



Forepoling Systems

mincon.com

The Driller's Choice



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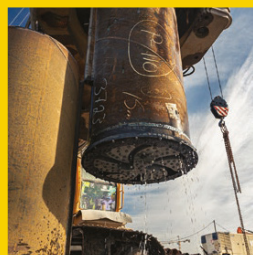
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The Driller's Choice

MINCON, EST. 1977

Mincon has earned its reputation as The Driller's Choice thanks to nearly five decades of developing world-class rock drilling solutions for a wide range of applications.



EXPERTS ON SITE

Our rock-drilling expertise doesn't stop at manufacturing. Around the world, our highly qualified teams work closely with customers to tailor their requirements to available drilling platforms and ground conditions, while also accounting for applicationspecific requirements. Importantly, feedback from every drill site is provided to our design engineers, informing the cycle of continuous improvement.

SOLUTIONS FOR EVERY APPLICATION

Our products can be found on drill sites around the world, in the blasthole, exploration, geotechnical, water-well, and geothermal industries. At each of those projects, drillers have insisted on using Mincon tools for their superior reliability, durability, performance, and efficiency.

ENGINEERED EFFICIENCY

For us, efficiency means drilling faster while using less fuel and maintaining productivity throughout the useful life of a product. We want our customers to get the best performance out of their drilling solution. We achieve this with our own, proven designs; precise manufacturing; and proprietary heat-treat processes, all of which result in components that have tight tolerances, as well as tailored surface and material properties that ensure longer life.

EUROPE AND MIDDLE EAST REGION

All European Countries
Middle East Countries

AMERICAS REGION

North and South America

POINTS OF PRESENCE

With nine global factories, a growing network of Mincon customer service centres, and more than 200 distributors, we have the international presence that our customers need. We manufacture within region to meet local customer demand, while providing service and support to ensure customers achieve optimum productivity from their assets.

ASIA PACIFIC

Australia, New Zealand,
Pacific Islands

AFRICA REGION

African Continent

COMPREHENSIVE PRODUCT RANGE

Our ambition is always to offer customers a comprehensive range of drilling tools that will drill faster and last longer. Individually, Mincon products offer incremental savings. Together, a complete Mincon drill string will deliver tangible savings through higher penetration rates, unparalleled durability, rock-solid reliability, and reduced strain on ancillary components.



FOREPOLING SYSTEMS



Mincon forepoling ring bit systems are used to drill canopy tubes or tube umbrellas to make tunnel excavation safe in weak ground conditions and overburden. These solutions can be drilled using either top-hammer jumbos or DTH drill rigs.

Umbrella systems can be installed using steel casings between 12 and 18 metres in length, interconnected using Mincon-designed threads that allow for fast, easy connections – saving you time and money.

Mincon's forepoling casing systems inject grout through the casing, thanks to an arrangement of staggered grouting valves in the casing itself.

This allows for secondary support to be formed, increasing safety and stability in the working area before further excavation of the tunnel, which is an essential requirement for a safe tunneling work environment.

FOREPOLING APPLICATIONS

Forepoling systems can be used in various situations, including:

- Forepoling or tube umbrella
- Anchoring
- Micro piling
- Fibre glass face stabilization
- PVC drainage
- Ground freezing

THE MINCON ADVANTAGE

Ideal and suitable for all ground conditions

- Unique flushing design reduces over-drilling
- Strong, reliable, and robust system to complete every hole
- Pilot to ring bit locking and unlocking is easy to use, fast, and reliable
- Customisability and flexibility for:
 - casing lengths
 - thread connections
 - grouting holes/valves
 - casing grade and casing wall thickness

MADE IN FINLAND

All Mincon forepoling ring bit systems are designed and manufactured in our own factory in Ylöjärvi, Finland.



MINCON FOREPOLING SYSTEMS

TOP HAMMER FOREPOLING

These heavy-duty integrated ring bit sets are used with conventional boom or tunneling jumbos to install secondary supports into tunnel roofs. The ring bits offering a fast and easy pilot-to-to-ring bit connection come factory-welded on steel casings, and the self-drilling system uses either water or air to flush the cuttings.



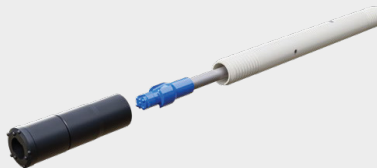
DTH FOREPOLING

When working with either water or air powered DTH hammers, these heavy-duty integrated ring bit sets are used to install secondary supports into tunnel roofs using specialized or geotechnical drill rigs. The ring bits come factory-welded on steel casings, and the self-drilling system offers a fast and easy pilot-to-to-ring bit connection.



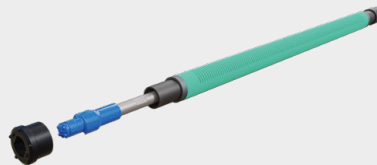
GFRP CASINGS

Unique integrated ring bit set with a special adaptor to the glass fiber reinforced polymer (GFRP) casings. This self-drilling system is used either in ground consolidation through a TBM or with conventional boom or tunneling jumbos for face stabilization. Ring bits and adaptors come factory-assembled, and the system uses water to flush the cuttings.



PVC DRAINAGE CASINGS

Integrated ring bit sets with PVC drainage casings are used with conventional boom or tunneling jumbos in situations where the surrounding ground needs dewatering. The self-drilling system comes factory-assembled, and it uses water to flush the cuttings.



SYSTEM OPTIONS

DIFFERENT CASING SECTIONS

All forepoling systems come with starter, extension and end casings. Mincon offers convenient and flexible customization options to suite all project needs.



GROUTING VALVES

Casings can be equipped with grouting valves already at the factory or delivered with holes only and in some cases completely without holes.



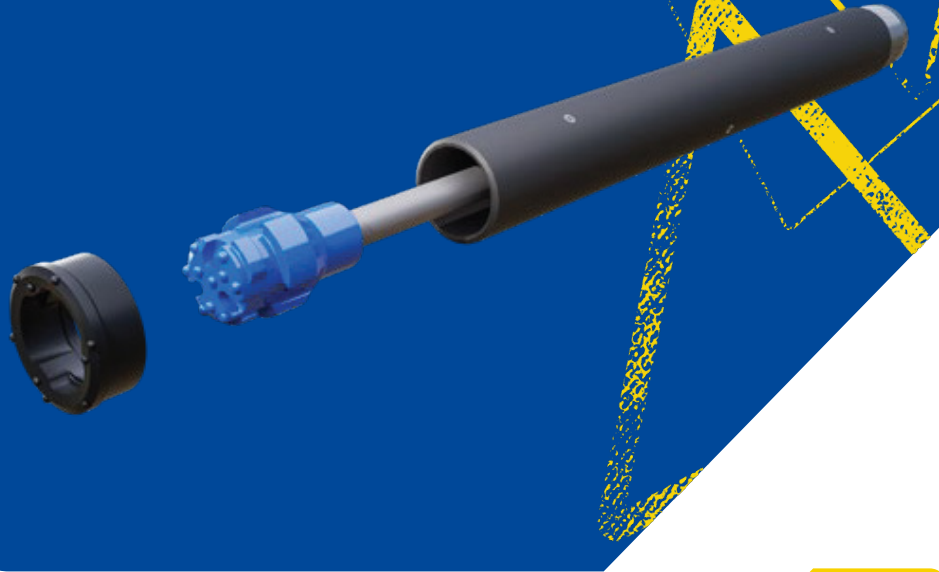
DRILLING ACCESSORIES

Mincon offers a wide range of accessories for a full-package delivery:

- Grouting end-caps with ball valves
- Top hammer drilling equipment
 - M/F drilling rods
 - Button bits
 - Shank adaptors and couplings
- DTH hammers and drill pipes
- Single and double packers for grouting
- Centralizers

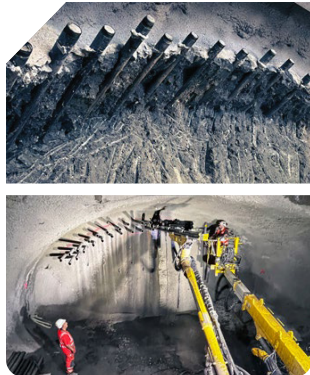


TOP HAMMER FOREPOLING



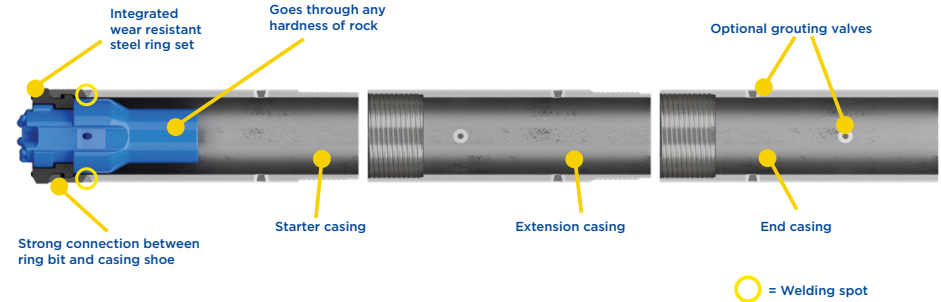
Top hammer forepoling ring bit system and steel casing tubes are designed to be drilled with tunneling jumbos in an umbrella shape as secondary support in the tunnel roof. Weak ground and overburden must be strengthened by grouting through the casing and grouting valves into the ground.

Mincon offers the full package with customized steel casings, threads and grouting holes or valves, as required by the tunnel design.



MAIN APPLICATIONS

- Forepoling or tube umbrella
- Anchoring
- Micro-piling
- Ground consolidation
- Ground freezing



Steel casings are the most used casing option. Their main features are:

- Ring bit is welded to starter casing in our factory
- Optional one-way valves for grouting can be installed in our factory (3-20 bar)
- Heavy duty ring bit protects the pilot gauge buttons
- Rods and other accessories are available

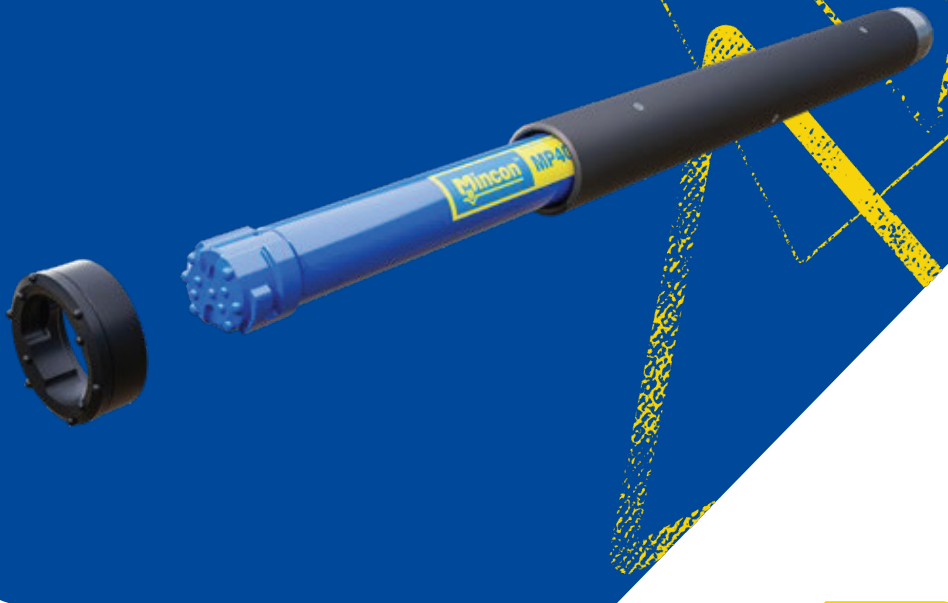
System is available from 73 to 219 mm casings and for all major top hammer threads. Threaded casings are available with 2-3 start trapezoidal threads and 10 mm entrance.

System product code	Casing OD mm	Inch	Max wall mm	Inch	Ring bit ID mm	Inch	Ring bit OD mm	Inch	Pilot bit OD mm	Inch	Pilot bit thread
F73-5.5-40	73	2.87"	5.5	0.22"	40	1.57"	82	3.23"	58	2.28"	R32
F76-8-40	76.1	3.00"	8	0.31"	40	1.57"	82	3.23"	58	2.28"	R32
F89-8-52	88.9	3.5"	8	0.31"	52	2.05"	94.5	3.72"	70.9	2.79"	T38
F102-8-62	101.6	4.0"	8	0.31"	62	2.44"	106.6	4.20"	83	3.27"	T38
F114-10-70	114.3	4.5"	10	0.39"	70	2.76"	120	4.72"	92	3.62"	T38, T45
F140-10-94	139.7	5.5"	10	0.39"	94	3.70"	148	5.83"	116.7	4.59"	T45
F159-10-116	159	6.26"	10	0.39"	116	4.57"	179	7.05"	133	5.24"	T45, T51
F168-10-127-GEN2*	168.3	6.63"	12.7	0.5"	127	5.00"	189	7.44"	140	5.51"	T45, T51
F219-12.7-171-GEN2*	219.1	8.63"	12.7	0.5"	171	6.73"	243	9.57"	188	7.40"	T45, T51

*GEN2 system design available.

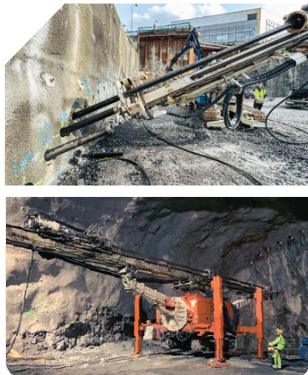


DTH FOREPOLING



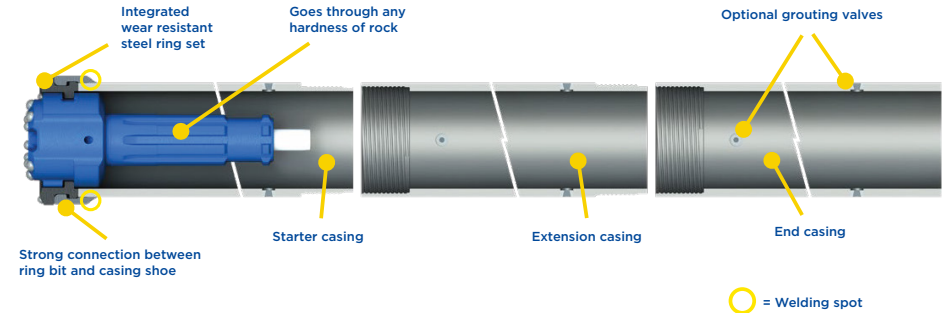
DTH forepoling ring bit system and steel casing tubes are designed to be drilled with suitable drill rigs that use air or water powered hammers. An umbrella shape secondary support is drilled in the tunnel roof. Weak ground and overburden must be strengthened by grouting through the casing and grouting valves into the ground.

Mincon offers the full package with customized steel casings, threads and grouting holes or valves, as required by the tunnel design.



MAIN APPLICATIONS

- Forepoling or tube umbrella
- Anchoring
- Micro-piling
- Ground consolidation
- Ground freezing



Steel casings are the most used casing option. Their main features are:

- Ring bit is welded to starter casing in our factory
- Optional one-way valves for grouting can be installed in our factory (3-20 bar)
- Heavy duty ring bit protects the pilot gauge buttons
- Rods and other accessories are available

System is available from 114 to 273 mm casings and for all major DTH shanks.

DTH systems are available for air or water powered hammers.

Threaded casings are available with 2-3 start trapezoidal threads and 10 mm entrance.

System product code	Casing OD		Max wall		Ring bit ID		Ring bit OD		Pilot bit OD	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
1114-10-76	114.3	4.5"	10	0.39"	76	2.99"	130	5.12"	89	3.50"
1127-10-87	127	5"	10	0.39"	87	3.43"	145	5.71"	105	4.13"
1140-10-100	139.7	5.5"	10	0.39"	102	4.02"	160	6.30"	116	4.57"
1152-10-112	152.4	6"	10	0.39"	112	4.41"	172	6.77"	130	5.12"
1159-10-118	158.8	6.25"	10	0.39"	118	4.65"	181	7.13"	137	5.39"
1168-12.7-125	168.3	6.63"	12.7	0.5"	125	4.92"	189	7.44"	140	5.51"
1178-12.7-135	177.8	7"	12.7	0.5"	135	5.31"	199	7.83"	151	5.94"
1194-12.7-147	193.7	7.63"	12.7	0.5"	147	5.79"	221	8.70"	166	6.54"
1219-12.7-171	219.1	8.63"	12.7	0.5"	171	6.73"	243	9.57"	188	7.40"
1244-12.7-190	244.5	9.63"	12.7	0.5"	190	7.48"	269	10.59"	216	8.50"
1254-14.2-197	254	10"	14.2	0.56"	197	7.76"	279	10.98"	223	8.78"
1273-12.7-220	273	10.74"	12.7	0.5"	220	8.66"	300	11.81"	244	9.61"

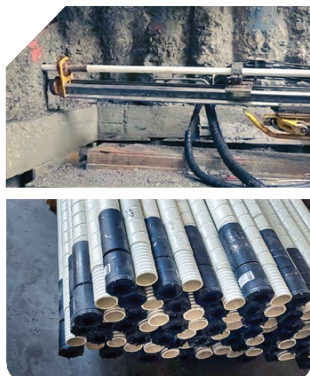


GFRP CASINGS



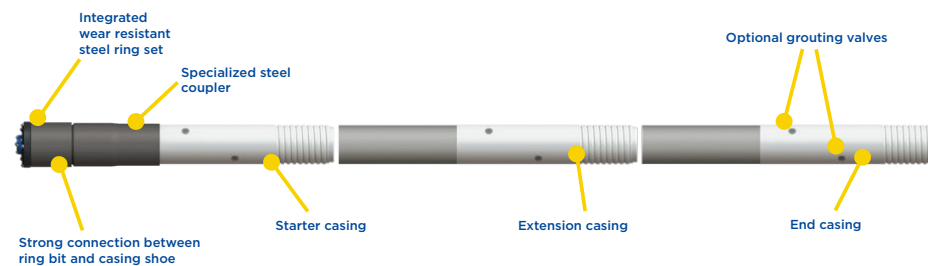
Glass fiber reinforced polymer (GFRP) casings are a special type of casings that are used in face-stabilization and ground consolidation through a TBM when steel is not required. Mincon's unique ring bit and adaptor allow the GFRP casing to advance through difficult ground conditions. Light and fast connections between casings help you to reach the required depth. The system is mainly used with top hammer drilling with conventional drill booms and tunneling jumbos.

Mincon offers the full package with customized steel length and grouting valves as required by the tunnel design.



MAIN APPLICATIONS

- Face stabilization
- Ground consolidation through tunnel boring machine (TBM)

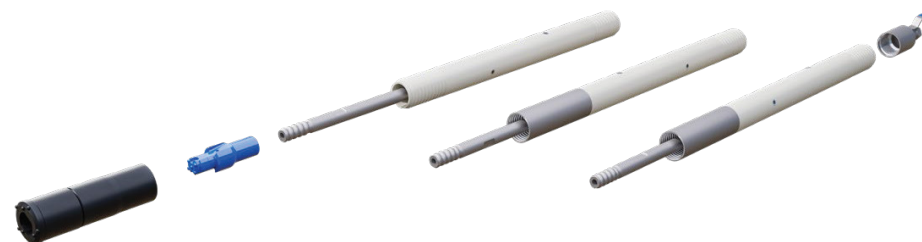


The main features of GFRP casings are:

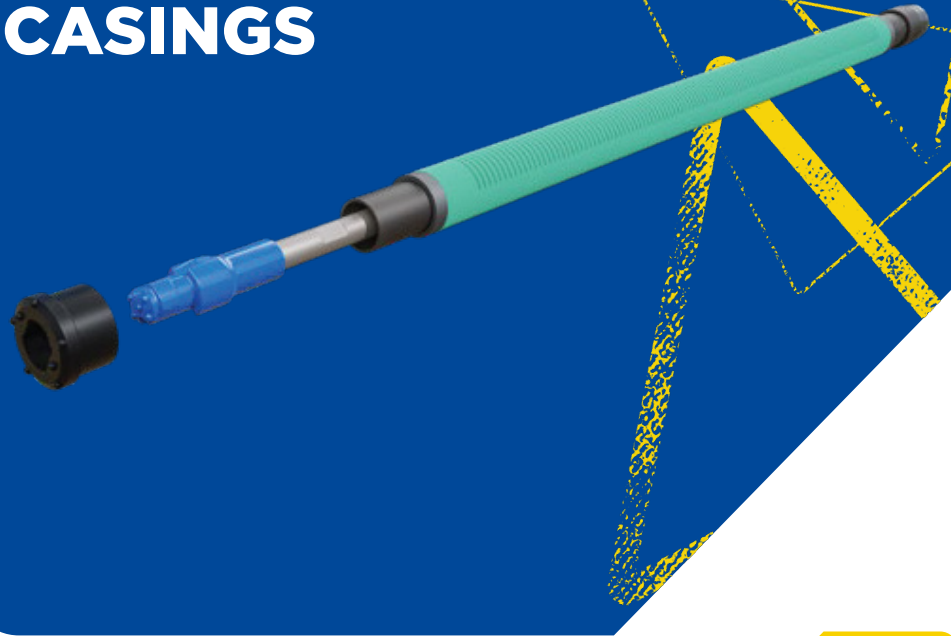
- Ring bit is connected to starter casing in our factory
- Heavy duty ring bit protects the pilot gauge buttons
- One-way valves for grouting are installed in our factory (3-5 bar)
- Rods and other accessories are available

System is available in 76 mm GFRP casing and for R32 top hammer thread. GFRP casing is available in customized length with specialized steel coupler connections.

System product code	Casing OD		Max wall		Ring bit ID		Ring bit OD		Pilot bit OD		Pilot bit thread
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
GFRP76-8-40	76.1	3.00"	8	0.31"	40	1.57"	90	3.54"	58	2.28"	R32



PVC DRAINAGE CASINGS



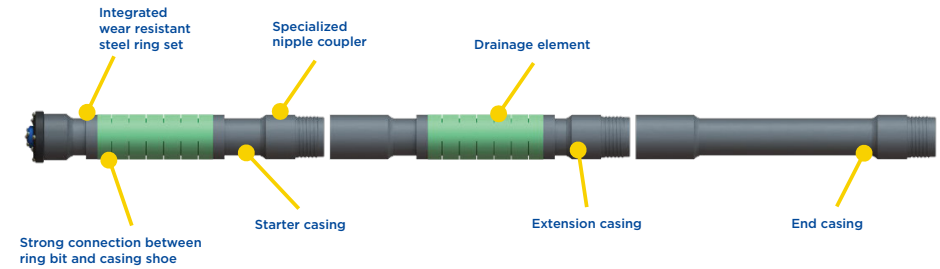
PVC drainage casings are designed to be drilled in drainage applications with conventional drill booms and tunneling jumbos. They are mainly used when the surrounding ground needs dewatering in tunneling, mining and geotechnical construction. The self-drilling system with steel casings and PVC filter element makes it fast and easy to install temporary dewatering drainage systems.

Mincon offers the full package with customized length steel and PVC casings.



MAIN DEWATERING APPLICATIONS

- Tunneling
- Civil construction
- Mining



The main features of PVC drainage casings are:

- Ring bit is connected to starter casing in our factory
- Heavy duty ring bit protects the pilot gauge buttons
- Drainage element installed in our factory
- Rods and other accessories are available

System is available in 76 mm PVC drainage casing and for R32 top hammer thread. PVC drainage casing is available in customized length with specialized steel nipple coupler.

System product code	Casing OD		Max wall		Ring bit ID		Ring bit OD		Pilot bit OD		Pilot bit thread
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
DRPVC76-11.5-40	76.1	3.00"	11.5	0.45"	40	1.57"	88	3.46"	42	1.65"	R32

