

# ROBO WH Water-cooled MIG

The WH series of torches with interchangeable neck system are the most versatile robotic water-cooled torches on the market. Quick-change neck and quick-change consumables mean less down time and more costs savings. WH torches range from 350 to 650 amperes simply by changing the neck so there is no need to purchase another torch.

Rating	* Shielding Gas		Wire Size
	CO <sub>2</sub>	Mixed	
Robo WH 242D	320	280	.030 - .045 (0.8 - 1.2 mm)
Robo WH 500T	550	500	.030 - .062 (0.8 - 1.6 mm)
Robo WH W 600	600	550	.035 - .062 (0.9 - 1.6 mm)

*Available standard torch neck geometries: 22, 45, and 180 degrees. Special bends and lengths are available. Certain mixed gases and/or pulsed arc welding may reduce the ratings by as much as 35 percent*



# ROBO Torches

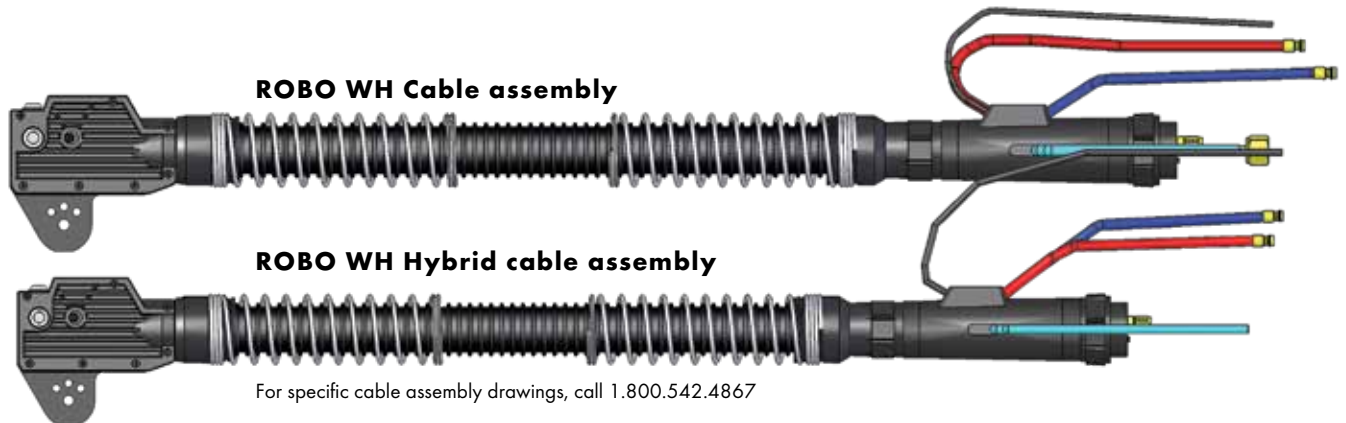
## WH Series 242D/500T/652T/600 Quick Change Water-cooled Torches

### Ordering Instructions for Complete ROBO Torches

960	W	-	40	E	X	-	G
TORCH MODEL	TYPE	CABLE LENGTH	BACK END	CONTROL CONNECTOR	OPTIONS		
<p><b>TORCH MODEL</b></p> <p>960 - WH</p>	<p><b>TYPE</b></p> <p>W - Water-cooled H - Hybrid</p>	<p><b>CABLE LENGTH</b></p> <p>30 - 3 Feet 40 - 4 Feet 45 - 4.5 Feet 50 - 5 Feet 60 - 6 Feet 70 - 7 Feet 80 - 8 Feet 90 - 9 Feet 10 - 10 Feet</p>	<p><b>BACK END</b></p>	<p><b>CONTROL CONNECTOR</b></p>	<p><b>OPTIONS</b></p> <p>A - Nozzle Sense B - Voltage Sense E - ABB Water Fittings F - No Airblast G - Wire Brake 035/045* H - Wire Brake 052/062*</p>	<p><b>CONTROL CONNECTOR</b></p> <p>X - None B - Brad Harrison 5-Pin C - Burndy 12-Pin ABB (From 1996) D - Amp 4-Pin Motoman E - DDK 5-Pin Fanuc F - Amp 5-Pin ABB (Before 1996) G - Amp 7-Pin Motoman Optional H - Denki 2-Pin J - Panasonic K - OTC DAIHEN 2-Pin</p>	
				<p><b>BACK END</b></p> <p>C - OTC DAIHEN CMRE 741 AF400 D - OTC DAIHEN CM 147,231 E - Euro F - Fronius VR 1500/4000 K - Lincoln PF10, 4R90 L - Lincoln Synergic 7, LN Series M - Miller P - Panasonic T - Motoman/Tweco #5</p>			

\* Wire-brake options are available on Water-cooled models only.

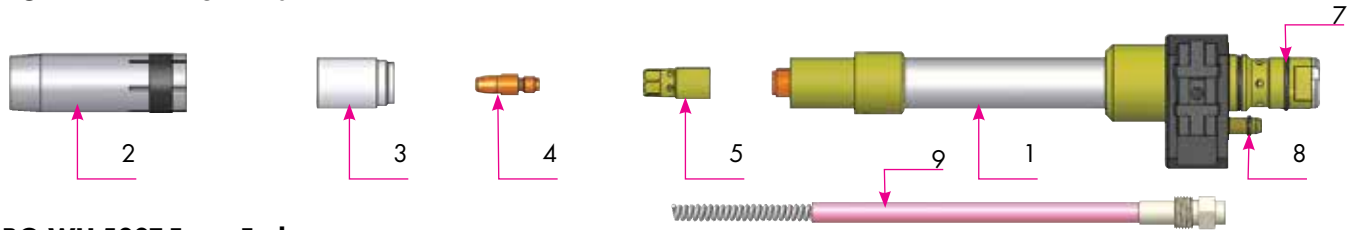
Note: Neck style must be specified and neck must be ordered separately. Spare neck for use as back-up during tip and nozzle replacement is highly recommended. Alignment and test jig are recommended for checking neck geometry and correcting alignment as necessary prior to use.



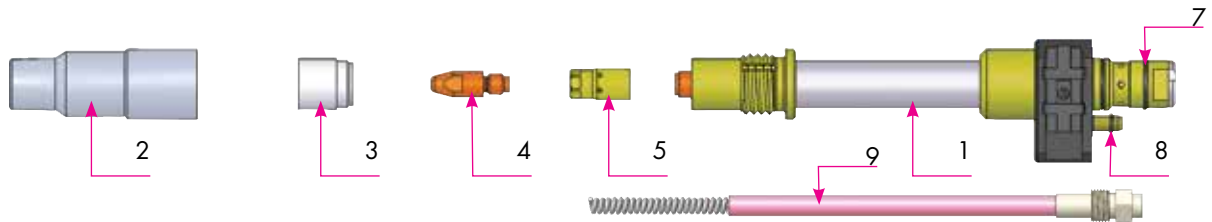
For specific cable assembly drawings, call 1.800.542.4867

# Swanneck Assemblies

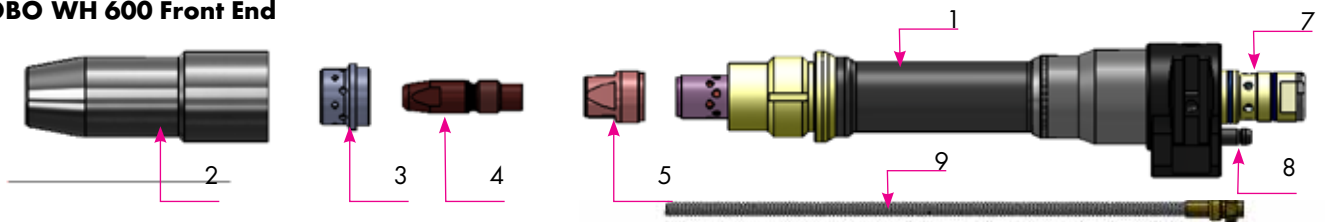
## ROBO WH 242D Front End



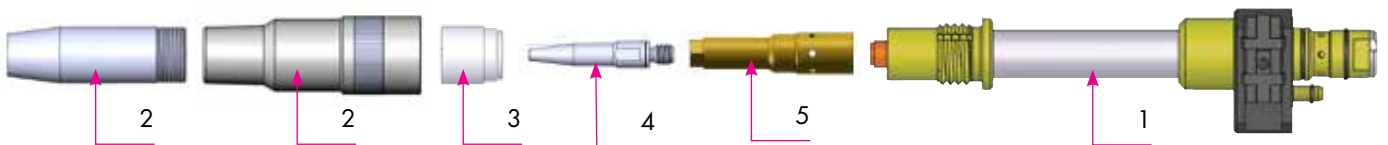
## ROBO WH 500T Front End



## ROBO WH 600 Front End



## ROBO WH 500T with Narrow Gap Front End Parts\*

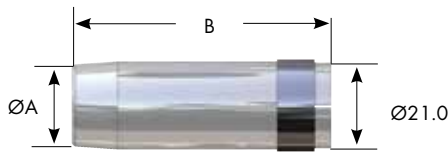


Item number	Description	22 Degree	45 Degree	180 Degree
1	WH 500T	962.1549	962.1532	962.1550
1	WH242D	962.1315	962.1316	962.1314
1	WH242D w/nozzle sense	962.9958.US	Call	Call
1	WH500T	962.1549	962.1532	962.1550
1	WH500T w/nozzle sense	962.9945.US	962.9948.US	962.9955.US
1	WH W 600	962.1746	962.1748	962.1745
1	WH W 600 w/nozzle sense	962.1770	962.1772	962.1769
2	Nozzles	Page 4	Page 4	Page 4
3	Nozzle Insulators	Page 5	Page 5	Page 5
4	Contact tips	Page 5	Page 5	Page 5
5	Tip holder/diffusers	Page 5	Page 5	Page 5
7	O-ring 1.5 x 1.5	165.0015	165.0015	165.0015
8	O-ring 3.5 x 1.2	165.0062	165.0062	165.0062
9	Neckliners	Page 6	Page 6	Page 6
	WH Neck			
	WH Neck Repair Kit (500A Only)	962.9041	962.9041	962.9041

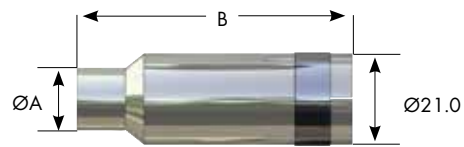
\*Note: Longer neckliner required for this setup

# ROBO WH 242D/500T/652T/W 600

## Consumables: Nozzles



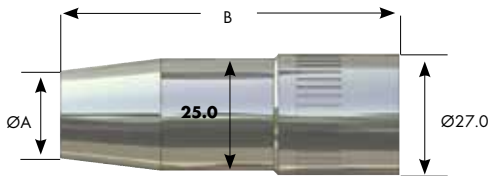
**145.0090**  
Conical Style



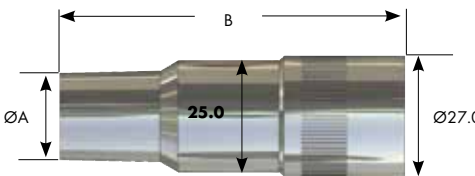
**145.0159**  
Bottleform Style

### WH 242D Coarse threaded nozzles (Item 2, page 3)

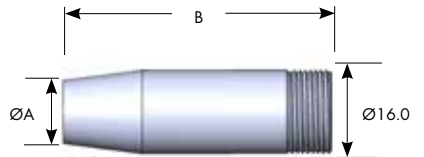
Model	Description	Part No.	Dimension A		Dimension B		Reamer M6 Tips	Clamp set	V-Block
			Inch	Metric	Inch	Metric			
242	Conical (1.5mm recess)	145.0090	5/8"	15.5 mm	2.44"	62.0 mm	831.0022	831.0146	831.0314
242	Conical (1.5mm recess)	145.0135	1/2"	13.0 mm	2.44"	62.0 mm	831.0361	831.0146	831.0314
242	Conical (3.5mm stickout)	145.0472	5/8"	15.5 mm	2.24"	57.0 mm	831.0237	831.0146	831.0314
242	Conical (3.5mm stickout)	145.0473	1/2"	13.0 mm	2.24"	57.0 mm	831.0356	831.0146	831.0314
242	Conical (1.5mm stickout)	145.0547	1/2"	13.0mm	2.32"	59.0 mm	831.0356	831.0146	831.0314
242	Bottleform (1.5mm recess)	145.0159	7/16"	11.0mm	2.44"	62.0mm	Call	831.0146	831.0314



**145.0553**  
Conical Style



**145.0480**  
Bottleform Style

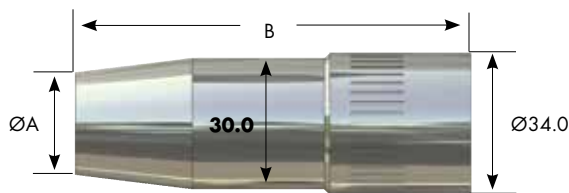


**145.0352**  
Narrow Gap Front

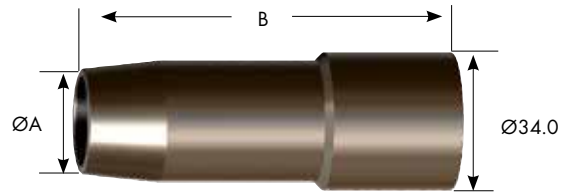
### WH 500T Coarse threaded nozzles (Item 2, page 3)

Model	Description	Part No.	Dimension A		Dimension B		Reamer = M8 Tips	Clamp set	V-Block
			Inch	Metric	Inch	Metric			
500T	Bottleform (3mm recess)	145.0480	5/8"	15.5	3.03"	77.0 mm	831.0023	831.0147	831.0316
500T	Bottleform (1.5mm recess)	145.0544	5/8"	15.5	2.97"	75.5 mm	831.0023	831.0147	831.0316
500T	Bottleform (2mm stickout)	145.0466	5/8"	15.5	2.83"	72.0 mm	831.0216	831.0147	831.0316
500T	Bottleform (1.5mm recess)	* 145.0550	1/2"	13.0	2.97"	75.5 mm	831.0413	831.0147	831.0316
500T	Bottleform (1.5mm recess)	** 145.0479	1/2"	13.0	2.97"	75.5 mm	831.0413	831.0147	831.0316
500T	Conical Small (1.5mm recess)**	145.0553	5/8"	15.5	2.97"	75.5 mm	831.0023	831.0147	831.0316
500T	Bottleform (11.5mm recess)	145.0554	5/8"	15.5	3.36"	85.5 mm	831.0023	831.0147	831.0316
500T	Cylindrical (4mm stickout)	145.0561	3/4"	20.0	2.75"	70.0 mm	831.0369	831.0147	831.0316
500T	Narrow Gap Base	145.9052.US	5/8"	15.5	3.0"	76.0 mm	831.0406	831.0147	831.0316
500T	Narrow Gap Front	145.0352	11/32"	9.0	2.0"	51 mm	831.0406	831.0147	831.0316

\*Use with 146.0064 insulator. \*\*Inside taper for aluminum, and galvanized welding. ==Reamer for M6 Tips 831.0578



**145.0574**



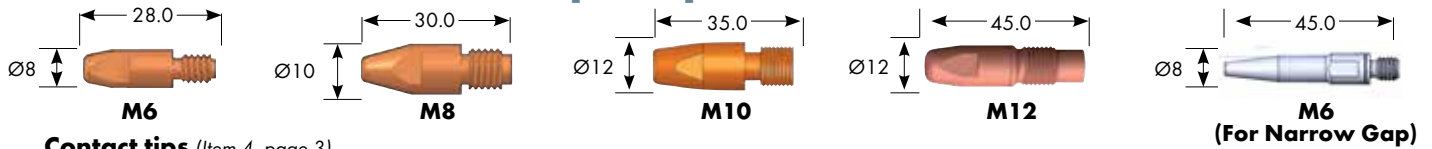
**145.0686**

### W 600 Coarse threaded nozzles (Item 2, page 3)

Model	Description	Part No.	Dimension A		Dimension B		Reamer Contact Tips*	Clamp set	V-Block
			Inch	Metric	Inch	Metric			
W 600	Conical (flush)	145.0686	7/8"	21.5 mm	3.62"	92.0 mm	831.0747	831.0781	831.0319
W 600	Conical (6 mm stickout)	145.0687	7/8"	21.5 mm	3.38"	86.0 mm	831.0763	831.0781	831.0319
W 600	Conical (3 mm recessed)	145.0688	7/8"	21.5 mm	3.74"	95.0mm	831.0764	831.0781	831.0319
W 600	Conical (flush)	145.0689	3/4"	18.0 mm	3.62"	92.0 mm	831.0162	831.0781	831.0319

\*Contact Tips are size M10 for 652T and size M12 for W 600

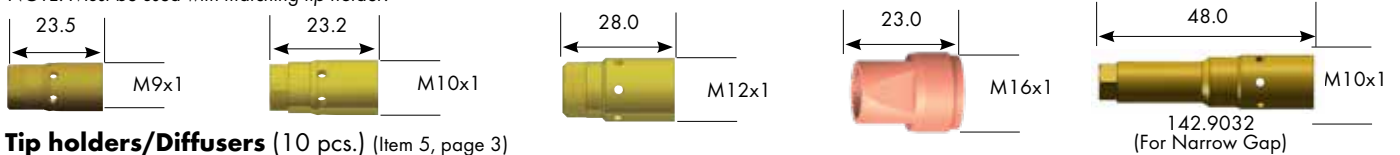
# Consumables: Contact tips, Tip holders, Insulators



**Contact tips** (Item 4, page 3)

Style	Inch	Metric	242D/500T M6 Contact tip	500T/652T M8 Contact tip	652T M10 Contact tip	W 600 M12 Contact tip	W 500T M6 Narrow Gap
CuCrZr	.030	0.8	140.0054	140.0117	-	-	-
CuCrZr	.035	0.9	140.0172	140.0217	140.01248*	-	-
CuCrZr	.040	1.1	140.0245	140.0316	140.0348	140.1605	-
CuCrZr	.045	1.2	140.0382	140.0445	140.0481	140.1563	-
CuCrZr (Tight tolerance)	.045	1.2	140.1287	140.1224	140.1261	-	-
CuCrZr	.052	1.4	140.0519	140.0536	140.0547	140.1564	-
CuCrZr (Tight Tolerance)	.052	1.4	-	140.1260	-	-	-
CuCrZr	.062	1.6	140.0558	140.0590	140.0616	140.1565	-
CZ Silver Plated	.035	0.9	147.1609	-	-	-	-
CZ Silver Plated	.045	1.2	147.1610	-	-	-	-
CZ Silver Plated	.030	0.8	147.0054	147.0117	-	-	-
CZ Silver Plated	.035	0.9	147.0172*	147.0217*	-	-	147.1609
CZ Silver Plated	.045	1.2	147.0382	147.0445	147.0481	147.1563	147.1610
CZ Silver Plated (Tight tolerance)	.045	1.2	147.1287	147.1224	-	-	-
CZ Silver Plated	.052	1.4	147.0519	147.0536	147.0547	147.1564	-
CZ Silver Plated (Tight tolerance)	.052	1.4	-	147.1260	-	-	-
CZ Silver Plated	.062	1.6	-	147.0590	147.0616	147.1565	-
E - CU for Aluminum	.030	0.8	141.0001	141.0003	-	-	-
E - CU for Aluminum	.035	0.9	141.0004	141.0043	-	-	-
E - CU for Aluminum	.045	1.2	141.0010	141.0075	-	-	-
E - CU for Aluminum	.062	1.6	141.0020	141.0022	-	-	-
HDS Silver Plated	.045	1.2	-	-	-	147.6563	-
HDS Silver Plated	.052	1.4	-	-	-	147.6564	-
HDS Silver Plated	.062	1.6	-	-	-	147.6565	-

NOTE: Must be used with matching tip holder.



**Tip holders/Diffusers** (10 pcs.) (Item 5, page 3)

Description	WH 242D Part No.	WH 500 T Part No.	WH 652T Part No.	WH W 600 Part No.
M6 Contact tips (M9x1)	142.0149*	142.0133	-	-
M6 Narrow Gap (M10x1)	-	142.9032	-	-
M8 Contact tips (M10x1)	-	142.0117*	142.0148	-
M10 Contact tips (M12x1)	-	-	142.0145*	-
M12 Contact tips (M16x1)	-	-	-	142.0214*

**Diffusers/Nozzle insulators** (10 pcs.) (Item 3, page 3)



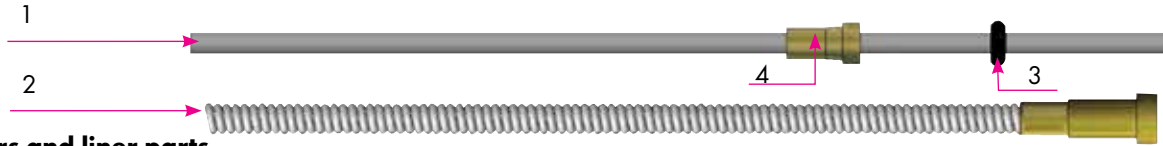
Description	WH 242D Part No.	WH 500T Part No.	WH 652T Part No.	WH W 600 Part No.
Cylindrical insulator	146.0066 <sup>3</sup> (27 mm)	*146.0054 <sup>3</sup> (21 mm)	-	-
High temperature insulator	-	146.0059 <sup>4</sup> (21 mm)	*146.0056 <sup>5</sup> (16 mm)	-
Gas diffuser	-	-	-	*146.0079 <sup>2</sup> (18.5 mm)
Insulator short (not shown)	-	146.0064 <sup>5</sup> (16 mm)	146.9060 <sup>5</sup> (16 mm)	-
Ceramic insulator (not shown)	-	146.0070 <sup>3</sup> (21 mm)	146.0069 <sup>5</sup> (16 mm)	-
Insulator/diffuser combo	*284.0138 <sup>1</sup> (21.5 mm)	943.0170 <sup>1</sup> (21.5 mm)	-	-
Insulator/diffuser combo short (not shown)	-	943.0284 <sup>1</sup> (21.5 mm)	-	-

\* Standard option <sup>12345</sup> Denote diffuser/nozzle insulator styles. Not exact match in all cases. Numbers 1 and 2 represent Insulator/Diffuser combos, and 3/4/5 show nozzle insulator designs. Measurement in parenthesis represent part length.



# ROBO WH 242D/500T/652T/W 600

## Consumables: Liners and neckliners



### Liners and liner parts

Item No.	Description	Wire size		LENGTH		PART NO.
		INCH	MM	FT	M	
1	Liner for aluminum wire	.035" - .045"	0.9 - 1.2mm	17 ft.	5.18M	128.9004
1	Liner for aluminum wire	.052" - .062"	1.4 - 1.6mm	17 ft.	5.18M	128.9010
2	Liner for steel wire	.035" - .045"	0.9 - 1.2mm	17 ft.	5.18M	122.9057
2	Liner for steel wire	.052" - .062"	1.4 - 1.6mm	17 ft.	5.18M	122.9058
2	Liner for steel wire	.035" - .045"	0.9 - 1.2mm	7 ft. 3 inch	2.23M	122.9057-7
2	Liner for steel wire	.052" - .062"	1.4 - 1.6mm	7 ft. 3 inch	2.23M	122.9058-7
3	O-Ring 3.5 x 1.5 mm					165.0008
4	Collet	.035" - .045"	0.9 - 1.2mm			131.0001
4	Collet	.052" - .062"	1.4 - 1.6mm			131.0002



### Neckliners

Description	Neckliner									
	WH 242 D		WH 500T		WH 652T		WH W 600		Narrow Gap	
	.035"-.045" 0.9-1.2 mm	.052"-.062" 1.4-1.6 mm	.035"-.045" 0.9-1.2 mm	.052"-.062" 1.4-1.6 mm	.035"-.045" 0.9-1.2 mm	.052"-.062" 1.4-1.6 mm	.035"-.045" 0.9-1.2 mm	.052"-.062" 1.4-1.6 mm	.035"-.045" 0.9-1.2mm	
Neckliner for steel wire, 180/22 degree	149.0068	-	149.0282	149.0283	149.0107	149.0108	149.0270	149.0271	149.9024.US	
Neckliner for steel wire, 45 degrees	149.0003	-	149.0300	149.0410	149.0107	149.0108	149.0270	149.0271	145.0513	
Neckliner for aluminum wire, 180/22 degree	149.0007	-	962.9073	962.9075	149.0088	149.0093	-	149.0272		
Neckliner for aluminum wire, 45 degree	149.0044	149.0017	962.9074	962.9076	149.0088	149.0093	-	149.0272		

## Robot Mounts - Through-arm

### ROBO™ iSTM welding robot mount

The iSTM is the robot mount for the latest generation of welding robots with integrated collision software. Safety and flexibility can be assured due to the centrally guided cable assembly through the 6th axis for air and water-cooled torches.

The iSTM is a very simple and rugged system. Quick and easy maintenance increases the system up-time.

*Precisely designed to meet Robot manufacturers' exact specifications.*



### ROBO™ iCAT welding robot mount

The iCAT torch mount is designed for the latest generations of welding robots. It offers a high level of safety and flexibility due to the centrally guided cable assembly through the 6th axis for air and liquid-cooled torches.

In case of a collision between the welding torch and the work piece, the iCAT will activate the emergency stop circuit and an 11 degree buffer is created, therefore avoiding damage to the welding torch and periphery equipment as well as the robot.

*Precisely designed to meet robot manufacturers' exact specifications.*



# Robot Mounts - Over-arm

## ROBO™ CAT3 welding robot mount

The CAT3 torch mount is a three-dimensional active safety coupling that is used for the protection of a welding torch or handling devise attached to a robot.

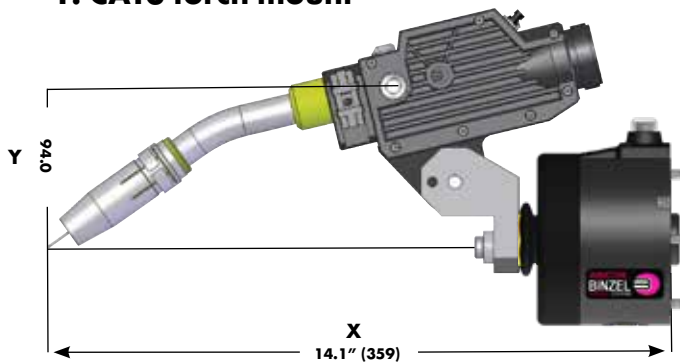
When the CAT3 mount is connected to the E-stop circuit of the robot any collision activates a safety cut-off switch. The large 3D deviation field provides a high margin of safety for both the robot and the attached welding torch.

The wide range of accessories, including brackets and various forms of tool holders, allow the user to quickly construct the desired tool center point (TCP). The CAT3 is easily adapted to suit the weight to be carried.

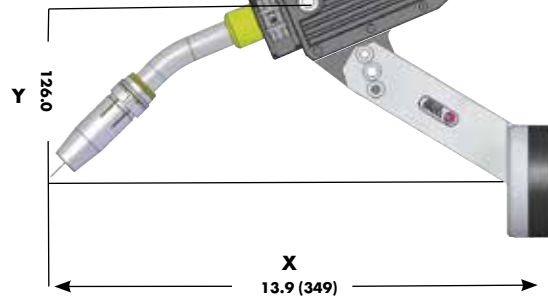


## Mounting Brackets and Tool Center Point

### 1. CAT3 torch mount



### 2. CAT-R solid torch mount



## Link arms and solid torch mounts for Robo WH 242D, 500T, 652T, & W 600

Item No.	Description	Swanneck	TCP/X	Y	Part No.
1	CAT3 link arm for WH242D	22 Degree	14.1" (359)	94.0	780.0863
1	CAT3 link arm for WH242D	45 Degree	13.9" (354)	100.0	780.0863
1	CAT3 link arm for WH500T	22 Degree	14.1" (359)	94.0	780.0863
1	CAT3 link arm for WH500T	45 Degree	13.9" (354)	100.0	780.0863
1	CAT3 link arm for WH652T	22 Degree	16.3" (415)	95.0	780.0863
1	CAT3 link arm for WH652T	45 Degree	14.0" (358)	111.0	780.0863
1	CAT3 link arm for WH W 600	22 Degree	16.1" (410)	135.0	780.0863
1	CAT3 link arm for WH W 600	45 Degree	14.9" (378)	100.0	780.0863
2	CAT-R solid mount for WH242D	22 Degree	13.7" (349)	126.0	780.9306
2	CAT-R solid mount for WH242D	45 Degree	13.6" (345)	134.0	780.9306
2	CAT-R solid mount for WH500T	22 Degree	13.7" (349)	126.0	780.9306
2	CAT-R solid mount for WH500T	45 Degree	13.8" (345)	134.0	780.9306
2	CAT-R solid mount for WH652T	22 Degree	15.9" (405)	153.0	780.9328
2	CAT-R solid mount for WH652T	45 Degree	14.76" (375)	161.0	780.9328
2	CAT-R solid mount for WH W 600	22 Degree	15.7" (400)	159.0	780.9328
2	CAT-R solid mount for WH W 600	45 Degree	14.5" (368)	137.0	780.9328

### 1. Link arm for CAT3

To be used on robots with Binzel CAT3 collision mount



### 2. CAT-R solid torch mount

To be used on robots with integrated collision software



# Robot Mount CAT3

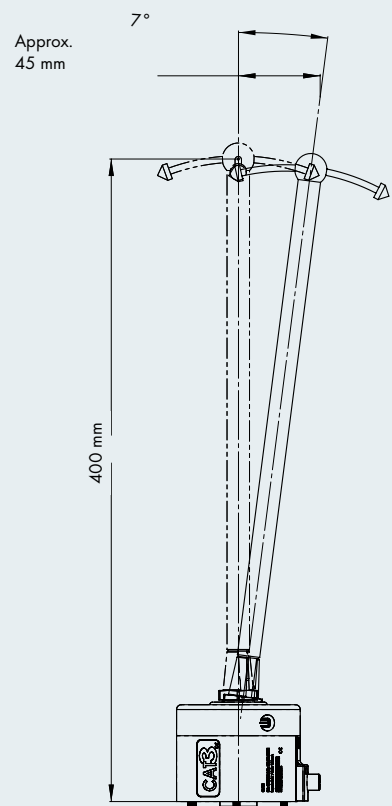
## Ordering Chart

CAT3	-	M	S	C	1	1
Mount Type	Spring Size	Connector Style	Cable	Link Arm	Clamp	
<p><b>Mount Type</b> Collision Mount with LED</p>						
	<p><b>Spring Size</b> M - Medium L - Large X - Extra Large</p>					
		<p><b>Connector Style</b> S - Standard Connector 780.2062</p>				
			<p><b>Cable</b> C - Cored Safety Cable 780.0201 B - Bare 20' Safety Cable 836.9029</p>	<p><b>Link Arm</b> 1 - Link Arm Std. Short ROBO/WH 780.0863 2 - Link Arm Long WH 780.0866</p>		
					<p><b>Clamp</b> 1 - Standard ROBO Torch Clamp 31mm 780.9006 2 - Standard ABITIG WH Torch Clamp 45 mm 963.0007</p>	

### Technical Data: Robot Mount CAT3

Dimensions:	Ø 77 mm, height 106 mm
Weight:	960 g (without holder and flange)
Release force:	<b>(see figure 3)</b> Deflection CAT3
Switch point:	- Deflection in X- and Y-direction: 1.2° - 1.5° - Deflection in Z-direction: 1.3-1.6 mm
Max. deflection:	- Deflection in X- and Y-axis: ca. 7° - Deflection in Z-axis: 5 mm
Resetting accuracy:	<b>(see figure 4)</b> X-, Y- and Z-direction: ± 0,04 mm (at 400 mm distance to the robot flange)
IP Protection class:	IP 21
Load capacity safety cut-out:	max. 30 V DC / 100 mA
Ambient temperature:	- in operation: -10 °C up to +55 °C - during storage and transportation: -10 °C up to +55 °C
Relative humidity:	- in operation: up to 70 % at 20 °C - during storage and transportation: up to 70 % at 20 °C

**Figure 4:**  
Maximum deflection  
in X- and Y-axis





# Robot Mount & Accessories

## Robot Mount CAT3



Description	Part-No.
Robot Mount CAT3 XL	780.2050
Robot Mount CAT3 L	780.2051
Robot Mount CAT3 M	780.2052

A connection cable is included in the scope of the order.  
Please order the flanges and holders separately according to the robot-torch type and welding task.

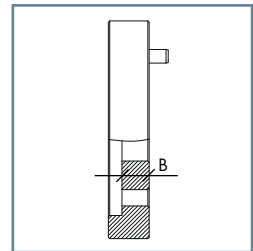


## Flanges

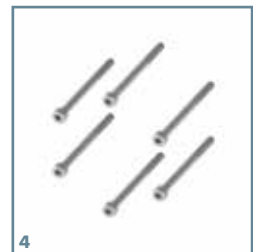
Description	Part No.	Plastic
Intermediate flange <sup>1</sup> ISO 9409-1-A63	780.0614	
Intermediate flange <sup>1</sup> ISO 9409-1-A50-d31,5	780.0608	
Intermediate flange <sup>1</sup> ISO 9409-1-A125	780.0630	
Intermediate flange <sup>1</sup> ISO 9409-1-A50/D=63	780.0694	
Intermediate flange <sup>1</sup> ISO 9409-1-A31,5	780.0632	
Intermediate flange <sup>1</sup> ISO 9409-1-A100	780.0649	
Intermediate flange <sup>1</sup> ISO 9409-1-A160	780.0647	
Intermediate flange <sup>1</sup> ISO 9409-1-A40-D50	780.0691	

<sup>1</sup> Flange width B=15 mm (Standard version)

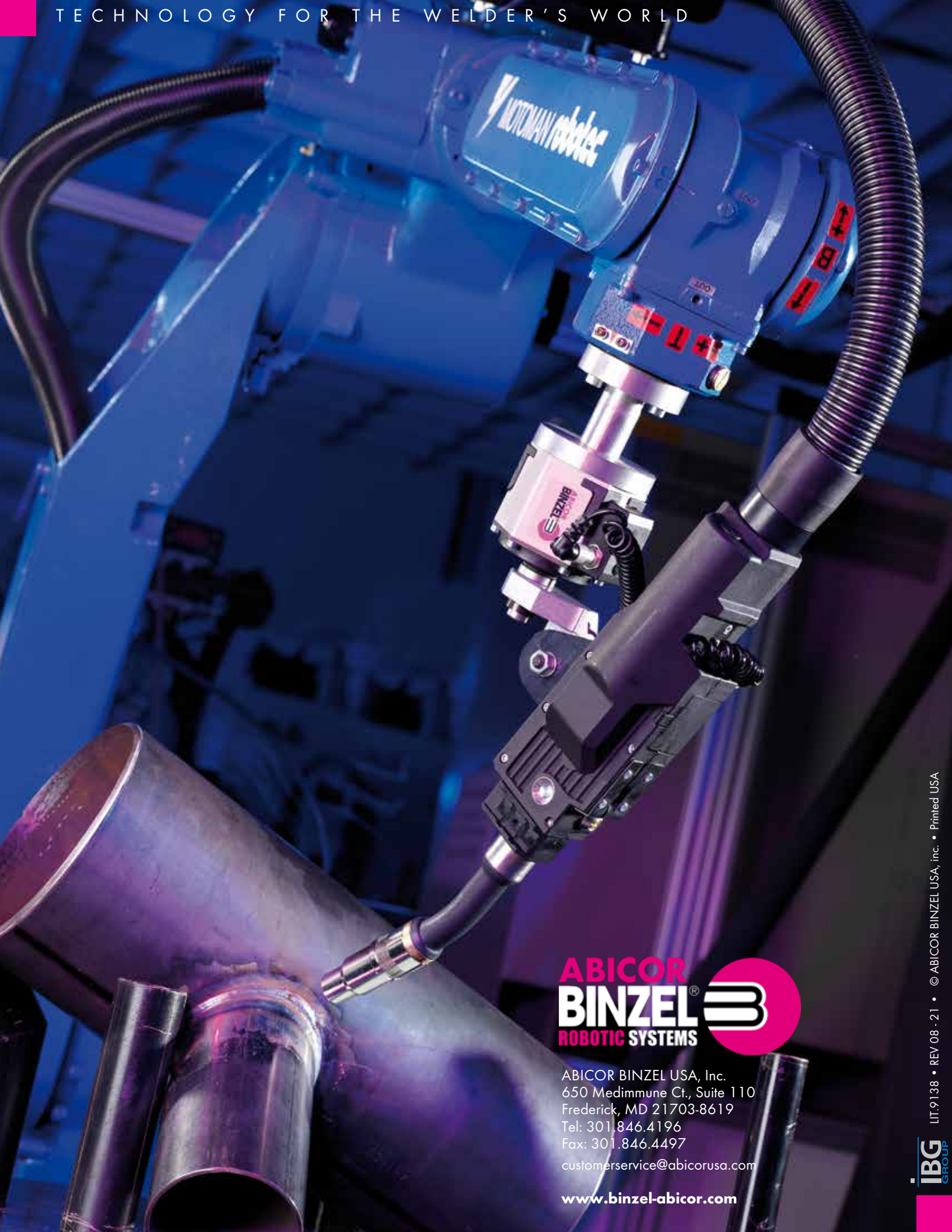
Intermediate flanges are available for all standard welding robots. Please see LIT.9231 for a complete list. Flange list available at [binzel-abc.com](http://binzel-abc.com) on the CAT3 Product Page.



## Spares



Pos.	Description	Part-No.
1	Bellow CAT3	780.2059
2	Switch cover plate CAT3 cpl.	780.2061
3	Switch cpl. CAT3 male	780.2062
4	Screw set CAT3 M4x55	780.2076
5	Mounting arm hardware kit CAT3	780.2044
6	Connector cable CAT	780.0201



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