

# **Overview**

# JNX non-pressurising diesel fast fuelling system

## WIGGINS JNX – FAST, NON-PRESSURISING AND SAFE

The patented Wiggins non-pressurising JNX system is a technological advancement in diesel refuelling systems. It provides diesel refuelling at flow rates up to 1100 litres per minute\* using conventional refuelling nozzles, and does not pressurise the fuel tank. The unique Fail-Shut system is reliable and safe, providing automatic shutoff that cannot be overridden and does not require an external power source.

#### **FAIL-SHUT SYSTEM**

The spring closed JNX shutoff valve can only be opened by a pressure signal from the jet level sensor. If for any reason the pressure signal is lost, the main valve closes, stopping the flow of fuel. The Fail-Shut system ensures overfilling of the tank is not possible, even in the event of the jet level sensor or signal hose failing.

## **EASY INSTALLATION**

Wiggins JNX is compatible with conventional pressure sensitive fuel nozzles and uses external signal hoses, making JNX easy to install and maintain. It is available in both direct and remote fill configurations, suitable for almost any diesel refuelling application. The unique Wiggins jet level sensor does not have any moving parts to wear out and is thus extremely reliable.

# FLOAT VALVE SYSTEMS - A COMPARISON

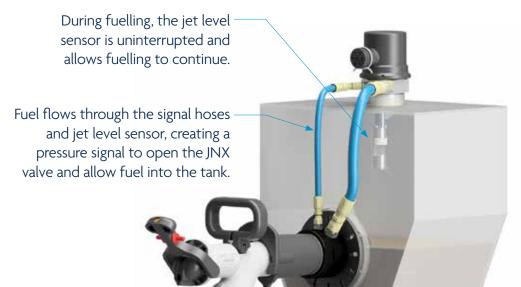
In comparison to the Fail-Shut Wiggins JNX system, traditional non-pressurising systems that use float valves are Fail-Open in their design. If refuelling is carried out with a faulty float valve or signal hose, fuel will continue to bleed past the required shutoff point. This prevents the pressure from equalising across the shutoff piston and the piston will remain open. Fuel will continue to flow, overfilling and pressurising the tank in proportion to the flow rate.

The higher the flow rate, the greater the spillage, pressure build-up, and potential risk of an environmental or catastrophic safety hazard.



# **How It Works**

# **Schematic Overview**



Fast- diesel refuelling at flow rates up to 1100 litres per minute\*.

Non-Pressurising- no tank pressure required to shutoff refuelling.

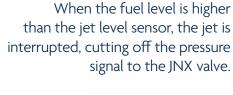
Versatile- multiple configurations for direct and remote fill applications.

**Dependable**- refuelling shutoff is automatic and cannot be overridden.

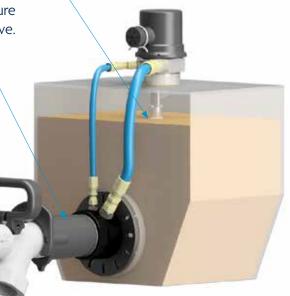
**Reliable**- Jet Level sensor has no moving parts.

Fail-Shut- a constant signal is required to keep the shutoff valve open.

**External Signal Hoses**-easy to install and maintain.



When the pressure signal is cut off by the fuel level, the JNX valve closes, which also triggers the fuel nozzle to shut off, and the fuelling is stopped.





<sup>\*</sup> Depending on system design, fuel nozzle and the receiver used.

# JNX Shutoff Valve

The Fail-Shut JNX shutoff valve is the central component of the Wiggins JNX fast refuelling system. The spring closed main valve can only be opened by a pressure signal from the jet level sensor. If for any reason the pressure signal is lost, the main valve will close, stopping the flow of diesel into the tank. This design feature also eliminates the need for a separate check valve, in applications where the shutoff valve is directly mounted to the tank.

#### **FAST REFUELLING**

The fast fuelling shutoff valve can accommodate high diesel flow rates of up to 1100 litres per minute, depending on the system design and the type of fuel nozzle and receiver used.

## **NUMEROUS APPLICATIONS**

The JNX shutoff valve is available in a range of configurations to suit numerous applications, including:

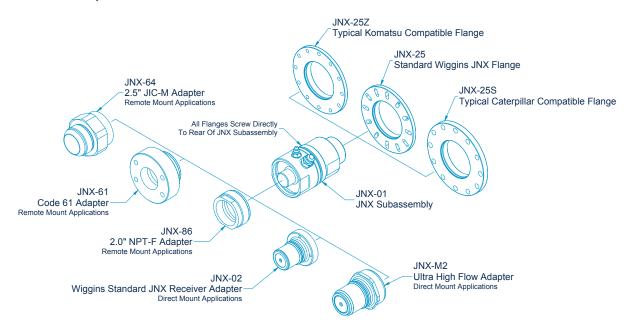
- mobile mining and construction equipment
  - haul trucks
  - service trucks
  - dozers
  - loaders
  - graders
  - excavators
  - drill rigs
- fuel storage tanks
- road and rail transport applications
- lighting towers
- generators and dewatering pumps



# Flexible Options

# **Common JNX Shutoff Valve configurations**

Simply select your required inlet adapter and tank mounting flange option to customise the shutoff valve that suits your needs.



- Other inlet adapter and flange mounting options are available.
- The JNX-01 subassembly has a 2" NPT (M) threaded outlet for direct mounting or pipe/hose connection if required.

# **Ordering your JNX Shutoff Valve**

The Wiggins JNX shutoff valve can be supplied as an assembled unit, with your required inlet adapter and tank mounting flange option. All valve part number assemblies start with the JNX shutoff valve prefix (JNX-01), followed by the inlet adapter and flange part number suffix (as required).

JNX-01	-XX	-XX	
Shutoff valve	Inlet Adapter	Flange (IF REQUIRED)	

#### JNX-01-02

Shutoff valve (JNX-01) with ZN2 style receiver (-02) and standard 2" NPT (M) threaded outlet



#### INX-01-02-25

Shutoff valve (JNX-01) with ZN2 style receiver (-02) and Wiggins 12 hole mounting flange (-25)



# **Standard Inlet Adapters**

## **JNX Shutoff Valve**

#### **DIRECT & REMOTE FILL APPLICATIONS**

Two standard receivers are available for direct fill applications, suited to the type of fuel nozzle used. For remote fill applications, four standard inlet adapters are available for the Wiggins JNX shutoff valve. Each adapter is suited to a different inlet setup, dependent on the hose and fittings used.

#### **ADDITIONAL COMPONENTS**

In addition to the standard range of inlet adapters, there are receivers, hose and fittings to support remote fuelling applications. Dust caps are also available to suit both standard and remote fill receivers. For further details, refer to the Additional System Components section at page 16.

#### **JNX-02**

- Standard receiver
- Direct mount applications
- Suits industry standard fuel nozzles (e.g. ZZ9A1 & ZZ9A2)
- Max flow rate of 800 L/min
- Dust Caps available to order
  - ♦ Wire loop (Part No. ZC-20EP)
  - ♦ Bolt lug (Part No. ZC-20BP)



#### **INX-M2**

- Ultra high flow receiver
- Direct mount applications
- Suits ZZ9A3 fuel nozzle
- Max flow rate 1100 L/min
- Dust Caps available to order
  - ♦ Wire loop (Part No. ZC-30EP)
  - ♦ Bolt lug (Part No. ZC-30BP)



#### JNX-86B

- 2" BSP (F) adapter
- Remote mount applications



#### **JNX-86**

- 2" NPT (F) adapter
- Remote mount applications



#### **JNX-61**

- 2" Code 61 Flange adapter
- Remote mount applications



#### **JNX-64**

- 2 ½" JIC (M) adapter
- Remote mount applications



# **Standard Tank Mounting Flanges**

# **JNX Shutoff Valve**

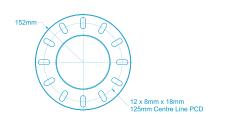
Three Wiggins bolt on tank mounting flanges are available for the Wiggins JNX shutoff valve. Each flange is provided with a 12 hole bolting pattern to simplify radial alignment of the shutoff valve, without compromising sealing of the flange joint.

An extended range of mounting flanges are available to support additional tank mounting requirements. For further details, please refer to the Additional System Components section at page 16.

#### **JNX-25**

- 12 hole mounting flange
- O-ring to suit (when used with VR310-11 flange)- Part No. 240V70 - sold separately
- Gasket to suit- Part No. CFS40-03-109 - sold separately

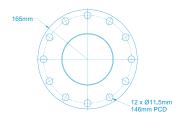




## **JNX-25S**

- 12 hole mounting flange (suits most CAT machines with flanged fuel tank inlet)
- O-ring to suit- Part No. 246V70
   sold separately



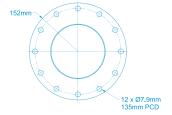




#### JNX-25Z

- 12 hole mounting flange (suits ZN3 receiver canister and most Komatsu machines with flanged fuel tank inlet)
- Gasket to suit- Part No. CFS40-03-039 - sold separately





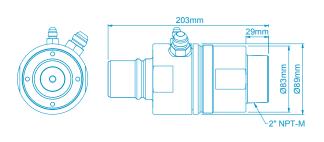


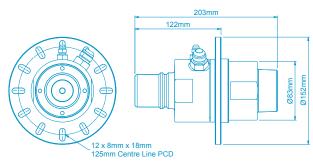
# **Common Assemblies and Dimensional Drawings**

JNX Shutoff Valve

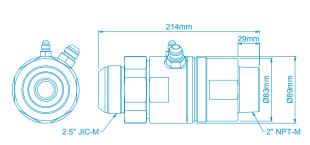




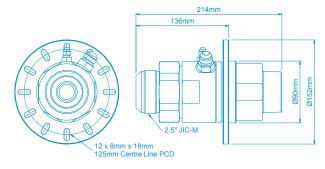




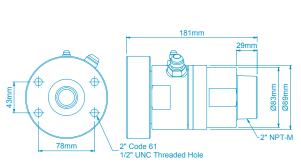




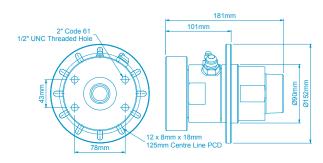




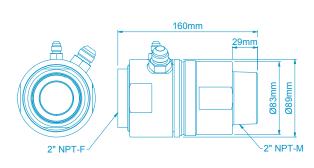




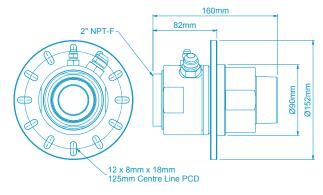












# **Jet Level Sensor / Vent Assemblies**

The jet level sensor is mounted to the top of the diesel tank and controls the fuel shutoff level in the tank. When refuelling begins, diesel from the closed JNX shutoff valve is directed into the pilot line circuit. Diesel flows across the jet level sensor and returns a pressure signal to the JNX shutoff valve, via the return pilot line. This pressure signal opens the shutoff valve and allows fuel to flow into the tank.

#### **CONTROLLED FUEL SHUTOFF**

As the diesel level rises above the jet level sensor, the jet flow is interrupted. The pressure signal to the JNX shutoff valve is lost and the valve closes, stopping the flow of fuel into the tank.

#### **NO MOVING PARTS**

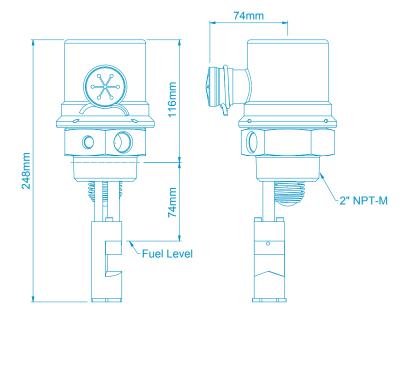
The Wiggins jet level sensor does not contain any moving parts and is extremely reliable. To prevent blockage by contaminants, a Y strainer is provided with each JNX shutoff valve, which should be installed in the pilot line circuit before the jet level sensor.

Jet level sensors are available as a vent assembly, as a vent assembly with an integrated air inlet filter and as a standalone jet sensor assembly.

If required, non standard sensor lengths can be manufactured to suit specific requirements. Please contact us for further information.

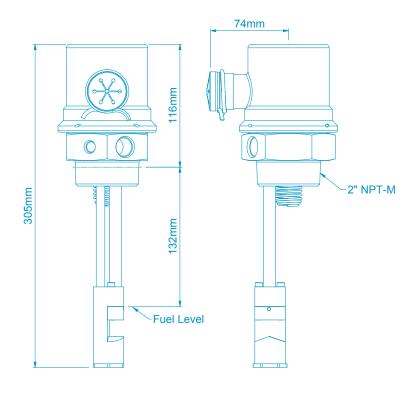
- Vent assembly with integrated jet level sensor (JVX & JVXL)
- 3 PSIG relief valve
- Incorporates tilt, rollover and fuel surge protection
- 2" NPT (M) thread mount onto the tank
- ZV10NFB supplied as a vent only (no integrated jet level sensor)





# **JVXL**

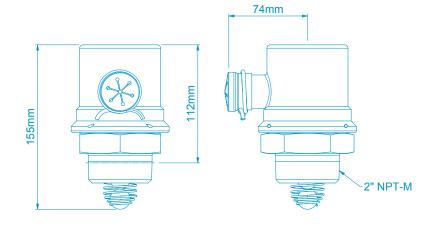




## **ZV10NFB**



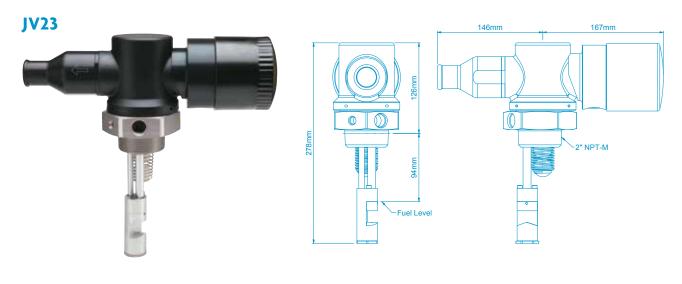
Supplied as a vent only (no integrated jet level sensor)

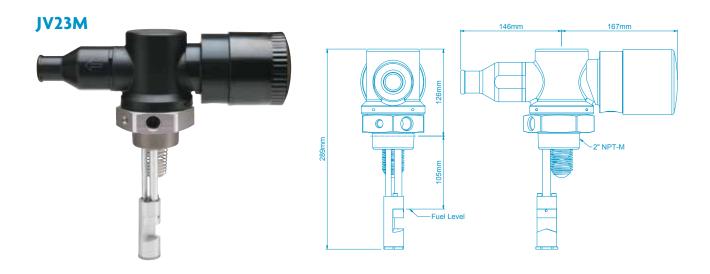


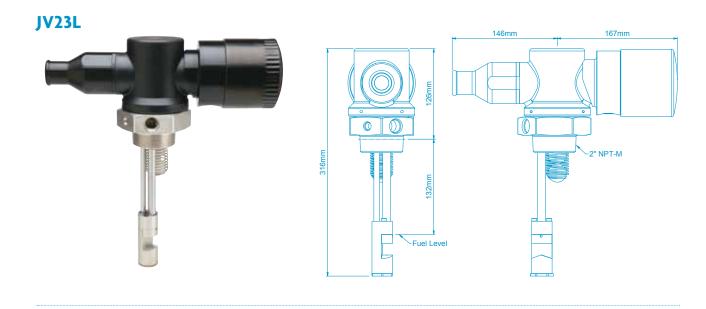
# Vent Assemblies with Integrated Filter

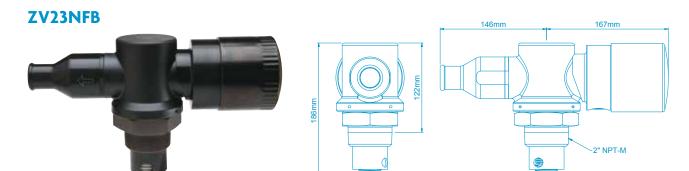
- Vent assembly with integrated jet level sensor (JV23, JV23M & JV23L)
- 3 micron air inlet filter (Replacement Part No. ZV23-30)
- Increased bore stem (¾") for high flow applications
- 3 PSIG relief valve

- Incorporates tilt, rollover and fuel surge protection
- Built in bypass and vacuum relief valves
- 2" NPT (M) thread mount onto the tank
- ZV23NFB supplied as a vent only (no integrated jet level sensor)









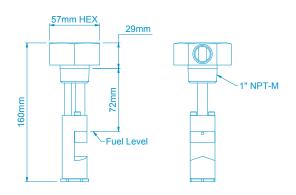
• Supplied as a vent only (no integrated jet level sensor)

# **Jet Sensor Assembly**

- Jet sensor assembly for special applications (e.g. side tank mount)
- 1"NPT (M) mounting thread

## **VR306X**





# **Refuelling Nozzles**

Wiggins refuelling nozzles are lightweight, tough and easy to maintain.

Three different diesel refuelling nozzles are available, to suit a range of fill rates and applications. All nozzles are manufactured to exacting standards, feature pressure sensitive shutoff and have field replaceable components. Inlet swivels are also available for each nozzle, to accommodate different hose sizes.

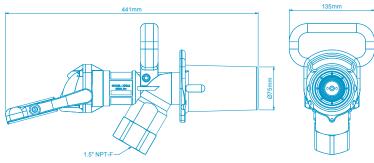
A dependable and durable 'Elast-O-Dog' elastomer coupling system reduces wear and

impact damage on matching receivers and eliminates the risk of coupling lock-up in dusty conditions.

A key feature of Wiggins nozzles is they maintain a constant shutoff pressure throughout their rated flow range. This ensures one standard nozzle is suitable for a wide range of applications, minimises the risk of premature nozzle shutoff, and eliminates the need to use multiple nozzles with different spring tensions.

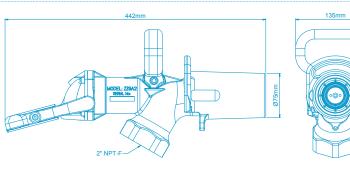






- Industry standard refuelling nozzle
- Max flow rate = 600 L/ min
- 1½" NPT (F) inlet thread
- Field replaceable components
- Weight = 2.56 kg

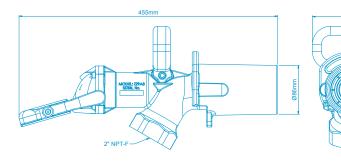




- High flow refuelling nozzle
- Max flow rate = 800 L/
- 2" NPT (F) inlet thread
- Field replaceable components
- Weight = 2.77 kg







- Ultra high flow refuelling nozzle
- High shutoff pressure nozzle designed for use with large fuel service trucks and excavators
- Max flow rate = 1100 L/ min
- Only compatible with the Wiggins M2 and M2R receivers
- 2"NPT (F) inlet thread
- Weight- 2.88 kg

# **Additional System Components**

An extensive range of system components are available, to support installation of the Wiggins JNX system across numerous applications. Components used for many installation configurations are featured, however please contact us to discuss any additional or custom component requirements.



PILOT LINE FITTINGS							
	03			6			
Hose	Straight Hose Tail	45° Hose Tail	90° Hose Tail	Straight Adaptor	45° Elbow	90° Elbow	Bulkhead Fitting
FC300-04	4411-4S	190297-45	190296-45	202702-4-45	2070-4-45	2071-4-45	2041-4-45
	7⁄6" JIC (F) Reusable Fitting	7⁄6" JIC (F) Reusable Fitting	1⁄%" JIC (F) Reusable Fitting	%" UNO (M) to %" JIC (M)	⅓6" JIC (M) to ⅙" JIC (F)	⅓6" JIC (M) to ⅙" JIC (F)	⅓6" JIC (M) to ⅙" JIC (M)
FC300-08	4411-85	190297-85	190296-85	202702-8-85	2070-8-85	2071-8-85	2041-8-85
	¾" JIC (F) Reusable Fitting	34" JIC (F) Reusable Fitting	¾" JIC (F) Reusable Fitting	34" UNO (M) to 34" JIC (M)	<sup>3</sup> ⁄4" JIC (M) to <sup>3</sup> ⁄4" JIC (F)	¾" JIC (M) to ¾" JIC (F)	¾" JIC (M) to ¾" JIC (M)



PILOT LINE KIT					
CFS-JI	CFS-JNX-PL-KIT				
QTY	Part No.				
2	4411-4S				
2	4411-85				
2	2070-4-45				
2	2070-8-85				
2	2071-4-45				
2	2071-8-85				
1	202702-4-45				
1	202702-8-85				

HOSE MOUNTING & PROTECTION							
			C Transport		0	6	
Hose Size	Support Clamp	Heavy Support Clamp	HDPE Hose Protection Wrap	Burst Protection Sleeve	Fire Protection Sleeve	Fire & Burst Protection Sleeve Clamp	
FC300-04	900729-1	6141030135	CFS-SGX16	FF90754-79	624-11	FF9217-0622S	
FC300-08	900729-4	6141040190	CFS-SGX20	FF90754-98	624-16	FF9217-0622S	
IVALO32	900729-12	6141060445	CFS-SGX50				
FC300-32	900729-14	6141060570	CFS-SGX63	FF90754-366	624-38	FF9217-0648S	
FC300-40	900729-16	6141070730	CFS-SGX75				





# **Receivers, Transfer Hose & Fittings**

## **Additional System Components**

#### **REMOTE MOUNT RECEIVERS**

#### JNC2A

- For remote mount applications
- Max flow rate = 800 L/min
- 2" NPT (M) thread
- Extra light spring to suit nonpressurising systems
- Includes protective dust cap
- Replacement caps available
  - ♦ Wire loop (Part No. ZC-20EP)
  - ♦ Bolt lug (Part No. ZC-20BP)



#### JNX-M2R

- For remote mount applications
- Max flow rate = 1100 L/min
- 2" NPT (M) thread
- Extra light spring to suit non-pressurising systems
- Includes protective dust cap
- Replacement caps available
  - ♦ Wire loop (Part No. ZC30-EP)
  - ♦ Bolt lug (Part No. ZC-30P)



## **TRANSFER HOSE**



-32 Transfer & Supply (R5) Hydraulic Hose-WP 300PSI

#### **4411-32S**



2 ½" JIC (F) Straight Reusable Fitting (suits -32 Transfer & Supply (R5) Hose)

**4775-32S** 



2" Code 61 Flange Straight Reusable Fitting (suits -32 Transfer & Supply (R5) Hose)

#### **HIGH FLOW TRANSFER HOSE**



-40 Transfer & Supply (R5) Hydraulic Hose - WP 300PSI

**411-40S** 



3" JIC (F) Straight Reusable Fitting (suits -40 Transfer & Supply (R5) Hose)



# **Transfer Hose Fittings**

# **Additional System Components**

**A1FS-32** 



2" Code 61 Flange Split Clamp (Pair)

**A6JIC4832** 



2" Code 61 Flange to 3" JIC (M) 90° Sweeping Elbow

**A6JIC4032** 



2" Code 61 Flange to 2 ½" JIC (M) 90° Sweeping Elbow

A6JIB4832



2" Code 61 Flange to 3" JIC (M) 45° Sweeping Elbow

## **A6JIB4032**



 $2^{\prime\prime}$  Code 61 Flange to 2  $1\!\!/2^{\prime\prime}$  JIC (M) 45° Sweeping Elbow

#### **A6NNFB3232**



2" NPT (M) to 2" NPT (F) 45° Sweeping Elbow

## **A6NNFC3232**



2" NPT (M) to 2" NPT (F) 90° Sweeping Elbow

## **A5NJ3248**



2" NPT (M) to 3" JIC (M) Adapter

## **A6NFIB3232**



2" Code 61 Flange to 2" NPT (F) 45° Sweeping Elbow

## 2021-32-325



2" NPT (M) to 2  $\frac{1}{2}$ " JIC (M) Adapter

## A5HJJ4840



2  $\frac{1}{2}$ " JIC (F) to 3" JIC (M) Adapter

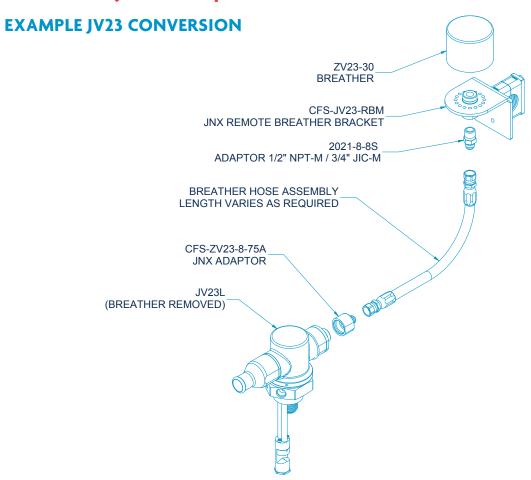
## **A6NFIC3232**



 $2^{\prime\prime}$  Code 61 Flange to  $2^{\prime\prime}$  NPT (F) 90° Sweeping Elbow

# **Remote Breather Components**

**Additional System Components** 



#### CFS-ZV23-8-75A



Remote Filter Adapter (for Vent Assemblies with Filter) to ¾" JIC (M)

## JV23L-B-ADAPTOR



Remote Filter Adapter (for Vent Assemblies with Filter) to 1 ¼" NPT (F)

#### CFS-JV23-RBM



Mounting Bracket for ZV23-30 Remote Filter Breather

#### A6SGA3232



 $1\frac{1}{4}$ " BSPT (M) to  $1\frac{1}{4}$ " Push On Barbed Hose Fitting

#### 2021-8-85



 $\frac{1}{2}$ " NPT (M) to  $\frac{3}{4}$ " JIC (M) Straight Connector

# BREATHER HOSE ASSEMBLY

Suggest use Pilot Line Hose (FC300-08) and associated fittings for remote breather hose requirements, as shown in the Pilot Line Hoses & Fittings tables (page 16).



# **Assorted Components**

# **Additional System Components**

**JNX-27** 



JNX Pilot Line Strainer (1 unit is included with every JNX-01 purchased)

#### **JNX-75**



2" NPT (M) to 2 "NPT (F) Wiggins Adapter to Mount JNX Shutoff Valve in ZN3/4 Canisters

#### F21A19



2" Code 61 Flange to 2" NPT (F) Adapter

## CFS-JNX-JNC2A-SHRD-NPT CFS-JNX-JNC2A-SHRD



Remote Receiver Mounting Bracket with 2" NPT (F) Outlet



Remote Receiver Mounting Bracket with 2" Code 61 Flange Outlet

#### **ZN3L-20-025**



Wiggins Bolt-On Receiver Canister With 2" NPT (F) Full Coupling

#### ZN4L-20-025



Wiggins Weld On Receiver Canister With 2" NPT (F) Full Coupling

#### **VR310-11**



- Weld On Flange to Mount Wiggins JNX-25 Flanged Assemblies
- O-ring to suit- Part No. 240V70 (sold separately)

#### HS-1



Weld In Half Socket (for Mounting Wiggins Breather/Jet Sensor Assemblies)

#### A85FNN3232



#### Weld In Full Socket

## CFS-JNX-16M3-ADP



- Flange to Mount Wiggins JNX Assemblies (Suits CAT 16M3 & 18M3) -146mm PCD
- O-ring to suit- Part No. 246V70 (sold separately)

#### CFS-JNX-EX5600-ADP



- Tank Mounting Components for Wiggins JNX-01-86 Assemblies to suit Hitachi EX5600
- O-ring to suit- Part No. 228V70 (sold separately)

#### CFS40-FL-JVXL-DOZER-CAT CFS40-03-043



- Flange to Mount Wiggins Breather/Jet Sensor (suits most CAT) - 120mm PCD
- O-ring to suit- Part No. 240V70 (sold separately)

#### **COOF-0174**



- Flange to Mount Wiggins JNX Assemblies (Suits Liebherr 9600 & 996) - 135mm PCD
- O-ring to suit- Part No. 238V70 (sold separately)

#### **ZV23-30**



Replacement 3 micron filter element for JV23 jet sensor vents

- Flange to Mount Wiggins JNX Assemblies (Suits CAT 16M) - 146mm PCD
- Gasket to suit- Part No. CFS40-03-116 (sold separately)

#### CFS40-03-096



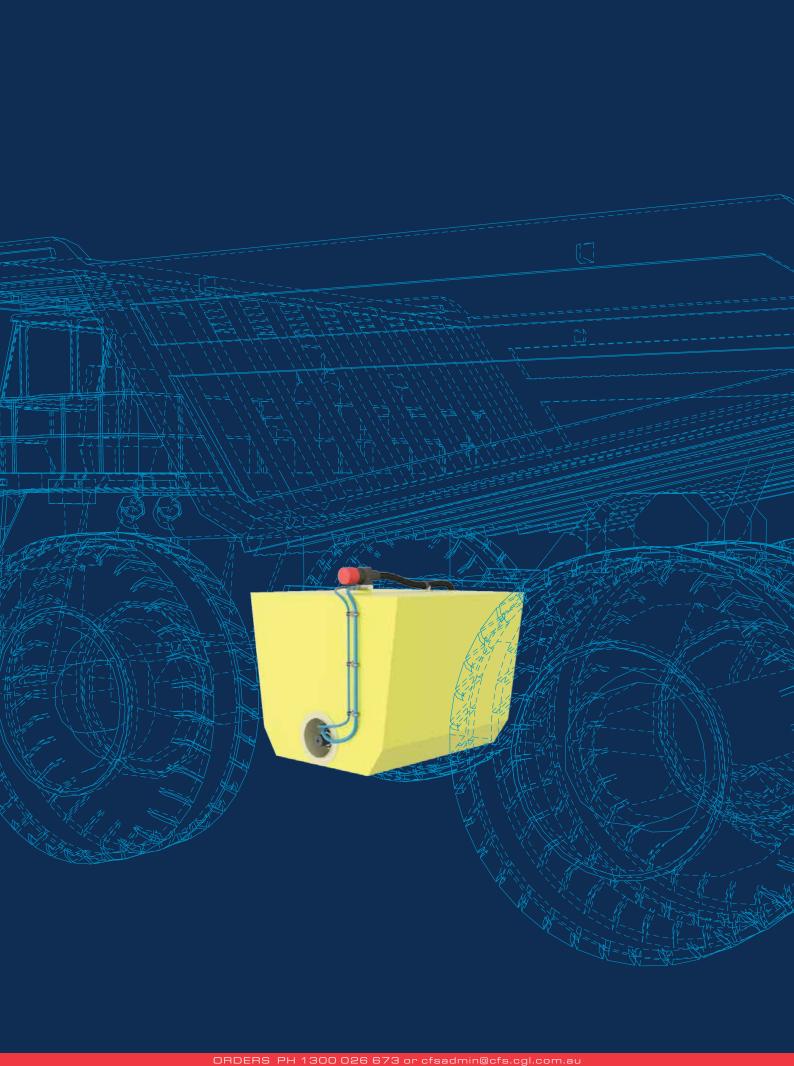
- Flange to Mount Wiggins JNX-25Z Flanged Assemblies (Suits Komatsu 830 & 930E)- 223mm PCD
- Gasket to suit- Part No. CFS40-03-108 (sold separately)

# **Machine Kits**

A machine kit provides all the parts required to perform a complete system installation, from the JNX shutoff valve to pilot hoses and fittings. Each kit contains a bill of materials and general arrangement drawing, to further simplify the installation process.

Kits are available for a wide range of equipment types, including drill rigs, haul trucks, dozers, wheel loaders, excavators and graders. Speak to your local representative about the required machine kit for your needs.

# EXAMPLE HAUL TRUCK BOM | The control of the contro



# National Network

## QLD

#### **BRISBANE (HEAD OFFICE)**

152 Cobalt Street, Carole Park QLD 4300 Phone: (07) 3258 7222 Email: cfsbrisbane@cfs.cgl.com.au

#### **GLADSTONE**

42 Chapple Street, Gladstone QLD 4680 Phone: (07) 4972 6725 Email: cfsgladstone@cfs.cgl.com.au

#### MACKA)

8 Michelmore Street, Paget QLD 4740 Phone: (07) 4952 4844 Email: cfsmackay@cfs.cgl.com.au

#### TOOWOOMBA

18 Mansell Street, Toowoomba QLD 4350 Phone: (07) 4633 3000 Email: cfstoowoomba@cfs.cgl.com.au

#### TOWNSVILL

38 Toll Street, Bohle QLD 4818 Phone: (07) 4774 3455 Email: cfstownsville@cfs.cgl.com.au

## NSW

#### HUNTER VALLEY

70 Mustang Drive, Rutherford NSW 2320 Phone: (02) 4041 6330 Email: cfshuntervalley@cfs.cgl.com.au

#### SA

#### ADELAIDE

19 Indama Street, Regency Park SA 5010 Phone: (08) 8341 0177 Email: cfsadelaide@cfs.cgl.com.au

#### TAS

#### **FLUID POWER SERVICES DEVONPORT**

25 Stony Rise Road, Spreyton TAS 7310 Phone: (03) 6423 1110 Email: admin@fps.com.au

#### VIC

#### I.I.S. HOSE CAMPBELLFIELD

169-171 Northbourne Road, Campbellfield VIC 3061 Phone: (03) 9305 4600 Email: campbellfieldsales@hishose.com.au

#### H.I.S. HOSE DANDENONG

132-134 South Park Drive, Dandenong South VIC 3175 Phone: (03) 9794 9299 Email: dandenongsales@hishose.com.au

#### H.I.S. HOSE SUNSHINE WES

28 Spencer Street, Sunshine West VIC 3020 Phone: (03) 8311 7400 Email: sunshinesales@hishose.com.au

#### WA

#### PERTH

25 Redcliffe Road, Redcliffe WA 6104 Phone: (08) 6272 5333 Email: cfsperth@cfs.cgl.com.au

#### KALGOORLIE

16 Atbara Street, Kalgoorlie WA 6430 Phone: (08) 9021 4000 Email: cfskalgoorlie@cfs.cgl.com.au

#### NEWMAN

26D Woodstock Street, Newman WA 6753 Phone: (08) 6272 5333 Email: cfsnewman@cfs.cgl.com.au

#### PORT HEDLAND

3/2 Steel Loop, Wedgefield WA 6721 Phone: (08) 9158 9900 Email: cfsporthedland@cfs.cgl.com.au









Local Solutions. National Strength.

cooperfluidsystems.com.au - 1300 026 673 - A Division of Coventry Group Ltd. ABN 37 008 670 102

Every effort is made to ensure all content is accurate at the time of printing however Cooper Fluid Systems reserve the right to correct any printing errors and omissions. Any information in this catalogue can be changed due to product amendments without prior notice. Images and drawings used are for illustrative purposes. Due to the printing process, colours may vary to the actual item. All sizes shown are approximate only and accessories shown with the product are not included unless specified. Any reproduction is prohibited without prior written approval.