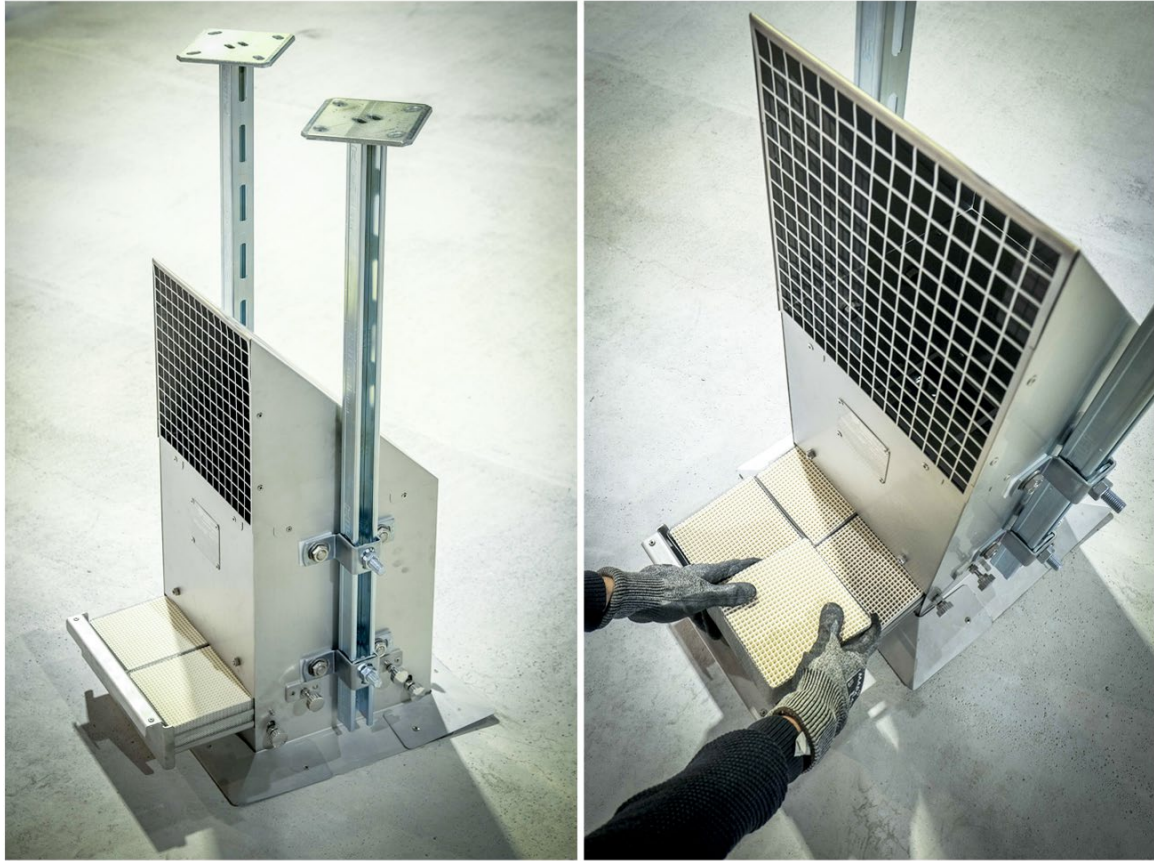


## NuRAPH 2

### Passive Autocatalytic Recombiner



NuRAPH2 is a passive autocatalytic recombiter that secures the intergrity of installations against hydrogen risks.

It can be customised to meet protection needs and adapts to the environmental constraints of the premises to be protected.

It contains catalytic substrates with a «honeycombe» structure that allows hydrogen to be recombined as low as 0,5% of hydrogen concentration, even under extreme humidity conditions.

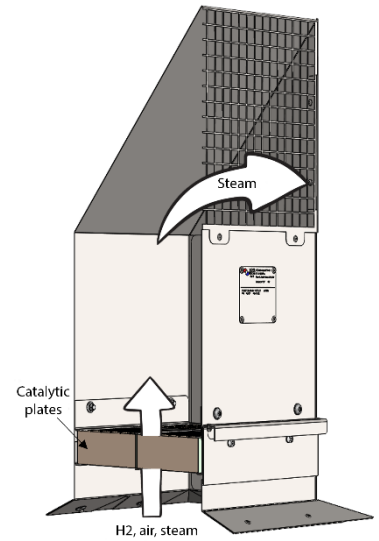
### Key benefits

- Operation without external energy supply or intervention
- Improved safety margin against hydrogen risk by lowering the ignition threshold to 0.5% of hydrogen concentration
- Optimising natural convection for stack design and improving recombination performance
- Modular product with configurable reaction surface and stack height to optimally meet the expected recombination requirements
- To reduce congestion in comparison to conventional recombiners, suitable for rooms with low ceilings
- Stainless steel construction for high durability, (excluding fixing systems and catalytic blocks)
- Robust mechanical assembly design ensures reliability and accessibility
- Once in place, the catalytic converters operate completely independently, Their light and compact design, combined with drawer installations, allowing easy maintenance and control.

The NuRAPH2 recombiter technology is patented.

## Performances

- Optimal performance in a reduced congestion due to its honeycombe structure, providing a large exchange surface for the catalytic reaction
- Catalytic reaction initiation from 0,5% and nominal recombination rate at 1% H<sub>2</sub> to 100% rH at 20°C (experimentally qualified at full scale)
- Thermal dispersion limited to the catalytic blocks
- Seismic anti-aggression and operating resistance
- No alterations of the recombiners characteristics in the presence of CO and CO<sub>2</sub>



## Technical Data

	NuRAPH2-1	NuRAPH2-2	NuRAPH2-6	NuRAPH2-4L	NuRAPHh2-6L	NuRAPH2-10L
<b>Width (mm)</b>	323	473	1073	773	1073	1673
<b>Depth (mm)</b>	470	470	470	470	470	470
<b>Height (mm)</b>	927	927	927	1477	1477	1477
<b>Number of catalytic blocks</b>	2	4	12	8	12	20
<b>Priming</b>	20°C, 100% r.H.	20°C, 100% r.H.	20°C, 100% r.H.	20°C, 100% r.H.	20°C, 100% r.H.	20°C, 100% r.H.
<b>Recombination rate reference* (4% H<sub>2</sub>, 1.5 bar)</b>	0,14	0,29	0,87	1,35	2,02	3,37

\*Comparison with practices in the field

- Mass 20 kg for the NuRAPH2-2, excluding support
- Qualifying non-aggressive seismics
- Performance not affected by the presence of CO and CO<sub>2</sub>

### Recombination rate of NuRAPH2-2

%vol H <sub>2</sub>	Recombination rate at Patm, 20°C
1%	0.3m <sup>3</sup> /h
2%	0.8m <sup>3</sup> /h

## References

- Summary of MPR79330-NSQ-01 qualification, based on experimental tests at the Jülich Institute and numerical simulations carried out jointly with IRSN