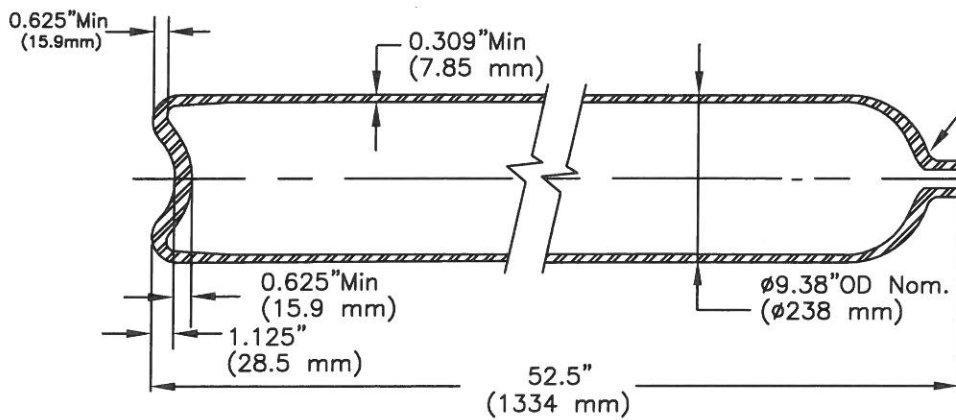


REV.	ECN - DESCRIPT.	DATE	DRWN.	CHKD.	APP.
01	ISO WALL CALC./REE	3/18/11	JJM		--



NECKING :
SUPPLIED AT
CUSTOMER REQUEST

INLET PORT :
3/4-14 NGT (8HP535C-3),
1 -11 1/2 NGT (8HP535C-1),
25E (8HP535C-25E),
OR COMPARABLE

DRAWING FOR REFERENCE ONLY

SPECIFICATION: DOT-SP 10869-5000 / TC SU4369-344	
MODEL: 8HP535C	
1. Principal Elements:	4. Manufacture:
- Min water volume: 2750 in ³ (45 liter)	Hot billet pierced followed by hot drawing.
- Approx. cylinder wt. 171 lbs. (77.5 kg) w/o fittings	5. Mechanical Properties:
- DOT Service pressure: 5000 psi (344 bar)	- Tensile: 155,000/175,000 psi (1069/1206 MPa)
- TC Service pressure: 344 bar	- Elong.: ≥ 12% (on 2" gauge)
- Test pressure: 7500psi (517 bar)	- Flattening: to 10xt without cracks
2. Material:	- Charpy: (at -60°F, 1/2 size tran. specimen)
Alloy steel, A.I.S.I. 4130 Modified. Per Norris' 4133M4 specification EO-A6	- avg. 3 spec. : 13 ft-lb (45 J/cm ²)
3. Heat Treatment: Quenched and Tempered	- individual : 10 ft-lb (35 J/cm ²)
	- Hardness test (each cyld.) : ≤ Rc 40
	- UT flaw detection (each cyld.) : Reject flaws ≥ 5% of tmin.
Formula for wall stress calculations: $S = P(1.3D^2 + 0.4d^2)/(D^2 - d^2)$	
S = Wall stress, psi	$= \frac{7500(1.3(9.38)^2 + 0.4(8.762)^2)}{(9.38)^2 - (8.762)^2}$
P = Minimum test pressure, psi	
D = Outside diameter, inch	S = 97,056 psi (669.1 MPa)
d = Inside diameter, inch	
ISO 9809-2 Thickness Calculations: INCLUDED FOR HARMONIZATION:	
Ph= Test Pressure (bar) = 517 bar (7500 psi)	$a = 0.5 \times D \left(1 - \sqrt{\frac{10FRe - \sqrt{3} Ph}{10FRe}} \right)$
D = External diameter of container = Ø241.4mm Max	=7.81 mm (0.307")
F = Lesser of 0.65/(Re/Rg) or 0.77; Re/Rg ≤ 0.9	NOTE: a, the guaranteed min thickness = 7.85 mm (0.309") exceeds calculated min thickness, a.
= Lesser of 0.65/0.85 or 0.77 = 0.765 (for Re/Rg = 0.85)	

NOTES (other requirements):

- Rejection Elastic Expansion: 327 cc
- Determined in accordance with CGA pamphlet C-5.

NORRIS CYLINDER COMPANY			
4818 WEST LOOP 281 LONGVIEW, TEXAS 75603 USA			
SEAMLESS STEEL CYLINDER, FOR NON-CORROSIVE PERMANENT GASES, MODEL 8HP535C			
SCALE	NOT TO SCALE	DRAWING NO.	REV.
DWN. BY	JJM	2/5/10	901A-A-9838 01
CHK'D BY			
APP'D BY		SHEET NO. 1	OF 1 SHEETS