Preparing for EN 81-20/50: Organizational Changes and Best Practices for an elevator components manufacturing company

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WITTUR

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#green
#modernization
#highperformance
#newbuildings

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VFA INTERLIFT E.V. VERBAND FÜR AUFZUGS-TECHNIK

Interlift 2015
VFA-Forum

interlift 2015

Agenda

- Overview on EN81-20/50
- WITTUR approach
- Best Practise
- WITTUR new testing structure

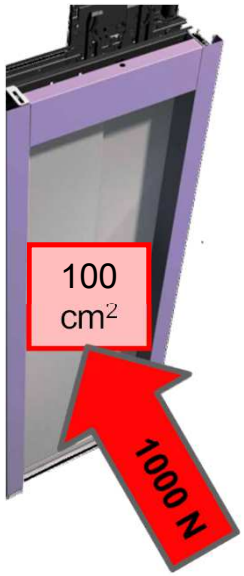
New EN 81-20/50

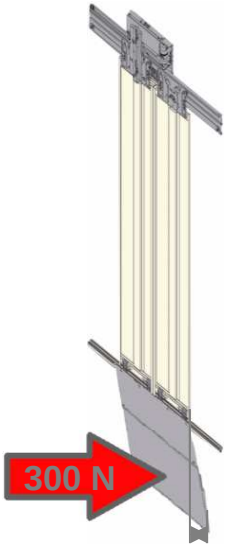
- **EN 81-20: Safety rules for the construction and installation of lifts**
  Lifts for the transport of persons and goods
- **EN 81-50: Safety rules for the construction and installation of lifts**
  Examinations and tests

- **New technical requirements e.g.**
  - well/components
  - landing doors/car doors
  - cars
  - safety components
  - electric and hydraulic drive system
  - guide rails
  - electrical equipment
  - control system
  - documentation

Biggest change in the elevator industry for over 30 years

New EN 81-20/50





≤ 35 mm

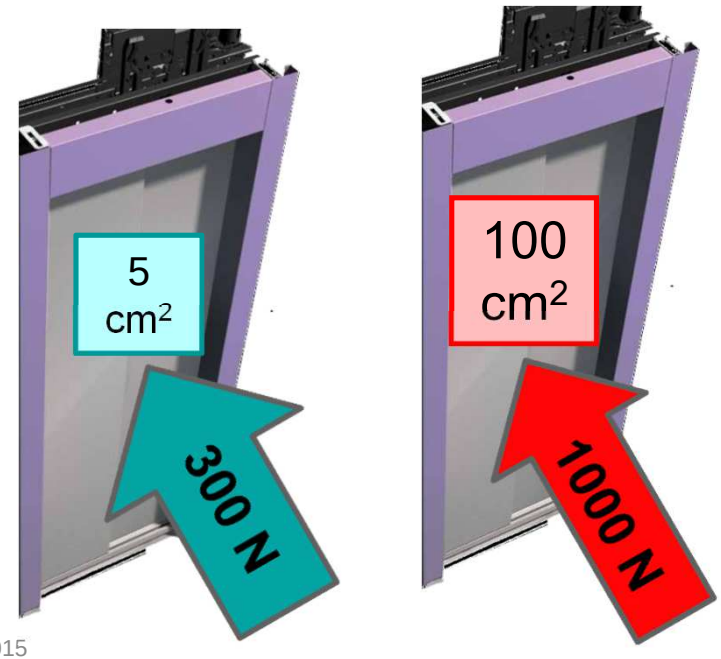
Important changes for doors

- Test of door panel/frame with higher + additional force
- Pendulum test for all landing and car doors in closed position
- Guides with retaining devices + pendulum test for all landing and car doors
- Car door apron must be tested with force
- Car door lock for all car doors with type examination
- New requirements for emergency unlocking key
- Labyrinths or chicanes / thickness of front edges

EN81-20/50 – Requirements for Doors

EN81-1/2

- 300 N force applied to the door panel on a 5cm² round or square section area:
  - No permanent deformation
  - Elastic deformation less than 15 mm
  - Safety function of the door not affected



EN81-20

- 300 N test like EN81-1/2 to the door panel/frame on a 5 cm² round or square area:

+

- Static force 1000 N applied to the door panel/frame on a 100 cm² round or square section area:
  - Landing / Car doors shall resist without significant permanent deformation affecting functionality and safety

+

- Retaining devices must face a dedicated pendulum test under the worst possible failure condition of the normal guiding elements

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EN81-20/50 – roadmap to the compliance

- Product verification
- Product compliance
- Certification process
- Implementation

EC TYPE-EXAMINATION CERTIFICATE

According to Annex V, Part A of 95/16/EC Directive

Certificate No.: ATV 285/10

Certification Body of the Notified Body: TÜV SÜD Industrie Service GmbH, Westendstr. 199, 80686 Munich – Germany, Identification No. 0036

Certificate Holder: Wittur Holding GmbH, Rohrbachstraße 26-30, 65239 Wiesbaden-Hausen – Germany

Manufacturer of the Test Sample: Wittur S.p.A., Via Macedonio Melloni, 12, 43052 Colorno (Parma) – Italy

Product: Locking device with hook bolt for horizontally moved, side opening, power operated telescopic sliding landing doors with two panels

Type: 3201-HYDRA series of type 1V_, 3201-HYDRA EVO series of type 1V_, 3201-SCORPION series of type 1V_, Brand: GELGOOR

Directive: 95/16/EC

Reference Standards: EN 81-20:2014, EN 81-50:2014, EN 81-1:1998+A3:2009, EN 81-2:1998+A3:2009

Test Report: ATV 285/15-286/10 dated 2015-03-31

Outcome: The safety component conforms to the essential health and safety requirements of the mentioned Directive as long as the requirements of the annex of this certificate are kept.

Date of issue: 2015-03-31

Werner Rau, Certification Body "Ma and Uwe"

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WITTUR approach - challenges

- Wide range of door types, dimensions, variants
- Wide range of manufacturing plants
- Increased need of repeatability and accuracy in testing phase
- Keep the highest level safety

ASSURE THE BEST PRODUCT IN TERMS OF RELIABILITY AND SAFETY

WITTUR approach - Wide range of door manufacturing plants

WITTUR

Zaragoza, Spain

Doors, complete doors

Parma, Italy

Doors, cars,
complete elevators

Scheibbs, Austria

Doors,
slings, safeties

Krupina, Slovakia

Doors, slings

Istanbul, Turkey

Doors, cars,
complete elevators

Current Production

Buenos Aires, Argentina

Doors, cars,
complete elevators

Londrina, Brazil

Doors

Chennai, India

Doors, cars

Suzhou, China

Doors, safeties,
gearless drives

Check and implement simultaneously in all plants!

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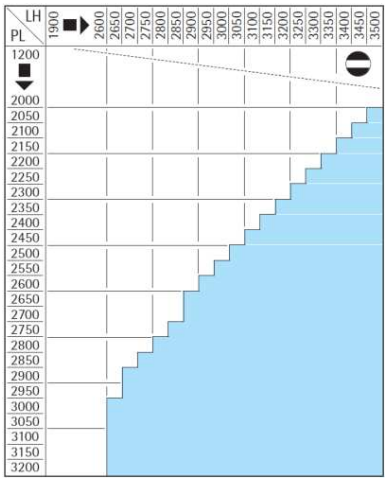
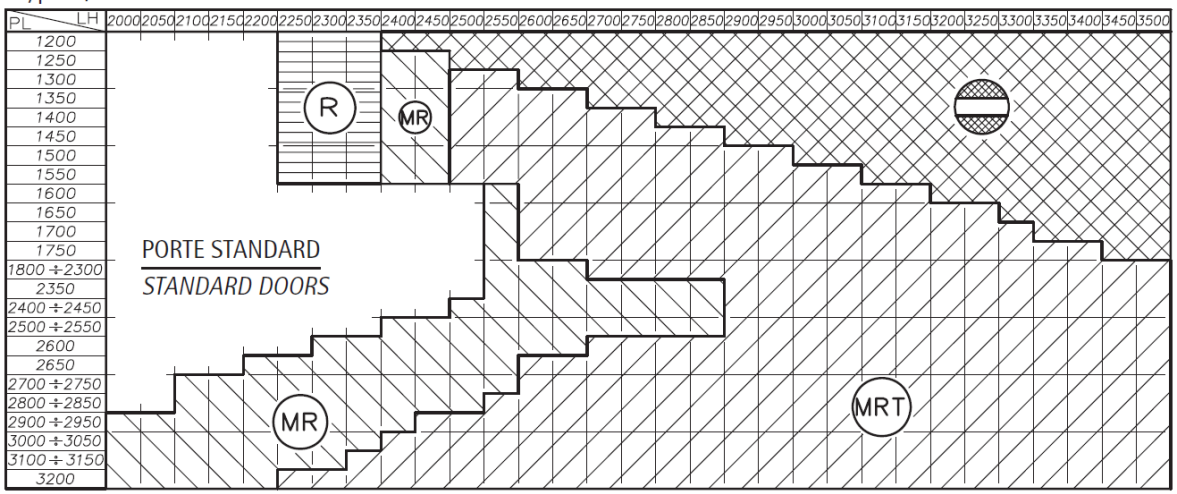
WITTUR approach - Wide range of variants

- Door series, types, dimensions, variants

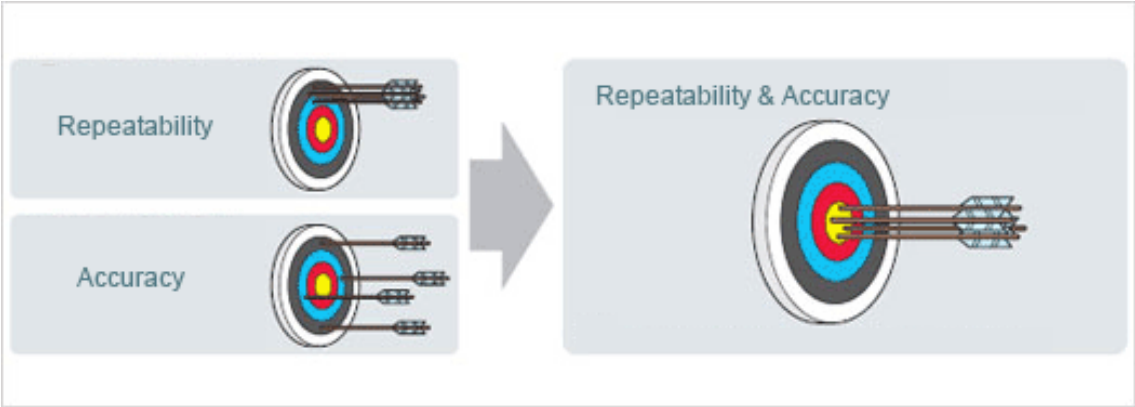


Typ 41/C



WITTUR approach – repeatability, accuracy and leadtime

- repeatability and accuracy of results



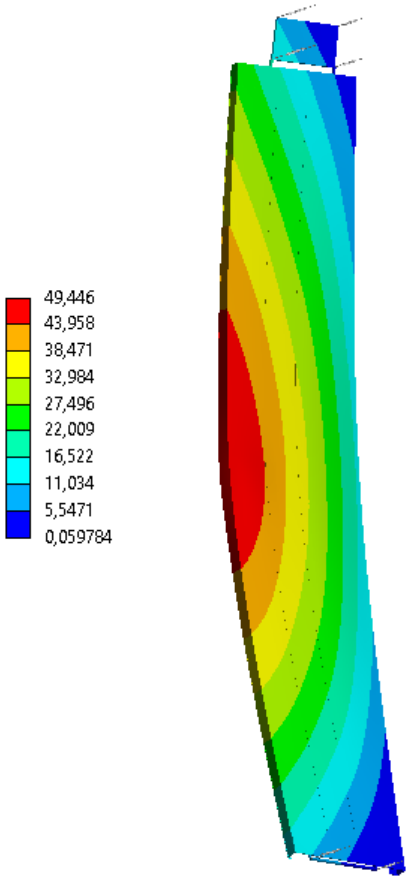
- Reduce the lead time in testing

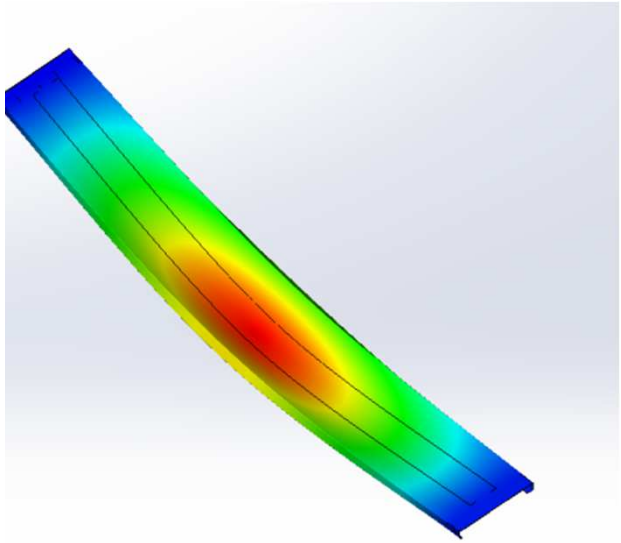
WITTUR approach - Safety

- Reach the highest level of safety

Best practice - How to reduce number of tests?

- Study of the worst configurations → high knowledge in FEM analysis
- Agree with NB
- Test the worst configuration
- Additional validation tests



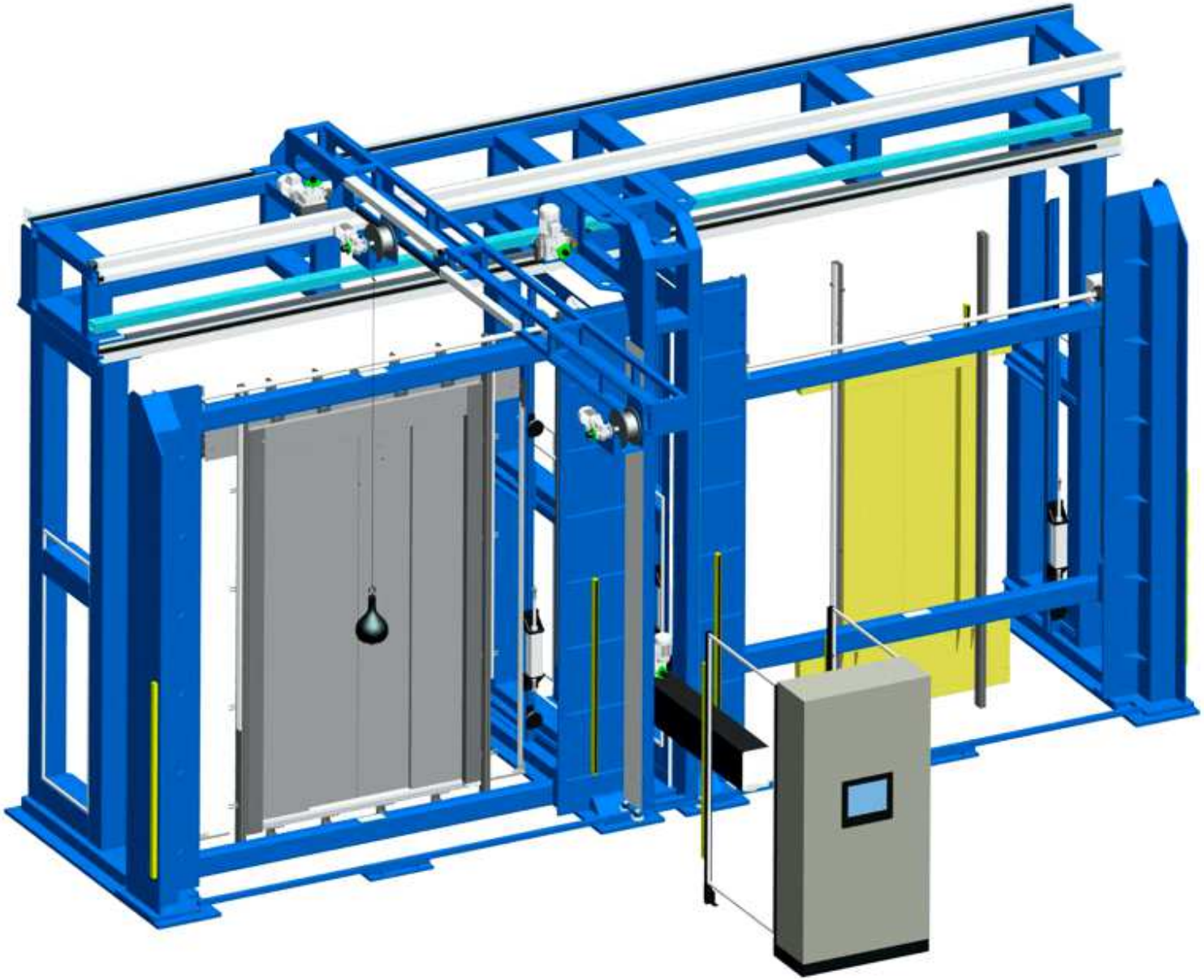


Best practice – Still improvements needed

- After the “optimization” of foreseen tests, still number of tests remain high
- Repeatability & accuracy problems remain
- Safety can still be improved

HOW TO IMPROVE?

WITTUR new testing structure – overview

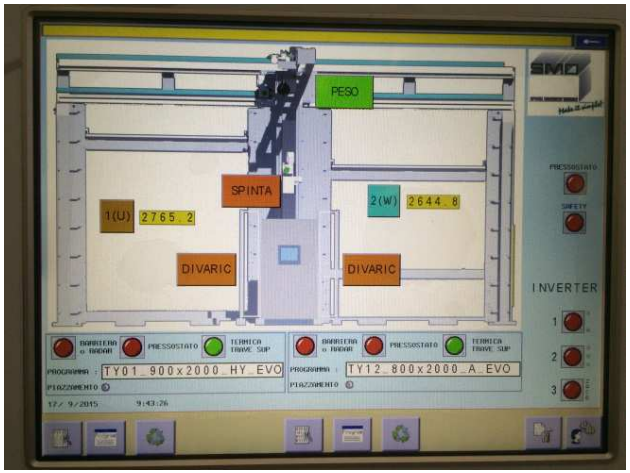


WITTUR new testing structure – from project to real product

WITTUR new testing structure – features

- Powered movement of:
  - fitting structure
  - tools to apply forces

- Automatic detection of testing points
- Automatic application of pre-set forces
- Automatic measurement of deformations
- Automatic storage of results and issue of reports



WITTUR new testing structure – Adds on

- Assembly phase independent from testing
- Repeatability and accuracy in measurements
- Testing time reduced by **65%**
- Safety in testing

WITTUR new testing structure – Overview

WITTUR new testing structure – Results

WITTUR confirms its leading role in:

INNOVATION

SAFETY

PERFORMANCE

Thank you for your kind attention

WITTUR

Andrea Bondavalli
Corporate Certifications, Patents and Trademarks Manager
WITTUR Italy Technical Manager

See you in the

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