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Dear Friends,

We are witnessing the resurgence of "India Shining" with the new government firmly in place and a clear mandate. This is already beginning to reflect in the markets, whether these are the Stock markets, Commodity Markets or the Forex Markets. Index of Industrial Production as well as Inflation are showing positive signs. Of special interest is the Infrastructure sector, which appears to be brimming with over confidence, after it was battered the most over the last year.

For Cables Industry as a whole, the year has been extremely discouraging, with virtually flat revenues, and red all over. This has been mainly due to the slowdown in the Infrastructure and Electrical Industry during most of the year, and the excess capacity in the industry, with price wars for every bit of the pie. Unless demand grows, and industry stops using price as a tool for business growth, we will continue to witness bloodshed, and ultimately quality and infrastructure will suffer.

Our business did grow in revenues in double digits in 2013-14 but we too suffered on account of exchange rates, a price erosion and consequently bottom lines. Our Vadodra facility is beginning to get stable output, and our 220 kV cables are under independent type testing. And we are focused at improving margins, through sale of niche products in niche markets. We also firmly believe in systems and processes driving business, not individuals, so that our customers experience consistent quality and outstanding service, at competitive prices.

We have a new leadership team firmly in place, and raring to go. Keep watching!

Best Wishes

Nikhil Gupta



*“Change is not a threat, it's an opportunity.  
Survival is not the goal, transformative success is.”*

- Seth Godin

## Short-circuit Current Ratings Design

In continuation to our March 2013 edition on the subject, where we have covered importance of Short Circuit Current design, effect of temperature, methods of rating calculations and asymmetrical faults, we will discuss other effects on the operation of the cable in this edition. If you have missed our earlier edition, please feel free to write to us.

### Electromagnetic Forces And Cable Bursting

In multicore cables a short circuit produces electromagnetic forces which repel the cores from each other, and if they are not adequately bound together the cable will tend to burst. In case of unarmoured cable, insulation is damaged in this process, therefore armoured cables are always recommended. Armouring provides sufficient reinforcement to prevent damage due to this bursting. When installing single-core cables it is necessary to hold the cores together with adequate binding straps or to use suitable clamps, to withstand bursting forces.

### Thermomechanical Effects

The high temperature rise resulting from a short circuit produces expansion of the conductors which may cause problems due to longitudinal thrust of the conductors and movement of the cable if it is not adequately supported. The stranded conductors are recommended because the possibility of excessive thrust is more in solid conductor. The effect on joints is more critical with buried cables, i.e. because of the ground restraint on the cable surface the cores may tend to move longitudinally within the cable and into the accessory. The magnitude of this thrust can be very high, e.g. 50 N/mm<sup>2</sup> of conductor area, and is particularly important with large conductors. If the filling material in the accessory is sufficiently soft to permit movement of the cores, the force may cause buckling and collapse within the accessory. Once this happens, a tension will develop as the conductors cool down and this can create further problems such as a stress on the ferrules which is sufficiently high for the conductors to pull out. This is the reason for the 160°C temperature limit on soldered conductor connections. The design of all fittings applied by mechanical and compression techniques must be adequate to cater for stability of electrical resistance at the generated temperature.

Although the coefficient of expansion of aluminium is somewhat higher than that of copper, the effect as far as stress is concerned is largely balanced by the lower elastic modulus of aluminium. Forces causing buckling are therefore of a similar order. As far as electromagnetic forces are concerned, the type of conductor metal is irrelevant in theory but, in respect of bursting forces, aluminium is at some disadvantage compared with copper because of the physical size effect for equal rating of ampacity..

While designing installation method, i.e buried in ground or in air, the effects of longitudinal thrust should be given importance. Cables installed in air should have adequate support spacing and/or rigid cleating to prevent excessive generation of expansion and contraction in local spans, particularly associated with accessories. It is also important to prevent excessive local pressure on the cable which could cause deformation of the material. This can happen due to small bending radii or by unsuitable fixing arrangements at bends or by unsatisfactory clamping devices.

### Conclusion

It is concluded that short circuit ratings has direct relevance with basic cable design, type of insulation,

method of installation and the appropriate accessories. It has been generally seen that these aspects are the weakest links in entire cabling system which are often overlooked. Therefore it is most important to design or choose a cable to secure a very high short-circuit rating so that all other circumstances can be predicted accurately.

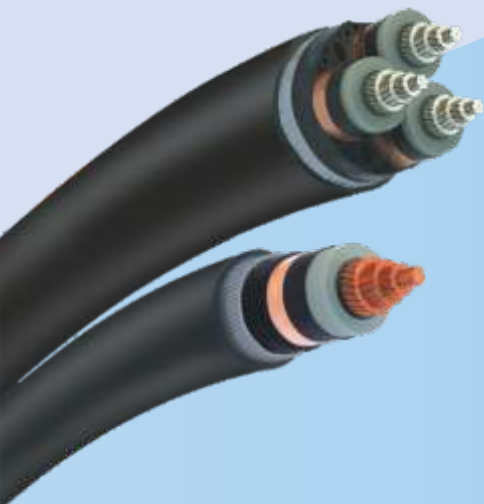
## Total Cabling Solutions

We, at RPG Cables, strongly believe in creating enhanced value for our customers through value added services, apart from cable supply.

We are equipped to provide Total Cable Solutions in the field of Power Evacuation for our customers. We achieve this through constant INNOVATION and significant differentiation by:

- Providing solutions for evacuation of Power through cabling & bonding system
- Knowledge sharing on Cable selection, materials in cables and manufacturing technologies
- Testing of various equipment used in power evacuation

Based on feedback received from our customers, we recently commenced offering these services and already executed some orders. We believe that, Power evacuation through total cabling solutions is both an art and a skill which is best left to the experts in the business.



*SQEC Meeting in progress on Shop Floor*



## SAFETY: Foundation for a Sustainable Business

SAFETY is the touchstone of RPG business leadership: a fundamental initiative which demonstrates its strategy for valuing people. It is our firm belief that attitudinal safety is intrinsically linked to quality and one cannot be evident in a business without the other.

RPG Cables is one of the first cable companies to acquire OHSAS 18001 accreditation at its factories and has gained global supply agreements with prestigious customers such as ABB and Siemens due to near perfect world class audit scores with respect to Environmental, Health & Safety Sustainability systems.

There are two types of safety management, one is the reactive management required when an injury is sustained and the other is proactive management which is the practice of identifying and controlling potential sources of injuries. Obviously, the goal is to spend the maximum time in the proactive safety space. To ensure fatalities are eliminated from the workplace, businesses must be systematic in

1. Learning from accidents and
2. Identifying and controlling potential risks through hazards identification, unsafe acts and conditions monitoring.

### Reactive Management

At RPG Cables we have initiated a program of immediate investigation of an accident within 24 hours to ensure the root cause is understood. From this we can implement corrective actions so that the hazard is eliminated, isolated or minimized. It is estimated that for every fatality there are as many as 300,000 unsafe acts.

*To ensure all RPG personnel are aligned to the benefits of a safety focus, we energetically celebrate safety day across the company highlighting safety excellence behavior, conduct safety poster competitions and reading out of safety pledges.*



Vadodara



Silvassa



Mysore

## Proactive Management

To reduce the reliance on reactive safety management, we have introduced the hazard identification and control program. This is an employee involvement initiative where a cross functional team reviews each process in detail and reviews them for any near misses that have occurred in history or any unsafe acts that employees believe could lead to an accident if there is a continuation of the said act going forward.

On collection of all these hazards, each are scored scientifically with respect to the potential consequence suffered, the frequency one is exposed to the hazard, and finally the likelihood of succumbing to the said consequence.

Once each is scored, the highest scoring hazards are prioritized for action ensuring that resources are working effectively. Hazards that place RPG Cables employees at most risk ultimately have corrective actions to reduce the risk either by training or engineering controls.

## Safety First

RPG Cables has a unique system of managing safety at the shop floor. Our self managed operational team share daily with the maintenance, quality and production personnel, the previous 24 hours performance with respect to safety, quality, efficiency and cost. The safety target is zero and any deviation with respect to this must be reviewed as per the reactive safety system. A safety investigation will be presented and problem resolved. Any 'next step' actions will be loaded onto the board with the relevant team member and expected completion date. Any hazard identification prioritised from the proactive safety system is tracked the same way. This initiative breeds an action based shop floor totally aligned to safety excellence and ensures the closing of the loop of each system.

## Emergency Management Plans

*Emergency management plans are also evident in each facility to ensure each site is prepared for any eventuality that may occur. Examples are first aid and fire fighting training.*



## Annual Managers' Conclave

The Annual Managers' Conclave (AMC) of RPG Cables was conducted recently at Mumbai. The event is a great platform for the leadership team to interact with the senior management within the business and share future plans & strategies. This year, Mr. Ramesh Chandak, MD & CEO KEC International Ltd., graced the occasion and shared his expectations from the business. He stressed on the need to focus on profitability in the short-term.

The daylong event saw functional heads presenting their vision and strategy and their alignment to achieve the shared goals. With a double digit growth target, the Cables business will be on an aggressive growth path in FY 15 and the entire conclave expressed their confidence in being able to deliver the results.

The KEC HR team organized a team building activity which added a lively touch to the event while bringing in key professional learnings on how teams work.

At the end, the Cables business honored the exceptional performers in the business for the year through its new Annual Excellence Awards for Sales & Marketing, Manufacturing and Commercial Operations.

The AMC served as a great boost to the enthusiasm of the senior management team and we are all confident that its impact will show in the results starting from the first quarter.



**For additional information/details/queries and to subscribe to C2C, please write to:**

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