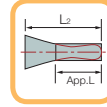


The effective neck length shown is not an exact value and to avoid contact with the workpiece, we recommend the user control the precise value of this length.



※ R2 or higher is not applied to Back draft type.

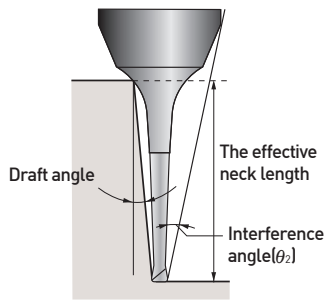
## ZSTNR..... series



| EDP. No.          | Dimension(mm) |      |                |     |                |                |                |                |                |        | Effective Neck Length |      |      |      |      | STOCK |      |      |      |      |      |      |  |
|-------------------|---------------|------|----------------|-----|----------------|----------------|----------------|----------------|----------------|--------|-----------------------|------|------|------|------|-------|------|------|------|------|------|------|--|
|                   | R             | D    | L <sub>2</sub> | θ   | L <sub>1</sub> | d <sub>1</sub> | d <sub>2</sub> | L <sub>3</sub> | d <sub>3</sub> | App. L | θ <sub>2</sub>        | 0.5° | 1°   | 1.5° | 2°   |       | 3°   |      |      |      |      |      |  |
| ZSTNR2002-2-09005 | 0.2           | 0.05 | 2              | 0.9 | 0.15           | 0.17           | 0.23           | 50             | 4              | 1.10   | 10.0                  | x    | 2.8  | 3.1  | 3.4  | 3.9   |      |      |      |      |      |      |  |
| ZSTNR2004-4-09005 | 0.4           | 0.05 | 4              | 0.9 | 0.3            | 0.37           | 0.49           | 50             | 4              | 1.25   | 8.4                   | x    | 4.9  | 5.3  | 5.7  | 6.3   |      |      |      |      |      |      |  |
| ZSTNR2004-5-09005 |               |      | 5              | 0.9 |                |                | 0.52           |                |                | 1.25   | 7.8                   | x    | 5.9  | 6.4  | 6.8  | 7.5   |      |      |      |      |      |      |  |
| ZSTNR2004-4-0901  |               | 0.1  | 4              | 0.9 |                |                | 0.49           |                |                | 1.25   | 8.5                   | x    | 4.9  | 5.3  | 5.7  | 6.3   |      |      |      |      |      |      |  |
| ZSTNR2004-5-0901  |               |      | 5              | 0.9 |                |                | 0.52           |                |                | 1.25   | 7.9                   | x    | 5.9  | 6.4  | 6.8  | 7.5   |      |      |      |      |      |      |  |
| ZSTNR2005-5-0901  | 0.5           | 0.1  | 5              | 0.9 | 0.35           | 0.47           | 0.62           | 50             | 4              | 1.30   | 7.8                   | x    | 5.9  | 6.4  | 6.8  | 7.5   |      |      |      |      |      |      |  |
| ZSTNR2005-8-0901  |               |      | 8              | 0.9 |                |                | 0.71           |                |                | 1.30   | 6.4                   | x    | 9.0  | 9.7  | 10.2 | 11.0  |      |      |      |      |      |      |  |
| ZSTNR2005-10-0901 |               |      | 10             | 0.9 |                |                | 0.77           |                |                | 1.30   | 5.8                   | x    | 11.0 | 11.8 | 12.4 | 13.2  |      |      |      |      |      |      |  |
| ZSTNR2006-12-0901 | 0.6           | 0.1  | 12             | 0.9 | 0.4            | 0.57           | 0.93           | 55             | 4              | 1.35   | 5.1                   | x    | 13.0 | 13.9 | 14.5 | 15.5  |      |      |      |      |      |      |  |
| ZSTNR2006-15-0901 |               |      | 15             | 0.9 |                |                | 1.03           |                |                | 1.35   | 4.5                   | x    | 16.1 | 17.1 | 17.8 | 18.8  |      |      |      |      |      |      |  |
| ZSTNR2008-6-0402  | 0.8           | 0.2  | 6              | 0.4 | 0.5            | 0.77           | 0.85           | 50             | 4              | 2.64   | 7.0                   | 6.6  | 7.1  | 7.5  | 7.8  | 8.3   |      |      |      |      |      |      |  |
| ZSTNR2008-12-0902 |               |      | 12             | 0.9 |                |                | 1.13           |                |                | 1.45   | 5.0                   | x    | 13.0 | 13.9 | 14.5 | 15.5  |      |      |      |      |      |      |  |
| ZSTNR2010-8-0402  | 1             | 0.2  | 8              | 0.4 | 0.8            | 0.94           | 1.04           | 55             | 6              | 5.09   | 7.4                   | 8.8  | 9.3  | 9.7  | 10.1 | 10.6  |      |      |      |      |      |      |  |
| ZSTNR2010-10-0902 |               |      | 10             | 0.9 |                |                | 1.23           |                |                | 5.09   | 6.8                   | x    | 11.2 | 11.9 | 12.4 | 13.3  |      |      |      |      |      |      |  |
| ZSTNR2010-15-0902 |               |      | 15             | 0.9 |                |                | 1.39           |                |                | 2.70   | 5.6                   | x    | 16.3 | 17.2 | 17.8 | 18.8  |      |      |      |      |      |      |  |
| ZSTNR2010-20-0902 |               |      | 20             | 0.9 |                |                | 1.54           |                |                | 2.70   | 4.8                   | x    | 21.3 | 22.4 | 23.2 | 24.7  |      |      |      |      |      |      |  |
| ZSTNR2010-25-0902 |               |      | 25             | 0.9 |                |                | 1.70           |                |                | 2.70   | 4.1                   | x    | 26.4 | 27.6 | 28.5 | 30.9  |      |      |      |      |      |      |  |
| ZSTNR2010-30-0902 |               |      | 30             | 0.9 |                |                | 1.86           |                |                | 2.70   | 3.7                   | x    | 31.5 | 32.8 | 33.7 | 37.0  |      |      |      |      |      |      |  |
| ZSTNR2010-35-0902 |               |      | 35             | 0.9 |                |                | 2.02           |                |                | 2.70   | 3.3                   | x    | 36.5 | 38.0 | 39.0 | 43.2  |      |      |      |      |      |      |  |
| ZSTNR2010-8-0403  |               | 0.3  | 8              | 0.4 | 0.8            | 0.94           | 1.04           | 55             | 6              | 2.70   | 7.4                   | 8.8  | 9.3  | 9.7  | 10.0 | 10.6  |      |      |      |      |      |      |  |
| ZSTNR2010-15-0903 |               |      | 15             | 0.9 |                |                | 1.39           |                |                | 2.70   | 5.6                   | x    | 16.3 | 17.2 | 17.8 | 18.8  |      |      |      |      |      |      |  |
| ZSTNR2010-25-0903 |               |      | 25             | 0.9 |                |                | 1.70           |                |                | 2.70   | 4.2                   | x    | 26.4 | 27.6 | 28.5 | 30.8  |      |      |      |      |      |      |  |
| ZSTNR2010-30-0903 |               |      | 30             | 0.9 |                |                | 1.86           |                |                | 2.70   | 3.7                   | x    | 31.5 | 32.8 | 33.7 | 37.0  |      |      |      |      |      |      |  |
| ZSTNR2015-10-0402 |               |      | 1.5            | 0.2 |                |                | 10             |                |                | 0.4    | 1.35                  | 1.42 | 1.54 | 55   | 6    | 7.07  | 6.4  | 11.0 | 11.5 | 11.9 | 12.3 | 13.0 |  |
| ZSTNR2015-15-0902 |               |      |                |     |                |                | 15             |                |                | 0.9    |                       |      | 1.85 |      |      | 7.07  | 5.3  | x    | 16.4 | 17.3 | 17.9 | 18.9 |  |
| ZSTNR2015-20-0902 |               |      |                |     |                |                | 20             |                |                | 0.9    |                       |      | 2.01 |      |      | 3.89  | 4.5  | x    | 21.5 | 22.5 | 23.2 | 24.9 |  |
| ZSTNR2015-25-0902 | 25            | 0.9  |                |     | 2.16           | 3.89           | 3.9            | x              | 26.6           | 27.7   |                       |      | 28.5 |      |      | 31.0  |      |      |      |      |      |      |  |
| ZSTNR2015-30-0902 | 30            | 0.9  |                |     | 2.32           | 3.89           | 3.4            | x              | 31.6           | 32.9   |                       |      | 33.8 |      |      | 37.1  |      |      |      |      |      |      |  |
| ZSTNR2015-10-0403 | 0.3           | 10   |                |     | 0.4            | 1.54           | 55             | 3.89           | 6.4            | 11.0   |                       |      | 11.5 |      |      | 11.9  | 12.3 | 13.0 |      |      |      |      |  |

x No application  
- No interference

※ These tools are manufactured based on order received.



## 2 FLUTE, TAPER NECK BACK DRAFT TYPE

- If the workpiece has draft angle, the interference length will be longer than the  $L_2$ .
- Please refer to the effective neck length for the various draft angles.
- In addition, the angle at which the tool will interfere with the workpiece is shown as the "interference angle  $\theta_2$ ", and should also be referred to.



※The effective neck length shown is not an exact value and to avoid contact with the workpiece, we recommend the user control the precise value of this length.

| EDP. No.          | Dimension(mm) |      |       |          |       |       |       |       |       |        | Effective Neck Length |      |      |      |      | STOCK |      |      |      |   |      |      |
|-------------------|---------------|------|-------|----------|-------|-------|-------|-------|-------|--------|-----------------------|------|------|------|------|-------|------|------|------|---|------|------|
|                   | R             | D    | $L_2$ | $\theta$ | $L_1$ | $d_1$ | $d_2$ | $L_3$ | $d_3$ | App. L | $\theta_2$            | 0.5° | 1°   | 1.5° | 2°   |       | 3°   |      |      |   |      |      |
| ZSTNR2015-20-0903 | 1.5           | 0.3  | 20    | 0.9      | 1.35  | 1.42  | 2.01  | 65    | 6     | 3.89   | 4.5                   | x    | 21.5 | 22.5 | 23.2 | 24.8  |      |      |      |   |      |      |
| ZSTNR2015-25-0903 |               |      | 25    |          |       |       | 2.16  | 70    |       |        | 3.9                   | x    | 26.5 | 27.7 | 28.5 | 31.0  |      |      |      |   |      |      |
| ZSTNR2015-30-0903 |               |      | 30    |          |       |       | 2.32  | 75    |       |        | 3.4                   | x    | 31.6 | 32.9 | 33.8 | 37.1  |      |      |      |   |      |      |
| ZSTNR2020-30-0902 | 2             | 0.2  | 30    | 0.9      | 1.7   | 1.92  | 2.81  | 70    | 6     | 7.42   | 3.1                   | x    | 31.6 | 32.9 | 33.8 | 37.2  |      |      |      |   |      |      |
| ZSTNR2020-40-0902 |               |      | 40    |          |       |       | 3.12  | 80    |       |        | 2.5                   | x    | 41.8 | 43.3 | 44.6 | -     |      |      |      |   |      |      |
| ZSTNR2020-50-0902 |               |      | 50    |          |       |       | 3.44  | 90    |       |        | 2.1                   | x    | 51.9 | 53.6 | 55.7 | -     |      |      |      |   |      |      |
| ZSTNR2020-12-0403 |               |      | 0.3   |          |       |       | 12    | 0.4   |       |        | 2.06                  | 55   | 5.5  | 13.0 | 13.6 | 14.1  | 14.5 | 15.6 |      |   |      |      |
| ZSTNR2020-20-0903 |               |      |       |          |       |       | 20    |       |       |        | 2.50                  | 65   | 4.1  | x    | 21.5 | 22.5  | 23.2 | 24.9 |      |   |      |      |
| ZSTNR2020-30-0903 |               |      |       |          |       |       | 30    |       |       |        | 2.81                  | 70   | 3.1  | x    | 31.6 | 32.9  | 33.8 | 37.1 |      |   |      |      |
| ZSTNR2020-40-0903 |               | 40   | 3.12  | 80       |       |       | 2.5   | x     |       |        | 41.7                  | 43.3 | 44.6 | -    |      |       |      |      |      |   |      |      |
| ZSTNR2020-50-0903 |               | 50   | 3.44  | 90       |       |       | 2.1   | x     |       |        | 51.8                  | 53.6 | 55.7 | -    |      |       |      |      |      |   |      |      |
| ZSTNR2020-8-0405  |               | 0.5  | 0.4   | 8        |       |       | 0.9   | 2.01  |       |        | 50                    | 6.8  | 8.7  | 9.0  | 9.3  | 9.5   | 10.4 |      |      |   |      |      |
| ZSTNR2020-12-0405 |               |      |       | 12       |       |       |       | 2.06  |       |        | 55                    | 5.6  | 13.0 | 13.6 | 14.1 | 14.4  | 15.5 |      |      |   |      |      |
| ZSTNR2020-16-0405 |               |      |       | 16       |       |       |       | 2.12  |       |        | 60                    | 4.7  | 17.0 | 17.8 | 18.3 | 18.7  | 20.7 |      |      |   |      |      |
| ZSTNR2020-20-0905 |               |      | 0.9   | 20       |       |       | 0.9   | 2.50  |       |        | 65                    | 4.2  | x    | 21.5 | 22.5 | 23.2  | 24.8 |      |      |   |      |      |
| ZSTNR2020-25-0905 |               |      |       | 25       |       |       |       | 2.65  |       |        | 65                    | 3.6  | x    | 26.6 | 27.7 | 28.5  | 30.9 |      |      |   |      |      |
| ZSTNR2020-30-0905 |               |      |       | 30       |       |       |       | 2.81  |       |        | 70                    | 3.1  | x    | 31.6 | 32.9 | 33.8  | 37.1 |      |      |   |      |      |
| ZSTNR2020-40-0905 |               |      |       | 40       |       |       |       | 3.12  |       |        | 80                    | 2.5  | x    | 41.7 | 43.2 | 44.6  | -    |      |      |   |      |      |
| ZSTNR2020-50-0905 |               |      |       | 50       |       |       |       | 3.44  |       |        | 90                    | 2.1  | x    | 51.8 | 53.6 | 55.6  | -    |      |      |   |      |      |
| ZSTNR2030-40-0902 |               |      |       | 3        |       |       |       | 0.2   |       |        | 40                    | 0.9  | 2.5  | 2.86 | 4.04 | 80    | 6    | 6.95 | 2.0  | x | 42.0 | 43.4 |
| ZSTNR2030-50-0902 |               | 50   | 4.35  |          |       |       | 90    |       |       |        | 1.6                   |      |      |      | x    | 52.1  |      |      | 53.7 | - | -    |      |
| ZSTNR2030-60-0902 | 60            | 4.67 | 100   |          | 1.4   | x     | 62.2  |       | -     | -      | -                     |      |      |      |      |       |      |      |      |   |      |      |
| ZSTNR2030-40-0903 | 0.3           | 40   | 0.9   |          | 4.04  | 80    | 2.0   | x     | 42.0  | 43.4   | -                     |      |      |      | -    |       |      |      |      |   |      |      |
| ZSTNR2030-50-0903 |               | 50   |       |          | 4.35  | 90    | 1.7   | x     | 52.1  | 53.7   | -                     |      |      |      | -    |       |      |      |      |   |      |      |
| ZSTNR2030-60-0903 |               | 60   |       |          | 4.67  | 100   | 1.4   | x     | 62.2  | -      | -                     |      |      |      | -    |       |      |      |      |   |      |      |
| ZSTNR2030-40-0905 | 0.5           | 0.4  | 40    |          | 0.9   | 4.04  | 80    | 2.0   | x     | 42.0   | 43.4                  |      |      |      | -    | -     |      |      |      |   |      |      |
| ZSTNR2030-50-0905 |               |      | 50    |          |       | 4.35  | 90    | 1.7   | x     | 52.1   | 53.7                  |      |      |      | -    | -     |      |      |      |   |      |      |
| ZSTNR2030-60-0905 |               |      | 60    |          |       | 4.67  | 100   | 1.4   | x     | 62.1   | -                     |      |      |      | -    | -     |      |      |      |   |      |      |

X No application  
- No interference

※ These tools are manufactured based on order received.

■ Tolerance

|                |            |
|----------------|------------|
| Mill Dia. (mm) | Shank Dia. |
| 0 ~ -0.015     | h5         |

※Items can be changed for quality improvement without notice.