



PFlow VRCs provide Vertical Logistics at High Rise Audi Dealership in Houston

Features and Benefits

The PFlow F Series lift is primarily intended to move inoperable cars to the storage and service levels, it features powered steel roll-up doors at each level and plenty of capacity to lift Audi's largest luxury models.

Industry Group:

Vertical Reciprocating Conveyors

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Wayne Hadaway -
Sonic Automotive executive



Brand loyalty runs deep in the automotive industry, with the most devoted consumers driving models from the same manufacturer for much of their adult lives. The auto dealership is the face of this relationship, with the strength of the bond formed from the early stages by the quality of the consumer experience at the local level.

Good dealers grow, and when they do, new, larger facilities are often required. For major market urban dealers, a move can be a challenge, balancing the need to remain close to their established clientele while finding enough land for the necessary expansion.

Audi Central Houston (formerly known as Momentum Audi) faced this issue several years ago, as it planned to build what is currently the largest Audi dealership facility in North America.

The dealership is owned by Sonic Automotive, one of the largest automotive retailers in the United States. With over 100 dealerships representing 25 auto brands, Sonic is spread across 25 major metropolitan markets in 14 states.

"As the business grew at the central Houston store it became clear that we needed to expand beyond the space that was available at our existing location," said Wayne Hadaway, a Sonic Automotive executive who managed the design and construction of the new facility. "We wanted to stay close to our existing clientele, but move to a more accessible and visible location so we could continue to attract new customers."

Build Up, Not Out

An ideal location, only a mile away, was found just off the Southwest Freeway at Greenbriar Drive. But rather than build out, the one acre footprint of the available space required that Sonic build up.

A two year planning and construction period began, and in March 2014, the 7-story store, 142,000 sq ft, \$25 million facility opened. It is one of the tallest and most high-tech dealerships in the country.

More than eight-times the size of a conventional dealership, the building houses a 10-car glass-ensconced showroom on the ground level; and on the upper levels, administrative offices, over 40 service and inspection bays, an automated car wash, an in-house café, and storage for over 300 vehicles.



Two VRCs enable the High Rise Design

Cars can be driven to each level on a spiral ramp that runs from the ground level to the seventh level at the back of the building. Two key components of the infrastructure that enable the high-rise design to work seamlessly, however, are two Vertical Reciprocating Conveyors (VRCs), designed and manufactured by PFlow, Industries, Inc.

It has a useable lift carriage of 10'-0" wide x 20'-0" long x 8'-0" load height, and an 8,000 lb capacity. Primarily intended to move inoperable cars to the storage and service levels, it features powered steel roll-up doors at each level and plenty of capacity to lift Audi's largest luxury models.

A Series M, two-post lift travels the 62' distance from the ground to the fifth floor Parts Department, with a third stop on the fifth floor parts storage mezzanine. It is solely designed to move incoming parts from the delivery access point to the parts levels, and used boxes and other refuse back down for recycling and disposal. It has a useable lift carriage of 8'-6" wide x 8'-6" long with a 7'-0" load height, a 2,000 lb capacity and similar doors as the larger Series F VRC.

"In order to connect all the elements of a full service dealership, the two VRCs are an absolute necessity for multi-level stores like this," said Hadaway. "The ramp is of no use for broken down cars, and parts department lifts are becoming a necessity in dealerships of all types."



A Collaborative Effort

As is often the case in complex projects, a collaborative effort among several firms was instrumental in designing and building the Audi Central Houston facility.

The two VRCs were specified early in the design process when Goree Architects, a commercial architect in Houston that designed the building, consulted with David Willemssen of Precision Warehouse Design (PWD) on potential vertical logistics solutions.

PWD, a material handling equipment dealer and consulting company, helped determine the necessary styles, sizes, payloads and other features that led the selection and design of the two PFlow VRCs.

"PWD does a lot of work with PFlow on more complex lifts. There are a handful of companies that can do the simpler, low payload, two level lifts. For anything where some real engineering expertise is required the list shrinks considerably," said Willemssen. "Goree brought us in specifically due to the challenge of designing and installing these lifts."

Installation Challenges

A further challenge arose when the construction schedule required that the elevator shafts and the building roof were to be erected before the VRCs were installed.

Due to the increased complexity of the installation, PWD selected Highland Machine Works (HMW), an elite machinery installation firm, to install the lifts.

With the roof and walls already in place, HMW could not use standard lifting equipment to place and secure the guide posts, and to erect and assemble the lift structure. This required the design and construction of a temporary overhead I-beam to hang winches and hoists necessary to place and secure the lift components.

Said Jim Jones, the site supervisor from Wier Enterprises, the General Contractor, "I was assigned to the job because of my experience with high rise buildings. What I saw Highland and PWD do was as close to building a ship in a bottle that I have seen. There was a tremendous amount of planning and coordination involved throughout the entire installation process. PWD and HMW are both champions in my mind."

Model for the Future

Now that the first high rise car dealership in Texas has been operating to rave reviews since the Spring of 2014, the design and installation issues are a distant memory. The prevalence of similar designs is growing in urban areas, with the success of the few pioneering projects like Audi Central Houston paving the way.

The larger Series F VRC has been used for more than moving inoperable cars. It is also put into periodic use when excess capacity is required for moving new and used cars in and out of inventory. Nothing impresses a new owner more than a pristine new purchase being lowered to the ground by a VRC.

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