



Seminario tecnico

# Hygienic Design delle apparecchiature alimentari

11 Giugno 2010, Centro Santa Elisabetta c/o Campus Universitario di Parma

## EHEDG: ORGANIZZAZIONE E PRINCIPI

Giampaolo Betta

**DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006**

**2.1. FOODSTUFFS MACHINERY AND MACHINERY FOR COSMETICS OR PHARMACEUTICAL PRODUCTS**

**2.1.1. General**

Machinery intended for use with foodstuffs or with cosmetics or pharmaceutical products **must be designed and constructed in such a way as to avoid any risk of infection, sickness or contagion.**

9.6.2006 EN Official Journal of the European Union L 157/49

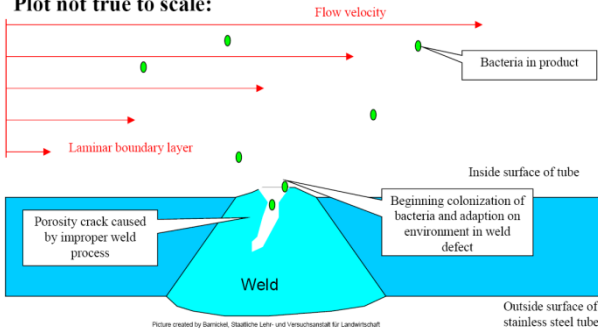
The following requirements must be observed:

- (a) materials in contact with, or intended to come into contact with, foodstuffs or cosmetics or pharmaceutical products must satisfy the conditions set down in the relevant Directives. The machinery must be designed and constructed in such a way that these materials can be cleaned before each use. Where this is not possible disposable parts must be used;
- (b) all surfaces in contact with foodstuffs or cosmetics or pharmaceutical products, other than surfaces of disposable parts, **must:**
  - be smooth and have neither ridges nor crevices which could harbour organic materials. The same applies to their joinings,
  - be designed and constructed in such a way as to reduce the projections, edges and recesses of assemblies to a minimum,
  - **be easily cleaned and disinfected**, where necessary after removing easily dismantled parts; the inside surfaces must have curves with a radius sufficient to allow thorough cleaning;
- (c) it must be possible for liquids, gases and aerosols deriving from foodstuffs, cosmetics or pharmaceutical products as well as from cleaning, disinfecting and rinsing **fluids to be completely discharged** from the machinery (if possible, in a 'cleaning' position);
- (d) machinery must be designed and constructed in such a way as to prevent any substances or living creatures, in particular insects, from entering, or any organic matter from accumulating in, areas that cannot be cleaned;
- (e) machinery must be designed and constructed in such a way that no ancillary substances hazardous to health, including the lubricants used, can come into contact with foodstuffs, cosmetics or pharmaceutical products. Where necessary, machinery must be designed and constructed in such a way that continuing compliance with this requirement can be checked.

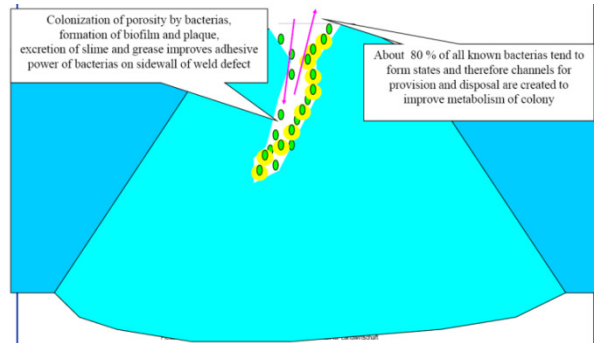
# (1) Pulibilità

1

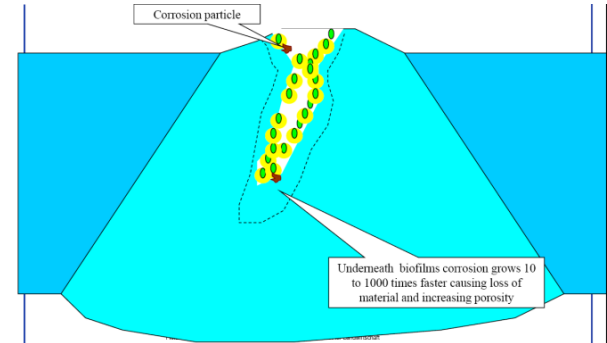
Plot not true to scale:



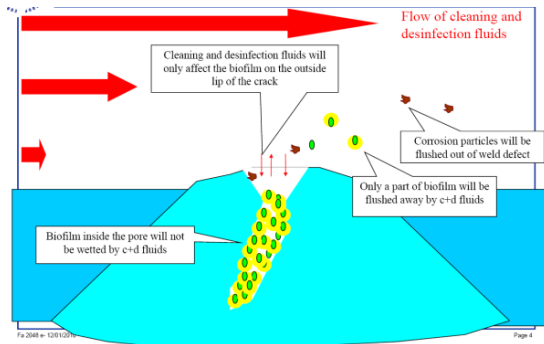
1a



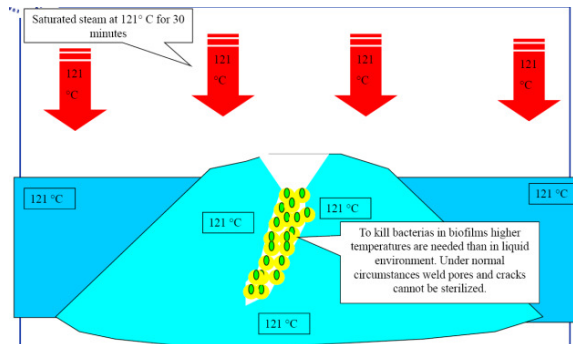
1b



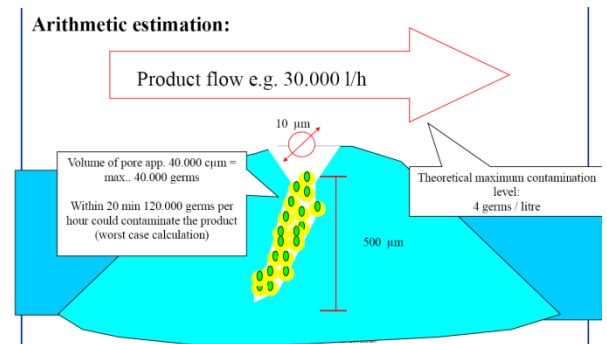
2



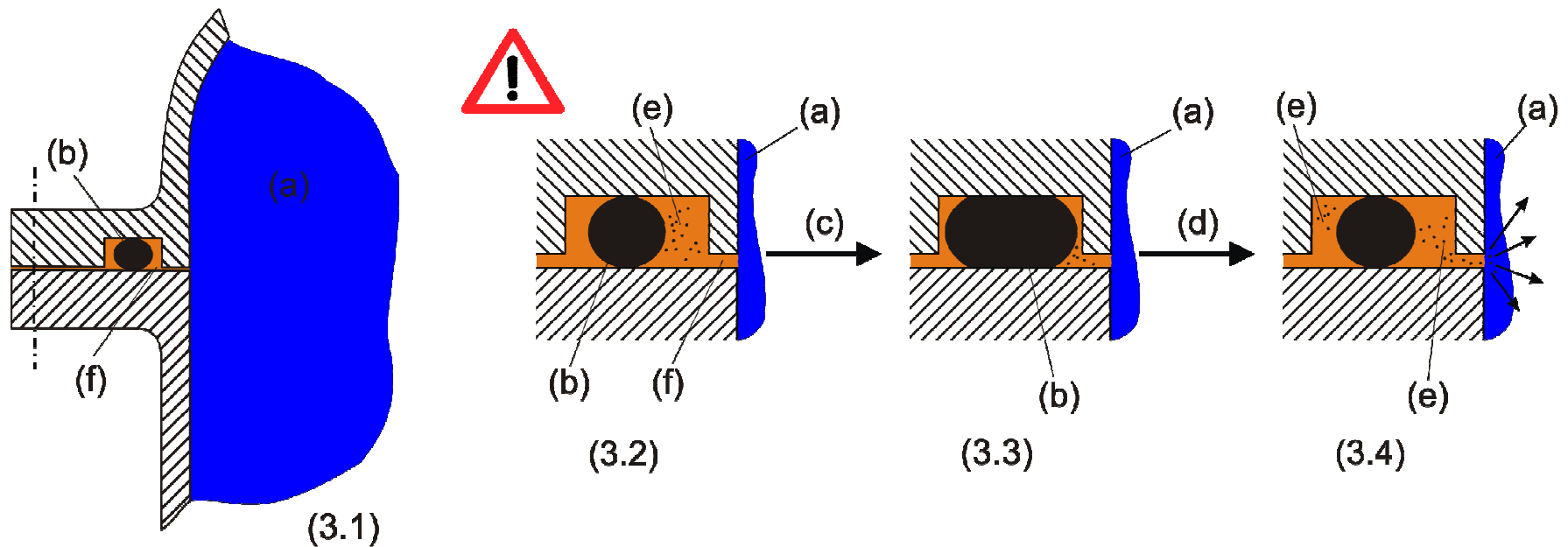
3



4

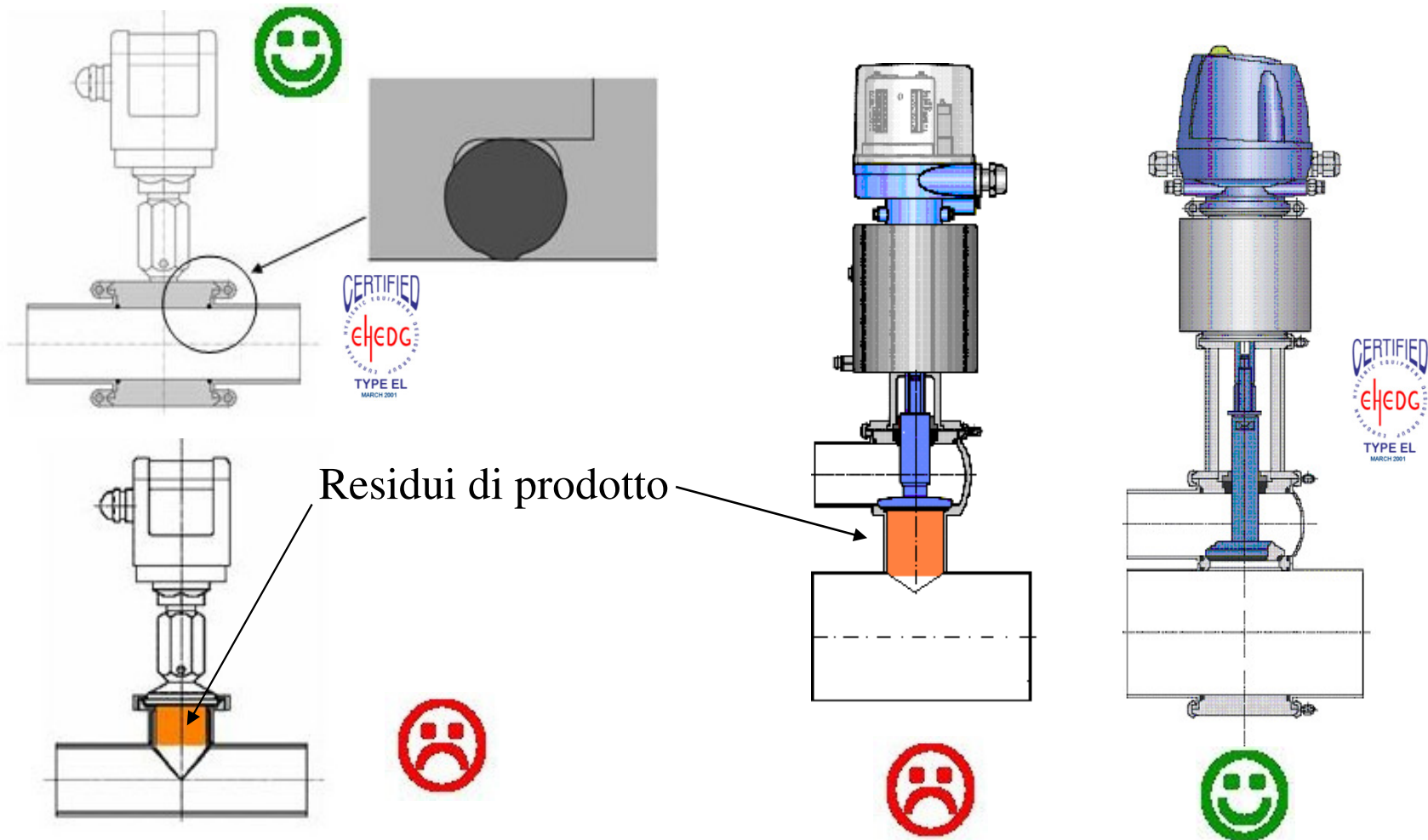


# (1) Pulibilità

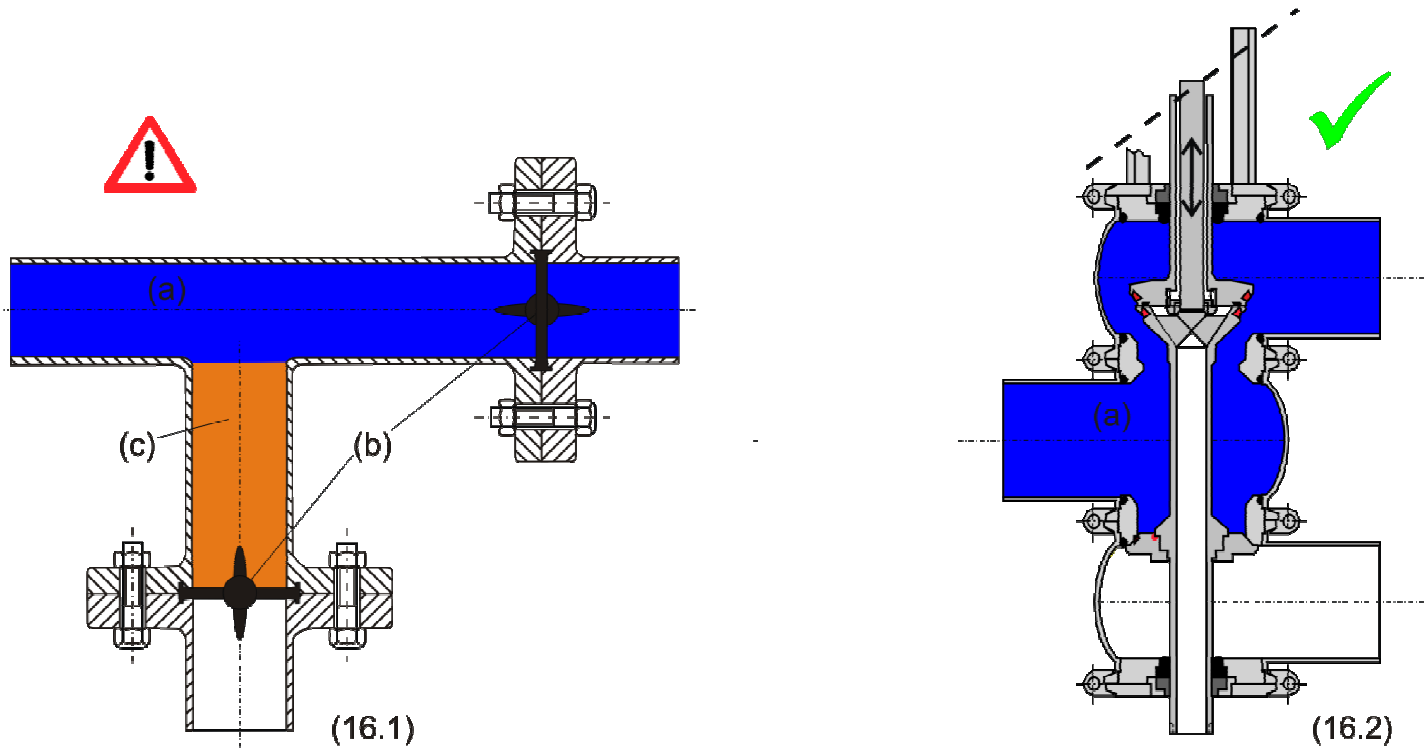


EHEDG Doc. 10: (a) product area, (b) elastomeric seal, (c) heating, (d) cooling, (e) micro-organisms (f) gap

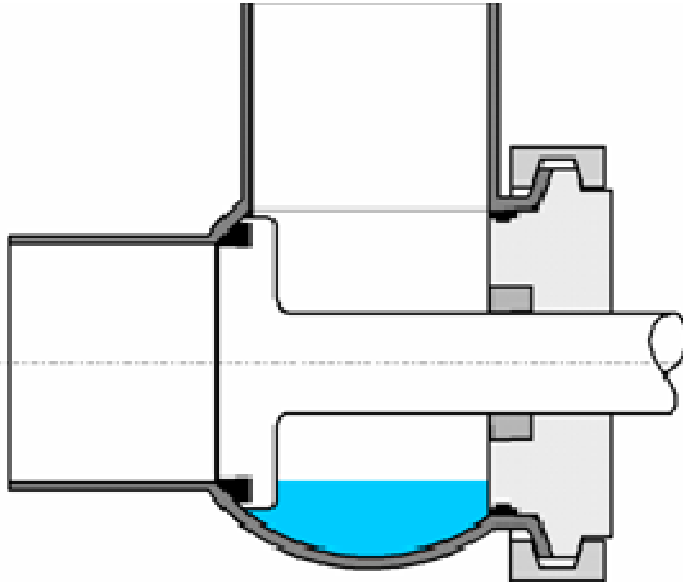
# (1) Pulibilità



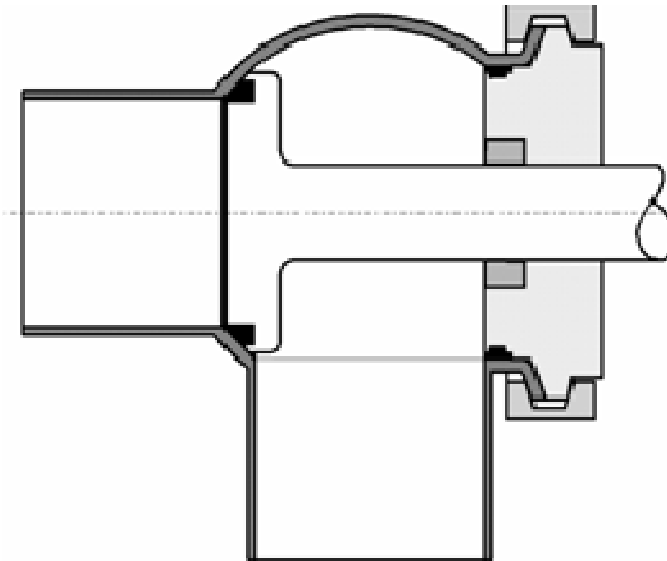
# (1) Pulibilità, rami morti

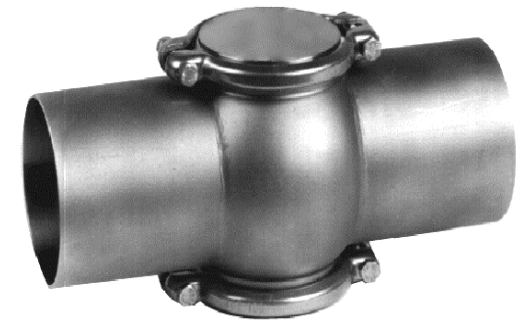
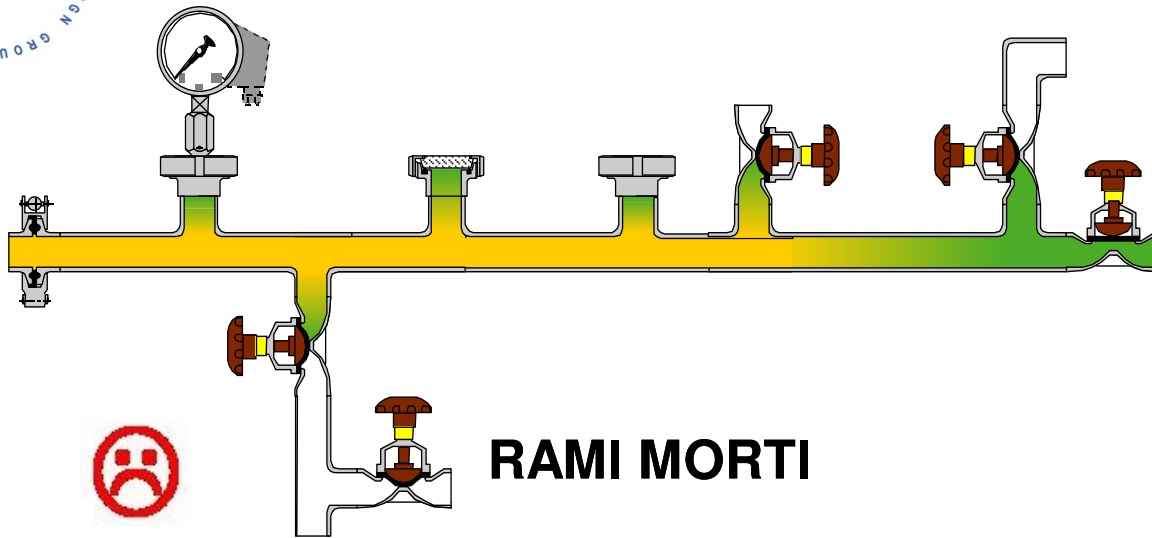


## (2) Drenabilità

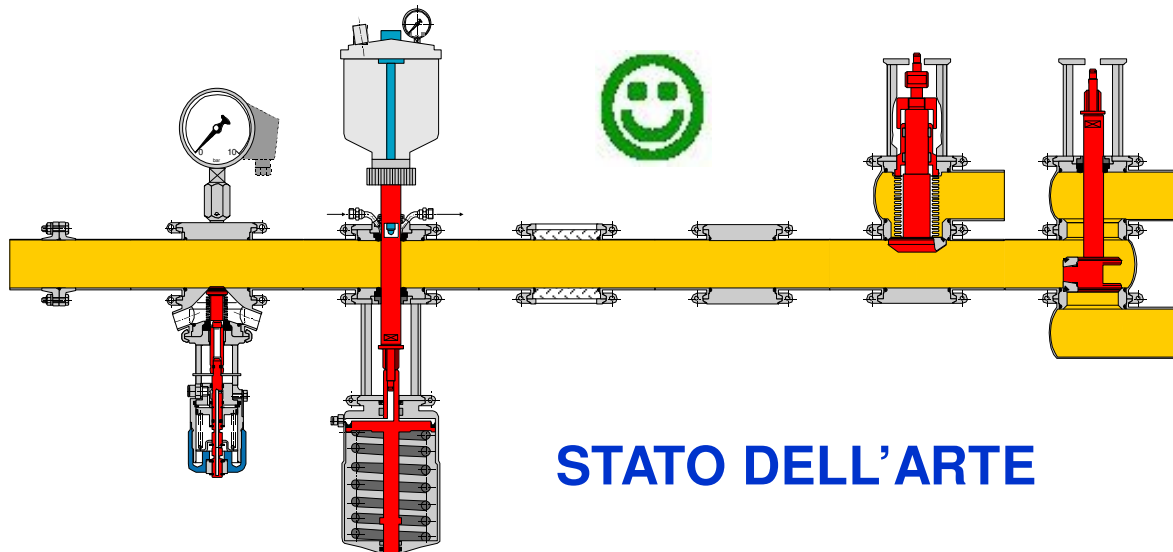


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EVITARE**





**Inline Access Unit**







# EHEDG

- **Scopo**

- Fornire una guida pratica per la progettazione igienica delle apparecchiature alimentari
- Aumentare la consapevolezza nei confronti dell'Igiene Alimentare, contribuire alla prevenzione dei problemi di sicurezza alimentare e dunque sostenere l'immagine dell'industria alimentare presso i consumatori.

- **Cos'è EHEDG?**

EHEDG (European Hygienic Engineering and Design Group) è un consorzio europeo di aziende alimentari, costruttori di impianti alimentari, istituti di ricerca e autorità pubbliche sanitarie, nato nel 1989

- **Attività principale**

- Sviluppo, pubblicazione e periodica revisione di linee guida pratiche di Hygienic Design capaci di orientare costruttori di impianti e industrie alimentari verso la conformità alla legislazione internazionale.

# EHEDG Subgroups

- Meet to develop guidelines and revise existing documents (based on reference documents, own research work and own development of test methods).
  - Highlight selected topics
  - Provide picture-illustrated, practically oriented documents
    - Keep things simple and easy to understand!

# EHEDG Subgroups

## Active:

- Chemical Treatment of Stainless Steel Surfaces (Update of Doc. 18)
- Dry Materials
- Fish Processing
- Mechanical Seals (re-started 04/2010, Update of Doc. 25)
- Open Food Production / Open Equipment
- Pumps/ Homogenizers / Dampening Devices
- Seals
- Separators
- Test Methods (new Certification Scheme)
- Training and Education
- Valves (Update of Docs. 14 and 20)

## Proposed:

- Chilling/Freezing Equipment (finalization of draft 2005)
- Cleaning Nozzles
- Cleaning Validation
- Conveyors
- Materials (due for update in 2010)
- Membrane Filtration
- Process Vessels and Storage Tanks
- Welding (Update of Doc. 9)

## Chairmanship vacancy:

- Meat Processing

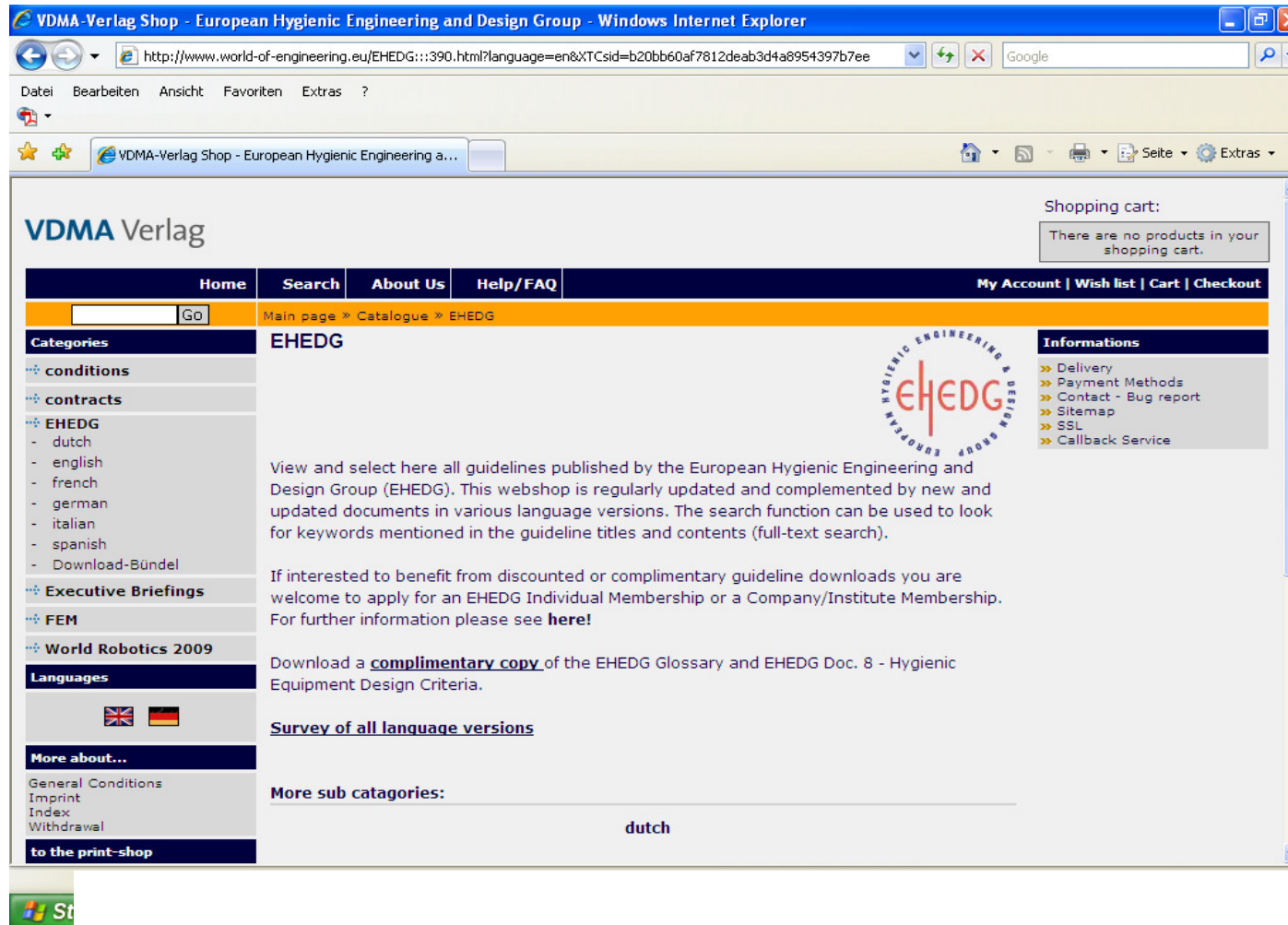
# Guidelines

- 1 Microbiologically safe continuous **pasteurization** of liquid food
- 2 A method for assessing the in-place cleanability of food processing equipment.
- 3 Microbiologically safe **aseptic packing** of food products.
- 4 A method for the assessment of in-line pasteurisation of food processing equipment.
- 5 A method for the assessment of in-line sterilisability of food processing equipment.
- 6 The microbiologically safe continuous flow thermal **sterilisation** of liquid foods.
- 7 A method for the assessment of bacteria-tightness of food processing equipment.
- **8 Hygienic equipment design criteria.**
- 9 **Welding** stainless steel to meet hygienic requirements.
- 10 Hygienic design of **closed equipment** for the processing of liquid food.
- 11 Hygienic packing of food products.
- 12 The continuous or semi-continuous flow thermal treatment of particulate foods.
- 13 Hygienic design of equipment for **open processing**.
- 14 Hygienic design of **valves** for food processing.
- 15 A method for the assessment of in-place cleanability of moderately sized food processing equipment.
- 16 Hygienic pipe **couplings**.
- 17 Hygienic design of **pumps, homogenisers** and dampening devices.
- 18 Passivation of stainless steel.
- 19 A method for assessing the bacterial impermeability of hydrophobic membrane filters.
- 20 Hygienic design and safe use of double-seat mixproof valves.

# Guidelines

- 21 Challenge tests for the evaluation of the hygienic characteristics of packing machines for liquid and semi-liquid products, 2000.
- 22 General hygienic design criteria for the safe processing of **dry particulate materials**.
- 23 Production and use of food-grade **lubricants** (Part 1 and 2)
- 24 The prevention and control of Legionella spp. (incl legionnaires disease) in food factories
- 25 Design of **mechanical seals** for hygienic and aseptic applications.
- 26 Hygienic engineering of plants for the processing of dry particulate materials.
- 27 Safe storage and distribution of **water** in food factories.
- 28 Safe and hygienic water treatment in food factories.
- 29 Hygienic design of packing systems for **solid foodstuffs**.
- 30 Guidelines on **air** handling in the food industry.
- 31 Hygienic engineering of fluid bed and spray dryer plants.
- 32 **Materials** of construction for equipment in contact with food.
- 33 Hygienic engineering of discharging systems for dry particulate materials.
- 34 Integration of hygienic and aseptic systems.
- 35 Welding of stainless steel tubing in the food industry.
- 36 Hygienic Engineering of Transfer Systems for Dry Particulate Materials
- 37 Hygienic Design and Application of **Sensors**
- 38 Hygienic Engineering of Rotary Valves in Process Lines for Dry Particulate Materials.
- 39 Design Principles for Equipment and Process Areas for Aseptic Food Manufacturing

# Webshop



VDMA-Verlag Shop - European Hygienic Engineering and Design Group - Windows Internet Explorer

http://www.world-of-engineering.eu/EHEDG:::390.html?language=en&XTCSid=b20bb60af7812deab3d4a8954397b7ee

VDMA Verlag

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  - dutch
  - english
  - french
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  - italian
  - spanish
  - Download-Bündel
- Executive Briefings
- FEM
- World Robotics 2009

**Languages**

**More about...**

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Imprint  
Index  
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**to the print-shop**

**EHEDG**

View and select here all guidelines published by the European Hygienic Engineering and Design Group (EHEDG). This webshop is regularly updated and complemented by new and updated documents in various language versions. The search function can be used to look for keywords mentioned in the guideline titles and contents (full-text search).

If interested to benefit from discounted or complimentary guideline downloads you are welcome to apply for an EHEDG Individual Membership or a Company/Institute Membership. For further information please see [here!](#)

Download a [complimentary copy](#) of the EHEDG Glossary and EHEDG Doc. 8 - Hygienic Equipment Design Criteria.

[Survey of all language versions](#)

**More sub categories:**

dutch

**Informations**

- » Delivery
- » Payment Methods
- » Contact - Bug report
- » Sitemap
- » SSL
- » Callback Service

# Regional Sections

## Existing:

- Armenia
- Denmark
- France
- Germany
- Italy
- Japan
- Macedonia
- Netherlands
- Nordic (FI, N, S)
- Poland
- Russia
- Spain
- Switzerland
- Thailand
- Ukraine

## Under construction:

- Belgium
- Bulgaria
- Canada
- Croatia
- Hungary
- India
- Portugal
- Romania
- Serbia
- Slovakia
- South Africa
- Taiwan
- U.K.
- USA

# EHEDG Sezione Italiana

- Dal 2007, a Parma presso il Dip. di Ingegneria Industriale



The screenshot shows the EHEDG Italian Home Page. At the top left is the EHEDG logo with 'ITALIA' below it. The main header reads 'European Hygienic Engineering and Design Group' and 'Sezione Italiana EHEDG Home Page'. A navigation menu on the left includes 'Home', 'Gruppo Promotore', 'Linee Guida', 'Eventi', and 'Contatti'. Below the menu are language selection buttons for 'ITALIAN' and 'ENGLISH'. At the bottom left are logos for 'W3C HTML 4.01', 'W3C CSS', and 'powered by php'. The main content area features three sections: 'Cos'è EHEDG?' (describing the group as a European consortium of food companies, plant constructors, and public health authorities), 'Scopi' (aiming to increase awareness of food hygiene and prevent food safety problems), and 'Attività' (listing development of practical guidelines, verification tests, certification, and organization of conferences/workshops).

- **Scopo: promuovere i principi di EHEDG a livello nazionale.**
- **Attività volontaria senza scopo di lucro**



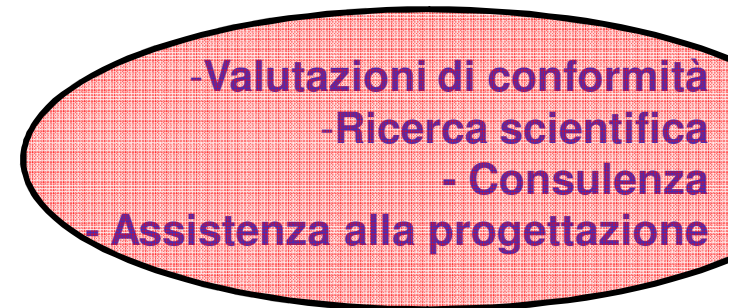
# EHEDG Sezione Italiana

## COSA FA

- Organizzare conferenze e workshop sul territorio nazionale.
- Tradurre le linee guida in lingua italiana.
- Fornire una piattaforma di discussione a livello nazionale sui temi legati all'Hygienic Design and Engineering.
- Fornire assistenza ai produttori di impianti e alle industrie alimentari per l'ottenimento della Certificazione EHEDG.
- Identificare settori, anche di carattere locale, nei quali le conoscenze sulle problematiche di igienicità sono ancora insufficienti e promuovere la ricerca in queste aree.

## COSA NON FA

- Certificazione



Università  
(Unipr)

# Certification of equipment

In compliance with the hygienic equipment designs criteria (Doc. 8) and the confirmation of successfully conducted cleanability test

## NEW EHEDG Certification Scheme

Certificate Type*	EL CLASS I	EL ASEPTIC	EL CLASS II	ED	
Cleaning procedure	CIP cleaning, cleaning without dismantling	wet cleaning with dismantling		dry automatic or manual cleaning	
Equipment used for processes	closed / open	closed	closed / open	closed	open
Fulfilled requirements according EHEDG doc	8, 9, 10, 13, 16, 32, 35)**	8, 9, 10, 16, 32, 35)**	8, 9, 10, 13, 32, 35)**	8, 9, 22, 26, 32)**	8, 9, 22, 26, 32)**
Test method	cleanability (doc 2 or doc 15) / open process equipment without test	cleanability (doc 2 / doc 15) + sterilisability (doc 5) + bacteria tightness (doc 7)	none	none	none



# Test Institutes for EHEDG-Certification

## **TU München**

Forschungszentrum Weihenstephan  
für Brau- und Lebensmittelqualität  
Dr. F. Jacob  
Alte Akademie 3  
D-85354 Freising  
Germany  
Tel. +49 8161 71 3331  
Fax +49 8161 71 4181

## **Danish Technological Institute**

Mr. H. Classen  
Holbergsvej 10  
DK-6000 Kolding  
Denmark  
Tel. +45 7220 1943  
Fax +45 7220 1919

## **TNO Certification B.V.**

Mr. M. Keiser  
P.O. Box 541  
NL-7300 AM Apeldoorn  
Netherlands  
Tel. +31 55 549 34 68  
Fax +31 55 549 32 88

## **Purdue University**

Dr. M. Morgan  
745 Agriculture Mall Drive  
West Lafayette, Indiana 47907-2009  
USA  
Tel. +1 765 494 1180  
Fax. +1 765 494 7953

## **CCFRA Technology Ltd**

Mr. A. Timperley  
Chipping Campden  
Glos, GL55 6LD  
U.K.  
Tel. +44 1386 842000  
Fax +44 1386 842100

**NEW**  
**AINIA**  
Spain



***Certificate of Compliance with  
the Hygienic Equipment Design Criteria of  
the EHEDG; Document No. 8, 1993***

*CCFRA Technology Ltd  
hereby declares that the product*



***Product  
from  
Company name***

*has been evaluated for compliance with the  
hygienic design criteria of the EHEDG by:*

***CCFRA Technology Ltd***

*and, in our opinion, justifies the use of the  
EHEDG Certification logo type EL as demonstrated by:  
Report \*\**

Signed \_\_\_\_\_ Date \_\_\_\_\_  
Testing Officer

Signed \_\_\_\_\_ Date \_\_\_\_\_  
Head of Department

CCFRA Technology Ltd, Chipping Campden, Gloucestershire, UK

CCFRA Technology Ltd is a subsidiary of the Campden & Chorleywood Food Research Association

Information supplied by the Campden & Chorleywood Food Research Association Group (CCFRA) gives effect to sections of the regulations made in the completion, preparation and use of this product. It is not intended to be a substitute for the manufacturer's own safety and liability information. The manufacturer is responsible for the safety of the product. The manufacturer is not liable for the safety of the product. The manufacturer is not liable for the safety of the product.

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# EHEDG Members

	June 2008	June 2009	June 2010
<b>Persons (ttl.)</b>	480	580	640
<b>Company members</b>	80	105	128
<b>Individual members</b>	180	210	250

## End of 2009:

620 Persons

125 Companies

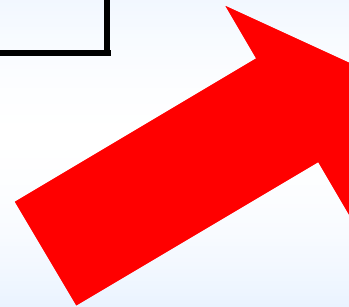
240 Individual members

## 2008:

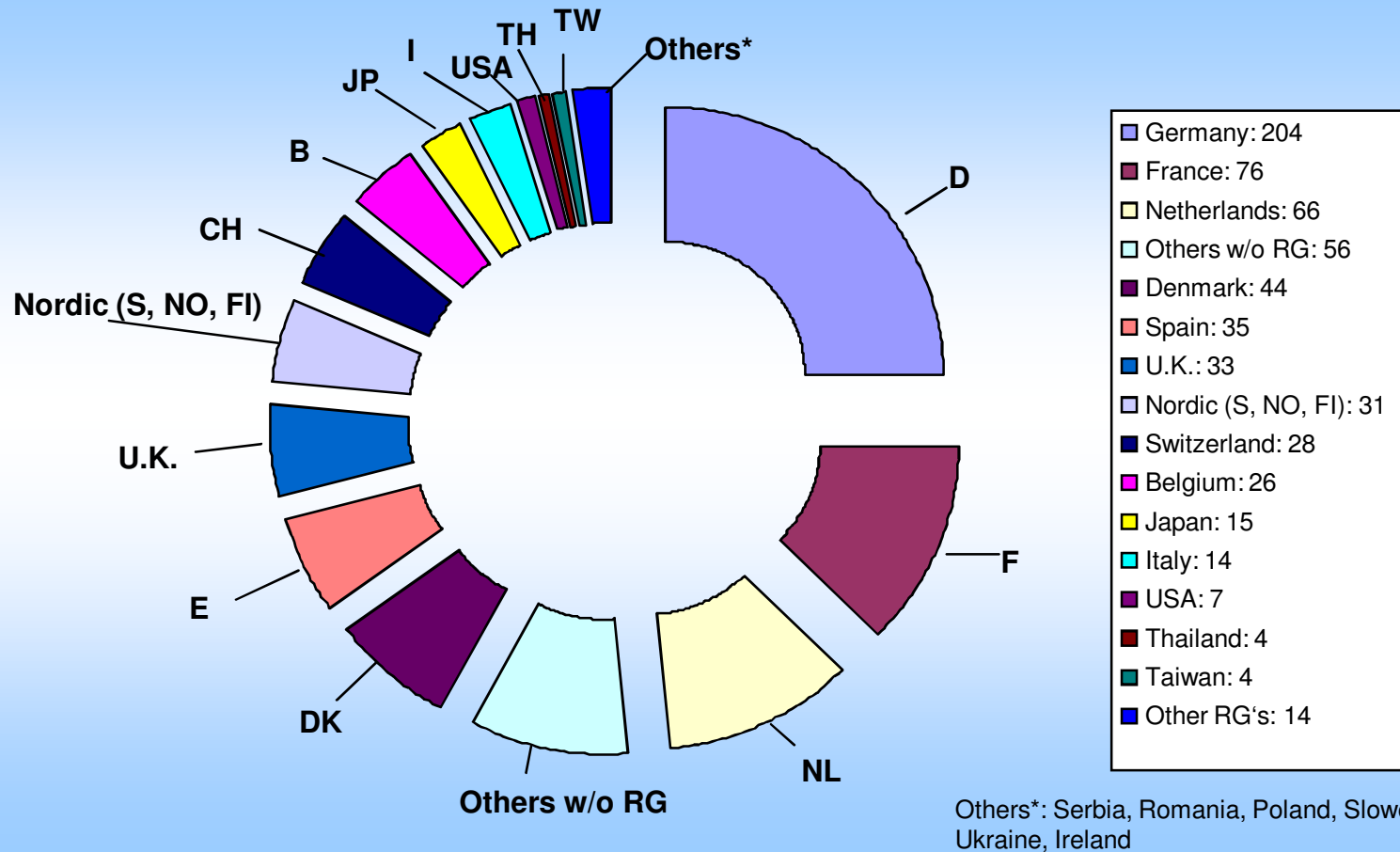
480 Persons

80 Companies

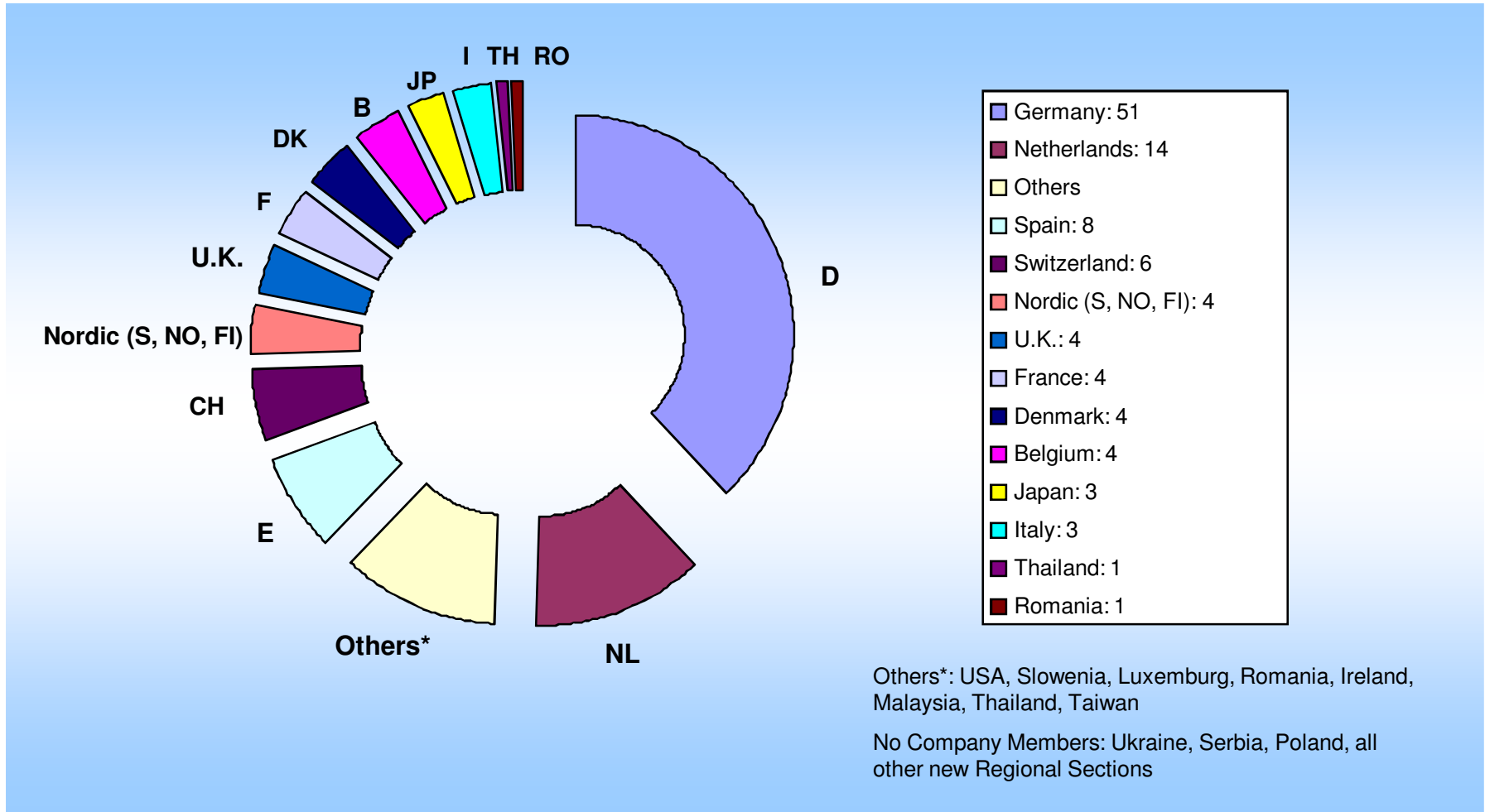
180 Individual members



# Personne



# Company Members



## INDIVIDUAL

Membership fee 100 € p.a.

### Benefits:

- Working party membership or informative membership in 2 Subgroups and 1 Regional Group
- Complimentary copies of EHEDG publications
- 50% discount on guidelines and EHEDG conferences
- Discounts on other EHEDG sponsored publications

## COMPANIES:

Graduated membership fee depending on food-related turnover

### Benefits:

- Whole series of EHEDG guidelines in all languages available including updates (to be downloaded from the EHEDG website)
- Contribute and co-decide on EHEDG and Subgroup activities
- Use of the EHEDG Company Member Logo under agreed conditions
- One to four complimentary staff memberships
- Publication of the company logo and link on the EHEDG Website and in other print media
- Discounted or complimentary EHEDG training toolbox



# Membership





# EHEDG Website

EHEDG, European Hygienic Engineering & Design Group - ehedg.org - Windows Internet Explorer

http://www.ehedg.org/

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## WELCOME TO EHEDG

THE EUROPEAN HYGIENIC ENGINEERING & DESIGN GROUP

Home Training & Education Guidelines Certification Subgroups News & Events Mem

**Home**  
More about EHEDG  
Regional Sections

**EHEDG**

The **European Hygienic Engineering & Design Group (EHEDG)** is a consortium of equipment manufacturers, food industries, research institutes as well as public health authorities and was founded in 1989 with the aim to promote hygiene during the processing and packing of food products. The principal goal of EHEDG is the promotion of safe food by improving hygienic engineering and design in all aspects of food manufacture. EHEDG actively supports European legislation, which requires that handling, preparation processing and packaging of food is done hygienically using hygienic machinery and in hygienic premises (EC Directive 98/37/EC, EN 1672-2 and EN ISO 14159).

[Download](#) the EHEDG brochure.

Please have a look at the EHEDG Introduction movie (turn on the sound). Duration: 4:15 min.

**Latest News**

Annual Meeting EHEDG Germany/Austria/Switzerland [more...](#)

EHEDG Guideline Publication Translations [more...](#)

Announcement: Joint EHEDG and EFFoST Conference 2011 [more...](#)

## Contatti

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