



Donaldson Delivers

FUEL FILTRATION GUIDE

for Flow Rates up to 606 lph

Head Assemblies, Filters, Accessories



FUEL FILTERS

– That are anything but standard

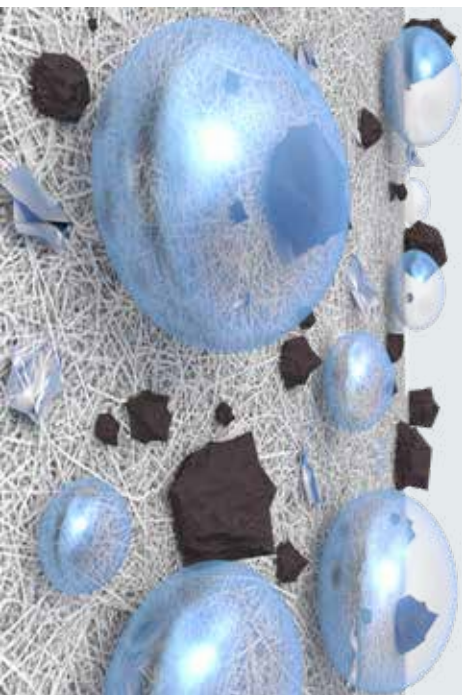
Fuel filtration today is an integral part of the complete fuel system. A well designed fuel system takes contamination control into account from the beginning. Water, particulate and non-traditional contaminants need to be controlled.

On-engine filters are your last chance to remove contaminant. It's critical that your filters capture and retain contaminants damaging to your engine under all operating conditions. Donaldson fuel filters provide premium protection for high pressure common rail (HPCR) fuel systems.

The same filtration technology and expertise you've come to expect from Donaldson air filters is in every liquid filter we design and manufacture.



The presence of water in fuel may result in reduced lubrication properties, corrosion, abrasion and rapid wear to fuel system components, potentially resulting in catastrophic injector failure. Fuel water separating filters, which use specialised hydrophobic or hydrophilic filter media to separate water from the fuel, cause the water to accumulate in the reservoir of the filter, where it can be removed with the Twist&Drain™ valve.



Why remove water in fuel?

Free or emulsified water must be removed from the fuel to maximise fuel system performance and service life.

Water in fuel can prematurely wear and oxidise the components within the fuel injectors, leading to:

- Rusting and corrosion of components
- Governor/metering component failure
- Sticky metering components (both pump and nozzle)
- Injection component wear and seizure
- Reduced lubrication

HARMFUL CONTAMINANTS FOUND IN FUEL SYSTEMS – How Particles and Water are Removed

If you were to look closely at the fuel in your equipments fuel tank, you would likely find a range of contaminants that are potentially causing harm to your engine.

Contaminated fuel can lead to vehicle downtime and costly repairs, especially to expensive common rail systems and components. Modern engines increasingly require better fuel filtration technology to ensure you are delivering the cleanest fuel to your vehicle's fuel system. The most common contaminants found in fuel include:

Particulate & Debris

Enters when the fuel is transferred between storage tanks and when exposed to the atmosphere. Particulate in the fuel can disrupt engine combustion, block the fuel system and cause wear on fuel injector equipment.

Water

Water in fuel causes corrosion and will erode injector nozzles. It can negatively affect the combustion process, reduce the lubricity of the fuel and consequently damage system components. Water enters fuel from storage tanks, and from condensation caused by cooling temperatures.

Wax/Paraffin

Often a component of the fuel, it can drop out of liquid form in cold conditions (also known as gelling).

Microbes (Bacteria)

Can grow in any free water in the fuel tank.

Fuel Degradation Products

Fuel by-products result from the thermal and oxidative instability of fuel prior to combustion.

Asphaltenes

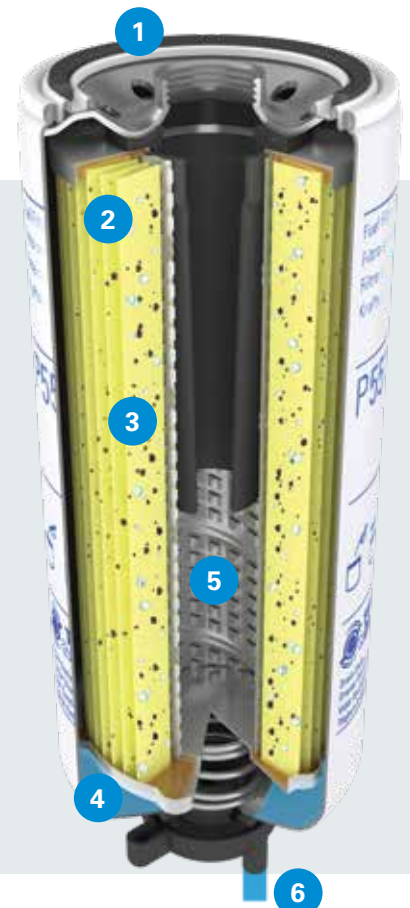
Found naturally in crude oil, this can often be found in refined fuel.

Air

Enters the system from leaks in fuel lines or system connections.

How Particles and Water are Removed

1. Dirty fuel enters the filter through holes in the baffle or thread plate.
2. Contaminants and debris are removed from the fuel as they pass through the filter
3. Specialised filter media removes water from the fuel
4. The captured water coalesces into large drops that drain into a lower cavity of the spin-on unit or bowl
5. Clean fuel leaves the filter through the centre tube
6. The collected water should be drained by the operator daily.



CHOOSE THE FILTER THAT WORKS FOR YOU – Twist&Drain™ Style Fuel Filters

Fuel water separating filters (FWS) differ from other spin-on filters as they have a reservoir area to hold separated water and drain valve to allow that water to be removed. The reservoir may be the lower section of the filter, a separate clear bowl, or a combination of both. If the water is not drained regularly, and rises to the level of the filter media element, water can be forced past the filter, so it is important that it be drained regularly. The frequency with which the FWS needs to be drained is ultimately dependent on the quality of the fuel that is being used. Most OEM's recommend draining your water separator daily.

Donaldson Twist&Drain™ style fuel filter water separators have a connection that can accommodate multiple drain valve types, as well as a water collection bowl. The clear water collection bowl (80ml capacity) is a separate component that can be added on for easy, visual water inspection and maintenance. All fuel filter water separators ship with a standard Twist&Drain™ valve. A variety of other Twist&Drain™ valves types are available so you can configure the exact system needed.



YOU HAVE A CHOICE

You can always choose top-quality Donaldson filters designed specifically for your engines and equipment and – as long as you change them according to the engine manufacturer's maintenance schedule – using Donaldson filters **will not** void your engine manufacturer's warranty.



DURABLE AND RUGGED

– Flexibility to choose the system you prefer



- **Easy to Service** - wide grip drain valve profile
- **High Performance Filtration** - industry leading filtration technology
- **Self Venting Drain** - water removal is tool-free
- Accepts existing OEM water-in-fuel (WIF) sensors
- Optional water collection bowl for quick visual water inspection

Priming Pump Head



Basic Head



High Flow Head



OPTIONAL
Clear Water Collection Bowl



Spin-on Fuel Filter
Water Separator



Spin-on
Fuel Filter



Standard
Twist&Drain™ Valve



Twist&Drain™ Valve with
1/2in - 20 UNF Threaded
Sensor Port



Twist&Drain™ Valve with
Passive Water-in Fuel Sensor
Packard Terminal



Twist&Drain™ Valve with
Passive Water-in Fuel Sensor
Deutsch Terminal



Fuel Filtration

Filter Dia. 76mm (3.0") x M16-1.5

Max Flow Rate

114 lph / 30 gph

Operating Pressure

0-100 psi / 690 kPa (basic head)

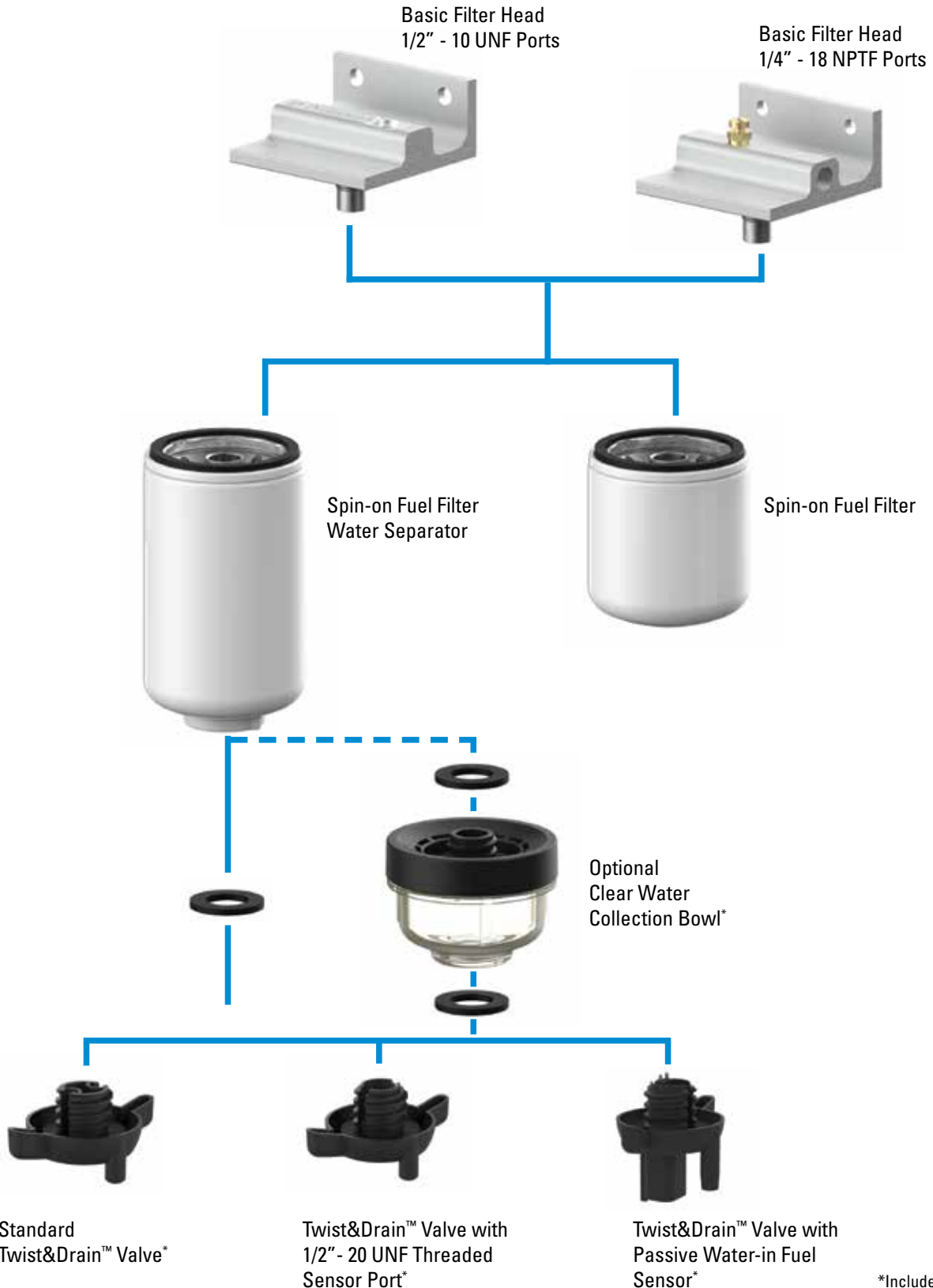
0-80 psi / 551 kPa (with bowl)

Temperature Range

-40°C to 121°C

Fuel Compatibility

#1 or #2 Diesel, Biodiesel up to B20 and JP8, Kerosene



*Includes seal

Filter Heads

| Type | Max Recommended Flow Rate | | Head Height | | Port Size | Part Number |
|--|---------------------------|-----|-------------|------|----------------|-------------------------|
| | lph | gph | mm | in | | |
| Basic Filter Head (1 inlet, 1 outlet) | 114 | 30 | 28.4 | 1.12 | 1/4" - 18 NPTF | P560382 |
| | 114 | 30 | 28.4 | 1.12 | 1/2" - 10 UNF | P562263 |

Filter Head Accessories

| Type | Description | Comments | Part Number |
|--------------------|--|--------------------|-------------------------|
| Fuel Head Fittings | 1/4" - 18 NPTF Hose Tail Straight, 10mm i.d. hose | Suits P560382 Head | P506053 |
| | 1/4" - 18 NPTF Hose Tail Right Angle, 10mm i.d. hose | Suits P560382 Head | P506054 |

Fuel Filters

| Filter Type | Max Recommended Flow Rate | | Filter Length | | Service Clearance | Media Type | Efficiency @ 99% | Part Number |
|--|---------------------------|-----|---------------|------|-------------------|-------------------|------------------|-------------------------|
| | lph | gph | mm | in | | | | |
| Spin-on Fuel Filter | 57 | 15 | 83 | 3.26 | 24mm (.93in) | Cellulose | 9 µm | P555095 |
| | 95 | 25 | 120 | 4.72 | | Cellulose | 9 µm | P550943 |
| | 57 | 15 | 83 | 3.26 | | Cellulose | 16 µm | P550345 |
| | 95 | 25 | 120 | 4.72 | | Cellulose | 16 µm | P553004 |
| | 114 | 30 | 120 | 4.72 | | Cellulose | 16 µm | P550440 |
| Spin-on Fuel Filter Water Separator | 114 | 30 | 148 | 5.82 | | Synteq | 3 µm | P551615 |
| | 114 | 30 | 148 | 5.82 | | Treated Cellulose | 11 µm | P550588 |
| | 57 | 15 | 102 | 4.01 | | Treated Cellulose | 15 µm | P551039 |
| | 114 | 30 | 148 | 5.82 | | Treated Cellulose | 15 µm | P550248 |

Optional Bowl, Drain Valve & Sensors

| Type | Bowl Length | | Comments | Part Number |
|-----------------------------|-------------|------|---|-------------------------|
| | mm | in | | |
| Clear Water Collection Bowl | 50 | 1.98 | Fits all Twist&Drain water separating filters | P569758 |

| Type | Description | Comments | Part Number |
|--------------------|--|-----------------------|-------------------------|
| Valve with Sensors | Twist&Drain valve* 1/2" - 20 UNF Threaded Sensor Port | Threaded Sensor Port | P550865 |
| | Twist&Drain Valve with Passive Water-in-Fuel Sensor* Packard Terminal | Electrical Connection | P570618 |
| | Twist&Drain Valve with Passive Water-in-Fuel Sensor* Deutsch Terminal | Electrical Connection | P570619 |

*Connects to existing engine management system only

Fuel Filtration

Filter Dia. 93mm (3.54") x 1"-14

Max Flow Rate

606 lph / 160 gph

Operating Pressure

0-30 psi / 210 kPa (pumping heads)

0-100 psi / 690 kPa (basic and high flow heads)

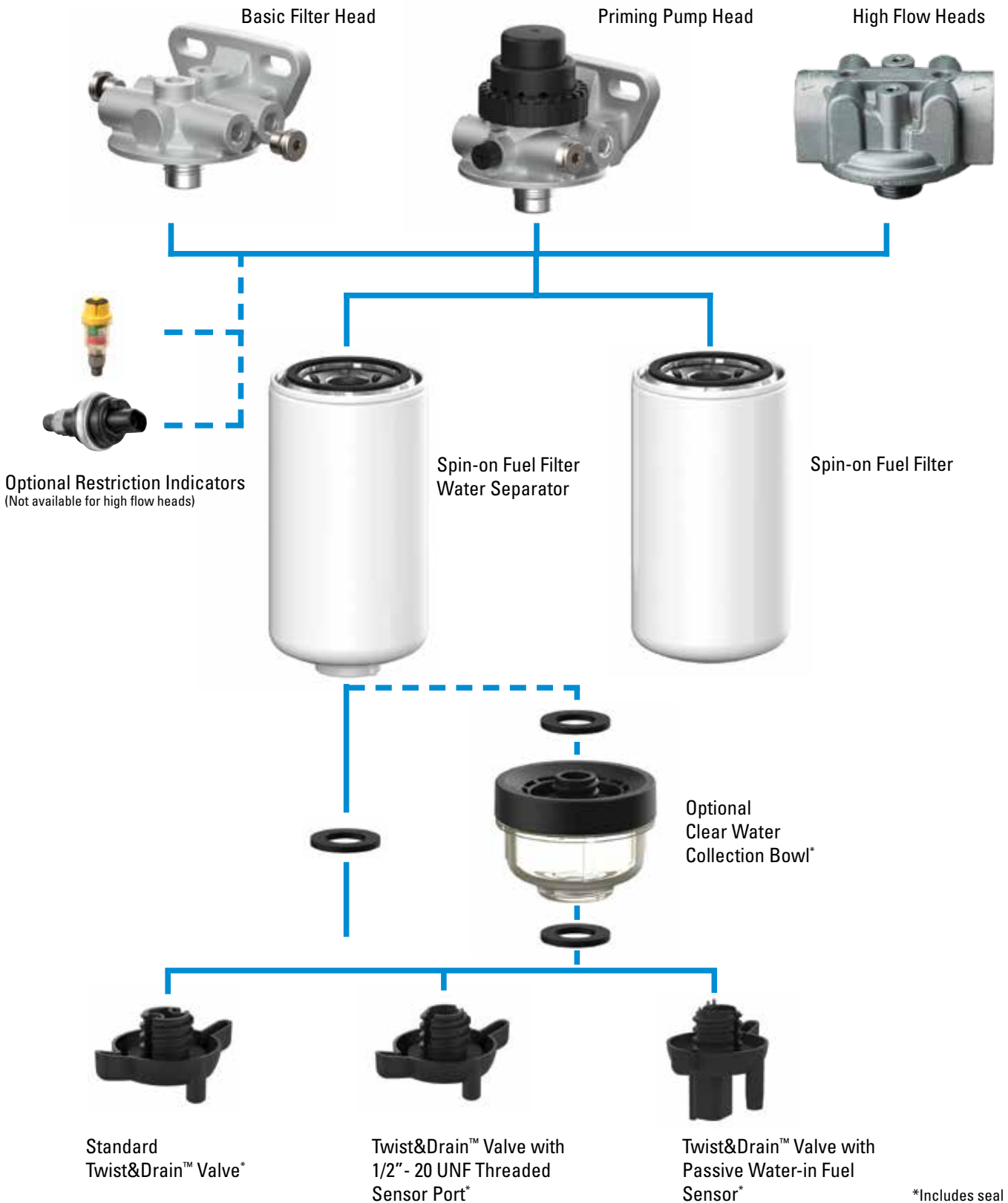
0-80 psi / 551 kPa (with bowl)

Temperature Range

-40°C to 121°C

Fuel Compatibility

#1 or #2 Diesel, Biodiesel up to B20 and JP8, Kerosene



Filter Heads

| Type | Max Recommended Flow Rate | | Head Height | | Port Size | Part Number |
|---|---------------------------|-----|-------------|------|----------------|----------------|
| | lph | gph | mm | in | | |
| Basic Filter Head (2 inlet, 2 outlet, includes 2 plugs) | 205 | 54 | 58.6 | 2.31 | M12 x 1.5 | P576712 |
| | 420 | 111 | 58.6 | 2.31 | M14 x 1.5 | P576714 |
| Priming Pump Heads (2 inlet, 2 outlet, includes 2 plugs) | 105 | 28 | 84.3 | 3.32 | M12 x 1.5 | P576612 |
| | 220 | 58 | 84.3 | 3.32 | M14 x 1.5 | P576614 |
| High Flow Heads (1 inlet, 1 outlet) | 606 | 160 | 41.5 | 1.63 | 1/2" - 14 NPTF | P562261 |
| | 606 | 160 | 41.5 | 1.63 | 7/8" - 14 UNF | P562262 |

Filter Head Accessories

| Type | Description | Comments | Part Number |
|------------------------|---|---|----------------|
| Fuel Head Fittings | M12 x 1.5 Hose Tail, 12mm i.d. hose | Suits P576712, P576612 Heads | P506149 |
| | M14 x 1.5 Hose Tail, 12mm i.d. hose | Suits P576714, P576614 Heads | P506150 |
| | M14 x 1.5 to M12 x 1.5 Threaded Reducer | Suits P576714, P576614 Heads & Indicators | P506153 |
| Restriction Indicators | M12 x 1.5 Visual, Stepped | 4 Steps to 5psi / 34kPa | X220052 |
| | M12 x 1.5 Electrical | Set point 5psi / 34kPa | X220057 |
| | Packard Electrical Leads | Suits X220057 | P633875 |

Restriction Indicators for installation on SUCTION side of head assembly in suction applications

Fuel Filters

| Filter Type | Max Recommended Flow Rate | | Filter Length | | Service Clearance | Media Type | Efficiency @ 99% | Part Number |
|---------------------|-------------------------------------|-----|---------------|------|-------------------|------------|-------------------|----------------|
| | lph | gph | mm | in | | | | |
| Spin-on Fuel Filter | 379 | 100 | 177 | 6.95 | 24mm (.93in) | Cellulose | 3 µm | P551313 |
| | 606 | 160 | 240 | 9.43 | | Cellulose | 3 µm | P551311 |
| | 303 | 80 | 174 | 6.85 | | Cellulose | 9 µm | P557440 |
| | 379 | 100 | 200 | 7.87 | | Cellulose | 9 µm | P555627 |
| | 606 | 160 | 240 | 9.43 | | Cellulose | 9 µm | P551712 |
| | 454 | 111 | 221 | 8.69 | | Cellulose | 15 µm | P552253 |
| | 227 | 60 | 136 | 5.35 | | Cellulose | 17 µm | P552251 |
| | 150 | 40 | 107 | 4.22 | | Cellulose | 25 µm | P550104 |
| | 227 | 60 | 136 | 5.35 | | Cellulose | 25 µm | P550105 |
| | 303 | 80 | 174 | 6.85 | | Cellulose | 25 µm | P553854 |
| | 379 | 100 | 188 | 7.40 | | Cellulose | 25 µm | P550106 |
| | 227 | 60 | 147 | 5.78 | | Wire Mesh | 140 µm | P552203 |
| | Spin-on Fuel Filter Water Separator | 341 | 90 | 193 | | 7.61 | Treated Cellulose | 3 µm |
| 379 | | 100 | 219 | 8.64 | Treated Cellulose | 3 µm | P553207 | |
| 341 | | 90 | 187 | 7.38 | Synteq | 10 µm | P550847 | |
| 379 | | 100 | 195 | 7.68 | Synteq | 10 µm | P551001 | |
| 379 | | 100 | 219 | 8.64 | Synteq | 10 µm | P553201 | |
| 454 | | 111 | 246 | 9.70 | Synteq | 10 µm | P551000 | |
| 341 | | 90 | 187 | 7.38 | Treated Cellulose | 15 µm | P558000 | |
| 379 | | 100 | 219 | 8.64 | Treated Cellulose | 35 µm | P553204 | |

Refer to page 7 or 11 for optional bowl, drain valve & sensors.

Fuel Filtration

Filter Dia. 108mm (4.25") x 1"-14

Max Flow Rate

606 lph / 160 gph

Operating Pressure

0-100 psi / 690 kPa (basic head)

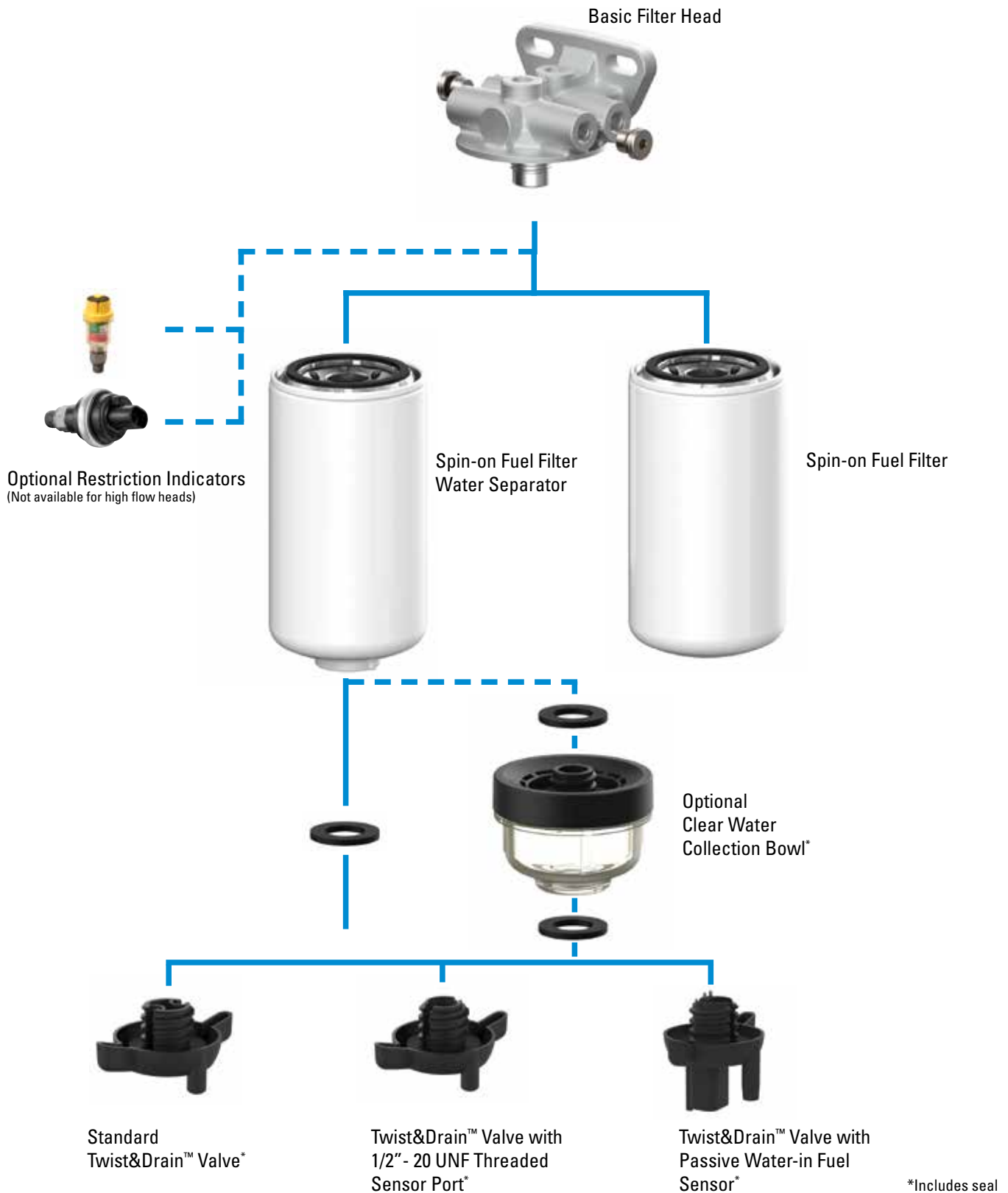
0-80 psi / 551 kPa (with bowl)

Temperature Range

-40°C to 121°C

Fuel Compatibility

#1 or #2 Diesel, Biodiesel up to B20 and JP8, Kerosene



Filter Heads

| Type | Max Recommended Flow Rate | | Head Height | | Port Size | Part Number |
|--|---------------------------|-----|-------------|------|-----------|----------------|
| | lph | gph | mm | in | | |
| Basic Filter Head (2 inlet, 2 outlet, includes 2 plugs) | 450 | 119 | 54 | 2.13 | M14 x 1.5 | P576071 |
| | 606 | 160 | 54 | 2.13 | M16 x 1.5 | P576072 |

Filter Head Accessories

| Type | Description | Comments | Part Number |
|------------------------|---|---------------------------------|----------------|
| Fuel Head Fittings | M14 x 1.5 Hose Tail, 12mm i.d. hose | Suits P576071 Head | P506150 |
| | M14 x 1.5 to M12 x 1.5 Threaded Reducer | Suits P576071 Head & Indicators | P506153 |
| Restriction Indicators | M12 x 1.5 Visual, Stepped | 4 Steps to 5psi / 34kPa | X220052 |
| | M12 x 1.5 Electrical | Set point 5psi / 34kPa | X220057 |
| | Packard Electrical Leads | Suits X220057 | P633875 |

Restriction Indicators for installation on SUCTION side of head assembly in suction applications

Fuel Filters

| Filter Type | Max Recommended Flow Rate | | Filter Length | | Service Clearance | Media Type | Efficiency @ 99% | Part Number |
|-----------------------------|---------------------------|-----|---------------|------|-------------------|------------|------------------|----------------|
| | lph | gph | mm | in | | | | |
| Fuel Filter Water Separator | 230 | 60 | 147.1 | 5.79 | 33mm | Synthetic | 4 µm | P551055 |
| | 230 | 60 | 147.1 | 5.79 | | Synthetic | 10 µm | P551056 |
| | 230 | 60 | 147.1 | 5.79 | | Synthetic | 30 µm | P551057 |
| | 340 | 90 | 173.1 | 6.93 | | Synthetic | 4 µm | P551065 |
| | 340 | 90 | 173.1 | 6.93 | | Synthetic | 10 µm | P551066 |
| | 340 | 90 | 173.1 | 6.93 | | Synthetic | 30 µm | P551067 |
| | 450 | 120 | 234.7 | 9.24 | | Synthetic | 4 µm | P551075 |
| | 450 | 120 | 234.7 | 9.24 | | Synthetic | 10 µm | P551076 |
| | 450 | 120 | 234.7 | 9.24 | | Synthetic | 30 µm | P551077 |
| | 606 | 160 | 234.7 | 9.24 | | Synthetic | 10 µm | P551026 |

Optional Bowl, Drain Valve & Sensors

| Type | Bowl Length | | Comments | Part Number |
|-----------------------------|-------------|------|---|----------------|
| | mm | in | | |
| Clear Water Collection Bowl | 50 | 1.98 | Fits all Twist&Drain water separating filters | P569758 |

| Type | Description | Comments | Part Number |
|--------------------|--|-----------------------|----------------|
| Valve with Sensors | Twist&Drain valve* 1/2" - 20 UNF Threaded Sensor Port | Threaded Sensor Port | P550865 |
| | Twist&Drain Valve with Passive Water-in-Fuel Sensor* Packard Terminal | Electrical Connection | P570618 |
| | Twist&Drain Valve with Passive Water-in-Fuel Sensor* Deutsch Terminal | Electrical Connection | P570619 |

*Connects to existing engine management system only

WHY CHOOSE DONALDSON?



PERFORMANCE

First-fit choice of leading equipment manufacturers around the world.



INNOVATION

Continuous development of new technologies to meet changing filtration needs.



RELIABILITY

Comprehensive warranty covering our filters and your equipment.



QUALITY

The foundational principle driving the design, manufacture and delivery of every product.



SUPPORT

Knowledgeable technical support specialists available in-field when you need them.



AVAILABILITY

Innovative, reliable distribution partners providing local support.



Donaldson Australasia Pty Ltd

PO Box 153, Wyong NSW 2259

Freecall: 1800 345 837

Ph: +61 2 4350 2000

Fax: +61 2 4351 2036

Donaldson New Zealand

PO Box 14-770, Panmure 1741 Auckland

Ph: +64 9 579 2790

Fax: +64 9 579 0322

www.donaldson.com

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