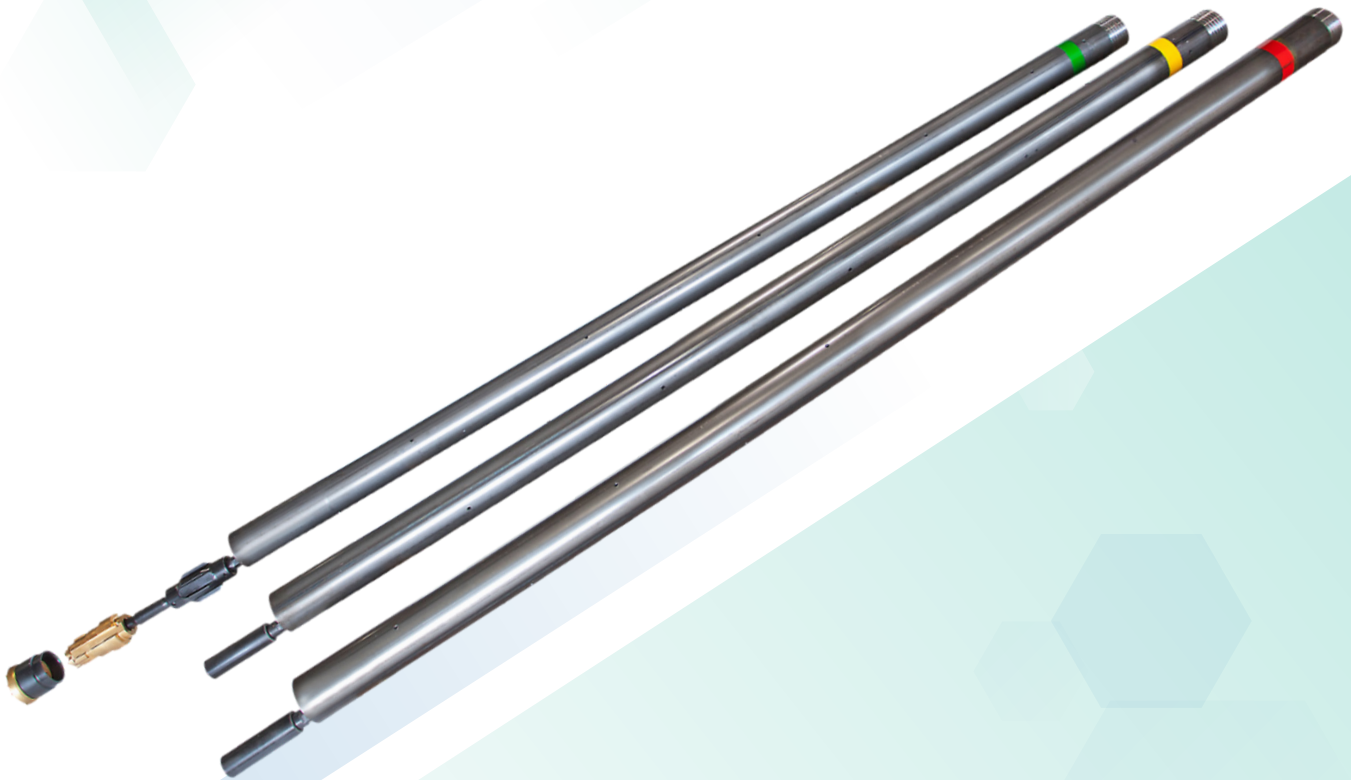




## Umbrella Pipe

A pre-support system for weak grounds

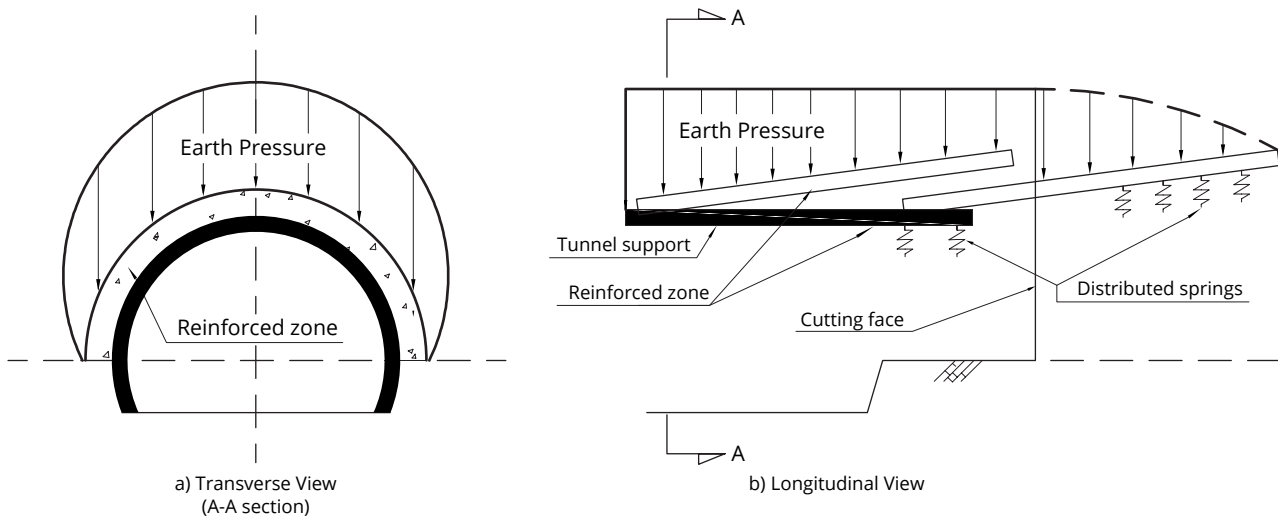


**Dextra**

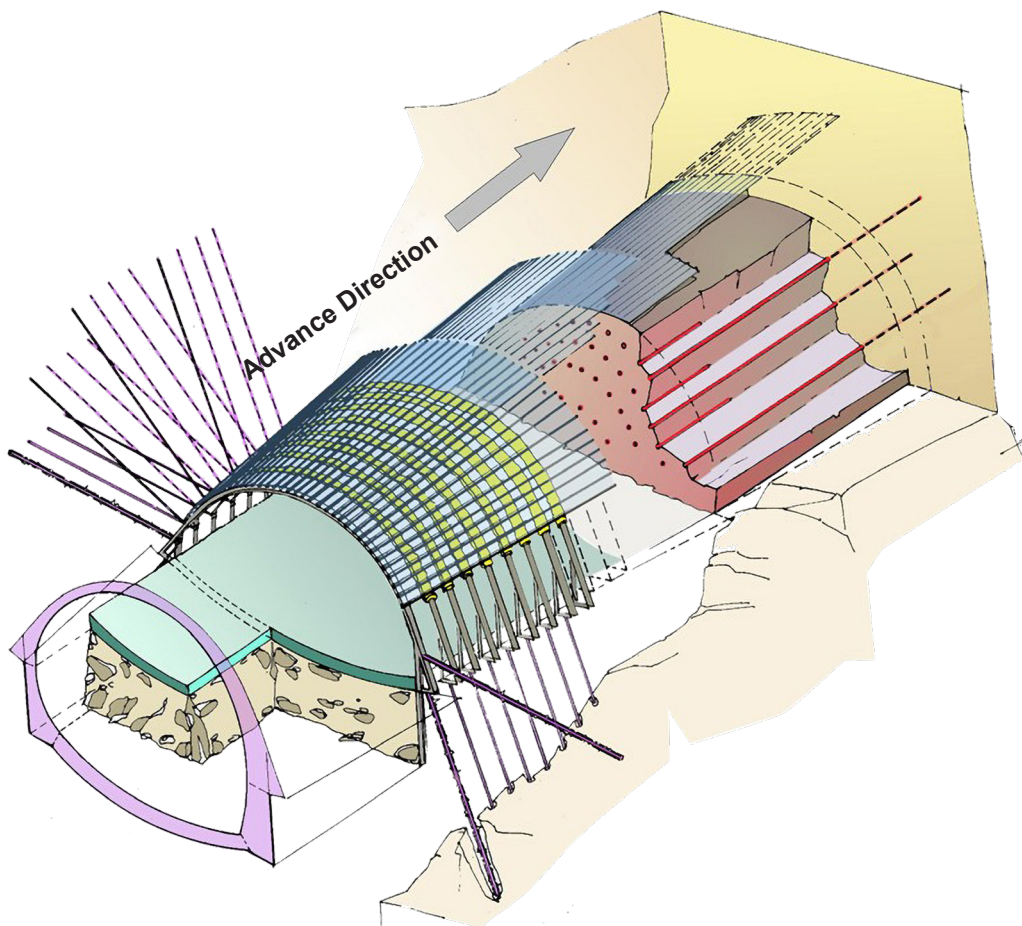
## Supporting Mechanism of Umbrella Pipe

The supporting mechanism of the umbrella pipe method is to stabilize the excavation face in both the transverse and longitudinal directions by an arch-like reinforced zone. The support system can be divided into three different aspects:

1. Radial support
2. Longitudinal support
3. Subdivision of open areas of the unsupported zone



## Field Application of Umbrella Pipe



## About GEOTEC Umbrella Pipe

GEOTEC umbrella pipe system is a pre-support in soft and weak ground conditions. The system comprises steel pipes installed from the tunnel face to form a roof to stabilize the tunnel headings. By distributing the load in longitudinal direction, it can decrease deformation during excavations.

## Applications

- Tunnel excavation
- Nearby structure reinforcement
- Ground settlement
- Drainage

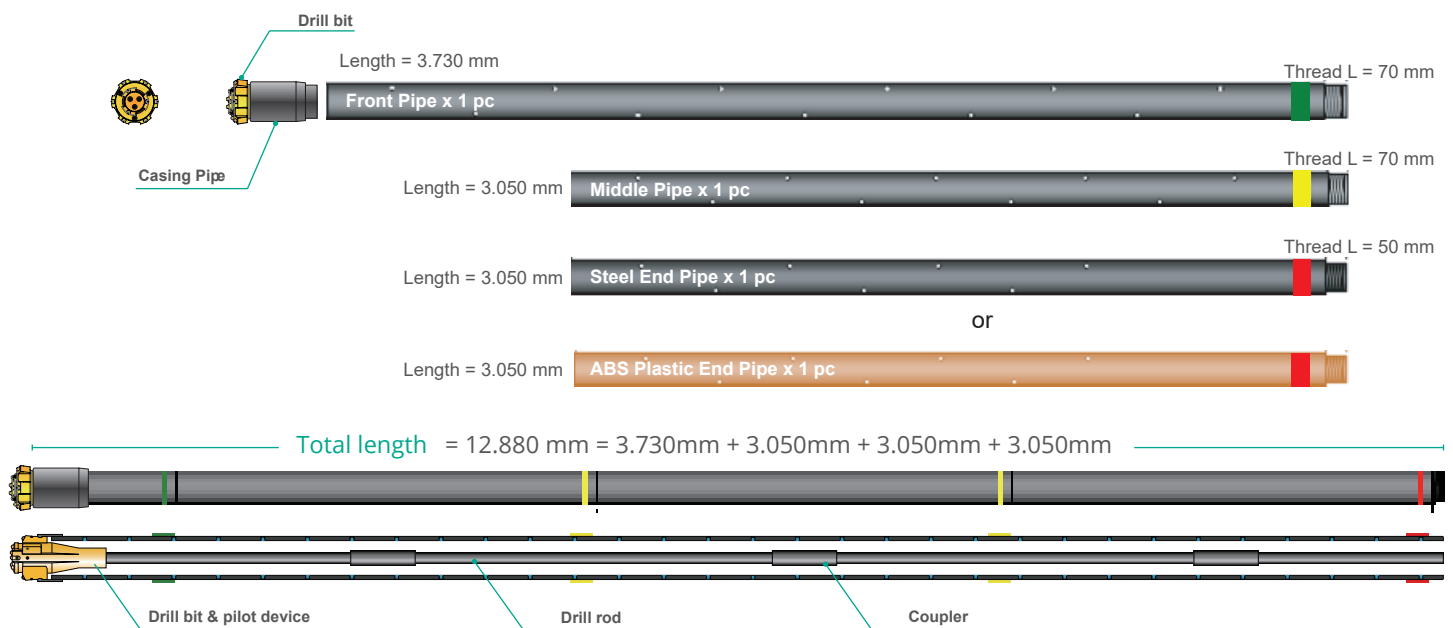
## Product features

- The umbrella pipe system contains 2 parts: external pipe casing and rods.
- The external pipe casings are composed by: drill bits, casing pipes, front pipe, extension pipes and end pipe.
- The rods are connected by: pilot device, drill rods, sleeves, drill rods, adapters etc.

## Key benefits

- Immediate support for the excavation tunnels
- Installed by jumbo machine
- Fast self-drilling installation
- Strong and robust support system
- Length of system and components can be adapted to space
- Maximized safety and extended possibilities

## System Diagram



## Standards

EN10219 S 235/275/355

JIS G3444 STK400 / 500

ASTM A 500

BS 1387

## Color Marking for Installation Sequence

The drilling and extension pipes are marked in different colors



Red End Pipes

Yellow Middle Pipes

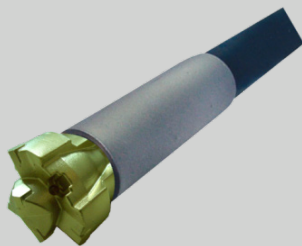
Green Front Pipes

## Technical data sheet

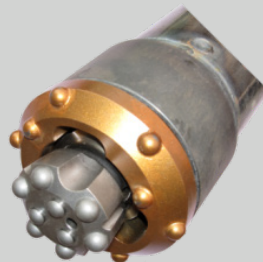
### Steel Pipes

Nominal OD	Steel Grade	Diameter (mm)	Wall Thickness (mm)	Yield Strength (N/mm <sup>2</sup> )	Ultimate Strength (N/mm <sup>2</sup> )	Linear Weight (kg/m)
2.0"	JIS G3444 STK 400 or ASTM A500	60.5	5.0	>235	>400	6.76
2.5"		76.3	5.2	>235	>400	9.00
3.0"		89.1	5.2	>235	>400	10.63
3.5"		101.6	5.7	>235	>400	13.31
4.0"		114.3	6.0	>235	>400	15.83
5.0"		139.8	7.0	>235	>400	22.92

### Drill System



2.0" & 2.5" Pipes Drill System



3.0" & 3.5" Pipes Drill System



4.0" & 5.0" Pipes Drill System

Single Pass Bit Drill System	Bit Diameter	Drill Rods	Ring Lost Bit Drill System	Bit Diameter	Drill Rods	Ring Lost Bit Drill System	Bit Diameter	Drill Rods
2.0" drill	103 mm	T 32	3.0" drill	103 mm	T 32	4.0" drill	125 mm	T 38
2.5" drill	112 mm	T 38	3.5" drill	112 mm	T 38	5.0" drill	150 mm	T 38

Commercial presence  
in more than  
**55** countries



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