



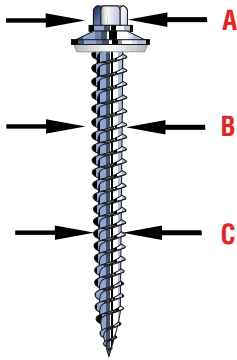
MASTER GRIPPERS®

TECHNICAL DATA

CARBON STEEL & 300 SERIES STAINLESS STEEL

#10 MASTER GRIPPER

DIMENSIONAL PROPERTIES



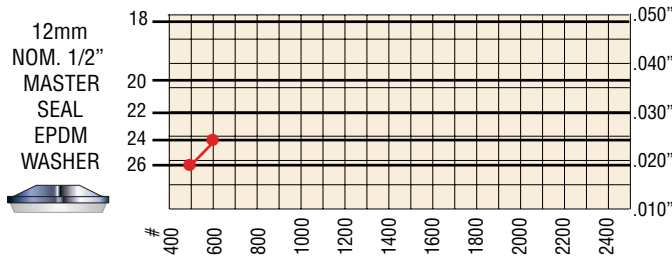
A	Head Across Flats	.244" - .250"
B	Major Diameter	.188" - .194"
C	Minor Diameter	.126" - .133"
	Stress Area	.00999 in. ²

STANDARD MECHANICAL REQUIREMENTS

FOR LELAND AVERAGE VALUES SEE PAGE 23

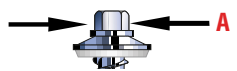
	Carbon	300 Stainless
Minimum Tensile Strength	2350 lbs.	1650 lbs.
Minimum Torsional Strength	65 in.-lbs.	50 in.-lbs.
Minimum Shear Strength	1460 lbs.	990 lbs.

PULL-OVER STRENGTH



REFER TO PAGE 8 FOR PULL-OUT STRENGTH TECHNICAL DATA

#12 MASTER GRIPPER & #12 STITCH SCREW



A	Head Across Flats	.305" - .312"
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FOR MECHANICAL PROPERTIES PLEASE REFER TO #12 INFORMATION ON PAGE 5

#10 NYLON HEADED MASTER GRIPPER

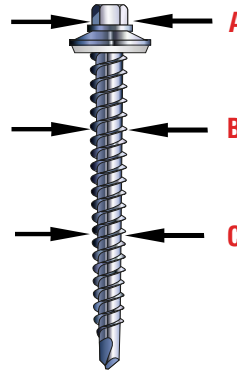
FOR MECHANICAL PROPERTIES PLEASE REFER TO #10 INFORMATION ON THIS PAGE

SHEAR STRENGTH - SEE INSIDE BACK COVER

CARBON STEEL & 410 SERIES STAINLESS STEEL

#10 MASTER GRIPPER MINI DRILL POINT

DIMENSIONAL PROPERTIES



A	Head Across Flats	.244" - .250"
B	Major Diameter	.188" - .194"
C	Minor Diameter	.126" - .133"
	Stress Area	.00999 in. ²

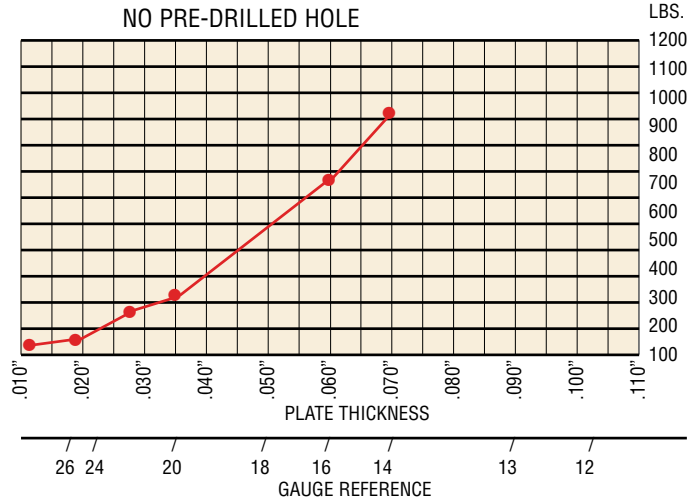
STANDARD MECHANICAL REQUIREMENTS

FOR LELAND AVERAGE VALUES SEE PAGE 23

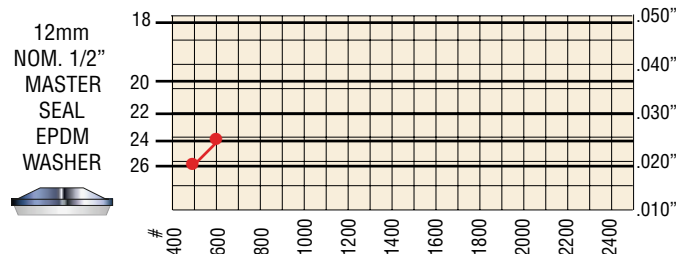
	Carbon	410 Stainless
Minimum Tensile Strength	2350 lbs.	3040 lbs.
Minimum Torsional Strength	65 in.-lbs.	105 in.-lbs.
Minimum Shear Strength	1460 lbs.	1820 lbs.

PULL-OUT STRENGTH

Expected pull-out strength from lab test per specified test plate thickness (70-85 R_p)



PULL-OVER STRENGTH



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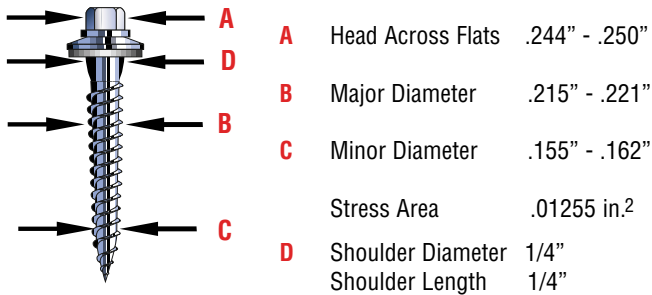


MASTER GRIPPERS®

TECHNICAL DATA

#12-11 MASTER GRIPPER DIAPHRAM

DIMENSIONAL PROPERTIES

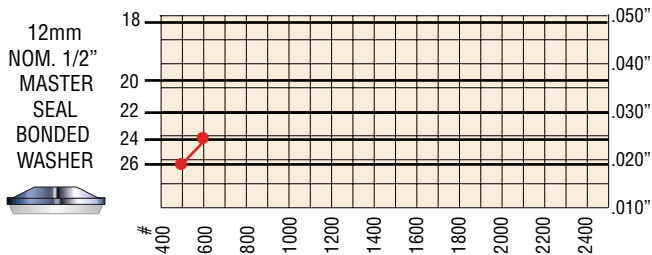


STANDARD MECHANICAL REQUIREMENTS

FOR LELAND AVERAGE VALUES SEE PAGE 23

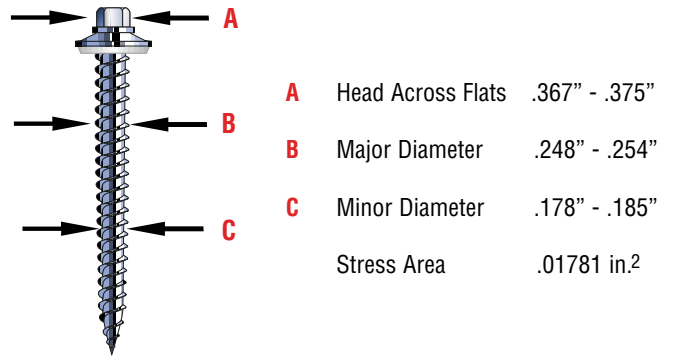
Minimum Tensile Strength	3500 lbs.
Minimum Torsional Strength	90 in.-lbs.
Minimum Shear Strength	2100 lbs.

PULL-OVER STRENGTH



#14-10 MASTER GRIPPER

DIMENSIONAL PROPERTIES

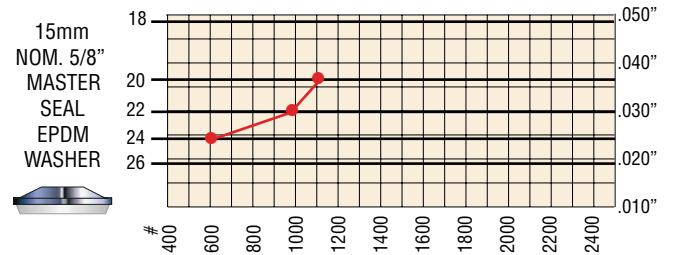


STANDARD MECHANICAL REQUIREMENTS

FOR LELAND AVERAGE VALUES SEE PAGE 23

Minimum Tensile Strength	4300 lbs.
Minimum Torsional Strength	156 in.-lbs.
Minimum Shear Strength	2580 lbs.

PULL-OVER STRENGTH



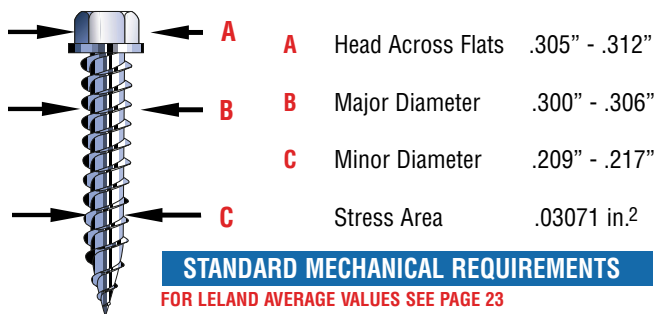
REFER TO PAGE 8 FOR PULL-OUT STRENGTH TECHNICAL DATA

SHEAR STRENGTH - SEE INSIDE BACK COVER

HEAVY DUTY MASTER GRIPPERS - UNASSEMBLED

#18-9 x 1-5/8" & 2-1/2" MASTER GRIPPER

DIMENSIONAL PROPERTIES



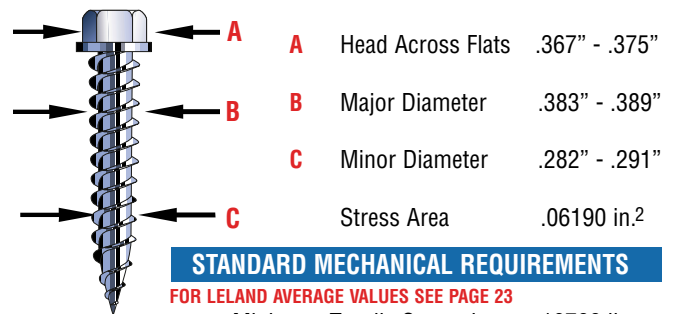
STANDARD MECHANICAL REQUIREMENTS

FOR LELAND AVERAGE VALUES SEE PAGE 23

Minimum Tensile Strength	4550 lbs.
Minimum Torsional Strength	250 in.-lbs.
Minimum Shear Strength	2570 lbs.

#24-9 x 1" & 2" MASTER GRIPPER

DIMENSIONAL PROPERTIES



STANDARD MECHANICAL REQUIREMENTS

FOR LELAND AVERAGE VALUES SEE PAGE 23

Minimum Tensile Strength	10766 lbs.
Minimum Torsional Strength	640 in.-lbs.
Minimum Shear Strength	6460 lbs.

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MASTER GRIPPERS®

TECHNICAL DATA

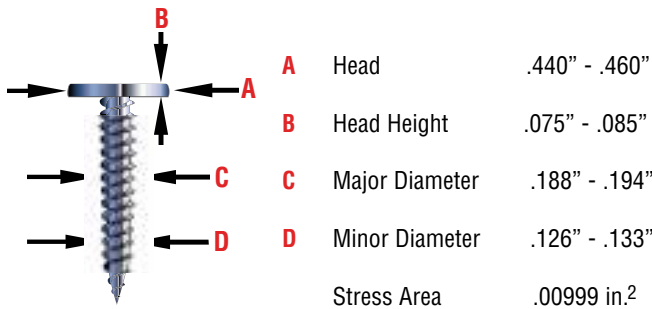
LOW PROFILE PANCAKE HEADS

CARBON STEEL & 300 SERIES STAINLESS STEEL



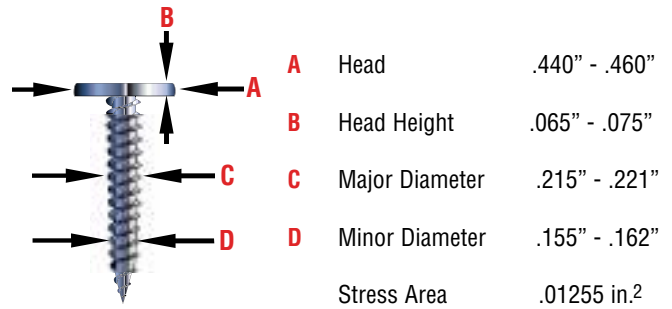
#10 MASTER GRIPPER

DIMENSIONAL PROPERTIES



#12 MASTER GRIPPER

DIMENSIONAL PROPERTIES



STANDARD MECHANICAL REQUIREMENTS

FOR LELAND AVERAGE VALUES SEE PAGE 23

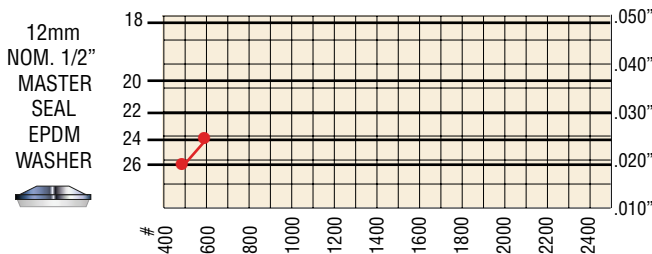
	Carbon	300 Stainless
Minimum Tensile Strength	2350 lbs.	1650 lbs.
Minimum Torsional Strength	65 in.-lbs.	50 in.-lbs.
Minimum Shear Strength	1460 lbs.	990 lbs.

STANDARD MECHANICAL REQUIREMENTS

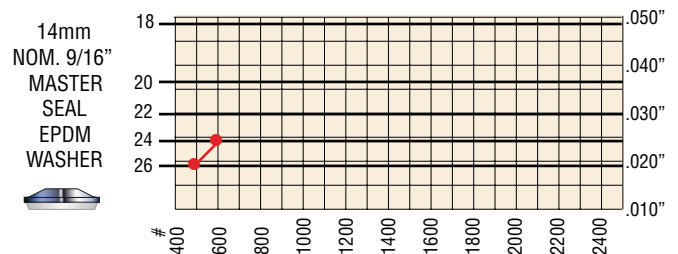
FOR LELAND AVERAGE VALUES SEE PAGE 23

	Carbon	300 Stainless
Minimum Tensile Strength	3500 lbs.	2290 lbs.
Minimum Torsional Strength	90 in.-lbs.	60 in.-lbs.
Minimum Shear Strength	2100 lbs.	1370 lbs.

PULL-OVER STRENGTH



PULL-OVER STRENGTH



REFER TO PAGE 8 FOR PULL-OUT STRENGTH TECHNICAL DATA

SHEAR STRENGTH - SEE INSIDE BACK COVER



APPLIED OVER JS500
EXCEEDS 50 CYCLES

in Kesternich (2 litre SO2 per cycle)
testing and 3000 hours Salt Spray
with

NO RED RUST

WHAT IS POWDER COATING ?

POWDER COATING is an advanced method of applying a decorative, protective, color finish to fasteners for construction and industry. The powder used for the process is a mixture of finely ground particles of pigment and resin which is sprayed onto a surface to be coated. The charged particles adhere to the electrically grounded surfaces until heated and fused into a smooth coating.

Leland's powder coating is applied so it protects under the head and will not crack even if the washers are overdriven and bent.

The result: a uniform, durable, high quality, attractive finish with **NO RED RUST.**

ADVANTAGES

Resists chipping, scratching & fading
Virtually unlimited color selection
Colors stay bright & vibrant

BENEFITS

- Long lasting, durable finish
- Matches any panel color
- Fasteners last the life of your panel

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MASTER GRIPPERS®

TECHNICAL DATA

Pull-Out Strength at 1" Effective Penetration Excluding Point* Effect (add safety factor for structural design)

WOOD				Pull-out force at 1" Effective Penetration (No Predrilled Hole)								
				#10 Master Gripper #10 Nylon MG #10 Pancake MG #10 mini Drill Point MG Carbon & Stainless Steel			#12 Master Gripper #12 Stitch MG #12 Truss Quadrex MDP #12 Diaphragm MG #12 Master One Steppers			#14 Master Gripper		
COMMON NAME	DENSITY APPROX (lbs/cu.ft)	SPECIFIC GRAVITY (kgs/litre)	REMARKS	POINT EFFECT (inch)	MIN. FORCE (lbs)	AVER. FORCE (lbs)	POINT EFFECT (inch)	MIN. FORCE (LBS)	AVER. FORCE (lbs)	POINT EFFECT (inch)	MIN. FORCE (lbs)	AVER. FORCE (lbs)
Douglas Fir	23	0.400	Kiln Dry Construction	0.37	600	670	0.30	650	725	0.33	575	660
Douglas Fir	35	0.560	Air Dry Structural	0.31	825	870	0.27	1060	1150	0.30	875	960
Douglas Fir	32	0.510	Kiln Dry Furniture	0.32	880	960	0.32	975	1080	0.40	1060	1160
Ponderosa Pine	35	0.560	CCA Pressure Treated	0.37	725	830	0.30	1150	1350	0.27	675	800
Spruce Fine Fir	25	0.400	S Dry Construction	0.29	625	660	0.30	900	960	0.29	700	790
Canadian SPF	30	0.480	S Dry Construction	0.29	730	820	0.30	910	990	0.32	820	930
Southern Yellow	33	0.530	CCA Pressure Treated	0.26	770	840	0.24	875	960	0.28	930	1030
Yellow Pine	47/37	0.750/600	Kiln Dry Furniture	0.22	1180	1320	0.28	1140	1270	0.35	1440	1510

Point Effect: is the maximum penetration depth that gives a pull out force equal to zero.

Pull-Out Strength No Point Effect - Points are Cleared (add safety factor for structural design)

PLYWOOD / OSB *					Pull-out force at 1" Effective Penetration (No Predrilled Hole)									
					Master Gripper 10-12 Steel		Master Gripper Mini Drill Point 10-12 Steel		Master Gripper 14-10 Steel		Master One Stepper #12-Steel/Stainless Master Diaphragm 12-11 Steel		Master Gripper Mini Drill Point 12-14 Steel	
COMMON NAME	DENSITY APPROX.	SPECIFIC GRAVITY	USE	THICK-NESS	MIN. FORCE	AVER. FORCE	MIN. FORCE	AVER. FORCE	MIN. FORCE	AVER. FORCE	MIN. FORCE	AVER. FORCE	MIN. FORCE	AVER. FORCE
	(lbs/cu.ft)	(kgs/litre)		(INCH)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)
Canadian Spruce (4 plys)	29.21	0.468	Exterior	1/2	200	230			250	270	200	240		
Canadian Spruce (5 plys)	29.40	0.471	Exterior	5/8	300	340			350	420	350	380		
Canadian Spruce (6 plys)	30.80	0.493	Exterior	3/4	400	480	425	465	450	530	450	460		
Plywood USA (5 plys)	29.09	0.465	Interior	1/2	250	260			300	330	250	320		
Plywood - USA (5 plys)	31.37	0.502	Interior	3/4	400	510	400	340	450	570	500	530		
OSB *	32.77	0.524	Interior	1/4	125	170							100	140
OSB *	36.32	0.581	Interior	7/16	175	200							200	220
OSB *	37.85	0.606	Interior	19/32	225	245							275	310
OSB *	36.67	0.587	Interior	3/4	275	300	325		300	310	300	335	350	380

* OSB - ORIENTED STRAN BOARD

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