



# SMR Series

Submicronic Removal  
Fluid Purification Systems



ENGINEERING YOUR SUCCESS.

# SMR Series

## Applications

The SMR Series is the smart purification solution for fluid flow in the 10 GPM (38 LPM) range. The SMR contains patented Balanced Charge Agglomeration (BCA®) technology, which maintains hydraulic and lubricating fluids in optimum condition while preventing/removing the build-up of sludge and varnish. The system is available in a PLC or simplified control version.

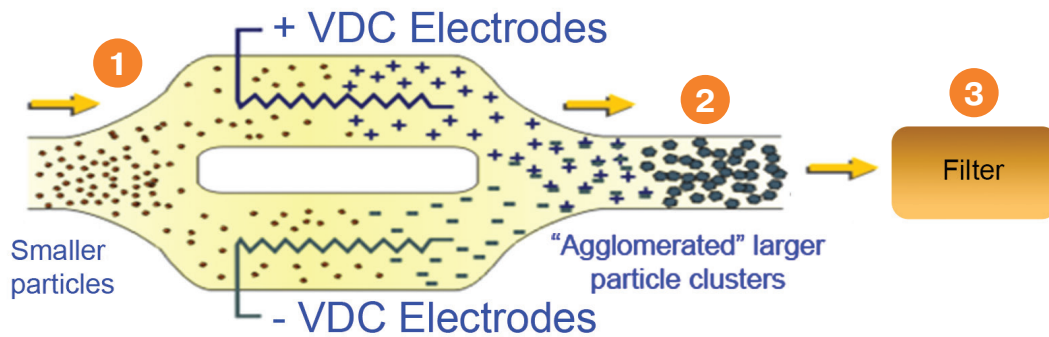
Balanced Charge Agglomeration (BCA®) technology does not remove water, however with the removal of thousands of sub-micron particles, the majority of sites where water can readily attach are mitigated. Water is more easily separated and removed, improving demulsibility.

- **Power Generation**
  - Steam & Gas Turbine
  - hydraulics & lubrication
- **Oil & Gas**
  - Compressor/Turbine hydraulics & lubrication
- **Pulp & Paper**
  - Lube oil
  - Hydraulics
- **Manufacturing**
  - Hydraulics
  - Lubrication
  - EDM
  - Injection molders
- **Others**
  - Cooking oil
  - Gear oil
  - Fuels
  - Bio fuels
  - Steel
  - Military



# SMR Series

## Balanced Charge Agglomeration (BCA<sup>®</sup>) - How the Technology Works



- 1** Particles are passed across high-voltage electrodes, inducing a charge on the particles (+) and (-) in separate paths.
- 2** Oppositely charged particles are mixed and are attracted to each other, forming larger particle clusters.
- 3** Particle clusters are more efficiently filtered.

## Evaluation of the SMR Process - Actual Test Results

- Varnish is stripped from the hydraulic or lubrication system as fluid is processed through the SMR.
- The varnish is suspended in the hydraulic fluid as sub-micron particulate.
- BCA<sup>®</sup> develops larger particles (see graphic above).
- The particulate is effectively removed from the hydraulic or lubrication fluid by high efficiency filters.



Results from a 10 month field trial

# SMR Series

## Features and Benefits

- Contaminant Removal to the Sub-Micron Level
- Prevention and Removal of Sludge and Varnish
- Removal of Oxidation Byproducts and Biological Contamination
- Removal of Ferrous and Non-Ferrous Contaminants

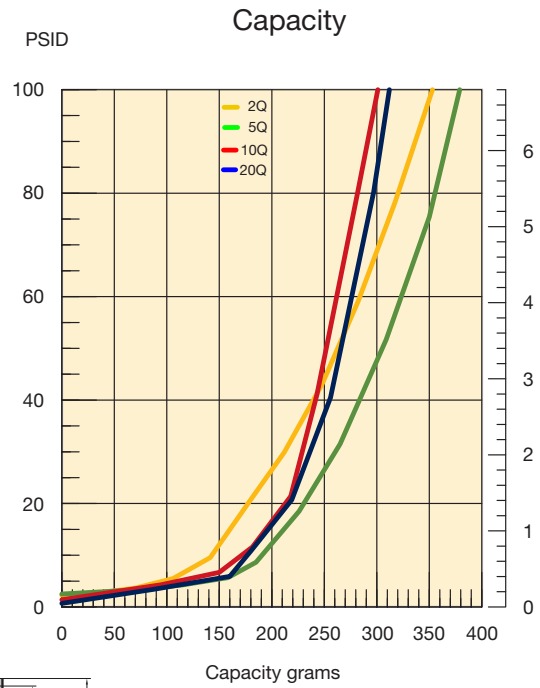
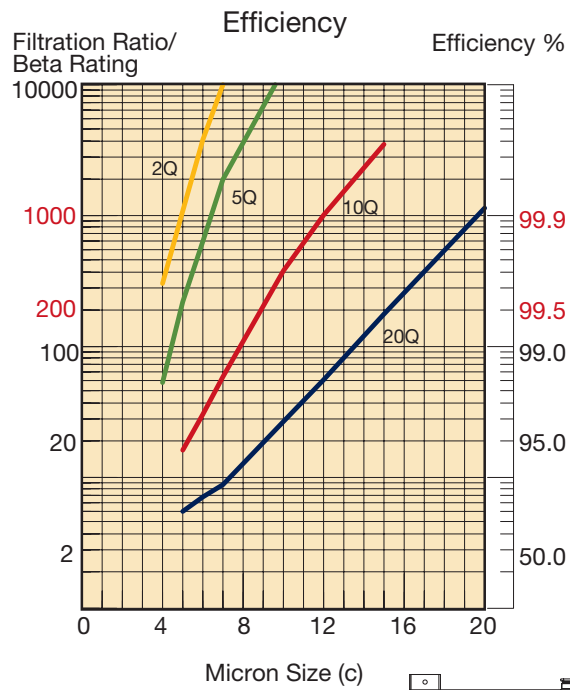
### The Parker SMR Benefit

- Unmatched Fluid Purification & System Polishing
- Proven Varnish Removal
- PLC Control & Data Tracking
- OEM Approvals

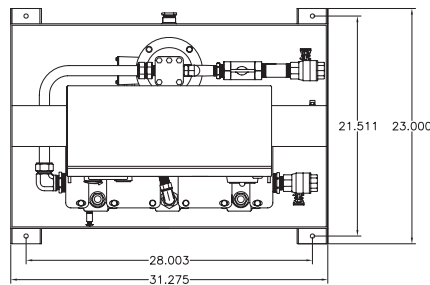


# SMR10

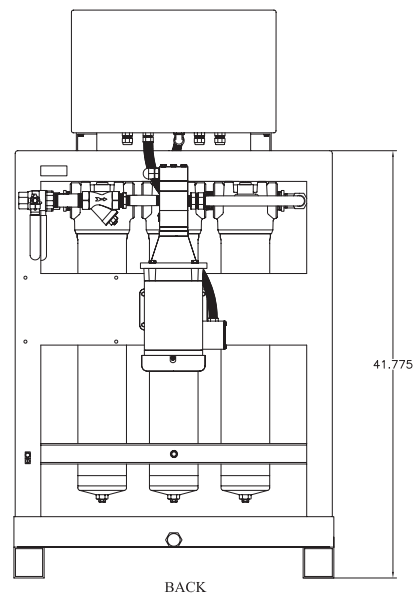
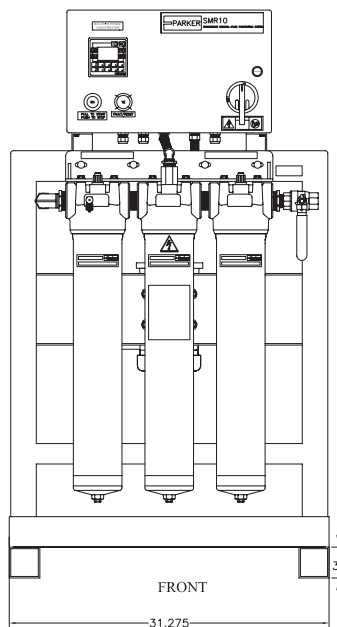
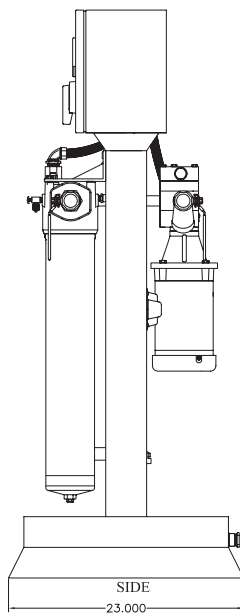
## Element Performance



Dimensions are in inches.



Drawings are for reference only.  
Contact factory for current version.



# SMR10

## Specifications

### Shipping Weight

Approx. 525 lbs (238 kg)

### Fluid

Viscosity: 1,020 SUS (220 cSt) maximum  
Maximum Pressure: 50/80 PSI (operating/static)  
Minimum Fluid Temperature: 65° F (18° C)  
Maximum Fluid Temperature: 200° F (93° C)  
Minimum Fluid Flash Point: >140° F (60° C)

### Power

Customer Provided  
Voltage: 110VAC/1Ph/60Hz, 230VAC/3Ph/60Hz,  
460VAC/3Ph/60Hz  
Phase: 1/3  
Frequency 60Hz

### Motor

Power: 0.5 HP  
Voltage/Ph/Freq: 0-230/460/3/variable  
RPM: 0 to 2000

### Pump

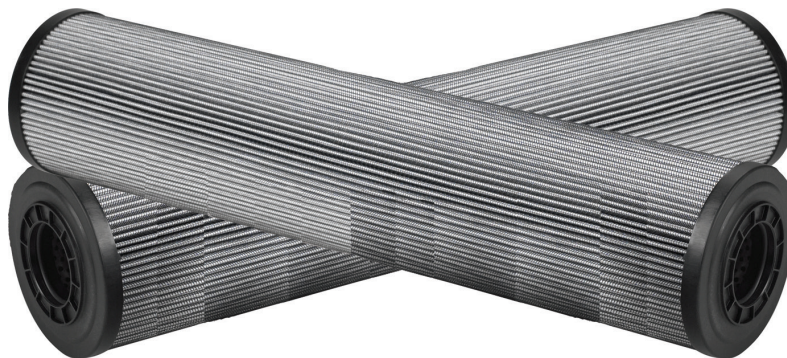
Positive Displacement - Variable Frequency Drive (VFD)  
Design Flow Rate: 2.5 - 10 GPM

Parameter Settings			
Parameter	Default	Minimum	Maximum
Flow	<b>10 GPM [37.9 LPM]</b>	2.5 GPM [9.45 LPM]	10 GPM [37.85 LPM]
Shutdown Pressure	<b>70 psi [4.82 bar]</b>	0 psi/bar	75 psi [5.17 bar]
Max Operating Pressure	<b>50 psi [3.4 bar]</b>	0 psi/bar	60 psi [4.13 bar]
Min Operating Pressure	<b>0 psi [0.0 bar]</b>	0 psi/bar	5 psi [0.34 bar]
Maximum Temperature	<b>200°F [93.3°C]</b>	35°F [1.6°C]	200°F [93.3°C]
Minimum Temperature	<b>35°F [1.5°C]</b>	35°F [1.6°C]	200°F [93.3°C]
Upstream Filter Delta-P	<b>15 psi [1.0 bar]</b>	5 psi [0.34 bar]	25 psi [1.7 bar]
Downstream Filter Delta-P	<b>10 psi [0.67 bar]</b>	5 psi [0.34 bar]	25 psi [1.7 bar]
Auto-Restart after power loss	<b>OFF</b>	n/a	n/a
Auto-Restart after temperature shutdown	<b>OFF</b>	n/a	n/a
US or Metric units	<b>US</b>		

# SMR10

## Parts List

Quantity	Parker Part #	Description
1	165-00004	Drive, AC, A/B 1 HP 240V 1 PH
	165-00003	Drive, AC, A/B 1 HP 480V 3 PH
	165-00008	Drive, AC, A/B 1 HP 120V 1 PH
	165-00011	Drive, Line Filter, 120V & 240V 1 PH
	165-00014	Drive, Line Filter, 460V 3 PH
1	270-00006	PLC/HMI
1	275-00007	Power Supply, H.V.
1	275-00002	Power Supply, A/B 24V 110-240V
1	275-00006	Power Supply, C/H 24V 380-480V
1	290-00001	Relay, H.V., A/B
1	245-00006	Light Module, A/B, Green
1	245-00005	Light Module, A/B, Yellow
1	250-00022	Motor, 1 HP, 230-380 STD
1	280-00009	Pump/Bypass, 10 GPM, STD
1	V72244	O-Ring, vessel 1, 2 or 3
1	933219Q	5 Micron Filter, Upstream
1	933218Q	2 Micron Filter, Downstream
1	195-00001	Feedthru, H.V.
4	350-00001	Transducer, pressure



# SMR Series

## Specification Worksheet

1. Application: \_\_\_\_\_
2. Fluid Type: \_\_\_\_\_ Brand: \_\_\_\_\_  
Grade: \_\_\_\_\_ Specific Gravity: \_\_\_\_\_
3. Viscosity: Min \_\_\_\_\_ SUS/cSt @ \_\_\_\_\_ °F/°C  
Max \_\_\_\_\_ SUS/cSt @ \_\_\_\_\_ °F/°C
4. Contamination level: Current ISO level \_\_\_\_/\_\_\_\_/\_\_\_\_  
Desired ISO level \_\_\_\_/\_\_\_\_/\_\_\_\_
5. Water concentration: Current PPM level \_\_\_\_\_  
Desired PPM level \_\_\_\_\_
6. Current TAN \_\_\_\_\_ Have there been long term issues with acid? \_\_\_\_\_
7. Has there been static discharge from system filters? \_\_\_\_\_
8. Any visible signs of fluid oxidation or varnish? \_\_\_\_\_
9. Any frequent component failures or repairs? \_\_\_\_\_
10. Quantitative Analysis (VPR from Analysis Inc.): \_\_\_\_\_
11. Suction head: Positive/Negative \_\_\_\_\_ Feet/meters
12. Suction and Discharge Port Connections (Size & Type): \_\_\_\_\_  
\_\_\_\_\_
13. Operating distance: \_\_\_\_\_ Feet/meters
14. System fluid operating temperature F/C
15. Voltage options: Indicate One   
120 VAC, 1P, 60Hz   
230 VAC, 3P, 60Hz   
380 VAC, 3P, 50Hz   
460 VAC, 3P, 60Hz   
575 VAC, 3P, 60Hz
16. Available amperage: \_\_\_\_\_
17. System volume: \_\_\_\_\_
18. Special requirements: \_\_\_\_\_  
\_\_\_\_\_
19. Any previous filtration problems with the application: \_\_\_\_\_  
\_\_\_\_\_
20. SMR model selected: \_\_\_\_\_

**NOTE: Specification sheet must be completed before order can be entered.**

**\* Baseline samples required prior to field trial or final equipment recommendation.**

# SMR Series

## Submicronic Removal Fluid Purification Systems

### How To Order

Select the desired symbol (in the correct position) to construct a model code. Example:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
SMR	10	460	02Q	V	M2	X	N16	PD

BOX 1: Filter Series	
Symbol	Description
SMR	Submicronic filtration system

BOX 2: Flow Rate	
Symbol	Description
10	10 gpm (38 lpm)

BOX 3: Power		
Model	Symbol	Description
120	120 VAC	1Ph, 60Hz
230	230 VAC	3Ph, 60Hz
380	380 VAC	3Ph, 50Hz
460	460 VAC	3Ph, 60Hz
575	575 VAC	3Ph, 60Hz

BOX 4: Element Media <sup>1</sup>	
Symbol	Description
02Q	Microglass, 2 micron
05Q	Microglass, 5 micron

BOX 5: Seals	
Symbol	Description
V	Fluorocarbon

BOX 6: Indicator	
Symbol	Description
P	No indicator
M2	Analog visual indicator

BOX 7: Bypass		
Model	Symbol	Description
X		No bypass

BOX 8: Ports	
Symbol	Description
N16	1" NPT threaded ports

BOX 9: Options	
Symbol	Description
PD <sup>2</sup>	Particle detector
PDM <sup>2</sup>	Particle detector w/ moisture sensor

Note:  
1. Outlet polishing filter is always fitted with 02Q element.

### Replacement Elements

Media	Fluorocarbon
02Q	933218Q
05Q	933219Q

