



Extra Heavy Duty Floor Grille

Type AFG



Read the instructions prior to performing any task

TROX[®] TECHNİK
The art of handling air

TROX UK Ltd

Caxton Way

Thetford, Norfolk

IP24 3SQ

Phone: +44 (0) 1842 754545

Fax: +44 (0) 1842 763051

E-mail: trox@troxuk.co.uk

Internet: <http://www.troxuk.co.uk>

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General information

About this manual

This installation, operating & maintenance manual enables operating or service personnel to correctly install the AFG floor grille and to use it safely and efficiently. This manual is intended for use by fitting and installation companies, in-house technicians, technical staff, properly trained persons, and qualified electricians or air conditioning technicians.

It is essential that these individuals read and fully understand this manual before starting any work. The basic prerequisite for safe working is to comply with the safety notes and all instructions in this manual.

The local regulations for health and safety at work and the general safety regulations for the area of application of the ventilation unit also apply.

This manual must be given to the system owner when handing over the system. The system owner must include the manual with the system documentation.

The manual must be kept in a place that is accessible at all times.

Illustrations in this manual are mainly for information and may differ from the actual design.

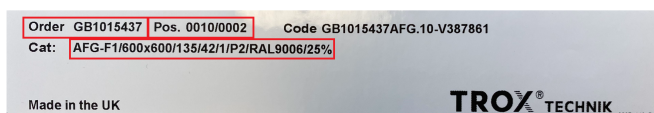
Other applicable documentation

- TROX AFG technical leaflet
- Project-specific schedule documents (if any)

TROX Technical Service

To ensure that your request is processed as quickly as possible, please keep the following information ready:

- Product name
- TROX order number & position No.
- Delivery date
- Brief description of the fault



TROX Order No. and POS. number can be found on the white label attached to each unit (see example above). Definition of the AFG order code can be found within O&M appendix: [AFG Order code](#)

Online	www.troxuk.co.uk
Phone	+44 (0) 1842 754545

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Limitation of liability

The information in this manual has been compiled with reference to the applicable standards and guidelines, the state of the art, and our expertise and experience of many years.

The manufacturer does not accept any liability for damages resulting from:

- Non-compliance with this manual
- Incorrect use
- Operation or handling by untrained individuals
- Unauthorised modifications
- Technical changes
- Use of non-approved replacement parts

The actual scope of delivery may differ from the information in this manual for bespoke constructions, additional order options or as a result of recent technical changes.

The obligations agreed in the order, the general terms and conditions, the manufacturer's terms of delivery, and the legal regulations in effect at the time the contract is signed shall apply.

We reserve the right to make technical changes.

Defects liability

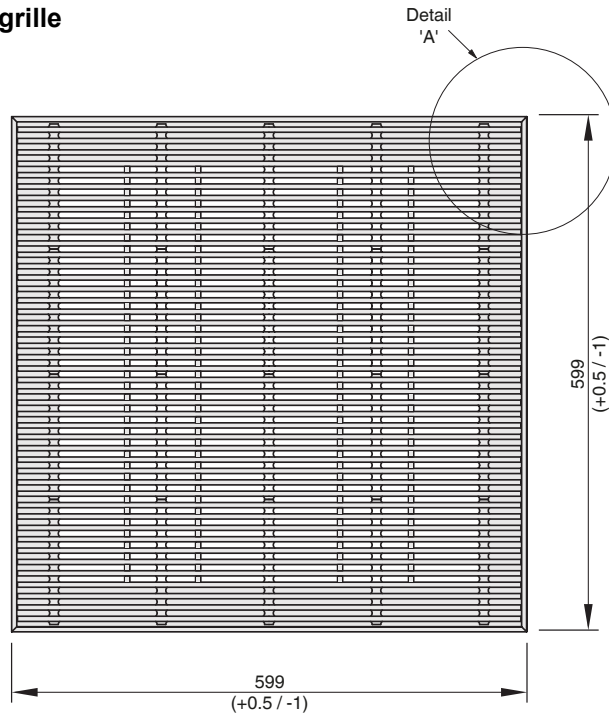
For details regarding defects liability please refer to Section 7, Warranties, of the TROX UK Ltd Terms and Conditions of sale

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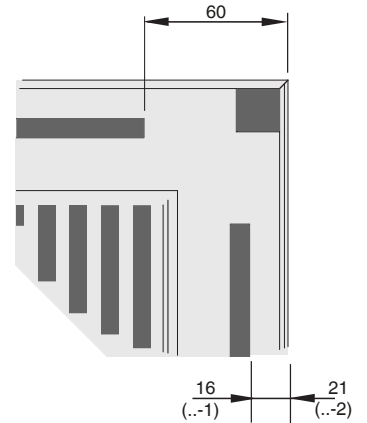
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1 AFG floor grille overview

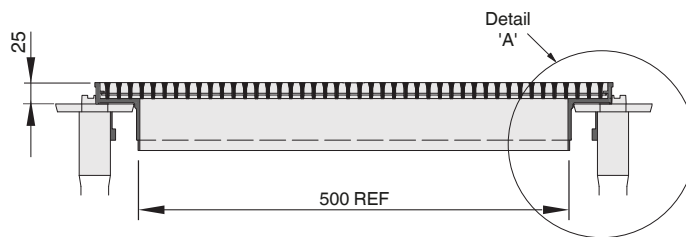
Components of the floor grille



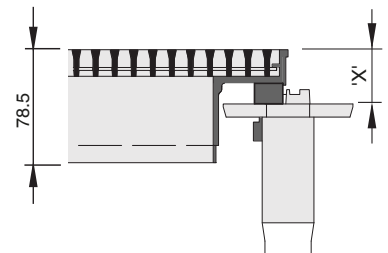
Detail A (rear view)



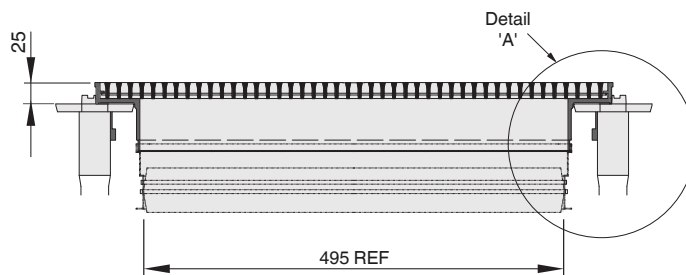
■ AFG-A



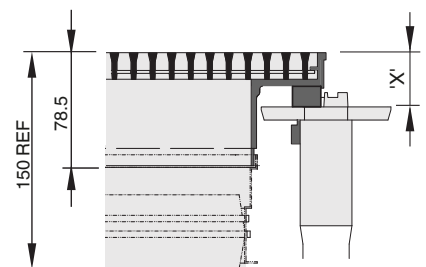
Detail A



■ AFG-AG



Detail A



Functional description

TROX Extra Heavy Duty Floor Grilles type AFG are designed for installation with raised access floor systems and provide a passage for conditioned air from the floor void into the area being served.

Typically used within data centres or IT server rooms, the conditioned air is supplied from the cooling system into the floor void with an over pressure to force the air out of the floor grille to the areas where local cooling is required.

Each unit is designed to replace a standard 600x600 floor tile and is load tested to BS EN 13264:2001 and exceeds the requirements for extra heavy duty structural classification.

Type AFG floor grilles are for use within raised access floor systems with a maximum pedestal head diameter of Ø90mm and with stringers with a maximum width of 30mm (frame construction 1) or 40mm (frame construction 2). Type AFG floor grilles are manufactured to suit the floor tiles depth from 25mm to 50mm with factory set shims (1mm increments).

Optional opposed blade dampers can be supplied (AFG-AG) which provide local control of volume flow rate and provide a mechanism to balance the airflow across large areas.

Nominal data

- Nominal size:.....600x600
- Nominal frame depth:.....25 mm to 50 mm
- Nominal open area:.....0.152 m²
- Nominal free area:..... 42 %
- Nominal weight: AFG-A.....11.5 kg
AFG-AG.....13.5 kg
- Maximum volume flow rate, with L_{WA} max.
50 dB(A) without attachments
AFG-A:.....525 l/s or 1890 m³/hr

2 Safety

2.1 Symbols used in this manual

Safety notes

Symbols are used in this manual to alert readers to areas of potential hazard. Signal words express the degree of the hazard.

Comply with all safety instructions and proceed carefully to avoid accidents, injuries and damage to property.

DANGER!

Imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING!

Potentially hazardous situation which, if not avoided, may result in death or serious injury.

CAUTION!

Potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE!

Potentially hazardous situation which, if not avoided, may result in property damage.

ENVIRONMENT!


Environmental pollution hazard.

Safety notes as part of instructions

Safety notes may refer to individual instructions. In this case, safety notes will be included in the instructions and hence facilitate following the instructions. The above listed signal words will be used.

Example:

1. ▶ Untighten the screw.

2. ▶  **CAUTION!**
Danger of finger entrapment when closing the lid.

Be careful when closing the lid.

3. ▶ Tighten the screw.





Tips and recommendations



Useful tips and recommendations as well as information for efficient and fault-free operation.

Additional markers

In order to highlight instructions, results, lists, references and other elements, the following markers are used in this manual:

Marker	Explanation
 1., 2., 3. ...	Step-by-step instructions
	Results of actions
	References to sections in this manual and to other applicable documents
	Lists without a defined sequence
[Switch]	Operating elements (e.g. push buttons, switches), display elements (e.g. LEDs)
'Display'	Screen elements (e.g. buttons or menus)

2.2 Intended use

Designed for use within commercial or industrial applications where prolonged foot traffic or rolling loads may be expected such as offices, atrium areas or data centres.

Type AFG floor grilles can replace 600x600mm floor tiles with depths from 25mm to 50mm (1mm increments) and exceeds the requirements of **BS-EN 13264:2001** extra heavy duty structural classification.

Intended use also includes:

- Ventilation
- Conveying air at an ambient air pressure between 800 mbar and 1050 mbar
- Using the device within the permitted ambient temperature range; see
 - ↳ [Chapter 3 Transport and storage](#)
 - ↳ [Chapter 1 Nominal data](#)
- Operating the device with all protective device
- Following the operating instructions
- Installing the device within certified floor systems;
 - Pedestal head Ø90mm MAX
 - Stringer width 30mm or 40mm MAX.

2.3 Improper use

WARNING!

Danger due to incorrect use!

Incorrect use of the unit can lead to dangerous situations.

Improper use includes:

- Any use that is not described in this operating manual.
- Operating the device in an unbalanced state, e.g. due to dirt deposits or ice formation.
- Resonant operation, operation with severe vibration including vibration transmitted to the unit from the customer installation.
- Operation that does not comply with the technical data.
- Operation in rooms where the supply or extract air contains particles that are conductive, aggressive, corrosive, combustible or hazardous to health.
- Operating the device close to flammable materials or components or within an explosive atmosphere.
- Use, installation, operation, maintenance or repair other than described in this manual.
- Having work carried out by unqualified individuals.
- Use of non-genuine replacement parts or accessories, whose quality and function are not equivalent to those of the original parts
- Operation with completely or partially disassembled or manipulated protective devices.
- Connections (e.g. screws) coming loose during operation.
- Operation outdoors
- Use for enforced ventilation

2.4 Risks caused by an unsuitable installation location

Unsuitable installation location

WARNING!

Risks caused by an unsuitable installation location!

Installing the unit in an unsuitable location can lead to dangerous situations.

- The AFG floor grille should be installed within a clean, thermally insulated, low-leakage building.
- Frost free and dry installation location.
- Install the unit in a manner to protect the unit from being tampered with by unauthorised individuals.
- The unit must remain accessible for maintenance and cleaning.

2.5 Qualified staff

Qualification

The work described in this manual has to be carried out by individuals with the qualification, training, knowledge and experience described below:

Facility manager

Facility managers are trained individuals who understand any potential hazards related to the work under consideration, and who recognise and avoid any risks involved. Facility managers must not carry out any jobs beyond regular operation unless explicitly stated in this manual and unless the system owner has specifically agreed to them.

Training to a facility manager is provided by the HVAC contractor when the system is handed over.

A facility manager's tasks include cleaning the unit, performing functional tests and regular checks, and carrying out maintenance and adjustment work.

HVAC technician

HVAC technicians are individuals who have sufficient professional or technical training in the field they are working in to enable them to carry out their assigned duties at the level of responsibility allocated to them and in compliance with the relevant guidelines, safety regulations and instructions. HVAC technicians are individuals who have in-depth knowledge and skills related to HVAC systems; they are also responsible for the professional completion of the work under consideration.

HVAC technicians are individuals who have sufficient professional or technical training, knowledge and actual experience to enable them to work on HVAC systems, understand any potential hazards related to the work under consideration, and recognise and avoid any risks involved.

Network administrator

Network administrators design, install, configure and maintain the IT infrastructure in companies or organisations.

Skilled qualified electrician

Skilled qualified electricians are individuals who have sufficient professional or technical training, knowledge, experience and qualifications to relevant local wiring regulations to enable them to work on electrical systems, understand any potential hazards related to the work under consideration, and recognise and avoid any risks involved.

Any work has to be carried out by individuals who can be expected to carry out their assigned duties reliably. Individuals whose reaction time is delayed due to alcohol, drugs or other medication must not carry out any work.

2.5.1 Personal protective equipment

Personal protective equipment is equipment that protects the user against health or safety risks at work.

Personal protective equipment must be worn for various types of work; the protective equipment required is listed in this manual together with the description of each type of work.

Description of personal protective equipment

Industrial safety helmet

Industrial safety helmets protect the head from falling objects, suspended loads, and the effects of striking the head against stationary objects.



Industrial safety glasses

Industrial safety glasses protect the eyes from materials or debris and the effects of striking the head against stationary objects.



Protective gloves

Protective gloves protect hands from friction, abrasions, punctures, deep cuts, and direct contact with hot surfaces.



Safety shoes

Safety shoes protect the feet from crushing, falling parts and prevent slipping on a slippery floor.



3 Transport and storage

Checking delivered goods

Check delivered items immediately after arrival for transport damage and completeness.

If there is any visible damage, proceed as follows:

- Either do not accept the delivered items, or accept them with reservations.
- Note down the damage on the shipping documents or on the shipping company's delivery note.
- Immediately file a complaint with the shipping company and TROX UK.



File a complaint as soon as you detect any damage. Claims for compensation can be filed only within the complaint period. Refer to TROX Terms and conditions of sale for complaint period.

Transport

CAUTION!

Danger of injury from sharp edges, sharp corners and thin sheet metal parts!

Sharp edges, sharp corners and thin sheet metal parts may cause cuts or grazes.

- Be careful when carrying out any work.
- Wear protective gloves, safety shoes, hard hat and safety glasses.

- If possible, take the unit in its transport packaging up to the installation location.
- Use only lifting and transport gear designed for the required load.
- Always secure the load against tipping and falling.
- Do not move bulky items just by yourself. Get help to prevent injuries and damage.

Storage

Store the device in a dry place, protected against the weather and free from vibration, in the original packaging in a clean environment.

- Protect the device against environmental effects e.g. humidity, dust and contamination and dirt until final installation.
- We recommend storing the device for no longer than one year in order to guarantee trouble-free operation and the longest possible service life.
- Storage temperature: -10 °C to 50 °C.
- Relative humidity: 90 % max., no condensation

4 Installation

4.1 General installation information

Before installation

Before you install the unit, take suitable precautions to protect openings from contamination during installation ⇒ VDI 6022.

If this is not possible, at least cover the unit or take other precautions to protect it from contamination. In this case you have to ensure that the unit cannot be started.

Ensure that all components are clean before you install them. If necessary, clean them thoroughly. If you have to interrupt the installation procedure, protect all openings from the ingress of dust or moisture. If the units have been stored for some time all electrical equipment should be checked before electrical connections are made.

Installation information

- Install the AFG floor grille preferably in a clean, thermally insulated, low-leakage building.
- Frost free and dry installation location.
- Installation and connections to be performed by qualified operatives only.
- Install the unit only on structural elements that can carry the load of the unit.
- Use only certified flooring systems.
- Access to the rear of the unit must remain for maintenance and cleaning. Achieved by lifting the AFG floor grille or adjacent floor tiles.

Installation

CAUTION!

Open floor void areas can cause tripping hazards and result in injury.

Ensure areas where openings have been left for floor grille installation are securely cordoned off to prevent unauthorised access.

- Be careful when carrying out any work.
- Wear protective gloves, safety shoes, hard hat and safety glasses.

Personnel:

- HVAC technician

The AFG floor grille is to be installed within the raised access floor system. The maximum pedestal head diameter should be $\varnothing 90\text{mm}$ and maximum stringer width <math>< 30\text{mm}</math> (type 1) or <math>< 40\text{mm}</math> (type 2).

Install the unit in such a way that it rests completely level in all planes.

4.2 Installing the AFG grille

Before beginning installation, check the AFG order code to ensure the correct frame depth and frame construction type has been ordered.

Frame depth (25mm to 50mm) can be identified from the unit label⁽¹⁾ and should be equal to the floor tile depth including any floor covering.

The frame construction (type 1 or 2) can be identified from the unit label⁽²⁾.

Type 1 is for installations with stringers <math>< 30\text{ mm}</math> wide and type 2 for stringers <math>< 40\text{ mm}</math> wide. If no stringers are used, the frame construction type can be ignored

Order GB1015437 Pos. 0010/0002 Code GB1015437AFG.10-V387861
 Cat: AFG-F1/600x600/135/42/1/P2/RAL9006/25%
 1 2
 Made in the UK TROX[®] TECHNIK 0007_140_PL

1. ▶ Inspect the opening into which the AFG grille is to be installed. The opening should have a clear dimension of 600x600.
2. ▶ Unpack the AFG grille and dispose of all packaging.

CAUTION!

Danger of finger entrapment when lowering grille into floor system.

Ensure appropriate PPE is used when installing the floor grille.

- Be careful when lowering grille into opening to avoid trapping fingers
- Wear protective gloves, safety shoes, hard hat and safety glasses.

3. ▶ With the installation area cleared, gently lower the floor grille into the opening using suitable lifting equipment to avoid injury.

The use of suitable lifting hooks is recommended to prevent entrapment (by others).



Installing the AFG floor grille

- ▶ If lifting hooks are used, ensure suitable protection to the hook to avoid damage to the grille finish. Ensure hooks are inserted only where rear components (AG damper) cannot be damaged.

! NOTICE!

Contamination

If there is a lengthy gap between installation and commissioning of the unit, we recommend the following measures in order to avoid cumbersome cleaning procedures at the time of commissioning.

- Cover all openings of the unit, e.g. with plastic film, to prevent the ingress of dust.

Ensure installation takes account of the requirement for future maintenance.

Suitable access should be provided to facilitate regular inspection and cleaning of the unit.

5 Initial commissioning

Personnel:

- HVAC technician

5.1 Unit inspection

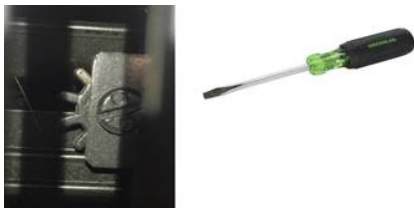
Before initial commissioning:

- Remove protective film, if any.
- Ensure that the unit is clean. If necessary, clean the faces of the unit and internal components

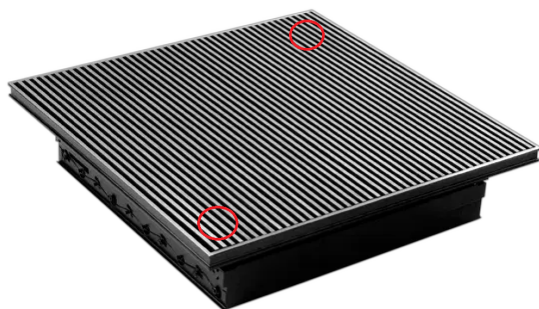
5.2 Volume flow commissioning

Type AFG-A is designed for fixed volume applications therefore volume flow commissioning is not required.

Type AFG-AG is equipped with a manual opposed blade damper that can be adjusted through the grille face using a suitable flat blade screwdriver.



The location of the damper adjustment will be in either corner of the grille;



1. ▶ Switch on the ventilation system to pressurise the floor void.
2. ▶ Starting with the grille nearest the supply air system, adjust the damper assembly on each grille to achieve the design volume flow.
3. ▶ Verify volume flow through each grille using suitable commissioning equipment.

6 Maintenance and cleaning

6.1 Maintenance

Type AFG-A, AFG-AG

We recommend the following steps are carried out at least once per year, in line with the building PPM programme. Should local conditions dictate (for example if dusty conditions are prevalent), the steps below may need to be carried out more frequently.

- Perform a visual check of the unit, inspecting for any obvious signs of damage.
- Check to ensure that all blades remain secure and that the frame remains rigid.
- Check on the unit installation to ensure the grille does not move/rock within the floor system.
- Should cleaning be required, use a non abrasive sponge/cloth, dampened with a water and mild detergent solution. Do not use any solvents, abrasive cleaning tools etc.

6.2 Safety inspection

What to check	How to check	How often	What action?
Contact protection cover for intactness or damage	Visual inspection	At least every 6 months	Repair or replacement of device
Device for damage to blades and housing	Visual inspection	At least every 6 months	Replacement of device
Fastening the cables	Visual inspection	At least every 6 months	Fasten
Insulation of cables for damage	Visual inspection	At least every 6 months	Replace cables
Welds for crack formation	Visual inspection	At least every 6 months	Replace device
Abnormal bearing noise	acoustic	At least every 6 months	Replace device

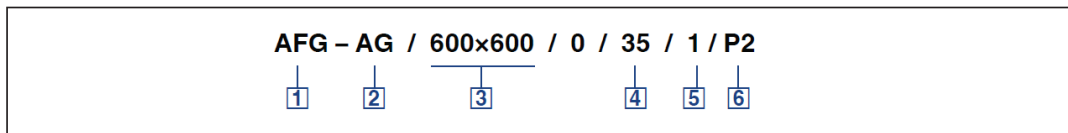
7.0 Replacement parts list

Ordering replacement parts
 You can identify order-specific components of the AFG floor grille by the reference number detailed on the label or TROX technical schedule.

Name	Replacement part no.	Unit size
AG damper to suit AFG-AG floor grille	AG damper 501 x 500	AFG-AG/600x600

7.1 AFG order code

AFG...



1 Type

AFG Floor grille

2 Attachments

A Without (grille face only)
AG Damper unit, opposed action blades

3 Nominal size

600 x 600

4 Frame depth

25 Standard
XX 26mm to 50mm (1mm increments)

5 Frame construction

1 Stringer width 0-30mm
2 Stringer width 31-40mm

6 Exposed surface

P2 Powder-coated, RAL9006:30%
P4 Powder-coated, RAL9005:20%
N1 Powder-coated, with nylon reinforcing, RAL9005

Appendices

Commissioning report / Maintenance report

Building:	Floor:	Unit:
Commissioning: <input type="checkbox"/>	Maintenance: <input type="checkbox"/>	Date: __ . __ . ____

Maintenance measures

Item to be checked	Measures	Interval [months]			Done	
		3	6	12	Yes	No
AFG-A, -AG floor grilles	Perform a visual check of the unit, inspecting for any obvious signs of damage.			X	<input type="checkbox"/>	<input type="checkbox"/>
	Check to ensure that all blades remain secure and the frame remains rigid.			X	<input type="checkbox"/>	<input type="checkbox"/>
	Check on the unit installation to ensure the grille does not move/rock within the floor system.			X	<input type="checkbox"/>	<input type="checkbox"/>

Comment:	
Next maintenance scheduled for:	
Signature: (Technician)	
Company: (Stamp)	

TROX[®] TECHNIK

The art of handling air

TROX UK Ltd
Caxton Way
Thetford, Norfolk
IP24 3SQ

Phone: +44 (0) 1842 754545
Fax: +44 (0) 1842 763051
E-mail: trox@troxuk.co.uk
Internet: <http://www.troxuk.co.uk>