



COMPRESSED GAS ASSOCIATION, INC.

TECHNICAL BULLETIN

TB-16—2010

14501 GEORGE CARTER WAY, SUITE 103
CHANTILLY, VA 20151
703-788-2700
cga@cganet.com

RECOMMENDED CODING SYSTEM FOR THREADED CYLINDER OUTLETS AND THREADED VALVE INLETS

Introduction

Millions of cylinders and cylinder valves are transported and used without any incidents every year. However, there have been incidents when a valve has been ejected from a cylinder because the threads on the cylinder valve did not match the threads on the cylinder. Valve ejections can cause personal injury and/or death, property damage, and product loss. Investigations of these incidents indicate that the causes of the cylinder valve ejections are usually:

- using a cylinder valve with straight threads installed in a cylinder that has tapered neck threads;
- installing tapered cylinder valve threads in a cylinder that has straight neck threads; and/or
- interchanging ISO and/or other metric classification threads with American National Standard threads.

Scope and purpose

In some cases, it is difficult to visually determine if the threads on a valve are mismatched to the threads in a cylinder after a cylinder valve has been installed into a cylinder. Identification systems and markings on valves and cylinders are used outside the United States that permit cylinder fillers and users to see if the cylinder valve and the cylinder have the same threads. The Compressed Gas Association (CGA) recommends that a coded marking system be used in the United States and Canada to ensure that valve threads and cylinder neck threads can be identified and matched when the valve and cylinder are assembled.

This bulletin outlines the coded marking system to be used to identify and mark valve threads and cylinder neck threads.

Recommendation

CGA recommends that all new cylinder valves and cylinders made after December 31, 1998, comply with a thread-code marking system. Cylinder valves shall be permanently identified so the thread codes are visible after valves are installed in the cylinders. The marking of the thread coding system used on the cylinder shall be in accordance with the applicable specification for the marking of that cylinder. Cylinders shall be permanently marked with the thread codes close to the marking of the original manufactured dates of the cylinders.

Due to cylinder design and/or how cylinder valves are attached to cylinders, the marking system is not required in the following instances:

- cylinders with a marked service pressure less than 501 psig (35 bar);
- cylinder valves with an outlet connection rated at less than 501 psig (35 bar);
- DOT-39 and TC-39M cylinders;
- cylinder valves and cylinders used only for chlorine (see The Chlorine Institute's Pamphlet 17, *Packaging Plant Safety and Operational Guidelines*, Revision 1, for the coding system used by The Chlorine Institute, Inc.) [1]; and/or
- cylinders with a maximum water capacity of 1 L.

The coded marking system follows in Table 1. Table 2 provides cylinder valve inlet codes for selected international inlet specifications.

Table 1—Cylinder valve inlet code

Tapered threads ¹⁾	
Code	Thread designation
06N	3/8"-18 NGT
08N	1/2"-14 NGT
12N	3/4"-14 NGT
12S	3/4"-14 SGT
16N	1"-11 1/2 NGT
Straight threads	
Code	Thread designation
U8	1/2"-20 UNF
U10	5/8"-18 UNF
SP12	3/4"-14 NPSM
U12	3/4"-16 UNF
U14	7/8"-14 UNF
U18	1 1/8"-12 UNF
NOTES 1 This information describes the method by which the cylinder inlet codes were developed. This method may be used to develop codes for valve inlets not listed. – numbers are shown in increments of 1/16"; and – letters refer to the thread standard as follows: – N—National Gas Taper (NGT) threads – S—Special Gas Taper (SGT) threads – U—Unified Straight – SP—Straight Pipe (NPSM). 2 In the codes, tapered thread lettering is shown after numbering; straight thread lettering is shown before numbering. ¹⁾ Oversize NGT thread designations shall include a suffix 4, 7, etc., for 4, 7, etc., threads oversize.	

Table 2—Cylinder valve inlet code, selected international inlet specification

Tapered threads		
Code	Thread designation	Origin
17E	17,4 ISO/DIS 11116	Europe
25E	25,8 ISO/DIS 10920.2	Europe
V1	20 x 14 JIS B 8246	Japan
V2	28 x 14 JIS B 8246	Japan
V3	28 x 14 JIS B 8246 (reduced length)	Japan
W6	0.6-14 AS2473	Australia
W71	0.715-14 AS2473	Australia
W1	1-14 AS2473	Australia
Straight threads		
Code	Thread designation	Origin
18P	M18 x 1,5	Europe
25P	M25 x 2	Europe
30P	M30 x 2	Europe
NOTES 1 International threads are shown for informational purposes only. 2 Commas designate decimals in ISO standards.		