

imeb

QUADRI UG36 LSC2A-PM FINO A 36KV

36KV LSC2A-PM SWITCHBOARDS UG36

CELLULES HTA 36KV UG36



1. GENERALITÀ - GENERAL DESCRIPTION - GÉNÉRALITÉS

I quadri di media tensione IMEB UG36, LSC2A-PM, sono stati studiati e progettati per offrire all'utente una molteplicità di impiego e la possibilità di essere rispondenti alle più svariate esigenze di impianto di produzione e distribuzione fino a 36 KV. Il quadro è realizzabile assemblando i vari scomparti tipo completamente normalizzati.

Nella progettazione degli scomparti si è tenuta in considerazione la funzionalità, la semplicità dei dispositivi di manovra e di blocco ed un lungo periodo di esercizio senza manutenzione.

Lo scomparto tipo costituisce un complesso formato da due celle sovrapposte e precisamente:

- cella superiore contenente il sistema di sbarre principali;
- cella inferiore contenente apparecchiature elettriche di interruzione e sezionamento, di protezione, trasformatori di corrente e tensione e terminali cavi.

Le celle sono segregate tra loro mediante lo stesso involucro metallico dell'IMS che garantisce un grado di protezione IP2X in modo da consentire, con porta aperta e sbarre in tensione, l'accesso alla cella apparecchiature.

Nella parte superiore dello scomparto è possibile alloggiare uno scomparto BT per apparecchiature di bassa tensione.

I quadri UG36 presentano le seguenti caratteristiche:

1 Massima sicurezza per il personale

- Messa a terra di tutta la struttura del quadro
- Interblocchi meccanici che obbligano l'esatta sequenza delle manovre
- Grado di protezione IP3X sull'involucro esterno
- A richiesta tenuta all'arco interno IAC, AFL, 16 kA x 1 sec

2 Sicurezza contro gli incendi

Le segregazioni metalliche tra le celle e l'utilizzo di materiali isolanti autoestinguenti impediscono il diffondersi di eventuali incendi

3 Facile manovrabilità:

- Tutte le manovre si eseguono dal fronte con dispositivi semplici e funzionali
- Segnalazioni meccaniche indicano la posizione dei vari componenti

4 Versatilità:

Disponibilità di esecuzione per vari schemi

5 Colorazioni:

Goffrato Ral 7035 standard. Altri colori a richiesta

6 Componenti principali:

- Interruttore di manovra sezionatore è di tipo compatto con isolamento a basso volume di SF6
- Interruttori isolati in SF6

7 Grandezze nominali:

Tensione nominale	kV 36
Frequenza nominale	Hz 50/60
Tensione di prova 1 min 50Hz	kV 70
Tensione ad impulso	kV 170
Corrente nominale sbarre	A 400 630 800
Corrente di breve durata	kA 16 x 1 sec
Corrente di cresta	kA 40
Classificazione arco interno	AFL 16 kA x 1 sec
Temperatura ambiente max	+ 40°C
Temperatura ambiente min	-5°C
Umidità relativa	95%
Altitudine	<=1000m s.l.m.
Categoria di esercizio	LSC2A-PM
Grado di protezione	IP3X

8 Riferimenti normativi

- Rapporti di prova:
Gli scomparti della serie UG36 hanno positivamente superato, in laboratori ufficiali, tutte le prove di tipo in accordo alle norme internazionali: IEC 62271 - 200



1. GENERALITÀ - GENERAL DESCRIPTION - GÉNÉRALITÉS

The LSC2A-PM Medium Voltage IMEB UG36 switchgears have been studied and designed to provide a wide variety of functions and services as required by modern power distribution systems.

During the design stage of the units we took into consideration the functionality, the simplicity of operation and locking devices and a long period of service without any maintenance.

Each typical unit is divided into two compartments placed one on the top of the other:

- an upper compartment containing the main bus-bars;
- a lower compartment containing various electrical equipment (circuit breakers, isolators, protections, current transformers, voltage transformers and terminals).

The compartments are segregated from each other with the switch-disconnector metal body which guarantees an IP2X protection degree, and when the door is open and the bus-bars are in service, the access into the equipment compartment is allowed. In the superior position it is possible to locate a LV section for various LV electrical equipments.

The UG36 switchgears are as following:

1 Maximum safety for personnel thanks to:

- Earthing of both the whole switchboard structure and the metal division between the compartments;
- Mechanical interlocks which assure the exact operation sequence;
- IP3X protection degree on the external housing;
- Internal arc proof IAC, AFL, 16 kA x 1" (on request).

2 Protection against the spread of fire:

The metal segregation of the compartments and the use of self-extinguishing insulating materials prevent the spreading of fire.

3 Easy operation.

All the various operations are carried out from the front of the

switchboard by means of simple and functional devices, provided with mechanical signal indicating the position of the components. Clear operation instructions on the front of the switchgears.

4 Versatility

All different technical applications.

5 Colours

RAL7035 embossed standard (other colours on request)

6 Main components

Switch-disconnector compact type and low volume of SF6 insulation

SF6 Circuit breaker

7 Rated values

Rated voltage	kV 36
Rated nominal frequency	Hz 50/60
Test voltage 1min-50Hz	kV 70
Impulse withstand voltage	kV 170
Bus-bars rated current	A 400 630 800
Short time withstand current	kA 16 x 1 sec
Rated peak withstand current	kA 40
Internal arc classification	AFL 16 KA x 1 sec
Maximum ambient temperature	+ 40°C
Minimum ambient temperature	-5°C
Humidity	95%
Altitude	<=1000 m s.l.m.
Service continuity	LSC2A-PM
Protection degree	IP3X

8 Standards

- Test report
UG36 cubicles have successfully passed all the type tests requested by the international Standards in officially acknowledged testing laboratories: IEC 62271 - 200



1. GENERALITÀ - GENERAL DESCRIPTION - GÉNÉRALITÉS

Les cellules HTA LSC2A-PM IMEB UG36 avec isolation dans l'air et appareillages dans SF6, ont été étudiées et on été projetés pour satisfaire une multiplicité d'emploi et aussi plusieurs exigences d'installations.

Pendant l'étude des compartiments on à tenue en considérations la fonctionnalité, la simplicité des dispositifs de manouvre et verrouillage et beaucoup de période d'exercice sans maintenance. La cellule type est constituée par deux compartiments superposées et plus précisément:

- cellule supérieur contenant les jeux des barres principaux ;
- cellule inférieur contenant les appareillages électriques d'interruption et sectionnement, de protection, transformateurs de courant et potentiel et raccordement des câbles

Les cellules son isolées entre eux par l'enveloppe métallique du interrupteur qui garantit un degré de protection IP2X, dans cette façons on permis, avec la porte ouvert et barres en tension, l'accès à le compartiment appareillages. Dans la partie supérieur de la cellule ont peut logger un compartiment pour les équipements des basse tension.

Les tableaux UG36 ont les suivantes caractéristiques :

1 Maxima sécurité du personnel

- Mise à la terre de la structure de la cellule
- Verrouillage mécaniques pour une correcte séquences des manœuvres
- Degré de protection IP3X dans l'enveloppe extérieure
- Sur requête arc intérieur IAC, AFL, 16 kA x 1 sec.

2 Sécurité contre l'incendie

L'isolement métallique entre les cellules et l'emploi des matériaux isolants auto-extinguibles empêchent le propager d'incendies.

3 Facilité de manœuvre

On exécuté tous les manœuvres par le front avec dispositif sim-

ples et fonctionnels. La position des appareillages est indiqué par des signalisations mécaniques.

4 Fonctionnalité

Possible exécution pour plusieurs schémas.

5 Colorations

Gaufré RAL 7035 standard. Possibilité de choisir autres couleurs.

6 Composants principaux

- Interrupteur de type compacte avec isolement à réduit SF6 ;
- Disjoncteur SF6.

7 Caractéristiques

Tension assignée	kV 36
Fréquence assignée	Hz 50/60
Tension d'essai 1min-50Hz	kV 70
Tension assigné de tenue au choc	170 kV
Courant assignée	A 400 630 800
Courant de courte durée	kA 16 pour 1 sec.
Valeur de crête	kA 40
Arc intérieur	AFL 16 KA x 1 sec
Température ambiante max	+ 40°C
Température ambiante min	-5°C
Humidité relative	95%
Altitude inférieure ou égale à	<=1000m s.l.m.
Catégorie d'exercice	LSC2A-PM
Degré de protection	IP3X

8 Références normatif

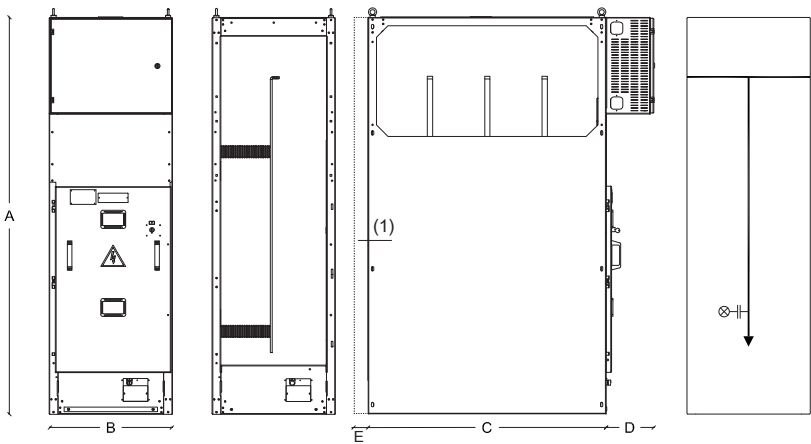
- Test d'essai
Les cellules séries UG36 ont dépassé les test des preuves chez laboratoires officiels selon les normes internationales: IEC 62271 - 200



UG36

Risalita sbarre
Bus bars riser
Gaine d'arrivée barres

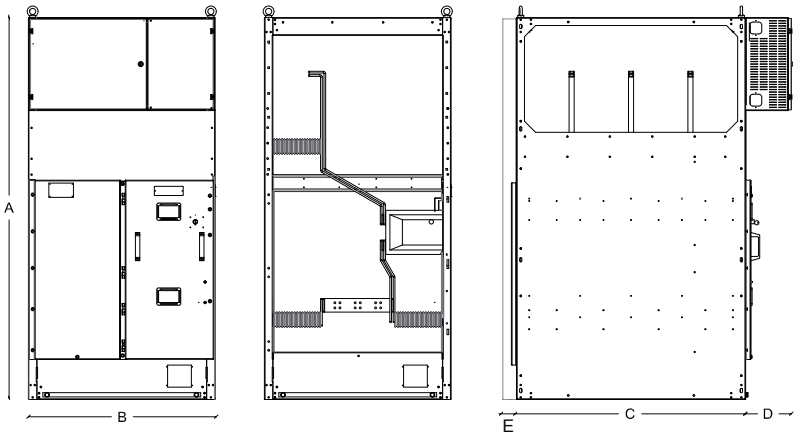
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IP30	A	2250 mm	B	700 mm
	C	1350 mm		
AFL	C+E	1550 mm		



UG36M

Risalita sbarre e misure
Bus bars riser and metering
Gaine d'arrivée barres et comptage

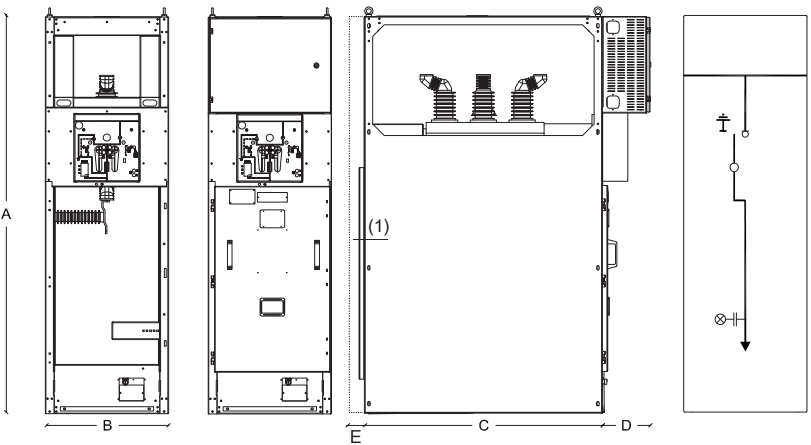
	DIMENSIONI / DIMENSIONS / DIMENSIONS			
IP30	A	2250 mm	B	1100 mm
	C	1350 mm	D	270 mm
AFL	C+E	1550 mm		



U210G36

Scomparto IMS
Load break switch cubicle
Cellule interrupteur

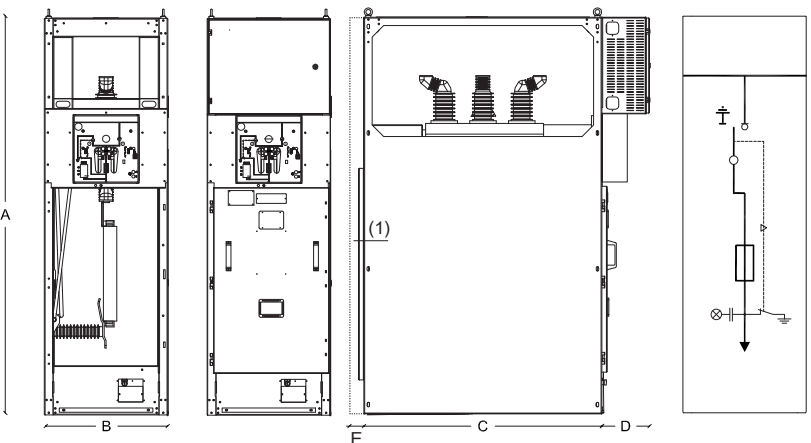
	DIMENSIONI / DIMENSIONS / DIMENSIONS			
IP30	A	2250 mm	B	700 mm
	C	1350 mm	D	270 mm
AFL	C+E	1550 mm		



U220G36

Scomparto IMS con fusibili
Fused load break switch cubicle
Cellule interrupteur fusible

	DIMENSIONI / DIMENSIONS / DIMENSIONS			
IP30	A	2250 mm	B	700 mm
	C	1350 mm	D	270 mm
AFL	C+E	1550 mm		

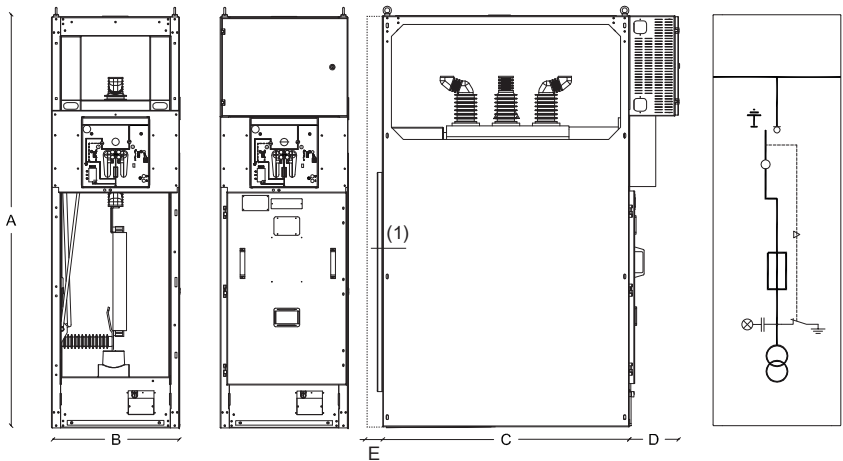


(1) Filtro arco - Arc filter - Filtre pour la tenue à l'arc

U20G36

Scomparto misure
Metering cubicle
Cellule comptage

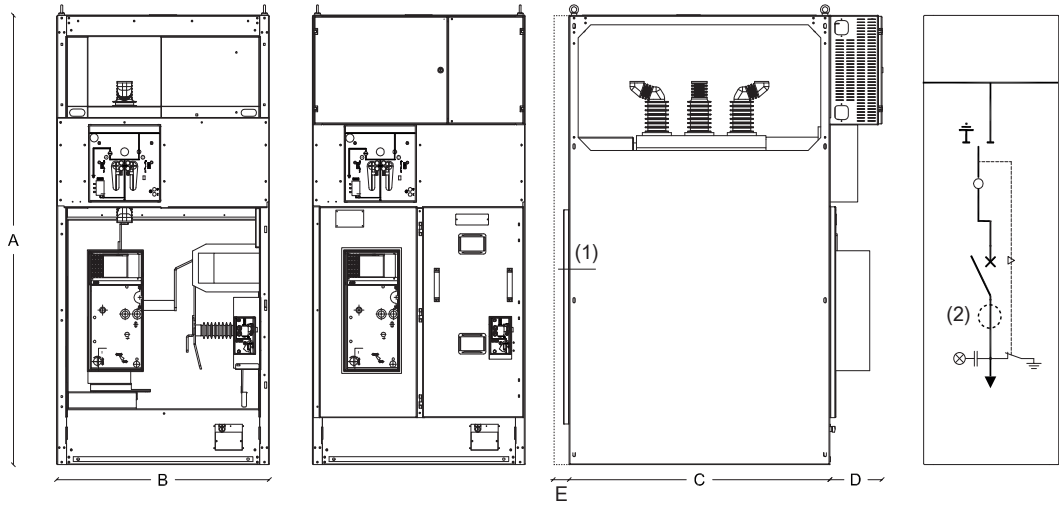
	DIMENSIONI / DIMENSIONS / DIMENSIONS			
IP30	A	2250 mm	B	700 mm
	C	1350 mm	D	270 mm
AFL	C+E	1550 mm		



U500G36

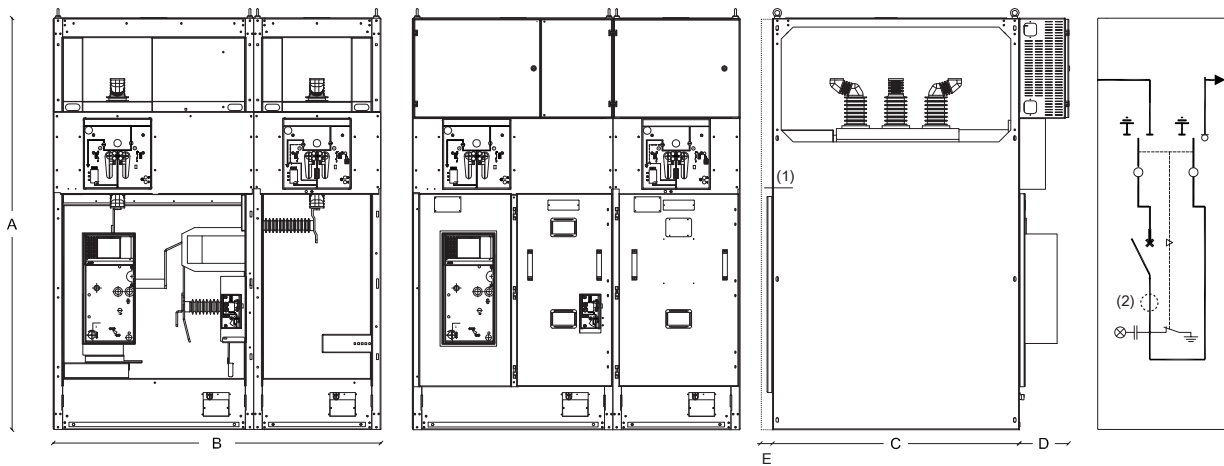
Scomparto interruttore
Circuit breaker cubicle
Cellule disjoncteur

	DIMENSIONI / DIMENSIONS / DIMENSIONS			
IP30	A	2250 mm	B	1100 mm
	C	1350 mm	D	270 mm
AFL	C+E	1550 mm		



U500G36-2

	DIMENSIONI / DIMENSIONS / DIMENSIONS			
IP30	A	2250 mm	B	1700 mm
	C	1350 mm	D	270 mm
AFL	C+E	1550 mm		



Scomparto interruttore con doppio sezionamento
Double isolation circuit breaker cubicle
Cellule disjoncteur double sectionnement

(1) Filtro arco - Arc filter - Filtre pour la tenue à l'arc
(2) In alternativa riduttori di tensione - Alternatively voltage transformer - En alternative transformateur du courant

TENUTA ALL'ARCO INTERNO

I guasti da arco sono estremamente rari, ma possono tuttavia verificarsi per errore umano, anomalia di funzionamento dell'apparecchiatura, decadimento dell'isolamento e altri motivi eccezionali. Nella progettazione del quadro UG36 è stata prestata particolare attenzione alla sicurezza del personale in situazioni di arco interno. Le unità del quadro presentano una resistenza meccanica estremamente elevata, in quanto sono in grado di resistere agli effetti pressori e termici causati anche dalle massime correnti d'arco interno. Il design del quadro riduce inoltre notevolmente la probabilità del verificarsi in primo luogo di un arco interno. Il quadro UG36 è stato sottoposto alla prova di tenuta all'arco interno secondo la norma IEC 62271-200, Allegato A. La prova verifica l'efficacia della protezione del quadro nel proteggere le persone da archi interni, valutando gli effetti sulla struttura. Le prove di tenuta all'arco interno sono state eseguite nella cella sbarre e nella cella cavi.

UG36 è offerto di base senza tenuta all'arco interno (no IAC) oppure con classificazione IAC AFL 16 KA 1s (F per lato frontale, L per laterale) e rispetta tutti i 5 criteri della norma IEC 62271-200. La protezione ad arco interno garantita sui 3 lati del quadro, frontale e laterali, permette di adossare il quadro alla parete, grazie al condotto sfogo gas, che rimane tra quadro e parete.

INTERNAL ARC PROOF

Internal arc faults are extremely rare occurrences, but can still occur due to human errors, malfunctions of apparatus, insulation ageing or other exceptional reasons. In designing the UG36 switchgear, special attention was paid to personnel safety during internal arc situations. The switchgear units have extremely high mechanical resistance, being able to withstand pressure and thermal effects caused by even the highest internal arc currents. The switchgear design also notably reduces the probability of an internal arc occurring in the first place. UG36 switchgear undergone the internal arc test according to the IEC 62271-200 Standard, Annex A.

The test verifies the effectiveness of the switchgear protection in protecting people against internal arcs, evaluating the dynamic pressure effects and the thermal effects. The internal arc withstand tests have been performed in the busbar and cable compartments.

UG36 offers no IAC, as a standard solution, and class A (authorized personnel only), front and sides (F for front, L for lateral) and comply with all 5 of the IEC standard criteria, IAC AFL 16 kA 1s. This solution provides a gas exhausting duct between the switchgear and wall, so that is possible to install the switchgear against the wall.

TENUE À L'ARC INTERNE

Les défauts dus à un arc sont extrêmement rares, mais peuvent toutefois se vérifier par erreur humaine, anomalie de fonctionnement de l'appareillage, dégradation de l'isolement et autres raisons exceptionnelles. Dans les études de projet du tableau UG36 une attention particulière a été prêté à la sécurité du personnel en situations d'arc interne.

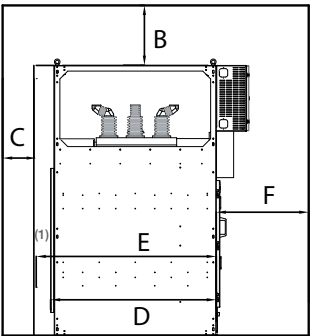
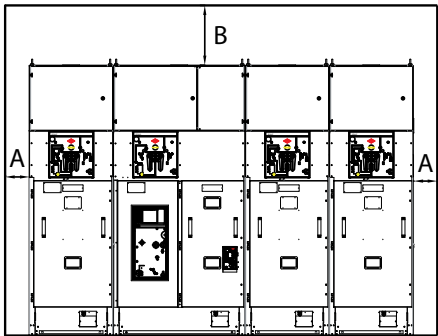
Les unités du tableau offrent une résistance mécanique extrêmement élevée, car elles sont en mesure de résister aux effets de la pression et thermiques causés par les courants maximum d'arc interne. Le design du tableau réduit aussi considérablement la probabilité que se vérifie en premier lieu un arc interne. Le tableau UG36 a été soumis à l'essai de tenue à l'arc interne suivant la norme IEC 62271-200, Annexe A. L'essai vérifie l'efficacité de la protection du tableau lorsqu'il s'agit de protéger les personnes contre les arcs internes, en évaluant les effets de la pression dynamique et les effets thermiques. Les essais de tenue à l'arc interne ont été effectués dans le compartiment barres et dans le compartiment câbles, ainsi que dans l'enveloppe de l'interrupteur-sectionneur. UG36 offre comme standard la solution sans la tenue à l'arc interne (no IAC) ou bien selon la classification IAC AFL 16KA 1s (F pour le côté frontal, L pour le latéral) en respectant les 5 critères de la norme IEC 62271-200. La protection de tenue à l'arc interne est garantie sur 3 côtés du tableau, de face et latéral, cette solution permet de adosser le tableau au mur, créant un compartiment unique d'échappement des gaz entre tableau et paroi



1.
Struttura per prova di tenuta all'arco interno
Setup for internal arc withstand test
Structure pour l'essai de tenue à l'arc interne

2.
Quadro dopo la prova
Switchgear after testing
Tableau après l'essai

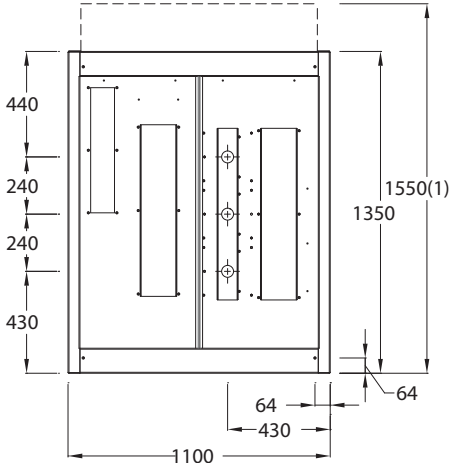
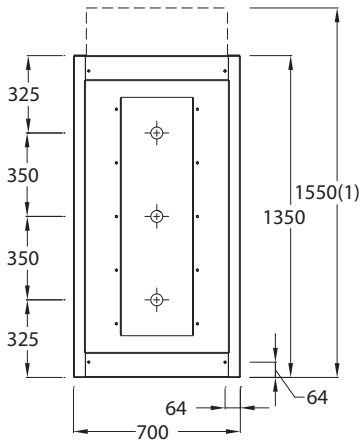
DISTANZE MINIME DALLE PARETI (mm) - MINIMUM DISTANCES FROM THE WALLS (mm)
DISTANCES MINIMUM AUX PAROIS (mm)



ESECUZIONE:	A mm	B mm	C mm	D mm	E mm	F mm
IP30	50	300	50	1350		1350
IAC - AFL	100	750	100		1550	1350

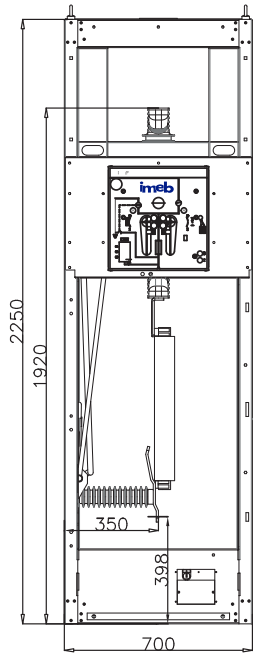
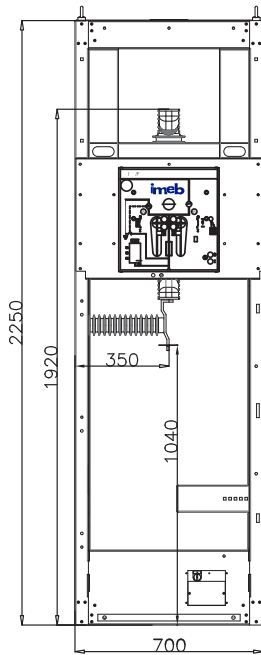
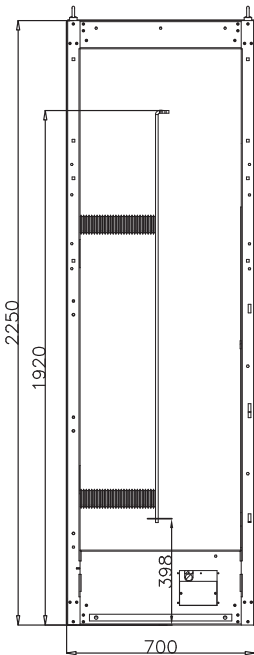
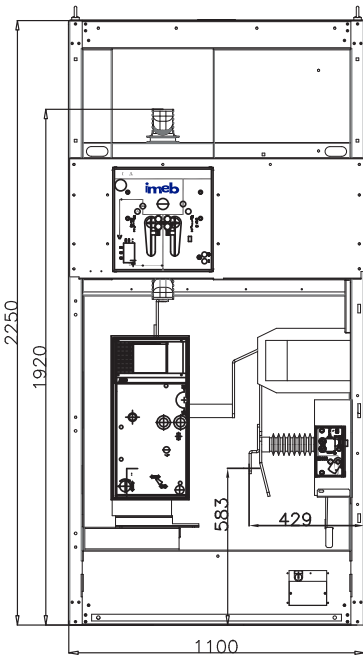
(1) Filtro IAC-AFL - Filter IAC-AFL - Filtre IAC-AFL

FORATURE - HOLES - PERCEMENTS

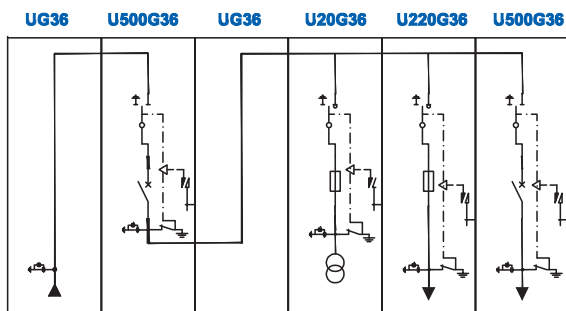
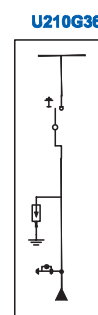
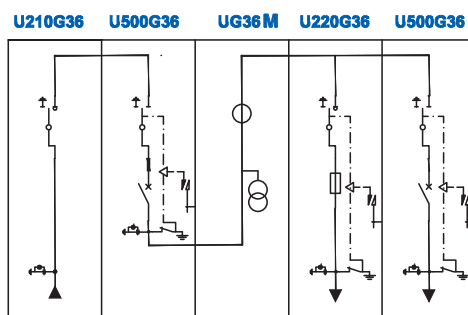
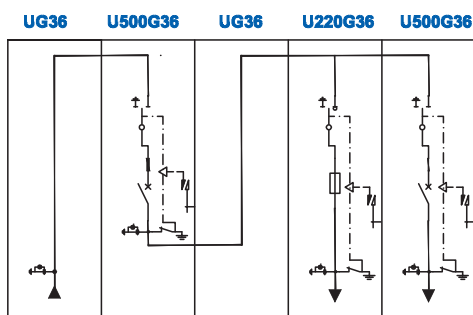
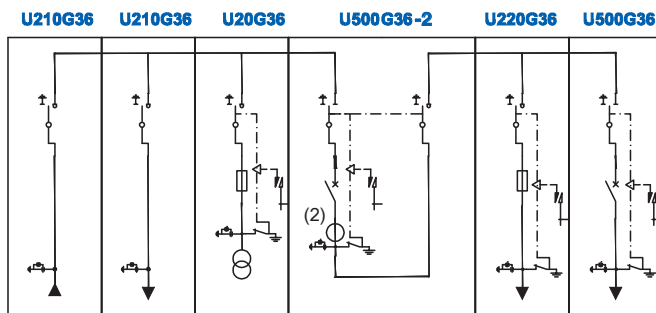
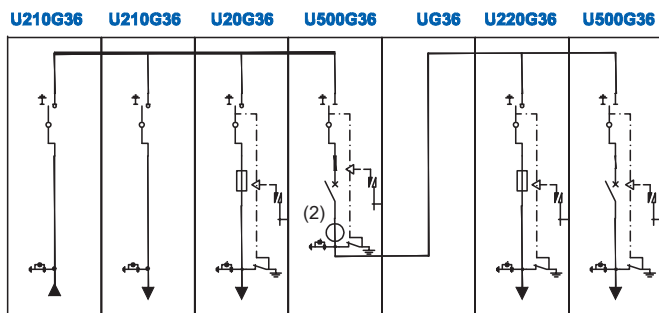
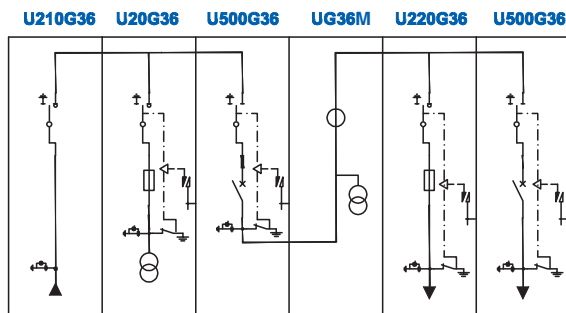
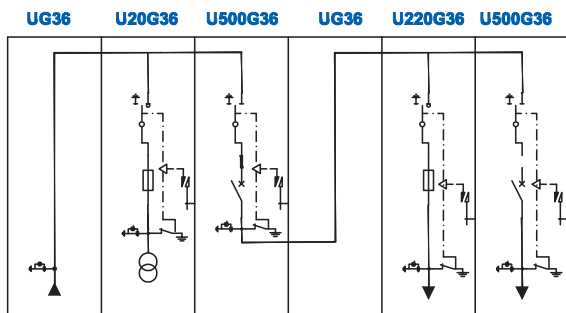
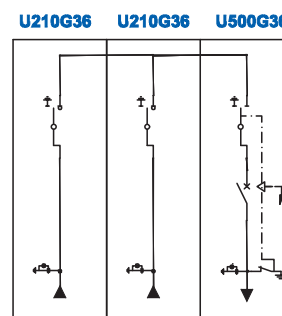
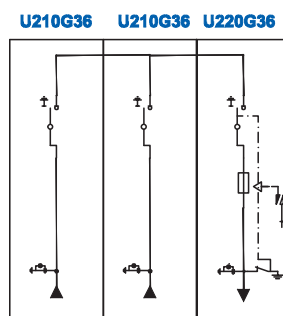
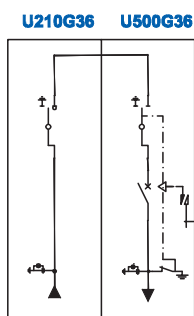
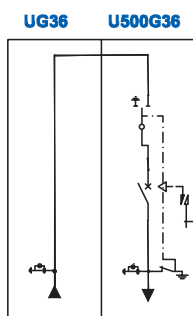


(1) Filtro IAC-AFL - Filter IAC-AFL - Filtre IAC-AFL

COLLEGAMENTI - CONNECTIONS - RACCORDEMENTS

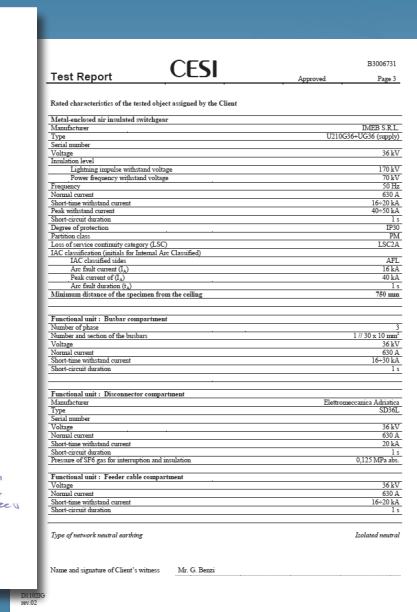
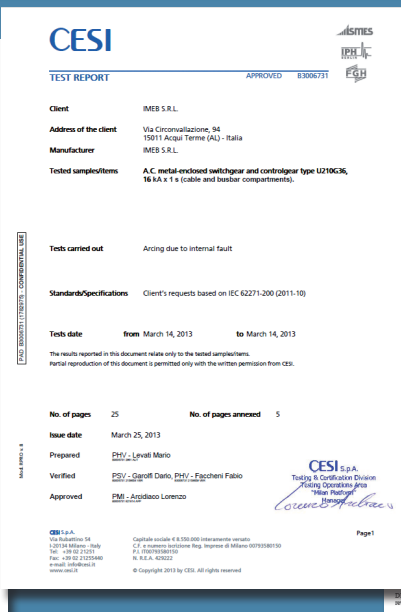
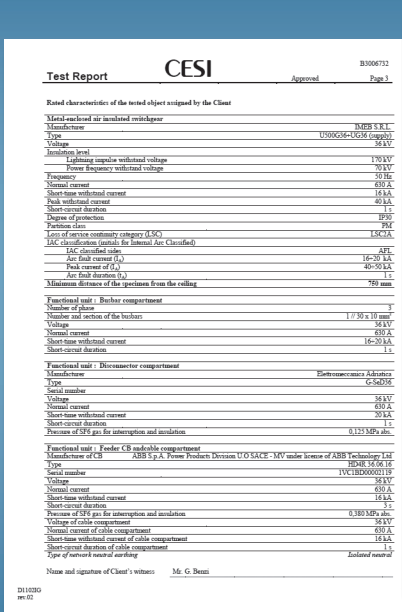
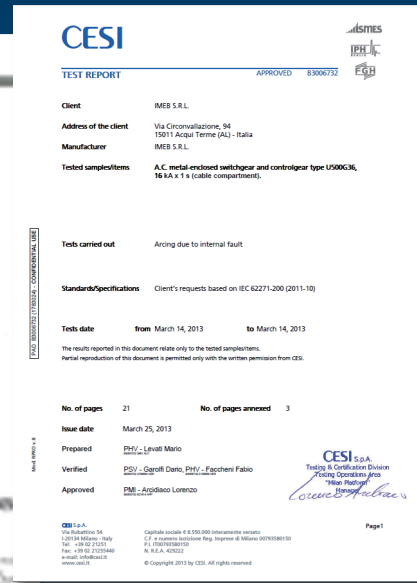


(1) Filtro arco - Arc filter - Filtre pour la tenue à l'arc



(2) In alternativa riduttori di tensione - Alternatively voltage transformer - En alternative transformateur du courant

Certificazioni - Certifications- Certifications



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