

Shape	t _{nom} in.	Design Wall Thickness, t in.	OD in.	ID in.	Nominal Wt lb/ft	Area, A in. ²	D/t	I in. ⁴	S in. ³	r in.	Z in. ³	Torsion		Surface Area ft ² /ft
												J in. ⁴	C in. ³	
HSS 18x0.750	0.750	0.698	18	16.605	138.30	37.91	25.81	1421.1	157.90	6.12	208.93	2842.3	315.81	4.71
x0.625	0.625	0.581	18	16.838	116.09	31.81	30.97	1207.7	134.19	6.16	176.42	2415.4	268.38	4.71
x0.562	0.562	0.523	18	16.955	104.76	28.70	34.44	1096.7	121.86	6.18	159.70	2193.4	243.71	4.71
x0.500	0.500	0.465	18	17.070	93.54	25.62	38.71	985.2	109.47	6.20	143.01	1970.5	218.94	4.71
x0.437	0.437	0.406	18	17.187	82.05	22.46	44.29	869.6	96.62	6.22	125.82	1739.2	193.24	4.71
x0.375	0.375	0.349	18	17.303	70.66	19.34	51.61	753.5	83.72	6.24	108.67	1507.0	167.44	4.71
x0.313	0.313	0.291	18	17.419	59.09	16.17	61.94	634.0	70.45	6.26	91.15	1268.1	140.90	4.71
x0.250	0.250	0.233	18	17.535	47.44	12.98	77.42	512.2	56.91	6.28	73.40	1024.4	113.82	4.71
HSS 16x0.750	0.750	0.698	16	14.605	122.27	33.53	22.94	983.5	122.94	5.42	163.44	1967.1	245.89	4.19
x0.656	0.656	0.610	16	14.780	107.60	29.50	26.23	874.7	109.33	5.45	144.57	1749.3	218.66	4.19
x0.625	0.625	0.581	16	14.838	102.73	28.16	27.53	837.9	104.74	5.46	138.25	1675.8	209.47	4.19
x0.500	0.500	0.465	16	15.070	82.85	22.69	34.41	685.2	85.65	5.49	112.25	1370.5	171.31	4.19
x0.375	0.375	0.349	16	15.303	62.64	17.15	45.88	525.3	65.67	5.53	85.44	1050.7	131.33	4.19
x0.313	0.313	0.291	16	15.419	52.41	14.34	55.05	442.6	55.33	5.56	71.73	885.2	110.65	4.19
x0.250	0.250	0.233	16	15.535	42.09	11.52	68.82	358.0	44.75	5.58	57.81	716.0	89.50	4.19
HSS 14x0.750	0.750	0.698	14	12.605	106.23	29.15	20.07	646.5	92.36	4.71	123.54	1293.1	184.73	3.67
x0.625	0.625	0.581	14	12.838	89.36	24.50	24.09	552.6	78.94	4.75	104.73	1105.1	157.87	3.67
x0.593	0.593	0.551	14	12.897	84.99	23.30	25.39	527.7	75.38	4.76	99.80	1055.3	150.76	3.67
x0.500	0.500	0.465	14	13.070	72.16	19.77	30.11	453.3	64.76	4.79	85.22	906.6	129.52	3.67
x0.437	0.437	0.406	14	13.187	63.36	17.36	34.45	401.2	57.32	4.81	75.12	802.5	114.64	3.67
x0.375	0.375	0.349	14	13.303	54.62	14.96	40.14	348.6	49.81	4.83	65.01	697.3	99.61	3.67
x0.313	0.313	0.291	14	13.419	45.73	12.52	48.17	294.2	42.03	4.85	54.63	588.4	84.06	3.67
x0.250	0.250	0.233	14	13.535	36.75	10.06	60.22	238.3	34.05	4.87	44.07	476.7	68.09	3.67

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								I in. ⁴	S in. ³	r in.	Z in. ³	J in. ⁴	C in. ³	
HSS 12.75x0.750	0.750	0.698	12.75	11.355	96.21	26.41	18.28	481.2	75.48	4.27	101.43	962.3	150.95	3.34
x0.688	0.688	0.640	12.75	11.470	88.71	24.34	19.93	447.5	70.20	4.29	93.92	895.0	140.39	3.34
x0.625	0.625	0.581	12.75	11.588	81.01	22.22	21.94	412.2	64.67	4.31	86.14	824.5	129.33	3.34
x0.562	0.562	0.523	12.75	11.705	73.22	20.08	24.39	375.9	58.96	4.33	78.19	751.8	117.93	3.34
x0.500	0.500	0.465	12.75	11.820	65.48	17.95	27.42	339.0	53.18	4.35	70.21	678.1	106.37	3.34
x0.406	0.406	0.378	12.75	11.995	53.58	14.68	33.77	281.1	44.09	4.38	57.82	562.2	88.18	3.34
x0.375	0.375	0.349	12.75	12.053	49.61	13.59	36.56	261.4	41.00	4.39	53.65	522.8	82.01	3.34
x0.313	0.313	0.291	12.75	12.169	41.55	11.38	43.87	220.9	34.64	4.41	45.12	441.7	69.29	3.34
x0.250	0.250	0.233	12.75	12.285	33.41	9.14	54.84	179.1	28.10	4.43	36.43	358.3	56.20	3.34
HSS 10.75x0.750	0.750	0.698	10.75	9.355	80.18	22.03	15.41	279.6	52.02	3.56	70.60	559.2	104.03	2.81
x0.718	0.718	0.668	10.75	9.415	77.00	21.15	16.10	269.9	50.22	3.57	67.98	539.8	100.44	2.81
x0.625	0.625	0.581	10.75	9.588	67.65	18.57	18.49	240.8	44.80	3.60	60.17	481.6	89.60	2.81
x0.593	0.593	0.551	10.75	9.647	64.39	17.67	19.49	230.4	42.86	3.61	57.42	460.8	85.73	2.81
x0.500	0.500	0.465	10.75	9.820	54.79	15.02	23.12	199.1	37.04	3.64	49.22	398.1	74.07	2.81
x0.375	0.375	0.349	10.75	10.053	41.59	11.40	30.82	154.3	28.70	3.68	37.74	308.6	57.41	2.81
x0.365	0.365	0.339	10.75	10.071	40.52	11.10	31.67	150.6	28.01	3.68	36.80	301.1	56.02	2.81
x0.313	0.313	0.291	10.75	10.169	34.87	9.55	36.99	130.7	24.31	3.70	31.80	261.4	48.63	2.81
x0.250	0.250	0.233	10.75	10.285	28.06	7.68	46.24	106.3	19.77	3.72	25.72	212.6	39.54	2.81
x0.188	0.188	0.174	10.75	10.401	21.17	5.79	61.65	81.0	15.07	3.74	19.50	162.0	30.15	2.81
HSS 8.625x0.750	0.750	0.698	8.625	7.230	63.14	17.37	12.37	137.5	31.89	2.81	43.95	275.0	63.78	2.26
x0.718	0.718	0.668	8.625	7.290	60.69	16.69	12.92	133.0	30.85	2.82	42.38	266.1	61.70	2.26
x0.625	0.625	0.581	8.625	7.463	53.45	14.69	14.84	119.4	27.69	2.85	37.67	238.8	55.38	2.26
x0.594	0.594	0.552	8.625	7.520	51.00	14.01	15.61	114.7	26.59	2.86	36.06	229.3	53.17	2.26
x0.500	0.500	0.465	8.625	7.695	43.43	11.92	18.55	99.5	23.08	2.89	31.00	199.1	46.16	2.26
x0.406	0.406	0.378	8.625	7.870	35.67	9.78	22.84	83.4	19.33	2.92	25.70	166.7	38.66	2.26
x0.375	0.375	0.349	8.625	7.928	33.07	9.07	24.73	77.8	18.04	2.93	23.90	155.6	36.07	2.26
x0.322	0.322	0.299	8.625	8.026	28.58	7.83	28.80	68.0	15.76	2.95	20.77	135.9	31.51	2.26
x0.313	0.313	0.291	8.625	8.044	27.77	7.61	29.68	66.2	15.34	2.95	20.20	132.3	30.68	2.26
x0.250	0.250	0.233	8.625	8.160	22.38	6.13	37.10	54.0	12.52	2.97	16.38	108.0	25.05	2.26
x0.188	0.188	0.174	8.625	8.276	16.91	4.63	49.46	41.3	9.59	2.99	12.45	82.7	19.17	2.26

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												J in. ⁴	C in. ³	
												HSS 6.625x0.625	0.625	
x0.562	0.562	0.523	6.625	5.580	36.43	10.020	12.68	46.98	14.184	2.17	19.511	93.97	28.37	1.73
x0.500	0.500	0.465	6.625	5.695	32.74	8.999	14.25	42.93	12.959	2.18	17.678	85.85	25.92	1.73
x0.432	0.432	0.402	6.625	5.821	28.60	7.855	16.49	38.18	11.527	2.20	15.581	76.37	23.05	1.73
x0.375	0.375	0.349	6.625	5.928	25.06	6.876	19.00	33.96	10.253	2.22	13.752	67.93	20.51	1.73
x0.313	0.313	0.291	6.625	6.044	21.09	5.783	22.80	29.07	8.775	2.24	11.669	58.14	17.55	1.73
x0.280	0.280	0.260	6.625	6.104	18.99	5.207	25.44	26.41	7.972	2.25	10.554	52.82	15.94	1.73
x0.250	0.250	0.233	6.625	6.160	17.04	4.669	28.49	23.88	7.210	2.26	9.505	47.76	14.42	1.73
x0.188	0.188	0.174	6.625	6.276	12.90	3.534	37.99	18.39	5.553	2.28	7.258	36.79	11.11	1.73
x0.134	0.134	0.125	6.625	6.376	9.30	2.545	53.16	13.45	4.059	2.30	5.266	26.89	8.12	1.73
HSS 5.563x0.500	0.500	0.465	5.563	4.633	27.06	7.447	11.96	24.40	8.771	1.81	12.119	48.79	17.54	1.46
x0.375	0.375	0.349	5.563	4.866	20.80	5.713	15.95	19.50	7.011	1.85	9.496	39.00	14.02	1.46
x0.258	0.258	0.240	5.563	5.083	14.63	4.012	23.18	14.24	5.120	1.88	6.803	28.48	10.24	1.46
x0.250	0.250	0.233	5.563	5.098	14.20	3.894	23.93	13.86	4.981	1.89	6.610	27.71	9.96	1.46
x0.188	0.188	0.174	5.563	5.214	10.77	2.952	31.90	10.73	3.856	1.91	5.065	21.45	7.71	1.46
x0.134	0.134	0.125	5.563	5.314	7.78	2.129	44.64	7.88	2.831	1.92	3.686	15.75	5.66	1.46
HSS 5x0.250	0.250	0.233	5	4.535	12.690	3.482	21.51	9.92	3.967	1.69	5.289	19.83	7.93	1.31
x0.188	0.188	0.174	5	4.651	9.650	2.644	28.67	7.70	3.082	1.71	4.062	15.41	6.16	1.31
x0.134	0.134	0.125	5	4.751	6.970	1.909	40.12	5.67	2.270	1.72	2.963	11.35	4.54	1.31
x0.125	0.125	0.116	5	4.768	6.510	1.784	43.01	5.32	2.128	1.73	2.773	10.64	4.26	1.31
x0.120	0.120	0.112	5	4.777	6.260	1.714	44.80	5.12	2.049	1.73	2.667	10.24	4.10	1.31
HSS 4.5x0.250	0.250	0.233	4.5	4.035	11.360	3.117	19.35	7.12	3.163	1.51	4.238	14.23	6.33	1.18
x0.237	0.237	0.220	4.5	4.059	10.800	2.963	20.42	6.80	3.023	1.52	4.040	13.60	6.05	1.18
x0.188	0.188	0.174	4.5	4.151	8.640	2.370	25.81	5.55	2.467	1.53	3.265	11.10	4.93	1.18
x0.134	0.134	0.125	4.5	4.251	6.250	1.713	36.11	4.10	1.823	1.55	2.386	8.20	3.65	1.18
x0.125	0.125	0.116	4.5	4.268	5.850	1.601	38.71	3.85	1.710	1.55	2.235	7.70	3.42	1.18
x0.120	0.120	0.112	4.5	4.277	5.620	1.539	40.32	3.71	1.647	1.55	2.150	7.41	3.29	1.18

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HSS 4x0.237	0.237	0.220	4	3.559	9.530	2.617	18.15	4.69	2.345	1.34	3.152	9.38	4.69	1.05
x0.226	0.226	0.210	4	3.580	9.120	2.502	19.03	4.51	2.253	1.34	3.022	9.01	4.51	1.05
x0.188	0.188	0.174	4	3.651	7.640	2.096	22.94	3.84	1.921	1.35	2.554	7.68	3.84	1.05
x0.125	0.125	0.116	4	3.768	5.180	1.418	34.41	2.68	1.338	1.37	1.754	5.35	2.68	1.05
x0.120	0.120	0.112	4	3.777	4.980	1.363	35.84	2.58	1.289	1.38	1.688	5.16	2.58	1.05
x0.100	0.100	0.093	4	3.814	4.169	1.142	43.01	2.18	1.090	1.38	1.420	4.36	2.18	1.05
x0.095	0.095	0.088	4	3.823	3.966	1.086	45.27	2.08	1.039	1.38	1.352	4.16	2.08	1.05
x0.083	0.083	0.077	4	3.846	3.475	0.951	51.82	1.83	0.915	1.39	1.188	3.66	1.83	1.05
HSS 3.5x0.216	0.216	0.201	3.5	3.098	7.580	2.082	17.42	2.84	1.625	1.17	2.189	5.69	3.25	0.916
x0.188	0.188	0.174	3.5	3.151	6.640	1.822	20.07	2.53	1.443	1.18	1.930	5.05	2.89	0.916
x0.125	0.125	0.116	3.5	3.268	4.510	1.236	30.11	1.77	1.012	1.20	1.332	3.54	2.02	0.916
x0.120	0.120	0.112	3.5	3.277	4.340	1.188	31.36	1.71	0.975	1.20	1.282	3.41	1.95	0.916
x0.109	0.109	0.101	3.5	3.297	3.951	1.082	34.53	1.56	0.894	1.20	1.171	3.13	1.79	0.916
x0.100	0.100	0.093	3.5	3.314	3.635	0.995	37.63	1.45	0.826	1.21	1.080	2.89	1.65	0.916
x0.083	0.083	0.077	3.5	3.346	3.032	0.830	45.34	1.22	0.695	1.21	0.904	2.43	1.39	0.916
HSS 3x0.188	0.188	0.174	3	2.651	5.640	1.548	17.20	1.551	1.034	1.00	1.394	3.10	2.07	0.785
x0.134	0.134	0.125	3	2.751	4.110	1.126	24.07	1.166	0.777	1.02	1.031	2.33	1.55	0.785
x0.125	0.125	0.116	3	2.768	3.840	1.053	25.81	1.097	0.731	1.02	0.967	2.19	1.46	0.785
x0.120	0.120	0.112	3	2.777	3.690	1.013	26.88	1.058	0.705	1.02	0.932	2.12	1.41	0.785
x0.109	0.109	0.101	3	2.797	3.369	0.923	29.59	0.971	0.647	1.03	0.852	1.94	1.29	0.785
x0.100	0.100	0.093	3	2.814	3.100	0.849	32.26	0.898	0.599	1.03	0.786	1.80	1.20	0.785
x0.095	0.095	0.088	3	2.823	2.950	0.808	33.96	0.857	0.571	1.03	0.749	1.71	1.14	0.785
HSS 2.875x0.203	0.203	0.189	2.875	2.497	5.800	1.593	15.23	1.444	1.0046	0.952	1.364	2.888	2.01	0.753
x0.188	0.188	0.174	2.875	2.526	5.390	1.479	16.49	1.354	0.9422	0.957	1.274	2.709	1.88	0.753
x0.134	0.134	0.125	2.875	2.626	3.926	1.077	23.07	1.020	0.7098	0.973	0.943	2.041	1.42	0.753
x0.125	0.125	0.116	2.875	2.643	3.670	1.008	24.73	0.960	0.6680	0.976	0.885	1.920	1.34	0.753
x0.120	0.120	0.112	2.875	2.652	3.530	0.969	25.76	0.926	0.6444	0.978	0.853	1.853	1.29	0.753
x0.109	0.109	0.101	2.875	2.672	3.223	0.883	28.36	0.851	0.5917	0.981	0.780	1.701	1.18	0.753
x0.100	0.100	0.093	2.875	2.689	2.966	0.813	30.91	0.787	0.5476	0.984	0.720	1.574	1.10	0.753
x0.083	0.083	0.077	2.875	2.721	2.477	0.678	37.25	0.664	0.4622	0.990	0.604	1.329	0.92	0.753

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HSS 2.5x0.188	0.188	0.174	2.5	2.151	4.640	1.274	14.34	0.8662	0.6929	0.825	0.945	1.732	1.386	0.654
x0.134	0.134	0.125	2.5	2.251	3.389	0.930	20.06	0.6577	0.5262	0.841	0.704	1.315	1.052	0.654
x0.125	0.125	0.116	2.5	2.268	3.170	0.871	21.51	0.6198	0.4959	0.844	0.661	1.240	0.992	0.654
x0.120	0.120	0.112	2.5	2.277	3.050	0.837	22.40	0.5984	0.4787	0.845	0.637	1.197	0.957	0.654
HSS 2.375x0.188	0.188	0.174	2.375	2.026	4.380	1.206	13.62	0.7343	0.6184	0.780	0.846	1.469	1.237	0.622
x0.154	0.154	0.143	2.375	2.089	3.660	1.004	16.58	0.6278	0.5287	0.791	0.714	1.256	1.057	0.622
x0.134	0.134	0.125	2.375	2.126	3.210	0.881	19.06	0.5594	0.4711	0.797	0.632	1.119	0.942	0.622
x0.125	0.125	0.116	2.375	2.143	3.010	0.825	20.43	0.5275	0.4442	0.800	0.594	1.055	0.888	0.622
x0.109	0.109	0.101	2.375	2.172	2.640	0.724	23.43	0.4688	0.3948	0.805	0.524	0.938	0.790	0.622
x0.100	0.100	0.093	2.375	2.189	2.432	0.667	25.54	0.4347	0.3661	0.807	0.485	0.869	0.732	0.622
x0.095	0.095	0.088	2.375	2.198	2.315	0.635	26.88	0.4154	0.3498	0.809	0.462	0.831	0.700	0.622
x0.083	0.083	0.077	2.375	2.221	2.034	0.557	30.77	0.3682	0.3100	0.813	0.408	0.736	0.620	0.622
HSS 2.25x0.188	0.188	0.174	2.25	1.901	4.130	1.137	12.90	0.6167	0.5481	0.736	0.753	1.233	1.096	0.589
x0.125	0.125	0.116	2.25	2.018	2.840	0.779	19.35	0.4448	0.3954	0.756	0.530	0.890	0.791	0.589
HSS 1.9x0.145	0.145	0.135	1.9	1.630	2.720	0.748	14.09	0.2929	0.3084	0.626	0.421	0.586	0.617	0.497
x0.125	0.125	0.116	1.9	1.668	2.370	0.651	16.34	0.2602	0.2739	0.632	0.370	0.520	0.548	0.497
x0.120	0.120	0.112	1.9	1.677	2.280	0.627	17.03	0.2517	0.2649	0.634	0.357	0.503	0.530	0.497
x0.109	0.109	0.101	1.9	1.697	2.090	0.573	18.74	0.2324	0.2446	0.637	0.328	0.465	0.489	0.497
x0.100	0.100	0.093	1.9	1.714	1.920	0.528	20.43	0.2161	0.2274	0.640	0.304	0.432	0.455	0.497
x0.083	0.083	0.077	1.9	1.746	1.612	0.442	24.61	0.1839	0.1936	0.645	0.257	0.368	0.387	0.497
HSS 1.66x0.140	0.140	0.130	1.66	1.400	2.270	0.626	12.75	0.1844	0.2221	0.543	0.305	0.369	0.444	0.435
x0.134	0.134	0.125	1.66	1.411	2.190	0.601	13.32	0.1783	0.2148	0.545	0.294	0.357	0.430	0.435
x0.125	0.125	0.116	1.66	1.428	2.050	0.564	14.28	0.1689	0.2035	0.547	0.278	0.338	0.407	0.435
x0.109	0.109	0.101	1.66	1.457	1.810	0.496	16.38	0.1514	0.1824	0.552	0.247	0.303	0.365	0.435
x0.100	0.100	0.093	1.66	1.474	1.668	0.458	17.85	0.1410	0.1699	0.555	0.229	0.282	0.340	0.435
x0.095	0.095	0.088	1.66	1.483	1.589	0.436	18.79	0.1351	0.1628	0.557	0.218	0.270	0.326	0.435
x0.083	0.083	0.077	1.66	1.506	1.400	0.384	21.51	0.1205	0.1452	0.560	0.194	0.241	0.290	0.435

Shape	t _{nom} in.	Design Wall Thickness, t in.	OD in.	ID in.	Nominal Wt lb/ft	Area, A in. ²	D/t	I in. ⁴	S in. ³	r in.	Z in. ³	Torsion		Surface Area ft ² /ft
												J in. ⁴	C in. ³	
HSS 1.5x0.134	0.134	0.125	1.5	1.251	1.957	0.538	12.04	0.1284	0.1712	0.488	0.236	0.257	0.342	0.393
x0.125	0.125	0.116	1.5	1.268	1.837	0.505	12.90	0.1218	0.1624	0.491	0.223	0.244	0.325	0.393
x0.120	0.120	0.112	1.5	1.277	1.770	0.487	13.44	0.1180	0.1574	0.492	0.216	0.236	0.315	0.393
x0.109	0.109	0.101	1.5	1.297	1.621	0.445	14.80	0.1095	0.1460	0.496	0.199	0.219	0.292	0.393
x0.100	0.100	0.093	1.5	1.314	1.497	0.411	16.13	0.1022	0.1362	0.499	0.184	0.204	0.272	0.393
x0.083	0.083	0.077	1.5	1.346	1.257	0.345	19.43	0.0876	0.1168	0.504	0.156	0.175	0.234	0.393
x0.065	0.065	0.060	1.5	1.379	0.997	0.273	24.81	0.0709	0.0946	0.509	0.125	0.142	0.189	0.393
HSS 1.315x0.133	0.133	0.124	1.315	1.068	1.680	0.463	10.63	0.0830	0.1262	0.423	0.176	0.166	0.252	0.344
x0.125	0.125	0.116	1.315	1.083	1.590	0.438	11.31	0.0794	0.1207	0.426	0.168	0.159	0.241	0.344
x0.120	0.120	0.112	1.315	1.092	1.533	0.422	11.78	0.0770	0.1172	0.427	0.162	0.154	0.234	0.344
x0.109	0.109	0.101	1.315	1.112	1.410	0.386	12.97	0.0717	0.1090	0.431	0.150	0.143	0.218	0.344
x0.100	0.100	0.093	1.315	1.129	1.299	0.357	14.14	0.0670	0.1019	0.433	0.139	0.134	0.204	0.344
x0.083	0.083	0.077	1.315	1.161	1.090	0.300	17.04	0.0577	0.0878	0.438	0.118	0.115	0.176	0.344
HSS 1.25x0.120	0.120	0.112	1.25	1.027	1.450	0.399	11.20	0.0653	0.1044	0.404	0.1451	0.1306	0.209	0.327
x0.100	0.100	0.093	1.25	1.064	1.229	0.338	13.44	0.0569	0.0911	0.410	0.1248	0.1139	0.1822	0.327
x0.095	0.095	0.088	1.25	1.073	1.173	0.322	14.15	0.0547	0.0875	0.412	0.1195	0.1094	0.1750	0.327
x0.083	0.083	0.077	1.25	1.096	1.035	0.284	16.19	0.0491	0.0786	0.416	0.1063	0.0982	0.1572	0.327
x0.065	0.065	0.060	1.25	1.129	0.823	0.226	20.68	0.0401	0.0641	0.421	0.0856	0.0801	0.1282	0.327
HSS 1.05x0.113	0.113	0.105	1.05	0.840	1.130	0.312	9.99	0.0352	0.0671	0.336	0.0942	0.0705	0.1343	0.275
x0.109	0.109	0.101	1.05	0.847	1.096	0.302	10.36	0.0344	0.0655	0.337	0.0916	0.0687	0.1309	0.275
x0.100	0.100	0.093	1.05	0.864	1.016	0.280	11.29	0.0323	0.0615	0.340	0.0854	0.0646	0.1231	0.275
x0.083	0.083	0.077	1.05	0.896	0.858	0.236	13.60	0.0281	0.0535	0.345	0.0732	0.0562	0.1070	0.275
HSS 1x0.125	0.125	0.116	1	0.768	1.169	0.323	8.60	0.0321	0.0641	0.315	0.0913	0.0641	0.1282	0.262
x0.109	0.109	0.101	1	0.797	1.038	0.286	9.86	0.0293	0.0585	0.320	0.0822	0.0585	0.1170	0.262
x0.100	0.100	0.093	1	0.814	0.962	0.265	10.75	0.0275	0.0551	0.322	0.0768	0.0551	0.1101	0.262
x0.095	0.095	0.088	1	0.823	0.919	0.253	11.32	0.0265	0.0531	0.324	0.0737	0.0531	0.1061	0.262
x0.083	0.083	0.077	1	0.846	0.814	0.224	12.96	0.0240	0.0480	0.327	0.0659	0.0480	0.0960	0.262
x0.065	0.065	0.060	1	0.879	0.650	0.178	16.54	0.0198	0.0395	0.333	0.0534	0.0395	0.0791	0.262
HSS 0.84x0.109	0.109	0.101	0.84	0.637	0.850	0.235	8.29	0.0163	0.0389	0.264	0.0557	0.0327	0.0778	0.220
x0.083	0.083	0.077	0.84	0.686	0.672	0.185	10.88	0.0136	0.0324	0.271	0.0451	0.0272	0.0647	0.220