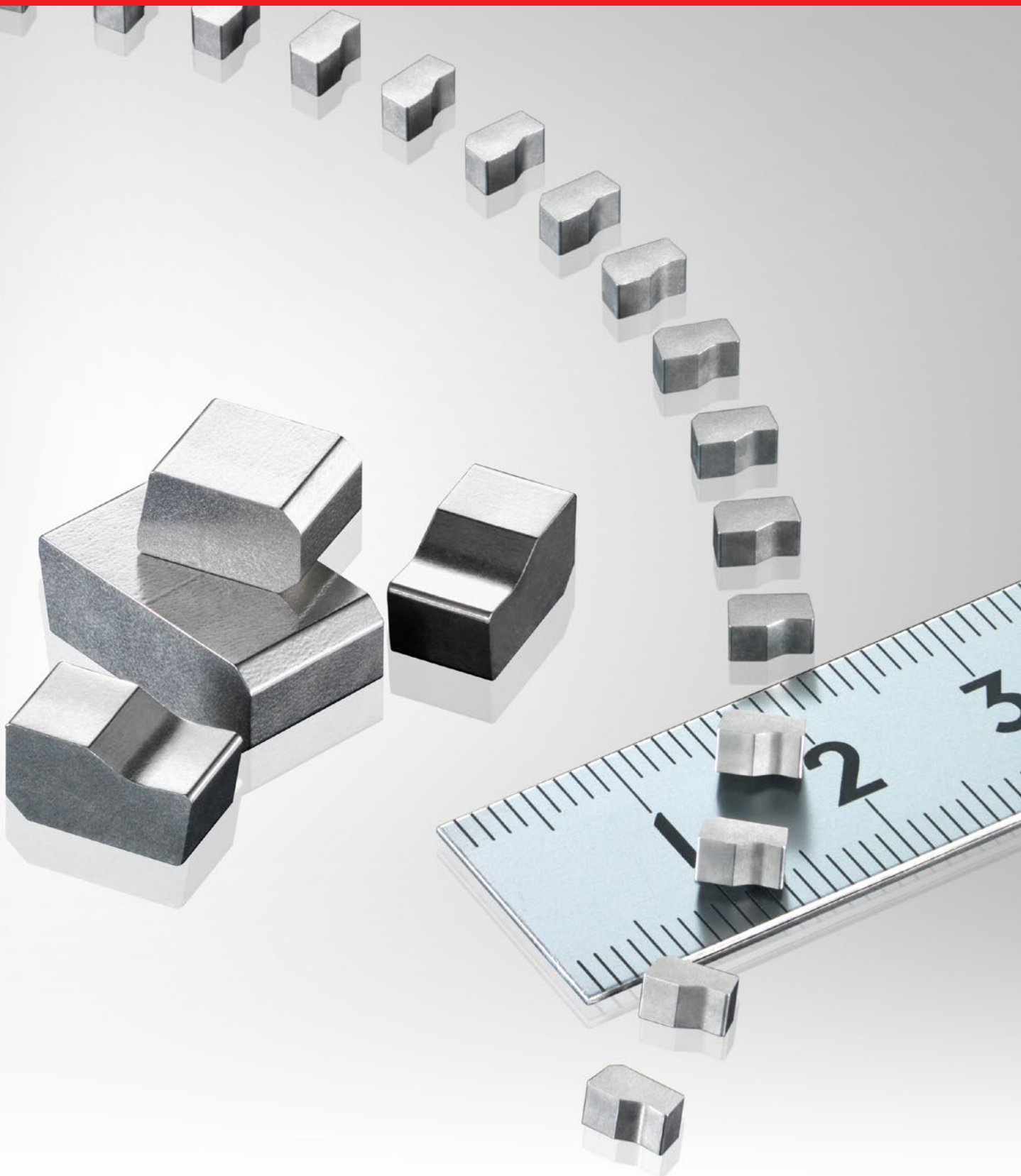


# **CARBIDE & CERMET TIPS** **for CIRCULAR SAW BLADES**



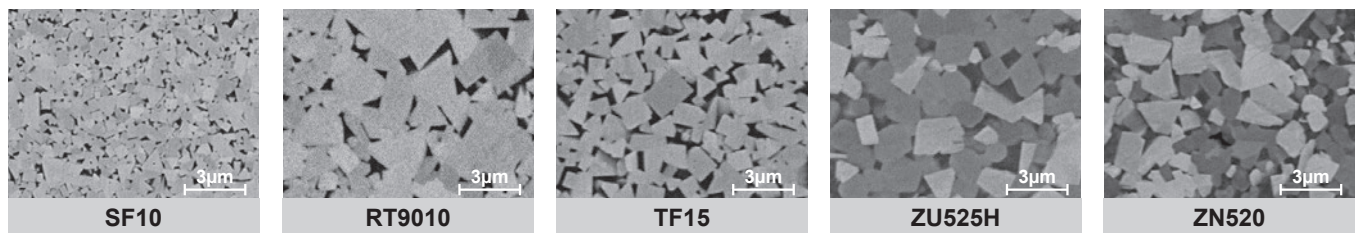
# Carbide

- Effective for a variety of work materials
- Excellent fracture resistance and stable cutting

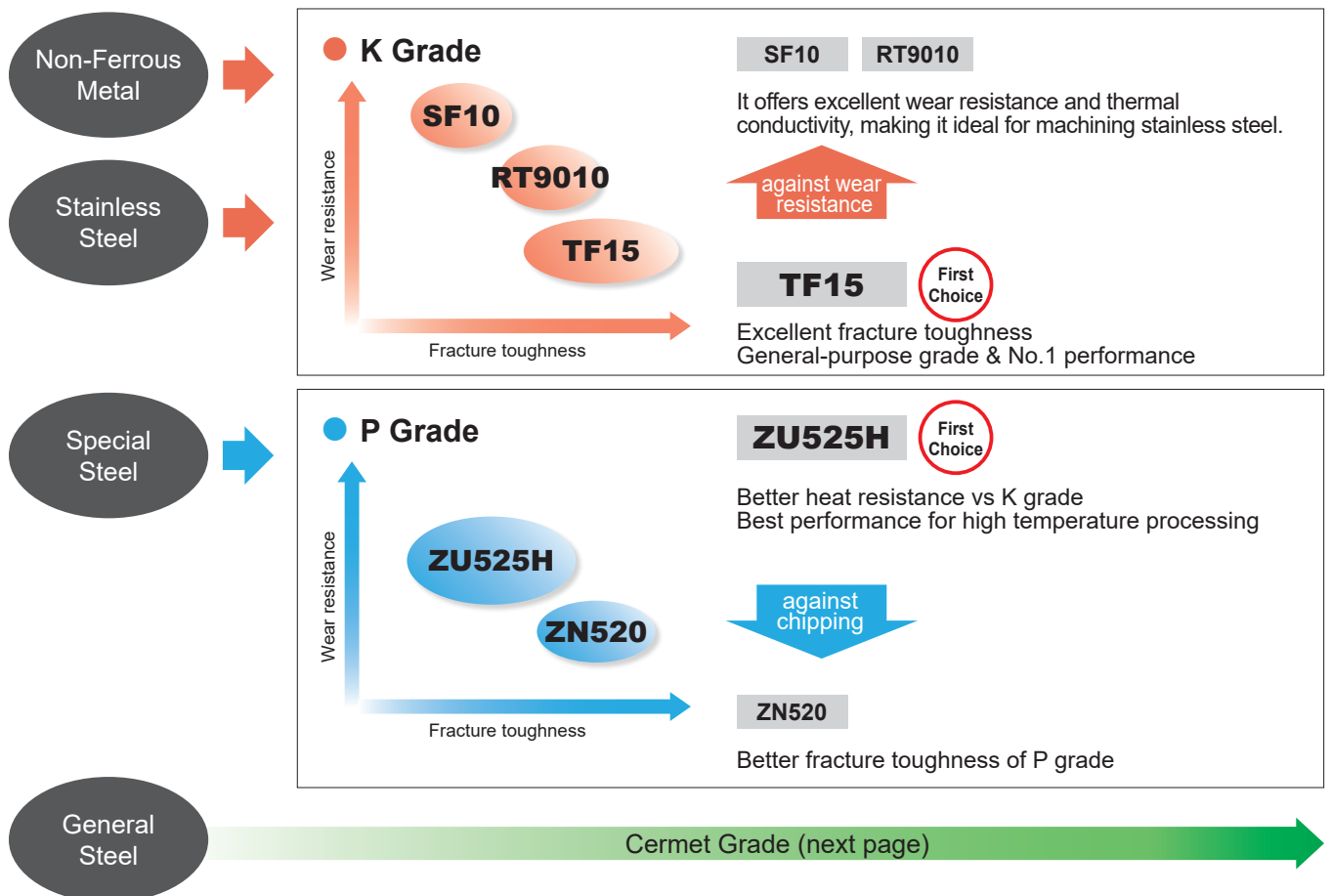
## Carbide Grade

| Grade  | ISO Code | Grain Size (μm) | Co (mass%) | TRS (GPa) *1 | Hardness |       | Thermal Conductivity (W/m·K) | Fracture Toughness (MPa·m <sup>1/2</sup> ) | Work Material |               |                 |                   |
|--------|----------|-----------------|------------|--------------|----------|-------|------------------------------|--------------------------------------------|---------------|---------------|-----------------|-------------------|
|        |          |                 |            |              | HRA *2   | HV *3 |                              |                                            | General Steel | Special Steel | Stainless Steel | Non-ferrous Metal |
| SF10   | K01      | <0.8            | 6.0        | 3.8          | 92.7     | 1830  | 79                           | 6.6                                        | ★             |               | ★★              | ★                 |
| RT9010 | K20      | <1.5            | 5.7        | 2.2          | 91.8     | 1620  | 79                           | 9.0                                        | ★             |               | ★★              | ★                 |
| TF15   | K20      | <0.9            | 10.0       | 2.5          | 91.0     | 1550  | 71                           | 8.7                                        | ★             |               | ★★              | ★                 |
| ZU525H | P30      | <3.0            | 12.5       | 2.1          | 90.5     | 1450  | 41                           | 9.5                                        | ★             | ★★            | ★               |                   |
| ZN520  | P40      | <3.0            | 12.0       | 2.2          | 89.3     | 1300  | 40                           | 12.0                                       | ★             | ★★            | ★               |                   |

\*1 ISO03327 \*2 ISO03738 \*3 ISO03878



## How to select



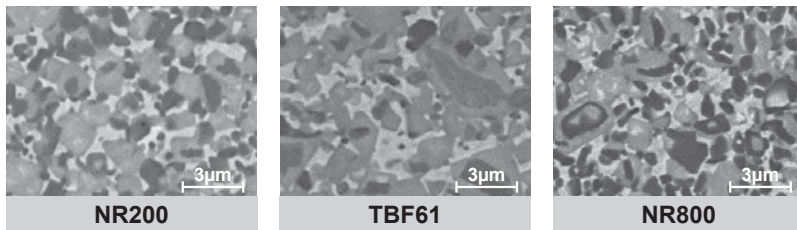
# Cermet

- Better life time for metal cutting
- Excellent performance in brazing process

## Cermet Grade

| Grade | ISO Code | Grain Size (μm) | Binder Co+Ni (mass%) | TRS (GPa) ※1 | Hardness |       | Thermal Conductivity (W/m·K) | Fracture Toughness (MPa·m <sup>1/2</sup> ) | Work Material |               |                 |                   |
|-------|----------|-----------------|----------------------|--------------|----------|-------|------------------------------|--------------------------------------------|---------------|---------------|-----------------|-------------------|
|       |          |                 |                      |              | HRA ※2   | HV ※3 |                              |                                            | General Steel | Special Steel | Stainless Steel | Non-ferrous metal |
| NR200 | P10      | <1.5            | 19                   | 2.1          | 91.5     | 1570  | 19                           | 5.3                                        | ★★            | ★             |                 |                   |
| TBF61 | P20      | <2.0            | 19                   | 2.0          | 90.5     | 1450  | 13                           | 5.5                                        | ★★            | ★             |                 |                   |
| NR800 | P30      | <1.5            | 23                   | 2.2          | 90.0     | 1370  | 18                           | 7.2                                        | ★★            | ★             |                 |                   |

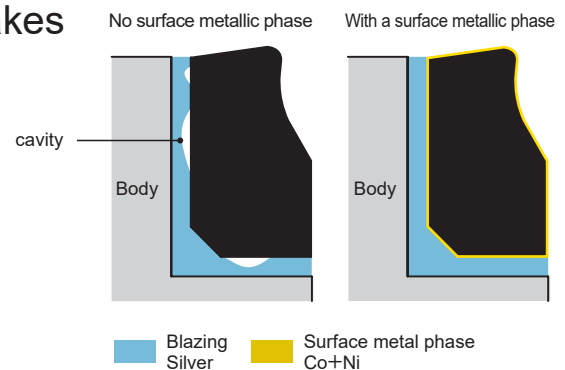
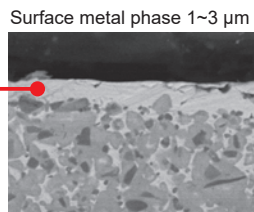
\*1 ISO03327 \*2 ISO03738 \*3 ISO03878



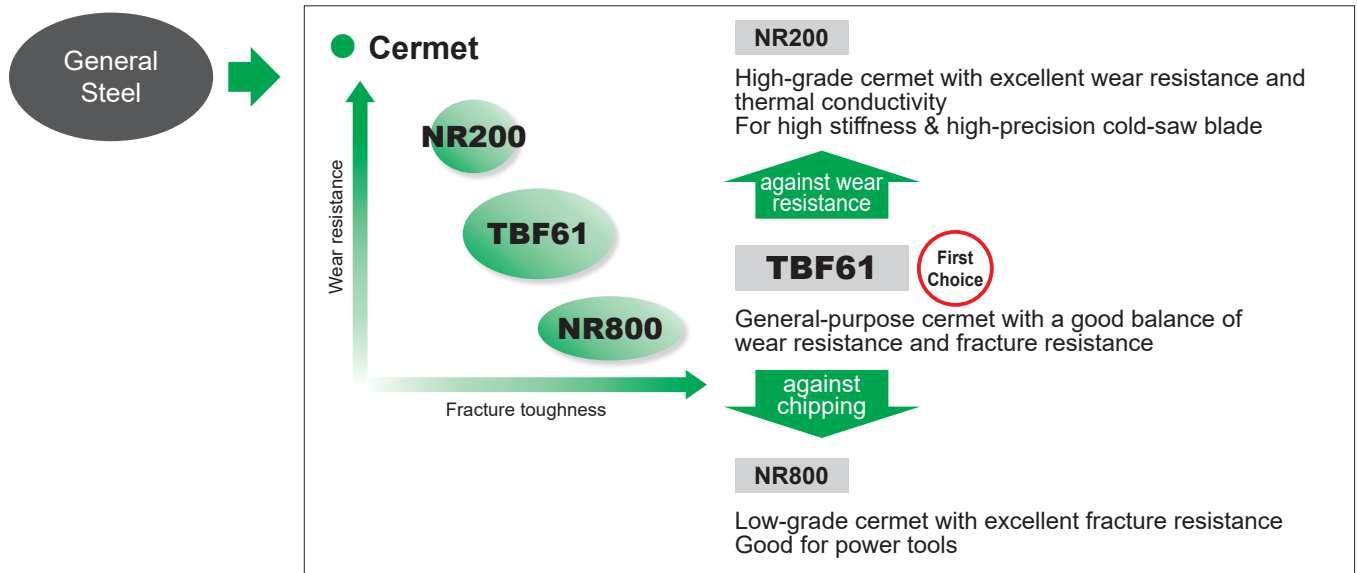
Our special sintering process makes excellent performance in brazing

Metal phase is deposited on the chip surface

→ Improved wettability of brazing materials



## How to select



## Standard Tips

| Geometry            | Order Number           | Dimensions (mm) |     |         |    |     |     |     |     |
|---------------------|------------------------|-----------------|-----|---------|----|-----|-----|-----|-----|
|                     |                        | L               | H   | T       | θ° | A   | B   | C   | D   |
| <b>SBA type</b><br> | <b>SBA-4X1.5XTX10%</b> | 4.0             | 1.5 | 2.0-3.5 | 10 | 0.5 | —   | —   | —   |
|                     | <b>SBA-4X2XTX15%</b>   | 4.0             | 2.0 | 2.0-4.5 | 15 | 0.5 | —   | —   | —   |
|                     | <b>SBA-5X1.5XTX20%</b> | 5.0             | 1.5 | 2.0-3.5 | 20 | 0.5 | —   | —   | —   |
|                     | <b>SBA-5X2XTX15%</b>   | 5.0             | 2.0 | 2.0-4.5 | 15 | 0.5 | —   | —   | —   |
|                     | <b>SBA-5X2.5XT</b>     | 5.0             | 2.5 | 2.0-5.0 | 0  | —   | —   | —   | —   |
|                     | <b>SBA-5X2.5XTX8%</b>  | 5.0             | 2.5 | 2.0-5.0 | 8  | 0.5 | —   | —   | —   |
|                     | <b>SBA-5X3XTX8%</b>    | 5.0             | 3.0 | 2.0-5.0 | 8  | 0.5 | —   | —   | —   |
|                     | <b>SBA-6X2XTX8%</b>    | 6.0             | 2.0 | 2.0-4.5 | 8  | 0.5 | —   | —   | —   |
|                     | <b>SBA-6X2XTX45%</b>   | 6.0             | 2.0 | 2.0-4.5 | 45 | 1.5 | —   | —   | —   |
|                     | <b>SBA-7X2.2XTX8%</b>  | 7.0             | 2.2 | 2.0-5.0 | 8  | 0.5 | —   | —   | —   |
|                     | <b>SBA-7X2.5XT</b>     | 7.0             | 2.5 | 2.0-5.0 | 0  | —   | —   | —   | —   |
|                     | <b>SBA-7X2.5XTX8%</b>  | 7.0             | 2.5 | 2.0-5.0 | 8  | 0.5 | —   | —   | —   |
|                     | <b>SBA-7X2.5XTX20%</b> | 7.0             | 2.5 | 2.0-5.0 | 20 | 0.5 | —   | —   | —   |
|                     | <b>SBA-7X3XT</b>       | 7.0             | 3.0 | 2.0-5.0 | 0  | —   | —   | —   | —   |
|                     | <b>SBA-9X3XTX20%</b>   | 9.0             | 3.0 | 2.0-5.0 | 20 | 0.5 | —   | —   | —   |
| <b>SBB type</b><br> | <b>SBB-4X1.8XTX15%</b> | 4.0             | 1.8 | 2.0-4.0 | 15 | 0.5 | 1.0 | 0.5 | —   |
|                     | <b>SBB-4X2XTX15%</b>   | 4.0             | 2.0 | 2.0-4.5 | 15 | 0.5 | 1.0 | 0.5 | —   |
|                     | <b>SBB-4X2.3XTX10%</b> | 4.0             | 2.3 | 2.0-5.0 | 10 | 0.5 | 0.5 | 0.5 | —   |
|                     | <b>SBB-5X1.8XTX15%</b> | 5.0             | 1.8 | 2.0-4.0 | 15 | 0.5 | 1.0 | 0.5 | —   |
|                     | <b>SBB-5X2.3XTX10%</b> | 5.0             | 2.3 | 2.0-5.0 | 10 | 0.5 | 0.5 | 0.5 | —   |
|                     | <b>SBB-6X2XTX15%</b>   | 6.0             | 2.0 | 2.0-4.5 | 15 | 0.5 | 1.0 | 0.5 | —   |
|                     | <b>SBB-6X2.3XTX10%</b> | 6.0             | 2.3 | 2.0-5.0 | 10 | 0.5 | 0.5 | 0.5 | —   |
|                     | <b>SBB-7X2.3XTX10%</b> | 7.0             | 2.3 | 2.0-5.0 | 10 | 0.5 | 0.5 | 0.5 | —   |
|                     | <b>SBB-7X2.5XTX10%</b> | 7.0             | 2.5 | 2.0-5.0 | 10 | 0.5 | 0.5 | 0.5 | —   |
| <b>SFA type</b><br> | <b>SFA-3.3X2XT</b>     | 3.3             | 2.0 | 2.0-4.5 | —  | —   | —   | —   | 1.5 |
|                     | <b>SFA-3.5X2XT</b>     | 3.5             | 2.0 | 2.0-4.5 | —  | —   | —   | —   | 1.6 |
|                     | <b>SFA-4X2.5XT</b>     | 4.0             | 2.5 | 2.0-5.0 | —  | —   | —   | —   | 1.8 |
|                     | <b>SFA-4.5X2.5XT</b>   | 4.5             | 2.5 | 2.0-5.0 | —  | —   | —   | —   | 2.0 |
|                     | <b>SFA-5X2.5XT</b>     | 5.0             | 2.5 | 2.0-5.0 | —  | —   | —   | —   | 2.2 |
| <b>SFB type</b><br> | <b>SFB-3.5X2XT</b>     | 3.5             | 2.0 | 2.0-4.5 | —  | —   | —   | —   | 1.6 |
|                     | <b>SFB-4X2.5XT</b>     | 4.0             | 2.5 | 2.0-5.0 | —  | —   | —   | —   | 1.8 |
|                     | <b>SFB-4.5X2.5XT</b>   | 4.5             | 2.5 | 2.0-5.0 | —  | —   | —   | —   | 2.0 |
| <b>SFF type</b><br> | <b>SFF-4.8X2.5XT</b>   | 4.8             | 2.5 | 2.0-5.0 | —  | —   | —   | —   | —   |

Note 1) ○° shows θ°.

Note 2) Please contact us for any geometry.

Note 3) Dimensions and tolerances not specified are factory standards.

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