

# SOME REFERENCES OF PROJECTS WITH SELF-DRILLING INJECTION ANCHORS "BELBOR"

**CUSTOMER**  
**PROJECT**  
**TYPE**

**SWITZERLAND**

<i>ARGE FERDEN GOPPENSTEIN</i>	<b>AlpTransit Lötschbergtunnel</b>	R 38/15
<i>CONSORZIO TAT FAIDO / BODIO</i>	<b>AlpTransit Gotthardtunnel Lotto 452 / 554</b>	R 32/24 R 32/20
<i>ARGE MATRANS STEG / RARON</i>	AlpTransit Lötschbergtunnel	<b>R 38/15</b>
<i>CONSORZIO SIGIRINO</i>	AlpTransit Monte Ceneritunnel	<b>R 32/15</b>
<i>SANA ROCCIA PORTO RONCO</i>	Various projects	<b>R 32/20</b>
<i>MUTTONI FAIDO / BELLINZONA</i>	<b>Various projects</b>	R 32/20
<i>ARGE AESCHERTUNNEL BIRMENSDORF</i>	By-pass road Zurich South	<b>R 32/24</b>
<i>FERRARI ENNIO LODRINO</i>	<b>Various projects</b>	R 32/15
<i>ARGE SATCO BLAUSEE-MITHOLZ</i>	<b>AlpTransit Lötschbergtunnel</b>	R 32/20
<i>VSL (SWITZERLAND) SUBINGEN</i>	Various projects	<b>R 32/24</b>
<i>ARGE TUF</i>	<b>Tunnel by-pass Flüelen</b>	R 32/20

## **FLUELEN**

**PERFORA SA  
CORNAUX** Varous projects R 32/15

**CONS. TUVAL  
SALGESCH / SUSTEN** Railway tunnel  
**Crown consolidation** R 32/15

**ARGE UMFABHRUNG  
FLIMS** Tunnel by pass Flims R 32/15

**ARGE GROSSHÜS  
VISP** Motorway tunnel  
**Crown consolidation** R 38/15

## **ITALY**

**TREVI** Sottopasso deposito ferroviario Bologna  
**Tirantatura spalle laterali artificiali,  
ca. 465 tiranti** R 38/15  
R 51/28  
R 63/43 21.0 m'  
con 9 m' bulbo  
resto libero  
rivestito con gomma-  
plastica

**GEOSERVICE** **Valle d'Aosta**  
Anchors for avalanche baffle works R 32/15  
R 38/15 3.0, 6.0 m'

**GEOSERVICE** Consolidation flood landslide R 32/15 9.0 m'

**LOCHER** **Bolzano**  
Anchors for nets against rock fall R 32/20 3.0 m'

**SISCON** Anchors for nets against rock fall  
and avalanche baffle works R 32/20 3.0 – 6.0 m'

**NOTARI** Reclaim hydr. tunnel R 32/20  
R 32/15 2.0 – 3.0 m'

**GEOTECNICA  
LAVORI** **Provincial road Sardegna**  
Consolidation supporting walls R 32/24 3.0 m'

**CONSORZIO LA QUERCIA** **Motorway A1 Bologna-Firenze**  
Tunnel R 32/20 3.0 m'

**GEOBRUGG CUNEO** Anchors for avalanche baffle works R 32/15

**SOIL SYSTEM  
LA SPEZIA** Port quay of La Spezia  
**Consolidation** R 37/15  
R 51/28 9.0 – 12.0 m'

**NOTARI AOSTA** R 32/20 6.0 m'

<i>LUSS BOLZANO</i>	<b>Tunnel ENEL</b> Crown consolidation	R 32/20	
	Consolidation cable way pylons	R 32/15	
<i>ZECCA GENOVA</i>	Consolidation box GENOVA (Palace)	R 32/20 R 32/15	3.5 m'
	Cemetery wall consolidation	R 32/15	3.0 m'
<b><u>TURKEY</u></b>			
<i>ASTALDI</i> <i>Turkish Branch</i>	<b>BOLU TUNNEL</b> Ancoraggi platea, calotta e paramenti	R 32/15 R 32/20	9.0 – 12.0 m'
<b><u>SLOVENIA</u></b>			
<i>GRASSETTO</i>	<b>Motorway Ljublijana-Maribor</b> Ancoraggi e stabilizzazione fronte scavo galleria	R 32/20 R 32/15	6.0 – 12.0 m'
<b><u>CROATIA</u></b>			
	<b>Autostrada Karlovac-Delnice</b> Tunnel	R 32/24	3.0 – 6.0 m'
	<b>Porto di Rijeka</b> Tirantatura passiva pareti scavo	R 38/15 R 51/28 R 63/43	6.0 – 9.0 m' 6.0 – 12.0 m' 9.0 – 12.0 m'
	Tirantatura attiva fronte frana prerivestiti con guaina metallica e pre- iniettati	R 63/43 R 51/28	9.00 m' bulbo fino a 28 m'
	<b>Tunnel VRTLINOVEC</b> Motorway tunnel stabilizzazione imbocco Tunnel anchors	R 32/20 R 32/15 R 51/28	12.0 – 18.0 m'
	<b>Tunnel VARAZDIN</b> Tunnel anchors	R 32/24 R 32/20	3.0 – 6.0 m'
	<b>Tunnel LEDENIK</b> Tunnel anchors	R 32/24	4.0 m'

	<b>Tunnel VICTOR LENAK</b> Tunnel anchors	R 38/15	6.0 – 9.0 m'
	<b>Tunnel STUPE-SPLIT</b> stabilizzazione fronte scavo	R 38/15	6.0 m'
	<b>Tunnel ROZMAN-BRDO</b> Tunnel anchors	R 32/24	4.0 m'
	<b>Tunnel KONYSKO-SPLIT</b> Tunnel anchors	R 32/20	3.0 m'
<i>HYDROELECTRA CORSI</i>	<b>Various</b>	R 32/20 R 32/15	3.0 – 4.0 m'
<b><u>INDIA</u></b>			
<i>IMPREGILO</i> <i>Nathpa Jhakri J.V.,</i> <i>Himachal Pradesh</i>	Anchors for tunnel and access	R 32/20	6.0 m'
<b><u>NEPAL</u></b>			
<i>IMPREGILO</i>	Kali Gandaki "A" Hydroelectric project , hydr. tunnel	R 32/24 R 32/20	
<b><u>FRANCE</u></b>			
<i>SPI</i>	SOSPEL Consolidamento sottofondazioni caseggiato	R 32/15	6.0 – 9.0 m'
<i>GEOSERVICE SPA</i> <i>COURMAYEUR</i>	Consolidation chair lift pylons	R 32/15 R 38/15	9.0 m'
<b><u>FINLAND</u></b>			
<i>MIRANET OY</i> <i>ESPOO</i>	<b>Various projects</b>	R 38/15 R 51/28 R 32/15	

## **GREECE**

<i>TECHNICAL OLYMPIC SA</i>	<b>METSOVO, motorway tunnel</b> stabilizzazione pareti imbocco e ancoraggio galleria	R 63/43 R 32/15	6.0 – 9.0 m' 6.0 – 9.0 m'
<i>KRYONERA ATTIKIS</i>	<b>Motorway tunnel</b> near Athens	R 32/20	5.0 m'
<i>POLYMILOS J.V.</i>	Motorway tunnel Polymilos	R 32/18 R 32/20	3.0 – 6 m'
<i>AVAX</i>	METSOVO <b>Motorway tunnel</b>	R 32/15 R 32/20	3.0 – 6.0 m'
<i>AKTOR</i>	METSOVO <b>Motorway tunnel</b>	R 32/20	3.0 – 6.0 m'
<i>KAKIA SKALA</i>	Railway tunnel near Athens	R 32/20	6.0 m'
<i>HELLITECH</i>	METSOVO <b>Motorway tunnel</b> Egnatia – Anthochori– Anilio	R 32/20 R 32/15	6.0 m'
<i>MICHANIKI</i>	METSOVO (Anthochori) <b>Motorway tunnel</b>	R 32/15	3.0 m'
<i>J.V. METRO PERISTERI</i>	Atene <b>Metropolitain tunnel</b> Micropali per piedritti infilaggi fronte scavo fresa	R 63/43	9.0 – 12.0 m'
<i>J.V. KRISTALLOPIGI</i>	Egnatia-Project <b>Motorway tunnel</b>	R 32/15 R 32/20	3.0 – 9.0 m'
<i>THEMELIODOMI</i>	METSOVO Egnatia-Project	R 32/20	4.0 m'
<i>J.V. METRO PERISTERI</i>	Metropolitan Sepolia-Peristeri Line <b>Papandreou Shaft</b> Soil nails	R 32/15 R 32/20	
<i>J.V. KAKIA SKALA</i>	<b>P.A.TH.E. Motor tunnels</b> Anchors / Light Spiles <b>Rail Road Tunnels</b> Anchors / Soil nails	R 32/20 R 32/20	
<i>J.V. KRISTALLOPIGHI</i> (Paramithia Thesprotias)	<b>Egnatia Odos</b> Kristalopighi Tunnels Spiles Light Spiles Temporary anchors	R 51/28 R 32/24 R 32/20 R 32/15	
<i>J.V. Anthochori Metsovo</i>	<b>Egnatia Odos</b> Anthochori Tunnel Anchors	R 32/15	
<i>J.V. Metsovo – Anilio</i>	<b>Egnatia Odos</b>		

	Anilio Tunnel Metsovo Exit Tunnel Anchors Soil nails	R 32/24 R 32/20 R 32/15
<i>J.V. Anilio – Malakassi</i>	<b>Egnatia Odos</b> Malakassi Tunnel Spiles Anchors	R 63/43 R 32/20 R 32/15
<i>J.V. IMPREGILO Moyzaki-Kardits</i>	Galleria idr. ombrello posizione fresa	R 51/28
<i>J/V ASPROVALTA – STRYMONAS</i>	<b>Egnatia Odos</b> Asprovalta Tunnel	R 32/20
<i>J/V POLYMYLOS LEFKOPETRA</i>	<b>Egnatia Odos</b> Polymylos Tunnel (J&P Hellas S.A.)	R 32/24
	Mikri Santa Tunnel (Attikat S.A.)	R 32/24
 <b><u>SPAIN</u></b>		
<i>MIVALSA</i>	Railway tunnel	R 32/15
<i>UTE VALVERDE</i>	Motorway tunnel	R 32/24
<i>UTE MARIN&lt; COMSA + COPASA</i>	Railway tunnel	R 32/15
<i>OBRAS SUBTERRA</i>	Railway tunnel	R 32/20
<i>UTE TABLADILLO</i>	Railway tunnel	R 32/20
<i>FERROVIAL</i>	Railway tunnel	R 32/18
<i>ALOSA</i>	Slope	R 32/20
<i>MALLATALUD</i>	Slope	R 32/20 R 32/18

<i>ICMA</i>	<b>Railway tunnel</b>	<b>R 32/20</b>
<i>GEOCISA</i>	<b>Slope</b>	<b>R 32/24</b>
<i>FERROVIAL</i>	<b>Railway tunnel</b>	<b>R 51/28</b>
<i>HISP. ALEMANA</i>	<b>Foundation</b>	<b>R 51/28</b>
<i>HISP. ALEMANA</i>	<b>Foundation</b>	<b>R 38/15</b>