Irish Standard
I.S. EN 60534-8-2:2011

Industrial-process control valves -- Part 8-2: Noise considerations - Laboratory measurement of noise generated by hydrodynamic flow through control valves (IEC 60534-8-2:2011 (EQV))

I.S. EN 60534-8-2:2011

Incorporating amendments/corrigenda issued since publication:

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I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

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SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces:	*This document is based on:*	*Published:*
EN 60534-8-2:1993	EN 60534-8-2:2011 EN 60534-8-2:1993	16 December, 2011 16 March, 1993

This document was published
under the authority of the NSAI and comes into effect on:

21 December, 2011

ICS number:
17.140.20
23.060.40
25.040.40

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie

W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

I.S. EN 60534-8-2:2011

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60534-8-2

December 2011

ICS 17.140.20; 23.060.40; 25.040.40

Supersedes EN 60534-8-2:1993

English version

Industrial-process control valves - Part 8-2: Noise considerations - Laboratory measurement of noise generated by hydrodynamic flow through control valves

(IEC 60534-8-2:2011)

Vannes de régulation des processus industriels -
Partie 8-2: Considérations sur le bruit -
Mesure en laboratoire du bruit créé par un écoulement hydrodynamique dans une vanne de régulation
(CEI 60534-8-2:2011)

Stellventile für die Prozeßregelung -
Teil 8-2: Geräuschemission -
Laboratoriumsmessungen von Geräuschen bei flüssigkeitsdurchströmten Stellventilen
(IEC 60534-8-2:2011)

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 60534-8-2:2011 E

Foreword

The text of document 65B/801/FDIS, future edition 2 of IEC 60534-8-2, prepared by SC 65B, "Devices & process analysis", of IEC/TC 65, "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60534-8-2:2011.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2012-08-16
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2014-11-16

This document supersedes EN 60534-8-2:1993.

EN 60534-8-2:2011 constitutes a technical revision that includes internal noise measurement.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 60534-8-2:2011 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced 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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60534-1	2005	Industrial-process control valves - Part 1: Control valve terminology and general considerations	EN 60534-1	2005
IEC 60534-2-3	1997	Industrial-process control valves - Part 2-3: Flow capacity - Test procedures	EN 60534-2-3	1998
IEC 60534-8-4	-	Industrial-process control valves - Part 8-4: Noise considerations - Prediction of noise generated by hydrodynamic flow	EN 60534-8-4	-
IEC 61672-1	2002	Electroacoustics - Sound level meters - Part 1: Specifications	EN 61672-1	2003
ISO 3744	1994	Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering method in an essentially free field over a reflecting plane	EN ISO 3744	1995[1)]
ISO 3745	2003	Acoustics - Determination of sound power levels of noise sources using sound pressure - Precision methods for anechoic and hemi-anechoic rooms	EN ISO 3745	2003

[1)] EN ISO 3744:1995 is superseded by EN ISO 3744:2010.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INDUSTRIAL-PROCESS CONTROL VALVES –

Part 8-2: Noise considerations – Laboratory measurement of noise generated by hydrodynamic flow through control valves

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60534-8-2 has been prepared by subcommittee 65B: Measurements and control devices, of IEC technical committee 65: Industrial-process measurement, control and automation.

This second edition cancels and replaces the first edition published in 1991 and constitutes a technical revision that includes internal noise measurement.

The text of this standard is based on the following documents:

FDIS	Report on voting
65B/801/FDIS	65B/808/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above Table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 60534 series, published under the general title *Industrial-process control valves*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INDUSTRIAL-PROCESS CONTROL VALVES –

Part 8-2: Noise considerations – Laboratory measurement of noise generated by hydrodynamic flow through control valves

1 Scope

This part of IEC 60534-8 includes the method for measuring the sound pressure level due to liquid flow through a control valve and the method for determining the characteristic increase of noise due to the onset of cavitation. It also defines the equipment, methods and procedures for the laboratory measurement of the airborne sound needed to determine these characteristics.

Two methods are provided for testing the noise generating characteristics of control valves.

The first is a uniform method of measuring the radiated noise from the valve and the associated test piping including fixed flow restrictions through which the test fluid (water) is passing (see Note 1). The noise criteria are expressed by determining the sound pressure level of the valve under consideration.

The second is a procedure for measuring the sound pressure levels within pipe systems upstream and downstream of the valve under fixed operating conditions. Since inaccuracies due to the pipe transmission are eliminated, this method shall be preferred for evaluation of the acoustical characteristic of valves.

The noise characteristics to be determined are useful:

a) to determine acoustical characteristics of valves and valve assemblies and the characteristic pressure ratio factor x_{FZ} of a control valve;

b) to predict valve noise for given process conditions;

c) to compare the performance of different valves and various measuring results;

d) to plan measures for increasing service life and noise abatement;

e) to determine possible adverse effects on ultra-sonic flow meter measurements;

f) to enable proper sizing of sound absorbers.

NOTE 1 Test fluids other than water or valves without downstream piping are not within the scope of this section of IEC 60534-8.

NOTE 2 The factor x_{FZ} is used in a noise prediction method which is covered in IEC 60534-8-4.

2 Normative references

The following referenced 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.

IEC 60534-1:2005, *Industrial-process control valves – Part 1: Control valve terminology and general considerations*

IEC 60534-2-3:1997, *Industrial-process control valves – Part 2-3: Flow capacity – Test procedures*