



# Descriptive Report and Test Results

**MASTER CONTRACT:** 162505

**REPORT:** 1221722

**PROJECT:** 2341109

**Edition 1:** 2001-07-03; Project 1221722 – Cleveland; Issued by James Horvath, PE; Reviewed By Trevor Perera  
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**Edition 4:** 2010-10-20; Project 2341109 – Cleveland; Issued by James A. Doherty

Contents: Certificate of Compliance – 2 Pages  
Supplement to Certificate of Compliance – 1 Page  
Description and Tests – 8 Pages  
Attachments: Att1 Manufacturing And Production Test Plan – 26 Pages  
Att2 Figures 1 to 30

## PRODUCTS

**CLASS 3305 04** - GAS ACCESSORY DEVICES – Combination Quick Disconnect / Manually Operated Valve  
**CLASS 3305 84** - GAS ACCESSORY DEVICES – Combination Quick Disconnect / Manually Operated Valve-  
Certified to U.S. Standards

**Trade Name:** COUPLE-SAFE

**Model Number:**

3/375  
3/375M

**Inlet (inch):**

$\frac{3}{8}$  NPT(F)  
 $\frac{3}{8}$  NPT(F)

**Outlet (inch):**

$\frac{3}{8}$  NPT(F),  $\frac{1}{2}$  SAE Flare  
 $\frac{3}{8}$  NPT(F),  $\frac{1}{2}$  SAE Flare

## APPLICABLE REQUIREMENTS

ANSI Z21.41-2003·CSA 6.9-2003 – *Quick Disconnect Devices For Use With Gas Fuel Appliances*  
ANSI Z21.41a-2005·CSA 6.9a-2005 – *Addenda to the Second Edition*  
ANSI Z21.41b-2010·CSA 6.9b-2010 – *Addenda to the Second Edition*

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## **MARKINGS**

All markings and instructions are in compliance with the above mentioned requirements. (See Figures: 4, 8, 9, 28-30)

Markings are Class I Integral: stamped or otherwise formed into the Quick Disconnect Device Plug body and the Socket Sleeve.

Quick-Disconnect Devices shall bear a clear and permanent marking of the following:

- The manufacturer's identifying marking (plug and socket), M.B. STURGIS, INC. logo or "Couple-Safe";
- The direction of gas flow (socket), " ^ FLOW ^";
- The maximum operating pressure (socket), "1/2 PSI MAX";
- Symbol of the organization making tests for compliance with this standard (plug and socket), "CSF<sup>®</sup> US";
- 4 Digit Date code marking: the first and second digits shall indicate the calendar year in which the device is manufactured, the third and fourth digits shall indicate the week in which the device was manufactured (plug and socket), "YYWW"; and
- "For Indoor/Outdoor Use" and "-40°F"

## **ALTERATIONS**

No alterations were required.

## **FACTORY TESTS**

*The submitter shall ensure that the following factory tests are conducted at the frequency specified and the results are documented and made available for review by CSA field services representatives: (See "Att1 Manufacturing And Production Test Plan)*

### ***ANSI Z21.41-CSA 6.9 – Quick Disconnect Devices For Use With Gas Fuel Appliances***

A. GENERAL: There shall be adequate facilities (quality control and assurance programs) for producing subsequent products identical to the certified design and provisions for tests and inspection of assemblies necessary to ensure safe and uniform products.

B. DETAILS OF TESTS REQUIRED: Part III Manufacturing And Production Tests

Part III: Manufacturing And Production Tests

3.1

The manufacturer shall use a program to qualify raw materials, parts, assemblies and purchased components.

3.2

Leakage (2.1.1): 100% of all Quick Disconnect Devices shall be tested and shall not leak in excess of 20 cubic centimeters of air per hour when subjected to air pressures of 2.0 inches water column and 21 inches water column.

3.3

Leakage (2.1.1): Once a year, a Quick Disconnect Devices shall be tested and shall not leak in excess of 20 cubic centimeters of air per hour when subjected to air pressures of 2.0 inches water column and 21 inches water column.

Leakage (2.1.2): Once a year, a Quick Disconnect Devices shall be tested and shall not leak in excess of 20 cubic centimeters of air per hour when subjected to air pressures of 2.0 inches water column and 21 inches water column at a temperature of -20°F or -40°F as applicable for certification and usage.

Safety tests (1.5): Once a year, a Quick Disconnect Device will be tested and shall checked for leakage per 2.1.1.

Strength tests (1.6): on complete valves: Once a year

1.6.1 Suspended Weight: No deformation, breakage and shall checked for leakage per 2.1.1.

1.6.2 Turning Effort: No deformation, breakage and shall checked for leakage per 2.1.1.

1.6.3 Impact: No cracking or breaking allowed.

1.6.4 Static Load: Shall checked for leakage per 2.1.1.

1.6.5 Drop: Shall checked for leakage per 2.1.1.

1.6.6 Bending Moment (Side Force): Shall checked for leakage per 2.1.1.

High temperature operation (2.3): Once a year, a Quick Disconnect Device will be tested and shall not leak greater than 1.0 cubic foot in 10 minutes at 14.0 inches water column.

Continued operation tests (2.4): Once a year, a Quick Disconnect Device will be tested and shall not leak.

### 3.4

The manufacturer's test method(s) shall be capable of relating back to the test(s) specified in the standard.

## **ANSI Z21.15-CSA 9.1 – Manually Operated Gas Valves For Gas Appliances And Hose End Valves**

### Part III: Manufacturing And Production Tests

#### 3.1

The manufacturer shall use a program to qualify raw materials, parts, assemblies and purchased components.

#### 3.2

The manufacturer shall test each device for:

Leakage at room temperature(2.2): 100% of all manual valves shall be tested and shall not leak in excess of 20 cubic centimeters of air per hour when subjected to air pressures of 2.0 inches water column and 3 PSI.

#### 3.3

The manufacturer shall test annually for:

Continued Operation test (2.4): Once a year, a manual valve shall be tested and shall not leak in excess of 20 cubic centimeters of air per hour when subjected to air pressures of 2.0 inches water column and 3 PSI after cycling.

Low Temperature Operation test (2.5): Once a year, a manual valve shall be tested and shall not leak in excess of 20 cubic centimeters of air per hour when subjected to air pressures of 2.0 inches water column and 3 PSI or have a greater than allowable torque at low temperature operation.

Leakage (at high temperature) (2.2): Once a year, a manual valve shall be tested and shall not leak in excess of 20 cubic centimeters of air per hour when subjected to air pressures of 2.0 inches water column and 3 PSI.

Strength tests (1.8): on complete valves: Once a year

1.8.1 Bending Moment: No cracking or breaking allowed shall be checked for leakage per 2.2.

1.8.2 Turning Effort: No deformation, breakage and shall checked for leakage per 2.2.

1.8.3 Impact: No cracking or breaking allowed.

Side Load test (2.6): Once a year, a manual valve shall be tested and shall not leak in excess of 20 cubic centimeters of air per hour when subjected to air pressures of 21.0 inches water column with a 12 pound load applied radially to the stem.

**SPECIAL INSTRUCTIONS FOR FIELD SERVICES**

This certification does not extend to the substitution of materials or changes in the construction or composition of products, nor factory location without prior written authorization.

**COMPONENT SPECIAL PICKUP**

No component special pickup required.

**DESCRIPTION**

**Model Number Breakdown**

Models:

3/375

Description:

Quick Disconnect Device (QDD) with integral Manually Operated Valve. Device is of “360 Brass” construction for the Socket and Plug; utilizing a hand-operated positive locking 360 Brass or Nylon-6 *Socket Sleeve*; 302 Stainless Steel *Sleeve Spring*; 302 Stainless Steel *Retaining Ring* with three 302 Stainless Steel (*Clamping*) *Balls* (retract *Socket Sleeve* to connect and disconnect). The ball-bearings ride a perpendicular conical groove for positive locking the socket to the plug. Assembly utilizes a manual gas valve with a.

- The Socket (female coupler) portion has a 3/8 NPT(F) inlet connection. The Socket is a two piece design with the *Coupling Assembly* and *Ball-valve Assembly* incorporating the inlet connection sealed with a Buna-N Rubber *O-Ring*. The *Coupling Assembly* incorporates a spring actuated poppet valve assembly (302 Stainless Steel *Bottom Guide, Spring*; Nylon-6 *Top Guide*; 360 Brass *Stem, Member*; 301 Steel *Retainer*; and a Eutectic Alloy *Solder Pellet*) for automatic means of gas shut-off utilizing a Buna-N Rubber *Seat* when disconnected to prevent internal leakage. A Viton Rubber *O-Ring* is used to seal against the Plug during connection to prevent external leakage. The *Ball-valve Assembly* is of 360 Brass construction for the *Body, Stem* and *Ball*; Teflon for the *Ball Seats*; Nitrile-Butadiene Rubber for the *Stem Seal*; Zinc Alloy *Handle*; 304 Stainless Steel *Sleeve Stop*. A mechanical link prevents disconnection of the Plug from the Socket if the manual valve is in the open position.
- The Plug (male nipple) portion has a 3/8 NPT(F) or 1/2 SAE Flare outlet connection (Part Number 401207 and 401213 respectively).

3/375M

Same as model “3/375”, except the Socket manual valve hex rounded off.

**Specifications**

Rated Inlet Pressure:

1/2 PSI

Ambient Operating  
Temperature Range:

-40°F to 200°F

Flow Capacity:

42,000 Btu/hr. (Based on a 1000 Btu per cubic foot gas, a specific gravity of 0.64 at a 0.3 inch pressure drop.)

Mounting position: Multipoise  
 Inlet connection: 3/8 NPT(F)  
 Outlet connection: 3/8 NPT(F) or 1/2 SAE Flare

**Attachment Index**

<b>File Name</b>	<b>Revision</b>	<b>Att1 M&amp;P Number</b>	<b>Title / Description</b>
Att1 M and P Test Plan	2341109	1-26	Manufacturing And Production Test Plan
<b>Drawing No. / Part No.</b>	<b>Revision</b>	<b>Att2 Figure Number</b>	<b>Title / Description</b>
-		01	Connector Assembly Photo Sheet
104007	A00	02	Connector Assembly (Outline Drawing)
104072	A00	03A	Model 3/375M Connector with Knob Assembly and modified inlet
600008	-	04	Instruction Tag
-	-	05	Lot Code Marking System & Procedures
-	-	06	Production Run # Sheet
-	-	07	Component Parts List
401202	D00	08	Socket Sleeve, CSN-375
401214	F00	09	Interlocking Sleeve, Model 3/375
305002	A00	10	Sleeve Spring, CSN-375
401204	A00	11	Socket Body
203007	A00	12	Temperature Sensitive Valve Assembly
305027	A00	13	Bottom Guide
305011	A00	14	Poppet Spring
302011	A00	15	Upper Valve Guide (Shut-Off/Q.D.)
305012	A00	16	Retainer, Model 3 Poppet Assembly
401212	A00	17	Valve Stem for Model 3 Poppet Assembly
401211	A00	18	Poppet Member for Model 3
203005	A00	19	Shut-Off Valve 3/8 NPT(F) x 11/16 UNEF
203024	A00	19A	Shut-Off Valve 3/8 NPT(F) x 11/16 with modified inlet
3821190	-	20	Assembly 3/8 NPT(F) x 11/16-24
3820130 & Up	-	21	Handle-M.B. Sturgis
305029	A00	22	Sleeve Stop, Model 3/375
2740020	-	23	Keeper
2740170	-	24	Ball
2740180	-	25	Collar
2740140	-	26	Seat-Solid
3820120	-	27	Body 3/8 NPT(F) x 11/16-24
401213	B02	28	Plug, CSN-375 x 1/2 Male SAE Flare
401207	D01	29	Plug, CSN-375 x 3/8 NPT(F)
401229	A00	30	Socket Sleeve, CSN-375

## TESTS

The actual test results are maintained in the CSA International, Cleveland, Ohio, U.S.A. facility. The certification of the listed products is authorized on the basis of compliance with the applicable requirements.

The following testing is applicable for certification:

ANSI Z21.41-2003 CSA 6.9

Part I. Construction:

- 1.1 Scope
- 1.2 General
- 1.3 Dimensions
- 1.4 Operation
- 1.5 Safety
- 1.6 Strength
- 1.7 Materials
- 1.8 Assembly
- 1.9 Instructions
- 1.10 Marking

Part II. Performance:

- 2.1 Leakage
- 2.2 Capacity
- 2.3 Durability at High Temperatures
- 2.4 Continued Operation
- 2.5 Season Cracking

Part III. Manufacturing and Production Tests:

ANSI Z21.15-2003 CSA 9.1 (compliance with ANSI Z21.41-2003 CSA 6.9 section 1.2.3 for CLASS 3305 04, 84)

Part I. Construction

Part II. Performance

- 2.1 General
- 2.2 Leakage
- 2.3 Capacity
- 2.4 Continued Operation
- 2.5 Low Temperature Operation
- 2.6 Performance Test for Gas Burner Valves Having Non-displaceable Valves Members
- 2.7 Adequacy of Seating Means – DNA - Non-displaceable Valves Member
- 2.8 Performance of Pilot Shut-off Devices – DNA - Manually Operated Gas Valve
- 2.9 Gripping Properties of Nozzles on Hose-end Valves
- 2.10 Marking Material Adhesion and Legibility – DNA – Not for certification

OBSOLETE requirements previously tested and listed to:

Cert. Lab Interim Req. No. 29 *Quick Disconnect Devices For Use at High Pressure and Low Temp.*

### **Project Number: 2341109**

Update to the ANSI Z21.41b-2010 CSA 6.9b-2010 *Addenda* in accordance with CERTIFICATION NOTICE – Gas Products No. 219. Evaluated the suitability of usage at -40°F. Addition of plastic socket sleeve (part number 401229).

Testing was conducted at CSA International, Cleveland, Ohio, U.S.A. The actual test results are maintained in Documentum.

Partial testing was conducted on model "3/375". Extension of compliant results for applicable testing shall come from previous certification.

Satisfactory results were obtained on the following tests:

ANSI Z21.41-2003·CSA 6.9-2003 *Quick Disconnect Device Devices For Use With Gas Fuel Appliances*

ANSI Z21.41a-2005·CSA 6.9b-2005 *Addenda*

ANSI Z21.41b-2010·CSA 6.9b-2010 *Addenda*

Part I. Construction

- 1.1 Scope – *DNA – extend from previously certified*
- 1.2 General – *DNA – extend from previously certified*
- 1.3 Dimensions – *DNA – extend from previously certified*
- 1.4 Operation – *DNA – extend from previously certified*
- 1.5 Safety – *DNA – extend from previously certified*
- 1.6 Strength – *DNA – extend from previously certified*
- 1.7 Material – *DNA – extend from previously certified*
- 1.8 Assembly – *DNA – extend from previously certified*
- 1.9 Instructions – *DNA – extend from previously certified*
- 1.10 Marking – *"Outdoor Use", "-40°F", and Nipple markings (1.10.1a, 1.10.2, 1.10.5)*

Part II. Performance

- 2.1 Leakage *-40°F leakage (2.1.2)*
- 2.2 Capacity – *DNA – extend from previously certified*
- 2.3 Durability at High Temperatures
- 2.4 Continued Operation
- 2.5 Season Cracking – *DNA – extend from previously certified*
- 2.6 Low Temperature Operation
- 2.7 Marking Material Adhesion and Legibility – *DNA – markings are CLASS I integral.*

Part III. Manufacturing and Production Tests

**REVISION INDEX**  
**M. B. Sturgis, Inc.**

<b>Rev. No.</b>	<b>Date</b>	<b>Letter/ Rpt. No.</b>	<b>Change Authorized</b>	<b>Description Page Number</b>	<b>Init.</b>
<b>1</b>	9/28/92	7/30/92 CGA Insp. Report	Replace instruction tag.	3, 04	<b>A.S.</b>
<b>2</b>	5/6/93	3/25/93	Update to ANSI Z21.41b-1992.	0 28 0 29	<b>AU</b>
<b>3</b>	11/2/93	Unann. Insp. of 10/29/93	Update to ANSI Z21.15-1992.	---	<b>LMH</b>
			Renumber report formerly A.G.A. Rpt. No. U-70-4A, CGA Rpt. No. 1415-MV/QDD-8898 to reflect IAS numbering system.		
<b>4</b>	07/28/97	Mfr's Ltr 06/20/97	Compliance with ANSI Z21.15- 1997•CGA 9.1-M97	---	<b>MMM</b>
<b>5</b>	01/04/99	Mfr's Ltr 12/23/98 112526-03	Add model 3/375M. Same as 3/375 with the hex on the inlet of the ball valve rounded off	3A,19A	<b>MDV</b>