

WirthCo Engineering, Inc.



Understanding and fulfilling customer's needs since 1980.



WELCOME TO WIRTHCO

WirthCo, a family based company, has entered our fourth decade as a prime manufacturer of practical products for making life easier and safer – at home, in the workplace, on the road, in the campground, and on the water. We are exceedingly grateful for valued employees, customers and suppliers. We are dedicated to continuing our growth based on integrity and service. We are also proud of our heritage of providing innovative, quality products.

Our innovative quality is reflected in over twenty patents and trademarks, a number that continues to grow. Our products have been proven in the laboratory and the marketplace. In addition to marketing our proprietary WirthCo brands, we proudly partner with some of the world's largest and most successful distributors, retailers and OEM's which have selected WirthCo products for distribution under their own private brands. We invite you to review these pages, and to let us know how we can best serve you today...and during the decades to come.



LEGEND

8	Items that help our planet, one product at a time!
0	Product is made from recycled material.
-7	Items with part numbers ending in -7 indicates a <i>bulk item</i> (no retail package).



California Energy Commission

Promotes energy efficiency and conservation for electrical products by setting the state's appliance and building energy efficiency standards.

RoHS Compliant

WirthCo believes in the protection of planet Earth against known hazardous materials and continually strives to provide products that comply with the worldwide Restriction of Hazardous Substances Directive (RoHS).



WirthCo products are warranted to be free from defects in material and workmanship for a period of twelve (12) months from the date of purchase. Defective products returned freight prepaid with proof of purchase will be repaired or replaced at the discretion of WirthCo. This warranty does not apply to products that have been altered, improperly installed, maintained or repaired, or damaged by accident, negligence or misuse. Further, all accessories must be returned for warranty credit.

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Battery Doctor[®] Chargers Safely Charge Your Vehicle For 1 Day, 1 Week, 1 Month or Even a Year+!

Electronic Switching Technology – Battery Doctor[®] Chargers utilize electronic switching power technology as opposed to the linear technology (transformers) used with most other battery chargers.

Safer to Use - Electronic switching technology chargers do not get warm to the touch, unlike transformer chargers, making them friendlier to use! Battery Doctor[®] chargers are both short circuit protected and spark proof!

Compact, Portable, and Ultra Light - Our chargers are about half the size and half the weight of other chargers!

Reverse Polarity Protected – Battery Doctor[®] chargers are reverse polarity protected! Assures no damage to your battery or charger if the leads are connected incorrectly.

Simple and Easy to Use - Easy to follow instructions, clearly defined LED indicators and less complicated than others!

Battery Chargers Icon Key



6V/12V Compatibility Charges 6V and 12V Batteries



12V Compatibility Charges 12V Batteries



Multiple Battery Management Formulated to Safely Charge Wet-Cell, Gel-Cell, Lead-Acid, Calcium and AGM and Deep Cycle Batteries



Auto-Memory Returns to Last Selected Mode when Restarted



13.6V Equalization Mode Maximizes Battery Capacity, Reviving Low Voltage Batteries. Returns a Full Hydrometer Reading to Calcium

Batteries by Removing Acid Stratification
Adjustable Amperage

Multiple Manual Amperage Selection



E USE E





Plug-N-Play Connections EZ-Connects Included for Quick and Safe Connections Between Chargers and Accessories



Multiple Stage Charging Refresh, Soft Start, Bulk Charge, Absorption, Equalizing, Analysis and Float (Models May Vary)



Refresh Mode Uses Pulse Charging to Recover and Refresh Deeply Discharged and Sulfated Batteries

Reverse Polarity, Short Circuit, Spark Proof,

Overheat and Over-Current and Overcharge

Engineered for Safety

SAFE



Seasonal Battery Maintenance

Optimized Charge Mode for Cold Weather or AGM Batteries. Maintains and Protects Vehicle Batteries in Storage



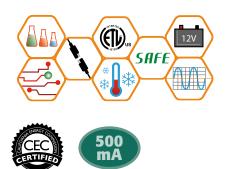
Electronic Switch Mode Technology Highly Efficient, Automatically Converts Electrical Power to Meet Your Battery's Charging Needs



UL and cUL Approved

BATTERY DOCTOR® 12 VOLT 500 mA SMART BATTERY CHARGER/MAINTAINER

- 3 Stage 12 Volt Smart Charger Technology Prevents Overcharging
- Smart "Automatic Switching Technology" can be Safely Connected to the Vehicle for Long Periods of Time
- Direct Wall Plug-In Design Keeps the Work Area Clutter Free
- Reverse Hook-Up Protection which is Spark Resistant
- Includes Alligator Clips
- CEC Certified







#20062

BATTERY DOCTOR® ON-BOARD 6/12 VOLT 1.5 AMP SMART CHARGER

- 6/12 Volt 1.5 Amp
- Four LEDs for Easy Charging Status Identification
- Reverse Polarity Protected/Spark Resistant
- Molded Plastic Weather Proof Case
- IP 52 Rated
- Includes Mounting Hardware for Automobiles, Boats, Tractors, Golf Carts, and Other Equipment

1.5 AMI

- Includes Ring Terminals
- CEC Certified

#20028





BATTERY DOCTOR[®] 6/12 VOLT 900mA WALL MOUNT[™] SMART BATTERY CHARGER/MAINTAINER

- 6/12 Volt 900mA
- Charges and Maintains Batteries from 5 to 100 Amp Hours
- Smart Battery Technology Prevents Overcharging
- Reverse Hook-Up Protection/Spark Resistant
- Automatic "Switching Technology" can be Safely Connected to the Stored Vehicle for Long Periods of Time
- Easy-to-Read Battery Charge Status LEDs
- Includes Ring Terminal and Alligator Clip Cable Attachments
- Direct Wall Plug-In Design Keeps the Work Area Clutter-Free
- Maintains Batteries up to 200 Amp Hours
- CEC Certified







CEC 900 mA Pol

Accessories Included with #20026 & #20027 See Page 43 for these Replacement Part #'s





BATTERY DOCTOR® 6/12 VOLT 1.5 AMP WALL MOUNT™ SMART BATTERY CHARGER/MAINTAINER

- 6/12 Volt 1.5 AMP
- Charges and Maintains Batteries from 5 to 100 Amp Hours
- Smart Battery Technology Prevents Overcharging
- Reverse Hook-Up Protection/Spark Resistant
- Automatic "Switching Technology" can be Safely Connected to the Stored
 Vehicle for Long Periods of Time
- Easy-to-Read Battery Charge Status LEDs
- Includes Ring Terminal and Alligator Clip Cable Attachments
- Direct Wall Plug-In Design Keeps the Work Area Clutter-Free
- Maintains Batteries up to 200 Amp Hours
- CEC Certified





BATTERY DOCTOR® 6/12 VOLT 2 AMP SMART RAINPROOF® BATTERY CHARGER/MAINTAINER

- 6/12 Volt 2 Amp
- IP65 Water-Resistant Molded Case
- Smart Battery Technology Prevents Overcharging
- Reverse Hook-Up Protection/Spark Resistant
- Automatic "Switching Technology" can be Safely Connected to the Battery for Long Periods of Time
- Easy-to-Read Battery Charge Status LEDs
- Includes Ring Terminal and Alligator Clip Cable Attachments
- Charges and Maintains Batteries from 5 to 200 Amp Hours
- Maintains Batteries up to 400 Amp Hours
- CEC Certified





25 AMP

-

44

Battery

121 SPORT

SMART BATTERY

CHARGER/MAINTAINER

Power 0

Charged <

Error 🥥

Charging



Accessories Included with #20067 & #20069 See Page 43 for these Replacement Part #'s



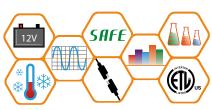


BATTERY DOCTOR® 12 VOLT 1.25 AMP SMART SPORT BATTERY CHARGER/MAINTAINER

- 12 Volt 1.25 Amp
- Smart Battery Technology Prevents Overcharging
- Reverse Hook-Up Protection/Spark Resistant
- Automatic "Switching Technology" can be Safely Connected to the Battery for Long Periods of Time
- Easy-to-Read Battery Charge Status LEDs
- Includes Ring Terminal and Alligator Clip Cable Attachments
- Charges and Maintains Batteries from 5 to 200 Amp Hours
- Maintains Batteries up to 400 Amp Hours
- CEC Certified

#20069





7

BATTERY DOCTOR[®] 12 VOLT 2 AMP WALL MOUNT[™] SMART BATTERY CHARGER/MAINTAINER

- 12 Volt 2 Amp
- Charges and Maintains Batteries from 5 to 200 Amp Hours
- Smart Battery Technology Prevents Overcharging
- Reverse Hook-Up Protection/Spark Resistant
- Automatic "Switching Technology" can be Safely Connected to the Stored Vehicle for Long Periods of Time
- Easy-to-Read Battery Charge Status LEDs
- Includes Ring Terminal and Alligator Clip Cable Attachments
- Direct Wall Plug-In Design Keeps the Work Area Clutter-Free
- Maintains Batteries up to 400 Amp Hours
- CEC Certified





Accessories Included with #20063 & #20060 See Page 43 for these Replacement Part #'s

Battery

12V WALL MOUNT

SMART BATTERY CHARGER/MAINTAINER

Power

Charging 🔾

Charged (2)

Error 🥥



#20063

Alligator Clips

BATTERY DOCTOR® 12 VOLT/ 1 & 4 AMP SMART BATTERY CHARGER/MAINTAINER

- 12 Volt 1/4 Amp
- 7 Stage Smart Battery Technology Prevents Overcharging
- Reverse Hook-Up Protection/Spark Resistant
- Charges and Maintains Batteries from 5 to 400 Amp Hours
- Includes Ring Terminals and Alligator Clip Cable Attachments





BATTERY DOCTOR® 12/24 VOLT SMART BATTERY CHARGER/MAINTAINER

- Smart Battery Technology Prevents Overcharging
- 12 Volt/8 Amp 24 Volt/4 Amp
- Digital Display Shows Voltage and Amperage
- Reverse Hook-Up Protection/Spark Resistant
- Includes Ring Terminals and Alligator Clip Cable Attachments
- LED Read-Out Display
- Wall Mount Hole in Back for Hanging Charger







BATTERY DOCTOR® INSTANT "STATE OF CHARGE" TESTER

A push of a button tells you if your battery is weak or fully charged. Simply attach the ring terminals directly onto your battery. If your battery needs charging, simply attach the Battery Doctor[®] Charger directly to your Battery Doctor[®] Tester for a simple, tool-free connection.

- Reverse Polarity Protected
- 24" Lead

RoHS

#20040

• 3 Amp Fuse Included



BATTERY DOCTOR[®] **SURGE PROTECTOR & CHARGE MONITOR** Take the worry out of jumping and recharging your 12 volt battery. Our monitor protects your battery from damaging surges and also displays the battery's condition with indicator lights.

3-IN-1 MONITOR:

- Protects and Displays the Condition of your Battery and Charging System with the Push of a Button
- Protects Engine Computer and 12 Volt Accessories from Damaging Surges when Jump-Starting or Recharging
- Instant Installation Mounts to the Top of your Battery with the Peel & Stick Velcro
- Includes Two 20" Wire Leads with 5/16" Diameter Ring Terminals
- For All 12 Volt Batteries





SOLAR SOLUTIONS

AMORPHOUS SOLAR PANELS

Battery Doctor[®] Solar Solutions offer a variety of choices in Amorphous 12 Volt Solar Panels. Our Amorphous panels and kits work in all daylight conditions helping you to harness the Sun's Energy! Water resistant, shock and rust resistant. Battery Doctor[®] has your Go Green Technology covered!

Accessories Included

- Converts Daylight into Electricity to Charge 12 Volt Batteries and Extend Battery Life
- Amorphous Solar Panels Charge even in Cloudy and Overcast Weather!
- Implements the Latest Resource with SiGe Technology Helping to Provide you the Most Efficient Panels on the Market!
- Plastic Corner Sleeves Prevent Scratching
- Includes E-Z Connect Adapter
- Built-in Blocking Diode Prevents Reverse Charging
- Includes Mounting Kits for Quick Installation
- Use with Deep Cycle, AGM, Lead-Acid and Gel-Cell 12 Volt Batteries
- Includes Bright LED Current Indicator Attachment



with SOLAR PANEL MAINTAINER **SOLAR PANEL TRICKLE CHARGER**/ **MAINTAINER 5 WATT KIT 1.8 WATT KIT** - Anodized Aluminum Frame - Anodized Aluminum Frame - Dimensions: 12½" L x 12½" W x 1" D - Dimensions: 121/2" L x 4" W x 1" D - Amp Rating: Up to 420 mA - Amp Rating: Up to 150 mA - No Controller Needed for Single 12 Volt Battery **Alligator Clips** Accessories included: Application Male Output 12V Adapter (Cigarette Lighter Adapter) • Alligator Clips Accessories Included: • LED Voltage Indicator • Male Output 12V Adapter (Cigarette Lighter Adapter) • Included Hardware: Tabs and Screws 12V Adapter • LED Voltage Indicator Plug and Play Bullet Connection System • Alligator Clips • Included Hardware: Tilt Rods (2) • Plug and Play Bullet Connection System **Voltage Indicator** -121/2" -121/3" 4" RoHS **OHS** #23143 #23140

SOLAR SOLUTIONS

SOLAR PANEL CHARGER/ MAINTAINER 9 WATT KIT

- Anodized Aluminum Frame
- Dimensions: 24.4" L x 8.3" W x 1" D
- Amp Rating: Up to 750 mA
- Controller Needed for 12 Volt Battery

Accessories included:

- Male Output Adapter (Cigarette Lighter Adapter)
- Alligator Clips
- LED Voltage Indicator
- Hardware Included: Tabs and Screws
- Plug and Play Bullet Connection System



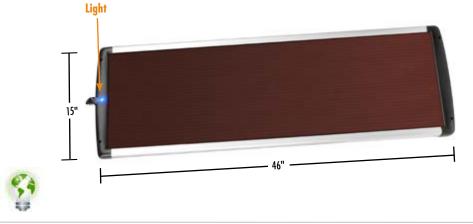


#23144

LED Blue

SOLAR PANEL CHARGER/MAINTAINER 20 WATT KIT

- Aluminum Frame with Plastic Edging
- Dimensions: 46" L x 15" W x 2" D
- Amp Rating: Up to 1.7 Amps
- Controller Needed for 12 Volt Battery
- Additional Accessories included:
- 12 Volt Socket Cable
- Battery Cable
- 18" Male 12V Socket Adapter
- 18" Female 12V Socket Adapter
- 21" Solar Controller Connecting Wire
- 36" Alligator Clips
- 4 Screw Holes in Each Corner
- Plug and Play Bullet Connection System



#23145

12 VOLT 10 AMP SOLAR CONTROLLER

- Maintains and Regulates 12 Volt Batteries From Overcharging and Discharging
- Handles Up to 10 Amps (120 Watts) of Array Current
- Maintenance-Free Protection of Your Solar Panel and Batteries
- Maintains 12 Volt Batteries in a Fully **Charged State**
- Small, Compact and Easy to Mount
- For Use with Gel-Cell, AGM, Deep Cycle and All Lead-Acid 12 Volt Batteries
- Easily Mounted in Weather Protected Area
- Plug and Play Bullet Connections





12 VOLT 30 AMP DIGITAL SOLAR CONTROLLER

- Charges, Maintains, and Regulates 12 Volt Batteries From Overcharging and Discharaina
- LED Indicators Show Four Levels of Charging Status
- Easily Mounted in Weather Protected Area
- Continuously Displays the Charging Current or Battery Voltage on the LCD **Digital Meter**
- Automatically Indicates the **Charged Condition of the** Battery on the LED Bar Graph
- For Use with Gel-Cell, AGM, Deep Cycle and All Lead-Acid 12 **Volt Batteries**





SOLAR SOLUTIONS

							ONS FOR 12 VOLT BATTERIES
	Part #	Wattage	Maintain	Trickle Charge	Charge	Solar Controller	Applications
A	23140 23143	1.8 5	x x	x			Cars, RVs, ATVs, Motorcycles, PWC, Electric Bicycles, Motorscooters and Small Boats
Amorphous Panels	23144	9	x	x	х	Recommended	Riding Lawn Mowers, Med Sized Boats, Trucks, Motorcycles, ATV's and Autos, Fence Chargers, Deer Feeders, Sump Pumps, Electronic Gates and Small Portable Electronics
	23145	20	х	x	х	Required	Boats, RVs, Tractors, Combines, Trucks and Smaller 12 Volt Back Up Generator Power Systems

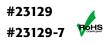
AMORPHOUS SOLAR PANEL KITS AVAILABLE FOR INCREASED SOLAR POWER



4-IN-1 SOLAR PANEL ADAPTER

Maximize Your Solar Panels' Output!

- Safely Connects Up to 4 Like Solar Panels in Parallel
- 11' 6" Long
- Includes 4 Bullet E-Z Connectors
- Quick and Easy to Use: No Cutting or Splicing!
- Max Wattage: 80 Watts



To Solar Panels



WirthCo Engineering, Inc.

ISOLATORS

BATTERY DOCTOR® ISOLATOR SERIES

Our new state-of-the-art, fully automatic dual battery isolator is suitable for any vehicle with an auxiliary battery. Smaller and lighter than other standard battery isolators, the Battery Doctor® 100 and 150 Amp Battery Isolators employ electronic switching control technology. Our high-performance electronic isolator allows you to charge two batteries from a single alternator and keeps the starting battery isolated from the second battery. Also, with a single push of the override/reset button, you can change the batteries to parallel mode for jump starting.

- Priority Charging for Starting Battery
- Includes Mounting Bracket
- Over Current and Surge Protected for Vehicles with Electronic Systems
- Manual Override for Starting Battery
- Automatically Charges Auxiliary Battery
- Charge Rate Depends on Alternator Amps
- Isolator Size: 4" x 4" x 2"
- For use with Lead Acid Batteries (Flooded, AGM, Gel)
- Only Compatible with single Auxiliary Battery Systems
- Must use 6 GA. AWG or Larger wire for Install

#20090 - 100 Amp

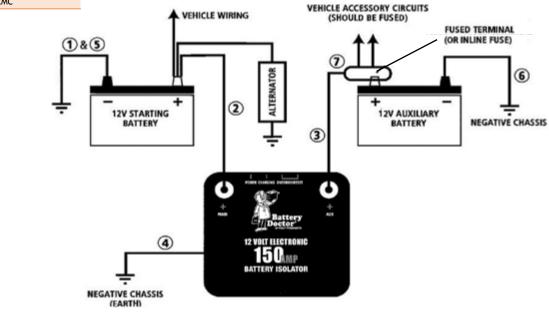
#20092 - 150 Amp



For use with single auxiliary battery

Specifications				
Voltage	12 Volt			
Charging Current	100 Amp or 150 Amp Peak			
Charge Type	Parallel			
Control	Electronic			
Mounting	Surface / Fire Wall / Battery Side			
Current Draw	Charging 50mA (Standby 30mA)			
Voltage Draw	None			
Surge Protection	Built In			
Approval	EMC			





Our patented Battery Doctor® switches are easy to install and simple to use.

All of Our Knife-Blade Switches:

- Mount on Negative Battery Post Only
- Disconnect Batteries Quickly and Easily
- Stop Unwanted Battery Drain
- Help Prevent Theft, Tampering and Unauthorized Use
- Improve Safety and Security of Stored Vehicles, RVs and Seasonal Equipment
- Are Rated 250 Amps Continuous and 750 Amps Surge at 12 Volts





FOR TOP POST BATTERIES,

LOW PROFILE HORIZONTAL OPERATION

• With Post for Receiving Standard **Battery Cable Clamp** • 31/2" W x 3 3/4" L x 11/2" H

#20108 #20108-7



- With Post, Plus 5/16-18 Stud and Wing Nut for Extra Connections
- 3¹/₂" W x 3 ³/₄" L x 2¹/₂" H

#20109 #20109-7

FOR TOP POST BATTERIES, LOW VERTICAL OPERATION

Switches recommended to mount on negative battery post to disconnect ground and battery. Easy to reach and operate.



12/24-VOLT HEAVY AG EQUIPMENT SWITCH

Double-pole, double-throw switch connects two 12 volt batteries either in parallel for maximum current and charging, or in series for 24 volt starting power. Instructions included.

- Great for Bench Testing Rebuilt Starters and Alternators, Plus Other 12 or 24 Volt Applications
- Open Switch Disconnects Both Batteries for Storage or Electrical Work
- Surface Mounted
- 4 ¾" W x 6 ¾" L x 2" H

#20238-7



SURFACE MOUNTED "IN-LINE"/REMOTE MOUNT SWITCHES

For concealed installations, or where battery box space is limited. Connects to the negative battery cable; other side connects to the vehicle cable.

Both Terminals are %s" Bolts for Receiving Eyelet Cable Connectors
3" W X 4" L X 2" H
#20188
#20188-7
One Terminal is %" Post for Receiving Standard Battery Cable Clamp, the Other Terminal is %s" Bolt for Receiving Eyelet Cable Connector
3" W x 4" L x 2" H
#20198 #20198-7

DUAL BATTERY SWITCHES

#20128

#20128-7

Allows use of one battery for accessories while reserving second battery for starting. Selected battery is connected to provide power and receive charging from vehicle; non-selected battery remains idle. Surface mounted.

- Double Blade Selects Either or Both Batteries • Single Blade Selects • 2" W x 6½" L x 2" H Either Battery • 2" W x 6 ½" L x 2" H #20218 #20228 #20218-7 #20228-7 FOR SIDE TERMINAL BATTERIES **DOUBLE POST ACCESSORY SWITCH** Allows uninterrupted power to vehicle while switch controls power to • Mounts on Negative Side Battery Terminal accessory equipment. Ideal for use with winches, snow plows, Provides ³/₈-18 Bolt for Receiving generators and to power pick-up camper accessories. Standard Eyelet Cable Connector • 31/4" W x 3 3/4" L x 11/2" H • Mounts on Negative Top Post of Battery. Provides One Un-switched %" Post, Plus One Switched %" Post
 - 3 ¼" W x 4" L x 2" H

#20208 #20208-7

REMOTE ELECTRIC DISCONNECT SWITCH

- Switch Manually from Remote Location via Rocker/Toggle Switch
- LED Status Identification for Remote Control Switch
- 9.5VDC 32VDC
- 275 Amps Continuous
- 455 Amps Intermittent
- 1,250 Amps Cranking
- Power Draw: Switch Off 12mA; Switch On 15mA





#20370

BATTERY DOCTOR® MINI MASTER BATTERY DISCONNECT SWITCHES

- For Application Up to 48 Volts
- ISO 8846 Approved
- Continuous Rating: 300 Amps
- Intermittent Rating: 1000 Amps/5 Seconds
- Crank Rating: 700 Amps/10 Seconds
- Can Be Used with 1 or 2 Batteries
- Dimensions: 2 ³/₄" L x 2 ³/₄" W x 3" H
- Recess, Flush Top Mount
- Label Glows in the Dark
- Removable Backplate
- Cable Knockout Plate on All Sides



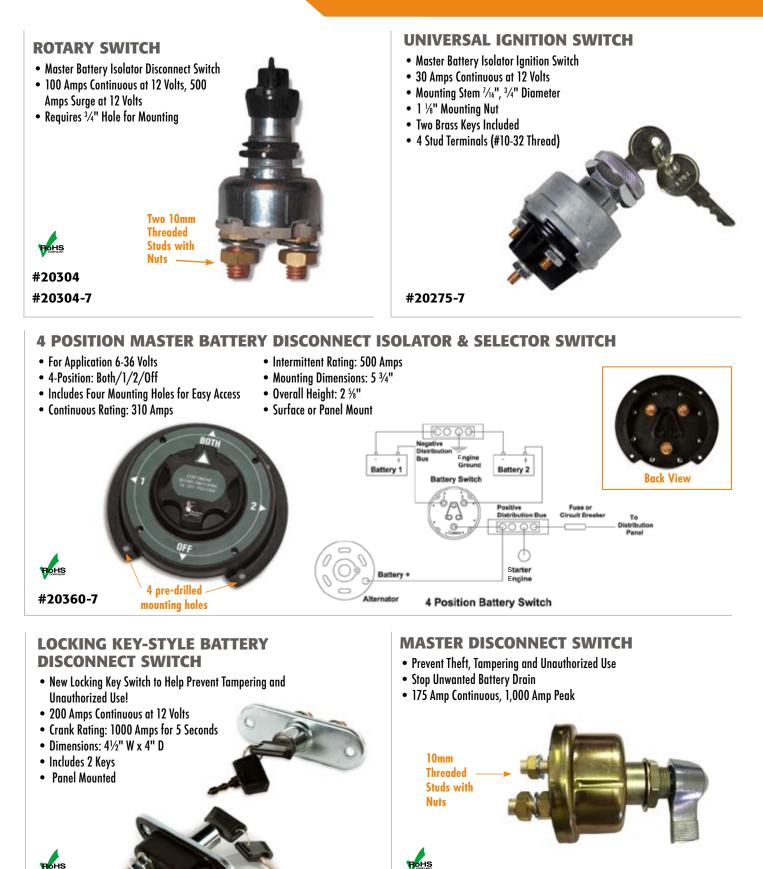


#20387



#20393

#20387 - Single Battery Disconnect Switch - 2 Position
#20387-7
#20393 - Dual Battery Disconnect Switch - 4 Position
#20393-7



#20269

#20279-7



BATTERY AND ALTERNATOR WATER-RESISTANT MASTER SWITCH

 Reduces Risk of Alternator Circuit Damage Due to Heavy Voltage Surge 100 Amps Continuous at 12 Volts 500 Amp Surge

Includes:

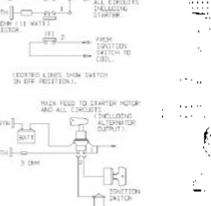
- Water-Resistant Cover
- 1 Key

RoHS

#20319-7

• 3 Ohm 11 Watt Resistor and Wiring Diagram





IGNITION COL



EMERGENCY PUSH BUTTON BATTERY DISCONNECT SWITCH

"Twist to connect...push to disconnect!"

- Allows Electrical Circuit of Vehicle to Be Killed With Push of Button
- To Operate, Twist the Red Button Until it Clicks into "On" Position to Make Contact; to Turn Switch Off, Just Press the Button!
- Heavy Duty Weighs 1lb 5oz
- Rated 250 Amps Continuous, 2500 Amps Surge at 12 Volts for 5 seconds
- Ideal for Emergency Vehicles, Industrial, Agricultural, Marine, Automotive and All Heavy Duty Industrial Use
 Two 10mm

#20256-7 Hores



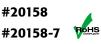
Threaded Studs

with Nuts

3 OHM Resistor

BATTERY QUICK DISCONNECT CAPS

- Fits Top Post Batteries
- Manufactured of Copper-Zinc Plated Steel
- Fits Side Post Batteries (with Standard Post Adapters)
- Attach to Battery Terminal by Clamping Down on Cap
- Lift Cap to Remove from Battery Terminal
- Rated 500 Amps Continuous, 800 Amps Surge at 12 Volts
- Color-Coded Caps: Red and Black
- Sold as a Pair
- Accepts 4-6 Gauge Wire







All of Our Compact Battery Switches Feature:

- Easy to Install on Negative Battery Post
- Battery is Disconnected by Unscrewing the Knob a Few Turns, and Reconnected by Tightening the Knob
- Knob Can be Removed Completely to Deter Theft
- Compact Size Fits Most Battery Compartments
- Rated 500 Amps Surge and 125 Amps Continuous at 12 Volts

TOP MOUNT WITHOUT FUSED BYPASS



TOP MOUNT WITH FUSED BYPASS



• (For more information on In-Line Fuse Holder #20311, please see page 32)

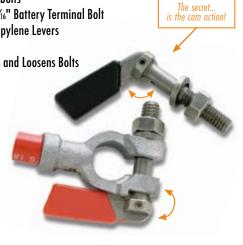




QUICK RELEASE BATTERY BOLTS

- Anti-Corrosive Steel Bolts
- Replaces Standard 5/16" Battery Terminal Bolt
- Color-Coded Polypropylene Levers
- No Tools Required
- Cam Action Tightens and Loosens Bolts
- Heat Treated Steel
- Sold in Pairs

#20251 #20251-7



- #20309 and #20310 Include a 15 Amp Fused Bypass that Maintains Computer Settings, Radio, Clock, Etc., while Battery is Disconnected
- Retail Package Includes Battery Terminal Markers #20250, as Shown on Page 43

SIDE MOUNT WITHOUT FUSED BYPASS





#20307-7

SIDE MOUNT WITH FUSED BYPASS





QUICK DISCONNECT BRASS BATTERY TERMINAL

- Designed for Both Round and Square Battery Lugs
- Quickly Isolates the Vehicle's Battery, Allowing Clock, Radio, etc. to Remain Functional When Used with a Fused Bypass
- To Isolate the Starter Circuit Only, Unscrew the Knob (It is Not Necessary to Remove the Knob)



#20350-7

HEAVY DUTY DUAL BATTERY SWITCH

"Key turns 90° to instantly connect or disconnect dual batteries"

- Engages or Disconnects Two Batteries Simultaneously
- Rated 250 Amps Continuous, 2500 Amps Surge at 12 Volts for 5 seconds
- Two ½" Diameter Mounting Holes on 4" Centers
- Key is Captive in "On" Position and Removable in "Off" Position
- Weather-Resistant Cover and 1 Key Included
- 51/2" L x 4 1/8" W x 5" D (3" Deep Behind Panel)



#20258-7



Incorporates Flange for *Panel Mounting* from Front or Rear For Discreet Appearance. Panel Mounting from Rear Requires Only a Single Center Hole Plus Two Mounting Holes

HEAVY DUTY SINGLE BATTERY SWITCH

"Key turns 90° to instantly connect or disconnect the battery"

- Rated 250 Amps Continuous, 2500 Amps Surge at 12 Volts for 5 Seconds
- Two 1/2" Diameter Mounting Holes on 4" Centers
- Key is Captive in "On" Position and Removable in "Off" Position
- Weather-Resistant Cover and One Key Included
- 5" L x 21/2" W x 45%" D (3" Deep Behind Mount Panel)

#20259-7 Hores

Two 10mm Threaded Studs with Nuts



FIXED HANDLE BATTERY DISCONNECT SWITCH

"Turn to connect...turn back to disconnect!"

- Heavy Duty Removable Handle/Key
- Allows Electrical Circuit to Be Switched On and Off With a Turn of the Handle/Key
- Rated 500 Amps Continuous, 5000 Amps Surge at 12 Volts for 5 Seconds
- Water Resistant



PULL ON/PUSH OFF SWITCH

- Screw Terminal Wire Connection
- Long Neck for Thicker Panels
- Requires 5%" Hole for Mounting
- Rated 16
 Amps at 12 Volts

#20300

#20300-7

MICRO TOGGLE SWITCH

- Two-Position On/Off
- Requires 3/16" Hole for Mounting
- Rated 6 Amps at 12 Volts

#20512 #20512-7

METAL TOGGLE SWITCH

- Two-Position On/Off
- Screw Terminals
- Requires 1/2" Hole for Mounting
- Rated 20 Amps at 12 Volts

#20511 #20511-7

SHORT CHROME TOGGLE SWITCH

- Two-Position On/Off
- Space-Saving Duckbill Toggle
- Requires 1/2" Hole for Mounting
- Rated 20 Amps at 12 Volts

#20506 #20506-7

ILLUMINATED TOGGLE SWITCH

- Two-Position On/Off
- Illuminates in "On" Position
- Requires 1/2" Hole for Mounting
- Includes Nut and Back-Up Collar for Mounting
- Rated 20 Amps at 12 Volts

Part #	Bulk	Color
20500	20500-7	Illuminated Red
20501	20501-7	Illuminated Green
20502	20502-7	Illuminated Amber
20503	20503-7	Illuminated Blue



PLASTIC TOGGLE SWITCHES - 2 OR 3 POSITIONS

- Requires 1/2" Hole for Mounting
- Includes Nut and Back-Up Collar for Mounting
- Rated 20 Amps at 12 Volts



 Part #
 Bulk
 Position

 20505
 20505-7
 2-Position "On/Off"

20507 20507-7 3-Position "On/Off/On"

HEAVY DUTY METAL TOGGLE SWITCH

- High Current Switch
- Requires 1/2" Hole for Mounting
- Rated 25 Amps at 12 Volts





HEAVY DUTY LED ILLUMINATED TOGGLE SWITCH

- Two-Position On/Off
- Super Bright LED on Toggle
- Requires 1/2" Hole for Mounting
- Rated 25 Amps at 12 Volts

Bulk	LED Color
20520-7	Amber
20521-7	Blue
20522-7	Green
20523-7	Red
	20520-7 20521-7 20522-7



ROCKER SWITCH

- Two-Position On/Off
- Requires ¹³/16" x ¹/2" Slot for Mounting
- Rated 16 Amps at 12 Volts



#20525 #20525-7

ON/OFF LED ILLUMINATED ROCKER SWITCH

- Two-Position On/Off
- Super Bright Orange LED
- Requires 3/4" x 15/16" Slot for Mounting
- Rated 20 Amps at 12 Volts



#20530 #20530-7

OVAL LED ILLUMINATED ROCKER

- Two-Position On/Off
- Super Bright LED Illuminates Amber in the On Position
- Requires 1/2" Hole for Mounting
- Rated 16 Amps at 12 Volts

#20554

#20554-7

SWITCH PANELS

- Precut Making Installation Easy
- Durable ABS Plastic
- Paintable



20590 20590-7 13/16" x 1/2" Slot Panel 20591 20591-7 1/2" Round Hole Panel
20501 20501 7
The funct

PROTECTIVE TOGGLE COVERS

- Aircraft Style Toggle Covers
- Prevents Accidental Switching



Part # Bulk Cover Color 20560 20560-7 Blue 20561 20561-7 Carbon 20562 20562-7 Camouflage 20563 20563-7 Chrome 20564 20564-7 Green 20565 20565-7 Red 20566 Yellow 20566-7

ILLUMINATED ROCKER

- Requires 13/16" x 1/2" Slot for Mounting



Part #	Bulk	Amp at 12V	Color
20531	20531-7	20A	Illuminated Amber
20532	20532-7	20A	Illuminated Red
20002	20002 /		Red

ILLUMINATED PUSH ON/OFF SWITCH WITH SPLASH PROOF SEAL

- Push On/Push Off
- Super Bright Red LED
- Requires 3/4" Hole for Mounting
- Rated 10 Amps at 12 Volts

#20533

#20533-7

#20595

ROCKER SWITCH PANEL

- Two-Position On/Off Rocker Switch
- Rocker Illuminates Red
- Rated 20 Amps at 12 Volts



12 VOLT INDICATOR LIGHT

- Super Bright 12V Light Captures Attention
- Chrome Bezel
- Requires 1/2" Hole for Mounting
- Rated 12 Volts

Part #	Bulk	Color
20540	20540-7	Amber
20541	20541-7	Blue
20542	20542-7	Green
20543	20543-7	Red



RED ILLUMINATED ON/OFF ROCKER SWITCH

- Two-Position On/Off
- Super Bright Red LED
- Requires 1" Hole for Mounting
- Rated 20 Amps at 12 Volts



#20550-7

TOGGLE SWITCH LIGHT ASSEMBLY KIT

- Two-Position On/Off Toggle
- Illuminates in "On" Position
- Super Bright Red Indicator Light
- Includes Modular Mounting Bracket
- Rated 20 Amps at 12 Volts

#20510 #20510-7







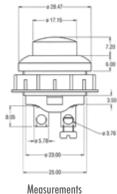
- **SWITCH** • Two-Position On/Off

MOMENTARY PUSH-ON BUTTON SWITCH

For controlling apparatus that requires temporary power and manned operation.

- Heavy Duty Momentary Push-On Switch
- Water-Resistant Cover
- 30 Amps at 12 Volts





are in millimeters

START/IGNITION PANELS - 2 OR 3 SWITCH

- 2 or 3 Switches, Plus 1 LED
- Polished Aluminum Panel
- Toggle Switch with Cover - 25 Amps at 12 Volts
- Red Indicator Light
- Starter Button 16 Amps at 12V
- 4 Mounting Holes



31/2"

#20280 - 2 Switch/1 LED 2½" #20280-7 #20283-7 - 3 Switch/2 LED

DC DIGITAL VOLT METER

- Range 6V-30V DC
- Illuminated Red Read-out
- Includes Faceplate and Hardware



#20600

DUAL USB CHARGER

- Dual USB with Weatherproof Cover
- Total: 3.1A (1A + 2.1A)
- Indicator Light
- Includes Faceplate and Hardware



#20601

DIE-CAST PUSH-ON STARTER SWITCH WITH COVER

- Heavy Duty Die Cast Push-On Starter Switch, Momentary On
- Water-Resistant Cover
- 16 Amps at 12 Volts
- 5%" Diameter Mounting Hole Required for Panel Mount



EMERGENCY CUT-OFF SWITCH

- Emergency Cut-off Switch
- 12A 15A
- Lanyard Length: 17"
- Four Prong Connectors for Use with Coil or Magneto Ignition Systems

#20340 #20340-7

DUAL USB WITH VOLTAGE METER

- Dual USB with Weatherproof Cover
- Total: 4.2A (2.1A + 2.1A)
- Range: 5V-30V DC
- Includes Faceplate and Hardware



#20602

Prong Connectors for



• Dual USB with Weatherproof Cover

Tether Cord

• Total: 3.1A (1A + 2.1A)



#20603

Our Battery Bolts Feature:

- Easy and Reliable Direct Connections to the Battery
- Studs Accommodate One or Several 3/8" Ring Terminals
- Excellent for Trailer Brake Controls and Other Accessories Requiring Direct Power

Don't see your dimension here? Let us design and build for you! RoHS

Battery Bolt Dimensions						
Part #	Overall Length	Nominal Diameter	Coupler Thread	Battery Insert	Stud Thread	Stud Length
30300	1.590"	5/8" hex	3/8-16	.400"	3/8-16	.400"
30400	1.750"	5/8" hex	3/8-16	.400"	3/8-24	.680"
30500	1.832"	5/8" hex	3/8-16	.250"	3/8-16	.960"
30600	1.440"	1/2" hex	5/16-18F .70" deep	N/A	5/16-18	.400"

TOP POST BATTERIES:

Replaces nut on cable connector bolt. Keeps ring terminals away from corrosion at battery terminal.

TOP MOUNT BOLT AND NUT, STANDARD

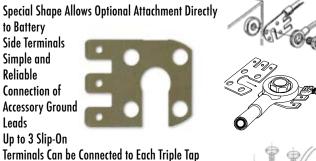


#30600-7

PATENTED FRAME GROUND TAP/SIDE MOUNT TERMINAL TAP

- Special Shape Allows Optional Attachment Directly to Battery
- **Side Terminals** • Simple and Reliable **Connection of** Accessory Ground Leads

Up to 3 Slip-On



Rons

• Can be Stacked to Provide Multiple Taps at One Location

#30700 Kit - 1 Tap, 3 Slip-On Terminals

#30700-7 - Tap Only

- Direct-to-Battery Power Circuits Help Reduce Noise in Stereo, **Communication and Other Electronic Equipment**
- All Models are Solid Brass

SIDE TERMINAL BATTERIES:

Replaces the standard bolt in the battery terminal with a threaded stud. SIDE TERMINAL BOLT AND NUT, STANDARD

#30300 #30300-7



SIDE TERMINAL BOLT AND NUT, LONG





#30400-7

"DOUBLE CABLE" SIDE TERMINAL BOLT AND NUT, GM® TRUCK





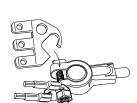


PATENTED TAP TERMINAL/GROUND TAP

- Attaches to Top Post Cable **Bolt without Removing Bolt**
- Incorporates One #8 Hole for Optional Use as Frame Ground



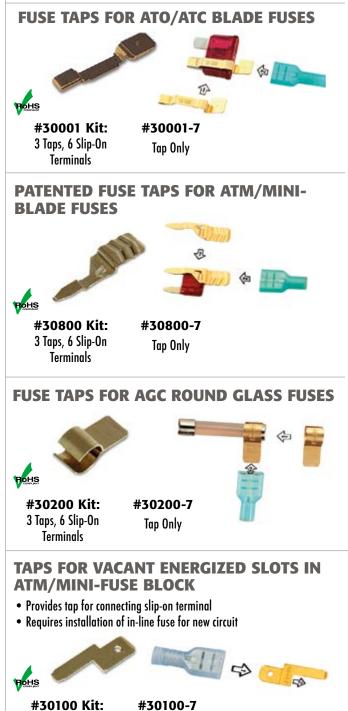






FUSE TAPS FOR OCCUPIED SLOTS IN FUSE BLOCK

- Taps Clip onto Existing Fuses to Provide an Additional Connection Point for Slip-On Terminals
- A Tap Installed at "Cold" End of Fuse Slot is Protected by Existing Fuse
- A Tap Installed at "Hot" End of Fuse Slot Requires Installation of Additional In-Line Fuse for New Circuit Direct Power



Tap Only

3 Taps, 6 Slip-On

Terminals

24 PIECE FUSE TAP KIT

• 12 Volt Power Connector Kit



Part #	Description	Qty
30001-7	Fuse Tap Kits for ATO/ATC Fuses	2
30200-7	Fuse Tap Kits for AGC and SFE Fuses	2
30300-7	Battery Bolt for Side Mount Terminal Batteries	2
30600-7	Battery Bolt for Top Post Batteries	2
30700-7	Frame Ground Tap, Also Used as a Side Terminal "Triple Tap"	2
30703-7	Top Post "Triple Tap", Also Used as a Frame Ground	2
30800-7	Fuse Tap Kits for ATM/Mini Fuses	2
30870-7	Blue Terminals for 16-14 Gauge Wires	4
30873-7	Red Terminals for 22-18 Gauge Wire	4
30876-7	Yellow Terminals for 12-10 Gauge Wires	2
Total Pieces		24

#30995

6 PIECE FUSE KIT

• Includes 1 Piece Each: 5, 7.5, 10, 20, 25 and 30 Amp Fuses

Rons

#30903 - MidBlade™ (ATO/ATC Kit) #30913 - MinBlade™ (ATM/Mini Kit)



42 PIECE FUSE KITS

Includes 7 pieces of each: 5, 10, 15, 20, 25, 30 Amp fuses. Also includes fuse puller/tester.

42 PC FUSE KIT WITH PULLER/TESTER





#30914 - MidBlade™ (ATO/ATC Kit) #30916 - Low Profile Mini (APS Kit)

(ATR/MICRO2[™])

#30917 - MinBlade^{2™}

#30915 - MinBlade™ (ATM/Mini Kit)

80 PIECE FUSE KIT

 Includes 10 Pieces Each:
 3, 5, 7.5, 10, 15, 20, 25 and 30 Amp Fuses



Rons

#30990 - MidBlade™ (ATO/ATC Kit) #30993 - MinBlade™ (ATM/Mini Kit)



- Replaces ATO/ATC Fuses
- Complies with SAE J1284 and UL 275A Standards

5 Pcs Retail Clam	Bulk*	Amp	Color
24353	24353-7	3	Violet
24355	24355-7	5	Tan
24357	24357-7	7.5	Brown
24360	24360-7	10	Red
24365	24365-7	15	Blue
24370	24370-7	20	Yellow
24375	24375-7	25	Natural
24380	24380-7	30	Green
24390	24390-7	40	Orange







*Must be ordered in multiples of 50

MINBLADE™ FUSES

- Replaces ATM/Mini Fuses
- Complies with SAE J2077 and UL 275A Standards

5 Pcs Retail Clam	Bulk*	Amp	Color
24101	24103-7	3	Violet
24105	24105-7	5	Tan
24107	24107-7	7.5	Brown
24110	24110-7	10	Red
24115	24115-7	15	Blue
24120	24120-7	20	Yellow
24125	24125-7	25	Natural
24130	24130-7	30	Green







RoHS

*Must be ordered in multiples of 50

MINBLADE^{2™} FUSES

- Replaces ATR/Micro2™ Fuses
- Complies with SAE J2077 and UL 275A Standards



Bulk*	Amp	Color
24805-7	5	Tan
24807-7	7.5	Brown
24810-7	10	Red
24815-7	15	Blue
24820-7	20	Yellow
24825-7	25	Natural
24830-7	30	Green
	24805-7 24807-7 24810-7 24815-7 24820-7 24825-7	24805-7 5 24807-7 7.5 24810-7 10 24815-7 15 24820-7 20 24825-7 25

*Must be ordered in multiples of 50



MINBLADE³ FUSES

- Replaces ATL/Mirco3 Fuses
- Complies with SAE J2077 and UL 275A Standards

Bulk*	Amp	Color	RoHS
25205-7	5	Tan	
25207-7	7.5	Brown	
25210-7	10	Red	
25215-7	15	Blue	

LOW PROFILE FUSES

These new smaller, lower profile APS/Mini Fuses are used in newer vehicles and any place where space is limited (Toyota Aygo, Toyota Prius, Honda Civic, Vauxhall Corsa, Citroen or Peugeot and many others and new Ford vehicles!).

- Replaces APS/Low Profile Mini Fuses
- Complies with JASO Standards

ROHS



5 Pcs Retail Clam	Bulk*	Amp	Color
24155	24155-7	5	Tan
24157	24157-7	7.5	Brown
24160	24160-7	10	Red
24165	24165-7	15	Blue
24170	24170-7	20	Yellow
24175	24175-7	25	Natural
24180	24180-7	30	Green

*Must be ordered in multiples of 50

MAXBLADE[™] FUSES

• Replaces MAXI Fuses

2 Pcs Retail Clam	Bulk#	Amp	Color
24520	24520-7	20	Yellow
24530	24530-7	30	Green
24540	24540-7	40	Orange
24550	24550-7	50	Red
24560	24560-7	60	Blue



AUTOMOTIVE BLADE FUSE STYLES



 MidBlade[™] Fuse (ATO/ATC)



 MinBlade[™] Fuse (ATM/Mini)



 MinBlade^{2TM} Fuse (ATR/Micro^{2TM})



 Low Profile Fuse (APS)



• MaxBladeTM Fuse (Maxi)



MinBlade3[™]

FMX FUSES

- Replaces J Case Fuses
- Complies with SAE J2077 and UL 275A Standards

Bulk#	Amp	Color
24920-7	20	Blue
24930-7	30	Pink
24940-7	40	Green
24950-7	50	Red
	24920-7 24930-7 24940-7	24920-7 20 24930-7 30 24940-7 40



#Must be ordered in multiples of 10



FMX-LP FUSES

- Replaces J Case Fuses
- Complies with SAE J2077 and UL 275A Standards

1 Pc Retail Clam	Bulk#	Amp	Color
24420	24420-7	20	Blue
24430	24430-7	30	Pink
24440	24440-7	40	Green
24450	24450-7	50	Red





FMM FUSES

- Replaces M Case Fuses
- Complies with SAE J2077 and UL 275A Standards

Bulk#	Amp	Color
24103-7	3	Violet
24105-7	5	Tan
24107-7	7.5	Brown
24110-7	10	Red
24115-7	15	Blue



#Must be ordered in multiples of 10



GLASS FUSES

• Replaces AGC Fuses

5 Pcs Retail Clam	Bulk*	Amp
24600	24600-7	1
24602	24602-7	2
24604	24604-7	4
24605	24605-7	5
24607	24607-7	7.5
24610	24610-7	10
24615	24615-7	15
24620	24620-7	20
24625	24625-7	25
24630	24630-7	30

*Must be ordered in multiples of 50



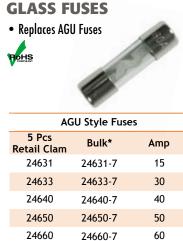
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SFE Style Fuses 3 Pcs Retail Bulk* Amp Clam 24703 24703-7 3 24706 6 24706-7 24707 7.5 24707-7 9 24709 24709-7 24714 24714-7 14 24720 20 24720-7 30 24730 24730-7

*Must be ordered in multiples of 50



*Must be ordered in multiples of 50



What a BRILLIANT Fuse Idea™!



MIDBLADE[™] – MINBLADE[™] ILLUMINATING LED FUSES... FOR ALL 12 VOLT VEHICLES

These fuses do the thinking for you by lighting up when they burn out - "Glow when Blown!"

- Ideal for Automotive, Marine, Agricultural, RV and More!
- Save Time and Remove the Guesswork Searching for a Burned Out Fuse
- Ideal for those Hard to See Areas!
- Each Fuse is Color Coded to Indicate the Amperage
- All Feature an Enclosed Element to Prevent Shocks, Sparks and Corrosion

MIDBLADE[™] LED FUSES #24400 - 5 Pack Assortment: #24403 - 10 Pack Assortment:

#24400 - 5 Pack Assortment: 1 Each - 10, 15, 20, 25, 30A

	,	
Part #	Amps	Color
24303-7	3	Purple
24305-7	5	Amber
24307-7	7.5	Brown
24310-7	10	Red
24315-7	15	Blue
24320-7	20	Yellow
24325-7	25	Clear
24330-7	30	Green



25, 30A

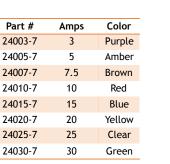
2 Each - 10, 15, 20,

Replaces ATO/ ATC Fuses

MINBLADE™ LED FUSES

#24100 - 5 Pack Assortment: 1 Each - 10, 15, 20, 25, 30A #24103 - 10 Pack Assortment: 2 Each - 10, 15, 20, 25, 30A

RoHS





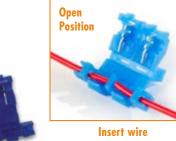
Replaces ATM/ Mini Fuses

SELF STRIPPING ATO/ATC FUSE HOLDERS

Must be ordered in multiples of 50

- No Need to Strip Wire
- Rated to 40 Amps
- Fits 14 18 Gauge Wire
- Simply Insert Each Wire and Crimp the Holder Closed, then Insert Fuse to Complete the Circuit

#31855-7 #31855-50



(Fuse and lead wires not included)

Crimp closed



Insert Fuse!

SINGLE FUSE BLOCK FOR MAXI BLADE FUSES

- Rated 60 Amps Max
- Material:
 - Body: Nylon (Ul Flame:94-0)
 - Terminal: Plated Brass
- Fuse Not Included





HEAVY DUTY MAXI FUSE HOLDER WITH COVER

- Rated 60 Amps Max
- 6" Loop Length with 8-Gauge Wire
- Fuse Not Included



#31860-7



ATO/ATC MIDBLADE™ TAPA CIRCUIT™ DUAL FUSE HOLDER

DESIGNED FOR USE WITH ISO 8820 ATO/ATC FUSES, SAE J1284-ATO/ATC FUSES, AND UL 275A STANDARD-ATO/ATC FUSES.

- Turns One Fuse Slot Into Two!
- Plugs into Occupied or Vacant Energized Fuse Block Slot
- Provides One Fuse Holder to Protect Existing Circuit and a Second Fuse Holder to Protect New Circuit
- 10 Amp Rating at 12 Volts
- 16-Gauge Wire for New Circuit is 5" Long; Includes Insulated Crimp-Type Coupler





#30003 #30003-7

IN-LINE ATO/ATC MIDBLADE™ FUSE HOLDER

- 30 Amp In-Line Fuse Holder for MidBlade™ Fuses with Water Resistant Cap
- 12-Gauge Wire
- Loop Length is 51/2"
- 30 Amp Fuse Included



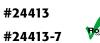
IN-LINE ATO/ATC MIDBLADE™ STACKABLE FUSE HOLDER

- 30 Amp In-Line ATO/ATC MidBlade™ Fuse Holder with Water Resistant Cover
- Loop Length: 51/21/2", Overall 12-Gauge Wire is 11"
- 30 Amp Fuse Included



LED ATO/ATC MIDBLADE[™] FUSE HOLDER WITH COVER

- Built-In LED for Identification of Blown Fuse
- 30 Amp In-Line ATO/ATC MidBlade™ Fuse Holder with 12-Gauge Wire and Water Resistant Cover
- 6" Wire Leads on Each Side for a Total Length of 12"
- 30 Amp Fuse Included



LED ATO/ATC MIDBLADE™ FUSE HOLDER

- Built-In LED for Identification of Blown Fuse
- 30 Amp In-Line ATO/ATC MidBlade™ Fuse Holder with 12-Gauge Wire
- 6" Wire Leads on Each Side for a Total Length of 12"
- 30 Amp Fuse Included





IN-LINE ATO/ATC MIDBLADE™ HEAVY DUTY FUSE HOLDER

- 30 Amp In-Line MidBlade™ Fuse Holder with 12-Gauge Wire
- 12" Loop Length
- 30 Amp ATO/ATC MidBlade™ Fuse Included

#31813 #31813-7 1901

MEDIUM DUTY ATO/ATC MIDBLADE™ FUSE HOLDER

- Rated 20 Amps Max
- 12" Loop Length with 14-Gauge Wire
- ATO/ATC MidBlade™ Fuse Not Included



30

RoHS

#31815-7

LIGHT DUTY ATO/ATC MIDBLADE™ FUSE HOLDER

- Rated 15 Amps Max
- 12" Loop Length with 16-Gauge Wire
- Fuse Not Included



#31816

RoHS

#31816-7

WEATHERPROOF ATO/ATC MIDBLADE™ FUSE HOLDER

- Two 4" 12-Gauge Wire Leads
- Snap-On Cover Included
- Rated to 30 Amps
- Fuse Not Included



#31850

#31850-7

WATERPROOF IN-LINE GLASS FUSE HOLDER

- For AGC and SFE Glass Fuses
- Accepts 12-18 Gauge Wire
- Yellow Neoprene Material for Easy Visibility
- Rated 30 Amps Max
- Fuse Not Included



#31808

#31808-7

HEAVY DUTY IN-LINE GLASS FUSE HOLDER

Designed for Heavy Duty Applications Including Air Conditioners and Heater Blower Motors.

- 12-Gauge 8" Wire Loop for Easy Connection
- Uses Standard AGC and SFE Fuses
- Rated 30 Amps Max
- Fuse Not Included



UNIVERSAL IN-LINE ATO/ATC MIDBLADE™ FUSE HOLDER WITH COVER

- 30 Amp Fuse Holder
- Accepts 12-Gauge and Smaller Wire
- 30 Amp Fuse Included

 Protective Caps



#31840-7

UNIVERSAL IN-LINE GLASS FUSE HOLDER

- For AGC and SFE Glass Fuses
- "Snap-Lock" Provides Strong Positive Union of Fuse Holder Housing
- High Visibility Yellow
- Rated 30 Amps Max
- Accepts 12-18 Gauge Wire
- Nylon Fuse Holder for Normal Environments
- Simple Crimp Assembly
- Fuse Not Included



MEDIUM DUTY IN-LINE GLASS FUSE HOLDER

- 20 Amp In-Line Fuse Holder for AGC and SFE Fuses with 14-Gauge Wire
- Durable Locking Cap
- 8" Wire Loop
- Fuse Not Included



ATM/MINI MINBLADE™ FUSE TAPĂ CIRCUIT™ DUAL FUSE HOLDER

DESIGNED FOR USE WITH ISO 8820 FUSES. SAE J2077 FUSES. AND UL 275A STANDARD FUSES.

- Turns One Fuse Slot into Two!
- Plugs into Occupied or Vacant Energized Fuse Block Slot
- Provides One Fuse Holder to Protect Existing Circuit and a Second Fuse Holder to Protect New Circuit
- 10 Amp Rating at 12 Volts
- 16-Gauge Wire for New Circuit is 5" Long; Includes Insulated Crimp-Type Coupler
- Fuse Not Included

#30103

#30103-7

RoHS

IN-LINE ATM MINBLADE™ STACKABLE MINI-FUSE HOLDER

- 30 Amp ATM/MinBlade™ Fuse Holder with 12-Gauge Wire
- Weather Resistant Cover
- 51/2" Wire Leads

ROHS

#31830-7

30 Amp Fuse Included



LED ATM/MINI MINBLADE™ FUSE **HOLDER WITH COVER**

position

- Built-In LED for Identification of Blown Fuse
- 30 Amp In-Line ATM/MinBlade™ Fuse Holder with 12-Gauge Wire and Water Resistant Cover
- 6" Wire Leads on Each Side for a Total Length of 12"
- Fuse Not Included



IN-LINE ATM/MINI MINBLADE™ FUSE HOLDER WITH RING TERMINALS

- Contains 15 Amp Mini Fuse with Ring Terminals (%" Dia.) Attached to 3 1/4" Wire Leads
- Overall 16-Gauge Black Wire is 10 1/8"
- 15 Amp Fuse Included



#20311-7

IN-LINE ATM/MINI MINBLADE™ FUSE HOLDER WITH COVER

- 20 Amp In-Line ATM/MinBlade™ Fuse Holder with 16-Gauge Wire
- Water Resistant Cover
- Two 6" Wire Leads
- Fuse Not Included



#31827

Rons

#31827-7

WEATHERPROOF ATM/MINI MINBLADE™ **FUSE HOLDER**

- Rated 30 Amps Max
- 5" Wire Leads with 12-Gauge Wire
- Fuse Not Included



LOW PROFILE APS TAPA CIRCUIT™ DUAL FUSE HOLDER

- Turns One Fuse Slot into Two!
- Plugs into Occupied or Vacant Energized Fuse Block Slot
- Provides One Fuse Holder to Protect Existing Circuit and a Second Fuse Holder to Protect New Circuit
- 10 Amp Rating at 12 Volts



- Fuse Not Included



RoHS

#30105 #30105-7

LOW PROFILE APS IN-LINE FUSE HOLDER WITH WATER RESISTANT COVER

- Rated 10 Amps Max
- 6" Wire Leads with 18-Gauge Wire
- Fuse Not Included

RoHS

#30106-7



LOW PROFILE APS IN-LINE FUSE HOLDER WITH SPLASH PROOF COVER

- Rated 20 Amps Max
- 5" Wire Leads with 14 -Gauge Wire
- Fuse Not Included

RoHS

#30104



MICRO² MINBLADE^{2™} TAPA CIRCUIT[™] DUAL FUSE HOLDER

- Turns One Fuse Slot into Two!
- Plugs into Occupied or Vacant Energized **Fuse Block Slot**
- Provides One Fuse Holder to Protect Existing Circuit and a Second Fuse Holder to Protect New Circuit
- 10 Amp Rating at 12 Volts
- 16-Gauge Wire for New Circuit is 5" Long
- Use with APT/Micro² Fuses
- Fuse Not Included

#30203

#30203-7

WIRE NUTS

- Rated to 300 Volt Max
- Make quick secure connections for positive continuity
- Reusable for easy circuit changes and addition

Part #	Gauge (AWG)	Quantity
80888	14-10	5
80889	14-10	100
80886	18-10	5
80887	18-10	100
80884	18-14	5
80890	18-14	100
80882	22-14	5
80883	22-14	100
80880	22-18	5
80881	22-18	100



FAST ACTING AUTOMOTIVE MidiDoc™ LIMITER FUSE

Color

Blue

Grey

• For Use With #24226-7 or #24227-7 Fuse Blocks

Amps

100

150

• 30mm Center to Center Bolt-On

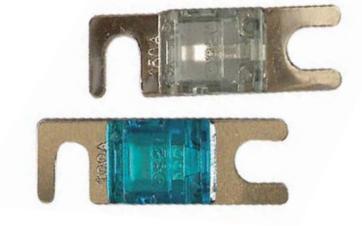
RoHS

Part #

24221-7

24225-7

- Interrupting Rating: 1000A @ 32VDC
- Operating Temperature: -40°~125°C



FUSE BLOCK	FOR M	lidiDoc™	LIMITER	FUSES	WITH	PROTECTIVE	COVE

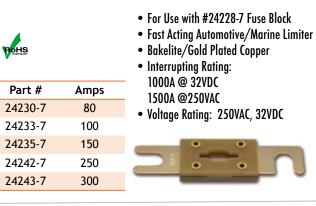
- Use with MidiDoc™ Limiter Fuses
- Lexan Protective Cover Prevents Accidentally Touching Exposed Terminal Studs
- Voltage Rating: 32 VDC
- Rated 300A Max
- Phenolic Laminate,
- Flame Retardant Base





Battery Doctor® Fast Acting heavy duty fuse limiters are recommended for use with high power DC, golf carts, forklifts, marine and other large battery applications.

FAST ACTING OPEN LINK FUSE LIMITER



FUSE BLOCK FOR OPEN LINK STYLE FUSE LIMITERS WITH PROTECTIVE COVER

- Use with Fast Acting Fuse Limiters
- Not to Exceed 300 Amps
- 125VAC
- Material:
 - Base: Polyester Impact/Electrical Black with Mineral and Glass Fiber Added ULR Cert #E40654
 - Cover: Polycarbonate UL 94V-0



35

CIRCUIT PROTECTION

ATO/ATC MIDBLADE™ FUSE BLOCKS

12-Way Case

- 30 Amps Per Circuit at 12 Volt DC
- Blocks Accommodate 4 to 12 Fuses
- ATO/ATC Blade Fuse Holder for 1/4" Slip-On Terminals
- Clear Acrylic Dust Cover with Bolt-Style Screw Included
- IP65 Rated-Dust Proof
- Part # Bulk Description Α В С D 30110 30110-7 4-Way Case 42mm 52mm 65mm 86mm 30111 30111-7 6-Way Case 42mm 52mm 93mm 116mm 30112-7 8-Way Case 42mm 52mm 130mm 153mm 30113-7 10-Way Case 42mm 52mm 158mm 163mm -

42mm

52mm

COMPACT ATO/ATC MIDBLADE™ AND ATM/MINI MINBLADE™ FUSE BLOCKS

188mm

210mm

- 30 Amps Per Circuit at 12 Volt DC
- Blocks Accommodate 4 to 10 Fuses

30114-7

- Terminal Connector Slip-On
- Snap On/Off Clear Dust Cover

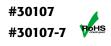
ATO/ATC MidBlade™						
Part #	Description	Α	В	С	D	
31000-7	4-Way Case	36.5mm	27mm	65mm	80mm	
31003-7	6-Way Case	36.5mm	27mm	85mm	100mm	
31005-7	8-Way Case	36.5mm	27mm	105mm	120mm	
31007-7	10-Way Case	36.5mm	27mm	115mm	140mm	

- ATM/MinBlade™ Fuse Holder for¼" Slip-On Terminals
- 15 Amps Per Circuit at 12 Volt DC
- Includes Water Resistant Dust Cover with Rubber Seal
- Contact: Nickel Plated Copper Alloy
- Cover Material: Polycarbonate
- Base Material: Nylon Ul 94V-0

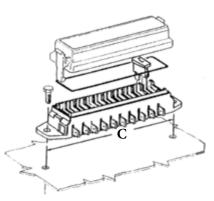
		ATM/Mini A	AinBlade™		
Part #	Description	Α	В	С	D
31010-7	4-Way Case	36.5mm	27mm	65mm	80mm
31013-7	6-Way Case	36.5mm	27mm	85mm	100mm
31015-7	8-Way Case	36.5mm	27mm	105mm	120mm
31017-7	10-Way Case	36.5mm	27mm	115mm	140mm

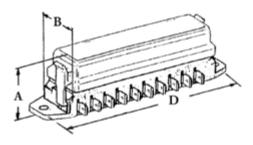
SINGLE LED FUSE ATO/ATC MIDBLADE™ HOLDER

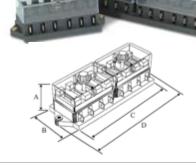
- For Use with ATO/ATC Fuses Only
- LED Enclosed in Fuse Holder, Glows When Fuse is Blown
- Includes Clear Dust Cover, Snaps into Base
- Rated: 12-24 Volt DC, 30 Amp Maximum
- Base: Nylon Body (UL Flame: 94V-2)
- Cover: Polycarbonate (UL Flame: 94V-2)















ATO/ATC MIDBLADE™ FUSE PANELS

Use with automotive fuses or plug-in circuit breakers. #10-32 stud terminal with hex nut, flat washer and lock washer supplied. Four .218" diameter mounting holes for #10 screws.

- Base: Polycarbonate
- Cover: Clear polycarbonate
- Maximum Amperage Per Circuit: 25 Amps
- Maximum Voltage: 32VDC
- Maximum Amperage Per Block: 150 Amps



	ATO/ATC Fuse Panels		Product Dimensions			
Part #	Description	L	w	н	Common Ground	Dust Cover
31020-7	6-Way ATO/ATC Fuse Panel	3.36"	2.51"	0.83"		
31050-7	6-Way ATO/ATC Fuse Panel with Cover	3.36"	2.51"	1.10"		х
31030-7	6-Way ATO/ATC Fuse Panel with Common Ground	3.36"	2.51"	0.83"	х	
31060-7	6-Way ATO/ATC Fuse Panel with Common Ground and Cover	3.36"	2.51"	1.10"	х	х
31023-7	8-Way ATO/ATC Fuse Panel	3.36"	3.13"	0.83"		
31052-7	8-Way ATO/ATC Fuse Panel with Cover	3.36"	3.13"	1.10"		х
31033-7	8-Way ATO/ATC Fuse Panel with Common Ground	3.36"	3.13"	0.83"	х	
31062-7	8-Way ATO/ATC Fuse Panel with Common Ground and Cover	3.36"	3.13"	1.10"	х	х
31025-7	10-Way ATO/ATC Fuse Panel	3.36"	3.74"	0.83"		
31054-7	10-Way ATO/ATC Fuse Panel with Cover	3.36"	3.74"	1.10"		х
31027-7	12-Way ATO/ATC Fuse Panel	3.36"	4.39"	0.83"		
31056-7	12-Way ATO/ATC Fuse Panel with Cover	3.36"	4.39"	1.10"		х

ATO/ATC MIDBLADE™ & ATM/MINI MINBLADE™ FUSE PANELS

,				1
ATO/ATC F	use Panels with LED Indicators and Cover	Produ	uct Dimer	nsions
Part #	Description	L	W	н
31074-7	4-Way ATO/ATC LED Fuse Panel	3.36"	1.85"	1.46"
31076-7	6-Way ATO/ATC LED Fuse Panel	3.36"	2.51"	1.46"
31080-7	10-Way ATO/ATC LED Fuse Panel	3.36"	3.74"	1.46"
ATM/Mini I	Fuse Panels with LED Indicators and Cover	Panels with LED Indicators and Cover Product Dimensions		nsions
Part #	Description	L	W	Н
31086-7	4-Way ATM/Mini LED Fuse Panel	3.35"	1.85"	1.46"
31087-7	6-Way ATM/Mini LED Fuse Panel	3.35"	2.48"	1.46"
31088-7	10-Way Mini Fuse Panel With Cover & LED	3.35"	3.74"	1.46"
	ATM/Mini Fuse Panels with Cover	Prod	uct Dimer	nsions
Part #	Description	L	W	Н
31082-7	4-Way ATM/Mini Fuse Panel	3.35"	1.85"	1.46"
31083-7	6-Way Mini Fuse Panel With Cover	3.35"	2.48"	1.46"
31084-7	10-Way Mini Fuse Panel With Cover	3.35"	3.74"	1.46"
APS/	Low Profile Mini Panels with Cover	Produ	ıct Dimen	isions
Part #	Description	L	W	Н
31090-7	10-Way APS/Low Profile Mini Fuse Panel	3.35"	3.74"	1.46"

10-Way APS/Low Profile Mini LED Fuse Panel

3.35"

3.74"

1.46"

- 1/4" Spade Quick Connects
- Lexan Dust Cover Included

Rons

- Base Material: Black Thermoplastic (UL Rated 94V-0)
- Maximum Current Rating: 30 Amps Per Circuit, 100 Amp Maximum Input
- LED Indicators Glow when Fuse is Blown (Open)

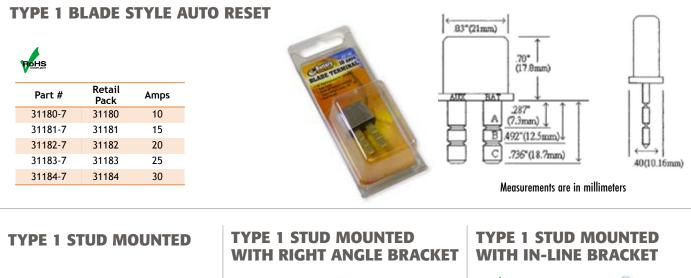


Power In (Fuses not included)

31091-7

CIRCUIT PROTECTION

ROHS





Part #	Amps
31101-7	10
31102-7	15
31103-7	20
31104-7	25
31105-7	30
31106-7	35
31107-7	40
31108-7	50



Part #	Retail Pack	Amps
31110-7	_	8
31111-7	-	10
31112-7	31112	15
31113-7	31113	20
31114-7	_	25
31115-7	31115	30
31116-7	_	35
31117-7	31117	40
31118-7	31118	50

All Circuit Breakers listed above comply with UL Standard



Part #	Retail Pack	Amps
31121-7	31121	10
31122-7	31122	15
31123-7	31123	20
31124-7	_	25
31125-7	31125	30
31126-7	_	35
31127-7	_	40
31128-7	31128	50

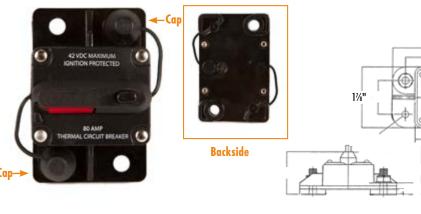
MANUAL RESET HEAVY DUTY CIRCUIT BREAKERS

• Water Resistant

4

- Panel or Surface Mounted
- Complies with SAE Standard JI625

ca	R	etail	Pac	k	Am	ps
3		3120	01		80)
3		3120	02		10	0
		_			12	0
3		3120	06		15	0
		_			18	0
		_			20	0



Measurements are in inches

21/8"

TERMINALS

ALL BATTERY DOCTOR® TERMINALS COME IN A RESEALABLE BAG OR RETAIL CLAMSHELL



NYLON FEMALE QUICK DISCONNECTS

- Fully Insulated Connectors for Optimum Protection
- High Temperature Nylon Insulation Rated to 221°F (105°C)
- Maximum Voltage: 300V

80248

		-
Gauge (AWG)	Tab Size	Quantity
12-10	.250	5
12-10	.250	100
16-14	.250	5
16-14	.250	100

.250

.250

5

100

VINYL FEMALE QUICK DISCONNECTS

22-18

22-18

- General Purpose Vinyl Insulation Rated to 167°F (75°C)
- Maximum Voltage: 300V

Part #	Gauge (AWG)	Tab Size	Pkg
80827	12-10	.250	25
80286	12-10	.250	100
80274	16-14	.110	100
80824	16-14	.187	25
80278	16-14	.187	100
80826	16-14	.250	25
80284	16-14	.250	100
80276	22-18	.187	100
80282	22-18	.250	100

NYLON CRIMP CAPS

- High Temperature Nylon Insulation Rated to 221°F (105°C)
- Maximum Voltage: 600V

Part #	Gauge (AWG)	Quantity
80825	8	25
80822	12-10	5
80823	12-10	25
80820	16-14	5
80821	16-14	100
80224	22-14	100

NYLON MALE QUICK DISCONNECTS

- Fully Insulated Connectors for Optimum Protection
- High Temperature Nylon Insulation Rated to 221°F (105°C)
- Maximum Voltage:

Part #	Gauge (AWG)	Tab Size	Pkg
80878	12-10	.250	5
80258	12-10	.250	100
80876	16-14	.250	5
80256	16-14	.250	100
80874	22-18	.250	5
80254	22-18	.250	100

VINYL MALE QUICK DISCONNECTS

- General Purpose Vinyl Insulation Rated to 167°F (75°C)
- Maximum Voltage: 300V



Part #	Gauge (AWG)	Tab Size	Quantity
80829	12-10	.250	25
80292	12-10	.250	100
80828	16-14	.250	25
80290	16-14	.250	100
80288	22-18	.250	100

MALE BULLET CONNECTORS

- Vinyl Insulation Rated to 167°F (75°C)
- Nylon Insulation Rated to 221°F (105°C)
- Maximum Voltage: 600V



Gauge (AWG)	Ins.	Quantity
16-14	Nylon	5
16-14	Vinyl	100
22-18	Vinyl	100
	16-14 16-14	(AWG) Ins. 16-14 Nylon 16-14 Vinyl

NYLON BUTT CONNECTORS

- High Temperature Nylon Insulation Rated to 221°F (105°C)
- Maximum Voltage: 300V

Part #	Gauge (AWG)	Quantity
80807	12-10	25
80806	12-10	5
80211	12-10	100
80803	16-14	5
80804	16-14	25
80209	16-14	100
80800	22-18	5
80801	22-18	25
80207	22-18	100

VINYL BUTT CONNECTORS

- General Purpose Vinyl Insulation Rated to 167°F (75°C)
- Maximum Voltage: 300V

Part #	Gauge (AWG)	Quantity
80816	12-10	25
80217	12-10	100
80813	16-14	25
80215	16-14	100
80810	22-18	25
80213	22-18	100

TERMINALS

VINYL RING TERMINALS

- General Purpose Vinyl Insulation Rated to 167°F (75°C)
- Maximum Voltage: 600V





Part #	Gauge (AWG)	Stud Size	Quantity
80334	12-10	#8	100
80857	12-10	1/4"	25
80346	12-10	1/4"	100
80859	12-10	5/16"	25
80350	12-10	5/16"	100
80359	12-10	3/8"	25
80357	12-10	3/8"	100
80332	16-14	#8	100
80845	16-14	#10	25
80338	16-14	#10	100
80847	16-14	1/4"	25
80344	16-14	1/4"	100
80849	16-14	5/16"	25
80851	16-14	3/8"	25
80354	16-14	3/8"	100
80328	22-18	#8	25
80330	22-18	#8	100
80840	22-18	#10	100



NYLON RING TERMINALS

- General Purpose Nylon Insulation Rated to 167°F (75°C)
- Maximum Voltage: 600V



Part #	Gauge (AWG)	Stud Size	Quantity
80863	12-10	#10	5
80864	12-10	1/4"	5
80865	12-10	5/16"	5
80852	16-14	#10	5
80853	16-14	1/4"	5
80854	16-14	5/16"	5
80843	22-18	#10	5



HEAT SHRINK BUTT CONNECTORS

- High Density Polyethylene Insulation Helps Keep Connection Dry
- Shrink Temperature: 302°F (150°C)
- Maximum Voltage: 600V



Part #	Gauge (AWG)	Quantity
80429	10-12	100
80428	16-14	100
80427	22-18	100

VINYL FORK/SPADE TERMINALS

- General Purpose Vinyl Insulation Rated to 167°F (75°C)
- Maximum Voltage: 600V

Part #	Gauge (AWG)	Stud Size	Pkg
80411	12-10	#6	100
80417	12-10	#8	100
80423	12-10	#10	100
80409	16-14	#6	100
80421	16-14	#8	100
80407	22-18	#6	100
80838	22-18	#8	25
80413	22-18	#8	100
80419	22-18	#10	100



SELF TAPPING IDC CONNECTORS

- Quick, reliable, and convenient splices
- No stripping, twisting, soldering, or special tools required
- Use with solid copper single-conductor wire



Part #	Gauge (AWG)	Quantity
80836	12-10	3
31870	12-10	50
80831	18-14	5
31877	18-14	50
80832	18-14	100



E2000 BLUE® PROFESSIONAL GRADE ANTI-CORROSION GEL

Professional grade anti-corrosion gel for battery posts, terminals, agricultural and marine equipment, wire connections, plugs, electrolysis protection, battery trays, nuts and bolts. Rust protection for old and new metal. Patented Microscopic Mineralization Process forms a barrier in the metal and changes the Ph to 10 or above, eliminating a place for corrosion to start.



CABLE TIE ANCHOR

Fits 1/4" hole Accepts all standard 1/8" wide cable ties. Just thread cable tie through slotted head. (Cable Tie Not Included)



UV CABLE TIES

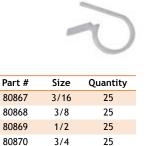
- UV Resistant Nylon
- Ideal for Organizing Cables
- 100 Pcs Poly Bag

100103	TOO T CS T OLY DUG		
Part #	Length	Tensile	Color
80104	4"	18lbs	Black
80105	4"	18lbs	Natural
80106	7"	50lbs	Natural
80107	7"	50lbs	Black
80110	8"	40lbs	Natural
80112	11"	50lbs	Natural
80111	11"	50lbs	Black
80113	14"	50lbs	Natural
80114	14"	50lbs	Black
80116	14"	120lbs	Natural
80115	14"	120lbs	Black



NYLON CLAMPS

- Stud size: #10
- Cable clamps are specially designed to hold cables, tubes, and components
- Allows you to easily mount bundles of cables to walls, ceilings, or any other surface





CABLE TIE MOUNT

- UV Resistant Nylon
- Includes Adhesive Backing
- 100 Pcs Poly Bag



#80170 - 1" Black #80175 - ¾" Black

HEAT SHRINK TUBING

- 2-1 Shrink Ratio
- 25' Length on Each Spool



Part #	Size	Color
80700	1/16"	Black
80702	1/8"	Black
80704	3/16"	Black
80706	1/4"	Black
80708	3/8"	Black
80710	1/2"	Black
80712	3/4"	Black
80714	1"	Black



UNIVERSAL TRAILER WIRE

- Universal 2-Pole Flat Connector
- 16" Leads with 18-Gauge Wire
- E-Z Connect Bullets





#20079-7

COMPLETE TRAILER CONNECTOR

- Male and Female Ends
- Color Coded 18 Gauge Wires

#80900 - 3-Way Flat

#80901 - 4-Way Flat

TRAILER ADAPTER

• Heavy Duty Blade

a Tow Package

#80915

7-WAY TO 4-WAY FLAT

• Allows You to Tow Almost Any Trailer

• Fits the Factory 7-way Plug on Most Trucks with

• 12" Long



• 4-Way Circuit Connectors for Female or Car End



#80908 - 12" Pigtail Harness #80909 - 48" Wishbone Harness **#80910** - 60" Bonded Harness

7-WAY TRAILER PLUG COVER

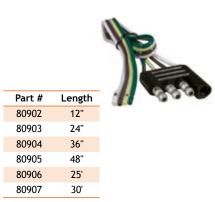
- Prevents Bugs, Dirt, and Water from Damaging Trailer Plua
- Attaches to Trailer Plug for Convenience and Ease of Use
- Snaps to Cord when Plug is in Use
- See Page 47 for Retail Counter Display



#20081 #20081-7

4-WAY TRAILER END

- Wishbone design for superior trailer harness
- Standard RVI color code
- Male plug



7-WAY PLASTIC BLADE TYPE **CONNECTOR PLUG AND TRAILER END**

- Vinyl Inserts Keep Out Dirt and Moisture
- Features Dual Grips for Easy Removal



WATERBOY™ BATTERY FILLER

Battery Doctor $^{\odot}$ double action valve with shut-off nozzle stops the flow to prevent overfilling.

- Heavy Duty Injected Molded Body
- 2 Quart Capacity



#20420

BATTERY CLEANING BRUSH

- Heavy Duty Outer Metal Brush for Removing Corrosion and Rust from Posts and Terminals
- Inner Bristles Fit and Clean Standard Battery Posts
- Remove Cap to Reveal Brush
- Metal Case



Spout

#21000-7 – Metal Body #21003-7 – Polymer Body

BATTERY FLUID FILLER WITH FLEX BULB

- One Piece Construction Prevents Leaks at Bulb Area
- Acid Resistant
- Overall Length: 10"
- Material Made of SBR/PP

#20410

4-WAY TRAILER TEST LIGHT

- Helps to Properly Install a 4-Way Connector Without a Trailer Attached
- Plugs Into Your Existing Car-End Connector



T-HANDLE BRUSH SIDE TERMINAL CLEANER

• Brush Easily Removes Rust and Corrosion from Side Terminals



#21004-7

WATERBOY™ BATTERY FILLER EXTENSION HOSE • 24" Extended Hose

- Makes it Easy to Reach
- Tucked Away Batteries

 Easy to Assemble
- Fits Waterboy™ #20420
- Hose Only

#20425



Shown Fitted on #20420

T-HANDLE BRUSH TOP POST PLASTIC BODY TERMINAL CLEANER

• Inner Brush Easily Removes Rust and Corrosion from Battery Posts



#21006-7

CIRCUIT & SPARK PLUG TESTER

High quality tester instantly locates wiring problems such as bad connections, faulty or broken wires and sockets in 12 volt - 24 volt systems. A light will shine if the battery's condition is sound. No light will be visible if there is a short circuit or the battery is low.

- Overall Length: 8" with a Full 45" Lead Wire
- Includes Alligator Ground Clip, 3" Metal Probe with Cap



SELF-ADJUSTING WIRE STRIPPER

- Strips and Cuts 10-26 AWG Wires
- Crimps Insulated and Uninsulated Terminals
- Strips Multi-Lead Trailer Wire without Harming Strands



ALL PURPOSE HAND TOOL

- For use with 22-10 AWG Wires
- Strips Wire and Crimps Terminals
- Features Wire and Bolt Cutters



J-TYPE BATTERY HOLD-DOWN BOLTS

Heavy duty tempered steel "J" bolts with wing nuts and protective rubber washers to attach battery to tray. Use with Replacement Trays #21085 or #21087 1/4" thread.

• 1/4" Threaded Rod on J-Bolts (Pair)





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#21060-7 - 8" J-Type
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UNIVERSAL ADJUSTABLE BATTERY HOLD-DOWN

Fits the top of any Group Battery! Battery Doctor® hold-down secures the battery to the small or large "Replacement Battery Tray" (sold separately). Adjustable to size. Our

corrosion resistant vinyl-coated low carbon steel hold-down comes with two 8 1/2" "J" steel bolts and wing nuts for securing the hold-down to the battery and thus the battery to the bottom tray (sold separately). 5/16" thread Fits battery width 4 1/2" - 7".



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#21073-7 THE
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UNIVERSAL SIDE TERMINAL BATTERY WRENCH

Designed for installing and removing OEM 5/16" side terminal bolts. Reversible ratcheting wrench features an easy grip handle. Fits all standard side mount bolts

• 51/4" Long



HARNESS WITH RING TERMINALS

- For Use with Battery Doctor® Chargers
- 15 Amp Fuse Protected
- 3/8" Eyelets
- 16 AWG
- 19.5" Long

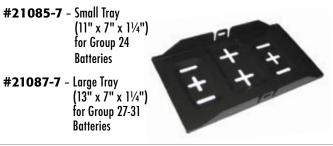
#20075

#20075-7



REPLACEMENT BATTERY TRAY

Hiah auality replacement battery tray. Black vinyl-coated metal (16-aauae) battery tray provides a sturdy battery base. Coated to resist corrosion, rust and battery movement! Slotted drain holes eliminate moisture build up and condensation.



SIDE TERMINAL TO POST TERMINAL **CONVERTERS**

Converts side terminal batteries to accept top terminal battery cables and accessories. Die cast lead with zinc plated steel stud. Posts have 3/8" threaded stud to screw into side terminal batteries. Makes for easy charging with conventional charging equipment.

#20253-7 - Positive and **Negative Post Pair** #20305-7 - Negative Post #20306-7 - Positive Post



BATTERY TERMINAL MARKERS

Highly visible identification of terminals helps prevent damage to battery and alternator. 1" diameter, self-adhesive markers in red and black with large

raised "+" and "-" symbols. Packaged in pairs of positive and negative.

#20250 #20250-7

E-Z Peel 'n Stick

BATTERY BRUSH

Plastic handled brush with two metal bristle brushes. Cleans side terminals and battery contacts. 5/16" hex in handle services GM connectors.



#21009-7

ALLIGATOR CLIPS

- For Use with Battery Doctor[®] Chargers
- 16 AWG Wire
- 20" Long
- Plug and Play Bullet Connections

#20073-7

PRIMARY WIRE

PAIRED PRIMARY WIRE SPOOLS

- PVC Insulation Ideal for General Purpose Applications (-40°F to 167°F)
- Resistant to Grease, Oil, Gasoline, Acid, Solvents, Moisture and Aging

Part #	Gauge (AWG)	Color	Spool Length
80048	18	Red/Black	500'
80050	16	Red/Black	500'
80052	14	Red/Black	500'

CROSSLINK (GXL) PRIMARY WIRE

- XLPE Insulation is Made for High Temperature Applications (-59°F to 257°
- High Resistant to Grease, Oil, Gasoline, Acid, Solvents, Moisture and Aging
- High Resistance to Cuts and Abrasions
- Complies with SAE J1128



Gau	ge: 10 AW	G
81000	Black	100'
81001	Blue	100'
81002	Brown	100'
81003	Green	100'
81004	Orange	100'
81005	Red	100'
81006	White	100'
81007	Yellow	100'
81007	Yellow	100'
	Yellow Ige: 12 AV	
Gau	ıge: 12 AV	VG
Gau 81008	ige: 12 AV Black	VG 100'
Gau 81008 81009	ige: 12 AV Black Blue	VG 100' 100'
Gau 81008 81009 81010	uge: 12 AV Black Blue Brown	VG 100' 100' 100'

Yellow

81014

Gau	uge: 14 A\	₩G
81015	Black	100'
81016	Blue	100'
81017	Brown	100'
81018	Green	100'
81019	Orange	100'
81020	Red	100'
81021	White	100'
81022	Yellow	100'
81023	Black	500'
81024	Blue	500'
81025	Brown	500'
81026	Green	500'
81027	Orange	500'
81028	Red	500'
81029	White	500'
81030	Yellow	500'

Gau	ige: 16 AW	G
81031	Black	100'
81032	Blue	100'
81033	Brown	100'
81034	Green	100'
81035	Orange	100'
81036	Red	100'
81037	White	100'
81038	Yellow	100'
Gau	ıge: 18 AW	/G
Gau 81039	ige: 18 AW Black	/G 100'
	<u> </u>	
81039	Black	100'
81039 81040	Black Blue	100' 100'
81039 81040 81041	Black Blue Brown	100' 100' 100'
81039 81040 81041 81042	Black Blue Brown Green	100' 100' 100' 100'

100'

PRIMARY WIRE

- PVC Insulation Ideal for General Purpose Applications (-40°F to 167°F)
- Resistant to Grease, Oil, Gasoline, Acid, Solvents, Moisture and Aging

• Complies with SAE J1128

Gau	ıge: 8 AW	G
81046	Black	50'
81047	Red	50'
Gau	ge: 10 AW	
80040	Black	100'
81048	Blue	100'
81049	Brown	100'
81050	Green	100'
81051	Orange	100'
80042	Red	100'
81052	White	100'
81053	Yellow	100'
81054	Black	500'
81055	Blue	500'
81056	Brown	500'
81057	Green	500'
81058	Red	500'
81059	White	500'
81060	Yellow	500'
Gau	ge: 12 AW	/G
81061	Black	100'
81062	Blue	100'
81063	Brown	100'
81064	Green	100'
81065	Orange	100'
81066	Red	100'
81067	White	100'
81068	Yellow	100'
80036	Black	500'
81069	Blue	500'
81070	Brown	500'
81071	Green	500'
80038	Red	500'
81072	White	500'
81073	Yellow	500'

Gauge: 14 AWG						
Black	100'					
Blue	100'					
Brown	100'					
Grey	100'					
Green	100'					
Orange	100'					
Pink	100'					
Purple	100'					
Red	100'					
White	100'					
Yellow	100'					
Black	500'					
Blue	500'					
Brown	500'					
Green	500'					
Red	500'					
White	500'					
Yellow	500'					
Blue	1000'					
Brown	1000'					
Green	1000'					
Red	1000'					
White	1000'					
Yellow	1000'					
	BlackBlueBrownGreyGreenOrangePinkPurpleRedBlackBlueBlueBlueYellowGreenYellowBlueBlueBrownGreenBlueBlueRedYellowBlueRedBlue					

Gau	ge: 16 A\	٧G				
81098	Black	100'				
81099	Blue	100'				
81100	Brown	100'				
81101	Green	100'				
81102	Orange	100'				
81103	Red	100'				
81104	White	100'				
81105	Yellow	100'				
80022	Black	500'				
80020	Blue	500'				
81106	Brown	500'				
80024	Green	500'				
80026	Red	500'				
80028	White	500'				
80030	Yellow	500'				
Gau	Gauge: 18 AWG					
81107	Black	100'				
81108	Blue	100'				
81109	Brown	100'				

Green

Red

White

Yellow

Black

Blue

Brown

Green

Grey

Orange

Purple

Red

White

Yellow

100'

100'

100'

100'

500'

500'

500'

500'

500'

500'

500'

500'

500'

500'

81110

81111

81112

81113

80002

80000

80004

80006

80008

80010

80012

80014

80016

80018

Gauge: 20 AWG					
81114	Black	100'			
81115	Blue	100'			
81116	Brown	100'			
81117	Green	100'			
81118	Red	100'			
81119	White	100'			
81120	Yellow	100'			

Gauge: 22 AWG					
81121	Black	100'			
81122	Blue	100'			
81123	Brown	100'			
81124	Green	100'			
81125	Red	100'			
81126	White	100'			
81127	Yellow	100'			

MERCHANDISING

SPLIT LOOM TUBING

- Provides Excellent Protection to Cover Wire, Cables, Hoses and More!
- Gives Excellent Resistance to Gasoline, Oil and Other Corrosive Substances
- Made of Durable Polyethylene
- Operating Temperature 40° F to 200° F





Part #	Length	Description
27021	100'	1/4" Bulk Coil
27025	500'	1/4" Dispenser Box
27030	6'	3/8" Retail Pack
27032	50'	3/8" Bulk Coil
27031	100'	3/8" Bulk Coil
27033	300'	3/8" Dispenser Box
27050	4'	1/2" Retail Pack
27053	50'	1/2" Bulk Coil
27051	100'	1/2" Bulk Coil
27052	200'	1/2" Dispenser Box
27061	100'	5/8" Bulk Coil
27065	150'	5/8" Dispenser Box
27070	3'	3/4" Retail Pack
27071	100'	3/4" Bulk Coil
27075	100'	3/4" Dispenser Box
27100	100'	1" Bulk Coil
27110	100'	1" Dispenser Box





Dispenser Box

#27030

YOUR COMPLETE SOLAR, SMART CHARGER & 12 VOLT BATTERY SOLUTIONS DISPLAY

• 24 Popular Items, 47 Total Pieces

*Please visit wirthco.com for information on the included parts $\!\!\!\!\!\!^\star$

#23050



*Display Gondola Not Included

MERCHANDISING

BATTERY DISCONNECT DISPLAY 4-PRONG RACK WITH "DEMO BATTERY"

Self-service display PROMOTES SALES by offering your customers a hands-on product demonstration.

Display Rack Includes:

- One Top Mount Battery Disconnect Switch (#20138)
- "Demo Battery"
- 4-Color Header Card
- Wire Rack: 11" W x 23" H x 8"

Easy To Assemble:

- Holds Up to 8 Battery **Disconnect Switches**
- Free Standing for Shelf or Counter
- Built-In Hooks Allow for Pegboard or Gondola Mounting



#20263

TRAILER PLUG COVER COUNTER DISPLAY

• 20 Trailer Plugs per Gallon Container



12 VOLT CIRCUIT PROTECTION DISPLAY

- 62 Items, 124 Total Pieces
 Fuses, Fuse Holders, and Circuit Breakers
- Display Rack Not Included

Please visit wirthco.com for information on the included parts

#23081



*Display Gondola Not Included

MERCHANDISING

12 VOLT RV ELECTRICAL DISPLAY

- 124 Items, 248 Pieces Total
 Wide Variety of 12V Electrical Accessories
 Header Sign Included, Display Rack Not Included

Please visit wirthco.com for information on the included parts

#23080



*Display Gondola Not Included



*Display Gondola Not Included

12 VOLT FUSE & SWITCH SPECIALTY DISPLAY

- 91 Popular items, 179 Total pieces
 A Complete Planogram to Cover All the Needs for the Automotive Electrical Accessory Category

Please visit wirthco.com for information on the included parts

12 VOLT ACCESSORY POWER CONNECTOR SPECIALTY DISPLAY

- 23 Popular Items, 55 Total Pieces
- 14¹/₂" W x 53" H x 4 ¹/₂" D
- Free Standing Display, can be Mounted to Wall when Legs are Removed
- Gondola Mounting Hardware Included

*Please visit wirthco.com for information on the included parts $\!\!\!\!\!\!\!\!\!\!$

#23020



12-VOLT OPERATING SWITCH/LIGHT DISPLAY BOX

- Full Working Display with 6 of the Most Popular Lighted Switches
- Can be Displayed on Slat Wall or Peg Board
- Designed to be Used with #23085 Display
- Promote Sales with Hands-On Product

#20580



Demonstration

Part #	Description	Qty
	Power Supply	1
20500	Red Illuminated Toggle Switch	1
20521	Blue LED Metal Toggle Switch	1
20523	Red LED Metal Toggle Switch	1
20550	Red Illuminated On/Off Rocker Switch	1
20563	Chrome Aircraft Style Toggle Cover	1
20508	Heavy Duty Metal Toggle Cover Switch	1

LED WRITING BOARD

- Light Up Your Message with Neon Effect
- Easy to Write, Erase and Rewrite Your Message Over and Over
- Adjustable Modes (Color and Look)
- Durable, Portable and Energy Efficient
- How to Use: Write your message with included white fluorescent marker pen (1 included). Erase your message or drawing with included cloth. Use controller button to select color effect (red, blue, green), flash and speed.
- Dimensions: 15 ³/₄" x 11 ³/₄"
- Requires 110V Power
- Horizontal and Vertical Hanging Tabs Built In!





#23060

#23062 Adjustable Stand (Sold Separately)

4-QUART DRUM FUNNEL

• Polypropylene

• Top ID: 113/4"

- Thread: 2"
 - Spout Length: 11/2"
 - Spout OD: 21/2"

#32900 - With Screen

• Overall Height: 4 ³/₈"

#32910 - Without Screen



DRAIN TOP FOR DRUM FUNNEL

- Polypropylene
- Top ID: 113/4"
- Drainage Lid Fits Our 4-Quart Drum Funnels #32900 and #32910 or Standard Size 5-Gallon Pail
- Use to Drain Standard Quart Bottles



2-GALLON E-Z SMART DRUM FUNNEL

Smart Funnel Prevents Overfilling of Barrels

The Secret:

With the funnel extension, trapped air stops the liquid from filling to the top of the barrel. It leaves just enough room to add 2 gallons more to the barrel, which is the capacity of the E-Z SMART DRUM FUNNEL.

In order for the Smart Funnel to work properly, it must be removed immediately when fluid no longer flows freely.

This means the drum is full and cannot take any more fluid.

#32015

- Polypropylene Body and Lid with Attached Cord
- Polyethylene Air Hose and Band



4-QUART POLYPROPYLENE DRUM FUNNEL WITH LID

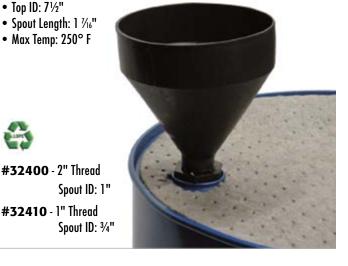
- Removable Stainless Steel Filter Screen Included
- Lockable Top Lid
- Threads PPS Fitting for 2" Bung Hole
- 11/2" Bottom ID Opening
- Overall Height: 81/2"
- Spout Length: 1 3/4"
- Top ID 10"



#32425

3-QUART POLYETHYLENE DRUM FUNNEL

- Overall Height: 9 3/6"
- Top ID: 71/2"
- Spout Length: 1 7/6"
- Max Temp: 250° F



• Overall Height: 13" • Top OD with Cover: 111/2" • Top ID: 11" • Thread: 2"

POLYETHYLENE DRUM FUNNEL FOR OPEN OR CLOSED HEAD DRUMS

Direct hazardous materials into the drain of a drum with sloped channels designed to hold filters, bottles, funnels or other chemical containers. Fits 2" bung openings.

- Top ID: 211/2"
- Overall Height: 7"
- Spout ID: 11/2"
- Hole for Padlock
- Hinged Lid with Bolt and Nut Included

#32420

1 PINT FUNNEL WITH 21" FLEXIBLE SPOUT

- Polypropylene Funnel
- Polyethylene Spout Tubing
- Hanging Tab/Thumb Tab
- 5" Top Opening
- 1/2" Bottom Spout ID Opening



#32832

MULTI-PURPOSE FUNNEL

The Funnel King® Oil Multi-Purpose Funnel is specifically designed to work on cap-less gas tanks. The Multi-Purpose Funnel is also great for adding performance enhancing gasoline additives.

- Heavy Duty Polyethylene Construction
- Large Pour Spout Minimizes Drips
- 11" Long for Those Hard-to-Reach Areas
- Top ID: 3 1/2"
- Spout OD: 13/16"
- Overall Height: 11"
- Hanging Tab





INTERESTED IN RECYCLING OIL OR OTHER FLUIDS? COLLECT EVERY LAST DROP!

B.O.B.

"Bottom of the Bottle" oil bottle draining system

- Polypropylene
- 100% Post Industrial
- Save Money by using Every Last Drop of Oil
- Help the Environment by Keeping Motor Oil out of Landfills
- Free Standing or Mounts to Wall
- Black Color Only
- Fits (5) Standard Size Quart Bottles Only (Not Included)

#32947



- Use for Many Fluids
- Cradles Bottle Neck
- Wide Mouth Opening



18" LONG REACH POLYPROPYLENE FUNNEL: 1-QUART CAPACITY

• Hanging Tab

#32500

#32860

- 4" Top Opening
- 1/2" Bottom Spout ID Opening





Free Standing Application

DRAIN PANS

6¹/₂-QUART DRAIN BASIN

- Polypropylene
- Overall Length: 131/2"
- Top ID: 111/2"
- Height: 41/2"



4-GALLON OIL DRAIN PAN INCLUDES E-Z GRIP HANDLES - BLACK

- Heavy Duty Polyethylene
- Top ID: 173/4"

#32950

- Spout OD: 1"
- Overall Height: 51/2"
- Use Black for Oil





#32953

9 QT. CLOSED DRAIN PAN

- Heavy Duty Polyethylene
- Perfect for Transporting Waste Fluids
 Old
 D





#32962



11-QUART OPEN DRAIN PAN

- Heavy Duty Polypropylene
- 22.5" x 11" x 4"



4-GALLON COOLANT DRAIN PAN INCLUDES E-Z GRIP HANDLES - GREEN

- Heavy Duty Polyethylene
- Top ID: 17¾"
- Spout OD: 1"
- Overall Height: 5½"
- Use Green for Coolant



15 QT. CLOSED SQUARE DRAIN PAN

- Heavy Duty Polyethylene
- Great for Transporting
- Waste Fluids • 25" x 18" x 5 5"



#32964

20 QT. OPEN DRAIN PAN (GREEN)



OIL FILTER WRENCHES

23 QT. CLOSED DRAIN PAN

- Heavy Duty Polyethylene
- Great for Transporting Waste Fluids
- 22" x 20" x 4"

#32970



DELUXE OIL CHANGING KIT

Perfect for vehicles with 6 Qt or larger reservoirs, the Funnel King® Deluxe Oil Changing Kit includes everything you need to change the oil or fluids in any enginepowered vehicle, maintenance equipment, or outdoor power sports machine.

 Includes one 4 Gallon Drain Pan, one 6 Qt Funnel (with microscreen to prevent contamination), one pair of Nitrite Gloves, one 15" x 18" Sorbent Pad, and eight Shop Towels



#32925

SMALL DELUXE SWIVEL HANDLE FILTER WRENCH

• Red 2-7/8" (73mm) to 3-1/2" (89m)



#32480

#32484

• Blue 2-7/8" (73mm) to 4-1/8" (105m)



ECONOMY OIL CHANGING KIT

The Funnel King® Oil Changing Kit includes everything you need to change the oil or fluids in any engine-powered vehicle, maintenance equipment, or outdoor power sports machine.

• Includes: one 6.5 Qt Drain Pan, one Offset Oil Funnel, two pairs of Nitrite Gloves, one 15" x 18" Sorbent Pad, and four Shop Towels



#32920

BLACK UNIVERSAL NYLON STRAP FILTER WRENCH

•2" x 20" Strap



#32486

LARGE DELUXE SWIVEL HANDLE FILTER WRENCH

• Blue 3-1/4" (82mm) to 3-7/8" (99m)

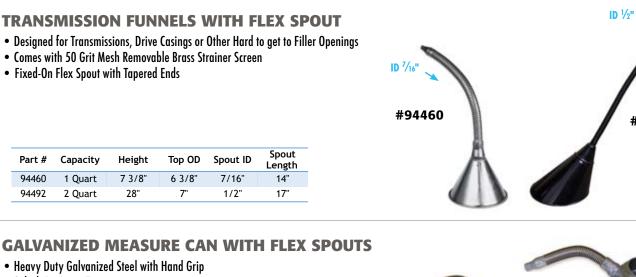


#32482

TONGUE AND GROOVE ADJUSTABLE FILTER WRENCH

•Yellow 2-3/4" (69mm) to 4" (102mm)





Splash-Resistant Tops

Part #

94484

94486

94488

• Long-Reach Fixed-On Flexible Spouts with Tapered Ends

Height

6"

9"

11"

Capacity

1 Quart

2 Quart

4 Quart

Spout

Length

7 1/2"

7 1/2

7 1/2"

	and the second
#94484	#94486





#94488

#94492

BLACK MEASURING CONTAINER WITH FLEX SPOUT AND Clip for Storing Spout in Upright **THUMB-OPERATED VALVE** • Heavy Duty Galvanized Steel with Hand Grip • Flexible Fixed-On Spouts with Tapered Spout Opening 1/2" and 14" Leng Thumb Operated Valve Controls Flow • Flip Action Valve Locks Valve Open **Thumb-Operated** Valve Capacity Part # 94494 4 Quart 94496 5 Quart 94498 8 Quart #94494 #94496 #94498 **GENERAL PURPOSE UTILITY FUNNELS** • Galvanized Steel • Includes Removable Filter 50 Grit Mesh Screen Ribbed Spouts to Allow for Venting #94471 #94477 #94473 Spout Part # Capacity Height Top OD Spout ID Length 7 3/8" 6 3/8" 94471 1 Quart 1/2" 3 1/8" 94473 7 3/4" 8 3/8 1/2" 3 1/8" "Non-Swirl" Design 2 Quart **Promotes Rapid** 94477 4 Quart 9 1/2" 12 3/8" 1" 3 3/4"

HEAVY DUTY GALVANIZED FUNNELS

- Heavy Duty Galvanized Steel
- Includes Removable Filter 50 Grit Mesh Screen
- 4" diameter body rest on #94462 & #94469

Part #	Description	Capacity	Height	Top OD	Spout ID
94463	Galvanized Steel Funnel	8 Quart	11 7/8"	9 5/8"	1"
94462	Galvanized Steel "Body Rest" Funnel	8 Quart	11 7/8"	9 5/8"	1"
94464	Galvanized Steel "Lock-On" Funnel	8 Quart	11 7/8"	9 5/8"	1"
94467	Galvanized Steel Funnel	12 Quart	12 1/8"	11 3/8"	1"
94469	Galvanized Steel "Body Rest" Funnel	12 Quart	12 1/8"	11 3/8"	1"
Part #	Description	Capacity	Height	Top OD	Spout ID
94474	Galvanized Steel "Non-Swirl" Funnel	9 Quart	12"	12 1/2"	1"
94475	Galvanized Steel "Non-Swirl" Funnel	3 Quart	9 1/4"	8 1/2"	1/2"
94479	Galvanized Steel "Non-Swirl" Funnel	6 Quart	10 1/2"	10 1/2"	1"

Height

11 5/8"

Capacity

6 Quart







#94469



#94479



#94465

DRIP PAN

Part #

94465

- 17 1/2" x 25 3/4" x 1" Drip Pan
- Galvanized Steel
- Capacity: 6 Qt.



Description

Galvanized Steel

Offset Funnel

#94482

PUSH - STYLE GREASE GUNS

- These Compact Guns Get Grease into Tight Spaces
- The Piston-Style Construction Allows One-Handed Operation; Simply Hold the Barrel and Push Down to Dispense Grease (Not Included)
- #32990 Comes with Both Standard Hydraulic and Flush Style Couplers
- Plastic Barrel
- For Use with Grease Rated NLG12 and Lower

#32990 - OAL 8", 80 mL / 2¹/₂ oz.

#32985 - Red Cap, One Coupler, OAL 6½", 65 mL/2 oz.

12 QT WATER PAIL

Spout Length Spout ID

1"

3 3/4"

- Prime 26 Gauge Galvanized Steel
- Features Unique Triple Locking "Gordon Seam" which forms a Six Layer Side Security Seam
- 6 Gauge Steel Handle
- 11 Gauge Top Rim

Top OD

10 1/2"

- Top ID 11.5"
- 10^{''} H

#94490



13 QT UTILITY DRIP PANHeady Duty Galvanized Steel

- Rugged Design
- 17 1/4" Diameter
- 3 ³/₄" Height





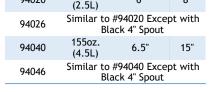
HEAVY DUTY GRADUATED MEASURING CONTAINERS

Heavy Duty Polypropylene Measuring Containers are Chemically Resistant, Spark-Proof, Dent-Proof, Rust-Proof and Boil-Proof (Up To 212° F)

Height

8"

- Molded Raised Letter Graduations in US, Metric and Imperial
- Translucent Material Keeps Contents Visible
- Big Grip Handle and Sturdy Non-Tip Base
- Ideal for Mixing Chemicals, Oil, Gas and



Capacity

87 oz.



INDUSTRIAL FLEX SPOUT MEASURERS

Diameter

6"

- Raised Measurements Molded on Side: Quarts and Liters
- Manufactured of Heavy Duty Polyethylene
- Removable Spout

Part #

94020

• Flex Spouts All Have ID 3/8" and OD of 1/2"

Part #	Capacity	Diameter	Height	Spout Length
94200	1/2 Quart	3"	4"	11"
94210	1 Quart	3 1/2"	5 1/2"	11"
94220	2 Quart	4 1/4"	6 3/4"	13"
94230	3 Quart	5"	9 1/2"	13"
94240	5 Quart	6 3/4"	11 3/4"	13"

GENERAL PURPOSE GRADUATED MEASURING CONTAINERS

1PPA

Chemically Resistant Polypropylene Measurers

Part #	Capacity	Diameter	Height
94100	3.4 Fl. oz.	2 1/8"	2 3/4"
94110	8.4 Fl. oz.	2 5/8"	4 3/4"
94120	17 Fl. oz.	3 1/2"	5 3/8"
94130	1 Quart	4 5/8"	6 3/4"
94140	2 Quart	5 1/2"	8 1/2"
94150	3 Quart	6 1/2"	9 1/2"
94160	5 Quart	8 1/8"	10 5/8"

• Easy-to-Read US and Metric Graduations Printed in Blue

#94200 #94210

1 Qt.

2 Qt.

1/2 Qt.

- Translucent for Easy and Accurate Measuring
- #94110 #94160 have Strong Reinforced Handle





#94220 #94230 #94240

3 Qt.

5 Qt.

#94110 - #94160

TRANSLUCENT HIGH DENSITY GRADUATED MEASURING CONTAINERS

- Polyethylene Heavy Duty Construction
- Raised Quart and Liter Measurements
- Large Extended Screw-On Flexible Spout with Cap for Easy Pouring
- Screw Cap Keeps Debris Out

Part # Capacity Diameter Height Spout	Length
94360 1 Quart 4 1/2" 6 3/4"	8"
94363 2 Quart 5" 8/34" 8	1/4"
94365 3 Quart 6" 10" 8	1/4"
94367 5 Quart 8" 11 1/4" 1	12"

- Removable Spout



1-QUART E-Z MEASUREMENT FUNNEL

- Measurements on Both Sides to Allow Fluid to be Measured when Funnel is Upright or Inverted
- Translucent for Easy and Accurate Measuring
- Caps Eliminate Spills and Contaminants
- Removable Spout for Easy Measuring and Pouring!
- Clean Fluids Help Prevent Mechanical Damage
- Chemically Resistant Polyethylene
- Overall Length: 13 3/4"



17-QUART (4.25 GALLON) MONSTER FUNNEL

- Heavy Duty Polyethylene
- Overall Length: 14"
- Top ID: 13"
- Spout Length: 21/21/2"
- Spout OD: 11/8"



HIGH DENSITY POLYETHYLENE PITCHER

- Longer Gradual Sloping Spout for Hard to Reach Areas
 Two Handles Makes Pouring Easier
 Raised Quart and Liter
- Measurements
- Gas and Oil Compatible
- Pour Spout ID ½"

#32375

4 Quart

Screw-On Cap



Part #	Capacity	Diameter	Height	Spout Length	
32375	4 Quart	11 1/2"	13"	11 3/4"	4
32377	8 Quart	13"	15"	13 1/2"	e

THE PROP'R MEASURE "TIP & MEASURE" CONTAINER

Patented 2-in-1 measuring and storage container. 16-oz. storage capacity that accurately measures 1-6 ounces before pouring. Chemically resistant polyethylene.

- Translucent For Easy And
- Accurate Measuring
- Heavy Duty
- Reusable
 FDA/USDA Approved







HAND TRANSFER PUMP

- For Use With: Antifreeze, Detergents, Petroleum, Fuels, Oil, Water and Other Mild Chemicals
- Also Can Be Used as an Air Pump for Tires and Balls Using the Supplied Air Nozzle Attachments

#32467





PROP'R MIXER SYRINGE

- Ensures proper mixing ratio
- Includes extension tube
- 60CC/2 Oz. Capacity



SIPHON PUMP

- For Use With: Antifreeze, Detergents, Petroleum, Fuels, Oil, Water and Other Mild Chemicals
- Lightweight and Compact Design Makes it Easy to Stow Away in a Vehicle



#32469

PROP'R SHAKER SIPHON

- Flow rate up to 3 1/2 GPM
- No electricity needed
- 5/8" O.D. tubing, 6' long
- Copper Pump Head



#32475

1-QUART POLYETHYLENE FUNNEL & FLEXIBLE SPOUT

- 1 Quart Economy Funnel with Screen
- Funnel Height: 6 1/2"

#32995

- 10" Removable Flexible Spout
- Handle for Easy Pouring





See Page 61 for More Details on Spout #32187

4 PACK POLYETHYLENE ECONOMY FUNNEL SET

#32837



Capacity	Color	Height	Top ID	Spout Length	Spout OD
3/4 Fl. oz.	Orange	3 1/8"	1 7/8"	1 5/8"	5/16"
2 Fl. oz.	Orange	4 1/2"	2 3/4"	2 1/4"	3/8"
6 Fl. oz.	Orange	5 3/4"	3 5/8"	2 5/8"	1/2"
10 Fl. oz.	Orange	6 1/4"	4 3/8"	3"	9/16"

POLYETHYLENE ECONOMY FUNNELS

							#3283
							#3283
Part #	Capacity	Color	Top ID	Spout ID	Height	Spout Length	#3283
	Capacity 8 oz.	Color Yellow	Top ID 3 1/2"		Height 4 1/4"		#3283
Part #	• •		•	ĪD	-	Length	
Part # 32833	8 oz.	Yellow	3 1/2"	ID 5/16"	4 1/4"	Length 1 1/8"	#3283 #3282

10 PACK FUNNEL ASSORTMENT

- Assortment of 10 of the Most Popular Funnels to Suit Almost Any Fluid Transfer and Fluid Management Application
- Includes One 2 QT Funnel, One 3-Pack Funnel Set, Two Clip-On Spouts, Two Flex Spouts, One 1 QT Flex Funnel, One 1 ¼ Qt. Double Capped Funnel
- Helps to Avoid Hazardous Spills
- Reduces the Potential for Fuel, Oil, and other Fluids from Contamination
- Perfect for any Garage or Shop
- Always have the Right Funnel for All Applications





POLYETHYLENE FUNNELS

- Includes Hand/Thumb Hold Tab with Hang Hole for Storage
- Available in Black or Red

Hanger Hole

Red Part #	Capacity	Top ID	Spout OD	OA Height	Spout Length	Black Part #
32090	1-Pint	4 1/2"	1/2"	6 1/8"	2 1/4"	#32093
32091	Simil	ar to #3209	90 Except v	with 50 Micron	Screen	#32092
32001	2-Quart	6 1/2"	1 1/16"	8 1/2"	2 3/8"	#32004
32002	Simil	ar to #3200	01 Except v	with 60 Micron	Screen	#32003
32005	6-Quart	8 1/4"	1 5/16"	10 1/2"	1 5/8"	#32008
32006	Simil	ar to #3200	05 Except v	with 60 Micron	Screen	#32007



- PolyethyleneOverall Length: 12"
- Top ID: 71/2"
- Spout Length: 47/16"
- Spout OD: 5/8"





OFFSET LOCKING OIL FUNNEL

- Fits All Standard Quart Containers
- Holds Oil Containers in Place While Pouring
- Chemically Resistant
- Overall Length: 51/2"
- Spout Length: 13/4"
- Spout OD: 11/4"





DOUBLE CAPPED FUNNELS – "KEEPS THE DRIPS IN & THE DIRT OUT!"™ THE ULTIMATE "STORAGE" FUNNEL

- Caps Eliminate Spills and Contaminants
- Reduces Debris

60

- Clean Fluids Help Prevent Mechanical Damage
- Chemically Resistant Polyethylene





Part #	Capacity	Color	Top ID	Spout OD	Height
32105	1-Pint	Orange	3"	1/2"	8 3/4"
32115	1 1/4-Quart	Dark Blue	4"	3/4"	10 1/2"
32125	1 1/3-Quart	Black	4"	1 3/8"	16 1/2"
32130	1 1/2-Quart	Red	4"	1/2"	17 1/4"
32135	1 1/2-Quart	Yellow	4"	3/4"	14 1/4"
32140	1 1/2-Quart	Green	4"	1"	13 1/2"
32145	1 2/3-Quart	Dark Red	4"	1 3/8"	14 1/4"



HEAVY DUTY POLYETHYLENE FUNNELS

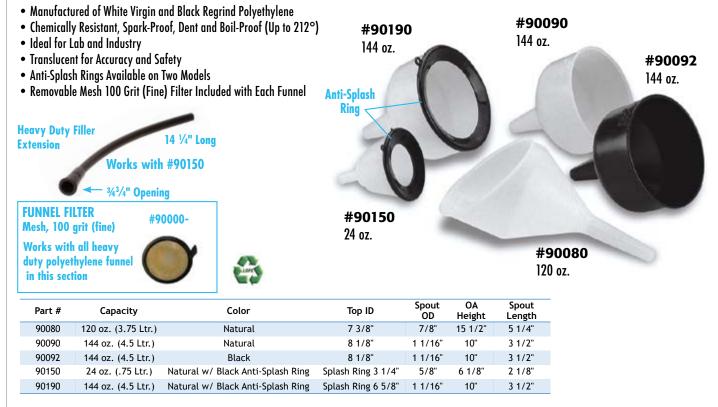
WirthCo's lab and industrial funnels are sturdy and long lasting. Superior to ordinary funnels when quality and safety count.

- Chemically Resistant, Spark-Proof, Rust-Proof, Dent-Proof and Boil-Proof (Up to 212°)
- Translucent for Safer Accuracy
- Hanger Hole for Storage



Part #	Capacity	Color	Top ID	Spout OD	OA Height	Spout Length
95020	2 oz. (57mL)	Natural	2"	1/4"	2 1/2"	1/2"
95040	8 oz. (227 mL)	Natural	4"	1/2"	4 1/4"	1 1/8"
95050	14 oz. (398 mL)	Natural	5"	5/8"	5"	1 3/8"
95070	28 oz. (795 mL)	Natural	7"	5/8"	7 1/2"	2 3/8"

EXTRA HEAVY DUTY POLYETHYLENE FUNNELS



ACCESSORIES

16 OZ. POLYPROPYLENE AUTO STOP™ FUNNEL

- Two Magnets Automatically Stops the Flow when Fluid Rises
- Pour-Off Spout
- Filter Screen
- 5" Top Opening
- Spout ID: %16"
- Spout OD: 1"

Prevent Dangerous Spills!



FOLDING POLYETHYLENE FUNNEL

- Save Storage Space
- Chemically Resistant
- Great for RV, Kitchen, Craft Projects or Anywhere Space is Limited





Model	Capacity	Color	Top ID	Spout OD	OA Height	Spout Length
32610-7	12 oz.	White	4 1/16"	1/2"	4 1/2"	1 1/16"

LONG LASTING HEAVY DUTY SCOOP

Heavy Duty Polypropylene Scoops are Chemically Resistant, Spark-Proof and Rust-Proof

Color

Natural

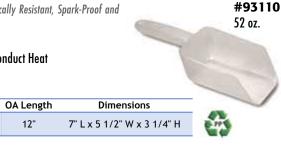
Translucent

• Light Weight for Ease of Use

Part #

93110

• Heavy Duty Secure Handles Do Not Conduct Heat



POLYPROPYLENE FUNNELS

• Outer Ribbing Eliminates Air Lock

Capacity

52 oz.

(15 L)

• Custom Colors Available on Special Order

Custom Color	S Availai	ple off specie	li Uraer	
Color	Black	Clear	Green	White
2 Fl. oz.	32020	32021	32023	32022
4 Fl. oz.	32040	Special Order	32041	32042
8 Fl. oz.	32078	Special Order	32080	32085
Specificatio	ns Toj ID		OA Height	Spout Length
2 Fl. oz.	23/	/8" 1/4"	2 5/8"	3/4"
4 Fl. oz.	3 1/	/8" 1/4"	3"	1"
8 Fl. oz.	3 3/	4" 5/16"	4 3/4"	1 7/8"



FLEXIBLE SPOUT FUNNEL – INCLUDES CAP

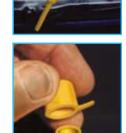
- Fits Gallon, Quart and Most Pint Containers
- Handles a Variety of Applications Including: Automotive/RV, Household, Lawn/Garden, Marine, Farm, Industrial and More
- Great for Chainsaws!



- Manufactured of Assorted Colors Thermoplastic Elastomer
- Temperature Rating: -57 Degrees 250 Degrees F
- Spout OD: ½", 4" Long Spout

#32157 - Individual SKU #32197 - 12 Units On A Clip Strip With Header Card (Custom Headers Available) Recycle and Reuse! Convert fluid containers into your own custom funnels.

Air-Tight "Closure Cap" Included!



E-Z FLOW™ SPOUT AND E-Z FLOW[™] POUR SPOUT **ADAPTER COMBO** Screws Onto Quart and Gallon Size Containers Includes Cap – Eliminates Unwanted Dripping #32179 Chemically Resistant • Overall Length: 15 %" -Z FLOW™ • Spout OD: 1" SPOUT • Fits Standard Gallon 38mm Thread #32177-7 and 28mm Quart Thread • Spout Length: 131/4" **SPOUT ADAPTER WITH GASKET** • Fits 2.5 Gallon, 63.5mm Threads #32178-7 #32177-7 8 OZ. POLYETHYLENE FUNNEL WITH FLEX-O-SPOUT[™] FLEXIBLE POLYETHYLENE **FIXED FUNNEL ADAPTER POUR SPOUT** Stabilizes Funnel for Safe Filling Applications • Fits Most Gallon and Quart Containers • Vent Structure Eliminates Air-Lock • 7" Spout Extends to 10.5" • Top ID: 4" • Bends to Any Angle • Spout OD: 3/4", Fits Quart Bottles • Long Narrow Spout is Ideal for • Spout OD: 1 1/8", Fits Gallon Bottles All Hard-to-Reach Areas • Height: 4" **Airlock Feature** #32187 **#95855** - 8 oz. Funnel with Adapter

CLIP-ON SPOUT FOR QUART & GALLON CONTAINERS

Two sizes available, 2-in-1 or Gallon Size Only. Convenient to use; helps protect against spills and drips into engine compartment or work area. One side clips onto neck of plastic gallon container, other side clips onto neck of plastic quart container. Chemically resistant co-polymer polypropylene 2" L x 2" W, spout OD %". Assorted colors.

#32257-7 - 2-in-1, Unpackaged #32259-7 - Gallon Size Only Unpackaged #32296 - 2-in-1, Clip Strip of 12 Units of #32251





ACCESSORIES

#32251 – Clip Strip Packaging



#32255 - This Hang Hole Carded Package utilizes existing shelf/inventory space and requires no additional shelf space to display!

ACCESSORIES

MULTI-USE MAT BOOT TRAY

- Heavy Duty Polypropylene
- Unlimited Use in the Home, RV, Garage, Car, Trunk and Boat
- Protects Marine Craft and Trunks Against Gas/Oil Can Spills
- 25" L x 15" W x 3/4" D



#40098



DRIP TRAY

- Made of Durable Polypropylene
- Resistant to Chemicals
- Excellent for Containing Spills and Drips from Machinery, Vehicles and Drums
- 22" W X 22" L x 11/2" D
- 2 Gallon Capacity



#40092

POLYPROPYLENE PLASTIC SQUEEGEE

- 8" Head with Scrub Material and Rubber Squeegee
- 18" Handle



Supports 2 lbs

MACHINIST'S THIRD HAND

- Flexible 18" Nickel Plated Arm that Stays in Place When You Bend it
- Powerful Magnetic Base for Secure Mounting (Magnet Diameter: 3 3/8")
- Rubber Tipped Steel Clamp Opens To 2"

#10105

BOOT TRAY

- Durable Polypropylene
- Economical
- 23" L x 15" W x 1/2" D







CHRISTMAS TREE & PLANTER TRAY

- Made of Durable Polypropylene
- Stabilizes Tree on Carpet
- Decorative Primary Green Color
- Protects Floors from Spills and Scratches
- 22" W x 22" L x 11/2" D



#40096



THIRD HAND

Our "Third Hand" products provide an extra hand when and where it is needed, and allows easy positioning of blueprints, instructions, work lights, parts for assembly or welding and more.

- Flexible 18" Nickel Plated Arm that Stays in Place When You Bend it
- Rubber Tipped Steel Clamps Open to 2"



#10100

ISHY FISHY® SOAP DOPE CLEANSER

- All-Purpose Biodegradable Cleaning Agent
- Excellent for Fiberglass and Stainless Steel
- Cleans Everything from "Hands To Hulls"!
- Environmentally Safe
- Formulated with Pumice

A satisfied customer writes... "We have a fishing boat that we clean with your product because it takes out the fuel and fish odors..."

#16010 - 4 oz. Squeeze Tube



THE TRUE & ONLY "LOCKING" RV BUMPER PLUG #30000

Won't Fall Out!

- Securely Holds Sewer Hoses in Place
- Fits Standard 4" Bumper
- Push in Center to Lock
- No Drilling or Welding
- No Hinges
- Weather and UV Resistant
- Made of Thermoplastic Rubber

#30082-7 (Non-locking)

(Locking)

Part#	Description	Size	Material	Color
30000	RV "Locking" Bumper Plug	4"	Rubber	Black
30080	RV "Locking" Bumper Plug	4"	Rubber	White
30081-7	RV Bumper Plug	4"	Plastic	Black
30082-7	RV Bumper Plug	4"	Plastic	White

EXTRA HEAVY DUTY POLYPROPYLENE SHOVELS

Like a hand held snow plow!

- Push Blade
- Non-Sparking Wood Handle with "D" Grip
- Curved Blade: 20" W x 12" H
- Overall Length: 49"



D-GRIPS

#12121 - 1 1/2" inside diameter #12123 - 1" inside diameter

#12125 - 1 ¼" inside diameter



SAFETY SHIELD

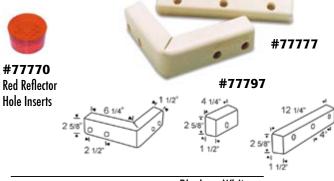
- Sturdy Polycarbonate with Metal Sleeve
- Flexible 18" Nickle-Plated Arm that Stays in Place when Bent
- Powerful Magnetic Base for Secure Mounting (Magnet Diameter: 3 3/6")



"BUMPIT™ BUMPERS"

Hollow-Back Thermoplastic Rubber Bumpers

- Prevent Damage to Docks, Industrial Equipment and Vehicles
- Impervious to Extreme Weather, Fresh/Salt Water and Atmospheric Deterioration
- 1/4" Mounting Hole Accepts 5/16" Carriage Bolt
- Counterbore Hole Diameter: 3/4"
- Temperature Range: -20° to +200° Fahrenheit
- Manufactured of Resilient, High Quality Thermoplastic Rubber more Flexible
 than Solid Rubber



Specifications	Black Part #	White Part #	
Straight: 4 1/4" x 2 5/8" x 1 1/2"	-	77776	
Straight: 12 1/4" x 2 5/8" x 1 1/2"	77787	77777	A THE R
Corner: 15" x 2 5/8" x 1 1/2"	77788	77797	

KANGAROO™ TUFFSACK

Strong tear-resistant, UV-Treated vinyl bag with zipper closure holds up to 50 lbs. Slits cut on each end for easy carrying. Full width opening allows easy filling and emptying.

• 30" x 16"

#50500

It's splash resistant!





Part #	Pg #		20259	20]	20554	22		24105	26	24602	28	27071	46	31033	36	31802	31
10100	64		20263	47	1	20560	22		24107	26	24604	28	27075	46	31050	36	31804	31
10105	64		20269	17		20561	22		24110	26	24605	28	27100	46	31052	36	31806	31
10130	65		20275	17	1	20562	22		24115	26	24607	28	27110	46	31054	36	31806	36
10135	65		20279	17	1	20563	22		24120	26	24610	28	30000	65	31056	36	31808	31
10137	65		20280	23	1	20564	22		24125	26	24615	28	30001	25	31060	36	31811	30
12105	65		20283	23	1	20565	22		24130	26	24620	28	30003	30	31062	36	31813	30
12115	64		20300	21	1	20566	22	ĺ	24155	27	24625	28	30080	65	31074	36	31815	30
12121	65		20302	23	1	20580	49		24157	27	24630	28	30081	65	31076	36	31816	31
12123	65		20303	23	1	20590	22		24160	27	24631	28	30082	65	31080	36	31820	30
12125	65		20304	17	1	20591	22	ĺ	24165	27	24633	28	30100	25	31082	36	31827	32
16010	64		20305	43	1	20600	23		24170	27	24640	28	30103	32	31083	36	31830	32
16201	40		20306	43	1	20601	23		24175	27	24650	28	30104	33	31084	36	31840	31
16204	40		20307	19]	20602	23		24180	27	24660	28	30105	33	31087	36	31850	31
16214	40		20308	19		20603	23		24221	34	24703	28	30106	33	31088	36	31852	32
20026	6		20309	19]	21000	42		24225	34	24706	28	30107	35	31090	36	31855	29
20027	6		20310	19		21003	42		24227	34	24707	28	30110	35	31091	36	31860	29
20028	5		20311	32		21004	42		24228	34	24709	28	30111	35	31101	37	31862	29
20040	9		20314	18		21009	43		24230	34	24714	28	30112	35	31102	37	31870	39
20060	8		20319	18		21020	43		24233	34	24720	28	30113	35	31103	37	31877	39
20062	5		20340	23		21049	42		24235	34	24730	28	30114	35	31104	37	32001	60
20063	8		20350	19		21060	43		24242	34	24805	26	30200	25	31105	37	32002	60
20067	7		20360	17		21073	43		24243	34	24807	26	30203	33	31106	37	32005	60
20068	9		20370	16		21085	43		24303	29	24810	26	30300	24	31107	37	32006	60
20069	7		20387	16		21087	43		24305	29	24815	26	30400	24	31108	37	32015	50
20073	43		20393	16		23020	49		24307	29	24820	26	30500	24	31110	37	32017	57
20075	43		20410	42		23050	46		24310	29	24825	26	30600	24	31111	37	32020	62
20079	41		20420	42		23060	49		24315	29	24830	26	30700	24	31112	37	32021	62
20081	41		20425	42		23062	49		24320	29	24920	28	30703	24	31113	37	32022	62
20090	13		20500	21		23080	48		24325	29	24930	28	30800	25	31114	37	32023	62
20092	13		20501	21		23081	47		24330	29	24940	28	30903	26	31115	37	32027	62
20099	9		20502	21		23085	48		24353	26	24950	28	30913	26	31116	37	32040	62
20108	14		20503	21		23105	12		24355	26	25205	27	30914	25	31117	37	32041	62
20109	14		20505	21		23122	11		24357	26	25207	27	30915	25	31118	37	32042	62
20128	15		20506	21	-	23125	11		24360	26	25210	27	30916	25	31121	37	32078	62
20138	14		20507	21		23129	12		24365	26	25215	27	30917	25	31122	37	32080	62
20148	14		20508	21		23140	10		24370	26	25515	28	30990	25	31123	37	32085	62
20158	18		20509	21		23143	10		24375	26	25520	28	30993	25	31124	37	32090	60
20168	14		20510	22		23144	11		24380	26	25525	28	30995	26	31125	37	32091	60
20188	15		20511	21	-	23145	11		24390	26	25530	28	31000	35	31126	37	32105	60
20198	15		20512	21		23147	12		24410	32	25540	28	31003	35	31127	37	32107	57
20208	15		20514	21		23148	12		24413	30	27021	46	31005	35	31128	37	32115	60
20218	15		20520	21	-	23149	12		24415	30	27025	46	31006	42	31180	37	32125	60
20228	15		20521	21		23167	12		24420	28	27030	46	31007	35	31181	37	32130	60
20238	14		20522	21	ł	24003	29		24430	28	27031	46	31010	35	31182	37	32135	60
20243	20		20523	21		24005	29		24440	28	27032	46	31013	35	31183	37	32140	60
20247	20		20525	22	-	24007	29		24450	28	27033	46	31015	35	31184	37	32145	60
20250	43		20530	22		24010	29		24520	27	27050	46	31017	35	31201	37	32157	62
20251	19		20540	22	-	24015	29		24530	27	27051	46	31020	36	31202	37	32177	63
20253	43		20541	22		24020	29		24540	27	27052	46	31023	36	31203	37	32178	63
20256 20257	18 20		20542 20543	22 22		24025 24030	29 29		24550 24560	27 27	27061 27065	46 46	31025 31027	36	31206 31208	37 37	32179	63
20257	20		20543	22		24030	29 26		24560	27	27065	40	31027	36 36	31208	37	32187	63
20230	20		20000		J	24101	20		24000	20	21010	40	51030		01203	51	32197	62

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32251	63		40096	64		80215	38		80804	38	80889	33	81035	44	81090	45		94150	56
32255	63		40098	64		80217	38		80806	38	80890	33	81036	44	81091	45		94160	56
32257	63		40100	64		80224	38]	80807	38	80900	41	81037	44	81092	45		94200	56
32259	63		50500	65		80244	38	1	80810	38	80901	41	81038	44	81093	45		94210	56
32296	63		72300	57	1	80246	38	1	80813	38	80902	41	81039	44	81094	45		94220	56
32300	60		77770	65	1	80248	38	1	80816	38	80903	41	81040	44	81095	45		94230	56
32301	60		77776	65		80250	38	1	80820	38	80904	41	81041	44	81096	45		94240	56
32375	57		77777	65		80252	38	1	80821	38	80905	41	81042	44	81097	45		94300	61
32377	57		77787	65		80254	38	1	80822	38	80906	41	81043	44	81098	45		94310	61
32400	50		77788	65		80256	38	1	80823	38	80907	41	81044	44	81099	45	-	94320	61
								{											
32410	50		77797	65	-	80258	38	-	80824	38	80908	41	81045	44	81100	45		94360	56
32420	51	-	80000	45		80274	38	-	80825	38	80909	41	81046	45	81101	45		94363	56
32425	50		80002	45		80276	38	{	80826	38	80910	41	81047	45	81102	45		94365	56
32467	58		80004	45		80278	38		80827	38	80911	42	81048	45	81103	45		94367	56
32469	58		80006	45		80282	38		80828	38	80915	41	81049	45	81104	45		94460	54
32475	58		80008	45	ļ	80284	38		80829	38	80916	41	81050	45	81105	45		94462	55
32480	53		80010	45		80286	38		80830	38	80920	42	81051	45	81106	45		94463	55
32482	53		80012	45		80288	38		80831	39	80921	42	81052	45	81107	45		94465	55
32484	53		80014	45]	80290	38]	80832	39	81000	44	81053	45	81108	45		94467	55
32486	53		80016	45	1	80292	38	1	80836	39	81001	44	81054	45	81109	45		94469	55
32490	53		80018	45	1	80328	39	1	80838	39	81002	44	81055	45	81110	45		94471	54
32500	51		80020	45	1	80330	39	1	80840	39	81003	44	81056	45	81111	45		94473	54
32610	62		80022	45		80332	39	1	80843	39	81004	44	81057	45	81112	45		94474	55
32820	59		80024	45		80334	39	1	80845	39	81005	44	81058	45	81113	45		94475	55
32825	58		80026	45		80338	39		80847	39	81006	44	81059	45	81114	45		94477	54
32831	59		80028	45		80344	39		80849	39	81007	44	81060	45	81115	45		94479	55
32832	51	-	80030	45		80346	39	1	80851	39	81008	44	81061	45	81116	45		94480	55
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32835	59		80034	45		80354	39	-	80853	39	81010	44	81063	45	81118	45	_	94484	54
32837	59		80036	45		80357	39		80854	39	81011	44	81064	45	81119	45		94486	54
32847	60		80038	45		80359	39	-	80857	39	81012	44	81065	45	81120	45		94488	54
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32940	50		80106	40		80423	39		80870	40	81020	44	81073	45	90080	61		95050	61
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