AJAX TYPES AB, B SELF-TAPPING SCREWS
In mild steel, brass, aluminium alloy, stainless steel and monel metal sheet

NOTE: It is important that the correct hole size is used and the recommendations below should be followed. If a very hard material is being used, a hole size slightly larger may have to be used, and in very soft material a smaller hole may be necessary. If any difficulty is encountered, send a sample of your application to us and we will be pleased to carry out tests to determine the optimum screw type, gauge and pilot hole size.

Screw size (No.) and nominal dia.	Material thickness			Pierced or extruded hole dia. in.	Drilled or clean-punched holes		
	in.	mm	SWG or fraction		Hole dia required in.	Drill size mm	Alternatives
4 (0.112")	0.018	0.45	26	-	0.081	2.05	46
	0.036	0.91	20	0.098	0.091	2.30	42
	0.064	1.62	16	-	0.095	2.40	41
	0.080	2.03	14	-	0.102	2.60	38
6 (0.138")	0.018	0.45	26	-	0.092	2.35	42
	0.036	0.91	20	0.111	0.110	2.80	35
	0.064	1.62	16	-	0.116	2.95	32
	0.080	2.03	14	-	0.122	3.10	31
	0.104	2.64	12	-	0.126	3.20	30
7 (0.151")	0.036	0.91	20	0.120	0.118	3.00	32
	0.064	1.62	16	-	0.126	3.20	1/8"
	0.080	2.03	14	-	0.130	3.30	30
	0.104	2.64	12	-	0.134	3.40	29
8 (0.164")	0.028	0.71	22	-	0.114	2.90	33
	0.036	0.91	20	0.136	0.122	3.10	1/8"
	0.048	1.22	18	-	0.126	3.20	30
	0.064	1.62	16	-	0.134	3.40	29
	0.104	2.64	12	-	0.146	3.70	26
	0.125	3.18	1/8"	-	0.150	3.80	25
10 (0.186")	0.028	0.71	22	-	0.134	3.40	29
	0.048	1.22	18	-	0.142	3.60	28
	0.064	1.62	16	-	0.150	3.80	25
	0.104	2.64	12	-	0.161	4.10	20
	0.125	3.18	1/8"	-	0.169	4.30	18
	0.187	4.75	3/16"	-	0.177	4.50	16
12 (0.212")	0.028	0.71	22	-	0.161	4.10	20
	0.048	1.22	18	-	0.169	4.30	18
	0.064	1.62	16	-	0.177	4.50	16
	0.104	2.64	12	-	0.189	4.80	12
	0.125	3.18	1/8"	-	0.193	4.90	10
	0.187	4.75	3/16"	-	0.201	5.10	7
14 (0.242")	0.048	1.22	18	-	0.189	4.80	12
	0.064	1.62	16	-	0.205	5.20	6
	0.080	2.03	14	-	0.213	5.40	3
	0.125	3.18	1/8"	-	0.224	5.70	1
	0.187	4.75	3/16"	-	0.232	5.90	A
	0.250	6.35	1/4"	-	0.236	6.00	B

WHICH SCREW TO USE

THREAD FORM	TYPE	USES
	TYPE 'AB'	Sheet metal self tapper with a gimlet point.
	TYPE 'B' OR 'Z'	Self tapper point - used for thicker gauge sheet.
	TYPE 'D'	Slot produces a thread cutting feature. Often used as a paint remover in a tapped hole.
	TYPE 'F'	Slot produces a thread cutting feature. Often used as a paint remover in a tapped hole.
	TYPE 'G'	Slot produces a thread cutting feature. Often used as a paint remover in a tapped hole.
	TYPE '23'	Self tapper with a machine screw thread and an improved thread cutting feature. Normally used in metal tapping.
	TYPE '25'	Type 'B' self tapper with machined thread cutting flute. Normally used in plastic tapping.
	TYPE '17'	Type 'A' or 'AB' self tapper with a cut flute. Acts as a low performance self drilling screw in thin sheet.
	TYPE 'Y'	Similar to type BF but with flutes extending for the length of the thread. Use in castings, brittle moulding and where thread cutting is required in softer plastics.

STAINLESS STEEL SELF-TAPPING SCREWS

Stainless Steel Self-Tapping Screws marketed by Ajax Fasteners are manufactured from an Austenitic Steel which falls within the 18 per cent chromium / 10 per cent Nickel range, which is considered suitable for general corrosive conditions. The actual specification is 305 S19 or AISI Type 305, with tensile strength of about 35/45 tonf/ins. (540-695 N/mm2).

These screws are NOT as hard as the more widely used carbon steel Self-Tapping screws. They are ideal for use with aluminium alloy sheets but are in some cases unsuitable for use in other than the thinner Austenitic Stainless Steel sheets, due to the galling tendency of this material.

They should be used with care and tapping hole sizes are critical.

We strongly recommend that any proposed application be tried out in practice and we are always prepared to advise on this subject.

AJAX TYPES AB, B SELF-TAPPING SCREWS
In thermo (pliable) plastics

NOTE: Because of the vast differences in these plastics, the following table is intended only as a guideline. It may be necessary to increase or decrease the recommended hole size to obtain optimum fastening conditions.

Screw size (No.) and nominal dia.	Normal penetration			Minimum penetration in blind holes
	Hole diameter required in.	Drill size		
		mm	Alternatives	
4 (0.112")	0.093	2.35	42	1/4"
6 (0.138")	0.114	2.90	32	1/4"
7 (0.151")	0.125	3.10	1/8"	5/16"
8 (0.164")	0.135	3.40	29	5/16"
10 (0.186")	0.154	3.90	23	5/16"
12 (0.212")	0.180	4.60	15	3/8"
14 (0.242")	0.210	5.30	4	3/8"

TYPE 'AB'

Firstly make a hole to suit the diameter of screw being used.

The hole can be clean-punched or drilled as shown in Fig.1, or plunged as shown in Fig. 2.

Secondly use a Pozidrive screwdriver or bit to drive the screw home (Figs. 3 & 4).


Fig. 1
Fig. 2
Fig. 3
Fig. 4

TYPE 'B'

Fig. 5. For light sheet metal assembly, no clearance hole is necessary in the top sheet.

Figs. 6&7. When fastening to solid section of casting or die-casting, or to heavy gauge sheet metal, a clearance hole in the top piece is required. If a clearance hole is not provided, the total thickness of material must be taken into account when deciding upon the tapping hole size.

Remember that as the thickness of material increases, it becomes more difficult to pull the two sheets together tightly.


Fig. 5
Fig. 6
Fig. 7

MECHANICALPROPERTIES
Torsional Strength

For the torsional strength test, the shank of the screw is clamped so that at least two threads protrude above the clamping device.

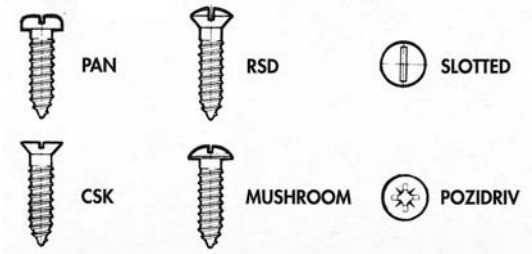
Using a calibrated torque measuring device, torque is applied until fracture occurs.

Screws have to meet the minimum torsional strengths shown in the tables below.

Types 'AB', 'B' and 'Y'

Screw size (No.)	Minimum torsional load		
	lbf in	kgf cm	Nm
2	4	5	0.49
4	13	15	1.47
6	24	28	2.74
8	39	45	4.41
10	56	64	6.27
12	88	101	10.78
14	142	163	15.98

SELF-TAPPING SCREWS
Head Type



AJAX TYPES AB, B
SELF-TAPPING SCREWS

18-8 STAINLESS STEEL. In mild steel, monel metal, brass and aluminium alloy sheet.

NOTES

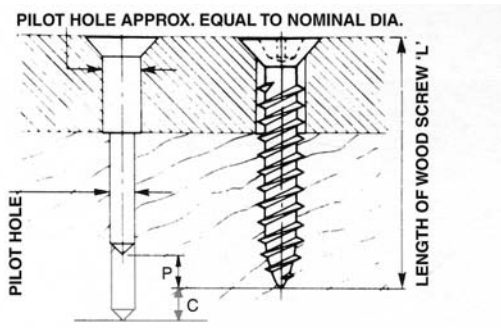
1. Because conditions differ widely, it may be necessary to vary the hole size to suit a particular situation.
2. 18-8 quality stainless steel self-tapping screws are much softer than case hardened steel screws and therefore care must be exercised in using them. They cannot be used in very hard material. Also due to the galling tendency of stainless steel they should not be used in stainless steel sheet.

Screw size (No.) and nominal diameter	Material thickness			Drilled or clean-punched holes		
	in.	mm	SWG	Hole diameter required in.	Drill size mm	Drill size Alt.
4 (0.112")	0.018 0.036	0.45 0.91	26 20	0.087 0.091	2.20 2.30	44 43
6 (0.138")	0.018 0.036	0.45 0.91	26 20	0.106 0.110	2.70 2.80	36 35
8 (0.164")	0.028 0.048 0.064	0.71 1.22 1.62	22 18 16	0.118 0.126 0.134	3.00 3.20 3.40	32 1/8" 29
10 (0.186")	0.028 0.048 0.064	0.71 1.22 1.62	22 18 16	0.138 0.146 0.150	3.50 3.70 3.80	29 26 25

TWINFAST WOODSCREWS

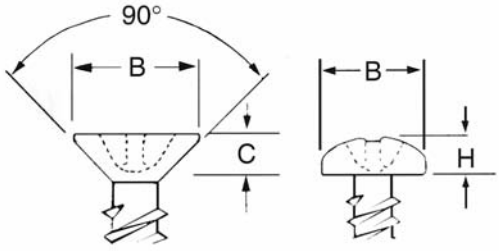
TWINFAST Pozidrive woodscrews are specially recommended for use with all type of particle board and soft timbers

PILOT HOLE SIZES NB. THESE SIZES ARE CRITICAL			
Screw Gauge	PINUS	PARTICLE BOARD	CUSTOMWOOD
	Drill Sizes	Drill Sizes	Drill Sizes
	mm	mm	mm
4	1.80	1.25	2.0
5	2.10	1.45	2.4
6	2.40	1.60	2.6
7	2.70	1.65	2.7
8	2.95	1.95	3.0
9	3.00	2.10	Not recommended
10	3.20	2.25	Not recommended



P = Pilot hole in Particle Board should be shorter than the screw length by the pilot length (3 threads).

C = In Customwood the pilot hole should be longer than the screw length.



Countersunk			Round		ALL HEADS
Screw Gauge	B max.	C max.	B max.	H max.	Driver point No.
	mm	mm	mm	mm	
4	5.5	1.6	5.6	2.0	1
5	6.2	1.9	6.2	2.3	2
6	6.9	2.1	6.9	2.5	2
7	7.6	2.3	7.5	2.7	2
8	8.3	2.5	8.2	2.9	2
9	9.0	2.8	8.8	3.3	2
10	9.7	9.2	9.4	9.0	2

WOODSCREWS - STANDARD

Woodscrews can achieve far greater holding power than similar size nails or staples.

Selection of wood size

The size of the wood screw required for a particular application depends upon the width and thickness of the timber into which it will be inserted.

The diameter of the screw should not exceed 1?10 of the width of the wood into which it is driven and ensure, if possible, that there are seven diameters of thread engagement but certainly not less than four diameters.

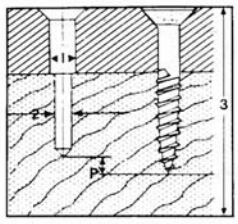
If the screw is fixing a wood attachment, then its overall length should equal three times the thickness of the attachment.

To avoid the risk of splitting the timber, use a pilot hole and also maintain spacing as recommended in the chart alongside.

Pilot holes are particularly necessary when driving brass or aluminium alloy wood screws.

A lubricant coating eg: soap, tallow, bees wax or lanolin, will assist the easy insertion of the wood screw, particularly into hard woods, without any great loss in holding power - 50% reductions in insertion torque are obtainable. The lubricant should be applied to the screw point or into the pre-drilled pilot hole. The screws can then be removed more easily at a later date.

To ensure that a countersunk head screw sinks flush, or just below the surface of the attachment, a countersunk clearance hole should be drilled using a 90º included angle countersinking bit until the diameter of the countersink ate the surface is greater than the 'V' dimension of the screw to be used. See Table of Principal Dimension of Woods crews.



1 Hole approx. equal to nominal screw diameter.
2 Pilot hold drill size.
3 Length of wood screw.
P Difference between depth of pilot hole and length of screw for optimum holding power. "P" is equivalent to three thread pitches.

Pilot hole sizes		Hard Woods			Soft Woods		
Screw Gauge	P	Pilot Hole Dia.	Drill Sizes Fraction	Drill Sizes mm	Pilot Hole Dia.	Drill Sizes Fraction	Drill Sizes mm
3	1/8"	.057		1.45	No Pilot Hole necessary for these sizes		
4	1/8"	.066		1.70			
5	5/32"	.073		1.85			
6	5/32"	.082		2.10	.059		1.50
7	3/16"	.091	3/32"	2.30	.066		1.70
8	7/32"	.097		2.50	.071		1.80
9	1/4"	.103		2.65	.078	5/64"	2.00
10	1/4"	.108	7/64"	2.75	.084		2.15
12	5/16"	.124	1/8"	3.15	.097		2.50
14	11/32"	.140	9/64	3.60	.108	7/64"	2.75

Spacing	*Driven without pre-drilled holes*	*Driven into pre-drilled holes*
Distance from end	20 D	10 D
Distance from edge	5 D	5 D
Distance between lines of screws	10 D	3 D
Distances along the grain, between adjacent screws	20 D	10 D
D - Diameter of woodscrew		

SUREFAST WOOD SCREWS

Hardened, self-countersinking, self-drilling

For Applications where pilot holes are undesirable and high clamp loads are required eg: clamping glued joints, fixing wall brackets and wall furnishings to walls, structural connections etc.