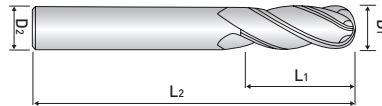


ZAMUS SUS MATE

XXB5xxA Series

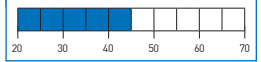
BALL / 4 FLUTES / VARIABLE HELIX / STUB & REGULAR /
TiAIN-SH COATING



TOLERANCE (inch)

$D1 = +0 / -0.0012$ (1/8 up to 1/4)
 $D1 = +0 / -0.0016$ (5/16 up to 3/8)
 $D1 = +0 / -0.002$ (1/2 up to 1)
 $D2 = h6$

HARDNESS (HRC)



| EDP NO. | Cutting Diameter (inch) | Cutting Length (inch) | Overall Length (inch) | Shank Diameter (inch) |
|--------------------|-------------------------|-----------------------|-----------------------|-----------------------|
| 4 Flute | | | | |
| TiAIN-SH | | | | |
| Variable Helix | | | | |
| XXB504A XXB524A | D1 | L1 | L2 | D2 |
| XXB504A008 | 1/8 | 1/2 | 2 | 1/8 |
| XXB504A012 | 3/16 | 5/8 | 2 1/4 | 3/16 |
| XXB524A016 | 1/4 | 3/8 | 4 | 1/4 |
| XXB504A016 | 1/4 | 3/4 | 2 1/2 | 1/4 |
| XXB504A020 | 5/16 | 3/4 | 2 1/2 | 5/16 |
| XXB524A024 | 3/8 | 1/2 | 4 | 3/8 |
| XXB504A024 | 3/8 | 7/8 | 2 1/2 | 3/8 |
| XXB524A032 | 1/2 | 5/8 | 5 | 1/2 |
| XXB504A032 | 1/2 | 1 | 3 | 1/2 |
| XXB504A033 | 1/2 | 1 1/4 | 3 1/4 | 1/2 |
| XXB524A041 | 5/8 | 3/4 | 6 | 5/8 |
| XXB504A040 | 5/8 | 1 1/4 | 3 1/2 | 5/8 |
| XXB524A049 | 3/4 | 1 | 6 | 3/4 |
| XXB504A048 | 3/4 | 1 1/2 | 4 | 3/4 |
| XXB504A064 | 1 | 1 1/2 | 4 | 1 |

ZAMUS SUS MATE > INCH

Applicable Working Material

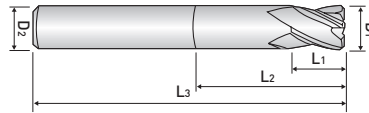
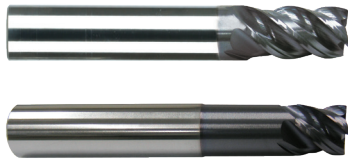
○ : GOOD ◎ : BEST

| SERIES | CARBON STEELS LOW (1010, 1018) | CARBON STEELS MED (1035, 1045) | CARBON STEELS HIGH (1065) | ALLOY STEELS (4140, 4340) | DIE STEELS | STAINLESS STEELS 300 | STAINLESS STEELS 400 | STAINLESS STEELS 17-4 PH | CAST IRON | ALUMINUM (6061, 7075) | ALUMINUM CASTINGS | NICKEL ALLOYS INCONEL | TITANIUM (6A14V) | HARDENED STEELS 35 HRC | HARDENED STEELS 35-45 HRC | HARDENED STEELS 45-50 HRC | HARDENED STEELS 50-70 HRC | MAGNESIUM | BRASS BRONZE | GRAPHITE | COBALT CHROME |
|--------|--------------------------------|--------------------------------|---------------------------|---------------------------|------------|----------------------|----------------------|--------------------------|-----------|-----------------------|-------------------|-----------------------|------------------|------------------------|---------------------------|---------------------------|---------------------------|-----------|--------------|----------|---------------|
| All | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | ◎ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

ZAMUS SUS MATE

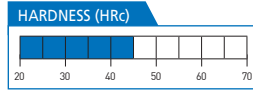
XXE5xxA Series

SQUARE / 4 FLUTE / VARIABLE HELIX / STUB & REGULAR /
TiAIN-SH COATING



TOLERANCE (inch)

D1 = +0 / -0.0012 (1/8 up to 1/4)
 D1 = +0 / -0.0016 (5/16 up to 3/8)
 D1 = +0 / -0.002 (1/2 up to 1)
 D2 = h6



ZAMUS SUS MATE > INCH

| EDP NO. | Cutting Diameter (inch) | Cutting Length (inch) | Neck Diameter (inch) | Neck Length (inch) | Overall Length (inch) | Shank Diameter (inch) |
|----------------|-------------------------|-----------------------|----------------------|--------------------|-----------------------|-----------------------|
| 4 Flute | | | | | | |
| TiAIN-SH | | | | | | |
| Variable Helix | | | | | | |
| XXE504A | D1 | L1 | L2 | L2 | L3 | D2 |
| XXE524A | | | | | | |
| XXE534A | | | | | | |
| XXE504A008 | 1/8 | 3/8 | - | - | 1 1/2 | 1/8 |
| XXE504A010 | 5/32 | 7/16 | - | - | 2 | 3/16 |
| XXE504A012 | 3/16 | 7/16 | - | - | 2 | 3/16 |
| XXE524A016 | 1/4 | 3/8 | - | - | 4 | 1/4 |
| XXE534A016 | 1/4 | 3/8 | 0.240 | 1 1/4 | 4 | 1/4 |
| XXE504A016 | 1/4 | 1/2 | - | - | 2 1/2 | 1/4 |
| XXE504A017 | 1/4 | 3/4 | - | - | 2 1/2 | 1/4 |
| XXE504A020 | 5/16 | 13/16 | - | - | 2 1/2 | 5/16 |
| XXE524A024 | 3/8 | 1/2 | - | - | 4 | 3/8 |
| XXE534A024 | 3/8 | 1/2 | 0.365 | 1 7/8 | 4 | 3/8 |
| XXE504A024 | 3/8 | 7/8 | - | - | 2 1/2 | 3/8 |
| XXE504A028 | 7/16 | 1 | - | - | 2 3/4 | 7/16 |
| XXE534A032 | 1/2 | 5/8 | 0.490 | 2 1/4 | 4 | 1/2 |
| XXE524A032 | 1/2 | 5/8 | - | - | 5 | 1/2 |
| XXE504A032 | 1/2 | 1 | - | - | 3 | 1/2 |
| XXE524A033 | 1/2 | 5/8 | - | - | 6 | 1/2 |
| XXE504A033 | 1/2 | 1 1/4 | - | - | 3 1/4 | 1/2 |
| XXE504A036 | 9/16 | 1 1/8 | - | - | 3 1/2 | 9/16 |
| XXE534A040 | 5/8 | 3/4 | 0.615 | 2 1/4 | 4 1/8 | 5/8 |
| XXE524A040 | 5/8 | 3/4 | - | - | 5 | 5/8 |
| XXE524A041 | 5/8 | 3/4 | - | - | 6 | 5/8 |
| XXE504A040 | 5/8 | 1 1/4 | - | - | 3 1/2 | 5/8 |
| XXE534A048 | 3/4 | 1 | 0.740 | 2 1/4 | 4 1/4 | 3/4 |
| XXE524A048 | 3/4 | 1 | - | - | 5 | 3/4 |
| XXE524A049 | 3/4 | 1 | - | - | 6 | 3/4 |
| XXE504A048 | 3/4 | 1 1/2 | - | - | 4 | 3/4 |
| XXE534A064 | 1 | 1 1/8 | 0.990 | 2 1/4 | 4 1/2 | 1 |
| XXE504A064 | 1 | 1 1/2 | - | - | 4 | 1 |

Applicable Working Material

○ : GOOD ◎ : BEST

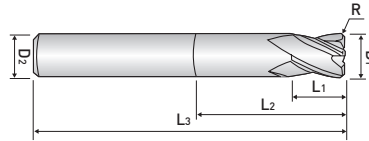
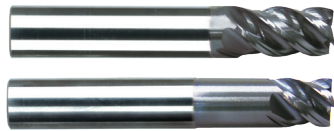
| SERIES | CARBON STEELS LOW (1010, 1018) | CARBON STEELS MED (1025, 1045) | CARBON STEELS HIGH (1065) | ALLOY STEELS (4140, 4340) | DIE STEELS | STAINLESS STEELS 300 | STAINLESS STEELS 400 | STAINLESS STEELS 17-4 PH | CAST IRON | ALUMINUM (6061, 7075) | ALUMINUM CASTINGS | NICKEL ALLOYS INCONEL | TITANIUM (6A14V) | HARDENED STEELS 35 HRC | HARDENED STEELS 35-45 HRC | HARDENED STEELS 45-50 HRC | HARDENED STEELS 50-70 HRC | MAGNESIUM | BRASS BRONZE | GRAPHITE | COBALT CHROME |
|--------|--------------------------------|--------------------------------|---------------------------|---------------------------|------------|----------------------|----------------------|--------------------------|-----------|-----------------------|-------------------|-----------------------|------------------|------------------------|---------------------------|---------------------------|---------------------------|-----------|--------------|----------|---------------|
| All | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | ◎ | | | | ○ | ○ | ○ | ○ | | | | ○ | | |

MILLING > INCH

ZAMUS SUS MATE

XXR5xxA Series

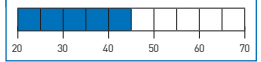
CORNER RADIUS / 4 FLUTE / VARIABLE HELIX /
STUB & REGULAR / TiAIN-SH COATING



TOLERANCE (inch)

$D_1 = +0 / -0.0012$ (1/8 up to 1/4)
 $D_1 = +0 / -0.0016$ (5/16 up to 3/8)
 $D_1 = +0 / -0.002$ (1/2 up to 1)
 $D_2 = h6$
 $R = \pm 0.001$

HARDNESS (HRc)



| EDP NO. | Cutting Diameter (inch) | Corner Radius (inch) | Cutting Length (inch) | Neck Length (inch) | Overall Length (inch) | Shank Diameter (inch) |
|----------------|-------------------------|----------------------|-----------------------|--------------------|-----------------------|-----------------------|
| 4 Flute | | | | | | |
| TiAIN-SH | | | | | | |
| Variable Helix | | | | | | |
| XXR504A | D1 | R | L1 | L2 | L3 | D2 |
| XXR504A008010 | 1/8 | 0.010 | 1/4 | - | 1 1/2 | 1/8 |
| XXR504A008015 | 1/8 | 0.015 | 3/8 | - | 1 1/2 | 1/8 |
| XXR514A008010 | 1/8 | 0.010 | 3/8 | - | 1 1/2 | 1/8 |
| XXR504A010010 | 5/32 | 0.010 | 5/16 | - | 2 | 3/16 |
| XXR504A012010 | 3/16 | 0.010 | 3/8 | - | 2 | 3/16 |
| XXR514A012015 | 3/16 | 0.015 | 7/16 | - | 2 | 3/16 |
| XXR524A016030 | 1/4 | 0.030 | 3/8 | - | 4 | 1/4 |
| XXR534A016015 | 1/4 | 0.015 | 3/8 | 1 1/4 | 4 | 1/4 |
| XXR504A016015 | 1/4 | 0.015 | 7/16 | - | 2 | 1/4 |
| XXR514A016015 | 1/4 | 0.015 | 1/2 | - | 2 1/2 | 1/4 |
| XXR514A016030 | 1/4 | 0.030 | 1/2 | - | 2 1/2 | 1/4 |
| XXR514A017015 | 1/4 | 0.015 | 3/4 | - | 2 1/2 | 1/4 |
| XXR514A017030 | 1/4 | 0.030 | 3/4 | - | 2 1/2 | 1/4 |
| XXR504A020020 | 5/16 | 0.020 | 1/2 | - | 2 | 5/16 |
| XXR514A020030 | 5/16 | 0.030 | 13/16 | - | 2 1/2 | 5/16 |
| XXR524A024030 | 3/8 | 0.030 | 1/2 | - | 4 | 3/8 |
| XXR534A024030 | 3/8 | 0.030 | 1/2 | 1 7/8 | 4 | 3/8 |
| XXR504A024020 | 3/8 | 0.020 | 5/8 | - | 2 | 3/8 |
| XXR514A024015 | 3/8 | 0.015 | 7/8 | - | 2 1/2 | 3/8 |
| XXR514A024030 | 3/8 | 0.030 | 7/8 | - | 2 1/2 | 3/8 |
| XXR504A032030 | 1/2 | 0.030 | 5/8 | - | 2 1/2 | 1/2 |
| XXR534A032020 | 1/2 | 0.020 | 5/8 | 2 1/4 | 4 | 1/2 |
| XXR524A032020 | 1/2 | 0.020 | 5/8 | - | 5 | 1/2 |
| XXR524A033030 | 1/2 | 0.030 | 5/8 | - | 6 | 1/2 |
| XXR514A032010 | 1/2 | 0.010 | 1 | - | 3 | 1/2 |
| XXR514A032020 | 1/2 | 0.020 | 1 | - | 3 | 1/2 |
| XXR514A032030 | 1/2 | 0.030 | 1 | - | 3 | 1/2 |
| XXR514A032030F | 1/2 | 0.030 | 1 | - | 3 | 1/2 |
| XXR514A032060 | 1/2 | 0.060 | 1 | - | 3 | 1/2 |
| XXR514A033010 | 1/2 | 0.010 | 1 1/4 | - | 3 1/4 | 1/2 |
| XXR514A033020 | 1/2 | 0.020 | 1 1/4 | - | 3 1/4 | 1/2 |
| XXR514A033030 | 1/2 | 0.030 | 1 1/4 | - | 3 1/4 | 1/2 |

Applicable Working Material

○ : GOOD ◎ : BEST

| SERIES | CARBON STEELS LOW (1010, 1018) | CARBON STEELS MED (1045, 1045) | CARBON STEELS HIGH (1045) | ALLOY STEELS (#140, 4340) | DIE STEELS | STAINLESS STEELS 300 | STAINLESS STEELS 400 | STAINLESS STEELS 17-4 PH | CAST IRON | ALUMINUM (6061, 7075) | ALUMINUM CASTINGS | NICKEL ALLOYS INCONNEL | TITANIUM (6A14V) | HARDENED STEELS 35 HRC | HARDENED STEELS 35-45 HRC | HARDENED STEELS 45-50 HRC | HARDENED STEELS 50-70 HRC | MAGNESIUM | BRASS BRONZE | GRAPHITE | COBALT CHROME |
|--------|--------------------------------|--------------------------------|---------------------------|---------------------------|------------|----------------------|----------------------|--------------------------|-----------|-----------------------|-------------------|------------------------|------------------|------------------------|---------------------------|---------------------------|---------------------------|-----------|--------------|----------|---------------|
| All | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | ◎ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

ZAMUS SUS MATE > INCH

| EDP NO. | Cutting Diameter (inch) | Corner Radius (inch) | Cutting Length (inch) | Neck Length (inch) | Overall Length (inch) | Shank Diameter (inch) |
|----------------|-------------------------|----------------------|-----------------------|--------------------|-----------------------|-----------------------|
| 4 Flute | | | | | | |
| TiAlN-SH | | | | | | |
| Variable Helix | | | | | | |
| XXR504A | D1 | R | L1 | L2 | L3 | D2 |
| XXR514A | | | | | | |
| XXR524A | | | | | | |
| XXR534A | | | | | | |
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ZAMUS SUS MATE > INCH

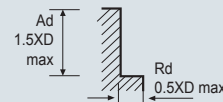
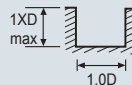
TECHNICAL DATA | ZAMUS SUS MATE |

XXB5xxA, XXE5xxA & XXR5xxA Series

| Work Material | Low Carbon Steels | | | | Medical Alloy Steels | | Mold & Die Steels | | Cast Iron Gray | | Cast Iron Ductile | |
|------------------------|-------------------|------|----------|------|----------------------|------|-------------------|------|----------------|------|-------------------|-----|
| Hardness | ≤ 175 HB | | ≤ 275 HB | | ≤ 275 HB | | ≤ 275 HB | | ≤ 200 HB | | ≤ 300 HB | |
| Cutting Diameter(inch) | RPM | FEED | RPM | FEED | RPM | FEED | RPM | FEED | RPM | FEED | FEED | RPM |
| 1/8 | 15,585 | 12 | 12,835 | 10 | 10,695 | 8 | 5,500 | 4 | 14,515 | 11 | 7,335 | 5 |
| 3/16 | 10,360 | 20 | 8,560 | 17 | 7,150 | 14 | 3,670 | 8 | 9,690 | 19 | 4,880 | 9 |
| 1/4 | 7,795 | 24 | 6,420 | 20 | 5,350 | 17 | 2,750 | 8 | 7,260 | 23 | 3,665 | 11 |
| 5/16 | 6,235 | 29 | 5,135 | 24 | 4,280 | 20 | 2,200 | 10 | 5,805 | 27 | 2,935 | 14 |
| 3/8 | 5,195 | 39 | 4,280 | 32 | 3,565 | 27 | 1,835 | 13 | 4,840 | 36 | 2,445 | 18 |
| 7/16 | 4,455 | 38 | 3,665 | 31 | 3,055 | 26 | 1,570 | 13 | 4,145 | 35 | 2,095 | 18 |
| 1/2 | 3,895 | 37 | 3,210 | 30 | 2,675 | 25 | 1,375 | 13 | 3,630 | 34 | 1,835 | 17 |
| 9/16 | 3,465 | 35 | 2,850 | 29 | 2,375 | 24 | 1,220 | 12 | 3,225 | 32 | 1,630 | 16 |
| 5/8 | 3,115 | 33 | 2,565 | 27 | 2,140 | 23 | 1,100 | 11 | 2,905 | 31 | 1,465 | 15 |
| 3/4 | 2,600 | 31 | 2,140 | 25 | 1,785 | 21 | 915 | 11 | 2,420 | 29 | 1,220 | 14 |
| 1 | 1,950 | 25 | 1,605 | 21 | 1,335 | 17 | 690 | 9 | 1,815 | 24 | 915 | 12 |

| Work Material | Cast Iron Malleable | | Stainless 300 Series | | Stainless 400 Series | | Stainless PH Series | | Titanium Alloys | | High Temp Alloys | |
|------------------------|---------------------|------|----------------------|------|----------------------|------|---------------------|------|-----------------|------|------------------|------|
| Hardness | ≤ 300 HB | | ≤ 275 HB | | ≤ 185 HB | | ≤ 232 HB | | ≤ 295 HB | | ≤ 300 HB | |
| Cutting Diameter(inch) | RPM | FEED | RPM | FEED | RPM | FEED | RPM | FEED | RPM | FEED | RPM | FEED |
| 1/8 | 4,585 | 4 | 9,170 | 7 | 12,835 | 10 | 7,640 | 5 | 9,170 | 9 | 2,445 | 2 |
| 3/16 | 3,070 | 6 | 6,080 | 12 | 8,550 | 17 | 5,080 | 10 | 6,080 | 14 | 1,600 | 3 |
| 1/4 | 2,290 | 7 | 4,585 | 14 | 6,420 | 22 | 3,820 | 12 | 4,585 | 16 | 1,220 | 3 |
| 5/16 | 1,835 | 8 | 3,665 | 16 | 5,135 | 25 | 3,055 | 14 | 3,665 | 18 | 980 | 4 |
| 3/8 | 1,530 | 11 | 3,055 | 16 | 4,280 | 25 | 2,545 | 14 | 3,055 | 18 | 815 | 4 |
| 7/16 | 1,310 | 11 | 2,620 | 16 | 3,665 | 25 | 2,185 | 14 | 2,620 | 18 | 700 | 4 |
| 1/2 | 1,145 | 11 | 2,290 | 16 | 3,210 | 25 | 1,910 | 14 | 2,290 | 18 | 610 | 4 |
| 9/16 | 1,020 | 10 | 2,035 | 20 | 2,850 | 29 | 1,700 | 17 | 2,035 | 20 | 545 | 6 |
| 5/8 | 915 | 9 | 1,835 | 16 | 2,565 | 25 | 1,530 | 14 | 1,835 | 18 | 490 | 4 |
| 3/4 | 765 | 9 | 1,520 | 15 | 2,410 | 22 | 1,275 | 12 | 1,520 | 16 | 400 | 4 |
| 1 | 575 | 7 | 1,145 | 15 | 1,605 | 22 | 955 | 12 | 1,145 | 16 | 305 | 3 |

RPM = rev. / min.
FEED = inch / min.



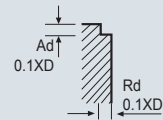
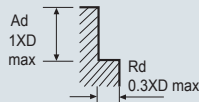
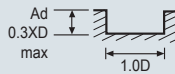
- ※ Use a rigid and precise machines and holders.
- ※ Use a suitable cutting oil.

ZAMUS SUS MATE > INCH

TECHNICAL DATA | ZAMUS SUS MATE |

| End Cutting / Feed Speed | Slotting | | Side Milling | | High Speed Cutting | |
|--------------------------|-----------------|------|-----------------|------|--------------------|------|
| Work Material | Hardened Steels | | Hardened Steels | | Hardened Steels | |
| Hardness | 30 ~ 45 HRC | | 30 ~ 45 HRC | | 30 ~ 45 HRC | |
| Cutting Diameter(inch) | RPM | FEED | RPM | FEED | RPM | FEED |
| 1/8 | 6,573 | 16 | 6,573 | 16 | 17,121 | 75 |
| 3/16 | 4,382 | 16 | 4,382 | 16 | 11,414 | 78 |
| 1/4 | 3,287 | 17 | 3,287 | 17 | 8,561 | 75 |
| 5/16 | 2,629 | 17 | 2,629 | 17 | 6,848 | 77 |
| 3/8 | 2,191 | 17 | 2,191 | 17 | 5,707 | 75 |
| 7/16 | 1,878 | 17 | 1,878 | 17 | 4,892 | 76 |
| 1/2 | 1,643 | 16 | 1,643 | 16 | 4,280 | 75 |
| 9/16 | 1,461 | 16 | 1,461 | 16 | 3,805 | 75 |
| 5/8 | 1,315 | 16 | 1,315 | 16 | 3,424 | 75 |
| 3/4 | 1,096 | 17 | 1,096 | 17 | 2,854 | 75 |
| 1 | 822 | 16 | 822 | 16 | 2,140 | 73 |

RPM = rev. / min.
FEED = inch / min.



- ※ Use a rigid and precise machines and holders.
- ※ Use a suitable cutting oil.