 D? (cutter compensation)
G91 G03 X2.0 Y0.0 R2.0 F150
G03I-2.0 Z2.0 F630 (Thread milling)
G03I-2.0 Z2.0
G03I-2.0 Z2.0
G03I-2.0 Z2.0
G90 G01 X0.0 Y0.0 (Move out from workpiece,ready to retract)
G90 G00 Z50.0 M9 (Retract the tool)
G40 (Offset finish)
M30 (Programme finish, check the quality of thread, modify G41 D?figure)
    
```

Exact cutting data
see page 125-127

Internal Thread Milling Example CNC Code - Partial Profile Programm

Method 2: Reset the starting point(X) and (I)figure

- Insert code / 3T1-0612-60-1.0~2.5
- Milling / Climb milling / Internal thread
- Thread / M16x2.0P
- CNC programme / Fanuc / Mitsubishi



Fanuc

```

G90 G0 G54 X0.0 Y0.0
G43 Z10.0 H1 S3978 M3 (On centerline of workpiece Fig1)
M7
G00 Z1.0 (Move to the starting point Fig 2)
G01 Z-6.0 F200
G91 G03 X2.0 Y0.0 R2.0 F150
G03 I-2.0 Z2.0 F630 (Thread milling)
G03 I-2.0 Z2.0
G03 I-2.0 Z2.0
G03 I-2.0 Z2.0
G90 G01 X0.0 Y0.0 (Move out from workpiece,ready to retract)
G90 G00 Z50.0 M9 (Retract the tool)
M30 (Programme finish, check the quality of thread, modify X.I figure)
    
```

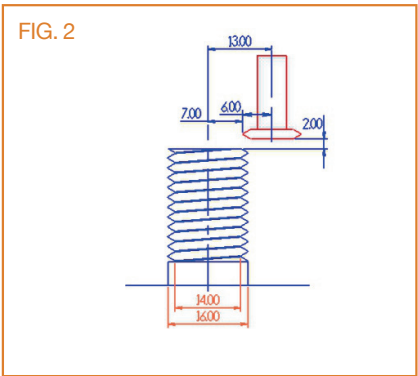
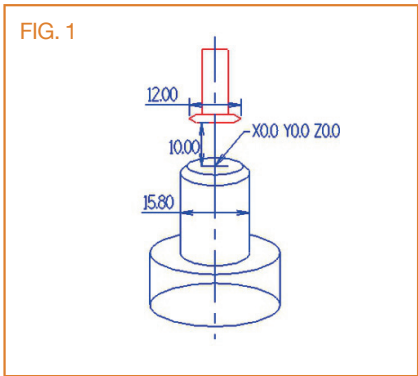
Exact cutting data
see page 125-127



External Thread Milling Example CNC Code - Partial Profile Programm

Method 1/Tool offset-cutter compensation

- Insert code / 3T1-0612-60-1.0-2.5
- Milling / Climb milling / External thread
- Thread / M16x2.0P
- CNC programme / Fanuc/Mitsubishi



Fanuc

```

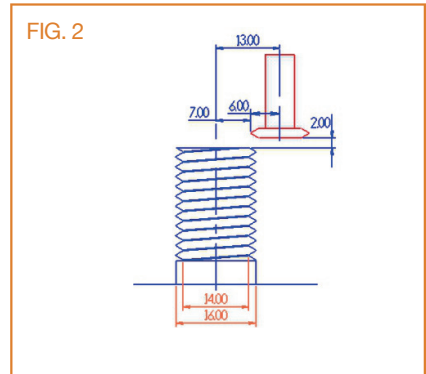
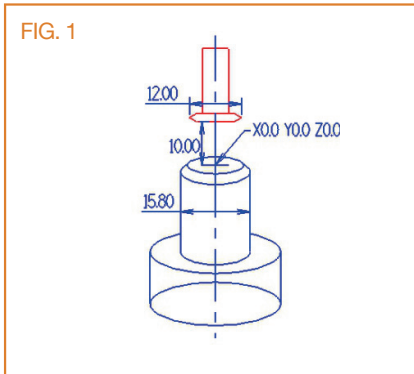
G90 G0 G54 X0.0 Y0.0
G43 Z10.0 H1 S3978 M3 (On centerline of workpiece Fig1)
M7
G00 X13.0 Y0.0 (Move to the starting point Fig 2)
G41 D? (cutter compensation)
G01 Z2.0 F200
G91 G02I-13.0 Z-2.0 F630 (Thread milling)
G02I-13.0 Z-2.0
G02I-13.0 Z-2.0
G02I-13.0 Z-2.0
G90 G01 X16.0 (Move out from workpiece, ready to retract)
G90 G00 Z50.0 M9 (Retract the tool)
G40 (Offset finish)
M30 (Programme finish, check the quality of thread, modify G41 D figure)
    
```

Exact cutting data see page 125-127

External Thread Milling Example CNC Code - Partial Profile Programm

Method 2: Reset the starting point(X) and (I)figure

- Insert code / 3T1-0612-60-1.0~2.5
- Milling / Climb milling / External thread
- Thread / M16x2.0P
- CNC programme / Fanuc / Mitsubishi



Fanuc

```
G90 G0 G54 X0.0 Y0.0
G43 Z10.0 H1 S3978 M3 (On centerline of workpiece Fig1)
M7
G00 X13.0 Y0.0 (Move to the contour starting point Fig 2)
G01 Z2.0 F200
G91 G02 I-13.0 Z-2.0 F630 (Thread milling)
G02 I-13.0 Z-2.0
G02 I-13.0 Z-2.0
G02 I-13.0 Z-2.0
G90 G01 X16.0 (Move out from workpiece,ready to retract)
G90 G00 Z50.0 M9 (Retract the tool)
M30 (Programme finish, check the quality of thread, modify X.I figure)
```

Exact cutting data
see page 125-127



Recommended Preparatory Drill Diameter And Available Inserts

Insert diameter : ● $\varnothing 12$ ● $\varnothing 15$ ● $\varnothing 20$ ● $\varnothing 25$

| Size | Maximum drill diameter | | |
|-------------|------------------------|------|------|
| | 4H | 5H | 6H |
| M1 x 0.25 | 0.77 | 0.78 | 0.80 |
| M1 x 0.20 | 0.82 | 0.83 | 0.84 |
| M1.1 x 0.25 | 0.87 | 0.88 | 0.90 |
| M1.1 x 0.20 | 0.92 | 0.93 | 0.94 |
| M1.2 x 0.25 | 0.97 | 0.98 | 1.00 |
| M1.2 x 0.20 | 1.02 | 1.03 | 1.04 |
| M1.4 x 0.30 | 1.12 | 1.14 | 1.16 |
| M1.4 x 0.20 | 1.22 | 1.23 | 1.24 |
| M1.6 x 0.35 | 1.28 | 1.30 | 1.32 |
| M1.6 x 0.20 | 1.42 | 1.43 | 1.44 |
| M1.7 x 0.35 | 1.38 | 1.40 | 1.42 |
| M1.7 x 0.30 | 1.42 | 1.44 | 1.46 |
| M1.7 x 0.25 | 1.47 | 1.48 | 1.50 |
| M1.7 x 0.20 | 1.52 | 1.53 | 1.54 |
| M1.8 x 0.35 | 1.48 | 1.50 | 1.52 |
| M1.8 x 0.20 | 1.62 | 1.63 | 1.64 |
| M2 x 0.40 | 1.63 | 1.65 | 1.67 |
| M2 x 0.25 | 1.77 | 1.78 | 1.80 |
| M2.2 x 0.45 | 1.79 | 1.81 | 1.83 |
| M2.2 x 0.25 | 1.97 | 1.98 | 2.00 |
| M2.3 x 0.40 | 1.93 | 1.95 | 1.97 |
| M2.3 x 0.35 | 1.98 | 2.00 | 2.02 |
| M2.3 x 0.25 | 2.07 | 2.08 | 2.10 |
| M2.5 x 0.45 | 2.09 | 2.11 | 2.13 |
| M2.5 x 0.35 | 2.18 | 2.20 | 2.22 |
| M2.6 x 0.45 | 2.19 | 2.22 | 2.23 |
| M2.6 x 0.35 | 2.28 | 2.30 | 2.32 |
| M3 x 0.50 | 2.54 | 2.57 | 2.59 |
| M3 x 0.35 | 2.68 | 2.70 | 2.72 |
| M3.5 x 0.60 | 2.95 | 2.97 | 3.01 |
| M3.5 x 0.35 | 3.18 | 3.20 | 3.22 |
| M4 x 0.70 | 3.35 | 3.38 | 3.42 |
| M4 x 0.50 | 3.54 | 3.57 | 3.59 |
| M4.5 x 0.75 | 3.80 | 3.83 | 3.87 |
| M4.5 x 0.50 | 4.04 | 4.07 | 4.09 |
| M5 x 0.90 | 4.15 | 4.19 | 4.23 |
| M5 x 0.80 | 4.25 | 4.29 | 4.33 |
| M5 x 0.50 | 4.54 | 4.57 | 4.59 |
| M5.5 x 0.90 | 4.65 | 4.69 | 4.73 |
| M5.5 x 0.75 | 4.80 | 4.83 | 4.87 |
| M5.5 x 0.50 | 5.04 | 5.07 | 5.09 |
| M6 x 1.00 | 5.06 | 5.10 | 5.15 |
| M6 x 0.75 | 5.30 | 5.33 | 5.37 |
| M6 x 0.50 | 5.54 | 5.57 | 5.59 |
| M7 x 1.00 | 6.06 | 6.10 | 6.15 |
| M7 x 0.75 | 6.30 | 6.33 | 6.37 |
| M7 x 0.50 | 6.54 | 6.57 | 6.59 |
| M8 x 1.25 | 6.81 | 6.85 | 6.91 |

| Size | Maximum drill diameter | | |
|--------------|------------------------|-------|-------|
| | 4H | 5H | 6H |
| M8 x 1.00 | 7.06 | 7.10 | 7.15 |
| M8 x 0.75 | 7.30 | 7.33 | 7.37 |
| M8 x 0.50 | 7.54 | 7.57 | 7.59 |
| M9 x 1.25 | 7.81 | 7.85 | 7.91 |
| M9 x 1.00 | 8.06 | 8.10 | 8.15 |
| M9 x 0.75 | 8.30 | 8.33 | 8.37 |
| M9 x 0.50 | 8.54 | 8.57 | 8.59 |
| M10 x 1.50 | 8.52 | 8.61 | 8.67 |
| M10 x 1.25 | 8.81 | 8.85 | 8.91 |
| M10 x 1.00 | 9.06 | 9.10 | 9.15 |
| M10 x 0.75 | 9.30 | 9.33 | 9.37 |
| M10 x 0.50 | 9.54 | 9.57 | 9.59 |
| M11 x 1.50 | 9.52 | 9.61 | 9.67 |
| M11 x 1.00 | 10.06 | 10.10 | 10.15 |
| M11 x 0.75 | 10.30 | 10.33 | 10.37 |
| M11 x 0.50 | 10.54 | 10.57 | 10.59 |
| M12 x 1.75 | 10.31 | 10.37 | 10.44 |
| M12 x 1.50 | 10.56 | 10.61 | 10.67 |
| M12 x 1.25 | 10.81 | 10.85 | 10.91 |
| M12 x 1.00 | 11.06 | 11.10 | 11.15 |
| M12 x 0.75 | 11.30 | 11.33 | 11.37 |
| M12 x 0.50 | 11.54 | 11.57 | 11.59 |
| M13 x 1.75 | 11.31 | 11.37 | 11.44 |
| M13 x 1.50 | 11.56 | 11.61 | 11.67 |
| M13 x 1.25 | 11.81 | 11.85 | 11.91 |
| M13 x 1.00 | 12.06 | 12.10 | 12.15 |
| M13 x 0.75 | 12.03 | 12.33 | 12.37 |
| M13 x 0.50 | 12.54 | 12.57 | 12.59 |
| M14 x 2.00 | 12.07 | 12.13 | 12.21 |
| M14 x 1.50 | 12.56 | 12.61 | 12.67 |
| M14 x 1.25 | - | - | 12.91 |
| M14 x 1.00 | 13.06 | 13.10 | 13.15 |
| M14 x 0.75 | 13.30 | 13.33 | 13.37 |
| M14 x 0.50 | 13.54 | 13.57 | 13.59 |
| M15 x 2.00 | 13.07 | 13.13 | 13.21 |
| M15 x 1.50 | 13.56 | 13.61 | 13.67 |
| M15 x 1.25 | 13.81 | 13.85 | 13.91 |
| M15 x 1.00 ● | 14.06 | 14.10 | 14.15 |
| M15 x 0.75 | 14.30 | 14.33 | 14.37 |
| M15 x 0.50 | 14.54 | 14.57 | 14.59 |
| M16 x 2.00 ● | 14.07 | 14.13 | 14.21 |
| M16 x 1.50 ● | 14.56 | 14.61 | 14.67 |
| M16 x 1.00 ● | 15.06 | 15.10 | 15.15 |
| M17 x 2.00 ● | 15.07 | 15.13 | 15.21 |
| M17 x 1.50 ● | 15.56 | 15.61 | 15.67 |
| M17 x 1.25 ● | 15.81 | 15.85 | 15.91 |
| M17 x 1.00 ● | 16.06 | 16.10 | 16.15 |

Recommended Preparatory Drill Diameter And Available Inserts

Insert diameter : ● \varnothing 12 ● \varnothing 15 ● \varnothing 20 ● \varnothing 25

| Size | | Maximum drill diameter | | |
|------------|-------|------------------------|-------|-------|
| | | 4H | 5H | 6H |
| M17 x 0.75 | | 16.30 | 16.33 | 16.37 |
| M17 x 0.50 | | 16.54 | 16.57 | 16.59 |
| M18 x 2.50 | ● | 15.57 | 15.64 | 15.74 |
| M18 x 2.00 | ● | 16.07 | 16.13 | 16.21 |
| M18 x 1.50 | ● | 16.56 | 16.61 | 16.67 |
| M18 x 1.00 | ● ● | 17.06 | 17.10 | 17.15 |
| M19 x 2.50 | ● | 16.57 | 16.64 | 16.74 |
| M19 x 2.00 | ● ● | 17.07 | 17.13 | 17.21 |
| M19 x 1.50 | ● ● | 17.56 | 17.61 | 17.67 |
| M19 x 1.25 | ● ● | 17.81 | 17.85 | 17.91 |
| M19 x 1.00 | ● ● | 18.06 | 18.10 | 18.15 |
| M19 x 0.75 | | 18.30 | 18.33 | 18.37 |
| M19 x 0.50 | | 18.54 | 18.57 | 18.59 |
| M20 x 2.50 | ● ● | 17.57 | 17.64 | 17.74 |
| M20 x 2.00 | ● ● | 18.07 | 18.13 | 18.21 |
| M20 x 1.50 | ● ● | 18.56 | 18.61 | 18.67 |
| M20 x 1.00 | ● ● | 19.06 | 19.10 | 19.15 |
| M21 x 2.50 | ● ● | 18.57 | 18.64 | 18.74 |
| M21 x 1.50 | ● ● | 19.56 | 19.61 | 19.67 |
| M21 x 1.00 | ● ● | 20.06 | 20.10 | 20.15 |
| M22 x 2.50 | ● ● | 19.57 | 19.64 | 19.74 |
| M22 x 2.00 | ● ● | 20.07 | 20.13 | 20.21 |
| M22 x 1.50 | ● ● | 20.56 | 20.61 | 20.67 |
| M22 x 1.00 | ● ● | 21.06 | 21.10 | 21.15 |
| M23 x 2.50 | ● ● | 20.57 | 20.64 | 20.74 |
| M23 x 2.00 | ● ● | 21.07 | 21.13 | 21.21 |
| M23 x 1.50 | ● ● | 21.56 | 21.61 | 21.67 |
| M23 x 1.00 | ● ● ● | 22.06 | 22.10 | 22.15 |
| M24 x 3.00 | ● | 21.06 | 21.15 | 21.25 |
| M24 x 2.50 | ● ● ● | 22.07 | 22.13 | 22.21 |
| M24 x 1.50 | ● ● ● | 22.56 | 22.61 | 22.67 |
| M24 x 1.00 | ● ● ● | 23.06 | 23.10 | 23.15 |
| M25 x 3.00 | ● ● ● | 22.06 | 22.15 | 22.25 |
| M25 x 2.00 | ● ● ● | 23.07 | 23.13 | 23.21 |
| M25 x 1.50 | ● ● ● | 23.56 | 23.61 | 23.67 |
| M25 x 1.00 | ● ● ● | 24.06 | 24.10 | 24.15 |
| M26 x 3.00 | ● ● ● | 23.06 | 23.15 | 23.25 |
| M26 x 2.00 | ● ● ● | 24.07 | 24.13 | 24.21 |
| M26 x 1.50 | ● ● ● | 24.56 | 24.61 | 24.67 |
| M27 x 3.00 | ● ● ● | 24.06 | 24.15 | 24.25 |
| M27 x 2.50 | ● ● ● | 24.57 | 24.64 | 24.74 |
| M27 x 2.00 | ● ● ● | 25.07 | 25.13 | 25.21 |
| M27 x 1.50 | ● ● ● | 25.56 | 25.61 | 25.67 |
| M27 x 1.00 | ● ● ● | 26.06 | 26.10 | 26.15 |
| M28 x 3.00 | ● ● ● | 25.06 | 25.15 | 25.25 |
| M28 x 2.00 | ● ● ● | 26.07 | 26.13 | 26.21 |
| M28 x 1.50 | ● ● ● | 26.56 | 26.61 | 26.67 |

| Size | | Maximum drill diameter | | |
|------------|---------|------------------------|-------|-------|
| | | 4H | 5H | 6H |
| M28 x 1.00 | ● ● ● ● | 27.06 | 27.10 | 27.15 |
| M30 x 3.50 | ● | 26.56 | 26.66 | 26.77 |
| M30 x 3.00 | ● ● ● ● | 27.06 | 27.15 | 27.25 |
| M30 x 2.00 | ● ● ● ● | 28.07 | 28.13 | 28.21 |
| M30 x 1.50 | ● ● ● ● | 28.56 | 28.61 | 28.67 |
| M30 x 1.00 | ● ● ● ● | 29.06 | 29.10 | 29.15 |
| M32 x 3.00 | ● ● ● ● | 29.06 | 29.15 | 29.25 |
| M32 x 2.00 | ● ● ● ● | 30.07 | 30.13 | 30.21 |
| M32 x 1.50 | ● ● ● ● | 30.56 | 30.61 | 30.67 |
| M33 x 3.50 | ● ● ● ● | 29.56 | 29.66 | 29.77 |
| M33 x 3.00 | ● ● ● ● | 30.06 | 30.15 | 30.25 |
| M33 x 2.00 | ● ● ● ● | 31.07 | 31.13 | 31.21 |
| M33 x 1.50 | ● ● ● ● | 31.56 | 31.61 | 31.67 |
| M33 x 1.00 | ● ● ● ● | 32.06 | 32.10 | 32.15 |
| M34 x 3.00 | ● ● ● ● | 31.06 | 31.15 | 31.25 |
| M34 x 2.00 | ● ● ● ● | 32.07 | 32.13 | 32.21 |
| M34 x 1.50 | ● ● ● ● | 32.56 | 32.61 | 32.67 |
| M34 x 1.00 | ● ● ● ● | 33.06 | 33.10 | 33.15 |
| M35 x 3.00 | ● ● ● ● | 32.06 | 32.15 | 32.25 |
| M35 x 1.50 | ● ● ● ● | 33.56 | 33.61 | 33.67 |
| M35 x 1.00 | ● ● ● ● | 34.06 | 34.10 | 34.15 |
| M36 x 4.00 | ● ● ● ● | 32.04 | 32.14 | 32.27 |
| M36 x 3.00 | ● ● ● ● | 33.06 | 33.15 | 33.25 |
| M36 x 2.00 | ● ● ● ● | 34.07 | 34.13 | 34.21 |
| M36 x 1.50 | ● ● ● ● | 34.56 | 34.61 | 34.67 |
| M36 x 1.00 | ● ● ● ● | 35.06 | 35.10 | 35.15 |
| M37 x 1.50 | ● ● ● ● | 35.56 | 35.61 | 35.67 |
| M37 x 1.00 | ● ● ● ● | 36.06 | 36.10 | 36.15 |
| M38 x 4.00 | ● ● ● ● | 34.04 | 34.14 | 34.27 |
| M38 x 3.00 | ● ● ● ● | 35.06 | 35.15 | 35.25 |
| M38 x 2.00 | ● ● ● ● | 36.07 | 36.13 | 36.21 |
| M38 x 1.50 | ● ● ● ● | 36.56 | 36.61 | 36.67 |
| M39 x 4.00 | ● ● ● ● | 35.04 | 35.14 | 35.27 |
| M39 x 3.00 | ● ● ● ● | 36.06 | 36.15 | 36.25 |
| M39 x 2.00 | ● ● ● ● | 37.07 | 37.13 | 37.21 |
| M39 x 1.50 | ● ● ● ● | 37.56 | 37.61 | 37.67 |
| M39 x 1.00 | ● ● ● ● | 38.06 | 38.10 | 38.15 |
| M40 x 4.00 | ● ● ● ● | 36.04 | 36.14 | 36.27 |
| M40 x 3.00 | ● ● ● ● | 37.06 | 37.15 | 37.25 |
| M40 x 2.00 | ● ● ● ● | 38.07 | 38.13 | 38.21 |
| M40 x 1.50 | ● ● ● ● | 38.56 | 38.61 | 38.67 |
| M40 x 1.00 | ● ● ● ● | 39.06 | 39.10 | 39.15 |
| M42 x 4.50 | ● ● ● ● | 37.55 | 37.65 | 37.79 |
| M42 x 4.00 | ● ● ● ● | 38.04 | 38.14 | 38.27 |
| M42 x 3.00 | ● ● ● ● | 39.06 | 39.15 | 39.25 |
| M42 x 2.00 | ● ● ● ● | 40.07 | 40.13 | 40.21 |
| M42 x 1.50 | ● ● ● ● | 40.56 | 40.61 | 40.67 |



Recommended Preparatory Drill Diameter And Available Inserts

Insert diameter : ● Ø12 ● Ø15 ● Ø20 ● Ø25

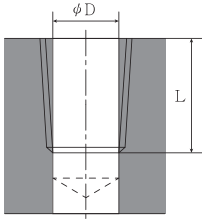
| Size | Maximum drill diameter | | | |
|------------|------------------------|-------|-------|-------|
| | 4H | 5H | 6H | |
| M45 x 4.50 | ● | 40.55 | 40.65 | 40.79 |
| M45 x 4.00 | ● | 41.04 | 41.14 | 41.27 |
| M45 x 3.00 | ● ● ● | 42.06 | 42.15 | 42.25 |
| M45 x 2.00 | ● ● ● ● | 43.07 | 43.13 | 43.21 |
| M45 x 1.50 | ● ● ● ● ● | 43.56 | 43.61 | 43.67 |
| M45 x 1.00 | ● ● ● ● ● ● | 44.06 | 44.10 | 44.15 |
| M46 x 1.50 | ● ● ● ● ● | 44.56 | 44.61 | 44.67 |
| M48 x 5.00 | ● | 43.03 | 43.14 | 43.29 |
| M48 x 4.00 | ● | 44.04 | 44.14 | 44.27 |
| M48 x 3.00 | ● ● ● | 45.06 | 45.15 | 45.25 |
| M48 x 2.00 | ● ● ● ● | 46.07 | 46.13 | 46.21 |
| M48 x 1.50 | ● ● ● ● ● | 46.56 | 46.61 | 46.67 |
| M48 x 1.00 | ● ● ● ● ● ● | 47.06 | 47.10 | 47.15 |
| M50 x 5.00 | ● | 45.03 | 45.14 | 45.29 |
| M50 x 3.00 | ● ● ● | 47.06 | 47.15 | 47.25 |
| M50 x 2.00 | ● ● ● ● | 48.07 | 48.13 | 48.21 |
| M50 x 1.50 | ● ● ● ● ● | 48.56 | 48.61 | 48.67 |
| M50 x 1.00 | ● ● ● ● ● ● | 49.10 | 49.10 | 49.15 |
| M52 x 5.00 | ● | 47.00 | 47.10 | 47.20 |
| M52 x 4.00 | ● | 48.00 | 48.10 | 48.20 |
| M52 x 3.00 | ● ● ● | 49.00 | 49.10 | 49.20 |
| M52 x 2.00 | ● ● ● ● | 50.00 | 50.10 | 50.20 |
| M52 x 1.50 | ● ● ● ● ● | 50.50 | 50.60 | 50.60 |
| M55 x 4.00 | ● | 51.00 | 51.10 | 51.20 |
| M55 x 3.00 | ● ● ● | 52.00 | 52.10 | 52.20 |
| M55 x 2.00 | ● ● ● ● | 53.00 | 53.10 | 53.20 |
| M55 x 1.50 | ● ● ● ● ● | 53.50 | 53.60 | 53.60 |
| M56 x 5.50 | | 50.50 | 50.60 | 50.70 |
| M56 x 4.00 | ● | 52.00 | 52.10 | 52.20 |
| M56 x 3.00 | ● ● ● | 53.00 | 53.10 | 53.20 |
| M56 x 2.00 | ● ● ● ● | 54.00 | 54.10 | 54.20 |
| M56 x 1.50 | ● ● ● ● ● | 54.50 | 54.60 | 54.60 |
| M58 x 4.00 | ● | 54.00 | 54.10 | 54.20 |
| M58 x 3.00 | ● ● ● | 55.00 | 55.10 | 55.20 |
| M58 x 2.00 | ● ● ● ● | 56.00 | 56.10 | 56.20 |
| M58 x 1.50 | ● ● ● ● ● | 56.50 | 56.60 | 56.60 |
| M60 x 5.50 | | 54.50 | 54.60 | 54.70 |
| M60 x 4.00 | ● | 56.00 | 56.10 | 56.20 |
| M60 x 3.00 | ● ● ● | 57.00 | 57.10 | 57.20 |
| M60 x 2.00 | ● ● ● ● | 58.00 | 58.10 | 58.20 |
| M60 x 1.50 | ● ● ● ● ● | 58.50 | 58.60 | 58.60 |
| M62 x 4.00 | ● | 58.00 | 58.10 | 58.20 |
| M62 x 3.00 | ● ● ● | 59.00 | 59.10 | 59.20 |
| M62 x 2.00 | ● ● ● ● | 60.00 | 60.10 | 60.2 |

| Size | Maximum drill diameter | | | |
|------------|------------------------|------|------|------|
| | 4H | 5H | 6H | |
| M62 x 1.50 | ● ● ● ● | 60.5 | 60.6 | 60.6 |
| M64 x 6.00 | | 58 | 58.1 | 58.2 |
| M64 x 4.00 | ● | 60 | 60.1 | 60.2 |
| M64 x 3.00 | ● ● ● | 61 | 61.1 | 61.2 |
| M64 x 2.00 | ● ● ● ● | 62 | 62.1 | 62.2 |
| M64 x 1.50 | ● ● ● ● ● | 62.5 | 62.6 | 62.6 |
| M65 x 4.00 | ● | 61 | 61.1 | 61.2 |
| M65 x 3.00 | ● ● ● | 62 | 62.1 | 62.2 |
| M65 x 2.00 | ● ● ● ● | 63 | 63.1 | 63.2 |
| M65 x 1.50 | ● ● ● ● ● | 63.5 | 63.6 | 63.6 |
| M68 x 2.00 | | 62 | 62.1 | 62.2 |
| M68 x 4.00 | ● | 64 | 64.1 | 64.2 |
| M68 x 3.00 | ● ● ● | 65 | 65.1 | 65.2 |
| M68 x 2.00 | ● ● ● ● | 66 | 66.1 | 66.2 |
| M68 x 1.50 | ● ● ● ● ● | 66.5 | 66.6 | 66.6 |
| M70 x 6.00 | | 64 | 64.1 | 64.3 |
| M70 x 4.00 | ● | 66 | 66.1 | 66.2 |
| M70 x 3.00 | ● ● ● | 67 | 67.1 | 67.2 |
| M70 x 2.00 | ● ● ● ● | 68 | 68.1 | 68.2 |
| M72 x 6.00 | | 66 | 66.1 | 66.3 |
| M72 x 4.00 | ● | 68 | 68.1 | 68.2 |
| M72 x 3.00 | ● ● ● | 69 | 69.1 | 69.2 |
| M72 x 2.00 | ● ● ● ● | 70 | 70.1 | 70.2 |
| M75 x 4.00 | ● | 71 | 71.1 | 71.2 |
| M75 x 3.00 | ● ● ● | 72 | 72.1 | 72.2 |
| M75 x 2.00 | ● ● ● ● | 73 | 73.1 | 73.2 |
| M76 x 2.00 | ● ● ● ● | 74 | 74.1 | 74.2 |
| M80 x 6.00 | ● ● ● ● | 74 | 74.1 | 74.3 |
| M80 x 4.00 | ● | 76 | 76.1 | 76.2 |
| M80 x 3.00 | ● ● ● | 77 | 77.1 | 77.2 |
| M80 x 2.00 | ● ● ● ● | 78 | 78.1 | 78.2 |
| M85 x 6.00 | | 79 | 79.1 | 79.3 |
| M85 x 4.00 | ● | 81 | 81.1 | 81.2 |
| M85 x 3.00 | ● ● ● | 82 | 82.1 | 82.2 |
| M85 x 2.00 | ● ● ● ● | 83 | 83.1 | 83.2 |
| M90 x 6.00 | | 84 | 84.1 | 84.3 |
| M90 x 4.00 | ● | 86 | 86.1 | 86.2 |
| M90 x 2.00 | ● ● ● ● | 88 | 88.1 | 88.2 |
| M95 x 6.00 | | 89 | 89.1 | 89.3 |
| M95 x 4.00 | ● | 91 | 91.1 | 91.2 |
| M95 x 2.00 | ● ● ● ● | 93 | 93.1 | 93.2 |
| M100x 6.00 | | 94 | 94.1 | 94.3 |
| M100x 4.00 | ● | 96 | 96.1 | 96.2 |
| M100x 2.00 | ● ● ● ● | 98 | 98.1 | 98.2 |

RC (BSPT)

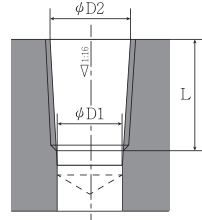
Recommended Thread Dia / T.P.I / Minimum Bore Dia

1. Cylindrical drilling without reamer



| Nom. size D | P Gg/1" (tpi) | φ D | L |
|-------------|---------------|-------|-------|
| Rc 1/16" | 28 | 6,15 | 7,85 |
| 1/8" | 28 | 8,15 | 7,85 |
| 1/4" | 19 | 10,85 | 11,65 |
| 3/8" | 19 | 14,3 | 12,05 |
| 1/2" | 14 | 17,8 | 15,9 |
| 3/4" | 14 | 23,2 | 16,75 |
| 1" | 11 | 29,2 | 19,65 |
| 1 1/4" | 11 | 37,8 | 21,95 |
| 1 1/2" | 11 | 43,7 | 21,95 |
| 2" | 11 | 55,2 | 26,25 |

2. Cylindrical drilling with reamer to form taper thread

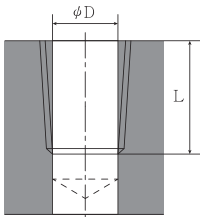


| Nom. size D | P Gg/1" (tpi) | φ D1 | φ D2 | L |
|-------------|---------------|-------|-------|-------|
| Rc 1/16" | 28 | 6,1 | 6,56 | 7,85 |
| 1/8" | 28 | 8,1 | 8,57 | 7,85 |
| 1/4" | 19 | 10,75 | 11,45 | 11,65 |
| 3/8" | 19 | 14,25 | 14,95 | 12,05 |
| 1/2" | 14 | 17,7 | 18,63 | 15,9 |
| 3/4" | 14 | 23,1 | 24,12 | 16,75 |
| 1" | 11 | 29,1 | 30,29 | 19,65 |
| 1 1/4" | 11 | 37,6 | 38,95 | 21,95 |
| 1 1/2" | 11 | 43,5 | 44,85 | 21,95 |
| 2" | 11 | 55 | 56,66 | 26,25 |

NPT

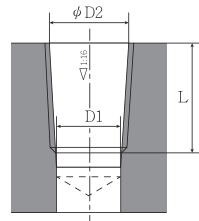
Recommended Thread Dia / T.P.I / Minimum Bore Dia

1. Cylindrical drilling without reamer



| Nom. size D | P Gg/1" (tpi) | φ D | L |
|-------------|---------------|-------|-------|
| NPT 1/16" | 27 | 6,15 | 8,3 |
| 1/8" | 27 | 8,5 | 8,3 |
| 1/4" | 18 | 11 | 12,15 |
| 3/8" | 18 | 14,4 | 12,45 |
| 1/2" | 14 | 17,8 | 16,3 |
| 3/4" | 14 | 23,15 | 16,3 |
| 1" | 11 1/2" | 29,05 | 19,55 |
| 1 1/4" | 11 1/2" | 37,8 | 20,05 |
| 1 1/2" | 11 1/2" | 43,85 | 20,05 |
| 2" | 11 1/2" | 55,85 | 20,45 |

2. Cylindrical drilling with reamer to form taper thread



| Nom. size D | P Gg/1" (tpi) | φ D1 | φ D2 | L |
|-------------|---------------|-------|-------|-------|
| NPT 1/16" | 27 | 5,95 | 6,39 | 8,3 |
| 1/8" | 27 | 8,3 | 8,74 | 8,3 |
| 1/4" | 18 | 10,75 | 11,36 | 12,15 |
| 3/8" | 18 | 14,15 | 14,80 | 12,45 |
| 1/2" | 14 | 17,45 | 18,32 | 16,3 |
| 3/4" | 14 | 22,8 | 23,67 | 16,3 |
| 1" | 11 1/2" | 28,65 | 29,69 | 19,55 |
| 1 1/4" | 11 1/2" | 37,35 | 38,45 | 20,05 |
| 1 1/2" | 11 1/2" | 43,45 | 44,52 | 20,05 |
| 2" | 11 1/2" | 55,45 | 56,56 | 20,45 |

