Halton THL – Conical diffuser

Overview

- Horisontal or vertical air supply
- Suitable for both heating and cooling applications
- Adjustable throw pattern (radial or compact jet)
- Installation flush to the ceiling, or exposed (especially in high spaces)
- Circular duct connection with gasket
- Openable front disk enables cleaning of the diffuser and ductwork

Accessories

- Plenum options with measurement and adjustment functions

Quick selection

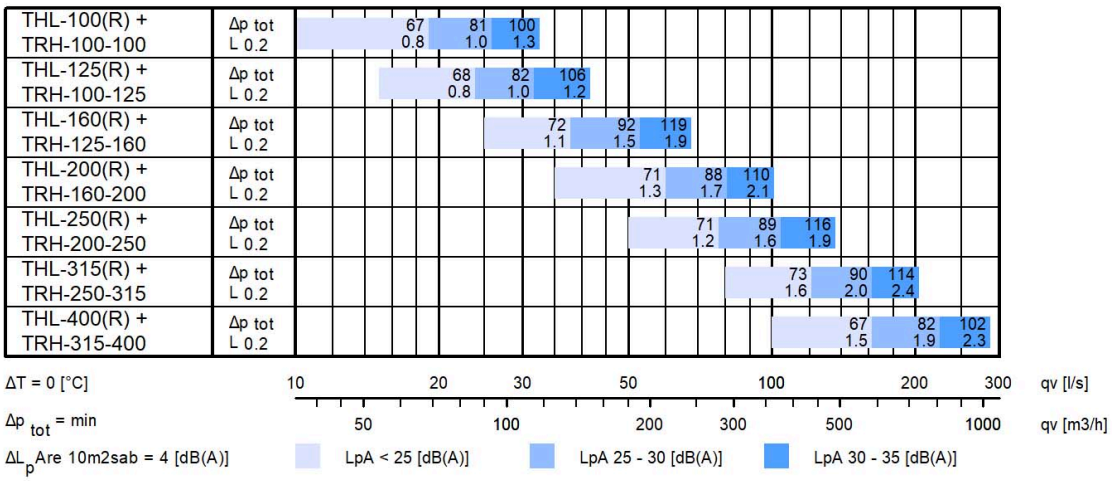
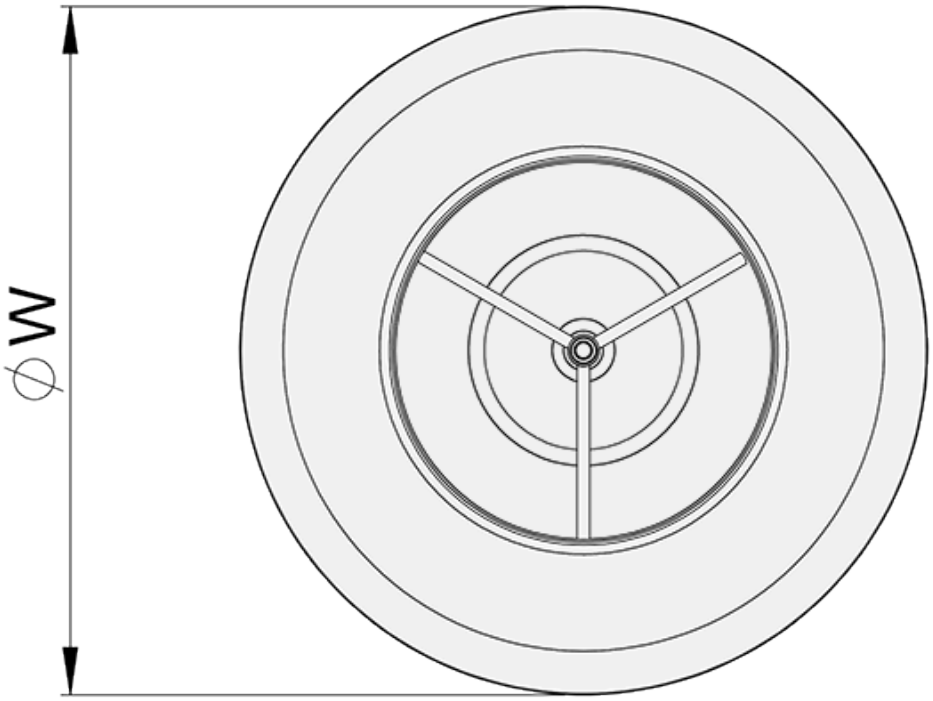


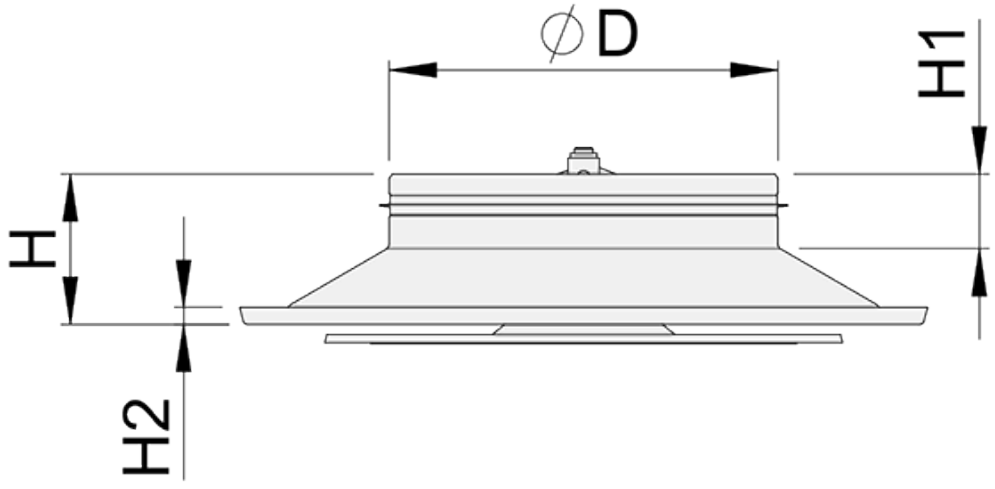
Fig.1. Halton THL with TRH plenum.

Halton reserves the right to alter products without notice.

Dimensions

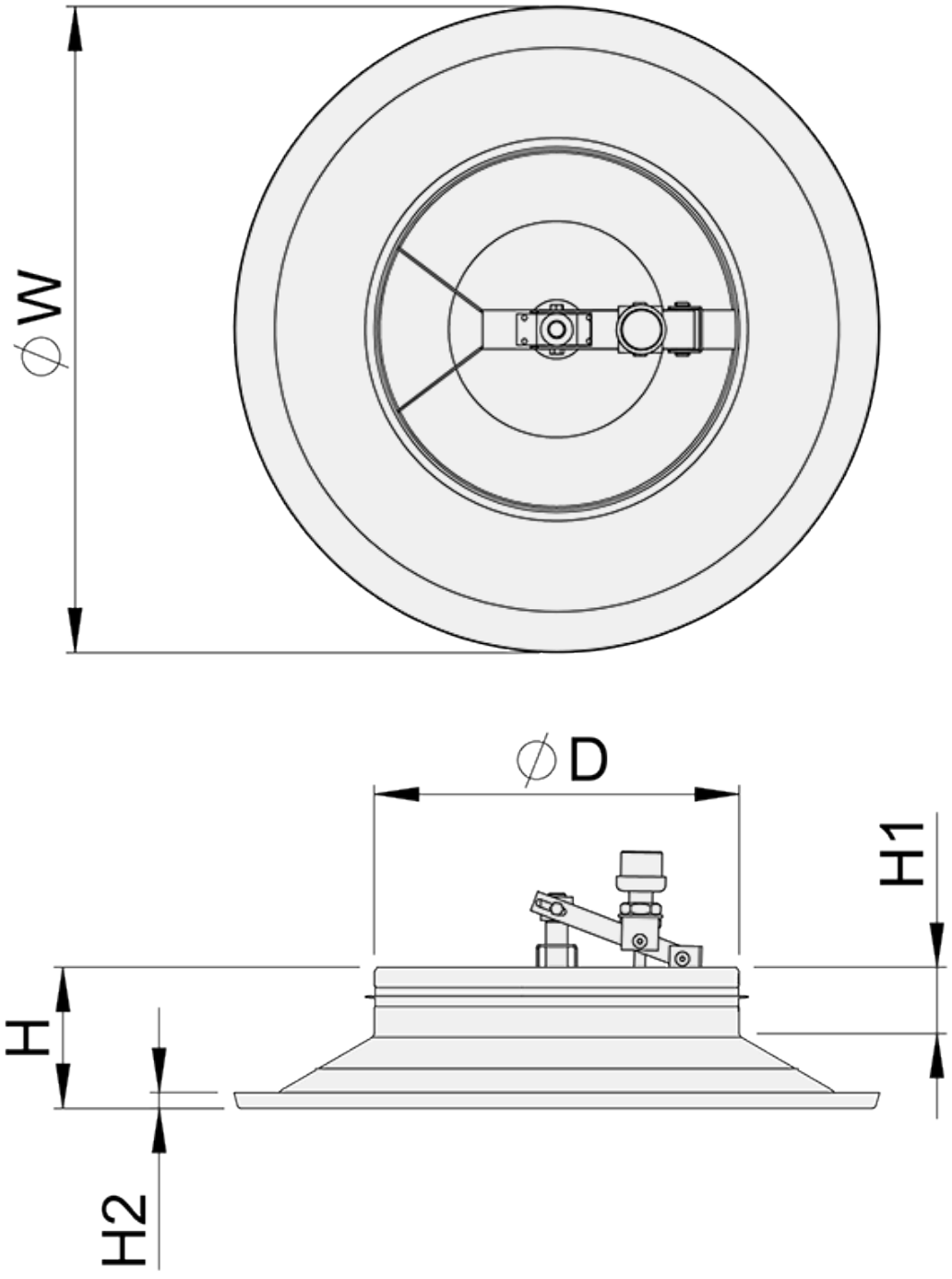
Halton THL, manual





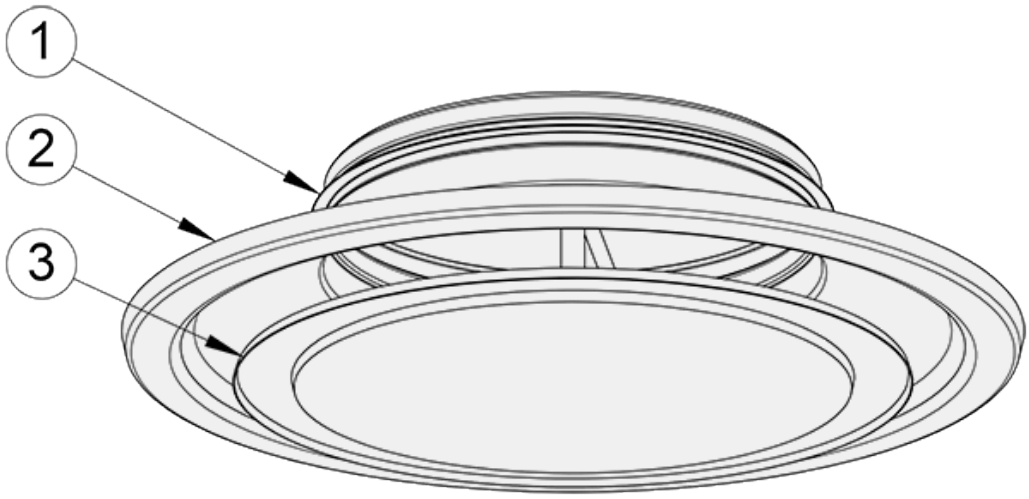
NS	ØW	H	H1	H2	ØD
100	286	105	63	9	99
125	286	105	63	9	124
160	286	80	48	9	159
200	354	90	49	10	199
250	438	96	45	11	249
315	544	118	51	13	314
400	682	149	65	14	399

Halton THL with wax-bulb actuator



NS	ØW	H	H1	H2	ØD
250	438	96	45	11	249
315	544	118	51	13	314
400	682	149	65	14	399

Material



Key	Part	Material	Colour alternatives
1	Duct seal gasket	Rubber	–
2	Frame	Steel	Powder paint, white (RAL 9003). Special colours available on reguest
3	Front disk	Steel	Powder paint, white (RAL 9003). Special colours available on reguest

Accessories

Accessory	Code	Description
Balancing plenum	TRI	For balancing, equalising the airflow and attenuating the duct noise (polyesterfibre)
Balancing plenum	TRH	For balancing, equalising the airflow and attenuating the duct noise (mineral wool and polyester fibre)

Product Models

Halton THL, manually operated

Changing manually the front disk position the throw pattern can be adjusted from radial to compact.

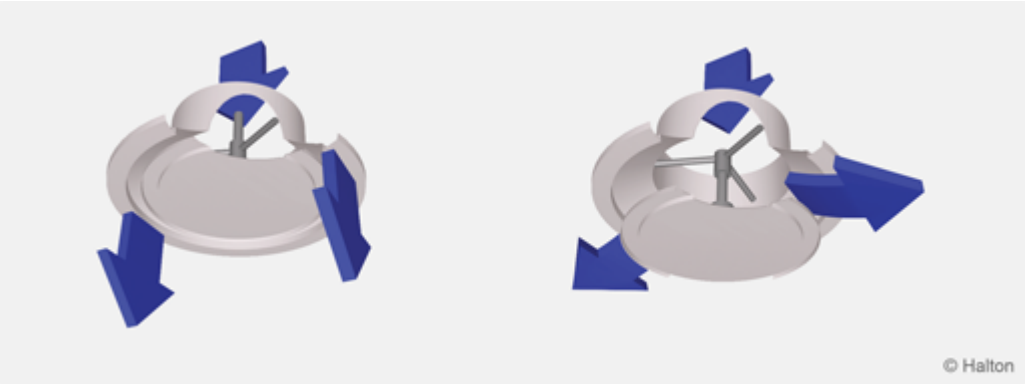
Halton THL with wax-bulb actuator

Sizes 250, 315 and 400 can be equipped with a wax-bulb actuator, which work without any power supply. The front disk position changes according to the temperature of supply air. The temperature range of the wax-bulb actuator is about 20 °C to 27 °C.

The time taken to change from radial to compact jet (or the other way around) is 10 – 20 minutes. When warm air is supplied the piston of the wax bulb actuator keeps moving until the THL supply

air pattern is vertical. When cold air is supplied, the Halton THL supply air pattern is changed back to horizontal by means of a spring.

Function

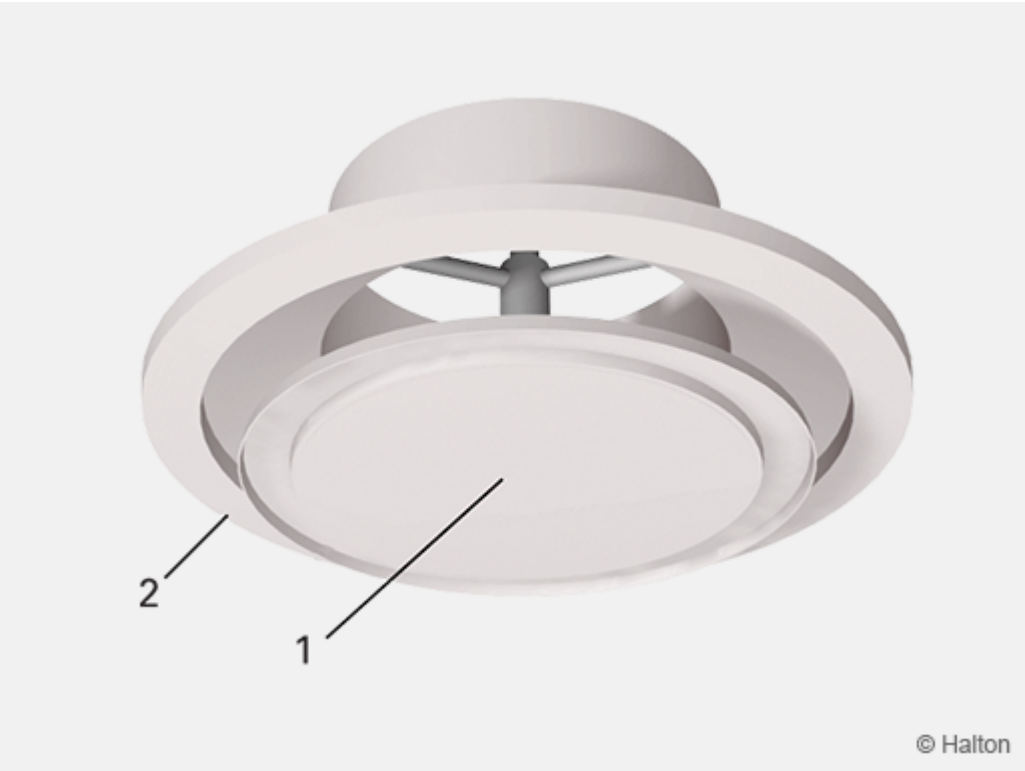


Compact jet **Radial jet**

The Halton THL is a ceiling diffuser with an adjustable low pattern.
The horisontal radial jet is used mainly in cooling applications and the vertical compact jet with warm supply air in heating applications.

The supply air pattern can be adjusted by rotating the front disk into the desired position.
The recommended maximum temperature difference in cooling applications between supply and room air temperature is 10 °C.

Installation

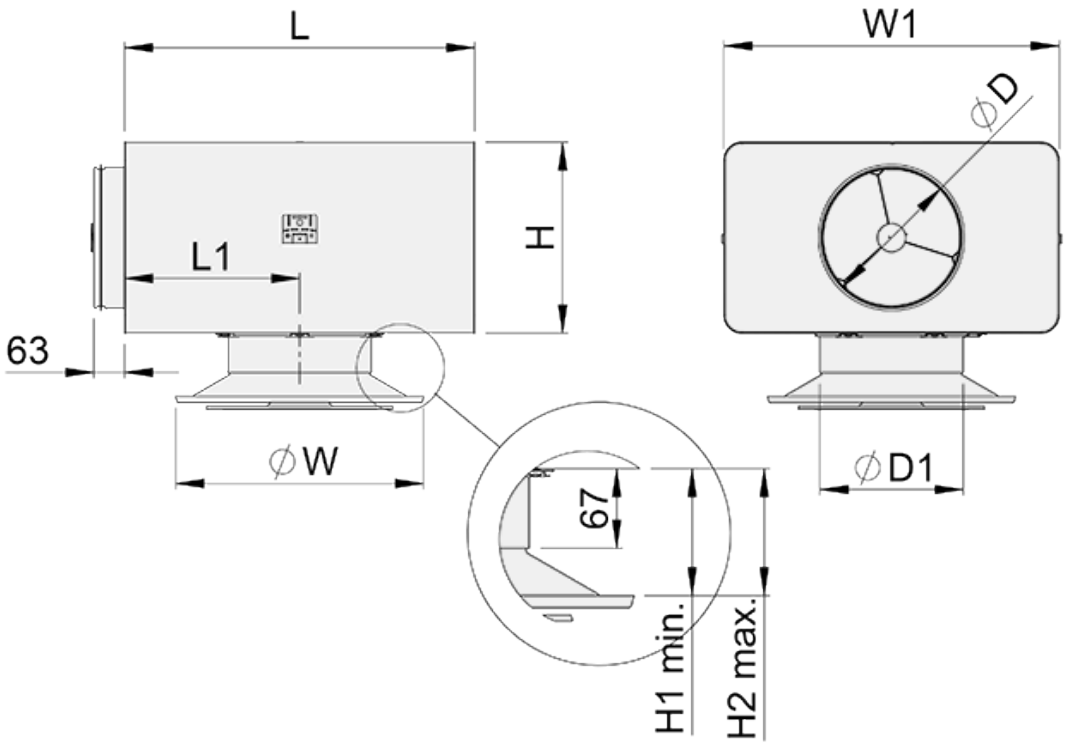


Code description
1. Front disk
2. Frame

The diffuser is connected either directly to the duct by screwing or riveting or alternatively to the Halton TRI balancing plenum.

The minimum recommended safety distance upstream of the diffuser is 3xD.

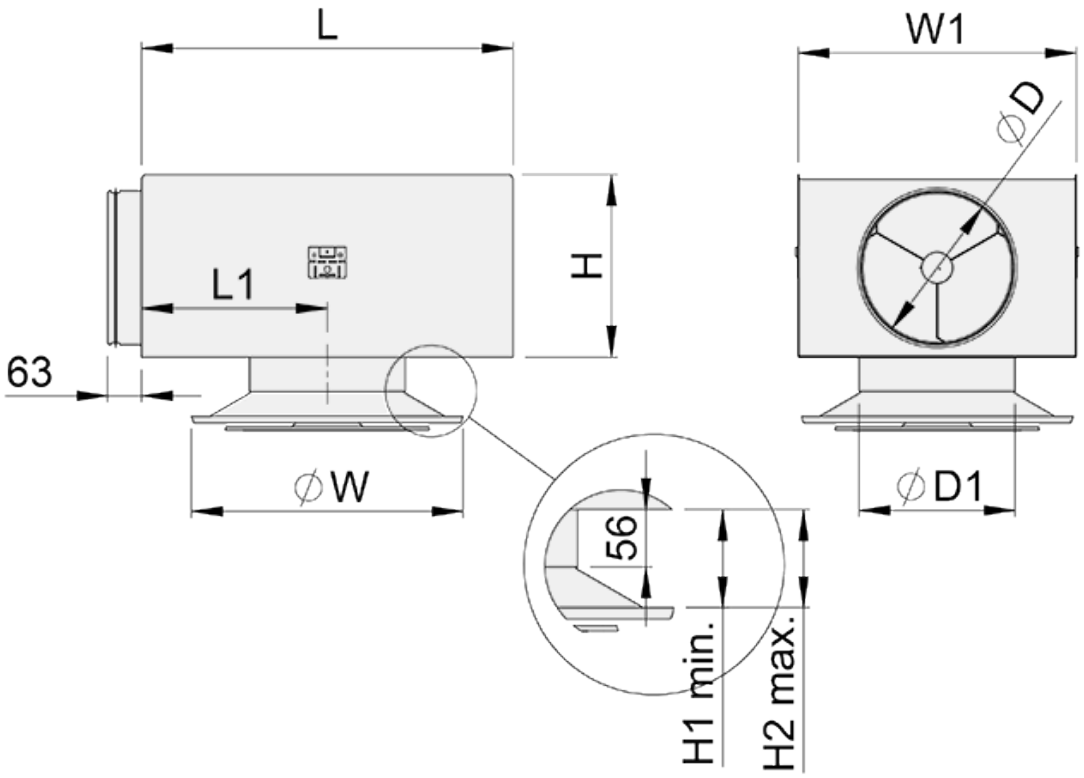
Installation with Halton TRI



The collar of Halton TRI plenum can be installed either internally in the plenum or externally onto the bottom of the plenum.
The height of the unit for the external installation is presented in the table below.

THL	ØW	TRI	ØD	ØD1	W1	L	L1	H	H1 min	H2 max
100	286	100-100	99	102	282	308	154	152	100	135
125	286	100-125	99	127	282	308	154	152	100	135
125	286	125-125	124	127	432	458	229	182	100	135
160	286	100-160	99	162	282	308	154	152	90	105
160	286	125-160	124	162	432	458	229	182	90	105
160	286	160-160	159	162	432	458	229	222	90	105
200	354	125-200	124	202	432	458	229	182	98	114
200	354	160-200	159	202	432	458	229	222	98	114
200	354	200-200	199	202	592	618	309	272	98	114
250	438	160-250	159	252	432	458	229	272	107	119
250	438	200-250	199	252	592	618	309	272	107	119
250	438	250-250	249	252	592	618	309	336	107	119
315	544	200-315	199	317	592	618	309	336	121	139
315	544	250-315	249	317	592	618	309	336	121	139
315	544	315-315	314	317	592	618	309	336	121	139
400	682	200-400	199	402	592	618	309	382	137	169
400	682	250-400	249	402	592	618	309	382	137	169

Installation with Halton TRH



THL	ØW	TRH	ØD	ØD1	W1	L	L1	H	H1 min.	H2 max.
100	286	100-100	99	102	281	281	141	152	89	124
125	286	100-125	99	127	281	281	141	152	89	124
125	286	125-125	124	127	431	431	216	180	89	124
160	286	100-160	99	162	281	281	141	152	79	94
160	286	125-160	124	162	431	431	216	180	79	94
160	286	160-160	159	162	431	431	216	212	79	94
200	354	125-200	124	202	431	431	216	180	87	103
200	354	160-200	159	202	431	431	216	212	87	103
200	354	200-200	199	202	400	550	355	245	87	103
250	438	160-250	159	252	431	431	216	212	96	108
250	438	200-250	199	252	400	550	355	245	96	108
250	438	250-250	249	252	450	600	378	295	96	108
315	544	200-315	199	317	400	550	355	245	110	128
315	544	250-315	249	317	450	600	378	295	110	128
315	544	315-315	314	317	500	650	398	360	110	128
400	682	250-400	249	402	450	600	378	295	126	158
400	682	315-400	314	402	500	650	398	360	126	158

Adjustment

The Halton THL itself has no means for airflow adjustment.

In order to enable airflow adjustment and measurement of airflow rate it is recommended that the diffuser be connected to the Halton TRH or TRI balancing plenum. The supply airflow rate is determined by using the measurement and adjustment module MSM.

Detach the front disk or the whole diffuser and pass the tubes and control spindle through the side slot of the diffuser.
Replace the front disk or diffuser.
Measure the differential pressure using a manometer. The airflow 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.

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

TRI	> 8 x D	min 3 x D
100	6.0	7.5
125	9.9	12.6
160	16.9	21.9
200	28.3	31.0
250	47.9	51.5
315	78.6	–

The technical performance has been defined for radial and compact jet with the fixed cone module openings. The adjustment positions used are detailed in the table below.

	THL (R)	THL (C)
Size	**Radial jet**	**Compact jet**
100	8	-4
125	10	-4
160	12	0
200	15	0
250	19	0
315	24	0
400	30	0

Servicing

Measure the distance between the front disk and the upper frame in order to enable recovery of the same technical properties after cleaning.

Detach the front disk of the diffuser and clean the parts by wiping with a damp cloth.
Reinstall the front panel.

Specification

The ceiling diffuser has a steel casing with an adjustable front disk and a spigot with integral

gasket for connection to the circular duct.

The diffuser is polyester or painted white (RAL 9003) colour.
The throw pattern of the diffuser is adjustable in radial or compact jet.

Order code

THL/D; CO-MO-ZT

D = Duct connection size
100, 125, 160, 200, 250, 315, 400

Other options and accessories

CO = Colour
SW Signal white (RAL 9003)
X Special colour (RAL xxxx)

MO = Actuator type
NA Not assigned
M1 Wax-bulb actuator (if D = 250, 315 or 400)

ZT = Tailored product
N No
Y Yes (ETO)

Sub products

TRI Balancing plenum
TRH Balancing plenum

Code example

THL-100, CO=SW, MO=NA, ZT=N