



HUSH
CORE

Data Center Project



BRD

Noise and Vibration Control, Inc.

HUSH
CORE[®]

A VMC GROUP COMPANY

Air-Cooled Chiller Noise Reduction

Hushcore[®] Standard[™] System

Noise Complaints From The Community

Phoenix, AZ

The Data Center owner received complaints from the nearby community having to do with their air cooled chiller overall noise and prominent discrete tones.

The Data Center noise was a nuisance for the surrounding community and BRD was tasked with providing an HVAC acoustic design to remedy the problem. Thus, BRD provided a non-invasive acoustic blanket source treatment, thus maintaining cost control, and avoiding costly preliminary site work and coordination. In turn, this helped streamline the process and solution.



In addition to the compressor and oil separator, the chiller circuit and associated piping, shown above and below, were treated as part of the Hushcore(R) Standard(TM) System.



Data Center Noise Attenuation

First, BRD Noise And Vibration Control designed a prototype solution of one unit to confirm for all parties that the Hushcore® Standard™ "SCE" solution would meet the target noise criteria and performance numbers. After testing and confirming that it did, production was started to provide this solution for all units. Third party testing onsite by the Acoustical Consultant confirmed that our Hush Covers™ sound control provided an average reduction around the perimeter of the test chiller of 6.8 dB(A), exceeding initial expectations. Results are shown in table on the next page (4), which showcase the before and after octave band readings.

Difference in noise level (dBA) without and with Hushcore® Standard™ SCE System:

Scenario	Overall	1/3 Octave (dBA) in Hz											
		250	315	400	500	630	800	1K	1.25K	1.6K	2K	2.5K	3.15K
Untreated chiller	43.8	18.9	24.8	22.6	23.9	34.0	38.9	38.4	33.5	34.0	28.0	20.9	13.6
Chiller with Standard™ SCE	36.3	18.8	21.7	22.5	22.8	28.9	29.8	28.3	26.4	25.9	22.9	15.8	9.5
Standard™ SCE System Reduction	7.5	0.1	3.1	0.1	1.1	5.1	9.1	10.1	7.1	8.1	5.1	5.1	4.1

Note: Values highlighted in blue demonstrate the amount of noise reduction at the most problematic frequencies for the chiller.

The results have allowed the Data Center to continue their good standing in the community, and by doing so, it assured local authorities that there would be no reason to oppose future expansion plans. The Hushcore® Standard™ SCE System of Hush Cover™ sound blankets have become the standard for several new projects to treat additional (qty. 48) 500 ton units. BRD installed new orders for the Customer at the OEM chiller plant, eliminating the need for the owner to install the sound system post start up.





BRD coordinated directly with the OEM and visited the manufacturer's facility to perform installation prior to shipment so the units delivered to the site pre-treated and turnkey ready!