ABOUT PARTEX

PARTEX develops manufactures and markets marking systems for cables, wires, pipes, hoses and electric components.

These systems are characterised by versatility, usefulness and quality.

70% of PARTEX products are exported and the company is represented in about 70 countries, either company subsidiaries or distributors.
The PARTEX MARKING SYSTEMS are used in the electrical industry.
Marking is as common in OEM, end-user and installation industries.

Correctly carried out marking reduces costs of service and maintenance, reconstruction and extension, as well as loss of production. PARTEX marking will particularly ensure such reduction.

Quality and an environmental approach are natural parts of PARTEX's business and accordingly we are certified to the ISO 9001 and ISO 14001 standards.

REACH

WEEE

INTERTEK
ISO 9001:2008

TransQ
empowered by Achilles
Qualified

INTERTEK
ISO 14001:2004

√ **RoHS**

Halogen free

The demand for halogen free products started after the fatal underground fire in London 1987. Every year more and more companies upgrade their installations with products that are halogen free. We at PARTEX aim to give you a halogen free alternative (ZEREX) to all our products.

The halogens are five non-metallic elements found in group 17 of the periodic table. The term "halogen" means "salt-former" and compounds containing halogens are called "salts". All halogens have 7 electrons in their outer shells, giving them an oxidation number of -1. The halogens exist, at room temperature, in all three states of matter:

State	Halogen
Solid	Iodine, Astatine
Liquid	Bromine
Gas	Fluorine, Chlorine

With halogen free markers says it is normal to a product that does not contain PVC. Halogen free products are often a requirement in new projects and is slightly more expensive than ordinary products.

The reason for the use of halogen-free markers is that when PVC burns it releases chlorine contained in the plastic, that can react with water (used to extinguish the fire) to form hydrochloric acid-smoke. Hydrochloric acid is highly toxic if inhaled.

The toxicity of smoke is of highest concern within enclosed spaces where means of escape by persons are limited; examples include mass transit rail cars, ships, and Offshore Oil and Gas platforms. There have been several tragic fires that have occurred involving transit vehicles over recent years that have brought heightened concern to this issue. In a February 2003 incident, news reports of a fire involving two trains in a Daegu, South Korea subway station told of how toxic fumes and heavy black smoke prevented firefighters from making a quick rescue of those trapped. 120 were killed and many others injured in that incident.

Common "Halogen-Free" Terminology:

- ZEREX (PARTEX)
- Halogen Free
- Zero Halogen
- No Halogen
- 0H
- ZH

PAZ is a closed wire marker that is available in different sizes. The different sleeves can be mounted on a wire with the diameter of 1.3 up to 16.0 mm. This profile is available as both single and multi character marking. The characters are printed with black etching ink with high resolution. The standard colours for PAZ are yellow and white, but other colours on request.

PKZ is a cable marker that is available as both single and multi character marking. Single characters can be combined on a holder and mounted on the wire with cable ties. Multi character marker can be mounted on a holder, but can also be punched so that you can tread a cable tie through the marker. The characters are printed with black etching ink with high resolution. The standard colours for PAZ are yellow and white, but other colours on request.

POZ is an oval marking profile with a diameter range from 1.3 to 28.0 mm. The profile is delivered as continuous tube on big reels, compactadiscs or strips in cartons for marking on site. The marker information can be printed by using printers such as MK10, SP2000 and MK9 ProMark. The standard colours for POZ are yellow and white, but other colours on request.

PCZ is an open wire marker with a diameter range from 2.4 to 7.2 mm. This profile is only available as multi character marking. The characters are printed with black etching ink with high resolution. The standard colours for PCZ are yellow and white, but other colours on request.

PHZ & PHZ-F is a thin wall zero halogen shrinkable tubing with excellent fire safety characteristics. This is allied to low smoke emissions and evolution of acid gases. The profile has a shrink ratio of 2:1 and can be printed on site with Partex marking equipment. We can also print on the tube if you send us a document with the marking information. The profile has a diameter range from 1.6 to 51.0 mm.

The **PTZ+** sleeves are designed for X-Card PFC tags, PF foils and PP-profile. The sleeve consists of a yellow basic sleeve and a transparent oval pocket. For other colours, please contact Partex.

PTZ+15, PTZ+25 and PTZ+35 sleeves are designed in special dimensions with wider pocket for larger labels in order to accommodate more marking information.

PPQZ, is a profile with pre-punched cable markers that can be cut and printed on with the MK10 system. The profile is delivered on a big reel with over 300 markers (20m). The marker is mounted on a cable by using cable tiesmore marking information.

SPZ, a flexible spiral tube for fitting cables, conductors, tubes, wire bundles etc.

Manufacturers

To meet the customer's specifications and different standards, many train manufacturers use PARTEX halogen free wire markers for their projects. They send us their wiring lists by email and in a matter of days they will receive the complete sets of pre-printed markers at their production site

The markers are sorted and packed according to their requirements, making the application procedure quick, fail-safe and cost effective.

Correct marking will increase efficiency and safety. End users are seeing the value of marking. Contractors and installers see that they can add value to their services by including marking. The amount of time saved when a technician troubleshoot a properly administered cabling system versus an unlabeled system. It can be minimized through proper management.

For more than 40 years PARTEX has been a supplier to the Swedish railway industry, and now PARTEX deliver marking systems worldwide. The specifications and demands in this industry are among the toughest in the world. Quality and environmental concerns are of uppermost importance in the PARTEX organization.

Some companies that are using PARTEX products.

- **ABB**
- **ALSTOM**
- **BEHR**
- **BOMBARDIER**
- **DELLNER COUPLERS**
- **ELECTRO MOTIVE DIESEL (EMD)**
- **HYUNDAI ROTEM**
- **IVECO**
- **KOCKUMS MARINE**
- **KONČAR**
- **MERMEC**
- **NEWAG**
- **PESA**
- **SAAB AUTOMOBILE**
- **SCANIA**
- **SESCO**
- **SIEMENS**
- **TVAB**
- **VOLKSWAGEN**
- **VOLVO**
- **WÄRTSILÄ**

PA+ / PAZ - WIRE MARKERS

`123` M2 `123` M3

- **PA+ with unique patented grooves for easier mounting and flat top for improved readability.**
- **Multi-character marking on one single sleeve.**

+ Availible in PVC (PA+) or halogen free (PAZ) material.
+ Diameter range from 1.3 mm up to 16.0 mm
+ Can be printed on site with PARTEX printers or ordered customized with the marker information you want. (M2)

PK / PKZ - CABLE MARKERS

`123` M2 `123` M3

- **A cable marker that can be mounted on a holder and then mounted on a cable with cable ties.**
- **The Cable marker can also be punched so that it can be mounted directly onto a cable with cable ties**

+ Availible in PVC (PK) or halogen free (PKZ) material.
+ One or two lines of text
+ Can be printed on site with PARTEX printers or ordered customized with the marker information you want. (M2)

## PO / POZ - CABLE AND WIRE MARKERS

`123` M2 `123` M3

- **Oval marking profile with sizes for a big cable diameter range.**
- **Customized multi-character marking on one single sleeve.**
- **Permanent marking but still adjustable on cable or wire..**

+ Availible in PVC (PO) or halogen free (POZ) material.
+ Diameter range from 1.3 mm up to 28.0 mm
+ Can be printed on site with PARTEX printers or ordered customized with the marker information you want. (M2)

PHZ & PHZF - HEAT SHRINK TUBING

`123` M2 `123` M3
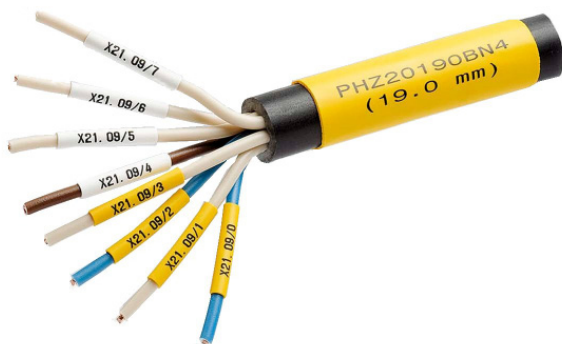
- **Flexible zero halogen thin wall polyolefin heat shrink tubing for marking.**
- **Diameter size from 1.6 mm up to 50.8 mm**
- **Flexible and easy mounted on cables and wires.**

+ 2:1 shrink ratio.
+ Diameter range from 1.6 mm up to 50.8 mm
+ Low smoke generation and evolution of acid gases.
+ Can be printed on site with PARTEX printers or ordered customized with the marker information you want. (M2)

Track and Signal

Many companies in the Track and Signal industry uses PARTEX as a supplier. They work with third rail electrification, power supply systems, signal works and infrastructure maintenance for main line, metro and light rail systems. PARTEX has markers suited for all applications

When laying new track or maintenance existing tracks these companies uses PARTEX PKS system. The AISI 316 steel has good resistance to heat, cold, corrosion, acids, chemicals etc. and this makes it an ideal marker to use for marking every cable along the tracks.

The PKS system can be ordered as customized (M2) and we punch in the information you want on each text carrier. The text can be ordered on one or two lines. With the single carrier system you can combine your own information on each carrier with help of single characters.

We use the same carrier for our customized marker as we use for our single character. This makes it possible for you to order a pre-punched text on each carrier and then on site just add a number or text information with single characters.

For example we at PARTEX punch in the information "Signal" and you can add on site the information "1" and "5" with single characters. You will now have a marker with the information "Signal 15"
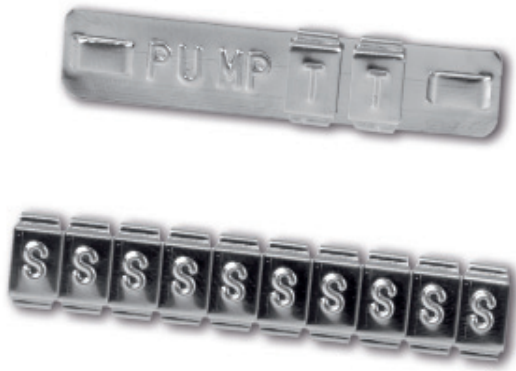
For other applications you can use customized wire markers such as PA+/PAZ and cable markers PK/PKZ if they will be located in a less hostile environment then the PKS applications.

Some companies that are using PARTEX products.

- **ABB**
- **BANVERKET**
- **BALFOUR BEATTY RAIL**
- **DEUTSCHE BAHN**
- **JERNBANEVERKET**
- **STRUKTON**

PKS SINGEL CHARACTERS

- **Marking can be carried out on site with the help of easy-to-use single-characters, supplied either in refill packs or in complete sets.**
- **Good resistance to heat, cold, corrosion, acids, chemicals etc.**

  + The system comprises marker carriers with holes at either end or as slots for direct threading of steel cable ties, enabling rapid fitting.
  + AISI 316

PKS MULTI CHARACTERS

- **Text is stamped on the marker carriers themselves, to form complete multi-character markers**
- **Good resistance to heat, cold, corrosion, acids, chemicals etc.**
- **One or two rows of text**

  + The system comprises marker carriers with holes at either end or as slots for direct threading of steel cable ties, enabling rapid fitting.
  + AISI 316

PKS-GS4MT

- **Automatic cable tie tensioner and cutter for Partex stainless steel cable ties.**
- **The tool will correctly tension the ties and automatically cut off the tail when this is achieved.**

  + Width: 140mm,
  + Length: 180mm
  + Height: 30mm.
  + Weight: 0.6kg

PKS CABLE TIES

- **Stainless steel cable ties for hostile environments.**
- **High quality cable ties with good resistance to heat, cold, corrosion, acids, chemicals etc.**

  + Width: 4.6mm,
  + The cable ties are available as coated and uncoated.
  + Lengths: 150, 200 or 360 mm.
  + AISI 316

Maintenance

All trains need maintenance, from the simplest train to a bullet train. A train will not make any money during the time it is in maintenance. Therefore it is very important to repair the train and get it to haul cargo or passengers in the fastest way possible. One way to do this is to minimize the time the technician has to troubleshoot. Less time is needed if the cable systems aboard the trains are labeled correctly.

Time and money is one thing, but the most important reason for identification is SAFETY! Would you troubleshoot a system were the cables contain high voltage and not labeled at all?

It is also very important to make sure that after an upgrade or a repair that the system once again is labeled correctly. This will make it easy to troubleshoot the system in the future.

For a scheduled repairs or upgrades it is very convenient to order multi-character markers from PARTEX. Send your marker information to PARTEX. We will produce it, sort it according to your specifications and then ship them to you on site, ready for immediate application. This may speed up the time needed for the maintenance.

Another solution is to buy one of PARTEX "Do it yourself" systems. These printers are perfect for small series of markers or as a complement to the pre-ordered multi-character markers.

Some companies that are using PARTEX products.

- **BOMBARDIER SERVICE**
- **EUROMAINT**
- **NEDTRAIN**
- **TRAINMAINT**

MK9 - THERMAL TRANSFER PRINTER

`123` `M3`

- **Compact, portable, ID printer for cable, wire and component marking on site.**
- **Feeds, prints and cuts PARTEX PO/POZ (PO/POZ-02 to PO/POZ-07), PP, PPA and PHZ (PHZ032 to PHZ064) and self adhesive labels (PL)**

+ Print: Ribbon, thermal transfer printing,
+ Speed: up to 25 mm/s,
+ PC connection: Compact flash card
+ Profile types: Continuous profiles and Tape cassettes

MK10 - THERMAL TRANSFER PRINTER

`123` `M3`

- **Compact heavy duty printer for high demand production for wire, cable and component marking. (PO, PHZ, PP, PK etc.)**
- **Feeds, prints and cuts bulk PARTEX profiles and self adhesive profiles.**

+ Print: Ribbon, thermal transfer printing,
+ Speed: up to 125 mm/s,
+ PC connection: USB
+ Profile types: Continuous profiles

MK10-DH - THERMAL TRANSFER PRINTER

`123` `M3`

- **Feeds, cuts and prints on both sides of bulk PARTEX profiles. (PO, PHZ, PKZ etc.)**
- **Compact heavy duty printer for high demand production for wire, cable and component marking.**

+ Print: Ribbon, thermal transfer printing,
+ Speed: up to 125 mm/s,
+ PC connection: USB
+ Profile types: Continuous profiles

MK500 - PLOTTER

`123` `M3`

- **Provides complete multi character marking for cables, wires, terminal blocks and components.**
- **Prints on PA+, PC, PK, POH, PFC, TX, and PS products.**

+ Print: Plotter pens with etching ink
+ Speed: 5 to 40 mm/s,
+ PC connection: USB
+ Profile types: Pre-cut profiles

M2: CUSTOMIZED MULTI-CHARACTER MARKING ON ONE SINGLE SLEEVE

Rational installation with one step mounting procedure saves time and marking costs.

Selection between three packagings consisting of:
1. Semi detached unsorted sleeves in big loops.
2. Customized sorted according to project demands.
3. Sorted and put on a cardboard sheet for excellent overview, random picking and mounting order.

The markers can be printed with black etching ink or on some products with laser. White and yellow are the standard colours, other colours on request.

MARKING TYPES
1. Closed wire marking: PY, PA+/PAZ and PO/POZ. (PA-3/PAZ3 can be delivered with 1- or 2-line text).
2. Open wire marking: PC/PCZ
3. Cable marking: PK/PKZ and PO/POZ bigger sizes with one or two lines of text. PK2 25 mm and PK2 40 mm punched for direct mounting with cable ties.
4. PO series cable and wire marking from size PO-01 to PO-28.
5. Stainless steel cable markers: PKS with one or two lines of text. With slots for direct mounting with stainless steel cable ties or with holes for mounting with rivets or screws

MARKING INFORMATION
Transfer of marking information to PARTEX via e-mail (e.g. with enclosed Excel files), fax or mail.

Contact PARTEX for more information.

Single-character markers vs. Multi-character marker
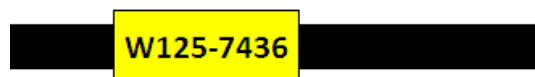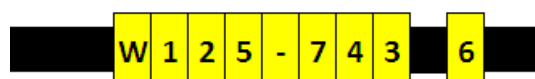
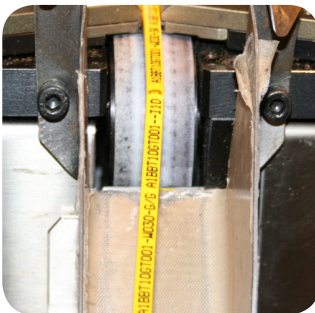W 1 2 5 - 7 4 3   6

W125-7436

1. I.D. DATA

Send us your I.D. information by email, fax or mail to PARTEX. We handle databases, drawings and most PC file formats (Excel, txt-files etc.). Let us take care of your problems!

Send/e-mail to
k.order@partex.se

2. DATA INPUT

Our order processing department formats the information and passes it on to the manufacturing unit.

3. MANUFACTURING

Our machines execute the information and the printed markers head for the sorting area.

4. SORTING

The markers are sorted according to your request and specifications.

Quality control staff check markers files and finished product before releasing the shipment.

5. DELIVERY

Agreements with global freight agents mean quick and correct deliveries worldwide.

The markers arrive at your production site, ready for immediate application.

To ensure that PARTEX MARKING SYSTEMS can withstand all kinds of stresses and strains, they are tested by the Swedish National Testing and Research Institute, where they are subjected to a series of strict tests.

These cover everything from how well the products stand up to mould and rust attacks, to how they withstand fire extreme temperatures, UV radiation and different types of chemical.
Some of the tests conducted are listed below:

TESTS	METHOD AND CRITERIA
Flammability	According to UL94.
Temperature – low	Sleeves held at – 30°C (−22°F) for 4 hours. Check for cracks, breakage or similar damage. Also check for mountability and dismountability.
Temperature – high	Sleeves held at + 70°C (+158°F) for 1 hour. If material passes test, repeated checks at higher temperatures are made.
Ageing resistance	Accelerated ageing in heat oven corresponding to use at 20°C (+68°F) for 30 years. Check for cracks, breakage or similar damage. (Max 50% reduction in elongation before breakage.) Also check for mountability and dismountability.
UV resistance	Accelerated test corresponding to iso 4892-2 exposure 1 year outdoors in southern Sweden. Check for brittleness and changes in colour and readability.
Abrasion resistance of marking text	Mounted sleeves kept for 24 hours at +23°C & −2°C (+73.4°F & 28.4°F) immersed in the chemical. Drying for 2 hours then check for functionality, colour fastness and print legibility. CHEMICALS USED Synthetic diesel oil, Sulphuric acid 2 5 %, Basic cleaning agent (Berol 226, 10%), Distilled water, Sea water (5% NaCl), Transformer oil (Nytro 10x), Ethanol 95%, Other chemicals on request.
Dielectric resistivity	According to IEC 93
Ozone resistance	Test specimens are elongated 33% and exposed to 100 +− 5 pphm ozone at +65°C & −3°C (+149°F & 26.6°F) for 192 hours.

CONTACT PARTEX FOR DETAILED PRODUCT TEST REPORTS