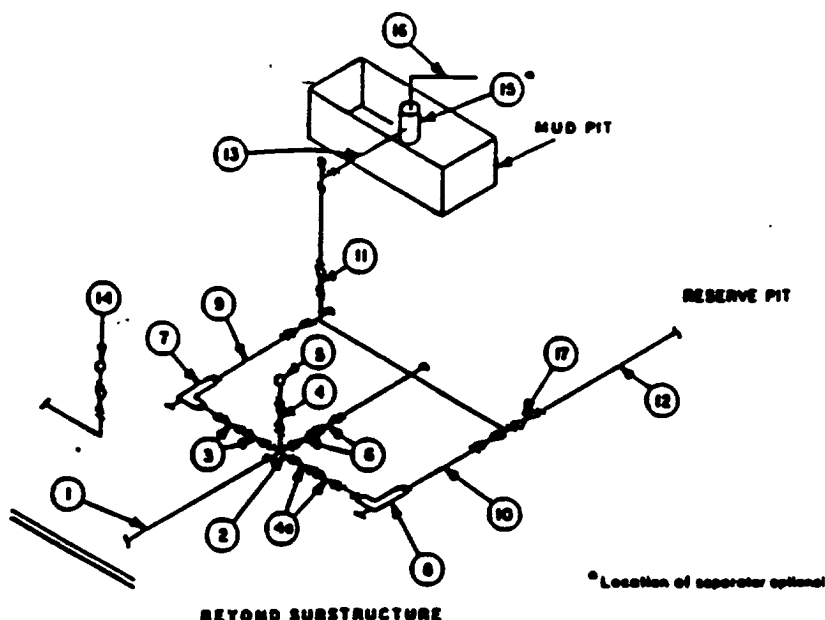


**MINIMUM CHOKE MANIFOLD**  
**3,000, 5,000 and 10,000 PSI Working Pressure**

**3 MWP - 5 MWP - 10 MWP**



| MINIMUM REQUIREMENTS |                                                  |           |         |        |           |         |        |            |         |        |
|----------------------|--------------------------------------------------|-----------|---------|--------|-----------|---------|--------|------------|---------|--------|
| No.                  |                                                  | 3,000 MWP |         |        | 5,000 MWP |         |        | 10,000 MWP |         |        |
|                      |                                                  | I.D.      | NOMINAL | RATING | I.D.      | NOMINAL | RATING | I.D.       | NOMINAL | RATING |
| 1                    | Line from drilling spool                         |           | 3"      | 3,000  |           | 3"      | 5,000  |            | 3"      | 10,000 |
| 2                    | Cross 3"x3"x2"                                   |           |         | 3,000  |           |         | 5,000  |            |         |        |
|                      | Cross 3"x3"x3"                                   |           |         |        |           |         |        |            |         | 10,000 |
| 3                    | Valves (1) Gate Plug (2)                         | 3-1/8"    |         | 3,000  | 3-1/8"    |         | 5,000  | 3-1/8"     |         | 10,000 |
| 4                    | Valve Gate Plug (2)                              | 1-13/16"  |         | 3,000  | 1-13/16"  |         | 5,000  | 1-13/16"   |         | 10,000 |
| 4a                   | Valves (1)                                       | 2-1/16"   |         | 3,000  | 2-1/16"   |         | 5,000  | 3-1/8"     |         | 10,000 |
| 5                    | Pressure Gauge                                   |           |         | 3,000  |           |         | 5,000  |            |         | 10,000 |
| 6                    | Valves Gate Plug (2)                             | 3-1/8"    |         | 3,000  | 3-1/8"    |         | 5,000  | 3-1/8"     |         | 10,000 |
| 7                    | Adjustable Choke(3)                              | 2"        |         | 3,000  | 2"        |         | 5,000  | 2"         |         | 10,000 |
| 8                    | Adjustable Choke                                 | 1"        |         | 3,000  | 1"        |         | 5,000  | 2"         |         | 10,000 |
| 9                    | Line                                             |           | 3"      | 3,000  |           | 3"      | 5,000  |            | 3"      | 10,000 |
| 10                   | Line                                             |           | 2"      | 3,000  |           | 2"      | 5,000  |            | 3"      | 10,000 |
| 11                   | Valves Gate Plug (2)                             | 3-1/8"    |         | 3,000  | 3-1/8"    |         | 5,000  | 3-1/8"     |         | 10,000 |
| 12                   | Lines                                            |           | 3"      | 1,000  |           | 3"      | 1,000  |            | 3"      | 2,800  |
| 13                   | Lines                                            |           | 3"      | 1,000  |           | 3"      | 1,000  |            | 3"      | 2,800  |
| 14                   | Remote reading compound standpipe pressure gauge |           |         | 3,000  |           |         | 5,000  |            |         | 10,000 |
| 15                   | Gas Separator                                    |           | 2'x5'   |        |           | 2'x5'   |        |            | 2'x5'   |        |
| 16                   | Line                                             |           | 4"      | 1,000  |           | 4"      | 1,000  |            | 4"      | 2,800  |
| 17                   | Valves Gate Plug (2)                             | 3-1/8"    |         | 3,000  | 3-1/8"    |         | 5,000  | 3-1/8"     |         | 10,000 |

(1) Only one required in Class 3M.

(2) Gate valves only shall be used for Class 10M.

(3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

**EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTIONS**

- All connections in choke manifold shall be welded, studded, flanged or Cameron clamp of comparable rating.
- All flanges shall be API 6B or 6BX and ring gaskets shall be API RX or BX. Use only BX for 10 MWP.
- All lines shall be securely anchored.
- Chokes shall be equipped with tungsten carbide seats and needles, and replacements shall be available.
- Choke manifold pressure and standpipe pressure gauges shall be available at the choke manifold to assist in regulating chokes. As an alternate with automatic chokes, a choke manifold pressure gauge shall be located on the rig floor in conjunction with the standpipe pressure gauge.
- Line from drilling spool to choke manifold should be as straight as possible. Lines downstream from chokes shall make turns by large bends or 90° bends using bull plugged tees.
- Discharge lines from chokes, choke bypass and from top of gas separator should vent as far as practical from the well.