

# GARBAFLEX 177 PH

## Flat and shaped wire

GARBAFLEX 177PH is a precipitation hardenable stainless wire for flat and shaped wire applications in corrosive atmosphere and elevated working temperature.

## Chemical composition

Element	Weight %
C	0.09%
Si	0.70%
Mn	1.00%
P max.	0.025%
S max.	0.015%
Cr	16.00% - 18.00%
Ni	6.50% - 7.80%
Al	0.70% - 1.50%

## Mechanical properties

### Tensile strength

As cold rolled max. 2250 N/mm<sup>2</sup>.

After heat treatment 480C 1h (N/mm<sup>2</sup>). 2520 N/mm<sup>2</sup>.

### Execution

Rolled on 2 sides (flat).

Rolled on 4 sides (shaped).

### Flat wire tolerance

Width (mm)	Tolerance (mm)
1.00 - 5.00	±0.050
5.01 - 8.00	±0.070
8.01 - 10.00	±0.100
Thickness (mm)	Tolerance (mm)
0.30 - 0.80	±0.013
0.81 - 1.00	±0.019
1.01 - 1.60	±0.025
1.61 - 2.30	±0.050

## Shaped wire tolerance

Width (mm)	Tolerance (mm)
1.5	$\pm 0.020$
1.51 - 3.00	$\pm 0.030$
3.01 - 5.00	$\pm 0.040$
5.01 - 7.00	$\pm 0.050$
7.01	$\pm 0.060$

## Surface conditions

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Bright. Surface defects max. 1% of thickness.

## Technical specification

Property	Value		
E modulus of elasticity	Abt. 180 kN/mm <sup>2</sup> in drawn condition.	Abt. 185 kN/mm <sup>2</sup> after heat treatment.	
G modulus of shear	Abt. 70 kN/mm <sup>2</sup> in drawn condition.	Abt. 73 kN/mm <sup>2</sup> after heat treatment.	Density: 7.90 kg/dm <sup>3</sup> .

## Steel grades and product standards

Nearest equivalent product standards	EN ISO 6931-1	ASTM A313	AMS 5678 F	JIS G4314
Nearest equivalent steel grades	EN/DIN 1.4568	AISI/SAE 631	JIS SUS 631	

## Recommendations

### Heat treatment

For best spring properties the springs are heat treated at a temperature of 480 °C (896 °F) for 1 hour and then air cooled. The tensile strength of the wire before and after this treatment is given in the table for steel grade GARBA 177PH.

## Additional

### Additional information

#### Delivery form

On wooden spools, max. 250 kg.