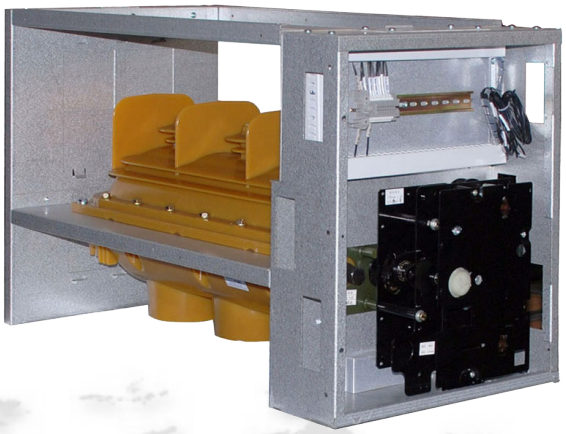
FL(R)N36–12/24D
SF6 Load Break Switch



亚洲电力设备(深圳)股份有限公司
ASIA ELECTRICAL POWER EQUIPMENT (SHENZHEN) CO., LTD.

Certificates


Certificate HK03/0336

The management system of

Asia Electrical Power Equipment (Shenzhen) Co., Ltd.
亚洲电力设备(深圳)股份有限公司

Haijing Square Floor 3 E (-4), Taizi Road, Nanshan Dist., Shenzhen City, Guangdong Province, P.R. China
中国广东省深圳市南山区太子路海景广场三层E(-4)

has been assessed and certified as meeting the requirements of

ISO 9001:2008

For the following activities

The scope of registration appears on page 2 of this certificate.

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2008 requirements may be obtained by consulting the organization.

This certificate is valid from 4 September 2013 until 28 September 2015 and remains valid subject to satisfactory surveillance audits.
Re certification audit due before 29 August 2015
Issue 6. Certified since 29 September 2003

This is a multi-site certification
Additional site details are listed on the subsequent page

Authorised by

SGS United Kingdom Ltd Systems & Services Certification
Rossmore Business Park Ellesmere Port Cheshire CH65 3EN UK
t +44 (0)151 3504000 f +44 (0)151 3504600 www.sgs.com

SGS 9001-6 01 1108

Page 1 of 2


Certificate of Registration

The Governing Board of
Q.A. International Certification Limited
hereby grants to:

亚洲电力设备（深圳）有限公司分厂
（隶属于亚洲电力设备（深圳）有限公司）
注册号：QAIC/CN/103349-C

上述公司依其认证地址及认证范围，本认证机构确认其环境管理体系符合 ISO 14001:2004 标准，在持续遵循有关服务及认证条款之下，准予该公司的认证注册。

认证地址：中国广东省深圳市宝安区松岗街道松岗大道西侧亚洲电力工业园

认证范围：从事高低压成套电器、智能控制开关的生产及销售自产产品；生产经营大型工程智能化柜式成抽屉式断路器相关环境管理活动

适用 ISO 14001:2004 标准的认证范围可向该获证组织咨询。

理事会代表签字

主 席 A. J. Duffield

运作经理 A. Carter

本次发证日期：2013 年 3 月 31 日 - 证书有效日期：2014 年 3 月 19 日
首次注册日期：2010 年 4 月 30 日 - 再证有效日期：2016 年 3 月 19 日
本认证证书按照董事会规章发出

请于证书有效期前按规定进行监督审核及换证手续，以维持注册的有效性。

上海凯琅质量体系认证有限公司
Shanghai QA International Certification Co., Ltd.
上海市中山北路 2790 号杰地大厦 1603 室
电话:021-51615352、51615350
传真:021-51615351
网址：www.qaic-china.net


2012000149Z （2012认证认证认字[058]号） CNAS L0223

XIHARI

No. 120689G

检 验 报 告

Test Report

试品型号 TYPE	AEP•HXGN-12(FLJ)/T630-20
试品名称 DESIGNATION	交流高压金属封闭环网柜 SWITCH SWITCHGEAR
委托单位 CLIENT	亚洲电力设备(深圳)有限公司 ASIA ELECTRICAL POWER EQUIPMENT (SHENZHEN) CO., LTD
制造单位 MANUFACTURER	亚洲电力设备(深圳)有限公司 ASIA ELECTRICAL POWER EQUIPMENT (SHENZHEN) CO., LTD
检验类别 TEST CLASSIFICATION	型式试验 TYPE TESTS

西安高压电器研究院有限责任公司
XI'AN HIGH VOLTAGE APPARATUS RESEARCH INSTITUTE CO., LTD
国家高压电器质量监督检验中心
CHINA NATIONAL HIGH VOLTAGE APPARATUS QUALITY SUPERVISION & INSPECTION CENTER


2012000149Z （2012认证认证认字[058]号） CNAS L0223

XIHARI

No. 120688G

检 验 报 告

Test Report

试品型号 TYPE	AEP•HXGN-12(FLJR)/T125-50
试品名称 DESIGNATION	交流高压金属封闭环网柜 SWITCH-FUSE COMBINATION SWITCHGEAR
委托单位 CLIENT	亚洲电力设备(深圳)有限公司 ASIA ELECTRICAL POWER EQUIPMENT (SHENZHEN) CO., LTD
制造单位 MANUFACTURER	亚洲电力设备(深圳)有限公司 ASIA ELECTRICAL POWER EQUIPMENT (SHENZHEN) CO., LTD
检验类别 TEST CLASSIFICATION	型式试验

西安高压电器研究院有限责任公司
XI'AN HIGH VOLTAGE APPARATUS RESEARCH INSTITUTE CO., LTD
国家高压电器质量监督检验中心
CHINA NATIONAL HIGH VOLTAGE APPARATUS QUALITY SUPERVISION & INSPECTION CENTER


2012002878Z （2012认证认证认字[347]号）

实验室名称：国家电器产品质量监督检验中心
Lab Name: China National Center for Quality Supervision and Test of Electrical Apparatus Products

№ 13Q2388-S

检验（试验）报告
Test Report

委托单位 Client: 亚洲电力设备（深圳）股份有限公司
产品名称 Name of Product: 交流高压金属封闭环网柜
产品型号 Product Type: AEP•HXGN□-12(FLJR)/T125-31.5
检验类别 Test Category: 型式试验

本实验室对出具的检验（试验）结果负责，未经实验室书面同意，不得部分地复制本报告。

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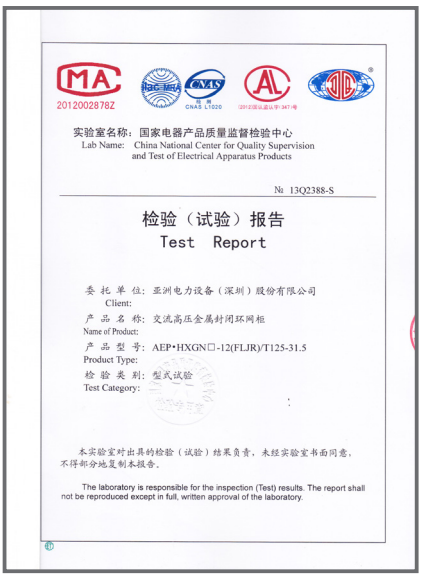
2012002878Z （2012认证认证认字[347]号）

实验室名称：国家电器产品质量监督检验中心
Lab Name: China National Center for Quality Supervision and Test of Electrical Apparatus Products

№ 13Q2388-S

检验（试验）报告
Test Report

委托单位 Client: 亚洲电力设备（深圳）股份有限公司
产品名称 Name of Product: 交流高压金属封闭环网柜
产品型号 Product Type: AEP•HXGN□-12(FLJR)/T125-31.5
检验类别 Test Category: 型式试验

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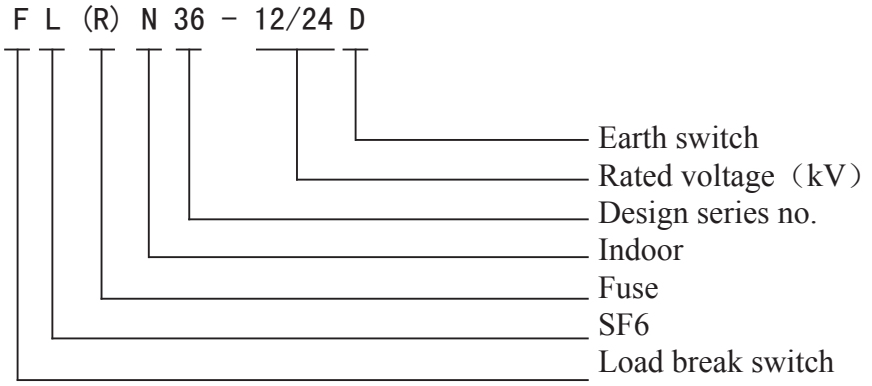
1. General Description

FLN36-12/24D an indoor high-voltage SF6 load switch, an switchgear with the rated voltage of 12kV/24kV, adopted with SF6 gas as an arc-extinguishing and insulation medium, including the three contactors for switching-on and switching-off and to-ground, and is characteristic in its small volume, its convenient installation and operation and its the great adaptability with surroundings.

FLN36-12/24D of an indoor high-voltage SF6 load switch and FLN36-12/24D of SF6 load switch plus fuse combination can function to protect and control the electric equipments for power supply and transformer substations especially being suitable for ring net cabinet, cable branch cabinet and distribution switching substation.

FLN36-12/24D of an indoor high-voltage SF6 load switch and FL(R)N36-12/24D load switch plus fuse combination are in conformity with the standards of GB3804-1990,IEC60256-1,1997,GB16926,IEC60420 etc.

1. Mean of molder



2. Service environment

a) Air temperature
Maximum temperature +40℃
Minimum temperature -35℃
b) Humidity
Monthly average humidity ≤95%
Daily average humidity ≤90%
c) Altitude above sea level
Maximum installation altitude ≤2500m
d) Ambient air not apparently polluted by corrosive and flammable gas,vapor etc.
e) No frequent violent shake

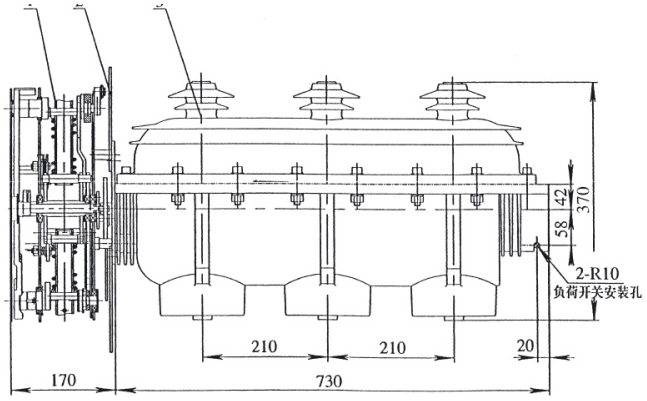
Technical Specification

No.	Description		Unit	Technical Data	
				FL(R)N36-12D/ 630-25	FL(R)N36-24D/ 630-25
1	Rated Voltage		kV	12	24
2	Rated Frequency		Hz	50	
3	Rated Current		A	630	630
4	Insulation level	1 min Power frequency withstand voltage	kV	42, 48	60, 79
		Lighting impulse withstand voltage(peak）	kV	75, 85	125, 145
5	Short withstand current		kA	25/2S	20/2S
6	Rated withstand current(peak)		kA	63	50
7	Rated close loop breaking current		A	630	630
8	Rated active load breaking current		A	630	630
9	Rated cable charging breaking current		A	10	10
10	Rated transfering curretn		A	1750	1700
11	Type of fuse			SFLDJ-12	SFLDJ-12
12	Strike output energy		J	1±0.5	1±0.5
13	Mechanism life	Load switch	times	5000	
		Earth switch		3000	
14	Times of switch operation(no press)		times	10	
15	Distance of electic body and to earth(Air)		mm	≥125	
16	SF6 gas press（20℃ relative voltage）		bars	0.4	
17	Synchronism of breaking and closing		ms	≤2	
18	Loop resistance		μΩ	100	150
19	Max torque of manual operation		N.m	≤75	
20	Rated voltage of motor operation		V	DC24/48 AC110/220 DC110/220	
21	Closing electromagnet voltage		V	AC110/220 DC110/220	

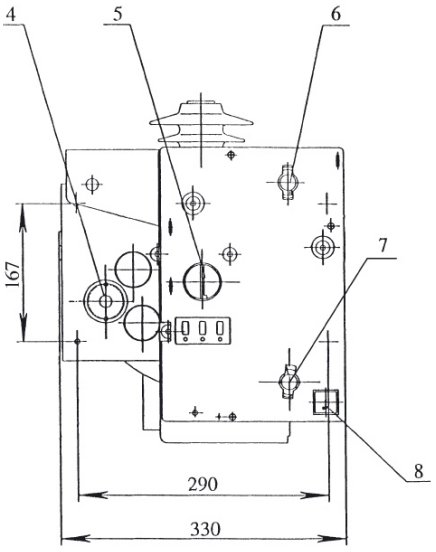
Matching dimension

Matching dimension of SF6 load break switch-fuse combination

Fig 1) FL(R)N36-12/24D SF6 load break switch without upper cubicle



Side elevation of load break switch

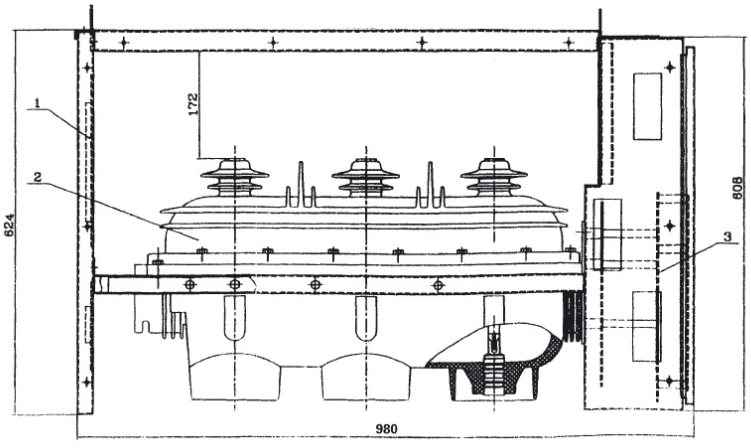


Front elevation viewing

1- Operation mechanism
2- Mechanism install metal
3- Insulated shell
4- Selve sealing valve
5- Switch indicator
6- Earth switch operation hole
7- Load switch operation hole
8- Breaking button

Fig 2) AFL(R)-12D SF6 load break switch with upper cubicle

1- External shell
2- Load break switch
3- Mechanism chamber

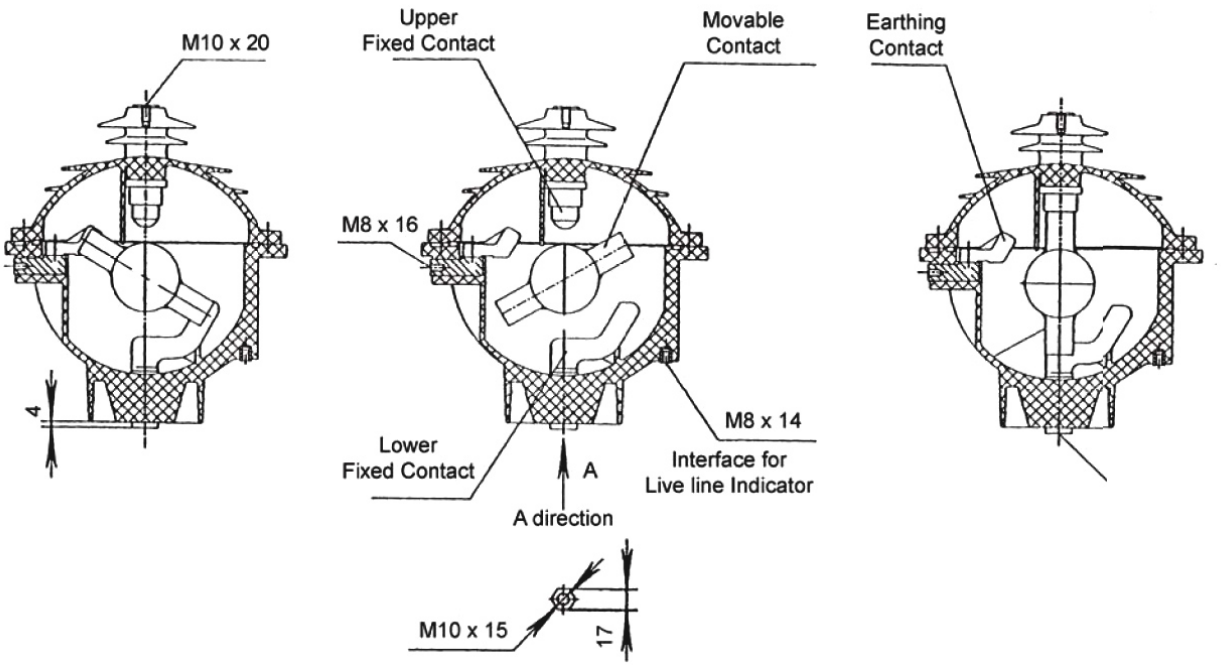


Stucture and schematic drawings

Primary loop of load break switch

Primary loop of FL(R)N36-12/24D indoor load break switch and its combination is sealed in a epikote casted insulate unit by APG technology, this insulate unit has features of good insulating property, dust and dirts proof, insulate unit contains upper and lower insulate covers, inside charged 0.4bars pressure SF6 gas, the partial siding of lower cover is very thin, it's a protective measure and will burst out in the malfunction, the over pressed gas is released to protect the equipment.

FL(R)N36-12/24D indoor SF6 load break switch and its fuse combination has open,close and earth three working position.



a. Earth position　　b. breaking position　　c. closing position

Fig 1) Working position schematic

Arc extinction

AFL(R)-12D load break switch adopts SF6 gas as the medium of arc extinction, when switch on and off, arc occurs and will spin under the magnetic field effection by the permanent-magnet, cooled by the SF6 gas and extincted finally.

Operation mechanism and interlock

FL(R)N36-12/24D indoor SF6 load break switch and its fuse combination works with spring type operating mechanisms A and K, FL(R)N36-12/24D load break switch equiped with the K spring operating mechanism is applied as the incoming control unit, while that equiped with A mechanism is applied as the outgoing protective unit and transformer unit.

1) "K" Type Spring Operating Mechanism

Working principle of K type spring operating mechanism is spring press and releas(see fig 1. it's in off position)

A) Earthing operation

Driven by the handle, upper crank arm 4 rotates and presses spring 2 to store energy, when the max energy reached continue rotate the crank arm, the energy storage spring starts to release energy and drive the upper trigger, enables the connecting bar to drive the crank arm, crank arm rotates and drives the moving contactor for earthing.

B) Switch on operation

Driven by the handle, lower crank arm 1 rotates, presses spring 2 to store energy, when the energy released, it drives the trigger 8,enables connecting bar to drive the crank arm, crank arm rotates and drives the moving contator and load break switch turns on.

C) Switch off operation

Rotate the main shaft crank arm counterclockwise by the handle, release the energy storage spring and the load break switch turns off.

2) "A" Type Spring Mechanism

Working principle of A type mechanism is same as K type, in addition, it has fuse striker unbuckle function. For A type mechanism, electromagnetic unbuckle is also available on customers requirement.(see fig 2)

A) Switch on operation

Driven by the handle, lower crank arm 1 rotates to presse switch on spring 12 and switch off spring 8 at the same time, to provide sufficient energy required by switching off. when the lower crank arm 1 buckles the pin and drives trigger to move, it makes the lower roller wheel unbuckled, and release the switch on spring and load break switch turns on.

B) Switch off operation

Press the switch off button or push the unbuckle pin 2 by the fuse striker, release the spring and load switch truns off.

C) Earthing operation

Earthing operation of A type mechanism is same as that of K type.

Operation mechanism and interlock

3) K type and A type operating mechanism can be operated manually or motorized on request.

Attention: only when the load break turns off, can turning on and earthing operation be done.

1- Lower crank arm
2- Energy storged spring
3- Guide bar
4- Upper crank arm
5- Upper trigger
6- Pull spring
7- Main shaft crank arm
8- Lower trigger

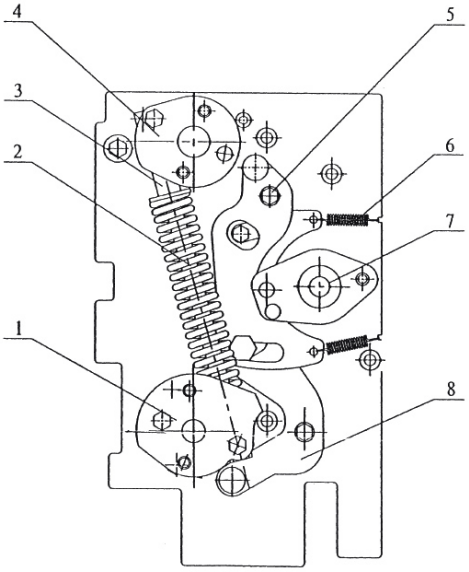


Fig 1: K type spring operating mechanism

1- Lower crankshaft
2- Unbuckle pin
3- Cam
4- Lower roller wheel
5- Upper roller wheel
6- Upper crankshaft
7- Upper guide bar
8- Breaking spring
9- Energy storaged crank arm
10- Main shaft crank arm
11- Lower guide bar
12- Closing spring

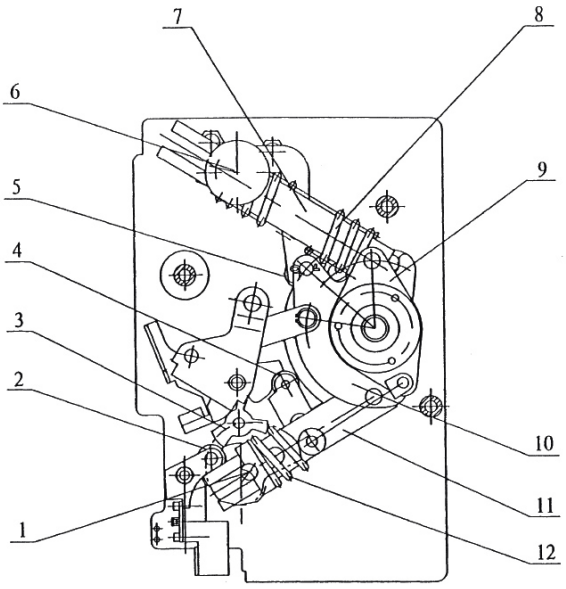


Fig 2: A type spring operating mechanism (switch on position)

Operation mechanism and interlock

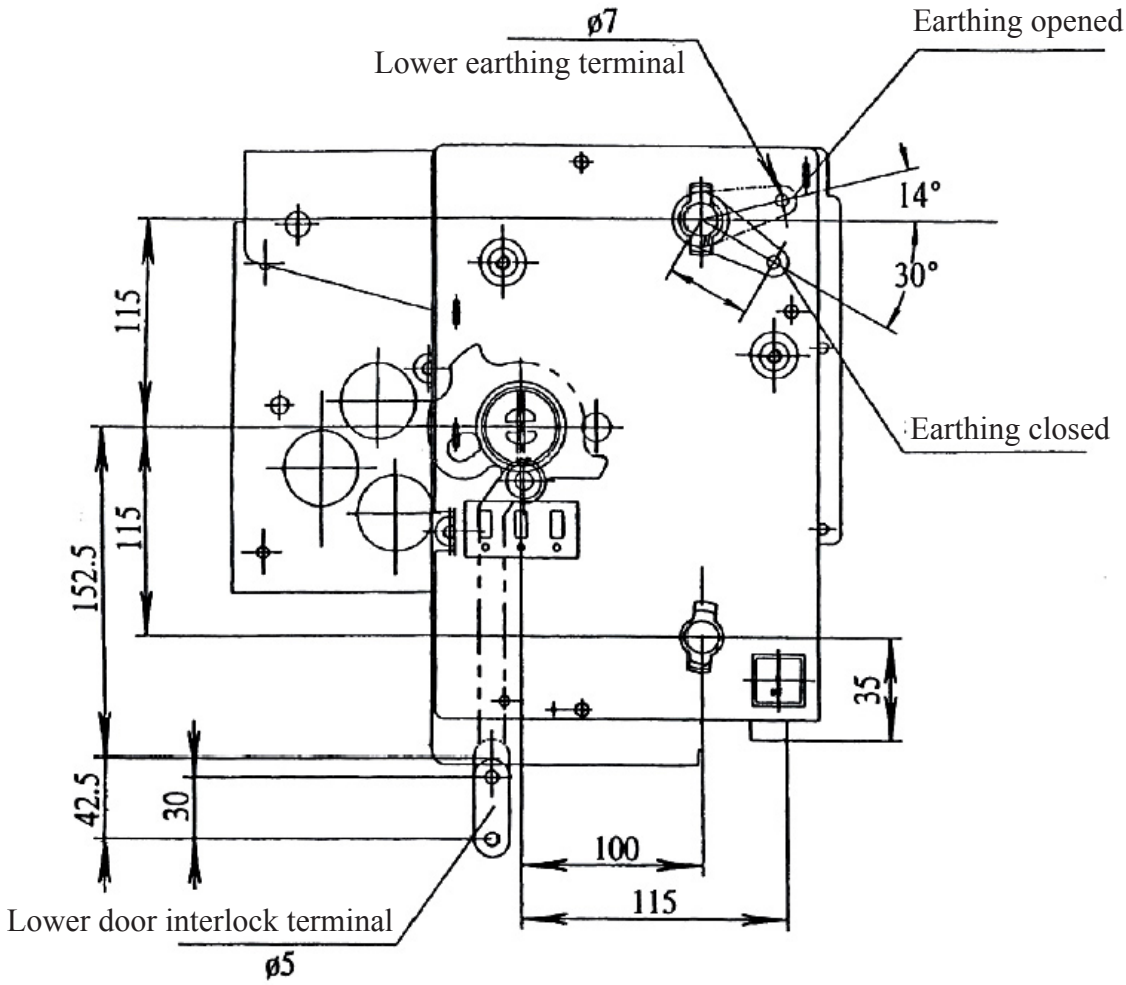
Mechanism interlock

FL(R)N36-12/24D indoor type medium voltage SF6 load break switch and its fuse combination has belowing interlocks

A) When load break switch turns on, earthing operation can't be done

B) When earthing switch turns on, load break switch turns on/off operation can't be done

C) Interlock outlet of mishandling prevension is equiped



Mechanism interlock drawing

Installation, maintenance and service

FL(R)N36-12/24D type load break switch has been strictly tested before outgoing from the factory, and fully meet the technical standards, must carefully read the installation manual and prepare as belowing before the installation and adjustment.

▲ Check the external appearance, any damage product is not allowed to use;

▲ Clean the equipment and get rid of the dust and dirt may caused by the transportation or other causes;

▲ After installation, be sure the load break switch is turned off, insert the handle to the earthing operating hole in the up part of operating panel, rotate the handle clockwise in 180° to earth the switch, rotate counterclockwise 180°to switch off the earth;

▲ For switching on, turns off the load break switch firstly, insert the handle to the load break switch operating hole in the lower part of panel and turn on the load switch;

▲ From the switch on to switch off, for K type mechanism, insert the handle to the load switch operating hole and rotate it in 180° to switch off; for A type mechanism, press the "switch off" button to switch off the load break switch, observe from the winder to confirm it, check whether the on/off indication plate works properly.

Attention: only when the load break turns off, can turning on and earthing operation be done !

Maintenance and Service

On condition of installing in environment as this manual required and normal operations, product guaranteed to be fault free for 10 years and has a runing life of 25 years, but regular check per 6 months is required.

▲ Keep the external appearance away from dust ,dirt and damp.

▲ Lubricate and operate the mechanism for 3-5 times, check whether it acts properly.

▲ Check with the pressure meter regularly, in case of meter data lower than 0.01MPa, should reload gas immediately, gas charging should be done by professional personnel from or trained by the manufacturer.

▲ when the malfunction happens in the load break switch and fuse combination, and one of the three phase fuses burns out, all three fuses should be replaced at one time, must earth the switch before the replacement

Attention

It is NOT allowed to disassembly the self-sealed valve in front of switch(connecting end of meter)

It is NOT allowed to unload the seal screws on switch at any time

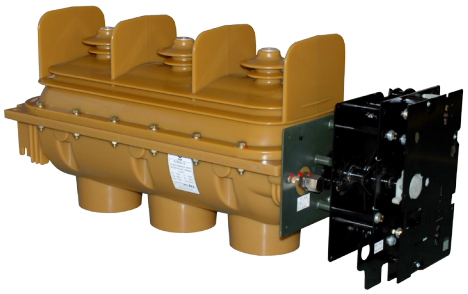
Ordering instructions

1. Belowing terms should be marked while ordering:

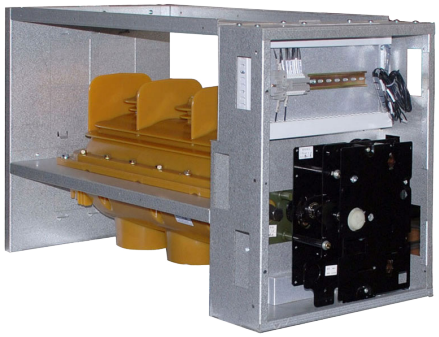
▲ Model number, product name and quantity
▲ Model of operating mechanism (A,K)
▲ Provide the rated voltage specification if motorization operating is required
▲ For load break switch + fuse combination, fuse model and specification is required
▲ Other special requirements

2. Documents with product from manufacturer:

▲ Certificate of qualification
▲ Testing report for products
▲ Packing list



Load Break Switch



Upper unit with load break switch

SF6 Ring main unit with FL(R)N36-12/24D

亚洲电力设备(深圳)股份有限公司
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