204: Installation of wiring systems and enclosures  
**Worksheet 3-020: Two bend steel conduit**

**NB**: Students must not attempt this exercise before the correct use of all tools and materials has been demonstrated.

**Technical data**

* All damaged and marked surfaces must be restored to a sound condition on completion.
* In order to carry out this exercise, specialist tools are required.
* Conduit threads must be reamed before removing the dies and all swarf needs to be removed from inside the conduit to prevent cable damage.
* You are to make sure that all your work conforms to the requirements of the Health and Safety at Work Act.
* Half the students must do this exercise as shown in the diagram; the remainder must do the same exercise ‘**reversed**’. Consult the Lecturer to find out which way your conduit should be bent.

**Material required**

|  |  |
| --- | --- |
| 1 off | Heavy gauge black enamelled steel conduit 20mm diameter x 1,200mm long |

**Procedure**

1. Enter the start time on the assessment sheet.
2. Prepare the material requisition.
3. **Have the requisition checked before proceeding.**
4. Obtain the material from the stores.
5. Make a pencil mark 300mm from one end of the conduit obtained from the stores.
6. Place the measured end of the conduit in the former of the conduit-bending machine with the marked point in line with the outside edge of the former.
7. Ensure that the conduit stays in this position and form a bend in the conduit at 90° to the starting position.
8. Check bend angle and adjust if necessary.
9. **Have worked checked before proceeding.**
10. Mark position for the second bend 350mm from the back of the first bend.
11. Place the conduit into the former of the conduit-bending machine, with the marked point in line with the outside edge of the former, making sure that the first bend is facing in the correct direction.
12. Ensure that the conduit stays in this position and form the second bend in the conduit at 90° to the starting position and in line with the first bend.
13. Check bend angle and adjust if necessary.
14. Ensure that each end is the correct length and thread with stocks and dies to normal thread length.
15. **Hand the work to the Lecturer for marking and assessment.**
16. Enter the finish time on the assessment sheet.

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| --- |
| Exercise 03-020 Two Bend Steel Conduit.png |

Assessments are based on **observed** safety procedures, and the **quality** and **accuracy** of the completed exercise.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | **YES** | **NO** |
| **1.** | Material requisition correct first time | | **□** | **□** |
| **2.** | Method statement completed | | **□** | **□** |
| Assessed by: ………....………….. | | |  | |
| **3.** | Formed right angle 90° – bend one | | **□** | **□** |
| **4.** | Overall dimension of bend one correct | | **□** | **□** |
| **5.** | Conduit end cut square | | **□** | **□** |
| Assessed by: ………....………….. | | |  | |
| **6.** | Used only the given length of conduit | | **□** | **□** |
| **7.** | Formed right angle 90° – bend two | | **□** | **□** |
| **8.** | Overall length dimension of bend two correct (± 5mm) | | **□** | **□** |
| **9.** | Dimension of bend one to bend two correct (± 5mm) | | **□** | **□** |
| **10.** | Conduit end two cut square | | **□** | **□** |
| **11.** | Ends threaded square and correct length (± 2mm) | | **□** | **□** |
| **12.** | Burrs, sharp edges and vice marks removed | | **□** | **□** |
| **13.** | The work area conformed to the Health & Safety at Work Act | | **□** | **□** |
| **14.** | Correct safety procedures observed at all times | | **□** | **□** |
| **15.** | Overall appearance to a commercially acceptable standard | | **□** | **□** |
| Assessed by: ………....………….. | | |  | |
| Start Date & Time: ………………........………….. | | Finish Date & Time: ……...…...........…………… | | |
| Target Time: 90 minutes | | Time Taken: …………………….........…………… | | |