

Section 11 Set-up Sample 1) Iron, Steel & Alloy (Disk)

Number	Name	Chemical Composition(percent)													Unit Size (mm)	
		C	Si	Mn	P	S	Cr	Ni	Cu	Alt	Ti	Als	Sn	As		
NCS AH 11302a	Low Alloy steel	0.078	0.117	1.85	0.0071	0.0027	0.017	0.0048	0.016	0.033	0.1	0.032			Φ37×40	
NCS AH 11311a	60Si ₂ Mn	0.583	1.72	0.78	0.013	0.0062	0.158	0.03	0.087				0.0087	0.012	Φ37×40	
		Mo														
NCS AH 11311a	60Si ₂ Mn	0.014														
Number	Name	Chemical Composition(percent)													Unit Size (in g)	
		C	Si	Mn	P	S	Cr	Ni	Cu	V	Alt	B	Mo			
NCS AH 11316e	Carbon Steel	0.201	0.207	0.487	0.018	0.006	0.011	0.004	0.0047						Φ37×40	
NCS AH 11319	Carbon Steel	0.101	0.249	0.400	0.043	0.030	0.068	0.066	0.086		0.264	0.0014			Φ37×45	
NCS AH 11320c	Alloy Steel	0.164	0.401	1.46	0.014	0.0097	0.046	0.016	0.018						Φ37×40	
NCS AH 11322c	Carbon Steel	0.461	0.293	0.598	0.016	0.0013	0.02	0.012	0.011	0.0029	0.024				Φ37×45	
NCS AH 11324e	Carbon Steel	0.245	0.185	0.547	0.016	0.019	0.026	0.038	0.201				0.0085		Φ37×40	
NCS AH 11334	G Cr 15	1.02	0.250	0.340	0.015	0.023	1.48	0.036	0.037	0.022					D36×50	
		Sn As N Als Ca														
NCS AH 11319	Carbon Steel	0.0024	0.0058													
NCS AH 11320c	Alloy Steel	0.0061														
NCS AH 11322c	Carbon Steel	0.012	0.007	0.010	0.022	0.0013										
NCS AH 11324e	Carbon Steel	0.028	0.017													
Number	Name	Chemical Composition(Percent)													Unit Size (in g)	
		C	Si	Mn	P	S	Cr	Ni	Cu	Mo	W	As	Sn	Alt		
NCS AH 11339d	GCr15SiMn	1.18	0.842	1.02	0.018	0.006	1.44	0.046	0.152	0.027					Φ38×40	
NCS AH11340c	Alloy Structure Steel	0.134	0.239	0.5	0.0094	0.0078	0.979	0.046	0.074	0.444		0.0073	0.0043		Φ38×40	
NCS AH 11341c	42CrMo	0.424	0.283	0.615	0.013	0.0035	0.984	0.185	0.085	0.221		0.0082		0.02	Φ38×40	
NCS AH11341d	Alloy Steel	0.396	0.248	0.566	0.023	0.0056	0.953	0.05	0.05	0.029		0.16			Φ37×40	
NCS AH 11344	CrWMn	0.964	0.266	0.947	0.023	0.006	1.06	0.02	0.128	0.034	1.42				Φ38×40	
		Sn*														
NCS AH11341c	42CrMo	0.0089														

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1) Iron, Steel & Alloy (Disk)

Number	Name	Chemical Composition(Percent)													Unit Size (mm)	
		C	Si	Mn	P	S	Cr	Ni	Cu	V	W	Mo	Co	Ti		
NCS AH 11351c	Pure iron	0.0017	0.0051	0.124	0.0079	0.0064	0.016	0.003	0.0071			0.0011		0.068	Φ38×40	
NCS AH 11353	Cast iron	3.15	2.3	0.47	0.02	0.0006	0.025	0.59	0.029	0.032	0.003	0.002	0.015	0.027	Φ30×25	
			Sn	N	Alt	B	Mg									
NCS AH 11351c	Pure iron		(0.001)	0.03												
NCS AH 11353	Cast iron	0.0037	0.003	0.023	0.004	0.029										
Number	Name	Chemical Composition(Percent)											Unit Size (mm)			
		C	Si	Mn	P	S	Cr	Ni	Cu	Al	V					
NCS AH 11354a	R _E -Mg Cast Iron	2.25	2.66	1.17	0.375	0.095	0.493	0.623	1.65	0.072	0.518				Φ31×24	
NCS AH 11355a	R _E -Mg Cast Iron	4.07	1.45	0.22	0.054	0.041	2.12	1.46	0.266	0.073	0.09				Φ31×24	
NCS AH 11356a	R _E -Mg Cast Iron	3.78	2.47	0.618	0.084	0.021	0.175	0.522	0.68	0.079	0.265				Φ31×24	
			Sn	B	Mg	Ti	Mo	W	Nb	Co	La*	Ce*				
NCS AH 11354a	R _E -Mg Cast Iron	0.046	0.055	0.0056	0.184	0.253	0.434	0.117	0.094	0.0013	0.0033					
NCS AH 11355a	R _E -Mg Cast Iron	0.146	0.013	0.0024	0.042	0.724	0.039	0.022	0.027	0.0003	0.0006					
NCS AH 11356a	R _E -Mg Cast Iron	0.076	0.041	0.054	0.085	0.344	0.105	0.037	0.032	0.02	0.045					
Number	Name	Chemical Composition(Percent)														Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Cu	V	Ti	Mo	Alt	Co		
NCS AH 11357	Alloy Structure Steel	0.147	0.369	1.11	0.019	0.015	0.0091	0.0053	0.016						Φ38×40	
NCS AH 11358	Alloy Structure Steel	0.402	0.226	0.690	0.011	0.0083	0.95	0.015	0.015	0.0045					Φ36×40	
NCS AH 11358c	Alloy Steel	0.39	0.243	0.583	0.02	0.0061	0.848	0.014	0.011						Φ37×40	
NCS AH 11359	Alloy Structure Steel	0.225	0.220	0.616	0.013	0.0081	0.815	0.012	0.0081	0.0046	0.0032				Φ37×40	
NCS AH 11359b	Alloy Steel	0.212	0.22	0.59	0.0074	0.013	0.803	0.011	0.0094	0.0034					Φ37×40	
NCS AH 11359c	Alloy Steel	0.212	0.247	0.579	0.017	0.0078	0.782	0.042	0.016						Φ37×40	
NCS AH 11360	Stainless Steel	0.058	0.854	1.49	0.027	0.010	17.39	11.91	0.168	0.043	0.366	2.33	0.046	0.105	Φ36×30	
NCS AH 11363	Alloy tool Steel	0.482	0.63	0.158	0.021	0.0086	1.15	0.078	0.094			0.026			Φ35×35	
			W	As												
NCS AH 11359b	Alloy Steel		0.0024													
NCS AH 11360	Stainless Steel	0.060														
NCS AH 11363	Alloy tool Steel	2.16														
Number	Name	Chemical Composition(Percent)														Unit Size (mm)
		C	Si	Mn	P	S	Ni	Cr	Cu	V	Ca	Als	Alt	Sn		
NCS AH 11364	Carbon Steel	0.057	0.026	0.121	0.010	0.0032	0.010	0.016	0.0087	0.0010	0.0019	0.032	0.034	0.0097	Φ38×40	
NCS AH 11365	line pipe steel	0.054	0.266	1.53	0.011	0.0052	0.05	0.013	0.010	0.014	0.0015	0.019	0.021	0.017	Φ38×40	
NCS AH 11366	stainless steel 2Cr13	0.176	0.388	0.501	0.024	0.0036	0.115	12.29	0.074	0.024					Φ37×30	
NCS AH 11367	stainless steel 316L	0.017	0.476	0.847	0.034	0.0008	10.23	16.65	1.09	0.066			(0.007)	0.032	Φ38×30	
NCS AH 11368	stainless steel 304	0.066	0.76	1.16	0.030	0.0091	8.23	17.49	0.355	0.061			0.014	0.012	Φ38×30	
NCS AH 11369	stainless steel 304L	0.026	0.522	0.857	0.033	0.0020	8.11	18.18	0.445	0.068			(0.004)	0.013	Φ38×30	
NCS AH 11370	stainless steel 321(0Cr18Ni10Ti)	0.046	0.609	1.18	0.027	0.016	11.65	17.57	0.199	0.075			0.053	0.011	Φ33×30	
NCS AH 11371	stainless steel(9Cr18)	0.95	0.487	0.315	0.027	0.003	0.171	17.70	0.064	0.022			0.014	0.0063	Φ33×30	
NCS AH 11372	stainless steel 630(0Cr17Ni4CuNb)	0.037	0.552	0.604	0.041	0.0056	4.12	15.73	3.46	0.067			(0.004)	0.019	Φ38×30	
NCS AH 11374	stainless steel(CrMnN)	0.085	0.458	11.03	0.032	0.014	0.68	13.79	1.16	0.056				0.012	Φ38×30	
NCS AH 11375	high speed tool steel(W6Mo5Cr4V2)	0.84	0.305	0.328	0.028	0.015	0.090	3.89	0.103	1.83				0.012	Φ38×30	
NCS AH 11376	high speed tool steel(W18Cr4V)	0.72	0.300	0.227	0.027	0.026	0.074	4.09	0.107	1.12			(0.005)	0.028	Φ33×30	
NCS AH 11377	Cast iron	2.13	4.03	0.722	0.47	0.027	0.144	0.136	0.344	0.062				0.0168	Φ32×19	

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		As	N	W	Co	MO	Nb	Ti	La	Ce	Mg	Sb				
NCS AH 11364	Carbon Steel	0.0051	0.010			0.209	0.039	0.015								
NCS AH 11365	line pipe steel	0.012	0.0085		0.032	0.013										
NCS AH 11366	stainless steel 2Cr13			0.045	0.144	2.08	0.012									
NCS AH 11367	stainless steel 316L			0.021	0.099	0.205	0.011	(0.0007)								
NCS AH 11368	stainless steel 304			0.015	0.152	0.119	0.0052	0.006								
NCS AH 11369	stainless steel 304L			0.036	0.057	0.438	0.0039	(0.002)								
NCS AH 11370	stainless steel 321(0Cr18Ni10Ti)			0.037	0.018	0.014		0.325								
NCS AH 11371	stainless steel(9Cr18)			0.054	0.067	0.191	0.287									
NCS AH 11372	stainless steel 630(0Cr17Ni4CuNb)			0.050	0.079	0.255	0.007									
NCS AH 11374	stainless steel(CrMnN)		0.136	5.93	0.017	5.08										
NCS AH 11375	high speed tool steel(W6Mo5Cr4V2)			17.45	0.019	0.076		(0.003)								
NCS AH 11376	high speed tool steel(W18Cr4V)					0.063		0.056	0.011	0.019	0.049	0.039				
Number		Chemical Composition(Percent)												Unit Size		
Name		C	Si	Mn	P	S	Cr	Ni	Cu	V	Mo	Ti	Nb	Al	(mm)	
NCS AH 11386	High Chromium Cast Iron	2.96	0.87	1.18	0.047	0.053	13.57	0.559	0.546	0.175	0.346	0.02	0.025		Φ30×24	
NCS AH 11387	High Chromium Cast Iron	2.33	1.13	0.614	0.102	0.1	5.43	0.373	0.979	0.454	0.212	0.053	0.032	0.136	Φ30×24	
NCS AH 11394	Stainless Steel	0.116	0.417	0.392	0.024	0.029	12.11	0.124	0.126	0.031	0.059				Φ37×35	
NCS AH 11395	Alloy Steel	0.0025	0.0047	1.16	0.075	0.0038	0.02	0.005	0.015			0.021	0.019		Φ37×40	
NCS AH 11396	Carbon Steel	0.307	0.249	0.571	0.015	0.052	0.175	0.138	0.02	0.0019		0.012			Φ37×40	
		As	Co	Als	Alt	N	Ca									
NCS AH 11394	Stainless Steel		0.026			0.013										
NCS AH 11395	Alloy Steel			0.038	0.039											
NCS AH 11396	Carbon Steel	0.011	0.021	0.019	0.021		0.0022									
Number		Chemical Composition(Percent)												Unit Size		
Name		C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	Co	Alt	As	(mm)	
NCS AH 11399	Alloy Structure Steel	0.279	0.253	0.558	0.0088	0.0019	0.938	0.033	0.058	0.166	0.0053	0.0082	0.029	0.0058	D38×40	
NCS AH 11400	Spring Steel	0.665	0.257	0.909	0.016	0.016	0.073	0.038	0.099	0.018	0.0013	0.01		0.0063	D37×40	
		Sn														
NCS AH 11399	Alloy Structure Steel	0.004														
NCS AH 11400	Spring Steel	0.0047														
Number		Chemical Composition(Percent)												Unit Size		
Name		C	Si	Mn	P	S										(mm)
NCS AH 18305	Carbon Steel	0.094	0.229	0.55	0.015	0.018										Φ37×30
NCS AH 18306	Carbon Steel	0.196	0.223	0.465	0.014	0.012										Φ37×30
NCS AH 18307	Carbon Steel	0.455	0.22	0.582	0.021	0.01										Φ37×30
NCS AH 18310	Carbon Steel	0.689	0.279	0.581	0.008	0.015										Φ37×30
Number		Chemical Composition(Percent)												Unit Size		
Name		C	S	Mn	P	Si	Cr	Ni	Mo	Cu	V	Al	(mm)			
NCS AH 20304	60SiMnA	0.588	0.012	0.699	0.015	1.72	0.258	0.042		0.102		0.010	Φ42×40			
NCS AH 20305	50CrVA	0.497	0.018	0.629	0.011	0.253	0.944	0.062		0.122	0.143	0.020	Φ42×40			
NCS AH 20306	35CrMo	0.376	0.018	0.534	0.026	0.283	1.00	0.110	0.197	0.096		0.037	Φ42×40			
NCS AH 20307	12CrMoV	0.109	0.014	0.527	0.011	0.247	1.04	0.064		0.095	0.203	0.032	Φ42×40			
NCS AH 20309	40Cr	0.406	0.020	0.629	0.019	0.302	1.01	0.068		0.105		0.030	Φ42×40			

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Number	Name	Chemical Composition(Percent)													Unit Size (mm)
		C	Si	Mn	P	S	Cr	Mo	Cu	V	Ti	Al	Ni	Nb	
NCSAH 20311	Steel	0.0058	0.0049	0.031	0.0069	0.0064	0.015	(0.0004)	0.006	0.00014	0.00013	0.01	0.0047	(<0.0015)	Φ35×40
NCSAH 20312	Steel	0.011	0.179	0.19	0.049	0.0034	27.77	0.0095	0.022	0.032		0.046	0.34	0.11	Φ35×40
NCSAH 20313	Steel			10.34			8.52			0.44	0.91	0.83	6.51		Φ35×40
NCSAH 20314	Steel	0.262	2.65	2.27	0.007	0.041	0.973	2.9	0.396		0.019		25.14		Φ35×40
		B	W	N	Pb	Bi	Sb	As	Sn	Ca					
NCSAH 20311	Steel	<0.001	(<0.001)	0.0039	(<0.00015)	(<0.0001)	0.0002	0.0006	0.0005	(<0.0003)					
NCSAH 20312	Steel	0.0083	0.25		0.0042		0.008	0.0031	0.0019						
NCSAH 20313	Steel			0.044			0.007	0.018	(<0.0015)						
NCSAH 20314	Steel	0.001	0.028												
Number	Name	Chemical Composition(Percent)													Unit Size (mm)
		C	Si	Mn	P	S	Ni	Cr	Mo	V	Cu	Alt	B*	Ti*	
NCSAH 20317	SL9N590	0.072	0.30	1.13	0.006	0.021	8.84	0.21	0.056		0.048	0.026			Φ40×45
NCSAH 20318	20Mn23AlV	0.220	0.31	23.92	0.016	0.0056	0.02	0.054		0.124	0.016	2.57			Φ40×45
NCSAH20319	High phosphorus Steel	0.002	0.44	0.501	0.108	0.0021	0.0095	0.013	0.002	0.0003	0.0033	0.0006	0.0005	0.0002	Φ40×40
NCSAH20320	High Alloy steel	0.102	1.44	11.84	0.051	0.018	3.16	14.99	2.11	0.137	0.125	0.2			Φ38×36
		Co	Nb	As	Sn	N									
NCSAH20319	High phosphorus Steel	0.0016	0.0004	0.0029	0.0004										
NCSAH20320	High Alloy steel		0.361			0.175									
Number	Name	Chemical Composition(percent)													Unit Size (mm)
		C	S	Mn	P	Si	Cr	Ni	Mo	Cu	V	Sb	B		
NCSAH 21309	Middle Low Alloy	0.701	0.039	2.06	0.013	0.042	0.065	0.026	0.003	0.022	0.094	0.0034	0.0041		Φ40×40
NCSAH 21310	Stainless Steel	0.082	0.030	1.15	0.020	0.429	17.63	10.04	2.00	1.01	1.04				Φ40×40
NCSAH 21311	High Speed tool Steel	0.856	0.005	0.312	0.017	0.33	3.93	0.048	4.83	0.261	1.90				Φ40×40
NCSAH 21312	High Manganese Steel	0.297	0.117	16.24	0.033	0.48	0.69	0.43	0.506	0.208	0.23				Φ40×40
NCSAH 21313	High Speed tool Steel	0.75	0.002	0.16	0.017	0.282	4.20	0.041	0.10	0.137	0.17				Φ40×40
NCSAH 21314	Stainless steel	0.100	0.0022	19.56	0.0207	0.359	19.87	0.279	0.205	0.059					Φ40×40
NCSAH21315	High Alloy steel	0.029	0.056	6.92	0.012	0.3	23.86	8.98	3.26	0.6	0.38				Φ38×36
		Ti	Sn	Alt	W	Co	As	Nb	Ta	Ca	Al	N	B*		
NCSAH 20309	Middle Low Alloy		0.017	0.107	0.193	0.010	0.017	0.313	0.098	0.0009					
NCSAH 20311	High Speed tool Steel	0.17		0.36	6.25	4.86									
NCSAH 20312	High Manganese Steel	0.045		2.98	0.35	0.032									
NCSAH 20313	High Speed tool Steel		0.045		17.99	0.010	0.027								
NCSAH 21314	Stainless steel					0.021					0.008	0.66	<0.0005		
NCSAH21315	High Alloy steel			0.01				0.056				0.075			

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Number	Name	Chemical Composition(Percent)											Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Mo	V	Als	Alt	
NCS AH 28302	Stainless steel	0.322	0.613	0.83	0.018	0.017	8.63	0.148	0.016	0.014	0.023	0.027	Φ40×35
NCS AH 28303	Stainless steel	0.329	0.397	0.433	0.018	0.027	11.95	2.66	0.026	0.016	0.0019	0.0073	Φ40×35
NCS AH 28304	Stainless steel	0.193	0.905	0.49	0.022	0.01	19.4	6.48	0.021	0.029	0.034	0.037	Φ40×35
NCS AH 28305	Heat resisting alloy	0.392	2.41	0.508	0.019	0.022	10.09	0.247	1.09	0.015	0.0031	0.0057	Φ40×35
NCS AH 28308	Heat resisting alloy	0.182	0.865	0.37	0.019	0.025	17.3	1.33	0.023	0.021	0.0025	0.0061	Φ40×35
NCS AH 28309	Heat resisting alloy	0.178	0.542	2.37	0.023	0.0084	22.71	16.2	0.0071	0.031	0.045	0.053	Φ40×35
NCS AH 28320	38CrMoAl	0.436	0.207	0.495	0.016	0.026	1.51	0.127	0.182	0.0037	1.06	1.1	Φ40×35
NCS AH 28321	38CrMoAl	0.411	0.357	0.502	0.014	0.0013	1.52	0.118	0.112	0.0051	0.557	0.56	Φ40×35
NCS AH 28322	60Si ₂ W	0.582	1.72	1.03	0.024	0.02	0.301	0.304	0.017	0.0037	0.011	0.012	Φ40×35
NCS AH 28323	60Si ₂ W	0.615	1.99	0.868	0.025	0.036	0.095	0.119	0.019	0.0022	0.017	0.02	Φ40×35
NCS AH 28324	4Cr10NiCuTi	0.37	0.862	0.889	0.018	0.016	10.83	0.17	0.015	0.017	0.014	0.02	Φ40×35
NCS AH 28325	1Cr13	0.151	0.572	0.681	0.02	0.035	11.55	0.398	0.017	0.015	0.0048	0.015	Φ40×35
NCS AH 28326	2Cr13	0.207	0.472	0.594	0.02	0.026	14.27	0.867	0.026	0.021	0.0017	0.0064	Φ40×35
NCS AH 28327	Cr18	0.433	0.693	0.933	0.019	0.014	18.52	0.176	0.013	0.028	0.011	0.015	Φ40×35
NCS AH 28328	Cr21Ni5Ti	0.129	0.97	0.599	0.048	0.012	22.53	6.01	0.013	0.037	0.144	0.148	Φ40×35
NCS AH 28329	Cr23Ni18	0.124	1.19	0.934	0.021	0.017	22.23	18.25	0.0023	0.035	0.053	0.062	Φ40×35
		Cu	Co	W	Ti	As	B	Sn	Sb	Zn			
NCS AH 28302	Stainless steel	0.47	0.019	0.004	0.076	0.0054	0.0002	0.0037	0.0018	0.0034			
NCS AH 28303	Stainless steel	0.08	0.057	0.0031	0.029	0.0049		0.0049	0.0016	0.0018			
NCS AH 28304	Stainless steel	0.079	0.095	0.0052	0.206	0.0046		0.0028	0.0015	0.0016			
NCS AH 28305	Heat resisting alloy	0.093	0.019	0.0065	0.0032	0.0054		0.0047	0.0021	0.0009			
NCS AH 28308	Heat resisting alloy	0.074	0.051	0.0032	0.0011	0.0051		0.004	0.0016	0.002			
NCS AH 28309	Heat resisting alloy	0.058	0.186	0.0034	0.051	0.0038		0.0023	0.0006	0.0036			
NCS AH 28320	38CrMoAl	0.096	0.0085	0.0069	0.0023								
NCS AH 28321	38CrMoAl	0.118	0.0084	0.005	0.0066								
NCS AH 28322	60Si ₂ W	0.091	0.0091	1.37	0.0037								
NCS AH 28323	60Si ₂ W	0.098	0.0056	0.682	0.0063								
NCS AH 28324	4Cr10NiCuTi	0.275	0.022	0.0053	0.06								
NCS AH 28325	1Cr13	0.078	0.034	0.0049	0.036								
NCS AH 28326	2Cr13	0.077	0.039	0.0044	0.01								
NCS AH 28327	Cr18	0.095	0.034	0.0052	0.043								
NCS AH 28328	Cr21Ni5Ti	0.106	0.089	0.011	0.853								
NCS AH 28329	Cr23Ni18	0.021	0.206	0.003	0.011								

Section 11 Set-up Sample 1) Iron, Steel & Alloy (Disk)

Number	Name	Chemical Composition(Percent)													Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	Ti	Alt	As	
NCS AH 28330	15CrMo	0.164	0.222	0.540	0.011	0.0028	0.98	0.045	0.040	0.472	0.0067	0.0023	0.020	0.0078	Φ40×40
NCS AH 28331	Steel	0.062	0.849	1.49	0.011	0.011	0.012	0.0040	0.0098	0.001	0.0012	0.0019	0.002	0.0058	Φ40×40
NCS AH 28332	Steel	0.254	0.293	0.305	0.012	0.0020	0.93	0.183	0.016	0.205	0.040	0.030	0.033	0.0043	Φ40×40
NCS AH 28333	Q460	0.164	0.323	1.44	0.019	0.0091	0.016	0.012	0.015	0.0017	0.019	0.019	0.033	0.0067	Φ40×40
NCS AH 28334	Q345	0.158	0.309	1.45	0.017	0.0033	0.035	0.019	0.022	0.0085	0.030	0.018	0.035	0.0073	Φ40×40
NCS AH 28335	Q550	0.170	0.221	1.34	0.019	0.0079	0.224	0.013	0.016	0.0067	0.0025	0.020	0.025	0.0075	Φ40×40
NCS AH 28336	Q690	0.164	0.174	1.04	0.013	0.0067	0.194	0.014	0.017	0.108	0.0023	0.016	0.023	0.0076	Φ40×40
NCS AH 28337	20MnSiV	0.250	0.435	1.31	0.022	0.015	0.013	0.0064	0.014	0.001	0.047	0.0017	0.002	0.010	Φ40×40
			Nb	Sn	B	Co									
NCS AH 28333	Q460	0.018			0.0003										
NCS AH 28334	Q345	0.036			0.0008										
NCS AH 28335	Q550				0.0020										
NCS AH 28336	Q690				0.0014										
NCS AH 28337	20MnSiV		0.0007		0.0044										
Number	Name	Chemical Composition(Percent)													Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	Ti	Alt	As	
NCS AH28338	Q235(15#)	0.129	0.254	0.468	0.030	0.035	0.063	0.050	0.153	0.011	0.002	0.0016	0.003	0.0082	Φ40×40
NCS AH28339	45#	0.453	0.272	0.604	0.022	0.016	0.044	0.039	0.141	0.0066	0.002	0.0012	0.005	0.0060	Φ40×40
NCS AH28340	20CrMo	0.204	0.226	0.503	0.020	0.019	0.909	0.050	0.181	0.192	0.003	0.0011	0.014	0.0080	Φ40×40
NCS AH28341	15Mn	0.166	0.216	0.815	0.012	0.0048	0.065	0.0089	0.013	0.0011	0.002	0.014	0.028	0.0028	Φ40×40
NCS AH28342	20Mn	0.182	0.208	0.801	0.012	0.0064	0.033	0.0085	0.012	0.0014	0.002	0.0019	0.017	0.0018	Φ40×40
NCS AH28343	65Mn	0.620	0.288	0.942	0.024	0.027	0.074	0.036	0.123	0.0064	0.003	0.0021	0.004	0.0067	Φ40×40
NCS AH28344	M20Mn	0.195	0.272	1.18	0.015	0.015	0.083	0.132	0.222	0.017	0.001	0.024	0.042	0.0088	Φ40×40
NCS AH28345	30CrMnTi	0.266	0.317	0.929	0.013	0.014	1.13	0.082	0.148	0.011	0.004	0.071	0.020	0.0073	Φ40×40
NCS AH28346	60Si2Mn	0.574	1.76	0.792	0.020	0.014	0.024	0.019	0.011						Φ40×40
NCS AH28347	ER50-6	0.076	0.90	1.49	0.020	0.011	0.024	0.0059	0.0076						Φ40×40
NCS AH28348	SAE1215	0.065	0.013	1.31	0.056	0.364	0.023	0.0082	0.010						Φ40×40
			Co												
NCS AH28338	Q235(15#)	0.011													
NCS AH28339	45#	0.011													
NCS AH28340	20CrMo	0.013													
NCS AH28341	15Mn	0.0048													
NCS AH28342	20Mn	0.0040													
NCS AH28343	65Mn	0.011													
NCS AH28344	M20Mn	0.011													
NCS AH28345	30CrMnTi	0.012													
Number	Name	Chemical Composition(Percent)													Unit Size (mm)
		C	S	Mn	P	Si	Cr	Ni	Mo	Cu	V	B	Nb		
NCS AH 93303	Low Alloy Steel	0.120	0.014	0.258	0.013	0.120	0.022	0.034		0.122					Φ35×50
NCS AH 93304	Low Alloy Steel	0.172	0.060	0.400	0.018	0.143	0.033	0.041		0.110					Φ35×50
NCS AH 93305	Low Alloy Steel	0.251	0.022	0.518	0.023	0.280	0.041	0.042		0.110					Φ35×50
NCS AH 93306	Low Alloy Steel	0.310	0.031	0.870	0.051	0.480	0.280	0.120		0.355					Φ35×50
NCS AH 93307	Low Alloy Steel	0.458	0.017	0.582	0.022	0.188	0.036	0.042		0.132					Φ35×50
NCS AH 93308	Low Alloy Steel	0.512	0.010	0.690	0.022	0.352	0.077	0.060		0.154					Φ35×50
NCS AH 93309	Low Alloy Steel	0.375	0.047	1.84	0.053	0.770	0.290	0.290		0.225					Φ35×50
NCS AH 93310	Low Alloy Steel	0.182	0.036	1.23	0.028	0.460	0.045	0.040		0.128					Φ35×50
NCS AH 93323	Line Pipe Steel	0.042	0.0028	1.582	0.0078	0.187	0.04	0.175	0.272	0.172	0.04	0.00019	0.03		Φ35×50
			Ti	Al	Ca										
NCS AH 93323	Low Alloy Steel	0.024		0.03	0.00034										

Section 11 Set-up Sample 1) Iron, Steel & Alloy (Disk)

Number	Name	Chemical Composition(Percent)													Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V	Ti	W	Al	
NCS AH37301	High Manganese Steel	1.24	0.314	12.47	0.061	0.021	1.91	1.11	0.500	0.023	0.162	0.014	0.301		Φ36×36
NCS AH37302	High Manganese Steel	1.28	0.508	13.77	0.057	0.0056	2.42	2.09	1.00	0.041	0.049	0.056	0.004		Φ36×36
NCS AH37303	High Manganese Steel	1.20	0.351	24.20	0.060	0.0031	1.86	1.65	1.01	0.037	0.049	0.066	0.040		Φ36×36
NCS AH37304	High Manganese Steel	1.05	0.70	12.07	0.037	0.016	1.72	0.026			0.014				Φ36×36
NCS AH37305	High Manganese Steel	0.532	0.091	3.76	0.018	0.008	0.459	0.091	0.397		0.030	0.008	0.140	0.004*	Φ34×34
NCS AH37306	High Manganese Steel	0.734	0.254	6.02	0.019	0.012	0.941	0.582	0.735		0.088	0.027	0.313	0.010*	Φ34×34
NCS AH37307	High Manganese Steel	0.780	0.609	9.84	0.028	0.021	1.56	1.62	1.08		0.232	0.092	0.494	0.019*	Φ34×34
NCS AH37308	High Manganese Steel	1.07	0.733	13.97	0.055	0.016	1.89	2.43	1.39		0.311	0.124	0.762	0.023*	Φ34×34
NCS AH37309	High Manganese Steel	1.25	0.949	17.76	0.075	0.027	2.17	3.17	1.69		0.294	0.182	1.05	0.020*	Φ34×34
NCS AH37310	High Manganese Steel	1.10	0.67	22.39	0.020	0.004	1.23	1.69	0.58		0.082	0.088	0.49	0.023*	Φ36×36
NCS AH37311	High Manganese Steel	1.13	0.69	17.93	0.020	0.008	1.45	1.68	0.58		0.108	0.101	0.53	0.019*	Φ36×36
NCS AH37312	High Manganese Steel	1.12	0.70	13.20	0.026	0.007	1.76	1.59	0.70		0.107	0.127	0.65	0.026*	Φ36×36
Number	Name	Chemical Composition(Percent)													Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V	W	Co	N	
NCS AH37313	Stainless Steel	0.098	0.100	8.54	0.035	0.008	17.27	3.88		0.272			0.114	0.076	Φ36×36
NCS AH37314	Stainless Steel	0.132	0.77	8.44	0.044	0.016	16.78	5.42		1.115			0.150	0.101	Φ36×36
NCS AH37315	Stainless Steel	0.138	0.47	0.97	0.028	0.018	16.20	6.19		0.189			0.093	0.128	Φ36×36
NCS AH37316	Stainless Steel	0.081	0.72	1.45	0.029	0.013	18.29	8.03		0.093			0.139	0.069	Φ36×36
NCS AH37317	Stainless Steel	0.106	0.41	1.72	0.027	0.024	24.37	19.13		0.100			0.114	0.078	Φ36×36
NCS AH37318	Stainless Steel	0.538	0.202	8.49	0.018	0.0063	20.31	3.50	0.056	0.033	0.067	0.034	0.034	0.463	Φ36×36
NCS AH37319	Stainless Steel	0.036	0.363	0.807	0.043	0.0096	16.19	10.27	2.02	0.479	0.062	0.054	0.159	0.054	Φ36×36
NCS AH37320	Stainless Steel	0.017	0.290	1.04	0.048	0.031	16.06	10.07	2.01	0.630	0.071	0.040	0.207	0.040	Φ36×36
NCS AH37321	Stainless Steel	0.020	0.338	1.10	0.068	0.049	15.93	10.11	2.03	0.367	0.059	0.089	0.722	0.028	Φ36×36
		Nb													
NCS AH37318	Stainless Steel	0.066													
NCS AH37319	Stainless Steel	0.011													
Number	Name	Chemical Composition(Percent)													Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V	Ti	W	Al	
NCS AH37322	316L	0.032	0.78	1.45	0.026	0.019	16.14	10.30	2.28	0.026					Φ36×36
NCS AH37323	304	0.075	0.77	1.44	0.033	0.025	18.56	8.49	0.089	0.225					Φ36×36
NCS AH37324	OCr18Ni10Ti	0.086	0.84	1.45	0.032	0.014	17.45	9.26	0.040	0.16		0.56			Φ36×36
NCS AH37325	1Cr18Ni9Ti	0.134	1.06	1.51	0.033	0.021	17.01	8.56	0.062	0.16		0.61			Φ36×36
NCS AH37326	1Cr13	0.144	0.56	0.71	0.038	0.028	12.07	0.184		0.207					Φ36×36
NCS AH37327	2Cr13	0.232	0.82	0.80	0.042	0.027	12.42	0.68	0.073	0.12					Φ36×36
NCS AH37328	High Manganese Steel	0.78	0.60	9.84	0.028	0.016	1.56	1.62	1.08		0.232	0.092	0.49	0.019*	Φ36×36
NCS AH37329	High Manganese Steel	1.25	0.95	17.76	0.076	0.015	2.17	3.17	1.69		0.294	0.182	1.05	0.020*	Φ36×36
		Co													
NCS AH37322	316L	0.039													
NCS AH37323	304	0.17													
NCS AH37324	OCr18Ni10Ti	0.17													
NCS AH37325	1Cr18Ni9Ti	0.16													
NCS AH37326	1Cr13	0.017													
NCS AH37327	2Cr13	0.030													

Section 11 Set-up Sample

1) Iron, Steel & Alloy (Disk)

Number	Name	Chemical Composition(%)												Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Mo	V	Cu	Co	Nb	
NCS AH 11117	Low alloy steel	0.409	1.69	0.74	0.0039	0.0005	0.855	1.81	0.41	0.073	0.015	0.0034	(0.0003)	38×40
NCS AH11118	Alloy structure steel	0.164	0.261	(0.38)	0.0066	0.0019	1.09	4.17	0.261	0.0017	0.037	0.007	(0.0003)	38×40
NCS AH11119	Carbon structure steel	0.182	0.112	0.353	0.016	0.0055	0.023	0.0059		(0.0018)	0.013			36×40
NCS AH11120	Alloy Structure steel	0.472	0.344	0.623	0.018	0.002	1.01	1.61	0.256	0.163	0.107			37×40
NCS AH11121	Alloy structure steel	0.187	0.086	1.3	0.009	0.023	1.27	0.204	0.097	0.0047	0.041	0.0058		37×40
NCS AH11122	Alloy structure steel	0.194	0.244	0.594	0.0082	0.0016	0.93	0.05	0.167	0.0048	0.107	0.0079		37×40
NCS AH 11123	Alloy structure steel	0.222	0.736	1.63	0.018	0.02	0.052	0.045	0.012	0.126	0.025	0.0016	0.043	37×40
NCS AH 11124	Alloy structure steel	0.181	0.501	0.496	0.0099	0.0017	0.988	0.028	0.79	0.548	0.02		0.143	38×35
NCS AH 11125	Alloy structure steel	0.446	0.242	0.745	0.011	0.0063	0.169	0.072	0.216	0.0014	0.112	0.016		38×35
NCS AH 11126	Alloy structure steel	0.39	0.244	0.747	0.01	0.0072	0.772	1.702	0.215	0.0043	0.013	0.024		38×35
NCS AH 11127	Bearing steel	0.993	0.55	1.09	0.016	0.0011	1.49	0.023	0.0024	0.0046	0.086	0.016		37×40
NCS AH 11128	Gear steel	0.186	0.243	0.97	0.012	0.0016	1.17	0.016	0.0059	0.0047	0.03	0.0046		38×40
NCS AH 11129	Gear steel	0.206	0.248	0.85	0.012	0.026	0.5	0.51	0.205	0.0025	0.021	0.0031		38×40
NCS AH 11130	Alloy steel	0.11	0.342	1.43	0.016	0.011	0.059	0.017	0.033	0.016	0.025	0.011	0.057	37×40
NCS AH 11131	Stainless steel	0.05	0.484	1.12	0.033	0.0019	17.93	9.66	0.245	0.099	0.165	0.152	0.466	37×35
NCS AH11132	Alloy steel	0.093	0.288	0.469	0.016	0.0013	8.79	0.064	0.94	0.198	0.058	0.013	0.066	37×40
NCS AH11132a	Alloy steel	0.095	0.349	0.488	0.011	0.0023	8.72	0.067	0.95	0.209	0.021	0.014	0.075	37×40
NCS AH11132b	Alloy steel	0.095	0.279	0.457	0.012	0.0029	8.75	0.133	0.95	0.212	0.039	0.014	0.069	37×40
NCS AH11133	Pipeline steel	0.109	0.229	0.547	0.012	0.0019	8.73	0.317	0.407	0.192	0.049	0.015	0.055	37×35
NCS AH11133a	Pipeline steel	0.131	0.247	0.541	0.011	0.0028	8.7	0.313	0.411	0.194	0.045	0.024	0.052	37×35
NCS AH11134	Alloy steel	0.101	0.65	0.424	0.01	0.0031	1.21	0.037	0.488	0.007	0.017	0.0058		37×40
NCS AH11134a	Alloy steel	0.101	0.625	0.447	0.01	0.0021	1.17	0.052	0.483	0.0074	0.03	0.007		37×40
		Als	Alt	Sn	B	As	Ti	Ca	W	N	Pb	Sb	Bi	
NCS AH 11117	Low alloy steel	0.0054	0.006	0.001	(0.0003)	0.0042	0.0016							
NCS AH11118	Alloy structure steel	0.038	0.039	0.0032	0.0005	0.0066	0.001		0.0023					
NCS AH11119	Carbon structure steel	0.035	0.038					0.0025		0.0035				
NCS AH11120	Alloy Structure steel								0.107	0.0084				
NCS AH11121	Alloy structure steel	0.027	0.028	0.0031		0.0037	0.0011			0.017				
NCS AH11122	Alloy structure steel	0.021	0.021	0.012		0.0075	0.0024			0.0057				
NCS AH 11123	Alloy structure steel	0.027	0.031	0.0085	0.0041	0.0096	0.0016	0.0002*		0.0099	0.0005	0.0048	<0.0001#	
NCS AH 11124	Alloy structure steel	0.027	0.027	0.0011	0.0027	0.0046								
NCS AH 11125	Alloy structure steel	0.013	0.015	0.0061	0.0004	0.0073	0.0014		0.015					
NCS AH 11126	Alloy structure steel	0.018	0.019	0.0006	0.0004	0.0042	0.0041							
NCS AH 11127	Bearing steel	0.015	0.015	0.018	0.0004		0.0038				<0.0005#			
NCS AH 11128	Gear steel	0.019	0.021	0.0032		0.0044	0.066			0.005				
NCS AH 11129	Gear steel	0.026	0.027	0.0023		0.0039	0.0017			0.0067		(0.0006)		
NCS AH 11130	Alloy steel	0.012	0.019			0.0067	0.019	0.0005*	0.051	0.045				
NCS AH 11131	Stainless steel													
NCS AH11132	Alloy steel									0.038				
NCS AH11132a	Alloy steel		0.004							0.038				
NCS AH11132b	Alloy steel		0.005											
NCS AH11133	Pipeline steel	0.0028	0.0041	0.0074	0.0019	0.0055	0.0006*	0.0005	1.72	0.047	<0.0001#	0.0019	<0.0001#	
NCS AH11133a	Pipeline steel	0.0041	0.0053	0.0051	0.0023	0.0054	0.0008	0.0006	1.72	0.044	<0.0001#	0.0009*	<0.0001#	
NCS AH11134	Alloy steel		0.01											
NCS AH11134a	Alloy steel		0.011											

Section 11 Set-up Sample 1) Iron, Steel & Alloy (Disk)

Number	Name	Chemical Composition(%)											Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Mo	V	Cu	Co	
NCS AH11134b	Alloy steel	0.102	0.668	0.475	0.0082	0.0015	1.18	0.038	0.5	0.0061	0.036	0.0056	37×40
NCS AH 11135	Alloy steel	0.113	0.223	0.503	0.011	0.0075	0.99	0.02	0.48	0.0057	0.045	0.007	37×40
NCS AH 11135a	Alloy steel	0.111	0.252	0.412	0.011	0.0036	0.94	0.08	0.48	0.0051	0.056	0.0099	37×40
NCS AH 11136	Alloy steel	0.103	0.286	0.455	0.011	0.0031	2.22	0.025	0.99	0.012	0.023	0.0083	37×40
NCS AH 11136a	Alloy steel	0.094	0.22	0.442	0.0094	0.0034	2.26	0.042	0.93	0.0069	0.11	0.01	37×40
NCS AH11137	Cast Iron	3.41	1.89	0.48	0.043	0.033	0.235	0.215	0.12	0.154	0.215	0.032	30×25
NCS AH11138	Cast Iron	3.74	2.48	0.271	0.049	0.019	0.216	0.141	0.17	0.178	0.427	0.0047	30×25
NCS AH11139	Low Silicon Pig Iron	4.22	0.057	0.108	0.068	0.029	0.044	0.019			0.0068		35×22
NCS AH11326c	Alloy Structure Steel	0.213	0.235	0.932	0.0079	0.0025	1.15	0.014		0.0045	0.011		38×40
NCS AH11326d	Alloy Steel	0.211	0.232	0.929	0.0083	0.0029	1.14	0.013		0.0045	0.01		37×40
NCS AH18304	Carbon Steel	0.669	0.273	0.571	0.012	0.015							37×30
NCS AH18305	Carbon Steel	0.094	0.229	0.55	0.015	0.018							37×30
NCS AH18306	Carbon Steel	0.196	0.223	0.465	0.014	0.012							37×30
NCS AH18307	Carbon Steel	0.455	0.22	0.582	0.021	0.01							37×30
		Als	Alt	Sn	B	As	Ti	W	N	Al			
NCS AH11134b	Alloy steel												
NCS AH 11135	Alloy steel		0.01										
NCS AH 11135a	Alloy steel												
NCS AH 11136	Alloy steel		0.007										
NCS AH 11136a	Alloy steel								0.0075				
NCS AH11137	Cast Iron	0.033	0.035	0.036	0.018	0.099	0.033	0.332					
NCS AH11138	Cast Iron	0.095	0.096	0.093	0.054	0.024	0.02	0.433					
NCS AH11139	Low Silicon Pig Iron						0.019			0.059			
NCS AH11326c	Alloy Structure Steel						0.07						
NCS AH11326d	Alloy Steel	0.016	0.017				0.069						
Number	Name	Chemical Composition(%)											Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Mo	V	Cu	Co	
NCS AH18310	Carbon Steel	0.689	0.279	0.581	0.008	0.015							37×30
NCS AH18312	Carbon Steel	0.558	0.218	0.665	0.019	0.0084							38×35
NCS AH37330	Structural alloy steel	0.245	1.26	1.27	0.026	0.016	0.276	0.084			0.022		38×38
NCS AH37331	Structural alloy steel	0.178	0.394	0.951	0.027	0.098	0.11	0.124			0.022		38×38
NCS AH37332	Stainless Steel	0.031	0.497	0.548	0.035	0.007	10.97	0.424	0.011	0.066	0.06	0.021	36×36
NCS AH37333	High Manganese Steel	1.23	0.428	12.46	0.061	0.009	1.72	3.34	0.951	0.085	0.017		36×36
NCS AH37334	High Manganese Steel	1.2	0.655	16.9	0.051	0.011	2.2	0.2	0.18	0.253	0.024		36×36
NCS AH37335	High Manganese Steel	1.3	0.457	18.7	0.048	0.007	2	0.593	0.249	0.201	0.021		36×36
		Nb	As	Ti	W	N	Al	Ce	La				
NCS AH18310	Carbon Steel												
NCS AH18312	Carbon Steel		0.019										
NCS AH37330	Structural alloy steel						(0.061)						
NCS AH37331	Structural alloy steel						(0.102)						
NCS AH37332	Stainless Steel			0.362		0.017							
NCS AH37333	High Manganese Steel	0.108		0.064		0.024	0.022	0.029	0.017				
NCS AH37334	High Manganese Steel	0.085		0.125	0.091	0.021	0.018	0.027	0.014				
NCS AH37335	High Manganese Steel	0.077		0.006	0.077	0.024	0.011*	0.011					

Section 11 Set-up Sample

1) Iron, Steel & Alloy (Disk)

Number	Name	Chemical Composition(Percent)														Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Cu	Als	Alt	As	Sn	Mo		
NCS AH11101	Carbon Steel	0.033	0.029	0.299	0.019	0.011	0.028	0.0053	0.021	0.046	0.048	0.0059	0.006	0.0014	Φ37×40	
NCS AH11102	Carbon Steel	0.213	0.075	0.77	0.013	0.0021	0.015	0.0056	0.017	0.044	0.045	0.016	0.0059	0.0009	Φ37×40	
NCS AH11103	Carbon Steel	0.189	0.055	0.76	0.018	0.0016	0.021	0.0057	0.015	0.039	0.04	0.011	0.0081	0.0009	Φ37×40	
NCS AH11104	Stainless steel	0.237	0.143	0.88	0.018	0.0027	11.55	0.725	0.048				0.0028	0.98	Φ37×40	
NCS AH11105	Mold steel	1.55	0.41	0.384	0.018	0.001	11.94	0.17	0.035				0.0016	0.846	Φ37×40	
NCS AH11106	Tool steel	0.811	0.285	0.365	0.022	0.0016	3.98	0.114	0.083					3.15	Φ37×40	
NCS AH11107	Tool steel	1.1	0.29	0.298	0.018	0.001	3.79	0.215	0.087					9.6	Φ37×40	
NCS AH11108	Low Alloy Steel	0.0023	0.0082	0.475	0.042	0.0047	0.018	0.0054	0.0077	0.038	0.038				Φ37×40	
NCS AH11109	Low Alloy Steel	0.087	1.17	1.96	0.014	0.0017	0.015	0.0055	0.0071	0.044	0.045				Φ37×40	
NCS AH11110	Heat resistant Steel	0.114	0.202	0.337	0.01	0.0017	8.81	0.161	0.112		0.0015	0.0071	0.0064	0.382	Φ37×40	
NCS AH11111	Gray Cast Iron	3.78	2.73	0.606	0.053	0.02	0.7	0.856	0.526				0.032	0.359	Φ31×30	
NCS AH11112	Gray Cast Iron	3.95	2.3	0.511	0.055	0.014	0.251	0.141	0.487				0.055	0.474	Φ31×30	
NCS AH11113	Silicon Steel	0.055	3.44	0.112	0.019	0.025	0.053	0.04	0.02	0.011	0.012		0.049	0.0033	Φ37×40	
NCS AH11114	Silicon Steel	0.068	2.71	0.1	0.023	0.003	0.324	0.341	0.013	0.0064	0.0073	0.003	0.056	0.0066	Φ37×40	
NCS AH11115	Alloy Steel	0.545	1.24	0.717	0.0076	0.017	0.703	0.102	0.0067			0.0026			Φ37×40	
NCS AH11116	Alloy Steel	0.145	0.144	1.46	0.011	0.0006	0.017	0.0068	0.012	1.5	1.5	0.0017	0.0015	0.0032	Φ37×40	
		B	Ca	V	W	Co	Ti	Nb	N	Sb	Als#	Zr#	Al	Mg	Bt	Bs
NCS AH11101	Carbon Steel	0.0002	0.0015													
NCS AH11102	Carbon Steel	0.0004	0.0021													
NCS AH11103	Carbon Steel	0.0003	0.0015													
NCS AH11104	Stainless steel			0.263	1.01	0.109										
NCS AH11105	Mold steel			0.819	0.088	0.034	0.0058	0.061								
NCS AH11106	Tool steel			1.55	8.73	0.136										
NCS AH11107	Tool steel			1.14	1.27	7.94										
NCS AH11108	Low Alloy Steel	0.0003	0.00013				0.0005	0.0092	0.0018							
NCS AH11109	Low Alloy Steel	0.00016	0.0004				0.0034	0.00015	0.0026							
NCS AH11110	Heat resistant Steel	0.0034		0.184	1.67	0.021	0.0004	0.048	0.047	0.0025	<0.001	<0.0005				
NCS AH11111	Gray Cast Iron			0.018			0.117			0.025			0.042	(0.034)		
NCS AH11112	Gray Cast Iron			0.312			0.117						0.014	0.032		
NCS AH11113	Silicon Steel			0.097			0.0033	0.072							0.0053	0.0034
NCS AH11114	Silicon Steel			0.0033			0.053	0.002								
NCS AH11115	Alloy Steel			0.0017			0.028									
NCS AH11116	Alloy Steel			0.0013			0.0037									
		Chemical Composition(%)														
Number	Name	C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	Alt	Als	Co	Unit Size (mm)	
NCS AH11140	Stainless Steel	0.017	0.394	0.66	0.035	0.0014	16.31	11.11	0.281	2.1	0.065	0.016		0.132	D37×35	
NCS AH11141	9Mn2V	0.87	0.23	1.8	0.013	0.011	0.085	0.037	0.094	0.013	0.15	0.018	0.017	0.011	D37×35	
NCS AH11142	Alloy structure steel	0.152	0.234	1.15	0.0075	0.0043	0.054	0.025	0.06	0.022	0.054	0.017			ø38×40	
NCS AH11143D	Steel	0.249	0.343	1.38	0.026	0.025	0.03	0.009	0.031		0.028			0.0032	ø38×40	
NCS AH11143E	Steel	0.204	0.294	1.28	0.02	0.032	0.03	0.011	0.029		0.031			0.0034	ø38×40	
NCS AH11144	Q460D	0.135	0.266	1.32	0.0094	0.0012	0.082	0.019	0.015	0.0037	0.042	0.037	0.035	0.0029	ø38×35	
NCS AH11145	16MnCr5	0.156	0.188	1.15	0.013	0.024	1.05	0.054	0.05	0.017	0.0063	0.04	0.038	0.01	ø38×35	
NCS AH11146	34CrNi3Mo	0.381	0.276	0.698	0.0084	0.0025	0.98	3.06	0.045	0.298	0.0063	0.0045	0.003	0.0064	ø38×35	
		Ti	W	Sn	As	N	B									
NCS AH11140	Stainless Steel	0.223														
NCS AH11141	9Mn2V		0.011													
NCS AH11142	Alloy structure steel															
NCS AH11143D	Steel			0.0047	0.0067	0.013										
NCS AH11143E	Steel			0.0036	0.0048	0.0095										
NCS AH11144	Q460D						0.0003									
NCS AH11145	16MnCr5			0.013	0.0053											
NCS AH11146	34CrNi3Mo			0.0032												

Section 11 Set-up Sample

1) Iron, Steel & Alloy (Disk)

Number	Name	Chemical Composition(%)													Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Mo	V	Cu	Co	Als	Alt	
NCSAH11147	H08Mn2Si	0.175	1.39	2.14	0.0013	0.0009	0.0079	0.0061	0.0026	(0.0004)	0.0047	0.0021	0.031	0.032	ø38×35
NCSAH11148	20Mn	0.185	0.435	0.852	0.012	0.0078	0.276	0.264	0.172	0.193	0.194	0.0066	0.195	0.203	ø38×35
NCSAH11149	25CrMnMo	0.285	0.227	1.4	0.02	0.0035	0.46	0.024	0.051	0.0038	0.06	0.006	0.019	0.02	ø38×35
NCSAH11150	14MnVNb	0.15	0.31	1.22	0.013	0.0043	0.092	0.022	0.021	0.067	0.069		0.037	0.039	ø38×35
NCSAH11151	09MnNb	0.1	0.335	1.23	0.01	0.0022	0.057	0.027	0.01		0.07		0.027	0.028	ø38×35
NCSAH11152	28MnCr	0.271	0.27	1.45	0.011	0.0065	0.271	0.026	0.01		0.057		0.021	0.022	ø38×35
NCSAH11153	29Mn5	0.284	0.264	1.46	0.013	0.0046	0.074	0.021	0.011		0.054		0.011	0.012	ø38×35
NCSAH11154	20Cr3Mo3S	0.174	0.261	0.556	0.0092	0.0014	3.07	0.031	0.315	0.012	0.05	0.011	0.02	0.021	ø38×35
NCSAH11155	22CrMo8V	0.225	0.244	0.452	0.0081	0.0029	0.961	0.025	0.796	0.145	0.063		0.017	0.019	ø38×35
NCSAH11156	26CrMo7S	0.245	0.22	0.465	0.01	0.0018	0.563	0.026	0.77	0.083	0.05		0.023	0.025	ø38×35
NCSAH11157	45Mn2	0.461	0.207	1.58	0.014	0.0098	0.077	0.025	0.013	0.0018	0.069	0.0061			ø38×35
NCSAH11158	20Cr1MoVTiB	0.176	0.537	0.498	0.015	0.0015	1.13	0.143	0.79	0.541	0.11	0.03	0.016	0.019	ø38×35
NCSAH11159	15Cr	0.199	0.272	0.659	0.022	0.0057	0.845	0.035	0.0074	0.0043	0.132	0.019	0.0077	0.011	ø38×35
NCSAH11160	45Cr	0.439	0.357	0.637	0.0069	0.0012	1.25	0.019			0.012	0.0036	0.011	0.011	ø38×35
		As	Sn	B	Ti	La	Ce	Bi	N	Nb	Ca	Pb	W		
NCSAH11147	H08Mn2Si		0.0013	0.0006											
NCSAH11148	20Mn	0.016	0.0076		0.246	0.0091	0.0095								
NCSAH11149	25CrMnMo	0.0087		0.0011	0.0025				0.0067						
NCSAH11150	14MnVNb	0.0074	0.0037		0.014					0.043					
NCSAH11151	09MnNb	0.0077	0.0042		0.011			<0.0005*			0.002				
NCSAH11152	28MnCr	0.0078	0.0039	0.0011				<0.0005*							
NCSAH11153	29Mn5	0.0077	0.0035	0.0011	0.02										
NCSAH11154	20Cr3Mo3S	0.009	0.003	0.0014	0.01										
NCSAH11155	22CrMo8V	0.0079	0.0045										0.0002*		
NCSAH11156	26CrMo7S	0.0081								0.03			0.0002*		
NCSAH11157	45Mn2	0.0082	0.0043		0.0027						0.0013				
NCSAH11158	20Cr1MoVTiB	0.0054		0.0033	0.173									0.0074	
NCSAH11159	15Cr	0.0052		(0.0002)	0.031										
NCSAH11160	45Cr			(0.0005)	0.0025										
Number	Name	Chemical Composition(%)													Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Mo	V	Cu	Co	Als	Alt	
NCSAH11161	34CrNiMo	0.323	0.176	0.522	0.012	0.0053	1.59	1.56	0.226	0.036	0.086	0.023	0.0052	0.011	ø38×35
NCSAH11162	15NiCuMoNb	0.125	0.287	0.95	0.012	0.0046	0.19	1.11	0.27	0.0018	0.58	0.0062	0.034	0.035	ø38×35
NCSAH11163	12Cr1MoV	0.103	0.228	0.528	0.01	0.0051	1.07	0.015	0.274	0.182	0.007	0.0031		0.0075	ø38×35
NCSAH11164	Q355	0.185	0.455	1.37	0.012	0.0032	0.034	0.016	0.0022	0.0013	0.013	0.0032		0.023	ø38×35
NCSAH11165	60Si2CrV	0.581	1.55	0.61	0.01	0.0033	1.03	0.014	0.0073	0.151	0.02	0.0039		0.009	ø38×35
NCSAH11166	40CrMnMo	0.372	0.227	0.964	0.015	0.0032	1.03	0.014	0.231	0.006	0.017	0.0033		0.038	ø38×35
NCSAH11167	45MnMo	0.44	0.263	0.759	0.0093	0.0065	0.097	0.061	0.217	0.0013	0.099	0.0072		0.017	ø38×35
NCSAH11168	42CrMo	0.405	0.22	0.635	0.012	0.006	1.06	0.019	0.19	0.007	0.014	0.0034		0.014	ø38×35
NCSAH11169	GCr15	0.955	0.265	0.352	0.017	0.0014	1.46	0.013	0.0037	0.0035	0.055	0.0021		0.014	ø38×35
NCSAH11170	35CrMo	0.355	0.237	0.546	0.012	0.004	0.942	0.0091	0.171	0.0062	0.011	0.0029		0.029	ø38×35
		As	Ti	W	Nb	Sn	Zn	B	N	Ca	Sb	Pb	W		
NCSAH11161	34CrNiMo	0.01	0.0051	0.018	0.0032	0.0086	0.012	0.0009							
NCSAH11162	15NiCuMoNb	0.01	0.0025		0.022				0.0063	0.0031					
NCSAH11163	12Cr1MoV	0.0049	0.0022												
NCSAH11164	Q355	0.004	0.015			0.001				0.0018					
NCSAH11165	60Si2CrV	0.0045	0.014	0.0082							0.0012				
NCSAH11166	40CrMnMo	0.002													
NCSAH11167	45MnMo	0.005	0.0015					0.0004		0.001					
NCSAH11168	42CrMo	0.0043	0.005												
NCSAH11169	GCr15	0.0025	0.0025												
NCSAH11170	35CrMo	0.0036	0.017												

Section 11 Set-up Sample 1) Iron, Steel & Alloy (Disk)

Number	Name	Chemical Composition(%)												Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	As	Als	
NCS AH11171	40Cr	0.4	0.247	0.66	0.016	0.0045	0.925	0.011	0.01	0.0019	0.0065	0.002		ø38×35
NCS AH11172	22MnB5	0.224	0.251	1.3	0.013	0.0006*	0.172	0.0045*	0.0061		0.0019	0.0018	0.049	Φ37×40
NCS AH11173	DP980	0.111	0.347	2.41	0.01	0.0014	0.474	0.0083	0.013	0.205	0.0041	0.0027	0.045	Φ37×40
NCS AH11174	Silicon Steel	0.0053	1.17	0.87	0.059	0.0021	0.021	0.011	0.0041			0.0066		Φ37×40
NCS AH11175	25Mn	0.237	0.215	0.87	0.0097	0.0056	0.055	0.031	0.077	0.015		0.0073		Φ38×40
NCS AH20321	Stainless Steel	0.058	0.516	1.17	0.029	0.015	17.94	8.08	0.24	0.204	0.069		0.03	Φ38×40
NCS AH21316	Stainless Steel	0.015	0.304	1.27	0.028	0.0033	16.01	10.11	0.175	2.18	0.1	0.0036		Φ38×35
		Alt	Ti	N	Co	Sn	Pb	Bi	Sb	Ca	B	Bt		
NCS AH11171	40Cr								0.0012					
NCS AH11172	22MnB5	0.051	0.032		0.0024	0.0004*	<0.0001#	<0.0001#	0.0003*	0.0015	0.003			
NCS AH11173	DP980	0.048	0.025	0.0052	0.0032	0.0052	<0.0001#							
NCS AH11174	Silicon Steel	0.373				0.0087								
NCS AH11175	25Mn					0.0042								
NCS AH20321	Stainless Steel	0.032		0.062	0.083					0.0014		0.0047		
NCS AH21316	Stainless Steel			0.028	0.209	0.012								
Number	Name	Chemical Composition(%)												Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	Ti	W	
NCS AH37337	High Chromium Cast Iron	2.95	0.97	0.719	0.077	0.024	13.89	0.806	0.448	0.683	0.135	0.035	0.172	Φ32×30
NCS AH37338	Free Cutting Steel	0.099	0.074	0.945	0.057	0.275	0.022	0.013	0.009					Φ36×36
NCS AH37339	Free Cutting Steel	0.143	0.102	1.04	0.062	0.321	0.025	0.016	0.011					Φ36×36
NCS AH37340	Free Cutting Steel	0.102	0.086	0.956	0.06	0.443	0.015	0.01	0.01					Φ36×36
NCS AH37341	Structural alloy steel	0.405	0.335	0.644	0.025	0.016	0.79	1.46	0.024	0.196				Φ36×36
NCS AH37342	Structural alloy steel	0.23	0.285	0.569	0.02	0.011	0.612	1.84	0.013	0.183				Φ36×36
NCS AH37343	Structural alloy steel	0.209	0.358	0.761	0.022	0.011	1.66	1.71	0.014	0.281				Φ36×36
NCS AH37344	High Chromium Cast Iron	3.95	0.569	1.26	0.018	0.051	33.42	0.098	0.005	0.029	0.17	0.02		Φ32×30
NCS AH37345	High Chromium Cast Iron	2.69	0.261	0.307	0.008	0.017	36.21	0.029	0.004	0.031	0.06			Φ32×30
NCS AH41318	Stainless Steel	0.015	0.39	0.43	0.031	0.015	17.2	0.13	0.077	0.84	0.082			Φ38×32
		Nb	Sn	Co	As	Pb	Al*	Al	As	N				
NCS AH37337	High Chromium Cast Iron	0.025	0.048	0.024	0.003									
NCS AH37338	Free Cutting Steel					0.183	0.088		0.009					
NCS AH37339	Free Cutting Steel					0.219	0.089		0.011					
NCS AH37340	Free Cutting Steel					0.108	0.103		0.012					
NCS AH37341	Structural alloy steel							(0.063)						
NCS AH37342	Structural alloy steel							(0.061)						
NCS AH37343	Structural alloy steel							(0.083)						
NCS AH37344	High Chromium Cast Iron			0.037										
NCS AH37345	High Chromium Cast Iron			0.009										
NCS AH41318	Stainless Steel	0.16		0.026						0.025				
Number	Name	Chemical Composition(%)												Unit Size (mm)
		C	Si	Mn	P	S	Cr	Ni	Cu	Als	Alt	Sn	As	
NCS AH 93334b	Alloy structural steel	0.38	0.298	0.638	0.012	0.0068	0.992	0.012	0.0052	0.064	0.068	0.16	0.159	38×40
NCS AH93335	Low alloy steel	0.213	0.628	1.49	0.019	0.013	0.14	0.122	0.129					ø38×35
		Sb	Bi	Pb	V									
NCS AH 93334b	Alloy structural steel	0.013	0.017	0.046										
NCS AH93335	Low alloy steel				0.128									

Section 11 Set-up Sample 2) Nonferrous Metal

Number	Name	Chemical Composition(percent)											Unit Size (mm)			
		Cu	Mg	Mn	Fe	Si	Zn	Ti	Ni	Zr	B	V				
NCS AH 49302	Aluminum Alloy	0.495	0.029	0.487	0.769	11.30	0.253									Φ62×30
NCS AH 49303	Aluminum Alloy	3.42	0.169	0.314	0.872	8.27	0.906									Φ62×30
NCS AH 49304	Aluminum Alloy	0.227	1.45	0.066	0.678	10.24	0.170									Φ62×30
NCS AH 49305	Aluminum Alloy	3.87	1.77	0.680	0.419	0.314	0.272	0.078	0.036							Φ62×30
NCS AH 49306	Aluminum Alloy	4.81	0.036	0.718	0.237	0.233	0.161	0.230								Φ62×30
NCS AH 49307	Aluminum Alloy	3.99			0.204	7.18					0.149					Φ62×30
NCS AH 49308	Aluminum Alloy	6.01	0.0171		0.213	0.091	0.020	0.107			0.083	0.157				Φ62×30
Number	Name	Chemical Composition(percent)													Unit Size (mm)	
		Cu	Mg	Mn	Fe	Si	Zn	Ti	Ni	Cr	Zr	Pb	Sn	V		
NCS AH49322	Aluminum Alloy	0.314	0.111	0.337	0.737	12.31	0.099	0.102	0.062		0.052	0.05	0.021			D45×35
NCS AH49323	Aluminum Alloy	3.34	0.19	0.366	0.93	8.98	0.842	0.144	0.284	0.05		0.055	0.158			D45×35
NCS AH37501	Aluminum Alloy	1.44	2.34	0.019	0.16	0.05	5.44	0.02	(0.003)	0.216		(0.001)		0.011		50×40
		Ga														
NCS AH37501	Aluminum Alloy	0.018														
Number	Name	Chemical Composition(percent)													Unit Size (mm)	
		Cu	Al	Fe	Mn	Sn	Pb	Ni	Si	Sb	P	Zn	Ag	Bi		
NCS AH45301	Aluminum Brass	66.59	6.82	2.8	2.26	0.25	0.47	0.5	0.11	0.028	0.023	remain			Φ40×35	
Number	Name	Chemical Composition(%)														Unit Size (mm)
		Si	Fe	Cu	Mn	Mg	Ni	Zn	Ti	As	Ca	Ce	Co	Ga		
NCS AH43943	Aluminum Alloy	1.16	0.184	0.605	0.77	0.115	0.041	0.106	0.0038	0.014	0.281	0.418	0.277	0.114	62x30	
		Hg Sn V Zr														
NCS AH43943	Aluminum Alloy	0.052	5.94	0.151	0.271											
Number	Name	Chemical Composition(%)								Unit Size (mm)						
		Si	Fe	Cu	Mn	Ni	Zn	Ce	Zr							
NCS AH49309	Magnesium Alloy		0.0027	0.0092	0.15	0.001	5.59	0.149						45×30		
NCS AH49310	Magnesium Alloy	0.0056*	0.0033	0.054	0.093	0.0009	4.58	0.826						45×30		
NCS AH49311	Magnesium Alloy	0.0047*	0.0041	0.068	0.067	0.0011	3.63	1.28						45×30		
NCS AH49312	Magnesium Alloy			0.051	0.062	0.084	2.69	1.47						45×30		
NCS AH49313	Magnesium Alloy			0.133	0.214	0.005	1.46	1.54						45×30		
NCS AH49314	Magnesium Alloy						4.36	2.79	1.03*					45×30		
NCS AH49315	Magnesium Alloy						3.52	4.16	0.63					45×30		
NCS AH49316	Magnesium Alloy						4.37	3.37	0.81					45×30		
NCS AH49317	Magnesium Alloy						4.71		0.17					45×30		
NCS AH49318	Magnesium Alloy	0.0015					6.15		0.197					45×30		
NCS AH49319	Magnesium Alloy					0.025	6.08		0.36					45×30		
Number	Name	Chemical Composition(%)													Unit Size (mm)	
		Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Pb	Sn	Zr	Sr		
NCS AH49322	Aluminum Alloy	12.31	0.737	0.314	0.337	0.111		0.062	0.099	0.102	0.05	0.021	0.052		45×35	
NCS AH49323	Aluminum Alloy	8.98	0.93	3.34	0.366	0.19	0.05	0.284	0.842	0.144	0.055	0.158			45×35	
NCS AH49324	Aluminum Alloy	12.07	0.361	0.915	0.049	1.08	0.077	0.898	0.166	0.038	0.053	0.03	0.045	0.028	55×30	
Number	Name	Chemical Composition(%)													Unit Size (mm)	
		Al	V	Sn	Cr	Fe	C	N*	H*	O*	Y	Mo	Zr	Si		
NCS AH93331	Titanium Alloy	3.14	14.98	3.17	2.84	0.05	0.01	0.02	0.001	0.013					36×30	
NCS AH93332	Titanium Alloy	3.13	2.82			0.042	0.01	0.01	0.001	0.1	<0.001				36×30	
NCS AH93333	Titanium Alloy	6.14				0.253	0.061					3.25	1.64	0.298	36×25	

Section 11 Set-up Sample 2) Nonferrous Metal

Number	Name	Chemical Composition(%)												Unit Size (mm)
		Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Zr	Be	Na	
NCSAH49341	Aluminum Alloy	0.031	0.099	2.14	0.024	2.16	0.019	0.02	6.17	0.03	0.106	0.0006	0.0004	Φ55×35
NCSAH49342	Aluminum Alloy	0.059	0.178	0.018	1.02	6.09	0.013	0.0058	0.015	0.03	0.104			Φ45×30
NCSAH49343	Aluminum Alloy	0.075	0.316	0.032	0.025	2.85	0.178		0.022	(0.016)				Φ50×30
NCSAH49344	Aluminum Alloy	0.036	0.052	4.2	0.589	1.34	0.034	0.032	0.115	0.086				Φ50×30
NCSAH49345	Aluminum Alloy	0.732	0.195	0.069	0.452	0.665	0.0037	0.0052	0.017	0.016				Φ55×35
NCSAH49346	Aluminum Alloy	7.8	0.423	1.23	0.436	0.468		0.061	0.156	0.185				Φ55×35
NCSAH49347	Aluminum Alloy	9.72	0.878	0.306	0.215	0.509	0.048	0.117	0.213	0.044	0.039			Φ55×35
NCSAH49348	Aluminum Alloy	8.96	0.247	1.51	0.258	0.553		0.037	0.076	0.222	0.036			Φ55×35
		Er	Cd	Pb	Sn	Sr								
NCSAH49341	Aluminum Alloy													
NCSAH49342	Aluminum Alloy	0.199												
NCSAH49343	Aluminum Alloy		0.0024	(0.0021)										
NCSAH49344	Aluminum Alloy													
NCSAH49345	Aluminum Alloy			0.0034										
NCSAH49346	Aluminum Alloy			0.049	0.0098									
NCSAH49347	Aluminum Alloy			0.043	0.048	0.014								
NCSAH49348	Aluminum Alloy			0.059	0.0089									
Number	Name	Chemical Composition(%)												Unit Size (mm)
		Ni	Al	Cu	Fe	Pb	Cd	Sn	Si	La	Ce	Bi	Zn	
NCSAH52001	Zn-Ni alloy	0.63	0.21	0.0034	0.0025	0.0098	0.0017	0.0028						Φ40×25
NCSAH52002	Znic alloy	0.0027	11.77	0.0033	0.018	0.0016	0.0019	0.0022	0.044	0.023	0.034			Φ40×20
NCSAH52003	Znic alloy	0.0021	5.95	0.0042	0.0071	0.0068	0.0013	0.019	0.0032			0.5		Φ40×20
NCSAH52004	Al bronze	0.0023	9.01	86.81	3.53	0.007		0.025	0.028				0.057	Φ40×25
		Mn	P	Sb	S									
NCSAH52001	Zn-Ni alloy													
NCSAH52002	Znic alloy													
NCSAH52003	Znic alloy													
NCSAH52004	Al bronze	0.0063	0.0021	0.0004	0.0006									
Number	Name	Chemical Composition(%)												Unit Size (mm)
		Ag	Cu	Pb	Sb	Bi	Fe	Al	Zn	Cd	As	Au	Co	
NCSAH52005	Cr bronze	0.0072	99.4	0.011			0.053	0.0011	0.022		0.0052			Φ38×30
NCSAH52006	Lead free Tin solder	0.29	0.616	0.051	0.012	0.0093	0.0022	0.0005	0.0021	0.00001	0.0005	0.005	0.0002	Φ40×18
NCSAH52007	Lead free Tin solder	2.84	0.552	0.034	0.026	0.034	0.0065	0.0004	0.0017	0.00002	0.0007	0.0023	0.0002	Φ40×18
		In	Ni	P	S	Cr	Sn	Si	Mn					
NCSAH52005	Cr bronze		0.011	0.0074	0.002	0.446	0.013	0.011	0.0011					
NCSAH52006	Lead free Tin solder	0.01	0.016	0.0016										
NCSAH52007	Lead free Tin solder	0.0044	0.013	0.0009										