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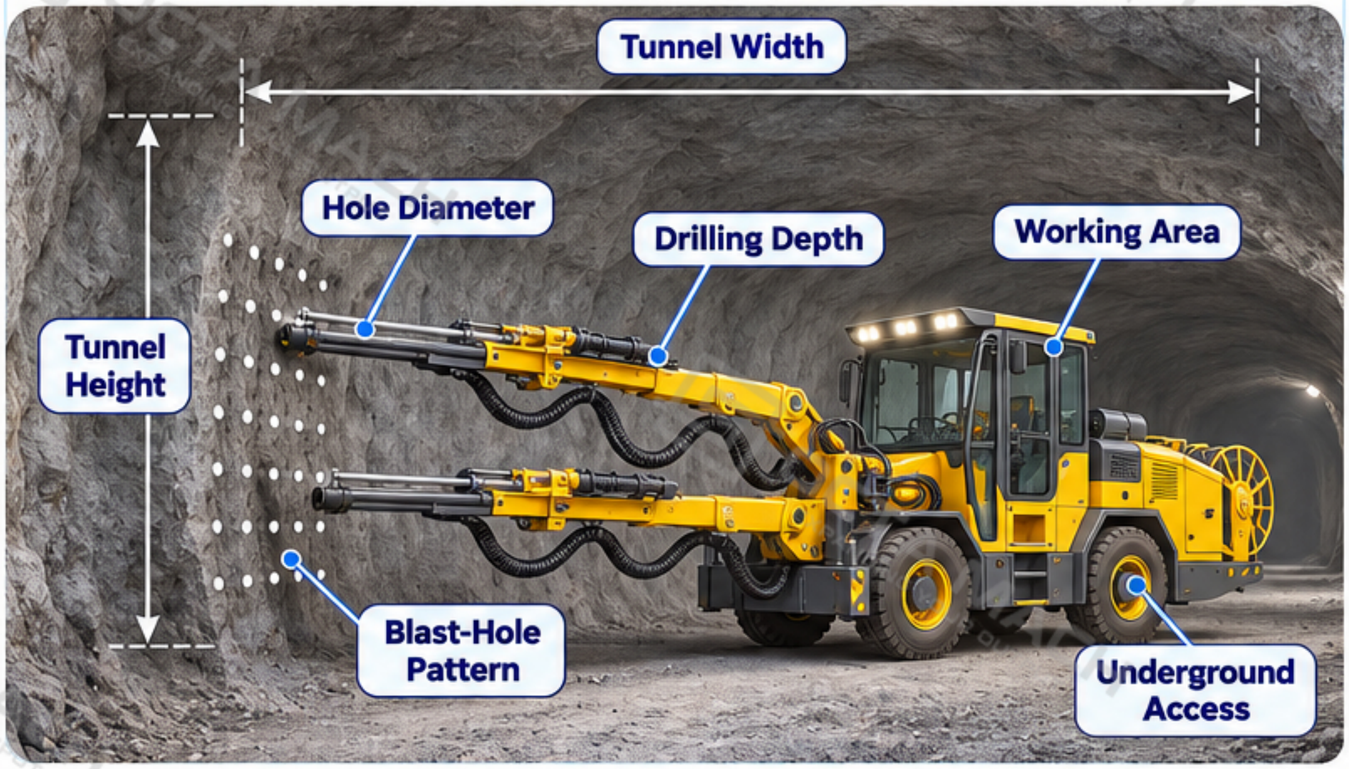
Project Requirements

Define Your Underground Drilling Requirements

Project Requirement Overview



Project Information to Confirm

Project Information	Details to Confirm
Application	Tunnel Development / Mine Development
Tunnel Width	Required tunnel width (m)
Tunnel Height	Required tunnel height (m)
Working Area	Required drilling coverage (m^2)
Rock Conditions	Rock type, hardness and geological conditions
Hole Diameter	Required blast-hole diameter (mm)
Drilling Depth	Target hole depth (mm)
Blast-Hole Pattern	Hole types, quantities and arrangement
Operating Environment	Underground access and working conditions

Selection Preparation Sequence

01 Define Application → **02** Confirm Tunnel Size → **03** Review Drilling Pattern → **04** Check Site Access → **05** Confirm Utilities

Engineering Note

Accurate equipment selection starts with confirmed tunnel dimensions, drilling requirements, site access conditions and available underground utilities.

Clear project requirements help match the drilling jumbo configuration with actual underground working conditions.

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Drilling Capacity and Technical Matching

Match Drilling Coverage, Hole Diameter and Depth with the Right Configuration

Single-Boom Drilling Jumbo



Working Area
10 / 15 / 34 m²

Hole Diameter
32–64 mm

Drilling Depth
2,800–4,000 mm

Single-Boom Technical Parameters

Technical Parameters	Unit	Configuration 1	Configuration 2	Configuration 3
Working Area	m²	10	15	34
Hole Diameter (Reaming)	mm	32–45 (76–102)	32–64 (76–115)	32–64 (76–115)
Drill Rod Length	mm	3,100	3,100 / 3,700	3,700 / 4,300
Drilling Depth	mm	2,800	2,800 / 3,400	3,400 / 4,000
Impact Power	kW	14	18	18
Impact Pressure	bar	115–140	170–210	170–210
Rotation Torque	N-m	975	1,050	1,050

Drilling Capacity Matching

Configuration 1 10 m²

Suitable for projects with a smaller working area and lower drilling depth. Reference depth: 2,800 mm.

Configuration 2 15 m²

With different drill rod lengths and drilling depths to match project needs. Reference depth: 2,800 / 3,400 mm.

Configuration 3 34 m²

A larger coverage configuration for wider tunnel faces. Reference depth: 3,400 / 4,000 mm.

Understanding Drilling Capacity

- **Working area:** the specified operating coverage of the machine.
- **Hole diameter:** the required blast-hole diameter; values in parentheses refer to reaming (enlarged) holes.
- **Drilling depth:** should be matched with the approved blast-hole design.

The selected configuration should provide sufficient drilling coverage and reach the required hole depth without exceeding the machine's specified operating capacity.

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Single-Boom vs. Multi-Boom Drilling Jumbo

Compare Drilling Assemblies, Hole Coverage and Task Coordination

Equipment Configuration Comparison



Single-Boom Drilling Jumbo

One independently controlled drilling assembly, repositioned to complete different holes across the tunnel face.



Multi-Boom Drilling Jumbo

Three independently controlled drilling assemblies: two heading drilling assemblies and one dedicated cut-hole assembly.

Technical Configuration Comparison

Comparison	Single Boom	Three-Boom Configuration
Drilling Assemblies	1	3
Assembly Arrangement	One heading drilling assembly	Two heading assemblies + one cut-hole assembly
Conventional Hole Diameter	32–64 mm	38–64 mm
Cut-Hole Diameter	According to selected configuration	127–180 mm
Drilling Depth	2,800–4,000 mm	Heading: 6,000 mm; Cut-hole: 6,300 mm
Maximum Impact Power	14–18 kW	Heading: 18 kW; Cut-hole: 35
Maximum Rotation Torque	975–1,050 N·m	Heading: 1,050 N·m; Cut-hole: 2,285 N·m

How to Choose Between the Two Configurations

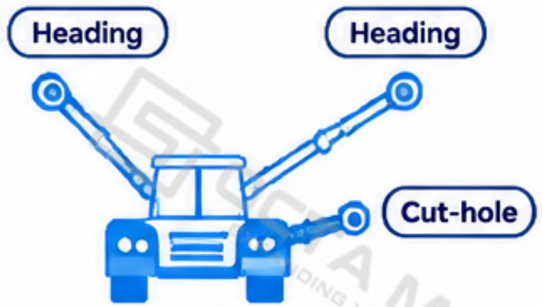
Choose a Single-Boom Drilling Jumbo

Suitable when one drilling assembly can complete the required blast-hole pattern through successive positioning. A practical arrangement for underground headings where drilling coverage, hole diameter and depth fit the selected configuration's capacity.

Choose a Multi-Boom Drilling Jumbo

Designed for more specialized face-drilling operations. Two heading drilling assemblies handle conventional blast holes, while a dedicated cut-hole assembly handles larger-diameter holes. Different drilling tasks can be coordinated within the same working setup.

Important Configuration Note



Multi-boom parameters are specified separately for the heading composite-beam assemblies and the dedicated cut-hole assembly. Their values should not be combined as if they described one identical drilling unit.

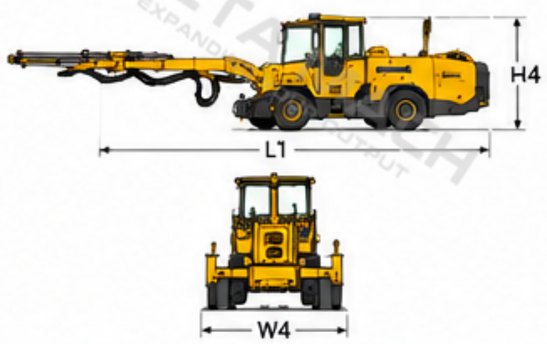
A multi-boom configuration is not simply an upgraded single-boom machine; it assigns different drilling tasks to separate assemblies for coordinated face drilling.

Underground Access & Utility Requirements

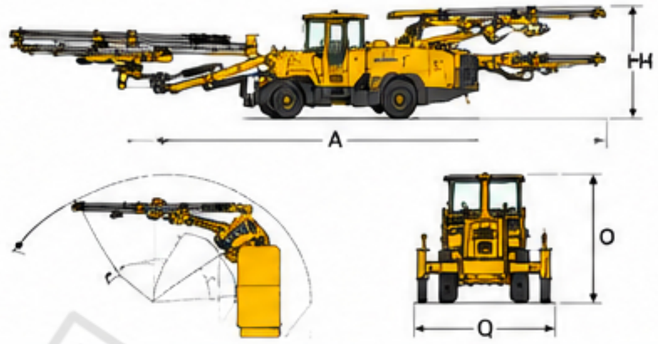
Machine Dimensions, Site Clearance and Utility Compatibility

Machine Dimensions and Access Clearance

Single-Boom Drilling Drilling Jumbo



Multi-Boom Drilling Drilling Jumbo



Site Clearance Checklist

Check Item	Requirement
Tunnel Clear Width	Confirm sufficient clearance for machine passage
Tunnel Clear Height	Check the highest machine dimension
Turning Space	Verify turning clearance along the access route
Boom Working Envelope	Allow sufficient room for boom positioning
Support Leg Clearance	Confirm space for stabilizer deployment
Ground Conditions	Check roadway and working-surface bearing conditions

Single-Boom Dimensions (Reference)

Drawing Dimensions	Configuration 1	Configuration 2	Configuration 3
L1 (mm)	8,700	10,500	11,500
H4 (mm)	3,650	4,000	6,200
W4 (mm)	3,500	4,200	6,000
Weight (kg)	8,200	10,500	13,800

Utility Compatibility Check

Before equipment selection, confirm that the available underground electrical supply matches the selected machine configuration. Water and compressed-air requirements should also be checked against the equipment specifications and actual site conditions.

Power and Utility Requirements

Single-Boom Configuration

Parameter	Reference Value
Main Motor Power	45 / 55 / 55 kW
Voltage	Standard 380 V
Optional Voltage	660 / 1,000 / 1,140 V
Diesel Engine Power	37 / 66 / 66 kW

Multi-Boom Configuration

Parameter	Reference Value
Main Motor Power	55 / 75 kW
Voltage	1,000 V
Frequency	50 Hz
Maximum Hydraulic System Pressure	250 bar
Hydraulic Tank Capacity	480 L
Filtration Accuracy	10 μm
Water Supply Motor Power	7.5 kW
Maximum Water Flow	400 L/min
Air Supply Rated Power	11 kW
Maximum Air Flow	1,970 L/min

Ensure that the machine dimensions, tunnel access and underground utilities are all compatible with the selected configuration before deployment.

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Project Selection Checklist

Confirm Key Requirements and Prepare Project Information for Equipment Selection

Equipment Selection Checklist

Selection Item	Confirmation
Tunnel width and height have been defined	☐ Yes
Required working area has been confirmed	☐ Yes
Blast-hole diameter has been specified	☐ Yes
Required drilling depth has been determined	☐ Yes
Blast-hole pattern is available	☐ Yes
Rock and geological conditions are understood	☐ Yes
Machine access dimensions have been checked	☐ Yes
Turning and boom operating clearance are sufficient	☐ Yes
Electrical supply is compatible	☐ Yes
Water and air supply requirements are confirmed	☐ Yes

Project Information for Technical Evaluation

Project Information	Customer Details (to Be Filled In)
Project Name	
Application	
Tunnel Width × Height	
Required Working Area	
Hole Diameter	
Drilling Depth	
Rock Conditions	
Available Voltage	
Underground Access Width	
Underground Access Height	
Preferred Configuration	☐ Single Boom ☐ Multi-Boom

Documents Recommended for Submission



- Tunnel cross-section drawings.
- Blast-hole layout or drilling pattern.
- Required hole diameter and drilling depth.
- Underground access route drawings.
- Available electrical supply information.
- Geological and site condition details.

Engineering Support from OCTA MACH



OCTA MACH provides single-boom and multi-boom Drilling Jumbo solutions for underground mining and tunnel development projects.

Share your project drawings and drilling requirements with OCTA MACH to discuss a suitable equipment solution.

Review the checklist, prepare the required project information and supporting documents, and work with OCTA MACH to confirm the most suitable Drilling Jumbo configuration for your project.