



# PRESTRESSING STRAND

**Safety builds on quality**

## **That is what our customers can build on:**

- » Our prestressing steels are the first choice wherever major forces have to be transferred or absorbed reliably and efficiently
- » Surface coating and corrosion protection (zinc coating, plastic coating)
- » Various surface types (smooth, indented)
- » Special tests are carried out in our accredited laboratories
- » Special applications: LNG Tanks, Stay Cable Systems

## PRESTRESSING STRAND

### Prestressing steel 7 wire strand compacted in acc. with FprEN 10138-3

Diameter	Tensile strength	Cross sectional area	Mass	Characteristic value of max. force	Max. value of max. force	Value of 0,1% proof force
D	Rm	Sn	M	Fm	Fm,max	Fp0,1
mm	N/mm <sup>2</sup>	mm <sup>2</sup>	g/m	kN	kN	kN
15,2	1820	165	1289,0	300	354,0	264,0
15,2	1860	165	1289,0	307,0	353,0	270,0

#### Advantages of the compacted strand compared to standard strand

- » + 18% more steel crosssection for the same outer strand diameter
- » + 13% higher nominal breaking load and 3% smaller outer diameter compared to strand 150mm<sup>2</sup> - 1770 N/mm<sup>2</sup>
- » + 8% higher breaking load and 3% smaller outer diameter compared to strand 150mm<sup>2</sup> - 1860N/mm<sup>2</sup>
- » More effective anchoring, due to higher grip-area of wedges
- » Lower surface pressure on HDPE-duct in deflection area, with applicaton of unbounded tendons

### Prestressing steel 7 wire strand galvanized, waxed, HDPE sheathed

Nominal diameter strand	Total mass	Mass of components		
		Steel	HDPE	Wax
DL	M			
mm	kg/1000m			kg/1000 m
15,3	≥ 1224	1093	≥ 82	≥ 12
15,7	≥ 1303	1172	≥ 82	≥ 12

#### Prestressing 7 wire strand galvanized, waxed, HDPE sheathed for stay cable systems

- » Standard: FprEn 10337 or NF A35-035
- » Mass of zinc: 190 - 350 g/m<sup>2</sup> or 220 - 350 g/m<sup>2</sup>
- » Type of HDPE: HDPE80 / HDPE100 / HDPE100+, different types upon request
- » Minimum sheathing thickness: 1.5 mm
- » Special types upon request

### Prestressing steel 7 wire strand in acc. with FprEN 10138-3 for application under cryogenic conditions

Diameter	Tensile strength	Cross section	Mass	Characteristic value of max. force	Max. value of max. force	Characteristic value of 0.1% proof force	Elongation at max. load
D	Rm	Sn	M	Fm	Fm,max	Fp0,1	Agt
mm	N/mm <sup>2</sup>	mm <sup>2</sup>	g/m	kN	kN	kN	%
15,7	1860	150	1172	279	329	246	> 3,5

#### Prestressing strand for applications under cryogenic conditions (LNG Tanks)

- » Standards and rules: fip SR 88/2, ETAG 013, BS 7777-3
- » Results of tensile tests under cryogenic conditions available



### Prestressing steel 7 wire strand in acc. with FprEN 10138-3

Diameter	Tensile strength	Cross sectional area	Mass	Characteristic value of max. force	Max. value of max. force	Value of 0.1% proof force
<b>D</b>	<b>Rm</b>	<b>Sn</b>	<b>M</b>	<b>Fm</b>	<b>Fm,max</b>	<b>Fp0,1</b>
mm	N/mm <sup>2</sup>	mm <sup>2</sup>	g/m	kN	kN	kN
6,9	1860	29	226,5	51,3	60,5	45,1
9,3	1860	52	406,1	92,0	109,0	81,0
9,3	1960	52	406,1	102,0	120,0	90,8
9,6	1860	55	429,6	97,4	115,0	85,7
12,5	1860	93	726,3	173,0	204,0	152,0
12,9	1860	100	781,0	186,0	220,0	164,0
15,2	1770	139	1086,0	246,0	283,0	216,0
15,2	1860	139	1086,0	259,0	298,0	228,0
15,3	1770	140	1093,0	248,0	285,0	218,0
15,3	1860	140	1093,0	260,0	299,0	229,0
15,7	1770	150	1172,0	266,0	306,0	234,0
15,7	1860	150	1172,0	279,0	321,0	246,0

Please contact us for special requirements.

#### Surface quality

- » Smooth
- » Indented

#### Prestressing steel 7 wire strand galvanized

- » Diameter: 9.3 mm - 15.7 mm
- » Surface quality: smooth
- » Zinkauflage 190 - 350 g/m<sup>2</sup>

### Prestressing steel 7 wire strand greased and HDPE sheathed

Strand diameter <b>DL</b>	Mass		Steel	Mass of components		
	<b>M</b>			<b>HDPE</b>		<b>Grease</b>
mm	kg/1000m			kg/1000 m		
12,5	≥ 825	≥ 849	730,0	≥ 65	≥ 89	≥ 30
12,9	≥ 885	≥ 908	785,0	≥ 68	≥ 91	≥ 32
15,3	≥ 1218	≥ 1242	1099,0	≥ 79	≥ 103	≥ 40
15,7	≥ 1303	≥ 1335	1178,0	≥ 82	≥ 114	≥ 43

### Prestressing steel 7 wire strand compacted and HDPE sheathed

Strand diameter <b>DL</b>	Mass		Steel	Mass of components		
	<b>M</b>			<b>HDPE</b>		<b>Grease</b>
mm	kg/1000m			kg/1000 m		
15,2	≥ 1403	≥ 1427	1289,0	≥ 79	≥ 103	≥ 35

#### Standard minimum HDPE sheath: 1.5 mm or 2.0 mm

- » Other HDPE coating thickness upon request
- » Waxed version upon request
- » Same mechanical characteristics as the wire strand
- » Extraction load of straight tendons max. 60 N/m.
- » Multiple sheathed strands upon request



**Special tests are carried out in our accredited laboratories:**

- » Deflective tensile test  
Relaxation test
- » NH4SCN corrosion test
- » Fatigue test frequency range 10 - 120 Hz

**Quality management**

EN ISO 9001:2008

ISO/TS 16949:2009

For detailed information regarding our certifications visit our webpage

[www.voestalpine.com/wire](http://www.voestalpine.com/wire)

**Special steel grades**

We specialize in customer-oriented wire products. Due to the steel production possibilities within our group, we can manufacture special steel grades according to customer requirements.

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