

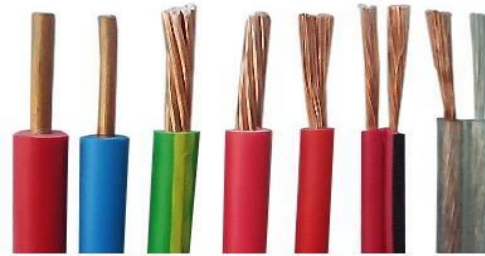
# HAVELLS BUILDING WIRE



**HAVELLS**



**HAVELLS BUILDING** wires are intended for use in wiring of buildings, malls, Control, metering, relay and instrument panels of power switchgear and purpose to as internal connection in rectifier equipment and controllers.



- Reference specification BS 6231.
- Voltage rating of 600V/1000V .
- **High temperature cable'** suitable to 105 Deg. C.
- Flame retardant cable design.
- **Heat Resistant (HR)** Panel Wires
- Higher current rating.
- Quality is the hallmarks of HAVELLS products.



**Manufactured in Largest integrated Wire and Cable Plant in India situated at Alwar (Rajasthan) - Spread over 100 Acres Land – out of which 50 Acres is Built up & Remaining for future expansion.**



# HAVELL STATE-OF-THE-ART WIRE AND CABLE PLANT CERTIFIED WITH ISO : 9001, ISO : 14001 & ISO : 18001



# Certifications/ Recognitions



## PLANT CERTIFICATIONS

- ISO:9001
- ISO:14001
- ISO:18001



## PRODUCT LICENCES

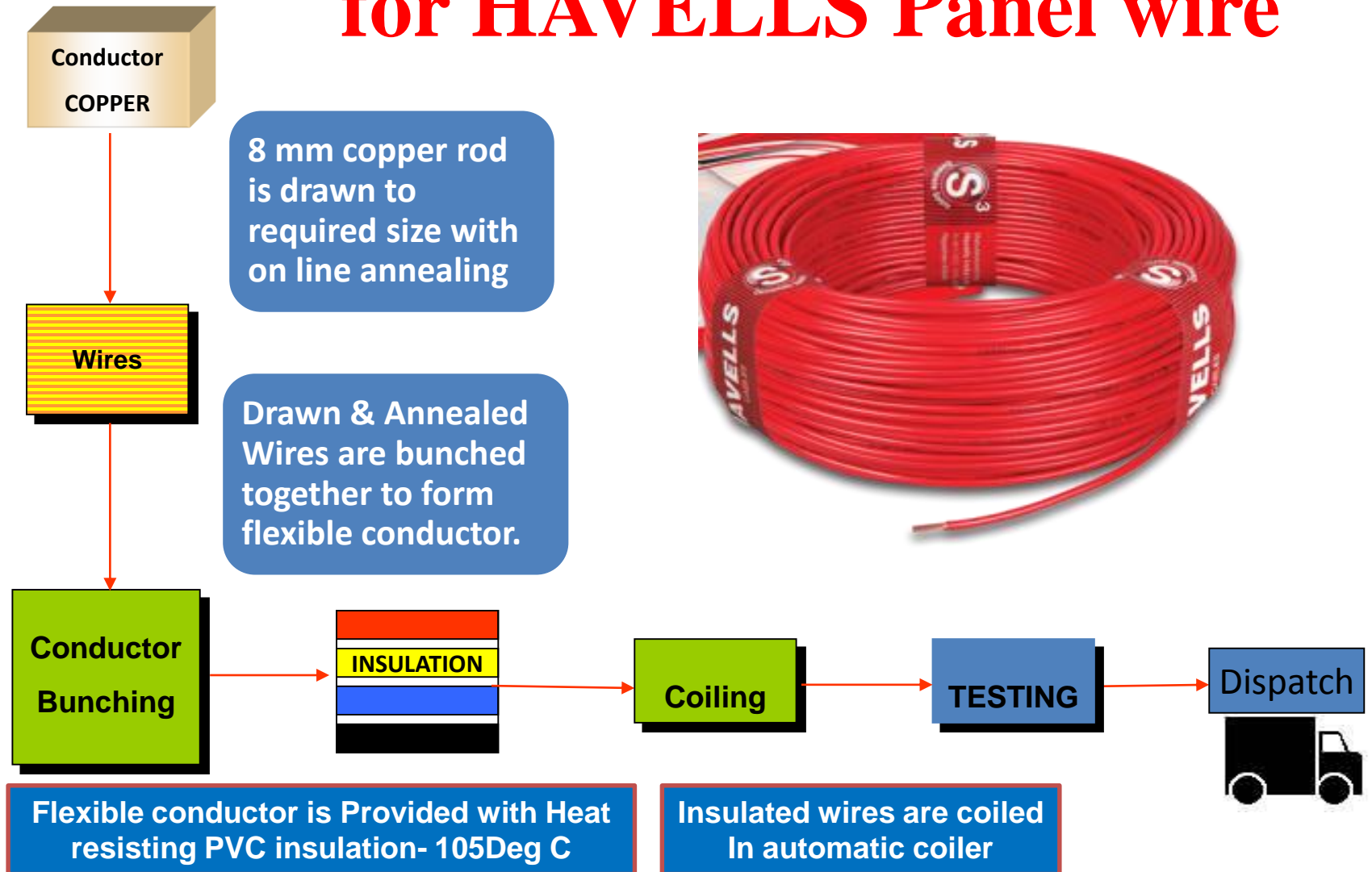
- IS: STANDARD
- BRITISH STANDARD
- IEC STANDARD
- TUV STANDARD



## RESEARCH AND INNOVATION CENTRE

- DSIR – Under Ministry of Technology India
- NABL / ISO:17025 For Test laboratory

# Manufacturing process flow for HAVELLS Panel wire



# INSIDE VIEW OF HAVELLS WIRE PLANT



# Copper Material Detail

HAVELLS is consuming around 1800 MT Copper Rod every month with following features : -

- Purchased From Birla Copper and Sterlite Industries
- Electrolytic High Conductivity Grade Copper
- Having 8 mm diameter
- Copper purity certificate – 99.9% pure TC  
Copy Enclosed From ERDA

**ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION**

ERDA Road, Makarpura Industrial Estate, Vadodara-390 010, India.

EPABX: +91 (0265) 2642942, 2642964, 2642377, 3043128 / 29 / 30 / 31 / 33,

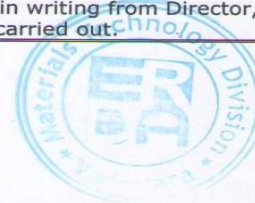
Fax : +91 (0265) 2638382,

E-mail : erda@erda.org

Web : http://www.erda.org



<b>TEST REPORT</b>		<b>SHEET 1 OF 2</b>
<b>NAME AND ADDRESS OF CUSTOMER</b>  Havells India Ltd A-461/462 & SP-215, M.I.A., Alwar-301 030 Rajasthan	REPORT No DATE	MSDE/630-4 28-12-12
	CUSTOMER REF No DATED	HIL/ERDA/SK/02/12 11-09-12
	DATE OF SAMPLE RECEIPT	DATES OF TESTING
	03-10-12	22-11-12
<b>SAMPLE DESCRIPTION</b>  Copper Rod Hindalco	<b>IDENTIFICATION NO</b>  ERDA SAMPLE CODE No. MSDE/630-4	
<b>TEST DETAILS</b>  1. Chemical composition test Copper, % (Copper+ Silver)	<b>TEST SPECIFICATION</b>  IS:613-2000 & IS: 191 -2007	
Remark: The sample conforms to the requirement of the Cu-ETP & Cu-FRHC grade for the above mentioned test.		
 PREPARED BY	 CHECKED BY	 APPROVED BY
<b>NOTE:</b> 1. This report relates only to the particular sample received for testing in good condition at ERDA. 2. This report cannot be reproduced in part under any circumstances. 3. Publication of this report requires prior permission in writing from Director, ERDA. 4. Only the test asked for by the customer has been carried out.		



# ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION

ERDA Road, Makarpura Industrial Estate, Vadodara-390 010, India.

EPABX: +91 (0265) 2642942, 2642964, 2642377, 3043128 / 29 / 30 / 31 / 33,

Fax : +91 (0265) 2638382,

E-mail : erda@erda.org

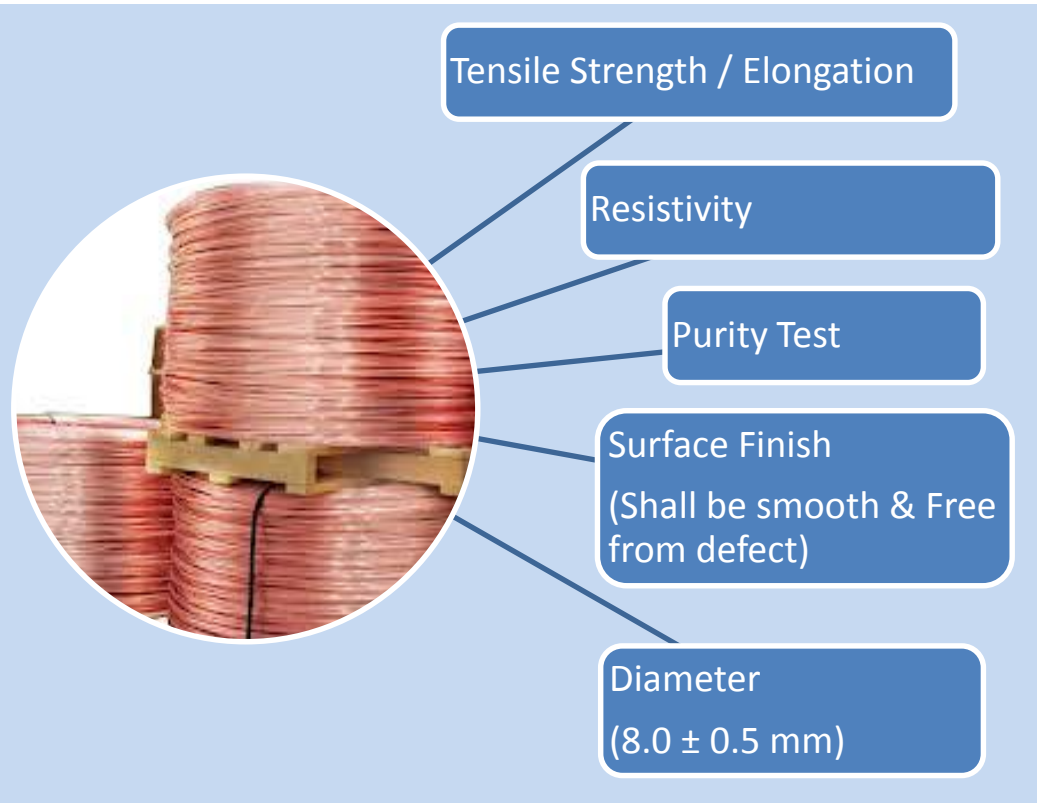
Web : <http://www.erda.org>



REPORT NO: MSDE/630-4		DATE: 28-12-12	SHEET 2 OF 2	
Sr. No.	Test particulars & Cl. No.	Requirement as Per specification	Obtained value	Remarks
1.	Chemical composition test 7.1 Table-4			
	Copper, % (Copper + Silver)	Min 99.90	99.96	Conforms
PREPARED BY <i>Gate</i>		CHECKED BY <i>hnl</i>		



# Copper Rod Testing before to process



## ■ *WIRE DRAWING*



HAVELLS PANEL wires are drawn on world class NIEHOFF (GERMAN) make Wire drawing machine with provision to draw 24 wires at a time with latest technology by using Diamond tools /dies and imported (USA) lubricants which retain the electrical properties in better form.



In line annealing/softening is being processed by controlled Induction heating thus high level of % annealing is being achieved which ensures approx 2% extra retaining of conductivity .

## ■ *BUNCHING/TWISTING OF DRAWN WIRES*



Drawn wires are bunched together in world class NEIHOFF (GERMAN) make bunching Machine.

Flexible conductor is being formed with uniform lay and excellent mechanical strength thus ease of making terminal and without strand breakage during installation /wiring.

On line sensors incorporated in the machine ensure correct and desired number of wires in the process.

## ■ *INSULATION PROCESS*



Insulation process is being carried out in very sophisticated world class extruders and dust free environment.

~Uniformity of insulation is being achieved by automatic self centring extrusion head.

~Uniform diameter by installed SIKORA( GERMAN ) make diameter controller

~Bi- Colour combination of PVC ensures excellent Di-electric properties.

~ Loading/Shifting of PVC compound through automatic vacuum loader in closed system thus no chance of any dust/impurities during the process.

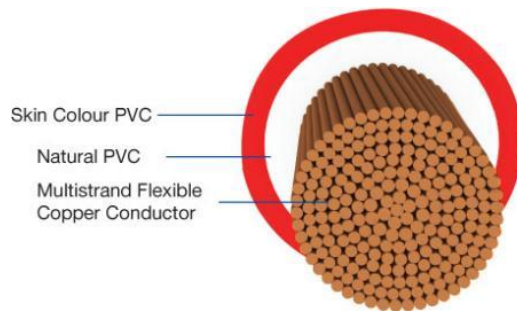
# In House PVC Compounding Plant

With capacity to manufacture 3000 MT PVC Granule per Month

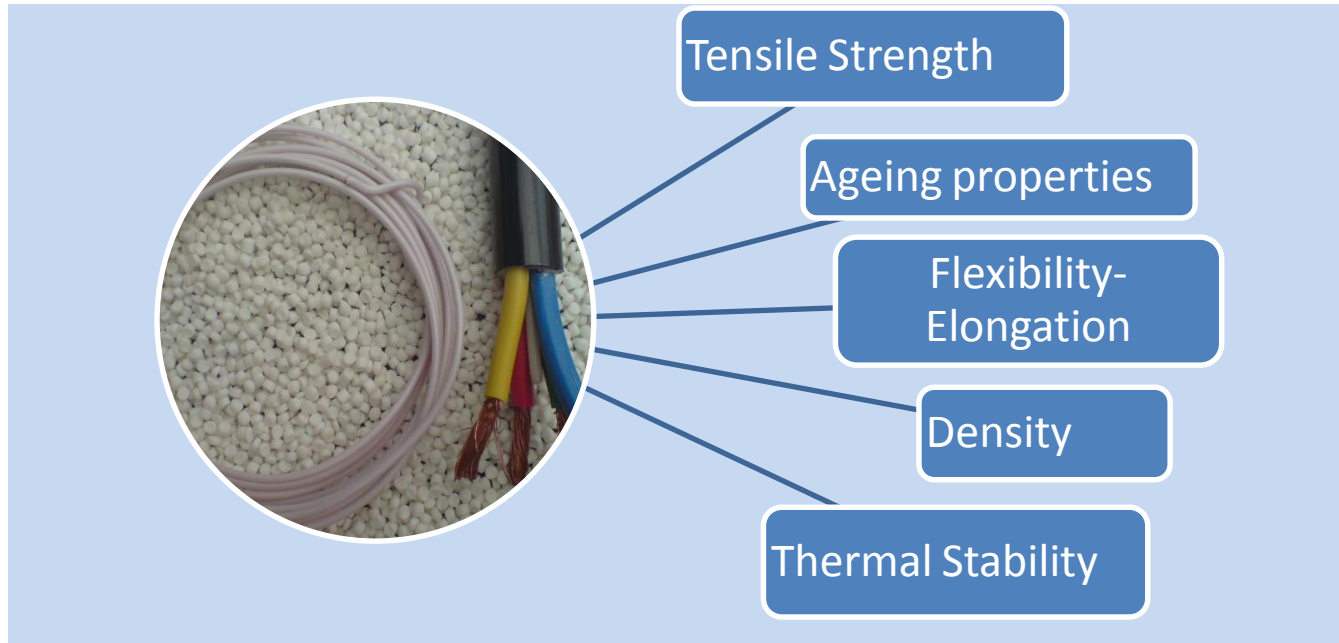


# PVC INSULATION

- ~ Excellent Electric properties
- ~ Flame retardant
- ~ Heat /Thermal Resistant- 105Deg C
- ~ Abrasion Resistant – Abrasion Means the Damage by rubbing the surface. The PVC is resistant to this fault.
- ~ The excellent mechanical features and outstanding resistance to moisture, acids & alkalis, improves the protection against external effects and adverse environmental influences
- ~ Skin Colour with virgin PVC – The main insulation is done with Virgin PVC without any colour to enhance the high Insulation Resistance. The thin layer of colour is called Skin which is for identification.



# In House PVC Compound Testing



# PANEL WIRE with Complete safety



RoHS COMPLIANT  
(RoHS = Resistance of Hazardous Substance)



# Emphasis On Quality



Insulated wire passes through on line High voltage test at 6000Volts ,  
Thus ensures insulation free from any micro pin holes and imperfections



# COILING

COILING IS  
DONE WITH  
FULLY  
AUTOMATIC  
COILING  
MACHNIES TO  
ENSURE 100%  
CORRECT  
LENGTH

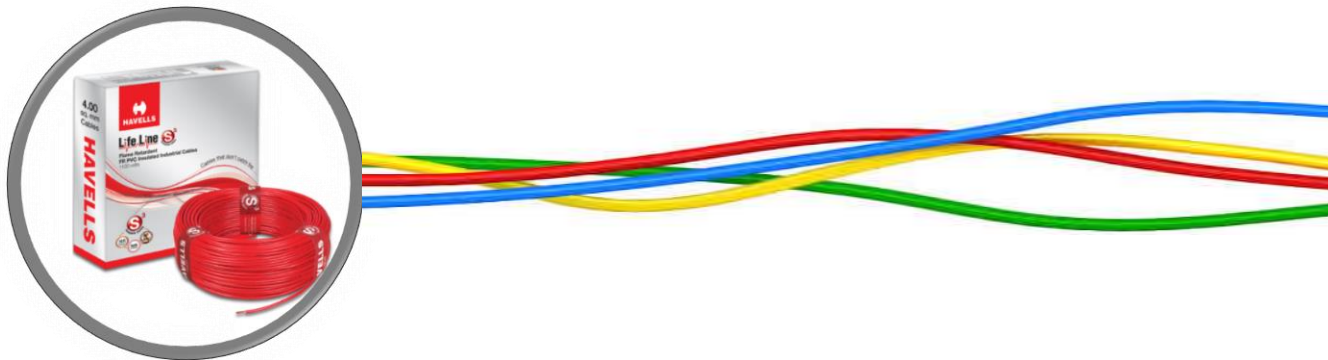
# PACKING

## FULLY AUTOMATIC PACKING BY ROBOTECH (SWISS) MAKE MACHINES



# Why HAVELLS PANEL WIRE is better

- > HAVELLS Panel wires are with global quality acceptance as passing most stringent quality parameters.
- > Manufactured in highly advanced manufacturing facilities adopting latest design to meet customer requirements.
- > Quality evaluation with most sophisticated quality tools in NABL accredited test Laboratory ensuring the longer and durable operational life.



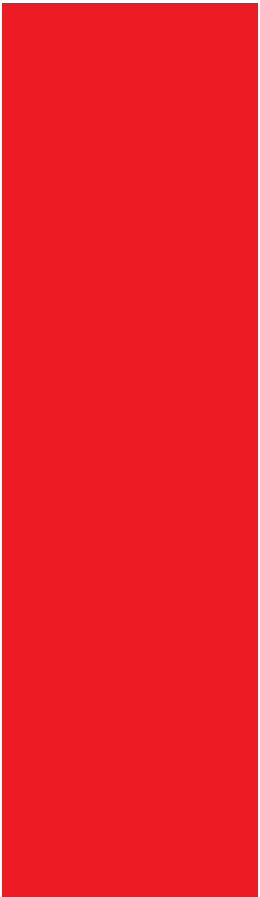
# Why HAVELLS PANEL WIRE is better.

- With Unique feature of high temperature, Havells Wires are capable to sustain reasonably under instant overloading condition.
- High Dielectric properties of insulation ensures Havells Wire complete safe during life time.
- 99.9% Pure Copper wire reduces the Conductor Resistance hence increases the life of wire.
- Most of the Skin colours are available for identification
- On Line HV Spark Testing ensures the insulation without pinhole
- Automatic Diameter control Device – SIKORA from Germany – ensures the minimum tolerance in required diameters of wires.
- Automatic Die Centric Cross Head - keep the unique eccentricity.





**HAVELLS**



# EMPHASIS ON RESEARCH AND INNOVATION



CLASSIFICATION | PUBLIC

# ONE OF THE BEST TECHNOLOGY CENTRE FOR WIRE & CABLES SET UP BY HAVELLS AT ALWAR ( RAJ.)



**NABL  
ACCREDITED  
TEST  
LABORATORY**



**DSIR( Dept. of Science &  
Industrial Research )  
RECOGNIZED CABLE  
RESEARCH CENTRE**



**HAVELLS**

# What is NABL / ISO ( IEC- 17025)

- It is a Global Standard for the Technical Competence of Calibration & Testing Laboratories.
- ISO 17025/NABL applies to any Organization that wants to ensure its customers Accuracy and Repeatability of Results.
- National Accreditation Board for Testing & Calibration Laboratories (NABL) is an autonomous body under Deptt. of Science & Technology, Govt. of India
- NABL has been established with the objective to provide the third party assessment of the quality and technical competence of testing & calibration laboratories.
- NABL means enhanced customer confidence in the product.
- NABL Accreditation provides formal recognition of competent laboratories – which is Internationally reputed & acceptable.
- Only a few Indian Cable Manufacturers have NABL Accredited Laboratory & HAVELLS is one of them.

# FIRE LABORATORY

## FIRE TESTS WITH SIX DIFFERENT STANDARDS



# BRITISH STANDARD 6387 # SWEDISH STANDARD- SS 4241475 # INDIAN STANDARD 10810 -61 & 62 # IEEE 383 STANDARD # ASTM D 2843 & 2863 # IEC 60331, 61034,

# Inside – view of Thermal Laboratory



# Chemical test facility at Laboratory



# Fire test facility at Laboratory



THANK YOU