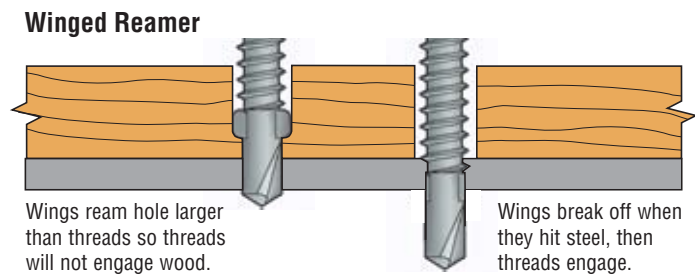
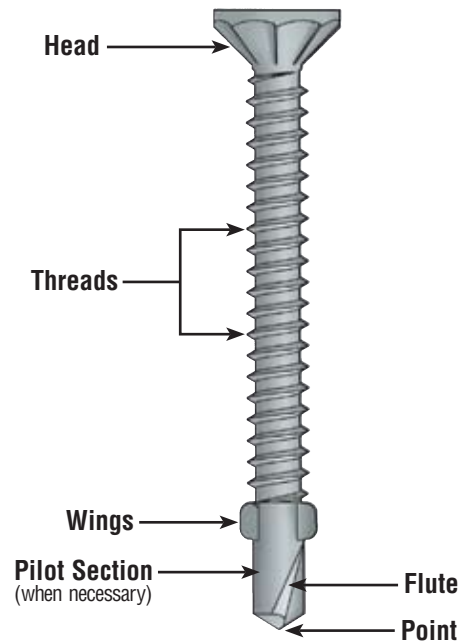


# HOW SELF-DRILLING SCREWS WORK

When selecting a self-drilling screw it is important to select a suitable point for the material thickness. Three key things to be aware of:

- 1. Drill Flute:** The height of the flutes determines the material thickness which the screw can penetrate. Since the flutes remove debris during drilling, if they become completely embedded in the material, debris will become trapped in the flutes and cutting action will cease. This will cause the point to heat up and break.
- 2. Point Length:** The unthreaded portion of the point, known as the pilot section, must be long enough to completely penetrate the material before the threads engage. Since the threads advance faster than the drilling process, if they engage before drilling is done the fastener can bind and break.
- 3. Fastening Thicker Material to Metal:** When fastening thicker materials such as wood-to-metal, it is necessary to use a fastener with “wings” on the shaft. The wings will enlarge the hole in the fastened material so that the threads can pass through without binding or damage. Once the wings contact the metal they break away and the threads engage.



## SCREW SUITABILITY

Screw Point Type	Screw Size	Suitable Material Thickness <sup>1</sup> (in)
#2	6	.035 – .100
	8	.035 – .100
	10	.035 – .110
#3	8	.100 – .140
	10	.110 – .175
	12	.110 – .210
	14	.110 – .220
#4	12	.175 – .220
	14	.175 – .250
#5	12	.250 – .500

1. Total thickness of all steel including any spacing between layers.

## STEEL THICKNESS

Gauge	Mils	Design Thickness		Minimum Thickness	
		Inches	(mm)	Inches	(mm)
25	18	0.0188	0.48	0.0179	0.45
22	27	0.0283	0.72	0.0269	0.68
20 (drywall)	30	0.0312	0.79	0.0296	0.75
20 (structural)	33	0.0346	0.88	0.0329	0.84
18	43	0.0451	1.14	0.0428	1.09
16	54	0.0566	1.44	0.0538	1.37
14	68	0.0713	1.81	0.0677	1.72
12	97	0.1017	2.58	0.0966	2.45

1. One "mil" is 1/1000 (.001) of an inch. Mil thickness measures the uncoated based material.