



DAVINCI VALVES PAINTING TEST PER ISO 6272

Technical Information

ESSENTIALS

Davinci Manufacture Programm

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TYPES OF STANDARD TESTING

DAVINCI VALVE COATINGS

Per ISO 6272

ISO 6272 Series (Paints and varnishes
Rapid-deformation (Impact resistance) tests):

ISO 6272-1:2011

Scope: Large-area Indenter (20mm diameter).

Parameter Features:

Adjustable falling weight mass (main weight 1kg,
auxiliary weights can increase it up to 4kg).

Adjustable indentation depth (controlled by a stop
device).

Result Indication: Impact energy (kg-m or J).

ISO 6272-2:2011

Scope: Small-area Indenter (12.7mm or 15.9mm
diameter).

Caractéristiques: Compatible with the ASTM D2794
method, suitable for high-precision testing.



Get more information about **DAVINCI VALVES** here:

PAINTING TEST PROCEDURE FOR DAVINCI VALVE COATINGS Per ISO 6272n2 Small Area Falling Weight Test

1. General introduction

This test is designed to evaluate the adhesion quality of the paint film on valves by subjecting them to rapid deformation via a small area, falling weight impact. One sample per valve dimension is tested, with coating thickness verified on each unit. If any sample fails, all valves of that same size are inspected, and repainted or restored as needed.

2. Apparatus (Apparatus 4 as per ISO 6272n2)

The falling-weight apparatus consists essentially of a vertical guide tube that directs a cylindrical weight impacting through a hardened-steel indenter, which rests directly on the coated valve surface (or test panel).

The assembly includes:

+ Guide Tube:

A vertical tube, 0.6 m to 1.2 m long, mounted on a rigid baseplate. It features a longitudinal slot along one side for guiding the weight, with millimetre graduations for precise drop-height measurement. The base is designed to accept a thin, flat panel inserted approximately 50 mm below the tube.

+ Weight:

A metal cylinder fitting inside the tube, equipped with a side pin acting as both guide (running in the slot) and lifting handle. This pin also indicates the drop height via the graduations. Two weight options are permitted: 1 000 g (± 10 g) or 2 000 g (± 20 g). The clearance between the tube's inner diameter and the weight must be about (1 ± 0.2) mm to minimize friction.

+ Indenter:

Made of hardened steel (55 HRC to 60 HRC), with a mass of (150 ± 15) g. The hemispherical head is either 12.7 mm or 15.9 mm in diameter (± 0.06 mm). It rests on the panel and is guided vertically via a ring. The ring clearance must be (0.1 ± 0.05) mm for smooth alignment.

+ Panel Support:

A steel fixture featuring a cylindrical hole (diameter 16.3 ± 0.1 mm) centered directly under the indenter to hold the test panel securely in place.

Viewing Lens: A $\times 10$ magnifier for close inspection of the impacted zone to detect any cracking or peeling in the coating.



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TEST PROCEDURE

Preparation & Conditioning

Coated valve panels are conditioned at $(23 \pm 2) ^\circ\text{C}$ and $(50 \pm 5)\%$ RH for at least 16 hours. Testing must be completed within 30 minutes of removing the panels from conditioning.

Setup

Ensure the apparatus is securely mounted on a stable surface (e.g., concrete or heavy bench). Insert the valve (or coated panel) onto the panel support such that the indenter makes direct contact, either with the coated side facing up or down, as specified.

Impact Sequence

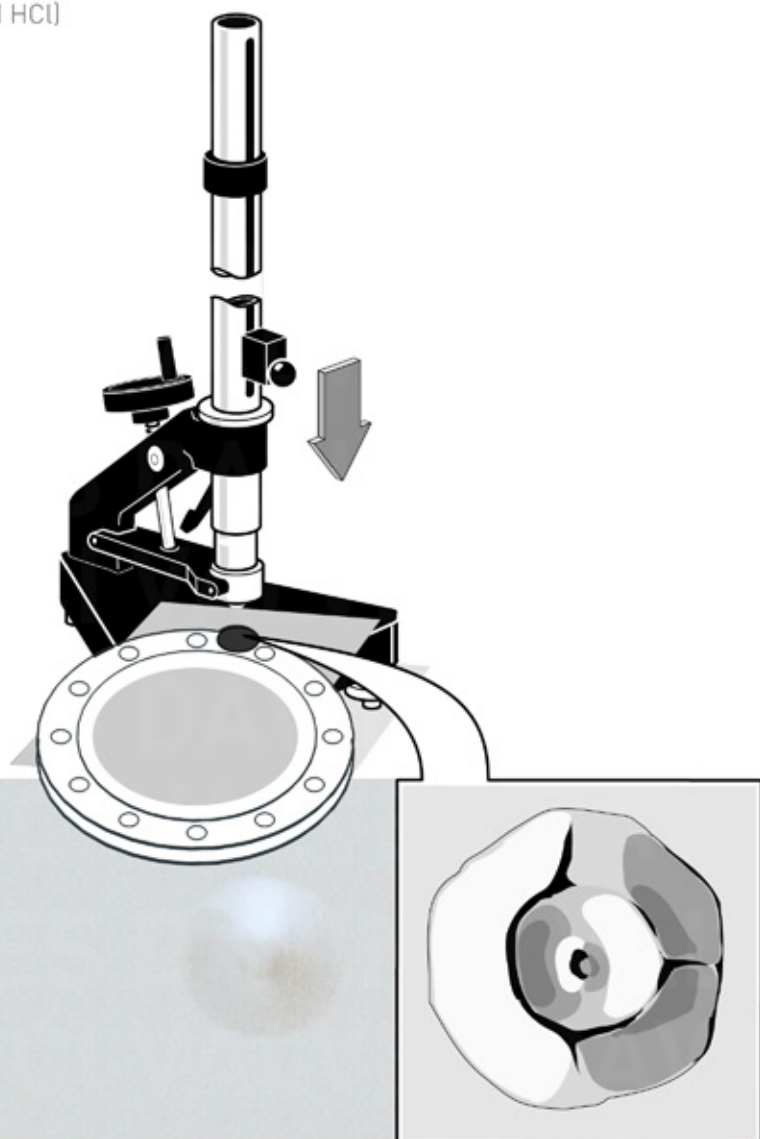
Lightly rest the weight on the indenter. Adjust the lifting pin to the "0 mm" mark. Raise the weight to an initial drop height anticipated to cause no failure and release it. Inspect the impact area using the magnifier; if no failure, increase the height by 25 mm increments and repeat. Upon observing cracking or peeling, conduct five impacts at that height and five at 25 mm lower, distributing impacts randomly across panels to avoid clustering.

Failure Detection

Use the $\times 10$ lens to detect visible cracks or peeling. Optionally, apply a cloth soaked in acidified CuSO_4 solution (10 g $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ in 90 g of 1 M HCl) over the impacted area for 15 minutes. Appearance of copper deposition on the panel or iron-rust stains on the cloth confirms coating failure.

Corrective Measures

If failure is detected in any sample, all valves of that dimension are re-inspected and, if needed, are repainted or restored before retesting to ensure consistency across the batch



TEST GUARANTEE

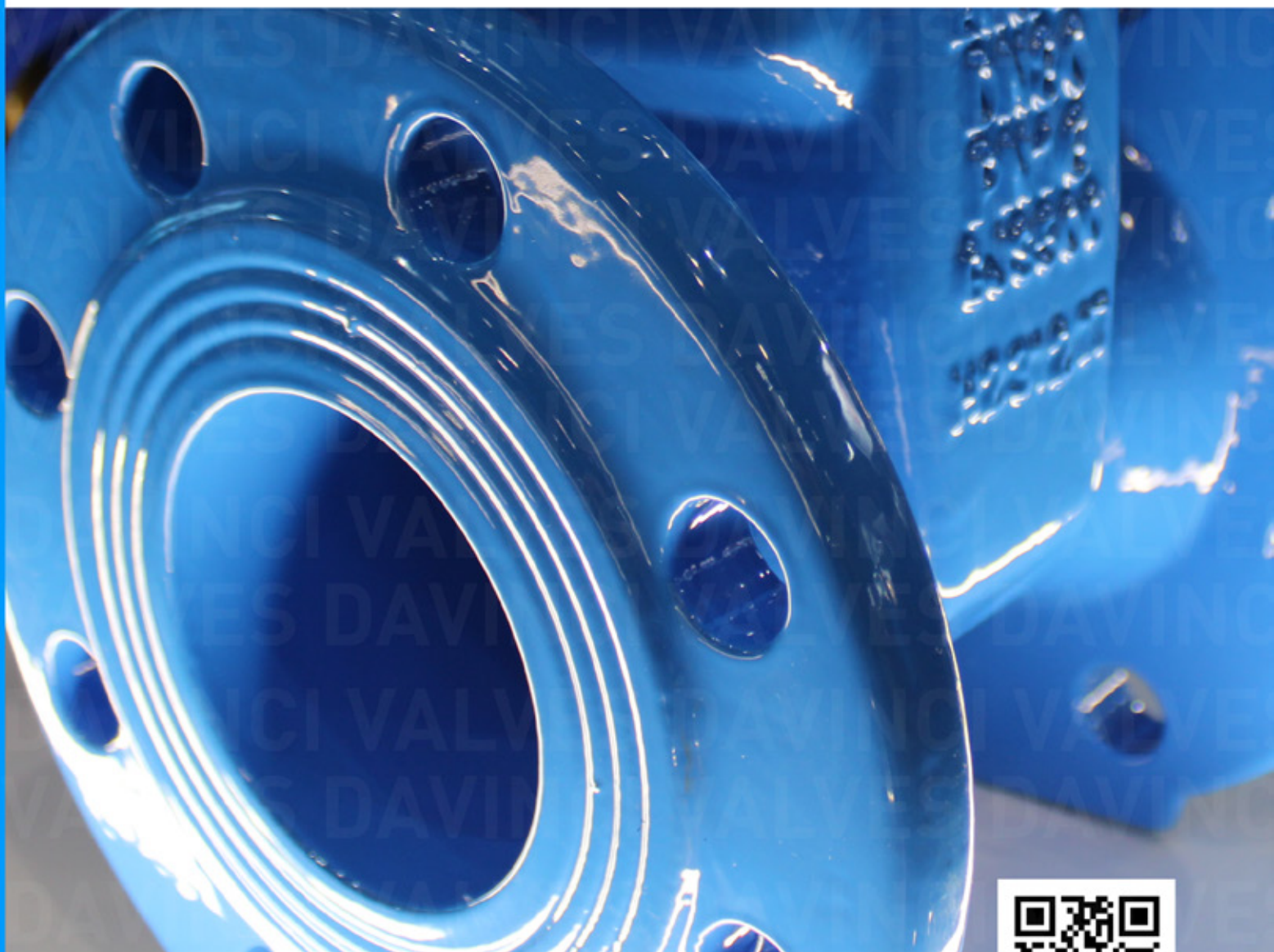
The design of the apparatus, featuring minimal clearance between components, ensures high repeatability by preventing unpredictable lateral movement of the weight or indenter.

The gradual increment of drop height allows for precise determination of the onset of coating failure, improving the consistency of pass/fail evaluation.

The copper sulfate method enhances failure detection sensitivity, particularly for microscopic or early-stage cracking not obvious by visual cues alone.

Conditioning and timing protocols are strictly enforced to minimize environmental variables, ensuring reliable and reproducible results.

Do you need more technical details? Please contact our team:
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Get more information about **DAVINCI VALVES** here:

**NEW
ENQUIRY**



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