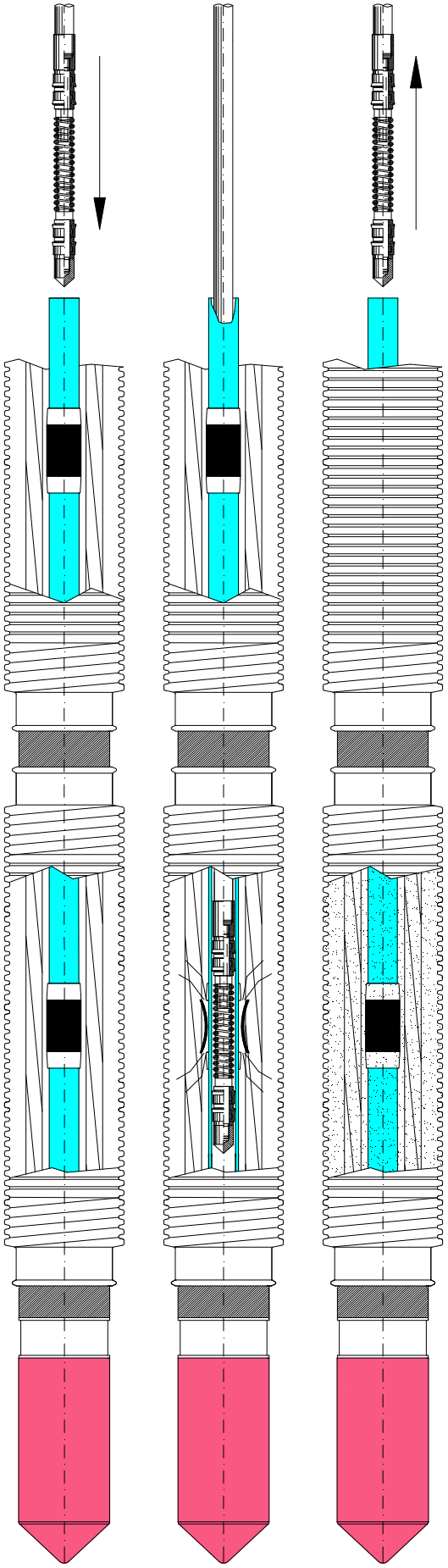
Bulb of the TPE 05 permanent anchor

*The **permanent TPE-05** anchor is usually used in the construction of bulkheads and diaphragms, where the type of ground presents particular geotechnical problems which require the repeated, selective, radial regrouting **I.R.S.,** in the whole foundation.*

The anchor is made as follows:

*The **TPE 05** anchor is provided with an internal valvate tube and **I.R.S.** external valves that are protected against friction by the recess, therefore can be easily installed in difficult environments. It allows a radial **I.R.S.** grouting at the anchor, this guaranteeing a more homogenous mortar covering and use the **I.R.S.** grouting without external valvate tubes.*

- *The separation of the free length from the active part is achieved by way of a buffer of sealing material, which allows both parts to be perfectly hermetic. The anchors are made of wire strands in harmonic steel , singularly protected and greased. The free length is protected by means of 16x19.5 mm polyethylene tubes and can be also protected by a corrugated sheath in H.D.P.E. according to the instructions of the **"Client's Technical Representative"***
- *The corrugated sheaths that can be used on this type of anchor are: sheaths with external diam. 110 mm for anchors from 2 to 8 strands and external diam. 90 mm for anchors from 2 to 4 strands.*
- *In the active part, the strands are separated by **RRM** valves which guarantee the strands to maintain a sinusoidal shape by means of suitable strapping and taping. The sinusoidal shape allows to increase the adherence of the strands with the cement mix grouted into the foundation.*



The internal grouting of the anchor by means of DD 1015 manchette valves should be carried out from the "F" base valve (see point 3.3), thus allowing the grouting material to fill the internal part of the anchor gradually, ejecting the internal air in all the foundation part and going easily up to prevent any air to penetrate the grouting.

The "G" valve (see point 3.3) is installed for safety reasons when the "F" valve is blocked by an unforeseen obstruction. The "G" valve is only to be used in this case.

The internal grouting must be carried out at low pressure, without exceeding 2-4 bar. No pressure is required with the internal grouting, but rather a slow and gradual flow of the mixture to allow air to normally flow from the foundation.

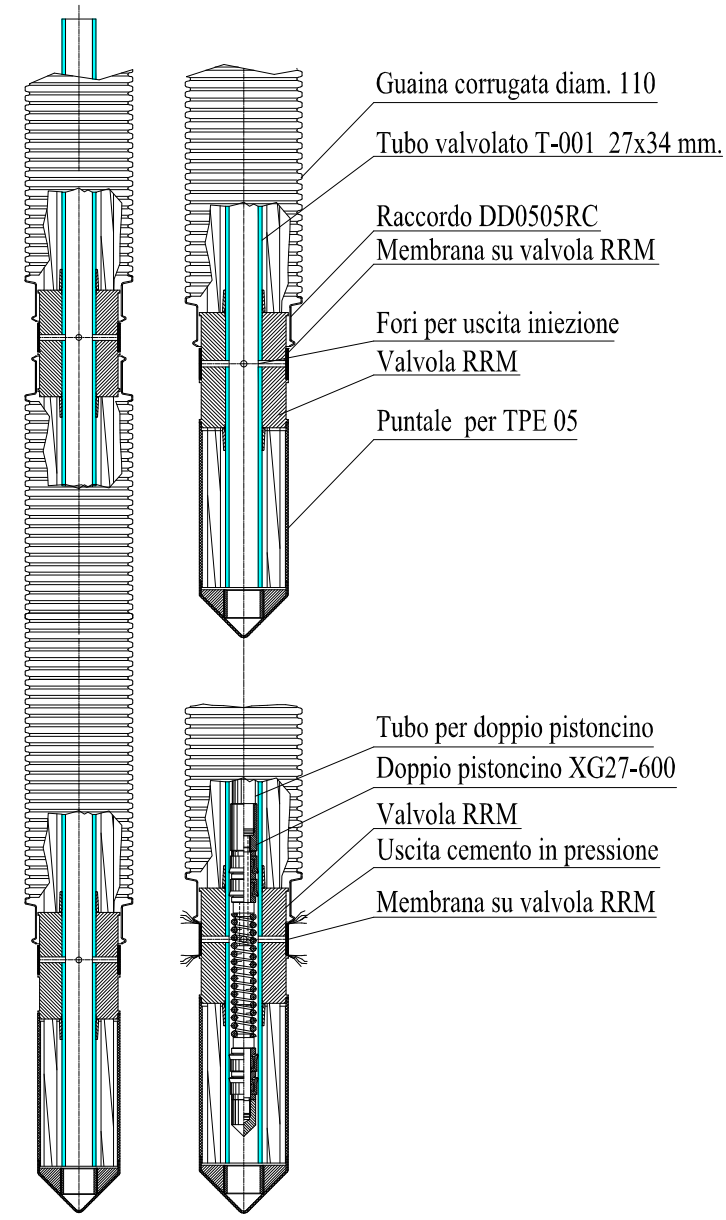
Once the internal grouting by means of the "F" valve is completed, water must flow inside the T001 27x34 mm tube to allow the correct washing out of the small leaks that the F and G valves may let flow inside the T001 27x34 mm tube.

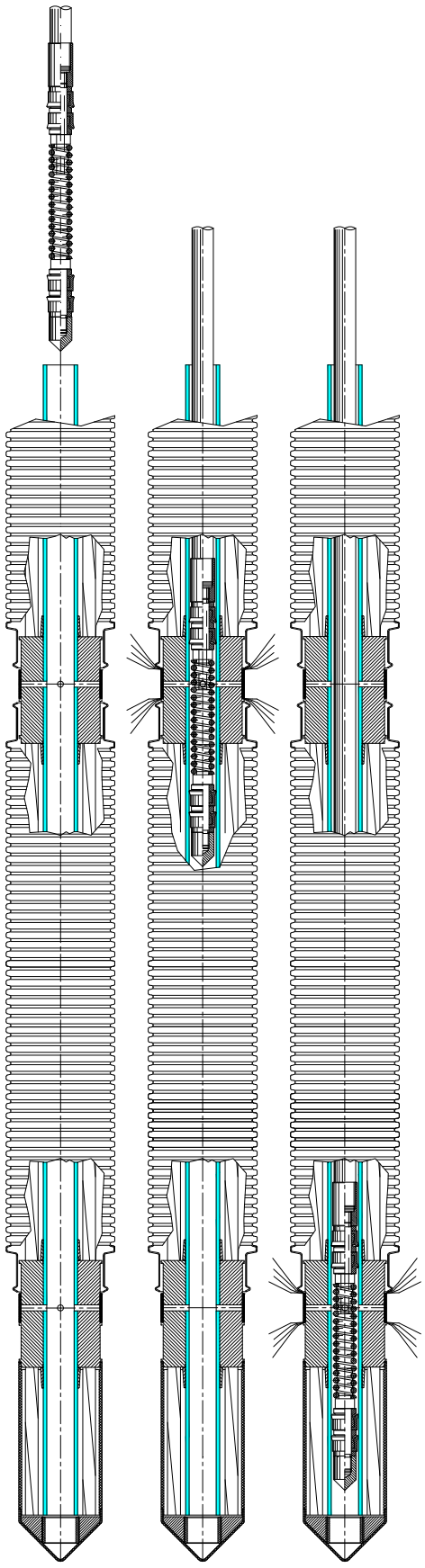
It is crucial to carry out the washing out the T001 27x34 mm tube with care, as any cement material deposits inside the tube may prevent the following I.R.S grouting of the RRM valves, thus nullifying the characteristics of the TPE05 anchor and preventing the external grouting.

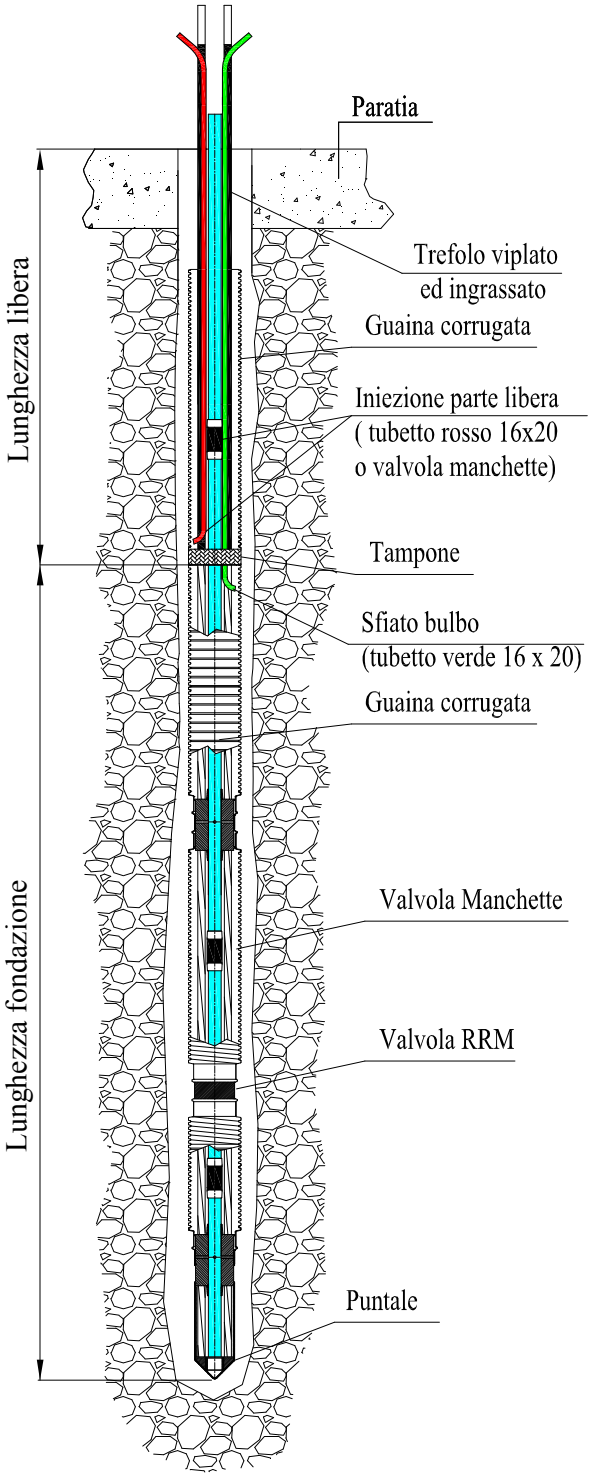
XG27-600 double piston

Diagram of grouting of RRM valves with XG27-600 double piston

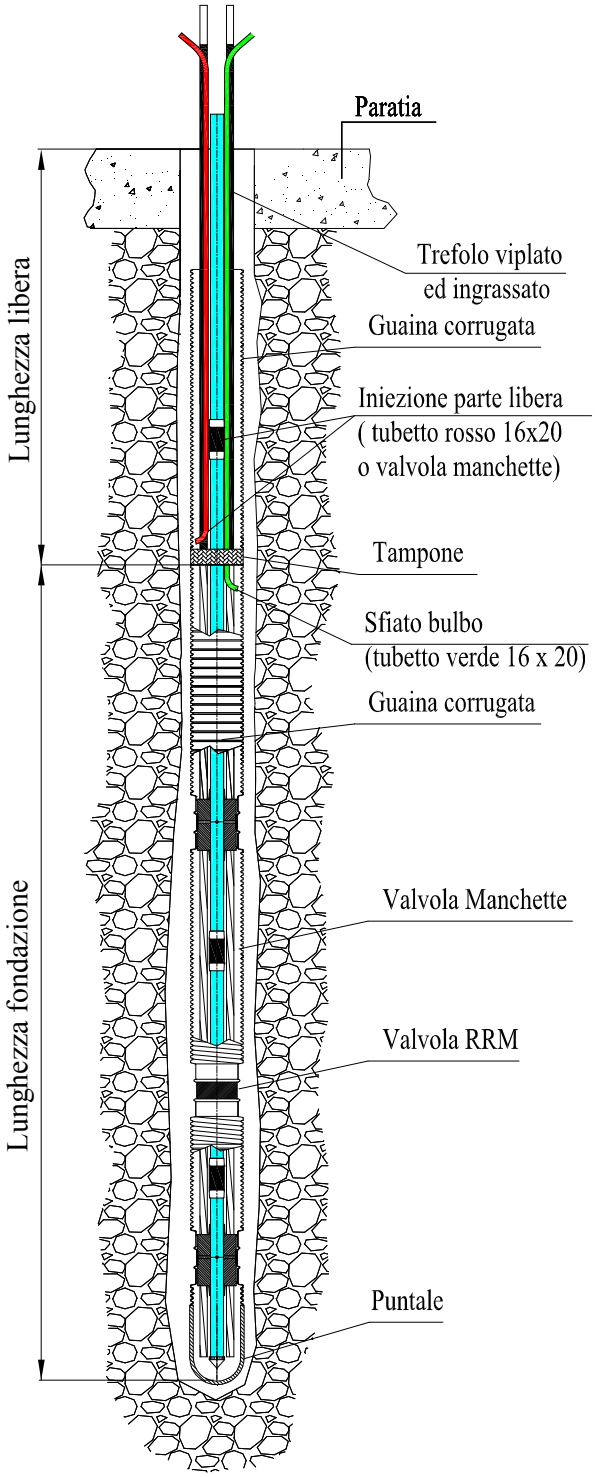
The I.R.S. grouting on the TPE05 anchor allows a radial grouting on each valve at 360°, without using any valvate tubes outside the anchor. A volume grouting is required with 60-litre selective and repeated grouting per valve, and the simple correct washing out of the T001 27x34 mm tube at each grouting cycle allows a longer durability of the tube and the possibility to regrout, even after several years after the implementation of the anchor.



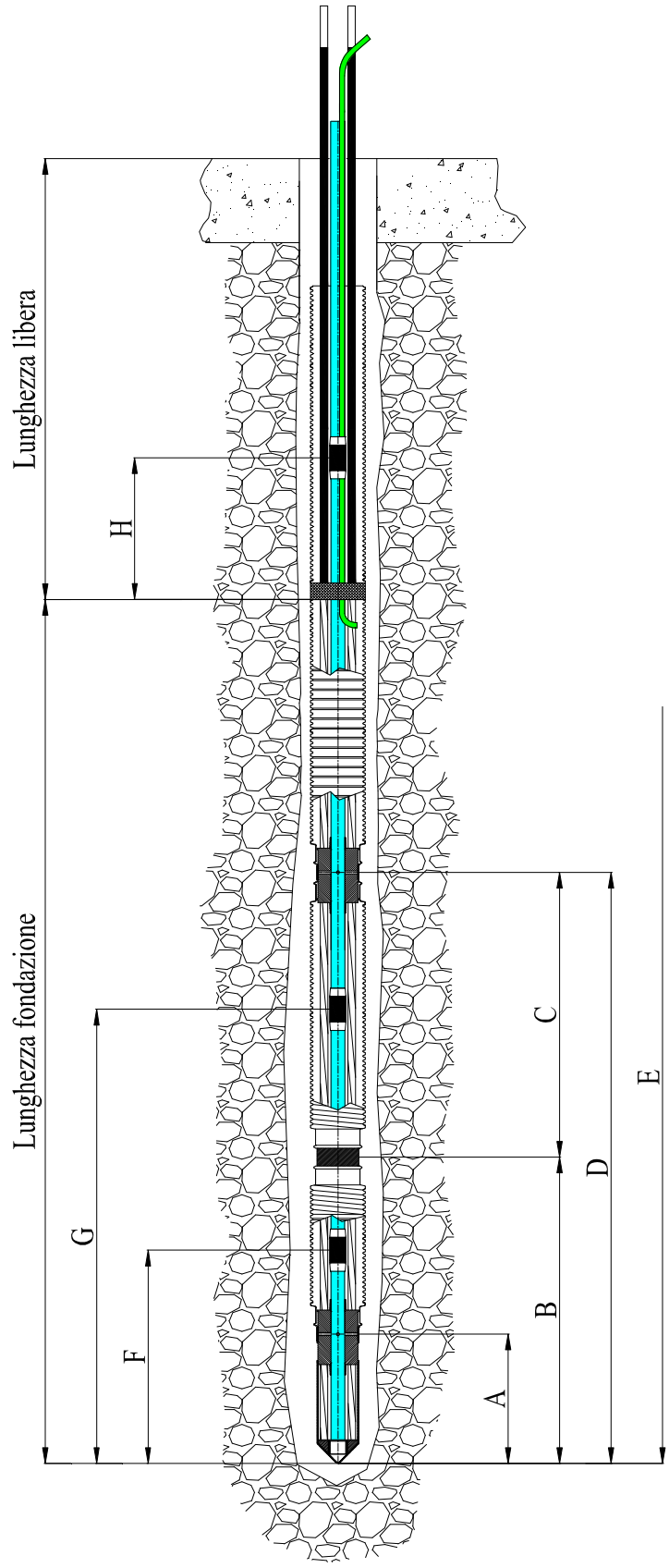




TPE 05A ground anchor



TPE 05B ground anchor



The internal grouting is carried out with DD 1025 manchette valves inside the anchor and installed into the end of the T001 27x34 mm tube.

Two DD 1015 valves are installed, one at an F distance from the tip of the anchor and one at a G distance. The DD 1015, which is installed at the G position, is inserted for safety reasons and allows the internal grouting of the anchor if the F valve cannot be used due to cement leaking into the T001 27x34 mm tube.

RRM valves can be installed on the foundation of TPE05 anchors with the following pitches: 0.75, 1.25 and 1.80 m. The pitch of RRM valves can be further extended in multiples of 0.75 m, e.g. D + C + C…

Valve pitch	***A*** *(m)*	***B*** *(m)*	***C*** *(m)*	***D*** *(m)*	***E*** *(m)*	***F*** *(m)*	***G*** *(m)*	***H*** *(m)*
0.75 m	*0.25*	*0.95*	*0.75*	*1.70*	*D + C + C…*	*0.60*	*1.35*	*1.00*
1.25 m	*0.25*	*1.50*	*1.25*	*2.75*	*D + C + C…*	*0.80*	*2.05*	*1.00*
1.80 m	*0.25*	*2.05*	*1.80*	*3.85*	*D + C + C…*	*0.80*	*2.80*	*1.00*

Subject to change *Further data available on request*