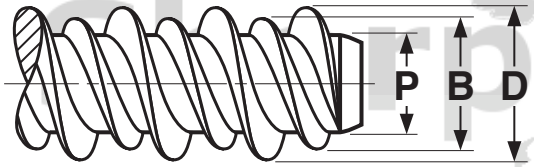
High-Low Style

THREAD FORMING



THREAD AND HOLE DIMENSIONS FOR HIGH-LOW THREAD FORMING SCREWS						Elco*, ASME B18.6.3
Screw Size	D	B	P	Pilot Hole Diameter Flexural Modulus of Plastic		Minimum Torsional Strength, lb. in. (STEEL SCREWS ONLY)
	High Thread Diameter	Low Thread Diameter	Point Diameter	Up to 200,000 P.S.I.	200,000-400,000 P.S.I.	
2-32	.084 - .090	.069	.050 - .058	.0670	.0700	-
3-28	.095 - .105	.078	.057 - .065	.0730	.0781	-
4-24	.105 - .115	.086	.061 - .070	.0810	.0860	4
5-20	.119 - .125	.100	.073 - .082	.0935	.0995	9
6-19	.135 - .145	.108	.080 - .090	.1015	.1100	13
7-19	.148 - .158	.130	.089 - .100	.1200	.1250	18
8-18	.160 - .170	.130	.095 - .105	.1200	.1285	18
10-16	.185 - .195	.145	.099 - .110	.1360	.1440	30
12-16	.210 - .220	.167	.125 - .137	.1570	.1660	39
1/4-15	.250 - .260	.200	.161 - .175	.1890	.2010	56
5/16-14	.307 - .317	.250	.200 - .212	.2380	.2500	142
Tolerance on Length			Up to 1 in., Incl.: +0, -3/64		Over 1 in.: +0, -1/16	

Description	A thread forming screw with a double-lead, consisting of a high and low thread. The lower thread varies in height from 1/3 to 1/2 that of the higher thread, which is sharper and flatter than a standard thread.
Applications/ Advantages	For use in plastic, nylon, wood or other low-density materials. Thread design reduces driving torques, enhances resistance to thread stripping, improves pullout strength and lessens risk of cracking the work piece.
Material	***Steel***: 1019-1022 or equivalent steel. ***Stainless***: 410 martensitic or 18-8 austenitic stainless steel
Heat Treatment	***Steel:*** Screws shall be quenched in liquid and then tempeared by reheating to 650°F minimum. ***410 Stainless:*** An ideal method of hardening 410 stainless screws is a bright hardening process, which typically involves a vacuum furnace. Another key factor affecting hardness is the chemistry of the fastener--most elements have maximum values but not minimums. This fact can contribute to hardness variance.
Case Hardness	***Steel:*** Rockwell C45 minimum
Case Depth (steel)	No. 2 thru 6 diameter: .002 - .007 No. 8 thru 12 diameter: .004 - .009 1/4" diameter and larger: .005 - .011
Core Hardness	***Steel (after tempering):*** Rockwell C28 - 36 ***410 Stainless:*** Rockwell C38 - 46 (approx.) ***18-8 Stainless:*** Rockwell B100 (approx.)
Plating	See Appendix-A

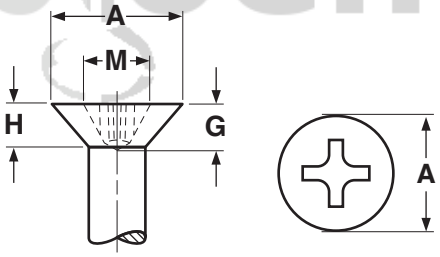
* Elco is the original writer of high-low screw dimensions

HEAD DIMENSIONS

High-Low Style

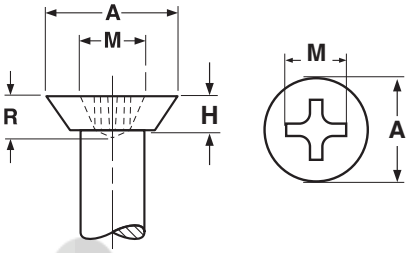
Head & Drive Dimensions for Phillips Flat High-Low

Nominal Size	A		H	M		G		Driver Size
	Head Diameter		Head Height	Recess Diameter		Recess Penetration Gaging Depth		
	Max	Min	Ref	Max	Min	Max	Min	
2	.162	.144	.051	.102	.089	.056	.040	1
4	.212	.191	.067	.128	.115	.082	.066	1
6	.262	.238	.083	.174	.161	.095	.072	2
8	.312	.285	.100	.189	.176	.110	.087	2
10	.362	.333	.116	.204	.191	.125	.102	2
12	.412	.380	.132	.268	.255	.139	.116	3
1/4	.477	.442	.153	.283	.270	.154	.131	3



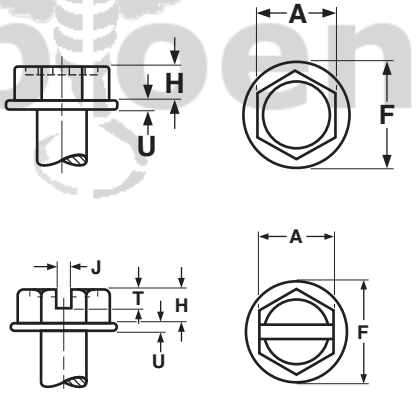
Head & Drive Dimensions for Phillips Flat Undercut High-Low

Nominal Size	A		H		M	G		Driver Size
	Head Diameter		Head Height		Recess Diameter	Recess Penetration Gaging Depth		
	Max	Min	Max	Min	Ref	Max	Min	
4	.212	.191	.047	.038	.110	.071	.055	1
6	.262	.238	.059	.048	.140	.067	.044	2
8	.312	.285	.070	.058	.168	.095	.072	2
10	.362	.333	.081	.068	.182	.110	.087	2



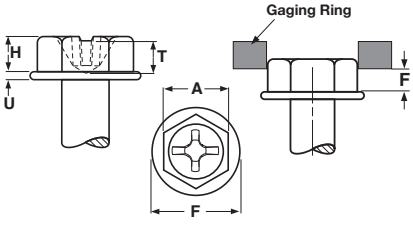
Head & Drive Dimensions For Hex Washer High-Low

Nominal Size	A		T		J		H		F		U	
	Width Across Flats		Slot Depth		Slot Width		Height of Head		Diameter of Washer		Thickness of Washer	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
4	.125	.120	-	-	-	-	.055	.044	.177	.163	.016	.010
6	.187	.181	.049	.030	.043	.035	.070	.058	.260	.240	.025	.015
8	.250	.244	.053	.033	.048	.039	.093	.080	.328	.302	.025	.015
10	.250	.244	.074	.052	.054	.045	.110	.096	.348	.322	.031	.019
12	.312	.305	.103	.077	.067	.056	.155	.139	.432	.398	.039	.022
1/4	.375	.367	.111	.083	.075	.064	.190	.172	.520	.480	.050	.030
5/16	.375	.367	.111	.083	.075	.064	.190	.172	.520	.480	.050	.030



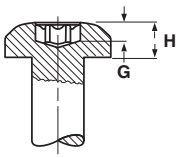
Head & Drive Dimensions For Phillips Hex Washer High-Low

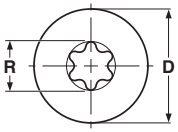
Nominal Size	A		H		F		U		T		Driver Size
	Width Across Flats		Height of Head		Diameter of Washer		Thickness of Washer		Recess Penetration Gaging Depth		
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
10	.250	.244	.110	.096	.348	.322	.031	.019	.115	.090	2



High-Low Style

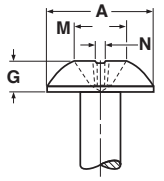
HEAD DIMENSIONS





Head & Drive Dimensions for Six-Lobe Pan High-Low Screws

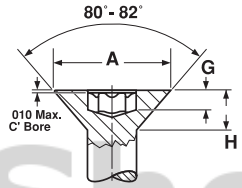
Nominal Size	A		H		R	G		Fallaway Gauge Penetration	Driver Size
	Head Diameter		Head Height		Recess Diameter	Recess Gauge Penetration			
	Max	Min	Max	Min	Ref	Max	Min	Max	
2	.167	.155	.062	.053	.094	.035	.030	.019	T8
4	.193	.180	.071	.062	.094	.038	.033	.019	T8
6	.254	.240	.097	.087	.111	.055	.045	.022	T10
8	.270	.256	.097	.087	.132	.055	.045	.026	T15
10	.322	.306	.115	.105	.155	.070	.055	.031	T20
1/4	.492	.473	.175	.162	.221	.100	.085	.044	T30

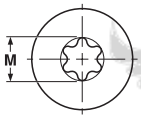




Head & Drive Dimensions for Truss Phillips High-Low

Nominal Size	A		H		M	N	G		Driver Size
	Head Diameter		Head Height		Recess Diameter	Recess Width	Recess Penetration Gaging Depth		
	Max	Min	Max	Min	Ref	Ref	Max	Min	
4	.226	.211	.061	.051	.104	.018	.059	.042	1
6	.289	.272	.078	.066	.122	.019	.078	.060	1
8	.321	.303	.086	.074	.152	.027	.073	.048	2
10	.384	.364	.102	.088	.166	.029	.088	.063	2





Head & Drive Dimensions for Six-Lobe Flat High-Low Screws

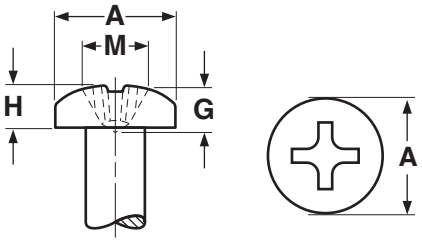
Nominal Size	A		H	R	G		Fallaway	Driver Size
	Head Diameter		Head Height	Recess Diameter	Recess Gauge Penetration			
	Max	Min	Ref	Ref	Max	Min	Max	
2	.162	.144	.051	.069	.022	.017	.014	T6
4	.212	.191	.067	.094	.033	.028	.019	T8
6	.262	.238	.083	.111	.045	.035	.022	T10
8	.312	.285	.100	.132	.051	.040	.026	T15
10	.362	.333	.116	.155	.065	.050	.031	T20
1/4	.477	.442	.153	.200	.090	.075	.040	T27

HEAD DIMENSIONS

High-Low Style

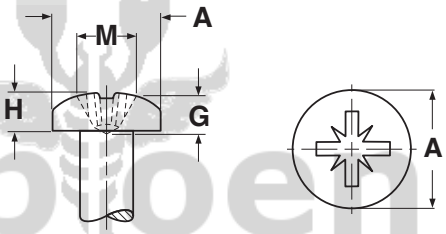
Head & Drive Dimensions for Phillips Pan High-Low

Nominal Size	A		H		M		G		Driver Size
	Head Diameter		Head Height		Recess Diameter		Recess Penetration Gaging Depth		
	Max	Min	Max	Min	Max	Min	Max	Min	
2	.167	.155	.062	.053	.104	.091	.052	.034	1
3	.167	.155	.062	.053	.104	.091	.052	.034	1
4	.193	.180	.071	.062	.112	.099	.061	.043	1
5	.219	.205	.080	.070	.122	.109	.071	.053	1
6	.254	.240	.097	.087	.158	.145	.072	.046	2
7 & 8	.270	.256	.097	.087	.166	.153	.080	.055	2
10	.322	.306	.115	.105	.182	.169	.097	.071	2
12	.373	.357	.133	.122	.199	.186	.113	.089	2
1/4	.492	.473	.175	.162	.281	.268	.144	.118	3



Head & Drive Dimensions for Pozi Pan High-Low

Nominal Size	A		H		M	G		Driver Size
	Head Diameter		Head Height		Recess Diameter	Recess Penetration Gaging Depth		
	Max	Min	Max	Min	Ref	Max	Min	
4	.193	.180	.071	.062	.105	.062	.046	1
6	.254	.240	.097	.087	.155	.076	.058	2
8	.270	.256	.097	.087	.155	.076	.058	2
10	.322	.306	.115	.105	.170	.092	.074	2



Head & Drive Dimensions for Six-Lobe Flat Undercut High-Low

Nominal Size	A		H		B	R	Driver Size
	Head Diameter		Head Height		Recess Diameter	Recess Penetration Gaging Depth	
	Max	Min	Max	Min	Ref	Max	
4	.225	.195	.047	.038	.094	.020	T8
6	.279	.244	.059	.048	.111	.024	T10
8	.332	.292	.070	.058	.132	.035	T15
10	.385	.340	.081	.068	.155	.045	T20

