

# Aries

**Description:** The Aries drill is an ITH drill unitized with an on board booster. This drill is mounted on a mobile center articulated carrier designed for high mobility in underground mines with ramp access.

**Performance:** The Aries drill can be used to drill from 3 5/8" (92 mm) to 8.5" (216 mm) diameter holes to a depth greater than 330" (100 m) down hole. The Aries is also able to be fitted for V-30 drilling allowing for economical slot raises, ventilation raises, ore passes, emergency exits, waste chutes, service holes and cable holes.

## Accra Feed and ERIS panel

The inclusion of Accra Feed on Cubex underground drills has increased overall drill performance by providing optimal pressure to the bit in all rock conditions. Lost drill string situations are reduced and overall hole integrity is improved.

All the hydraulic control functions are electric/ hydraulic controlled through the CAN-BUS controller/ computer and programmable modules – this provides more robust mechanical connections in the wiring harnesses.

The Cubex ERIS system is set up so that mine managers and engineers are able access the benefits of an expandable control platform. This unit has proven to be very reliable, while providing a high degree of productivity.

## Main Specifications

|   |                                  |                     |
|---|----------------------------------|---------------------|
| Carrier                                     | MEM-944                          |                     |
| Safety Canopy                               | FOPS/ROPS                        |                     |
| Top Drive                                   | 6230                             |                     |
| Mast  | Standard Mast, Fixed Centralizer |                     |
| Carousel                                    | 16 Drill Pipes (Up to 4" pipe)   |                     |
| Positioning System                          | Single Slideover                 |                     |
| Control System                              | ERIS Panel                       |                     |
| Powerpack                                   | 37 kW                            | 50 HP               |
| Hammer Lubrication                          | AS-Aries                         |                     |
| Air Booster                                 | Reciprocating                    |                     |
| Water Injection System                      | 27 lpm (48 bar)                  | 7 gal/min (700 psi) |
| Ground Clearance                            | 216 mm                           | 8.5"                |
| Tramming Length                             | 9.05 m                           | 356.3"              |
| Tramming Width                              | 2.24 m                           | 88"                 |
| Tramming Height                             | 2.6 m                            | 103"                |
| Weight                                      | 21 772 kg                        | 48 000 lb           |
| Tramming Speed, Diesel<br>Horizontal Only   | 10 kph                           | 6.21 mph            |
| Speed at 15% grade                          | 10 kph                           | 6.21 mph            |
| Tramming Speed, Electric<br>Horizontal Only | 1 kph                            | 0.6 mph             |
| Max Gradeability                            | 35%                              |                     |

## Top Drive

|   |          |              |
|---|----------|--------------|
| Top Drive                               | 6230     |              |
| Max Working Pressure                    | 207 bar  | 3 000 psi    |
| Max Torque                              | 5 730 Nm | 4 225 lb.ft. |
| Rotation Speed                          | 0-80 rpm |              |
| Patented Splined Piston Breakout System |          |              |

# Standard Specifications

| Carrier                        |   |                 |
|--------------------------------|---|-----------------|
| Diesel Engine                  | Mercedes 904 (130 kW) Tier III                    |                 |
| Transmission                   | Clark 32000                                       |                 |
| Hydraulic Pump Drive           | 1 x 60 cc Variable Displacement Axial Piston Pump | 3.7 cu.in./rev. |
| Axles                          | Ford D-65   |                 |
| Brakes<br>Service<br>Parking   | SAHR<br>SAHR                                      |                 |
| Tires                          | 12.00 x 20 ITL Solid Rubber                       |                 |
| Steering                       | Frame Steering, Hydraulic                         |                 |
| Articulation                   | ± 35°   |                 |
| Rear Oscillation               | ± 10°   |                 |
| Ground Clearance               | 216 mm  | 8.5"            |
| Fuel Tank                      | 114 L   | 30 US Gal       |
| Hydraulic Jacks                | 2 Front, 2 Rear                                   |                 |
| Safety Canopy Option           | FOPS/ROPS   |                 |
| Centralized Grease Lubrication |   |                 |

| Mast        |                                  |            |
|-------------|----------------------------------|------------|
| Mast        | Standard Mast, Fixed Centralizer |            |
| Feed Force  | 70 kN                            | 15 800 lbs |
| Max Opening | 222 mm                           | 8.75"      |

| Carousel |                                    |  |
|----------|------------------------------------|--|
| Carousel | 16 Drill pipes (For up to 4" pipe) |  |

| Positioning System              |          |     |
|---------------------------------|----------|-----|
| Single Slideover                | 762 mm   | 30" |
| Feed Extension (3 m [10'] Mast) | 1370 mm  | 54" |
| Swing Angle                     | 360°     |     |
| Stinger Extension               |          |     |
| <i>Top</i>                      | 1 830 mm | 6'  |
| <i>Bottom</i>                   | 610 mm   | 2'  |

| Control System |  |
|----------------|--|
| Control System | Eris Panel - CanBus                      |
| Accra Feed     | Feed and Rotation Control / Anti-Jamming |
| Remote Control | Tripod Mounted, With 15 m (50') Cable    |

| Powerpack       |  |                |
|-----------------|--|----------------|
| Electric Motor  | 1 x 37 kW  | 1 x 50 HP      |
| Pump Type       | 1 x 100 cc Variable Displacement Axial Piston Pump | 6.1 cu.in./rec |
| Filtration      | 1 x 5 micron<br>1 x 10 micron                      |                |
| Pressure Return |  |                |
| Oil Tank Volume | 250 L  | 66 US Gal      |
| Tank Filling    | Electric Fill Pump                                 |                |
| Oil Cooling     | Shell and Tube Cooler                              |                |

| Hammer Lubrication System |        |             |
|---------------------------|--------|-------------|
| Grease/Oil Injection      |        |             |
| Metering Capacity         | 4 L/hr | 1 US Gal/hr |
| Tank Size                 | 20 L   | 5.3 US Gal  |

| Air Booster               |               |           |
|---------------------------|---------------|-----------|
| Booster Type              | Reciprocating |           |
| Electric Motor            | 1 x 55 kW     | 1 x 75 HP |
| Max Working Pressure      | 24.1 bar      | 350 psi   |
| FAD, Max Working Pressure | 20 m³/min     | 700 cfm   |
| Inlet Pressure            | 6 bar         | 90 psi    |

| Water Injection System |                      |                         |
|------------------------|----------------------|-------------------------|
| Water Pump Type        | Triplex Piston Pump  |                         |
| Capacity               | 27 Lpm (48 bar)      | 7 Gal/min (700 psi)     |
| Inlet Pressure         | 2 - 7 bar (drilling) | 30 - 100 psi (drilling) |

| Electrical System      |  |
|------------------------|--|
| Total Input Power      | 92 kW  |
| Standard Voltages      | 600 VAC (380-600 VAC Available)  |
| Frequency              | 60 Hz (50 Hz Available)  |
| Lights                 | 2 x 55W HID<br>4 x 65W   |
| Working Driving Lights |  |
| Starter                | Delta-Wye  |
| Safety Shutdowns       | Low Mine Air Pressure<br>Low Mine Water Pressure<br>Low Compressor Oil Pressure<br>High Discharge Air Temperature<br>Low Hydraulic Oil Level<br>High Hydraulic Oil Temperature |
| Safety Feature         | Tram Active Strobe and Backup Alarm  |

# Selection of Optional Equipment

## Optional Masts

| Masts                                      | Feed Force |            | Max Opening |       | Drill Pipe Lengths |
|--|------------|------------|-------------|-------|--------------------|
| Standard Mast (Fixed or Split Centralizer) | 70 kN      | 15 800 lbs | 222 mm      | 8.75" | 4'/5'/6'           |
| Heavy Mast (Fixed or Split Centralizer)    | 133 kN     | 30 000 lbs | 222 mm      | 8.75" | 4'/5'/6'           |

## Optional Carousels

| Carousel      | Pipe Size   |          |
|---------------|-------------|----------|
| 16 Drill Pipe | 76 - 127 mm | 3 - 5"   |
| 21 Drill Pipe | 76 - 127 mm | 3 - 5"   |
| 24 Drill Pipe | 76 - 114 mm | 3 - 4.5" |
| 32 Drill Pipe | 76 - 102 mm | 3 - 4"   |

## Pipe Handling Options\*

|   |                                |
|---|--------------------------------|
| Pipe Arm, Single Axis                     | To Assist Manual Pipe Handling |
| Pipe Arm, Dual Axis                       |                                |
| *Pipe arm is not compatible with carousel |                                |

## Positioning Systems Options

|  |          |     |
|--|----------|-----|
| Positioning System - Double Slideover<br>Parallel Coverage | 1 524 mm | 60" |
| 50/50 Stingers   |          |     |
| Top  | 1 219 mm | 4'  |
| Bottom   | 1 219 mm | 4'  |

## Reverse Circulation Option

|   |           |      |
|---|-----------|------|
| Discharge Diameter  | 76 mm     | 3"   |
| Max ID of Centre Tube                                     | 64 mm     | 2.5" |
| 6230-RC Top Drive   | RC Swivel |      |
| Hydraulic Centralizers with RC Slip Plate and Dual Torque |           |      |

## Optional Top Drive

|                      |          |              |
|----------------------|----------|--------------|
| 6230-RB30R Top Drive |          |              |
| Max Working          | 207 bar  | 3 000 psi    |
| Max Torque           | 8 520 Nm | 6 283 lb.ft. |
| Rotation Speed       | 0-50 rpm |              |

## Fire Supression

|           |                           |
|-----------|---------------------------|
| Automatic | ANSUL System (10 Nozzles) |
| Manual    |                           |

## Optional Air Boosters

### S92 - Screw

## Optional Air Boosters

|                           |             |            |
|---------------------------|-------------|------------|
| Electric Motor            | 1 x 92 kW   | 1 x 125 HP |
| Max Working Pressure      | 27.6 bar    | 400 psi    |
| FAD, Max Working Pressure | 18.4 m³/min | 650 cfm    |
| Min. Inlet Pressure       | 6 bar       | 90 psi     |

### S112 - Screw

|                           |             |            |
|---------------------------|-------------|------------|
| Electric Motor            | 1 x 112 kW  | 1 x 150 HP |
| Max Working Pressure      | 24.1 bar    | 350 psi    |
| FAD, Max Working Pressure | 29.7 m³/min | 1050 cfm   |
| Min. Inlet Pressure       | 6 bar       | 90 psi     |

## Cabin

|                          |                              |
|--------------------------|------------------------------|
| FOPS/ROPS Enclosed Cabin | Air conditioning and heating |
|--------------------------|------------------------------|

## Blind Bore Package

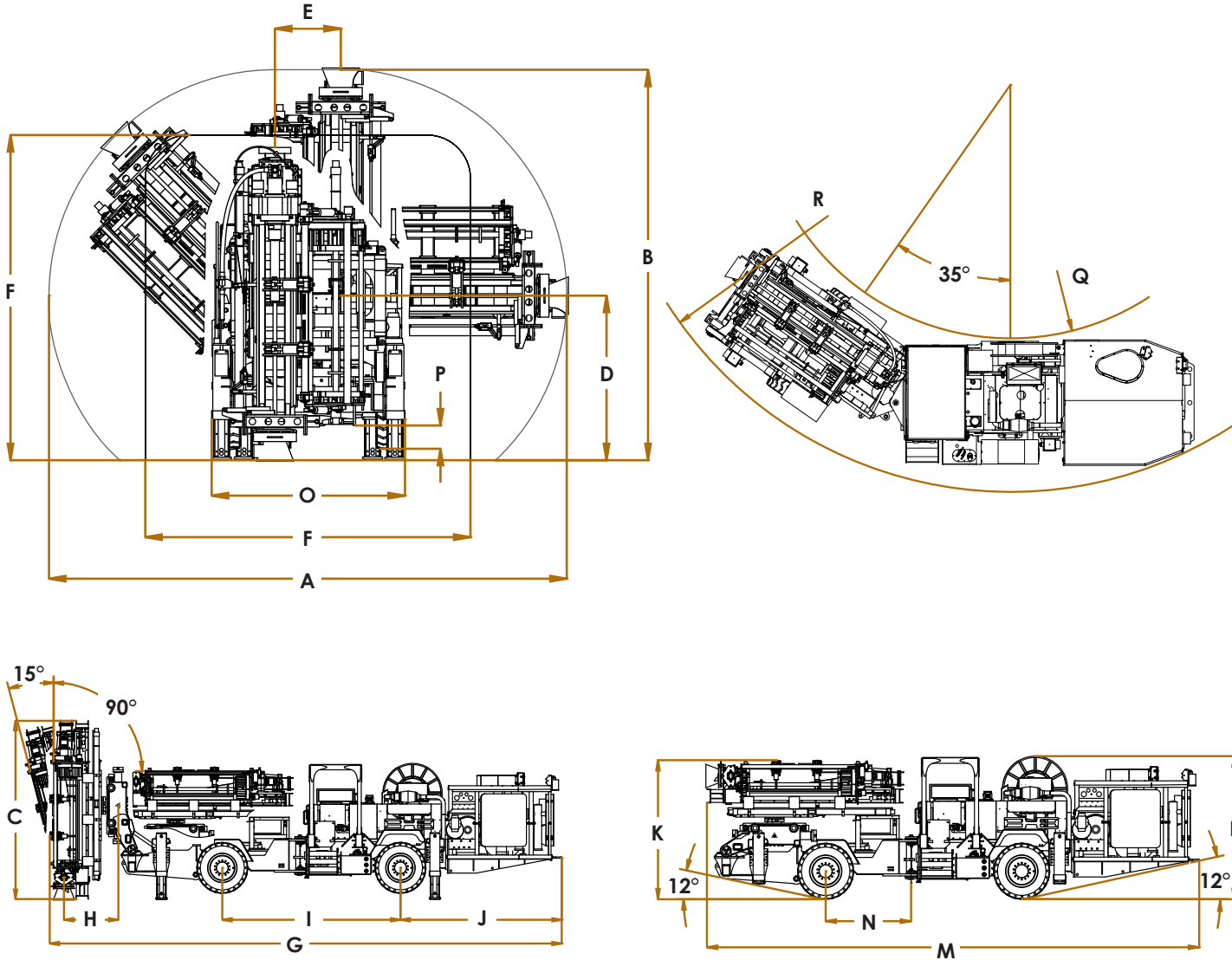
|                                 |   |
|---------------------------------|---|
| Heavy Hoist Mast                | 5' or 6' rods can be used with the Blind Bore Package                                 |
| Hydraulic Swing Out Centralizer | Allows passing of a large ITH hammer when swung out of the way                        |
| Top Drive Spacer                | Extends top drive to allow for the use of large hammers and reamers, max 762 mm (30") |

## Additional Options

- Alignment laser
- Angle indicators
- Auto lubrication (Lincoln)
- Cable reel with automatic cable limit stop (cable and power plug not supplied)
- Cuttings diverter (For use with blind boring mast)
- Fast filling and evacuation system (Wiggins) for fuel only
- Fast filling and evacuation system (Wiggins) for engine oil, hydraulic oil, transmission oil coolant and fuel
- Ground fault monitor
- Hose reel with grease pump
- Indicator for low level hammer lubricant
- On-board pressure washer
- Petol chain wrench
- Remote thread lubrication
- RPM indicator for top drive
- Special Electrics 380-600 VAC 50 or 60 Hz available
- Spare rim and tire
- Stainless steel electrical panel
- Tools to specifications
- Wassara water hammer package
- Wheel chocks



# Dimensions



| Dimensions - Drilling |        |           |       |             |              |           |            |        |              |              |          |
|-----------------------|--------|-----------|-------|-------------|--------------|-----------|------------|--------|--------------|--------------|----------|
| Model                 | Units  | Max Reach |       | Mast Height | Pivot Height | Slideover | Min. Drift | Length | Laser Offset | Track Length | Overhang |
|                       |        | A         | B     | C           | D            | E         | F          | G      | H            | I            | J        |
| Aries 6' Rods         | Inches | 235.8     | 177.8 | 142         | 74.9         | 30        | 148        | 407.8  | 43.3         | 141.9        | 128.4    |
|                       | mm     | 5 989     | 4 516 | 3 607       | 1 902        | 762       | 3 759      | 10 358 | 1 110        | 3 604        | 3261     |
| Aries 5' Rods         | Inches | 217.8     | 168.8 | 130         | 74.9         | 30        | 136        | 407.8  | 43.3         | 141.9        | 128.4    |
|                       | mm     | 5 532     | 4 288 | 3 302       | 1 902        | 762       | 3 454      | 10 358 | 1 110        | 3 604        | 3261     |
| Aries 4' Rods         | Inches | 199.8     | 159.8 | 118         | 74.9         | 30        | 124        | 407.8  | 43.3         | 141.9        | 128.4    |
|                       | mm     | 5 075     | 4 059 | 2 997       | 1 902        | 762       | 3 150      | 10 358 | 1 110        | 3 604        | 3261     |

| Dimensions - Tramming |        |        |       |        |       |       |           |             |             |
|-----------------------|--------|--------|-------|--------|-------|-------|-----------|-------------|-------------|
| Model                 | Units  | Height |       | Length | Pivot | Width | Clearance | Min. Radius | Max. Radius |
|                       |        | K      | L     | M      | N     | O     | P         | Q           | R           |
| Aries All             | Inches | 100    | 103   | 356.3  | 61.8  | 88    | 8.5       | 177.2       | 284.4       |
|                       | mm     | 2 540  | 2 616 | 9 050  | 1 570 | 2 235 | 216       | 4 500       | 7 225       |