

Distribution Transformer

Product Brochure



Contents

1. S□-M.RL Triangle Roll-Core Oil Immersed Transformer	- 2
2. S□-M Laminated Core Oil Immersed Transformer	----- 3
3. SBH□-M Amorphous Metal Distribution Transformer	----- 4
4. SC (B) □ Dry Type Transformer	5
5. 10kV Integrated Pole Mounted Transformer Platform	----- 8
6. Pad Mounted Transformer	----- 9



SQ-M.RL Triangle Roll-Core Oil Immersed Transformer

S13-M.RL, S20-M.RL, S22-M.RL series products are three phase triangle roll-core type oil immersed transformer which has a perfect symmetric 3ph structure of active part. Its magnetic circuit between three phases are symmetric equilateral, avoids the defect of laminated core type. The internal structure of roll-core has none spacing so the transformer has a lower no-load loss, no-load current and noise level. Roll-core transformer is the latest product used for the upgrade and transform of distribution grid.

Product characteristics

- ◆ Lower No-load Loss
The roll-core transformer 30-2500kVA series products' no-load loss are reduced 30% averagely.
- ◆ Lower No-load Current
The core is rolled constructed by 7pcs silicon-iron strip, the internal rolled core have none spacing and is very tightness which make no-load current reduce significantly.
- ◆ Lower Noise Level
The roll-core transformer reduces approx. 10dB, compare with normal standard product.
- ◆ High Capability of Withstanding Short Circuit
The active part is constructed as a triangular prism, includes the tensile rod in the center and around. Together with the top / bottom iron yoke and tensile wood block, the complete active part could effectually withstand the mechanical stress caused by short circuit.



SQ-M Laminated Core Oil Immersed Transformer

The S13-M, S20-M and S22-M series oil immersed type transformer has advantages of lower no-load loss, lower noise level, higher efficiency. Compare with normal type transformer, the hermetical transformer removes the conservator, oil volume variation is automatically compensated by radiator. The transformer oil is isolated with air, to prevent the oil aging. It achieves the maintenance-free during normal operating and increases the reliability.

Product characteristics

- ◆ Laminate the cold-rolled silicon steel sheets as the transformer core, the no-load loss and no-load current is reduced significantly, binding by unidirectional weftless tape. Ensure the tightness and reduce the noise level.
- ◆ The vector group adopts Dyn11 to reduce the harmonic influence to power grid, improve the power quality.
- ◆ The hermetical structure ensure the life span and maintenance-free operation.
- ◆ The tested noise level is lower than standard value.
- ◆ After normal transportation then install necessary components, this series of transformers can be put into operation after passing the acceptance test.



SBH□-M Amorphous Metal Distribution Transformer

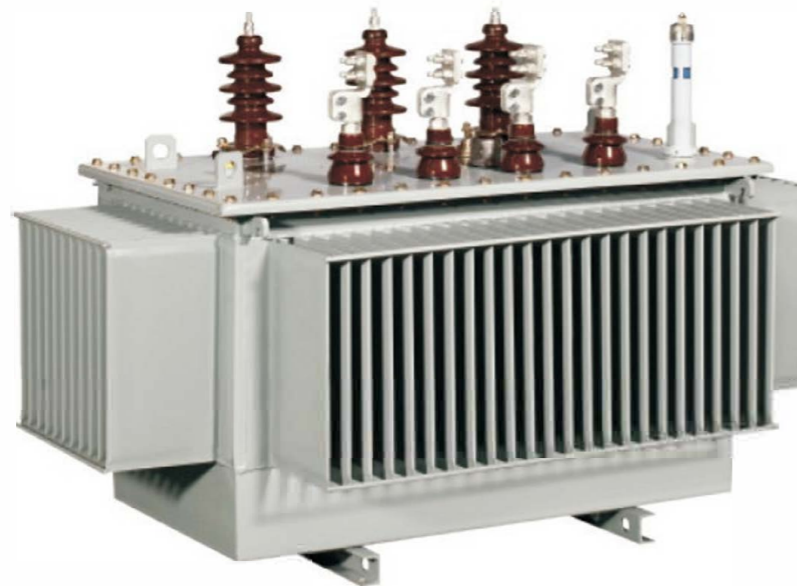
S(B)H15-M, S(B)H21-M, S(B)H25-M series amorphous metal transformer product, the physical condition of amorphous metal is random arrangement, the thickness of the material is 0.02mm only. This material is better for magnetizing and demagnetizing, make the transformer have great no-load performance. This series of transformer are particularly applicable for the sites which are lack of power and high variation of load. It is the ideal equipment for energy saving and grid upgrade project.

Amorphous Metal Characteristic

- ◆ Without crystal grain and boundary, less magnetizing power, high magnetic conductivity, lower losses.
- ◆ The thickness is 1/10 of the silicon sheet. The resistance is higher to reduce the eddy-current loss.
- ◆ The coercive magnetic permeance is 1/7 of cold-rolled steel, caused a lower magnetic hysteresis loss.

Product Characteristic

- ◆ Lower No-load Loss
This series transformer is a new type of environmental protection and energy saving products, the core is made of amorphous alloy strip material winding, it has lower no-load loss characteristic.
- ◆ High capability of withstand short circuit
Low voltage winding is made of copper foil, ampere-turns distribution is more balanced, magnetic leakage is small, enhance the capability of withstand short circuit.
- ◆ Improve power quality
The vector group adopts Dyn11 to reduce the harmonic influence to power grid, increase the power quality.



SC(B)□ Dry Type Transformer

SCB11 resin insulation dry type transformer have the capability of highly withstand thermal impact, withstand over-load, flame retardant, not sensitive to humidity and dust. It is widely used in the fire protection, load variation and dusty damp area.

Product Characteristic

- ◆ Highly Mechanical Strength
- ◆ Anti-crack winding
- ◆ Flammable, anti-explosion
- ◆ Highly withstand the short circuit and lightning impulse
- ◆ Low noise level, uniform cooling
- ◆ Energy saving, economical efficiency



Table 1 10kV Oil immersed three-phase double winding unexcited voltage regulation distribution transformer energy efficiency class

Rated capacity	Class 1						Class 2						Class 3						Short circuit resistance
	Electrical steel strip S22			Amorphous metal SH25			Electrical steel strip S20			Amorphous metal SH21			Electrical steel strip S13			Amorphous metal SH15			
	No-load loss	load loss		No-load loss	load loss		No-load loss	load loss		No-load loss	load loss		No-load loss	load loss		No-load loss	load loss		
	Dyn11/Yzn11	Yyn0		Dyn11/Yzn11	Yyn0		Dyn11/Yzn11	Yyn0		Dyn11/Yzn11	Yyn0		Dyn11/Yzn11	Yyn0		Dyn11/Yzn11	Yyn0		
30	65	455	430	25	510	480	70	505	480	33	535	510	80	630	600	33	630	600	4.0
50	80	655	625	35	735	700	90	730	695	43	780	745	100	910	870	43	910	870	
63	90	785	745	40	880	840	100	870	830	50	930	890	110	1090	1040	50	1090	1040	
80	105	945	900	50	1060	1010	115	1050	1000	60	1120	1070	130	1310	1250	60	1310	1250	
100	120	1140	1080	60	1270	1215	135	1265	1200	75	1350	1285	150	1580	1500	75	1580	1500	
125	135	1360	1295	70	1530	1450	150	1510	1440	85	1615	1540	170	1890	1800	85	1890	1800	
160	160	1665	1585	80	1870	1780	180	1850	1760	100	1975	1880	200	2310	2200	100	2310	2200	
200	190	1970	1870	95	2210	2100	215	2185	2080	120	2330	2225	240	2730	2600	120	2730	2600	
250	230	2300	2195	110	2590	2470	260	2560	2440	140	2735	2610	290	3200	3050	140	3200	3050	
325	270	2760	2630	135	3100	2950	305	3065	2920	170	3275	3210	340	3830	3650	170	3830	3560	
400	330	3250	3095	160	3660	3480	370	3615	3440	200	3565	3675	410	4520	4300	200	4520	4300	
500	385	3900	3710	190	4380	4170	430	4330	4120	240	4625	4400	480	5410	5150	240	5410	5150	
630	460	4460		250	5020		510	4960		320	5300		570	6200		320	6200		4.5
800	560	5400		300	6075		630	6000		380	6415		700	7500		380	7500		
1000	665	7415		360	8340		745	8240		450	8800		830	10300		450	10300		
1250	780	8640		425	9720		870	9600		530	10260		970	12000		530	12000		
1600	940	10440		500	11745		1050	11600		630	12400		1170	14500		630	14500		
2000	1085	13180		550	14000		1225	14640		710	14800		1360	18300		720	18300		5.0
2500	1280	13360		670	15450		1440	14840		860	16300		1600	21200		865	21200		

Table 2 10kV Dry type three-phase double winding unexcited voltage regulation distribution transformer energy efficiency class

Rated capacity	Class 1									Class 2									Class 3									Short circuit resistance
	Electrical steel strip SC18			Amorphous metal SCH19			Electrical steel strip SC14			Amorphous metal SCH17			Electrical steel strip SC12			Amorphous metal SCH15												
	No-load loss	load loss		No-load loss	load loss		No-load loss	load loss		No-load loss	load loss		No-load loss	load loss		No-load loss	load loss											
	B(100°C)	F(120°C)	H(145°C)		B(100°C)	F(120°C)	H(145°C)		B(100°C)	F(120°C)	H(145°C)		B(100°C)	F(120°C)	H(145°C)		B(100°C)	F(120°C)	H(145°C)									
30	105	605	640	685	50	605	640	685	130	605	640	685	60	605	640	685	150	670	710	760	70	670	710	760	4.0			
50	155	845	900	965	60	845	900	965	185	845	900	965	75	845	900	965	215	940	1000	1070	90	940	1000	1070				
80	210	1160	1240	1330	85	1160	1240	1330	250	1160	1240	1330	100	1160	1240	1330	295	1290	1380	1480	120	1290	1380	1480				
100	230	1330	1415	1520	90	1330	1415	1520	270	1330	1415	1520	110	1330	1415	1520	320	1480	1570	1690	130	1480	1570	1690				
125	270	1565	1665	1780	105	1565	1665	1780	320	1565	1665	1780	130	1565	1665	1780	375	1740	1850	1980	150	1740	1850	1980				
160	310	1800	1915	2050	120	1800	1915	2050	365	1800	1915	2050	145	1800	1915	2050	430	2000	2130	2280	170	2000	2130	2280				
200	360	2135	2275	2440	140	2135	2275	2440	420	2135	2275	2440	170	2135	2275	2440	495	2370	2530	2710	200	2370	2530	2710				
250	415	2330	2485	2665	160	2330	2485	2665	490	2330	2485	2665	195	2330	2485	2665	575	2590	2760	2960	230	2590	2760	2960				
315	510	2945	3125	3355	195	2945	3125	3355	600	2945	3125	3355	235	2945	3125	3355	705	3270	3470	3730	280	3270	3470	3730				
400	570	3375	3590	3850	215	3375	3590	3850	665	3375	3590	3850	265	3375	3590	3850	785	3750	3990	4280	310	3750	3990	4280				
500	670	4130	4390	4705	250	4130	4390	4705	790	4130	4390	4705	305	4130	4390	4705	930	4590	4880	5230	360	4590	4880	5230				
630	775	4975	5290	5660	295	4975	5290	5660	910	4975	5290	5660	360	4975	5290	5660	1070	5530	5880	6290	420	5530	5880	6290				
630	750	5050	5365	5760	290	5050	5365	5760	885	5050	5365	5760	350	5050	5365	5760	1040	5610	5960	6400	410	5610	5960	6400				
800	875	5895	6565	6715	335	5895	6565	6715	1035	5895	6565	6715	410	5895	6565	6715	1215	6550	6960	7460	480	6550	6960	7460				
1000	1020	6885	7315	7885	385	6885	7315	7885	1205	6885	7315	7885	470	6885	7315	7885	1415	7650	8130	8760	550	7650	8130	8760				
1250	1205	8190	8720	9335	455	8190	8720	9335	1420	8190	8720	9335	550	8190	8720	9335	1670	9100	9690	10370	650	9100	9690	10370				
1600	1415	9945	10555	11320	530	9945	10555	11320	1665	9945	10555	11320	645	9945	10555	11320	1960	11050	11730	12580	760	11050	11730	12580				
2000	1760	12240	13005	14005	700	12240	13005	14005	2075	12240	13005	14005	850	12240	13005	14005	2440	13600	14450	15560	1000	13600	14450	15560				
2500	2080	14535	15445	16605	840	14535	15445	16605	2450	14535	15445	16605	1020	14535	15445	16605	2880	16150	17170	18450	1200	16150	17170	18450				

10kV Integrated Pole Mounted Transformer Platform

Main Equipment

- ◆ HV Unit
- ◆ Transformer Unit
- ◆ LV Distribution Box and Accessories

Product Characteristics

10kV Integrated pole mounted transformer platform is complied with smart grid constructing / developing requirement, it is standard uniform configuration with high reliability and efficiency. Integrated transformer platform is the future trend of smart distribution grid.



Pad Mounted Transformer

The Pad Mounted Transformer combined the transformer active part, HV load switch and protection fuse, with a uniform design in hermetical oil tank. It has a small volume and less weight, easy for installation. The product is customized design with the LV distribution, measurement and compensation component. It is widely used in residential society, industrial / mining factory, wind power and solar power plant.

Product characteristics

- ◆ Lower Investment:
Small investment than pre-fabricated substation and distribution station.
- ◆ Save land:
Its volume is 1/3 of the pre-fabricated substation and 1/5 of normal distribution station.
- ◆ Easy installation:
Only cabling work on site, few installation work.
- ◆ Maintenance free:
Plug-in type fuse, hermetical sealed.
- ◆ Weatherability:
Stainless steel panel, baked paint. Highly weatherability.



International Certification and Type Test Report

Certificate – Сертификат – 證明書 – Certificat – 증명서 – شهادة

Form QIAT_10-M05, version 00, effective since March 25th, 2020

Certificate of Compliance



No. 6G220511.SDTD047

Certificate's
Holder:

Certification
ECM Mark:



Product: 35kV Power Transformer 500kVA~6300kVA,
11kV Distribution Transformer 50kVA~2500kVA

Model(s): S13-500~6300kVA/35kV,
S13-M-500~6300kVA/35kV,
S13-M-50~2500kVA/10kV

Verification to: Standard:
IEC 60076-1:2011, IEC 60076-2:2011,
IEC 60076-3:2013+AMD1:2018, IEC 60076-5:2006,
IEC 60076-10:2016

related to CE Directive(s):
2014/30/EU (Electromagnetic Compatibility)

Remark: This document has been issued on a voluntary basis and upon request of the manufacturer. It is our opinion that the technical documentation received from the manufacturer is satisfactory for the requirements of the ECM Certification Mark. The conformity mark above can be affixed on the products accordingly to the ECM regulation about its release and its use.

Additional information and clarification about the Marking:



The manufacturer is responsible for the CE Marking process, and if necessary, must refer to a Notified Body. This document has been issued on the basis of the regulation on ECM Voluntary Mark for the certification of products. RG01_ECM rev.3 available at: www.entecerma.it

Issuance date: 11 May 2022

Expiry date: 10 May 2027

Reviewer
Technical expert
Amanda Payne



Approver
ECM Service Director
Luca Bedonni



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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

№ 21M0810-S

型式试验报告 Type Test Report

委托单位:
Client:

产品名称: Power transformer
Name of Product:

产品型号: S13-6300/35

Product Type:

检验类别: Commission test

Test Category:

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。

The laboratory is responsible for the inspection (Test) results. The report shall not be reproduced except in full, written approval of the laboratory.

Test Report		China National Center for Quality Supervision and Test of Electrical Apparatus Products	№: 21M0810-S Total 43 Page 02						
<p>1. Sample parameters</p> <p>Rated power: 6300kVA Rated voltage: 38.5/0.69kV Rated current: 94.5/5271.6A Rated frequency: 50Hz Number of phases: 3 Tapping ranges: ±2×2.5% Connection symbol: Dyn11 Cooling method: ONAN Class of insulation and heat-resistant: A</p> <table border="1"> <tr> <td>Insulation level: HV</td> <td>U_m/LI/LIC/AC</td> <td>40.5/200/220/85kV</td> </tr> <tr> <td>LV</td> <td>U_m/AC</td> <td>≤1.1/5kV</td> </tr> </table> <p>2. Test standards</p> <p>GB/T 1094.1—2013 Power transformers—Part 1: General GB/T 1094.2—2013 Power transformers—Part 2: Temperature rise for liquid-immersed transformers GB/T 1094.3—2017 Power transformers—Part 3: Insulation levels, dielectric tests and external clearances in air GB/T 1094.5—2008 Power transformers—Part 5: Ability to withstand short circuit GB/T 1094.10—2003 Power transformers—Part 10: Determination of sound levels GB/T 6451—2015 Technical parameters and requirements of oil-immersed power transformer GB/T 7595—2017 Quality of transformer oils in service JB/T 10088—2016 Sound level for 6kV–1000kV power transformers IEC 60076-1: 2011 Power transformers—Part 1: General IEC 60076-2: 2011 Power transformers—Part 2: Temperature rise for liquid-immersed transformers IEC 60076-3: 2013+AMD1:2018 Power transformers—Part 3: Insulation levels, dielectric tests and external clearances in air IEC 60076-5: 2006 Power transformers—Part 5: Ability to withstand short circuit IEC 60076-10: 2016 Power transformers—Part 10: Determination of sound levels Commission requirements</p> <p>3. Sample description</p> <p>The power transformer is for outdoor use and the structure of the coil is rotundate concentric type coil. The type used in this report meets the requirements of JB/T 3837—2016 Identification method of transformer's product type and external photos of the sample have been attached.</p>				Insulation level: HV	U _m /LI/LIC/AC	40.5/200/220/85kV	LV	U _m /AC	≤1.1/5kV
Insulation level: HV	U _m /LI/LIC/AC	40.5/200/220/85kV							
LV	U _m /AC	≤1.1/5kV							

International Project Reference

PHETSARATH TRADING COMPANY LIMITED	尼日利亚卡杜纳国防大学柴光互补项目	箱变变压器 1250KVA	7	2023. 7. 17
东方电气集团国际合作有限公司	老挝变压器	变压器	246	2023. 8. 24
中国水利水电第十一工程局有限公司 SINOHYDRO Bureau 11 Co., Ltd	莱索托高地引水项目 II 期项目箱式变压器 采购合同 Contract for Procurement of Compact Substation for the Lesotho Highlands Diversion Project Phase II Project	箱变变压器 1250KVA Compact Substation 1250KVA	34	2023. 12. 1
湖南爾康（香港）有限公司	尼日利亚矿山项目	开关柜/变压器	5	2024. 1. 9
保利新能源科技（北京）有限公司	援拉丁美洲 12MW 光伏电站供货项目	综自、成套、箱变	1	2023. 8. 22
山东电力建设第三工程有限公司	肯尼亚 Olkaria I 地热电站 1#、2#和 3#机组更新改造项目	变压器	11	2024. 4. 16

客户单位	工程项目名称	产品名称	物资数量	签定日期
KELIN INTERNATIONAL PTE. LTD	蒙古变电站项目	干变带外壳+框架断路器+互感器+电表共 4 套	4	2019. 07. 14
河南森杰实业有限公司	孟加拉项目	变压器	2	2020. 8. 15
CENTURY COMPACT TRANSFORMER AND SWITCH GEAR MANUFACTURING PLC	埃塞	箱式变电站	95	2020. 12. 21
晨光曲周县贸易有限公司	赞比亚	箱式变电站	2	2021. 5. 14
江苏如高配网输配电设备有限公司	埃塞水电项目	FTU	39	2021. 5. 14
中国电建集团成都勘测设计研究院有限公司	波黑水电站	箱变	20	2022. 4. 21
中国电建集团海外投资有限公司	缅甸中部光伏项目群京达、希达、薛京 33kV 箱式变电站设备采购	欧式箱变	22	2022. 7
晨光曲周县贸易有限公司	赞比亚	箱变	1	2022. 8. 20
晨光曲周县贸易有限公司	赞比亚	箱变	2	2022. 11. 8
晨光曲周县贸易有限公司	赞比亚	变压器	29	2023. 4. 28
中国水利水电第十一工程局有限公司	云南楚雄王三冲光伏发电项目 35kV 站用变压器	变压器	1	2023. 6. 17
东方电气集团国际合作有限公司	尼日利亚迈杜古里大学柴光互补项目箱式变压器项目	箱变变压器 2500KVA	15	2023. 7. 17



Bosnia and Herzegovina – Substation with Transformer



South Africa – Transformer