ROTARY BLASTHOLE DRILL RIG

TECHNICAL SELECTION GUIDE | ROTARY DRILL RIG

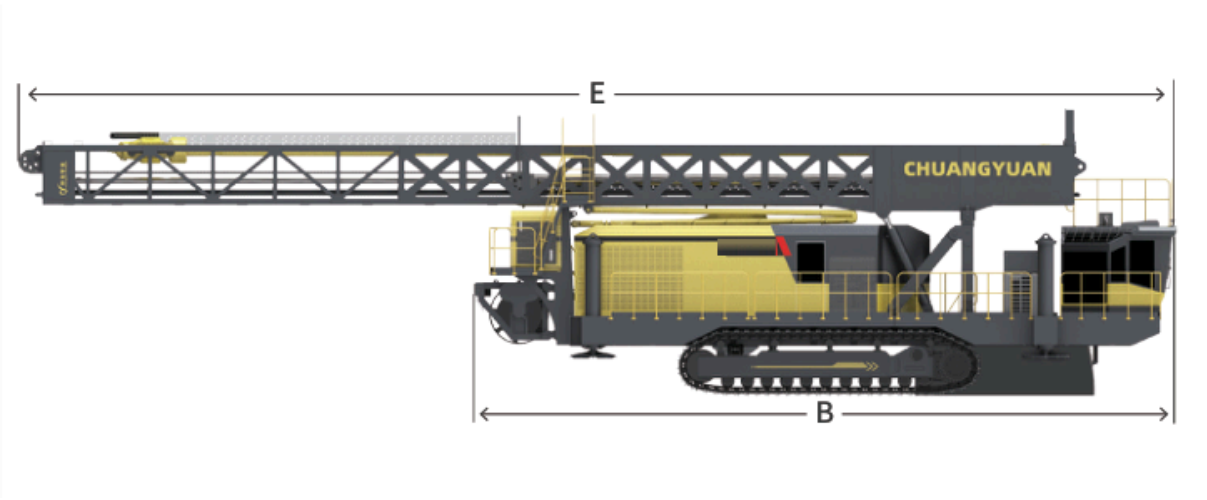
A practical reference for screening drill-rig configurations against blast-hole geometry, rock conditions, drilling-system capacity, air supply and mine-site constraints.

140–380 mm	45–52.2 m	40 / 60 / 85	−40 to +50°C
Hole diameter	Maximum hole depth	Air volume (m³/min)	Ambient temperature

Drilling diameter configurations

Series	Hole diameter	Maximum hole depth	Compressor configuration
140–225 mm Diesel / Electric	140–225 mm	45 m	8 bar · 40 m³/min
200–270 mm Diesel / Electric	200–270 mm	52.2 m	8 bar · 60 m³/min
270–380 mm Diesel / Electric	270–380 mm	49.6 m	5 bar · 85 m³/min

DRILL RIG | MANUFACTURER REFERENCE VIEW



Drill rig side elevation extracted from the supplied product brochure.

1. Model and Drill-String Capability

The first screening step is to confirm that the target blast-hole diameter and depth fall within the selected model's stated drilling envelope. Drill-pipe dimensions and the pipe magazine arrangement must also suit the planned drilling sequence.

Model	Hole dia. (mm)	Single-pass depth (m)	Max. depth (m)	Pipe length (m)	Pipe dia. (mm)	Magazine
140–225 mm Diesel	140–225	8.6	45	9.1	102–178	4+1
140–225 mm Electric	140–225	8.6 / 17.7*	45	9.1	102–178	4+1
200–270 mm Diesel	200–270	9.4	52.2	10.7	159–219	4+1
200–270 mm Electric	200–270	9.4 / 20.1*	52.2	10.7	159–219	4+1
270–380 mm Diesel	270–380	9.6	49.6	10	219–324	4+1
270–380 mm Electric	270–380	9.6 / 19.6*	49.6	10	219–324	4+1

* The supplied catalogue lists paired single-pass depth values for the E models. It does not explain the configuration basis for the paired figures; confirm the applicable value and mast arrangement with the equipment supplier before specifying the machine.

Model-family screening

If the blast-hole plan requires…	Initial model family to review	Important cross-check
140–225 mm holes	140–225 mm Diesel / Electric	Maximum depth 45 m; 40 m³/min at 8 bar
200–270 mm holes	200–270 mm Diesel / Electric	Maximum depth 52.2 m; 60 m³/min at 8 bar
270–380 mm holes	270–380 mm Diesel / Electric	Maximum depth 49.6 m; 85 m³/min at 5 bar

Selection boundary

Adjacent model families have overlapping hole-diameter ranges; diameter alone is not enough to select a rig.

Also check depth, single-pass setup, drill-pipe dimensions, feed, torque, compressor duty and site conditions.

2. Drilling-System Parameters and Air Flushing

The drill rig catalogue separates the feed, rotary and compressor systems. These values describe the available equipment ranges; the working settings for a particular bit and formation must be established during technical configuration and commissioning.

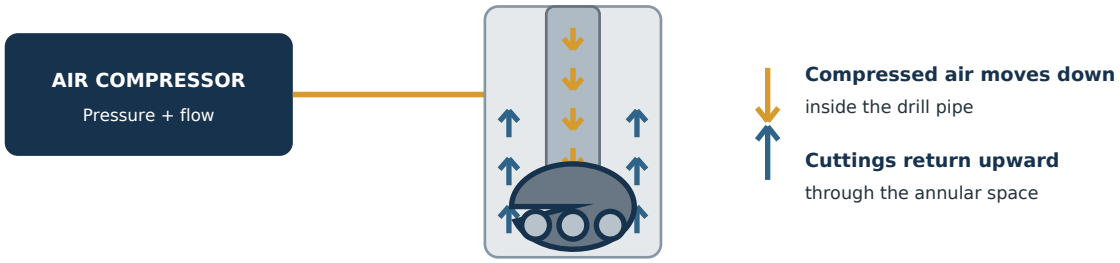
Feed and hoisting system

Series	Feed speed (m/min)	Feed force (kN)	Axial pressure (kN)	Pullback force (kN)	Pullback speed (m/min)
140–225 mm D/E	0–48	0–230	0–252	0–110	0–70
200–270 mm D/E	0–27	0–350	0–380	0–160	0–48
270–380 mm D/E	0–20	0–480	0–520	0–250	0–42

Rotary and compressor system

Series	Rotation speed (rpm)	Rotary torque (kN·m)	Compressor pressure (bar)	Air volume (m³/min)
140–225 mm D/E	0–200	0–15	8	40
200–270 mm D/E	0–145	0–25	8	60
270–380 mm D/E	0–145	0–35	5	85

Air-flushing path



The roller-cone bit fractures rock; return air carries cuttings up the borehole.

Why pressure and volume must be read together
The catalogue pairs 40 m³/min with 8 bar for 140–225 mm holes, 60 m³/min with 8 bar for 200–270 mm holes, and 85 m³/min with 5 bar for 270–380 mm holes. A higher airflow figure does not by itself mean higher discharge pressure or better cleaning in every borehole.

Engineering checks during configuration: confirm the target hole diameter, drill-pipe internal passage, bit air passages, borehole depth and expected cuttings-return path. The catalogue does not provide a universal minimum annular return velocity or a field air-volume correction formula; do not derive one from the compressor rating alone.

3. Mine-Site Compatibility and Equipment Envelope

A model that meets the drilling geometry may still be unsuitable if the mine's elevation, ground conditions, power infrastructure or access envelope falls outside the stated equipment limits.

Item	D models	E models	Selection note
Maximum operating elevation	Below 3,500 m	Below 5,400 m	Check the actual site elevation and selected power configuration.
Ambient temperature	−40°C to +50°C	−40°C to +50°C	Low-temperature heating system is an optional configuration.
Rock hardness	f4–f20	f4–f20	Catalogue uses the Protodyakonov hardness coefficient.
Drilling angle	60°–90°	60°–90°	Confirm angle reference and mast configuration on the final drawing.
Ground pressure	103 / 122 / 144 kPa	103 / 122 / 144 kPa	For 140–225 / 200–270 / 270–380 mm holes.
Climbing ability	20° / 14° / 14°	20° / 14° / 14°	For 140–225 / 200–270 / 270–380 mm holes.

Overall dimensions and machine weight

Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Weight (t)
140–225 mm Diesel	15,700	10,200	5,500	5,800	14,800	40–48
140–225 mm Electric	24,800	10,200	5,500	5,800	24,800	40–50
200–270 mm Diesel	19,100	14,200	7,600	8,100	20,000	110–120
200–270 mm Electric	29,800	17,900	7,600	8,100	30,700	110–130
270–380 mm Diesel	18,900	18,100	8,000	8,600	19,600	168–178
270–380 mm Electric	28,900	18,100	8,000	8,600	29,600	168–178

A–E are the dimension references marked on the manufacturer's overall layout drawing. Use the drawing together with the selected mast position and machine configuration. Confirm transport dimensions, lifting points, disassembly requirements and route clearances before logistics planning.

Power and configuration options

D models are listed with diesel-engine power. E models use an electric motor and can be optionally equipped with a diesel power unit. The catalogue also lists optional high or low mast arrangements, inclined-hole configuration within the stated 60°–90° range, and a low-temperature heating system. Confirm the exact option combination and installed power for the model being quoted.