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Chapter 21

Canadian Registration Numbers (CRNs)

A Material Test Report (MTR) helps prove that a component is made from the correct material. A Canadian Registration Number (CRN) serves a different purpose.

A CRN demonstrates that the design of a pressure-retaining component has been reviewed and accepted for use by the applicable Canadian regulatory authority.

In simple terms:

- An MTR helps prove the material is acceptable.
- A CRN helps prove the design is acceptable.

Both may be required before a component can be installed in a pressure system.

21.1 What Is a CRN?

CRN stands for **Canadian Registration Number**.

A CRN is issued after a pressure-retaining design has been reviewed and accepted by the appropriate regulatory authority.

CRNs are commonly found on:

- Valves
- Fittings
- Pressure vessels
- Boilers
- Heat exchangers
- Pressure piping components

A component that requires registration may not be legally installable until an appropriate CRN has been obtained.

21.2 Why CRNs Exist

Pressure equipment can store a tremendous amount of energy.

If a component fails, the consequences may include:

- Serious injury
- Property damage
- Loss of production
- Environmental damage

CRNs provide a mechanism for verifying that pressure-containing designs meet the requirements of applicable codes and standards before they are placed into service.

21.3 CRNs and MTRs

MTRs and CRNs are often confused because both involve documentation.

However, they answer different questions.

Question	Document
Is the material acceptable?	MTR
Is the design acceptable?	CRN

A valve may have:

- A valid MTR for its material.
- A valid CRN for its design.

Both forms of documentation may be required.

21.4 Typical CRN Format

A typical CRN may appear similar to: `0C12345.5C` or `0F56789.2`.

The format can vary, but the CRN typically contains two important pieces of information:

- A registration number.
- One or more jurisdiction identifiers.

The meaning of the jurisdiction code is discussed later in this chapter.

21.5 Where Is the CRN Found?

The CRN may appear on:

- A nameplate
- A casting
- A stamping
- A manufacturer's data report
- Product documentation

Examples include markings on:

- Pressure vessels
- Safety valves
- Fittings
- Strainers
- Heat exchangers

When inspecting a component, both the physical marking and the supporting documentation should be reviewed.

21.6 Components That Commonly Have CRNs

Steam operators frequently encounter CRNs on:

21.6.1 Valves

Examples include:

- Safety valves
- Pressure reducing valves
- Control valves

21.6.2 Fittings

Examples include:

- Forged steel fittings
- Specialized branch fittings
- Strainers

21.6.3 Pressure Vessels

Examples include:

- Air receivers
- Steam separators
- Heat exchangers
- Boiler components

21.7 Reading a CRN

A CRN is not intended to provide material properties or operating pressures.

Instead, the CRN acts as a reference that links the component design to the registration records maintained by the regulatory authority.

The CRN does not replace:

- MTRs
- Pressure ratings
- Nameplate information
- Code markings

Rather, it supplements them.

21.8 Why Pipefitters Should Care

Pipefitters, inspectors, and owners are often responsible for verifying that the correct components have been installed.

During inspections, questions may include:

- Does this component require a CRN?
- Is a CRN present?
- Does the documentation match the component?

Understanding where to find a CRN and what it represents can help avoid delays during inspection and certification.

21.9 Common Misconception

Many people assume that a CRN proves a component is safe to use. In reality, a CRN only demonstrates that the design has been reviewed and accepted.

The condition of the component must still be verified by inspection, testing, and proper maintenance.

For example, a valve may have a valid CRN but still be:

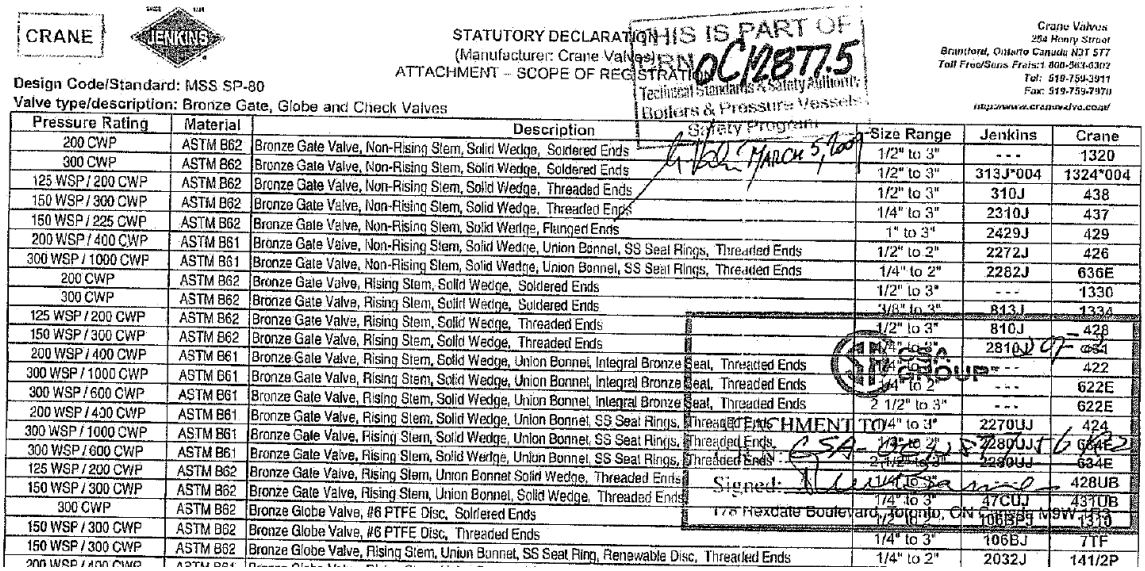
- Worn
- Damaged

- Improperly installed
- Unsuitable for the intended service

A CRN demonstrates acceptance of the design, not the condition of the individual component.

21.10 Example CRN Registration

The following document is part of a CRN registration for Crane valves.



CRANE

STATUTORY DECLARATION
(Manufacturer: Crane Valves)
ATTACHMENT – SCOPE OF REGISTRATION

THIS IS PART OF CRN 0C2877.5
Technical Standards & Safety Authority
Boilers & Pressure Vessels
Safety Program
March 5, 2007

Crane Valves
254 Henry Street
Brantford, Ontario Canada N3T 5T7
Toll Free/Sans Frais: 800-363-0302
Tel: 519-759-3911
Fax: 519-759-7970
http://www.cranevalve.com/

Design Code/Standard: MSS SP-80
Valve type/description: Bronze Gate, Globe and Check Valves

Pressure Rating	Material	Description	Size Range	Jenkins	Crane
200 CWP	ASTM B62	Bronze Gate Valve, Non-Rising Stem, Solid Wedge, Soldered Ends	1/2" to 3"	---	1320
300 CWP	ASTM B62	Bronze Gate Valve, Non-Rising Stem, Solid Wedge, Soldered Ends	1/2" to 3"	313J*004	1324*004
125 WSP / 200 CWP	ASTM B62	Bronze Gate Valve, Non-Rising Stem, Solid Wedge, Threaded Ends	1/2" to 3"	310J	438
150 WSP / 300 CWP	ASTM B62	Bronze Gate Valve, Non-Rising Stem, Solid Wedge, Threaded Ends	1/4" to 3"	2310J	437
150 WSP / 225 CWP	ASTM B62	Bronze Gate Valve, Non-Rising Stem, Solid Wedge, Flanged Ends	1" to 3"	2429J	429
200 WSP / 400 CWP	ASTM B61	Bronze Gate Valve, Non-Rising Stem, Solid Wedge, Union Bonnet, SS Seat Rings, Threaded Ends	1/2" to 2"	2272J	426
300 WSP / 1000 CWP	ASTM B61	Bronze Gate Valve, Non-Rising Stem, Solid Wedge, Union Bonnet, SS Seat Rings, Threaded Ends	1/4" to 2"	2282J	636E
200 CWP	ASTM B62	Bronze Gate Valve, Rising Stem, Solid Wedge, Soldered Ends	1/2" to 3"	---	1330
300 CWP	ASTM B62	Bronze Gate Valve, Rising Stem, Solid Wedge, Soldered Ends	1/2" to 3"	813J	1334
125 WSP / 200 CWP	ASTM B62	Bronze Gate Valve, Rising Stem, Solid Wedge, Threaded Ends	1/2" to 3"	810J	428
150 WSP / 300 CWP	ASTM B62	Bronze Gate Valve, Rising Stem, Solid Wedge, Threaded Ends	1/4" to 3"	2810J	634
200 WSP / 400 CWP	ASTM B61	Bronze Gate Valve, Rising Stem, Solid Wedge, Union Bonnet, Integral Bronze Seat, Threaded Ends	1/4" to 2"	---	422
300 WSP / 1000 CWP	ASTM B61	Bronze Gate Valve, Rising Stem, Solid Wedge, Union Bonnet, Integral Bronze Seat, Threaded Ends	1/4" to 2"	---	622E
300 WSP / 600 CWP	ASTM B61	Bronze Gate Valve, Rising Stem, Solid Wedge, Union Bonnet, Integral Bronze Seat, Threaded Ends	2 1/2" to 3"	---	622E
200 WSP / 400 CWP	ASTM B61	Bronze Gate Valve, Rising Stem, Solid Wedge, Union Bonnet, SS Seat Rings, Threaded Ends	1/4" to 3"	2270UJ	424
300 WSP / 1000 CWP	ASTM B61	Bronze Gate Valve, Rising Stem, Solid Wedge, Union Bonnet, SS Seat Rings, Threaded Ends	1/4" to 2"	2280UJ	634E
300 WSP / 600 CWP	ASTM B61	Bronze Gate Valve, Rising Stem, Solid Wedge, Union Bonnet, SS Seat Rings, Threaded Ends	2 1/2" to 3"	2290UJ	634E
125 WSP / 200 CWP	ASTM B62	Bronze Gate Valve, Rising Stem, Union Bonnet Solid Wedge, Threaded Ends	1/4" to 3"	47CUJ	428UB
150 WSP / 300 CWP	ASTM B62	Bronze Gate Valve, Rising Stem, Union Bonnet, Solid Wedge, Threaded Ends	1/4" to 3"	47CUJ	431UB
300 CWP	ASTM B62	Bronze Globe Valve, #6 PTFE Disc, Soldered Ends	1/2" to 3"	106BJ	1319
150 WSP / 300 CWP	ASTM B62	Bronze Globe Valve, #6 PTFE Disc, Threaded Ends	1/4" to 3"	106BJ	7TF
150 WSP / 300 CWP	ASTM B62	Bronze Globe Valve, Rising Stem, Union Bonnet, SS Seat Ring, Renewable Disc, Threaded Ends	1/4" to 2"	2032J	141/2P

ATTACHMENT TO CRN 0C2877.5

Signed:

178 Hexdale Boulevard, Toronto, ON M9W 1H3

Fig. 1 Crane CRN

This document illustrates an important concept: a CRN is usually issued for a family of pressure-retaining designs rather than for a specific serial-numbered valve.

The registration identifies:

- The manufacturer
- The applicable design standard
- The types of valves covered
- Materials of construction
- Pressure ratings
- Size ranges
- Manufacturer model numbers

In this example, the registration applies to a variety of bronze gate, globe, and check valves manufactured in accordance with MSS SP-80.

21.10.1 What Does the CRN Cover?

A common misconception is that a CRN certifies an individual valve. In reality, the CRN applies to the design of the valve.

For example, a particular model listed in the registration may be available in:

- Several sizes
- Multiple pressure ratings

- Different end connections

All of these configurations may be covered by the same registration provided they fall within the approved scope.

21.10.2 What Does the CRN Not Cover?

A CRN does not:

- Prove the material composition
- Replace the MTR
- Verify the condition of a valve
- Guarantee proper installation

Those matters are addressed through material certification, inspection, testing, and maintenance.

21.10.3 The Relationship Between MTRs and CRNs

The previous chapter discussed Material Test Reports (MTRs).

The relationship can be summarized as: MTR proves the material while CRN proves the design.

Both may be required to demonstrate that a pressure-retaining component is acceptable for service.

21.11 Understanding the Province and Territory Suffixes

The digits and letters that appear after the decimal point in a CRN identify the jurisdictions in which the design has been accepted.

The first digit or letter after the decimal point indicates the province or territory where the design was first registered.

Code	Province or Territory
1	British Columbia
2	Alberta
3	Saskatchewan
4	Manitoba
5	Ontario
6	Quebec
7	New Brunswick
8	Nova Scotia
9	Prince Edward Island
0	Newfoundland and Labrador
N	Nunavut
T	Northwest Territories
Y	Yukon

21.11.1 Examples

A CRN such as: `4321.5` indicates a design that was first registered in Ontario.

A CRN such as: `4321.52` indicates a design first registered in Ontario and subsequently accepted in Alberta.

Likewise, `4321.15` indicates a design first registered in British Columbia and later accepted in Ontario.

The order of the suffixes is important because the first jurisdiction shown is the jurisdiction that originally issued the registration. A design registered in Ontario and later accepted in Alberta is not the same registration history as a design first registered in Alberta and later accepted in Ontario.

21.11.2 The Meaning of "C"

Many modern CRNs end with the letter `C`. For example: `0C12877.5C`. The letter **C** indicates that the design has been accepted in all Canadian jurisdictions.

In this example:

- The design was first registered in Ontario (5).
- The design was subsequently accepted throughout Canada (C).

This abbreviation is commonly used because listing every individual province and territory would make the CRN unnecessarily long.

21.11.3 Example from the Crane Registration

The Crane valve registration shown in Fig. 1 carries the CRN: `0C12877.5`. The `.5` indicates that Ontario was the first jurisdiction to register the design.

If the registration subsequently receives acceptance across Canada, the CRN may be shown using the abbreviated form: `0C12877.5C` where `C` indicates Canada-wide acceptance.

21.11.4 Why Pipefitters Should Care

When reviewing a valve, fitting, or pressure vessel, the presence of a CRN demonstrates that the design has been reviewed and accepted by the relevant regulatory authority.

Understanding the suffix allows you to determine:

- Where the design was first registered.
- Whether the design has been accepted in multiple jurisdictions.
- Whether the design has Canada-wide acceptance.

This becomes particularly important when purchasing pressure equipment that may be installed in different provinces or territories.

21.12 Historical Boilers and CRNs

Most modern valves, fittings, and pressure vessels are manufactured from standardized designs and are covered by a CRN that applies to an entire family of products.

Historical boilers are often very different.

Because many heritage boilers were built as individual machines, modified over their operating lives, repaired using a variety of methods, or constructed before modern design standards were established, each boiler may require its own unique registration and evaluation.

In Manitoba, heritage boilers are typically assigned an individual CRN because each boiler has a unique construction history, repair and alteration history, and inspection history.

21.12.1 Relationship Between CRN and MAWP

The CRN for a historical boiler is closely tied to the boiler's Maximum Allowable Working Pressure (MAWP).

The MAWP is established through a combination of:

- Inspection
- Non-destructive examination (NDE)
- Thickness measurements
- Engineering calculations
- Applicable code requirements

As the boiler ages, periodic inspections may reveal changes in condition, including corrosion, wastage, repairs, or other factors that affect strength.

Under the National Board Inspection Code (NBIC), historical boilers are periodically re-evaluated. If the results of inspection or NDE lead to a change in the calculated MAWP, the boiler's registration records must be updated to reflect the new allowable pressure.

A reduction in MAWP normally requires a corresponding change to the boiler's registered maximum allowable operating pressure and may require revisions to safety-valve settings, inspection records, and registration documentation.

21.12.2 Why This Matters

For modern catalogued valves and fittings, the CRN is primarily a design-registration document.

For historical boilers, the CRN becomes part of an ongoing process of inspection, engineering evaluation, and regulatory oversight.

As a result, a historical boiler's CRN may evolve over time as new inspection information becomes available and the boiler's allowable operating pressure is reassessed.

This is one reason why pressure ratings, safety-valve settings, inspection certificates, and CRN records must all remain consistent with the boiler's current MAWP.

21.13 Key Takeaway

A Canadian Registration Number (CRN) is evidence that a pressure-retaining component design has been reviewed and accepted by the applicable Canadian regulatory authority. While an MTR helps prove the material is acceptable, a CRN helps prove the design is acceptable. Both play important roles in demonstrating compliance and ensuring the safety of pressure equipment.