

# ELEVATOR STEEL WIRE ROPES

for North America





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## IPH ROPE GRADE | EQUIVALENTS

Rope grade designation	Wire tensile strength grade		Rope grade value [N/mm <sup>2</sup> ]	Rope grade value [psi]
	Outer [N/mm <sup>2</sup> ]	Inner [N/mm <sup>2</sup> ]		
TRACTION	1370	1770	1500	210000
EHS	1570	1770	1670	234000
	1770	1770	1770	248000



# ELEVATORS STEEL WIRE ROPES

## for North America

The elevator is the most used form of transportation worldwide. As buildings around the world are reaching greater heights, the needs for safety and comfort are becoming increasingly important every day.

IPH manufactures and certifies according to ASME A17.6 and ISO 4344, assuring constructive features suitable for each operation and market. With more than 30 year of experience in producing steel wire ropes for elevators, IPH has the know-how and technology to develop products which meet the highest international standards. Such products are exported to the main markets in Latin America, Europe, U.S.A. and Asia.

With our ability to manufacture the wires and sisal cores used in our elevator ropes, all rope combinations are possible.



## IPH QUALITY

The quality certificate issued by IPH guarantees the traceability and compliance with national and international standards, which can be applied to the controls carried out throughout the manufacturing process, from raw material reception to final product.

### MANAGEMENT SYSTEM CERTIFICATIONS:

American Petroleum Institute, API Monogram Spec Q1, Spec 9A.  
TÜV Rheinland, ISO 9001:2015.  
Fundação Vanzolini NBR, ISO 9001:2015.

### WIRE ROPES SPECIFIC CERTIFICATIONS:

#### Marine use

Lloyd's Register plant certification.

#### Elevators

IRAM-INTI and IRAM 840 product certification.

#### General purpose

ABNT NBR and ISO 2408 product certification.

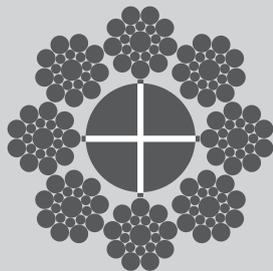
#### Offshore containers lifting slings

DNV 2.7-1 product certification.

#### Wire rope slings

IRAM 5221 Flemish eye product certification.

# TRACTION DRIVE AND COMPENSATING ROPES FOR CONVENTIONAL ELEVATORS



**IPH 819E**

## Advantages and features

- Lubricated high density sisal fiber core with perfect diameter uniformity.
- High resistance to bending fatigue.
- Diameter uniformity assures a smooth run, free from vibration and noise.
- Special lubricant fit to traction sheaves.
- The tensile strength resistance of the "dual" wires, with inner wires of 1770 N/mm<sup>2</sup> rises the overall resistance while the outer wires of 1370 N/mm<sup>2</sup> reduce to a minimum the wear on the sheaves.

For conventional elevators, the traction rope recommended is the 8x19 construction, with sisal fiber core manufactured in our facilities. Its excellent fatigue resistance complies with the highest international standards. This is a key factor regarding its life time and safety.

## Elastic Behavior

Diameter tolerance	Constructional stretch	Elastic stretch	Total stretch	E-Module
[No load]: +2/ +5% [At 10% MBL]: 0/ +3%	Max. 0,6%	Max. 0,2%	Constructional + Elastic	5000 daN/mm <sup>2</sup>

## Minimum breaking load

Diameter		Weight factor		1370/1770 N/mm <sup>2</sup>		1570 N/mm <sup>2</sup>		1770 N/mm <sup>2</sup>	
[mm]	[inch]	[kg/m]	[lb/ft]	[kN]	[lb]	[kN]	[lb]	[kN]	[lb]
8,00	5/16	0,218	0,146	29,4	6600	29,4	6600	33,2	7500
9,50	3/8	0,307	0,206	41,5	9300	41,5	9300	46,8	10500
10,00	-	0,340	0,228	46,0	10300	46,0	10300	51,9	11700
11,00	7/16	0,411	0,276	55,7	12500	55,7	12500	62,8	14100
12,00	-	0,490	0,329	66,2	14900	66,2	14900	74,7	16800
12,70	1/2	0,548	0,368	74,2	16700	74,2	16700	83,6	18800
13,00	-	0,575	0,386	77,7	17500	77,7	17500	87,6	19700
16,00	5/8	0,870	0,585	118	26500	118	26500	133	29900
17,50	11/16	1,040	0,699	141	31700	141	31700	159	35700
18,00	-	1,100	0,739	149	33500	149	33500	169	37800
19,00	3/4	1,230	0,827	166	37300	166	37300	187	42000
22,00	7/8	1,650	1,109	223	50100	223	50100	251	56400

Construction: 8x19 S-NFC.

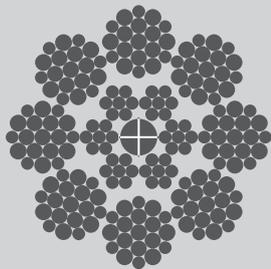
Rope grade: TS (1370/1770 N/mm<sup>2</sup> - Dual tensile or 1570 N/mm<sup>2</sup> - Single tensile) or EHS (1770 N/mm<sup>2</sup> - Single tensile).

Coating: bright lubricated (galvanized on demand).

Spec ref.: ISO 4344 / ASME A 17.6.

For other rope diameters or grades not specified in this catalog, please contact IPH.

# TRACTION DRIVE AND COMPENSATING ROPES FOR MID / HIGH RISE ELEVATORS



**IPH 819SR**

## Advantages and features

- Special steel reinforced fiber core combines flexibility and good elastic properties (Low elongation).
- Good resistance to bending fatigue and abrasion.
- High breaking load.
- Excellent diameter stability, minimizes vibrations and noise on ride.

## Elastic Behavior

Diameter tolerance	Constructional stretch	Elastic stretch	Total stretch	E-Module
[No load]: 0/ +3% [At 10% MBL]: -1%	Max. 0,3%	Max. 0,18%	Constructional + Elastic	7000 daN/mm <sup>2</sup>

## Minimum breaking load

Diameter		Weight factor		1570 N/mm <sup>2</sup>		1570/1770 N/mm <sup>2</sup>	
[mm]	[inch]	[kg/m]	[lb/ft]	[kN]	[lb]	[kN]	[lb]
8,00	5/16	0,260	0,175	40,3	9100	43,6	9800
9,50	3/8	0,367	0,247	56,9	12800	60,9	13700
10,00	-	0,407	0,273	63,0	14200	68,2	15300
11,00	7/16	0,492	0,331	76,2	17100	81,7	18400
12,00	-	0,586	0,394	90,7	20400	97,2	21900
12,70	1/2	0,656	0,441	101	22700	107	24100
13,00	-	0,688	0,462	107	24100	112	25200
16,00	5/8	1,040	0,699	161	36200	171	38400
17,50	11/16	1,244	0,836	193	43400	205	46100
18,00	-	1,320	0,887	204	45900	214	48100
19,00	3/4	1,470	0,988	227	51000	240	54000

Construction: 8x19 W-SRFC or 8x19 S-SRFC.

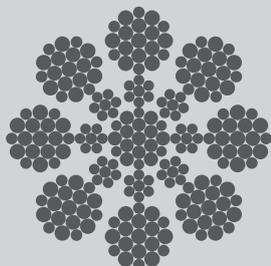
Rope grade: TS (1570 N/mm<sup>2</sup> - Single tensile) or EHS (1570/1770 N/mm<sup>2</sup> - Dual tensile).

Coating: bright lubricated (galvanized on demand).

Spec ref.: ISO 4344 / ASME A 17.6.

For other rope diameters or grades not specified in this catalog, please contact IPH.

# TRACTION DRIVE AND COMPENSATING ROPES FOR HIGH SPEED ELEVATORS



**IPH 819FS**

## Advantages and features

- Independent full steel core combines good flexibility and minimizes rope stretch.
- High resistance to bending fatigue and abrasion.
- High breaking load.
- Excellent diameter stability, minimizes vibration and noise in elevators working in high rise buildings.
- High rope life during service.

## Elastic Behavior

Diameter tolerance	Constructional stretch	Elastic stretch	Total stretch	E-Module
[No load]: 0/ +3% [At 10% MBL]: -1%	Max. 0,12%	Max. 0,18%	Constructional + Elastic	7000 daN/mm <sup>2</sup>

## Minimum breaking load

Diameter		Weight factor		1570 N/mm <sup>2</sup>		1570/1770 N/mm <sup>2</sup>	
[mm]	[inch]	[kg/m]	[lb/ft]	[kN]	[lb]	[kN]	[lb]
8,00	5/16	0,265	0,178	41,1	9200	44,1	9900
9,50	3/8	0,374	0,252	58,0	13000	62,1	14000
10,00	-	0,415	0,279	64,3	14500	68,9	15500
11,00	7/16	0,502	0,337	77,7	17500	83,3	18700
12,00	-	0,598	0,402	92,5	20800	99,1	22300
12,70	1/2	0,669	0,450	104	23400	109	24500
13,00	-	0,702	0,472	109	24500	114	25600
16,00	5/8	1,061	0,713	164	36900	174	39100
17,50	11/16	1,269	0,853	197	44300	209	47000
18,00	-	1,346	0,905	208	46800	218	49000
19,00	3/4	1,499	1,008	232	52200	245	55100

Construction: 8x19 W-IWRC or 8x19 S-IWRC.

Rope grade: TS (1570 N/mm<sup>2</sup> - Single tensile) or EHS (1570/1770 N/mm<sup>2</sup> - Dual tensile).

Coating: bright lubricated (galvanized on demand).

Spec ref.: ISO 4344 / ASME A 17.6.

For other rope diameters or grades not specified in this catalog, please contact IPH.

# HIGH PERFORMANCE WIRE ROPES

Wire ropes with compacted strands are specially designed for facilities with extreme operation conditions. Due to its compacted strands, the contact surface on sheaves increases, minimizing vibration, wear and noise while working.

This is the result of the reduced superficial pressure on the sheaves; which also increases the rope's service life and reduces wear on the sheaves.

The increase of the metallic area due to the compacted strands reduces the elongation properties and increases the breaking load of the rope.



## Advantages and features

- Lubricated high density sisal fiber core with perfect diameter uniformity.
- Increase of metallic area due to the compacted strands. Increase of breaking load and lower elongation.
- Higher resistance to bending fatigue which increases rope service life.
- Compacted strands improve abrasion resistance and minimizes vibration and noise on ride.

## Elastic Behavior

Diameter tolerance	Constructional stretch	Elastic stretch	Total stretch	E-Module
[No load]: 2/ +5% [At 10% MBL]: 0/ +3%	Max. 0,6%	Max. 0,2%	Constructional + Elastic	5000 daN/mm <sup>2</sup>

## Minimum breaking load

Diameter		Weight factor		1570 N/mm <sup>2</sup>		1770 N/mm <sup>2</sup>	
[mm]	[inch]	[kg/m]	[lb/ft]	[kN]	[lb]	[kN]	[lb]
12,70	1/2	0,600	0,403	86,0	19300	95,2	21400
13,00	-	0,630	0,423	90,2	20300	99,7	22400
16,00	5/8	0,950	0,638	136	30600	151	33900
17,50	11/16	1,140	0,766	163	36600	180	40500
18,00	-	1,200	0,808	172	38700	190	42700
19,00	3/4	1,340	0,900	192	43200	212	47700

Construction: 8xK19 S-NFC.

Rope Grade: TS (1570 N/mm<sup>2</sup> - Single tensile) or EHS (1770 N/mm<sup>2</sup> - Single tensile).

Coating: bright lubricated (galvanized on demand).

Spec ref.: ISO 4344 / ASME A17.6.

For other rope diameters or grades not specified in the catalog, please contact IPH.

# HIGH PERFORMANCE WIRE ROPES



## Advantages and features

- High flexibility steel core with special configuration.
- Increase of metallic area due to the compacted strands. Increase of breaking load and lower elongation.
- Higher bending fatigue resistance improving service life.
- Compacted strands improve abrasion resistance and minimizes vibration and noise on ride.

## Elastic Behavior

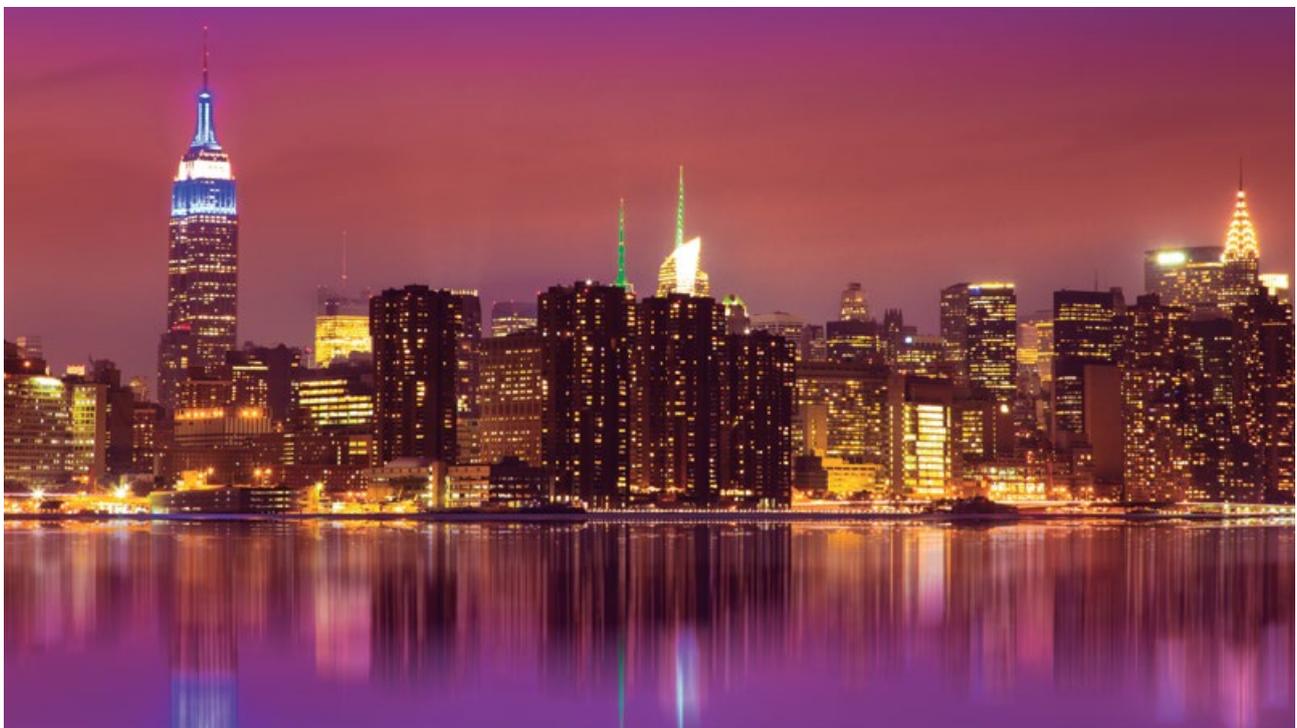
Diameter tolerance	Constructional stretch	Elastic stretch	Total stretch	E-Module
[No load]: 0/ +3% [At 10% MBL]: -1%	Max. 0,12%	Max. 0,18%	Constructional + Elastic	7000 daN/mm <sup>2</sup>

## Minimum breaking load

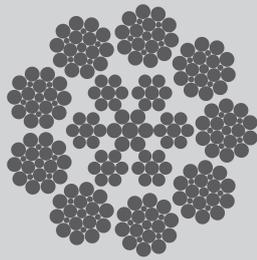
Diameter		Weight factor		1570 N/mm <sup>2</sup>		1770 N/mm <sup>2</sup>	
[mm]	[inch]	[kg/m]	[lb/ft]	[kN]	[lb]	[kN]	[lb]
12,70	1/2	0,720	0,484	105	23600	117	26300
13,00	-	0,750	0,504	110	24700	123	27700
16,00	5/8	1,140	0,766	168	37800	186	41800
17,50	11/16	1,360	0,914	201	45200	223	50100
18,00	-	1,440	0,968	212	47600	235	52800
19,00	3/4	1,600	1,075	236	53100	262	58900

Construction: 8xK19 S-IWRC. Rope grade: TS (1570 N/mm<sup>2</sup> - Single tensile) or EHS (1770 N/mm<sup>2</sup> - Single tensile). Coating: bright lubricated (galvanized on demand). Spec ref.: ISO 4344 / ASME A17.6.

For other rope diameters or grades not specified in this catalog, please contact IPH.



# HIGH PERFORMANCE WIRE ROPES



**IPH 921S**

## Advantages and features

- 9 strand configuration with steel core provides a very round surface.
- Increasing the number of wires makes rope more flexible.
- Decreases contact pressure on groove with less sheave wear.
- Increase of bending fatigue resistance.
- Very good diameter stability during service.

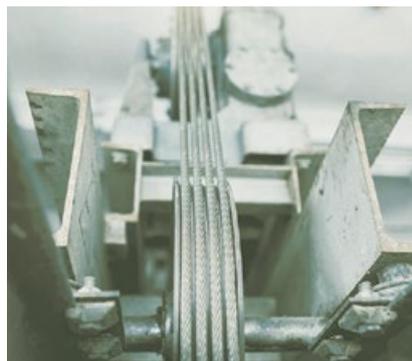
## Elastic Behavior

Diameter tolerance	Constructional stretch	Elastic stretch	Total stretch	E-Module
[No load]: 0/ +2% [At 10% MBL]: -1%	Max. 0,10%	Max. 0,12%	Constructional + Elastic	9000 daN/mm <sup>2</sup>

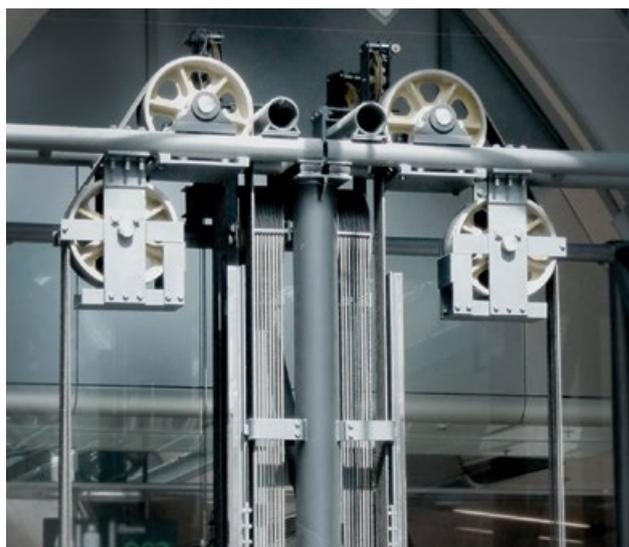
## Minimum breaking load

Diameter		Weight factor		1570 N/mm <sup>2</sup>		1770 N/mm <sup>2</sup>	
[mm]	[inch]	[kg/m]	[lb/ft]	[kN]	[lb]	[kN]	[lb]
9,50	3/8	0,380	0,255	60	13500	67	15100
10,00	-	0,420	0,282	67	15100	75	16900
11,00	-	0,510	0,343	81	18200	91	20500
12,70	1/2	0,670	0,450	108	24300	122	27400
13,00	-	0,710	0,477	113	25400	127	28500
16,00	5/8	1,070	0,719	172	38700	194	43600
17,50	11/16	1,280	0,860	206	46300	232	52200
18,00	-	1,350	0,907	218	49000	245	55100
19,00	3/4	1,510	1,015	242	54400	273	61400
22,00	-	2,020	1,357	325	73100	366	82300

Construction: 9x19 S or 9x21 F according to diameter - IWRC. Rope grade: TS (1570 N/mm<sup>2</sup> - Single tensile) or EHS (1770 N/mm<sup>2</sup> - Single tensile). Coating: bright lubricated (galvanized on demand). Spec ref.: ISO 4344 / ASME A17.6. For other rope diameters or grades not specified in this catalog, please contact IPH.



# COMPENSATING ROPES



## Minimum breaking load

Diameter		Weight factor		1370/1770 N/mm <sup>2</sup>	
[mm]	[inch]	[kg/m]	[lb/ft]	[kN]	[lb]
8,00	5/16	0,218	0,146	29,4	6600
9,50	3/8	0,307	0,206	41,5	9300
10,00	-	0,340	0,228	46,0	10300
11,00	7/16	0,411	0,276	55,7	12500
12,00	-	0,490	0,329	66,2	14900
12,70	1/2	0,548	0,368	74,2	16700
13,00	-	0,575	0,386	77,7	17500
16,00	5/8	0,870	0,585	118	26500
17,50	11/16	1,040	0,699	141	31700
18,00	-	1,100	0,739	149	33500
19,00	3/4	1,230	0,827	166	37300
22,00	7/8	1,650	1,109	223	50100

Construction: 8x19S-SFC up to 5/8" and 8x25F-SFC up to 7/8.

Rope grade: TS (1370/1770 N/mm<sup>2</sup> - Dual tensile).

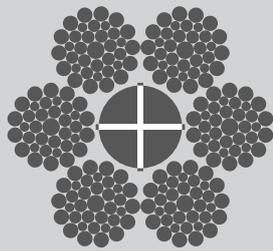
Coating: bright lubricated (galvanized on demand).

Spec ref.: ISO 4344 / ASME A17.6.

For other rope diameters or grades not specified in this catalog, please contact IPH.



# COMPENSATING ROPES



**IPH 636**



## Minimum breaking load

Diameter	Weight factor		1960 N/mm <sup>2</sup>	
	[mm]	[kg/m]	[lb/ft]	[kN]
16,00	0,920	0,618	166	37300
18,00	1,160	0,779	210	47200
19,00	1,300	0,874	232	52200
20,00	1,440	0,968	259	58200
22,00	1,740	1,169	313	70400
24,00	2,110	1,418	373	83900
25,00	2,290	1,539	404	90800
26,00	2,480	1,666	437	98200
27,00	2,680	1,801	472	106100
28,00	2,880	1,935	507	114000
29,00	3,090	2,076	544	122300
30,00	3,300	2,217	582	130800
31,00	3,530	2,372	622	139800
32,00	3,760	2,527	662	148800
33,00	4,000	2,688	704	158300
34,00	4,240	2,849	748	168200
35,00	4,500	3,024	792	178000
36,00	4,760	3,199	838	188400
37,00	5,020	3,373	885	198900
38,00	5,300	3,561	934	210000

Construction: 6x36 WS-SFC.

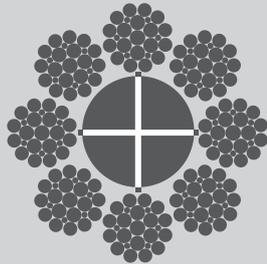
Rope grade: 1960 N/mm<sup>2</sup> - Single tensile.

Coating: bright lubricated (galvanized on demand).

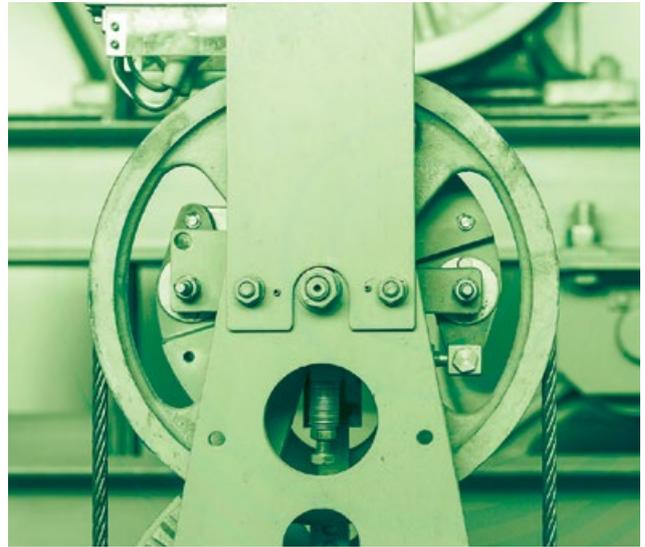
Spec ref.: ISO 4344 / ISO 2408.

For other rope diameters or grades not specified in this chart, please contact IPH.

# OVERSPEED CONTROLLERS GOVERNOR ROPES



**IPH 825E**



## Minimum breaking load

Diameter		Weight factor		1370 / 1770 N/mm <sup>2</sup>		1770 N/mm <sup>2</sup>	
[mm]	[inch]	[kg/m]	[lb/ft]	[kN]	[lb]	[kN]	[lb]
9,50	3/8	0,307	0,206	41,5	9300	46,8	10500
13,00	1/2	0,575	0,386	77,7	17500	87,6	19700
16,00	5/8	0,870	0,585	118	26500	133	29900
17,50	11/16	1,040	0,699	141	31700	141	31700
18,00	-	1,100	0,793	149	33500	169	37800
19,00	3/4	1,230	0,827	166	37300	166	37300

Construction: 8x25 F-SFC.

Rope Grade: TS (1370/1770 N/mm<sup>2</sup> - Dual tensile) or EHS (1770 N/mm<sup>2</sup> - Single tensile).

Coating: bright lubricated (galvanized on demand).

Spec ref.: ISO 4344 / ASME A 17.6.

For other rope diameters or grades not specified in this catalog, please contact IPH.



# IPH VALUE

## 1. Detailed and strict process controls that includes:

- Metallographic properties (grain size, metallographic structure, inclusions, segregation).
- Mechanical properties (tensile strength, hardness, ductility, bending fatigue, stretch, torsion).
- Chemical properties (chemical composition, coating control, lubricant content).
- Dimensional properties (diameter, ovalization, density, length, mass, helix preforming).

## 2. Traceability and certification.

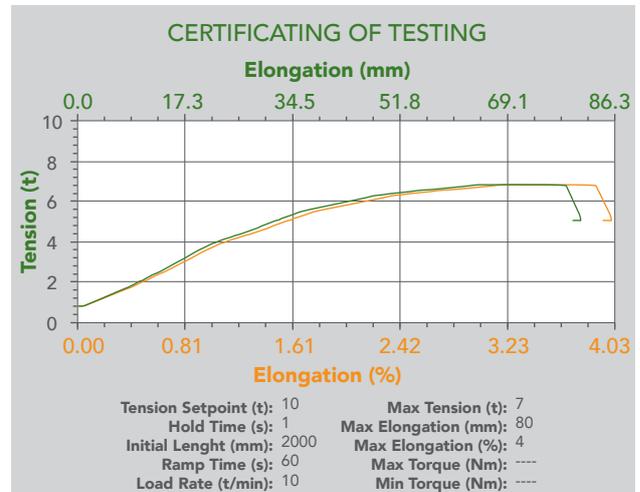
## 3. Customized engineering design.

## 4. Skill staff.

## 5. Customer orientation.

## TENSILE STRENGTH / ELONGATION TESTS

In tensile strength test benches, diameter reduction under load and elongation is monitored.



## FINAL INSPECTION

Dimensional controls, a complete visual inspection and a verification of the production records are carried out at this stage.



## FATIGUE TESTS

Special bending fatigue benches for rope testing allow us to monitor the quality and stability of the entire process under different conditions.



# LATIN AMERICA'S MOST LEADING EDGE INDUSTRIAL LOGISTICS SYSTEM

Founded in 1949 in Buenos Aires, Argentina, IPH has become one of the major players in the manufacturing of steel wire ropes in Latin America, placing itself into a position of leadership through the specialization in achieving solutions for the highest demands in the market.

Since its beginnings, IPH developed a business model based on innovation and high technology investment. Its high quality and customer service standards allow the company to be present among the most competitive markets in the five continents.

Located in Buenos Aires, Argentina, it's plant features 45,000 covered square meters and its production capacity reaches up to 1,500 tons per month. It combines cutting edge technology, highly skilled human resources and a quality management system complying with the leading international standards.

IPH's vertically integrated production process planning involves all steel wire rope's components, from its own manufacture of wires, fiber and steel cores for its ropes to wooden or steel reels and packaging according to customers specifications. This Integration Model is key to the design optimization, productive versatility and sustainability and quality assurance of finished products.

In its two modern Service Centers located in Buenos Aires - Argentina and São Paulo - Brazil, IPH keeps the widest stock of finished goods and facilities featuring state-of-the-art equipment and processes to provide with an excellent customer service and after sale support. IPH carries out multiple purpose steel wire ropes slings manufacturing, cut to length, polyester slings manufacturing, finished product conditioning, lab tests and certification, supplying the market with the most integral proposal on load lifting and handling solutions.

The factory, combined with the two sales and service centers, confers to IPH a highly efficient operation configuring the most modern industrial and logistic system in Latin America.

Bella Vista Service Center, Buenos Aires, Argentina.



San Miguel Plant, Buenos Aires, Argentina.



IPH. EVOLUTION AS AN ATTITUDE



Itapevi Service Center São Paulo, Brazil.





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IPH. EVOLUTION AS AN ATTITUDE



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