



KOOL
RUN®

Driven by Performance



MAX 1

**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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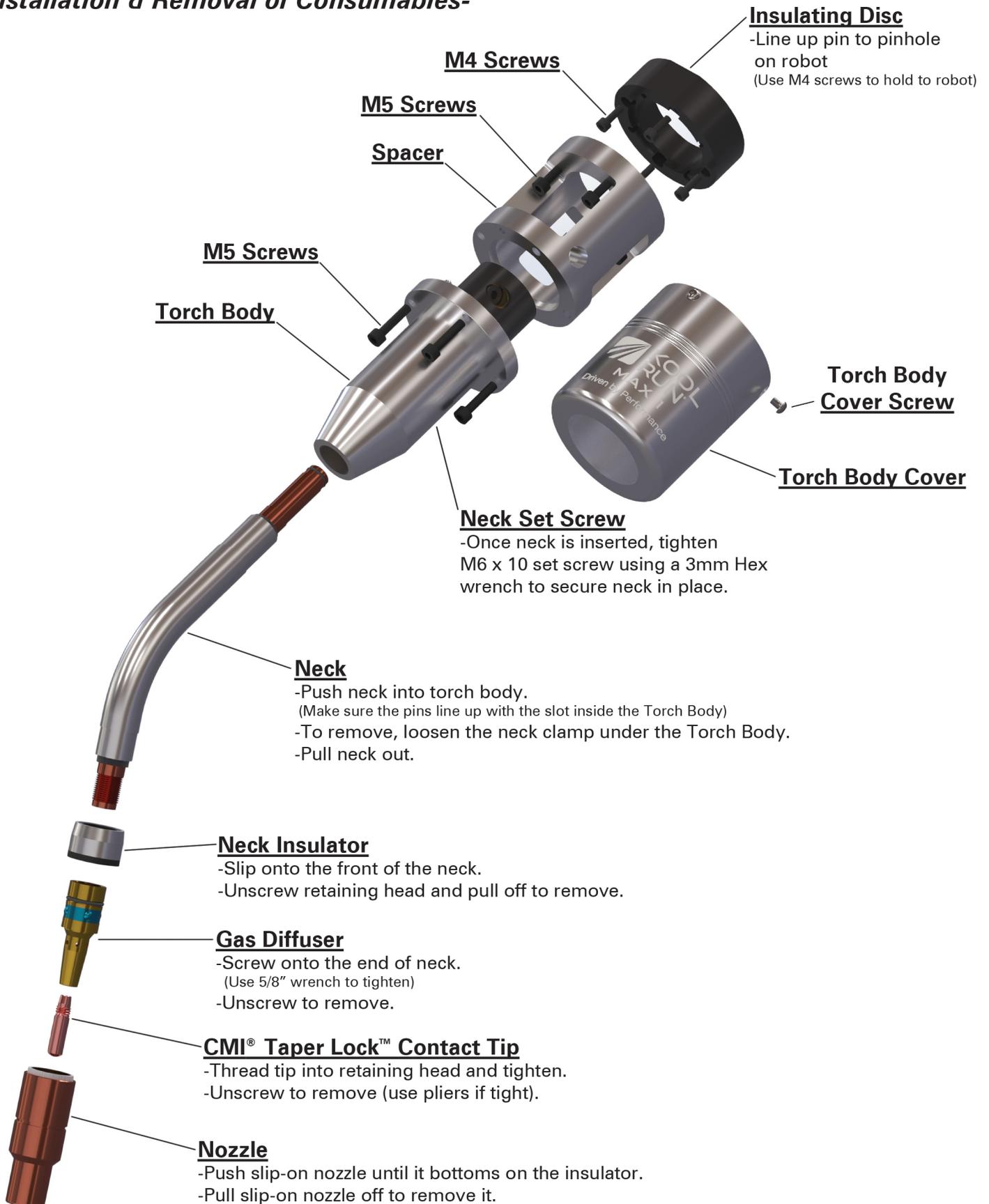
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Complete Assembly Overview for Solid Mount System

-Installation & Removal of Consumables-

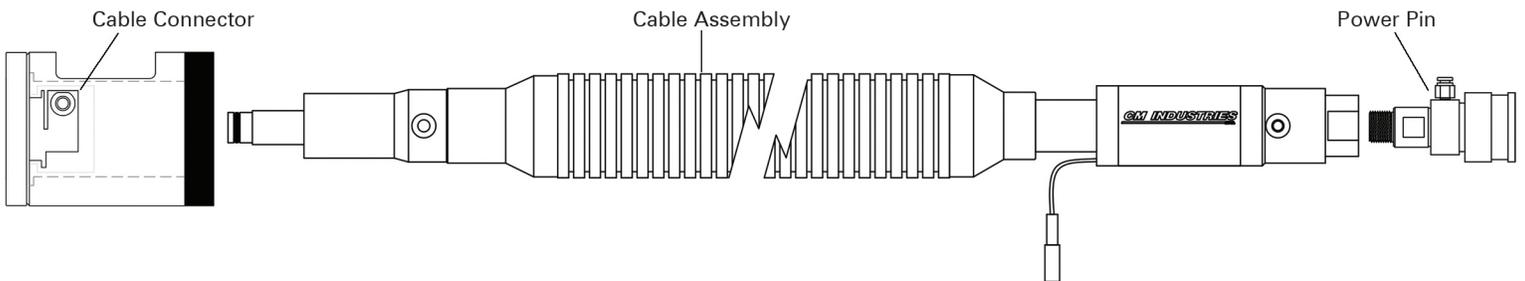
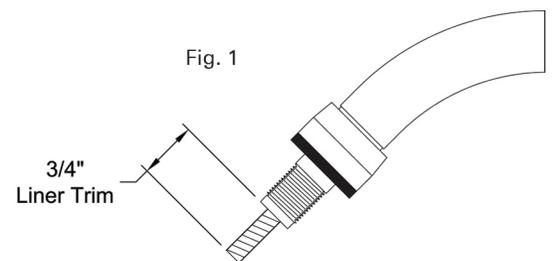


Cable Assembly Overview

-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 M6 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

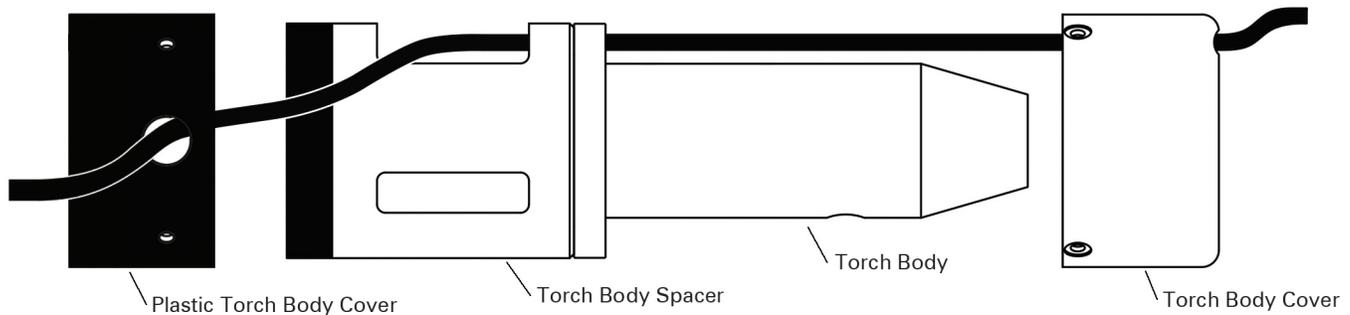
- Remove the neck from the torch body.
- Pull the power pin out of the wire feeder and remove the liner.
- Unscrew the (3) torch body cover screws on the torch body cover.
- Slide off the torch body cover and sleeve and loosen the M6 screw on the cable connector.
- Pull the front of the cable assembly from the cable connector.
- Remove the cable assembly from the robot.

-Installation of Water Lines & Neck-

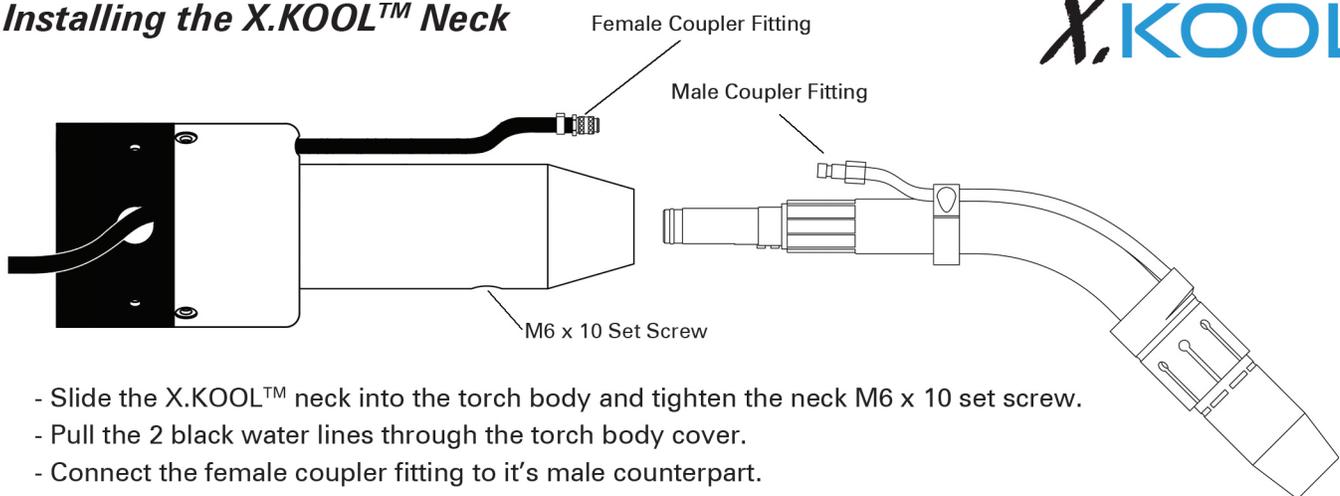
Installation of Water Lines

- 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 around the torch body spacer and through the plastic torch body cover and out the hole.
- (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.

← Run lines



Installing the X.KOOL™ Neck

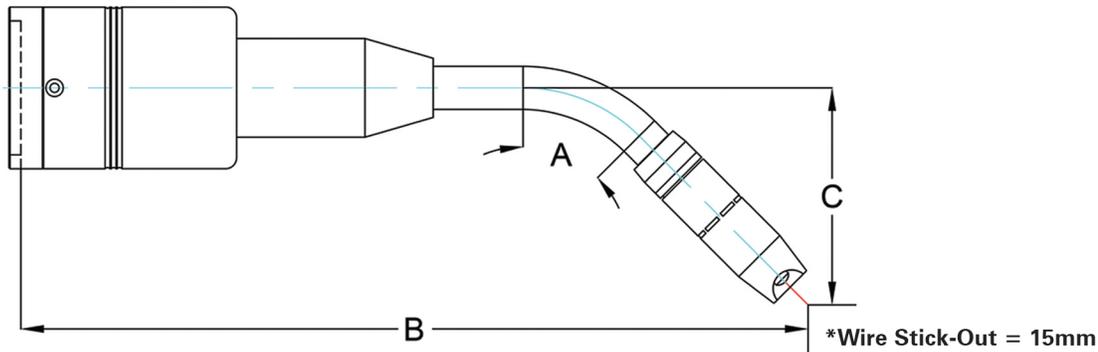


- Slide the X.KOOL™ neck into the torch body and tighten the neck M6 x 10 set screw.
- Pull the 2 black water lines through the torch body cover.
- Connect the female coupler fitting to its male counterpart.
- Install the consumables the same as the standard KR502 neck.

Technical Data

TCP Dimensions & Std. Neck Options

Solid Mount



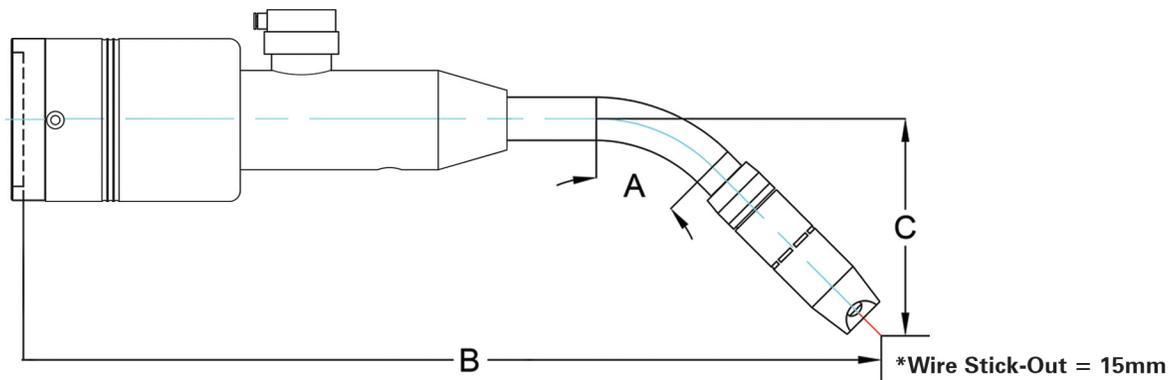
Solid Mount

NECK	A	B	C
KR502-180	180°	15.057" [382.4]	-
KR502-22	22°	15.519" [394.2]	1.902" [48.3]
KR502-45	45°	14.370" [365.0]	3.960" [100.6]
KR502-22L1	22°	16.920" [430.0]	1.902" [48.3]
KR502-45L1	45°	15.748" [400.0]	3.960" [100.6]
KR502-22L2	22°	18.890" [480.0]	1.902" [48.3]
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]	1.902" [48.3]
KR502-45	45°	15.551" [395.0]	3.960" [100.6]
KR502-22L1	22°	16.920" [460.0]	1.902" [48.3]
KR502-45L1	45°	16.930" [430.0]	3.960" [100.6]
KR502-22L2	22°	20.070" [510.0]	1.902" [48.3]
KR502-45L2	45°	18.352" [480.0]	3.960" [100.6]

Solid Mount w/ Wire Brake



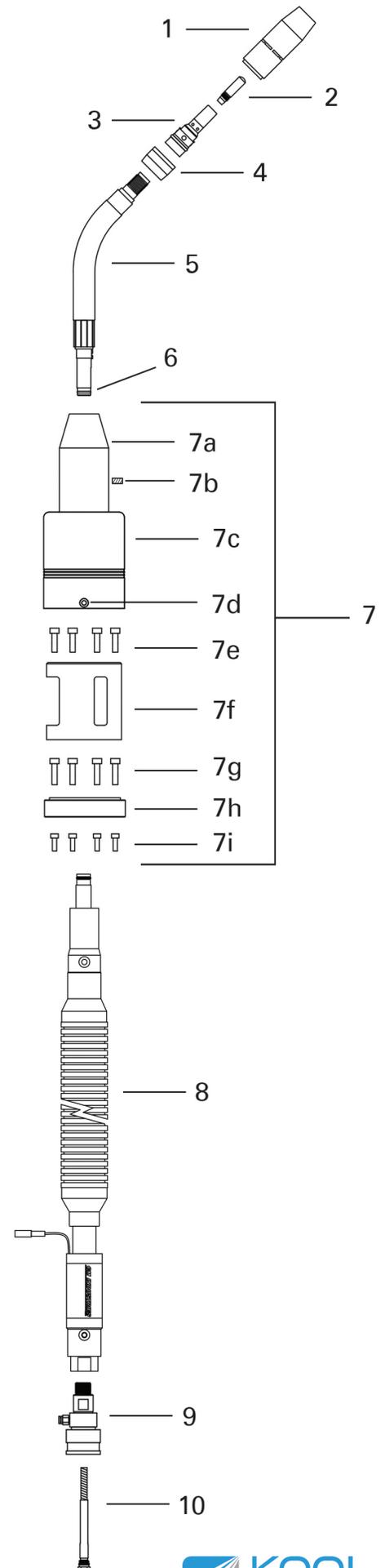
Torch Amperage Ratings

Kool Run Torch Model	100% Duty Cycle		60% Duty Cycle	
	CO2	Mixed Gas	CO2	Mixed Gas
MAX 1	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.

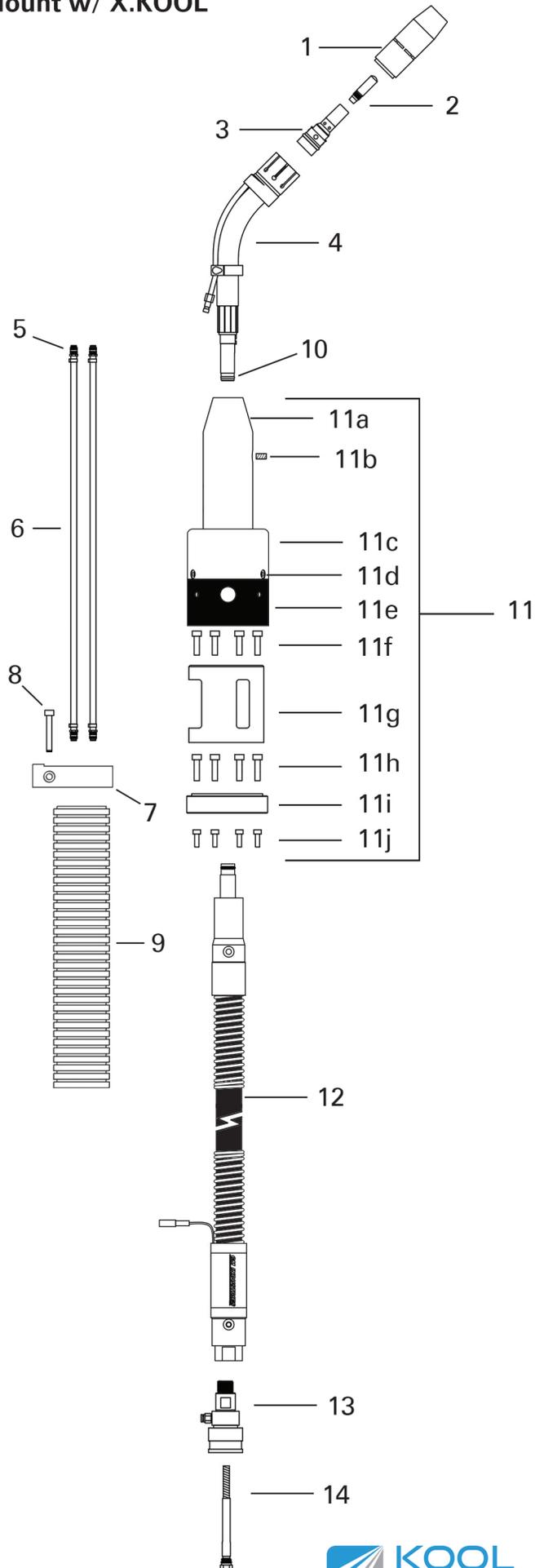
Exploded View & Parts List for Solid Mount

ITEM	PART #	DESCRIPTION
1.	152-xx-xxP	See Page 10 "Plated Nozzle Selection"
2.		CMI TAPER LOCK™ CONTACT TIP
	155-x-xxx	See Page 11 "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 10 "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.	MX1-100A1	Solid Mount Assembly - ABB IRB 1600ID
	MX1-100D1	Solid Mount Assembly - OTC AX MV4AP/ AX MV4LAP
	MX1-100F	Solid Mount Assembly - Fanuc (iC) / MA1440
	MX1-100F2	Solid Mount Assembly - Fanuc (iD)
	MX1-100M	Solid Mount Assembly - Motoman [excludes MA1440]
7a.	MX1-101	Torch Body [Included in ITEM 7]
7b.	MX1-112	M6 Screw [Included in ITEM 7]
7c.	MX1-120	Body Cover [Included in ITEM 7]
7d.	MX1-122	Cover Screw [Included in ITEM 7]
7e.	MX1-132	M5x0.8x18 SHCS [Included in ITEM 7]
7f.	MX1-130	Spacer [Included in ITEM 7]
7g.	MX1-134	M5x0.8x20 SHCS [Included in ITEM 7]
7h.	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
7i.	KHW-123	M4x0.7x12 SHCS [Fanuc/Motoman]
	KHW-124	M6x1.0x12 SHCS [ABB]
8.	MX-xxx	See Page 11 "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"
10.	164FL-xxx	See Page 11 "Liner Selection"



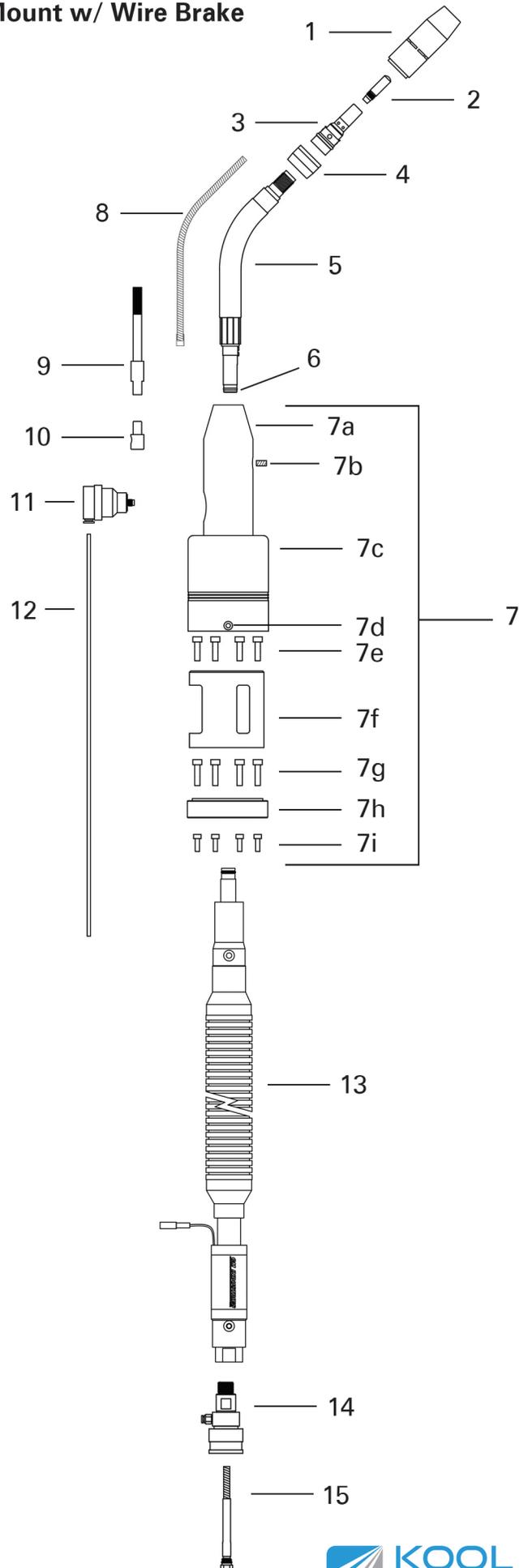
Exploded View & Parts List for Solid Mount w/ X.KOOL

ITEM	PART #	DESCRIPTION
1.	152-xx-xxP	See Page 9 "Plated Nozzle Selection"
2.		CMI TAPER LOCK™ CONTACT TIP
	155-x-xxx	See Page 10 "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 9 "Gas Diffuser Selection"
4.	KR512-22	X.KOOL Neck, 22°
	KR512-45	X.KOOL Neck, 45°
	KR512-180	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.	MX1-100A1X	Solid Mount Assy. X.Kool - ABB IRB 1600ID
	MX1-100D1X	Solid Mnt. Assy. X.Kool - OTC AX MV4AP/ AX MV4LAP
	MX1-100FX	Solid Mount Assy X.Kool - Fanuc (iC) / MA1440
	MX1-100F2X	Solid Mount Assy. X.Kool - Fanuc (iD)
	MX1-100MX	Solid Mnt. Assy. X.Kool - Motoman [excludes MA1440]
11a.	MX1-101	Torch Body [Included in ITEM 7]
11b.	MX1-112	M6 Screw [Included in ITEM 7]
11c.	MX1-120X	Body Cover [Included in ITEM 7]
11d.	MX1-122	Cover Screw [Included in ITEM 7]
11e.	MX1-121X	Body Cover X.Kool [Included in ITEM 7]
11f.	MX1-132	M5x0.8x18 SHCS [Included in ITEM 7]
11g.	MX1-130X	Spacer [Included in ITEM 7]
11h.	MX1-134	M5x0.8x20 SHCS [Included in ITEM 7]
11i.	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
11i.	KHW-123	M4x0.7x12 SHCS [Fanuc/Motoman]
	KHW-124	M6x1.0x12 SHCS [ABB]
12.	MX1-xxx	See Page 10 "Power Cables Selection"
13.	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"
14.	164FL-xxx	See Page 10 "Liners Selection"



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

ITEM	PART #	DESCRIPTION
1.	152-xx-xxP	See Page 9 "Plated Nozzle Selection"
2.		CMI TAPER LOCK™ CONTACT TIP
	155-x-xxx	See Page 10 "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 9 "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.	MX1-100A1W	Solid Mount Assembly - ABB IRB 1600ID
	MX1-100D1W	Solid Mount Assembly - OTC AX MV4AP/ AX MV4LAP
	MX1-100FW	Solid Mount Assembly - Fanuc (iC) / MA1440
	MX1-100F2W	Solid Mount Assembly - Fanuc (iD)
	MX1-100MW	Solid Mount Assembly - Motoman [excludes MA1440]
7a.	MX1-W101	Torch Body [Included in ITEM 7]
7b.	MX1-112	M6 Screw [Included in ITEM 7]
7c.	MX1-120	Body Cover [Included in ITEM 7]
11d.	MX1-122	Cover Screw [Included in ITEM 7]
11e.	MX1-132	M5x0.8x18 SHCS [Included in ITEM 7]
11f.	MX1-130	Spacer [Included in ITEM 7]
11g.	MX1-134	M5x0.8x20 SHCS [Included in ITEM 7]
7h.	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
7i.	KHW-123	M4x0.7x12 SHCS [Fanuc/Motoman]
	KHW-124	M6x1.0x12 SHCS [ABB]
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.	MX1-xxx	See Page 10 "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"
15.	164FL-xxx	See Page 10 "Liner Selection"



Ordering Information

Kool Run® MAX 1 Series Robotic MIG Torches

Torch Model	Type	Robot Make & Model	Neck	Nozzle	Gas Diffuser	Contact Tip	Wire Size	Power Pin
MX1	A	F7	45	K	6	1	A	R F
	A Solid Mount B Solid Mount + Wire Brake C Clutch Mount D Clutch Mount + Wire Brake S Solid Mount Fixed Rotation T Clutch Mount Fixed Rotation	ABB A1 IRB 1600ID A2 IRB 2600ID 1.65 A3 IRB 2600ID 1.85 A4 IRB 1660ID Fanuc F1 100iC, 100iC/12 F2 100iC/6L, 100iC/7L F3 120iC F4 120iC/10L, 120iC/12L F5 100iC/8L F6 M-710iC/12L F7 100iD F8 100iD/10L F9 120iD G1 120iD/12L G2 100iD/8L KUKA K1 KR 5 HW K2 KR 16 L8 HW K3 KR 16 HW K4 KR 8 R1420 / R1620 HW K5 KR 6 R1820 HW K6 KR 8 R2100 HW Motoman M1 EA1400, MA1400 M2 EA1900, MA1900 M3 MA3100 M4 MA1440, AR1440 M5 MA2010, AR2010 M6 EA1400N OTC D1 AX-MV4 AP D2 AX-MV4L AP D3 FD-B4 D4 FD-B4L D5 FD-B6 D6 FD-B6L XX - Designates a letter and number for custom applications	Air-Cooled 22 22° KR502-22 45 45° KR502-45 18 180° KR502-180 23 22°, Long KR502-22L1 46 45°, Long KR502-45L1 24 22°, X-Long KR502-22L2 47 45°, X-Long KR502-45L2 X.KOOL X1 22° KR512-22 X2 45° KR512-45 X3 180° KR512-180 X4 22° KR512-22L1 X5 45° KR512-45L1 X6 22° KR512-22L2 X7 45° KR512-45L2 48 45° for G1 KR502-48 337mm TCP XX - Designates a letter and number for custom applications	Light Duty Conical A 1/2", 1/8" Tip Recess B 5/8", 1/8" Tip Recess C 1/2", 1/4" Tip Recess D 1/2", Flush Tip E 1/2", 1/8" Tip Stickout F 5/8", 1/8" Tip Stickout G 1/2", 1/4" Tip Stickout Light Duty Bottleneck I 1/2", 1/8" Tip Recess J 1/2", Flush Tip K 1/2", 1/8" Tip Stickout L 1/2", 1/4" Tip Stickout Heavy Duty Conical N 1/2", 1/8" Tip Recess O 5/8", 1/8" Tip Recess P 5/8", 1/4" Tip Recess Q 5/8", Flush Tip R 5/8", 1/8" Tip Stickout S 5/8", 1/4" Tip Stickout Heavy Duty Bottleneck U 5/8", 1/8" Tip Recess V 5/8", Flush Tip W 5/8", 1/8" Tip Stickout X Custom Nozzle	5 154-R505 6 154-R506 7 154-R507 8 154-R508	1 155-1-xxx 2 155-2-xxx 3 155-3-xxx 7 155-7-xxx	A .030" B .035" C .040" D .045" E 3/64" F .052" G .062" H 5/64" I 3/32" Aluminum App w/ Teflon Liner P .035" Al Q 3/64" Al R .062" Al Aluminum App w/ Teflon Liner & Steel Jumper U .035" Al V 3/64" Al W .062" Al	A Lincoln® AutoDrive® S E Euro F Fronius® M Miller® O OTC® / Daihen® P Panasonic® R Lincoln® "4R" T Tweco® #4 W Tweco® #5 Liner Type F 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
------------	-------------	-----------------------	-------------------------

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



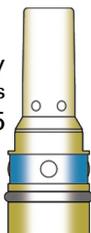
U	5/8" Bore, 1/8" Tip Recess	152-35-62*	152-75-62*
V	5/8" Bore, Flush Tip	152-36-62*	152-76-62*
W	5/8" Bore, 1/8" Tip Stickout	152-37-62*	152-77-62*

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

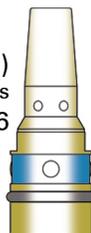
*All nozzles available in non-plated material upon request

Gas Diffuser Selection

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



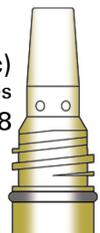
Tapered (Robotic)
for Slip-On Nozzles
Part# 154-R506



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)

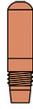
155-3-030	for 0.030" (0.8mm) wire
155-3-035	for 0.035" (0.9mm) wire
155-3-040	for 0.040" (1.0mm) wire
155-3-045	for 0.045" (1.2mm) wire
155-3-364	for 3/64" (1.3mm) wire



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

Power Cable Selection

MAX 1 Power Cables for Solid Mount & Wire Brake Systems

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

MAX 1 Power Cables for Clutch Systems

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

MAX 1 Power Cables for X.KOOL Systems

MXX-A160	XK Cable Assembly, ABB IRB 1600ID
MXX-A261	XK Cable Assembly, ABB IRB 2600ID 1.65
MXX-A262	XK Cable Assembly, ABB IRB 2600ID 1.85
MXX-F100	XK Cable Assembly, Fanuc 100iC, 100iC/12
MXX-F100-6L	XK Cable Assembly, Fanuc 100iC/6L, 100iC/7L
MXX-F100-8L	XK Cable Assembly, Fanuc 100iC/8L
MXX-F120	XK Cable Assembly, Fanuc 120iC
MXX-F120-10L	XK Cable Assembly, Fanuc 120iC/10L, 120iC/12L
MXX-F710-12L	XK Cable Assembly, Fanuc M-710iC/12L
MXX-F10D	XK Cable Assembly, Fanuc 100
MXX-F10D-8L	XK Cable Assembly, Fanuc 100iD/8L
MXX-F10D-10L	XK Cable Assembly, Fanuc 100iD/10L
MXX-F12D-12L	XK Cable Assembly, Fanuc 120iD/12L
MXX-M140	XK Cable Assembly, Motoman EA / MA1400
MXX-M190	XK Cable Assembly, Motoman EA / MA1900
MXX-M310	XK Cable Assembly, Motoman MA3100
MXX-M144	XK Cable Assembly, Motoman MA1440
MXX-OMV4	XK Cable Assembly, OTC AX MV4AP/MV4LAP



Liner Selection

KOOL RUN® Front Load™ Liners

164-FL	Front Load™ Liner Collet
164-FL3	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)

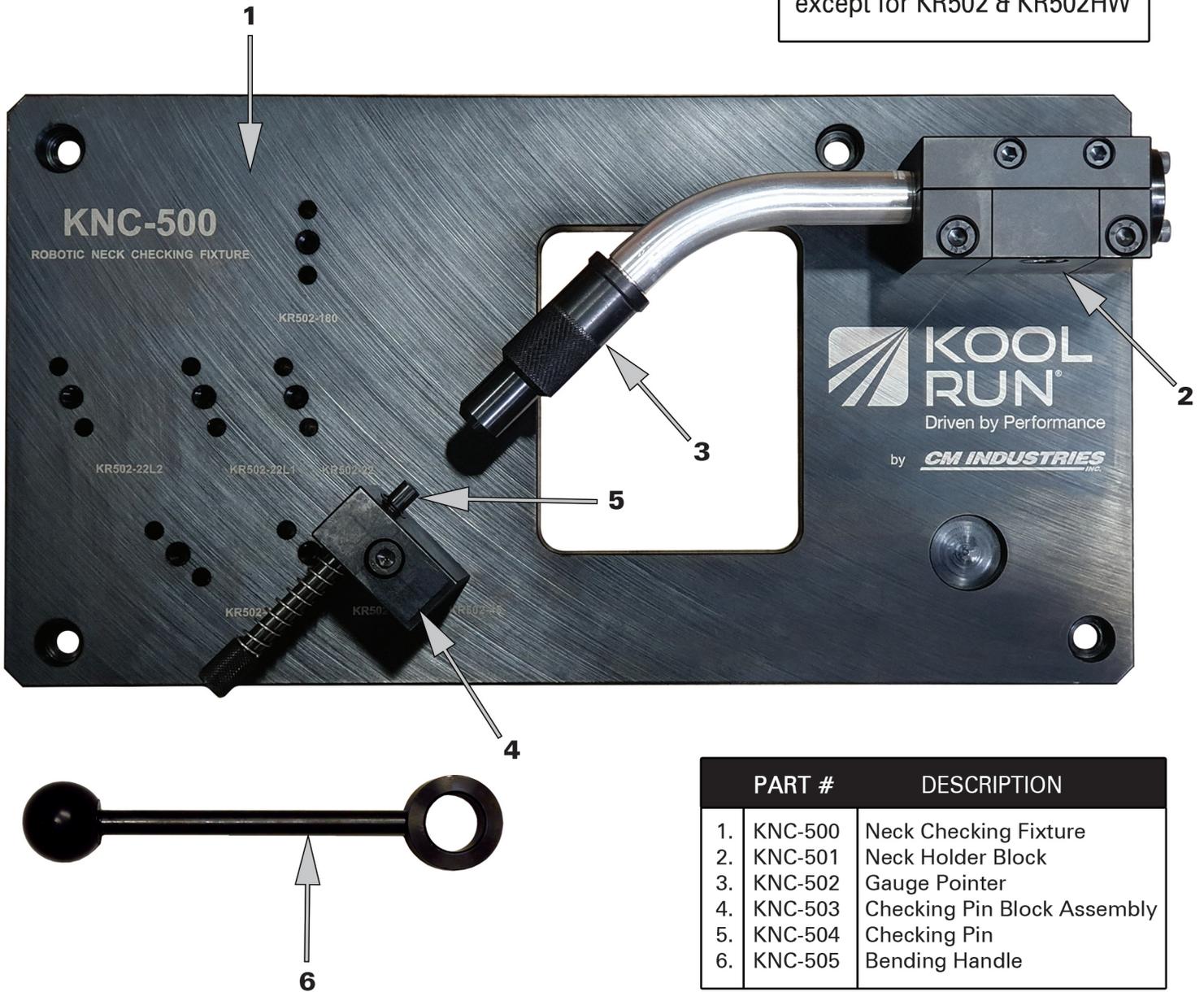
164-45-6	Liner for 0.030" - 0.045" wire, 6'
164-45-10	Liner for 0.030" - 0.045" wire, 10'
164-45A-6	Liner for 0.035" - 0.045", 6' (for Lincoln® AutoDrive® S Only)
164-116-6	Liner for 3/64" - 0.062" wire, 6'
164-116-10	Liner for 3/64" - 0.062" wire, 10'
164-564-6	Liner for 0.062" - 5/64" wire, 6'
164-564-10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

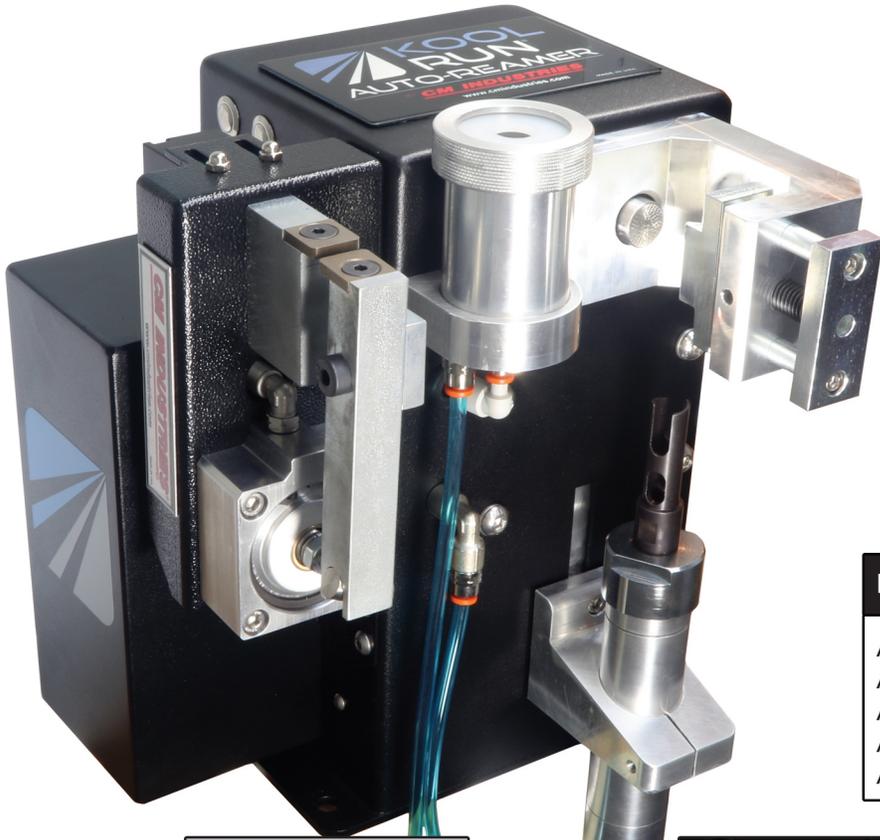


PART #	DESCRIPTION
1.	KNC-500 Neck Checking Fixture
2.	KNC-501 Neck Holder Block
3.	KNC-502 Gauge Pointer
4.	KNC-503 Checking Pin Block Assembly
5.	KNC-504 Checking Pin
6.	KNC-505 Bending Handle

- 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

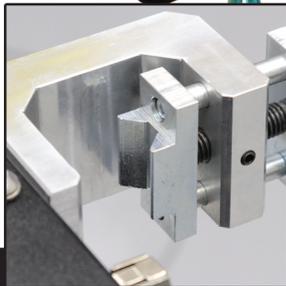
CM Industries' Auto-Reamers are designed to clean the nozzle and spray anti-spatter. Increase your productivity by providing better gas flow, extending consumable life, and decreasing down-time in robotic applications. An optional Wire Cutter ensures a precise cut for optimum arc-start and an exact TCP.



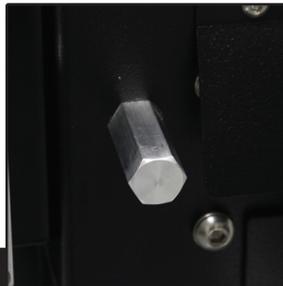
Key Features

- 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

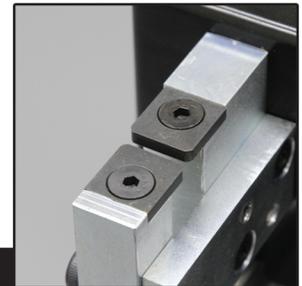
Nozzle Cleaning Stations	Part #
AR2200 - Base Model	650-25-800
AR2200C - w/ Spray System	650-25-801
AR2200CW - w/ Spray System & Wire Cutter	650-25-802
AR2200S - w/ Sprayer	650-25-805
AR2200SW - w/ Sprayer & Wire Cutter	650-25-806



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)