

# OPERATING MANUAL

## HORN Manual Adjustable Chokes

All HEC Choke and Kill Equipment is manufactured and tested according to HEC Quality Management Standards

### INSTALLATION AND NORMAL OPERATION:

HORN chokes are designed to restrict and regulate the flow of fluids through a manifold. They are **NOT** intended to be used as shut-off valves. Chokes are designed to be used in combination with valves, such as gate valves or plug valves. HORN chokes are designed for the fluid to flow away, as seen in the figure below, from the bonnet to prevent excessive wear on the choke parts.

The choke can be controlled by turning the hand wheel. Right will decrease the size of the opening and decrease the flow through the choke. Turning the wheel left will increase the size of the opening and increase the flow through the choke. The opening size can be determined by the indicator sticking out of the top of the bonnet. Once the choke is set to the appropriate position, the stem can be locked into place by tightening the thumb screw on the side of the bonnet.

### PHYSICAL DATA:

**Performance Requirement Level:** PR2

**Through Bore:** 3-1/8", 3-1/16", 4-1/16"

**Nominal Orifice Diameter:** 3"

**Maximum Orifice Diameter:** 2"

**Rated Working Pressure:** 5,000, & 10,000 psi

### Temperature Ranges:

Metallic: -20 to 250°F

Elastomers: 20 to 200°F

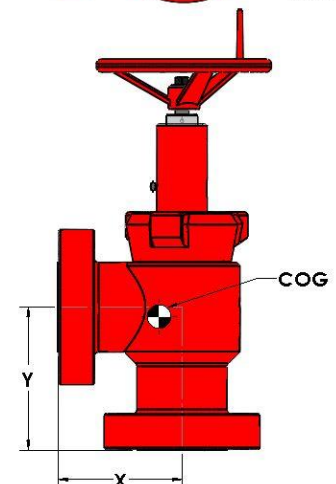
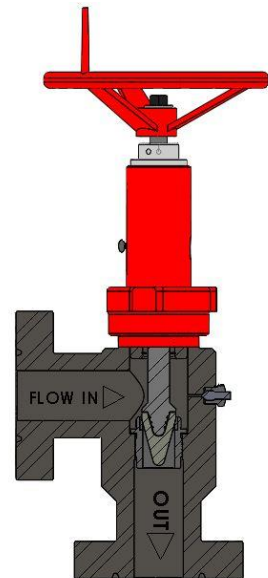
### Elastomers:

Acrylonitrile Butadiene Rubber (NBR)

Nominal Operating Range: 20 to 200°F

### Assembly Dimensions:

Size	Weight (lbs.)	DIMENSIONS	
		X	Y
3-1/8" 5M	242	8-7/8"	11-3/8"
3-1/16" 10M	265	10-3/8"	11-3/4"
4-1/16" 5M	284	10-1/8"	12-5/8"
4-1/16" 10M	298	9-15/16"	11-1/2"





## Operating Torque:

Pressure (psi.)	Torque (ft.-lbs.)
10000	231
9000	206
8000	151
7000	137
6000	118
5000	92
4000	76
3000	55
2000	42
1000	27
0	15

\*Torque applied to choke should not be over 300 ft.-lbs.

## Operational Characteristics Summary

- Pressure Test: 160 cycles at ambient temperature
- High Temp. Pressure Test: 20 cycles
- Low Temp. Pressure Test: 20 cycles
- 60 min. High Temp. at full rated working pressure
- 60 mins. Low Temp. at full rated working pressure

## Routine Maintenance

- Isolate the choke pressure using the valves around the choke.
- Once choke is isolated, ensure pressure is relieved from the choke using the bleed plug on the back of the choke.
- Fully retract choke needle by turning the hand wheel counter clockwise.
- Break bonnet nut loose using a hammer.
- Once bonnet nut is unscrewed from choke body, remove bonnet assembly from choke body.
- Remove seat using the appropriate size wrench
- Inspect critical areas of choke, seat and bonnet.
  - Bonnet to body seal surface on both the choke body and choke bonnet.
  - Choke needle.
  - Bore of the choke from the bonnet to the seat.
  - Seat threads and surface that contacts choke needle
  - Seat threads on choke body
- Any parts or seals that show excessive wear should be replaced.
- Clean all parts and apply light coat of grease to all metal to metal contact surfaces
- Reassemble choke in reverse order

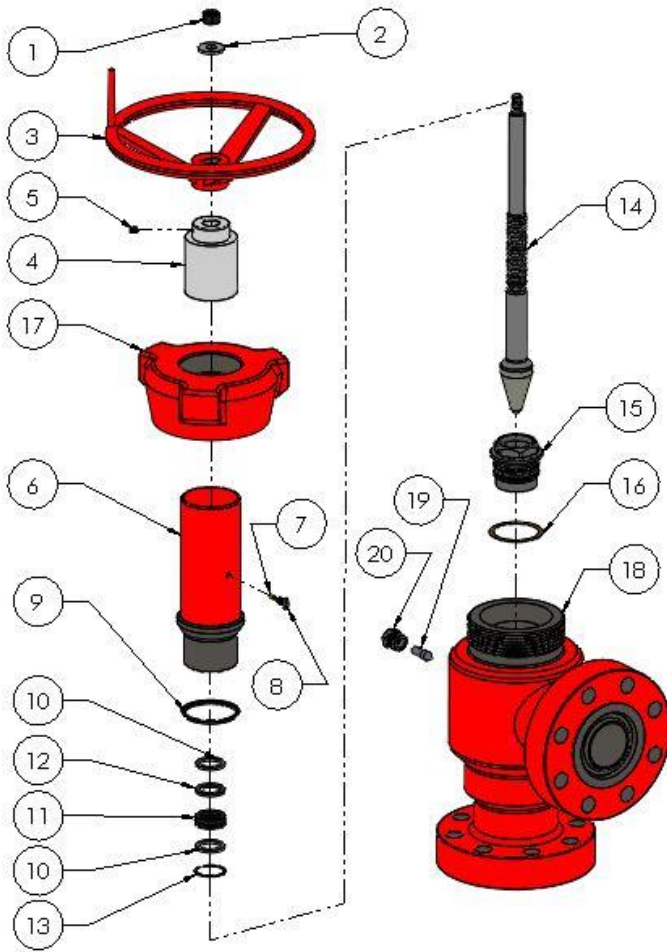
## Testing

- Adjustable choke is not a shut off valve.
- The Body and bonnet can be tested by isolating the choke with the needle in the open position.
  - The choke can be tested to working pressure to ensure a seal between the bonnet and body.

## Storage

- Clean mud and dirt from inside choke
- Dry machined surfaces of choke
- Apply grease to needle and seat inside of the bore
- Cover outlet holes with flange protectors

### Adjustable Choke Parts List



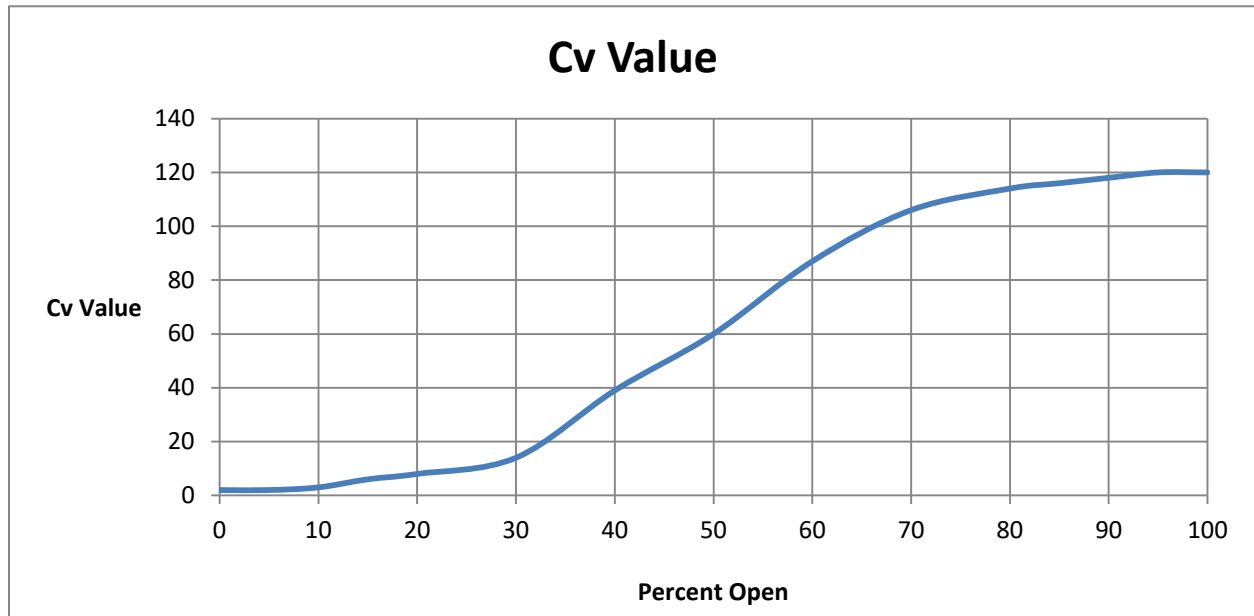
Choke Parts List

Item#	Description	QTY
1	Nut	1
2	Flat washer	1
3	Hand wheel	1
4	Indicator	1
5	Set screw	1
6	Bonnet	1
7	Brass plug*	1
8	Thumb screw*	1
9	Bonnet O-ring*	1
10	Junk ring*	1
11	Stem packing*	1
12	Packing back up ring*	1
13	Retainer ring*	1
14	Needle*	1
15	Seat*	1
16	Seat gasket	1
17	Bonnet nut	1
18	Body	1
19	Vent plug	1
20	Vent gland	1
*Recommended spare parts		

For ordering information, please contact  
Horn Equipment Co. LLC.



**Flow Coefficient:**



Percent Open	Cv Value
100	120
95	120
90	118
85	116
80	114
70	106
60	87
50	60
40	39
30	14
20	8
15	6
10	3
5	2
0	2