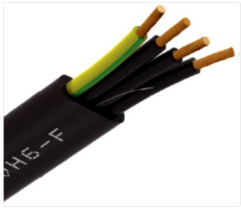
1. CABLES

The cables supplied by IGA are designed and manufactured according to International standards and have AENOR certification.

Product and services we offer:

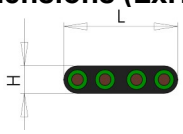
- We recommend our cutomers on the most suitable cables for the transport of energy and data; based on four premises: Find the higher quality and reliability at the best price and with the best service.
- We supply the cables according to our customer requirements.
- KIT FESTOON: Cables can be supplied installed on the trolleys, according to customer specifications.

1.1. PVC FLATFORM CABLES H07VVH6-F



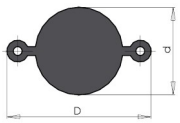
Applications:	Flexible cable for festoon systems located along the bridge structure of a crane to provide power to the trolley and hoist.
Normative:	DIN VDE 0281 cl. 404 IEC 60332-1-1(flame retardant) IEC 60227-6
Coding scheme H07VVH6-F:	H: Harmonized system code 07: 450/750V V: Insulation material in PVC V: Cover material in PVC H6: Flatform cable not divisible -F: Flexible conductor class 5
Conductor composition:	Electrolitic copper cl. 5 according to IEC 60228 - DIN VDE 0295
Conductor insulation:	PVC low temperature resistance
Outer cover:	PVC low temperature resistance
Nominal voltage U_0 / U:	450 – 750V
Test voltage:	2500V
Temperature range:	0ºC / +70ºC
Maximum speed:	96 m/min
Outer cover colour:	Black RAL9005
Conductor identification:	Black conductors with white numbers. Green / Yellow protective conductor.
Minimum bending diameter:	According to DIN VDE 0298 cl. 3 3 x cable heigh if it is < 8mm 4 x cable heigh if it is from 8mm to 12mm 5 x cable heigh if it is > 12mm
Silicone free:	Yes

CABLES

Nº of conductors x Section (mm^2)	Code	Dimensions (LxH) 	Approx. weight (gr/m)
4 x 1,5	308250	16 x 5,5mm	153
4 x 2,5	308142	18 x 5,7mm	194
4 x 4	308143	22 x 6,7mm	291
4 x 6	308144	25 x 7,5mm	383
4 x 10	308145	28 x 9,2mm	586
4 x 16	308146	33 x 10,8mm	850
4 x 25	308147	40 x 12,5mm	1274
6 x 1,5	308148	23 x 5,5mm	206
6 x 2,5	308149	28 x 5,7mm	285
8 x 1,5	308150	30 x 5,5mm	249
8 x 2,5	308151	35 x 5,7mm	387
10 x 1,2	308370	37 x 5,5mm	349
10 x 2,5	308154	44 x 5,7mm	511
12 x 1,5	308155	42 x 5,5mm	388
12 x 2,5	308156	48 x 5,7mm	558
14 x 1,5	308377	51 x 5,5mm	481
16 x 1,5	308369	56 x 5,5mm	543

1.2. PUSH BUTTON PENDANT CABLE

Applications:	Flexible cable with lateral steel wire ropes for crane control push buttons
Normative:	DIN VDE 0250 IEC 60332-1-1(flame retardant)
Data coding VV-K:	V: Core insulation in PVC V: Sheath in PVC -K: Flexible thin conductor
Formation:	Concentric layers suitable for the cable to resist twisting when own use
Conductor composition:	Electrolitic copper cl. 5 according to IEC 60228 - DIN VDE 0295
Conductor insulation:	PVC
Outer cover:	PVC
Lateral steel wire ropes:	Steel coated with PVC integrated in the cable One is braided in the right direction and the other is braided in the left direction, which gives the cable assembly a forcé equal to zero or null.
Maximum Breakage Voltage:	2300Nw
Nominal voltage U_0 / U:	600 – 1000V
Test voltage:	3500V
Temperatura range:	0ºC / +70ºC
Outer cover colour:	Black RAL9005
Conductor identification:	Black conductors with white numbers. Green / Yellow protective conductor.
Minimum bending diameter:	10 x cable diameter
Silicone free:	Yes
Use in outdoors:	Yes

Nº of conductors x Section (mm^2)	**Code**	**Diameter (d x D)** 	**Appox. weight (gr/m)**
8 x 1,5	308245	19 x 25 mm	348
12 x 1,5	308246	18 x 32 mm	485
15 x 1,5	308247	22 x 34 mm	557
16 x 1,5	308542	23 x 35 mm	625
20 x 1,5	308248	28 x 38 mm	742

1.3. TECHNICAL DATA

1.3.1 CABLE SPOOL OF 500 m

Type of cable		Diameter of the cable spool (mm)	Approx weight per cable spool (Kg)
H07VVH6-F	4x1,5	630	20
	4x2,5	630	20
	4x4	800	30
	4x6	800	30
	4x10	800	30
	4x16	1000	50
	4x25	1000	50
	6x1,5	800	30
	6x2,5	800	30
	8x1,5	800	30
	8x2,5	800	30
	10x1,5	800	30
	10x2,5	800	30
	12x1,5	800	30
	12x2,5	800	30
	14x1,5	800	30
	16x1,5	800	30
Push button pendant cable	8x1,5	1000	50
	12x1,5	1000	50
	15x1,5	1000	50
	20x1,5	1000	50

1.3.1 EQUIVALENECE BETWEEN AWG & METRIC IN mm^2

AWG number	Metric section (mm^2)
16	1,5
15	
14	2,5
13	
12	4
11	
10	6
9	
8	10
7	
6	16
5	
4	25
3	

1.3.3 ASSEMBLY

CABLES GENERALITIES

- Consider the operating characteristics included in this catalogue (service temperature, tension, bending, etc.) for which the cables have been manufactured.
- The length printed on the cables may differ slightly from its real length.
- Once the flat cable has been installed, there should be no torsion at any point of its length.
- The installation and assembly must be carried out in the absence of electrical voltage.

FLATFORM CABLES

- Cut the necessary length of cable: cutting length:

  Lc: p x (L + b) + excesses to reach the junction boxes. Where:

  - p: Coefficient that relates the speed with the loop height:

SPEED (m/min)	LOOP HEIGHT (m)				
	To 1 m	From 1,1 to 1,5 m	From 1,6 to 2 m	From 2,1 to 3 m	From 3,1 to 5,5 m
To 40	1,15	1,10	1,10	1,10	1,10
From 41 to 55	1,20	1,15	1,10	1,10	1,10
From 56 to 65	1,25	1,20	1,15	1,10	1,10
From 66 to 80	1,25	1,25	1,20	1,15	1,10
From 81 to 100	1,25	1,25	1,25	1,20	1,15
From 101 to 120	1,25	1,25	1,25	1,25	1,20
From 121 to 140		1,25	1,25	1,25	1,25
From 141 to 160			1,25	1,25	1,25
From 161 to 180				1,25	1,25
From 181 to 200				1,30	1,25
From 201 to 240					1,30
Up to 241					1,40

  - L: Total travel length
  - b: Necessary parking

- Mark the cables taking into account the loop height and the number of cable trolleys to be assembled.
- Loose the screws of the saddles and fix the cable trolleys in their marks.
- Put the cables on the saddles.
  When it is possible, put the biggest (power) on the top of the cable package in order to give them a bigger bend radious and facilitate the heat evaporation when the system works.
- Tighten the screws of the saddles to prevent cable breakage.
- The cable package has to be balanced with respect to the center of the saddle. Make sure that the small cables dont's slip if you pull them.

ROUND CABLES

- Cut the necessary cable leaving length enough to facilitate the manipulation by the crane operator.
- Make the electrical connection in the junction box or in the pendant control unit trolley.
- Anchor the two lateral steel wire ropes in the trolley leaving a slight excess in order to avoid jerks in the core of the cable.
- Make the same operation in the lower part where the pendant push button will be fixed.

PREVIOUS TESTS

- Carry out several travels with the festoon system to verify that the system reaches loosely at the end of the travel and it is not compressed in the parking area.
- Check that the cable loops don't tangle at any point of the travel.

FINAL TESTS

- Get connected to the electricity supply.
- Check that the festoon system runs from one extreme to the other freely.
- Finally, check that the hoist or crane are operating properly.

NORMAL USE AND MAINTENANCE

- Performing periodic maintenance tasks is important to ensure proper operations. Some tasks do not need to be performed during daily or weekly maintenance. It will depend on the use given to it.
- Apart from the intrinsic tests of the cable management system, it should be checked that the cables are under correct conditions and there are no cuts, cracks, etc.