

TRS

Jet Nozzle Diffuser



- Compact air jet or conical air jet supply for cold, warm or isothermal air
- Wall or ceiling air supply particularly in large enclosures
- Possible installation in a duct one dimension smaller than nominal diffuser size
- Alternative throw patterns are selected by rotating the cone module
- Long throw pattern with low velocity decay or wide and short air pattern
- Circular duct connection

MATERIAL AND FINISHING

PART	MATERIAL	FINISHING
Casing	Steel	
Cone module	Steel	
Finishing	Epoxy-painted / White RAL 9010	Special colour available

QUICK SELECTION

qv	Pa	180	252	324	396	504	612	720	900	1080	1260	1440	1620	1800	2340	2880
	l/s	50	70	90	110	140	170	200	250	300	350	400	450	500	650	800
	m ³ /h	180	252	324	396	504	612	720	900	1080	1260	1440	1620	1800	2340	2880
TRS-200(CN)	LpA	19	30	38	44											
	ΔPst	16	32	53	79											
	ΔPtot	18	35	58	86											
	L0.2 (+10 °C)	2,2	3,2	4,4	5,6											
TRS-250(CN)	LpA			25	31	39	45	50								
	ΔPst			22	33	53	78	109								
	ΔPtot			24	36	58	86	119								
	L0.2 (+10 °C)			2,8	3,6	4,6	6,0	7,2								
TRS-315(CN)	LpA					23	29	34	40	46	50					
	ΔPst					18	26	36	56	81	110					
	ΔPtot					20	29	40	62	90	122					
	L0.2 (+10 °C)					3,0	3,6	4,4	5,8	7,2	8,8					
TRS-400(CN)	LpA							18	25	30	35	39	43	46		
	ΔPst							12	18	26	35	46	58	72		
	ΔPtot							13	20	29	40	52	66	81		
	L0.2 (+10 °C)							2,8	3,6	4,4	5,2	6,2	7,2	8,0		
TRS-500(CN)	LpA									19	23	27	30	33	40	45
	ΔPst									11	15	19	24	30	51	77
	ΔPtot									12	17	22	27	34	57	87
	L0.2 (+10 °C)									2,9	3,6	4,2	4,8	5,2	7,0	9,0

CN = Narrow jet

qv	Pa	288	360	432	540	648	792	936	1080	1260	1440	1620	1800	2160	2520	2880
	l/s	80	100	120	150	180	220	260	300	350	400	450	500	600	700	800
	m ³ /h	288	360	432	540	648	792	936	1080	1260	1440	1620	1800	2160	2520	2880
TRS-200(CW)	LpA	19	27	32	39	45										
	ΔPst	17	27	38	60	86										
	ΔPtot	21	33	47	74	106										
	L0.2 (+10 °C)	3,0	3,8	4,8	7,4	4,0										
TRS-250(CW)	LpA			22	28	34	40	44	49							
	ΔPst			15	23	33	49	69	92							
	ΔPtot			18	29	41	61	86	114							
	L0.2 (+10 °C)			3,0	4,0	5,0	6,2	7,6	9,0							
TRS-315(CW)	LpA				17	23	29	34	39	43	48					
	ΔPst				10	14	21	29	39	53	69					
	ΔPtot				12	17	26	36	47	65	84					
	L0.2 (+10 °C)				2,6	3,2	4,0	4,8	5,8	7,0	8,0					
TRS-400(CW)	LpA						18	23	27	32	35	39	42	47		
	ΔPst						7	10	14	18	24	30	38	54		
	ΔPtot						9	13	17	23	30	38	47	68		
	L0.2 (+10 °C)						2,4	3,0	3,6	4,2	5,0	5,8	6,6	8,0		
TRS-500(CW)	LpA									19	23	27	30	35	40	44
	ΔPst									7	9	11	14	20	27	35
	ΔPtot									9	11	14	18	25	35	45
	L0.2 (+10 °C)									2,6	3,2	3,6	4,0	5,0	6,0	7,2

CW = Wide jet

LpA values presented with room attenuation 4 dB (red 10m² - sab). When using room attenuation 8 dB (red 25m² - sab):

LpA - 4dB.

Pa Supply air heating capacity, W
 LpA A-weighted sound pressure level, reduced by total equivalent absorption surface of 10m², dB(A) red 10m² - sab

ΔPst Static pressure drop, Pa
 ΔPtot Total pressure drop, Pa
 L0.2 Isothermal throw length, m when residual velocity of supply air jet 0,2 m/s

Room temperature (Tr) = 24 °C
 Supply air temperature (Ta) = 34 °C



Narrow jet



Wide jet

Function

Air is supplied to the space through the selectable cone module

The supply air pattern can be selected for wide or narrow jet by rotating the cone module.

The narrow compact jet is used for long air pattern in heating applications and the conical wide jet for shorter air pattern in cooling applications.

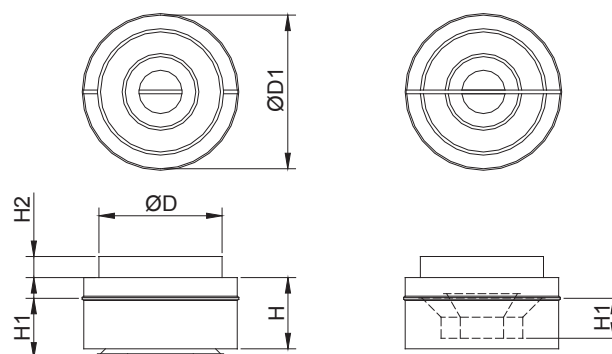
The angle for narrow air pattern can be adjusted.

ACCESSORIES

ACCESSORY	CODE	DESCRIPTION
Balancing plenum	TRI	For balancing, equalising the airflow and attenuating the duct noise

DIMENSIONS

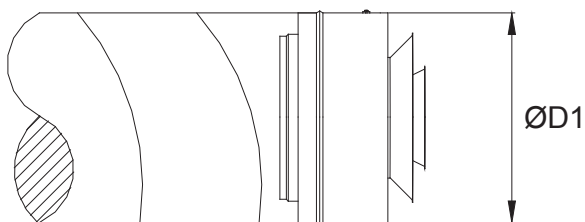
NS	H	H1 Wide	H1 Narrow	H2	ØD	ØD1
200	90	100	85	28	159	198
250	114	130	110	35	199	248
315	140	155	130	39	249	313
400	170	190	140	40	314	398
500	208	245	165	43	399	498



Installation

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

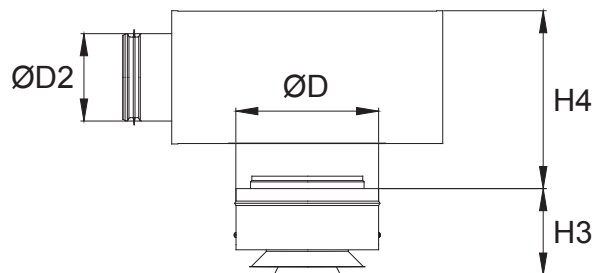
The recommended minimum safety distance upstream of the diffuser is $3 \times D$.



TRS	ØD	ØD1
200	159	198
250	199	248
315	249	313
400	314	398
500	399	498

Installation with TRI

The collar of 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. When the collar is installed internally, the total height $H4$ is reduced by 60 mm.



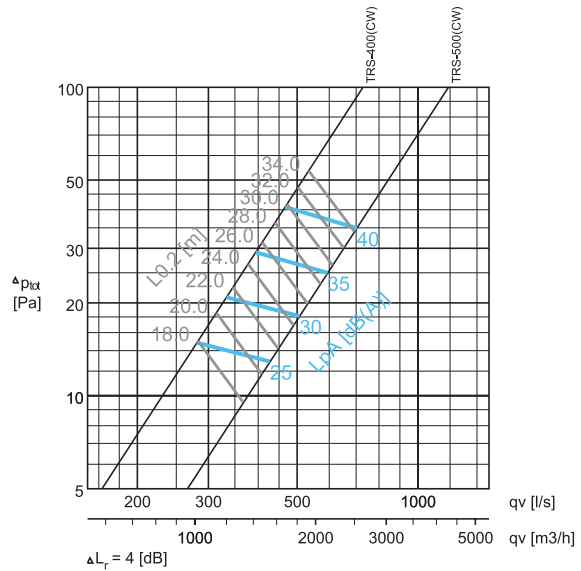
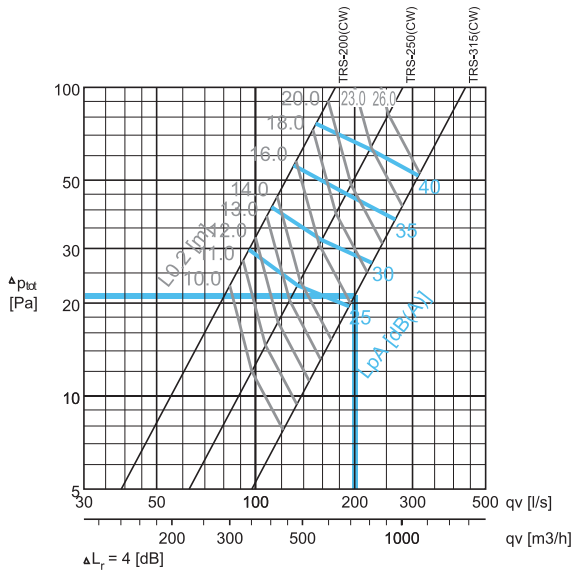
TRS	TRI (ØD2-ØD)	H3	H4
200	TRI-125-160	130	249
250	TRI-160-200	160	289
315	TRI-200-250	220	339
400	TRI-250-315	265	403
500	TRI-315-400	320	449

Pressure drop, throw pattern and sound data

Wide jet, horizontal pattern (wall installation)

TRS-200, TRS-250, TRS-315

TRS-400, TRS-500



Selection example :

Requirements :	qv = 200 l/s	Selection : TRS-315
	LpA < 30 dB(A)	LpA < 26 dB(A)
	L0,2 < 17 m	L0,2 < 16,5 m
	Wide jet, wall installation	ΔPtot = 21 Pa

SOUND LEVEL DATA

TRS (CW) Wide Jet	qv (l/s)	qv (m³/h)	ΔPst (Pa)	ΔPtot (Pa)	F (Hz)						LpA [dB(A)]	NR	NC
					125	250	500	1000	2000	4000			
TRS-200(CW)	95	342	24	30	30	26	24	26	21	11	25	22	20
	112	403	33	41	35	31	29	31	26	16	30	27	26
	130	468	45	56	40	36	34	36	31	21	35	32	31
	152	547	62	76	45	41	39	41	36	26	40	37	36
TRS-250(CW)	134	482	18	23	31	26	24	27	20	9	25	23	21
	159	572	26	32	36	31	29	32	25	14	30	28	26
	188	677	36	45	41	36	34	37	30	19	35	33	31
	223	803	51	63	46	41	39	42	35	24	40	38	37
TRS-315(CW)	192	691	16	19	28	25	24	28	16	7	25	24	22
	226	814	22	27	33	30	29	33	21	12	30	29	27
	266	958	30	37	38	35	34	38	26	17	35	34	32
	313	1127	42	52	43	40	39	43	31	22	40	39	38
TRS-400(CW)	281	1012	12	15	28	25	27	27	18	6	25	23	21
	333	1199	17	21	33	30	32	32	23	11	30	28	26
	394	1418	23	29	38	35	37	37	28	16	35	33	31
	466	1678	33	41	43	40	42	42	33	21	40	38	36
TRS-500(CW)	427	1537	10	13	27	23	27	27	15	4	25	23	21
	506	1822	14	18	32	28	32	32	20	9	30	28	26
	595	2142	20	25	37	33	37	37	25	14	35	33	31
	703	2531	27	35	42	38	42	42	30	19	40	38	37

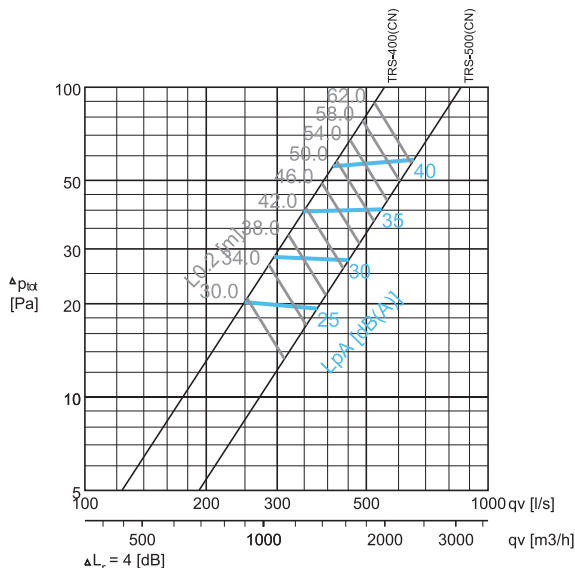
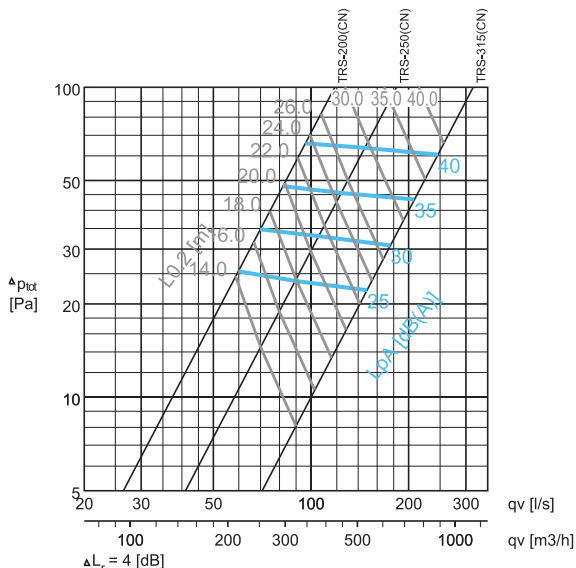
LpA values presented with room attenuation 4 dB (red 10m² - sab). When using room attenuation 8 dB (red 25m² - sab): LpA - 4dB.
NR/NC noise criteria

Pressure drop, throw pattern and sound data

Narrow jet, horizontal pattern (wall installation)

TRS-200, TRS-250, TRS-315

TRS-400, TRS-500



SOUND LEVEL DATA

TRS (CN) Narrow Jet	qv (l/s)	qv (m³/h)	ΔPst (Pa)	ΔPtot (Pa)	F (Hz)					LpA [dB(A)]	NR	NC	
					125	250	500	1000	2000				4000
TRS-200(CN)	60	216	23	26	29	27	25	25	21	9	25	21	20
	70	252	32	35	34	32	30	30	26	14	30	26	25
	82	295	44	48	39	37	35	35	31	19	35	31	30
	96	346	60	66	44	42	40	40	36	24	40	36	35
TRS-250(CN)	89	320	22	24	31	30	26	26	17	6	25	22	20
	106	382	30	33	36	35	31	31	22	11	30	27	25
	124	446	42	46	41	40	36	36	27	16	35	32	30
	147	529	58	64	46	45	41	41	32	21	40	37	36
TRS-315(CN)	149	536	20	22	32	28	25	27	17	7	25	23	21
	176	634	28	31	37	33	30	32	22	12	30	28	26
	209	752	39	43	42	38	35	37	27	17	35	33	31
	247	889	55	61	47	43	40	42	32	22	40	38	37
TRS-400(CN)	249	896	18	20	32	28	26	26	18	6	25	22	20
	295	1062	25	28	37	33	31	31	23	11	30	27	25
	349	1256	35	40	42	38	36	36	28	16	35	32	31
	413	1487	49	56	47	43	41	41	33	21	40	37	36
TRS-500(CN)	377	1357	17	19	33	25	27	26	19	7	25	22	20
	452	1627	24	28	38	30	32	31	24	12	30	27	25
	546	1966	36	40	43	35	37	36	29	17	35	32	30
	656	2362	52	58	48	40	42	41	34	22	40	37	36

LpA values presented with room attenuation 4 dB (red 10m² - sab). When using room attenuation 8 dB (red 25m² - sab): LpA - 4dB.
NR/NC noise criteria

Adjustment

The TRS 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 TRI balancing plenum. The supply flow rate is determined by using the MSM measurement and adjustment module. Pass the tubes and control spindle through the cone module of the diffuser. Measure the differential pressure using 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 in the plenum.

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

TRI	>8XD	min 3XD
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	-

Servicing

Wipe the diffuser with a damp cloth.

Option with balancing plenum

Detach the diffuser from the plenum.

Remove the measurement and adjustment module by gently pulling out the shaft (NB. not the control spindle or measurement tubes!).

Wipe the parts with a damp cloth, instead of immersing in water.

Reassemble the measurement and adjustment module by pushing in the shaft back into place until the unit meets the stopper.

Replace the diffuser.

Suggested Specifications

The diffuser shall be made of epoxy-painted steel with a white (RAL 9010) colour.

The diffuser shall be made in two sections: an outer sleeve and two inner concentric cones.

The supply air pattern shall be selectable for wide or narrow jet by rotating the cone module.

The angle of narrow supply air pattern shall be adjustable.

Product Code

TRS-D(J)

D = Diameter of duct connection
200, 250, 315, 400, 500

Specifics and accessories

CO = Colour

W White

X Special colour

Code example

TRS-200(CN), CO=W

Sub products

TRI Plenum (Diffusers)