



# KOOL RUN<sup>®</sup>

Driven by Performance



## KR502HW

**Air-Cooled MIG Torches for  
Hollow Wrist Robots**

### *Operating Manual and Parts List*

**DO NOT INSTALL, OPERATE, OR REPAIR THIS EQUIPMENT  
WITHOUT READING THIS OPERATING MANUAL**

MADE IN USA

**CM INDUSTRIES**  
INC.

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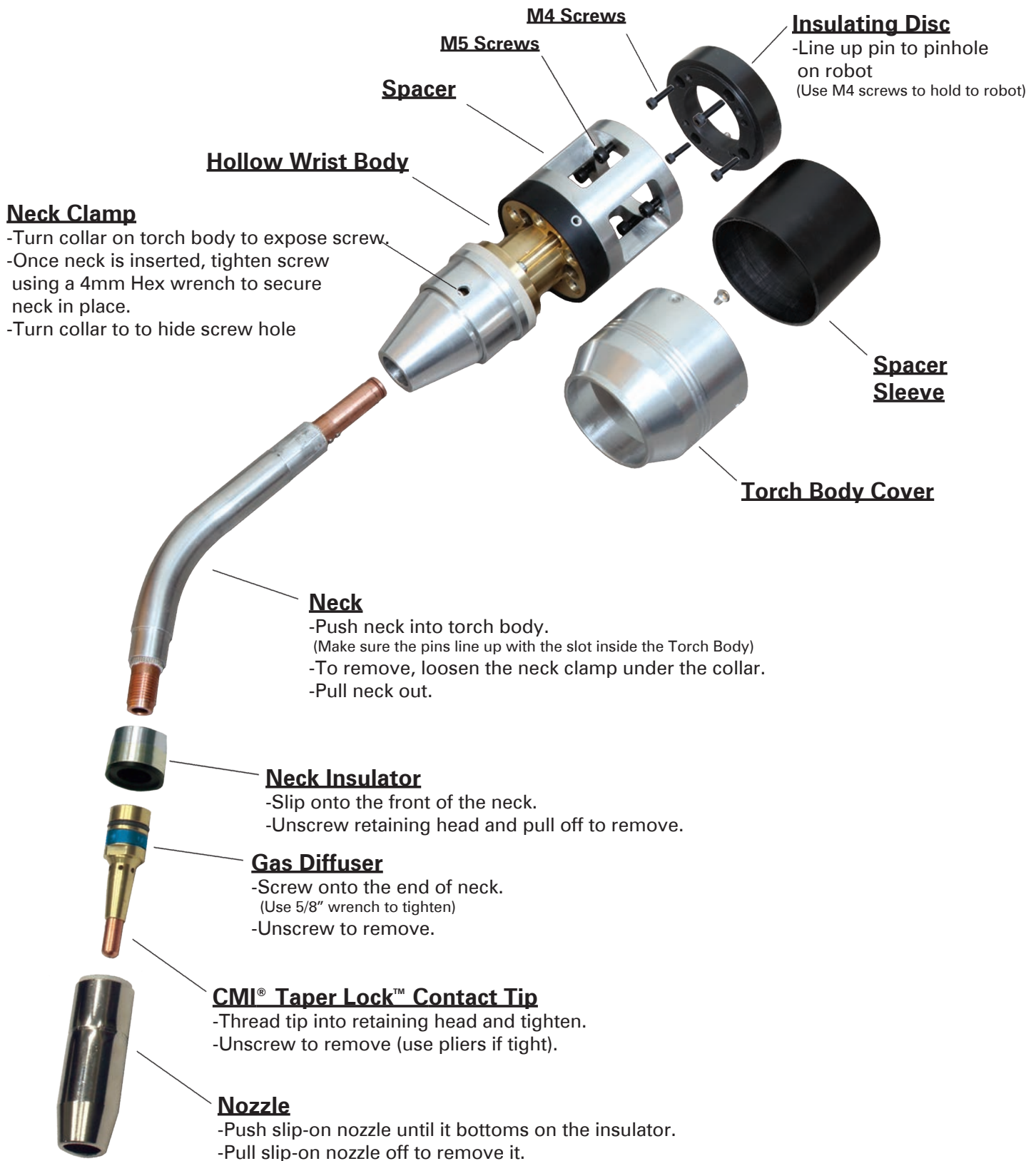
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# Complete Assembly Overview for Solid Mount System

## -Installation & Removal of Consumables-

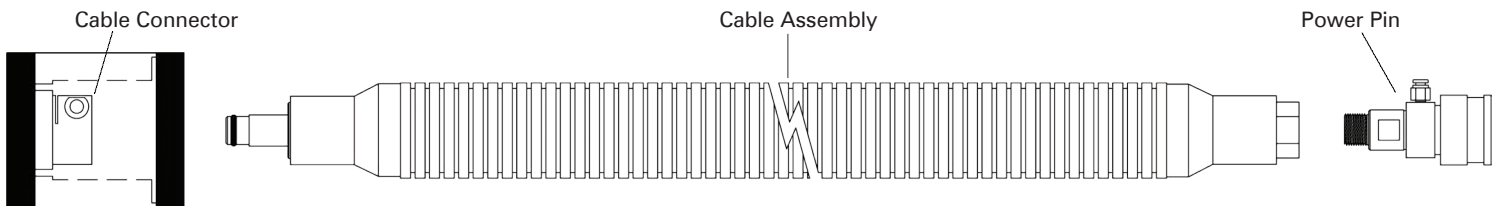
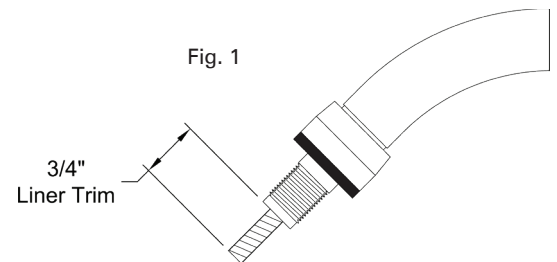


# Cable Assembly Overview

## -Installation & Removal of Cable Assembly-

### Installation of New Cable Assembly

- Install the insulating disc by lining up the pin to the pin hole of the turning disk, and use the (4) M4 screws to tighten.
- Line up the torch body w/ spacer with the pin hole of the insulating disc and screw in the (4) M5 screws that hold the torch body to the insulating disc.
- Slide the cable assembly through the robot arm. Do not connect the power pin.
- Push the front of the cable assembly into the torch body and tighten the M4 screw of the cable connector.
- Slide on the spacer sleeve over the torch body and spacer, then the torch body cover over the torch body and tighten the (3) buttonhead screws.
- Install the liner through the power pin, and make sure the power pin is connected to the wire feeder properly. (Tighten set screw if necessary.)
- Install the neck without consumables and cut the liner to 3/4" length from the end of the neck (as seen in Fig 1).



### Removal

- Remove the neck from the hollow wrist torch body.
- Pull the power pin out of the wire feeder and remove the liner.
- Unscrew the (3) buttonhead screws on the torch body cover.
- Slide off the torch body cover and sleeve and loosen the M4 screw on the cable connector.
- Pull the front of the cable assembly from the cable connector.
- Remove the cable assembly from the robot.

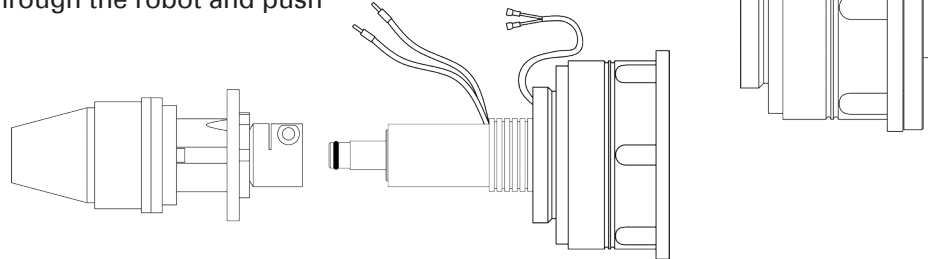


# Clutch Assembly

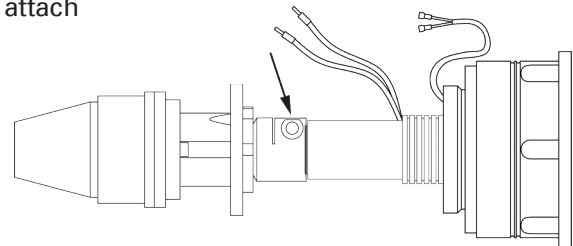
## -Installation of Torch Assembly with Clutch-

### Installing the Clutch

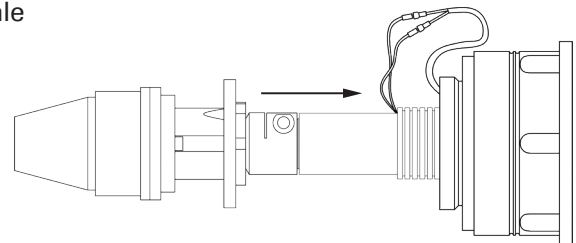
- Begin with removing the disc from the clutch.
- Install the clutch disc to the face of the robot with the screws that were provided.
- Install the clutch to the disc by lining up the locating pins and using a hex wrench to tighten the (6) M4 screws.
- Feed the cable assembly through the robot and push it through the clutch.



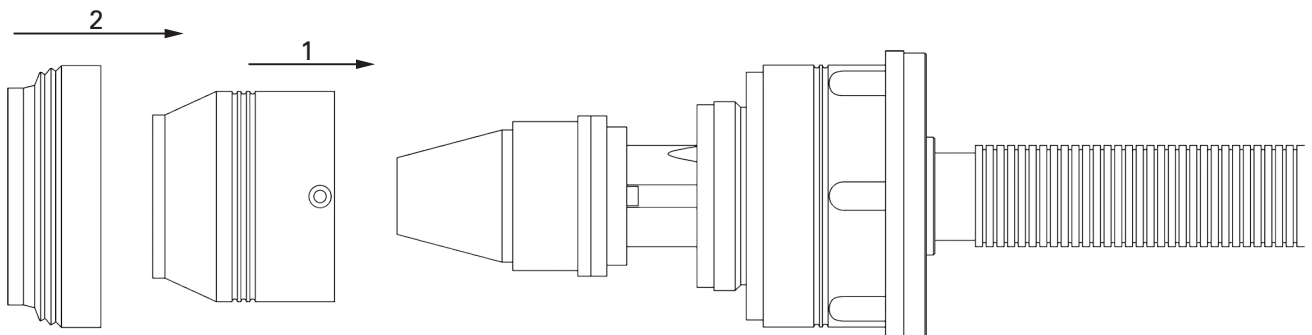
- Once the cable assembly and the wires of the cable assembly are through the clutch, take the cover off the torch body and attach it to the cable assembly with the (1) M5 clamp screw.



- Connect the male terminals of the power cable to the female terminals of the clutch.



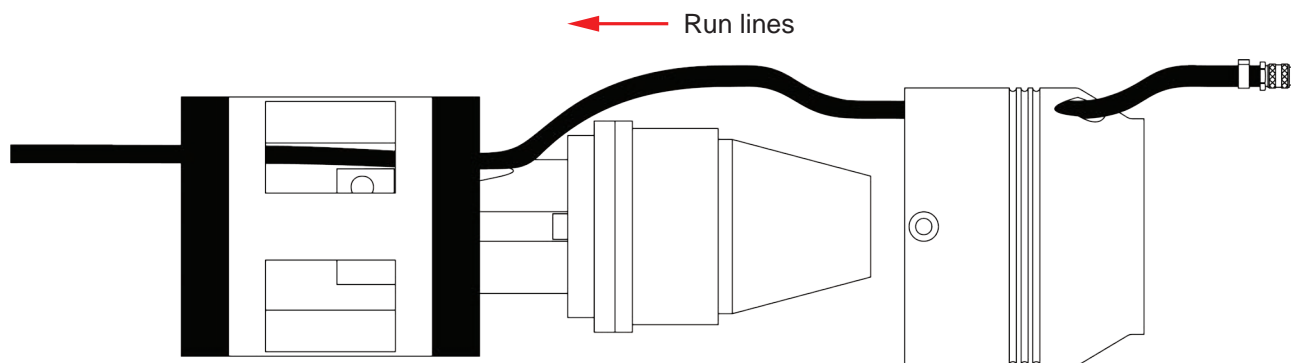
- Carefully tuck the wires back into the clutch, and begin pushing the torch body and cable assembly back towards the robot.
- Line up the locating pin of the torch body with the clutch and press fit together.
- Use the (6) M4 screws to secure the torch body to the clutch.
- Slide on the torch body cover and secure it with the (3) M4 buttonhead screws.
- Slide the rubber boot for the clutch over the torch body over and fit it into the groove of the clutch, making sure none of the internals are visible.



## **-Installation of Water Lines & Neck-**

### **Installation of Water Lines**

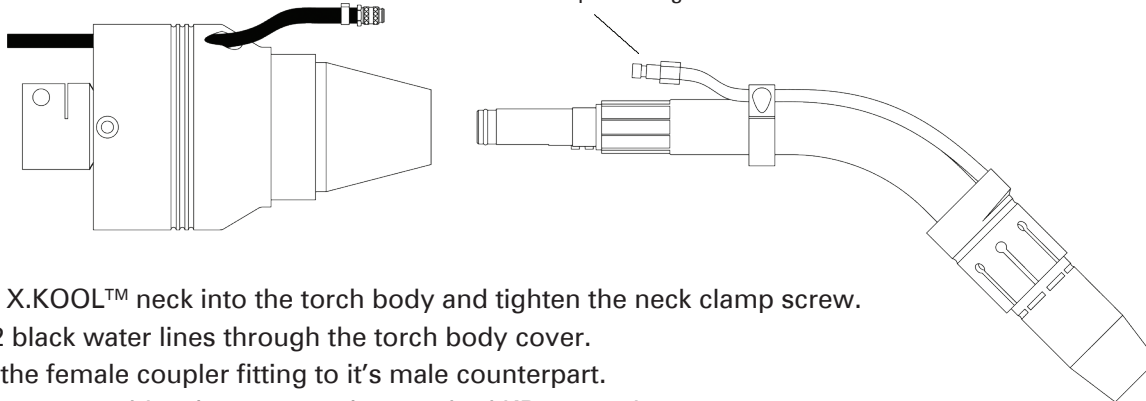
- Install the torch body to the robot.
- Start with the torch body cover off of the torch body.
- Run both water lines through the holes of the torch body cover so that the quick disconnects are hanging out the front.
- Next, with the water lines lined up so they are on the top of the torch, find the 2 holes in the torch body base the lines will run through, and feed them through the torch body base and through the arm of the robot. (Make sure to push enough hose through so that you can pull from the back of the 1' cable cover.)
- Attach the torch body cover to the torch body with the water lines facing the top of the torch.
- Once you've pushed the water lines through the robot, attached the torch body cover, and out of the 1' foot cable cover, carefully pull the rest of the 15' of water hose so that you have the desired length at the front.



### ***Installing the X.KOOL™ Neck***

Female Coupler Fitting

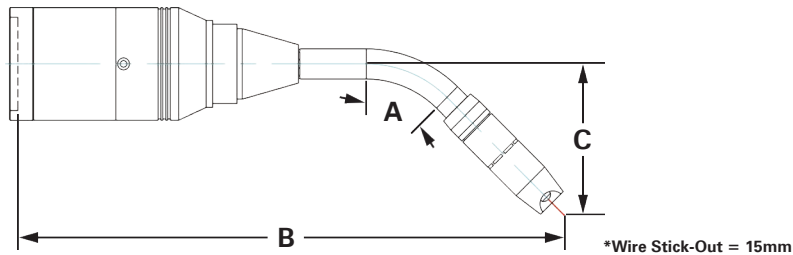
Male Coupler Fitting



- Slide the X.KOOL™ neck into the torch body and tighten the neck clamp screw.
- Pull the 2 black water lines through the torch body cover.
- Connect the female coupler fitting to it's male counterpart.
- Install the consumables the same as the standard KR502 neck.

# Technical Data

## TCP Dimensions & Std. Neck Options

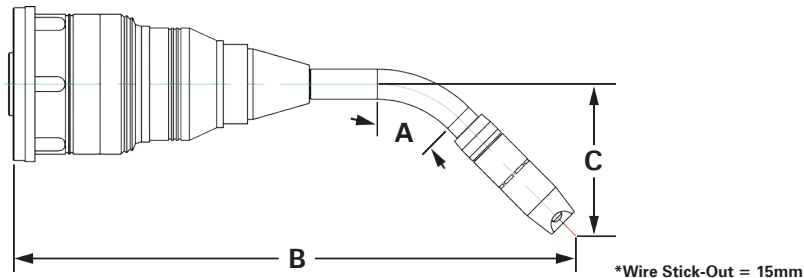


### Solid Mount

NECK	A	B	C
KR502-180	180°	15.057" [382.4]	-
KR502-22	22°	15.519" [394.2]	3.960" [100.6]
KR502-45	45°	14.370" [365.0]	3.960" [100.6]
KR502-22L1	22°	16.920" [430.0]	3.960" [100.6]
KR502-45L1	45°	15.748" [400.0]	3.960" [100.6]
KR502-22L2	22°	18.890" [480.0]	3.960" [100.6]
KR502-45L2	45°	17.717" [450.0]	3.960" [100.6]

### Solid Mount w/ Wire Brake

NECK	A	B	C
KR502-180	180°	16.238" [412.4]	-
KR502-22	22°	16.700" [424.2]	3.960" [100.6]
KR502-45	45°	15.551" [395.0]	3.960" [100.6]
KR502-22L1	22°	16.920" [460.0]	3.960" [100.6]
KR502-45L1	45°	16.930" [430.0]	3.960" [100.6]
KR502-22L2	22°	20.070" [510.0]	3.960" [100.6]
KR502-45L2	45°	18.352" [480.0]	3.960" [100.6]



### Clutch Mount

NECK	A	B	C
KR502-180	180°	15.451" [392.4]	-
KR502-22	22°	15.913" [404.2]	3.960" [100.6]
KR502-45	45°	14.764" [375.0]	3.960" [100.6]
KR502-22L1	22°	17.314" [440.0]	3.960" [100.6]
KR502-45L1	45°	16.142" [410.0]	3.960" [100.6]
KR502-22L2	22°	19.284" [490.0]	3.960" [100.6]
KR502-45L2	45°	18.111" [460.0]	3.960" [100.6]

### Clutch Mount w/ Wire Brake

NECK	A	B	C
KR502-180	180°	16.632" [422.4]	-
KR502-22	22°	17.094" [434.2]	3.960" [100.6]
KR502-45	45°	15.945" [405.0]	3.960" [100.6]
KR502-22L1	22°	18.495" [470.0]	3.960" [100.6]
KR502-45L1	45°	17.323" [440.0]	3.960" [100.6]
KR502-22L2	22°	20.465" [520.0]	3.960" [100.6]
KR502-45L2	45°	19.292" [490.0]	3.960" [100.6]

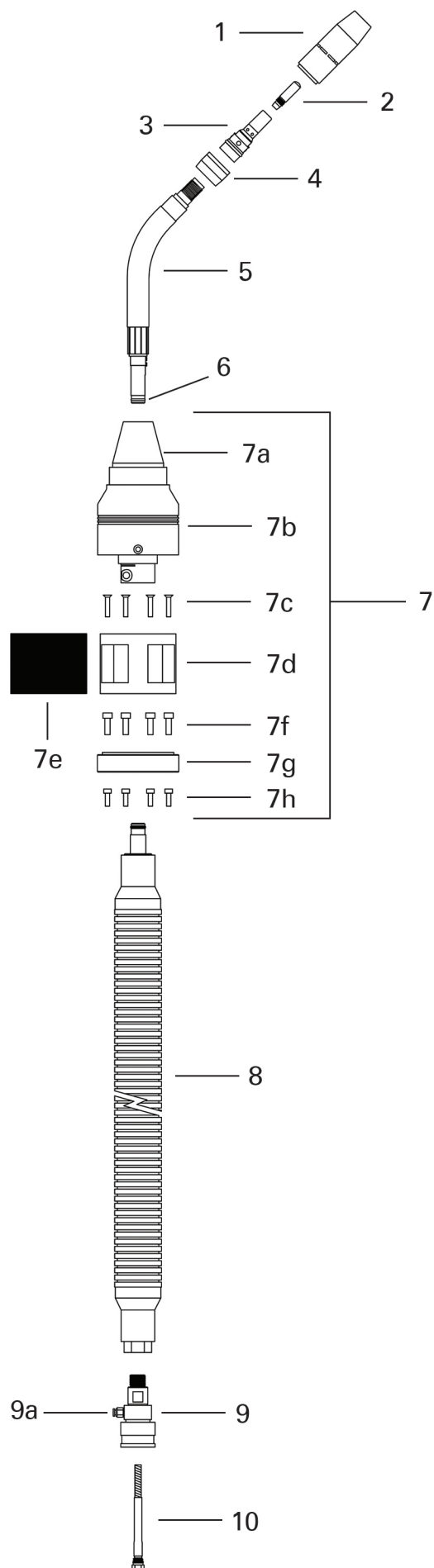
## Torch Amperage Ratings

Kool Run Torch Model	100% Duty Cycle		60% Duty Cycle	
	CO2	Mixed Gas	CO2	Mixed Gas
KR502HW	500 AMP	350 AMP	600 AMP	500 AMP

NOTE: Ratings are based on tests that comply with NEMA ARC Welding Section Standard 11-6-1975 for Duty Cycle. The time period of one complete cycle shall be 10 minutes (60%=6 minutes) National Electrical Manufacturers Association 2101 L Street N.W. Washington D.C. 20037.

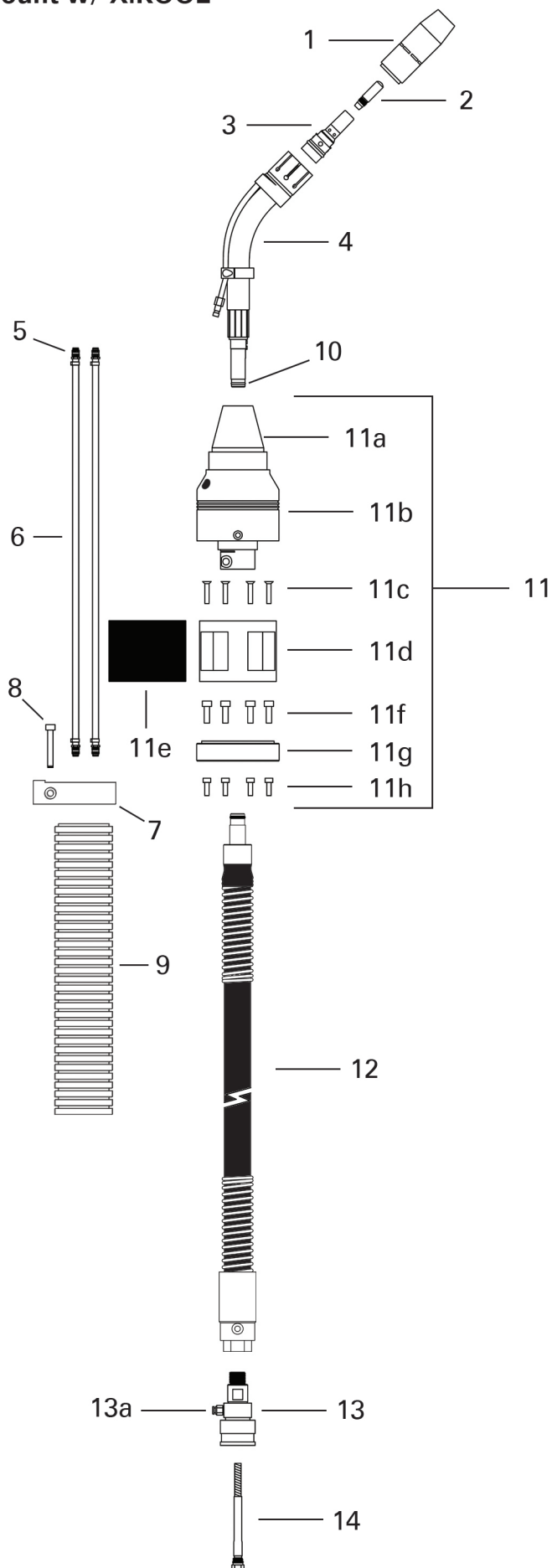
# Exploded View & Parts List for Solid Mount

ITEM	PART #	DESCRIPTION
1.	152-xx-xxP	See Page 12 "Plated Nozzle Selection"
2.		<b>CMI TAPER LOCK™ CONTACT TIP</b>
	155-x-xxx	See Page 13 "Contact Tip Selection"
	155-1-xxx	Heavy Duty Contact Tip
	155-2-xxx	Heavy Duty Tapered Contact Tip
	155-3-xxx	Extra Heavy Duty Contact Tip
	155-7-xxx	Heavy Duty CrZr Contact Tip
3.	154-Rxxx	See Page 12 "Gas Diffuser Selection"
4.	KR50-1	Neck Insulator
5.	KR502-22	Neck, 22°
	KR502-45	Neck, 45°
	KR502-180	Neck, 180°
	KR502-22L1	Neck, 22° - Long
	KR502-45L1	Neck, 45° - Long
	KR502-22L2	Neck, 22° - X-Long
	KR502-45L2	Neck, 45° - X-Long
6.	KR502-6	O-Ring
7.	<b>KHW-200A1</b>	<b>Solid Mount Assembly - ABB IRB 1600ID</b>
	<b>KHW-200D1</b>	<b>Solid Mount Assembly - OTC AX MV4AP/ AX MV4LAP</b>
	<b>KHW-200F</b>	<b>Solid Mount Assembly - Fanuc (iC) / MA1440</b>
	<b>KHW-200F2</b>	<b>Solid Mount Assembly - Fanuc (iD)</b>
	<b>KHW-200M</b>	<b>Solid Mount Assembly - Motoman [excludes MA1440]</b>
7a.	KHW-201	Hollow Wrist Torch Body [Included in ITEM 7]
7b.	KHW-211	Hollow Wrist Torch Body Cover [Included in ITEM 7]
7c.	<i>Not Sellable</i>	M4x0.7x17 SHCS [Included in ITEM 7]
7d.	KHW-103	Spacer - Fanuc/Motoman [Included in ITEM 7]
	KHW-105	Spacer - ABB/OTC
7e.	KHW-104	Spacer Sleeve [Included in ITEM 7]
7f.	<i>Not Sellable</i>	M5x0.8x18 SHCS [Included in ITEM 7]
7g.	KHW-AB160	Insulating Disc - ABB IRB 1600ID
	KHW-FA100	Insulating Disc - Fanuc iC/Motoman MA1440
	KHW-FD100	Insulating Disc - Fanuc iD
	KHW-MM1	Insulating Disc - Motoman
	KHW-OAX1	Insulating Disc - OTC AX MV4AP/MV4LAP
7h.	<i>Not Sellable</i>	M4x0.7x12 SHCS [Fanuc/Motoman]
	<i>Not Sellable</i>	M6x1.0x12 SHCS [ABB]
8.	KHW-xxx	See Page 13 "Power Cables Selection"
9.	KDP-101	Power Pin, Miller®
	KDP-103	Power Pin, Panasonic®
	KDP-104	Power Pin, Tweco® #4
	KDP-106	Power Pin, OTC®
	KDP-107	Power Pin, Fronius®
	KDP-108	Power Pin, Lincoln® "4R"
	KDP-109	Power Pin, Lincoln® "AutoDrive® S"
9a.	250-25-263	Male Fitting
10.	164FL-xxx	See Page 13 "Liners Selection"



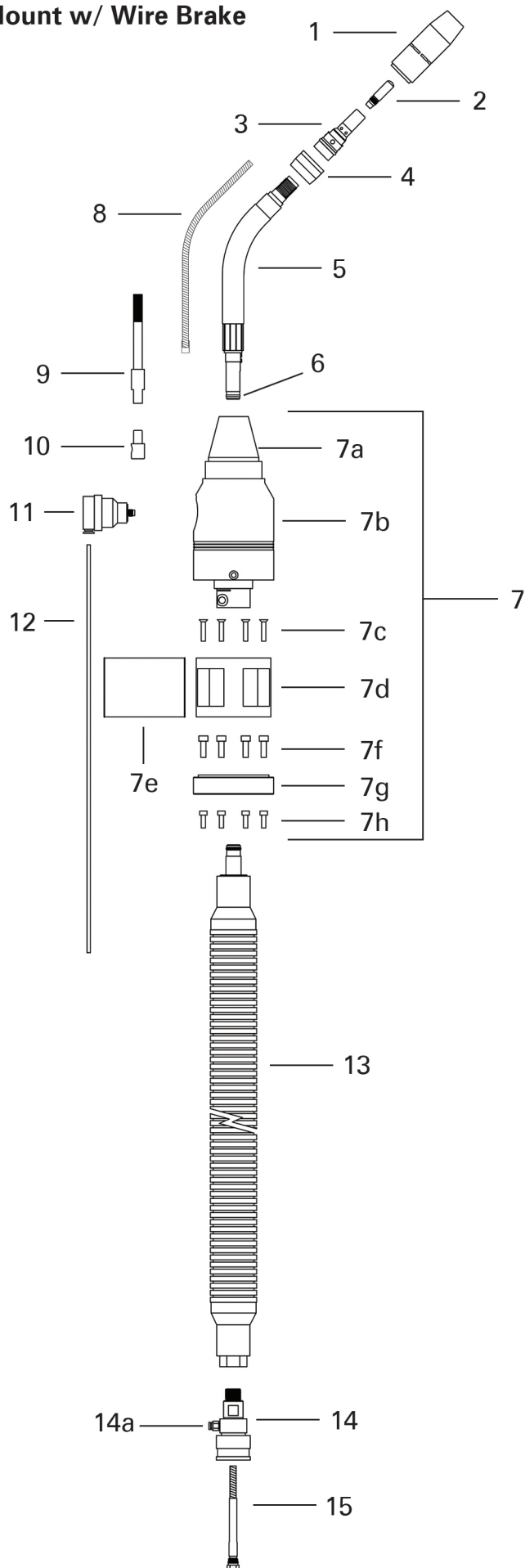
# Exploded View & Parts List for Solid Mount w/ X.KOOL

ITEM	PART #	DESCRIPTION
1.	152-xx-xxP	See Page 12 "Plated Nozzle Selection"
2.		<b>CMI TAPER LOCK™ CONTACT TIP</b>
	155-x-xxx	See Page 13 "Contact Tip Selection"
	155-1-xxx	Heavy Duty Contact Tip
	155-2-xxx	Heavy Duty Tapered Contact Tip
	155-3-xxx	Extra Heavy Duty Contact Tip
	155-7-xxx	Heavy Duty CrZr Contact Tip
3.	154-Rxxx	See Page 12 "Gas Diffuser Selection"
4.	KR512-22 KR512-45 KR512-180	X.KOOL Neck, 22° X.KOOL Neck, 45° X.KOOL Neck, 180°
5.	KR512-1	X.KOOL Quick Disconnect
6.	KR512-1-15	X.KOOL Water Line, 15' (each) [Includes ITEM 5]
7.	KR512-14B	X.KOOL Cable Cover Robot Bracket
8.	<i>Not Sellable</i>	M5x0.8x35 SHCS [Included in ITEM 7]
9.	KR512-14C	X.KOOL Cable Cover, 14"
10.	KR502-6	O-Ring
11.	<b>KHX-200A1</b> <b>KHX-200D1</b> <b>KHX-200F</b> <b>KHX-200F2</b> <b>KHX-200M</b>	<b>Solid Mount Assembly - ABB</b> IRB 1600ID <b>Solid Mount Assembly - OTC</b> AX MV4AP/ AX MV4LAP <b>Solid Mount Assembly - Fanuc (iC)</b> <b>Solid Mount Assembly - Fanuc (iD)</b> <b>Solid Mount Assembly - Motoman</b> [excludes MA1440]
11a.	KHW-201	Hollow Wrist Torch Body [Included in ITEM 11]
11b.	KHX-211	Hollow Wrist Torch Body Cover [Included in ITEM 11]
11c.	<i>Not Sellable</i>	M4x0.7x17 SHCS [Included in ITEM 11]
11d.	KHW-103 KHW-105	Spacer - Fanuc/Motoman [Included in ITEM 11] Spacer - ABB
11e.	KHW-104	Spacer Sleeve [Included in ITEM 11]
11f.	<i>Not Sellable</i>	M5x0.8x18 SHCS [Included in ITEM 11]
11g.	KHW-xxxxxx	Insulating Disc [Included in ITEM 11]
11h.	<i>Not Sellable</i>	M4x0.7x12 SHCS [Fanuc/Motoman]
12.	KHW-xxx	See Page 13 "Power Cables Selection"
13.	KDP-101 KDP-103 KDP-104 KDP-106 KDP-107 KDP-108 KDP-109	Power Pin, Miller® Power Pin, Panasonic® Power Pin, Tweco® #4 Power Pin, OTC® Power Pin, Fronius® Power Pin, Lincoln® "4R" Power Pin, Lincoln® "AutoDrive® S"
13a.	250-25-263	Male Fitting
14.	164FL-xxx	See Page 13 "Liners Selection"



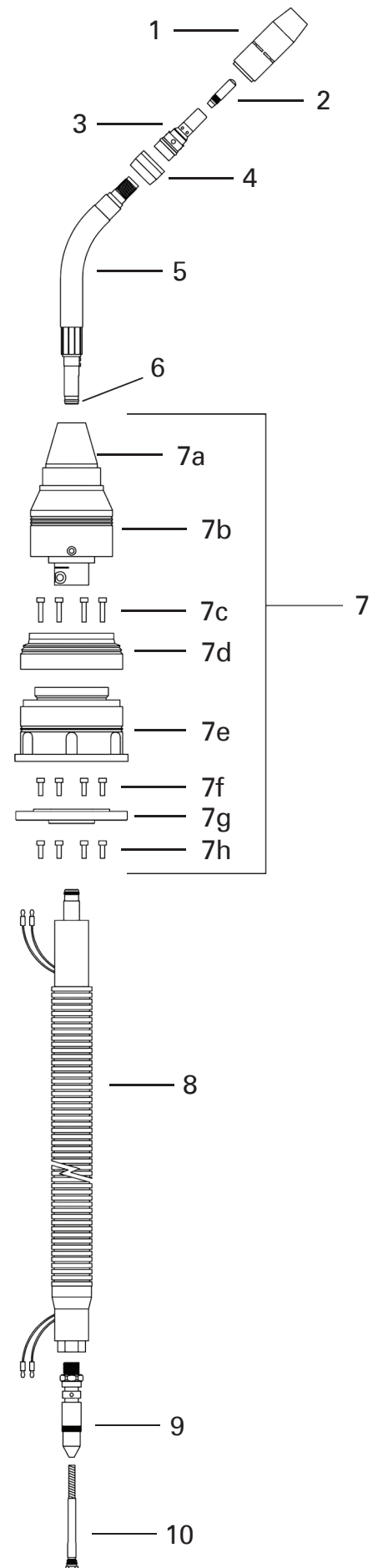
# Exploded View & Parts List for Solid Mount w/ Wire Brake

ITEM	PART #	DESCRIPTION
1.	152-xx-xxP	See Page 12 "Plated Nozzle Selection"
2.		<b>CMI TAPER LOCK™ CONTACT TIP</b>
	155-x-xxx	See Page 13 "Contact Tip Selection"
	155-1-xxx	Heavy Duty Contact Tip
	155-2-xxx	Heavy Duty Tapered Contact Tip
	155-3-xxx	Extra Heavy Duty Contact Tip
	155-7-xxx	Heavy Duty CrZr Contact Tip
3.	154-Rxxx	See Page 12 "Gas Diffuser Selection"
4.	KR50-1	Neck Insulator
5.	KR502-22	Neck, 22°
	KR502-45	Neck, 45°
	KR502-180	Neck, 180°
	KR502-22L1	Neck, 22° - Long
	KR502-45L1	Neck, 45° - Long
	KR502-22L2	Neck, 22° - X-Long
	KR502-45L2	Neck, 45° - X-Long
6.	KR502-6	O-Ring
7.	<b>KWB-200A1</b>	<b>Solid Mount Assembly - ABB IRB 1600ID</b>
	<b>KWB-200D1</b>	<b>Solid Mount Assembly - OTC AX MV4AP/ AX MV4LAP</b>
	<b>KWB-200F</b>	<b>Solid Mount Assembly - Fanuc (iC)</b>
	<b>KWB-200F2</b>	<b>Solid Mount Assembly - Fanuc (iD)</b>
	<b>KWB-200M</b>	<b>Solid Mount Assembly - Motoman [excludes MA1440]</b>
7a.	KWB-201	Hollow Wrist Torch Body [Included in ITEM 7]
7b.	KWB-211	Hollow Wrist Torch Body Cover [Included in ITEM 7]
7c.	<i>Not Sellable</i>	M4x0.7x17 SHCS [Included in ITEM 7]
7d.	KHW-103	Spacer - Fanuc/Motoman [Included in ITEM 7]
	KHW-105	Spacer - ABB/OTC
7e.	KHW-104	Spacer Sleeve [Included in ITEM 7]
7f.	<i>Not Sellable</i>	M5x0.8x18 SHCS [Included in ITEM 7]
7g.	KHW-AB160	Insulating Disc - ABB IRB 1600ID
	KHW-FA100	Insulating Disc - Fanuc iC/Motoman MA1440
	KHW-FD100	Insulating Disc - Fanuc iD
	KHW-MM1	Insulating Disc - Motoman
	KHW-OAX1	Insulating Disc - OTC AX MV4AP/MV4LAP
7h.	<i>Not Sellable</i>	M4x0.7x12 SHCS [Fanuc/Motoman]
8.	164-45J	Jump Liner, .045"
	164-116J	Jump Liner, 1/16"
9.	KWB-GT1	Wire Brake Wire Guide Tool
10.	KWB-G045	Wire Brake Wire Guide, .045"
	KWB-G116	Wire Brake Wire Guide, 1/16"
11.	KWB-V1	Wire Brake Valve
12.	KWB-A18-15	Wire Brake Air Line, 15'
13.	KHW-xxx	See Page 13 "Power Cables Selection"
14.	KDP-101	Power Pin, Miller®
	KDP-103	Power Pin, Panasonic®
	KDP-104	Power Pin, Tweco® #4
	KDP-106	Power Pin, OTC®
	KDP-107	Power Pin, Fronius®
	KDP-108	Power Pin, Lincoln® "4R"
	KDP-109	Power Pin, Lincoln® "AutoDrive® S"
14a.	250-25-263	Male Fitting
15.	164-xxx	See Page 13 "Liners Selection"



# Exploded View & Parts List for Clutch Mount

ITEM	PART #	DESCRIPTION
1.	152-xx-xxP	See Page 12 <b>"Plated Nozzle Selection"</b>
2.		<b>CMI TAPER LOCK™ CONTACT TIP</b>
	155-x-xxx	See Page 13 <b>"Contact Tip Selection"</b>
	155-1-xxx	Heavy Duty Contact Tip
	155-2-xxx	Heavy Duty Tapered Contact Tip
	155-3-xxx	Extra Heavy Duty Contact Tip
	155-7-xxx	Heavy Duty CrZr Contact Tip
3.	154-Rxxx	See Page 12 <b>"Gas Diffuser Selection"</b>
4.	KR50-1	Neck Insulator
5.	KR502-22	Neck, 22°
	KR502-45	Neck, 45°
	KR502-180	Neck, 180°
	KR502-22L1	Neck, 22° - Long
	KR502-45L1	Neck, 45° - Long
	KR502-22L2	Neck, 22° - X-Long
	KR502-45L2	Neck, 45° - X-Long
6.	KR502-6	O-Ring
7.	<b>KHC-200A1</b>	<b>Clutch Mount Assy - ABB IRB 1600ID</b>
	<b>KHC-200D1</b>	<b>Clutch Mount Assy - OTC AX MV4AP/ AX MV4LAP</b>
	<b>KHC-200F</b>	<b>Clutch Mount Assy - Motoman MA1440/2010</b>
	<b>KHC-200M</b>	<b>Clutch Mount Assy - Motoman [excludes MA1440]</b>
7a.	KHW-201	Hollow Wrist Torch Body [Included in ITEM 7]
7b.	KHW-211	Hollow Wrist Torch Body Cover [Included in ITEM 7]
7c.	Not Sellable	M4x0.7x17 SHCS [Included in ITEM 7]
7d.	KHC-101	Safety Clutch Rubber Cover
7e.	KHC-100	Safety Clutch
7f.	Not Sellable	M4x0.7x12 SHCS [Included in ITEM 7]
7g.	KHW-AB16C	Clutch Transition Disc - ABB IRB 1600ID
	KHW-FA1C	Clutch Transition Disc - Motoman MA1440
	KHW-MM1C	Clutch Transition Disc - Motoman
	KHW-OAX1C	Clutch Transition Disc - OTC AX MV4AP/MV4LAP
	KHW-OB4C	Clutch Transition Disc - OTC All B4/B4L
7h.	Not Sellable	M6x1.0x10 SHCS [ABB]
	Not Sellable	M4x0.7x10 SHCS [Motoman]
	Not Sellable	M5x0.8x10 SHCS [OTC]
8.	KHC-xxx	See Page 13 <b>"Power Cables Selection"</b>
9.	KDP-101	Power Pin, Miller®
	KDP-103	Power Pin, Panasonic®
	KDP-104	Power Pin, Tweco® #4
	KDP-106	Power Pin, OTC®
	KDP-107	Power Pin, Fronius®
	KDP-108	Power Pin, Lincoln® "4R"
	KDP-109	Power Pin, Lincoln® "AutoDrive® S"
10.	164FL-xxx	See Page 13 <b>"Liners Selection"</b>





# Ordering Information

## Kool Run® KR502HW Series Robotic MIG Torches

Torch Model	Type	Robot Make & Model	Neck	Nozzle	Gas Diffuser	Contact Tip	Wire Size	Power Pin
<b>H2</b>	<b>A</b>	<b>F7</b>	<b>45</b>	<b>K</b>	<b>6</b>	<b>1</b>	<b>A</b>	<b>R <u>F</u></b>
	<b>A</b> Solid Mount <b>B</b> Solid Mount + Wire Brake <b>C</b> Clutch Mount <b>D</b> Clutch Mount + Wire Brake  <b>S</b> Solid Mount Fixed Rotation <b>T</b> Clutch Mount Fixed Rotation	<b>ABB</b> <b>A1</b> IRB 1600ID <b>A2</b> IRB 2600ID 1.65 <b>A3</b> IRB 2600ID 1.85 <b>A4</b> IRB 1660ID  <b>Fanuc</b> <b>F1</b> 100iC, 100iC/12 <b>F2</b> 100iC/6L, 100iC/7L <b>F3</b> 120iC <b>F4</b> 120iC/10L, 120iC/12L <b>F5</b> 100iC/8L <b>F6</b> M-710iC/12L <b>F7</b> 100iD <b>F8</b> 100iD/10L <b>F9</b> 120iD <b>G1</b> 120iD/12L <b>G2</b> 100iD/8L  <b>KUKA</b> <b>K1</b> KR 5 HW <b>K2</b> KR 16 L8 HW <b>K3</b> KR 16 HW <b>K4</b> KR 8 R1420 / R1620 HW <b>K5</b> KR 6 R1820 HW <b>K6</b> KR 8 R2100 HW  <b>Motoman</b> <b>M1</b> EA1400, MA1400 <b>M2</b> EA1900, MA1900 <b>M3</b> MA3100 <b>M4</b> MA1440, AR1440 <b>M5</b> MA2010, AR2010 <b>M6</b> EA1400N  <b>OTC</b> <b>D1</b> AX-MV4 AP <b>D2</b> AX-MV4L AP <b>D3</b> FD-B4 <b>D4</b> FD-B4L <b>D5</b> FD-B6 <b>D6</b> FD-B6L  <b>XX</b> - Designates a letter and number for custom applications	<b>Air-Cooled</b> <b>22</b> 22° KR502-22  <b>45</b> 45° KR502-45  <b>18</b> 180° KR502-180  <b>23</b> 22°, Long KR502-22L1  <b>46</b> 45°, Long KR502-45L1  <b>24</b> 22°, X-Long KR502-22L2  <b>47</b> 45°, X-Long KR502-45L2  <b>X.KOOL</b> <b>X1</b> 22° KR512-22  <b>X2</b> 45° KR512-45  <b>X3</b> 180° KR512-180  <b>X4</b> 22° KR512-22L1  <b>X5</b> 45° KR512-45L1  <b>X6</b> 22° KR512-22L2  <b>X7</b> 45° KR512-45L2  <b>48</b> 45° for G1 KR502-48 337mm TCP  <b>XX</b> - Designates a letter and number for custom applications	<b>Light Duty Conical</b> <b>A</b> 1/2", 1/8" Tip Recess <b>B</b> 5/8", 1/8" Tip Recess <b>C</b> 1/2", 1/4" Tip Recess <b>D</b> 1/2", Flush Tip <b>E</b> 1/2", 1/8" Tip Stickout <b>F</b> 5/8", 1/8" Tip Stickout <b>G</b> 1/2", 1/4" Tip Stickout  <b>Light Duty Bottleneck</b> <b>I</b> 1/2", 1/8" Tip Recess <b>J</b> 1/2", Flush Tip <b>K</b> 1/2", 1/8" Tip Stickout <b>L</b> 1/2", 1/4" Tip Stickout  <b>Heavy Duty Conical</b> <b>N</b> 1/2", 1/8" Tip Recess <b>O</b> 5/8", 1/8" Tip Recess <b>P</b> 5/8", 1/4" Tip Recess <b>Q</b> 5/8", Flush Tip <b>R</b> 5/8", 1/8" Tip Stickout <b>S</b> 5/8", 1/4" Tip Stickout  <b>Heavy Duty Bottleneck</b> <b>U</b> 5/8", 1/8" Tip Recess <b>V</b> 5/8", Flush Tip <b>W</b> 5/8", 1/8" Tip Stickout  <b>X</b> Custom Nozzle	<b>5</b> 154-R505 <b>6</b> 154-R506 <b>7</b> 154-R507 <b>8</b> 154-R508	<b>1</b> 155-1-xxx <b>2</b> 155-2-xxx <b>3</b> 155-3-xxx <b>7</b> 155-7-xxx	<b>A</b> .030" <b>B</b> .035" <b>C</b> .040" <b>D</b> .045" <b>E</b> 3/64" <b>F</b> .052" <b>G</b> .062" <b>H</b> 5/64" <b>I</b> 3/32"  <b>Aluminum App w/ Teflon Liner</b> <b>P</b> .035" Al <b>Q</b> 3/64" Al <b>R</b> .062" Al  <b>Aluminum App w/ Teflon Liner &amp; Steel Jumper</b> <b>U</b> .035" Al <b>V</b> 3/64" Al <b>W</b> .062" Al	<b>A</b> Lincoln® AutoDrive® S <b>E</b> Euro <b>F</b> Fronius® <b>M</b> Miller® <b>O</b> OTC® / Daihen® <b>P</b> Panasonic® <b>R</b> Lincoln® "4R" <b>T</b> Tweco® #4 <b>W</b> Tweco® #5  <b>Liner Type</b> <b>F</b> Front Load™ _ Conventional (leave blank)

Brand and product names shown above are trademarks of their respective owners.

Subject to Change – The information presented in this spec sheet is accurate to the best of our knowledge at the time of printing. Please visit CMIndustries.com for the most up-to-date information.



## Plated Nozzle Selection

Order Code	Description	Part # Slip-On Nozzle	Part # Thread-On Nozzle
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### Light Duty Conical Nozzles



A	1/2" Bore, 1/8" Tip Recess	152-10-50*	152-60-50*
B	5/8" Bore, 1/8" Tip Recess	152-10-62*	152-60-62*
C	1/2" Bore, 1/4" Tip Recess	152-11-50*	152-61-50*
D	1/2" Bore, Flush Tip	152-12-50*	152-62-50*
E	1/2" Bore, 1/8" Tip Stickout	152-13-50*	152-63-50*
F	5/8" Bore, 1/8" Tip Stickout	152-13-62*	152-63-62*
G	1/2" Bore, 1/4" Tip Stickout	152-14-50*	152-64-50*

### Light Duty Bottleneck Nozzles



I	1/2" Bore, 1/8" Tip Recess	152-15-50*	152-65-50*
J	1/2" Bore, Flush Tip	152-16-50*	152-66-50*
K	1/2" Bore, 1/8" Tip Stickout	152-17-50*	152-67-50*
L	1/2" Bore, 1/4" Tip Stickout	152-18-50*	152-68-50*

[These nozzles are available in brass upon request]

### Heavy Duty Conical Nozzles



N	1/2" Bore, 1/8" Tip Recess	152-30-50*	152-70-50*
O	5/8" Bore, 1/8" Tip Recess	152-30-62*	152-70-62*
P	5/8" Bore, 1/4" Tip Recess	152-31-62*	152-71-62*
Q	5/8" Bore, Flush Tip	152-32-62*	152-72-62*
R	5/8" Bore, 1/8" Tip Stickout	152-33-62*	152-73-62*
S	5/8" Bore, 1/4" Tip Stickout	152-34-62*	152-74-62*

### Heavy Duty Bottleneck Nozzles



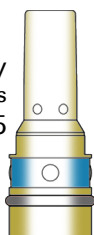
U	5/8" Bore, 1/8" Tip Recess	152-35-62*	152-75-62*
V	5/8" Bore, Flush Tip	152-36-62*	152-76-62*
W	5/8" Bore, 1/8" Tip Stickout	152-37-62*	152-77-62*

X = Custom Nozzle - Call for availability on special requested bore and tip recess

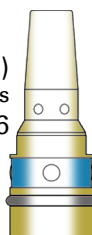
\*All nozzles available in non-plated material upon request

## Gas Diffuser Selection

Heavy Duty  
for Slip-On Nozzles  
Part# 154-R505



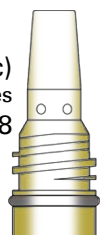
Tapered (Robotic)  
for Slip-On Nozzles  
Part# 154-R506



Heavy Duty  
for Thread-On Nozzles  
Part# 154-R507



Tapered (Robotic)  
for Thread-On Nozzles  
Part# 154-R508



Order  
Code

5

6

7

8

## Contact Tip Selection

### TAPER-LOCK™ Heavy Duty (HD) Contact Tips (use with any "TL" diffuser)

155-1-030	for 0.030" (0.8mm) wire
155-1-035	for 0.035" (0.9mm) wire
155-1-040	for 0.040" (1.0mm) wire
155-1-045	for 0.045" (1.2mm) wire
155-1-364	for 3/64" (1.3mm) wire



155-1-052	for 0.052" (1.4mm) wire
155-1-062	for 0.062" (1.6mm) wire
155-1-564	for 5/64" (2.0mm) wire
155-1-332	for 3/32" (2.4mm) wire

### TAPER-LOCK™ Heavy Duty Tapered Contact Tips (use with any "TL" diffuser)

155-2-030	for 0.030" (0.8mm) wire
155-2-035	for 0.035" (0.9mm) wire
155-2-040	for 0.040" (1.0mm) wire
155-2-045	for 0.045" (1.2mm) wire



155-2-364	for 3/64" (1.3mm) wire
155-2-052	for 0.052" (1.4mm) wire
155-2-062	for 0.062" (1.6mm) wire

### TAPER-LOCK™ Extra Heavy Duty Contact Tips (use with 154-R505, 154-R506, 154-R507, 154-R508 diffuser)

155-3-030	for 0.030" (0.8mm) wire
155-3-035	for 0.035" (0.9mm) wire
155-3-040	for 0.040" (1.0mm) wire
155-3-045	for 0.045" (1.2mm) wire
155-3-364	for 3/64" (1.3mm) wire



155-3-052	for 0.052" (1.4mm) wire
155-3-062	for 0.062" (1.6mm) wire
155-3-564	for 5/64" (2.0mm) wire
155-3-332	for 3/32" (2.4mm) wire

### TAPER-LOCK™ Heavy Duty Chrome Zirconium (CrZr) Contact Tips (use with any "TL" diffuser)

155-7-030	for 0.030" (0.8mm) wire
155-7-035	for 0.035" (0.9mm) wire
155-7-040	for 0.040" (1.0mm) wire
155-7-045	for 0.045" (1.2mm) wire
155-7-364	for 3/64" (1.3mm) wire



155-7-052	for 0.052" (1.4mm) wire
155-7-062	for 0.062" (1.6mm) wire
155-7-564	for 5/64" (2.0mm) wire
155-7-332	for 3/32" (2.4mm) wire

## Power Cable Selection

### KOOL-RUN® Power Cables for Solid Mount & Wire Brake Systems

KHW-A160	Cable Assembly, ABB IRB 1600ID
KHW-A261	Cable Assembly, ABB IRB 2600ID 1.65
KHW-A262	Cable Assembly, ABB IRB 2600ID 1.85
KHW-F100	Cable Assembly, Fanuc 100iC, 100iC/12
KHW-F100-6L	Cable Assembly, Fanuc 100iC/6L, 100iC/7L
KHW-F100-8L	Cable Assembly, Fanuc 100iC/8L
KHW-F120	Cable Assembly, Fanuc 120iC
KHW-F120-10L	Cable Assembly, Fanuc 120iC/10L, 120iC/12L
KHW-F710-12L	Cable Assembly, Fanuc M-710iC/12L
KHW-F10D	Cable Assembly, Fanuc 100iD
KHW-F10D-10	Cable Assembly, Fanuc 100iD/10L
KHW-F12D	Cable Assembly, Fanuc 120iD
KHW-M144	Cable Assembly, Motoman MA1440
KHW-M201	Cable Assembly, Motoman MA2010

### KOOL-RUN® Power Cables for Clutch Systems

KHC-A160	Clutch Cable Assy, ABB IRB 1600ID
KHC-A261	Clutch Cable Assy, ABB IRB 2600ID 1.65
KHC-A262	Clutch Assembly, ABB IRB 2600ID 1.85
KHC-M140	Clutch Cable Assy, Motoman EA / MA1400
KHC-M190	Clutch Cable Assy, Motoman EA / MA1900
KHC-M310	Clutch Cable Assy, Motoman MA3100
KHC-M14N	Clutch Assembly, Motoman EA1400N
KHC-OMV4	Clutch Cable Assy, OTC AX MV4AP/MV4LAP
KHC-OB41	Clutch Cable Assy, OTC All B4
KHC-OB42	Clutch Cable Assy, OTC All B4L

### KOOL-RUN® Power Cables for X.KOOL Systems

KHX-A160	XK Cable Assembly, ABB IRB 1600ID
KHX-A261	XK Cable Assembly, ABB IRB 2600ID 1.65
KHX-A262	XK Cable Assembly, ABB IRB 2600ID 1.85
KHX-F100	XK Cable Assembly, Fanuc 100iC, 100iC/12
KHX-F100-6	XK Cable Assembly, Fanuc 100iC/6L, 100iC/7L
KHX-F100-8	XK Cable Assembly, Fanuc 100iC/8L
KHX-F120	XK Cable Assembly, Fanuc 120iC
KHX-F120-10	XK Cable Assembly, Fanuc 120iC/10L, 120iC/12L
KHX-F710-12L	XK Cable Assembly, Fanuc M-710iC/12L
KHX-M140	XK Cable Assembly, Motoman EA / MA1400
KHX-M190	XK Cable Assembly, Motoman EA / MA1900
KHX-M310	XK Cable Assembly, Motoman MA3100
KHX-M144	XK Cable Assembly, Motoman MA1440
KHX-OMV4	XK Cable Assembly, OTC AX MV4AP/MV4LAP



## Liner Selection

### KOOL-RUN® Front Load™ Liners

164-FL	Front Load™ Liner Collet
164-FL 3	Front Load™ Liner Collet for 3/32" Wire Only
164FL-45-6	Front Load™ Liner for 0.030" - 0.045" wire, 6'
164FL-45-10	Front Load™ Liner for 0.030" - 0.045" wire, 10'
164FL-116-6	Front Load™ Liner for 3/64" - 0.062" wire, 6'
164FL-116-10	Front Load™ Liner for 3/64" - 0.062" wire, 10'
164FL-564-6	Front Load™ Liner for 0.062" - 5/64" wire, 6'
164FL-564-10	Front Load™ Liner for 0.062" - 5/64" wire, 10'
164FL-332-6	Front Load™ Liner for 5/64" - 3/32" wire, 6'
164FL-332-10	Front Load™ Liner for 5/64" - 3/32" wire, 10'



### KOOL-RUN® Conventional Liners (required for Wire Brake)

164-45-6	Liner for 0.030" - 0.045" wire, 6'
164-45-10	Liner for 0.030" - 0.045" wire, 10'
164-45A-6	Liner for 0.035" - 0.045", 6' (for Lincoln® AutoDrive® S Only)
164-116-6	Liner for 3/64" - 0.062" wire, 6'
164-116-10	Liner for 3/64" - 0.062" wire, 10'
164-564-6	Liner for 0.062" - 5/64" wire, 6'
164-564-10	Liner for 0.062" - 5/64" wire, 10'
164-332-6	Liner for 5/64" - 3/32" wire, 6'
164-332-10	Liner for 5/64" - 3/32" wire, 10'

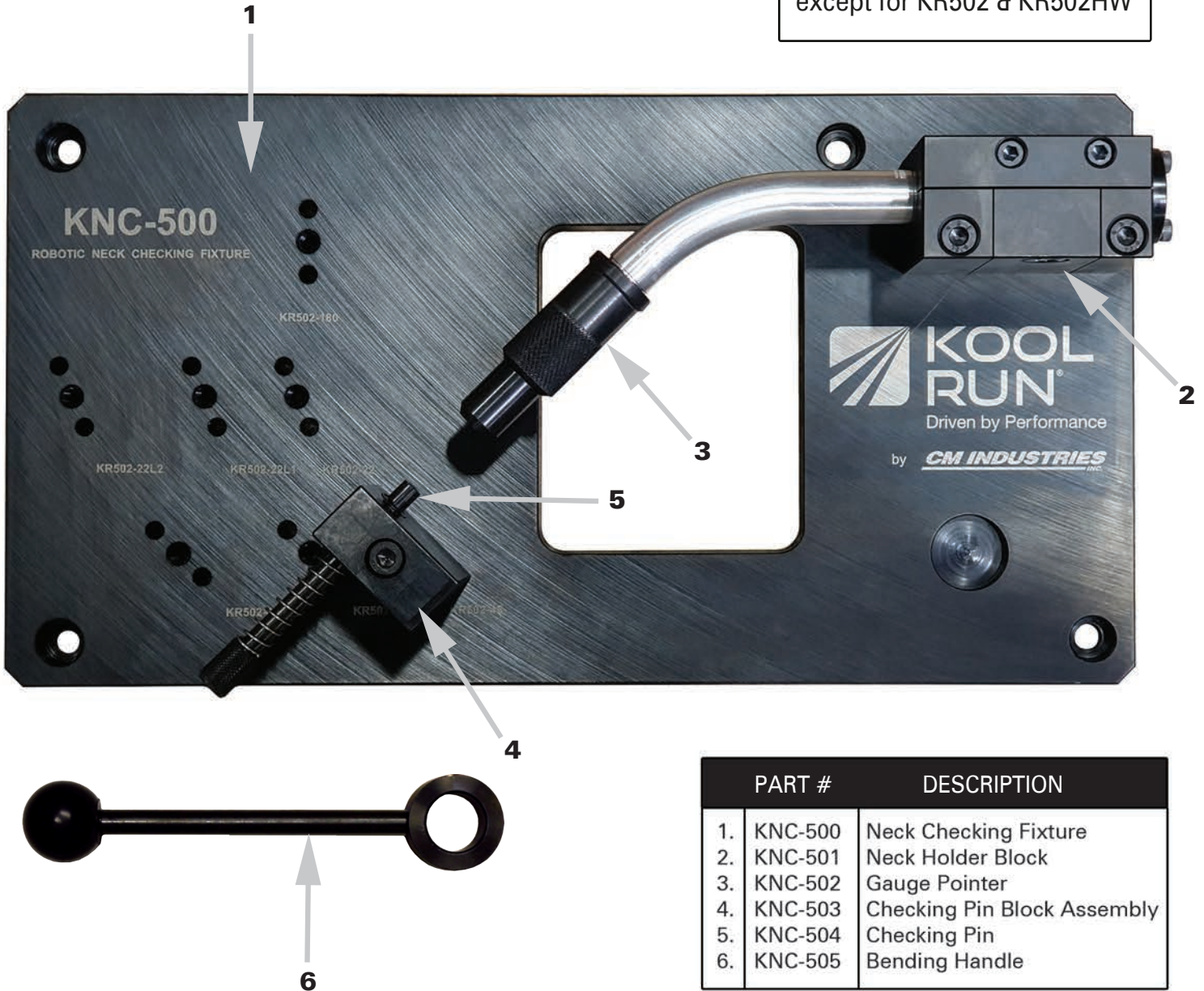
### Liners for Aluminum

164-364TF-6	Teflon Liner for 0.030" - 3/64" wire, 6'
164-116TS-6	2-Piece Liner (Teflon/Steel) for 3/64" - 0.062" wire, 6'

# Neck Checking Fixture

## IMPORTANT NOTE:

Neck Checking Fixture  
not for use of any other necks  
except for KR502 & KR502HW



	PART #	DESCRIPTION
1.	KNC-500	Neck Checking Fixture
2.	KNC-501	Neck Holder Block
3.	KNC-502	Gauge Pointer
4.	KNC-503	Checking Pin Block Assembly
5.	KNC-504	Checking Pin
6.	KNC-505	Bending Handle

- Remove consumables from neck (nozzle, diffuser, insulator, etc.)
- Insert neck into holder block and push to make sure it is all the way in until the neck bottoms out.
- Tighten neck into holder using a 8mm hex wrench.
- Push check pin towards neck and see if the point lines up with the small hole in the end of the gauging point.
- If the neck is not aligned, use the bending handle to make slight adjustments until alignment is correct.
- Remove gauge point and neck in reverse order as described above.



# AUTO-REAMER™ *Nozzle Cleaning Station*

CM Industries' Auto-Reamers are designed to clean the nozzle and spray anti-spatter. Increase your productivity by providing better gas flow, extending consumable life, and decreasing down-time in robotic applications. An optional Wire Cutter ensures a precise cut for optimum arc-start and an exact TCP.



## Key Features

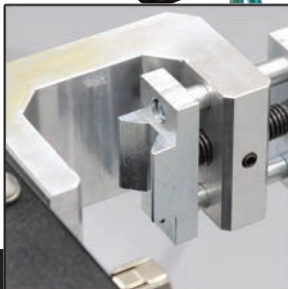
- Easy to set up.
- External momentary switches for testing cycle and spray.
- Adjustable V-block designed to hold just about any nozzle.
- All pneumatic and electronic valves are located internally.
- Optional Wire Cutter can be attached to the unit.
- 2100ES offers a chamber to contain Anti-Spatter spray

### Nozzle Cleaning Stations

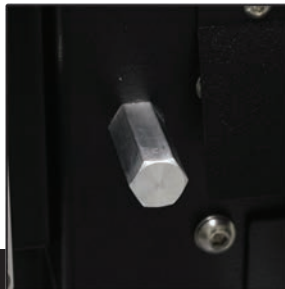
### Part #

AR2200 - Base Model	650-25-800
AR2200C - w/ Spray System	650-25-801
AR2200CW - w/ Spray System & Wire Cutter	650-25-802
AR2200S - w/ Sprayer	650-25-805
AR2200SW - w/ Sprayer & Wire Cutter	650-25-806

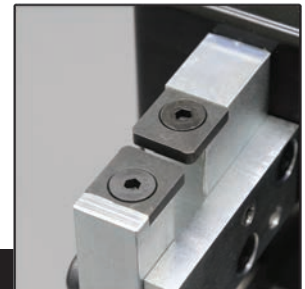
Clamp



Spray



Cut



## ***Specifications***

### AIR REQUIREMENT:

80-120 PSI @ 8 S.C.F.M. (MIN) CLEAN SHOP AIR

### REAMER STROKE: 2"

### DIMENSIONS: 6-1/2" X 6" X 12"

**WEIGHT:** AR2200 - 26 LBS.  
AR2200C - 27 LBS.  
AR2200CW - 31 LBS.  
AR2200S - 27 LBS.  
AR2200SW - 31 LBS.

### ELECTRICAL REQUIREMENTS:

(4) ROBOT OUTPUTS AND (1) ROBOT INPUT  
OUTPUT: 0V DC SWITCHABLE GROUND  
OUTPUT: 24V DC CONTINUOUS SUPPLY  
INPUT: 24V DC SIGNAL RETURN

**NOTE: WIRED FOR STANDARD "SINKING" LOGIC**



# WARNING

Read and follow the manufacturer's instructions, employer's safety practices, and Material Safety Data Sheets (MSDSs).

Only qualified personnel should install, use, or service this material and/or equipment.



## WELDING SPARKS can cause fire or explosion

- Do not weld near flammable material
- Do not weld on closed containers.
- Remove combustibles from the work area and/or provide a fire watch.
- Avoid oily or greasy clothing as a spark may ignite them.



## ARC RAYS can injure eyes and burn skin

- Always wear correct eye, ear, and body protection
- Always wear a welding helmet with the proper grade filter lens. Protect yourself and others from spatter arc flash rays by using protective screens, barriers and welding curtains.
- Always wear protective gloves and clothing to cover exposed skin. This will aid in the prevention of arc and spatter burns.



## ELECTRIC SHOCK can kill.

- Always wear dry installing gloves
- Do not touch live electrical parts.
- Always disconnect power source before hooking up or changing electrodes, nozzles and other parts.



## FUMES AND GASES can be hazardous to your health.

- Keep your head out of the fumes
- Use enough ventilation or exhaust at the arc to keep fumes and gases from your breathing zone, and general area.
- Fumes from cutting and welding can deplete air quality, causing injury or death. Always wear an air supplied respirator in confined areas, or if breathing air is not safe.



## LOUD NOISE can damage hearing.

- Always wear protective hearing devices to ensure protection when noise levels exceed OSHA standards

## CALIFORNIA PROPOSITION 65 WARNING

This product contains chemicals, including lead, known to the State of California to cause cancer, birth defects, or other reproductive harm. Wash hands after use.

(California Health & Safety Code Section 25249.5)