

+GF+

Polymer ventilation piping solutions



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Mission

Our mission is to set the benchmark for conveyance of chemically contaminated air and corrosive exhaust fumes. We achieve this by providing corrosion resistant and reliable ventilation piping solutions that simplify installation, reduce life cycle costs, and support sustainable operation.

Added Value – High Performance Plastic Solutions for Industrial Ventilation Systems

In industrial piping and plant engineering, polymer systems have been established for decades. In many applications, high performance polymers offer not only a technically sound option but often also an economically viable solution – this applies particularly to industrial ventilation ductwork.

Compared to metal-based ventilation systems, plastics offer a major advantage due to their high resistance to a wide range of corrosive media.

Typical applications include exhaust and extraction systems for process gases, installations in the semiconductor and surface treatment industries, various process engineering systems, as well as ventilation solutions for laboratories, swimming pools, and hospitals.

Selecting the appropriate plastic material depends on several factors. Key considerations include chemical resistance, permissible operating temperatures, cost efficiency, compliance with relevant fire safety classifications, system availability, and suitable joining technologies.

Since each polymer exhibits specific strengths and limitations depending on the application, there is no universal solution. Industrial applications in polymer ventilation systems therefore require individual assessment and expert consultation.

To provide the best possible support, GF DEKA – together with selected partners for fittings, sheets, and welding rods – offers comprehensive, application focused technical consulting for this product segment.

Added Value DEKAPROP®-s (PP-s):

- Flame-retardant according to DIN 4102 B1 → Meets common fire safety requirements.
- The broad chemical resistance profile complements the resistance properties of PVC materials.
- High cold formability reduces the risk of cracking or brittle failure, providing increased installation safety for pipe and

DEKADUR (PVC-U)

- Easy installation by solvent cementing (OD ≤ 315 mm) compared to hot gas welding.
- The broad chemical resistance profile complements the resistance properties of PP-s materials.
- High stiffness enables larger clamp spacing compared to PP-s.
- High creep modulus allows higher external pressures (vacuum inside the pipe) especially at room temperature compared to PP-s.
- System availability across the entire range of dimensions, including sheets, welding rod, and fittings.

DEKADUR-C (PVC-C)

- Easy installation by solvent cementing (OD ≤ 315 mm) compared to hot gas welding.
- The broad chemical resistance profile partly overlaps with that of PVC U. Please contact us for application specific chemical compatibility – we provide tailored technical support.
- High stiffness enables larger clamp spacing than PP-s.
- High creep modulus enables higher external pressures (vacuum inside the pipe) at room temperature compared to PP-s.

SYGEF (PVDF)

Please contact us for detailed information on SYGEF system availability.

- Higher temperature resistance compared to standard plastics and excellent chemical resistance provide access to demanding application fields.
- Intrinsic flame retardancy confirmed through "FM Approvals Listed Cleanroom Material," enabling use in cleanroom exhaust systems.
- The UV resistance enables outdoor installations.

DEKATEC-FL-Z

- A halogen-free alternative to PVC-U with a significantly wider operating temperature range, which is also advantageous for applications involving low temperatures.
- The 15% lower density compared to PVC-U, combined with similar mechanical properties, allows for wider spacing between clamps.
- Fire resistance confirmed by an independent testing laboratory in accordance with DIN EN 13501 B, s1-d0, comparable to PVC-U.
- Easy installation by solvent cementing with Huntsman Araldite 2022-1 A compared to hot gas welding

Materials for Plastic Ventilation Piping Systems

Property	DEKAPROP®-s PPs	DEKADUR® PVC-U	DEKADUR® PVC-C	PVDF	DEKATEC-FL-Z
Chemical resistance ¹	Caustic media, many non oxidizing mineral acids, numerous organic media (incl. many solvents)	Mineral acids, alkalis, strong oxidants, alogens, ozone, selected organic substance classes	Please contact us for details on the specific chemical resistance profile of C-PVC, Limited chemical resistance to strong bases	Mineral acids, oxidants, halogens (except F ₂), selected organic media, Limited chemical resistance to strong bases	Moderately concentrated mineral and car-boxylic acids, neutral salt solutions
Operating temperature range [°C] ¹	0 - 100	0 - 60	10 - 100	-20 – 140	-40 – 90
Vicat softening temperature (B50) [°C]	≥ 80	≥ 80	≥ 110	≥ 145	≥ 100
Density [g/cm ³]	≈ 0,92	≈ 1,42	≈ 1,55	≈ 1,78	≈ 1,20
Tensile modulus [N/mm ²]	≥ 1200	≥ 3000	≥ 2500	≥ 2500	≥ 2500
Jointing technology	Welding	Welding / solvent ce-menting	Welding / solvent ce-menting	Welding	Welding / solvent ce-menting
Flame retardancy (classification)	DIN 4102 B1 (Testing cer-tificate of MPA Stuttgart)	EN 13501 B, s1-d0 DIN 4102 B1 (wall thick-ness ≥ 3.2 mm)	EN 13501 B, s1-d0	FM 4910	EN 13501 B, s1-d0 UL94 V0 (wall thick-ness ≥ 1.5 mm)
Dimensional range	50 – 500 mm	110 – 500 mm	d110 / d160 / d200 / d250 / d315	75 - 400 mm	50 – 200 mm

¹ Please contact us for specific advice regarding the operating conditions of your particular application. Informal guideline values without guarantee

Disclaimer

The information and recommended values contained in this brochure reflect the current state of our knowledge and were compiled with the help of all available documentation. They can therefore be regarded as incorporating a high degree of reliability in practice, although they are not necessarily binding for all applications.



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