## Drilling and Tapping Metal Pins

- Have all relevant permits issued and On-Site Risk Assessment been carried out?

1. Use chlorine solution to clean main at designated drilling position.
2. Place felt pad on main designated drilling position.
3. Place leather pad on tap of felt pad.
4. Select correct saddle for size of main to be tapped.
5. Place rubber saddle ring in recess in saddle.
6. Place required drill tap into drill spindle to fasten drill tap.
7. Insert and tighten 'grub screw' into drill spindle to fasten drill tap.
8. Screw ferrule into ferrule spindle – note: the ferrule adaptor is required for 1" ferrules – ensuring that it is tightly screwed down.
9. Apply PTFE tape to the taper thread.
10. Lubricate both drill and ferrule spindles and insert into machines as far as shoulder on spindles.
11. Place machine on saddle with chain lugs at right angles with the main.
12. Assemble chain into lugs, with chain around main and tighten by hand.
13. Tighten lugs with spanner until machine is firmly secured on main.
14. Position drill Spindle directly below feed screw.
15. Fit ratchet brace on drill Spindle and place feed screw and bridle directly above drill spindle.
16. Rotate feed screw clockwise until drill tap is touching main.
17. To begin drilling and tapping, rotate drill spindle clockwise using ratchet brace, slowly turning feed screw, without applying excess pressure.
18. Tapping is completed when a marked increase in resistance is experienced – the drill tap has now reached its shoulder.
19. Reverse ratchet brace and remove drill spindle by unscrewing from the main – at the same time slowly raise feed screw – note: it is essential that feed screw controls removal of drill spindle because when drill tap is released from main there is an upward pressure from drill spindle.
20. Remove stop pin from side of machine.
21. Disengage feed screw from drill spindle and rotate piston through 180°, utilising piston spanner, until marks on machine and piston are in line – ferrule spindle is now in line with tapped hole.
22. Replace stop pin.

23. Place ratchet brace on ferrule spindle and engage feed screw and bridle.
24. Turn ferrule spindle clockwise – screwing ferrule stem into tapped hole, maintaining gentle pressure with feed screw.
25. When ferrule is tight in main, slowly release chain to allow water to escape.
26. Release chain completely and remove machine from main, whilst leaving ferrule spindle on ferrule.
27. Check for tightness of ferrule in main and remove ferrule spindle.
28. Assemble ferrule and continue with service connection.

**Water Company specific requirements should be adhered to at all times. Refer to your Team Information Pack & ensure that all of the required information is confirmed on every track-sheet upon completion of a service connection.**

**If there are any health, safety or environmental incidents, please contact your supervisor immediately**

**OUT OF HOURS INCIDENTS MUST BE REPORTED TO YOUR SUPERVISOR**