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中国认可  
国际互认  
检测

TESTING

CNAS L9095

No.:2020-M-12281661325-4

# 检测报告

## Test Report

产品名称

Product Name

针阀锻件毛坯

委托单位

Entrustment Company

赛洛克流体设备成都有限公司

Sailuoke Fluid Equipment Inc.

生产单位

Production Company

/

试验项目

Test Project

抗氢致开裂(HIC)试验

Resistance to Hydrogen-Induced  
Cracking Test

江苏容大材料腐蚀检验有限公司

Jiangsu Rongda Material Corrosion Inspection Co., Ltd.

材料腐蚀检验  
检验检测专用章



产品名称 Product Name	针阀锻件毛坯	型号规格 Model and Specification	NV-28-316
委托单位 Entrustment Company	赛洛克流体设备成都有限公司 Sailuoke Fluid Equipment Inc.	材质 Material	材料标准: ASTM A182, 材料牌号: F316
生产单位 Production Company	/	炉批号 Heat&Batch Number	炉号: N200417AS10, 材料批号: 201127
委托单位地址 Entrustment Company Address	成都市崇州市经济开发区同心路 156 号 156 Tongxin Road, Chongzhou Economic Zone, Chengdu City, Sichuan Province, P. R. China	其他 Others	/
采购商 Purchasing Merchant	/	收样日期 Sample Collect Date	2020-12-28
测试周期 Test Duration	2020.12.28-2021.01.06	委托编号 Entrustment No.	20121661325-2
试验依据 Test Basis	NACE TM0284-2016 管道钢和压力容器钢抗氢致开裂评定方法 NACE TM0284-2016 Evaluation of pipeline and pressure vessel steels for resistance to hydrogen-induced cracking		
试验项目 Test Project	抗氢致开裂(HIC)试验 Resistance to Hydrogen-Induced Cracking Test		
试验结果 Test Result	试验结果见下页 The test results are shown on the next page		
样品图片 Sample Photograph			

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Compiler:

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签发:   
Certifier:

签发日期: 2021-1-7  
Issue Date: 2021-1-7



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网站(HTTP): www.rd-test.com

服务热线(Tel): 0510-82031602, 0510-82031603

报告查询(Tel): 0510-82031639



试验信息 Test Information								
试验温度 Test temperature	试验时间 Test period	试验溶液 Test solution	pH			饱和 H <sub>2</sub> S 溶液的 H <sub>2</sub> S 含量 H <sub>2</sub> S concentration of H <sub>2</sub> S saturated solution	试验后溶液的 H <sub>2</sub> S 含量 H <sub>2</sub> S content of solution after test	脱脂方式 Degrease method
			初始溶液 Initial solution	饱和 H <sub>2</sub> S 溶液 H <sub>2</sub> S saturated solution	试验终止时 End of the Test			
25±3°C	96h	A 溶液 Solution A	2.74	3.07	3.48	2316mg/L	2657mg/L	丙酮 Acetone ASTM F21-2014

注：1、A 溶液是质量分数为 5%氯化钠及 0.50%冰乙酸的蒸馏水溶液；

2、试验过程：(1) 试样脱脂；(2) 放入试验容器；(3) 配制溶液；(4) 测初始溶液的 pH；

(5) 以 100ml/min/L 的速度通氮气（浓度 99.9992%）除氧两个小时；

(6) 以 200ml/min/L 的速度通入 H<sub>2</sub>S（浓度 99.9%）至少 1 小时至溶液饱和，后将 H<sub>2</sub>S 速率调整到 100ml/min，持续 96h；

(7) 测饱和 H<sub>2</sub>S 溶液的 pH 值和 H<sub>2</sub>S 的含量；

(8) 维持 H<sub>2</sub>S 正压至测试结束；

(9) 测试终止时溶液的 pH 值和 H<sub>2</sub>S 含量；

(10) 按照标准切割试样，并在 100 倍下进行断面抛光检查，并评定裂纹敏感性比值、裂纹长度比值、裂纹厚度比值；

Note: 1. Solution A shall be 5.0wt%NaCl and 0.50wt% CH<sub>3</sub>COOH in distilled water.

2. Test procedure: (1) Specimens degrease; (2) Place the specimens in the test vessel;

(3)Solution preparation; (4) Measure the pH of initial solution;

(5)Purge the test solution with nitrogen (purity 99.9992%) for at least two hours at a rate of 100ml/min per liter of test solution;

(6) H<sub>2</sub>S gas shall be bubbled through the test solution for at least one hour at a rate of 200ml/min per liter of test solution.As long as saturation is achieved,the H<sub>2</sub>S gas flow rate shall be reduced to 100ml/min ,and maintained at this rate for the test period of 96 hours

(7) Measure the pH and H<sub>2</sub>S concentration of H<sub>2</sub>S saturated solution;

(8) Maintain H<sub>2</sub>S positive pressure until the end of the test;

(9) Measure the pH and H<sub>2</sub>S concentration of test solution at the end of test;

(10) Cut samples according to the standards,all the cross sections shall be checked on by 100x magnification and the Crack Sensitivity Ratio(CSR),the Crack Length Ratio(CLR), the Crack Thickness Ratio(CTR) are evaluated.



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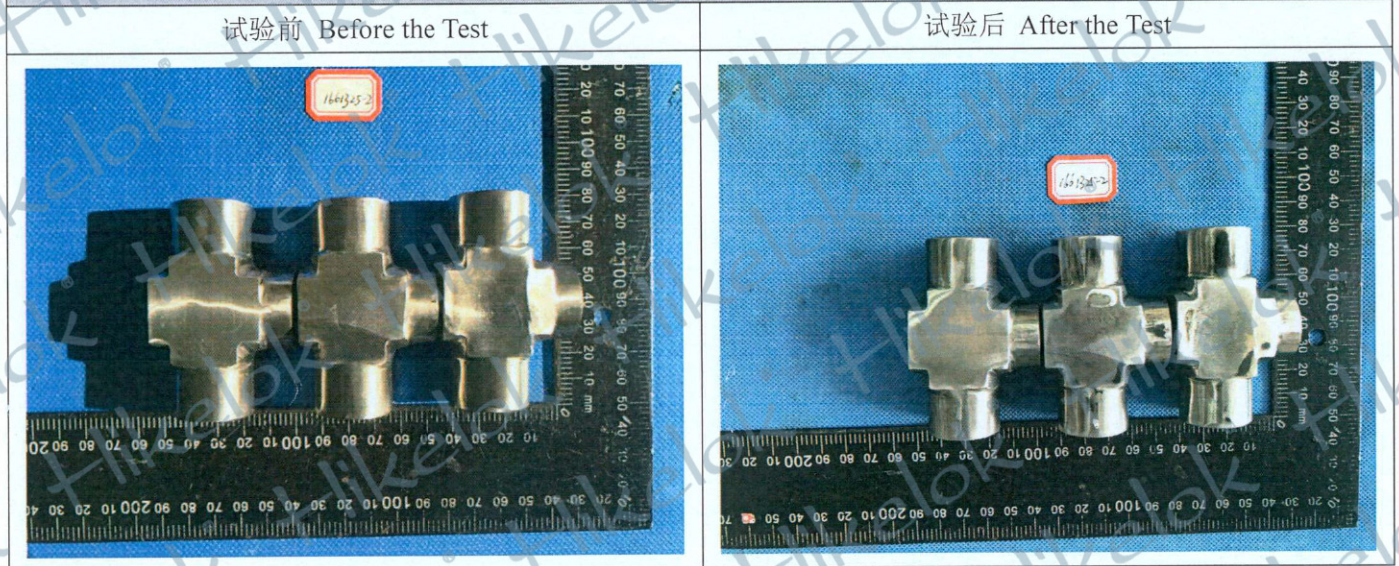
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试验结果 Test Result										
试样编号 Specimen Number	检测面 Test Surface	CLR (%)			CTR (%)			CSR (%)		
		实测值 Test Value	每个试样平均值 Average Value of each test specimen	每组试样平均值 Average Value of Each group	实测值 Test Value	每个试样平均值 Average Value of each test specimen	每组试样平均值 Average Value of Each group	实测值 Test Value	每个试样平均值 Average Value of each test specimen	每组试样平均值 Average Value of Each group
1661325-21	001	0	0	0	0	0	0	0	0	0
	002	0			0			0		
	003	0			0			0		
1661325-22	004	0	0	0	0	0	0	0	0	0
	005	0			0			0		
	006	0			0			0		
1661325-23	007	0	0	0	0	0	0	0	0	0
	008	0			0			0		
	009	0			0			0		

试验前后试样照片  
Photos of the Specimens before/after the Test





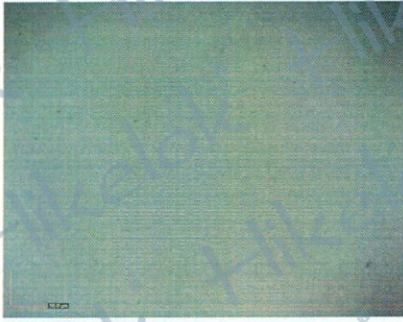
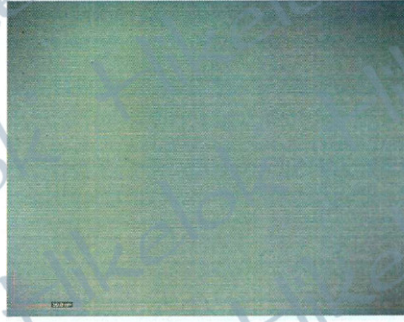
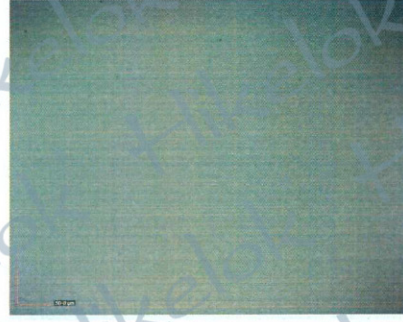

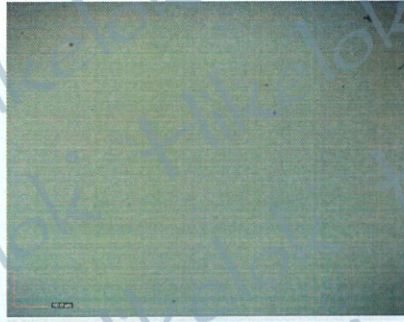

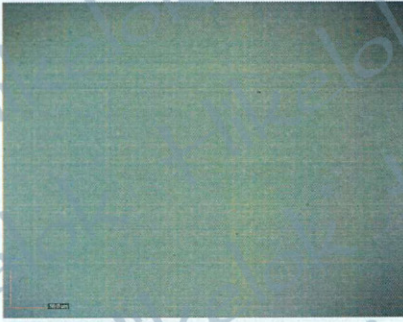
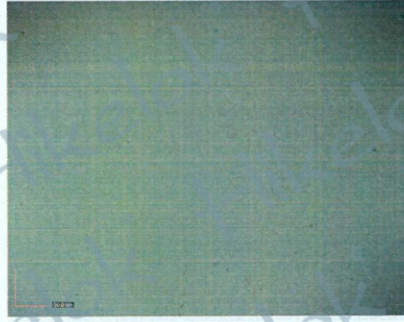
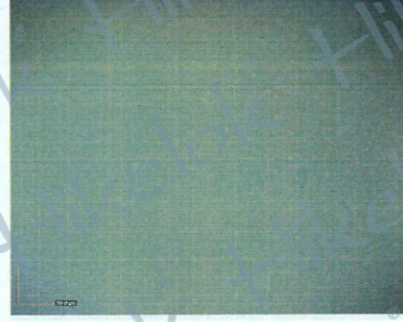
切割后 After Cutting



注：由于试样较小，取样依照NACE TM0284-2016 7.2.2条取3个试样进行整体试验，后切取9个面进行金相检查。  
Note: As the sample is small, take 3 samples for overall test according to NACE TM0284-2016 7.2.2, and then cut 9 surfaces for metallographic examination.





试样检测面照片(100X) Test Surfaces Photos of Specimen		
		
001 无裂纹 No Cracks	002 无裂纹 No Cracks	003 无裂纹 No Cracks
		
004 无裂纹 No Cracks	005 无裂纹 No Cracks	006 无裂纹 No Cracks
		
007 无裂纹 No Cracks	008 无裂纹 No Cracks	009 无裂纹 No Cracks

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\*\*\*End of Report\*\*\*



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The datum and results shown in this report only refer to conformity to the inspection items or the testing items which are carried out for the submitted sample when our laboratory is entrusted with the test.

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