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**NOCKERS**  
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## CHEMICAL COMPOSITION OF STAINLESS STEEL AND NICKEL ALLOYS

TYPE	C	Mn	P	S	Si	Cr	Ni	Cu	Mo	N	Ti	Others	Equivalent International Standards		
GRADE	Max	Max	Max	Max	Max			Max	Max	Max			W.Nr.	JIS	BS
	%	%	%	%	%	%	%	%	%	%	%	%			
<b>200 Series</b>															
201 (0.3%Ni)	0.15	7.00-9.00	0.075	0.030	1.00	14.0-16.0	0.30-0.50	1.50-2.50	0.30	0.25	-	-	-	-	-
201 (0.6%Ni)	0.15	7.00-9.00	0.100	0.030	1.00	14.0-16.0	0.50-0.70	1.50-2.50	0.30	0.25	-	-	-	-	-
201 (0.9%Ni)	0.15	7.00-9.00	0.100	0.030	1.00	14.0-16.0	0.90-1.20	1.50-2.50	0.30	0.25	-	-	-	-	-
201 (3%Ni)	0.15	7.00-9.00	0.100	0.030	1.00	14.0-17.0	3.00-4.00	1.50-2.50	0.30	0.25	-	-	-	-	-
201	0.15	5.50-7.50	0.060	0.030	0.75	16.0-18.0	3.50-5.50	0.75	-	0.25	-	-	1.4372	-	-
204 Cu	0.08	6.50-8.50	0.060	0.030	2.00	16.0-17.0	1.50-3.00	2.00-3.00	0.30	0.25	-	-	1.4597	-	-
<b>300 Series</b>															
301	0.12	2.00	0.045	0.030	1.00	16.0-18.0	6.0-8.0	-	-	0.10	-	-	1.4310	-	-
302	0.12	2.00	0.045	0.030	1.00	17.0-19.0	8.0-10.0	-	-	0.10	-	-	1.4310	SUS302	302S17
302HQ	0.03	2.00	0.045	0.030	1.00	17.0-19.0	9.0-11.0	3.0-4.0	-	-	-	-	1.4567	-	394S17
XM7	0.03	2.00	0.045	0.030	1.00	17.0-19.0	8.0-10.0	3.0-4.0	0.10	-	-	-	-	-	-
303	0.08	2.00	0.045	0.15-0.35	1.00	17.0-19.0	8.0-10.0	-	-	-	-	-	1.4305	SUS303	303S31
303Cu	0.08	2.50	0.045	0.15-0.35	1.00	17.0-19.0	8.0-10.0	1.4-3.0	-	0.10	-	-	1.4570	-	-
304	0.08	2.00	0.045	0.030	1.00	18.0-20.0	8.0-10.0	-	-	-	-	-	1.4301	SUS304	304S15
304HC	0.08	2.00	0.045	0.030	1.00	18.0-20.0	8.0-10.0	2.0 3.0	-	-	-	-	-	-	-
304L	0.03	2.00	0.045	0.030	1.00	18.0-20.0	10.0-12.0	-	-	-	-	-	1.4306	SUS304L	304S11
304L	0.03	2.00	0.045	0.030	1.00	17.5-19.5	8.0-10.5	-	-	0.11	-	-	1.4307	SUS304L	304S11
305	0.06	2.00	0.045	0.030	1.00	17.0-19.0	11.0-13.0	-	-	-	-	-	1.4303	-	-
310S	0.08	2.00	0.045	0.030	1.50	24.0-26.0	19.0-22.0	-	-	-	-	-	1.4845	-	-
314	0.25	2.00	0.045	0.030	1.50-3.00	23.0-26.0	19.0-22.0	-	-	-	-	-	1.4841	-	-
316	0.08	2.00	0.040	0.030	1.00	16.0-18.0	10.0-14.0	-	2.00-3.00	-	-	-	1.4401	SUS316	316S31
316L	0.03	2.00	0.045	0.030	1.00	16.0-18.0	10.0-14.0	-	2.00-3.00	-	-	-	1.4404	SUS316L	316S11
316Ti	0.08	2.00	0.045	0.030	1.00	16.0-18.0	10.0-12.0	-	2.00-3.00	-	5X%C up to 0.8	-	1.4571	-	320S31-320S17
ER317L	0.03	1.00-2.50	0.030	0.030	0.30-0.65	18.0-20.5	13.0-15.0	0.75	3.00-4.00	-	-	-	-	-	-
ER318Si	0.08	1.00-2.50	0.030	0.030	0.65-1.00	18.0-20.0	11.0-14.0	0.75	2.00-3.00	-	-	Nb=8XC min.-1.00%max	1.4576	-	-
321	0.08	2.00	0.045	0.030	1.00	17.0-19.0	9.0-13.0	-	-	-	5X%C Minimum	-	1.4541	SUS321	321S31

TY0+PE	C	Mn	P	S	Si	Cr	Ni	Cu	Mo	N	Ti	Others	Equivalent International Standards		
GRADE	Max	Max	Max	Max	Max			Max	Max	Max			W.Nr.	JIS	BS
	%	%	%	%	%	%	%	%	%	%	%	%			
347	0.08	2.00	0.045	0.030	1.00	17.0-19.0	9.0-13.0	-	-	-	-	Nb $\geq$ 10X% C	1.4550	-	-
ER347	0.08	2.50	0.030	0.030	0.30-0.65	19.0-21.5	9.0-11.0	0.75	-	-	-	Nb=10XCmin. -1.0%max	1.4551	-	-
ER307Si	0.12	6.00/7.50	0.030	0.020	0.65-0.95	17.2-19.8	8.0-9.4	0.30	0.30	-	-	-	1.4370	-	-
ER308	0.08	2.00	0.020	0.020	0.30-0.65	19.0-21.0	9.5-11.0	-	-	-	-	-	1.4316	-	-
ER308L	0.02	1.50-2.00	0.020	0.020	0.30-0.65	19.0-21.0	9.5-11.0	-	-	-	-	-	1.4316	-	308S92
ER308LSi	0.03	1.00-2.50	0.030	0.030	0.65-1.00	19.5-22.0	9.0-11.0	-	-	-	-	-	1.4316	-	-
ER308L (Low % Si)	0.02	1.00-2.50	0.020	0.020	0.25	19.5-22.0	9.0-11.0	-	-	-	-	-	-	-	-
ER309	0.08	1.50-2.00	0.020	0.015	0.30-0.65	23.0-25.0	12.0-14.0	-	-	-	-	-	1.4829	-	-
ER309L	0.03	1.50-2.00	0.020	0.015	0.30-0.65	23.0-25.0	12.0-14.0	-	-	-	-	-	1.4332	-	309S94
ER309LSi	0.03	1.00-2.50	0.020	0.030	0.65-1.00	23.0-25.0	12.0-14.0	-	-	-	-	-	1.4332	-	-
ER310	0.08/0.15	1.50/2.00	0.030	0.025	0.30-0.65	25.0-28.0	20.0-22.0	-	-	-	-	-	1.4842	-	310S94
ER312	0.15	2.00	0.025	0.025	0.30-0.65	29.0-32.0	8.0-10.0	-	-	-	-	-	1.4337	-	312S94
ER316	0.08	2.00	0.020	0.020	0.30-0.65	18.0-20.0	12.0-14.0	-	2.20-2.75	-	-	-	1.4430	-	-
ER316L	0.02	1.50-2.00	0.020	0.020	0.30-0.65	18.0-20.0	12.0-14.0	-	2.20-2.75	-	-	-	1.4430	-	316S92
ER316LSi	0.03	1.00-2.50	0.030	0.030	0.65-1.00	18.0-20.0	11.0-14.0	-	2.00-3.00	-	-	-	1.4430	-	-
ER316L (Low % Si)	0.03	1.00-2.50	0.030	0.030	0.25	18.0-20.0	11.0-14.0	-	2.00-3.00	-	-	-	-	-	-
2340	0.10	2.00	0.040	0.030	1.00	16.0-18.0	8.0-10.0	-	1.30-1.80	-	-	-	-	-	-

TYPE	C	Mn	P	S	Si	Cr	Ni	Cu	Mo	N	Ti	Others	Equivalent International Standards		
GRADE	Max	Max	Max	Max	Max				Max	Max			W.Nr.	JIS	BS
	%	%	%	%	%	%	%	%	%	%	%	%			
<b>400 Series</b>															
409	0.08	1.00	0.045	0.030	1.00	10.50-12.50	-	-	-	-	6 X %C max.	-	1.4512	-	-
409Cb	0.06	1.00	0.045	0.040	1.00	10.50-11.75	0.50 max.	-	-	-	-	Cb 10XC Min.-0.75 max.	-	-	-
410	0.15	1.00	0.040	0.030	1.00	11.5-13.5	-	-	-	-	-	-	1.4006	-	-
416	0.15	1.00	0.040	0.15-0.30	1.00	12.0-14.0	-	-	-	-	-	-	1.4005	-	-
420	0.15-0.25	1.00	0.040	0.030	1.00	12.0-14.0	-	-	-	-	-	-	1.4021	-	-
420C	0.43-0.50	1.00	0.040	0.030	1.00	12.0-14.0	-	-	-	-	-	-	1.4034	-	-
ER420	0.30-0.37	1.00	0.030	0.015	1.00	12.0-14.0	-	-	-	-	-	-	1.4028	-	-
430	0.10	1.00	0.040	0.030	0.75	16.0-18.0	0.60 max.	-	-	-	-	-	1.4016	SUS430	430S17
430L	0.030	1.00	0.040	0.030	1.00	16.0-18.0	-	-	-	-	-	-	1.4016	-	-
430Cu	0.12	0.30-0.50	0.040	0.010	0.30-0.50	16.0-18.0	0.50 max.	0.85-1.00	-	-	-	-	-	-	-
430F	0.12	1.25	0.060	0.150	1.00	16.0-18.0	-	-	-	-	-	-	-	-	-
430F DIN	0.12	1.25	0.060	0.150	1.00	16.0-18.0	-	-	0.20-0.60	-	-	-	1.4104	-	-
430Nb	0.08	1.00	0.045	0.030	1.00	16.0-18.0	-	-	-	-	-	Nb 12 X %C	1.4511	-	-
431	0.12-0.22	1.50	0.040	0.015	1.00	15.0-17.0	1.50-2.50	-	-	-	-	-	1.4057	-	-
434	0.12	1.00	0.040	0.030	1.00	16.0-18.0	0.50 max.	0.75 max.	0.75-1.25	-	-	-	1.4113	-	-
441	0.03	1.00	0.040	0.015	1.00	17.5-18.5	-	-	-	-	0.10-0.60	Nb 0.35 - 1.00	1.4509	-	-
<b>Duplex Steel</b>															
2101	0.040	4.00-6.00	0.040	0.030	1.00	21.00-22.00	1.35-1.70	0.10-0.80	0.10-0.80	0.20-0.25	-	-	1.4162	-	-
2205	0.030	2.00	0.030	0.20	1.00	21.00-23.00	4.50-6.50	0.10-0.60	2.50-3.50	0.10-0.22	-	-	1.4462	SUS32953L	318S13
2209	0.030	0.50-2.00	0.030	0.030	0.90	21.50-23.50	7.50-9.50	0.75	2.50-3.50	0.08-0.20	-	-	-	-	-
2304	0.030	2.00	0.030	0.020	1.00	22.0-24.0	3.50-5.50	0.10-0.60	0.10-0.60	0.05-0.22	-	-	1.4362	-	-
2553	0.040	1.50	0.040	0.030	1.00	24.0-27.0	4.50-6.50	1.50-2.50	2.90-3.90	0.10-0.25	-	-	-	-	-
2594	0.030	2.50	0.030	0.020	1.00	24.0-27.0	8.00-10.50	1.50	2.50-4.50	0.20-0.30	-	W - 1.0 max.	-	-	-

TYPE	C	Mn	P	S	Si	Cr	Ni	Cu	Mo	N	Ti	Others	Iron	Co	Al	Tungsten	Vanadium	Niobium + Tantalum
AISI	Max	Max	Max	Max	Max				Max	Max				Max				
	%	%	%	%	%	%	%	%	%	%	%	%	%	%				
<b>Other Grades</b>																		
Alloy 82 (ERNiCr-3)	0.05	-	-	-	-	20.0 max.	67.0 min.	-	-	-	-	-	3.00 max.	-	-	-	-	2.50 max.
Alloy 418	0.15	3.00-4.00	-	-	-	-	63.00-67.00	Balance	-	-	1.50-3.00	-	2.50 max.	-	-	-	-	-
Alloy 22	0.015	-	-	-	-	22.0 max.	Balance	-	13.50	-	-	-	-	2.50	-	3.00	-	-
904L	0.025	1.00-2.50	0.020	0.030	0.50	19.5-21.5	24.0-26.0	1.20-2.00	4.20-5.20	-	-	-	-	-	-	-	-	-
X 750	0.08	0.30	-	0.010	0.50	14.0-17.0	Ni+Co 70 min.	0.50	-	-	2.25-2.75	-	5.00-9.00	-	0.40-1.00	-	-	0.70-1.20
Nickel 61 (ERNi-1)	0.15	1.00	0.030	0.015	0.75	-	Ni+Co 93 min.	0.25	-	-	2.00-3.50	0.50 max.	1.00 max.	-	1.50 max.	-	-	-
Nickel 200	0.15	0.35	-	0.010	0.35	-	99.0 min.	0.25	-	-	-	-	0.40 max.	-	-	-	-	-
Nickel 600	0.15	1.00	-	0.015	0.50	14.0-17.0	72.0 min.	0.50	-	-	0.50 max.	-	6.0-10.0	1.00	0.35 max.	-	-	1.00 max.
Inconel 625	0.10	0.50	0.015	0.015	0.50	20.0-23.0	58.0 min.	-	8.0-10.0	-	0.40 max.	-	5.00 max.	1.00	0.40 max.	-	-	3.15-4.15
C-276	0.01	1.00	0.040	0.030	0.08	14.5-16.5	Balance	-	15.0-17.0	-	-	-	4.0-7.0	2.50	-	3.00-4.50	0.35 max.	-
Alloy 020	0.07	2.00	0.045	0.035	1.00	19.0-21.0	32.0-38.0	3.00-4.00	2.00-3.00	-	-	-	Bal.	-	-	-	-	8 x C - 1.00
Incoloy 825	0.05	1.00	-	0.030	0.50	19.5-23.5	38.0-46.0	1.50-3.00	2.50-3.50	-	0.60-1.20	-	22.0 min.	-	0.20 max.	-	-	-
631 (17-7PH)	0.09	1.00	0.040	0.030	1.00	16.0-18.0	6.50-7.80	-	-	-	-	Al 0.75-1.50	1.4568	-	-	-	-	-
Monel 400	0.30	2.00	-	0.024	0.50	-	63.0 min.	28.0-34.0	-	-	-	-	2.50 max.	-	-	-	-	-
CuSn7	-	-	0.21-0.25	-	-	-	-	Balance	-	-	-	0.20 max.	-	-	-	-	-	Sn 7.2 - 7.7