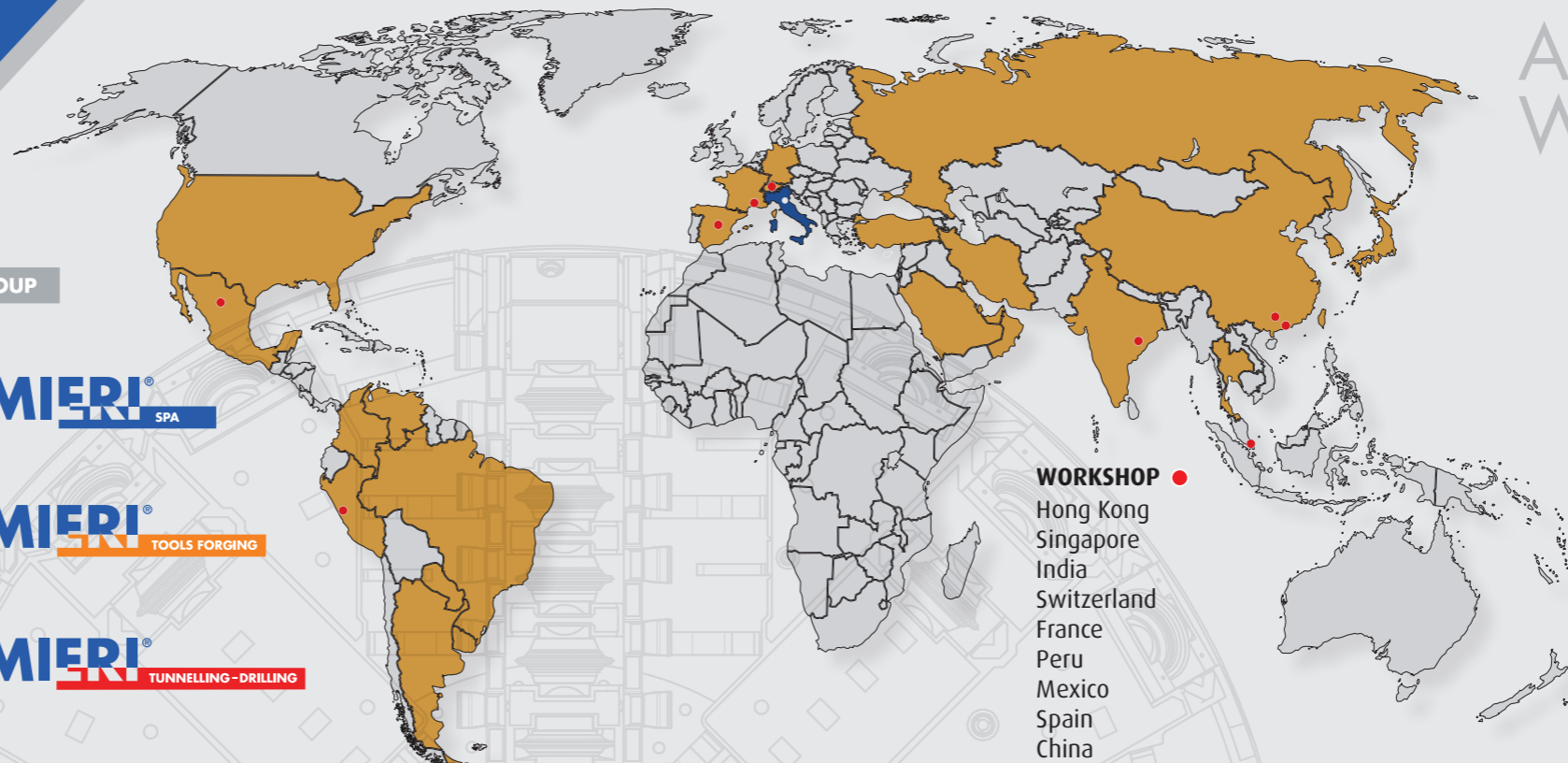




SMALL DIAMETER TUNNELLING AND PIPE JACKING

# ABOUT US



## AGENTS WORLDWIDE

<b>EUROPE</b>	<b>ASIA</b>
France	China
Germany	Gulf Countries
Spain	Hong Kong
Switzerland	India
Turkey	Iran
	Japan
	Russia
	Singapore
	South Korea
	Taiwan
	Thailand
<b>AMERICAS</b>	<b>HEADQUARTERS</b>
Argentina	Bologna - Italy
Brazil	
Colombia	
Mexico	
Paraguay	
Peru	
Uruguay	
U.S.A.	
Venezuela	

### WORKSHOP

Hong Kong  
Singapore  
India  
Switzerland  
France  
Peru  
Mexico  
Spain  
China



## COMPANY

Tunnelling for road, railways, sewer and storm water infrastructures, hard rock and coal mining, foundation drills and raise boring. These are just some of the areas where Palmieri organisation have become successful with the involvement of our custom designed and wholly in house products to the complete satisfaction of some of the most respected contractors worldwide. From the modest beginning in the yearly 1970s with limited activities Palmieri was able to overcome many difficulties with overriding courage and determination leading to quality and innovative products. Initially as a manufacturer and supplier of spare parts, Silvano Palmieri was determined to have his company become an international leader in products designed and manufactured wholly in-house. The result of such continued efforts have culminated in major equipment manufacturers stipulating and incorporating Palmieri components in their new products.

In 1987 further expansion resulted in the investment in a specialist forging and mechanical factory. The new company provides a century of experience in hot steel transformations and is capable of forging over 1.000 tons of blank steel per month. Latest development is new assembly and maintenance centre opened in 2015. All of the Palmieri Group companies support the main world tunnelling contractors by providing first class components and equipment thus making state-of-the-art technology and cutting edge designs their own distinctive mark.

## PRODUCTION

Palmieri's determination to achieve the diverse requirements of clients worldwide is parallel with its advancing technological resources.

The use of FEA methods for structural design of machine elements, combined with the most advanced CAD/CAM software for work-cycle planning and NC for precision machining, are all proofs of Palmieri's full commitment for high quality product standards and manufacturing efficiency.

Palmieri uses only the finest European steel, robotic material handling systems and ultra modern CNC (computer numerical controlled) milling machines.

Now the Company is one of the world leaders in the production capabilities and its successful corporate image is built wholly on its abilities to provide a quality product with delivery times that are amongst the shortest in the industry and on our back up service and support to anywhere in the world.

## MISSION & VISION

In the last 40 years we have never stopped to learn, to search for new and better materials, to study and develop new designs and concepts, to improve our manufacturing capability and technology. And we have kept learning from you, our main strength, our customers.

Whenever you are, whatever your job is, no matter how hard it is, or which kind of ground conditions you have to deal with, we don't just work for you, we work with you, so we well know what you need. We are aware that the present situation requires you to keep your costs down, therefore we are searching 360° solutions in order to help you.

- We use the most advanced technology in order to provide you with the best quality tools.
- We have been improving in the metallurgy choices and hardening process to add strength and endurance.
- We select both the very best tungsten carbide quality to make our products tougher and extremely resistant to wear and the most appropriate grade to fit any specific job.
- Proven brazing methods prevent carbide inserts dropping or damages.
- Our tools are user friendly, so you can experience how a short change-over time can improve your daily production and see how much you can save with minimal downtimes.
- We do our best to keep short delivery times, so that you can avoid long waits or very expensive warehouse stocks.

This catalogue is focused on a specific range, but we would like to remind you that we are involved in all the following sectors, so if you don't find here what you are looking for, please visit our web site, or contact us and we will provide you with dedicated documentation.

- **Tunnelling**
- **Road Milling**
- **Mining & construction**
  - Raise Boring
  - Surface & Underground Mining
  - Stabilizing & Trenching
  - Directional drilling
- **Drilling**
  - Foundation drilling
  - Diaphragm wall cutters
- **RCD-HDD**
- **Microtunnelling & No Dig**
- **Recycling & Forestry**

# MANUFACTURING RANGE

## RCM - REMOTE CONTROL MACHINE

Equipment for the excavation of small tunnels for utilities and pipes with circular cross section of (inner or I.D.) diameter between 800 and 3.500 mm, for all types of grounds, even in the presence of water.  
The machine is pushed forward thanks to the thrust force provided by an adequately sized power unit placed on board the control container located outside the tunnel.  
During the advance, concrete (or other materials) pipes are inserted from the outside also transmitting the thrust from the pushing unit to the machine can, in addition to their obvious lining purposes.



A cutterhead is attached to the machine; this is conceived and accurately designed both according to the specific geology of the ground to be excavated and to the main machine specifications in such a way to obtain the best possible advance rates with minimal cutting tools replacements.

The excavation is performed by a telescopic boom revolving on a turret; the boom is equipped with the most suitable excavation system which must be selected in advance according to the geological conditions to be encountered during the drive: different systems include a simple mechanical backhoe excavator, in the presence of soft soil or a point attack cutter boom with picks or teeth for medium hardness geology.



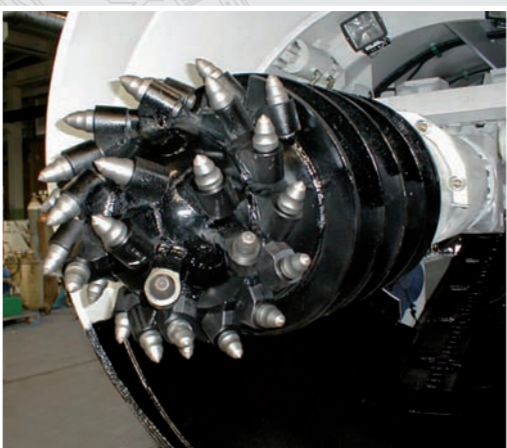
The whole equipment is monitored by a control and guidance container placed outside the tunnel. The excavation accuracy is controlled by a laser and laser target system which is continuously monitored and calibrated by the machine operator seating in the container with the aid of a PLC computer and its control monitor.

The equipment is visually guided and controlled by an operator who sits inside the machine shield from where he can conveniently monitor the driving operations and progress.



The equipment is available in two different types depending on the preferred spoil removal system, which is selected in advance according to the geological conditions to be encountered during the drive; the commonly used "slurry" system, and the screw conveyor system.

The spoil is removed by a conveyor belt placed in proximity of the excavation face and is then collected and transported from there to the back of the machine, where appropriate muck skips are loaded and then hoisted to the surface.



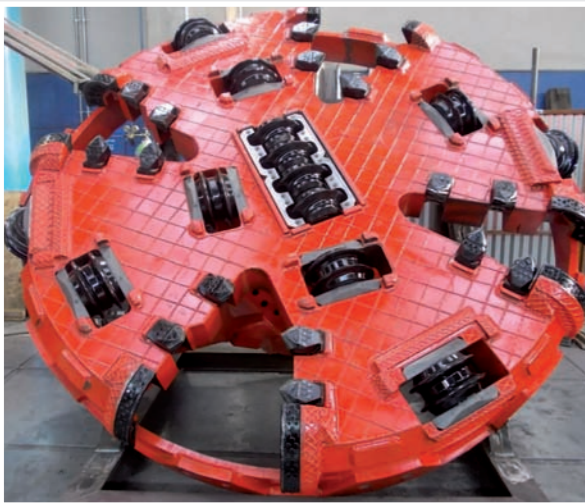
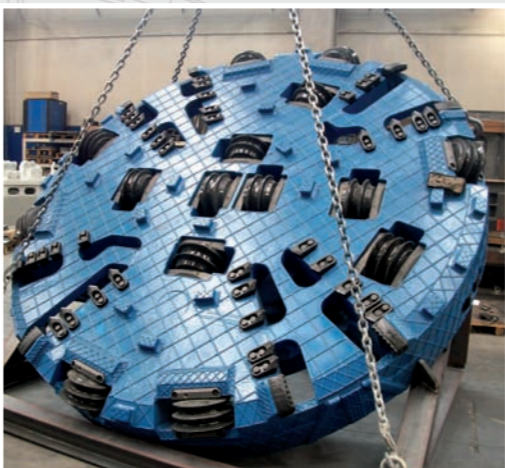
## O.M.M. OPEN MICRO MACHINE (OPEN FACE EXCAVATION MACHINE)

Equipment for boring (internal I.D.) diameter circular section for pipes and tunnels between 1.200 and 3.500 mm, in a dry soft or soft and semi-stable or stable soils.  
The machine is pushed forward thanks to the thrust force provided by an adequately sized power unit placed on board the control container located outside the tunnel. During the drive, concrete (or other materials) pipes are inserted from the outside also transmitting the thrust from the pushing unit to the machine can, in addition to their obvious lining purposes.



# REMOTE CONTROL MACHINE

**MICROTUNNELLING TRENCHLESS TECHNOLOGY FOR NON-MAN ENTRY TUNNELLING, HIGHLY ACCURATE FOR 600 MM AND UP TO 3.500 MM DIA. (NOMINAL).**



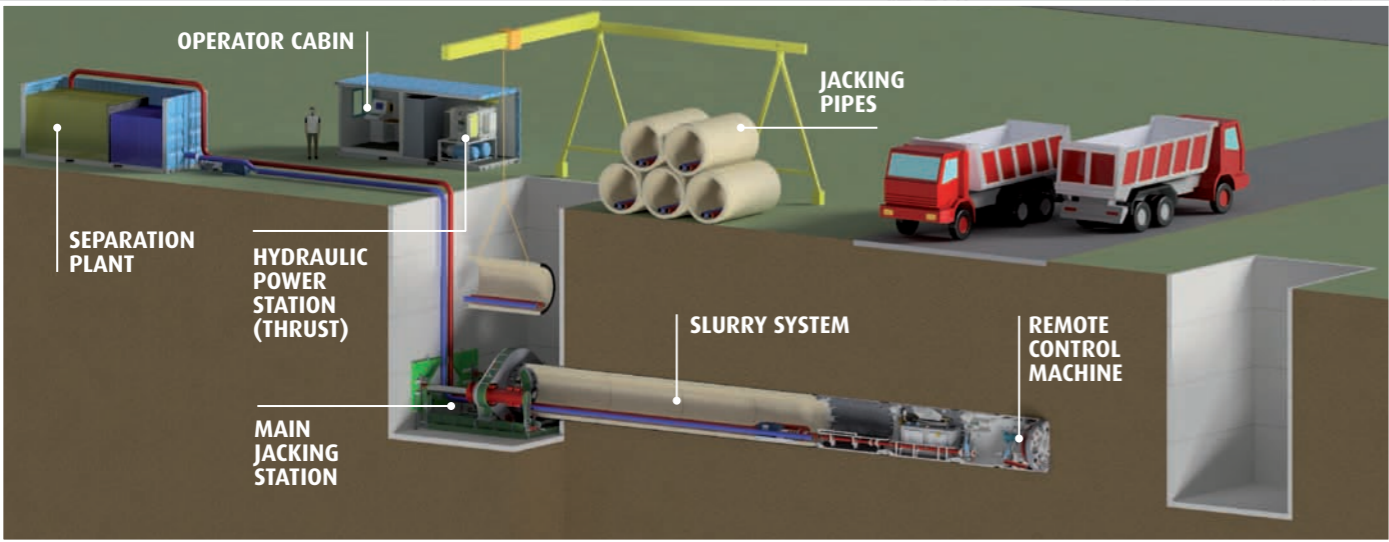
- Features**
- Electric-hydraulic drives for high efficiency in long distance pipe-jacking
  - Highly accurate guidance systems
  - Small equipment footprint for minimal impact in urban areas
  - Custom designed cutting wheel to suit soil-specific conditions resulting in the right tool for the fastest excavation
  - Compact jacking equipment for fast site set-up
  - Suitable for all types of pipes, RCP, steel, GRP
  - Machine Diameter can be easily increased with simple bolted extension kits

- Main applications**
- Fresh & waste water trenchless works
  - Pipeline installation
  - Cable tunnels
  - Gas pipelines
  - Utilities

**HIGH ADVANCE RATES IN ALL SOIL CONDITIONS MAKE PALMIERI YOUR PARTNER FOR SUCCESSFUL PROJECT COMPLETION ON TIME AND ON TARGET**



**PALMIERI OFFERS SOLUTIONS FOR ALL TYPES OF GROUND: FROM SOFT SOIL TO THE HARDEST ROCK**



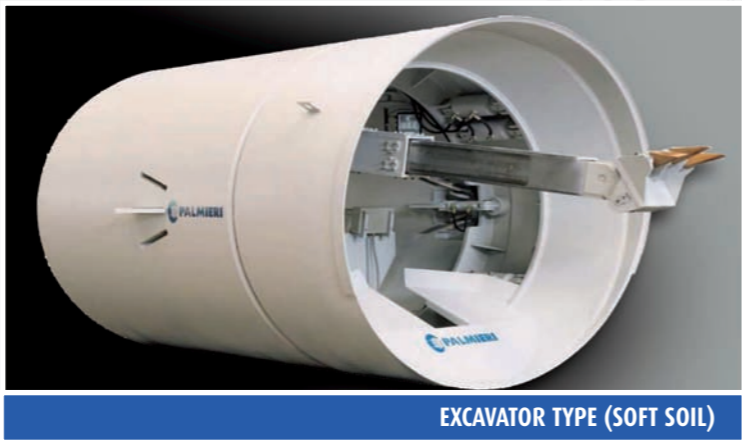
MACHINE MODEL		RCM 800	RCM 1000	RCM 1200	RCM 1500	RCM 1600	RCM 1800	RCM 2000	RCM 2500
Pipe ID	mm	800	1000	1200	1500	1600	1800	2000	2500
Pipe OD	mm	960-1090	1280	1490	1820	1940	2120	2400	3000
Machine OD	mm	975-1110	1295	1505	1850	1970	2150	2450	3080
Speed	rpm	0-6	0-6	0-10	0-7	0-7	0-7	0-8	0-8
Torque (Max)	kNm	75	90	150	480	480	560	700	700
Face access		no	no	yes	yes	yes	yes	yes	yes
Installed power	kW	75	75	110	160	160	250	300	300
Steering cylinders	nr.	3	3	4	4	4	4	8	8
Jacking capacity (Standard)	kNm	2500-3500	3500-4000	4000-6000	6000-8000	6000-8000	6000-8000	12000	12000-15000
Stroke per cylinder	mm	50	50	50	80	80	80	80	80
Slurry line diameter	mm	100	100	100	125	125	125	150	150/200
Launch shaft diameter	mt	3,5	3,8-4,5	4,5-5,5	5,5-6	5,5-6	5,5-6	9x5	9x5
Reception shaft diameter	mt	2,5	3,5	4	4	4	4	5	6

# OPEN MICRO MACHINE

**OPEN FACE TRENCHLESS ECONOMICAL TECHNOLOGY FOR EASY-TO-OPERATE TUNNELLING, HIGHLY ACCURATE FOR 1.200 MM AND UP TO 3.500 MM DIA. (NOMINAL).**



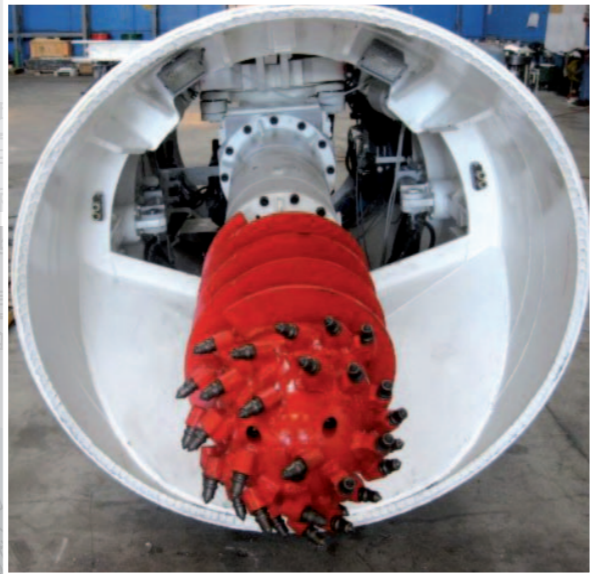
CUTTING BOOM TYPE (MEDIUM HARDNESS SOIL)



EXCAVATOR TYPE (SOFT SOIL)



Besides ordinary and conventional Microtunnelling units equipped with soft or hard rock grounds heads, we can offer pipe-jacking machines and auxiliary equipment, such as jacking stations, as well as Open face Excavation Machines in a very wide range of sizes; such cost-efficient and easy-to-operate machines can be equipped with interchangeable cutting booms fitted with hammers, radial cuttingheads or excavator buckets so to perfectly adapt to the geology to be encountered.



## Features

- Small equipment footprint for minimal impact in urban areas
- Custom designed cutting booms to suit soil-specific conditions resulting in the right tool for the fastest excavation

- Compact jacking equipment for fast site set-up
- Suitable for all types of pipes, RCP, steel, GRP
- Machine Diameter can be easily increased with simple bolted extension kits



## Main applications

In homogenous and almost stable ground with no groundwater:

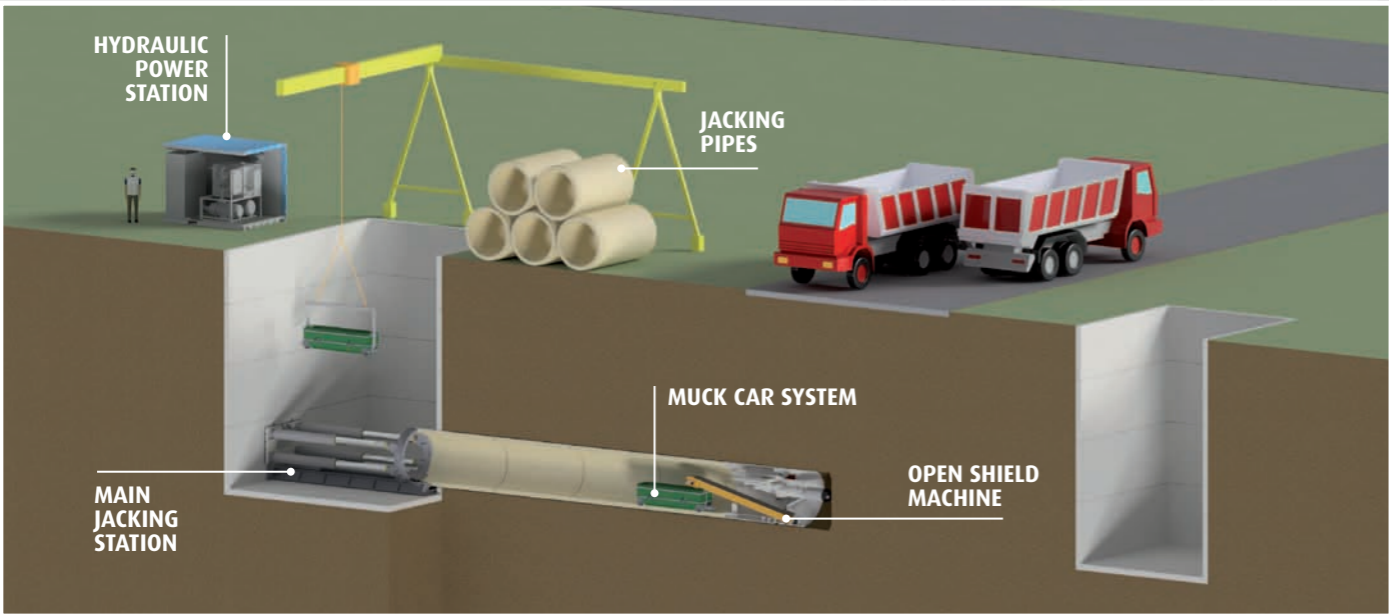
- Fresh & waste water trenchless works
- Pipeline installation
- Cable tunnels
- Gas pipelines
- Utilities



## ADVANTAGES OF USING OPEN FACE EXCAVATION MACHINES

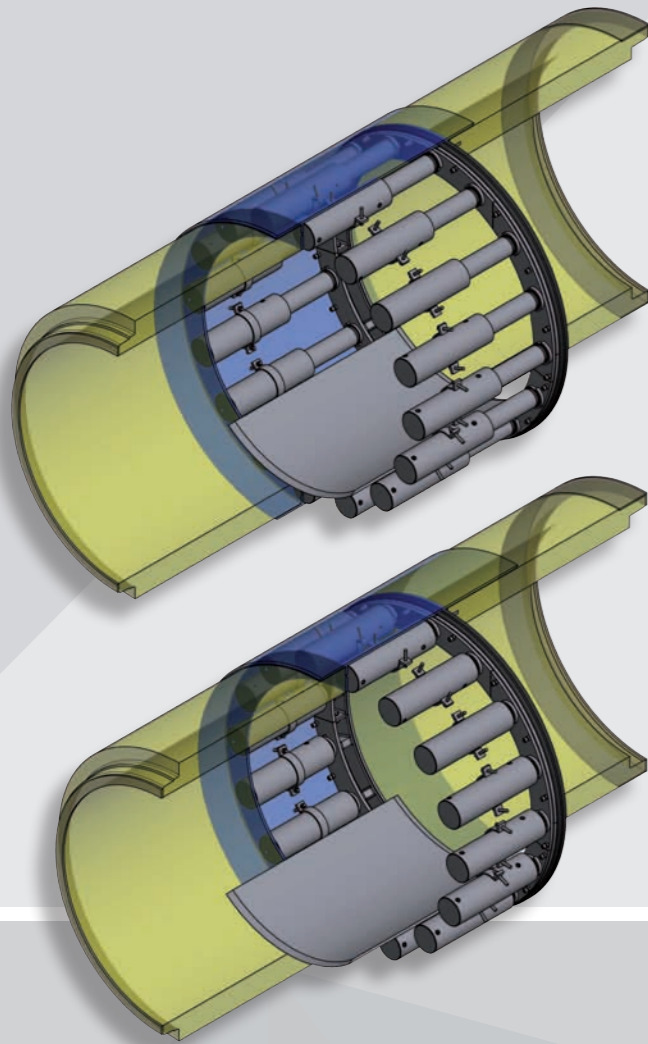
Minimal disruption in urban areas as well as slow impacts on environment, thanks to the biodegradable oils that are used in the systems.

These low budget products can help smaller companies to be active and competitive by adopting mechanized tunnelling/boring solutions, even for those small jobs which would not justify the financial efforts as required for more expensive full face equipment.



MACHINE MODEL		OMM1200	OMM1500	OMM1600	OMM1800	OMM2000	OMM2000	OMM2500	OMM3000
Pipe ID	mm	1200	1500	1600	1800	2000	2000	2500	3000
Pipe OD	mm	1490	1820	1940	2120	2400	2500	3000	3500
Machine OD	mm	1505	1850	1970	2150	2450	2550	3050	3650
Face access		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Installed power	kW	75	75	75	75	110	110	110	132
No. of cylinders		2	2	2	2	4	4	4	6
Stroke per cylinder direct	mm	100	100	100	100	100	100	100	100
Jacking capacity Standard	kN	6000	6000	6000	6000	12000	12000	12000	1800
Steering cylinders direct	nr.	4	4	4	4	8	8	8	12
Launch shaft diameter	m	4,5-5,5	5,5-6	5,5-6	6-9x5	9x5	9x5	9x5	10x6

# INTERMEDIATE JACKING STATIONS AND EXTENSION KITS



## INTERMEDIATE JACKING STATIONS

When boring drives exceed 100/150 linear metres, very often the main jacking station alone is not powerful enough to provide the machine (either RCM or OMM) with the necessary thrust as required to advance. The maximum drive length that can be obtained by only using the external main jacking station is not constant and cannot be precisely predicted, due to the presence of several factors such as the pipes frictions, the pushing force and the pipes diameters.

In such a case, when the pipe diameter is large enough to allow the entrance of an operator, the adoption of intermediate jacking stations is recommended.

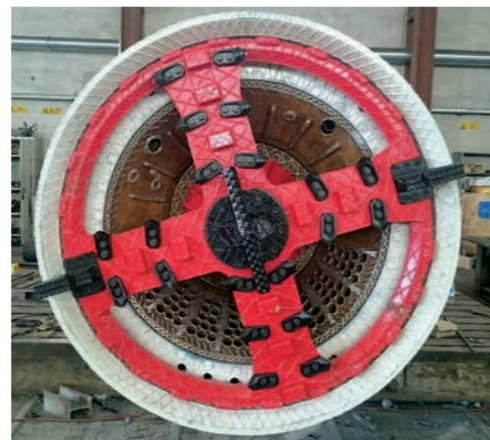
Such devices (operated by the machine operator via the on board PLC computer located inside the container's cabin) are located between the boring lining pipes at pre-determined intervals according to the job specifications and provide the additional pushing force to advance.

Palmieri Group can supply a wide range of intermediate jacking stations, all tailor made and designed in accordance with the specific jobs and machinery features.

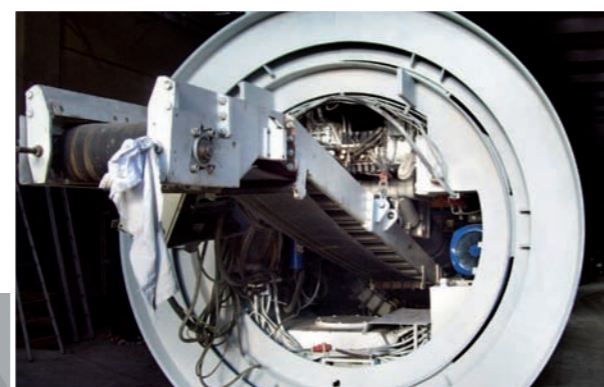
## EXTENSION KITS

One of the biggest microtunnelling's technique's advantages (Either for RCM or OMM type machines) is the possibility, within a certain diameter range, to easily increase the machine boring diameter by simply installing a removable "Upsizing Kit" which is easily bolted onto the original machine can. By using the same main jacking station and the same machine body, clients can widen their machine's boring diameter range with minimal investments and a very simple technology.

RCM  
EXTENSION KIT



OMM  
EXTENSION KIT



**Palmieri Group** can supply a wide range of microtunnelling equipment related components and auxiliary parts, (either for Palmieri's original design machines and for some of our most respected competitors ones) and services, such as, for instance:

- **Brand new Upsizing Kits** either for RCM and OMM machines complete with adequately sized cutterheads specifically conceived for the specific soil conditions.
- **Refurbishment and/or alterations of used Upsizing Kits** either for RCM and OMM machines and their used cutterheads with possibility to make modifications to better suit the specific soil conditions.

- **Rental of Upsizing Kits** and full refurbished machines and auxiliary equipment.

Thanks to its 40 year experience in the tunnelling industry, the Palmieri group is extremely active in the business as listed above as well as in the design and manufacture of special cutting tools and cutterheads that are, in most of the cases, specifically custom-made to clients' needs, machine's specifications and job peculiarities so to make sure our clients are always supplied with what we deem to be the most suitable and successful solution available on the market.



**TOP SERVICE SUPPORT WITH A 24-HOUR HOTLINE SERVICE  
FAST SPARE PARTS AVAILABILITY RESULTING IN MINIMAL DOWNTIMES.**



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