



INFO

CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

MDTA

GENERAL PURPOSE

🇺🇸 MDTA is the Osawa range of micrograin carbide end mills with PV200 coating. MDTA endmills have been developed for general purpose milling up to 45 HRC. The exclusive and innovative PV200 coating (3500HV) ensures the best performance, even in applications with air blow or MQL (Minimum Quantity Lubrication).

🇮🇹 MDTA sono le frese Osawa in metallo duro micrograna con rivestimento PV200 sviluppate per la fresatura di materiali generici sino a 45 HRC. L'esclusivo e innovativo rivestimento PV200 (3500HV) garantisce performance elevate anche in lavorazioni con impiego di refrigerazione con getto d'aria o MQL (Minimum Quantity Lubrication).

🇩🇪 MDTA sind Fräser von Osawa aus Mikrokörnungs-Hartmetall mit Beschichtung PV200, die für das Fräsen von allgemeinen Materialien bis zu 45 HRC entwickelt wurden. Die exklusive und innovative Beschichtung PV200 (3500HV) gewährleistet auch bei Bearbeitungen mit Kühlung durch Luftstrahl oder MQL (Minimum Quantity Lubrication) hohe Leistungen.

🇫🇷 MDTA sont les fraises Osawa en carbure micrograin avec revêtement PV200 développées pour le fraisage de matériaux génériques jusqu'à 45 HRC. Le revêtement PV200 (3500HV) exclusif et innovant garantit des performances élevées même pour les usinages employant un système de lubrification avec jet d'air ou MQL (Minimum Quantity Lubrication).

🇪🇸 MDTA son las fresas Osawa de metal duro micrograno con revestimiento PV200 desarrolladas para el fresado de materiales genéricos hasta 45 HRC. Su exclusivo e innovador revestimiento PV200 (3500HV) garantiza rendimientos elevados incluso en elaboraciones con el uso de refrigeración con chorro de aire o MQL (Minimum Quantity Lubrication).

🇷🇺 MDTA - это фрезы фирмы Osawa из твёрдого сплава с мелкозернистой структурой и покрытием PV200, предназначенные для стандартной обработки материалов с твёрдостью до 45 HRC. Эксклюзивное и инновационное покрытие PV200 (3500HV) гарантирует высокую производительность, даже, при обработке с обдувом воздухом или с масляным туманом.

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HF VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

INFO

MDTACS2

cylindrical shank, 2 flutes

OSAWA
NORM

N

MG
PV200

<45
HRC

30°

SQUARE

Z2



CARBIDE
DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

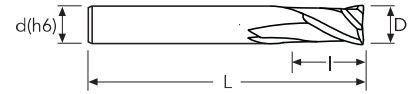
| | | | | | |
|---|---|---|---|---|---|
| P | M | K | N | S | H |
| ★ | ☆ | ★ | ☆ | | |

★ 1st choice ☆ suitable

SLOTTING

SIDE MILLING

DRILLING



| D | D Tol. | C | C Tol. | d(h6) | l | l1 | L | z | EDP No. | Stock |
|-----|----------|---|--------|-------|-----|----|-----|---|---------------|-------|
| 1 | 0/-0.015 | | | 3 | 3 | | 40 | 2 | MDTACS2010403 | ● |
| 1 | 0/-0.015 | | | 4 | 3 | | 40 | 2 | MDTACS2010404 | ● |
| 1.5 | 0/-0.015 | | | 3 | 4.5 | | 40 | 2 | MDTACS2015403 | ● |
| 1.5 | 0/-0.015 | | | 4 | 4.5 | | 40 | 2 | MDTACS2015404 | ● |
| 2 | 0/-0.015 | | | 2 | 8 | | 32 | 2 | MDTACS2020 | ● |
| 2 | 0/-0.015 | | | 3 | 6.5 | | 40 | 2 | MDTACS2020403 | ● |
| 2 | 0/-0.015 | | | 4 | 6.5 | | 40 | 2 | MDTACS2020404 | ● |
| 2.5 | 0/-0.015 | | | 3 | 6.5 | | 40 | 2 | MDTACS2025403 | ● |
| 2.5 | 0/-0.015 | | | 4 | 6.5 | | 40 | 2 | MDTACS2025404 | ● |
| 3 | 0/-0.020 | | | 3 | 9 | | 40 | 2 | MDTACS2030403 | ● |
| 4 | 0/-0.020 | | | 4 | 12 | | 50 | 2 | MDTACS2040504 | ● |
| 5 | 0/-0.020 | | | 6 | 15 | | 50 | 2 | MDTACS2050506 | ● |
| 6 | 0/-0.020 | | | 6 | 16 | | 50 | 2 | MDTACS2060 | ● |
| 8 | 0/-0.020 | | | 8 | 20 | | 64 | 2 | MDTACS208064 | ● |
| 10 | 0/-0.020 | | | 10 | 22 | | 70 | 2 | MDTACS2100 | ● |
| 12 | 0/-0.020 | | | 12 | 25 | | 75 | 2 | MDTACS212075 | ● |
| 14 | 0/-0.020 | | | 14 | 25 | | 75 | 2 | MDTACS2140 | ● |
| 16 | 0/-0.020 | | | 16 | 32 | | 90 | 2 | MDTACS216090 | ● |
| 20 | 0/-0.020 | | | 20 | 38 | | 100 | 2 | MDTACS220038 | ● |
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● stock standard ○ non-standard stock ▽ stock exhaustion

MDTACS2

| | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 |
|----|------------------------|------------------------|----------------------------|-----------------|-----------------|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | |
| | ap x ae | 0.5D x D | 0.5D x D | 0.5D x D | 0.5D x D |
| | Vc (m/min) | 80÷100 | 50÷70 | 30÷50 | 100÷120 |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| 1 | 0.004 | 0.003 | 0.003 | 0.003 | 0.005 |
| 2 | 0.008 | 0.007 | 0.007 | 0.006 | 0.010 |
| 3 | 0.012 | 0.010 | 0.010 | 0.009 | 0.016 |
| 4 | 0.016 | 0.014 | 0.014 | 0.012 | 0.021 |
| 5 | 0.020 | 0.017 | 0.017 | 0.015 | 0.026 |
| 6 | 0.025 | 0.021 | 0.021 | 0.019 | 0.033 |
| 8 | 0.032 | 0.027 | 0.027 | 0.024 | 0.042 |
| 10 | 0.038 | 0.032 | 0.032 | 0.029 | 0.049 |
| 12 | 0.045 | 0.038 | 0.038 | 0.034 | 0.059 |
| 14 | 0.052 | 0.044 | 0.044 | 0.039 | 0.068 |
| 16 | 0.060 | 0.051 | 0.051 | 0.045 | 0.078 |
| 18 | 0.070 | 0.060 | 0.060 | 0.053 | 0.091 |
| 20 | 0.080 | 0.068 | 0.068 | 0.060 | 0.104 |

< D3 mm: ap = 0.2D

| | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 |
|----|------------------------|------------------------|----------------------------|--------------------|--------------------|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | |
| | ap x ae | 1.5D x 0.5D | 1.5D x 0.5D | 1.5D x 0.5D | 1.5D x 0.5D |
| | Vc (m/min) | 80÷100 | 50÷70 | 30÷50 | 100÷120 |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| 1 | 0.005 | 0.004 | 0.004 | 0.004 | 0.006 |
| 2 | 0.010 | 0.008 | 0.008 | 0.007 | 0.012 |
| 3 | 0.014 | 0.012 | 0.012 | 0.011 | 0.019 |
| 4 | 0.019 | 0.016 | 0.016 | 0.014 | 0.025 |
| 5 | 0.024 | 0.020 | 0.020 | 0.018 | 0.031 |
| 6 | 0.030 | 0.026 | 0.026 | 0.023 | 0.039 |
| 8 | 0.038 | 0.033 | 0.033 | 0.029 | 0.050 |
| 10 | 0.046 | 0.039 | 0.039 | 0.034 | 0.059 |
| 12 | 0.054 | 0.046 | 0.046 | 0.041 | 0.070 |
| 14 | 0.062 | 0.053 | 0.053 | 0.047 | 0.081 |
| 16 | 0.072 | 0.061 | 0.061 | 0.054 | 0.094 |
| 18 | 0.084 | 0.071 | 0.071 | 0.063 | 0.109 |
| 20 | 0.096 | 0.082 | 0.082 | 0.072 | 0.125 |

< D3 mm: ae = 0.2D

| | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 |
|----|------------------------|------------------------|----------------------------|--------------|---------------|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | |
| | ap x ae | D x D | D x D | D x D | D x D |
| | Vc (m/min) | 70÷90 | 40÷60 | 25÷35 | 80÷100 |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| 1 | 0.002 | 0.002 | 0.002 | 0.002 | 0.003 |
| 2 | 0.005 | 0.004 | 0.004 | 0.004 | 0.006 |
| 3 | 0.007 | 0.006 | 0.006 | 0.005 | 0.009 |
| 4 | 0.010 | 0.008 | 0.008 | 0.007 | 0.012 |
| 5 | 0.012 | 0.010 | 0.010 | 0.009 | 0.016 |
| 6 | 0.015 | 0.013 | 0.013 | 0.011 | 0.020 |
| 8 | 0.019 | 0.016 | 0.016 | 0.014 | 0.025 |
| 10 | 0.023 | 0.019 | 0.019 | 0.017 | 0.030 |
| 12 | 0.027 | 0.023 | 0.023 | 0.020 | 0.035 |
| 14 | 0.031 | 0.027 | 0.027 | 0.023 | 0.041 |
| 16 | 0.036 | 0.031 | 0.031 | 0.027 | 0.047 |
| 18 | 0.042 | 0.036 | 0.036 | 0.032 | 0.055 |
| 20 | 0.048 | 0.041 | 0.041 | 0.036 | 0.062 |

< D3 mm: ap = 0.5D

INFO

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

INFO

MDTA210

cylindrical shank, 2 flutes, long

OSAWA
NORM

N

MG
PV200

<45
HRC

30°

SQUARE

Z2



CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

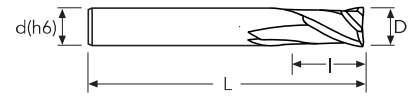
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|---|---|---|---|---|---|
| P | M | K | N | S | H |
| ★ | ☆ | ★ | ☆ | | |

★ 1st choice ☆ suitable

SLOTING

SIDE MILLING

DRILLING



| D | D Tol. | C | C Tol. | d(h6) | l | l1 | L | z | EDP No. | Stock |
|-----------|----------|---|--------|-------|----|----|-----|---|------------|-------|
| 3 | 0/-0.030 | | | 3 | 20 | | 60 | 2 | MDTA210030 | ● |
| 4 | 0/-0.030 | | | 4 | 20 | | 60 | 2 | MDTA210040 | ● |
| 5 | 0/-0.030 | | | 5 | 25 | | 75 | 2 | MDTA210050 | ● |
| 6 | 0/-0.030 | | | 6 | 30 | | 75 | 2 | MDTA210060 | ● |
| 8 | 0/-0.030 | | | 8 | 30 | | 75 | 2 | MDTA210080 | ● |
| 10 | 0/-0.030 | | | 10 | 40 | | 100 | 2 | MDTA210100 | ● |
| 12 | 0/-0.030 | | | 12 | 45 | | 100 | 2 | MDTA210120 | ● |
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HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS


G2
MDTA
HFVH/UP
MEF
ALU
MEX/MH
UHM/H


HSS END-MILLS


CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

MDTA210

|  SLOTTING | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 | |
|---|------------------------|------------------------|----------------------------|-----------------|-----------------|-----------|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | | |
| | ap x ae | 0.5D x D | 0.5D x D | 0.5D x D | 0.5D x D | |
| | Vc (m/min) | 70÷90 | 45÷65 | 30÷40 | 70÷80 | |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| | 3 | 0.010 | 0.009 | 0.008 | 0.013 | |
| | 4 | 0.014 | 0.012 | 0.011 | 0.018 | |
| | 5 | 0.018 | 0.015 | 0.014 | 0.023 | |
| | 6 | 0.023 | 0.019 | 0.017 | 0.029 | |
| | 8 | 0.030 | 0.026 | 0.023 | 0.039 | |
| 10 | 0.035 | 0.030 | 0.026 | 0.046 | | |
| 12 | 0.041 | 0.035 | 0.031 | 0.053 | | |

|  SIDE MILLING | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 | |
|---|------------------------|------------------------|----------------------------|--------------------|--------------------|-----------|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | | |
| | ap x ae | 1.5D x 0.5D | 1.5D x 0.5D | 1.5D x 0.5D | 1.5D x 0.5D | |
| | Vc (m/min) | 70÷90 | 45÷65 | 30÷50 | 80÷120 | |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| | 3 | 0,012 | 0,010 | 0,009 | 0,016 | |
| | 4 | 0,017 | 0,014 | 0,013 | 0,022 | |
| | 5 | 0,022 | 0,018 | 0,016 | 0,028 | |
| | 6 | 0,027 | 0,023 | 0,020 | 0,035 | |
| | 8 | 0,036 | 0,031 | 0,027 | 0,047 | |
| 10 | 0,042 | 0,036 | 0,032 | 0,055 | | |
| 12 | 0,049 | 0,042 | 0,037 | 0,064 | | |

|  DRILLING | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 | |
|---|------------------------|------------------------|----------------------------|--------------------|--------------------|-----------|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | | |
| | ap x ae | 1.5D x 0.5D | 1.5D x 0.5D | 1.5D x 0.5D | 1.5D x 0.5D | |
| | Vc (m/min) | 60÷80 | 40÷60 | 25÷35 | 70÷100 | |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| | 3 | 0.006 | 0.005 | 0.005 | 0.008 | |
| | 4 | 0.008 | 0.007 | 0.006 | 0.011 | |
| | 5 | 0.011 | 0.009 | 0.008 | 0.014 | |
| | 6 | 0.014 | 0.011 | 0.010 | 0.018 | |
| | 8 | 0.018 | 0.015 | 0.014 | 0.023 | |
| 10 | 0.021 | 0.018 | 0.016 | 0.027 | | |
| 12 | 0.025 | 0.021 | 0.018 | 0.032 | | |

INFO

CARBIDE
DRILLS
 PU-HPU
 TA-4HTA
 SUH
 ALH
 HRC
 SUH MINI
 HL
 HSD
 C-SD-TA
HSS
DRILLS
 LFTA
 SUTA
 HSS-HSS/CO
CARBIDE
END-MILLS
 G2
 MDTA
 HF VH/UP
 MEF
 ALU
 MEX/MH
 UH/MH
HSS
END-MILLSCARBIDE
BURRS

CUTTING PARAMETERS

MDCL2

| | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 |
|-----------|------------------------|------------------------|----------------------------|-----------------|-----------------|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | |
| | ap x ae | 0.3D x D | 0.3D x D | 0.3D x D | 0.3D x D |
| | Vc (m/min) | 40÷50 | 25÷35 | 20÷30 | 60÷80 |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| | 3 | 0.010 | 0.008 | 0.007 | 0.011 |
| | 4 | 0.013 | 0.011 | 0.010 | 0.014 |
| | 5 | 0.016 | 0.014 | 0.012 | 0.018 |
| | 6 | 0.020 | 0.017 | 0.015 | 0.022 |
| | 8 | 0.026 | 0.022 | 0.019 | 0.033 |
| 10 | 0.030 | 0.026 | 0.023 | 0.040 | |
| 12 | 0.036 | 0.031 | 0.027 | 0.047 | |

| | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 |
|-----------|------------------------|------------------------|----------------------------|--------------------|--------------------|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | |
| | ap x ae | 1.5D x 0.3D | 1.5D x 0.3D | 1.5D x 0.3D | 1.5D x 0.3D |
| | Vc (m/min) | 45÷55 | 30÷40 | 25÷35 | 70÷90 |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| | 3 | 0.012 | 0.010 | 0.009 | 0.013 |
| | 4 | 0.015 | 0.013 | 0.012 | 0.017 |
| | 5 | 0.019 | 0.016 | 0.014 | 0.021 |
| | 6 | 0.024 | 0.020 | 0.018 | 0.027 |
| | 8 | 0.031 | 0.026 | 0.023 | 0.040 |
| 10 | 0.036 | 0.031 | 0.027 | 0.047 | |
| 12 | 0.043 | 0.037 | 0.032 | 0.056 | |

INFO

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH-MINI
HL
HSD
C-SD-TA

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

INFO

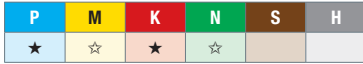
MDTACS3

cylindrical shank, 3 flutes

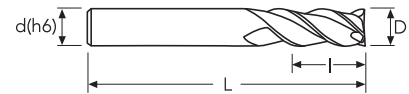
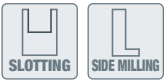


CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA



★ 1st choice ☆ suitable



| D | D Tol. | C | C Tol. | d(h6) | l | l1 | L | z | EDP No. | Stock |
|-----|----------|---|--------|-------|-----|----|-----|---|---------------|-------|
| 1 | 0/-0.015 | | | 3 | 3 | | 40 | 3 | MDTACS3010403 | ● |
| 1 | 0/-0.015 | | | 4 | 3 | | 40 | 3 | MDTACS3010404 | ● |
| 1.5 | 0/-0.015 | | | 3 | 4.5 | | 40 | 3 | MDTACS3015403 | ● |
| 1.5 | 0/-0.015 | | | 4 | 4.5 | | 40 | 3 | MDTACS3015404 | ● |
| 2 | 0/-0.015 | | | 3 | 6.5 | | 40 | 3 | MDTACS3020403 | ● |
| 2 | 0/-0.015 | | | 4 | 6.5 | | 40 | 3 | MDTACS3020404 | ● |
| 2.5 | 0/-0.015 | | | 3 | 6.5 | | 40 | 3 | MDTACS3025403 | ● |
| 2.5 | 0/-0.015 | | | 4 | 6.5 | | 40 | 3 | MDTACS3025404 | ● |
| 3 | 0/-0.020 | | | 3 | 9 | | 40 | 3 | MDTACS3030403 | ● |
| 4 | 0/-0.020 | | | 4 | 12 | | 50 | 3 | MDTACS3040504 | ● |
| 5 | 0/-0.020 | | | 6 | 15 | | 50 | 3 | MDTACS3050506 | ● |
| 6 | 0/-0.020 | | | 6 | 16 | | 50 | 3 | MDTACS3060 | ● |
| 8 | 0/-0.020 | | | 8 | 20 | | 64 | 3 | MDTACS308064 | ● |
| 10 | 0/-0.020 | | | 10 | 22 | | 70 | 3 | MDTACS3100 | ● |
| 12 | 0/-0.020 | | | 12 | 25 | | 75 | 3 | MDTACS312075 | ● |
| 14 | 0/-0.020 | | | 14 | 25 | | 75 | 3 | MDTACS3140 | ● |
| 16 | 0/-0.020 | | | 16 | 32 | | 90 | 3 | MDTACS316090 | ● |
| 20 | 0/-0.020 | | | 20 | 38 | | 100 | 3 | MDTACS320038 | ● |

CARBIDE END-MILLS

G2
MDTA
HF VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

MDTACS3

| | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 |
|----|------------------------|------------------------|----------------------------|-----------------|-----------------|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | |
| | ap x ae | 0.5D x D | 0.5D x D | 0.5D x D | 0.5D x D |
| | Vc (m/min) | 80÷100 | 50÷70 | 30÷50 | 100÷120 |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| 1 | 0.004 | 0.003 | 0.003 | 0.005 | |
| 2 | 0.008 | 0.007 | 0.006 | 0.010 | |
| 3 | 0.011 | 0.009 | 0.008 | 0.014 | |
| 4 | 0.014 | 0.012 | 0.011 | 0.019 | |
| 5 | 0.018 | 0.015 | 0.013 | 0.023 | |
| 6 | 0.021 | 0.018 | 0.016 | 0.027 | |
| 8 | 0.028 | 0.023 | 0.021 | 0.036 | |
| 10 | 0.035 | 0.030 | 0.026 | 0.046 | |
| 12 | 0.044 | 0.037 | 0.033 | 0.057 | |
| 14 | 0.052 | 0.044 | 0.039 | 0.067 | |
| 16 | 0.059 | 0.050 | 0.045 | 0.077 | |
| 18 | 0.066 | 0.056 | 0.050 | 0.086 | |
| 20 | 0.072 | 0.061 | 0.054 | 0.093 | |

< D3 mm: ap = 0.2D

| | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 |
|----|------------------------|------------------------|----------------------------|-----------------|-----------------|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | |
| | ap x ae | 0.5D x D | 0.5D x D | 0.5D x D | 0.5D x D |
| | Vc (m/min) | 80÷100 | 50÷70 | 30÷50 | 100÷120 |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| 1 | 0.005 | 0.004 | 0.003 | 0.006 | |
| 2 | 0.009 | 0.008 | 0.007 | 0.012 | |
| 3 | 0.013 | 0.011 | 0.010 | 0.017 | |
| 4 | 0.017 | 0.015 | 0.013 | 0.022 | |
| 5 | 0.021 | 0.018 | 0.016 | 0.027 | |
| 6 | 0.025 | 0.021 | 0.019 | 0.033 | |
| 8 | 0.033 | 0.028 | 0.025 | 0.043 | |
| 10 | 0.042 | 0.036 | 0.032 | 0.055 | |
| 12 | 0.053 | 0.045 | 0.040 | 0.069 | |
| 14 | 0.062 | 0.053 | 0.047 | 0.081 | |
| 16 | 0.071 | 0.061 | 0.053 | 0.093 | |
| 18 | 0.079 | 0.067 | 0.059 | 0.103 | |
| 20 | 0.086 | 0.073 | 0.064 | 0.112 | |

< D3 mm: ae = 0.1D

INFO

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH-MINI
HL
HSD
C-SD-TA

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

INFO

MDTAWSH3

weldon shank, 3 flutes

OSAWA
NORM

N

MG
PV200

<45
HRC

45°

SQUARE

Z3

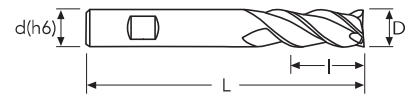
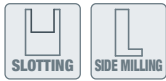


CARBIDE
DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

| | | | | | |
|---|---|---|---|---|---|
| P | M | K | N | S | H |
| ★ | ☆ | ★ | ☆ | | |

★ 1st choice ☆ suitable



| D | D Tol. | C | C Tol. | d(h6) | l | l1 | L | z | EDP No. | Stock |
|----|----------|---|--------|-------|----|----|-----|---|-------------|-------|
| 3 | 0/-0.030 | | | 6 | 7 | | 57 | 3 | MDTAWSH3030 | ● |
| 4 | 0/-0.030 | | | 6 | 8 | | 57 | 3 | MDTAWSH3040 | ● |
| 5 | 0/-0.030 | | | 6 | 10 | | 57 | 3 | MDTAWSH3050 | ● |
| 6 | 0/-0.030 | | | 6 | 10 | | 57 | 3 | MDTAWSH3060 | ● |
| 8 | 0/-0.030 | | | 8 | 16 | | 63 | 3 | MDTAWSH3080 | ● |
| 10 | 0/-0.030 | | | 10 | 19 | | 72 | 3 | MDTAWSH3100 | ● |
| 12 | 0/-0.030 | | | 12 | 22 | | 83 | 3 | MDTAWSH3120 | ● |
| 14 | 0/-0.030 | | | 14 | 22 | | 83 | 3 | MDTAWSH3140 | ● |
| 16 | 0/-0.030 | | | 16 | 26 | | 92 | 3 | MDTAWSH3160 | ● |
| 20 | 0/-0.030 | | | 20 | 32 | | 104 | 3 | MDTAWSH3200 | ● |

HSS
DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE
END-MILLS

- G2
- MDTA**
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UHM/MH


HSS
END-MILLS


CARBIDE
BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

MDTAWSH3

|  SLOTTING | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 |
|---|---------------------------|------------------------|----------------------------|-----------------|-----------------|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | |
| | ap x ae | 0.5D x D | 0.5D x D | 0.5D x D | 0.5D x D |
| | Vc (m/min) | 80÷100 | 50÷70 | 30÷50 | 80÷120 |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| 3 | 0.009 | 0.008 | 0.007 | 0.012 | |
| 4 | 0.013 | 0.011 | 0.009 | 0.016 | |
| 5 | 0.016 | 0.013 | 0.012 | 0.020 | |
| 6 | 0.019 | 0.016 | 0.014 | 0.024 | |
| 8 | 0.025 | 0.021 | 0.019 | 0.033 | |
| 10 | 0.031 | 0.027 | 0.023 | 0.041 | |
| 12 | 0.040 | 0.034 | 0.030 | 0.052 | |
| 14 | 0.046 | 0.039 | 0.035 | 0.060 | |
| 16 | 0.056 | 0.048 | 0.042 | 0.073 | |
| 18 | 0.065 | 0.055 | 0.049 | 0.085 | |
| 20 | 0.075 | 0.064 | 0.056 | 0.098 | |

|  SIDE MILLING | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 |
|---|---------------------------|------------------------|----------------------------|--------------------|--------------------|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | |
| | ap x ae | 1.5D x 0.3D | 1.5D x 0.3D | 1.5D x 0.3D | 1.5D x 0.3D |
| | Vc (m/min) | 90÷110 | 60÷80 | 40÷60 | 110÷130 |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| 3 | 0.011 | 0.010 | 0.008 | 0.015 | |
| 4 | 0.015 | 0.013 | 0.011 | 0.020 | |
| 5 | 0.019 | 0.016 | 0.014 | 0.024 | |
| 6 | 0.023 | 0.019 | 0.017 | 0.029 | |
| 8 | 0.030 | 0.026 | 0.023 | 0.039 | |
| 10 | 0.038 | 0.032 | 0.028 | 0.049 | |
| 12 | 0.048 | 0.041 | 0.036 | 0.062 | |
| 14 | 0.056 | 0.047 | 0.042 | 0.072 | |
| 16 | 0.068 | 0.057 | 0.051 | 0.088 | |
| 18 | 0.078 | 0.066 | 0.059 | 0.101 | |
| 20 | 0.090 | 0.077 | 0.068 | 0.117 | |

INFO

CARBIDE
DRILLS
 PU-HPU
 TA-4HTA
 SUH
 ALH
 HRC
 SUH MINI
 HL
 HSD
 C-SD-TA
HSS
DRILLS
 LFTA
 SUTA
 HSS-HSS/CO
CARBIDE
END-MILLS
 G2
 MDTA
 HF VH/UP
 MEF
 ALU
 MEX/MH
 UH/MH
HSS
END-MILLSCARBIDE
BURRS

INFO

MDTACS4

cylindrical shank, 4 flutes

OSAWA
NORM

N

MG
PV200

<45
HRC

30°

SQUARE

Z4

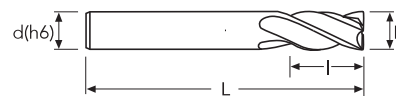


CARBIDE
DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

| | | | | | |
|---|---|---|---|---|---|
| P | M | K | N | S | H |
| ★ | ☆ | ★ | ☆ | | |

★ 1st choice ☆ suitable



| D | D Tol. | C | C Tol. | d(h6) | l | l1 | L | z | EDP No. | Stock |
|------------|----------|---|--------|-------|-----|----|-----|---|---------------|-------|
| 1 | 0/-0.015 | | | 3 | 3 | | 40 | 4 | MDTACS4010403 | ● |
| 1 | 0/-0.015 | | | 4 | 3 | | 40 | 4 | MDTACS4010404 | ● |
| 1.5 | 0/-0.015 | | | 3 | 4.5 | | 40 | 4 | MDTACS4015403 | ● |
| 1.5 | 0/-0.015 | | | 4 | 4.5 | | 40 | 4 | MDTACS4015404 | ● |
| 2 | 0/-0.015 | | | 2 | 8 | | 32 | 4 | MDTACS4020 | ● |
| 2 | 0/-0.015 | | | 3 | 6.5 | | 40 | 4 | MDTACS4020403 | ● |
| 2 | 0/-0.015 | | | 4 | 6.5 | | 40 | 4 | MDTACS4020404 | ● |
| 2.5 | 0/-0.015 | | | 3 | 6.5 | | 40 | 4 | MDTACS4025403 | ● |
| 2.5 | 0/-0.015 | | | 4 | 6.5 | | 40 | 4 | MDTACS4025404 | ● |
| 3 | 0/-0.020 | | | 3 | 9 | | 40 | 4 | MDTACS4030403 | ● |
| 4 | 0/-0.020 | | | 4 | 12 | | 50 | 4 | MDTACS4040504 | ● |
| 5 | 0/-0.020 | | | 6 | 15 | | 50 | 4 | MDTACS4050506 | ● |
| 6 | 0/-0.020 | | | 6 | 16 | | 50 | 4 | MDTACS4060 | ● |
| 8 | 0/-0.020 | | | 8 | 20 | | 64 | 4 | MDTACS408064 | ● |
| 10 | 0/-0.020 | | | 10 | 22 | | 70 | 4 | MDTACS4100 | ● |
| 12 | 0/-0.020 | | | 12 | 25 | | 75 | 4 | MDTACS412075 | ● |
| 14 | 0/-0.020 | | | 14 | 25 | | 75 | 4 | MDTACS4140 | ● |
| 16 | 0/-0.020 | | | 16 | 32 | | 90 | 4 | MDTACS416090 | ● |
| 20 | 0/-0.020 | | | 20 | 38 | | 100 | 4 | MDTACS420038 | ● |
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HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HF VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

MDTACS4

| Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 |
|---------------------------|--------------------|------------------------|----------------------------|-----------------|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC |
| ap x ae | 1.5D x 0.2D | 1.5D x 0.2D | 1.5D x 0.2D | 0.5D x D |
| Vc (m/min) | 80÷100 | 50÷70 | 30÷50 | 100÷120 |
| D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| 1 | 0.004 | 0.003 | 0.003 | 0.005 |
| 2 | 0.007 | 0.006 | 0.005 | 0.009 |
| 3 | 0.010 | 0.009 | 0.008 | 0.013 |
| 4 | 0.013 | 0.011 | 0.010 | 0.017 |
| 5 | 0.016 | 0.014 | 0.012 | 0.021 |
| 6 | 0.019 | 0.016 | 0.014 | 0.025 |
| 8 | 0.025 | 0.021 | 0.019 | 0.033 |
| 10 | 0.032 | 0.027 | 0.024 | 0.042 |
| 12 | 0.040 | 0.034 | 0.030 | 0.052 |
| 14 | 0.047 | 0.040 | 0.035 | 0.061 |
| 16 | 0.054 | 0.046 | 0.041 | 0.070 |
| 18 | 0.060 | 0.051 | 0.045 | 0.078 |
| 20 | 0.065 | 0.055 | 0.049 | 0.085 |
| 22 | 0.073 | 0.062 | 0.055 | 0.095 |
| 25 | 0.083 | 0.071 | 0.062 | 0.108 |



< D3 mm: ae = 0.1D

INFO

CARBIDE
DRILLS
 PU-HPU
 TA-4HTA
 SUH
 ALH
 HRC
 SUH MINI
 HL
 HSD
 C-SD-TA
HSS
DRILLS
 LFTA
 SUTA
 HSS-HSS/CO
CARBIDE
END-MILLS
 G2
 MDTA
 HF VH/UP
 MEF
 ALU
 MEX/MH
 UH/MH
HSS
END-MILLSCARBIDE
BURRS

INFO

MDTA410

cylindrical shank, 4 flutes, long

OSAWA
NORM

N

MG
PV200

<45
HRC

30°

SQUARE

Z4

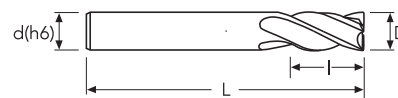


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

| | | | | | |
|---|---|---|---|---|---|
| P | M | K | N | S | H |
| ★ | ☆ | ★ | ☆ | | |

★ 1st choice ☆ suitable



HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

| D | D Tol. | C | C Tol. | d(h6) | l | l1 | L | z | EDP No. | Stock |
|----|----------|---|--------|-------|----|----|-----|---|------------|-------|
| 3 | 0/-0.030 | | | 3 | 20 | | 60 | 4 | MDTA410030 | ● |
| 4 | 0/-0.030 | | | 4 | 20 | | 60 | 4 | MDTA410040 | ● |
| 5 | 0/-0.030 | | | 5 | 25 | | 75 | 4 | MDTA410050 | ● |
| 6 | 0/-0.030 | | | 6 | 30 | | 75 | 4 | MDTA410060 | ● |
| 8 | 0/-0.030 | | | 8 | 30 | | 75 | 4 | MDTA410080 | ● |
| 10 | 0/-0.030 | | | 10 | 40 | | 100 | 4 | MDTA410100 | ● |
| 12 | 0/-0.030 | | | 12 | 45 | | 100 | 4 | MDTA410120 | ● |
| 14 | 0/-0.030 | | | 14 | 45 | | 100 | 4 | MDTA410140 | ● |
| 16 | 0/-0.030 | | | 16 | 45 | | 100 | 4 | MDTA410160 | ● |
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CARBIDE END-MILLS

- G2
- MDTA**
- HF VH/UP
- MEF
- ALU
- MEX/MH
- UHM/MH


HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

MDTA410

|  | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 |
|---|---------------------------|------------------------|----------------------------|--------------------|--------------------|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | |
| | ap x ae | 1.5D x 0.1D | 1.5D x 0.1D | 1.5D x 0.1D | 1.5D x 0.1D |
| | Vc (m/min) | 70÷90 | 45÷65 | 30÷50 | 80÷120 |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| | 2 | 0.006 | 0.005 | 0.005 | 0.008 |
| | 3 | 0.009 | 0.008 | 0.007 | 0.012 |
| | 4 | 0.012 | 0.010 | 0.009 | 0.015 |
| | 5 | 0.014 | 0.012 | 0.011 | 0.019 |
| | 6 | 0.017 | 0.015 | 0.013 | 0.022 |
| 8 | 0.023 | 0.019 | 0.017 | 0.029 | |
| 10 | 0.029 | 0.024 | 0.022 | 0.037 | |
| 12 | 0.036 | 0.031 | 0.027 | 0.047 | |
| 14 | 0.042 | 0.036 | 0.032 | 0.065 | |
| 16 | 0.048 | 0.041 | 0.036 | 0.062 | |

INFO

CARBIDE
DRILLS
 PU-HPU
 TA-4HTA
 SUH
 ALH
 HRC
 SUH-MINI
 HL
 HSD
 C-SD-TA
HSS
DRILLS
 LFTA
 SUTA
 HSS-HSS/CO
CARBIDE
END-MILLS
 G2
MDTA
 HF VH/UP
 MEF
 ALU
 MEX/MH
 UH/MH
HSS
END-MILLSCARBIDE
BURRS

INFO

MDCL4

cylindrical shank, 4 flutes, long

| | | | | | | |
|---------------|---|----------|------------|-----|--------|----|
| OSAWA NORM | N | MG BR | <45 HRC | 30° | SQUARE | Z4 |
|---------------|---|----------|------------|-----|--------|----|



MDCL4 will be gradually replaced by GBL4 (see OSW23 UPDATE - september)

CARBIDE
DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

| | | | | | |
|---|---|---|---|---|---|
| P | M | K | N | S | H |
| ★ | ☆ | ★ | ☆ | | |

★ 1st choice ☆ suitable



| D | D Tol. | C | C Tol. | d(h6) | l | l1 | L | z | EDP No. | Stock |
|----|----------|---|--------|-------|----|----|-----|---|----------|-------|
| 3 | 0/-0.020 | | | 3 | 30 | | 75 | 4 | MDCL4030 | ● |
| 4 | 0/-0.020 | | | 4 | 30 | | 75 | 4 | MDCL4040 | ● |
| 5 | 0/-0.020 | | | 5 | 40 | | 100 | 4 | MDCL4050 | ● |
| 6 | 0/-0.020 | | | 6 | 50 | | 150 | 4 | MDCL4060 | ● |
| 8 | 0/-0.020 | | | 8 | 50 | | 150 | 4 | MDCL4080 | ● |
| 10 | 0/-0.020 | | | 10 | 60 | | 150 | 4 | MDCL4100 | ● |
| 12 | 0/-0.035 | | | 12 | 75 | | 150 | 4 | MDCL4120 | ● |

HSS
DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE
END-MILLS

- G2
- MDTA**
- HF VH/UP
- MEF
- ALU
- MEX/MH
- UHM/MH

HSS
END-MILLS

CARBIDE
BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

MDCL4

| | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 |
|-----------|------------------------|------------------------|----------------------------|--------------------|--------------------|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | |
| | ap x ae | 1.5D x 0.1D | 1.5D x 0.1D | 1.5D x 0.1D | 1.5D x 0.1D |
| | Vc (m/min) | 45+55 | 30+40 | 25+35 | 70÷90 |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| | 3 | 0.008 | 0.007 | 0.006 | 0.009 |
| | 4 | 0.010 | 0.009 | 0.008 | 0.011 |
| | 5 | 0.013 | 0.011 | 0.010 | 0.014 |
| | 6 | 0.015 | 0.013 | 0.011 | 0.017 |
| | 8 | 0.020 | 0.017 | 0.015 | 0.026 |
| 10 | 0.026 | 0.022 | 0.019 | 0.033 | |
| 12 | 0.032 | 0.027 | 0.024 | 0.042 | |
| 14 | 0.038 | 0.032 | 0.028 | 0.049 | |
| 16 | 0.043 | 0.037 | 0.032 | 0.056 | |
| 20 | 0.052 | 0.044 | 0.039 | 0.068 | |

INFO

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

INFO

MDTAUPR

weldon shank, roughing HR, unequal pitch

| | | | | | | | | |
|---------------|---|-------------|------------|-----|------|------------|-------|-------|
| OSAWA NORM | N | MG PV200 | <45 HRC | 40° | C45° | HR FINE | Z3 UP | Z4 UP |
| | | | | | | | ≤ Ø8 | > Ø8 |

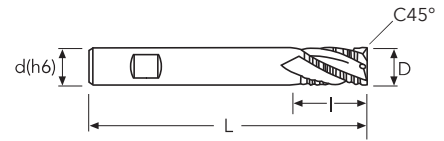


CARBIDE
DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH MINI
HL
HSD
C-SD-TA

| | | | | | |
|---|---|---|---|---|---|
| P | M | K | N | S | H |
| ★ | ☆ | ★ | | | |

★ 1st choice ☆ suitable



| D | D Tol. | C45° | C45° Tol. | d(h6) | l | l1 | L | z | EDP No. | Stock |
|----|----------|------|-----------|-------|----|----|-----|---|------------|-------|
| 6 | 0/-0.030 | 0.10 | +/-0.020 | 6 | 16 | | 57 | 3 | MDTAUPR060 | ● |
| 8 | 0/-0.030 | 0.20 | +/-0.020 | 8 | 16 | | 63 | 3 | MDTAUPR080 | ● |
| 10 | 0/-0.030 | 0.20 | +/-0.020 | 10 | 22 | | 72 | 4 | MDTAUPR100 | ● |
| 12 | 0/-0.030 | 0.20 | +/-0.020 | 12 | 26 | | 83 | 4 | MDTAUPR120 | ● |
| 14 | 0/-0.030 | 0.30 | +/-0.020 | 14 | 26 | | 83 | 4 | MDTAUPR140 | ● |
| 16 | 0/-0.030 | 0.30 | +/-0.020 | 16 | 32 | | 92 | 4 | MDTAUPR160 | ● |
| 20 | 0/-0.030 | 0.40 | +/-0.020 | 20 | 38 | | 104 | 4 | MDTAUPR200 | ● |

HSS
DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE
END-MILLS

G2
MDTA
HFVH/UP
MEF
ALU
MEX/MH
UH/MH

HSS
END-MILLS

CARBIDE
BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

MDTAUPR

| | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | |
|-----------|------------------------|------------------------|----------------------------|--------------------|--|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | |
| | ap x ae | 0.5D x D | 0.5D x D | 1.5D x 0.1D | |
| | Vc (m/min) | 80÷100 | 50÷70 | 30÷50 | |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | |
| | 6 | 0.030 | 0.026 | 0.023 | |
| | 8 | 0.045 | 0.038 | 0.034 | |
| | 10 | 0.055 | 0.047 | 0.041 | |
| | 12 | 0.065 | 0.055 | 0.049 | |
| | 14 | 0.075 | 0.064 | 0.056 | |
| 16 | 0.085 | 0.072 | 0.064 | | |
| 20 | 0.100 | 0.085 | 0.075 | | |

D6-8: Z3
D10-20: Z4

| | Material Group ISO 513 | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | |
|-----------|------------------------|------------------------|----------------------------|--------------------|--|
| | Hardness/Rm | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | |
| | ap x ae | 1.5D x 0.3D | 1.5D x 0.3D | 1.5D x 0.3D | |
| | Vc (m/min) | 80÷100 | 50÷70 | 30÷50 | |
| | D (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | |
| | 6 | 0.040 | 0.034 | 0.030 | |
| | 8 | 0.055 | 0.047 | 0.041 | |
| | 10 | 0.065 | 0.055 | 0.049 | |
| | 12 | 0.080 | 0.068 | 0.060 | |
| | 14 | 0.090 | 0.077 | 0.068 | |
| 16 | 0.100 | 0.085 | 0.075 | | |
| 20 | 0.120 | 0.102 | 0.090 | | |

D6-8: Z3
D10-20: Z4

INFO

CARBIDE DRILLS

PU-HPU
TA-4HTA
SUH
ALH
HRC
SUH-MINI
HL
HSD
C-SD-TA

HSS DRILLS

LFTA
SUTA
HSS-HSS/CO

CARBIDE END-MILLS

G2
MDTA
HF VH/UP
MEF
ALU
MEX/MH
UH/MH

HSS END-MILLS

CARBIDE BURRS

INFO

MDTACSB2

cylindrical shank, 2 flutes ball nose

OSAWA
NORM

N

MG
PV200

<45
HRC

30°

BALL NOSE

Z2 BALL

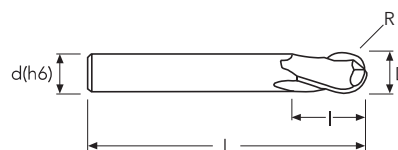


CARBIDE
DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

| | | | | | |
|---|---|---|---|---|---|
| P | M | K | N | S | H |
| ★ | ☆ | ★ | ☆ | | |

★ 1st choice ☆ suitable



| D | D Tol. | R | R Tol. | d(h6) | l | l1 | L | z | EDP No. | Stock |
|-----|----------|------|----------|-------|----|----|----|---|-------------|-------|
| 1 | 0/-0.030 | 0.50 | 0/-0.020 | 3 | 3 | | 40 | 2 | MDTACSB2010 | ● |
| 1.5 | 0/-0.030 | 0.75 | 0/-0.020 | 3 | 5 | | 40 | 2 | MDTACSB2015 | ● |
| 2 | 0/-0.030 | 1.00 | 0/-0.020 | 3 | 7 | | 40 | 2 | MDTACSB2020 | ● |
| 2.5 | 0/-0.030 | 1.25 | 0/-0.020 | 3 | 8 | | 40 | 2 | MDTACSB2025 | ● |
| 3 | 0/-0.030 | 1.50 | 0/-0.020 | 3 | 10 | | 40 | 2 | MDTACSB2030 | ● |
| 4 | 0/-0.030 | 2.00 | 0/-0.020 | 4 | 12 | | 40 | 2 | MDTACSB2040 | ● |
| 5 | 0/-0.030 | 2.50 | 0/-0.020 | 5 | 14 | | 50 | 2 | MDTACSB2050 | ● |
| 6 | 0/-0.030 | 3.00 | 0/-0.020 | 6 | 7 | | 50 | 2 | MDTACSB2060 | ● |
| 8 | 0/-0.030 | 4.00 | 0/-0.020 | 8 | 9 | | 60 | 2 | MDTACSB2080 | ● |
| 10 | 0/-0.030 | 5.00 | 0/-0.020 | 10 | 10 | | 60 | 2 | MDTACSB2100 | ● |
| 12 | 0/-0.030 | 6.00 | 0/-0.020 | 12 | 14 | | 70 | 2 | MDTACSB2120 | ● |

HSS
DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE
END-MILLS

- G2
- MDTA**
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UHM/MH

HSS
END-MILLS

CARBIDE
BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

MDTACSB2

| Material Group ISO 513 | | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 |
|---------------------------|-----------------|------------------------|----------------------------|--------------------|--------------------|
| Hardness/Rm | | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | |
| ap x ae | | 0.1D x 0.1D | 0.1D x 0.1D | 0.1D x 0.1D | 0.1D x 0.1D |
| Vc (m/min) | | 80÷100 | 60÷80 | 40÷60 | 110÷130 |
| D (mm) | D(eff.) (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| 1 | 0.60 | 0.030 | 0.023 | 0.021 | 0.036 |
| 2 | 1.20 | 0.040 | 0.030 | 0.028 | 0.048 |
| 3 | 1.80 | 0.050 | 0.038 | 0.035 | 0.060 |
| 4 | 2.40 | 0.060 | 0.045 | 0.042 | 0.072 |
| 5 | 3.00 | 0.070 | 0.053 | 0.049 | 0.084 |
| 6 | 3.60 | 0.080 | 0.060 | 0.056 | 0.096 |
| 8 | 4.80 | 0.090 | 0.068 | 0.063 | 0.108 |
| 10 | 6.00 | 0.105 | 0.079 | 0.074 | 0.126 |
| 12 | 7.20 | 0.120 | 0.090 | 0.084 | 0.144 |



INFO

CARBIDE
DRILLS
 PU-HPU
 TA-4HTA
 SUH
 ALH
 HRC
 SUH MINI
 HL
 HSD
 C-SD-TA
HSS
DRILLS
 LFTA
 SUTA
 HSS-HSS/CO
CARBIDE
END-MILLS
 G2
MDTA
 HF VH/UP
 MEF
 ALU
 MEX/MH
 UH/MH
HSS
END-MILLSCARBIDE
BURRS

INFO

MDTA250

cylindrical shank, 2 flutes ball nose, long

| | | | | | | |
|---------------|---|-------------|------------|-----|-----------|---------|
| OSAWA NORM | N | MG PV200 | <45 HRC | 30° | BALL NOSE | Z2 BALL |
|---------------|---|-------------|------------|-----|-----------|---------|

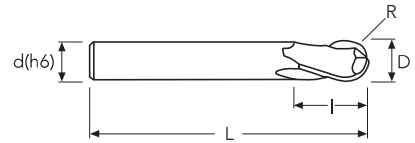


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

| | | | | | |
|---|---|---|---|---|---|
| P | M | K | N | S | H |
| ★ | ☆ | ★ | ☆ | | |

★ 1st choice ☆ suitable



| D | D Tol. | R | R Tol. | d(h6) | l | l1 | L | z | EDP No. | Stock |
|----|----------|------|----------|-------|----|----|-----|---|------------|-------|
| 3 | 0/-0.030 | 1.50 | 0/-0.020 | 3 | 5 | | 75 | 2 | MDTA250030 | ● |
| 4 | 0/-0.030 | 2.00 | 0/-0.020 | 4 | 8 | | 75 | 2 | MDTA250040 | ● |
| 5 | 0/-0.030 | 2.50 | 0/-0.020 | 5 | 9 | | 75 | 2 | MDTA250050 | ● |
| 6 | 0/-0.030 | 3.00 | 0/-0.020 | 6 | 10 | | 100 | 2 | MDTA250060 | ● |
| 8 | 0/-0.030 | 4.00 | 0/-0.020 | 8 | 12 | | 100 | 2 | MDTA250080 | ● |
| 10 | 0/-0.030 | 5.00 | 0/-0.020 | 10 | 14 | | 100 | 2 | MDTA250100 | ● |
| 12 | 0/-0.030 | 6.00 | 0/-0.020 | 12 | 16 | | 100 | 2 | MDTA250120 | ● |

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HF VH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ∇ stock exhaustion

CUTTING PARAMETERS

MDTA250

| Material Group ISO 513 | | P1 P2 K1 | P3 P4 P7 M1 K2 | P5 M2 K3 | N1 N2 N3 N4 |
|---------------------------|-----------------|------------------------|----------------------------|--------------------|--------------------|
| Hardness/Rm | | ≤700 N/mm ² | 600÷1000 N/mm ² | ≤35 HRC | |
| ap x ae | | 0.1D x 0.1D | 0.1D x 0.1D | 0.1D x 0.1D | 0.1D x 0.1D |
| Vc (m/min) | | 70÷90 | 50÷70 | 40÷50 | 100÷120 |
| D (mm) | D(eff.) (mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| 1 | 0.60 | 0.027 | 0.020 | 0.019 | 0.032 |
| 2 | 1.20 | 0.036 | 0.027 | 0.025 | 0.043 |
| 3 | 1.80 | 0.045 | 0.034 | 0.032 | 0.054 |
| 4 | 2.40 | 0.054 | 0.041 | 0.038 | 0.065 |
| 5 | 3.00 | 0.063 | 0.047 | 0.044 | 0.076 |
| 6 | 3.60 | 0.072 | 0.054 | 0.050 | 0.086 |
| 8 | 4.80 | 0.081 | 0.061 | 0.057 | 0.097 |
| 10 | 6.00 | 0.095 | 0.071 | 0.066 | 0.113 |
| 12 | 7.20 | 0.108 | 0.081 | 0.076 | 0.130 |



INFO

CARBIDE
DRILLS
 PU-HPU
 TA-4HTA
 SUH
 ALH
 HRC
 SUH-MINI
 HL
 HSD
 C-SD-TA
HSS
DRILLS
 LFTA
 SUTA
 HSS-HSS/CO
CARBIDE
END-MILLS
 G2
MDTA
 HF VH/UP
 MEF
 ALU
 MEX/MH
 UH/MH
HSS
END-MILLSCARBIDE
BURRS