NORLOK TECHNOLOGY INC.
Setting the standards

Clinchlok Principle

An overview of clinching technology.

What is "Clinching"?

i) Clinching is a method of fastening sheet metal together without the use of heat, rivets, fasteners or adhesives.
ii) It is fast, clean, and reliable and does little or no damage to painted surfaces.
iii) It is ideal for fastening galvanized, aluminum, pre-painted & coated mild steel, as well as brass, copper & stainless steel.
iv) Clinching can fasten two-ply from 10 gauge (0.130") to 32 gauge (0.012"), with a strong, leak-proof joint.

How does it work?

a) The clinchlok joint is formed when the punch squeezes the two-ply material between itself and a special die.

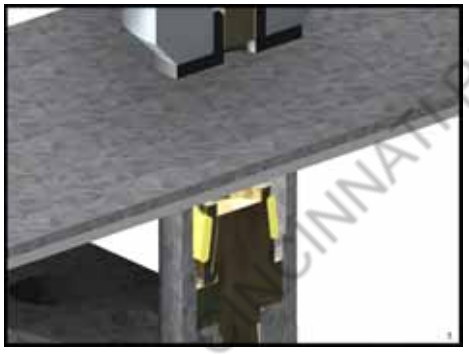
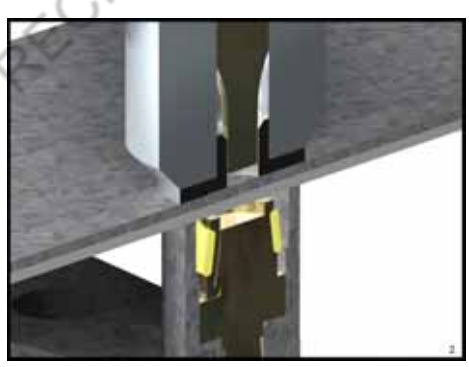
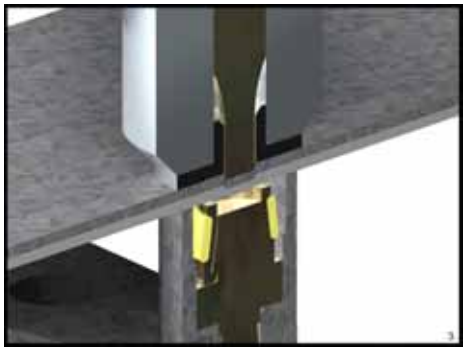
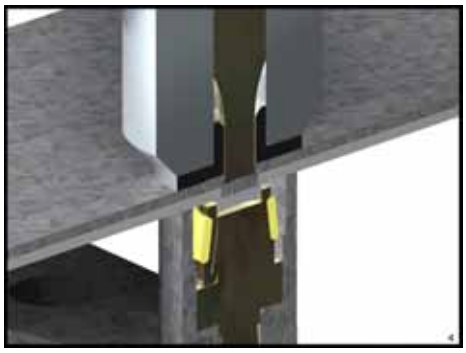
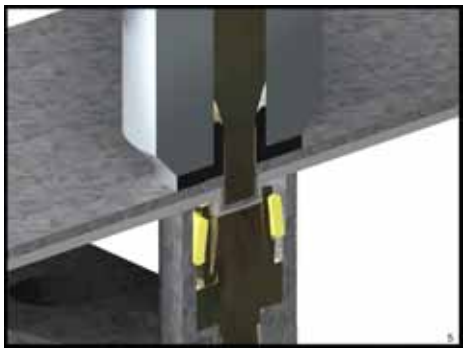
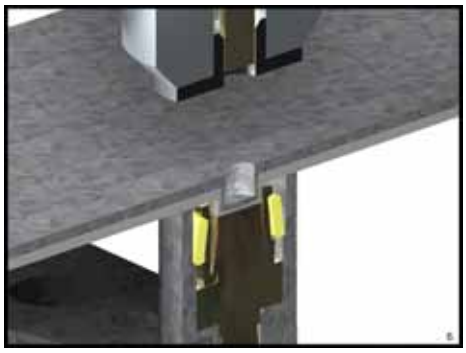
b) As the punch squeezes the material the two layers "mushroom" out, forming a strong joint.

c) The die features spring loaded "blades" that allow the material to be drawn down by the punch, and then expand outwards to form the joint.

Step-by-step clinching method (see illustrations below):

1. Two-ply material is laid on the die in desired location.
2. Punch stripper and die holder clamp material.
3. Punch begins to penetrate.
4. The material is drawn down into the die.
5. Material is squeezed between the punch & die anvil. This causes an outward flow of material. The die blades spread to allow extrusion to occur.
6. Punch and stripper retract, and material can now be easily removed from the die.

Note: Images are cutaway view of a typical clinching operation.

SURELOK PRESS FEATURES:

1. **A steel "C" frame in 12", 18" and 24" throat depths, with punch and die installed, stand, inlet filter/regulator, shut off valve, and a tool kit.**

2. **Fast-change punch and die can be changed in minutes.**

3. **Easily adjustable open height (gap between punch and die) eliminates "pinch point" without affecting Clinchlok. Open height may be adjusted from full stroke to zero.**

4. **The light duty & medium duty series are powered by a WAMP multi-stack air diaphragm unit which features a fast, low impact, clinching stroke. The HD series presses are operated by an air over oil booster unit.**

5. **The clinching stroke is operated by a guarded foot pedal, and features a "single shot" operating cycle.**

Press capacity chart:

	10g	12g	14g	16g	18g	20g	22g	24g	26g	28g	30g	32g
LD												
MD												
HD												

LIGHT DUTY SURELOK **LDSL SERIES** **2 ply 22g to 32g (0.012" to 0.028")**
SPEED 80 cycles/minute (standard), 100 cycles/minute (high-speed)
LDSL 12 12" Throat
LDSL 18 18" Throat
PUNCH 1/8" diameter
DIES LD #20 – ranges from 2 ply 30g to 2 ply 32g
LD #25 – ranges from 2 ply 26g to 2 ply 28g
LD #30 – ranges from 2 ply 22g to 2 ply 26g

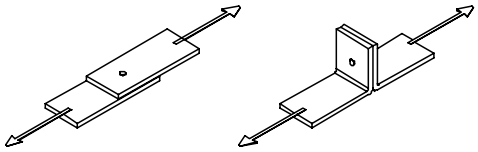
MEDIUM DUTY SURELOK **MDSL SERIES** **2 ply 16g to 30g (0.016" to 0.063")**
SPEED 60 cycles/minute (standard), 80 cycles/minute (high-speed)
MDSL 12 12" Throat
MDSL 18 18" Throat
MDSL 24 24" Throat
PUNCH 3/16" diameter
DIES MD #30 – ranges from 2 ply 26g to 2 ply 30g
MD #40 – ranges from 2 ply 20g to 2 ply 24g
MD #50 – ranges from 2 ply 16g to 2 ply 20g

HEAVY DUTY SURELOK **HDSL SERIES** **2 ply 10g to 24g (0.028" to 0.138")**
SPEED 40 cycles/minute (standard), higher speeds available
HDSL 18 18" Throat
HDSL 24 24" Throat
PUNCH 1/4" diameter
DIES HD #40 – ranges from 2 ply 20g to 2 ply 24g
HD #50 – ranges from 2 ply 16g to 2 ply 20g
HD #60 – ranges from 2 ply 12g to 2 ply 14g
HD #70 – ranges from 2 ply 10g to 2 ply 12g

Information on special applications may be obtained from the engineers at our manufacturing plant.

Joint Strength Testing:

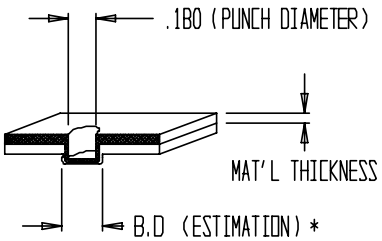
1. There are two ways to measure the strength of a Clinchlok joint, “pull” and “peel”.
2. Pull is almost always stronger than peel and is less sensitive to die adjustment.
3. Typical joint strengths are given for commercial-quality mild steel.
4. These should be used as a guide only. Different materials will affect the joint strength. If the material is softer than mild steel these strengths will be reduced according to the strength of the material.



Pull **Peel**

Approximate pull & peel strengths for mild steel:

Material Thickness (Each/two ply)	**Typical Joint Strength (lbs)** Pull	Peel	**Recommended Die** (refers to depth in 0.001”)
LDSL Series			
0.015” (30g)	150	18	#20
0.020” (28g)	165	20	#25
0.025” (26g)	180	25	#25 / #30
0.030” (24g)	200	30	#30
MDSL Series			
0.020” (26g)	285	70	#30
0.030” (24g)	325	85	#30 / #40
0.035” (22g)	375	100	#40
0.040” (20g)	400	120	#40 / #50
0.050” (18g)	430	150	#50
0.060” (16g)	475	175	#50
HDSL Series			
0.030” (24g)	550	190	#40
0.040” (20g)	600	200	#40
0.050” (18g)	700	220	#40 / #50
0.060” (16g)	800	250	#50 / #60
0.080” (14g)	1000	300	#60
0.100” (12g)	1200	400	#70
0.140” (10g)	1400	500	#70 / #80



* BUTTON DIAMETER CAN VARY

(Medium duty)

BD (BUTTON Ø)	MAT'L THICKNESS
.250	2 PLY 28 GAUGE
.260	2 PLY 26 GAUGE
.265	2 PLY 24 GAUGE
.270	2 PLY 22 GAUGE
.280	2 PLY 20 GAUGE
.295	2 PLY 18 GAUGE
.295	2 PLY 16 GAUGE
.305	2 PLY 14 GAUGE

Heavy Duty Surelok
Available in 18 and
24 inch throats.

Custom equipment designed
to suit any application.

Letterlok 3000 Return
Fastener.

Watson Portable Machines
Medium duty, Heavy Duty
and many specials available.

Letterlok 4000 for the
sign industry.

Fitting Machine for
the HVAC Industry.

Standard Surelok
Available in 18 & 25 inch
throats.

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Setting the standards

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