



TEKNOLOGISK
INSTITUT

Ecodesign og STORE produkter

Metoder og udfordringer for både myndigheder og producenter

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Indhold

- De STORE produkter
- Producenter og myndigheders roller
- Udfordringer
- INTAS-projektet



De STORE produkter

- Elmotorer, Ny forordning (2019/1781): 0,12 kW op til 1000 kW
- Ventilatorer: 0,125 kW op til 500 kW
- Ventilationsaggregater: fra 0,030 kW – under 1000 V AC/1500 V DC
- Fastbrændselskedler: op til 500 kW ydelse
- Varmepumper/olie- og gasfyrede kedler: op til 400 kW ydelse
- Køleprodukter- og højtemperatur chillere: op til 1 MW
- Luftvarmeprodukter: op til 2 MW ydelse
- Og flere andre bl.a. effekttransformere til elnettet!



Scope and energy efficiency levels: more ambition !

Summary table:

Scope		2017	2018...2020	2021	2022	2023	→
<i>AC induction motors <= 1000 V</i>							
0.75-375 kW	3 phase, 2/4/6 poles	IE2+VSD/IE3					→
0.75-1000 kW	3 phase, 2->8 poles				IE3		→
↳ 75-200 kW	2/4/6 poles, excl. ATEX, non-integr. brake and Ex eb					IE4	→
0.12-0.75 kW	3 phase 2->8 poles				IE2		→
>= 0.12 kW	1 phase					IE2	→
0.12-1000 kW	Incr. safety Ex eb 2->8 poles					IE2	→
ATEX and non-integr. brake motors					No more exempt		
<i>Variable speed drives</i>							
0.12-1000 kW	3-phase				IE2		→

Color legend :

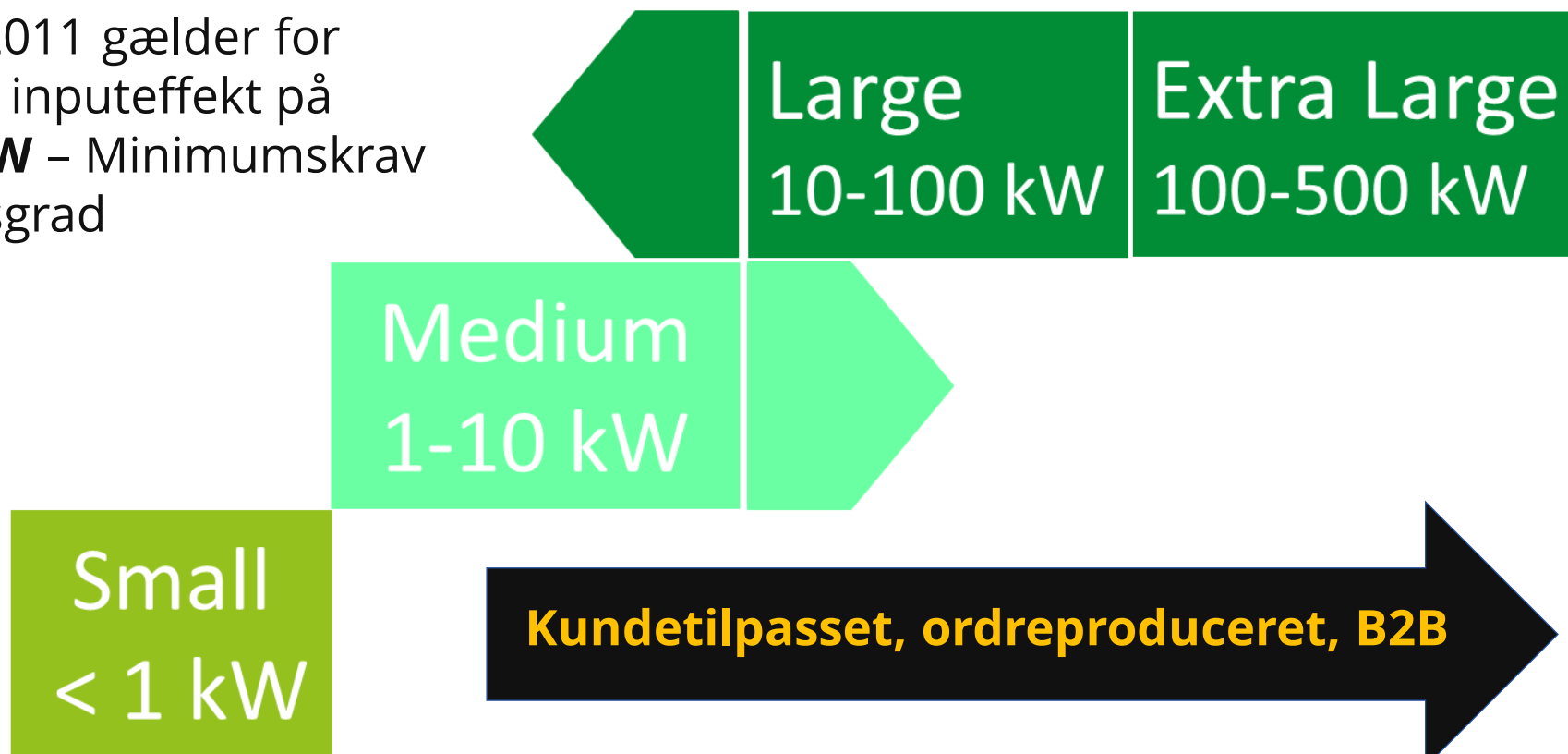
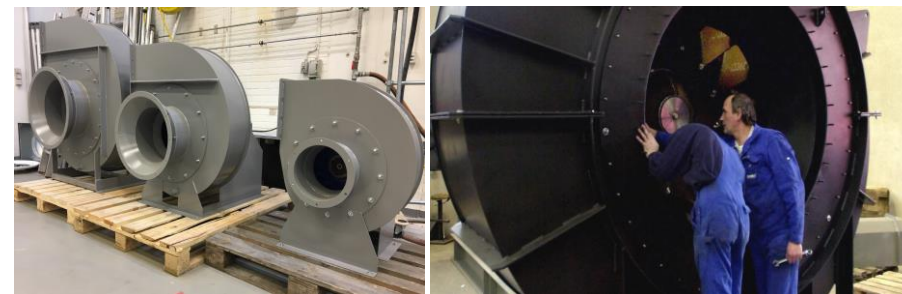
Current requirements 640/2009

Requirements new regulation



Eksempel: Industriventilatorer

Forordning (EU) No. 327/2011 gælder for ventilatorer med elektrisk inputeffekt på mellem **125 W and 500 kW** – Minimumskrav for den samlede virkningsgrad





Producentens rolle

- Overensstemmelsesvurdering
 - af **Ecodesignkrav til produktet**
 - **FØR** et produkt, **bringes i omsætning og/eller ibrugtages**
- Teknisk dokumentation

Skal bl.a. indeholde:

 - oplysninger vedrørende produktets miljømæssige design-aspekter (**produktinformation**)
 - **resultaterne af de gennemførte målinger** i forbindelse med kravene til Ecodesign

Skal desuden:

 - **opbevares i 10 år**
 - **skal stilles til rådighed for myndigheder senest 10 dage efter anmodning**

Myndighedernes rolle

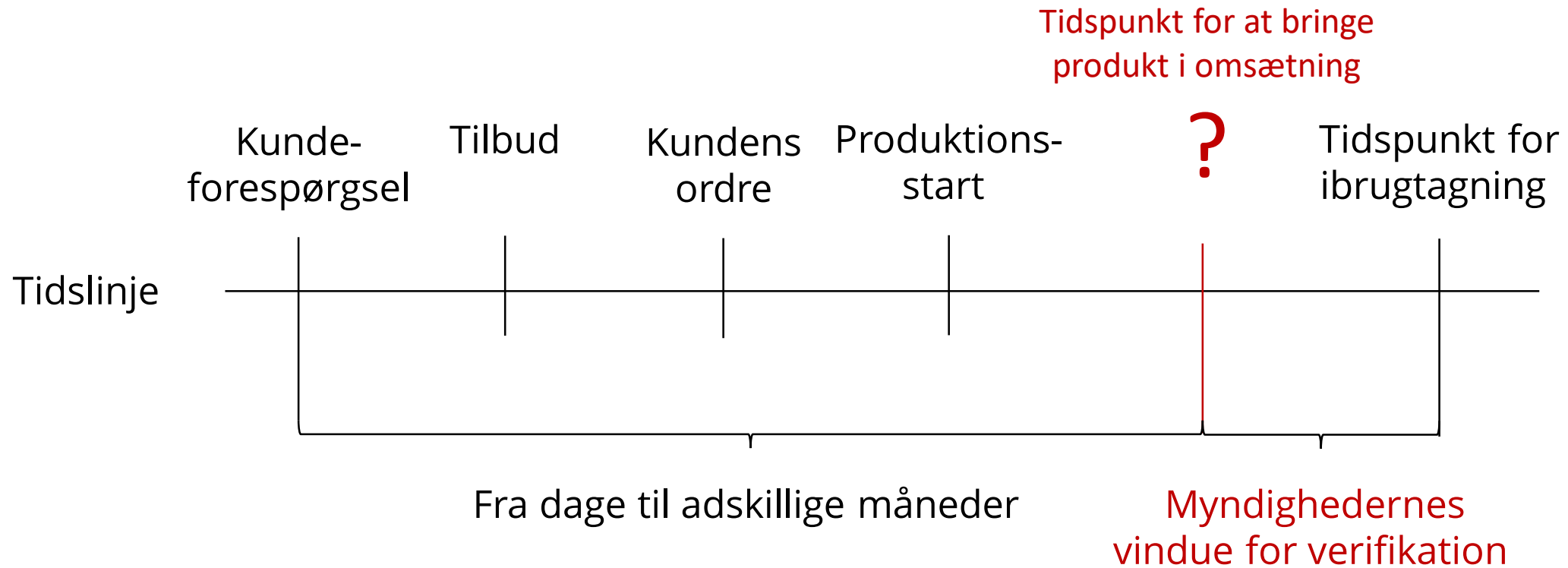
- Markedstilsyn

Beføjelser til bl.a.

 - **påbyde producenter at trække ikke-overensstemmende produkter tilbage**
 - **kræve at de berørte parter forelægger alle nødvendige oplysninger**
 - udtage prøver af produkterne og underkaste dem **overensstemmelseskontrol**
- Verifikation (Forordning 2016/2282)
 - oplyste værdier **ikke mere favorable end producentens tilsvarende målinger**
 - **Produktinformation opfylder alle krav** og ikke mere favorable værdier end ellers oplyst
 - **Test: 1 + 3** med undtagelser
- Akrediterede testlaboratorier
 - De facto krav til verifikationstest



Udfordring 1: Det "usynlige" produkt solgt B2B





Udfordring 2: Testmuligheder

Producenter

- Testfaciliteter af meget varierende standard og kapacitet (både mængde og størrelse)
- Oftest ingen krav fra kunderne om Factory Acceptance Test (FAT) = få test
- Myndighedsverifikation hos producenten:
 - Sjældent akkreditering
 - Hvad er konsekvenserne, hvis produktet fejler før det er bragt i omsætning?
 - Vanskeligt at udvælge tilfældige produkter
 - Legal adgang til producentens faciliteter

In-situ

- Vanskeligt at skabe de rigtige testkonditioner, når produktet er installeret
- Tolerancer
- Hvad er konsekvenserne, hvis produktet fejler, når det allerede er installeret hos slutkunden?
- Legal adgang til slutkundens faciliteter



Source: Oelde Ventilatoren



Udfordring 2: Testmuligheder

Uafhængige laboratorier

- Testfaciliteter af meget varierende kapacitet (både mængde og kapacitet)
- Laboratorierne tilpasser sig markedet - begrænset marked for store produkter
- Få laboratorier, men transportomkostninger normalt ikke en begrænsende faktor
- Normalt akkrediterede
- Testomkostninger for store produkter er store

Electric power [kW]	Flow rate [m ³ /h]					
Pressure [Pa]	5,000	15,000	25,000	35,000	50,000	75,000
2,500	3.9	11.6	19.3	27.0	38.6	57.9
5,000	7.7	23.1	38.6	54.0	77.2	115.7
7,500	11.6	34.7	57.9	81.0	115.7	171.6
10,000	15.4	46.3	77.2	108.0	154.3	231.5

	Drive system efficiency = 0.9
Widely available	
Available	
Less available	
Unlikely	



Udfordring 3: Tekniske kompetencer hos myndighederne

- Komplekse produkter og varianter
- Komplekse forordninger
- Komplekse harmoniserede standarder
- Dokumentation ofte beregnet fremfor målt



The INTAS-project

- INTAS aims to foster a **common European approach to the delivery and verification of Ecodesign compliance for large industrial products** (power transformers and **industrial fans**)
- Regulation (EU) No. 327/2011 implements the Ecodesign Directive for fans with an **electric input power between 125 W and 500 kW** – minimum requirements for overall efficiency
- Co-funded by the Horizon 2020 programme
- **11 national Market Surveillance Authorities (MSAs) or cooperating organisations, 5 technical partners**
- **Advisory Board** (Industry, legislators, more MSAs)
- **The project concluded in February 2019**





Outline and graphical chart

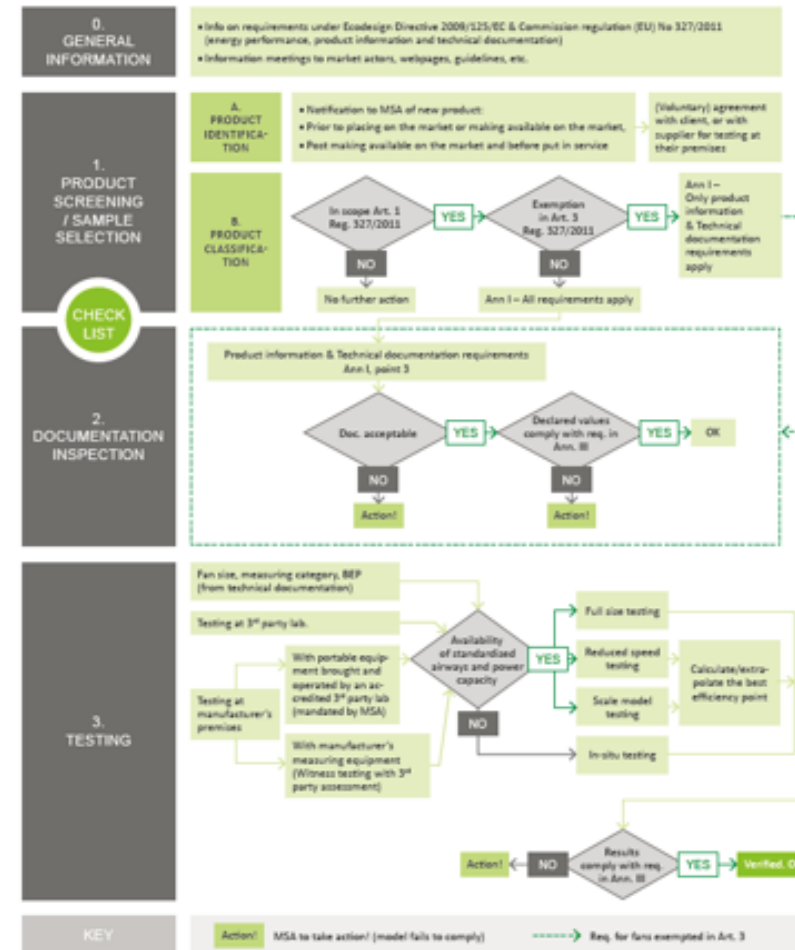
1. General market surveillance and preparatory actions

2. Product screening and sample selection

- Checklist

3. Verification of compliance actions:

- Documentation and rating plate inspection
- Verification testing





1. General market surveillance and preparatory actions

- **Identify national/local market actors:** Manufacturers, sales representatives, importers, contractors, final clients
- **Create awareness of market actor's obligations:** Directive 2009/125/EC (before/design control/10 years/10 days)
- **Build capacity and relations:**
 - Establish links with market actors (including site visits), trade associations, other national market surveillance authorities, customs
 - Establish links with technical experts of the specific product
- **Encourage to voluntary review of practices and notification of products being placed on the market could reduce the likelihood of more disruptive compliance verification**





2. Placing on the market

When notified the market surveillance authority can...

Before-case:

- Verification of compliance at manufacturer's premises for a specific product
 - Technical documentation and visual inspection checks
 - Test if facilities are available (e.g. witnessing factory acceptance test)

After-case:

- Verification of compliance for various products could entail:
 - A broader selection for technical documentation checks
 - A slightly narrower window for visual inspection checks
 - A smaller sample for laboratory verification testing





2. Border-crossing inside/outside European Economic Area (EEA)

Addressing products from elsewhere in the EEA:

- Collaboration between market surveillance authorities (MSAs)
 - When country/region where the fan is produced is different from where it's put into service, MSA of producing country can check as in the 'Before-case'

Addressing products made outside the EEA:

- Collaboration with customs and MSAs:
 - When country/region where the fan enters EEA is different from where put into service, custom authorities of entering country can forward information to MSA of the country/region of destination.
 - MSAs can do verification checks as the 'After-case'
 - If voluntary agreement with manufacturers, check as 'Before-case'





2. Risk profiling

The market surveillance authorities can progressively develop risk profiles of the market actors/economic operators based on:

- The identification of market actors and their willingness to collaborate (site visits, their capacity, voluntary notification etc.)
- The compliance verification process

A simple risk profiling system, 4 classes of non-conformity risk per economic operator + sampling algorithms (INTAS D3.8):

- Low
- Medium
- High
- Unknown





Verification testing

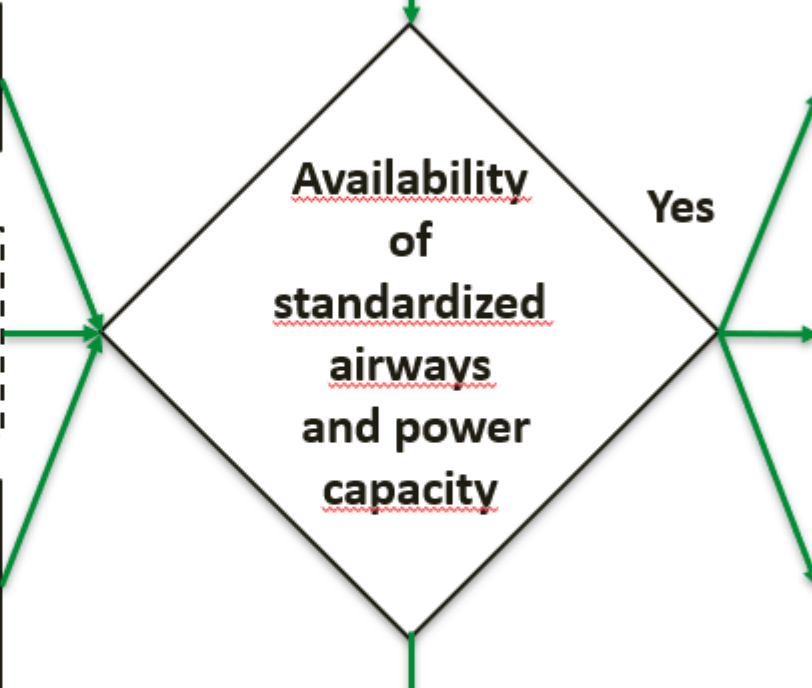
Fan size, measuring category, BEP
(from technical documentation)

Motor Summit 2018
Zürich
15-11-2018

Independent laboratory

Manufacturer laboratory
Manufacturer measuring equipment (witness test)

Manufacturer laboratory
Independent measuring equipment



Full size testing

Reduced speed testing

Scaled model testing

In-situ testing

Challenges:

- Availability of laboratories
- Economical resources





Verification testing

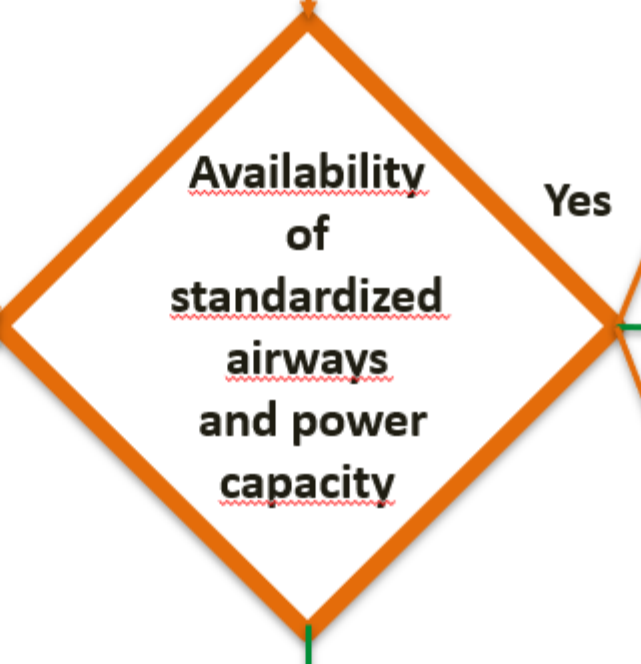
A fan in the lower range of a fan design series e.g. 15 kW

Motor Summit 2018
Zürich
15-11-2018

Independent laboratory

Manufacturer laboratory
Manufacturer measuring equipment (witness test)

Manufacturer laboratory
Independent measuring equipment



Full size testing

Reduced speed testing

Scaled model testing

In-situ testing





INTAS's anbefalinger til politik for industriventilatorer



Set up a dedicated European market surveillance task force for fans



Establish a mandatory notification to MSAs



Foster cooperation with national stakeholders

Capacity building



Define "large fans" in the Ecodesign regulation



Allow market surveillance actions "on-site"



Allow and clarify alternatives to full-size, full-load testing as verification options

Legal clarity



Improve fans standards for Ecodesign



Insert clauses to deter circumvention



Summary of Findings from INTAS

- Policy recommendations
- Best practice and experiences in verification procedures
- Evaluation of costs, benefits of compliance verification
- For fans and transformers

about the INTAS project and its results:

www.INTAS-testing.eu

