

How an excavator with articulated supports, commonly called “spider”, works

The machine is transported on the flatcar of a lorry as far as the road conditions allow it and then it is able to move by itself up to the building site by means of hydraulic traction (available on two or four wheels) or, in case of a steep slope or a lack of sufficient compactness of the soil, through the alternated action of the bucket and of the lugs.

Such movement does not therefore require the building of a specially made track network, as it can be carried out on the existing mule tracks or on not-equipped surfaces, causing very limited and easily repairable damages.

While operating, the machine has its wheels locked and facing uphill and the steel rope of the winch is anchored uphill to some strong plants, to a micropile or to an excavator with a high mass.

In case of particularly difficult operations, on steep slopes and/or on substrata with low adherence, it is advisable to anchor the excavator with another rope, tightened with a tirror, when moving the anchorage of the winch rope.

It is therefore clear how the use of the spider noticeably reduces the need to **build access tracks** and operation surfaces. Such works, in fact, when carried out on steep slopes, require substantial earthworks and in particular excavations of a remarkable height and bound to stay open for several days; moreover, the excavated material is often doomed to be abandoned downhill in a messy way and it is unlikely to be used again.

The working of the slope between two adjoining work surfaces cannot but be carried out by hand or not be carried out at all. It must therefore be underlined that such operations can contribute to the unsteadiness of a slope in a decisive way, especially when there are surfacing waters or heavy rains.

In conclusion, the spider excavator is the only alternative to the manual working of steep plants, with an inclination higher than 30-35°.

In addition to **excavations, fillings and bordering**, the spider can be used to haul materials from the bottom upwards with the winch and to move industrial wood when setting up piles. This machine is already in use in reforestation works and in the preparation of bench terraces on steep slopes. In extreme conditions, it can also be transferred onto the building site by helicopter, even disassembled, when necessary.

Rock drills usually employed on building sites by Civil Engineers move on a tracked chassis and require the presence of tracks and operation surfaces. In remote locations, it is possible to use special rock drills mounted on the hydraulic arm of the spider excavator and directly powered by the machine itself.

Such a transfer does not require, therefore, a specially arranged track network, as it can be carried out on the existing mule tracks or on not-equipped surfaces, causing very limited and easily repairable damages.