

Calculated Allowable Bearing & Pullover for Masonry Screws & P.D.F.'s

Calculation Sheet: Bearing & Pullover-01

MAM 12/10/04

AISI Calculated Allowable Bearing & Pullover for Masonry Screws & P.D.F.'s											
											FOS = 3
Material Thickness (mils)	Design Thickness (in)	Material Strength		0.145" ϕ P.D.F. Shank= 0.145 Head= 0.300		0.177" ϕ P.D.F. Shank= 0.177 Head= 0.300		3/16" Masonry Shank= 0.1875 Head= 0.375		1/4" Masonry Shank= 0.2500 Head= 0.375	
		F _y (ksi)	F _u (ksi)	Bearing (lbs)	Pullover (lbs)	Bearing (lbs)	Pullover (lbs)	Bearing (lbs)	Pullover (lbs)	Bearing (lbs)	Pullover (lbs)
33	0.0346	33	45	203	234	248	234	263	292	350	292
43	0.0451	33	45	265	304	323	304	342	381	457	381
54	0.0566	33	45	332	382	406	382	430	478	573	478
		50	65	480	552	586	552	621	690	828	690
68	0.0713	33	45	419	481	511	481	541	602	722	602
		50	65	605	695	738	695	782	869	1043	869
97	0.1017	33	45	597	686	729	686	772	858	1030	858
		50	65	863	992	1053	992	1116	1239	1487	1239
118	0.1242	33	45	729	838	890	838	943	1048	1258	1048
	0.1242	50	65	1054	1211	1286	1211	1362	1514	1816	1514

	Min. Edge Distance	Min. Spacing	Min. Material Thickness
Steel	1/4"	1"	1/8"
Concrete	2"	3"	3 x Embedment

PDF's and Masonry Table Notes:

- 1.) All values were calculated using the 2001 AISI Specification
- 2.) Shear values were based on the tilting and bearing modes of failure Eq. E.4.3.1-2
- 3.) Tension values were based off the material pulling over the fastener using Eq. E.4.4.2-1
- 4.) Allowable loads are based on a Safety Factor of 3.0
- 5.) E4.3.2 states that the Bearing Strength < Pns = t*e*Fu

AISI Calculated Allowable Bearing & Pullover for Screws											
											FOS = 3
Material Thickness (mils)	Design Thickness (in)	Material Strength		#8-18 Screw		#10-16 Screw		#12-14 Screw		1/4"-14 Screw	
		F _y (ksi)	F _u (ksi)	Bearing (lbs)	Pullover (lbs)	Bearing (lbs)	Pullover (lbs)	Bearing (lbs)	Pullover (lbs)	Bearing (lbs)	Pullover (lbs)
				Shank=0.16	Shank=0.190	Shank=0.210	Shank=0.240				
33	0.0346	33	45	224	195	266	243	294	243	336	243
43	0.0451	33	45	292	254	347	317	384	317	438	317
54	0.0566	33	45	367	318	436	398	481	398	550	398
		50	65	530	460	629	575	695	575	795	575
68	0.0713	33	45	N/A	N/A	549	501	606	501	693	501
		50	65	N/A	N/A	792	724	876	724	1001	724
97	0.1017	33	45	N/A	N/A	783	715	865	715	989	715
		50	65	N/A	N/A	1130	1033	1249	1033	1428	1033
118	0.1242	33	45	N/A	N/A	N/A	N/A	1056	873	1207	873
		50	65	N/A	N/A	N/A	N/A	1526	1261	1744	1261

Screw Table Notes:

- 1.) All values were calculated using the 2001 AISI Specification
- 2.) Shear values were based on the tilting and bearing modes of failure Eq. E.4.3.1-2
- 3.) Tension values were based off the material pulling over the fastener using Eq. E.4.4.2-1
- 4.) Minimum Spacing of Screws is determined by E4.1 stating spacing shall not be less than 3d
- 5.) Edge Distance is determined by E4.2 stating that edge distance shall not be less than 3d