کاتالوگ پست و تابلو کمپکت

شرکت مهندسی تالیران (سهامی خاص)

TALIRAN Engineering PJS Co

PLC & Control
Authorized
Distributer
and
Engineering
Services Provider

UniSec
Compact Panel
Technology

ABB

www.taliran.com

1- Preface

Compact Secondary Substations are designed and manufactured for Power distribution, Transformer protection and monitoring power sources where there is limitation on available space for installation.

Taliran's Compact Secondary Substations are manufactures in two types: UniTal and UniPack

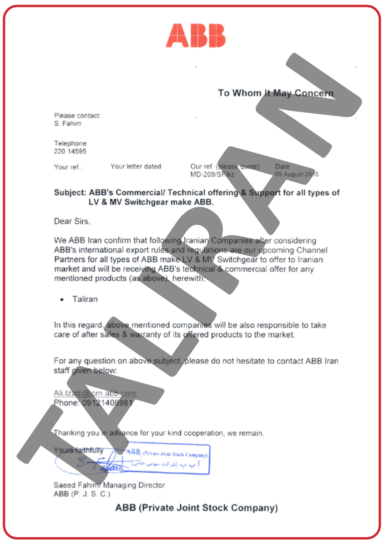
Their difference comes from the type of MV switchgear used in each one. If UniSec compact switchgear or Safe Ring/Safe Plus (GIS RMU switchgear) is used with ABB Circuit breakers and Disconnector Switches, the Compact Secondary Substation will be UniPack type. However if UniTec switchgear is used with Parsswitch and Sarv Niroo Circuit breakers and Disconnector Switches, the Compact Secondary Substation will be UniTal type. In both types the switchgear drawings and design are the same.

All Taliran's Switchgears and Compact Secondary Substations are approved by Tavanir Company, Regional Electric Companies and Tehran Province Electricity Distribution Company.

Taliran Company welcomes Representative requests from all around the country and abroad.

Taliran's Factory

Taliran's CNC facilieties



ABB

To Whom It May Concern

Please contact:
S. Fahim

Telephone:
220 14595

Your ref.: Your letter dated Our ref. (please quote) MD-209/SF/kz Date 09 August 2016

Subject: ABB's Commercial/ Technical offering & Support for all types of LV & MV Switchgear make ABB.

Dear Sirs,

We ABB Iran confirm that following Iranian Companies after considering ABB's international export rules and regulations are our upcoming Channel Partners for all types of ABB make LV & MV Switchgear to offer to Iranian market and will be receiving ABB's technical & commercial offer for any mentioned products (as above), herewith:

- Taliran

In this regard, above mentioned companies will be also responsible to take care of after sales & warranty of its offered products to the market.

For any question on above subject, please do not hesitate to contact ABB Iran staff given below:

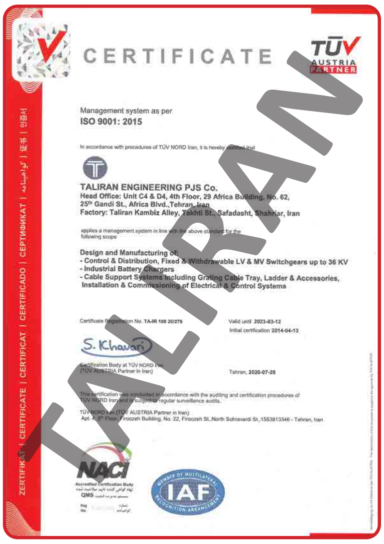
Ali.Izadi@om.abb.com
Phone: 09121406981

Thanking you in advance for your kind cooperation, we remain,

Yours faithfully

Saeed Fahim/ Managing Director
ABB (P. J. S. C.)

ABB (Private Joint Stock Company)



CERTIFICATE

TÜV AUSTRIA PARTNER

Management system as per
ISO 9001: 2015

In accordance with procedures of TÜV NORD Iran, it is hereby certified that

TALIRAN ENGINEERING PJS Co.
Head Office: Unit C4 & D4, 4th Floor, 29 Africa Building, No. 62, 25th Gandi St., Africa Blvd.,Tehran, Iran
Factory: Taliran Kambiz Alley, Takhti St., Safadasht, Shahriar, Iran

applies a management system in line with the above standard for the following scope

Design and Manufacturing of:
- Control & Distribution, Fixed & Withdrawable LV & MV Switchgears up to 36 KV
- Industrial Battery Chargers
- Cable Support Systems Including Grating Cable Tray, Ladder & Accessories, Installation & Commissioning of Electrical & Control Systems

Certificate Registration No. TA-IR 100 20/279

Valid until 2023-03-12
Initial certification 2014-04-13

Certification Body at TÜV NORD Iran
(TÜV AUSTRIA Partner in Iran)

Tehran, 2020-07-28

This certification was conducted in accordance with the auditing and certification procedures of TÜV NORD Iran and is subject to regular surveillance audits.

TÜV NORD Iran (TÜV AUSTRIA Partner in Iran)
Apt. 4, 5th Floor, Firoozeh Building, No. 22, Firoozeh St.,North Sohravardi St.,1553813346 - Tehran, Iran

ZERTIFIKAT | CERTIFICATE | CERTIFICAT | CERTIFICADO | СЕРТИФИКАТ | گواهینامه | 证书 | 인증서

E.P.I.L.

NACI

گزارش آزمون
شورای ارزیابی و مطابقت با استانداردهای تولید

Test Report

آزمایشگاه مرجع تابلو و پست کمپکت

Prefabricated Substation & Panel Ref. Lab.

نام درخواست کننده: شورای ارزیابی و مطابقت با استانداردهای تولید
نام سازنده: شرکت مهندسی تالیران
نام محصول: پست کمپکت پیش ساخته با بدنه فلزی
مدل: TSKP2404

آدرس آزمایشگاه: کیلومتر ۸ اتوبان کرج-قزوین، بلوار سوپا، شهرک تحقیقاتی کاوش
آزمایشگاه صنایع انرژی (EPIL)
تلفن: ۰۲۶-۹۲۱۰۸۳۸۰-۷ - فکس: ۰۲۶-۹۲۱۰۸۳۸۵
Website: www.eepil.com

Technical Department ISO IEC 17025 Accredited Lab

2- Standards

Compact Secondary Substation (CSS) Standards are as below:

1) IEC 62271-1 General specifications for MV Switchgears
2) IEC 62271-200 Specifications for Metal-enclosed Factory-built Switchgear MV Switchgears
3) IEC 62271-201 Specifications of insulated-enclosed Factory-built Switchgear MV Switchgears
4) IEC 62271-202 Specifications for Factory-built Medium Voltage/Low Voltage Substations
5) IEC 60076 Specifications for Power Transformers
6) IEC 61439 Specifications for Low Voltage Switchgear

Other Standards that are mainly considered in designing Compact Substations:

1) IEC/TR 62271-208 Technical report on electromagnetic fields generated by compact substations
2) IEC 60529 Degrees of protection provided by enclosures (IP Code)
3) IEC 62262 Degree of Protection against mechanical impacts
4) IEC 60721 Classification of Environmental Conditions

3- How to order Substations

Compact Secondary Substations Type

Switchgear UniSec	Substations UniPack
Switchgear UniTec	Substations UniTal

Transformer Type

E Code: Oil-Filled with expansion tank
H Code: Oil-Filled with a hermetic sealed design (due to thermal expansion and contraction)
D Code: Dry-type

Transformer Capacity

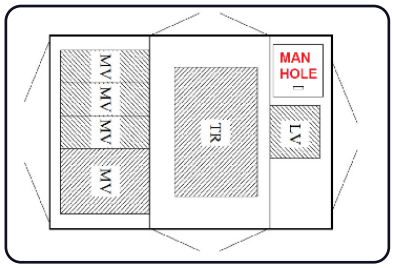
200 Code: 200KVA
250 Code: 250KVA
315 Code: 315KVA
400 Code: 400KVA
500 Code: 500KVA
630 Code: 630KVA
800 Code: 800KVA
1000 Code: 1000KVA
1250 Code: 1250KVA
1600 Code: 1600KVA

MV Switchgear Voltage

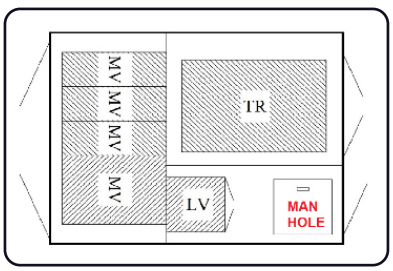
24 Code: 24/0.4KV
36 Code: 36/0.4KV

Substation Internal Design

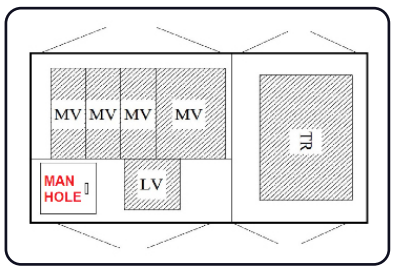
01 Code: Substation on the ground according to 01 Fig.
02 Code: Substation on the ground according to 02 Fig.
03 Code: Substation on the ground according to 03 Fig.
04 Code: Mobile Substation
05 Code: Specific Substations like having double floors or corridors



Substation on the ground according to 01 Fig



Substation on the ground according to 02 Fig



Substation on the ground according to 03 Fig

Points:

1- Specifications in below tables are based on Oil-Filled transformers manufactured by Iran Transfo Company. Obviously there is the possibility of using other types of Transformers.

2- If the installation of a measuring cell in any type of Substation is requested by the Client, it can be arranged by changes to the dimensions.

Example:

For choosing a Metal-enclosed with UniSec Switchgear and Oil-Filled hermetic Transformer and 800KVA capacity and 24KV MV Switchgear with design number 2, the final order number will be:

UniPack – H – 800 – 24 - 02

If 36KV was needed instead of 24KV, then the order number would have been:

UniPack – H – 800 – 36 - 02

Specification of Main Equipment in 24KV Compact Substations Table

Post structure	Arrangement drawing and dimension of Substation	MV Switchgear Voltage	Substation dimension (mm) 	Substation Weight without Transformer and Switchgears (Kg)	Transformer Capacity	Transformer Weight (Kg)	MV Switchgear Weight-3 to 4 Cells (Kg)	LV Switchgear Weight-1 cell (Kg)
Structure No.1	LD24001	24KV	W : 3100 D : 1900 H :2100	1100 kg	200KVA	830 kg	800 ~ 1100 kg	140 kg
Structure No.1	LD24002	24KV	W : 3150 D : 1900 H : 2100	1100 kg	250KVA	995 kg	800 ~ 1100 kg	140kg
Structure No.1	LD24003	24KV	W : 3300 D : 1900 H : 2100	1250 kg	315KVA	1210 kg	800 ~ 1100 kg	150kg
Structure No.1	LD24004	24KV	W : 3350 D : 2100 H : 2300	1400 kg	400KVA	1400 kg	800 ~ 1100 kg	160kg
Structure No.1	LD24005	24KV	W : 3400 D : 2100 H : 2400	1500 kg	500KVA	1675 kg	800 ~ 1100 kg	180kg
Structure No.1	LD24006	24KV	W : 3400 D : 2000 H : 2500	1400 kg	630KVA	2030 kg	800 ~ 1100 kg	190kg
Structure No.1	LD24007	24KV	W : 3500 D : 2200 H : 2800	1600 kg	800KVA	2430 kg	800 ~ 1100 kg	220kg
Structure No.1	LD24008	24KV	W : 3700 D : 2300 H : 3000	1700 kg	1000KVA	2935 kg	800 ~ 1100 kg	260kg
Structure No.1	LD24009	24KV	W : 3800 D : 2500 H : 3000	1800 kg	1250KVA	3720 kg	800 ~ 1100 kg	275kg
Structure No.1	LD24010	24KV	W : 3600 D : 2300 H : 3200	1600 kg	1600KVA	4570 kg	800 ~ 1100 kg	300kg
Structure No.2	LD24011	24KV	W : 2900 D : 2000 H :2100	1100 kg	200KVA	830 kg	800 ~ 1100 kg	140 kg
Structure No.2	LD24012	24KV	W : 3000 D : 2100 H : 2100	1200 kg	250KVA	995 kg	800 ~ 1100 kg	140kg
Structure No.2	LD24013	24KV	W : 3100 D : 2200 H : 2100	1300 kg	315KVA	1210 kg	800 ~ 1100 kg	150kg
Structure No.2	LD24014	24KV	W : 3400 D : 2200 H : 2300	1400 kg	400KVA	1400 kg	800 ~ 1100 kg	160kg
Structure No.2	LD24015	24KV	W : 3100 D : 2200 H : 2400	1250 kg	500KVA	1675 kg	800 ~ 1100 kg	180kg
Structure No.2	LD24016	24KV	W : 3400 D : 2300 H : 2500	1500 kg	630KVA	2030 kg	800 ~ 1100 kg	190kg
Structure No.2	LD24017	24KV	W : 3440 D : 2400 H : 2800	1400 kg	800KVA	2430 kg	800 ~ 1100 kg	220kg
Structure No.2	LD24018	24KV	W : 3600 D : 2400 H : 3000	1600 kg	1000KVA	2935 kg	800 ~ 1100 kg	260kg
Structure No.2	LD24019	24KV	W : 3700 D : 2500 H : 3000	1650 kg	1250KVA	3720 kg	800 ~ 1100 kg	275kg
Structure No.2	LD24020	24KV	W : 3500 D : 2400 H : 3200	1550 kg	1600KVA	4570 kg	800 ~ 1100 kg	300kg

Specification of Main Equipment in 24KV Compact Substations Table

Post structure	Arrangement drawing and dimension of Substation	MV Switchgear Voltage	Substation dimension (mm) 	Substation Weight without Transformer and Switchgears (Kg)	Transformer Capacity	Transformer Weight (Kg)	MV Switchgear Weight-3 to 4 Cells (Kg)	LV Switchgear Weight-1 cell (Kg)
Structure No.3	LD24021	24KV	W : 3200 D : 1900 H :2100	1200 kg	200KVA	830 kg	800 ~ 1100 kg	140 kg
Structure No.3	LD24022	24KV	W : 3300 D : 1900 H : 2100	1300 kg	250KVA	995 kg	800 ~ 1100 kg	140kg
Structure No.3	LD24023	24KV	W : 3400 D : 1900 H : 2100	1400 kg	315KVA	1210 kg	800 ~ 1100 kg	150kg
Structure No.3	LD24024	24KV	W : 3400 D : 2100 H : 2300	1500 kg	400KVA	1400 kg	800 ~ 1100 kg	160kg
Structure No.3	LD24025	24KV	W : 3450 D : 2100 H : 2400	1550 kg	500KVA	1675 kg	800 ~ 1100 kg	180kg
Structure No.3	LD24026	24KV	W : 3500 D : 2000 H : 2500	1500 kg	630KVA	2030 kg	800 ~ 1100 kg	190kg
Structure No.3	LD24027	24KV	W : 3440 D : 2400 H : 2800	1600 kg	800KVA	2430 kg	800 ~ 1100 kg	220kg
Structure No.3	LD24028	24KV	W : 3600 D : 2400 H : 3000	1700 kg	1000KVA	2935 kg	800 ~ 1100 kg	260kg
Structure No.3	LD24029	24KV	W : 3700 D : 2500 H : 3000	1800 kg	1250KVA	3720 kg	800 ~ 1100 kg	275kg
Structure No.3	LD24030	24KV	W : 3500 D : 2400 H : 3200	1600 kg	1600KVA	4570 kg	800 ~ 1100 kg	300kg

Specification of Main Equipment in 36KV Compact Substations Table

Post structure	Arrangement drawing and dimension of Substation	MV Switchgear Voltage	Substation dimension (mm) 	Substation Weight without Transformer and Switchgears (Kg)	Transformer Capacity	Transformer Weight (Kg)	MV Switchgear Weight-3 to 4 Cells (Kg)	LV Switchgear Weight-1 cell (Kg)
Structure No.1	LD36001	36KV	W : 4100 D : 2700 H : 2700	2300 kg	200 ~ 630 KVA	1020 ~ 2240 kg	900 ~ 1100 kg	150 kg
Structure No.2	LD36002	36KV	W : 4000 D : 2600 H : 2700	2200 kg	200 ~ 630 KVA	1020 ~ 2240 kg	900 ~ 1100 kg	150 kg
Structure No.3	LD36003	36KV	W : 4300 D : 2600 H : 2700	2400 kg	200 ~ 630 KVA	1020 ~ 2240 kg	900 ~ 1100 kg	150 kg
Structure No.1	LD36004	36KV	W : 4200 D : 2700 H : 3000	2400 kg	800 KVA	2510 kg	900 ~ 1100 kg	150 kg
Structure No.2	LD36005	36KV	W : 4000 D : 2700 H : 3000	2300 kg	800 KVA	2510 kg	900 ~ 1100 kg	150 kg
Structure No.3	LD36006	36KV	W : 4400 D : 2500 H : 3000	2500 kg	800 KVA	2510 kg	900 ~ 1100 kg	150 kg

4- Ability of Substation types

Container	Description	Mobile Metal-enclosed Substation	Double floors Metal-enclosed Substation	Metal-enclosed Substation with corridor on the ground	Metal-enclosed Substation without corridor on the ground
MV Switchgear	Installation of AIS Switchgear	X	-	X	X
	Installation of GIS Switchgear	X	X	X	X
	Installation of Fused Disconnector Switch for Transformer Protection	X	X	X	X
	Installation of Circuit Breaker for Transformer Protection	X	X	X	X
	Installation of Measuring Cell	X	X	X	X
	Controlled Transformer Protection Relay	X	X	X	X
	Remote Managing System	X	X	X	X
	Installation of RTU and Battery Charger	X	X	X	X
Transformer	Installation of Oil-Filled Transformer with expansion tank	-	X	X	X
	Installation of Oil-Filled hermetic Transformer	-	X	X	X
	Installation of Oil-Filled hermetic Transformer with nitrogen gas	-	-	-	-
	Installation of Dry Transformer	X	X	X	X
LV Switchgear	Installation of LV Equipment in Free-standing Switchgear	X	X	X	X
	Installation of LV Equipment in Wall-mounted panel	X	X	X	X
	Installation of different Circuit Breakers as outgoing feeders	X	X	X	X
	Installation of Capacitor Bank	X	X	X	X
	Installation of Battery Charger (in RTU Substation)	X	X	X	X
Foundation	Installation on Concrete Foundation	-	X	X	X
	Installation on a Metal Foundation	-	X	X	X

5- Substation Specifications and Features

Description	Metal-enclosed Substation without corridor on the ground	Metal-enclosed Substation with corridor on the ground	Double floors Metal-enclosed Substation	Mobile Metal-enclosed Substation
Advantages	Easy access to equipment	Possibility of Operator Presence inside the Substation	Lowest occupancy	Fast and temporary power supply
Access	Up to Four sides	Up to Four sides	Two sides	Three sides
Structure with bolt and nut from Galvanized Steel Sheet with Electrostatic powder Paint	X	X	X	X
Substation Floor structure from Hot Galvanized Steel Sheet	X	X	X	X
Natural Ventilation System with thermal class *10	X	X	X	X
Degrees of protection for Transformer up to IP33	X	X	X	X
Degrees of protection for MV and LV Switchgear up to IP43	X	X	X	X
Degrees of protection for Substation up to IP23	X	X	X	X
Operation of MV and LV Switchgear from inside or outside Substation	from outside	from inside	from outside	from outside
Access and Replacement of folding rail transformers from the sides or from above	From both sides	From both sides	from the top	From both sides
Separation of the transformer compartment from the rest of the Substation compartments	X	X	X	X
Ceiling load bearing of 250 kg	X	X	X	X
Having an integrated ground system for all Substation Components	X	X	X	X
Installation in Indoor Environment	X	X	-	-
Installation in Outdoor Environment	X	X	X	X
Installation of motorized mechanism for Incoming Cables collection	-	-	-	X
Capability of feeding from MV Open Air Power Line Cables	-	-	X	X
Capability of feeding from MV Grounded Power Line Cables	X	X	X	-
Maximum Voltage	36 KV	36 KV	24 KV	24 KV
Maximum Rated Capacity of the transformer	1600 KVA	1600 KVA	800 KVA	800 KVA

* According to the standard IEC62271-202 in manufacturing Compact Substations, thermal classes 5, 10, 15, 20, 25 and 30 are allowed. The temperature class is approximately equal to the difference between the transformer temperatures in case of installation inside the Substations and outside the Substations. Zero thermal class can also be defined. Pad Mounted Substations have Zero thermal class.

6- Installed Equipment in Substations

6-1- Compact Switchgear

Compact Switchgears in addition to transformer substations, it can also be used in the following places:

Power Generation Facilities

MV part of industrial Units

Airports, Shopping Centers, and Hospitals, etc.

Shipbuilding

6-1-1- Switchgear Structure and main equipment of Compact Substations

In designing the Switchgear, special attention has been paid to the safety of operators and users. For this purpose, the panel is divided into separate compartments.
The compartments are designed to withstand a rapid rise in temperature and pressure caused by an internal arc.

6-1-2 - Loss of Service Continuity

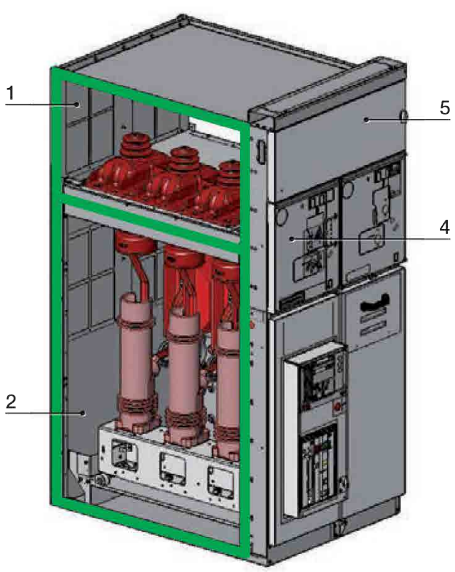
According to standard IEC 62271-200, the classification of the Switchgear in terms of "LSC-Loss of Service Continuity" shows that when the Main Circuit Breaker Compartment door is opened, how long other Compartments or Operating Units can continue working.

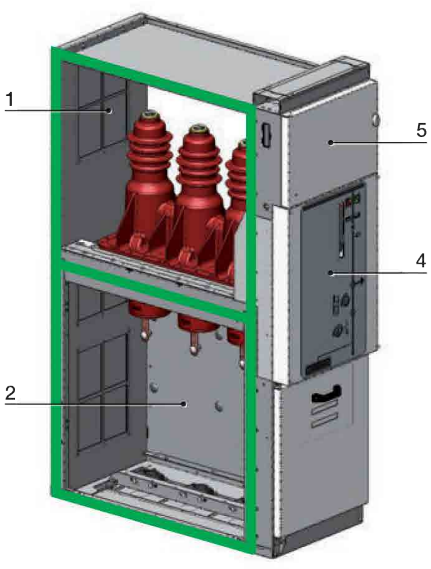
<table>
<tr><th>How to separate compartments</th><th>Switchgear structure design feature</th><th>When an accessible compartment is opened from the Switchgear</th><th colspan="2">Service Continuity Classification</th></tr>
<tr><td>-</td><td>There is no divider between the switchgear and adjacent cells.</td><td>The bus bar and all parts of the LSC1 switchgear must be insulated.</td><td colspan="2">LSC1</td></tr>
<tr><td rowspan="2">Metal Sides</td><td rowspan="2">Buss bar is separated from the rest of the switchgear.</td><td rowspan="2">The incoming cable must be insulated. Busbar and adjacent cells can be working.</td><td>LSC2A</td><td rowspan="2">LSC2</td></tr>
<tr><td>LSC2B</td></tr>
<tr><td>Up to 17.5 kV metal sides - 24 and 36 kV insulation dividers</td><td>Incoming cable, buss bar, and adjacent cells will be isolated by dividers.</td><td>Incoming cable, buss bar, and adjacent cells can be operating.</td><td colspan="2"></td></tr>
</table>

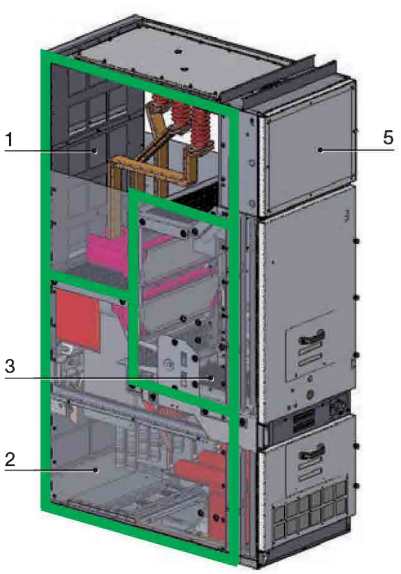
* Routine Service Continuity in Compact Substations are LSC1 and LSC2A.
LSC2B is manufacture on order and is optional.

6-1-3 - Switchgear Compartments

1) Bus bar Compartment
2) Cable Compartment
3) Equipment Compartment (Only in LSC2B)
4) Operating Compartment
5) Control circuit Compartment







6-1-4 - Electrical and structural specifications of Compact Substations

Items	For 24 KV Switchgear	For 36 KV Switchgear
Rated Voltage (KV)	24	36
Operational Voltage (KV)	20	33
Rated Power Frequency Withstand Voltage (KV)	50	75
Rated Lighting Impulse Withstand Voltage (KV)	125	195
Rated Frequency (HZ)	50	50
Rated Feeder Current (A)	630	630
Rated Short Time Withstand Current (KA)	upto 20(3 sec)	20(1 sec)
Control Voltage V AC/DC	On request	On request
Degree of Protection (IP)	3X	3X
Circuit Breaker	VACUUM/SF6	VACUUM/SF6
Weight with Equipment(Kg)	800~1100	900~1100
Standard	62271-200	62271-200

6-1-5 - The main equipment of Compact Substations

Here is a brief overview of the main equipment in the Substations. More detailed specifications will be extractable from equipment catalogs.

Gas insulated Switch Disconnector Switch
-ABB Gas Disconnector GSec Type 24KV
-Sarv Niroo Gas Disconnector ILB-24 Type 24KV
-Gas Disconnector Tavnir approved brands 36KV

Circuit Breaker
-ABB Gas Circuit Breaker HD4/R- Sec Type 24KV
-ABB Vacuum Circuit Breaker VD4/R- Sec Type 24KV
-Pars Switch Gas Circuit Breaker FP Type 24KV
-Gas Circuit Breaker Tavnir approved brands 36KV
-Vacuum Circuit Breaker Tavnir approved brands 36KV
-Pars Switch Vacuum Circuit Breaker VP4E Type 24KV

Protection Relay
-Self-power Protection Relay
-External-power Protection Relay

MV Fuse

MV Contactor

Self-power Fault Indicator

Voltage Indicator

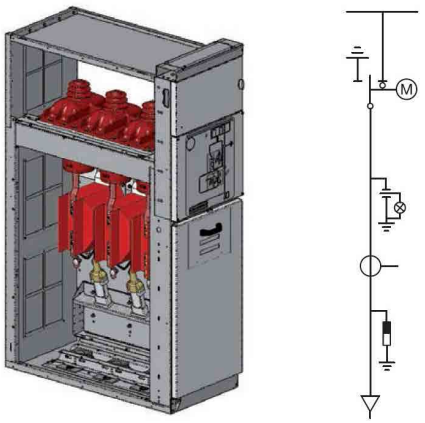
Voltage Transformer

Current Transformer

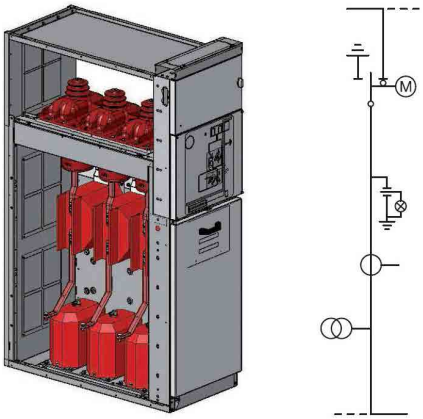
6-1- 6 - List of available cell types for 24KV

List of available cell types, dimensions and weight for 24KV compact Switchgears					
Letter code	Description	Width mm	High mm	Depth mm	Weight kg
SDC	Unit with switch-disconnector	375	1700 / 2000	1070	150 / 160
		500	1700 / 2000	1070	170 / 180
		750	1700 / 2000	1070	195 / 210
SDS	Unit with switch-disconnector – disconnection	375	1700 / 2000	1070	155 / 165
		500	1700 / 2000	1070	175 / 185
		750	1700 / 2000	1070	200 / 215
SDM	Disconnecting unit with measurements with switch-disconnector	750	1700 / 2000	1070	230 / 250
SDD	Unit with double switch-disconnector	750	1700 / 2000	1070	270 / 290
UMP	Universal measurement unit	750	1700	1070	200
SFC	Switch-disconnector with fuses	375	1700 / 2000	1070	155 / 160
		500	1700 / 2000	1070	175 / 185
		750	1700 / 2000	1070	200 / 215
SFS	Switch-disconnector with fuses – disconnection	375	1700 / 2000	1070	165 / 175
		500	1700 / 2000	1070	180 / 190
SBC	Circuit-breaker unit with switch-disconnector	750	1700 / 2000	1070	355
SBC-W	Withdrawable circuit-breaker unit with switch-disconnector	750	1700 / 2000	1070	355
SBS	Circuit-breaker unit with switch-disconnector – disconnection	750	1700 / 2000	1070	355 / 375
SBS-W	Withdrawable circuit-breaker unit with switch-disconnector – disconnection	750	1700 / 2000	1070	355 / 375
SBM	Disconnecting unit with measurement and double switch-disconnector	750	1700 / 2000	1070	390 / 410
SBR	Inverted circuit-breaker unit	750	1700	1070	355
HBC	Unit with integrated circuit-breaker and disconnector	500	1700 / 2000	1070	250 / 275
SFV	Switch-disconnector unit with fuse – measurements	500	1700 / 2000	1070	175 / 185
DRC	Direct incoming unit with measurements and busbar earthing	375	1700 / 2000	1070	120 / 130
		500	1700 / 2000	1070	135 / 145
DRS	Riser unit – measurements	375	1700 / 2000	1070	120 / 130
		500	1700 / 2000	1070	135 / 145
RLC/RRC	Lateral cable riser, right and left (for SBR units only)	190	1700 / 2000	1070	80 / 90

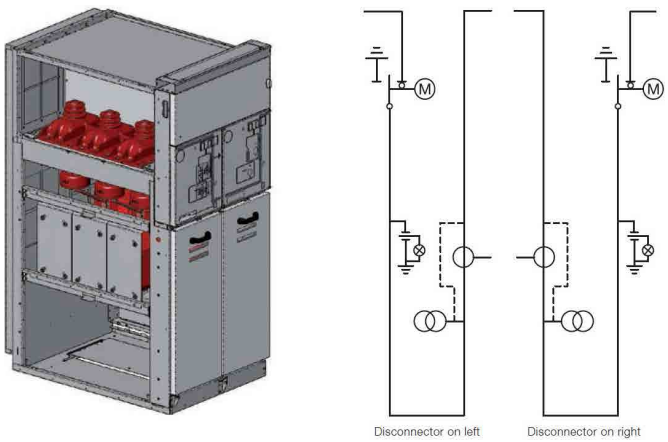
دیاگرام تک خطی و نمای تیپ های در دسترس تابلوهای کمپکت 24KV



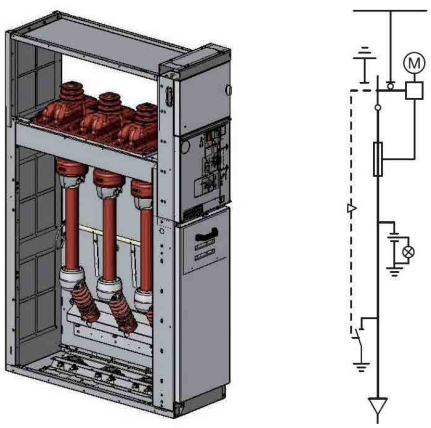
SDC-Unit with switch-disconnector



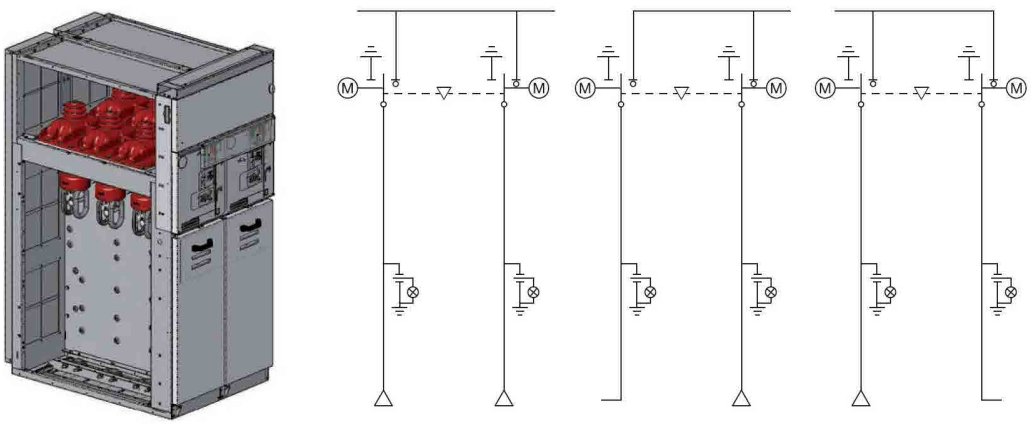
SDS-Unit with switch-disconnector – disconnection



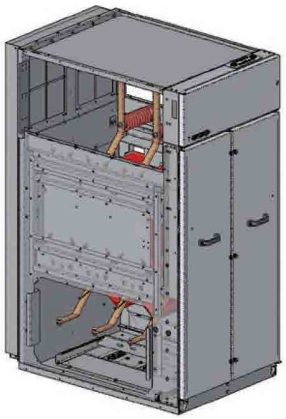
SDM – Disconnecting unit with measurements with switch-disconnector

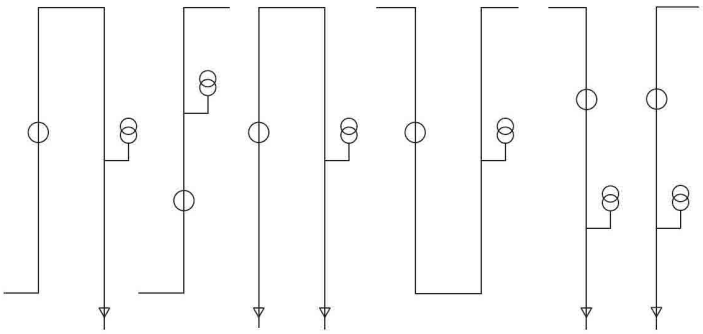


SFC – Switch-disconnector unit with fuses

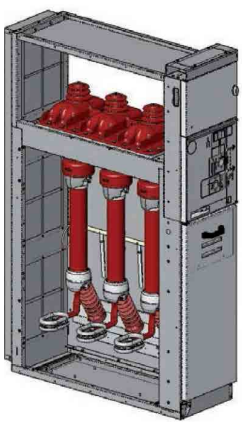


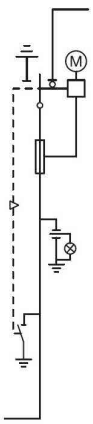
SDD – Unit with double switch-disconnector



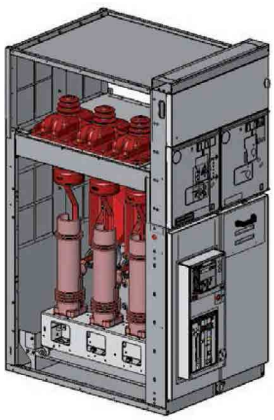


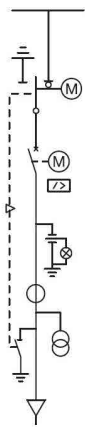
UMP – Universal measurement unit



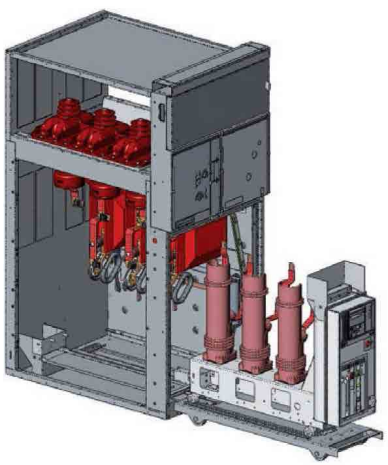


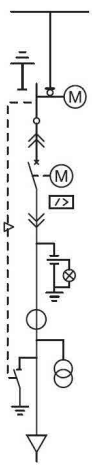
SFS – Switch-disconnector with fuses disconnection –



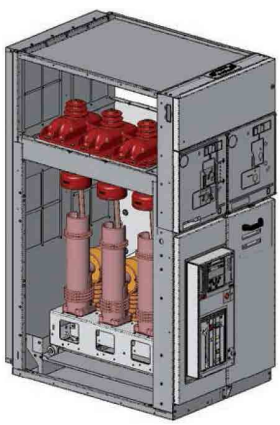


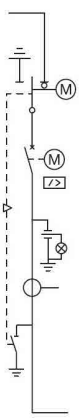
SBC – Circuit-breaker with switch-disconnector



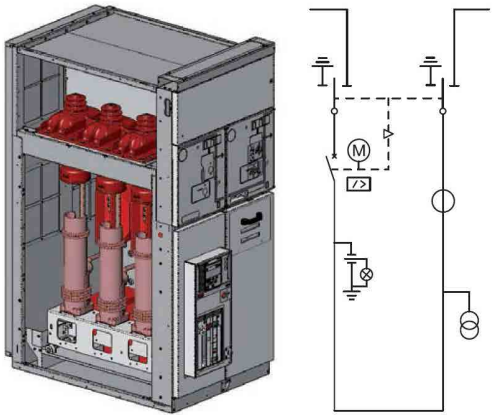


SBC-W – Withdrawable circuit-breaker unit with switch-disconnector

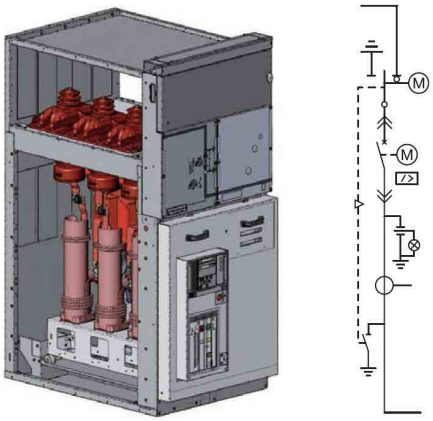




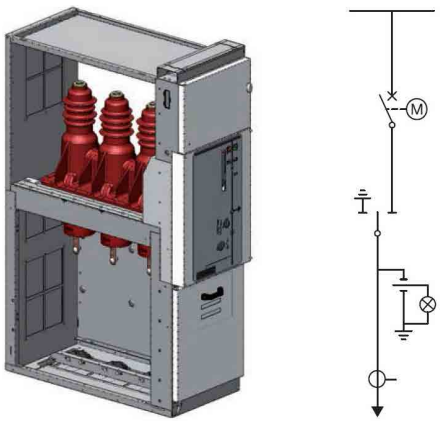
SBS – Circuit-breaker unit with switch-disconnector – disconnection



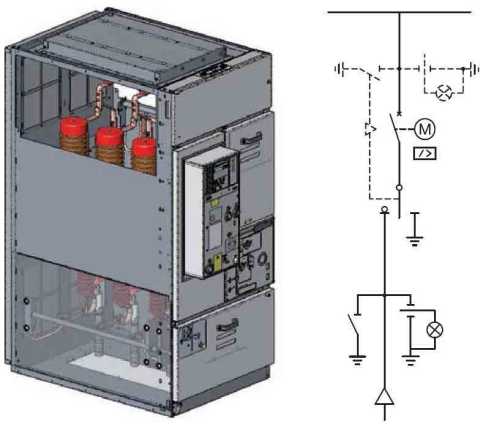
SBM – Disconnecting unit with measurements
and
double switch-disconnector



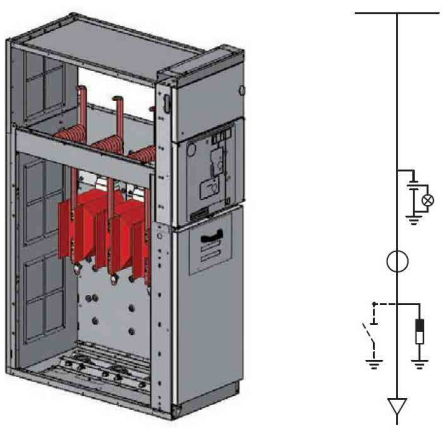
SBS-W – Withdrawable circuit-breaker unit with
switch-disconnector – disconnection



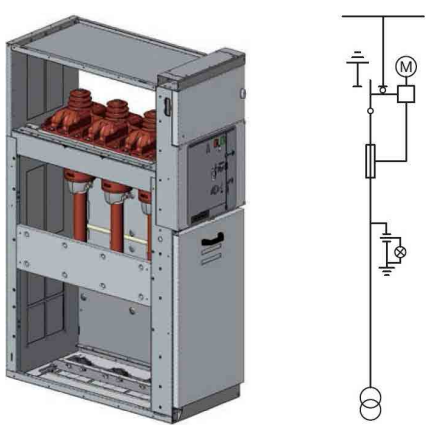
HBC – Unit with integrated circuit-breaker and
switch-disconnector



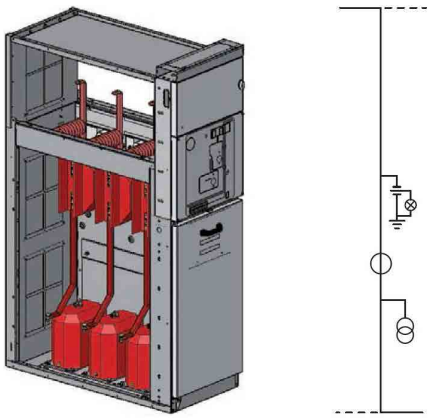
SBR – Inverted circuit-breaker unit



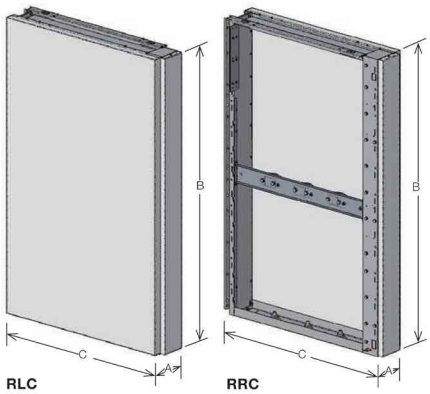
DRC – Direct incoming unit with measurements
and busbar earthing



SFV – Switch-disconnector with
fuses – measurements



DRS – Riser unit - measurements



RLC/RRC – Lateral cable riser, right and left

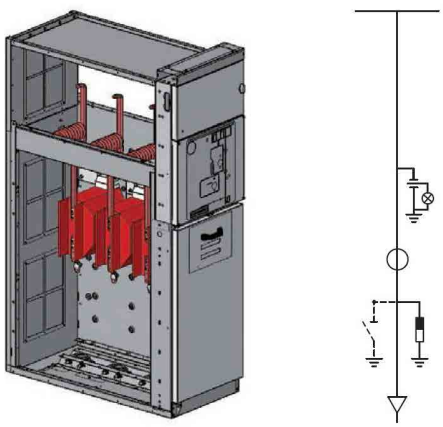
Table of matches with RRC/RLC for 24KV panel

Unit	Cable riser H = 1700 mm		Cable riser H = 2000 mm	
	RLC	RRC	RLC	RRC
SDC 375	X	X	X	X
SDC 500	X	X	X	X
SDC 750	-	X	-	X
SDS 375 busbar outlet on left	-	-	-	X
SDS 375 busbar outlet on right	-	-	X	-
SDS 500 busbar outlet on left	-	-	-	X
SDS 500 busbar outlet on right	-	-	X	-
SFC 375	X	X	X	X
SFC 500	X	X	X	X
SFV 500	X	X	X	X
SFS 375 busbar outlet on left	-	-	-	X
SFS 500 busbar outlet on left	-	-	-	X
SBC 750 (SBC-W 750)	X	-	X	-
SBS 750 (SBS-W 750) busbar outlet on left	-	-	X	-
SDM 750 Gsec on left	-	-	X	-
SDM 750 Gsec on right	-	-	-	X
SDD 750 cable outlet	X	X	X	X
SDD 750 busbar outlet on left	-	X	-	X
SDD 750 busbar outlet on left	X	-	X	-
SBM 750	-	-	X	X
SBR 750	X	X	-	-

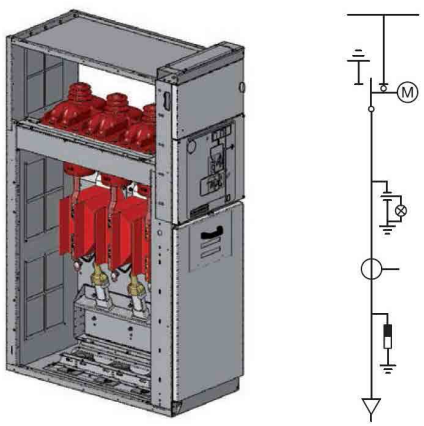
6-1-7 - List of available cell types for 36KV

List of available cell types, dimensions and weight for 36KV Compact Switchgears					
Type	Description	Width mm	High mm	Depth mm	Weight kg
SDC	Unit with switch-disconnector Incoming / Outgoing	750	2250	1400	305
DRC	Direct incoming unit with measurements and busbar earthing	750	2250	1400	240
SFC	Switch-disconnector with fuses	750	2250	1400	320
SBC	Circuit-breaker unit with switch-disconnector	1100	2250	1400	550
UMP	Universal measurement unit	750	2250	1400	475

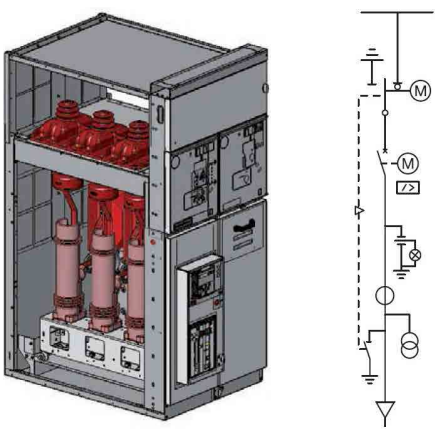
Available types of Single line diagram and General Arrangements of 36KV Compact Switchgears



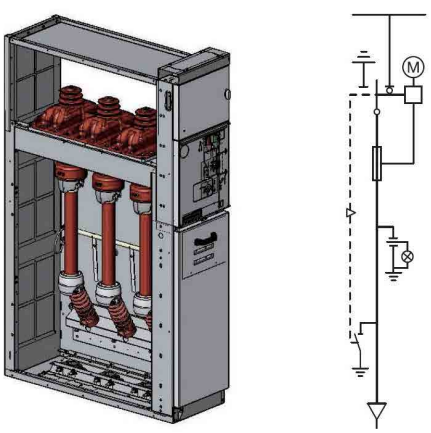
DRC – Direct incoming unit with measurements and busbar earthing



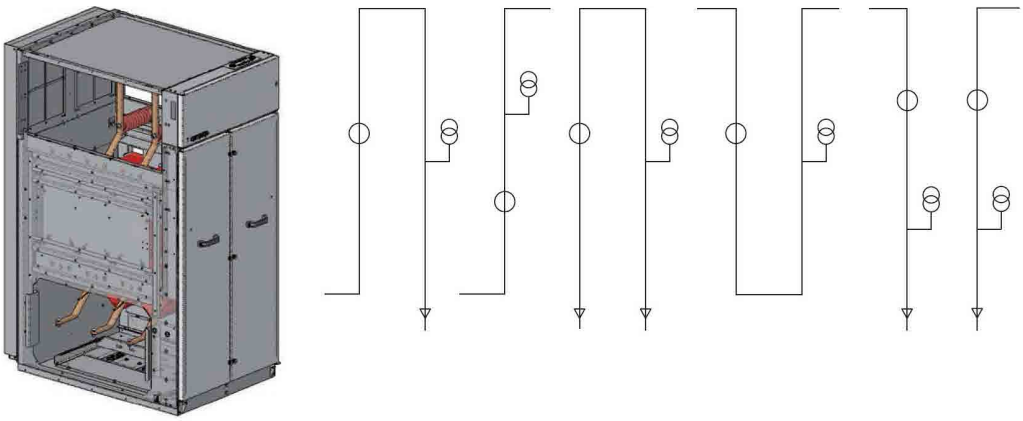
SDC-Unit with switch-disconnector



SBC – Circuit-breaker with switch-disconnector



SFC – Switch-disconnector unit with fuses



UMP – Universal measurement unit

6-1-8 - Compact Switchgears for Smart Grids

UniSec and UniTec Compact Switchgears for Smart Grids (SG) can be equipped with advanced Automation Tools (FA) along with other Tools such as Fault Indicators (FPI) that can transfer data to Distributed control system (DCS). This feature allows following items to be implemented:

- Managing Faults by reducing their duration and their quantity
- Improving the quality of power distribution
- Managing energy flow based on its generation

6-1-9 - Automation levels

UniSec and UniTec Compact Switchgears in Smart Grids (SG), offer three solutions based on Network complexity and Automation level.

Automation levels			
Protection, measurement, control and monitoring	**Measurement, control and monitoring**	**Control and monitoring**	
Protection Protection of circuit breakers with remote control for inputs and outputs	-	-	**Optimum Selection**
Measurement MV Accuracy measurement	Measurement MV Accuracy measurement	-	**Energy flow management**
Control LV MCCB and MV Circuit Breaker Control	Control LV MCCB and MV Circuit Breaker Control	Control LV MCCB and MV Circuit Breaker Control	**Fault separation**
Monitoring MV and LV Monitoring and LV Measurement	Monitoring MV and LV Monitoring and LV Measurement	Monitoring MV and LV Monitoring and LV Measurement	**Show status**

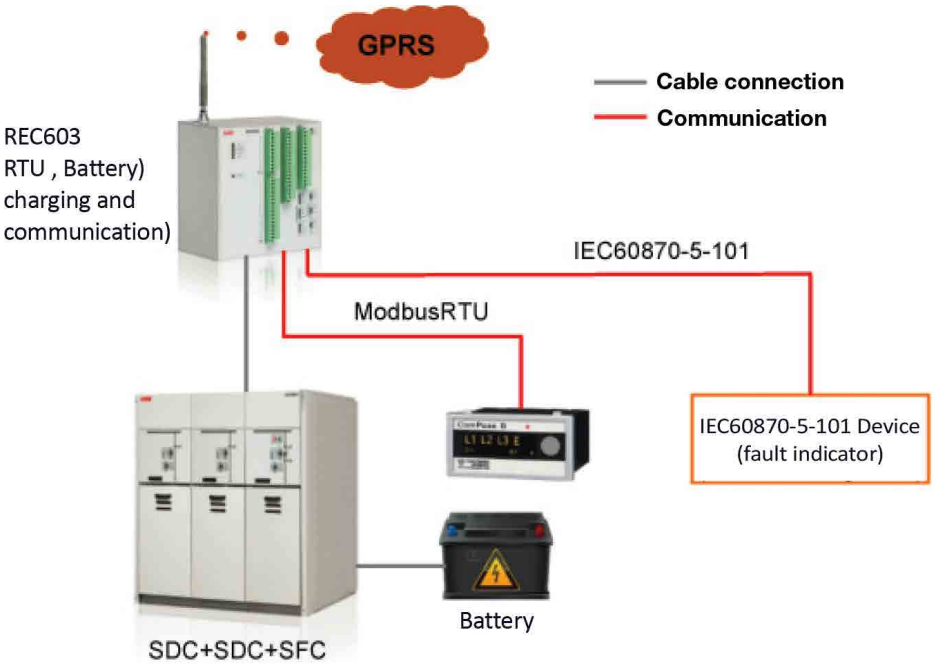
Automation Package and basic distribution (New Sites) Automatic Retrofits (Outdated sites)

6-1-10 - Control and Monitoring

6-1-11 - Functions

- The on / off switches Status Indicator
- Fault Indicator
- LV Measurement
- Post Condition Monitor
- Motorized Circuit Breakers Remote Control
- Remote network configuration in case of using motorized Circuit Breakers

6-1-12 - Equipment combination



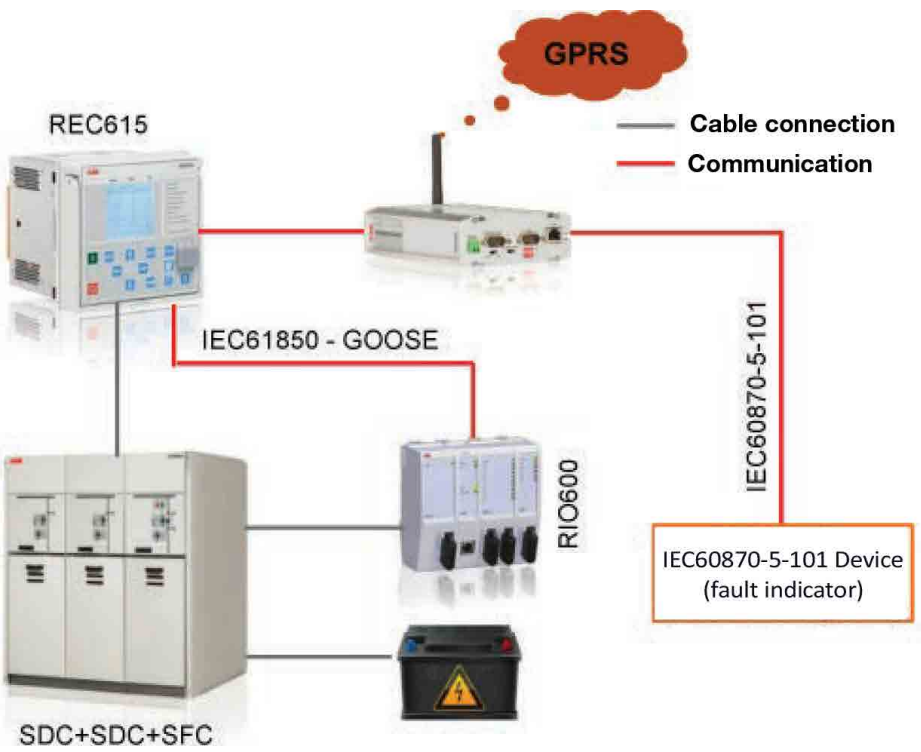
Note: General Packet Radio Service or GPRS is the communication system based on cell phone.

6-1-13 - Measurement

6-1-14 - Functions

- Monitoring and Control Unit
- High Accuracy measurement of MV amounts

6-1-15 - Equipment combination



6-1-16 - General Information

6-1-17 - Monitoring the LV side of the transformer (Optional)

In this case multimeter will be able to communicate with protocol IEC 60870 – 5-101.

6-1-18 - Power Supply

All secondary equipment of the switchgear are supplied with 24VDC batteries. Batteries are charged by charger and don't need external power supply.

- 90 to 264 VAC, 50/60Hz or 85 to 200 VDC in case of having "monitoring and control" in Automation Functions
- 115 to 230VAC, 48 to 62 Hz in case of having higher levels of functions

6-1-19 - Battery Life

The batteries installed in the switchgear, according to their technical specifications and manufacturer's catalog, must be replaced in time. The Batteries Life is specified in 20°C. It is obvious that battery life will decrease when ambient temperature is high.

6-1-20 - Environmental conditions

UniTec and UniSec Compact Switchgear for Smart Grids, are designed for -5°C to 40°C (Temperatures lower than -25°C should be consulted with manufacturer).

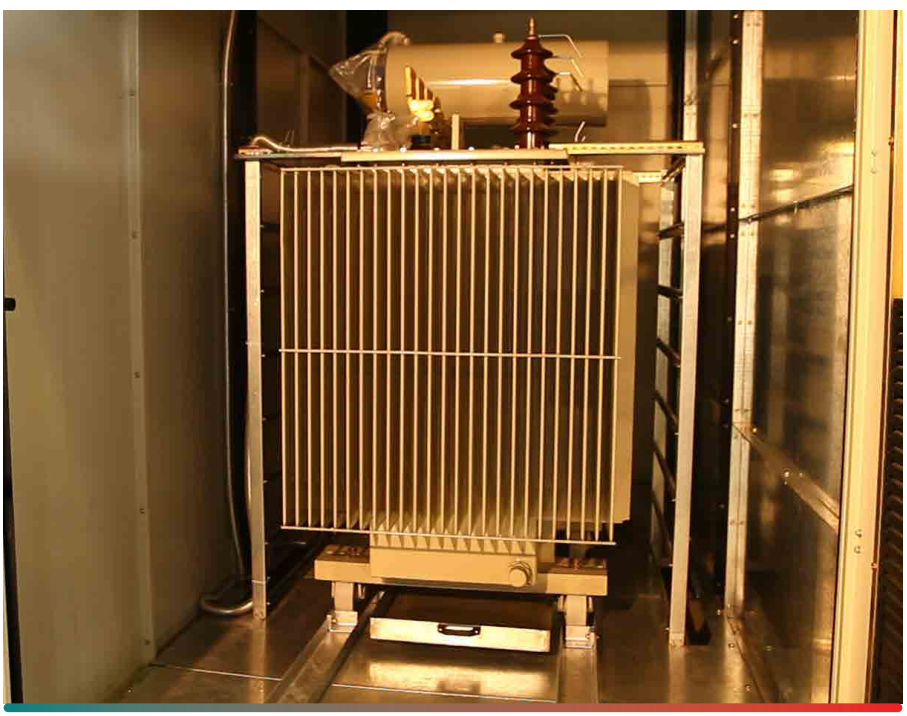
If the Switchgears are installed in non-standard conditions, they need to be regularly inspected and special maintenance should be carried out.

Note: Please use GT_UniSec (EN) _1VCP000667-2017.02 – EXT (UniSec Technical Guid) for more detailed information on 24KV Compact Switchgears and SafeRing / SafePlus Catalogue for 36KV GIS.

6-2 - Transformer

As mentioned in previous sections, transformers can be oil type with expansion source, hermetic, gas hermetic, and dry type. The capacity of transformers used in compact substations is usually 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600 kVA.

More detailed specifications on transformers can be seen in the manufacturer's catalog.



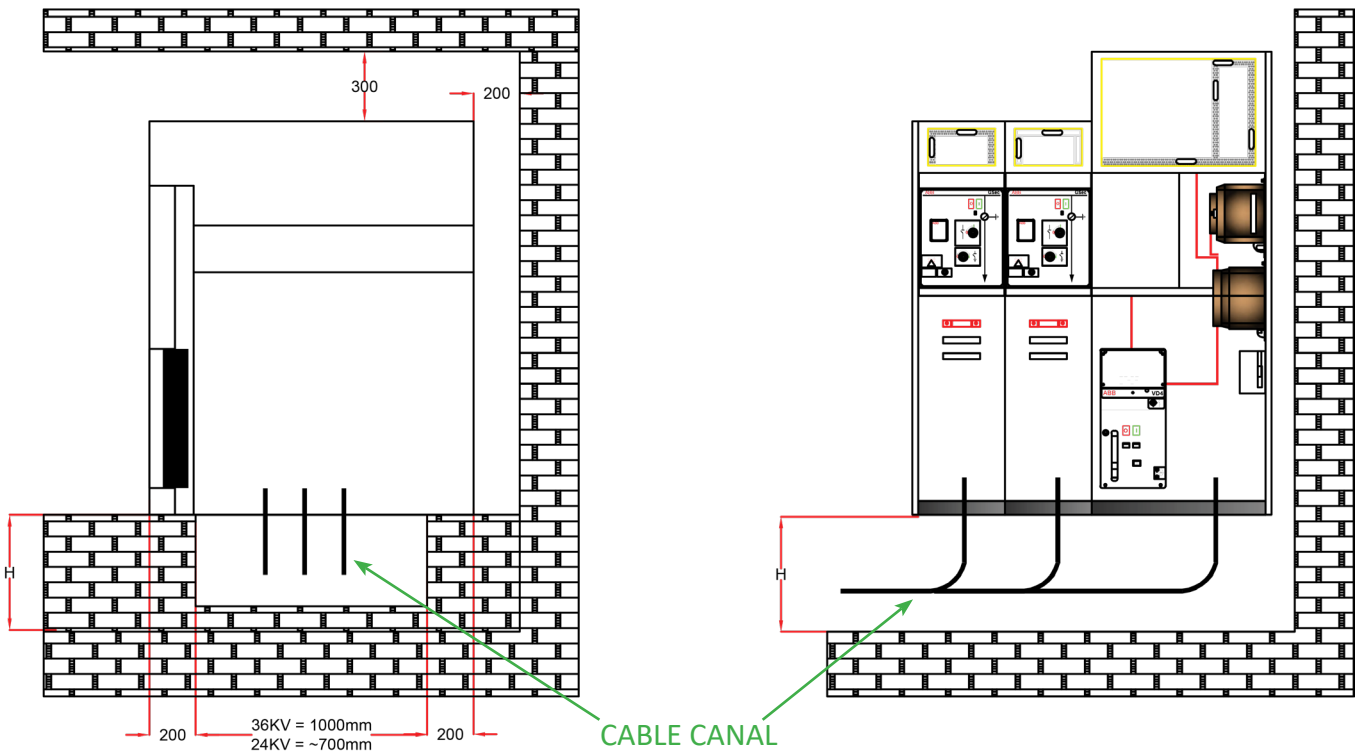
6-3 - LV Switchgear

LV Switchgear, capacitor (if included in Specification) and charger and other control equipment can be installed here.

7- Installing Switchgear and compact substations conditions

The installation of compact substations must be done in compliance with the requirements of Electricity Distribution Companies and the Operating conditions.

To install Compact Switchgears in closed spaces, appropriate distance from the ceiling, side walls and floor should be considered as following picture.



SIDE VIEW

FRONT VIEW

CABLE SECTION (mm²)	CABLE FLEXION RADIUS (mm)	CABLE DEPTH H (mm)
35	525	550
50	555	580
70	585	610
95	600	620
120	620	650
150	630	665
185	650	680
240	690	720

License, representative, type test, and ISO certificates

• Taliran is manufacturing its LV and MV switchgears under Siemens License. We type tested our own processed switchgears in ICMET laboratory as well.
• Our compact panels and compact substations are manufacturing with ABB technical and commercial partnership. We type tested them in EPIL laboratory at the same time.
• We have representative from ABB for distribution and engineering services of control and PLC systems.
• Our battery chargers were type tested in Power Research Institute and Polytechnic University.
• ISO 9001 management system has been implemented in Taliran since 2005.

Furthermore the cable tray & ladder, our products and services are as below:

1. Fixed & Withdrawable LV and MV Switchgears up to 36 KV
2. PLC Control and Process Panels
3. LV, MV, HV Capacitor Banks
4. D.G Automatic Control , Change-over, and PLC Load Sharing
5. Cable Tray & Ladder and Accessories
6. Industrial and telecommunication Battery Chargers
7. UPS systems
8. Commissioning and starting- up of electrical and process control installations

شرکت مهندسی تال ایران (تالیران) سهامی خاص

دفتر مرکزی: تهران ۱۵۱۷۹۴۴۸۴۹، بلوار آفریقا ، پایین تر از اتوبان حقانی، نبش خیابان ۲۵ ، پلاک ۶۲ ، طبقه ۴ ، واحدD4
تلفن : ۸۴ ۸۲ ۶۴ ۸۸ - ۰۲۱
نمابر: ۵۳ ۸۲ ۶۴ ۸۸ - ۰۲۱
پست الکترونیک: office@taliran.com

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تلفن: ۴۴ الی ۶۵۴۳۶۳۴۰ - ۰۲۱
نمابر: ۶۵۴۳۳۳۳۵ - ۰۲۱

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