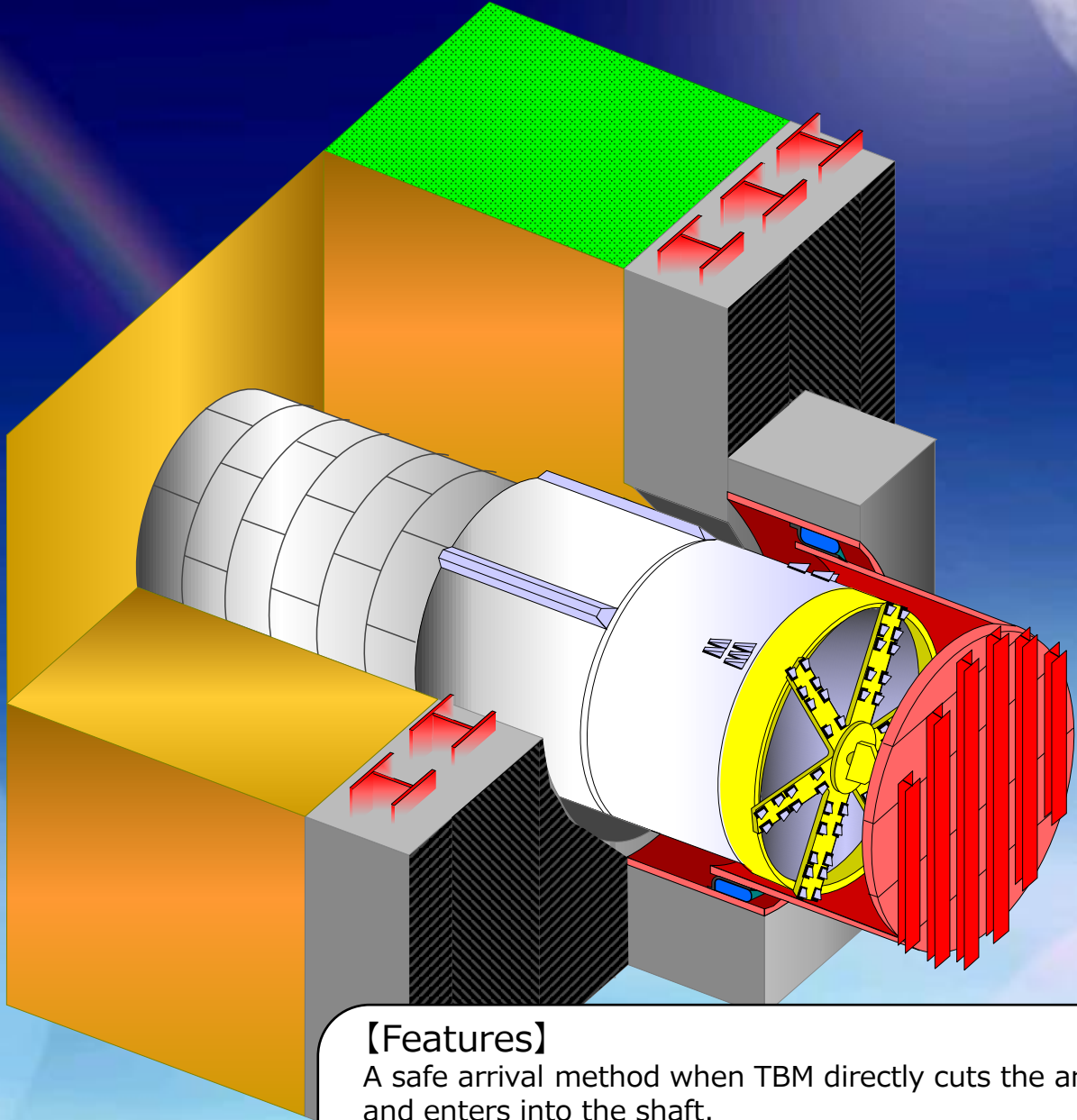


The Movable Bulkhead Method



【Features】

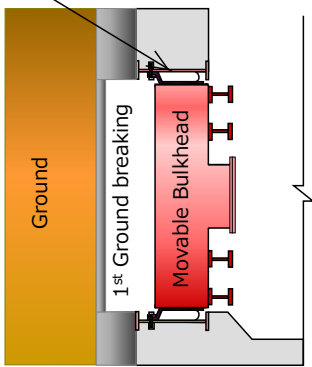
A safe arrival method when TBM directly cuts the arrival wall and enters into the shaft.

1. Movable Bulkhead; Protect arrival seal from debris and prevent scratched damages by TBM cutter / pre-cutter bit.
2. Tube sealing system; Ensure a high sealing performance.



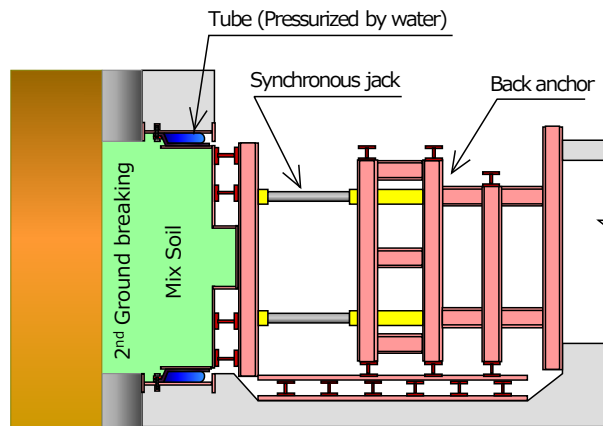
STEP-1

Pressurized tube type of seal equipment (RIPP-B)



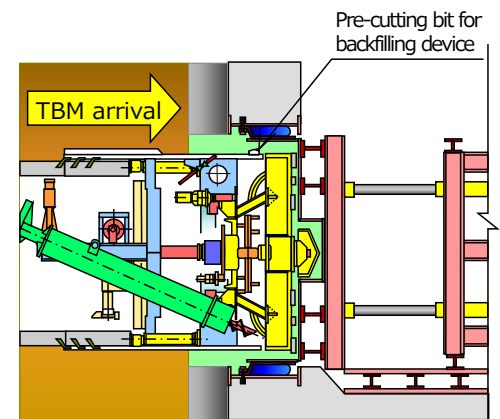
- 1) 1st ground breaking
- 2) Installing seal (RIPP-B)
- 3) Installing movable bulkhead

STEP-2



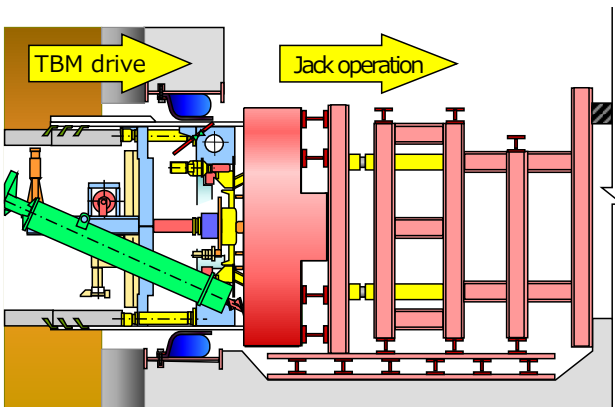
- 4) Installing back anchor and synchronous jack
- 5) Pressurizing tube to seal bulkhead
- 6) 2nd ground breaking and filling mix soil

STEP-3



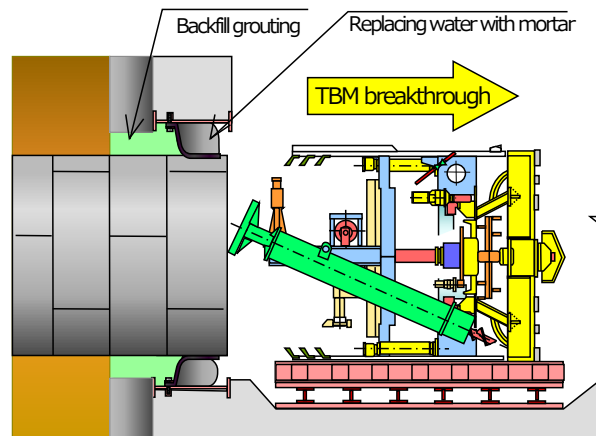
- 7) TBM arrival
i.e. Pre-cutting bit enters into bulkhead
※1st and 2nd ground breaking are not necessary in case of GFRP wall method

STEP-4



- 8) Operate synchronous jack and TBM drive
- 9) Re-pressurizing tube to seal TBM

STEP-5



- 1 0) Dismantling back anchor, synchronous jack and bulkhead
- 1 1) TBM drive into arrival shaft
- 1 2) Fill the backfill grouting and replace water in the tube with mortar

Photo collection



Installing movable bulkhead and back anchor



Situation of pre-cutting bit just after bulkhead had dismantled



Completion of TBM arriving



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