



 **FOREND**[®]
LIGHTNING PROTECTION & EARTHING SYSTEMS

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Technical Specifications of FOREND E.S.E. Active Lightning Conductors

Spécifications Techniques des Paratonnerres à Dispositif d'Amorçage FOREND

>> Especificaciones Técnicas del P.D.C Forend

>> Активное молниезащитное устройство FOREND



FOREND PETEX-S

Ref. NO: **F10120**
Material: Stainless Steel
 Acc.to NFC-17 102 $\Delta T: 30\mu s$
 Weight = 2,200 kg
 Height = 50 cm

Réf. No: F10120
 Matériel : Acier Inoxydable
 Conf. à NFC-17 102 $\Delta T: 30\mu s$
 Poids = 2,200 kg
 Hauteur = 50 cm

Ref. No: F10120
 Material : Acero Inoxidable
 NFC-17 102 $\Delta T: 30\mu s$
 Peso = 2200 kg
 Altura = 50 cm

Код: F10120
 Материал: Нержавеющая сталь
 NFC-17102 $\Delta T: 30\mu s$
 Вес (кг): 2,200
 Высота (см): 50



FOREND PETEX-M

Ref. NO: **F10117**
Material: Stainless Steel
 Acc.to NFC-17 102 $\Delta T: 45\mu s$
 Weight = 2,250 kg
 Height = 50 cm

Réf. No: F10117
 Matériel : Acier Inoxydable
 Conf. à NFC-17 102 $\Delta T: 45\mu s$
 Poids = 2,250 kg
 Hauteur = 50 cm

Ref. No: F10117
 Material : Acero Inoxidable
 NFC-17 102 $\Delta T: 45\mu s$
 Peso = 2,250 kg
 Altura = 50 cm

Код: F10117
 Материал: Нержавеющая сталь
 NFC-17102 $\Delta T: 45\mu s$
 Вес (кг): 2,250
 Высота (см): 50



FOREND PETEX-L

Ref. NO: **F10115**
Material: Stainless Steel
 Acc.to NFC-17 102 $\Delta T: 60\mu s$
 Weight = 2,300 kg
 Height = 50 cm

Réf. No: F10115
 Matériel : Acier Inoxydable
 Conf. à NFC-17 102 $\Delta T: 60\mu s$
 Poids = 2,300 kg
 Hauteur = 50 cm

Ref. No: F10115
 Material : Acero Inoxidable
 NFC-17 102 $\Delta T: 60\mu s$
 Peso = 2,300 kg
 Altura = 50 cm

Код: F10115
 Материал: Нержавеющая сталь
 $\Delta T: NFC 17102: \Delta T = 60\mu s$
 Вес (кг): 2,300
 Высота (см): 50

- All Forend ESE conductors operate within the temperature range of $-40^{\circ}C$ to $+120^{\circ}C$ and they are manufactured according to IP 65
- Tous les paratonnerres Forend fonctionnent entre les températures de $-40^{\circ}C$ à $+120^{\circ}C$ et ils sont fabriqués conformément aux normes IP65
- Los pararrayos PDC FOREND funcionan entre $-40^{\circ}C$ hasta $+120^{\circ}C$ y son fabricados de acuerdo con la norma IP65
- Все устройства FOREND работают в пределах рабочих температур от $-40^{\circ}C$ до $+120^{\circ}C$ и изготавливаются со степенью защиты IP 65

Technical Specifications of FOREND E.S.E. Active Lightning Conductors

Spécifications Techniques des Paratonnerres à Dispositif d'Amorçage FOREND

>> Especificaciones Técnicas del P.D.C Forend

>> Активное молниезащитное устройство Forend



FOREND EU-M

Ref. NO: **F10105**
Material: Stainless Steel
 Acc.to NFC-17 102 $\Delta T: 45\mu s$
 Weight = 3,000 kg
 Height = 63 cm

Réf. No: F10105
 Matériel : Acier Inoxydable
 Conf. à NFC-17 102 $\Delta T: 45\mu s$
 Poids = 3,000 kg
 Hauteur = 63 cm

Ref. No: F10105
 Material : Acero Inoxidable
 NFC-17 102 $\Delta T: 45\mu s$
 Peso = 3,000 kg
 Altura = 63 cm

Код: F10105
 Материал: Нержавеющая сталь
 NFC-17102 $\Delta T: 45\mu s$
 Вес (кг): 3,000
 Высота (см): 63



FOREND EU

Ref. NO: **F10110**
Material: Stainless Steel
 Acc.to NFC-17 102 $\Delta T: 60\mu s$
 Weight = 4,350 kg
 Height = 63 cm

Réf. No: F10110
 Matériel : Acier Inoxydable
 Conf. à NFC-17 102 $\Delta T: 60\mu s$
 Poids = 4,350 kg
 Hauteur = 63 cm

Ref. No: F10110
 Material : Acero Inoxidable
 NFC-17 102 $\Delta T: 60\mu s$
 Peso = 4,350 kg
 Altura = 63 cm

Код: F10110
 Материал: Нержавеющая сталь
 NFC-17102 $\Delta T: 60\mu s$
 Вес (кг): 4,350
 Высота (см): 63

Rp (m)	FOREND PETEX -S ($\Delta L=30m$)				FOREND EU-M and FOREND PETEX-M ($\Delta L=45m$)				FOREND EU and FOREND PETEX-L ($\Delta L=60m$)			
	$(\Delta T=30\mu s)$				$(\Delta T=45\mu s)$				$(\Delta T=60\mu s)$			
h(m)	Level I Niveau I Nivel I СТЕПЕНЬ I	Level II Niveau II Nivel II СТЕПЕНЬ II	Level III Niveau III Nivel III СТЕПЕНЬ III	Level IV Niveau IV Nivel IV СТЕПЕНЬ IV	Level I Niveau I Nivel I СТЕПЕНЬ I	Level II Niveau II Nivel II СТЕПЕНЬ II	Level III Niveau III Nivel III СТЕПЕНЬ III	Level IV Niveau IV Nivel IV СТЕПЕНЬ IV	Level I Niveau I Nivel I СТЕПЕНЬ I	Level II Niveau II Nivel II СТЕПЕНЬ II	Level III Niveau III Nivel III СТЕПЕНЬ III	Level IV Niveau IV Nivel IV СТЕПЕНЬ IV
2	19	22	25	28	25	28	32	36	31	35	39	43
4	38	44	51	57	51	57	64	72	63	69	78	85
5	48	55	63	71	63	71	81	89	79	86	97	107
6	48	55	64	72	63	71	81	90	79	87	97	107
8	49	56	65	73	64	72	82	91	79	87	98	108
10	49	57	66	75	64	72	83	92	79	88	99	109
20	50	59	71	81	65	74	86	97	80	89	102	113
30	50	60	73	85	65	75	89	101	80	90	104	116
60	50	60	75	90	65	75	90	105	80	90	105	120

Led Beacon Lights

Balises d'Obstruction Aérielles à LED >> Baliza de Señalización

>> Светодиодный светильник

Transparent /
Red Glass >> Verrine
Transparent / Rouge
>> Tarro Transparente /
Rojo >> прозрачный /
красное стекло

Aluminium Body >>
Corps en Aluminium
>> Aluminio Cuerpo >>
Алюминиевый
корпус



	LED TYPE
	Power
	FLB 10 S / FLB 10 D
<ul style="list-style-type: none"> • Produced according to IP 65* • Fabriqué conformément à IP 65* • Fabricado según IP 65* • Изготавливается со степенью защиты IP 65 неперегружаемый	
Max. Operating Life >> Durée de vie maximale >> Max. vida útil >> Максимум Операционная жизни	100 K
Operation Voltage >> Tension de fonctionnement >> Tensión de alimentación >> рабочее напряжение	110-220 V AC 12 V DC; 24 V DC; 48 V DC; Solar (12V/7,2 Ah (2 Units))
Power Consumption >> Consommation d'énergie >> Consumo de energía >> Потребляемая мощность	6 W
Luminous Flux (theoric) >> Flux Lumineux (théorique) >> Flujo Luminoso (teórico) >> Световой поток (Теоретическое)	600 lumen
Flashing Time >> Durée de Clignotement >> Tiempo Intermitente >> Мигает время	1 Hz.
Monitoring >> Surveillance Monitoreo >> Напряжение	Dry Contacts: NO-NC Contacts Secs: NO-NC Contactos Secos: NO-NC
Operating Temperature (°C) >> Température de Fonctionnement (°C) >> Rango de Temperatura (°C) >> Рабочая температура (°C)	-40°C to +85°C
Relative Humidity >> Humidité Relative Humedad Relative >> ОТНОСИТЕЛЬНАЯ ВЛАЖНОСТЬ	100% with condensation 100 % à condensation 100 % con condensación
Wind Speed >> Vitesse du Vent >> Velocidad del Viento >> СКОРОСТЬ ВЕТРА	150 mph (240 kph)
Height x Diameter (mm) >> Hauteur x Diamètre (mm) >> Altura x Diámetro (mm) >> Высота x Диаметр (мм)	215 x 115

Packing >> Emballage >> Embalaje >> упаковка

	Single >> Simple >> Simple >> простой (FLB 10 S)	Double >> Double >> Doble >> двойной (FLB 10 D)
Weight(kg) >> Poids (kg) >> Peso (kg) >> Вес (кг)	1,45	5,50
Height x Diameter (mm) >> Hauteur x Diamètre (mm) >> Altura x Diámetro (mm) >> Высота x Диаметр (мм)	115 x 115 x 240	115 x 455 x 340

5 days and nights uninterrupted working when fully charged >> fonctionnement continu pendant 5 jours et nuits en pleine charge >> 5 días y noches de operación continuo a totalmente cargada >> 5 дней и ночей непрерывной работы при полной зарядке

* Our products have been tested in ELDAS Laboratory accredited by TURKAK

* Nos produits ont été testés dans les Laboratoires ELDAS, accrédités par TURKAK

* Nuestros productos poseen pruebas del laboratorio ELDAS certificado por TURKAK.

* Наша продукция протестирована в лаборатории ELDAS, которая аккредитована компанией TURKAK

Lightning Strike Counter

Compteur de Coup de Foudre >> Contador de Pararrayos >> Счетчик ударов молнии

- Produced according to IP 65
- **Fabriqu  conform ment   IP 65**
- Fabricado seg n IP 65
- Изготавливается со степенью защиты IP 65 неперезагружаемый

- Nonresetable *
- **Impossible de r initialiser ***
- No reinicializable *
- Неперезагружаемый *

- Testable with a 9 V Battery
- **Testable avec une pile de 9 V**
- Prueba con una bater a de 9 V
- Тестируемый батареей 9V

- Does not require any external power supply
- **N'a pas besoin d'alimentation  lectrique externe**
- No requiere de una fuente de energ a externa
- Не требует внешнего источника напряжения

- Dimensions: 11,3x7x4,8 cm
- **Dimensions: 11,3x7x4,8 cm**
- Dimensiones: 11,3 x 7 x 4,8 cm
- Размеры: 11,3x7x4,8 см.

- Detects currents from 1 kA to 100 kA
- **D tecte les courants entre 1 kA et 100 kA**
- Detecta corrientes de 1 kA hasta 100 kA
- Токи регистрируются от 1 кА до 100 кА

- Serial Counter
- **Compteur S rie**
- Contador Seriado
- Серийный счетчик

- Operating Temperature ( C): -40  to + 60 
- **Temp rature de Fonctionnement ( C): de -40    + 60 **
- Temperatura de funcionamiento ( C): -40  hasta +60 
- Рабочая температура ( C): от -40  до +60 

- Easy mounting
- **Montage facile**
- Facil montaje
- Легко монтируется

- 6 digits
- **6 chiffres**
- 6 d gits
- шестизначный

- Resettable **
- **R initialisable ****
- Reinicializable **
- переставной **

- Backlit display **
- **Affichage r troclair  ****
- Pantalla retro iluminada **
- Дисплей с подсветкой **

- * Mechanical Counter
- * **Compteur M canique**
- * Contador Mec nico
- * Механический счетчик



- ** Digital counter
- ** **Compteur num rique**
- ** Contador digital
- ** цифровой счетчик



Lightning Conductor Tester

Testeur de Paratonnerre >> Tester para Pararrayos >> Тестер молниеприемника



FOREND Active Lightning Conductors can be checked by FOREND L.C. Tester any time. When the tester's button is turned on, the red LED indicates the open circuit fault, the yellow LED indicates the short circuit fault and the green LED indicates full functionality

Le fonctionnement des paratonnerres actifs FOREND peut  tre contr l  n'importe quel moment avec un testeur de PDA FOREND. Lorsque le bouton du testeur est activ , la LED rouge indique le d faut de circuit ouvert, la LED jaune indique le court-circuit et la LED verte indique le bon fonctionnement de PDA.

Los conductores de pararrayos P.D.C FOREND pueden ser probados a trav s del aparato para pruebas FOREND L.C. en cualquier momento. Cuando encender el interruptor del Tester, la lampara roja indica circuito abierto, hay una rotura, la lampara amarilla indica cortocircuito y la lampara verde indica que el sistema funciona correctamente.

В любое время молниеприемники FOREND могут быть проверены на работоспособность тестером FOREND. При выключатель включен тестера загоревшийся красный светодиод свидетельствует о разрыве цепи, желтый светодиод - о коротком замыкании, зеленый светодиод говорит о том, что система полностью работоспособна.

T.A.M. Technical Additive Material » **T.A.M. Matériel Technique Additif** » T.A.M. Material Técnico
Aditivo » **ТАМ ТЕХНИЧЕСКАЯ ДОБАВКА**

Advantages of T.A.M. :

Les Avantages du T.A.M. :

Ventajas de T.A.M. :

Преимущества ТАМ:

- T.A.M. is an effective material
- **T.A.M. est un produit effectif**
- T.A.M. es eficaz
- ТАМ эффективный материал

- T.A.M. lowers electrical resistance of earth
- **T.A.M. réduit la résistance électrique du sol**
- T.A.M. Disminuye la resistencia eléctrica de la tierra
- ТАМ снижает сопротивление земли

- T.A.M. provides stable resistance for the life of the system once in its set form
- **T.A.M. assure une résistance stable pendant toute la vie de l'installation, une fois solidifié**
- T.A.M. es aplicable en todo los tipos de suelo
- ТАМ обеспечивает стабилизированное сопротивление на срок службы системы

- T.A.M. performs in all soil types
- **T.A.M. est convenable pour tous types de sol**
- T.A.M. provee resistencia estable para el sistema de puesta tierra
- ТАМ пригоден для всех типов почвы



FORWELD Exothermic Welding Systems » Systèmes de Soudure Exothermique FORWELD
 » FORWELD Material de Soldadura Exotérmica » FORWELD экзотермическая сварка системы



Superiority of Exothermic Welding
Les Avantages d'une Soudure Exothermique
 Ventajas de la Soldadura Exotérmica
 Первенство экзотермическая сварка

The Exothermic connection is a molecular weld, and the weld metal has the same melting point as copper. Due to these factors, along with the increased cross section of the connection, exothermic welded connections:

- . Do not dissolve in time.
- . Do not lose substance or will not corrode when molecular bond occurs.

Note: For details of our full range of exothermic welding moulds and accessories, please visit www.forend.com.tr



Le raccord exothermique est une soudure moléculaire, et le métal de soudure a le même point de fusion que le cuivre. En raison de ces facteurs, ainsi que la section augmentée du raccord, le raccord exothermique :

- . ne se dissout pas avec le temps
- . est une liaison moléculaire permanente insensible à la corrosion

Note: Pour plus d'information sur notre gamme complète de soudure exothermique et les accessoires, veuillez visiter notre site internet : www.forend.com.tr



El proceso de la soldadura exotérmica es un método de hacer conexiones eléctricas de cobre a cobre o de cobre a acero sin requerir ninguna fuente exterior de calor o de energía:

- . No se deteriora con el tiempo.
- . Enlace molecular permanente que no se liberaliza o corroe

Note: Para detalles de los moldes y accesorios disponibles favor acceder www.forend.com.tr



Экзотермическое соединение представляет собой молекулярный сварной шов, и металл шва имеет такую же температуру плавления как медь. Из-за этих факторов, наряду с увеличением поперечного сечения связи экзотермический сварные соединения:

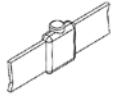
- . Не растворяются во времени.
- . Не теряют вещество или не будут разъедать, когда происходит молекулярная связь.

Не: Более подробную информацию о нашей полной спектр экзотермических сварочных форм и аксессуаров, пожалуйста, посетите www.forend.com.tr

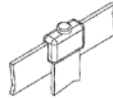


Connection Types » Types de Connexion
» Tipos de Conexión » типы подключения

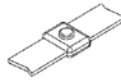
Bar to Bar



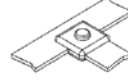
BB1



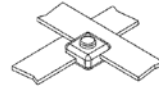
BB2



BB3



BB4

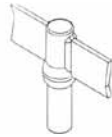


BB5

Bar to Earth Rod



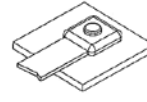
BER1



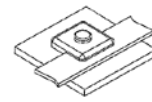
BER2



BSS1



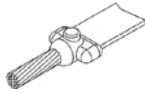
BSS2



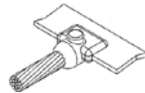
BSS3

Bar to Steel Surface

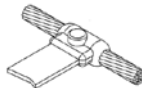
Cable to Bar



CB1



CB2



CB3

Cable to Cable



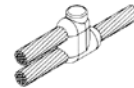
CC1



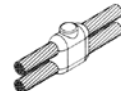
CC2



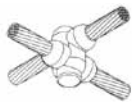
CC3



CC4



CC5



CC6



CC7

Cable to Earth Rod

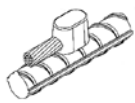


CER1

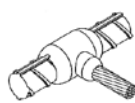


CER2

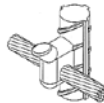
Cable to Reinforcing Bar



CRB1



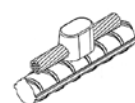
CRB2



CRB3



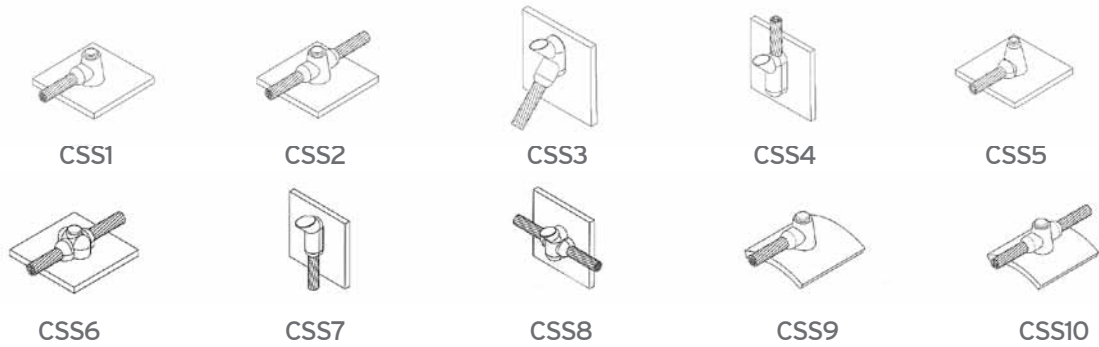
CRB4



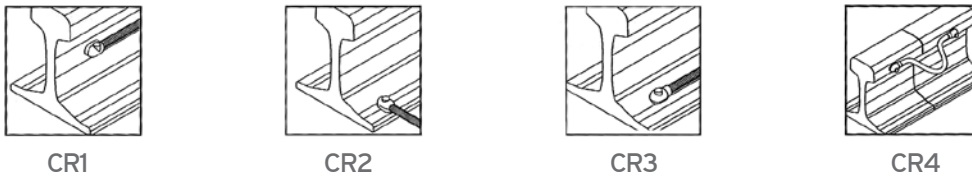
CRB5

Connection Types » Types de Connexion
 » Tipos de Conexión » типы подключения

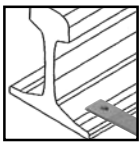
Cable to Steel Surface And Pipe



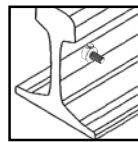
Cable to Rail



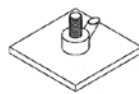
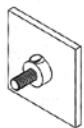
Bar to Rail



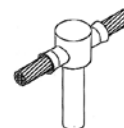
Stud to Rail



Stud to Steel Surface



SureSHOT



Forweld Exothermic Welding Moulds » Moules de Soudure Exothermique Forweld
 » Moldes de soldadura exotérmica FORWELD » Эзотермическая сварка



Ref No: » Réf. No »

Ref.No » Код:

F50201
 F50205
 F50207

Forweld » Forweld » Forweld » Forweld

Type "A"
 Type "C"
 Type "D"

Please specify the connection type.

» Veuillez indiquer le type de connexion.

» Por favor especificar el tipo de conexión.

» Пожалуйста, укажите тип подключения.

LIGHTNING PROTECTION & EARTHING SYSTEMS

Forweld Welding Powders » **Poudre de Soudure Forweld** » Polvo para soldadura Forweld » Порошки для сварки



Ref No: » Réf. No

» Ref. No » Код:

F50251
F50253
F50255
F50257
F50259
F50261
F50263
F50265

Forweld » Forweld » Forweld » Forweld

FWP - 32
FWP - 45
FWP - 65
FWP - 90
FWP - 115
FWP - 150
FWP - 200
FWP - 250

Forweld Handle Clamps » **Pinces Forweld** » Pinzas Forweld » Щипцы



Ref No: » Réf. No

» Ref. No » Код:

F50301
F50306

Forweld » Forweld » Forweld » Forweld

FHC-L
FHC-S

Forweld Accessories » **Accessoires Forweld** » Accesorios Forweld » Аксессуары



Ref No: » Réf. No »

Ref. No » Код:

F50401

F50501

F50601

F50701

F50801

Forweld » Forweld » Forweld » Forweld

Forweld Mould Cleaning Scrapers
» **Grattoirs de Moule Forweld** »
Raspador para limpieza de Molde Forweld » Чистящие средства

Flint Gun » Allumeur » Encendedor Flint
» Кремневая зажигалка

Mould Cleaning Brush » Brosse à Cardes
» Cepillo Para Molde » Щетка

Mould Carrier » Sac de Moule Exothermique
» Bolsa de molde exotérmico
» Экзотермическая формы мешок

Forweld Remote Ignitor » Allumeur à Distance Forweld
» Encendedor a Distancia Forweld
» дистанционное воспламенитель

Lightning Conductor Masts » Mâts rallonges
 » Mástil para conductores de rayos » Мачты молниеприёмников



Ref No: » Réf. No » Ref.No » Код:	Galvanized Steel Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Length(m) Longueur » Longitud » Длина (м)
F20201	Galvanized Masts Mâts galvanisés » Mástil Galvanizado Мачта молниеприёмника	3.00 - 2.0"
F20204		6.00 - 2.0"
F20208		3.00 - 2.5"
F20212		6.00 - 2.5"
F20216		3.00 - 3.0"
F20220		6.00 - 3.0"
F20222		6.00 - 4.0"







Lightning Conductor Mast Adapters » Adaptateurs de Mâts
 » Adaptadores de Mástil » Адаптор мачты



Ref No: » Réf. No » Ref.No » Код:	Galvanized Steel Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Dia Dia » Dia » Диаметр
F20234	Joint Adapters Adaptateurs de joint » Adaptadores » Соединительный адаптор	2.0" - 2.0"
F20236		2.0" - 2.5"
F20238		2.0" - 3.0"
F20240		2.5" - 2.5"
F20242		2.5" - 3.0"
F20244		3.0" - 3.0"
F20246		3.0" - 4.0"
F20248		4.0" - 4.0"
F20250		4.0" - 5.0"






LIGHTNING PROTECTION & EARTHING SYSTEMS

Lightning Conductor Mast Clamps » Fixations de Mâts » Abrazaderas para Mástil » Скоба-опора мачты

	Ref No: » Réf. No » Ref.No » Код:	Galvanized Steel Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Dia Dia » Dia » Диаметр
	F20251	Regular Type (45 X 5 mm) Type régulier » Grapa regular Крепление к стене	1.5"
	F20253		2.0"
	F20255		2.5"
	F20257		3.0"
	F20259		4.0"
	F20261	Axled Wall Type Pattes latérales » Grapa con eje para pared » Крепление к металлоконструкции	2.0"
	F20263		2.5"
	F20265		3.0"
	F20271	Pylon Type Type pylône » Grapa tipo Pilón Крепление к металлоконструкции	2.0"
	F20273		2.5"
	F20275		3.0"
	F20281	Nail Fitting Type Pattes à sceller » Grapa sin soporte Крепление к металлоконструкции	2.0"
	F20283		2.5"
	F20285		3.0"
	F20291	Foot Type Pattes à boulonner » Grapa con soporte » Крепление к стене	2.0"
	F20293		2.5"
	F20295		3.0"
	F20301	Regular Type Wall Bases Type régulier avec socle » Grapa regular con base lateral » Крепление к стене	1.5"
	F20303		2.0"
	F20305		2.5"
	F20307		3.0"
	F20309		4.0"





Lightning Conductor Mast Bases » Embases de Mâts

» Soportes para Mástil » Основание для мачты

	Ref No: » Réf. No » Ref.No » Код:	Galvanized Steel Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Dia Dia » Dia » Диаметр
	F20401	Border Type Bases Embase frontalière » Soporte en la borda » Угловое основание первого типа	2.0"
	F20403		2.5"
	F20405		3.0"
	F20411	Middle Type Bases Embase milieu » Soporte en el centro Основание для мачты	2.0"
	F20413		2.5"
	F20415		3.0"
	F20421	Corner Ground Bases Embase de coin » Soporte en la punta » Угловое основание второго типа	2.0"
	F20423		2.5"
	F20425		3.0"
	F20431	"L" Type Ground Bases Embase de type L » Soporte Base en L » Основания "L"-образного типа	1.5"
	F20433		2.0"
	F20435		2.5"
	F20441	Pivoting Mast Bases Embase pivotante » Soporte Flexible Основание с подвижным держателем	2.0"
	F20443		2.5"

Test Clamps » Joints de contrôle

» Abrazaderas de cable de control » Испытательные зажимы

	Ref No: » Réf. No » Ref.No » Код:	Product » Désignation » Producto » Продукт (mm)	Dia » Dia » Dia » Диаметр
	F20501	Copper with Plastic Covering For Round Conductors » Cuivre avec boîte en plastique pour conducteurs ronds » Cobre con revestimiento en plástico para conductores redondos » Медный соединитель для заземления токоотводов (катанка)	1 X 25 mm ²
	F20503		1 X 50 mm ²
	F20505		2 X 50 mm ²
	F20511	Copper with Plastic Covering For Flat Strip Conductors » Cuivre avec boîte en plastique pour conducteurs plats » Cobre con revestimiento en plástico para conductores planos » Медный соединитель для заземления токоотводов (полоса)	20 X 3 mm ²
	F20513		25 X 3 mm ²
	F20515		30 X 3 mm ²
	F20521	Aluminium Test Clamps » Joints de contrôle en aluminium » Abrazaderas de control en Aluminio » Соединитель для заземления токоотводов (Алюминий)	2 X 50 mm ²
	F20523		30 X 3 mm ²
	F20531	Brass Test Clamps For Round Conductors » Joints de contrôle en laiton pour conducteurs ronds » Abrazaderas de control en latón para conductores redondos » Соединитель для заземления токоотводов (Латунь)	1 X 25 mm ²
	F20533		1 X 50 mm ²

LIGHTNING PROTECTION & EARTHING SYSTEMS

Protective Pipes And Fixing Parts » Tubes de Protection et Fixations » Mástil de Protección y materiales de fijación » Защитный экран

	Ref No: » Réf. No » Ref. No » Код:		Dia » Dia » Dia » Диаметр
	F20601	Protective Pipes » Tubes de protection » Mástil de protección » Защитный экран токоотвода Зм	3/4" - 3.00m
	F20611		1" - 3.00m
	F20621		5/4" - 3.00m
	F20631	Protective Pipe Clips » Clips pour tubes de protection » Abrazadera para Mástil de protección » Держатель защитного экрана	3/4"
	F20641		1"
	F20651		5/4"
	F20661	Protective Pipe Clips / Pylon Type » Clips pour tubes de protection / Type Pylône » Abrazadera para Mástil de protección tipo Pílon » Держатель защитного экрана	3/4"
	F20671		1"
	F20681		5/4"

Mast Stretch System » Système d'Extension de Mâts » Sistema Extensión de Mástil » Растяжки

	Ref No: » Réf. No » Ref. No » Код:		Dia (m) Dia » Dia » Диаметр
	F20701	Steel Stretch Wires Fils extensibles en acier » Cable alargador hecho en acero » Натяжной стержень	3
	F20703		5
	F20705		6
	F20711	Stretch Wire Vices Étau pour fils extensibles » Grapa para alargadores de Mástil » Натяжная муфта	1/2
	F20721	Stretch Wire Clamps Serre-câbles pour fils extensibles » Grapas para alargadores de Mástil » Хомут для трос. растяжителей	8

Mast Stretch System » Système d'Extension de Mâts
 » Sistema Extensión de Mástil » Растяжки

	Ref No: » Réf. No » Ref. No » Код:		Dia Dia » Dia » Диаметр
	F20731	Stretch Wire Clips Clips pour fils extensibles » Grapas para alargadores de Mástil » Хомут на мачту для тросовых растяжек	2" - 2 1/2"
	F20741	Stretch Wire Fixingfeet Embases pour fils extensibles » Base de fijación para cables alargadores » Хомут для трос. растяжителей	-
	F20751	Stretch Wire Rods Piquets pour fils extensibles » Alargadores de Punta » Стержни растяжек	60x5-75

Reinforcing Bar Clamps » Raccords de Fer à Béton
 » Abrazaderas para Fijación de Conexión » Держатели токоотвода

	Ref No: » Réf. No » Ref. No » Код:		Dia (mm ² - mm) Dia » Dia » Диаметр
	F20761	Copper For Reinforcement Bondings	50-8 ... 18
	F20766	Cuivre pour connexions de fer à béton » Fijación de Conexión hecho en Cobre » Из меди (для усиления связи)	50-18 ... 38
	F20771	Brass For Reinforcement Bondings	50-8 ... 18
	F20776	Laiton pour connexions de fer à béton » Fijación de Conexión hecho en Latón » Из латуни (для усиления связи)	50-18 ... 38

LIGHTNING PROTECTION & EARTHING SYSTEMS

Conductor Fixing Clamps » Fixations de Conducteurs » Grapas para Fijación de Conductores » Держатели токоотвода



Ref No: » Réf. No » Ref. No » Код:	Copper Cuivre » Cobre » Медь	Conductor(mm) Conducteur » Conductor » Сечение
F20781	Clamp For Flat Conductors Brides pour conducteurs plats » Grapa para conductor plano » Держатель токоотвода тип полосы	20 X 3
F20783		25 X 3
F20785		30 X 3
F20787		40 X 3
Ref No:	Galvanized Steel » Acier galvanisé » Асоро Galvanizado » Гальванизированная сталь	Conductor (mm)
F20791	Clamp For Flat Conductors Brides pour conducteurs plats » Grapa para conductor plano » Держатель токоотвода тип полосы	20 X 3
F20793		25 X 3
F20795		30 X 3
F20797		40 X 3

Conductor Fixing Clamps » Fixations de Conducteurs » Grapas para Fijación de Conductores » Держатели токоотвода



Ref No: » Réf. No » Ref. No » Код:	Copper Cuivre » Cobre » Медь	Conductor Conducteur » Conductor » Сечение
F20801	U Type Wall Clamps Brides sur maçonnerie de type U » Grapa de fijación lateral tipo U » Держатель токоотвода на стене	1 X 50 (mm ²)
F20811		2 X 50 (mm ²)
F20821		20 X 3 (mm)
F20823		25 X 3 (mm)
F20825		30 X 3 (mm)
F20827		30 X 5 (mm)
F20829		40 X 4 (mm)
F20831		50 X 5 (mm)
Ref No:	Galvanized Steel » Acier galvanisé » Асоро Galvanizado » Гальванизированная сталь	Conductor (mm)
F20841	U Type Wall Clamps Brides sur maçonnerie de type U » Grapa de fijación lateral tipo U » Держатель токоотвода на стене	1 X 50 (mm ²)
F20851		2 X 50 (mm ²)
F20861		20 X 3 (mm)
F20863		25 X 3 (mm)
F20865		30 X 3 (mm)
F20867		30 X 5 (mm)
F20869		40 X 4 (mm)
F20871		50 X 5 (mm)

Conductor Fixing Clamps » Fixations de Conducteurs

» Grapas para Fijación de Conductores » Держатели токоотвода

Ref No: » Réf. No » Ref. No » Код:	Copper Cuivre » Cobre » Медь	Conductor(mm) Conducteur » Conductor » Сечение
	F20881	L Type Wall Clamps Brides sur maçonnerie de type L » Grapa de fijación lateral tipo L » Держатель токоотвода на стене
F20884	25 X 3	
F20887	30 X 3	
Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Conductor (mm)
F20891	L Type Wall Clamps Brides sur maçonnerie de type L » Grapa de fijación lateral tipo L » Держатель токоотвода на стене	20 X 3
F20894		25 X 3
F20897		30 X 3







Conductor Fixing Clamps » Fixations de Conducteurs

» Grapas para Fijación de Conductores » Держатели токоотвода

Ref No: » Réf. No » Ref. No » Код:	Copper Cuivre » Cobre » Медь	Conductor(mm ²) Conducteur » Conductor » Сечение
	F20901	One Hole Cable Clamp Attaches de câbles » Grapa para cable » Держатель токоотвода
F20903	50	
F20905	70	
F20907	95	
F20909	120	
Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Conductor (mm)
F20911	One Hole Cable Clamp Attaches de câbles » Grapa para cable » Держатель токоотвода	35
F20913		50
F20915		70
F20917		95
F20919		120

LIGHTNING PROTECTION & EARTHING SYSTEMS

Conductor Fixing Clamps » Fixations de Conducteurs » Grapas para Fijación de Conductores » Держатели токоотвода

Ref No: » Réf. No » Ref. No » Код:	Copper with Steel Screw Cuivre avec vis en acier » Cobre con tornillo en acero » Медь	Conductor Conducteur » Conductor » Сечение	
	F20921	20 X 3 (mm)	
	F20923	25 X 3 (mm)	
	F20925	30 X 3 (mm)	
	F20927	1 X 35 (mm) ²	
	F20929	1 X 50 (mm) ²	
	F20931	1 X 70 (mm) ²	
	F20933	2 X 50 (mm) ²	
	Screw Type Wall Clamps Attaches sur maçonnerie à visser » Grapa Lateral con tornillo » Держатель токоотвода на стене		
	Ref No:	Galvanized Steel with Steel Screw » Acier galvanisé avec vis en acier » Acero Galvanizado con tornillo hecho en Acero » Гальванизированная сталь	Conductor
	F20941	1 X 35 (mm) ²	
	F20943	1 X 50 (mm) ²	
	F20945	1 X 70 (mm) ²	
	F20947	2 X 50 (mm) ²	
	F20949	2 X 70 (mm) ²	
	F20951	25 X 3 (mm)	
	F20953	30 X 3 (mm)	
	Screw Type Wall Clamps Attaches sur maçonnerie à visser » Grapa Lateral con tornillo » Держатель токоотвода на стене		
	Ref No:	Copper Cuivre » Cobre » Медь	Conductor
	F20961	1 X 50 (mm) ²	
	F20963 F20965	2 X 50 (mm) ² 25 X 3 (mm)	
	Pylon Clamps Attaches sur pylône » Grapas tipo Pilón » Держатель токоотвода на стене		
	Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Conductor
	F20971	1 X 50 (mm) ²	
	F20973	2 X 50 (mm) ²	
	F20975	25 X 3 (mm)	
	Pylon Clamps Attaches sur pylône » Grapas tipo Pilón » Держатель токоотвода на стене		
	Ref No:	Copper Cuivre » Cobre » Медь	Conductor
	F20981	1 X 50 (mm) ²	
	F20983	2 X 50 (mm) ²	
	F20985	25 X 3 (mm)	
	Tile Clamps Attaches sur tuile » Abrazadera de borda » Держатель токоотвода на стене		
	Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Conductor
	F20991	1 X 50 (mm) ²	
	F20993	2 X 50 (mm) ²	
	F20995	25 X 3 (mm)	
	Tile Clamps Attaches sur tuile » Abrazadera de borda » Держатель токоотвода на стене		

Conductor Fixing Clamps » Fixations de Conducteurs
 » Grapas para Fijación de Conductores » Держатели токоотвода



Ref No: » Réf. No » Ref. No » Код:	Copper Cuivre » Cobre » Медь	Conductor Conducteur » Conductor » Сечение
F21001	Pole Clips » Colliers de mât » Abrazaderas para mástil » Хомут-держатель токоотвода на мачте	1.5" - 1 X 50 (mm) ²
F21003		2.0" - 1 X 50 (mm) ²
F21005		2.5" - 1 X 50 (mm) ²
F21011		2.0" - 2 X 50 (mm) ²
F21013		2.5" - 2 X 50 (mm) ²
F21015		3.0" - 2 X 50 (mm) ²
F21017		4.0" - 2 X 50 (mm) ²
F21021		2.0" - 25 X 3 (mm)
F21023		2.5" - 25 X 3 (mm)
F21025		3.0" - 25 X 3 (mm)
Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Conductor
F21031	Pole Clips » Colliers de mât » Abrazaderas para mástil » Хомут-держатель токоотвода на мачте	1.5" - 1 X 50 (mm) ²
F21033		2.0" - 1 X 50 (mm) ²
F21035		2.5" - 1 X 50 (mm) ²
F21041		2.0" - 2 X 50 (mm) ²
F21043		2.5" - 2 X 50 (mm) ²
F21045		3.0" - 2 X 50 (mm) ²
F21047		4.0" - 2 X 50 (mm) ²
F21051		2.0" - 25 X 3 (mm)
F21053		2.5" - 25 X 3 (mm)
F21055	3.0" - 25 X 3 (mm)	
Ref No:	Plastic » Plastique » Plástico » Пластик	Conductor
F21061	Pole Clips » Colliers de mât » Abrazaderas para mástil » Хомут -держатель токоотвода на мачте	2.0" - 2 X 50 (mm) ²
F21063		2.5" - 2 X 50 (mm) ²
Ref No:	Stainless Steel » Acier inoxydable » Acero inoxidable » Нержавеющая сталь	Conductor
F21071	Pole Clips » Colliers de mât » Abrazaderas para mástil » Хомут -держатель токоотвода на мачте	2.0" - 1 X 50 (mm) ²
F21073		2.0" - 2 X 50 (mm) ²
F21075		2.0" - 30 X 3 (mm)

LIGHTNING PROTECTION & EARTHING SYSTEMS

One Bolt Clamp » **Raccord à un boulon** » Abrazaderas con Tornillos » Одноболтовые зажимы



Ref No: » Réf. No » Ref. No » Код:	Material » Matière » Material » Материал	Conductor(mm) Conducteur » Conductor » Сечение
F 21101	Copper » Cuivre » Cobre » Медь	8
F 21103	Brass » Laiton » Latón » Латунь	8
F 21105	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	8

Two Bolts Clamp » **Raccord à deux boulons** » Abrazaderas con dos Tornillos » Двухболтовые зажимы



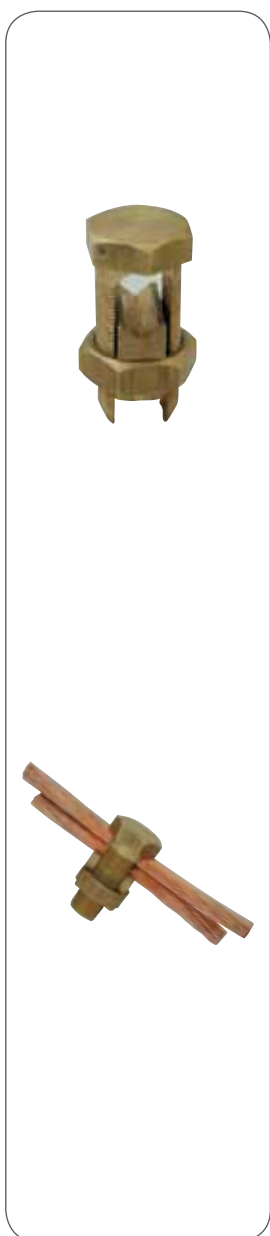
F 21111	Copper » Cuivre » Cobre » Медь	8
F 21113	Brass » Laiton » Latón » Латунь	8
F 21115	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	8

Cable Fixing Clamp » **Serre-fils** » Abrazadera del Cable » зажим кабеля



F 21121	Brass » Laiton » Latón » Латунь	10 - 35
F 21123		35 - 70
F 21125		70 - 150
F 21127		150 - 185

Split Bolt » Boulon fendu
 » Perno de división » раскол болт




Ref No: » Réf. No » Ref. No » Код:	Material » Matière » Material » Материал	Conductor(mm) Conducteur » Conductor » Сечение
F 21131		6 - 6
F 21133		6 - 10
F 21135		6 - 25
F 21137		10 - 10
F 21139		10 - 16
F 21141		10 - 25
F 21143		10 - 35
F 21145		16 - 16
F 21147		16 - 25
F 21149		16 - 35
F 21151		25 - 25
F 21153		25 - 35
F 21155		25 - 50
F 21157		35 - 35
F 21159		35 - 50
F 21161		35 - 70
F 21163		35 - 90
F 21165		50 - 50
F 21167		50 - 70
F 21169		50 - 95
F 21171		50 - 120
F 21173		70 - 70
F 21175		70 - 95
F 21177		95 - 95
F 21179		95 - 120
F 21181		120 - 120
F 21183		120 - 150
F 21185		120 - 185
F 21187		150 - 150
F 21189		150 - 185
F 21191		185 - 185
F 21193		185 - 240
F 21195		210 - 240
F 21197		240 - 240
F 21199		320 - 400

Brass » Laiton » Latón » Латунь

LIGHTNING PROTECTION & EARTHING SYSTEMS

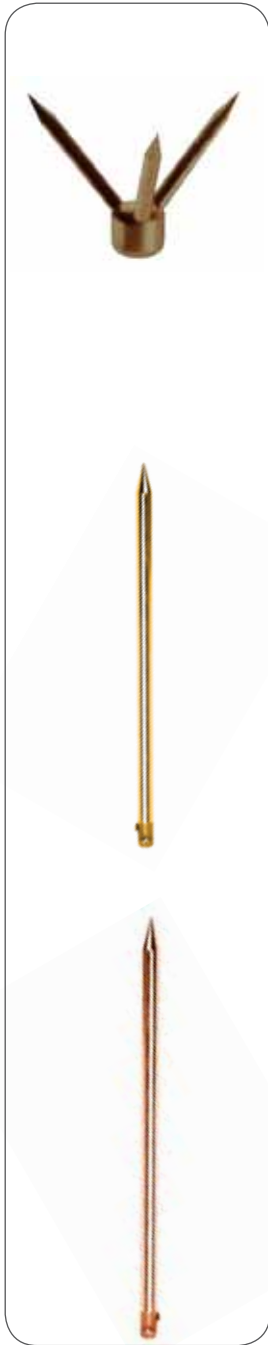
Plastic Clamps » Supports en Plastique » Abrazaderas en plástico » Пластиковые держатели токоотвода

	Ref No: » Réf. No » Ref.No » Код:	Plastic Mounted Clamps Plot en plastique » Soporte en Plástico » Пластиковые держатели токоотвода	Conductor(mm) Conductor » Conductor » Сечение
	F 21201		1x50 (mm) ²
	F 21203	Plastic Clamp For Isolated Ground (roofs etc.) » Plot en plastique pour surfaces isolées (terrace etc.) » Soporte en Plástico para superficies aisladas » Держатель токоотвода на плоской кровле	2x50 (mm) ²
	F 21205		25x3 (mm)
	F 21207		30x3 (mm)
	Ref No:	Plastic Conductor Clamp » Attaches en plastique pour conducteurs » Abrazadera de plástico para conductores » Держатель токоотвода кровельный	Conductor (mm ² - mm ²)
	F 21211	25 / 25 Plastic » Plastique » Plástico » Пластик	1x50 - 70 (mm) ²
	F 21214	25 / 55 Plastic » Plastique » Plástico » Пластик	1x50 - 70 (mm) ²
	F 21217	25 / 40 Plastic » Plastique » Plástico » Пластик	2x50 (mm) ²

Earthing Accessories » Accessoires de mise à la terre » Accesorios de Puesta Tierra » Части стержней заземления / Наконечники

	Ref No: » Réf. No » Ref.No » Код:	Product » Désignation » Producto » Продукт	Dimensions (mm) Dimensions » Dimensiones » Размеры
	F 41901	Plastic Inspection Pit » Regard de visite en plastique » Plástico Camara de inspección » Колодец заземления	300x300x212 mm
	F 41903		400x400x400 mm
	F7360055 F7360101	Corrosion Protection Strip » Bande de Protection de Corrosion » Banda para Protección contra Corrosión » Пластичная антикоррозионная лента	50x1,1mm - 10m 100x1,1mm - 10m

Air Terminals » Pointes Caprices
 » Puntas Franklin » Ловящие наконечники



Ref No: » Réf. No » Ref. No » Код:	Copper » Cuivre » Cobre » медь	
F30000	Multi Point Air Terminal Paratonnerre à Pointes Multiples » Pararrayos de Múltiples Puntos » МНОГОСТЕРЖНЕВОЙ МОЛНИЕПРИЕМНИК	
Ref No:	Brass Laiton » Latón » сталь	Dia.-Length (mm)
F30001 F30003 F30005 F30007 F30009 F30011 F30013 F30015 F30017 F30019 F30021 F30023 F30025 F30027 F30029 F30031 F30033 F30035	Air Terminals Pointes Caprices » Puntas Franklin » Ловящие наконечники	ø 10 - 250 ø 16 - 200 ø 16 - 250 ø 16 - 350 ø 16 - 400 ø 16 - 500 ø 16 - 600 ø 16 - 800 ø 16 - 1000 ø 16 - 1500 ø 16 - 2000 ø 20 - 200 ø 20 - 350 ø 20 - 400 ø 20 - 500 ø 20 - 600 ø 20 - 800 ø 20 - 1000
Ref No:	Copper » Cuivre » Cobre » медь	Dia.-Length (mm)
F30101 F30103 F30105 F30107 F30109 F30111 F30113 F30115 F30117 F30119 F30121 F30123	Air Terminals Pointes Caprices » Puntas Franklin » Ловящие наконечники	ø 16 - 300 ø 16 - 500 ø 16 - 600 ø 16 - 800 ø 16 - 1000 ø 20 - 300 ø 20 - 400 ø 20 - 500 ø 20 - 600 ø 20 - 800 ø 20 - 1000 ø 20 - 1500

Air Terminals » Pointes Caprices
 » Puntas Franklin » Ловящие наконечники



Ref No: » Réf. No » Ref.No » Код:	Chromium Plated Brass Laiton chromé » Latón Cromado » Хромированная сталь	Dimensions (mm) Dimensions » Dimensiones » Размеры
F30201	<p>Air Terminals Pointes Caprices » Puntas Franklin » Ловящие наконечники</p>	Ø 10 - 250
F30203		Ø 16 - 200
F30205		Ø 16 - 250
F30207		Ø 16 - 350
F30209		Ø 16 - 400
F30211		Ø 16 - 500
F30213		Ø 16 - 600
F30215		Ø 16 - 800
F30217		Ø 16 - 1000
F30219		Ø 16 - 1500
F30221		Ø 16 - 2000
F30223		Ø 20 - 200
F30225		Ø 20 - 350
F30227		Ø 20 - 400
F30229		Ø 20 - 500
F30231		Ø 20 - 600
F30233		Ø 20 - 800
F30235		Ø 20 - 1000
Ref No:	Chromium Plated Steel » Acier chromé » Acero Cromado » Хромированная сталь	Dia.-Length (mm)
F30301	<p>Air Terminals Pointes Caprices » Puntas Franklin » Ловящие наконечники</p>	Ø 16 - 200
F30303		Ø 16 - 400
F30305		Ø 16 - 500
F30307		Ø 16 - 600
F30309		Ø 16 - 800
F30311		Ø 16 - 1000
F30313		Ø 20 - 200
F30315		Ø 20 - 350
F30317		Ø 20 - 500
F30319		Ø 20 - 600
F30321		Ø 20 - 800
F30323		Ø 20 - 1000
Ref No:		Chromium Plated Copper » Cuivre chromé » Cobre Cromado » Хромированная медь
F30401	<p>Air Terminals Pointes Caprices » Puntas Franklin » Ловящие наконечники</p>	Ø 16 - 300
F30403		Ø 16 - 500
F30405		Ø 16 - 600
F30408		Ø 16 - 1000
F30409		Ø 20 - 300
F30411		Ø 20 - 500
F30413		Ø 20 - 600
F30415		Ø 20 - 800
F30417		Ø 20 - 1000
F30418		Ø 20 - 1500

Air Terminal Fixing Parts » Fixations de Pointes Caprices

» Piezas para fijación de puntas » Части для фиксации стержневых молниеприемников



Ref No: » Réf. No » Ref.No » Код:	Copper Cuivre » Cobre » Медь	Conductor (mm) Conducteur » Conductor » Сечение
F30431 F30436	Flat Type Type plat » Soporte de Punta tipo plano » Тип ленты	ø 16 ø 20
Ref No:	Steel » Acier » Асоро » Сталь	Conductor (mm)
F30441 F30446	Flat Type Type plat » Soporte de Punta tipo plano » Тип ленты	ø 16 ø 20
Ref No:	Naval Brass » Laiton naval » Latón naval » Латунь	Conductor (mm)
F30451 F30456	Double Side Coupling Couplage bilatéral » Conexión Bilateral » Двухстороннее соединение	ø 16 ø 20
Ref No:	Brass Laiton » Latón » Латунь	Conductor (mm)
F30461 F30466	Double Side Coupling Couplage bilatéral » Conexión Bilateral » Двухстороннее соединение	ø 16 ø 20
Ref No:	Brass Laiton » Latón » Латунь	Conductor (mm)
F30471 F30476	Double Side Coupling with Steel Screw » Couplage bilatéral avec vis en acier » Conexión Bilateral con tornillo en acero » Двухстороннее соединение с стальным болтом	ø 16 ø 20
Ref No:	Copper Cuivre » Cobre » Медь	Conductor (mm)
F30481 F30486	A Type Type A » Тиро А » Тип А	ø 16 ø 20
Ref No:	Steel » Acier » Асоро » Гальванизированная сталь	Conductor (mm)
F30491 F30496	A Type Type A » Тиро А » Тип А	ø 16 ø 20
Ref No:	Aluminium » Aluminium » Aluminio » Алюминий	Conductor (mm)
F30501 F30506	A Type Type A » Тиро А » Тип А	ø 16 ø 20

LIGHTNING PROTECTION & EARTHING SYSTEMS

Air Terminal Fixing Parts » Fixations de Pointes Captrices

» Piezas para fijación de puntas » Части для фиксации стержневых молниеприемников



Ref No: » Réf. No » Ref. No » Код:	Brass Laiton » Latón » Латунь	
F 30511	Flat Type » Type plat » Soporte de Punta tipo plano » Тип ленты	
Ref No:	Steel » Acier » Acero » Сталь	
F 30521	Flat Type » Type plat » Soporte de Punta tipo plano » Тип ленты	
Ref No:	Copper » Cuivre » Cobre » Медь	
F 30531	Mosque type » Type mosquée » Tipo Mesquita » Тип минарета	
Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	
F 30541	Mosque type » Type mosquée » Tipo Mesquita » Тип минарета	
Ref No:	Brass Laiton » Latón » Латунь	
F 30551	Mosque type » Type mosquée » Tipo Mesquita » Тип минарета	
Ref No:	Naval Brass » Laiton naval » Latón naval » Латунь	Dia-Length Dia-Longueur » Dia-Longitud
F 30561	4 Armed Type Type à 4 bras » 4 tipo armado » Тип с четырьмя креплениями	35 (mm) ²
F 30564		50 (mm) ²
F 30567		70 (mm) ²
F 30570		20 X 3 (mm)
F 30573		25 X 3 (mm)
F 30576		30 X 3 (mm)
Ref No:	Copper Cuivre » Cobre » Медь	Dia-Length (mm) Dia-Longueur » Dia-Longitud
F 30581	Screw Type Type Tirefond » Tipo tornillo » Винтовой тип	8 - 16
F 30583		8 - 18
F 30585		8 - 20
F 30587		10 - 16
F 30589		10 - 18
F 30591		10 - 20
Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Dia-Length (mm) Dia-Longueur » Dia-Longitud
F 30601	Screw Type Type Tirefond » Tipo tornillo » Винтовой тип	8 - 16
F 30603		8 - 18
F 30605		8 - 20
F 30607		10 - 16
F 30609		10 - 18
F 30611		10 - 20

Air Terminal Fixing Masts & Clamps » Mâts de Pointes Caprices et Fixations » Abrazaderas y Mástiles para fijación de punta » Мачты и зажимы для фиксации стержневых молниеприёмников



Ref No: » Réf. No » Ref. No » Код:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Dimensions (inch -mm) Dimensions » Dimensiones » Размеры
F30621	Air Terminal Fixing Masts Mâts de pointes caprices » Mástiles para fijación de punta » Мачты и зажимы для стержневых молниеприёмников	5/4" - 1.00
F30623		5/4" - 1.50
F30625		1.5" - 1.00
F30627		1.5" - 1.50
F30629		2" - 1.00
F30631		2" - 1.50
Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Dimensions (inch -mm) Dimensions » Dimensiones » Размеры
F30641	Air Terminal Pole Fixing Clamps Flat Type » Clips pour mât de pointe caprice type régulier » Abrazadera para fijación de puntas Tipo plano » Зажимы Для Фиксации Мачты Стержневого Молниеприёмника	5/4"
F30643		1.5"
F30645		2.0"
Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Dimensions (inch -mm) Dimensions » Dimensiones » Размеры
F30651	Air Terminal Pole Fixing Clamps Axled Type » Clips pour mât de pointe caprice type arceau » Abrazadera para fijación de puntas tipo eje » Зажимы для фиксации мачты стержневого молниеприёмника	5/4"
F30653		1.5"
F30655		2.0"

Conductors » Conducteurs
» Conductores » Токоотводы



Ref No: » Réf. No » Ref. No » Код:	Mono Copper Mono cuivre » Mono-cobre » Моно медь	Conductor(mm²) Conducteur » Conductor » Сечение
F40201	Conductors Conducteurs » Conductores » Токоотводы	1.5
F40203		2.5
F40205		4
F40207		6
F40209		10
F40211		16
F40213		25
F40215		35
F40217		50
Ref No:	Stranded Copper » Cuivre multibrins » Trenzado de cobre » Многожильный медный	Conductor (mm²)
F40301	Conductors Conducteurs » Conductores » Токоотводы	10
F40303		16
F40305		25
F40307		35
F40309		50
F40311		70
F40313		95
F40315		120
F40317		150
F40319		240
F40321		300
Ref No:	Aluminium » Aluminium » Aluminio » Алюминий	Conductor (mm²)
F40401	Conductors Conducteurs » Conductores » Токоотводы	70
Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Conductor (mm²)
F40501	Conductors Conducteurs » Conductores » Токоотводы	50
F40503		70

Bars » Barres

» Barras » Токоотводы



Ref No: » Réf. No » Ref. No » Код:	Refined and Electrolytic Copper » Cuivre électrolytique et raffiné » Cobre electrolítico y refinado » Очищенная Электролитическая Медь	Conductor(mm) Conducteur » Conductor » Сечение
F40601	<p>Flat Conductors Conducteurs plats » Conductores Planos » Токоотвод / шина</p>	20 X 2
F40603		25 X 3
F40604		30 X 2
F40605		30 X 3
F40606		30 X 4
F40607		30 X 5
F40609		40 X 4
F40611		40 X 5
F40613		50 X 5
F40615		100 X 10
	<p>*Please specify if you need tin plated copper. » Veuillez indiquer si vous avez besoin en cuivre étamé. » Por favor especificar si es necesario cobre plateado estañado. » Пожалуйста, сформулируйте Если вам нужно луженая медь.</p>	
Ref No:	Hot Dip Galvanized » Galvanisé à chaud » Galvanizado en Caliente » Гальванизированная	Dimensions (mm) Dimensions » Dimensiones » Размеры
F40701	<p>Flat Conductors Conducteurs plats » Conductores Planos » Токоотвод / шина</p>	20 X 3
F40703		25 X 3
F40705		30 X 3
F40706		30 X 3.5
F40707		40 X 3
F40709		40 X 4
F40711		50 X 5

LIGHTNING PROTECTION & EARTHING SYSTEMS

Cable Lugs » Cosses de Câble » Terminales de Cable » Наконечники для кабеля



Ref No: » Réf. No » Ref. No » Код:	Tin Plated Copper Cuivre étamé » Cobre estañado » Медь	Conductor(mm ²) Conducteur » Conductor » Сечение
F40801	Compression Connectors (Cable Lugs) » Embouts de Compression (Cosses de Câble) » Conectores de compresión (Terminales de Cable) » Наконечники для кабеля	6
F40803		10
F40805		16
F40807		25
F40809		35
F40811		50
F40813		70
F40815		95
F40817		120
F40819		150
F40821		185
F40823		240

Earth Bars » Barres de Terre » Barra de Tierra » Стержень заземления



Ref No: » Réf. No » Ref. No » Код:	Tin Plated Copper Cuivre étamé » Cobre estañado » Медь	Dimensions (mm) Dimensions » Dimensiones » Размеры
F40841	Equipotential Earth Bars Barres équipotentiell » Barra de tierras equipotenciales » Эквипотенциальные шины заземления	25 X 3 X 500
F40851		30 X 3 X 500
F40861		40 X 4 X 300
F40871		50 X 5 X 500
F40881		60 X 5 X 500
Ref No:	With Isolator Type Copper » Cuivre Avec Isolateur » Con isolador en cobre » Изоляторные медный тип	Dimensions (mm) Dimensions » Dimensions » Размеры
F40901	Equipotential Earth Bars Barres équipotentiell » Barra de tierras equipotenciales » Эквипотенциальные шины заземления	30 X 3 X 300
F40911		20 X 3 X 200
F40921		20 X 5 X 200
F40931		25 X 3 X 500
F40941		30 X 3 X 500
F40951		30 X 5 X 300
F40961		30 X 10 X 500
F40971		40 X 5 X 300

Earth Bars » Barres de Terre

» Barra de Tierra » Шины заземления



Ref No: » Réf. No » Ref. No » Код:	Copper » Cuivre » Cobre » Медь	Dimensions (mm) Dimensions » Dimensiones » Размеры
F40981	Neutral Earth Bars Barres neutres » Barras neutras » Нейтральные шины	15 X 1.5
F40986		15 X 2.0
F40991		15 X 3.0
Ref No:	Copper » Cuivre » Cobre » Медь	Dimensions (mm)
F41001	W Automation Bars Barres d'automatisation W » Barras de automación W » Шины W автоматизации	Pin Type 15 X 1.5
F41006		Pin Type 15 X 2.0
F41011		Fork Type 15 X 1.5
F41016		Fork Type 15 X 2.0

Earthing Rods » Piquets de Terre

» Barras de Puesta Tierra » Электроды заземления



Ref No: » Réf. No » Ref. No » Код:	Copper Cuivre » Cobre » Медь	Rod (mm) Section » Dia. Punta » Стержень	Length(m) Longueur » Longitud » Длина
F41101	Electrodes » Piquets » Electrodos » Электроды заземления	ø 16	1.00
F41103		ø 16	1.20
F41106		ø 16	1.50
F41111		ø 18	1.00
F41116		ø 18	1.50
F41121		ø 20	1.00
F41126		ø 20	1.50
F41131		ø 20	1.75
F41134		ø 20	3.00
F41137		ø 20	3.50
F41141		ø 30	1.50
F41146		ø 30	1.75
F41151		ø 40	1.50
F41156		ø 40	1.75

LIGHTNING PROTECTION & EARTHING SYSTEMS

Earthing Rods » Piquets de Terre » Barras de Puesta Tierra » Электроды заземления



Ref No: » Réf. No » Ref. No » Код:	Elc. Copper Plated Steel » Acier cuivré par électrolyse » Acero cromo plateado » Сталь с покрытием меди	Rod (mm) Section » Dia. Punta » Стержень	Length(m) Longueur » Longitud » Длина
F 41201 F 41211 F 41216 F 41221 F 41226 F 41231 F 41236	Electrodes » Piquets » Electrodos » Электроды заземления	ø 14 ø 16 ø 16 ø 18 ø 18 ø 20 ø 20	1.00 1.00 1.50 1.00 1.50 1.00 1.50
Ref No:	1000µ Copper Plated Steel » Acier cuivré par 1000µ » Acero cromo plateado 1000µ » Стержни заземления, сталь покрывающая медью	Rod (mm)	Length (m)
F 41241 F 41246 F 41251 F 41256 F 41261 F 41264 F 41267 F 41270 F 41273	Electrodes » Piquets » Electrodos » Электроды заземления	ø 16 ø 16 ø 18 ø 18 ø 20 ø 20 ø 20 ø 20 ø 20	1.00 1.50 1.00 1.50 1.00 1.50 1.75 3.00 3.50

Earthing Plates » Plaques de Terre » Plancha de Tierra » Пластины заземления



Ref No: » Réf. No » Ref. No » Код:	Copper Plate Plaque en cuivre » Plancha de cobre » Медные шины	Dimensions (cm-mm) Dimensions » Dimensiones » Размеры
F 41301 F 41303 F 41305 F 41307 F 41309 F 41311 F 41313 F 41315 F 41317 F 41319 F 41321	Earthing Plates Plaques de Terre » Plancha de tierra » Шины заземления	70x70 - 1.00 70x70 - 1.50 70x70 - 2.00 70x70 - 3.00 70x70 - 4.00 100x50 - 2.00 100x100 - 2.00 100x100 - 2.50 100x100 - 3.00 100x100 - 4.00 100x100 - 5.00
Ref No:	Electrogalvanized » Electrogalvanisé » Electrogalvanizado » Оцинкованная	Dimensions (mm) Dimensions » Dimensiones » Размеры
F 41331 F 41333	Earthing Plates » Plaques de Terre » Plancha de tierra » Шины заземления	100x50 - 1.00 100x50 - 1.50
Ref No:	Hot Dip Galvanized » Galvanisé à Chaud » Galvanizado en caliente » С горячей оцинковкой	Dimensions (mm) Dimensions » Dimensiones » Размеры
F 41335 F 41337 F 41339	Earthing Plates » Plaques de Terre » Plancha de tierra » Шины заземления	100x50 - 2.00 100x50 - 2.50 100x50 - 3.00
Ref No:	Copper Grid » Grille en cuivre » Malla de cobre » Медная сетка	Dimensions (mm) Dimensions » Dimensiones » Размеры
F 41341 F 41343	Earthing Grids » Grilles de Terre » Malla de tierra » Шины заземления	100x50 - 2.00 100x100 - 2.00

Earthing Electrodes » Electrodes de Terre
 » Conductores de Puesta Tierra » Шины заземления



Ref No: » Réf. No » Ref. No » Код:	Hot Dip Galvanized Steel » Acier galvanisé à chaud » Galvanizado en caliente » Горячеоцинкованная сталь	Dimensions (mm-cm) Dimensions » Dimensiones » Размеры
F 41401 F 41405 F 41407 F 41409 F 41413 F 41415 F 41417 F 41419 F 41421	Angled Iron Earthing Electrodes Equerres électrodes » Electrodo de puesta tierra » Электроды стальные, L - образной формы	40x4 - 30 65x6 - 100 65x6 - 150 65x6 - 175 70x7 - 100 70x7 - 150 70x7 - 200 70x7 - 250 70x7 - 300
Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Dimensions (mm-cm) Dimensions » Dimensiones » Размеры
F 41431 F 41433 F 41435 F 41437 F 41439 F 41441	Galvanized Pipe Earthing Rods Tubes de terre galvanisés » Barra de puesta tierra galvanizada » Оцинкованные электроды заземления	5/4" - 2.00 5/4" - 3.00 1.5" - 2.00 1.5" - 3.00 2" - 2.00 2" - 3.00

Earthing Rod Accessories » Accessoires de Piquets de Terre
 » Accesorios de Puesta Tierra » Части электродов заземления / Наконечники



Ref No: » Réf. No » Ref. No » Код:	Steel Acier » Acero » Сталь	Diameter (mm) Diamètre » Diámetro » Диаметр
F 41451 F 41453 F 41455 F 41457 F 41461	Rod Driving Studs » Bouterolle d'enfoncement » Tornillo de Conexión » Наконечники	ø 16 ø 18 ø 20 ø 22 ø 40
F 41471 F 41473 F 41475 F 41477 F 41481	Rod Coupling Dowels » Goujon d'accouplement » Tornillo bilateral » Соединяющие шпильки	ø 16 ø 18 ø 20 ø 22 ø 40
F 41491 F 41493 F 41495 F 41497 F 41501	Rod Spikes » Pointe d'enfoncement » Tornillo en punta » Наконечники	ø 16 ø 18 ø 20 ø 22 ø 40

LIGHTNING PROTECTION & EARTHING SYSTEMS

Earthing Electrode Clamps » Raccords d'Electrodes de Terre » Grapas para Puesta Tierra » Зажимы для электродов заземления



	Copper » Cuivre » Cobre » Медь	Rod Dia (mm) Dia. Piquet » Dia. Punta » Стержень диаметр	Conductor (mm ²) Conducteur » Conductor » Сечение
F 41601 F 41606 F 41611 F 41615 F 41619 F 41623	"C" Type » Type "C" » Тиро "С" » Тип "С"	∅ 16 ∅ 18 ∅ 20 ∅ 20 ∅ 20 ∅ 20	1 x 50 1 x 50 1 x 25 1 x 50 1 x 70 1 x 95
Ref No:	Brass » Laiton » Latón » Латунь		Conductor » Conducteur » Conductor » Сечение
F 41701 F 41703 F 41705 F 41707 F 41709 F 41711 F 41713	"A" Type » Type "A" » Тиро "А" » Тип "А"		1 x 25 1 x 35 1 x 50 1 x 70 1 x 95 1 x 240 30 x 3
Ref No:	Brass » Laiton » Latón » Латунь	Rod Dia (mm)	Conductor (mm²)
F 41720 F 41721 F 41724 F 41727	"U" Type » Type "U" » Тиро "U" » Тип "U"	∅ 20 ∅ 20 ∅ 20 ∅ 20	30 x 3 16 - 95 50 - 120 70 - 185
Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Rod Dia (mm)	Conductor (mm²)
F 41731 F 41734	"U" Type » Type "U" » Тиро "U" » Тип "U"	∅ 20 ∅ 20	16 - 95 50 - 120
Ref No:	Brass » Laiton » Latón » Латунь	Rod Dia (mm)	Conductor (mm²)
F 41741 F 41744 F 41747	"G" Type » Type "G" » Тиро "G" » Тип "G"	∅ 16 ∅ 18 ∅ 20	16 - 50 16 - 70 16 - 95
Ref No:	Copper » Cuivre » Cobre » Медь	Rod Dia (mm)	Conductor (mm²)
F 41751 F 41753 F 41761 F 41763 F 41765 F 41767	"H" Type » Type "H" » Тиро "H" » Тип "H"	∅ 18 ∅ 18 ∅ 20 ∅ 20 ∅ 20 ∅ 20	1 x 25 1 x 50 1 x 25 1 x 50 1 x 70 1 x 95

Earthing Electrode Clamps » Raccords d'Electrodes de Terre
 » Grapas para Puesta Tierra » Зажимы для электродов заземления



	Copper » Cuivre » Cobre » Медь	Rod Dia (mm) Dia. Piquet » Dia. Punta » Диаметр электрода	Conductor Conducteur » Conductor » Сечение
F 41771	“J” Type » Type “J”» Тіро “J” » Тип “J”	∅ 16 - 18	2 x 50
F 41773		∅ 16 - 18	2 x 70
F 41775		∅ 16 - 18	25 x 3
F 41777		∅ 16 - 18	30 x 3
F 41779		∅ 16 - 18	30 x 5
F 41791		∅ 20	2 x 35
F 41793		∅ 20	2 x 50
F 41795		∅ 20	2 x 70
F 41797		∅ 20	25 x 3
F 41799		∅ 20	30 x 3
F 41801		∅ 20	40 x 4
F 41803		∅ 20	50 x 5
Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Rod Dia (mm)	Conductor
F 41811	“J” Type » Type “J”» Тіро “J” » Тип “J”	∅ 20	30 x 3
F 41814		∅ 20	40 x 4
F 41817		∅ 20	2 x 50
Ref No:	Copper » Cuivre » Cobre » Медь	Rod Dia (mm)	Conductor
F 41821	“M” Type » Type “M”» Тіро “M” » Тип “M”	∅ 20	25 x 3
F 41823		∅ 20	30 x 3
F 41831		∅ 20	1 x 50
F 41833		∅ 20	1 x 70
F 41835		∅ 20	1 x 95
F 41841		∅ 20	2 x 50
F 41843		∅ 20	2 x 70
F 41845		∅ 20	2 x 95
F 41847		∅ 20	2 x 120
Ref No:		Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Rod Dia (mm)
F 41861	“M” Type » Type “M”» Тіро “M” » Тип “M”	∅ 20	25 x 3
F 41863		∅ 20	30 x 3
F 41871		∅ 20	1 x 50
F 41873		∅ 20	1 x 70
F 41875		∅ 20	1 x 95
F 41881		∅ 20	2 x 50
F 41883		∅ 20	2 x 70
F 41885		∅ 20	2 x 95
F 41887		∅ 20	2 x 120

LIGHTNING PROTECTION & EARTHING SYSTEMS

Brass Earth Points » Points de Terre en Laiton » Puntos de contacto en Latón » Наконечники заземления, из латуни



Ref No: » Réf. No » Ref. No » Код:	Brass » Laiton » Latón » Латунь	Screw (mm) Vis » Tornillo » Винт
F 41911	Earth Points Four Holes » Points de terre à quatre trous » Puntos de contacto 4 cavidades » Наконечники заземления с четырьмя отверстиями	M8 X 14
F 41913	Single Hole Earth Point » Point de Terre à un Trou » Puntos de contacto 1 cavidade » Наконечники заземления с одним отверстием	M10 X 15

Expansion Jointing Clamps » Joints d'Expansion » Grapas de extensión y articulación » Соединительные скобы



Ref No: » Réf. No » Ref. No » Код:	Flexible Copper Tresse souple en cuivre » Cobre trenzado » Из гибкой меди	Dimensions (mm/cm) Dimensions » Dimensiones » Размеры
F 41921	Expansion Jointing Clamps Joints d'expansion » Grapas de extensión y articulación » Соединительные скобы	25 X 3 - 50
F 41924		25 X 5 - 50
F 41927		30 X 3 - 50
Ref No:	Flexible Tinned Copper Tresse souple en cuivre étamé » Cobre estañado » Из гибкой луженой меди	Dimensions (mm/cm) Dimensions » Dimensiones » Размеры
F 41931	Expansion Jointing Clamps Joints d'expansion » Grapas de extensión y articulación » Соединительные скобы	25 X 3 - 50
F 41934		25 X 5 - 50
F 41937		30 X 3 - 50
Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Dimensions (mm/cm) Dimensions » Dimensiones » Размеры
F 41941	Expansion Jointing Clamps Joints d'expansion » Grapas de extensión y articulación » Соединительные скобы	30 X 3 - 30
F 41944		30 X 3 - 50
F 41947		30 X 3 - 75
Ref No:	Copper » Cuivre » Cobre » Медь	Dimensions (mm/cm) Dimensions » Dimensiones » Размеры
F 41951	Expansion Jointing Clamps Joints d'expansion » Grapas de extensión y articulación » Соединительные скобы	30 X 3 - 30
F 41954		30 X 3 - 50
F 41957		30 X 3 - 75

Clawcoupling Clamps » Raccords à griffes

» Grapa tipo peine » W-образные зажимы



Ref No: » Réf. No » Ref. No » Код:	Clawcoupling Clamps Raccords à griffes » Grapa tipo peine » W-образные зажимы	Conductor (mm ²) Conducteur » Conductor » Сечение
F 41961	No. 1	10
F 41963	No. 2	16
F 41965	No. 3	25
F 41967	No. 4	35
F 41969	No. 5	50
F 41971	No. 6	70
F 41973	No. 7	95
F 41975	No. 8	120

C Clamps » Cosses en C » Grapa C » “C” зажимы



Ref No: » Réf. No » Ref. No » Код:	Electrolytic Copper Cuivre électrolytique » Cobre Electrolítico » Медь электролитическая	Conductor (mm ²) Conducteur » Conductor » Сечение
F 41981	Pressed Type “C” Type “C” à serrer » Grapa Tipo “C” » Пресованный тип “C”	35 - 35
F 41983		50 - 50
F 41985		70 - 70
F 41987		95 - 95

U Clamps » Colliers U » Grapa U » “U” зажимы



Ref No: » Réf. No » Ref. No » Код:	Brass » Laiton » Latón » Латунь	Conductor (mm ²) Conducteur » Conductor » Сечение
F 41991	“U” Type Clamps » Colliers de Type “U” Grapa Tipo “U” » Зажимы “U” типа	6
F 41993		10
F 41995		16
F 41997		25
F 41999		35
F 42001		50
F 42003		70
F 42005		95
F 42007		120
F 42009		150
F 42011		185

LIGHTNING PROTECTION & EARTHING SYSTEMS

Quick Connector » Raccord Rapide » Grapa Conexión De Conductores » Зажимы



Ref No: » Réf. No » Ref. No » Код:	Material » Matière » Material » Материал	Jnt. Conductor(mm ²) Conducteur Jnt. » Conductor Jnt. » Объединенный проводник
F42021	Copper » Cuivre » Cobre » Медь	50 - 70
F42024	Aluminium » Aluminium » Aluminio » Алюминий	50 - 70
F42027	Al - Cu » Al-Cu » Al - Cu » Алюминий- Медь	50 - 70
F42030	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	50 - 70

Triangle Tee Clamp » Raccord Triange en Té » Grapa en Triángulo » Трехсторонние зажимы



Ref No: » Réf. No » Ref. No » Код:	Material » Matière » Material » Материал	Jnt. Conductor(mm ²) Con- ducteur Jnt. » Conductor Jnt. » Объединенный проводник
F42041	Aluminium » Aluminium » Aluminio » Алюминий	50
F42046	Brass » Laiton » Latón » Латунь	50
F42051	Copper » Cuivre » Cobre » Медь	50
F42061	Copper » Cuivre » Cobre » Медь	70

Jointing Clamps » Tubes de Raccordement » Grapas Para Conexión de Conductores » Соединительные зажимы трубчатые



Ref No: » Réf. No » Ref. No » Код:	Material » Matière » Material » Материал	Jnt. Conductor(mm ²) Con- ducteur Jnt. » Conductor Jnt. » Объединенный проводник
F42071	Copper » Cuivre » Cobre » Медь	50 - 50
F42081	Aluminium » Aluminium » Aluminio » Алюминий	50 - 50
F42091	Brass » Laiton » Latón » Латунь	35 - 35
F42093		35 - 50

Jointing Clamps » Tubes de Raccordement





» Grapas Para Conexión de Conductores » Соединительные зажимы трубчатые



Ref No: » Réf. No » Ref. No » Код:	Material » Matière » Material » Материал	Jnt. Conductor(mm ²) Con- ducteur Jnt. » Conductor Jnt. » Сечение
F42095	Brass » Laiton » Latón » Латунь	50 - 50
F42097		50 - 70
F42099		70 - 70
F42101		70 - 95
F42103		95 - 95
Ref No:	Brass » Laiton » Latón » Латунь	Jnt. Conductor (mm ²)
F42111	Straight Type » Raccord linéaire » Тип Linear » Прямой тип	25
F42114		35
F42117		50
F42120		70
F42123		95
F42131	"T" Type » Raccord en T » Тип "Т" » Тип "Т"	25
F42134		35
F42137		50
F42140		70
F42143	95	
F42151	"X" Type » Raccord en X » Тип "X" » Крестообразный тип	25
F42154		35
F42157		50
F42160		70
F42163	95	
Ref No:	Copper » Cuivre » Cobre » Медь	Jnt. Conductor (mm ²)
F42171	Straight Type » Raccord linéaire » Тип Linear » Прямой тип	25
F42174		35
F42177		50
F42180		70
F42183		95
Ref No:	Copper » Cuivre » Cobre » Медь	Jnt. Conductor (mm ²)
F42191	"T" Type » Raccord en T » Тип "Т" » Тип "Т"	25
F42194		35
F42197		50
F42200		70
F42203	95	
F42211	"X" Type » Raccord en X » Тип "X" » Крестообразный тип	25
F42214		35
F42217		50
F42220		70
F42223		95

LIGHTNING PROTECTION & EARTHING SYSTEMS

Square Type Jointing Clamps » **Plaques de Raccordement de Type Carré** » Grapas Cuadradas Para Conexión de Conductores » Соединительные зажимы трубчатые

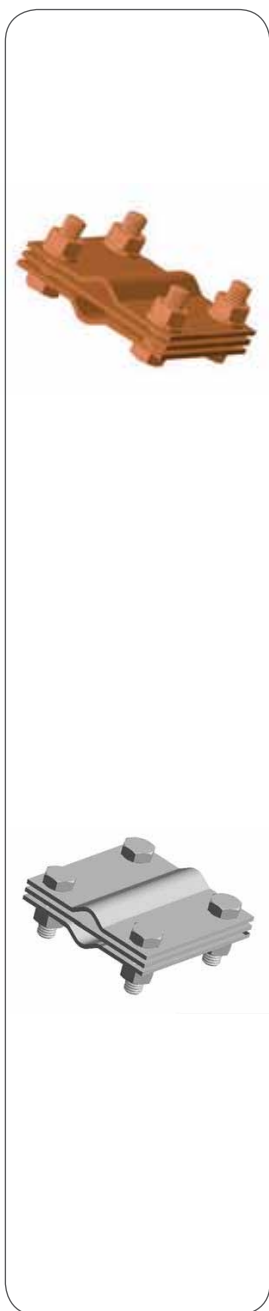
	Ref No: » Réf. No » Ref. No » Код:	Copper » Cuivre » Cobre » Медь	Jnt. Conductor(mm²) Conducteur Jnt. » Conductor Jnt. » Сечение
	F42231	Square "T" Type » Raccord carré en T » Cuadrada tipo "T" » Тип "Т"	25 - 25
	F42236		35 - 50
	F42241		50 - 50
	F42246		50 - 70
	F42251		70 - 70
	F42256		70 - 95
	F42261		95 - 95
	Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Jnt. Conductor (mm²)
	F42271	Square "T" Type » Raccord carré en T » Cuadrada tipo "T" » Тип "Т"	25 - 25
	F42276		35 - 50
	F42281		50 - 50
	F42286		50 - 70
	F42291		70 - 70
	F42296		70 - 95
	F42301		95 - 95
	Ref No:	Copper » Cuivre » Cobre » Медь	Jnt. Conductor (mm²)
	F42311	Square "X" Type » Raccord carré en X » Cuadrada tipo "X" » Крестообразный тип	25 - 25
	F42316		35 - 50
	F42321		50 - 50
	F42326		50 - 70
	F42331		70 - 70
	F42336		70 - 95
	F42341		95 - 95
F42351	120 - 120		
	Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Jnt. Conductor (mm²)
	F42361	Square "X" Type » Raccord carré en X » Cuadrada tipo "X" » Крестообразный тип	25 - 25
	F42366		35 - 35
	F42371		35 - 50
	F42381		50 - 50
	F42386		50 - 70
	F42391		70 - 70
	F42396		70 - 95
F42401	95 - 95		
	Ref No:	Copper » Cuivre » Cobre » Медь	Jnt. Conductor (mm)
	F42411	Square Type Tape to Tape » Raccord carré plat à plat » Cuadrada plana » Тип полоса к полосе	20x3 - 20x3
	F42421		25x3 - 25x3
	F42426		25x3 - 30x3
	F42431		30x3 - 30x3
	F42436		30x3 - 40x3
	F42441		40x3 - 40x3
	F42446		40x3 - 50x5

Square Type Jointing Clamps » Plaques de Raccordement de Type Carré
 Grapa Cuadrada Para Conexión de Conductores » Соединительные зажимы трубчатые



Ref No: » Réf. No » Ref. No » Код:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Jnt. Conductor(mm - mm) Conducteur Jnt. » Conductor Jnt. » Сечение
F42451 F42456 F42461 F42466 F42471 F42477	Square Type Tape to Tape » Raccord carré plat à plat » Cuadrada plana » Тип полоса к полосе	25x3 - 25x3 25x3 - 30x3 30x3 - 30x3 30x3 - 40x3 40x3 - 40x3 40x3 - 50x5
Ref No:	Copper » Cuivre » Cobre » Медь	Jnt. Conductor (mm - mm ²)
F42481 F42486 F42491 F42494 F42497 F42511 F42514 F42517 F42521	Square Type Tape to Round » Raccord carré plat à rond » Cuadrada plano a arco » Тип полоса к круглому токоотводу	20x3 - 35 20x3 - 50 25x3 - 50 25x3 - 70 25x3 - 95 30x3 - 50 30x3 - 70 30x3 - 95 40x4 - 50
Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Jnt. Conductor (mm - mm ²)
F42531 F42536 F42541 F42544 F42547 F42551 F42556	Square Type Tape to Round » Raccord carré plat à rond » Cuadrada plano a arco » Тип полоса к круглому токоотводу	25x3 - 25 25x3 - 50 30x3 - 50 30x3 - 70 30x3 - 95 40x4 - 50 40x4 - 70
Ref No:	Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь	Jnt. Conductor (mm - mm)
F42561 F42563 F42565 F42567 F42569 F42571 F42573 F42575 F42577 F42579	Square Type Rod to Tape » Raccord carré piquet à plat » Cuadrada plano a arco » Тип стержень к полосе	30x3 - Ø 6 30x3 - Ø 8 30x3 - Ø 10 30x3 - Ø 12 30x3 - Ø 14 30x3 - Ø 16 30x3 - Ø 18 30x3 - Ø 20 30x3 - Ø 22 30x3 - Ø 26

Square Type Jointing Clamps » Plaques de Raccordement de Type Carré
 Grapa Cuadrada Para Conexión de Conductores » Соединительные зажимы трубчатые



Ref No: » Réf. No » Ref. No » Код:	Copper » Cuivre » Cobre » Медь	Jnt. Conductor(mm - mm) Conducteur Jnt. » Conductor Jnt. » Сечение
F42601	Square Type Round to Round » Raccord carré rond à rond » Cuadrada arco a arco » Тип круглому токоотводу к круглому токоотводу	25 - 25
F42606		35 - 35
F42611		35 - 50
F42616		50 - 50
F42621		50 - 70
F42626		50 - 95
F42631		70 - 70
F42636		70 - 95
F42641		70 - 120
F42646		70 - 150
F42651		95 - 95
F42656		95 - 120
F42661		95 - 150
F42666		95 - 185
F42671		120 - 120
Ref No:		Galvanized Steel » Acier galvanisé » Acero Galvanizado » Гальванизированная сталь
F42701	Square Type Round to Round » Raccord carré rond à rond » Cuadrada arco a arco » Тип круглому токоотводу к круглому токоотводу	25 - 25
F42706		35 - 35
F42711		35 - 50
F42716		50 - 50
F42721		50 - 70
F42726		50 - 95
F42731		70 - 70
F42736		70 - 95
F42741		70 - 120
F42746		70 - 150
F42751		95 - 95
F42756		95 - 120
F42761		95 - 150
F42766		95 - 185
F42771		120 - 120

LICON » High Conductivity Isolated Cable » **Câble Isolé de Haute Conductivité**
 Cable Aislado de Alta Conductividad » Изолированные кабель Высокая проводимость



FRND LICON 35 mm²

Impedance Values

Sample	V _{pp} (Voltage magnitude) kVolt	I _{pp} (Current magnitude) kA	Z (Impedance) Ohm
Sample 1: 35mm ² Copper Conductor	122.580	15.22	8.054
Sample 2: 50mm ² Copper Conductor	126.070	16.06	7.850
Sample 3: LICON 35 Screen on one end isolated, on one end connected	36.520	16.34	2.235

- Isolated protection
- Low impedance
- High strength
- Easy installation



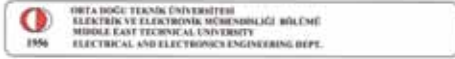
FRND LICON 50 mm²

LICON has been tested in METU Laboratories. During the 100kA Lightning current tests, LICON showed no sign of damage and It was observed a significant reduction in impedance. »

LICON a été testé dans les laboratoires METU. Pendant les essais de courant de foudre 100kA, LICON n'a montré aucun signe de dégât et il a été observé une réduction significative de l'impédance. » LICON fue probado en los laboratorios METU. Durante las pruebas de corriente de rayo 100 kA, LICON no mostró ningún signo de daño y fue una reducción significativa en la impedancia. » LICON был протестирован в лаборатории Мету. Во время испытаний молнии текущего 100kA, LICON не показали никаких признаков повреждения, и это было значительное снижение сопротивления.

LICON Cable Lug





No. 13.01.01.002
Fiziksel Elektrik ve Elektronik Mühendisliği Bölümü
Parasitiz İletken Darbe Akım ve HF Empedans Ölçüm Deneyi

TEST RAPORU

20.06.2015

4. BİNEYLER

4.1. Yıldırım Darbe Akım Testleri

Testlerde kullanılan test ve ölçüm sistemi Şekil.1 de gösterilmiştir.



ŞEKİL.1 Darbe Akım Test ve Ölçüm Sistemi

İletken numunelerine Yıldırım Darbe Generatörü (500kV, 10 kJ) aracılığı ile , ve bir akım dairesine bağlı kullanılan darbe akımı uygulanmıştır. Her numuneye 3 or daha uygulanmış darbe akımından sonra numuneler gözle muayene edilmiş ve herhangi bir hasar veya çatlama meydana gelmediği teyit edilmiştir. Testlerde uygulanan akım darbe şekli , Şekil.2 de - verildiği gibi Standartta given (TSE EN 62561-1, 6.3) yapılan analizde ; numunelerden geçirilen darbe akımı ve uygulanan enerji aşağıdaki şekilde hesaplanmıştır.

İletim = 99.3 kA , İletim = 49.75 kA , $L = 2 \text{ m}$ olduğundan ,
 $W = (49.75 \times 2 \cdot 10^3)^2 \cdot 10^{-7} \cdot 2 \cdot 10^{-2} = 2479J$, ve $WR = 2479kJ/10^3 = 2.479 (MJ/akım)$ olarak belirlenmiştir. Bu değer standartta belirtildiği değere eşittir.



TABLO.1 Empedans Değerleri

Numane	Yapı (Lacrimin aralığı) kYan	İletim (Akım Genliği) kA	Z (Empedans) Ohm
Numane.1 32 mm' Darbe İletken	122.580	15.22	8.054
Numane.2 52 mm' Darbe İletken	126.670	16.06	7.850
Numane.3 LCCON 33 Ekran bir ayağı ile Bir ayağı bağlı	36.520	16.34	2.233

5. SONUÇ

Yapılan ölçüm ve test sonuçlarından tüm numunelerde yıldırım darbe akım testlerinde herhangi bir hasar oluşmadığı görülmüştür. Empedans ölçümlerinde ise , ultra-kısa frekansda iletken empedansının düşük frekanslara oranla oldukça büyük değerler kazandığı ve 3 m'lik numunelerin test ölçüm empedans değeri gösterdiği teyit edilmiştir. FRND – LCCON 33 Tipi iletkenin standart bakur iletkeni oranla önemli bir empedans azalmasına sebep olduğu görülmüştür.

Prof. Dr. Miruhan HUZAL

ODTÜ- Elektrik Elektronik Mühendisliği Bölümü
Tibrikler Gev. Laboratuvarı
ANKARA

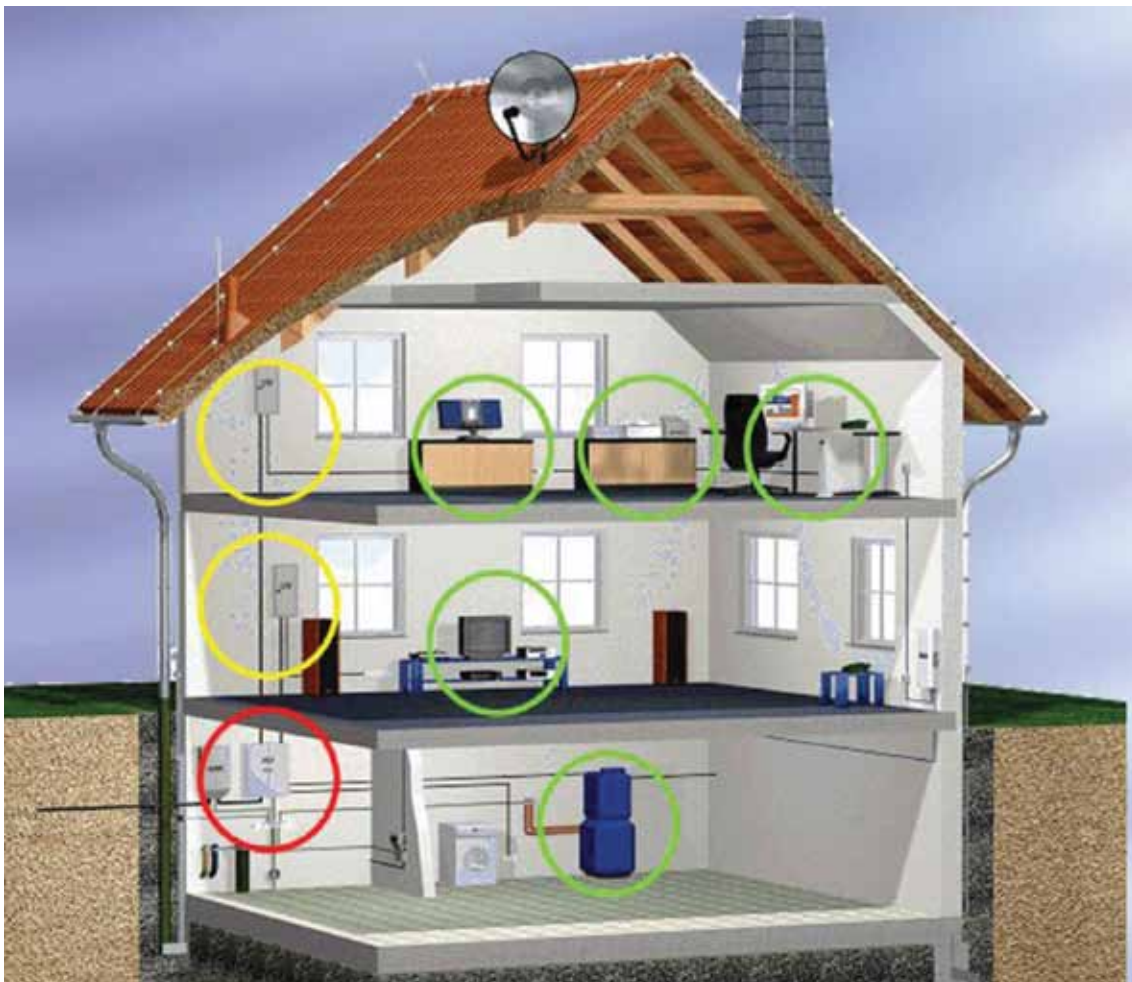


Type I (Class B)

Type II (Class C)

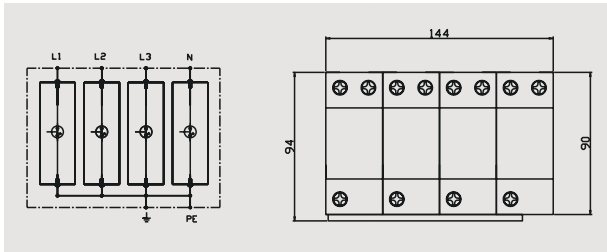
Type III (Class D)

Basic Schema for Installation of SPDs in Buildings
Schéma de base pour l'installation des parafoudres dans les bâtiments
Esquema básico de Instalación de SPS en edificios
Схема установки устройства защиты от перенапряжений в зданиях



Type I (CLASS B) » Type I (CLASSE B) » Tipo I (CLASE B) » ТИП I (КЛАС B)

FB-50GR 3P+FB-100G4 NPE



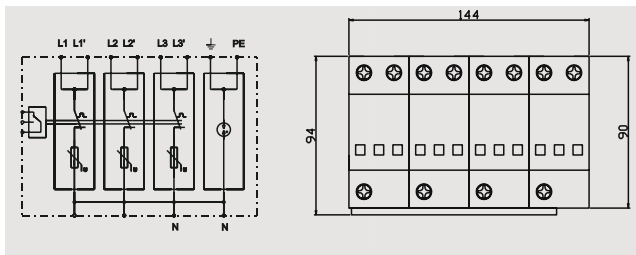
FB-50GR 3P+FB-100G4 NPE is suitable for TT and TN-S system. » FB-50GR 3P+FB-100G4 NPE est convenable pour des systèmes de TT et TN-S. » FB-50GR 3P+FB-100G4 NPE es adecuado para sistemas de TT y TN-S. » подходит для TT и TN-S системы.
 Remote control version is available upon request » la version télécommande est disponible sur demande » Versión de control remoto está disponible bajo petición » Версия дистанционного управления предоставляется по запросу

	FB-50GR 3P	FB-100G4 NPE
SPD classification according to IEC61643-1	Type 1	Type 1
SPD classification according to IEC61643-1	Class I	Class I
Max. continuous operating a.c. voltage U _c	255V	255V
Lightning impulse current (10/350μs) I _{imp}	50kA	100kA
Nominal discharge current (8/20μs) I _n	50kA	50kA
Voltage protection level U _p	≤4.0kV	≤4.0kV
Follow current extinguishing capability a.c. I _{fi}	25kA rms	100kA rms
Max. backup fuse	500A gL	500A gL
Response time t _A	≤100ns	≤100ns
Operating temperature range T _u	-40°C / +80°C	-40°C / +80°C
Cross-section area (Min.)	10mm ²	10mm ²
Cross-section area (Max.)	35mm ²	35mm ²
For mounting on	35mm Din rail	35mm Din rail
Enclosure material	Thermalplastic UL94-V0	Thermalplastic UL94-V0
Degree of protection	IP20	IP20
Order Code	FB-50	FB-50

Type I + II (CLASS B+C) » Type I + II (CLASSE B+C) »

Типо I+II (CLASE B+C) » ТИП I-II (КЛАС B+C)

FBC-25M 3P+FBC-100G1.5+NPE

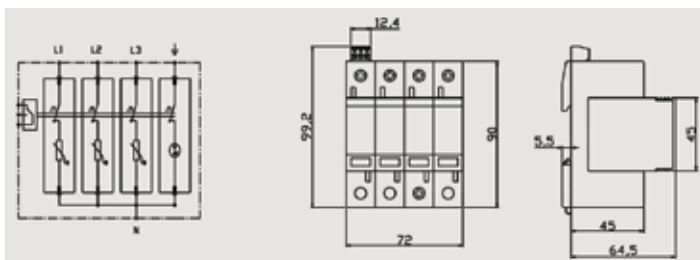


FBC-25M 3P+FBC-100G1.5+NPE is suitable for TT and TN-S system. » FBC-25M 3P+FBC-100G1.5+NPE est convenable pour des systèmes de TT et TN-S. » FBC-25M 3P+FBC-100G1.5+NPE es adecuado para sistemas de TT y TN-S. » подходит для TT и TN-S системы.

Type 3 SPDs must be installed minimum of 5 meters away from this product » Les parafoudres de type 3 doivent être installés à au moins 5 mètres de ce parafoudre. » DPS del Tipo 3 se debe instalar por lo menos 5 metros de este DPS » Введите 3 СОП должен быть установлен минимум 5 метров от этого продукта

	FBC-25M 3P	FBC-100G1.5 NPE
SPD classification according to IEC61643-1	Type 1 Type 2	Type 1
SPD classification according to IEC61643-1	Class I Class II	Class I
Max. continuous operating a.c. voltage Uc	255V	255V
Lightning impulse current (10/350µs) Iimp	25kA	100kA
Nominal discharge current (8/20µs) In	25kA	50kA (NPE)
Voltage protection level Up	≤1.2kV ≤1.5kV	≤1.5kV
Follow current extinguishing capability a.c. Ifi	100A rms (NPE)	100A rms (NPE)
Max. backup fuse	315 A gL	500A gL
Response time tA	≤25ns	≤100ns
Operating temperature range Tu	-40°C / +80°C	-40°C / +80°C
Cross-section area (Min.)	10mm ²	10mm ²
Cross-section area (Max.)	35mm ²	35mm ²
For mounting on	35mm Din rail	35mm Din rail
Enclosure material	Termalplastk UL94-V0	Termalplastk UL94-V0
Degree of protection	IP20	IP20
Order Code	FBC-25	FBC-100
Order Code (With remote signaling)	FBC-25S	FBC-100S

Type II (CLASS C) » Type II (CLASSE C) » Tipo II (CLASE C) » ТИП II (КЛАС C)



FC275-40 3P+FCNPE-40



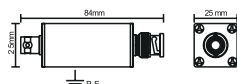
FC275-40 3P+FCNPE-40 is suitable for TT and TN-S system. » FC275-40 3P+FCNPE-40 est convenable pour des systèmes de TT et TN-S. » FC275-40 3P+FCNPE-40 es adecuado para sistemas de TT y TN-S. » подходит для TT и TN-S системы.

Remote control version is available upon request » la version télécommande est disponible sur demande » Versión de control remoto está disponible bajo petición » Версия дистанционного управления предоставляется по запросу

		FC275-40 3P+FCNPE-40
SPD classification according to IEC61643-11		Type 2
SPD classification according to IEC61643-1		Class II
Max. continuous operating a.c. voltage	Uc	275V
Lightning impulse current (10/350µs)	Iimp	20kA
Nominal discharge current (8/20µs)	In	40kA
Voltage protection level	Up	≤1.3kV
Follow current extinguishing capability a.c.	Ifi	≤1kV
Max. backup fuse		125 A gL
Response time	tA	≤25ns
Operating temperature range	Tu	-40°C / +80°C
Cross-section area (Min.)		2.5mm ²
Cross-section area (Max.)		35mm ²
For mounting on		35mm Din rail
Enclosure material		Thermalplastic UL94-V0
Degree of protection		IP20
Order Code		FC275-40 4P
Order Code (With remote signaling)		FC275-40 4PS

Type III (CLASS D) » Type III (CLASSE D)
» Тип III (CLASE D) » ТИП III (КЛАС D)

FBNC-50SG



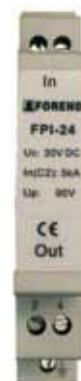
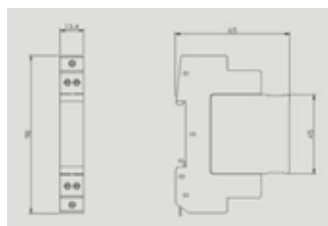
Coaxial Protection » **Protection Coaxial** » Protección para líneas Coaxiales.

» Коаксильное устройство защиты

		FBNC-50SG
Test standards		IEC 61643-21
Nominal voltage	Un	5V
Max. continuous operating d.c. voltage	Uc	6V
Max. continuous operating a.c. voltage	Uc	4V
Nominal current IL		0.5A
C2 Nominal discharge current (8/20 μs) line-shield In		5 kA
C2 Nominal discharge current (8/20 μs) shield/PG] In		10 kA
C2 Nominal discharge current (8/20 μs) line-shield/PG] In		-
Voltage protection level [line-shield]	Up	≤30 V
Voltage protection level [shield-PG]	Up	≤500 V
Voltage protection level [line-shield/PG]	Up	-
Response time [line-shield]	tA	≤1 ns
Response time [shield-PG]	tA	≤100 ns
Response time [line-shield/PG]	tA	-
Operating temperature range	TU	-40°C/+80°C
Connection input/output		BNC socket
Bandwidth		10 Mbps
Insertion Loss		≤0.3 dB
Impedience		50Ω
Enclosure material		aluminium alloy
Degree of protection		IP 40
Order Code		FBNC-50SG

Type III (CLASS D) » Type III (CLASSE D)
 » Тип III (CLASE D) » ТИП III (КЛАС D)

FPI-24



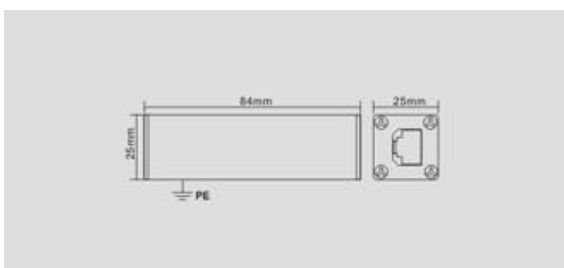
Data Protection » **Protection Data** » Protección para líneas Data.

» Коаксильное устройство защиты

		FPI-24
Test standards		IEC 61643-21
Nominal voltage	Un	24 V
Max. continuous operating d.c.voltage	Uc	29 V
Max. continuous operating a.c.voltage	Uc	20 V
Nominal current		0.5 A
C2 Nominal discharge current (8/20 μs) per line in		5 kA
Voltage protection level (line-line)	Up	≤60 V
Voltage protection level (line-PG)	Up	≤600 V
Response time (line-line)	tA	≤1 ns
Response time (line-PG)	tA	≤100 ns
Operating temperature range	TU	-40 °C ... +80 °C
Connection input/output		Terminal Block
Bandwidth		10 Mbps
Insertion Loss		≤0.3 dB
Enclosure material		aluminium alloy
Degree of protection		IP 40
Order Code		FPI-24

Type III (CLASS D) » Type III (CLASSE D)
» Тiпо III (CLASE D) » ТИП III (КЛАС D)

FRJ45



Data Protection » **Protection Data** » Protección para líneas Data.

» Коаксильное устройство защиты

		FRJ45
Test standards		IEC 61643-21
Nominal voltage	Un	5 V
Max. continuous operating d.c.voltage	Uc	6 V
Max. continuous operating a.c.voltage	Uc	4 V
Nominal current		0.5 A
C2 Nominal discharge current (8/20 μ s) per line in		5 kA
Voltage protection level (line-line)	Up	≤ 30 V
Voltage protection level (line-PG)	Up	≤ 500 V
Response time (line-line)	tA	≤ 1 ns
Response time (line-PG)	tA	≤ 100 ns
Operating temperature range	TU	-40 °C ... +80 °C
Connection input/output		RJ45 socket 4 lines
Bandwidth		30 Mbps
Insertion Loss		≤ 0.3 dB
Enclosure material		aluminium alloy
Degree of protection		IP 40
Order Code		FRJ45

Type II (CLASS C) » Type II (CLASSE C) » Tipo II (CLASE C) » ТИП II (КЛАС С)

Ref No: » Réf. No » Ref. No » Код:	Product » Désignation » Producto » Продукт (mm)	Drawing » Dessin » Diseño » Чертеж
F6094656	Surge Arrestor 120kA (8/20) Parafoudre 120kA (8/20) Protección contra sobretensiones compacto 120kA (8/20) Разрядник 120кА (8/20)	
F6094920	Surge Arrestor 40kA (8/20) Parafoudre 40kA (8/20) Protección contra sobretensiones compacto 40kA (8/20) Разрядник 40кА (8/20)	
F6093380	Surge Arrestor Compact 60kA (8/20) Parafoudre Monobloc 60kA (8/20) Protección contra sobretensiones compacto 60kA (8/20) Разрядник compact 60кА (8/20)	



Type III (CLASS D) » Type III (CLASSE D)
» Tipo III (CLASE D) » ТИП III (КЛАС D)

Ref No: » Réf. No » Ref. No » Код:	Product » Désignation » Producto » Продукт (mm)	Drawing » Dessin » Diseño » Чертеж
F6080274	RS 232 Protection Protection RS 232 » Protección RS 232 Высокочувствительная защита для 25-полюсного разъема RS232	
F6240034	Spark Gap Explosion-proof Eclateur d'Isolament Antidéflagrant » Chispas de separación y protección antiexplosivos » Взрывозащищенный, закрытый разделительный искровой промежуток	
F6240085	Spark Gap Eclateur d'Isolament » Chispas de separación para PAT Закрытый разделительный искровой промежуток	



Type I + II (CLASS B+C) » Type I + II (CLASSE B+C)
 » Tipo I+II (CLASE B+C) » ТИП I+II (КЛАС B+C)


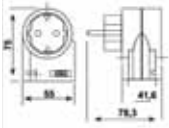



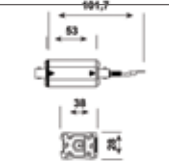

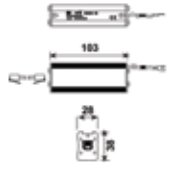



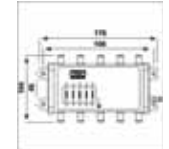

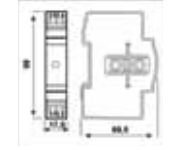
	Ref No: » Réf. No » Ref. No » Код:	Product » Désignation » Producto » Продукт (mm)	Drawing » Dessin » Diseño » Чертеж
	F6089761	Lightning current and Surge Arrester, Protection Set 125kA (10/350) Parafoudre, Ensemble de Protection 125kA (10/350) Descargador de corrientes y protección contra sobretensiones 125kA (10/350) Комбинированный молниеразрядник и разрядник 125kA (10/350)	
	F6093654	Lightning current and Surge Arrester 50kA (10/350) Parafoudre, 50kA (10/350) Descargador de corrientes y protección contra sobretensiones 50kA (10/350) Молниеразрядник и разрядник 50kA (10/350)	
	F6094463	Lightning current and Surge Arrester 25kA (10/350) Parafoudre, 25kA (10/350) Descargador de corrientes y protección contra sobretensiones 25kA (10/350) Молниеразрядник и разрядник 25kA (10/350)	

Type I (CLASS B) » Type I (CLASSE B) » Tipo I (CLASE B) » ТИП I (КЛАС B)

	Ref No: » Réf. No » Ref. No » Код:	Product » Désignation » Producto » Продукт (mm)	Drawing » Dessin » Diseño » Чертеж
	F6096879	Lightning Current and Surge Arrester 150kA (10/350) Parafoudre, 150kA (10/350) Descargador de corrientes y protección contra sobretensiones 150kA (10/350) Молниеразрядник и разрядник 150kA (10/350)	

LIGHTNING PROTECTION & EARTHING SYSTEMS

Type III (CLASS D) » Type III (CLASSE D) » Tipo III (CLASE D) » ТИП III (КЛАС D)

Ref No: » Réf. No » Ref. No » Код:	Product » Désignation » Producto » Продукт (mm)	Drawing » Dessin » Diseño » Чертеж
	F6092800 Single Socket Protection Parasurtenseur en Boîtier Prise » Protección con enchufe simple Устройство защиты для втычной розетки	
	F6092701 Triple Socket Protection Parasurtenseur Multiprise - 3 Entrées » Base Múltipla 3 enchufes Высокочувствительная защита сети/удлинитель с розетками	
	F6082412 Ethernet Network Protection Protection Ethernet » Protección para líneas Ethernet Высокочувствительная защита для сетей	
	F6081939 Telephone Network Protection Protection Téléphone » Protección para líneas analógicas finas Высокочувствительное устройство защиты для телефонных систем	
	F6093996 Coaxial Protection Protection Coaxial » Protección para líneas Coaxiales. Коаксильное устройство защиты	
	F6083400 SAT and Cable TV Protection Protection TV par câble et SAT » Protección para TV por cable y SAT Коаксильное устройство защиты для многопозиционного коммутатора SAT и кабельного	
	F6097650 Data Protection Protection Data » Protección de Data y red Защита msr для 2-полюсного энергоснабжения	

Wall Mounted Metal Enclosures For External Use

Coffrets Muraux Métalliques Pour Usage Externe >> Tablero De Metal Para Fijación A Pared; para Uso Externo >>

Щиты металлические с уплотнением для наружного монтажа

Metal Enclosures >> **Coffrets Métalliques**
>> Tablero En Metal >> Металлические щиты



IP
40

Ref No: >> Réf. No >> Ref. No >> Код:	Dimensions LxHxD (mm) >> Dimensions Dimensiones >> Габаритные размеры	Pack >> Paquet Paquete >> Упаковка
FR 2025	200 x 250 x 135	1
FR 2030	200 x 300 x 135	1
FR 2530	250 x 300 x 150	1
FR 3035	300 x 350 x 150	1
FR 3040	300 x 400 x 150	1
FR 3545	350 x 450 x 150	1
FR 4050	400 x 500 x 175	1
FR 4060	400 x 600 x 175	1
FR 5060	500 x 600 x 175	1
FR 5070	500 x 700 x 200	1
FR 6070	600 x 700 x 200	1
FR 6080	600 x 800 x 200	1
FR 6090	600 x 900 x 200	1
FR 60100	600 x 1000 x 200	1



IP
54

Ref No: >> Réf. No >> Ref. No >> Код:	Dimensions LxHxD (mm) >> Dimensions Dimensiones >> Габаритные размеры	Pack >> Paquet Paquete >> Упаковка
FR 2025E	200 x 250 x 160	1
FR 2030E	200 x 300 x 160	1
FR 2530E	250 x 300 x 160	1
FR 3035E	300 x 350 x 160	1
FR 3040E	300 x 400 x 175	1
FR 3040D	300 x 400 x 225	1
FR 3545E	350 x 450 x 175	1
FR 3545D	350 x 450 x 225	1
FR 4050E	400 x 500 x 175	1
FR 4050D	400 x 500 x 225	1
FR 4060E	400 x 600 x 200	1
FR 4060D	400 x 600 x 250	1
FR 5060E	500 x 600 x 200	1
FR 5060D	500 x 600 x 250	1
FR 5070E	500 x 700 x 200	1
FR 5070D	500 x 700 x 250	1
FR 6070E	600 x 700 x 200	1
FR 6070D	600 x 700 x 250	1
FR 6080E	600 x 800 x 225	1
FR 6080D	600 x 800 x 275	1
FR 6090E	600 x 900 x 225	1
FR 6090D	600 x 900 x 275	1
FR 60100E	600 x 1000 x 225	1
FR 60100D	600 x 1000 x 275	1
FR 70100E	700 x 1000 x 250	1
FR 70100D	700 x 1000 x 300	1
FR 80100E	800 x 1000 x 250	1
FR 80100D	800 x 1000 x 350	1

LIGHTNING PROTECTION & EARTHING SYSTEMS

Junction Boxes - Blank Covers with Cable Gland Boîtiers de Jonction - Couvercles Opaques Avec Entrées Coniques » Cajas De Derivación - Tapa Lisa Con Conos. » Коробки с сальником

Junction Boxes » Boîtiers de Jonction » Cajas De Derivación » Коробки



IP
44

Ref No: » Réf. No » Ref. No » Код:	Dimensions LxHxD (mm) Dimensions » Dimensiones » Размеры	Pack » Paquet Paquete » Упаковка
FR 1036	Ø 70 x 40	60
FR 1037	Ø 85 x 45	40
FR 1038	80 x 80 x 40	40

Junction Boxes » Boîtiers de Jonction » Cajas De Derivación » Коробки



IP
55

Ref No: » Réf. No » Ref. No » Код:	Dimensions LxHxD (mm) Dimensions » Dimensiones » Размеры	Pack » Paquet Paquete » Упаковка
FR 1039	80 x 120 x 50	22
FR 1040	100 x 100 x 50	18
FR 1051	150 x 110 x 70	9
FR 1052	190 x 145 x 80	10
FR 1053	250 x 200 x 90	12
FR 1054	310 x 230 x 130	6

Junction Boxes - Deeper » Boîtiers de Jonction - Profond » Cajas De Derivación - Profundo » Коробки с сальником с глубокой крышкой



IP
55

Ref No: » Réf. No » Ref. No » Код:	Dimensions LxHxD (mm) Dimensions » Dimensiones » Размеры	Pack » Paquet Paquete » Упаковка
FR 1359	80 x 120 x 120	35
FR 1360	100 x 100 x 120	36
FR 1361	150 x 110 x 140	16
FR 1362	190 x 145 x 140	10
FR 1363	250 x 200 x 160	6
FR 1364	310 x 230 x 180	6

Junction Boxes - Blank Covers with Knock Outs

» **Boîtiers de Jonction - Couvertres Opaques Avec Entrées Prédécoupées** »

Cajas De Derivación Tapa Lisa Sin Conos » Коробки с сальником

Junction Boxes » **Boîtiers de Jonction**
» Cajas De Derivación » Коробки



IP
44

Ref No: » Réf. No » Ref. No » Код:	Dimensions LxHxD (mm) Dimensions » Dimensiones » Размеры	Pack » Paquet Paquete » Упаковка
FR 1236	Ø 70 x 40	60
FR 1237	Ø 85 x 45	40
FR 1238	80 x 80 x 40	40

Junction Boxes » **Boîtiers de Jonction**
» Cajas De Derivación » Коробки



IP
55

Ref No: » Réf. No » Ref. No » Код:	Dimensions LxHxD (mm) Dimensions » Dimensiones » Размеры	Pack » Paquet Paquete » Упаковка
FR 1239	80 x 120 x 50	22
FR 1240	100 x 100 x 50	18
FR 1251	150 x 110 x 70	9
FR 1252	190 x 145 x 80	10
FR 1253	250 x 200 x 90	12
FR 1254	310 x 230 x 130	6

Junction Boxes - Deeper » **Boîtiers de Jonction - Profond**

» Cajas De Derivación - Profundo » Коробки с сальником с глубокой крышкой



IP
55

Ref No: » Réf. No » Ref. No » Код:	Dimensions LxHxD (mm) Dimensions » Dimensiones » Размеры	Pack » Paquet Paquete » Упаковка
FR 1259	80 x 120 x 120	35
FR 1260	100 x 100 x 120	36
FR 1261	150 x 110 x 140	16
FR 1262	190 x 145 x 140	10
FR 1263	250 x 200 x 160	6
FR 1264	310 x 230 x 180	6

LIGHTNING PROTECTION & EARTHING SYSTEMS

Junction Boxes - Transparent Covers with Cable Gland

» **Boîtiers de Jonction - Couvertres Transparents Avec Entrées Coniques** » Cajas De Derivación - Tapa Transparente Con Conos. » Коробки с сальником и с прозрачной дверцей

Junction Boxes » **Boîtiers de Jonction** » Cajas De Derivación » Коробки с сальником



IP
55

Ref No: » Réf. No » Ref. No » Код:	Dimensions LxHxD (mm) Dimensions » Dimensiones » Размеры	Pack » Paquet Paquete » Упаковка
FR 1151	150 x 110 x 70	9
FR 1152	190 x 145 x 80	10
FR 1153	250 x 200 x 90	6
FR 1154	310 x 230 x 130	6

Junction Boxes » **Boîtiers de Jonction** » Cajas De Derivación » Коробки с сальником



IP
55

Ref No: » Réf. No » Ref. No » Код:	Dimensions LxHxD (mm) Dimensions » Dimensiones » Размеры	Pack » Paquet Paquete » Упаковка
FR 1461	150 x 110 x 140	16
FR 1462	190 x 145 x 140	10
FR 1463	250 x 200 x 160	6
FR 1464	310 x 230 x 180	6

Junction Boxes - Transparent Covers with Knock Outs

» **Boîtiers de Jonction - Couvertres Transparents Avec Entrées Prédécoupées** » Cajas De Derivación Tapa Transparente Sin Conos » Коробки подготовлены для уплотнителей кабельных вводов

Junction Boxes » **Boîtiers de Jonction** » Cajas De Derivación » Коробки с сальником



IP
55

Ref No: » Réf. No » Ref. No » Код:	Dimensions LxHxD (mm) Dimensions » Dimensiones » Размеры	Pack » Paquet Paquete » Упаковка
FR 1451	150 x 110 x 70	9
FR 1452	190 x 145 x 80	10
FR 1453	250 x 200 x 90	12
FR 1454	310 x 230 x 130	6



Ref No: » Réf. No » Ref. No » Код:	Dimensions LxHxD (mm) Dimensions » Dimensiones » Размеры	Pack » Paquet Paquete » Упаковка
FR 1471	150 x 110 x 140	16
FR 1472	190 x 145 x 140	10
FR 1473	250 x 200 x 160	6
FR 1474	310 x 230 x 180	6

Watertight Boards

>> **Coffrets Etanches** >> Gabinetes Watertight >> Щиты из абс

Transparent Door >> **Porte Transparente**
>> Puerta Transparente >> С прозрачной дверцей



Ref No: >> Réf. No >> Ref. No >> Код:	Dimensions LxHxD (mm) Dimensions >> Dimensiones >> Размеры	Pack >> Paquet Paquete >> Упаковка
FR 5011	210 x 280 x 130	1
FR 5012	250 x 330 x 130	1
FR 5013	300 x 400 x 165	1
FR 5013D	300 x 400 x 195	1
FR 5014	400 x 500 x 175	1
FR 5015	400 x 600 x 200	1
FR 5017	350 x 500 x 195	1

Watertight Boards

>> **Coffrets Etanches** >> Gabinetes Watertight >> Щиты из абс

Blank Door >> **Porte Pleine**
>> Puerta Con Tapa Lisa >> С белой дверцей



Ref No: >> Réf. No >> Ref. No >> Код:	Dimensions LxHxD (mm) Dimensions >> Dimensiones >> Размеры	Pack >> Paquet Paquete >> Упаковка
FR 5001	210 x 280 x 130	1
FR 5002	250 x 330 x 130	1
FR 5003	300 x 400 x 165	1
FR 5003D	300 x 400 x 195	1
FR 5004	400 x 500 x 175	1
FR 5005	400 x 600 x 200	1
FR 5007	350 x 500 x 195	1

LIGHTNING PROTECTION & EARTHING SYSTEMS

Polyester Boards >>

Coffrets Polyesters >> Cajas En Poliester >> Полиэстерные щиты

Blank Door >> **Porte Pleine >>**
Puerta Plana >> С белой дверцей



IP
65

Ref No: >> Réf. No >> Ref. No >> Код:	Dimensions LxHxD (mm) Dimensions >> Dimensiones >> Размеры	Pack >> Paquet Paquete >> Упаковка
FR 501	300 x 200 x 150	1
FR 503	250 x 300 x 155	1
FR 504	300 x 400 x 180	1
FR 505	400 x 500 x 190	1
FR 506	400 x 600 x 200	1
FR 507	500 x 800 x 255	1
FR 508	500 x 800 x 285	1
FR 511	750 x 1000 x 300	1

Polyester Distribution Boards >> **Coffrets Polyesters de Distribution** >> Cajas De Distribución En Poliester >> Полиэстерные распределительные щиты



IP
65

Ref No: >> Réf. No >> Ref. No >> Код:	Dimensions LxHxD (mm) Dimensions >> Dimensiones >> Размеры	DIN Modules >> Modules DIN >> Modulo DIN >> DIN Модули	Pack >> Paquet Paquete >> Упаковка
FR 530	300 x 400 x 180	10 M	1
FR 531	400 x 500 x 190	30 M (2x15)	1
FR 532	400 x 600 x 200	45 M (3x15)	1
FR 533	500 x 800 x 285	60 M (4x15)	1
FR 534*	400 x 600 x 200		1

* Triphase meter boards for construction site >> Coffrets compteur triphasés pour les sites de construction >> Cuadro para contador trifásico para sitio de construcción >> Щиты трехфазных счетчиков для стройплощадок

Distribution Boards » Coffrets de Distribution

» Cuadros De Distribución » Распределительные щиты

Surface Mounting » Montage en Surface

» Montaje En Tapa » Навесные щиты



IP
40

Ref No: » Réf. No » Ref. No » Код:	Dimensions LxHxD (mm) Dimensions » Dimensiones » Размеры	DIN Modules » Modules DIN » Modulo DIN » DIN Модули	Pack » Paquet Paquete » Упаковка
FRU 905	150 x 180 x 100	5 M	24
FRU 908	200 x 180 x 100	8 M	24
FRU 912	310 x 190 x 100	12 M	12
FRU 924	310 x 380 x 100	24 M	12
FRU 945	330 x 465 x 100	45 M	10

Flush Mounting » Encastrement

» Cajas Empotrables » Встраиваемые



IP
40

Ref No: » Réf. No » Ref. No » Код:	Dimensions LxHxD (mm) Dimensions » Dimensiones » Размеры	DIN Modules » Modules DIN » Modulo DIN » DIN Модули	Pack » Paquet Paquete » Упаковка
FRA 905	150 x 140 x 60	5 M	24
FRA 908	210 x 170 x 90	8 M	24
FRA 912	290 x 170 x 90	12 M	12
FRA 924	310 x 350 x 90	24 M	12

Flush Mounting » Encastrement

» Cajas Empotrable » Встраиваемые



IP
40

Ref No: » Réf. No » Ref. No » Код:	Dimensions LxHxD (mm) Dimensions » Dimensiones » Размеры	DIN Modules » Modules DIN » Modulo DIN » DIN Модули	Pack » Paquet Paquete » Упаковка
FRA 936	310 x 480 x 90	36 M	10

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Registration Schedule

SCOPE OF REGISTRATION

Yıldırımdan Korunma ve Topraklama Sistemleri, Ekzotermik Kaynak Sistemleri, Elektrik Pano ve Mahfazaları Tasarımı, Üretimi ve Satışı
Design, Manufacturing and Sales of Lightning Protection, Earthing Systems, Exothermic Welding Systems and Electrical Boards & Enclosures

Company Name: **FOREND ELEKTRİK MALZEMELERİ VE DIŞ TİCARET A.Ş.**

Sites Registered: Merkez: 19 Mayıs Mahallesi, Büyükdere Caddesi, Basman Han, No:4, Kat:4, Daire:4 Şişli /İstanbul/Türkiye
FABRİKA: Metal İş Sanayi Sitesi, 20. Blok, No:9-11 Kat:1 İkitelli Başakşehir /İstanbul/Türkiye

Standard: **ISO 9001:2008**

EAC: 19

Date of Registration: 17/12/2012

Expiry Date: 13/12/2015

Certificate Number: AJA12/16481

Revision Date: 06/02/2014




Chief Executive - AJA Registrars Ltd



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This certificate has been issued by AJA Registrars Ltd Unit 6 Gordano Court Gordano Gate Business Park Serbert Close Portishead Bristol UK BS20 7FS



Certificate of Registration

This is to certify that

Environmental Management System

of

FOREND ELEKTRİK MALZEMELERİ VE DIŞ TİCARET A.Ş.

*Correspondence Address: MERKEZ MAHALLESİ HALASKARGAZI CADDESİ ŞİŞLİ
SARAYI APT. NO:141 K:4 D:7 OSMANBEY ŞİŞLİ - İSTANBUL / TÜRKİYE.
Site Address: İKİTELLİ ORGANİZE SANAYİ BÖLGESİ METAL İŞ SANAYİ SİTESİ 20.
BLOK NO:9-11 KAT:1 BAŞAKŞEHİR İKİTELLİ - İSTANBUL / TÜRKİYE.

complies with the requirements of

ISO 14001:2004


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EXOTHERMIC WELDING SYSTEMS, ELECTRICAL BOARDS AND ENCLOSURES.

YILDIRIMDAN KORUNMA VE TOPRAKLAMA SİSTEMLERİ, EKZOTERMİK KAYNAK
SİSTEMLERİ ELEKTRİK PANO VE MAHAZALARI TASARIMI, ÜRETİMİ VE SATIŞI.

ANZSIC Code: 2859

*The Correspondence Address is not Audited and Not
Included in the Scope of Registration.

E1864 Certificate No.	June 25, 2015 Date of this Certificate	June 24, 2016 Certificate Expiry Date
June 25, 2015 Date of Initial Registration	June 24, 2018 *Recertification Due Date	 Managing Director/Director



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www.jas-anz.com.au/register

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Version 1.07



Certificate of Registration

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Site Address: İKİTELLİ ORGANİZE SANAYİ BÖLGESİ METAL İŞ SANAYİ SİTESİ 20. BLOK NO:9-11 KAT:1 BAŞAKŞEHİR İKİTELLİ - İSTANBUL / TÜRKİYE.

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YILDIRIMDAN KORUNMA VE TOPRAKLAMA SİSTEMLERİ, EKZOTERMİK KAYNAK SİSTEMLERİ ELEKTRİK PANO VE MAHAZALARI TASARIMI, ÜRETİMİ VE SATIŞI.

ANZSIC Code: 2859

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O-0595	June 25, 2015	June 24, 2016
Certificate No.	Date of this Certificate	Certificate Expiry Date
June 25, 2015	June 24, 2018	
Date of Initial Registration	*Recertification Due Date	Managing Director/Director



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SARAYI APT. NO:141 K:4 D:7 OSMANBEY ŞİŞLİ - İSTANBUL / TÜRKİYE.
Site Address: İKİTELLİ ORGANİZE SANAYİ BÖLGESİ METAL İŞ SANAYİ SİTESİ 20.
BLOK NO:9-11 KAT:1 BAŞAKŞEHİR İKİTELLİ - İSTANBUL / TÜRKİYE.

complies with the requirements of
ISO 27001:2013


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DESIGN, MANUFACTURING AND SALES OF LIGHTNING PROTECTION AND EARTHING SYSTEMS,
EXOTHERMIC WELDING SYSTEMS, ELECTRICAL BOARDS AND ENCLOSURES.

YILDIRIMDAN KORUNMA VE TOPRAKLAMA SİSTEMLERİ, EKZOTERMİK KAYNAK SİSTEMLERİ
ELEKTRİK PANO VE MAHFAZALARI TASARIMI, ÜRETİMİ VE SATIŞI.

SOA DETAILS: SOA - Version R.0/17.08.2014

*The Correspondence Address is not Audited and Not
Included in the Scope of Registration.

I-1299	June 25, 2015	June 24, 2016
Certificate No.	Date of this Certificate	Certificate Expiry Date
June 25, 2015	June 24, 2018	
Date of Initial Registration	*Recertification Due Date	Managing Director/Director



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ELEKTRİK VE ELEKTRONİK MÜHÜRLEME BÖLÜMÜ
HİBİRLİ EAST TECHNICAL UNIVERSITY
ELECTRICAL AND ELECTRONICS ENGINEERING DEPT.

No: 06-02-030
Forend Elektrik Malz. ve Dış Tic. A.Ş.
Konya - Yalova Arası Test

TEST RAPORU

12.04.2008

1. GENEL

Deney İstemi Kayıt No : Forend Elektrik Malz. ve Dış Tic. A.Ş.
19 Mayıs Mah. Büyükdere C.E. No: 4
Basman Han Kat: 4 Daire: 4 Şişli / İstanbul - TÜRKİYE

Deney Deney Türü : Yalova Sayısı Testi

Deney Tarihi : 06.04.2008

Deneyin Yapıldığı Yeri : ODTÜ Elektrik-Elektronik Mühürleme
Bölümü, Yalova Ölçüm Laboratuvarı

Deneyin Ortam Şartları : 15 °C, 40% nemliyg., %10 iletken Nem (Test Öncesi ve sonrasında
Bu değerlerde nemliyg. bir değişiklik olmadıgı gözlemlenmiştir.)

Test edilen Cihaz / Malzeme : Forend Marka Yalova Sayısı

Model : Forend Serisi FVS (T-1) , İmalat Yılı : 2008
Boyutlar : 110 x 70 x 30 mm

3. TEKİN YAPILAR

Testler, gerektiren bakımlardan sonrası sonra başlanan numune gıstergelemleri uygulanır ve
alancaya kadar olan her defa gısterme için sıvıya bir kısımlı sıvıya olmalıdır
gısterilmelidir.

4. SONUÇ

Yapılan deneylerde numune Yalova Sayısına uygulanır ve dışarıya kadar olan her defa
gısterme için sıvıya olmalıdır gısterilmelidir test numunesi olmalıdır olmalıdır
Kısımlı sıvıya olmalıdır gısterilmelidir.

Prof. Dr. Miralhan HEZAL

ODTÜ Elektrik-Elektronik
Mühürleme Bölümü
Yalova Ölç. Laboratuvarı,
ANKARA



TÜRK STANDARDLARI ENSTİTÜSÜ
TÜRK STANDARDLARINA UYGUNLUK BELGESİ
TURKISH STANDARDS INSTITUTION
CERTIFICATE OF CONFORMITY TO TURKISH STANDARDS

Markanın Tanımı Description of the Mark

TSE veya/ör  veya/ör T S E

BELGE NUMARASI REFERENCE NUMBER OF LICENCE	14.0.30.4.34.00/TSE-66325
BELGENİN İLK VERİLİŞ TARİHİ DATE OF FIRST ISSUE OF LICENCE	25.09.2003
BELGENİN SON GEÇERLİLİK TARİHİ LICENCE VALID UNTIL	12.11.2015
BELGE SAHİBİ KURULUŞUN ADI NAME OF THE LICENCE HOLDER	FOREND ELEKTRİK MALZEMELERİ VE DIŞ TİCARET ANONİM ŞİRKETİ
BELGE SAHİBİ KURULUŞUN ADRESİ ADDRESS OF THE LICENCE HOLDER	19 MAYIS MAH. BÜYÜKDERE CAD. NO:4 BASMAN HAN NO:4 KAT.4 ŞİŞLİ İSTANBUL/TÜRKİYE
ÜRETİM YERİ ADI NAME OF THE MANUFACTURING PLACE	FOREND ELEKTRİK MALZ. VE DIŞ TİC. A.Ş.
ÜRETİM YERİ ADRESİ ADDRESS OF THE MANUFACTURING PLACE	İkileli Org.San.Böl.Metal İş san.Sitesi 20.Blok No:9-11 BAŞAKŞEHİR İSTANBUL/TÜRKİYE
İPTAL EDİLEN BELGE NUMARASI (Varsa) INDICATION OF SUPERSEDED LICENCE (if any)	14.31.34/TSE-6855
TESCİLLİ TİCARİ MARKASI REGISTERED TRADE MARK	FOREND
İLGİLİ TÜRK STANDARDI RELATED TURKISH STANDARD	TS 12123 / Bağlayıcılar-Güç Kabloları ve Hava Hatlarında Kullanılan / 07.01.1997
BELGE KAPSAMI SCOPE OF LICENCE	

TS 12123/OCAK 1997 "BAĞLAYICILAR-GÜÇ KABLOLARI VE HAVA HATLARINDA KULLANILAN"
-SİKİŞTİRMALİ BAĞLAYICILAR (KABLO PABUÇLARI) TIP-1, TIP-2,TIP-3-6mm2 (DAHİL)DEN 300mm2 (DAHİL)YE KADAR




ZERRİN ÖZATAY

TSE İSTANBUL BELGELENDİRME
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KRİTERE UYGUNLUK BELGESİ
TURKISH STANDARDS INSTITUTION
CERTIFICATE OF CONFORMANCE TO CRITERIA

Markanın Tanımı	Description of the Mark
	TSEK veya / or Т-О-Ш-Э
BELGE NUMARASI <i>REFERENCE NUMBER OF LICENCE</i>	14.0.30.4.34.00/TSEK-64050
BELGENİN İLK VERİLİŞ TARİHİ <i>DATE OF FIRST ISSUE OF LICENCE</i>	15.06.2006
BELGENİN SON GEÇERLİLİK TARİHİ <i>LICENCE VALID UNTIL</i>	12.11.2015
BELGE SAHİBİ KURULUŞUN ADI <i>NAME OF THE LICENCE HOLDER</i>	FOREND ELEKTRİK MALZEMELERİ VE DIŞ TİCARET ANONİM ŞİRKETİ
BELGE SAHİBİ KURULUŞUN ADRESİ <i>ADDRESS OF THE LICENCE HOLDER</i>	19 MAYIS MAH. BÜYÜKDERE CAD. NO:4 BASMAN HAN NO:4 KAT:4 ŞİŞLİ İSTANBUL
ÜRETİM YERİ ADI <i>NAME OF THE MANUFACTURING PLACE</i>	FOREND ELEKTRİK MALZ. VE DIŞ TIC. A.Ş.
ÜRETİM YERİ ADRESİ <i>ADDRESS OF THE MANUFACTURING PLACE</i>	İkitelili Org.San.Böl.Metal İş san.Sitesi 20.Blok No:9-11 BAŞAKŞEHİR İSTANBUL
TESCİLLİ TİCARİ MARKASI <i>REGISTERED TRADE MARK</i>	FOREND
İLGİLİ BELGELENDİRME KRİTERİ <i>RELATED TURKISH STANDARD</i>	ÜBM-00-BK-000 / Kriteri Seçilmemiş Sözleşmeler için / 24.08.2010
BELGE KAPSAMI <i>SCOPE OF LICENCE</i>	TERMO KAYNAK POTASI VE AKSESUARLARI – İLETKENLERİN BİRLEŞTİRİLMESİNDE KULLANILAN – TAŞINABİLİR <ul style="list-style-type: none"> • YUVARLAK İLETKENLER KESİTİ 10 mm² (DAHİL)'DEN - 240 mm² (DAHİL)'E KADAR • LAMA İLETKENLER KESİTİ 2*20 mm (DAHİL)'DEN – 5*50 mm (DAHİL)'E KADAR



12/11.2014


ZERRİN ÖZATAY
TSE İSTANBUL BELGELENDİRME
MÜDÜRÜ V.

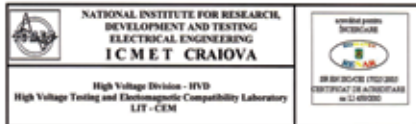
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*Bu belge ile hak kazanan TSEK Markası, görün TSE tarafından belirlenen kriterlere uygunluğunu ve bu uygunluğun belgelemediğini ifade eder.

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Phone: + 40 0231 402425, 404888, Fax: + 40 0231 404890
www.icmet.ro, e-mail: mark@icmet.ro



TEST REPORT
No. 44316 / 04.08.2014

- CUSTOMER:** FOREND Elektrik Malz. Ve Dis Tic. A.S.
Address: Hahabergazi cad. No. 141 K: 4/7 Osmangazi - Sisl - Istanbul TURKEY
- MANUFACTURER:** FOREND Elektrik Malz. Ve Dis Tic. A.S.
Address: Hahabergazi cad. No. 141 K: 4/7 Osmangazi - Sisl - Istanbul TURKEY
- TESTED PRODUCT:** Early Streamer Emission Lightning Conductor (E.S.E.L.C.) type FOREND EU
Serial no.: prototy p0
- REFERENCE STANDARD:** NFC 17-102 : 2011 Annex C; UNE 21186 : 2011, Annex C
- TEST PERFORMED:** Early streamer emission tests
- TEST DATE:** 01.08.2014
- TEST RESULTS:** There are presented the determined results.
- The report contains:** 14 pages
- The test report is edited in 4 copies, copy no.1 remains in laboratory and copies 2,3 and 4 are sent to the customer.**

HEAD OF HV DIVISION
Eng. MIHAI George

HEAD OF LABORATORY
Eng. BADEA Ion

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Code F-01.08.03/04



TEST REPORT No. 44316

page 7 / 14

9. TEST ON E.S.E.L.C. type: FOREND EU

- 9.1. Reception date:** 20.06.2014
- 9.2. Test date:** 01.08.2014
- 9.3. Atmospheric conditions**

BEFORE TEST	p = 999 mb t = 23,4 °C sr = 59,9 %
MIDDLE OF THE TEST	p = 999 mb t = 23,4 °C sr = 59,7 %
END OF THE TEST	p = 999 mb t = 23,5 °C sr = 59,7 %

- 9.4. Results**
See tables on page 9

Number of significant impulses: 50

The average value of significant break-down times ($T_{50\%}$) calculated from the experimental results is $T_{50\%} = 127,25 \mu s$ with a standard deviation $\sigma_{T_{50\%}} = 10,12 \mu s$.
By transferring $T_{50\%}$ on the reference waveform it was obtained $T_{50\%} = 150,34 \mu s$

Measuring uncertainty for IT is 3,7 %
The uncertainty stated is expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor $k = 2$. The value of measured lies within the assigned range of values with probability of 95 %.

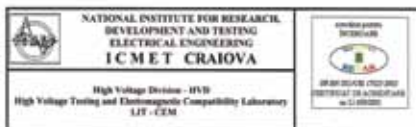
Triggering advance: $\Delta T = T_{50\%} - T_{50\%} = 214,83 - 150,34 = 64,49 \mu s \pm 3,68 \mu s$

The tested lightning conductor is an E.S.E.A.T. (early streamer emission air terminal) because it fills the following conditions (according to NFC 17-102 / 2011, Annex C, clause C.3.3.2.5):

- $T_{50\%} = T_{50\%}$ ($127,25 < 170,92$);
- $\sigma_{T_{50\%}} < 0,8 \cdot T_{50\%}$ ($10,12 < 0,8 \cdot 127,25$);
- $T_{50\%} - T_{50\%} > 10 \mu s$.

See curves on page 10

Code F-01.08.03/04



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High Voltage Testing and Electromagnetic Compatibility Laboratory LIT - CEM

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Phone: + 40 0231 402425, 404888, Fax: + 40 0231 404890
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TEST REPORT
No. 44316 / 04.08.2014

- CUSTOMER:** FOREND Elektrik Malz. Ve Dis Tic. A.S.
Address: Hahabergazi cad. No. 141 K: 4/7 Osmangazi - Sisl - Istanbul TURKEY
- MANUFACTURER:** FOREND Elektrik Malz. Ve Dis Tic. A.S.
Address: Hahabergazi cad. No. 141 K: 4/7 Osmangazi - Sisl - Istanbul TURKEY
- TESTED PRODUCT:** Early Streamer Emission Lightning Conductor (E.S.E.L.C.) type FOREND EU
Serial no.: prototy p0
- REFERENCE STANDARD:** NFC 17-102 : 2011 Annex C; UNE 21186 : 2011, Annex C
- TEST PERFORMED:** Early streamer emission tests
- TEST DATE:** 01.08.2014
- TEST RESULTS:** There are presented the determined results.
- The report contains:** 14 pages
- The test report is edited in 4 copies, copy no.1 remains in laboratory and copies 2,3 and 4 are sent to the customer.**

HEAD OF HV DIVISION
Eng. MIHAI George

HEAD OF LABORATORY
Eng. BADEA Ion

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Code F-01.08.03/04



TEST REPORT No. 44316

page 7 / 14

9. TEST ON E.S.E.L.C. type: FOREND EU

- 9.1. Reception date:** 20.06.2014
- 9.2. Test date:** 01.08.2014
- 9.3. Atmospheric conditions**

BEFORE TEST	p = 999 mb t = 23,4 °C sr = 59,9 %
MIDDLE OF THE TEST	p = 999 mb t = 23,4 °C sr = 59,7 %
END OF THE TEST	p = 999 mb t = 23,5 °C sr = 59,7 %

- 9.4. Results**
See tables on page 9

Number of significant impulses: 50

The average value of significant break-down times ($T_{50\%}$) calculated from the experimental results is $T_{50\%} = 127,25 \mu s$ with a standard deviation $\sigma_{T_{50\%}} = 10,12 \mu s$.
By transferring $T_{50\%}$ on the reference waveform it was obtained $T_{50\%} = 150,34 \mu s$

Measuring uncertainty for IT is 3,7 %
The uncertainty stated is expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor $k = 2$. The value of measured lies within the assigned range of values with probability of 95 %.

Triggering advance: $\Delta T = T_{50\%} - T_{50\%} = 214,83 - 150,34 = 64,49 \mu s \pm 3,68 \mu s$

The tested lightning conductor is an E.S.E.A.T. (early streamer emission air terminal) because it fills the following conditions (according to NFC 17-102 / 2011, Annex C, clause C.3.3.2.5):


- $T_{50\%} = T_{50\%}$ ($127,25 < 170,92$);
- $\sigma_{T_{50\%}} < 0,8 \cdot T_{50\%}$ ($10,12 < 0,8 \cdot 127,25$);
- $T_{50\%} - T_{50\%} > 10 \mu s$.

See curves on page 10

Code F-01.08.03/04


Reports and certificates

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**NATIONAL INSTITUTE FOR RESEARCH,
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I C M E T C R A I O V A**

High Voltage Division - IVD
High Voltage Testing and Electromagnetic Compatibility Laboratory
LIT - CEM



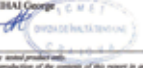
SR EN ISO 9001:2008
CERTIFICAT DE ABONAMENT
nr. 21/02/2009

Bvd. Doinașilor No.118A, 200740 Craiova, ROMANIA
Phone: + 40 0351 402425, 404888; Fax: + 40 0351 404890
www.icmet.ro, e-mail: market@icmet.ro


**TEST REPORT
No. 44305 / 14.07.2014**

1. CUSTOMER: FOREND Elektrik Malz. Ve Dis Tic. A.S.
Address: Halaskargazi cad. No. 141 K; 47 Osmangazi - Sidi - Istanbul TURKEY
2. MANUFACTURER: FOREND Elektrik Malz. Ve Dis Tic. A.S.
Address: Halaskargazi cad. No. 141 K; 47 Osmangazi - Sidi - Istanbul TURKEY
3. TESTED PRODUCT: Early Streamer Emission Lightning Conductor (E.S.E.L.C.) type
FOREND EU-M
Serial no.: prototype
4. REFERENCE STANDARD: NFC 17-102 / 2011 Annex C; UNE 21186 : 2011, Annex C
5. TEST PERFORMED: Early streamer emission tests
6. TEST DATE: 11.07.2014
7. TEST RESULTS: There are presented the determined results.
8. The report contains: 14 pages
9. The test report is edited in 4 copies, copy no.1 remain in laboratory and copies 2, 3 and 4 are sent to the customer.

HEAD OF HV DIVISION
Eng. MIHAI George



HEAD OF LABORATORY
Eng. RADEA Ion



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TEST REPORT No. 44305

IVD

page 7 / 14

9. TEST ON E.S.E.L.C. type: FOREND EU-M

- 9.1. Reception date: 20.06.2014
- 9.2. Test date: 10.07.2014
- 9.3. Atmospheric conditions


BEFORE TEST	p = 1002 mb t = 22 °C hr = 60.6 %
MIDDLE OF THE TEST	p = 1002 mb t = 22 °C hr = 60 %
END OF THE TEST	p = 1002 mb t = 22.3 °C hr = 60 %

- 9.4. Results See tables on page 9

Number of significant impulses: 30
The average value of significant break-down times (T₅₀) calculated from the experimental results is T_{50EXP} = 130.13 μs with a standard deviation σ_{T50EXP} = 8.21 %.
By transferring T_{50EXP} on the reference waveform it was obtained T_{50REF} = 158.73 μs
See curves on page 10

Measuring uncertainty for ΔT is 3.7 %
The uncertainty stated is expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor k = 2. The value of measured lies within the assigned range of values with probability of 95 %
Triggering advance: ΔT = T_{50REF} - T_{50EXP} = 211.21 - 130.13 = 81.08 μs ± 3.11 μs
The tested lightning conductor is an E.S.E.A.T. early streamer emission air terminal because it fulfils the following conditions (according to NFC 17-102 / 2011, Annex C, clause C.3.3.2.2):
- T_{50EXP} < T_{50REF} (130.13 < 171.03);
- σ_{T50EXP} < 0.8 σ_{T50REF} (8.21 < 0.8 · 18.36);
- T_{50EXP} - T_{50REF} > 10 μs.

Code F-01.09.0140



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nr. 21/02/2009

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www.icmet.ro, e-mail: market@icmet.ro

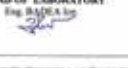
**TEST REPORT
No. 44307 / 19.07.2014**

1. CUSTOMER: FOREND Elektrik Malz. Ve Dis Tic. A.S.
Address: Halaskargazi cad. No. 141 K; 47 Osmangazi - Sidi - Istanbul TURKEY
2. MANUFACTURER: FOREND Elektrik Malz. Ve Dis Tic. A.S.
Address: Halaskargazi cad. No. 141 K; 47 Osmangazi - Sidi - Istanbul TURKEY
3. TESTED PRODUCT: Early Streamer Emission Lightning Conductor (E.S.E.L.C.) type
FOREND PETEX-S
Serial no.: prototype
4. REFERENCE STANDARD: NFC 17-102 / 2011 Annex C; UNE 21186 : 2011, Annex C
5. TEST PERFORMED: Early streamer emission tests
6. TEST DATE: 18.07.2014
7. TEST RESULTS: There are presented the determined results.
8. The report contains: 14 pages
9. The test report is edited in 4 copies, copy no.1 remain in laboratory and copies 2, 3 and 4 are sent to the customer.

HEAD OF HV DIVISION
Eng. MIHAI George



HEAD OF LABORATORY
Eng. RADEA Ion



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TEST REPORT No. 44307

IVD

page 7 / 14

9. TEST ON E.S.E.L.C. type: FOREND PETEX-S

- 9.1. Reception date: 20.06.2014
- 9.2. Test date: 18.07.2014
- 9.3. Atmospheric conditions

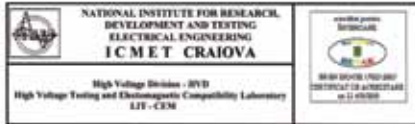
BEFORE TEST	p = 1001 mb t = 22 °C hr = 61 %
MIDDLE OF THE TEST	p = 1001 mb t = 22.3 °C hr = 62.8 %
END OF THE TEST	p = 1001 mb t = 22.3 °C hr = 62.8 %

- 9.4. Results See tables on page 9

Number of significant impulses: 30
The average value of significant break-down times (T₅₀) calculated from the experimental results is T_{50EXP} = 142.87 μs with a standard deviation σ_{T50EXP} = 11.27 %.
By transferring T_{50EXP} on the reference waveform it was obtained T_{50REF} = 171.33 μs
See curves on page 10

Measuring uncertainty for ΔT is 3.7 %
The uncertainty stated is expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor k = 2. The value of measured lies within the assigned range of values with probability of 95 %
Triggering advance: ΔT = T_{50REF} - T_{50EXP} = 206.70 - 142.87 = 63.83 μs ± 2.38 μs
The tested lightning conductor is an E.S.E.A.T. early streamer emission air terminal because it fulfils the following conditions (according to NFC 17-102 / 2011, Annex C, clause C.3.3.2.2):
- T_{50EXP} < T_{50REF} (142.87 < 189.84);
- σ_{T50EXP} < 0.8 σ_{T50REF} (11.27 < 0.8 · 16.87);
- T_{50EXP} - T_{50REF} > 10 μs.

Code F-01.09.0140



NATIONAL INSTITUTE FOR RESEARCH, DEVELOPMENT AND TESTING ELECTRICAL ENGINEERING ICMET CRAIOVA



High Voltage Testing and Electromagnetic Compatibility Laboratory LIT - CEM
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Phone: + 40 0351 462423, 468888; Fax: + 40 0351 464890
www.icmet.ro, e-mail: market@icmet.ro

TEST REPORT
No. 44313 / 28.07.2014

- CUSTOMER:** FOREND Elektrik Malz. Ve Dis Tic. A.S.
Address: Hahaburgasi cad. No. 141 K; 4/7 Osmangazi - Skil - Istanbul TURKEY
- MANUFACTURER:** FOREND Elektrik Malz. Ve Dis Tic. A.S.
Address: Hahaburgasi cad. No. 141 K; 4/7 Osmangazi - Skil - Istanbul TURKEY
- TESTED PRODUCT:** Early Streamer Emission Lightning Conductor (E.S.E.L.C.) type FOREND PETEX-34
Serial no.: prototype
- REFERENCE STANDARDS:** NFC 17-02 : 2011 Annex C; UNE 21186 : 2011, Annex C
- TEST PERFORMED:** Early streamer emission tests
- TEST DATE:** 23.07.2014
- TEST RESULTS:** These are presented in the determined results.
- The report contains: 14 pages
- The test report is edited in 4 copies, copy no.1 remains in laboratory and copies 2, 3 and 4 are sent to the customer.

HEAD OF HV DIVISION
Eng. MIHAJ GONGI

HEAD OF LABORATORY
Eng. RADEA IAN

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- All signatures and stamps represent original ones.

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Code F-01-09-0100



TEST REPORT No. 44313

page 7 / 14

9. TEST ON E.S.E.L.C. type: FOREND PETEX-M

9.1. Reception date: 20.06.2014

9.2. Test date: 25.07.2014

9.3. Atmospheric conditions

BEFORE TEST	$p = 1000 \text{ mb}$ $t = 23.3 \text{ }^\circ\text{C}$ $rh = 56.5 \%$
MIDDLE OF THE TEST	$p = 1000 \text{ mb}$ $t = 23.3 \text{ }^\circ\text{C}$ $rh = 56.3 \%$
END OF THE TEST	$p = 1000 \text{ mb}$ $t = 23.8 \text{ }^\circ\text{C}$ $rh = 56.3 \%$

9.4. Results

See tables on page 9

Number of significant impulses: 10

The average value of significant break-down times (T_{50}) calculated from the experimental results is $T_{50,exp} = 136.74 \mu\text{s}$ with a standard deviation $\sigma_{T_{50,exp}} = 5.44 \mu\text{s}$.
By transferring $T_{50,exp}$ on the reference waveform it was obtained $T_{50,ref} = 145.76 \mu\text{s}$

See curves on page 10

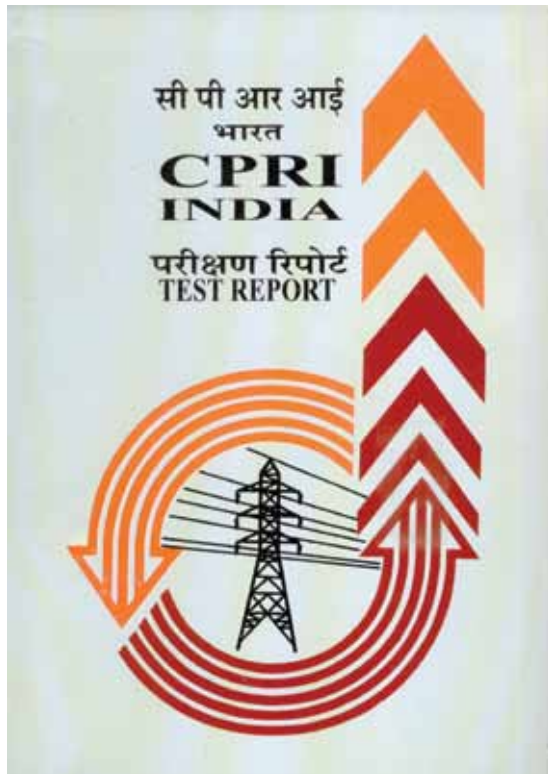
Measuring uncertainty for T_{50} is 3.7%.
The uncertainty stated is expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor $k = 2$. The value of measured lies within the assigned range of values with probability of 97%.

Triggering advance: $\Delta T = T_{50,ref} - T_{50,exp} = 217.21 - 145.76 = 71.47 \mu\text{s} \pm 2.94 \mu\text{s}$

The tested lightning conductor is an E.S.E.A.T. early streamer emission air terminal because it fulfils the following conditions (according to NFC 17-02 / 2011, Annex C, clause C.3.3.2.2):

- $T_{50,exp} < T_{50,ref}$ ($136.74 < 174.00$);
- $\sigma_{T_{50,exp}} < 0.8 \sigma_{T_{50,ref}}$ ($5.44 < 0.8 \cdot 25.86$);
- $T_{50,ref} - T_{50,exp} > 10 \mu\text{s}$.

Code F-01-09-0100



HIGH VOLTAGE DIVISION
CENTRAL POWER RESEARCH INSTITUTE
P. B. NO. 8086 SACADSHIVANAGAR SUR P. O.
PROF. SRI C. V. RAMAN ROAD, BANGALORE - 560 080, INDIA
Phone: + 91 0 80 23621917 Fax: +91 (080) 23621212

CPRI

TEST REPORT

Test Report Number: HV/1000/08/17/0198 Date: 13-10-2008

Name & Address of the customer: M/s. IRE Value Creation & Consultants, Pvt. Ltd., A-14, Varanasi, New Delhi - 110002, India. Ref. Year & Issue: 2008-08-20/08

Name & Address of the Manufacturer: M/s. Forend Elektrik & Malz., VE DIS TIC. A.S., 16. Mayis Mah. Buzlukdere Cad. No.4, Beşiktaş Har. 8-4 33031, İstanbul, Turkey

Particulars of Sample tested: None

Condition of the sample on Receipt: New

Type: E.L.C. Model No. P 11146

Designation: Early Streamer Emission Terminal

Serial Number: 2008

Number of samples tested: One

Date(s) of Test(s): 13-10-2008

CPRI Sample Code Number: HVML20080801

Particulars of tests conducted: Insulator Contact Test (ITC) At 45 kV.

Test in accordance with standard: As per Customer's Request

Specification: Not Applicable

Sampling Plan: Not Applicable

Customer's requirement: Five positive and Five negative strokes (each of 50kV at 40kV one minute interval) between them may be applied before to be checked for physical deformation.

Deviation if any: Nil

Name of the witnessing persons: Customer's representatives: Shri. S. K. Gaitly, Director; Other than Client's representatives: None.

Documents constituting this report are attached: Five; Test: Nil; Method: Nil; No. of photos: Nil; Number of Test Circuit Diagrams: Nil; Number of drawings: One (MS-VL/P43).

Test Engineer: M. Anand (M. ANAND@CPRI) Additional Director: J. V. VASUDEVA BABBLURU

AUTHORIZED SIGNATURES

LIGHTNING PROTECTION & EARTHING SYSTEMS

Reports and certificates

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E N S A Y O S

Nº: 3/LE130

LCOE

LABORATORIO CENTRAL OFICIAL DE ELECTROTECNIA
FUNDACIÓN PARA EL FOMENTO DE LA INNOVACIÓN INDUSTRIAL
UPM Technological Center – Tecnogetafe
C/ Eric Kandel, 1 – 28906 Getafe (Madrid)
Telephone: +34 91 491 81 68
www.f2i2.net

TEST REPORT

2015073F0335

TESTED DEVICE	Lightning impulse current withstand test: 100 kA of 10/350µs waveform
MODEL	FOREND EU-M; PETEX-S; PETEX-M; PETEX-L; FOREND EU
SERIAL NUMBER	F1/11896; F1/2732; F1/3335; F1/21566; F1/1053
REQUESTED BY	FOREND Elektrik. Malz. Ve Dis. Tic A.S Halaskargazi cad. no:141 K:4 D:7 - Osmanbey - Sisli / Istanbul
APPLIED STANDARDS	See applied Standards in page 3 of this report
Beginning of tests date	13/07/2015
End of tests date	14/07/2015

This test report consists of pages 6 and 2 appendixes



Authorized signatory

Date of issue: 20th July, 2015



Abderrahim
Khamlichi
2015.07.23
15:32:25 +02'00'

Mr. Abderrahim Khamlichi
Technical Responsible of HV Testing

Tested by: Mr. Juan Pablo Vega
HV Test Technician

CONDITIONS OF VALIDITY FOR THIS DOCUMENT:

- The results of the tests refer exclusively to the sample which was tested.
- The above mentioned sample is described in this report. If any modification of the sample has been made after it has been received, the details will also be given in the report and further documented in LCOE files.
- Partial reproduction of this document is prohibited
- This report will be considered void if it is altered in any way without prior authorization.

1. TESTED MATERIAL

Five (5) E.S.E. (Early Streamer Emission Lightning Conductor) samples were supplied to LCOE by FOREND Elektrik. Malz. Ve Dis. Tic A.S.

Test date: 13th and 14th July 2015

1.1. Marking

Manufacturer: FOREND Elektrik Malz. Ve Dis. Tic. A.S
Model: FOREND EU-M; PETEX-S; PETEX-M; PETEX-L;
FOREND EU.

1.2. Specimen description

Specimens according to the customer consist of Early Streamer Emission Lightning Conductor for large area protection.

2. TYPE OF TESTS

2.1 Lightning impulse current withstand test:
100 kA of 10/350 μ s waveform

$I_{peak} = 100 \text{ kA} \pm 10 \%$
 $W/R = 2500 \cdot \text{kJ}/\Omega \pm 35\%$
 $Q = 50 \text{ C} \pm 20 \%$
Duration < 5 ms.

3. APPLIED STANDARDS

The test referred in section 2 has been made with applied current impulses waveforms, 100 kA of 10/350 μ s, according to *UNE-EN 62561-1 Paragraph 6.3 Standard. These waveforms are the same as indicated in UNE 21.186 December 2011 Paragraph C.3.4 Standard, and NFC 17-102 September 2011 Article C.3.4 Standard.*

4. GENERAL DETAILS

Tests were carried out at the L.C.O.E. facilities in Getafe, located in Diesel Street No 13, Polígono Industrial El Lomo, 28906 Getafe, Madrid on 13th and 14th of July, 2015.

Tests were performed by:

Juan Pablo VEGA

FFII –LCOE


5. MEASUREMENT UNCERTAINTY

The uncertainty of the test is calculated and at the disposal of the applicant.

Reports and certificates

» Rappports et certificats » Reportes y certificados » Сертификаты

СИСТЕМА СЕРТИФИКАЦИИ ГОСТ Р
ФЕДЕРАЛЬНОЕ АГЕНТСТВО ПО ТЕХНИЧЕСКОМУ РЕГУЛИРОВАНИЮ И МЕТРОЛОГИИ



СЕРТИФИКАТ СООТВЕТСТВИЯ

№ РОСС TR.ЛН32.Н08901

Срок действия с 02.10.2014 по 01.10.2017

№ 0878647

ОРГАН ПО СЕРТИФИКАЦИИ рег. № РОСС RU.0001.10ЛН32 Общество с ограниченной ответственностью "Дальневосточный сертификационный центр" (ОГРН 1102539005634), 690105, Российская Федерация, г. Владивосток, ул. Бородинская, д. 46/50. Телефон (423) 2345019, факс (423) 2345019, адрес электронной почты dvcsl32@mail.ru.

ПРОДУКЦИЯ Активное молниезащитное устройство Forend EU F10110 и EU-M F10105 с комплектующими по приложению (бланки №№ 0905273-0905275). Серийный выпуск.

код ОК 005 (ОКП):

34 1430

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ НОРМАТИВНЫХ ДОКУМЕНТОВ
 ГОСТ Р 12.2.007.0-75 пп. 3.3.1, 3.3.3, ГОСТ Р 52725-2007 п.6.4.10, 6.5

код ТН ВЭД России:


8535 40 000 0

ИЗГОТОВИТЕЛЬ «FOREND ELEKTRİK MALZEMELERİ ve DİS TİC.A.Ş.». Адрес: 19 Mayıs Mah. Buyukdere Cd. No: 4 Basman Han K:4 D:4 Sisli/ ISTANBUL, Турция.

СЕРТИФИКАТ ВЫДАН «FOREND ELEKTRİK MALZEMELERİ ve DİS TİC.A.Ş.». Адрес: 19 Mayıs Mah. Buyukdere Cd. No: 4 Basman Han K:4 D:4 Sisli/ ISTANBUL, Турция.


НА ОСНОВАНИИ Протокол исследований № 48301/14 от 12.05.2014г. Испытательная лаборатория ООО «ПродМашТест», рег. № РОСС RU.0001.21АВ79 от 28.10.2011, адрес: 127015, Москва, Бумажный пр., 14, стр.1

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ Схема сертификации З. Официальный дистрибьютер и сопроводитель ООО «Электра» Адрес 620076, г.Екатеринбург, ул.Пронинной, 54А, www.elektraek.ru, e-mail: molniya@elektraek.ru, тел.: +7 (343) 256-73-01, факс: +7 (343) 258-40-14, тел./факс: +7 (495) 970-12-63, +7 (812) 313-54-52.



Руководитель органа

Эксперт



подпись

Кафташкин Л.В.

инициалы, фамилия

Семенов С.В.

инициалы, фамилия

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И АТОМНОМУ НАДЗОРУ

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Почт. адрес: ул. А. Лукьянова, д. 4, корп. 8, Москва, 105066
Телефон: (499) 263-97-75, Факс: (495) 411-60-52
E-mail: rostehnadzor@gosnadzor.ru
<http://www.gosnadzor.ru>
ОКПО 08083701, ОГРН 1047796607650
ИНН/КПП 7709561778/770901001

Генеральному директору
ООО «Электра»
И.Ю. Полегаеву

Руководителям организаций и
предприятий

27.11.2008 № 10-05/2805

На № 702 от 11.11.2008 г.

**О применении молниезащитного
устройства «FOREND»**

Информационное письмо

Управление государственного энергетического надзора Федеральной службы по экологическому, технологическому и атомному надзору доводит до Вашего сведения, что им согласовано применение на территории Российской Федерации молниезащитное устройство «FOREND».

Данное устройство признано соответствующим требованиям и условиям действующих нормативных документов, имеет сертификат соответствия № РОСС TR.AB24.B00393, выданный органом по сертификации «Стандарт-Тест».

Управление государственного энергетического надзора не возражает против применения данного молниезащитного устройства при решении вопросов защиты объектов от прямых ударов молнии.

Прошу Вас данную информацию довести до сведения проектных, строительно-монтажных организаций и потребителей электрической энергии.

По вопросам технических характеристик и описания молниезащитного устройства «FOREND» обращаться по телефонам 8-800-200-88-77, 8(495)970-12-63 и E-mail: Elektra@R66.ru

Заместитель начальника
Управления государственного
энергетического надзора

А.В. Цапенко

В.Б. Бережков
8 (495) 657-91-99



Ghorfine-Lebanon P.O.Box 12 Jbeil
Tel: (961) 9 621 030/31 Fax :(961) 9 621029
E-mail: melec@dm.net.lb
www.melegroup.com

Date: 16 January 2014

To Whom It May Concern

We the undersigned, **MELEC S.A.L**, located in Ghorfine Lebanon, confirm that the earthing and lightning materials purchased from **FOREND Elektrik A.S.** in June 2013, were installed upon delivery in 4 x 33/11kV substations in Erbil Kurdistan and there were no claims to the quality of the materials during the installation period.

Wissam Sleiman



Technico-Commercial Manager

LIGHTNING PROTECTION & EARTHING SYSTEMS

Reports and certificates

» Rapports et certificats » Reportes y certificados » Сертификаты



Reference Countries

European Union

Bulgaria, Czech Republic, France, Germany, Greece, Ireland, Lithuania, Poland, Portugal, Romania, Slovakia

Eastern European And Eurasian Countries

Azerbaijan, Georgia, Kazakhstan, Russian Federation, Serbia, Ukraine

North America

United States of America

Latin America

Argentina, Bolivia, Chile, Ecuador, Mexico, Peru

Asia

Bangladesh, Hong Kong, India, Indonesia, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka, Taiwan, Thailand, Vietnam

Middle East

Iran, Iraq, Israel, Jordan, Lebanon, Oman, Syria, United Arab Emirates

Africa

Algeria, Angola, Burkina Faso, Cameroon, Djibouti, Egypt, Ethiopia, Ghana, Ivory Coast, Madagascar, Morocco, Nigeria, Rwanda, Senegal, South Africa, Tunisia





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