

2020

INSTITUTE OF WATER

NATIONAL DRILLING & TAPPING CHAMPIONSHIPS

RULES & SAFETY REQUIREMENTS

1 INTRODUCTION

All teams participating in the Championships must be fully aware of the competition rules and safety requirements. All participants will confirm that they have read the rules of the competition and meet and will comply with the minimum standards of competence/training and health and safety requirements in undertaking the various tasks to complete in the National Drilling and Tapping Championships. This confirmation will be by way of a signed declaration during teams registration.

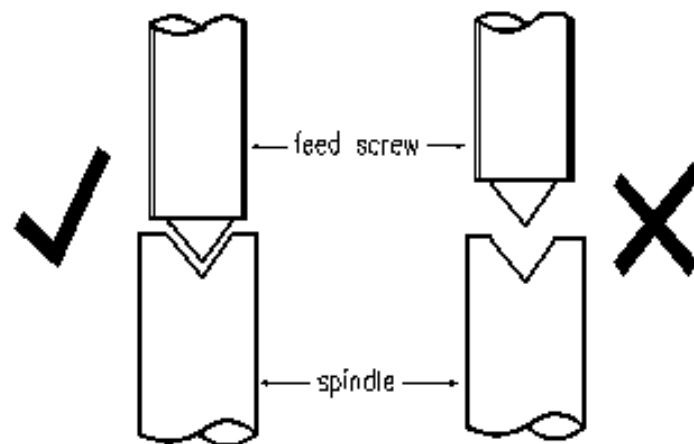
- 1.1 The object of the Championships is to complete the task of a simulated house connection in the highway by drilling and tapping a 150mm diameter ductile iron main under pressure together with the installation of a service connection in the shortest possible time. Quality of workmanship and the compliance with safety procedures will be paramount. Time penalty points will be added to each team's finishing time in respect of any defect or infringement observed in any area of the competition's rules.
- 1.2 The Championships will consist of a series of qualifying rounds from which the top six teams will automatically qualify for the 'Final Round' on the second day of the competition.
- 1.3 The tapping team shall consist of two persons. The membership of each team must be direct employees of a Water Company/Regional Authority or Contractor.
- 1.4 Each Water Company/Regional Authority or Contractor will be able to enter more than one team.
- 1.5 International teams may be entered into these Championships, if there is room to accommodate them. As this is a National competition, any international team finishing in first place will automatically be relegated to second position.
- 1.6 Each round of the Championships including the final will consist of two runs with the best time being used as the recorded run time. There will be a limit of ten minutes for each round of the Championships. If a team has not completed their run within the 10 minutes allowed the senior judge will call stop and the rig will be assessed at that point of completion.
- 1.7 Two runs will be allowed in the finals, new drill bits will be supplied for each team's first run in the finals with the drill bit being re-used for the second run
- 1.8 All teams MUST register at the Drilling & Tapping stand at least 30 minutes before their allocated starting time. Failure to do so may result in a one-minute penalty. Teams should make allowance for traffic delays throughout their journey as there will be no opportunity to re-schedule starting times on the day of the competition.
- 1.9 ONLY participating teams will be allowed within the competition area with their allocated time period throughout the two days of the Championships i.e. no other representative of the Water Company/Regional Authority or Contractor will be permitted access to the competition area during the two days. Any contravention of this Regulation will result in an automatic one-minute penalty to the team.
- 1.10 The Championships will take place at IWEX or other such Exhibition each year.

2. **GENERAL**

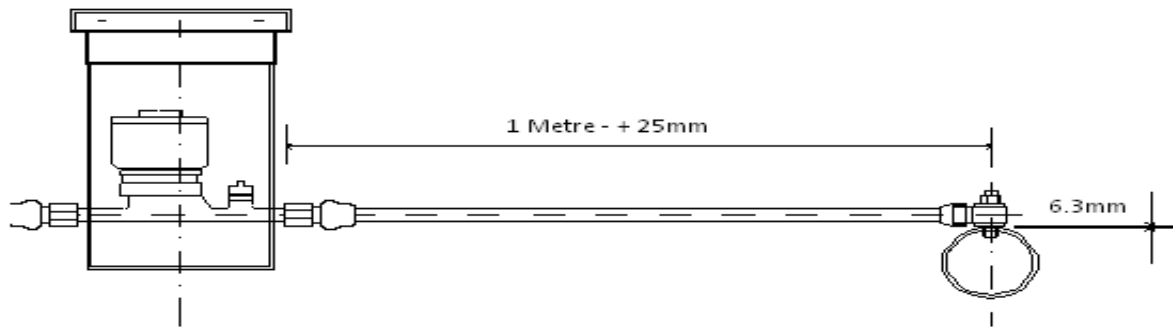
- 2.0 Each new team will be allowed a coach into the arena for the first round only.
- 2.1 The pipe to be drilled and tapped will be a 150mm ductile iron pipe, cement lined, capped each end and pressurised to a pressure of 50-70 psi where achievable, by means of suitable connection to a mains water supply.
- 2.2 The pipe will be securely fastened to the support blocks at a height of 20"/22" to the top of the pipe above the surrounding floor area. Support blocks will be of adequate construction to secure the pipe as firmly as possible as permitted within the exhibition area.
- 2.3 The tapping machine shall be the Hy-Ram No.1 machine or similar and will be provided complete with tools including drill bits for each team.
- 2.4 Each team should be fully conversant with the type of fittings, tools and machinery to be used: any advice on jointing, tool or machinery use should be obtained from the manufacturer or the web site www.drillingandtapping.co.uk.
- 2.5 Each team will be provided with a bag of fittings for each run. On completion of each run the drill bit will be removed from the machine and placed in a sealed bag labelled with the teams' name in readiness for their second run
- 2.6 The teams second run will take place on the rig that was not used for the first run
- 2.7 Please note: Only 1 drill bit will be supplied for the two runs. However, if there is a drill bit failure (i.e. Broken) on the first run another drill bit will be supplied to complete the second run if that failure is not deemed to be through malicious use
- 2.8 Each team will be allowed eight minutes to set up, inspect and to satisfy themselves as to the suitability of the equipment supplied. Any problems notified will be resolved at the discretion of the judges. The team will be advised when two minutes of set up time remains, exceeding the eight-minute time limit, will result in a 30 second time penalty.
Please note: This time includes putting on any 'Personal Protective Equipment'
- 2.9 All joints should be watertight and made in accordance with the manufacturers' recommendations. When a wrench is specified for tightening by the manufacturer it must be used otherwise a penalty will be incurred. Where a pipe liner forms part of a fitting, the correct liner must be inserted into the pipe prior to inserting the pipe into the fitting.

2.9a Please note: The correct liners must be used for the correct manufacture's fittings, failure to do so will result in 30second penalty for each liner incorrectly fitted.
- 2.10 Prior to the start, all equipment, tools and materials must be positioned on the floor by the team. Team members may stand or kneel on the floor but shall not be touching any piece of equipment or tools.
- 2.11 The tapping machine may be inspected, cleaned and lubricated as necessary by the team prior to the start. The drill bit will be chosen by the team from a ready supply of bits provided and this will be assembled in the tapping machine by one of the judges or a representative of the manufacturer. In the event of any equipment being unsatisfactory, it must be drawn to the attention of the judges at this time.
- 2.12 The saddle, leather and felt may be touching but must all be in contact with the ground. Chain lugs and nuts may be in the yoke or on the floor. The chain must be on the floor and not hooked to the chain lugs before the start. The ratchet spanner must not be attached to the chain nut.
- 2.13 The box lid is placed on the floor with the rubber seal placed on top and with the locking key placed in the middle.
- 2.14 The pipe cutters must not be in contact with the pipe prior to commencement.

- 2.15 The drilling machine must be securely located on the main before drilling commences. If the machine becomes loosed during the drilling and tapping process it may be tightened up without a penalty being incurred.
- 2.16 The ratchet spanner supplied with the tapping machine must be used to insert both the drill and the ferrule. The spanner cannot be attached to the drilling machine prior to commencement.



- 2.17 The feed screw must be used during both phases of the drilling and tapping as recommended by the manufacturer. The feed screw must be engaged in the drilling spindle or the ferrule spindle whilst operating the ratchet drive. If the feed screw becomes disengaged over the spindle and is not corrected before ratcheting commences then a penalty will be incurred. The locking pin must be securely fitted during drilling/tapping and ferrule insertion operations. The piston spanner must be used for turning the piston with its lugs securely located in the pistons lug locating holes while rotating between drilling/tapping and ferrule insertion positions. The machine must not be released whilst the ferrule is being inserted into the main. Failure to follow these procedures will be considered to be a safety violation and the team shall be penalised accordingly. However, it is not considered necessary for contestants to use the bleed screw.
- 2.18 Please note: Even when ratcheting has finished and the drill spindle is still rising, it must be located at all times on the feed screw, or a penalty will be incurred.
- 2.19 The communication pipe must be connected to the ferrule and the base unit before the ferrule is turned on.
- 2.20 Final tightening of the ferrule may take place once the drilling machine has been removed to ensure that the ferrule is securely inserted into the pipe with no more than 6.3mm (0.25") of thread exposed when the tap is complete. The judges' decision on this matter will be final.
- 2.21 The boundary box cover will be closed, and gloves must be worn when coming into contact with the cover when opening or closing. Once the cover is closed, access to the meter or control tap can only be gained by raising the lid. The frame **MUST NOT** be removed. Gloves must be worn throughout this operation. Failure to do so will incur penalties.
- 2.22 The length of the communication pipe shall be 1 metre \pm 25mm measured from the centre of the main to the back edge of the meter box inlet fitting.



- 2.22 Any kinking of the communication pipe during assembly will incur a penalty.
- 2.23 Apart from the bib tap and bush which contestants have the option to tighten by hand all threaded fittings, compression nuts and ferrule cap nut included must be tightened with a wrench.
- 2.25 The pipe work at the elbow and the bib tap itself must be aligned correctly to form a right angle. An allowance of $\pm 5^\circ$ will be permitted.
- 2.26 The meter will be supplied with both sealing rings and protective cap fitted.
- 2.27 There is no such thing as equipment failure! BEWARE! This is a contest of quality, skill and dexterity as well as speed.
- 2.28 All equipment utilised in the Institute of Water National Drilling & Tapping Championships will be new or serviced to as new condition.
- 2.29 All tools, equipment and other supplies provided for the Championships, which are broken by the team, will be considered to be damaged by their neglect and there will be no opportunity for a second attempt.
- 2.30 Malicious treatment of the equipment will also be considered as a safety violation, depending on the circumstances, and the judges' decision will be final.
- 2.31 The timing for the event shall begin at the referee's signal and shall finish when water discharges from the bib tap. This will signify the end of the exercise and any part not completed at this stage will be penalised in accordance with the penalties in section 4.4. At that time, the senior judge shall shout "STOP" and both team members will back out of the immediate work area to a designated zone to permit the judges to evaluate the work. Preventing water flow from the bib tap outlet with anything apart from the action of turning on the tap will incur a penalty
- 2.32 The competition area will be suitably tiled to present a uniform footing for all contestants. Arrangements will be made to eliminate any water spilled during each phase of the Championships, should it be necessary, so as to provide the best possible working conditions for each team.
- 2.33 The area of the contest shall be large enough to accommodate the working team and the judges. A minimum of one metre clear space shall be provided between the working area and the spectators to ensure safety from accidental dropping of any tools or materials.

3. JUDGING

- 3.1 The judging of each event shall consist of three persons – a senior judge and two assistant judges who have had experience in supervising tapping procedures in the field. There will also be a referee in overall charge of the event and, after consulting with the senior judge on any infringement of the Rules, shall make a ruling as required by the circumstances for any penalties.
- 3.2 The judges shall be responsible for timing the events, with the referee being the one to announce the START of each round of the Championships. Timing will be to the nearest 1/100th of a second and the average time of the three recordings will be the official result of each attempt. In the event of there being a tie, the team with the least number of penalty points will be declared the winners.
- 3.3 The judges shall see that all tools, materials and team members are in the required positions prior to starting the event. The judges shall also ensure the work area is free from standing water for each event.
- 3.4 The judges will watch for safety violations during the actual events and assess appropriate penalty times as required. During the time of the contest not taken up by actual tapping events, the judges shall see that all preparations for the events are accomplished in a safe manner.
- 3.5 Squirting/Continuous leaking connections spraying water on any other connection of the service line shall be covered appropriately with a towel or something to divert the water away from another connection. If this process is not sufficient to judge the next joint properly, the connection may be tightened by the judges at the referee's discretion so that other leaking joints will not be obscured by this active leak.
- 3.6 Any joint can be stripped down to check the correct inserts have been fitted, if a judge sees fit. The two team members are to assist the judges in the examination if necessary.
- 3.7 In the event of a major leak occurring during the Championships which affects other competitors, the judges will, at their discretion, turn off or reduce the water supply to that specific rig.
- 3.8 This contest will be officiated by very competent officials and human judgement must enter into the contest at various times during the event, all officials will be striving for fairness in their judgement in order that all teams are judged as equally as possible. FAIR AND EQUAL TREATMENT OF EACH AND EVERY TEAM is the aim of these Championships. There is no intention to provide any team with an advantage over any other team.

4. PENALTIES

- 4.1 Various penalties will be assessed by the judges for any infringement of the Rules & Regulations as described herein or for any blatant violation of normal safety procedures.
- 4.2 The penalties will be in the form of a predetermined number of seconds added to the total time of each team's time for the event. This corrected time will be the OFFICIAL TIME for the team.
- 4.3 Teams without proper personal safety apparel, as described in the Safety section, will not be allowed compete in the Championships.
- 4.4 Penalties shall be added for each violation or defect observed as follows:
- A. All leaks will be assessed at +30 seconds
 - B. Failure to make joints correctly +30 seconds
 - C. More than 6.3mm thread showing on inserted ferrule +30 seconds
 - D. Incomplete element +30 seconds
 - E. Safety infringement +30 seconds
 - F. Failure to comply with Regulation 1.9 +60 seconds
 - G. Failure to comply with Regulation 1.10 +60 seconds
 - H. Failure to comply with the time limit in Regulation 2.8 +30 seconds
 - I. Kink in the communication pipe +30 seconds
 - J. Bib tap not being in a vertical position $\pm 5\%$ +30 seconds
 - K. Pipework alignment at elbow not within $\pm 5\%$ +30 seconds
 - L. Procedural violation by anyone involved with the team +30 seconds
- 4.5 **BEWARE!** This is 'catch-all' for actions of anyone involved with the team who may not be covered in these Rules specifically but are of sufficient problem to the referee or the judges as to warrant a penalty.
- 4.6 If the ferrule blows out of the pipe, or any connection blows apart after the finishing time, but before the 10 second leak check, the team will be disqualified.
- 4.7 Should there be any disagreement with penalty decisions; the referee's decision will be final.
- 4.8 Judges while inspecting all joints will firstly dry the joint concerned and inspect for any leakage for a maximum of 10 seconds. If no leakage is observed within this period, the joint will be declared dry. Should any leakage be observed penalty points will be added accordingly.
- 4.9 There will be no reversing of any decision after the referee has made a final determination of any infringement in these Rules.

5. SAFETY

- 5.1 Normal water utility safety practices are to be observed at all time during the Championships
- 5.2 All competitors/team and or parties connected to that team entering the competition arena, do so at their own risk
- 5.3 Each team will provide their own safety equipment, and this shall be as follows:
- 5.4 Head protection for each team member shall be worn throughout the event. The protection shall as a minimum be in accordance with European Standard: EN812 (bump hats) which must be in date, logos can be attached to the outer cosmetic covering by non-metallic means only. If hard hats to EN397 are used any logos applied must not lessen the safety rating below bump hat standard EN812
- 5.5 Eye protection (glasses or goggles) are required to be worn by all team members during the event. Eye protection must as a minimum be in be in accordance with EN166
- 5.6 Hand protection must be worn as specified in the rules and 5.7 below. Each team, men and women, are to supply their own gloves which must be to a minimum standard of EN388 with or above abrasion resistance 1, cut resistance 2, tear resistance 1 and puncture resistance 2. Teams should also consider the need for gloves slip resistance when in contact with water
- 5.7 Safety gloves **MUST** be worn by any member using or assisting with the drilling machine. This includes when items are being attached or inserted into or onto the machine. Gloves will not be required to be worn when connecting up the pipe work. However, they must be worn for any operation on the stop tap cover
- 5.8 Foot protection must be worn by all team members and as a minimum shall be in accordance with EN ISO 20345-2011 SR1 SRA. Rigger or wellington boots are not deemed acceptable.
- 5.9 Single- or two-piece field operative working clothing, which includes jeans and polo shirts, but does not include HI-Visibility clothing, must be worn by teams during the Championships. Shorts or leggings are not acceptable.

6. **EQUIPMENT AND MATERIALS** (To be provided by the Sponsors)

- 150mm ductile iron (Natural) pipe.
- A Hy-Ram drilling and tapping machine **complete with drill bit**.
- 25mm ferrule with a 'Halwe' 25mm push fit joint.
- Ebco Barrier box.
- Elster V210p Polymer meter.
- Philmac 3G 25mm wall plate elbow with back plate secured firmly to the movable stand.
- Philmac 3G Poly FI Elbow 25mm
- Philmac 3G Poly MI Connector 25mm
- Philmac 20mm bib tap with double check valve male iron.
- Tyco 25mm-20mm BSP reducing bush.
- 2 No. Ebco 25mm poly male iron fittings.
- 2 metres 25mm MDPE pipe.
- 1 No. meter manifold cap spanner.
- 1 No. meter locating spanner.
- 2 No. MDPE pipe cutters.
- 1 Wire brush
- 1 No. 0.5" drive ratchet spanner with 26mm socket.
- 2 No. 9" footprint wrenches.
- 1 No. 10' tape measures.
- 2 No. rolls PTFE tape.
- 1 No. ferrule gauge 6.3mm (0.25").
- Can of potable spray **lubricant** (Sarco Stopper)

**NOTE: NO OTHER TOOLS, OIL, GREASE OR GAUGES WILL BE PERMITTED.
For details of Tools and Oil Suppliers visit www.drillingandtapping.co.uk**