



**BROTHER'S**  
SPECIALIZED COATING SYSTEMS LTD.

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## Design Requirements for Internally Coated Pipe

**This information is provided only as a general guideline.** In some cases piping configurations that do not meet these requirements may be designed as a necessity. If in doubt of the suitability of particular configurations for internal coating, please contact Brother's Specialized Coating Systems Ltd. at (780) 440-2855, fax us a drawing with dimensions to (780) 440-1050, or email us at [sales@brotherscoating.com](mailto:sales@brotherscoating.com).

### **1. Welds**

Brother's requires that weld areas be smooth and free of all defects in accordance with NACE SPO178-2007, Appendix C, Grade C specification. All piping with an internal diameter of less than 2.0"Ø (ie: schedule 80, XS, schedule 160) shall be ground flush to allow for proper access of sandblasting, coating and inspection equipment. Olets should have full penetration at the olet-to-pipe interface. There shall be no pinholes, skips, splatter, undercut, mig wires, high or sharp areas. Welds not meeting these criteria usually require grinding to allow for blast cleaning to acceptable grade of cleanliness and to obtain a holiday-free coating. Epoxy grouts can be used to fix defective areas such as pinholes, undercuts and skips, however this is not nearly as desirable as good welding. MIG or TIG roots are preferred. Stick welds are acceptable provided they are within the prescribed guidelines. If welds are not, it is recommended they be ground to within acceptable parameters as assembly progresses. We recommend this be achieved by the use of die grinders fitted with suitable abrasive stones, flapper wheels, burr bits, and/or extensions as required. Not all weld defects may be visible prior to abrasive blasting. For an hourly fee, Brother's can perform grinding as required in spooling 2" I.D. and larger on most welds within 6' of an access. This will result in additional turn-around time on the project. Socket fit welds *are not* acceptable unless the I.D. at the socket has been fully seal welded and ground flush.

### **2. Lengths**

Brother's recommends spooled piping may be internally coated in lengths of approximately 40' or double random lengths in 3"Ø and larger piping, up to approximately 20', or single random lengths for 2"-3" Ø piping, and up to 24" in 1"-1.5" I.D. Ø pipe and nipples. Lengths in excess of 20' shall be made from double random lengths to avoid inaccessible welds in the center of the spools or from single random lengths with welds no farther than 8' from flange face. Lengths of 2" Ø pipe in excess of 20' may be coated, however Brother's requires that customers contact us directly at 780-440-2855 for further discussion.

### 3. Elbows

Brother's recommends spooled piping with elbows should not have lengths in excess of approximately 3'-4' on 2"Ø and 6'-8' on 3"Ø and up to prevent washout of elbows during blast cleaning operations and for ease of access for inspection and equipment. There shall be no run length when rise length exceeds 10'. This is to allow for access to rise welds if required. Double elbows *are not acceptable*. **The basic rule of thumb is "line of sight" – if you can look in the pipe and see it, it can be coated.** If double elbows are a necessity, elbolets are required. Maximum pipe length between double elbows is 36" center to center. Elbolets must be a minimum of 1" for 2"Ø pipe and 1.5" for 3"Ø pipe and larger. This is to allow for proper access for blasting, coating, and inspection. Alternatives are to install break flanges between the two elbows **or** replace one elbow (90° elbows) with a tee and blind flange. Exceptions are large diameter pipe (6"+) welded fitting or with short pups of 12" length or less in 6"Ø and larger piping. If in doubt, please call Brother's at 780-440-2855

### 4. Tees

Brother's requires that teed piping *cannot* be designed with branch to branch to elbow alignments. These configurations must be treated the same as double elbow configurations and require the same accesses (i.e. olets, break flanges).

### 5. Radius

Brother's requires all edges and corners to be radiussed to a minimum 1/8" radius as per coating manufacturer's recommendation and NACE SPO178-2007 specification. This includes the I.D. to flange face edge and I.D. edges of olet cut-ins.

### 6. Pig Bars

Brother's recommends pig bars should be made of rounded stock and 100% seal welded to piping in a manner allowing access to all sides of the bars. Brother's requires that there shall be no bars along runs ending in elbows or tee branches unless accessible through an olet.

### 7. 1"Ø Piping

1"Ø piping schedule 40-80 is coatable in limited configurations, and Brother's requirements are that all welds must be ground or drilled flush. Please contact Brother's at 780-440-2855 for further requirements.