

PTS – Perfusion Tubing Systems

Reliability, Partnership and Commitment.

The Right Combination for your Perfusion Practice.

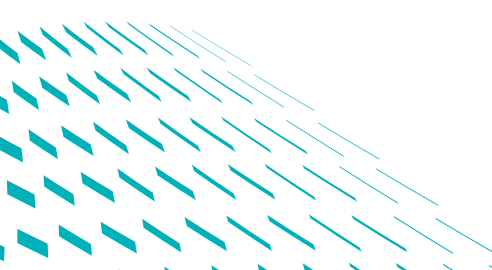


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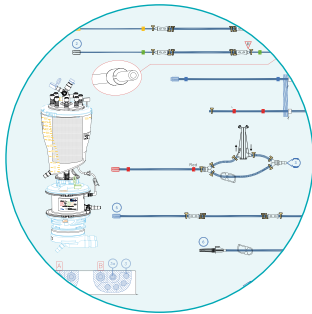
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PTS

Leading today, leading the way.

Every year, more than 400.000 cardiopulmonary perfusion procedures are worldwide performed with LivaNova PTS devices.

The LivaNova leadership has been achieved with more than 30 years of knowledge and complete commitment in making of your perfusion practice our focus.



Tailoring your needs

The most complete adult oxygenator offer a peerless wide range of components combined with a completely infant dedicated selection of oxygenators and parts are available for tailoring the most appropriate PTS solution to your needs.



Expert customization

LivaNova supports the optimization process with a completely dedicated PTS team, providing samples, drawings, suggestions and tips for the best perfusion solution.



Synergic production

Our production site located at our internal premises allows a complete integration between engineering and components production. The synergic production assures direct control on quality standard thanks to detail attention, PTS personnel selection and constant training combined with three decades of cardiopulmonary by-pass expertise.

Technical Information:

- Sterilization method (Eto) -admitted residual qty According to ISO 10993-7:2008(E)- 20 mg/device PTS
- PTS component in direct contact with blood are latex free. They might anyway during processing have come in contact with proteins or other natural latex derivatives
- LivaNova PTS may contain phtalates

POROUSMEDIA 0.2µm Pre-Bypass Filters



PorousMedia
0.2 µm Pre-Bypass Filter

...on Pre By-pass Filters

Pre-Bypass filters have been designed to filter micro particles drifting along in the CPB system during the priming and recirculation phase. Particles and debris may come from customer manual connection of the tubing to the devices, from non soluted crystals of priming solutions, and from anything needed to the therapy like bags or bottles releasing plastic or glass fragments when punctured or opened.

LivaNova offer availability

Two kinds of Pre-Bypass Filters are normally available on the market: the classic 5 µm and the very selective 0.2 µm.

While 5 µm Pre-Bypass filtration is quite normally required, some customers may ask for their patients deep Pre-Bypass filtration: in this case a 0.2 µm is needed.

LivaNova is routinely providing Porous Media filters for their US PTS customers 0.2 µm Pre-Bypass filters.

LivaNova is now able to extend this opportunity also to the Mirandola of origin PTS.

Technical features

Porous media filters technical features:

- 0.2 µm filtration ability
- Max Flow rate: 6 lpm
- Priming Volume: 200 ml
- Polyethersulfone (PESU) filtering membrane
- Polypropilene (PP) housing
- Wide range of adult connection available (3/8" & 1/2" on both inlet and outlet ports in all combinations)
- Vent port version available

Order Guide

Porous media pre by-pass filters are available for PTS inclusion. Contact your Sales representative in order to ask for its inclusion.

Livanova Part n#	Description
345270000	PorousMedia 0,2 µm Pre By-Pass Filter 3/8"x1/2" (Not sterile)
345260000	PorousMedia 0,2 µm Pre By-Pass Filter 3/8"x3/8" (Not sterile)
345280000	PorousMedia 0,2 µm Pre By-Pass Filter 1/2"x1/2" (Not sterile)
030218	PorousMedia 0,2 µm Pre By-Pass Filter 3/8"x3/8" - Vent port (Not sterile)

CRYSTAL

Clear Cardioplegia Filter



The CRYSTAL Cardioplegia filter uses a 0,2 µm filter for use in cardioplegia delivery circuits. The filter removes particulate debris & other microbiological contaminants from clear cardioplegia solutions. The design comprises a low priming volume, large surface area and transparent housing for easy visual inspection.

Features:

- Transparent housing for easy visual inspection
- High efficiency debris removal
- Easy debubbling

Technical characteristics:

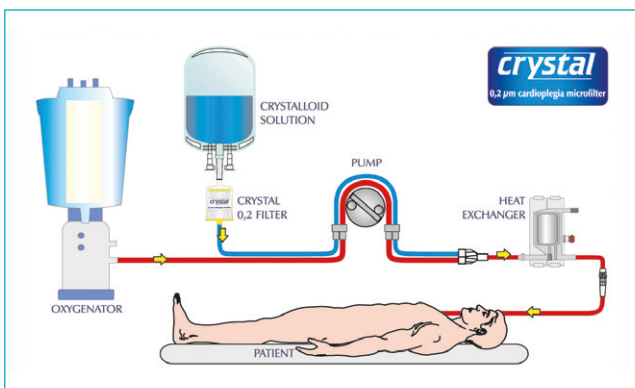
- Max flow rate: 500ml/min
- Priming volume: 35ml
- Surface area: 230 cm²
- Filter size: 0,2 µm

Materials:

- Housing: Mabs
- Filter: Polyester

Fittings:

- 1- Spike
- 2- 1/4" out



Order Guide

Code No.	Product designation
030156	Crystal Cardioplegia Filter not sterile

PTS PACKAGING

LivaNova PTS offers you a wide selection of different packaging solutions, tailoring your needs in terms of saving space, environmental impact. LivaNova PTS has 5 different Polystyrene solid white trays, covering the different space and configuration requirements, providing an adequate flexibility for pre-connecting your tubing system minimizing the tray dimensions



LivaNova PTS Innovative Green Solutions

Environmental impact optimization is possible thanks to PTS innovative packaging solutions: plastic limitation and reusable material are part of the PTS offer.



Boxer Pack

PTS boxer pack is a reusable multiple secondary packaging. It is collected, sterilized and reused for further shipping reducing the carton usage but preserving the integrity of the product. PTS boxer pack guarantees an high level of protection during transport by being conceived on an europallet platform.



Burn Bins

One unique tray for primary packaging and incineration disposal is now possible: a 60 liters Volume bin responding to the UN3241 requirements can host the ECC circuitry with its oxygenator and then it can be utilized for the used circuit disposal and incineration. Consequently Burn Bin solution reduces the environmental impact by limiting the amount of packaging material used: one tray instead of two.



Order Guide

Tray	Lenght (mm)	Width (mm)	Height (mm)
Cardioplegia & Hemoconcentrators	376	365	125
ECMO PTS or PTS without Oxy	570	370	255
KIDS PTS	570	370	255
PTS with Oxy - SMALL	730	380	255
PTS with Oxy - LARGE	730	565	255

D645 Bacteriological Gas Line Filter

D645 is a disposable bacteriological gas line filter specifically designed for the final gas filtration in routine open-heart surgery.

The teflon microporous-type membrane employed is supported by a polyester non woven tissue.

Its porosity guarantees bacteria removal and assures gas sterility.

This porosity diversification serves the following purposes:

- 1- a percentage removal higher than 99.95% of bacteria
- 2- a very low hydraulic resistance (120 mmHg at a 10 lt/min gas flow)
- 3- a duration of over 6 hrs without any variations of its sterilizing power.

Laboratory tests:

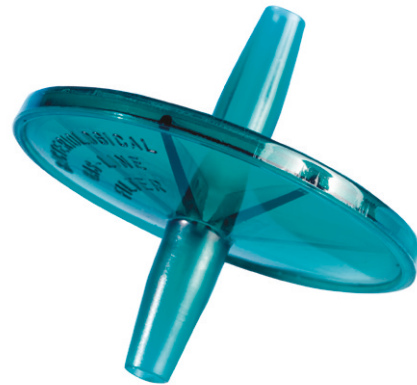
Several lab tests demonstrated the efficacy of this filter even at high gas flow rates with bacteriological concentrations beyond those normally present during gas administration in the extracorporeal circuit during cardiopulmonary bypass.

Sterility tests have been carried out by polluting the air to be filtered with Bacillus Subtilis spores. Subsequently the air was filtered at a flow rate of 15 lt/min.

Analyses on the outlet gas showed that, in all cases, the membrane can filter particles up to 0.2 μ in size.

Technical features:

- Filtr. Ability 0,2 μ m
- Teflon membrane
- Polycarbonate housing

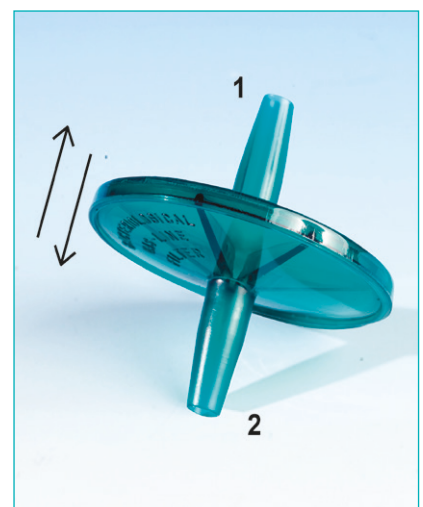


Technical features:

- Filtr. Ability 0,2 μ m
- Teflon membrane
- Polycarbonate housing

Fittings:

- 1- 1/4"
- 2- 1/4"



Order Guide

Code No.	Product designation
03158	D645 Bacteriological Gas Filter not sterile

GOCCIA MICRO 20/40

Microaggregates removal filter

The storage of whole blood or packed red cells produces a considerable amount of microaggregates with sizes ranging from 20 to 200 μm in diameter.

They are mainly made of degenerated leukocytes and thrombocytes, red cells or other cellular fragments, fibrin, lipoproteins and denatured albumin precipitates.

The quantity and the sizes of these microaggregates are mainly correlated to the storage period.

Several authors state that the amount of microaggregates with size range of 40 μm and above represents the 90% of the total microaggregates amount in the whole blood and about the 50% in the packed red cells.

Clinical trials demonstrated that a relationship existed between acute respiratory insufficiency and the presence of such microaggregates in the pulmonary circulation of polytransfused patients. In order to protect pulmonary microcirculation during blood transfusions, many authors consider it an absolute necessity to filter microaggregates larger than 40 μm in diameter.



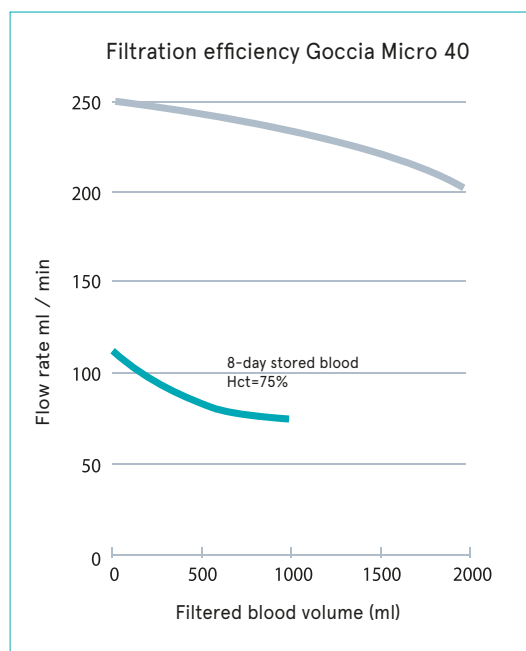
PRODUCT SPECIFICATIONS:

Technical / functional characteristics:

- Low priming volume: 35 ml
- High filtration flow rate up to 2000 ml of whole blood
- Easy debubbling
- Completely transparent housing for easy visual inspection
- High filtration efficiency levels:
 - microaggregates > 20 μm removal: > 95% (MICRO 20)
 - microaggregates > 40 μm removal: > 95% (MICRO 40)
- Injection port (in the version with preconnected infusion set)
- ETO sterilized
- Maximum working pressure: 400 mmHg

Materials:

- Filters: monofilament polyester mesh



Order Guide

Product designation	Code No.
Goccia Micro 20	9086
Goccia Micro 40	9085
Goccia Micro 20 (with infusion set)	9087
Goccia Micro 40 (with infusion set)	9088

Goccia Micro 20/40 is a medical device approved by the Italian Ministry of Health with registration number 16060.

SIEVER

Pre bypass filter 5 micron

The Siever has been designed to filter micro particles (>5µ) out of the extracorporeal circuit in the priming and recirculation phase. The industrial manufacturing and also the individual mounting on the HLM can create potential debris and particles inside the system, that could cause negative reactions to the patient.



PRODUCT SPECIFICATIONS:

Features:

Siever is a very user friendly and effective 5µ filter:

- Quick de-bubbling
- Easy connection and disconnection
- Compact design

Size:

The compact design allows the preconnection also in very compact table tray.



Technical characteristics:

- Priming volume: 35 ml
- Max flow rate: 6 l/min
- Surface area: 269cm²
- Filter size: 5µ

The filter is equipped with connectors for quick tubing removal and transparent housing for easy visual inspection.

Materials:

- Housing: Mabs
- Filter: Polyester

Order Guide

Siever is available only inside Custom Pack in four sizes:

Size	Code No.
1/2 x 3/8	030176
1/4 x 1/4	030175
1/4 x 3/8	030177
3/8 x 3/8	030178

PTS


Silicone and special tubing for PTS



- Rehau and Dow Corning Silicone Tubing is indicated for use as the roller pump segment in the PTS. Exceptionally elastic (excellent memory) silicone tubing allows very precise flow and virtually no readjusting of pump occlusion over time.
- Silicone and Special Tubing for PTS are Medical Grade and Class VI USP Implantable.
- Special Tubing offer is completed by DEHP-free PVC family.

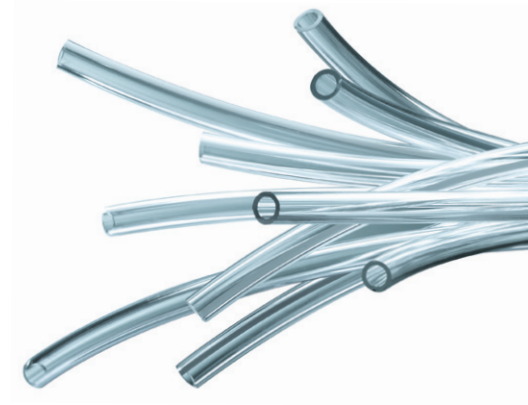
Tygon S-97-E 65 Sh.A DEHP-free Durometer Implant Tested Class VI USP	Tygon ND-100-65 65 Sh.A DEHP-free Durometer Implant Tested Class VI USP	Raumedic PVC DEHP-free 75 Sh.A Durometer Implant Tested Class VI USP	REHAU SILICONE RAUMEDIC 60 Sh.A Durometer Implant Tested Class VI USP	DOW CORNING SILICONE SILASTIC 50 Sh.A Durometer Implant Tested Class VI USP	DOW CORNING SILICONE SILASTIC RX80 78 Sh.A Durometer Implant Tested Class VI USP
			1/8" x 1/16"	1/8" x 1/16"	
			5/32" x 3/64"		
	3/16" x 1/16"	3/16" x 1/16"	3/16" x 1/16"	3/16" x 1/16"	
			3/16" x 3/32"		
	1/4" x 1/16"	1/4" x 1/16"	1/4" x 1/16"	1/4" x 1/16"	
	1/4" x 3/32"	1/4" x 3/32"	1/4" x 3/32"	1/4" x 3/32"	
			1/4" x 1/8"		
			5/16" x 1/16"		
			5/16" x 3/32"		
	3/8" x 1/16"		3/8" x 1/16"		
	3/8" x 3/32"	3/8" x 3/32"	3/8" x 3/32"	3/8" x 3/32"	3/8" x 3/32"
			3/8" x 1/8"		
1/2" x 3/32"	1/2" x 3/32"	1/2" x 3/32"	1/2" x 3/32"	1/2" x 3/32"	1/2" x 3/32"
			1/2" x 1/8"	1/2" x 1/8"	
			5/8" x 1/8"		

In bold: tubing validated to be used as pump boot

 Available in pc coating

PTS

Silicone and special tubing for PTS



- The high grade PVC Tubing is manufactured using a blend material unique in high level purity, and using very advanced extrusion techniques.
- LivaNova PVC Tubing has unmatched transparency, allowing easier and safer debubbling of the PTS and excellent flow visibility.
- Available in the classical sizes and of 63, 66 and 69 Sh. A Durometer Hardness. Available in a wide range of Diameters and Wall Thickness sizes.
Also available PH.I.S.I.O. coated for the maximum in Biocompatibility. Colour striped in both regular and coated types.
- LivaNova PVC Tubing is Medical Grade and Class VI - USP Implantable.

LivaNova PVC XXH 69 Sh-A Durometer Implant Tested Class VI USP	LivaNova PVC XH 66 Sh-A Durometer Implant Tested Class VI USP2	LivaNova PVC XS 63 Sh-A Durometer Implant Tested Class VI USP3
		1/8" x 1/16"
	3/16" x 1/16"	3/16" x 1/16"
	1/4" x 1/16"	1/4" x 1/16" (Y-W-G-B-R-TG)
		1/4" x 3/32" (R)
	5/16" x 1/16"	
	5/16" x 3/32"	
	3/8"x1/16"	
	3/8" x 3/32" (B-R)	3/8" x 3/32" (B-R)
1/2" x 3/32" (B)	1/2" x 3/32" (B)	1/2" x 3/32" (B)
	1/2"x1/8"	

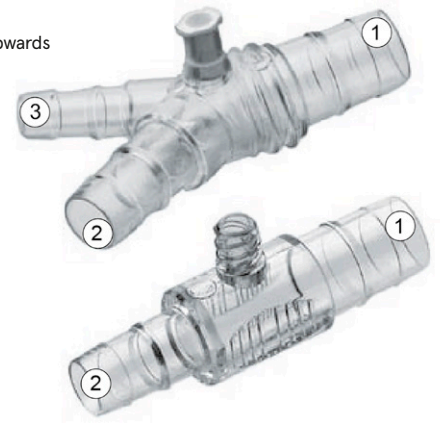
In bold: tubing validated to be used as pump boot

Available in PC coating

Colored strip: (B) Blue - (R) Red - (G) Green - (TG) Total Green - (Y) Yellow - (W) White

Disposable perfusion connectors for PTS

Luer Lock Upwards



Numbers indicate the position of the individual arms when Luer Lock is upwards ie: 1/2"x3/8"x1/4" =1/2" pos.1, 3/8" pos.2, 1/4" pos.3

- Manufactured with high precision injection moulding techniques.
- Made with Polycarbonate, one of the strongest and most stable plastic materials.
- Clear and perfectly transparent for easy debubbling.
- Ergonomically designed for a safe and easy finger grip and with a unique geometry that allows excellent anti-deconnection characteristics.
- Straight and "Y", with and without luer lock, available in a wide variety of sizes.
- Available also PH.I.S.I.O. coated for the maximum degree of Biocompatibility.
- Available also in blister pack to be integrated into PTS. Blister packaging minimizes the possibility of contamination, especially when the connector has to be handed over to the Operating Table.

EQUAL AND REDUCING STRAIGHT														
		3/16"x3/16"	1/4"x3/16"	1/4"x1/4"	3/8"x1/4"	1/2"x1/4"	3/8"x3/8"	1/2"x3/8"	5/8"x3/8"	1/2"x1/2"	3/16"xML slip	3/16"xMLL	1/4"xML slip	1/4"xMLL
	Individually Blister Packed	3/16"x3/16"	1/4"x3/16"	1/4"x1/4"	3/8"x1/4"	1/2"x1/4"	3/8"x3/8"	1/2"x3/8"	5/8"x3/8"	1/2"x1/2"	3/16"xML slip	3/16"xMLL	1/4"xML slip	1/4"xMLL
With luer lock		3/16"x3/16"	1/4"x3/16"	1/4"x1/4"	3/8"x1/4"	1/2"x1/4"	3/8"x3/8"	1/2"x3/8"		1/2"x1/2"				
With luer lock	Individually Blister Packed	3/16"x3/16"	1/4"x3/16"	1/4"x1/4"	3/8"x1/4"	1/2"x1/4"	3/8"x3/8"	1/2"x3/8"		1/2"x1/2"				

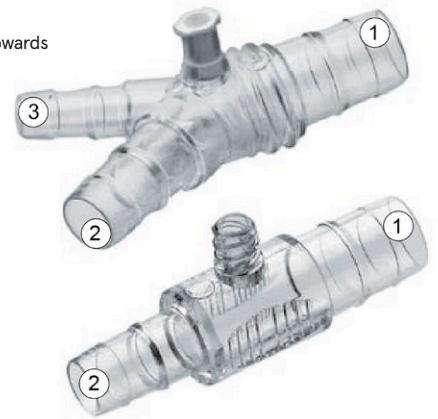
EQUAL AND REDUCING Y														
		3/16"x3/16"x3/16"	1/4"x3/16"x3/16"	1/4"x1/4"x1/4"	3/8"x1/4"x1/4"	3/8"x3/8"x1/4"	3/8"x3/8"x3/8"	1/2"x1/2"x1/4"	1/2"x3/8"x3/8"	1/2"x1/2"x3/8"	1/2"x1/2"x1/2"	3/8"x1/4"x1/4" parallel Y	3/8"x3/8"x3/8" parallel Y	1/2"x3/8"x3/8" parallel Y
	Individually Blister Packed	3/16"x3/16"x3/16"	1/4"x3/16"x3/16"	1/4"x1/4"x1/4"	3/8"x1/4"x1/4"	3/8"x3/8"x1/4"	3/8"x3/8"x3/8"	1/2"x1/2"x1/4"	1/2"x3/8"x3/8"	1/2"x1/2"x3/8"	1/2"x1/2"x1/2"			
With luer lock		3/16"x3/16"x3/16"	1/4"x3/16"x3/16"	1/4"x1/4"x1/4"	3/8"x1/4"x1/4"	3/8"x3/8"x1/4"	3/8"x3/8"x3/8"	1/2"x1/2"x1/4"	1/2"x3/8"x3/8"	1/2"x1/2"x3/8"	1/2"x1/2"x1/2"			
With luer lock	Individually Blister Packed	3/16"x3/16"x3/16"	1/4"x3/16"x3/16"	1/4"x1/4"x1/4"	3/8"x1/4"x1/4"	3/8"x3/8"x1/4"	3/8"x3/8"x3/8"	1/2"x1/2"x1/4"	1/2"x3/8"x3/8"	1/2"x1/2"x3/8"	1/2"x1/2"x1/2"			

EQUAL AND REDUCING STRAIGHT PH.I.S.I.O. COATED									
		3/16"x3/16"	1/4"x3/16"	1/4"x1/4"	3/8"x1/4"	1/2"x1/4"	3/8"x3/8"	1/2"x3/8"	1/2"x1/2"
With luer lock		3/16"x3/16"	1/4"x3/16"	1/4"x1/4"	3/8"x1/4"	1/2"x1/4"	3/8"x3/8"	1/2"x3/8"	1/2"x1/2"

EQUAL AND REDUCING STRAIGHT PH.I.S.I.O. COATED													
		3/16"x3/16"x3/16"	1/4"x3/16"x3/16"	1/4"x1/4"x1/4"	3/8"x1/4"x1/4"	3/8"x3/8"x1/4"	3/8"x3/8"x3/8"	1/2"x3/8"x1/4"	1/2"x1/2"x1/4"	1/2"x3/8"x3/8"	1/2"x1/2"x3/8"	1/2"x1/2"x1/2"	
With luer lock		3/16"x3/16"x3/16"	1/4"x3/16"x3/16"	1/4"x1/4"x1/4"	3/8"x1/4"x1/4"	3/8"x3/8"x1/4"	3/8"x3/8"x3/8"	1/2"x3/8"x1/4"	1/2"x1/2"x1/4"	1/2"x3/8"x3/8"	1/2"x1/2"x3/8"	1/2"x1/2"x1/2"	

Sterile perfusion connectors single packed

Luer Lock Upwards



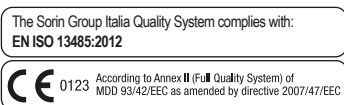
Numbers indicate the position of the individual arms when Luer Lock is upwards ie: 1/2"x3/8"x1/4" =1/2" pos.1, 3/8" pos.2, 1/4" pos.3

- Manufactured with high precision injection moulding techniques.
- Made with Polycarbonate, one of the strongest and most stable plastic materials.
- Clear and perfectly transparent for easy debubbling.
- Ergonomically designed for a safe and easy finger grip and with a unique geometry that allows excellent anti-deconnection characteristics.
- Straight and "Y", with and without luer lock, available in a wide variety of sizes.
- Available also PH.I.S.I.O. coated for the maximum degree of Biocompatibility.
- Available also in blister pack to be integrated into PTS. Blister packaging minimizes the possibility of contamination, especially when the connector has to be handed over to the Operating Table.

STERILE EQUAL AND REDUCING STRAIGHT													
SIZE	3/16"x3/16"	1/4"x3/16"	1/4"x1/4"	3/8"x1/4"	1/2"x1/4"	3/8"x3/8"	1/2"x3/8"	5/8"x3/8"	1/2"x1/2"	3/16"xML slip	3/16"xMLL	1/4"xML slip	1/4"xMLL
Ref. Number	05227	05234	05224	05228	05230	05225	05229	05231	05226	05248	05247	05249	05250
With luer lock	3/16"x3/16"	1/4"x3/16"	1/4"x1/4"	3/8"x1/4"	1/2"x1/4"	3/8"x3/8"	1/2"x3/8"		1/2"x1/2"				
Ref. Number	05239	05246	05236	05240	05242	05237	05241		05238				

STERILE EQUAL AND REDUCING Y														
SIZE	3/16"x3/16"x3/16"	1/4"x3/16"x3/16"	1/4"x1/4"x1/4"	3/8"x1/4"x1/4"	3/8"x3/8"x1/4"	3/8"x3/8"x3/8"	1/2"x3/8"x1/4"	1/2"x1/2"x1/4"	1/2"x3/8"x3/8"	1/2"x1/2"x3/8"	1/2"x1/2"x1/2"	3/8"x1/4"x1/4" parallel Y	3/8"x3/8"x3/8" parallel Y	1/2"x3/8"x3/8" parallel Y
Ref. Number	05203	05223	05200	05204	05206	05201	05208	05209	05205	05207	05202	05278	05277	05275
With luer lock	3/16"x3/16"x3/16"	1/4"x3/16"x3/16"	1/4"x1/4"x1/4"	3/8"x1/4"x1/4"	3/8"x3/8"x1/4"	3/8"x3/8"x3/8"	1/2"x3/8"x1/4"	1/2"x1/2"x1/4"	1/2"x3/8"x3/8"	1/2"x1/2"x3/8"	1/2"x1/2"x1/2"			
Ref. Number	05215	05222	05212	05216	05218	05213	05220	05221	05217	05219	05214			

www.livanova.com



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