



# DU311 ITH LONGHOLE DRILL

## TECHNICAL SPECIFICATION

Sandvik DU311 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 – 254 mm (3½" – 10") longholes up to 100 m in depth, using 3" to 8" in-the-hole hammers and Ø76 – 127 mm (3" – 5") pipes. With additional air supply the DU311 can also be used for reaming up to Ø17½" (445 mm) holes in rapid raising using 12" hammers.

The DU311 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, PC164 carousel, HS130 horizontal single slideover, ERIS drilling control panel and operator's safety canopy. The 360° feed rotation, wide slideover and feed tilt angles make the unit suitable for most mining methods and various service support applications. The CANbus based drilling control system and drilling instrumentation ensure good control of the drilling operation.

The layout of the Pegasus 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
Drill pipe carousel	PC164 (16 pipes)
Drill pipe diameter	Ø3" – 4" (76 – 102 mm)
Pipe length	4' – 6' (1 220 - 1 830 mm)
Horizontal (single) slideover	HS130 (762 mm movement)
Minimum drift size (H and W)	3 807 mm (6' feed)
Drift width in T-section	3 900 mm (minimum)
Pivot point height	1 908 mm
Transport height	2 604 mm
Transport width	1 981 mm
Transport length	8 362 mm
Transport weight	22 700 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
8"	127	216 - 254	8½ - 10
12"	127	Up to 445*	Up to 17½
V-30	127	762*	30"

\*) By reaming



1. SANDVIK DU311 - 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)

## FEED AND CAROUSEL

Standard feed	CF706-F
Retaining centralizer	CF10 fixed centralizer
Pipe length (standard)	6' (1 830 mm)
Drill table pass through	222 mm (8¾")
Set-off from stope face	300 mm
Feed force	70 kN
Feed and return speed	Up to 0.3 m/s
Stinger extension (rear)	1 780 mm (5' and 6') 910 mm (4')
Stinger extension (front)	560 mm (5' and 6') 910 mm (4')
Cuttings diverter	DV10

## 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

## CAROUSEL CAPACITIES

Type	PC164 (standard)	PC165 (option)
Storage capacity	16 pipes	16 pipes
Pipe diameter	3"- 4" (76 - 102 mm)	3"- 5" (76 - 127 mm)
Max. hole length (6')	28.7 m	28.7 m
Max. hole length (5')	23.9 m	23.9 m
Max. hole length (4')	19.0 m	19.0 m

## LONGHOLE BOOM

Operating principle	Horizontal single slideover
Type of boom	HS130 (762 mm movement)
Feed tilt (back/forward)	90° / 15°
Feed roll-over	360°
Feed travel	1 370 mm (6') 1 143 mm (5') 914 mm (4')
Pivot point height	1 908 mm

## HYDRAULIC SYSTEM

Power pack	HP45 (45 kW)
Hydraulic pumps	1 x 100 cm³ and 1 x 74 cm³ (60 Hz) 1 x 130 cm³ and 1 x 90 cm³ (50 Hz)
Type of pump	Variable displacement axial piston
Filtration (pressure / return)	5 / 10µ
Oil tank volume	250 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) colour 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

## ELECTRICAL 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
Tramming lights (front)	2 x 50 W (24 V) LED
Tramming lights (rear)	2 x 50 W (24 V) LED
Working lights	2 x 50 W (24 V) LED
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 shutdowns and alarms	Low water pressure Low compressor oil pressure High discharge air pressure Low hydraulic oil level High hydraulic oil temperature
Safety features	Phase loss or reversal protection Motor overload protection Voltmeter and ammeter Zener diode

## AIR AND WATER SYSTEMS

Onboard booster	KR551
Booster capacity (6 bar inlet)	20 m³/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	2 604 mm
Operator's seat	Crosswise mounted
Tramming cameras	Front and rear

**CARRIER**

Type of carrier	Pegasus (frame-steered)
Carrier articulation	±40°
Rear axle oscillation	±10°
Ground clearance	230 mm
Diesel engine	M-B OM904LA (110 kW Tier3)
Exhaust catalyzer	Standard
Transmission	Hydrostatic
Axles	Dana Spicer 123 (front and rear)
Tires	12.00 x 20 ITL solid rubber
Parking / emergency 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	Max. 20° (35%)
Hydraulic jacks	2 x CJ16 jacks (front) 2 x CJ16 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**

*DV30 cuttings diverter	For V-30 blind boring
*Front and rear stingers	With 50/50 extension
*CF706-S standard feed	With split centralizer
*CF1306-S heavy hoist feed	With split centralizer
*PA25 dual axis pipe arm	Remove carousel
*PA15 single axis pipe arm	Remove carousel
*PA15-V single axis pipe arm	Remove carousel
*PC165 carousel	For 16 pipes Ø3" - 5" (76 - 127 mm)
Removal of carousel	Feed without carousel and without pipe arm
Conversion kit (no carousel)	From one pipe size to another
Conversion kit (with carousel)	From one pipe size to another
Petol chain wrench on feed	To open hammers with hydraulic cylinder
RC slip plate	Without splined piston breakout
Thread lubrication system	For use with carousel

**Instrumentation**

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

**Cleaning system**

High pressure system with reel	Up to 48 bar
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**Greasing systems**

*Automatic greasing 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 option	50 Hz system (not compatible with 1 000 V)

**Air and water system**

Pressure reducing safety valve	For > 7 bar inlet air (onboard screw boosters)
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**Fire suppression system**

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

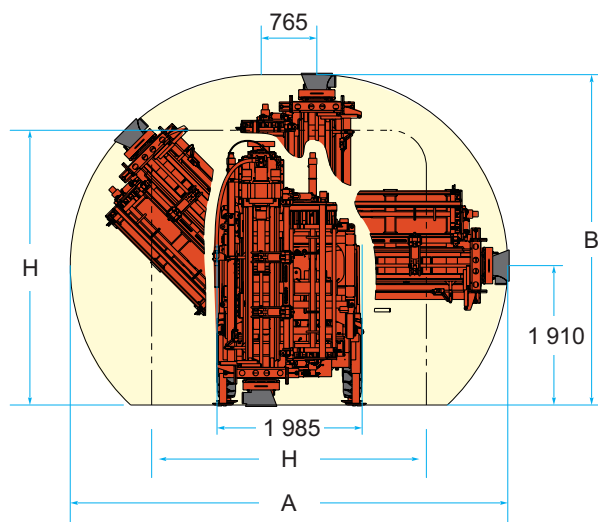
**Carrier**

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

**Extra items**

Drilling package: RC	Top drive upgrade (RC swivel) Hydraulic centralizers with RC split plate Thread, forks and dual torque Discharge diameter 76 mm Center tube ID 64 mm (maximum)
Drilling package: V-30	CF1306-VS (blind bore) feed, split centralizer, PA15-V pipe arm and 50/50 stingers
Drilling package: Wassara	Top drive upgrade (Wassara) Water swivel and stainless plumbing Water pulse dampening system
Sheave kit KR551	For alternative flow discharge
Spare ERIS control panel	With tripod stand and 15 m cable
Spare wheel assembly	Rim and tire (for standard tires)
Documentation	Extra manuals (printed and CD)
Tools to specifications	For top drive, saver sub removal and the booster

\*) replaces standard feature



#### MINIMUM PRODUCTION DRIFT SIZE\*\*

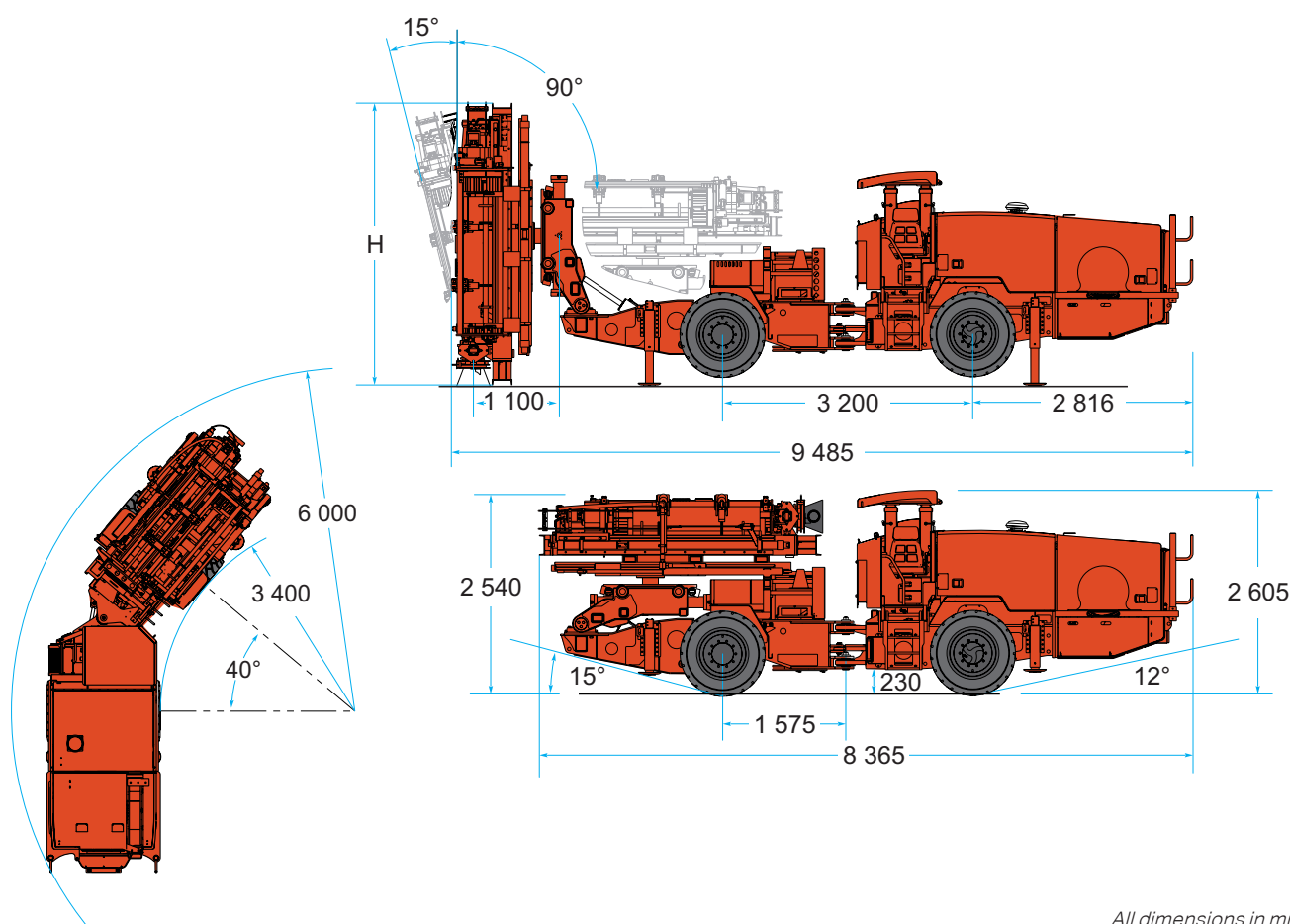
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CF706-F	3 807 mm
CF705-F	3 502 mm
CF704-F	3 197 mm

\*\*1) 100 mm clearance

#### MAXIMUM PRODUCTION DRIFT SIZE\*\*

	A	B
CF704-F mm	5 987	4 520
CF705-F mm	5 530	4 291
CF706-F mm	5 072	4 263

\*\*2) Rear stinger extended, front stinger retracted



All dimensions in mm

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