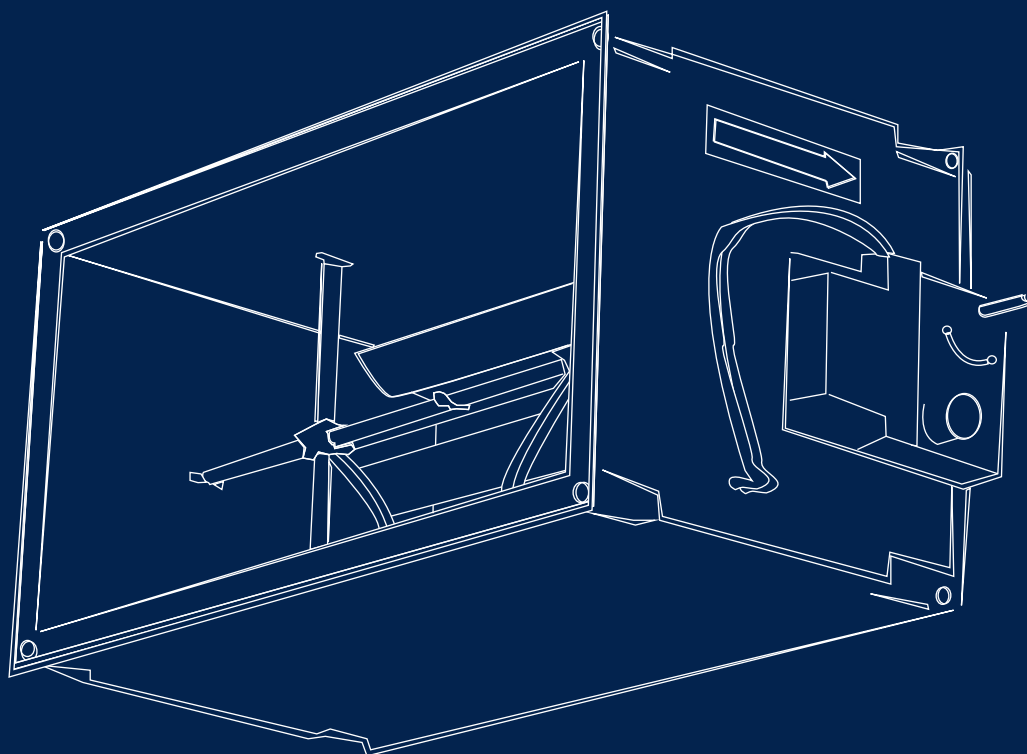




NK / NL series

Rectangular VAV and CAV air volume control terminals

Rectangular VAV and CAV air volume control terminal

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Rectangular VAV and CAV air volume control terminal

Type designation:
Single wall (NK.....)
Double wall (NL.....)

Composition of type designation:

N - K - O - D - O - O - B

N Position 1: **Product group**

N = air volume control terminals

K Position 2: **Function**

K = single wall, rectangular volume control terminal

L = double wall rectangular volume control terminal

1 = non standard, specify separately

O Position 3: **Controls**

O = without controls

For controls, contact our sales staff

D Position 4: **Outlet**

A = rectangular outlet

D = rectangular outlet with sound attenuator

N = rectangular outlet with plenum for electric reheat coil

R = rectangular outlet with sound attenuator and with plenum for electric reheat coil

1 = non standard, specify separately

O Position 5: **Reheat coil**

O = without reheat coil

E = 1-stage 230VAC/1-phase electric reheat coil

F = 2-stage 230VAC/1-phase electric reheat coil

G = 3-stage 230VAC/1-phase electric reheat coil

H = 1-stage 400VAC/3-phase electric reheat coil

J = 2-stage 400VAC/3-phase electric reheat coil

1 = non standard, specify separately

O Position 6: **Controls (type & function)**

O = without controls

For controls, contact our sales staff

B Position 7: **Sensor**

O = not applicable

B = Flo-cross®, 2x12 point averaging and signal amplifying air flow sensor (standard)

1 = non standard, specify separately

Ordering example:

N	K	O	D	O	O	B	0	5	0	0	0	4	0	0
See above							Width (mm)				Height (mm)			

Ordering information:

Standard terminals:

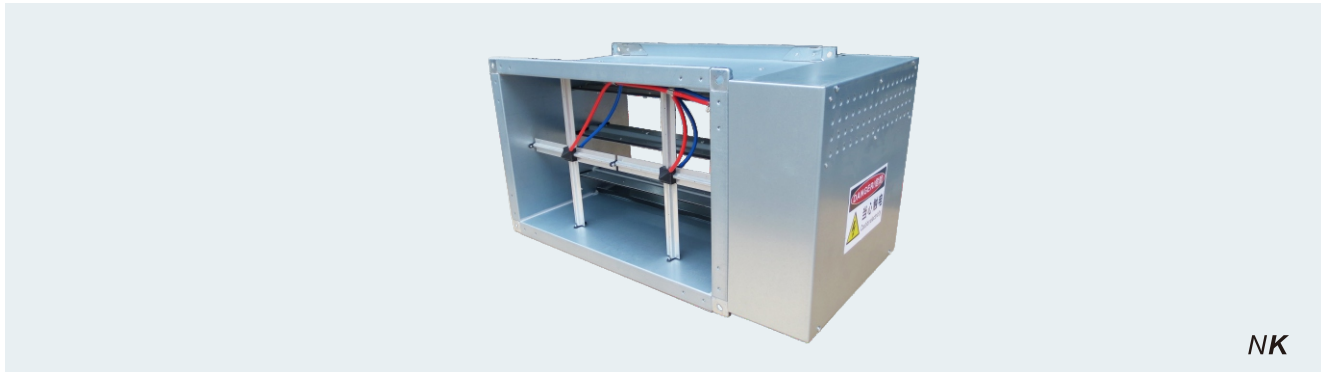
- quantity of terminals
- complete 7 digit code
- terminal size or model
- air volume setting (V_{max} , V_{min} etc)
- control handing (standard right side)
- if applicable, electric reheat coil capacity

Non standard terminals:

- for non standard terminals a full description and / or drawing are requested.

Rectangular VAV and CAV air volume control terminal

Type designation:
Single wall (NK.....)
Double wall (NL.....)



Application

Rectangular NK and NL types are pressure-independent VAV and CAV air volume control terminals.

The terminals are designed particularly for systems with large air volumes and duct sizes and for the accurate measurement and control of air volumes using the patented airflow sensor type Flo-Cross airflow sensor.

In CAV application, the terminals maintain the required constant airflow independent of the inlet static pressure.

In VAV application, the terminals control the air volume to the room, to match the cooling load required thus saving energy consumption in both cooling and heating applications.

The VAV or CAV terminals can be used either for supply or return air applications in new or refurbishment projects.

The terminals have single wall (type NK) or double wall (type NL) construction and can be optionally supplied with an additional sound attenuator or a hot water or electric reheater.

Features:

- Pressure independent control functions.
- Compact design.
- Volume control range 100% to 10%.
- Low pressure loss over the terminal.
- Single or double wall construction.

- Multi-leaf damper blade with full shut-off option.
- Low noise production.
- Suitable for large air volumes.
- Suitable for all control functions VAV, CAV, shut-off to maximise system energy savings.
- Flo-Cross, 2 x 12 points averaging and signal amplifying airflow sensor, better than 2.5% accuracy even with irregular duct approach.
- Maintenance free.

Technical information

Casing:

Single or double wall, air-tight construction made of galvanized sheet steel with low casing leakage rate.

Insulation:

In case of double wall construction 25mm insulation material is completely enclosed by the double wall construction.

Damper:

Damper blade: aluminium, aerofoil 50mm wide opposed blade construction with external linkage.

Blades can be optionally provided with neoprene gasket for full shut-off function.

Flo-Cross:

Extruded aluminium construction with nylon core and feet.

Sound attenuator:

Constructed from galvanized sheet steel, internal acoustic insulation, erosion proof up to 30m/s.

Reheaters:

Choice of electric reheat coil 220-240VAC/1-phase or 380-415VAC/3-phase or hot water reheat coil.

Controls:

Suitable for use with pneumatic, analogue, electronic or DDC controllers. Controls can be factory fitted, wired and calibrated.

A controls enclosure made from galvanised sheet steel can be provided as an option.

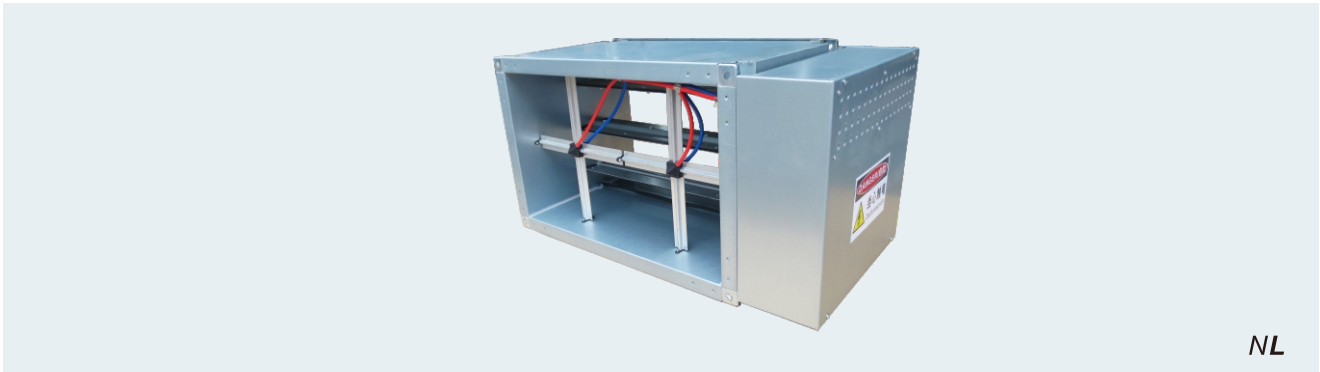
Delivery format:

Delivery format:

- The VAV or CAV terminal will be supplied as a single assembly.
Optional ordered distribution plenum, reheat coil and/or controls are factory fitted, wired and calibrated. The on site delivered terminal is ready to be installed and commissioned.
- Controls location and hot water or electric connections are fitted on the right hand side of the terminal when looking in the direction of the airflow. On request, the terminal can be delivered with connections on the left hand side.
- When terminals are ordered with controls, these will be factory fitted, wired and calibrated upon request.

Rectangular VAV and CAV air volume control terminal

Type designation:
Single wall (NK.....)
Double wall (NL.....)



NL

Specify as:

Example:

Supply and install rectangular variable air volume terminals with double-wall construction, constructed from galvanized sheet steel. The casing leakage rate shall be classified according to class II, VDI3803/DIN24194 and the duct connections shall be 30 mm flange type. The VAV terminals shall have a multi-leaf opposed blade dampers. A Flo-Cross centre averaging airflow sensor with at least 2 x 12 test points and amplified signal shall control the airflow with an accuracy of not less than 2.5%. The controller shall be I/A Series DDC controller: LON[®] compatible, type MNL-V2RVx.

Controls must be factory fitted, wired and calibrated according to the following requirements:

Maximum air volume 1280 l/s
Minimum air volume 512 l/s
Terminal size 400 x 400 mm
Max. pressure loss 38 Pa
Max. discharge sound index < NC30 @250Pa Δp
Max. radiated sound index < NC30 @250Pa Δp

Ordering example: type - model - handing= NLODOOB - 0400 - 0400

Manufacturer: Barcol-Air

Installation Instructions :

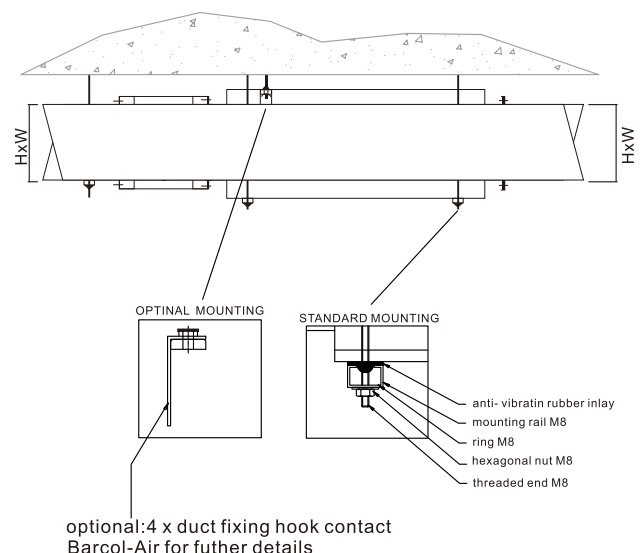
The Barcol-Air VAV terminals shall be installed using at least two support brackets, with anti-vibration rubber under the terminal as shown in the drawing below. Each of these brackets shall be fixed with two threaded rods to the ceiling slab above.

The installation method shall:

1. Prevent the body of the VAV terminal from high mechanical tension, which could damage the construction and performance of the terminal.
2. Prevent torsion on the VAV terminals, which could cause malfunction of the damper blades.
3. Provide some flexibility to the final location of the VAV terminals.
4. Use at least one diameter straight duct length before the VAV inlet.

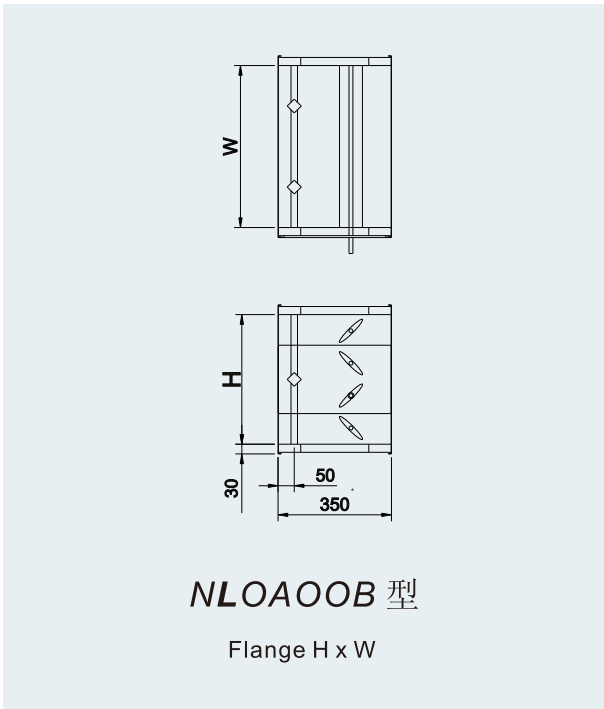
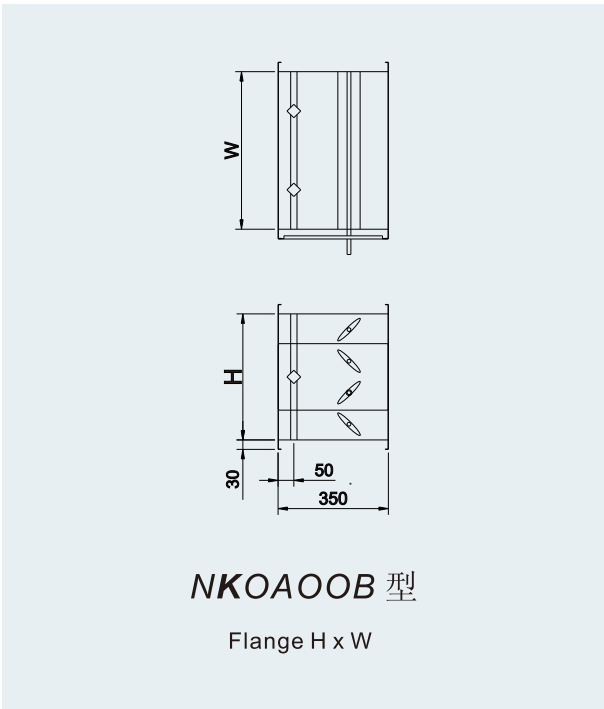
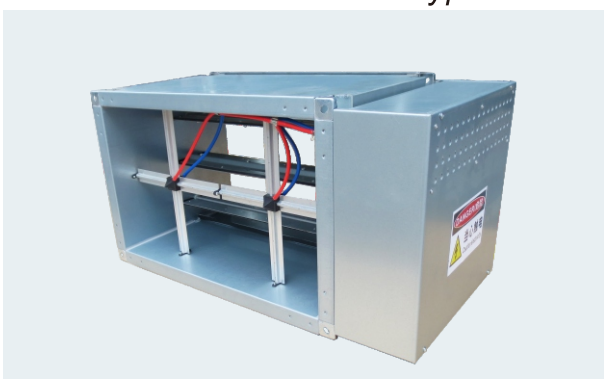
5. Additional manual volume control dampers (VCD's) shall not be used before the unit inlet should not be used.
6. All connections shall be thermally isolated.
7. The Flo-Cross airflow sensor pressure sensing tubes shall not be "kinked" or otherwise obstructed by the external duct insulation.

See drawing below.



Rectangular VAV and CAV air volume control terminal

Model overview:
Single wall – type *NK*.....
Double wall – type *NL*.....



Dimensions NK/NL

H↓	W→	200	300	400	500	600	700	800	900	1000	1200
112		●	●	●							
212		●	●	●	●	●	●	●			
312			●	●	●	●	●	●	●	●	
412				●	●	●	●	●	●	●	●
512					●	●	●	●	●	●	●
612						●	●	●	●	●	●
712							●	●	●	●	●
812								●	●	●	●
912									●	●	●
1012										●	●

- Notes
 1.All dimensions in mm.
 2.All flanges are 30mm wide.
 3.Other dimensions are available on request.

Rectangular VAV and CAV air volume control terminal

Technical data:
Single wall (NK.....)
Double wall (NL.....)

Technical data – air volume range

Model	Velocity	Air volume			Min ΔP_s	Model	Velocity	Air volume			Min ΔP_s
	m/s	l/s	cfm	m ³ /h	Pa		m/s	l/s	cfm	m ³ /h	Pa
200×100	2	40	85	144	1	500×200	2	200	423	720	1
	4	80	169	288	6		4	400	847	1440	6
	6	120	254	432	13		6	600	1270	2160	13
	8	160	339	576	23		8	800	1694	2880	23
	10	200	423	720	35		10	1000	2117	3600	35
200×200	2	80	169	288	1	500×300	2	300	635	1080	1
	4	160	339	576	6		4	600	1270	2160	6
	6	240	508	864	13		6	900	1906	3240	13
	8	320	678	1152	23		8	1200	2541	4320	23
	10	400	847	1440	35		10	1500	3176	5400	35
300×100	2	60	127	216	1	500×400	2	400	847	1440	1
	4	120	254	432	6		4	800	1694	2880	6
	6	180	381	648	13		6	1200	2541	4320	13
	8	240	508	864	23		8	1600	3388	5760	23
	10	300	635	1080	35		10	2000	4235	7200	35
300×200	2	120	254	432	1	500×500	2	500	1059	1800	1
	4	240	508	864	6		4	1000	2117	3600	6
	6	360	762	1296	13		6	1500	3176	5400	13
	8	480	1016	1728	23		8	2000	4235	7200	23
	10	600	1270	2160	35		10	2500	5293	9000	35
300×300	2	180	381	648	1	600×200	2	240	508	864	1
	4	360	762	1296	6		4	480	1016	1728	6
	6	540	1143	1944	13		6	720	1524	2592	13
	8	720	1524	2592	23		8	960	2033	3456	23
	10	900	1906	3240	35		10	1200	2541	4320	35
400×200	2	160	339	576	1	600×300	2	360	762	1296	1
	4	320	678	1152	6		4	720	1524	2592	6
	6	480	1016	1728	13		6	1080	2287	3888	13
	8	640	1355	2304	23		8	1440	3049	5184	23
	10	800	1694	2880	35		10	1800	3811	6480	35
400×300	2	240	508	864	1	600×400	2	480	1016	1728	1
	4	480	1016	1728	6		4	960	2033	3456	6
	6	720	1524	2592	13		6	1440	3049	5184	13
	8	960	2033	3456	23		8	1920	4065	6912	23
	10	1200	2541	4320	35		10	2400	5081	8640	35
400×400	2	320	678	1152	1	600×500	2	600	1270	2160	1
	4	640	1355	2304	6		4	1200	2541	4320	6
	6	960	2033	3456	13		6	1800	3811	6480	13
	8	1280	2710	4608	23		8	2400	5081	8640	23
	10	1600	3388	5760	35		10	3000	6352	10800	35

Rectangular VAV and CAV air volume control terminal

Technical data:
Single wall (NK.....)
Double wall (NL.....)

Technical data – air volume range

Model	Velocity	Air volume				Min ΔPs	Model	Velocity	Air volume				Min ΔPs
	m/s	l/s	cfm	m³/h	Pa			m/s	l/s	cfm	m³/h	Pa	
600×600	2	720	1524	2592	1		800×300	2	480	1016	1728	1	
	4	1440	3049	5184	6			4	960	2033	3456	6	
	6	2160	4573	7776	13			6	1440	3049	5184	13	
	8	2880	6098	10368	23			8	1920	4065	6912	23	
	10	3600	7622	12960	35			10	2400	5081	8640	35	
700×200	2	280	593	1008	1		800×400	2	640	1355	2304	1	
	4	560	1186	2016	6			4	1280	2710	4608	6	
	6	840	1778	3024	13			6	1380	2922	4968	13	
	8	1120	2371	4032	23			8	1840	3896	6624	23	
	10	1400	2964	5040	35			10	3200	6775	11520	35	
700×300	2	420	889	1512	1		800×500	2	800	1694	2880	1	
	4	840	1778	3024	6			4	1600	3388	5760	6	
	6	1260	2668	4536	13			6	2400	5081	8640	13	
	8	1680	3557	6048	23			8	3200	6775	11520	23	
	10	2100	4446	7560	35			10	4000	8469	14400	35	
700×400	2	560	1186	2016	1		800×600	2	960	2033	3456	1	
	4	1120	2371	4032	6			4	1920	4065	6912	6	
	6	1680	3557	6048	13			6	2880	6098	10368	13	
	8	2240	4743	8064	23			8	3840	8130	13824	23	
	10	2800	5928	10080	35			10	4800	10163	17280	35	
700×500	2	700	1482	2520	1		800×700	2	1120	2371	4032	1	
	4	1400	2964	5040	6			4	2240	4743	8064	6	
	6	2100	4446	7560	13			6	3360	7114	12096	13	
	8	2800	5928	10080	23			8	4480	9485	16128	23	
	10	3500	7410	12600	35			10	5600	11857	20160	35	
700×600	2	840	1778	3024	1		800×800	2	1280	2710	4608	1	
	4	1680	3557	6048	6			4	2560	5420	9216	6	
	6	2520	5335	9072	13			6	3840	8130	13824	13	
	8	3360	7114	12096	23			8	5120	10840	18432	23	
	10	4200	8892	15120	35			10	6400	13550	23040	35	
700×700	2	980	2075	3528	1		900×300	2	540	1143	1944	1	
	4	1960	4150	7056	6			4	1080	2287	3888	6	
	6	2940	6225	10584	13			6	1620	3430	5832	13	
	8	3920	8300	14112	23			8	2160	4573	7776	23	
	10	4900	10375	17640	35			10	2700	5717	9720	35	
800×200	2	320	678	1152	1		900×400	2	720	1524	2592	1	
	4	640	1355	2304	6			4	1440	3049	5184	6	
	6	960	2033	3456	13			6	2160	4573	7776	13	
	8	1280	2710	4608	23			8	2880	6098	10368	23	
	10	1600	3388	5760	35			10	3600	7622	12960	35	

Rectangular VAV and CAV air volume control terminal

Technical data:
Single wall (NK.....)
Double wall (NL.....)

Technical data – air volume range

Model	Velocity	Air volume			Min ΔPs	Model	Velocity	Air volume			Min ΔPs
	m/s	l/s	cfm	m³/h	Pa		m/s	l/s	cfm	m³/h	Pa
900×500	2	900	1906	3240	1	1000×500	2	1000	2117	3600	1
	4	1800	3811	6480	6		4	2000	4235	7200	6
	6	2700	5717	9720	13		6	3000	6352	10800	13
	8	3600	7622	12960	23		8	4000	8469	14400	23
	10	4500	9528	16200	35		10	5000	10586	18000	35
900×600	2	1080	2287	3888	1	1000×600	2	1200	2541	4320	1
	4	2160	4573	7776	6		4	2400	5081	8640	6
	6	3240	6860	11664	13		6	3600	7622	12960	13
	8	4320	9147	15552	23		8	4800	10163	17280	23
	10	5400	11433	19440	35		10	6000	12704	21600	35
900×700	2	1260	2668	4536	1	1000×700	2	1400	2964	5040	1
	4	2520	5335	9072	6		4	2800	5928	10080	6
	6	3780	8003	13608	13		6	4200	8892	15120	13
	8	5040	10671	18144	23		8	5600	11857	20160	23
	10	6300	13339	22680	35		10	7000	14821	25200	35
900×800	2	1440	3049	5184	1	1000×800	2	1600	3388	5760	1
	4	2880	6098	10368	6		4	3200	6775	11520	6
	6	4320	9147	15552	13		6	4800	10163	17280	13
	8	5760	12195	20736	23		8	6400	13550	23040	23
	10	7200	15244	25920	35		10	8000	16938	28800	35
900×900	2	1620	3430	5832	1	1000×900	2	1800	3811	6480	1
	4	3240	6860	11664	6		4	3600	7622	12960	6
	6	4860	10290	17496	13		6	5400	11433	19440	13
	8	6480	13720	23328	23		8	7200	15244	25920	23
	10	8100	17150	29160	35		10	9000	19055	32400	35
1000×300	2	600	1270	2160	1	1000×1000	2	2000	4235	7200	1
	4	1200	2541	4320	6		4	4000	8469	14400	6
	6	1800	3811	6480	13		6	6000	12704	21600	13
	8	2400	5081	8640	23		8	8000	16938	28800	23
	10	3000	6352	10800	35		10	10000	21173	36000	35
1000×400	2	840	1778	3024	1						
	4	1680	3557	6048	6						
	6	2520	5335	9072	13						
	8	3360	7114	12096	23						
	10	4200	8892	15120	35						

