



U.S. Department
of Transportation
**Research and
Special Programs
Administration**

400 Seventh St., S.W.
Washington, D.C. 20590
MAR 24 2003

DOT-E 11025
(SIXTH REVISION)

EXPIRATION DATE: February 28, 2005

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: MASS Systems, Inc.
A Unit of AMERON GLOBAL, INC.
Baldwin Park, CA
2. PURPOSE AND LIMITATIONS:
 - a. This exemption authorizes the manufacture, mark, sale and use of non-DOT specification cylinders conforming with all regulations applicable to a DOT Specification 3HT cylinder, except as specified herein, for the transportation in commerce of the materials listed in paragraph 6 below. This exemption provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.
 - b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.302a(a)(2) and 173.5 in that a non-DOT specification cylinder is not authorized, except as specified herein.
5. BASIS: This exemption is based on the application of MASS Systems, Inc. dated March 4, 2003, submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Material Description	Hazard Class/ Division	Identi- fication Number	Packing Group
Air, compressed	2.2	UN1002	N/A
Compressed gas, n.o.s. (Nitrogen gas with up to 30% carbon dioxide)	2.2	UN1956	N/A
Helium, compressed	2.2	UN1046	N/A
Nitrogen, compressed	2.2	UN1066	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packaging is a welded austenitic stainless steel non-DOT specification cylinder conforming with MASS Systems Inc.'s drawings on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA) and with DOT Specification 3HT (§ 178.44), except as follows:

§ 178.44(a) *Type, size and service pressure.*

Welded sphere (two seamless hemispheres)
circumferentially welded cylinder (2 seamless drawn shells), or one piece drawn cylinder with welded fittings, with volume not over 200 cubic inches water and a maximum service pressure of 3,800 psig.

§ 178.44(b) *Authorized steel.*

Type ARMCO Nitronic 40 (21-6-9) stainless steel with the following analysis:

Carbon	0.040 max
Manganese	8.00/10.00
Phosphorus	0.060 max
Sulfur	0.030 max
Silicon	1.00 max
Chromium	19.00/21.50
Nickel	5.50/7.50
Nitrogen	0.15/0.40

§ 178.44(d) *Manufacture.*

(Added) Each container must be subjected to a process treatment after welding and before stress relieving. Process treatment must consist of hydrostatic pressurization at a pressure (maintained for at least 3 minutes) of at least 100% but not more than 110% of prescribed test pressure. The process treatment must be witnessed by the independent inspector.

§ 178.44(e) *Welding or Brazing.*

(Added) Only welding as prescribed in § 178.44(a) of this exemption is authorized. All pressure welds must be 100 percent radiographed after hydrostatic test.

§ 178.44(f) *Wall thickness.*

(1) Minimum wall thickness for any cylinder must be 0.050 inch. The minimum wall thickness must be such that the wall stress at the minimum specified test pressure must not exceed 75 percent of the minimum tensile strength of the stainless steel and must not be over 105,000 psi.

(2) and (3) * * *

(4) Calculations for spheres must be made by the formula:

$$S = PD/4tE$$

where

E = 0.85 (weld efficiency factor which must be applied in the girth weld area and heat zones. Zones must extend a distance of 6 times wall thickness from the center of the weld.)

E = 1.0 (for all other areas)

§ 178.44(g) *Heat treatment.*

The hemispheres and half cylinders may be stress relieved or annealed for forming. Welded containers must be stress relieved at a temperature of 900°F +/- 25° for one hour. Stress relieving is to be done after process treatment and before hydrostatic test.

§ 178.44(j) *Cycling test.*

- (1) * * *
- (2) Cycle test on each lot is not required.
- (3) N/A
- (4) * * *

§ 178.44(m) *Physical test.*

Physical tests not required.

§ 178.44(n) *Magnetic particle inspection.*

Magnetic particle inspection not required. Instead, each cylinder must be inspected using apparatus and procedures for liquid penetrant examination in accordance with ASTM E-165-65. Inspection must be performed externally on the finished cylinder after hydrostatic test. Evidence of discontinuities, which in the opinion of the independent inspector may appreciably weaken or decrease the durability for the cylinder, must be cause for rejection.

§ 178.44(p) *Acceptable results of tests.*

- (1), (2), and (3) * * *
- (4) *Cycling:* The design must be qualified by cycling three cylinders from zero to service pressure at a rate not to exceed ten cycles per minute to at least 50,000 pressurizations without evidence of distortion or failure.

§ 178.44(r) *Marking.*

Applies except that instead of "DOT-3HT", cylinders must be marked "DOT-E 11025" followed by the service pressure.

§ 178.44(s) *Inspector's report.*

Inspector's report must be appropriately modified to reflect identification and compliance with this exemption.

b. TESTING - Cylinders must be retested in accordance with § 180.209 as prescribed for DOT-3HT cylinders.

8. SPECIAL PROVISIONS:

a. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this exemption for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this exemption.

b. A person who is not a holder of this exemption, but receives a package covered by this exemption, may reoffer it for transportation provided no modification or change is made to the package or its contents and it is offered for transportation in conformance with this exemption and the HMR.

c. A current copy of this exemption must be maintained at each facility where the package is offered or reoffered for transportation.

d. Each packaging manufactured under the authority of this exemption must be marked with a registration symbol designated by the Office of Hazardous Materials Exemptions and Approvals for a specific manufacturing facility.

e. A current copy of this exemption must be maintained at each facility where the package is manufactured under this exemption. It must be made available to a DOT representative upon request.

f. Cylinders must be shipped in strong outside packagings in conformance with § 173.301(a)(9).

g. A cylinder is not authorized 20 years after the date of manufacture.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo aircraft only, and passenger-carrying aircraft.

10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each aircraft or motor vehicle used to transport packages covered by this exemption. The shipper shall furnish a copy of this exemption to the air carrier before or at the time the shipment is tendered.

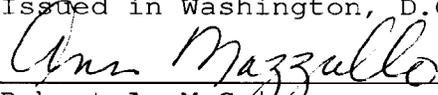
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
- o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, Parts 171-180.
 - o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect.

12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must also inform the AAHMS, in writing, as soon as practicable of any incidents involving the package and shipments made under this exemption.

Issued in Washington, D.C.


Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

MAR 24 2003

(DATE)

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590.
Attention: DHM-31.

Copies of this exemption may be obtained by accessing the Hazardous Materials Safety Homepage at <http://hazmat.dot.gov/exemptions> Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

PO: KFW/alb