



Descriptive Report and Test Results

MASTER CONTRACT: 162505

REPORT: 1136976

PROJECT: 2341108

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Edition 6: 2010-10-18; Project 2341108 – Cleveland; Issued by James A. Doherty

Contents: Certificate of Compliance – 2 Pages
Supplement to Certificate of Compliance – 1 Page
Description and Tests - Pages 1 to 9
Attachment Index: Att1 Manufacturing And Production Test Plan (CLASS 3312 01,81) – 12 Pages
Att1 Manufacturing And Production Test Plan (CLASS 3305 07,87) – 18 Pages
Att2 Figures – 20 to 75

PRODUCTS

CLASS 3312 01 - GAS CONVENIENCE OUTLETS AND ENCLOSURES

CLASS 3312 81 - GAS CONVENIENCE OUTLETS AND ENCLOSURES-Certified to U.S. Standards

Trade Name: COUPLE-SAFE

For Indoor/Outdoor Use (-40°F to 200°F)

<u>Model Number:</u>	<u>Rated Pressure:</u>	<u>Inlet (inch):</u>	<u>Outlet (inch):</u>
4/BV500C	5 PSI	½ NPT(F)	½ NPT(F)
5/BV750C	5 PSI	¾ NPT(F)	¾ NPT(F)

CLASS 3305 07 - ACCESSORY DEVICES (GAS) Quick Disconnect

CLASS 3305 87 - ACCESSORY DEVICES (GAS) Quick Disconnect-Certified to U.S. Standards

Trade Name: COUPLE-SAFE

For Indoor/Outdoor Use (-40°F)

<u>Model Number:</u>	<u>Rated Pressure:</u>	<u>Inlet (inch):</u>	<u>Outlet (inch):</u>
4-F8	1/2 PSI	½ NPT(F)	½ NPT(F)
5-F12	1/2 PSI	¾ NPT(F)	¾ NPT(F)

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APPLICABLE REQUIREMENTS

ANSI Z21.90-2001·CSA 6.24-2001 *Gas Convenience Outlets*

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*


MARKINGS

All markings and instructions are in compliance with the above mentioned requirements. (See Figures 45, 71-75)

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


ANSI Z21.90·CSA 6.24:

Gas Convenience Outlet s 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 maximum operating pressure (socket), "5 PSI MAX";
- Symbol of the organization making tests for compliance with this standard (plug and socket), "";
- Rated Flow Capacity in Btu/h;
- Minimum operating temperature, "-40°F";
- 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

ANSI Z21.41·CSA 6.9:

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), "";
- 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

ANSI Z21.90·CSA 6.24:

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 (CLASS 3312 01,81))

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

The manufacturer's test method(s) shall be capable of relating back to the test(s) specified in Part II of the ANSI Z21.90•CSA 6.24

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 (2.2): 100% of all Gas Convenience Outlets shall be tested and shall not leak in excess of 20 cubic centimeters of air per hour when subjected to air pressures of 1.0 inches water column and 150 percent maximum rated working pressure in both the Open and Closed position at room temperature.

3.3

Leakage (2.2 and 2.3): Once a year, a Gas Convenience Outlet shall be tested and shall not leak in excess of 20 cubic centimeters of air per hour when subjected to air pressures of 1.0 inches water column and 150 percent maximum rated working pressure at high and low temperature.

Continued Operation (2.7): Once a year, a Gas Convenience Outlet shall be tested (5,000 cycles of connection and disconnection with up to 720 degrees of rotation (as applicable) of the QDD coupling and opening and closing of the manual valve (1 cycle consists of: connection, opening the manual valve, 360° clockwise rotation, 360° counter-clockwise rotation, closing the manual valve, and disconnection) and shall not leak in excess of 20 cubic centimeters of air per hour.

Strength tests (2.8, 2.9, 2.10, 2.11): on complete valves: Once a year

2.8 Drop: Shall checked for leakage per 2.2.1

2.9 Suspended Weight: No deformation, breakage and shall checked for leakage per 2.2.1.

2.10 Impact: No cracking or breaking allowed.

2.11 Pull: No cracking or breaking or leakage per 2.2.1

Safety tests (2.13): Once a year, a Gas Convenience Outlet will be tested and shall checked for leakage per 2.2.

3.4

The results of the tests and procedures outlined above shall be recorded and maintained by the manufacturer for review by the certifying agency.

ANSI Z21.41•CSA 6.9:

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 (CLASS 3305 07,87))

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.

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

4/BV500C Gas Convenience Outlet (GCO) is of 360 Brass construction for the Socket and Plug; utilizing a hand-operated positive locking 360 Brass *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 Conbraco 51GB3011 manual gas valve with a Zinc Alloy *Interlocking Knob* (Part Number 303007).

- The Socket (female coupler) (Part Number 104023) portion has a 1/2" 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 valve assembly (302/304 Stainless Steel *Valve Spring*, *Valve Guide*; 360 Brass *Valve Member*, *Valve Stem*, *Valve Stem Keeper*; and a Eutectic Alloy *Thermal Valve Solder Pellet*) for automatic means of gas shut-off utilizing an Buna-N Rubber *O-Ring* 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 Cast Bronze construction for the *Body*, Brass for the *Stem* and *Ball*, and Teflon for the *Seats*.
- The Plug (male nipple) (Part Number 401506) portion has a 1/2" NPT(F) outlet connection.

5/BV750C Similar to model "4/BV500C" in design except construction is for 3/4-inch Gas Convenience Outlet (GCO).

- The Socket (female coupler) (Part Number 104081) portion has a 3/4" NPT(F) inlet connection utilizing a Conbraco 51GB4011 manual gas valve.

The Plug (male nipple) (Part Number 401606) portion has a 3/4" NPT(F) outlet connection.

4-F8 Quick Disconnect Device (QDD) 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.

- The Socket (female coupler) (Part Number 104088) portion has a 1/2" NPT(F) inlet connection. The socket incorporates a spring actuated valve assembly (302/304 Stainless Steel *Valve Spring*, *Valve Guide* & 360 Brass *Valve Member*, *Valve stem Keeper*) for automatic means of gas shut-off utilizing an Buna-N Rubber *O-Ring* 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 Socket is a two piece design with the *Socket Body* and *Socket Body Connector* incorporating the inlet connection sealed with a Buna-N Rubber *O-Ring*.
- The Plug (male nipple) (Part Number 401506) portion has a 1/2" NPT(F) outlet connection.

5-F12 Similar to model "4-F8" in design except construction is for 3/4-inch Quick Disconnect Device (QDD).

- The Socket (female coupler) (Part Number 104089) portion has a 3/4" NPT(F) inlet connection.
- The Plug (male nipple) (Part Number 401606) portion has a 3/4" NPT(F) outlet connection.

Specifications

Rated Inlet Pressure:	1/2 PSI for Quick Disconnect Device and 5 PSI for Gas Convenience Outlets
Operating Temperature Range:	-40°F to 200°F
Mounting Position:	Multipoise
Flow Capacity:	172,200 Btu/Hr. (1/2" size) 201,300 Btu/Hr. (3/4" size)

(Based on a 1000 Btu per cubic foot gas, a specific gravity of 0.64 at a 0.3 inch w.c. pressure drop.)

Installation: Indoor/Outdoor Use
 Thermal Shutoff: 291°F

Attachment Index

DRAWING NO.	REV	Figure NO.	DESCRIPTION
Transferred 104082	A00	0 1	Model 3 Coupling And Conbraco Ball Valve Assy. 3/8 x 375
Transferred 203033	A00	0 2	Ball Valve Assy. (Conbraco #51GB2011) 3/8 x 11/16-24
Transferred 203039	A00	0 3	Model 3 Temperature Sensitive Valve Assembly
Transferred 301003	A01	0 4	O-Ring .551 ID x .691 OD x .070 W
Transferred 301005	B00	0 5	Model 3/375 Socket Seal .633 OD x .363 ID x .062 Width
Transferred 303006	A00	0 6	Model 3 & 4 QD Interlocking Knob For Conbraco Forged Valve
Transferred 305002	A00	0 7	Sleeve Spring, CSN 375
Transferred 305005	C00	0 8	Retaining Ring, CSN 375
Transferred 305011	C00	0 9	Poppet Spring Model 3
Transferred 305012	B00	0 10	Retainer, Model 3 Poppet Assy.
Transferred 305027	A00	0 11	Bottom Guide, Model 3
Transferred 306001	A00	0 12	Socket Ball, .156 Dia
Transferred 306502	A00	0 13	Serrated Locknut 3/8-24
Transferred 307004	C00	0 14	Sturgifuse Solder Preform
Transferred 401204	B00	0 15	Socket Body, Model 3 / 375
Transferred 401211	A00	0 16	Poppet Member For Model 3
Transferred 401212	A01	0 17	Valve Stem For Model 3 Poppet Assembly
Transferred 401219	A00	0 18	Socket Sleeve, M3/375 With Conbraco Valve
Deleted 600039	A00	0 19	Couple Safe With Ball Valve Warning & Instruction Tag
104023	A00	0 20	1/2" Quick-Disconnect / Ball Valve Assembly-Model 4 / 500
203028	A00	0 21	Model 4 Coupling Assy.
203029	A00	0 22	Model 4 Valve Assy.
203034	A00	0 23	Gas Ball Valve Assy. (Conbraco #51GB3011) 1/2 x 15/16-20 QD Conn.
301017	A00	0 24	O-Ring .551 ID x .070 W (Standard AS-568A-015)
301018	A00	0 25	O-Ring .924 ID x .103 W. (Standard AS-568A-119)
301019	A00	0 26	O-Ring .737 ID x .103 W. (Standard AS 568-116)
305040	A00	0 27	Valve Spring Model 4
305042	A00	0 28	Sleeve Spring, Model 4 / 500
305043	A00	0 29	Retaining Ring, Model 4 / 500
305051	A00	0 30	Model 4 Valve Guide
306005	A00	0 31	.188 Dia. S.S. Check Ball
306502	A00	0 32	Serrated Locknut 3/8-24
307008	A00	0 33	Solder Preform For Model 4 Thermal Poppet
401501	A00	0 34	Thermal Valve Member, Model 4 / 500
401502	A00	0 35	Thermal Valve Stem, Model 4 / 500
401503	B00	0 36	Socket Body, Model 4 / 500
401505	A00	0 37	Socket Sleeve, Model 4 / 500
104081		0 38	Model 5 750 Quick-Disconnect Ball Valve Assembly
203030	A00	0 39	Thermal Valve Assembly, Model 5 QD
203032	A00	0 40	Model 5 Socket Assembly
203035	A00	0 41	Ball Valve Assy. (Conbraco 5 1GB4011) 3/4 x 1-1/16-20 QD Conn.
301023	A00	0 42	O-Ring .614 ID x .070 W (Standard AS-568A-016)
301024	A00	0 43	O-Ring .924 ID x .103 W (Standard AS-568A-119)

301025	A00	0 44	O-Ring .921 ID x .136 W (Standard AS-568-213)
303007		0 45	Model 5 QD Interlocking Knob For Conbraco Forged Valve
305040	A00	0 46	Valve Spring Model 4
305055	A00	0 47	Model 5 QD Valve Guide
305057	A00	0 48	Sleeve Spring, Model 5 / 750
305058	A00	0 49	Retaining Ring, Model 5 / 750
306503	A00	0 50	Serrated Locknut 7/16-20
307008	A00	0 51	Solder Preform For Model 4 Thermal Poppet
401502	A00	0 52	Thermal Valve Stem, Model 4 / 500
401509	B00	0 53	Model 4, Thermal Valve Stem Keeper / Guide
401601	A00	0 54	Model 5 Socket Body
401602	A00	0 55	Model 5 Interlocking Socket Sleeve
401603	A00	0 56	Thermal Valve Member, Model 5
Photo		057	Assembly of 4-F8 and 5-F12
104088	-	058	Model 4/500 Quick Disconnect with 1/2 FPT Socket Body Con.
203029	A00	059	Model 4 valve Assembly
203042	A00	060	Model 4 Coupling Assembly
401512	C01	061	Short Socket Sleeve, Model 4
401510	-	062	Model 4/500 Socket Body Con x 1/2 FPT
104089	-	063	Model 5/750 Quick Disconnect with 3/4 FPT Socket Body Con
203043	A00	064	Model 5 socket Assembly (Short Sleeve)
203030	A00	065	Thermal Valve Assembly, Model 5 QD
401601	A00	066	Model 5 Socket Body
401607	-	067	Model 5/750 Socket Body Con x 3/4 FPT
401608	A00	068	Thermal valve Stem, Model 5
401609	A00	069	Model 5, thermal Valve Stem Keeper/ Guide
401610	A00	070	Model 5 Short Socket Sleeve
401506	C00	071	Model 4/500 Plug Con x 1/2 FPT
401606	C01	072	Model 5/750 Plug Con x 3/4 FPT
401525	A01	073	Plastic Socket Sleeve 1/2
401614	A01	074	Plastic Socket Sleeve 3/4
600008	A01	075	Installation Instructions

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 Z21.90-CSA 6.24

Part I. Construction:

- 1.1 Scope
- 1.2 General
- 1.3 Data to Be Furnished by to Manufacturer
- 1.4 Connections
- 1.5 Configuration
- 1.6 Operation
- 1.7 Valve Position Indication
- 1.8 Threads
- 1.9 Materials
- 1.10 Gas Outlet Enclosure (Optional)
- 1.11 Instructions
- 1.12 Marking

Part II. Performance:

- 2.1 General
- 2.2 Leakage
- 2.3 Low Temperature Operation
- 2.4 Nondisplaceable Valve Members
- 2.5 Connection and Disconnection at Room Temperature
- 2.6 Flow Capacity
- 2.7 Continued Operation
- 2.8 Drop Test
- 2.9 Support Strength
- 2.10 Impact Strength
- 2.11 Pull strength
- 2.12 Fire Hazard Resistance
- 2.13 Resistance to Permanent Damage at Excessive Supply Pressure
- 2.14 Thermal Shut-off
- 2.15 Marking Material Adhesion and Legibility

Part III. Manufacturing and Production Tests:

ANSI Z21.41-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 Material
- 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
- 2.6 Low Temperature Operation
- 2.7 Marking Material Adhesion and Legibility

Part III. Manufacturing and Production Tests

Project Number: 2341108

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 of models “4-F8” and “5- F12” for outdoor-use at -40°F. Addition of plastic socket sleeve for models “4-F8” and “5- F12” (part number 401525 or 401614 respectively).

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

Partial testing was conducted on models “4-F8” and “5- F12”. Extension of compliant results for applicable testing shall come from previous Project Number 1391684.

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 Project Number: 1391684*
- 1.2 General – *DNA – extend from Project Number: 1391684*
- 1.3 Dimensions – *DNA – extend from Project Number: 1391684*
- 1.4 Operation – *DNA – extend from Project Number: 1391684*
- 1.5 Safety – *DNA – extend from Project Number: 1391684*
- 1.6 Strength – *DNA – extend from Project Number: 1391684*
- 1.7 Material – *DNA – extend from Project Number: 1391684*
- 1.8 Assembly – *DNA – extend from Project Number: 1391684*
- 1.9 Instructions – *DNA – extend from Project Number: 1391684*
- 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 Project Number: 1391684*
- 2.3 Durability at High Temperatures
- 2.4 Continued Operation
- 2.5 Season Cracking – *DNA – extend from Project Number: 1391684*
- 2.6 Low Temperature Operation
- 2.7 Marking Material Adhesion and Legibility – *DNA – markings are CLASS I integral.*

Part III. Manufacturing and Production Tests