

Polymak

SOLUTIONS PROVIDER FOR INDUSTRY AND TRADE

TCT ANNULAR CUTTER



TCT ANNULAR CUTTER

FEATURES

- Weldon shank for stable clamping and improved drilling precision.
- Special carbide tips with layered, low-friction cutting geometry.
- Compatible with various magnetic drilling machines and presses.

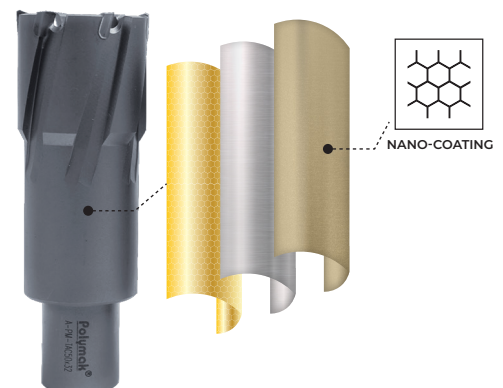


| MODEL | SPECIFICATION | MODEL | SPECIFICATION | MODEL | SPECIFICATION |
|--------------------------------|---------------|-------------------|---------------|----------------------|-----------------|
| STANDARD RANGE | | | | | |
| A-PM-TAC35×12 | 35 mm x 12 mm | A-PM-TAC35×36 | 35 mm x 36 mm | A-PM-TAC50×36 | 50 mm x 36 mm |
| A-PM-TAC35×14 | 35 mm x 14 mm | A-PM-TAC50×12 | 50 mm x 12 mm | A-PM-TAC50×38* | 50 mm x 38 mm |
| A-PM-TAC35×16 | 35 mm x 16 mm | A-PM-TAC50×14 | 50 mm x 14 mm | A-PM-TAC50×13.5* | 50 mm x 13.5 mm |
| A-PM-TAC35×18 | 35 mm x 18 mm | A-PM-TAC50×16 | 50 mm x 16 mm | A-PM-TAC50×14.5* | 50 mm x 14.5 mm |
| A-PM-TAC35×20 | 35 mm x 20 mm | A-PM-TAC50×18 | 50 mm x 18 mm | A-PM-TAC50×17.5* | 50 mm x 17.5 mm |
| A-PM-TAC35×22 | 35 mm x 22 mm | A-PM-TAC50×20 | 50 mm x 20 mm | A-PM-TAC50×18.5* | 50 mm x 18.5 mm |
| A-PM-TAC35×24 | 35 mm x 24 mm | A-PM-TAC50×22 | 50 mm x 22 mm | A-PM-TAC50×19.5* | 50 mm x 19.5 mm |
| A-PM-TAC35×26 | 35 mm x 26 mm | A-PM-TAC50×24 | 50 mm x 24 mm | A-PM-TAC50×21.5* | 50 mm x 21.5 mm |
| A-PM-TAC35×28* | 35 mm x 28 mm | A-PM-TAC50×26 | 50 mm x 26 mm | A-PM-TAC50×22.5* | 50 mm x 22.5 mm |
| A-PM-TAC35×30* | 35 mm x 30 mm | A-PM-TAC50×28* | 50 mm x 28 mm | A-PM-TAC50×23.5* | 50 mm x 23.5 mm |
| A-PM-TAC35×32 | 35 mm x 32 mm | A-PM-TAC50×30* | 50 mm x 30 mm | A-PM-TAC50×25.5* | 50 mm x 25.5 mm |
| A-PM-TAC35×34* | 35 mm x 34 mm | A-PM-TAC50×32 | 50 mm x 32 mm | | |
| PVD COATED RANGE - 3X LIFETIME | | | | | |
| A-PM-PVD-TAC35×12 | 35 mm x 12 mm | A-PM-PVD-TAC35×36 | 35 mm x 36 mm | A-PM-PVD-TAC50×36 | 50 mm x 36 mm |
| A-PM-PVD-TAC35×14 | 35 mm x 14 mm | A-PM-PVD-TAC50×12 | 50 mm x 12 mm | A-PM-PVD-TAC50×38 | 50 mm x 38 mm |
| A-PM-PVD-TAC35×16 | 35 mm x 16 mm | A-PM-PVD-TAC50×14 | 50 mm x 14 mm | A-PM-PVD-TAC50×13.5* | 50 mm x 13.5 mm |
| A-PM-PVD-TAC35×18 | 35 mm x 18 mm | A-PM-PVD-TAC50×16 | 50 mm x 16 mm | A-PM-PVD-TAC50×14.5* | 50 mm x 14.5 mm |
| A-PM-PVD-TAC35×20 | 35 mm x 20 mm | A-PM-PVD-TAC50×18 | 50 mm x 18 mm | A-PM-PVD-TAC50×17.5* | 50 mm x 17.5 mm |
| A-PM-PVD-TAC35×22 | 35 mm x 22 mm | A-PM-PVD-TAC50×20 | 50 mm x 20 mm | A-PM-PVD-TAC50×18.5* | 50 mm x 18.5 mm |
| A-PM-PVD-TAC35×24 | 35 mm x 24 mm | A-PM-PVD-TAC50×22 | 50 mm x 22 mm | A-PM-PVD-TAC50×19.5* | 50 mm x 19.5 mm |
| A-PM-PVD-TAC35×26 | 35 mm x 26 mm | A-PM-PVD-TAC50×24 | 50 mm x 24 mm | A-PM-PVD-TAC50×21.5* | 50 mm x 21.5 mm |
| A-PM-PVD-TAC35×28 | 35 mm x 28 mm | A-PM-PVD-TAC50×26 | 50 mm x 26 mm | A-PM-PVD-TAC50×22.5* | 50 mm x 22.5 mm |
| A-PM-PVD-TAC35×30 | 35 mm x 30 mm | A-PM-PVD-TAC50×28 | 50 mm x 28 mm | A-PM-PVD-TAC50×23.5* | 50 mm x 23.5 mm |
| A-PM-PVD-TAC35×32 | 35 mm x 32 mm | A-PM-PVD-TAC50×30 | 50 mm x 30 mm | A-PM-PVD-TAC50×25.5* | 50 mm x 25.5 mm |
| A-PM-PVD-TAC35×34 | 35 mm x 34 mm | A-PM-PVD-TAC50×32 | 50 mm x 32 mm | | |




*Made to Order Items. Available on Request

ADVANCED PVD NANO-COATING

Advanced PVD nano-coated annular cutters, featuring a nACo coating provide excellent cutting performance and up to three times higher durability. Other advantages include clean, efficient cuts with good chip evacuation, especially in the initial stages of the cut, higher cutting speeds & higher heat resistance.



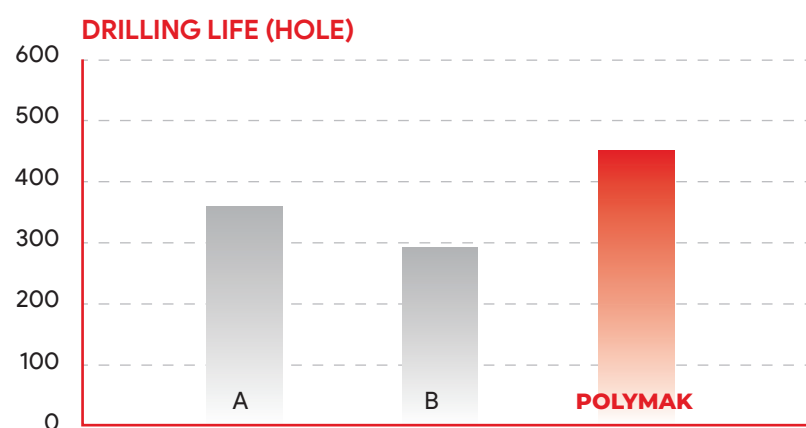
OPTIONAL ACCESSORIES

| MATCHING PILOT PIN | | | | RECOMMENDED MAGNETIC DRILLING MACHINE | | |
|--------------------|--------------|---------------|-----------------------------------------------------------------------------------|---------------------------------------|------------------------------------|-----------------------------------|
| DIAMETER | MODEL | SPECIFICATION | PILOT PIN | DIAMETER | MAGNETIC DRILLING MACHINE | MATCHING TOOL HOLDER |
| 11 | A-PM-ACP35-5 | 4.75*90 |  | 11 | PM38MDAC | — |
| 12-17 | A-PM-ACP35-6 | 6.34*90 |  | 12-17 | PM38MDAC | — |
| 18-65 | A-PM-ACP35-8 | 7.98*90 |  | 18-65 | PM38MDAC PM50MD Pro PM70MDAC | — DJXY-50D-MT3 DJXY-50X-MT4 |



| PM6023-HD | | PM6028-HD | | PM38MDAC | | PM50MD PRO | | PM70MDAC | |
|------------------------|------------|------------------------|------------|------------------------|--------------|------------------------|-------------------------|-----------------------|--------------------|
| Max. Drilling Capacity | 23mm | Max. Drilling Capacity | 28mm | Max. Drilling Capacity | 38mm | Max. Drilling Capacity | 50 x 50 mm | Max Drilling Capacity | 70mm |
| Magnetic Adhesion | 13000N | Magnetic Adhesion | 13800N | Magnetic Adhesion | 14500N | Stroke | 170mm | Magnetic Adhesion | 15800N |
| No Load Speed | 330 rpm | No Load Speed | 300 rpm | No Load Speed | 0 - 650 rpm | Magnetic Adhesion | 13500 Nm | No Load Speed | 0 - 580 rpm |
| Fixture | MT2 | Fixture | MT2 | Fixture | Weldon Shank | No Load Speed | 350 - 550 rpm (2 Speed) | Fixture | MT2 & Weldon Shank |
| Power | 1800 Watts | Power | 2080 Watts | Power | 1620 Watts | Power | 1700 Watts | Power | 1720 Watts |
| Weight | 21 Kgs | Weight | 22 Kgs | Weight | 12 Kgs | Weight | 17.5 Kgs | Weight | 14.5 Kgs |

PERFORMANCE TEST



DATA SOURCE: POLYMAK LABORATORY

Drilling Machine: Magnetic drill
 Workpiece: Q345B steel plate, thickness 50mm
 Annular cutter: Carbide tipped annular cutter $\Phi 22 \times 50$
 Coolant: Emulsion 5%
 Cutting speed: $V_c = 40 \text{ m/min}$
 Rotational speed: $n = 580 \text{ rpm}$

SAFETY GUIDELINES

- Please wear work clothes and protective glasses to prevent the iron filings from splashing and hurting the skin and eyes.
- Ensure the product is correctly installed to prevent accidents.
- When installing or removing this product, please do it when the power plug is unplugged or the power is disconnected.
- Heat is generated during the drilling process, beware of scalding and the impact on the surrounding environment.
- Do not modify this product without authorization, and then carry out drilling operations to prevent unexpected things from happening.
- Do not touch the product while it is rotating.
- Stop operation if you notice vibration, sharp sounds, or other abnormalities. Then check the product or replace it.
- Please read the operating instructions of the drill bit and the machine carefully before using the product.

TECHNICAL GUIDELINES

A. CUTTING PARAMETERS SELECTION

Requirements to cutting speed of annular cutter are also different for different diameters, and reasonable cutting rotational speed will prolong service life of annular cutter directly.

1.Selection of cutting rotation speed (See Recommendation Form of Cutting Rotational Speed)

Mild steel sheets (such as Q235 and Q345)

Carbide annular cutter: Cutting speed $V_c=40\sim45\text{m/min}$

$$V_c = \pi \times D_c \times n / 1000$$

$$V_f = f_z \times Z \times n$$

2.Selection of feed rate

Feed rate is very important, and reasonable feed rate will directly determine whether the chip removal is smooth, and also related to life of annular cutter directly. We recommend that reasonable rotary feed amount shall be $f_n=0.08\text{-}0.13\text{mm/r}$; We recommend that reasonable feed rate shall be $V_f=36\text{-}60\text{ mm /min}$. When feeding manually, stated parameters shall be followed as far as possible, too fast or slow feeding may both accelerate the wear speed of annular cutter, and shorten service life of annular cutter.

B. SELECTION OF CUTTING OIL

Cutting oil serves to lubricate and dissipate heat, so as to prolong drill bit life and improve the quality of processing surface. It is recommended to employ cutting oil when drilling steel, stainless steel, and nonferrous metals; Cutting oil is not recommended when drilling cast iron or other materials that produce powdered chips

1.Effect of cutting oil

Cooling: pour the cutting oil into the processing area, to take away cutting heat through heat conduction and other methods.

Lubrication: the cutting oil could permeate to cutting tools, cutting chips and processing surfaces, decrease the cutting resistance, and improve the quality of processing Surfaces.

Anti-rust: the cutting oil contains anti-rust additive, plays the role of anti-rust and anti-corrosion.

2.Type and Specification of Cutting Oil

Water-based cutting oil: mixing of 95% water and 5% cutting concentrate generally, possessing effect of lubrication and anti-rust, with higher economic efficiency, and used most frequently.

Oily cutting fluid: excellent comprehensive performance with high cost and used in less quantity.

RECOMMENDED FEED RATE OF CARBIDE TIPPED ANNULAR CUTTER

| MATERIAL | CUTTING SPEED V_c m/min | FEED (f_n) mm/rev |
|---------------------------------------------|---------------------------|-----------------------|
| LOW CARBON STEEL $\leq 500\text{N/mm}^2$ | 40 | 0.08-0.13 |
| MEDIUM CARBON STEEL $\leq 750\text{N/mm}^2$ | 37 | 0.08-0.13 |
| ALLOY TOOL STEEL $\leq 900\text{N/mm}^2$ | 35 | 0.05-0.10 |
| HIGH CARBON STEEL $\leq 1400\text{N/mm}^2$ | 30 | 0.05-0.10 |
| CARBON TOOL STEEL $\leq 1200\text{N/mm}^2$ | 25 | 0.05-0.10 |
| STAINLESS STEEL | 20 | 0.05-0.10 |
| CAST IRON | 90 | 0.10-0.15 |
| ALUMINIUM | 38 | 0.07-0.12 |
| CAST COPPER | 35 | 0.08-0.13 |

RECOMMENDED CUTTING ROTATION SPEED OF CARBIDE TIPPED ANNULAR CUTTER

| DIAMETER (MM) | LOW CARBON STEEL | MEDIUM CARBON STEEL | HIGH CARBON STEEL | ALLOY TOOL STEEL | CARBON TOOL STEEL | STAINLESS STEEL | ALUMINIUM | CAST IRON | CAST COPPER |
|------------------|------------------------|---------------------------|-------------------------|------------------------|-------------------------|--------------------|-----------|-----------|-------------|
| 12 | 1062 | 982 | 929 | 796 | 663 | 531 | 2389 | 1592 | 929 |
| 13 | 980 | 906 | 857 | 735 | 612 | 490 | 2205 | 1470 | 857 |
| 14 | 910 | 842 | 796 | 682 | 569 | 455 | 2047 | 1365 | 796 |
| 15 | 849 | 786 | 743 | 637 | 531 | 425 | 1911 | 1274 | 743 |
| 16 | 796 | 736 | 697 | 597 | 498 | 398 | 1791 | 1194 | 697 |
| 17 | 749 | 693 | 656 | 562 | 468 | 375 | 1686 | 1124 | 656 |
| 18 | 708 | 655 | 619 | 531 | 442 | 354 | 1592 | 1062 | 619 |
| 19 | 670 | 620 | 587 | 503 | 419 | 335 | 1509 | 1006 | 587 |
| 20 | 637 | 589 | 557 | 478 | 398 | 318 | 1433 | 955 | 557 |
| 21 | 607 | 561 | 531 | 455 | 379 | 303 | 1365 | 910 | 531 |
| 22 | 579 | 536 | 507 | 434 | 362 | 290 | 1303 | 869 | 507 |
| 23 | 554 | 512 | 485 | 415 | 346 | 277 | 1246 | 831 | 485 |
| 24 | 531 | 491 | 464 | 398 | 332 | 265 | 1194 | 796 | 464 |
| 25 | 510 | 471 | 446 | 382 | 318 | 255 | 1146 | 764 | 446 |
| 26 | 490 | 453 | 429 | 367 | 306 | 245 | 1102 | 735 | 429 |
| 27 | 472 | 436 | 413 | 354 | 295 | 236 | 1062 | 708 | 413 |
| 28 | 455 | 421 | 398 | 341 | 284 | 227 | 1024 | 682 | 398 |
| 29 | 439 | 406 | 384 | 329 | 275 | 220 | 988 | 659 | 384 |
| 30 | 425 | 393 | 372 | 318 | 265 | 212 | 955 | 637 | 372 |



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MARKETED & SERVICED BY

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