

# Injection Pipe For Grouting

## Long Use, Easy Maintenance

To TBM Excavation, Backfill Grouting is very important. Backfill Grouting has 2 methods. One is grouting through hole of Segment element. Another is grouting through pipe of TBM machine. Using grouting pipe is the best. This method make settlement less. However many engineers said that it is hard to use the pipe, because pipes are easy to be closed, and protuberance of TBM makes excavation difficult. Then we developed the new style injection pipes. This pipes have a mixing nozzle which is pointed at top of pipe. It causes obstruction of pipe has drastically decreased. And height of protuberance become lower, too. We recomend this type pipes for safety excavation of TBM.

### MP-6type



PIPE Outline

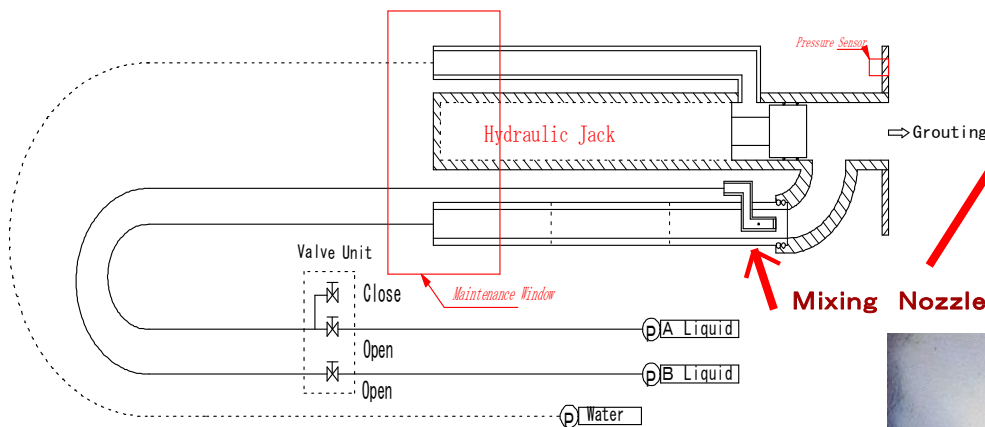


Rear of TBM Water Spout Test

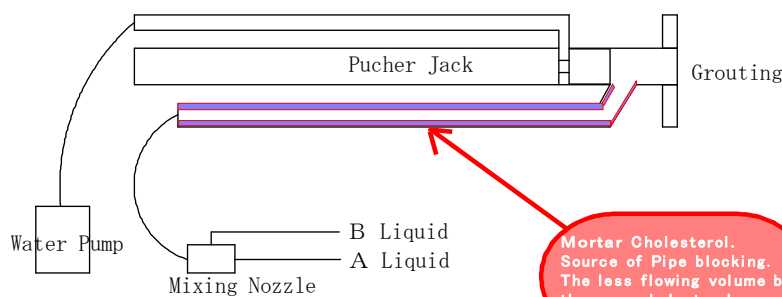


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### MP-6Type Outline



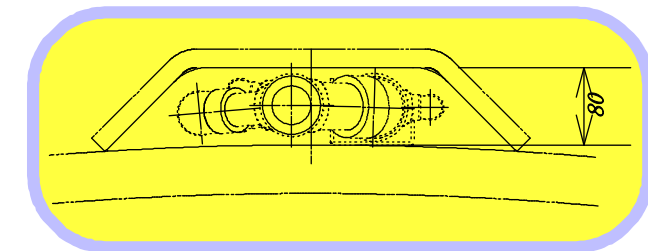
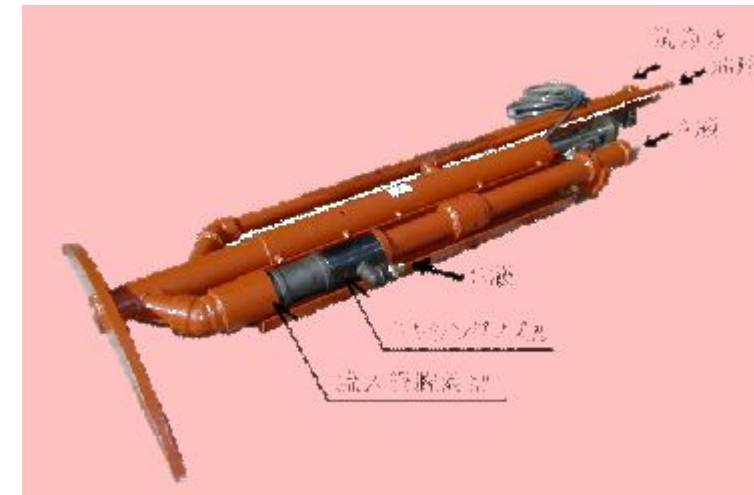
### Problem in old injection pipe



Mortar Cholesterol. Source of Pipe blocking. The less flowing volume be, the more cholesterol grows.

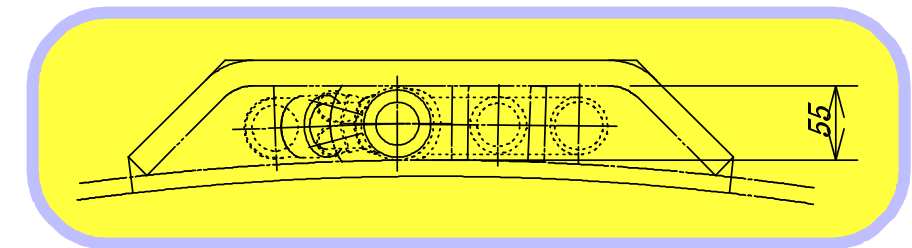
## Injection Pipe is improving

### MP-6type (For Boss 1 and 2 liquid)



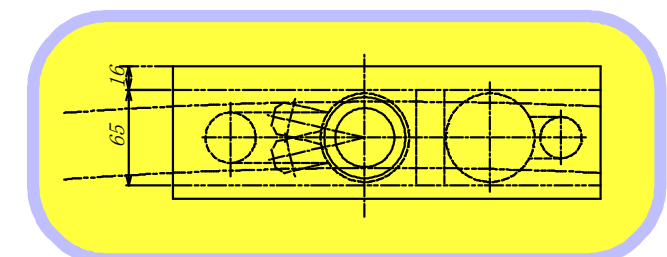
pipe guide height	80mm
flow pipe inner diameter	40mm

### MP-8type (Low Height, For Only 2 liquid)



pipe guide height	55mm
flow pipe inner diameter	32mm

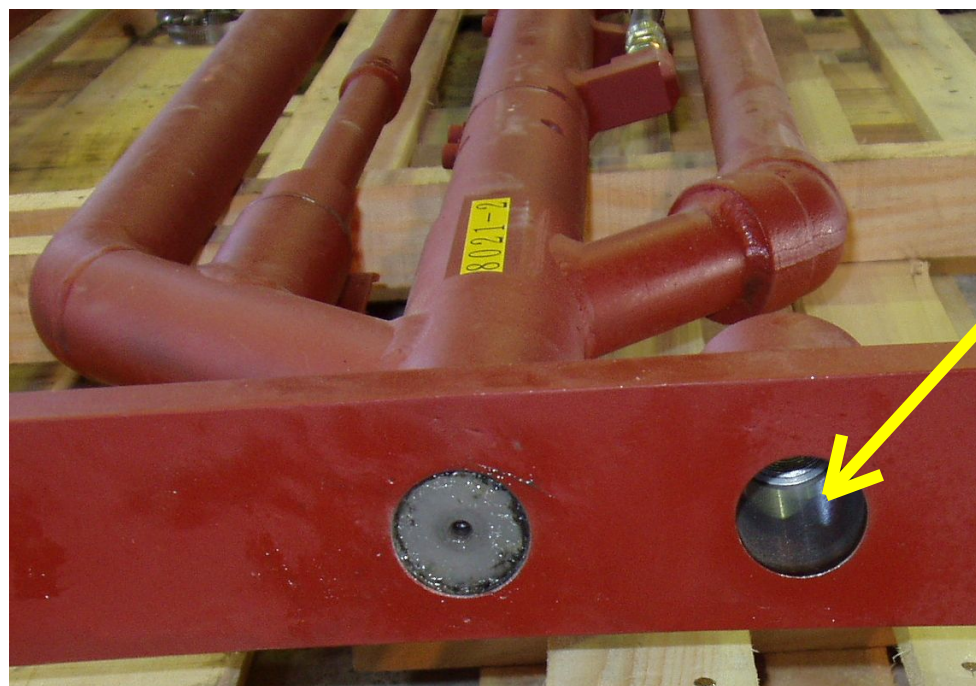
### MP-9type (Low Height, For Boss 1 and 2 liquid)



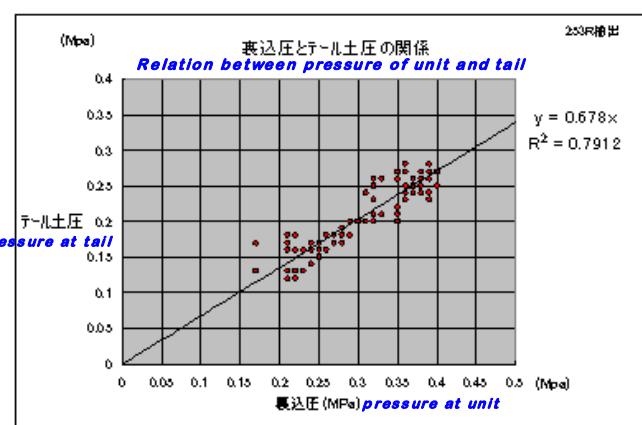
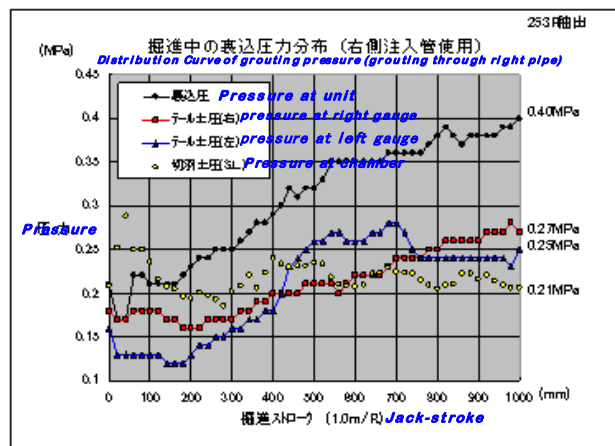
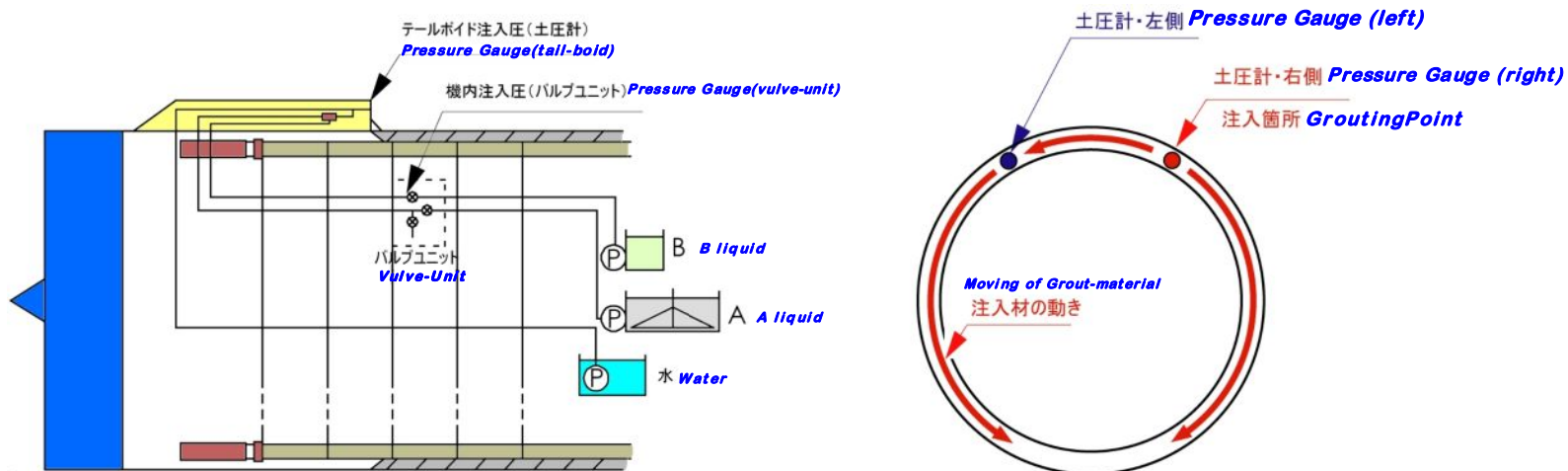
pipe guide height	65mm
flow pipe inner diameter	40mm

# Pressure Gauge at Top

## Appreciable True Pressuer



Pressuer Gauge



# Maintenance of Pipe

The pipe tend to be obstructed due to mortar-cholesterol cumnuated little by little. Therefore maintenance is very important. Please pull mixing-parts out, and clean it regularly once by week.



Maintenance Window



pulling pipe out



Pulling Mixing-nozzle out



Maintenance of Mixing-nozzl

## Drill for Mortar-cholesterol



In the case of an emergency Pipe becomes obstructed, Pipe can be cleaned by the drill-tool.