



# 29 SERIES - SAFETY VALVE

*INSTALLATION, OPERATION, & MAINTENANCE*

*Part I*

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### IMPORTANT

Conbraco pressure relief valves are safety devices designed for the protection of lives and property. These valves will provide years of service when properly installed and maintained. The information contained herein is intended for use by qualified personnel to properly maintain these devices.

*Serious property damage and injury or death may occur should a pressure relieving device fail to operate correctly. Any installation, maintenance, adjustment, repair or testing should only be performed by experienced personnel properly trained and qualified in accordance with applicable codes and standards.*

When maintaining or repairing Conbraco pressure relief valves, use only original Conbraco parts to ensure safe and reliable operation.

Contact your local Conbraco factory representative for the name of a factory authorized repair center near you. Or visit us on the web at [www.conbraco.com](http://www.conbraco.com).

## Maximum Pressure/Temperature Chart



**Warning – Application must not exceed the pressure/temperature limitations below.**

Series	29-102/202/302 29-303/402/501	29-202-__S, Stainless Trim 29-303-__S, Stainless Trim
Trim Seat	Brass PFA Teflon <sup>®</sup>	Stainless Steel PFA Teflon <sup>®</sup>
Max. Set – Steam	200 psi (1379.0 kPa)	200 psi (1379.0 kPa)
Max. Set – Air/Gas	200 psi (1379.0 kPa)	200 psi (1379.0 kPa)
Max. Temperature	406°F (207.8°C)	406°F (207.8°C)

## Installation Instructions

This quality Conbraco safety valve, along with proper installation, use and maintenance will provide many years of reliable service and protection against excessive pressure build-up of steam, air or non-hazardous gas. Use of this valve for any other purpose or media places all responsibility upon the user. Before installing valve, or operating equipment to which it is installed, read all instructions carefully.



**Caution - Always wear proper safety equipment.**



**Caution – Valve may be very hot to the touch. Wear protective equipment if necessary.**

1. Installation must be performed by qualified service personnel only.
2. It is the piping system designer's responsibility to implement appropriate protective measures to minimize reaction forces and moments which result from supports, attachments, piping, etc.
3. Service is to be compatible with the materials of construction. Prior to selection it is the user's responsibility to determine that the valve is appropriate for the intended application. Application not to allow corrosion  $>.001''/\text{year}$  (.025 mm/year).
4. The capacity rating of this valve must equal or exceed that of the equipment to which it is installed.
5. Do not use this valve on a coal or wood fired boiler having an uncontrolled heat input.
6. Do not use the test lever as a lifting device during installation.
7. Insure that all connections, including the valve inlet, are clean and free of any foreign material.
8. Use pipe compound sparingly or tape on external threads only.
9. Do not use a pipe wrench! Use proper type and size wrench on wrench pads only.
10. This valve must be mounted in a vertical upright position directly to a clean tapped opening in the top of the pressure vessel. Under no circumstances should there be a flow restriction or valve of any type between the safety valve and pressure vessel.
11. Do not plug or obstruct valve body drain. A body drain line should be installed to dispose of condensate.
12. See ASME Boiler and Pressure Vessel Code and local jurisdiction for additional installation and operating instructions.



**Caution - During operation, this valve may discharge large amounts of high pressure steam, hot water, air or gas. To reduce the potential for bodily injury and property damage, a discharge line must be installed that:**

- a) is connected from the valve outlet to a safe point of discharge with no intervening valve;
- b) allows complete drainage of the valve and discharge line;
- c) is independently supported and securely anchored to avoid applied stress on the valve;
- d) is as short and straight as possible;
- e) terminates freely to atmosphere where any discharge will be clearly visible and is at no risk of freezing;
- f) is, over it's entire length, of a pipe size equal to or greater than the valve outlet. Use only schedule 40 pipe for discharge. Do not use schedule 80, extra strong or double strong pipe or connections. Do not cap, plug or obstruct discharge pipe outlet! If discharge is piped upward, a condensate drain must be provided in the elbow below the vertical pipe to prevent condensate from returning into the valve. A Conbraco Drip Pan Elbow is ideal.

## Operating Instructions

If adding water to a boiler, do not allow water to flow through safety valve as sediment or debris may be deposited on seating surfaces. To achieve topmost performance and maximum service life, it is necessary to maintain a proper pressure margin between the set pressure of the safety valve and the operating pressure of the equipment. The minimum recommended operating pressure margin for this type of safety valve is 5 psi for pressures up to 70 psig and is 10% of set pressure for pressures above 70 psig. Failure to maintain this operating margin may result in leakage past the seat and an accumulation of deposits on the seating surface. Excessive deposits may prevent the safety valve from operating properly, and a dangerous pressure build-up and equipment rupture may result.

## Maintenance and Testing Instructions



**CAUTION!** Before testing, make certain discharge pipe is properly connected to valve outlet and arranged to contain and safely dispose of discharge (see Installation Instructions).

Under normal operating conditions a “try lever test” should be performed biannually in steam service, with a visual inspection every 2 months and an annual pressure test. In air/gas service, perform a visual inspection every 6 months, a lever test annually and a pressure test every 3 years. Under severe service conditions or if corrosion, pitting, and/or deposits are noticed within the valve body, testing must be performed more often. A “try lever test” should be performed at the end of any non-service period.



**CAUTION!** Hot, high pressure fluid may be discharged from body drain during lever test.



**CAUTION!** High sound levels may be experienced during lever test. Wear proper safety equipment and exercise extreme care.

Test at or near maximum operating pressure by holding the test lever fully open for at least five seconds to flush the valve seat free of sediment and debris. Then release lever and permit valve to snap shut. If lift lever does not actuate, or there is no evidence of discharge, turn off equipment immediately and contact a licensed contractor or qualified service personnel. For resetting, adjustment or repairs contact Conbraco Industries for the appropriate service facility.

Neither Conbraco Industries, Inc. nor it's agents assume any liability for valves improperly installed or maintained.

## 29 Series Part Number

**EX: 29102A100**

POSITION	OPTION
1-2	<b>SERIES #</b>
3-5	<b>INLET/OUTLET</b>
6	<b>SERVICE</b>
7+	<b>SET PRESSURE</b>

29 = 29 Series  
102 = 3/8"MNPT x 1"FNPT  
202 = 1/2"MNPT x 1"FNPT  
302 = 3/4"MNPT x 1"FNPT  
303 = 3/4"MNPT x 1-1/4"FNPT  
402 = 1"MNPT x 1-1/4"FNPT  
501 = 1-1/4"MNPT x 1-1/4"FNPT  
A = ASME SECTION I (V) STEAM  
K = ASME SECTION VIII (UV) AIR/GAS  
L = ASME SECTION VIII (UV) STEAM  
N = NON-CODE AIR/GAS  
P = NON-CODE STEAM  
30 THRU 200, PSIG

DIGITS AFTER SET PRESSURE INDICATE ADDITIONAL FEATURES;  
FACTORY ISSUED LETTERS/NUMBERS FOR SPECIAL OPTIONS.

S = STAINLESS STEEL TRIM (202/303 ONLY)  
X = OXYGEN CLEAN

## Nameplate Information

 <b>CONBRACO</b> INDUSTRIES INC., USA		CC2408							
MODEL 29302L100				0035					
<input type="radio"/>	CAP	448		X LB/HR		SCFM		GPM	<input type="radio"/>
	SET	100	PSIG			6.9	BARG		
SIZE		3/4		IN	DN	19	DATE		0412
203		KG/HR		TS		208		CRN 0G8547.5C	

### ASME Code Symbol

When applicable, the ASME “V” or “UV” stamp will be added in the empty box in the upper right corner. The “V” symbol signifies the valve has been designed, manufactured, and tested in accordance with Section I of the ASME Boiler and Pressure Vessel Code and is approved for use on power boilers. The “UV” symbol signifies the valve has been designed, manufactured, and tested in accordance with Section VIII of the ASME Boiler and Pressure Vessel Code and is approved for use on unfired pressure vessels and pressure piping systems.

### NB Symbol

This symbol indicates that the capacity value stamped on the nameplate has been certified by the National Board of Boiler and Pressure Vessel Inspectors.

### CRN

This number is the design registration number in accordance with CSA B51, the Canadian Boiler, Pressure Vessel and Pressure Piping Code.

### MODEL

This is the valve model number as described in the Part Number Matrix.

### CAP

This is the approved capacity of the valve. One of the three adjacent boxes will be marked to indicate the units of the capacity rating.

### SET

This is the set pressure of the valve in pounds per square inch and bar gauge.

### SIZE

This is the inlet size of the valve in inches.

### TS

This is the maximum allowable temperature in degrees celcius.

### DN

This is the metric size designation of the inlet.

### DATE

This is the date of manufacture. The first two numbers are the year (04=2004), and the last two numbers indicate the week of the year (12=12<sup>th</sup> week of the year).

## Amendment Register

DATE	REV	PAGES	DESCRIPTION
6/20/04	A	ALL	NEW RELEASE