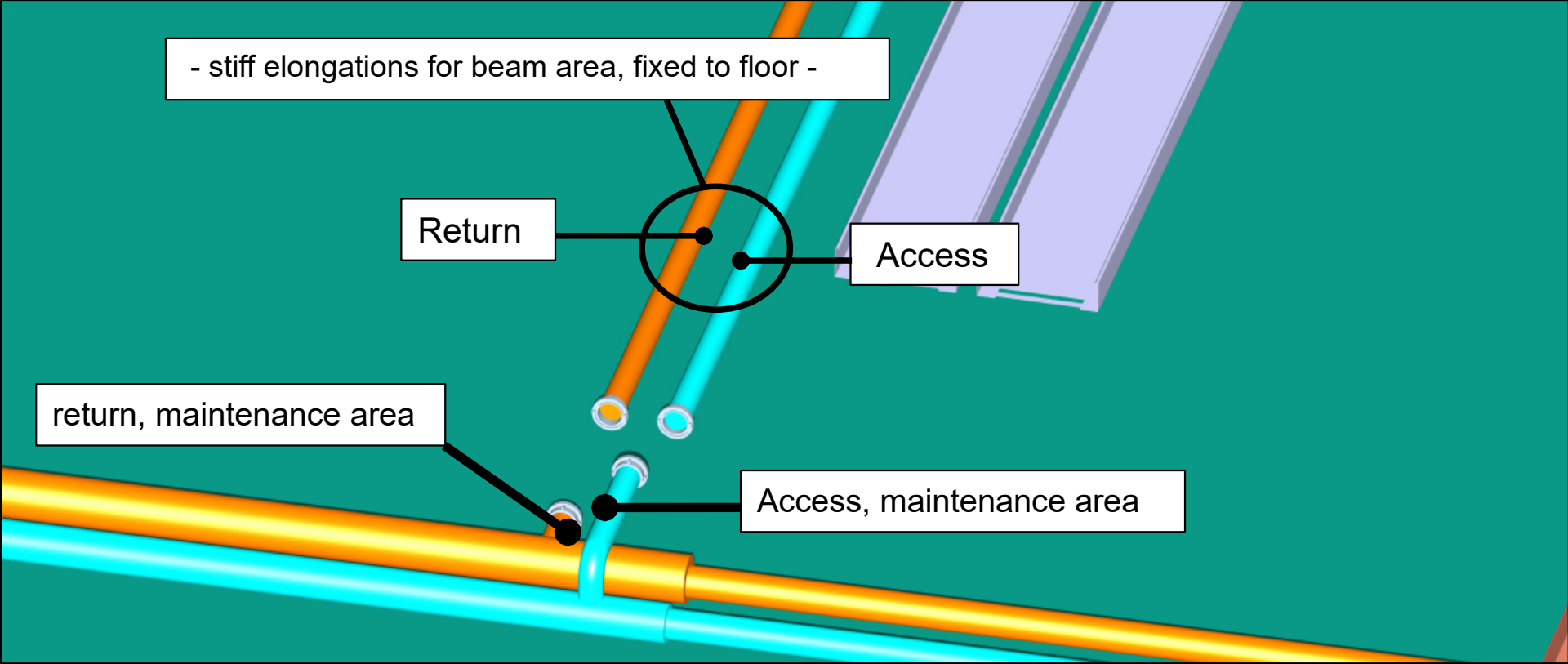


Changes of the leakless rooting system - Replacement of cooling hoses outside Chains -

Topic

Replacement of cooling hoses from drag chains due to geometrical boundaries

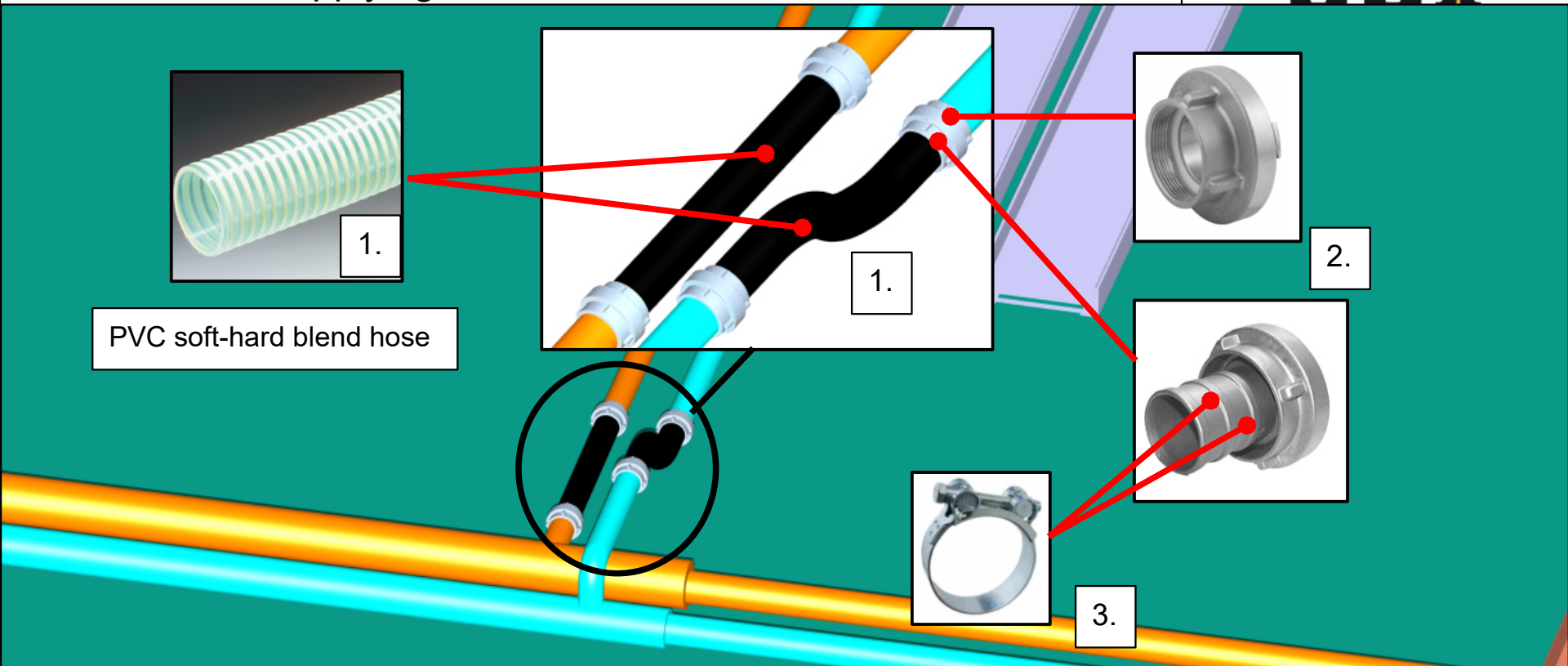
4. Replacement of hoses with stainless steel pipes



Idea:

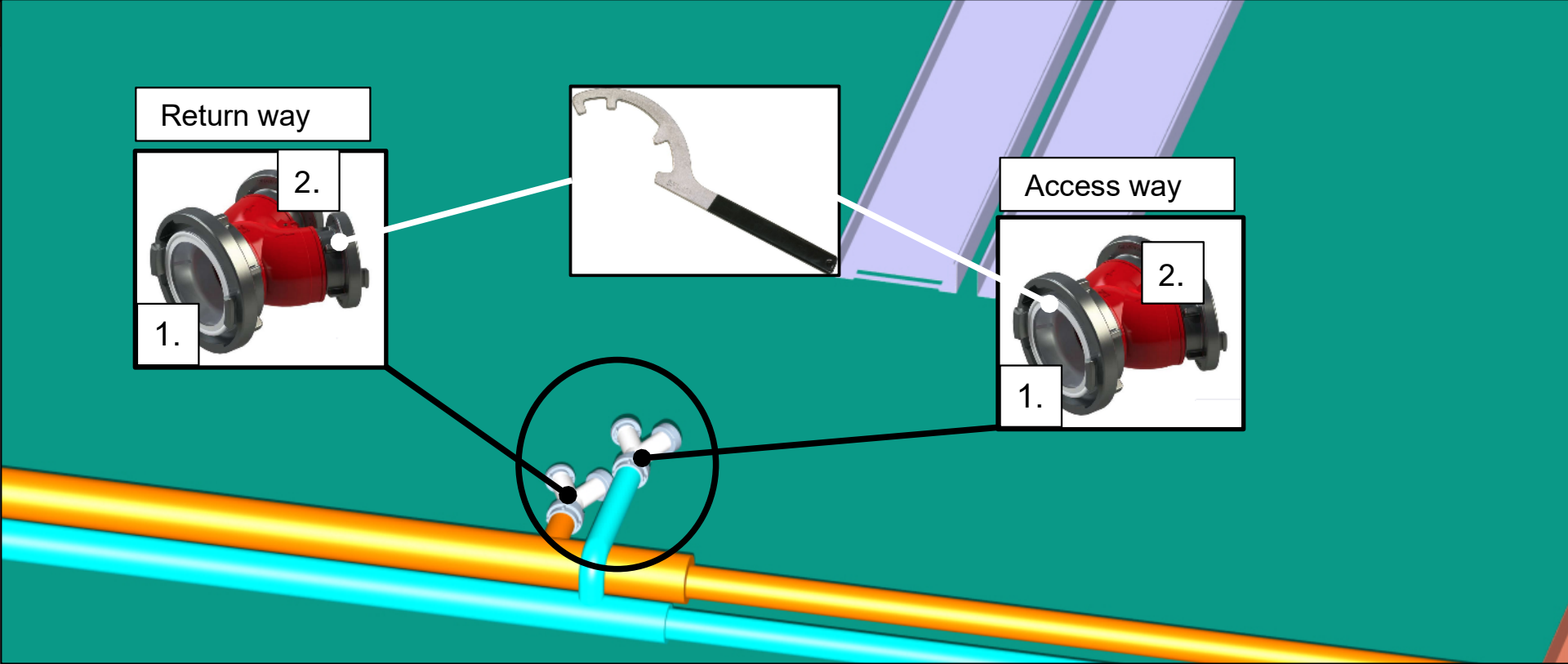
- hose lengths in dragchains to be replaced by fixed elongations outside chains (attached to floor)
- Elongations serve as main access route to Beam Area.

5. Main hoses supplying water to Beam area



1. Hose interconnections bring water to beam position (PCV hose allowing for pumping and suction operation) (→ suction up to 100mBar absolute) suits GSI radiation hardness requirements
2. Connection with *STORZ* couplings (easy locking/unlocking, standard usage by fire departments)
3. Fixing with bolted hand action clamps (easy to attach and replace)

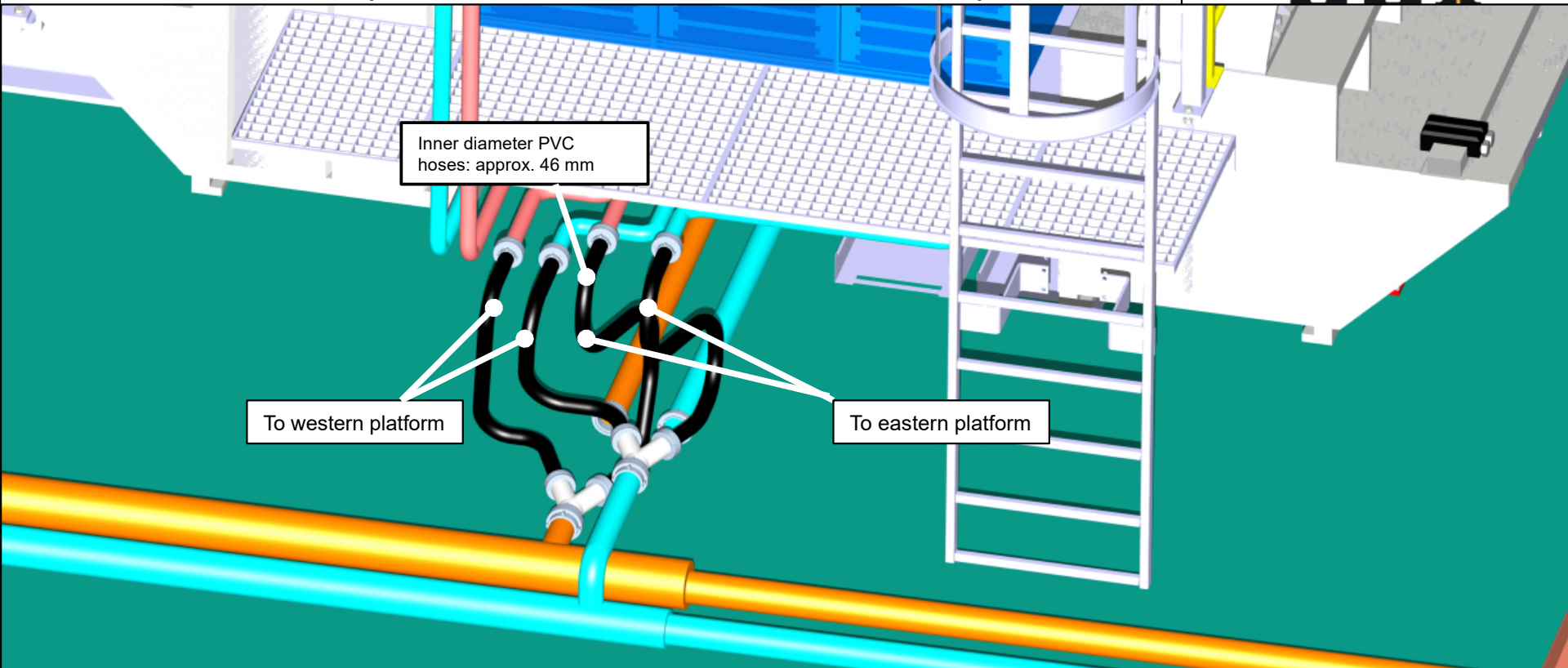
6. Siamese coupling provides for water in maintenance area



- 1. Main water supply for maintenance position with siamese coupling
- 2. small Storz outlets for bidirectional access (East & west platforms)

Torque applied with carved spanner (due to very tight seal)

7. short access hoses provide for water for eastern & western platforms



Access hoses completely left outside dragchains → short length

- inner diameter of hose approx. 46 mm; (→ need to check if size meets later cooling needs)
- allows for swift interaction if failure occurs along the hoses
- PVC hard-soft hose allows for smaller bending diameter (up to 250 mm)

Points to clarify / summary

Downsides:

- STORZ Couplings offer small variety of sizes (Need for fitting PANDA cooling needs)
- Cable tray needed for fixing lines to the floor → no movements in east - west Direction possible
→ Interconnection hoses mustn't break

Need for measuring extention and retraction rates of PVC hard-soft blend under load

- for the vacuum 500mBar section
- for the overpressure section

Advantages:

- A low cost solution if PVC (hard-soft) blended hoses prove to work out fine
- leaves plenty of space for other media lines inside dragchains

-

Thank you for your attention