

Luminousgard™ Gas Purifiers

For hydrocarbons, acids, and bases removal in lithography applications

Luminousgard™ point-of-use, in-line gas purifiers effectively remove hydrocarbons in gases, as well as organic matter, basic and acid impurities, and particles. These ultrapure-activated and precision gas filters are especially effective for purifying purge gases in lithography applications in the semiconductor manufacturing process.



APPLICATIONS

- Clean dry air (CDA)
- Lens purge gas line for exposure equipment
- Purge gas line for laser generator
- Inert gas supply line

FEATURES & BENEFITS

- Effectively removes the following impurities in purge gas: CDA, N₂, Ar, and He
- Maintains high retention in the following volatile impurities:
 - Hydrocarbons ($\geq C_6$)
 - Acids: SO₂, SO₃, NO₂, HCl, HF, CH₃COOH, H₂S
 - Bases: NH₃, CH₃NH₂, (CH₃)₃N
 - Less than 1 ppb of hydrocarbons ($\geq C_6$) degassing at 1 slpm
- Effectively removes particles in gas stream
- Prevents haze generation on reticles, lenses, and mirrors used in lithography tools and DUV laser generators
- Superior initial downstream cleanliness, shortens purge time and enables earlier use in your facility

Luminousgard Gas Purifier

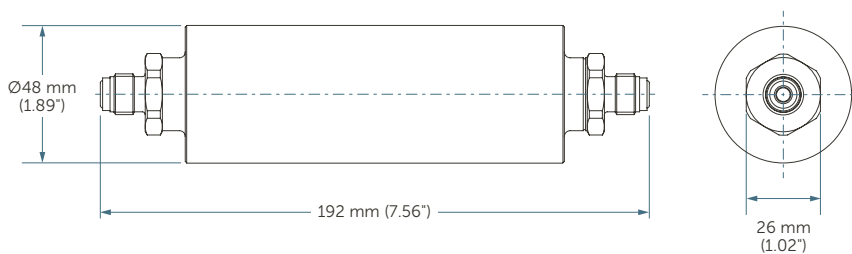
SPECIFICATIONS

Materials	Filter membrane	Nickel
	Housing	316L/304 stainless steel
Retention	Volatile hydrocarbons	≥99.9% (≥C ₆ hydrocarbons)
	Volatile acids	≥99.9% (ex. SO ₂ , SO ₃ , NO ₂ , HCl, H ₂ S)
	Volatile bases	≥99.9% (ex. NH ₃ , CH ₃ NH ₂ , [CH ₃] ₃ N)
	Particles	≥99.9999999% removal of all particles ≥0.003 μm
Initial downstream cleanliness	Volatiles	≤1 ppb (≥C ₆ number of volatile hydrocarbons @ 1 slpm*)
	Particles	≤0.03 particles/L ≥0.01 μm @ 30 slpm*
Connection	¼" gasket seal (¼" VCR® compatible) male connector	
Gas type	CDA, N ₂ , Ar, and He**	
Conditions	Maximum flow rate	30 slpm*
	Design pressure	0.98 MPa (9.8 bar, 142.1 psig) @ 25°C (77°F)
	Maximum design forward differential pressure	0.7 MPa (7 bar, 101.5 psid) @ 25°C (77°F)
	Maximum design reverse differential pressure	0.25 MPa (2.5 bar, 36.3 psid) @ 25°C (77°F)
	Maximum operating temperature	50°C (122°F) – inert gas
	Approximate product weight	0.8 kg (1.76 lbs)
Lifetime	Please consult Entegris Account Managers for typical lifetime. The information of flow rate, duty cycle, type of impurity, and concentration of impurity are needed.	

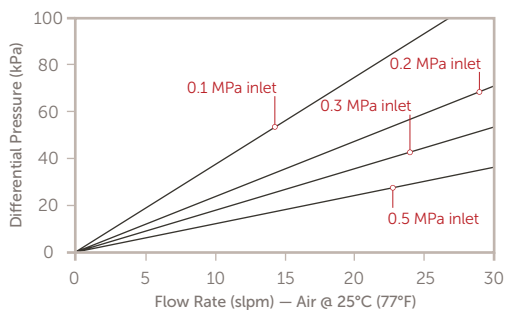
*20°C, 101 kPa.

**Contact Entegris for other compatible gas types.

DIMENSIONS



PERFORMANCE DATA



ORDERING INFORMATION

Part number	Description
LPDN ACR R2	Luminousgard gas purifier ¼" gasket seal (¼" VCR compatible) male

Luminougard 1000 Gas Purifier

SPECIFICATIONS

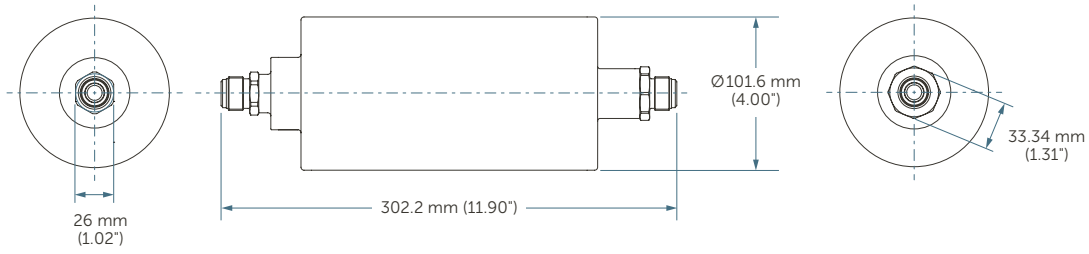
Materials	Filter element	PTFE/PFA
	Housing	316L/304 stainless steel
Retention	Volatile hydrocarbons	≥99.9% (≥C ₆ hydrocarbons)
	Volatile acids	≥99.9% (ex. SO ₂ , SO ₃ , NO ₂ , HCl, H ₂ S)
	Volatile bases	≥99.9% (ex. NH ₃ , CH ₃ NH ₂ , [CH ₃] ₃ N)
	Particles	≥99.9999999% removal of all particles ≥0.003 μm
Initial downstream cleanliness	Volatiles	≤1 ppb (≥C ₆ hydrocarbons @ 1 slpm*)
	Particles	≤0.03 particles/L ≥0.01 μm @ 30 slpm*
Connection	Inlet/outlet	½" gasket seal (½" VCR compatible) male connector
		½" compression seal (½" Swagelok® tube fitting compatible)
Attachments	Swagelok tube fitting type	½" compression seal nut, front and back ferrules/2 sets
Gas type	CDA, N ₂ , Ar, and He**	
Conditions	Maximum flow rate	200 slpm*
	Design pressure	0.98 MPa (9.8 bar, 142.1 psig) @ 25°C (77°F)
	Maximum design forward differential pressure	0.7 MPa (7 bar, 101.5 psid) @ 25°C (77°F)
	Maximum design reverse differential pressure	0.25 MPa (2.5 bar, 36.3 psid) @ 25°C (77°F)
	Maximum operating temperature	50°C (122°F) – inert gas
	Approximate product weight	3.21 kg (7.08 lbs)
Lifetime	Please consult Entegris Account Managers for typical lifetime. The information of flow rate, duty cycle, type of impurity, and concentration of impurity are needed.	

*20°C, 101 kPa.

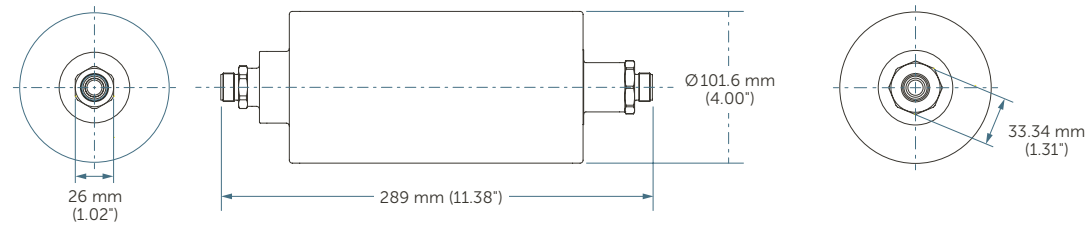
**Contact Entegris for other compatible gas types.

DIMENSIONS

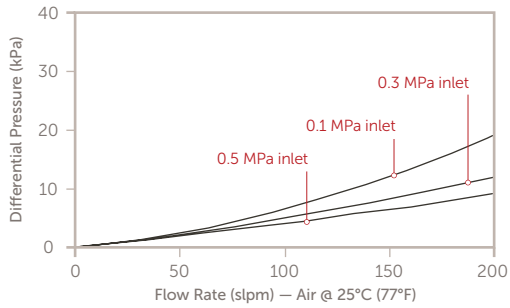
LPDF 10R R4



LPDF 10S S4



PERFORMANCE DATA



ORDERING INFORMATION

Part number	Description
LPDF 10R R4	Luminousgard 1000 gas purifier 1/2" gasket seal (1/2" VCR compatible) male
LPDF 10S S4	Luminousgard 1000 gas purifier 1/2" compression seal (1/2" Swagelok tube fitting compatible)

Luminousgard 2000 Gas Purifier

SPECIFICATIONS

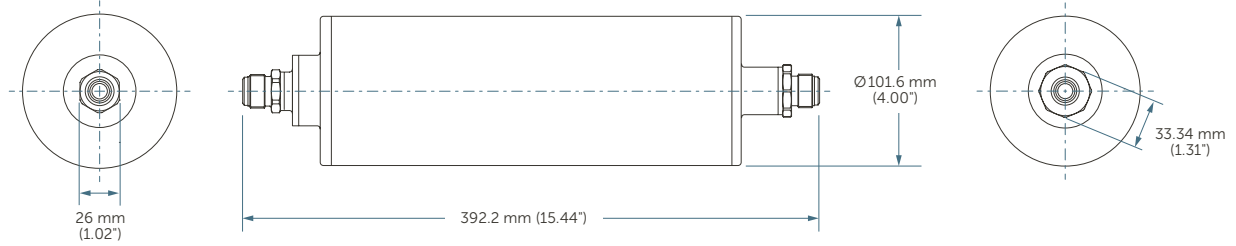
Materials	Filter element	PTFE/PFA
	Housing	316L/304 stainless steel
Retention	Volatile hydrocarbons	≥99.9% (≥C ₆ hydrocarbons)
	Volatile acids	≥99.9% (ex. SO ₂ , SO ₃ , NO ₂ , HCl, H ₂ S)
	Volatile bases	≥99.9% (ex. NH ₃ , CH ₃ NH ₂ , [CH ₃] ₃ N)
	Particles	≥99.9999999% removal of all particles ≥0.003 μm
Initial downstream cleanliness	Volatiles	≤1 ppb (≥C ₆ hydrocarbons @ 1 slpm*)
	Particles	≤0.03 particles/L ≥0.01 μm @ 30 slpm*
Connection	Inlet/outlet	½" gasket seal (½" VCR compatible) male connector
		½" compression seal (½" Swagelok tube fitting compatible)
Attachments	Swagelok tube fitting type	½" compression seal nut, front and back ferrules/2 sets
Gas type	CDA, N ₂ , Ar, and He**	
Conditions	Maximum flow rate	500 slpm*
	Design pressure	0.98 MPa (9.8 bar, 142.1 psig) @ 25°C (77°F)
	Maximum design forward differential pressure	0.7 MPa (7 bar, 101.5 psid) @ 25°C (77°F)
	Maximum design reverse differential pressure	0.25 MPa (2.5 bar, 36.3 psid) @ 25°C (77°F)
	Maximum operating temperature	50°C (122°F) – inert gas
	Approximate product weight	4.17 kg (9.19 lbs)
Lifetime	Please consult Entegris Account Managers for typical lifetime. The information of flow rate, duty cycle, type of impurity, and concentration of impurity are needed.	

*20°C, 101 kPa.

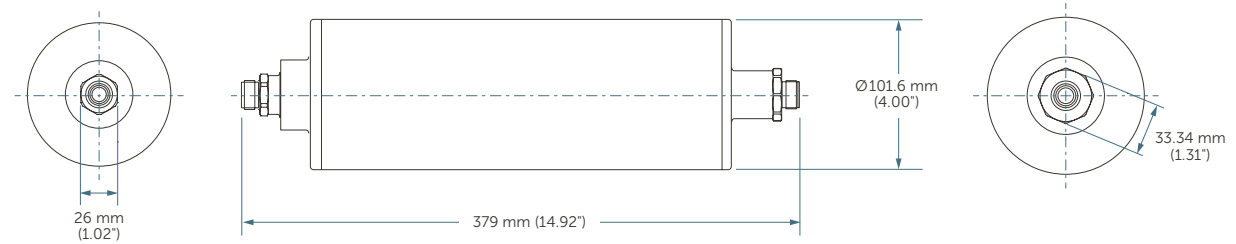
**Contact Entegris for other compatible gas types.

DIMENSIONS

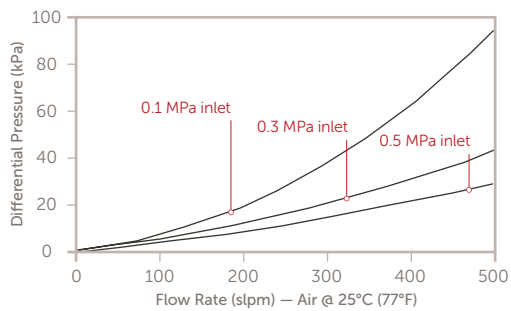
LPDF 20R R4



LPDF 20S S4



PERFORMANCE DATA



ORDERING INFORMATION

Part number	Description
LPDF 20R R4	Luminousgard 2000 gas purifier 1/2" gasket seal (1/2" VCR compatible) male
LPDF 20S S4	Luminousgard 2000 gas purifier 1/2" compression seal (1/2" Swagelok tube fitting compatible)

Luminousgard 4000 Gas Purifier

SPECIFICATIONS

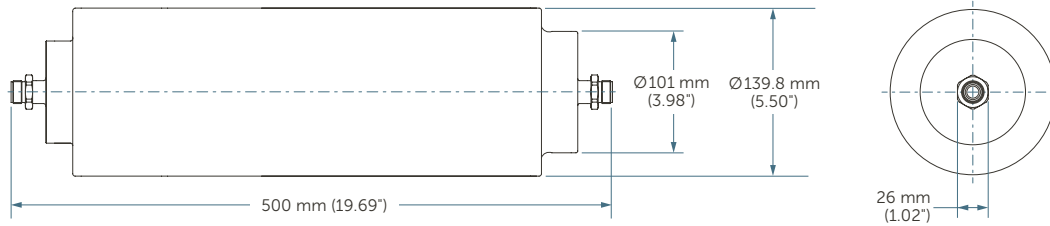
Materials	Filter element	PTFE/PFA
	Housing	316L/304 stainless steel
Retention	Volatile hydrocarbons	≥99.9% (≥C ₆ hydrocarbons)
	Volatile acids	≥99.9% (ex. SO ₂ , SO ₃ , NO ₂ , HCl, H ₂ S)
	Volatile bases	≥99.9% (ex. NH ₃ , CH ₃ NH ₂ , [CH ₃] ₃ N)
	Particles	≥99.9999999% removal of all particles ≥0.003 μm
Initial downstream cleanliness	Volatiles	≤1 ppb (≥C ₆ hydrocarbons @ 1 slpm*)
	Particles	≤0.03 particles/L ≥0.01 μm @ 100 slpm*
Connection	Inlet/outlet	1/2" compression seal (1/2" Swagelok tube fitting compatible)
Attachments	1/2" compression seal nut, front and back ferrules/2 sets	
Gas type	CDA, N ₂ , Ar, and He**	
Conditions	Maximum flow rate	800 slpm*
	Design pressure	0.98 MPa (9.8 bar, 142.1 psig) @ 25°C (77°F)
	Maximum design forward differential pressure	0.49 MPa (4.9 bar, 71.05 psid) @ 25°C (77°F)
	Maximum design reverse differential pressure	0.34 MPa (3.4 bar, 49.3 psid) @ 25°C (77°F)
	Maximum operating temperature	50°C (122°F) – inert gas
	Approximate product weight	10.4 kg (23 lbs)
Lifetime	Please consult Entegris Account Managers for typical lifetime. The information of flow rate, duty cycle, type of impurity, and concentration of impurity are needed.	

*20°C, 101 kPa.

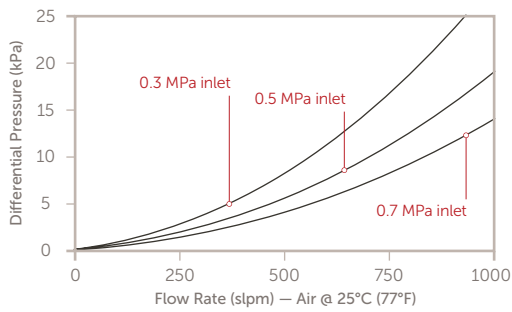
**Contact Entegris for other compatible gas types

DIMENSIONS

LPDF 40S S4



PERFORMANCE DATA



ORDERING INFORMATION

Part number	Description
LPDF 40S S4	Luminousgard 4000 gas purifier 1/2" compression seal (1/2" Swagelok tube fitting compatible)

FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit entegris.com and select the [Contact Us](#) link to find the customer service center nearest you.

TERMS AND CONDITIONS OF SALE

All purchases are subject to Entegris' Terms and Conditions of Sale. To view and print this information, visit entegris.com and select the [Terms & Conditions](#) link in the footer.



Corporate Headquarters

129 Concord Road
Billerica, MA 01821
USA

Customer Service

Tel +1 952 556 4181
Fax +1 952 556 8022
Toll Free 800 394 4083

Entegris®, the Entegris Rings Design®, and other product names are trademarks of Entegris, Inc. as listed on entegris.com/trademarks. All third-party product names, logos, and company names are trademarks or registered trademarks of their respective owners. Use of them does not imply any affiliation, sponsorship, or endorsement by the trademark owner.

©2008-2019 Entegris, Inc. | All rights reserved. | Printed in the USA | 4503-5452ENT-0419