

CERTIFICATE

EU Type – Examination

According to Directive 2014/33/EU, (Module B, annex IV - A)

Certificate No: LF/KSA/A-C-0283/22

Identification No of Certification body:

MIRTEC s.a  0437

Name & Address
of the Certificate Holder:
of the Manufacturer:

**ZHEJIANG XIZI FORVORDA ELECTRICAL
MACHINERY CO., LTD.**

No. 181, HETING STREET, QINGSHAN LAKE SUBDISTRICT,
LIN'AN DISTRICT, HANGZHOU CITY, ZHEJIANG PROVINCE, P.R.
CHINA

Date of Submission for
EU Type-Examination:

06/07/2022

Product of Safety Component:

Electromechanical brake as ascending safety device
(ASD) to prevent uncontrolled upward movement of the car and as
unintended car movement protection (UCMP) means

Type:

DZD2

Applicable Standards:

2014/33/EU, annex I,
EN81-50:2020 5.7 & 5.8
EN81-20:2020 5.6.6 & 5.6.7, 5.9.2.2.2

Examination Period:

July 2022

Date & No of examination report:

LF/KSA/A-R-0283/22, 11/07/2022

Place of testing:

Zhejiang Academy of Special Equipment Science /
No.77, Fenghuang Road, Jianshan, Haining, Jiaxing, Zhejiang, China

Date & No of laboratory Report:

UCMP: TSX20211145, 09/11/2021

ACOP: TSX20211150, 11/11/2021

Documents annexed:
to the Certification:

Product description, Calculation book, Drawings,
Installation & maintenance instructions, Material list

Field of application:

ANNEX 1, ANNEX 2

Validation conditions / Additional instructions:

The production of the brake falls under random inspections from the certification body.
For all changes on the materials, drawings and production-assembly methods the certificate holder must inform the certification body.
The Certificate holder issues a declaration of conformity according to the basic requirements of the relative directive and places the CE marking with his own responsibility. The product must be accompanied by installation & maintenance instructions adjustment.
The brake should have a label with the necessary information (name of manufacturer, type examination certificate number, field of application, serial number, date etc).

Result of the examination - Declaration:

Here with we certify that the type of the product mentioned above, meets the requirements of the Directive 2014/33/EU.

Only the products detailed in the test report have been subjected to tests.

Date of issue:

21.07.2022

For MIRTEC S.A.

I. DIMITRIADIS
Lead Auditor, Inspector of Lifts

EBETAM A.E.
CERT – safecomp / EN 02 (5.0 / 10.2.17)
AET:39107



Certification department for lifts

C. SPILIOPOULOS
Inspector of Lifts

ANNEX 1

Part of the EU-Type examination LF/KSA/A-C-0283/22

Technical characteristics			
Model	DZD2	Type of stopping element	Synchronous motor brake
Acting position	Traction sheave shaft	Action method	Acting when power supply loss
Material of friction element	Non-asbestos composite	Type of elastic element	Cylindrical helical compression spring
Number of friction surfaces	2	Air gap	0.25 - 0.35 mm
Brake torque	2 × 837 Nm	2 × 832 Nm	2 × 992 Nm
Spring type	Ø 9.7×Ø 3×38 Ø 9.0×Ø 3.1×45 Ø 20.6×Ø 6.4×45	Ø 9.7×Ø 3×38 Ø 9.0×Ø 3.1×45 Ø 20.6×Ø 6.4×45	Ø 9.7×Ø 3×38 Ø 9.0×Ø 3.1×45 Ø 20.6×Ø 6.4×45
Number of springs	4+2+2	4+2+2	4+2+2
Diameter of brake drum	Ø 490 mm	Ø 618 mm	Ø 658 mm

A. Brake as ascending safety device (ASD) to prevent uncontrolled upward movement of the car

Field of application			
Range of rated load	450 - 1250 kg		
Range of system mass	1080 - 6625 kg		
Range of weight of car	450 - 3000 kg		
Range of balance coefficient	0.4 - 0.5		
Traction ratio	2:1		
Rated speed	0.50 - 2.5 m/sec		
Tripping speed range	0.58 - 3.23 m/sec		
Brake torque	2 × 837 Nm	2 × 832 Nm	2 × 992 Nm
Max. rated rotational speed	191 r/min	159 r/min	227 r/min
Max. tripping rotational speed	251 r/min	212 r/min	293 r/min



Notes	The range of the system mass and weight of car and rated load are determined according to the type-examination sample with the suspension ratio of 2:1, the values of other actual suspension ratios can be obtained by the following formulas: 1) Applicable system mass = type-examination system mass × actual suspension ratio ÷ suspension ratio in type-examination; 2) Applicable weight of car = type-examination weight of car × actual suspension ratio ÷ suspension ratio in type-examination; 3) Applicable rated load = type-examination rated load × actual suspension ratio ÷ suspension ratio in type-examination.
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The maximum tripping speed of the lift and the nominal speed of the lift are being calculated based on the maximum tripping rotational speed and the nominal rotational speed of the traction sheave. Taking into account for this calculation the traction sheave diameter and the car suspension.

$$v = \frac{D * \pi * n}{60 * i}$$

D = diameter of the traction sheave (m)

$\pi = 3,14$

n = rotational speed (min^{-1})

i = ratio of car suspension

V = lift speed (m/sec)

Remarks

- The permissible braking moments must be applied to the lift system in such a way that during the stopping phase, the braking element shall not allow a retardation of the car in excess of 1g for upwards movement with empty car.
- The installation conditions and connection requirements are described in the operating instructions.

Conditions

- The braking element also functions as a brake for normal operation. In the scope of this type examination, it was found out that there is built-in redundancy. For meeting the requirements to be used also as ascending safety device (ASD) to prevent uncontrolled upward movement of the car, must also has self-monitoring of correct operation.
- Self-monitoring could include verification of correct lifting or dropping of the mechanism or verification of the breaking force. This must applied on both brakes individually. If a failure is detected, car and landing doors shall be closed and the normal start of the lift shall be prevented.
- The braking element must impact directly on the traction sheave or on the same shaft in the immediate vicinity of the traction sheave. If the braking element does not impact on the traction sheave or on the same shaft in the immediate vicinity of the traction sheave, a deviation from the norm exists.

ANNEX 2

Part of the EU-Type examination LF/KSA/A-C-0283/22

B. Brake as unintended car movement protection (UCMP) means

Field of application	
Range of rated load	450 -1250 kg
Range of system mass	1080 -6625 kg
Range of weight of car	450 - 3000 kg
Range of balance coefficient	0.4 - 0.5
Traction ratio	2:1
Inspection speed	0.25 m/sec
Moving distance of the inspection speed	≤ 0.30 m
Response time	≤ 200 ms
Notes	<p>The range of the system mass and weight of car and rated load are determined according to the type-examination sample with the suspension ratio of 2:1, the values of other actual suspension ratios can be obtained by the following formulas:</p> <ol style="list-style-type: none"> 1) Applicable system mass=type-examination system mass × actual suspension ratio ÷ suspension ratio in type-examination; 2) Applicable weight of car=type-examination weight of car × actual suspension ratio ÷ suspension ratio in type-examination; 3) Applicable rated load=type-examination rated load × actual suspension ratio ÷ suspension ratio in type-examination.

Test results

Max. Braking response time	84 ms	Max. stopping distance	618 mm
Max. Average retardation	0.157 gn ≤ 1gn	Max. speed before retardation	1.45 m/sec



EBETAMIRTEC

Requirements

- The safety component as a braking element is only a part of a protection system against the unintended car movement. The complete system, apart from the braking element, also consists of a detecting element and a triggering element. These components are subjected to their own type examination too. Only the correct combination of the three parts can create a system which fulfills the requirements for protection against UCM in accordance with EN 81-20 paragraph 5.6.7.
- The machine brake used in this system is an electro-mechanical brake according to 5.9.2.2.2 of the standard EN 81-20 and is considered to have built-in redundancy. The brake also is self-monitored. So it meets the point 5.6.7.3.
- The brake is acting on the sheave directly or in the immediate vicinity of the sheave. So it meets the point 5.6.7.4.
- The brake is activated by the loss of the power supply so it meets the point 5.6.7.12.
- The average retardation $\leq 1gn$ so it meets the point 5.6.7.6.

Conditions

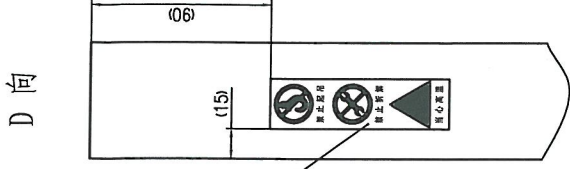
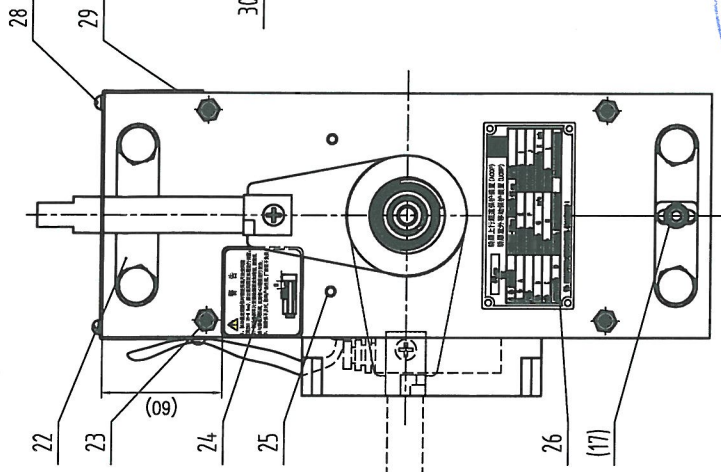
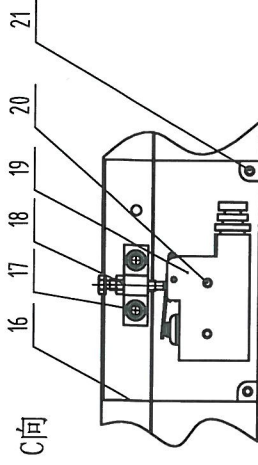
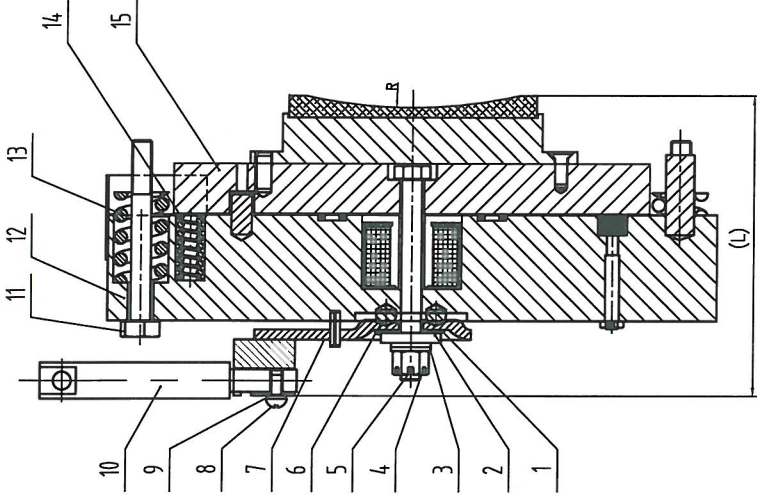
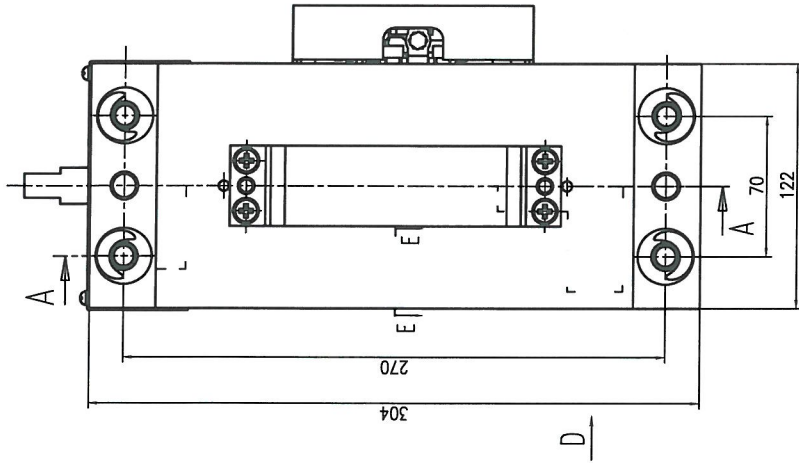
- The tests have been made with the parameters and configuration that listed in this certificate. If these parameters or configuration have been changed, the tests must be done again and the certificate is no valid anymore.
- Self-monitoring, through the verification of correct lifting or dropping of the mechanism and verification of the breaking force, applied on both brakes individually. If a failure is detected, car and landing doors shall be closed and the normal start of the lift shall be prevented.
- The braking element must impact directly on the traction sheave or on the same shaft in the immediate vicinity of the traction sheave. If the braking element does not impact on the traction sheave or on the same shaft in the immediate vicinity of the traction sheave, a deviation from the norm exists.
- The installation conditions and connection requirements are described in the operating instructions.

Certification department of MIRTEC S.A.

C. SPILIOPOULOS



XF2556127



21/7/2022

XF2556127		DZD2 brake lefe		XF2556127	
重量(kg)		比例		第1页	
20.3		1:2.5		共2页	
材料:		Assembly drawing			
设计	李峰	2022.4.14	工艺	牛万东	2022.4.18
校核	徐璐	2022.4.14	标准化	刘强	2022.4.18
审核	王志刚	2022.4.14	批准	王焱萍	2022.4.18
文件号	标记	版本	日期	签字	更改内容
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<p>2022.5.30 用户登记</p>					
<p>接收号 版本号/0</p>					

浙江西子富沃德电机有限公司
Zhejiang Xizi Forvorda Electrical Machinery Co., Ltd

XZ2556127

技术要求:

1. DZD2系列快速调节制动器的推荐间隙范围为(0.25~0.35)mm,同一只制动器四角间隙差≤0.05mm,最大间隙0.5mm;
2. DZD2系列快速调节制动器所能提供的正压力9392(8923~10093)N;
3. 将动板和静板间的间隙调节到(0.3~0.4)mm,保证制动器正常吸合,碟簧调节螺钉调节扭力值(0.6~0.8)Nm;
4. 制动器残余间隙<0.07mm;
5. 出厂前应检测开关的灵敏度及动作一致性,塞尺塞入动静板间,塞入0.1mm塞尺通电吸合开关信号切换,塞入0.15mm塞尺通电吸合开关信号不切换;
6. 制动器装配确保手动松开间隙(1.1~1.4)mm;
7. 在有二极管+水泥电阻(5W150Ω)的情况下,制动器吸合/释放的噪音不得超过65dB;
8. 满足浙江制造标准T/ZB 0160,其他要求参照Q/FWD1123,制动器测试大纲TE-QM212;
9. 非专业人员严禁调节;
10. (C)表示关键特性,(PD)表示重要特性。

XZ2556127	XF3701128	L	R
XF2556127020AA	XF3701128010AA	155	244
XF2556127028AA	XF3701128011AA	150	308
XF2556127022AA	XF3701128012AA	150	328

序号	代号	名称	数量	材料	备注
30	XF4042103101	制动器复合标签	1	不干胶	通用件
29	XF407966006AA	防尘板	1		
28	XF5202120305	螺钉组合件	2		通用件
27	XF420123005AA	弹簧	2	VDCrSi-φ3.1	选配件
26	XF4042144	制动器铭牌	1		客户选配
25	XF5233100610	弹性圆柱销-5	2	优质钢	GB879.2-5X18-0
			数量	材料	
			单件	总计	
			重量		

序号	代号	名称	数量	材料	备注
24	XF4042102008AA	制动器警告标签	1	不干胶	通用件
23	XF3693102068AA	螺钉组合件	4		
22	XF4071932004	铜片	4	Q235B	通用件
21	XF5200700308	十字槽垫头螺钉	2	铜-4.8	GB818-M4X16
20	XF3693109001	螺钉组合件M4	2		GB9074.4-M4X22
19	XF36931022AA	微动开关组件	1		
18	XF37061010AA	顶杆机构	1		
17	XF5202130506	螺钉和垫圈组合件	4		GB9074.1-M6X10
16	XF4020302001	罩壳	1	PC	通用件
15	XF3701128	动板组件	1	组件	
14	XF41201AAA001	弹簧	4	VDCrSi-φ3	通用件
13	XF4120119002	调节弹簧	6	VDCrSi	通用件
12	XF3700130015AA	静板组件左	1	组件	
11	XF5200100419	六角头螺栓	4	铜:10.9	
10	XF4260104002	扳手连接杆	1	45	通用件
9	XF5210600406	标准型弹簧垫圈-6	1	铜:65Mn	GB93-6-A3B
8	XF5200700507	十字垫头螺钉A-M6	1	铜:4.8	GB818-M6X2-4.8-A1B
7	XF3713600004	松闸扳手组件	1	组件	通用件
6	XF5245100210	滚动轴承钢球-D10	4		GB308-D10
5	XF5232110720	开口销 2.5	1	铜:04级	GB91-2.5X20
4	XF52051ACA001	型六角开槽螺母	1	10级	GB6178-M10-8-A2B
3	XF5212101001	垫片	2	SF-1	通用件
2	XF4210102002	垫片	1	45	通用件
1	XF4120107001	圆锥螺旋弹簧	1	TDCrSi	通用件
			数量	材料	
			单件	总计	
			重量		

DZD2 brake left

XZ2556127

重量(kg)	20.3
比例	1:2

共2页 第2页

设计	李峰	2022.4.14	工艺	牛万东	2022.4.18
校对	徐霖	2022.4.14	标准化	刘磊	2022.4.18
审核	王志刚	2022.4.14	批准	王焱萍	2022.4.18

材料:	list		
文件号	标记	页数	更改内容

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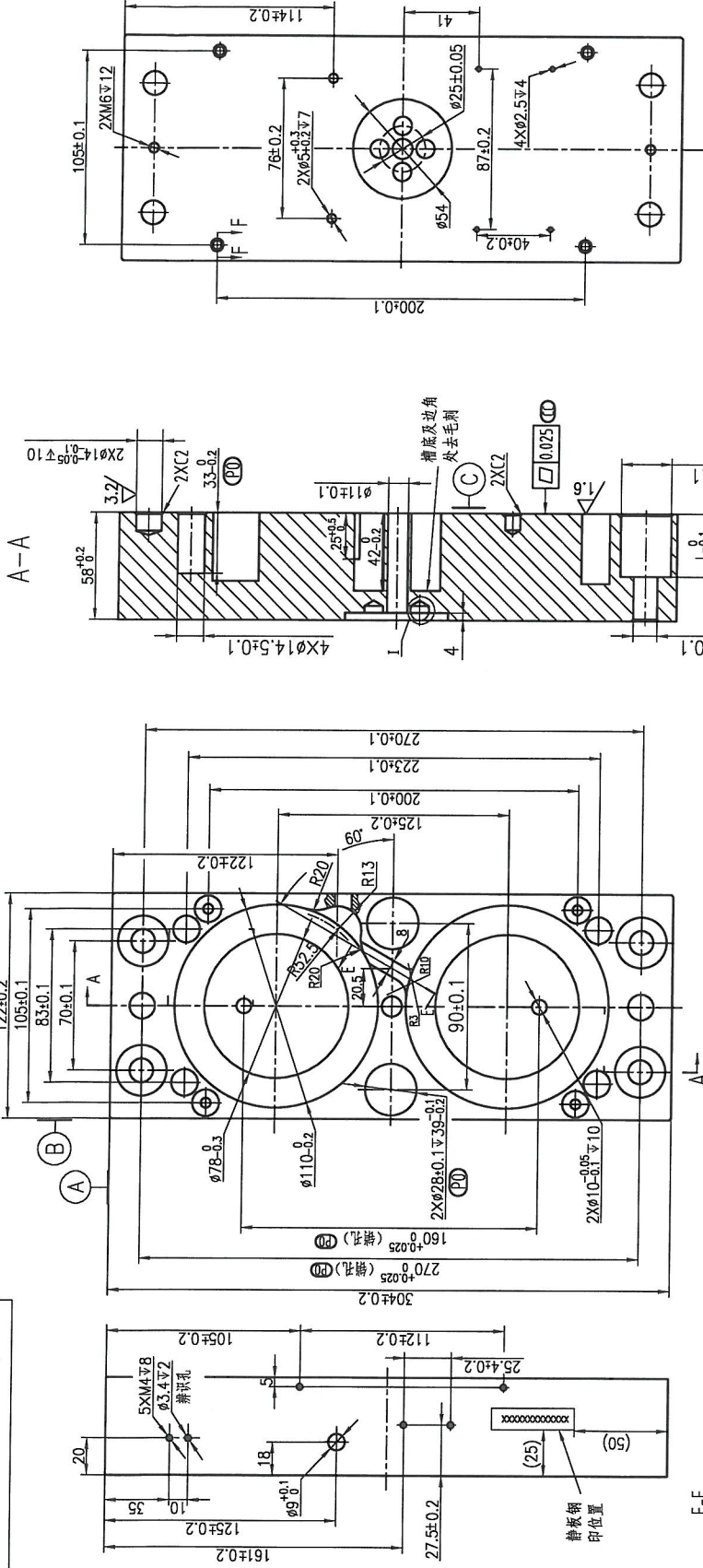
2022.5.30

借(通)用件登记

版本号

版本号:8/0

Z910107XF



6.3
其余

技术要求:

1. 未注各项公差按Q/FWD1107之规定;
2. 锐边倒钝,去毛刺,未注倒角为C1;
3. 表面处理:重级(膜重 $\geq 10\text{g}/\text{m}^2$)灰色黑色高温锰系磷化一皂化(相对于膜厚 $\geq 5\mu\text{m}$),要求外观膜层应结晶致密、连续均匀,按GB/T6807-2001执行;
4. 耐腐蚀保护等级:经72h中性盐雾试验后的表面保护等级不应低于GB/T6461中规定的3级;
5. 钢印印记清晰(供应商标记流水号);
6. 钢板原材料碳含量 $\leq 0.2\%$;
7. C 表示关键特性, PD 表示重要特性。

件号	L	标识孔
XF-4010162009AA	32	1
XF-4010162010AA	21	0

Static board left

XF4010162

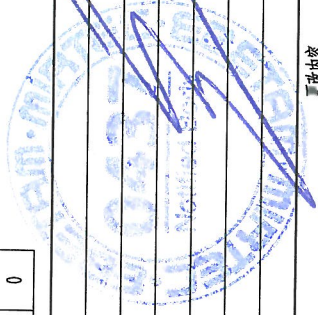
重量(kg)	12.3	共1页	第1页
比例	1:2.5		

材料:	Q355B	设计	李峰	2022.4.14	工艺	牛万东	2022.4.18
		校对	徐睿	2022.4.14	标准化	刘强	2022.4.18
		审核	王志刚	2022.4.14	批准	王焱萍	2022.4.18

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文件号 标记 处数
更改内容
日期
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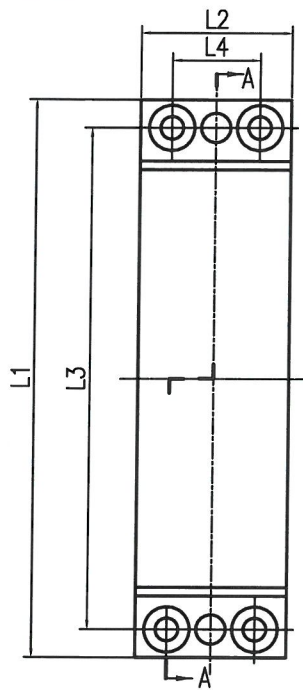
21/7/2022



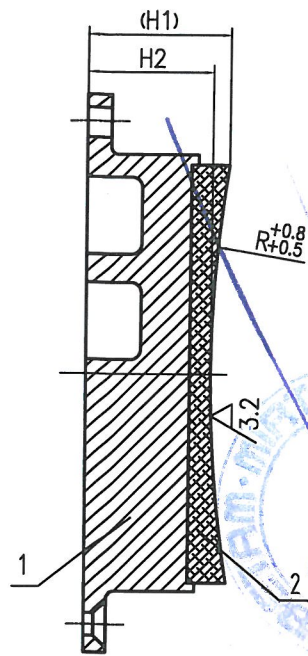
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2022.5.30
借(通)用件登记
版本号
版本号:0/0

XF37051



A-A



其余 ✓

2021/7/22



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件号	XF40110	XF4011508	L1	L2	L3	L4	R	H1	H2	序号1重量	序号2重量	重量
XF3705111009AA	XF4011013002	XF4011508001	169	40	149	25	308	29	24	0.5	0.11	0.61
XF3705111003	XF4011013002	XF4011508001	169	40	149	25	328	29	24	0.5	0.11	0.61
XF3705109025AA	XF4011006002	XF4011502001	145	60	126	40	244	35	30	0.8	0.09	0.89

技术要求:

- 1、刹车片表面不许沾油污；
- 2、刹车片和刹车片垫板粘接牢靠，清除表面多余粘接剂；
- 3、刹车片与刹车片垫板粘接后装夹在工装上，车加工图示弧度，退刀时允许单边存在3mm的破边；
- 4、粘接力 $\geq 3.5\text{MPa}$ ；
- 5、刹车片加工后，同一宽度尺寸左右高低差不允许超过0.03mm。

2	XF401150	刹车片	1		见表	见表	
1	XF40110	刹车片垫板	1	HT250	见表	见表	
序号	代号	名称	数量	材料	单件重量	总计重量	备注

Brake Module

XF37051

重量(kg) 见表

比例 1:2

共1页 第1页

2021.12.25 文件号 标记 处数 更改内容 签字 日期

借(通)用件登记 设计 李峰 2021.11.4 工艺 牛万东 2021.11.8

校对 徐璐 2021.11.4 标准化 刘强 2021.11.8

授权号 审核 王志刚 2021.11.8 批准 鲁力 2021.11.11

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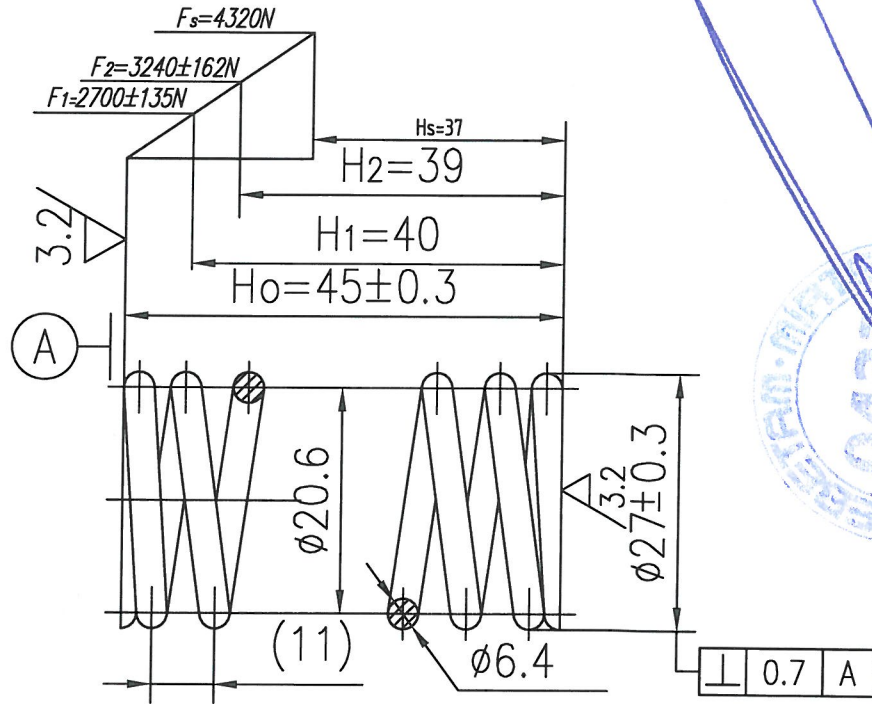
Zhejiang Xizi Forvorda Electrical Machinery Co., Ltd

版本号:B/0

XF4120119002

其余 ✓

2022/11/12



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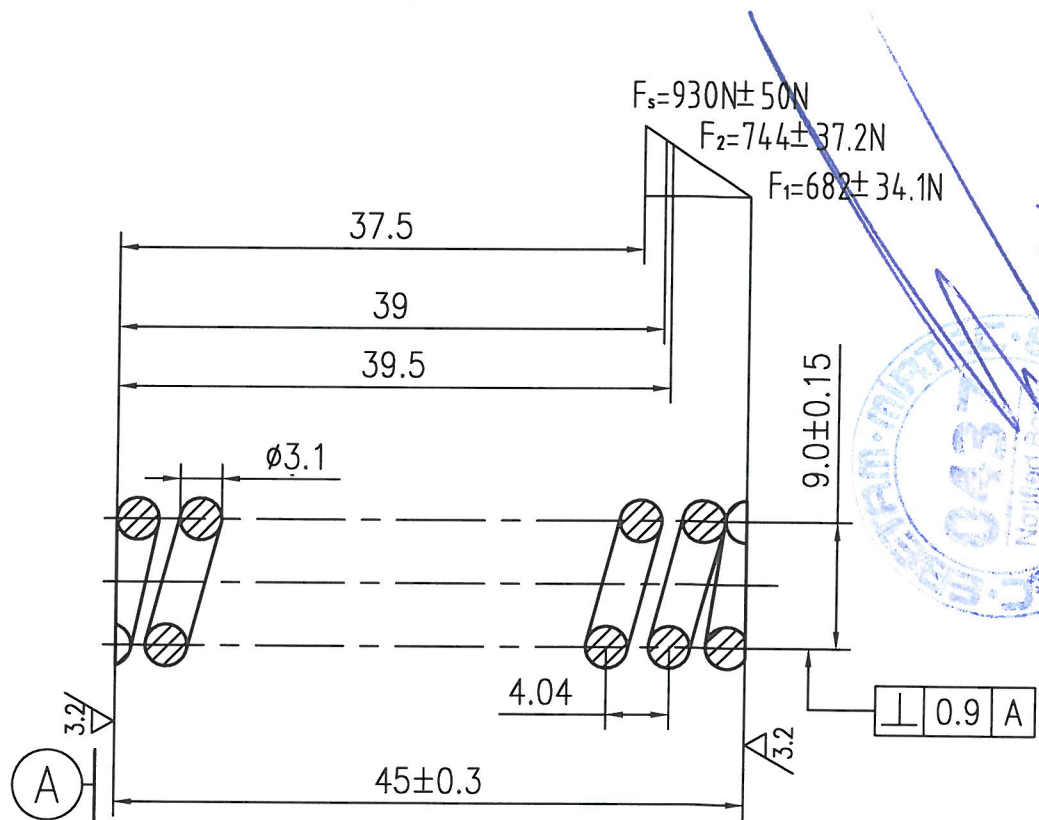
技术要求:

- 1、有效圈数 $n=3.5$,总圈数 $n_1=5.5$;
- 2、其余要求按GB/T1239.2中弹簧1级制造精度标准执行;
- 3、端部结构形式:两端磨平并压紧,磨平部分不少于圆周的 $3/4$;
- 4、喷丸处理,喷丸强度 $0.25-0.5A$,喷丸覆盖 $\geq 90\%$;
- 5、去应力退火,表面处理:电镀层GB/T9799-Fe/Zn $8 \cdot c1B$,铬酸盐钝化应采用3价铬,不许采用6价铬;
- 6、弹簧表面光滑,不得有肉眼可见缺陷;
- 7、将弹簧成品用 F_s 压缩3次后,其永久变形不得大于自由高度的 0.3% 。

						regulating spring		XF4120119002	
						VDCrSi-φ6.4-GB/T18983-03		重量(kg)	
2016.7.31	文件号	标记	处数	更改内容	签字	日期	比例	1:1	
借(通)用件登记	设计	李 峰	2016.6.20	工艺	牛万东	2016.6.23	共 页	第 页	
	校对	徐 璐	2016.6.23	标准化	孙甲历	2016.6.23	浙江西子富沃德电机有限公司		
	授权号	审核	林 源	2016.6.23	批准	李创平			2016.6.24
						Zhejiang Xizi Forvorda Electrical Machinery Co., Ltd			

版本号:B/0

XF4120123005AA

其余 ∇ 6.3

技术要求:

- 1、有效圈数 $n=10$,总圈数 $n_1=12$;
- 2、右旋,端部结构形式:两端磨平;
- 3、表面喷丸处理;
- 4、去应力退火,表面处理:电镀层GB/T9799-Fe/Zn8·c1B,铬酸盐钝化应采用3价铬,不许采用6价铬;
- 5、 CC 在 $F_2=744\text{N}$ 的压缩力值往复工作寿命 >1000 万次,且镀层不得脱落;
- 6、未注公差依据弹簧2级制造精度;
- 7、弹簧表面光滑,不得有肉眼可见的缺陷;
- 8、将弹簧成品用 F_s 压缩3次后,其永久变形不得大于自由高度的0.3%;
- 9、 CC 表示关键特性。

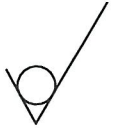
						Spring		XF4120123005AA	
								重量(kg)	0.02
								比例	2:1
								共页	第页
2022.1.5	文件号	标记	处数	更改内容	签字	日期	VDCrSi- ϕ 3.1-GB/T18983-03		
借(通)用件登记	设计	李峰	2021.11.4	工艺	牛万东	2021.11.8	浙江西子富沃德电机有限公司		
	校对	徐璐	2021.11.5	标准化	刘强	2021.11.8	Zhejiang Xizi Forvorda Electrical Machinery Co., Ltd		
授权号	审核	王志刚	2021.11.5	批准	鲁力	2021.11.11			
版本号:B/0									

警告

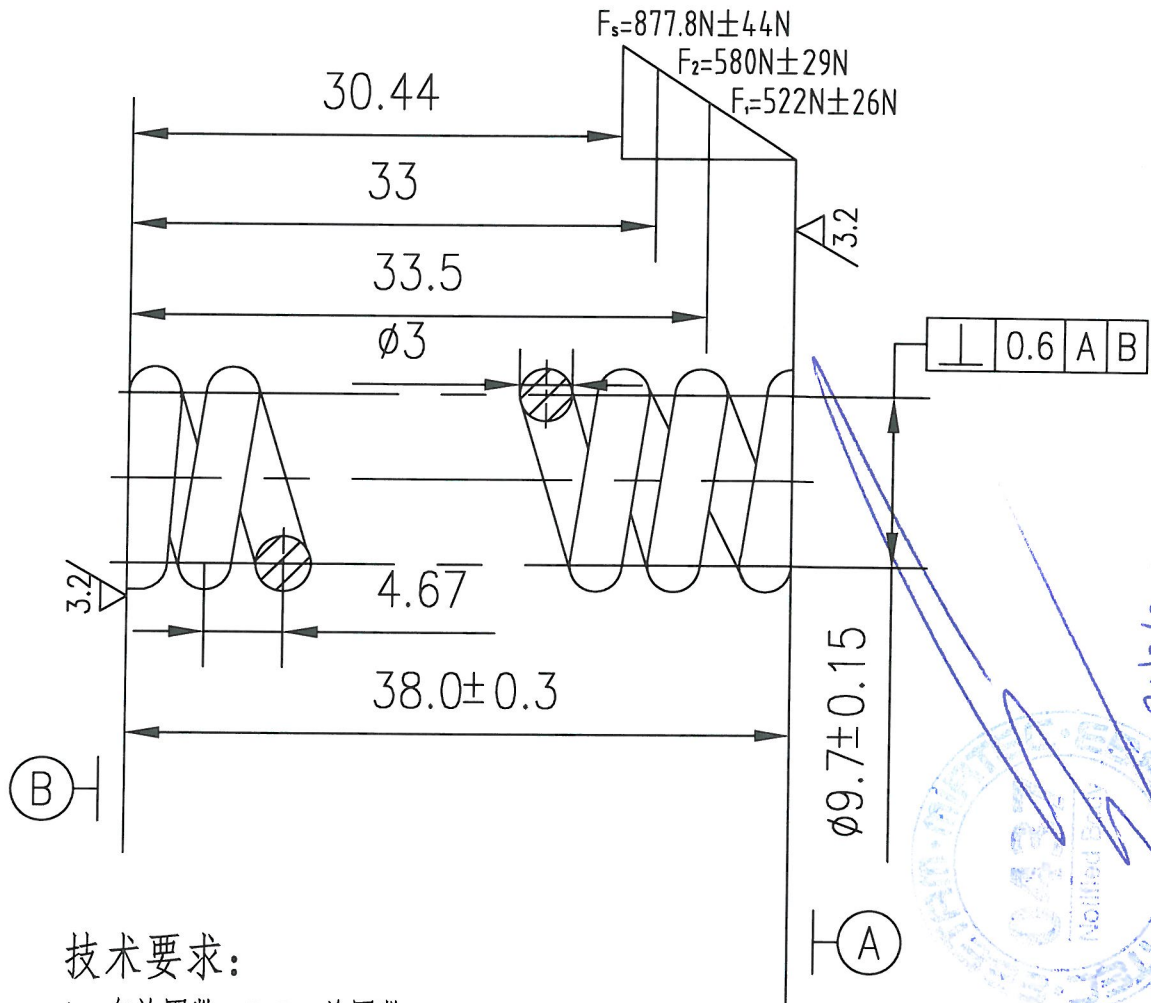
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XF41201AAA001

其余



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技术要求:

- 1、有效圈数 $n=7.5$ ，总圈数 $n_1=9.5$ ；
- 2、端部结构形式：两端磨平；
- 3、表面发黑处理；
- 4、未注公差按2级制造精度考核；
- 5、弹簧表面光滑，不得有肉眼可见的缺陷；
- 6、将弹簧成品用 F_s 压缩3次，其永久变形不得大于自由高度的0.3%。

						Spring		XF41201AAA001	
						VDCrSi- $\phi 3$ -GB/T18983-03		重量(kg)	
2008.11.30	文件号	标记	处数	更改内容	签字	日期	比例	1:1	
借(通)用件登记	设计			工艺			共页	第页	
	校对			标准化			浙江西子富沃德电机有限公司		
	审核			批准			Zhejiang Xizi Forvorda Electrical Machinery Co., Ltd		

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