

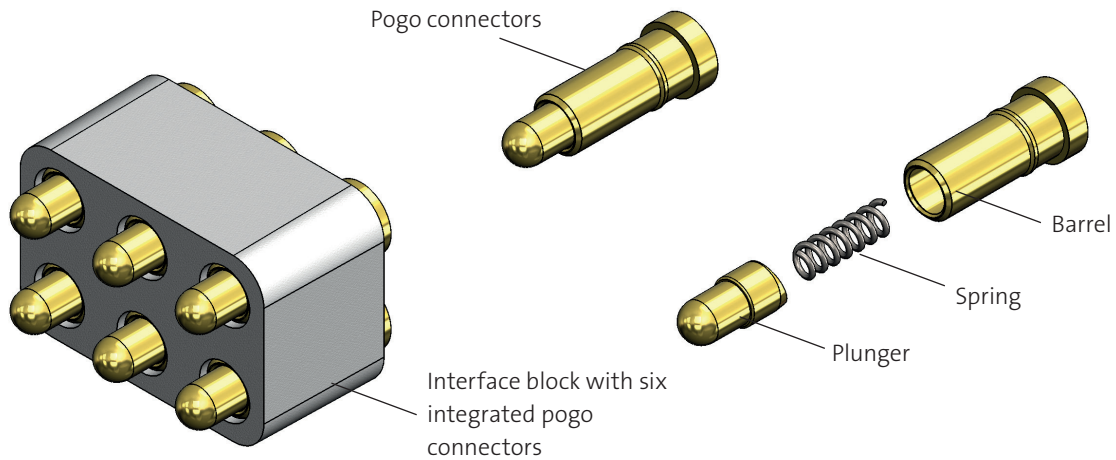
POGO CONNECTORS

FOR A WIDE RANGE OF APPLICATIONS

- COMPACT DESIGNS
- WIDE RANGE OF APPLICATIONS
- LONG-LIFE INTERFACES



STRUCTURE



Designation

Battery contacts are often called **pogo connectors** or simply **short travel probes** due to their compactness and short travel.

Battery contacts (pogo connectors)

Pogo connectors are compact probes with a small travel. They are particularly suitable as battery or charging contacts and as interfaces for data transmission. But pogo connectors are also used in many end products where low-wear electrical contacts are required. The field of application for pogo connectors is diverse and extends far beyond pure test applications. Wherever quick-release electrical connections are required, pogo connectors can be a clever solution. From the charging of batteries, to applications in medical technology, to use in the furniture and lighting industry.

Requirements

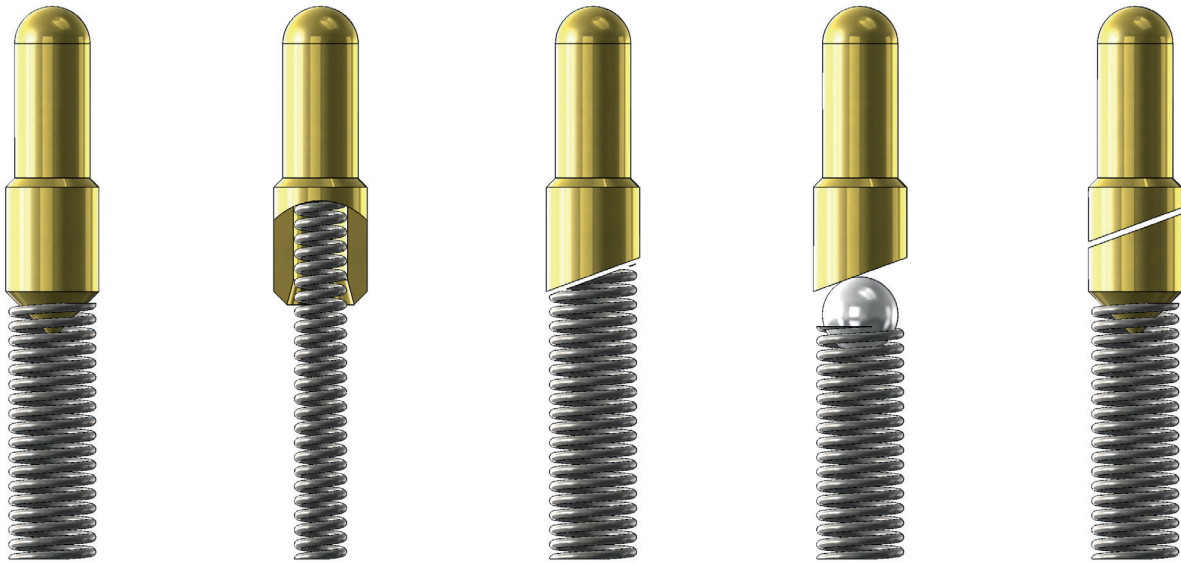
A wide variety of requirements are placed on pogo connectors. These are, for example, compact design, short travel, long mechanical life, solderability, high-temperature resistant materials, transmission of high currents, low contact resistance, good signal transmission in case of vibrations and, of course, a favorable price. Depending on the specific requirements, the most suitable design for the respective application must be found.

Advantages at a glance

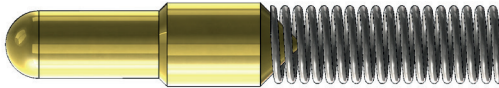
- Compact design
- Short/low travel
- Long mechanical life
- High quality contacting
- Good solderability
- High temperature resistant materials
- Transmission of high currents
- Low contact resistance
- Good signal transmission during vibrations
- Simplified component assembly
- Simple tolerance compensation
- Various mounting options
- Various connection options



MOST SUITABLE DESIGN FOR THE RESPECTIVE APPLICATION

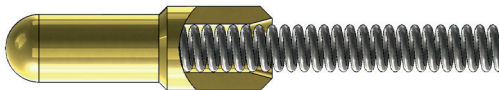


Standard plunger	Drill hole plunger	Bias design	Bias ball design	Split plunger design
High mechanical lifetime	High mechanical lifetime	Low contact resistance	Low contact resistance	Low contact resistance
Low manufacturing costs	Low manufacturing costs	Good contact reliability	Very good contact reliability	Highest contact reliability
	High spring force			
	Short length			



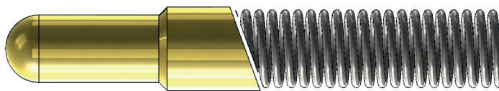
Standard plunger

The spring can guide the plunger with the largest possible diameter. The plunger ends are slightly tapered to avoid scratching the probe housing (barrel).



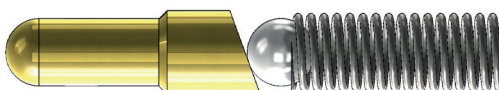
Drill hole plunger

The drilled plunger creates additional space for the spring and allows for shorter pogo pin designs or higher spring forces.



Bias design

Due to the bevel at the end of the plunger, the spring creates a deliberate lateral force and thus ensures better contact between the plunger and the barrel.



Bias ball design

Due to the bevel at the end of the plunger, the spring creates a deliberate lateral force and thus ensures better contact between the plunger and the barrel. The ball inside stabilizes the spring for better performance, but requires additional installation space.



Split plunger design

The two beveled plunger segments create a positive contact pressure, which leads to reliable contact and low contact resistance. The plunger moves parallel to the axis and does not deflect.



EXAMPLES FOR APPLICATION AREAS



Industry

- Robot
- Docking stations
- Robust devices
- Printers
- Agriculture



Entertainment industry

- Smart toys
- Game consoles
- Audio devices
- Earphones



Retail

- Barcode scanner
- Intelligent price tags
- Point of sale systems (POS systems)
- Credit card readers



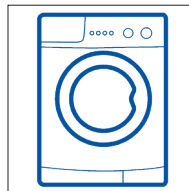
Private equipment

- Screens / laptops
- Telephones / hearing aids
- Watches / smart watches
- Cameras
- Magnetic interfaces



Medicine

- Skin laser
- Inhalers
- Ultrasound devices
- Respiration devices



Private household

- Lighting technology
- Dishwasher
- Washing machines / tumble dryers
- Vacuum cleaners / air cleaners
- Hair dryer
- Electric kettle



Transportation

- Vehicle key
- Navigation systems
- Onboard electronics
- Aircraft entertainment systems

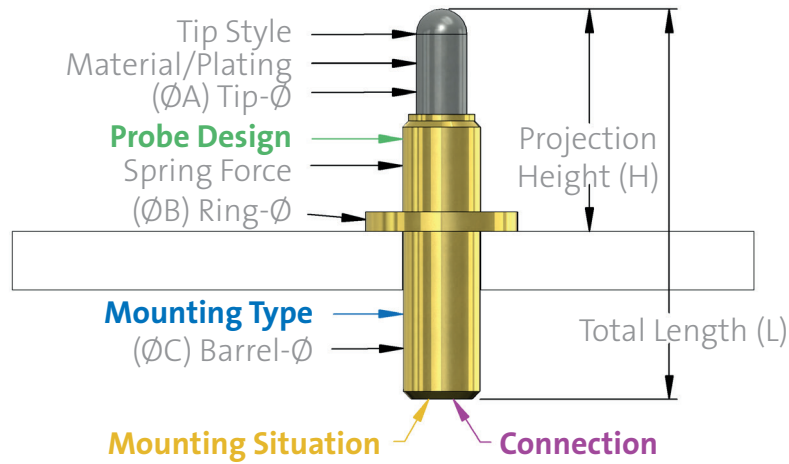


Safety

- Intelligent locks
- Locking systems
- Video monitoring
- Smoke detectors



F67x Order Codes for Pogo Connectors



Probe Design:

- (0) drill hole plunger
- (1) standard plunger
- (2) bias design
- (3) bias ball design
- (4) split plunger design

Mounting Situation:

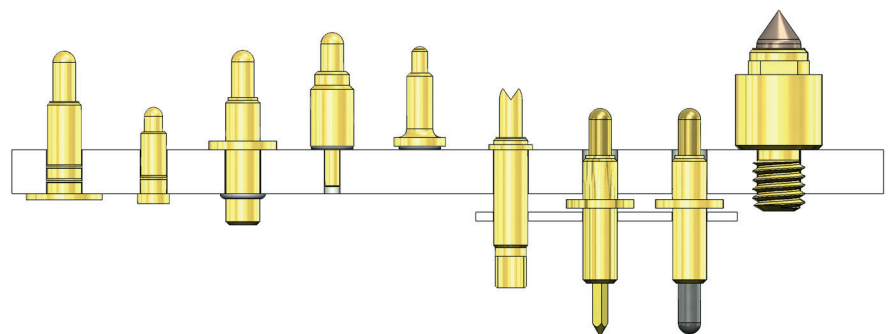
- (0) mounted from above
- (1) mounted from below
- (2) mounted horizontally
- (3) floating mounted

Connection:

- (LA) with solder connection
- (CR) with crimp connection
- (WL) with round pin
- (WW) with wire-wrap connection
- (WL) with spring-loaded connection (wireless)
- (Mx) with thread
- without pin

Mounting Type:

- (F671) pressed in
- (F672) soldered in
- (F673) soldered on
- (F674) mounted in receptacle
- (F675) floating mounted
- (F676) screwed in



Examples based on the drawing

Mounting type	F671	F671	F672	F673	F673	F674	F675	F675	F766
Mounting situation	1	1	0	0	0	0	3	3	0
Connection	-	-	-	WL	-	LA	WW	WL	Mx

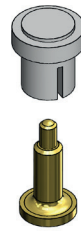
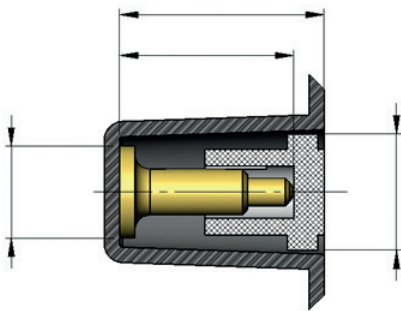
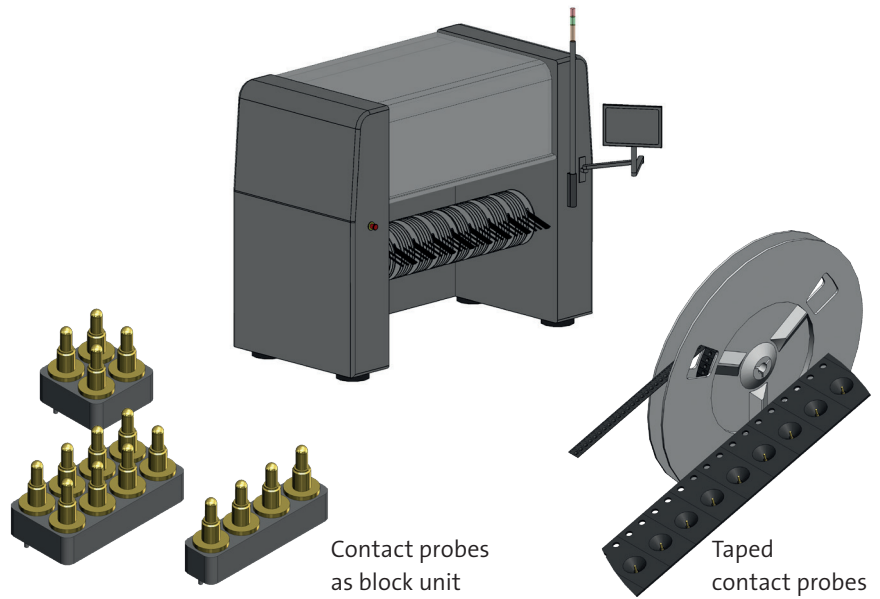


Automated assembly

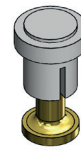
For automatic processing in large quantities, battery contacts or short-travel probes can also be manufactured in block units or taped on request. This can save time and money, especially for applications such as automated assembly of printed circuit boards or other electronic assemblies.

Information about taping

If a component is to be taped, at least the following information must be available: Component dimensions L/W/H etc., number of components required, batch size i.e. roll requirements, final date, packaging requirements, carrier tape material, tape width.



Component and pick&place cap



Application pick&place cap

Accessories

To make it easier to remove components from the tape by machine, aids such as pick-and-place caps or clips are used. This means that even components with complex contours can be easily and cost-effectively sucked up and removed from the tape.

The carrier tape

The strap pockets of the carrier tape are made by deep drawing process.

Most used materials

Polystyrene PS, polycarbonate PC, polypropylene PP, polyethylene terephthalate PET as antistatic or conductive version (important for electronic components).

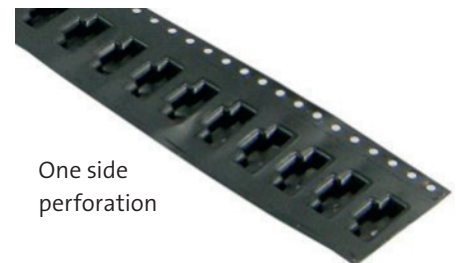
Common tape widths

8mm; 12mm; 16mm; 24mm; 32mm; 44mm; 56mm; 72mm; 80mm up to 200mm

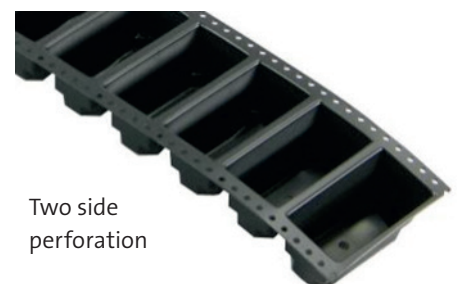
Common tape thicknesses

0,20mm; 0,25mm; 0,30mm; 0,35mm; 0,40mm; 0,50mm

With a minimum tape width of 32 mm double perforations for the feeding process are possible.



One side perforation



Two side perforation



Electrical influences

The primary current within a contact probe flows from the plunger via the barrel. A secondary current flow leads from the plunger via the spring to the barrel. In the process, contact resistances occur at the transition points - which depend on the plunger design - and are influenced by the following factors:

- Design & size of contact areas
- Nominal travel
- Spring force and preload
- Lateral forces and vibrations
- Contact forces at the interfaces
- Conductivity of materials and coatings
- Material and coating of the mating contact
- Surface condition of the individual parts
- Manufacturing accuracy and tolerance clearance of the individual parts
- Contamination on probe and mating contact
- Flanging design
- Environmental influences



Solderable contact probes

A special probe design facilitates direct soldering onto printed circuit boards. The probes are often soldered directly onto the circuit board. Alternatively, contact probes with a pin can be inserted into a hole beforehand and then soldered from below. In this case, it is ensured that the probes remain in their position.



Solderability

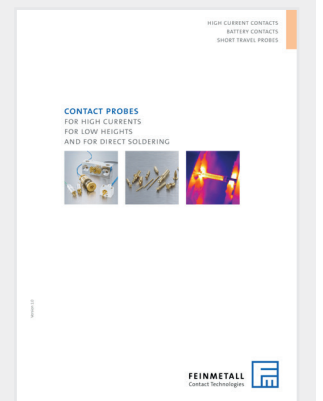
Lead-free soldering in particular generates high soldering temperatures. Therefore we make sure that high temperature resistant materials are used in our Pogo Connectors. In addition, the probes are designed in such a way that no solder can flow into the probe by capillary action and block it there.



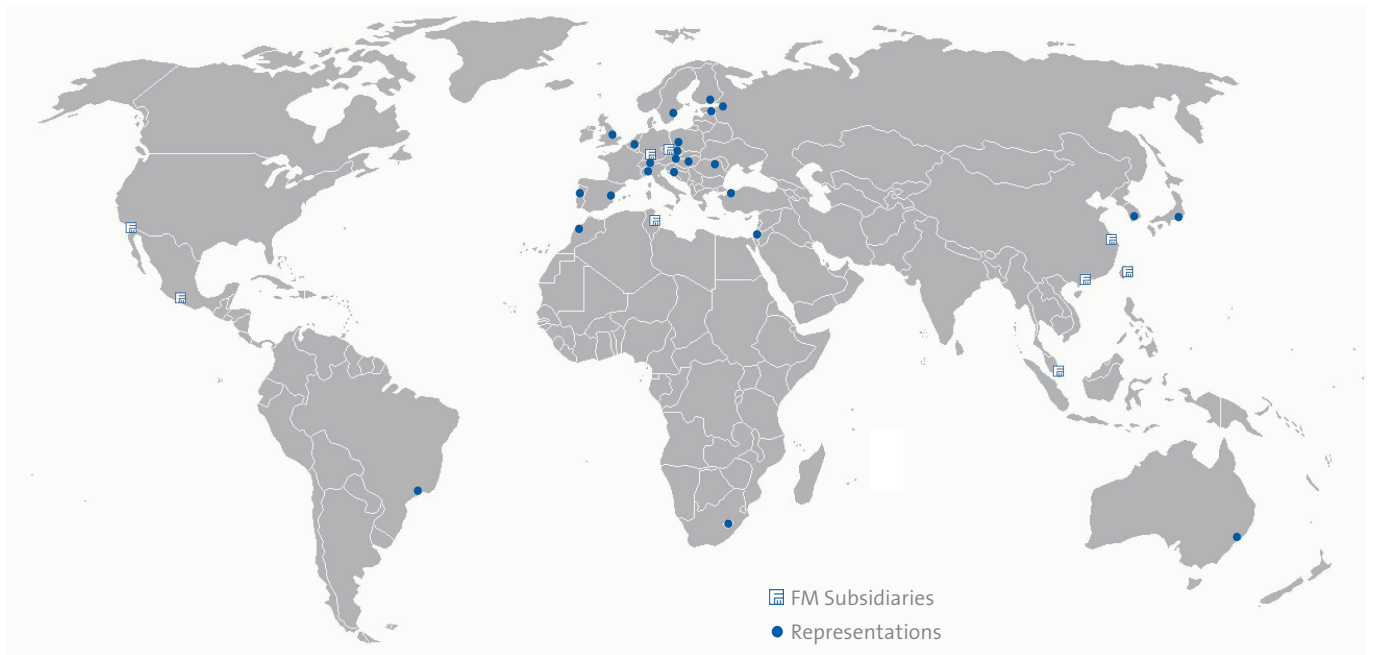
Test probes for high currents, for low heights and for direct soldering


Detailed information on these contacting solutions can be found in our corresponding application-specific catalog. In addition to the product specifications, you will also find a lot of technical background information, overviews and practical examples.


The entire product portfolio as well as corresponding step files for integration into your CAD system can be found on our homepage at www.feinmetall.com



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You have test demands with specific requirements and you need a tailor-made solution?

In our catalogues you find contact probes for:

- **Board test**
- **Wire harness test**
- **High current and limited space**
- **Coaxial applications and fine pitch**



MARKETING104 / Version 1



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