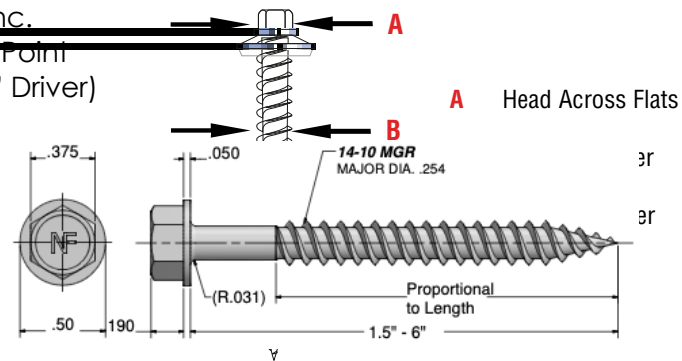


ACS - MT (Mass Timber) - MASTER GRIPPERS® – TECHNICAL DATA

DIMENSIONAL PROPERTIES

- Manufactured in **Canada** by Leland Industries Inc.
- Available in #14-10, in Lengths 1 1/2" to 6", Sharp Point
- Standard Hex Head with Integrated Washer (3/8" Driver)
- Available in
 - NZF3000 Coated Carbon Steel or
 - NZF3000 Coated 410 Stainless Steel
- For target fastener performance, driver should have an RPM range of 0-2400
- Fastener capacity reduced by overdriving – limit driver torque/depth setting



FASTENER PERFORMANCE¹

FASTENER MECHANICAL PROPERTIES

	Carbon Steel	410 Stainless Steel
Minimum Tensile Strength (lbs)	4300	4350
Minimum Torsional Strength (in-lbs)	156	160
Minimum Shear Strength (lbs)	2580	2610

ALLOWABLE STRESS DESIGN (ASD) FASTENER VALUES – WOOD ATTACHMENT - Tabulated Values Based on Normal Duration Loading (1.0)

Dimensional Lumber ² /LSL ³	SPF	D-Fir	LSL
Withdrawal (lbs)	183.3	240.8	512.1
Shear (lbs)	124.8	136.2	400.6

D-Fir Exterior Grade Plywood ⁴	1/2"	5/8"	3/4"
Withdrawal (lbs)	78.2	115.6	168.5
Shear (lbs)	82.8	103.8	125.1

CSP Exterior Grade Plywood ⁴	1/2"	5/8"	3/4"
Withdrawal (lbs)	78.8	127.1	135.0
Shear (lbs)	84.8	113.2	120.4

¹ All test results and suggestions are based on laboratory tests and/or relevant Canadian Codes. Specific job site conditions should be taken into consideration when specifying the proper fastener. Because applications vary, we assume no liability for use of this information.

² Calculated based on CSA O86 12.11 Wood Screw Connections (ASD) using 2 1/2" Fasteners and Min 1 1/2" Embedment with FS = 3, all other Code Factors set to 1.0

³ Test used Weyerhaeuser 1.55E Timberstrand LSL x 1 3/4" and Calculated Based on CSA S136.1 K2.1.2 Tests for Special Cases, Allowable Strength Design (ASD), using 2 1/2" Fastener and Minimum 1 1/2" Embedment

⁴ Calculated based on CSA S136.1 K2.1.2 Tests for Special Cases, Allowable Strength Design (ASD) – Tapered Screw Tip Must Clear Inside of Plywood Face

FOR MECHANICAL PROPERTIES PLEASE REF
#12 INFORMATION ON PAGE 5

#10 NYLON HEADED MASTER GRIPPER

FOR MECHANICAL PROPERTIES PLEASE REF
#10 INFORMATION ON THIS PAGE

SHEAR STRENGTH – SEE INSIDE BACK COVER

Master Seal is

All test results and suggestions are based on laboratory tests and/or relevant Canadian Codes. Specific job site conditions should be taken into consideration when specifying the proper fasteners.

CARBON STEEL & 300 SERIES STAINLESS STEEL

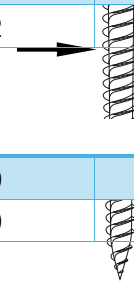
CANADIAN LIMIT STATES DESIGN (LSD) FASTENER VALUES – WOOD ATTACHMENT

- Tabulated Values Based on Normal Duration Loading (1.0)

#10 MASTER GRIPPER DIMENSIONAL PROPERTIES

Dimensional Lumber ⁵ /LVL ⁶	SPF	D-Fir	LSL
Withdrawal (lbs)	183.3	240.8	819.4
Shear (lbs)	124.8	136.2	1021.8

D-Fir Exterior Grade Plywood ⁷	1/2"	5/8"	3/4"
Withdrawal (lbs)	125.1	185.0	269.6
Shear (lbs)	132.5	166.0	200.2



A Head Across Flats

B Major Diameter

C Minor Diameter

Stress Area

CSP Exterior Grade Plywood ⁷	1/2"	5/8"	3/4"
Withdrawal (lbs)	126.1	203.4	216.0
Shear (lbs)	103.7	181.2	172.8

Minimum Tensile Strength
Minimum Torsional Strength
Minimum Shear Strength

CAL REQUIREMENTS

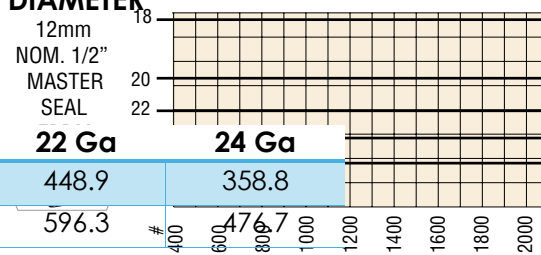
Carbon Steel	2350 lbs.
300 Series Stainless Steel	65 in.-lbs.
316 Series Stainless Steel	1460 lbs.

PULL-OVER STRENGTH

SHEET STEEL PULLOVER – BASED ON NOMINAL 1/2" FASTENER HEAD DIAMETER

ALLOWABLE STRESS DESIGN (ASD) FASTENER VALUES (lbs)⁸

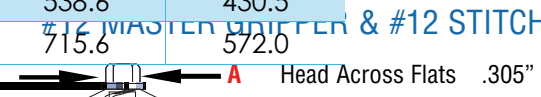
Steel Type ⁹	16 Ga	18 Ga	20 Ga	22 Ga	24 Ga
Galv. Carbon Steel	849.7	677.0	519.4	448.9	358.8
Stainless Steel	1128.8	899.5	690.1	596.3	476.7



REFER TO PAGE 8 FOR
PULL-OUT STRENGTH TECHNICAL DATA

CANADIAN LIMIT STATES DESIGN (LSD) FASTENER VALUES (lbs)¹⁰

Steel Type ⁹	16 Ga	18 Ga	20 Ga	22 Ga	24 Ga
Galv. Carbon Steel	1019.6	812.5	623.3	538.6	430.5
Stainless Steel	1354.6	1079.4	828.1	715.6	572.0



A Head Across Flats .305"

FOR MECHANICAL PROPERTIES PLEASE REFERENCE

#12 INFORMATION ON PAGE 5

⁵ Calculated based on CSA O86 12.11 Wood Screw Connections (LSD), using 2 1/2" Fastener and Minimum Embedment with $\phi = 0.6$ (withdrawal), $\phi = 0.8$ (shear), all other Code Factors set to 1.0

⁶ Test used Weyerhaeuser 1.55E Timberstrand LSL x 1 3/4" and Calculated based on CSA S136.1 K2.1.2 Tests for Special Cases, Limit States Design (LSD)

⁷ Calculated based on CSA S136.1 K2.1.2 Tests for Special Cases, Limit States Design (LSD) Must Clear Inside of Plywood Face

⁸ Calculated based on CSA S136 J4.3, J4.4 with FS = 3.0

⁹ Steel Grades: Galvanized Steel Fy = 250 MPa, Fu = 414 MPa; Stainless Steel Fy = 240 MPa, Fu = 550 MPa

¹⁰ Calculated based on CSA S136 J4.3, J4.4 with $\phi = 0.4$

#10 NYLON HEADED MASTER GRIPPER

FOR MECHANICAL PROPERTIES PLEASE REFERENCE

#10 INFORMATION ON THIS PAGE

FOR MECHANICAL PROPERTIES PLEASE REFERENCE

#10 INFORMATION ON THIS PAGE

Master Seal is

All test results and suggestions are based on the proper fasteners.