Earnest Technical Bulletin

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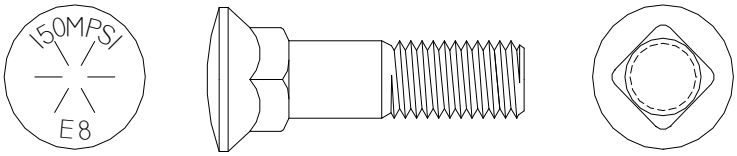
#3 Domed Head Plow Bolt

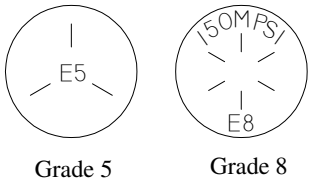


The Earnest Machine Products line of #3 Dome Head Plow Bolts are specially design to provide added ease of assembly and greater resistance to failure in service as compared to a standard flat head design.

- Thicker domed head provides greater wear resistance.
- Specialized head diameter provide for a tighter fit in countersunk holes.
- Head design will fit into all applications designed for # 3 Heads.
- Deeper depth of square provides fuller engagement.
- Smaller transition angle on the corners of the square provides for a greater resistance against spinning in the hole during installation.
- Tighter tolerance on the body diameter for sizes 5/8 and larger, minimizes the potential of the bolt moving in the hole, which can result in the assembly coming loose and causing rounding out of the installation holes.

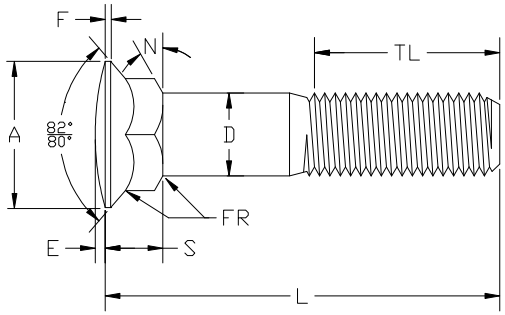
Two strength levels are available (depending on size and availability):

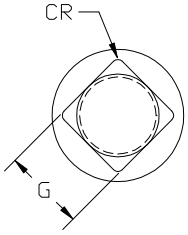
- Grade 5 (per SAE J429) 120,000 psi minimum Tensile Strength
  Standard Duty, Good Strength to Toughness Ratio
- Grade 8 (per SAE J429) 150,000 psi minimum Tensile Strength
  Heavy Duty, Best Strength to Toughness Ratio



Grade 5

Grade 8





Size	Head Diameter			Body Dia.		Dome Hgt	Feed Thick		Width of Square		Depth of Square		Fillet Rad		Corner Rad		Transition Angle
	A			D		E	F		G		S		FR		CR		N
	Sharp	Max	Min	Max	Min	Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Nominal
1/2 – 13	.945	.890	.875	.500	.483	-	.042	-	.515	.500	.417	.375	.062	-	.047	-	30°
5/8 – 11	1.197	1.044	1.013	.625	.611	.10	.120	.050	.640	.625	.516	.466	.062	.015	.094	.030	30°
3/4 – 10	1.488	1.200	1.169	.750	.735	.11	.160	.090	.765	.750	.581	.541	.125	.031	.109	.030	30°
7/8 – 9	1.745	1.409	1.369	.875	.859	.11	.170	.100	.906	.875	.663	.613	.125	.031	.125	.050	30°
1 – 8	1.933	1.597	1.557	1.000	.983	.12	.170	.100	1.031	1.000	.737	.677	.125	.031	.141	.050	30°
1 1/8 – 7	-	1.910	1.790	1.125	1.098	.18	.160	.120	1.160	1.125	.810	.765	.125	.031	.156	.062	30°
1 1/4 - 7	-	2.087	1.969	1.250	1.223	.19	.180	.140	1.290	1.250	.945	.892	.177	.062	.172	.062	30°
1 3/8 – 6	-	2.323	2.205	1.375	1.345	.22	.200	.160	1.421	1.370	1.063	1.010	.177	.062	.187	.062	30°
1 1/2 – 6	-	2.520	2.401	1.500	1.470	.25	.200	.160	1.559	1.496	1.181	1.122	.177	.062	.203	.078	30°

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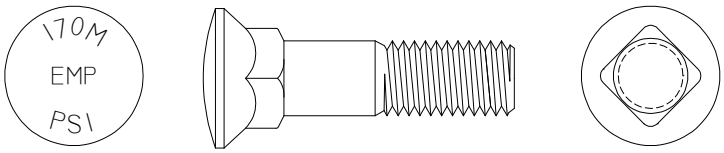
3 Dome Scraper Bolt

170M Strength Level

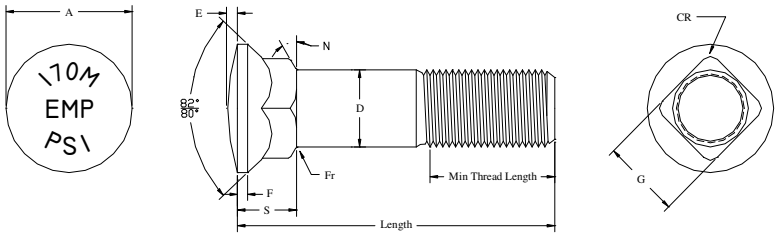


The Earnest Machine Products line of #3 Dome Scraper Bolts are manufactured to a higher hardness and strength (170,000 psi) than our standard Grade 8 line to provide additional wear resistance for demanding scraper blade applications. The head design is the same as our grade 8 line to fit in all # 3 Head plow bolt applications. The domed head design provides added ease of assembly and greater resistance to failure in service as compared to a standard flat head design.

- Higher hardness and strength along the domed head provides added wear resistance.
- Specialized head diameter provides for a tighter fit in countersunk holes.
- Head design will fit in all applications designed for # 3 head bolts
- Deeper depth of square provides fuller engagement.
- Smaller transition angle on the corners of the square provides for a greater resistance against spinning in the hole during installation.
- Tighter tolerance on the body diameter for sizes 5/8 and larger, minimizes the potential of the bolt moving in the hole, which can result in the assembly coming loose and causing rounding out of the installation holes.

170M head marking ensures the highest strength and best wear resistance.

- 170,000 psi minimum Tensile Strength
- 140,000 psi min Proof Load Strength
- Hardness Rc 37/42



Size	Head Diameter			Body Dia.		Dome Hgt	Feed Thick		Width of Square		Depth of Square		Fillet Rad		Corner Rad		Transition Angle
	A			D		E	F		G		S		FR		CR		N
	Sharp	Max	Min	Max	Min	Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Nominal
5/8 – 11	1.197	1.044	1.013	.625	.611	.10	.120	.050	.640	.625	.516	.466	.062	.015	.094	.030	30°
3/4 – 10	1.488	1.200	1.169	.750	.735	.11	.160	.090	.765	.750	.581	.541	.125	.031	.109	.030	30°
7/8 – 9	1.745	1.409	1.369	.875	.859	.11	.170	.100	.906	.875	.663	.613	.125	.031	.125	.050	30°
1 – 8	1.933	1.597	1.557	1.000	.983	.12	.170	.100	1.031	1.000	.737	.677	.125	.031	.141	.050	30°
1 1/8 – 7	-	1.910	1.790	1.125	1.098	.18	.160	.120	1.160	1.125	.810	.765	.125	.031	.156	.062	30°
1 1/4 - 7	-	2.087	1.969	1.250	1.223	.19	.180	.140	1.290	1.250	.945	.892	.177	.062	.172	.062	30°
1 3/8 – 6	-	2.323	2.205	1.375	1.345	.22	.200	.160	1.421	1.370	1.063	1.010	.177	.062	.187	.062	30°
1 1/2 – 6	-	2.520	2.401	1.500	1.470	.25	.200	.160	1.559	1.496	1.181	1.122	.177	.062	.203	.078	30°

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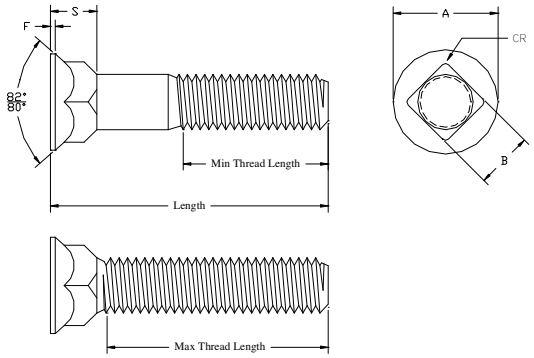
3 Regular Flat Head Plow Bolt

Earnest Machine Products line of #3 Head Plow Bolts in sizes 3/8 to 5/8 diameters are manufactured to the dimensions specified by ASME/ANSI B18.9 for Regular Head Series.



ASME/ANSI B18.9 Plow Bolts – # 3 Flat Head Tolerances (Regular Head Series)

Size	Head Diameter A		Width of Square B		Feed Thick F		Head Thickness S		Corner Rad CR
	Max	Min	Max	Min	Max	Min	Max	Min	Max
3/8 – 16	.708	.656	.387	.375	.031	.000	.312	.281	.047
7/16 – 14	.826	.766	.450	.438	.036	.000	.364	.328	.047
1/2 – 13	.945	.875	.515	.500	.042	.000	.417	.375	.047
5/8 – 11	1.147	1.063	.640	.625	.050	.000	.506	.456	.078

Earnest also stocks the Dome Head style in sizes 5/8 and larger.

The thread lengths for Earnest line of plow bolts in these sizes will have a minimum thread length of 2 x Dia + 1/4 to a maximum thread length of threaded to the head.

Flat Head Plow Bolt Thread Lengths

Overall Length	Thread Length per Bolt Diameter							
	3/8		7/16		1/2		5/8	
	Min	Max	Min	Max	Min	Max	Min	Max
1	T to H	-	T to H	-	T to H	-	T to H	-
1 1/4	T to H	-	T to H	-	T to H	-	T to H	-
1 1/2	1	T to H	T to H	-	T to H	-	T to H	-
1 3/4	1	T to H	1 1/8	T to H	1 1/4	T to H	T to H	-
2	1	T to H	1 1/8	T to H	1 1/4	T to H	T to H	-
2 1/4	1	T to H	1 1/8	T to H	1 1/4	T to H	1 1/2	T to H
2 1/2	1	T to H	1 1/8	T to H	1 1/4	T to H	1 1/2	T to H
2 3/4	1	T to H	1 1/8	T to H	1 1/4	T to H	1 1/2	T to H
3 to 6	1	T to H	1 1/8	T to H	1 1/4	T to H	1 1/2	T to H

T to H = Threaded to Head