



# Southwire™

TOOLS & EQUIPMENT

OPERATING and MAINTENANCE INSTRUCTIONS

## PVC BENDER

PVCB-02  
PVCB-04  
PVCB-06  
PVCB-06M

INSTRUCTIONS D'UTILISATION ET D'ENTRETIEN

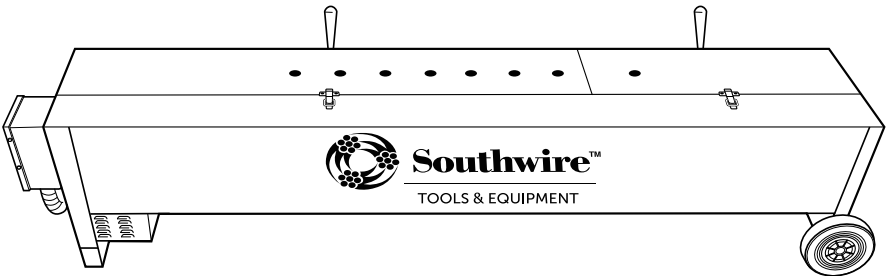
## CINTREUSE DE PVC

PVCB-02  
PVCB-04  
PVCB-06  
PVCB-06M

INSTRUCCIONES DE OPERACIÓN y MANTENIMIENTO

## DOBLADORA DE PVC

PVCB-02  
PVCB-04  
PVCB-06  
PVCB-06M



*Read and understand all of the instructions and safety information  
in this manual before operating or servicing this tool.*

*Lire attentivement et comprendre toutes les instructions et les renseignements de sécurité  
contenus dans ce manuel avant de procéder à l'utilisation ou à l'entretien de cet outil.*

*Lea y comprenda todas las instrucciones y la información de seguridad en este  
manual antes de operar y realizar mantenimiento a esta herramienta.*

**FAILURE TO OBSERVE THESE WARNINGS COULD RESULT IN SEVERE INJURY OR DEATH.**

**LE NON-RESPECT DE CES CONSIGNES POURRAIT ENTRAÎNER DES  
BLESSURES GRAVES OU MÊME LA MORT.**

**EL INCUMPLIMIENTO DE ESTAS ADVERTENCIAS PODRÍA RESULTAR EN LESIONES GRAVES O LA MUERTE.**

# PVC BENDER

## ***TABLE OF CONTENTS***

Important Safety Information.....	2 - 4
Description of Operation.....	5
Setup and Operation.....	5 - 6
Technical Data.....	7 - 8
Additional Bending Information.....	8
Identification.....	9 - 11
Specifications.....	12
Warranty.....	13 - 14

## ***SAFETY FIRST***

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Safety is essential in the use and maintenance of Southwire Contractor Equipment. This instruction manual and any markings on the tool provide information for avoiding hazards and unsafe practices related to the use of this tool. Observe all of the safety information provided.

## ***SAFETY ALERT SYMBOLS***

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**These symbols** are used to call attention to hazards or unsafe practices related that could result in injury or property damage. The three safety words defined below indicate the severity of the hazard. The message after the signal word provides information for preventing or avoiding the hazard.



**DANGER** – Immediate hazards, that if not avoided **WILL** result in severe injury or death.



**WARNING** - Hazards, that if not avoided **MAY** result in severe injury or death.



**CAUTION** – Hazards, or unsafe practices that, if not avoided **MAY** result in severe injury or death.

## **IMPORTANT SAFETY INFORMATION**

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**⚠ WARNING** : Read and understand all instructions and safety information in this manual before operating or servicing this tool.

**⚠ WARNING** : Personal Safety Hazards



- Only qualified persons should use the PVC Bender.
- Wear eye protection, heat resistant gloves and proper clothing when using this tool.
- Do not use tool while tired or under the influence of drugs, alcohol, or medication.
- Keep body parts and loose clothing away from moving parts.
- Always follow safety procedures as shown in this manual.

**FAILURE TO OBSERVE THESE WARNINGS CAN RESULT IN SEVERE INJURY OR DEATH.**

**⚠ DANGER:** Electrical Shock Hazards

- This is not an insulated tool, contact with live circuits could result in severe injury or death.

**⚠ CAUTION:** HOT

- Material and equipment will reach temperatures in excess of 212° F (100° C) during the forming process. The temperature of the element can exceed 1000° F (538° C)!
- Avoid burns by wearing the proper heat resistant gloves and appropriate clothing.
- Open and close the unit using the handle(s) only. Avoid touching the unit until it is cooled.
- Allow unit to cool before putting it away

**⚠ WARNING:** Entanglement Hazard


- Do not operate this tool while wearing loose fitting clothing. Restrain long hair and keep away from tool.
- Keep hands free from rotating parts while motorized bender is in use. Could pinch or crush hands.

**FAILURE TO OBSERVE THESE WARNINGS CAN RESULT IN SEVERE INJURY OR DEATH.**

## **IMPORTANT SAFETY INFORMATION**

### **WARNING:** Tool Use Hazards

- The normal use of this product is to heat PVC and other round thermosetting plastics only.
- The use of this product for purposes other than heating PVC pipe or working with thermosetting plastic is considered a violation of the warranty.
- Place your PVC Bender unit on a secure, dry surface, in a well ventilated area.
- Disconnect and turn off the unit during work delays.
- Keep flammable and combustible materials away from the unit and around the work area when unit is in operation.
- Connect each unit to the proper amperage capacity circuitry and grounded power source. Be careful not to overheat or overload your power source.
- We strongly recommend the use of a Ground Fault Circuit Interrupter (GFCI) protection when using this unit on any job site.
- We strongly recommend using an extension cord that is 10 AWG or 12 AWG to prevent the cord from overheating, causing current loss. Current loss occurs with the natural resistance of electricity flowing through copper wire acting like friction, reducing the available voltage. Using long (ex. 25 foot or longer) and / or undersized (ex. 16 AWG or 18 AWG) extension cords can reduce the heat output of the heating element because of the resistance that occurs resulting in slower bending times.
- Keep all decals clean and legible, and replace when necessary.
- Think Safety First!

 **CAUTION:** Make sure bystanders are clear of the work area when utilizing this bender. Nearby personnel can be injured if there is a malfunction.

- If tool is in disrepair, DO NOT USE. Have tool serviced at an Authorized Southwire Repair Center.

**FAILURE TO OBSERVE THESE CAUTIONS CAN RESULT IN INJURY OR PROPERTY DAMAGE**

## ***PURPOSE OF THIS MANUAL***

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This manual is intended to familiarize all personnel with the safe operation and maintenance procedures for the following Southwire Tools and Equipment: PVC BENDER.

Keep this manual available to all personnel. Replacement manuals are available upon request at no charge at [www.southwiretools.com](http://www.southwiretools.com).

## ***DESCRIPTION OF OPERATION***

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The PVC BENDER is a tool that will heat and soften PVC and other round thermosetting plastics in both Schedule 40 and Schedule 80 PVC conduits. This line of PVC Benders will heat and soften PVC and other round thermosetting plastic conduits from OD sizes of ½” to 6”.

## ***SETUP AND OPERATION***

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1. Find a flat, dry surface. Ensure you have a well ventilated area away from any flammable material for your PVC Bender set-up.
2. Ensure your power supply is properly rated for the PVC Bender being used.
3. If using an extension cord, ensure it is a 10-12 AWG cord to prevent cord from overheating. The PVC Bender should be used with a GFCI protector when operating.
4. Turn PVC Bender (ON) with switch on control box.
5. Allow 3-5 minutes for PVC Bender to reach optimal working temperature.
6. Open door(s) using the handle on the outside of bender only and place PVC conduit to be bent onto internal rollers.
7. Allow approximately 30 seconds of heating time for each ½” in conduit diameter size in order for the proper forming temperature to be reached. Example: ½” OD should heat for 30 seconds while a 2” OD should heat for 2 minutes to become ready for bending.

## ***SETUP AND OPERATION***

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8. Non-motorized benders require manual rotation of conduit to ensure equal temperature distribution. Plugs should be used on all conduit sizes larger than an OD of 2". This prevents conduit from collapsing while heating. NOTE: TO PREVENT THE SCORCHING AND THE BURNING OF PVC CONDUIT, IT MUST BE EVENLY HEATED. IT IS IMPORTANT NOT TO LEAVE ANY MATERIAL UNATTENDED AND UNROTATED WHILE IN AN OPERATING PVC BENDER AS IT MAY BECOME UNUSABLE AND MAY NOT MEET THE NATIONAL ELECTRICAL CODE REQUIREMENTS.
9. Motorized benders rotate conduit to evenly distribute heat to all areas. Ensure plugs are used in conduit sizes with an OD larger than 2" to prevent conduit from collapsing during the heating process.
10. After allotted heat time has been reached, open door(s) by lifting up on handle to access the conduit. Lift one end of the pipe to check for conduit softness. Once applicable softness has been achieved remove and bend or place in non-heat conducting jig to form desired bend.

## TECHNICAL DATA

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### HEATING

A controlled uniform temperature of approximately 250° F is required to soften PVC Conduit. PVC plastic and other thermosetting plastic materials may be reheated and reformed, if necessary, without damage to the materials properties. Using the procedure outlined below, Schedule 40 and Schedule 80 PVC conduit can be easily formed in the field without crimping, flattening, or deforming. Forming ducts in the field, (such as “EB” (Encased Burial)) must be carefully controlled to prevent the deformation and swelling of the material’s very thin wall thickness. It is recommended that “field bends” be limited to “DB” (Direct Burial), Schedule 40 conduit or Schedule 80 conduit.

The correct forming temperature can be determined by opening the cover long enough to lift one end of the conduit from the rollers. When the conduit deflects readily without resistance and takes on a glossy appearance, it is ready to be removed and formed. Although ambient air temperature and wind conditions will have an effect on the heating time, a general rule of thumb may be applied when using the PVC Bender:

Allow approximately 30 seconds of heating time for each ½” in pipe diameter size in order for the proper forming temperature to be reached. Example: ½” OD should heat for 30 seconds while a 2” OD should heat for 2 minutes to become ready for bending.

### FORMING

Rotate the conduit in the PVC Bender until softened, making sure the entire length to be bent is evenly heated. If necessary, slide the pipe back and forth inside the PVC Bender to heat the entire area. When forming bends on pipe sizes ½” through 1-1/2” diameter, it is not necessary to use bending plugs. Once the conduit is ready to be formed, it can be installed in place and can quickly be set by cooling with a rag or sponge and cold water. Should several identical bends be required, or if a specific degree of bend or radius is necessary, a simple wood jig can be fashioned for fast, identical bends. We recommend that any form be made from non-heat conducting material.

**NOTE: It is difficult to achieve bends tighter than four (4) times the diameter of the pipe equaling the inside radius of the bend (4 X Dia= Inside Radius) without controlled manufacturing conditions.**



## TECHNICAL DATA

### PREVENTING DEFORMATION

Conduit and ducts 2" diameter and larger may crimp, flatten, or deform during the bending process. Bending plugs help to eliminate this problem. Bending plugs are inserted into the ends of the conduit before heating. Our adaptors slip over the plugs and are used for half size conduit and for belled-end pipe. During the heating cycle, the bending plugs cause the trapped, heated air, inside the conduit to expand, creating enough pressure inside the pipe to keep the walls of the conduit supported during the bending process. This slight amount of pressure is critical in keeping the walls of the pipe from collapsing or when making a bend. If a plug pops-out during the bending process, it may be necessary to reinsert the plug and reheat the pipe to complete a smooth, kink free bend.

### ADDITIONAL BENDING INFORMATION

Very tight radius bends are difficult to achieve with any size PVC pipe, conduit or duct without the use of special production techniques. These techniques can include air pressurization of the piece, insertion of special internal supports, or some other technique. The following table can be used as a guide that is applicable to many types of rigid PVC conduit and duct:



**NOMINAL  
INTERIOR  
DIAMETER  
IN INCHES**



**OUTSIDE  
DIAMETER  
IN INCHES**



**MINIMUM  
INSIDE  
RADIUS  
IN INCHES\***



**LENGTH  
OF CURVED  
SECTION  
IN INCHES**



**LENGTH OF  
STRAIGHT ENDS  
IN INCHES\*\*  
EACH END**



**TOTAL STOCK  
LENGTH  
IN INCHES**

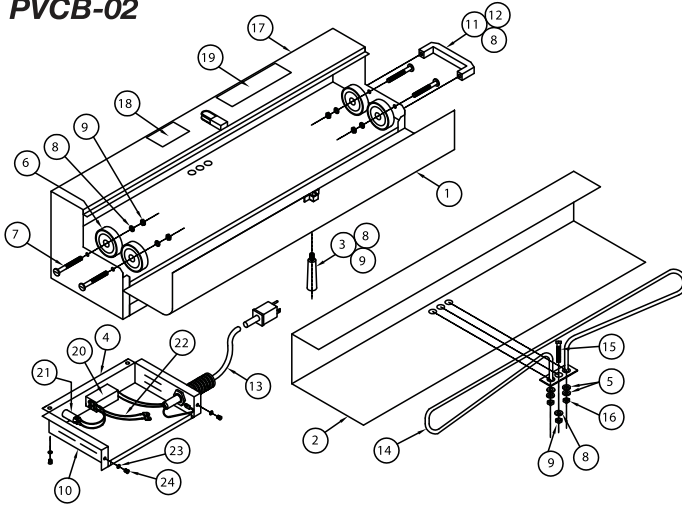
NOMINAL INTERIOR DIAMETER IN INCHES	OUTSIDE DIAMETER IN INCHES	MINIMUM INSIDE RADIUS IN INCHES*	LENGTH OF CURVED SECTION IN INCHES	LENGTH OF STRAIGHT ENDS IN INCHES** EACH END	TOTAL STOCK LENGTH IN INCHES
1/2"	27/32"	4"	7"	2"	11"
3/4"	1-3/64"	5"	9"	2-5/8"	14-1/4"
1"	1-5/16"	6"	10-1/2"	2-3/4"	16"
1-1/4"	1-21/32"	8"	14"	2-3/4"	19-1/2"
1-1/2"	1-29/32"	10"	17-1/2"	3-1/16"	23-5/8"
2"	2-3/8"	12"	21"	4"	29"
2-1/2"	2-7/8"	15"	26"	4-3/4"	35-1/2"
3"	3-1/2"	18"	31"	7-1/2"	46"
3-1/2"	4"	21"	36"	8-3/16"	52-3/8"
4"	4-1/2"	24"	41"	9"	59-1/2"
5"	5-9/16"	30"	52"	11-1/8"	74-1/4"
6"	6-5/8"	36"	62"	12-9/16"	87-1/8"

\*Source: Chapter 9; Table 2 "Radius of Conduit and Tubing Bends" National Electric Code© 2005 Edition. For Conductors without lead sheath - minimum radius of conduit bends.

\*\* Recommended minimum straight section each end.

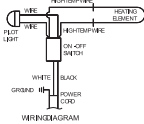
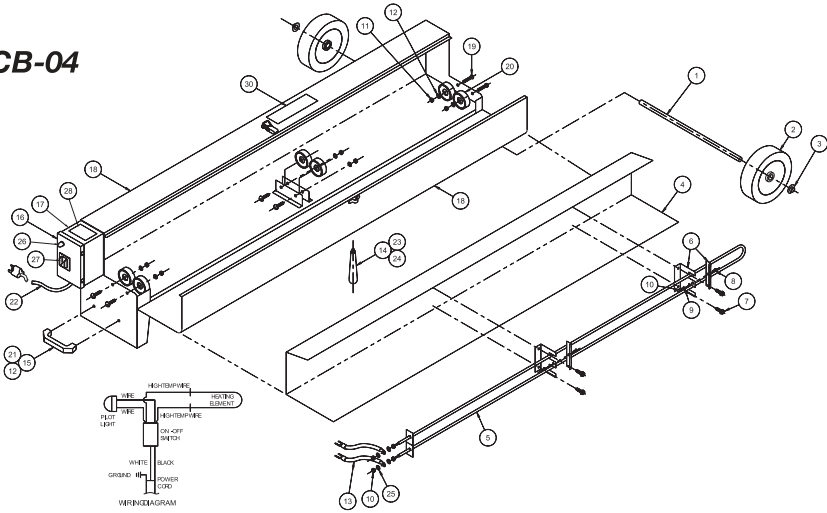
# IDENTIFICATION

## PVCB-02



1. Shell
2. Reflector
3. Cover handle
4. Switch guard (not shown)
5. Washer-small
6. Wheel
7. Bolt-wheel
8. Lock washer
9. Hex nut
10. Electric box cover
11. Bolt-carry handle
12. Carry handle
13. Power cord w/ strain relief
14. Element
15. Bolt-element
16. Hex-nut-small
17. Instruction label on back
18. "Notice" label
19. "Caution"/"Danger" label
20. Switch
21. Pilot light
22. High temp wire set
23. Lockwasher-small
24. Machine screw-small

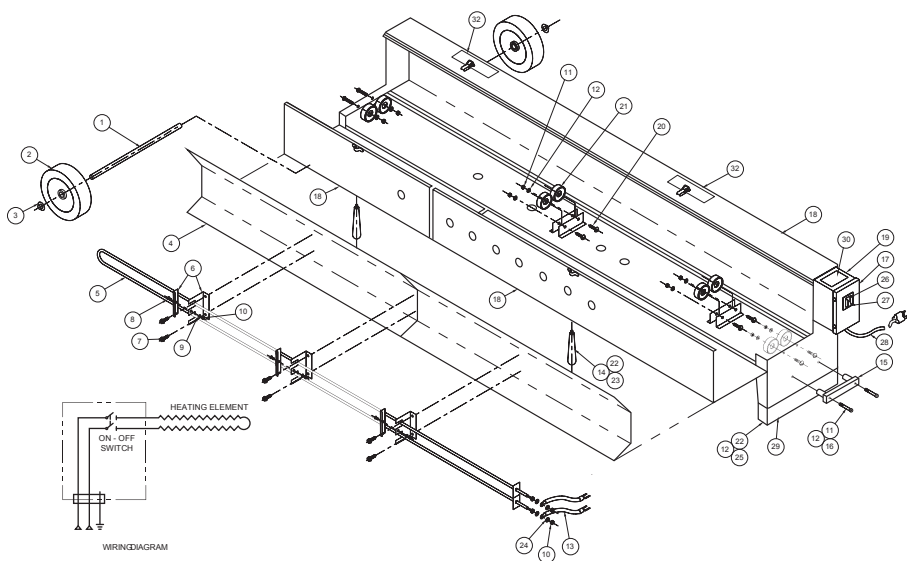
## PVCB-04



1. Axle
2. Rubber Wheel
3. Push Washer
4. Reflector
5. Replacement Element
6. Element Bracket Set
7. Metal Screws
8. Machine Screw-Small
9. Lock Washer-Small
10. Hex Nut-Small
11. Hex Nut-Medium
12. Lock Washer-Medium
13. High Temp Wire Set
14. Cover Handle
15. Carry Handle
16. Switch Box Cover
17. Switch Box
18. Shell
19. Machine Screw- Wheel
20. Wheel- Metal
21. Machine Screw- Carry Handle
22. Power Cord
23. Lock Washer- Large
24. Hex Nut- Large
25. Flat Washer- Small
26. Pilot Light
27. Switch 20/ Switch Guard
28. "Notice" Label
29. Instructional Label (Not Shown)
30. "Caution" / "Danger" Label

# IDENTIFICATION

## PVCB-06



- |                        |                                     |
|------------------------|-------------------------------------|
| 1. Axel                | 17. Switch Box Cover                |
| 2. Rubber Wheel        | 18. Shell                           |
| 3. Push Washer         | 19. Switch Box                      |
| 4. Reflector           | 20. Machine Screw- Wheel            |
| 5. Replacement Element | 21. Wheel- Metal                    |
| 6. Element Bracket Set | 22. Lock Washer- Large              |
| 7. Metal Screws        | 23. Hex Nut- Large                  |
| 8. Machine Screw-Small | 24. Flat Washer - Small             |
| 9. Lock Washer-Small   | 25. Hex Bolt                        |
| 10. Hex Nut-Small      | 26. Switch 30                       |
| 11. Hex Nut-Medium     | 27. Switch Guard                    |
| 12. Lock Washer-Medium | 28. Power Cord                      |
| 13. High Temp Wire Set | 29. Leg Extension                   |
| 14. Cover Handle       | 30. "Notice" Label                  |
| 15. Carry Handle       | 31. Instructional Label (Not Shown) |
| 16. Handle Allen Bolt  | 32. "Caution" / "Danger" Label      |



## ***SPECIFICATIONS***

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### ***PVC BENDERS***

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#### **Model# PVCB-02**

- Stock # 64-81-22-01
  - Height- 11”
  - Width- 32”
  - Depth- 10”
  - Weight- 19 lbs.
  - Watts- 1400 Watts
  - VAC- 115VAC
  - AMP- 12 AMP
  - Heat Source- Infrared
  - Capacity- Schedule 40 or Schedule 80 PVC or round thermosetting conduit in sizes ½”-2”
- 

#### **Model# PVCB-04**

- Stock # 64-30-11-01
  - Height –13”
  - Width – 56”
  - Depth – 8.50”
  - Weight – 50 lbs
  - Watts- 2400 Watts
  - VAC- 120 VAC
  - AMP- 20 AMP
  - Heat Source- Infrared
  - Capacity – Schedule 40 or Schedule 80 PVC or round thermosetting conduit in sizes ½”-4”
- 

#### **Model# PVCB-06**

- Stock # 64-30-12-01
  - Height –16.50”
  - Width – 73”
  - Depth – 11.75”
  - Weight – 80 lbs
  - Watts- 6300 Watts
  - VAC- 230 VAC
  - AMP- 28 AMP
  - Heat Source- Infrared
  - Capacity – Schedule 40 or Schedule 80 PVC or round thermosetting conduit in sizes ½”-6”
- 

#### **Model# PVCB-06M**

- Stock # 64-30-13-01
  - Height –16.50”
  - Width – 73”
  - Depth – 11.75”
  - Weight – 80 lbs
  - Watts- 6300 Watts
  - VAC- 230 VAC
  - AMP- 28 AMP
  - Heat Source- Infrared
  - Capacity – Schedule 40 or Schedule 80 PVC or round thermosetting conduit in sizes ½”-6”
- 

### ***PVC PLUG KITS***

#### **Model# PVCP-01**

- Stock # 64-30-14-01
- Height –8”
- Width –17”
- Depth – 9.50”
- Weight – 6 lbs
- Capacity – 2”-4”  
Conduit Plug Kit

#### **Model# PVCP-02**

- Stock # 64-30-16-01
- Height –9.50”
- Width –18”
- Depth – 10.50”
- Weight – 10 lbs
- Capacity – 2”-6”  
Conduit Plug Kit

## **WARRANTY ON SOUTHWIRE CONTRACTOR EQUIPMENT**

### **Five-Year Limited Warranty on Contractor Equipment**

Under Southwire's Contractor Equipment 5-Year Limited Warranty, Southwire Company, LLC warrants that all Southwire Contractor Equipment will be free from manufacturer defects for a period of five (5) years from the date of the original end user's purchase. The following products are excluded from this 5-Year Limited Warranty and are subject to separate warranty terms: rope, blades, dies, draw studs, grips, Southwire Contractor Equipment electronic components, and Material Boxes. Under this 5-Year Limited Warranty, the following are also excluded and Southwire Company, LLC will have no liability for any of the following: normal wear and tear resulting from product use and damage arising out of misuse, abuse, modification, and improper product maintenance. This warranty also does not cover Southwire Contractor Equipment products that have been modified by any party other than Southwire Company, LLC or its authorized third party designee. This 5-Year Limited Warranty is not transferrable to or enforceable by any person other than the product's original end user.

### **One-Year Limited Warranty on Rope, Blades, Dies, Draw Studs, Grips, and Southwire Contractor Equipment Electronic Components**

Under this 1-Year Limited Warranty, Southwire Company, LLC warrants that all Southwire Ropes, Blades, Dies, Draw Studs, Grips, and Southwire Contractor Equipment Electronic Components will be free from manufacturer defects for a period of one-year from the date of the original end user's purchase. Under this 1-Year Limited Warranty for the aforementioned Southwire Contractor Equipment items, the following are excluded and Southwire Company, LLC will have no liability for any of the following: normal wear and tear resulting from product use and damage arising out of misuse, abuse, modification, and improper product maintenance. This warranty also does not cover Southwire Contractor Equipment that has been modified by any party other than Southwire Company, LLC or its authorized third party designee. This 1-Year Limited Warranty is not transferrable to or enforceable by any person other than the product's original end user.

### **Exclusion of Incidental, Consequential, Indirect, Special and Punitive Damages**

**SOUTHWIRE MAKES NO WARRANTY THAT SOUTHWIRE CONTRACTOR EQUIPMENT PRODUCTS WILL BE MERCHANTABLE OR FIT FOR ANY PARTICULAR PURPOSE. SOUTHWIRE MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, OTHER THAN THE RELEVANT WARRANTY SPECIFICALLY SET FORTH IN THIS WARRANTY SECTION. SOUTHWIRE WILL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES FOR ANY BREACH OF THIS LIMITED LIFETIME WARRANTY.**

*Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.*