# PipePro Welding System

Multiprocess Pipe 🔼 **Welding Systems** 



# **Root-Fill-Cap Welding**

# Quick **Specs**

### **Pipe Welding Applications**

**Process Piping** Offshore Piping **Onshore Piping** Pipe Fabrication **Field Construction** 

### **Processes**

Stick (SMAW) TIG (GTAW) Air Carbon Arc Cutting and Gouging (CAC-A) (3/8 in carbons max.) MIG (GMAW) RMD™ Pro (Modified Short Circuit) Pro-Pulse™ MIG (GMAW-P) Pulsed MIG (GMAW-P) Flux Cored (FCAW)

# **Rated Output Ship Weight**

450 A at 44 VDC, 100% Duty Cycle

**Voltage Range** 10-44 V

PipePro 450 RFC: 163 lb (72.9 kg) PipePro 12RC SuitCase: 25.5 lb (11.6 kg) PipePro DX Feeder: 45 lb (20.4 kg) PipePro Dual DX Feeder: 87 lb (35.5 kg) Bernard PipeWorx 250-15: 9 lb (4.1 kg) Bernard PipeWorx 300-15: 10 lb (4.6 kg) Bernard PipeWorx 400-15: 10 lb (4.6 kg)

# The Power of Blue®

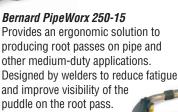
The PipePro® 450 RFC power source can be combined with either the PipePro SuitCase® or PipePro DX Bench Feeders and Bernard® **PipeWorx™ Guns** to offer a total solution for pipe welding applications in the shop or field.

### PipePro DX Bench Feeder

Provides a reliable wire feeder solution for shop applications. The dual-feeder version allows the operator to easily switch from one process/wire for root pass welding to another process/wire for fill and cap welding.

### PipePro 450 RFC

Provides one versatile power source to produce pipe welds using conventional and advanced processes in shop and field applications.



### Bernard PipeWorx 300-15 or 400-15

Provides a heavy-duty solution to producing root, fill and cap welds on pipe.



### PipePro 12RC SuitCase

Provides a durable wire feeder solution for field applications. The impact-resistant case design protects the wire and drive mechanism from moisture, dust and contamination.

### IMPROVED WELD PERFORMANCE

#### **Regulated Metal Deposition (RMD™ Pro)**

Precisely controlled short-circuit transfer technology provides welders with an easy to use welding process with excellent puddle control for the root pass. Calm, stable arc/puddle reduces weld training and improves quality.

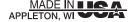
#### Pro-Pulse™

This method of pulse welding is easier to use than conventional pulse in out-of-position pipe welding applications. This is accomplished through precise control of the arc and puddle even in narrow joints, which provides optimum molten puddle control for out-of-position welding. Precise control of puddle produces excellent side wall fusion on all pipe joint designs.





Power source is warranted for 3 years, parts and labor.





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www.MillerWelds.com



# PipePro® 450 RFC Welding System (See page 3 for programs available for PipePro 450 RFC.)

The PipePro 450 Welding System provides one versatile solution for pipe welding in a package for both field and shop fabrication. Standard welding processes include RMD™ Pro and Pro-Pulse™, conventional MIG, GMAW-P, FCAW, Stick, TIG, and Air Carbon Arc cutting. The RMD Pro and Pro-Pulse

welding processes are optimized for steel and stainless steel pipe. Programs are provided for the most common gases, wire types and wire diameters used in the pipe welding industry. Contact Miller for more information on less common materials and gas combinations.

### PipePro® 450 RFC Features

•				
Auto-Line™	Allows for <b>any</b> input voltage hook-up $(190-630 \text{ V}, 50/60 \text{ Hz})$ with no manual linking. Compensates for voltage spikes and drops within the entire range. CE units are 400 V only.			
1/4-turn connectors	Allow for faster installation of system and reduces thread stripping.			
Multiprocess	Select from Stick, TIG, MIG, GMAW-P, RMD Pro, Pro-Pulse MIG, FCAW and Air Carbon Arc.			
Wind Tunnel Technology™	Circulates air over components that require cooling, not over electronic circuitry, which reduces contaminants and improves reliability.			
Field or Shop	Can be used with either a SuitCase feeder for field construction, or a single or dual bench-style feeder for shop fabrication.			
Fan-On-Demand™	Cooling system operates only when needed. Reduces amount of airborne contaminants pulled through the machine.			
Easy to operate	Simple front panel layout makes it easy to select programs.			

### **Specifications** (Subject to change without notice.)







Rated	Voltage	Amperage Range in	Max. Open-Circuit	for Typ	ical Volta	ated Outp iges +/- 1	0%, 50/60					Ship
Output	Range	CC Mode	Voltage	208 V	230 V	400 V*	460 V*	575 V	KVA	KW	Dimensions	Weight
450 A at 44 VDC, 100% Duty Cycle	10-44 V	5-600 A	80 VDC	67	59	34	29	23	23.8	22.9	H: 41 in (1041 mm) W: 15-1/2 in (394 mm) D: 22 in (559 mm)	163 lb (72.9 kg)

<sup>\*</sup>Note: CE units are limited to 400 V nominal.

### **Control Panels**

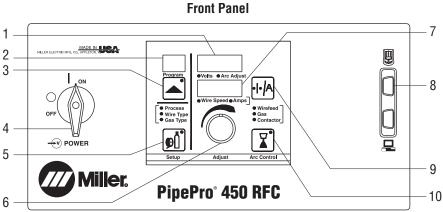
1. Voltage/Arc Adjust

Display Meter

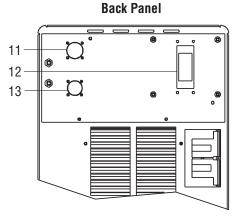
2. Program Display

3. Program # Select

4. Power Switch



- **5.** Process Setup Button Weld Process
  - Wire Size and Type
- Gas Type
- 6. Control Knob
- 7. Wire Speed/Amperage Digital Display Meter
- 8. Palm™/PC RS-232 Ports
- 9. Wire Feed/Amperage Select
- 10. Arc Control and Inductance Control



- 11. Peripheral Connector
- 12. Remote Connector
- 13. Wirefeed Connector

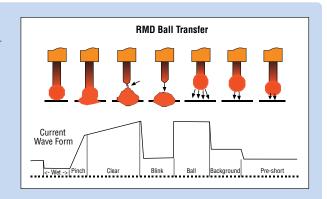


## **Welding Process Capabilities**

### RMD™ (Regulated Metal Deposition) Pro

A precisely controlled short-circuit metal transfer that provides a calm, stable arc and weld puddle. This provides less chance of cold lap or lack of fusion, less spatter and a higher quality root pass on pipe. The stability of the weld process lessens the puddle manipulation required by the welder and is more tolerant to hi-lo conditions, reducing training requirements. Weld bead profiles are thicker than conventional root pass welds which can eliminate the need for a hot pass, improving weld productivity. In some stainless steel applications, it may be possible to eliminate the backing (purge) gas to further improve productivity and reduce welding costs.

- Ideally suited to root pass welding
- Consistent side wall fusion
- Less weld spatter
- Tolerant to hi-lo fit-up conditions
- More tolerant of tip to work distance
- Less welder training time

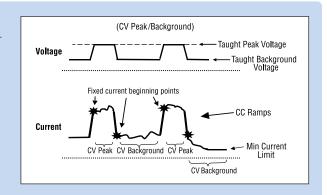


- Thicker root passes can eliminate hot pass
- Eliminate backing gas on some stainless steel applications

### **Pro-Pulse™**

This method of pulse welding provides a shorter arc length, narrower arc cone and less heat input than with traditional spray pulse transfer. Since the process is synergic, arc wandering and variations in tip-to-work distances are virtually eliminated. This provides easier puddle control for both in-position and out-of position welding, reducing welder training time. The process also improves fusion and fill at the toe of the weld, permitting higher travel speeds and higher deposition. This process coupled with RMD Pro for root pass welding permits welding procedures with one wire and one gas to eliminate process switch-over time.

- Ideally suited to fill and cap pass welding
- Easier puddle control than conventional spray pulse
- Shorter arc lengths and narrow arc cone for out-of-position welding
- More tolerant of tip to work variation
- Improve fusion and fill at toe of weld



- Less heat input reduces interpass cooling time and improves weld cycle time
- Enables one-wire with one-gas weld procedures

### PipePro® Welding Programs

RMD Pro programs designed for root pass welding on deep groove welds in all positions.

Process	Wire Type	Diameter	Gas Mixtures
RMD Pro	Steel E70	.035/.040/.045 in	CO <sub>2</sub> , C <sub>2</sub> 5, C <sub>1</sub> 0, C <sub>1</sub> 5
	Steel E80	.035 in	CO <sub>2</sub> , C15
	Stainless Steel 308 and 316	.035/.040/.045 in	TRI-H, 0x2, C2
	Metal Core	.045 in	C10, C15
	<b>Chrome Steel</b> 5 Chrome	.045 in	C25

*Ox2*= 98% Ar, 2% *O*₂ *HE25* = 75% Ar, 25% He *C2*= 98% Ar, 2% *CO*₂ TRI-A= 81% Ar, 18% He, 1% CO<sub>2</sub> TRI-H= 90% He, 7.5% Ar, 2.5% CO<sub>2</sub> TRI3= 69% Ar, 30% He, 1% CO<sub>2</sub> Pro-Pulse programs designed for fill and cap welding in all positions.

Process	Wire Type	Diameter	Gas Mixtures
Pro-	Steel E70	.035/.040/.045/.052	C10, C15
Pulse™	Steel E70	.052/.062	C10
	Steel E80	.040/.045 in	C15
	<b>Stainless Steel</b> 308/309/312/316	.035/.045 in	TRI-H, TRI-A, C2, Ox2
	Metal Core	.045/.052 in	C10, C15
	Inconel 625	.045 in	HE25
	Duplex Stainless	.040/.045 in	TRI3



# **PipePro® DX Single and Dual Feeder Features**







**Tool less rotatable drive** assembly allows operator to rotate the drive housing, eliminating severe bends in the wire feed path which reduce gun liner life. Also aids in feeding difficult wires.

**Dual tension control** adds flexibility for the operator to fine-tune the pressure on the wire independently when feeding a variety of wires.

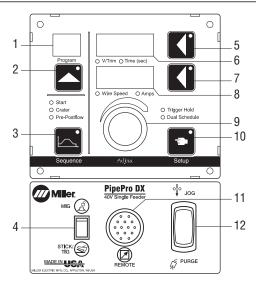
Trigger Receptacle	Oriented in a downward position to reduce potential damage.
Trigger Hold	Reduces operator fatigue by allowing the operator to make long welds without having to hold the trigger continuously.
Posifeed™ Wire Drive Assembly	<ul> <li>Quick-change drive rolls</li> <li>Quick-release, calibrated drive-roll pressure adjustment arm allows drive roll change without losing spring preload setting</li> <li>Floating positive drive systems provide trouble-free feeding on a variety of wires</li> </ul>
Stored Programs	Allows the operator to select weld programs from the feeder (8 on a single feeder or 4 on each of the feeders of the dual) to improve cycle time from root to fill and cap.
Remote Trigger Select	Allows operator to change programs (weld process and stored parameters) without returning to the feeder.
Dual Schedule	Allows the operator to switch between two sets of parameters to provide consistent penetration and improve pipe weld quality in fixed position.
Weld Sequence Control	Provides gas preflow and postflow for welding of stainless steel and high alloy pipe materials. Improves start and stop conditions by providing run-in, crater and burn-back controls.
Range Locks	Allows weld parameters to be adjusted within a specified range of set-point to ensure welding procedures are maintained on the shop floor.

### **Specifications** (Subject to change without notice.)

Input Power	Wire Feed Speed Range	Wire Diameter Capacity	Input Welding Circuit Rating	Maximum Spool Size Capacity	Dimensions Single	Dual	Net Weight Single	Dual
40 VDC, 10 Amps	50-780 IPM (1.3-19.8 MPM)	.023 – 1/8 in (0.6 – 3.2 mm)	100 Volts, 750 Amps, 100% Duty Cycle	60 lb (27 kg)	H: 14 in (356 mm) W: 12-1/2 in (318 mm) D: 27 in (686 mm)	H: 14 in (356 mm) W: 12-1/2 in (318 mm) D: 35 in (889 mm)	45 lb (20.4 kg)	87 lb (35.5 kg)

IP Rating= IP 21

### **Single Feeder Control Panel**



### PipePro DX Model

- 1. Program Display
- 2. Program # Select
- 3. Weld Sequence
- 4. MIG/Stick(TIG)
- **5.** Voltage/Time Select
- 6. Voltage/Time Display Meter
- 7. Wire Feed/Amperage Select
- 8. Wire Speed/Amperage Display Meter
- 9. Control Knob
- 10. Trigger Hold/Dual Schedule Control
- 11. Standard 14-Pin Receptacle
- **12.** Jog/Purge



### PipePro® Feeder Drive Roll Kits (Order from Miller Service Parts.)

Select drive roll kits from chart below according to type and wire size being used. Drive roll kits include 4 drive rolls, the necessary guides and feature an anti-wear sleeve for the inlet guide.

Wire size	"V" groove for hard wire	"V" knurled for hard-shelled cored wires
.035 in (0.9 mm)	#151 026	#151 052
.040 in (1.0 mm)	#161 190	_
.045 in (1.1/1.2 mm)	#151 027	#151 053
.052 in (1.3/1.4 mm)	#151 028	#151 054
1/16 in (1.6 mm)	#151 029	#151 055
.068/.072 in (1.8 mm)	_	#151 056
5/64 in (2.0 mm)	_	#151 057
3/32 in (2.4 mm)	_	#151 058

### **Wire Guides**

Wire size	Inlet Guide	Intermediate Guide
.023 – .040 in (0.6 – 1.0 mm)	#150 993	#149 518
.045 – .052 in (1.1 – 1.4 mm)	#150 994	#149 519
1/16-5/64 in (1.6-2.0 mm)	#150 995	#149 520
3/32-7/64 in (2.4-2.8 mm)	#150 996	#149 521

# PipePro® 12RC SuitCase® Features



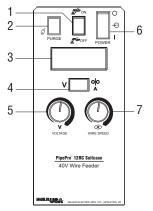
Rugged Construction	Designed for use in field construction.
Remote Voltage Control	Comes standard with PipePro 12RC SuitCase.
Standard Gas Solenoid	Controls gas flow.
Flame-Retardant Case	Totally enclosed and impact resistant, this case provides strength and durability while protecting components and weld wire from moisture, dust and contaminants.
Drive Roll Accessibility	Easy to install wire, adjust tension and change drive rolls.
Digital Meter	Wirefeed and voltage display comes standard on SuitCase.
Portable	Lightweight feeder can be used with 150 ft cables from power source.

Available in CE or CSA version.

### **Specifications** (Subject to change without notice.)

Input Power	Welding Power Source Type	Input Welding Circuit Rating	Wire Feed Speed Range	Wire Diameter Capacity	Maximum Spool Size Capacity	Dimensions	Net Weight
40 VDC, 10 Amps	Constant- Voltage (CV)	500 Amps at 100% Duty Cycle	75–700 IPM (1.9–17.7 m/min)	Solid Wire: .023 – 5/64 in (0.6 – 2.0 mm) Flux Cored: .030 – 5/64 in (0.8 – 2.0 mm)	12 in (305 mm) 44 lb (20 kg)	H: 16 in (406 mm) W: 7-1/4 in (184 mm) D: 20 in (508 mm)	25.5 lb (11.6 kg)

### **Control Panel**



6. Power Control

Switch

7. Wire Speed

Control

- 1. Trigger Hold Switch
- 2. Purge Switch
- 3. Meter Display
- 4. Volt/Amp Switch
- **5.** Voltage Control

### Drive Roll Kits (1 kit required, order from Miller Service Parts.)

Select drive roll kits from chart below according to type and wire size being used. Drive roll kits include 2 drive rolls, necessary guides and feature an anti-wear sleeve for the inlet guide.

Wire size	"V" groove for hard wire	"V" knurled for hard-shelled cored wires
.023/.025 in (0.6 mm)	#087 131	_
.030 in (0.8 mm)	#079 594	_
.035 in (0.9 mm)	#079 595	#079 606
.040 in (1.0 mm)	#161 189	_
.045 in (1.1/1.2 mm)	#079 596	#079 607
.052 in (1.3/1.4 mm)	#079 597	#079 608
1/16 in (1.6 mm)	#079 598	#079 609
.068/.072 in (1.8 mm)	_	#089 984
5/64 in (2.0 mm)	_	#079 610



# Bernard® PipeWorx™ Guns Features



The PipeWorx 250-15 Gun is recommended for root pass welding, especially in fixed-position applications where visibility is difficult. The PipeWorx 300-15 or 400-15 are recommended for fill and cap pass welding with Flux Cored arc or Pulsed MIG welding processes. In roll welding applications where one gas and one wire are used to make the weld, the PipeWorx 400 can be used to deposit the root pass. (A smaller nozzle diameter should be considered for improved puddle visibility and should be used for stainless steel root pass welding without purge gas.)

Versatility	Can be used for MIG (solid and metal cored wires), Pulsed MIG, and Flux Cored (shielded and self-shielded wires).
Ergonomics	Compact, lightweight gun with high-amperage capability reduces operator fatigue. improving productivity.
Visibility	The combination of tapered tips and nozzles and 60° neck provides excellent visibility on root passes in pipe joints.
Centerfire™ Tip	Provides "drop-in" tip with no threads providing quick changeover. No tools are required.

### **Specifications** (Subject to change without notice.)

Bernard Model	100% Duty Cycle NEMA	100% Duty Cycle CE	60% Duty Cycle CE	35% Duty Cycle CE	Gas Type	Cable Length	Net Weight
PipeWorx 250-15	300 A	250 A	300 A	365 A	100% CO <sub>2</sub>	15 ft (4.6 m)	9 lb (4.1 kg)
	_	210 A	250 A	300 A	80% Argon/20% CO <sub>2</sub>		
PipeWorx 300-15	350 A	320 A	370 A	470 A	CO2 Gas	15 ft (4.6 m)	10 lb (4.6 kg)
	_	270 A	270 A	390 A	80% Argon/20% CO <sub>2</sub>		
PipeWorx 400-15	400 A	350 A	425 A	520 A	CO <sub>2</sub> Gas	15 ft (4.6 m)	10 lb (4.6 kg)
	_	275 A	350 A	425 A	80% Argon/20% CO <sub>2</sub>		

### **Key Gun Consumables**

Description	Part Number	Package Quantity
.035 in Tapered Tip	TT-0351	10
.040 in Tapered Tip	TT-039	10
.045 in Tapered Tip	TT-045	10
.035 in Tip	T-035	10
.040 in Tip	T-039	10
.045 in Tip	T-045 <sup>2,3</sup>	10
.052 in Tip	T-052	10
1/16 in Tip	T-062	10
.035 – .045 Liner	431151,2,3	1
.045 – .062 Liner	44215	1

<sup>&</sup>lt;sup>1</sup>Standard part on PipeWorx 250-15. <sup>2</sup>Standard part on PipeWorx 300-15. <sup>3</sup>Standard part on PipeWorx 400-15.

Description	Part Number	Package Quantity
Nozzle 5/8 in D	NS-5818C <sup>2</sup>	10
Nozzle 5/8 in ID	N-5818C3	10
Nozzle 1/2 in ID	NS-1218C	10
Nozzle 3/4 in ID	N-3418C	10
Nozzle 3/8 in ID Tapered Tip	NT-3800C	10
Nozzle 3/8 in ID Tapered Tip	NST-3800B	10
Nozzle 3/8 in ID Extended Tapered Tip	NST-38XTB <sup>1</sup>	10
Diffuser	D-1 <sup>3</sup>	10
Diffuser	DS-1 <sup>1,2</sup>	10
Q Tube Assembly 60°	QT2-60 <sup>1,2,3</sup>	1
Q Tube Assembly 80°	QT2-80	1
0-Ring	4929	10

# **Genuine Miller Accessories**

### **Dual Schedule Switches**

(For PipePro DX models only.)



### DSS-9 #071 833

A two-position slide switch which attaches

to the gun handle and is used to select the desired welding condition for dual schedule purposes. The gun trigger operates as a standard trigger.

# PipeWorx 400-15 Gun and Cable Packages



5 ft Cable and Gun Package shown. #300 241 5 ft cable and gun package #300 242 25 ft cable and gun package #300 243 50 ft cable and gun package

Packages include (5 ft) interconnect and feeder control cable, (25 or 50 ft) feeder

control extension cable, (50 ft) work-sense lead and PipeWorx 400-15 gun.

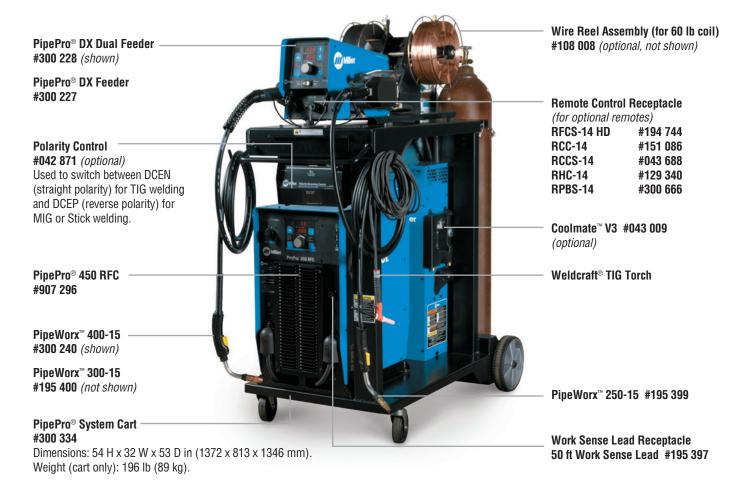
### Individual Cables for Typical Installations

Typical Installation Setup	Interconnect and Feeder Control Cable "Y"	Feeder Control Extension Cable	Work- Sense Lead
5 ft	195 185	_	195 397
25 ft	195 185	195 395	195 397
50 ft	195 185	195 401	195 397
100 ft*	195 185	195 396	195 398

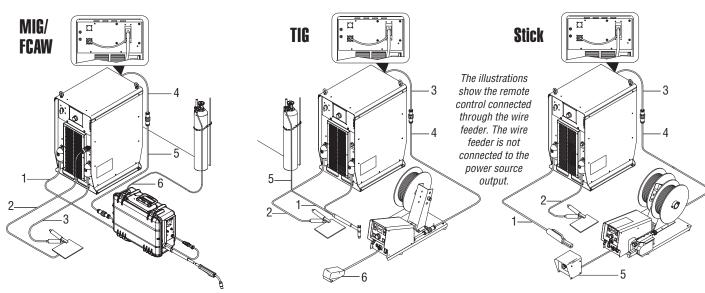
\* For 150 ft add one #195 401 Feeder Control Extension Cable.



# **PipePro® Welding System Components**



### **Installation Diagrams**



- **1.** Weld Cable *(contact your distributor)*
- 2. Work-Sense Lead
- **3.** Work Cable *(contact your distributor)*
- 4. Interconnect and Feeder Control Cable
- **5.** Feeder Control Extension Cable (not required if feeder is on or near power source)
- **6.** Gas Hose (contact your distributor)

- 1. Weld Cable and TIG Torch (see page 7)
- 2. Work Cable (contact your distributor)
- 3. Interconnect and Feeder Control Cable
- 4. Control Extension Cable
- **5.** Gas Hose *(contact your distributor)*
- 6. Remote with 25 ft cable (see page 8)
- 1. Weld Cable and Electrode Holder (contact your distributor)
- 2. Work Cable (contact your distributor)
- 3. Interconnect and Feeder Control Cable
- 4. Control Extension Cable
- **5.** Remote with 25 ft cable *(see page 8)*

Note: Size 2/0 weld cable is recommended with PipePro 450 RFC.



# Ordering Information (Select a power source, wire feeder and cable package for complete system.)

Power Source and Accessories	Stock No.	Description	Qty.	Price
PipePro® 450 RFC Inverter Power Supply	#907 296	190 – 630 V, Auto-Line™		
Add a Wire Feeder and a Cable and Gun Package to create a system.	#907 297	<b>CE</b> , 400 V		
PipePro® 450 System Cart	#300 334	Cart with cylinder rack for power source, feeder, cooler, and polarity switch		
Bench-Style Wire Feeder and Accessories				
PipePro® DX Bench-Style Feeders	#300 227	Single feeder		
	#300 228	Dual feeder		
Control Detachment Kit	#300 233	Field Kit, 10 ft (3 m). For PipePro DX single feeder only		
Allows separation of the control module from the	#300 234	Field Kit, 25 ft (7.6 m). For PipePro DX single feeder only		
wire drive assembly and base. Feeder Cart	#300 235	Field Kit, 25 ft (7.6 m). For PipePro DX dual feeder only		
	#142 382	For simple feeder on left side of dwelfeeder.		
Spool Covers	#057 607 #090 389	For single feeder or left side of dual feeder For right side of dual feeder		
Wire Reel Assembly	#108 008	For 60 lb (27 kg) coil ( <i>Reel and Spool Covers cannot be installed if the</i>		
**************************************	"100 000	wire drive assembly is in a rotated position.)		
Reel Covers	#195 412	For single feeder or left side of dual feeder. For 60 lb (27 kg) coil		
	#091 668	For right side of dual feeder. For 60 lb (27 kg) coil		
Drive Roll Kit (Required)		See page 5		
Dual Schedule Switches	#071 833	DSS-9 (PipePro DX models only)		
SuitCase-Style Wire Feeder and Accessories				
PipePro® 12RC SuitCase® Feeder	#195 392			
Flowmeter Kit	#300 343			
Filter Inline Shielding Gas	#195 189			
Drive Roll Kit (Required)		See page 5		
PipeWorx 400-15 Gun and Cable Packages		Select a Package OR Select Individual Cables (see page 6)		
Includes interconnect and feeder control cable (5 ft),	#300 241	5 ft (1.5 m) cable and gun package		
feeder control extension cables, work-sense lead and	#300 242	25 ft (7.6 m) cable and gun package		
PipeWorx gun. Does <b>NOT</b> include weld cable, work cable, work clamp, and gas regulator/flowmeter.	#300 243	50 ft (15.2 m) cable and gun package		
Individual Cables for Typical Installations				
Interconnect and Feeder Control Cable	#195 185	5 ft (1.5 m) (one required per system)		
Feeder Control Extension Cable	#195 395	25 ft (7.6 m)		
(Not required if feeder is on or near power source.)	#195 401	50 ft (15.2 m)		
Work-Sense Lead	#195 396	100 ft (30.5 m)		
WOIK-Selise Lead	#195 397 #195 398	50 ft (15.2 m) 150 ft (45.7 m)		
Individual MIG/FCAW Guns and Consumables				
Bernard® PipeWorx™ Guns	#195 399	250-15 Gun. See page 6 for consumables		
Bottlard Tipework dutis	#195 400	300-15 Gun. See page 6 for consumables		
	#300 240	400-15 Gun. See page 6 for consumables		
Accessories for TIG and Stick				
RFCS-14 HD	#194 744	Heavy-duty foot control		
RCC-14	#151 086	Side-to-side fingertip control		
RCCS-14	#043 688	Up-and-down fingertip control Hand current control and contactor		
RHC-14 RPBS-14	#129 340 #300 666	On-off switch		
Remote Control Adapter	#300 248	For PipePro® 12RC SuitCase® and #195 407 Single Feeder.		
		Connects remote control cable to feeder control cable		
Polarity Control	#042 871	Switches between DCEP (reverse polarity) and DCEN (straight polarity)		
HF-251D-1	#042 388	High-frequency remote arc starter with gas solenoid, 115 VAC		
Coolmate® V3	#043 009	115 VAC		

Date: Total Quoted Price:



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