

## 1 Scope

The scope of this standard is to define the statement of typical control valve inherent flow characteristics and inherent rangeabilities, and to establish criteria for adherence to manufacturer-specified flow characteristics.

## 2 Basic definitions

### 2.1 Terminology

Basic terminology used herein is based on definitions stated in "Control Valve Terminology" ANSI/ISA-75.05.01-2000.

#### 2.1.1 flow coefficient:

a constant ( $C_v$ ), related to the geometry of a valve, for a given valve opening, that can be used to predict flow rate. See ANSI/ISA-75.01-1985 (R1995), "Flow Equations for Sizing Control Valves" and ANSI/ISA-75.02-1996, "Control Valve Capacity Test Procedures."

#### 2.1.3 inherent flow characteristic:

the relationship between the flow rate through a valve and the travel of the closure member as the closure member is moved from the closed position to rated travel with constant pressure drop across the valve.

#### 2.1.4 inherent rangeability:

the ratio of the largest flow coefficient ( $C_v$ ) to the smallest flow coefficient ( $C_v$ ) within which the deviation from the specified inherent flow characteristic does not exceed the limits stated in Clause 4.

#### 2.1.5 relative flow coefficient ( $\phi$ ):

the ratio of the flow coefficient ( $C_v$ ) at a stated travel to the flow coefficient ( $C_v$ ) at rated travel.

#### 2.1.6 relative travel (h):

The ratio of the travel at a given opening to the rated travel.

## 3 Typical inherent flow characteristics

3.1 The typical inherent flow characteristic for a specific size, type, and trim configuration of a control valve shall be specified by the manufacturers either graphically or in tabular form.

3.2 When tabulated, specific flow coefficients shall be stated for the following travel positions: at 5%, 10%, 20%, and every subsequent 10% of rated travel up to and including 100%.

3.3 The manufacturer may publish flow coefficients in addition to those at the above-stated travel positions.

3.4 In addition, the manufacturer is encouraged to specify the generic name of a specific flow characteristic such as "Linear," "Equal-Percentage," etc., if applicable, following the definitions in ANSI/ISA-75.05.01-2000.

3.5 The manufacturer shall state the largest flow coefficient that meets the criteria of Clause 4 if it is less than the rated flow coefficient. (See Figure 2.)