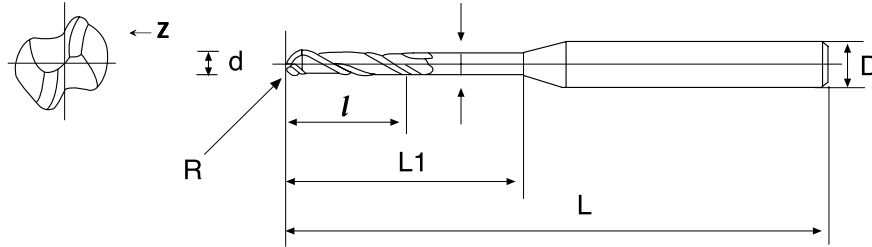


Super high lubrication & Super low friction coefficient



## BALL TYPE LONG NECK - 2 flutes

WC=88 Co=12 HRA = 92.4 Rupture=3950N/mm<sup>2</sup> Grain Size=0.5μm



● SULNBT - RS ●



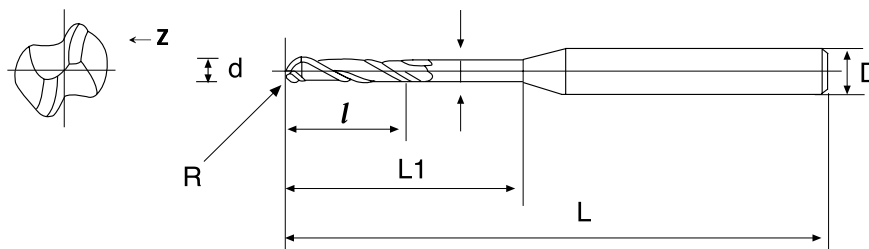
| MODE         | Diameter<br>d | Radius of<br>Ball Nose<br>R | Flute<br>Length<br>l | Efficient<br>Length<br>L1 | Shank<br>Diameter<br>D | Flute<br>Quantity<br>Z | Full<br>Length<br>L |
|--------------|---------------|-----------------------------|----------------------|---------------------------|------------------------|------------------------|---------------------|
| SULNBT 05022 | 0.5           | 0.25                        | 0.75                 | 2                         | 4                      | 2                      | 50                  |
| SULNBT 05042 | 0.5           | 0.25                        | 0.75                 | 4                         | 4                      | 2                      | 50                  |
| SULNBT 05062 | 0.5           | 0.25                        | 0.75                 | 6                         | 4                      | 2                      | 50                  |
| SULNBT 06022 | 0.6           | 0.3                         | 0.9                  | 2                         | 4                      | 2                      | 50                  |
| SULNBT 06042 | 0.6           | 0.3                         | 0.9                  | 4                         | 4                      | 2                      | 50                  |
| SULNBT 06062 | 0.6           | 0.3                         | 0.9                  | 6                         | 4                      | 2                      | 50                  |
| SULNBT 08042 | 0.8           | 0.4                         | 1.2                  | 4                         | 4                      | 2                      | 50                  |
| SULNBT 08062 | 0.8           | 0.4                         | 1.2                  | 6                         | 4                      | 2                      | 50                  |
| SULNBT 08082 | 0.8           | 0.4                         | 1.2                  | 8                         | 4                      | 2                      | 50                  |
| SULNBT 10062 | 1             | 0.5                         | 1.5                  | 6                         | 4                      | 2                      | 50                  |
| SULNBT 10082 | 1             | 0.5                         | 1.5                  | 8                         | 4                      | 2                      | 50                  |
| SULNBT 10102 | 1             | 0.5                         | 1.5                  | 10                        | 4                      | 2                      | 50                  |
| SULNBT 10122 | 1             | 0.5                         | 1.5                  | 12                        | 4                      | 2                      | 50                  |
| SULNBT 12062 | 1.2           | 0.6                         | 1.8                  | 6                         | 4                      | 2                      | 50                  |
| SULNBT 12082 | 1.2           | 0.6                         | 1.8                  | 8                         | 4                      | 2                      | 50                  |
| SULNBT 12102 | 1.2           | 0.6                         | 1.8                  | 10                        | 4                      | 2                      | 50                  |
| SULNBT 12122 | 1.2           | 0.6                         | 1.8                  | 12                        | 4                      | 2                      | 50                  |
| SULNBT 14062 | 1.4           | 0.7                         | 2.1                  | 6                         | 4                      | 2                      | 50                  |
| SULNBT 14102 | 1.4           | 0.7                         | 2.1                  | 10                        | 4                      | 2                      | 50                  |
| SULNBT 14162 | 1.4           | 0.7                         | 2.1                  | 16                        | 4                      | 2                      | 50                  |
| SULNBT 15062 | 1.5           | 0.75                        | 2.3                  | 6                         | 4                      | 2                      | 50                  |
| SULNBT 15082 | 1.5           | 0.75                        | 2.3                  | 8                         | 4                      | 2                      | 50                  |
| SULNBT 15102 | 1.5           | 0.75                        | 2.3                  | 10                        | 4                      | 2                      | 50                  |
| SULNBT 15122 | 1.5           | 0.75                        | 2.3                  | 12                        | 4                      | 2                      | 50                  |
| SULNBT 15142 | 1.5           | 0.75                        | 2.3                  | 14                        | 4                      | 2                      | 50                  |
| SULNBT 15162 | 1.5           | 0.75                        | 2.3                  | 16                        | 4                      | 2                      | 50                  |
| SULNBT 15182 | 1.5           | 0.75                        | 2.3                  | 18                        | 4                      | 2                      | 50                  |
| SULNBT 15202 | 1.5           | 0.75                        | 2.3                  | 20                        | 4                      | 2                      | 50                  |

# RS

For Multiple Materials

## BALL TYPE LONG NECK - 2 flutes

WC=88 Co=12 HRA = 92.4 Rupture=3950N/mm<sup>2</sup> Grain Size=0.5μm



● SULNBT - RS ●



| MODE         | Diameter d | Radius of Ball Nose R | Flute Length l | Efficient Length L1 | Shank Diameter D | Flute Quantity Z | Full Length L |
|--------------|------------|-----------------------|----------------|---------------------|------------------|------------------|---------------|
| SULNBT 16062 | 1.6        | 0.8                   | 2.4            | 6                   | 4                | 2                | 50            |
| SULNBT 16082 | 1.6        | 0.8                   | 2.4            | 8                   | 4                | 2                | 50            |
| SULNBT 16102 | 1.6        | 0.8                   | 2.4            | 10                  | 4                | 2                | 50            |
| SULNBT 16122 | 1.6        | 0.8                   | 2.4            | 12                  | 4                | 2                | 50            |
| SULNBT 16142 | 1.6        | 0.8                   | 2.4            | 14                  | 4                | 2                | 50            |
| SULNBT 16162 | 1.6        | 0.8                   | 2.4            | 16                  | 4                | 2                | 50            |
| SULNBT 16182 | 1.6        | 0.8                   | 2.4            | 18                  | 4                | 2                | 50            |
| SULNBT 16202 | 1.6        | 0.8                   | 2.4            | 20                  | 4                | 2                | 50            |
| SULNBT 18082 | 1.8        | 0.9                   | 2.7            | 8                   | 4                | 2                | 50            |
| SULNBT 18142 | 1.8        | 0.9                   | 2.7            | 14                  | 4                | 2                | 50            |
| SULNBT 18202 | 1.8        | 0.9                   | 2.7            | 20                  | 4                | 2                | 50            |
| SULNBT 20082 | 2          | 1                     | 3              | 8                   | 4                | 2                | 50            |
| SULNBT 20102 | 2          | 1                     | 3              | 10                  | 4                | 2                | 50            |
| SULNBT 20122 | 2          | 1                     | 3              | 12                  | 4                | 2                | 50            |
| SULNBT 20142 | 2          | 1                     | 3              | 14                  | 4                | 2                | 50            |
| SULNBT 20162 | 2          | 1                     | 3              | 16                  | 4                | 2                | 50            |
| SULNBT 20182 | 2          | 1                     | 3              | 18                  | 4                | 2                | 50            |
| SULNBT 20202 | 2          | 1                     | 3              | 20                  | 4                | 2                | 50            |
| SULNBT 25082 | 2.5        | 1.25                  | 4              | 8                   | 4                | 2                | 50            |
| SULNBT 25122 | 2.5        | 1.25                  | 4              | 12                  | 4                | 2                | 50            |
| SULNBT 25162 | 2.5        | 1.25                  | 4              | 16                  | 4                | 2                | 50            |
| SULNBT 25202 | 2.5        | 1.25                  | 4              | 20                  | 4                | 2                | 50            |
| SULNBT 30102 | 3          | 1.5                   | 4.5            | 10                  | 6                | 2                | 50            |
| SULNBT 30122 | 3          | 1.5                   | 4.5            | 12                  | 6                | 2                | 50            |
| SULNBT 30162 | 3          | 1.5                   | 4.5            | 16                  | 6                | 2                | 60            |
| SULNBT 30202 | 3          | 1.5                   | 4.5            | 20                  | 6                | 2                | 60            |
| SULNBT 30252 | 3          | 1.5                   | 4.5            | 25                  | 6                | 2                | 75            |
| SULNBT 40122 | 4          | 2                     | 6              | 12                  | 6                | 2                | 50            |
| SULNBT 40162 | 4          | 2                     | 6              | 16                  | 6                | 2                | 60            |
| SULNBT 40202 | 4          | 2                     | 6              | 20                  | 6                | 2                | 75            |
| SULNBT 40252 | 4          | 2                     | 6              | 25                  | 6                | 2                | 75            |
| SULNBT 40302 | 4          | 2                     | 6              | 30                  | 6                | 2                | 75            |



**SULNBT ■ Standard Cutting Conditions**

| Work Material       |                            | Carbon Steels<br>S50C(~225HB)                 |                       | Alloy Steels<br>SCM, SK, SUS<br>(225~325HB) |                       | Prehardened Steels<br>Hardened steels<br>NAK.SKD(30~45HRC) |                       | Hardened steels<br>SKD11.61.SKT<br>(40~50HRC) |                       |
|---------------------|----------------------------|---|-----------------------|---|-----------------------|--|-----------------------|---|-----------------------|
| Cutting Speed       |                            | 50~65m/min                                    |                       | 40~55m/min                                  |                       | 30~50m/min   |                       | 30~40m/min                                    |                       |
| R                   | Ad<br>Depth of cut<br>(mm) | Speed (min <sup>-1</sup> )                    | Feed Rate<br>(mm/min) | Speed (min <sup>-1</sup> )                  | Feed Rate<br>(mm/min) | Speed (min <sup>-1</sup> )                                 | Feed Rate<br>(mm/min) | Speed (min <sup>-1</sup> )                    | Feed Rate<br>(mm/min) |
| 0.25                | 0.003~0.01                 | 32,000  | 640                   | 32,000                                      | 640                   | 26,000   | 300                   | 20,000  | 240                   |
| 0.3                 | 0.006~0.03                 | 32,000  | 830                   | 27,000                                      | 700                   | 21,000   | 340                   | 16,000  | 260                   |
| 0.5                 | 0.005~0.08                 | 19,000  | 870                   | 16,000                                      | 740                   | 13,000   | 420                   | 10,000  | 320                   |
| 0.75                | 0.06~0.12                  | 13,000  | 940                   | 10,500                                      | 760                   | 8,500  | 440                   | 6,500   | 340                   |
| 1                   | 0.03~0.21                  | 10,000  | 1,000                 | 8,000                                       | 800                   | 6,000  | 420                   | 5,000   | 350                   |
| 1.5                 | 0.03~0.23                  | 6,600   | 730                   | 5,300                                       | 580                   | 4,000  | 310                   | 3,300   | 260                   |
| 2                   | 0.01~0.28                  | 5,000   | 660                   | 4,000                                       | 530                   | 3,000  | 260                   | 2,500   | 230                   |
| Depth of cut<br>(R) |                            | $\leq 0.1R (R \leq 1)$<br>$\leq 0.2R (R > 1)$ |                       |   |                       |  |                       |   |                       |

1. Use a rigid machine and holder.
2. If the rigidity of the machine or the work material installation is very low, or chattering is generated, please reduce the revolution and the feed rate proportionately.
3. Use cutting fluid with retardant.