

SONIC STEEL

Chemical composition for AISI Standard stainless steel

Type	Chemical Composition								
Grade No.	C	Mn	P	S	Si	Cr	Ni	Mo	Others
AISI 201	<=0.15	5.50~7.50	<=0.06	<=0.03	<=0.75	16.0~18.0	3.5~5.5	-	N<=0.25
AISI 202	<=0.15	7.50~10.0	<=0.06	<=0.03	<=0.75	17.0~19.0	4.0~6.0	-	N<=0.25
AISI 205	0.12~0.25	14.0~15.5	<=0.06	<=0.03	<=0.75	16.5~18.0	1.0~1.75	-	N 0.32~0.40
AISI 301	<=0.15	<=2.0	<=0.045	<=0.03	<=0.75	16.0~18.0	6.0~8.0	-	N~0.10
AISI 302	<=0.15	<=2.0	<=0.045	<=0.03	<=0.75	17.0~19.0	8.0~10.5	-	N~0.10
AISI 302B	<=0.15	<=2.0	<=0.045	<=0.03	2.0~3.0	17.0~19.0	8.0~10.5	-	N~0.10
AISI 303	<=0.15	<=2.0	<=0.2	>=0.15	<=1.0	17.0~19.0	8.0~10.5	-	N~0.10
AISI 303Se	<=0.15	<=2.0	<=0.2	<=0.06	<=1.0	17.0~19.0	8.0~10.0	-	-
AISI 304	<=0.08	<=2.0	<=0.045	<=0.03	<=0.75	18.0~20.0	8.0~10.5	-	Se>=0.15
AISI 304L	<=0.03	<=2.0	<=0.045	<=0.03	<=0.75	18.0~20.0	8.0~12.0	-	N~0.10
AISI 304N	<=0.08	<=2.0	<=0.045	<=0.03	<=0.75	18.0~20.0	8.0~10.5	-	N~0.10
AISI 304LN	<=0.03	<=2.0	<=0.045	<=0.03	<=0.75	18.0~20.0	10.5~12.0	-	N 0.10~0.16
AISI 305	<=0.12	<=2.0	<=0.045	<=0.03	<=0.75	17.0~19.0	10.5~13.0	-	N 0.10~0.16
AISI 308	<=0.08	<=2.0	<=0.045	<=0.03	<=0.75	19.0~21.0	10.0~12.0	-	-
AISI 309	<=0.2	<=2.0	<=0.045	<=0.03	<=0.75	22.0~24.0	12.0~15.0	-	-
AISI 309S	<=0.08	<=2.0	<=0.045	<=0.03	<=0.75	22.0~24.0	12.0~15.0	-	-
AISI 310	<=0.25	<=2.0	<=0.045	<=0.03	<=1.50	24.0~26.0	19.0~22.0	-	-
AISI 310S	<=0.08	<=2.0	<=0.045	<=0.03	<=1.50	24.0~26.0	19.0~22.0	-	-
AISI 314	<=0.25	<=2.0	<=0.045	<=0.03	1.5~3.0	23.0~26.0	19.0~22.0	-	-
AISI 316	<=0.08	<=2.0	<=0.045	<=0.03	<=0.75	16.0~18.0	10.0~14.0	1.75~2.25	-
AISI 316F	<=0.08	<=2.0	<=0.2	<=0.1	<=0.75	16.0~18.0	10.0~14.0	1.75~2.25	-
AISI 316L	<=0.03	<=2.0	<=0.045	<=0.03	<=0.75	16.0~18.0	10.0~14.0	2.0~3.0	-
AISI 316Ti	<=0.08	<=2.0	<=0.045	<=0.03	<=0.75	16.0~18.0	10.0~14.0	2.0~3.0	N<=0.10,Ti>=5x(C+N)~0.7
AISI 316N	<=0.08	<=2.0	<=0.045	<=0.03	<=0.75	16.0~18.0	10.0~14.0	2.0~3.0	N 0.10~0.16
AISI 317	<=0.08	<=2.0	<=0.045	<=0.03	<=0.75	18.0~20.0	11.0~15.0	3.0~4.0	-
AISI 317L	<=0.03	<=2.0	<=0.045	<=0.03	<=0.75	18.0~20.0	11.0~15.0	3.0~4.0	-
AISI 321	<=0.08	<=2.0	<=0.045	<=0.03	<=0.75	17.0~19.0	9.0~12.0	-	N<=0.10,Ti>=5x(C+N)~0.7
AISI 329	<=0.10	<=2.0	<=0.040	<=0.03	<=0.75	23.0~28.0	2.5~5.0	1.0~2.0	-
AISI 347	<=0.08	<=2.0	<=0.045	<=0.03	<=0.75	17.0~19.0	9.0~13.0	-	Nb+Ta:10xC%~1.00
AISI 348	<=0.08	<=2.0	<=0.045	<=0.03	<=0.75	17.0~19.0	9.0~13.0	-	Nb+Ta>=10xC%~1.00 Ta>=0.10,Co>=0.20
AISI 403	<=0.15	<=1.0	<=0.040	<=0.03	<=0.50	11.5~13.0	-	-	-
AISI 405	<=0.08	<=1.0	<=0.040	<=0.03	<=1.00	11.5~14.5	-	-	Al:0.10~0.30
AISI 409	<=0.08	<=1.0	<=0.045	<=0.045	<=1.00	10.5~11.75	-	-	Ti:6xC%~0.75
AISI 410	<=0.15	<=1.0	<=0.040	<=0.03	<=1.00	11.5~13.5	<=0.75	-	-
AISI 414	<=0.15	<=1.0	<=0.040	<=0.03	<=1.00	11.5~13.5	1.25~2.50	-	-
AISI 416	<=0.15	<=1.25	<=0.06	<=0.15	<=1.00	12.0~14.0	-	-	-
AISI 416Se	<=0.15	<=1.25	<=0.06	<=0.06	<=1.00	12.0~14.0	-	-	Se>=0.15
AISI 420	>0.15	<=1.00	<=0.040	<=0.03	<=1.00	12.0~14.0	<=0.75	<=0.50	-
AISI 420F	0.30~0.40	<=1.25	<=0.06	<=0.15	<=1.00	12.0~14.0	<=0.50	-	Cu<=0.60
AISI 429	<=0.12	<=1.0	<=0.040	<=0.03	<=1.00	14.0~16.0	<=0.75	-	-
AISI 430	<=0.12	<=1.0	<=0.040	<=0.03	<=1.00	16.0~18.0	<=0.75	-	-
AISI 430F	<=0.12	<=1.25	<=0.06	<=0.15	<=1.00	16.0~18.0	-	-	-
AISI 430FSe	<=0.12	<=1.25	<=0.06	<=0.06	<=1.00	16.0~18.0	-	-	Se>=0.15
AISI 431	<=0.20	<=1.00	<=0.040	<=0.03	<=1.00	15.0~17.0	1.25~2.50	-	-
AISI 434	<=0.12	<=1.00	<=0.040	<=0.03	<=1.00	16.0~18.0	-	-	-
AISI 440A	0.60~0.75	<=1.00	<=0.040	<=0.03	<=1.00	16.0~18.0	-	-	-
AISI 440B	0.75~0.95	<=1.00	<=0.040	<=0.03	<=1.00	16.0~18.0	-	-	-
AISI 440C	0.95~1.20	<=1.00	<=0.040	<=0.03	<=1.00	16.0~18.0	-	-	-
AISI 442	<=0.20	<=1.00	<=0.040	<=0.03	<=1.00	18.0~23.0	-	-	-
AISI 446	<=0.20	<=1.50	<=0.040	<=0.03	<=1.00	23.0~27.0	<=0.75	-	N: 0.10~0.25
AISI 631	<=0.09	<=1.00	<=0.040	<=0.03	<=1.00	16.0~18.0	6.50~7.50	0.4~0.65	Al 0.75~1.00

SONIC STEEL

CHEMICAL COMPOSITION OF NICKEL ALLOYS

Type	Chemical Composition												
Grade No.	C%	Co%	Cr%	Mo%	Ni%	V%	W%	Al%	Cu%	Nb/Cb Ta%	Ti%	Fe%	Other %
Monel 400	0.12	-	-	-	65	-	-	-	32	-	-	1.5	Mn 1.0
Monel 401	0.1	-	-	-	43	-	-	-	53	-	-	0.75	Si 0.25; Mn 2.25
Monel 404	0.15	-	-	-	52.0-57.0	-	-	0.05	rest/bal	-	-	0.5	Mn 0.10; Si 0.10; S o.024
Monel 502	0.1	-	-	-	63.0-17.0	-	-	2.5-3.5	rest/bal	-	0.5	2	Mn 1.5; Si 0.5; S 0.010
Monel K 500	0.13	-	-	-	64	-	-	2.8	30	-	0.6	1	Mn 0.8
Monel R 405	0.15	-	-	-	66	-	-	-	31	-	-	1.2	Mn 1.0; S 0.04
Hastelloy B	0.1	1.25	0.6	28	rest/bal	0.3	-	-	-	-	-	5.5	Mn 0.80; Si 0.70
Hastelloy B2	0.02	1	1	26.0-30.0	rest/bal	-	-	-	-	-	-	2	Mn 1.0; Si 0.10
Hastelloy C	0.07	1.25	16	17	rest/bal	0.3	40	-	-	-	-	5.75	Mn 1.0 ; Si 0.70
Hastelloy C4	0.015	2	14.0-18.0	14.0-17.0	rest/bal	-	-	-	-	-	0..70	3	Mn 1.0 ; Si 0.08
Hastelloy C 276	0.02	2.5	14.0-16.5	15.0-17.0	rest/bal	0.35	3.0-4.5	-	-	-	-	4.0-7.0	Mn 1.0; Si 0.05
Hastelloy F	0.02	1.25	22	6.5	rest/bal	-	0.5	-	-	Nb2.10	-	21	Mn 1.50; Si 0.50
Hastelloy G	0.05	2.5	21.0-23.5	5.5-7.5	rest/bal	-	1	-	1.5-2.5	Nb1.75-2.5	-	18.0-21.0	Mn 1.0-2.0;p0.04;Si 1.0;80.03
Hastelloy G-2	0.03	-	23.0-26.0	5.0-7.0	47.0-52.0	-	-	-	0.70-1.20	-	0.70-1.50	rest/bal	Mn 1.0; Si 1.0
Hastelloy N	0.06	0.25	7	16.5	rest/bal	-	0.2	-	0.1	-	-	3	Mn 0.40; Si 0.25; B0.01
Hastelloy S	0.02	2	15.5	14.5	rest/bal	0.6	1	0.2	-	-	-	3	Mn 0.50; Si 0.40; B0.0009; LA 0.02
Hastelloy W	0.06	1.25	5	24.5	rest/bal	-	-	-	-	-	-	5.5	Mn 0.050 ; Si 0.50
Hastelloy X	0.1	1.5	22	9	rest/bal	-	0.6	-	-	-	18.5	-	Mn 0.6; Si 0.60
Incoloy 800	0.04	-	21	-	32	-	-	0.3	-	-	0.4	45	-
Incoloy 800 H	0.08	-	21	-	32	-	-	0.3	-	-	0.4	45	-
Incoloy 801	0.05	-	20.5	-	32	-	-	-	-	-	1.1	45	-
Incoloy 802	0.35	-	21	-	32	-	-	0.6	-	-	0.7	45	-
Incoloy 804	0.05	-	29.5	-	41	-	-	0.3	-	-	0.6	25.4	-
Incoloy 805	0.12	-	7.5	0.5	36	-	-	-	0.1	-	-	rest/bal	Mn 0.60; Si 0.50
Incoloy 810	0.25	-	21	-	32	-	-	-	0.5	-	-	rest/bal	Mn 0.90; Si 0.80
Incoloy 825	0.04	-	21	3	42	-	-	-	2	-	1	30	-
Incoloy 825 Cp	0.04	-	21.5	3	42	-	-	-	2.2	Nb0.9	-	30	-
Incoloy 840	0.08	-	20	-	20	-	-	-	-	-	-	rest/bal	Mn 1.0; Si 1.0
Incoloy 901	0.05	-	12.5	6	rest/bal	-	-	0.15	-	-	2.7	34	Mn 0.24; Si 0.12; B0.015
Incoloy 901 Mod	0.05	-	12.5	5.8	rest/bal	-	-	-	-	-	2.9	34	Mn 0.09; Si 0.08; B0.015
Incoloy 903	0.02	15	-	-	38	-	-	0.7	-	Nb 3.0	1.4	41	-
Incoloy 904	0.02	14	-	-	33	-	-	-	-	-	1.7	50	-
Incoloy DS	0.06	-	18	-	37	-	-	-	-	-	-	42	Mn 1.0; Si 2.3
Incoloy Ma 956	-	-	20	-	-	-	-	4.5	-	-	0.5	74.4	Y2.03 0.5
Incoloy 600	0.05	-	15.5	-	75	-	-	-	-	-	-	8	-
Incoloy 601	0.05	-	23	-	60	-	-	1.4	-	-	-	14	-
Incoloy 604	0.04	-	15.8	-	rest/bal	-	-	-	0.1	Nb 2.0	-	7.2	Mn 0.20; Si 0.20
Incoloy 610	0.2	-	15.5	-	rest/bal	-	-	-	0.5	Nb 1.0	-	9	Mn 0.90; Si 2.0
Incoloy 617	0.07	12.5	22.5	9	54	-	-	1	-	-	-	-	-
Incoloy 625	0.05	-	21.5	9	61	-	-	0.4	-	Nb 3.65	0.4	2.5	Mn 0.50; Si 0.50
Incoloy 671	0.05	-	48	-	51	-	-	-	-	-	0.35	-	-
Incoloy 700	0.12	28.5	15	3.75	46	-	-	3	0.05	-	2.2	0.7	Mn 0.10; Si 0.30
Incoloy 702	0.04	-	15.6	-	rest/bal	-	-	3.4	0.1	-	0.7	0.35	Mn 0.05; Si 0.20
Incoloy 705	0.3	-	15.5	-	rest/bal	-	-	-	0.5	-	-	8	Mn 0.90 ; Si 5.5