

HI-FLEX “power in motion”



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Technological developments in armoured vehicles such as Active Protection Systems (APS), Remotely Operated Weapon Stations, and Advanced C4I systems has led to an increase in the demand for electrical power. Future developments such as HED (Hybrid Electric Drive) and Active Armour will put ever more increasing demands on the electrical system.

Increased power with traditionally insulated rubber cables means an increase in copper size. This is not necessarily the case with Habia's HI-FLEX power cable. The Omnigard insulation has a constant working temperature of 140°C (8500 hours), which means that the cross-sectional area (csa) of the copper can be reduced if compared with an industry standard power cable rated at 90°C. Alternatively, choosing a HI-FLEX cable with the same cross-sectional area of copper will give an increased current carrying capacity.

Flexibility is a major factor in the selection of cables for armoured vehicles. Limited space means tight cable entries into equipment, and consequent pressure on cable to

connector termination. Similarly, cable routing can often be a problem with traditional power cables due to their size and inflexibility. Habia's HI-FLEX cable has been tested for flexibility at temperatures as low as -50°C.

Series Hybrid Electric Drive vehicles have further problems with power selection and management. Each wheel is driven by a powerful in-hub electric motor supplied by cables capable of delivering very high currents. In addition, these cables have to withstand severe mechanical shock & vibration, exposure to oils and fluids, extreme environmental conditions such as temperature & weather, and possibly even NBC attack & wash-down. Habia's Omnigard insulation material has been specially formulated to withstand the most demanding physical, mechanical and environmental conditions.

Whatever the problems associated with power cable management in armoured vehicles - in future conceptual designs, in retrofit 'plug-in' systems or upgrade of existing Power Supply Units, Habia's HI-FLEX power cable is the flexible, fit for purpose, and cost effective solution.



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Dimensions & Current Ratings

Voltage Rating 600V AC

Conductor Size (c.s.a. mm ²)	Industry Standard Power Cable Rating (A) Insulation Rated at 90°C	Habia HI-FLEX Power Cable Rating (A) Insulation Rated at 140°C Continuous rating for 8500 hours	Max. Diameter (mm)	Weight (kg/km)
6	75	88	5.00	65
10	103	120	6.00	105
16	139	162	7.70	170
25	183	214	9.50	255
35	226	250	11.15	420
50	274	330	12.95	510
70	351	415	14.80	700
95	426	500	17.05	940
120	495	585	19.50	1180
150	570	670	20.80	1465
185	651	775	23.30	1820
240	769	920	27.75	2465
300	886	1036	30.70	2990
400	1065	1225	36.30	4145

Notes:

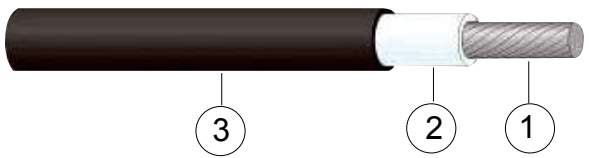
1. Values of current rating for industry standard power cables have been extracted from the I.E.E. Regulations 16th Edition and assumes an ambient temperature of 30°C, for two cables horizontally mounted and spaced in free air.
2. Values of current rating for Habia **HI-FLEX** power cables assumes an ambient temperature of 30°C, for two cables horizontally mounted and spaced in free air.
3. De-rating Factors should be applied by the user in determining the most suitable **HI-FLEX** power cable for the application. A number of factors must be taken into consideration such as ambient temperature, number of cores and fixing arrangement. If a number of these apply, the de-rating factors should be applied cumulatively.

Ambient Temperature De-rating Factors							
°C	30	40	50	60	70	80	90
Factor	1.0	0.94	0.88	0.82	0.76	0.69	0.62

Fixing Method De-rating Factors												
	Clipped to vertical structure			Clipped to horizontal structure			On solid metal trays			On aerated metal trays		
Number of Cables	1	2	3	1	2	3	1	2	3	1	2	3
Without Spacing	0.94	0.80	0.76	0.89	0.76	0.57	0.97	0.85	0.74	1.0	0.87	0.74
With Spacing	0.94	0.90	0.87	0.89	0.81	0.77	0.97	0.96	0.93	1.0	1.0	1.0

Note: Habia will not accept liability for any loss or damage to equipment or cabling caused by incorrect specification of conductor size due to miscalculation of current rating of **HI-FLEX** power cables in customer specific applications

HI-FLEX Construction



1. S-Line High Strand TPC Conductor
2. Roctech Low Friction Separator Tape
3. Omnigard High Flexibility Insulation/Sheath

Features

- * High Flexibility
 - Minimum Bend Radius Static 4 x Cable OD, Dynamic 8 x Cable OD
- * High Flex-life
- * Oils & Fluids Resistant
- * Wide Operating Temperature -50 to +150°C
- * Mechanically Tough
- * Abrasion Resistant
- * Flame Retardant
- * NBC Hardened

HI-FLEX Benefits

Design Flexibility

High temperature insulation material enables increased current carrying capacity compared to standard materials.

Improved Space Envelope

Design flexibility due to the higher current carrying capacity of **HI-FLEX** power cables, reductions can be made in the conductor c.s.a. resulting in a smaller, lighter cable.

Reduced Maintenance

HI-FLEX materials ensures long flex-life and reduced strain on cable terminations, thereby reducing MTBF (Mean Time Before Failure).

Ease of Installation

HI-FLEX design and construction eases routing of cable within confined spacing, and gives better access to connectors and equipment.