

Central vacuum system made of SIMONA® PE 100 Pipes reduces energy costs



Left: The new central vacuum pump with the pipe outlets of the SIMONA® PE 100 Pipes and Fittings system; top right: connection of the SIMONA® PE 100 Piping System to the wood processing lines; bottom right: CNC milling machine

Schweikart hightech Holzteile GmbH specialises in highly efficient parts machining and is proficient in numerous process techniques with various production depths. To reduce energy costs, Schweikart wanted to connect multiple CNC lines to a central vacuum system. Owing to the special load, a search was conducted to identify an alternative to conventional ventilation ducts made of thin sheet metal. On account of the modular design, light weight and integral connection, Schweikart opted for a plastic solution using SIMONA® PE 100.

The project at a glance

Project

Connection of multiple CNC lines to a central vacuum pump for a wood processing company

Client

Schweikart hightech Holzteile GmbH, Sulz am Neckar

Contractor

- Gebr. Becker GmbH, Wuppertal (bid/sale)
- Sülzle Kopf GmbH, Sulz am Neckar (assembly)

Technical support

Gebr. Becker GmbH, Wuppertal

Products used

- SIMONA® PE 100 and PE 100 RC Pipes, d 63 – 200 mm, SDR 11, total length approx. 150 m
- SIMONA® PE 100 and PE 100 RC Fittings, d 63 – 200 mm, SDR 11

Duration of project

2 months



From left to right: The SIMONA® PE 100 Pipes and Fittings are installed along the entire ceiling of the building. An employee in front of the company's largest CNC milling line.

Light-weight, airtight welded piping system scores with easy assembly

Initial situation

The scale of machinery at Schweikart hightech Holzteile GmbH has grown continuously. That has led to a rise in energy costs. Each of the eight CNC lines is operated with one, or even two, in-house vacuum pumps (3 kW) that constantly supply the machines with vacuum for positioning the workpieces. The pumps have to remain in operation even if no vacuum is required. That increases both power consumption and the amount of maintenance. Consequently, for efficiency improvement reasons the client decided in favour of using a central vacuum system to supply all the lines.

Task

For the new building an important aspect was to minimise the weight of the pipes in order to facilitate installation along the walls and ceilings. To withstand the external ambient pressure of approx. 1 bar, the pipes also had to possess adequate load capacity. As the majority of conventional, thin-walled steel pipes used in ventilation systems collapse when vacuum is applied, it was considered advisable to select a solution using plastic, for reasons of strength, weight and cost.

Solution

SIMONA® PE 100 Pipes are ideal for laying the vacuum pipeline. Modular design, a range of fittings matched to the application, and light weight ensure easy assembly that is adapted to the particular space situation. Owing to the integral welding of the pipes and fittings using electrofusion sockets, the assembled system is absolutely airtight, which would not be the case with simple push-on connections.

In just two months the project as a whole was realised and the vacuum system was put into operation. The new pump system (4 x 7.5 kW) supplies all the CNC lines from a central point and operates on a power demand basis. As a result, it was possible to reduce the electricity costs of the eight lines by over 65 per cent.

SIMONA® PE 100

Properties

- Excellent hydraulic properties due to very low wall unevenness
- High abrasion resistance
- High corrosion resistance
- Notch resistance
- Long service life
- Strong, integral and permanently airtight welded joints
- No incrustation
- High flexibility
- Good chemical resistance
- Good storage properties due to insensitivity to frost and ultraviolet radiation

Further information

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