

PROJECT

CENERI BASE TUNNEL LOT 853 VIGANA HORIZONTAL JET GROUTING IN TUNNEL



PROJECT NAME

Ceneri base tunnel lot 853 crossing of the A2 Motorway in Vigana

CLIENT

ALPTRANSIT GOTTHARD AG

ENGINEER

JV of ITC ITECSA and Toscano

GENERAL CONTRACTOR

Joint Venture Pizzarotti, Cossi, Ferrari, LGV and RODIO

SPECIALIST CONTRACTOR

RODIO Geotechnik AG

CONTRACT VALUE

EURO 3,5 Mio CHF 5,4 Mio

BEGINNING OF WORKS

FEBRUARY 2009

END OF WORKS

JULY 2010

■ JOB DESCRIPTION

RODIO has performed on this site a total of 20 conical treatment ahead of tunnel front (890 jet grouting columns \varnothing 60 cm with a total length of 9.600 meters, 350 vertical columns \varnothing 80 cm (2.700 m of jet), 400 vertical columns \varnothing 60 cm (3.400 m of jet) and 5.700 meters of forepoling tubes d. 140 x 10 mm. The most critical and challenging operation has been the realisation of three conical treatments by means of a double crown of partially reinforced jet grouting columns above the tunnel's crown, underneath the A2 motorway with an overburden of only 8 meters. The basis of the arch has a span of 23 meters. No significant settlement has occurred whether during the execution of jet grouting nor during excavation, The motorway remained full in service the whole working period.

■ WORK QUANTITIES

9.600 m of sub-horizontal jet grouting columns \varnothing 60 cm
5.700 m of tubular forepoling \varnothing 140 x 10 mm
8.500 m of vertical jet grouting columns \varnothing 60 to 80 cm
6.600 m³ injected Cement Grout, Cement consumption: 5.000 ton

■ MAIN EQUIPMENT

2 Special tunnels drill rig SR510 HD and SR510 with a 22 m long mast
2 Full automatic mixing plant RODIO SCW 13/10
2 High pressure pumps MP7 CIMA with a 680 HP Diesel Motor
Full automatic recording of drilling and jet grouting parameters by means of LT3 LUTZ System



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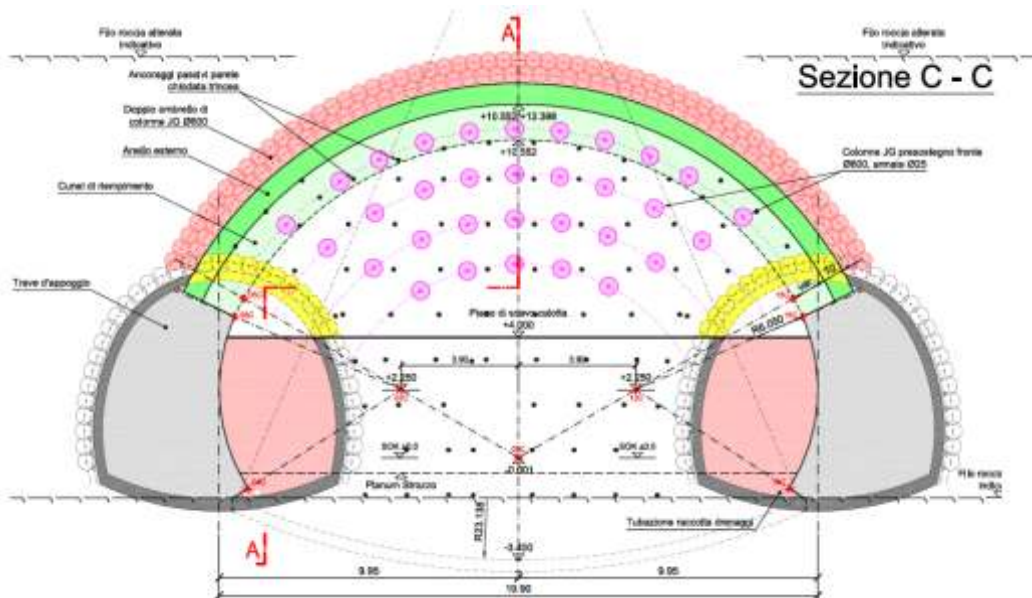
Horizontal Jet Grouting



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Tunnel drill rig **RODIO SR 510** working on the upper crown



Scheme of jet grouting treatment above the tunnel's arch



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