Drader Injectiweld

Model W30000

Instruction Manual
and
User Guide

New welding tips and welding rod: www.orbi-tech.de

To ensure safe work practices and correct operation of the W30000 Injectiweld, the manufacturer strongly recommends before welding, all operators read this manual.

Congratulations on your purchase of Drader Manufacturing's plastic welding equipment. To get the most out of your purchase, be sure to read this manual carefully and keep it on hand for future reference.

The Injectiweld plastic welding system uses a combination of heated tip and injection pressure to form its welds. The hot (interchangeable) tip melts the surface of the plastic and creates a weld zone into which molten plastic is injected. There is a physical mixing of the weld bead and the plastic.

While every effort has been made to ensure the information in this manual is accurate and complete, no liability can be accepted for any errors or omissions. Drader Manufacturing reserves the right to change the specifications of the products described herein at any time without written notice.

1. Read these instructions - protect yourself and others

Be aware, serious injury or death may result if welding equipment is not properly installed, used, and maintained. Misuse of this equipment and other practices can be both hazardous and dangerous to the operator and any persons in the general work area. The operator and supervisor must read, and understand the following safety warnings and instructions before using this welding equipment.

The Drader Injectiweld is to be operated by qualified people in accordance with this manual. Only authorized service personnel should perform any maintenance that requires opening the welder housing. **Opening the welder housing voids the Drader Warranty.**

2. General Information

Information, presented in this manual should be read, understood and followed for the safe and effective use of this equipment. Safety instructions specially pertaining to this unit appear throughout this manual, highlighted by a symbol that identifies levels of hazard. There are also welding tips and hints throughout this manual that will make your welds better and your welder usage more effective.

Symbols used throughout this manual

	**HIGH VOLTAGE** - The lightning flash symbol will alert the user to the presence of "dangerous voltage" that may be of sufficient magnitude to constitute a risk of electric shock.
	**HOT SURFACE** - The heat symbol will alert the user to the fact that they might get a serious burn if they touch the part.
	**WARNING / CAUTION -** The exclamation point symbol will alert the user to important operating and maintenance instructions.
	**TIP -** The Injectiweld symbol identifies tips and hints to obtain the most efficient operation of this tool.

3. Safety

The operation, maintenance and troubleshooting of the Injectiweld requires practices and procedures which ensure personal safety and the safety of others.

Read and follow the safety instructions in this manual.

 	The Injectiweld is equipped with a ground-contact plug. The Injectiweld must be plugged into an outlet that is properly installed and grounded. If you do not know if your power outlet is grounded check with a qualified electrician. Do not modify the plug. If it will not fit the outlet, have the proper outlet installed by a qualified electrician.
 	Never touch the welding tip at any time, unless you are absolutely sure that it is cool. **Severe burns may result.** Wear heat resistant gloves, when handling hot welder parts.
 	Always unplug the unit before examining it or when leaving the welder unattended. Air line may remain connected to cool the welder.
 	Never allow the welder's hot tip to touch the power cord as it could melt the wire's insulation and cause a dangerous condition. Purchase a replacement cord if your hot tip touches the power cord.
 	Protect your eyes from hot plastic. While operating the welder wear safety glasses.
	Consider your work environment. Do not immerse the welder in water, expose it to rain, or use it in excessively damp or wet environments.
	Use the welder in well ventilated areas. Some plastics may give off noxious gasses as they melt. Know the plastic that you are working with and use breathing protection if warranted.
	Keep the work area well lit and clean for maximum safety.
	Use only certified Drader replacement parts.

4. New Welder Details

Please fill out the information below for future reference. **Once completed, photocopy this page and fax it or email it to Drader Manufacturing. This will register your welder.**

Company Name: _____

Serial Number: _____ **Date of Purchase:** _____

Name of Distributor (if applicable): _____

Technical Data

Model:	W30000
Power:	120 Volt / 60 Hz 240 Volt / 50 Hz
Watts:	400 Watt
Weight:	4.4 lb 2.6 Kg
Temperature Range:	392 ºF - 572 ºF 200 ºC - 300 ºC
Air Consumption:	4 cfm @ 90psi 0.113 m^3 @ 6.2 bar
Air Requirements:	Min. 80 psi, Max. 100 psi Min. 5.5 bar, Max. 6.9 bar
Rod Diameter [ø]:	5/32 inch (.156) 4 mm
Fuse Rating	1 x 4A Fuse (120 Volt) 2 x 4A Fuse (120 Volt - UK model) 1 x 2A Fuse (240 Volt - UK model) 2 x 2A Fuse (240 Volt - all others)
Max Output (HDPE):	2 lb per hour 0.9 kg per hour
Warranty	One year - parts and labour

5. Parts and Service

Call Drader Manufacturing (or your distributor) if you need to purchase parts, or to have your welder serviced. Have the welder serial number on hand.

Head Office

Drader Manufacturing Industries Ltd.
5750 – 50 Street
Edmonton, AB T6B 2Z8, Canada
Tel: +1 780 440 2231
Toll Free (North America): 800 661 4122
Fax: +1 780 440 2244
csimpson@drader.com
www.drader.com

Service Centre (For US Clients only)

Drader Service Centre
6825 S. Kyrene Rd
Tempe, AZ 85283
USA

Your Distributor

Orbi-Tech GmbH
Moltkestrasse 25
42799 Leichlingen
Germany

info@orbi-tech.de
www.orbi-tech.de

Phone: +49 2175 169 780

6. Operating Instructions

This section will provide you with an overview of using the Injectiweld. Follow these steps to learn how to operate your welder.

- Unpack the welder and inspect the contents
- Select welding tip
- Connect the air supply
- Plug the welder into an appropriate electrical outlet
- Set temperature then turn the welder on
- Feed the welding rod into the welder
- Make welds

Unpack the welder and inspect the contents.

#	Description	Item ID #
1	W30000 Injectiweld	Unique serial number
2	Barrel Washer	IPAR-A-BARWSH
3	3/16" Fillet Weld Tip	ITIP-2F6
4	Repair Tip	ITIP-2RP
5	Tip Nut Wrench	IPAR-A- TIPWRN
6	Tip Nut	IPAR-A-TIPNLO
7	Scraping Blade	IPAR-A-SCRBLD
8	Stick Scraper	IPAR-A-SCRSTK
9	Air Filter Assembly	IASS-A-AIRFILT 2
10	Screw Driver	IPAR-A-SCREWD
11	4AMP Fuse 2AMP Fuse	IPAR-A-FSEALL IPAR-A-FSE2A
12	Heat Transfer Compound	IPAR-A-HTTRCO
Quick Manual (not shown)		
Carrying Case (not shown)		IPAR-A-CASE

The heated barrel and tip system

#	Description	Item ID #
1	W30000 Barrel	IPAR-A-BARW30
2	Indexing Pin	(Shop Supply)
3	RTD Sensor	IPAR-A-RTDSE4
4	Heater	(Various ID numbers)
Please note, there are other barrel parts that are not listed here		

Welding tip selection

The correct tip will make a difference on quality and appearance of the weld. There are different tips for various applications. The two welder kit tips are the repair tip (# 3 in photo) and the 3/16” fillet weld tip (# 5 in photo).

#	Description	Item ID	Main Usage
1	Blank Tip	ITIP-2BL-5.5	Custom tips; design your own for your special application
2	Prototyping Tip	ITIP-2PR	Prototyping, repairs, filling holes, spot welding tight areas
3	Repair Tip	ITIP-2RP	Repairs, filling holes, spot welding tight areas, prototyping
4	Bull-Nose Tip	ITIP-2BN	Repairs, filling holes, filling voids

5	3/16” Fillet Weld Tip	ITIP-2F6	90º fillet welds, butt welds, repairs
6	1/4” Fillet Tip	ITIP-2F4	
7	3/8” Fillet Tip	ITIP-2F8	
8	1/2“ Fillet Tip	ITIP-2F5	
9	5/8” Ribbon Weld Tip	ITIP-2RW	Sealing; re-enforcement; non-pressure welds

The Injectiweld kit comes with 2 tips. Both tips are versatile and can provide the operator with numerous types of welds. Tip choice is important as it determines the type of plastic weld. Use this manual to assist you in your tip choice.

Changing tips – The welder should be hot, but turned off.

<table>
<tr><td>  </td><td>  </td><td>The tip and barrel will be hot. Wear protective gear to protect yourself from burns</td></tr>
<tr><td>  </td><td>  </td><td>When removing the tip nut do not use excessive force. Excessive force will twist the barrel, ruining it, the heater, and the RTD sensor.</td></tr>
<tr><td rowspan="4">  </td><td colspan="2">The tip must be hot before changing, but the welder should be off. The tip needs to be hot in order to melt the plastic in the transition area between the tip and the barrel. If the tip nut is hard to loosen, wait 3 to 5 minutes, then try again. Tip nuts have a different expansion ratio than barrels. The tip nut is easier to remove if you have patience.</td></tr>
<tr><td colspan="2">Use heat transfer compound frequently. Heat transfer compound makes it easier for the barrel heat to transmit to the tip as well as to remove the tip nut. Apply the compound at every tip change or every 8 hours of operating time.</td></tr>
<tr><td colspan="2">Use a copper, or brass brush to clean away burned heat transfer compound. Clean parts make heat transfer more efficient.</td></tr>
<tr><td colspan="2">Make sure you always use the Barrel Washer (IPAR-A-BARWSH). It goes between the barrel and the tip.</td></tr>
</table>

- Place the welder on a flat, stable surface, with the on/off button facing up.
- Loosen the tip nut (IPAR-A-TIPNLO) with the tip nut wrench (IPAR-A-TIPWRN).
- Turn the tip nut wrench counter clockwise, until the tip nut is free.
- Using pliers, take the tip nut off and place it on a heat resistant surface.
- Using pliers, pull the tip from the barrel and place it on a heat resistant surface.
- Separate the barrel washer (IPAR-A-BARWSH) from the tip.
- Use a copper, or brass brush to clean the old heat transfer compound from the barrel, barrel washer, and tip.
- Open the bottle of heat transfer compound (IPAR-A-HTTRCO) and apply the compound onto the welder barrel threads, both sides of the barrel washer, and on the tip’s collar. Since the welder is hot, there might be smoke from the heat transfer compound. **Be careful not to inhale fumes.**
- Place the barrel washer onto the barrel. The small hole on the barrel washer goes over the barrel’s indexing pin. **There must always be a barrel washer between the barrel and the tip.** The barrel washer blocks molten plastic from backing up into the barrel.
- The tip goes next onto the barrel. The locating pin fits into one of the tip’s holes.
- Slide the tip nut over the tip, and screw it onto the barrel using the tip nut wrench.

Connect the air supply.

	Never use air compressors with automatic oiling systems. Too much oil in the compressed air will cause damage to the printed circuit board and to the air valve.
	Keep the compressed air as dry and oil free as possible. Always use the Drader supplied air filtration units and keep them well maintained.

The Drader Injectiweld, Model W30000 requires compressed air. The welder operates at 90 psi (6.2 bar) and consumes 4 cfm (113 lt) at maximum output. The air compressor requirements are:

- Air pressure: Minimum: 80 psi (5.5 bar), Maximum: 100 psi (6.9 bar)
- Horsepower: At least 1.5 horsepower per welder (1120 Watt)

The W30000 kit ships with an air filter assembly. The filter helps to removes particulate, water and oils from the compressed air. Use it at all times.

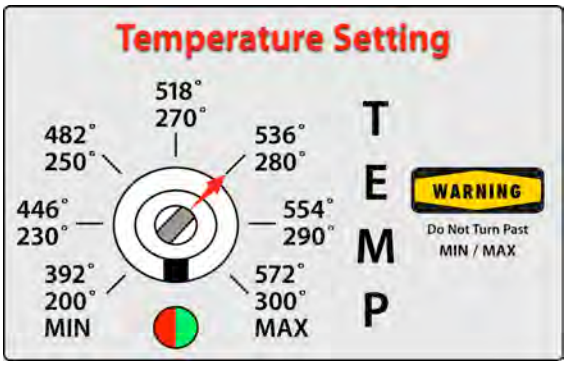
- The Air filter assembly attaches directly to the welder's air line.

Air Filter Assembly (IASS-A-AIRFILT 2)		
#	**Description**	**Code**
1	Quick Disconnect Fitting	IPAR-A-FITQUICKF2
2	Air Filter Unit	IPAR-A-AIRFILT2
3	Air Line Fitting	IPAR-A-ARFITN2

Plug the welder into an appropriate electrical outlet

- Plug the welder in the appropriate electrical outlet (120V or 240V).

Set temperature, then turn the welder on



⚠	**The temperature control is a dial that does not rotate more than 3/4 of a turn. Overturning the dial will damage the temperature dial. Only authorized people should touch the temperature setting dial. Do not exceed the MIN/MAX limits**

- Set the temperature on the welder using the Drader screwdriver. Gently turn the dial to the required temperature mark. The next page has some suggested temperature settings.
- Turn the On/Off switch on.
- When first turned on, the LED will start off solid **RED**, then, as the welder heats towards the set temperature it will start flashing **RED and GREEN**. At the set temperature the LED will turn solid **GREEN**.
- During operation, the LED will alternately switch between **GREEN** and/or **RED** when it is maintaining the set temperature.
- Above set temperature or out of range **(LED OFF)** LED will go to **GREEN** as temp falls.

⚠	**The high temperature cutoff switch [HTCO] may shut the unit off if the temperature inside the welder housing exceeds the temperature limit. Once the welder cools off, the unit will operate normally. This feature should not be used on purpose.**
	Proper temperature is crucial for high quality welds. Set the proper temperature.
	If you change welding materials and decrease the temperature, by the time you purge the original welding rod from inside the barrel, the welder should be cool enough to resume welding at the right temperature. If in doubt about the temperature, wait a few minutes.
	If the Injectiweld is not being used for a period of ½ hour or more, either t**urn the welder off or turn it down to the lowest temperature level.**

Temperature settings – Drader Injectiweld

Please contact your Drader representative, before using a material that is not listed below.

Material	Description	Temperature in ºC	Temperature in ºF
HDPE	High Density Polyethylene	265 ºC	509 ºF
LLDPE	Linear Low Density Polyethylene	265 ºC	509 ºF
HMWPE	High Molecular Weight Polyethylene	280 ºC	536 ºF
PP	Polypropylene	280 ºC	536 ºF
ABS	Acrylonitrile Butadiene Styrene	265 ºC	509 ºF
HIPS	High Impact Polystyrene	255 ºC	491 ºF
PA 6*	Polyamide	300 ºC	572 ºF
PC*	Polycarbonate	300 ºC	572 ºF
TPU	Thermoplastic Polyurethane	300 ºC	572 ºF

*Requires butane pre-heater. Please contact Drader for more details.

WARNING / CAUTION - **Do not use PVC [Polyvinylchloride] with the Injectiweld. The temperature and pressure used by the Injectiweld will degrade PVC and chlorine gas will be released. This aggressive gas is harmful and it can damage the aluminum parts of the welder.**

Feed the welding rod into the welder

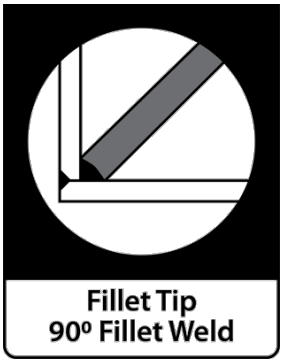
The Injectiweld Model W30000 accepts 0.156-inch (4mm) diameter welding rod. The feed is automatic once the welding rod is properly fed into the welder.

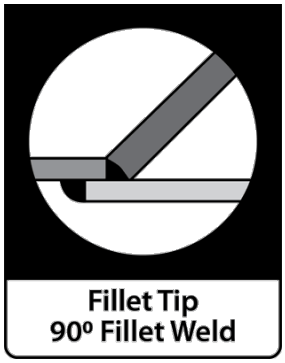
- Turn the rod release knob until the knob feels tight. This opens the rod drive wheels and allows them to accept welding rod.
- When the welder is powered up and the desired temperature is reached, feed the welding rod into the rod feed tube and push it up into the welder until it comes to a stop.
- Turn the rod release knob until the knob feels loose. This locks the rod into the feed mechanism.
- Depress the trigger and the welding rod should feed automatically into the welder.
- To remove the welding rod, turn the rod release knob until it is tight, then gently tug on the welding rod out of the welder.

⚠	**Do not operate the welder without plastic welding rod**. Running the welder without welding rod may result in feed mechanism damage.
	When finishing off a roll of welding wire, remove the last remaining welding rod from the welder and start a fresh roll. This will reduce the chances of a rod jam.
	When switching from one welding rod to another, clear the previous rod material by removing it from the feed tube, then feed the new welding rod. Let the welder pump out about one meter (one yard) of molten welding rod to ensure old material has been purged.
	If the welding rod does not feed, make sure the rod release knob is loose, depress the trigger then apply gentle pressure on the welding rod, pushing it into the welder. The feed mechanism will grab the welding rod and start the automatic feed.
	The rod release knob rotates 360+ degrees, When the knob feels loose the welding rod is locked into the feed mechanism. When the knob feels tight the welding rod is not locked into the feed mechanism
	Different types of welding rod (i.e. polyethylene, polypropylene, polycarbonate, ABS etc, have different durometers. Because of this, slightly undersized welding rod is better than oversized welding rod. With very hard welding rod (i.e. polycarbonate, try 1/8 inch (3.2mm).

Make welds

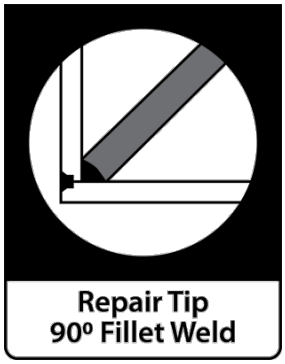
Fillet Welds



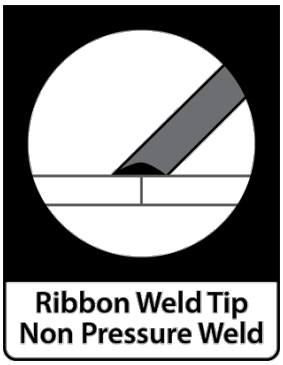


Fillet tips are used mainly for fillet welds [90º] and butt welds. The style of those tips allows one to weld from inside corners out and be able to seal the corners without changing to another tip style. Fillet tips can also be used for crack repairs, as long as the crack is somewhat straight. The longer preheat section allows faster welding speed than welding cracks with the conical tip.

Repair Tip, Prototyping Tip



Repair tips are used for crack repairs, filling small holes, spot welding, for reaching tight areas, and for prototyping. Because of their conical shape, the repair tip and prototyping tip offer similar types of welds. Choose the size that best suits your application.

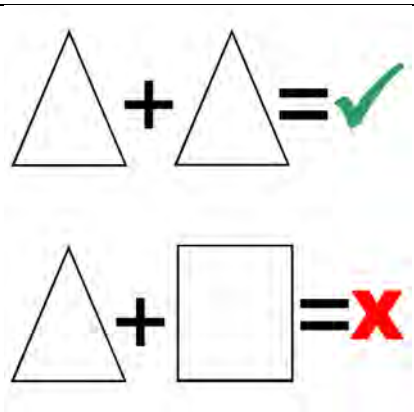


Ribbon Weld Tip

The Ribbon weld tip is used to make a seam weld on thermoplastic materials such as belting and thin sheets. Because this welding tip does not weld down to the root side, it should not be used for regular butt welds.

7. Proper Welding Techniques – General Considerations

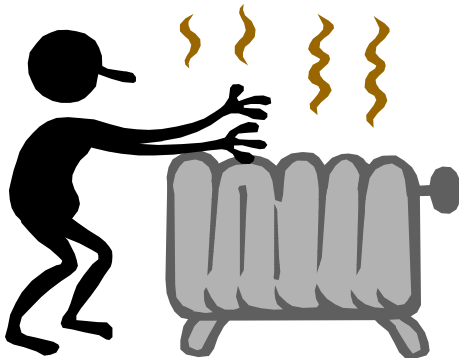
Consider these variables when welding plastics.



Material

In order to achieve quality welds, ensure that the welding rod matches the parent material. For example, match polyethylene with polyethylene rod and match polypropylene with polypropylene rod.

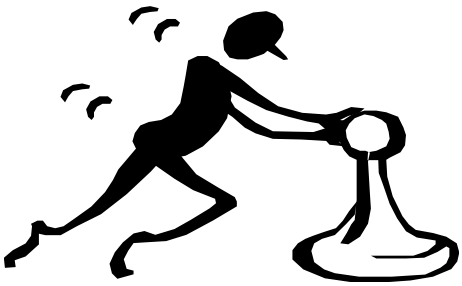
Do not expect a quality weld if the parent material and welding rod do not match.



Heat

Each plastic melts within a certain temperature range. When you drift outside this zone, the weld quality diminishes.

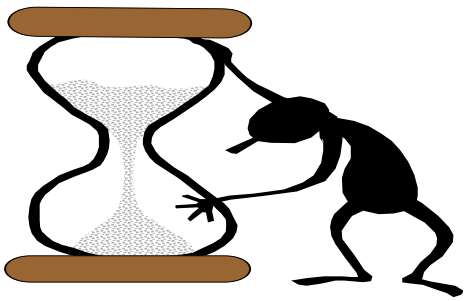
Some people turn up the heat in order to weld faster, yet they sacrifice weld strength. Do not be tempted to weld faster by raising the weld temperature!



Pressure

Pressure allows the plastic molecules of the materials to mix. Best bonding occurs when there is a physical mixing of the plastics.

Pressure, when too high or too low, reduces weld quality.



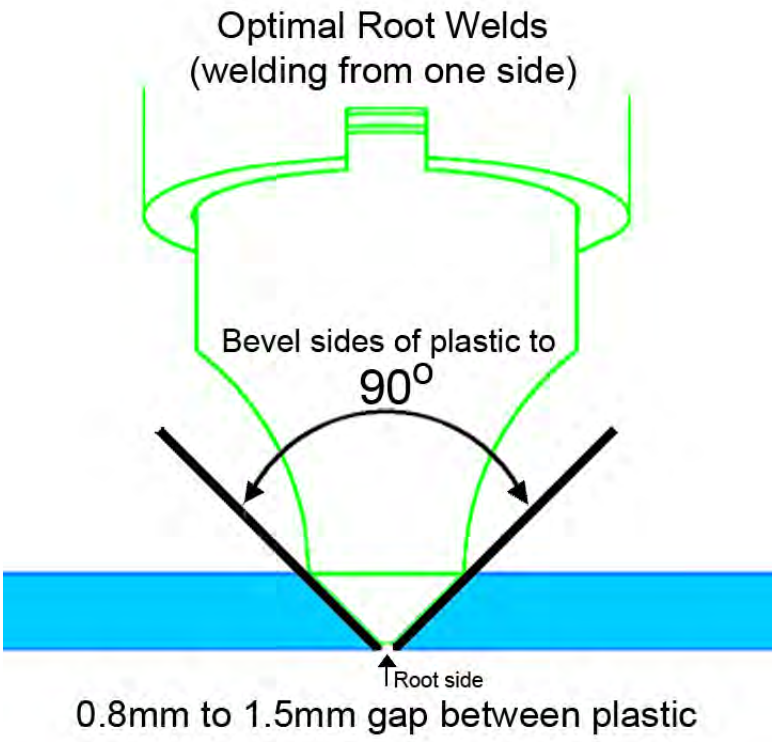
Time

Plastic needs time to melt and time to cool down.

Do not speed up the cooling time. After welding, plastic molecules need 24 hours to come to a complete rest.

Plastic should be at “room temperature” for at least 24 hours before it is welded.

8. Proper Welding Techniques – Drader Injectiweld



Welding from one side

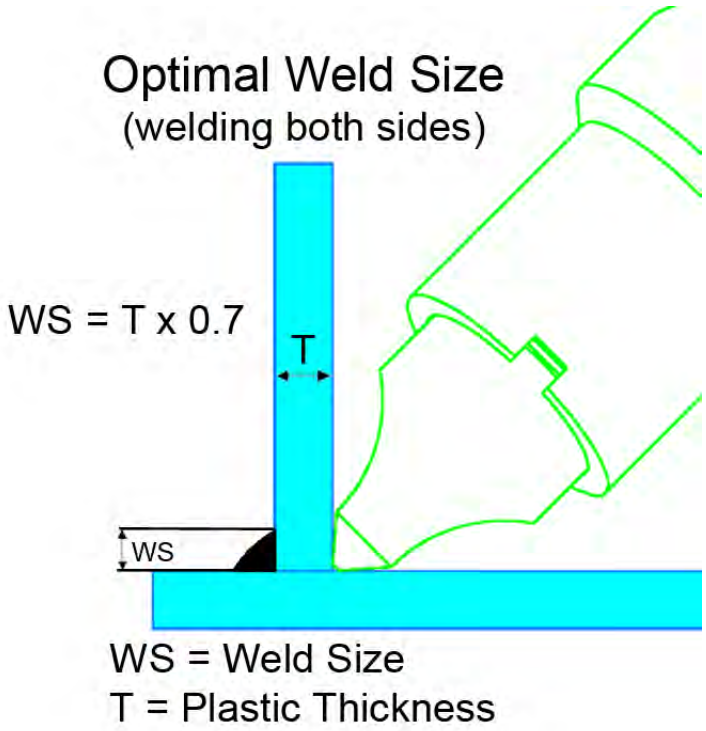
- **Butt welding two sheets together**
- **Plastic crack repair**

Bevel each side of the plastic so that their combined angle is 90 degrees.

You may use the stick scraper to give you the proper angle.

Leave a gap between the parent materials so that molten welding rod can penetrate the root.

Excess welding rod may be trimmed off (after it cools). You may use the scraping blade to perform this function.



Welding from two sides

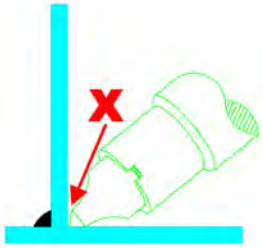
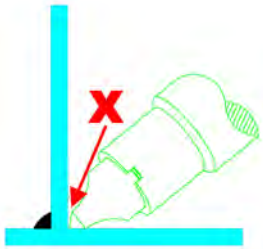
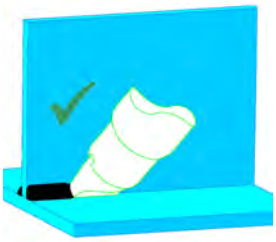
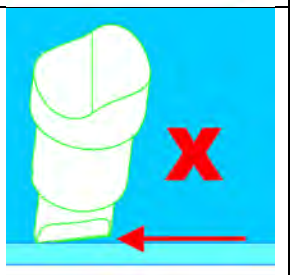
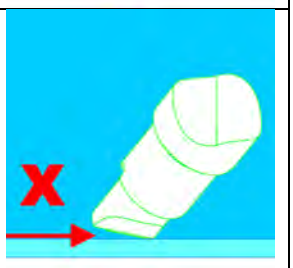
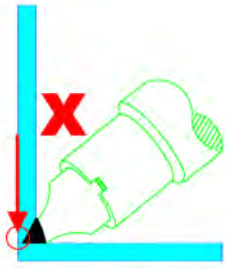
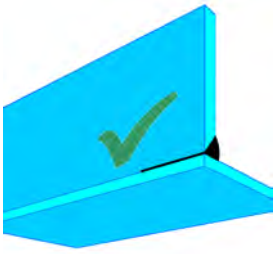
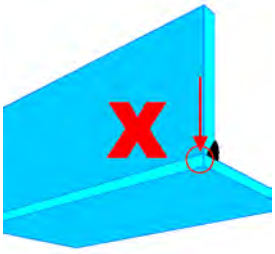
- **Fillet welding two sheets together**

The amount of welding rod injected onto the parent material should be about 70% of the thickness of the plastic sheet.

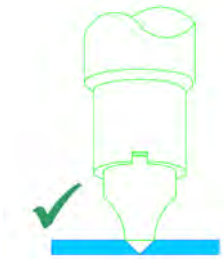
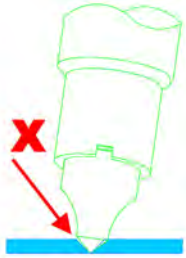
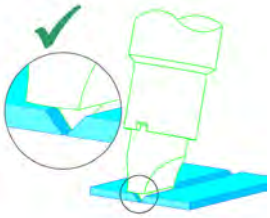
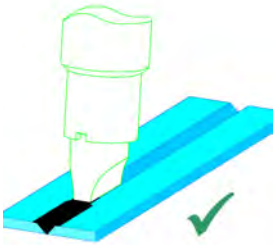
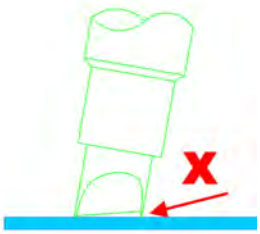
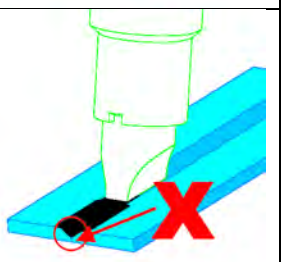
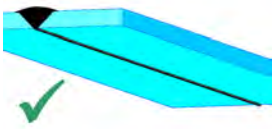
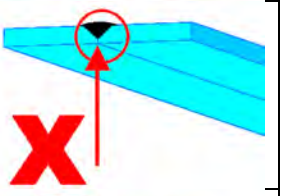
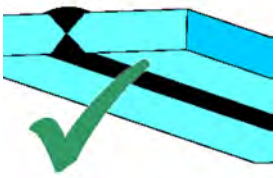
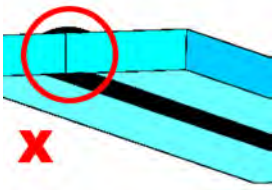
Increase or decrease welding rod thickness by:

- Changing tips
- Adjusting speed control bolt
- Adjusting the speed of how fast your welder travels

9. Proper Welding Techniques – Drader Injectiweld – Fillet welds

Fillet Welds – Correct Alignment		Fillet Welds – Incorrect Alignment	
	Welding tip is in correct alignment when it is at a 45° angle	Welding tip is not in correct alignment when the fillet weld tip is not at a 45° angle or when it does not come into contact with both sides of the parent plastic material	
	Welding tip is in correct alignment when it is at a 45° angle	Welding tip is not in correct alignment when it does not come into contact with both sides of the parent plastic material	
	Welding tip is in correct alignment when it is flat against both sides of the parent plastic material	Welding tip is not in correct alignment when the bottom edge is not flat against the parent plastic material	
	Welding tip is in correct alignment when it is flat against both sides of the parent plastic material	Welding tip is not in correct alignment when the bottom edge is not flat against the parent plastic material	
	When welding from one side, leave a root gap of 0.8 to 1.5mm so that welding rod can penetrate to the other side	Lack of penetration to the root will result in a poor weld	
	Welding rod should penetrate to the root side of the parent plastic	Since molten welding rod did not penetrate the root, a poor weld will result	

10. Proper Welding Techniques – Drader Injectiweld – Butt Welds

Butt Welds Correct Alignment		Butt Welds Incorrect Alignment	
	Welding tip is in correct alignment when it is at a 90° angle	Welding tip is not in correct alignment when it is not at a 90° angle	
	Welding tip is in correct alignment when it can reach the root of the other side of the parent plastic	Welding tip is not in correct position when its melting surface does not contact the plastic	
	Welding tip is in correct alignment when its edges contact each side of the parent plastic material	Welding tip is not in correct position when its melting surface does not contact the plastic	
	Welding tip is in correct alignment when molten welding rod penetrates the root of the parent plastic material	Welding tip is not in correct alignment if molten welding rod cannot penetrate the root	
	If welding from one side, welding rod must fill the root of the parent plastic material	A poor weld because molten welding rod did not penetrate the root.	
	If you can weld from both sides, make two 90° bevels before welding	Lack of penetration will result in a poor butt weld	

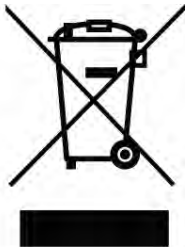
11. Daily Maintenance – Drader Injectiweld

	A well-maintained welder will give you years of service. Follow the steps in this section to take care of your welder.
	Compressed air should be as dry and clean as possible. Use the air filtration system supplied with the welder. Use of an air compressor with a dryer / dehumidifier in is recommended.
	Use heat transfer compound frequently. Heat transfer compound makes it easier for the barrel heat to transmit to the tip, as well as to remove the tip nut. Apply the compound at every tip change or every 8 hours of operating time.
	Use a copper (or brass) brush to clean away burned heat transfer compound. Clean parts make heat transfer more efficient.

At the beginning of each shift (or every 8 hours of welder operation):

- Turn welder on and bring up to heat.
- Turn welder off, unplug it from the electrical socket then wait 2 - 3 minutes. (This allows the aluminum barrel to shrink smaller than the steel tip nut).
- Remove tip nut, tip and barrel washer. Be careful – they will be very hot!
- Using copper or brass brush, clean the old heat transfer paste from the tip nut, tip, barrel, and barrel washer.
- Apply a new layer of heat transfer compound to the tip, barrel, and barrel washer.
- Reassemble the welder by placing the barrel washer onto the barrel first. Then place the tip onto the barrel, followed by the tip nut. Use the tip nut wrench and hand tighten the tip nut. Do not tighten the nut too much.
- Plug the welder in, and then turn it on. Bring it up to the set temperature, and then commence welding.
- Make sure the tip nut is snug periodically throughout the day.

12. RoHS and WEE compliance on Drader Injectiweld Products

RoHS	Drader Manufacturing products that comply with the European Community directive 2002/95/EC in respect of the restriction of hazardous substances in electrical and electronic equipment. EU products will be marked with this RoHS symbol.
MADE IN CANADA / FABRIQUÉ AU CANADA 	**Drader Manufacturing** is compliant with the European Community directive 2002/96/EC (Waste Electrical & Electronic Equipment, WEEE) in respect to products sold within the European Union. This directive restricts that the disposal of electronic equipment and states that it has to be marked to indicate it is not to be disposed of in unsorted waste starting August 13, 2005. This marking has been added to Drader products sold in the EU.

Declaration of Conformity - CE

Application of Council Directives
73/23/EEC 89/336/EEC 92/31/EEC 93/69/EEC

Standards to which conformity is declared:

EN-50141	EN-55014	EN-55104	CISPR 11/14/16
EN-50082-1	EN-10004-11	EN-60-335-1	EN-50081-1
EN61000-4-2	EN-61000-4-4	EN-61000-4-5	EN-60-335-2-45
IEC-801-2	IEC-801-3	IEC-801-4	EN61000-4-11
IEC-1000-4-5	IEC-1000-4-11		IEC-1000-4-2

Manufacturer's Name: Drader Injectiweld Inc.

Manufacturer's Address: 5750-50 Street
Edmonton, Alberta
T6B 2Z8

Importer's Name: _____

Importer's Address: _____

Type of Equipment: Plastic Welder

Model Number: W30000

Date Approved: June 24, 1997

We, the undersigned, hereby declare that the equipment specified above conforms to the above Directives and Standards.

Signature:		Signature:	
Full Name:	Alfred Bitzer	Full Name:	Gordon McTavish
Position:	Production Supervisor	Position:	General Manager

DRADER
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GST# 121437545
www.drader.com

May 10, 2021

COMPLIANCE WITH REACH

REACH (Registration, Evaluation, Authorization, and Restriction of Chemical substances) is a European Community Regulation on chemicals and their safe use (EC 1907/2006). The regulation entered into force on June 1st 2007.

Under REACH Article 3(3) Drader Manufacturing Industries Ltd.'s products including packaging are "articles" and do not release substances under normal use. Suppliers of articles must provide recipients with information on Substances of Very High Concern (SVHC) if those are present above a concentration limit of 0.1%

To the best of our current knowledge and belief and based on the available information from our supply chain, manufacturing facilities, and affiliates worldwide Drader's products do not contain SVHCs included in the candidate list of SVHC issued by the European Chemical Agency (ECHA) last updated January 19th 2021 with the exception of lead. Lead may be contained in some electronic PCB components, as well as formed and machined steel, aluminum, and brass components but in such cases that lead is RoHS exempted under 6, 7(a), 7(c)-I, 8(b) and/or 15(a)/15. Drader also does not import more than one metric ton of any SVHC into the European Union in any given year.

Kind Regards,

Kevin McTavish

VP of Manufacturing
Drader Manufacturing Industries, Ltd.
www.drader.com
780-440-2231 ext. 235

mk/KM

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May 10, 2021

STATEMENT REGARDING THE RESTRICTION OF HAZARDOUS SUBSTANCES

This document is Drader Manufacturing Industries Ltd.'s (Drader) statement regarding the Commission Delegated Directive (EU) 2015/863 of 31 March 2015 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council in regards the list of restricted substances (RoHS). The content of this document is based upon information collected from Drader's supply chain, manufacturing facilities and affiliates worldwide.

To the best of our current knowledge and belief, products manufactured by Drader are in compliance with the amended RoHS directive. Specifically, products manufactured by Drader do not contain the substances listed in the table below in concentrations greater than the listed maximum limit value. This document is periodically updated and is current to include any changes that have occurred since the publication of the original RoHS directive, as indicated by the date above.

Substance	Maximum Limit (ppm)[1]
Cadmium (Cd)	100
Lead (Pb)	1000
Mercury (Hg)	1000
Hexavalent Chromium (Cr6+)	1000
Poly Brominated Biphenyls (PBB)	1000
Poly Brominated Diphenyl ethers (PBDE)	1000
Bis(2-ethylhexyl) phthalate (DEHP) (0,1 %)	1000
Butyl benzyl phthalate (BBP)	1000
Dibutyl phthalate (DBP)	1000
Diisobutyl phthalate (DIBP)	1000

(1) Maximum limit does not apply to applications for which exemptions have been granted by the RoHS directive Recast

Kind Regards,

Kevin McTavish

VP of Manufacturing
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