

ANEXO IX

GEA Niro Soavi Technical Datasheet

Laboratory Homogenizer

PandaPLUS 1000

From the world leader in high pressure homogenization: absolute quality and reliability with advanced technical solutions for any process need.



This small table-top laboratory unit, designed for continuous operation at high pressure, is the perfect equipment for high pressure processing of nanoparticles, nanodispersions, nanoemulsions, and for cell disruption. In addition, it can be successfully used for processing dairy products, fruit juices, liquid food, food additives and ingredients as well as cosmetic and chemical products. Tests can be run even with small sample volumes, and the results are comparable with those achieved on bigger size machines.

Compression block

- High grade and high performance Super Duplex stainless steel
- Designed to ensure maximum stress resistance to maximise performance and reliability at high operating pressure
- Solid ceramic pumping piston
- No lubrication water required due to special packing design
- Suction ball valve (PVB) in ceramic, with replaceable suction valve seat in hardened stainless steel (tungsten carbide as option)
- High precision pressure transducer with 4-20 mA signal

Homogenizing valve

- Reversible wear parts in tungsten carbide, ceramic as option
- Manual pressure adjustment by hand-wheel
- Second stage homogenizing valve group supplied as standard
- Allow front/upwards/downwards outlet to match most convenient layout

Product inlet/outlet

- Tri-Clamp™ connections supplied for inline installation
- No feeding pump is needed (for product viscosity up to 1000 cP)

Power end

- Three phase motor, suitable for variable speed drive
- Camshaft drive system and maintenance-free grease lubrication

Casing

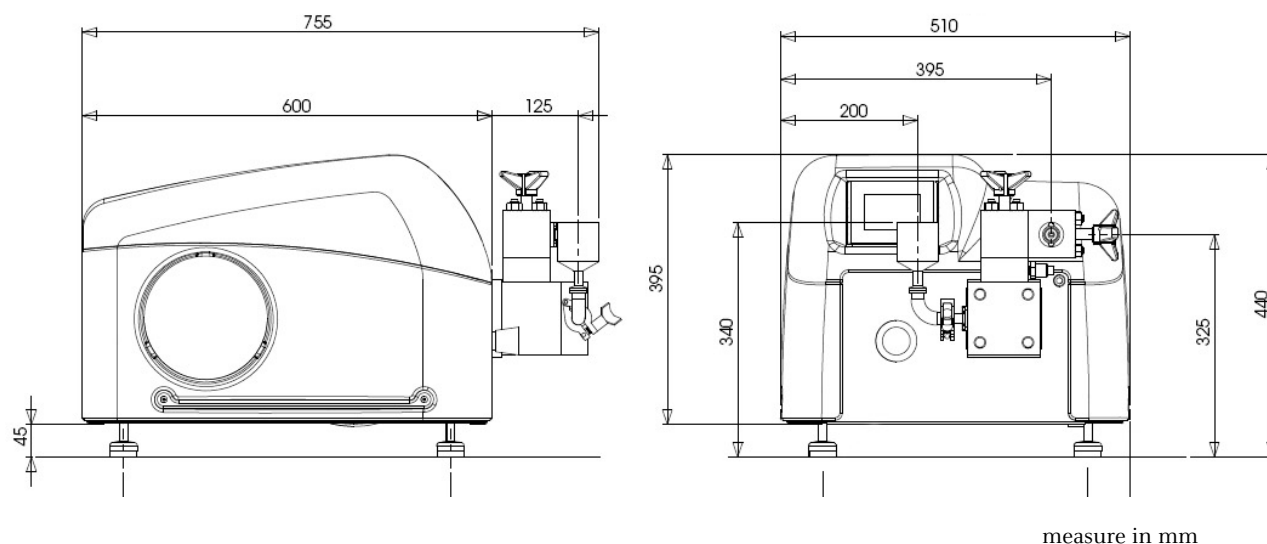
- Made in ABS, completely removable for maintenance and cleaning
- High quality stainless steel base frame
- Adjustable anti-vibration rubber feet

Control panel

- Touch screen display for machine control
- Start/stop drive control
- Pressure trend diagram visualization
- Built-in safety protection against overpressure

PandaPLUS 1000

Dimensional drawing



The compact design of PandaPLUS offers an easy installation, use and maintenance. Thanks to special material selection and liquid end design, it is suitable for abrasive and viscous products and offers reliable use of high pressure energy for new production process development and optimized product formulation. In its standard configuration, it features a touch panel for easy control of all machine functions.

Available option

- Electropolished version (Ra 0.5 µm)
- FDA approved gaskets and cGMP documentation
- In-line product cooler
- Feeding hopper with pneumatic pusher
- Aseptic execution
- Variable capacity (50% - 100%) with frequency converter
- Spare parts package

Flow Rate (l/h)	Pressure (bar)	Electrical Supply (Hz)
20	1000	50
24	1000	60

DESIGN FEATURES AND PERFORMANCES

Max operating pressure 1000 bar
Three-phase motor 2.2 kW 200 V / 50 Hz 220 V / 50 - 60 Hz 400 V / 50 - 60 Hz 460 V / 60 Hz
Net weight 105 kg
Gross weight 135 kg
Dimensions mm W 540 x H 440 x L 810
Connections in/out 1/2" Tri-Clamp™
Minimum sample volume 60 ml
Sound pressure level < 69 dB (A)
Suitable for CIP/SIP
Feeding hopper volume 0.4 l
Internal volume 20 ml

GEA Mechanical Equipment

GEA Niro Soavi

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VirTis Genesis 25L

Pilot Lyophilizer



(Standard configuration Genesis 35L shown)

Key Features

- Compact, freestanding, mobile design.
- Easy scale-up from research to full production.
- Available with a Wizard 2.0 or LyoS™ control system.
- Optional hydraulic stoppering system available.
- Narrow and cleanroom configurations available with 8-inch vapor port.

Standard Electrical Requirements

	208 / 230 VAC	200 / 240 VAC	230 VAC (4 wire)	400 VAC (5 wire)
Voltage ¹⁾	208 / 230 VAC	200 / 240 VAC	230 VAC (4 wire)	400 VAC (5 wire)
Hertz ¹⁾	60 Hz	50 Hz	50 Hz	50 Hz
Phase ¹⁾	1 Φ	1 Φ	3 Φ	3 Φ
Breaker Amperage ¹⁾	30 A	30 A	30 A	20 A
Recommended Outlet	NEMA L6-30R	NEMA L6-30R	N/A	N/A

Note: Other electrical configurations available.

Performance Specifications

	XL	EL
Lowest Shelf Temperature (50 Hz / 60 Hz)	≤ -57 °C / -60 °C	≤ -67 °C / -70 °C
Shelf Temperature Control Range*	-40 to 65 °C	-55 to 65 °C
Shelf Pull-Down from 20 °C to -40 °C†	≤ 45 minutes	≤ 30 minutes
Lowest Condenser Temperature (50 Hz / 60 Hz)	≤ -67 °C / -70 °C	≤ -82 °C / -85 °C
Maximum Condenser Capacity	≥ 25 L	≥ 25 L
Condenser Surface Area	506 in ² (3264 cm ²)	506 in ² (3264 cm ²)
Condenser Pull-Down from 20 °C to -45 °C	≤ 25 minutes	≤ 25 minutes
Maximum Ice Condensing Capacity in 24 hours‡	≥ 12 L	≥ 12 L
Maximum Deposition Rate‡	≥ 0.5 L/hour	≥ 0.5 L/hour
Number of Compressors	1	2
Compressor Horsepower	1.5 hp	1 hp, 1 hp
System Refrigerant	R245fa, R508B	R508B, R407C
Vacuum Time to 100 Millitorr§	≤ 20 minutes	≤ 20 minutes
Vacuum Rate of Rise§	≤ 30 mT/hour	≤ 30 mT/hour
Volume-Based Leak Rate§	≤ .0016 mbar·L/sec	≤ .0016 mbar·L/sec
Lowest System Vacuum§	≤ 15 mT	≤ 15 mT
Temperature Uniformity¶	± 1.0 °C	± 1.0 °C

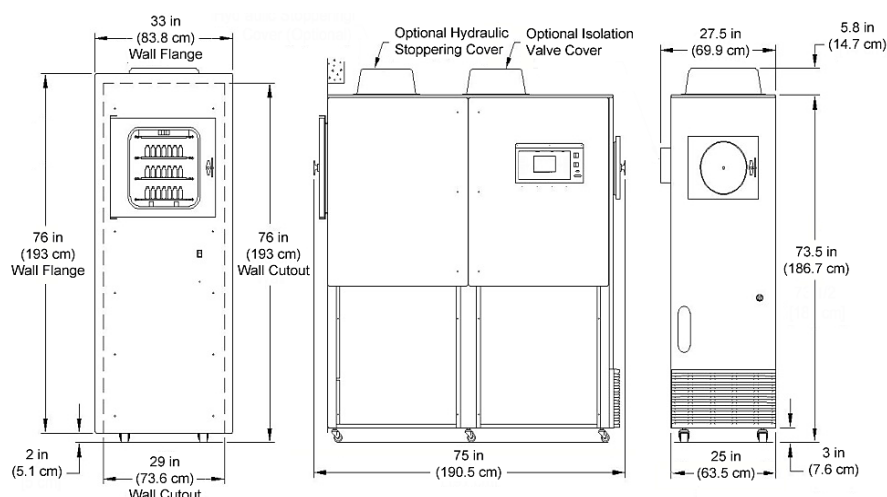
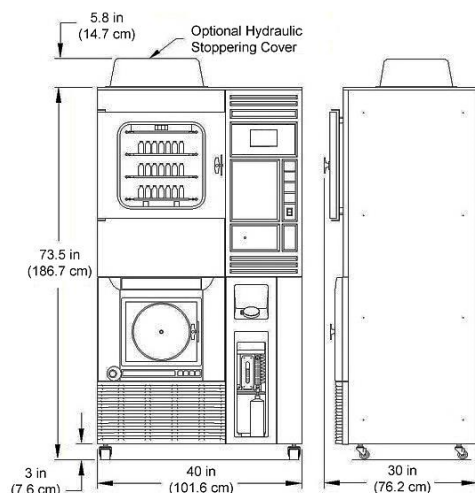
Note: Performance specifications are based on SP Scientific test data from units operating at an ambient room temperature of approximately 20 °C. SP Scientific recommends an operating range of 15-25 °C (59-77 °F) and a Relative Humidity of ≤ 80 % at sea level.

Utility Requirements

	XL	EL
Compressed Air (for units with isolation valve)	80 psig (6.5bar)	80 psig (6.5 bar)
Ambient Room Temperature	15-25 °C (59-77 °F)	15-25 °C (59-77 °F)
Approx. Peak Room Heat Generated (Air-Cooled Units)	8,900 BTU/h	10,200 BTU/h
Approx. Peak Room Heat Generated (Water-Cooled Units)	4,000 BTU/h	4,100 BTU/h
Cooling Water Usage**	1-3 gpm (4-12 Lpm)	1-3 gpm (4-12 Lpm)

VirTis Genesis 25L

Pilot Lyophilizer



Standard Configuration

Cleanroom Configuration

Dimensional Data

	Standard Configuration	Narrow Configuration	Cleanroom Configuration
Width	40 in (102 cm)	25 in (64 cm)	25 in (64 cm)
Depth	30 in (76 cm)	76 in (193 cm)	75 in (191 cm)
Height ^{††}	73.5 in (187 cm)	73.5 in (187 cm)	73.5 in (187 cm)
Max. Weight	800 lb (363 kg)	850 lb (386 kg)	850 lb (386 kg)
Min. Clearance on All Sides	10 in (25 cm)	10 in (25 cm)	10 in (25 cm)

Note: SP Scientific recommends a 24-inch (61 cm) clearance around all sides of the unit for serviceability. If machines are placed side by side, increase the minimum clearance to 48 inches (121.9 cm)

Shelf Configuration^{‡‡}

	Shelf Area	Shelf Clearance	Shelf Clearance with Optional Shelf Latching	
			1 Shelf Latched	2 Shelves Latched
1 Shelf	1.5 ft ² (1,394 cm ²)	12.9 in (328 mm)	N/A	N/A
2 Shelves	3.1 ft ² (2,880 cm ²)	6.2 in (158 mm)	12.5 in (318 mm)	N/A
3 Shelves	4.6 ft ² (4,274 cm ²)	4 in (102 mm)	6.1 in (155 mm)	12.1 in (307 mm)
4 Shelves	6.1 ft ² (5,667 cm ²)	2.9 in (74 mm)	3.9 in (99 mm)	5.9 in (150 mm)
5 Shelves ^{‡‡}	7.7 ft ² (7,154 cm ²)	2.3 in (58 mm)	2.8 in (72 mm)	3.8 in (97 mm)
6 Shelves	9.2 ft ² (8,547 cm ²)	1.8 in (46 mm)	N/A	N/A

Shelf Size (W x D): 10.8 x 20.5 in (274.3 x 520.7 mm)

Additional Information

Construction	316L Stainless Steel Shelves, Product Chamber and Condenser Chamber	Refrigerant Type	CFC-Free
Stoppering	Top-Down Hydraulic	Vapor Port ^{§§}	4 inches (10.2 cm)
Defrost Type	Hot Gas		

* Shelf fluid temperature controlled to within $\pm 0.5^{\circ}\text{C}$ of the setpoint within the Shelf Temperature Control Range. Lyophilizers equipped with Wizard 2.0 microprocessor-based controllers shall be capable of controlling at shelf temperatures within $\pm 1.0^{\circ}\text{C}$ of the setpoint within the Shelf Temperature Control Range at 100 mTorr.

[†] Shelf Pull-Down times are based on units with one (1) to three (3) shelves. The increased mass of stainless steel and additional heat transfer fluid required for four (4) or more shelves will increase the pull-down time. Use the following multipliers when determining the pull-down time specification for the following shelf configurations.

- 4-shelf units, standard pull-down time x 1.33
- 5-shelf units, standard pull-down time x 1.67
- 6-shelf units, standard pull-down time x 2.0

[‡] The specified Maximum Ice Condensing Capacity in 24 Hours and Maximum Deposition Rate are based on the process of freeze-drying water as aggressively as possible. The freeze dryer's ability to collect ice at an hourly rate or over a specified period will always be application dependent.

[§] Vacuum specifications are based on SP Scientific test data from similar units equipped with Leybold D8B two-stage rotary vane vacuum pump. Units equipped with other vacuum pumps may yield different results.

[¶] Shelf temperature deviations shall not exceed the specification relative to the mean of the highest and lowest temperature readings.

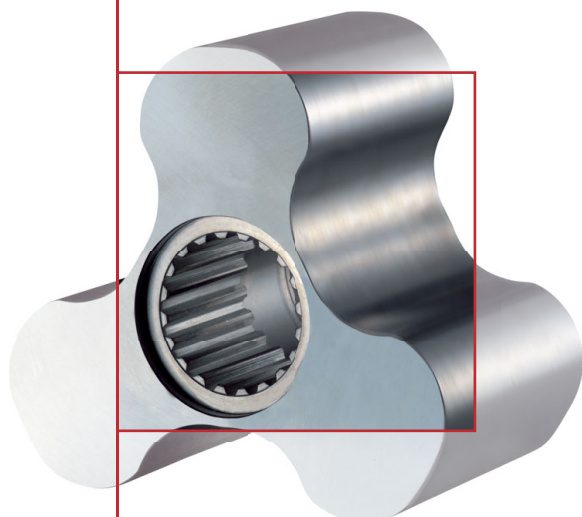
^{||} VirTis units are highly customizable and SP Scientific can configure any unit to conform to the service requirements of a wide range of international voltage and phase configurations. Contact SP Scientific for more information.

^{**} Cooling water temperatures should not exceed 24°C .

^{††} The stoppering option and/or isolation valve option adds 5.8 inches (14.7 cm) to overall height.

^{‡‡} Units with the stoppering option are only available with up to five shelves.

^{§§} Standard configuration units have a 4-inch (10.2 cm) vapor port. Narrow and cleanroom configuration units have an 8-inch (20.3 cm) vapor port.



I Aplicación

La bomba SLR es una bomba lobular rotativa de desplazamiento positivo y diseño sanitario para instalaciones de las industrias lácteas, alimentarias, bebidas, cosmética, farmacéutica y química fina.

Es una bomba ideal para manejar todo tipo de fluidos tanto de baja como de alta viscosidad y para cubrir necesidades de filtración y embotellaje. Los productos que contienen sólidos delicados, como el caso de cuajadas, se pueden bombear sin dañarlos gracias a unos lóbulos de diseño especial.

I Diseño y características

La bomba lobular rotativa SLR es una bomba eje libre. Está constituida principalmente por un cuerpo con tapa fabricadas en microfusión de acero inoxidable, unos rotores en forma trilobular que llevan una fijación de diseño sanitario.

La bomba lobular SLR está equipada con un cierre mecánico simple externo, equilibrado y de diseño sanitario C/SiC/EPDM. En aplicaciones donde sea necesario también se puede utilizar otros materiales.

La bomba está autorizada para incorporar el símbolo 3-A.

Nota: Consultar las opciones de la bombas autorizadas para incorporar el símbolo 3-A.



Standard Number 02-11

I Especificaciones técnicas

Materiales:

Piezas en contacto con el producto	AISI 316L
Soporte de rodamientos	GG 25
Juntas en contacto con el producto	EPDM

Cierre mecánico:

Parte giratoria	Carburo de Silicio (SiC)
Parte estacionaria	Grafito (C)
Juntas	EPDM

Acabado superficial:

Interno	$Ra \leq 0,8 \mu m$
Externo	Mate

Conexiones:

DIN 11851



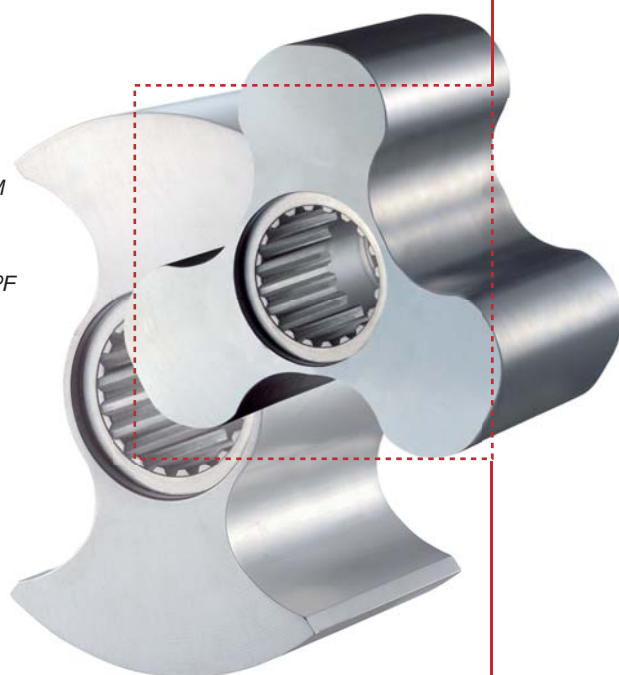
I Especificaciones técnicas

Límites de operación:

Caudal máximo	160 m³/h
Presión diferencial máxima	12 bar
Presión máxima trabajo	16 bar
Temperatura máxima trabajo (EPDM)	-10 °C a +120 °C
Temperatura SIP, máx. 30 min	+140 °C
Velocidad máxima	950 rpm

705 US GPM
174 PSI
232 PSI
14 °F a 248 °F
284 °F

Bomba	Volumen a 100 rev. [l]	Caudal máximo [m³/h]	Presión máxima [bar]	Velocidad máxima [rpm]
SLR 0-10	1,03	0,6	12	950
SLR 0-20	2,1	1,2	12	950
SLR 0-25	3	1,7	7	950
SLR 1-25	10	5,7	12	950
SLR 1-40	13,9	7,9	7	950
SLR 2-40	23,4	13,3	12	950
SLR 2-50	30,1	17,1	7	950
SLR 3-50	67,7	29,3	12	720
SLR 3-80	95,3	41,2	7	720
SLR 4-100	217,2	52,1	8	400
SLR 4-150	321,2	77,2	5	400
SLR 5-125	554,7	133,1	8	400
SLR 5-150	662,2	158,9	5	400



I Opciones

Cierre mecánico en SiC/SiC o TuC/SiC.

Además del cierre mecánico simple, están disponibles otros tipos de obturación:

cierre refrigerado (quench), cierre doble, junta de labios (FPM o PTFE), estopada, junta tórica.

Juntas en FPM o PTFE.

Válvula de seguridad en tapa frontal o by-pass exterior.

Lóbulos de cuña.

Cámara de calefacción.

Bote aislamiento.

Soporte vertical.

Boca rectangular.

Varios tipos de accionamientos y protecciones (motoreductor con posibilidad de variador de frecuencia, motovariador de poleas o mecánicos).

Carretilla y/o cuadro eléctrico.

Conexiones Clamp, SMS, RJT, etc.

Disponible en versión ATEX.



I Opciones de las bombas autorizadas para incorporar el símbolo 3-A

Conexiones: CLAMP-OD, CLAMP-DIN, DIN11864

Obtención: cierre mecánico simple

Materiales del cierre mecánico: C/SiC y SiC/SiC

Juntas tóricas: EPDM y FPM

Soporte: horizontal y vertical

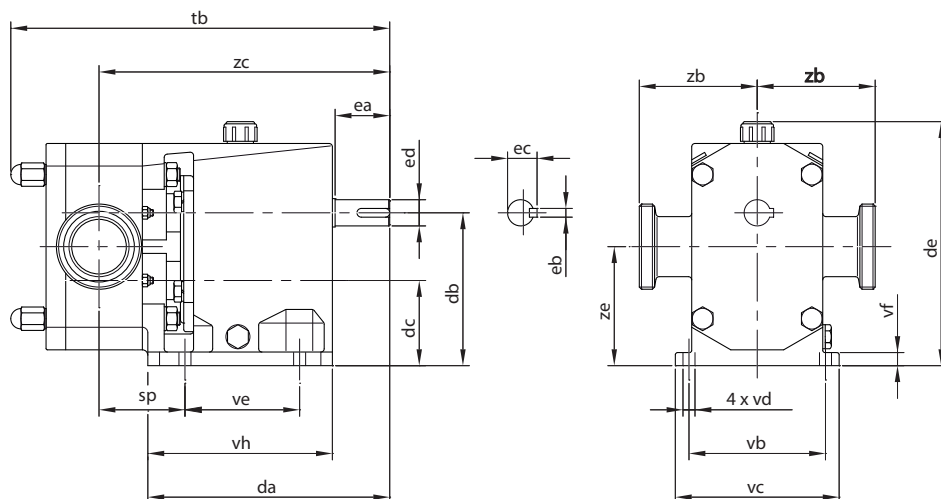
Drenaje: vertical Clamp-OD

**I Dimensiones**

Bomba	DN	DIN 11851	SMS	CLAMP OD
		zb		
SLR 0-10	10 / 1/2"	64	-	70
SLR 0-20	20 / 3/4"	67	-	77
SLR 0-25	25 / 1"	72	62	72
SLR 1-25	25 / 1"	94,5	91,5	94
SLR 1-40	40 / 1 1/2"	99,5	100	99
SLR 2-40	40 / 1 1/2"	107	108	106,5
SLR 2-50	50 / 2"	108	108	106
SLR 3-50	50 / 2"	135,5	135	133,5
SLR 3-80	80 / 3"	137,5	139,5	133,5
SLR 4-100	100 / 4"	170	170	161,5
SLR 4-150	150 / 6"	180	-	168
SLR 5-125	125 / 5"	225	-	218
SLR 5-150	150 / 6"	230	-	218



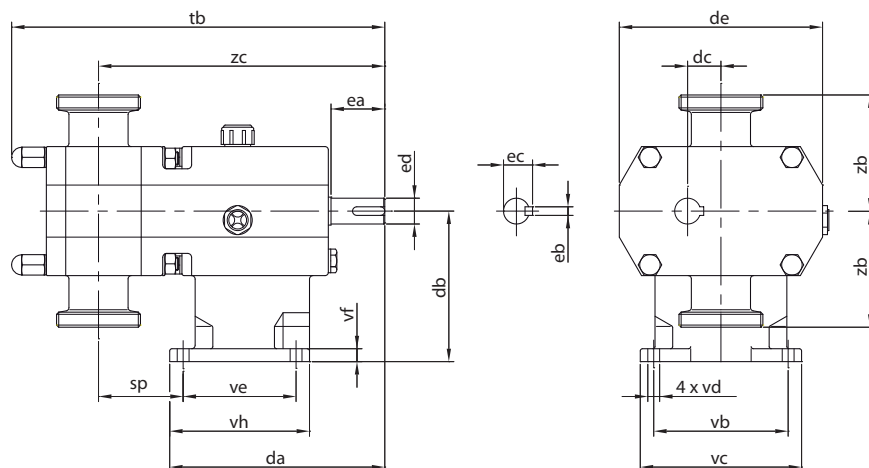
I Dimensiones



Bomba	da	db	dc	de	ea	eb	ec	ed	sp	tb	vb	vc	vd	ve	vf	vh	zc	ze	kg
SLR 0-10									61	253							213		11,5
SLR 0-20	160	80	40	138	30	5	16,2	14	64	261	102	118	9	50	9	65	216	60	12
SLR 0-25									68	269							220		13
SLR 1-25	187	112	62	186	40	6	21,6	19	64	280	115	135	9	85	10	145	218	87	16
SLR 1-40									70	292							224		
SLR 2-40	221	140	78	224	50	8	27	24	74	337	125	150	11	105	12	169	261	109	26
SLR 2-50									80	349							267		
SLR 3-50	297	190	97	289	80	10	41,4	38	91	430	170	210	13	130	14	214	348	143,5	61
SLR 3-80									101	452							360		
SLR 4-100	433	240	120	366	110	16	58,9	55	92	627	260	290	18	280	15	320	505	180	150
SLR 4-150									117	677							530		
SLR 5-125	567	350	178	508	140	18	64,3	60	118	793	380	420	18	373	29	423	660	264	375
SLR 5-150									130	818							672		



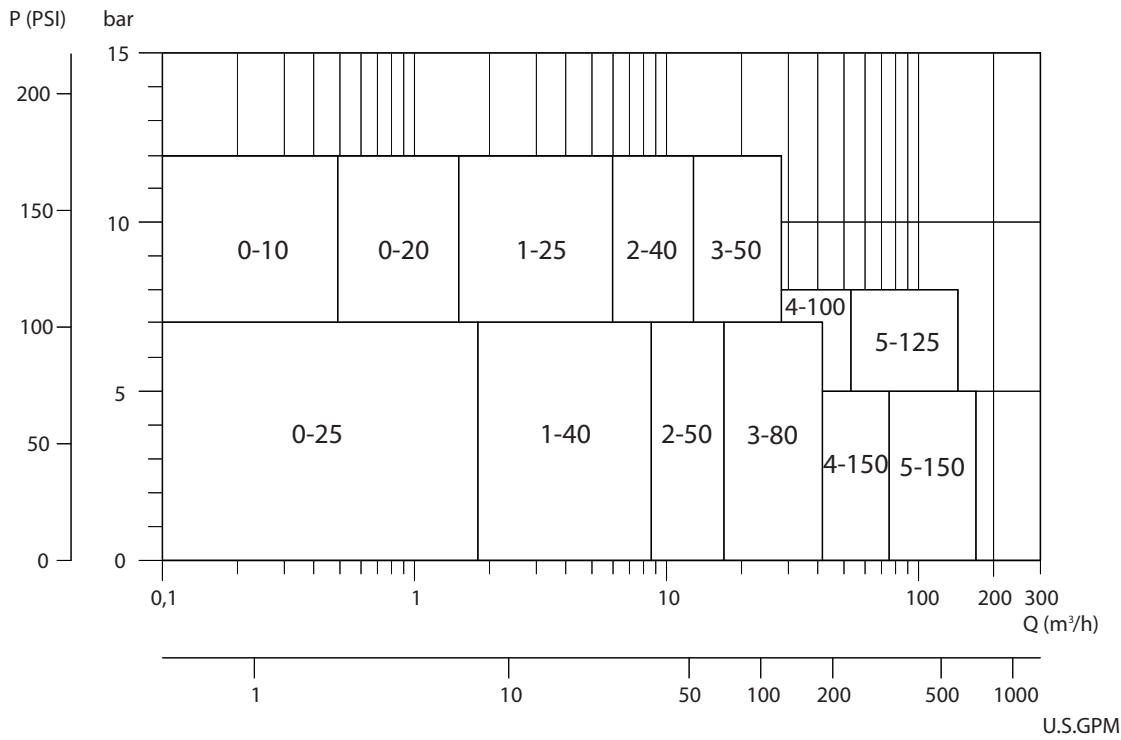
I Dimensiones SLR con soporte vertical



Bomba	da	db	dc	de	ea	eb	ec	ed	sp	tb	vb	vc	vd	ve	vf	vh	zc	kg
SLR 0-10									61	253							213	11,5
SLR 0-20	160	80	20	115	30	5	16,2	14	64	261	102	118	9	50	9	65	216	12
SLR 0-25									68	269							220	13
SLR 1-25									64	280							218	16
SLR 1-40	165	112	25	160	40	6	21,6	19	70	292	115	135	9	85	10	105	224	17
SLR 2-40									74	337							261	26
SLR 2-50	200	140	31	190	50	8	27	24	80	349	125	150	11	105	12	130	267	28
SLR 3-50									90	430							347	61
SLR 3-80	280	190	46,5	250	80	10	41,4	38	101	452	170	210	13	130	14	170	359	65
SLR 4-100									92	627							505	150
SLR 4-150	433	225	60	330	110	16	58,9	55	117	677	260	345	18	280	10	320	530	165
SLR 5-125									118	793							660	375
SLR 5-150	567	280	86	470	140	18	64,3	60	130	818	380	500	18	373	28	423	672	395



I Área de selección



Lutz Double Diaphragm Pumps


Model 1/4" Bolted Version (non-metallic)

Operating data / Dimensions / Weights			
	DMP 1/4" PP	DMP 1/4" Kynar®	DMP 1/4" Nylon
Housing material:	Polypropylene	Kynar®	Nylon
Diaphragm materials:	Geolast®, Santoprene®, Teflon®	Teflon®	Teflon®, Santoprene®
Valve material:	Teflon®	Teflon®	Teflon®
Seals:	Geolast®, Santoprene®, Teflon®	Teflon®	Teflon®, Santoprene®
Max. flow rate:	16 l/min.	16 l/min.	16 l/min.
Suction lift dry:	6 m	6 m	6 m
Suction lift Teflon®:	5 m	5 m	5 m
Operating pressure:	max. 6.8 bar	max. 6.8 bar	max. 6.8 bar
Temperature limits:	66 °C	93 °C	66 °C
Solids handling:	max. ø 1.6 mm	max. ø 1.6 mm	max. ø 1.6 mm
Air inlet:	1/4" NPSF female (G 1/2 BSP female) ¹⁾	1/4" NPSF female (G 1/2 BSP female) ¹⁾	1/4" NPSF female (G 1/2 BSP female) ¹⁾
Air outlet:	1/4" NPSF female	1/4" NPSF female	1/4" NPSF female
Suction:	1/4" BSP female	1/4" BSP female	1/4" BSP female
Discharge:	1/4" BSP female	1/4" BSP female	1/4" BSP female
Weight:	2.3 kg	3.2 kg	2.3 kg

¹⁾if the air flow control valve is used (not included in the delivery extent – see page 39).

Material description:

Geolast®	= NBR/PP-compound
Kynar®	= PVDF = Polyvinylidene fluoride
Nylon	= PA = Polyamide-compound
Polypropylene	= PP
Santoprene®	= EPDM/PP-compound
Teflon®	= PTFE = Polytetrafluorethylene

Type	Materials of construction		Order No.
	Housing	Diaphragm, Seals	
DMP 1/4" PPB PP/Geolast®	PP	Geolast®	5700-000
DMP 1/4" PPE PP/Santoprene®	PP	Santoprene®	5700-020
DMP 1/4" PPT PP/Teflon®	PP	Teflon®	5700-040
DMP 1/4" KNT Kynar®/Teflon®	Kynar®	Teflon®	5700-100
DMP 1/4" NEC Nylon/Santoprene®* 	Nylon	Santoprene®	5700-180
DMP 1/4" NTC Nylon/Teflon®* 	Nylon	Teflon®	5700-140

*conductive version Ex II 2 G c T4

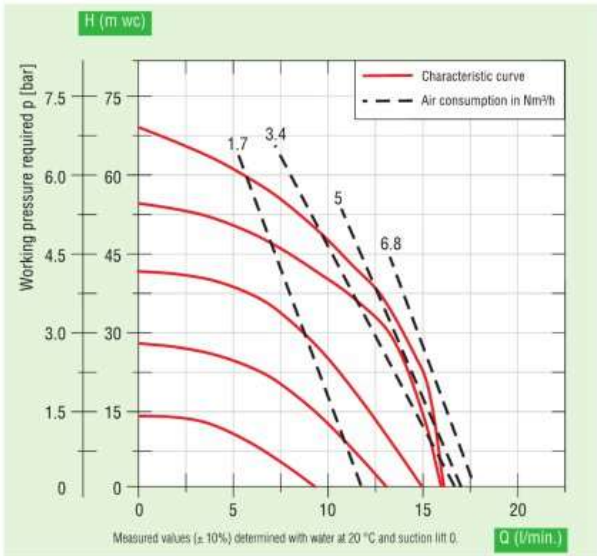
Teflon® is a registered Trademark of DuPont Company. Viton® is a registered Trademark of DuPont Performance Elastomers. Kynar® is a registered Trademark of Pennwalt Corp. Santopren® is a registered Trademark of Advanced Elastomer Systems NV/SA. Geolast® is a registered Trademark of Advanced Elastomer Systems.

Lutz Double Diaphragm Pumps

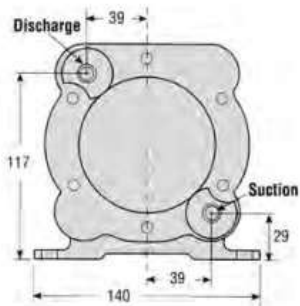
Model 1/4" Bolted Version (non-metallic)

Typical application:

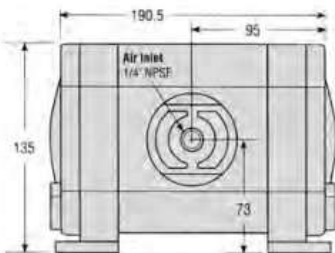
For the laboratory sector, small plants, requirements with small delivery volume at relatively high pressure



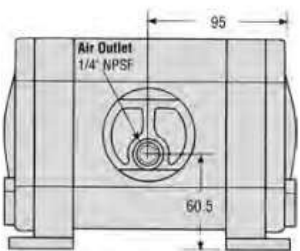
 Suitable range of accessories see pages 34-47.



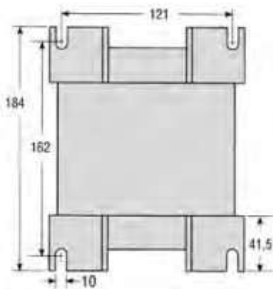
Side View



Front View



Rear View



Mounting Positions

Individual datasheets on request.
Dimensions in mm