

mitsubishi

MITSUBISHI CARBIDE

Fraises monobloc revêtues CRN

B003F

CRN

Extension de la gamme des fraises revêtues CRN (Nitrure de chrome), usinage des électrodes de cuivre

Nouveau

**La gamme
s'agrandit !**

Nouveau

CRN2XLRB

CRN2MRB



Fraises monobloc pour l'usinage des électrodes de cuivre.

CRN

Extension de série. Les fraises toriques sont désormais incluses. Un grand choix de produits : 308 dimensions - 7 types.



Caractéristiques

Adhésion et dureté importantes

Le revêtement CRN (Nitrure de chrome) se caractérise par une plus grande dureté et confère une meilleure adhésion au substrat.

L'effet de cette technologie est une meilleure résistance à l'usure à haute température tout en préservant l'acuité d'arête : indispensable à l'usinage du cuivre.

Qualité d'enrobage

Le tableau ci-contre montre les excellentes propriétés d'adhésion et d'enrobage du revêtement CRN en usinage à hautes vitesses. Il en résulte une durée de vie plus importante ainsi qu'un excellent état de surface par rapport aux produits conventionnels.

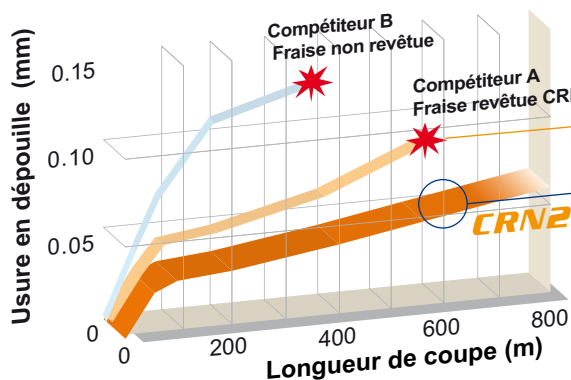
| | CRN | (Al,Ti)N | Carbure |
|-------------|------|----------|---------|
| Dureté (HV) | 2000 | 2800 | 1500 |
| Adhésion | 80 | 80 | - |

Adhésion : mesuré par tests d'efforts de rupture

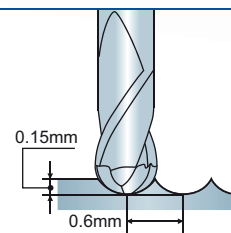


Exemple d'application 1

Excellent état de surface



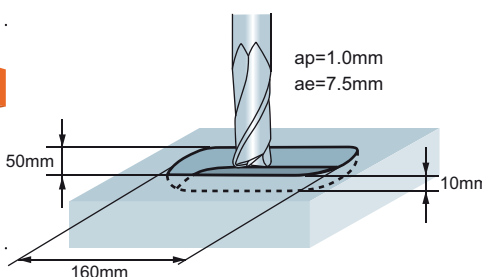
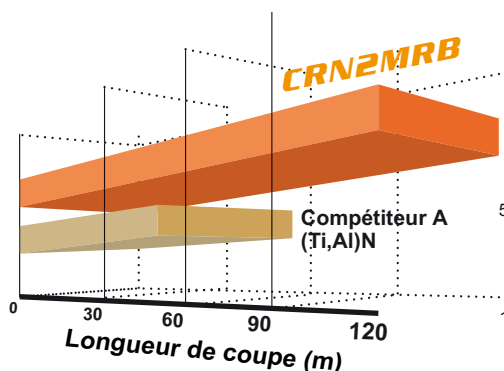
Compétiteur A



| | |
|---------------------|----------------------------------|
| Fraise | CRN2MB R3 |
| Matière | Cuivre |
| Vitesse de rotation | 13000min ⁻¹ (77m/min) |
| Avance/dent | 3900mm/min (0.15mm/dent) |
| Méthode de coupe | Fraisage en avalant, air pulsé |

Exemple d'application 2

Excellente durée de vie



| | |
|---------------------|----------------------------------|
| Fraise | CRN2MRB $\phi 10 \times R0.5$ |
| Matière | Cuivre |
| Vitesse de rotation | 4500min ⁻¹ (141m/min) |
| Avance/dent | 900mm/min (0.1mm/dent) |
| Méthode de coupe | Contournage, avec arrosage |

CRN2MS

Fraise à rainurer, série moyenne, 2 dents

$\phi 0.2 - \phi 12$

35 dimensions disponibles



CRN4JC

Fraise à rainurer, série semi longue, 4 dents

$\phi 3 - \phi 12$

7 dimensions disponibles



CRN2XL

Fraise à rainurer, série longue, 2 dents

$\phi 0.2 - \phi 6$

68 dimensions disponibles



CRN2MB

Fraise hémisphérique, série moyenne, 2 dents

R0.2 - R6

22 dimensions disponibles



CRN2XLB

Fraise hémisphérique à rainurer, série longue, 2 dents

R0.1 - R3

118 dimensions disponibles



CRN2MRB

Fraise torique à rainurer, série moyenne, 2 dents

Nouveau

$\phi 6 \times R0.2 - \phi 12 \times R1$

13 dimensions disponibles



CRN2XLRB

Fraise torique à rainurer, série courte, coupe longue, 2 dents

Nouveau

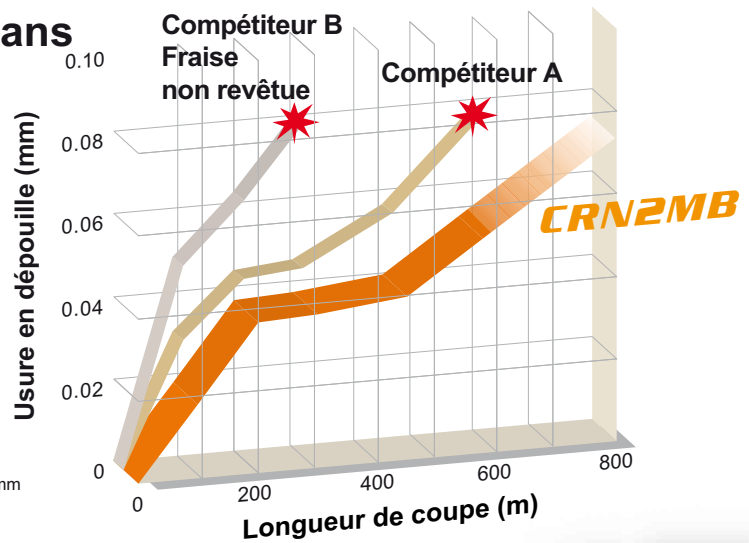
$\phi 0.5 \times R0.05 - \phi 6 \times R1$

45 dimensions disponibles

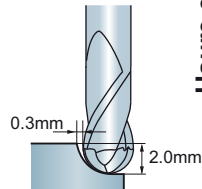


Exemple d'application 3

Comparatif : performances sans arrosage à haute vitesse



| | |
|---------------------|-----------------------------------|
| Fraise | CRN-2MB R3 |
| Matière | Cuivre |
| Vitesse de rotation | 13000min ⁻¹ (231m/min) |
| Avance | 2600mm/min (0.1mm/dent) |
| Méthode de coupe | Fraisage en avalant, air pulsé |

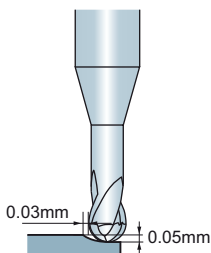
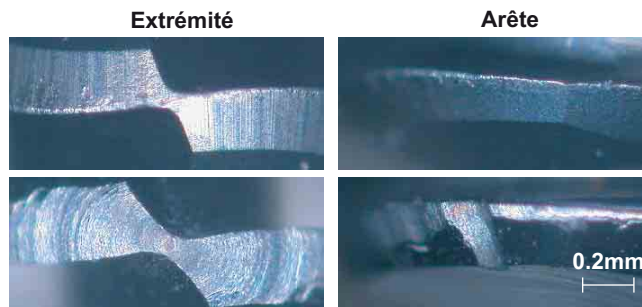


Exemple d'application 4

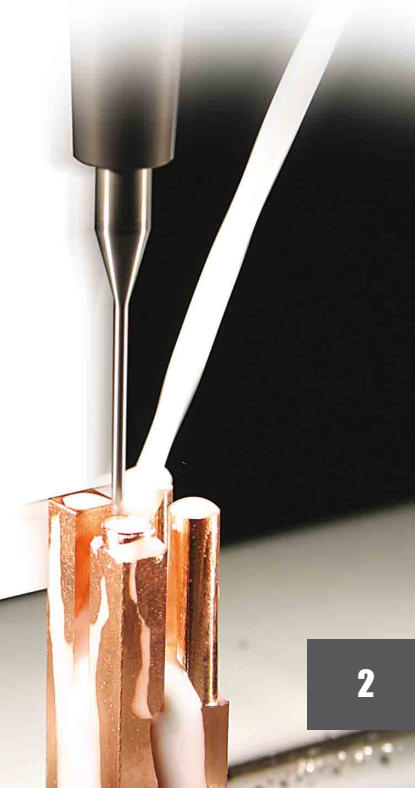
Comparatif : performances avec arrosage

CRN2XLB

Compétiteur A



| | |
|---------------------|--------------------------------------|
| Fraise | CRN2XLB R1 |
| Matière | Cuivre |
| Vitesse de rotation | 16000min ⁻¹ (MAX101m/min) |
| Avance | 1600mm/min (0.05mm/dent) |
| Conditions de coupe | Fraisage en avalant, avec arrosage |



FRAISES DEUX TAILLES REVÊTUES CRN

CRN2MS

Fraise 2 tailles, lg de coupe moyenne, 2 dents



0 - -0.02

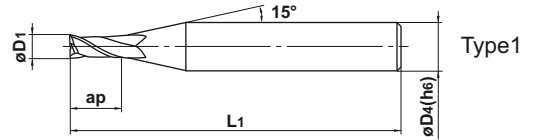


4 ≤ D4 ≤ 6 0 - -0.008

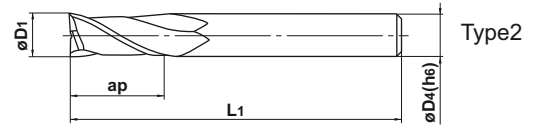
8 ≤ D4 ≤ 10 0 - -0.009

D4 = 12 0 - -0.011

| | | | | | | | |
|---------------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|---------------------------------------|-----------------------|----------------------|
| Acier Carbone, Alliage Acier (<30HRC) | Acier Pré-traité (≤45HRC) | Acier Traité (≤55HRC) | Acier Traité (>55HRC) | Acier Inoxydable Austénitique | Alliage Titane, Alliages Réfractaires | Alliages Cuivre ++ | Aluminium Moule + |
|---------------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|---------------------------------------|-----------------------|----------------------|



Type1



Type2



D1 < 3

D1 ≥ 3

- Fraise deux tailles, 2 dents avec revêtement CRN pour l'usinage d'électrodes de cuivre, et matières non-ferreuses.

Unité : mm

| Référence | Dia. | Longueur taillée | Longueur totale | Diamètre corps | Nombre de dents N | Stock | Type |
|----------------|------|------------------|-----------------|----------------|-------------------|-------|------|
| | D1 | ap | L1 | D4 | | | |
| CRN2MSD0020S04 | 0.2 | 0.4 | 40 | 4 | 2 | ● | 1 |
| D0020S06 | 0.2 | 0.4 | 45 | 6 | 2 | ● | 1 |
| D0030S04 | 0.3 | 0.6 | 40 | 4 | 2 | ● | 1 |
| D0030S06 | 0.3 | 0.6 | 45 | 6 | 2 | ● | 1 |
| D0040S04 | 0.4 | 0.8 | 40 | 4 | 2 | ● | 1 |
| D0040S06 | 0.4 | 0.8 | 45 | 6 | 2 | ● | 1 |
| D0050S04 | 0.5 | 1 | 40 | 4 | 2 | ● | 1 |
| D0050S06 | 0.5 | 1 | 45 | 6 | 2 | ● | 1 |
| D0060S04 | 0.6 | 1.2 | 40 | 4 | 2 | ● | 1 |
| D0070S04 | 0.7 | 1.4 | 40 | 4 | 2 | ● | 1 |
| D0080S04 | 0.8 | 1.6 | 40 | 4 | 2 | ● | 1 |
| D0080S06 | 0.8 | 1.6 | 45 | 6 | 2 | ● | 1 |
| D0090S04 | 0.9 | 2 | 40 | 4 | 2 | ● | 1 |
| D0100S04 | 1 | 2.5 | 40 | 4 | 2 | ● | 1 |
| D0100S06 | 1 | 2.5 | 45 | 6 | 2 | ● | 1 |
| D0110S04 | 1.1 | 2.5 | 40 | 4 | 2 | ● | 1 |
| D0120S04 | 1.2 | 3 | 40 | 4 | 2 | ● | 1 |
| D0120S06 | 1.2 | 3 | 45 | 6 | 2 | ● | 1 |
| D0130S04 | 1.3 | 3 | 40 | 4 | 2 | ● | 1 |
| D0140S04 | 1.4 | 3 | 40 | 4 | 2 | ● | 1 |
| D0150S04 | 1.5 | 4 | 40 | 4 | 2 | ● | 1 |
| D0150S06 | 1.5 | 4 | 45 | 6 | 2 | ● | 1 |
| D0160S04 | 1.6 | 4 | 40 | 4 | 2 | ● | 1 |
| D0170S04 | 1.7 | 4 | 40 | 4 | 2 | ● | 1 |
| D0180S04 | 1.8 | 5 | 40 | 4 | 2 | ● | 1 |
| D0190S04 | 1.9 | 5 | 40 | 4 | 2 | ● | 1 |
| D0200S06 | 2 | 6 | 45 | 6 | 2 | ● | 1 |
| D0250S06 | 2.5 | 8 | 45 | 6 | 2 | ● | 1 |
| D0300S06 | 3 | 8 | 45 | 6 | 2 | ● | 1 |
| D0400S06 | 4 | 11 | 45 | 6 | 2 | ● | 1 |
| D0500S06 | 5 | 13 | 50 | 6 | 2 | ● | 1 |
| D0600S06 | 6 | 13 | 50 | 6 | 2 | ● | 2 |
| D0800S08 | 8 | 19 | 60 | 8 | 2 | ● | 2 |
| D1000S10 | 10 | 22 | 70 | 10 | 2 | ● | 2 |
| D1200S12 | 12 | 26 | 75 | 12 | 2 | ● | 2 |

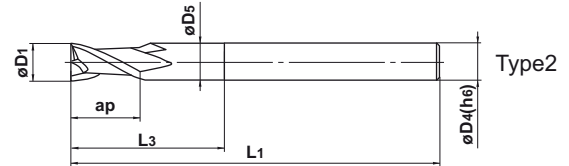
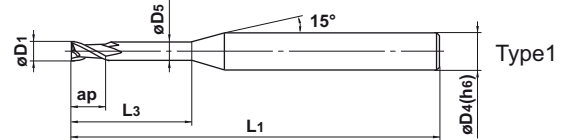
CRN2XL

Fraise 2 tailles, lg de coupe courte, 2 dents, dégagement long



4 ≤ D4 ≤ 6 0 - -0.008

| | | | | | | | |
|---------------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|---------------------------------------|-----------------------|----------------------|
| Acier Carbone, Alliage Acier (<30HRC) | Acier Pré-traité (≤45HRC) | Acier Traité (≤55HRC) | Acier Traité (>55HRC) | Acier Inoxydable Austénitique | Alliage Titane, Alliages Réfractaires | Alliages Cuivre ++ | Aluminium Moule + |
|---------------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|---------------------------------------|-----------------------|----------------------|



● Fraise 2 tailles, dégagement long, revêtu CRN pour l'usinage d'électrodes de cuivre, et matières non-ferreuses.

Unité : mm

| Référence | Dia. D1 | Longueur taillée ap | Longueur utile L3 | Diamètre détalonné D5 | Longueur totale L1 | Diamètre corps D4 | Nombre de dents N | Stock | Type |
|--------------------|---------|---------------------|-------------------|-----------------------|--------------------|-------------------|-------------------|-------|------|
| CRN2XLD0020N005S04 | 0.2 | 0.3 | 0.5 | 0.17 | 50 | 4 | 2 | ● | 1 |
| D0020N005S06 | 0.2 | 0.3 | 0.5 | 0.17 | 50 | 6 | 2 | ● | 1 |
| D0020N010S04 | 0.2 | 0.3 | 1 | 0.17 | 50 | 4 | 2 | ● | 1 |
| D0020N010S06 | 0.2 | 0.3 | 1 | 0.17 | 50 | 6 | 2 | ● | 1 |
| D0020N015S04 | 0.2 | 0.3 | 1.5 | 0.17 | 50 | 4 | 2 | ● | 1 |
| D0020N015S06 | 0.2 | 0.3 | 1.5 | 0.17 | 50 | 6 | 2 | ● | 1 |
| D0030N010S04 | 0.3 | 0.5 | 1 | 0.27 | 50 | 4 | 2 | ● | 1 |
| D0030N010S06 | 0.3 | 0.5 | 1 | 0.27 | 50 | 6 | 2 | ● | 1 |
| D0030N030S04 | 0.3 | 0.5 | 3 | 0.27 | 50 | 4 | 2 | ● | 1 |
| D0030N030S06 | 0.3 | 0.5 | 3 | 0.27 | 50 | 6 | 2 | ● | 1 |
| D0040N020S04 | 0.4 | 0.6 | 2 | 0.36 | 50 | 4 | 2 | ● | 1 |
| D0040N020S06 | 0.4 | 0.6 | 2 | 0.36 | 50 | 6 | 2 | ● | 1 |
| D0040N040S04 | 0.4 | 0.6 | 4 | 0.36 | 50 | 4 | 2 | ● | 1 |
| D0040N040S06 | 0.4 | 0.6 | 4 | 0.36 | 50 | 6 | 2 | ● | 1 |
| D0040N060S04 | 0.4 | 0.6 | 6 | 0.36 | 50 | 4 | 2 | ● | 1 |
| D0040N060S06 | 0.4 | 0.6 | 6 | 0.36 | 50 | 6 | 2 | ● | 1 |
| D0050N020S04 | 0.5 | 0.8 | 2 | 0.46 | 50 | 4 | 2 | ● | 1 |
| D0050N020S06 | 0.5 | 0.8 | 2 | 0.46 | 50 | 6 | 2 | ● | 1 |
| D0050N040S04 | 0.5 | 0.8 | 4 | 0.46 | 50 | 4 | 2 | ● | 1 |
| D0050N040S06 | 0.5 | 0.8 | 4 | 0.46 | 50 | 6 | 2 | ● | 1 |
| D0050N060S04 | 0.5 | 0.8 | 6 | 0.46 | 50 | 4 | 2 | ● | 1 |
| D0050N060S06 | 0.5 | 0.8 | 6 | 0.46 | 50 | 6 | 2 | ● | 1 |
| D0050N080S04 | 0.5 | 0.8 | 8 | 0.46 | 50 | 4 | 2 | ● | 1 |
| D0050N080S06 | 0.5 | 0.8 | 8 | 0.46 | 50 | 6 | 2 | ● | 1 |
| D0080N040S04 | 0.8 | 1.2 | 4 | 0.76 | 50 | 4 | 2 | ● | 1 |
| D0080N040S06 | 0.8 | 1.2 | 4 | 0.76 | 50 | 6 | 2 | ● | 1 |
| D0080N060S04 | 0.8 | 1.2 | 6 | 0.76 | 50 | 4 | 2 | ● | 1 |
| D0080N060S06 | 0.8 | 1.2 | 6 | 0.76 | 50 | 6 | 2 | ● | 1 |
| D0080N080S04 | 0.8 | 1.2 | 8 | 0.76 | 50 | 4 | 2 | ● | 1 |
| D0080N080S06 | 0.8 | 1.2 | 8 | 0.76 | 50 | 6 | 2 | ● | 1 |
| D0080N100S04 | 0.8 | 1.2 | 10 | 0.76 | 50 | 4 | 2 | ● | 1 |
| D0080N100S06 | 0.8 | 1.2 | 10 | 0.76 | 50 | 6 | 2 | ● | 1 |
| D0100N060S04 | 1 | 1.5 | 6 | 0.94 | 50 | 4 | 2 | ● | 1 |
| D0100N060S06 | 1 | 1.5 | 6 | 0.94 | 50 | 6 | 2 | ● | 1 |
| D0100N080S04 | 1 | 1.5 | 8 | 0.94 | 50 | 4 | 2 | ● | 1 |
| D0100N080S06 | 1 | 1.5 | 8 | 0.94 | 50 | 6 | 2 | ● | 1 |
| D0100N100S04 | 1 | 1.5 | 10 | 0.94 | 50 | 4 | 2 | ● | 1 |
| D0100N100S06 | 1 | 1.5 | 10 | 0.94 | 50 | 6 | 2 | ● | 1 |

● : Article stocké.

FRAISES DEUX TAILLES REVÊTUES CRN

CRN2XL

Fraise 2 tailles, lg de coupe courte, 2 dents, dégagement long



0 - -0.02



h6

4 ≤ D4 ≤ 6 0 - -0.008

Unité : mm

| Référence | Dia. D1 | Longueur taillée ap | Longueur utile L3 | Diamètre détalonné D5 | Longueur totale L1 | Diamètre corps D4 | Nombre de dents N | Stock | Type |
|--------------------|------------|---------------------------|-------------------------|-----------------------------|--------------------------|-------------------------|-------------------------|-------|------|
| CRN2XLD0100N120S04 | 1 | 1.5 | 12 | 0.94 | 50 | 4 | 2 | ● | 1 |
| D0100N120S06 | 1 | 1.5 | 12 | 0.94 | 50 | 6 | 2 | ● | 1 |
| D0100N160S04 | 1 | 1.5 | 16 | 0.94 | 55 | 4 | 2 | ● | 1 |
| D0100N160S06 | 1 | 1.5 | 16 | 0.94 | 55 | 6 | 2 | ● | 1 |
| D0150N060S04 | 1.5 | 2.3 | 6 | 1.44 | 50 | 4 | 2 | ● | 1 |
| D0150N060S06 | 1.5 | 2.3 | 6 | 1.44 | 50 | 6 | 2 | ● | 1 |
| D0150N080S04 | 1.5 | 2.3 | 8 | 1.44 | 50 | 4 | 2 | ● | 1 |
| D0150N080S06 | 1.5 | 2.3 | 8 | 1.44 | 50 | 6 | 2 | ● | 1 |
| D0150N100S04 | 1.5 | 2.3 | 10 | 1.44 | 50 | 4 | 2 | ● | 1 |
| D0150N100S06 | 1.5 | 2.3 | 10 | 1.44 | 50 | 6 | 2 | ● | 1 |
| D0150N120S04 | 1.5 | 2.3 | 12 | 1.44 | 50 | 4 | 2 | ● | 1 |
| D0150N120S06 | 1.5 | 2.3 | 12 | 1.44 | 50 | 6 | 2 | ● | 1 |
| D0150N160S04 | 1.5 | 2.3 | 16 | 1.44 | 55 | 4 | 2 | ● | 1 |
| D0150N160S06 | 1.5 | 2.3 | 16 | 1.44 | 55 | 6 | 2 | ● | 1 |
| D0150N200S04 | 1.5 | 2.3 | 20 | 1.44 | 60 | 4 | 2 | ● | 1 |
| D0150N200S06 | 1.5 | 2.3 | 20 | 1.44 | 60 | 6 | 2 | ● | 1 |
| D0200N060S06 | 2 | 3.0 | 6 | 1.90 | 50 | 6 | 2 | ● | 1 |
| D0200N080S06 | 2 | 3.0 | 8 | 1.90 | 50 | 6 | 2 | ● | 1 |
| D0200N100S06 | 2 | 3.0 | 10 | 1.90 | 50 | 6 | 2 | ● | 1 |
| D0200N120S06 | 2 | 3.0 | 12 | 1.90 | 50 | 6 | 2 | ● | 1 |
| D0200N160S06 | 2 | 3.0 | 16 | 1.90 | 55 | 6 | 2 | ● | 1 |
| D0200N200S06 | 2 | 3.0 | 20 | 1.90 | 60 | 6 | 2 | ● | 1 |
| D0250N080S06 | 2.5 | 3.8 | 8 | 2.40 | 50 | 6 | 2 | ● | 1 |
| D0250N120S06 | 2.5 | 3.8 | 12 | 2.40 | 55 | 6 | 2 | ● | 1 |
| D0250N160S06 | 2.5 | 3.8 | 16 | 2.40 | 60 | 6 | 2 | ● | 1 |
| D0250N200S06 | 2.5 | 3.8 | 20 | 2.40 | 65 | 6 | 2 | ● | 1 |
| D0300N200S06 | 3 | 4.5 | 20 | 2.90 | 65 | 6 | 2 | ● | 1 |
| D0400N200S06 | 4 | 6.0 | 20 | 3.90 | 65 | 6 | 2 | ● | 1 |
| D0500N250S06 | 5 | 7.5 | 25 | 4.90 | 70 | 6 | 2 | ● | 1 |
| D0600N300S06 | 6 | 9.0 | 30 | 5.85 | 70 | 6 | 2 | ● | 2 |

CRN4JC

Fraise 2 tailles, lg de coupe semi-longue, 4 dents



0 -0.02

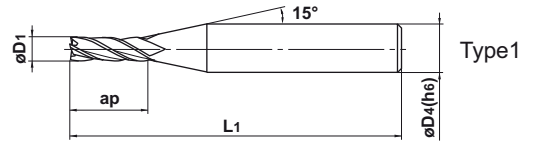


D4 = 6 0 - -0.008

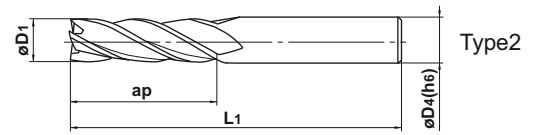
8 ≤ D4 ≤ 10 0 - -0.009

D4 = 12 0 - -0.011

| | | | | | | | |
|---------------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|---------------------------------------|-----------------------|----------------------|
| Acier Carbone, Alliage Acier (<30HRC) | Acier Pré-traité (≤45HRC) | Acier Traité (≤55HRC) | Acier Traité (>55HRC) | Acier Inoxydable Austénitique | Alliage Titane, Alliages Réfractaires | Alliages Cuivre ++ | Aluminium Moule + |
|---------------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|---------------------------------------|-----------------------|----------------------|



Type1



Type2



- Fraise deux tailles, 4 dents avec revêtement CRN pour l'usinage d'électrodes de cuivre, et matières non-ferreuses.

Unité : mm

| Référence | Dia. | Longueur taillée | Longueur totale | Diamètre corps | Nombre de dents N | Stock | Type |
|-------------|------|------------------|-----------------|----------------|-------------------|-------|------|
| | D1 | ap | L1 | D4 | | | |
| CRN4JCD0300 | 3 | 12 | 50 | 6 | 4 | ● | 1 |
| D0400 | 4 | 15 | 50 | 6 | 4 | ● | 1 |
| D0500 | 5 | 20 | 60 | 6 | 4 | ● | 1 |
| D0600 | 6 | 20 | 60 | 6 | 4 | ● | 2 |
| D0800 | 8 | 25 | 70 | 8 | 4 | ● | 2 |
| D1000 | 10 | 30 | 90 | 10 | 4 | ● | 2 |
| D1200 | 12 | 30 | 90 | 12 | 4 | ● | 2 |

FRAISES DEUX TAILLES REVÊTUES CRN

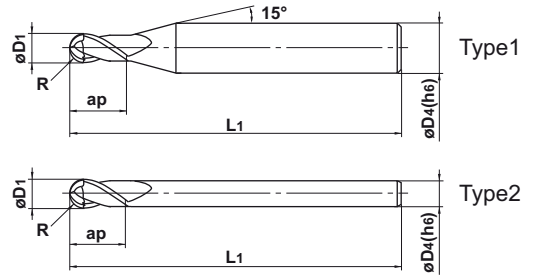
CRN2MB

Fraise hémisphérique, lg de coupe moyenne, 2 dents



| | |
|-------------|------------|
| D4 = 3 | 0 - -0.006 |
| 4 ≤ D4 ≤ 6 | 0 - -0.008 |
| 8 ≤ D4 ≤ 10 | 0 - -0.009 |
| D4 = 12 | 0 - -0.011 |

| | | | | | | | |
|---------------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|---------------------------------------|-----------------|-----------------|
| Acier Carbone, Alliage Acier (<30HRC) | Acier Pré-traité (≤45HRC) | Acier Traité (≤55HRC) | Acier Traité (>55HRC) | Acier Inoxydable Austénitique | Alliage Titane, Alliages Réfractaires | Alliages Cuivre | Aluminium Moulé |
| | | | | | | ++ | + |



● Fraise deux tailles, 4 dents avec revêtement CRN pour l'usinage d'électrodes de cuivre, et matières non-ferreuses.

Unité : mm

| Référence | Rayon R | Dia. D1 | Longueur taillée ap | Longueur totale L1 | Diamètre corps D4 | Nombre de dents N | Stock | Type |
|----------------|------------|------------|---------------------------|--------------------------|-------------------------|-------------------------|-------|------|
| CRN2MBR0020S04 | 0.2 | 0.4 | 0.8 | 45 | 4 | 2 | ● | 1 |
| R0020S06 | 0.2 | 0.4 | 0.8 | 50 | 6 | 2 | ● | 1 |
| R0030S04 | 0.3 | 0.6 | 1.2 | 45 | 4 | 2 | ● | 1 |
| R0030S06 | 0.3 | 0.6 | 1.2 | 50 | 6 | 2 | ● | 1 |
| R0040S04 | 0.4 | 0.8 | 1.6 | 45 | 4 | 2 | ● | 1 |
| R0040S06 | 0.4 | 0.8 | 1.6 | 50 | 6 | 2 | ● | 1 |
| R0050S04 | 0.5 | 1 | 2.5 | 45 | 4 | 2 | ● | 1 |
| R0050S06 | 0.5 | 1 | 2.5 | 50 | 6 | 2 | ● | 1 |
| R0075S04 | 0.75 | 1.5 | 4 | 45 | 4 | 2 | ● | 1 |
| R0075S06 | 0.75 | 1.5 | 4 | 50 | 6 | 2 | ● | 1 |
| R0100S06 | 1 | 2 | 6 | 50 | 6 | 2 | ● | 1 |
| R0125S06 | 1.25 | 2.5 | 6 | 50 | 6 | 2 | ● | 1 |
| R0150S03 | 1.5 | 3 | 8 | 70 | 3 | 2 | ● | 2 |
| R0150S06 | 1.5 | 3 | 8 | 70 | 6 | 2 | ● | 1 |
| R0175S06 | 1.75 | 3.5 | 8 | 70 | 6 | 2 | ● | 1 |
| R0200S04 | 2 | 4 | 8 | 70 | 4 | 2 | ● | 2 |
| R0200S06 | 2 | 4 | 8 | 70 | 6 | 2 | ● | 1 |
| R0250S06 | 2.5 | 5 | 12 | 80 | 6 | 2 | ● | 1 |
| R0300S06 | 3 | 6 | 12 | 80 | 6 | 2 | ● | 2 |
| R0400S08 | 4 | 8 | 14 | 90 | 8 | 2 | ● | 2 |
| R0500S10 | 5 | 10 | 18 | 100 | 10 | 2 | ● | 2 |
| R0600S12 | 6 | 12 | 22 | 110 | 12 | 2 | ● | 2 |

CRN2XLB

Fraise hémisphérique, lg de coupe courte, 2 dents, dégagement long

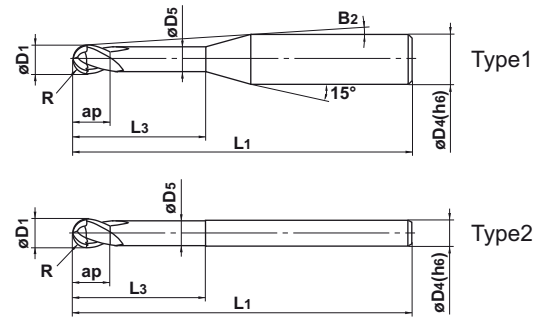
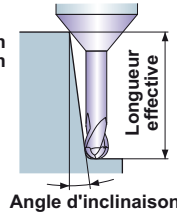


4 ≤ D4 ≤ 6 0 - -0.008

| | | | | | | | |
|---------------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|---------------------------------------|-----------------------|----------------------|
| Acier Carbone, Alliage Acier (<30HRC) | Acier Pré-traité (≤45HRC) | Acier Traité (≤55HRC) | Acier Traité (>55HRC) | Acier Inoxydable Austénitique | Alliage Titane, Alliages Réfractaires | Alliages Cuivre ++ | Aluminium Moule + |
|---------------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|---------------------------------------|-----------------------|----------------------|



Longueur effective selon l'angle d'inclinaison



Fraise hémisphérique à rainurer, dégagement long, 2 dents avec revêtement CRN pour l'usinage d'électrodes de cuivre, et matières non-ferreuses.

Unité : mm

| Référence | Rayon R | Dia. D1 | Longueur taillée ap | Longueur utile L3 | Diamètre détalonné D5 | Conicité B2 | Longueur totale L1 | Diamètre corps D4 | Nombre de dents N | Stock | Type | Longueur effective selon l'angle d'inclinaison | | | |
|----------------------|---------|---------|---------------------|-------------------|-----------------------|-------------|--------------------|-------------------|-------------------|-------|------|--|------|------|------|
| | | | | | | | | | | | | 30° | 1° | 2° | 3° |
| CRN2XLB R0010N005S04 | 0.1 | 0.2 | 0.2 | 0.5 | 0.17 | 14.1° | 50 | 4 | 2 | ● | 1 | 0.5 | 0.5 | 0.6 | 0.6 |
| R0010N005S06 | 0.1 | 0.2 | 0.2 | 0.5 | 0.17 | 14.4° | 50 | 6 | 2 | ● | 1 | 0.5 | 0.5 | 0.6 | 0.6 |
| R0010N010S04 | 0.1 | 0.2 | 0.2 | 1 | 0.17 | 13.3° | 50 | 4 | 2 | ● | 1 | 1 | 1.1 | 1.2 | 1.3 |
| R0010N010S06 | 0.1 | 0.2 | 0.2 | 1 | 0.17 | 13.8° | 50 | 6 | 2 | ● | 1 | 1 | 1.1 | 1.2 | 1.3 |
| R0010N015S04 | 0.1 | 0.2 | 0.2 | 1.5 | 0.17 | 12.5° | 50 | 4 | 2 | ● | 1 | 1.5 | 1.6 | 1.7 | 1.9 |
| R0010N015S06 | 0.1 | 0.2 | 0.2 | 1.5 | 0.17 | 13.3° | 50 | 6 | 2 | ● | 1 | 1.5 | 1.6 | 1.7 | 1.9 |
| R0015N010S04 | 0.15 | 0.3 | 0.3 | 1 | 0.27 | 13.3° | 50 | 4 | 2 | ● | 1 | 1 | 1.1 | 1.2 | 1.3 |
| R0015N010S06 | 0.15 | 0.3 | 0.3 | 1 | 0.27 | 13.9° | 50 | 6 | 2 | ● | 1 | 1 | 1.1 | 1.2 | 1.3 |
| R0015N015S04 | 0.15 | 0.3 | 0.3 | 1.5 | 0.27 | 12.5° | 50 | 4 | 2 | ● | 1 | 1.5 | 1.6 | 1.7 | 1.9 |
| R0015N015S06 | 0.15 | 0.3 | 0.3 | 1.5 | 0.27 | 13.3° | 50 | 6 | 2 | ● | 1 | 1.5 | 1.6 | 1.7 | 1.9 |
| R0015N020S04 | 0.15 | 0.3 | 0.3 | 2 | 0.27 | 11.9° | 50 | 4 | 2 | ● | 1 | 2.1 | 2.2 | 2.3 | 2.5 |
| R0015N020S06 | 0.15 | 0.3 | 0.3 | 2 | 0.27 | 12.8° | 50 | 6 | 2 | ● | 1 | 2.1 | 2.2 | 2.3 | 2.5 |
| R0020N010S04 | 0.2 | 0.4 | 0.4 | 1 | 0.36 | 13.4° | 50 | 4 | 2 | ● | 1 | 1 | 1 | 1.1 | 1.2 |
| R0020N010S06 | 0.2 | 0.4 | 0.4 | 1 | 0.36 | 13.9° | 50 | 6 | 2 | ● | 1 | 1 | 1 | 1.1 | 1.2 |
| R0020N015S04 | 0.2 | 0.4 | 0.4 | 1.5 | 0.36 | 12.6° | 50 | 4 | 2 | ● | 1 | 1.5 | 1.6 | 1.7 | 1.8 |
| R0020N015S06 | 0.2 | 0.4 | 0.4 | 1.5 | 0.36 | 13.4° | 50 | 6 | 2 | ● | 1 | 1.5 | 1.6 | 1.7 | 1.8 |
| R0020N020S04 | 0.2 | 0.4 | 0.4 | 2 | 0.36 | 11.9° | 50 | 4 | 2 | ● | 1 | 2 | 2.1 | 2.3 | 2.5 |
| R0020N020S06 | 0.2 | 0.4 | 0.4 | 2 | 0.36 | 12.8° | 50 | 6 | 2 | ● | 1 | 2 | 2.1 | 2.3 | 2.5 |
| R0020N030S04 | 0.2 | 0.4 | 0.4 | 3 | 0.36 | 10.7° | 50 | 4 | 2 | ● | 1 | 3.1 | 3.2 | 3.4 | 3.7 |
| R0020N030S06 | 0.2 | 0.4 | 0.4 | 3 | 0.36 | 11.9° | 50 | 6 | 2 | ● | 1 | 3.1 | 3.2 | 3.4 | 3.7 |
| R0025N015S04 | 0.25 | 0.5 | 0.5 | 1.5 | 0.46 | 12.6° | 50 | 4 | 2 | ● | 1 | 1.5 | 1.6 | 1.7 | 1.8 |
| R0025N015S06 | 0.25 | 0.5 | 0.5 | 1.5 | 0.46 | 13.4° | 50 | 6 | 2 | ● | 1 | 1.5 | 1.6 | 1.7 | 1.8 |
| R0025N020S04 | 0.25 | 0.5 | 0.5 | 2 | 0.46 | 11.9° | 50 | 4 | 2 | ● | 1 | 2 | 2.1 | 2.3 | 2.4 |
| R0025N020S06 | 0.25 | 0.5 | 0.5 | 2 | 0.46 | 12.9° | 50 | 6 | 2 | ● | 1 | 2 | 2.1 | 2.3 | 2.4 |
| R0025N030S04 | 0.25 | 0.5 | 0.5 | 3 | 0.46 | 10.6° | 50 | 4 | 2 | ● | 1 | 3.1 | 3.2 | 3.4 | 3.7 |
| R0025N030S06 | 0.25 | 0.5 | 0.5 | 3 | 0.46 | 11.9° | 50 | 6 | 2 | ● | 1 | 3.1 | 3.2 | 3.4 | 3.7 |
| R0025N040S04 | 0.25 | 0.5 | 0.5 | 4 | 0.46 | 9.6° | 50 | 4 | 2 | ● | 1 | 4.1 | 4.3 | 4.6 | 4.9 |
| R0025N040S06 | 0.25 | 0.5 | 0.5 | 4 | 0.46 | 11.1° | 50 | 6 | 2 | ● | 1 | 4.1 | 4.3 | 4.6 | 4.9 |
| R0025N060S04 | 0.25 | 0.5 | 0.5 | 6 | 0.46 | 8.1° | 50 | 4 | 2 | ● | 1 | 6.2 | 6.4 | 6.9 | 7.4 |
| R0025N060S06 | 0.25 | 0.5 | 0.5 | 6 | 0.46 | 9.7° | 50 | 6 | 2 | ● | 1 | 6.2 | 6.4 | 6.9 | 7.4 |
| R0025N080S04 | 0.25 | 0.5 | 0.5 | 8 | 0.46 | 7° | 50 | 4 | 2 | ● | 1 | 8.3 | 8.5 | 9.2 | 9.9 |
| R0025N080S06 | 0.25 | 0.5 | 0.5 | 8 | 0.46 | 8.7° | 50 | 6 | 2 | ● | 1 | 8.3 | 8.5 | 9.2 | 9.9 |
| R0025N100S04 | 0.25 | 0.5 | 0.5 | 10 | 0.46 | 6.2° | 50 | 4 | 2 | ● | 1 | 10.3 | 10.7 | 11.5 | 12.4 |
| R0025N100S06 | 0.25 | 0.5 | 0.5 | 10 | 0.46 | 7.8° | 50 | 6 | 2 | ● | 1 | 10.3 | 10.7 | 11.5 | 12.4 |
| R0030N020S04 | 0.3 | 0.6 | 0.6 | 2 | 0.56 | 11.8° | 50 | 4 | 2 | ● | 1 | 2.1 | 2.2 | 2.3 | 2.5 |
| R0030N020S06 | 0.3 | 0.6 | 0.6 | 2 | 0.56 | 12.8° | 50 | 6 | 2 | ● | 1 | 2.1 | 2.2 | 2.3 | 2.5 |
| R0030N040S04 | 0.3 | 0.6 | 0.6 | 4 | 0.56 | 9.5° | 50 | 4 | 2 | ● | 1 | 4.2 | 4.3 | 4.6 | 5 |
| R0030N040S06 | 0.3 | 0.6 | 0.6 | 4 | 0.56 | 11° | 50 | 6 | 2 | ● | 1 | 4.2 | 4.3 | 4.6 | 5 |

● : Article stocké.

FRAISES DEUX TAILLES REVÊTUES CRN

CRN2XLB

Fraise hémisphérique, lg de coupe courte, 2 dents, dégagement long



Unité : mm

| Référence | Rayon | Dia. | Longueur taillée | Longueur utile | Diamètre détalonné | Conicité | Longueur totale | Diamètre corps | Nombre de dents | Stock | Type | Longueur effective selon l'angle d'inclinaison | | | |
|----------------------|-------|------|---------------------|-------------------|-----------------------|----------|--------------------|-------------------|--------------------|-------|------|---|------|------|------|
| | R | D1 | ap | L3 | D5 | B2 | L1 | D4 | N | | | 30° | 1° | 2° | 3° |
| CRN2XLB R0030N060S04 | 0.3 | 0.6 | 0.6 | 6 | 0.56 | 8° | 50 | 4 | 2 | ● | 1 | 6.3 | 6.5 | 6.9 | 7.5 |
| R0030N060S06 | 0.3 | 0.6 | 0.6 | 6 | 0.56 | 9.7° | 50 | 6 | 2 | ● | 1 | 6.3 | 6.5 | 6.9 | 7.5 |
| R0030N080S04 | 0.3 | 0.6 | 0.6 | 8 | 0.56 | 6.9° | 50 | 4 | 2 | ● | 1 | 8.3 | 8.6 | 9.2 | 10 |
| R0030N080S06 | 0.3 | 0.6 | 0.6 | 8 | 0.56 | 8.6° | 50 | 6 | 2 | ● | 1 | 8.3 | 8.6 | 9.2 | 10 |
| R0030N100S04 | 0.3 | 0.6 | 0.6 | 10 | 0.56 | 6° | 50 | 4 | 2 | ● | 1 | 10.4 | 10.8 | 11.5 | 12.5 |
| R0030N100S06 | 0.3 | 0.6 | 0.6 | 10 | 0.56 | 7.8° | 50 | 6 | 2 | ● | 1 | 10.4 | 10.8 | 11.5 | 12.5 |
| R0040N020S04 | 0.4 | 0.8 | 0.8 | 2 | 0.76 | 11.7° | 50 | 4 | 2 | ● | 1 | 2.1 | 2.2 | 2.3 | 2.5 |
| R0040N020S06 | 0.4 | 0.8 | 0.8 | 2 | 0.76 | 12.8° | 50 | 6 | 2 | ● | 1 | 2.1 | 2.2 | 2.3 | 2.5 |
| R0040N040S04 | 0.4 | 0.8 | 0.8 | 4 | 0.76 | 9.4° | 50 | 4 | 2 | ● | 1 | 4.2 | 4.3 | 4.6 | 5 |
| R0040N040S06 | 0.4 | 0.8 | 0.8 | 4 | 0.76 | 11° | 50 | 6 | 2 | ● | 1 | 4.2 | 4.3 | 4.6 | 5 |
| R0040N060S04 | 0.4 | 0.8 | 0.8 | 6 | 0.76 | 7.8° | 50 | 4 | 2 | ● | 1 | 6.3 | 6.5 | 6.9 | 7.5 |
| R0040N060S06 | 0.4 | 0.8 | 0.8 | 6 | 0.76 | 9.6° | 50 | 6 | 2 | ● | 1 | 6.3 | 6.5 | 6.9 | 7.5 |
| R0040N080S04 | 0.4 | 0.8 | 0.8 | 8 | 0.76 | 6.7° | 50 | 4 | 2 | ● | 1 | 8.3 | 8.6 | 9.2 | 10 |
| R0040N080S06 | 0.4 | 0.8 | 0.8 | 8 | 0.76 | 8.5° | 50 | 6 | 2 | ● | 1 | 8.3 | 8.6 | 9.2 | 10 |
| R0040N100S04 | 0.4 | 0.8 | 0.8 | 10 | 0.76 | 5.9° | 50 | 4 | 2 | ● | 1 | 10.4 | 10.8 | 11.5 | 12.4 |
| R0040N100S06 | 0.4 | 0.8 | 0.8 | 10 | 0.76 | 7.7° | 50 | 6 | 2 | ● | 1 | 10.4 | 10.8 | 11.5 | 12.4 |
| R0050N030S04 | 0.5 | 1 | 1 | 3 | 0.94 | 10.1° | 50 | 4 | 2 | ● | 1 | 3.2 | 3.3 | 3.6 | 3.9 |
| R0050N030S06 | 0.5 | 1 | 1 | 3 | 0.94 | 11.6° | 50 | 6 | 2 | ● | 1 | 3.2 | 3.3 | 3.6 | 3.9 |
| R0050N040S04 | 0.5 | 1 | 1 | 4 | 0.94 | 9.1° | 50 | 4 | 2 | ● | 1 | 4.2 | 4.4 | 4.8 | 5.2 |
| R0050N040S06 | 0.5 | 1 | 1 | 4 | 0.94 | 10.8° | 50 | 6 | 2 | ● | 1 | 4.2 | 4.4 | 4.8 | 5.2 |
| R0050N050S04 | 0.5 | 1 | 1 | 5 | 0.94 | 8.2° | 50 | 4 | 2 | ● | 1 | 5.3 | 5.5 | 6 | 6.4 |
| R0050N050S06 | 0.5 | 1 | 1 | 5 | 0.94 | 10.1° | 50 | 6 | 2 | ● | 1 | 5.3 | 5.5 | 6 | 6.4 |
| R0050N060S04 | 0.5 | 1 | 1 | 6 | 0.94 | 7.5° | 50 | 4 | 2 | ● | 1 | 6.3 | 6.6 | 7.1 | 7.7 |
| R0050N060S06 | 0.5 | 1 | 1 | 6 | 0.94 | 9.4° | 50 | 6 | 2 | ● | 1 | 6.3 | 6.6 | 7.1 | 7.7 |
| R0050N070S04 | 0.5 | 1 | 1 | 7 | 0.94 | 6.9° | 50 | 4 | 2 | ● | 1 | 7.4 | 7.7 | 8.3 | 8.9 |
| R0050N070S06 | 0.5 | 1 | 1 | 7 | 0.94 | 8.8° | 50 | 6 | 2 | ● | 1 | 7.4 | 7.7 | 8.3 | 8.9 |
| R0050N080S04 | 0.5 | 1 | 1 | 8 | 0.94 | 6.4° | 50 | 4 | 2 | ● | 1 | 8.4 | 8.8 | 9.4 | 10.2 |
| R0050N080S06 | 0.5 | 1 | 1 | 8 | 0.94 | 8.3° | 50 | 6 | 2 | ● | 1 | 8.4 | 8.8 | 9.4 | 10.2 |
| R0050N100S04 | 0.5 | 1 | 1 | 10 | 0.94 | 5.6° | 50 | 4 | 2 | ● | 1 | 10.5 | 10.9 | 11.7 | 12.6 |
| R0050N100S06 | 0.5 | 1 | 1 | 10 | 0.94 | 7.5° | 50 | 6 | 2 | ● | 1 | 10.5 | 10.9 | 11.7 | 12.6 |
| R0050N120S04 | 0.5 | 1 | 1 | 12 | 0.94 | 5° | 50 | 4 | 2 | ● | 1 | 12.6 | 13.1 | 14 | 15.1 |
| R0050N120S06 | 0.5 | 1 | 1 | 12 | 0.94 | 6.8° | 50 | 6 | 2 | ● | 1 | 12.6 | 13.1 | 14 | 15.1 |
| R0050N140S04 | 0.5 | 1 | 1 | 14 | 0.94 | 4.5° | 50 | 4 | 2 | ● | 1 | 14.7 | 15.2 | 16.3 | 17.6 |
| R0050N140S06 | 0.5 | 1 | 1 | 14 | 0.94 | 6.2° | 55 | 6 | 2 | ● | 1 | 14.7 | 15.2 | 16.3 | 17.6 |
| R0050N160S04 | 0.5 | 1 | 1 | 16 | 0.94 | 4.1° | 55 | 4 | 2 | ● | 1 | 16.8 | 17.4 | 18.6 | 20.1 |
| R0050N160S06 | 0.5 | 1 | 1 | 16 | 0.94 | 5.7° | 55 | 6 | 2 | ● | 1 | 16.8 | 17.4 | 18.6 | 20.1 |
| R0050N180S04 | 0.5 | 1 | 1 | 18 | 0.94 | 3.7° | 55 | 4 | 2 | ● | 1 | 18.9 | 19.5 | 20.9 | 22.6 |
| R0050N180S06 | 0.5 | 1 | 1 | 18 | 0.94 | 5.3° | 60 | 6 | 2 | ● | 1 | 18.9 | 19.5 | 20.9 | 22.6 |
| R0050N200S04 | 0.5 | 1 | 1 | 20 | 0.94 | 3.4° | 55 | 4 | 2 | ● | 1 | 20.9 | 21.6 | 23.2 | 25.1 |
| R0050N200S06 | 0.5 | 1 | 1 | 20 | 0.94 | 5° | 60 | 6 | 2 | ● | 1 | 20.9 | 21.6 | 23.2 | 25.1 |
| R0075N080S04 | 0.75 | 1.5 | 1.5 | 8 | 1.44 | 5.9° | 50 | 4 | 2 | ● | 1 | 8.4 | 8.8 | 9.4 | 10.1 |
| R0075N080S06 | 0.75 | 1.5 | 1.5 | 8 | 1.44 | 8.1° | 50 | 6 | 2 | ● | 1 | 8.4 | 8.8 | 9.4 | 10.1 |
| R0075N100S04 | 0.75 | 1.5 | 1.5 | 10 | 1.44 | 5.1° | 50 | 4 | 2 | ● | 1 | 10.5 | 10.9 | 11.7 | 12.6 |
| R0075N100S06 | 0.75 | 1.5 | 1.5 | 10 | 1.44 | 7.2° | 50 | 6 | 2 | ● | 1 | 10.5 | 10.9 | 11.7 | 12.6 |
| R0075N120S04 | 0.75 | 1.5 | 1.5 | 12 | 1.44 | 4.4° | 50 | 4 | 2 | ● | 1 | 12.6 | 13.1 | 14 | 15.1 |
| R0075N120S06 | 0.75 | 1.5 | 1.5 | 12 | 1.44 | 6.5° | 50 | 6 | 2 | ● | 1 | 12.6 | 13.1 | 14 | 15.1 |
| R0075N140S04 | 0.75 | 1.5 | 1.5 | 14 | 1.44 | 4° | 50 | 4 | 2 | ● | 1 | 14.7 | 15.2 | 16.3 | 17.6 |
| R0075N140S06 | 0.75 | 1.5 | 1.5 | 14 | 1.44 | 5.9° | 55 | 6 | 2 | ● | 1 | 14.7 | 15.2 | 16.3 | 17.6 |
| R0075N160S04 | 0.75 | 1.5 | 1.5 | 16 | 1.44 | 3.6° | 55 | 4 | 2 | ● | 1 | 16.8 | 17.3 | 18.6 | 20 |
| R0075N160S06 | 0.75 | 1.5 | 1.5 | 16 | 1.44 | 5.4° | 55 | 6 | 2 | ● | 1 | 16.8 | 17.3 | 18.6 | 20 |

CRN2XLB

Fraise hémisphérique, lg de coupe courte, 2 dents, dégagement long

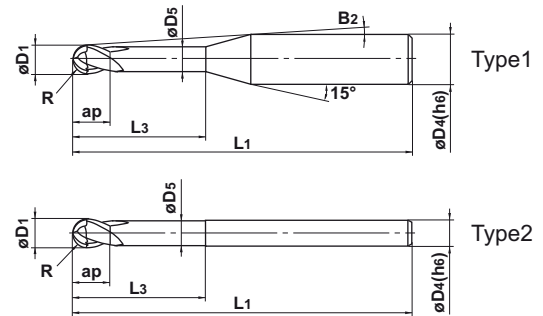
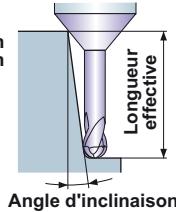


4 ≤ D4 ≤ 6 0 - -0.008

| | | | | | | | |
|---------------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|---------------------------------------|-----------------------|----------------------|
| Acier Carbone, Alliage Acier (<30HRC) | Acier Pré-traité (≤45HRC) | Acier Traité (≤55HRC) | Acier Traité (>55HRC) | Acier Inoxydable Austénitique | Alliage Titane, Alliages Réfractaires | Alliages Cuivre ++ | Aluminium Moule + |
|---------------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|---------------------------------------|-----------------------|----------------------|



Longueur effective selon l'angle d'inclinaison



- Fraise hémisphérique à rainurer, dégagement long, 2 dents avec revêtement CRN pour l'usinage d'électrodes de cuivre, et matières non-ferreuses.

Unité : mm

| Référence | Rayon R | Dia. D1 | Longueur taillée ap | Longueur utile L3 | Diamètre détalonné D5 | Conicité B2 | Longueur totale L1 | Diamètre corps D4 | Nombre de dents N | Stock | Type | Longueur effective selon l'angle d'inclinaison | | | |
|----------------------|------------|------------|------------------------|----------------------|--------------------------|----------------|-----------------------|----------------------|----------------------|-------|------|--|------|------|------|
| | | | | | | | | | | | | 30° | 1° | 2° | 3° |
| CRN2XLB R0075N180S04 | 0.75 | 1.5 | 1.5 | 18 | 1.44 | 3.3° | 55 | 4 | 2 | ● | 1 | 18.8 | 19.5 | 20.9 | 22.5 |
| R0075N180S06 | 0.75 | 1.5 | 1.5 | 18 | 1.44 | 5° | 60 | 6 | 2 | ● | 1 | 18.8 | 19.5 | 20.9 | 22.5 |
| R0075N200S04 | 0.75 | 1.5 | 1.5 | 20 | 1.44 | 3° | 55 | 4 | 2 | ● | 1 | 20.9 | 21.6 | 23.2 | * |
| R0075N200S06 | 0.75 | 1.5 | 1.5 | 20 | 1.44 | 4.6° | 60 | 6 | 2 | ● | 1 | 20.9 | 21.6 | 23.2 | 25 |
| R0100N080S04 | 1 | 2 | 2 | 8 | 1.90 | 5.3° | 50 | 4 | 2 | ● | 1 | 8.3 | 8.7 | 9.2 | 9.9 |
| R0100N080S06 | 1 | 2 | 2 | 8 | 1.90 | 7.8° | 50 | 6 | 2 | ● | 1 | 8.3 | 8.7 | 9.2 | 9.9 |
| R0100N100S04 | 1 | 2 | 2 | 10 | 1.90 | 4.5° | 50 | 4 | 2 | ● | 1 | 10.4 | 10.8 | 11.5 | 12.4 |
| R0100N100S06 | 1 | 2 | 2 | 10 | 1.90 | 6.9° | 50 | 6 | 2 | ● | 1 | 10.4 | 10.8 | 11.5 | 12.4 |
| R0100N120S04 | 1 | 2 | 2 | 12 | 1.90 | 3.9° | 50 | 4 | 2 | ● | 1 | 12.5 | 12.9 | 13.8 | 14.9 |
| R0100N120S06 | 1 | 2 | 2 | 12 | 1.90 | 6.1° | 50 | 6 | 2 | ● | 1 | 12.5 | 12.9 | 13.8 | 14.9 |
| R0100N140S04 | 1 | 2 | 2 | 14 | 1.90 | 3.4° | 50 | 4 | 2 | ● | 1 | 14.6 | 15.1 | 16.1 | 17.4 |
| R0100N140S06 | 1 | 2 | 2 | 14 | 1.90 | 5.6° | 55 | 6 | 2 | ● | 1 | 14.6 | 15.1 | 16.1 | 17.4 |
| R0100N160S04 | 1 | 2 | 2 | 16 | 1.90 | 3.1° | 55 | 4 | 2 | ● | 1 | 16.7 | 17.2 | 18.4 | 19.9 |
| R0100N160S06 | 1 | 2 | 2 | 16 | 1.90 | 5.1° | 55 | 6 | 2 | ● | 1 | 16.7 | 17.2 | 18.4 | 19.9 |
| R0100N200S04 | 1 | 2 | 2 | 20 | 1.90 | 2.5° | 60 | 4 | 2 | ● | 1 | 20.8 | 21.5 | 23 | * |
| R0100N200S06 | 1 | 2 | 2 | 20 | 1.90 | 4.3° | 60 | 6 | 2 | ● | 1 | 20.8 | 21.5 | 23 | 24.8 |
| R0100N250S06 | 1 | 2 | 2 | 25 | 1.90 | 3.7° | 65 | 6 | 2 | ● | 1 | 26 | 26.8 | 28.8 | 31 |
| R0100N300S06 | 1 | 2 | 2 | 30 | 1.90 | 3.2° | 70 | 6 | 2 | ● | 1 | 31.1 | 32.2 | 34.5 | 37.3 |
| R0150N160S06 | 1.5 | 3 | 3 | 16 | 2.90 | 4.3° | 60 | 6 | 2 | ● | 1 | 16.6 | 17.2 | 18.4 | 19.7 |
| R0150N250S06 | 1.5 | 3 | 3 | 25 | 2.90 | 3° | 70 | 6 | 2 | ● | 1 | 26 | 26.8 | 28.7 | * |
| R0150N350S06 | 1.5 | 3 | 3 | 35 | 2.90 | 2.2° | 80 | 6 | 2 | ● | 1 | 36.3 | 37.5 | 40.2 | * |
| R0200N160S06 | 2 | 4 | 4 | 16 | 3.90 | 3.2° | 70 | 6 | 2 | ● | 1 | 16.6 | 17.1 | 18.3 | 19.6 |
| R0200N200S06 | 2 | 4 | 4 | 20 | 3.90 | 2.7° | 70 | 6 | 2 | ● | 1 | 20.8 | 21.4 | 22.9 | * |
| R0200N300S06 | 2 | 4 | 4 | 30 | 3.90 | 1.8° | 70 | 6 | 2 | ● | 1 | 31.1 | 32.1 | * | * |
| R0200N400S06 | 2 | 4 | 4 | 40 | 3.90 | 1.4° | 90 | 6 | 2 | ● | 1 | 41.4 | 42.8 | * | * |
| R0200N500S06 | 2 | 4 | 4 | 50 | 3.90 | 1.2° | 100 | 6 | 2 | ● | 1 | 51.8 | 53.5 | * | * |
| R0250N200S06 | 2.5 | 5 | 5 | 20 | 4.90 | 1.5° | 70 | 6 | 2 | ● | 1 | 20.7 | 21.4 | * | * |
| R0250N300S06 | 2.5 | 5 | 5 | 30 | 4.90 | 1° | 80 | 6 | 2 | ● | 1 | 31.1 | * | * | * |
| R0300N300S06 | 3 | 6 | 6 | 30 | 5.85 | — | 80 | 6 | 2 | ● | 1 | * | * | * | * |
| R0300N500S06 | 3 | 6 | 6 | 50 | 5.85 | — | 100 | 6 | 2 | ● | 1 | * | * | * | * |

* Pas d'interférence

FRAISES DEUX TAILLES REVÊTUES CRN

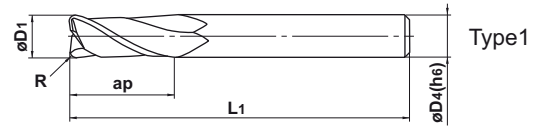
CRN2MRB

Coupe au centre, lg de coupe moyenne, 2 dents, pour l'usinage d'électrodes



D4 = 6 0 - -0.008
 8 ≤ D4 ≤ 10 0 - -0.009
 D4 = 12 0 - -0.011

| | | | | | | | |
|---------------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|---------------------------------------|-----------------------|----------------------|
| Acier Carbone, Alliage Acier (<30HRC) | Acier Pré-traité (≤45HRC) | Acier Traité (≤55HRC) | Acier Traité (>55HRC) | Acier Inoxydable Austénitique | Alliage Titane, Alliages Réfractaires | Alliages Cuivre ++ | Aluminium Moule + |
|---------------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|---------------------------------------|-----------------------|----------------------|



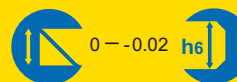
- Fraise 2 tailles torique, 2 dents revêtu CRN pour l'usinage des électrodes de cuivre et matières non-ferreuses.

Unité : mm

| Référence | Dia. D1 | Longueur taillée ap | Longueur totale L1 | Diamètre corps D4 | Rayon R | Nombre de dents N | Stock | Type |
|------------------|------------|---------------------------|--------------------------|-------------------------|------------|-------------------------|-------|------|
| CRN2MRBD0600R020 | 6 | 13 | 50 | 6 | 0.2 | 2 | ● | 1 |
| D0600R030 | 6 | 13 | 50 | 6 | 0.3 | 2 | ● | 1 |
| D0600R050 | 6 | 13 | 50 | 6 | 0.5 | 2 | ● | 1 |
| D0600R100 | 6 | 13 | 50 | 6 | 1 | 2 | ● | 1 |
| D0800R030 | 8 | 19 | 60 | 8 | 0.3 | 2 | ● | 1 |
| D0800R050 | 8 | 19 | 60 | 8 | 0.5 | 2 | ● | 1 |
| D0800R100 | 8 | 19 | 60 | 8 | 1 | 2 | ● | 1 |
| D1000R030 | 10 | 22 | 70 | 10 | 0.3 | 2 | ● | 1 |
| D1000R050 | 10 | 22 | 70 | 10 | 0.5 | 2 | ● | 1 |
| D1000R100 | 10 | 22 | 70 | 10 | 1 | 2 | ● | 1 |
| D1200R030 | 12 | 26 | 75 | 12 | 0.3 | 2 | ● | 1 |
| D1200R050 | 12 | 26 | 75 | 12 | 0.5 | 2 | ● | 1 |
| D1200R100 | 12 | 26 | 75 | 12 | 1 | 2 | ● | 1 |

CRN2XLRB

Coupe au centre, lg de coupe moyenne, 2 dents, pour l'usinage d'électrodes

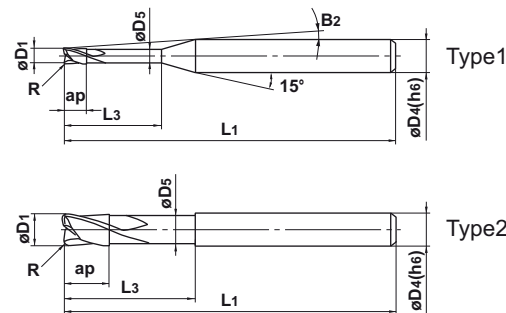
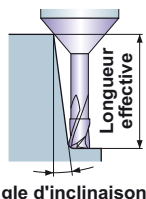


4 ≤ D4 ≤ 6 0 - -0.008

| | | | | | | | |
|---------------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|---------------------------------------|-----------------------|----------------------|
| Acier Carbone, Alliage Acier (<30HRC) | Acier Pré-traité (≤45HRC) | Acier Traité (≤55HRC) | Acier Traité (>55HRC) | Acier Inoxydable Austénitique | Alliage Titane, Alliages Réfractaires | Alliages Cuivre ++ | Aluminium Moule + |
|---------------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|---------------------------------------|-----------------------|----------------------|



Longueur effective selon l'angle d'inclinaison



● Fraise 2 tailles torique, 2 dents, dégagement long, revêtue CRN pour l'usinage des électrodes de cuivre et matières non-ferreuses.

Unité : mm

| Référence | Dia. D1 | Longueur taillée ap | Longueur utile L3 | Diamètre détalonné D5 | Conicité B2 | Longueur totale L1 | Diamètre corps D4 | Rayon R | Nombre de dents N | Stock | Type | Longueur effective selon l'angle d'inclinaison | | | |
|----------------------|------------|------------------------|----------------------|--------------------------|----------------|-----------------------|----------------------|------------|----------------------|-------|------|--|------|------|------|
| | | | | | | | | | | | | 30° | 1° | 2° | 3° |
| CRN2XLRBD0050R005N04 | 0.5 | 0.5 | 4 | 0.46 | 9.5° | 50 | 4 | 0.05 | 2 | ● | 1 | 4.1 | 4.3 | 4.6 | 5 |
| D0050R010N04 | 0.5 | 0.5 | 4 | 0.46 | 9.5° | 50 | 4 | 0.1 | 2 | ● | 1 | 4.1 | 4.3 | 4.6 | 5 |
| D0050R005N06 | 0.5 | 0.5 | 6 | 0.46 | 8° | 50 | 4 | 0.05 | 2 | ● | 1 | 6.2 | 6.4 | 6.9 | 7.5 |
| D0050R010N06 | 0.5 | 0.5 | 6 | 0.46 | 8° | 50 | 4 | 0.1 | 2 | ● | 1 | 6.2 | 6.4 | 6.9 | 7.5 |
| D0080R005N06 | 0.8 | 0.8 | 6 | 0.76 | 7.6° | 50 | 4 | 0.05 | 2 | ● | 1 | 6.3 | 6.5 | 7 | 7.6 |
| D0080R010N06 | 0.8 | 0.8 | 6 | 0.76 | 7.6° | 50 | 4 | 0.1 | 2 | ● | 1 | 6.3 | 6.5 | 7 | 7.5 |
| D0080R005N08 | 0.8 | 0.8 | 8 | 0.76 | 6.5° | 50 | 4 | 0.05 | 2 | ● | 1 | 8.3 | 8.6 | 9.3 | 10 |
| D0080R010N08 | 0.8 | 0.8 | 8 | 0.76 | 6.6° | 50 | 4 | 0.1 | 2 | ● | 1 | 8.3 | 8.6 | 9.3 | 10 |
| D0100R010N08 | 1 | 1 | 8 | 0.94 | 6.3° | 50 | 4 | 0.1 | 2 | ● | 1 | 8.5 | 8.8 | 9.5 | 10.2 |
| D0100R030N08 | 1 | 1 | 8 | 0.94 | 6.3° | 50 | 4 | 0.3 | 2 | ● | 1 | 8.5 | 8.8 | 9.5 | 10.2 |
| D0100R010N10 | 1 | 1 | 10 | 0.94 | 5.5° | 55 | 4 | 0.1 | 2 | ● | 1 | 10.6 | 11 | 11.8 | 12.7 |
| D0100R030N10 | 1 | 1 | 10 | 0.94 | 5.5° | 55 | 4 | 0.3 | 2 | ● | 1 | 10.5 | 10.9 | 11.8 | 12.7 |
| D0100R010N12 | 1 | 1 | 12 | 0.94 | 4.9° | 55 | 4 | 0.1 | 2 | ● | 1 | 12.6 | 13.1 | 14.1 | 15.2 |
| D0100R030N12 | 1 | 1 | 12 | 0.94 | 4.9° | 55 | 4 | 0.3 | 2 | ● | 1 | 12.6 | 13.1 | 14.1 | 15.2 |
| D0150R010N12 | 1.5 | 1.5 | 12 | 1.44 | 4.3° | 55 | 4 | 0.1 | 2 | ● | 1 | 12.6 | 13.1 | 14.1 | 15.2 |
| D0150R020N12 | 1.5 | 1.5 | 12 | 1.44 | 4.3° | 55 | 4 | 0.2 | 2 | ● | 1 | 12.6 | 13.1 | 14.1 | 15.2 |
| D0150R030N12 | 1.5 | 1.5 | 12 | 1.44 | 4.3° | 55 | 4 | 0.3 | 2 | ● | 1 | 12.6 | 13.1 | 14.1 | 15.2 |
| D0150R010N20 | 1.5 | 1.5 | 20 | 1.44 | 2.9° | 60 | 4 | 0.1 | 2 | ● | 1 | 20.9 | 21.7 | 23.3 | * |
| D0150R020N20 | 1.5 | 1.5 | 20 | 1.44 | 2.9° | 60 | 4 | 0.2 | 2 | ● | 1 | 20.9 | 21.7 | 23.3 | * |
| D0150R030N20 | 1.5 | 1.5 | 20 | 1.44 | 3° | 60 | 4 | 0.3 | 2 | ● | 1 | 20.9 | 21.6 | 23.3 | * |
| D0200R010N12 | 2 | 2 | 12 | 1.9 | 3.7° | 55 | 4 | 0.1 | 2 | ● | 1 | 12.5 | 13 | 14 | 15.1 |
| D0200R020N12 | 2 | 2 | 12 | 1.9 | 3.7° | 55 | 4 | 0.2 | 2 | ● | 1 | 12.5 | 13 | 14 | 15.1 |
| D0200R030N12 | 2 | 2 | 12 | 1.9 | 3.7° | 55 | 4 | 0.3 | 2 | ● | 1 | 12.5 | 13 | 13.9 | 15 |
| D0200R050N12 | 2 | 2 | 12 | 1.9 | 3.8° | 55 | 4 | 0.5 | 2 | ● | 1 | 12.5 | 13 | 13.9 | 15 |
| D0200R010N16 | 2 | 2 | 16 | 1.9 | 2.9° | 55 | 4 | 0.1 | 2 | ● | 1 | 16.7 | 17.3 | 18.6 | * |
| D0200R020N16 | 2 | 2 | 16 | 1.9 | 2.9° | 55 | 4 | 0.2 | 2 | ● | 1 | 16.7 | 17.3 | 18.6 | * |
| D0200R030N16 | 2 | 2 | 16 | 1.9 | 3° | 55 | 4 | 0.3 | 2 | ● | 1 | 16.7 | 17.3 | 18.5 | * |
| D0200R050N16 | 2 | 2 | 16 | 1.9 | 3° | 55 | 4 | 0.5 | 2 | ● | 1 | 16.7 | 17.2 | 18.5 | * |
| D0200R010N20 | 2 | 2 | 20 | 1.9 | 2.5° | 60 | 4 | 0.1 | 2 | ● | 1 | 20.8 | 21.6 | 23.2 | * |
| D0200R020N20 | 2 | 2 | 20 | 1.9 | 2.5° | 60 | 4 | 0.2 | 2 | ● | 1 | 20.8 | 21.5 | 23.2 | * |
| D0200R030N20 | 2 | 2 | 20 | 1.9 | 2.5° | 60 | 4 | 0.3 | 2 | ● | 1 | 20.8 | 21.5 | 23.1 | * |
| D0200R050N20 | 2 | 2 | 20 | 1.9 | 2.5° | 60 | 4 | 0.5 | 2 | ● | 1 | 20.8 | 21.5 | 23.1 | * |
| D0300R020N20 | 3 | 3 | 20 | 2.9 | 3.4° | 65 | 6 | 0.2 | 2 | ● | 1 | 20.8 | 21.5 | 23.2 | 25 |
| D0300R030N20 | 3 | 3 | 20 | 2.9 | 3.4° | 65 | 6 | 0.3 | 2 | ● | 1 | 20.8 | 21.5 | 23.1 | 25 |
| D0300R050N20 | 3 | 3 | 20 | 2.9 | 3.4° | 65 | 6 | 0.5 | 2 | ● | 1 | 20.8 | 21.5 | 23.1 | 24.9 |
| D0400R020N20 | 4 | 4 | 20 | 3.9 | 2.5° | 65 | 6 | 0.2 | 2 | ● | 1 | 20.8 | 21.5 | 23.2 | * |
| D0400R030N20 | 4 | 4 | 20 | 3.9 | 2.5° | 65 | 6 | 0.3 | 2 | ● | 1 | 20.8 | 21.5 | 23.1 | * |
| D0400R050N20 | 4 | 4 | 20 | 3.9 | 2.5° | 65 | 6 | 0.5 | 2 | ● | 1 | 20.8 | 21.5 | 23.1 | * |

* Pas d'interférence

● : Article stocké.

FRAISES DEUX TAILLES REVÊTUES CRN

CRN2XLRB

Coupe au centre, lg de coupe moyenne, 2 dents, pour l'usinage d'électrodes



0 - -0.02



4 ≤ D4 ≤ 6

0 - -0.008

Unité : mm

| Référence | Dia. D1 | Longueur taillée ap | Longueur utile L3 | Diamètre détalonné D5 | Conicité B2 | Longueur totale L1 | Diamètre corps D4 | Rayon R | Nombre de dents N | Stock | Type | Longueur effective selon l'angle d'inclinaison | | | |
|----------------------|------------|---------------------------|-------------------------|-----------------------------|----------------|--------------------------|-------------------------|------------|-------------------------|-------|------|---|------|----|----|
| | | | | | | | | | | | | 30° | 1° | 2° | 3° |
| CRN2XLRBD0500R020N25 | 5 | 5 | 25 | 4.9 | 1.1° | 65 | 6 | 0.2 | 2 | ● | 1 | 26 | 26.9 | * | * |
| D0500R030N25 | 5 | 5 | 25 | 4.9 | 1.1° | 65 | 6 | 0.3 | 2 | ● | 1 | 26 | 26.9 | * | * |
| D0500R050N25 | 5 | 5 | 25 | 4.9 | 1.1° | 65 | 6 | 0.5 | 2 | ● | 1 | 26 | 26.9 | * | * |
| D0600R020N30 | 6 | 6 | 30 | 5.85 | — | 70 | 6 | 0.2 | 2 | ● | 2 | * | * | * | * |
| D0600R030N30 | 6 | 6 | 30 | 5.85 | — | 70 | 6 | 0.3 | 2 | ● | 2 | * | * | * | * |
| D0600R050N30 | 6 | 6 | 30 | 5.85 | — | 70 | 6 | 0.5 | 2 | ● | 2 | * | * | * | * |
| D0600R100N30 | 6 | 6 | 30 | 5.85 | — | 70 | 6 | 1 | 2 | ● | 2 | * | * | * | * |

* Pas d'interférence

CRN2MS

Fraise 2 tailles, lg de coupe moyenne, 2 dents

| Matière | Cuivre • Alliage cuivre | | |
|-----------|-----------------------------|-----------------|--------------------------|
| Dia. (mm) | Régime (min ⁻¹) | Avance (mm/min) | Profondeur de passe (mm) |
| 0.2 | 40000 | 600 | 0.01 |
| 0.3 | 40000 | 600 | 0.01 |
| 0.4 | 40000 | 800 | 0.01 |
| 0.5 | 40000 | 960 | 0.015 |
| 0.6 | 40000 | 1200 | 0.02 |
| 0.7 | 40000 | 1400 | 0.02 |
| 0.8 | 40000 | 1600 | 0.03 |
| 0.9 | 40000 | 1800 | 0.04 |
| 1 | 40000 | 2000 | 0.06 |
| 1.5 | 40000 | 3000 | 0.12 |
| 2 | 30000 | 3000 | 0.18 |
| 2.5 | 24000 | 2600 | 0.25 |
| 3 | 20000 | 2300 | 0.30 |
| 4 | 15000 | 2000 | 0.40 |
| 5 | 12000 | 1600 | 0.50 |
| 6 | 10000 | 1400 | 0.60 |
| 8 | 8000 | 1000 | 0.80 |
| 10 | 6400 | 900 | 1.00 |
| 12 | 5400 | 820 | 1.00 |

| | | |
|---------------------|---------|--|
| Profondeur de passe | | |
| | D: Dia. | |

- 1) En cas de manque de rigidité de la machine ou du montage, de vibrations ou de bruit, réduire la vitesse de coupe et l'avance dans les mêmes proportions.
- 2) Pour le perçage baisser l'avance à 70%.

CRN4JC

Fraise 2 tailles, lg de coupe semi-longue, 4 dents

| Matière | Cuivre • Alliage cuivre | |
|-----------|-----------------------------|-----------------|
| Dia. (mm) | Régime (min ⁻¹) | Avance (mm/min) |
| 3 | 10600 | 280 |
| 4 | 8000 | 330 |
| 5 | 6400 | 380 |
| 6 | 5300 | 420 |
| 8 | 4000 | 460 |
| 10 | 3200 | 460 |
| 12 | 2700 | 460 |

| | |
|---------------------|---------|
| Profondeur de passe | |
| | D: Dia. |

- 1) En cas de manque de rigidité de la machine ou du montage, de vibrations ou de bruit, réduire la vitesse de coupe et l'avance dans les mêmes proportions.
- 2) En cas de faibles passes, augmentez les valeurs ci-dessus.
- 3) Lors de l'usinage des alliages de cuivre tungstène, veuillez réduire le régime et l'avance de 70% des valeurs de la table.
- 4) Il est recommandé d'utiliser une émulsion.

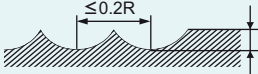
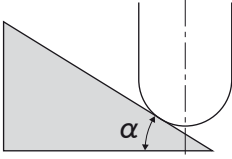
| Matière | | Cuivre • Alliage cuivre | | |
|------------|---------------------|-----------------------------|-----------------|--------------------------|
| Dia. (mm) | Longueur utile (mm) | Régime (min ⁻¹) | Avance (mm/min) | Profondeur de passe (mm) |
| 0.2 | 0.5 | 40000 | 800 | 0.004 |
| | 1.0 | 40000 | 700 | 0.003 |
| | 1.5 | 40000 | 600 | 0.002 |
| 0.3 | 1 | 40000 | 800 | 0.007 |
| | 3 | 40000 | 600 | 0.002 |
| 0.4 | 2 | 40000 | 950 | 0.007 |
| | 4 | 40000 | 800 | 0.003 |
| | 6 | 40000 | 600 | 0.001 |
| 0.5 | 2 | 40000 | 950 | 0.01 |
| | 4 | 40000 | 800 | 0.005 |
| | 6 | 40000 | 700 | 0.002 |
| 0.8 | 4 | 40000 | 1200 | 0.02 |
| | 6 | 40000 | 1200 | 0.015 |
| | 8 | 40000 | 1000 | 0.01 |
| 1 | 6 | 40000 | 2000 | 0.04 |
| | 8 | 40000 | 2000 | 0.03 |
| | 10 | 30000 | 1200 | 0.02 |
| | 12 | 30000 | 1000 | 0.015 |
| 1.5 | 6 | 40000 | 2400 | 0.10 |
| | 8 | 40000 | 2200 | 0.09 |
| | 10 | 40000 | 2000 | 0.08 |
| | 12 | 30000 | 1800 | 0.05 |
| | 16 | 20000 | 1200 | 0.03 |
| | 20 | 15000 | 800 | 0.02 |
| 2 | 6 | 40000 | 2400 | 0.18 |
| | 8 | 40000 | 2200 | 0.15 |
| | 10 | 40000 | 2000 | 0.12 |
| | 12 | 30000 | 1500 | 0.10 |
| | 16 | 30000 | 1000 | 0.06 |
| | 20 | 15000 | 600 | 0.03 |
| 2.5 | 8 | 40000 | 3000 | 0.20 |
| | 12 | 40000 | 2800 | 0.15 |
| | 16 | 30000 | 2100 | 0.10 |
| | 20 | 20000 | 1000 | 0.08 |
| 3 | 20 | 20000 | 2000 | 0.12 |
| 4 | 20 | 15000 | 2000 | 0.30 |
| 5 | 25 | 12000 | 1500 | 0.35 |
| 6 | 30 | 10000 | 1200 | 0.40 |

- 1) Dans le cas de vibrations ou d'autres bruits, il faut réduire en conséquence la vitesse de rotation et l'avance.
- 2) Pour obtenir une très grande précision d'usinage, il est recommandé de diminuer l'avance. Les conditions de coupe peuvent considérablement varier suivant le porte-à-faux (profondeur de fraisage et longueur de la rainure), profondeur de coupe et l'état de la machine. Veuillez vous référer au tableau ci-dessus pour le standard.
- 3) En cas de faibles passes, augmentez les valeurs ci-dessus.
- 4) Il est recommandé d'utiliser une solution d'arrosage.

CRN2MB

Fraise hémisphérique, lg de coupe moyenne, 2 dents

| R (mm) | Cuivre • Alliage cuivre | | | | Profondeur de passe (mm) |
|--------------|------------------------------|-----------------|------------------------------|-----------------|--------------------------|
| | $\alpha \leq 15^\circ$ | | $\alpha > 15^\circ$ | | |
| | Régime (min^{-1}) | Avance (mm/min) | Régime (min^{-1}) | Avance (mm/min) | |
| R0.2 | 40000 | 1600 | 40000 | 1200 | 0.02 |
| R0.3 | 40000 | 3200 | 40000 | 1600 | 0.03 |
| R0.4 | 40000 | 6400 | 40000 | 2400 | 0.05 |
| R0.5 | 40000 | 8000 | 40000 | 3200 | 0.06 |
| R0.75 | 40000 | 9600 | 40000 | 4000 | 0.09 |
| R1 | 40000 | 9600 | 39000 | 4700 | 0.11 |
| R1.25 | 40000 | 12000 | 30000 | 4500 | 0.12 |
| R1.5 | 40000 | 12000 | 27000 | 4300 | 0.13 |
| R2 | 32000 | 11000 | 20000 | 3600 | 0.15 |
| R2.5 | 25000 | 9000 | 16000 | 2900 | 0.20 |
| R3 | 21000 | 8400 | 13000 | 2600 | 0.25 |
| R4 | 16000 | 6400 | 10000 | 2000 | 0.30 |
| R5 | 13000 | 5200 | 8000 | 1700 | 0.50 |
| R6 | 9000 | 3600 | 6000 | 1300 | 0.50 |

| | | |
|---------------------|---|--|
| Profondeur de passe |  <p>$\leq 0.2R$</p> <p>$\leq \text{cf. liste ci-dessus sur la profondeur de coupe.}$</p> <p>R:Rayon</p> |  <p>α</p> |
|---------------------|---|--|

- 1) α est l'angle d'inclinaison de la surface usinée.
- 2) En cas de manque de rigidité de la machine ou du montage, de vibrations ou de bruit, réduire la vitesse de coupe et l'avance dans les mêmes proportions. Pour obtenir une très grande précision d'usinage, diminuez l'avance.
- 3) À faibles vitesses de rotation, il faut aussi réduire en conséquence l'avance.
- 4) Les conditions de coupe peuvent varier considérablement en fonction du porte-à-faux (profondeur de fraisage), de la profondeur de coupe, et des outils utilisés. Veuillez utiliser les données du tableau comme référence de départ.

CONDITIONS DE COUPE POUR LES FRAISES CRN

CRN2XLB

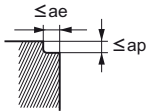
Fraise hémisphérique, lg de coupe courte, 2 dents, dégagement long

| Matière | | Cuivre•Alliage cuivre | | | Matière | | Cuivre•Alliage cuivre | | |
|---------------------|---|-----------------------------|-----------------|--------------------------|--------------|---------------------|-----------------------------|-----------------|--------------------------|
| R (mm) | Longueur utile (mm) | Régime (min ⁻¹) | Avance (mm/min) | Profondeur de passe (mm) | R (mm) | Longueur utile (mm) | Régime (min ⁻¹) | Avance (mm/min) | Profondeur de passe (mm) |
| R0.1 | 0.5 | 40000 | 800 | 0.003 | R0.75 | 8 | 40000 | 8000 | 0.07 |
| | 1.0 | 40000 | 600 | 0.002 | | 12 | 35000 | 4500 | 0.04 |
| | 1.5 | 40000 | 400 | 0.001 | | 16 | 20000 | 2000 | 0.03 |
| R0.15 | 1 | 40000 | 1200 | 0.007 | | 20 | 12000 | 900 | 0.02 |
| | 2 | 40000 | 800 | 0.003 | R1 | 8 | 40000 | 9600 | 0.10 |
| R0.2 | 1 | 40000 | 2000 | 0.015 | | 10 | 40000 | 6400 | 0.08 |
| | 2 | 40000 | 1300 | 0.01 | | 12 | 40000 | 6000 | 0.08 |
| | 3 | 40000 | 800 | 0.005 | | 16 | 30000 | 3000 | 0.05 |
| R0.25 | 2 | 40000 | 2000 | 0.02 | | 20 | 20000 | 2000 | 0.04 |
| | 4 | 40000 | 1200 | 0.01 | 30 | 10000 | 800 | 0.02 | |
| | 6 | 36000 | 600 | 0.006 | R1.5 | 16 | 40000 | 12000 | 0.10 |
| | 10 | 26000 | 200 | 0.002 | | 25 | 25000 | 6000 | 0.08 |
| R0.3 | 2 | 40000 | 3200 | 0.03 | | 35 | 6000 | 700 | 0.06 |
| | 6 | 40000 | 1200 | 0.008 | R2 | 16 | 32000 | 11000 | 0.15 |
| | 10 | 30000 | 500 | 0.003 | | 20 | 32000 | 9000 | 0.15 |
| R0.4 | 4 | 40000 | 4000 | 0.02 | | 30 | 20000 | 4500 | 0.10 |
| | 6 | 40000 | 2500 | 0.02 | | 40 | 15000 | 3000 | 0.08 |
| | 10 | 30000 | 700 | 0.008 | | 50 | 8000 | 1000 | 0.05 |
| R0.5 | 4 | 40000 | 6400 | 0.05 | R2.5 | 20 | 25000 | 9500 | 0.20 |
| | 6 | 40000 | 4800 | 0.03 | | 30 | 20000 | 3300 | 0.15 |
| | 8 | 40000 | 3000 | 0.02 | R3 | 30 | 21000 | 8400 | 0.20 |
| | 10 | 33000 | 2000 | 0.01 | | 50 | 20000 | 3000 | 0.15 |
| | 16 | 18000 | 500 | 0.008 | | | | | |
| | 20 | 13000 | 250 | 0.005 | | | | | |
| Profondeur de passe | <p style="text-align: right;">R:Rayon</p> | | | | | | | | |

- 1) En cas de manque de rigidité de la machine ou du montage, de vibrations ou de bruit, réduire la vitesse de coupe et l'avance dans les mêmes proportions. Pour obtenir une très grande précision d'usinage, diminuez l'avance.
- 2) Les conditions de coupe peuvent varier considérablement en fonction du porte-à-faux (profondeur de fraisage), de la profondeur de coupe, et des outils utilisés. Veuillez utiliser les données du tableau comme référence de départ.
- 3) En cas de faibles passes, augmentez les valeurs ci-dessus.

CRN2MRB

Coupe au centre, lg de coupe moyenne, 2 dents, pour l'usinage d'électrodes

| Matière | | Cuivre • Alliage cuivre | | | |
|---------------------|-------------------------|---|--------------------|---------------------|------------|
| Dia. (mm) | Rayon (mm) | Régime (min ⁻¹) | Avance (mm/min) | Profondeur de passe | |
| | | | | ap (mm) | ae (mm) |
| 6 | R0.2, R0.3, R0.5 | 10000 | 1400 | 6 | 0.6 |
| | R1 | 10000 | 1700 | 6 | 0.6 |
| 8 | R0.3, R0.5 | 8000 | 1000 | 8 | 0.8 |
| | R1 | 8000 | 1200 | 8 | 0.8 |
| 10 | R0.3, R0.5 | 6400 | 900 | 10 | 1.0 |
| | R1 | 6400 | 1100 | 10 | 1.0 |
| 12 | R0.3, R0.5 | 5400 | 800 | 12 | 1.0 |
| | R1 | 5400 | 1000 | 12 | 1.0 |
| Profondeur de passe | |  | | | |

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Pour obtenir une très grande précision d'usinage, diminuez l'avance.
- 2) À faibles vitesses de rotation, il faut aussi réduire en conséquence l'avance.
- 3) Les conditions de coupe peuvent varier considérablement en fonction du porte-à-faux (profondeur de fraisage), de la profondeur de coupe, et des outils utilisés. Veuillez utiliser les données du tableau comme référence de départ.

CRN2XLRB

Fraise torique à rainurer, lg de coupe courte, 2 dents, dégagement long

Rainurage

Contournage

| Matière | | | Cuivre • Alliage cuivre | | | Cuivre • Alliage cuivre | | | |
|---------------------|----------------------------------|------------------------|--------------------------------|--------------------|-----------------------------|--------------------------------|--------------------|---------------------|------------|
| Dia. (mm) | Rayon (mm) | Longueur utile (mm) | Régime (min ⁻¹) | Avance (mm/min) | Profondeur de passe (mm) | Régime (min ⁻¹) | Avance (mm/min) | Profondeur de passe | |
| | | | | | | | | ap (mm) | ae (mm) |
| 0.5 | R0.05, R0.1 | 4 | 40000 | 800 | 0.005 | 40000 | 1500 | 0.01 | 0.1 |
| | | 6 | 40000 | 700 | 0.003 | 40000 | 1000 | 0.005 | 0.1 |
| 0.8 | R0.05, R0.1 | 6 | 40000 | 1200 | 0.02 | 40000 | 2500 | 0.02 | 0.15 |
| | | 8 | 40000 | 1200 | 0.015 | 40000 | 1600 | 0.01 | 0.15 |
| 1 | R0.1, R0.3 | 8 | 40000 | 2000 | 0.03 | 40000 | 3000 | 0.03 | 0.2 |
| | | 10 | 35000 | 1600 | 0.025 | 35000 | 2000 | 0.025 | 0.2 |
| | | 12 | 30000 | 1200 | 0.02 | 30000 | 1800 | 0.02 | 0.2 |
| 1.5 | R0.1, R0.2, R0.3 | 12 | 30000 | 1500 | 0.05 | 40000 | 4500 | 0.04 | 0.3 |
| | | 20 | 20000 | 1000 | 0.02 | 20000 | 2000 | 0.02 | 0.3 |
| 2 | R0.1, R0.2 R0.3, R0.5 | 12 | 30000 | 1500 | 0.1 | 40000 | 4500 | 0.08 | 0.4 |
| | | 16 | 30000 | 1000 | 0.06 | 30000 | 3000 | 0.05 | 0.4 |
| | | 20 | 20000 | 600 | 0.04 | 20000 | 2000 | 0.04 | 0.4 |
| 3 | R0.2, R0.3 R0.5 | 20 | 20000 | 2000 | 0.12 | 35000 | 6000 | 0.1 | 0.6 |
| | | 20 | 20000 | 2200 | 0.12 | 35000 | 8000 | 0.1 | 0.6 |
| 4 | R0.2, R0.3 R0.5 | 20 | 15000 | 2000 | 0.25 | 32000 | 5000 | 0.15 | 0.8 |
| | | 20 | 15000 | 2200 | 0.25 | 32000 | 7000 | 0.15 | 0.8 |
| 5 | R0.2, R0.3 R0.5 | 25 | 12000 | 1500 | 0.3 | 22000 | 5000 | 0.2 | 1.0 |
| | | 25 | 12000 | 1700 | 0.3 | 22000 | 7000 | 0.2 | 1.0 |
| 6 | R0.2, R0.3, R0.5 R1 | 30 | 10000 | 1200 | 0.4 | 20000 | 5000 | 0.25 | 1.2 |
| | | 30 | 10000 | 1500 | 0.4 | 20000 | 7000 | 0.25 | 1.2 |
| Profondeur de passe | | | D:Dia. | | | | | | |

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