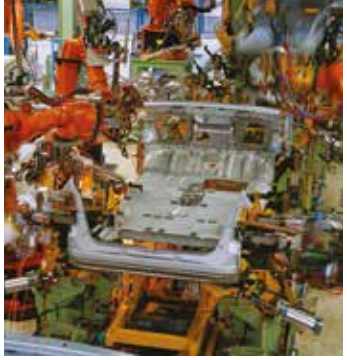


aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Water Retract Actuator

Catalogue PDE2671TCUK

ENGINEERING YOUR SUCCESS.

WARNING — USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

- This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.
- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.
- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

Water Retract Actuator

Parker in Automotive Industry

Parker is committed to offering the Automotive Industry the most comprehensive array of motion control products and technologies. Parker is continuously improving the performance and value of our products and services to meet current and future needs of the global Automotive Industry. Parker Automotive manufacturing focus includes body and assembly, power train, metal stamping, components and trim.

Overview

Water Retract Actuator is a solution designed to prevent excessive water spillage during the routine tip change of a spot welding gun.

Excessive water spillage within a weld cell environment presents a number of hazards including, electrical shock, slip hazard, equipment damage, and damage to the product that is being manufactured.

The Water Retract Actuator reduces the water pressure in the closed-off cooling circuit which eliminates the problems of water being expelled under pressure during a tip change.

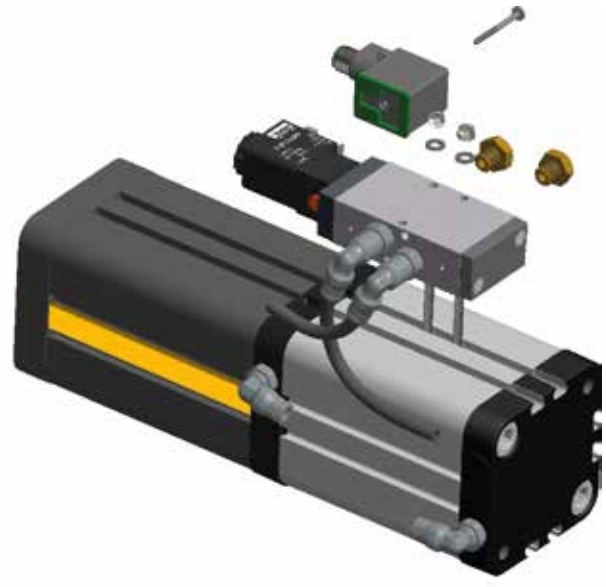
Water Retract System Not in Use

Water Retract System in Use

Features

Parker's water retract solutions are available either as individual components that can be assembled by either the OEM or end-user, as a retooling kit allowing existing systems to be modified, or as a frame mounted solution designed for floor or robot mounting.

Parker's proven cylinder and actuation technology delivers trouble free operation, while materials used ensure compatibility with all cooling water fluids leading to a long service life.

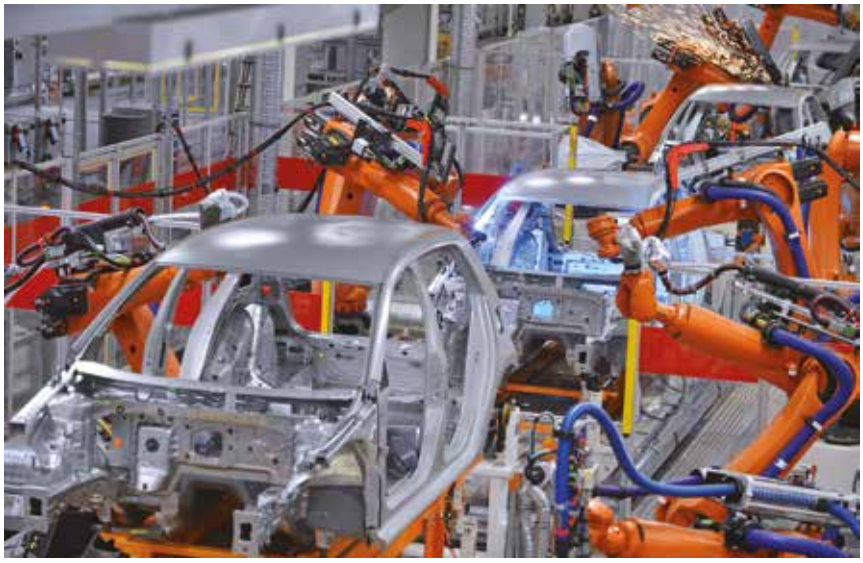


Application

Parker Hannifin has developed an extensive range of products to accommodate water cooling of spot welding equipment in car manufacturing plants worldwide. This product is the best solution to prevent excessive water spillage during the tip change process of a spot weld gun.

The Water Retract Actuator solves a number of problems for the 'body-in-white' department. It reduces the water pressure in the closed-off cooling circuit eliminating the problems of spilt cooling water on unpainted car body parts, expensive equipment and the production floor.

The Parker Hannifin Water Retract Actuator has been developed according to automobile manufacturer's specification and can be supplied for both new and retooling programs. All our products are designed specifically to work with existing water cooling systems.



Overview of available Components:

For simplified installation and optimum performance of the existing cooling water system, Parker can develop a customized water retract solution that consists of the following main components:

- **Water retract actuator**
- **Control valve to operate water retract actuator**
- **Mounting plate**
- **Water connection tube / fitting kit**

Model Number Index

WR	A	250	B	C	63	63	N	A

	Series
WR	Water Retract Actuator

	Type
A	Active

	Volume
125	Retract volume 125 ml
250	**Retract volume 250 ml (standard)**
500	Retract volume 500 ml

	Water Port
B	BSPP
N	NPT

Water retract actuator is factory fitted with magnetic piston on air side as standard. In combination with Parkers wide range of sensor technology, position of air piston can be detected.
For overview of available sensors, see page 11

	Mounting
N	No mount
B	Foot bracket mount
F	Flange mount

	Diameter piston air volume
63	Bore 63 mm

	Diameter piston water volume
63	Bore 63 mm

	Pneumatic Control
C	24VDC, Unit retracted in rest position
D	24VDC, Unit extended in rest position
G	Pilot operated, unit retracted in rest position
H	Pilot operated, unit extended in rest position
N	No pneumatic control

Other version on request, ask your local Parker Sales office

Mounting WRA conform to standard ISO 15552. Mountings supplied un-assembled

WRA Operation Specifications

Water retract volume	125ml / 250ml / 500ml
Water connection WRA	1/2 BSPP or NPT
Weight	125 ml 2,0 kg (4,40 lbs) / 250 ml 2,60 kg (5,70 lbs) / 500 ml 3,60 kg (7,90 lbs)
Ambient temp	10 - 40 °C / 50 - 104 °F

Compressed air specification

Air pressure	3-10 bar / 44-147 PSI
Air quality	Class 3.4.3 , according ISO 8573-1 2010

Valve specification

Type	VikingLite
Medium	Compressed air
Air connection valve	BSPP 1/8
Valve specs	Cv 0,6
Voltage	24 VDC, M12 connector with LED

Cooling water specifications

Water medium	Cooling water
PH Level of cooling water	pH7-pH8
Contamination limitation	no metal particles
Water temp range	-10 - +70 °C / 14 - 158 °F
System water pressure	9 bar Max, air pressure must always exceed water pressure with a min. of 1 bar

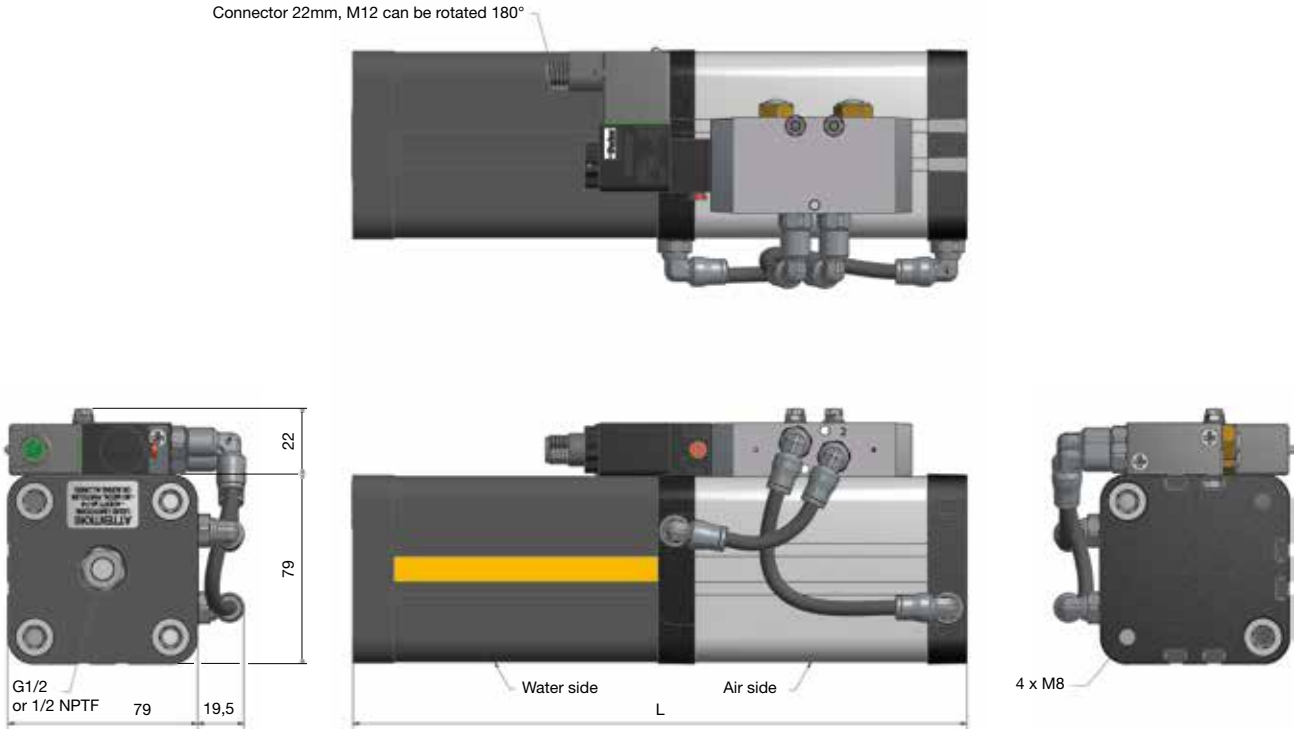
Materials

Endcover water side	PA 6G
Actuator Tube water side	Brass
Endcovers air side	Aluminium Hard Anodised
Actuator tube air side	Aluminium Hard Anodised
Piston Water retract	UHMW-PE
Piston Air side	NBR
Control valve WRA	Aluminium
Fitting air side Push-in	Nickel-Plated Brass
Air connection tubing	PU, weld resistant

Dimension - No mount

Dimensions

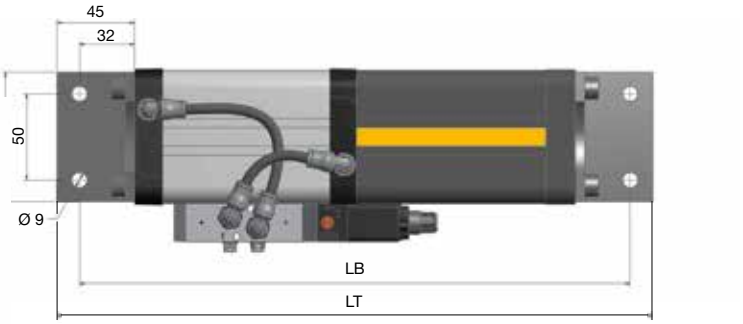
Type	Volume (cm3)	Overall Length L
WRA125	125	182
WRA250	250	264
WRA500	500	423

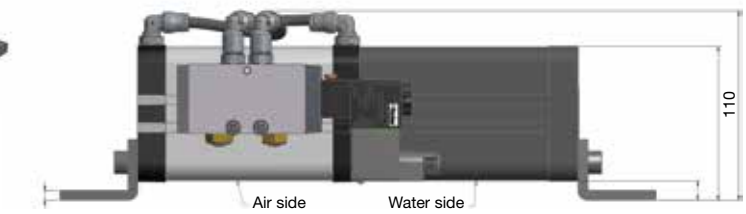


Dimension - Foot bracket mount

Foot bracket

Description	Type	Order code
Foot bracket	MS1	P1C-4NMF





Type	Volume	Length (LB)	Length (LT)
WRA125	125	246	272
WRA250	250	328	354
WRA500	500	487	513

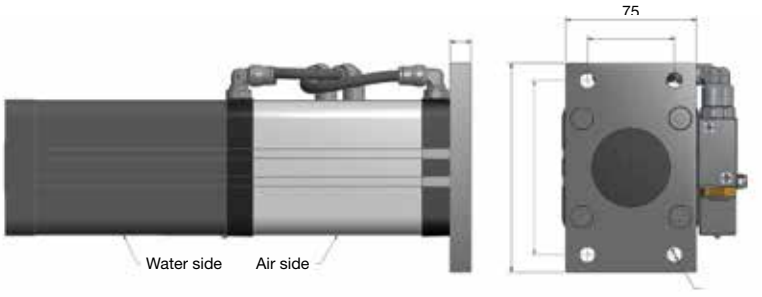
WRA mounting conforms to ISO 15552 standards

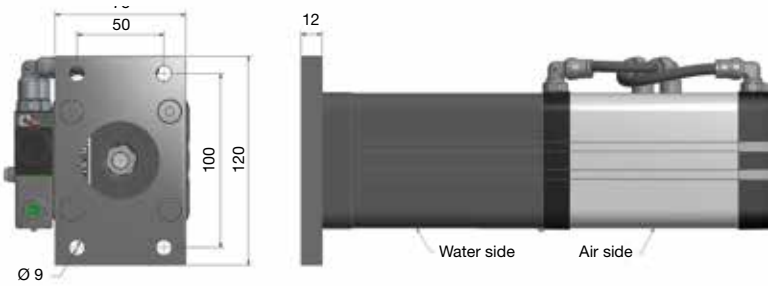
Mounting supplied un-assembled.

Dimension - Flange mount

Flange

Description	Type	Order code
Flange	MF1/MF2	P1C-4NMB





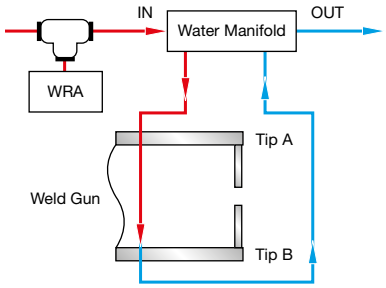
WRA mounting conforms to ISO 15552 standards

Mounting supplied un-assembled.

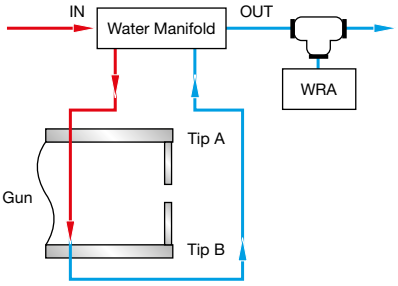
Water Retract Actuator (WRA) Water Schematic

Series Connection

Scenario 1, the WRA can be placed on the **IN** line of the water manifold. In this situation, you would engage the unit and remove tip B first, replace it, and then remove tip A.

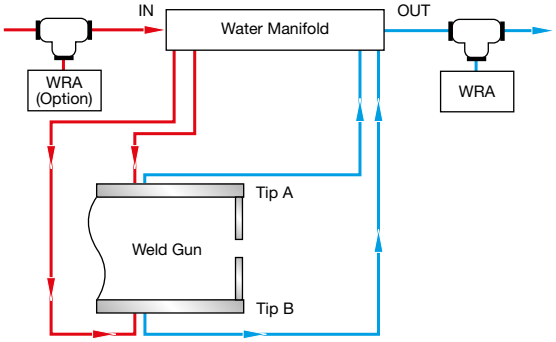


Scenario 2, the WRA can be placed on the **OUT** Line of the water manifold. In this situation, you would engage the unit and remove tip A first, replace it, and then remove tip B.

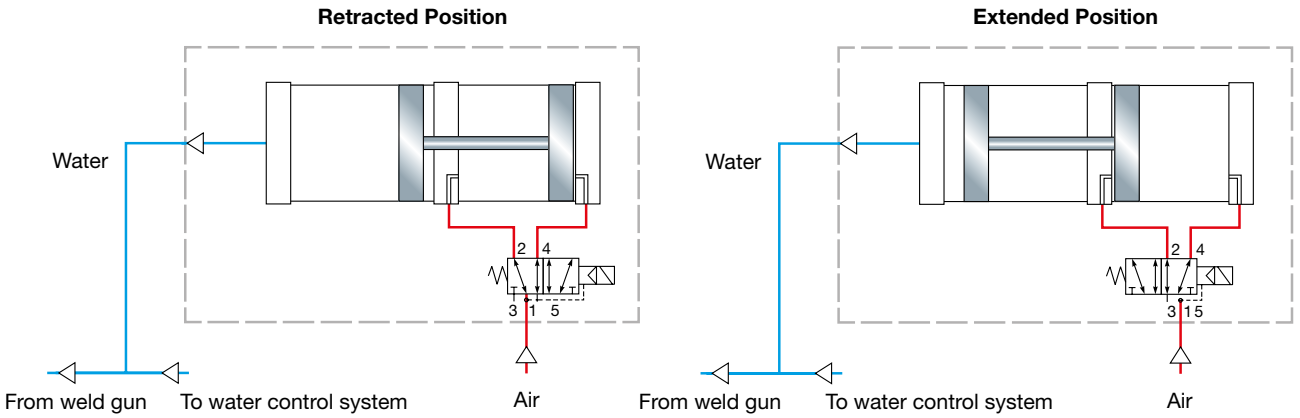


Parallel Connection

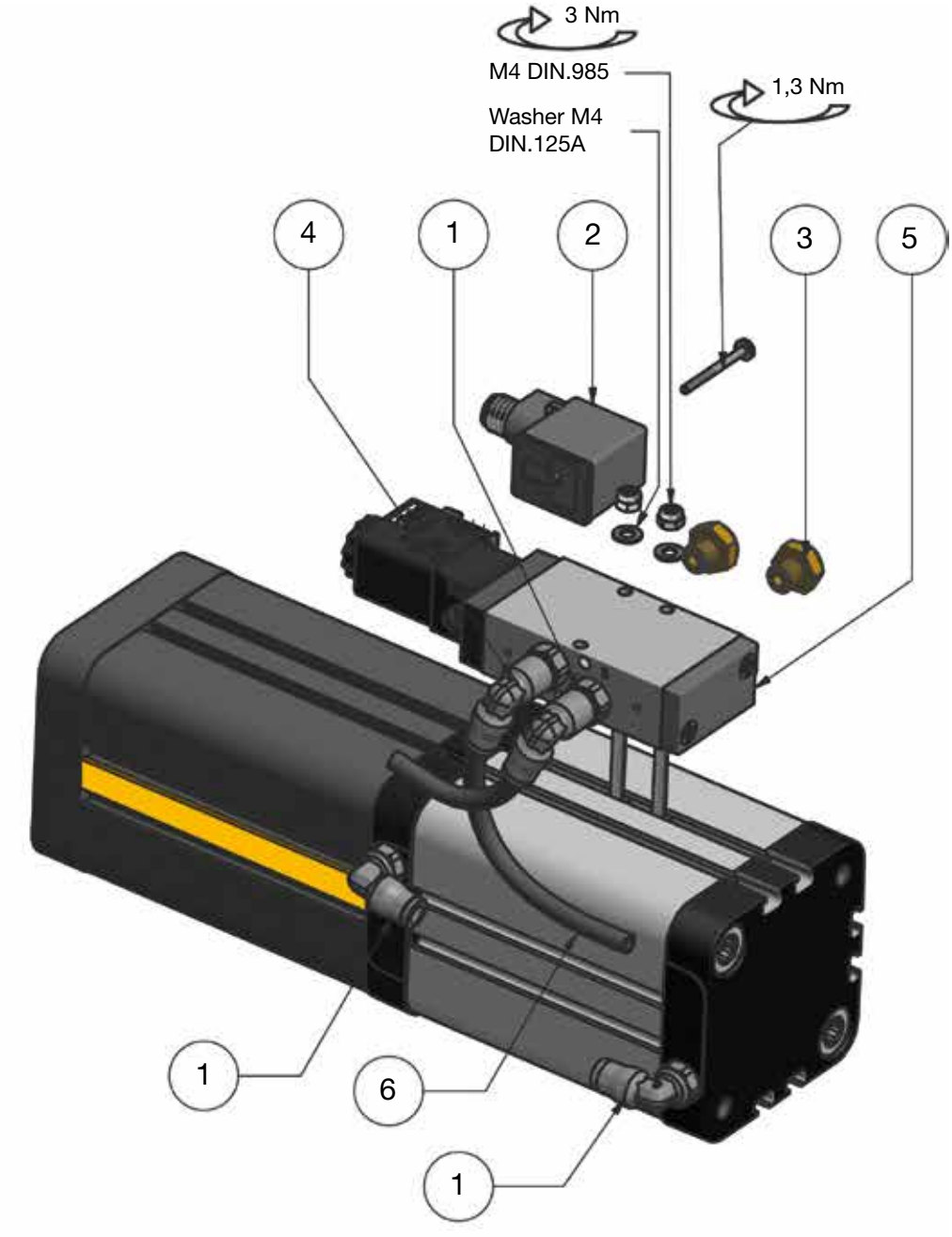
In parallel configuration, the WRA is placed on the **IN** or the **OUT** line of the water manifold. In this situation, you would engage the unit and then you would be able to remove both tips at the same time.



Pneumatic / Water schematic



Spare Parts



Spare Parts Parts List

Item	Qty	Part no.	Description
1	3	3699 06 10	Stud elbow. BSP Parallel and Metric 6
2	1	5566310	Connector 22 mm, M12 with LED
3	2	0673 00 10	Muffler G1/8
4	1	3669 06 10	Extended stud elbow, BSP Parallel and Metric 6
5	1	P2LAZ511ESNDCB49	G1/8 5/2 Solenoid-Spring 24 VDC Viking Lite
6		SGPWPU6X1/5-50	Soft Grade PWPU 6x1 MM BLACK

P8S-G Sensors

Note: The pneumatic portion of the WRA comes with a magnetic piston as standard, permitting the operator to attach a Parker sensor to the unit and add additional confirmation of the condition of the WRA is engaged or not.

The P8S-G sensors can easily be installed from the side in the sensor groove, at any position along the piston stroke. The sensors are completely recessed and thus mechanically protected. Choose between electronic or reed sensors and several cable lengths and 8 mm and M12 connectors. The same standard sensors are used for all Water Retract Actuators.

Electronic sensors

The electronic sensors are "Solid State", i.e. they have no moving parts at all. They are provided with short-circuit protection and transient protection as standard. The built-in electronics make the sensors suitable for applications with high on and off switching frequency, and where very long service life is required.

Technical data	
Design	GMR (Giant Magnetic Resistance) magneto-resistive function
Installation	From side, down into the sensor groove, so-called drop-in
Outputs	PNP, normally open (also available in NPN design, normally closed, on request)
Voltage range	10-30 VDC 10-18 V DC, ATEX sensor
Ripple	max 10%
Voltage drop	max 2,5 V
Load current	max 100 mA
Internal consumption	max 10 mA
Actuating distance	min 9 mm
Hysteresis	max 1,5 mm
Repeatability accuracy	max 0,2 mm
On/off switching frequency	max 5 kHz
On switching time	max 2 ms
Off switching time	max 2 ms
Encapsulation	IP 67 (EN 60529)
Temperature range	–25 °C to +75 °C –20 °C to +45 °C, ATEX sensor
Indication	LED, yellow
Material housing	PA 12
Material screw	Stainless steel
Cable	PVC or PUR 3x0.25 mm^2 see order code respectively

Reed sensors

The sensors are based on proven reed switches, which offer reliable function in many applications. Simple installation, a protected position on the cylinder and clear LED indication are important advantages of this range of sensors.

Technical data	
Design	Reed element
Mounting	From side, down into the sensor groove, so-called drop-in
Output	Normally open, or normally closed
Voltage range	10-30 V AC/DC or 10-120 V AC/DC 24-230 V AC/DC
Load current	max 500 mA for 10-30 V or max 100 mA for 10-120 V max 30 mA for 24-230 V
Breaking power (resistive)	max 6 W/VA
Actuating distance	min 9 mm
Hysteresis	max 1,5 mm
Repeatability accuracy	0,2 mm
On/off switching frequency	max 400 Hz
On switching time	max 1,5 ms
Off switching time	max 0,5 ms
Encapsulation	IP 67 (EN 60529)
Temperature range	–25 °C to +75 °C
Indication	LED, yellow
Material housing	PA12
Material screw	Stainless steel
Cable	PVC or PUR 3x0.14 mm^2 see order code respectively

Sensors Ordering Data

Output/function	Cable/connector	Weight kg	Order code
Electronic sensors, 10-30 V DC			
PNP type, normally open	0,27 m PUR-cable and 8 mm snap-in male connector	0,007	**P8S-GPSHX**
PNP type, normally open	0,27 m PUR-cable and 12 mm screw male connector	0,015	**P8S-GPMHX**
PNP type, normally open	3 m PVC-cable without connector	0,030	**P8S-GPFLX**
PNP type, normally open	10 m PVC-cable without connector	0,110	**P8S-GPFTX**
Reed sensors, 10-30 V AC/DC			
Normally open	0,27 m PUR-cable and 8 mm snap-in male connector	0,007	**P8S-GSSHX**
Normally open	0,27 m PUR-cable and 12 mm screw male connector	0,015	**P8S-GSMHX**
Normally open	3 m PVC-cable without connector	0,030	**P8S-GSFLX**
Normally open	10 m PVC-cable without connector	0,110	**P8S-GSFTX**
Normally closed	5 m PVC-cable without connector	0,050	**P8S-GCFPX**

Water Retract System
Water / air control system solutions

To simplify installation into existing systems, Parker's Water Retract Solutions can be supplied as either a retooling kit, frame or robot foot mounted solution dependent upon the specific requirements of the customer.

Panel mounted solution

Water Retract Retooling Kit

- **Designed to integrate with existing water system with minimal disruption**
- **Customised mounting plate and water connection to meet the specific needs of the vehicle manufacturers program specification**
- **Water retract retooling kit Ø63**

Frame mounted solution

Robot foot mounted solution

- **Designed for local mounting either on the foot of the robot or within the cell**
- **Customised connection to meet the specific needs of the vehicle manufacturers program specification**
- **Control and monitor cooling water flow through the weld tips**
- **Supply of filtered air pressure, controlled by a manually operated shut-off valve**
- **Monitor minimum air pressure**
- **Pneumatic operated water shut-off valve**

Complementary Products

Parker is also able to offer Hall and Robot Installation Panels that are used to distribute air and cooling water around a number of, or an individual weld cell.

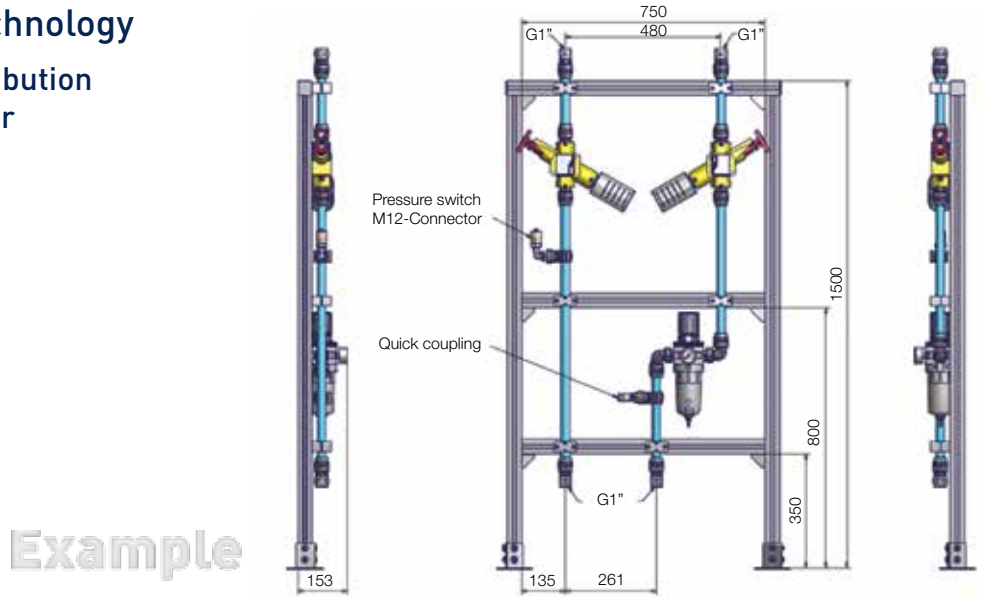
RIP Technology

Water Cooling Block

- **Air supply (6 and/or 12 bar)**
- **Water supply (40, 200, 500 l/min)**
- **Water filter (dual) in accordance water flow**
- **Automatically shut-off air and water supply**
- **Monitoring air flow and pressure (digital)**
- **Monitoring water pressure & temp (analogue)**
- **Frame assembly**

HIP Technology

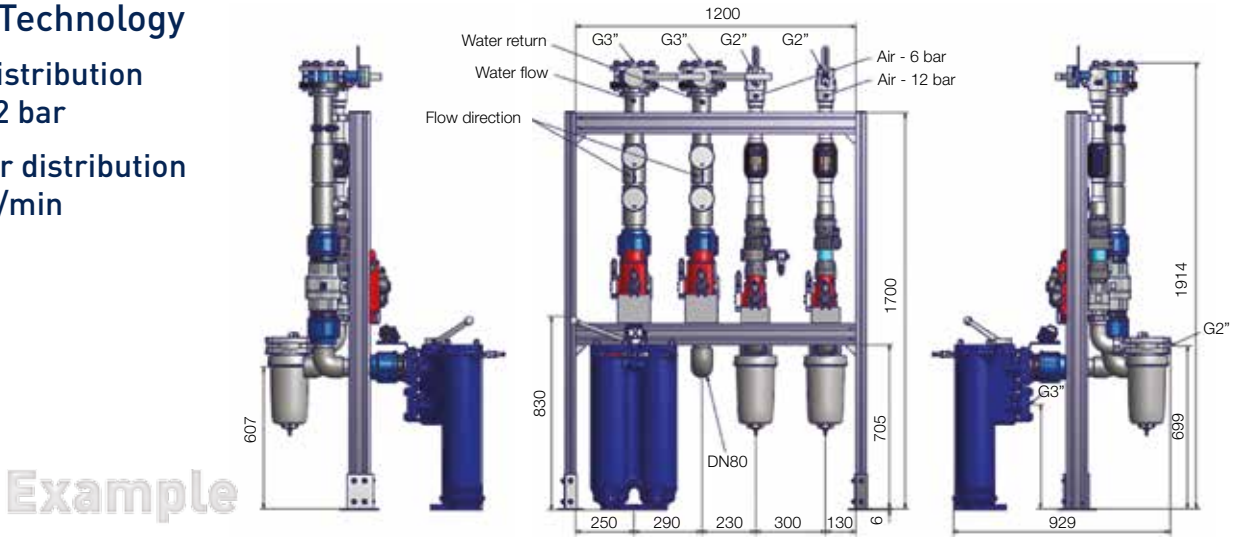
Air distribution
6 &12 bar



HIP Technology

Air distribution
6 &12 bar

Water distribution
500 l/min



Parker Worldwide

AE – UAE, Dubai
Tel: +971 4 8127100
parker.me@parker.com

AR – Argentina, Buenos Aires
Tel: +54 3327 44 4129

AT – Austria, Wiener Neustadt
Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe,
Wiener Neustadt
Tel: +43 (0)2622 23501 900
parker.easteurope@parker.com

AU – Australia, Castle Hill
Tel: +61 (0)2-9634 7777

AZ – Azerbaijan, Baku
Tel: +994 50 2233 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles
Tel: +32 (0)67 280 900
parker.belgium@parker.com

BR – Brazil, Cachoeirinha RS
Tel: +55 51 3470 9144

BY – Belarus, Minsk
Tel: +375 17 209 9399
parker.belarus@parker.com

CA – Canada, Milton, Ontario
Tel: +1 905 693 3000

CH – Switzerland, Etoy
Tel: +41 (0)21 821 87 00
parker.switzerland@parker.com

CL – Chile, Santiago
Tel: +56 2 623 1216

CN – China, Shanghai
Tel: +86 21 2899 5000

CZ – Czech Republic, Klecany
Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst
Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup
Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid
Tel: +34 902 330 001
parker.spain@parker.com

FI – Finland, Vantaa
Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve
Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Athens
Tel: +30 210 933 6450
parker.greece@parker.com

HK – Hong Kong
Tel: +852 2428 8008

HU – Hungary, Budapest
Tel: +36 1 220 4155
parker.hungary@parker.com

IE – Ireland, Dublin
Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IN – India, Mumbai
Tel: +91 22 6513 7081-85

IT – Italy, Corsico (MI)
Tel: +39 02 45 19 21
parker.italy@parker.com

JP – Japan, Tokyo
Tel: +81 (0)3 6408 3901

KR – South Korea, Seoul
Tel: +82 2 559 0400

KZ – Kazakhstan, Almaty
Tel: +7 7272 505 800
parker.easteurope@parker.com

MX – Mexico, Apodaca
Tel: +52 81 8156 6000

MY – Malaysia, Shah Alam
Tel: +60 3 7849 0800

NL – The Netherlands,
Oldenzaal
Tel: +31 (0)541 585 000
parker.nl@parker.com

NO – Norway, Asker
Tel: +47 66 75 34 00
parker.norway@parker.com

NZ – New Zealand, Mt Wellington
Tel: +64 9 574 1744

PL – Poland, Warsaw
Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal, Leca da Palmeira
Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest
Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow
Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Spånga
Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SG – Singapore
Tel: +65 6887 6300

SK – Slovakia, Banská Bystrica
Tel: +421 484 162 252
parker.slovakia@parker.com

SL – Slovenia, Novo Mesto
Tel: +386 7 337 6650
parker.slovenia@parker.com

TH – Thailand, Bangkok
Tel: +662 717 8140

TR – Turkey, Istanbul
Tel: +90 216 4997081
parker.turkey@parker.com

TW – Taiwan, Taipei
Tel: +886 2 2298 8987

UA – Ukraine, Kiev
Tel +380 44 494 2731
parker.ukraine@parker.com

UK – United Kingdom,
Warwick
Tel: +44 (0)1926 317 878
parker.uk@parker.com

US – USA, Cleveland
Tel: +1 216 896 3000

VE – Venezuela, Caracas
Tel: +58 212 238 5422

ZA – South Africa,
Kempton Park
Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

European Product Information Centre
Free phone: 00 800 27 27 5374
(from AT, BE, CH, CZ, DE, EE, ES, FI, FR, IE, IL, IS, IT, LU, MT, NL, NO, PT, SE, SK, UK)

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Parker Hannifin Ltd.
Tachbrook Park Drive
Tachbrook Park,
Warwick, CV34 6TU
United Kingdom
Tel.: +44 (0) 1926 317 878
Fax: +44 (0) 1926 317 855
parker.uk@parker.com
www.parker.com

Your local authorized Parker distributor