



POST OF 22/08/2026

Combustion chamber acceptance: the 10 inspection points

A combustion chamber with a reciprocating grate has three zones with completely different loads: above the grate the burning bed scrapes along the wall with every stroke, in the secondary air zone the temperature is highest and the turbulence strongest, at the boiler inlet the flue gas cools down and the alkalis condense out.

That is why fired brick in a tight stretcher bond belongs above the grate, monolithic castable above that for corners, inclines and penetrations — and the boundary between the two runs as an interlocking stepped line, never as a straight one.

After installation every combustion chamber looks tidy. Whether it really is shows up on the acceptance walk-through at ten points:

Checklist for the acceptance walk-through

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|---|---|
| ☐ Brick/castable transition | runs as an interlocking stepped line, every step offset — no continuous horizontal line |
| ☐ Vertical expansion joints | continuous from bottom to top, not offset — otherwise the force is still transmitted through the bricks |
| ☐ Joint filling | packed with ceramic fibre, not smeared shut with mortar |
| ☐ Joint width | calculated from the expansion of the selected brick at operating temperature, not taken from a rule of thumb |
| ☐ Bond above the grate | tightly jointed — mortar bands several millimetres wide are a defect |
| ☐ Secondary air openings | set cleanly within the bond, closed edge — not drilled afterwards |
| ☐ Nozzle position | checked against the combustion design, to the millimetre — it determines the burnout |
| ☐ Boiler inlet | high-alumina material where the alkalis condense — more important with waste wood than with forest wood chips |
| ☐ Grate edge | connection of the lining to the water-cooled components executed free of stress |
| ☐ Heat-up curve | handed over in writing — and matched to the material installed |



Stepped, interlocking transition, expansion joint on the right



Secondary air openings set during installation

Common mistakes

- The brick/castable boundary as a straight line — it tears open at the first load change and works its way along the full length of the wall.
- Expansion joints treated as a leftover item: smeared shut, offset or placed at a structurally restless point (corner, next to a penetration).
- Starting up too fast: the mixing water in the monolithic zones needs time — otherwise steam pressure builds up in the structure and spalling follows within hours.

PRACTICAL NOTE

A combustion chamber does not last long because the most expensive material was installed — but because the right material stands in every place and the transitions are correct. You will find the detailed article with photos from the site at sbs-rs.de/fachwissen.

Questions about your furnace?

We assess lining, zones and condition — with a reply within 24 hours on working days.

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