

Handled by, department
Richard Dawson
 Energy Technology
 +46 (0)105 16 57 11, richard.dawson@sp.se

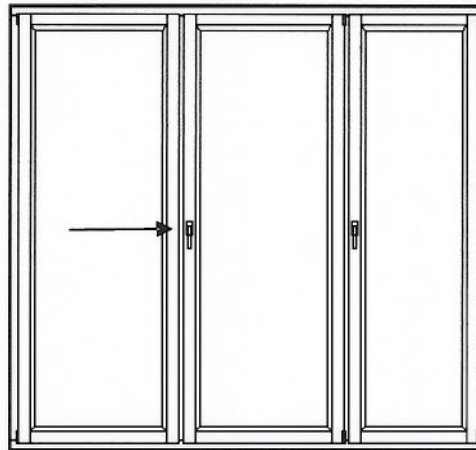
SIA "Stali"
 Kingas, Priekulu pagasts
 Priekulu novads
 LV-4126
 Latvia

Determination of air permeability, watertightness, resistance to wind load and operating forces

Test object

(see attached drawings and pictures)

Manufacturer: SIA "Stali"
 Type: Wooden patio door with a single opening section and one double opening section
 Size: 2400 x 2250 mm
 Condition at arrival: No visible damage
 Date of arrival: 2010-10-12
 Date of testing: 2010-10-14
 SP's serial number: 1212



The door was supplied by the client and installed in the test frame by SP.

Watertightness according to SS-EN 1027 method A up to 300 Pa

No leakage

The patio door meets the requirements for class 7A according to SS-EN 12208.

Resistance to wind load according to SS-EN 12211 class 3

Deflection test up to 1200 Pa

Pressure, Pa	Deflection of vertical casement section of double door (see diagram above) (measuring length 1950 mm)
0	1,4 mm
1200 positive pressure	4,4 mm
1200 negative pressure	-2,0 mm

The maximum relative frontal deflection was 1,76 per mille (requirement: <3,3 per mille according to SS-EN 12210 class C).

SP Technical Research Institute of Sweden

Postal address
 SP
 Box 857
 SE-501 15 Borås
 Sweden

Office location
 Västeråsen
 Brinellgatan 4
 SE-504 62 Borås

Phone / Fax / E-mail
 +46 10 516 50 00
 +46 33 13 55 02
 info@sp.se

Laboratories are accredited by the Swedish Board for Accreditation and Conformity Assessment (SWEDAC) under the terms of Swedish legislation. This report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

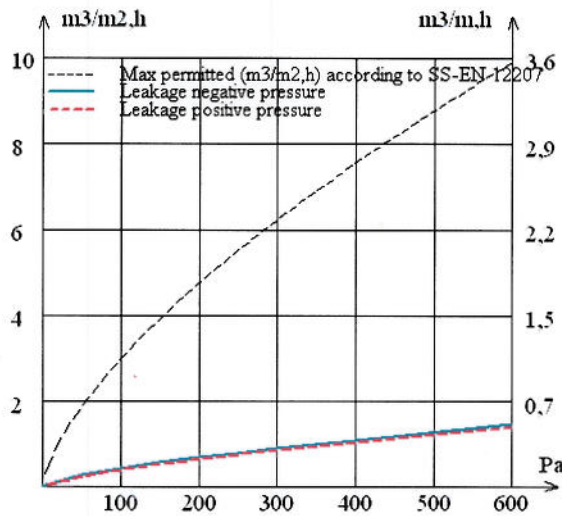
Repeated pressure test up to 600 Pa and safety test up to 1800 Pa

No damage noted.

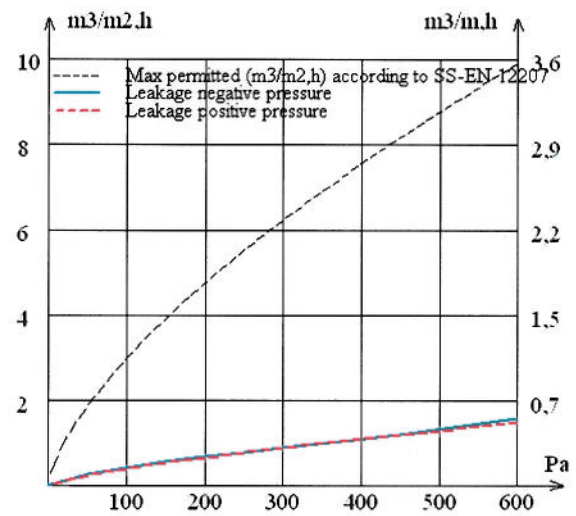
The patio door meets the requirements for class 3 according to SS-EN 12110

Air permeability according to SS-EN 1026 up to 600 Pa

Before wind loading:



After wind loading:



The patio door meets the requirements for class 4 according to SS-EN 12207 both before and after wind loading

Operating forces according to SS-EN 12046-1

Single door section: Opening force = 36 N
Closing force = 95 N

Double door section: Opening force = 59 N
Closing force = 118 N

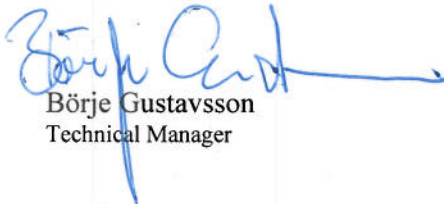
The patio door meets the requirements for class 2 according to SS-EN 13115.

Conditions of test

The test results refer only to the tested object.

Equipment used:	Test rig invnr 202206 and measuring equipment invnr 200746
Estimated error margin:	Air pressure difference ± 2 Pa, air flow ± 5 %, deformation (wind load) $\pm 0,1$ mm and manoeuvrability ± 10 %
Test climate:	Air temperature 20 °C, RH 40 %, air pressure 980 hPa
Water temperature:	According to the standard
Conditioning:	Laboratory climate after arrival to SP

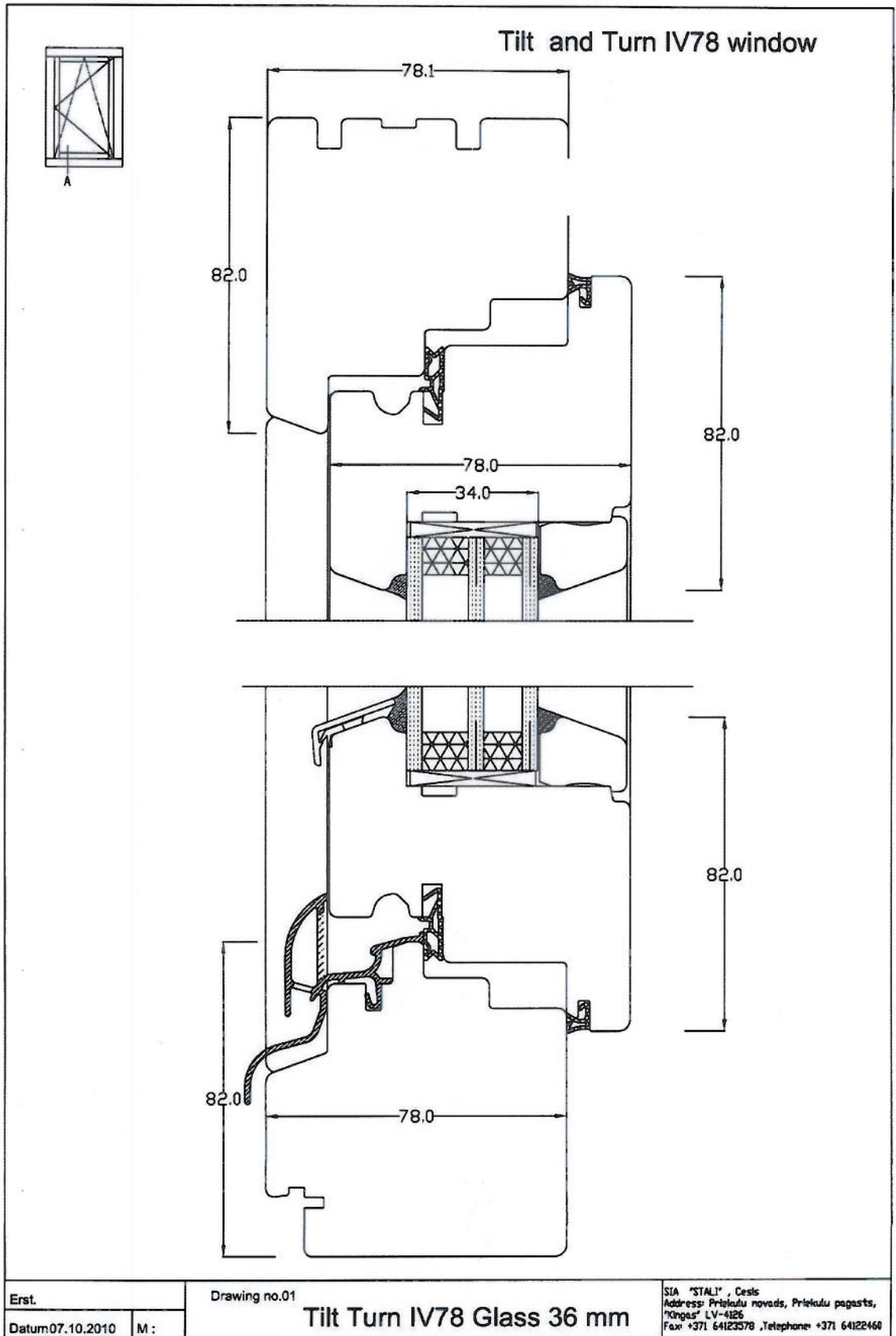
SP Technical Research Institute of Sweden
Energy Technology – Building Physics and Indoor Environment

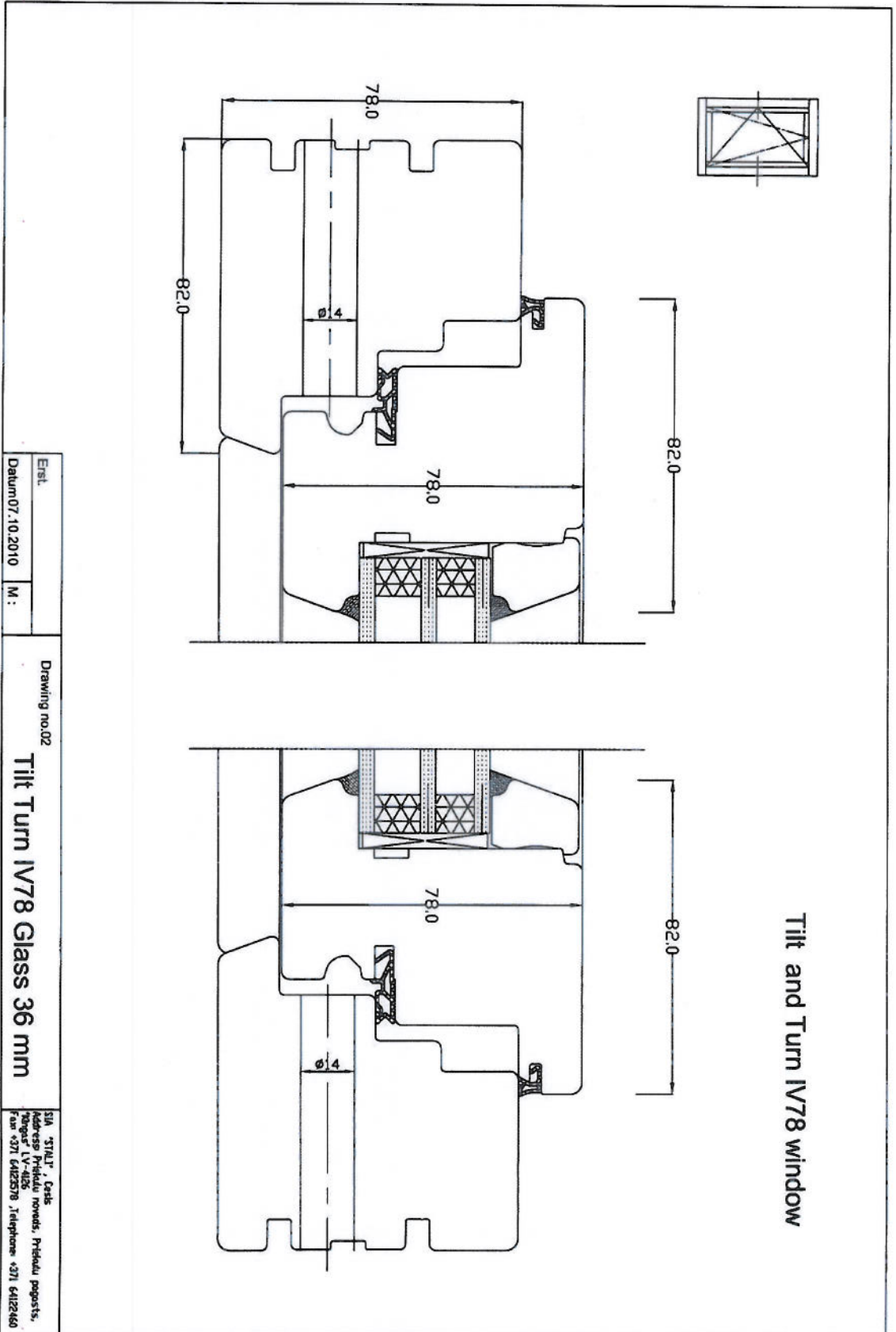


Börje Gustavsson
Technical Manager



Richard Dawson
Technical Officer

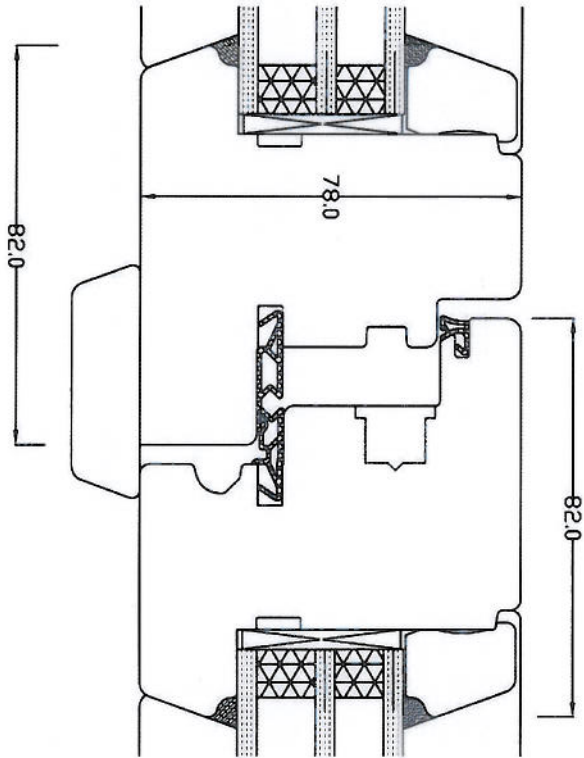
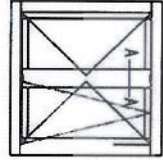




Estl.
Datum 07.10.2010
M:

Drawing no.02
Tilt Turn IV78 Glass 36 mm

SIA "STAL" Ceas
Adrese: Priekule novads, Priekule pagasts,
"Irbes" LV-4125
Fon: +371 6422578, Telephone: +371 6422460



Tilt and Turn IV78 window

Estl	Drawing no.03	SIA "STALT" Csk
Datum07.10.2010	M:	Adress: Priedu novds, Priedu pagasts, Tombas LV-4126 Fax +371 6412578 Telephone: +371 64125460
Tilt Turn IV78 Glass 36 mm		



Picture 1: Inside face of the test object mounted in the frame and attached to the chamber.



Picture 2: Outside face of the test object as seen from inside the test chamber.