

**Hiflex**  
Power cores and cables for electric vehicles

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### Introduction

Designed initially for use with military Hybrid Electric Drive (HED) vehicles in order to meet an increasing demand for higher power ratings without the usual increase in copper size and weight, and its associated loss of flexibility, Hiflex cables have proven successful in a variety of applications within electric drive vehicles.

Increasing demand in the civilian sector Kinetic Energy Recovery Systems (KERS) and Hybrid Electric Drive vehicles has resulted in the development of the Hiflex ZH product which offers the ability to be coloured in accordance with the industry standard as well as Low Smoke Zero Halogen (LSZH) properties.

The key benefits with both versions of the Hiflex product are an increased current rating (resulting from the use of high-temperature insulation materials) when compared to standard materials. Additionally, the use of Hiflex offers the designer an improved space-envelope as a smaller, lighter core can often be used for the same power rating.

Hiflex materials ensure a long flex-life and reduced strain on cable terminations, thereby reducing Mean Time Before Failure (MTBF) of the cable.

The flexibility of Hiflex also aids the ease of installation, allowing better access to connectors and equipment, and improved routing of the cable within confined spaces when compared to the industry standard.

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Hiflex cables feature static Minimum Bend Radius (MBR) of 4x cable OD and a dynamic MBR of 8x cable OD, They are mechanically tough, with a wide operating temperature and are flame retardant.

#### Hiflex

Designed for use with the Hiflex power cable range, the original Hiflex uses Habia's Roctech binder tape and TPS 125 XL as insulation to combine flexibility with high temperature performance. It is primarily used in military electric-drive applications. TPS 125 XL features particularly good oil and fuel resistance and has been NBC hardened. It is highly abrasion resistant and mechanically tough. It is only available in Black.

#### Hiflex ZH

Designed for use with the Hiflex ZH power cable range and also used in conjunction with Roctech tape, Hiflex ZH uses HF1 121 XL to provide the same levels of flexibility and high temperature performance of the original TPS 125 XL product, with the additional benefits of being Low Smoke, Zero Halogen (LSZH) and is available in a full colour range. It is primarily used in civilian electric-drive applications.

Habia Cable is first and foremost a custom-design cable manufacturer. The designs presented here are an indication of what can be produced, but this should not be considered an exhaustive list; as such, if you require further information, please contact one of our sales offices.

### Single cores

Voltage	1-4mm <sup>2</sup> 6-400mm <sup>2</sup>	300/500V AC U <sub>0</sub> /U 600/1000V AC U <sub>0</sub> /U
Test voltage	3000V AC	
Flame retardant		
NBC compliant		
Oil and fuel resistant		
Static MBR	4x OD	
Dynamic MBR	8x OD	

### Construction

Conductor	Tin Plated Copper (TPC) *	Insulation	Roctech tape TPS 125 XL
Shield	-	Sheath	-

\* 'S-Line' high strand-count

### Identification

Marking	Habia Cable ORDER REFERENCE YEAR-WEEK BATCHCODE (e.g. Habia Cable 903000100 2012-W39 121026001)
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### Application

Designed for use in Hybrid Electric Drive (HED) vehicles, Hiflex offers Habia's most flexible, large power cores. Hiflex is designed to a military level of performance, giving improved oil and fuel resistance as well as improved Non-Biological Contamination (NBC) resistance.

Description	Size		Conductor			Finished Wire			Electrical amps at 30°C	Order reference
	AWG	CSA mm <sup>2</sup>	stranding	resistance Ω/km	wire Ø	core Ø	tolerance	weight g/m		
Hiflex 1,0	-	1,00	S 1,0	20,00	1,40	2,70	±0,15	15	30	903cc0100
Hiflex 1,5	-	1,50	S 1,5	13,70	1,70	3,10	±0,15	21	39	903cc0150
Hiflex 2,5	-	2,50	S 2,5	8,21	2,15	3,70	±0,15	32	55	903cc0250
Hiflex 4	-	4,00	S 4	5,09	2,70	4,30	±0,15	49	73	903cc0400
Hiflex 6	-	6,00	S 6	3,39	3,60	5,00	±0,15	65	98	903cc0600
Hiflex 10	-	10,00	S 10	1,95	4,55	6,00	±0,20	105	138	903cc1000
Hiflex 16	-	16,00	S 16	1,24	5,50	7,70	±0,25	170	185	903cc1600
Hiflex 25	-	25,00	S 25	0,80	7,30	9,50	±0,30	255	250	903cc2500
Hiflex 35	-	35,00	S 35	0,57	8,55	11,15	±0,45	420	312	903cc3500
Hiflex 50	-	50,00	S 50	0,39	10,15	12,95	±0,50	510	395	903cc5000
Hiflex 70	-	70,00	S 70	0,28	12,00	14,80	±0,50	700	496	903cc7000
Hiflex 95	-	95,00	S 95	0,21	14,05	17,05	±0,55	940	599	903cc9500
Hiflex 120	-	120,00	S 120	0,17	16,30	19,50	±0,60	1180	713	903cc9120
Hiflex 150	-	150,00	S 150	0,13	17,40	20,80	±0,60	1465	811	903cc9150
Hiflex 185	-	185,00	S 185	0,11	19,00	23,30	±1,00	1820	921	903cc9185
Hiflex 240	-	240,00	S 240	0,08	22,50	27,75	±1,00	2465	1115	903cc9240
Hiflex 300	-	300,00	S 300	0,06	25,50	30,70	±1,25	2990	1296	903cc9300
Hiflex 400	-	400,00	S 400	0,05	29,80	36,30	±1,25	4145	1554	903cc9400

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Available colours (replace 'cc' in the order reference)										
00 Black	-	-	-	-	-	-	-	-	-	-

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### Single cores

Voltage	1000/1900V AC U <sub>0</sub> /U
Test voltage	5000V AC
Flame retardant	
NBC compliant	
Oil and fuel resistant	
Static MBR	4x OD
Dynamic MBR	8x OD

### Construction

Conductor	Tin Plated Copper (TPC) *	Insulation	Roctech tape TPS 125 XL
Shield(s)	-	Sheath	-

\* 'S-Line' highly stranded conductor

### Identification

Marking	Habia Cable ORDER REFERENCE YEAR-WEEK BATCHCODE (e.g.: Habia Cable 910000600 2012-W39 121026001)
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### Application

Designed for use in Hybrid Electric Drive (HED) vehicles, Hiflex 1000 offers Habia's most flexible, large power cores. As with the 'standard' Hiflex, Hiflex 1000 is designed to a military level of performance, giving improved oil and fuel resistance as well as improved Non-Biological Contamination (NBC) resistance.

Description	Size		Conductor			Finished Wire			Electrical amps at 30°C	Order reference
	AWG	CSA mm <sup>2</sup>	stranding	resistance Ω/km	wire Ø	core Ø	tolerance	weight g/m		
Hiflex 6 1000	-	6,00	S 6	3,39	3,60	6,00	± 0,15	77	98	910cc0600
Hiflex 10 1000	-	10,00	S 10	1,95	4,55	7,00	± 0,20	120	138	910cc1000
Hiflex 16 1000	-	16,00	S 16	1,24	5,50	8,60	± 0,25	189	185	910cc1600
Hiflex 25 1000	-	25,00	S 25	0,80	7,30	10,30	± 0,30	269	250	910cc2500
Hiflex 35 1000	-	35,00	S 35	0,57	8,55	12,00	± 0,45	438	312	910cc3500
Hiflex 50 1000	-	50,00	S 50	0,39	10,15	12,95	± 0,50	527	395	910cc5000
Hiflex 70 1000	-	70,00	S 70	0,28	12,00	14,80	± 0,50	719	496	910cc7000
Hiflex 95 1000	-	95,00	S 95	0,21	14,05	17,05	± 0,55	957	599	910cc9500

00 Black	-	-	-	-	-	-	-	-	-	-
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## Hiflex ZH LSZH flexible power cores

600V  
-50°C/+140°C

### Single cores

Voltage	1-4mm <sup>2</sup> 6-400mm <sup>2</sup>	300/500V AC U <sub>0</sub> /U 600/1000V AC U <sub>0</sub> /U
Test voltage	3000V AC	
Flame retardant		
Halogen free		
Low smoke generation		
Oil and fuel resistant		
Static MBR	4x OD	
Dynamic MBR	8x OD	

### Construction

Conductor	Tin Plated Copper (TPC) *	Insulation	Roctech tape HFI 121 XL
Shield	-	Sheath	-

\* 'S-Line' high strand-count

### Identification

Marking Habia Cable ORDER REFERENCE YEAR-WEEK BATCHCODE  
(e.g. Habia Cable 909000100 2012-W39 121026001)

### Application

Designed for use in Hybrid Electric Drive (HED) vehicles, Hiflex ZH cores are particularly designed for the civilian and motor-sport industries where competitive pricing is as important as flexibility and high current rating.

Description	Size		Conductor			Finished Wire			Electrical amps at 30°C	Order reference
	AWG	CSA mm <sup>2</sup>	stranding	resistance Ω/km	wire Ø	core Ø	tolerance	weight g/m		
Hiflex 1,0 ZH	-	1,00	S 1,0	20,00	1,40	2,70	±0,15	15	30	909cc0100
Hiflex 1,5 ZH	-	1,50	S 1,5	13,70	1,70	3,10	±0,15	21	39	909cc0150
Hiflex 2,5 ZH	-	2,50	S 2,5	8,21	2,15	3,70	±0,15	32	55	909cc0250
Hiflex 4 ZH	-	4,00	S 4	5,09	2,70	4,30	±0,15	49	73	909cc0400
Hiflex 6 ZH	-	6,00	S 6	3,39	3,60	5,00	±0,15	65	98	909cc0600
Hiflex 10 ZH	-	10,00	S 10	1,95	4,55	6,00	±0,20	105	138	909cc1000
Hiflex 16 ZH	-	16,00	S 16	1,24	5,50	7,70	±0,25	170	185	909cc1600
Hiflex 25 ZH	-	25,00	S 25	0,80	7,30	9,50	±0,30	255	250	909cc2500
Hiflex 35 ZH	-	35,00	S 35	0,57	8,55	11,15	±0,45	420	312	909cc3500
Hiflex 50 ZH	-	50,00	S 50	0,39	10,15	12,95	±0,50	510	395	909cc5000
Hiflex 70 ZH	-	70,00	S 70	0,28	12,00	14,80	±0,50	700	496	909cc7000
Hiflex 95 ZH	-	95,00	S 95	0,21	14,05	17,05	±0,55	940	599	909cc9500
Hiflex 120 ZH	-	120,00	S 120	0,17	16,30	19,50	±0,60	1180	713	909cc9120
Hiflex 150 ZH	-	150,00	S 150	0,13	17,40	20,80	±0,60	1465	811	909cc9150
Hiflex 185 ZH	-	185,00	S 185	0,11	19,00	23,30	±1,00	1820	921	909cc9185
Hiflex 240 ZH	-	240,00	S 240	0,08	22,50	27,75	±1,00	2465	1115	909cc9240
Hiflex 300 ZH	-	300,00	S 300	0,06	25,50	30,70	±1,25	2990	1296	909cc9300
Hiflex 400 ZH	-	400,00	S 400	0,05	29,80	36,30	±1,25	4145	1554	909cc9400

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Available colours (replace 'cc' in the order reference)												
00 Black	11 Brown	22 Red	33 Orange	44 Yellow	55 Green	66 Blue	77 Violet	88 Grey	99 White	29 Pink	-	45 Yel/Grn

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### Shielded signal cables

Voltage	600/1000V AC U <sub>0</sub> /U
Test voltage	3000V AC
Flame retardant	
Halogen free	
Low smoke generation	
Oil and fuel resistant	
Static MBR	4x OD
Dynamic MBR	8x OD

### Construction

Conductor	Tin Plated Copper (TPC) *	Insulation	Roctech tape HFI 121 XL
Shield(s)	Braid of Tin Plated Copper (T) * 'S-Line' highly stranded conductor	Sheath	HFI 121 XL

### Identification

Marking	Habia Cable ORDER REFERENCE YEAR-WEEK BATCHCODE (e.g.: Habia Cable 700030523 2012-W39 121026001)
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### Application

Designed for use in Hybrid Electric Drive (HED) vehicles, Hiflex ZH - STJ 1 cables are particularly designed for the civilian and motor-sport industries where colour-coding and competitive pricing are as important as flexibility and high current rating.

Description	Construction							Electrical amps at 40°C max	NSN	Order reference
	no. / size CSA	conductor Ø	insulation Ø	cabled Ø	shield (s) Ø	sheath (s) Ø	weight g/m			
Hiflex 6 ZH - STJ 1 (0-3)	1x 6	3,60	5,00	-	5,60	7,60	115	98	-	700030523
Hiflex 10 ZH - STJ 1 (0-3)	1x 10	4,55	6,00	-	6,60	8,60	160	138	-	700030524
Hiflex 16 ZH - STJ 1 (0-3)	1x 16	5,50	7,70	-	8,40	10,80	255	185	-	700028632
Hiflex 25 ZH - STJ 1 (0-3)	1x 25	7,30	9,50	-	10,20	12,80	370	250	-	700030525
Hiflex 35 ZH - STJ 1 (0-3)	1x 35	8,55	11,15	-	11,90	14,50	545	312	-	700026906
Hiflex 50 ZH - STJ 1 (0-3)	1x 50	10,15	12,95	-	13,90	16,70	690	395	-	700028094
Hiflex 70 ZH - STJ 1 (0-3)	1x 70	12,00	14,80	-	15,70	18,90	915	496	-	700030474
Hiflex 95 ZH - STJ 1 (0-3)	1x 95	14,05	17,05	-	18,00	21,20	1175	599	-	700028633
Hiflex 120 ZH - STJ 1 (0-3)	1x 120	16,30	19,50	-	20,40	24,20	1485	713	-	700028634

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Cable Construction										
1 core	-	-	-	-	-	-	-	-	-	-



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