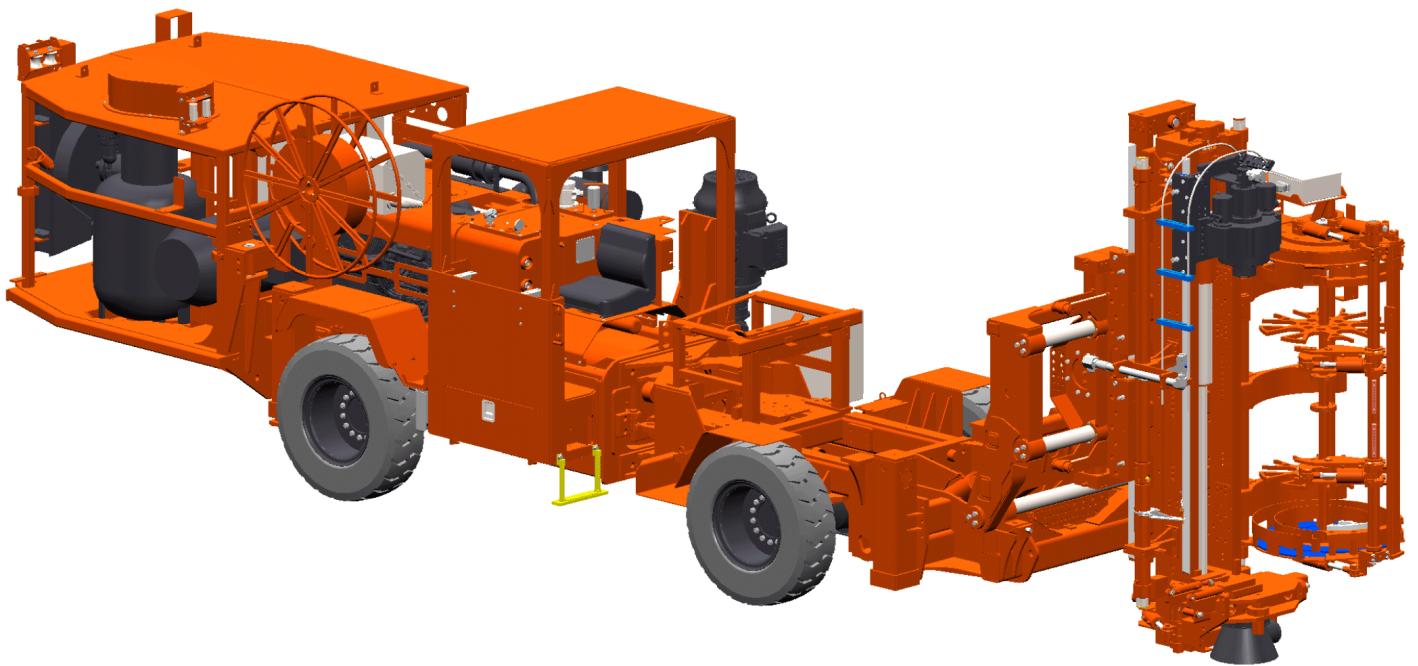


# DU411 UNDERGROUND DRILLS

## TECHNICAL SPECIFICATION



DU411 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.

With its on-board air booster the DU411 drill can be used to drill from 3 5/8 in (92 mm) to 8.5 in (216 mm) diameter holes to a depth greater than 330 ft (100 m) down hole. The DU411 is also able to be fitted for V-30 drilling allowing for economical development of slot raises, service holes, and cable holes. It can also be used for reaming up to 17.5 in (445 mm) diameter holes with a 12 in hammer for rapid raising.

The DU411 is also fitted with a Machines Roger V30 for 30 in (762 mm) reaming allowing for economical development of slot raises, ventilation raises, ore passes, emergency exits, waste chutes and service holes for electrical cable, water pipes and mine air supply.

TOP DRIVE		
Top drive		6230
Max. working pressure	207 bar	3000 psi
Max. torque	5730 Nm	4225 lb.ft
Rotation speed		0-60 rpm
Patented splined piston breakout system		

CARRIER		
Carrier		MEM-944
Safety Canopy		FOPS/ROPS
Diesel engine	Mercedez 904 (130 kW) tier III	
Transmission	Clark 32000	
Axles	Dana Spicer 113	
Brakes service parking		SAHR SAHR
Tires	12.00 x 20 ITL solid rubber	
Steering	frame steering, hydraulic	
Articulation	±35°	
Rear oscillation	±10°	
Ground clearance	216 mm	8.5 in
Fuel tank	114 L	30 US gal
Hydraulic Jacks	2 front, 2 rear	
Cable reel with automatic cable limit stop (cable and power plug not supplied)		
Centralized grease lubrication		
Tramming speed, diesel horizontal only	10 km/h	6.21 mph
Speed at 15% grade	10 km/h	6.21 mph
Tramming speed, electric horizontal only	1 km/h	0.6 mph
Gradeability	35% (20°)	
Weight	21772 kg	48000 lbs

MAST		
Mast	standard mast, fixed centralizer	
Feed force	70 kN	15800 lbs
Max. opening	222 mm	8.75 in

CAROUSEL	
Carousel	16+1 drill pipes - For up to 102mm (4 in) pipe

POSITIONING SYSTEM		
Single slideover	762 mm	30 in
Feed extension		
1.8 m (6 ft) drill pipe	1370 mm	54 in
1.5 m (5 ft) drill pipe	1143 mm	45 in
1.2 m (4 ft) drill pipe	914 mm	36 in
Roll over angle	360°	
Stinger extension - top	1830 mm	6 ft
Stinger extension - bottom	610 mm	2 ft

CONTROL SYSTEM	
Control system	ERIS panel - CanBus
Accra feed	feed and rotation control / anti-jamming
Remote control	tripod mounted, with 15 m (50 ft) cable

POWERPACK		
Open loop load sensing hydraulic system		
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 pressure	1 x 5 micron	
Filtration return	1 x 10 micron	
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	32 L	8.5 US gal

AIR BOOSTER		
Booster type	reciprocating - KR551	
Electric motor	1 x 55 kW	1 x 75 hp
Max. working pressure	24.1 bar	350 psi
FAD, max. working pressure	20 m <sup>3</sup> /min	700 cfm
Inlet pressure	6 bar	90 psi

WATER INJECTION SYSTEM		
Water pump type	triplex piston pump	
Capacity	27 L/min (48 bar)	7 gal/min (700 psi)

**ELECTRICAL SYSTEM**

Total input power	92 kW (125 hp)
Standard voltage	600 VAC
Standard frequency	60 Hz
Lights - working	2 x 43 W LED
Lights - driving lights	4 x 43 W LED
Starter	Delta-Wye
Safety shutdowns and alarms	low mine water pressure low compressor oil pressure high discharge air temperature low hydraulic oil level high hydraulic oil temperature
Safety feature	phase loss / phase reversal protection motor overload protection voltmeter and ammeter indicator lights Zener diode tram active strobe backup alarm

**REVERSE CIRCULATION OPTION**

Discharge diameter	76 mm	3 in
Max. ID of centre tube	64 mm	2.5 in
6230-RC top drive	RC swivel	
Hydraulic centralizers with RC slip plate and dual torque		

**SELECTION OF OPTIONAL EQUIPMENT****OPTIONAL MASTS**

Masts	Feed force		Max opening		Drill pipe lengths
Standard mast (Fixed or split centralizer)	70 kN	15800 lbs	222 mm	8.75 in	4/5/6 ft
Heavy mast (Split Centralizer)	133 kN	30000 lbs	222 mm	8.75 in	4/5/6 ft

**OPTIONAL CAROUSELS**

Carousel	Pipe size	
16+1 drill pipe	76-127 mm	3-5 in
21+1 drill pipe	76-127 mm	3-5 in
32+1 drill pipe	76-102 mm	3-4 in

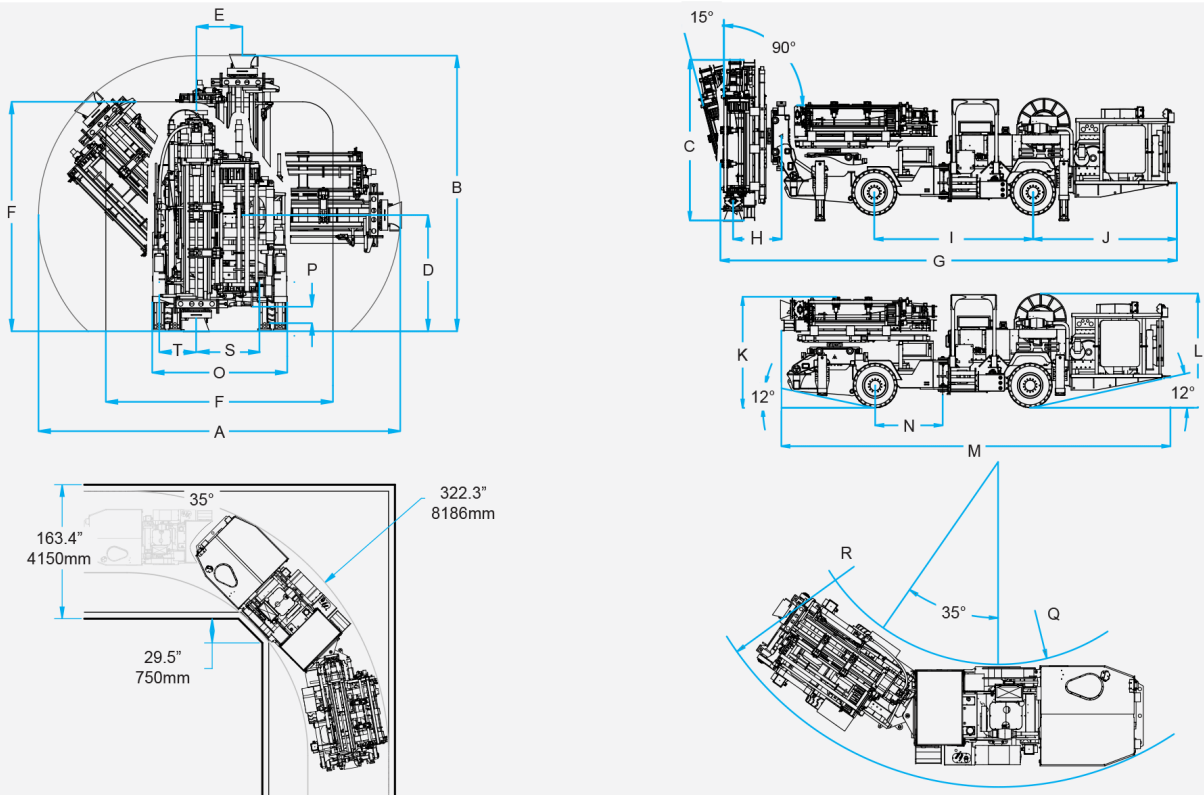
**PIPE HANDLING OPTIONS\***

Pipe arm, single axis	to assist manual pipe handling
Pipe arm, dual axis	to assist manual pipe handling
*Pipe arm is not compatible with carousel	

**POSITIONING SYSTEM**

Double slideover	1524 mm	60 in
Stinger extension - top	1830 mm	6 ft
Stinger extension - bottom	610 mm	2 ft

**DIMENSIONS**



**DIMENSIONS - DRILLING**

Model	Units	Max. reach		Mast height	Pivot height	Slideover	Min. drift	Length	Laser offset	Track length	Overhang	Drilling distance to wall	
		A	B	C	D	E	F	G	H	I	J	S	T
DU411 6 ft rods	in	235.8	177.8	142	74.9	30	148	407.8	43.3	141.9	128.4	25.3	43.3
	mm	5989	4516	3607	1902	762	3759	10358	1110	3604	3261	642	1151
DU411 5 ft rods	in	217.8	168.8	130	74.9	30	136	407.8	43.3	141.9	128.4	25.3	43.3
	mm	5532	4288	3302	1902	762	3454	10358	1110	3604	3261	642	1151
DU411 4 ft rods	in	199.8	159.8	118	74.9	30	124	407.8	43.3	141.9	128.4	25.3	43.3
	mm	5075	4059	2997	1902	762	3150	10358	1110	3604	3261	642	1151

**DIMENSIONS - TRAMMING**

Model	Units	Height		Length	Pivot	Width	Clearance	Min. radius	Max. radius
		K	L	M	N	O	P	Q	R
DU411	in	100	103	356.3	61.8	88	8.5	177.2	284.4
All	mm	2540	2616	9050	1570	2235	216	4500	7225

DISTRIBUTOR: