

MINING

Autorock Drill Rig

DESCRIPTION

The Autorock drill rig is a self-contained small drill rig for drilling holes and installing rock bolts in low-height stopes. By clamping itself between the footwall and hanging wall the Autorock rig stabilises and guides the rock drill, allowing remote operation and faster penetration. This gives marked improvements in safety and productivity.

The Autorock rig is made in a number of models, to suit different stoping widths, and user preference of power sources and rock drills.



Details	Standard	Optional (specify when ordering)
Rig height (mm)	750, 950, 1100, 1400, 1600, 1800 and 2400	3 m
Power source for thrust and clamping	Compressed air: 4.5 - 6 bar	Hydropower or service water 4.5 - 12 bar
Drifter/rockdrill	-S215 or *CompAir Rocket -Short chuck (108 mm) -*Novatek hydropower	-S25; hydropowered drills (eg *Sulzer) or any pneumatic rockdrill on request -Long chuck drills (159 mm) -Rotary drills (eg *Gopher)
Protective frame (crash-bars)	-Fully surrounds rig -Tubular steel	-Aluminium (lightweight) -Heavy duty, with extension legs
Mobility	-Skid-moveable on crash-bars -Wheels on rigs 1400 mm and higher	-Wheels on smaller rigs -Steerable tricycle wheel set on rigs over 3 high
Drill collaring guide	Standard on rigs 1400 mm and higher	-Fitted to smaller rigs on request -Clamp for changing drill-steels
Materials of construction	Steel, stainless steel, aluminium and polymers	Aluminium-free, for coal mines

APPLICATION AND USE

Standard rigs use pneumatic rotary-percussion (“jackhammer”) drills. The following options are also available and may be specified when ordering.

- Hydropowered Rig

The Autorock Hydro-powered drill rig is for mines using hydropower instead of compressed air. Water with pressure in the range 12 - 16 MPa is used to power the drill. Minova has partnered with Novatek to develop hydropowered rock drills adapted for vertical drilling in narrow slopes. These drills are more energy efficient than compressed air drills, while drilling twice as fast, with lower noise level and no discharge of oil.

The thrust and clamping cylinders may be specified as hydropowered or for operation with low-pressure water (less than 1 MPa) supplied by an integral pressure reducer.. Autorock hydropowered rigs are designed and manufactured to the applicable code of practice to ensure safety while using the high-pressure water.

- Rotary Drilling Rig

This unit is used primarily in coal mines. It features aluminium free-construction and internal earthing to ensure no static electricity build-up.

The higher thrust need for rotary drilling is provided by an enlarged stainless-steel thrust cylinder.

The rig is fitted with an air-driven rotary drifter of the customer’s choice; typically a “*Gopher-type” or “*Turbo bolter”, providing high-speed rotation and high torque.

- Gully Rig

Featuring a 750, 950 or 1100 Autorock rig with strengthened frame and fitted with removeable extension legs. This allows the same compact rig to be used for drilling support holes in the stope and in the gullies, by extending the legs. It contains all the features and benefits of the well tried and proven stope rigs.

This rig ensures a safe and easy erection, whilst it can be used to drill both stope face and gully support holes.

ADVANTAGES

- Light weight - easily movable
- Safety improvement - remote control allows the operator to work from under permanent support
- Hearing conservation - remote control from up to 7 m away reduces operator noise exposure
- Productivity improvement - fast and vertical drilling, even in low stopes
- Versatile - may be used with a range of rock drills and rock bolt types
- Rugged, modular construction - damage resistant and economic to maintain

TECHNICAL DATA

Autorock drill rigs are manufactured in our ISO 9001 :2015 listed factory in Isando, Gauteng.

Full risk assessments have been done for all rigs under numerous conditions, to meet specific requirements and make operations with the rig safe.

(* See Trademarks, pg 4)

RIG SIZES AND WEIGHTS

Rig Size	Working Height Range (mm)		Rig Weight (Aluminium Standard without Drill) kg
	Without Extension Legs	With Extension Legs	
750	800 - 1286	-	30
950	950 - 1509	-	36
1100	1100 - 1734	-	40
1400	1400 - 2239	1450 - 3339	50
1800	1800 - 2639	1890 – 3739	62
2400	2400 - 3239	2450 - 4339	81
3000	3100 - 3923	3100 - 5023	116

APPLICATION METHOD

1. Maintenance Planning

Autorock rigs use galvanised steel for longer life and are constructed robustly with crash bars as well as impact-protected cylinders. Under conditions of fair wear and tear, the Autorock Rig can be expected to require maintenance every 4 to 6 months. Sufficient spare rigs should be available in a mine "pool" so that rigs taken out of working places for maintenance and repair are immediately replaced and no drilling shifts are lost. Typically, about 10% of operating Rigs need to be available as spare rigs to keep all working places served.

2. Maintenance Programme

To ensure success of rock bolting programmes, a well-functioning maintenance system is essential to obtain the highest standards of availability, optimum performance and safe use of the Autorock drill rigs.

Minova has fully equipped and TUV ISO 9001 :2015 accredited repair workshops, in Johannesburg.

After maintenance each rig and every component is checked and tested before despatch. Repaired rigs are tested to the same standards as new rigs and are covered by a 3-month manufacture warranty. Rigs can be maintained/serviced with or without their rock drills.

Statistics are collected on all maintenance work. Minova RSA can provide reports to mine management on repair and maintenance costs and cost drivers. The statistics are also used by Minova to guide its programme of continuously improving the Autorock rigs.

For operators in areas where it is not feasible to return the rigs to Minova for maintenance, Minova will assist the customers to establish on-site maintenance programmes.

3. Training

The correct training of the rig operators and all other personnel involved in the operation and management of the Autorock rigs is of critical importance to ensure the successful operation of the Autorock Rig and ultimately the rock bolting strategy. Minova RSA offers training packages to meet individual customer's needs. These include software to aid in selection of rigs and drilling accessories, training videos, posters and fault-finding guides.

4. Demonstrators

Minova RSA provides the additional service of qualified underground demonstrators to assist in introduction of new technologies and equipment, as well as on-going training and performance monitoring. This service is recommended as part of a roll-out. Thereafter it can be provided by means of a service contract, at an additional charge.



SAFETY INSTRUCTIONS AND LIMITATIONS

Minova provides comprehensive operating and service instructions. The Autorock rig must be used in accordance with those instructions for safe and productive operation.

PACKAGING AND TRANSPORTATION

Rig components are secured for transport.

For export customers, rigs are packed individually in wooden crates.

DISPOSAL

Follow local regulations.

DISCLAIMER

The Minova Logo is a registered trademark.

Copyright © 2019 Minova. All rights reserved

Autorock is a registered trademark of Minova RSA. Lokset, Tekseal and Turbobolter are registered trademarks of Minova International, used under licence.

“CompAir Rocket” is a trademark of CompAir South Africa; “Alminco” and “Gopher” are trademarks of Alminco; “Novatek” is a trademark of Novatek (Pty) Ltd; “Sulzer” is a trademark of the Sulzer Corporation.

The Autorock drill rig is protected by SA Patent number 2001/10382, owned by Minova Africa.

All information contained in this document is provided for informational purposes only and is subject to change without notice. Since Minova cannot anticipate or control the conditions under which this information and its products may be used, each user should review the information in the specific context of the intended application. To the maximum extent permitted by law, Minova specifically disclaims all warranties express or implied in law, including accuracy, non-infringement, and implied warranties of merchantability or fitness for a particular purpose. Minova specifically disclaims, and will not be responsible for, any liability or damages resulting from the use or reliance upon the information in this document.

ADDITIONAL DOCUMENTATION

Under development

LIST OF REPRESENTATIVES

- AUSTRIA: Minova MAI GmbH
- CZECH REPUBLIC: Minova Bohemia s.r.o.
- FRANCE / BELGIUM: Sales office Minova France / Belgium
- GERMANY: Minova CarboTech GmbH
- ITALY: Minova CarboTech GmbH Italy branch
- KAZAKHSTAN: Minova Kazakhstan LLP
- POLAND: Minova Ekochem S.A.; Minova Arnall Sp. z o.o.; Minova Ksante Sp. z o.o.

- RUSSIA: ZAO "Carbo-ZAKK"
- SLOVAKIA: Minova Bohemia s. r. o., organizačná zložka
- SOUTH AFRICA: Minova Africa (Pty) Ltd.
- SPAIN: Minova Codiv S.L.U.
- SWEDEN / NORWAY: Minova Nordic AB
- UNITED KINGDOM: Minova Weldgrip Ltd.; Minova International Ltd.
- APAC: Minova Australia Pty Ltd.
- AMERICAS: Minova USA Inc.

CUSTOMER SERVICE

For additional support options available at your area, contact our local offices.

www.minovaglobal.com