



PRODUCT CATALOGUE FRIEDL

„We have sense for technique,
and we are good at it !“





About us

RAI TRADING F.Z.E. company was founded in 2021 to represent high-quality, primarily European, producers in the UAE and generally in the MENA region, to market high-end quality and unique products designed for **the building and construction industry**.

One of the producers which is represented in the UAE and MENA region on an exclusive basis by RAI TRADING F.Z.E. is the Austrian company **FRIEDL Kunststofftechnik GmbH**.

FRIEDL Kunststofftechnik GmbH was founded in 1980.

The objective of Mr. Friedl was to improve and upgrade the quality of existing cable connections on the market at that time by inventing the system of mechanical cable closures for copper telephone and other data transmission cables, low voltage electric power cables (up to 1000 volts) and over time also fibre-optic cables.

All FRIEDL products are **patented by Austrian Law, quality proven {CE conformity}** and certified with 1509001 since 1995, approved by the Austrian Electrotechnology Institute OEVE/VDE {IM22, IP68} used by Austrian Telecom and many other countries (EU-Norm IEC 60670-22).



BUSINESS REFERENCES

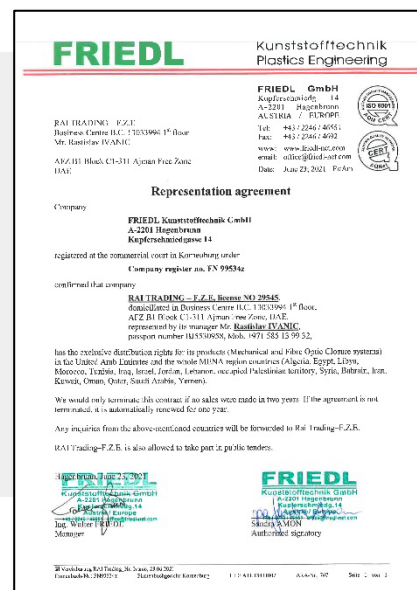
FRIEDL mechanical cable closures have been approved and used many thousand times by 3M, the Austrian Telecom, the Swisscom, as well as electrical/power utility suppliers and thousands of electrical/power installation companies.



The major business fields of the FRIEDL factory in Austria are:

- development, design, manufacturing and sales, of innovative products in the fields of
 - telecom accessories
 - electro/power cable installation accessories
 - cable accessories
- trading and distribution of innovative products e.g. in the field of construction

RAI TRADING F.Z.E.
Representation agreement



Our products are protect by
Patent Law

We are certified appropriate
to ISO9001 since 1995





Model FDM and model MKM

Target groups and Applications

FRIEDL cable closures are applicable to all and any cable installations

- **Telecom companies and telecom cable installation companies**
 - to build up, expand and maintain the networks
 - to connect each particular household and customer, especially the FDM model
- **Electric power companies and electric power cable installation companies**
 - to connect each particular household and customer, especially the FDM model
- **Cable-TV companies and installation companies for Cable-TV networks**
 - to build up, expand and maintain the networks
 - to connect each particular household and customer, especially the FDM model
- **Cities and communities and their cable and wiring infrastructure companies**
 - to install street lightings and traffic signals
 - to install cameras, especially the FDM model
- **Utilities suppliers**
 - to connect each particular household and customer, especially the FDM model
- **Railway companies**
 - for control cables and data/telecom cables, especially the FDM model
 - for electric power cables up to 1000 Volt
- **Construction companies for buildings**
 - for any quick and easy cable installation, especially the FDM model
- **Road construction companies for streets, highways and freeways**
 - to install street lightings and traffic signals
 - to install emergency stations
 - to install cameras, especially the FDM model
- **Privates and everyone who needs to install or fix a cable, especially the FDM model**
 - e.g. install lights in the backyard, swimming pools, cameras, motion detectors, automatic entrance door to your yard etc.



FRIEDL developed its mechanical cable closures to beat the old fashioned heat shrink systems at the point of technology and at the point of economy. FRIEDL closures are more successful, because HS systems are extremely sensitive to environmental conditions during installation, its high failure rates, its difficulties in reopening and its inability of reusing.

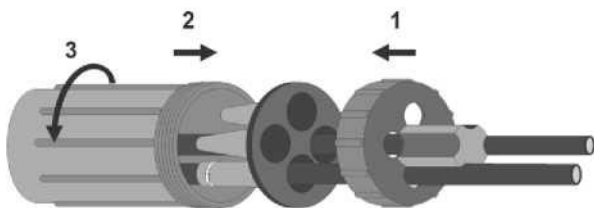
Benefits of FRIEDL mechanical closures



- **Fits all types of cables**
 - ▶ **telecom**
 - fiber-optic cables, the MAM types fit fiber-optic splice cases
 - plastic coated copper cables
 - and also old lead coated cables
 - ▶ **electric/power cables**
 - up to 1000 Volt
- **Reduce training costs**
 - very craft friendly, no special skills needed
- **Reduce installation costs**
 - **quick** and **easy installation**
 - no special tools needed, no energy (gas, flame, electricity) needed
 - no cool off delay
- **Reduce maintenance costs**
 - easy reopenable
 - easy readjustable
- **Reduce follow up costs**
 - easy reusable
- **Maximize reliability**
 - high mechanical strength, strain relief
 - corrosion resistant, soil resistant
- **Reduce failure rates**
 - absolutely waterproof (we know what we talk about, it rains a lot in Austria)
- **Reduce inventory**
 - one closure for multiple needs, easy to run
- **Reduce planning costs**
 - for underground applications also available in **black color** if required
 - embraces from 2 to 6 entries (with double end caps up to 12 entries)
 - for in-line and branch-off installations, and also interchangeable



FRIEDL CAN CLOSURE FDM



FDM 1



FDM 2

- for Telecom- and Powercable up to 1000 Volt
- easy for in-line and branch-off connections
- for underground and aerial cable connections
- for all types of cables from \varnothing 5 - 25 mm
- 4 entries, no additional tools or special skills needed

Type		Box
FDM 1	4x \varnothing 5-14 mm	10 p
FDM 2	4x \varnothing 7-25 mm	6 p



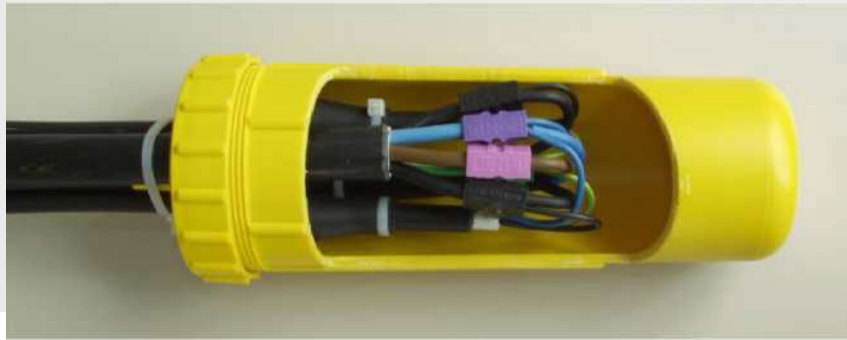
ABSOLUTE SEAL (IP 68) – REOPENABLE – UV RESISTANT

EASY – QUICK – RELIABLE – AFFORDABLE

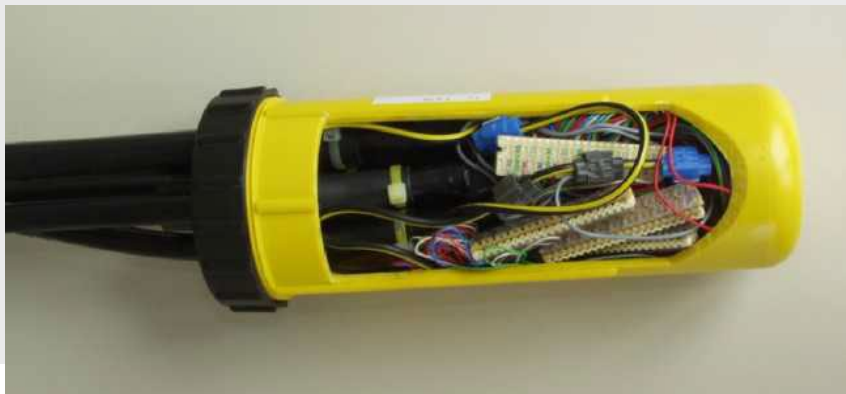
Approved by the Austrian Electrotechnology Institute OEVE/VDE (IM 22,IP-68).

Used by the Austrian Telecom and many countries.

EU-Norm IEC 60670-22



Can Closure FDM 1 with mounted electric power cable



Can Closure FDM 2 with 6x10 'Scotchlock' connectors

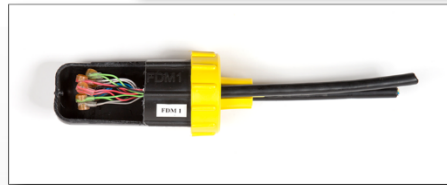


Can Closure FDM 1 with single connectors UY



TECHNICAL DATASHEET

FDM 1,2,3



DESCRIPTION

The FDM is a mechanical dome cable closure developed by FRIEDL to beat the old-fashioned heat shrink systems at the point of technology and at the point of economy. The cable entry caps are made of soft EPDM rubber and are conically shaped, so they fit a wide range of cable diameters. The FDM is successful and preferred by the existing clients like Austrian Telecom, Swisscom, repeatedly used by 3M and many other clients, because the heat shrink (HS) systems are extremely sensitive to environmental conditions during installation, they have high failure rates and difficult to re-open not speaking about the inability of reusing.

BENEFITS

- **Fits all types of cables up to 1000V** - telecom (plastic or lead coated) and all types of power cables
- **Reduces training and installation costs** - very craft friendly, no special skills or tools needed, no energy (i.e. gas, flame, electricity) needed quick and easy installation
- **Decreases installation time** - no cool off delay
- **Reduce maintenance costs** - easy reopenable, reentrancable, reusable!!!
- **Maximizes reliability** - high mechanical strength, strain relief, corrosion resistant, soil resistant
- **Reduces failure rates** - absolute watertight IP68
- **Reduces inventory** - one closure for multiple needs, easy to run
- **Reduce planning costs** - for directly buried, manholes, aerial outside plant, accommodates between 2 -4 respectively up to 8 for FDM3 entries, for in-line and branch-off installations

APPLICATIONS

- All possible connections of each particular business household and customer
- To build up, expand and maintain existing and new networks
- (information/data/telecom cables, electric wirings up to 1000 volt, signalisation cameras, street lighting/traffic lights, emergency stations, etc.)

ABSOLUTE SEAL (IP 68) - REOPENABLE - UV-RESISTANT
EASY - FAST - RELIABLE - AFFORDABLE



TECHNICAL DATASHEET

FDM 1,2,3

FRIEDL CAN CLOSURE

For Telecom and Electric-Powercable to 1 kV

TECHNICAL DATA	FDM1	FDM2	FDM3
Size	170 x 72mm	280 x 100mm	330 x 170mm
Cable Diameter	4 x (5-14mm)Ø	4 x (7-25mm)Ø	1 x (10-42mm)Ø 1 x (10-33mm)Ø 6 x (8-26mm)Ø
Items per box	10	6	1

ABSOLUTE SEAL (IP 68) - REOPENABLE - UV-RESISTENT
EASY - FAST - RELIABLE – AFFORDABLE

MATERIAL DESCRIPTION	FDM1	FDM2	FDM3
Material	Polypropylen (PP4410)		
Shore D	70 DIN 53505		
Seal, rubber cone	Thermoplastic-Elastomer		
Temp. resistant	-30° / +65° C		
Tension strength	55N	130N	200N
Impact Steelball	2m, 2kg, no leak	1m, 2kg, no leak	-
Protect Standard	IP 68		
Electric/power cables	up to 1000V		
Certificate	ÖVE Nr. 13201-003-02		
Examination	VA EE 36221 Techn. Institute, EU-Number EU-50.393:06		



Approved by the Austrian Electrotechnology Institute OEVE/VDE (IM 22, IP 68) Used by the Austrian Telecom and many countries. EU-Norm IEC 60670-22.



TECHNICAL DATASHEET

FDM 1,2,3 - FO



DESCRIPTION

The Closure type FDM 3 FO Microduct, Mini or Micro has been designed especially for the jointing of optical transmission and FTTH cables. Because of the pre installed mini or microduct entries, the closure is suitable for mini or microduct based CATV or FTTH networks. The closure is suitable for underground-, duct-, wall- and pole mounting. FDM 3 FO Mini or Micro consists of a base plate with preinstalled microduct entries and the cassette-bracket, a closure body and needed accessories. Maximum 9 cassettes with 2 x 12 splice holders each can be mounted. Below the cassettes, there is storage space for reserves. Cable entries through 4 x 8-17 mm and 6 x 6,8 mm (Mini) or 8 x 3,8 mm (Micro) ducts. The closed spare entry is optional for uncutted cables from \varnothing 2x 8 – 25 mm (shrink). The microduct entries can be used for cables with \varnothing 6,8 mm. All duct entries are sealed with EPDM elements – usable for inline and branch-applications. Kevlar and central strength elements can be fixed on the holder plates mounted on the cassette-bracket. The Splices are protected with the closure dome, the sealing ring is on the base plate. The body will be fixed with NIRO screws. The Closure is reopen- and close-able without changing the sealing ring. The cassette bracket includes the possibility to store spare-lengths of fibers and the design of the cassettes guarantee the bending radius of fibers. Installation of FDM 3 FO MINI or MICRO do not need special tools and trainings (Installation skills of FO Applications necessary). Closure Body with valve upon request.

APPLICATIONS

The Closure type FDM 3 FO Microduct, Mini or Micro has been designed especially for the jointing of optical transmission and FTTH cables. Because of the pre installed mini or microduct entries, the closure is suitable for mini or microduct based CATV or FTTH networks. The closure is suitable for underground-, duct-, wall- and pole mounting.

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EASY - FAST - RELIABLE – AFFORDABLE



TECHNICAL DATASHEET

FDM 1,2,3 - FO

FRIEDL CAN CLOSURE

TECHNICAL DATA

FDM 1-FO

FDM 2-FO

Material Polypropylen	Casing	Casing, 2 fiberoptic carrier
Spliceholder, 2x12 shrink or crimp	2x12 shrink or crimp	4x12 shrink or crimp
Thermoplast. Elastomer	Rubber	
Gland: Connect: 2x M16(FDM1-FO), M20 or M25 Branch: 2x M16 and 1x M16, M20 or M25	Case PA, IP 68 Case PA, IP 68	
Tension strength	55 N Entry	
Temperature range	-30° / +65° C	-30° / +80° C
Cable: Diameter Bolting force	Entry	3 cable entries
M16(FDM1-FO) 4,5 - 9 mm 3,5 Nm		
M20 7 - 14 mm 5,0 Nm		
M25 11- 17 mm (ca.) 8,5 Nm		
Impact-steel-ball, 1 m	No leak	no leak, 0,6 bar, 1kg/1m
Maximal length fibre	180 mm	180 mm
Bending – fibre	36 mm	36 mm
Complete length closure	335 mm	360 mm
Diameter closure	72 mm	101 mm
Expertise-Degree of protection	VA EE 32767	VA EE 35298B
Registration	IP 68, ÖVE/ÖNORM, EN 60529	IP 68, EN 60529, ISO 9001, CE
Packaging Unit	10 pcs./Carton	6 pcs./Carton



FDM 3-FO

Length	330 mm
Diameter	170 mm
Capacity - Cases	max. 9 Splice cases IEC60-793-1
Cable entries	2 uncut cables ø 8 - 25 mm 4 cables ø 8 - 17 mm
Splice cases	alternative 2x12 crimp or 2x12 shrink
Tested acc. to	VAEE 36221 – FDM 3 CE
Temperature change	-40° C to + 70° C, 10 times
Storage in wetting agent	168 hours (Netwet)
External pressure resistants	6 m water column
Water vapour permeation	<240 µg/h at 10° C

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FRIEDL mechanical closures MKM

- **Product description**

The FRIEDL MKM model is a pure mechanical cable closure.

In-Line closures (MVM) and Branch-Off closures (MAM) are available.

One closure kit consists of two symmetrical half-shells with a foamed rubber seal fixed in the top shell. The half moon shaped length seal is designed to become compressed between the two halves when the closure is installed, and keeps it absolute watertight. The shells are screwed together with nuts and bolts, made of stainless steel.

The nuts are fixed in the bottom shell, so they can't get lost.

Inside of the bottom half shell in front of each entry is a strain relief for the cable. In the middle of the Branch-Off bottom half shell is the anchor point for the adapter to accommodate the fiber optic splice cases. If a copper splice is made, this adapter is not needed.

The end caps are made of soft EPDM rubber and are conically shaped, so they fit a wide range of cable diameters. The narrow end of the end cap becomes cut at the half diameter of the cable. A double end cap set makes it possible to fit 2 cables at 1 closure entry at the same time.

After the splice work is done, the two half shells become screwed together very strong.

The body of the closure is very solid then and each entry has a round shape now.

Each end cap becomes flipped over its entry of the closure and gets fastened with stainless steel hose clamps.

Accessories like single or double end cap sets and length sealing sets are available.

FRIEDL developed the MKM closures to beat the old fashioned heat shrink systems at the point of technology and at the point of economy. FRIEDL closures successful, because HS systems are extremely sensitive to environmental conditions during installation, its high failure rates, its difficulties in reopening and its inability of reusing.

- **The FRIEDL MKM cable closures meet the fiber optic market, the copper cablemarket as well as the electrical/power market.**

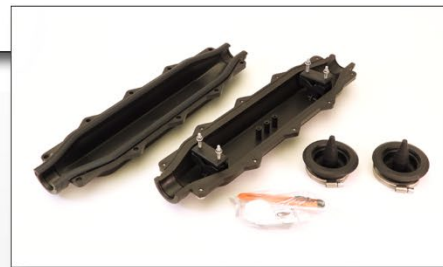


Closures are also **available in black color** for outside application if required.



TECHNICAL DATASHEET

MVM 23-200
42-320



DESCRIPTION

The MVM In-Line pure mechanical copper and electric cable closure kit consists of two symmetrical half-shells with a foamed rubber length seal fixed in the top shell. The half-moon shaped length seal is designed to become compressed between the two halves when the closure is installed, and keeps it absolute watertight. The shells are screwed together with nuts and bolts, made of stainless steel. The nuts are fixed in the bottom shell, so they cannot get lost. Inside of the bottom half shell in front of each entry is a strain relief for the cable. Inside the MVM In-Line closure is enough space to install copper or electric cable splices. The end caps are made of soft EPDM rubber and are conically shaped, so they fit a wide range of cable diameters. The end cap should be cut at the half diameter of the cable at the narrow end. A double end cap set makes it possible to fit 2 cables at 1 closure entry at the same time. After the splice work is done, the two half shells become screwed together very strong. The body of the closure is very solid then and each entry has a round shape now. Each end cap becomes flipped over its entry of the closure and gets fastened with stainless steel hose clamps. Accessories like single or double end cap sets and length sealing sets are available. FRIEDL developed the MVM closures to beat the old-fashioned heat shrink (HS) systems at the point of technology and economy. Both are successful, because HS systems are extremely sensitive to environmental conditions during installation, its high failure rates, its difficulties in reopening and its inability of reusing. MVM closures are available for pylon and outside application.

***ABSOLUTE SEAL (IP 68) - REOPENABLE - UV-RESISTENT
EASY - FAST - RELIABLE – AFFORDABLE***



TECHNICAL DATASHEET

MVM

23-200
42-320

CONNECTION CLOSURE

TECHNICAL DATA

MVM 23-200

MVM 42-320

Dimension L/W/H	470/140/104 mm	673/162/148 mm
Material	Polypropylen black	Polypropylen black
Cable entries	7-23 mm	8-42 mm
Usage with twin glands	7-11 mm	1x 8-15 mm+1x 8-22 mm
Free space for splices	200 mm	320 mm
Pull reliefs	2	2
Temperature range	-30° bis +80° C	-30° bis +80° C
Durability test	0,6 bar, steel bullet 1 kg height 1 m	
Reopenable	10 stainless bolts w. washer, 2 hose clamps	18 stainless bolts w. washer, 2 hose clamps
Proof tests	IP 68, ÖVE	
Certificates	VAEE 35443 (68/3/14)	

This product is developed to connect cables with a wide range of diameters. The closure is used mainly for telecommunication and electric power cables and supporting all copper cables.



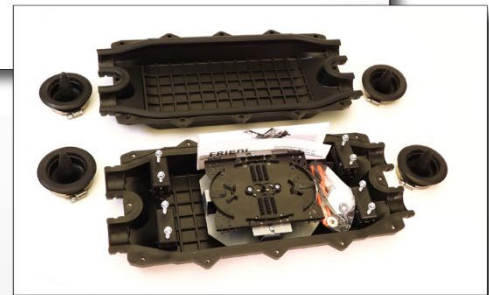
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TECHNICAL DATASHEET

MAM 23-200
42-320



DESCRIPTION

The MAM Branch-Off closure is a pure mechanical cable closure for copper, electric and fibre optic cables. The kit consists of two symmetrical half-shells with a foamed rubber length seal fixed in the top shell. The half-moon shaped length seal is designed to become compressed between the two halves when the closure is installed, and keeps it absolute watertight. The shells are screwed together with nuts and bolts, made of stainless steel. The nuts are fixed in the bottom shell, so they cannot get lost. Inside of the bottom half shell in front of each entry is a strain relief for the cable. In the middle of the Branch-Off bottom half shell is the anchor point for the adapter to accommodate the fibre optic splice cases. If a copper splice is made, this adapter is not needed. The end caps are made of soft EPDM rubber and are conically shaped, so they fit a wide range of cable diameters. The end cap should be cut at the half diameter of the cable at the narrow end. A double end cap set makes it possible to fit 2 cables at 1 closure entry at the same time. After the splice work is done, the two half shells become screwed together very strong. The body of the closure is very solid then and each entry has a round shape now. Each end cap becomes flipped over its entry of the closure and gets fastened with stainless steel hose clamps. Accessories like single or double end cap sets and length sealing sets are available. FRIEDL developed the MAM closures to beat the old-fashioned heat shrink systems (HS) at the point of technology and economy. Both are successful, because HS systems are extremely sensitive to environmental conditions during installation, its high failure rates, its difficulties in reopening and its inability of reusing. MAM closures are available for pylon and outside application. Fibre Optic MAM closures includes splices for shrink or crimp splice adaptors.

ABSOLUTE SEAL (IP 68) - REOPENABLE - UV-RESISTENT
EASY - FAST - RELIABLE – AFFORDABLE



TECHNICAL DATASHEET

MAM

 23-200
 42-320

DISTRIBUTION CLOSURE

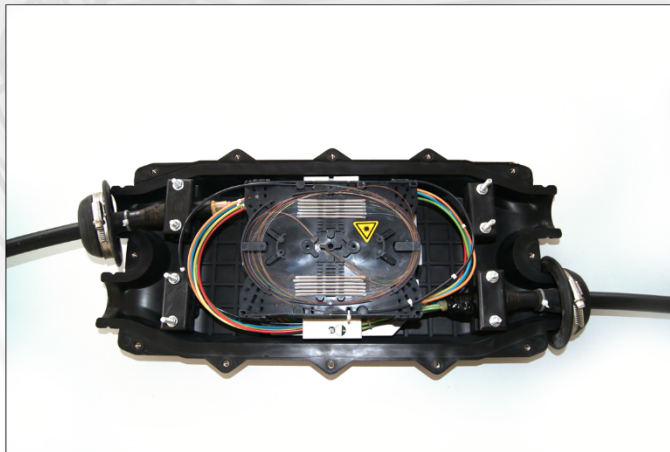
TECHNICAL DATA

MAM 23-200

MAM 42-320

Dimension L/W/H	470/223/104 mm	673/274/148 mm
Material	Polypropylen black	Polypropylen black
Usage with single glands	4x7-23 mm	4x8-42 mm
Usage with twin glands	8x7-11 mm	4x 8-15 mm+4x 8-22 mm
Splice tray capability	max. 5, 120 splices	max. 11, 264 splices
Free space for splices	200 mm	320 mm
Pull reliefs	4	4
Temperature range	-30° bis +80° C	-30° bis +80° C
Durability test	0,6 bar, steel bullet 1 kg height 1 m	
Reopenable	12 stainless bolts w. washer, 4 hose clamps	20 stainless bolts w. washer, 4 hose clamps
Proof tests	IP 68, ÖVE	
Certificates	VAEE 35443 (68/3/14)	

This product is developed to connect cables with a wide range of diameters. The closure is used mainly for telecommunication and electric power cables and supporting all copper cables.



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T R A D I N G

RAITRADING F.Z.E
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FRIEDL – Closures for all solutions !



If you have any question, do not hesitate to contact us !

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