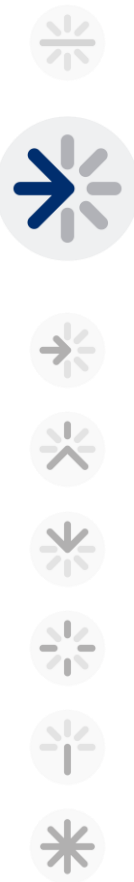




CUTTING HEADS & TUNNELLING
EQUIPMENT



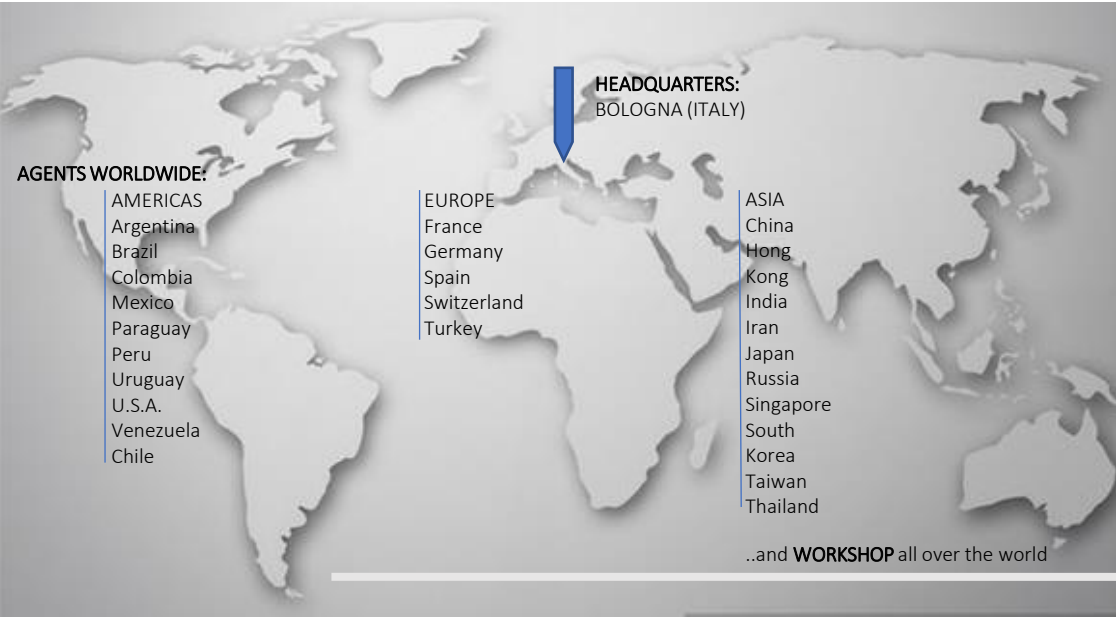
ABOUT PALMIERI GROUP

With over 40 years of experience in the manufacture of parts and consumables related to the Tunneling and Drilling activities Palmieri is nowadays one of the leading and most specialized companies worldwide.

Design and production of either rotating and fixed tools for any type of excavation, from horizontal boring (Tunnels for road, railways and water) to vertical boring and drilling has been Palmieri focus since the very beginning.

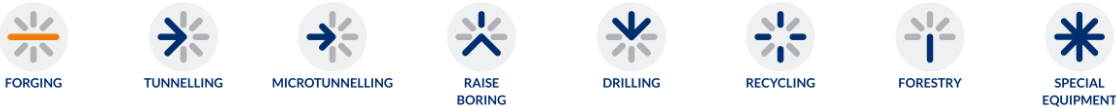
From the initial start with tools as core business, the Company has extended its range of interest to Engineering development, manufacturing, refurbishment and rental of underground equipment such as TBMs, Raise Boring Machines, Microtunnelling / Pipe jacking equipment, Cutterheads, Back-Up systems, Rolling Stock, as well as innovative and non-conventional solutions for all the above mentioned business sectors.

Recycling and forestry have also become an important area where to work offering a wide range of tools and tool holders, that are fully compatible with almost all machineries and equipment on the market.



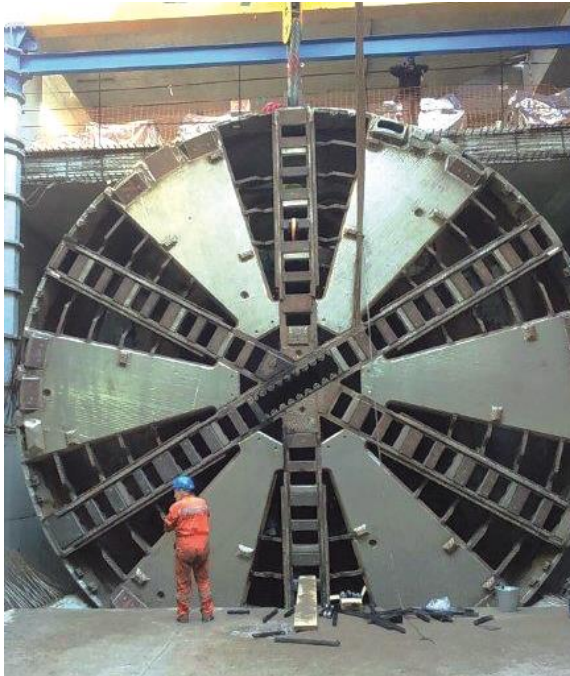
Nowadays Palmieri Group consists of 2 companies whose respective business and know-how are strategically integrated in order to deliver the most accurate and efficient service on the market.

Palmieri's determination to achieve the diverse requirements of clients world-wide is parallel with its advancing technological resources. The use of CAD/CAM and CNC for design and precision machining are evidence of Palmieri's commitment of extremely high quality and efficient work practices. Palmieri uses only the finest European steel, robotic material handling systems and ultra modern CNC (computer numerical controlled) machines. Thanks to its productive independence, all the Group's products are designed and produced internally, ensuring full control over the entire supply chain. Nowadays the Group Companies are world leaders in production capabilities and can provide all products with delivery times that are amongst the shortest in the industry, followed by first class services all over the world.



MANUFACTURING RANGE

Manufacture of TBM cutting heads, shields, main bearing supports and large sized equipment supporting the TBM and its back-up system, specifically developed to meet clients' specific needs and jobs' requirements, as well as based on existing client's designs. Thanks to the experience accumulated in the last four decades, Palmieri Group is able to positively respond to each specific need by delivering "tailor-made" solutions and designs which take into account all jobs needs and geology's specifications, thus providing clients with the most suitable and personalized solutions in the industry.



- Rental of a wide range of equipment, including TBMs complete with back-up systems and rolling stock, as well as any other materials as needed to perform tunnelling operations.

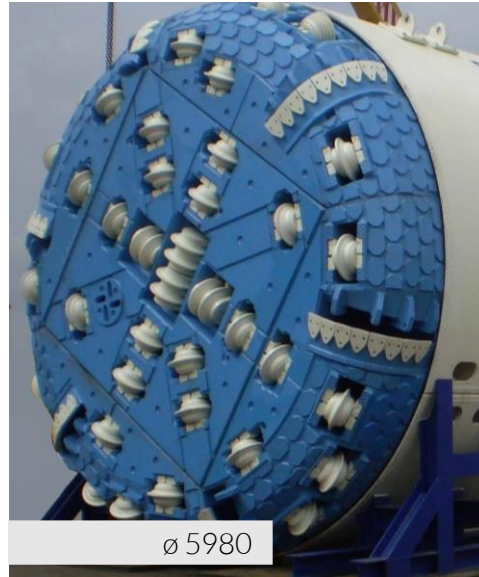
- Besides its products, the Palmieri Group established its excellent reputation also in the refurbishment and modification of 2nd. hand equipment, for budget conscious customers.

- Dimensional controls by means of state-of-the-art, professional tools and instruments, refurbishment and alteration of existing cutting heads and ancillary equipment performed by qualified staff, even on site.

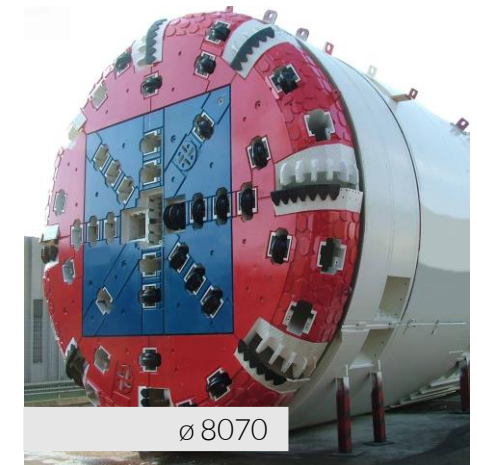
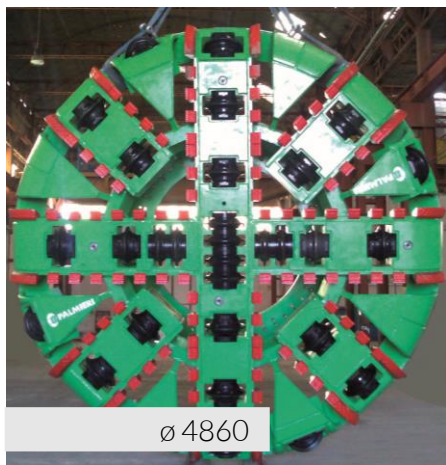


CUTTINGHEADS

What sets Palmieri Group apart from most competitors is our capability and skills in the design and manufacturing of cutting heads. Such heads, up to 15 meters in diameter, are designed and manufactured in accordance with the specific needs of the TBM on which they will be mounted and of the specific geology to be encountered during the drive. Very often such cutting heads are manufactured for existing TBMs whose boring diameter needs to be altered or the existing cutting head design is not deemed to be suitable for the geological conditions of the new job to be started. Clients may wish to keep the old cutting head and buy a brand new one which has been conceived, designed and manufactured for its specific needs.



The Palmieri Group can even manufacture cutting heads that has been designed by its clients; as often made in the past for some of the most respected and well known TBM makers worldwide.



AUXILIARY EQUIPMENT & TUNNELLING SERVICE TRAIN

Palmieri Group products' fields of use is very wide and well diversified. From small sized items as, for instance, TBMs' tail brush seals to the manufacture of large and sophisticated Back-Up systems. Here below some additional examples of Palmieri Group products:

- Concrete segments erection systems for tunnel wall lining, all shapes and sizes, designed and engineered upon request and based on clients' specific needs (job type, segments shape and size).
- Besides the manufacture of complete segment erection system, Palmieri Group can also supply specific related accessories and parts such as spherical pins for segments with a wide range of threads and sizes.
- Mucking out systems, either by belt or via screw conveyor systems.



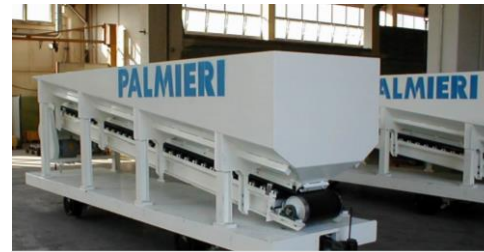
The wheels production deserves an outstanding mention: thanks to Palmieri Group in-house forging facilities which guarantees the highest quality, the feasibility of even very large diameters, from the forging mould to the finished item, including all machining works and heat treatments and, last but not least, the shortest lead times in the industry are guarantee.

Rolling stock spare parts, such as couplings (several types and standards), complete axles for a wide range of track gauges and heavy loads.

The Palmieri Group can supply complete tunnel service trains thanks to its in house design of flat cars, muck cars and a wide range of additional tunnelling support related rolling stock items for TBMs of all types and for every track gauge in the industry.

The rolling stock materials, mainly manufactured upon specific client's request, are conceived to better meet specific jobs and site needs and can be equipped with many different optional features such as braking system, single or twin axles and others

Palmieri Group can supply muck cars of several types and sizes, up to 20 cubic meters capacity.



PEA GRVEL CONVEYOR CARS



SELF DISCHARGING CARS



MORTAR AGITATORS



FIXED BOX MUCK CARS





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