




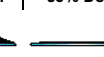








<b>Belleville Washers</b>								15% Defl.		30% Defl.		45% Defl.		60% Defl.		75% Defl.		90% Defl.		Previous Code No.
								Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	
Code No.	Outer Dia. (De) mm	Inner Dia. (Di) mm	Thick. (t) mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. Thick Ratio	Weight per 1000 pcs.	Stress		Stress		Stress		Stress		Stress				
								$\delta_{II}$ N/mm <sup>2</sup>	$\delta_{III}$ N/mm <sup>2</sup>	$\delta_{II}$ N/mm <sup>2</sup>	$\delta_{III}$ N/mm <sup>2</sup>	$\delta_{II}$ N/mm <sup>2</sup>	$\delta_{III}$ N/mm <sup>2</sup>	$\delta_{II}$ N/mm <sup>2</sup>	$\delta_{III}$ N/mm <sup>2</sup>	$\delta_{II}$ N/mm <sup>2</sup>	$\delta_{III}$ N/mm <sup>2</sup>		$\delta_{II}$ N/mm <sup>2</sup>	$\delta_{III}$ N/mm <sup>2</sup>
P47524025	4.75	2.40	.25	.13	.38	.52	.03	.02 21 223 301	.04 41 472 585	.06 59 749 853	.08 76 1,052 1,103	.10 92 1,382 1,336	.12 108 1,739 1,552		AI 180910					
P6432033	6.40	3.20	.33	.18	.51	.55	.06	.03 38 216 305	.05 73 461 593	.08 104 734 862	.11 134 1,035 1,114	.14 162 1,364 1,348	.16 188 1,722 1,565		AI 251253					
P79404043	7.90	4.04	.43	.20	.63	.47	.12	.03 59 230 281	.06 114 482 547	.09 166 758 799	.12 214 1,057 1,035	.15 261 1,378 1,258	.18 307 1,723 1,465		AI 311517					
P95349604	9.53	4.96	.40	.29	.69	.73	.16	.04 58 139 313	.09 108 311 605	.13 150 516 874	.17 188 756 1,122	.22 222 1,028 1,349	.26 253 1,334 1,554		AI 371915					
P127655045	12.70	6.55	.45	.41	.86	.91	.33	.06 76 77 308	.12 138 192 592	.18 188 344 852	.25 228 534 1,088	.31 261 761 1,299	.37 290 1,026 1,487		AI 502519					
P12765506	12.70	6.55	.60	.35	.95	.58	.44	.05 118 183 290	.11 225 393 562	.16 321 630 817	.21 409 895 1,054	.26 492 1,187 1,273	.32 571 1,506 1,475		AI 502523					
P1436606	14.30	6.60	.60	.39	.99	.65	.60	.06 103 147 240	.12 194 321 464	.18 274 521 672	.23 346 747 865	.29 412 999 1,042	.35 475 1,278 1,203							
P1671021	16.70	10.20	1.00	.30	1.30	.30	.108	.05 266 228 243	.09 522 469 477	.14 772 722 702	.18 1,017 988 918	.23 1,257 1,267 1,124	.27 1,495 1,558 1,322							
P17469706	17.46	9.70	.60	.49	1.09	.82	.78	.07 111 84 268	.15 204 197 516	.22 281 339 745	.29 347 511 954	.37 403 711 1,143	.44 454 941 1,312		AI 683823					
P17469707	17.46	9.70	.70	.49	1.19	.70	.91	.07 161 128 292	.15 300 285 565	.22 421 471 818	.29 528 686 1,051	.37 624 931 1,265	.44 715 1,205 1,459		AI 683827					
P188206	18.00	8.20	.60	.55	1.15	.92	.95	.08 114 72 246	.17 205 178 473	.25 279 316 680	.33 338 488 868	.41 387 692 1,036	.50 430 930 1,184		95001					
P188207	18.00	8.20	.70	.55	1.25	.79	1.11	.08 161 118 267	.17 297 270 515	.25 412 454 743	.33 510 672 952	.41 596 922 1,141	.50 674 1,206 1,310		95002					
P188208	18.00	8.20	.80	.55	1.35	.69	1.27	.08 223 164 288	.17 416 362 557	.25 585 592 806	.33 735 856 1,035	.41 871 1,152 1,245	.50 999 1,482 1,436		95003					
P19059708	19.05	9.70	.80	.54	1.34	.68	1.33	.08 205 143 277	.16 383 315 535	.24 540 516 776	.32 680 745 997	.41 807 1,004 1,201	.49 927 1,291 1,386		AI 753831					
P19059709	19.05	9.70	.90	.55	1.45	.61	1.49	.08 283 183 305	.17 534 396 591	.25 760 639 858	.33 965 912 1,106	.41 1,156 1,215 1,334	.50 1,338 1,548 1,544		AI 753835					
P1905971	19.05	9.70	1.00	.50	1.50	.50	1.66	.08 310 222 263	.15 596 469 511	.23 861 740 745	.30 1,110 1,035 964	.38 1,347 1,355 1,168	.45 1,577 1,699 1,358		AI 753840					
P22102122	22.00	10.20	1.22	.75	1.97	.61	2.86	.11 687 257 389	.23 1,297 556 753	.34 1,844 896 1,093	.45 2,342 1,277 1,408	.56 2,804 1,699 1,698	.68 3,243 2,162 1,964							
P239908	23.00	9.90	.80	.85	1.65	1.06	2.13	.13 284 54 321	.26 502 156 615	.38 668 307 881	.51 791 506 1,119	.64 884 753 1,330	.77 958 1,049 1,514		95004					
P239909	23.00	9.90	.90	.85	1.75	.94	2.39	.13 364 98 340	.26 655 244 652	.38 886 439 937	.51 1,070 682 1,195	.64 1,219 973 1,425	.77 1,347 1,313 1,627		95005					
P23991	23.00	9.90	1.00	.85	1.85	.85	2.66	.13 460 142 359	.26 839 332 690	.38 1,152 571 994	.51 1,411 858 1,271	.64 1,633 1,193 1,520	.77 1,831 1,577 1,741		95006					
P2512215	25.00	12.20	1.50	.55	2.05	.37	4.40	.08 634 249 239	.17 1,238 516 468	.25 1,818 800 686	.33 2,379 1,101 894	.41 2,926 1,419 1,091	.50 3,464 1,755 1,277							
P2521309	25.20	13.00	.90	.85	1.75	.94	2.59	.13 331 72 330	.26 596 185 634	.38 806 340 912	.51 973 535 1,163	.64 1,108 771 1,388	.77 1,225 1,049 1,587							
P25213125	25.20	13.00	1.25	.75	2.00	.60	3.59	.11 590 202 332	.23 1,117 435 644	.34 1,591 701 935	.45 2,025 998 1,206	.56 2,429 1,327 1,456	.68 2,814 1,689 1,685							
P25411311	25.40	11.31	1.00	.81	1.81	.81	3.19	.12 352 120 281	.24 646 275 541	.36 892 467 781	.49 1,100 695 999	.61 1,280 958 1,196	.73 1,444 1,258 1,373		AI 104439					
P25412909	25.40	12.90	.90	.81	1.71	.90	2.66	.12 296 79 298	.24 536 195 573	.36 729 348 824	.49 887 537 1,053	.61 1,018 763 1,258	.73 1,133 1,025 1,440		AI 105135					
P28102125	28.00	10.20	1.25	.80	2.05	.64	5.24	.12 460 186 226	.24 866 402 438	.36 1,227 647 634	.48 1,553 921 816	.60 1,853 1,225 982	.72 2,137 1,559 1,134							

<b>Belleville Washers</b>								15% Defl.		30% Defl.		45% Defl.		60% Defl.		75% Defl.		90% Defl.		Previous Code No.
																				
Code No.	Outer Dia. (De) mm	Inner Dia. (Di) mm	Thick. (t) mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. Thick. Ratio	Weight per 1000 pcs.	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N			
								Stress $\delta_{II}$ $\delta_{III}$ N/mm <sup>2</sup>		Stress $\delta_{II}$ $\delta_{III}$ N/mm <sup>2</sup>		Stress $\delta_{II}$ $\delta_{III}$ N/mm <sup>2</sup>		Stress $\delta_{II}$ $\delta_{III}$ N/mm <sup>2</sup>		Stress $\delta_{II}$ $\delta_{III}$ N/mm <sup>2</sup>		Stress $\delta_{II}$ $\delta_{III}$ N/mm <sup>2</sup>		
P2812215	28.00	12.20	1.50	.75	2.25	.50	5.87	.11 709 235 261	.23 1,361 496 506	.34 1,966 782 738	.45 2,535 1,094 955	.56 3,077 1,431 1,157	.68 3,603 1,793 1,345							
P28131	28.00	13.00	1.00	.90	1.90	.90	3.79	.14 354 85 279	.27 641 206 537	.41 872 364 772	.54 1,061 558 986	.68 1,218 790 1,177	.81 1,355 1,057 1,347	AI 115139						
P2813125	28.00	13.00	1.25	.85	2.10	.68	4.74	.13 544 165 291	.26 1,017 363 562	.38 1,432 593 813	.51 1,801 856 1,046	.64 2,138 1,152 1,258	.77 2,453 1,481 1,451	AI 115149						
P281315	28.00	13.00	1.50	.70	2.20	.47	5.69	.11 665 226 250	.21 1,282 473 487	.32 1,860 743 710	.42 2,408 1,035 920	.53 2,933 1,349 1,117	.63 3,445 1,686 1,301	AI 115159						
P2814215	28.00	14.20	1.50	.65	2.15	.43	5.39	.10 633 216 246	.20 1,227 451 479	.29 1,789 706 701	.39 2,324 980 910	.49 2,841 1,274 1,106	.59 3,346 1,586 1,291							
P2861151	28.60	11.50	1.00	1.05	2.05	1.05	4.23	.16 428 62 304	.32 760 173 583	.47 1,012 331 835	.63 1,201 537 1,062	.79 1,345 791 1,262	.95 1,461 1,092 1,436	95007						
P28611511	28.60	11.50	1.10	1.05	2.15	.95	4.65	.16 524 98 319	.32 942 244 612	.47 1,272 438 878	.63 1,534 680 1,119	.79 1,745 969 1,334	.95 1,925 1,307 1,522	95008						
P286115125	28.60	11.50	1.25	1.05	2.30	.84	5.28	.16 697 152 340	.32 1,273 351 655	.47 1,749 599 943	.63 2,147 894 1,205	.79 2,488 1,238 1,442	.95 2,794 1,629 1,652	95009						
P3151221	31.50	12.20	1.00	.90	1.90	.90	5.20	.14 263 76 194	.27 476 181 373	.41 648 315 537	.54 788 479 685	.68 905 672 817	.81 1,007 893 934							
P315163125	31.50	16.30	1.25	.90	2.15	.72	5.60	.14 498 124 275	.27 926 278 532	.41 1,296 462 769	.54 1,621 675 988	.68 1,913 917 1,187	.81 2,184 1,189 1,368							
P31816102	31.80	16.00	1.02	1.06	2.08	1.04	4.75	.16 404 43 300	.32 717 125 575	.48 957 247 825	.64 1,138 409 1,050	.80 1,276 611 1,249	.95 1,388 853 1,424	AI 126340						
P31816158	31.80	16.00	1.58	.76	2.34	.48	7.36	.11 688 194 241	.23 1,324 408 469	.34 1,918 643 684	.46 2,479 898 886	.57 3,015 1,174 1,075	.68 3,537 1,470 1,251	AI 126362						
P341221	34.00	12.20	1.00	1.25	2.25	1.25	6.21	.19 420 12 265	.38 727 73 505	.56 942 183 720	.75 1,084 341 910	.94 1,172 549 1,076	1.13 1,228 806 1,218							
P34122125	34.00	12.20	1.25	1.10	2.35	.88	7.76	.17 524 109 245	.33 952 255 472	.50 1,300 439 678	.66 1,585 661 866	.83 1,826 921 1,034	.99 2,037 1,218 1,182							
P34912915	34.90	12.90	1.50	1.25	2.75	.83	9.73	.19 938 157 309	.38 1,716 360 595	.56 2,360 609 857	.75 2,900 904 1,096	.94 3,364 1,245 1,310	1.13 3,781 1,633 1,501							
P34913112	34.90	13.10	1.20	1.30	2.50	1.08	7.74	.20 623 58 297	.39 1,101 166 567	.59 1,459 324 812	.78 1,723 531 1,031	.98 1,919 788 1,224	1.17 2,071 1,095 1,391	95010						
P34913113	34.90	13.10	1.30	1.30	2.60	1.00	8.39	.20 736 88 308	.39 1,315 227 590	.59 1,764 415 846	.78 2,111 653 1,077	.98 2,383 940 1,281	1.17 2,610 1,278 1,460	95011						
P34913114	34.90	13.10	1.40	1.30	2.70	.93	9.03	.20 864 119 319	.39 1,558 288 613	.59 2,112 506 880	.78 2,557 775 1,122	.98 2,921 1,093 1,338	1.17 3,236 1,461 1,528	95012						
P349162125	34.90	16.20	1.25	1.15	2.40	.92	7.36	.17 578 82 290	.35 1,044 202 557	.52 1,417 361 801	.69 1,718 559 1,022	.86 1,965 794 1,221	1.04 2,180 1,069 1,396	AI 136349						
P34916215	34.90	16.20	1.50	1.10	2.60	.73	8.84	.17 816 149 300	.33 1,515 334 579	.50 2,116 553 837	.66 2,641 808 1,074	.83 3,110 1,098 1,289	.99 3,545 1,424 1,484	AI 136359						
P3491622	34.90	16.20	2.00	.80	2.80	.40	11.78	.12 1,114 240 234	.24 2,167 499 456	.36 3,170 777 667	.48 4,134 1,073 868	.60 5,070 1,388 1,057	.72 5,988 1,722 1,235	AI 136378						
P38119212	38.10	19.20	1.20	1.20	2.40	1.00	8.01	.18 501 48 274	.36 896 132 525	.54 1,201 251 753	.72 1,437 406 959	.90 1,623 596 1,143	1.08 1,777 822 1,304							
P381192183	38.10	19.20	1.83	.90	2.73	.49	12.22	.14 889 182 232	.27 1,708 385 452	.41 2,471 607 659	.54 3,189 850 853	.68 3,875 1,112 1,034	.81 4,540 1,395 1,203	AI 157572						
P381193515	38.10	19.35	1.50	1.40	2.90	.93	9.96	.21 1,083 91 388	.42 1,952 231 746	.63 2,644 419 1,072	.84 3,198 655 1,368	1.05 3,651 940 1,633	1.26 4,041 1,274 1,867	AI 157659						
P38119352	38.10	19.35	2.00	1.10	3.10	.55	13.28	.17 1,482 224 325	.33 2,825 478 631	.50 4,054 762 918	.66 5,193 1,076 1,186	.83 6,268 1,420 1,435	.99 7,301 1,793 1,664	AI 157678						
P381193525	38.10	19.35	2.50	.90	3.40	.36	16.60	.14 2,108 294 291	.27 4,121 609 569	.41 6,055 943 834	.54 7,929 1,298 1,087	.68 9,757 1,672 1,327	.81 11,558 2,067 1,554	AI 157698						

<b>Belleville Washers</b>								15% Defl.		30% Defl.		45% Defl.		60% Defl.		75% Defl.		90% Defl.		Previous Code No.
																				
Code No.	Outer Dia. (De) mm	Inner Dia. (Di) mm	Thick. (t) mm	Cone Ht. (ho) mm	Overall Ht. (lo) mm	Cone Ht. Thick. Ratio	Weight per 1000 pcs.	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N	Defl. mm	Force N			
								Stress $\delta_{II}$ $\delta_{III}$ N/mm <sup>2</sup>		Stress $\delta_{II}$ $\delta_{III}$ N/mm <sup>2</sup>		Stress $\delta_{II}$ $\delta_{III}$ N/mm <sup>2</sup>		Stress $\delta_{II}$ $\delta_{III}$ N/mm <sup>2</sup>		Stress $\delta_{II}$ $\delta_{III}$ N/mm <sup>2</sup>		Stress $\delta_{II}$ $\delta_{III}$ N/mm <sup>2</sup>		
P401422	40.00	14.20	2.00	1.05	3.05	.53	17.24	.16 228	1,111 213	.32 482	2,126 413	.47 760	3,062 601	.63 1,063	3,935 777	.79 1,391	4,763 939	.95 1,745	5,563 1,090	
P44516314	44.50	16.30	1.40	1.55	2.95	1.11	14.80	.23 46	738 253	.47 135	1,300 484	.70 268	1,716 693	.93 445	2,019 879	1.16 665	2,238 1,043	1.40 930	2,406 1,185	95013
P44516315	44.50	16.30	1.50	1.55	3.05	1.03	15.86	.23 68	850 262	.47 180	1,511 501	.70 336	2,017 718	.93 535	2,401 912	1.16 778	2,696 1,084	1.40 1,065	2,936 1,234	95014
P44516316	44.50	16.30	1.60	1.55	3.15	.97	16.91	.23 91	975 270	.47 225	1,748 517	.70 403	2,356 742	.93 625	2,833 945	1.16 891	3,216 1,125	1.40 1,200	3,539 1,284	95015
P4522422	45.00	22.40	2.20	1.05	3.25	.48	20.66	.16 187	1,270 228	.32 394	2,447 445	.47 620	3,546 648	.63 866	4,584 840	.79 1,131	5,578 1,020	.95 1,416	6,545 1,187	AI 178885
P4522425	45.00	22.40	2.50	1.00	3.50	.40	23.48	.15 224	1,695 234	.30 465	3,298 457	.45 724	4,825 669	.60 1,001	6,292 869	.75 1,296	7,716 1,059	.90 1,608	9,113 1,237	
P5025425	50.00	25.40	2.50	1.40	3.90	.56	28.59	.21 204	2,154 302	.42 436	4,101 587	.63 696	5,877 853	.84 984	7,519 1,102	1.05 1,301	9,063 1,332	1.26 1,646	10,546 1,545	
P50819416	50.80	19.40	1.60	1.70	3.30	1.06	21.74	.26 52	899 244	.51 143	1,592 467	.77 275	2,116 668	1.02 447	2,507 849	1.28 658	2,801 1,009	1.53 910	3,034 1,147	95016
P50819417	50.80	19.40	1.70	1.70	3.40	1.00	23.10	.26 70	1,020 251	.51 180	1,822 481	.77 331	2,444 690	1.02 521	2,924 878	1.28 752	3,302 1,044	1.53 1,022	3,615 1,190	95017
P50819418	50.80	19.40	1.80	1.70	3.50	.94	24.46	.26 72	1,291 320	.51 184	2,322 615	.77 336	3,141 884	1.02 528	3,792 1,127	1.28 761	4,321 1,345	1.53 1,034	4,775 1,537	95018
P5082582	50.80	25.80	2.00	1.50	3.50	.75	23.61	.23 120	1,324 282	.45 272	2,451 544	.68 455	3,415 786	.90 669	4,251 1,009	1.13 915	4,994 1,211	1.35 1,192	5,679 1,393	AI 201078
P50825825	50.80	25.80	2.50	1.50	4.00	.60	29.52	.23 199	2,301 322	.45 429	4,355 624	.68 690	6,205 906	.90 983	7,896 1,168	1.13 1,307	9,470 1,410	1.35 1,662	10,972 1,632	AI 201098
P5082583	50.80	25.80	3.00	1.20	4.20	.40	35.42	.18 253	2,791 270	.36 525	5,430 527	.54 818	7,944 771	.72 1,131	10,360 1,002	.90 1,463	12,705 1,221	1.08 1,816	15,004 1,427	AI 201011
P57222618	57.20	22.60	1.80	1.85	3.65	1.03	30.64	.28 55	1,074 236	.56 148	1,911 452	.83 278	2,553 648	1.11 445	3,041 824	1.39 650	3,418 980	1.67 891	3,725 1,116	95019
P57222619	57.20	22.60	1.90	1.90	3.80	1.00	32.34	.29 67	1,266 252	.57 173	2,261 484	.86 318	3,033 694	1.14 503	3,629 883	1.43 727	4,098 1,051	1.71 990	4,487 1,197	95020
P5722262	57.20	22.60	2.00	1.95	3.95	.98	34.05	.29 79	1,483 269	.59 199	2,657 516	.88 360	3,577 741	1.17 563	4,297 943	1.46 807	4,872 1,123	1.76 1,093	5,357 1,281	95021
P60332582	60.33	25.80	2.00	2.00	4.00	1.00	36.67	.30 62	1,431 265	.60 162	2,555 507	.90 301	3,428 728	1.20 480	4,102 927	1.50 697	4,631 1,103	1.80 953	5,071 1,258	AI231078
P603325825	60.33	25.80	2.50	2.00	4.50	.80	45.84	.30 137	2,352 297	.60 313	4,321 572	.90 527	5,974 825	1.20 781	7,380 1,056	1.50 1,073	8,605 1,264	1.80 1,405	9,718 1,451	AI 231098
P60332583	60.33	25.80	3.00	1.60	4.60	.53	55.01	.24 208	2,647 242	.48 441	5,058 469	.72 699	7,276 682	.96 982	9,341 882	1.20 1,290	11,295 1,067	1.44 1,622	13,181 1,238	AI 231011
P6352582	63.50	25.80	2.00	2.05	4.05	1.03	41.51	.31 54	1,332 240	.62 146	2,370 459	.92 274	3,168 658	1.23 439	3,775 837	1.54 642	4,245 996	1.85 881	4,629 1,134	95022
P63525822	63.50	25.80	2.20	2.25	4.45	1.02	45.66	.34 66	1,942 289	.68 177	3,457 554	1.01 332	4,621 794	1.35 532	5,510 1,010	1.69 777	6,198 1,201	2.03 1,066	6,760 1,368	95023
P635258235	63.50	25.80	2.35	2.10	4.45	.89	48.78	.32 101	1,973 269	.63 240	3,576 517	.95 418	4,873 744	1.26 635	5,932 949	1.58 891	6,816 1,134	1.89 1,186	7,591 1,297	95024
P63531752	63.50	31.75	2.00	2.00	4.00	1.00	37.29	.30 48	1,387 271	.60 132	2,476 521	.90 252	3,321 747	1.20 407	3,974 952	1.50 597	4,487 1,134	1.80 823	4,913 1,294	AI 251280
P63531753	63.50	31.75	3.00	1.55	4.55	.52	55.94	.23 179	2,456 238	.47 380	4,706 463	.70 602	6,784 674	.93 845	8,728 872	1.16 1,110	10,575 1,057	1.40 1,396	12,361 1,228	AI 251212