Multirex Polyolefin Injection Moulded Cable Channel For Protection Of All Types Of Cables

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1 Introduction

Polyolefin Injection Moulded Cable Channel For Protection Of All Types Of Cables-Signal, Telecom, Electrical is a better & economical substitute of Conventional Concrete Cable Channels/Full Round G.I. and Plastic Pipes.

Power supply and information exchange - these two factors have become ground-up requisites in Day-to-Day life activities. The uninterrupted power supply and information exchange in all directions have become basic needs in addition with food, cloths and shelter.

Figure 1: Moulded Cable Channel

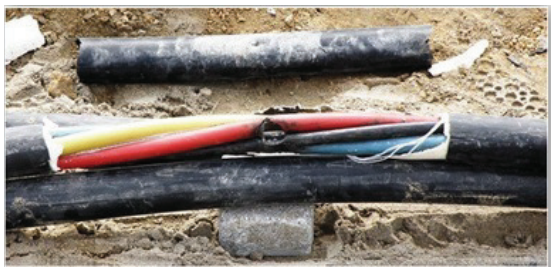

Figure 2: Electrical cables damaged when laid without Cable Channel

Figure 3: UG Cables with Concrete Channels - I

In the industrial sector, power transmission is influencing every activity. Specifically, in Railway sector, power transmission is required with greater safety, higher reliability and minimum affection due to external factors.The information exchange cables or optical fibres are prone to damage due to external factors like sudden loads, weather conditions. Furthermore, major issue faced in power transmission and in telecommunication cables is their Maintenance.

Over the longer distances, the detection of the fault location and accessibility to it, these factors play major role in maintenance activity. The maintenance of power cables is crucial as they may cause harm to the personnel.

These factors collectively result as requirement of a safe passage or channel for the cables. Considering the external loads, weather conditions, the first solution established was a Concrete Cable Channel. The concrete cable channel gives safe passage for the all types of cables against heavy loads, sometimes keeps cables safe from animals. They are made from casting process as per the required size. The solution was better than direct buried cables until the evolution of Plastic Cable Channels. The requirement of Plastic cable channel was generated from the disadvantages of concrete cable channel itself. Though the concrete cable channels can be made from an easy process, the production time is comparatively large, due to higher curing time.

Furthermore, the weight of single cable duct is high, which resulted into requirements of special machineries for handling and installation. In the installations of such channels in remote areas like ghat sections and forests, handling of concrete cable ducts is

Figure 4: UG Cables with Concrete Channels - II

become more difficult due to the weight and unavailability of instruments in such area.

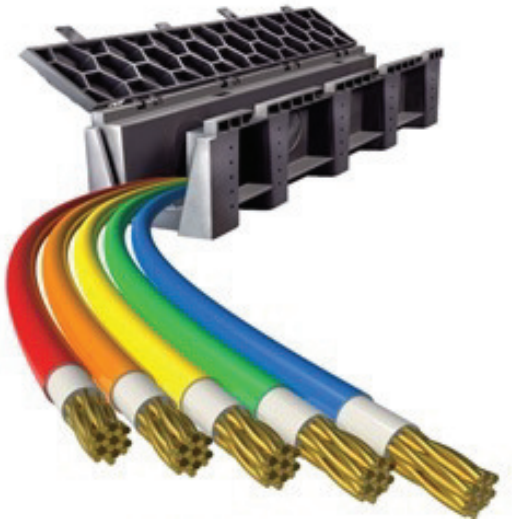

Figure 5: MultiRex

Besides higher strength, concrete cable channels have negative impact due to transportation. Cost for the transportation is much higher, also transportation damages are prone to happen. Sometimes the lids provided for concrete troughs were also made from concrete, resulted in requirement of lifting machinery for maintenance activity.

These factors resulted in the evolution of plastic cable channels. We, at Rex, have developed plastic cable channel under the brand name of MULTIREX Cable Channel. Multirex cable channels are made from recyclable material, those are eco-friendly, low weight solution for cables. This plastic cable channel is an assembly of trough and strong lid. The number of troughs can be locked in the positions making the stable route for the cables. The closed path provided by the channel is made from removable lids which are locked in the position. And that can be removed easily due to lesser weights and cables will be accessible at any point very easily. As the cable channel provides closed path for cables, those get protected from external loads and becomes vandalism resistant. The lids have been designed to sustain against higher loads and impacts.

The process of manufacturing of cable ducts, is injection moulding which gives better dimensional stability and lesser cycle time compared to concrete channels. The low weight makes it easy for handling, installations and obligates the necessity of special instruments for the installations. Furthermore, our specially formulated plastic material provides higher electrical resistivity to current conduction. Furthermore, Multirex cable channel can be provided with Fire Retardancy feature which will guard electrical cables from the risk of fire.

We, at Rex, offer Multirex cable channel along with Low Smoke and Zero Halogen Fire Retardancy. This unique feature will provide safety not only to cables but to personnel in the vicinity, from evolved toxic smoke.

Such plastic channels have been successfully installed in European Countries, specifically in Railway sector. The area of application is either underground or above the ground level.The product has been designed considering the effects of external influences and variety of temperature ranges in India.

2 Cable Comparision

Comparison between Concrete Cable Channel and Multirex Cable Channel is shown the table in figure 6.

Multirex cable channels are very handy in Indian Railways in Yards Between Home Signals Platform areas Tunnels Bridges Metro / Elevated Corridors Level / Road Crossings etc.

Railway Board has already informed all the railways that these cable channels may be very useful for application in sub-urban sections where cable trenching and digging is a severe problem due to space constraints, proximity of other cables and utilities.As desired by Railway Board, many railways have already conducted the trials of these cable channels and few favourable feedbacks / reports have also been sent to

Parameter	Concrete Cable Channel	Multirex Cable Channel
Width (Internal/External)	250 mm/ 340mm	240 mm/340 mm
Height (Internal/External)	130 mm/170 mm	155 mm/ 230 mm
Length	1000 mm	1000 mm
Weight	62 kg	9 kg
Handling	Equipment required	Equipment not required
Labour involvement	Laborious operation	Minimum labour involvement
Joints	Material joining with cement required	Very easy press-fit operation, slot joints are provided in the cable channel.
Transportation	Transport charges are high due to loading and unloading practices	There is an absolute ease in transporting, loading and unloading due to lesser weight

Figure 6: Comparison Table

Figure 7: MultiRex cable Channel Installations

the board for further studies.

3 Conclusion

Multirex Cable Channel is best ever solution for Electrical and Telecommunication cable protection for Railways and Metrorail.

The information / views expressed in this paper is of the authors and are based on their experience. Comments / observations may be sent to the author at drex@rexpoly.co.in.

Aniket A Shende is a graduate engineer in Mechanical Engineering. He has also done his Post Graduate Diploma in product & Tool Design. He is currently heading the research and Development Department in Rex Polyextrusion Private Limited.