ZrN Coated Solid Carbide 2D / 3D Carving Tapered Ball Nose (Conical Ball) CNC Bit

D = Tip Diameter 1/32" (.0312") Carving (Ball)
B = Max Depth of Cut 1.0"
R = Radius 1/64"
Tip Radius Tolerance ±.001"
a° = Half Angle 6.2°
d = Shank Diameter 1/4" (.2500")
L = Overall Length 3.00"
Plunge Yes

Step Down ↓ Rate (Roughing/Clearance) .062" per pass
Step Down ↓ Rate (Finishing) .003" per pass
Step Over ↔ Rate (Roughing/Clearance) .008" - .012"
Step Over ↔ Rate (Finishing) .003" per pass
# of Flutes 3
RPMs 5k to 60k
Maximum Operating RPMs 60k RPMs
ZrN Coated Solid Carbide 2D / 3D Carving Tapered Ball Nose (Conical Ball) CNC Bit

- **D** = Tip Diameter: 1/16" (.0625") Carving (Ball)
- **B** = Max Depth of Cut: 1.060"
- **R** = Radius: 1/32"
- **Tip Radius Tolerance**: ±.001"
- **a° = Half Angle**: 5.4°
- **d** = Shank Diameter: 1/4" (.2500")
- **L** = Overall Length: 3.00"
- **Plunge**: Yes
- **Step Down ↓ Rate (Roughing/Clearance)**: .125" per pass
- **Step Down ↓ Rate (Finishing)**: .006" per pass
- **Step Over ↔ Rate (Roughing/Clearance)**: .015" - .025"
- **Step Over ↔ Rate (Finishing)**: .006" per pass
- **# of Flutes**: 4
- **RPMs**: 5k to 60k
- **Maximum Operating RPMs**: 60k RPMs
ZrN Coated Solid Carbide 2D / 3D Carving Tapered Ball Nose (Conical Ball) CNC Bit

D = Tip Diameter  
1/4" (.2500") Carving (Ball)

B = Max Depth of Cut  
2.00"

R = Radius  
1/8"

Tip Radius Tolerance  
±.001"

a° = Half Angle  
6°

d = Shank Diameter  
1/2" (.5000")

L = Overall Length  
4.00"

Plunge  
Yes

Step Down ↓ Rate (Roughing/Clearance)  
.500" per pass

Step Down ↓ Rate (Finishing)  
.025" per pass

Step Over ↔ Rate (Roughing/Clearance)  
.060" - .100"

Step Over ↔ Rate (Finishing)  
.010" per pass

# of Flutes  
2

RPMs  
5k to 60k

Maximum Operating RPMs  
60k RPMs
ZrN Coated Solid Carbide 2D / 3D Carving Tapered Ball Nose (Conical Ball) CNC Bit

**Scale 1:1**

- **D** = Tip Diameter: 1/8" (.1250") Carving (Ball)
- **B** = Max Depth of Cut: 1.500"
- **R** = Radius: 1/16"
- **Tip Radius Tolerance**: ±.001"
- **a° = Half Angle**: 1°
- **d** = Shank Diameter: 1/4" (.2500")
- **L** = Overall Length: 3.00"
- **Plunge**: Yes

**Step Down ↓ Rate (Roughing/Clearance)**: .250" per pass

**Step Down ↓ Rate (Finishing)**: .012" per pass

**Step Over ↔ Rate (Roughing/Clearance)**: .030" - .050"

**Step Over ↔ Rate (Finishing)**: .012" per pass

**# of Flutes**: 3

**RPMs**: 5k to 60k

**Maximum Operating RPMs**: 60k RPMs
ZrN Coated Solid Carbide 2D / 3D Carving Tapered Ball Nose (Conical Ball) CNC Bit

D = Tip Diameter 1/4" (.2500") Carving (Ball)
B = Max Depth of Cut 1.375"
R = Radius 1/8"
Tip Radius Tolerance ±.001"
a° = Half Angle 10.0°
d = Shank Diameter 1/2" (.5000")
L = Overall Length 4.00"

Plunge Yes

Step Down ↓ Rate (Roughing/Clearance) .500" per pass
Step Down ↓ Rate (Finishing) .025" per pass
Step Over ↔ Rate (Roughing/Clearance) .060" - .100"
Step Over ↔ Rate (Finishing) .010" per pass

# of Flutes 2

RPMs 5k to 60k
Maximum Operating RPMs 60k RPMs
**ZrN Coated Solid Carbide 2D / 3D Carving Tapered Ball Nose (Conical Ball) CNC Bit**

**Scale 1:1**

- **D** = Tip Diameter: 1/8" (.1250") Carving (Ball)
- **B** = Max Depth of Cut: 1.0"
- **R** = Radius: 1/16"
- **Tip Radius Tolerance**: ±.001"
- **a°** = Half Angle: 3.6°
- **d** = Shank Diameter: 1/4" (.2500")
- **L** = Overall Length: 3.00"
- **Plunge**: Yes

**Plunge Rate**

- **Step Down ↓ Rate (Roughing/Clearance)**: .250" per pass
- **Step Down ↓ Rate (Finishing)**: .012" per pass
- **Step Over ↔ Rate (Roughing/Clearance)**: .030" - .050"
- **Step Over ↔ Rate (Finishing)**: .012" per pass

**RPMs**

- **Maximum Operating RPMs**: 5k to 60k
- **RPMs**: 60k RPMs

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ZrN Coated Solid Carbide 2D / 3D Carving Tapered Ball Nose (Conical Ball) CNC Bit

D = Tip Diameter 1/8" (.1250") Carving (Ball)
B = Max Depth of Cut .750"
R = Radius 1/16"
Tip Radius Tolerance ±.001"
a° = Half Angle 5°
d = Shank Diameter 1/4" (.2500")
L = Overall Length 3.00"

Plunge Yes

Step Down ↓ Rate (Roughing/Clearance) .250" per pass
Step Down ↓ Rate (Finishing) .012" per pass
Step Over ↔ Rate (Roughing/Clearance) .030" - .050"
Step Over ↔ Rate (Finishing) .012" per pass

# of Flutes 3

RPMs 5k to 60k
Maximum Operating RPMs 60k RPMs
ZrN Coated Solid Carbide 2D / 3D Carving Tapered Ball Nose (Conical Ball) CNC Bit

D = Tip Diameter 1/8" (.1250") Carving (Ball)
B = Max Depth of Cut .500"
R = Radius 1/16"
Tip Radius Tolerance ±.001"
a° = Half Angle 7°
d = Shank Diameter 1/4" (.2500")
L = Overall Length 3.00"

Plunge Yes

Step Down ↓ Rate (Roughing/Clearance) .250" per pass
Step Down ↓ Rate (Finishing) .012" per pass
Step Over ↔ Rate (Roughing/Clearance) .030" - .050"
Step Over ↔ Rate (Finishing) .012" per pass

# of Flutes 3
RPMs 5k to 60k
Maximum Operating RPMs 60k RPMs
ZrN Coated Solid Carbide 2D / 3D Carving Tapered Ball Nose (Conical Ball) CNC Bit

D = Tip Diameter 1/4" (.2500") Carving (Ball)
B = Max Depth of Cut 1.00"
R = Radius 1/8"
Tip Radius Tolerance ±.001"
a° = Half Angle 14.0°
d = Shank Diameter 1/2" (.5000")
L = Overall Length 4.00"

Plunge Yes

Step Down ↓ Rate (Roughing/Clearance) .500" per pass
Step Down ↓ Rate (Finishing) .025" per pass
Step Over ↔ Rate (Roughing/Clearance) .060" - .100"
Step Over ↔ Rate (Finishing) .012" per pass

# of Flutes 2

RPMs 5k to 60k
Maximum Operating RPMs 60k RPMs
ZrN Coated Solid Carbide 2D / 3D Carving Flat Bottom CNC Bit

D = Tip Diameter  1/16" (.0625") Cutting (Square End)
B = Max Depth of Cut  0.312"
Tip Radius Tolerance  ±.001"
\( a^\circ = \text{Half Angle} \)  No Taper
\( d = \text{Shank Diameter} \)  1/4" (.2500")
L = Overall Length  2.00"

Plunge  Yes

Step Down ↓ Rate (Roughing/Clearance)  .125" per pass
Step Down ↓ Rate (Finishing)  .006" per pass
Step Over ↔ Rate (Roughing/Clearance)  .015" - .025"
Step Over ↔ Rate (Finishing)  .006" per pass

# of Flutes  3
RPMs  5k to 60k
Maximum Operating RPMs  60k RPMs
ZrN Coated Solid Carbide 2D / 3D Carving Flat Bottom CNC Bit

**Scale 1:1**

- **D** = Tip Diameter
  - 1/8" (.1250") Cutting (Square End)

- **B** = Max Depth of Cut
  - 1.093"

- **Tip Radius Tolerance**
  - ±.001"

- **a° = Half Angle**
  - No Taper

- **d** = Shank Diameter
  - 1/4" (.2500")

- **L** = Overall Length
  - 2.50"

- **Plunge**
  - Yes

- **Step Down ↓ Rate (Roughing/Clearance)**
  - .250" per pass

- **Step Down ↓ Rate (Finishing)**
  - .012" per pass

- **Step Over ↔ Rate (Roughing/Clearance)**
  - .030" - .050"

- **Step Over ↔ Rate (Finishing)**
  - .012" per pass

- **# of Flutes**
  - 4

- **RPMs**
  - 5k to 60k

- **Maximum Operating RPMs**
  - 60k RPMs
ZrN Coated Solid Carbide 2D / 3D Carving Tapered Ball Nose (Conical Ball) CNC Bit

D = Tip Diameter 1/4" (.2500") Carving (Ball)
B = Max Depth of Cut 1.500"
R = Radius 1/8"
Tip Radius Tolerance ±.001"
a° = Half Angle 0.10°
d = Shank Diameter 1/4" (.2500")
L = Overall Length 3.00"
Plunge Yes

Step Down ↓ Rate (Roughing/Clearance) .500" per pass
Step Down ↓ Rate (Finishing) .025" per pass
Step Over ↔ Rate (Roughing/Clearance) .060" - .100"
Step Over ↔ Rate (Finishing) .025" per pass
# of Flutes 2

RPMs 5k to 60k
Maximum Operating RPMs 60k RPMs