

November 5, 2014



U.S. Department
of Transportation

East Building, PHH-30
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 10440
(NINTH REVISION)

EXPIRATION DATE: October 31, 2018

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Ametek Ameron LLC dba MASS Systems
Baldwin Park, CA
2. PURPOSE AND LIMITATIONS:
 - a. This special permit authorizes the manufacture, marking, sale and use of a non-DOT specification cylinder conforming to all regulations applicable to a DOT Specification 4DS cylinder, except as specified herein, for the transportation in commerce of the materials authorized by this special permit. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.
 - b. The safety analyses performed in development of this special permit 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 § 173.304a(a)(1) in that non-DOT specification cylinders are not authorized, except as specified herein.
5. BASIS: This special permit is based on the application of Ametek Ameron LLC dba MASS Systems dated October 2, 2014 submitted in accordance with § 107.109.

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6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Compressed gas, n.o.s. or the specific commodity name, as appropriate	2.2	As appropriate	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packagings prescribed are welded austenitic stainless steel non-DOT specification cylinders conforming to Mass Systems, Inc. specifications and drawings on file with the Office of Hazardous Materials Special Permits and Approvals (OHMSPA); and meeting all requirements of DOT Specification 4DS (§§ 178.35 and 178.47) except as follows:

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

Applies except service pressure must be at least 500 psig but not over 3000 psig.

§ 178.47(b) *Steel.*

Type Nitronic 40 (ARMCO 21-6-9) austenitic stainless steel with analysis as follows:

(Percent)	(Percent)
C - 0.04 Max.	Si - 1.00 Max.
Mn - 8.00/10.00	Cr - 19.00/21.50
P - 0.060 Max.	Ni - 5.50/7.50
S - 0.030 Max.	N - 0.15/0.40

§ 178.47(f) *Wall thickness.*

Minimum wall thickness for any cylinder must be 0.040 inch.

(1) Minimum wall thickness must be such that the wall stress at the minimum specified test pressure does not exceed 90,000 psi.

(2) Calculation of maximum wall stress for sphere must

be made by the formula:

$$S = 0.25(PD/tE)$$

where:

S = Wall stress in pounds per square inch.
P = Test pressure prescribed for water jacket test (two times service pressure), PSIG.
D = Outside diameter in inches.
t = Minimum wall thickness in inches.
E = 0.85 for the girth weld area and heat affected zones which must extend a distance of 6 times the wall thickness from center of weld but 1.0 for all other areas.

(3) Calculation of maximum wall stress for a cylinder must be made by the formula:

$$S = P(1.3D^2 + 0.4d^2)/(D^2 - d^2)$$

where:

S = Wall stress in pounds per square inch.
P = Test pressure prescribed for water jacket test (two times service pressure), PSIG.
D = Outside diameter in inches.
d = Inside diameter in inches.

§ 178.47(g) *Heat treatment.*

Cylinders may be stress relieved or annealed for forming. Welded cylinder must be stress relieved at a temperature of 900°F ± 25°F after process treatment and before hydrostatic test.

§ 178.47(n) *Acceptable results for flattening and burst tests.*

(1) Flattening required to 50 percent of the original outside diameter without cracking except flattening test not required for spheres.

(2) Burst pressure must be at least 3 times service pressure or 3/2 times the test pressure marked on the cylinder.

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§ 178.35(f) *Markings.*

Applies except the marking "DOT-SP 10440" must be substituted for the DOT-4DS specification marking and be followed by the service pressure. If the cylinder is marked with the test pressure, the test pressure marking, for example "TP-6,000", must precede or be located immediately above the test date.

b. TESTING - Retest and reinspection must be in accordance with § 180.205, as prescribed for DOT Specification 4DS cylinders, except that the retest pressure must be that stamped on the cylinder.

8. SPECIAL PROVISIONS:

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

b. A person who is not a holder of this special permit, but receives a packaging covered by this special permit, may reoffer it for transportation provided no modifications or changes are made to the packaging and it is offered for transportation in conformance with this special permit and the HMR.

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

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

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

f. Cylinders are for aircraft use only.

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- g. Cylinders must be shipped in strong outside packagings in conformance with § 173.301(a)(9). The pressure vessels are acceptable for shipment with the actuating cartridges approved by the Associate Administrator for Hazardous Materials Safety, installed in the discharge outlet.
- h. A copy of the inspector's report specified in § 178.35(g) on the first lot of each design of cylinders produced with a service pressure greater than 900 psig, or water capacity greater than 378 cubic inches must be submitted to the Office of Hazardous Materials Exemptions and Approvals prior to initial shipment.
- i. Transportation of oxygen is only authorized when in accordance with § 175.501.
9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, cargo aircraft only, and passenger-carrying aircraft.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each motor vehicle, cargo vessel or aircraft used to transport packages covered by this special permit. The shipper must furnish a copy of this special permit 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 special permit 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 special permit and the Hazardous Materials Regulations, Parts 171-180.
 - o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
 - o Registration required by § 107.601 et seq., when applicable.

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

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

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) - 'The Hazardous Materials Safety and Security Reauthorization Act of 2005' (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 Immediate notice of certain hazardous materials incidents, and 171.16 Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.



for Dr. Magdy El-Sibaie
Associate Administrator for Hazardous Materials Safety

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

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is

prohibited.

PO: SG