

????????qc

??

?1??Cr?Ni?Si????????????????????Ni????Si????????????????Cr????????????????????

Cr ?????????????????????5.1????????????????????????????????????

?????1/8????Cr?????????1?8????1?8?2?8?3/8????

????????????????????????????????Cr????12.%????????11.7%????????

?2??

Cr, Si, Al????? ?????????????????Cr2O3, SiO2, Al2O3????????????????

?3??Cr?Cr?Ni, ?????????????????????

?4??Mo?Cu?????????????

?5??Ti?Nb?????Cr????????????????????

?6??Mn?N??????Ni????????????????????????????????????

?????????

????????????????????????????????????

????????????????????M????F????A????A?F?????

????????

?????????1Cr13?4Cr13?9Cr18?

1Cr13????????????????????????????????2Cr13?????????????????????1Cr13?2Cr13????????????????????3Cr13?4Cr13????????????????????9Cr18?????

????????

??????Cr????13??30??????0.25%????????????????????????????????????<=>??

?????????Cr17??Cr25??Cr28??

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????????????????????????????????????Cr18??Ni8??18?8????????????0.1????Cr?Ni????????????

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????????????????????????????????????

1.????????????

??????450?850??

????????????????Cr?Cr23C6??

????????????????

?1??Cr23C6????????????????????0.03????????????????

?2??Ti?Nb?????????TiC?NbC????????????Cr23C6????????????

?3????????????????????????????????+????????????5?12????????????

?4????????????????????

2.????????

????????????????????????????????????SCC?Stress Crack

Corrosion????????????????????????????????Ni??8??10????????????????????Ni??45?50????????????

????????????????????Si2?4????N????0.04????????P?Sb?Bi?As????????A-F????Cl-OH-????????????????????

3.????????

??

???????????????????? 2000 MPa????????????????????M???

??>M????????????????????

????????????????60????????650????????850?1050?850????3h?1050????????

4.????????

????????????????????

?1????????????1050?1150????????????

??Cr23C6????????????????????????????????

?2????????????????????????????Ti?Nb?18-8?????????????850?880??????

??Cr??

?3??300?350????????????Ti?Nb????????450????????????????????Ti?Nb????????????500?

?????-?????????

????????????Cr????Ni????????????????????????????????????

?40?60??-????????????0Cr21Ni5Ti?1Cr21Ni5Ti?0Cr21Ni6Mo2Ti????????????????????????????????Cr????????????