Water-Cooled Robotic Torches

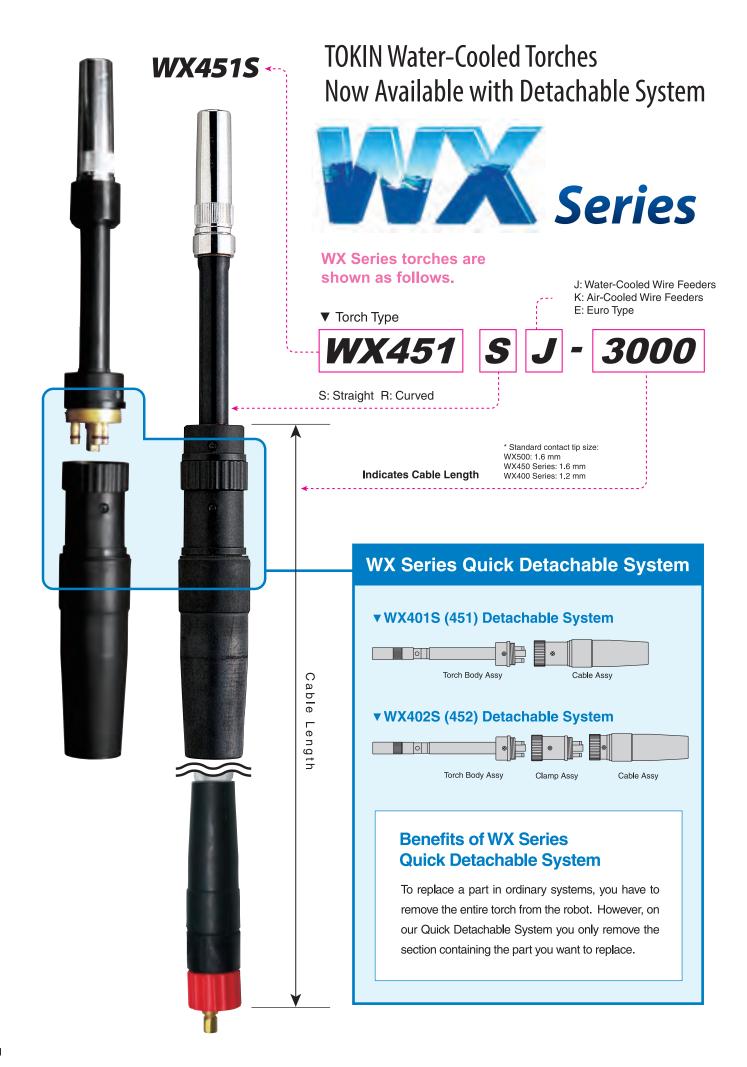


- ■WX702/500/451/452/401/402 **B** -600W TK308RW/308ALW
- ■YMES-500W/400W/508W/308ALW



www.tokinarc.co.jp

TOKIN CORPORATION



WX Series is the first detachable Water-Cooled Robot Torch System in Japan. TOKIN adopted its original technology of detachable system to the joint between Torch Body Assy and Cable Assy. The high-quality Quick Detachable System eliminates all problems with connectors such as fluid and gas leaks yet operation is just as easy as conventional types. This system allows replacing just the problem part during repairs and also gives big benefits in terms of costs. It also drastically reduces downtime while replacement.

At Tokin, we put all our knowledge and effort to work to deliver a reliable high quality product whose precision and durability fully match our previous models. The WX Series Water-Cooled Robotic Torch is the answer to all your workplace needs!

Features

1 Hose sheath made of heat resistant fiber that shuts out spatter and flame

The hose sheath is made of heat resistant fiber that protects the cables against spatter and flames. You no longer have to worry about spatter while handling the torch because spatter cannot penetrate or scorch the sheath even by direct contact.



2 Easy exchange boosts work efficiency



Easily attaches to welding robots and welding carriages.

On the Quick Detachable System, the torch is removable with just an easy twist of the wrist, which greatly boosts work efficiency. After connecting the adapter to the wire feeder, you



just insert the welding torch into the adapter and tighten the nut. Replacing the torch is no longer an annoying task.

3 Powerful water-cooling by the TOKIN's original circulation system

Our water circulator mechanism effectively cools the torch body, contact tip, and nozzle. These are the parts most often exposed to heat. The circulator makes these parts last longer and results in a good weld.

4 Connectable to both Water-Cooled and Air-Cooled wire feeders

We used an adapter to standardize welding torches to the Quick Detachable System. Just attach an adapter matching each manufacturer's Water or Air-Cooled Wire Feeder. The Tokin torch then easily connects to either type Wire Feeder with an easy twist of the wrist.



Series

WX702S / WX702R



Torch Model	WX702 S/R				
Rated Current	A (CO2)	700			
realed ourient	A (MAG)	600			
Duty Cycle	% (CO2)	80			
	% (MAG)	70			
Wire Diameter	mm	1.2-1.6			
Cooling Method		Water-Cooled			
Cable Length	m	1-5			

WX500S / WX500R



Torch Model	WX500 S/R				
Rated Current	A (CO2)	500			
reacca Garrent	A (MAG)	450			
Duty Cycle	% (CO2)	100			
Duty Cycle	% (MAG)	100			
Wire Diameter	mm	1.2-1.6			
Cooling Method		Water-Cooled			
Cable Length	m 1-5				
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WX452S / WX452R



Torch Model	WX452 S/R				
Rated Current	A (CO2)	500			
rated ourient	A (MAG)	450			
Duty Cycle	% (CO2)	80			
Duty Oyale	% (MAG)	70			
Wire Diameter	mm	1.2-1.6			
Cooling Method		Water-Cooled			
Cable Length	m 1-5				

^{*}Nozzle diameter is 16 mm and wire diameter is 1.6 mm unless specified by customer.













Icons in this catalogue







WX451S / WX451R



Torch Model	WX451 S/R				
Rated Current	A (CO2)	500			
reaced Current	A (MAG)	450			
Duty Cycle	% (CO2)	80			
Duty Cycle	% (MAG)	70			
Wire Diameter	mm	1.2-1.6			
Cooling Method		Water-Cooled			
Cable Length	m	1-5			

*Nozzle diameter is 16 mm and wire diameter is 1.6 mm unless specified by customer.



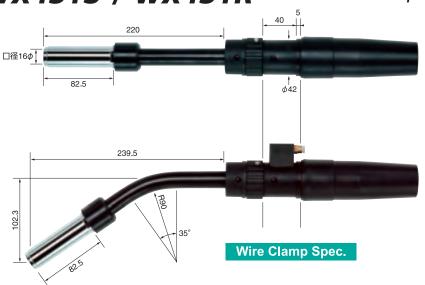








WX451S / WX451R Water-Cooled Nozzle Spec.



Torch Model	WX451 S Water	r-Cooled Nozzle
Rated Current	A (CO2)	500
reacca Garrent	A (MAG)	450
Duty Cycle	% (CO2)	100
	% (MAG)	100
Wire Diameter	mm	1.2-1.6
Cooling Method		Water-Cooled
Cable Length	m	1-5

*Nozzle diameter is 16 mm and wire diameter is 16 mm unless specified by customer.











Features

- Water-Cooled torch specially designed for aluminum welding
- •Durability of the contact tip is vastly improved by water cooling nozzle at nozzle end
- •Spatter accumulation is reduced by utilizing the Water-Cooled Nozzle
- •Tip body surface is finned to improve heat dissipation

Torch Model	WX451/452 AWS/R			
Rated Current	A (MIG)	350		
Duty Cycle	% (MIG)	50		
Wire Diameter	mm	1.2-1.6		
Cooling Method		Water-Cooled		
Cable Length	m	1-5		



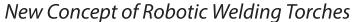








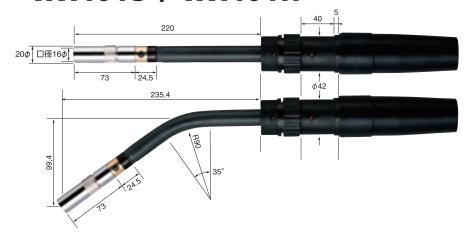






Series

WX401S / WX401R



WX40	1 S/R
A (CO2)	400
A (MAG)	350
% (CO2)	100
% (MAG)	100
mm	1.2-1.4
	Water-Cooled
m	1-5
	A (CO2) A (MAG) % (CO2) % (MAG) mm

*Nozzle diameter is 16 mm and wire diameter is 1.6 mm unless specified by customer.

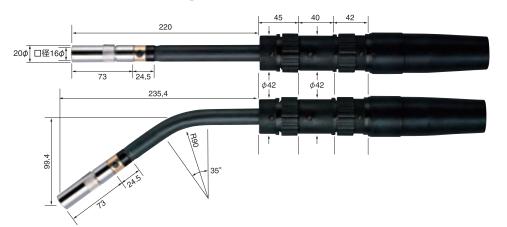








WX402S / WX402R



Torch Model	WX402 S/R				
Rated Current	A (CO2)	400			
reated ourient	A (MAG)	350			
Duty Cycle	% (CO2)	100			
	% (MAG)	100			
Wire Diameter	mm	1.2-1.4			
Cooling Method		Water-Cooled			
Cable Length	m	1-5			

*Nozzle diameter is 16 mm and wire diameter is 1.6 mm unless specified by customer.



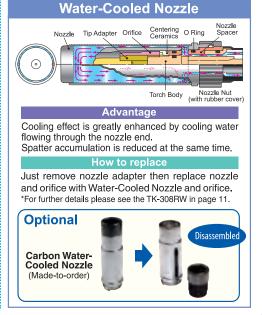






Water-Cooled Nozzle and Wire Clamp WX451/452





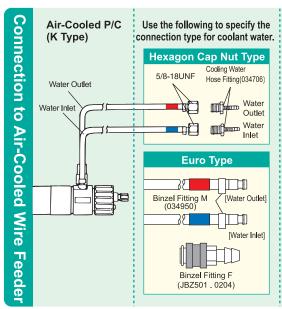


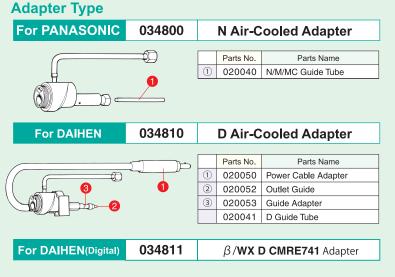


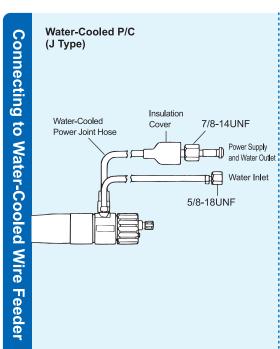
Connection to Wire Feeders

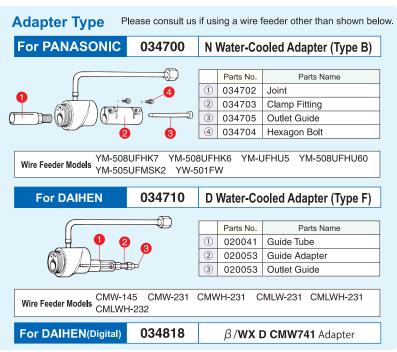
Quick Detachable System[Standard types]

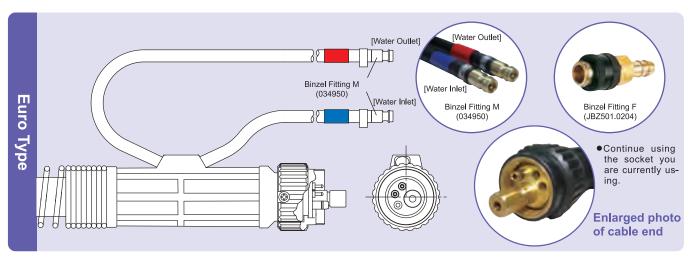
*You may have to use an adapter different than shown here depending on the wire feeder type you are using. *Please consult with us if your wire feeder is not made by PANASONIC or DAIHEN.













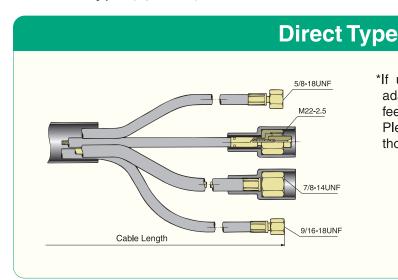






Connection to Wire Feeders

■ Direct Type (optional)



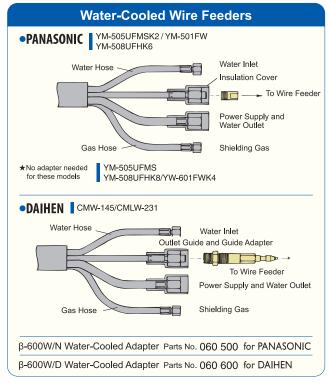
- *If using the direct type, then the following adapters are required depending on the wire feeder.
- Please specify the adapter by referring to those shown below.

- Each cable is separate from the others so maintenance and repair is relatively easy.
- Helps keep costs low because individual cables can be replaced.

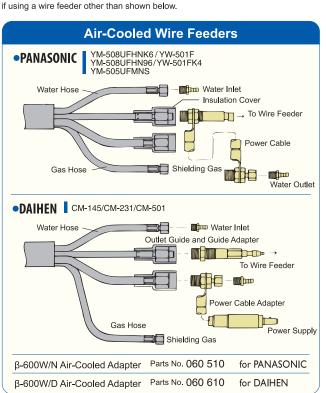
Note:

- Cables are available in lengths between 1 and 5 meters.
- Be sure the cooling water circulates while the torch is in operation. Without cooling water the torch will be damaged.
- Cooling water must be operated with the pressure between 1 kg/cm² and 3 kg/cm² and with a flow rate of more than 1 liter per minute.
- *Direct type is available for all torches in the WX Series.

Fittings to Wire Feeders (Direct Type) *Consult us if using a wire feeder other than shown below.



^{*}Same connection method is used on β -600W torches.



WX Series Torch List

		Water-Cooled Robot Torch					
Torch Model		WX500(S/R) WX451(S/R) WX452(S/R)			2(S/R)		
Torch Body Ty	ре	Curved	Straight	Curved	Straight	Curved	Straight
Rated Current (CO ₂)	А	500(CO ₂)/	450(MAG)	500(CO ₂)/	450(MAG)	500(CO ₂)/	450(MAG)
Duty Cycle	%	100(CO ₂)/	/100(MAG)	80(CO ₂)/	70(MAG)	80(CO ₂)/	70(MAG)
Separation		×	×	O(2 sections)	O(2 sections)	○(3 sections)	○(3 sections)
Wire Diameter	mm	1.2/1	.4/1.6	1.2/1	.4/1.6	1.2/1	.4/1.6
wife Diameter	Standard	N Tip	1.6mm	N Tip	1.6mm	N Tip	1.6mm
Nozzle Diameter	mm	16	/19	16.	/19	16.	/19
	Standard	Air-Coole	ed 16 mm	Air-Coole	ed 16 mm	Air-Coole	ed 16 mm
Wire Clamp				0	0	0	0
Water-Cooled Nozzle				0	0	0	0
Cooling Method		Water-	Cooled	Water-Cooled		Water-Cooled	
Cable Length	m	1	- 5	1-5		1-5	
Has all capabilities of conventional torches and greatly improved operability and part replacement. Features		Torch Body Assy, and can be quick and reassen torch. (500 Cycle)	Clamp Assy kly detached nbled with 1	Assy, and can be quic into 3 section	Assy, Cable Clamp Assy kly detached ons and reas- n 1 torch. (500 Cycle)		

		Water-Cooled Robot Torch		Aluminum welding Water-Cooled torch		orch			
Torch Model		WX40	1(S/R)	WX40	2(S/R)	WX451AW(S/R)		WX452AW(S/R)	
Torch Body Ty	ре	Curved	Straight	Curved	Straight	Curved	Straight	Curved	Straight
Rated Current (CO ₂)	А	400(CO2)/	/350(MAG)	400(CO2)/	/350(MAG)	350(MIG)	350(MIG)
Duty Cycle	%	100(CO2)/	/100(MAG)	100(CO2)/	/100(MAG)	50(1	MIG)	50(1	ЛIG)
Separation		○(2 sections)	○(2 sections)	○(3 sections)	○(3 sections)	○(2 sections)	○(2 sections)	○(3 sections)	○(3 sections)
Wire Diameter	mm	1.2	/1.4	1.2	/1.4	1.2/1	.4/1.6	1.2/1	4/1.6
Wife Diameter	Standard	N Tip	1.2mm	N Tip	1.2mm	N MIG T	ip 1.2mm	N MIG T	p 1.2mm
Nozzle Diameter	mm	350A 1	2/16/18	350A 1	2/16/18	Water-Cooled	Nozzle 16 mm num MIG	Water-Cooled for Alumi	
NOZZIE Diametei	Standard	Air-Cooled 16 m	m (Thick Nozzle)	Air-Cooled 16 m	m (Thick Nozz l e)	101 Alumi	IIIIII WIIG	IOI Alumi	iluili WilG
Wire Clamp		0	0	0		0	0	0	0
Water-Cooled Nozzle						Standard	Standard	Standard	Standard
Cooling Method		Water-	Cooled	Water-	Cooled	Water-Cooled		Water-Cooled	
Cable Length	m	1-	-5	1	-5	1-5		1-5	
Features	Has all features of the WX400 and Torch Body Assy and Cable Assy can be quickly detached and reassembled with 1 torch. Has all features of the WX400 and Torch Body Assy and Cable Assy can be quickly detached and reassembled with 1 torch.		cially design num welding Torch Body	Assy and can be quick- and reassem- torch. This lied with the d Nozzle to	Has all feature WX451AW a Body Assy, C and Clamp A quickly detac reassembled	nd Torch able Assy, ssy can be			

^{*1} See "WX Series Quick Detachable System" on page 1 to find how the torch is detached and reassembled.

*2*3 Optional

TK-308RW Air-Cooled Nozzle Spec. or Water-Cooled Nozzle Spec.

264.3 φ44 ϕ 30 **TK-308RW** with Water-Cooled Nozzle

Features

- Water-Cooled version of TK-308RR
- Torch can be replaced without altering the TK-308RR teaching points

Torch Model	TK-308RW		
Rated Current	A (CO2)	500	
rated ourient	A (MAG)	450	
Duty Cycle	% (CO2)	80	
Duty Cycle	% (MAG)	70	
Wire Diameter	mm	1.2-1.6	
Cooling Method		Water-Cooled	
Cable Length	m	1-5	

*Nozzle diameter is 16 mm and wire diameter is 1.6 mm unless specified by customer.



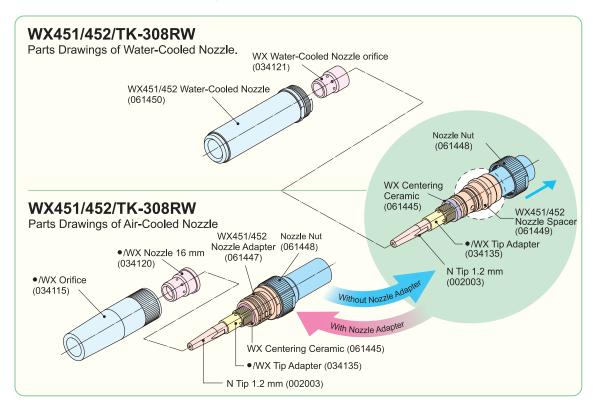




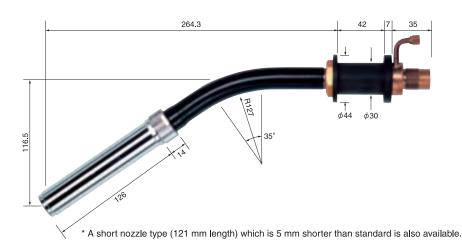




- TK-308RW can be converted to the Water-Cooled torch by replacing its nozzle and orifice with the "Water-Cooled Nozzle" and "Water-Cooled Nozzle Orifice."
- •Water-cooling reduces spatter accumulation at nozzle end.



TK-308ALW Aluminum MIG Welding Torch



- Water-Cooled torch specially designed for aluminum welding
- Maintenance is much easier since water inlet passages and water outlet passages are formed separately from each other
- Gas flow is strictly regulated by a long Water-Cooled Nozzle and tip body specifically de-signed for aluminum welding

Torch Model	TK-308ALW			
Rated Current	A (MIG) 300			
Duty Cycle	% (MIG)	50		
Wire Diameter	mm	1.0-1.2		
Cooling Method		Water-Cooled		
Cable Length	m	1-5		

*This product is equipped with the Water-Cooled Nozzle and1.2 mm wire unless otherwise specified by customer.



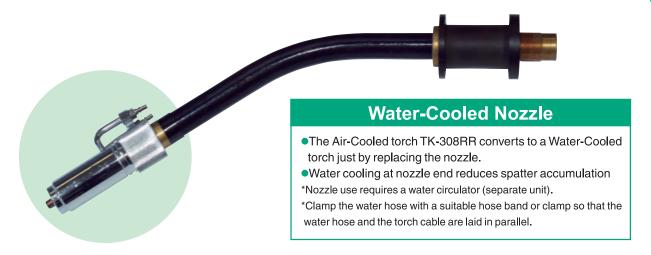


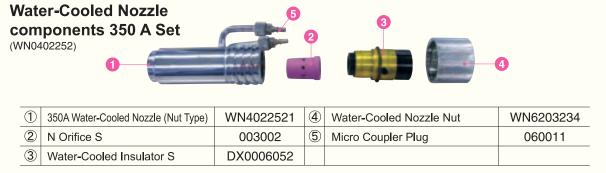






TK-308RR Water-Cooled Nozzle Spec.

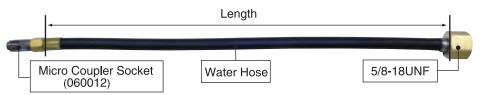




^{*}Please specify the part numbers when placing orders for individual parts.

Water-Cooled Nozzle Water Hose *Required when using the Water-Cooled Nozzle.





^{*}Please specify the length when ordering the water hose.

DEW-450R Tandem Torch



- Usable for high speed multilayer welding
- Excellent cooling performance by utilizing large Water-Cooled Nozzle
- Reliable cooling via independent cooling system that separately cools the torch body and nozzle
- Wire Clamp unit included as standard equipment

Torch Model	
Α	450+450
%	100
mm	1.2-1.6
	Water-Cooled
m	1-5
	% mm

This product is equipped with the Water-Cooled Nozzle and 1.2 mm wire unless otherwise specified by the customer.



















For MOTOMAN-EA

YMES-500W Air-Cooled Nozzle Spec.



Features

- Standard Water-Cooled torch model for built-in cable type robots
- Durability of contact tip is vastly improved by water-cooling effect at nozzle end

Torch Model	YMES-500W	
Rated Current	A (CO2)	500
Nated Ourient	A (MAG)	450
Duty Cycle	% (CO2)	80
	% (MAG)	70
Wire Diameter	mm	1.2-1.6
Cooling Method		Water-Cooled

^{*}Nozzle diameter is 16 mm and wire diameter is 1.6 mm unless otherwise specified by customer.



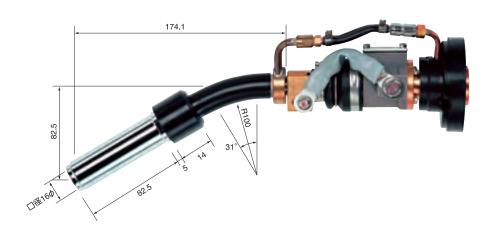








YMES-500W Water-Cooled Nozzle Spec.



Features

- Same great YMES-500W performance plus water-cooling to reduce spatter
- Durability of contact tip is vastly improved by watercooling effect at nozzle end.

Torch Model	YMES-500W Water-Cooled Nozzle	
Rated Current	A (CO2)	500
Nated Current	A (MAG)	450
Duty Cycle	% (CO2)	100
	% (MAG)	80
Wire Diameter	mm	1.2-1.6
Cooling Method		Water-Cooled

^{*}Nozzle diameter is 16 mm and wire diameter is 1.6 mm unless otherwise specified by customer.





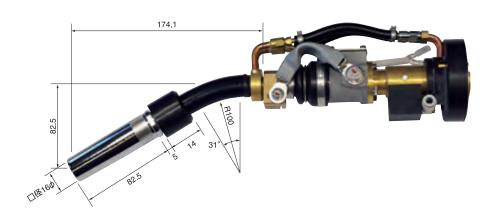






YMES-500W Wire Clamp Spec.

*Wire Clamp available on all torches.



Features

•Performance is the same as YMES-500W and the wire clamp prevents the wire stick-out length from changing with the robot movement, thus sensing can function in an optimal state.

	Torch Model	YMES-500W Wire Clamp	
	Rated Current	A (CO2)	500
	rtated ourient	A (MAG)	450
	Duty Cycle	% (CO2)	80
		% (MAG)	70
	Wire Diameter	mm	1.2-1.6
	Cooling Method		Water-Cooled

*Nozzle diameter is 16 mm and wire diameter is 1.6 mm unless specified by customer.











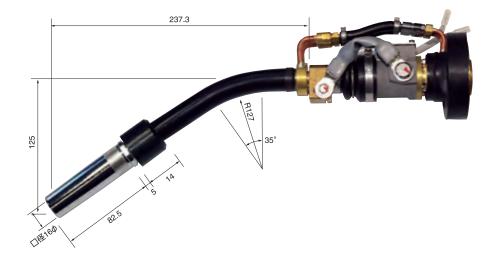








YMES-508W



Features

The longer torch allows welding in hard-to-reach places. Other performance specs. are the same as YMES-500W.

Torch Model	YMES-508W with Water-Cooled Nozzle	
Rated Current	A (CO2)	500
Nated Odifferit	A (MAG)	450
Duty Cycle	% (CO2)	80
	% (MAG)	80
Wire Diameter	mm	1.2-1.6
Cooling Method		Water-Cooled

*Nozzle diameter is 16 mm and wire diameter is 1.6 mm unless otherwise specified by customer.



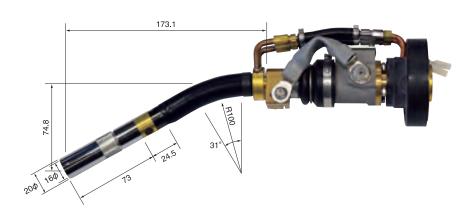








YMES-400W



Features

- Designed for use in the medium current range
- Uses the lightweight and compact 350A Water-Cooled Torch end and so is highly adaptable to different work and ideal for work pieces in complicated shapes.

Torch Model	YMES-400W	
Rated Current	A (CO2)	400
Nated Gallent	A (MAG)	350
Duty Cycle	% (CO2)	70
	% (MAG)	70
Wire Diameter	mm	1.2-1.6
Cooling Method		Water-Cooled

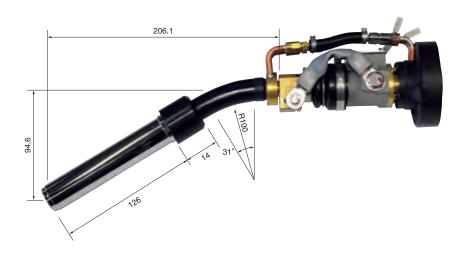
^{*}The N Nozzle (Thick Nozzle) diameter is 16 mm and 1.2 mm wire unless otherwise specified by the customer.







YMES-500ALW



Features

- Water-Cooled Torch specially designed for aluminum welding
- Gas flow is strictly regulated by a long Water-Cooled Nozzle and tip body specifically designed for aluminum welding.

Torch Model	YMES-500ALW	
Rated Current	A (MIG)	300
Duty Cycle	% (MIG)	50
Wire Diameter	mm	1.0-1.2
Cooling Method		Water-Cooled

^{*}This product is equipped with the Water-Cooled Nozzle and 1.2mm wire (MIG tip) unless otherwise specified by customer.

























600A Water-Cooled Robotic Torch

Minimizes Blowholes

Prevents shielding gas from flowing outward from the gap between the wire and contact tip and in this way helps prevent blowholes from forming.

Effective Shielding

Shielding gas passageways have been enlarged and gas-discharging holes formed. This has the effect of making the shielding gas flow mild and uniform.

100% Duty Cycle

Excellent cooling allows automatic welding at a100% duty cycle even under severe conditions.

Water-Cooled Nozzle

Nozzle end is directly cooled by coolant water branching out from torch body.

Original Circulation System

Efficiently cools the torch body, contact tip, and nozzle. These are the components most frequently exposed to heat, so durability is boosted to a higher level.

Lower Heat Emissions

The tip is integrated into the Water-Cooled torch body which indirectly cools contact tip and significantly extends its service life.

Auxiliary Power Feeding

At the back of contact tip, there is a fitting to increase the surface area contact with the wire to stabilize the positive power feeding.



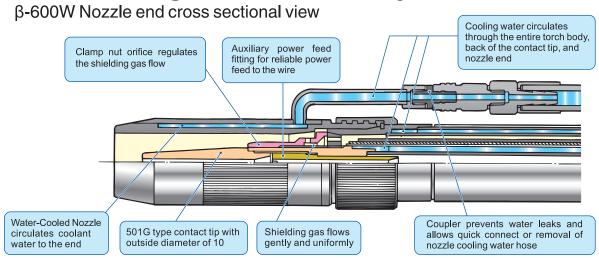
Supports CO2, MAG, and MIG Welding

Great for aluminum MIG welding and handles wire diameter up to 2.0 mm

High Current and Long-Term Operation

The cross sectional area of the Water-Cooled power cable conductor was increased to 22 mm2 and the coolant water hose inner diameter widened to a level allowing a flow rate of 1.8 liters per minute or more in every passage. These improvements allow long-term continuous torch use at a high current.

Powerful Original Circulation System



Coolant Circulation Systems

Thermo-chiller equipped

WR-200TC



- Equipped with high lift pump. Approximate discharge pressure of
- ■Temperature setting range between 5°C~40°C (±0.1°C temperature stability)
- Operating conditions can be monitored by way of the digital indication on the control panel
- Particle filter is provided at the return outlet of the circulating fluid, thus preventing problems caused by dirty circulating fluid
- Equipped with heating function to prevent freezing
- Compact design allows installation in tight space



Particle filter



WR-200TC control panel

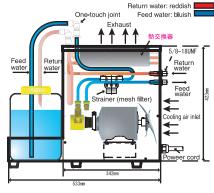
Model	WR-200TC
Supply voltage	AC200V(single phase)
Frequency	50/60Hz
Power consumption	1.1/1.4KVA
Discharge pressure	0.4MPa
Discharge flow rate (* 1)	2.1-2.2L/min
Cooling capacity	1700/1900W
Tank capacity	Approx. 5 L
Unit Weight (* 2)	51kg
Exterior dimensions (W×D×H)	377×500(+280)×615
Flow rate (body only)	4.1~4.2L/min
Flow rate (torch head + hose 10m)	2.1~2.2L/min

- * 1: With water-cooled torch connected 60Hz * 2: Cooling water mass not included

WR-100 (046500)



- Compact body and superior cooling capacity realizing 35kcal/min of heat value
- In the circulation system, the pump and the body are insulated to eliminate any adverse influences during arc starting
- Priming water is not needed, significantly reducing the work load associated with replacing water
- Water tank is separate and independent, facilitating water replacement
- Excels in serviceability, reducing cleaning work load

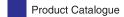


Model	WR-100
Supply voltage	AC200V(single phase)
Frequency	50/60Hz
Power consumption	200/240W
Discharge pressure	0.3MPa
Discharge flow rate (* 1)	2.1-2.2L/min
Heat discharge	35kcal/min
Tank capacity	10 L
Unit Weight (* 2)	22 kg

* 1: With water-cooled torch connected 60Hz* 2: Cooling water mass not included









Air-Cooled Robotic Torches



Semi-Automatic Torches



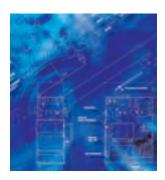
TIG Welding Torches



Replacement Parts



Robotic Peripherals



Fume Extractors



Plasma Parts,
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Part specifications, dimensions and design may be changed without prior notice for the purpose of part improvement. The product color shown here is a printed image and the actual color might vary somewhat.

