8 Round Casing Adjusted Plug Gage Standoff for Ovality

PMC Lone Star Technical Brief Doc. 109 Rev. A

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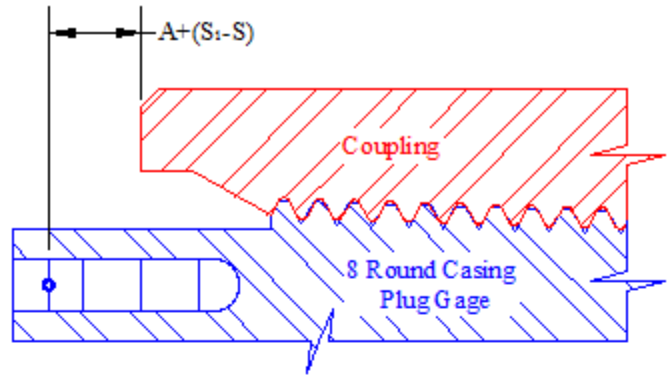
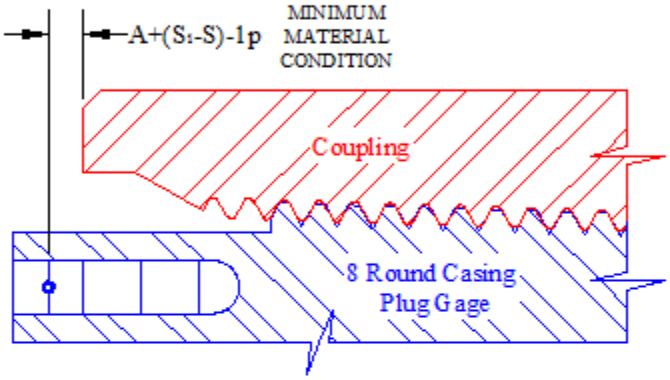
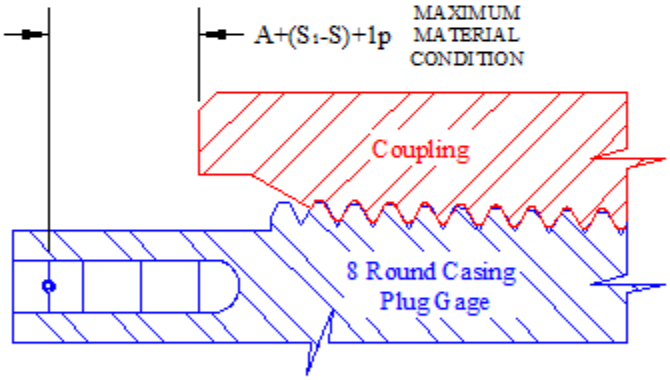
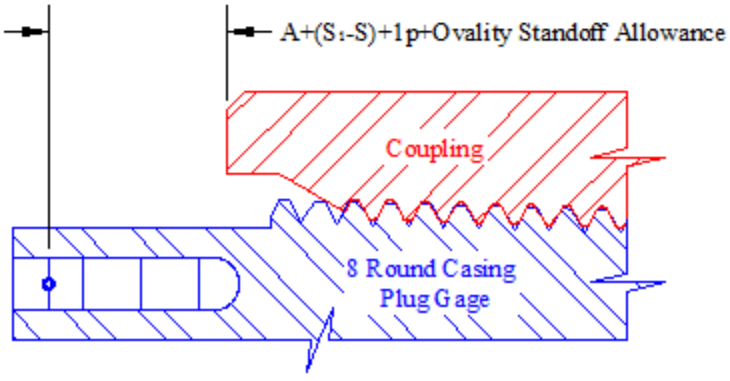
January 3, 2019

API Specification 5B 16th edition has added new requirements for inspecting ovality of 8-Round Casing couplings using crest diameter gages such as the CDRP. This addition of crest diameter inspection to the specification changes the allowable standoff of plug gages used to inspect couplings for functional size. The presence of ovality in a coupling will cause the plug gage to standoff further. The revised specification acknowledges this effect on standoff and provides guidance on allowable standoff variation based on the amount of ovality present. The ovality standoff allowance is added to the maximum standoff as prescribed within the specification, the minimum standoff remains unchanged.


A+(S1-S)
Coupling
8 Round Casing
Plug Gage


A+(S1-S)-1p
MINIMUM
MATERIAL
CONDITION
Coupling
8 Round Casing
Plug Gage


A+(S1-S)+1p
MAXIMUM
MATERIAL
CONDITION
Coupling
8 Round Casing
Plug Gage


A+(S1-S)+1p+Ovality Standoff Allowance
Coupling
8 Round Casing
Plug Gage

8 Round Casing A = 3 Turns

The basic standoff of a plug gage to an 8 Round Casing Coupling is A ± 1p

A = 0.375 (3 Turns)

p = 0.125 for all 8 Round Casing

Min Standoff = A – 1p = 0.250

Max Standoff = A + 1p + Ovality Standoff Allowance

Max Standoff = 0.500 + Ovality Standoff Allowance

8 Round Casing A = 3 Turns Coupling Standoff			
Thread Ovality (in.)	Ovality Standoff Allowance (in.)	Min Plug Gage Standoff A - 1p (in.)	Max Plug Gage Standoff A + 1p + Ovality Standoff Allowance (in.)
0.001	0.008	0.250	0.508
0.002	0.016	0.250	0.516
0.003	0.024	0.250	0.524
0.004	0.032	0.250	0.532
0.005	0.040	0.250	0.540
0.006	0.048	0.250	0.548
0.007	0.056	0.250	0.556
0.008	0.064	0.250	0.564
0.009	0.072	0.250	0.572
0.010	0.080	0.250	0.580
0.011	0.088	0.250	0.588
0.012	0.096	0.250	0.596
0.013	0.104	0.250	0.604
0.014	0.112	0.250	0.612
0.015	0.120	0.250	0.620
0.016	0.128	0.250	0.628
0.017	0.136	0.250	0.636
0.018	0.144	0.250	0.644
0.019	0.152	0.250	0.652
0.020	0.160	0.250	0.660
0.021	0.168	0.250	0.668
0.022	0.176	0.250	0.676
0.023	0.184	0.250	0.684
0.024	0.192	0.250	0.692
0.025	0.200	0.250	0.700
0.026	0.208	0.250	0.708
0.027	0.216	0.250	0.716
0.028	0.224	0.250	0.724

8 Round Casing A = 3-1/2 Turns

The basic standoff of a plug gage to an 8 Round Casing Coupling is A ± 1p

A = 0.438 (3-1/2 Turns)

p = 0.125 for all 8 Round Casing

Min Standoff = A – 1p = 0.313

Max Standoff = A + 1p + Ovality Standoff Allowance

Max Standoff = 0.563 + Ovality Standoff Allowance

8 Round Casing A = 3-1/2 Turns Coupling Standoff			
Thread Ovality (in.)	Ovality Standoff Allowance (in.)	Min Plug Gage Standoff A - 1p (in.)	Max Plug Gage Standoff A + 1p + Ovality Standoff Allowance (in.)
0.001	0.008	0.313	0.571
0.002	0.016	0.313	0.579
0.003	0.024	0.313	0.587
0.004	0.032	0.313	0.595
0.005	0.040	0.313	0.603
0.006	0.048	0.313	0.611
0.007	0.056	0.313	0.619
0.008	0.064	0.313	0.627
0.009	0.072	0.313	0.635
0.010	0.080	0.313	0.643
0.011	0.088	0.313	0.651
0.012	0.096	0.313	0.659
0.013	0.104	0.313	0.667
0.014	0.112	0.313	0.675
0.015	0.120	0.313	0.683
0.016	0.128	0.313	0.691
0.017	0.136	0.313	0.699
0.018	0.144	0.313	0.707
0.019	0.152	0.313	0.715
0.020	0.160	0.313	0.723
0.021	0.168	0.313	0.731
0.022	0.176	0.313	0.739
0.023	0.184	0.313	0.747
0.024	0.192	0.313	0.755
0.025	0.200	0.313	0.763
0.026	0.208	0.313	0.771
0.027	0.216	0.313	0.779
0.028	0.224	0.313	0.787
0.029	0.232	0.313	0.795
0.030	0.240	0.313	0.803
0.031	0.248	0.313	0.811
0.032	0.256	0.313	0.819
0.033	0.264	0.313	0.827

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8 Round Casing A = 3-1/2 Turns Coupling Standoff (Continued)			
Thread Ovality (in.)	Ovality Standoff Allowance (in.)	Min Plug Gage Standoff A - 1p (in.)	Max Plug Gage Standoff A + 1p + Ovality Standoff Allowance (in.)
0.034	0.272	0.313	0.835
0.035	0.280	0.313	0.843
0.036	0.288	0.313	0.851
0.037	0.296	0.313	0.859
0.038	0.304	0.313	0.867
0.039	0.312	0.313	0.875
0.040	0.320	0.313	0.883
0.041	0.328	0.313	0.891
0.042	0.336	0.313	0.899
0.043	0.344	0.313	0.907
0.044	0.352	0.313	0.915
0.045	0.360	0.313	0.923
0.046	0.368	0.313	0.931
0.047	0.376	0.313	0.939
0.048	0.384	0.313	0.947
0.049	0.392	0.313	0.955
0.050	0.400	0.313	0.963
0.051	0.408	0.313	0.971
0.052	0.416	0.313	0.979
0.053	0.424	0.313	0.987
0.054	0.432	0.313	0.995
0.055	0.440	0.313	1.003
0.056	0.448	0.313	1.011
0.057	0.456	0.313	1.019
0.058	0.464	0.313	1.027
0.059	0.472	0.313	1.035
0.060	0.480	0.313	1.043
0.061	0.488	0.313	1.051
0.062	0.496	0.313	1.059
0.063	0.504	0.313	1.067
0.064	0.512	0.313	1.075
0.065	0.520	0.313	1.083
0.066	0.528	0.313	1.091
0.067	0.536	0.313	1.099
0.068	0.544	0.313	1.107
0.069	0.552	0.313	1.115
0.070	0.560	0.313	1.123
0.071	0.568	0.313	1.131
0.072	0.576	0.313	1.139
0.073	0.584	0.313	1.147
0.074	0.592	0.313	1.155
0.075	0.600	0.313	1.163
0.076	0.608	0.313	1.171
0.077	0.616	0.313	1.179
0.078	0.624	0.313	1.187
0.079	0.632	0.313	1.195
0.080	0.640	0.313	1.203

8 Round Casing A = 4 Turns

The basic standoff of a plug gage to an 8 Round Casing Coupling is A ± 1p

A = 0.500 (4 Turns)

p = 0.125 for all 8 Round Casing

Min Standoff = A – 1p = 0.375

Max Standoff = A + 1p + Ovality Standoff Allowance

Max Standoff = 0.625 + Ovality Standoff Allowance

8 Round Casing A = 4 Turns Coupling Standoff			
Thread Ovality (in.)	Ovality Standoff Allowance (in.)	Min Plug Gage Standoff A - 1p (in.)	Max Plug Gage Standoff A + 1p + Ovality Standoff Allowance (in.)
0.001	0.008	0.375	0.633
0.002	0.016	0.375	0.641
0.003	0.024	0.375	0.649
0.004	0.032	0.375	0.657
0.005	0.040	0.375	0.665
0.006	0.048	0.375	0.673
0.007	0.056	0.375	0.681
0.008	0.064	0.375	0.689
0.009	0.072	0.375	0.697
0.010	0.080	0.375	0.705
0.011	0.088	0.375	0.713
0.012	0.096	0.375	0.721
0.013	0.104	0.375	0.729
0.014	0.112	0.375	0.737
0.015	0.120	0.375	0.745
0.016	0.128	0.375	0.753
0.017	0.136	0.375	0.761
0.018	0.144	0.375	0.769
0.019	0.152	0.375	0.777
0.020	0.160	0.375	0.785
0.021	0.168	0.375	0.793
0.022	0.176	0.375	0.801
0.023	0.184	0.375	0.809
0.024	0.192	0.375	0.817
0.025	0.200	0.375	0.825
0.026	0.208	0.375	0.833
0.027	0.216	0.375	0.841
0.028	0.224	0.375	0.849
0.029	0.232	0.375	0.857
0.030	0.240	0.375	0.865
0.031	0.248	0.375	0.873
0.032	0.256	0.375	0.881
0.033	0.264	0.375	0.889

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8 Round Casing A = 4 Turns Coupling Standoff (Continued)			
Thread Ovality (in.)	Ovality Standoff Allowance (in.)	Min Plug Gage Standoff A - 1p (in.)	Max Plug Gage Standoff A + 1p + Ovality Standoff Allowance (in.)
0.034	0.272	0.375	0.897
0.035	0.280	0.375	0.905
0.036	0.288	0.375	0.913
0.037	0.296	0.375	0.921
0.038	0.304	0.375	0.929
0.039	0.312	0.375	0.937
0.040	0.320	0.375	0.945
0.041	0.328	0.375	0.953
0.042	0.336	0.375	0.961
0.043	0.344	0.375	0.969
0.044	0.352	0.375	0.977
0.045	0.360	0.375	0.985
0.046	0.368	0.375	0.993
0.047	0.376	0.375	1.001
0.048	0.384	0.375	1.009
0.049	0.392	0.375	1.017
0.050	0.400	0.375	1.025
0.051	0.408	0.375	1.033
0.052	0.416	0.375	1.041
0.053	0.424	0.375	1.049
0.054	0.432	0.375	1.057
0.055	0.440	0.375	1.065
0.056	0.448	0.375	1.073
0.057	0.456	0.375	1.081
0.058	0.464	0.375	1.089
0.059	0.472	0.375	1.097
0.060	0.480	0.375	1.105
0.061	0.488	0.375	1.113
0.062	0.496	0.375	1.121
0.063	0.504	0.375	1.129
0.064	0.512	0.375	1.137
0.065	0.520	0.375	1.145
0.066	0.528	0.375	1.153
0.067	0.536	0.375	1.161
0.068	0.544	0.375	1.169
0.069	0.552	0.375	1.177
0.070	0.560	0.375	1.185
0.071	0.568	0.375	1.193
0.072	0.576	0.375	1.201
0.073	0.584	0.375	1.209
0.074	0.592	0.375	1.217
0.075	0.600	0.375	1.225
0.076	0.608	0.375	1.233
0.077	0.616	0.375	1.241
0.078	0.624	0.375	1.249
0.079	0.632	0.375	1.257
0.080	0.640	0.375	1.265