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CRM NICKEL

certified values — 31 mm Ø x 2 or 18 mm

Number	Al	C	Co	Cr	Fe	Mn	N	Ni	O	P	S	Si	Ta	Ti	V	W
IARM 50B	0.031	0.010	0.069	0.010	0.079	0.20	0.0001	99.5	0.0061	0.002	0.0002	0.059	<0.0005	0.002	0.016	0.010

informational values

Number	B	Cu	Mg	Mo	Nb	Zr
IARM 50B	0.0002	0.001	0.001	0.003	0.002	0.001

RM NICKEL

wrought — analysis listed in mass % — BS 200A: 38 mm Ø x 12 mm — others: 38 mm Ø x 15 mm

Number	C	Mn	S	Si	Cu	Fe	Cr	Co	Ti	B	Mg
BS 200-4	0.11	0.31	0.008	0.100	0.049	0.290	0.130	0.091	0.019	0.0037	0.030
BS 200A	0.077	0.15	0.004	0.007	0.004	0.076	(0.001)	0.057	0.043	0.0044	0.013
BS 200-2	0.051	0.242	0.007	0.060	0.052	0.120	0.010	0.104	0.020	0.0040	0.036
BS 200-1	0.042	0.113	0.001	0.039	0.008	0.050	0.001	0.090	0.021	0.0033	0.031
BS 200-3	0.014	0.16	0.004	0.011	0.108	0.142	0.009	0.103	0.024	0.0041	0.023

continued

Number	P	Mo	V	Al	Nb	Pb	W
BS 200-4	0.003	0.001	0.003	(0.007)	0.002	0.0010	<0.001
BS 200A	<0.003	<0.002	0.001	0.029	(0.001)	<0.0005	<0.01
BS 200-2	(0.003)	(0.001)	0.002	0.006	(0.002)	0.0007	<0.001
BS 200-1	(0.002)	0.001	0.001	0.005	(0.002)	0.0012	<0.001
BS 200-3	0.002	(0.002)	0.003	(0.007)	(0.002)	0.0009	<0.001

RM NICKEL

these samples contain <0.0010 Ca and <0.00005 Ga as well as trace informational values for Mg, N, O, Ti, and V 31 mm Ø x 2 or 18 mm

Number	Ag	Al	As	B	Be	Bi	C	Cd	Co	Cr	Cu	Fe	Mn
IARM 190A	0.00109	0.0050	0.0028	<0.0005	(<0.0001)	0.00111	0.0022	0.0005	0.0008	(0.0001)	0.0017	0.0099	0.00018
IARM 189A	0.00024	0.0044	0.00007	(<0.0005)	(<0.0001)	0.00026	0.0023	0.00008	0.00031	(0.0010)	0.00090	0.0038	0.00019
IARM 188A	0.00011	0.0024	0.00007	(<0.0005)	(<0.0001)	0.00009	0.0022	0.00002	0.00017	(0.0006)	0.00018	0.0019	0.00023
IARM 191A	0.00001	0.00015	0.0013	(<0.0005)	(<0.0001)	<0.00001	0.0014	<0.0001	0.0545	0.00021	0.00042	0.00079	0.00031
IARM 192A	0.00001	0.00023	0.0062	<0.0005	<0.0001	0.00008	0.0011	0.00004	0.1400	0.00031	0.0045	0.0015	0.00052
IARM 187A	0.00001	0.0011	0.00001	(<0.0005)	(<0.0001)	<0.00001	0.0013	(<0.00001)	0.00010	(0.0003)	0.00022	0.0019	0.00030

Number	Mo	P	Pb	S	Sb	Se	Si	Sn	Te	Tl	Zn
IARM 190A	(<0.0001)	0.0034	0.00093	0.00033	0.0011	0.00065	0.0028	0.00062	0.00089	0.00058	0.00081
IARM 189A	(<0.0001)	0.00037	0.00029	0.00018	0.00039	0.00021	0.0019	0.00022	0.00017	0.00023	0.00028
IARM 188A	<0.0001	0.00014	0.00010	0.00018	0.00011	0.00007	0.0018	0.00011	0.00008	0.00009	0.00023
IARM 191A	(<0.0001)	<0.00010	0.00003	0.00021	<0.00005	0.00019	(0.0005)	0.00004	<0.00001	<0.00002	0.00019
IARM 192A	(<0.0001)	0.00011	0.00028	0.0165	0.00010	0.00028	(0.0007)	0.00011	<0.00001	<0.00002	0.0011
IARM 187A	(<0.0001)	<0.00010	0.000015	0.00019	<0.00005	<0.00001	(0.0018)	0.00004	<0.00001	<0.00002	<0.00005

RM NICKEL

cast typical analysis 40 mm Ø x 15 mm

Number	Al	C	Co	Cr	Cu	Fe	Mg	Mn	N	Si	Ti
21X 17519	0.19	.	0.77	0.06	0.06	0.28	0.20	0.35	.	0.17	0.07
21X 17518	0.15	0.007	1.05	0.05	<0.001	0.52	0.034	0.43	<0.001	0.05	0.032
21X 17520	0.04	.	0.48	0.10	0.09	0.25	0.06	0.18	.	0.20	0.08
21X 17521	0.03	.	0.26	0.16	0.16	0.24	0.03	0.11	.	0.28	0.12
21X 17522	0.026	.	0.04	0.23	0.20	0.07	<0.005	0.02	.	0.35	0.31

Co/Cr NICKEL ALLOY TYPE IN 100

wrought analysis listed in mass %

Number	Co	Cr	Al	Mo	Ti	V	B	C	Cu	Fe	Mn	Si	Zr	Units
CRM														
SS 346A	(15)	(10)	(5.5)	(3)	(5)	(1)	.	(0.15)	.	.	.	.	.	38 mm Ø x 13 mm
SS 345	14.70	9.93	5.58	3.01	(5)	1.00	0.019	0.153	.	.	.	.	0.044	38 mm Ø x 13 mm
RM	typical analysis													
210X 11999	14.96	9.42	4.08	3.03	4.20	0.82	.	0.014	0.012	0.66	0.18	0.40	0.033	40 mm Ø x 15 mm
210X 11982	14.50	9.54	5.07	3.09	5.7	1.20	0.027	0.15	0.07	0.84	0.19	0.30	0.04	40 mm Ø x 15 mm

continued analysis listed in mg/kg

Number	Ag	As	Bi	Ca	Cd	Ga	In	Mg	Pb	Sb	Se	Sn	Te	Tl	Zn
SS 346A	42	51	10	(20)	0.4	(50)	(20)	130	22	45	6	93	9	(2)	29
SS 345	<0.2	(2)	<0.2	(<5)	<0.1	8	.	5	0.2	<2	<0.5	6	<0.2	<0.2	<0.5
210X 11999	1.3	<5	<1	.	0.1	.	.	5.5	3.7	1	<1	6.2	<1	.	7.8
210X 11982	<1	76	<0.5	.	<0.5	.	.	60	5	<2	<2	6	<1	.	9

Co/Cr/B NICKEL ALLOY

cast analysis listed in mass % 1837: 40 mm Ø x 15 mm 1867: 43 mm Ø x 20 mm

Number	Co	Cr	Al	Fe	Mo	Ta	Ti	B	C	Cu	Mn	Nb	P	S	Si	W	Zr	Ni
CRM																		
219X 1867	9.98	7.69	6.43	0.285	5.95	4.14	1.97	0.021	0.086	0.45	0.205	0.116	0.010	0.0099	0.203	0.121	0.59	(61.92)
RM																		
219X 1837	10.05	9.95	5.35	0.09	3.02	.	5.22	0.02	<0.01	.	<0.02	<0.02	<0.01	<0.005	<0.02	0.11	0.03	.

Co/Cr NICKEL ALLOY

= class, where 1 = CRM and 2 = RM cast 210X 11980: 43 mm Ø x 20 mm all others: 40 mm Ø x 15 mm

#	Number	Co	Cr	Al	Fe	Mo	Ti	B	C	Cu	Mg	Mn	S	Si	V	Zr
1	22X 1055	20.1	15.49	4.14	1.14	4.06	0.64	.	0.31	0.004	0.01	0.01	.	0.22	.	.
2	22X 1054	19.13	14.44	4.95	0.88	4.66	1.24	.	0.22	0.11	0.004	0.23	.	0.59	.	.
1	22X 1051	18.98	15.95	4.35	0.575	4.50	1.078	0.0009	0.166	0.115	0.0186	0.206	0.0015	0.58	.	.
2	22X 1052	18.6	15.7	4.08	0.65	4.48	1.09	.	0.19	0.13	0.002	0.26	.	0.51	.	.
1	210X 11775	15.1	9.96	5.96	0.53	3.20	6.08	.	0.017	0.01	.	0.08	.	0.10	0.79	0.07
2	210X 11980	14.98	9.47	3.97	0.67	3.02	4.07	.	0.013	0.015	.	0.18	.	0.38	0.83	0.02
2	210X 11981	14.65	11.81	5.07	0.93	3.66	4.83	.	0.09	0.10	.	0.21	.	0.33	0.73	0.11
2	210X 11979	14.32	8.07	3.76	0.56	3.28	5.22	.	0.025	0.07	.	0.13	.	0.30	0.82	0.04

CRM CHROMIUM NICKEL ALLOY

Number	Cr	Ni	C	Co	Cu	Fe	Mn	Mo	N	P	S	Si	Units
219X 20500	51.09	45.68	0.025	(0.008)	(0.007)	1.24	0.239	0.006	0.122	(0.0026)	0.0052	1.35	43 mm Ø x 20 mm

Cr/Al NICKEL ALLOY

= class, where 1 = CRM and 2 = RM

#	Number	Cr	Al	Co	Fe	Mo	Nb	Si	Ti	B	Cu	Mn	Ta	Zr	Units
2	219X NY1	29.2	9.9	.	.	.	.	1.10	1.12	.	.	.	.	.	40 mm Ø x 15 mm
2	219X NY2	20.8	13.1	.	.	.	.	1.64	0.60	.	.	.	.	.	40 mm Ø x 15 mm
2	211X 11236	15.98	6.14	0.64	0.46	4.02	2.73	0.21	1.33	.	0.16	0.21	0.10	0.05	40 mm Ø x 15 mm
2	211X 11222	14.18	5.47	0.12	0.17	4.03	2.89	0.23	1.05	.	0.11	0.32	0.08	0.12	40 mm Ø x 15 mm
2	211X 11224	14.03	6.07	0.32	0.46	4.02	2.92	0.24	1.27	.	0.34	0.09	0.32	0.12	40 mm Ø x 15 mm
2	211X 11221	13.83	6.26	1.27	0.22	3.80	2.76	0.08	1.22	.	0.09	0.27	0.08	0.08	40 mm Ø x 15 mm
1	SS 350	13.50	6.00	0.30	1.50	4.30	2.00	0.10	0.80	0.013	.	0.03	.	.	50 mm Ø x 13 mm
2	211X 11233	12.67	6.03	0.63	0.39	4.10	2.61	0.14	1.32	.	0.21	0.20	0.23	0.13	40 mm Ø x 15 mm

Cr/Co 'WASPALOY' TYPE NICKEL ALLOY

WASP 1, 2, 4: 40 mm Ø x 15 mm WASP 3: 40 mm Ø x 15 mm BS: 38 mm Ø x 12 mm IARM: 31 mm Ø x 18 mm

Number	Cr	Co	Al	Fe	Mo	Ti	B	C	Cu	Mn	Nb	P	S	Si	V	W	Zr	Ni	Other
CRM	cast																		
24X WASP3	20.84	13.77	2.99	0.96	1.96	5.52	0.0087	0.118	0.735	0.542	0.163	0.014	0.026	0.208	0.123	0.064	0.059	51.76	
24X WASP4	19.66	10.8	1.22	1.16	7.2	2.61	0.014	0.07	0.16	0.44	0.24	0.009	0.019	0.10	0.14	0.27	0.07	.	
IARM 62C	19.44	12.40	1.35	0.09	3.94	2.89	0.0073	0.057	0.008	0.008	0.006	0.002	0.0003	0.035	0.006	0.019	0.061	59.6	N: 0.0049 O: 0.0008
IARM 62B	19.06	12.95	1.38	0.79	4.17	3.02	0.005	0.028	0.024	0.026	0.050	0.0028	0.0003	0.073	0.022	0.068	0.036	58.33	N: 0.0022 O: 0.0014
RM	wrought																		
BS 199A	19.25	13.47	1.26	1.05	3.99	3.07	(0.004)	0.033	0.022	0.014	0.040	0.006	<0.001	0.05	0.020	.	(0.04)	57.8	
RM	cast		typical analysis																
24X WASP2	18.5	14.6	1.00	1.66	4.22	3.53	0.008	0.09	0.11	0.24	0.12	0.009	0.018	0.35	0.06	0.14	0.07	.	
24X WASP1	16.64	12.8	1.64	2.16	6.14	3.13	0.007	0.01	0.08	0.13	0.055	0.019	0.011	0.59	0.03	0.18	0.12	.	

RM Cr/Co NICKEL ALLOY TYPE 263 and 617

wrought BS 617: 50 mm Ø x 12 mm BS 263: 38 mm Ø x 12 mm

Number	Cr	Co	Al	Fe	Mo	Ti	B	C	Cu	Mn	N	Nb	Ni	P	Pb	S	Si	V	W
BS 263	19.84	19.92	0.38	0.47	5.70	2.21	(0.001)	0.071	0.024	0.36	.	0.04	(50.65)	0.005	.	<0.002	0.28	0.004	0.24
BS 617	22.44	12.42	1.20	1.76	9.64	0.28	0.0020	0.079	0.062	0.057	0.0070	0.123	(51.6)	0.007	0.0001	<0.001	0.14	0.022	0.06

Cr/Co NICKEL ALLOY

= class, where 1 = CRM and 2 = RM X: 40 mm Ø x 15 mm SRM: 35 mm Ø x 12 mm

#	Number	Cr	Co	Al	B	C	Cu	Fe	Ta	Mn	Mo	Ni	Si	Ti	V
2	27X 14184	21.64	10.6	<0.01	.	.	0.064	0.35	.	0.38	10.8	.	0.38	0.01	.
2	27X 14188	21.17	10.4	<0.01	.	.	(0.003)	0.44	.	0.30	10.3	.	0.33	0.03	.
2	24X 14939	21.0	19.58	0.76	.	.	0.52	0.57	.	0.63	6.62	.	0.42	1.88	.
2	27X 14387	21.0	9.9	<0.01	.	.	(0.005)	1.00	.	0.30	10.7	.	0.21	<0.01	.
2	22X 901	20.80	17.02	1.29	.	0.11	0.10	0.57	0.020	0.50	0.26	.	0.50	2.28	.
2	27X 14386	20.73	10.51	0.02	.	.	0.02	1.50	.	0.39	10.47	.	0.38	0.06	.
1	SRM 1775	20.472	33.352	(0.024)	0.0097	(0.0051)	(0.0046)	0.91	.	0.0121	9.508	34.911	(0.02)	0.730	0.0095
2	24X 10999	20.38	19.53	0.46	.	.	0.15	0.52	.	0.47	5.84	.	0.15	2.50	.
2	24X 11005	20.21	18.74	0.41	.	.	0.72	0.81	.	0.65	5.93	.	0.39	2.45	.
2	22X 904	19.9	16.9	1.29	.	0.08	0.10	0.25	0.005	0.50	0.21	.	0.52	2.26	.
2	22X 905	19.89	16.45	1.03	.	0.19	0.23	1.15	.	1.08	0.53	.	0.22	2.92	.
2	22X 903	19.84	17.60	1.67	.	0.08	0.01	0.83	0.002	0.25	0.07	.	1.09	1.86	.
2	22X 902	18.80	17.08	1.31	.	0.15	0.13	0.61	0.02	0.51	0.22	.	0.50	2.26	.

Cr/Fe NICKEL ALLOY

Number	Cr	Fe	Al	Co	Cu	Mn	Mo	Nb	Si	Ti	W	Ni
CRM												
IARM 67B	28.54	14.26	0.26	3.69	1.74	1.12	4.98	0.73	0.24	0.005	3.10	41.1
IARM 69B	21.90	17.84	0.20	1.59	0.11	0.68	8.78	0.11	0.38	0.011	0.78	47.37
BS 825C	20.06	35.1	(0.10)	0.13	1.64	0.49	2.70	(0.04)	0.24	0.74	.	38.7
RM												
BS H-3B	22.23	19.92	0.14	1.96	0.27	0.11	8.84	0.28	0.63	0.020	0.49	44.9
IARM 100A	21.82	(rem)	(0.29)	17.66	0.09	1.00	2.87	0.11	0.45	(0.023)	2.42	(20.17)
BS 925	20.82	26.92	0.17	0.34	1.74	0.50	3.00	0.23	0.11	2.20	0.47	43.53

Number	B	C	Mg	N	O	P	S	Sn	V	Zr	Units
IARM 67B	.	0.008	0.007	0.060	0.0014	0.012	0.0010	.	0.054	(0.002)	31 mm Ø x 2 or 18 mm
IARM 69B	.	0.074	0.006	0.0155	0.0011	0.013	0.0004	.	0.10	0.005	31 mm Ø x 2 or 18 mm
BS 825C	(0.0004)	0.024	(0.002)	0.0070	(0.001)	0.013	0.0004	.	(0.03)	.	38 mm Ø x 12 mm
BS H-3B	0.0052	0.078	.	.	.	0.013	0.0005	.	0.06	.	38 mm Ø x 12 mm
IARM 100A	.	0.11	.	(0.16)	.	(0.012)	0.001	.	0.04	(0.02)	31 mm Ø x 2 mm
BS 925	0.002	0.011	.	0.0042	(0.0075)	0.016	0.0020	(0.002)	0.03	.	38 mm Ø x 12 mm

RM Cr/Fe NICKEL ALLOY TYPE 'NIMONIC 75 AND 80A'

cast typical analysis 40 mm Ø x 15 mm

Number	Cr	Fe	Al	C	Co	Cu	Mg	Mn	Mo	Si	Ti
22X 801	20.75	0.57	1.33	0.14	0.25	0.22	0.03	0.56	0.25	0.51	2.19
22X 803	19.85	0.33	1.60	0.06	0.50	0.007	0.0002	0.22	0.50	1.05	1.93
22X 805	19.82	1.06	1.06	0.20	0.22	0.54	.	1.01	0.10	0.22	2.71
22X 804	19.72	0.66	1.33	0.07	0.20	0.21	0.004	0.54	0.09	0.56	2.34
22X 755	19.69	1.15	0.36	0.05	0.07	0.50	0.003	1.07	0.49	0.27	0.83
22X 754	19.65	2.22	0.18	0.07	0.23	0.21	0.002	0.53	0.21	0.66	0.49

Cr/Fe TYPE 'RA 333' NICKEL ALLOYS

BS: 38 mm Ø x 12 mm IARM: 31 mm D x 2 or 18 mm

Number	Cr	Fe	Al	Co	Cu	Mn	Mo	Nb	Si	W	Ni
CRM											
IARM 60B	25.3	17.9	0.05	2.9	0.05	1.53	2.87	0.016	0.87	3.08	45.3
RM	wrought										
BS 197B	25.73	16.24	0.11	3.22	0.030	1.58	3.27	(0.02)	0.92	2.91	45.6
BS 197A	25.11	18.07	0.18	3.06	0.12	1.56	2.99	0.20	0.96	2.79	44.44

Number	B	C	Mg	N	O	P	Pb	S	Sn	Ta	Ti	V	Zr
IARM 60B	0.002	0.062	(0.001)	0.029	0.0035	0.015	.	0.0003	0.002	(0.01)	0.004	0.070	0.001
BS 197B	0.0018	0.049	0.013	(0.049)	.	0.011	.	0.0008	(0.002)	.	0.091	0.053	.
BS 197A	0.0019	0.050	.	(0.052)	.	0.021	(0.0002)	<0.001	.	.	0.017	0.051	.

Cr/Fe NICKEL ALLOY TYPE 600 and 690

= class, where 1 = CRM and 2= RM

#	Number	Cr	Fe	Al	B	C	Co	Cu	Mg	Mn	Mo	N	Nb	Ni	Si	Ti	V
2	IARM 201A	29.9	9.09	0.37	.	0.019	0.009	0.008	0.006	0.19	0.018	0.0053	0.009	59.9	0.15	0.30	0.011
2	28X 6005	16.93	6.98	0.06	.	.	0.62	0.39	0.002	0.39	.	.	.	.	0.60	0.28	.
2	28X 6001	16.38	6.33	0.02	.	.	1.02	0.83	0.01	0.12	.	.	.	.	0.95	0.58	.
2	BS 600-2	16.36	6.80	0.16	0.0098	0.071	0.10	0.089	0.012	0.31	0.007	0.030	(0.02)	75.34	0.23	0.37	0.028
2	28X 6002	16.23	8.24	0.18	.	.	0.22	0.02	0.004	0.65	.	.	.	.	0.25	0.12	.
2	28X 6004	16.21	7.17	0.05	.	.	0.77	0.42	0.008	0.38	.	.	.	.	0.65	0.27	.
2	BS 600C	15.64	9.30	0.20	0.0012	0.072	0.04	0.040	0.0056	0.50	0.027	0.0074	(0.014)	73.59	0.39	0.21	0.022
2	BS 600-5	15.59	8.36	0.19	0.0018	0.047	0.029	0.10	0.004	0.21	0.049	0.011	(0.03)	74.83	0.26	0.23	0.054
2	28X 6003	15.56	7.1	0.025	.	.	0.62	0.42	0.01	0.47	.	.	.	.	0.74	0.22	.
2	BS 600-1	15.35	8.82	0.26	0.0089	0.070	0.10	0.14	0.023	0.39	0.009	0.015	(0.02)	74.3	0.105	0.32	0.028
1	IARM 53D	15.20	6.86	0.34	0.0035	0.045	0.052	0.015	0.007	0.49	0.02	0.0075	0.006	76.2	0.35	0.34	0.022
1	IARM 53C	14.95	7.16	0.21	0.004	0.070	0.035	0.045	0.008	0.21	0.047	0.0079	0.024	76.5	0.33	0.34	0.029
2	BS 600-6	14.86	7.33	0.288	0.0028	0.083	0.066	0.24	0.022	0.21	0.12	0.0078	0.14	76.0	0.31	0.24	0.023
2	BS 600-3	14.77	8.88	0.09	0.0082	0.020	0.10	0.24	0.012	0.28	0.007	0.0081	(0.02)	75.05	0.19	0.20	0.020
2	BS 600-4	14.72	8.40	0.06	0.0060	0.034	0.09	0.08	0.020	0.20	(0.002)	0.021	(0.015)	75.88	0.22	0.20	0.023
1	IARM 53B	14.55	9.75	0.17	0.005	0.064	0.057	0.13	0.005	0.25	0.12	0.0095	0.073	74.2	0.11	0.33	0.024

Number	O	P	S	W	Units
IARM 201A	.	0.005	(0.0004)	.	31 mm Ø x 2 or 18 mm
28X 6005	.	.	.	.	40 mm Ø x 15 mm
28X 6001	.	.	.	.	40 mm Ø x 15 mm
BS 600-2	.	0.006	0.004	.	38 mm Ø x 12 mm
28X 6002	.	.	.	.	40 mm Ø x 15 mm
28X 6004	.	.	.	.	40 mm Ø x 15 mm
BS 600C	.	0.008	<0.002	(0.003)	38 mm Ø x 12 mm
BS 600-5	0.002	0.005	<0.002	.	38 mm Ø x 12 mm
28X 6003	.	.	.	.	40 mm Ø x 15 mm
BS 600-1	.	0.007	0.004	(0.003)	40 mm Ø x 6 mm
IARM 53D	0.0009	0.005	0.0005	<0.005	31 mm Ø x 2 or 18 mm
IARM 53C	.	0.006	.	(0.008)	31 mm Ø x 2 or 18 mm
BS 600-6	.	0.007	0.001	.	38 mm Ø x 12 mm
BS 600-3	.	0.008	0.005	.	38 mm Ø x 12 mm
BS 600-4	.	0.007	0.004	.	38 mm Ø x 12 mm
IARM 53B	.	0.008	0.008	0.018	31 mm Ø x 2 or 18 mm

Cr/Fe NICKEL ALLOY TYPE 718

= class, where 1 = CRM and 2 = RM

#	Number	Cr	Fe	Mo	Nb	Al	B	C	Co	Cu	Mn	P	S	Si	Ti	Ni
1	28X 7185	21.80	16.95	2.54	4.88	0.32	0.012	0.050	0.320	0.30	0.34	0.008	0.0109	0.13	(0.16)	51.84
1	28X 7182	19.98	(14.7)	3.59	4.74	0.41	0.0047	0.021	0.632	0.134	0.310	0.007	0.0106	0.390	0.98	53.86
2	28X 7181	18.71	(19.5)	2.94	4.97	(0.007)	0.0010	0.008	0.01	0.013	0.108	(0.003)	0.005	0.71	0.025	52.6
1	28X 7183	18.4	17.2	3.49	5.57	0.90	0.0120	0.119	(0.91)	0.319	0.41	0.015	0.0097	0.309	1.23	51.0
1	IARM 56D	18.37	18.10	3.06	5.22	0.60	0.0044	0.041	0.298	0.063	0.200	0.010	0.0003	0.119	0.98	52.8
1	SS 351	18.12	18.26	3.06	5.20	0.55	0.0051	0.025	0.136	0.016	0.037	(0.006)	0.0006	0.14	1.06	53.1
1	IARM 56C	18.02	18.39	2.94	5.18	0.521	0.0029	0.025	0.011	0.016	0.064	0.009	0.0003	0.049	0.99	53.68
2	28X 7186	17.85	(16.5)	2.88	5.15	0.32	0.0047	0.007	0.40	0.091	0.253	0.016	0.014	0.65	0.20	54.84
2	BS 718B	17.60	19.64	2.93	5.29	0.57	0.0042	0.036	0.19	0.044	0.125	(0.006)	0.001	0.12	0.95	52.1
1	28X 7184	16.65	18.2	3.41	5.67	0.34	0.0062	0.149	0.211	0.11	0.192	0.012	0.023	0.36	(0.28)	54.00

#	Number	Cr	Fe	Mo	Nb	Al	B	C	Co	Cu	Mn	P	S	Si	Ti	Ni

Number	Mg	N	Pb	Sn	Ta	V	W	Zr	Units
28X 7185	0.021	0.24	(0.005)	(0.004)	0.035	0.05	0.096	(0.024)	cast 43 mm Ø x 20 mm
28X 7182	.	.	.	0.005	.	.	0.030	.	cast 43 mm Ø x 20 mm
28X 7183	.	0.019	.	0.0056	0.022	0.134	0.076	.	cast 43 mm Ø x 20 mm
28X 7181	.	0.233	.	0.003	.	0.02	.	.	cast 43 mm Ø x 20 mm
IARM 56D	0.0051	0.0084	.	0.0019	0.007	0.033	0.064	(0.001)	31 mm Ø x 2 or 18 mm
SS 351	.	.	.	.	.	.	.	.	wrought 41 mm Ø x 13 mm
IARM 56C	0.0007	0.0089	.	.	0.008	0.027	0.02	(0.004)	31 mm Ø x 2 or 18 mm
28X 7186	.	0.077	0.016	.	.	0.012	.	.	cast 43 mm Ø x 20 mm
BS 718B	.	.	.	.	.	.	.	.	wrought 38 mm Ø x 12 mm
28X 7184	.	.	(0.007)	0.011	0.08	0.101	0.20	0.017	cast 43 mm Ø x 20 mm

Number	Mg	N	Pb	Sn	Ta	V	W	Zr	Units

Cr/Fe NICKEL ALLOY TYPE 750

Number	Cr	Fe	Ti	Al	C	Co	Cu	Mn	Mo	Nb	Ni	S	Si	Ta
CRM														
IARM 57C	15.56	8.00	2.47	0.74	0.038	0.018	0.010	0.23	0.034	0.93	71.73	0.0006	0.15	<0.01
RM														
28X 7505	16.08	6.25	2.33	0.80	0.11	.	0.22	1.04	0.33	1.07	.	.	0.34	.
BS 750B	15.70	7.23	2.58	0.72	0.052	0.35	0.05	0.09	0.21	1.06	71.92	(<0.001)	0.14	(0.01)
HT 8211X	15.48	6.81	2.33	0.68	0.052	0.10	0.090	0.53	.	0.45	.	0.004	0.36	0.22
HT 8209X	15.38	7.01	2.74	0.88	0.044	0.15	0.051	0.67	.	0.52	.	0.003	0.31	0.23
28X 7502	14.93	6.70	2.60	0.74	0.10	.	0.22	1.03	0.35	0.96	.	.	0.33	.
28X 7504	14.22	6.42	2.59	0.70	0.03	.	0.22	1.09	0.46	0.95	.	.	0.39	.

Number	B	Mg	N	O	P	Sn	V	W	Zr	Units
IARM 57C	0.0015	0.007	0.0049	0.0027	0.009	0.0005	0.019	0.006	0.016	31 mm Ø x 2 or 18 mm
28X 7505	.	.	.	.	.	.	.	.	.	40 mm Ø x 15 mm cast
BS 750B	0.003	.	.	.	0.006	.	0.04	.	.	37 mm Ø x 12 mm wrought
HT 8211X	.	.	.	.	.	.	.	.	.	25 mm Ø x 50 mm wrought
HT 8209X	.	.	.	.	.	.	.	.	.	25 mm Ø x 50 mm wrought
28X 7502	.	.	.	.	.	.	.	.	.	40 mm Ø x 15 mm cast
28X 7504	.	.	.	.	.	.	.	.	.	40 mm Ø x 15 mm cast

Cr/Mo NICKEL ALLOY

= class, where 1 = CRM and 2= RM

#	Number	Cr	Mo	Fe	Nb	Si	Ti	W	Al	B	C	Co	Cu	Mn	P	S	Ni
2	26X 11383	22.50	9.37	0.49	.	0.29	2.84	.	0.67	.	.	0.05	0.08	0.19	.	.	.
1	28X 6255	22.46	8.57	1.06	4.35	0.15	0.12	.	0.11	(0.009)	0.045	0.309	0.423	0.405	0.022	0.024	61.67
1	28X 6253	21.78	7.46	5.90	4.63	(1.09)	0.564	.	0.210	0.026	0.048	0.429	0.272	0.519	0.014	0.018	56.92
1	ECRM 377-2	21.72	8.94	3.77	3.50	0.077	0.264	.	0.232	(0.0006)	0.0202	0.0348	0.0104	0.0225	0.0036	0.0006	61.45
1	ECRM 377-1	21.72	8.94	3.77	3.50	0.077	0.255	.	0.216	(0.0006)	0.0202	0.0348	0.0110	0.0225	0.0036	0.0006	61.45
2	BS 625A	21.71	9.2	3.07	3.60	(0.08)	0.29	0.07	0.21	0.0022	0.025	0.07	0.072	0.07	0.008	<0.001	61.4
2	26X 14182	21.61	10.11	0.09	.	(0.01)	2.75	.	0.76	.	.	0.06	0.006	(<0.005)	.	.	.
1	28X 6252	21.49	8.77	4.13	3.39	0.61	(0.025)	.	0.21	0.014	0.077	0.197	0.145	0.281	0.010	0.0039	59.9
2	BS H-6A	21.37	13.37	4.34	(0.029)	(0.03)	0.006	3.09	0.24	0.0012	0.005	1.11	0.070	0.31	0.010	<0.002	(55.8)
1	IARM 65B	21.32	13.02	3.63	0.029	0.030	0.007	2.87	0.283	(0.002)	0.0054	0.59	0.054	0.29	0.006	0.0005	57.3
1	IARM 54C	21.3	8.69	2.71	3.50	0.103	0.31	0.04	0.24	0.0021	0.021	0.069	0.09	0.050	0.005	0.0009	62.8
2	BS 625B	21.28	9.58	4.51	3.53	0.12	0.20	0.06	0.33	(0.0021)	0.023	0.24	0.22	0.10	0.010	<0.003	(59.8)
1	28X 6254	21.1	5.89	6.46	3.53	0.53	0.30	.	0.05	0.0014	0.037	0.22	0.027	0.093	0.004	0.0046	(61.3)
2	BS 725	20.72	7.97	8.0	3.52	0.02	1.52	.	0.13	(0.002)	0.010	0.02	0.014	0.08	0.004	0.002	58.0
2	26X 11384	20.5	10.2	0.98	.	0.15	2.6	.	0.50	.	.	0.30	0.12	0.13	.	.	.
1	28X 6251	20.5	9.88	3.12	2.70	0.47	(0.01)	.	0.16	0.0047	0.039	0.022	0.051	0.17	Temporarily Unavailable		
2	26X 11381	19.76	9.47	0.70	.	0.30	2.48	.	0.41	.	.	(0.047)	0.008	0.43	.	.	.
1	IARM 66C *	15.7	15.7	5.25	0.026	0.025	0.007	3.25	0.23	0.0023	0.003	0.23	0.15	0.41	0.008	0.001	59.0

#	Number	Cr	Mo	Fe	Nb	Si	Ti	W	Al	B	C	Co	Cu	Mn	P	S	Ni

Number	Ag	As	Bi	Mg	N	O	Pb	Sn	Ta	V	Zn	Zr	Units
26X 11383	.	.	.	.	.	.	.	.	.	.	.	.	cast 40 mm Ø x 15 mm
28X 6255	.	.	.	(0.0025)	0.194	.	.	.	0.25	.	.	.	cast 43 mm Ø x 20 mm
28X 6253	.	.	.	.	0.057	.	.	.	.	.	.	.	cast 43 mm Ø x 20 mm
ECRM 377-2	.	.	.	.	.	.	.	.	.	.	.	.	wrought 40 mm Ø x 20 mm
ECRM 377-1	.	.	.	.	.	.	.	.	.	.	.	.	wrought 40 mm Ø x 20 mm
BS 625A	.	.	.	0.004	.	.	.	.	.	0.02	.	.	wrought 38 mm Ø x 12 mm
26X 14182	.	.	.	.	.	.	.	.	.	.	.	.	cast 40 mm Ø x 15 mm
28X 6252	(0.0086)	(0.009)	(0.010)	.	0.322	.	.	(0.009)	.	.	(0.008)	.	cast 43 mm Ø x 20 mm
BS H-6A	.	.	.	.	.	.	.	0.003	.	0.17	.	.	wrought 35 mm Ø x 12 mm
IARM 65B	.	.	.	0.009	0.046	0.0013	.	(0.003)	(0.06)	0.155	.	<0.001	31 mm Ø x 2 or 18 mm
IARM 54C	.	.	.	0.0007	0.009	0.0005	.	(0.0005)	(0.01)	0.014	.	0.005	31 mm Ø x 2 or 18 mm
BS 625B	.	.	.	0.003	0.017	.	.	.	.	0.015	.	.	wrought 38 mm Ø x 12 mm
28X 6254	.	.	.	.	0.065	.	.	(0.003)	(0.012)	.	.	.	cast 45 mm Ø x 20 mm
BS 725	.	.	.	.	0.0051	.	.	.	.	.	.	.	wrought 38 mm Ø x 12 mm
26X 11384	.	.	.	.	.	.	.	.	.	.	.	.	cast 40 mm Ø x 15 mm
28X 6251	(0.0024)	(0.003)	.	.	0.211	.	(0.003)	(0.004)	.	.	(0.001)	.	cast 43 mm Ø x 20 mm
26X 11381	.	.	.	.	.	.	.	.	.	.	.	.	cast 40 mm Ø x 15 mm
IARM 66C *	.	.	.	0.02	0.029	0.001	.	<0.005	<0.01	0.011	.	<0.01	31 mm Ø x 2 or 18 mm

Number	Ag	As	Bi	Mg	N	O	Pb	Sn	Ta	V	Zn	Zr	Units

* Provisional Analysis

RM Cr/Mn and Cr/Si INCOLOY ALLOYS

BS: 44 mm Ø x 12 mm 23X, 221X: 40 mm Ø x 15 mm

Number	Cr	Mn	Si	Al	B	C	Co	Cu	Fe	Mo	P	S	Ti	Ni
wrought														
HH 5179A	22.20	0.87	0.38	0.30	.	0.042	.	0.26	.	.	0.012	0.003	0.46	34.13
HH 5157A	21.48	0.95	0.43	0.45	.	0.067	.	0.33	.	.	0.012	0.003	0.55	29.31
HH 5196A	20.66	1.05	0.45	0.31	.	0.036	.	0.24	.	.	0.011	0.002	1.13	31.46
BS 800 *	19.92	0.79	0.55	0.28	.	0.075	0.056	0.32	.	0.19	0.016	0.0006	0.475	31.38
HH 5300A	18.18	0.86	0.35	0.45	.	0.026	.	0.28	.	.	0.013	0.003	0.54	33.56
cast typical analysis														
23X 8005	20.81	0.73	0.46	0.22	.	0.07	0.50	0.28	.	0.34	.	.	0.35	32.2
23X 8002	20.48	0.68	0.47	0.29	.	0.06	0.54	0.28	.	0.34	.	.	0.32	32.1
23X 8001	20.43	1.07	0.21	0.47	.	0.09	1.03	0.07	.	0.52	.	.	0.51	31.4
23X 8003	20.17	0.28	0.79	0.08	.	0.01	0.12	0.51	.	0.12	.	.	0.11	32.7
23X DS 3	19.95	0.58	1.61	(0.02)	.	0.05	0.13	0.63	.	0.63	.	.	0.35	38.1
23X 8004	19.72	0.70	0.53	0.31	.	0.06	0.53	0.30	.	0.33	.	.	0.34	31.8
23X DS 2	17.81	1.00	2.07	0.04	.	0.06	0.48	0.30	.	0.30	.	.	0.17	37.4
23X DS 4	16.88	1.06	1.99	0.035	.	0.08	0.56	0.41	.	0.32	.	.	0.20	37.15
221X HF4	14.7	0.109	5.97	.	1.26	0.54	.	0.044	6.58	0.09	.	0.014	.	.
221X HF1	13.1	0.130	4.61	.	2.12	0.144	.	0.029	0.33	0.018	.	0.006	.	.
221X HF3	10.6	0.036	3.34	.	1.80	1.24	.	0.095	1.21	0.06	.	0.004	.	.
221X HF2	9.5	0.32	2.29	.	2.83	0.91	.	0.70	0.33	0.16	.	0.0095	.	.
23X DS 5	8.64	1.04	1.98	0.083	.	0.080	0.50	0.30	.	0.30	.	.	0.17	36.6
Number	Cr	Mn	Si	Al	B	C	Co	Cu	Fe	Mo	P	S	Ti	Ni

* BS 800 also contains: B: 0.0035, V: 0.073, Nb: (0.020), Mg: (0.0028), W: 0.02

RM Cr/Nb NICKEL ALLOY

cast typical analysis 40 mm Ø x 15 mm

Number	Cr	Nb	Co	Cu	Fe	Mn	Mo	Si	W
25X 10230	21.9	7.04	0.59	0.12	0.76	0.35	6.06	0.34	3.83
25X 10231	20.58	6.76	0.11	0.06	0.55	0.13	6.00	0.14	2.67
25X 10219	20.36	6.62	0.25	0.13	0.65	0.33	5.01	0.20	2.67
25X 10221	20.0	7.43	0.26	0.11	0.62	0.28	6.57	0.45	2.23
25X 10235	19.87	7.25	0.53	0.26	1.26	0.53	5.85	0.56	3.14
25X 10225	18.27	7.00	0.30	0.12	0.55	0.29	5.95	0.25	1.74

RM Cr/Ti TYPE 'NIMONIC 80'

cast typical analysis 40 mm Ø x 15 mm

Number	Cr	Ti	Al	B	Co	Fe	Pb	Si	W
22X 806	20.13	2.08	1.36	0.006	0.30	0.10	0.0019	0.02	0.015
22X 808	19.73	2.14	1.41	0.014	0.03	0.11	0.007	0.10	0.11

Number	Ag	As	Bi	Cu	Mn	Mo	Sb	Sn	Te	V	Zr
22X 806	<0.0001	<0.001	<0.0001	<0.01	<0.01	0.08	<0.0002	<0.0005	<0.0001	<0.01	<0.005
22X 808	0.007	0.013	0.002	<0.01	0.05	<0.01	0.017	0.030	0.008	0.05	0.038

CRM Cr/W NICKEL ALLOY

analysis listed in mass % 31 mm Ø x 2 or 18 mm mg/kg

Number	Cr	W	Al	Fe	Mn	Mo	Si	Ni	C	Co	Cu	La	Mg	Nb	P	Ti	V	B	N	O	S
IARM 68C	22.01	14.20	0.35	1.10	0.50	1.35	0.44	59.7	0.104	0.18	0.017	0.006	0.004	0.041	0.006	0.006	0.033	26	610	9	2

‘MONEL’ TYPE COPPER-NICKEL ALLOY

= class, where 1 = CRM and 2 = RM

#	Number	Cu	Al	Fe	Mn	Si	Ti	C	Co	Cr	Mg	Mo	Nb	P	Pb	S	Ni
2	IARM 202A	32.3	0.080	1.31	1.03	0.046	0.005	0.13	0.020	0.008	0.024	.	.	0.011	.	0.032	64.8
2	BS 405	31.80	0.10	1.34	1.03	0.04	0.003	0.13	0.025	0.006	0.026	(0.002)	(0.002)	0.010	.	0.041	65.49
1	IARM 51B	31.70	0.004	1.60	1.01	0.105	0.05	0.16	0.029	0.32	0.015	0.043	.	0.011	.	0.002	64.9
1	SS 363/1	31.90	0.027	1.86	1.26	0.028	(0.03)	0.140	0.032	(0.05)	.	.	.	.	.	(0.002)	Rem.
2	BS 400C	31.68	0.056	1.61	1.05	0.18	0.056	0.160	0.053	0.48	0.009	0.059	0.021	0.012	0.0007	0.001	64.559
2	212X 4002	31.5	0.055	0.99	1.99	0.10	0.06	0.046	0.09	0.023	0.017	.	.	.	0.05	0.071	(64.8)
2	BS 400-3	31.25	0.001	1.60	0.85	0.063	0.004	0.153	0.46	0.21	0.012	0.003	(0.0004)	0.026	(0.0015)	0.006	65.4
2	BS 400-1	30.97	0.004	1.27	1.07	0.16	0.007	0.109	0.37	0.033	0.048	0.001	0.0003	0.022	0.0020	0.008	66.0
2	BS 400-2	30.75	0.006	1.42	1.17	0.17	0.011	0.170	0.46	0.091	0.033	0.0012	0.0004	0.027	(0.001)	0.008	65.9
2	212X 4003	30.6	0.03	2.00	1.04	0.27	0.03	0.02	0.03	0.07	0.04	.	.	.	0.05	0.024	65.7
1	212X 4004	30.52	0.793	3.75	0.715	0.780	0.867	0.122	0.088	0.174	0.0013	0.070	1.00	0.022	0.034	(0.0023)	61.2
1	IARM 52B	30.22	3.02	0.77	0.77	0.09	0.50	0.154	0.004	0.047	0.012	0.011	.	0.009	0.0002	0.0010	64.3
2	BS 500D	29.7	2.98	0.73	0.69	0.07	0.45	0.15	0.033	0.21	0.010	0.024	.	0.009	.	<0.002	.
2	212X NA 2	29.6	.	1.53	1.06	2.50	.	0.07	.	.	0.008	.	.	.	0.02	0.023	.
1	212X NA 4	29.34	0.012	2.26	1.082	3.83	0.037	0.098	0.046	0.120	0.0014	0.026	(0.51)	0.0053	0.018	0.004	62.8
2	212X NA 3	29.2	.	1.42	0.52	3.66	.	0.37	.	.	0.74	.	.	.	0.05	0.008	.
1	212X 4001	26.99	0.43	2.00	3.08	1.43	0.315	0.093	0.125	0.267	0.214	0.015	(0.023)	0.0075	0.072	0.0202	65.0
1	212X 4006	23.89	4.18	1.79	0.794	3.97	1.49	0.031	0.0508	0.097	0.027	0.112	0.52	0.013	0.023	0.019	62.9
1	212X 4005	21.31	1.85	3.36	1.45	2.44	0.613	0.074	0.107	0.350	.	0.003	.	.	0.020	0.0255	68.38

Number	As	Sn	B	N	O	Sb	V	Zn	Zr	Units	
IARM 202A	.	.	.	0.0004	.	.	.	.	0.010	31 mm Ø x 2 or 18 mm	
BS 405	.	.	(0.001)	.	.	.	.	.	.	wrought 38 mm Ø x 12 mm	
IARM 51B	.	.	.	0.0004	0.0022	.	.	.	<0.01	31 mm Ø x 2 or 18 mm	
SS 363/1	.	.	.	.	.	.	.	.	.	wrought 38 mm Ø x 19 mm	
BS 400C	0.001	0.0009	(0.0002)	.	.	(0.0002)	(0.005)	(0.001)	.	wrought 38 mm Ø x 12 mm	
212X 4002	.	.	.	.	.	.	.	.	.	cast 40 mm Ø x 15 mm	
BS 400-3	0.004	0.0014	(0.0002)	.	.	(0.001)	0.003	(0.001)	.	wrought 38 mm Ø x 20 mm	
BS 400-1	0.004	0.0010	(0.0005)	.	.	(0.0005)	(0.001)	(0.0006)	.	wrought 38 mm Ø x 20 mm	
BS 400-2	0.004	0.0012	(0.0006)	.	.	(0.001)	(0.003)	(0.001)	.	wrought 38 mm Ø x 20 mm	
212X 4003	.	.	.	.	.	.	.	.	.	cast 40 mm Ø x 15 mm	
212X 4004	.	.	.	.	.	.	.	.	.	cast 43 mm Ø x 20 mm	
IARM 52B	.	.	.	0.0002	.	.	0.003	.	0.039	31 mm Ø x 2 or 18 mm	Bi: 0.2 ppm
BS 500D	.	.	.	.	.	.	.	.	.	wrought 38 mm Ø x 12 mm	
212X NA 2	.	.	.	.	.	.	.	.	.	cast 40 mm Ø x 15 mm	
212X NA 4	.	.	.	.	.	.	.	.	.	c.cast 40 mm Ø x 13 mm	
212X NA 3	.	.	.	.	.	.	.	.	.	cast 40 mm Ø x 15 mm	
212X 4001	.	.	.	.	.	.	.	.	.	cast 43 mm Ø x 20 mm	
212X 4006	.	.	.	.	.	.	.	.	.	cast 43 mm Ø x 20 mm	
212X 4005	.	.	.	.	.	.	.	.	.	cast 43 mm Ø x 20 mm	

Fe/Co NICKEL ALLOY

= class, where 1 = CRM and 2 = RM IARM: 31 mm Ø x 2 or 18 mm SRM: 32 mm Ø x 19 mm

#	Number	Fe	Co	Al	B	C	Cr	Cu	Mn	Mo	Nb	Ni	P	S	Si	Ta	Ti	V
1	SRM 1250	40.5	16.1	0.99	0.0078	0.022	0.077	0.022	0.052	0.014	2.99	37.78	<0.003	0.0025	0.097	0.003	1.48	0.077
2	IARM 203A	40.6	12.88	0.066	.	0.005	0.72	0.05	0.023	0.090	5.00	38.4	0.006	0.0009	0.41	.	1.58	.

Fe/Cr NICKEL ALLOY

= class, where 1 = CRM and 2 = RM

#	Number	Cr	Ni	Fe	Al	B	C	Co	Cu	Mn	Mo	P	S	Si	Ti
2	IARM 157A	20.7	23.8	REM	0.021	.	0.023	0.045	0.14	0.35	6.18	0.014	0.001	0.39	(0.004)
2	IARM 58B *	19.6	30.7	47.8	0.46	<0.0005	0.073	0.02	0.010	0.52	0.011	0.010	0.001	0.29	0.51
1	IARM 25B	19.42	33.31	REM	0.006	0.0026	0.022	0.14	3.25	1.51	0.31	0.015	0.001	0.37	(0.005)
1	IARM 7B	19.32	35.84	REM	0.023	(0.002)	0.062	0.069	0.21	0.0130	0.023	0.018	(0.001)	1.38	(0.005)
2	22X 9014	13.22	45.7	REM	0.16	0.013	0.08	0.18	0.06	0.25	6.08	0.014	0.013	0.49	2.37
2	22X 9015	13.0	43.3	REM	0.29	0.015	0.08	0.21	0.11	0.25	5.85	0.023	0.021	0.38	2.18
1	SS 387/1	11.35	41.2	38.4	0.24	0.017	0.033	0.020	0.0076	0.025	5.83	0.0033	0.0028	0.06	3.00

continued * Provisional Analysis

Number	As	Mg	N	Nb	O	Pb	Sb	Ta	V	W	Units
IARM 157A	.	.	0.20	0.019	.	.	.	.	0.044	0.023	31 mm Ø x 2 or 18 mm
IARM 58B *	<0.005	(0.001)	0.010	0.007	0.0012	(0.0002)	(0.0002)	<0.005	0.032	0.007	31 mm Ø x 2 or 18 mm
IARM 25B	.	2.06	(0.015)	0.52	0.0056	.	.	.	0.098	(0.021)	31 mm Ø x 2 or 18 mm
IARM 7B	.	.	0.0130	0.023	0.0026	.	.	.	0.048	(0.031)	31 mm Ø x 2 or 18 mm
22X 9014	.	.	.	.	.	.	.	.	.	.	40 mm Ø x 15 mm
22X 9015	.	.	.	.	.	.	.	.	.	.	40 mm Ø x 15 mm
SS 387/1	.	.	.	.	.	.	.	.	.	.	41 mm Ø x 13 mm

Mo/Fe 'HASTELLOY' TYPE ALLOY

= class, where 1 = CRM and 2= RM

#	Number	Mo	Fe	Al	B	C	Co	Cr	Cu	Mg	Mn	N	Nb	Ni	O	P	S
1	IARM 257A	28.0	1.47	0.34	<0.003	0.005	0.024	1.57	0.019	0.010	0.63	0.0039	<0.03	67.9	0.0004	0.004	0.0005
1	IARM 63B	27.3	1.68	0.31	(<0.002)	0.0025	0.019	0.47	0.012	0.005	0.61	0.0041	(0.001)	69.6	0.0010	0.004	(0.004)
1	IARM 63C	26.6	1.13	0.11	0.003	0.010	0.013	0.10	0.003	0.003	0.76	0.0006	0.002	71.1	0.0005	0.005	0.0005
2	BS H-1B	26.52	1.00	0.12	0.003	0.006	<0.02	<0.01	(0.01)	.	0.82	.	<0.005	(71.3)	.	0.003	0.0005
1	IARM 55B	24.62	1.12	0.09	0.002	0.004	0.036	8.25	0.013	0.011	0.323	0.016	0.08	65.4	0.0009	0.005	0.0010
1	IARM 258A	15.5	0.85	0.30	0.001	0.005	0.083	22.8	1.54	0.009	0.21	0.032	0.01	58.6	0.0009	0.005	0.0007

Number	Si	Ti	V	W	Zr	Units
IARM 257A	0.024	0.002	0.01	0.07	(0.008)	31 mm Ø x 2 or 18 mm
IARM 63B	0.019	0.003	(0.010)	0.060	(0.02)	31 mm Ø x 2 mm
IARM 63C	0.01	0.15	0.007	0.03	0.001	31 mm Ø x 2 or 18 mm
BS H-1B	0.049	0.11	<0.01	.	.	38 mm Ø x 12 mm
IARM 55B	0.021	0.002	0.005	0.12	.	31 mm Ø x 2 or 18 mm
IARM 258A	0.015	0.003	0.014	0.14	<0.005	31 mm Ø x 2 or 18 mm

Mo/Fe 'HASTELLOY' TYPE ALLOY

= class, where 1 = CRM and 2 = RM cast HB3 and HB4: 40 mm Ø x 15 mm HC4 and HC5: 43 mm Ø x 20 mm all others: 45 mm Ø x 20 mm

#	Number	Mo	Cr	Fe	W	Al	C	Co	Cu	Mn	N	P	S	Si	Ti	V	Ni	Other
1	215X HB 1	33.9	2.04	7.46	.	0.005	0.068	1.12	0.035	1.25	0.031	0.005	0.049	0.246	0.014	0.63	.	Sn: 0.011
1	215X HB 2	32.1	1.63	2.43	.	.	0.045	0.51	(0.004)	0.925	0.006	0.011	0.039	0.48	.	0.52	61.2	
2	215X HB 3	30.0	0.4	5.0	.	.	0.06	1.0	.	0.8	.	0.02	0.02	0.80	.	0.3	.	
2	215X HB 4	28.0	0.2	6.0	.	.	0.09	1.75	.	0.6	.	0.03	0.01	1.0	.	0.2	.	
2	215X HB 5	26.0	0.03	3.05	.	0.20	0.147	2.47	0.05	0.44	0.008	0.053	0.002	1.30	0.03	0.14	.	
1	215X HC 1	19.48	15.19	4.31	3.22	(0.007)	0.031	2.44	0.057	1.18	0.121	0.003	0.006	0.58	0.021	0.144	53.15	
1	215X HC 2 *	19.0	16.5	4.0	4.0	<0.01	0.08	1.75	0.03	1.00	.	0.02	0.02	0.75	0.07	0.35	.	
1	215X HC 3	18.02	17.16	5.38	4.31	0.025	0.105	0.97	0.157	0.79	0.146	0.025	0.027	1.06	0.029	0.40	51.30	B: 0.008
1	215X HC 4	17.3	20.8	8.17	5.79	(0.14)	0.248	0.493	0.026	0.548	(0.066)	0.040	0.030	1.85	0.181	0.752	(43.6)	Mg: 0.008 B: 0.0036
1	215X HC 5	14.37	18.81	6.81	4.87	1.47	0.243	0.093	0.265	0.322	0.162	0.053	0.033	1.35	0.23	0.53	50.09	Mg: 0.010

| # | Number | Mo | Cr | Fe | W | Al | C | Co | Cu | Mn | N | P | S | Si | Ti | V | Ni | Other |

* Provisional Analysis

RM NICKEL ALLOY XRF SET

Part Number: BS NI-18 Set of 18 samples, each 32 - 52 mm Ø x 7 mm discs

Grade	Number	Al	Co	Cr	Cu	Fe	Mn	Mo	Nb	Ti	W	B	C	Mg	P	S	Si	V	Ni
Nickel 200	BS 200A	0.029	0.057	(0.001)	0.004	0.076	0.15	<0.002	(0.001)	0.043	.	0.0044	0.077	0.013	<0.003	0.004	0.007	0.001	[99.5]
Monel® 400	BS 400C	0.056	0.053	0.48	31.68	1.61	1.05	0.059	0.021	0.056	.	(0.0002)	0.160	0.009	0.012	0.001	0.18	(0.005)	64.55
Monel® K500	BS 500D	2.98	0.033	0.21	29.7	0.73	0.69	0.024	(0.005)	0.45	.	(0.0002)	0.15	0.010	0.009	<0.002	0.07	0.003	64.9
Inconel® 600	BS 600C	0.21	0.033	15.64	0.05	9.31	0.50	0.03	.	0.21	.	.	0.071	.	0.009	0.001	0.39	0.03	73.62
Inconel® 625	BS 625A	0.21	0.07	21.71	0.072	3.07	0.07	9.2	3.60	0.29	0.07	0.0022	0.025	0.0040	0.008	<0.001	(0.08)	0.02	61.4
Inconel® 690	BS 690	0.26	0.076	30.10	0.28	9.49	0.20	0.16	0.19	0.32	.	.	0.025	.	0.011	0.0010	0.39	.	58.5
Incoloy® 800	BS 800	0.28	0.056	19.92	0.32	(45.82)	0.79	0.19	(0.02)	0.475	.	0.0034	0.075	.	0.016	0.0006	0.55	0.073	31.38
Incoloy® 825	BS 825A	(0.26)	0.25	21.39	2.32	30.2	0.62	2.93	0.24	1.05	.	(0.0020)	0.030	.	0.017	<0.001	0.45	0.13	39.8
Inconel® 718	BS 718A	0.57	0.32	18.19	0.06	19.21	0.08	3.06	5.19	1.02	.	0.0046	0.036	.	0.007	0.001	0.12	(0.03)	52.0
Inconel® X750	BS 750A	0.74	0.29	15.68	0.04	7.07	0.09	0.22	1.07	2.60	.	0.0033	0.047	.	(0.005)	0.0007	0.10	0.046	71.9
Hastelloy B	BS H-1B	0.12	<0.02	<0.01	(0.01)	1.00	0.81	26.52	<0.005	0.11	0.01	0.003	0.006	.	0.003	0.0005	0.049	<0.01	[71.4]
Hastelloy C-276	BS H-2B	0.125	0.39	15.43	0.10	6.52	0.57	15.54	0.029	0.066	4.13	.	0.006	.	0.010	0.0010	0.056	0.21	56.75
Hastelloy X	BS H-3B	0.14	1.96	22.23	0.27	19.92	0.11	8.84	0.28	0.020	0.49	0.0052	0.078	.	0.013	0.0005	0.63	0.060	44.9
Hastelloy C-22	BS H-6A	0.24	1.11	21.37	0.070	4.34	0.31	13.37	0.029	0.007	3.09	0.0012	0.005	.	0.010	<0.002	(0.03)	0.17	[55.8]
Hastelloy G-30	BS H-8	0.18	2.58	29.43	1.66	14.61	1.10	5.02	0.69	0.008	2.66	0.0028	0.004	0.0059	(0.01)	<0.001	0.20	0.038	[41.8]
RA 333	BS 197A	0.18	3.06	25.11	0.12	18.07	1.56	2.99	0.20	0.017	2.79	0.0019	0.050	(0.0030)	0.021	<0.001	0.96	0.051	44.44
Waspaloy	BS 199A	1.26	13.47	19.25	0.022	1.05	0.014	3.99	0.040	3.07	.	(0.004)	0.033	.	0.006	<0.001	0.05	0.020	57.8
Alloy 263	BS 263	0.47	19.96	19.84	0.029	0.47	0.38	5.66	(0.04)	2.25	(0.26)	.	0.071	.	0.005	<0.002	0.26	(0.004)	[50.3]
Grade	Number	Al	Co	Cr	Cu	Fe	Mn	Mo	Nb	Ti	W	B	C	Mg	P	S	Si	V	Ni

Nickel with brackets [ ] calculated by difference.

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