Refinery Valves and Accessories for Control and Safety Instrumented Systems

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Refinery Valves and Accessories for Control and Safety Instrumented Systems

1 Scope

1.1 This recommended practice addresses the requirements of automated valves in refinery and related services.

1.2 Recommended criteria are provided for the sizing and selection, specification, material selection, flow characteristic evaluation, fugitive emissions, and application of control valve assemblies. Criteria considerations, such as flashing, cavitation, outgassing, noise, and others, are discussed.

1.3 Recommendations for emergency block and vent valves, on/off valves intended for safety instrumented systems (SISs), and special design valves for refinery services, such as actuators on fluid catalytic cracking unit (FCCU) slide valves, and vapor depressurizing systems are also included in this recommended practice.

2 Normative References

The following documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API Specification 6D, *Specification for Valves*

API Standard 6DX, *Actuators and Mounting Kits for Valves*

API Standard 6FA, *Standard for Fire Test for Valves*

API Standard 521, *Pressure-relieving and Depressurizing Systems*

API Recommended Practice 556, *Instrumentation, Control, and Protective Systems for Gas Fired Heaters*

API Standard 598, *Valve Inspection and Testing*

API Standard 607, *Fire Test for Quarter-turn Valves and Valves Equipped with Nonmetallic Seats*

API Standard 608, *Metal Ball Valves—Flanged, Threaded, and Welding Ends*

API Standard 609, *Butterfly Valves: Double-flanged, Lug- and Wafer-type, and Butt-welding Ends*

API Recommended Practice 941, *Steels for Hydrogen Service at Elevated Temperatures and Pressures in Petroleum Refineries and Petrochemical Plants*

API Recommended Practice 2218, *Fireproofing Practices in Petroleum and Petrochemical Processing Plants*

ANSI [1]/FCI 70-2 [2], *Standard for Control Valve Seat Leakage Testing*

ANSI/FCI 91-1, *Standard for Qualification of Control Valve Stem Seals*

ANSI/ISA 75.01.01 [3], *Industrial-Process Control Valves: Flow Capacity—Sizing Equations for Fluid Flow Under Installed Conditions*

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1 American National Standards Institute, 1899 L Street, NW, Washington, DC 20036, www.ansi.org.

2 Fluid Controls Institute, 1300 Sumner Avenue, Cleveland, Ohio 44115, www.fluidcontrolsinstitute.org.

3 International Society of Automation, 3252 S. Miami Boulevard, Durham, North Carolina 27703, www.isa.org.