

Data marked with "■" are imperative demands.

All other information, including "Guidance - Standards - References", are given for guidance only.

APPLICATION

Cold drawn wire for Turbocharger Grids.

Various purposes.

For chain pipes and supply pipes for gas engines.

NOTES

Supply Form: Bars, Plates, Tubes and Wire.

For this revision of SCr18N8 - P 550-3, we have used the material 316L as the basis, while the former SCr18N8 - P 550-2 is based on 316Ti.

MECHANICAL PROPERTIES

Standard Test Method	Condition	Position	Dimension [mm]	Temperature [°C]	Re min [MPa]	Rp min [MPa]	Rm min [MPa]	Rm max [MPa]	A min [%]	Z min [%]
ISO 6892 (2009)	+C	Wire	< 5 mm	20		500	800		12	
■ ISO 6892 (2009)	+AT	-		20		200	540		40	

HARDNESS

Standard Test Method	Condition	Position	Dim [mm]	Temp [°C]	HB min	HB max	HB nom	HV min	HV max	HV nom	HRC min	HRC max	HRC nom
ISO 6506-1 (1999)	+C	Wire	< 5 mm	20			320						
ISO 6506-1 (1999)	+AT	-	-	20		180							

CHEMICAL COMPOSITION

Limits	Dim. [mm]	C%	Si%	Mn%	P%	S%	Cr%	Mo%	Ni%	Cu%	Al%	N%	V%	Ti%	Nb%	W%	Co%
■ Min	-	-	-	-	-	-	16.5	2.0	10.0	-	-	-	-	-	-	-	-
■ Max	-	0.03	1.0	2.0	0.040	0.015	18.5	3.0	14.0	-	-	-	-	-	-	-	-

HEAT TREATMENT

- Solution Heat Treated & Quenched.
- For Cold drawn wire for Turbocharger Grid, no additional heat treatment must be applied.
- The heat treatment parameters must be chosen in accordance with the actual material, the section dimension and the required mechanical properties.

HEAT TREATMENT - NOTES

Treatment	Heating Rate	Temperature [°C]	HoldingTime min [h]	Cooling Media1	Cooling Rate	Cool To [°C]	Cooling Media2	Application
Solution Heat Treatment	-	1050	-	Air or Water	Quick	-	-	-

WELDING

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The material is weldable without subsequent heat treatment.

If pipes are to be welded, welding and testing must be done according to P.S. 0743612-0 and P.R. 0743735-4.

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PHYSICAL PROPERTIES

Temperature [°C]	Density [Kg/m ³] Nom	MeanExpansion [10 ⁻⁶ /°K] Nom	ThermalConductivity [W/(m°K)] Nom	MeanHeatCapacity [J/(Kg°K)] Nom	Modulus Elasticity [GPa] Nom	Modulus Rigidity [GPa] Nom
20			18,6			
800		19,0				

PHYSICAL - NOTES

The stated physical properties are given only for calculation purposes.

The standards referred to are intended as guidance for possible choice of commercial materials. It must be kept in mind that the standard material chosen must fulfill all imperative demands, "■". In certain cases it might be necessary to use special heat treatment to obtain the requirements for the mechanical properties.

GUIDANCE - STANDARD - REFERENCES

Standard	MaterialName	MaterialNo	Condition	Form	MDInfoNotes
ISO 16143-1 (2014)	X2CrNiMo17-12-2	1.4404	-	Plate	-
ISO 16143-2 (2014)	X2CrNiMo17-12-2	1.4404	-	Bar	-
ISO 16143-3 (2005)	X2CrNiMo17-12-2	1.4404	-	Wire	-
EN 10088-2 (2014)	X2CrNiMo17-12-2	1.4404	-	Plate	-
EN 10088-3 (2014)	X2CrNiMo17-12-2	1.4404	-	Bar	-
JIS G 4303 (2012)	SUS 316 L	-	-	Bar	-
JIS G 4304 (2012)	SUS 316 L	-	-	Plate	-
JIS G 4309 (1999)	SUS 316 L	-	-	Wire	-
ISO 9329-4 (2012)	X2CrNiMo17-12-2	1.4404	-	Pipe	-
EN 10216-5 (2014)	X2CrNiMo17-12-2	1.4404	-	Pipe	-
JIS G 3459 (2012)	SUS 316L TP	-	-	Pipe	-

ABBREVIATION - HEAT TREATMENT CONDITION

Condition	Title
+A	Soft Annealed
+A+C	Annealed and cold drawn
+A+N+SR	Annealed, Normalized and Stress Relieved
+AR	As Rolled
+AT	Solution Annealed
+AT+P	Solution treated and precipitation hardened
+C	Cold Drawn (EN)
+CR	Cold Rolled
+DC	Delivery condition at manufacturer's discretion
+FP	Treated to Ferritic-Perlitic microstructure.
+IH	Induction Hardening
+N	Normalized, Normalized Formed or Normalizing rolling
+N+PSTR	Tubes in Prestressed condition
+N+SR	Normalized and Stress Relieved
+N+T	Normalized and Tempered
+N+T or +QT	Normalized and tempered or quenched and tempered
+Nitriding	Quench + Temper + Nitriding
+P	Precipitation hardened
+QT	Quenched and Tempered
+QT I	Quenched and Double Tempered
+SR	Stress Relieved
+T	Tempered
+U	Untreated
+U or +A	Untreated or Annealed
+U-c	Sample cut from Casting
+U-o	Cast On Sample
+U-s	Separately Cast Sample
AC	As Cast
AC+AT	As cast + Solution Annealed
C+Q+T	Carburizing + Quench + Temper
TC	Cold Drawn (ISO)
TMCP	Thermomechanically control process