

CASE STUDY AUTOMOTIVE DISTRIBUTION CENTER



JOHNSON
AIR-ROTATION® HVAC SYSTEMS



**650,000 SQ. FT. HEATED AND COOLED
WITH ONLY 7 JOHNSON AIR-ROTATION
HVAC SYSTEMS**

APPLICATION:

650,000 SQ. FT. DISTRIBUTION CENTER FOR AUTOMOTIVE

MARKET:

MEMPHIS, TN

SYSTEM STYLE & QUANTITY:

7 INDOOR HEATING AND COOLING SYSTEMS

DESIGN

- Original proposal called for 105 rooftop units to be placed on the 650,000 square foot automotive distribution facility.
- Due to union procedure, the facility would be shut down for a week for installation of these units causing revenue loss.
- Because of the additional support needing installed and the roof penetrations needed the warranty of their roof would have been canceled.
- Maintenance of 105 rooftop units was a concern.

SOLUTION

- Johnson's Engineering team designed 7 indoor mounted heating and cooling units which provided the same amount of conditioned air as the proposed rooftop units.
- Each system has a capability of 90,000 CFM and 200 tons of cooling; using only (2) 15 horsepower fan motors.
- The total horsepower of the Air-Rotation units was 191.1 versus 1,433 the 105 rooftop units would have used.

RESULTS

- The company was able to keep the warranty on their roof.
- Avoided cost of adding ductwork, rooftop support, and all the utilities necessary for rooftop units.
- Because units were ground-mounted, they did not have to shut down the facility and the units went up in hours, not days.
- Ground-mounted systems also ensured proper maintenance routine would be followed.
- The lower fan motor horsepower used on the Johnson Air-Rotation HVAC Systems resulted in electrical savings year after year of \$175,376 versus the originally proposed rooftop units!



Manufactured
in the USA



(800) 325-1303
11880 Dorsett Road,
St. Louis, MO 63043
JohnsonAirRotation.com

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HOW THE JOHNSON AIR-ROTATION HVAC SOLUTION COMPARES

ORIGINAL PROPOSAL

- 105 rooftop units
- 13.65 fan motor horsepower per unit
- 1,433 total fan motor horsepower used
- 105 electrical utility connections
- 105 gas utility connections
- 105 rooftop penetrations
- Additional rooftop support needed
- Ductwork throughout facility
- Multiple days of the facility closed

JOHNSON SOLUTION

- 7 total Johnson Air-Rotation Systems
- 27.3 fan motor horsepower per unit
- 191.1 total horsepower used
- 7 electrical utility connections
- 7 gas utility connections
- 0 rooftop penetrations
- No additional rooftop support needed
- No ductwork
- No closure of the facility needed

FAN MOTOR HORSEPOWER CALCULATIONS FOR AUTOMOTIVE DISTRIBUTION CENTER

ELIMINATION OF 105 ROOFTOP UNITS WILL SAVE THE COMPANY \$175,376 PER YEAR.

	QTY	HORSEPOWER PER UNIT	TOTAL HORSEPOWER USED*	KW USED	COST PER KW HOUR IN TENNESSEE	COST PER YEAR BASE ON 3,000 RUN HOURS
Johnson Air-Rotation HVAC System	7	27.3	191.1	140.55	6.4 cents	\$26,985.60
Proposed Rooftop Units	105	13.65	1,433	1,053.97	6.4 cents	\$202,362.24
TOTAL SAVINGS!						\$175,376.64

THE SAVINGS REALLY ADD UP

With an annual savings of \$175,376 on just the fan motor energy alone, the customer will save over \$1.7 million dollars over the course of 10 years of operation. Factor in the additional savings with a lower utility usage month after month and the upfront savings as a result of the dramatically reduced installation costs and the Johnson Air-Rotation System just makes sense... and dollars too!



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