



- I CONNECTORS
- I CASES
- I HEATSINKS
- I HARNESS PRODUCTION
- I CABLES & CABLE PROCESSING SYSTEMS



# RELIABLE CONNECTION **SYSTEMS**

MICRODIS with over 25 years of experience **ELECTRONICS** in sales of electromechanical components, Microdis Electronics provides customers with deep knowledge and application support.

> In-house harness production for small and medium projects allows us to support our partners with customised solutions fitted just to their needs.

We also fulfill the needs of our customers concerning the equipment needed for harness production.

# CONTENT

**CABLING SOLUTIONS FOR AUTOMOTIVE** CABLING SOLUTIONS FOR INDUSTRY, DEFENCE, MEDICINE **CABLE PROCESSING SYSTEMS** 

**HARNESS PRODUCTION** 

CABLES

PLASTIC ENCLOSURES

**ALUMINIUM ENCLOSURES AND HEATSINKS** 

**CABLING SOLUTIONS FOR NETWORKS** 

**TERMINAL BLOCKS** 

**PCB LEVEL CONNECTORS** 

# CABLING SOLUTIONS FOR Automotive & Home appliances

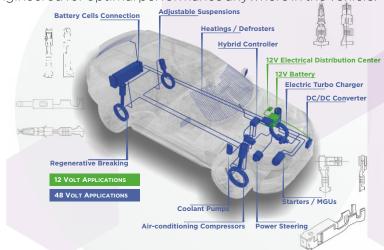
# LEAR CORPORATION TERMINALS & CONNECTORS



Lear's product portfolio includes standard and custom terminal & connector systems, with capability ranging from signal to high power. Lear experience in integrating terminal & connector solutions throughout the vehicle's electrical distribution system allows for maximum reliability while reducing cost.

Lear's capabilities cover the complete value chain—from advanced research and development, through tooling construction, to extensive manufacturing expertise, allowing Lear to shorten the product and process development cycle.

From patents filed to finished product, Lear continues to commit its resources to the development of the industry's most technically advanced terminals & connectors. Lear's focus remains on developing and manufacturing high performance, ultra-compact, cost-effective systems, engineered for optimal performance anywhere in the vehicle.



## MANUFACTURERS' PRODUCTS

### **LEAR MAIN PORTFOLIO**

- I Leaf spring connection systems
- I Pin and socket round connection systems
- I Secure contact systems
- I Flat fuse connection systems

### **SAVOY MAIN PORTFOLIO**

- I Chain terminals 2.8-4.8-6.3-7.7-9.3 mm
- I Ring tongue and other solderless terminals and splices

### **JST MAIN PORTFOLIO**

- I Wire to PCB connectors
- I PCB to PCB connectors
- I Wire to wire connectors
- I Solderless terminals and splices
- I Flat ribbon cables
- I Control cables
- I Stranded wires



### SAVOY TECHNOLOGY



Savoy Technology is the specialist stamping company of the multi-national group Savoy International. In operation since 1961, Savoy Technology is a supplier of high quality and high performance connectors for automotive market and industries.

Savoy Technology designs, produces and supplies the complete range of connectors and hundreds of other special assembly parts.

With more than 45 years in skill design, manufacturing and stamping of innovating electrical connectors, Savoy Technology is an significant supplier for the automotive market.

Savoy Technology designs and manufactures a multitude of products ranging from the most basic to the most complex electrical connectors, like hermaphrodite sliding terminals with the highest level of quality.

### JAPAN SOLDERLESS TERMINALS - JST



J.S.T is one of the worlds largest manufacturers of electrical and electronic connectors. The first products were loose piece terminals, which were introduced into the market in 1957.

Today, JST is a manufacturer of the most reliable, most technologically advanced and cost-efficient electromechanical components.







# CABLING SOLUTIONS FOR Industry, Defence, Medicine

## FISCHER CONNECTORS



Fischer Connectors has been designing, manufacturing and distributing high performance connectors and cable assembly solutions for 60 years. Fischer Connectors connectors are known for their reliability, precision and resistance to demanding and harsh environments.

Fischer Connectors' products are commonly used in fields requiring faultless quality, such as: medical equipment, industrial instrumentation, measuring and testing devices, broadcast, telecommunication and defence.

Primary design and manufacturing facilities are located in Saint-Prex, Switzerland.

# 60+ YEARS OF EXPERTISE, RELIABILITY, INNOVATION



### **EXPERTISE**

### **GUIDING YOU FROM CONCEPT TO DELIVERY**

- I Sustainable supply chain efficiency
- I Performance via lean manufacturing
- I Process control & continuous improvement

### RELIABILITY

### **GETTING YOU WHERE YOU WANT TO BE**

- I Products: delivering quality over time
- I Service: ensuring on-time deliveries
- I Support: responding quickly to your requests

### **INNOVATION**

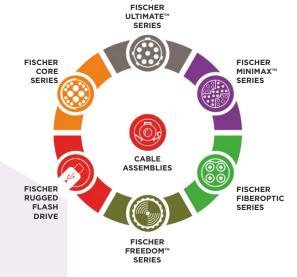
### **HELPING YOU WORK SMARTER**

- I Technology that speeds up production & delivery
- I Solutions that help you overcome your challenges
- I Customer-first approach that saves you time & money



# CHOOSE FROM MORE THAN 30.000 CONFIGURATIONS THEN SELECT THE CABLE YOU NEED FOR YOUR APPLICATION

To date, Fischer Connectors has placed expertise with more than 30.000 references across five product families:



### A PIONEER IN CONNECTOR TECHNOLOGY

Fischer Connectors has been keeping the spirit of innovation alive for over sixty years. Breakthrough technologies, high quality products and laser-focused customer culture has helped customers design reliable, innovate products and achieve business goals.

# SOLVING CHALLENGES - AS UNIQUE AS YOU ARE

Turning your connectivity challenges into success stories:

- I Miniaturization & weight reduction
- I Data transmission: more & faster
- I Extreme sealing & hermeticity
- I Complete solutions (connectors & cable assemblies)

### COMPLETE SOLUTIONS, ENGINEERING SUPPORT, RAPID DELIVERY

- Vertically integrated solutions (connectors, components, cables and assembly)
- I Expertise in design, manufacture & test assemblies
- Fast prototyping & production
- I High quality guaranteed in low & high volume projects



Any size Any configuration Any application

- I Fully configurable to fulfill each of your
- I High sealing performances for vacuum & underwater applications

  I High temperature & chemical resistance
- I Connectors and / or cable solutions

HYBRID 2+2



**Robust High Performance Easy Cleaning** 

A pre-cabled solution ideal for:

- I Fautless optic performance I Indoor, outdoor & extreme applications I Up to IP67 (unmated) / IP68 (mated)
  I Easy field cleaning

### FISCHER ULTIMATE™ SERIES



Rugged Compact Lightweight

- I IP68 up to 120m / IP69 / Hermetic I 360 degree EMC shielding I High corrosion resistance
- I 10.000 mating cycles





**Easy Mating Easy Cleaning Easy Integration** 

- I Breakthrough plug & use connectivity I 360 degree mating freedom & optimized
- cable management
- I Non-magnetic ball locking with variable force I IP68 sealed to -20m/24h
- I Low profile, right-angled plug

## FISCHER MINIMAX™ SERIES



**High-density miniaturization** High-speed data transfer Reliability

- I Miniature and lightweight
  I Designed and tested for high-speed protocols I IP68 watertight down to 20m



















Locking	Push-pull Quick-release / Friction	Push-pull Quick-release	Push-pull	Push-pull Screw-locking Quick-release
Shell material	Chromium / Plated brass	Brass / Aluminum	Brass	Brass / PEEK ongoing test
Plug Ø [mm]	9-34	12-29	24	12.9
Number of contacts	1 to 55	2 to 42	1 to 4 fibers / Hybrid 2+2	4 to 24
Contact type	Low voltage / High voltage	Low voltage	Fiber optic / Low voltage	Low voltage
Test voltage DC [kV]	Up to 50	Up to 2.5	Up to 2.8	Up to 1.5
Current rating [A]	Up to 60	Up to 9.2	Up to 10	Up to 5.0
Contact termination	Crimp / Solder / PCB	Crimp / Solder / PCB	Solder	Solder / PCB
Sealing level	IP68/69 / Hermetic	IP68/69 / Hermetic	IP67/68	IP68
Mating cycles	10,000	10,000	1,000	5,000
		_	_	_

















### CABLE PROCESSING SYSTEMS

## APPLICATORS AND PRESSES



MECAL Srl - italian company, established in 1976, with the aim of supplying the wire harness industry with the best crimping equipment. Their leading products like applicators and presses are extensively used by the automotive, communication and IT industry, and wherever a high quality connection is needed.

# MECALS CRIMPING MACHINES PORTFOLIO

connectors (pin by pin)

Mechanical applicators for crimping of reeled terminals with cross-sections up to 25 mm<sup>2</sup>
 Dies for crimping of loose terminals up to 75 mm<sup>2</sup>
 Special applicators for crimping of IDC-rast

I 4 Points Crimp Applicator, designed to crimp loose End Sleeve (Tube) Terminals up to 25 mm<sup>2</sup>

I Electromechanical presses with a crimping force: 1.5 - 20 T

I Production process analyzers - CFA I Pull force measurement devices

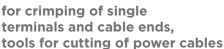
I Mini laboratories for micrography

Product ID: MRS Crimping height Stroke Terminal pitch Terminal thickness Wire section

APPLICATOR 135.8 mm (5.346") 40/30 mm (1.575/1.18") <27 mm (<1.06") <1.2 mm (<0.047") max. 10 mm<sup>2</sup>



## PROFESSIONAL HAND TOOLS



WEZAG, German company, founded in 1949. One of the worldwide leading manufacturers of hand tools.



Separately delivered and terminal dedicated dies: CS30 system for crimping various types of contacts / terminals and universal handles. Possible to use the same dies with WDT machines for crimping in half automatic cycles.

# PNEUMATIC PRESSES



Swiss WDT company (owned by WEZAG) is a strong supplier of pneumatic solutions for crimping of big cross section loose lugs. WDT-presses with or without special adapters can work together with the same WEZAG-dies that are dedicated to CS or CK systems.

### **UP150 - hydraulic press**

Hydraulic press with crimping force = 150kN
 Max. cross-section of wires: 400 mm<sup>2</sup>
 Built-in analyzer of the production process (CFA)

I Adjustable crimping height

## HARNESS PRODUCTION

### **IN-HOUSE PRODUCTION OF HARNESSES**

based on all typical connectors in the full (with continuous control of crimping parameters CFA) and half – automatic process

I Pull force measurement

I Processing of FBL / FFC flat cables with IDC connectors and electronic quality control

I Application of IDC connectors with single-core cables in the half automatic process

I Crimping of insulated and uninsulated connectors

Processing of multi-wire signal cables (stripping, crimping, tinning) - up to OD = 6.0 mm

I Soldering of cables to the PCBs

I Tinning of wires (automatic or manual)

I Shrinking of heat shrink sleeves

! Assembling



### **CABLES**

Since 1987 the designated target of MEDI - Kabelhandels GmbH is to supply customers with cables and wires at the highest quality level. The companys' aim is to provide solutions for all requirements, with business and technical advice as well as training from development to serial production.



With partners worldwide, MEDI-Kabel can satisfy customers' needs and requirements with competence and effectiveness. The manufacturer is capable of offering a wide range of products in wide temperature-ranges, mechanical and electrical requirements as well as different approvals (VDE, HAR, UL, CSA, MIL etc.). A modern high-level rack with 1500 pallets capacity and more than 5000 cable and wire types available enables MEDI-Kabel to cover most of customers' requirements in short time, even special customized cables with small minimum order quantities.



### **INTERCONNECTING WIRES** AND FLEXIBLE LEADS

I Insulation: PVC/PE/TPE/Silicone/PP/PA Tefzel/Teflon/PUR/Glass filament/EVA etc. I Temperature range: -200 to 1200 °C halogen- free/flame resistant/lead free I VDE/UL/CSA/MIL approvals, DIN standards I Single, multiple, fine, ultra-fine wire / single, double, triple coloured

### **FLAT CIRCULAR CONDUCTORS**

IUL / CSA approval

### **DATA AND COMMUNICATION TECHNOLOGY**

I Optical fiber technology (patch cable / connection technology)

I Optical fiber cables

I Plug-in connectors and systems

I Splice boxes

I Trunk cables

I Copper wiring systems

### **RIBBON CABLES** AND TWIN CONDUCTORS

All grid sizes / single & multi coloured I Solid or flexible - screened

### DATA AND CONTROL CABLES, **POWER CABLES**

I Screened / unscreened

I Insulation: PVC/PE/PUR/Silicone/Teflon

Approvals: UL/CSA/MIL/VDE

I Customer-specific manufacture from

500m

### **ACCESSORIES**

I Spiral cables (from 1 cable)

I Shrink tubing

I Insulation tubing

I Cable testing systems

I Cable protection systems

### XTRA CABLES FOR INTERNATIONAL USE **Xtra BASIC**

This standard cable is suitable for systems and equipment which have been designed for export.

### Xtra ECO

A halogen-free single core with UL/cUL and HAR approval. Suitable for most industrialized coutries of the world and

immediately stocked as standard.

### **Xtra HEAT**

A high temperature resistant cable in VDE quality. Available immediately with UL/cUL approval at no extra charge.



### Xtra BASIC UL/CSA/HAR/MTW/AWM Wire Style 1015

Cable: Tinned copper according to EN 13602 Cable insulation: Special PVC Marking Printing and label



### **Xtra ECO** UL/cUL/HAR/VDE Wire Style 3578

Cable:

Copper blank according to EN 13602 Marking:

Printing and label Core insulation:

Cross-linked halogen free elastomer compound



### Xtra HEAT UL/cUL/VDE Wire Style 3672

Cable: Core insulation: Marking

Tinned copper according to EN 13602 Silicone in VDE quality Printing and label

### Technical Data

Test voltage: 3000 V UL/CSA: 600V - 105 °C

600V = 103 °C 600V = 90 °C 300/500 V = 90 °C (H05V2-K) 450/750 V = 90 °C (H07V2-K)

### Certifications



Technical Data

Test voltage: 3000 V 600 V - 105 °C HAR/VDE: 300/500 V - 90 °C (H05Z-K) 450/750 V - 90 °C (H07Z-K)

### ROHS PLOT SU CHAR CE ( E

### Technical Data

Test voltage: 2000 V UL/cUL: 300 V - 150 °C VDE: 300/300 V - 180 °C (0,75 mm²: N2GFAF)

### Certifications



### **PLASTIC ENCLOSURES**

### PERFORMANCE ENGINEERED ENCLOSURES

CamdenBoss has over 440 designs, sizes and styles of enclosures to satisfy todays competitive market, where functionality, price, aesthetics and ergonomics are all driving demands.

In addition to extensive range of standard injection moulded, die-cast and sheet-metal enclosures, Camdenboss has manufacturing and assembly facilities enabling offering bespoke designed Tool-Free Custom-Design enclosures from flat-sheet plastic, full customisation of standard ranges and complete turnkey enclosure and assembly solutions.

### **PRODUCTS**

I Universal enclosures

I Heavy duty enclosures

I Interface supports

I Diecast & metal boxes

I Potting boxes

119" subracks

I Hand held cases

I Din-Rail boxes

I Control stations

■ Desktop & instrument cases

119" enclosures

### **CUSTOM DESIGNED ENCLOSURES**

Custom Enclosures with Flat-Sheet Plastic Technology - No Tooling!

CamdenBoss develops and manufactures enclosures to your specifications using Flat Sheet Plastic Technology.

Combining years of engineering expertise, precision machining & innovative assembly techniques; any concept can be manufactured to your exact size and specification. CamdenBoss unique is ideally suited for low to medium batch quantities – from the most simple to the most complex of enclosures.

### **Advantages:**

I Rapid Lead Times

I 1-3 weeks prototyping

13 - 4 weeks volume productions

I Creative - industrial designers, technical sales & CAD/CAM engineers at your disposal

I Inexpensive - No Tooling Charge

Low design and set-up costs

I Competitive unit pricing

Any Quantities

I From low batch runs of 5 to high volume 5000+ production runs

I Flexible - make changes to the design quickly & easily after prototyping or after production





### **CUSTOMIZATION CAPABILITIES**

- I Machining: milling, drilling, cutting and countersinking etc.
- I Surface coating and RFI shielding
- I Printing and engraving
- I Materials: bespoke colours, material types and flammability

### **Basic Construction Method**

### **Basic Construction**







# Complex Construction Method Complex Construction

Day 1

Week 1

Week 2-3







# ALUMINIUM ENCLOSURES AND HEATSINKS

### **CASES**

I Miniature aluminium cases

I Design cases

I Combination cases

I Tube cases

I Desk consoles and shell cases

I 19" System cases

119" Subracks

119" Plug-in boxes

119" Insert modules





### THERMAL MANAGEMENT

I Machined extruded heatsinks

| Extruded heatsinks with solder pin

I Heatsinks and fan coolers for processors

I Lamella heatsinks

I Finger shaped and small heatsinks

I Cooling aggregates

I Thermal interface materials









### **SERVICES**

### **Precision Machining**

Fischer Elektronik offers a wide range of processing options, especially for decorative applications. All standard cooling heatsinks and cases and also special front and



cover plates can be manufactured to suit customers' requirements in terms of decorative design.

CNC machining centres and automatic machines are used to ensure optimum processing quality.

Components receive mechanical surface treatment in preparation for anodizing or galvanic coating such as chromium or gold, consisting of sandblasting, grinding and polishing.



### **Powder Coating**

For the safe use of electronic casings under difficult ambient conditions where anodized or painted casing surfaces are no longer sufficient, first-class surface coating is required.



In addition to its standard product range, Fischer Elektronik offers robust and invulnerable powder coatings. In addition to colour and structural options for individual surface designs, powder coatings offer excellent resistance to scratches, abrasion and shocks and provide outstanding protection against corrosion and chemicals as well as good electrical insulation.

Other important features include a long service life, highlight fastness and a base material which is environmentally friendly, as the powder contains neither heavy metals nor solvents.

### **Screen printing & Laser lettering**

For optical identification of milling Fischer use screen printing or YAG-lasers.

Espacially laser inscriptions are of outstanding quality and ensure good, permanent legibility, even in the case of letter sizes below 1mm and under the influence of solvents.











# CABLING SOLUTIONS FOR Networks



We realize ideas

# CABLING SOLUTIONS IN THE COPPER AND FIBER OPTIC TECHNIQUES FOR BUILDING AND INDUSTRIAL CABLING APPLICATIONS

The growing demand for data transmission volumes requires an ever stronger performance and continuity of underlying data networks. Today, IT-technologies are used in a multitude of applications in buildings, date centers and industrial plants. Anticipatory and intelligent cabling systems that spanningly connect several segments must therefore match perfectly in order to guarantee a sustainable, safe and continuous form of communications

All this is guaranteed by the Metz Connect range of P|Cabling products: Highly specialized, internationally standardized and high-performance connection components in copper and fiber optic technology stand out by their quality and strong system compatibility.



Office fiber optic

I Office RJ45

I Industry fiber optic

I Industry RJ45

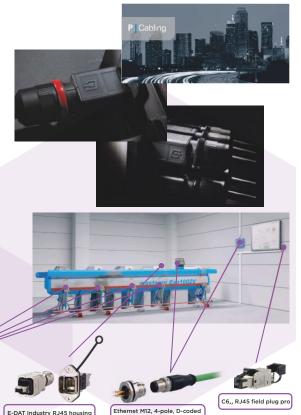
I Ethernet M12

I Industry unequipped housings

I Data center solutions

I Assembled cables

Accessories



## **TERMINAL BLOCKS**

### **SPRING CLAMP TERMINAL BLOCKS**

- Solderable
- I Pluggable
- I Compression-mount
- I For solid wires and multi-stranded wires
- I Nominal cross section of 0.08 2.5 mm<sup>2</sup>
- I Centerline 2.5 10mm

### **SCREW-TYPE TERMINAL BLOCKS**

- | Solderable
- **I** Pluggable
- I Single poles
- I For solid wires and multi-stranded wires
- Centerline 3.5 10.16 mm

### **IDC TYPE TERMINAL BLOCKS**

I Solderable

■ Centerline 3.5 - 10.16 mm

### **ADVANTAGES**

Solderable

E-DAT Industry RJ45 field inser

- I Complete range for different installation requirements
- A variety of connecting technologies
- Additional product designs (operating options, mounting flanges etc.)
- I Solutions for different connection cross-sections
- I Color variants at customer request
- I Varying number of poles
- I Codeability
- I Customer-specific adaptations possible







### PCB LEVEL CONNECTORS



### SIM card connectors

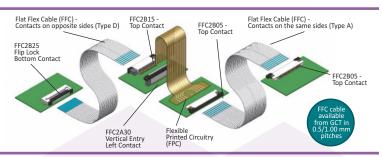
- I Hinged
- I Push-push
- I Retainer
- I Dual SIM



### FFC connectors & cables

I 0.3, 0.5, 1.0 mm pitch

- I Side or top entry
- I Top or bottom contact
- I Side or flip lock



### Memory SD & uSD card connectors

- I Hinged
- I Push-push
- I Push-pull

### USB 2.0 & 3.0 connectors

- I USB C
- I Micro USB
- I Mini USB
- I Full size USB
- I A, B, AB types

### **Modular Jack** connectors

- I 4-8 positions
- I 4-8 positions loaded
- I Right angle or vertical
- I THT or SMD style

connectors

**Board-to-board** 

- I 0.8, 1.0, 1.27, 2.0, 2.54 mm pitch I Headers, elevated headers.
- sockets, elevated sockets
- I Horizontal, parallel, perpendicular
- I THT or SMD style











### **DC Power Jacks**

I THT and SMD

I 0.65 mm, 2.00 mm, 2.35 mm & 2.50 mm center pin diameters

I Current ratings from 1.5 A to 8.0 A

I Shielded variations in both straight and right angle orientation

I Flat ribbon cables



## fircher elektronik **3**3

I PCB connectors - male and female headers, contact strips I DIL, PGA, PLCC, transistor sockets

I IDC connectors male & female headers, one & two rows

I D-SUB connectors









### **Board to Board Connectors**

I Centerline 1.27, 2.00, 2.54 mm

ISMD & THT

### RJ45 & RJ11, RJ12 Jacks

I THT & SMD versions

I Shielded & unshielded

I Single & multiport

I With integrated magnetics and/or LED indicators

### **USB Jacks**

I THT & SMD versions I Type A, B & microB

### M12 Jacks

I D coded or X coded types

I 4 or 8 pins

I THT or panel mounted

I Sealing level up to IP68







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Currently the Microdis Group employs over 100 people, with a large number of electronic engineers, mostly involved in sales and application support.

As a company with an extensive experience in the distribution of electronic components, and a purchasing center in Germany for many years, we are able to offer almost any product from a wide variety of electronic components. We offer also the production of cable harnesses and programming of crystal oscillators for a customised frequency. Cooperation with a catalogue distributor provides fast deliveries (2 days) of a wide range of catalogue products. We have certificates of quality management DIN EN ISO 9001:2015 for the distribution of electronic components.



AAEON AEGID ASROCK INDUSTRIAL BRIGHTEK CAMDENBOSS EPSON

FISCHER CONNECTORS FISCHER ELEKTRONIK **GFRSYS** GLOBAL CONNECTOR TECHNOLOGY IIYAMA ISOCOM JST LEAR **LG INNOTEK** MAXTENA **MECAL** MEDER **MEDIKABEL** METZ CONNECT **NEOUSYS TECHNOLOGY** NEXCOM RAKON SAVOY TECHNOLOGY TAIWAN SEMICONDUCTOR

U-BLOX WEZAG

Industrial computers and panels RFID systems and transponders 3.5" & mini-ITX industrial boards Power, THT and chip LEDs and LED modules Interconnect components, electronic housings, 19" cabinets Crystals, oscillators, filters and sensors Programmable oscillator web-shop Military, medical and industrial connectors Heatsinks, connectors, 19" and case technology Railway computers SIM-Holders, memory card connectors, USB connectors Large Format Displays Optocouplers, optoswitches Signal connectors Automotive and white goods connectors Lighting LEDs, mid and high power, CSP packages, UV LEDs GPS, Galileo, Glonass, Iridium antennas Machines and systems for wire crimping Reed switches, sensors and relays UL/CSA/DIN certified, customized industrial cables Terminal block connectors - screw, spring and pins Wide-temperature fanless computers Industrial computers and panels Advanced Frequency control and Timing solutions Automotive and white goods connectors Semiconductor devices GNSS, GSM, UMTS/HSPA/CDMA/LTE/NBIoT modules, WiFi, Bluetooth, NFC, V2V/V2X, antennas Hand tools for crimping, pneumatic presses

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