

A square peg in a round hole? The new innovative connection from LEMO

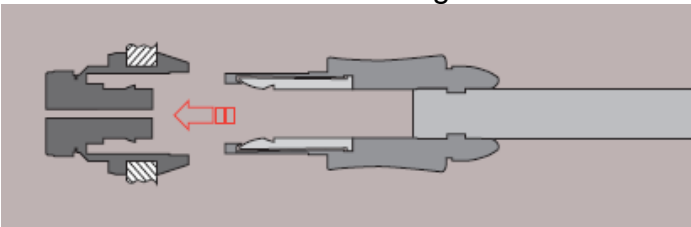
Well, actually it is a rectangle in a round hole.



LEMO, the originators of the push-pull connector latching system have developed a completely new and patented system in which the latching mechanism is internal to the plug, providing a number of significant benefits for users.

The Redel connector has been widely employed in the medical and test & measurement markets which are constantly seeking improvements in performance. Amongst these requirements are impact and crush resistance due to the working environment in both sectors, numbers of sterilisation cycles that hospital equipment can withstand, and increasing contact density as innovations occur in all equipment sectors.

In seeking to meet these requirements a complete review of the whole Redel system led to the idea of inverting the latching system, so that the latches lock onto the central insert mounting rather than the bore of the receptacle.



The first immediate benefit of this concept is that the nose of the plug no longer has latching windows and is much stronger when using the same material and thickness. Although the existing connector can often withstand being inadvertently trodden upon, it is still vulnerable to heavier impacts potentially leading to the loss of use of important equipment at critical moments. Any improvements in strength reduces the risks of unintended damage to the connector and system as a whole.

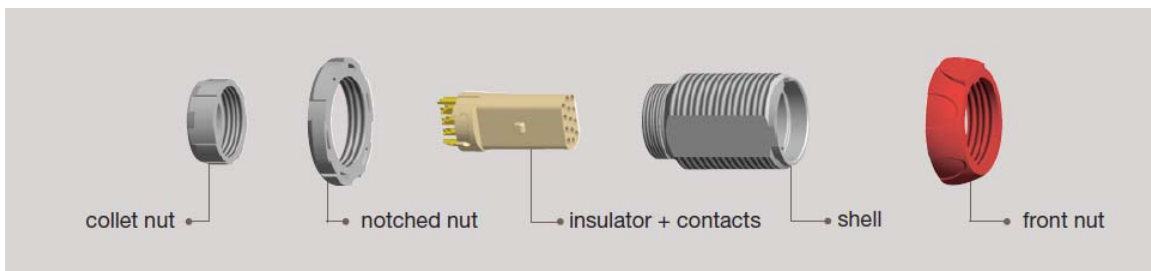
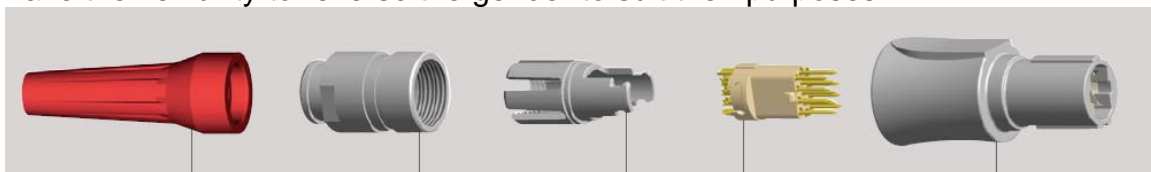
In seeking to increase the contact density it was decided that the possible inclusion of a rectangular insert would achieve this objective. The use of a rectangular insert also conveniently provides a large flat area on which to locate the inner latching groove, which would have otherwise been much tighter on a circular inner groove, thus helping to make the latching mechanism more robust.

As a result of having a rectangular insert the number of contacts feasible increases from a maximum of 22 contacts of 0.5mm nominal size in comparison with 14 contacts of 0.5mm for the existing Redel connector which is of the same size. Contact configurations that have been developed for this connector are 4, 6, 8, 10, 13, 16, 18 and 22-way, in solder and crimp options.

Additionally the design means that the 4-way and 6-way contacts can be larger with significantly higher ratings – for example 11.5A continuous rating on all contacts for the 4-way.

PPSU material is the standard material of construction for the XP Series as it gives improved sterilisation resistance in comparison to PSU, which is the standard material for the Redel P series.

The development of a completely new series has also provided an opportunity to build in improvements sought by customers. The XP Series has 3 keys as standard, which assists mating and particularly blind-mating of the connector. In addition there are 4 keyway options, 2 for standard gender (i.e. male pins for plugs and female sockets for receptacles) and 2 for reverse gender. However, the connector has been designed so that the inserts are completely interchangeable between plug and socket housings, which means that customers have the flexibility to reverse the gender to suit their purposes.



The outer shell of the XP series is ergonomically shaped to assist with connector mating and un-mating. Additionally the thumb grip location provides a highly visible guide for polarisation.

The linear pin arrangement of the contacts within the insulator along with the assembly process all assist speed of assembly of cable harnesses and sub-

assemblies. The collet now clips onto the back of the insert assembly which further assists assembly by holding it together whilst locating into the connector.

Nevertheless the XP Series does retain some standard features from the original Redel 1P.

The high performing LEMO gold plated contact system continues to be a key part of the Redel range.

Additionally a range of coloured nuts form part of the range to assist with connector identification in applications.

And finally the XP series has the same panel cut-out dimensions as for the 1P series which will assist those customers that wish to upgrade their product without re-engineering housings.

Redel XP – at last a square peg in a round hole that works!



High resolution versions of the pictures in this editorial are available via the following link:

www.lemo.co.uk/xpseries-prphotos.zip