

DU431 ITH LONGHOLE DRILL

TECHNICAL SPECIFICATION

Sandvik DU431 is a highly versatile and compact ITH longhole drill fitted with an onboard booster and designed for underground mining in 4 x 4 m or larger production drifts. It is capable of drilling vertical and inclined fans and single or parallel Ø89 – 203 mm (3½" – 8") longholes up to 100 m in depth, using 3" to 6" in-the-hole hammers and Ø76 – 127 mm (3" – 5") pipes. The DU431 is mounted on a 4-wheel drive frame-steered and diesel-powered carrier. It is equipped with the RH6230 top drive, CF706-F feed with fixed centralizer, CB48 telescopic boom, ERIS drilling control panel and operator's safety canopy for maximum productivity, safety and hole accuracy. The 360° feed rotation, the 210° feed pivot swing, and the wide boom swing and tilt angles make the unit suitable for most mining methods and various service support applications. The CANbus based drilling control system with the user-friendly operating interface and various drilling instruments ensure good control of the drilling operation. The layout of the Aries carrier is designed for good stability, ensuring fast and safe tramming in mine drifts. All service points are accessible from ground level.

KEY FEATURES

Top drive	RH6230 with splined piston
Feed	CF706-F with fixed centralizer
Pipe arm	PA15 single axis
Pipe length	4' - 6' (1 220 - 1 830 mm)
Telescopic boom	CB48 (1 220 mm extension)
Minimum drift size (H and W)	3 790 mm (6' feed)
Drift width in T-section	4 150 mm (minimum)
Parallel vertical drilling coverage	4.8 - 7.2 m
Forward drilling coverage (H x W)	4.8 x 7.2 m
Drilling distance from the wall	280 mm (minimum)
Transport height	2 640 mm
Transport width	2 300 mm
Transport length	10 870 mm
Total weight	21 770 kg

ROCK TOOLS AND HOLE DIAMETERS

ITH hammer	Pipe Ø (mm)	Hole Ø (mm)	Hole Ø (in)
3"	79	89 - 102	3½ - 4
4"	79	115 - 127	4½ - 5
5"	89	140 - 152	5½ - 6
6"	102	165 - 203	6½ - 8



1. SANDVIK DU431 - ITH LONGHOLE DRILL

TOP DRIVE

Type of rotation head	RH6230 with splined piston
Working pressure	Up to 207 bar (rotation)
Rotation motors	2 x ME12
Maximum torque	5 730 Nm
Rotation speed	0 - 60 rpm
Weight	336 kg
Length with spline piston	760 mm (including saver sub)

DRILL FEED

Standard feed	CF706-F
Retaining centralizer	CF10 fixed centralizer
Pipe arm	PA15 single axis
Pipe length (standard)	1 830 mm (6')
Pipe length (option)	1 220 mm (4') - 1 525 mm (5')
Drill table pass through	222 mm (8 ¾")
Set-off from stope face	300 mm
Feed force	70 kN
Feed and return speed	Up to 0.3 m/s
Front and rear stingers	Standard
Stinger extension - rear	1 780 mm (5' and 6') 910 mm (4')
Stinger extension - front	560 mm (5' and 6') 910 mm (4')

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	3 607 mm	3 302 mm	2 997 mm

LONGHOLE BOOM

Telescopic boom	CB48
Boom swing	± 30°
Boom lift (up / down)	30° / 15°
Feed pivot swing	± 105°
Feed roll-over	360°
Boom extension	1 220 mm
Feed travel	1 370 mm (6') 1 140 mm (5') 910 mm (4')
Parallel drilling coverage	4 900 – 7 200 mm (vertical holes)
Reach vertically	6 480 mm
Forward drilling coverage	Width 7200 mm Height 4800 mm

HYDRAULIC SYSTEM

Powerpack	HP45 (45 kW)
Hydraulic pumps	1 x 100 cm ³ , 1 x 74 cm ³ (60 Hz) 1 x 130 cm ³ , 1 x 90 cm ³ (50 Hz)
Type of pump	Variable displacement axial piston
Filtration (pressure / return)	5μ / 10μ
Oil tank volume	265 liters
Cooler for hydraulic oil	Shell and tube type oil-to-water cooler

DRILLING CONTROL SYSTEM

Type of control system	CAN (control area network)
Control panel	ERIS portable control panel
Control screen	12" (16:10) color screen
Stand for control panel	Tripod type with 15 m cable
Drilling controls	Rotation controlled feed (AccraFeed)
Diagnostics system	Comprehensive and interactive
Pipe handler control interface	Standard
Hole alignment system	Digital angle indicator
MySandvik remote monitoring	With configuration readiness

ELECTRIC SYSTEM

Standard voltages	380 - 690 V (60 Hz)
Total installed power	92 kW (depends on booster size)
Main switch gear	MSE
Allowed voltage fluctuation	± 10%
Starting method	Delta-Wye
Automatic cable reel	CRH with limit stop
Cable reel remote control	At operator station and cable reel
Working lights	2 x 50 W (24 V) LED
Tramming lights	2 x 50 W (24 V) LED (front) 2 x 50 W (24 V) LED (rear)
Carrier positioning lights	2 x Laser type
Indicator lights	LED (24 V)
Parking lights	LED (24 V)
Amber flashing light	LED (24 V)
Sealed AGM batteries	2 x 12 V
Safety features	Phase loss or reversal protection Motor overload protection Voltmeter and ammeter Zener diode Low water pressure Low compressor oil pressure High discharge air pressure Low hydraulic oil level High hydraulic oil temperature

AIR AND WATER SYSTEM

Onboard booster	KR551
Booster capacity (from 6 bar inlet)	20 m ³ /min at 24 bar
Type of booster	Reciprocating
Booster electric motor	55 kW
Booster inlet pressure	4 – 7 bar
Water booster pump	Triplex piston pump
Water pump capacity	27 l/min at 48 bar
Hammer lubrication system	HLU unit with oil level sensor
Lubrication metering capacity	0 – 4 liters/h
Lubrication tank capacity	32 liters
Water outlet (low pressure)	Rear of the carrier

OPERATOR'S SAFETY CANOPY

Canopy certification	FOPS / ROPS (ISO 3449 / 3471)
Type of canopy	Tramming
Unit height in tramming	2 640 mm
Operator's seat	Crosswise mounted
Tramming cameras	Front and rear

CARRIER

Type of carrier	Aries (frame-steered)
Carrier articulation	± 35°
Rear axle oscillation	± 10°
Ground clearance	215 mm
Diesel engine	M-B OM904LA (110 kW Tier3)
Exhaust catalyzer	Standard
Transmission	Clark 32000 (hydrodynamic)
Axles	Dana 113 (front and rear)
Tires	12.00-20 ITL solid rubber
Brakes	SAHR fail safe wet disc brakes
Tramming speed	Horizontal (0%): 10 km/h 8°=1:7=14%: 7 km/h
Powerpack tramming	Horizontal (0%): 10 km/h
Gradeability	20° (35 %)
Carrier hydraulic jacks	2 x MJ16-T telescopic jacks (front) 2 x MJ16 jacks (rear)
Fuel tank	114 liters
Oil tank filling pump	Electric
Centralized greasing points	Standard
Tramming alarm	Standard
Colour scheme	Sandvik standard
Documentation	2 x Operator's manual 2 x Maintenance manual 2 x Parts manual (in English only) 1 x CD-Rom

OPTIONAL ITEMS

Drilling system

*CF706-S standard feed	With split centralizer
*CF1306-S heavy hoist feed	With split centralizer
Conversion kit (no carousel)	From one pipe size to another
Front and rear stingers	With 50/50 extension
Petol chain wrench on feed	To open hammers with hydraulic cylinder
RC slip plate	Without splined piston breakout

Instrumentation

Portable angle indicator	With laser alignment
Camera and monitoring package	For drilling
Hole depth and RPM monitoring	For RH6230 top drive
Access protector	Laser gate

Cleaning system

High pressure system with reel	Up to 48 bar
--------------------------------	--------------

Greasing systems

Automatic system	For carrier and boom (Lincoln)
Manual greasing unit	Pump, reel and nozzle

Electric system

*Supply voltage option	1 000 V (60 Hz) system
*Supply frequency	50 Hz (not compatible with 1 000 V)

Air and water system

*Booster upgrade to KS921	20 m³/min at 28 bar (from 6 bar inlet) Electric motor 90 kW (60 Hz)
*Booster upgrade to KS1121	27 m³/min at 28 bar (from 6 bar inlet) Electric motor 110 kW (60 Hz)
*Booster upgrade to KS1501	37 m³/min at 28 bar (from 6 bar inlet) Electric motor 150 kW (60 Hz)
*HP compressor KH421	15.6 m³/min at 24 bar for 1 000 V
Pressure reducing safety valve	<7 bar inlet air (onboard screw boosters)

Fire suppression system

Manual system	Ansul (10 nozzles)
Automatic system	Ansul (10 nozzles)

Carrier

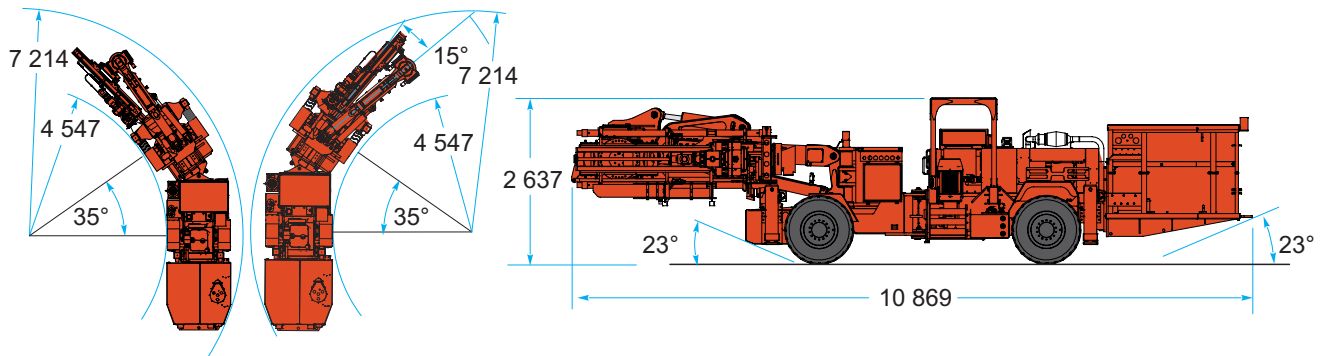
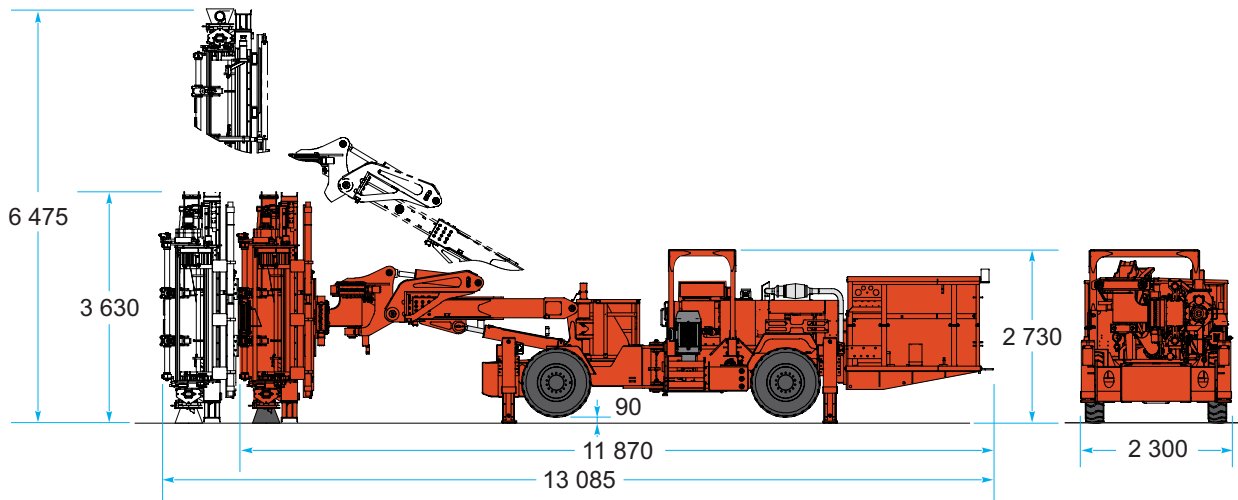
Fast filling and evacuation system	For fuel (Wiggins)
Wheel chocks	For fuel, coolant and oils (Wiggins) One on each side

Extra items

Drilling package: RC	Top drive upgrade (RC swivel) Hy- draulic centralizers with RC slip plate Thread, forks and dual torque system Discharge diameter 76 mm Center tube ID 64 mm (maximum)
Drilling package: Wassara	Top drive upgrade (Wassara) Water swivel and stainless plumbing Water pulse dampening system For alternative flow discharge With tripod stand and 15 m cable RH6230
Sheave kit for KR551	For standard tires
Spare ERIS control panel	Extra manuals (printed and CD)
Spare rotation head	For top drive, saver sub removal and the booster
Spare wheel assembly	
Documentation	
Tools to specifications	

**) replaces standard feature*

	H	W
CF704 (4')	6 477	10 465
CF705 (5')	6 477	10 465
CF706 (6')	6 477	10 465



All dimensions in mm

Sandvik Mining and Rock Technology reserves the right to make changes to the information on this data sheet without prior notification to users. Please contact a Sandvik representative for clarification on specifications and options.

ROCKTECHNOLOGY.SANDVIK

4. SANDVIK DU431 - ITH LONGHOLE DRILL