

Valve Care: In-Situ Assessment and Refurbishment of Valve Seats

Inspection, diagnosis and in-situ repair for valves

Rapid, non-destructive in-situ assessment of the as-is condition of valve seats and if required repair by machining and welding

Challenge

Power plants and process technology assets contain a magnitude of valves. Besides the normal plant operation consequently resulting in wear of valve seats the new operating regimes such as load following and flexible plant operation can dramatically accelerate the degradation of valve seats.

A great number of valves are safety relevant and furthermore have a great impact on plant reliability, availability and profitability.

Out of tolerance conditions of valve seats and hard facings can lead to leaks, system failure, unscheduled plant shutdown and even to safety issues.

Solution

Framatome's VALVE CARE – in-situ rapid assessment and refurbishment of valve seats ensures proper valve operation at all times.

Ad-hoc repairs and the necessary mid- and long-term maintenance actions like in-service inspections economically eliminate unplanned down-time caused by valves.

VALVE CARE is a custom tailored solution combining detailed in-situ condition assessment of valve seats complemented with on-site weld repair.

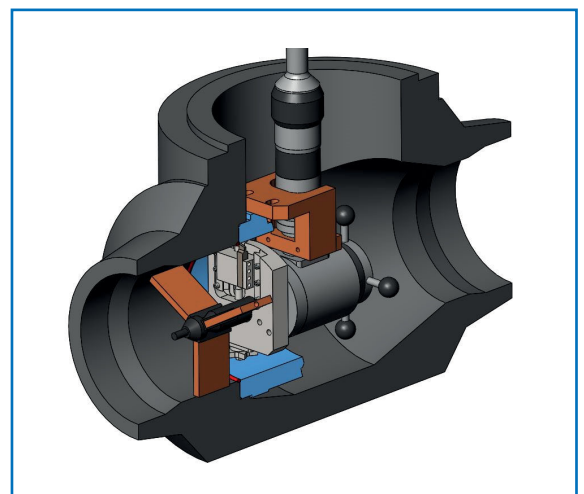
Should the assessment indicate that the valve seats require repair actions, Framatome can do a weld repair on-site with materials such as Stellite 6®, SKWAM or HAYNES 25.

Customer benefits

- Cost and time saving in-situ valve repair
- Reducing of downtime of the plant
- Conservation of actual plant design
- Prevention of complex and expensive valve replacements
- Custom tailored comprehensive approach combining inspection, assessment and repair of valve seats
- Specific repair on demand
- Assessment of initial state and to control wear (behavior)
- Covering a wide range of valve types and installation positions



Mechanized welding remote controlled in the valve



Machining of seat ring

Your performance
is **our** everyday **commitment**

Technical information

Inspection and diagnosis for definition of further actions.

Definition of work sequence.

Possible repair methods:

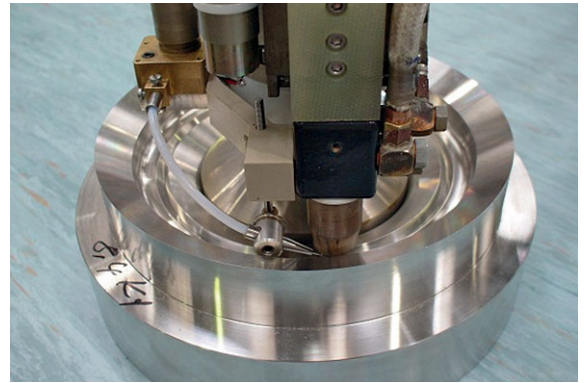
- Seat refurbishment by machining
- Local weld repair of hard facing
- Weld build-up of complete new hard facing
- Exchange of seat ring by welding

In-situ machining of existing hard facing to remove defects or weld edge preparation for new seat ring.

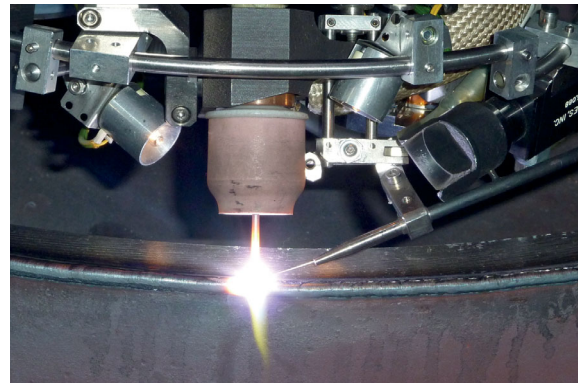
Preparation of hard facing geometry according to design drawing.

Quality Assurance

- visual testing
- tactile or optical measurement
- penetration testing



Qualification of small seat ring replacement



Build-up welding of hard facing in-situ

Key figures

28 Valves successfully repaired worldwide

200 mm – 700 mm Nominal diameter

References

Germany:

- NPP Isar 2 – 500 mm + 700 mm
- NPP Grafenrheinfeld – 400 mm
- NPP Brokdorf – 500 mm + 700 mm
- NPP Emsland – 700 mm
- NPP Gundremmingen – examination

France:

- NPP Fessenheim – 300 mm

Brazil:

- NPP Angra 2 – 125 mm

China:

- NPP Taishan – 250 mm

Sweden:

- NPP Forsmark – 350 mm

Finland:

- NPP Olkiluoto – 250 mm

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