

**TÜV NORD ITALIA**

***"Come certificare un elettrolizzatore"***



**Piacenza,**

**9 Giugno 2022**

**Ing. M. Ghisu**

**Profit Center Manager TÜV NORD Italia  
MT - H2 Business**



# IL GRUPPO TÜV NORD

Presente in  
più di

**70**  
paesi +

**40**  
filiali



Fatturato  
oltre

**1 miliardo €**

**13,000**  
dipendenti



**200,000**

clienti nel campo della  
certificazione  
in tutto il mondo



**63,000**  
sistemi certificati

# TÜV NORD ITALIA

## CERTIFICAZIONE ELETTROLIZZATORI

European Clean  
Hydrogen Alliance

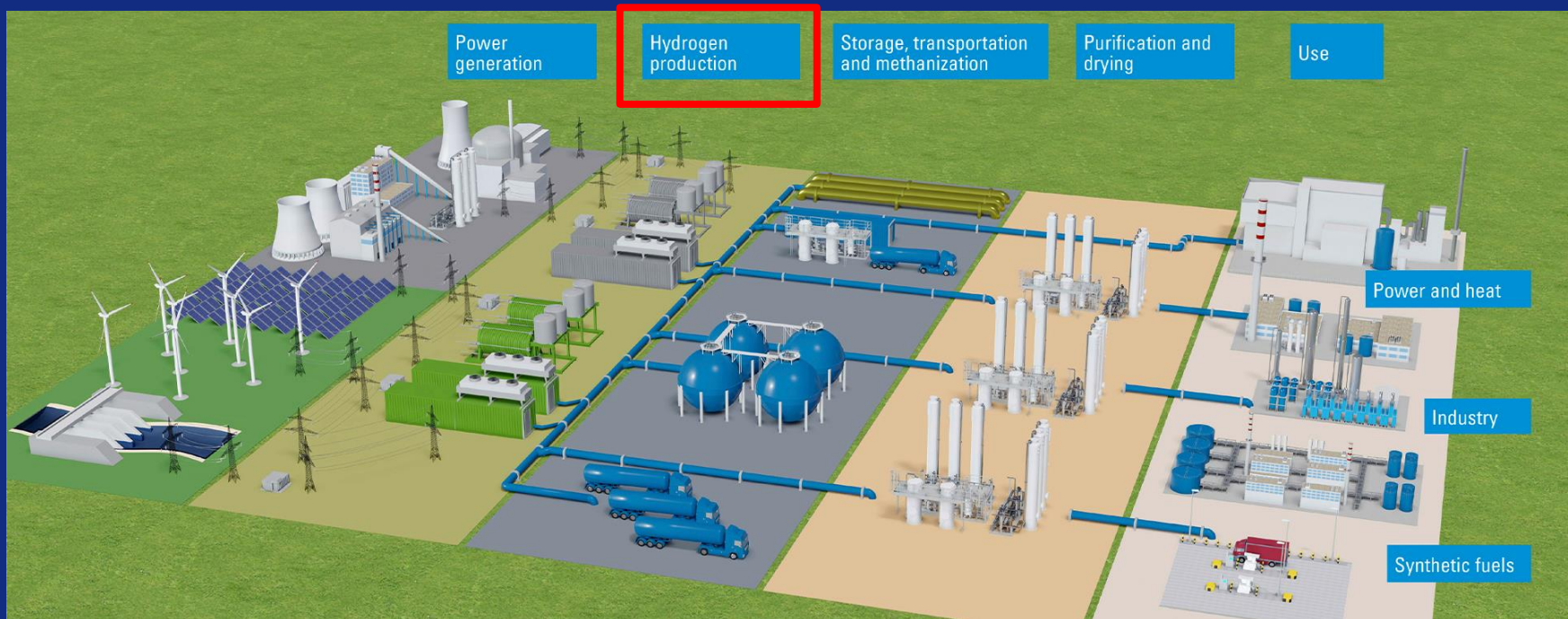


TN Italia è membro della European Clean Hydrogen Alliance

# TÜV NORD ITALIA

## CERTIFICAZIONE ELETTROLIZZATORI

### Filiera dell'idrogeno



Source: Bilfinger NOW

# TÜV NORD ITALIA

## CERTIFICAZIONE ELETTROLIZZATORI

**TN Italia: interlocutore unico per tutti i servizi TIC legati alla certificazione dell'elettrolizzatore**

**Direttiva Macchine 2006/42/CE "MD"**

**Direttiva 2014/68/UE "PED"**

**HAZOP / Risk  
assessment  
EN 12100**



Source: Igas Energy

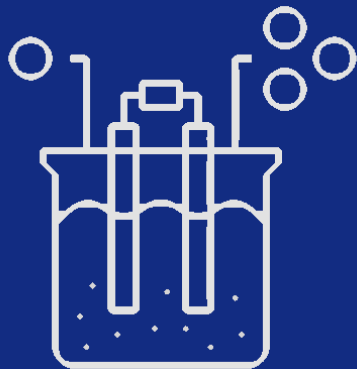
**Qualifica e  
test materiali**

**Valutazione SIL**

**Direttiva 2014/34/UE "ATEX"**

# TÜV NORD ITALIA

## CERTIFICAZIONE ELETTROLIZZATORI



- **Certificazione secondo ISO 22734:2019**
- **Ambito di utilizzo: industriale, commerciale e residenziale**
- **Alkaline water electrolyzer - AWE**
- **Proton Exchange Membrane - PEM WE**
- **Anion Exchange Membrane - AEM WE**
- **Sistema di certificazione in accordo a ISO 17065 (tipo e produzione di serie)**

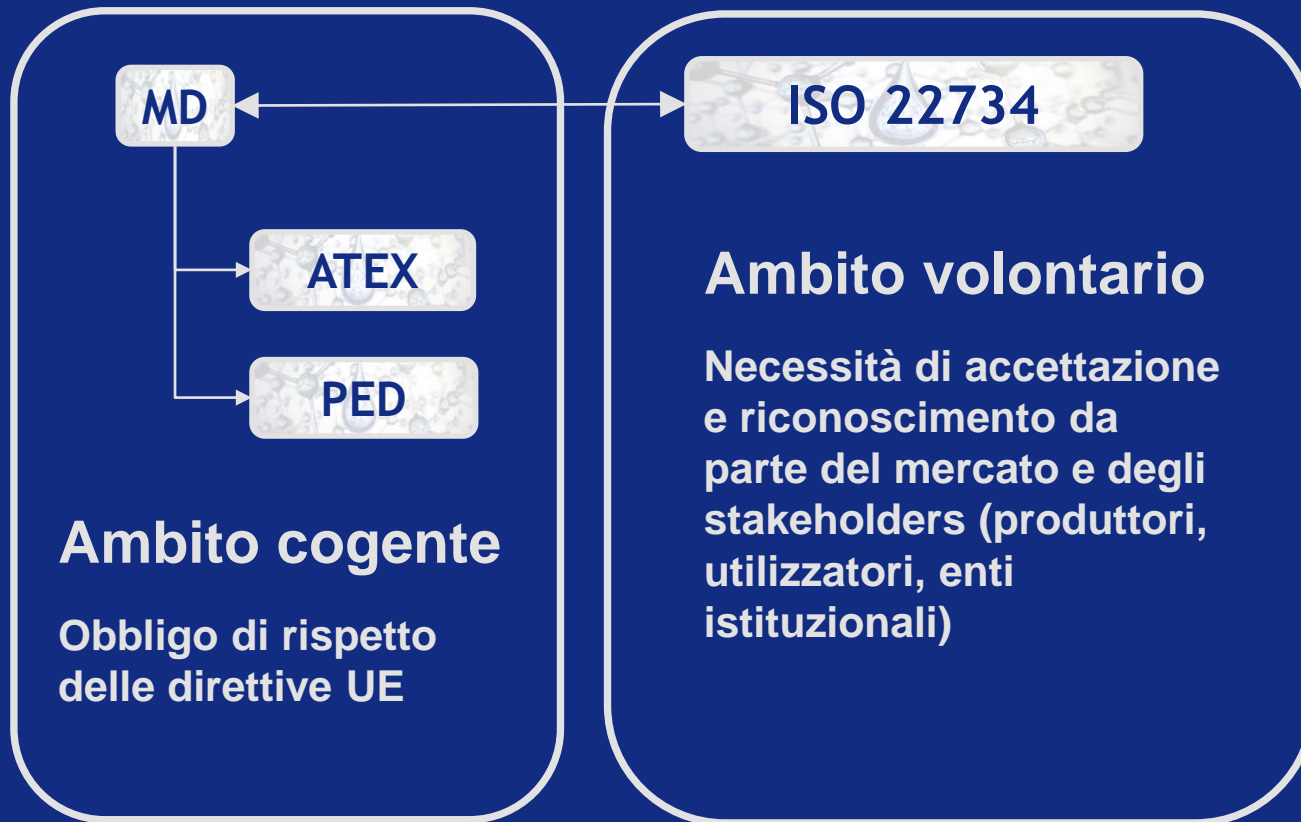




## ISO 22734 – PROCEDURA VALUTAZIONE E CERTIFICAZIONE




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# TÜV NORD ITALIA

## CERTIFICAZIONE ELETTROLIZZATORI



### Risk assessment:

- HAZOP / valutazione SIL
- Risk assessment EN 12100
- Certificazione SIL circuiti di sicurezza - IEC 61508/61511
- Direttiva Macchine 2006/42/CE
- Direttiva 2014/34/UE “ATEX”



# TÜV NORD ITALIA

## CERTIFICAZIONE ELETTROLIZZATORI

### Parti meccaniche:

- **Direttiva 2014/68/UE “PED”**
- **Qualifiche materiali secondo EN 10204 (tipo 3.2)**
- **Qualifiche di procedimento (saldature)**
- **Qualifiche saldatori e operatori di saldatura**
- **Certificazioni AD 2000 W0 – AD 2000 HP0**
- **Test dei materiali**



# ISO 22734 – PROCEDURA VALUTAZIONE E CERTIFICAZIONE



# TÜV NORD ITALIA

## CERTIFICAZIONE ELETTROLIZZATORI

TÜV NORD Italia S.r.l.  
 Sede Centrale  
 Via Ripetta, Turin, 70  
 10121 Cerro Maggiore (MI) Italy  
 Phone: +39 0231 941488  
 +39 0231 442736  
 www.tuv-nord.it

**Application Request for Certification of Electrolyzer**

Manufacturer Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Contact Person: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Mail: \_\_\_\_\_  
 Web site: \_\_\_\_\_  
 Name of Authorized Representative: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Phone: \_\_\_\_\_

1. Service(s) requested:  Certificate of conformity - voluntary verification  Storage of Technical File - voluntary verification  
 Production Quality Assurance - voluntary verification

2. Electrolyzer technology  
 AWE - Alkaline water electrolyzer  
 PEM WE - Proton exchange membrane water electrolyzer  
 AEM WE - Anion exchange membrane water electrolyzer  
 SOEC - Solid oxide electrolyzer  
 Other: \_\_\_\_\_

3. Reference standards (indicate part and year)  
 EN ISO 22734:2019  
 Machinery Directive 2006/42/EC  
 Other (please specify): \_\_\_\_\_

4. Basic information  
 Type of system:  Stand alone (complete BuP)  Integrated in an existing plant  
 Type of application:  Experimental / Test bench  Industrial / Production  
 Residential  
 Delivery:  Hydrogen  Hydrogen + Oxygen  
 Type of product:  Single model  Product family - series  
 Rated power: \_\_\_\_\_  
 Hydrogen generation: Delivery pressure: \_\_\_\_\_  
 Rated flow: \_\_\_\_\_  
 Quality: \_\_\_\_\_

Additional notes: \_\_\_\_\_

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**Certificate of Conformity no. MD XXXXX**

Manufacturer: XYWZ S.r.l.  
 Address: Via F. Turati 321  
 20023 - Cerro Maggiore (MI) Italy

Basic for assessment: ISO 22734:2019 Hydrogen generators using water electrolysis - Industrial, commercial, and residential applications

Description of product: Catalyzed water electrolyzer system with a PEM (proton exchange membrane) stack, for the production and delivery of high pure hydrogen, to be installed outdoor.

Equipment model: PEM-Electrolyzer 2022N  
 Serial number: A0123456  
 Order number: XXXXXX  
 Date of issue: 2022-05-31  
 Remark: None

Product Certification Eng.  
 XXXX YYYY

This document includes 2 pages  
 TÜV NORD Italia S.r.l. (TÜV NORD Group)  
 Via Turati, 70 20023 Cerro Maggiore (MI) Italy  
 www.tuv-nord.it Cerro Maggiore, 2022-05-31  
 prod@tuv-nord.it

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**TUV NORD**

Certificate of Conformity no. MD XXXXX

**Product Technical Specifications**

The Electrolyzer 2022N is a contained system for the production and delivery of high pure H<sub>2</sub>. The assembly is composed of a PEM electrolyzer stack, a water conditioning system (with water filter, an hydrogen purification system with electric motor, deionized water production unit, liquid separators, heat exchanger for gas cooling and water cooling/heating, a dryer and a buffer tank), an hydrogen ventilation system, valve actuators, gas analyzers and sensors. The compartment where the hydrogen power unit are placed is a separate compartment of the container, classified as ATEX safe area. The electronic control system (e.g. PLC), the monitor and the cooling/heating circuits, hydrogen delivery to the user.

Technology	PEM
Production	400 VAC 3 Phases 50Hz
Power	1800 kW
Max pressure	250 bar(g)
Temp	40°C
Relative humidity	99.999%
Pressure	250 bar(g)
Temperature	-10°C to +40°C

Reference: XYWZ PEM 2022N. The complete listing is the assessment report.

Limitation: The complete listing is the assessment report.

End of certificate.

Cerro Maggiore (MI) Cerro Maggiore, 2022-05-31  
 prod@tuv-nord.it

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# CLOSE TO YOU

## *Contatti:*

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