RECOMMENDATION FOR INTERCHANGEABLE FLANGED DRILLING CHOKE DIMENSIONS

TECHNICAL REPORT TR0601

Association of Well Head Equipment Manufacturers
Post Office Box 1166
Bellaire, Texas 77401

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AWHEM

RECOMMENDATION FOR DRILLING CHOKE DIMENSIONS FOR FLANGED CHOKE BODIES HAVING INTEGRAL API SPEC 6A FLANGES

ISSUED BY:

ASSOCIATION OF WELL HEAD
EQUIPMENT MANUFACTURERS

POST OFFICE BOX 1166 · BELLAIRE, TEXAS 77401

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Foreword

AWHEM created a Task Group to establish standardized inlet to centerline and outlet to centerline dimensions for Flanged Drilling Chokes. The Task Group produced this document.

Members of the Task Group recognized that two popular designs for flanged Drilling Chokes exist, and interchangeability in dimensions between these designs does not exist. The chokes differ in trim design with dimensions accommodating the requirements of these trim designs. One trim design utilizes a rotating disc and seat plate, and the second a plug and seat. The rotating disc type produces a downstream fluid blast that requires carbide lining of the choke outlet bore to prevent erosion. This lining requires a determined length to minimize erosion. The long pattern configuration in this document provides the length necessary to accommodate this lining. The second popular trim design using a plug and seat can have more compact dimensions.

To reconcile the seeming difficulty in developing standardized dimensions for these two differing designs, the Task Group chose to offer short and long pattern options. This would immediately provide interchangeability between chokes of the same trim type, and with the addition of a standardized spacer flange, allow any user that had chosen to provide space for the long pattern, to substitute the short pattern by including a standardized spacer flange below the outlet.

AWHEM encourages equipment users and manufacturers to adopt the dimensions shown. AWHEM further asks users of this document to support its adoption by API Sub Committee 16 for inclusion in API Spec 16C.

1.0 GENERAL

This document contains dimensions submitted to AWHEM by member and non-member manufacturers of choke valves designated as Drilling Chokes.

1.1 SCOPE

This document includes only chokes designated by their manufacturer as suitable for drilling service. All chokes included shall have a 90° inlet to outlet configuration.

The chokes shall have API Spec 6A open face (thru-bolt) flange connections, having the same size and pressure inlet and outlet. Chokes having studded flange, clamp hub, threaded and other end connectors are beyond the scope of this document.

Chokes included may have manual or remotely powered operation to control the effective orifice opening.

1.2 PURPOSE

AWHEM intends this document to provide a source of information to users, designers, and manufacturers of Drilling Chokes. It includes two dimension tables (Long Pattern and Short Pattern) to accommodate the various designs of available equipment. Using this document, designers may choose standardized choke connection face to centerline dimensions, thus allowing users to interchange choke types and configurations as necessary for expected well conditions or for emergency substitutions resulting from unplanned events.

To accommodate full interchangeability between Long and Short Pattern dimensions, a standard spacer flange recommended will allow users to install a Short Pattern Drilling Choke with this spacer flange into the space required for a Long Pattern Drilling Choke.

1.3 REFERENCE DOCUMENT

API 6A
API 16C

1.4 DEFINITIONS

Automatic Choke: A choke that has a system of sensing pressure change and a mechanism for automatic adjustment of equivalent orifice to maintain a desired constant back pressure.

Choke: A unit of pressure control equipment used to restrict and regulate the flow of well fluids in order to maintain a desired pressure and flowrate.

Drilling Choke: A choke specifically designated by its manufacturer as suitable for drilling service and dimensioned to this specification.

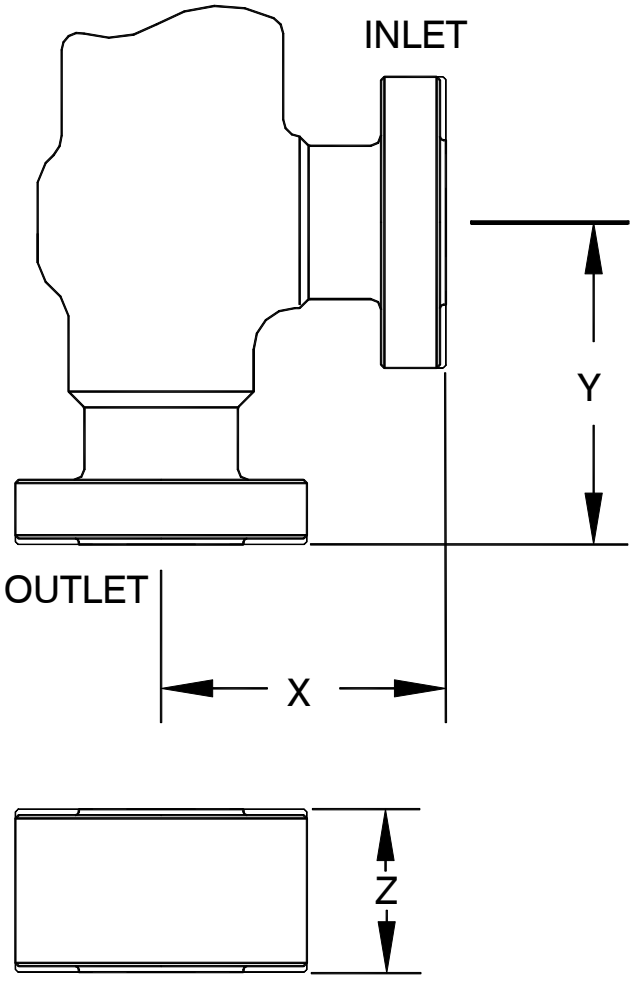
Manual Choke: A choke that can have its equivalent orifice changed by manual adjustment of a stem and handwheel arrangement.

Remotely Operated Choke (Remotely Actuated): A Choke having hydraulic or electric means of actuation by which an Operator can control the equivalent orifice at a distance from the Choke itself.

Spacer Flange: A flange of either thru-bolt or double studded design, having a seal groove on both sides, used to fill a specific space between two other flanges of the same nominal size and pressure. Thru-bolt designs require the use of special length stud bolts.

Trim: A reference to the material and design of parts, seals and surfaces exposed to the well fluids, and their suitability for this exposure.

2.0 SHORT PATTERN DRILLING CHOKES
(PLUG AND SEAT TRIM TYPE)



SPACER FLANGE TO FILL SPACE REQUIRED FOR INTERCHANGEABILITY WITH LONG PATTERN DRILLING CHOKE.

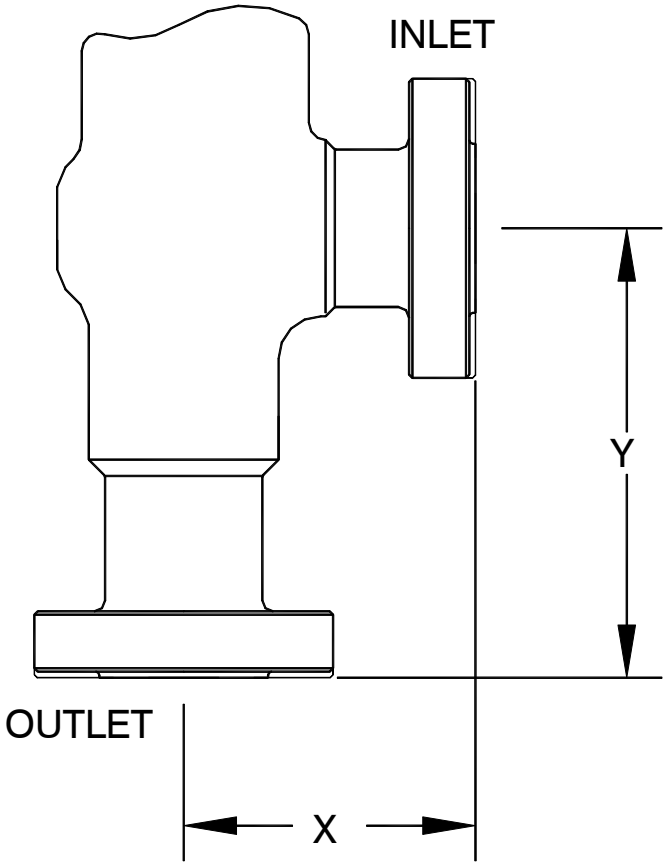
NOMINAL FLANGE SIZE	X *	Y *	Z *†
2-1/16 5M	8.750	10.875	R 3.935
			RX 3.655
2-1/16 10M	8.750	10.875	4.125
2-1/16 15M	8.750	10.875	6.875
2-1/16 20M	13.500	15.000	2.750
2-9/16 5M	10.500	12.500	R 2.31
			RX 2.03
2-9/16 10M	10.500	12.500	2.500
2-9/16 15M	13.500	15.000	2.750
2-9/16 20M	NOT ESTABLISHED		
3-1/8 5M	10.375	11.625	R 3.185
			RX 2.905
3-1/16 10M	10.375	11.625	3.375
3-1/16 15M	10.375	11.625	6.125
3-1/16 20M	NOT ESTABLISHED		
4-1/16 5M	11.875	16.000	R 1.56
			RX 1.28
4-1/16 10M	11.875	16.000	1.750
4-1/16 15M	13.625	21.250	N.A.
4-1/16 20M	17.125	21.250	N.A.
5-1/8 5M	14.250	19.375	N.A.
5-1/8 10M	14.250	19.375	N.A.
5-1/8 15M	15.750	20.875	N.A.

* X, Y, Z DIMENSIONS IN INCHES

† Z DIMENSIONS, R & RX GASKET STANDOFF

2.1 LONG PATTERN DRILLING CHOKES

(ROTATING DISC TRIM TYPE)



NOMINAL FLANGE SIZE	X *	Y *
2-1/16 5M	8.750	15.000
2-1/16 10M	8.750	15.000
2-1/16 15M	8.750	17.750
2-1/16 20M	13.500	17.750
2-9/16 5M	10.500	15.000
2-9/16 10M	10.500	15.000
2-9/16 15M	13.500	17.750
2-9/16 20M	NOT ESTABLISHED	
3-1/8 5M	10.375	15.000
3-1/16 10M	10.375	15.000
3-1/16 15M	13.500	17.750
3-1/16 20M	NOT ESTABLISHED	
4-1/16 5M	11.875	17.750
4-1/16 10M	11.875	17.750
4-1/16 15M	13.625	21.250
4-1/16 20M	17.125	21.250
5-1/8 5M	NOT ESTABLISHED	
5-1/8 10M	NOT ESTABLISHED	
5-1/8 15M	NOT ESTABLISHED	

* X, Y, DIMENSIONS IN INCHES