Dear Sir or Madam

Exhaust valve spindles with a bottom burn-off rate resulting in a spindle life exceeding 16,000 hrs. or 24,000 hrs., depending on whether the engine bore size is smaller or larger than 60-cm bore, will need preventive spindle seat grinding to mitigate the risk of dent mark formation, eventually resulting in seat blow-by.

Spindle seat overhaul requirement

Piston bore < 60:	16,000 hours ± 2,000 hours
Piston bore ≥ 60:	24,000 hours ± 3,000 hours

- Grind the spindle seat until the size of the dent mark is smaller than 2 mm in diameter.
- Connecting dent marks must be treated as one mark.
- Grind as little as possible in order to obtain the max. dent mark size of Ø2 mm.
- Start by grinding in steps of up to 0.2 mm in accordance with the grinding machine manual and continue if necessary.
- Preventive grinding should not exceed 0.5 mm depth. If a dent mark exceeds Ø2 mm after 0.5 mm grinding, evaluate according to the guideline attached.
- Maximum seat grinding according to the maintenance manual (today maximum 2 mm seat grinding is allowed on all MAN B&W 30-98 bore engines.

Preventive grinding on wide-seat exhaust valve bottom piece

Simultaneous with the spindle seat overhaul, light grinding (depth 0.1 mm) must be performed on the bottom piece seat. Bottom piece seat grinding angle = 30.0° +0°/- 0.05°.

For questions or a quote on the grinding machine, please contact PrimeServ at: Primeserv-cph@man-es.com
You are welcome to contact your local PrimeServ Service Centre if you prefer MAN Energy Solutions to perform the preventive grinding.

Failure to comply with this guideline may affect the expected valve spindle service life.

Yours faithfully

Mikael C Jensen
Vice president Engineering

Stig B Jakobsen
Senior manager

Action code: AT FIRST OPPORTUNITY

Preventive grinding of exhaust valve seats

SL2022-729/AGC
September 2022

Concerns

Owners and operators of MAN B&W two-stroke marine combustion engines. Type: All 30-98 bore engines with exhaust valve seats of the wide seat type.

Summary

Preventive grinding of the exhaust valve spindle seat and bottom piece seat is introduced as a requirement. To allow for the planning of the overhaul work, this takes effect from the date of this service letter plus six months.

References

SL2019-682/JAG:
New recommendation for grinding angle of exhaust valve spindle.
Grinding angle for spindle seat = 30.2° +0.05°/-0°.

Head office (& po. address)
MAN Energy Solutions
Teglholmsgade 41
2450 Copenhagen SV
Denmark
Phone: +45 33 85 11 00
Fax: +45 33 85 10 30
info-cph@man-es.com
www.man-es.com

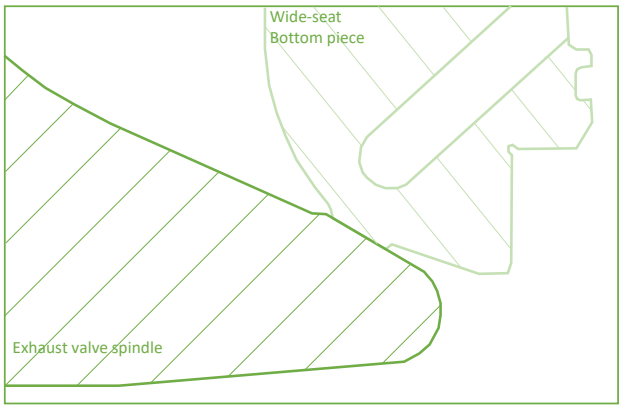
PrimeServ
Teglholmsgade 41
2450 Copenhagen SV
Denmark
Phone: +45 33 85 11 00
Fax: +45 33 85 10 49
PrimeServ-cph@man-es.com

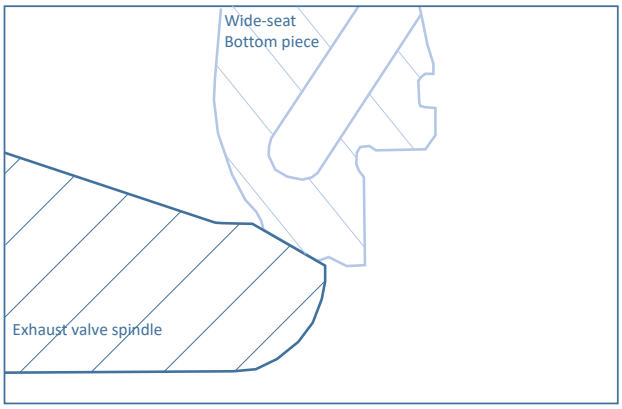
Production
Teglholmsgade 35
2450 Copenhagen SV
Denmark
Phone: +45 33 85 11 00
Fax: +45 33 85 10 17
manufacturing-dk@man-es.com

Forwarding & Receiving
Teglholmsgade 35
2450 Copenhagen SV
Denmark
Phone: +45 33 85 11 00
Fax: +45 33 85 10 16
shipping-cph@man-es.com

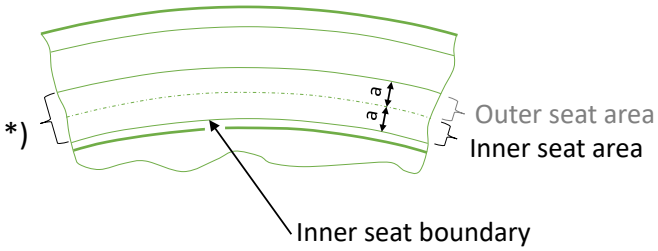
MAN Energy Solutions
Branch of MAN Energy Solutions SE, Germany
CVR No.: 31611792
Head office: Teglholmsgade 41
2450 Copenhagen SV, Denmark
German Reg.No.: HRB 22056
Amtsgericht Augsburg

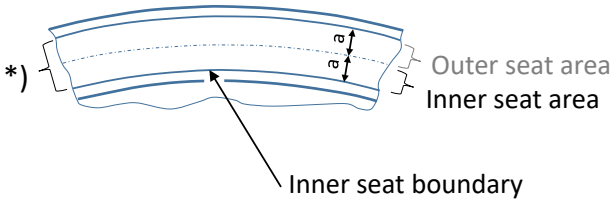
In the event of dent marks exceeding Ø2 mm after 0.5 mm spindle seat grinding, evaluate according to the sketch below.





Spindle seat seen from top.
***) Seat contact area: spindle seat >< bottom piece seat.**





Spindle outer seat area
Dent marks exceeding Ø2 mm can be allowed, but the size must not exceed 8 mm size in any direction, and the dent mark must not affect the inner seat area.

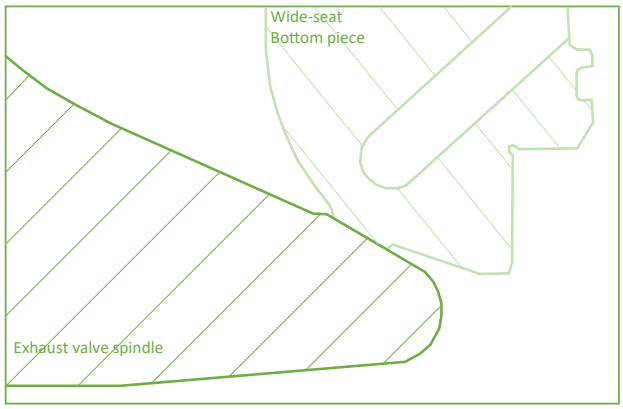
Spindle inner seat area
Dent marks exceeding Ø2 mm cannot be allowed on the inner seat area, except if the following conditions are fulfilled for that particular dent mark:

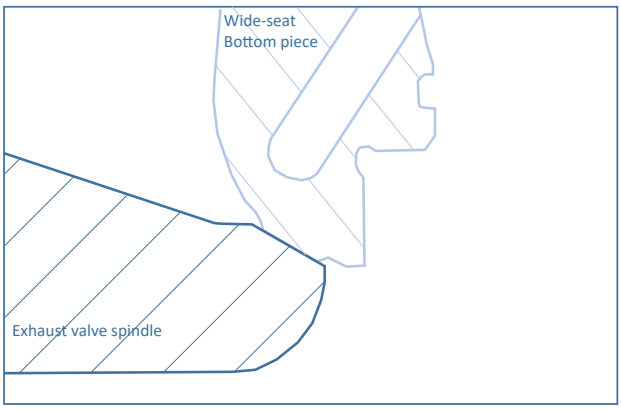
1. Minimum distance from dent mark to inner seat boundary is above 4 mm.

2. No visible sign of V-shaped hot corrosion or “elephant skin” in connection to the dent mark.

3. Largest dimension of dent mark may not exceed 4 mm in any direction.

Defects necessitating rejection or repair.
The sketches below are valid for spindle seats.

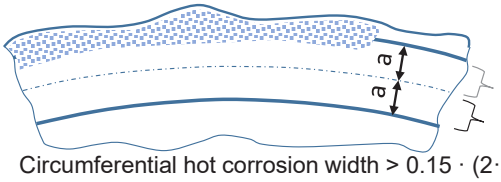




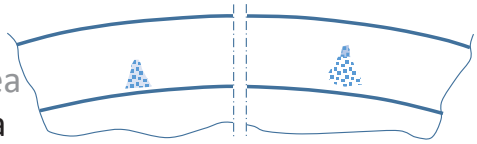
Spindle seat seen from top.

*) Seat contact area: spindle seat >< bottom piece seat.

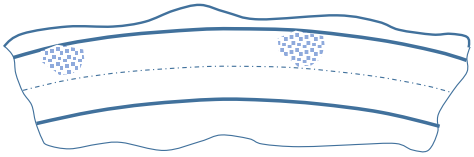
All below examples to be rejected for further use.



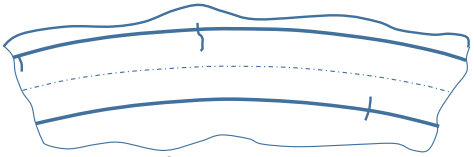
Circumferential hot corrosion width > 0.15 · (2·a)
Where (2·a) = Seat contact area imprint form bottom piece.



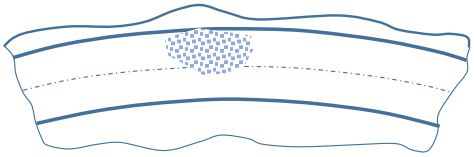
Seat blow-by with V-shaped hot corrosion formed in connection to the blow-by. A single incident is sufficient cause for rejection



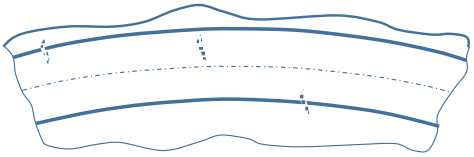
Quantity of local hot corrosions > 2.



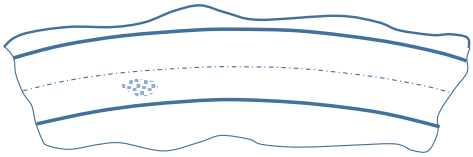
Cracks; Regardless of their position and extent. A single crack is sufficient cause for rejection.



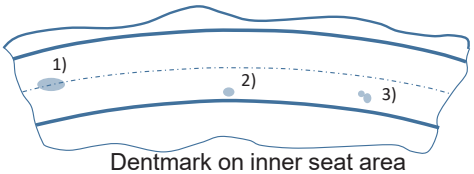
Size of local hot corrosion > halt seat length = “a”



“Aligned pin-point porosity” which resembles crack like defects. A single indication of this type is sufficient for rejection.

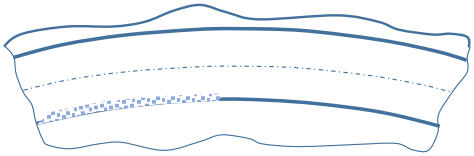


Hot corrosion inner seat area, size > 4mm.



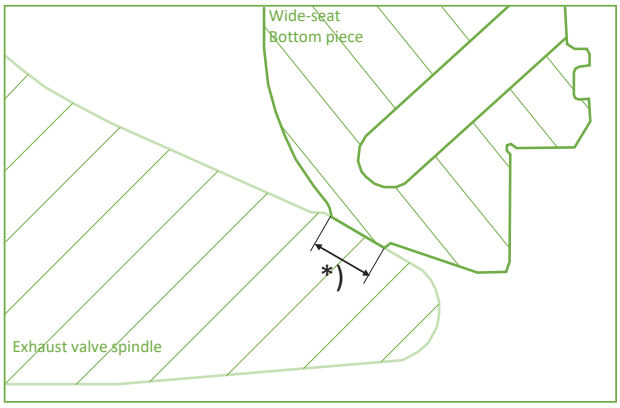
Dentmark on inner seat area

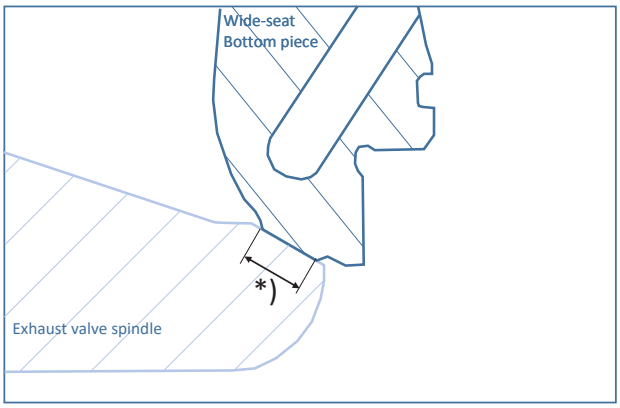
1) Size > 2mm in any direction.
2) Distance from inner seat boundary less than 4mm.
3) Connected small dentmarks considered as one > 4mm in size.



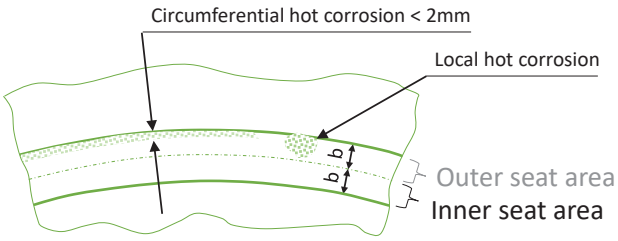
Circumferential hot corrosion on inner seat edge.

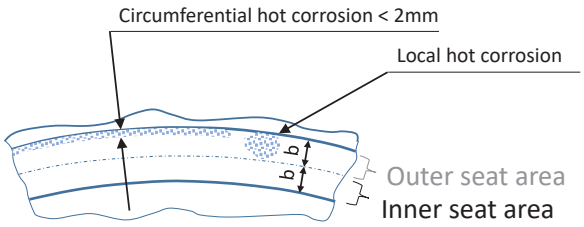
Service acceptance criteria for bottom piece seat.





Bottom piece seat seen from below.





Bottom piece outer seat area

- Hot corrosion at the outer boundary of the bottom piece seat area must not exceed 2 mm width.
- Local hot corrosion on the bottom piece outer seat area, and only affecting the outer seat area, can be accepted if the maximum size in any direction does not exceed half the seat length. Half seat length indicated with “b” in the sketch above. Maximum one local hot corrosion spot of half seat length size can be accepted.
- Dent marks exceeding Ø2 mm can be allowed on the outer seat area provided that the inner seat area is unaffected.

Bottom piece inner seat area

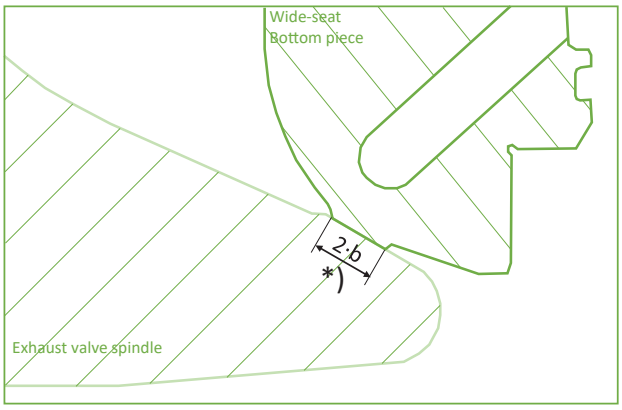
Dent marks exceeding Ø2 mm cannot be allowed on the inner seat area, except if the following conditions are fulfilled for that particular dent mark:

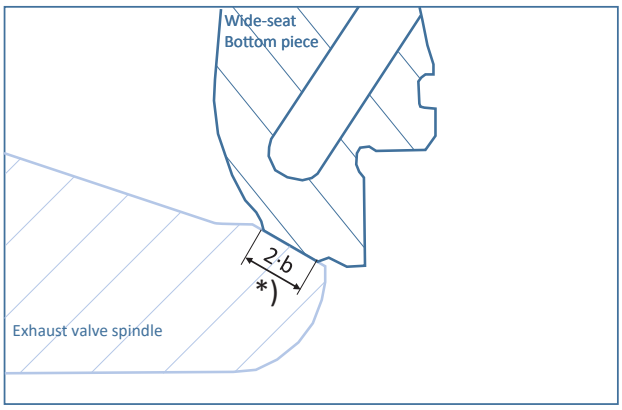
1. Minimum distance from dent mark to inner seat boundary is above 4 mm.

2. Largest dimension of dent mark may not exceed 4 mm in any direction.

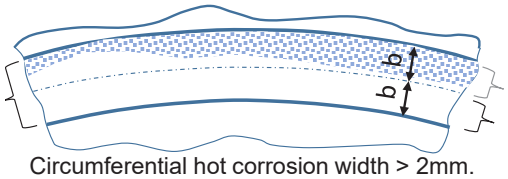
3. No visible sign of V-shaped hot corrosion or “elephant skin” in connection to the dent mark.

Defects necessitating rejection or repair.
The sketches below are valid for bottom piece seats.

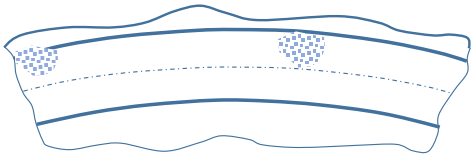




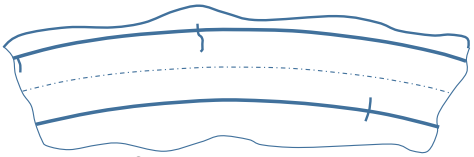
Bottom piece seat seen from below.
All below examples to be rejected for further use.



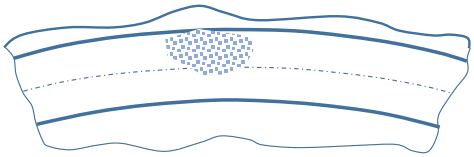
Circumferential hot corrosion width > 2mm.



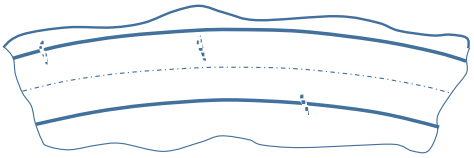
Quantity of local hot corrosions > 2.



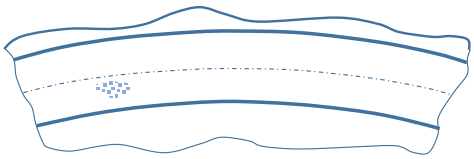
Cracks; Regardless of their position and extent. A single crack is sufficient cause for rejection.



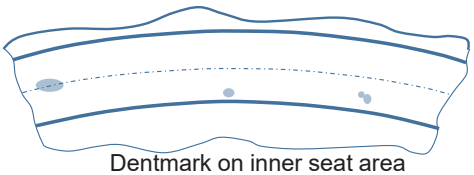
Size of local hot corrosion > half seat length = “b”



“Aligned pin-point porosity” which resembles crack like defects. A single indication of this type is sufficient for rejection.

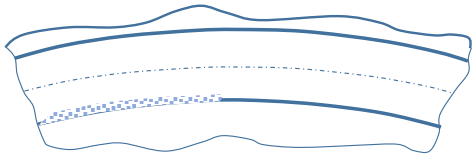


Hot corrosion inner seat area, size > 4mm.



Dentmark on inner seat area

1) Size > 2mm in any direction.
2) Distance from inner seat boundary less than 4mm.
3) Connected small dentmarks considered as one > 4mm in size.



Circumferential hot corrosion on inner seat edge.