Sandvik DU412i is a highly versatile and compact ITH longhole drill fitted with an onboard booster and designed for underground mining in 3.2 x 3.2 m or larger production drifts. It is capable of drilling vertical and inclined fans and single or parallel Ø3½" - 8½" (90 - 216 mm) longholes, using 3" to 8" ITH hammers and Ø3" to Ø5" (76 - 127 mm) drill pipes. The DU412i can be fitted with a V-30 head for Ø30" (762 mm) reaming in service support, or reaming up to Ø17½" (445 mm) holes with 12" hammers in rapid raising.

The DU412i is mounted on a frame-steered and diesel-powered carrier. It is equipped with the CF706-F feed, PC194 pipe handler, RH6250 rotation head, ZR35 telescopic boom and operator’s (tramming) canopy for maximum productivity, safety and hole accuracy. The 360° drilling module rotation and wide boom swing and tilt angles make the unit suitable for mass mining and various service support applications. The iSOLO drilling control system with the user-friendly operating interface and various automation options allow maximum productivity and good drilling accuracy. The layout of the C400 carrier is designed for a good visibility and stability in tramming, and all service points are accessible from a ground level.

### Key Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top drive</td>
<td>RH6250 with splined piston</td>
</tr>
<tr>
<td>Feed</td>
<td>CF706-F with fixed centralizer</td>
</tr>
<tr>
<td>Pipe carousel</td>
<td>PC194 (19 pipes)</td>
</tr>
<tr>
<td>Pipe diameter</td>
<td>Ø3&quot;-ø4&quot; (76 - 102 mm)</td>
</tr>
<tr>
<td>Pipe length</td>
<td>4&quot; - 6&quot; (1 220 - 1 830 mm)</td>
</tr>
<tr>
<td>Telescopic boom</td>
<td>ZR35 (620 mm extension)</td>
</tr>
<tr>
<td>Drift width in T-section</td>
<td>3 800 mm (minimum)</td>
</tr>
<tr>
<td>Parallel vertical drilling coverage</td>
<td>3 000 mm</td>
</tr>
<tr>
<td>Pivot point height</td>
<td>2 100 mm</td>
</tr>
<tr>
<td>Transport height</td>
<td>2 850 mm</td>
</tr>
<tr>
<td>Transport width</td>
<td>2 345 mm</td>
</tr>
<tr>
<td>Transport length</td>
<td>10 495 mm</td>
</tr>
<tr>
<td>Transport weight</td>
<td>30 000 kg (without drill tools)</td>
</tr>
</tbody>
</table>

### Rock Tools

<table>
<thead>
<tr>
<th>ITH hammer</th>
<th>Pipe Ø (mm)</th>
<th>Hole Ø (mm)</th>
<th>Hole Ø (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>79</td>
<td>115 - 127</td>
<td>4¾ - 5</td>
</tr>
<tr>
<td>5&quot;</td>
<td>89</td>
<td>140 - 152</td>
<td>5½ - 6</td>
</tr>
<tr>
<td>6&quot;</td>
<td>102</td>
<td>165 - 178</td>
<td>6½ - 8</td>
</tr>
<tr>
<td>8&quot;</td>
<td>127</td>
<td>203 - 254</td>
<td>8½ - 10</td>
</tr>
<tr>
<td>12&quot;</td>
<td>127</td>
<td>445*</td>
<td>17½</td>
</tr>
<tr>
<td>V-30</td>
<td>127</td>
<td>762*</td>
<td>30</td>
</tr>
</tbody>
</table>

*) by reaming
LONGHOLE BOOM

- Telescopic boom: ZR35
- Boom swing: ± 44º
- Boom tilt (back / forward): 30º / 20º
- Feed roll-over: 360º
- Boom extension: 620 mm
- Feed travel: 1 300 mm
- Parallel vertical drilling coverage: 3 000 mm
- Pivot point height: 2 100 mm
- Laser offset from drill center: 3 150 mm

FEED AND CAROUSEL

- Type of feed: CF706-F
- Type of pipe handler: PC194
- Pipe length (standard): 6' (1 830 mm)
- Retaining centralizer: CF10 fixed centralizer
- Drill table pass through: 267 mm
- Feed force: 70 kN
- Feed and return speed: Up to 0.3 m/s
- Rear stinger extension: 2 183 mm
- Front stinger extension: 1 386 mm
- Cuttings diverter: DV10
- Set-off from stope face: 400 mm

FEED DIMENSIONS

- Type: CF706 (standard) / CF705 (option) / CF704 (option)
- Pipe length: 6' (1 830 mm) / 5' (1 525 mm) / 4' (1 220 mm)
- Total length: 3 560 mm / 3 255 mm / 2 950 mm

CAROUSEL CAPACITIES

- Type: PC194 (standard) / PC225 (option) / PC334 (option)
- Storage capacity: 19 pipes / 22 pipes / 33 pipes
- Pipe diameter: 3" - 4" (76 - 102 mm) / 3" - 5" (76 - 127 mm) / 3" - 4" (76 - 102 mm)
- Max. hole length (6'): 34.3 m / 40.0 m / 60.1 m
- Max. hole length (5'): 28.7 m / 33.3 m / 50.0 m
- Max. hole length (4'): 22.9 m / 26.5 m / 40.0 m

HYDRAULIC SYSTEM

- Powerpack: HPP755 (65 kW)
- Filtration size (pressure / return): 20 µ / 10 µ
- Oil tank volume: 270 liters
- Cooler for hydraulic oil: OA40 oil-to-air (40 kW)
- Low oil level indication: Low oil level switch

AIR AND WATER SYSTEM

- Onboard booster: 20 m³/min at 28 bar from 6 bar inlet (60 Hz)
- Booster electric motor: 90 kW
- Booster inlet pressure: 4 - 7 bar
- Water booster pump: WBPU (30 l/min at 45 bar)
- Hammer lubrication system: HLUS0 with oil level sensor
- Lubrication metering capacity: 0…5 liters / h
- Lubrication tank capacity: 45 liters
- Water outlet (low pressure): Front of the carrier
- Compressor air outlet: Quick coupling for hand tools

TOP DRIVE

- Type of rotation head: RH6250 with splined piston
- Working pressure: Up to 210 bar (rotation)
- Maximum torque: 5730 Nm
- Rotation speed: 0 - 60 rpm
- Weight: 336 kg
- Length with saver sub: 760 mm

DRILLING CONTROL SYSTEM

- Control system and platform: iSOLO / SICA
- Control screen: 12" full colour touch screen
- Control panel: Portable offboard control panel and stand
- Diagnostics system: Comprehensive and interactive
- Integrated interface: For pipe handler controls

ELECTRIC SYSTEM

- Standard voltages: 380 - 690 V (50 or 60 Hz)
- Total installed power: 130 - 220 kW (depends on booster size)
- Main switch gear: MSE 10
- Allowed voltage fluctuation: ± 10%
- Current reducer unit: Standard
- Starting method: Star-Delta for booster and DOL for powerpack
- Automatic cable reel: TCR4CD with spooling system
- Cable reel remote control: At operator station and cable reel
- Front and rear lights: 10 x 50 W (24 V) LED
- Portable working lights: 2 x 50 W (24 V) LED
- Carrier positioning lights: 2 x Laser type
- Braking lights and blinkers: LED (24V)
- Stair case service lights: LED (24V)
- Parking lights: LED (24V)
- Sealed AGM batteries: 2 x 12 V (100 Ah)
- Current reducer unit: Power factor > 0.95
- Electric quality monitoring: Voltage, Amperage, Power, Pf Energy, Phase-sequence
- Motor protection: Intelligent control with power maximization
- Extra low voltage supply: Continuous 80 A 27 V DC with battery back-up and management
- IP-classification: Mains switchgear IP66 / Nema4X, junction boxes ≥ IP68

DRILLING AUTOMATION PACKAGE (SILVER)

- Drilling control selection: Torque drilling or manual
- One-hole automation: Drill to predefined depth (and uncoupling of pipes)
- Feed and hole parallelism: Assisted
- Measurement of angles: Boom tilt and drilling module rotation
- Stinger control: Full time monitoring and re-pressurizing
- MySandvik remote monitoring: With configuration readiness

2. SANDVIK DU412i - ITH LONGHOLE DRILL
**OPERATOR’S SAFETY CANOPY**

- Canopy certification: FOPS (ISO3449)
- Type of canopy: Standard height
- Unit height in tramming: 2,950 mm
- Operator’s seat: For tramming
- Electrical outlets (16 A): 12 / 24 V DC (outside canopy)
- Tramming cameras: Front, side and rear

**CARRIER**

- Type of carrier: C400 (frame-steered)
- Carrier articulation: ± 40°
- Rear axle oscillation: ± 8°
- Ground clearance: 330 mm
- Diesel engine: Cummins QSB4.5 (119 kW Tier3)
- Exhaust catalyst: Standard
- Transmission: Hydrostatic
- Drop box: Dana Spicer 305D
- Axles: Dana 113 (front and rear)
- Tires: 14.00-24 PR28
- Brakes (parking and emergency): SAHR fail safe wet disc brakes
- Steering: By joystick
- Tramming speed: 8°=1:7=14%: 5.5 km/h
- Powerpack tramming: For short distance (1 km/h) only

**OPTIONAL FEATURES AND PACKAGES**

**Drilling automation package Platinum**

- Data transfer (USB/WLAN)
- Drill plan management
- Boom automatic positioning

**OPTIONAL FEATURES AND PACKAGES**

**Drilling system**

- *CF1306-5 heavy hoist feed*
- *PC225 carousel*
- *PC334 carousel*
- *PA15 single axis pipe arm*
- CS15 retaining centralizer
- Conversion kit (with carousel) From one pipe size to another
- DV20 cuttings diverter
- DV30 cuttings diverter
- Removal of carousel
- Petrol chain wrench on feed
- RC slip plate
- Thread lubrication system
- Drilling package V-30

**Drilling system**

- With split centralizer
- For 22 pipes, Ø 3-5" (76 - 127 mm)
- For 33 pipes, Ø3-4" (76-102 mm)
- Remove carousel
- Split open (for CF706-F feed)
- From one pipe size to another
- For upheole diverter
- For V-30 upheole blind boring
- Feed without carousel and without pipe arm
- To open hammers
- Without spline piston breakout
- For use with carousel
- CF1306-VS (blind bore) feed and PA15 pipe arm (no carousel)

**Hydraulic system**

- Vacuum pump
- Bypass oil filter

**OPTIONAL FEATURES AND PACKAGES**

**Drilling automation package Platinum**

- Data transfer (USB/WLAN)
- Drill plan management
- Boom automatic positioning

**OPTIONAL FEATURES AND PACKAGES**

**Electronic system**

- *Supply voltage option
- *Supply frequency option
- Multivoltage Basic
- Multivoltage Pro
- Dewatering pump outlet
- Site voltage 380 - 690 V (7.5 kW)
- Site voltage 1 000 V (8 kW)

**Earth continuity control**

- Ground fault and overcurrent unit
- YVK

**Air and water system**

- *KSU27 booster upgrade
- *KSU33 booster upgrade

**Fire suppression system**

- Manual or automatic system
- Sandvik Eclipse™ (TS2-461)
- ANSUL, 8 nozzles (TS2-461)
- Cummins QSB4.5 (122 kW Tier4F)

**Operator’s safety cabin / canopy**

- Safety canopy with safety grill
- FOPS / ROPS (ISO3447 / 3471)

**Fire extinguisher**

- Extra manual systems

**Documentation**

- 2 x Operator’s manual
- 2 x Maintenance manual
- 2 x Technical manual (English only)
- 2 x Parts manual (English only)
- 1 x Toolman CD

**OPTIONAL FEATURES AND PACKAGES**

**Drilling system**

- *Diesel engine
- *Foam filled tires
- Filling pump for hydraulic oil
- Fast filling and evacuation system
- Wheel chocks and holders

**Hydraulic system**

- For hydraulic oil
- 2 µ

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- Filling pump for hydraulic oil
- Fast filling and evacuation system
- Wheel chocks and holders

**Hydraulic system**

- For hydraulic oil
- 2 µ
MINIMUM PRODUCTION DRIFT SIZE*

<table>
<thead>
<tr>
<th></th>
<th>H</th>
<th>W</th>
<th>Wp</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF706-F (standard)</td>
<td>3,760</td>
<td>3,760</td>
<td>2,020</td>
</tr>
<tr>
<td>CF705-F (option)</td>
<td>3,455</td>
<td>3,455</td>
<td>1,720</td>
</tr>
<tr>
<td>CF704-F (option)</td>
<td>3,150</td>
<td>3,150</td>
<td>1,420</td>
</tr>
</tbody>
</table>

*) 100 mm clearance

MAXIMUM PRODUCTION DRIFT SIZE**

<table>
<thead>
<tr>
<th></th>
<th>H</th>
<th>W</th>
<th>Wp</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF706-F (standard)</td>
<td>4,525</td>
<td>5,490</td>
<td>3,000</td>
</tr>
<tr>
<td>CF705-F (option)</td>
<td>4,225</td>
<td>5,190</td>
<td>3,000</td>
</tr>
<tr>
<td>CF704-F (option)</td>
<td>3,925</td>
<td>4,890</td>
<td>3,000</td>
</tr>
</tbody>
</table>

**) Rear stinger extended, front stinger retracted

All dimensions in mm