

HYDROGEN / OXYGEN FROM ELECTROLYSIS · SOUTHERN EUROPE

Oxygen from electrolysis: two filter stages for 250 Nm³/h

A developer of an oxygen purification unit asked for filter components only. We defined a KOH-aerosol stage before and a particle stage after the dryers, both in oxygen-cleaned 316L.


MEDIUM

Oxygen from electrolysis

FLOW

250 Nm³/h

PRESSURE

20 bar(g)
operating / 30
bar(g) design

TEMPERATURE

10–50 °C

ACTUAL FLOW

≈ 12.5–14.3 m³/h

SITUATION

An oxygen purification unit downstream of an electrolyser was being designed. The customer builds the unit; R+F was asked for the filter components with technical data and expected performance.

TASK

Remove KOH aerosol and droplets before the purification steps, protect downstream equipment from particles after the dryers, and keep all wetted parts suitable for oxygen service.

ENGINEERING APPROACH

1 Size on actual flow

250 Nm³/h at 20 bar(g) gives about 12.5–14.3 m³/h actual flow, roughly 7 m/s in a 1" line – a suitable range for a 1" NPT housing.

2 Stage 1 – KOH aerosol

RF-H-150 in 316L, oxygen-cleaned, with PTFE gasket and RF-TF-51230-003 PTFE element. Alternative RF-C-51230-HE glass microfibre – if chosen instead of PTFE, change every 3 months.

3 Stage 2 – after the dryers

RF-H-150 with RF-P-51230-HE (99.99 % ≥ 0.3 µm) to hold back desiccant dust, or sintered stainless RF-SS-51230-001 / -003.

4 Availability

Optionally duty/standby per stage so elements can be changed without shutting down.

PRODUCTS USED IN THIS CASE



RF-H-150
STAGE 1 HOUSING



RF-TF-51230-003
STAGE 1 ELEMENT



RF-P-51230-HE
STAGE 2 ELEMENT



RF-SS-51230-001 / -003
STAGE 2 ALTERNATIVE

Anonymised application example. Customer name, project data and prices are not disclosed.

RECOMMENDED R+F CONFIGURATION



STAGE 1 HOUSING

RF-H-150

316L, 1" NPT, 100 bar / 200 °C, PTFE gasket, oxygen-cleaned.



STAGE 1 ELEMENT

RF-TF-51230-003

PTFE element for KOH aerosol.



STAGE 2 ELEMENT

RF-P-51230-HE

Particulate element, 99.99 % $\geq 0.3 \mu\text{m}$.



STAGE 2 ALTERNATIVE

RF-SS-51230-001 / -003

Sintered stainless steel, cleanable.

LIMITS & OPEN POINTS

- Skid, deoxo reactor and dryers are not part of R+F's scope.
- Differential pressure is confirmed with the offer (target below 150 mbar).
- Long-term resistance in KOH must be tested by the customer; no commitment on service life in KOH.

Result: A clear two-stage filter concept with one housing size, oxygen-compatible materials and defined element options for the customer's unit.

HOW WE WORK WITH YOU

1 · Send your data

Gas, flow, pressure, temperature, contamination and connection size.

2 · Get a configuration

Housing and element with R+F article numbers, limits stated openly.

3 · Order and service

Housings supplied with element fitted; replacement elements available individually.

Similar application? Let us size it for you.

Send us your operating data and we return a concrete filter configuration with R+F article numbers.

- Gas / medium and contamination
- Flow (Nm^3/h or L/min), pressure, temperature
- Connection size (NPT) and installation position

info@filter-elements.eu

Online inquiry: process-gas-filter.com

Free filtration engineering tool

Read more: Oxygen service filters · Electrolyte aerosol in hydrogen · Desiccant dust downstream · Hydrogen electrolysis filtration