

# WINN & COALES (DENSO) LTD



A MEMBER OF WINN & COALES INTERNATIONAL  
LEADERS IN CORROSION PREVENTION AND SEALING TECHNOLOGY



# SHUK

RUBBER & GASKETS

## WINN & COALES (DENSO) LTD



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LEADERS IN CORROSION PREVENTION AND SEALING TECHNOLOGY



## 200 Litre Void Filler

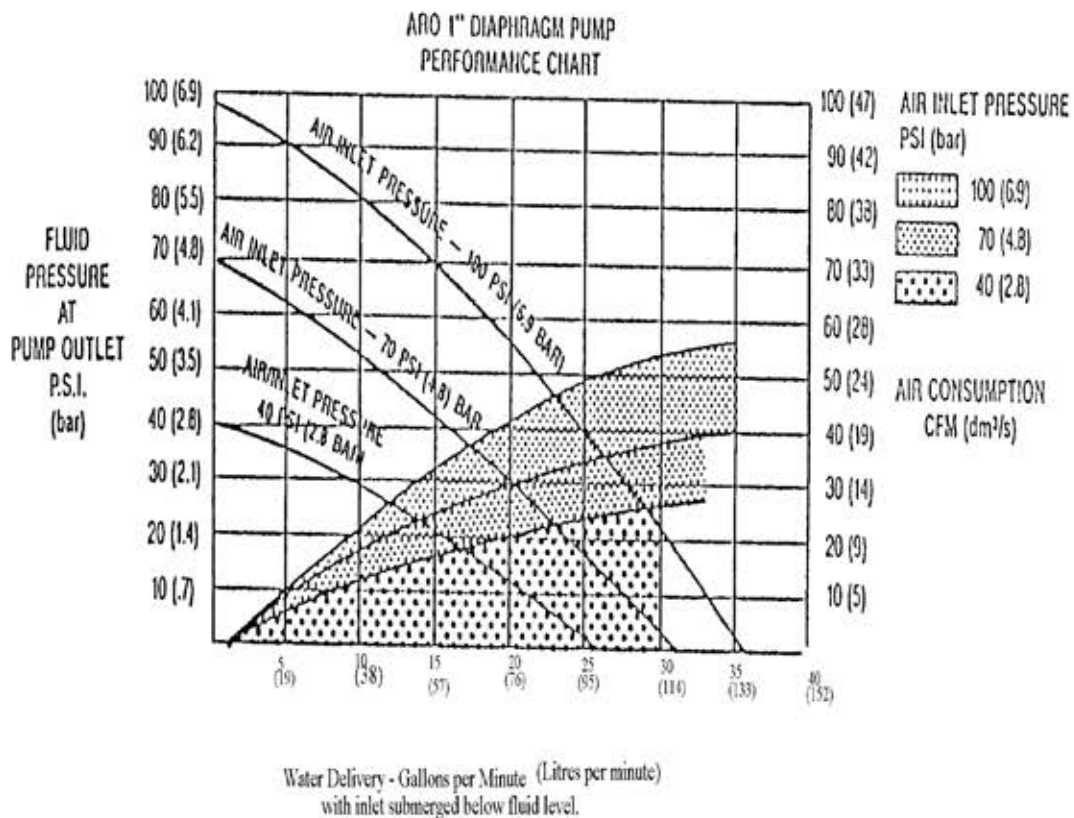
Operating and Setting Instructions

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### Performance Data



Read all parts of this manual before operating the equipment. Refer to Winn & Coales (Denso) Ltd, Engineering Department if in doubt about any part of this procedure or equipment.

Parts of this machine are heavy and will cause injury if dropped. Only lift weights that you are comfortable with.

Wear protective footwear at all times whilst setting up and using this machine.

Wear gloves and overalls whilst using this machine. Take precautions to prevent contact with high pressure, heated Void Filler.

Wear protective eye goggles, overalls and gloves whilst cleaning the machine at the end of use. Refer to any appropriate COSHH sheets for cleaners used.



# 2

## List of Components

<u>Item</u>	<u>Description</u>	<u>Quantity</u>
1.	Pump & Lid Assy incorporating siphon tube and 2 Immersion Heaters (6 kW at 240 volt AC each but used at 110volt and 3 kW).	1
2.	Lid Assy incorporating Siphon Tube and 2 Immersion Heaters (6 kW at 240 volt AC each but used at 110 volt and 3kW).	1 per each additional 200 litres (subject to avail).
3.	10m and 5m x 25mm Internal diameter Void Filler filling and exit point hoses with quick release couplings	1
4.	Drum transfer hose with quick release couplings.	1
5.	10m x 25mm Diameter air line with quick connector for drum pump.	1

# 6

## Void Filler Characteristics

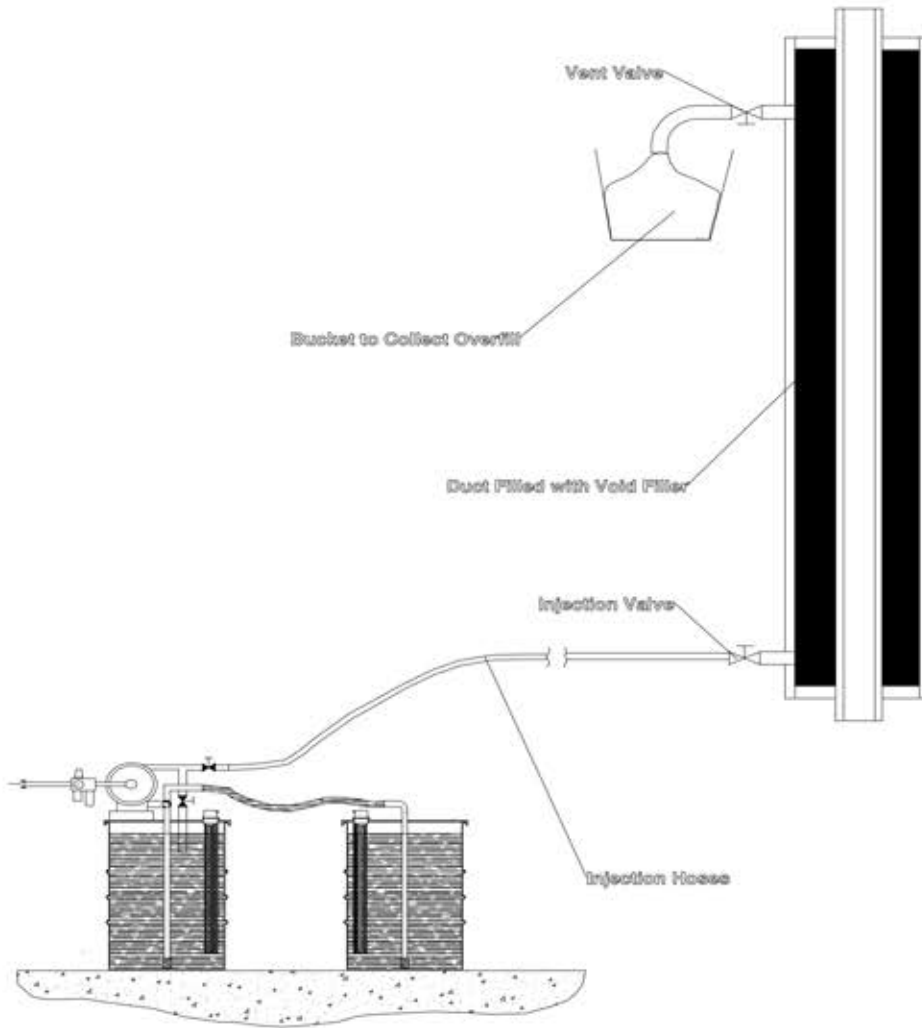
**Viscosity of Type I Void Filler at Various Temperatures**  
**Shear Rate 28 sec<sup>-1</sup>**

Temperature °C	Viscosity of Type I (cps)
25	>5000
50	1645
75	90
100	30

**Comparison of Density of Void Filler Type 1**

Temperature °C	Density g/ml
0	0.953
10	0.945
20	0.937
30	0.929
40	0.921
50	0.913
60	0.905
70	0.897
80	0.890
90	0.882
100	0.874

## Typical Void Filling Arrangement



### Other Requirements : (Supplied by Contractor/ Customer)

- (a). Air compressor up to 7 bar and 500 litres/min.
- (b). Buckets.
- (c). Rags.
- (d). Large Plastic bags.
- (e). Electrical extension leads and sockets to enable required amount of heaters to be plugged in.
- (f). 110 Volt single phase supply. Rated for 1.4 kW per heater being used.
- (g). Eye protectors.
- (h). Gloves/Overalls/Hard Hat.
- (j). Thermometer.
- (k). Basic Tool Set.

## General Description of Operation

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Denso Void Filler is a semi-solid petrolatum compound specially formulated for pumping into the void occurring between pipes and cables and protective sleeves.

The method outlined here is for small jobs where the void filler is pumped “hot” into the duct to completely fill the void to exclude air, water and condensation.

The Void Filler is delivered to site cold in 200 litre drums.

The contents of the drum are melted to between 70-90°C using electrical immersion heaters inserted into the special drum lids. In some circumstances ‘band heaters’ may be supplied that are fitted around the outside of the drum.

The “hot” liquid is then pumped into the duct using an air operated diaphragm pump, which sits on top of one of the 200 litre drums.

### Section 4.3

#### Shut down Procedure

1. Clear all hoses and valves with compressed air.
  2. Flush pump with small quantity of white spirit.
- Wipe all items down with rag to remove any wax deposits.

Operation

1. Position the drums on a flat level surface within an appropriate distance from the filling point so that the longer of the two hoses can connect between the filling point on the conduit and the air operated drum pump. If pumping into a conduit requiring more than 200 litres and thus more than one drum position the additional drums in a pattern around the pumping drum such that the transfer hose can be connected in turn between all drums when commencing the pumping operation.
2. Ensure the position chosen will be as dry as possible and remove the transit lid from each drum. Place the pumping/heating lid onto the first drum and a heating lid onto all the other subsequent drums. Insert an immersion heater into each of the threaded bosses provided and do up until finger tight. There is no need to use a spanner to tighten these.
3. Plug in the heaters and turn on. The thermostats will have been preset for the required temperature but if it is obvious the heaters are not performing to the correct temperature then with the help of a qualified electrician adjust the internal thermostats of the heaters. A heating temperature of approximately 120°C is preferred.
4. The wax will melt around the heating elements first and this can be checked by looking into the inspection window on the lids. If time is critical, the melt can be accelerated by manual stirring - this involves lifting the lid - and when the mix is sufficiently melted by using the pump to re-circulate. An average melt out time using 1 x 3000 W heater and an ambient temperature of 5°C is between 10 - 14 hours.

Open the re-circulating valve and re-circulate the product for about 5 minutes.

Connect one end of the void filling line to the product outlet quick connect coupling and the other to the inlet port on the conduit to be filled. If an exit hose is being used connect the exit hose to the vent end of the conduit and place trailing end into a suitable collecting vessel such as an open bucket or place the bucket under the vent valve.

If using more than one 200 litre drum of void filler connect the transfer hose from the other drum lid siphon tube connection point to the inlet to the three way valve on the pump assembly ready for change over to that drum.

Open the valve on the void filler outlet on the pump assy and commence filling the conduit (see section 5). When it is observed through the inspection window that the void filler in the first drum is down to the inlet to the siphon tube or the sound of the pump changes to a different note then the three way valve should be turned such that the void filler is now being pumped from the other drum.

Should the process require more than 400 litres and thus 3 or more drums then the pump should be set to re-circulate into its own drum each time the transfer hose is disconnected from the siphon tube and reconnected to another drums siphon tube. This procedure should be followed to prevent pumping air into the conduit that is being filled.

As soon as void filler starts issuing from the end of the hose or the vent at the end of the conduit collect the overflow in the bucket, shut both valves connected directly to the conduit and stop pumping.

## Pre Checks

1. Check all equipment is available and in good order
2. Check valves are fitted to both ends of duct and to any vent points
3. Check the duct to be filled is clear. Note this can be done with compressed air.
4. Check all hoses are clear - use compressed air.
5. Check the void filler in the drums is between 80 & 90°C and fully melted.

### Section 4.1 Injecting the Void Filler

The fluid pressure and delivery rate at the pump outlet are determined by :-

- (a). The air inlet pressure.
- (b). The viscosity of the product.

The greater the air pressure the higher the pumping rate. (See section 7 for water delivery rates).

The higher the product temperature the lower the viscosity.

The lower the viscosity the higher the pumping rate.

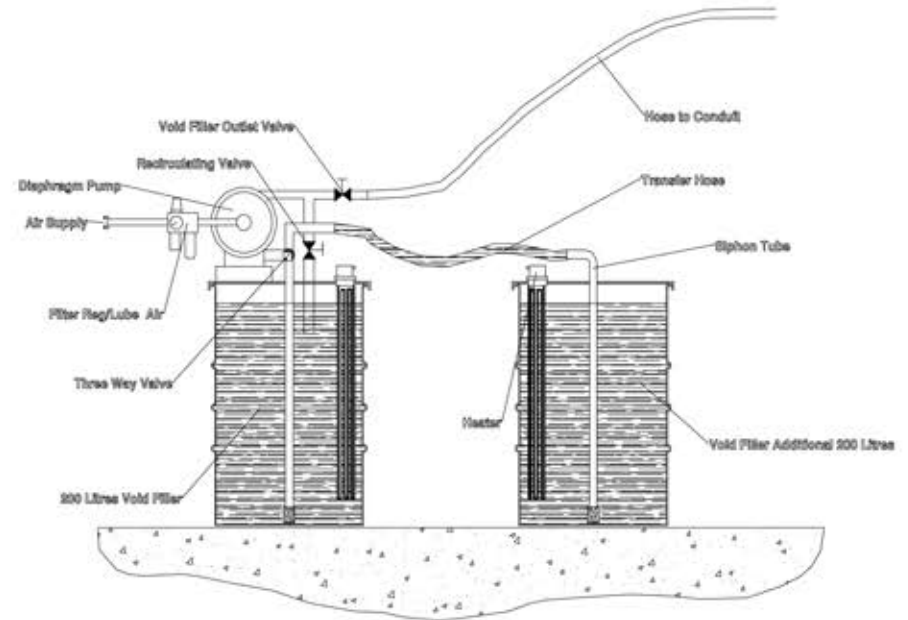
Because of numerous application arrangements it is not possible to give settings, however it is normally desirable to inject the void filler as speedily as is practical.

Please consult Winn & Coales Engineering Department for the best system.

As a general rule however the duct to be filled should have injection and vent ports with a minimum ½" BSP fitting. The injection port should be at the lowest point and the vent port at the highest.

### Section 4.2 Injecting Operation

(Refer to typical arrangement drawing below).



When the Void Filler has fully melted and the correct temperature reached proceed as follows:

Turn off the heaters but leave them in position on the special drum lids. Ensure all the valves on the void lines are in the off position. (The three way valve should be set to feed from the drum that the pump assy is mounted onto).

Connect the air supply to the quarter turn coupling. Set the air pressure to about 2 bar on lube/regulator unit.