

# Matrix Body PDC Bits



8-3/4" M616

## Design Features:

- Cast infiltrated Tungsten Carbide matrix shell for maximum erosion and abrasion resistance
- 3D designed and CNC machined internal steel blank for maximum blade and body strength
- Thermally Stable Polycrystalline (TSP) diamond enhanced gage pads for maximum gage protection
- Parabolic profile is optimized for blade count, cutter quantity and bit stability
- Force-balanced PDC cutter locations minimize bit whirl and drill a precise round hole
- Asymmetrical blade design reduces drilling harmonics
- Blade protection elements are located strategically to maximize bit life. Standard bits have back-up tungsten carbide bumpers while "X" bits have back-up PDC cutters

| Typical Bit Sizes                          | API Pin Connection | Standard PDC Cutter Size | Optional PDC Cutter Size | Standard Blade Count | Optional Blade Count |
|--|--------------------|--------------------------|--------------------------|----------------------|----------------------|
| 5-7/8", 6", 6-1/8", 6-1/4", 6-1/2", 6-3/4" | 3-1/2" Reg         | 16mm                     | 13mm, 19mm               | 5, 6                 | 4, 7, 8              |
| 7-7/8", 8-1/2", 8-3/4"                     | 4-1/2" Reg         | 16mm                     | 13mm, 19mm               | 4, 5, 6              | 7, 8                 |
| 9-7/8", 10-5/8", 11", 12-1/4"              | 6-5/8" Reg         | 16mm                     | 13mm, 19mm               | 5, 6                 | 4, 7, 8              |
| 13-1/2", 13-3/4", 14-3/4"                  | 6-5/8" Reg         | 19mm                     | 16mm                     | 6, 7                 | 5, 8                 |
| 15-1/2", 16", 17-1/2"                      | 7-5/8" Reg         | 19mm                     | 16mm                     | 7, 8                 | 6, 9                 |



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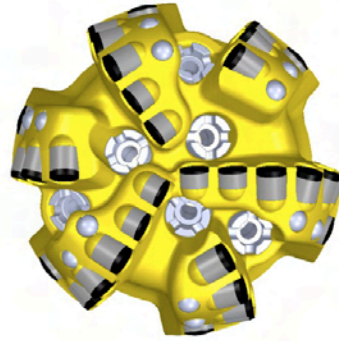
# Matrix Body PDC Bits

## 5-7/8" M613

Adding value through performance

### Design Features:

- Cutters are strategically placed in 3D spatial coordinates for maximum work rate efficiency, minimum cutter wear and maximum penetration rate
- Cast infiltrated Tungsten Carbide matrix shell for maximum erosion and abrasion resistance
- 3D designed and CNC machined internal steel blank for maximum blade and body strength
- TSP Diamond enhanced gage pads for maximum gage protection
- Optimized parabolic profile for blade count, cutter quantity and bit stability
- Force-balanced PDC cutter locations minimize bit whirl and drill a precise round hole
- Asymmetrical blade design reduces drilling harmonics



### Product Specifications:

#### General Data:

|                   |                         |
|-------------------|-------------------------|
| - Body Type       | Tungsten Carbide Matrix |
| - Gage Length     | 1.43 in / 36.322 mm     |
| - Overall Length  | 11.72 in / 297.69 mm    |
| - Shipping Weight | 55.0 lbs / 25.0 kgs     |
| - Product Number  | TBD                     |

#### Connection:

|                     |                     |
|---------------------|---------------------|
| - Pin Connection    | 3 1/2" API Reg Pin  |
| - Fishneck Diameter | 4.75 in / 120.65 mm |
| - Fishneck Length   | 3.52 in / 89.41 mm  |
| - Make-Up Length    | 8.04 in / 204.2 mm  |
| - Make-Up Torque    | 6,300-8,400 ft-lbs  |

#### Cutting Structure:

|                   |                         |
|-------------------|-------------------------|
| - Face Cutters    | 29 @ 13 mm PDC          |
| - Back-Up Cutters | 6 @ .259" Semi Dome PDC |
| - Back-Up Cutters | 12 @ 10 mm Dome TCI     |

#### Hydraulics:

|               |  |
|---------------|--|
| - Nozzle Type | 6 @ MOP Nozzle                               |
| - TFA         | 0.46 in <sup>2</sup> to 1.18 in <sup>2</sup> |

#### Recommended Operating Parameters:

|                       |                  |
|-----------------------|------------------|
| - Weight on Bit (WOB) | 3,000-15,000 lbs |
| - Rotary Speed (RPM)  | 60-150 RPM       |



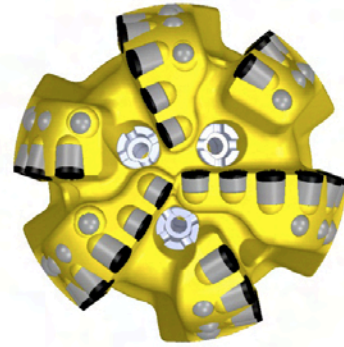
# Matrix Body PDC Bits

## 6" M613

Adding value through performance

### Design Features:

- Cutters are strategically placed in 3D spatial coordinates for maximum work rate efficiency, minimum cutter wear and maximum penetration rate
- Cast infiltrated Tungsten Carbide matrix shell for maximum erosion and abrasion resistance
- 3D designed and CNC machined internal steel blank for maximum blade and body strength
- TSP Diamond enhanced gage pads for maximum gage protection
- Optimized parabolic profile for blade count, cutter quantity and bit stability
- Force-balanced PDC cutter locations minimize bit whirl and drill a precise round hole
- Asymmetrical blade design reduces drilling harmonics



### Product Specifications:

#### General Data:

|                   |                         |
|-------------------|-------------------------|
| - Body Type       | Tungsten Carbide Matrix |
| - Gage Length     | 2.0 in / 50.8 mm        |
| - Overall Length  | 12.78 in / 324.61 mm    |
| - Shipping Weight | 60 lbs / 27.25 kgs      |
| - Product Number  | TBD                     |

#### Connection:

|                     |                     |
|---------------------|---------------------|
| - Pin Connection    | 3 1/2" API Reg Pin  |
| - Fishneck Diameter | 4.75 in / 120.65 mm |
| - Fishneck Length   | 3.90 in / 76.20 mm  |
| - Make-Up Length    | 9.09 in / 230.89 mm |
| - Make-Up Torque    | 6,300-8,400 ft-lbs  |

#### Cutting Structure:

|                   |                     |
|-------------------|---------------------|
| - Face Cutters    | 29 @ 13 mm PDC      |
| - Back-Up Cutters | 6 @ 13 mm Dome PDC  |
| - Back-Up Cutters | 16 @ 10 mm Dome TCI |

#### Hydraulics:

|               |   |
|---------------|---|
| - Nozzle Type | 3 @ MOP: 3 @ 18/32" Fixed                     |
| - TFA         | .976 in <sup>2</sup> to 1.335 in <sup>2</sup> |

#### Recommended Operating Parameters:

|                       |                  |
|-----------------------|------------------|
| - Weight on Bit (WOB) | 3,000-15,000 lbs |
| - Rotary Speed (RPM)  | 60-150 RPM       |





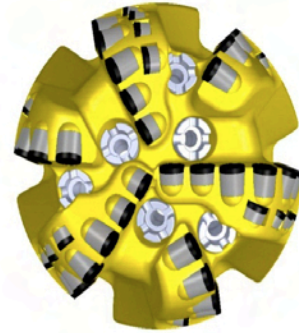
# Matrix Body PDC Bits

## 6" M613XU

Adding value through performance

### Design Features:

- Cutters are strategically placed in 3D spatial coordinates for maximum work rate efficiency, minimum cutter wear and maximum penetration rate
- Cast infiltrated Tungsten Carbide matrix shell for maximum erosion and abrasion resistance
- 3D designed and CNC machined internal steel blank for maximum blade and body strength
- TSP Diamond enhanced gage pads for maximum gage protection
- Optimized parabolic profile for blade count, cutter quantity and bit stability
- Force-balanced PDC cutter locations minimize bit whirl and drill a precise round hole
- Asymmetrical blade design reduces drilling harmonics



### Product Specifications:

#### General Data:

|                   |                         |
|-------------------|-------------------------|
| - Body Type       | Tungsten Carbide Matrix |
| - Gage Length     | 3.5 in / 88.9 mm        |
| - Overall Length  | 14.31 in / 363.45 mm    |
| - Shipping Weight | 71 lbs / 32.4 kgs       |
| - Product Number  | TBD                     |

#### Connection:

|                     |                       |
|---------------------|-----------------------|
| - Pin Connection    | 3 1/2" API Reg Pin    |
| - Fishneck Diameter | 4.75 in / 120.65 mm   |
| - Fishneck Length   | 3.90 in / 76.20 mm    |
| - Make-Up Length    | 10.625 in / 269.86 mm |
| - Make-Up Torque    | 6,300-8,400 ft-lbs    |

#### Cutting Structure:

|                    |                |
|--------------------|----------------|
| - Face Cutters     | 31 @ 13 mm PDC |
| - Back-Up Cutters  | 6 @ 13 mm PDC  |
| - Gage Cutters     | 6 @ 13 mm PDC  |
| - Up-Drill Cutters | 6 @ 13 mm PDC  |

#### Hydraulics:

|               |                      |
|---------------|----------------------|
| - Nozzle Type | 6 @ MOP Nozzle       |
| - TFA         | 0.46 in2 to 1.18 in2 |

#### Recommended Operating Parameters:

|                       |                  |
|-----------------------|------------------|
| - Weight on Bit (WOB) | 3,000-15,000 lbs |
| - Rotary Speed (RPM)  | 60-150 RPM       |



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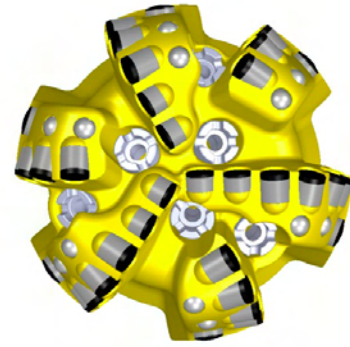
# Matrix Body PDC Bits

## 6-1/8" M613

Adding value through performance

### Design Features:

- Cutters are strategically placed in 3D spatial coordinates for maximum work rate efficiency, minimum cutter wear and maximum penetration rate
- Cast infiltrated Tungsten Carbide matrix shell for maximum erosion and abrasion resistance
- 3D designed and CNC machined internal steel blank for maximum blade and body strength
- TSP Diamond enhanced gage pads for maximum gage protection
- Optimized parabolic profile for blade count, cutter quantity and bit stability
- Force-balanced PDC cutter locations minimize bit whirl and drill a precise round hole
- Asymmetrical blade design reduces drilling harmonics



### Product Specifications:

#### General Data:

|                   |                         |
|-------------------|-------------------------|
| - Body Type       | Tungsten Carbide Matrix |
| - Gage Length     | 1.419 in / 36.04 mm     |
| - Overall Length  | 11.77 in / 298.96 mm    |
| - Shipping Weight | 60 lbs / 27.25 kgs      |
| - Product Number  | TBD                     |

#### Connection:

|                     |                     |
|---------------------|---------------------|
| - Pin Connection    | 3 1/2" API Reg Pin  |
| - Fishneck Diameter | 4.75 in / 120.65 mm |
| - Fishneck Length   | 3.40 in / 86.36 mm  |
| - Make-Up Length    | 8.09 in / 205.49 mm |
| - Make-Up Torque    | 6,300-8,400 ft-lbs  |

#### Cutting Structure:

|                   |                         |
|-------------------|-------------------------|
| - Face Cutters    | 31 @ 13 mm PDC          |
| - Back-Up Cutters | 6 @ .529" Semi Dome PDC |
| - Back-Up Cutters | 12 @ 10 mm Dome TCI     |

#### Hydraulics:

|               |  |
|---------------|--|
| - Nozzle Type | 6 @ MOP Nozzle                               |
| - TFA         | 0.46 in <sup>2</sup> to 1.18 in <sup>2</sup> |

#### Recommended Operating Parameters:

|                       |                  |
|-----------------------|------------------|
| - Weight on Bit (WOB) | 3,000-15,000 lbs |
| - Rotary Speed (RPM)  | 60-150 RPM       |



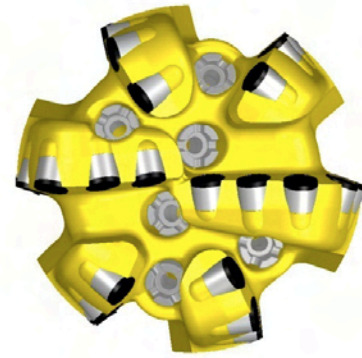
# Matrix Body PDC Bits

## 6-1/4" M616

Adding value through performance

### Design Features:

- Cutters are strategically placed in 3D spatial coordinates for maximum work rate efficiency, minimum cutter wear and maximum penetration rate
- Cast infiltrated Tungsten Carbide matrix shell for maximum erosion and abrasion resistance
- 3D designed and CNC machined internal steel blank for maximum blade and body strength
- TSP Diamond enhanced gage pads for maximum gage protection
- Optimized parabolic profile for blade count, cutter quantity and bit stability
- Force-balanced PDC cutter locations minimize bit whirl and drill a precise round hole
- Asymmetrical blade design reduces drilling harmonics



### Product Specifications:

#### General Data:

|                   |                         |
|-------------------|-------------------------|
| - Body Type       | Tungsten Carbide Matrix |
| - Gage Length     | 1.375 in / 34.925 mm    |
| - Overall Length  | 12.02 in / 305.31 mm    |
| - Shipping Weight | 53 lbs / 24.1 kgs       |
| - Product Number  | TBD                     |

#### Connection:

|                     |                     |
|---------------------|---------------------|
| - Pin Connection    | 3 1/2" API Reg Pin  |
| - Fishneck Diameter | 4.75 in / 120.65 mm |
| - Fishneck Length   | 4.28 in / 108.7 mm  |
| - Make-Up Length    | 8.33 in / 211.58 mm |
| - Make-Up Torque    | 6,300-8,400 ft-lbs  |

#### Cutting Structure:

|                   |                |
|-------------------|----------------|
| - Face Cutters    | 20 @ 16 mm PDC |
| - Back-Up Cutters | N/A            |
| - Gage Cutters    | 6 @ 13 mm PDC  |

#### Hydraulics:

|               |  |
|---------------|--|
| - Nozzle Type | 6 @ MOP Nozzle                               |
| - TFA         | 0.46 in <sup>2</sup> to 1.18 in <sup>2</sup> |

#### Recommended Operating Parameters:

|                       |                  |
|-----------------------|------------------|
| - Weight on Bit (WOB) | 3,000-15,000 lbs |
| - Rotary Speed (RPM)  | 60-150 RPM       |





# Matrix Body PDC Bits

## 6-3/4" M616

Adding value through performance

### Design Features:

- Cutters are strategically placed in 3D spatial coordinates for maximum work rate efficiency, minimum cutter wear and maximum penetration rate
- Cast infiltrated Tungsten Carbide matrix shell for maximum erosion and abrasion resistance
- 3D designed and CNC machined internal steel blank for maximum blade and body strength
- TSP Diamond enhanced gage pads for maximum gage protection
- Optimized parabolic profile for blade count, cutter quantity and bit stability
- Force-balanced PDC cutter locations minimize bit whirl and drill a precise round hole
- Asymmetrical blade design reduces drilling harmonics



### Product Specifications:

#### General Data:

|                   |                         |
|-------------------|-------------------------|
| - Body Type       | Tungsten Carbide Matrix |
| - Gage Length     | 1.375 in / 34.925 mm    |
| - Overall Length  | 12.5 in / 317.5 mm      |
| - Shipping Weight | 70 lbs / 31.8 kgs       |
| - Product Number  | TBD                     |

#### Connection:

|                     |                     |
|---------------------|---------------------|
| - Pin Connection    | 3 1/2" API Reg Pin  |
| - Fishneck Diameter | 4.75 in / 120.65 mm |
| - Fishneck Length   | 4.11 in / 104.4 mm  |
| - Make-Up Length    | 8.23 in / 158.50 mm |
| - Make-Up Torque    | 6,300-8,400 ft-lbs  |

#### Cutting Structure:

|                   |                |
|-------------------|----------------|
| - Face Cutters    | 23 @ 16 mm PDC |
| - Back-Up Cutters | N/A            |
| - Gage Cutters    | 6 @ 13 mm PDC  |

#### Hydraulics:

|               |  |
|---------------|--|
| - Nozzle Type | 6 @ MOP Nozzle                               |
| - TFA         | 0.46 in <sup>2</sup> to 1.18 in <sup>2</sup> |

#### Recommended Operating Parameters:

|                       |                  |
|-----------------------|------------------|
| - Weight on Bit (WOB) | 3,000-15,000 lbs |
| - Rotary Speed (RPM)  | 60-150 RPM       |



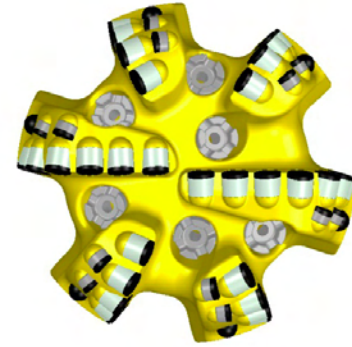
# Matrix Body PDC Bits

## 7-7/8" M616X

Adding value through performance

### Design Features:

- Cutters are strategically placed in 3D spatial coordinates for maximum work rate efficiency, minimum cutter wear and maximum penetration rate
- Cast infiltrated Tungsten Carbide matrix shell for maximum erosion and abrasion resistance
- 3D designed and CNC machined internal steel blank for maximum blade and body strength
- TSP Diamond enhanced gage pads for maximum gage protection
- Optimized parabolic profile for blade count, cutter quantity and bit stability
- Force-balanced PDC cutter locations minimize bit whirl and drill a precise round hole
- Asymmetrical blade design reduces drilling harmonics



### Product Specifications:

#### General Data:

|                   |                         |
|-------------------|-------------------------|
| - Body Type       | Tungsten Carbide Matrix |
| - Gage Length     | 1.125 in / 28.58 mm     |
| - Overall Length  | 13.2 in / 335.28 mm     |
| - Shipping Weight | 85 lbs / 38.6 kgs       |
| - Product Number  | 91002908                |

#### Connection:

|                     |                      |
|---------------------|----------------------|
| - Pin Connection    | 4-1/2" API Reg Pin   |
| - Fishneck Diameter | 5.75 in / 146.05 mm  |
| - Fishneck Length   | 3.72 in / 94.49 mm   |
| - Make-Up Length    | 9.02 in / 229.11 mm  |
| - Make-Up Torque    | 14,600-19,200 ft-lbs |

#### Cutting Structure:

|                   |                    |
|-------------------|--------------------|
| - Face Cutters    | 31 @ 16 mm PDC     |
| - Back-Up Cutters | 12 @ mm PDC        |
| - Back-Up Cutters | 6 @ 13 mm Dome PDC |

#### Hydraulics:

|               |  |
|---------------|--|
| - Nozzle Type | 6 @ LOP Nozzle                               |
| - TFA         | 0.46 in <sup>2</sup> to 1.84 in <sup>2</sup> |

#### Recommended Operating Parameters:

|                       |                  |
|-----------------------|------------------|
| - Weight on Bit (WOB) | 4,000-20,000 lbs |
| - Rotary Speed (RPM)  | 60-150 RPM       |



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# Matrix Body PDC Bits

## 8-1/2" M516X

Adding value through performance

### Design Features:

- Cutters are strategically placed in 3D spatial coordinates for maximum work rate efficiency, minimum cutter wear and maximum penetration rate
- Cast infiltrated Tungsten Carbide matrix shell for maximum erosion and abrasion resistance
- 3D designed and CNC machined internal steel blank for maximum blade and body strength
- TSP Diamond enhanced gage pads for maximum gage protection
- Optimized parabolic profile for blade count, cutter quantity and bit stability
- Force-balanced PDC cutter locations minimize bit whirl and drill a precise round hole
- Asymmetrical blade design reduces drilling harmonics



### Product Specifications:

#### General Data:

|                   |                         |
|-------------------|-------------------------|
| - Body Type       | Tungsten Carbide Matrix |
| - Gage Length     | 1.25 in / 31.75 mm      |
| - Overall Length  | 15.06 in / 382.53 mm    |
| - Shipping Weight | 110 lbs / 49.96 kgs     |
| - Product Number  | TBD                     |

#### Connection:

|                     |                      |
|---------------------|----------------------|
| - Pin Connection    | 4-1/2" API Reg Pin   |
| - Fishneck Diameter | 5.75 in / 146.05 mm  |
| - Fishneck Length   | 3.90 in / 76.20 mm   |
| - Make-Up Length    | 4.33 in / 109.98 mm  |
| - Make-Up Torque    | 14,600-19,200 ft-lbs |

#### Cutting Structure:

|                   |                |
|-------------------|----------------|
| - Face Cutters    | 29 @ 16 mm PDC |
| - Back-Up Cutters | 10 @ 13 mm PDC |
| - Gage Cutters    | 5 @ 13 mm PDC  |

#### Hydraulics:

|               |  |
|---------------|--|
| - Nozzle Type | 7 @ MOP Nozzle                               |
| - TFA         | 0.54 in <sup>2</sup> to 2.15 in <sup>2</sup> |

#### Recommended Operating Parameters:

|                       |                  |
|-----------------------|------------------|
| - Weight on Bit (WOB) | 4,000-20,000 lbs |
| - Rotary Speed (RPM)  | 60-150 RPM       |



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# Matrix Body PDC Bits

## 8-1/2" M519X

Adding value through performance

### Design Features:

- Cutters are strategically placed in 3D spatial coordinates for maximum work rate efficiency, minimum cutter wear and maximum penetration rate
- Cast infiltrated Tungsten Carbide matrix shell for maximum erosion and abrasion resistance
- 3D designed and CNC machined internal steel blank for maximum blade and body strength
- TSP Diamond enhanced gage pads for maximum gage protection
- Optimized parabolic profile for blade count, cutter quantity and bit stability
- Force-balanced PDC cutter locations minimize bit whirl and drill a precise round hole
- Asymmetrical blade design reduces drilling harmonics



### Product Specifications:

#### General Data:

|                   |                         |
|-------------------|-------------------------|
| - Body Type       | Tungsten Carbide Matrix |
| - Gage Length     | 1.30 in / 33.02 mm      |
| - Overall Length  | 13.98 in / 355.1 mm     |
| - Shipping Weight | 98 lbs / 44.5 kgs       |
| - Product Number  | TBD                     |

#### Connection:

|                     |                      |
|---------------------|----------------------|
| - Pin Connection    | 4-1/2" API Reg Pin   |
| - Fishneck Diameter | 5.75 in / 146.05 mm  |
| - Fishneck Length   | 3.72 in / 94.49 mm   |
| - Make-Up Length    | 9.79 in / 248.67 mm  |
| - Make-Up Torque    | 14,600-19,200 ft-lbs |

#### Cutting Structure:

|                   |                |
|-------------------|----------------|
| - Face Cutters    | 20 @ 19 mm PDC |
| - Back-Up Cutters | 13 @ 16 mm PDC |
| - Gage Cutters    | 5 @ 19 mm PDC  |

#### Hydraulics:

|               |  |
|---------------|--|
| - Nozzle Type | 7 @ MOP Nozzle                               |
| - TFA         | 0.54 in <sup>2</sup> to 2.15 in <sup>2</sup> |

#### Recommended Operating Parameters:

|                       |                  |
|-----------------------|------------------|
| - Weight on Bit (WOB) | 4,000-20,000 lbs |
| - Rotary Speed (RPM)  | 60-150 RPM       |



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# Matrix Body PDC Bits

## 8-1/2" M616X

Adding value through performance

### Design Features:

- Cutters are strategically placed in 3D spatial coordinates for maximum work rate efficiency, minimum cutter wear and maximum penetration rate
- Cast infiltrated Tungsten Carbide matrix shell for maximum erosion and abrasion resistance
- 3D designed and CNC machined internal steel blank for maximum blade and body strength
- TSP Diamond enhanced gage pads for maximum gage protection
- Optimized parabolic profile for blade count, cutter quantity and bit stability
- Force-balanced PDC cutter locations minimize bit whirl and drill a precise round hole
- Asymmetrical blade design reduces drilling harmonics



### Product Specifications:

#### General Data:

|                   |                         |
|-------------------|-------------------------|
| - Body Type       | Tungsten Carbide Matrix |
| - Gage Length     | 1.50 in / 38.10 mm      |
| - Overall Length  | 15.54 in / 394.72 mm    |
| - Shipping Weight | 109 lbs / 49.5 kgs      |
| - Product Number  | TBD                     |

#### Connection:

|                     |                      |
|---------------------|----------------------|
| - Pin Connection    | 4-1/2" API Reg Pin   |
| - Fishneck Diameter | 5.75 in / 146.05 mm  |
| - Fishneck Length   | 4.43 in / 112.52 mm  |
| - Make-Up Length    | 11.36 in / 288.54 mm |
| - Make-Up Torque    | 14,600-19,200 ft-lbs |

#### Cutting Structure:

|                   |                |
|-------------------|----------------|
| - Face Cutters    | 35 @ 16 mm PDC |
| - Back-Up Cutters | 12 @ 13 mm PDC |
| - Gage Cutters    | 6 @ 13 mm PDC  |

#### Hydraulics:

|               |  |
|---------------|--|
| - Nozzle Type | 8 @ LOP Nozzle                               |
| - TFA         | 0.61 in <sup>2</sup> to 2.45 in <sup>2</sup> |

#### Recommended Operating Parameters:

|                       |                  |
|-----------------------|------------------|
| - Weight on Bit (WOB) | 4,000-20,000 lbs |
| - Rotary Speed (RPM)  | 60-150 RPM       |





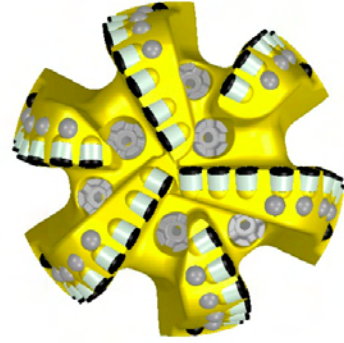
# Matrix Body PDC Bits

## 8-3/4" M616

Adding value through performance

### Design Features:

- Cutters are strategically placed in 3D spatial coordinates for maximum work rate efficiency, minimum cutter wear and maximum penetration rate
- Cast infiltrated Tungsten Carbide matrix shell for maximum erosion and abrasion resistance
- 3D designed and CNC machined internal steel blank for maximum blade and body strength
- TSP Diamond enhanced gage pads for maximum gage protection
- Optimized parabolic profile for blade count, cutter quantity and bit stability
- Force-balanced PDC cutter locations minimize bit whirl and drill a precise round hole
- Asymmetrical blade design reduces drilling harmonics



### Product Specifications:

#### General Data:

|                   |                         |
|-------------------|-------------------------|
| - Body Type       | Tungsten Carbide Matrix |
| - Gage Length     | 1.25 in / 31.75 mm      |
| - Overall Length  | 14.035 in / 356.47 mm   |
| - Shipping Weight | 140 lbs / 63.6 kgs      |
| - Product Number  | 88053255                |

#### Connection:

|                     |                      |
|---------------------|----------------------|
| - Pin Connection    | 4-1/2" API Reg Pin   |
| - Fishneck Diameter | 5.75 in / 146.04 mm  |
| - Fishneck Length   | 3.724 in / 94.58 mm  |
| - Make-Up Length    | 9.847 in / 250.1 mm  |
| - Make-Up Torque    | 14,600-19,200 ft-lbs |

#### Cutting Structure:

|                   |                         |
|-------------------|-------------------------|
| - Face Cutters    | 40 @ 16 mm PDC          |
| - Back-Up Cutters | 6 @ .529" Semi Dome PDC |
| - Back-Up Cutters | 23 @ 13 mm Dome TCI     |

#### Hydraulics:

|               |  |
|---------------|--|
| - Nozzle Type | 7 @ LOP Nozzle                               |
| - TFA         | 0.54 in <sup>2</sup> to 2.15 in <sup>2</sup> |

#### Recommended Operating Parameters:

|                       |                  |
|-----------------------|------------------|
| - Weight on Bit (WOB) | 4,000-20,000 lbs |
| - Rotary Speed (RPM)  | 60-150 RPM       |



# Matrix Body PDC Bits

## 8-3/4" M616U

Adding value through performance

### Design Features:

- Cutters are strategically placed in 3D spatial coordinates for maximum work rate efficiency, minimum cutter wear and maximum penetration rate
- Cast infiltrated Tungsten Carbide matrix shell for maximum erosion and abrasion resistance
- 3D designed internal steel blank is precision CNC machined for maximum blade and body strength
- Gage pads have Thermally Stable Polycrystalline (TSP) enhanced diamond for maximum gage protection
- Parabolic profile is optimized for blade count, cutter quantity and bit stability
- Force-balanced PDC cutter locations minimize bit whirl and drill a precise round hole
- Asymmetrical blade design reduces drilling harmonics
- Blade protection elements are strategically located to maximize bit life. Standard bits have tungsten carbide bumpers while "X" bits have back-up PDC cutters



### Product Specifications:

#### General Data:

|                   |                         |
|-------------------|-------------------------|
| - Body Type       | Tungsten Carbide Matrix |
| - Gage Length     | 1.50 in / 38.10 mm      |
| - Overall Length  | 14.03 in / 356.36 mm    |
| - Shipping Weight | 124.0 lbs / 56.4 kgs    |
| - Product Number  | 88053701                |

#### Connection:

|                     |                        |
|---------------------|------------------------|
| - Pin Connection    | 4-1/2" API Reg Pin     |
| - Fishneck Diameter | 5.75 in / 146.05 mm    |
| - Fishneck Length   | 3.80 in / 96.52 mm     |
| - Make-Up Length    | 9.85 in / 250.19 mm    |
| - Make-Up Torque    | 14,600 - 19,200 ft-lbs |

#### Cutting Structure:

|                |            |
|----------------|------------|
| - Face PDC     | 37 @ 16 mm |
| - Gage PDC     | 6 @ 13 mm  |
| - Up-Drill PDC | 6 @ 13 mm  |

#### Hydraulics:

|               |  |
|---------------|--|
| - Nozzle Type | 6 @ LOP Nozzle                               |
| - TFA         | 0.46 in <sup>2</sup> to 1.84 in <sup>2</sup> |

#### Recommended Operating Parameters:

|                       |                    |
|-----------------------|--------------------|
| - Weight on Bit (WOB) | 4,000 - 20,000 lbs |
| - Rotary Speed (RPM)  | 60-250 RPM         |



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