

# SYGEF® Exhaust → packed to preserve value



Any questions? Would you like for us to contact you?

[www.piping.georgfischer.com/direct?sygef\\_exhaust](http://www.piping.georgfischer.com/direct?sygef_exhaust)  
[sygefexhaust@georgfischer.com](mailto:sygefexhaust@georgfischer.com)

The technical data are not binding and not expressly warranted characteristics of the goods. They are subject to change. Our General Conditions of Sale apply.

#### Australia

Georg Fischer Pty Ltd  
 Kingsgrove NSW 2008  
 Phone +61(0)2/95 54 39 77  
[australia.ps@georgfischer.com](mailto:australia.ps@georgfischer.com)  
[www.georgfischer.com.au](http://www.georgfischer.com.au)

#### Austria

Georg Fischer  
 Rohrleitungssysteme GmbH  
 3130 Herzogenburg  
 Phone +43(0)2782/856 43-0  
[austria.ps@georgfischer.com](mailto:austria.ps@georgfischer.com)  
[www.georgfischer.at](http://www.georgfischer.at)

#### Belgium / Luxembourg

Georg Fischer NV/SA  
 1070 Bruxelles/Brüssel  
 Phone +32(0)2/556 40 20  
[be.ps@georgfischer.com](mailto:be.ps@georgfischer.com)  
[www.georgfischer.be](http://www.georgfischer.be)

#### Brazil

Georg Fischer Ltda  
 04795-100 São Paulo  
 Phone +55(0)11/5687 1311  
[br.ps@georgfischer.com](mailto:br.ps@georgfischer.com)

#### China

Georg Fischer  
 Piping Systems Ltd Shanghai  
 Pudong, Shanghai 201319  
 Phone +86(0)21/58 13 33 33  
[china.ps@georgfischer.com](mailto:china.ps@georgfischer.com)  
[www.cn.piping.georgfischer.com](http://www.cn.piping.georgfischer.com)

#### Denmark/Iceland

Georg Fischer A/S  
 2630 Taastrup  
 Phone +45 (0)70 22 19 75  
[info.dk.ps@georgfischer.com](mailto:info.dk.ps@georgfischer.com)  
[www.georgfischer.dk](http://www.georgfischer.dk)

#### France

Georg Fischer S.A.S.  
 93208 Saint-Denis Cedex 1  
 Phone +33(0)1/492 21 34 1  
[fr.ps@georgfischer.com](mailto:fr.ps@georgfischer.com)  
[www.georgfischer.fr](http://www.georgfischer.fr)

#### Germany

Georg Fischer GmbH  
 73095 Albershausen  
 Phone +49(0)716/302-0  
[info.de.ps@georgfischer.com](mailto:info.de.ps@georgfischer.com)  
[www.vgd.georgfischer.de](http://www.vgd.georgfischer.de)

#### Georg Fischer DEKA GmbH

35232 Daulphetal-Mornshausen  
 Phone +49(0)6468/915-0  
[deka.ps@georgfischer.com](mailto:deka.ps@georgfischer.com)  
[www.dekapipe.de](http://www.dekapipe.de)

#### India

Georg Fischer Piping Systems Ltd  
 430 093 Mumbai  
 Phone +91(0)22/2820 2362  
[in.ps@georgfischer.com](mailto:in.ps@georgfischer.com)

#### Italy

Georg Fischer S.p.A.  
 20063 Cernusco S/N (MI)  
 Phone +39(0)2/921 861  
[it.ps@georgfischer.com](mailto:it.ps@georgfischer.com)  
[www.georgfischer.it](http://www.georgfischer.it)

#### Japan

Georg Fischer Ltd  
 556-0011 Osaka,  
 Phone +81(0)6/6635 2691  
[jp.ps@georgfischer.com](mailto:jp.ps@georgfischer.com)  
[www.georgfischer.jp](http://www.georgfischer.jp)

#### Malaysia

Georg Fischer (M) Sdn. Bhd.  
 47300 Subang Jaya  
 Phone +60 (0)3-8024 7879  
[conne.kong@georgfischer.com.my](mailto:conne.kong@georgfischer.com.my)

#### Middle East

Georg Fischer Piping Systems  
 Dubai, United Arab Emirates  
 Phone +971 4 289 41 20  
[gfdubai@emirates.net.ae](mailto:gfdubai@emirates.net.ae)  
[www.piping.georgfischer.com](http://www.piping.georgfischer.com)

#### Netherlands

Georg Fischer N.V.  
 8161 PA Epe  
 Phone +31(0)578/678 222  
[nl.ps@georgfischer.com](mailto:nl.ps@georgfischer.com)  
[www.georgfischer.nl](http://www.georgfischer.nl)

#### Norway

Georg Fischer AS  
 1351 Rud  
 Phone +47(0)67 18 29 00  
[no.ps@georgfischer.com](mailto:no.ps@georgfischer.com)  
[www.georgfischer.no](http://www.georgfischer.no)

#### Poland

Georg Fischer Sp. z o.o.  
 02-226 Warszawa  
 Phone +48(0)22/313 10 50  
[poland.ps@georgfischer.com](mailto:poland.ps@georgfischer.com)  
[www.georgfischer.pl](http://www.georgfischer.pl)

#### Romania

Georg Fischer  
 Rohrleitungssysteme AG  
 70000 Bucharest - Sector 1  
 Phone +40(0)1/222 91 36  
[ro.ps@georgfischer.com](mailto:ro.ps@georgfischer.com)

#### Singapore

Georg Fischer Pte Ltd  
 528 872 Singapore  
 Phone +65(0)67 47 06 11  
[sgp.ps@georgfischer.com](mailto:sgp.ps@georgfischer.com)  
[www.georgfischer.com.sg](http://www.georgfischer.com.sg)

#### Spain/Portugal

Georg Fischer S.A.  
 28046 Madrid  
 Phone +34(0)91/7781 98 90  
[es.ps@georgfischer.com](mailto:es.ps@georgfischer.com)  
[www.georgfischer.es](http://www.georgfischer.es)

#### Sweden/Finland

Georg Fischer AB  
 12523 Älvsjö-Stockholm  
 Phone +46(0)8/506 775 00  
[info.se.ps@georgfischer.com](mailto:info.se.ps@georgfischer.com)  
[www.georgfischer.se](http://www.georgfischer.se)

#### Switzerland

Georg Fischer  
 Rohrleitungssysteme [Schweiz] AG  
 8201 Schaffhausen  
 Phone +41(0)52 631 30 26  
[ch.ps@georgfischer.com](mailto:ch.ps@georgfischer.com)  
[www.piping.georgfischer.ch](http://www.piping.georgfischer.ch)

#### Taiwan

Georg Fischer Ltd.  
 2F, No. 88, Hsing Te Road  
 San Chung City  
 Taipei Hsien, Taiwan [R.O.C.]  
 Phone +886 2 8512 2822  
 Fax +886 2 8512 2823

#### United Kingdom / Ireland

Georg Fischer Sales Limited  
 Coventry, CV2 2S1  
 Phone +44(0)2476 535 535  
[uk.ps@georgfischer.com](mailto:uk.ps@georgfischer.com)  
[www.georgfischer.co.uk](http://www.georgfischer.co.uk)

#### USA/Canada/Latin America/Caribbean

Georg Fischer Inc.  
 Justin, CA 92780-7259  
 Phone +1(714) 731 98 00  
 Toll Free 800/854 40 90  
[us.ps@georgfischer.com](mailto:us.ps@georgfischer.com)  
[www.us.piping.georgfischer.com](http://www.us.piping.georgfischer.com)

#### Export

Georg Fischer  
 Piping Systems [Switzerland] Ltd.  
 8201 Schaffhausen  
 Phone +41 (0)52-631 11 11  
 Fax +41 (0)52-631 28 93  
[export.ps@georgfischer.com](mailto:export.ps@georgfischer.com)  
[www.piping.georgfischer.ch](http://www.piping.georgfischer.ch)

→ Completely  
 Controlled Process

Product Specification  
**SYGEF® Exhaust**  
 exhaust systems in PVDF

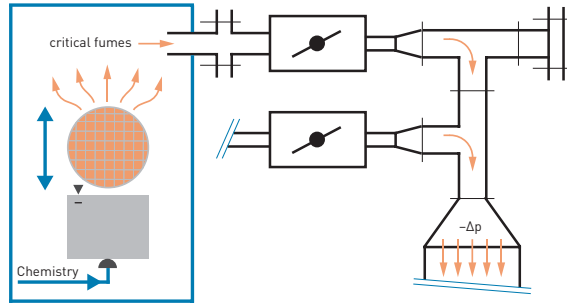
## Cost saving, non corroding Piping System

For applications in the Microelectronics and Chemical Industry

### Application

→ Semiconductor Processing

The safe conveying of critical fumes generated during wet etch wafer processing is one typical application out of many that are possible.



### Solution

→ SYGEF® Exhaust Piping System

Designed to meet the requirements of even the newest 300mm semiconductor fabrication facilities, SYGEF® Exhaust is tailored to the customer needs where the safe conveying of high volumes of critical exhaust gases and fumes is essential. The combination of easy planning, handling and installation with superior performance characteristics meeting the FM-4910 Standard adds to the cost benefits. Working with a polymer system is simply just more flexible in terms of design and commissioning when compared to stainless steel installations. SYGEF® Exhaust is available in SYGEF® PVDF (polyvinylidene fluoride) pipe, dampers and fittings, offering engineers increased flexibility for designing and also upgrading



existing exhaust systems. The easy to repair connector system, being 100% metal and corrosion free offers high strength, low weight, abrasion resistance, and a wide operating temperature range. These features culminate in making up the material of choice for the stringent requirements of the semiconductor industry.

With a successful history already behind it, SYGEF® Exhaust has been proven in pilot references, which are available upon request.

Hot Gas Back Welding, Fix Flanging as well as joining with Georg Fischer Flange Adaptors is possible to complete the system.

## SYGEF® Exhaust – Product Specification

<b>Material</b>	Polyvinylidene fluoride (PVDF)
Colour	translucent
Density	~1.78g/cm <sup>3</sup> (ISO 1183 / ASTM D 792)
Surface tension	30-35 mJ/m <sup>2</sup>
Linear expansion coefficient	0.12-0.18 mm/mK (DIN 53752)
E-module (tensile strength)	2100 N/mm <sup>2</sup> (ISO 527 / ASTM D 790)
Thermal conductivity	0.19 W/mK (DIN 52612)
Surface resistivity	5x10 <sup>14</sup> Ωcm (IEC 60093)
<b>Dimension</b>	d 75 [2½"]-d 400 [16"]
<b>Pressure Rating</b>	Maximum negative pressure: -ΔPmax = 1500Pa (0.015 bar, 6" water column)
<b>Temperature Rating</b>	PVDF: -20°C to 140°C [-4°F-284°F], System: ΔT= 30°C
<b>Production</b>	Fittings: injection moulded, segment welded Pipes: extruded
<b>Marking</b>	All components are embossed with a permanent identification during the production process to ensure full traceability. Lot No Material Dimension
<b>Testing and Inspection</b>	Inclusions Visual inspection Dimension tolerance
<b>Approvals/Conformance</b>	FM-4910 listing: <a href="http://www.fmglobal.com">www.fmglobal.com</a>
<b>Welding Technology</b>	Hot Gas Back Welding, Rod diameter 4 mm Recommended tool: duratherm SC Recommended Manufacturer: <a href="http://www.wegenerwelding.com">www.wegenerwelding.com</a>
<b>Documentation<sup>(1)</sup></b>	EN 10204 2.2 EN 10204 3.1b
<b>Packing</b>	Fitting: multiple components bagged in specified bag Pipe: capped and single bagged in specified bag
<b>Labeling</b>	Brand Name Product Description Code Number Material Dimension CE-Labeling
<b>Main Applications</b>	Safe conveying of critical exhaust gases and fumes within state-of-the-art manufacturing plants. Due to its excellent chemical resistance it is widely used within the Microelectronics and Chemical Industry.

<sup>(1)</sup> on request