TECHNICAL BULLETIN
CCTV AutoDome

AutoDome Cameras in Extreme Vibration Environments

November 8, 2011

Issue Severity:	Products Affected:
☐ **High:** Act immediately ☐ **Medium:** Bosch Security Systems strongly recommends you take the action(s) described below. ☒ **Low:** Advisory	• AutoDome Modular Camera Systems (VG4 Series) • AutoDome 100 Series • AutoDome 600 Series • AutoDome 700 Series • AutoDome 800 Series

1. Issue

Surveillance cameras are susceptible to vibrations caused by wind or vibrations emanating from the medium to which the camera is attached. Cameras attached to a pole, roof, or to a bridge are especially vulnerable. Bosch offers the following recommendations to stabilize an AutoDome and to decrease the affects of vibration on a transmitted image, privacy masks, and AutoTracker.

2. Resolution

Pole/Mast Mounts

- Use a pendant arm with the Pole Mount Adapter (VG4-A-9541).
  - Do not attach a parapet mount to a pole or mast.
- Use a pole designed specifically for CCTV cameras:
  - Do not use a tapered pole.
  - Do not use a pole that has signs or other equipment attached.
- Use the EPA rating / Wind load data (listed below) to select an appropriate pole.

Roof Mounts

- Mount the camera in the most stable location on the roof.
- Avoid locations affected by vibrations such as those caused by a rooftop air conditioner.
- Use guy wires to stabilize the AutoDome against strong winds.
- Use the LTC 9230/01 Flat Roof Mount Adapter where appropriate. This adapter is made specifically for AutoDome roof applications.

Other Mount Applications (bridges, towers, etc.)

Unique camera mounting applications that are impacted by extreme high winds, heavy traffic, or other conditions may require additional measures to stabilize the camera. Contact a manufacturer that specializes in passive vibration suppression using either damping or isolation. Common research terms are:

- Passive vibration suppression
- Anti-vibration rubber mounts
- Vibration isolators

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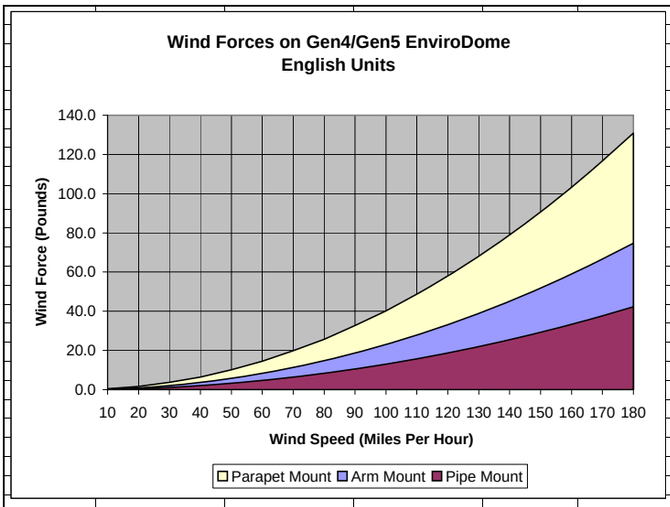
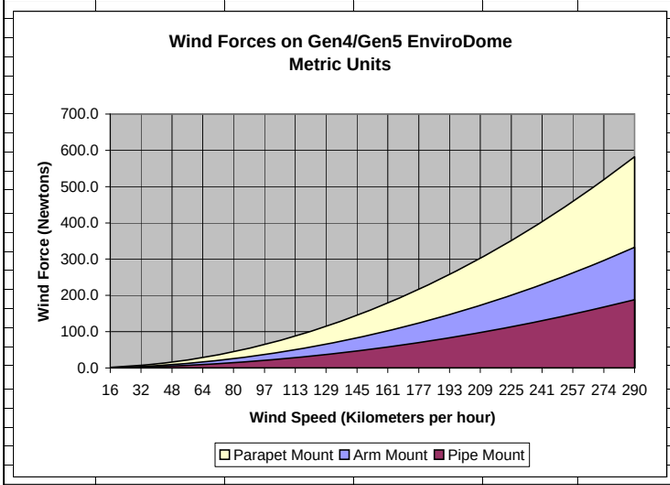
Contact Information:
AMEC: (888) 289-0096
EMEA: 31 (0) 76-5721500
APR: 86 (0) 756 7633117





Parapet Arm Wind Load special considerations

The wind load calculations are based on projected surface area. Due to its design, the parapet mount will respond differently in a wind load event than the pipe mount or pendant arm.

There is a +50 inch moment arm to apply load to the mounting structure. The practical result of this affect is that when wind buffets the pendant egg, the load is magnified significantly at the mount base.

The parapet assembly interface with the wall mount or roof mount component is not perfectly stiff. These mount features have rotational capability designed into the assembly where three bolts lock it in place. To provide the most flexibility of installed orientation, this locking feature is friction based and not positive. Due to these conditions, under heavy load, it is feasible that the whole assembly can rotate or even deflect.

There are defined locations to attach guy wires to the parapet structure for additional support to increase system stiffness, and these must be used if extreme wind loads are expected.

E.P.A. Effective Projected Area

EPA=(frontal projected area) * (drag coefficient of the housing)

The wind speed and pressures are used along with the AutoDome's EPA rating to calculate the wind force.

Mounting Notes

Each fastener must have a minimum pullout strength of 275 kg (600 lbs). The mounting material must be able to withstand this pull-out force. . For example, 19-mm (3/4-inch) minimum for plywood.

Wind Force on Gen4/Gen5 EnviroDome Pendant English Units (Wind Force in Pounds)

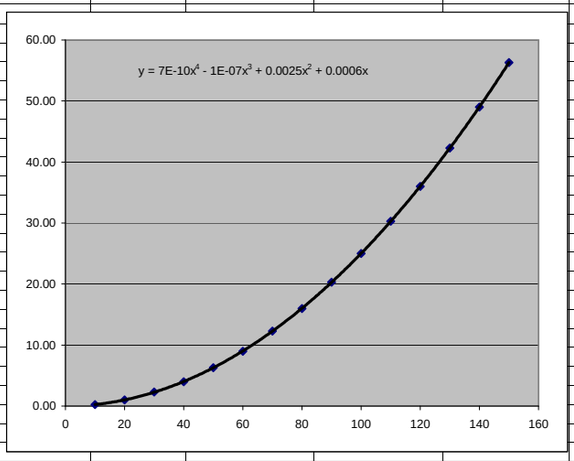
Wind Speed	Mounted on Arm and PS Box VG4-___-E___P	Mounted on Pipe Mount VG4-___-E___W	Mounted on Parapet Mount VG4-___-E___R
EPA sq. feet	0.92	0.52	1.61
Miles per hour	Arm Mount	Pipe Mount	Parapet Mount
10	0.2	0.1	0.4
20	0.9	0.5	1.6
30	2.1	1.2	3.7
40	3.7	2.1	6.4
50	5.8	3.3	10.1
60	8.3	4.7	14.5
70	11.3	6.4	19.8
80	14.7	8.3	25.8
90	18.7	10.6	32.7
100	23.0	13.0	40.3
110	27.9	15.8	48.8
120	33.1	18.7	58.0
130	38.9	22.0	68.1
140	45.1	25.5	78.9
150	51.8	29.3	90.6
160	59.0	33.4	103.3
170	66.6	37.7	116.6
180	74.8	42.3	130.8

Wind Force on Gen4/Gen5 EnviroDome Pendant Metric Units (Wind Force in Newtons)

Wind Speed	Mounted on Arm and PS Box VG4-___-E___P	Mounted on Pipe Mount VG4-___-E___W	Mounted on Parapet Mount VG4-___-E___R
EPA sq. cm	855	483	1496
Kilometers per hour	Arm Mount	Pipe Mount	Parapet Mount
16	1.0	0.6	1.8
32	4.1	2.3	7.2
48	9.4	5.3	16.5
64	16.4	9.3	28.6
80	25.8	14.6	45.1
97	36.8	20.8	64.5
113	50.3	28.5	88.1
129	65.5	37.0	114.6
145	83.1	47.0	145.4
161	102.3	57.8	179.0
177	124.0	70.1	217.0
193	147.3	83.3	257.8
209	173.1	97.8	302.9
225	200.5	113.3	350.9
241	230.4	130.2	403.2
257	262.5	148.4	459.4
274	296.5	167.6	518.8
290	332.6	188.0	582.0

Wind pressure on cylindrical surface data was taken from: CRC Handbook of Tables for Applied Science, 2nd Edition, CRC Press, Boca Rotan, FL 33431 C1979

mph	wind force/sq.ft.	curve fit data
10	0.25	0.26
20	1.0	1.0
30	2.3	2.3
40	4.0	4.0
50	6.3	6.3
60	9.0	9.0
70	12.3	12.3
80	16.0	16.0
90	20.3	20.3
100	25.0	25.0
110	30.3	30.3
120	36.0	36.0
130	42.3	42.3
140	49.0	49.1
150	56.3	56.4
160		64.1
170		72.4
180		81.3



Extrapolated Data based on 4th power polynomial curve fit of CRC Handbook data set