

# MIG/MAG Welding Torch System

## "ABIROB® W" liquid cooled



### Robust & flexible ...

Pure ROBO power! Liquid-cooled ABIROB® W welding torches have power ratings up to 600 A and are equipped with state-of-the-art cable assembly and interface technology. The modular design of these rugged yet flexible torches allows a fast change of torch neck and cable assembly components without the TCP (Tool Centre Point) changing – thus avoiding additional programming effort.

High repetitive accuracy and a continuously precise welding process are ensured through the innovative but "simple" torch construction.

### Advantages that speak for themselves:

- Robust torch necks with screw-on gas nozzle and replaceable contact tip holder guarantee high durability and a long service life cycle
- The innovative interface design ensures the fast change of torch neck and reproducible positioning of cable assembly and torch neck
- Hybrid cable assembly technology for optimized wire feeding, prevention of electrolytic corrosion and improved coolant flow
- Special torch neck geometries are available for joining components even with limited accessibility

up to  
600 A



### Degree of automation:

Low	Medium	High
-----	--------	------

### Application areas:



- Commercial vehicle construction
- Earth-moving equipment
- Rail vehicle construction
- Shipbuilding
- Machine and steel construction

### Material:

- Construction steels (coated / non-coated)
- Chrome-nickel steels
- Duplex steels
- Nickel basic materials
- Mixed compounds
- Aluminium materials
- Magnesium materials
- Copper materials
- Special materials

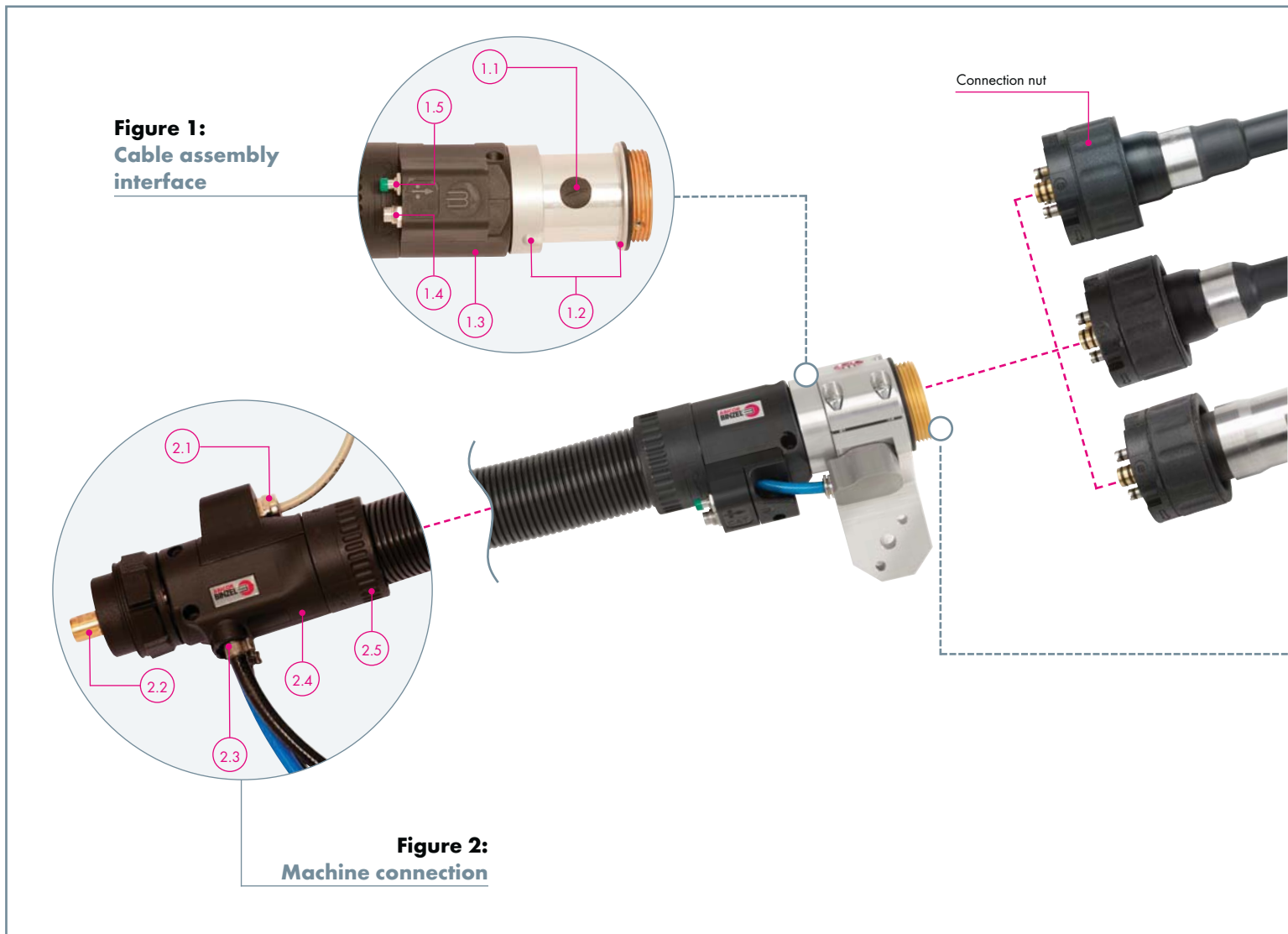
### Robot interface:

- Conventional robot  
(Cable assembly external):
  - Robot mount CAT3
  - Fixed bracket RTM
- Hollow wrist robot  
(Cable assembly internal):
  - Robot mount iCAT
  - Bracket iSTM (for robots with integrated collision software)
- Hollow wrist robot  
(Cable assembly external):
  - Robot mount CAT3
  - Fixed bracket RTM

### \* Definition of the degree of automation:

- Low = Torch neck change not possible
- Medium = Torch neck change possible (manually)
- High = Torch neck change possible (manually & automatically)

# "ABIROB® W" liquid cooled System Overview & Technical Data



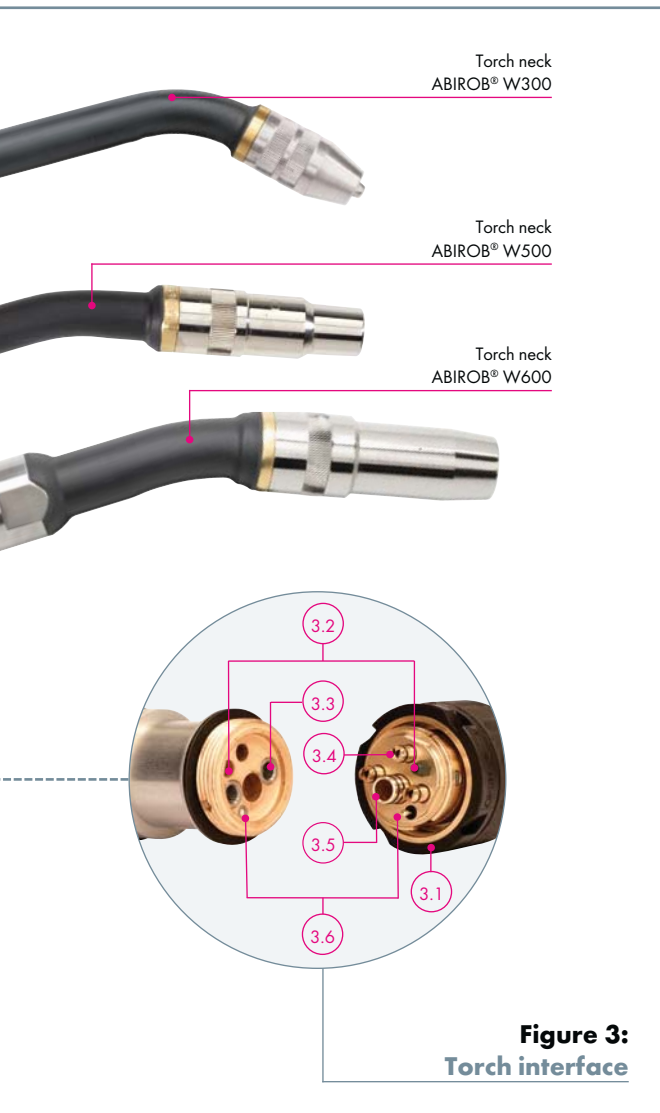
**Figure 1:**  
**Cable assembly interface**

- 1.1 Connection for the optional wire clamp function (wire brake)<sup>1</sup>
- 1.2 INTERLOCK connection - reproducible positioning of the cable assembly in three dimensions
- 1.3 Short housing for best accessibility
- 1.4 Connection CAT3
- 1.5 Wire feed button

**Figure 2:**  
**Machine connection**

- 2.1 High-quality control cable with strain relief (control cable connector on request)
- 2.2 Machine connection available for all standard wire feeds
- 2.3 Straight discharge for coolant and airblast hose - no bending or twisting of the hoses
- 2.4 Short connection housing - high flexibility of the cable assembly
- 2.5 Rotatable outer hose connection - minimized torsion stress

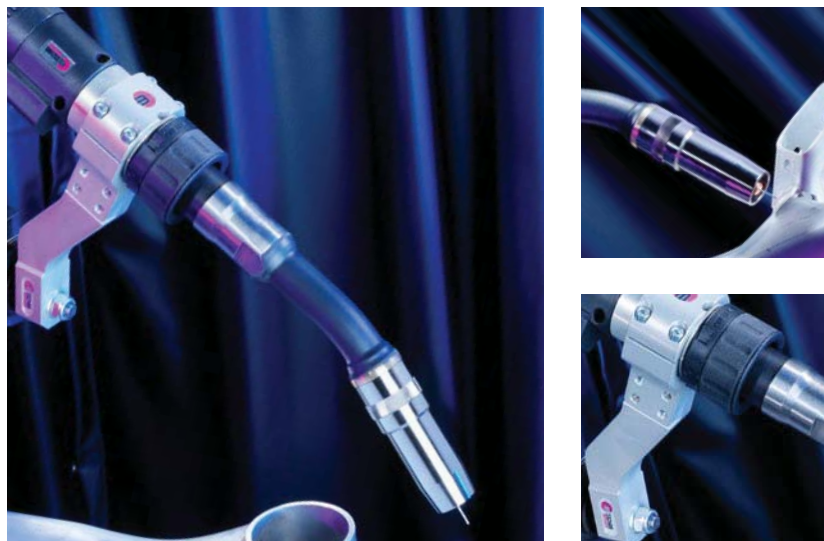
<sup>1</sup> Wire brake and gas nozzle sensor connection are required for tactile seam location. Ask your robot manufacturer for more details.



**Figure 3:**  
**Torch interface**

**Figure 3:**  
**Torch interface**

- 3.1 High-grip connection nut – for a fast and tight connection
- 3.2 Diamond head pin connection – for reproducible torch neck change
- 3.3 Flow check valves – no leaking of the coolant during the torch neck change
- 3.4 Gas and airblast – best gas shielding
- 3.5 For one piece liner or neck liner
- 3.6 Gas nozzle sensor<sup>1</sup>



**Technical data (EN 60 974-7):**

**ABIROB® W300**

Type of cooling: liquid cooled  
 Rating: 330 A CO<sub>2</sub>  
 300 A Mixed gases M21 (EN ISO 14175)  
 Duty cycle: 100 %  
 Wire-Ø: 0.8 - 1.2 mm  
 Torch geometries: 22°/45°

**ABIROB® W500**

Type of cooling: liquid cooled  
 Rating: 550 A CO<sub>2</sub>  
 500 A Mixed gases M21 (EN ISO 14175)  
 Duty cycle: 100 %  
 Wire-Ø: 0.8 - 1.6 mm  
 Torch geometries: 0°/22°/35°/45°

**ABIROB® W600**

Type of cooling: liquid cooled  
 Rating: 600 A CO<sub>2</sub>  
 550 A Mixed gases M21 (EN ISO 14175)  
 Duty cycle: 100 %  
 Wire-Ø: 0.8 - 1.6 mm  
 Torch geometries: 0°/22°/35°/45°

**Note on the technical data:**

Rating data was determined under normal conditions at low to medium reflected heat, free air circulation and at 28°C ambient temperature. When used under more difficult conditions, the rating data must be reduced by 10 - 20 %. The rating data are reduced by up to 35 % for pulse arc welding.

# "ABIROB® W" liquid cooled Torch Necks & Wear Parts

## ABIROB® W300



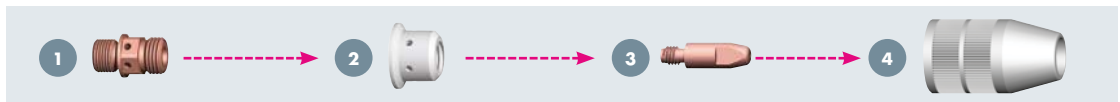
### Torch neck

	Part-No.	
Features	22°	45°
Standard	782.0110.1	782.0111.1
with gas nozzle sensor*	782.0014.1	782.0015.1

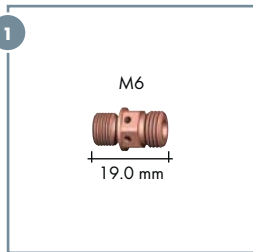
Wear parts and fittings are not included in the scope of delivery! Please order these separately and according to the application!

\* Gas nozzle sensor connection for tactile seam location via gas nozzle

## Wear parts for ABIROB® W300

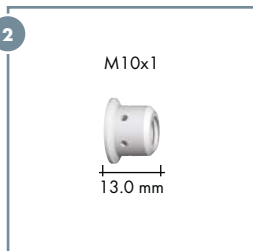


### 1 Contact tip holder (10 pcs.)



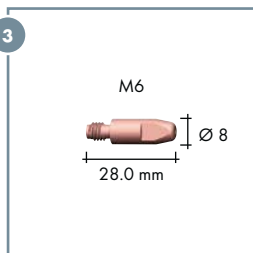
Type	Part-No.
M6 Copper	785.5052

### 2 Gas diffuser (10 pcs.)



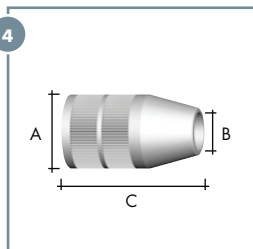
Type	Part-No.
Standard	962.0657
High temperature resistant (ceramic)	962.1341

### 3 Contact tip (10 pcs.)



Type	Wire-Ø	Part-No.
CuCrZr	Ø 0.8	140.0054
	Ø 0.9	140.0172
	Ø 1.0	140.0245
	Ø 1.2	140.0382

### 4 Gas nozzle (10 pcs.)



Type conical	Ø A	Ø B	Length C	Part-No.
Recess (-1.0 mm) <sup>2</sup>	Ø 25.0	Ø 13.0	48.5 mm	145.0564
Stick-out (+3.0 mm) <sup>3</sup>	Ø 25.0	Ø 13.0	44.5 mm	145.0495.10
Stick-out (+3.0 mm) <sup>3</sup>	Ø 25.0	Ø 15.5	44.5 mm	145.0494.10

<sup>2</sup> Recess: Contact tip recessed

<sup>3</sup> Stick-out: Contact tip protruding

# "ABIROB® W" liquid cooled Torch Necks & Wear Parts

## ABIROB® W500



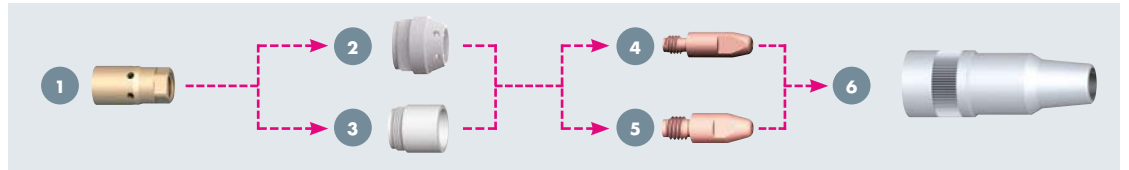
### Torch neck

Features	Part-No.			
	0°	22°	35°	45°
Standard	782.0080.1	782.0076.1	782.0077.1	782.0078.1
Standard (+100)	782.0106.1	782.0107.1	782.0108.1	782.0109.1
with gas nozzle sensor*	782.0079.1	782.0003.1	782.0004.1	782.0005.1
with gas nozzle sensor* (+100)	782.0088.1	782.0089.1	782.0090.1	782.0091.1

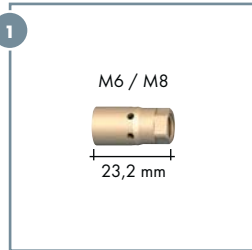
Wear parts and fittings are not included in the scope of delivery! Please order these separately and according to the application!

\* Gas nozzle sensor connection for tactile seam location via gas nozzle

## Wear parts for ABIROB® W500



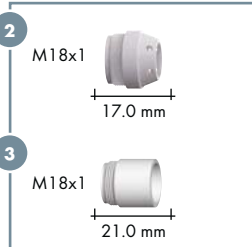
### 1 Contact tip holder (10 pcs.)



Type	Part-No.
M6 Copper <sup>1</sup>	142.0133.10
M6 Brass	142.0216.10
M8 Copper <sup>1</sup>	142.0151.10
M8 Brass	142.0117.10

<sup>1</sup> Recommended for high amperages.

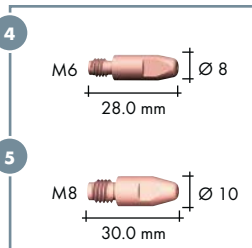
### 2 Gas diffuser 3 Nozzle insulator (10 pcs.)



Type	Part-No.
Gas diffuser standard	943.0284
Nozzle insulator standard	146.0054.10
Nozzle insulator standard short (L=11.4mm) <sup>2</sup>	146.0064
Nozzle insulator, resistant to high temperatures	146.0059.10

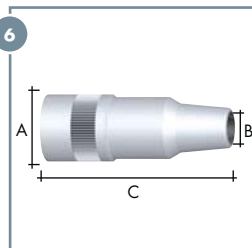
<sup>2</sup> Recommended for applications with galvanized materials in conjunction with gas nozzles 145.0553 and 145.0568.

### 4 Contact tip M6 5 Contact tip M8 (10 pcs.)



Type	Wire-Ø	Part-No.	
		M6	M8
CuCrZr	Ø 0.8	140.0054	140.0117
	Ø 0.9	140.0172	140.0217
	Ø 1.0	140.0245	140.0316
	Ø 1.2	140.0382	140.0445
	Ø 1.4	-	140.0536
	Ø 1.6	-	140.0590

### 6 Gas nozzle (10 pcs.)



Type bottle form	Ø A	Ø B	Length C	Part-No.
Recess (-2.6 mm) <sup>3</sup>	Ø 27.0	Ø 13.0	77.0 mm	145.0556.10
Recess (-1.1 mm) <sup>3</sup>	Ø 27.0	Ø 13.0	75.5 mm	145.0479.10
Recess (-2.6 mm) <sup>3</sup>	Ø 27.0	Ø 15.5	77.0 mm	145.0480.10
Recess (-1.1 mm) <sup>3</sup>	Ø 27.0	Ø 15.5	75.5 mm	145.0544.10
Stick-out (+2.4 mm) <sup>4</sup>	Ø 27.0	Ø 15.5	72.0 mm	145.0466.10

Type conical	Ø A	Ø B	Length C	Part-No.
Recess (-1.1 mm) <sup>3</sup>	Ø 27.0	Ø 15.5	75.5 mm	145.0553.10
Stick-out (+2.4 mm) <sup>4</sup>	Ø 27.0	Ø 15.5	72.5 mm	145.0568.10

<sup>3</sup> Recess: Contact tip recessed

<sup>4</sup> Stick-out: Contact tip protruding

# "ABIROB® W" liquid cooled Torch Necks & Wear Parts

## ABIROB® W600



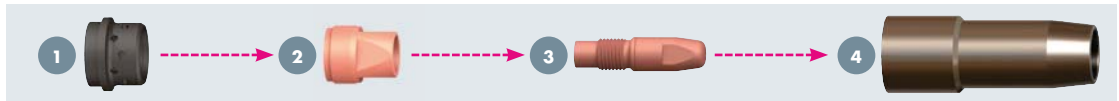
### Torch neck

Features	Part-No.			
	0°	22°	35°	45°
Standard	782.0190.1	782.0191.1	782.0192.1	782.0193.1
Standard (+100)	782.0219.1	782.0220.1	782.0221.1	782.0222.1
with gas nozzle sensor*	782.0213.1	782.0214.1	782.0215.1	782.0216.1
with gas nozzle sensor* (+100)	782.0233.1	782.0234.1	782.0235.1	782.0236.1

Wear parts and fittings are not included in the scope of delivery! Please order these separately and according to the application!

\*Gas nozzle sensor connection for tactile seam location via gas nozzle

### Wear parts for ABIROB® W600

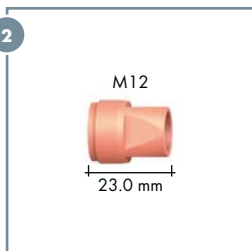


#### 1 Gas diffuser (10 pcs.)



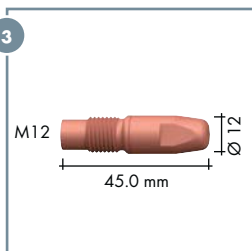
Type	Part-No.
Standard	146.0079.10

#### 2 Contact tip holder (10 pcs.)



Type	Part-No.
M12	142.0214.10

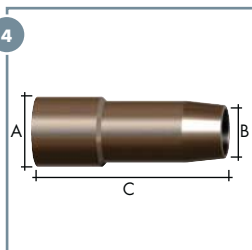
#### 3 Contact tip (10 pcs.)



Type	Wire-Ø	Part-No.
CuCrZr	Ø 1.2	140.1563.10
	Ø 1.4	140.1564.10
	Ø 1.6	140.1565.10
HDS silver plated**	Ø 1.2	147.6563.10
	Ø 1.4	147.6564.10
	Ø 1.6	147.6565.10

\*\*HDS = Heavy Duty Silver Contact Tips

#### 4 Gas nozzle (5 pcs.)



Type conical	Ø A	Ø B	Length C	Part-No.
Flush <sup>1</sup>	34.0	21.5	92.0 mm	145.0686.5
Stick-Out (+ 6.0 mm) <sup>2</sup>	34.0	21.5	86.0 mm	145.0687.5
Recess (- 3.0 mm) <sup>3</sup>	34.0	21.5	95.0 mm	145.0688.5
Flush <sup>1</sup>	34.0	18.0	92.0 mm	145.0689.5

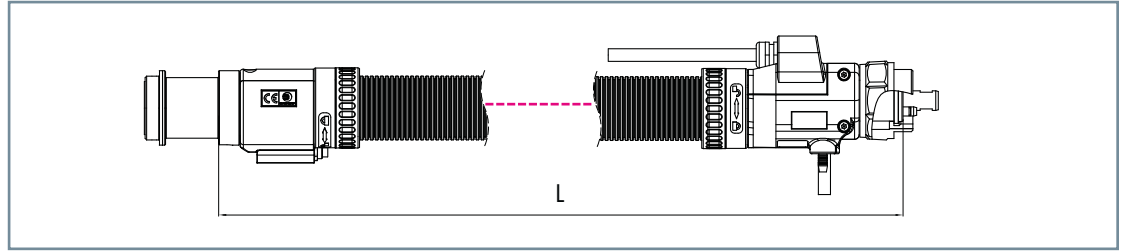
<sup>1</sup> Flush: Contact tip flush

<sup>2</sup> Stick-out: Contact tip protruding

<sup>3</sup> Recess: Contact tip recessed

# "ABIROB® W" liquid cooled Cable Assemblies & Accessoires

## Cable assemblies and connection types



### Cable assemblies ABIROB® W5H

(Recommended for amperages up to 400 A and cable assembly lengths up to 2.50 m.)

with connection type	Length	Part-No.
ABICOR BINZEL®	1.10 m	782.1014.1
Euro central connection	1.35 m	782.1018.1
	1.50 m	782.1020.1

### Cable assemblies ABIROB® W7F

(Recommended for amperages over 400 A.)

with connection type	Length	Part-No.
ABICOR BINZEL®	1.10 m	782.1103.1
Euro central connection	1.35 m	782.1049.1
	1.50 m	782.1099.1

Other lengths are available on request.

The control cable is not pre-wired at the machine end. Power source specific types on request.

The steel liner 0.8-1.2 mm is included in the scope of delivery. Please order other versions separately.

## Liners for Euro central connection<sup>1</sup>

Type	Wire-Ø	up to L=1.5 m <sup>4</sup>	up to L=3.15 m <sup>4</sup>	10.0 m <sup>5</sup>	Collet
Liner steel <sup>2</sup>	Ø 0.8-1.2	124.0145.1	124.0146.1	124.0159.1	131.0012
Liner steel <sup>2</sup>	Ø 1.4-1.6	124.0147	124.0148	124.0160	131.0011
Combined wire feed <sup>3</sup>	Ø 0.8-1.2	128.M008	128.M009	-	131.0019
	Ø 1.4-1.6	128.M012	128.M013	-	131.0020

<sup>1</sup> Liners for other connection types are available on request.

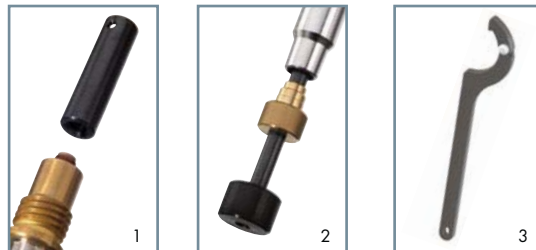
<sup>2</sup> Steel liners (insulated) for the use of non-alloyed and low-alloyed steels. The completely insulated wire feed prevents damage caused by "micro-arcing" on the wire. This allows optimal current transfer inside the contact tube, improving the welding process. The insulated steel liner must always be used for power sources with optimal welding wire sensors.

<sup>3</sup> Combined wire feed - for aluminium or bronze wires - is a combination of PA-liner and a bronze liner pressed on in the front section to avoid thermal overload of the PA.

<sup>4</sup> Including 1x collet

<sup>5</sup> For individual production including 2x collets

## Accessories



Description	Part-No.
1 Thread cutter M10x1 (for inner tube)	191.0085
2 Alignment tool (to align inner tube with outer tube)	191.0090.1
3 Pin wrench (to unscrew the connection)	191.0115

### Alignment jig

for torch neck	torch geometry	Part-No.
ABIROB® W300	22°/45°	837.0484.1
ABIROB® W500 / W500 (+100 mm)	0°/22°/35°/45°	837.0950.1
ABIROB® W600 / W600 (+100 mm)	0°/22°/35°/45°	837.0860.1

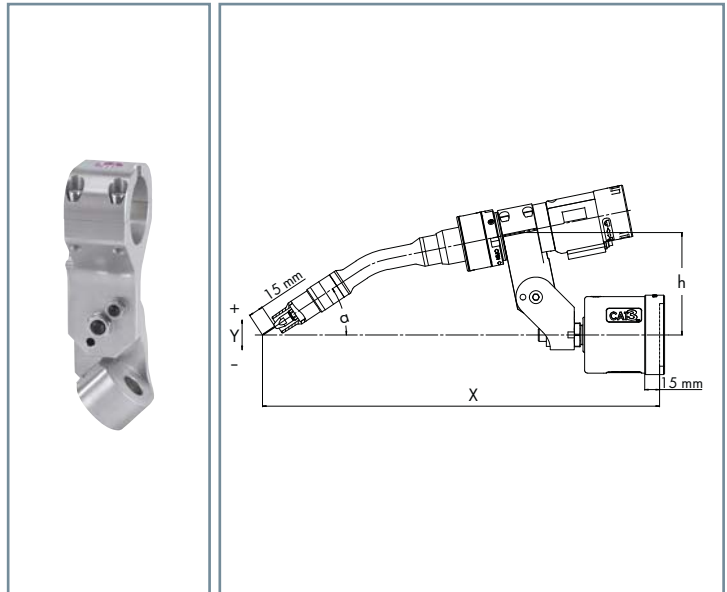


# "ABIROB® W" liquid cooled Holder & TCP Geometries

## CAT3 holder for ABIROB® W

in connection with CAT3 cpl.

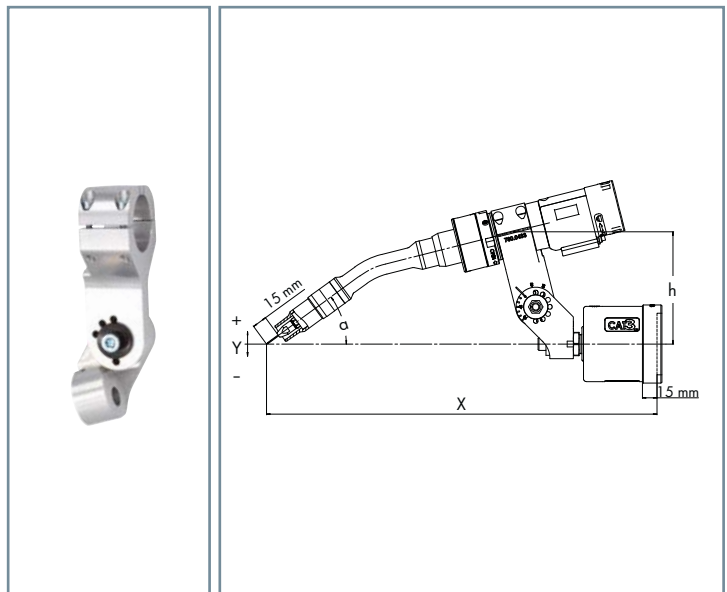
Torch type	Torch geometry	X	Y	h	a	Part-No.
ABIROB®	22°	437	0	102	36°	780.0430.1
W300	45°	416	0	104	53°	780.0430.1
ABIROB®	22°	399	0	103	33°	780.0430.1
W500	35°	383	0	104	40°	780.0430.1
	45°	370	0	105	45°	780.0430.1
ABIROB®	22°	499	0	104	30°	780.0430.1
W500	35°	484	0	105	39°	780.0430.1
(+100 mm)	45°	470	0	105	45°	780.0430.1
ABIROB®	22°	440	0	104	32°	780.0430.1
W600	35°	424	0	105	39°	780.0430.1
	45°	410	0	105	44°	780.0430.1
ABIROB®	22°	540	0	104	29°	780.0430.1
W600	35°	525	0	105	38°	780.0430.1
(+100 mm)	45°	510	0	105	44°	780.0430.1



## Segment holder für ABIROB® W<sup>1</sup>

in connection with CAT3

Torch type	Torch geometry	X	Y	h	a	Part-No.
ABIROB®	22°	440	+10	115	36°	780.0433.1
W300	45°	413	-19	115	59°	780.0433.1
ABIROB®	22°	400	0	115	36°	780.0433.1
W500	35°	383	0	117	43°	780.0433.1
	45°	368	0	118	48°	780.0433.1
ABIROB®	22°	497	-24	115	36°	780.0433.1
W500	35°	475	-51	115	49°	780.0433.1
(+100 mm)	45°	453	-70	115	59°	780.0433.1
ABIROB®	22°	439	-11	115	36°	780.0433.1
W600	35°	416	-40	115	49°	780.0433.1
	45°	393	-61	115	59°	780.0433.1
ABIROB®	22°	536	-36	115	36°	780.0433.1
W600	35°	513	-64	115	49°	780.0433.1
(+100 mm)	45°	490	-86	115	49°	780.0433.1



Further holders are available on request.

<sup>1</sup> Holder adjustable in 15° steps

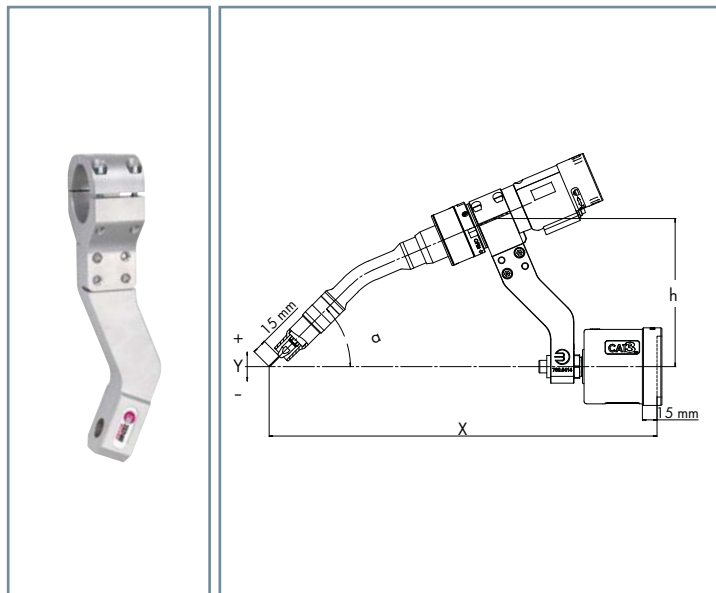


# "ABIROB® W" liquid cooled Holder & TCP Geometries

## Fixed bracket for ABIROB® W

in connection with CAT3

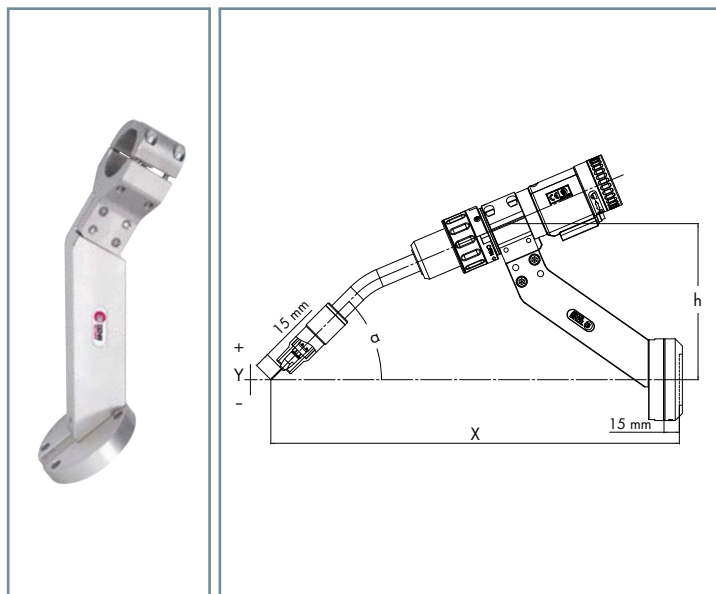
Torch type	Torch geometry	X	Y	h	$\alpha$	Part-No.
		(mm)				
ABIROB® W300	22°	400	0	149	45°	780.0444.1
	45°	400	0	90	50°	780.0446.1
ABIROB® W500	22°	400	0	153	45°	780.0414.1
	35°	400	0	125	45°	780.0420.1
	45°	400	0	126	50°	780.0422.1
ABIROB® W500 (+100 mm)	22°	500	0	192	45°	780.0438.1
	35°	500	0	142	45°	780.0440.1
	45°	500	0	134	50°	780.0442.1
ABIROB® W600	22°	400	0	170	45°	780.0781.1
	35°	400	0	136	45°	780.0782.1
	45°	400	0	135	50°	780.0784.1
ABIROB® W600 (+100 mm)	22°	500	0	209	45°	780.0785.1
	35°	500	0	153	45°	780.0786.1
	45°	500	0	144	50°	780.0788.1



## RTM holder for ABIROB® W

for robots with collision software

Torch type	Torch geometry	X	Y	h	$\alpha$	Part-No.
		(mm)				
ABIROB® W300	22°	400	0	149	45°	780.0459.1
	45°	400	0	90	50°	780.0461.1
ABIROB® W500	22°	400	0	153	45°	780.0449.1
	35°	400	0	125	45°	780.0451.1
	45°	400	0	105	50°	780.0453.1
ABIROB® W500 (+100 mm)	22°	500	0	192	45°	780.0455.1
	35°	500	0	142	45°	780.0457.1
	45°	500	0	105	45°	780.0453.1
ABIROB® W600	22°	400	0	170	45°	780.0789.1
	35°	400	0	136	45°	780.0790.1
	45°	400	0	135	50°	780.0792.1
ABIROB® W600 (+100 mm)	22°	500	0	198	45°	780.0793.1
	35°	500	0	153	45°	780.0794.1
	45°	500	0	144	50°	780.0796.1



Further holders are available on request.

# "ABIROB® W" liquid cooled Wire Brake Function



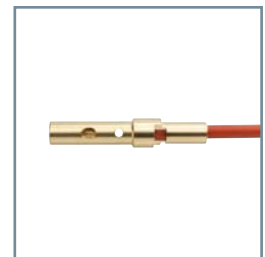
For tactile component search using the established ABIROB® W cable assembly, cable assemblies can now come with an optional wire clamp function to fix the wire. This function enables locking the wire in the cable assembly via a pneumatically operated piston that pushes the wire against an abutment. This ensures that the wire remains in position during sensing.

### Arguments that speak for themselves:

- No displacement of wire through torch movement or contact with materials
- Guaranteed "Stick-Out" during tactile sensing
- Nearly every variation of the ABIROB® W cable assembly can be factory fitted with a wire brake function

### Neck-Liners for wire brake

for torch neck	for	Wire-Ø	Length	Part-No.
ABIROB® W300	steel	1.0- 1.2	255 mm	149.0344.5
ABIROB® W500	steel	1.0- 1.2	222 mm	149.0287.5
		1.4- 1.6	222 mm	149.0289.5
ABIROB® W600	steel	1.0- 1.2	248 mm	149.0350.5
		1.0- 1.2	348 mm	on request
		1.4- 1.6	248 mm	149.0333.5
		1.4- 1.6	348 mm	149.0334.5



### Cable assemblies with wire brake function

#### Cable assemblies ABIROB® W5H

(Recommended for amperages up to 400 A and cable assembly lengths up to 2.50 m.)

with connection type	Length	Part-No.
ABICOR BINZEL®	1.10 m	782.1096.1
Euro central connection	1.35 m	782.1097.1
	1.50 m	782.1098.1

#### Cable assemblies ABIROB® W7F

(Recommended for amperages over 400 A.)

with connection type	Length	Part-No.
ABICOR BINZEL®	1.10 m	782.1100.1
Euro central connection	1.35 m	782.1101.1
	1.50 m	782.1102.1

Other lengths are available on request.

The control cable is not pre-wired at the machine end. Power source specific types on request.

The steel liner 0.8- 1.2 mm is included in the scope of delivery. Please order other versions separately.