

RECTANGULAR CAV AIR VOLUME CONTROL TERMINALS

WITH SYSTEM POWERED MECHANICAL REGULATOR

NM / NN SERIES



HC GROEP
HC BARCOL-AIR | AIR DISTRIBUTION

Rectangular CAV air volume control terminals with system powered mechanical regulator

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Rectangular CAV air volume control terminals with system powered mechanical regulator

Type designation
Single wall (NM)
Single wall (NN)

Composition type designation:

N - M - O - A - O - V - O

N Position 1: **Product group**

O = not applicable

M Position 2: **Function**

O = not applicable
M = rectangular CAV terminal, single wall construction
N = rectangular CAV terminal, double wall construction
1 = non standard, specify separately

O Position 3: **Control**

O = system powered, regulator (standard)
1 = non standard, specify separately

B Position 4: **Outlet**

O = not applicable
A = rectangular outlet
1 = non standard, specify separately

O Position 5: **Reheat coil**

O = without reheat coil
1 = non standard, specify separately

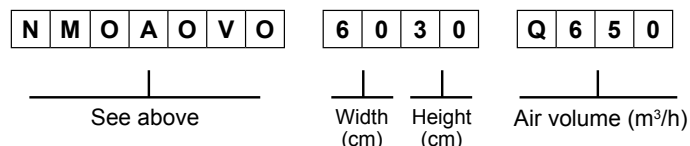
V Position 6: **Controls (type & function)**

O = not applicable
V = factory set with provision for on-site adjustment across the full volume scale
1 = non standard, specify separately

O Position 7: **Finish**

O = standard finish (galvanized steel)
E = epoxy coating
1 = non standard, specify separately

Ordering example:



Ordering information:

Standard terminals:

- quantity of terminals
- complete 7 digit code
- terminal size or model
- air volume setting (Q)
- control handing (standard right side)

Non standard terminals:

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

Rectangular CAV air volume control terminals with system powered mechanical regulator

Technical data
Single wall (type NM)
Double wall (type NN)



Application

NM / NN series rectangular, constant volume terminals with system powered mechanical regulator are designed to keep a constant air flow, independent of the inlet static pressure without the use of a DDC CAV/VAV controller/ actuator. These terminals save commissioning time on site and are suitable either for supply or return air in new or refurbishment projects.

Features:

- Single wall or double wall.
- Pressure independent from 80 – 1000 Pa.
- Compact design.
- Low pressure loss over the terminal.
- Control accuracy $\pm 10\%$ (in the recommended flow range).
- Temperature insensitive (-30°C to +100°C).
- Can be mounted in any position.
- Factory set, saves commissioning time on site.
- Provision for on-site adjustment across the full volume scale.
- Maintenance free.
- Low noise production.

Technical information

Casing:

Terminal casing made of galvanized sheet steel (non spiral) with sleeve connection with rubber gasket. Casing leakage rate to Class II VDI 3803 or DIN 24 194. Duct-sleeve connections at the in- and outlet are suitable for DIN 24 145 or DIN 24 146 connections. In case of double wall construction 30 mm insulation material is used completely enclosed by the double wall construction.

Damper:

Damper blade: aluminium.
Damper shaft: stainless steel with self lubricating Nylon bearings.

Controls:

- The factory setpoint is indicated on the terminal.

Finish:

- Standard finish galvanized steel.
- Optional finish with epoxy coating is available upon request.

Delivery format

Delivery format:

- When ordering, the required air volume must be indicated.

Rectangular CAV air volume control terminals with system powered mechanical regulator

Technical data
Single wall (type NM)
Double wall (type NN)



Specify as:

Example:

Supply and install, rectangular, pressure independent constant air volume terminals with system powered mechanical regulator; control accuracy $\pm 10\%$ of V_{CAV} . The construction shall be galvanized steel with a casing leakage rate classified according to class II, VDI 3803/ DIN 24 194. The CAV terminals shall have an aluminium damper blade with stainless steel shaft rotating in self lubricating Nylon bearings.

HC Barcol-Air control type "V", factory set with provision for on-site adjustment across the full volume scale. (HC Barcol-Air type NMOAOVO).

Ordering example : type – model – airflow (m³/h) =
NMOAOVO - 3020 - Q1296 (= 360 l/s)

Manufacturer: HC Barcol-Air

Air volume 360 l/s

Terminal size 300 x 200 mm

Max. pressure loss 60 Pa

Max. discharge sound index < NC35

(@250Pa Δp)

Max. radiated sound index < NC35

@250Pa Δp)

Model W x H	Recommended air volume								
	l/s			CFM			m ³ /h		
	Min		Max	Min	Max	Min	Max		
200 x 100	56	-	194	119	-	411	202	-	698
300 x 100	60	-	222	127	-	470	216	-	799
400 x 100	84	-	304	178	-	644	302	-	1094
150 x 150	68	-	203	143	-	429	243	-	729
300 x 150	135	-	405	286	-	858	486	-	1458
200 x 200	120	-	360	254	-	762	432	-	1296
300 x 200	180	-	540	381	-	1144	648	-	1944
400 x 200	240	-	720	508	-	1525	864	-	2592
300 x 300	270	-	810	572	-	1715	972	-	2916
450 x 300	405	-	1215	858	-	2573	1458	-	4374
600 x 300	540	-	1620	1144	-	3431	1944	-	5832
400 x 400	480	-	1440	1016	-	3049	1728	-	5184
500 x 400	600	-	1800	1271	-	3812	2160	-	6480
600 x 400	720	-	2160	1525	-	4574	2592	-	7776
500 x 500	750	-	2250	1588	-	4765	2700	-	8100
600 x 500	900	-	2700	1906	-	5718	3240	-	9720
600 x 600	1080	-	3240	2287	-	6861	3888	-	11664

Rectangular air volume control terminals with system powered mechanical regulator

*Installation Instructions
Single wall (type NM)
Double wall (type NN)*



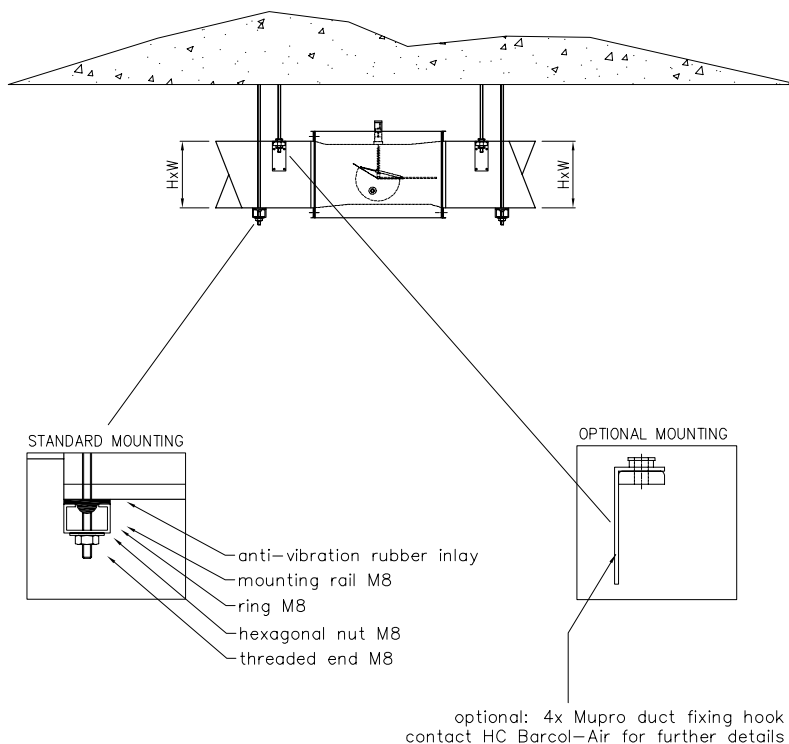
Installation Instructions:

The HC Barcol-Air CAV terminals shall be installed using at least two support brackets (DIN-rail or L-profile), with anti-vibration rubber under the terminal. Each of these brackets shall be fixed with two threaded rods to the ceiling slab above.

This installation method:

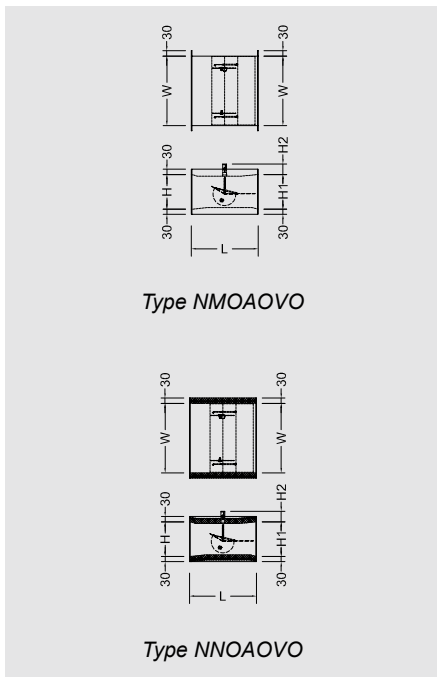
- 1 Shall prevent the body of the CAV terminal from high mechanical tension, which could damage the construction and performance of the terminal.
- 2 Shall prevent torsion on the CAV terminals, which could cause malfunction of the damper blades.
- 3 Provides some flexibility to the final location of the CAV terminals.
- 4 Use at least 1x diagonal straight duct length before the CAV inlet.
- 5 Additional manual volume control dampers (VCD's) before the inlet are not required / recommended!!
6. All connections shall be thermally isolated.

Optional 4 x Mupro fixing hooks can be used (see drawing).



Rectangular air volume control terminals with system powered mechanical regulator

Model overview
Single wall (type NM) *Double wall (type NN)*



L = Installed length.

Dimensions								
Height	Width (W)							Length (L)
(H)	150	200	300	400	450	500	600	
100		•	•	•				220
150	•	•	•					385
200		•	•	•				385
300			•		•		•	385
400				•		•	•	385
500						•	•	425
600							•	470

Remark:
All dimensions in mm.

Rectangular CAV air volume control terminals with system powered mechanical regulator

Type NMOAOVO
NNOAOVO

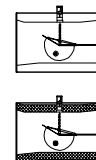


Sound data $\Delta p = 125 \text{ Pa}$

Model	data referring to inlet spigot				min. ΔP_s Pa	$\Delta p = 125 \text{ Pa}$																											
						discharge sound						radiated sound single wall						radiated sound double wall															
	velocity		air volume			L _w in dB/Oct. (re 1pW)						Lp values			L _w in dB/Oct. (re 1pW)						Lp values												
						125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR	
m/s	l/s	CFM	m ³ /h	dB																													
200 x 100	2,8	56	119	202	68	49	48	46	44	42	39	22	--	--	47	45	42	38	35	31	25	--	--	43	38	30	22	17	--	--	--	--	
	6,0	121	256	435	100	55	54	52	51	49	47	28	21	24	53	51	48	45	42	39	31	23	26	49	44	36	29	24	21	24	--	--	
	9,7	194	411	698	199	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
300 x 100	2,0	60	127	216	64	47	46	44	42	39	37	20	--	--	42	40	36	33	28	27	--	--	--	35	30	20	--	--	--	--	--	--	
	4,7	141	299	508	82	54	53	51	49	47	45	27	--	23	49	47	43	40	36	35	27	--	22	42	37	27	21	14	--	--	--	--	
	7,4	222	470	799	132	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
400 x 100	2,1	84	178	302	66	48	47	45	43	40	37	21	--	--	43	41	37	34	29	27	21	--	--	36	31	21	--	--	--	--	--	--	
	4,9	196	415	705	86	54	53	52	50	48	46	28	--	23	49	47	44	41	37	36	27	--	22	42	37	28	22	--	--	--	--	--	
	7,6	304	644	1094	136	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
150 x 150	3,0	68	143	243	71	50	49	47	45	43	41	23	--	--	48	47	44	41	37	34	27	--	22	44	41	33	27	20	17	20	--	--	
	6,0	135	286	486	100	55	54	53	51	49	47	29	21	24	53	52	50	47	43	40	32	24	27	49	46	39	33	26	23	25	--	20	
	9,0	203	429	729	175	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
300 x 150	3,0	135	286	486	71	52	51	49	47	45	42	25	--	20	48	46	43	39	36	31	26	--	20	42	37	29	21	16	10	--	--	--	
	6,0	270	572	972	100	58	56	55	53	51	49	31	23	26	54	51	49	45	42	38	32	23	26	48	42	35	27	22	17	23	--	--	
	9,0	405	858	1458	175	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
200 x 200	3,0	120	254	432	71	52	51	49	47	45	42	25	--	20	50	49	46	43	39	35	29	21	24	46	43	35	29	22	18	22	--	--	
	6,0	240	508	864	100	58	56	55	53	51	49	31	23	26	56	54	52	49	45	42	35	27	29	52	48	41	35	28	25	28	--	23	
	9,0	360	762	1296	175	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
300 x 200	3,0	180	381	648	71	54	52	50	48	46	43	27	--	22	50	47	44	40	37	32	27	--	22	44	38	30	22	17	--	--	--	--	
	6,0	360	762	1296	100	59	58	56	54	52	50	32	26	28	55	53	50	46	43	39	33	26	28	49	44	36	28	23	18	24	--	--	
	9,0	540	1144	1944	175	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
400 x 200	3,0	240	508	864	71	54	53	51	49	46	43	27	--	23	50	48	45	41	37	32	28	--	23	44	39	31	23	17	--	--	--	--	
	6,0	480	1016	1728	100	60	58	57	55	53	50	33	26	28	56	53	51	47	44	39	34	26	28	50	44	37	29	24	18	25	--	--	
	9,0	720	1525	2592	175	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
300 x 300	3,0	270	572	972	71	55	53	51	49	47	44	28	--	23	52	49	46	43	39	35	29	21	24	47	41	33	27	20	--	22	--	--	
	6,0	540	1144	1944	100	60	59	57	56	53	51	33	27	29	57	55	52	50	45	42	35	28	30	52	47	39	34	26	23	27	--	22	
	9,0	810	1715	2916	175	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
450 x 300	3,0	405	858	1458	71	56	54	52	50	47	45	29	21	24	52	50	46	43	38	35	30	22	25	46	42	32	26	18	15	21	--	--	
	6,0	810	1715	2916	100	62	60	59	57	54	52	35	28	30	58	56	53	50	45	42	36	29	31	52	48	39	33	25	22	27	--	23	
	9,0	1215	2573	4374	175	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
600 x 300	3,0	540	1144	1944	71	57	55	53	51	48	45	30	22	25	53	51	47	44	39	35	31	23	26	47	43	33	27	19	--	22	--	--	
	6,0	1080	2287	3888	100	62	61	59	57	55	52	35	29	31	58	57	53	50	46	42	37	30	32	52	49	39	33	26	22	28	21	24	
	9,0	1620	3431	5832	175	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
400 x 400	3,0	480	1016	1728	71	57	55	53	51	48	45	30	22	25	54	51	48	45	40	36	31	23	26	49	43	35	29	21	17	24	--	--	
	6,0	960	2033	3456	100	62	61	59	57	55	52	35	29	31	59	57	54	51	47	43	37	30	32	54	49	41	35	28	24	29	21	24	
	9,0	1440	3049	5184	175	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
500 x 400	3,0	600	1271	2160	71	58	56	63	51	48	45	33	27	29	54	52	57	44	39	35	36	31	33	48	44	43	27	19	--	25	--	--	
	6,0	1200	2541	4320	100	63	62	60	58	55	53	36	30	32	59	58	54	51	46	43	37	31	33	53	50	40	34	26	23	29	22	25	
	9,0	1800	3812	6480	175	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
600 x 400	3,0	720	1525	2592	71	58	56	54	52	49	46	31	23	26	54	52	48	45	40	36	32	24	27	48	44	34	28	20	--	23	--	--	
	6,0	1440	3049	5184	100	64	62	60	58	56	53	37	30	32	60	58	54	51	47	43	38	31	33	54	50	40	34	27	23	29	22	25	
	9,0	2160	4574	7776	175	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
500 x 500	3,0	750	1588	2700	71	58	56	54	52	49	46	31	23	26	54	52	48	45	40	36	32	24	27	48	44	34	28	20	--	23	--	--	
	6,0	1500	3176	5400	100	64	62	60	58	56	53	37	30	32	60	58	54	51	47	43	38	31	33	54	50	40	34	27	23	29	22	25	
	9,0	2250	4765	8100	175	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
600 x 500	3,0	900	1906	3240	71	59																											

Rectangular CAV air volume control terminals with system powered mechanical regulator

Type NMOAOVO
NNOAOVO



Sound data $\Delta p = 250 \text{ Pa}$

Model	data referring to inlet spigot				min. Δp_s	$\Delta p = 250 \text{ Pa}$																										
						discharge sound						radiated sound single wall						radiated sound double wall														
	velocity		air volume			L_w in dB/Oct. (re 1pW)						Lp values			L_w in dB/Oct. (re 1pW)						Lp values											
						125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR
m/s	l/s	CFM	m ³ /h	dB																												
200 x 100	2,8	56	119	202	68	55	54	52	50	48	45	28	21	24	53	51	48	44	41	37	31	23	26	49	44	36	28	23	19	24	--	--
	6,0	121	256	435	100	61	60	58	57	55	53	34	28	30	59	57	54	51	48	45	37	30	32	55	50	42	35	30	27	30	22	25
	9,7	194	411	698	199	64	63	62	61	59	57	38	31	33	62	60	58	55	52	49	41	34	36	58	53	46	39	34	31	33	26	28
300 x 100	2,0	60	127	216	64	53	52	50	48	45	43	26	--	22	48	46	42	39	34	33	26	--	20	41	36	26	20	--	--	--	--	
	4,7	141	299	508	82	60	59	57	55	53	51	33	27	29	55	53	49	46	42	41	33	26	28	48	43	37	20	21	--	--	--	
	7,4	222	470	799	132	63	62	61	59	57	55	37	30	32	58	56	53	50	46	45	36	29	31	51	46	37	31	24	25	26	--	20
400 x 100	2,1	84	178	302	66	54	53	51	49	46	43	27	--	23	49	47	43	40	35	33	27	--	22	42	37	27	21	--	--	--	--	
	4,9	196	415	705	86	60	59	58	56	54	52	34	27	29	55	53	50	47	43	42	33	26	28	48	43	34	28	21	22	23	--	--
	7,6	304	644	1094	136	64	63	61	60	58	56	37	31	33	59	57	53	51	47	46	37	30	32	52	47	37	32	25	26	27	--	22
150 x 150	3,0	68	143	243	71	56	55	53	51	49	47	29	22	25	54	53	50	47	43	40	33	26	28	50	47	39	33	26	23	26	--	22
	6,0	135	286	486	100	61	60	59	57	55	53	35	28	30	59	58	56	53	49	46	38	31	33	55	52	45	39	32	29	31	24	27
	9,0	203	429	729	175	64	63	62	61	59	57	38	31	33	62	61	59	57	53	50	41	35	37	58	55	48	43	36	33	34	28	30
300 x 150	3,0	135	286	486	71	58	57	55	53	51	48	31	24	27	54	52	49	45	42	37	32	24	27	48	43	35	27	22	--	23	--	--
	6,0	270	572	972	100	64	62	61	59	57	55	37	30	32	60	57	55	51	48	44	38	30	32	54	48	41	33	28	23	29	21	23
	9,0	405	858	1458	175	66	66	64	63	61	59	40	35	37	62	61	58	55	52	48	41	35	37	56	52	44	37	32	27	31	24	27
200 x 200	3,0	120	254	432	71	58	57	55	53	51	48	31	24	27	56	55	52	49	45	41	35	28	30	52	49	41	35	28	24	28	21	24
	6,0	240	508	864	100	64	62	61	59	57	55	37	30	32	62	60	58	55	51	48	41	34	36	58	54	47	41	34	31	34	27	29
	9,0	360	762	1296	175	66	66	64	63	61	59	40	35	37	64	64	61	59	55	52	44	39	40	60	58	50	45	38	35	37	31	33
300 x 200	3,0	180	381	648	71	60	58	56	54	52	49	33	26	28	56	53	50	46	43	38	33	26	28	50	44	36	28	23	17	24	--	--
	6,0	360	762	1296	100	65	64	62	60	58	56	38	33	34	61	59	56	52	49	45	39	33	34	55	50	42	34	29	24	30	22	25
	9,0	540	1144	1944	175	68	67	65	64	62	59	41	36	38	64	62	59	56	53	48	42	36	38	58	53	45	38	33	27	33	26	28
400 x 200	3,0	240	508	864	71	60	59	57	55	52	49	33	27	29	56	54	51	47	43	38	34	27	29	50	45	37	29	23	17	25	--	--
	6,0	480	1016	1728	100	66	64	63	61	59	56	39	33	34	62	59	57	53	50	45	40	33	34	56	50	43	35	30	24	31	24	25
	9,0	720	1525	2592	175	69	68	66	64	62	60	42	37	39	65	63	60	56	53	49	43	37	39	59	54	46	38	33	28	34	27	29
300 x 300	3,0	270	572	972	71	61	59	57	55	53	50	34	27	29	58	55	52	49	45	41	35	28	30	53	47	39	33	26	22	28	--	22
	6,0	540	1144	1944	100	66	65	63	62	59	57	39	34	36	63	61	58	56	51	48	41	35	37	58	53	45	40	32	29	33	26	28
	9,0	810	1715	2916	175	69	68	67	65	63	61	43	37	39	66	64	62	59	55	52	45	39	40	61	56	49	43	36	33	36	30	31
450 x 300	3,0	405	858	1458	71	62	60	58	56	53	51	35	28	30	58	56	52	49	44	41	36	29	31	52	48	38	32	24	21	27	--	23
	6,0	810	1715	2916	100	68	66	65	63	60	58	41	35	37	64	62	59	56	51	48	42	36	38	58	54	45	39	31	28	33	27	29
	9,0	1215	2573	4374	175	71	70	68	66	64	62	44	40	41	67	66	62	59	55	52	46	41	42	61	58	48	42	35	32	37	31	33
600 x 300	3,0	540	1144	1944	71	63	61	59	57	54	51	36	29	31	59	57	53	50	45	41	37	30	32	53	49	39	33	25	21	28	21	24
	6,0	1080	2287	3888	100	68	67	65	63	61	58	41	36	38	64	63	59	56	52	48	43	37	39	58	55	45	39	32	28	34	28	30
	9,0	1620	3431	5832	175	72	70	69	67	65	62	45	40	41	68	66	63	60	56	52	46	41	42	62	58	49	43	36	32	37	31	33
400 x 400	3,0	480	1016	1728	71	63	61	59	57	54	51	36	29	31	60	57	54	51	46	42	37	30	32	55	49	41	35	27	23	30	22	24
	6,0	960	2033	3456	100	68	67	65	63	61	58	41	36	38	65	63	60	57	53	49	43	37	39	60	55	47	41	34	30	35	29	30
	9,0	1440	3049	5184	175	72	70	69	67	65	62	45	40	41	69	66	64	61	57	53	47	41	42	64	58	51	45	38	34	39	34	35
500 x 400	3,0	600	1271	2160	71	64	62	60	58	55	52	39	34	35	60	58	53	50	45	41	42	38	39	54	50	49	33	25	21	31	22	25
	6,0	1200	2541	4320	100	69	68	66	64	61	59	42	37	39	65	64	60	57	52	49	43	39	40	59	56	46	40	32	29	35	29	31
	9,0	1800	3812	6480	175	72	71	69	67	65	63	45	41	42	68	67	63	60	56	53	47	42	43	62	59	49	43	36	33	38	33	34
600 x 400	3,0	720	1525	2592	71	64	62	60	58	55	52	37	30	32	60	58	54	51	46	42	38	31	33	54	50	40	34	26	22	29	22	25
	6,0	1440	3049	5184	100	70	68	66	64	62	59	43	37	39	66	64	60	57	53	49	44	39	40	60	56	46	40	33	29	35	29	31
	9,0	2160	4574	7776	175	73	71	70	68	65	63	46	41	42	69	67	64	61	56	53	47	42	43	63	59	50	44	36	33	38	33	34
500 x 500	3,0	750	1588	2700	71	64	62	60	58	55	52	37	30																			

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