



Run Stronger.

Packing Slip 314515594

Customer PO 8400501403	Sales Order 102050999	Shipment Refer to Item	Packing Slip	**** THIS IS NOT AN INVOICE DO NOT PAY FROM THIS DOCUMENT ****	Date: 12/18/2024
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<b>Bill to</b> DOWN PAYMENT INVOICE ONLY CALGARY AB T2P 3M3	<b>Cust Num: 101168</b>	<b>Ship To</b> Spartan Controls 8403 51 Avenue, Edmonton, AB T6E 5L9 Natasha Taylor/ taylor.natasha@spartancontrols.com 403-695-2636	<b>Interim Ship To</b> 2 Crates 4' x 4' x 5' = 800 LBS
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<b>CUSTOMER PO: 8400501403</b>	<b>BUYER: TATE SNODGRASS</b>	<b>AFE: CP-000420-03-0007</b>
<b>COST CENTER: CP-000414-03-0007</b>	<b>GL CODE: 71903540</b>	

CUSTOMER CONTACT: Tate Snodgrass, tatesnodgrass@chevron.com / 403-990-0090  
 CUSTOMER EXPEDITOR: Jennifer Moore, Jennifer.M.Moore@Worley.com / Mob: 403-648-3520 | MST + 1  
 \*\*\*\*\*

Send Dominique packing slip to review  
 Sort Seq: Order Confirmation

Item	Material	Description	Qty	UM
260	ZVLV	VELAN BT3126RR145GCS-Q230537032VLV BL12	2	EA
		VALVE BALL TRUNNION 12 IN RF ASME 900 DIB ASTM A350 LF2 CL.1 BODY ASTM A 182 XM-19 OBTURATOR ASTM A182 XM-19 SEAT ASTM A182 XM-19 STEM ASTM A320 L7M - ASTM A194 GR.7M BOLTING TCC 0.15 MM SEAT INSERT JAMES WALKER FR25/ 90 SEALS Gear OPERATED VELAN BT3126RR145GCS-Q230537032 CUSTOMER TAG# 12-BDZD66Q2F-TCC-FIELD_LSEA-V06A_Plus_Contingency		
		/PO-Item 32 / Shipment 827521230 / Customer Mat. No. 12-BDZD66Q2F-TCC-FIELD_LSEA-V06A Heat Code: SN#00909V026001, SN#00909V026002		
350	760041	TAG MATICA 1 IN X 2 IN X .015 STAINLESS STEEL FOR C-410 EMBOSING MACHINE 24304DD5151	2	EA

Open Order Qty 4

Questions: [DNow Canada ULC](#) Unit 100, 3280 16 Street NISKU AB T9E 1P5 Phone: 780-944-1000

KHANA4 NOP  
 AB61  
 Page 1 of 2  
 12/18/2024 11:43:52

\*\*3E 24 Hour Emergency Response Contact +1-800-451-8346 (ACCESS# 334115) DNOW\*\*





Run Stronger.

GST Registration# 12168 4302 RT0001

Packing Slip 314515594

Item	Material Description	Qty	UM
	/Shipment 827521245 /		

This Sales Document is subject to and controlled by the DNOW L.P. and its Affiliates Worldwide Terms and Conditions of Sale, a copy of which can be found at <https://hubs.la/Q014pZT00> as well as QR Code.

Payment Terms: 1.5% 15 Days, Net 30 Days Delivery Terms: EXW FROM PLANT Currency: CAD

**DELIVERY ON TIME? YES  NO  / DELIVERY ACCURATE? YES  NO**

**X**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Print Name Here

\_\_\_\_\_  
Date

GST Registration# 12168 4302 RT0001

To access the MTR(s) for products sold to you by DNOW please visit <https://metaltrace.dnow.com>

**Questions: DNOW Canada ULC Unit 100, 3280 16 Street NISKU AB T9E 1P5 Phone: 780-944-1000**

**\*\*3E 24 Hour Emergency Response Contact +1-800-451-8346 (ACCESS# 334115) DNOW\*\***



T&C's

KHANA4 NOP

AB61

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VELAN ABV

# MATERIAL TEST REPORT

**MTR**  
**00909\_26**

VABV JOB No. <b>SO0000909</b>		CUSTOMER <b>DNOW</b>		P.O. No. <b>662355639</b>		BODY MATERIAL ASTM A350 LF2 CL.1	
MODEL <b>BT3</b>	NOMINAL SIZE <b>12"x12"</b>	PRESSURE RATING <b>ASME 900</b>	FLANGE ENDS <b>RF</b>	SPEC. <b>API 6D</b>	OTHER INFO		
VABV ITEM <b>26</b>	CUST. ITEM <b>260</b>	Q.TY <b>02</b>	SERIAL No. <b>00909V026001÷00909V026002</b>		TAG No. 12-BDZD66Q2F-TCC-FIELD_LSEA-V06A_Plus_Contingency		

PART NAME	MATERIAL	SUPPLIER	HEAT No.	CERTIFICATE No.
BODY	ASTM A350 LF2	Suzhou Envil Machinery	4201124	20240604004
CLOSURE	ASTM A350 LF2	Suzhou Envil Machinery	4201124	20240604005
CLOSURE	ASTM A350 LF2	Suzhou Envil Machinery	4201124	20240604005
BALL	ASTM A182 XM-19	Wenzhou Artech Machinery	324022401	ART2024AN03-0242C
STEM	ASTM A182 XM-19	Zhejiang Boutique Valve	ZG2403025-2	BTK2403025-2
STEM	ASTM A182 XM-19	Zhejiang Boutique Valve	ZG2404019-2	BTK2404019-1
GLAND FLANGE	ASTM A350 LF2	Zhejiang Boutique Valve	ZG2404019-1	BTK2404019-2
SEAT	ASTM A182 XM-19	Wenzhou Artech Machinery	324022401	ART2024AN03-0242C
BODY STUD	ASTM A320 L7M	IPL	AC3228	2401748
			BE4550	2402245
BODY NUT	ASTM A194 Gr7M	IPL	531457	2401748

TRUNNION PLATE ELECTROLESS NICKEL PLATING CERTIFICATE N. 240002636-03/003

## FINAL EXAMINATION REPORT / Rapporto di Controllo Finale

**VISUAL AND DIMENSIONAL EXAMINATION :**

Controllo visivo e Dimensionale

Satisfactory

**OVERALL DIMENSION EXAMINATION ACCORDING TO DRAWING No. :**

Controllo Dimensionale in accordo al disegno No.

GA-00909-V-026-00

**ACCESSORIES EXAMINATION :**

Verifica accessori

-

**WE DECLARE ON OUR AND EXCLUSIVE RESPONSIBILITY THAT THE PRODUCTS REGARDING THE ENCLOSED ORDER ARE IN CONFORMITY WITH YOUR REQUEST.**

VABV INSPECTOR	CUSTOMER INSPECTOR	THIRD PARTY INSPECTOR
signature:  date: 03÷06/09/2024	signature:  date: 	signature: date:

苏州恩威尔机械有限公司 Suzhou Envil Machinery CO.,LTD	<b>INSPECTION CERTIFICATE</b> <b>QUALITY CONTROL DEPARTMENT</b> <b>检验证明书 (质量控制部)</b>		Company's QMS certified body —ISO9001 No 公司质量管理体系证书号: CNBJ313986-U
	Cert. No. 证书号: 20240604004	Date 日期: 2024/06/04	

Purchaser 买方: VELAN ABV S.r.l.	Certificate type 证书类型: EN 10204 <input checked="" type="checkbox"/> 3.1
	Purchase Order No.: 订单号: P10006776

**CHEMICAL ANALYSIS 化学分析**

Material 材料: ASTM A350_A350M-23 LF2 CL1	Heat No. 炉号: 4201124 H.T.Lot 热处理批次号: C240523Z3				Raw Material Supplier 原材料供应商: JIANGSHU SHAGANG GROUP HUAIGANG SPECIAL STEEL CO., LTD.				锻造比: >4 Forging Ratio		
ASTM A350_A350M-23 LF2 CL1	C	Mn	Si	Ni	Cr	S	P	Cu	Mo	V	Nb
	%	%	%	%	%	%	%	%	%	%	%
MIN	/	0.60	0.15	/	/	/	/	/	/	/	/
MAX	0.23	1.35	0.30	0.40	0.30	0.025	0.02	0.40	0.12	0.02	0.02
Heat Analysis 浇包分析	0.19	0.90	0.24	0.012	0.026	0.01	0.016	/	/	/	/
Product Analysis 产品分析	0.18	0.86	0.26	0.017	0.019	0.01	0.016	0.006	0.009	0.002	0.003
碳当量 C.E. (Long) =0.331			Cr+Mo = 0.028			Cu+Ni+Cr+Mo+V= 0.053					

**HEAT TREATMENT 热处理**

Type 类型	Temperature (°C) 温度	Time (Hour) 时间	Cooling Method 冷却方法
Quench	900 °C	4.0 H	Water Cooling
Temper	610 °C	8.0 H	Air Cooling

**MECHANICAL TEST 机械性能测试**

<b>MECHANICAL TEST 机械性能测试</b>					From QTC 试棒: <input checked="" type="checkbox"/>				SIZE(mm) 10X10X55		From Piece 本体: <input type="checkbox"/>	
	UTS <sub>ob</sub> 抗拉强度	0.2%YS <sub>0.2</sub> 屈服强度	EL <sub>85</sub> 伸长率	ROA <sub>ψ</sub> 收缩率	IMPACT TEST 冲击测试						HARDNESS (HB) 硬度	
	(Mpa)	(Mpa)	(%)	(%)	Dir. 方向	Type 类型	Temp °C 温度	Avr/Min 平均/最小			Min 最小	Max 最大
Min	485	250	22	30	L	V	-46°C	35J /30J			135	197
Max	655	/	/	/								

<b>ACTUAL 实测</b>	UTS <sub>ob</sub> 抗拉强度	0.2%YS <sub>0.2</sub> 屈服强度	EL <sub>85</sub> 伸长率	ROA <sub>ψ</sub> 收缩率	IMPACT TEST 冲击测试						HARDNESS (HB) 硬度	
	(Mpa)	(Mpa)	(%)	(%)	Dir. 方向	Type 类型	Temp °C 温度	Joules 焦耳			162 158 159	
	528	344	36	73	L	V	-46 °C	166	138	172		

Test Piece No. 试样号	Gauge length 标距(mm)	Diameter 直径(mm)	length of reduced section 缩颈(mm)	Temp 温度(°C)	Direction 方向
L240523001	50	12.50	55	20 °C	L
方式	<input checked="" type="checkbox"/> 目测 VT		<input type="checkbox"/> 着色 PT	<input checked="" type="checkbox"/> 磁粉 MT	<input type="checkbox"/> 射线 RT
结论	QUALIFIED		QUALIFIED	QUALIFIED	QUALIFIED

Item No. 行号	Part Number 部件号	Description 描述	Quantity 数量
315	T31A124Q300-027F	12" 600 BODY	1
320	T31A1263800-027F	12" 900 BODY	2

Remarks 备注:  
 THE MATERIALS ARE CONFORM WITH THE PURCHASE ORDER AND TO ANY OTHER MATERIAL SPECIFICATION REQUIRED.  
 材料符合采购订单和任何其他材料规格要求。  
 Materials meet NACE MR0175-2021/ISO15156-2020 (ITP00909001 Rev.00) 材料符合 MR0175-2021/ISO15156-2020 (ITP00909001 Rev.00)  
 No contamination(ice silver,asbestos) 没有污染 (冰银, 石棉)

Surveyor's Name, Signature & Date 检查员签字日期: 2024/6/4	Inspector's Name, Signature & Date 审核员签字日期: 2024/6/4	第三方认证/日期: <input type="checkbox"/> Third party authentication/Date: /
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 MIN 244232, 244233



唐山文丰特钢有限公司  
TangShan WenFeng Special Steel Co.,Ltd  
产品质量证明书  
Product Quality Certificate

河北省唐山市曹妃甸新区配套产业区  
Caofeidian, TangShan city, Hebei  
Province, China  
Post Code: 063200  
Tel: (0315) 8793666  
Fax: (0315) 8793666

序列号: 2214033891

WF/QR-ZJ-037

订货单位 Consumer	江苏泉隆新能源科技有限公司	产品名称 Commodity	优质碳素结构钢圆坯		车号 Vehicle No.	冀B05203D														
合同编号 Contract No.	WFTG-XS-圆坯2312-038	交货状态 Delivery State	连铸+缓冷		执行标准 Technical Condition	WFIJL-012-2023														
炉号 Heat No.	钢号 Grade	化学成分 CHEMICAL COMPOSITION %																		
		C	Si	Mn	P	S	Ni	Cr												
		2	2	2	3	3	3	3												
		1=*10 2=*100 3=*1000 4=*10000 5=*100000																		
4201120	A105	20	21	88	14	9	10	17												
4201121	A105	18	22	90	17	26	18	28												
4201124	A105	19	24	90	16	10	12	26												
4301356	A105	20	25	90	23	17	10	22												
4301357	A105	18	24	88	22	12	17	30												
炉号 Heat No.	规格 (mm) Size (mm)	产品数量 Quantity		表面质量 Surface Quality	低倍结果 Low power results										外照射剂 穿辐射剂 量率 (μSv/h)	冶炼 方法	批号			
		支数 No.	重量 (t)		中心偏析 Center segregation	中心疏松 Center porosity	缩孔 Void	中心裂纹 Center Crack	中间裂纹 Internal Crack	皮下裂纹 Subsurface Crack	皮下气泡 Rim hole	夹杂 Inclusions								
4201120	Φ380*6500	4	23.102	合格	0	0.5	0	0	0	0	0	0	0	0	0	0.17	转炉	3		
4201121	Φ380*6500	6	34.623	合格	0	1	0.5	0	0	0	0	0	0	0	0	0.18	转炉	4		
4201124	Φ380*6500	5	28.838	合格	0	1	0.5	0	0	0	0	0	0	0	0	0.18	转炉	1		
4301356	Φ380*6500	1	5.768	合格	0	1	0	0	0	0	0	0	0	0	0	0.18	转炉	5		
4301357	Φ380*6500	3	17.369	合格	0	1	0.5	0	0	0	0	0	0	0	0	0.18	转炉	6		
合计(支数/磅重) Total		19	109.700	批号																
炼钢工艺		炼钢工艺: 钢以转炉(LD)+炉外精炼(LF)工艺冶炼; 圆管坯由弧形连铸机浇铸																		
备注																				
注释 Notes																				
签发日期: Date Of Issue:		本产品已按上述要求进行制造和检验, 其结果符合要求特此证明。 WE HEREBY CERTIFY THIS MATERIAL DESCRIBED HEREIN HAS BEEN MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION.																		
20240224																				





# 化学分析报告

## INSPECTION CERTIFICATE

表码Table code: QP018-02

版本号Version: 2023A

Customer 客户	/	Drawing No. 图号	/	Quantity 数量	1	Report No. 报告编号	P240419004							
Test Methods 检测方法	ASTM E415-21	Material 材料	A105	Specifications 规格	试样									
Acceptance Standard 验收标准	ASTM A105	Heat No. 炉号	4201124	Test time 测试时间	2024/4/19									
<b>Elements元素</b>														
	C	Mn	Si	S	P	Cr	Ni	Mo	Cu	V	Nb	Al	N	W
	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Min	~	0.60	0.15	~	~	~	~	~	~	~	~	~	~	~
Max	0.23	1.35	0.30	0.015	0.020	0.30	0.40	0.12	0.40	0.020	0.02	~	~	~
Element value	0.18	0.86	0.26	0.010	0.016	0.019	0.017	0.009	0.006	0.002	0.003	0.004	~	0.060

$$CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15 \leq 0.43 \quad CE= 0.331$$

$$Cr+Mo \leq 0.32 \quad Cr+Mo= 0.028$$

$$Cu+Ni+Cr+Mo+V \leq 1.0 \quad Cu+Ni+Cr+Mo+V= 0.053$$

Operator:

操作: 2024/4/19

Check:

审核: 2024/4/19



## 热处理报告 Heat Treatment Report

表码 Code: TX7.5.3—02

报告编号 Report No.: HTR-EWR240526010

日期 Date: 2024-5-26

客户 Client		苏州恩威尔机械有限公司 Suzhou ENVIL Machinery CO.,LTD					
订单号	行号	IT	图号	规格	材料	冶炼炉号 Heat No.	数量
P10006776	315	IT22	T31A124Q300 REV0	12" 600 BODY	ASTM-A350 LF2 CL.1	4201124	1
P10006776	320	IT26	T31A1263800 REV1	12" 900 BODY	ASTM-A350 LF2 CL.1	4201124	2
热处理 Heat Treatment	炉温控制方法 Heat Treatment Method		Furnace Temperature Monitoring (Method A)		制造计划 Production Plan	/	
	热处理工艺规范 Heat Treatment Procedure		ITP00909001 Rev.00/ASTM A350 LF2 CL.1		热处理批次 HT Log No.	C240523Z3	
热处理过程 Heat Treatment Process							
控制特性 Control Feature		正火 Normalizing	淬火 Quench	一次回火 1st Temper	二次回火 2nd Temper	Note: QTC 和产品 同炉同批 QTC heat treated together with the products in same furnace and Heat treat Lot	
进炉炉温 Loading Temperature		/	300C°	140 C°	/		
加热速率 Heating up Rate		/	124.22C°/h	117.5C°/h	/		
保持温度 Holding Temperature		/	900C°	610C°	/		
保温时间 Holding Time		/	4h	8h	/		
热处理炉编号 Furnace Number		/	Z3	Z4	/		
炉温均匀性报告编号及过期日期 Surcey Report Number & Expired Date		/	T2310050668229 2024-10-05	T2310050668230 2024-10-05	/		
温控仪编号及有效期 Instrument Number & Expired Date		/	Z03C001/Z03C002 2024-08-02	Z04C001/Z04C002 2024-08-02	/		
记录仪编号及有效期 Instrument Number & Expired Date		/	Z03R001 2024-08-02	Z04R001 2024-08-02	/		
冷却介质 Cooling Media		/	水 Water	空气 Air	/		
淬前介质温度 Bath Temperature Before: 32°C				淬后介质温度 Bath Temperature After: 37°C			
备注 Note: 淬火过程中最高温度不超过 49°C The highest temperature during the quench cycle less than 49°C							
兹证明材料已按材料规范和采购订单的要求进行了热处理、检验和试验, 结果符合要求。We hereby certify that the material have been heat treated, inspected and tested in accordance with the material specification and the purchase order requirements, and found to meet the requirements.							
质量经理 Quality Manager							



热处理批次号: C240523Z3 Quench

物料描述	生产令号	图号	材质	数量	炉号
阀体16"X16"900	E07801-10	01.MBD- 3F.1616.5.BSP P+LL.NA Rev0	A350- LF2+ENP- 75U+SS316	1	4300990
阀盖20"X16"900	E07801-20	06.MBD- 3F.2016.5.BSP P+LL.RF Rev0	A350- LF2+ENP- 75U+SS316	2	4300990
阀体12"600	E07771-630	T31A124Q300 REV0	ASTM-A350 LF2 CL.1	1	4201124
阀体12"900	E07771-640	T31A1263800 REV1	ASTM-A350 LF2 CL.1	2	4201124
操作员:		李标	2024.05.23		



热处理批次号:

C24052323

Temper

物料描述

生产令号

图号

材质

数量

炉号

阀体16"X16"900

E07801-10

01.MBD  
3F.1616.5.BSP  
P+LL.MA Rev0

A350  
LF2+ENP-  
75U+SS316

1

4300990

阀盖20"X16"900

E07801-20

06.MBD  
3F.2016.5.BSP  
P+LL.RF Rev0

A350  
LF2+ENP-  
75U+SS316

2

4300990

阀体12"900

E07771-630

T31A1240300  
REV0

ASTM-A350  
LF2 CL.1

1

4201124

阀体12"900

E07771-640

T31A1263800  
REV1

ASTM-A350  
LF2 CL.1

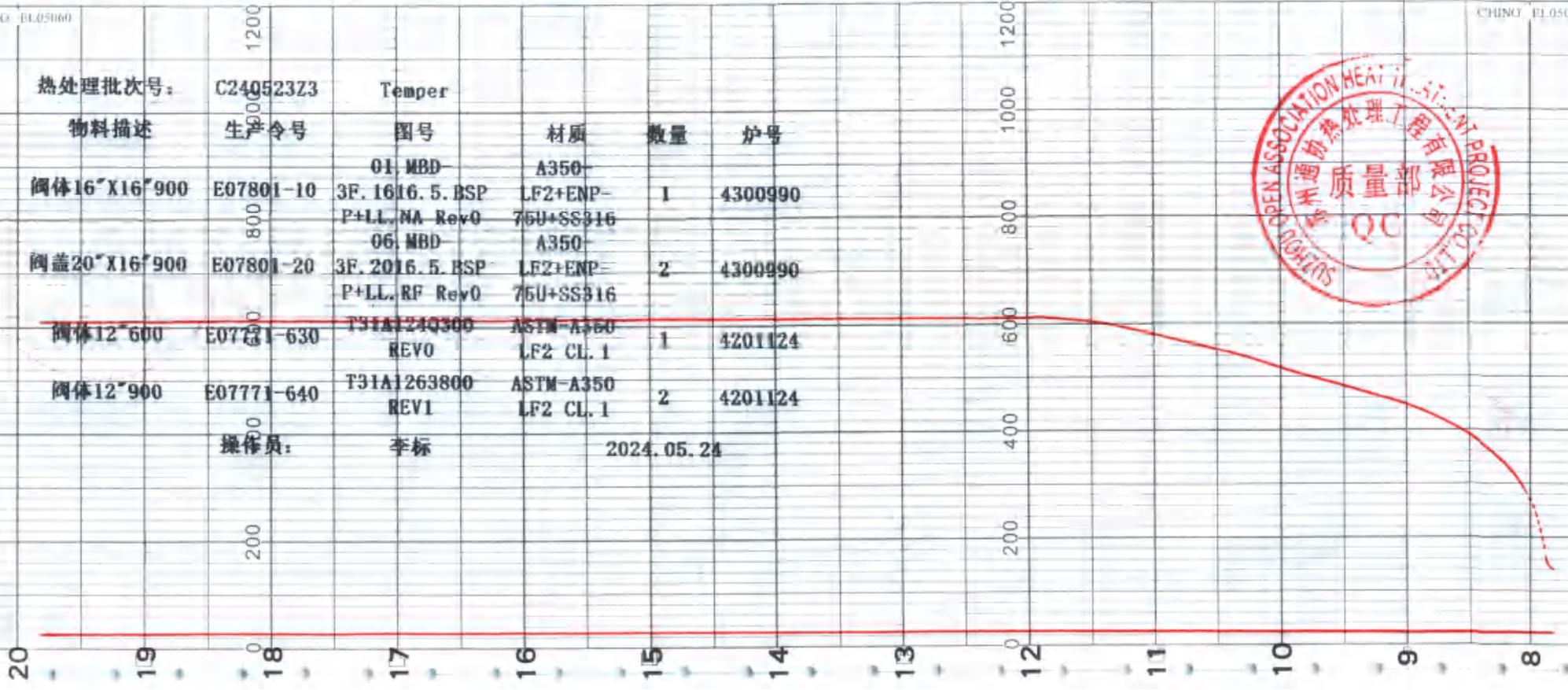
2

4201124

操作员:

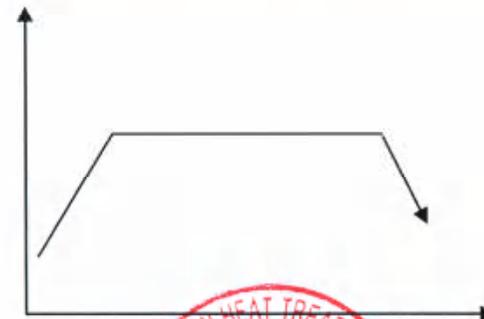
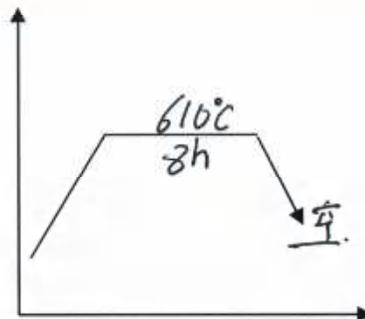
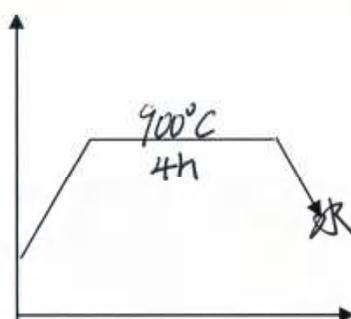
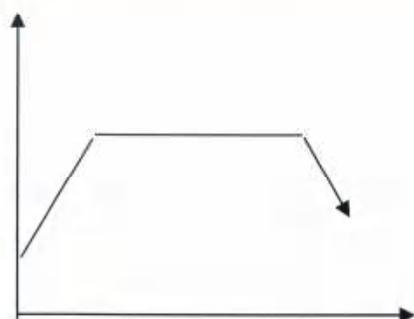
李标

2024.05.24



材料牌号 Material Designation	ASTM-A350 LF2 CL.1	热处理批 次 HT Lot No.	C240523Z3
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热处理工艺图 Heat Treatment Process Chart	工艺注意事项 Technological Notes
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正火	淬火	回火	回火
编制 Compiler	温宗会	审核 Verifier	吕红明
日期 Date	24.05.23	日期 Date	24.05.23



工序内容 Process Content										
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项目名称 Item	设备编号 Furnace No.	升温 Heating Up		保温 Holding		升温时间 Heating Time	保温 Holding		冷却 Cooling		操作者 Operator
		时间 Time	温度 Temp	时间 Time	温度 Temp		时间 Time	温度 Temp	时间 Time	介质 Media	
正火											
淬火	Z3 5/23	22:00	300°C	2:50	900°C	/	/	/	6:50	Water	Gu Jianwen
回火	Z4 5/24	8:50	140°C	12:50	610°C	/	/	/	20:50	Air	lys Tonggu
回火											
淬前介质温度 Bath TEMP B4	32°C	淬后介质温度 Bath TEMP AF	37°C	过程最高温度 MAX TEMP	39°C	淬火转移时间 Transfer Time	52S		淬火后硬度 Hardness after quenching		

苏州通协热处理工程有限公司  
Suzhou Open Association Heat Treatment  
Project Co., Ltd.

## 热处理装炉记录卡 Card of Heat Treatment Loading Record

TX/QR-8.5.1-01  
REV.01

材料牌号 Material Designation	ASTM-A350 LF2 CL.1	热处理 批次 HT Lot	C240523Z3
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装炉清单 Part List

序号 No.	客户 Client	零件号 Part No.	产品名称/图号 Name/Drawing No.	数量 Quantity	产品跟 踪号	冶炼炉号 Heat No.	技术规范 Technical	硬度范围 Hardness	其他信息 Other
1	恩威尔	/	01. MBD- 3F. 1616. 5. BSPP+LL. NA Rev0	1	/	4300990	ASTM-A350 LF2 CL. 1	/	/
2	恩威尔	/	06. MBD- 3F. 2016. 5. BSPP+LL. RF Rev0	2	/	4300990	ASTM-A350 LF2 CL. 1	/	/
3	恩威尔	T31A124Q300-027F	T31A124Q300 REVO	1	/	4201124	ASTM-A350 LF2 CL. 1	/	/
4	恩威尔	T31A1263800-027F	T31A1263800 REV1	2	/	4201124	ASTM-A350 LF2 CL. 1	/	/
5									
6									
7									

装炉要求 Loading Requirement

装炉示意图 Schematic diagram	装炉注意事项 Loading Note
略	

编制 Compiler	温宗会	审核 Verifier	吕红明
日期 Date	24.05.23	日期 Date	24.05.23



报告编号 Report NO: VT240601-2

客户订单号 Customer order No.:	行号	IT	图号 Drawing NO:	型号规格 Type Specification :	材料 Material:	炉号 Heat number:	热处理批次号 Heat treatment batch NO:	数量 Qty:
P10006776	315	IT22	T31A124Q300 REV0	12" 600 BODY	ASTM-A350 LF2 CL.1	4201124	C240523Z3	1
P10006776	320	IT26	T31A1263800 REV1	12" 900 BODY	ASTM-A350 LF2 CL.1	4201124	C240523Z3	2
<b>执行标准</b> Executive Standard			VABV IST-VT0090901		<b>验收标准</b> Acceptance Standard		VABV IST-VT0090901	
<b>检测设备/型号</b> Testing Tool/Model			粗糙度仪roughmeter/照度计 illuminometer/手电筒 flashlight /放大镜magnifying glass/钢尺steel rule		<b>表面状态</b> Surface Condition		<b>机加工后</b> After machining	
<b>缺陷检查 Defect Inspection</b>								
缺陷种类 Defect Type		缺陷描述 Defect Description			结果 Result		备注 notes	
粗糙度 Roughness		≤ Ra 6.3			OK			
撞伤 Damadge		无			OK			
污渍 Stain		无			OK			
毛刺 Burrs		无			OK			
变形 Deformation		无			OK			
划伤 Scrach		无			OK			
裂纹 Cracks		无			OK			
锈或腐蚀 Rust or Corrosion		无			OK			
填充不足 Areas of under fill		无			OK			
<b>标识检查 Marking Inspection</b>								
项目 Item		描述 Description			结果 Result		备注 notes	
标识清晰 Marking is clear		OK			OK			
标识齐全 Marking is full		OK			OK			
操作者/日期: Operator/Date: <b>韩强</b> 2024/6/1 Level VT-II					审核者/日期: Reviewed by/Date: <b>张军</b> 2024/6/1 Level VT-II			





力学性能试验报告  
Mechanical Property Test Report

表 码Sheet No.: QP018-10 2023A

委托书编号Order No: J240523001

报告编号Report No: L240523001

样品信息Sample information								
供应商 Supplier	A07	材料 Material	A350 LF2	室温Room Tem. 湿度Humidity	27°C 40%			
冶炼炉号 Heat No.	4201124	热处理批号 HT Lot No.	C240523Z3	试块尺寸和类型 Size &Type	100*100*200mm QTC			
接收日期Receive date:	2024-5-28		报告日期 Reporting date:	2024-5-28				
检测项目和样品编号 Type&Sample No.	检测标准 Inspection Spec	材料规范 Material Spec	设备名称 Device Name	设备编号 Equipment No.	设备型号 Equipment type	设备有效期 Due date		
拉伸 Tensile	ASTM A370	/	微机控制电液伺服式万能试验机 Microcomputer-controlled electro-hydraulic servo universal testing machine	EN19341	WAW-600D	2025/4/13		
			电子引伸计 Electronic Extensomete	EN19336	174032	2025/4/13		
			/	/	/	/		
冲击 Impact test	ASTM E23	/	双制冷微机屏显低温全制动冲击试验机 Double refrigeration computer screen display low temperature full brake impact testing machine	EN19339	JBDW-300YS	2025/4/13		
			冲击试样缺口投影仪 Impact sample notch projector	EN19331	CST-50	2025/4/13		
			低温槽 Cooling bath tank	EN19333	CDW-60	2025/4/13		
布氏硬度 Brinell hardness	ASTM E10	/	数显布氏硬度计 Digital Brinell hardness tester	EN19327	HBS-3000	2025/4/13		
			/	/	/	/		
拉伸 Tensile	标准值 Mtl.Spec	实测值 Actual	冲击Impact(KV8) (10x10x55mm)	标准值 Md.Spec	实测值 Actual			硬度 Hardness
抗拉强度 Rm (MPa)	485-655	528	测试数据 Test Data(J)	≥27	166	138	172	HBW
屈服强度 Rp0.2 (MPa)	≥277	344	平均值 Average(J)	≥27	159			标准值(硬度) Mtl.Spec (hardness)
延伸率A(%) 2in标距	≥22%	36	单个最小值 Single(J)	≥27	138			143-197
收缩率 Z(%)	≥30%	73	膨胀量Lateral Expansion(mm)	/			实测值(硬度) Actual (hardness)	
直径 Diameter	/	12.50 mm	冲击温度 Impact Temp.	-46°C			162/158/159	
取样位置 Specimen from	1/4T		试样方向 Sample Dir.	纵向 Longitudina				
拉伸温度/方向 Tensile Temp./Dir.	室温Room temperature/ 纵向Longitudinal		/					
评定Eyaluation	合格							
材质标准 Material Standard	ASTM-A350 LF2 CL.1							
检测员Tested by:	仇凯嘉			批准Approved by:	[Signature]			
检测日期Test date	2024-5-28			批准日期Approved Date:	2024-5-28			
注Note	1. 报告无检测单位检测专用章无效。The report is invalid without special seal of testing unit 2. 若对检测报告有异议,请在检测报告收到后十五日内向检测单位提出,逾期不予受理。If you have any objection to the test report,please submit it to the test unit within 15 days after receiving the test report,which will not be accepted. 3. 实验室仅对所测样品负责。The laboratory is only responsible for the samples tested 4. 若客户未提供原始编号,则采用实验室样品编号.If the customer does not provide the original number,use the laboratory							



地址(Add): 镇江市新区北山路151号 No. 151 Beishan Road, Zhenjiang new district  
电话(Tel): 0511-88889096 E-mail: wangjun@enviljx.com 邮编(Zip): 212000





苏州恩威尔机械有限公司 Suzhou Envil Machinery CO.,LTD		INSPECTION CERTIFICATE QUALITY CONTROL DEPARTMENT 检验证明书(质量控制部)				Company's QMS certified body —ISO9001 No 公司质量管理体系证书号: CNBJ313986-U					
		Cert. No. 证书号: 20240604005		Date 日期: 2024/06/04							
Purchaser 买方: VELAN ABV S.r.l.				Certificate type 证书类型: EN 10204 <input checked="" type="checkbox"/> 3.1				Purchase Order No.: 订单号: P10006776			
<b>CHEMICAL ANALYSIS 化学分析</b>											
Material 材料: ASTM A350_A350M-23 LF2 CL1			Heat No. 炉号: 4201124 H.T.Lot 热处理批次号: C240525Z3				Raw Material Supplier 原材料供应商: JIANGSHU SHAGANG GROUP HUAIGANG SPECIAL STEEL CO., LTD.				锻造比: >4 Forging Ratio
ASTM A350_A350M-23 LF2 CL1	C %	Mn %	Si %	Ni %	Cr %	S %	P %	Cu %	Mo %	V %	Nb %
MIN	/	0.60	0.15	/	/	/	/	/	/	/	/
MAX	0.23	1.35	0.30	0.40	0.30	0.025	0.02	0.40	0.12	0.02	0.02
Heat Analysis 浇包分析	0.19	0.90	0.24	0.012	0.026	0.01	0.016	/	/	/	/
Product Analysis 产品分析	0.18	0.86	0.26	0.017	0.019	0.01	0.016	0.006	0.009	0.002	0.003
碳当量 C.E. (Long) =0.331				Cr+Mo = 0.028				Cu+Ni+Cr+Mo+V= 0.053			
<b>HEAT TREATMENT 热处理</b>											
Type 类型		Temperature (°C) 温度			Time (Hour) 时间		Cooling Method 冷却方法				
Quench		900 °C			4.0 H		Water Cooling				
Temper		610 °C			8.0 H		Air Cooling				
<b>MECHANICAL TEST 机械性能测试</b>					From QTC 试棒: <input checked="" type="checkbox"/>			SIZE(mm) 10X10X55			From Piece 本体: <input type="checkbox"/>
	UTSob 抗拉强度	0.2%YSos 屈服强度	ELδ5 伸长率	ROAψ 收缩率	IMPACT TEST 冲击测试				HARDNESS (HB) 硬度		
	(Mpa)	(Mpa)	(%)	(%)	Dir. 方向	Type 类型	Temp °C 温度	Avr/Min 平均/最小			
Min	485	250	22	30	L	V	-46°C	35J/30J			Min 最小
Max	655	/	/	/							Max 最大
											135
											197
<b>ACTUAL 实测</b>	UTSob 抗拉强度	0.2%YSos 屈服强度	ELδ5 伸长率	ROAψ 收缩率	IMPACT TEST 冲击测试				HARDNESS (HB) 硬度		
	(Mpa)	(Mpa)	(%)	(%)	Dir. 方向	Type 类型	Temp °C 温度	Joules 焦耳			
	540	346	35	78	L	V	-46 °C	165	179	139	162 165 156
Test Piece No. 试样号		Gauge length 标距(mm)		Diameter 直径(mm)		length of reduced section 缩颈(mm)			Temp 温度(°C)		Direction 方向
L240525002		50		12.48		55			20 °C		L
方式		<input checked="" type="checkbox"/> 目测 VT		<input type="checkbox"/> 着色 PT		<input checked="" type="checkbox"/> 磁粉 MT		<input type="checkbox"/> 射线 RT		<input type="checkbox"/> 超声 UT	
结论		QUALIFIED		QUALIFIED		QUALIFIED		/		QUALIFIED	
Item No. 行号	Part Number 部件号			Description 描述				Quantity 数量			
295	T32R12448Z0-027F			12" 600 CLOSURE				1			
300	T32R124G3Z0-027F			12" 600 CLOSURE				1			
305	T32R126V8Z0-027F			12" 900 CLOSURE				2			
310	T32R126Z8T0-027F			12" 900 CLOSURE				2			
Remarks 备注: THE MATERIALS ARE CONFORM WITH THE PURCHASE ORDER AND TO ANY OTHER MATERIAL SPECIFICATION REQUIRED. 材料符合采购订单和任何其他材料规格要求。											

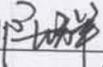


MIN 244228 ÷ 244231

Materials meet NACE MR0175-2021/ISO15156-2020 (ITP00909001 Rev.00)  
No contamination(ice silver,asbestos) 没有污染 (冰银, 石棉)

材料符合 MR0175-2021/ISO15156-2020 (ITP00909001 Rev.00)



Surveyor's Name, Signature & Date 检查员签字日期:  2024/6/4	Inspector's Name, Signature & Date 审核员签字日期:  2024/6/4	第三方认证/日期: <input type="checkbox"/> Third party authentication/Date: 用章
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# 化学分析报告

## INSPECTION CERTIFICATE

表码Table code: QP018-02

版本号Version: 2023A

Customer 客户	/	Drawing No. 图号	/	Quantity 数量	1	Report No. 报告编号	P240419004							
Test Methods 检测方法	ASTM E415-21	Material 材料	A105	Specifications 规格	试样									
Acceptance Standard 验收标准	ASTM A105	Heat No. 炉号	4201124	Test time 测试时间	2024/4/19									
<b>Elements元素</b>														
	C	Mn	Si	S	P	Cr	Ni	Mo	Cu	V	Nb	Al	N	W
	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Min	~	0.60	0.15	~	~	~	~	~	~	~	~	~	~	~
Max	0.23	1.35	0.30	0.015	0.020	0.30	0.40	0.12	0.40	0.020	0.02	~	~	~
Element value	0.18	0.86	0.26	0.010	0.016	0.019	0.017	0.009	0.006	0.002	0.003	0.004	~	0.060

$$CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15 \leq 0.43 \quad CE= 0.331$$

$$Cr+Mo \leq 0.32 \quad Cr+Mo= 0.028$$

$$Cu+Ni+Cr+Mo+V \leq 1.0 \quad Cu+Ni+Cr+Mo+V= 0.053$$

Operator:

操作: 2024/4/19

Check:

审核: 2024/4/19



## 热处理报告 Heat Treatment Report

表码 Code: TX7.5.3—02

报告编号 Report No.: HTR-EWR240528008

日期 Date: 2024-5-28

客户 Client		苏州恩威尔机械有限公司 Suzhou ENVIL Machinery CO.,LTD					
订单号	行号	IT	图号	规格	材料	冶炼炉号 Heat No.	数量
P10006776	295	IT22	T32R12448Z0 REV1	12" 600 CLOSURE	ASTM-A350 LF2 CL.1	4201124	1
P10006776	300	IT22	T32R124G3Z0 REV1	12" 600 CLOSURE	ASTM-A350 LF2 CL.1	4201124	1
P10006776	305	IT26	T32R126V8Z0 REV1	12" 900 CLOSURE	ASTM-A350 LF2 CL.1	4201124	2
P10006776	310	IT26	T32R126Z8T0 REV1	12" 900 CLOSURE	ASTM-A350 LF2 CL.1	4201124	2
热处理 Heat Treatment	炉温控制方法 Heat Treatment Method		Furnace Temperature Monitoring (Method A)		制造计划 Production Plan	/	
	热处理工艺规范 Heat Treatment Procedure		ITP00909001 Rev.00/ASTM A350 LF2 CL.1		热处理批次 HT Log No.	C240525Z3	
热处理过程 Heat Treatment Process							
控制特性 Control Feature		正火 Normalizing	淬火 Quench	一次回火 1st Temper	二次回火 2nd Temper	Note: QTC 和产品 同炉同批 QTC heat treated together with the products in same furnace and Heat treat Lot	
进炉炉温 Loading Temperature		/	230C°	80 C°	/		
加热速率 Heating up Rate		/	134C°/h	127.09C°/h	/		
保持温度 Holding Temperature		/	900C°	610C°	/		
保温时间 Holding Time		/	4h	8h	/		
热处理炉编号 Furnace Number		/	Z3	Z4	/		
炉温均匀性报告编号及过期日期 Surcey Report Number & Expired Date		/	T2310050668229 2024-10-05	T2310050668230 2024-10-05	/		
温控仪编号及有效期 Instrument Number & Expired Date		/	Z03C001/Z03C002 2024-08-02	Z04C001/Z04C002 2024-08-02	/		
记录仪编号及有效期 Instrument Number & Expired Date		/	Z03R001 2024-08-02	Z04R001 2024-08-02	/		
冷却介质 Cooling Media		/	水 Water	空气 Air			
淬前介质温度 Bath Temperature Before: 32°C				淬后介质温度 Bath Temperature After: 34°C			
备注 Note: 淬火过程中最高温度不超过 49°C The highest temperature during the quench cycle less than 49°C							



苏州通协热处理工程有限公司 Suzhou Open Association Heat Treatment Project Co.,Ltd

地址 Address: Dongqiao Town, Suzhou City, China

电话 Tel: +86-0512-65372018

传真 Fax: +86-0512-65373338

兹证明材料已按材料规范和采购订单的要求进行了热处理、检验和试验，结果符合要求。We hereby certify that the materials have been heat treated, inspected and tested in accordance with the material specification and the purchase order requirements, and found to meet the requirements.

质量经理 Quality Manager





热处理批次号: C240525Z3

Quench

物料描述

生产令号

图号

材质

数量

炉号

阀盖10" 1500

E07767-20

9C-A21B10501  
Rev. 01

ASTM A350  
GR LF2  
CLASS 1

10

4200739

阀盖12" 600

E07771-600

T32R124G3Z0  
REV1

ASTM-A350  
LF2 CL. 1

1

4201124

阀盖12" 900

E07771-620

T32R126Z8T0  
REV1

ASTM-A350  
LF2 CL. 1

2

4201124

阀盖12" 600

E07771-590

T32R12448Z0  
REV1

ASTM-A350  
LF2 CL. 1

1

4201124

阀盖12" 900

E07771-610

T32R126V8T0  
REV1

ASTM-A350  
LF2 CL. 1

2

4201124

操作员:

李标

2024.05.25

热处理批次号: C240525Z3

Temper

物料描述

生产令号

图号

材质

数量

炉号

阀盖10" 1500

E07767-20

9G-A21B10501  
Rev. 01

ASTM A350  
GR LF2  
CLASS 1

10

4208739

阀盖12" 600

E07771-600

T32R124G3Z0  
REV1

ASTM-A350  
LF2 CL. 1

1

4201124

阀盖12" 900

E07771-620

T32R126Z8T0  
REV1

ASTM-A350  
LF2 CL. 1

2

4201124

阀盖12" 600

E07771-590

T32R12448Z0  
REV1

ASTM-A350  
LF2 CL. 1

1

4201124

阀盖12" 900

E07771-610

T32R126V8T0  
REV1

ASTM-A350  
LF2 CL. 1

2

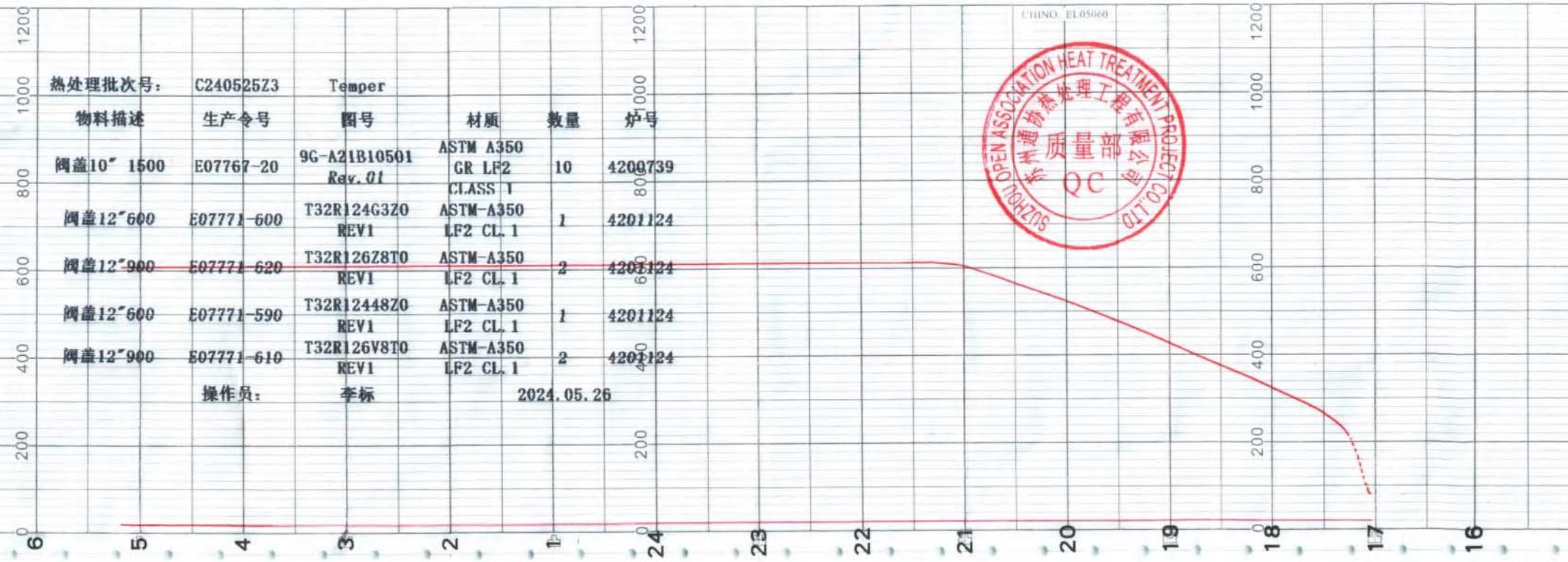
4201124

操作员:

李标

2024.05.26

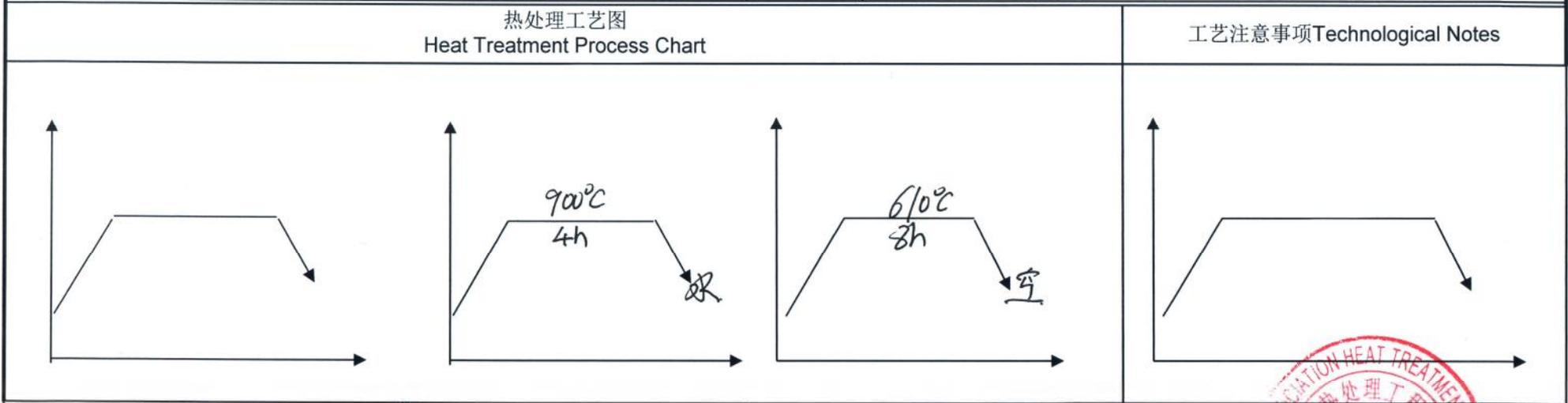
CHINO, EL05060



# 热处理操作记录卡

## Card of Heat Treatment Operation Record

材料牌号 Material Designation	ASTM A350 GR LF2 CLASS 1	热处理批次 HT Lot No.	C240525Z3
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正火	淬火	回火	回火
编制 Compiler	温宗会	审核 Verifier	吕红明
日期 Date	24.05.25	日期 Date	24.05.25

工序内容 Process Content

项目名称 Item	设备编号 Furnace No.	升温 Heating Up		保温 Holding		升温时间 Heating Time	保温 Holding		冷却 Colding		操作者 Operator
		时间 Time	温度 Temp	时间 Time	温度 Temp		时间 Time	温度 Temp	时间 Time	介质 Media	
正火											
淬火	5/25	22:00	230°C	3:00	900°C	1	1	1	7:00	Water	Gu Jianwen
回火	5/26	9:00	80°C	13:10	610°C	1	1	1	21:10	Air	Lu Hongming
回火											
淬前介质温度 Bath TEMP B4	32°C	淬后介质温度 Bath TEMP AF	34°C	过程最高温度 MAX TEMP	40°C	淬火转移时间 Transfer Time	52S		淬火后硬度 Hardness after quenching		

苏州通协热处理工程有限公司  
Suzhou Open Association Heat Treatment  
Project Co., Ltd.

## 热处理装炉记录卡 Card of Heat Treatment Loading Record

TX/QR-8.5.1-01  
REV.01

材料牌号 Material Designation	ASTM A350 GR LF2 CLASS 1	热处理批 次 HT Lot	C240525Z3
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装炉清单 Part List

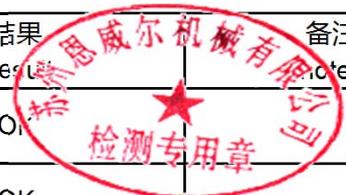
序号 No.	客户 Client	零件号 Part No.	产品名称/图号 Name/Drawing No.	数量 Quantity	产品跟 踪号	冶炼炉号 Heat No.	技术规范 Technical	硬度范围 Hardness	其他信息 Other
1	恩威尔	2650469-10-15-01 Rev. 01	9G-A21B10501 Rev. 01	10	/	4200739	MS-021239-02- 04 Rev. 03	/	/
2	恩威尔	T32R124G3Z0-027F	T32R124G3Z0 REV1	1	/	4201124	ASTM-A350 LF2 CL. 1	/	/
3	恩威尔	T32R126Z8T0-027F	T32R126Z8T0 REV1	2	/	4201124	ASTM-A350 LF2 CL. 1	/	/
4	恩威尔	T32R12448Z0-027F	T32R12448Z0 REV1	1	/	4201124	ASTM-A350 LF2 CL. 1	/	/
5	恩威尔	T32R126V8Z0-027F	T32R126V8T0 REV1	2	/	4201124	ASTM-A350 LF2 CL. 1	/	/
6									
7									
8									

装炉要求 Loading Requirement

装炉示意图 Schematic diagram	装炉注意事项 Loading Note
略	

编制 Compiler	温宗会	审核 Verifier	吕红明
日期 Date	24.05.25	日期 Date	24.05.25

客户订单号 Customer order No.:	行号	IT	图号 Drawing NO:	型号规格 Type Specification :	材料 Material:	炉号 Heat number:	热处理批次号 Heat treatment batch NO:	数量 Qty:
P10006776	295	IT22	T32R12448Z0 REV1	12" 600 CLOSURE	ASTM-A350 LF2 CL.1	4201124	C240525Z3	1
P10006776	300	IT22	T32R124G3Z0 REV1	12" 600 CLOSURE	ASTM-A350 LF2 CL.1	4201124	C240525Z3	1
P10006776	305	IT26	T32R126V8Z0 REV1	12" 900 CLOSURE	ASTM-A350 LF2 CL.1	4201124	C240525Z3	2
P10006776	310	IT26	T32R126Z8T0 REV1	12" 900 CLOSURE	ASTM-A350 LF2 CL.1	4201124	C240525Z3	2
<b>执行标准</b> Executive Standard			VABV IST-VT0090901		<b>验收标准</b> Acceptance Standard		VABV IST-VT0090901	
<b>检测设备/型号</b> Testing Tool/Model			粗糙度仪roughmeter/照度计 illuminometer/手电筒 flashlight /放大镜magnifying glass/钢尺steel rule		<b>表面状态</b> Surface Condition		<b>机加工后</b> After machining	
<b>缺陷检查 Defect Inspection</b>								
缺陷种类 Defect Type		缺陷描述 Defect Description			结果 Result		备注 notes	
粗糙度 Roughness		≤ Ra 6.3			OK			
撞伤 Damage		无			OK			
污渍 Stain		无			OK			
毛刺 Burrs		无			OK			
变形 Deformation		无			OK			
划伤 Scrach		无			OK			
裂纹 Cracks		无			OK			
锈或腐蚀 Rust or Corrosion		无			OK			
填充不足 Areas of under fill		无			OK			
<b>标识检查 Marking Inspection</b>								
项目 Item		描述 Description			结果 Result		备注 notes	
标识清晰 Marking is clear		OK			OK			
标识齐全 Marking is full		OK			OK			
操作者/日期: Operator/Date: <b>韩强</b> 2024/6/1 Level VT-II					审核者/日期: Reviewed by/Date: <b>张军</b> 2024/6/1 Level VT-II			





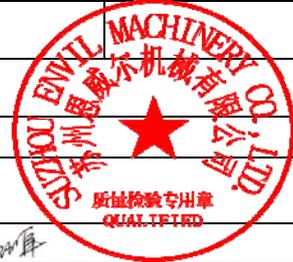
力学性能试验报告  
Mechanical Property Test Report

表 码Sheet No.: QP018-10 2023A

委托书编号Order No: J240525002

报告编号Report No: L240525002

样品信息Sample information									
供应商 Supplier	A07		材料 Material	A350 LF2		室温Room Tem. 湿度Humidity	27°C 56%		
冶炼炉号 Heat No.	4201124		热处理批号 HT Lot No.	C240525Z3		试块尺寸和类型 Size &Type	100*100*200mm QTC		
接收日期Receive date:	2024-6-1		报告日期 Reporting date:	2024-6-1					
检测项目和样品编号 Type&Sample No.	检测标准 Inspection Spec	材料规范 Material Spec	设备名称 Device Name		设备编号 Equipment No.	设备型号 Equipment type	设备有效期 Due date		
拉伸 Tensile	ASTM A370	/	微机控制电液伺服式万能试验机 Microcomputer-controlled electro-hydraulic servo universal testing machine		EN19341	WAW-600D	2025/4/13		
			电子引伸计 Electronic Extensomete		EN19336	174032	2025/4/13		
			/		/	/	/		
冲击 Impact test	ASTM E23	/	双制冷微机屏显低温全制动冲击试验机 Double refrigeration computer screen display low temperature full brake impact testing machine		EN19339	JBDW-300YS	2025/4/13		
			冲击试样缺口投影仪 Impact sample notch projector		EN19331	CST-50	2025/4/13		
			低温槽 Cooling bath tank		EN19333	CDW-60	2025/4/13		
布氏硬度 Brinell hardness	ASTM E10	/	数显布氏硬度计 Digital Brinell hardness tester		EN19327	HBS-3000	2025/4/13		
			/		/	/	/		
拉伸 Tensile	标准值 Mtl.Spec	实测值 Actual	冲击Impact(KV8) (10x10x55mm)		标准值 Md.Spec	实测值 Actual			硬度 Hardness
抗拉强度 Rm (MPa)	485-655	540	测试数据 Test Data(J)		≥27	165	179	139	HBW
屈服强度 Rp0.2 (MPa)	≥277	346	平均值 Average(J)		≥27	161			标准值(硬度) Mtl.Spec (hardness)
延伸率A(%) 2in标距	≥22%	35	单个最小值 Single(J)		≥27	138			143-197
收缩率 Z(%)	≥30%	78	膨胀量Lateral Expansion(mm)		/			实测值(硬度) Actual (hardness)	
直径 Diameter	/	12.48	mm	冲击温度 Impact Temp.	-46°C			162/165/156	
取样位置 Specimen from	1/4T			试样方向 Sample Dir.	纵向 Longitudina				
拉伸温度/方向 Tensile Temp./Dir.	室温Room temperature/ 纵向Longitudinal			/					
评定Eyaluation	合格								
材质标准 Material Standard	ASTM-A350 LF2 CL.1								
检测员Tested by:	仇凯嘉				批准Approved by:	仇			
检测日期Test date	2024-6-1				批准日期Approved Date:	2024-6-1			
注Note	1. 报告无检测单位检测专用章无效。The report is invalid without special seal of testing unit 2. 若对检测报告有异议,请在检测报告收到后十五日内向检测单位提出,逾期不予受理。If you have any objection to the test report,please submit it to the test unit within 15 days after receiving the test report,which will not be accepted. 3. 实验室仅对所测样品负责。The laboratory is only responsible for the samples tested 4. 若客户未提供原始编号,则采用实验室样品编号.If the customer does not provide the original number,use the laboratory								



地址(Add): 镇江市新区北山路151号 No. 151 Beishan Road, Zhenjiang new district  
电话(Tel): 0511-88889096 E-mail: wangjun@enviljx.com 邮编(Zip): 212000



# 尺寸检验报告

## Dimension Inspection Report

表 码: QP010-10  
版本号: 2023A

客户 Customer Name:		VELAN ABV S.r.l.		订单号 PO No:		P10006776		名称 Component :		阀盖		数量 Total qty:		1		PCS	
图号 Drawing No & Rev.No		T32R12448Z0 REV1		尺寸磅级 Size&Class		12" 600 CLOSURE		材质 Material:		ASTM-A350 LF2 CL.1		炉号 Heat NO.		4201124			
外观 Appearance		毛刺Debur (OK) 裂纹Crack (OK) 碰伤碰毛 Defect (OK) 防锈Antirusty (OK) 表面光洁度Surface Finish (OK) 表面清洁度Cleanliness (OK)															
检验项目 Inspection Items and Sr.No				实际尺寸 Observed Dimentions												E07771-590	
编号 Code	图纸尺寸 Drawing Dimension	公差 Tolerance	1#														
1	φ600	+0.3	600.02														OK
2	φ471	-0.1	470.95														OK
3	φ459.8	-0.1	459.76														OK
4	φ451.6	-0.1	451.58														OK
5	φ337.8	+0.1	337.82														OK
6	φ319	+0.1	319.05														OK
7	φ317.4	+0.1	317.41														OK
8	φ310.4	+0.1	310.45														OK
9	φ305	+0.2	305.03														OK
10	φ381	±0.1	381.04														OK
11	277	+0.2	277.04														OK
12	66.6	+1 +0.5	67.01														OK
13	φ522	±0.2	522.02														OK
14	φ357	±0.2	357.03														OK
15	φ396	±0.2	396.03														OK
16	201	±0.05	201.04														OK
17	φ18.1	+0.1	18.13														OK
18	φ14.3	+0.1	14.32														OK
19	44.6	+0.1	44.61														OK
20	70.6	+0.1	70.63														OK
检验员 Inspector		杨继生		日期 Date		2024/6/8		批准 Approve				日期 Date		2024/6/8			





# 尺寸检验报告

## Dimension Inspection Report

表 码: QP010-10

版本号: 2023A

客户 Customer Name:		VELAN ABV S.r.l.		订单号 PO No:		P10006776		名称 Component :		阀盖		数量 Total qty:		1		PCS	
图号 Drawing No & Rev.No		T32R12448Z0 REV1		尺寸磅级 Size&Class		12" 600 CLOSURE		材质 Material:		ASTM-A350 LF2 CL.1		炉号 Heat NO.		4201124			
外观 Appearance		毛刺Debur (OK) 裂纹Crack (OK) 碰伤碰毛 Defect (OK) 防锈Antirusty (OK) 表面光洁度Surface Finish (OK) 表面清洁度Cleanliness (OK)															
检验项目 Inspection Items and Sr.No				实际尺寸 Observed Dimentions												E07771-590	
编号 Code	图纸尺寸 Drawing Dimension	公差 Tolerance	1#														
21	91.6	+0.2	91.61														OK
22	99.6	+0.2	99.63														OK
检验员 Inspector		杨继生		日期 Date		2024/6/8		批准 Approve				日期 Date		2024/6/8			





# 尺寸检验报告

## Dimension Inspection Report

表 码: QP010-10  
版本号: 2023A

客户 Customer Name:		VELAN ABV S.r.l.		订单号 PO No:		P10006776		名称 Component :		阀盖		数量 Total qty:		1		PCS	
图号 Drawing No & Rev.No		T32R124G3Z0 REV1		尺寸等级 Size&Class		12" 600 CLOSURE		材质 Material:		ASTM-A350 LF2 CL.1		炉号 Heat NO.		4201124			
外观 Appearance		毛刺Debur (OK) 裂纹Crack (OK) 碰伤碰毛 Defect (OK) 防锈Antirusty (OK) 表面光洁度Surface Finish (OK) 表面清洁度Cleanliness (OK)															
检验项目 Inspection Items and Sr.No				实际尺寸 Observed Dimentions												E07771-600	
编号 Code	图纸尺寸 Drawing Dimension	公差 Tolerance	1#														
1	φ600	+0.3	600.01														OK
2	φ471	-0.1	470.99														OK
3	φ459.8	-0.1	459.77														OK
4	φ451.6	-0.1	451.56														OK
5	φ377	+0.2	377.03														OK
6	φ319	+0.1	319.03														OK
7	φ317.4	+0.1	317.45														OK
8	φ400.1	+0.5	400.13														OK
9	φ305	+0.2	305.02														OK
10	φ381	±0.2	381.04														OK
11	φ558.8	+1	558.83														OK
12	277	+0.2	277.03														OK
13	66.6	+1 +0.5	67.13														OK
14	φ522	±0.2	522.04														OK
15	φ357	±0.2	357.04														OK
16	φ396	±0.2	396.01														OK
17	201	±0.05	201.04														OK
18	φ489	±0.2	489.03														OK
19	φ18.1	+0.1	18.13														OK
20	φ14.3	+0.1	14.35														OK
检验员 Inspector		杨继生		日期 Date		2024/6/8		批准 Approve				日期 Date		2024/6/8			







# 尺寸检验报告

## Dimension Inspection Report

表 码: QP010-10  
版本号: 2023A

客户 Customer Name:		VELAN ABV S.r.l.	订单号 PO No:	P10006776	名称 Component :	阀盖	数量 Total qty:	2	PCS					
图号 Drawing No & Rev.No		T32R126V8Z0 REV1	尺寸等级 Size&Class	12" 900 CLOSURE	材质 Material:	ASTM-A350 LF2 CL.1	炉号 Heat NO.	4201124						
外观 Appearance		毛刺Debur (OK) 裂纹Crack (OK) 碰伤碰毛 Defect (OK) 防锈Antirusty (OK) 表面光洁度Surface Finish (OK) 表面清洁度Cleanliness (OK)												
检验项目 Inspection Items and Sr.No			实际尺寸 Observed Dimentions										E07771-610	
编号 Code	图纸尺寸 Drawing Dimension	公差 Tolerance	1#	2#										
1	φ640	+0.3	640.03	640.01										OK
2	φ483.8	-0.1	483.78	483.79										OK
3	φ473.6	-0.1	473.58	473.57										OK
4	φ462.4	-0.1	462.38	462.39										OK
5	φ378	+0.3	378.02	378.01										OK
6	φ336.4	+0.1	336.42	336.41										OK
7	φ325.2	+0.1	325.22	325.23										OK
8	φ322.2	+0.1	322.21	322.24										OK
9	φ314	+0.1	314.03	314.01										OK
10	φ305	+0.2	305.03	305.01										OK
11	φ381	+0.2	381.04	381.03										OK
12	202	±0.05	202.01	202.04										OK
13	φ359.6	±0.2	359.61	359.62										OK
14	φ543	±0.2	543.02	543.01										OK
15	99.5	+0.2	99.51	99.53										OK
16	73.5	+0.1	73.51	73.54										OK
17	332.5	+0.3	332.51	332.54										OK
18	79.3	+1 +0.5	79.84	79.83										OK
19	φ533.4	±0.2	533.41	533.43										OK
检验员 Inspector		杨继生	日期 Date	2024/6/8	批准 Approve			日期 Date	2024/6/8					





# 尺寸检验报告

## Dimension Inspection Report

表 码: QP010-10  
版本号: 2023A

客户 Customer Name:		VELAN ABV S.r.l.	订单号 PO No:	P10006776	名称 Component :	阀盖	数量 Total qty:	2	PCS		
图号 Drawing No & Rev.No		T32R126Z8T0 REV1	尺寸磅级 Size&Class	12" 900 CLOSURE	材质 Material:	ASTM-A350 LF2 CL.1	炉号 Heat NO.	4201124			
外观 Appearance		毛刺Debur (OK) 裂纹Crack (OK) 碰伤碰毛 Defect (OK) 防锈Antirusty (OK) 表面光洁度Surface Finish (OK) 表面清洁度Cleanliness (OK)									
检验项目 Inspection Items and Sr.No			实际尺寸 Observed Dimentions								E07771-620
编号 Code	图纸尺寸 Drawing Dimension	公差 Tolerance	1#	2#							
1	φ640	+0.3	640.03	640.01						OK	
2	φ483.8	-0.1	483.77	483.79						OK	
3	φ473.6	-0.1	473.58	473.55						OK	
4	φ462.4	-0.1	462.36	462.39						OK	
5	φ378	+0.3	378.02	378.01						OK	
6	φ336.4	+0.1	336.41	336.44						OK	
7	φ325.2	+0.1	325.22	325.23						OK	
8	φ322.2	+0.1	322.23	322.24						OK	
9	φ314	+0.1	314.02	314.01						OK	
10	φ305	+0.2	305.03	305.01						OK	
11	φ381	+0.2	381.04	381.03						OK	
12	φ609.6	+1	609.61	609.64						OK	
13	332.5	+0.3	332.52	332.54						OK	
14	79.3	+1 +0.5	79.82	79.83						OK	
15	φ533.4	±0.2	533.41	533.42						OK	
16	φ359.6	±0.2	359.63	359.62						OK	
17	φ543	±0.2	543.03	543.01						OK	
检验员 Inspector	杨继生		日期 Date	2024/6/8		批准 Approve			日期 Date	2024/6/8	



苏州恩威尔机械有限公司 Suzhou Envil Machinery CO.,LTD		<b>INSPECTION CERTIFICATE QUALITY CONTROL DEPARTMENT 检验证明书(质量控制部)</b>						Company's QMS certified body —ISO9001 No 公司质量管理体系证书号: CNBJ313986-U					
		Cert. No. 证书号: 20240604005			Date 日期: 2024/06/04								
Purchaser 买方: VELAN ABV S.r.l.						Certificate type 证书类型: EN 10204 <input checked="" type="checkbox"/> 3.1							
						Purchase Order No.: 订单号: P10006776							
<b>CHEMICAL ANALYSIS 化学分析</b>													
Material 材料: ASTM A350_A350M-23 LF2 CL1			Heat No. 炉号: 4201124 H.T.Lot 热处理批次号: C240525Z3				Raw Material Supplier 原材料供应商: JIANGSHU SHAGANG GROUP HUAIGANG SPECIAL STEEL CO., LTD.				锻造比: >4 Forging Ratio		
ASTM A350_A350M-23 LF2 CL1	C %	Mn %	Si %	Ni %	Cr %	S %	P %	Cu %	Mo %	V %	Nb %		
MIN	/	0.60	0.15	/	/	/	/	/	/	/	/		
MAX	0.23	1.35	0.30	0.40	0.30	0.025	0.02	0.40	0.12	0.02	0.02		
Heat Analysis 浇包分析	0.19	0.90	0.24	0.012	0.026	0.01	0.016	/	/	/	/		
Product Analysis 产品分析	0.18	0.86	0.26	0.017	0.019	0.01	0.016	0.006	0.009	0.002	0.003		
碳当量 C.E. (Long) =0.331			Cr+Mo = 0.028				Cu+Ni+Cr+Mo+V= 0.053						
<b>HEAT TREATMENT 热处理</b>													
Type 类型		Temperature (°C) 温度			Time (Hour) 时间		Cooling Method 冷却方法						
Quench		900 °C			4.0 H		Water Cooling						
Temper		610 °C			8.0 H		Air Cooling						
<b>MECHANICAL TEST 机械性能测试</b>						From QTC 试棒: <input checked="" type="checkbox"/>		SIZE(mm) 10X10X55			From Piece 本体: <input type="checkbox"/>		
	UTSob 抗拉强度	0.2%YSos 屈服强度	ELδ5 伸长率	ROAψ 收缩率	IMPACT TEST 冲击测试						HARDNESS (HB) 硬度		
	(Mpa)	(Mpa)	(%)	(%)	Dir. 方向	Type 类型	Temp °C 温度	Avr/Min 平均/最小					
Min	485	250	22	30	L	V	-46°C	35J/30J			Min 最小	Max 最大	
Max	655	/	/	/							135	197	
ACTUAL 实测	UTSob 抗拉强度	0.2%YSos 屈服强度	ELδ5 伸长率	ROAψ 收缩率	IMPACT TEST 冲击测试						HARDNESS (HB) 硬度		
	(Mpa)	(Mpa)	(%)	(%)	Dir. 方向	Type 类型	Temp °C 温度	Joules 焦耳					
	540	346	35	78	L	V	-46 °C	165	179	139	162	165	156
Test Piece No. 试样号		Gauge length 标距(mm)		Diameter 直径(mm)		length of reduced section 缩颈(mm)			Temp 温度(°C)		Direction 方向		
L240525002		50		12.48		55			20 °C		L		
方式		<input checked="" type="checkbox"/> 目测 VT		<input type="checkbox"/> 着色 PT		<input checked="" type="checkbox"/> 磁粉 MT		<input type="checkbox"/> 射线 RT		<input type="checkbox"/> 超声 UT			
结论		QUALIFIED		QUALIFIED		QUALIFIED		/		QUALIFIED			
Item No. 行号	Part Number 部件号			Description 描述						Quantity 数量			
295	T32R12448Z0-027F			12" 600 CLOSURE						1			
300	T32R124G3Z0-027F			12" 600 CLOSURE						1			
305	T32R126V8Z0-027F			12" 900 CLOSURE						2			
310	T32R126Z8T0-027F			12" 900 CLOSURE						2			
Remarks 备注: THE MATERIALS ARE CONFORM WITH THE PURCHASE ORDER AND TO ANY OTHER MATERIAL SPECIFICATION REQUIRED. 材料符合采购订单和任何其他材料规格要求。													

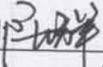


MIN 244228 ÷ 244231

Materials meet NACE MR0175-2021/ISO15156-2020 (ITP00909001 Rev.00)  
No contamination(ice silver,asbestos) 没有污染 (冰银, 石棉)

材料符合 MR0175-2021/ISO15156-2020 (ITP00909001 Rev.00)



Surveyor's Name, Signature & Date 检查员签字日期:  2024/6/4	Inspector's Name, Signature & Date 审核员签字日期:  2024/6/4	第三方认证/日期: <input type="checkbox"/> Third party authentication/Date: 用章
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唐山文丰特钢有限公司  
TangShan WenFeng Special Steel Co.,Ltd  
产品质量证明书  
Product Quality Certificate

河北省唐山市曹妃甸新区配套产业区  
Caofeidian, TangShan city, Hebei  
Province, China  
Post Code: 063200  
Tel: (0315) 8793666  
Fax: (0315) 8793666

序列号: 2214033891

WF/QR-ZJ-037

订货单位 Consumer	江苏景隆新能源科技有限公司		产品名称 Commodity	优质碳素结构钢圆坯		车号 Vehicle No.	冀B05203D												
合同编号 Contract No.	WFTG-XS-圆坯2312-038		交货状态 Delivery State	连铸+缓冷		执行标准 Technical Condition	WFIJL-012-2023												
炉号 Heat No.	钢号 Grade	化学成分 CHEMICAL COMPOSITION %																	
		C	Si	Mn	P	S	Ni	Cr											
		2	2	2	3	3	3												
		1=*10 2=*100 3=*1000 4=*10000 5=*100000																	
4201120	A105	20	21	88	14	9	10	17											
4201121	A105	18	22	90	17	26	18	28											
4201124	A105	19	24	90	16	10	12	26											
4301356	A105	20	25	90	23	17	10	22											
4301357	A105	18	24	88	22	12	17	30											
炉号 Heat No.	规格 (mm) Size (mm)	产品数量 Quantity		表面质量 Surface Quality	低倍结果 Low power results										外照射剂量率 辐射剂量率 (μSv/h)	冶炼方法	炉号		
		支数 No.	重量 (t)		中心偏析 Center segregation	中心疏松 Center porosity	缩孔 Void	中心裂纹 Center Crack	中间裂纹 Internal Crack	皮下裂纹 Subsurface Crack	皮下气泡 Rim hole	夹杂 Inclusions							
4201120	Φ380*6500	4	23.102	合格	0	0.5	0	0	0	0	0	0	0	0	0	0.17	转炉	3	
4201121	Φ380*6500	6	34.623	合格	0	1	0.5	0	0	0	0	0	0	0	0	0.18	转炉	4	
4201124	Φ380*6500	5	28.838	合格	0	1	0.5	0	0	0	0	0	0	0	0	0.18	转炉	1	
4301356	Φ380*6500	1	5.768	合格	0	1	0	0	0	0	0	0	0	0	0	0.18	转炉	5	
4301357	Φ380*6500	3	17.369	合格	0	1	0.5	0	0	0	0	0	0	0	0	0.18	转炉	6	
合计(支数/磅重) Total		19	109.700	批号															
炼钢工艺		炼钢工艺: 钢以转炉(LD)+炉外精炼(LF)工艺冶炼; 圆管坯由弧形连铸机浇铸																	
备注																			
注释 Notes																			
签发日期: Date Of Issue:		本产品已按上述要求进行制造和检验, 其结果符合要求特此证明。 WE HEREBY CERTIFY THIS MATERIAL DESCRIBED HEREIN HAS BEEN MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION.																	
20240224																			



# 化学分析报告

## INSPECTION CERTIFICATE

表码Table code: QP018-02

版本号Version: 2023A

Customer 客户	/	Drawing No. 图号	/	Quantity 数量	1	Report No. 报告编号	P240419004							
Test Methods 检测方法	ASTM E415-21	Material 材料	A105	Specifications 规格	试样									
Acceptance Standard 验收标准	ASTM A105	Heat No. 炉号	4201124	Test time 测试时间	2024/4/19									
<b>Elements元素</b>														
	C	Mn	Si	S	P	Cr	Ni	Mo	Cu	V	Nb	Al	N	W
	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Min	~	0.60	0.15	~	~	~	~	~	~	~	~	~	~	~
Max	0.23	1.35	0.30	0.015	0.020	0.30	0.40	0.12	0.40	0.020	0.02	~	~	~
Element value	0.18	0.86	0.26	0.010	0.016	0.019	0.017	0.009	0.006	0.002	0.003	0.004	~	0.060

$$CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15 \leq 0.43 \quad CE= 0.331$$

$$Cr+Mo \leq 0.32 \quad Cr+Mo= 0.028$$

$$Cu+Ni+Cr+Mo+V \leq 1.0 \quad Cu+Ni+Cr+Mo+V= 0.053$$

Operator:

操作: 2024/4/19

Check:

审核: 2024/4/19



## 热处理报告 Heat Treatment Report

表码 Code: TX7.5.3—02

报告编号 Report No.: HTR-EWR240528008

日期 Date: 2024-5-28

客户 Client		苏州恩威尔机械有限公司 Suzhou ENVIL Machinery CO.,LTD					
订单号	行号	IT	图号	规格	材料	冶炼炉号 Heat No.	数量
P10006776	295	IT22	T32R12448Z0 REV1	12" 600 CLOSURE	ASTM-A350 LF2 CL.1	4201124	1
P10006776	300	IT22	T32R124G3Z0 REV1	12" 600 CLOSURE	ASTM-A350 LF2 CL.1	4201124	1
P10006776	305	IT26	T32R126V8Z0 REV1	12" 900 CLOSURE	ASTM-A350 LF2 CL.1	4201124	2
P10006776	310	IT26	T32R126Z8T0 REV1	12" 900 CLOSURE	ASTM-A350 LF2 CL.1	4201124	2
热处理 Heat Treatment	炉温控制方法 Heat Treatment Method		Furnace Temperature Monitoring (Method A)		制造计划 Production Plan	/	
	热处理工艺规范 Heat Treatment Procedure		ITP00909001 Rev.00/ASTM A350 LF2 CL.1		热处理批次 HT Log No.	C240525Z3	
热处理过程 Heat Treatment Process							
控制特性 Control Feature			正火 Normalizing	淬火 Quench	一次回火 1st Temper	二次回火 2nd Temper	Note: QTC 和产品 同炉同批 QTC heat treated together with the products in same furnace and Heat treat Lot
进炉炉温 Loading Temperature			/	230C°	80 C°	/	
加热速率 Heating up Rate			/	134C°/h	127.09C°/h	/	
保持温度 Holding Temperature			/	900C°	610C°	/	
保温时间 Holding Time			/	4h	8h	/	
热处理炉编号 Furnace Number			/	Z3	Z4	/	
炉温均匀性报告编号及过期日期 Surcey Report Number & Expired Date			/	T2310050668229 2024-10-05	T2310050668230 2024-10-05	/	
温控仪编号及有效期 Instrument Number & Expired Date			/	Z03C001/Z03C002 2024-08-02	Z04C001/Z04C002 2024-08-02	/	
记录仪编号及有效期 Instrument Number & Expired Date			/	Z03R001 2024-08-02	Z04R001 2024-08-02	/	
冷却介质 Cooling Media			/	水 Water	空气 Air	/	
淬前介质温度 Bath Temperature Before: 32°C				淬后介质温度 Bath Temperature After: 34°C			
备注 Note: 淬火过程中最高温度不超过 49°C The highest temperature during the quench cycle less than 49°C							



苏州通协热处理工程有限公司 Suzhou Open Association Heat Treatment Project Co.,Ltd

地址 Address: Dongqiao Town, Suzhou City, China

电话 Tel: +86-0512-65372018

传真 Fax: +86-0512-65373338

兹证明材料已按材料规范和采购订单的要求进行了热处理、检验和试验，结果符合要求。We hereby certify that the materials have been heat treated, inspected and tested in accordance with the material specification and the purchase order requirements, and found to meet the requirements.

质量经理 Quality Manager





热处理批次号: C240525Z3

Quench

物料描述

生产令号

图号

材质

数量

炉号

阀盖10~1500

E07767-20

9C-A21B10501  
Rev. 01

ASTM A350  
GR LF2  
CLASS 1

10

4200739

阀盖12~600

E07771-600

T32R124G3Z0  
REV1

ASTM-A350  
LF2 CL. 1

1

4201124

阀盖12~900

E07771-620

T32R126Z8T0  
REV1

ASTM-A350  
LF2 CL. 1

2

4201124

阀盖12~600

E07771-590

T32R12448Z0  
REV1

ASTM-A350  
LF2 CL. 1

1

4201124

阀盖12~900

E07771-610

T32R126V8T0  
REV1

ASTM-A350  
LF2 CL. 1

2

4201124

操作员:

李标

2024.05.25

热处理批次号: C240525Z3

Temper

物料描述

生产令号

图号

材质

数量

炉号

阀盖10" 1500

E07767-20

9G-A21B10501  
Rev. 01

ASTM A350  
GR LF2  
CLASS 1

10

4208739

阀盖12" 600

E07771-600

T32R124G3Z0  
REV1

ASTM-A350  
LF2 CL. 1

1

4201124

阀盖12" 900

E07771-620

T32R126Z8T0  
REV1

ASTM-A350  
LF2 CL. 1

2

4201124

阀盖12" 600

E07771-590

T32R12448Z0  
REV1

ASTM-A350  
LF2 CL. 1

1

4201124

阀盖12" 900

E07771-610

T32R126V8T0  
REV1

ASTM-A350  
LF2 CL. 1

2

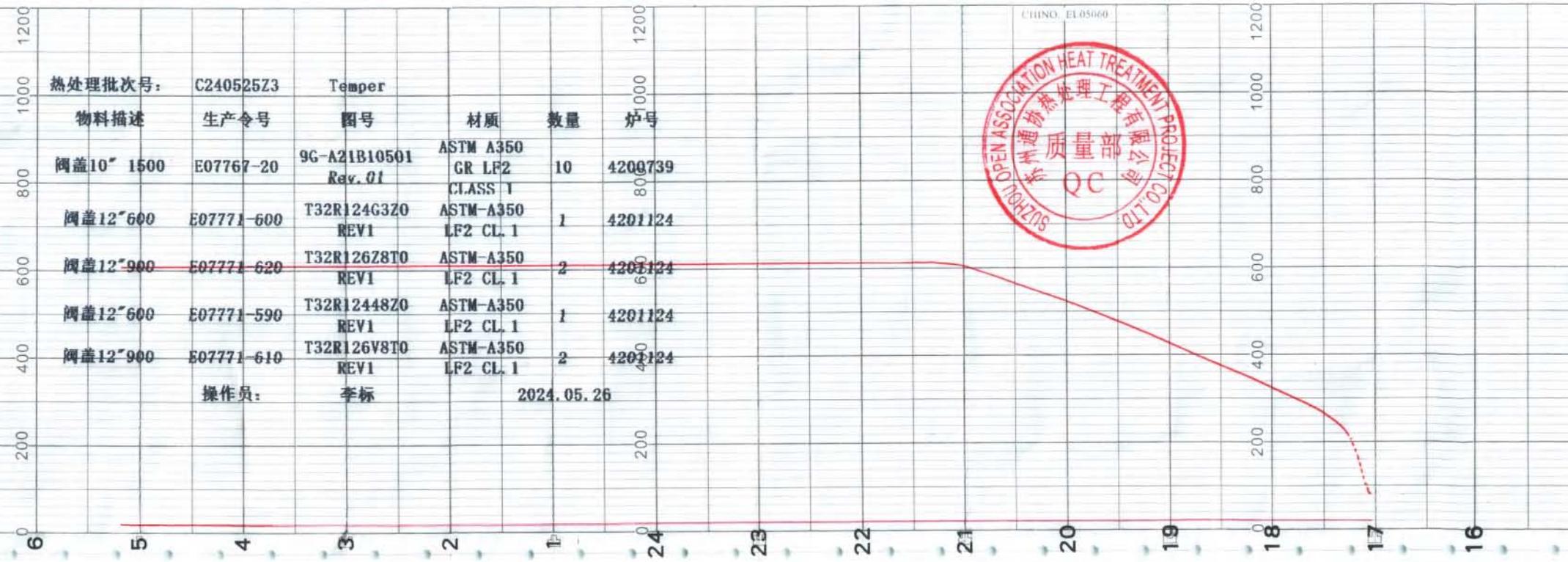
4201124

操作员:

李标

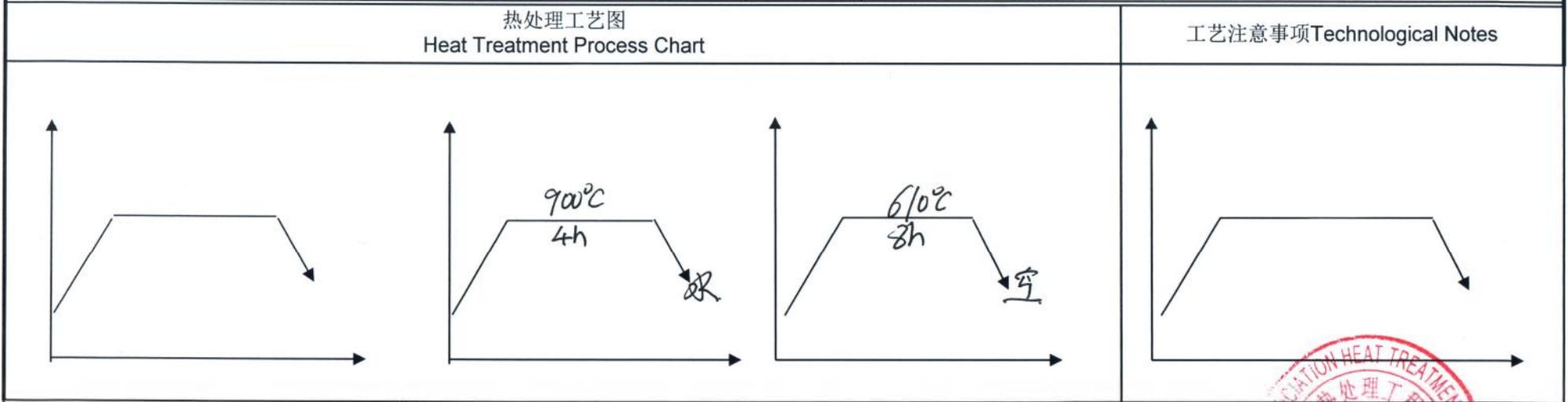
2024.05.26

CHINO, EL05060



## 热处理操作记录卡 Card of Heat Treatment Operation Record

材料牌号 Material Designation	ASTM A350 GR LF2 CLASS 1	热处理批次 HT Lot No.	C240525Z3
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正火	淬火	回火	
编制 Compiler	温宗会	审核 Verifier	吕红明
日期 Date	24.05.25	日期 Date	24.05.25

### 工序内容 Process Content

项目名称 Item	设备编号 Furnace No.	升温 Heating Up		保温 Holding		升温时间 Heating Time	保温 Holding		冷却 Colding		操作者 Operator
		时间 Time	温度 Temp	时间 Time	温度 Temp		时间 Time	温度 Temp	时间 Time	介质 Media	
正火											
淬火	5/25	22:00	230°C	3:00	900°C	1	1	1	7:00	Water	Gu Jianwen
回火	5/26	9:00	80°C	13:10	610°C	1	1	1	21:10	Air	Lu Hongming
回火											
淬前介质温度 Bath TEMP B4	32°C	淬后介质温度 Bath TEMP AF	34°C	过程最高温度 MAX TEMP	40°C	淬火转移时间 Transfer Time	52S		淬火后硬度 Hardness after quenching		

苏州通协热处理工程有限公司  
Suzhou Open Association Heat Treatment  
Project Co., Ltd.

## 热处理装炉记录卡 Card of Heat Treatment Loading Record

TX/QR-8.5.1-01  
REV.01

材料牌号 Material Designation	ASTM A350 GR LF2 CLASS 1	热处理批 次 HT Lot	C240525Z3
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装炉清单 Part List

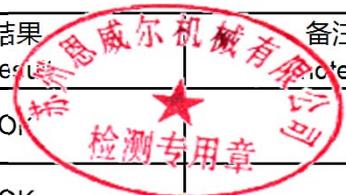
序号 No.	客户 Client	零件号 Part No.	产品名称/图号 Name/Drawing No.	数量 Quantity	产品跟 踪号	冶炼炉号 Heat No.	技术规范 Technical	硬度范围 Hardness	其他信息 Other
1	恩威尔	2650469-10-15-01 Rev. 01	9G-A21B10501 Rev. 01	10	/	4200739	MS-021239-02-04 Rev. 03	/	/
2	恩威尔	T32R124G3Z0-027F	T32R124G3Z0 REV1	1	/	4201124	ASTM-A350 LF2 CL. 1	/	/
3	恩威尔	T32R126Z8T0-027F	T32R126Z8T0 REV1	2	/	4201124	ASTM-A350 LF2 CL. 1	/	/
4	恩威尔	T32R12448Z0-027F	T32R12448Z0 REV1	1	/	4201124	ASTM-A350 LF2 CL. 1	/	/
5	恩威尔	T32R126V8Z0-027F	T32R126V8T0 REV1	2	/	4201124	ASTM-A350 LF2 CL. 1	/	/
6									
7									
8									

装炉要求 Loading Requirement

装炉示意图 Schematic diagram	装炉注意事项 Loading Note
略	

编制 Compiler	温宗会	审核 Verifier	吕红明
日期 Date	24.05.25	日期 Date	24.05.25

客户订单号 Customer order No.:	行号	IT	图号 Drawing NO:	型号规格 Type Specification :	材料 Material:	炉号 Heat number:	热处理批次号 Heat treatment batch NO:	数量 Qty:
P10006776	295	IT22	T32R12448Z0 REV1	12" 600 CLOSURE	ASTM-A350 LF2 CL.1	4201124	C240525Z3	1
P10006776	300	IT22	T32R124G3Z0 REV1	12" 600 CLOSURE	ASTM-A350 LF2 CL.1	4201124	C240525Z3	1
P10006776	305	IT26	T32R126V8Z0 REV1	12" 900 CLOSURE	ASTM-A350 LF2 CL.1	4201124	C240525Z3	2
P10006776	310	IT26	T32R126Z8T0 REV1	12" 900 CLOSURE	ASTM-A350 LF2 CL.1	4201124	C240525Z3	2
<b>执行标准</b> Executive Standard			VABV IST-VT0090901		<b>验收标准</b> Acceptance Standard		VABV IST-VT0090901	
<b>检测设备/型号</b> Testing Tool/Model			粗糙度仪roughmeter/照度计 illuminometer/手电筒 flashlight /放大镜magnifying glass/钢尺steel rule		<b>表面状态</b> Surface Condition		<b>机加工后</b> After machining	
<b>缺陷检查 Defect Inspection</b>								
缺陷种类 Defect Type		缺陷描述 Defect Description			结果 Result		备注 notes	
粗糙度 Roughness		≤ Ra 6.3			OK			
撞伤 Damage		无			OK			
污渍 Stain		无			OK			
毛刺 Burrs		无			OK			
变形 Deformation		无			OK			
划伤 Scrach		无			OK			
裂纹 Cracks		无			OK			
锈或腐蚀 Rust or Corrosion		无			OK			
填充不足 Areas of under fill		无			OK			
<b>标识检查 Marking Inspection</b>								
项目 Item		描述 Description			结果 Result		备注 notes	
标识清晰 Marking is clear		OK			OK			
标识齐全 Marking is full		OK			OK			
操作者/日期: Operator/Date: <b>韩强</b> 2024/6/1 Level VT-II					审核者/日期: Reviewed by/Date: <b>张军</b> 2024/6/1 Level VT-II			





力学性能试验报告  
Mechanical Property Test Report

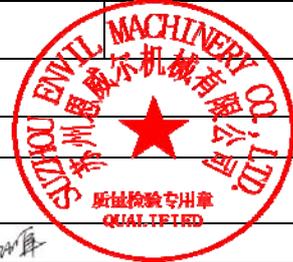
表 码Sheet No.: QP018-10 2023A

委托书编号Order No: J240525002

报告编号Report No:

L240525002

样品信息Sample information									
供应商 Supplier	A07		材料 Material	A350 LF2		室温Room Tem. 湿度Humidity	27°C 56%		
冶炼炉号 Heat No.	4201124		热处理批号 HT Lot No.	C240525Z3		试块尺寸和类型 Size &Type	100*100*200mm QTC		
接收日期Receive date:	2024-6-1		报告日期 Reporting date:	2024-6-1					
检测项目和样品编号 Type&Sample No.	检测标准 Inspection Spec	材料规范 Material Spec	设备名称 Device Name		设备编号 Equipment No.	设备型号 Equipment type	设备有效期 Due date		
拉伸 Tensile	ASTM A370	/	微机控制电液伺服式万能试验机 Microcomputer-controlled electro-hydraulic servo universal testing machine		EN19341	WAW-600D	2025/4/13		
			电子引伸计 Electronic Extensomete		EN19336	174032	2025/4/13		
			/		/	/	/		
冲击 Impact test	ASTM E23	/	双制冷微机屏显低温全制动冲击试验机 Double refrigeration computer screen display low temperature full brake impact testing machine		EN19339	JBDW-300YS	2025/4/13		
			冲击试样缺口投影仪 Impact sample notch projector		EN19331	CST-50	2025/4/13		
			低温槽 Cooling bath tank		EN19333	CDW-60	2025/4/13		
布氏硬度 Brinell hardness	ASTM E10	/	数显布氏硬度计 Digital Brinell hardness tester		EN19327	HBS-3000	2025/4/13		
			/		/	/	/		
拉伸 Tensile	标准值 Mtl.Spec	实测值 Actual	冲击Impact(KV8) (10x10x55mm)		标准值 Md.Spec	实测值 Actual			硬度 Hardness
抗拉强度 Rm (MPa)	485-655	540	测试数据 Test Data(J)		≥27	165	179	139	HBW
屈服强度 Rp0.2 (MPa)	≥277	346	平均值 Average(J)		≥27	161			标准值(硬度) Mtl.Spec (hardness)
延伸率A(%) 2in标距	≥22%	35	单个最小值 Single(J)		≥27	138			143-197
收缩率 Z(%)	≥30%	78	膨胀量Lateral Expansion(mm)		/			实测值(硬度) Actual (hardness)	
直径 Diameter	/	12.48	mm	冲击温度 Impact Temp.	-46°C			162/165/156	
取样位置 Specimen from	1/4T			试样方向 Sample Dir.	纵向 Longitudina				
拉伸温度/方向 Tensile Temp./Dir.	室温Room temperature/ 纵向Longitudinal			/					
评定Evaluation	合格								
材质标准 Material Standard	ASTM-A350 LF2 CL.1								
检测员Tested by:	仇凯嘉				批准Approved by:	[Signature]			
检测日期Test date	2024-6-1				批准日期Approved Date:	2024-6-1			
注Note	1. 报告无检测单位检测专用章无效。The report is invalid without special seal of testing unit 2. 若对检测报告有异议,请在检测报告收到后十五日内向检测单位提出,逾期不予受理。If you have any objection to the test report,please submit it to the test unit within 15 days after receiving the test report,which will not be accepted. 3. 实验室仅对所测样品负责。The laboratory is only responsible for the samples tested 4. 若客户未提供原始编号,则采用实验室样品编号.If the customer does not provide the original number,use the laboratory								



地址(Add): 镇江市新区北山路151号 No. 151 Beishan Road, Zhenjiang new district  
电话(Tel): 0511-88889096 E-mail: wangjun@enviljx.com 邮编(Zip): 212000



# 尺寸检验报告

## Dimension Inspection Report

表 码: QP010-10  
版本号: 2023A

客户 Customer Name:		VELAN ABV S.r.l.		订单号 PO No:		P10006776		名称 Component :		阀盖		数量 Total qty:		1	PCS	
图号 Drawing No & Rev.No		T32R12448Z0 REV1		尺寸磅级 Size&Class		12" 600 CLOSURE		材质 Material:		ASTM-A350 LF2 CL.1		炉号 Heat NO.		4201124		
外观 Appearance		毛刺Debur (OK) 裂纹Crack (OK) 碰伤碰毛 Defect (OK) 防锈Antirusty (OK) 表面光洁度Surface Finish (OK) 表面清洁度Cleanliness (OK)														
检验项目 Inspection Items and Sr.No				实际尺寸 Observed Dimentions											E07771-590	
编号 Code	图纸尺寸 Drawing Dimension	公差 Tolerance	1#													
1	φ600	+0.3	600.02												OK	
2	φ471	-0.1	470.95												OK	
3	φ459.8	-0.1	459.76												OK	
4	φ451.6	-0.1	451.58												OK	
5	φ337.8	+0.1	337.82												OK	
6	φ319	+0.1	319.05												OK	
7	φ317.4	+0.1	317.41												OK	
8	φ310.4	+0.1	310.45												OK	
9	φ305	+0.2	305.03												OK	
10	φ381	±0.1	381.04												OK	
11	277	+0.2	277.04												OK	
12	66.6	+1 +0.5	67.01												OK	
13	φ522	±0.2	522.02												OK	
14	φ357	±0.2	357.03												OK	
15	φ396	±0.2	396.03												OK	
16	201	±0.05	201.04												OK	
17	φ18.1	+0.1	18.13												OK	
18	φ14.3	+0.1	14.32												OK	
19	44.6	+0.1	44.61												OK	
20	70.6	+0.1	70.63												OK	
检验员 Inspector		杨继生		日期 Date		2024/6/8		批准 Approve				日期 Date		2024/6/8		







# 尺寸检验报告

## Dimension Inspection Report

表 码: QP010-10  
版本号: 2023A

客户 Customer Name:	VELAN ABV S.r.l.	订单号 PO No:	P10006776	名称 Component :	阀盖	数量 Total qty:	1	PCS
图号 Drawing No & Rev.No	T32R124G3Z0 REV1	尺寸等级 Size&Class	12" 600 CLOSURE	材质 Material:	ASTM-A350 LF2 CL.1	炉号 Heat NO.	4201124	

外观 Appearance 毛刺Debur (OK) 裂纹Crack (OK) 碰伤碰毛 Defect (OK) 防锈Antirusty (OK) 表面光洁度Surface Finish (OK) 表面清洁度Cleanliness (OK)

检验项目 Inspection Items and Sr.No			实际尺寸 Observed Dimentions											E07771-600			
编号 Code	图纸尺寸 Drawing Dimension	公差 Tolerance	1#														
1	φ600	+0.3	600.01														OK
2	φ471	-0.1	470.99														OK
3	φ459.8	-0.1	459.77														OK
4	φ451.6	-0.1	451.56														OK
5	φ377	+0.2	377.03														OK
6	φ319	+0.1	319.03														OK
7	φ317.4	+0.1	317.45														OK
8	φ400.1	+0.5	400.13														OK
9	φ305	+0.2	305.02														OK
10	φ381	±0.2	381.04														OK
11	φ558.8	+1	558.83														OK
12	277	+0.2	277.03														OK
13	66.6	+1 +0.5	67.13														OK
14	φ522	±0.2	522.04														OK
15	φ357	±0.2	357.04														OK
16	φ396	±0.2	396.01														OK
17	201	±0.05	201.04														OK
18	φ489	±0.2	489.03														OK
19	φ18.1	+0.1	18.13														OK
20	φ14.3	+0.1	14.35														OK



检验员 Inspector	杨继生	日期 Date	2024/6/8	批准 Approve		日期 Date	2024/6/8
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# 尺寸检验报告

## Dimension Inspection Report

表 码: QP010-10  
版本号: 2023A

客户 Customer Name:		VELAN ABV S.r.l.	订单号 PO No:	P10006776	名称 Component :	阀盖	数量 Total qty:	2	PCS		
图号 Drawing No & Rev.No		T32R126V8Z0 REV1	尺寸等级 Size&Class	12" 900 CLOSURE	材质 Material:	ASTM-A350 LF2 CL.1	炉号 Heat NO.	4201124			
外观 Appearance		毛刺Debur (OK) 裂纹Crack (OK) 碰伤碰毛 Defect (OK) 防锈Antirusty (OK) 表面光洁度Surface Finish (OK) 表面清洁度Cleanliness (OK)									
检验项目 Inspection Items and Sr.No			实际尺寸 Observed Dimentions								E07771-610
编号 Code	图纸尺寸 Drawing Dimension	公差 Tolerance	1#	2#							
1	φ640	+0.3	640.03	640.01						OK	
2	φ483.8	-0.1	483.78	483.79						OK	
3	φ473.6	-0.1	473.58	473.57						OK	
4	φ462.4	-0.1	462.38	462.39						OK	
5	φ378	+0.3	378.02	378.01						OK	
6	φ336.4	+0.1	336.42	336.41						OK	
7	φ325.2	+0.1	325.22	325.23						OK	
8	φ322.2	+0.1	322.21	322.24						OK	
9	φ314	+0.1	314.03	314.01						OK	
10	φ305	+0.2	305.03	305.01						OK	
11	φ381	+0.2	381.04	381.03						OK	
12	202	±0.05	202.01	202.04						OK	
13	φ359.6	±0.2	359.61	359.62						OK	
14	φ543	±0.2	543.02	543.01						OK	
15	99.5	+0.2	99.51	99.53						OK	
16	73.5	+0.1	73.51	73.54						OK	
17	332.5	+0.3	332.51	332.54						OK	
18	79.3	+1 +0.5	79.84	79.83						OK	
19	φ533.4	±0.2	533.41	533.43						OK	
检验员 Inspector		杨继生	日期 Date	2024/6/8	批准 Approve		日期 Date	2024/6/8			





# 尺寸检验报告

## Dimension Inspection Report

表 码: QP010-10  
版本号: 2023A

客户 Customer Name:		VELAN ABV S.r.l.	订单号 PO No:	P10006776	名称 Component :	阀盖	数量 Total qty:	2	PCS		
图号 Drawing No & Rev.No		T32R126Z8T0 REV1	尺寸磅级 Size&Class	12" 900 CLOSURE	材质 Material:	ASTM-A350 LF2 CL.1	炉号 Heat NO.	4201124			
外观 Appearance		毛刺Debur (OK) 裂纹Crack (OK) 碰伤碰毛 Defect (OK) 防锈Antirusty (OK) 表面光洁度Surface Finish (OK) 表面清洁度Cleanliness (OK)									
检验项目 Inspection Items and Sr.No			实际尺寸 Observed Dimentions								E07771-620
编号 Code	图纸尺寸 Drawing Dimension	公差 Tolerance	1#	2#							
1	φ640	+0.3	640.03	640.01						OK	
2	φ483.8	-0.1	483.77	483.79						OK	
3	φ473.6	-0.1	473.58	473.55						OK	
4	φ462.4	-0.1	462.36	462.39						OK	
5	φ378	+0.3	378.02	378.01						OK	
6	φ336.4	+0.1	336.41	336.44						OK	
7	φ325.2	+0.1	325.22	325.23						OK	
8	φ322.2	+0.1	322.23	322.24						OK	
9	φ314	+0.1	314.02	314.01						OK	
10	φ305	+0.2	305.03	305.01						OK	
11	φ381	+0.2	381.04	381.03						OK	
12	φ609.6	+1	609.61	609.64						OK	
13	332.5	+0.3	332.52	332.54						OK	
14	79.3	+1 +0.5	79.82	79.83						OK	
15	φ533.4	±0.2	533.41	533.42						OK	
16	φ359.6	±0.2	359.63	359.62						OK	
17	φ543	±0.2	543.03	543.01						OK	
检验员 Inspector	杨继生		日期 Date	2024/6/8		批准 Approve			日期 Date	2024/6/8	



# Wenzhou ARTECH Machinery Technology Co., Ltd

No.889 Lingzhan Rd., Lingkun St., Dongtou District, Wenzhou, China 325000

Tel : + 86 - 577 - 8637 5096 Fax : + 86 - 577 - 8637 7378

## MATERIAL TEST CERTIFICATE

AS PER EN 10204:3.1

MTC No. : ART2024AN03-0242C

Date :22/5/2024

Customer :Velan ABV S.r.l.

Material : ASTM A182 FXM-19

PO No. :P10006777

Heat Number :324022401

### COMPONENT DETAILS

Pos. No.	DESCRIPTION	DRAWING NUMBER	QTY
1	12",FXM-19, Ball	T33A124B300 sheet2.1	1 Nos
2	12",FXM-19, Seat	T3SG124PZT0 sheet2.1	2 Nos
4	12",FXM-19, Ball	T33A126BP00 sheet 2.1	2 Nos
5	12",FXM-19, Seat	T3SG126PZT0 sheet 2.1	4 Nos

### RAW MATERIAL DETAILS

#### CHEMISTRY%

Element	C	Mn	Si	S	P	Ni	Cr	Mo	N	Nb	V	Ni+2Mo	PREN
Min	---	4.0	---	---	---	11.5	20.5	1.5	0.2	0.1	0.1	15	29
Max	0.06	6.0	1.0	0.03	0.04	13.5	23.5	3.0	0.4	0.3	0.3	20	38
Actual	0.029	4.8	0.62	0.001	0.03	11.91	21.63	1.72	0.23	0.12	0.14	15.35	30.98

### MECHANICAL PROPERTIES

As per	YS0.2%	UTS	%EL	%RA	HARDNESS	V Notch Impact at Degree C.			
Spec.	MPa	MPa			HB	Single J. Minimum			Avg. J
Min	380	690	35	55		1	2	3	Avg.
Max	-	-	-	-	327				
Tested	477	786	54	66	205/217				

### HEAT TREATMENT

Heat Treatment Batch Number : SF2024050405.

Heat Treatment Details : Solution Anyling done at 1040 degree C for 3 hours and then immediately cooling in water to below 29 degree C.

#### REMARKS :

- Material conforms to NACE MR01-75,ITP 00909001.
- Material is free from Radiocative Contamination.
- Material is fully killed and fine grained structure.



MIN 242779 ÷ 242782

We hereby certify that the items mentioned above have been tested and inspected in accordance with customer specifications and requirements of standard ASTM A182, testing results found acceptable.

INSPECTED BY

郑赛湖

Inspector - Quality

REVIEWED BY

董建平

Manager - Quality



MONOGRAM / SEAL



# 上海速威特种合金有限公司

## SHANGHAI SOONV SPECIAL ALLOY CO., LTD.

### 材料合格证书

### MATERIAL CERTIFICATE

Customer/客户: 温州阿泰科机械科技有限公司 Certificate No./证书编号: T&Q-2404-055-01-1

SOONV'S Grade/材料牌号: SOONV-XM-19 Certificate Standard/证书标准: EN10204 Type3.1

Material Standard/材料标准: NACE MR 0175, ASTM A182 FXM-19 UNS S20910

PO No. 订单号	Item Code 料号	SN 订单序号	Heat No. 炉号	Name 品名	Drawing No. 图号	Finished Dimension 成品尺寸	PO QTY 订单数量	Delivery QTY 交货数量
SF2404-055		1	324022401	球体		SØ470×Ø305×352	2	2
SF2404-055		2	324022401	阀座		Ø376×Ø305×88	4	4
SF2404-055		3	324022401	球体		SØ456×Ø305×332	1	1
SF2404-055		4	324022401	阀座		Ø376×Ø305×80.5	2	2

Tensile test Specimens 拉伸试样				Tensile Test 拉伸实验				Impact Test (Charpy V) 冲击试验				Hardness 硬度 (HB)
Heat No. 炉号	Test Temp. 实验温度 (°C)	Overall Length 试样长度 (mm)	DIA 试样直径 (mm)	UTS 抗拉强度 (Mpa)	YS0.2 屈服强度 (Mpa)	EI 延伸率 (%)	RoA 断面收缩率 (%)	Dimension of Specimens /试样尺寸(mm): 10×10×55				
				≥690	≥380	≥35	≥55	Test Temp./实验温度: 室温 (Room Temp. /20°C )		Single/单个(J)		Average/平均(J)
323022401	室温	150	12.5	786	477	54	66	/	/	/	/	205/217
/	/	/	/	/	/	/	/	/	/	/	/	/

Heat No. 炉号	Chemical Composition(%) /化学成分													
	C	Mn	Fe	P	S	Si	Ni	Cr	Mo	N	Nb	V	PREN	/
	≤0.06	4~6	bal.	≤0.045	≤0.03	≤1.0	11.5~13.5	20.5~23.5	1.5~3.0	0.2~0.4	0.1~0.3	0.1~0.3	29~38	/
323022401	0.029	4.8	bal.	0.03	0.001	0.82	11.91	21.63	1.72	0.23	0.12	0.14	30.98	/
/	/	/	/	/	/	/	/	/	/	/	/	/	/	/

Report No. 报告编号	First step: Heat treat process/热处理工艺 (一)			Report No. 报告编号	Second step: Heat treat process/热处理工艺 (二)		
	固溶处理: 1040°C保温3.0小时, 水冷至260°C以下				N/A		
	Temp./温度°C	Holding time (h) 保温时间 (小时)	Cooling Media 冷却方式		Temp./温度°C	Holding time (h) 保温时间 (小时)	Cooling Media 冷却方式
2024045501HT	1040	3.0	水冷/W.Q	/	N/A	N/A	N/A

NDT 无损检测	Method/方法	<input checked="" type="checkbox"/> VT / 目测	<input checked="" type="checkbox"/> UT / 超声	<input type="checkbox"/> PT / 着色	<input type="checkbox"/> RT / 射线	<input type="checkbox"/> MT / 磁粉	Remarks/备注
	Result/结论	OK	OK	/	/	/	
	Report No./报告编号	/	/	/	/	/	

Remarks  
备注

We hereby certify the material herein has been manufactured, tested and inspected in accordance with customer's requirements and relevant national standard, with satisfactory results.  
我们在此证明这批材料经制造, 测试, 检验完全符合客户和材料的标准要求。  
All our certificates are printed on colour anti-counterfeiting paper, copise is in valid.  
我司的质保书原件以彩色水印的纸质为准, 复印件无效。

Date/日期: 2024/5/5      Inspected/检验员: 胡佳      Check/检查员: 张博



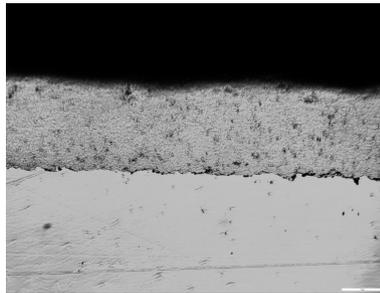
HVOF/HVAF 涂层检验报告  
HVOF/HVAF Coating Test Report

订单号 Order No.:	P10006777	报告号 Report No.:	AN04-0242补
涂层材料: Coating Material:	TCC	涂层材料批次号: Coating Material Batch No.:	M-65DT-24030702H

项号 Pos No.	描述 Description	图号 Drawing No.	基材材质 Base Material	炉号 Heat No.	生产编号 Production No.	数量 Qty.
1	Ball 12"	T33A124B300 sheet.2.1	FXM-19	324022401	AN040298-1-1	1
2	Seat 12"	T3SG124PZT0 sheet.2.1	FXM-19	324022401	AN040298-1-1A至AN040298-1-1A AN040298-1-1B至AN040298-1-1B	2
4	Ball 12"	T33A126BP00 sheet 2.1	FXM-19	324022401	AN040298-4-1至AN040298-4-2	2
5	Seat 12"	T3SG126PZT0 sheet 2.1	FXM-19	324022401	AN040298-4-1A至AN040298-4-2A AN040298-4-1B至AN040298-4-2B	4

项目编号 Item Number	检测项目 Test Item	参考标准 Ref. Standard	检验记录 Inspection Record		参考值 Reference Value	
1	喷涂材料检测 Coating material inspection	成份 Material Composition	GB19356 / ISO14232	Co:10%; Cr: 4.02%; Ct: 5.65%;O: 0.084%; Fe:0.070%; W: Bal	CO:9%-11%; Cr:3.5%-4.5%; Ct: 5.0%-5.8%; O:<0.15%; Fe:<0.5%; W: Bal	
2	涂层金相检测 Coating metallographic examination	显微硬度 Microhardness	ISO4516	HV <sup>0.3</sup> =1194	HV <sup>0.3</sup> 1000-1250	
3		涂层厚度 Coating Thickness	ISO2064	180μm	200-400μm	
4		孔隙率 Porosity	E2109	0.77%	<1%	
5		结合强度 Adhesive Strength	ASTM C633	107300PSI (断在胶中glue broken)	>10000PSI	
6		涂层组织形貌 Coating Microstructure	OK	交界面Interface:	√	良好good:√
			氧化物Oxide:	0.81%	<2%	
			未熔颗粒物 not melted	0.23%	<1%	
			Void and oxide content of interface between coating substrate	1.7%	≤6%	
7	工件表面检测 Workpiece surface examination	尺寸检测(机械量具) Dimensional gauging (mechanical measuring tool)	工艺要求 Process Requirements	直径 Diameter:	/	⊙<0.05mm
				涂层厚度 Coating Thickness:	/	150-300μm
8	外观检测 Appearance Inspection	目测, 检验指导书 Visual inspection instruction	良好good:	√	色泽一致, 无凹坑、裂纹、光滑、孔隙、剥落及其他 Consistent color, smooth, without pits, cracks, pores, spalling, etc.	
			可用usable:			

金相图片:



本批次产品经检验合格准予出厂。  
This batch products are qualified according to the delivery inspection.

检验 Inspector: 陈小凤

审核 Auditor: 董建平

日期 Date: 2024. 5. 23





# 质量检验证明书

CERTIFICATE OF QUALITY

温州新晨金属材料有限公司

Wenzhou Xincheng Metal Materials Co., Ltd.

用 户:

(CUSTOMER):

发货日期 (DATE): 2023 年 11 月 06 日

钢种 Steel Grade	炉号 Heat No.	规格 Size (mm)	支数 PIECES S (支)	重量 WT (Kg)	化学成分 Chemical Composition (%)										力学试验 Mechanical Properties				交货 硬度 HB	
					C	Si	Mn	P	S	Cr	Ni	V	N	Mo	Nb	屈服 强度 sMpa	抗拉 强度 bMpa	延伸率 %		收缩率 %
XM-19	STL23S029	Φ70			0.036	0.39	4.56	0.027	0.001	20.95	11.56	0.13	0.226	1.56	0.14					
XM-19	STL23S029	Φ80			0.036	0.39	4.56	0.027	0.001	20.95	11.56	0.13	0.226	1.56	0.14					
XM-19	STL23S408	Φ90			0.024	0.44	4.63	0.028	0.001	20.78	11.61	0.13	0.234	1.54	0.13					

备注 Remarks

1、如有质量异议请来电说明事项及质量说明书编号或传真相关事项:

If any quality doubts please clarify via phone call or fax and indicate the code number of the quality certificate.

2、该证明书盖产品检验专用章后方可有效。

The certificate becomes valid only after it is sealed with product inspection stamp.

3、检验项目按标准合同规定操作，空格为不检验项目。

The inspected items be line with the relevant stipulation of the standards and the contract. Blank space means item not to be inspected.

4、EAF+AOD

产品名称 Products: 不锈钢圆钢

执行标准 Standard: GB/T 12230-2012

表面质量 Surface quality: 光面

交货状态 Delivery status: 锻圆



EXAMING OF XIN CHEN Metal  
Materials STELL'S QUALITY

证书编号 MTR24988  
Certificate No.

浙江隆程锻件有限公司  
Zhejiang Longcheng Forging Co.,Ltd.

客户名称 浙江伯替克阀门有限公司  
Purxhaser:

材料名称 XM-19  
Name of Material:

质量证明书  
QUALITY CERTIFICATE

材料标准 ASTM A182/A182M  
Material specification:

EN 10204 3.1

报告日期 2024/04/04  
Date of report:

锻件级别 Class	/	锻造比 Forging Rate	4.38:1	热处理状态 Heat Treatment	/	热处理炉号 Heat Treatment No:	/
---------------	---	---------------------	--------	-------------------------	---	-----------------------------	---

化学成份Chemical Composition %

熔炼号 Heat No.:		C	Mn	Si	S	P	Cr	Ni	Mo	V	N	Nb	Cu+Ni+Cr+ Mo+V	Cr+Mo	PREN
STL23S048	标准值S.D	≤0.060	4.00-6.00	≤1.00	≤0.03	≤0.040	20.50-23.50	11.50-13.50	1.50-3.00	0.10-0.30	0.20-0.40	0.10-0.30	/	/	/
	熔炼值H.A	0.024	4.63	0.440	0.0010	0.0280	20.78	11.61	1.54	0.13	0.234	0.13	/	/	/

冶炼方式 Smelt Method	EAF+AOD	超声波探伤检查(UT) Ultrasonic Examination	符合标准级别 Acceptance Standard and class	其他试验 Other Test item	试验结果 Test Results	试验或评定标准 Test Or Evaluation criteria
			/	/	/	/

试验或检验数据Test Conclusion

拉伸试验Tensile Test							冲击试验 (V) Impact Test				硬度 Hardness (HBW)	外观及尺寸 Visual & Dim. Inspection	
试样规格 Sample size	试验温度 Test temperature		抗拉强度 T.S ob (Mpa)	屈服强度 Y.S os0.2 (Mpa)	延伸率 E.L δ (%)	断面收缩率 Ro A ψ (%)	试验温度 Test temperature	试样规格 Size of Sample	缺口形式 Type of Notch	冲击功 Akv /(Avg/J)			
D(mm)	L <sub>0</sub> (mm)	R.T	标准值S.D	≥690	≥380	≥35	≥55	/	10×10×55 (mm)	V	/	≤327	合格 Qualified
12.5	50		试验值H.A	/	/	/	/	/			/	/	

产品内容Detailed List

客户合同号 Client No:	名称 Name	规格 Size	数量 Piece	客户合同号 Client No:	名称 Name	规格 Size	数量 Piece	客户合同号 Client No:	名称 Name	规格 Size	数量 Piece
2403025-63	阀杆	10"-600LB	2	2403025-68	阀杆	12"-600LB	1				
2403025-64	阀杆	10"-600LB	1	2403025-69	阀杆	12"-600LB	3				
2403025-65	阀杆	12"-600LB	2	2403025-70	阀杆	12"-600LB	1				
2403025-66	阀杆	12"-600LB	2	2403025-71	阀杆	12"-600LB	1				
2403025-67	阀杆	12"-600LB	2	2403025-72	阀杆	12"-600LB	2				

注Note: 我们在此证明, 本合格证中的材料是按上述标准和技术条件进行制造、试验和检验, 并满足要求。  
We hereby certify that the material herein described had been manufactured, inspected and tested in accordance with above standard and specification and satisfies the requirements.

检验员: 竺慧  
Inspector:

质量保证工程师: 肖洪利  
Q.C Manager:

制造单位签字  
Supplier Stamp

地址: 浙江省丽水市云和县白龙山街道通泰路3号  
Add.: TongTai Road No.3, Bailongshan Street, Yunhe County, Lishui City of Zhejiang Province, China.

电话Tel: +86 578 5528666  
邮箱Eamil: inmzhao@lcforging.com

传真Fax: +86 578 5521887  
网址Happ: www.lcforging.com





浙江伯替克阀门有限公司 ZHE JIANG BOUTIQUE VALVE Co.,LTD

材料 Material: ASTM-A182 FXM-19

规格 Size&Class: 阀杆 Stem: 10"-600LB\*3PCS

12"-600LB\*14PCS

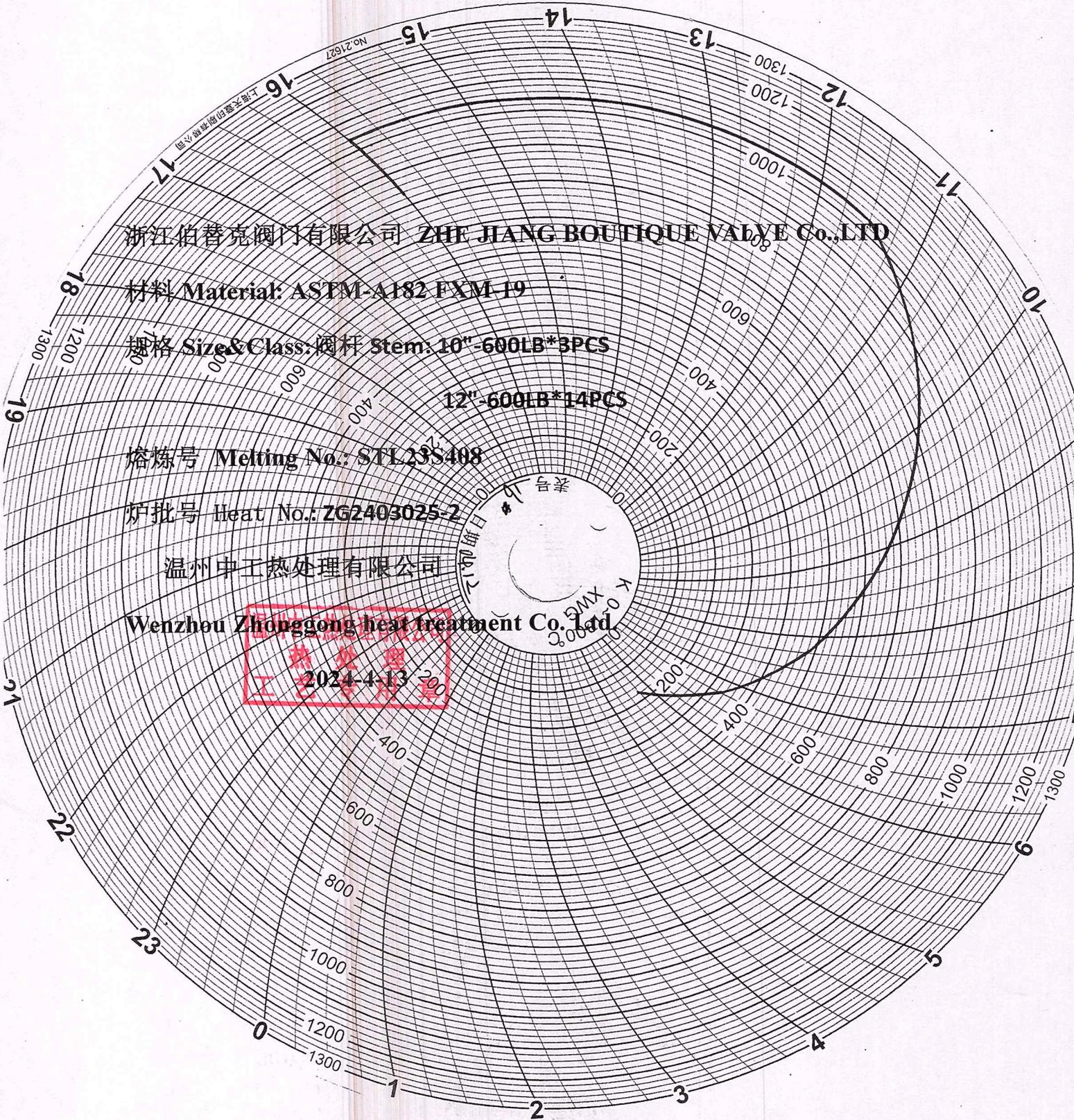
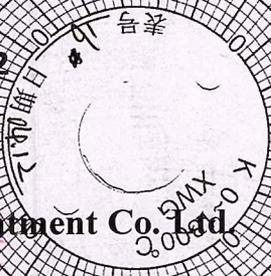
熔炼号 Melting No.: STL23S408

炉批号 Heat No.: ZG2403025-2

温州中工热处理有限公司

Wenzhou Zhonggong heat treatment Co., Ltd

2024-4-13



# 浙江伯替克阀门有限公司

ZHEJIANG BOUTIQUE VALVE CO;LTD

## 拉伸试验报告

TENSILE TEST REPORT

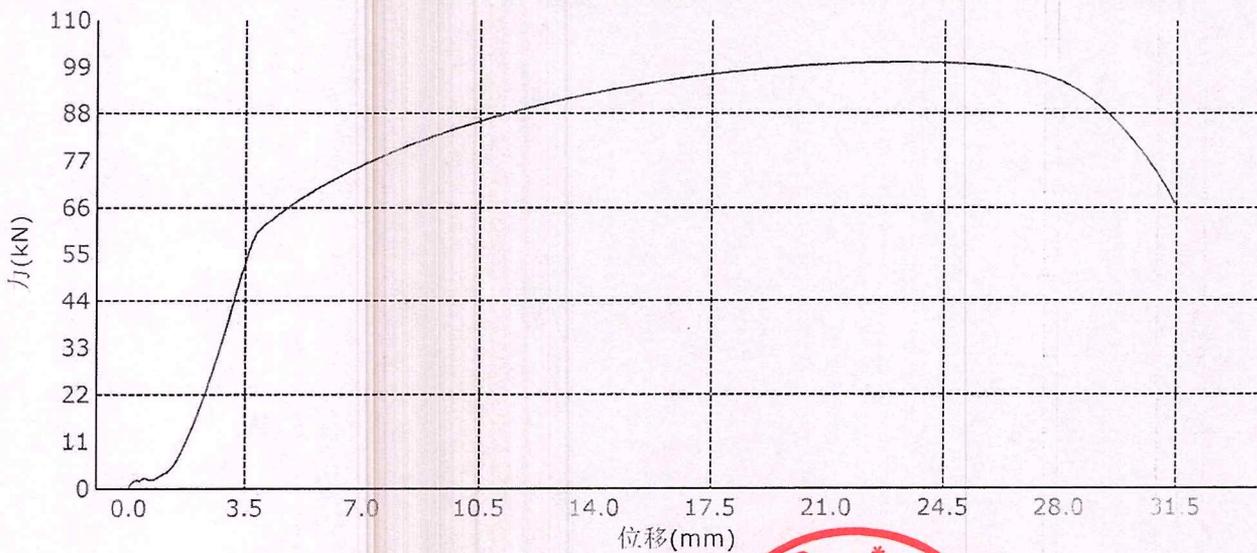
报告编号/Report NO. : LS20240414003

生产单号/P. O. No.	2403025	材 质/Material	FXM-19
炉 批 号/Heat No.	STL23S408/ZG2403025 -2	执行标准/Standard	ASTM A370
实验温度/Test Temperature	24.9℃	湿 度/Humidity	64.2%
实 验 员/Lab Assistant	廖锡水	实验日期/Test Date	2024-04-14

### 实验数据/Experimental Data

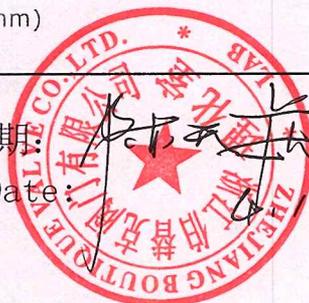
检测项/DeTEction Item	单位/Company	结果(Result)
抗拉强度/Tensile Strength(Rm)	MPa	808.2
屈服强度/Yield Strength(ReL)0.2%	MPa	508
延伸率/Elongation(A)	%	46
断面收缩率/Section Shrinkage(Z)	%	69

### 曲线图/Graph



审批人/日期:

Approver/Date:





# 浙江伯替克阀门有限公司

Zhejiang BOUTIQUE VALVE Co., LTD

## 硬度检测报告 Hardness Test Report

Report No: YD20240413005

生产单号

P. O. No. : 2403025

温度 °C

Temperature : 室温

材 质

Material : FXM-19

检测日期

Test Date: 2024-04-13

炉批号

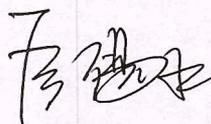
Heat No: STL23S408/ZG2403025-2

执行标准

Standard: ASTM A370

项 目 Project	1 次 No.1	2 次 No.2	3 次 No.3	平均值 Average value
硬度 (HBW) Hardness	236HBW	229HBW	228HBW	231HBW
结 论 Conclusion	<input checked="" type="checkbox"/> 符合标准 Conforming to Standard		<input type="checkbox"/> 不符合标准 Not up to Standard	

操作者/日期  
Operator/Date:

  
2024. 4. 13

审核/日期  
Audit/Date:







浙江富钢集团有限公司

ZHEJIANG FUGANG GROUP CO.,LTD.

产品质量证明书

INSPECTION CERTIFICATE

文件编号 File No.: Q/FG G0072-2022 附录B 2/1

公司地址: 浙江省湖州旧馆镇富钢工业园 邮编: 313011

Address: Fugang Industrial Zone, Huzhou City, Zhejiang Province, P.R.China, PC:313011

电话 TEL: 0572-2631266

通过ISO9001-2015质量管理体系认证

传真 FAX: 0572-2631266

Table with 4 columns: 订货单位/CUSTOMER, 收货单位/PURCHASER, 标准/SPECIFICATION, 产品名称/PRODUCT, 交货状态/DELIVERY STATE, 冶炼方式/Melting Process, 证书号/CERTIFICATE NO., 签发日期/DATE OF ISSUE, 合同号/CONTRACT NO.

Main inspection table with columns for 序号/NO., 炉号/HEAT NO., 钢种/STEEL GRADE, 尺寸及重量/SIZE & WEIGHT, 化学成分/CHEMICAL COMPOSITION (%), 宏观检验/MACROSTRUCTURE EXAM., 拉伸试验/TENSILE TEST, 硬度/HARDNESS, 冲击/Impact energy.

Table for 非金属夹杂物 (非金属夹杂物) NON-METALLIC INCLUSION (Grade) with columns for 序号/NO., 炉号/HEAT NO., 钢种/STEEL GRADE, 夹杂物/Inclusion, 晶粒度/Grain Size, 夹杂物含量/Inclusion Content, 超声波/Ultrasonic, 放射性/Radioactivity.

REMARKS: 1. 本质量证明书无产品质量检验专用章无效, 复印件无效. THIS QUALITY CERTIFICATE HAS NO SPECIAL CHAPTER FOR PRODUCT QUALITY INSPECTION, AND THE COPY IS INVALID. 2. 本产品需检验后使用, 如对本产品质量有异议, 请在提货十日内书面提出, 并保留实物、标牌及有效产品质量证明书. THIS PRODUCT NEEDS TO BE USED AFTER INSPECTION. IF THERE IS ANY OBJECTION TO THE QUALITY OF THIS PRODUCT, PLEASE SUBMIT IT IN WRITING WITHIN 10 DAYS FROM THE DELIVERY, AND KEEP THE PHYSICAL, SIGNAGE AND VALID PRODUCT QUALITY CERTIFICATE.



质保部门负责人 Quality Assurance Department Manager

证书编号 MTR25066  
Certificate No.

浙江隆程锻件有限公司  
Zhejiang Longcheng Forging Co.,Ltd.

客户名称 浙江伯替克阀门有限公司  
Purxhaser:

材料名称 XM-19  
Name of Material:

质量证明书  
QUALITY CERTIFICATE

材料标准 ASTM A182/A182M  
Material specification:

EN 10204 3.1

报告日期 2024/04/18  
Date of report:

锻件级别 Class	/	锻造比 Forging	4.35:1	热处理状态 Heat Treatment	/	热处理炉号 Heat Treatment No:	/								
化学成份Chemical Composition %															
熔炼号 Heat No.:	C	Mn	Si	S	P	Cr	Ni	Mo	V	N	Nb	Cu+Ni+Cr+ Mo+V	Cr+Mo	PREN	
STL23S526	标准值S.D	≤0.060	4.00-6.00	≤1.00	≤0.03	≤0.040	20.50-23.50	11.50-13.50	1.50-3.00	0.10-0.30	0.20-0.40	0.10-0.30	/	/	/
	熔炼值H.A	0.037	4.58	0.450	0.0010	0.0320	20.86	11.52	1.56	0.13	0.226	0.14	/	/	/
冶炼方式 Smelt Method	EAF+AOD+LF	超声波探伤检查(UT) Ultrasonic Examination	符合标准级别 Acceptance Standard and class			其他试验 Other Test item		试验结果 Test Results			试验或评定标准 Test Or Evaluation criteria				
			/			/		/			/				
试验或检验数据Test Conclusion															
拉伸试验Tensile Test							冲击试验(V) Impact Test					硬度 Hardness (HBW)	外观及尺寸 Visual & Dim. Inspection		
试样规格 Sample size	试验温度 Test temperature	/	抗拉强度 T.S σb (Mpa)	屈服强度 Y.S σs0.2 (Mpa)	延伸率 E.L δ (%)	断面收缩率 Ro A ψ (%)	试验温度 Test temperature	试样规格 Size of Sample	缺口形式 Type of Notch	冲击功 Akv /(Avg/J)			合格 Qualified		
D(mm)	L <sub>0</sub>	R.T	标准值S.D	≥690	≥415	≥30	/	10×10×55 (mm)	V	/			≤327		
12.5	50		试验值H.A							/	/	/			
产品内容Detailed List															
客户合同号 Client No:	名称 Name	规格 Size	数量 Piece	客户合同号 Client No:	名称 Name	规格 Size	数量 Piece	客户合同号 Client No:	名称 Name	规格 Size	数量 Piece				
2404019-5	阀杆	12"-600LB	1												
2404019-6	阀杆	12"-900LB	2												
注Note:															
我们在此证明, 本合格证中的材料是按上述标准和技术条件进行制造、试验和检验, 并满足要求。 We hereby certify that the material herein described had been manufactured, inspected and tested in accordance with above standard and specification and satisfies the requirements.															
检验员: 竺慧 Inspector:					质量保证工程师: 肖洪利 Q.C Manager:					制造单位签章: Supplier Stamp:					

地址: 浙江省丽水市云和县白龙山街道通泰路3号  
Add.: TongTai Road No.3, Bailongshan Street, Yunhe County, Lishui City of Zhejiang Province, China.

电话Tel: +86 578 5528666  
邮箱Eamil: inmzhao@lcforging.com

传真Fax: +86 578 5521887  
网址Happ: www.lcforging.com



## 温州中工热处理有限公司

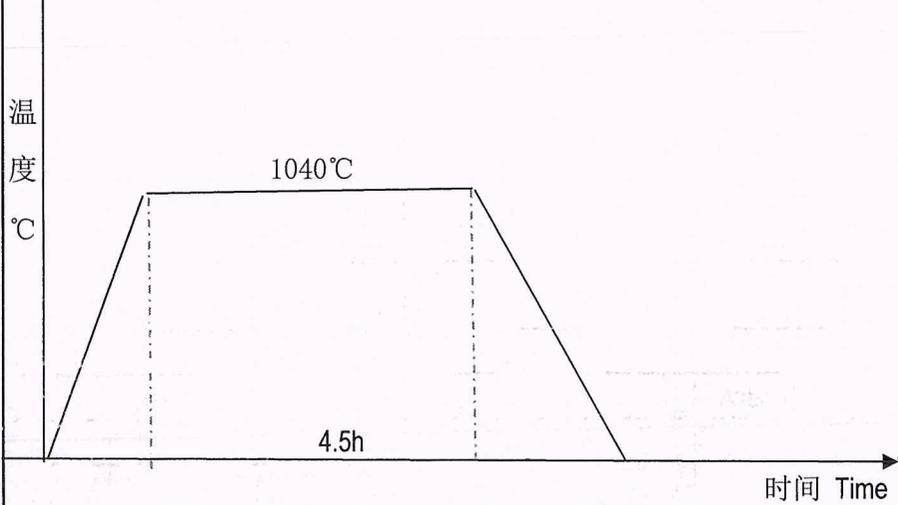
WENZHOU ZHONGGONG HEAT TREATMENT Co.,Ltd

## 热处理报告

Heat treatment report

客户名称 (Customer Name):	合同号 (Contract No.):	日期 (Date):	报告编号 (Report No.):
浙江伯替克阀门有限公司 ZHEJIANG BOUTIQUE VALVE Co.,LTD	2404019-5/6	2024-4-25	300524-2

工艺简图 Process schematic diagram:



产品名称 Product Name	阀杆 Stem	热处理要求 Heat treatment requires	固溶 Solution treat and quench				
产品状态 Product state	半成品 Semi-manufactures	炉批号 Heat No.	ZG2404019-2				
材料 Material	ASTM-A182 FXM-19	熔炼号 Melting No.	STL23S526				
规格 Specifications	见附件 Attached	产品数量 Product quantity	3PCS				
淬火前介质温度 (水或油) Medium temperature before queching (Oil or water)		28°C					
淬火后介质温度 (水或油) Medium temperature after queching (Oil or water)		35°C					
机械性能 Mechanical property							
	σ <sub>b</sub>	σ <sub>s</sub>	δ	φ	HBW	Ak <sub>v</sub> (J) / °C	

工序内容 Process content	炉编号 NO.	设备名称 Device name	进炉温度 °C Furnace temperature	加热速度 °C/h Heating speed	加热温度 °C Heating temperature	保温温度 °C Holding temperature	保温时间 (hrs) Holding Time	冷却介质 Cooling medium
固溶 Solution treat and quench	01#	台车式电阻炉 Bogie hearth resistance furnace	180	150	1040	1040	4.5	清水 water

检验结果 Test result: (√)合格 Qualified ( )不合格 No Qualified

操作者 Operator	李先红	检验员 Inspector	万国栋	审核 Examine	周祥仙
日期 Date	2024-4-25	日期 Date	2024-4-25	日期 Date	2024-4-25



浙江佰替克阀门有限公司 ZHEJIANG BOUTIQUE VALVE Co.,LTD

材料 Material: ASTM-A182 FXM-19

规格 Size&Class: 阀杆 Stem: 12"-600LB 1PCS

12"-900LB\*2PCS

熔炼号 Melting No.: STL238526

炉批号 Heat No.: ZG2404019-2

温州中工热处理有限公司

Wenzhou Zhonggong heat treatment Co. Ltd

2024-4-25

K 0~1300 °C  
XWG

日期 2024-4-25

No.21627

温州中工热处理有限公司

# 浙江伯替克阀门有限公司

ZHEJIANG BOUTIQUE VALVE CO;LTD

## 拉伸试验报告

TENSILE TEST REPORT

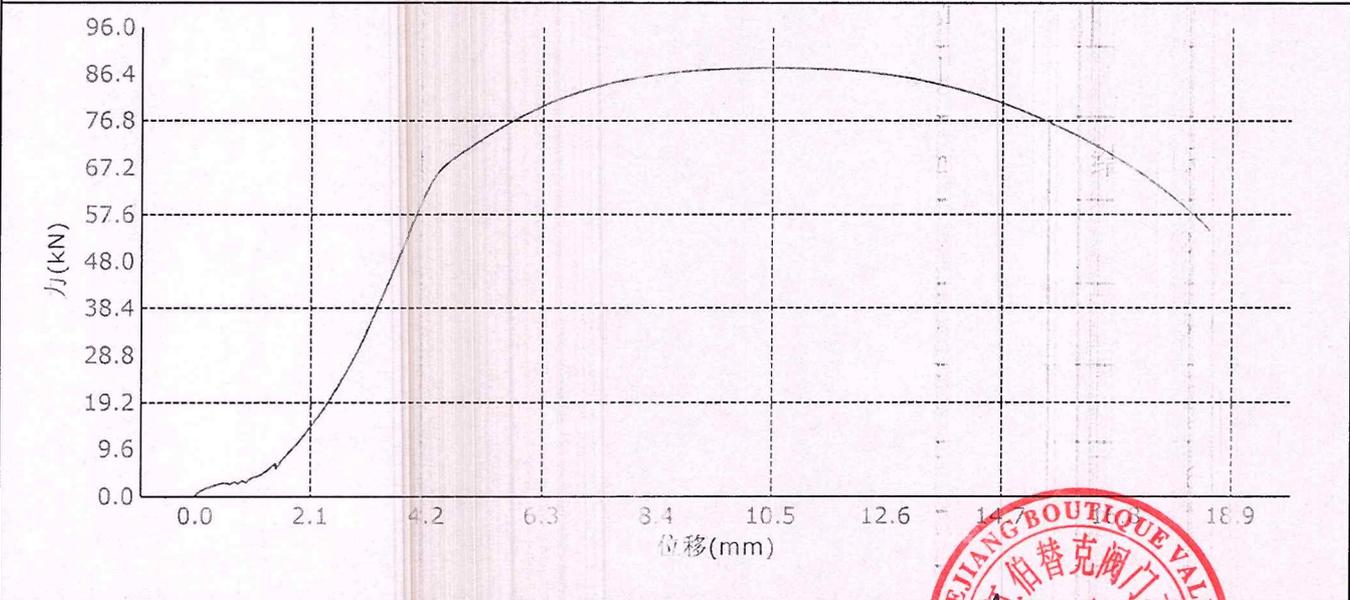
报告编号/Report NO.: LS20240426006

生产单号/P. O. No.	2404019	材 质/Material	FXM-19
炉 批 号/Heat No.	STL23S526/ZG2404019 -2	执行标准/Standard	ASTM A370
实验温度/Test Temperature	24.4°C	湿 度/Humidity	54.1%
实 验 员/Lab Assistant	廖锡水	实验日期/Test Date	2024-04-26

### 实验数据/Experimental Data

检测项/DeTEction Item	单位/Company	结果(Result)
抗拉强度/Tensile Strength(Rm)	MPa	720.1
屈服强度/Yield Strength(ReL) 0.2%	MPa	540
延伸率/Elongation(A)	%	48
断面收缩率/Section Shrinkage(Z)	%	66

### 曲线图/Graph



审批人/日期:

Approver/Date:





# 浙江伯替克阀门有限公司

Zhejiang BOUTIQUE VALVE Co., LTD

## 硬度检测报告 Hardness Test Report

Report No: YD20240425002

生产单号

P. O. No. : 2404019

温度 °C

Temperature : 室温

材 质

Material : FXM-19

检测日期

Test Date: 2024-04-25

炉批号

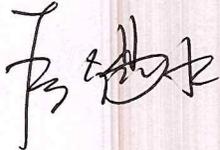
Heat No: STL23S526/ZG2404019-2

执行标准

Standard: ASTMA370

项 目 Project	1 次 No.1	2 次 No.2	3 次 No.3	平均值 Average value
硬度 (HBW) Hardness	228HBW	225HBW	229HBW	227.33HBW
结 论 Conclusion	■符合标准 Conforming to Standard		□不符合标准 Not up to Standard	

操作者/日期  
Operator/Date:

  
2024. 4. 25

审核/日期  
Audit/Date:





**BOUTIQUE VALVE**  
**伯替克阀门**

IS09001: 2015

**浙江伯替克阀门有限公司**  
**Zhejiang Boutique Valve Co.,Ltd.**

地址 Address: 浙江省永嘉县瓯北镇和一村  
Address: Heyi Village Oubei Town Yongjia County Zhejiang P.R.China  
Tel:0577-67359366 Fax:0577-67359368

**产品质量证明书**

**Product Certificate**

证书类型 Certificate type EN10204 3.1

报告编号 Report No. BTK2404019-2

生产单号 Production No: BTK2404019

客户名称 Customer

Velan ABV S.r.l.

合同号 P. O. No. P10006778

热处理工艺 Heat treatment process: Quenching and Tempering 920°C/650°C Hold 3.0H/4.5H Water cool/Air Cool

冶炼方式: EAF-LF-VD-CC 锻造比: 4.54:1

项目号 Item No.	采购单号 POS No.	零件名称 Part Name	型号规格 Model Size	材料牌号 Material Grade	数量 (Qty)	熔炼号 Melt No.	热处理炉号 Heat No.
2404019-1	490	连接盘 Motor	12"-600LB	ASTM A350/A350M-24A LF2	1	23E106491	ZG2404019-1
2404019-2	495	连接盘 Motor	12"-900LB	ASTM A350/A350M-24A LF2	2	23E106491	ZG2404019-1
2404019-3	500	密封套 Gland	12"-600LB	ASTM A350/A350M-24A LF2	1	23E106491	ZG2404019-1
2404019-4	505	密封套 Gland	12"-900LB	ASTM A350/A350M-24A LF2	2	23E106491	ZG2404019-1
2404019-7	520	支撑板 Suppor	12"-600LB	ASTM A350/A350M-24A LF2	2	23E106491	ZG2404019-1
2404019-8	525	支撑板 Suppor	12"-900LB	ASTM A350/A350M-24A LF2	4	23E106491	ZG2404019-1
		 <span style="color: red; font-weight: bold;">MIN 244625 ÷ 244628</span>					

**化学成份 (含量%) Chemical Composition (wt. %)**

**机械性能 Mechanical property**

炉号 Heat No.	C	Si	Mn	P	S	Cr	Mo	Ni	Nb	V	Cu	Cr+Mo	Cr+Mo+V+Ni+Cu	CE	T. S. (MPa)	Y. S. Rp0.2% (MPa)	A/%	Z/%	冲击试验 Impact Test AK/V(-46°C)		硬度 Hardness (HBW)		
	≤	0.15-0.30	0.60-1.35	≤	≤	≤	≤	≤	≤	≤	≤	≤	≤	≤	485-655	≥250	≥22	≥30	纵向 (Longitudinal) Single ≥20J	横向 (Transverse) Avg ≥27J	≤197		
ZG2404019-1	0.19	0.26	0.98	0.014	0.002	0.06	0.01	0.02	0.009	0.004	0.02	0.07	0.110	0.37	518	339	36	76	111.49	144.37	179.09	144.98	152/154/151

备注 Remarks: 我们特此证明以上零部件经过制造、理化测试、检验和试验完全符合相应的 NACE MR0175:2003 材料规范及订单合同中的技术要求, 不含重金属成分, 如水银这些。每个毛胚都是单独锻件, 自由锻锻出来的。  
We hereby certify that the above components have been manufactured, tested, tested and tested in full compliance with the corresponding NACE MR0175:2003 material specifications and technical requirements in the order contract. Free Heavy Material (Mercury, Asbestos, etc) single piece forging, Type of forging: Open Die

制单 (Prepared) /Date	管丹阳 May 08 <sup>th</sup> 2024	审核 (Check) /Date	陈天虎 May 08 <sup>th</sup> 2024	客户 (Customer) /Date
---------------------	-------------------------------	------------------	-------------------------------	---------------------





证书编号  
Certificate No.

MTR25061

浙江隆程锻件有限公司  
ZHEJIANG LONGCHENG FORGING CO.,LTD.

客户名称  
Purchaser:

浙江伯替克阀门有限公司

材料名称  
Name of Material:

LF2

质量证明书  
QUALITY CERTIFICATE

材料标准  
Material specification:

ASTM A350/A350M

EN 10204 3.1

报告日期  
Date of report:

2024/4/22

锻件级别 Class	/	锻造比 Forging	4.54:1	热处理状态 Heat Treatment	/	热处理炉号 Heat Treatment No:	/								
化学成份Chemical Composition %															
熔炼号 Heat No:		C	Mn	Si	S	P	Cr	Ni	Mo	Cu	V	Nb	Cu+Ni+Cr+Mo+V	Cr+Mo	CE
23E106491	标准值S.D	≤0.30	0.60~1.35	0.15~0.30	≤0.040	≤0.035	≤0.30	≤0.40	≤0.12	≤0.40	≤0.08	≤0.02	≤1.00	≤0.32	≤0.43
	熔炼值H.A	0.19	0.98	0.26	0.002	0.014	0.06	0.02	0.01	0.02	0.004	0.009	0.11	0.07	0.37
冶炼方式 Smelt Method	EAF-LF-VD-CC	超声波探伤检查(UT) Ultrasonic Examination		符合标准级别 Acceptance Standard and class		其他试验 Other Test item		试验结果 Test Results		试验或评定标准 Test Or Evaluation criteria					
				/		/		/		/					

试验或检验数据Test Conclusion

拉伸试验Tensile Test							冲击试验 (V) Impact Test				硬度 Hardness (HBW)	外观及尺寸 Visual & Dim. Inspection
试样规格 Sample size	试验温度 Test temperature	抗拉强度 T.S σb (Mpa)	屈服强度 Y.S σs0.2 (Mpa)	延伸率 E.L δ (%)	断面收缩率 Ro A ψ (%)	试验温度 Test temperature	试样规格 Size of Sample	缺口形式 Type of Notch	冲击功 Akv(J)			
D(mm)	L <sub>0</sub>	标准值S.D	485-655	≥250	≥22	≥30	/	10×10×55 (mm)	V	/	≤197	合格 Qualified
12.5	50	试验值H.A	/	/	/	/	/	/	/	/	/	/

产品内容Detailed List

客户合同号 Client No.	名称 Name	规格 Size	数量 Piece	客户合同号 Client No.	名称 Name	规格 Size	数量 Piece	客户合同号 Client No.	名称 Name	规格 Size	数量 Piece
2404019-1	连接盘	12"-600LB	1	2404019-8	支撑板	12"-900LB	4				
2404019-2	连接盘	12"-900LB	2								
2404019-3	密封套	12"-600LB	1								
2404019-4	密封套	12"-900LB	2								
2404019-7	支撑板	12"-600LB	2								

注Note: 我们在此证明, 本合格证中的材料是按上述标准和技术条件进行制造、试验和检验, 并满足要求。

We hereby certify that the material herein described had been manufactured, inspected and tested in accordance with above standard and specification and satisfies the requirements.

检验员:  
Inspector: 竺慧

质量保证工程师:  
Q. C Manager: 肖洪利

制造单位签章:  
Supplier Stamp:

地址: 浙江省丽水市云和县白龙山街道通泰路3号  
Add.: TongTai Road No.3, Bailongshan Street, Yunhe County, Lishui City of Zhejiang Province, China.

电话Tel: +86 578 5528666  
邮箱Email: inmzhao@lcforging.com

传真Fax: +86 578 5521887  
网址Happ: www.lcforging.com



## 温州中工热处理有限公司

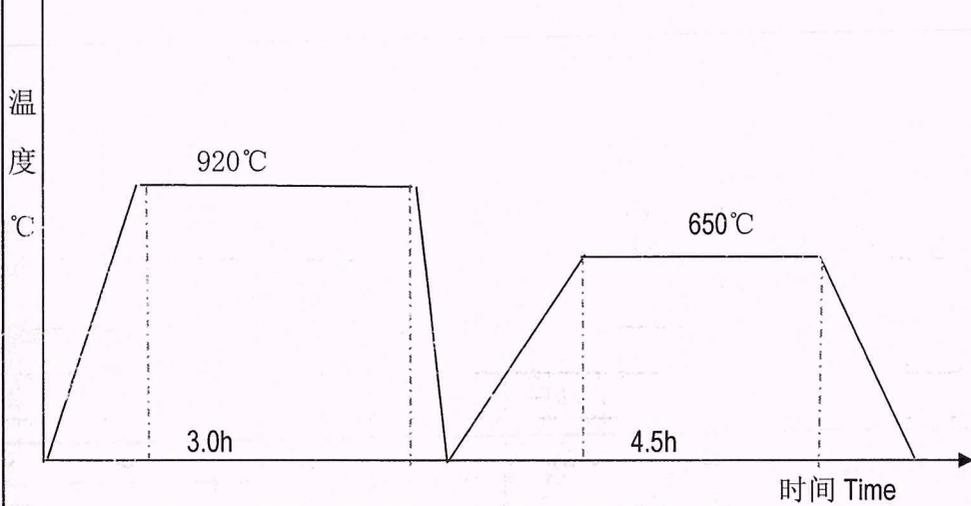
WENZHOU ZHONGGONG HEAT TREATMENT Co., Ltd

## 热处理报告

Heat treatment report

客户名称 (Customer Name):	合同号 (Contract No.):	日期 (Date):	报告编号 (Report No.):
浙江伯替克阀门有限公司 ZHEJIANG BOUTIQUE VALVE Co., LTD	2404019-1/2/3/4/7/8	2024-5-5	300524-3

工艺简图 Process schematic diagram:



产品名称 Product Name	连接盘 Motor 支撑板 Support 密封套 Gland	热处理要求 Heat treatment requires	调质处理 Quenching and Tempering
产品状态 Product state	半成品 Semi-manufactures	炉批号 Heat No.	ZG2404019-1
材料 Material	ASTM-A350 LF2 CL.1	熔炼号 Melting No.	23E106491
规格 Specifications	见附件 Attached	产品数量 Product quantity	12PCS
淬火前介质温度 (水或油) Medium temperature before queching (Oil or water)			24°C
淬火后介质温度 (水或油) Medium temperature after queching (Oil or water)			31°C
机械性能 Mechanical property			
	σ <sub>b</sub>	σ <sub>s</sub>	δ
			φ
			HBW
			Akv(J) / °C

工序内容 Process content	炉编号 NO.	设备名称 Device name	进炉温度 °C Furnace temperature	加热速度 °C/h Heating speed	加热温度 °C Heating temperature	保温温度 °C Holding temperature	保温时间 (hrs) Holding Time	冷却介质 Cooling medium
淬火 Quenching	02#	台车式电阻炉 Bogie hearth resistance furnace	180	160	920	920	3.0	清水 water
回火 Tempering	02#	台车式电阻炉 Bogie hearth resistance furnace	400	160	650	650	4.5	空冷 Air

检验结果 Test result:

(√)合格 Qualified

( )不合格 No Qualified

操作者 Operator	李先红	检验员 Inspector	万国栋	审核 Examine	温州中工热处理有限公司 周祥仙
日期 Date	2024-5-5	日期 Date	2024-5-5	日期 Date	2024-5-5 热 处 理 工 艺 专 用 章

浙江伯替克阀门有限公司 ZHEJIANG BOUTIQUE VALVE Co.,LTD

材料 Material: ASTM-A350 LF2 CL1

规格 Size&Class: 密封套 Gland: 12"-600LB\*1PCS

连接盘 Motor: 12"-600LB\*1PCS

支撑板 Support: 12"-600LB\*2PCS

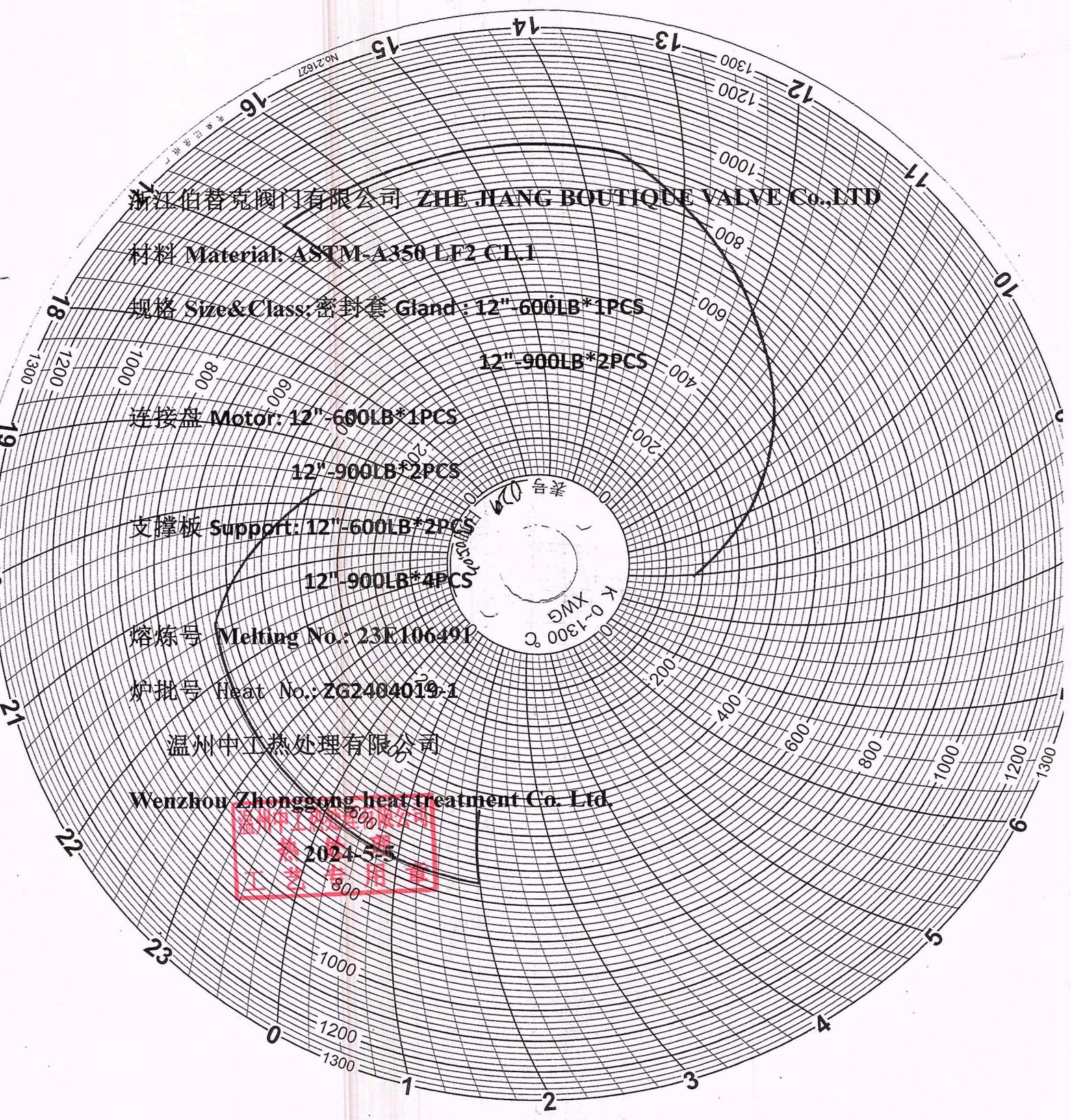
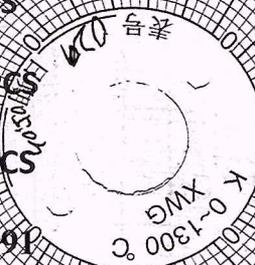
熔炼号 Melting No.: 23E106491

炉批号 Heat No.: ZG2404019-1

温州中工热处理有限公司

Wenzhou Zhonggong heat treatment Co. Ltd

2024.5.5  
Wenzhou Zhonggong Heat Treatment Co., Ltd.





# 浙江伯替克阀门有限公司

## Zhejiang Boutique Valve Co; Ltd

### 冲击性能检测报告

### Shock Performance Test Report

Report No.: CJ20240507001

设备型号 Unit Type	JBDW-500CY	摆锤力矩 Pendulum Moment	0-500J	试验标准 Test Standard	ASTM A370/A370M-24
生产编号 P.O.No.	2404019	材 质 Material	ASTM A350 LF2 CL.1	原材料炉号 Raw material	23E106491
炉批号 Heat No.	ZG2404019-1	试验介质 Test Medium	氟利昂 Freon	试验温度 Test Temperature	-46°C
试样类型 Sample type	V 型 V-type	试样规格 Sample size	10X10X55mm	试验日期 Test Date	2024-05-07
冲击试验 (Impact Test)					
纵向 (Longitudinal)					
检测项目 Test Item	AK (J) NO.1	AK(J) NO.2	AK(J) NO.3	平均值 (J) Average Value	
吸收能量 Absorbed energy	111.49	144.37	179.09	144.98	
侧向膨胀值 Lateral expansion	/	/	/	/	
横向 (Transverse)					
检测项目 Test Item	AK (J) NO.1	AK(J) NO.2	AK(J) NO.3	平均值 (J) Average Value	
吸收能量 Absorbed energy	/	/	/	/	
侧向膨胀值 Lateral expansion	/	/	/	/	
结论 Conclusion	<input checked="" type="checkbox"/> 符合标准 Conforming to Standard			<input type="checkbox"/> 不符合标准 Not up to standard	
操作者/日期 Operator/Date			审核/日期 Review/Date	 2024.05.07	

# 浙江伯替克阀门有限公司

ZHEJIANG BOUTIQUE VALVE CO.;LTD

## 拉伸试验报告

TENSILE TEST REPORT

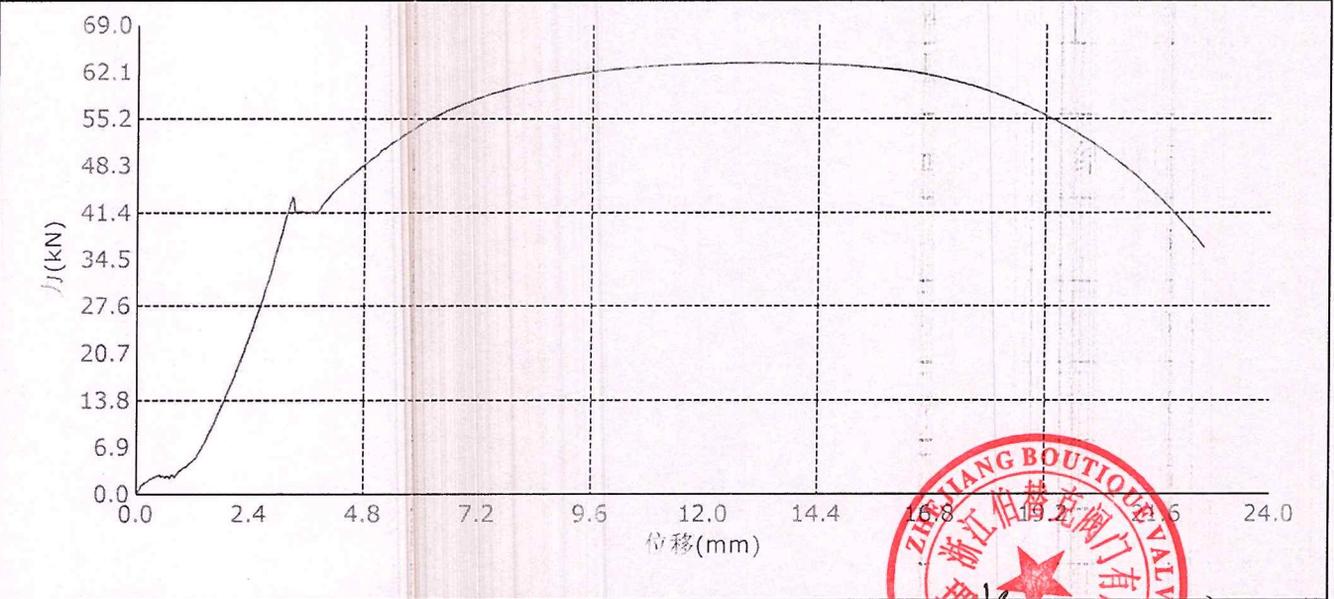
报告编号/Report NO. : LS20240505003

生产单号/P.O.No.	2404019	材 质/Material	LF2
炉 批 号/Heat No.	23E106491/ZG2404019 -1	执行标准/Standard	ASTM A370
实验温度/Test Temperature	26.2°C	湿 度/Humidity	59.6%
实 验 员/Lab Assistant	廖锡水	实验日期/Test Date	2024-05-05

### 实验数据/Experimental Data

检测项/Detection Item	单位/Company	结果(Result)
抗拉强度/Tensile Strength(Rm)	MPa	518
屈服强度/Yield Strength(ReL)0.2%	MPa	339
延伸率/Elongation(A)	%	36
断面收缩率/Section Shrinkage(Z)	%	76

### 曲线图/Graph



审批人/日期:

Approver/Date:

廖锡水  
2024.05.05





# 浙江伯替克阀门有限公司

Zhejiang BOUTIQUE VALVE Co., LTD

## 硬度检测报告 Hardness Test Report

Report No: YD20240507001

生产单号 P. O. No.: 2404019 材 质 Material: LF2 炉批号 Heat No: 23E106491/ZG2404019-1  
温 度 °C 检测日期 Test Date: 2024-05-07 执行标准 Standard: ASTM A370  
Temperature: 室温

项 目 Project	1 次 No.1	2 次 No.2	3 次 No.3	平均值 Average value
硬度 (HBW) Hardness	152HBW	154HBW	151HBW	152.33HBW
结 论 Conclusion	<input checked="" type="checkbox"/> 符合标准 Conforming to Standard		<input type="checkbox"/> 不符合标准 Not up to Standard	

操作者/日期  
Operator/Date:

*[Handwritten Signature]*  
2024.5.7

审核/日期  
Audit/Date:



# Wenzhou ARTECH Machinery Technology Co., Ltd

No.889 Lingzhan Rd., Lingkun St., Dongtou District, Wenzhou, China 325000

Tel : + 86 - 577 - 8637 5096 Fax : + 86 - 577 - 8637 7378

## MATERIAL TEST CERTIFICATE

AS PER EN 10204:3.1

MTC No. : ART2024AN03-0242C

Date :22/5/2024

Customer :Velan ABV S.r.l.

Material : ASTM A182 FXM-19

PO No. :P10006777

Heat Number :324022401

### COMPONENT DETAILS

Pos. No.	DESCRIPTION	DRAWING NUMBER	QTY
1	12",FXM-19, Ball	T33A124B300 sheet2.1	1 Nos
2	12",FXM-19, Seat	T3SG124PZT0 sheet2.1	2 Nos
4	12",FXM-19, Ball	T33A126BP00 sheet 2.1	2 Nos
5	12",FXM-19, Seat	T3SG126PZT0 sheet 2.1	4 Nos

### RAW MATERIAL DETAILS

#### CHEMISTRY%

Element	C	Mn	Si	S	P	Ni	Cr	Mo	N	Nb	V	Ni+2Mo	PREN
Min	---	4.0	---	---	---	11.5	20.5	1.5	0.2	0.1	0.1	15	29
Max	0.06	6.0	1.0	0.03	0.04	13.5	23.5	3.0	0.4	0.3	0.3	20	38
Actual	0.029	4.8	0.62	0.001	0.03	11.91	21.63	1.72	0.23	0.12	0.14	15.35	30.98

### MECHANICAL PROPERTIES

As per	YS0.2%	UTS	%EL	%RA	HARDNESS	V Notch Impact at Degree C.			
Spec.	MPa	MPa			HB	Single J. Minimum			Avg. J
Min	380	690	35	55		1	2	3	Avg.
Max	-	-	-	-	327				
Tested	477	786	54	66	205/217				

### HEAT TREATMENT

Heat Treatment Batch Number : SF2024050405.

Heat Treatment Details : Solution Anyling done at 1040 degree C for 3 hours and then immediately cooling in water to below 29 degree C.

#### REMARKS :

- Material conforms to NACE MR01-75,ITP 00909001.
- Material is free from Radiocative Contamination.
- Material is fully killed and fine grained structure.



MIN 242779 ÷ 242782

We hereby certify that the items mentioned above have been tested and inspected in accordance with customer specifications and requirements of standard ASTM A182, testing results found acceptable.

INSPECTED BY

郑赛湖

Inspector - Quality

REVIEWED BY

董建平

Manager - Quality



MONOGRAM / SEAL



上海速威特种合金有限公司  
SHANGHAI SOONV SPECIAL ALLOY CO., LTD.

材料合格证书  
MATERIAL CERTIFICATE

Customer/客户:温州阿泰科机械科技有限公司 Certificate No./证书编号: T&Q-2404-055-01-1  
SOONV'S Grade/材料牌号: SOONV-XM-19 Certificate Standard/证书标准: EN10204 Type3.1  
Material Standard/材料标准: NACE MR 0175, ASTM A182 FXM-19 UNS S20910

PO No. 订单号	Item Code 料号	SN 订单序号	Heat No. 炉号	Name 品名	Drawing No. 图号	Finished Dimension 成品尺寸	PO QTY 订单数量	Delivery QTY 交货数量
SF2404-055		1	324022401	球体		SØ470×Ø305×352	2	2
SF2404-055		2	324022401	阀座		Ø376×Ø305×88	4	4
SF2404-055		3	324022401	球体		SØ456×Ø305×332	1	1
SF2404-055		4	324022401	阀座		Ø376×Ø305×80.5	2	2

Tensile test Specimens 拉伸试样				Tensile Test 拉伸实验				Impact Test (Charpy V) 冲击试验				Hardness 硬度 (HB)
Heat No. 炉号	Test Temp. 实验温度 (°C)	Overall Length 试样长度 (mm)	DIA 试样直径 (mm)	UTS 抗拉强度 (Mpa)	YS0.2 屈服强度 (Mpa)	EI 延伸率 (%)	RoA 断面收缩率 (%)	Dimension of Specimens /试样尺寸(mm): 10×10×55			≤327HB	
				≥690	≥380	≥35	≥55	Test Temp./实验温度: 室温 (Room Temp. /20°C )		Single/单个(J)		Average/平均(J)
323022401	室温	150	12.5	786	477	54	66	/	/	/	/	205/217
/	/	/	/	/	/	/	/	/	/	/	/	/

Heat No. 炉号	Chemical Composition(%) /化学成分													
	C	Mn	Fe	P	S	Si	Ni	Cr	Mo	N	Nb	V	PREN	/
	≤0.06	4~6	bal.	≤0.045	≤0.03	≤1.0	11.5~13.5	20.5~23.5	1.5~3.0	0.2~0.4	0.1~0.3	0.1~0.3	29~38	/
323022401	0.029	4.8	bal.	0.03	0.001	0.82	11.91	21.63	1.72	0.23	0.12	0.14	30.98	/
/	/	/	/	/	/	/	/	/	/	/	/	/	/	/

Report No. 报告编号	First step: Heat treat process/热处理工艺 (一)			Report No. 报告编号	Second step: Heat treat process/热处理工艺 (二)		
	固溶处理: 1040°C保温3.0小时, 水冷至260°C以下				N/A		
	Temp./温度°C	Holding time (h) 保温时间 (小时)	Cooling Media 冷却方式		Temp./温度°C	Holding time (h) 保温时间 (小时)	Cooling Media 冷却方式
2024045501HT	1040	3.0	水冷/W.Q	/	N/A	N/A	N/A

NDT 无损检测	Method/方法	<input checked="" type="checkbox"/> VT / 目测	<input checked="" type="checkbox"/> UT / 超声	<input type="checkbox"/> PT / 着色	<input type="checkbox"/> RT / 射线	<input type="checkbox"/> MT / 磁粉	Remarks/备注
	Result/结论	OK	OK	/	/	/	
	Report No./报告编号	/	/	/	/	/	

Remarks  
备注

We hereby certify the material herein has been manufactured, tested and inspected in accordance with customer's requirement and relevant national standard, with satisfactory results.  
我们在此证明这批材料经制造, 测试, 检验完全符合客户和材料的标准要求。  
All our certificates are printed on colour anti-counterfeiting paper, copise is in valid.  
我司的质保书原件以彩色水印的纸质为准, 复印件无效。

Date/日期: 2024/5/5 Inspected/检验员: 胡佳 Check/检查: 张博



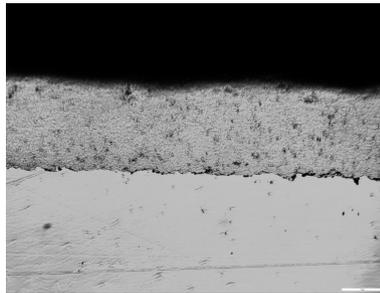
HVOF/HVAF 涂层检验报告  
HVOF/HVAF Coating Test Report

订单号 Order No.:	P10006777	报告号 Report No.:	AN04-0242补
涂层材料: Coating Material:	TCC	涂层材料批次号: Coating Material Batch No.:	M-65DT-24030702H

项号 Pos No.	描述 Description	图号 Drawing No.	基材材质 Base Material	炉号 Heat No.	生产编号 Production No.	数量 Qty.
1	Ball 12"	T33A124B300 sheet.2.1	FXM-19	324022401	AN040298-1-1	1
2	Seat 12"	T3SG124PZT0 sheet.2.1	FXM-19	324022401	AN040298-1-1A至AN040298-1-1A AN040298-1-1B至AN040298-1-1B	2
4	Ball 12"	T33A126BP00 sheet 2.1	FXM-19	324022401	AN040298-4-1至AN040298-4-2	2
5	Seat 12"	T3SG126PZT0 sheet 2.1	FXM-19	324022401	AN040298-4-1A至AN040298-4-2A AN040298-4-1B至AN040298-4-2B	4

项目编号 Item Number	检测项目 Test Item	参考标准 Ref. Standard	检验记录 Inspection Record		参考值 Reference Value	
1	喷涂材料检测 Coating material inspection	成份 Material Composition	GB19356 / ISO14232	Co:10%; Cr: 4.02%; Ct: 5.65%;O: 0.084%; Fe:0.070%; W: Bal	CO:9%-11%; Cr:3.5%-4.5%; Ct: 5.0%-5.8%; O:<0.15%; Fe:<0.5%; W: Bal	
2	涂层金相检测 Coating metallographic examination	显微硬度 Microhardness	ISO4516	HV <sup>0.3</sup> =1194	HV <sup>0.3</sup> 1000-1250	
3		涂层厚度 Coating Thickness	ISO2064	180μm	200-400μm	
4		孔隙率 Porosity	E2109	0.77%	<1%	
5		结合强度 Adhesive Strength	ASTM C633	107300PSI (断在胶中glue broken)	>10000PSI	
6		涂层组织形貌 Coating Microstructure	OK	交界面Interface:	√	良好good:√
			氧化物Oxide:	0.81%	<2%	
			未熔颗粒物 not melted	0.23%	<1%	
			Void and oxide content of interface between coating substrate	1.7%	≤6%	
7	工件表面检测 Workpiece surface examination	尺寸检测(机械量具) Dimensional gauging (mechanical measuring tool)	工艺要求 Process Requirements	直径 Diameter:	/	⊙<0.05mm
				涂层厚度 Coating Thickness:	/	150-300μm
8	外观检测 Appearance Inspection	目测, 检验指导书 Visual inspection instruction	良好good:	√	色泽一致, 无凹坑、裂纹、光滑、孔隙、剥落及其他 Consistent color, smooth, without pits, cracks, pores, spalling, etc.	
			可用usable:			

金相图片:



本批次产品经检验合格准予出厂。

This batch products are qualified according to the delivery inspection.

检验 Inspector: 陈小凤

审核 Auditor: 董建平

日期 Date: 2024. 5. 23





**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)



MIN B240568a÷e

Date, 19-06-24

Our Ref. DDT 2277 / OC 1092

of 19-06-24

Your Ref. P10007006

22-04-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2401748**

Pag. 1 of 5

ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
5931LM016060	8,00	quenched tempered		831805	301837**
HEX SOCKET HEAD CAP SCREW UNI 5931/ISO4762/DIN912 - A/SA320 L7M M 16 x 60					
10 - 500000909					

**MECHANICAL PROPERTIES**

values	R (MPa)	Rs 0,2 (MPa)	A4 (%)	Z (%)	HB	I.T. KV - 73°C (J)
required	690 min.	550 min.	18 min.	50 min.	235 max	20 min. 27 av.
actual	735	550	28,0	65,0	229-224-229	54 - 40 - 44

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,38 - 0,48	0,75 - 1,00	0,15 - 0,35	0,035 max	0,040 max	0,80 - 1,10	0,15 - 0,25	
actual	0,435	0,850	0,247	0,018	0,024	1,050	0,177	

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II part. A ed. 2021 - NACE MR0175/ISO 15156. Macroetch esamination acc. to ASTM E381 result: S1; R1; C1.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 19-06-24

**Our Ref.** DDT 2277 / OC 1092

**of** 19-06-24

**Your Ref.** P10007006

22-04-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2401748**

Pag. 2 of 5

ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
5931LM016100	8,00	quenched tempered		831806	33659 *
HEX SOCKET HEAD CAP SCREW UNI 5931/ISO4762/DIN912 - A/SA320 L7M M 16 x 100					
15 - 500000909					

**MECHANICAL PROPERTIES**

values	R (MPa)	Rs 0,2 (MPa)	A4 (%)	Z (%)	HB	I.T. KV - 73°C (J)
required	690 min.	550 min.	18 min.	50 min.	235 max	20 min. 27 av.
actual	730	620	28,0	54,0	231-234-229	59 - 66 - 56

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,38 - 0,48	0,75 - 1,00	0,15 - 0,35	0,035 max	0,040 max	0,80 - 1,10	0,15 - 0,25	
actual	0,385	0,760	0,260	0,021	0,023	1,020	0,200	

remarks: Mechanical values see IRCM certificate 872/16. Chemical values and macroetch test at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY. According to: ASME II part. A ed. 2021 - NACE MR0175/ISO 15156. Macroetch test according to ASTM E381 result: S1; R1; C1.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions. Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0. Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 19-06-24

**Our Ref.** DDT 2277 / OC 1092 **of** 19-06-24

**Your Ref.** P10007006

22-04-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2401748**

Pag. 3 of 5

ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
55877M134P	72,00	quenched tempered @ 650°C		690803	531457
HEAVY HEX NUT TAB.10 ANSI B18.2.2 - A/SA194 G7M D. 1"3/4 - 8UN 25 - 500000909					

**MECHANICAL PROPERTIES**

values	HB (min-max)	HB after 24 hrs (min)	PROOF LOAD	I.T. KV -73°C (J)
required	159 - 235	159		20 min. 27 av.
actual	226 - 235	221 - 228	N.A.	47 - 55 - 40

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)
required	0,38 - 0,48	0,75 - 1,0	0,15 - 0,35	0,035 max	0,040 max	0,80 - 1,10	0,15 - 0,25
actual	0,43	0,75	0,22	0,012	0,011	0,97	0,16

remarks: Chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
Nuts hardness test after 24 HRS tempering at 590°C. According to : ASME II part. A ed. 2021 - NACE MR0175/ISO 15156.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 19-06-24

**Our Ref.** DDT 2277 / OC 1092

**of** 19-06-24

**Your Ref.** P10007006

22-04-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2401748**

Pag. 4 of 5

ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
TERPLM134195	56,00	quenched tempered		831809	AC3228*
STUD BOLT ANSI B1.1 CL.2A - A/SA320 L7M D. 1"3/4 - 8UN x 195 40 - 500000909					

**MECHANICAL PROPERTIES**

values	R (MPa)	Rs 0,2 (MPa)	A4 (%)	Z (%)	HB	I.T. KV - 73°C (J)
required	690 min.	550 min.	18 min.	50 min.	235 max	20 min. 27 av.
actual	703	596	28,0	67,0	219 - 222	78 - 75 - 68

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,38 - 0,48	0,75 - 1,00	0,15 - 0,35	0,035 max	0,040 max	0,80 - 1,10	0,15 - 0,25	
actual	0,395	0,830	0,220	0,011	0,005	0,920	0,160	0,028

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II part. A ed. 2017- NACE MR0175/ISO 15156.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 19-06-24

**Our Ref.** DDT 2277 / OC 1092

**of** 19-06-24

**Your Ref.** P10007006

22-04-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2401748**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
5931LM012100	4,00	quenched tempered		831804	AL1024**
HEX SOCKET HEAD CAP SCREW UNI 5931/ISO4762/DIN912 - A/SA320 L7M M 12 x 100					
5 - 500000909					

**MECHANICAL PROPERTIES**

values	R (MPa)	Rs 0,2 (MPa)	A4 (%)	Z (%)	HB	I.T. KV - 73°C (J)
required	690 min.	550 min.	18 min.	50 min.	235 max	20 min. 27 av.
actual	735	673	24,0	68,0	229 - 231	44 - 44 - 42

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,38 - 0,48	0,75 - 1,00	0,15 - 0,35	0,035 max	0,040 max	0,80 - 1,10	0,15 - 0,25	
actual	0,380	0,750	0,190	0,009	0,030	0,980	0,170	

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II part. A ed. 2021 - NACE MR0175/ISO 15156. Macroetch test according to ASTM E381 result: S1 R1 C1.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



MI N B240927a÷u

**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
TIR4B7036100B	10,00	quenched tempered	ASTM B633 Fe/Zn 8 SC2 TYPE III	833767	289055
STUDBOLT DIN 975 - A/SA193 B7 M 36 x 4 x 100 ZINC.PLATED 35 - BOLTS VARI JOBS					

**MECHANICAL PROPERTIES**

values	Rm (MPa)	Rp 0,2 (MPa)	A4 (%)	Z (%)	HB (min-max)
required	860 min	720 min	16 min.	50 min.	321 max
actual	956,7	931,3	19,2	55,8	286

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,380 - 0,480	0,750 - 1,000	0,150 - 0,350	0,035 max	0,040 max	0,800 - 1,100	0,150 - 0,250	
actual	0,425	0,817	0,274	0,011	0,010	1,028	0,214	0,024

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to ASME II part. A ed. 2021. Macroetch test according to ASTM E381 result: S1; R1; C1.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
TIR.B7030120B	50,00	quenched tempered	ASTM B633 Fe/Zn 8 SC2 TYPE III	833766	295385*
<i>30 - BOLTS VARI JOBS</i>					

**MECHANICAL PROPERTIES**

values	Rm (MPa)	Rp 0,2 (MPa)	A4 (%)	Z (%)	HB (min-max)
required	860 min	720 min	16 min.	50 min.	321 max
actual	962,5	869,8	18,0	53,6	288

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,380 - 0,480	0,750 - 1,000	0,150 - 0,350	0,035 max	0,040 max	0,800 - 1,100	0,150 - 0,250	
actual	0,418	0,842	0,290	0,010	0,0120	1,022	0,211	0,024

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II part. A ed. 2021. Macroetch test according to ASTM E381 result: S1 R1 C1.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM		QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
TIR.B7016065B	STUDBOLT UNI6610/DIN976B - A/SA193 B7 M 16 x 65 ZINC.PLATED <i>10 - BOLTS VARI JOBS</i>	50,00	quenched tempered	ASTM B633 Fe/Zn 8 SC2 TYPE III	833762	299012
TIR.B7016075B	STUDBOLT UNI6610/DIN976B - A/SA193 B7 M 16 x 75 ZINC.PLATED <i>15 - BOLTS VARI JOBS</i>	200,00	quenched tempered	ASTM B633 Fe/Zn 8 SC2 TYPE III	833763	299012
TIR.B7016080B	STUDBOLT UNI6610/DIN976B - A/SA193 B7 M 16 x 80 ZINC.PLATED <i>20 - BOLTS VARI JOBS</i>	50,00	quenched tempered	ASTM B633 Fe/Zn 8 SC2 TYPE III	833764	299012

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.

Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.

Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**

RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.			
<b>MECHANICAL PROPERTIES</b>								
values	Rm (MPa)	Rp 0,2 (MPa)	A4 (%)	Z (%)	HB (min-max)			
required	860 min	720 min	16 min.	50 min.	321 max			
actual	992	784,2	19,5	60,3	296			
<b>CHEMICAL COMPOSITION</b>								
values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,380 - 0,480	0,750 - 1,000	0,150 - 0,350	0,035 max	0,040 max	0,800 - 1,100	0,150 - 0,250	
actual	0,412	0,836	0,292	0,008	0,0040	1,032	0,214	0,027

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II part. A ed. 2023. Macroetch test according to ASTM E381 result: S1 R1 C1.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
TERPL7034070	80,00	quenched tempered		833756	299641
STUD BOLT ANSI B1.1 CL.2A - A/SA320 L7 D. 3/4" - 10UNC x 70					
<i>100 -BOLTS VARI JOBS</i>					

**MECHANICAL PROPERTIES**

values	R (MPa)	Rs 0,2 (MPa)	A4 (%)	Z (%)	HT	I.T. -101°C
required	860 min.	725 min.	16 min.	50 min.	ASTM A370+E10	ASTM A370+E23
actual	969	798	17,1	61,0	291	20 min. 27 av. (J)
						69 - 67 - 79

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,38 - 0,48	0,75 - 1,00	0,15 - 0,35	0,035 max	0,040 max	0,80 - 1,10	0,15 - 0,25	
actual	0,417	0,804	0,262	0,012	0,0050	1,009	0,200	0,025

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II part. A ed. 2023. Macroetch test according to ASTM E381 result: S1 R1 C1.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
TIR.8M016075	60,00	carbide solution tr.		833759	2JDL*

STUDBOLT UNI6610/DIN976B - A/SA193-320 B8M M 16 x 75

65 - BOLTS VARI JOBS

**MECHANICAL PROPERTIES**

values	R (MPa)	Rp 0,2 (MPa)	A4 (%)	Z (%)	HB (min-max)
required	515 min	205 min	30 min.	50 min.	241 max
actual	683	547	38,0	67,0	222

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Ni (%)	Cr (%)	Mo (%)	N (%)
required	0,08 max	2,00 max	1,00 max	0,045 max	0,030 max	10,00 - 14,00	16,00 - 18,00	2,00 - 3,00	
actual	0,0190	1,4180	0,5000	0,0300	0,0280	10,5200	16,6550	2,0760	0,0350

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II Part. A ed. 2023 - NACE MR 01-75/ISO 15156.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**

RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
TIR.B7020075B	50,00	quenched tempered	ASTM B633 Fe/Zn 8 SC2 TYPE III	833765	301310
STUDBOLT UNI6610/DIN976B - A/SA193 B7 M 20 x 75 ZINC.PLATED <i>25 - BOLTS VARI JOBS</i>					

**MECHANICAL PROPERTIES**

values	Rm (MPa)	Rp 0,2 (MPa)	A4 (%)	Z (%)	HB (min-max)
required	860 min	720 min	16 min.	50 min.	321 max
actual	1023,9	813,9	18,6	56,8	309

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,380 - 0,480	0,750 - 1,000	0,150 - 0,350	0,035 max	0,040 max	0,800 - 1,100	0,150 - 0,250	
actual	0,423	0,838	0,281	0,012	0,0060	1,009	0,208	0,025

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
AAccording to: ASME II part. A ed. 2023. Macroetch test according to ASTM E381 result: S1 R1 C1.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**

RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
TIR.8M020075	60,00	carbide solution tr.		833760	3AZH

STUDBOLT UNI6610/DIN976B - A/SA193-320 B8M M 20 x 75

70 - BOLTS VARI JOBS

**MECHANICAL PROPERTIES**

values	R (MPa)	Rp 0,2 (MPa)	A4 (%)	Z (%)	HB (min-max)
required	515 min	205 min	30 min.	50 min.	241 max
actual	726	624	35,0	65,0	228

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Ni (%)	Cr (%)	Mo (%)	N (%)
required	0,08 max	2,00 max	1,00 max	0,045 max	0,030 max	10,00 - 14,00	16,00 - 18,00	2,00 - 3,00	
actual	0,0200	1,4480	0,3460	0,0300	0,0220	10,3400	16,6200	2,0680	0,0440

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II part. A ed. 2021 - NACE MR0175/ISO 15156.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**

RSQ A. Grisetti



**BULLONERIA - TIRANERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
55878M016	80,00	carbide solution tr.		763349	462994 *

HEX NUT UNI 5587/ISO4033/H=D - A/SA194 G8M M 16

85 - BOLTS VARI JOBS

**MECHANICAL PROPERTIES**

values	HB (min-max)	PROOF LOAD
required	126 - 300	
actual	222 - 227	POSITIVE

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Ni (%)	Cr (%)	Mo (%)	N (%)
required	0,08 max	2,00 max	1,00 max	0,045 max	0,030 max	10,0 - 14,0	16,0 - 18,0	2,00 - 3,00	
actual	0,030	1,61	0,35	0,033	0,028	10,06	16,59	2,01	0,0390

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
Acc. to: ASME II part. A ed. 2021 - NACE MR0175/ISO 15156. IC test acc./IK prüfung nach ASTM A 262 E.15. OK

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
55872H012000B HEX NUT UNI 5587/H=D - A/SA194 2H M 12 ZINC.PLATED <i>40 - BOLTS VARI JOBS</i>	300,00	quenched tempered @ 580°C	ASTM B633 Fe/Zn 8 SC2 TYPE III	828117	53864

**MECHANICAL PROPERTIES**

values	HB (min-max)	HB after 24 hrs	PROOF LOAD	HRc (min-max)	HRc after 24 hrs
required	248 - 327	179 min.		24 - 35	89 HRb min.
actual	271 - 313	266 - 308	OK @ 101,6 KN		

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)
required	0,400 min	1,000 max	0,400 max	0,040 max	0,050 max
actual	0,45	0,73	0,23	0,011	0,024

remarks: nuts hardness test after 24 HRS tempering at 540°C. According to: ASME II part. A ed. 2021. Macroetch test according to ASTM E381 result: S2; R1; C2  
chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANERIA  
SPECIALE E STANDARD**

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM		QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
55872H030	HEX NUT UNI 5587/ISO4033/H=D - A/SA194 2H M 30 <i>75 - BOLTS VARI JOBS</i>	10,00	quenched tempered @ 580°C		725620	593924
55872H030000B	HEX NUT UNI 5587/ISO4033/H=D - A/SA194 2H M 30 ZINC.PLATED <i>55 - BOLTS VARI JOBS</i>	20,00	quenched tempered @ 580°C	ASTM B633 Fe/Zn 8 SC2 TYPE III	705379	593924

**MECHANICAL PROPERTIES**

values	HB (min-max)	HB after 24 hrs	PROOF LOAD	HRc (min-max)	HRc after 24 hrs
required	248 - 327	179 min.		24 - 35	89 HRb min.
actual	271 - 298	267 - 294	OK @ 676 KN		

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)
required	0,400 min	1,000 max	0,400 max	0,040 max	0,050 max
actual	0,45	0,72	0,21	0,014	0,011

remarks: Chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
Nuts hardness test after 24 HRS tempering at 540°C. According to: ASME II part. A ed. 2021. Macroetch acc. to ASTM E381 result: S1; R2; C1

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
55872H016000B	150,00	quenched tempered @ 580°C	ASTM B633 Fe/Zn 8 SC2 TYPE III	799959	596038
HEX NUT UNI 5587/ISO4033/H=D - A/SA194 2H M 16 ZINC.PLATED 45 - BOLTS VARI JOBS					

**MECHANICAL PROPERTIES**

values	HB (min-max)	HB after 24 hrs	PROOF LOAD	HRc (min-max)	HRc after 24 hrs
required	248 - 327	179 min.		24 - 35	89 HRb min.
actual	282 - 303	277 - 297	OK @ 189,2 KN		

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)
required	0,400 min	1,000 max	0,400 max	0,040 max	0,050 max
actual	0,45	0,73	0,21	0,009	0,008

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
nuts hardness test after 24 HRS tempering at 540°C. According to: ASME II part. A ed. 2023. Macroetch test according to ASTM E381 result: S1; R2; C2.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**

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**BULLONERIA - TIRANTERIA**  
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Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
55872H020000B HEX NUT UNI 5587/ISO4033/H=D - A/SA194 2H M 20 ZINC.PLATED <i>50 - BOLTS VARI JOBS</i>	200,00	quenched tempered @ 580°C	ASTM B633 Fe/Zn 8 SC2 TYPE III	833754	596040

**MECHANICAL PROPERTIES**

values	HB (min-max)	HB after 24 hrs	PROOF LOAD	HRc (min-max)	HRc after 24 hrs
required	248 - 327	179 min.		24 - 35	89 HRb min.
actual	273 - 288	269 - 282	OK @ 295,2 KN		

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)
required	0,400 min	1,000 max	0,400 max	0,040 max	0,050 max
actual	0,43	0,73	0,22	0,011	0,009

remarks: Chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
Nuts hardness test after 24 HRS tempering at 540°C. According to: ASME II part. A ed. 2023. Macroetch test according to ASTM E381 result: S2; R2; C1.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**

RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
TIR.8M012055	10,00	carbide solution tr.		833758	772773

STUDBOLT UNI6610/DIN976B - A/SA193-320 B8M M 12 x 55

60 - BOLTS VARI JOBS

**MECHANICAL PROPERTIES**

values	R (MPa)	Rp 0,2 (MPa)	A4 (%)	Z (%)	HB (min-max)
required	515 min	205 min	30 min.	50 min.	241 max
actual	778	701	32,0	66,0	232

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Ni (%)	Cr (%)	Mo (%)	N (%)
required	0,08 max	2,00 max	1,00 max	0,045 max	0,030 max	10,00 - 14,00	16,00 - 18,00	2,00 - 3,00	
actual	0,016	1,790	0,380	0,025	0,0280	10,080	16,610	2,070	0,0770

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II part. A ed. 2021 - NACE MR0175/ISO 15156.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**

RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
5931L7010025	80,00	quenched and tempered		833755	BB7052*

HEX SOCKET HEAD CAP SCREW UNI 5931/ISO4762/DIN912 - A/SA320 L7 M 10 x 25

95 - BOLTS VARI JOBS

**MECHANICAL PROPERTIES**

values	R (MPa)	Rs 0,2 (MPa)	A4 (%)	Z (%)	HT	I.T. -101°C
required	860 min.	725 min.	16 min.	50 min.	ASTM A370+E10	ASTM A370+E23
actual	1026	860	19,2	57,3	312	N.A.

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,38 - 0,48	0,75 - 1,00	0,15 - 0,35	0,035 max	0,040 max	0,80 - 1,10	0,15 - 0,25	
actual	0,425	0,820	0,240	0,010	0,0240	1,090	0,170	0,021

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II part. A ed. 2023. Macroetch test according to ASTM E381 result: N.A. - inadequate area

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.

Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.

Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA  
SPECIALE E STANDARD**

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
TERPLM134205	80,00	quenched tempered		833757	BE4550* *

STUD BOLT ANSI B1.1 CL.2A - A/SA320 L7M D. 1"3/4 - 8UN x 205

105 -BOLTS VARI JOBS

**MECHANICAL PROPERTIES**

values	R (MPa)	Rs 0,2 (MPa)	A4 (%)	Z (%)	HB	I.T. KV - 73°C (J)
required	690 min.	550 min.	18 min.	50 min.	235 max	20 min. 27 av.
actual	790	665	26,0	64,0	228-231-231	46 - 57 - 57

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,38 - 0,48	0,75 - 1,00	0,15 - 0,35	0,035 max	0,040 max	0,80 - 1,10	0,15 - 0,25	
actual	0,440	0,860	0,310	0,007	0,0010	1,080	0,220	0,029

remarks: Mechanical values see IRCM cert. nr.1335/21. Chemical values, at delivery condition, are quoted by the relevant steel work certificate.  
According to: ASME II part. A ed. 2019 - NACE MR0175/ISO 15156. Macroetch test according to ASTM E381 result: S1; R1; C1. VISUAL AND DIMENSIONAL TEST SATISFACTORY

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
TIR.B7012055B	250,00	quenched tempered	ASTM B633 Fe/Zn 8 SC2 TYPE III	833761	BK0922
STUDBOLT UNI6610/DIN976B - A/SA193 B7 M 12 x 55 ZINC.PLATED					
5 - BOLTS VARI JOBS					

**MECHANICAL PROPERTIES**

values	Rm (MPa)	Rp 0,2 (MPa)	A4 (%)	Z (%)	HB (min-max)
required	860 min	720 min	16 min.	50 min.	321 max
actual	998,3	800,3	22,2	63,3	300

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,380 - 0,480	0,750 - 1,000	0,150 - 0,350	0,035 max	0,040 max	0,800 - 1,100	0,150 - 0,250	
actual	0,425	0,810	0,210	0,008	0,0250	1,070	0,160	0,022

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II part. A ed. 2023. Macroetch test according to ASTM E381 result: S1 R1 C1.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

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RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
55878M020	80,00	carbide solution tr.		834173	T8DT*
<i>90 - BOLTS VARI JOBS</i>					

**MECHANICAL PROPERTIES**

values	HB (min-max)	PROOF LOAD
required	126 - 300	
actual	219 - 222	POSITIVE

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Ni (%)	Cr (%)	Mo (%)	N (%)
required	0,08 max	2,00 max	1,00 max	0,045 max	0,030 max	10,0 - 14,0	16,0 - 18,0	2,00 - 3,00	
actual	0,024	1,511	0,458	0,025	0,0270	10,325	16,565	2,048	

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II part. A ed. 2023 - NACE MR0175/ISO 15156.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 01-08-24

**Our Ref.** DDT 3065 / OC 1421

**of** 01-08-24

**Your Ref.** P10007311

26-06-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2402245**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
55878M012	80,00	carbide solution tr.		732436	Z2CZ *

HEX NUT UNI 5587/H=D - A/SA194 G8M M12

80 - BOLTS VARI JOBS

**MECHANICAL PROPERTIES**

values	HB (min-max)	PROOF LOAD
required	126 - 300	
actual	205 - 211	POSITIVE

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Ni (%)	Cr (%)	Mo (%)	N (%)
required	0,08 max	2,00 max	1,00 max	0,045 max	0,030 max	10,0 - 14,0	16,0 - 18,0	2,00 - 3,00	
actual	0,0250	1,4620	0,4610	0,0310	0,0270	10,3400	16,6250	2,0310	0,0460

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II part. A ed 2021 - NACE MR0175/ISO 15156.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)



MIN B240568a÷e

**Date,** 19-06-24

**Our Ref.** DDT 2277 / OC 1092

**of** 19-06-24

**Your Ref.** P10007006

22-04-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2401748**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
5931LM016060	8,00	quenched tempered		831805	301837**
HEX SOCKET HEAD CAP SCREW UNI 5931/ISO4762/DIN912 - A/SA320 L7M M 16 x 60					
10 - 500000909					

**MECHANICAL PROPERTIES**

values	R (MPa)	Rs 0,2 (MPa)	A4 (%)	Z (%)	HB	I.T. KV - 73°C (J)
required	690 min.	550 min.	18 min.	50 min.	235 max	20 min. 27 av.
actual	735	550	28,0	65,0	229-224-229	54 - 40 - 44

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,38 - 0,48	0,75 - 1,00	0,15 - 0,35	0,035 max	0,040 max	0,80 - 1,10	0,15 - 0,25	
actual	0,435	0,850	0,247	0,018	0,024	1,050	0,177	

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II part. A ed. 2021 - NACE MR0175/ISO 15156. Macroetch esamination acc. to ASTM E381 result: S1; R1; C1.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**

RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 19-06-24

**Our Ref.** DDT 2277 / OC 1092

**of** 19-06-24

**Your Ref.** P10007006

22-04-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2401748**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
5931LM016100	8,00	quenched tempered		831806	33659 *
HEX SOCKET HEAD CAP SCREW UNI 5931/ISO4762/DIN912 - A/SA320 L7M M 16 x 100					
15 - 500000909					

**MECHANICAL PROPERTIES**

values	R (MPa)	Rs 0,2 (MPa)	A4 (%)	Z (%)	HB	I.T. KV - 73°C (J)
required	690 min.	550 min.	18 min.	50 min.	235 max	20 min. 27 av.
actual	730	620	28,0	54,0	231-234-229	59 - 66 - 56

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,38 - 0,48	0,75 - 1,00	0,15 - 0,35	0,035 max	0,040 max	0,80 - 1,10	0,15 - 0,25	
actual	0,385	0,760	0,260	0,021	0,023	1,020	0,200	

remarks: Mechanical values see IRCM certificate 872/16. Chemical values and macroetch test at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY. According to: ASME II part. A ed. 2021 - NACE MR0175/ISO 15156. Macroetch test according to ASTM E381 result: S1; R1; C1.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions. Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0. Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
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Via Papa Giovanni Paolo I, 306  
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**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 19-06-24

**Our Ref.** DDT 2277 / OC 1092 **of** 19-06-24

**Your Ref.** P10007006

22-04-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2401748**

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ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
55877M134P HEAVY HEX NUT TAB.10 ANSI B18.2.2 - A/SA194 G7M D. 1"3/4 - 8UN 25 - 500000909	72,00	quenched tempered @ 650°C		690803	531457

**MECHANICAL PROPERTIES**

values	HB (min-max)	HB after 24 hrs (min)	PROOF LOAD	I.T. KV -73°C (J)
required	159 - 235	159		20 min. 27 av.
actual	226 - 235	221 - 228	N.A.	47 - 55 - 40

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)
required	0,38 - 0,48	0,75 - 1,0	0,15 - 0,35	0,035 max	0,040 max	0,80 - 1,10	0,15 - 0,25
actual	0,43	0,75	0,22	0,012	0,011	0,97	0,16

remarks: Chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
Nuts hardness test after 24 HRS tempering at 590°C. According to : ASME II part. A ed. 2021 - NACE MR0175/ISO 15156.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
21040 UBOLDO (VA)



**Customer: VELAN ABV S.R.L.**

VIA ROMANA OVEST, 27/B  
55016 PORCARI (LU)

**Date,** 19-06-24

**Our Ref.** DDT 2277 / OC 1092 **of** 19-06-24

**Your Ref.** P10007006

22-04-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2401748**

Pag. 4 of 5

ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
TERPLM134195	56,00	quenched tempered		831809	AC3228*
STUD BOLT ANSI B1.1 CL.2A - A/SA320 L7M D. 1"3/4 - 8UN x 195 40 - 500000909					

**MECHANICAL PROPERTIES**

values	R (MPa)	Rs 0,2 (MPa)	A4 (%)	Z (%)	HB	I.T. KV - 73°C (J)
required	690 min.	550 min.	18 min.	50 min.	235 max	20 min. 27 av.
actual	703	596	28,0	67,0	219 - 222	78 - 75 - 68

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,38 - 0,48	0,75 - 1,00	0,15 - 0,35	0,035 max	0,040 max	0,80 - 1,10	0,15 - 0,25	
actual	0,395	0,830	0,220	0,011	0,005	0,920	0,160	0,028

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II part. A ed. 2017- NACE MR0175/ISO 15156.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**  
RSQ A. Grisetti



**BULLONERIA - TIRANTERIA**  
SPECIALE E STANDARD

Via Papa Giovanni Paolo I, 306  
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**Date,** 19-06-24

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22-04-24

**CERTIFICATE UNI EN 10204 - 3.1 N.2401748**

Pag. 5 of 5

ITEM	QUANTITY	HEAT TREATMENT	PROTECTION	LOT nr.	HEAT nr.
5931LM012100	4,00	quenched tempered		831804	AL1024**
HEX SOCKET HEAD CAP SCREW UNI 5931/ISO4762/DIN912 - A/SA320 L7M M 12 x 100					
5 - 500000909					

**MECHANICAL PROPERTIES**

values	R (MPa)	Rs 0,2 (MPa)	A4 (%)	Z (%)	HB	I.T. KV - 73°C (J)
required	690 min.	550 min.	18 min.	50 min.	235 max	20 min. 27 av.
actual	735	673	24,0	68,0	229 - 231	44 - 44 - 42

**CHEMICAL COMPOSITION**

values	C (%)	Mn (%)	Si (%)	P (%)	S (%)	Cr (%)	Mo (%)	Al (%)
required	0,38 - 0,48	0,75 - 1,00	0,15 - 0,35	0,035 max	0,040 max	0,80 - 1,10	0,15 - 0,25	
actual	0,380	0,750	0,190	0,009	0,030	0,980	0,170	

remarks: chemical and mechanical values, at delivery condition, are quoted by the relevant steel work certificate. VISUAL AND DIMENSIONAL TEST SATISFACTORY  
According to: ASME II part. A ed. 2021 - NACE MR0175/ISO 15156. Macroetch test according to ASTM E381 result: S1 R1 C1.

If not mentioned the above test are performed at room temperature.

We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.  
Quality assurance system in accordance to European Directive 2014/68/EU annex I par. 4.3 (PED) and AD 2000 Merkblatt W0.  
Certificates 0045/202/WZ1921/23 and TN/AD2000-W0/1921/23 TÜV NORD Systems GmbH & Co. KG.

**IPL S.R.L.**

RSQ A. Grisetti



Today the world of tomorrow

**DELTA CO-DEPOSITION S.R.L.**

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Cap. Soc. € 10.200,00 i.v. - P.IVA 12306070157

**CERTIFICATO CONTROLLO QUALITA'**

**QUALITY CONTROL CERTIFICATE**

EN 10204 3.1



AZIENDA CERTIFICATA

ISO 9001:2015

ISO 14001:2015

ISO 45001:2018

**DATI GENERALI / GENERAL INFORMATION**

Certificato N° / Data Rep N°	<b>240002636-03/003</b>	Data / Date	<b>07/10/2024</b>	
Ddt Cliente / Customer delivery	<b>NR.861 DEL 27/09/24</b>			
Ddt DELTA / DELTA delivery	<b>N. 0002131 - Del 04/10/2024</b>			
Cliente / Customer	<b>VELAN ABV SRL</b>			
Descrizione / Description	<b>T38A126A001 PIASTRA *25u"</b>			
Materiale base / Base material	<b>Inossidabile</b>	Tipo processo / Process type	<b>ENP-1012</b>	
Specif. di riferim. / Ref. specif.	<b>LS001 REV.0 VELAN</b>			
Q.tà / Q.ty	Imp n° / Planet n°	Bagno n° / Bath n°	Barra n° / Rack n°	M.T.O.
<b>4,00</b>	<b>B</b>	<b>213</b>	<b>3</b>	<b>0,56</b>

**RIFERIMENTI DOCUMENTI / DOCUMENTARY REFERENCES**

PO: ITEM: S1-NCR-20240920-01

IN A240 SS316/316L

ORD. S10003530 POS.30

**CONTROLLI EFFETTUATI / PERFORMED TEST**

Controllo Test	Metodo Method	Conforme Compliant	Valori Values	N° Provino Coupon s.n.	Specifica di rif. Ref. Spec.
ADHESION	BURNISHING TEST	Conform			ASTM B733
ADHESION	IMPACT TEST	Conform			ASTM B733
VISUAL INSPECTION	FINAL VISUAL INSPECTION	Conform			ASTM B733
THICKNESS	THICKNESS BY WEIGHT	Conform	26,42 µm	135079	ASTM B733

Note / Notes

Emesso da / Issue by

Quality Department

**NICHOLAS MOMBELLI**