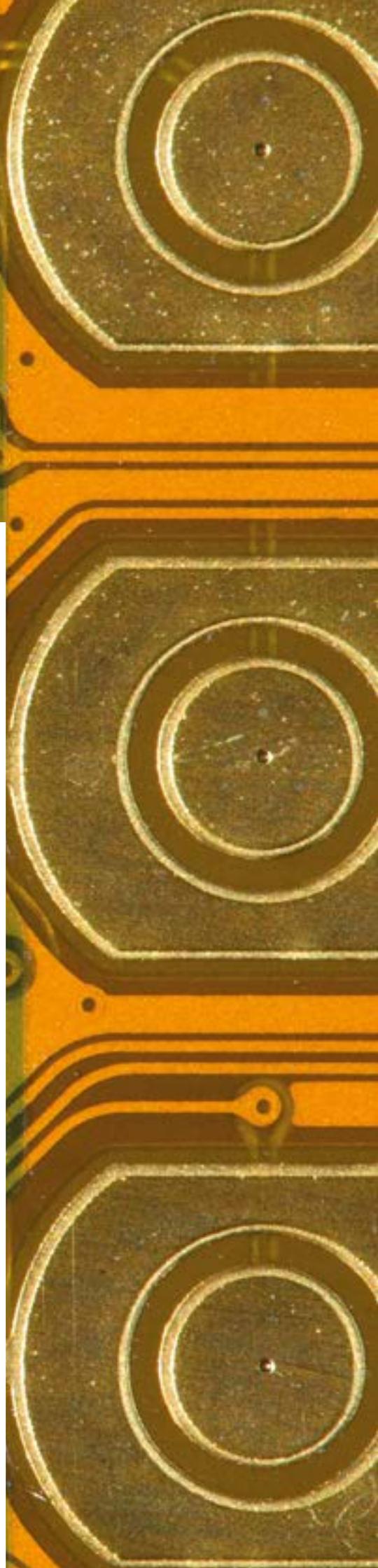


# IP&E News

4<sup>th</sup> Quarter 2023





# IP&E Linecard

- Connectors
- Antennas, Batteries, Emech
- Passives
- Power Supply



Download here:  
[arrow.com/en/ipe/download-area/  
arrow-ipe-linecard](https://arrow.com/en/ipe/download-area/arrow-ipe-linecard)

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# 3M™ High & Medium Flex Life Cables

3M™ High and Medium Flex Life Cables, are excellent for dynamic applications requiring repeated bending and durability

Flexible cables are designed to withstand repeated bending and flexing associated with moving applications. High and medium flex life cables bend repeatedly and regularly without disrupting the cable's intended use.

3M™ High & Medium Flex Life Cables allow for mass Insulation Displacement Connection (IDC) termination, saving installation time. A simple crimp makes stable, reliable metal-to-metal contact without the need to strip and crimp each connector. Cables are zippable for branching or discrete termination.

3M also offers An Halogen-Free version of Hi-Flex cables. These are a good choice when there are concerns about fire hazard, safety and toxicity.

High Flex cables are tested for repetitive flex life of 100 million cycles at 1 3/4" diameter.

Medium Flex cables are tested for 10 million flex cycle rating at 1 3/4" diameter.

Copper alloy wire strands providing flex life for dynamic applications in a flat ribbon configuration.

Hi and Medium Flex cables offer a number of advantages over traditional cables, including:

- **Increased flexibility:** Hi and Medium Flex cables can withstand repeated bending and flexing without breaking or losing their functionality. This makes them ideal for applications where the cable will be subjected to a lot of movement, such as in robots or medical devices.
- **Reduced weight:** Hi and Medium Flex cables are lighter than traditional cables, which can save weight in applications where weight is a concern, such as in aircraft or automobiles.

- **Improved durability:** Hi Flex cables are more durable than traditional cables and can withstand harsh environments, such as extreme temperatures or chemicals.

Hi-Flex cables are used in a variety of applications where flexibility is essential, such as:

- Robots
- Medical devices
- Transportation
- Heavy machinery
- Electronic devices
- Instrumentation & Test equipment
- Vending machines

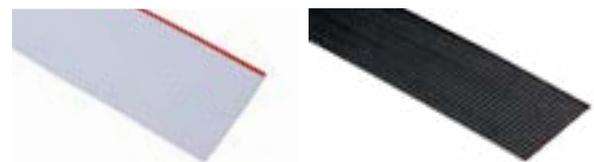
---

#### Orderable at [arrow.com](https://arrow.com)

- 3M™ Medium Flex Life Cable, 3539 Series, 1.27 mm
- 3M™ Medium Flex Life Cable, Halogen-Free, HF539 Series, 1.27 mm
- 3M™ High Flex Life Cable, 3319 Series, 1.27 mm
- 3M™ High Flex Life Cable, Halogen-Free, HF319 Series, 1.27 mm
- 3M™ High Flex Life Cable, 3250 Series, 1 mm



Click or scan QR-Code to read more



# Compact, robust, and versatile

## Solutions for Wire-to-Board and Wire-to-Wire applications

Minitek® Pwr 3.0 is a flexible and comprehensive solution designed for power application with current rating up to 8.5A per circuit. It is available in 2 to 24 circuits for dual row and 2 to 12 circuits for single row.

- Fully isolated terminals prevents terminals from damage.
- Blind mating interface (BMI) option in vertical and right angle, through hole type for dual row.
- Low insertion force for installation of crimped terminal making it easy to use.
- Polarized mating geometry prevents mismatching.
- Solutions for Wire-to-Board and Wire-to-Wire applications.



### Target Markets



1U Rack Box, Customer Premises Equipment, Generic Telecom Box, Interface Converter, WiMax Box



Air Conditioner, Microwave Oven, Refrigerator, Set Top Box



Blade Server, Desktop PC and Motherboard, HDD Application, Rack-Mount Server, Server-Orthogonal Configuration



Defibrillator, Hospital Bed, Patient Monitor, Ultrasound Equipment



Chemical Detection System, Radar Equipment

Orderable at [arrow.com](http://arrow.com)

- 10127716-02GLF

Features	Benefits
Low insertion force for installation of crimped terminal	Easy to use
Fully isolated terminals	Prevents terminals from potential damage during operation
Positive locking on housing with low thumb latch operation	Ensures secured mating retention
Fully polarized housings	Prevents accidental mismatching
Scoop-proof housings	Ensures terminals and header pins are not damaged for angled mating
High retention force in housing	Well secured terminals in housing
Glow wire compliant option	Complies with International Standard IEC 60335-1 for household appliances
BMI option	Allows ± 2.54mm gatherability for blind mating
UL94V-0 flammability rated LCP material	High flammability rating
RoHS compliant and lead-free	Meets environmental, health and safety requirements

# OVC III Power Supplies for EVSE

Surge resilient OVC III rated power supplies designed for EVSE, industrial, home appliances, and other harsh applications

Electric vehicle supply equipment (EVSE) and other industrial equipment must be built to withstand harsh environments. Surges and transients can occur due to a variety of factors, including malfunctioning equipment, lightning strikes, and switching operations on the electrical grid, which can damage equipment by exceeding its voltage or current ratings.

The closer an application is to the power source, the more severe the transient surges are likely to be. Category III overvoltage equipment is used inside fixed installations or permanently connected applications, such as EV charging stations, industrial equipment, home appliances, and IoT applications.

Overvoltage category III (OVC III) power supplies are designed for industrial and commercial applications where equipment is likely to be exposed to power surges and transients. These power supplies incorporate surge protection features to withstand harsh environments and help ensure the reliable operation of equipment.

CUI offers a variety of surge resilient power supplies for OVC III applications. These rugged power supplies feature a wide input range (up to 305 Vac), a power range of 10 W to 150 W, and board mount, chassis mount, and DIN rail mounting options. They are designed to meet the safety requirements of IEC/EN 62368, 61558, and 60335 for OVC III applications.

To further improve safety and reliability, CUI's OVC III power supplies come equipped with overcurrent, overvoltage, and overtemperature protection, making them a safe and resilient solution for a range of applications.



#### Orderable Part Number at [arrow.com](https://arrow.com)

- |           |            |            |
|-----------|------------|------------|
| - PSK-10D | - VGS-35W  | - VGS-100C |
| - PSK-15D | - VGS-50W  | - VGS-150C |
| - PSK-20D | - VGS-75W  | - VGS-100D |
| - PSK-30D | - VGS-100W | - VGS-150D |
| - PSK-40D | - VGS-150W | - PDRB-30  |
| - PSK-60D | - VGS-35C  | - PDRB-60  |
| - VGS-15W | - VGS-50C  | - PDRB-100 |
| - VGS-25W | - VGS-75C  |            |



Click or scan the QR-Code to learn more about CUI's surge-resilient power supplies for harsh environments.

# Rugged Fuses for EV and eMobility

EV and HEV fuses designed to protect main battery pack, battery module, junction box/auxiliary circuits or charging stations



With the growth of eMobility, fuses play an increasingly important role in protecting EVs from overcurrent. Overcurrent can occur in an EV for a number of reasons, such as a short circuit, a fault in the battery pack, or a problem with the charging system. If overcurrent is not prevented, it can damage or even destroy the EV's electrical system.

Fuses are used to protect electronic systems in the EV, such as the battery, motor, power distribution, charging system, and lighting, from overcurrent. They work by melting when they are subjected to an overcurrent. This opens the circuit and prevents further current flow.

Bel Fuse offers fuses that are specifically designed for electric vehicles to withstand the harsh environmental conditions of high temperatures, humidity, and thermal shock. These fuses have voltage ratings up to 1000 VDC and current ratings up to 800A, making them suitable for a wide range of EV applications.

A leading manufacturer of circuit protection products for automotive, e-mobility, industrial, and commercial applications, Bel Fuse offers a breadth of products that can be customized to meet your specific needs. This includes SMD and radial PTC fuses, slow-blow and fast-acting surface mount fuses, and power fuses, many of which are designed to meet AEC-Q200. Our products are robust, reliable, and backed by shorter lead times. We are a dependable supplier with a long history of providing quality products and services.

#### EV/HEV fuse product range

- 150 ~ 1000 VDC rated voltages
- 5 ~ 800 A rated currents
- 10 ~ 60 kV interrupt voltages

---

#### Orderable Part Number at [arrow.com](https://arrow.com)

- 0AKHBK500-BA
- 0AKHBK400-BA
- 0AKRBK400-BB
- 0AKRBK350-BB
- 0AKRBK300-BB
- 0AKNBK200-BB
- 0AKNBK100-BB
- 0AKK-K100-BB
- 0AKK-9800-BB
- 0AKMB9800-BD
- 0ALEB9500-PD



Click or scan the QR-Code to take advantage of Bel's shorter lead time on dependable circuit protection solutions.

# Bourns® Automotive Over Temp Protector

Enhanced Automotive Thermal Protection using  
Bourns® Miniature Thermal CutOff Device



## Model AD and SD Series

The evolution of electric vehicles is creating new challenges and technologies in harsh environments, increasing the stringency of emission regulations and enhancing ways to meet the new standards. The absence of the ICE as a source of heat means “heated systems” and “thermal management” must be both novel and prolific for the driver’s safety. Vehicle OEMs/Tier 1 are focusing on optimizing energy efficiency which is challenging for “design”, “thermal management” and “safety circuits”. Accurate temperature protection and measurement is critical to increasing performance, preventing potential danger, and emphasizing more safety and reliability for electrification and automotive applications. There are thermal challenges for small compact devices, a greater level of integration, and increased data processing.

Evolving applications with new technologies such as internal comfort systems, cameras/radar/ADAS, batteries, motors and charging must be protected from overtemperature events. Thermal management is a key requirement, especially for electric vehicles.

- Bourns® Mini-breaker TCO devices are one of the latest thermal management products on the market for automotive applications.
- The TCO device triggers in response to high temperatures, reduces current flow and protects from overheating events.

- Bourns® Mini-breaker TCO devices are a combination of two common circuit protection technologies; a PTC and a bimetal switch.
- For the thermal management field, Bourns® Mini-breaker TCO products provide recognized protection with over 6 billion units sold.
- Bourns® is committed to designing and manufacturing the highest level of quality products, proven with its history of no field returns.
- Bourns® AD and SD Series Automotive Grade TCO devices are validated to meet Bourns® internal AEC-Q200 equivalent test plan.

## Highlights

- Available in axial lead (AD Series) and surface mount (SD Series) configurations
- Miniature size
- Resettable function
- Temperature accuracy  $\pm 5^\circ\text{C}$
- Extremely low and stable resistance
- AEC-Q200 compliant and automotive grade
- Manufacturing and quality control conducted in Japan

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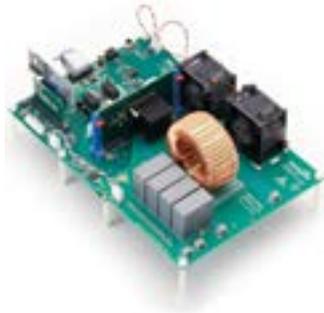
## Orderable Part Number at [arrow.com](http://arrow.com)

- SD90ABB
- AD90ABB



Click or scan QR-Code for  
more information.

# SpeedVal™ Evaluation Platform by Bourns®



Bourns® Inc. has partnered with Wolfspeed to develop magnetic components optimized for the SpeedVal™ evaluation platform.

Included in the Buck/Boost Filter module section of the platform, Bourns® introduces

two custom designed inductors for use as the inductive element in the LC power filter stage as an add-on accessory board.

This LC filter enables the half-bridge portion of the main SpeedVal™ half-bridge motherboard to be tested in either a buck or boost configuration mode.

To accomplish this, chokes were designed with two different inductance ranges per Wolfspeed's project requirements.

Bourns® offers the following two components integrated into the following Wolfspeed modules:

Bourns Part Number	Wolfspeed Module Number
BS501143T	MOD-ACC-BUCKBOOST-190 uH
BS501144T	MOD-ACC-BUCKBOOST-400 uH

The Bourns® inductors were optimized for the total range of the 15 kW current SpeedVal™ kit parameters for both range of frequency (20 – 300 kHz) but also a nominal peak operating current of 42 A DC.

## Features

- Litz wire for reduced skin effect and overall AC coil loss
- Powder core material core loss over the total operating frequency of the SpeedVal™ kit
- Toroidal core shape for best magnetic flux path
- Powder core material for distributed gap advantages over discrete gap to reduce EMC
- Considerations of core and wire density for lowest total weight of the component

## Orderable Part Number at arrow.com

- MOD-ACC-BUCKBOOST-190 uH
- MOD-ACC-BUCKBOOST-400 uH

# HEGEMIP-VG braided sleeving

HEGEMIP-VG is specially designed to meet all defence application needs for EMI protection.



Electromagnetic Interference (EMI) can wreak havoc on your electronic systems. It disrupts communication, messes with positioning sensors and even causes harmful voltage spikes. But no worry, using VG-approved shielded braided sleeves helps avoid these problems and keep systems running safely and reliably.

## Introducing Helagain HEGEMIP-VG

This expandable braided sleeving is specially designed to meet all defence application needs for EMI protection. No matter how extreme the conditions, HEGEMIP-VG has it covered, with an operational temperature range of -65 °C to +150 °C.

The highly flexible material is manufactured from polyester interwoven with tin-plated copper (SNCU) and has an expansion ratio of 3:1. The sleeving does not kink or rupture, even when bent at sharp angles. Plus the disposable inner transport tube makes wire pulling easy.

## More than just excellent EMI protection

HEGEMIP-VG doesn't stop at EMI protection. It also reliably shields cables and wires from mechanical abrasion and damage caused by contact with liquids like hydraulic fluid, diesel and aviation fuels.

Choose from seven nominal diameters, ranging from 3.5 mm for single wires up to 30.0 mm for larger bundles. Reel lengths start at 500 m and vary accordingly at 250 m, 200 m and 100 m for the larger diameters.

---

## Orderable Part Number at [arrow.com](https://arrow.com)

- 173-00203
- 173-00202
- 173-00205
- 173-00204
- 173-00200
- 173-00201
- 173-00206

# Isabellenhütte's power resistors

Isabellenhütte's precision & power resistors differ essentially in their manufacturing technologies: ISA-PLAN® and ISA-WELD®

When it comes to achieving the best possible measurement results in the smallest possible space, Isabellenhütte's precision resistors are an ideal choice. The series are qualified according to AEC-Q200 specifications. They are RoHs compliant and partly qualified for use in space applications according to ESCC. Our high-load precision and power resistors meet the highest demands on temperature coefficients (TC), thermoelectric voltage, long-term stability, inductance and load capacity. Since these properties are influenced by the used resistor materials as well as by the design and technology, Isabellenhütte has developed two different manufacturing technologies: ISA-PLAN® and ISA-WELD®.

### ISA-PLAN®: foil technology based on multi-layer construction.

In ISA-PLAN® technology, the elements of a precision and power resistor are etched from Isabellenhütte's resistor alloy foils (MANGANIN®, ZERANIN®). Due to this construction the parts have a very good heat dissipation and can handle a high power even at a small component size. An optimized current density distribution avoids the risk of hot spots. There is a wide range of applications possible.

### Applications / Industries

- Automotive industry
- Power electronics
- Drive systems
- Energy measurement
- Aviation and aerospace industries
- Medical technology

### ISA-WELD®: electron-beam welded composite of Cu-resistance material-Cu.

The low-ohmic high power resistors consist of solid, electron-beam welded composite materials, which are made of copper strips and of Isabellenhütte's precision alloys (MANGANIN®, ZERANIN® and ISAOHM®).

This composite material can be customized to any shape or application in a punching and bending process. Therefore, it allows the highest possible flexibility within your application design.

### Applications / Industries:

- Automotive industry
- Battery management
- Battery charging technology
- Drive systems
- Electronic energy meters for high-current applications

### Orderable Part Number at arrow.com

- see tables

ISA-WELD® Technology							
BVx 2-terminal resistors			BVx 4-terminal resistors			WAx	
							
BVE 5930	BVS 3920	BVT 2512	BVR 4026	BVB 2725	BVN 1216	WAF 1213	WAK 1206
$P_{max}$							
15 W	12 W	6 W	12 W	12 W	10 W	7 W	6 W
0.1 – 6.8 mOhm						0.5 – 1 mOhm	

ISA-PLAN® Technology														
SMx				VMx				CMx			VLx		FMx	
														
SMT 2817	SMS 2512	SMP 2010	SMK 1206	VMS 2512	VMP 2010	VMK 1206	VMI 0805	CMS 2512	CMP 2010	CMK 1206	VLP 1020	VLK 0612	FMP 2010	FMK 1206
$P_{max}$														
7 W	5 W	3 W	1 W	4 W	3 W	1.5 W	1.1 W	2.5 W	2 W	1 W	3 W	5 W	4 W	
5 – 4.7 Ohm											1 – 6 mOhm		2 – 6 mOhm	

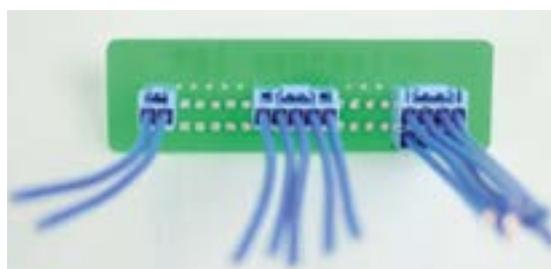
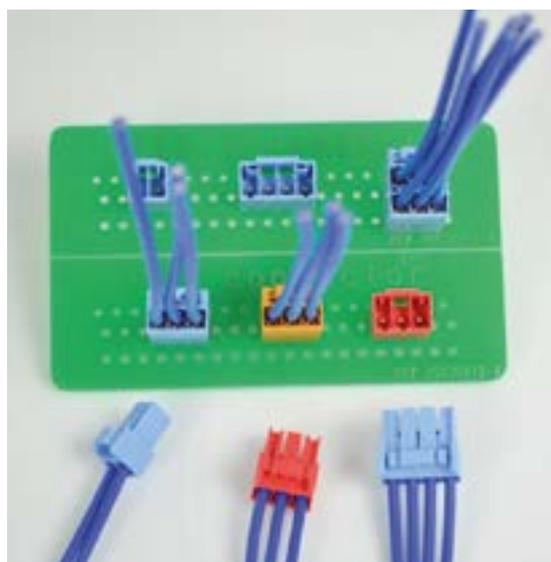
# PSI: Multiple Crimp Style Series Pitch 4.0 mm

JST Deutschland GmbH presents a versatile series in the pitch of 4.0 mm: PSI. This series can be offered as a wire-to-wire and wire-to-board solution. It's available in 3 different keying. A mis-mating is prevented by different colors and key mechanism.

A secure locking structure enables a reliable connection. Low insertion force contacts and finger-friendly design provides an excellent operability. A large electric current was realized by using AWG 26 to AWG 16 wires. With a cross section of AWG 16 the 2 circuit connectors can be used up to 12 A AC, DC.

The series PSI is designed for a voltage rating up to 300 V AC, DC. It's UL recognized and CSA certified. Also a TÜV certification can be provided. PCB headers are available in top and side entry type, THT. The series PSI is available in 2, 3, 4 and 5 circuits as a single row type. The circuits 6, 8, 10, 12 and 14 are available as double row type. The wire-to-wire connection at the moment can be offered as 2, 3 and 4 circuit version.

If you need a higher creepage distance also headers with omitted pins are possible. So a high pitch of 8.0 mm can be realized. With series PSI JST Deutschland GmbH offers another product family with a wide range of application possibilities. For more details please refer to our specification and contact your Arrow representative or visit [arrow.com](http://arrow.com).



Click or scan QR-Code to  
Download JST Product Overview.

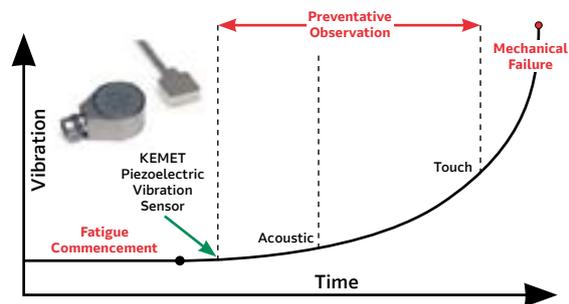
# KEMET Magnetics and Sensor Products

## Piezoelectric Single Axis Vibration Sensors

Typical uses for KEMET vibration sensors are electric motors, conveyer belts, diesel or petrol engines, fuel or water pumps, XY table for machine beds. Why such applications? It's all about predictive maintenance. Any machine on a production line that unexpectedly fails can cost thousand of dollars in repairs. The old method of avoiding this was to schedule regular down time for inspection and repair. Today, using these sensors and IoT (cloud services), scheduled maintenance is a thing of the past. Data from the vibration sensor on the machine is used to warn of pending failure or anomalies.

These sensors are sensitive enough to alert pending failure before usual methods of detection become available. Depending on the magnitude and frequency of the vibration, the sensor provides a voltage output that allows deterministic analysis to be performed without

having to be close to the machine. Small scale vibrations that can't normally be observed are quickly identified using KEMET sensors.



### Orderable at arrow.com

- VS-JV10A
- VS-JV10A-K01
- VS-JV10A-K02
- VS-JV10A-K03
- VS-JV10A-K04
- VS-BV203-B

## KEMET Automotive Products: AEC-Q200 Common Mode Chokes

To fulfill the growing need for high voltage automotive and harsh environment industrial EMI filtering applications, KEMET offers AEC-Q200 grade SCF-XV, SCR-XV & SCT-XV common mode line filters, allowing through its broad standard product portfolio for the selection of the most suitable specification for each application.

Many solutions on the market use coils that are not always automotive grade, or have a maximum 750 V AC/DC, or have a larger footprint. With a rated 1,000 V AC/DC and AEC-Q200 qualification, these KEMET chokes are ideal for use in the EV automotive market, supporting the industry's trend to increase the vehicle-installed Lithium-ion battery pack voltage to limit drive train currents. Applications include onboard chargers, E-compressors, wireless charging systems, medium power drives for power steering and air conditioning. With

its space-saving and high characteristics, these series also address the trend of miniaturization and operation in harsh environment conditions.



### Orderable at arrow.com

- |           |           |           |
|-----------|-----------|-----------|
| - SCF19XV | - SCR25XV | - SCT29XV |
| - SCR19XV | - SCT25XV | - SCF39XV |
| - SCT19XV | - SCF29XV | - SCR39XV |
| - SCF25XV | - SCR29XV | - SCT39XV |



# Special Chip Resistors

Downsizing, Space Saving and High Reliability – WK73 & SG73P-Series

## High Power Wide Terminal



KOA's wide terminal resistors offer several advantages compared to standard footprints. For example, the 0612 chip size allows 6 x power rating compared to standard 1206 parts. This saves board space and is possible due to the improved heat dissipation via the solder joints. The larger terminals also enhance terminal strength and the smaller distance between the terminals reduces expansion stress. Finally, the inner resistive pattern is designed to minimize hotspots.

### Features and Benefits

- Excellent heat dissipation characteristics
- Superior temperature and power cycling performance
- Higher rated power – less board space than standard chips
- Standard sizes 0204 ... 1225
- Resistance range 10 mΩ...1 MΩ
- AEC-Q200 tested
- Anti-sulfuration type also available

### Applications

- Automotive electronics
- Power supplies
- Motor control units
- Industrial power control
- Battery packs

---

### Orderable at arrow.com

- WK73R            - WU73
- WK73S           - WK73 R/S\_RT
- WG73

## Anti-Surge & Anti-Pulse



KOA's SG73-family offers several chip resistor solutions with high surge/pulse withstanding characteristics. The SG73P-series has approx. 7 times pulse handling capability compared to standard flat chip resistors. The SG73G (TCR 50, 0.25 %) is ideal for precision designs. The special inner construction offers outstanding pulse load capability and higher continuous rated power. This means that existing designs can be 'powered up' and for new designs the smaller SG73 device can be used saving valuable PCB space.

### Features and Benefits

- Outstanding pulse performance
- Excellent in ESD characteristics (SG73, SG73S)
- High component and equipment reliability
- Available in sizes 0402...2512
- Resistance range 1 Ω...10 MΩ
- AEC-Q200 tested
- Anti-sulfuration type also available

### Applications

- Automotive electronics
- Power supplies
- Industrial electronics
- Measuring instruments
- Motor control units
- Power conditioner/ inverter

---

### Orderable at arrow.com

- SG73                - SG73G
- SG73P            - SG73 P/S\_RT
- SG73S

# 6780 Series SPE IP20 Connectors

Single Pair Ethernet (SPE) describes the transmission of Ethernet over only one pair of twisted copper wires

As the Industrial Ethernet market continues to grow, the market continues to look for smaller and faster connectors to fit their needs. In turn, this has driven single pair Ethernet to the forefront of discussion. Single Pair Ethernet (SPE) describes the transmission of Ethernet over only one pair of twisted copper wires. In addition to data transmission via Ethernet, SPE also enables a simultaneous power supply of terminal devices via PoDL – Power over Data Line. Previously, this required two pairs for Fast Ethernet (100MB) and four pairs for Gigabit Ethernet.

In addition to space and weight savings with less wire, SPE transmits 1 GBit/s only up to a distance of 40 meters. KYOCERA AVX is a part of the SPE Industrial Partner Network and will offer SPE products to meet the customer and market needs while meeting the standards according to IEC 63171-6 and IEEE 802.3 etc.

As a member of the SPE Industrial Partner Network, KYOCERA AVX will be actively involved in the continuing development of single-pair Ethernet (SPE) standards and compatible connectivity products, and will also serve as an ambassador of the significant space- and weight-saving advantages that SPE offers.

## General Characteristics

New Single Pair Ethernet (SPE) Connectors is bringing numerous benefits to industrial market:

- Simplified Ethernet connection for continuous communication from the control computer to the sensor
- Transmission speeds from 10Mbit/s to 1Gbit/s
- Power supply and better reliability of terminal devices through Power over Data Line (PoDL) or hybrid

- Transmission ranges up to 1000 meters
- Simplified connectors and cabling saves space and weight
- Time savings when setting up, maintaining and operating industrial networks
- Replacement of analog interfaces, bus systems and other proprietary field level systems
- Reduced complexity of automation networks

## Features & Benefits

Single piece connector – no mating half connector required to connect two boards together which means:

- Improved performances in one single twisted pair wires (vs RJ45 4-pairs)
- Smaller form factor
- New industry standard according to IEC 63171-6
- Operating temperature up to 85 °C (Target 125 °C)

## Typical Applications

- Robotics
- Automation
- Sensor & Actuator Networks
- Control & Monitoring Cameras
- Smart Grid
- Traffic Control
- Transportation Smart Monitoring

## Orderable at arrow.com

- 206780002000006, 106780002020010, 106780002020030, 106780002020050, 106780002020100Z Series



# New 59155 & 59156 Reed Sensors

Littelfuse Launches World's Smallest Subminiature Flange Mount Reed Sensors for Various Applications

Littelfuse Launches 59155 and 59156, which are the world's smallest subminiature flange mount reed sensors. The sensors' design provides compact size, contactless activation, and customization options, making them suitable for a wide range of tight-spacing applications across different industries.

## Features

- Smallest flange mount type reed sensor in the market 12.70 mm x 9.00 mm x 3.00 mm (0.500" x 0.354" x 0.118")
- Capable of switching 120 Vac / 170 Vdc at 10 W
- Available in select sensitivities (operating distances)
- Standard cable configurations; customization options available
- Compliance to REACH, UL 508 and CSA C22.2 No.14
- Hermetically sealed, IP67 rated
- Benefits
- Ideal for tight or limited spacing applications
- No leakage current in "open" state—ideal for battery powered IoT applications
- Requires zero operating power for contact closure
- Non contact switching solution for wet and harsh environments
- Easy installation and functional concealment in many applications

## Applications

- Small appliances
- Major appliances
- Security and access control
- Factory automation
- Process equipment
- Proximity and limit sensing
- Other IoT proximity sensing applications

---

## Orderable at [arrow.com](https://arrow.com)

- 59155
- 59156



59155



59156

# Molex Power Management Solutions

Discover how Molex is providing solutions for managing increasing energy demand in diverse applications.



Multiple industries are transitioning towards a more energy-efficient future, fueled by the need for increased data across trends such as the smart home, vehicle electrification and the growth of data centers.

### Keeping power under control in electric vehicles

Power is vital to the automotive market with the high level of interest in electric vehicles (EV). Consumers around the world are seeking alternatives to conventional fossil fuels, and there has been a rapid growth in demand for electric and hybrid vehicles. The advances in battery technology, along with the latest battery management systems, mean that electric power is now a practical alternative to conventional motors...

### The thermal challenge in data centers

The future of data communication lies within data centers. The internet is a huge consumer of power, and demand will continue to grow. Some studies are predicting that by the end of the decade a fifth of all the energy generated in the world will be used within the IT sector. With cloud-based services increasing, particularly via mobile devices and billions of IoT nodes, the reliance upon data centers is further increased...

### Power connectivity solutions

Connector designers are now being forced to come up with creative solutions to manage heat and current, with power efficiency becoming critical in today's power-intensive applications. Molex offers a growing range of interconnects that can accommodate significant amounts of power, designed specifically to support high-current applications with optimal power densities across multiple configurations:

- EXTreme power products: Designed to support high-current applications with optimal power densities and exceptional thermal management capabilities.
- Centrality high-current pin and socket interconnect system: Delivers up to 350.0 A of current through four diameter sizes and offers a wide range of configurations, connecting PCBs and busbars.
- PowerWize connectors: PowerWize headers and receptacles are designed to comply with industry-standard touch-safe requirements.



Read the full article and learn more about Molex power solutions for energy management by clicking the link below, or scanning the QR code:

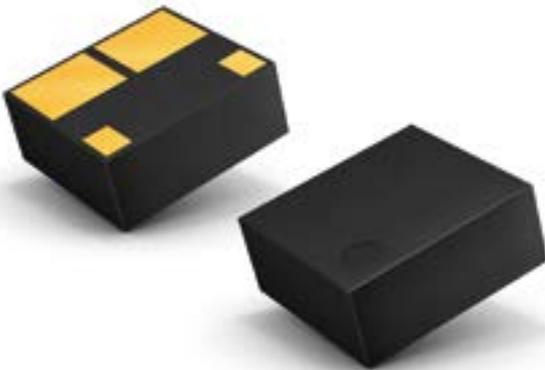
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Click or scan QR-Code for more information and to order on [arrow.com](https://arrow.com).

# Ultra Compact 1b Type MOSFET Relay

Panasonic Industry's CC series of PhotoMOS® in TSON housing: the world's smallest 1b type MOSFET relay



Capacitive-coupled (CC) PhotoMOS® MOSFET relays from Panasonic Industry now come in a 1 Form B type. They are packaged in a surface-mount TSON package to save space – in particular for all high-density mounting applications.

Denominated as AQY4C2Pxx types, they are just one-eighth the size of equivalent relays housed in a SOP4 package and feature a switching capacity of 60 V/0.15 A. Additionally, the TSON PhotoMOS® relay uses 10 % less current than MOSFET relays in a SOP4 package, which reduces board footprint and energy consumption in applications with limited space.

The galvanic isolation between input and output of the TSON kinds is capacitive rather than

optical, unlike many of the currently available PhotoMOS® relays. Not only does this allow for a substantially smaller design, but it also provides important benefits in terms of temperature range, drive power, and switching times. Thus, operating conditions with an ambient temperature of up to +105 °C are supported by the new TSON relays. The input can be operated directly with voltages of typically 3.3V<sub>in</sub>, and the current needed for control is typically as low as 0.04 mA. As a result, a series resistor that is typically required by traditional PhotoMOS® types is no longer required for this voltage-driven type.

#### Key Features

- Ultra-small TSON package
- 1FormA and 1FormB types available
- Switching capacity of 1FormB type: 60 V, 0.15 A
- Low On resistance
- Low output capacitance
- Voltage-sensitive input
- High temperature range up to +105 °C
- Linear output characteristics
- High reliability and unlimited switching cycles
- AC/DC switching

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#### Orderable at [arrow.com](https://arrow.com)

- AQY4C2P\*\*

# Shielded Flat Cables

Shielding for improved performance: The shielded ZIF cable from SUMIDA flexible connections GmbH

SUMIDA flexible connections GmbH has developed an innovative solution to meet the requirements of modern applications with its shielded ZIF flat cable. The cable's shielding minimises interference from electromagnetic interference, both from internal and external sources. This results in improved signal integrity and reduced failures in demanding environments.

By reducing EMI interference, the ZIF shielded flat cable ensures high signal integrity. It minimises signal loss and cross talk, resulting in more reliable data transmission. The shielded ZIF flat cable from SUMIDA flexible connections GmbH is characterised by high reliability. It is resistant to vibrations, thermal loads and mechanical stress, which ensures a long service life and minimal maintenance costs.

## Features

- Adjusted impedance of the FFC to 100 Ω by additional shield layer
- EMC optimization by shielding in combination with a ground plate for the ground connection
- Suitable for high data rates

## Characteristics

- High vibration and bending resistance
- Unbreakable and reliable connection
- Temperature-resistant insulation materials (-40 °C to +125 °C)
- Compatible with common connector types (e.g. Iriso, Hirose, TE, FCI, Molex etc.)

## Customer Benefits

- Quick assembly by simple plugging => degrees of freedom
- Automated assembly
- Customized solution
- Weight reduction

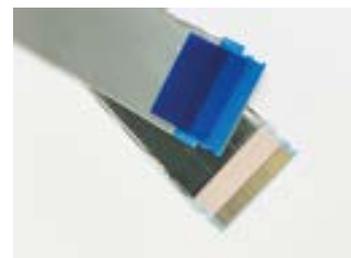
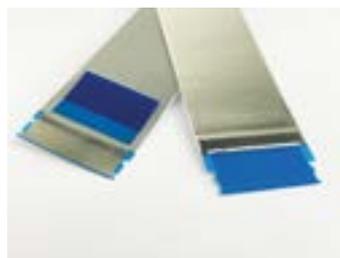
## Examples of Application:

Electronic assemblies with requirements for EMC or/and high data transmission rates, e.g.

- Display connections
- Camera systems
- Smart home applications
- Roof control modules
- Control units
- Inverter



Click or scan QR-Code for more information.



# SSM Susumu Metal Foil Shunt Technology

## KRL Series Shunt Susumu's KRL series resistors

Susumu's KRL series resistors are Susumu's latest offering for low-resistance, current sensing chip resistors. KRL's face down structure, large-resistive element, and specially formulated heat conductive adhesive all contribute to KRL's superb heat dissipation capability.

The typical thermal resistivity of KRL series is 20 °C/W; a value less-than half of that offered by other products on the market. This allows KRL to offer smaller-sizes at the same power rating as compared to other current sensors.

Its structure also contributes to unmatched tolerance to temperature cycling maintaining the integrity of the solder joints, effective heat dissipation-high power rating ; no hot spot, even heat distribution, with a low TCR and low PCR, low parasitic inductance – low distortion with two and four terminal type with various standard sizes and resistance as low as 1 m Ω.

### Features

- High current sensing short side terminal low resistance chip resistor
- Two types available: high temperature (operating temperature up to 175 °C), low EMF type ( operating temperature up to 155 °C)

- High current handling capability and wide range of power ratings
- Size : 0510 ~ 50110, power ratings: 0.2 W ~ 5W, resistance value range: 5 m ~ 1000 mΩ
- Face down construction. Choice between bottom only or wrap around terminal

### Applications

- Automotive electronics
- BMS Application, Power source devices, ACDC converters, DCDC converters and
- Motors, inverters, office automation equipment

### Orderable at [arrow.com](https://www.arrow.com)

- KRL Metal foil low resistance chip resistors Long-side terminal and Short-side terminal



Click or scan QR-Code for more information.



KRL Short-Side-terminal Resistors



KRL Long-Side-terminal Resistors



# Coaxial System for Radio Frequency

Enabling RF performance up to 6 GHz, TE Connectivity's FAKRA coaxial connectors offer high performance and robustness.



Mobility is entering a new era of innovation. Have you ever heard of PACES? The acronym characterizes the next generation of mobility: Personalized (offering a customized digital-life-integrated experience), Autonomous (provide greater safety, comfort, and convenience), Connected (smartly interacting with the surrounding environment and other vehicles), Electrified (and sustainable for CO<sub>2</sub> reduction and environmental responsibility) and Shared mobility (business models for efficiency and convenience). These trends will impact driver and passenger experience expectations as well as buying criteria.

This development inevitably entails a fundamental transformation: previous vehicle architectures are no longer primarily based on engineering, but on software. The new software-defined vehicles unlock new features, applications, and capabilities. Moving to an architecture that uses software integrated into a car will allow automakers to offer a wider range of customized – and also personalized – features.

Automotive manufacturers are increasingly designing safety and vehicle connectivity applications based on high frequency data connections. These include cameras, sensors and antennas that require real-time data transmission where safety is the number one priority.

Enabling RF performance up to 6 GHz, TE Connectivity's FAKRA coaxial connectors offer high performance as well as increased levels of robustness for harsh automotive environments.

The TE Connectivity FAKRA connector system was designed to meet or exceed ISO20860-1 (50 Ohms Impedance Radio Frequency Connection System Interface), SAE/USCAR-17 (Performance Specification for Automotive RF Connector Systems), SAE/USCAR18 (FAKRA SMB RF Connector Supplement) and SAE/USCAR-2 (Performance Specification for Automotive Electrical Connector Systems). TE Connectivity offers a comprehensive portfolio of RF (Radio Frequency) cable assemblies, terminals and housings. These products are fully compatible and are designed according to the FAKRA RF requirements including recent extensions and improvements.

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- 2209201-3
- 2209201-4

TE Connectivity, TE connectivity (logo), and TE are trademarks.

# VAL-U-LOK PLUS Connectors

Designed to help wire harness and PCB manufacturers streamline sourcing and assembly processes.

**VAL-U-LOK PLUS connectors** feature integrated terminal position assurance (TPA) devices to help wire harness and PCB manufacturers make secure connections with fewer part numbers. These 4.20 mm pitch connectors are easy to assemble, with a robust anti-snag latch to prevent wire entanglement and an embedded TPA that does not need an insertion step. VAL-U-LOK PLUS connectors mate with leading 4.20 mm connectors on the market, allowing customers to affordably retro-fit their design.

## Key Benefits

- One size fits all integrated terminal position assurance (TPA) device is easier to assemble and requires fewer part numbers
- Compatibility with legacy VAL-U-LOK products and similar 4.20 mm pitch connectors on the market allows retro-fit into existing designs
- Robust single latch and anti-snagging feature helps prevent wire entanglement
- Standard or high conductivity terminals for maximum current ratings of 9A or 11A
- Meets UL 94 V-0 and IEC 60335-1 glow wire test (GWT) flammability standards

## Target Markets

- Industrial Equipment
- Commercial & Building Equipment
- Appliances

## Applications

-  Industrial Refrigeration
-  Industrial Controls
-  Industrial Machines
-  Motor Applications
-  HVAC
-  Major Home Appliances
-  Lighting
-  Security Systems



## Featured:

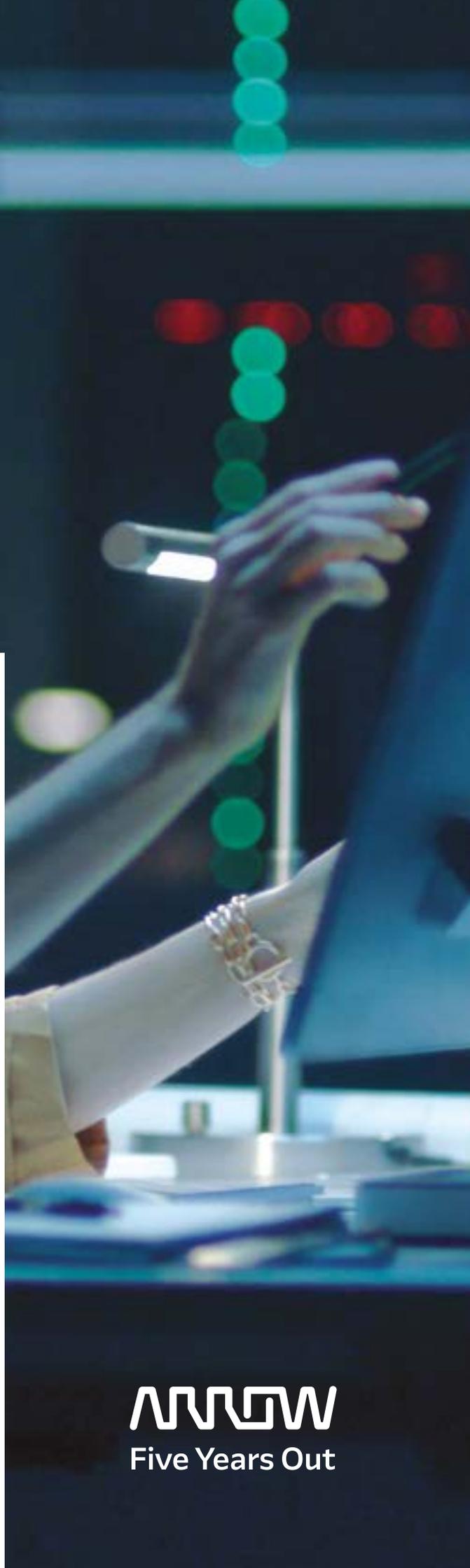
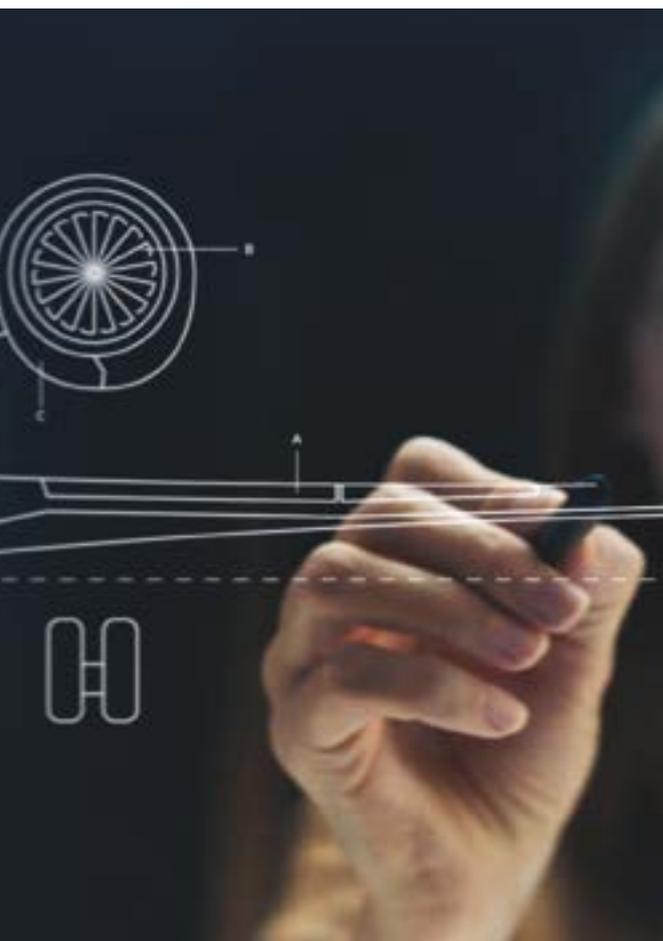
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