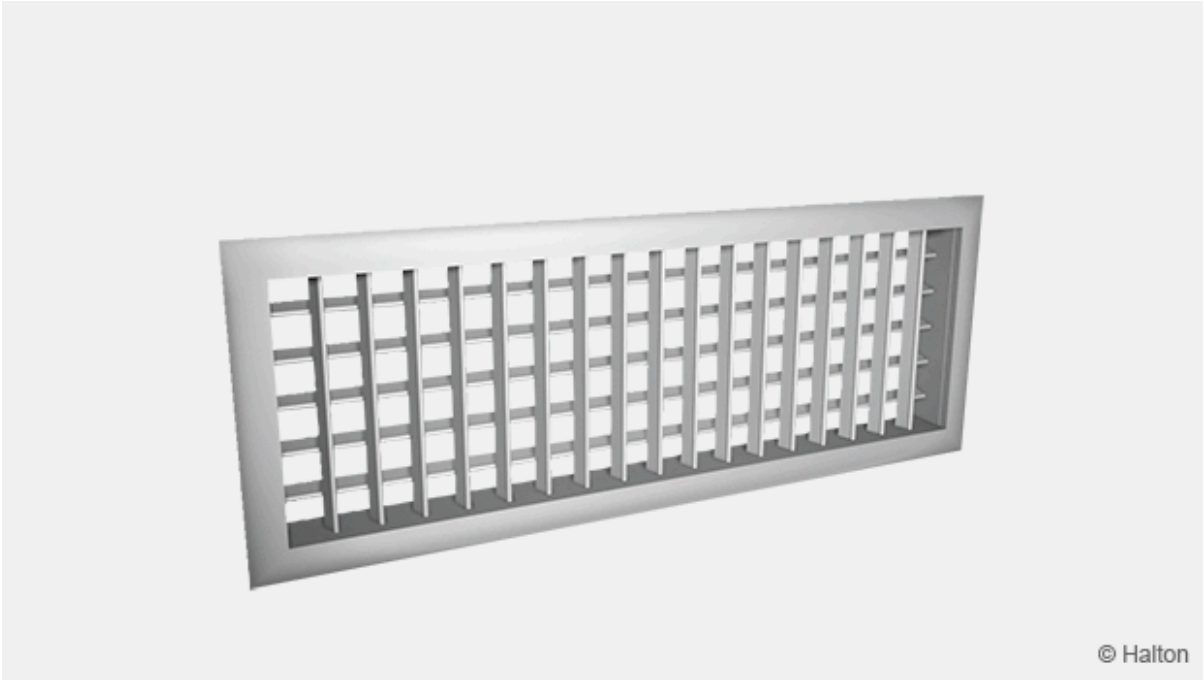
Halton WDD – Universal grille



Overview

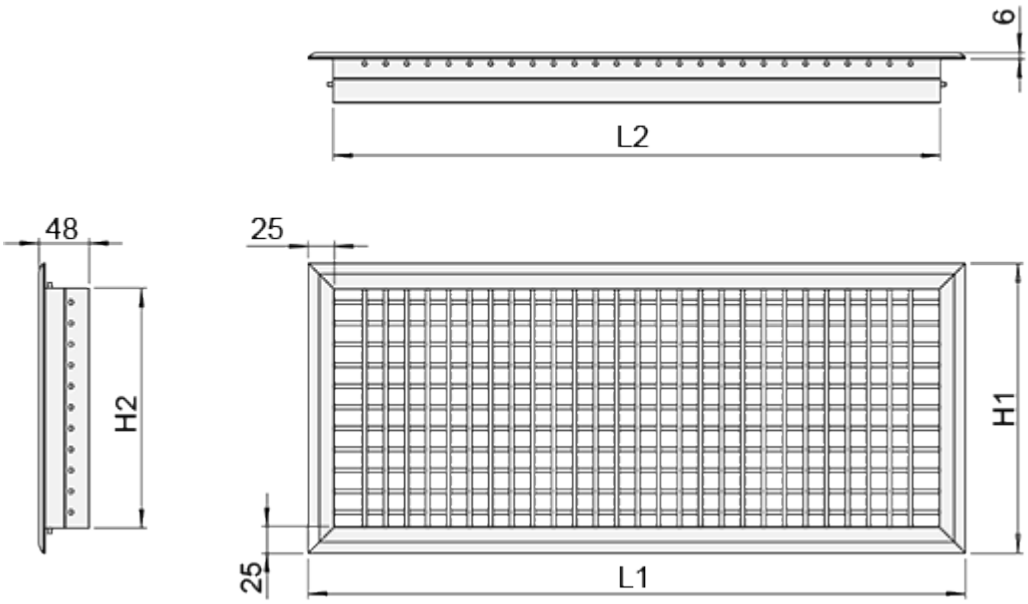
- For cooling and heating applications; suitable also for exhaust
- Adjustable vertical and horizontal vanes
- Aluminium construction
- Visible screw fastening.

Accessories

- Model with wax-bulb actuator for directing the supply air jet in heating operation
- Airflow adjustment damper
- Plenum options with measurement and adjustment functions
- Installation frame

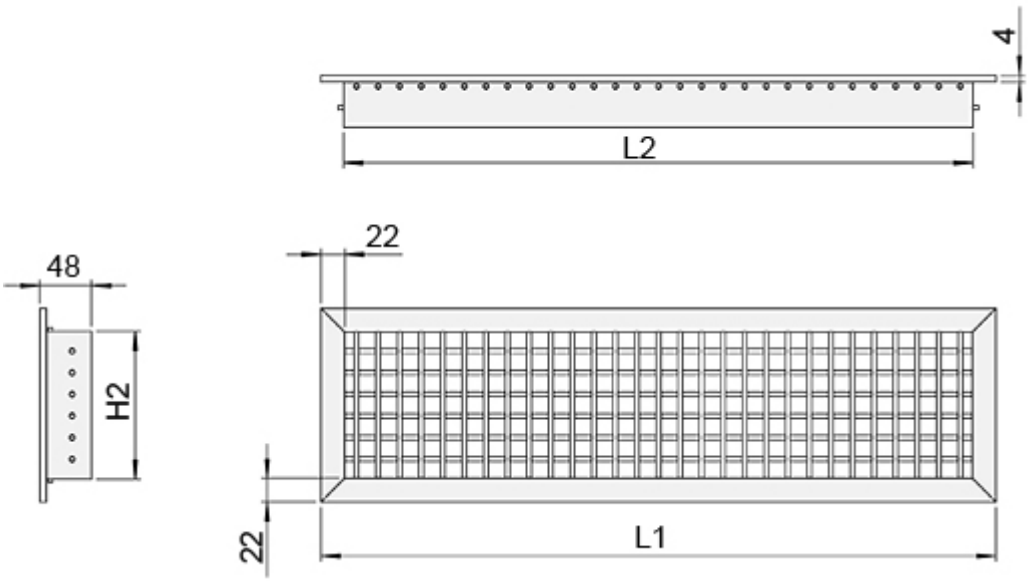
Dimensions

Halton WDD, rounded frame (R)



LxH	L1	L2	H1	H2
200×100	226	176	126	76
250×100	276	226	126	76
300×100	326	276	126	76
300×150	326	276	176	126
400×150	426	376	176	126
400×200	426	376	226	176
500×200	526	476	226	176
600×200	626	576	226	176
800×200	826	776	226	176
1000×200	1026	976	226	176
600×300	626	576	326	276
800×300	826	776	326	276
1000×300	1026	976	326	276
1000×400	1026	976	426	376
1200×400	1226	1176	426	376

With OD (airflow adjustment damper) total depth is 48 mm + 45 mm.
Halton WDD, flat frame (F)



LxH	L1	L2	H1	H2
200×100	220	176	120	76
250×100	270	226	120	76
300×100	320	276	120	76
300×150	320	276	170	126
400×150	420	376	170	126
400×200	420	376	220	176
500×200	520	476	220	176
600×200	620	576	220	176
800×200	820	776	220	176
1000×200	1020	976	220	176
600×300	620	576	320	276
800×300	820	776	320	276
1000×300	1020	976	320	276
1000×400	1020	976	420	376
1200×400	1220	1176	420	376

With OD (airflow adjustment damper) total depth is 48 mm + 45 mm.

Special dimensions

In addition to these standard sizes, other dimensions are available by special order. The maximum size is 1500mm x 600mm (LxH).

Material

Part	Material	Finishing	Note
Frame	Aluminium	Polyester-painted as white (RAL 9003/ 0% gloss), anodised or mill finished	Special colours available
Vanes	Aluminium	Polyester-painted as white (RAL 9003/30% gloss), anodised or mill finished	Special colours available
Installation frame	Galvanised steel	–	–
Plenum box / spigot	Galvanised steel	–	–

The bevel angles of the outer frame have been welded so that the joints are almost invisible.

Accessories

Accessory	Code	Description
Balancing plenum	PRL	For balancing and equalising the airflow and attenuating the duct noise
Plenum	BDR	Plenum for duct connection (with or without insulation)
Airflow measurement and adjustment unit	MSM	For supply installation
Airflow measurement and adjustment unit	MEM	For exhaust installation
Sound attenuation	IN	Mineral wool for the Halton BDR plenum box. Polyester fibre for the Halton PRL plenum box.
Flow adjustment damper	OD	Aluminium opposite blade damper for airflow adjustment
Installation frame	IF	For installation without plenum
Visible screw fastening	SF	Screw fastening
Concealed screw fastening	CC	For installation with Halton BDR plenum or IF frame
Wax-bulb actuator	MT	The actuator controls the vane angle depending on the supply air temperature

Wax-bulb actuator

In applications, where both heating and cooling are provided, the air pattern can be changed automatically via the wax-bulb actuator.
The wax-bulb actuator alters the angles of the horizontal rear vane depending on the supply air temperature. Neither auxiliary energy nor dedicated control system are needed.

When cold air is supplied at a temperature up to 18°C the supply jet is horizontal. The vane angle is 0°. As the supply air temperature rises, the actuator piston progressively changes the angle of the rear vanes to direct the supply air jet downwards. Vane angle reaches 45° in 10 to 20 minutes.

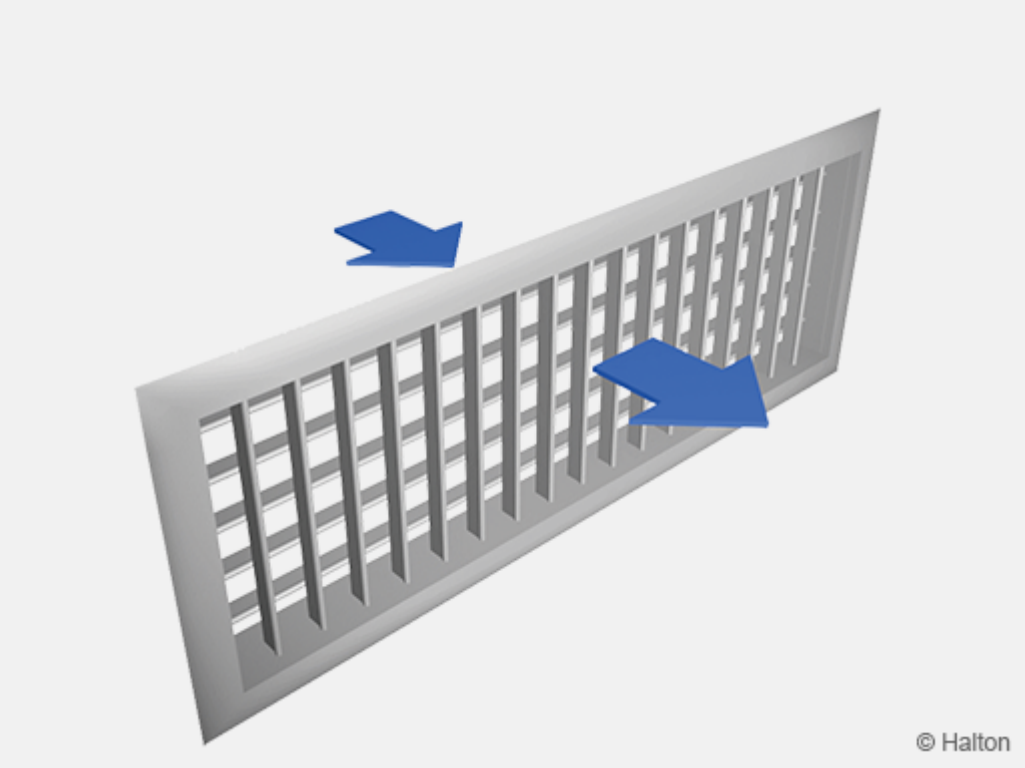
No maintenance is required for the wax-bulb actuator.

Product models

Halton WDD, rounded frame (R)

Halton WDD, flat frame (F)

Function



Supply air is supplied with horizontal and vertical deflection through the vanes into the space. The supply air mixes with the room air in front of the grille.

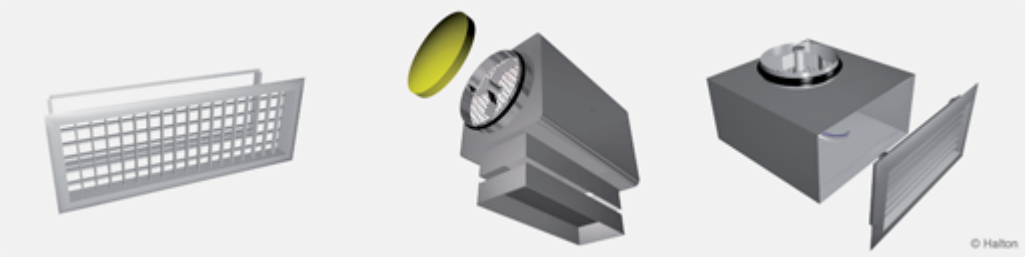
The supply air is directed with the horizontal adjustable vanes.
Moving the vertical vanes can change the length and form of the flow pattern.

In wall installations, the recommended distance from the ceiling is 200 mm, when the supply air is directed to the ceiling.
The rear vane angle can also be controlled by optional wax-bulb actuator.

The Halton WDD grille can also be used as an exhaust unit.

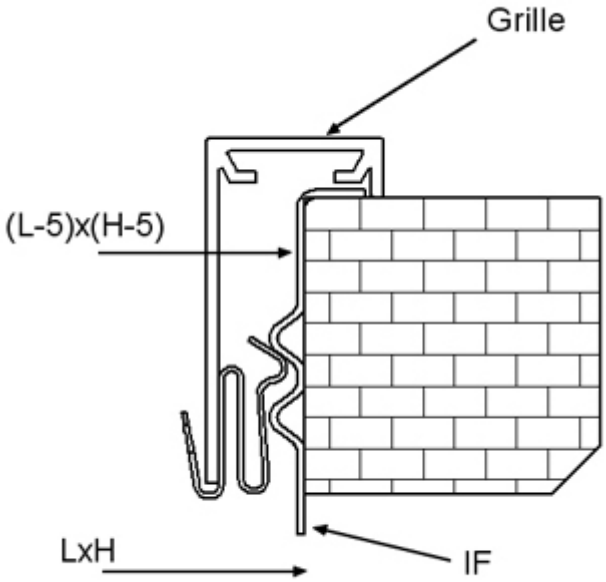
Installation

The grille is connected to the circular duct using either a Halton PRL balancing plenum or a Halton BDR plenum or alternatively directly to the rectangular duct using the IF/WDD installation frame.



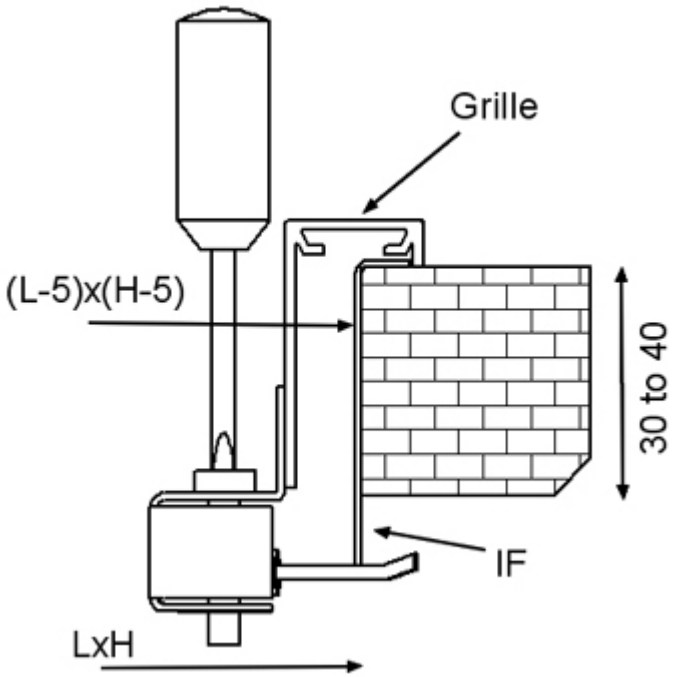
Installation frame, IF/WDD Balancing plenum, PRL Plenum box, BDR

Clips fastening (standard)



The grilles are delivered with clips fastening as standard.
Clips fastening is used with Halton PRL, Halton BDR and IF/WDD.

Concealed screw fastening (optional)

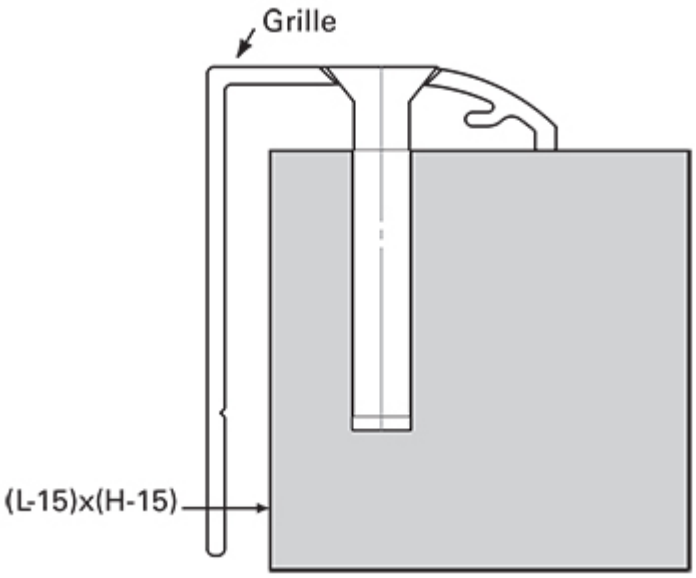


Concealed screw fastening is possible when the grille is installed with an IF/WDD installation frame or with a Halton BDR plenum, not with a Halton PRL balancing plenum.
Holes are provided for screws in Halton BDR.

For ceiling installation, concealed screw fastening is recommended.

The dimensions of the installation holes are LxH when an installation frame is used, and (L-5) x (H-5) without installation frame.

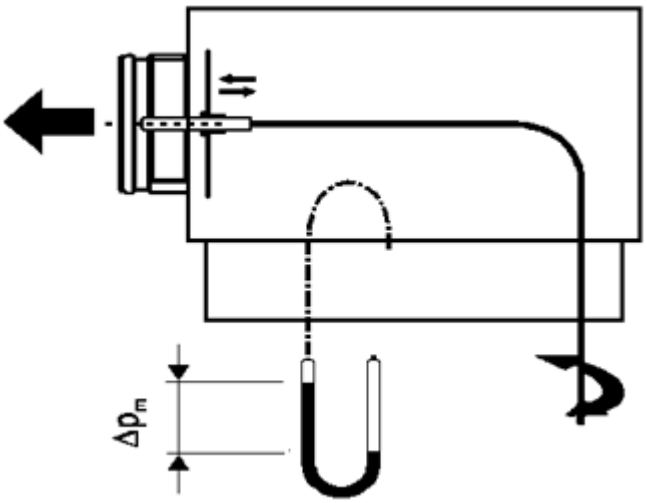
Visible screw fastening



For ceiling installation, we recommend using visible screw fastening. The auto screws, 4.2×25 (bevel headed screws) are supplied.

Adjustment

Supply



In order to enable airflow adjustment and measurement of airflow rate we recommend connecting the diffuser to a Halton BDR plenum or Halton PRL balancing plenum equipped with the MSM module.
The supply flow rate is determined by using the measurement and adjustment module MSM.
Detach the grille and pass the tubes and control spindle through the grille.
Measure the differential pressure with a manometer. The flow rate is calculated using the formula below.

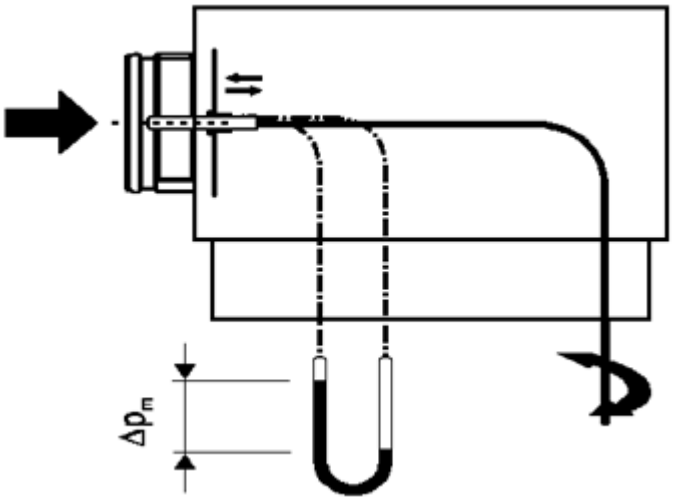
$$q_v = k * \sqrt{\Delta p_m}$$

Adjust the airflow rate by rotating the control spindle until the desired setting is achieved.
Lock the damper position with a screw.
Replace the tubes and spindle into the plenum and replace the grille.

The k-factor for installations with different safety distances
(D= duct diameter)

BDR	>6xD	min 3xD
100	6	7
125	10	12
160	19	22
200	28	32
250	49	51
315	77	83

Exhaust



The airflow rate is selected by measuring the pressure difference between the measurement tap on the Halton PRL balancing plenum or Halton BDR plenum and the room air.
The corresponding airflow rate is calculated and can be adjusted by turning the control spindle of the adjustment unit MEM.

Airflow adjustment damper OD

The airflow rate can also be adjusted by turning the damper blades behind the grille with a screwdriver. The measurement is carried out when grille is installed.

Servicing

Remove the grille by gently drawing it out by the frame. Use a screwdriver if necessary.
Clean the parts by wiping them with a damp cloth.
Push the grille back into place until the springs lock (or fix by screwing on the concealed screws).

Option:
With balancing plenum Halton PRL + MSM (MEM) or Halton BDR + MSM (MEM)

Remove the measurement and adjustment module by gently pulling the shaft (NB not the control spindle).
Wipe the parts with a damp cloth, instead of immersing in water.
Remount the measurement and adjustment module by pushing in the shaft until the module meets the stopper.
Push the grille back into place so that the clips lock.

Specification

The grille is made of extruded aluminium, with an anodised or epoxy-painted with a white (RAL9003) standard colour.
The bevel angles of the outer frame are welded so that the joints are almost invisible.
The Halton WDD grille has horizontal and vertical adjustable vanes.
The rear vanes direct the supply air jet horizontally. The length and form of the air pattern are adjusted by turning the front vanes.

Optionally

The supply air jet shall be controlled according to supply air temperature by a wax-bulb actuator.

Alternative 1

The grille shall be connected to the ductwork using a plenum, with mineral wool as sound insulation material.

Alternative 2

The grille can be connected to the ductwork using a balancing plenum, which comprises sound attenuation material made of polyester fibre with a washable surface.

The plenum comprises an airflow measurement and adjustment unit.
The grille is removable in order to provide access to the measurement and adjustment module in the plenum.

Order code

WDD/L-H; FM-VP-FS-FI-CO-ZT-AC

L = Length (mm)
200, +1, .., 1500

H = Height (mm)
100, +1, .., 600

Other options and accessories

FM = Frame model
R Rounded
F Flat

VP = Vane positioning
V Vertical at front
H Horizontal at front

FS = Fastening
CL Clips
SF Screw fastening
CC Concealed screw fastening

FI = Finishing
PN Painted
AN Anodised
MF Mill finished

CO = Colour
SW Signal white (RAL 9003)
X Special colour (RAL xxxx)
N No painting

ZT = Tailored product
N No
Y Yes (ETO)

AC = Accessories
WM Wax-bulb actuator

Sub products

BDR Plenum
PRL Plenum

IF Installation frame (Grilles)
OD Opposed blade damper (Grilles)

Code example

WDD-200-100, FM=R, FS=CL, FI=AN, CO=N, ZT=N