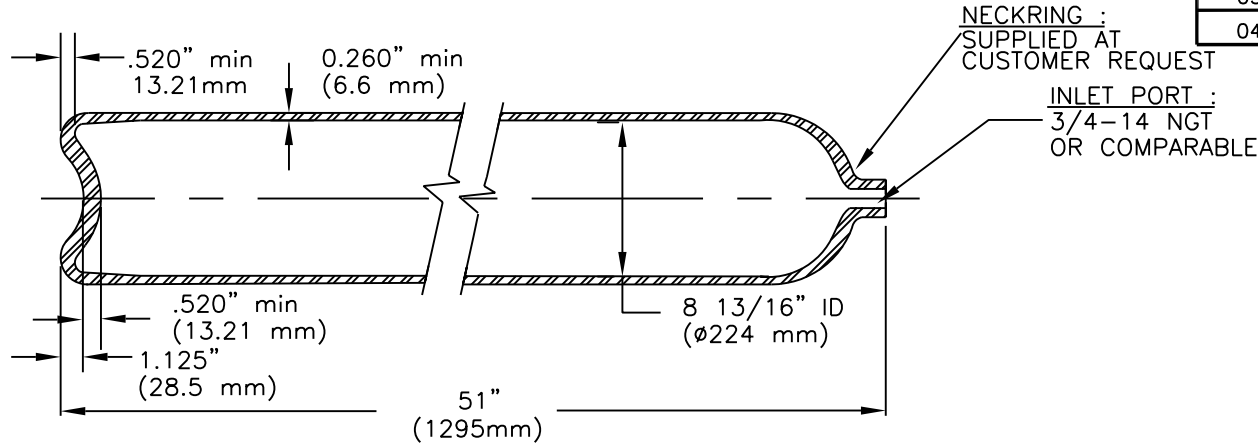


REV.	ECN - DESCRIP.	DATE	DRWN.	CHKD.	APP.
01	1127 dot exempt	5/25/93	MB	RS	BA
02	1187 TC	12/4/93	MB	RS	BA
03	1248	3/29/95	MB	RS	BA
04	1559	8/13/97			



## DRAWING FOR REFERENCE ONLY

### NOTES (other requirements):

- Pre-flaw pressure test each heat per requirements of this Exemption
- Kic test each new heat of steel not previously tested :  $\geq 85 \text{ ksi} \sqrt{\text{in}}$
- Rejection Elastic Expansion: REE = 345 cc. Determined in accordance with CGA pamphlet C-5, at an ave. effective wall stress of 100,000 psi.

**SPECIFICATION:** DOT - E10869-4500/ TC-SU4369-310

**MODEL:** 8HP500

<p><b>1. Principal Elements:</b></p> <ul style="list-style-type: none"> <li>- Min water volume: 2750 in<sup>3</sup> (45 liter)</li> <li>- Approx. cylinder wt. 140 lbs. (63.5 kg) w/o fittings</li> <li>- DOT Service pressure: 4500 psi</li> <li>- TC Service pressure: 310 bar</li> <li>- Test pressure: 6750 psi (465.4 bar)</li> </ul>	<p><b>4. Manufacture:</b></p> <p>Hot billet pierced followed by hot drawing.</p>
<p><b>2. Material:</b></p> <p>Alloy steel, A.I.S.I. 4130 modified.</p>	<p><b>5. Mechanical Properties:</b></p> <ul style="list-style-type: none"> <li>- Tensile: 155,000/175,000 psi (1069/1206 MPa)</li> <li>- Elong.: <math>\geq 12\%</math> (on 2" gauge)</li> <li>- Flattening: to 10xt without cracks</li> <li>- Charpy: (at -50°C, 1/2 size tran. specimen) <ul style="list-style-type: none"> <li>- avg. 3 spec. : 13 ft-lb (45 J/cm<sup>2</sup>)</li> <li>- individual : 10 ft-lb (35 J/cm<sup>2</sup>)</li> </ul> </li> <li>- Hardness test (each cyld.) : <math>\leq \text{Rc } 40</math></li> <li>- UT flaw detection (each cyld.) : Reject flaws <math>\geq 5\%</math> of tmin.</li> </ul>
<p><b>3. Heat Treatment:</b> Q &amp; T</p>	

**Formula for wall stress calculations:**

$$S = \frac{P(1.3D^2 + 0.4d^2)}{D^2 - d^2}$$

$$S = \frac{6750(1.3(9.333)^2 + 0.4(8.813)^2)}{(9.333)^2 - (8.813)^2}$$

$$S = 103,228 \text{ psi } (711.8 \text{ MPa})$$

S = Wall stress, psi  
P = Minimum test pressure, psi  
D = Outside diameter, inch  
d = Inside diameter, inch



**NORRIS CYLINDER COMPANY**

P.O. BOX 7486 LONGVIEW, TEXAS 75607

SEAMLESS STEEL CYLINDER,  
MODEL 8HP500, FOR NONLIQUEFIED,  
NONCORROSIVE, COMPRESSED GASES

SCALE	NOT TO SCALE	DRAWING NO.	REV.
DWN. BY	M. BENHAM	7/16/92	901B-B-9156 04
CHK'D BY	R. SHAFKEY	7/16/92	
APP'D BY	BALDUR	7/16/92	
SHEET NO. 1		OF 1	SHEETS