



Material analyse

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1.0 – BOR-ON parts



Storage case



Material analyser



Lip Clamp

2.0 – Analyse of single wall



Clean a planar surface



Thickness 0.60 - 3 mm

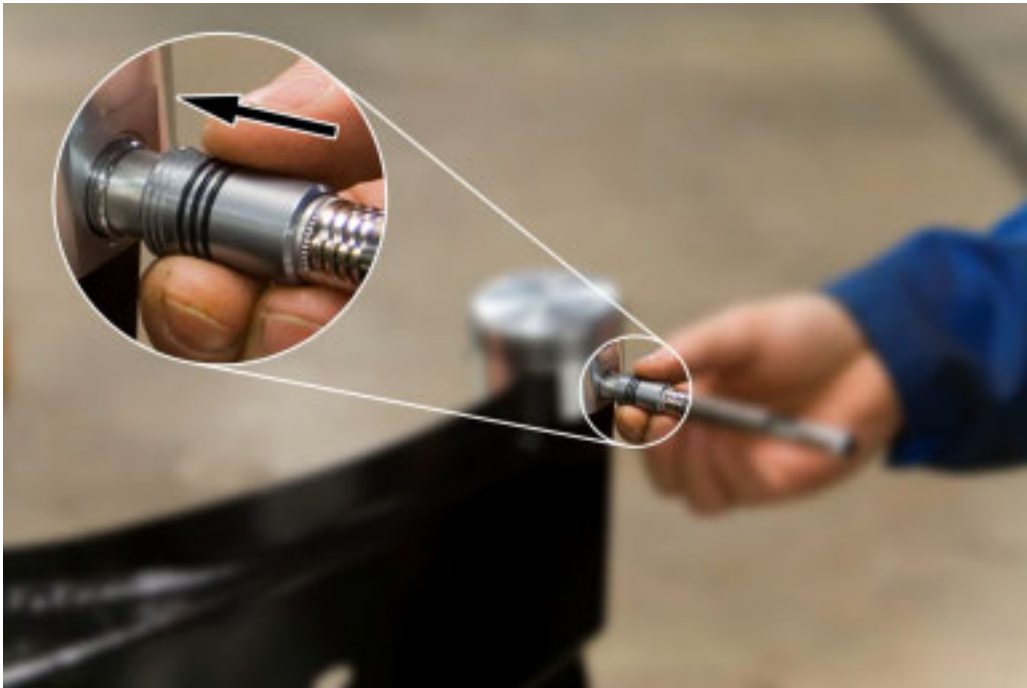


Use "3M™ Scotch-Brite™ XT-ZS" or finer



Mount the lip clamp over the cleaned surface and fasten it.

2.1 – Test method – Step by step



Perform test



Make sure that the tip is clean. (Clean if needed with a dry brush / cloth)



Activate by moving the mantle ring back.

Let the material analyser stabilize against the surface before the ring is moved forward to perform the test.



Read display

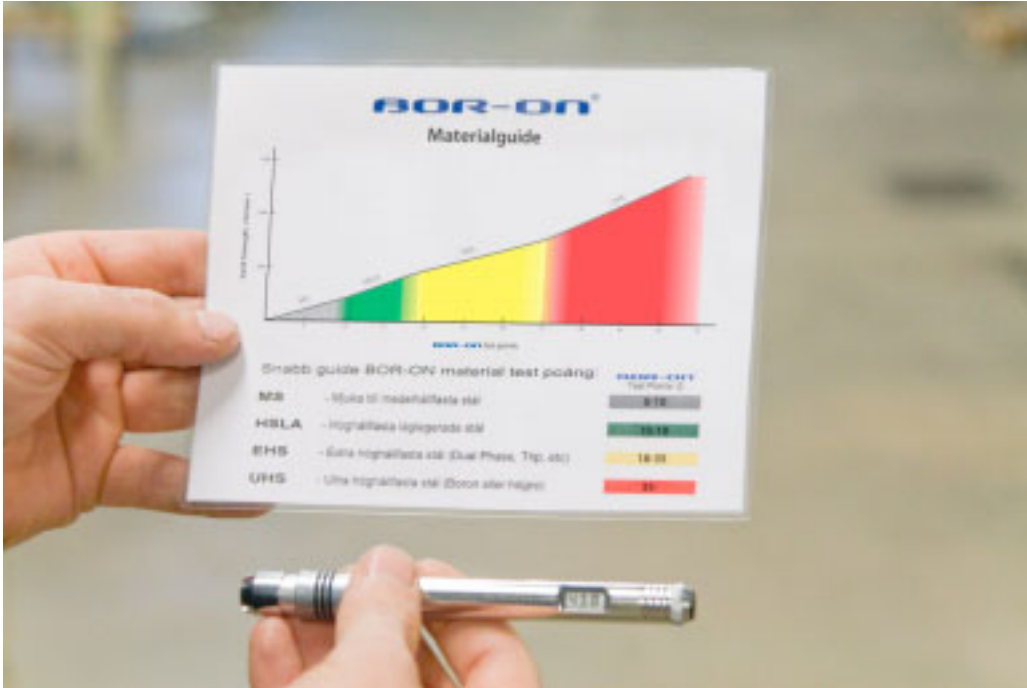
(Here: 43,8)

NOTE!

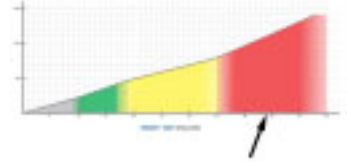
Never perform test on the same spot without moving the lip clamp at least 2mm.

BOR-ON – Material analyse

2.2 – Compare test value with Material Guide



Compare measured values with BOR-ON Material Guide




43,8 = approx. 44

(Here: Red area = UHS)

More information about the different steel types can be found on the back of the Material Guide.

2.3 – Test Certificate

Certificate parts



Vehicle information:

License no.	ABC123
Vehicle make	Volvo
Model	XC90
Year (model)	2004
Section	Lower rear panel
Analyser test value	44


Tested Material information:

UHS steel:
This material obtains its high strength due to the addition of the element boron in combination with hardening of the component. In a way, UHS steel is an extension of DP steel in that the strength conferred by the addition of boron increases hardness beyond the point where DP steels reach their maximum.
This steel is used for example in front and rear transverse members, roof members, and as reinforcement in B-pillars and doors. UHSS-steel (boron steel) has a martensitic structure.

Welding and straightening:
There are no problems with welding, but high clamping forces are needed for spot-welding. Drilling out of spot-welds is difficult because of the material's hardness, and care is needed to ensure that adjacent plates of softer material are not affected. Titanium drills are needed. UHS-steel (boron steel) cannot be straightened because of its high strength. Cracking is often encountered in attempts at straightening, which weakens the material. Application of heat reduces cracking but instead softens the material.

More information:

For more information see the manufacturers website at :
<http://vccs.volvocars.se/wsguide/>
USA: www.volvotechinfo.com



Warning regarding tested material:
CHECK AND FOLLOW THE MANUFACTURERS RECOMMENDED REPAIR METHOD TO INSURE SAFE AND CORRECT REPAIR

BOR-ON is produced by JNE AB. See www.jne.se

Vehicle information:
Here you find information about the vehicle and the test results of the test

(Here: Test value : 44)

Material information:
More information about the material and its properties.

More information:
In this field you find links to the manufacturers recommended repair methods.

3.0 – Analyse of double wall



Clean a planar surface



With double wall the measured material must be at least 1.2mm thick.



Use "3M™ Scotch-Brite™ XT-ZS" or finer



Mount lip clamp over the cleaned surface and fasten it firmly.

3.1 – Test method – Step by step



Perform test



Make sure that the tip is clean. (Clean if needed with a dry brush / cloth)



Activate by moving the mantle ring back.

Let the material analyser stabilize against the surface before the ring is moved forward to perform the test.



Read display

(Here: 13,4)

NOTE!

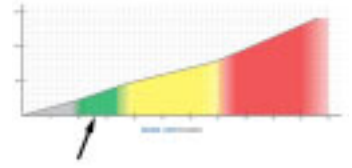
Never perform test on the same spot without moving the lip clamp at least 2mm.

BOR-ON – Material analyse

3.2 – Compare test value with Material Guide



Compared measured values with BOR-ON Material Guide




13,4 = Approx. 13

(Here: Green area=HSLA)

More information about the different steel types can be found on the back of the Material Guide.

3.3 – Testcertifikat

Certificate parts



Vehicle information:

License no.	ABC123
Vehicle make	Volvo
Model	XC90
Year (model)	2004
Section	Front unibody frame
Analyser test value	13


Tested Material information:

HSLA and REFOS steel:
Refos steel is phosphated in a hot hardening process known as 'bake hardening' at about 170 degrees Celsius, which increases UTS by about 25-30%. It is a low-alloy steel and obtains its increased strength through the alloying elements vanadium, niobium, or titanium.

Welding and straightening:
There can be some limitations with Refos steel in terms of heat distribution during welding and hot-straightening.

More information:

For more information see the manufacturers website at :
<http://vccs.volvocars.se/wsguide/>
USA: www.volvotechinfo.com



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BOR-ON is produced by JNE AB. See www.jne.se

Vehicle information:
Here you find information about the vehicle and the test results of the test

(Here: Test value : 13)

Material information:
More information about the material and its properties.

More information:
In this field you find links to the manufacturers recommended repair methods.

4.0 – Analyse of covered wall



Expose & clean a planar surface



With multiple wall the measured material must be at least 1.2mm thick.



Use "3M™ Scotch-Brite™ XT-ZS" or finer



Mount the lip clamp over the cleaned surface and fasten it firmly

4.1 – Test method – Step by step



Perform test



Make sure that the tip is clean. (Clean if needed with a dry brush / cloth)



Activate by moving the mantle ring back.

Let the material analyser stabilize against the surface before the ring is moved forward to perform the test.



Read display

(Here: 19,3)

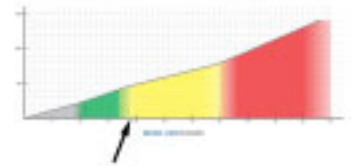
NOTE!

Never perform test on the same spot without moving the lip clamp at least 2mm.

4.2 – Compare test value with Material Guide



Compare measured values with BOR-ON Material Guide




19,3 = approx. 19

(Here: Yellow area=EHS)

More information about the different steel types can be found on the back of the Material Guide.

4.3 – Test Certificate

Certificate parts



Vehicle information:

License no.	ABC123
Vehicle make	Volvo
Model	XC90
Year (model)	2004
Section	Kick panel / Lower door threshold
Analyser test value	19


Tested Material information:

EHS steel:
These steels obtain their increased strength by heat-treatment during manufacture, so that a dual-phase structure of ferrite and martensite is formed. In TRIP steel there is also retained austenite, which is converted to martensite during deformation. Both steels are very sensitive to heat, even at low temperatures and for short periods, so restrictions on heating and welding apply.

Welding and straightening:
There are special restrictions on welding because the material's strength is affected even at low temperatures. None of these materials should be warm-worked because of adverse structural effects. Cold-straightening can however be carried out without affecting the material, but it is limited because of the high elastic limit and hardness. The harder materials require special titanium bits for drilling.

More information:

For more information see the manufacturers website at :
<http://vccs.volvocars.se/wsguide/>
USA: www.volvotechinfo.com



Warning regarding tested material:
CHECK AND FOLLOW THE MANUFACTURERS RECOMMENDED REPAIR METHOD TO INSURE SAFE AND CORRECT REPAIR

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Vehicle information:
Here you find information about the vehicle and the test results of the test

(Here: Test value : 19)

Material information:
More information about the material and its properties.

More information:
In this field you find links to the manufacturers recommended repair methods.