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NSAI Standards

Irish Standard
I.S. EN 17490:2021

# Determination of screw pull out forces from screw thread channels

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| NSAI | T +353 1 807 3800 | Sales: |
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# EUROPEAN STANDARD
# NORME EUROPÉENNE
# EUROPÄISCHE NORM

**EN 17490**

August 2021

ICS 21.060.99

English Version

# Determination of screw pull out forces from screw thread channels

Détermination de la résistance à l'arrachement des vis dans les canaux de vissage

Bestimmung der Schraubenausziehkräfte von Schraubgewindekanälen

This European Standard was approved by CEN on 4 July 2021.

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# European foreword

This document (EN 17490:2021) has been prepared by Technical Committee CEN/TC 33 "Doors, windows, shutters, building hardware and curtain walling", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2022, and conflicting national standards shall be withdrawn at the latest by February 2022.

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

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# Introduction

This document provides a test method for assessing the screw pull out forces from screw thread channels used frequently in the fenestration (doors, windows and curtain walling) market.

Using the results from this test method, a manufacturer has the ability to determine the number of screws to be applied to make sure that a given connection is able to withstand a particular loading scenario.

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# 1 Scope

This document provides a test method for determining the bearing capacity (pull out force) of a connection consisting of a screw in a screw thread channel, which cannot be calculated in accordance with current codes or conventional calculations. This document can be applied to screw thread channels used in several products, including doors, windows and curtain walling.

This document is applicable to screw thread channels made out of metal, as well as metal screws.

The pull out forces of such connections can already be assessed indirectly with another test method e.g. wind load resistance for doors/windows according to EN 12211 or curtain walling kits according to EN 12179. Additional information with respect to the mechanical performance of connections and direct applications can be determined with the test method described in this document.

The bearing capacity of non-metallic components under the combination of high temperature and load is not considered in the standard. Additional verifications are performed depending on the type of the non-metallic material used.

# 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN ISO 7500-1, *Metallic materials - Calibration and verification of static uniaxial testing machines - Part 1: Tension/compression testing machines - Calibration and verification of the force-measuring system (ISO 7500-1)*

# 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

**3.1**
**connection**
set of components consisting of a screw and a screw thread channel designed to transfer loads between different framing members

Note 1 to entry: See Figure 1.

Note 2 to entry: There may be other components such as plastics in the area of the screw thread channel that are not contributing to the load-bearing capacity of the connection (e.g. the thermal break in stick construction curtain walling kits).

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