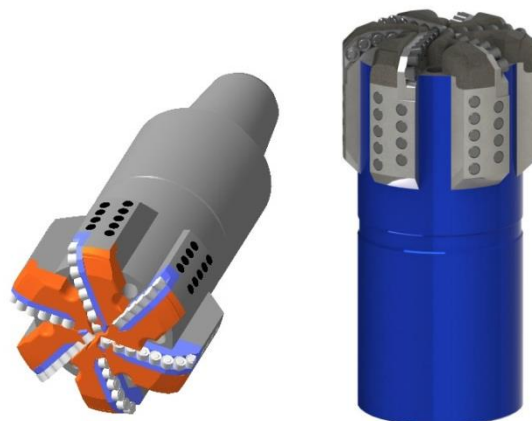




# FZ2-3 5/8 Sp.350

## METAL MUNCHER MILL 3 5/8

Designation: bottomhole mill is purposed for drilling out cement plugs, sand bridges, casing equipment, milling metal objects on the bottomhole.



### Technical characteristics

|                                 |  |
|---------------------------------|--|
| Outside diameter                | (92 mm) 3 5/8"                               |
| Cutting structure               | Tungsten carbide inserts, crushed hard alloy |
| Quantity of flushing holes, ea. | 6  |
| Diameter of flushing holes, mm  | 10   |
| Tool joint API, PIN             | 2 3/8 REG                                    |
| Make up length, mm              | 450  |
| Weight, kg                      | 16   |

### Operating characteristics

|                   |         |
|-------------------|---------|
| Mill RPM          | 38-200  |
| Weight on mill, t | 0,5...2 |
| Flow rate, l/sec  | 4...10  |

### Design features

Cutting face is reinforced with carbide and hard alloy granulate.



Gage part is equipped with carbide inserts.



### Nomenclature

## FZ2 – 3 5/8 Sp.350

**FZ2** – mill type

**3 5/8** – outside diameter

**Sp** – design

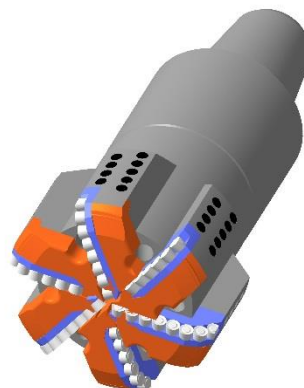
**350** – elongated body



# FZ2-4 1/8 Sp

## METAL MUNCHER MILL 4 1/8

Designation: bottomhole mill is purposed for drilling out cement plugs, sand bridges, casing equipment, milling metal objects on the bottomhole.



### Technical characteristics

|                                 |  |
|---------------------------------|--|
| Outside diameter                | (104.8mm) 4 1/8"                             |
| Cutting structure               | Tungsten carbide inserts, crushed hard alloy |
| Quantity of flushing holes, ea. | 6  |
| Diameter of flushing holes, mm  | 12   |
| Tool joint API, PIN             | 2 3/8 REG                                    |
| Make up length, mm              | 247  |
| Weight, kg                      | 12   |

### Operating characteristics

|                   |           |
|-------------------|-----------|
| Mill RPM          | 38-200    |
| Weight on mill, t | 0,3...1,5 |
| Flow rate, l/sec  | 6...10    |

### Design features

Cutting face is reinforced with carbide and hard alloy granulate.



Gage part is equipped with carbide inserts.



### Nomenclature

## FZ2 – 4 1/8 Sp

FZ2 – mill type

4 1/8 – outside diameter

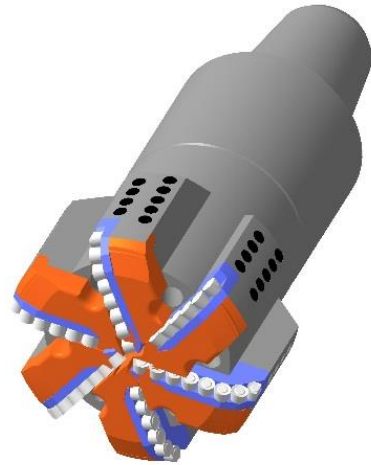
Sp – design



# FZ2- 5 7/8 Sp

## METAL MUNCHER MILL 5 7/8"

Application: drilling out cement plugs, sand bridges, bridge plugs, casing equipment, milling metal objects on the bottomhole.



### Design features

Cutting part – tungsten carbide cutters.  
Blades reinforced with hardfacing and granulated tungsten carbide.



Tungsten carbide inserts on gauge



### Nomenclature

#### **FZ2 – 5 7/8 Sp**

**FZ2** – mill type

**5 7/8** – outside diameter

**Sp** – design feature

### Technical characteristics

|                                 |   |
|---------------------------------|---|
| Outside diameter                | 149,2 mm (5 7/8")                                     |
| Cutting structure               | Tungsten carbide cutters, granulated tungsten carbide |
| Quantity of flushing holes, ea. | 6   |
| Diameter of flushing holes, mm  | 12  |
| Tool joint API, PIN             | 3 ½ REG   |
| Height, mm                      | 320   |
| Weight, kg                      | 18  |

### Operating characteristics

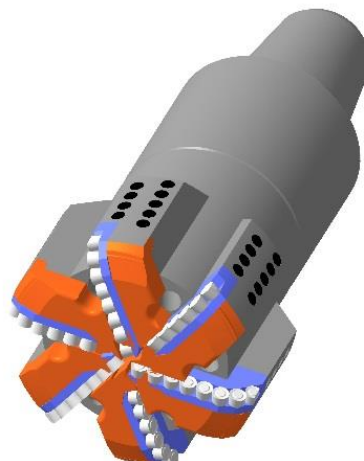
|                      |          |
|----------------------|----------|
| Mill RPM             | 38-200   |
| Weight on mill,<br>T | 0,5...3  |
| Klbs                 | 1...6    |
| Flow rate,<br>l/sec  | 6...10   |
| GPM                  | 90...160 |



## FZ2- 6 Sp

### METAL MUNCHER MILL 6"

Application: drilling out cement plugs, sand bridges, bridge plugs, casing equipment, milling metal objects on the bottomhole.



#### Design features

Cutting part – tungsten carbide cutters.  
Blades reinforced with hardfacing and granulated tungsten carbide.



Tungsten carbide inserts on gauge



#### Nomenclature

### FZ2 – 6 Sp

FZ2 – mill type

6 – outside diameter

Sp – design feature

#### Technical characteristics

|                                 |   |
|---------------------------------|---|
| Outside diameter                | 152,4 mm (6")   |
| Cutting structure               | Tungsten carbide cutters, granulated tungsten carbide |
| Quantity of flushing holes, ea. | 6   |
| Diameter of flushing holes, mm  | 12  |
| Tool joint API, PIN             | 3 ½ REG   |
| Make up length, mm              | 226   |
| Weight, kg                      | 18  |

#### Operating characteristics

|                      |          |
|----------------------|----------|
| Mill RPM             | 38-200   |
| Weight on mill,<br>T | 0,5...3  |
| Klbs                 | 1...6    |
| Flow rate,<br>l/sec  | 6...10   |
| GPM                  | 90...160 |

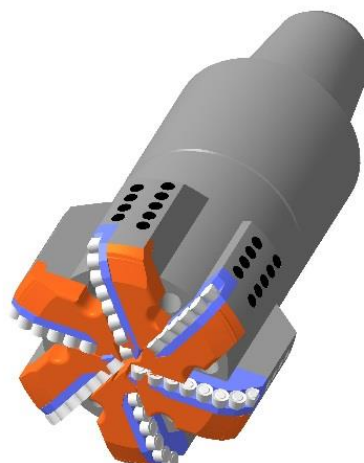




# FZ2-8 1/2 Sp

## METAL MUNCHER MILL 8 1/2"

Application: drilling out cement plugs, sand bridges, bridge plugs, casing equipment, milling metal objects on the bottomhole.



### Design features

Cutting part – tungsten carbide cutters.  
Blades reinforced with hardfacing and granulated tungsten carbide.



Tungsten carbide inserts on gauge



### Nomenclature

## FZ2 – 8 1/2 Sp

FZ2 – mill type

8 1/2 – outside diameter

Sp – design

### Technical characteristics

|                                 |   |
|---------------------------------|---|
| Outside diameter                | 215.9 mm (8 1/2")                                     |
| Cutting structure               | Tungsten carbide cutters, granulated tungsten carbide |
| Quantity of flushing holes, ea. | 6   |
| Diameter of flushing holes, mm  | 14  |
| Tool joint API, PIN             | 4 1/2 REG   |
| Length, mm                      | 450   |
| Weight, kg                      | 55  |

### Operating characteristics

|                   |           |
|-------------------|-----------|
| RPM               | 38-120    |
| Weight on mill, T | 0,5...5   |
| Klbs              | 1,1...11  |
| Flow rate, l/sec  | 8...16    |
| GPM               | 120...260 |