

# STANDARD SAMPLES FOR SPECTRAL ANALYSIS (IRON-BASED SERIES)

CAN BE CUSTOMIZED



- Standard samples for spectral analysis can be used for quality control and quality assurance
- Delivered with inspection certificate



MSS-001

## Microalloyed steel (dimension: Ø40mm)

(Elemental content\*: %)

Code	C	Si	Mn	P	S	Cr	Ni	Cu	Ti	Mo	V	Pb	As	Nb
MSS-001	0.452	0.161	0.414	0.035	0.017	0.212	0.432	0.155	0.110	0.157	0.010	0.001	0.016	0.125
MSS-002	0.011	1.600	0.646	0.043	0.005	0.127	0.236	0.116	0.071	0.208	0.062	0.001	0.021	0.056
MSS-003	0.028	0.822	1.960	0.049	0.048	0.640	0.125	0.026	0.028	0.306	0.149	0.004	0.002	0.240
MSS-004	0.003	0.168	0.176	0.008	0.006	0.098	0.048	0.279	0.206	0.071	0.215	0.001	0.039	0.038
MSS-005	0.078	0.567	1.640	0.015	0.011	0.436	0.332	0.048	0.191	0.257	0.215	0.001	0.039	0.038
MSS-006	0.236	0.122	1.050	0.021	0.022	0.374	0.104	0.236	0.159	0.104	0.042	-	0.012	0.065

Code	Sn	N	Ca	Bi	Sb	Al	Als	Bt	Bs	Co
MSS-001	0.039	0.039	0.001	0.001	0.028	0.075	0.074	0.016	0.015	0.145
MSS-002	0.027	0.004	0.001	0.002	0.002	0.302	0.300	0.002	0.002	0.210
MSS-003	0.069	0.023	-	-	0.010	0.283	0.279	0.003	0.003	0.021
MSS-004	0.002	0.004	0.001	0.001	0.009	0.013	0.012	0.002	0.002	0.236
MSS-005	0.002	0.004	0.001	0.001	0.009	0.030	0.029	0.002	0.002	0.236
MSS-006	0.015	0.063	0.004	0.002	0.002	0.061	0.061	0.006	0.056	0.087

\*The actual value of the content may be slightly different when delivered, it is detailed in the factory inspection certificate.

## Low-alloy steel (dimension: Ø40mm)

(Elemental content\*: %)

Code	C	Si	Mn	P	S	Cr	Ni	Cu	Ti	Mo	V	Al	Nb	B
MSS-007	0.780	0.086	2.050	0.006	0.075	0.120	2.900	0.820	0.480	0.044	0.033	0.017	0.450	0.009
MSS-008	0.490	0.42	0.780	0.066	0.051	0.580	0.570	0.270	0.170	0.180	0.170	0.026	0.040	0.006
MSS-009	0.112	0.618	0.394	0.080	0.016	0.401	0.041	0.428	0.023	0.018	0.013	0.009	0.024	0.002
MSS-010	0.350	0.330	1.160	0.024	0.021	0.420	0.100	0.510	0.001	0.110	0.096	0.001	0.033	-
MSS-011	0.081	0.340	0.310	0.092	0.012	0.520	0.039	0.027	0.021	0.006	0.001	0.013	0.001	-
MSS-012	0.074	0.650	0.290	0.023	0.023	12.90	0.550	0.560	0.001	1.100	0.330	-	-	-

Code	Sn	N	W	Zr	Co
MSS-007	-	-	0.029	0.001	0.470
MSS-008	0.003	-	-	-	0.002
MSS-009	0.023	0.002	-	-	0.004
MSS-010	0.008	0.014	-	-	-
MSS-011	-	-	-	-	-
MSS-012	-	-	1.050	-	-

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**Middle-low alloy steel (dimension: Ø38mm)****(Elemental content\*: %)**

Code	C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	Pb	As	Nb	Sn
MSS-013	1.170	0.395	1.910	0.005	0.034	4.480	0.097	0.045	0.063	0.033	0.001	0.007	0.302	0.001
MSS-014	0.075	0.970	0.131	0.027	0.012	1.990	1.200	0.254	1.120	0.240	0.001	0.001	0.191	0.001
MSS-015	0.920	1.170	1.140	0.011	0.065	3.390	0.630	0.479	0.302	0.061	0.001	0.002	0.272	0.007
MSS-016	0.440	1.990	0.795	0.033	0.027	1.060	2.050	0.338	0.910	0.500	0.001	0.001	0.142	0.001
MSS-017	0.729	0.112	1.580	0.055	0.051	0.216	4.560	0.606	0.606	0.114	0.003	0.003	0.016	0.002
MSS-018	0.250	0.850	0.401	0.040	0.017	0.599	2.940	0.123	1.490	0.388	0.001	0.001	0.045	0.011

Code	W	Ca	Bi	Sb	Zr	Alt	Als	Tit	Tis	Bt	Bs	Co
MSS-013	0.420	0.039	0.001	0.001	0.005	0.225	0.224	0.490	0.480	0.025	0.020	0.031
MSS-014	1.940	0.004	0.001	0.001	0.024	0.780	0.770	0.190	0.188	0.011	0.009	0.172
MSS-015	0.753	0.023	0.001	0.001	0.006	0.072	0.071	0.319	0.317	0.017	0.013	0.507
MSS-016	1.580	0.004	0.001	0.002	0.002	0.027	0.025	0.030	0.029	0.006	0.005	0.250
MSS-017	0.027	0.004	0.001	0.008	0.220	1.140	1.130	0.078	0.078	0.001	0.001	0.073
MSS-018	1.170	0.063	0.001	0.008	0.113	0.550	0.540	0.110	0.107	0.001	0.001	0.358

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**High-alloy steel (dimension: Ø38mm)****(Elemental content\*: %)**

Code	C	Si	Mn	P	S	Cr	Ni	Cu	Ti	Mo	V
MSS-019	0.190	0.590	1.310	0.021	0.014	0.910	1.640	0.077	0.120	0.520	0.045
MSS-020	0.053	1.370	5.020	0.055	0.003	17.51	2.440	-	-	-	-
MSS-021	0.180	1.040	6.600	0.038	0.010	15.26	3.610	-	-	-	-
MSS-022	0.280	0.940	8.370	0.024	0.016	12.67	4.560	-	-	-	-
MSS-023	0.350	0.740	11.00	0.018	0.025	10.72	5.670	-	-	-	-
MSS-024	0.420	0.400	12.93	0.011	0.033	8.220	6.680	-	-	-	-

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**Alloy cast iron (dimension: Ø33mm)****(Elemental content\*: %)**

Code	C	Si	Mn	P	S	Cr	Ni	Cu	Ti	Mo	V	Pb	As	Nb
MSS-025	1.840	3.520	1.520	0.036	0.060	0.815	0.740	0.085	0.082	0.071	0.107	0.001	0.012	0.114
MSS-026	2.530	2.590	1.040	0.066	0.029	1.490	0.118	1.790	0.042	0.153	0.158	0.001	0.030	0.068
MSS-027	3.700	2.040	0.520	0.270	0.039	0.211	0.288	0.767	0.140	0.60	0.059	0.001	0.008	0.250
MSS-028	3.320	1.470	0.760	0.151	0.017	0.523	0.489	1.030	0.160	0.791	0.322	0.001	0.013	-

Code	B	Sn	W	Sb	Alt	Co
MSS-025	0.008	0.098	0.760	0.103	0.018	0.006
MSS-026	0.012	0.034	0.076	0.004	0.098	0.006
MSS-027	0.043	0.143	0.025	0.084	0.113	0.003
MSS-028	0.071	0.068	0.283	0.084	0.154	0.004

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