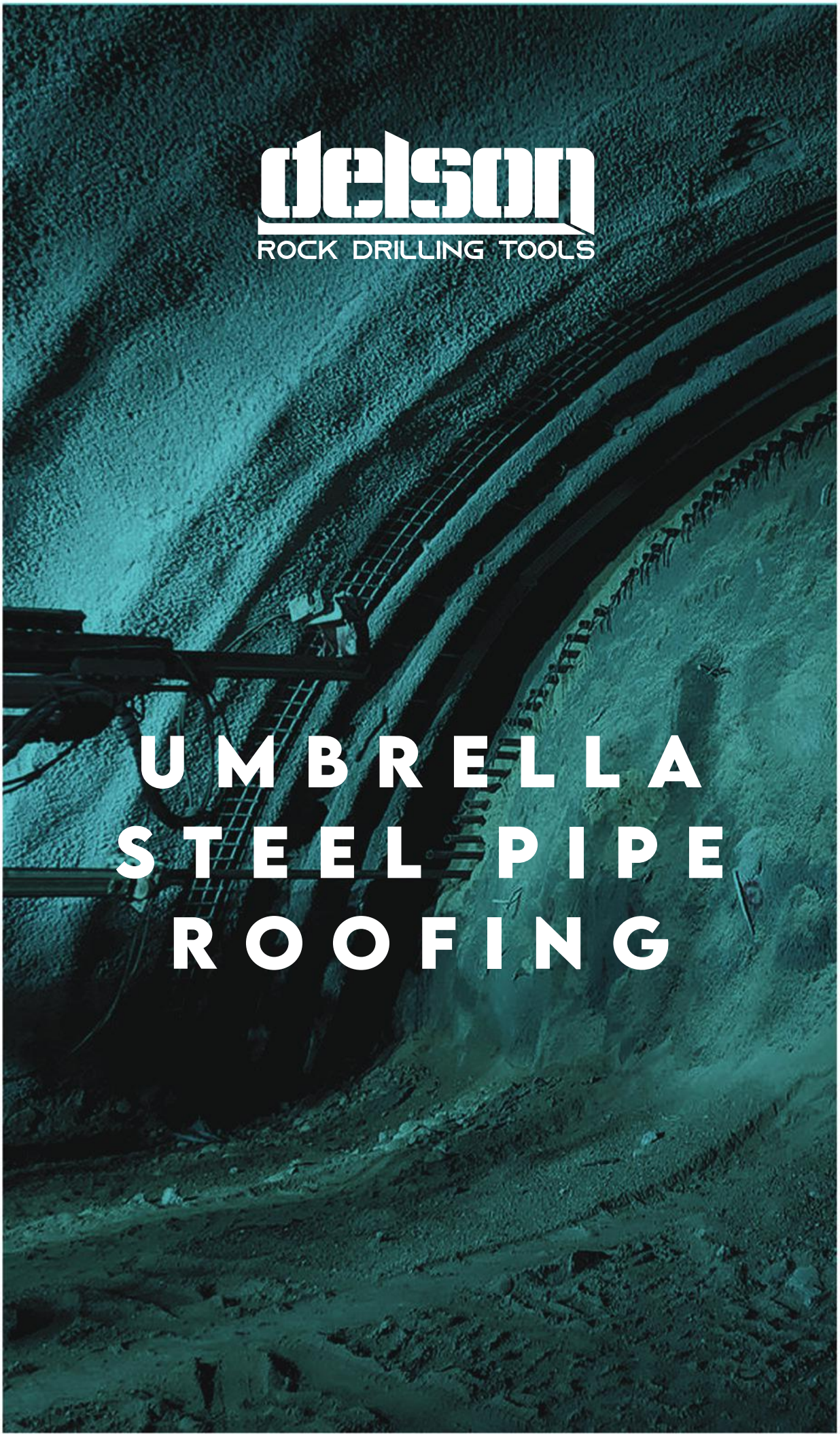


FOREPOLING DRILLING

2022

FOREPOLING SYSTEM FOR TUNNELING

According to fortification literature of NATM the forepoling systems in tunnels uses to supporting top of excavation surfaces as understanding its name. According to soil conditions there are lot of types forepoling systems. As soil classes changes from weak up to strong diameters of forepoling systems changes same from small up to large also.

There are the forepolings that were applicated according to negative of soil conditions also. These forepolings that were called umbrella arch uses at especially the soils of high cohesion that are swelling and jaming. Most important particular of umbrella arch what do not use with bolt applications together and cover entire celing almost. Umbrella archs are aplicated two kinds as normal and self drilling. Normal drilling is same forepoling systems as told previously. Process of drilling and application are made together on self drilling systems. Self drilling system is made ring bits and pilot bits. Ring bits are welded end of forepiling pipe. The rods that end have pilot bits are passed inside to forepoling pipe and locked. Procces of locking are made to direction of drilling and started drilling. The rod is turned opposite direction and opened lock after drilling. Through this process the rod is pulled reverse but forepoling pipe and ring bit stays inside the hole.

- RAS-76,1 systems
- RAS-88,9 systems
- RAS-101,6 systems
- RAS-114,3 systems
- RAS-139,7 systems

FOREPOLING SYSTEM DESIGN FEATURES




Pipe Roof System – range RAS offers systems with pipe diameters ranging from 76.1 to 139.7 mm and wall thickness ranging from 6.3 to 10.0 mm.

Product Code	Pipe Ø mm	inch	Ring Bit Ø (mm)	Pilot Bit Ø (mm)
RAS-76/8	76,1	3"	89	59
RAS-89/4-8	88,9	3 1/2"	100	71
RAS-102/8	101,6	4"	118	80
RAS-114/10	114,3	4 1/2"	129	89
RAS-140/10	139,7	5 1/2"	156	116

UMBRELLA STEEL PIPE ROOFING SYSTEM

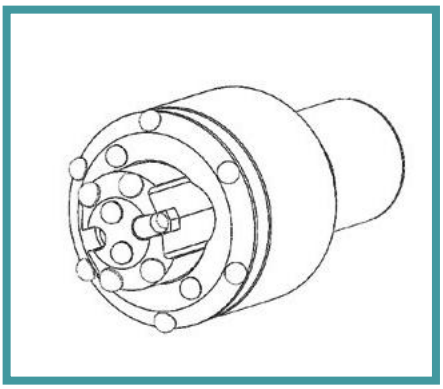
SPECIAL CHARACTERS

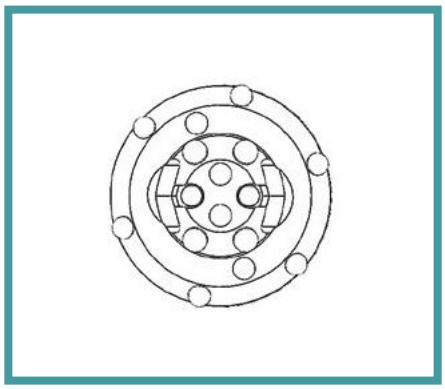
Installed by general drill jumble with suitable capacity.

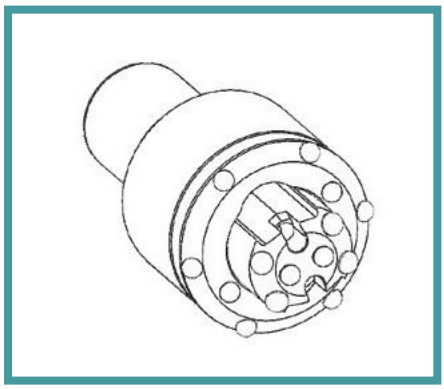
The working process conforms with tunneling cycle time.

The NATMTECH tools drill the borehole and lead umbrella pipes advancing to required depth.

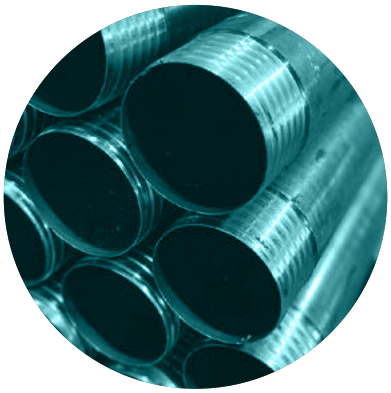
The umbrella steel pipe is leaded by hammering drill of the front casing top which brings better straightness than rear-push system.

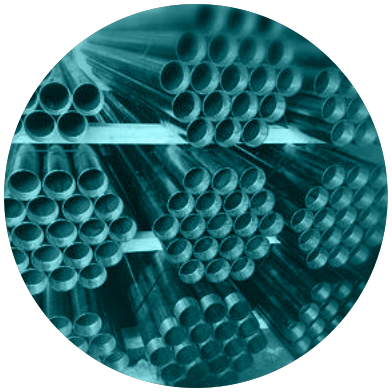






METHOD STATEMENTS





1. Material of the Pipes: Steel JIS G3444 STK400 or ASTM A500
CNS 2056 G3030 or BS 1387 heavy class
Glass Fiber Reinforced Plastic (refer to our GFRP System)

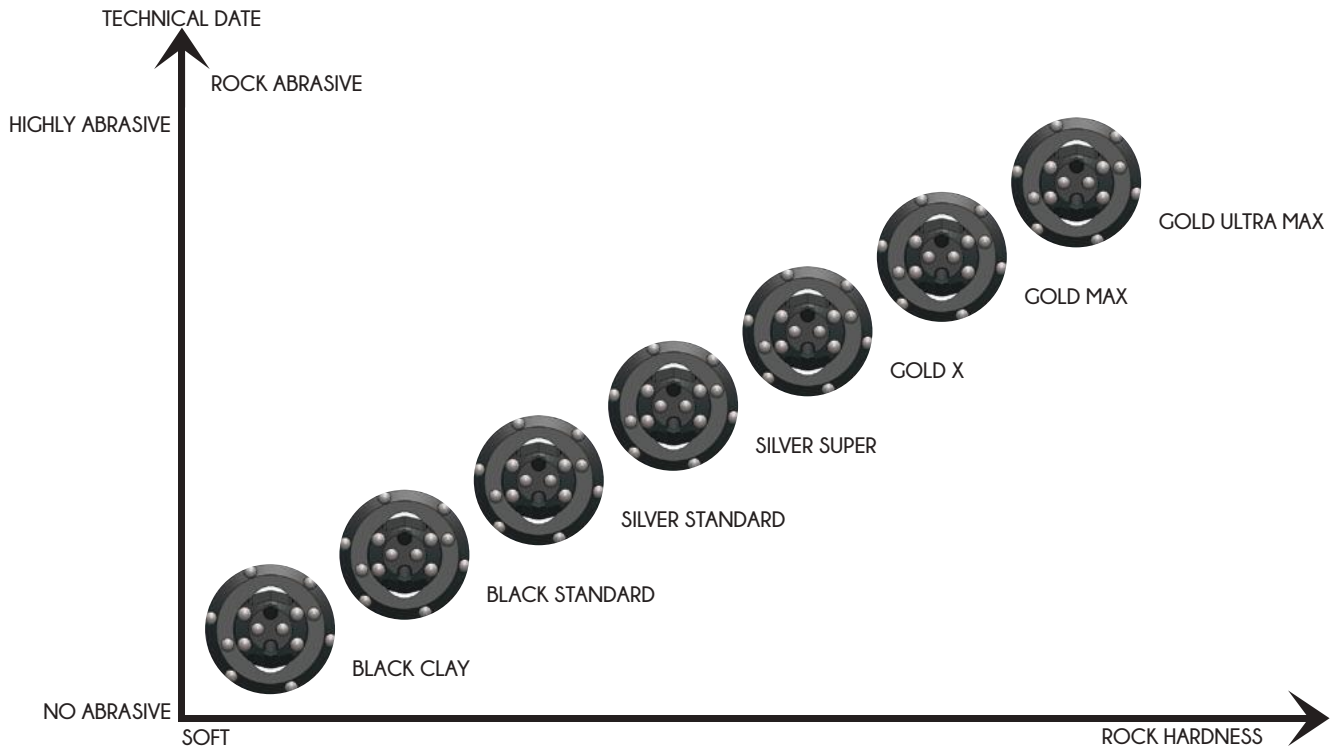
2.Application Pattern: Standard range 120° of the tunnel crown Setting Pitch ranged from 300-500mm

3. Non-Over Excavation: Owing to better bonding when resin grout injection

the non-over excavation is suggested to save the extra cost.

4. Drill Length: Standard length of Steel Pipe is 12M and tunneling 9M

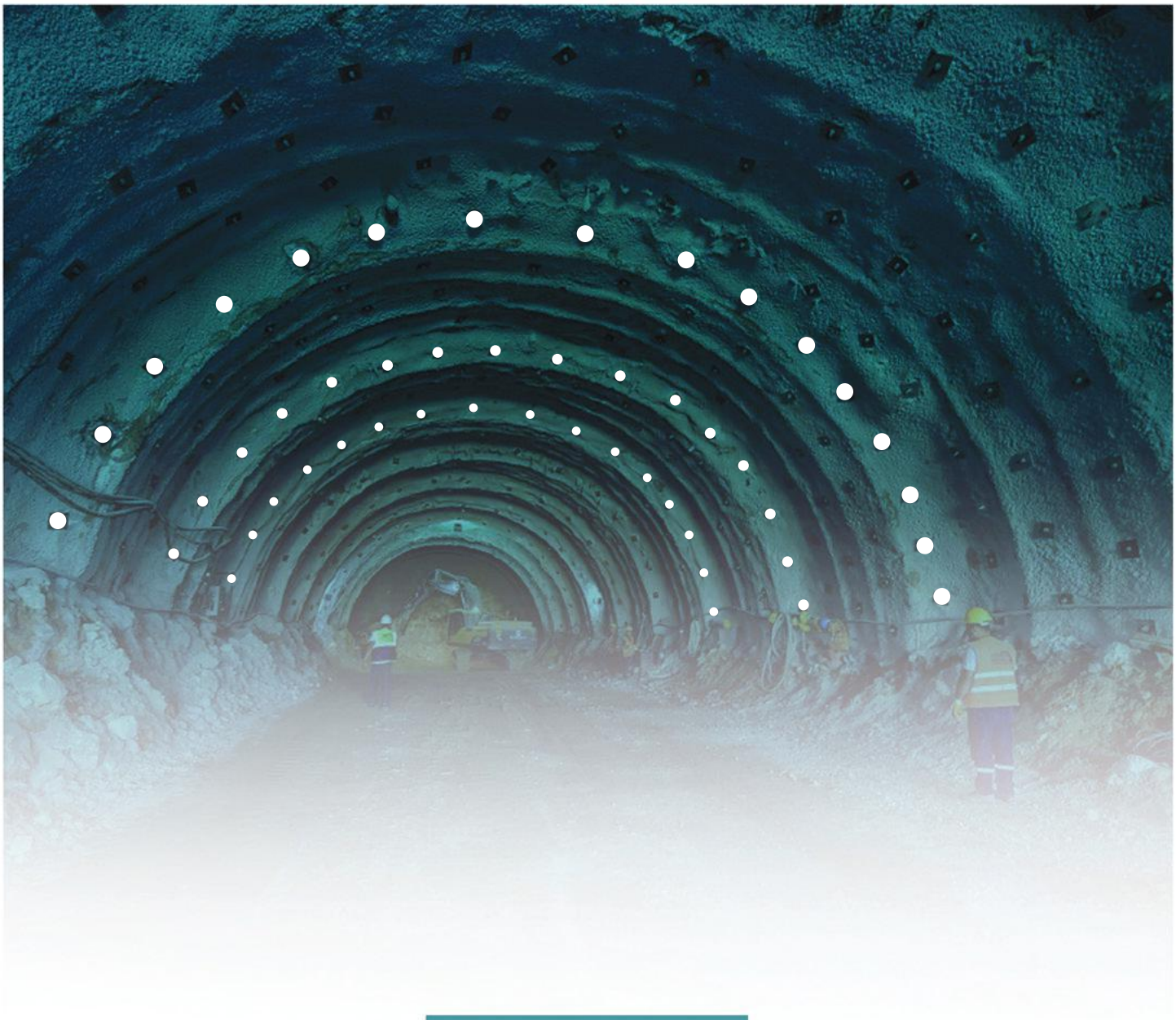
5. Drill System: Top Leading of Ring Lost Bit System fits most of the fractured geology conditions



RING BIT AND PILOT BIT - EVALUATION TABLE ACCORDING TO STRENGTH AND PLACE OF USE

COLOR	RING TYPE	EXPLANATION	APPLICATION SELECTION	GEOLOGICAL FORMATION	APPLICATION LOCATION STRENGTH - (MPa)	EQUIPMENT STRENGTH	NATM-CLASS
BLACK	CLAY	Mass production	Soft to medium hard, partially blocky, low abrasive, weak rocks	Clay, Claystone, Weak Marl, Sand, Siltstone, Rock Salt. Worn, altered varieties.	0 ~ 25	Excellent	C
BLACK	STANDART						
SILVER	STANDART	Mass production	Hard and medium hard, medium abrasive, fractured, cracked, continuity types	Shotcrete, Fractured Basalt, Medium Weak Limestone, Marl, Phyllite, Schist, Siltstone.	0 ~ 50	Excellent	C, B
SILVER	SUPER						
GOLD	X	Special Production Sees Order and Design	In hard and abrasive rock conditions, in complex drilled grounds, in different applications, in places with local transitions	In the hard and discontinuous states of the above rocks	0 ~ 100	Excellent	B, C (Class A blocks)
GOLD	MAX						
GOLD	ULTRA MAX						


delson
ROCK DRILLING TOOLS



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