SLOVENSKI STANDARD
SIST EN 16758:2021

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Nadomešča:
SIST EN 16758:2016

Obešene fasade - Ugotavljanje trdnosti strižnih spojev - Preskusna metoda in zahteve

Curtain walling - Determination of the strength of shear connections - Test method and requirements

Vorhangfassaden - Bestimmung der Beanspruchbarkeit von auf Abscheren beanspruchten Verbindungen - Prüfverfahren und Anforderungen

Façades rideaux - Détermination de la résistance des assemblages - Méthode d'essai et exigences

Ta slovenski standard je istoveten z: **EN 16758:2021**

ICS:

91.060.10	Stene. Predelne stene. Fasade	Walls. Partitions. Facades

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Curtain walling - Determination of the strength of shear connections - Test method and requirements

Façades rideaux - Détermination de la résistance des assemblages - Méthode d'essai et exigences

Vorhangfassaden - Bestimmung der Beanspruchbarkeit von auf Abscheren beanspruchten Verbindungen - Prüfverfahren und Anforderungen

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 16758:2021) 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of an identical text or by endorsement, at the latest by November 2021, and conflicting national standards shall be withdrawn at the latest by November 2021.

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.

This document supersedes EN 16758:2016.

The main changes compared to the previous edition, EN 16758:2016, are listed below:

— new specifications were added in “5.1 General” when using an infill panel to apply the forces,

— new sample restraints “S” were added in figures where missing and the direction of application of “S” was modified in order to have the equilibrium of forces applied to samples represented in figures,

— new figures for cruciform/half cruciform glass support, showing the application of dead load and the position of DT, were added,

— the dimensions of the samples were modified, as described in 5.2,

— the deformation speed for vertical and horizontal loading was modified, as specified in 5.3,

— new specifications for horizontal loading were added (see 5.3.3.1),

— new subclause (5.3.4) was added, regarding the interpretation of the loading records with reference to Annex A and Annex B,

— more detailed information was added in the test report,

— in Annex A and Annex B, new reference to ISO 16269-6 and introduction of the variable $\tau_{\alpha\beta}$ as a function of the number of test pieces, in order to determine the design load of the connection.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document specifies test methods for the determination of bearing capacity (ultimate limit state and serviceability limit state), of connections between curtain walling framing members which cannot be calculated in accordance with current codes or conventional calculations based upon the strength of the materials.

Mechanical performances of the curtain walling connections are already assessed in accordance with the provisions described in EN 13830. Additional information with respect to mechanical performance of the connections and direct applications can be determined with this document (see Annex C).

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 13119, *Curtain walling — Terminology*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13119 and the following 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 designed to transfer loads between framing members

EXAMPLE Cleat, screw and fittings.

4 Symbols and abbreviations

For the purposes of this document, the following symbols apply.

a	Total height of the sample
a_1, a_2	Partial height of the sample
b	Distance between the centre of gravity axes of the mullions
c_w	Elasticity constant
d	Distance between the vertical forces applied on the transom
C_h	Distance between the centre of gravity axis of the mullion and the horizontal forces
C_v	Distance between the centre of gravity axis of the mullion and the vertical forces
DT	Displacement transducer
e	Distance from the position of (α), the contact area between the internal infill gasket and the transom, and the vertical plane containing the centre of the gravity of the infill
$f_{ave,ela}$	Average of glass support deflections by $F_{ave,ela}$
F_{ave}	Average force

$F_{ave,ela}$	The average of the maximum elastic force values corresponding to the maximum deformation of the elastic part of the graph (forces *F*, deformation X)
$F_{des,s}$	Design force at the service limit state
$F_{h,des}$	Design horizontal load
$F_{h,m}$	Maximum horizontal load design value for a combination of vertical and horizontal loads
$F_{max,i}$	Maximum force at ultimate limit state for the sample "*i*"
$F_{des,u}$	Design force at the ultimate limit state
$F_{v,des}$	Design vertical load
$F_{v,l}$	Vertical force applied on the left wing
$F_{v,m}$	Maximum vertical load design value for a combination of vertical and horizontal loads
$F_{v,r}$	Vertical force applied on the right wing
$F_{u,5}$	Characteristic force giving 75 % confidence that 95 % of the test results is be higher than this value
$F_{u,5,s}$	characteristic force at the service limits state
F_h	Horizontal force
F_v	Vertical force
g	Distance between the edge of the infill and edge of the setting block
j	Sample dimension
p	Maximum thickness of the infill panel, also measurement reference for the infill support deflection
S	Sample restraints
s_{dev}	Standard deviation of the series under consideration
SLS	Service Limit State
ULS	Ultimate Limit State
w	Deflection of the glass support
α	Contact area between the internal infill gasket and the transom
γ_u	partial factor for the connection applicable to rupture
$\tau_{\alpha\beta}$	Statistical eccentricity of 5 % with 75 % confidence

5 Method of evaluation

5.1 General

In practice, connections are subjected to permanent loads as well as to variable loads. The measurement of the deformation is recorded at the application of the force unless indicated on the figures with the position of the displacement transducers (DT). The clamping shall restraint vertical and horizontal movements. When using an infill panel to apply the forces:

— care shall be taken to avoid friction between the infill panel and the mullion(s);

— no vertical setting block should be used between the infill and the mullion(s);

— the infill should be rigid enough to avoid buckling;

— the frame of the test bench shall be rigid enough not to introduce inaccuracies when recording the deformation;

— the measurement accuracy should be ±0,1 mm.

5.2 Samples

The samples shall be representative of the connection methods between the framing members of the curtain walling.

Based on the type of curtain walling (e.g. stick construction, unitized system), different types of connection between the framing members should be tested, depending upon the design of the connection.

Figures 1 to 3 are examples of typical test configurations, but different configurations may be used.

The sample restraints “S” given in Figures 1 to 3 are given as an indication. They should be designed in such way that recorded data during the tests are limited to the behaviour of the connection.

Figures 4 to 7 are examples of typical test configurations incorporating glass supports.

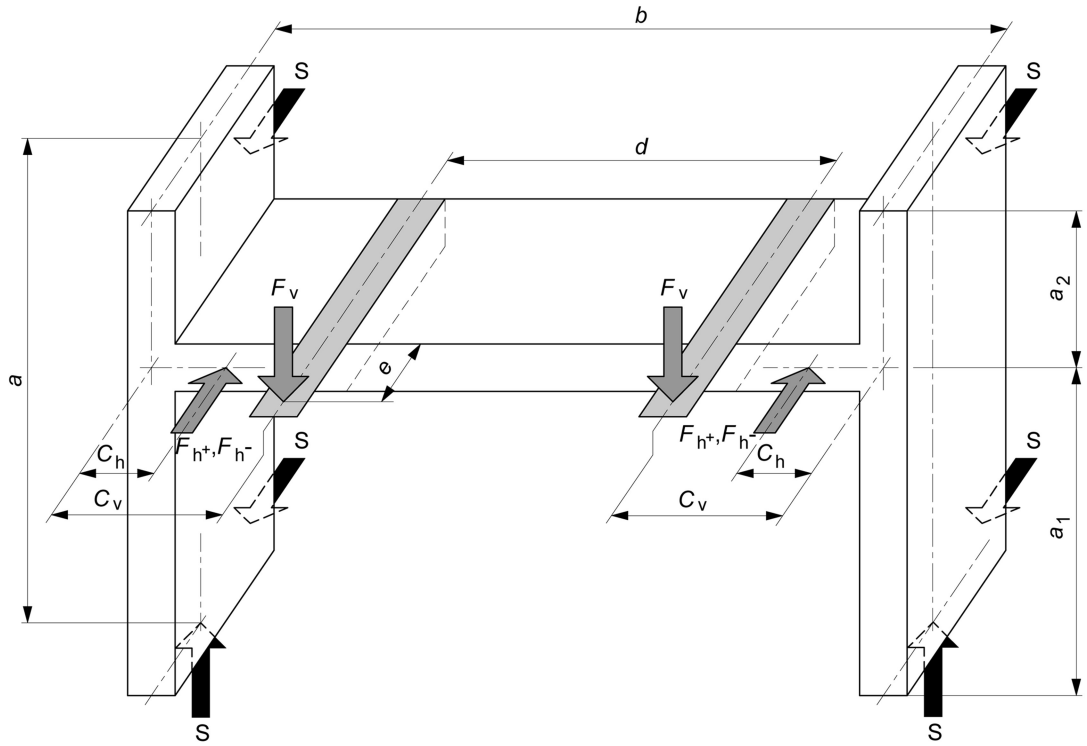

Figure 1 — Schematic T-connection and loading points (any connection method may be chosen)

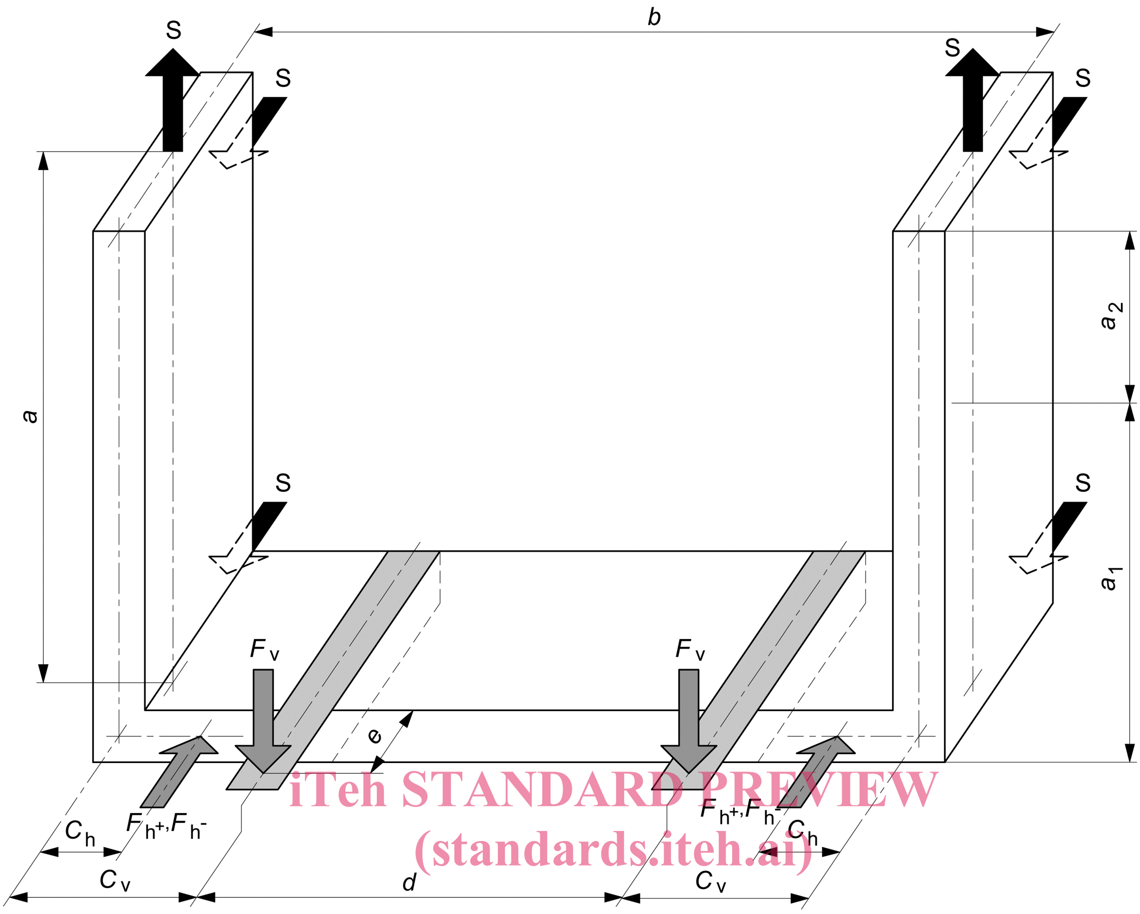

Figure 2 — Schematic L-connection and loading points (any connection method may be chosen)

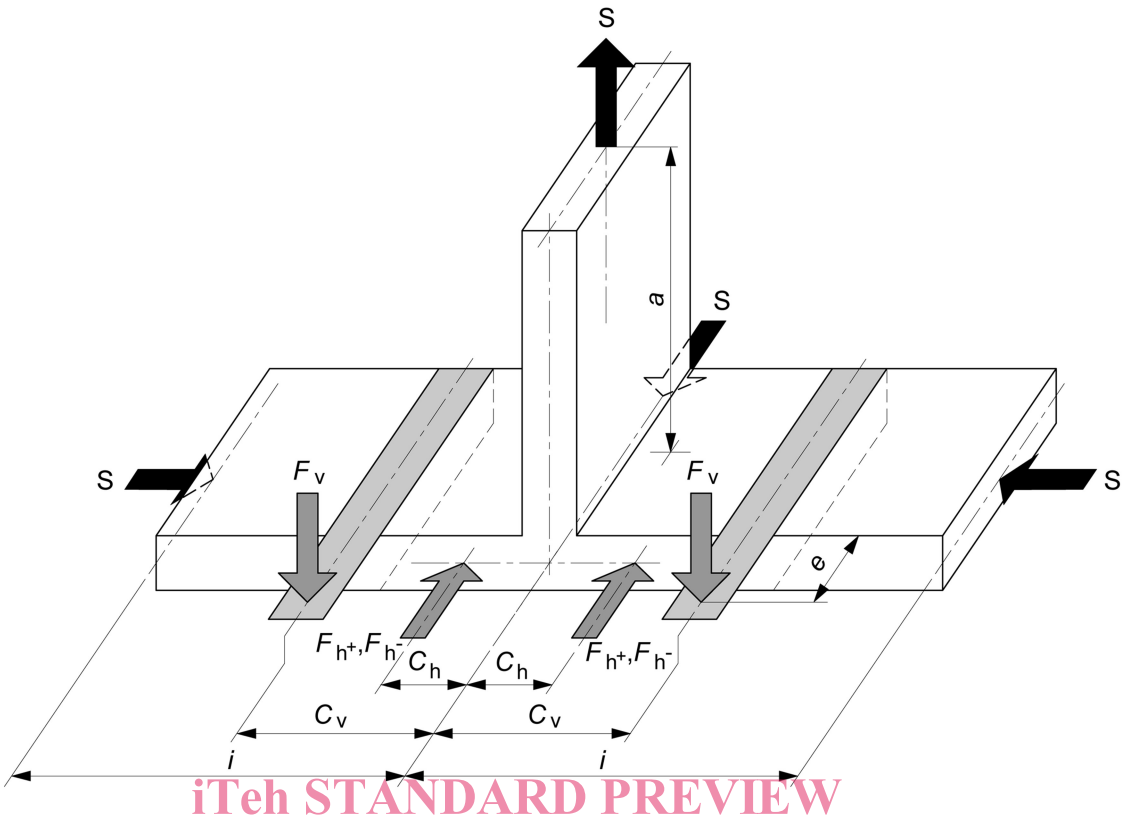

Figure 3 — Axial resistance (any connection method may be chosen)

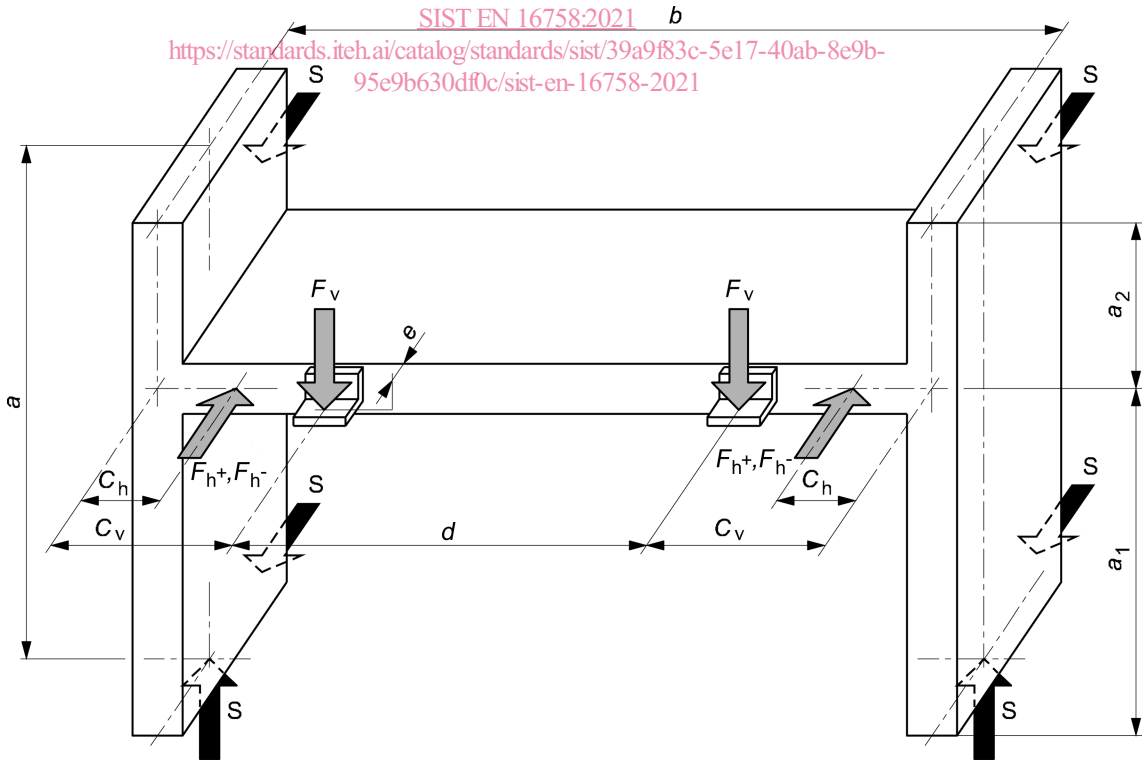

Figure 4 — Schematic T-connection and loading points with glass supports