



### **Operation Manual**

# Carstick®



For tubing Outer Diameter 4, 6, 8, 10, 12 and 14mm 1/8", 5/32", 1/4", 5/16" and 3/8"

Parker Hannifin France Manufacturing SAS
Fluid Connector Group (FCG)
Low Pressure Connectors Europe (LPCE)
Parc Alcyone - Bat. D - 1 rue André et Yvonne Meynier
35069 RENNES Cedex, France

Division webpage: <a href="www.parker.com/lpce">www.parker.com/lpce</a>
Technical support: <a href="mailto:lpce.marketing@parker.com/lpce">lpce.marketing@parker.com/lpce</a>





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Revision	Date	Content
Rev 1	18 <sup>th</sup> November 2021	New template Grouping of LF3000 Carstick® metric version (Rev 8) + inch version (Rev 1) + Carstick® Liquifit version (Rev 6)
Rev 2	14 <sup>th</sup> February 2022	Carstick® EPDM D4 and D6 drawing update

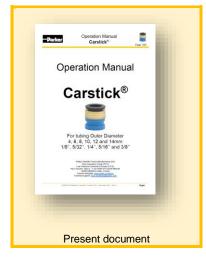




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#### **Operation Manual**

#### Carstick® solution



Carstick® is a fully integrated cartridge providing instant connection between the housing and the tubing.

It can be inserted in elastic polymers, brass, aluminum cavities.

This is the right connection solution for energy, space and time saving.

#### **Markets**

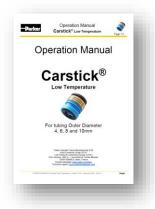
#### **Applications**

Industrial & Automation

Thermal

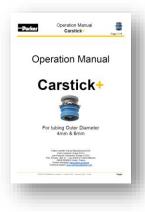
Management

- Packaging manufacturing Robotic
- In-plant automotive
- Semiconductor manufacturing
- Data centers
- Supercomputers
- Power generation
  Welding devices/robots
- Coffee machines Food & Beverage
  - Water dispensers
  - Water treatment
- Medical respiratory devices Life Sciences
  - Anaesthesia machines
  - Dental chairs



Carstick® is also available in a special version for applications in extreme environments.

- Transportation
- Pneumatic suspension Auxiliary pneumatic systems



Carstick+ is an enhanced version of Carstick®.

It can be inserted with a low effort.

It is suitable for a large range of housing materials including nonelastic polymers.

damaging the cavity.

Industrial & Automation

Thermal

Food &

Beverage

Management

- Packaging manufacturing
- Robotic
- In-plant automotive
- Semiconductor manufacturing
- Data centers
- Supercomputers
- Power generation Welding devices/robots
- Coffee machines

  - Water dispensers
  - Water treatment
  - Medical respiratory devices
  - Anaesthesia machines
- Dental chairs

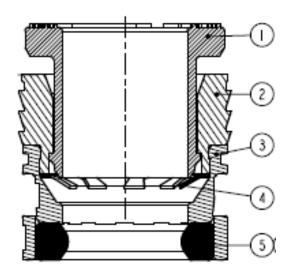




#### **Product description**

Carstick® is a fully integrated cartridge solution providing instant connection between the housing and the tubing. The housing requires a dedicated cavity where Carstick® is pushed in. Carstick® is composed of following components:

- Polymer release button (1)
- Brass retaining sleeve (2)
- Polymer protection sleeve (3)
- Stainless steel gripping ring (4)
- NBR or EPDM seal (5)



#### **Working conditions**

NBR version – 3100 xx 00				
Fluids	Compressed air and inert gas (for other fluids, please consult us)			
Working pressure	Up to 20 bar* Up to 290 psi			
Working temperature	-20°C to +80°C	-4°F to +176°F		
Vacuum 755 mm Hg (99% vacuum) 29 in Hg				
Regulations REACH, RoHS, ISO 14743, PED				
* 3100 14 00: Working pressure up to 13 bar only				

EPDM version - 6300 xx 00				
Fluids		ol, deionized water, coolant, compressed air,		
Tiulus	inert gas (for other fluids, please consult us)			
Working pressure	Up to 16 bar Up to 232 psi			
Working temperature	-20°C to +95°C* -4°F to +203°F			
Vacuum	Vacuum 755 mm Hg (99% vacuum) 29 in Hg			
Regulations	Regulations 1935/2004/CE, FDA: 21 CFR, NSF, ACS, DM 174, WRAS, KTW			
* Carstick EPDM O.D. 4, 6 and 8mm: Working temperature up to 130°C up to 10 bar				





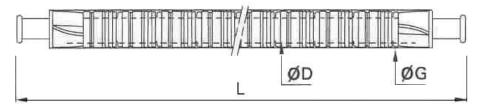
#### Ready-to-use packaging

50 pieces of Carstick® are packaged in the same direction in a rigid plastic tube.

The product traceability is ensured by a date code mentioned on a label stuck on the tube.

This packaging solution is designed to:

- Protect Carstick® from damage
- Avoid component loss
- Facilitate the distribution for the insertion process



Tubing O.D.	Part Number	Version	G (mm)	L 0/+5 (mm)		
	3100 04 00	NBR				
4mm & 5/32"	3100 04 00 99	INDIX	8	554		
	6300 04 00	EPDM	EPDM			
6mm	3100 06 00	NBR	10	629		
OHIII	6300 06 00	EPDM	10	029		
	3100 08 00	NBR				
8mm & 5/16"	3100 08 00 99	INDIX	13	794		
	6300 08 00	EPDM				
10mm	3100 10 00	NBR	15.5	930		
TOTTINI	6300 10 00	EPDM	15,5			
12mm	3100 12 00	NBR	10.5	1038		
12111111	6300 12 00	EPDM	19,5			
14mm	3100 14 00	NBR	21	1110		
1/8"	3100 53 00 99	NBR	7	508		
1/4"	3100 56 00 99	NBR	10,5	600		
1/4	6300 56 00	EPDM	10,5			
3/8"	3100 60 00 99	NBR	15,5	930		
	6300 60 00	EPDM	7 13,3			
1/2"	6300 62 00	EPDM	22	1038		
	Suffix 99 at the end of the Part Number means the retaining sleeve is nickel plated					

#### **Product handling and storage**

Carstick® is packaged in plastic tubes and cardboard boxes.

Outside the assembly area, we advise you handle and store Carstick® in their original packaging to limit contamination or risk of damage.

We advise you keep the product in room temperature storage conditions (temperature 23°C and humidity rate 60% to 80%).

We advise you avoid impact during transport or stacking of cardboard boxes on pallets.

We advise you transport and open the cardboard boxes with Parker logo visible on the top side.

During handling, no element must enter in contact with the seals.

The protection sleeve that keeps the seal in position in the initial state must not be strained mechanically.

After insertion, we advise that the final products be stored in closed bags and cardboard boxes.





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#### **Product manipulation**

Carstick® can be picked-up and inserted either manually or automatically.

We recommend that you perform the handling, assembly, test, and storage in a clean environment.

Contaminants in Carstick®, such as particles, will lead to failure.

Preferably, we advise you clean the assembly equipment with a dedicated solution and avoid the use of fluffy wipers. We recommend that you wear an antistatic outfit.

After the assembly, we advise you store the final products in closed bags and cardboard boxes. For example, sealed plastic bags prevent the products from dust contamination.

#### **Housing materials**

Carstick® is suitable to be inserted in various materials such as polyamide, polypropylene, brass and aluminum.

#### **Cavities description**

Carstick® adapts only to Parker dedicated cavities which can be moulded or machined. The cavity dimensions depend on the required tubing size.

The cavity dimensions must conform to the referenced drawing below. The cavity dimensions must be controlled with the appropriate equipment to guarantee the conformity of the cavity.

Tubing O.D.	Part Number	Housing material	Cavity drawing N°	Appendix page
	3100 04 00	Polyamide 0% to 30 % glass fibre	44504-30	
4mm & 5/32"	3100 04 00 99	Aluminium anodized or not	44504-31	12
	6300 04 00	CuZn40Pb3 nickel plating or not	44504-32	
		Polyamide 0% to 30 % glass fibre	44506-30	
Consum	3100 06 00	Aluminium anodized or not	44506-31	40
6mm	6300 06 00	CuZn40Pb3 nickel plating or not	44506-32	18
		Unfilled Polypropylene	44506-35	
	3100 08 00	Polyamide 0% to 30 % glass fibre	44508-30	
8mm & 5/16"	3100 08 00 99	Aluminium anodized or not	44508-31	25
	6300 08 00	CuZn40Pb3 nickel plating or not	44508-32	
		Polyamide 0% to 30 % glass fibre	44510-30	
4.0	3100 10 00	Aluminium anodized or not	44510-31	24
10mm	6300 10 00	CuZn40Pb3 nickel plating or not	44510-32	31
		Unfilled Polypropylene	44510-35	
	2400 40 00	Polyamide 0% to 30 % glass fibre	44512-30	
12mm	3100 12 00	Aluminium anodized or not	44512-31	38
	6300 12 00	CuZn40Pb3 nickel plating or not	44512-32	
		Polyamide 0% to 30% GF/GB	44514-30	
14mm	3100 14 00	Aluminium anodized or not	44514-31	44
		CuZn40Pb3 nickel plated or not	44514-32	



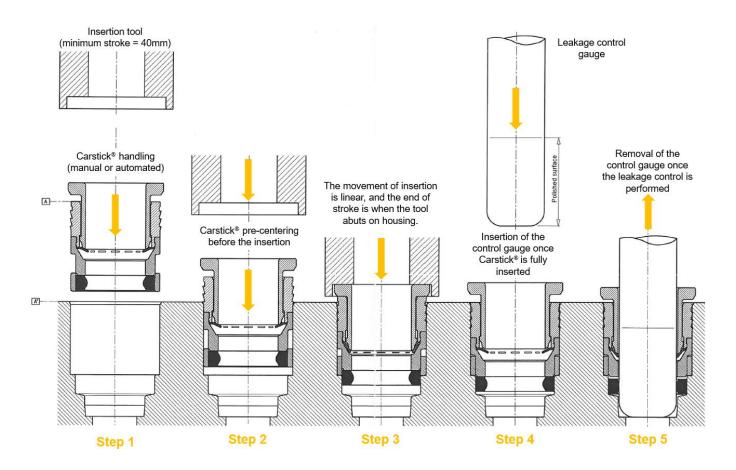


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Tubing O.D	Part Number	Housing material	Cavity drawing N°	Appendix page
		Polyamide 0% to 30 % glass fibre	44553-30	
1/8"	3100 53 00 99	Aluminium anodized or not	44553-31	49
		CuZn40Pb3 nickel plating or not	44553-32	
		Polyamide 0% to 30 % glass fibre	44507-30	
1/4"	3100 56 00 99	Aluminium anodized or not	44507-31	54
1/4	6300 56 00	CuZn40Pb3 nickel plating or not	44507-32	
		Unfilled Polypropylene	44507-37	
		Polyamide 0% to 30 % glass fibre	44509-30	61
2/0"	3100 60 00 99	Aluminium housing anodized or not	44509-31	
3/8"	6300 60 00	CuZn40Pb3 nickel plating or not	44509-32	
		Unfilled Polypropylene	44509-36	
1/2"	6200 62 00	CuZn40Pb3 nickel plating or not	44513-32	00
	6300 62 00	Unfilled Polypropylene	44513-34	68

#### Insertion of Carstick®

To eliminate the risk of cracking when inserting the Carstick® into a polymer housing that is sensitive to water absorption (e.g. PA 6.6), we recommend that the housing is dampened (by moisture regain) before the Carstick® is inserted.







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We advise you to ensure that the cavity is as per Parker's drawing and that it is free from scratches, dust or chips before inserting the Carstick<sup>®</sup>.

We strongly recommend that you follow the drawings of the insertion tool below.

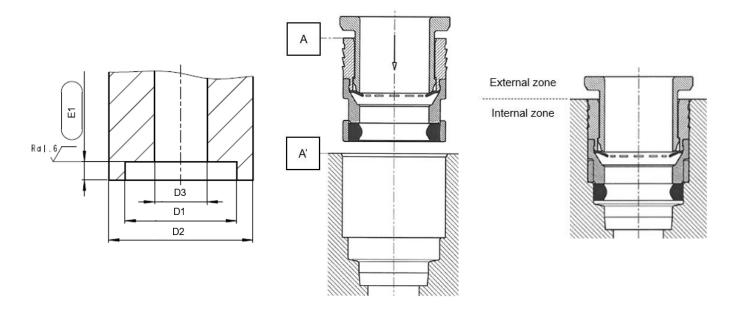
We strongly recommend that handling, assembly, testing and storage are carried out in a clean environment. Contaminants in the product, such as particles, can cause failure.

It is best to clean the assembly equipment with a dedicated product and avoid linty wipers. We also recommend that you wear anti-static clothing.

After insertion, products should be stored in a clean environment to prevent dust from contaminating the products, for example in a sealed plastic bag.

#### **Insertion tool**

The permissible deviation between A / A' is shown on the Carstick® drawing. It must be obtained by adjusting the dimension of the insertion tool to 'E1'. Any deviation from this tolerance may result in product failure.







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Tubing O.D.	Part Number	D1 (mm)	D2 (mm)	D3 (mm)	E1 (mm)	Maximum insertion force
	3100 04 00					
4mm & 5/32"	3100 04 00 99	8,5 ±0,1	11 mini	4 maxi	1,4 +0/-0,1	300 daN
	6300 04 00					
6mm	3100 06 00	10,5 ±0,1	13 mini	6 maxi	1,4 +0/-0,1	300 daN
OHIIII	6300 06 00	10,5 ±0,1	13 111111	Ulliaxi	1,4 +0/-0,1	300 dain
	3100 08 00					
8mm & 5/16"	3100 08 00 99	13,5 ±0,1	15,5 mini	8 maxi	1,7 +0/-0,1	350 daN
	6300 08 00					
10mm	3100 10 00	16 ±0,1	19 mini	10 maxi	1,7 +0,1/-0	350 daN
TOTTITI	6300 10 00	10 ±0,1				
12mm	3100 12 00	19 ±0,1	21 mini	12 maxi	1,8 +0,1/-0	400 daN
12111111	6300 12 00	19 ±0,1				
14mm	3100 14 00	22,05 ±0,1	25 mini	14 maxi	2,0 +0,1/-0	600 daN
1/8"	3100 53 00 99	$7,5 \pm 0,05$	9,5 mini	3,2 maxi	1,2 -0/+0,1	300 daN
1/4"	3100 56 00 99	11 ±0,1	12 E mini	6 E movi	1,4 -0,1/+0	300 daN
1/4	6300 56 00	11 ±0,1	13,5 mini	i 6,5 maxi	1,4 -0,1/+0	300 dain
3/8"	3100 60 00 99	16 ±0,1	19 mini	10 maxi	1,7 -0/+0,1	350 daN
3/0	6300 60 00	10 ±0,1	19 1111111	is iiiiii ii ii iiiaxi	1,7 -0/+0,1	330 dain
1/2"	6300 62 00	22,1 ±0,1	25 mini	12,7 maxi	1,9 +0,1/-0	400 daN

#### **Leak test**

In order to validate the Carstick® insertion and the sealing, we recommend that you carry out a leak test with a specific gauge. The gauge dimensions are shown in the Carstick® drawing.

The gauge and the Carstick® must be in line during the insertion to avoid any damage on the gripping ring leading to product malfunction.

You may use a specific insertion tool equipped with a force device to prevent the destruction of a component.

#### **Tubing recommendations**

We recommend that you respect the tubing bend radius according to tubing material, diameter or applicable standards. Please refer to Parker interactive catalogue through this <u>link</u>.

It is not necessary to add grease or oil to the tubing.

#### **Stem connector**

Carstick+ can be connected with stem made of plastic or metal.

A roughness of Ra 1.6 is required.

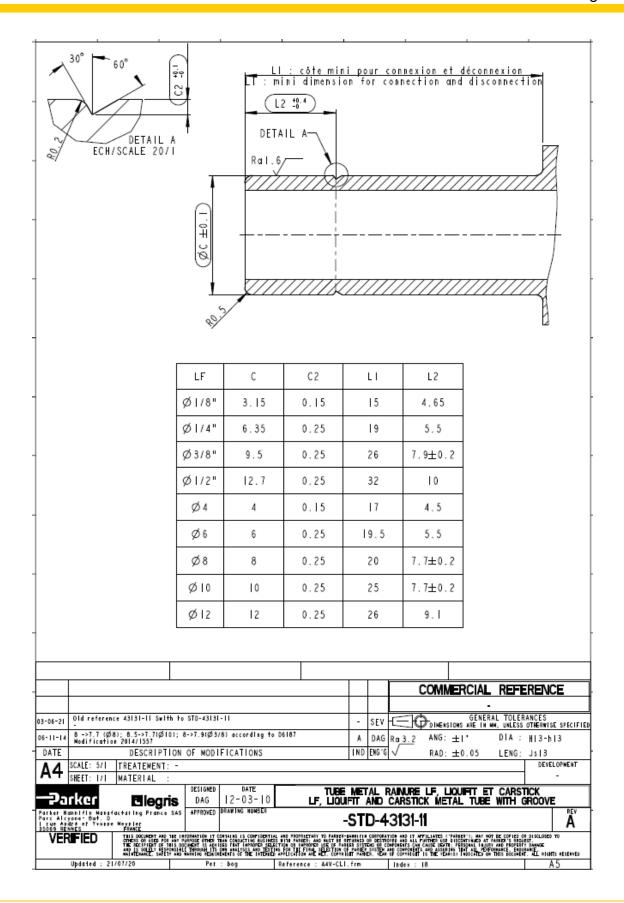
Stem connectors made of metal require a groove to ensure a correct connection.

The dimensions of the grooves are shown in the drawing below.





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#### How to connect the tubing

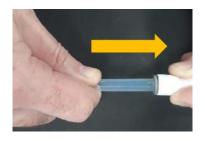
Connect tubing into Carstick® manually and in line. You can mark the tubing to make sure it is fully connected. You can pull the tubing to confirm the connection. Do not add oil or grease.



We strongly advise the use of the Parker tube cutter part number 3000 71 00. It gives a clean cut at right angles to the tubing axis. The tubes must not have any scratches or scores. The tube ends must be cut off before each connection.



The tubes must be cut off burr-free at an angle of 90°±5°.



Care must be taken to ensure that the tube is pushed through the seal when inserting it. The tube should be as straight as possible and not bent.

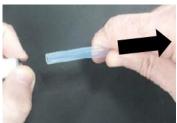
- 1. Hold the tube about 20 mm from the end where the support sleeve is inserted
- 2. Insert the tube into the fitting
- 3. Keep pressing until the tube is pressed against the stop. (Feels like the tube is being compressed). When the tube reaches the stop, a second stop is felt.

#### How to disconnect the tubing

The connectors are designed so that they can be connected and disconnected up to 5 times after they have been assembled for the first time.



Push the release button manually



Pull the tubing in line with the Carstick® while maintaining the release button pressed

#### **Appendix: Product & cavity drawings**





### Appendix

Product & cavity drawings

# Carstick®

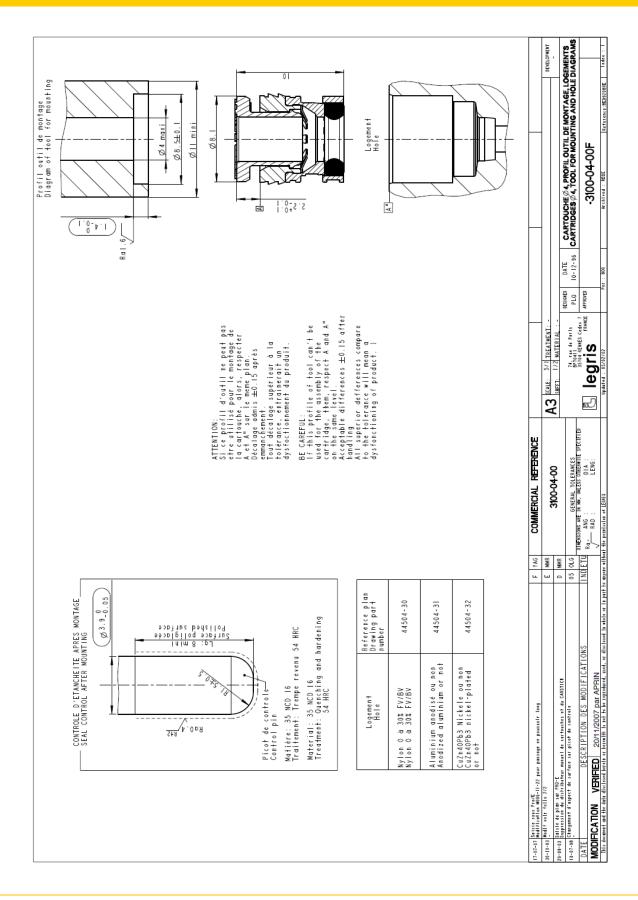
3100 04 00 3100 04 00 99 6300 04 00

Suffix 99 at the end of the Part Number means the retaining sleeve is nickel plated

Tubing O.D.	Part Number	Housing material	Cavity drawing N°
4mm	3100 04 00	Polyamide 0% to 30 % glass fibre	44504-30
4mm 5/32"	3100 04 00 99	Aluminium anodized or not	44504-31
3/32	6300 04 00	CuZn40Pb3 nickel plating or not	44504-32

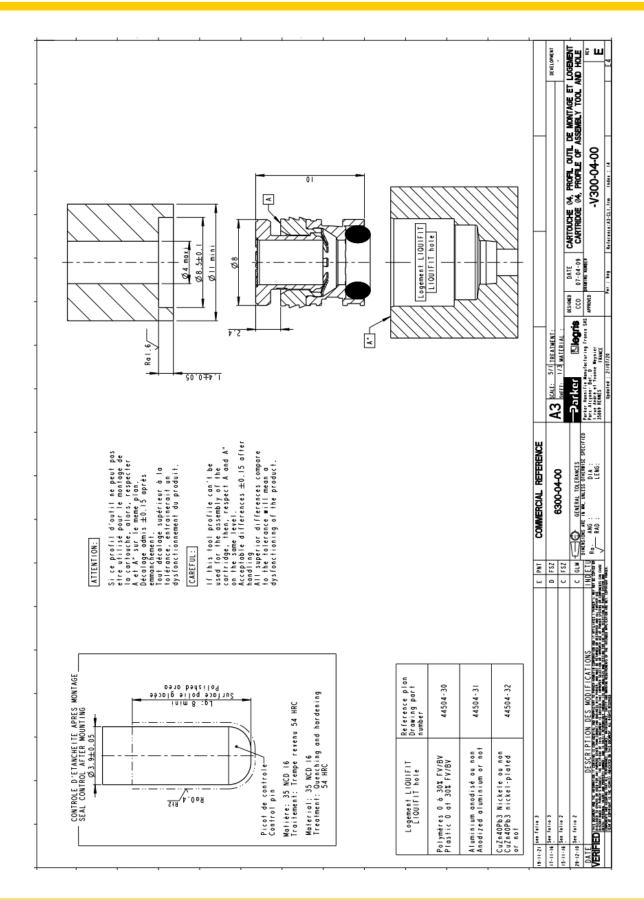






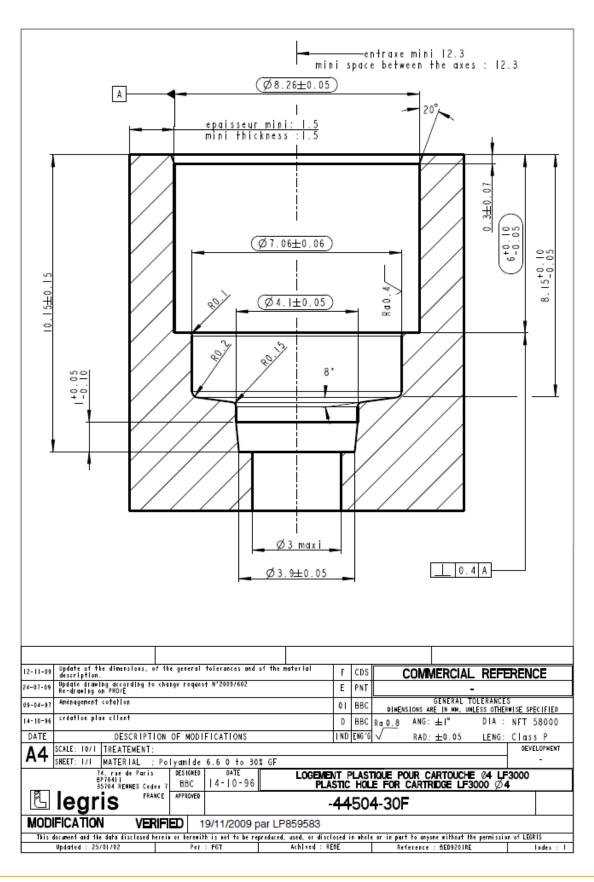








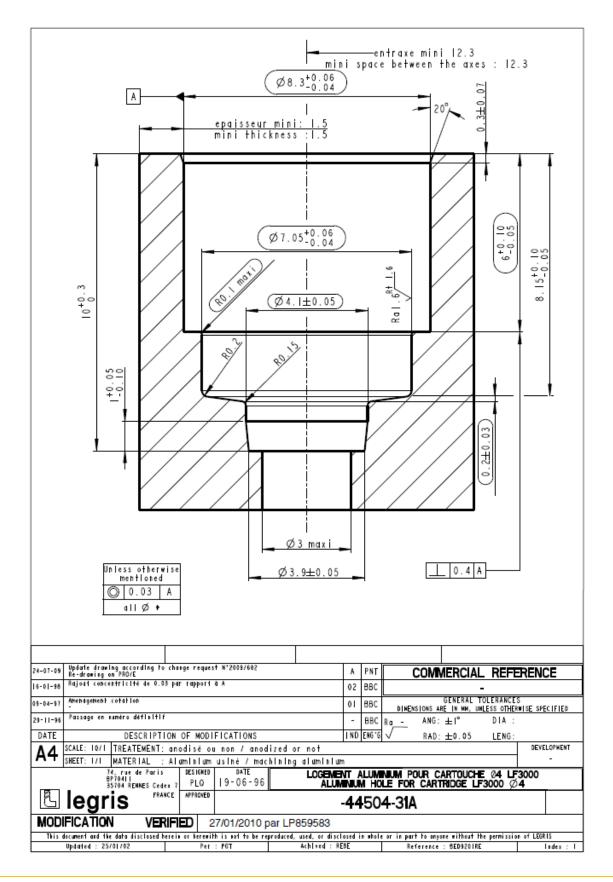








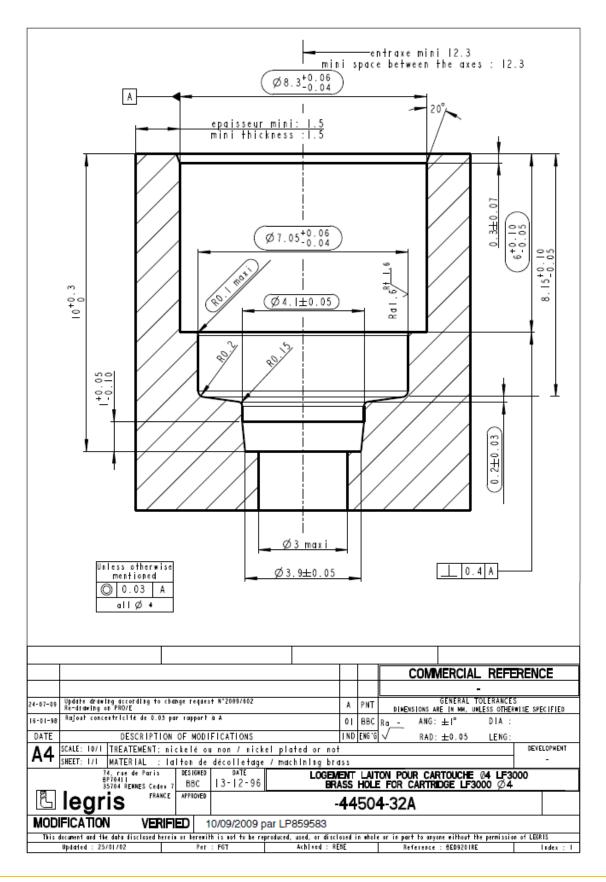
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### Appendix

Product & cavity drawings

# Carstick®

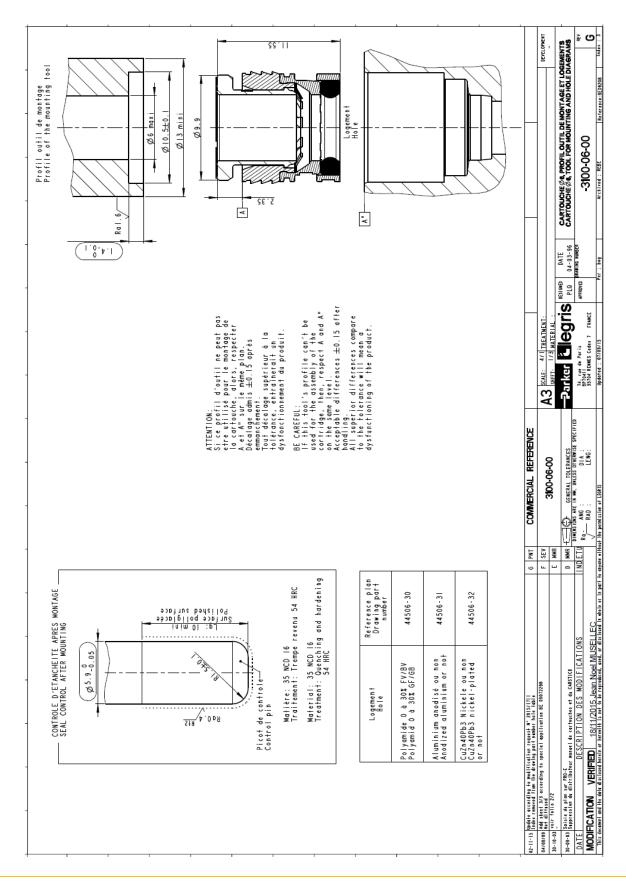
3100 06 00 6300 06 00

Tubing O.D.	Part Number	Housing material	Cavity drawing N°
6mm	3100 06 00 6300 06 00	Polyamide 0% to 30 % glass fibre	44506-30
		Aluminium anodized or not	44506-31
		CuZn40Pb3 nickel plating or not	44506-32
		Unfilled Polypropylene	44506-35





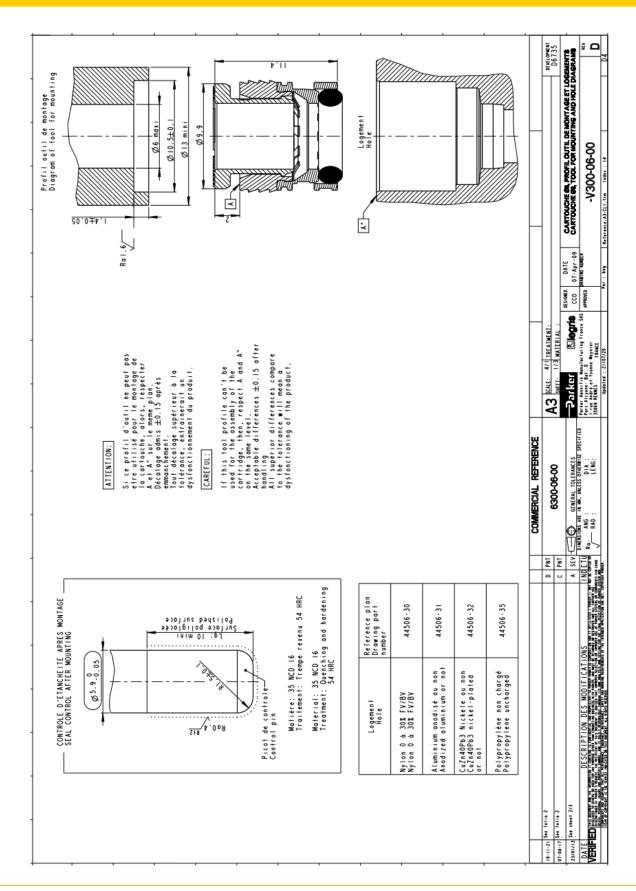
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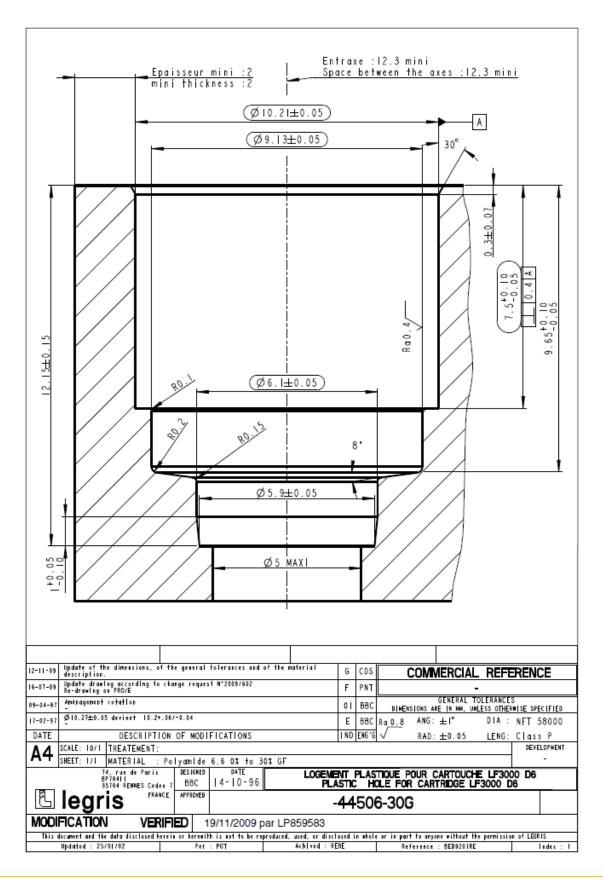


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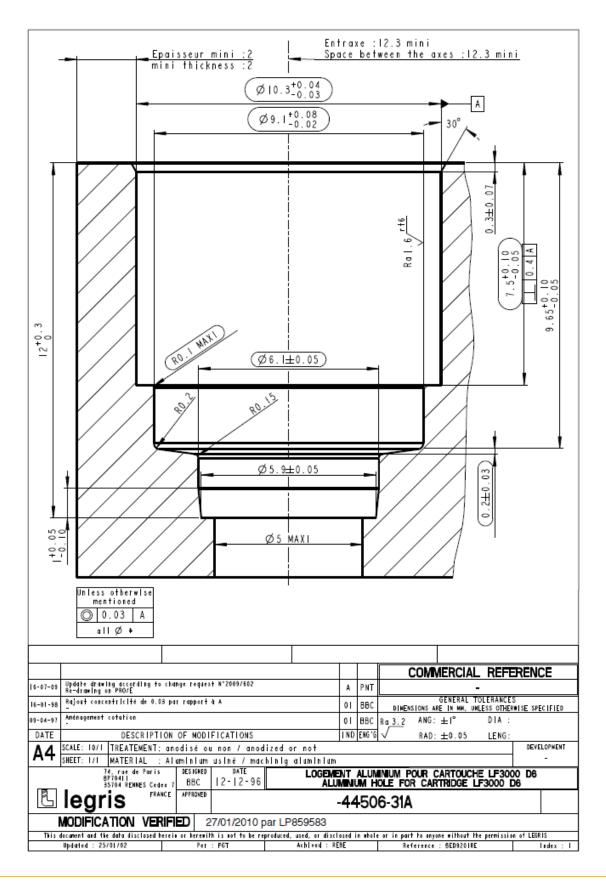








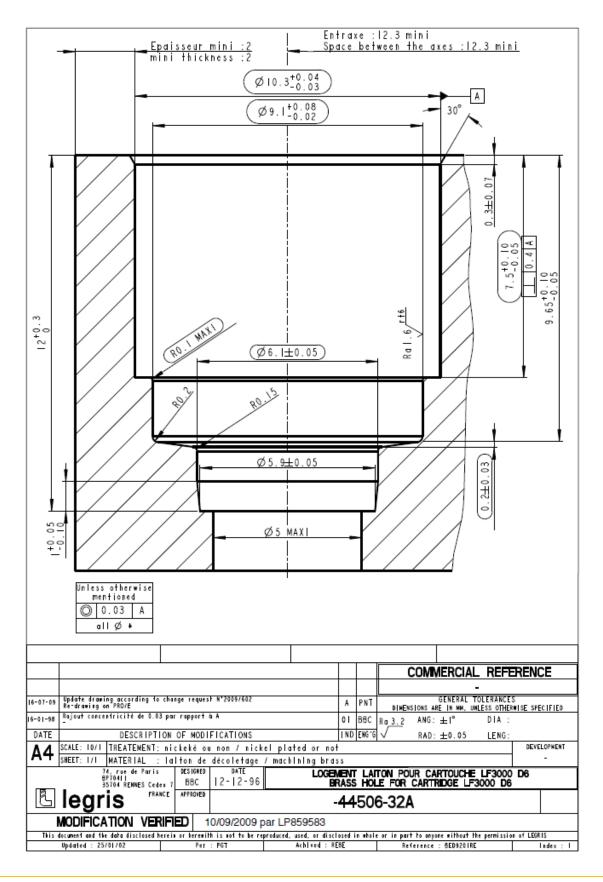
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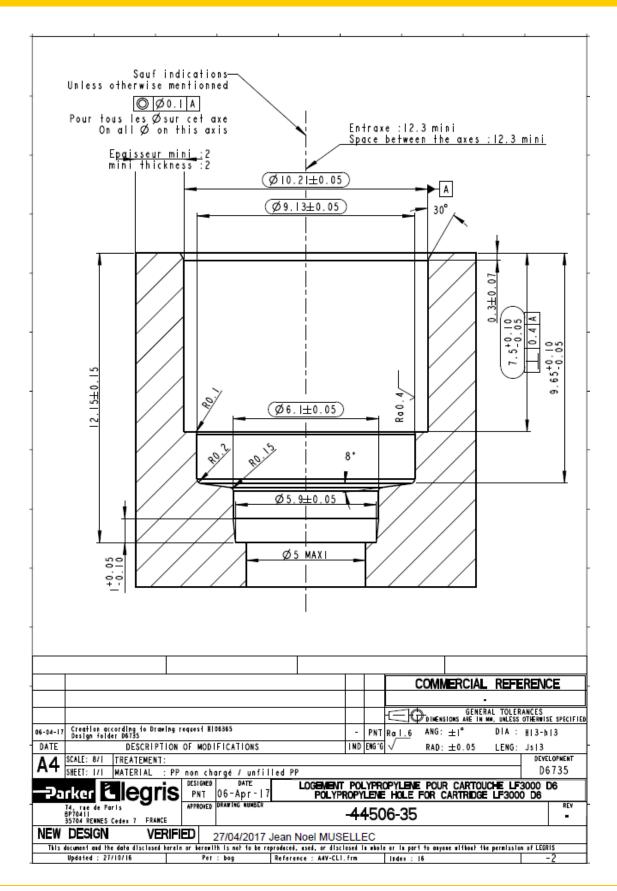
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### Appendix

Product & cavity drawings

# Carstick®

3100 08 00 3100 08 00 99 6300 08 00

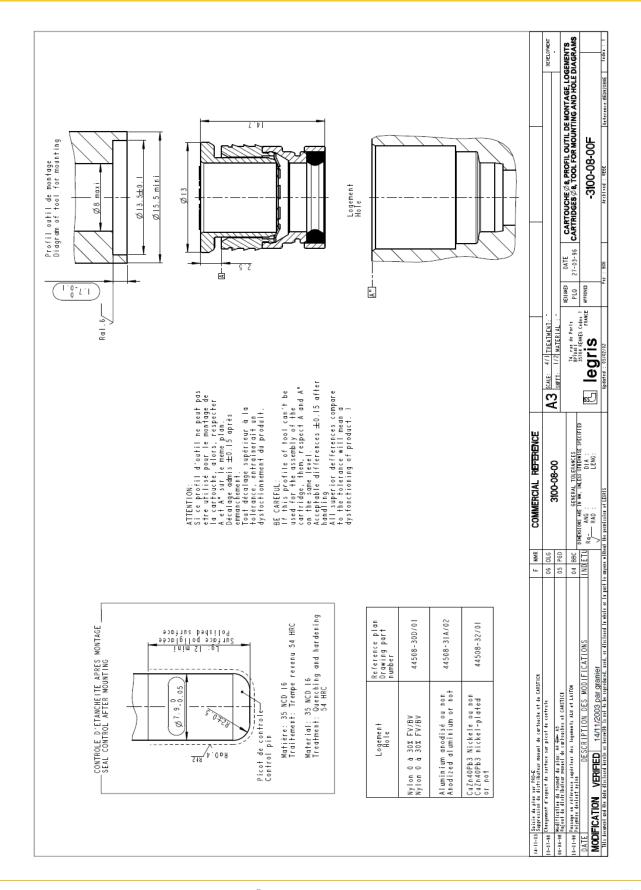
Suffix 99 at the end of the Part Number means the retaining sleeve is nickel plated

Tubing O.D.	Part Number	Housing material	Cavity drawing N°
0mm	3100 08 00	Polyamide 0% to 30 % glass fibre	44508-30
8mm 5/16"	3100 08 00 99	Aluminium anodized or not	44508-31
5/10	6300 08 00	CuZn40Pb3 nickel plating or not	44508-32



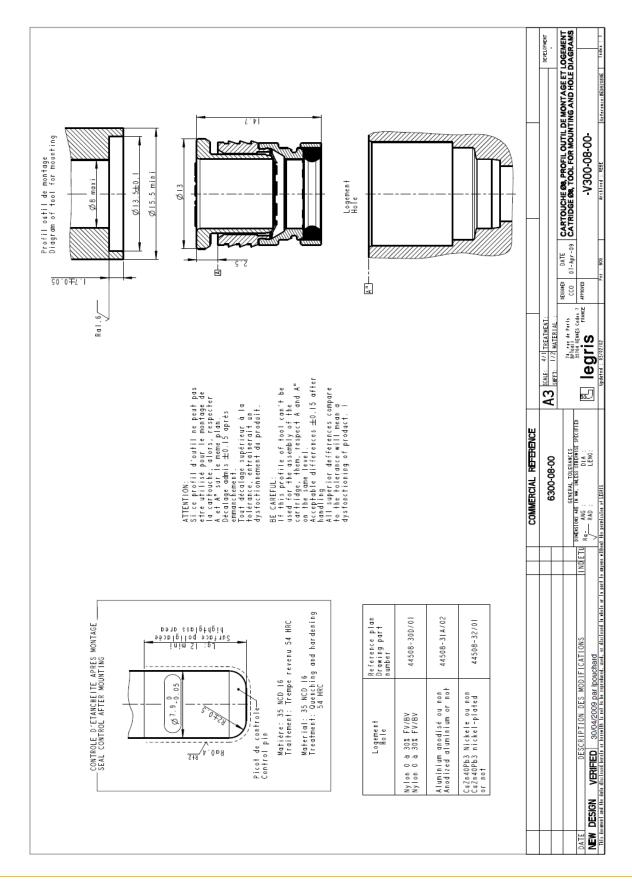


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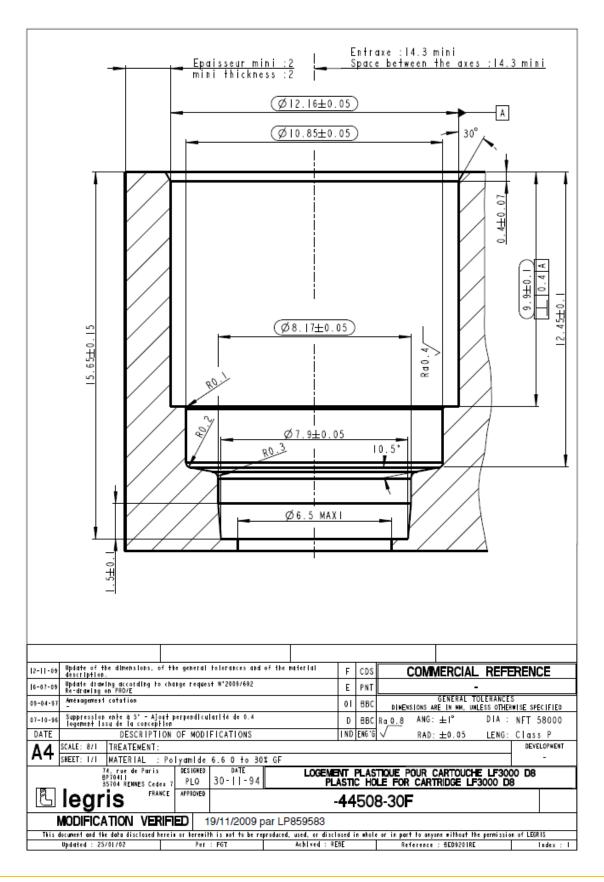






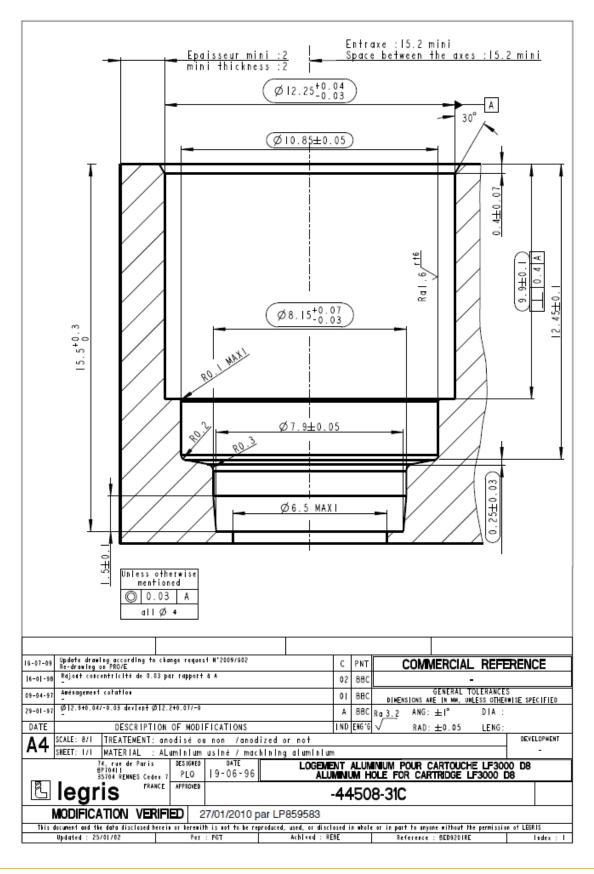


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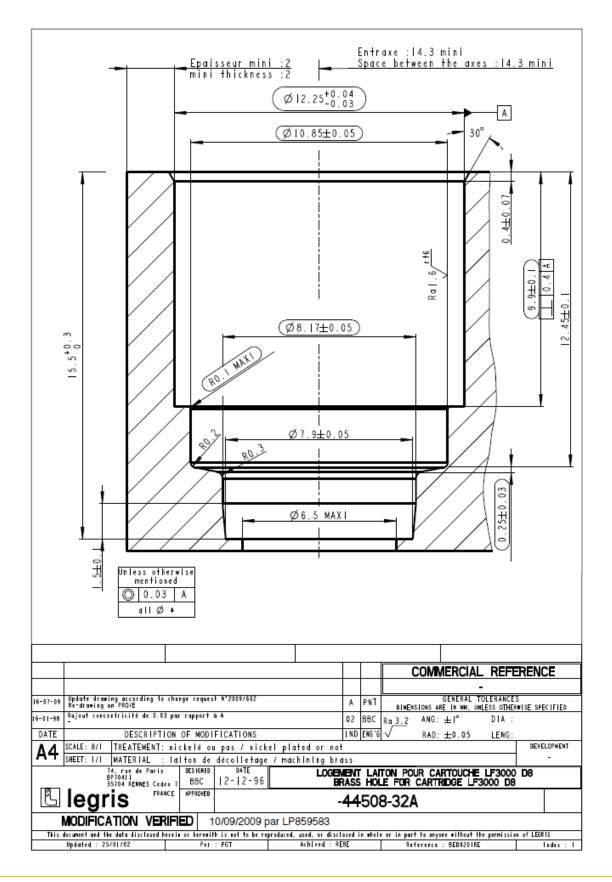








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### Appendix

Product & cavity drawings

# Carstick®

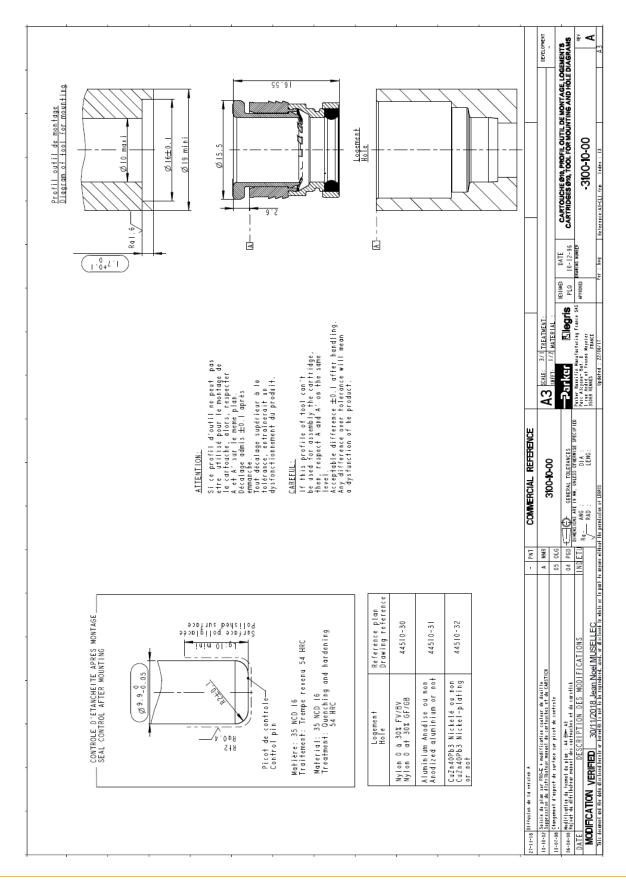
3100 10 00 6300 10 00

Tubing O.D.	Part Number	Housing material	Cavity drawing N°
10mm		Polyamide 0% to 30 % glass fibre	44510-30
	3100 10 00 6300 10 00	Aluminium anodized or not	44510-31
		CuZn40Pb3 nickel plating or not	44510-32
		Unfilled Polypropylene	44510-35





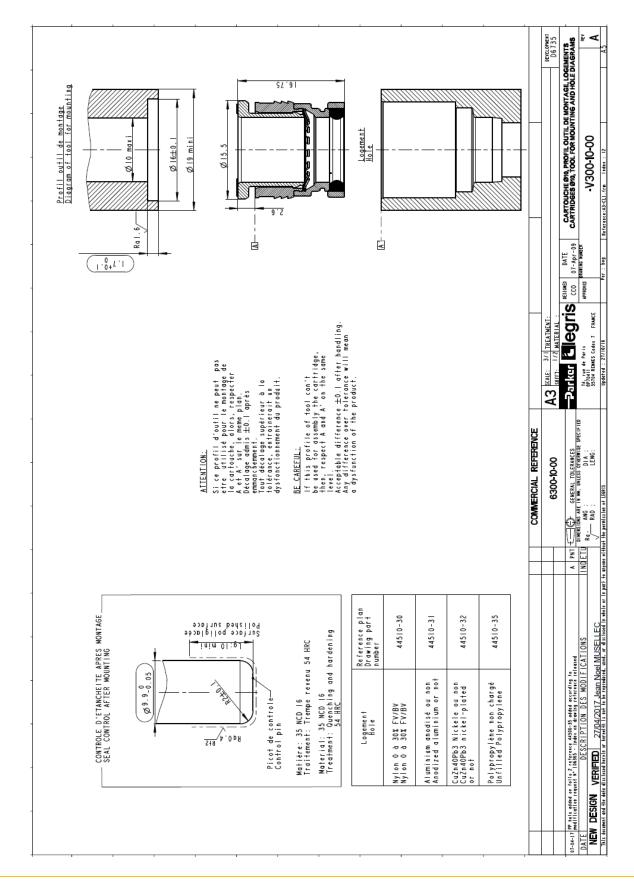
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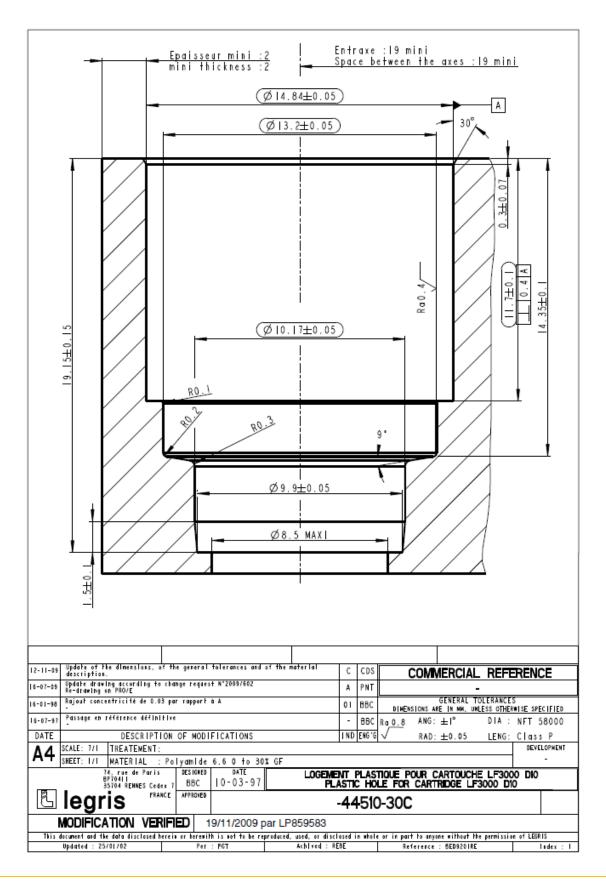
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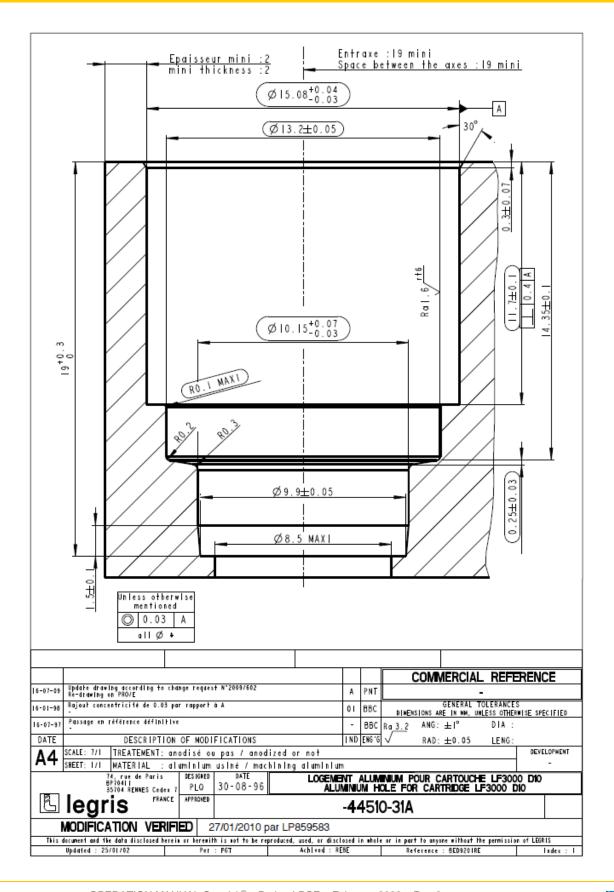
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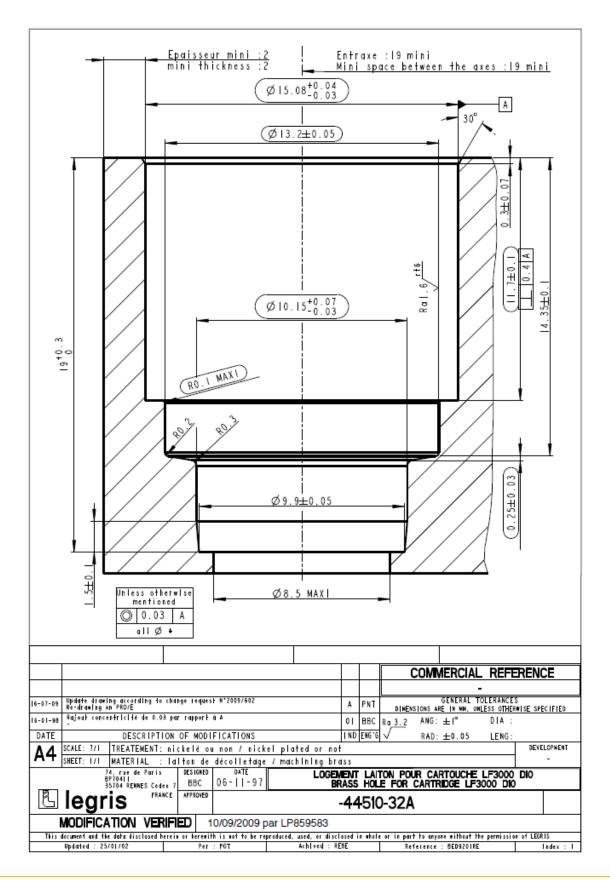
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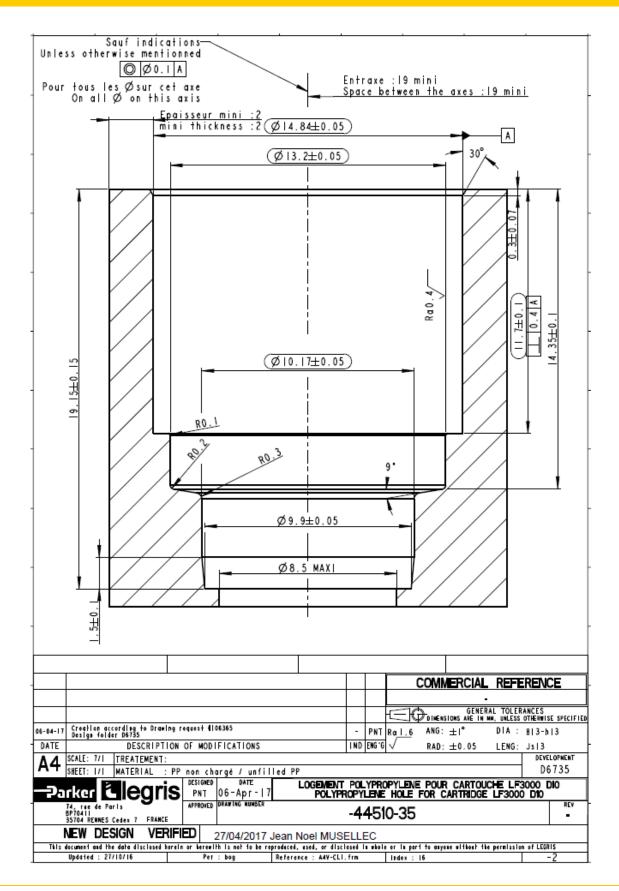
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### Appendix

Product & cavity drawings

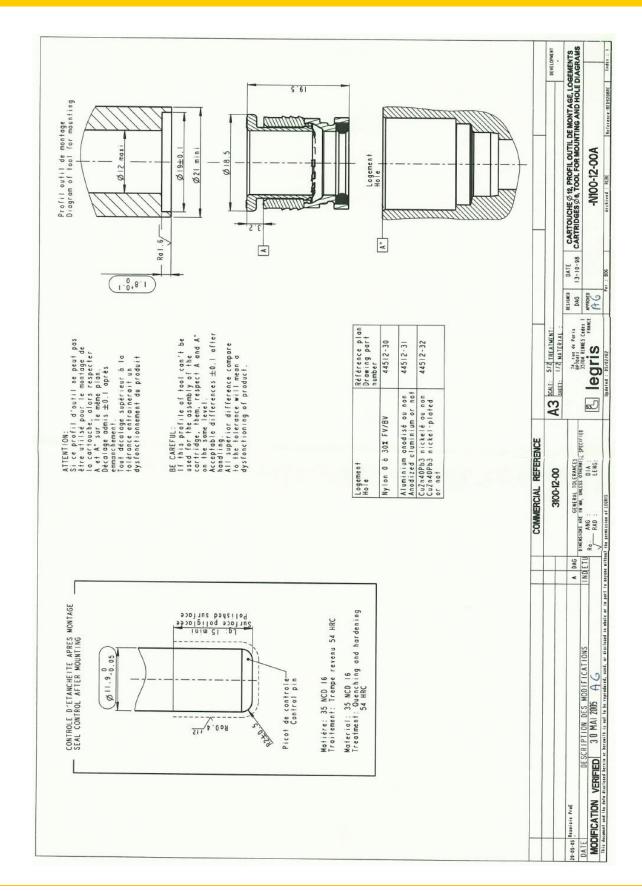
# Carstick®

3100 12 00 6300 12 00

Tubing O.D.	Part Number	Housing material	Cavity drawing N°
12mm	3100 12 00 6300 12 00	Polyamide 0% to 30 % glass fibre	44512-30
		Aluminium anodized or not	44512-31
		CuZn40Pb3 nickel plating or not	44512-32

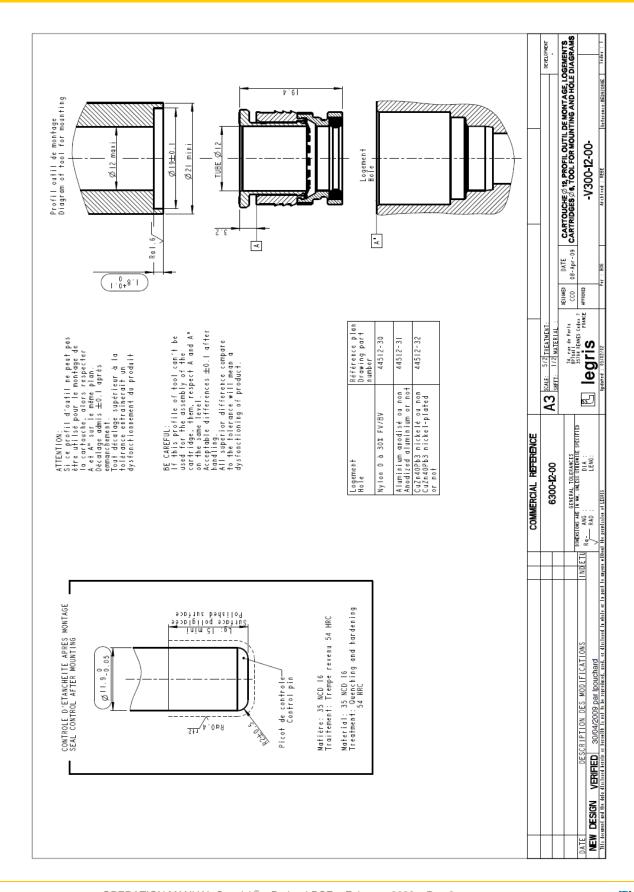








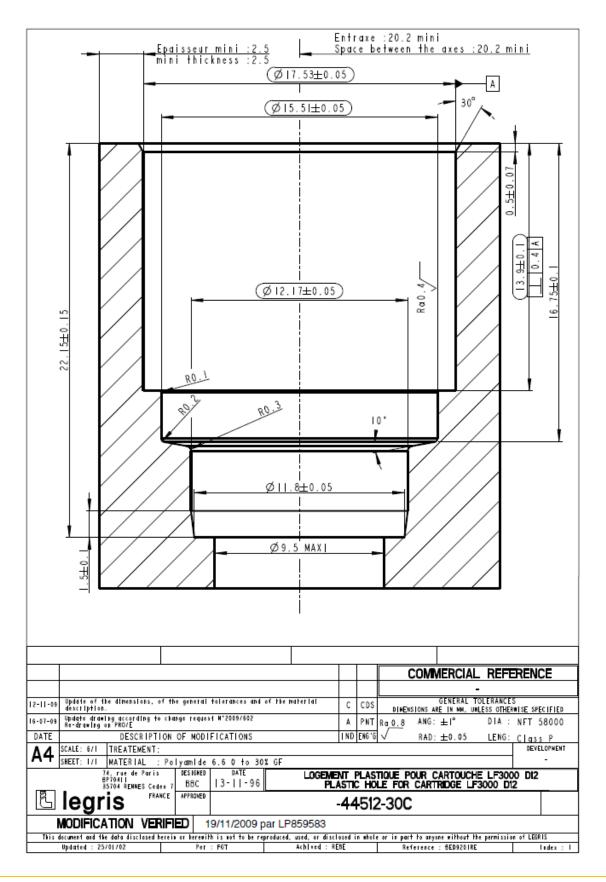








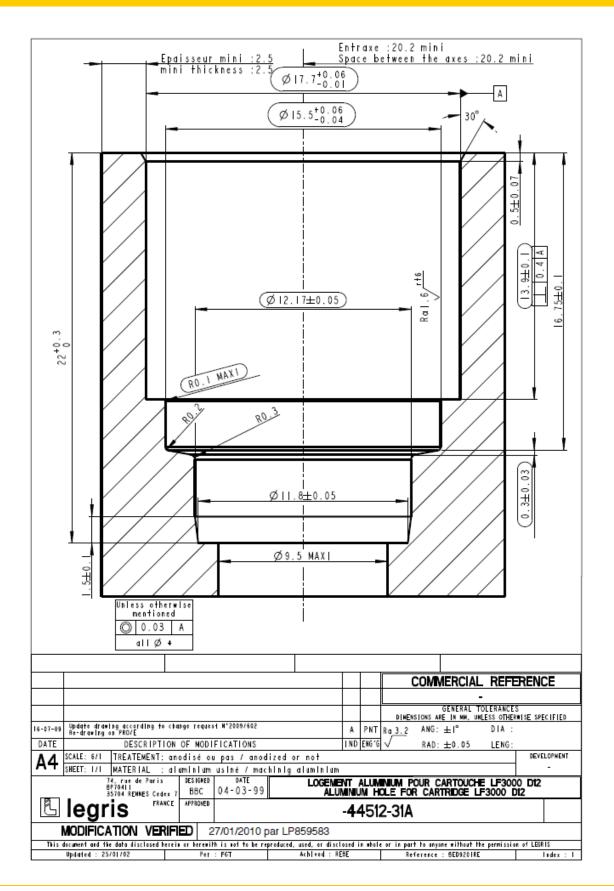
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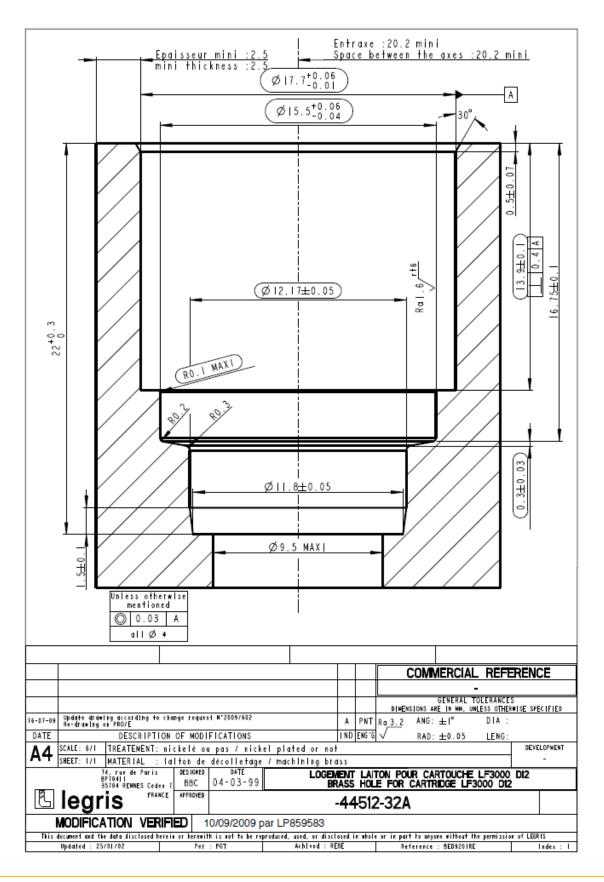
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### Appendix

Product & cavity drawings

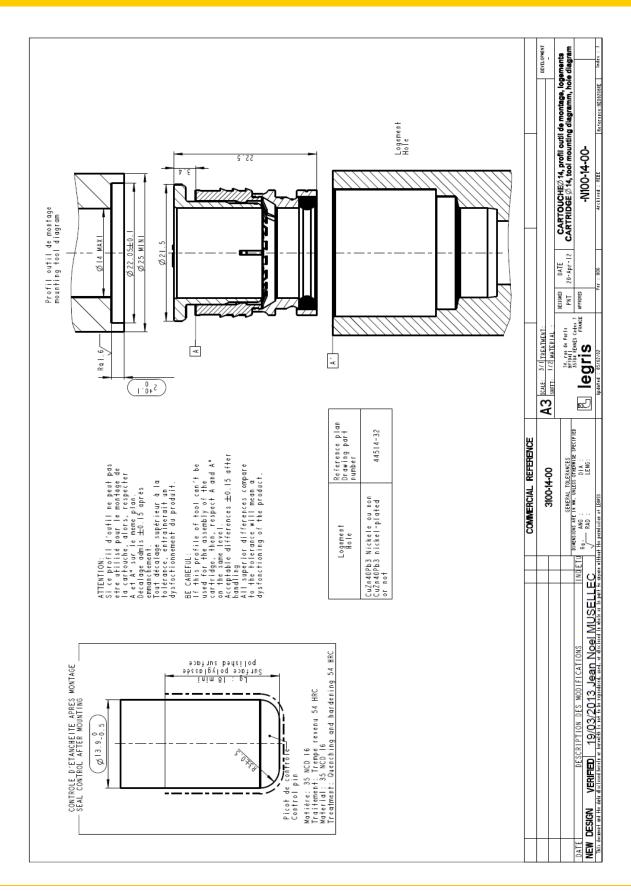
# Carstick®

3100 14 00

Tubing O.D.	Part Number	Housing material	Cavity drawing N°
14mm	3100 14 00	Polyamide 0% to 30% GF/GB	44514-30
		Aluminium anodized or not	44514-31
		CuZn40Pb3 nickel plated or not	44514-32



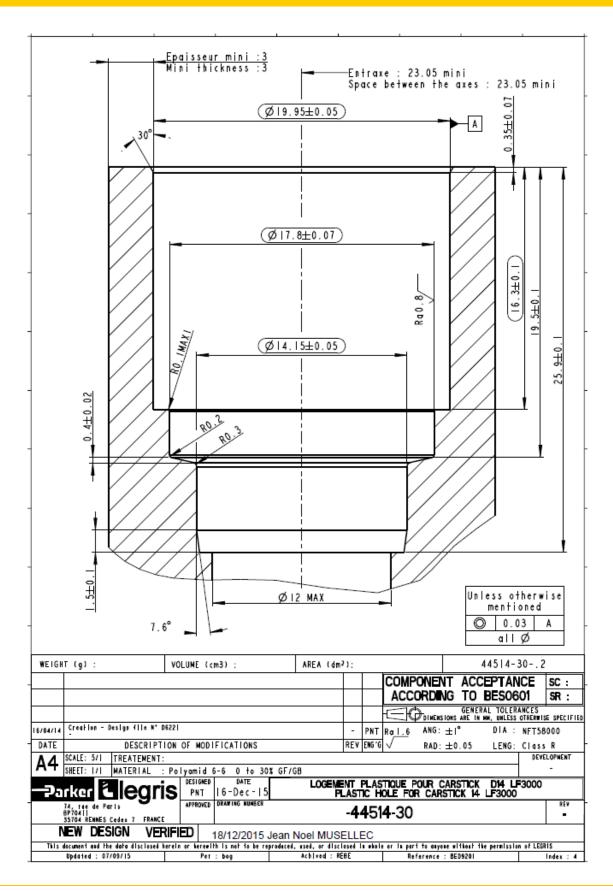








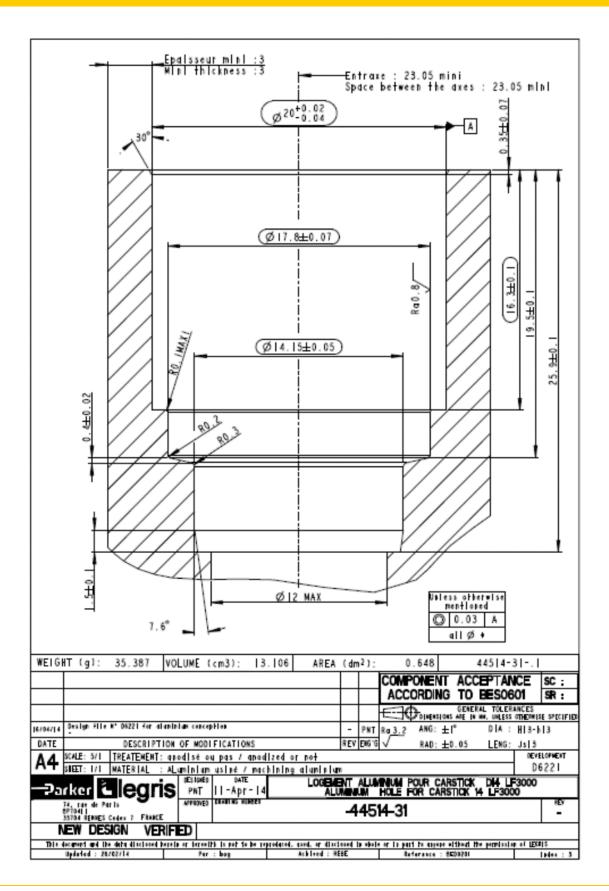
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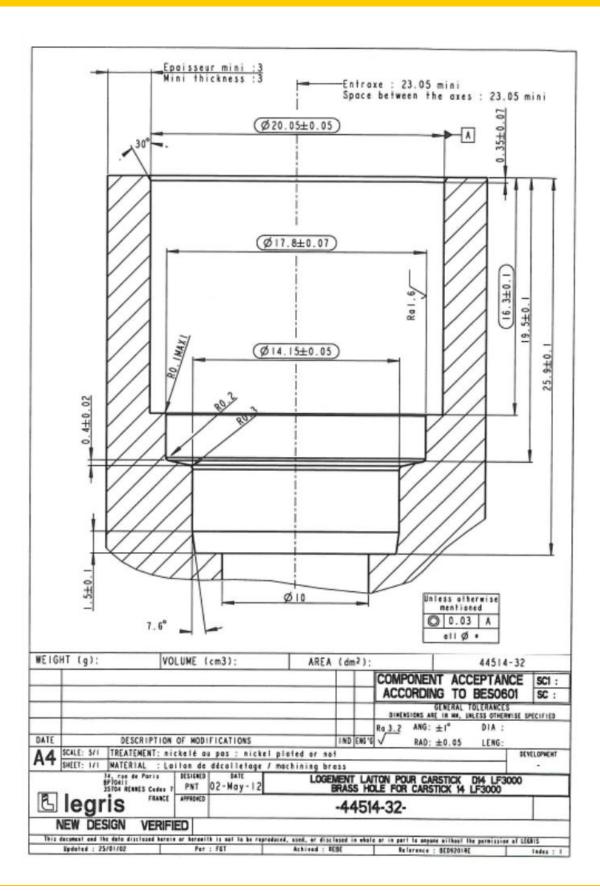


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### Appendix

Product & cavity drawings

# Carstick®

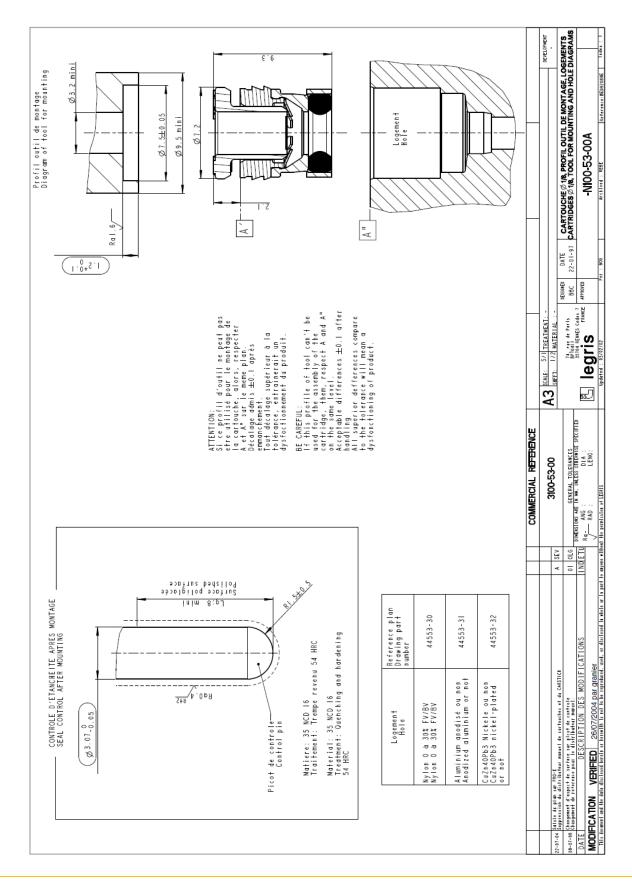
3100 53 00 99

Suffix 99 at the end of the Part Number means the retaining sleeve is nickel plated

Tubing O.D.	Part Number	Housing material	Cavity drawing N°
1/8"	3100 53 00 99	Polyamide 0% to 30 % glass fibre	44553-30
		Aluminium anodized or not	44553-31
		CuZn40Pb3 nickel plating or not	44553-32

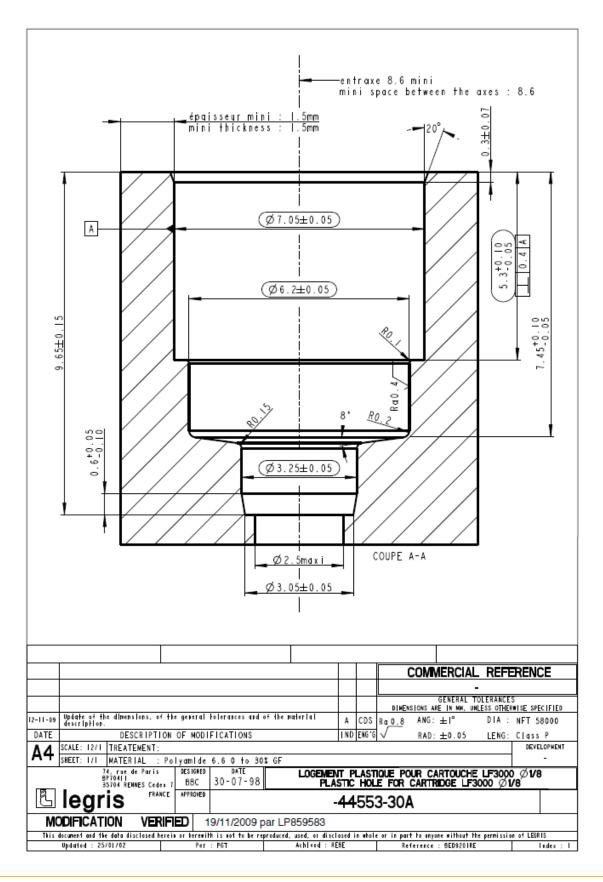






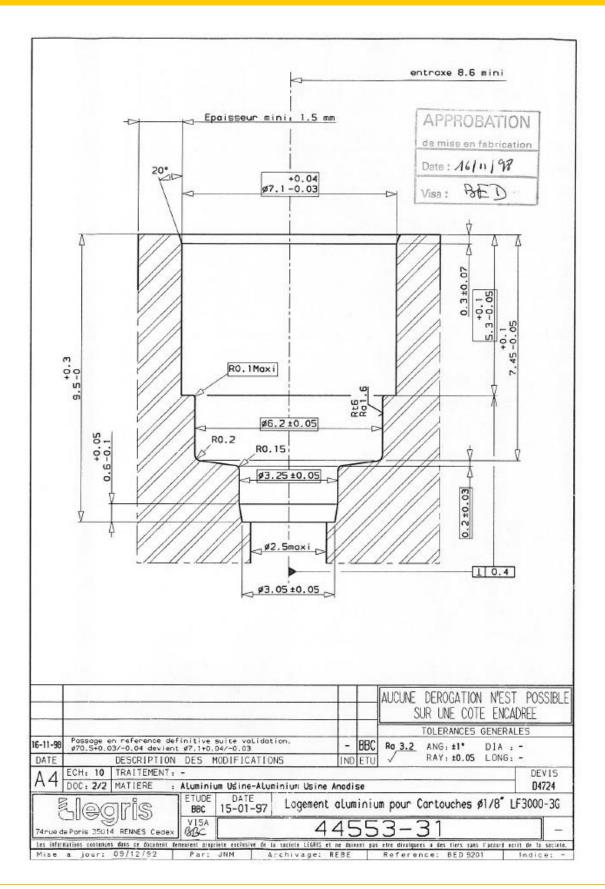






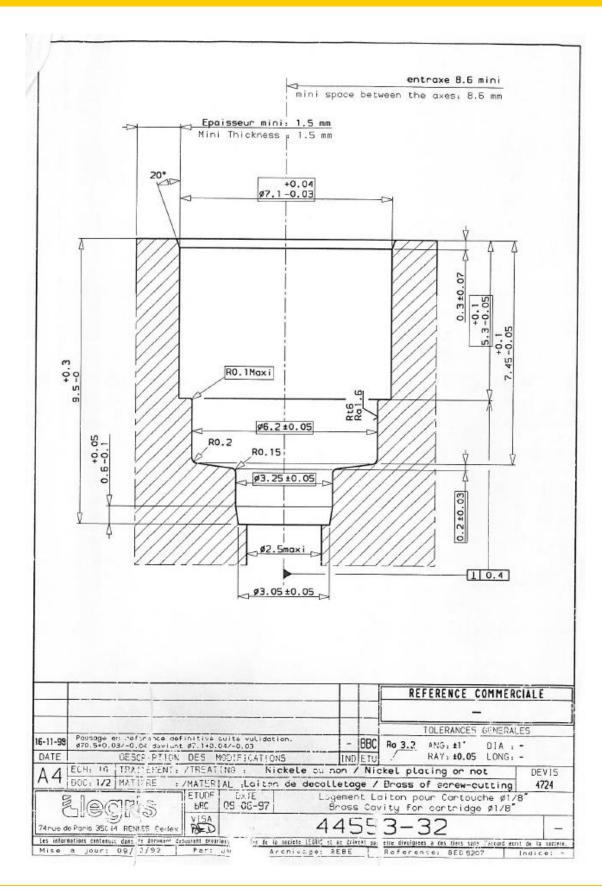
















### Appendix

Product & cavity drawings

# Carstick®

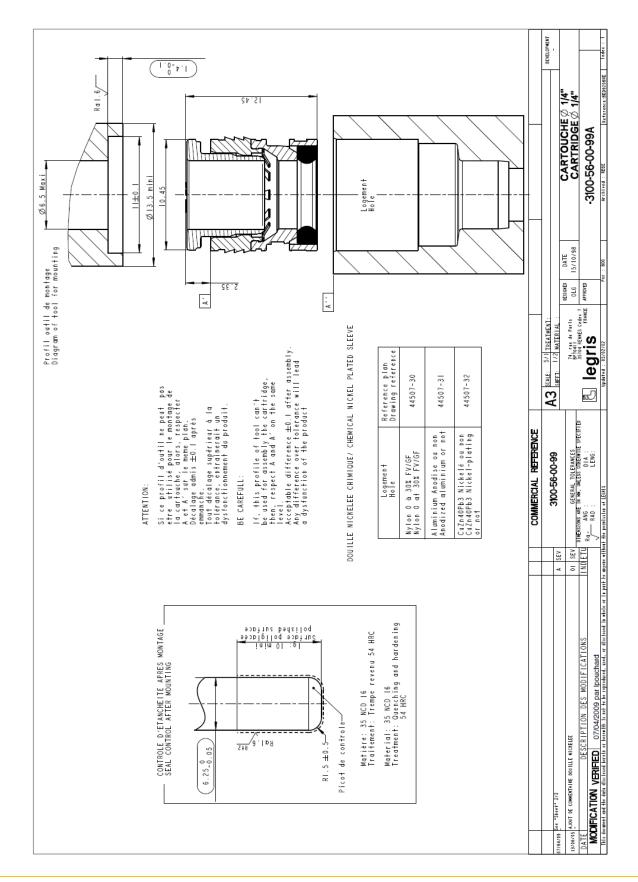
3100 56 00 99 6300 56 00

Suffix 99 at the end of the Part Number means the retaining sleeve is nickel plated

Tubing O.D.	Part Number	Housing material	Cavity drawing N°
1/4"	3100 56 00 99 6300 56 00	Polyamide 0% to 30 % glass fibre	44507-30
		Aluminium anodized or not	44507-31
		CuZn40Pb3 nickel plating or not	44507-32
		Unfilled Polypropylene	44507-37



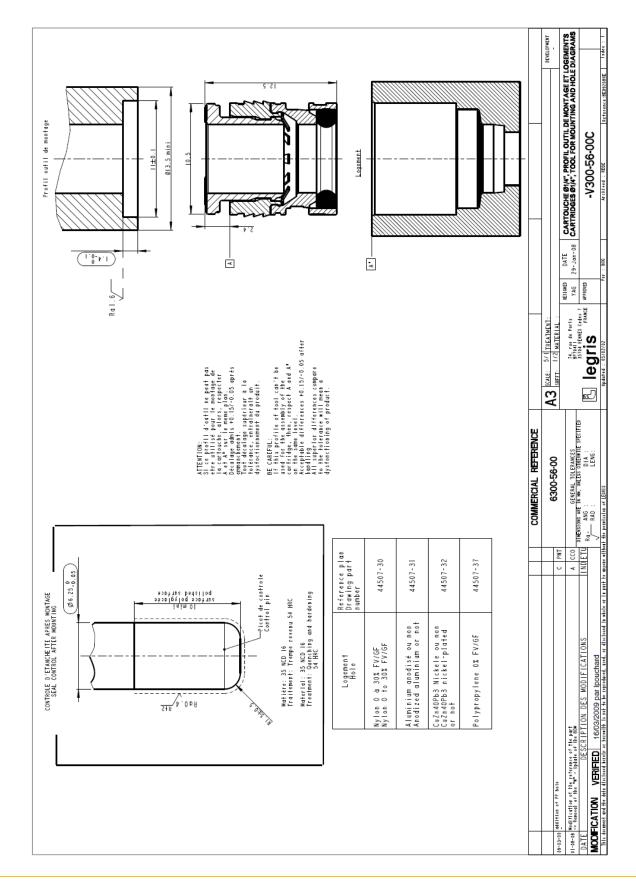








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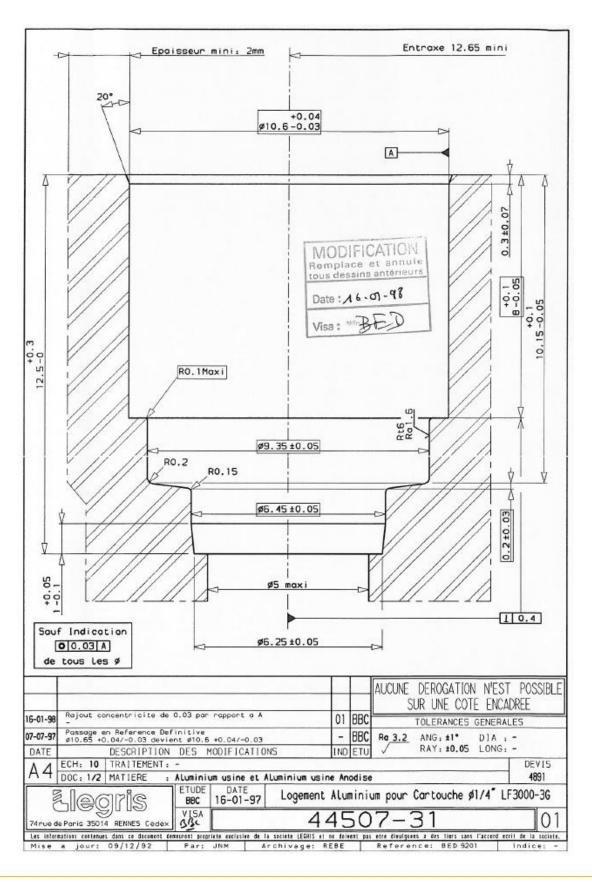




<u>Epaisseur mini : 2.03mm</u> mini thickness : 2mm Entraxe 12.7 mini-20° mini space between the axes : 12.7 3±0. 0.4 Α Ø 10.56±0.05 65±0.15 Ø 9.35±0.05 Ø 6.45±0.05 RO. 8. RO Ø5 Maxi Ø6.25±0.05 sauf indication O 0.03 A de tous les Ø ≠ Unless otherwise mentioned O 0.03 A all Ø ◆ WEIGHT (q): 1.901 VOLUME (cm3): 1.388 AREA (dm2): 0.132 44507-30 COMPONENT ACCEPTANCE ACCORDING TO BESO601 Update of the dimensions, of the general talerances and of the material description. GENERAL TOLERANCES
DIMENSIONS ARE IN MM, UMLESS OTHERWISE SPECIFIED 12-11-09 C CDS DAG Ra 0.8 ANG: ±1° Resgisie ProE DIA: NFT 58000 19-09-06 DATE DESCRIPTION OF MODIFICATIONS RAD: ±0.05 LENG: Class P SCALE: 8/I TREATEMENT: DEVELOPMENT SHEET: 1/1 MATERIAL : Polyamlde 6.6 0 to 30% GF 74, rue de Paris BP70411 35704 RENNES Cedex 7 DESIGNED DATE Logement plastique carstick pour cartouches \$\times 1/4^{\circ}\$
Plastic carstick cavity for cartridges \$\times 1/4^{\circ}\$ 10-06-97 BBC 🗓 legris -44507-30C MODIFICATION VERIFIED 19/11/2009 par LP859583 This document and the data disclosed herein or heremith is not to be reproduced, used, or disclosed in mhole or in part to anyone mithout the permission of LEGRIS Updated : 25/01/02 Achived : REBE

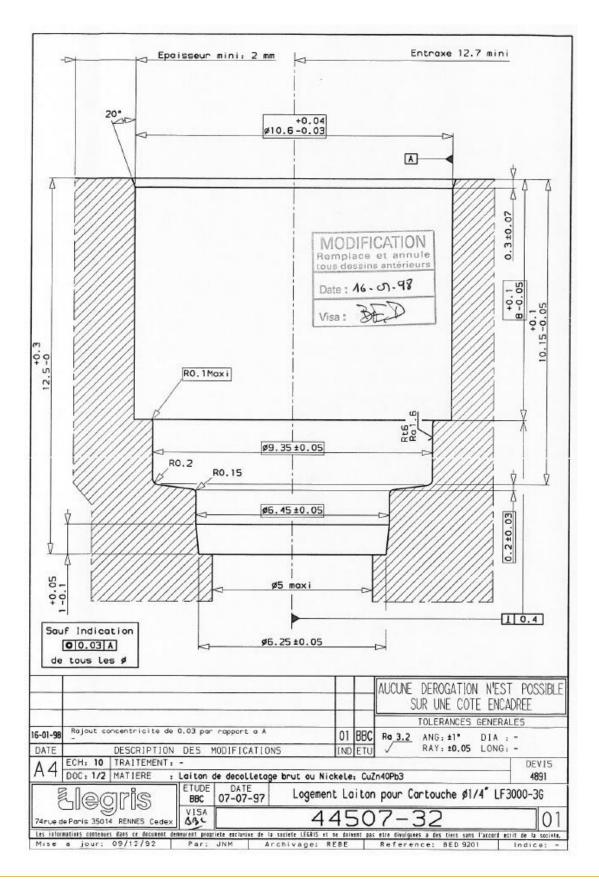






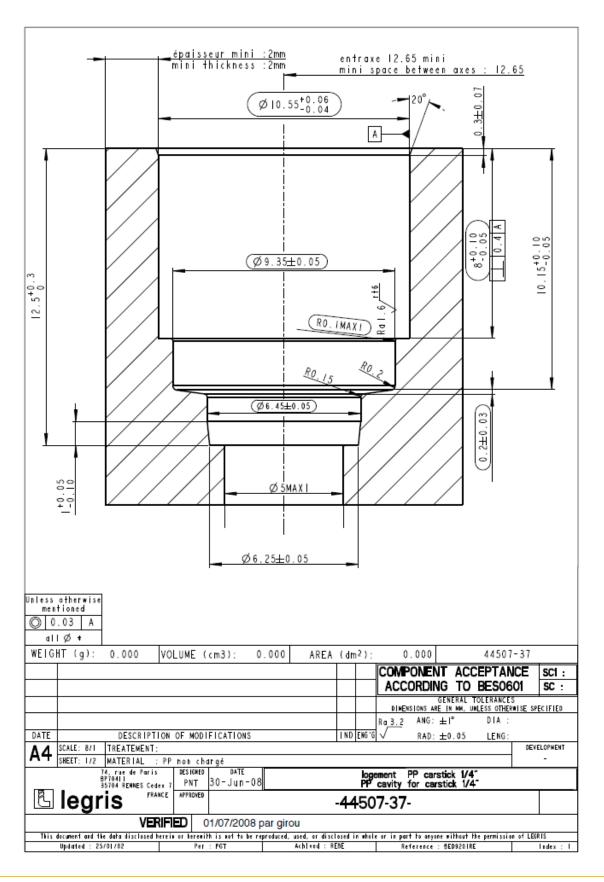
















### Appendix

Product & cavity drawings

# Carstick®

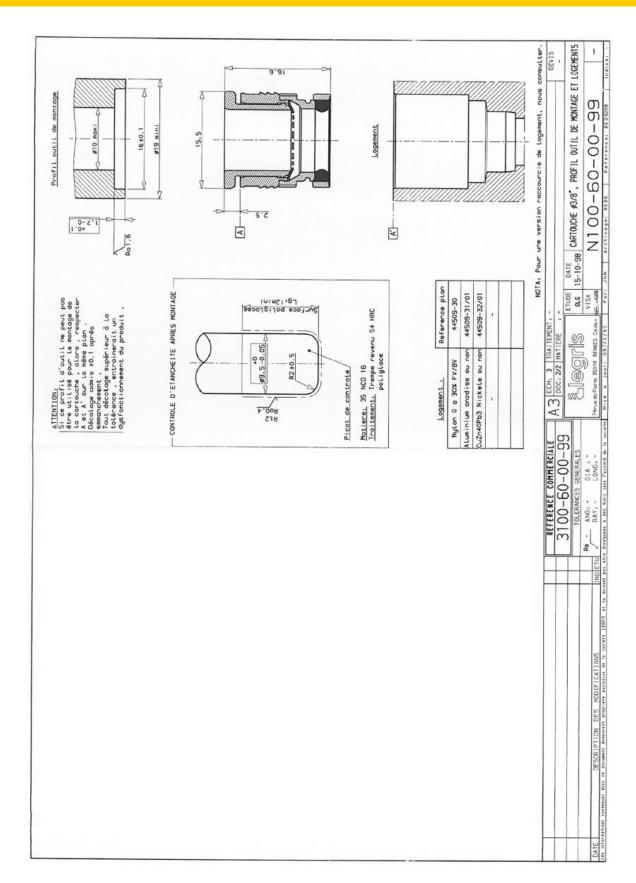
3100 60 00 99 6300 60 00

Suffix 99 at the end of the Part Number means the retaining sleeve is nickel plated

Tubing O.D.	Part Number	Housing material	Cavity drawing N°
3/8"	3100 60 00 99 6300 60 00	Polyamide 0% to 30 % glass fibre	44509-30
		Aluminium anodized or not	44509-31
		CuZn40Pb3 nickel plating or not	44509-32
		Unfilled Polypropylene	44509-36

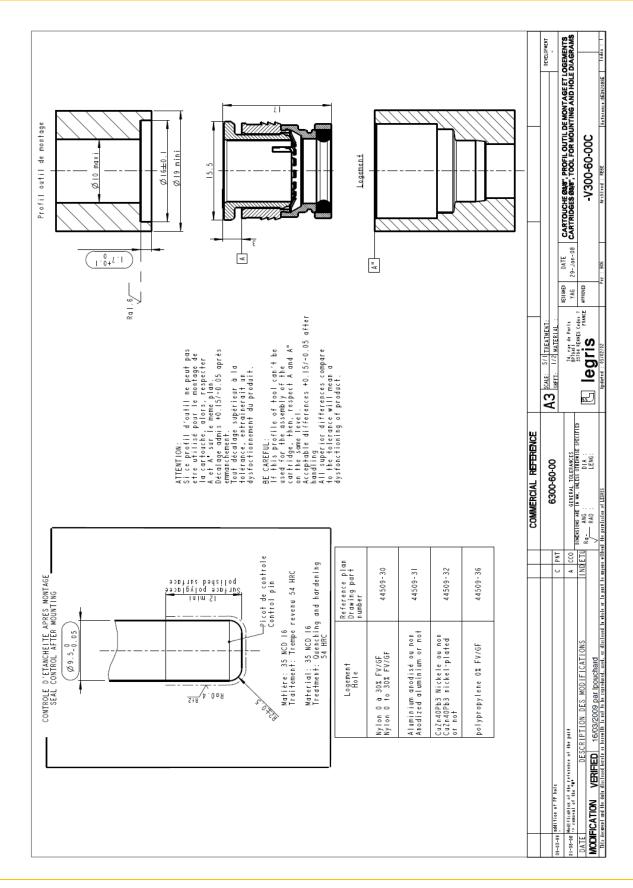






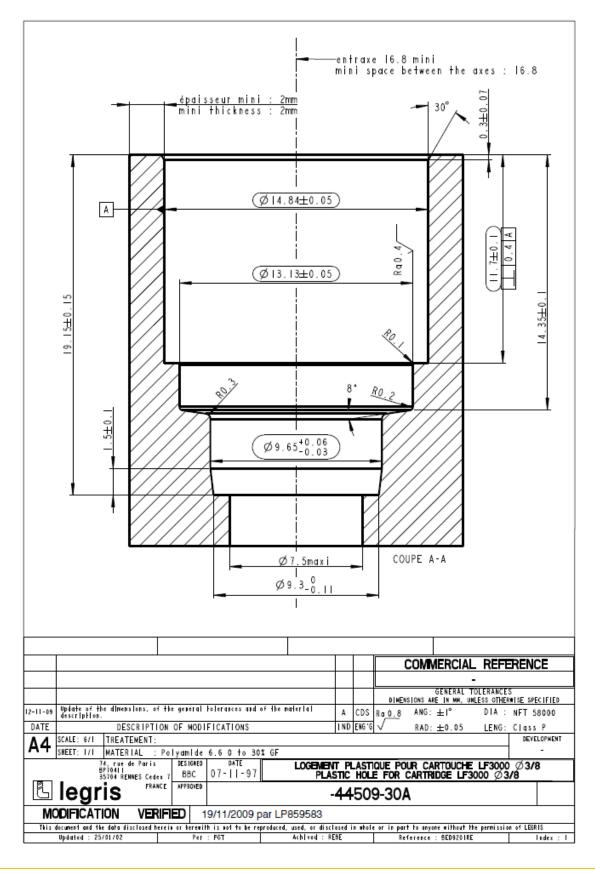






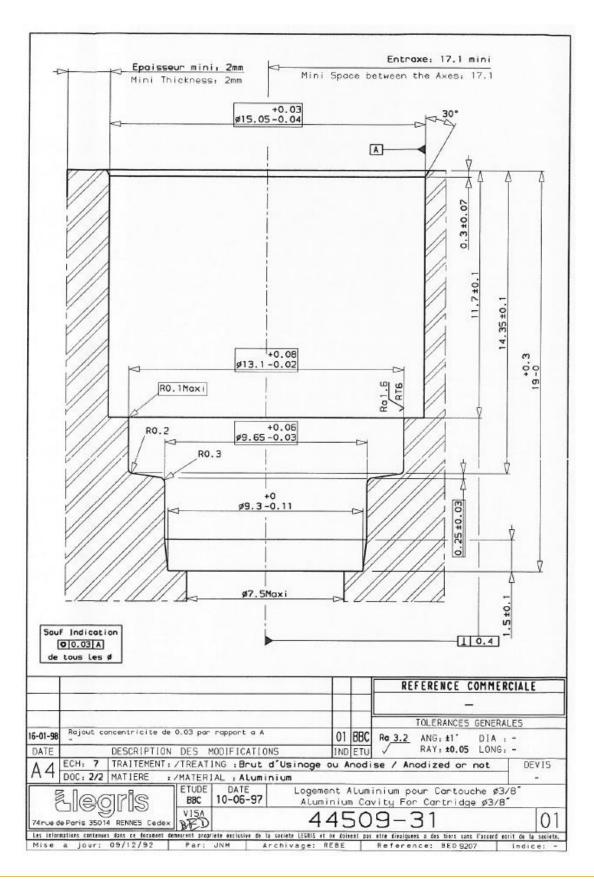






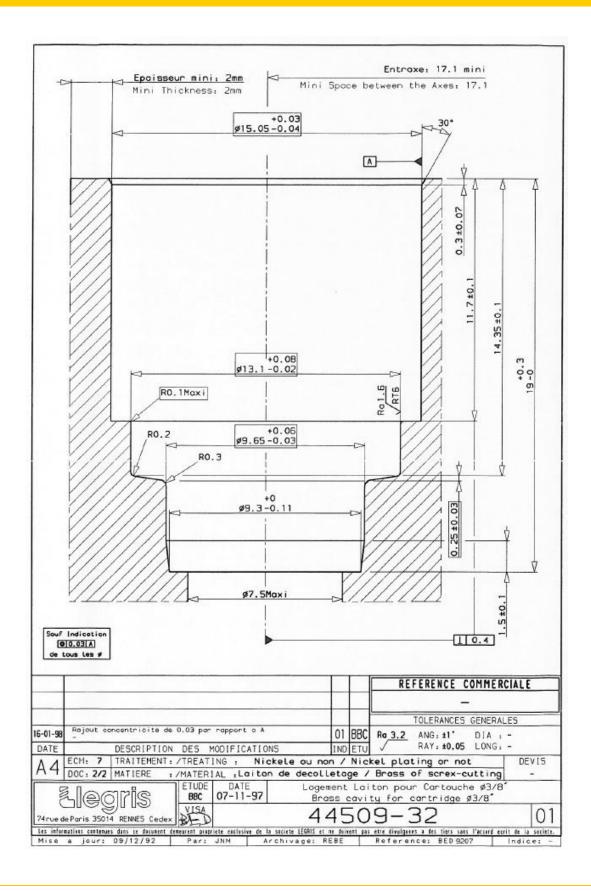






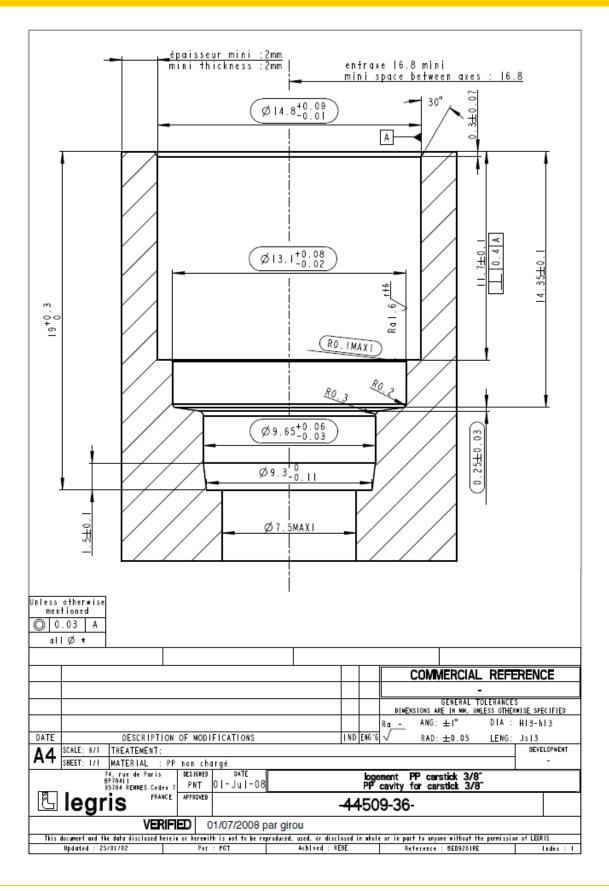
















### Appendix

Product & cavity drawings

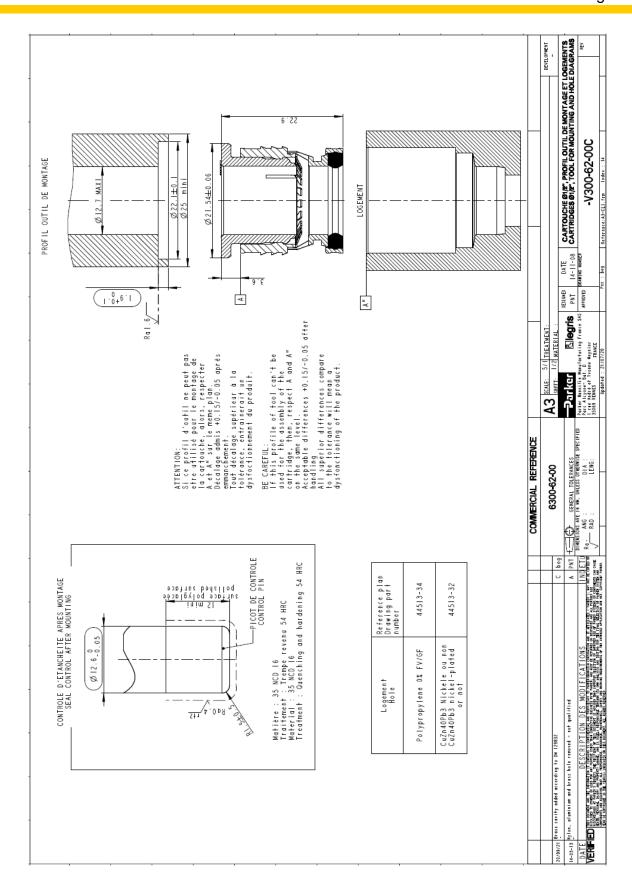
# Carstick®

6300 62 00

Tubing O.D.	Part Number	Housing material	Cavity drawing N°
1/2"	16300 62 00	CuZn40Pb3 nickel plating or not	44513-32
		Unfilled Polypropylene	44513-34



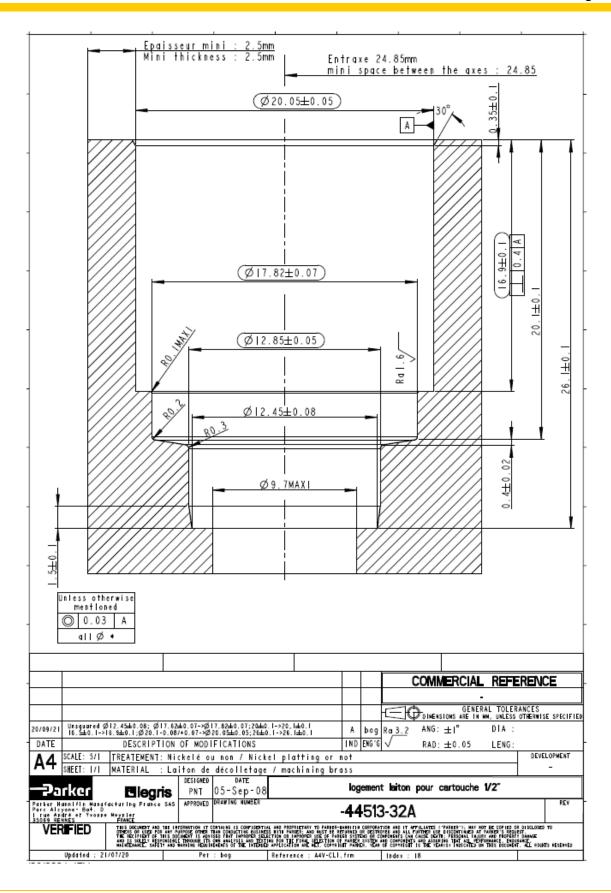








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