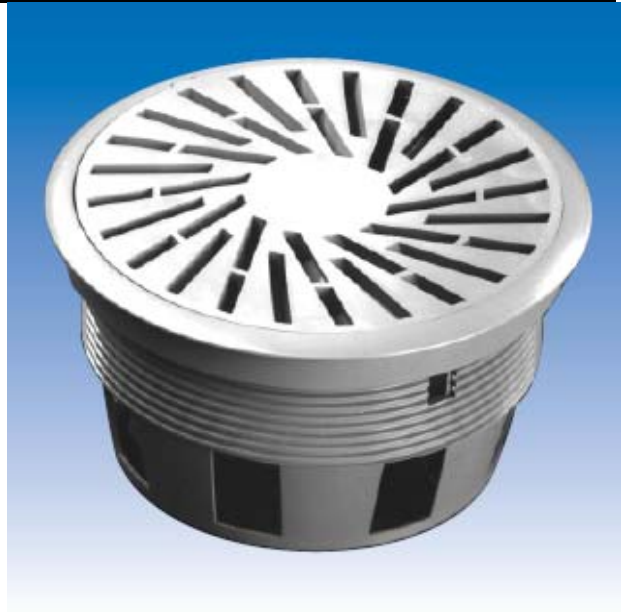


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Aircell WFO Diffuser

VEN tac
air management

VEN tac
noise control

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laboratories

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WFO WFOV

Introduction

The Waterloo Aircell WFO series floor diffuser offers the choice of horizontal or vertical air patterns with its flip over design, as well as a host of other unique & patented features. The WFOV low pressure vertical supply disc offers vertical projection with a 50% increase in air volume capacity, compared with standard WFO units.

The WFO diffuser disc is 200mm Ø and it has been designed to resist permanent deformation when subjected to point loads up to 500 kg and all materials used are fire retardant. The WFOV diffuser disc is suitable for point loads up to 300kg.

Product Description

WFO Pressurised Floor Void - Tile Installation Suitable for fitting into standard floor tile thicknesses of up to 50mm, supplied with a locking collar which is screw fixed to the underside of the tile.

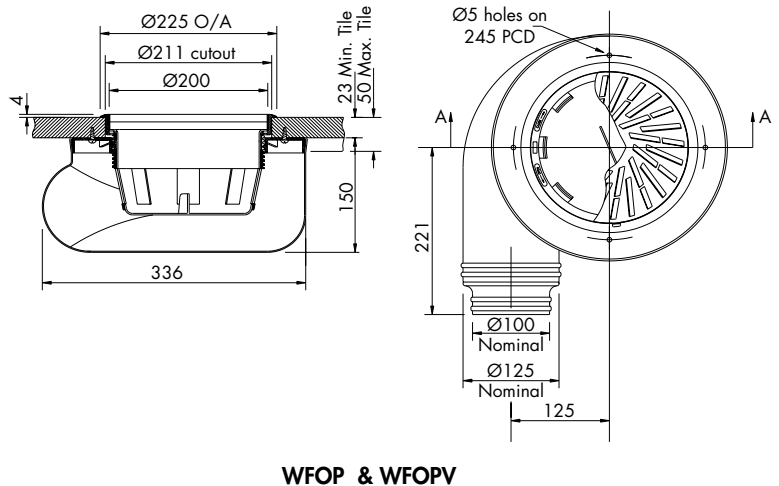
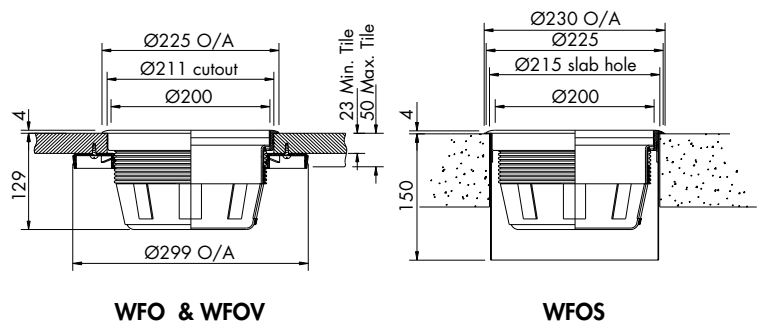
WFOV As above but with low pressure vertical air pattern disc

WFOV Pressurised Void - Slab Floor Installation Supplied with a steel adaptor collar which is cast into the floor slab. The diffuser can then be installed into the collar with concealed spring clips.

WFOP Ducted Installation with Plenum Supplied with a plenum which simply snap fits onto the locking collar. The plenum features a dual spigot connection to suit 100mm or 125mm diameter ducting.

WFOPV As above but with low pressure vertical air pattern disc

WFOD Step Drilled Installation
The diffuser disc only is supplied, suitable for installation into pre-cut holes in floor tiles.



Features

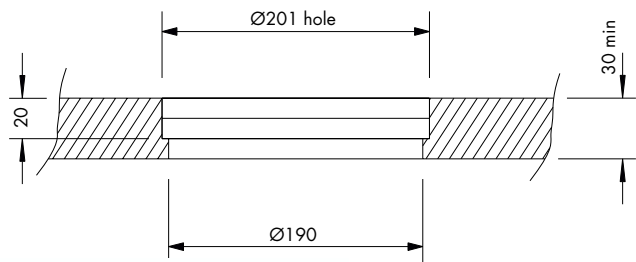
- Unique 'flip-over design'
- Memory locating peg
- Easy fit locking collar
- Concealed fixing bracket for concrete / slab flooring
- Combined damper / dirt tray with incremental damper positioning
- Heavy duty glass reinforced polycarbonate construction
- Snap fit aerodynamically low plenum

Finish

WFO diffusers are available in a standard finish (RAL 7037 Mid Grey) as standard. Other finishes specified subject to a minimum quantity.

Advantages

- Ability to change between horizontal and vertical settings instantly
- Commissioning settings are retained once set using the memory locating peg
- Reduced installation time with easy fit locking collar
- Quick fit plenum

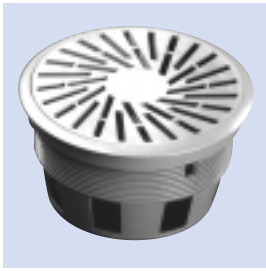


Order Example

Diffuser type

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WFO standard performance

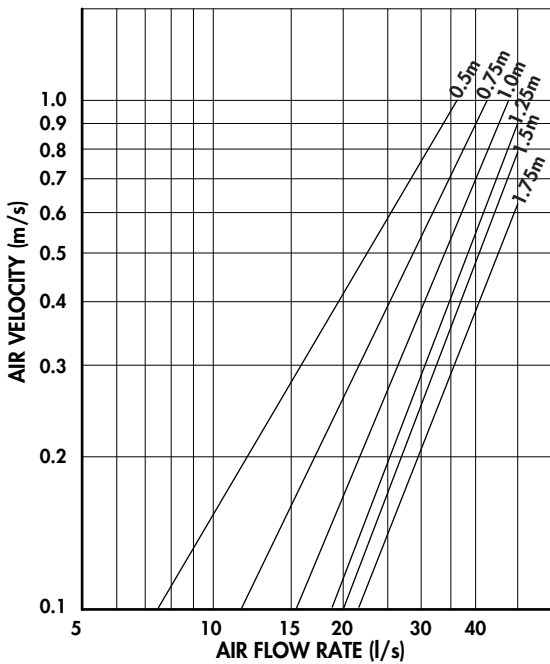


Performance graph

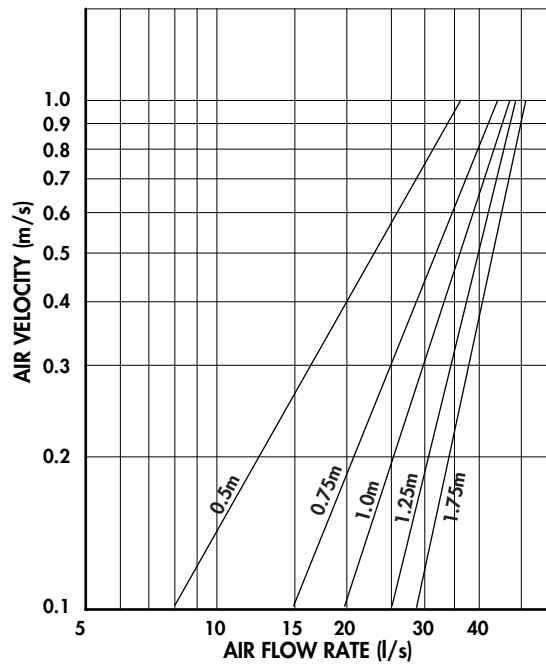
Selection Example WFO - Horizontal setting

Air Volume 25 l/s
 Jet velocity at 1m from the diffuser will be 0.26 m/s for 3°C cooling
 Pressure Drop 25Pa
 Noise Level NR 24

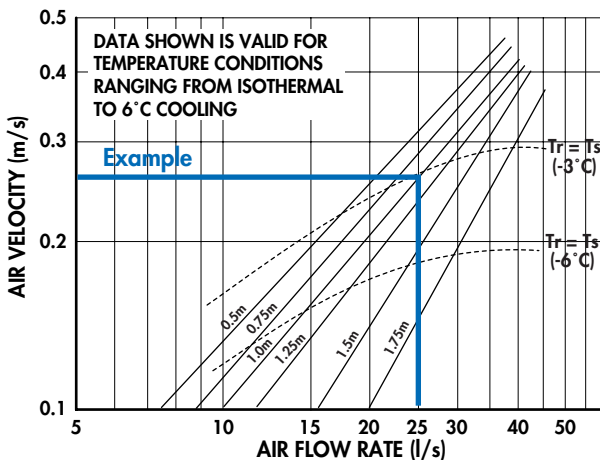
VERTICAL DIFFUSION AT 3°C COOLING



VERTICAL DIFFUSION AT 6°C COOLING



HORIZONTAL DIFFUSION



The dotted lines represent the approximate distances from the diffuser where the jet air temperature (T_s) is the same as the room air temperature (T_r).

Pressure loss data - both settings

	Air flow rate (l/s)						
	10	15	20	25	30	35	40
Static pressure loss (Pa)							
WFO	5	10	17	25	35	45	56
WFOS	5	10	17	27	38	50	—
WFOP	7	17	29	45	64	—	—
WFOD	4	7	12	19	26	35	45

All pressure loss data is based on a fully open damper

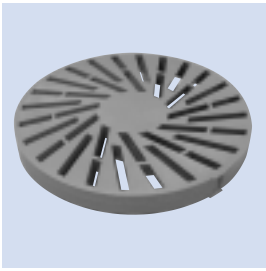
Acoustic data - horizontal setting

	Air flow rate (l/s)						
	10	15	20	25	30	35	40
NR _{Lp} (Ref. 8dB room absorption)							
WFO	<15	<15	19	24	29	33	36
WFOS	<15	15	21	26	30	34	—
WFOP	<15	18	25	30	35	—	—
WFOD	<15	<15	<15	20	24	28	32

All acoustic data is based on a fully open damper and horizontal diffusion. Reduce tabulated figures by NR3 for vertical diffusion.

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WFOV low pressure disc performance



Performance graph

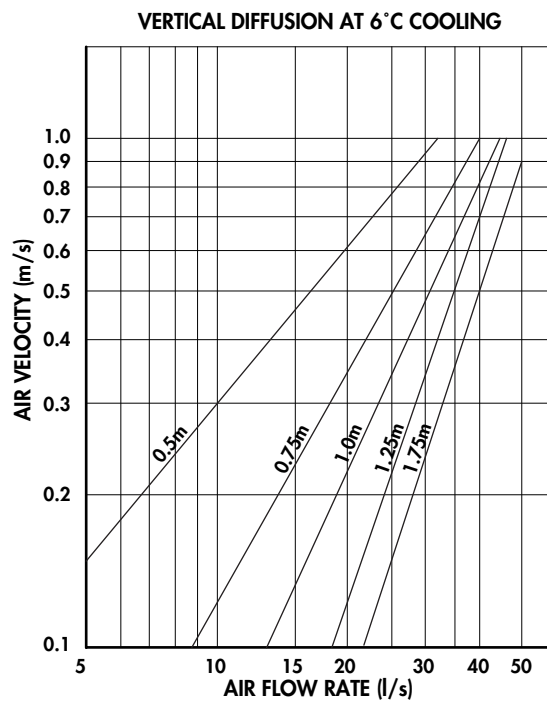
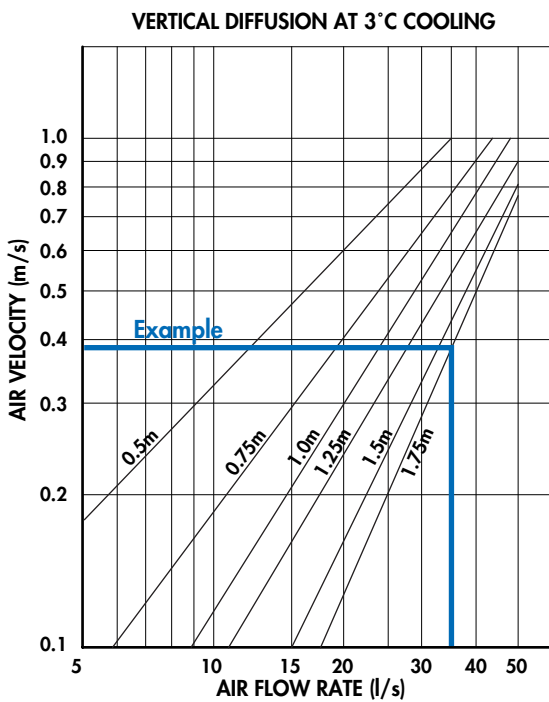
Selection Example WFOV

Air Volume 35 l/s

Jet velocity at 1.75m vertically from the diffuser will be 0.39 m/s for 3°C cooling

Pressure Drop 20Pa

Noise Level NR 18



Pressure loss data

	Air flow rate (l/s)						
	10	15	20	25	30	35	40
Static pressure loss (Pa)							
WFOV	2	4	7	11	15	20	26
WFOV	7	17	29	45	64	—	—

All pressure loss data is based on a fully open damper

Acoustic data

	Air flow rate (l/s)						
	10	15	20	25	30	35	40
NR _{LP} (Ref. 8dB room absorption)							
WFOV	—	—	—	—	<15	18	22
WFOV	<15	18	25	30	35	—	—

All acoustic data is based on a fully open damper.

Aircell polymer floor diffusers

Installation

Type WFO & WFOV (Tile installation)

Type WFO & WFOV Diffusers are suitable for installation into floor tiles from 23mm to 50mm thick. A 211mm diameter hole is drilled/cut through the tile. Ensuring the aperture is free from shavings/rough edges etc, insert the mounting frame into the hole. Locate locking collar onto the underside body of the mounting frame and using the webs screw upwards and tighten to the underside of the tile. The main body of the unit should now be firmly held in position, screw holes are provided in the locking collar should additional fixing be required. The combined damper/dirt tray can now be positioned into the mounting frame. Ensure that the damper airways are open and place location peg into the slot provided to lock in position.

Finally select the air pattern required either vertical or horizontal by referring to the disc location tab and place into the aperture ensuring alignment tab engages with the cut out in the mounting frame. To remove the disc use the tool provided.

Type WFOP & WFOPV (Tile installation with plenum)

Installation as described for WFO. Select plenum inlet spigot size, if 125 diameter cut off square around markings with a hacksaw, remove swarf with a file and connect to ductwork with a flexible tie. 'Snap on' plenum onto the ridge situated on the locking collar.

To remove the disc use the tool provided.

Type WFOS (Slab floor or wall installation)

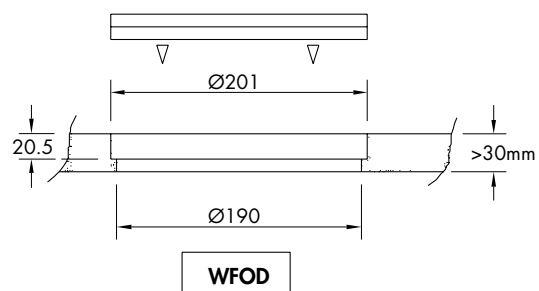
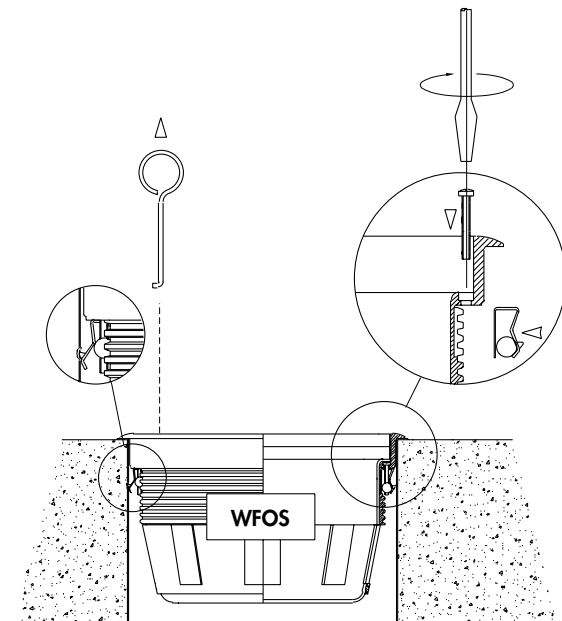
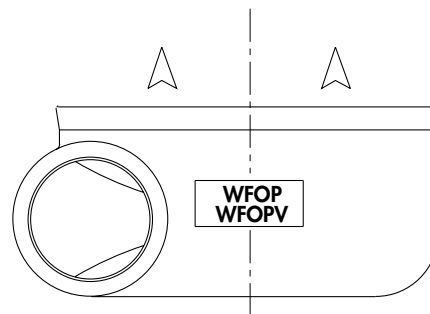
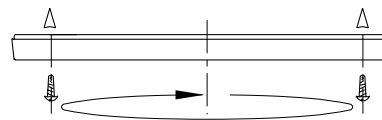
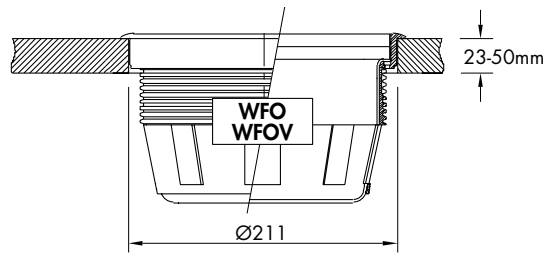
The steel sleeve is positioned to the customers requirements and cast into concrete floor/wall slab. Ensure that the sleeve and face flange are free from debris, fit the mounting clamps, screws and cylinder nuts as shown, to the mounting frame, insert into steel sleeve, gradually tighten the screw head clockwise until the cylinder nut has expanded the clip into the sleeve groove. Establish that the mounting frame is secure and insert damper/dirt tray locking pin, and diffuser disc.

There is no requirement for the locking collar so this can be disposed of.

To remove the disc use the tool provided.

Type WFOD (Diffuser disc only)

Drill/cut a 211mm diameter hole in the floor, 20.5 mm deep. Ensure the aperture is free of shavings/debris and place the disc into position. To remove the disc use the tool provided.



Commissioning

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Commissioning & cleaning

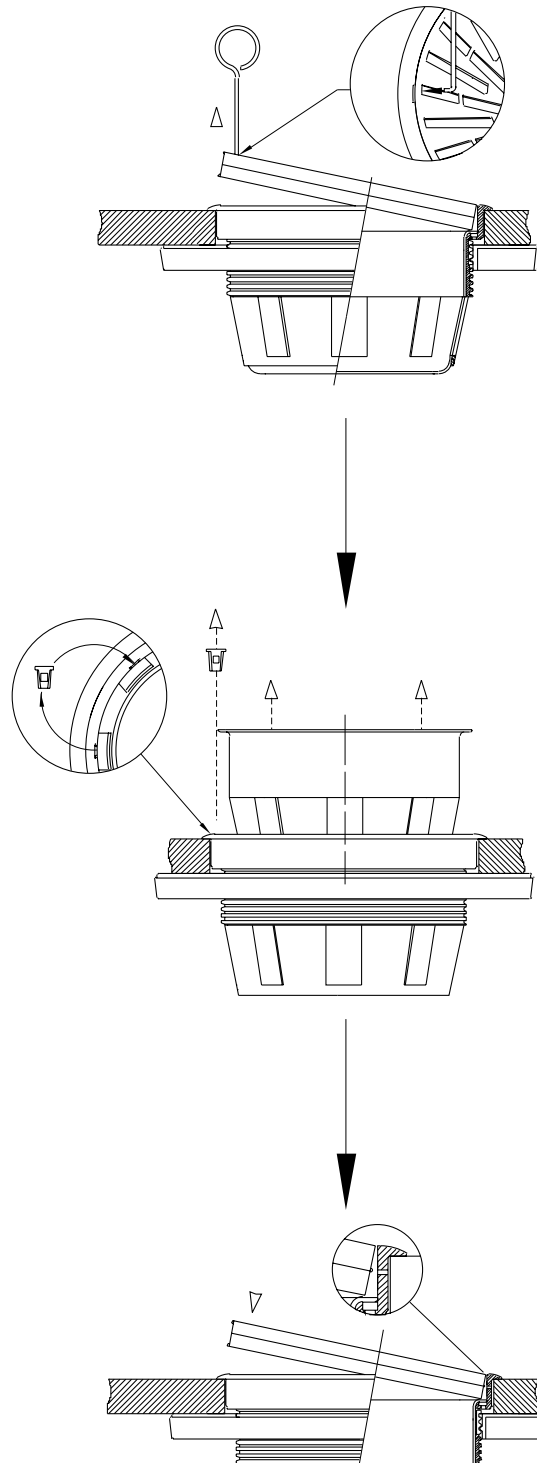
Commissioning

All units are supplied with the damper in the open position. Should, on commissioning, any adjustment be required, remove the disc with the tool provided, remove dirt tray and damper location peg, relocate peg to required damper position and replace dirt tray and disc.

Cleaning


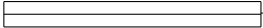

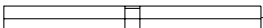
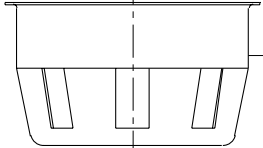

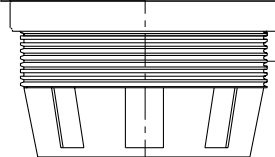
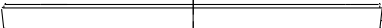
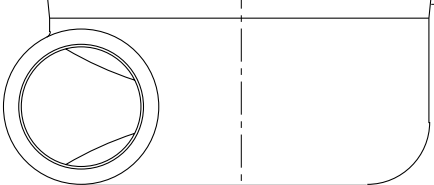




For removal of debris remove the disc with the tool provided (1 tool per 10 diffusers) and pull the dirt tray up and out by using the finger holds, empty the dirt tray, and place back in position. The unique damper locating peg ensures that the dirt tray is put back exactly as its original position, ensuring the correct air flow is maintained.

Clean the disc in warm water with a mild soap detergent. Ensure that the disc is thoroughly dry prior to replacing.



Aircell polymer floor diffusers

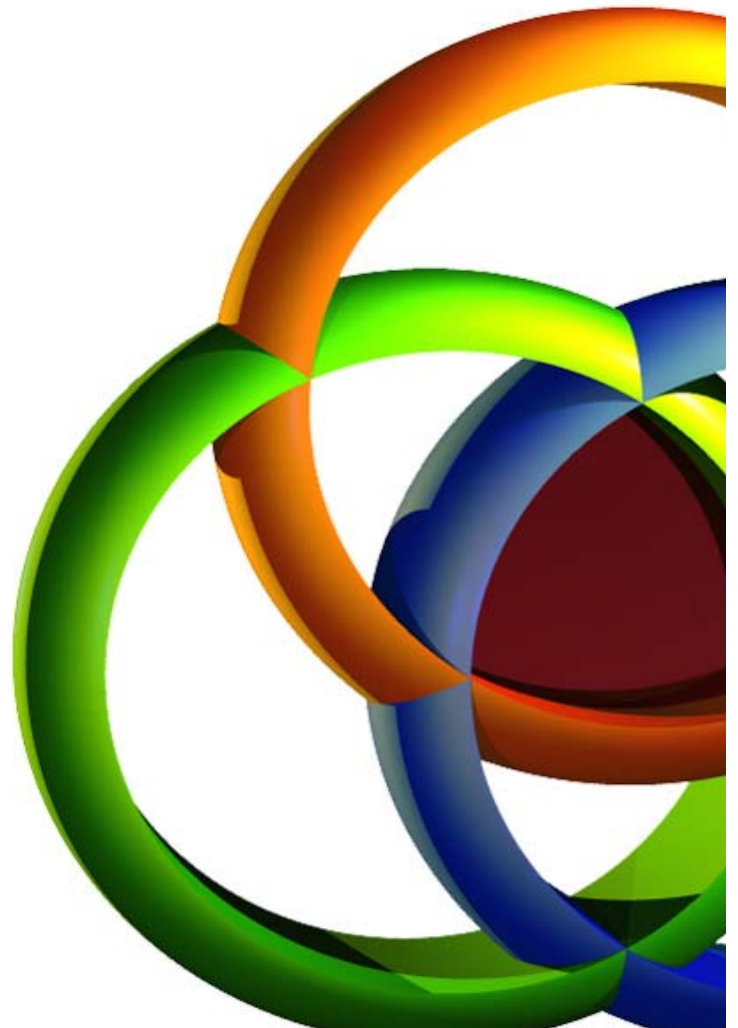
Component checklist

	WFO	WFOV	WFOP	WFOPV	WFOS	WFOD
 HOOK TOOL 1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
 DIFFUSER DISC 1						<input checked="" type="checkbox"/>
<hr/>						
 DIFFUSER DISC 1	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
 DIFFUSER DISC 1		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
 DAMPER/DIRT TRAY 1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
 DAMPER LOCATION PEG 2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
 MOUNTING FRAME 1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
 LOCKING COLLAR 1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<hr/>						
 PLENUM 1			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<hr/>						
 CLAMP SCREWS 2						<input checked="" type="checkbox"/>
 MOUNTING CLAMPS 2						<input checked="" type="checkbox"/>
 CLAMP NUTS 2						<input checked="" type="checkbox"/>
 STEEL SLEEVE 1						<input checked="" type="checkbox"/>

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