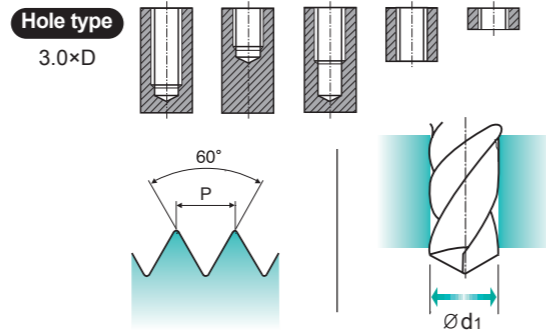
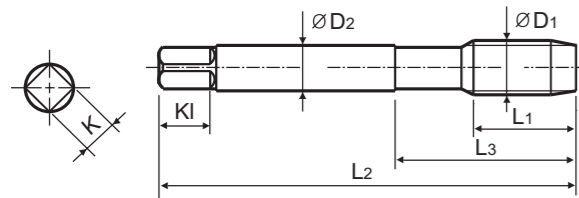


**M** TIN-COATED HSS-PM COLD FORMING TAPS **NEW SIZES**  
ISO Metric Coarse Threads DIN13

**TTS37 SERIES**



- ▶ Coated HSS-PM (Powder Metallurgy) Taps for high-speed tapping on rigid CNC machines or equivalent machines
- ▶ Up to 3 times faster in tapping compared to conventional taps
- ▶ For high-speed synchro tapping, synchro holder for increasing tool life and thread quality is recommended
- ▶ High precision threads



Material groups: **GV** HSS PM DIN 371/376 6HX 60° C TiN p.33

\* NEW SIZE

| SIZE | Pitch  | EDP No.    | Thread Length | Overall Length | Neck Length | Shank Diameter | Square Size | Square Length | Number of Oil Groove | Tapping Drill Diameter |
|------|--------|------------|---------------|----------------|-------------|----------------|-------------|---------------|----------------------|------------------------|
| ØD1  | P      | TiN        | L1            | L2             | L3          | ØD2            | K           | KI            | Z                    | Ød1                    |
| M3   | × 0.5  | TTS37206   | 5             | 56             | 18          | 3.5            | 2.7         | 6             | 5                    | 2.8                    |
| M4   | × 0.7  | TTS37246   | 7             | 63             | 21          | 4.5            | 3.4         | 6             | 5                    | 3.7                    |
| M5   | × 0.8  | TTS37286   | 8             | 70             | 25          | 6              | 4.9         | 8             | 5                    | 4.65                   |
| M6   | × 1.0  | TTS37316   | 10            | 80             | 30          | 6              | 4.9         | 8             | 5                    | 5.55                   |
| M8   | × 1.25 | TTS37366   | 13            | 90             | 35          | 8              | 6.2         | 9             | 6                    | 7.4                    |
| M10  | × 1.5  | TTS37426   | 15            | 100            | 39          | 10             | 8           | 11            | 6                    | 9.3                    |
| M12  | × 1.75 | TTS37506   | 18            | 110            | 44          | 9              | 7           | 10            | 6                    | 11.2                   |
| M14  | × 2.0  | * TTS37546 | 20            | 110            | 44          | 11             | 9           | 12            | 8                    | 13.0                   |
| M16  | × 2.0  | * TTS37606 | 20            | 110            | 44          | 12             | 9           | 12            | 8                    | 15.0                   |
| M18  | × 2.5  | * TTS37656 | 25            | 125            | 50          | 14             | 11          | 14            | 8                    | 16.8                   |
| M20  | × 2.5  | * TTS37706 | 25            | 140            | 54          | 16             | 12          | 15            | 8                    | 18.8                   |

- ▶ DIN 371 (M3-M10) and DIN 376 (M12-M20)
- ▶ Coating (TiAIN) is available on your request

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| ISO                  | P               |     |     |     |     |                 |     |     |     |     |     | M                                  |     |                 |     | K              |     |                   |     |                     |   |
|----------------------|-----------------|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|-----|------------------------------------|-----|-----------------|-----|----------------|-----|-------------------|-----|---------------------|---|
|                      | Non-alloy steel |     |     |     |     | Low alloy steel |     |     |     |     |     | High alloyed steel, and tool steel |     | Stainless steel |     | Grey cast iron |     | Nodular cast iron |     | Malleable cast iron |   |
| Material Description | 1               | 2   | 3   | 4   | 5   | 6               | 7   | 8   | 9   | 10  | 11  | 12                                 | 13  | 14              | 15  | 16             | 17  | 18                | 19  | 20                  |   |
| VDI 3323             | 1               | 2   | 3   | 4   | 5   | 6               | 7   | 8   | 9   | 10  | 11  | 12                                 | 13  | 14              | 15  | 16             | 17  | 18                | 19  | 20                  |   |
| HRc                  | 13              | 25  | 28  | 32  | 30  | 10              | 29  | 32  | 38  | 15  | 35  | 15                                 | 23  | 10              | 10  | 26             | 3   | 25                | 21  | 21                  |   |
| HB                   | 125             | 190 | 250 | 270 | 300 | 180             | 275 | 300 | 350 | 200 | 325 | 200                                | 240 | 180             | 180 | 275            | 160 | 250               | 130 | 230                 |   |
| Recommended          | ◎               | ◎   | ◎   | ◎   | ◎   | ◎               | ◎   | ◎   | ◎   | ◎   | ◎   | ◎                                  | ◎   | ◎               | ◎   | ◎              | ◎   | ◎                 | ◎   | ◎                   | ◎ |

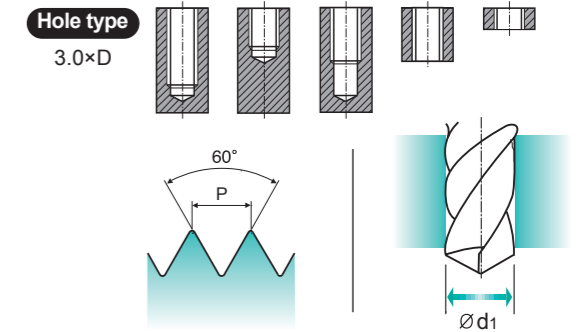
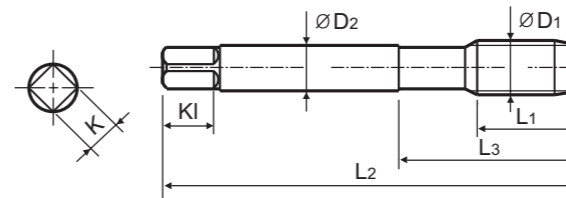
| ISO                  | N                      |     |                        |    |     |   |    |     |    |    | S                      |     |                             |     |     | H               |        |                |     |                   |     |                    |
|----------------------|------------------------|-----|------------------------|----|-----|---|----|-----|----|----|------------------------|-----|-----------------------------|-----|-----|-----------------|--------|----------------|-----|-------------------|-----|--------------------|
|                      | Aluminum-wrought alloy |     | Aluminum-cast, alloyed |    |     | Copper and Copper Alloys (Bronze / Brass) |    |     |    |    | Non Metallic Materials |     | Heat Resistant Super Alloys |     |     | Titanium Alloys |        | Hardened steel |     | Chilled Cast Iron |     | Hardened Cast Iron |
| Material Description | 21                     | 22  | 23                     | 24 | 25  | 26  | 27 | 28  | 29 | 30 | 31                     | 32  | 33                          | 34  | 35  | 36              | 37     | 38             | 39  | 40                | 41  |                    |
| VDI 3323             | 21                     | 22  | 23                     | 24 | 25  | 26  | 27 | 28  | 29 | 30 | 31                     | 32  | 33                          | 34  | 35  | 36              | 37     | 38             | 39  | 40                | 41  |                    |
| HRc                  | 60                     | 100 | 75                     | 90 | 130 | 110                                       | 90 | 100 |    |    | 15                     | 30  | 25                          | 38  | 34  |                 | 55     | 60             | 42  | 55                | 55  |                    |
| HB                   | 60                     | 100 | 75                     | 90 | 130 | 110                                       | 90 | 100 |    |    | 200                    | 280 | 250                         | 350 | 320 | 400Rm           | 1050Rm | 550            | 630 | 400               | 550 |                    |
| Recommended          | ◎                      | ◎   | ◎                      | ◎  | ◎   | ◎   | ◎  | ◎   | ◎  | ◎  | ◎                      | ◎   | ◎                           | ◎   | ◎   | ◎               | ◎      | ◎              | ◎   | ◎                 | ◎   | ◎                  |

**MF** TIN-COATED HSS-PM COLD FORMING TAPS **NEW**  
ISO Metric Fine Threads DIN13

**TTS38 SERIES**



- ▶ Coated HSS-PM (Powder Metallurgy) Taps for high-speed tapping on rigid CNC machines or equivalent machines
- ▶ Up to 3 times faster in tapping compared to conventional taps
- ▶ For high-speed synchro tapping, synchro holder for increasing tool life and thread quality is recommended
- ▶ High precision threads



Material groups: **GV** HSS PM DIN 374 6HX 60° C TiN p.33

Unit : mm

| SIZE | Pitch  | EDP No.  | Thread Length | Overall Length | Neck Length | Shank Diameter | Square Size | Square Length | Number of Oil Groove | Tapping Drill Diameter |
|------|--------|----------|---------------|----------------|-------------|----------------|-------------|---------------|----------------------|------------------------|
| ØD1  | P      | TiN      | L1            | L2             | L3          | ØD2            | K           | KI            | Z                    | Ød1                    |
| M8   | × 1.0  | TTS38376 | 10            | 90             | 36          | 6              | 4.9         | 8             | 6                    | 7.5                    |
| M10  | × 1.25 | TTS38436 | 13            | 100            | 40          | 7              | 5.5         | 8             | 6                    | 9.4                    |
| M10  | × 1.0  | TTS38446 | 10            | 90             | 40          | 7              | 5.5         | 8             | 6                    | 9.5                    |
| M12  | × 1.25 | TTS38526 | 13            | 100            | 40          | 9              | 7           | 10            | 6                    | 11.4                   |
| M12  | × 1.5  | TTS38516 | 15            | 100            | 40          | 9              | 7           | 10            | 6                    | 11.25                  |
| M14  | × 1.5  | TTS38556 | 15            | 100            | 40          | 11             | 9           | 12            | 8                    | 13.25                  |
| M16  | × 1.5  | TTS38616 | 15            | 100            | 40          | 12             | 9           | 12            | 8                    | 15.25                  |
| M18  | × 1.5  | TTS38676 | 17            | 110            | 44          | 14             | 11          | 14            | 8                    | 17.25                  |
| M20  | × 1.5  | TTS38726 | 17            | 125            | 50          | 16             | 12          | 15            | 8                    | 19.25                  |

- ▶ Coating (TiAIN) is available on your request

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| ISO                  | P               |     |     |     |     |                 |     |     |     |     |     | M                                  |     |                 |     | K              |     |                   |     |                     |   |
|----------------------|-----------------|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|-----|------------------------------------|-----|-----------------|-----|----------------|-----|-------------------|-----|---------------------|---|
|                      | Non-alloy steel |     |     |     |     | Low alloy steel |     |     |     |     |     | High alloyed steel, and tool steel |     | Stainless steel |     | Grey cast iron |     | Nodular cast iron |     | Malleable cast iron |   |
| Material Description | 1               | 2   | 3   | 4   | 5   | 6               | 7   | 8   | 9   | 10  | 11  | 12                                 | 13  | 14              | 15  | 16             | 17  | 18                | 19  | 20                  |   |
| VDI 3323             | 1               | 2   | 3   | 4   | 5   | 6               | 7   | 8   | 9   | 10  | 11  | 12                                 | 13  | 14              | 15  | 16             | 17  | 18                | 19  | 20                  |   |
| HRc                  | 13              | 25  | 28  | 32  | 30  | 10              | 29  | 32  | 38  | 15  | 35  | 15                                 | 23  | 10              | 10  | 26             | 3   | 25                | 21  | 21                  |   |
| HB                   | 125             | 190 | 250 | 270 | 300 | 180             | 275 | 300 | 350 | 200 | 325 | 200                                | 240 | 180             | 180 | 275            | 160 | 250               | 130 | 230                 |   |
| Recommended          | ◎               | ◎   | ◎   | ◎   | ◎   | ◎               | ◎   | ◎   | ◎   | ◎   | ◎   | ◎                                  | ◎   | ◎               | ◎   | ◎              | ◎   | ◎                 | ◎   | ◎                   | ◎ |

| ISO                  | N                      |     |                        |    |     |   |    |     |    |    | S                      |     |                             |     |     | H               |        |                |     |                   |     |                    |
|----------------------|------------------------|-----|------------------------|----|-----|---|----|-----|----|----|------------------------|-----|-----------------------------|-----|-----|-----------------|--------|----------------|-----|-------------------|-----|--------------------|
|                      | Aluminum-wrought alloy |     | Aluminum-cast, alloyed |    |     | Copper and Copper Alloys (Bronze / Brass) |    |     |    |    | Non Metallic Materials |     | Heat Resistant Super Alloys |     |     | Titanium Alloys |        | Hardened steel |     | Chilled Cast Iron |     | Hardened Cast Iron |
| Material Description | 21                     | 22  | 23                     | 24 | 25  | 26  | 27 | 28  | 29 | 30 | 31                     | 32  | 33                          | 34  | 35  | 36              | 37     | 38             | 39  | 40                | 41  |                    |
| VDI 3323             | 21                     | 22  | 23                     | 24 | 25  | 26  | 27 | 28  | 29 | 30 | 31                     | 32  | 33                          | 34  | 35  | 36              | 37     | 38             | 39  | 40                | 41  |                    |
| HRc                  | 60                     | 100 | 75                     | 90 | 130 | 110                                       | 90 | 100 |    |    | 15                     | 30  | 25                          | 38  | 34  |                 | 55     | 60             | 42  | 55                | 55  |                    |
| HB                   | 60                     | 100 | 75                     | 90 | 130 | 110                                       | 90 | 100 |    |    | 200                    | 280 | 250                         | 350 | 320 | 400Rm           | 1050Rm | 550            | 630 | 400               | 550 |                    |
| Recommended          | ◎                      | ◎   | ◎                      | ◎  | ◎   | ◎   | ◎  | ◎   | ◎  | ◎  | ◎                      | ◎   | ◎                           | ◎   | ◎   | ◎               | ◎      | ◎              | ◎   | ◎                 | ◎   | ◎                  |