

## Repair of piping systems

### The following equipment must be brought to the competition:

- Safety shoes (S3)
- Personal protective equipment (work clothing)
- Safety goggles (for sawing work)
- Work gloves, leather gloves or rubber gloves

Gloves with holes or without fingers are not permitted!

### Task description

During construction work, a sewage pipe has been damaged. Colleagues have already cut out the defective section of the pipe. You are tasked with replacing the defective section of pipe. Once the construction work is complete, the pipe must be tested for leaks using air pressure.

The team has 5 minutes to prepare.

The team captain may interrupt the preparation time at any time in the event of disruptions by lodging an objection with the chief referee. In the event of an objection, all activities by the team must be stopped immediately. The preparation time will be interrupted until the disruption has been remedied and the preparation time is restarted by the team captain's command.

The team captain gives the start and stop command. The time is measured with two independent stopwatches. The team captain may interrupt the competition at any time in the event of disruptions by lodging an objection with the head referee. In this case, one of the stop-watches is stopped while the other continues to run. After the disruption has been resolved and the team captain has given the restart command, the second stopwatch is restarted.

### Preparation time

The team is allowed to check all equipment for five minutes. The parts may not be installed during the preparation time. All equipment and tools must be within the marked area at the end of the preparation time.

The following activities are permitted:

- Checking and sorting tools
- Preparing the repair couplings (adjusting the hose clamps)
- Measuring the "wet" pipe (missing section)
- Checking whether the pipe is firmly seated in the brackets
- Switching on the test case
- Checking the test seals
- Check the bubbles for DN200

### Contents of tool box

- 2 flexible pipe couplings with 4 hose clamps
- 1x saw
- Deburrer
- Open-end spanner set
- 1x adjustable spanner
- Folding rule and marker

Also provided:

Leak test device Pipe test 4 for air pressure testing from MesSen Nord.

Before the end of the preparation time, all team members must proceed to the designated starting area.

The tools must also be placed in the designated area.

The examiners will not answer any questions during the preparation period; these can be asked before the start of the competition.

## Execution

### Part 1

1. The team members start the competition behind the starting line.
2. The team captain gives the command "Start" to begin the competition.
3. One team member prepares the markings on the dry pipe.
4. A section is separated from the dry pipe.
5. The "wet" pipe is repaired with the section of the dry pipe.  
using the flexible repair couplings.

When all tasks have been completed, the team moves behind the starting line. At this point, the time is stopped. The command "Time stop" must be given by the team captain. Until then, the measuring equipment may be set up!

### Part 2

The second part of the task, the leak test, focuses on the quality of the work to be carried out and the inspection of the work from part 1.

6. A bubble is now introduced into the pipe from container 1 and filled with a compressor (1.5 bar).
7. Another bubble is placed in the pipeline from container 2 and also filled. (1.5 bar)
8. Enter the parameters into the test programme and start the test.
9. Air pressure (100 mbar) is now fed into the area to be tested via the test connection.
10. After a successful test, the test pressure is released.
11. The bubbles in both shafts are removed.
12. Tools and bubbles are returned to their designated areas.
13. All team members return to the starting position.
14. The team captain gives the command "Stop" to end the competition.

### Notes on evaluating the task

The execution time for part 1 and the quality of the work in both parts of the task are evaluated.