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White Paper

Consolidated™ 1900 DM Series Safety Relief Valves Management of Change (MoC)

Understanding Dual Media Certification

The patented innovation of the Dual Media trim design makes it the first spring-loaded safety relief valve in the industry that is “dual certified”, as defined by API Standard 520 Part 1, 10th Edition – Sizing and Selection. The “Dual Certified” designation indicates that a safety relief valve is both vapor/gas flow, and liquid flow certified, where dual certification is achieved without making any modifications or adjustments to the relief device when switching fluids during the flow testing. The 1900 DM trim is engineered to perform on both liquid and/or gas media and is Dual Certified to meet dual media (liquid and gas) nameplate capacity stamping per ASME B&PVC Code Case 2787. The 1900 DM trim is ideal for any liquid or gas application, two-phase liquid and gas, flashing or multiple relief case scenarios. There are significant performance improvements associated with dual certified trim such as blowdown improvement, set point consistency and overall valve stability. Table 1 provides additional details outlining the performance improvements a dual certified trim style has versus a traditional single media certified trim.

Dual Certified Trim vs. Traditional Single Media Certified Trim

Characteristic	Vapor Certified SRV	Liquid Certified SRV	Dual Certified SRV
Liquid Relief	Capacity is not certified, but can be estimated using guidance in 5.9 (may need up to 25% overpressure to achieve full lift)	Capacity is certified	Capacity is certified
Vapor Relief	Capacity is certified	Capacity is not certified and is not addressed herein See manufacturer for estimated capacity	Capacity is certified
Range of Blowdown	Up to 10% for both vapor and liquid	Up to 25% for vapor Typically, up to 12% for liquids. Some manufacturers may have higher blowdowns	The 1900 DM Series has a blowdown range of 5-15% for gas and liquid, much lower than any liquid/double certified SRV trim on the market at 25% blowdown on gas
Tendency to chatter in liquid service	Increased	Neutral	Neutral
Effect of medium on the opening characteristic	SRV set on gas, but relieving liquid may open 3% to 5% higher	PRV set on liquid but relieving vapor may open 3 % to 5 % lower	Within ASME tolerances
Effect of required valve overpressure vs. set medium	Any shift up or down in the opening point may result in a similar shift in the point at which full lift is achieved		

Certification Process

It is important to note that traditional single media certified valves will have two National Board certificates, one for liquid and one for gas. This is due to the fact that each media requires its own National Board certification and a unique trim set, in order to meet ASME requirements. The 1900 DM only has one National Board certificate which features both gas and liquid media. This is due to the fact that the valve is compliant with Code Case 2787 which means there are no part changes or adjustments required for the valve to perform within ASME requirements for both media. The DM still has two Kd values, but they are both listed on a single National Board certificate which is unique for a direct spring-loaded valve.

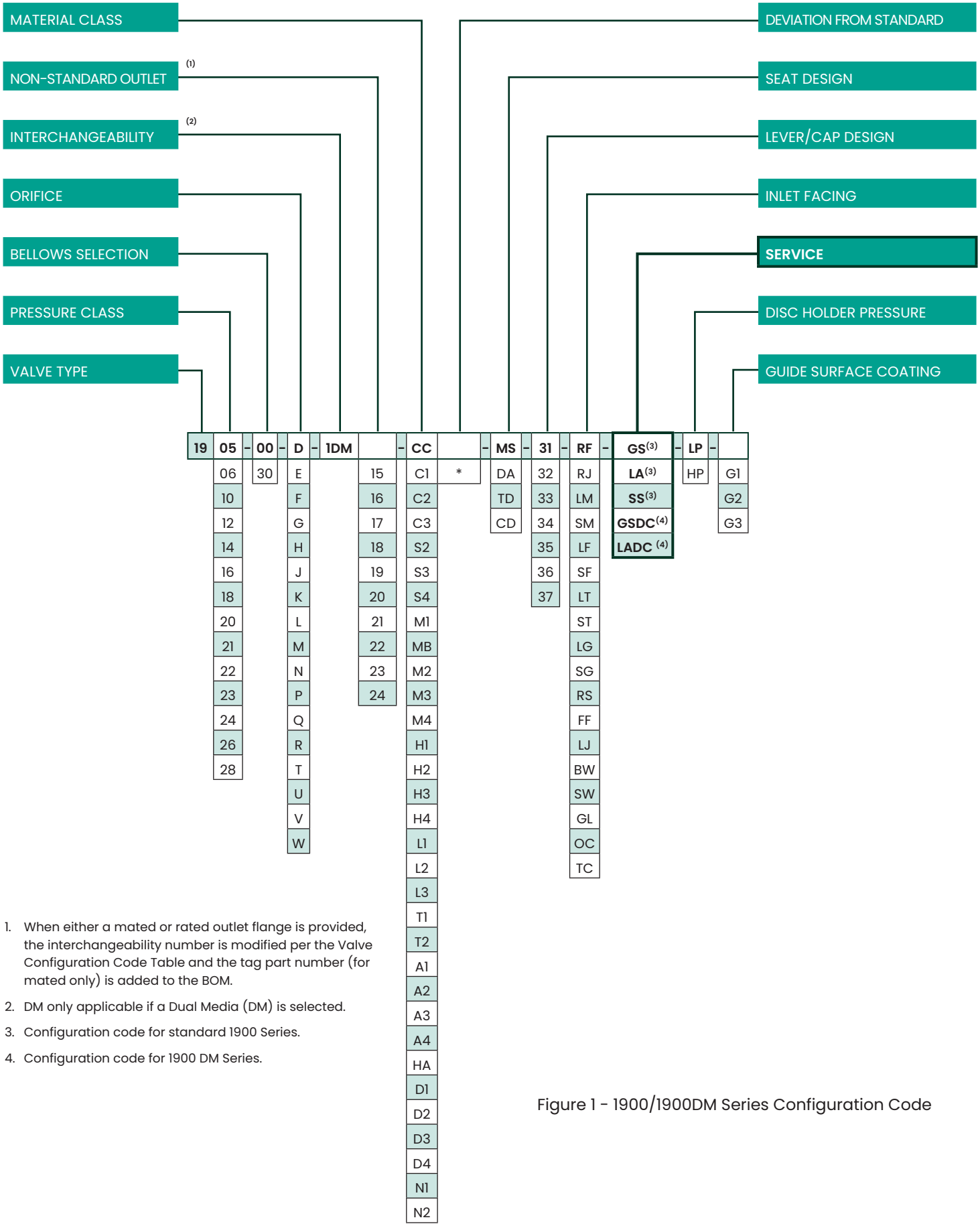
Model number change

With the evolution of the 1900 Series valves, the configuration code has been updated to reflect the new DM design. Figure 1, Codification chart shows the existing 1900 Series configuration code. There is now a designator for DM which denotes the 1900 Series SRV is being certified to be in compliance with Code Case 2787. In addition to the new DM designator, the media-specific trim designations, LA and GS, have been replaced with LADC and GSDC. This designation shows which media was considered the governing case for sizing purposes. LADC means that the liquid relief scenario was the governing case, while GSDC means that the gas relief scenario was the governing case. Regardless of which case is considered governing, the valve will be certified for both media and the nameplate will feature relieving capacities for both the liquid and gas relief scenarios.

Conversions and Part Changes

The standard 1900 Series SRV can be converted to a DM Series valve utilizing a conversion kit which is readily available from our **Green Tag™ Center** Network. The 1900 DM Series utilizes the same base as the standard 1900 Series. A new nozzle, disc, disc holder, and adjusting ring are provided in order to convert a standard 1900 Series to a DM Series. A new spring could potentially be needed depending on the orifice size, seat type, and set pressure.

1900/1900 DM Series Valve Configuration Code



1. When either a mated or rated outlet flange is provided, the interchangeability number is modified per the Valve Configuration Code Table and the tag part number (for mated only) is added to the BOM.
2. DM only applicable if a Dual Media (DM) is selected.
3. Configuration code for standard 1900 Series.
4. Configuration code for 1900 DM Series.

Figure 1 - 1900/1900DM Series Configuration Code

Frequently Asked Questions

1	Question	Are there any centerline to face dimensional changes from 1900 to the 1900 DM?
	Answer	No. The 1900 DM is compliant with API 526 dimensional requirements.
2	Question	Is the 1900 DM suitable for steam service?
	Answer	No. The 1900 DM is not certified for use on steam applications. For those applications, it is recommended to select a 2900 TM (Triple Media) pilot valve which features the same centerline to face dimensions as a 1900 DM and is certified on liquid, vapor, and steam..
3	Question	Are there any changes to the backpressure correction factors when switching from a standard 1900 to a 1900 DM?
	Answer	No.
4	Question	Can a 1900 DM be converted into a 2900 TM?
	Answer	Yes.
5	Question	Does the 1900 DM meet API 520's definition of a dual-certified safety relief valve?
	Answer	Yes. The 1900 DM meets the definition per API.
6	Question	Can a 1900 be converted to a 1900 DM?
	Answer	Yes.

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