

Ceiling Diffusers Type **GSD**



Ceiling Diffuser Type **GSD**



Gamma Line Supply & Return Diffusers



Description:

GSD Ceiling air diffusers brilliantly suit the modern architectural designs . Their square or rectangular shape is designed to fit the aesthetic appearance of rooms.

GSD Ceiling diffusers with their fixed blades are mainly suitable for horizontal discharge, and usually installed in ceiling level.

GSD Ceiling diffusers are applied for supply, return and drive out of air .

GSD Ceiling air diffusers consist of an outer frame, and a removable central section for easier installation, and damper adjustment.

Materials:

Ceiling diffusers type GSD-N Are made from extruded aluminum profiles.

Ceiling diffusers type GSD-K Are made from specially designed extruded aluminum profiles for a featured good looking diffuser.

Ceiling diffusers type GSD-P Outer frame is made from extruded aluminum profiles, and the inner cores are made from rigid aluminum sheets formed by pressing . (As an option the outer frame could be made from aluminum sheets).

التوصيف:

تناسب ناشرات الهواء السقفية طراز GSD هي مع وظائف و متطلبات التصميمات المعمارية الحديثة، و يتوافق شكلها المربع أو المستطيل مع شكل الغرفة.

ناشرات الهواء السقفية GSD بشفراتها الثابتة التوجيه يتم تركيبها عادة في مستوى السقف و تقوم بقذف الهواء بشكل أفقي.

و تستخدم ناشرات الهواء طراز GSD كفتحات تغذية أو رجوع أو طرد للهواء.

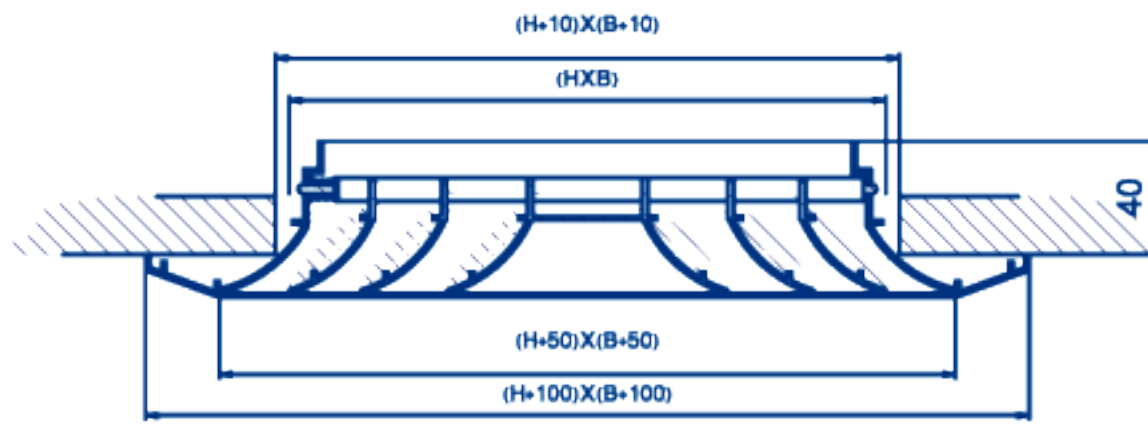
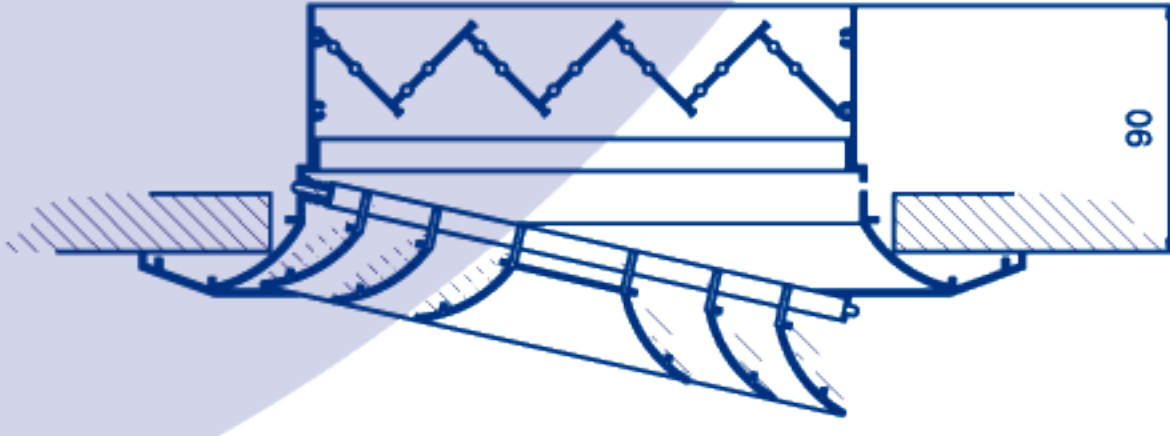
تتألف ناشرات الهواء طراز GSD من جزئين هما الإطار و القلب القابل للفك، الذي يسهل عملية التركيب و عيار الدامبر .

المواد المستخدمة:

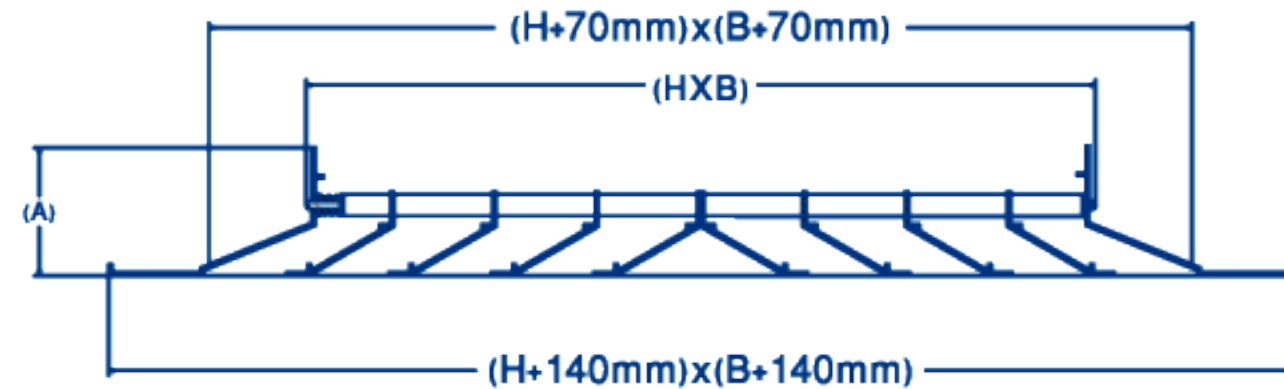
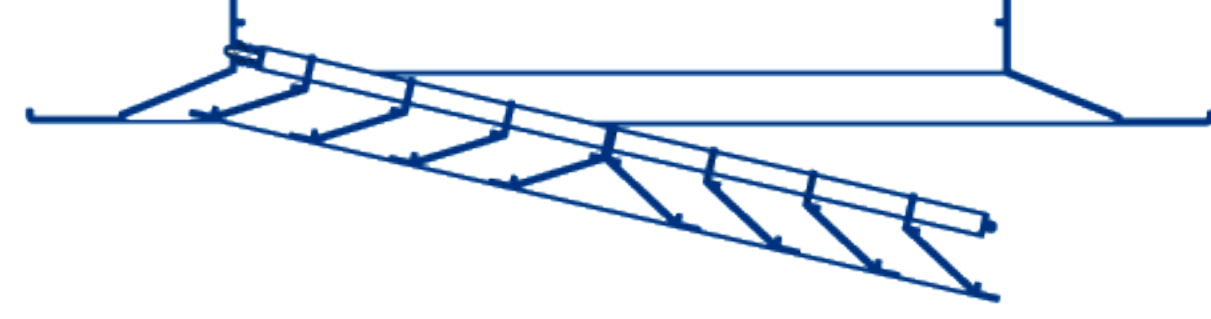
ناشرات الهواء طراز GSD-N يتم تصنيعها من بروفيلات الألومنيوم المسحوبة.

تم تصنيع ناشرات الهواء طراز GSD-K من بروفيلات الألومنيوم المسحوبة و ذات الشكل الخاص للحصول على ناشر ذو شكل جميل و متميز.

ناشرات الهواء طراز GSD-P يتم تصنيع الإطار الخارجي من بروفيلات الألومنيوم المسحوبة، أما القلب الداخلي فيتم تصنيعه من صفائح الألومنيوم المشكلة بالكبس. (كما يمكن تصنيع الإطار الخارجي من صفائح الألومنيوم).



GSD-K



GSD-N & GSD-P

Mounting High:

They are suitable for use in rooms with ceiling heights between 2.40m and 3.0m for most applications. Maximum mounting height is 3.7m with no more than 16.5C temperature difference, and with returns located near floor level.

Installation:

Installation of GSD ceiling diffusers requires no special counter frames; they are fixed by normal screws applied laterally through the neck of the diffuser.

Finishing:

The diffuser surfaces are well treated with chrome, finished with electrostatic powder coating, and stove-enameled with RAL colors.

ارتفاع التركيب:

ناشرات الهواء السقفية طراز GSD مناسبة للتركيب على ارتفاع 2.4m إلى 3m لمعظم التطبيقات. الارتفاع الأعظمي الممكن هو 3.7m عند وجود فرق درجة حرارة 16.5C على أن يكون سحب الهواء بالقرب من الأرض.

التركيب:

تركيب الناشر طراز GSD لا يحتاج إلى أي إطارات إضافية، ويتم تثبيته بواسطة براغي أفقية تقوم بتثبيت رقبة إطار الناشر على رقبة مجرى الهواء.

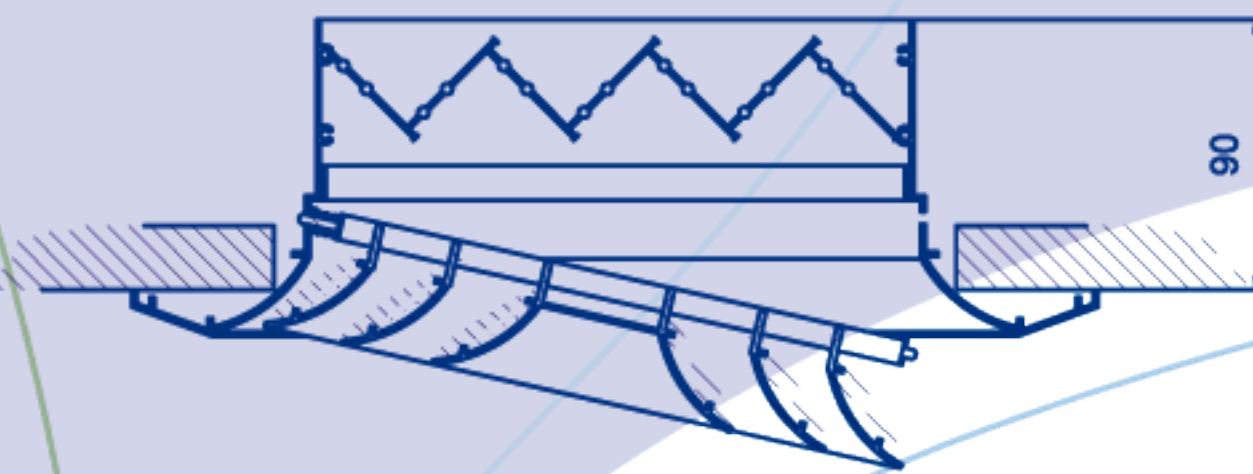
الأنهاء:

تتم معالجة أسطح الناشر بالكروم ثم طلائه بدهان بودرة الكترولستاتيكي حراري وبألوان مجموعة RAL

Ceiling Diffuser Type **GSD**

Accessories:

VD: Volume control damper with opposed blades. The frame and blades are made of extruded aluminum. Air volume adjustments could be done using a hand without removing the diffuser's core.



BO: Specially developed boxes made from galvanized sheets, with optional flow rate control dampers which are available to ensure optimum supply characteristics.

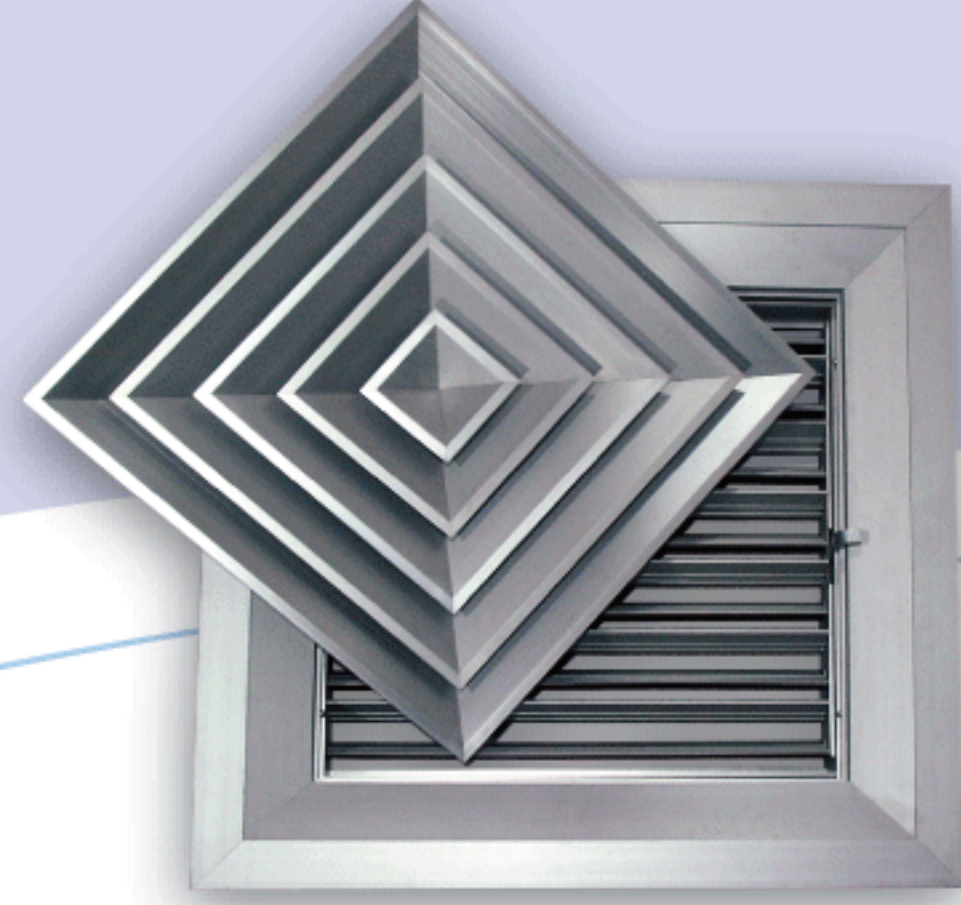
Nominal Dimension (m.m)	H	B	DΦ
150x150	200	250	150
225x225	300	330	250
300x300	350	400	300
370x370	400	500	350
450x450	450	550	400

AD: Connecting adapter made of aluminum sheets to connect the damper with flexible connector.

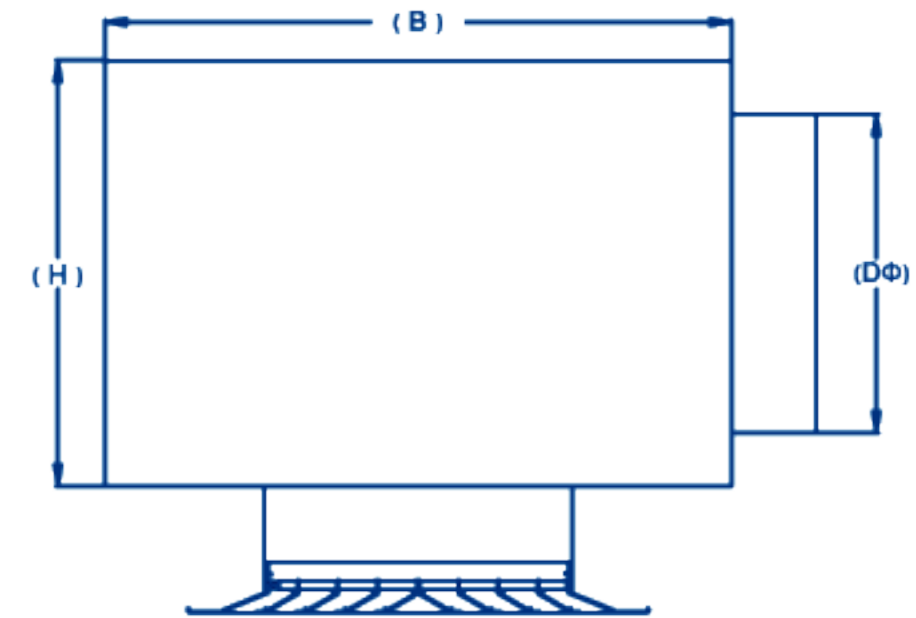
Nominal Dimension (m.m)	D1Φ
225x225	200
300x300	250
370x370	300
450x450	350

المتهمات:

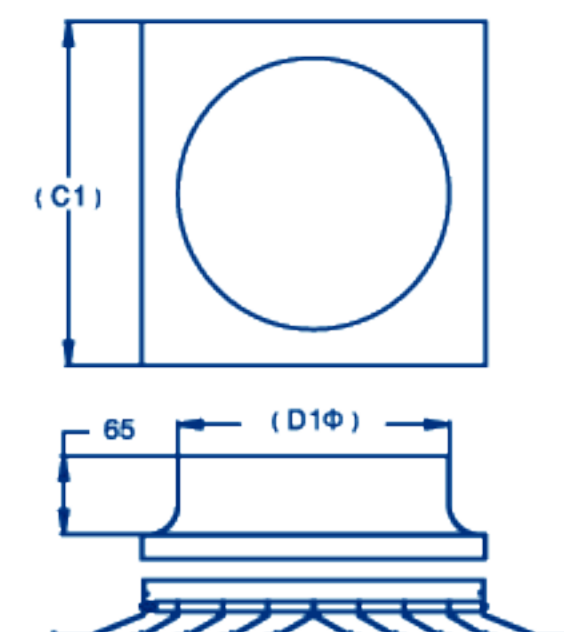
VD: دامبر عياري للهواء ذو شفرات متعاكسة. يتم تصنيع إطار الدامبر والشفرات من بروفيلات الألومنيوم. ويتم تعديل حجم الهواء بإستخدام ذراع خارجي دون إزالة قلب الناشر.



BO: علبة معدنية يتم تصنيعها من صفائح الفولاذ المغلفن ويمكن تزويدها عند الطلب بدامبر عياري لدخول الهواء وذلك لضمان الحصول على كمية الهواء المحددة.



AD: وصلة خاصة يتم تصنيعها من صفائح الألومنيوم و تصل بين الناشر وأنبوب تغذية الهواء الدائري المرن.



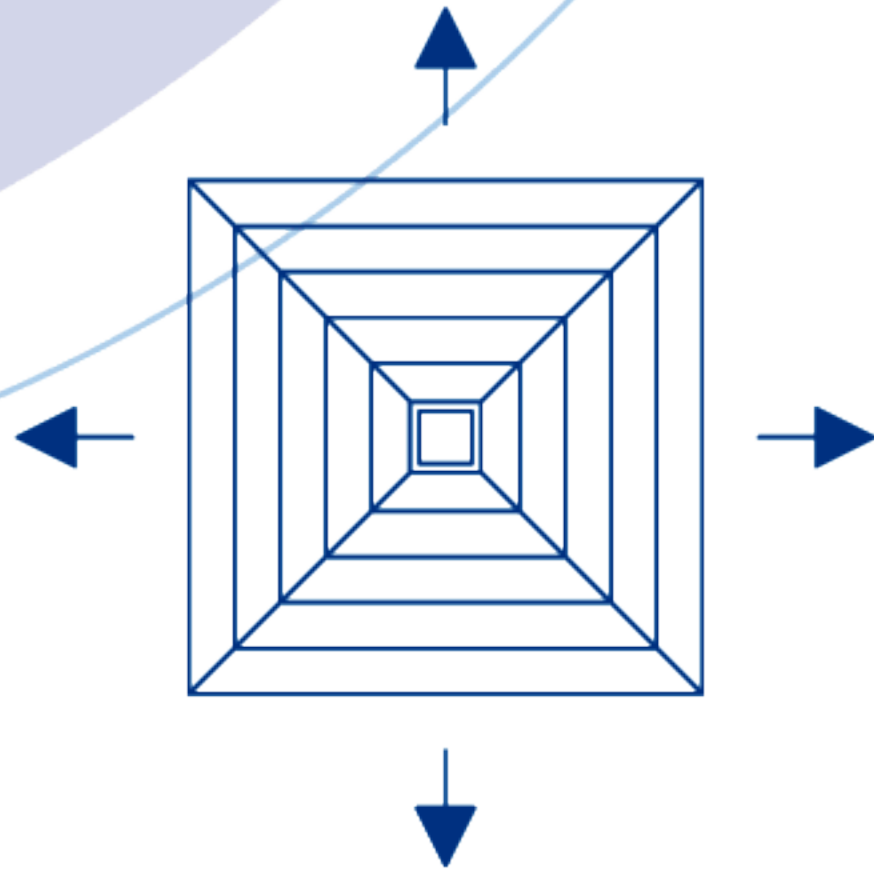
Available Ceiling Diffuser types

Four directions- square type.

الطرازات المتوفرة:

أربعة اتجاهات - مربع

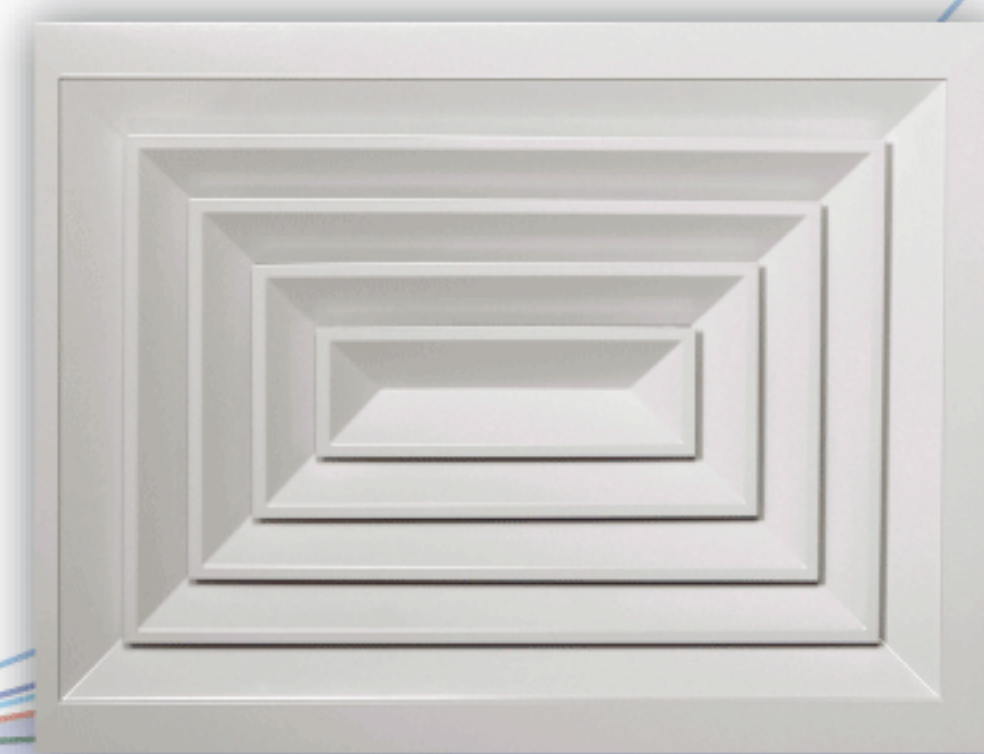
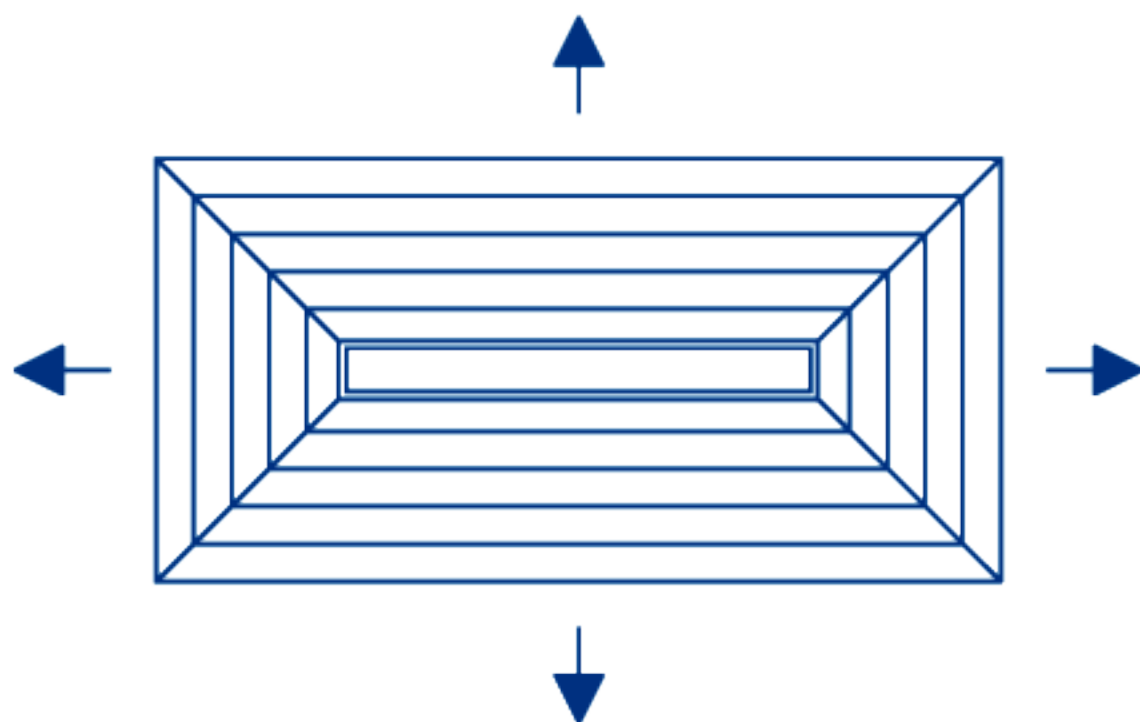
GSD-N-ST & GSD-P-ST & GSD-K-ST



Four directions- rectangular type.

أربعة اتجاهات - مستطيل

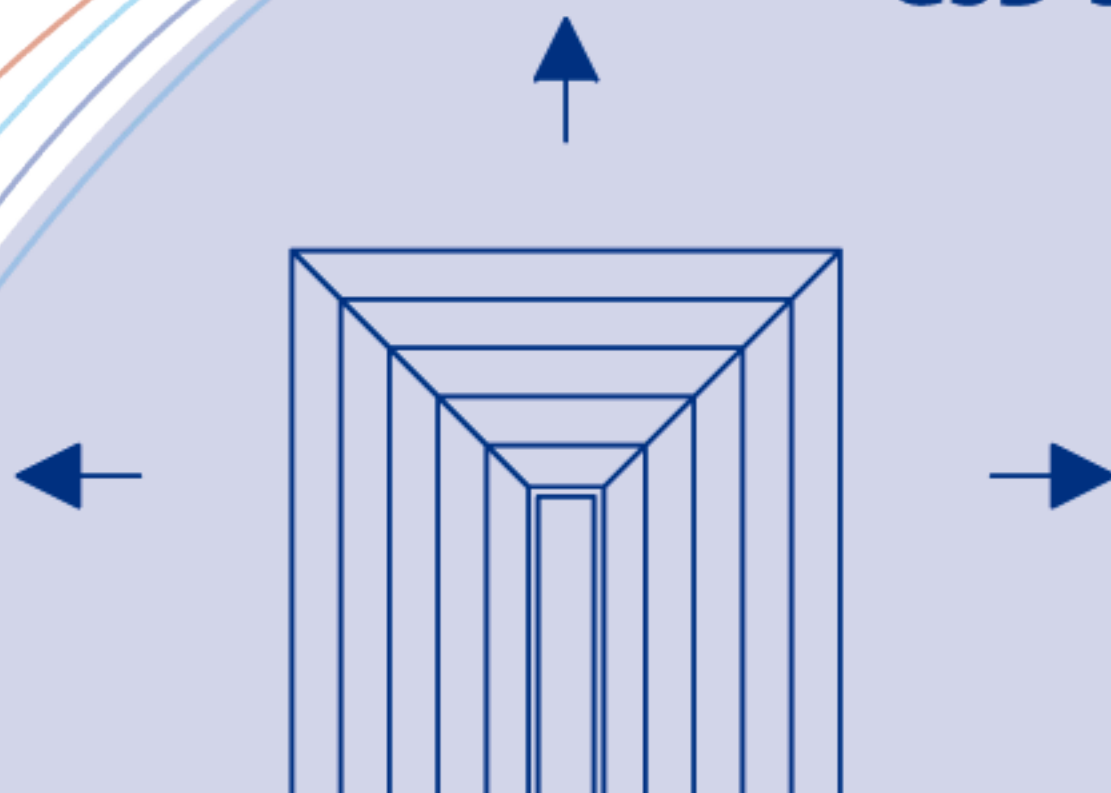
GSD-N-RT , GSD-K-RT



Three directions- square or rectangular type.

ثلاثة اتجاهات مربع أو مستطيل

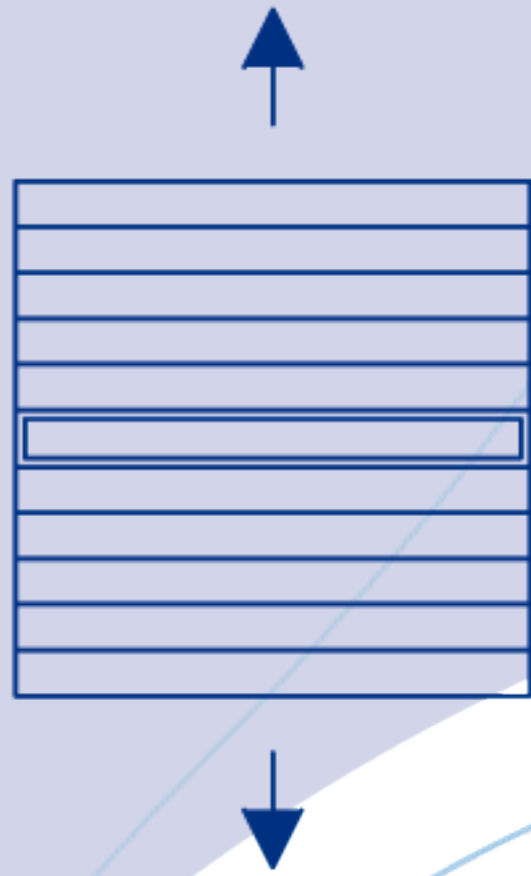
GSD-S-3W & GSD-K-3W



Available Ceiling Diffuser types:

Two directions in line square or rectangular type.

GSD-N-2WL & GSD-K-2WL (two ways in line)

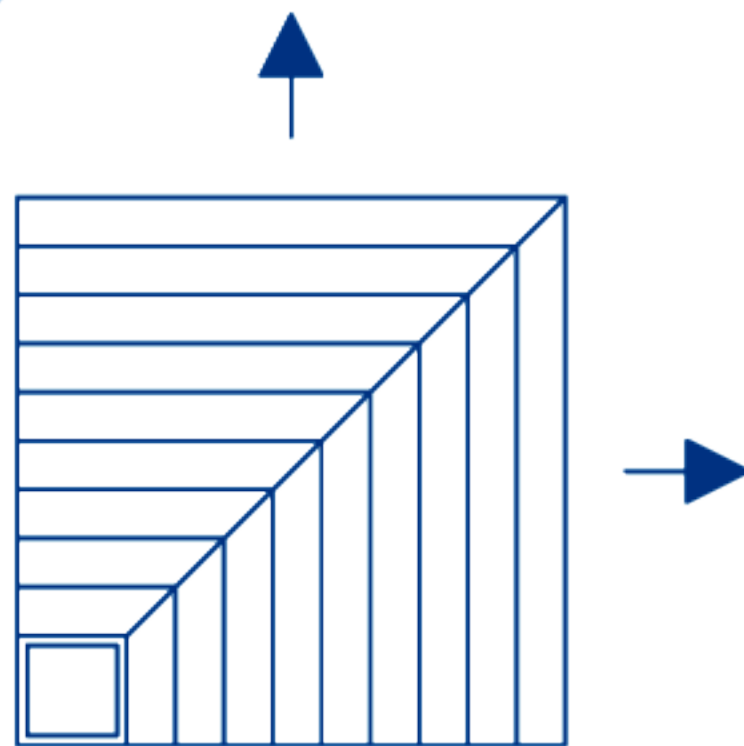


الطرازات المتوفرة:

الجاهين على خط واحد مستطيل أو مربع

Two directions in angle square or rectangular type.

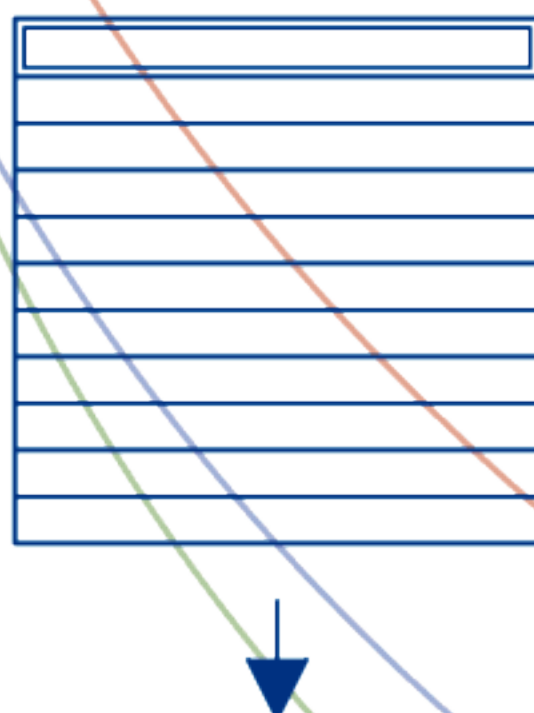
GSD-N-2WN & GSD-K-2WN



الجاهين بزاوية مربع أو مستطيل

One direction-in line square or rectangular type.

GSD-N-1WL & GSD-K-1WL



الجاه واحد على خط واحد مربع أو مستطيل

Test Report**(ETL - U.S.A)****تقرير المختبر**

ITS No. 310276CRT-001-da

Intertek**Performance Test Certificate**

Issued To

GAMMA LINE INTERNATIONAL
P.O. BOX 92833, RIYADH 11663
KINGDOM OF SAUDI ARABIA

Intertek has tested representative samples of
Gamma Line International
4 Way Throw GSD Square Diffusers

4 Way Throw GSD Square Diffusers (150, 225, 300, 375, 450, 525 and 600mm.) were tested
in accordance with the standards listed below and were found
to perform in a manner appropriate to the dictates of the standards.

STANDARDS

ASHRAE 70-1991 "Method of Testing for Rating
the Performance of Air Outlets and Inlets"

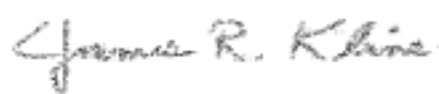
ADC 1062: GRD-84 "Test Code for Grilles, Registers and Diffusers"

SCOPE OF TESTING

The diffusers were tested for the following performance characteristics:
"Reference Intertek Report Number 3102706CRT-001 dated October 31, 2006"

- A) Sound Power Level ((NC)
- B) Air Velocity versus Static Pressure
- C) Area Factor
- D) Throw Pattern

Date: June 13, 2011



James R. Kline
Intertek
Engineer / Quality Supervisor

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Engineering and Performance data :

Engineering data been tested
and approved by (ETL) U.S.A, report No.

المواصفات الفنية :

المواصفات الفنية تم اختبارها و مصادقتها من
قبل مختبرات (ETL) الأمريكية وفق التقرير رقم

ITS No. 100346287CRT-004g & 004h

Intertek**Performance Test Certificate****Issued To**

GAMMA LINE INTERNATIONAL
P.O. BOX 92833, RIYADH 11663
KINGDOM OF SAUDI ARABIA

Intertek has tested representative samples of
Gamma Line International
3 Way Throw Square Diffusers

3 Way Throw Square Diffusers (375mm sq. & 450mm sq.) were tested
in accordance with the standards listed below and were found
to perform in a manner appropriate to the dictates of the standards.

STANDARDS

ASHRAE 70-2006 "Method of Testing for Rating
the Performance of Air Outlets and Inlets"

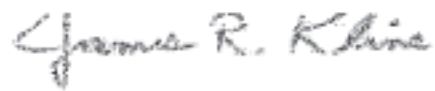
ADC 1062: GRD-84 "Test Code for Grilles, Registers and Diffusers"

SCOPE OF TESTING

The diffusers were tested for the following performance characteristics:
"Reference Intertek Reports Number 100346287CRT-004g & 004h dated May 24, 2011"

- A) Sound Power Level ((NC)
- B) Air Velocity versus Static Pressure
- C) Area Factor
- D) Throw Pattern

Date: June 13, 2011



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Engineering and Performance data :

Engineering data been tested and approved by (ETL) U.S.A, report No.

ITS No. 100346287CRT-004c & 004d

المواصفات الفنية :

المواصفات الفنية تم اختبارها و مصادقتها من قبل مختبرات (ETL) الأمريكية وفق التقرير رقم

ITS No. 100346287CRT-004a & 004b

Intertek

Performance Test Certificate

Issued To

GAMMA LINE INTERNATIONAL
P.O. BOX 92833, RIYADH 11663
KINGDOM OF SAUDI ARABIA

Intertek has tested representative samples of
Gamma Line International
1Way Throw Square Diffusers

1 Way Throw Square Diffusers (225mm sq. & 300mm sq.) were tested
in accordance with the standards listed below and were found
to perform in a manner appropriate to the dictates of the standards.

STANDARDS

ASHRAE 70-2006 "Method of Testing for Rating
the Performance of Air Outlets and Inlets"

ADC 1062: GRD-84 "Test Code for Grilles, Registers and Diffusers"

SCOPE OF TESTING

The diffusers were tested for the following performance characteristics:
"Reference Intertek Reports Number 100346287CRT-004a & 004b dated April 29, 2011"

- A) Sound Power Level ((NC)
- B) Air Velocity versus Static Pressure
- C) Area Factor
- D) Throw Pattern

Date: June 13, 2011

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Intertek

Performance Test Certificate

Issued To

GAMMA LINE INTERNATIONAL
P.O. BOX 92833, RIYADH 11663
KINGDOM OF SAUDI ARABIA

Intertek has tested representative samples of
Gamma Line International
2 Way Throw Square Diffusers
(opposite and adjacent corners)

2 Way Throw Square Diffusers (300mm sq.) were tested
in accordance with the standards listed below and were found
to perform in a manner appropriate to the dictates of the standards.

STANDARDS

ASHRAE 70-2006 "Method of Testing for Rating
the Performance of Air Outlets and Inlets"

ADC 1062: GRD-84 "Test Code for Grilles, Registers and Diffusers"

SCOPE OF TESTING

The diffusers were tested for the following performance characteristics:
"Reference Intertek Reports Number 100346287CRT-004c & 004d dated April 29, 2011"

- A) Sound Power Level ((NC)
- B) Air Velocity versus Static Pressure
- C) Area Factor
- D) Throw Pattern

Date: June 13, 2011

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Ceiling Diffuser Type GSD

Engineering and Performance data: Square (GSD) مربع المواصفات الفنية

The following engineering data been tested and approved by (ETL) U.S.A , report No.

المواصفات الفنية التالية تم اختبارها و مصادقتها من قبل مختبرات (ETL) الأميركية وفق التقرير رقم

ITS No.3102706CRT-001
Dated December 03, 2006

GSD Square Ceiling Diffuser		PERFORMANCE DATA									
Nom. Neck Size (mm)	Jet Velocity	m/s	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0
A=(Area m ²)	Nom. Neck Velocity	m/s	1.5	1.8	2.2	2.6	2.9	3.3	3.6	4.0	4.4
150 A=(0.023) Ak= .0088	Flow	(m ³ /s)	0.035	0.044	0.053	0.062	0.071	0.079	0.088	0.097	0.106
		(m ³ / h)	127	159	191	222	254	286	318	349	381
	Pt	(Pa)	8.96	13.8	19.7	26.6	32.4	41.1	52.3	64.0	75.8
	NC	NC	<20	<20	23	27	31	34	37	40	42
	Throw	(m)	1-2-3	1-2-3	2-2-4	2-3-4	2-3-4	2-3-4	2-3-5	2-3-5	2-3-5
225 A=(0.051) Ak= .0187	Flow	(m ³ /s)	0.075	0.093	0.112	0.131	0.149	0.168	0.187	0.205	0.224
		(m ³ / h)	269	336	403	471	538	605	672	739	807
	Pt	(Pa)	8.69	12.9	18.7	24.9	32.4	39.8	49.8	59.8	74.7
	NC	NC	<20	<20	24	28	32	35	38	41	43
	Throw	(m)	2-3-4	2-3-5	2-4-5	3-4-6	3-4-6	3-4-6	3-5-7	3-5-7	4-5-7
300 A=(0.09) Ak= .0318	Flow	(m ³ /s)	0.127	0.159	0.191	0.222	0.254	0.286	0.318	0.349	0.381
		(m ³ / h)	458	572	686	801	915	1029	1144	1258	1373
	Pt	(Pa)	7.96	12.3	17.7	23.9	31.1	39.2	48.3	58.2	69.1
	NC	NC	<20	20	25	29	33	36	39	42	45
	Throw	(m)	3-4-6	3-4-6	3-5-7	4-5-7	4-5-8	4-6-8	4-6-9	5-6-9	5-7-10
375 A=(0.141) Ak= .0514	Flow	(m ³ /s)	0.205	0.257	0.308	0.360	0.411	0.462	0.514	0.565	0.616
		(m ³ / h)	740	925	1110	1295	1480	1665	1849	2034	2219
	Pt	(Pa)	7.97	11.6	16.8	22.9	30.0	38.1	47.1	57.1	68.1
	NC	NC	<20	21	26	31	35	38	41	44	47
	Throw	(m)	3-5-7	4-5-8	4-6-9	5-7-9	5-7-10	6-7-11	6-8-11	6-8-12	7-9-12
450 A=(0.203) Ak= .0766	Flow	(m ³ /s)	0.307	0.383	0.460	0.536	0.613	0.690	0.766	0.843	0.920
		(m ³ / h)	1104	1380	1655	1931	2207	2483	2759	3035	3311
	Pt	(Pa)	8.22	12.2	17.5	23.8	31.1	39.3	48.5	58.6	69.7
	NC	NC	<20	22	28	33	37	40	43	46	49
	Throw	(m)	4-6-9	5-7-10	6-7-11	6-8-11	7-9-12	7-9-13	7-10-14	8-10-14	8-11-15
525 A=(0.276) Ak= .0976	Flow	(m ³ /s)	0.391	0.488	0.586	0.683	0.781	0.879	0.976	1.074	1.172
		(m ³ / h)	1406	1757	2109	2460	2812	3163	3515	3866	4218
	Pt	(Pa)	8.22	12.5	17.7	24.9	32.4	39.8	49.3	59.0	72.2
	NC	NC	<20	23	30	34	39	41	45	48	50
	Throw	(m)	5-7-10	6-8-11	6-8-12	7-9-13	7-10-14	8-10-15	9-11-15	9-12-16	9-12-17
600 A=(0.360) Ak= .1240	Flow	(m ³ /s)	0.496	0.620	0.744	0.868	0.992	1.116	1.240	1.364	1.488
		(m ³ / h)	1786	2232	2679	3125	3572	4018	4465	4911	5358
	Pt	(Pa)	8.47	12.9	17.9	25.4	32.9	41.1	49.8	59.5	73.5
	NC	NC	<20	24	31	36	40	43	47	50	52
	Throw	(m)	6-8-11	7-9-12	7-10-13	8-10-15	9-11-16	9-12-16	10-13-17	10-13-18	11-14-19

Pressure:

Pt, Total Pressure, measured in the supply duct (Pa).

Pv, Velocity Pressure, may be calculated (@ std. conditions) as: $(0.6 \times (\text{Flow}/\text{Area})^2)$ (Pa).

Ps, Static Pressure in the supply duct, may be calculated by subtracting the velocity pressure from the total pressure: $P_s = P_t - P_v$

Sound Levels:

NC is noise criteria curve that will not be exceeded at the operating point.

This is determined by assuming a 10dB (ref: 10-12 watts) room attenuation

that is subtracted from the power levels in each of the 2nd through 7th octave bands.

Throw:

The numbers shown are throw distances, in meters, relating to terminal velocities of 0.76-0.51-0.25 meters per second, with the jet attached to the ceiling surface.

Jet Velocity, measured at the discharge of the diffuser (m/s).

Neck Velocity, may be calculated as: flow/ nominal duct area (m/s).

Area Factor, Ak

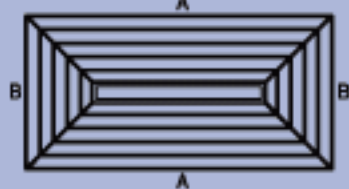
Test Standard:

Calculated as the Flow/ Jet Velocity, -ANSI/ASHRAE Standard 70 used in field balancing (m2). -Isothermal conditions

Engineering and Performance data:

مستطيل (Rectangular)

المواصفات الفنية:



SOUND LEVEL	Effective velocity	Throw		Nominal dimensions	Air flow rate
(dB)	Vk (m/s)	LtB (m)	LtA (m)	HxB(mm)	m³/h
20	3.2	1.2	1.6	225x150	150
30-25	4.2	1.6	2.2	225x150	200
25-20	3.4	1.2	2.0	300x150	
35-30	5.3	2.0	2.8	225x150	250
25-30	4.3	1.5	2.5	300x150	
20-25	3.4	1.3	2.6	375x150	300
40-45	6.4	2.4	3.4	225x150	
30-25	5.2	1.8	3.0	300x150	
25-30	4.1	1.5	3.0	375x150	
20-25	3.4	1.8	2.4	300x225	350
35-30	6	2.0	3.4	300x150	
30-25	4.8	1.7	3.5	375x150	
25-30	4	2.0	2.6	300x225	
20-25	3.3	1.6	2.5	375x225	400
40-35	6.9	2.4	4.0	300x150	
30	5.5	2.0	4.1	375x150	
30-25	4.6	2.3	3.0	300x225	
25-20	3.8	1.9	2.9	375x225	500
20	3	1.6	2.7	450x225	
35-40	6.9	2.5	5.0	375x150	
35-30	5.7	2.8	3.6	300x225	
30-25	4.7	2.4	3.4	375x225	600
25-20	3.7	1.8	3.0	450x225	
25-20	3.3	2.3	2.9	375x300	
25-20	3.3	1.6	2.5	525x225	
40-35	6.9	3.4	4.4	300x225	800
35-30	5.7	2.6	3.8	375x225	
30-25	4.5	2.4	4.0	450x225	
25-30	4	2.0	3.6	525x225	
30-25	3.9	2.8	3.3	375x300	1000
25-20	3.3	2.2	3.0	450x300	
30-35	6	2.8	5.0	450x225	
35-30	5.4	2.6	4.8	525x225	
35-30	5.2	3.5	4.2	375x300	1200
30-25	4.4	3.0	4.2	450x300	
25-20	3.8	2.5	4.1	525x300	
25-20	3.2	2.4	4.2	600x300	
25-20	3.6	2.8	3.4	450x375	1400
40-45	6.7	3.1	5.8	525x225	
35-40	6.6	4.7	5.7	375x300	
30-35	5.5	3.8	5.4	450x300	
30	4.7	3.4	5.4	525x300	1600
25-30	4	2.7	5.0	600x300	
25-30	4.5	3.8	4.6	450x375	
35-40	6.6	4.6	6.2	450x300	
30-35	5.7	3.8	6.0	525x300	1800
35	4.9	3.4	6.0	600x300	
30-35	5.4	4.2	5.0	450x375	
20-25	3.7	3.4	4.6	600x375	
35-40	6.7	4.6	7.6	525x300	2000
30-35	5.7	3.4	6.0	600x300	
40-35	6.3	4.2	5.1	450x375	
20-25	4.3	3.4	4.6	500x375	
30	3.8	4.2	5.0	600x450	2400
35-40	6.5	4.4	8.0	600x300	
30-35	5	4.3	6.1	600x375	
25-30	4.3	4.7	5.7	600x450	
40-45	7.2	6.6	8.0	450x375	
35-40	5.6	5.0	7.0	600x375	
35	4.9	5.1	6.3	600x450	
35-40	6.3	5.8	8.0	600x375	
30-35	5.4	5.8	7.4	600x450	
40-45	6.5	7.0	8.4	600x450	



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