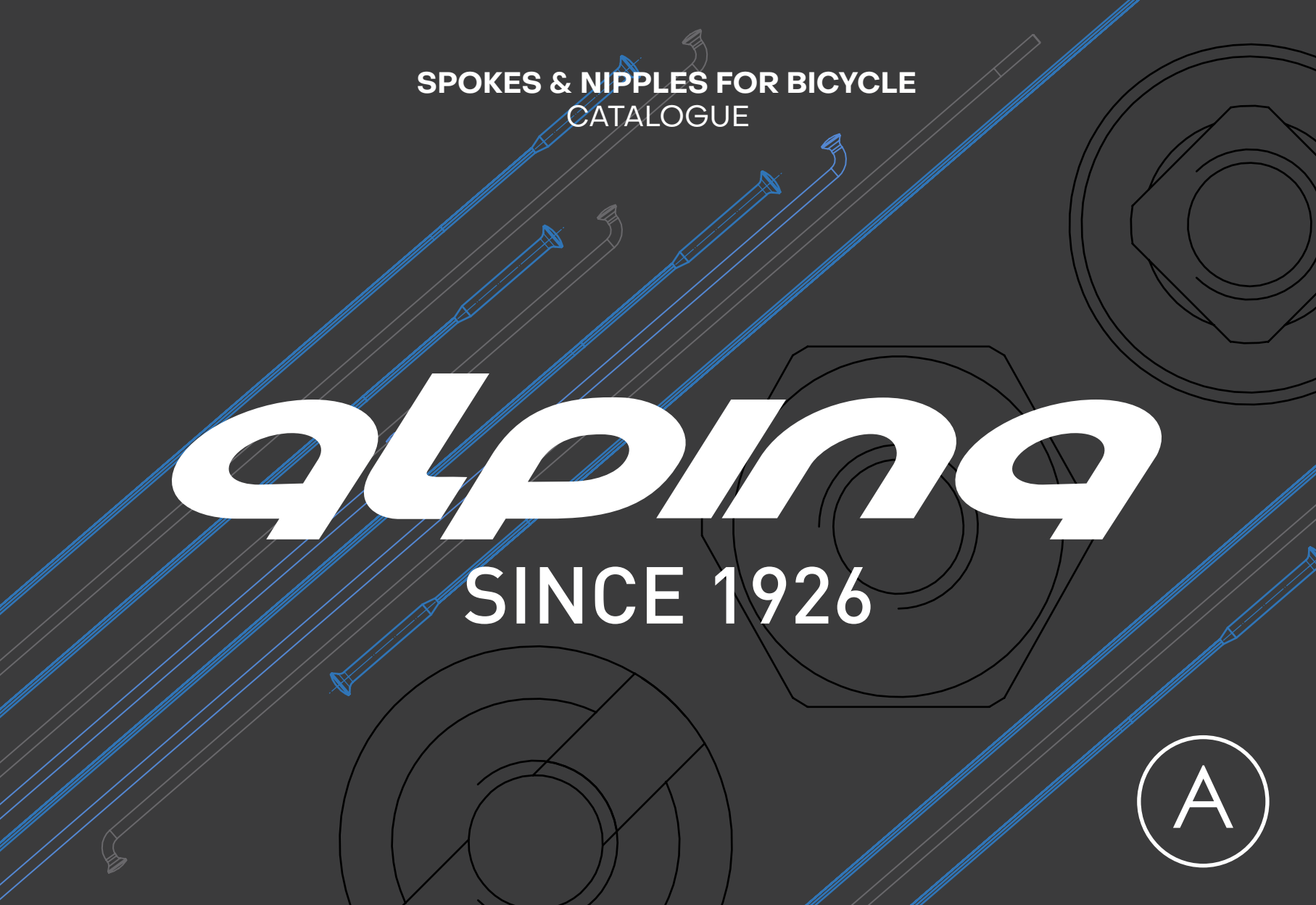
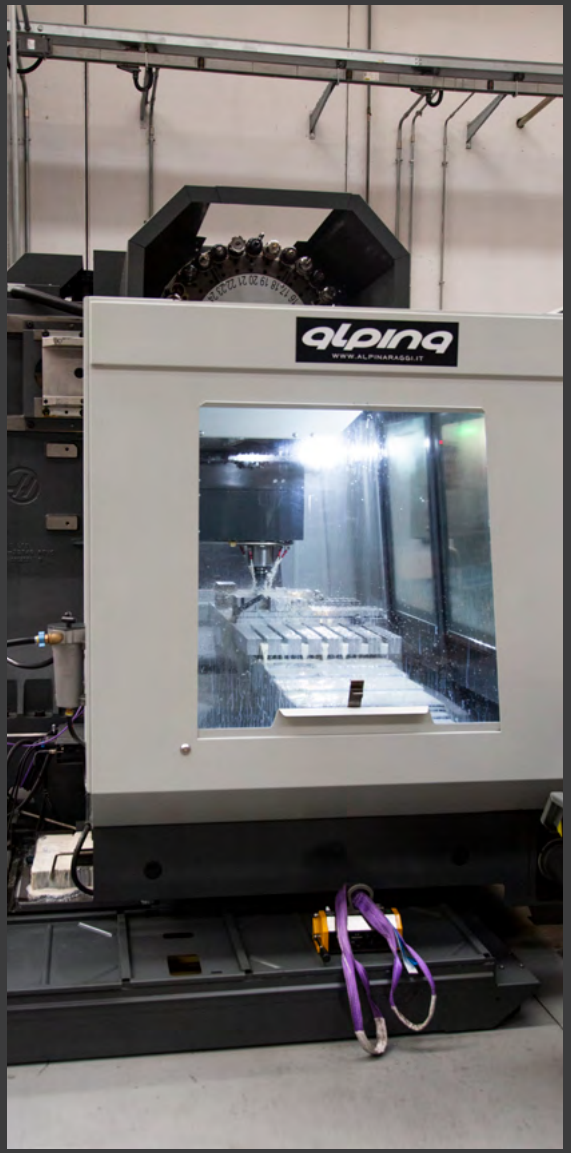
SPOKES & NIPPLES FOR BICYCLE
CATALOGUE



alpina

SINCE 1926

A

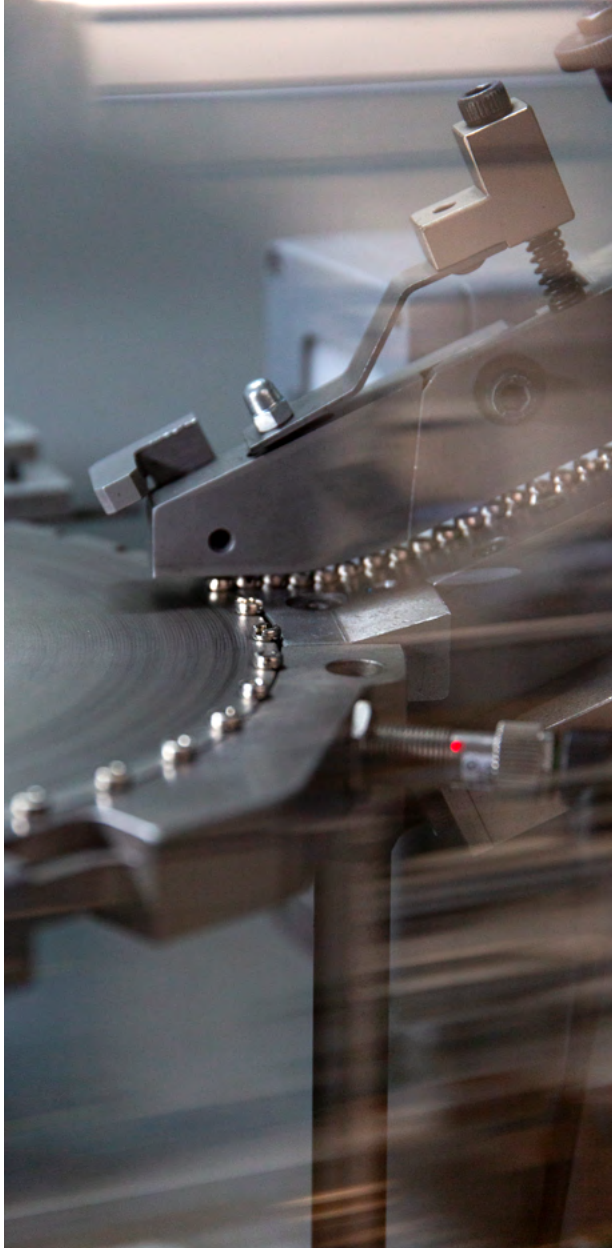

alpina
WWW.ALPINARAGGI.IT


VHX
KEYENCE
VHX

SPOKES

NIPPLES

ALPINA NIPPLES



INTRODUCTION

Alpina, is our family company since 1926, and focuses its activity on the production of high-performance spokes and nipples for both amateur and professional use.

Our range of products are all designed and manufactured in Italy, where the factory and headquarters are located.

We use the highest quality raw materials for our spokes and nipples, and we guarantee full traceability.

Clients are welcome to request custom-made products created specifically to meet their needs, and we guarantee constant technical assistance.

HISTORY & PRESENT

Based in Lomagna, in the heart of Lombardy, Alpina Raggi S.p.A. was founded in 1926 and focuses its activity on the production of spokes and nipples.

Alpina ensures the quality of its products through constant control of raw materials before and during in-house production.

We plan our main production processes according to our customers' needs, which is why our in-house production control activities ensure a quality that is appropriate for their required specifications. All our products are defined in our catalogues and the price lists are available upon request. Alpina is happy to prepare a customized proposal for any further product request.

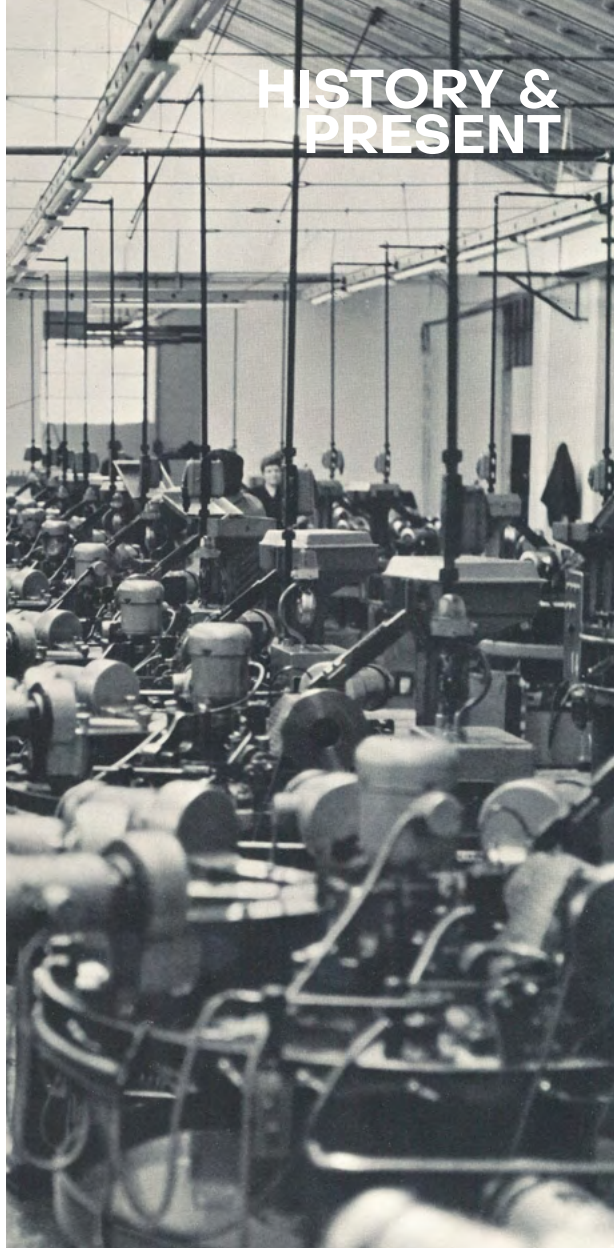
We supply our high-quality spokes and nipples to the most important bicycle producers in the world because ALPINA stands for quality, excellent customer service, and innovation.

Indeed, Alpina is continuously developing and improving new and patented products.

Alpina is certified with the UNI EN ISO 9001 certification, UNI EN ISO 14001 certification, UNI EN ISO 45001 certification.

ISO 9001
ISO 14001
ISO 45001

BUREAU VERITAS
Certification



TREATMENTS

Anodizing
An aluminum coloring process that improves its mechanical properties and resistance to atmospheric agents.

Black ED
A low environmental impact electrodeposition surface-treatment that ensures a unique aesthetic result and good resistance to atmospheric agents.

Black Burnishing/Black Oxidation
A stainless-steel coloring process, without thickness increase.
It ensures a great aesthetic result, preserving the excellent weathering resistance that distinguishes stainless steel.

Nickel Plating
Electrolytic nickel plating is a galvanic treatment that protects the underlying metal surface from weathering, increases the surface hardness of the base metal, ensuring excellent strength and durability.

Zinc Nickel
Is an alloy used under extreme conditions on parts subject to high mechanical stress and corrosive environments. It guarantees very high corrosion resistance, increased wear resistance, and excellent ability to withstand large temperature changes.

Zinc Plating
A process of steel-carbon protection that ensures excellent resistance to atmospheric agents.

Aluminum
The incredible lightness and high resistance to atmospheric agents make aluminum one of the most versatile materials. Perfect for combining performance and mechanical requirements, it is the ideal choice for motorcycles and bicycles with a sporting vocation.

Brass
Ductile and resistant to atmospheric agents, brass represents a valid compromise.

Carbon Steel
Is the perfect choice for off-road activities, thanks to its high resistance to fatigue and mechanical stress.

Stainless Steel
With a low environmental impact, stainless steel is known for its unparalleled weather resistance, making it the perfect solution for adventure or road bikes and for touring and racing bikes.

Zinc plated Steel
A fine compromise that offers satisfactory mechanical properties and moderate weather resistance.

MATERIALS

SUSTAINABILITY

Selection of materials

We are constantly seeking new materials that will improve our products' performance as well as reduce their environmental impact, inviting our strategic partners to join us on this mission.

Green energy

The electricity we use, the largest source of our production processes, comes entirely from renewable energy sources of the territory.

Selection of finishes

While selecting the finishes and surface treatments for our products, we take their social and environmental pact deeply into consideration.

Reuse and recycle

We reuse most of the materials involved in the creation of our pieces. Oil, water, and metal residues are recycled in compliance with environmental standards.

SUPPLIER ASSURANCE

SUPPLIERASSURANCE, AIAG's preferred supplier, takes care of the traceability of the supply chain and of due diligence requirements in human rights matters in compliance with emerging laws, at the level global, on the chain of procurement, such as the UFLPA and the Supply Chain Due Diligence Act (LkSG)

INFINITY

ADR

ANTI-ROTATION

TCS

FLAT PROFILE

AERO PROFILE

PATENTED

THE FIRST AND ONLY SPOKE OF THE WORLD WITHOUT WINGS AND WITHOUT FILAMENTS

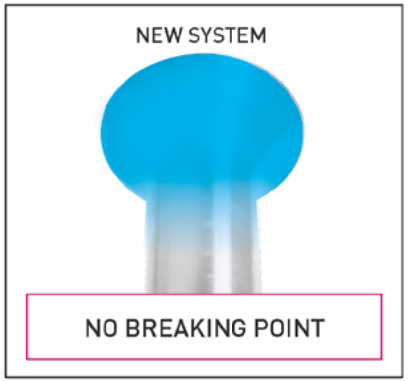
INFINITY IS PATENTED AND UNIQUE IN THE WORLD

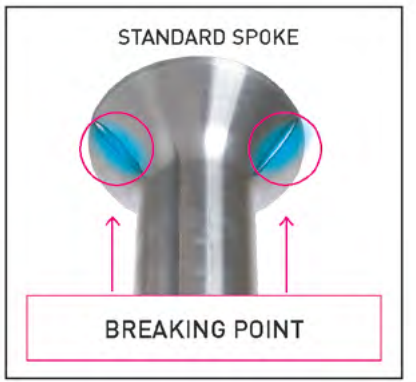
MAXIMUM STRESS RESISTANCE

MAXIMUM STRENGTH

MAXIMUM EFFORT AND DISTRIBUTION OF LOADS

Alpina Raggi has created a new product specially designed to improve the technical characteristics of your wheels. The perfect symmetry and geometry of its head, ensures an homogenous and all-out distribution of the forces and of the loads, over the entire available surface in the underhead.



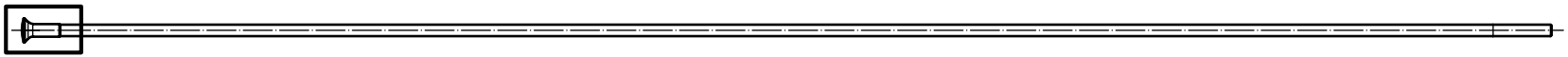


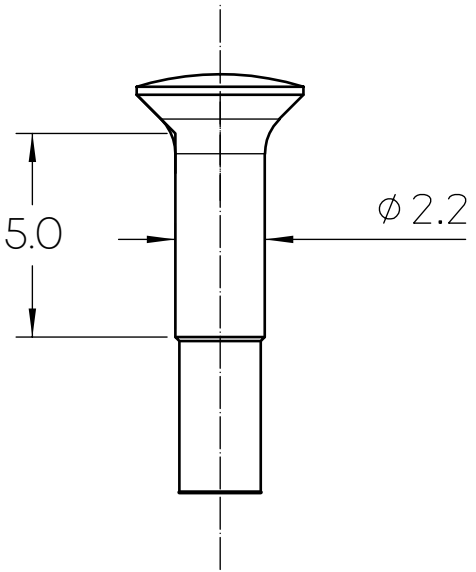
As you can see in the 3d drawing made by our technicians, the absence of wings, makes the spoke extremely resistant and indestructible to time and to the maximum stress.

ADR
ALPINA REINFORCED UNDERHEAD

Reinforced Underhead obtained by moulding

DETAIL

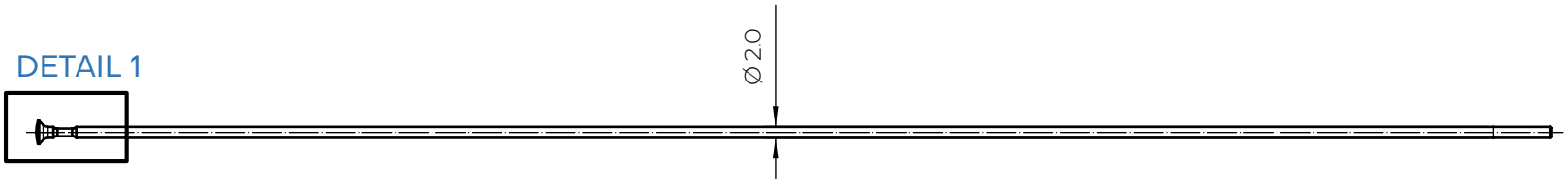




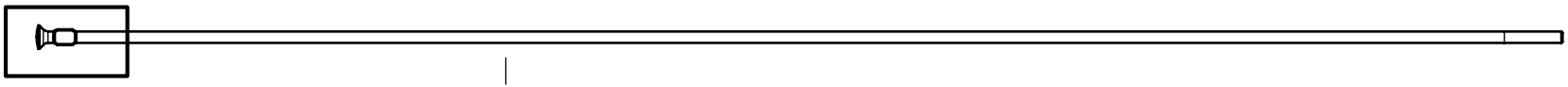
ANTI-ROTATION

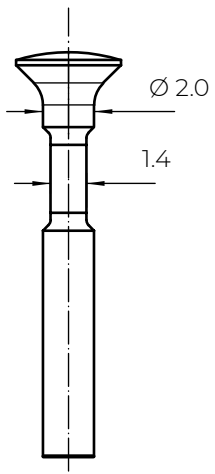
Spoke Anti-rotation System

DETAIL 1

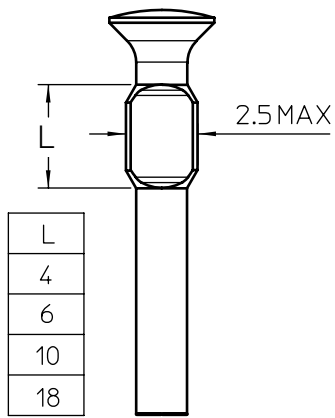


DETAIL 2





DETAIL 1



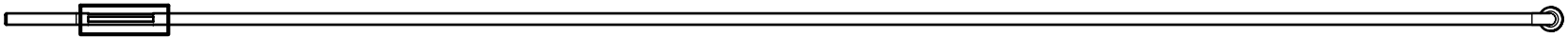
L
4
6
10
18

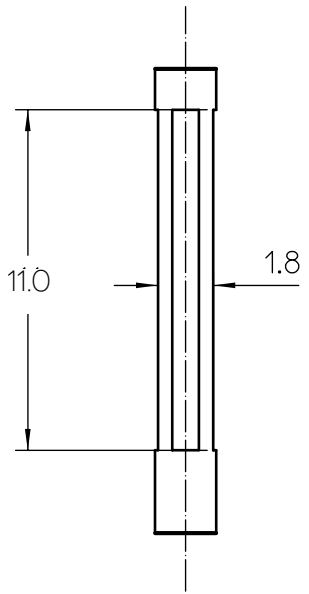
DETAIL 2

TCS
TORSION CONTROL SQUARES

The square part near the spoke thread stops the spoke rotation at the hub flange

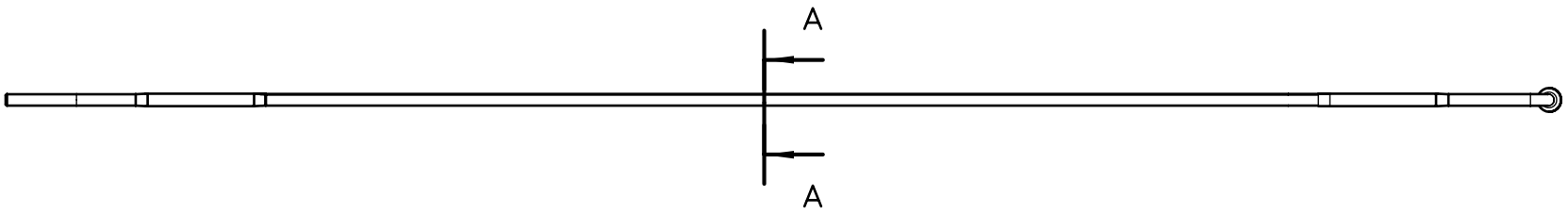
DETAIL

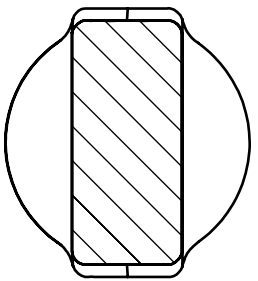




FLAT PROFILE

An aerodynamic solution with a minimal, geometric design

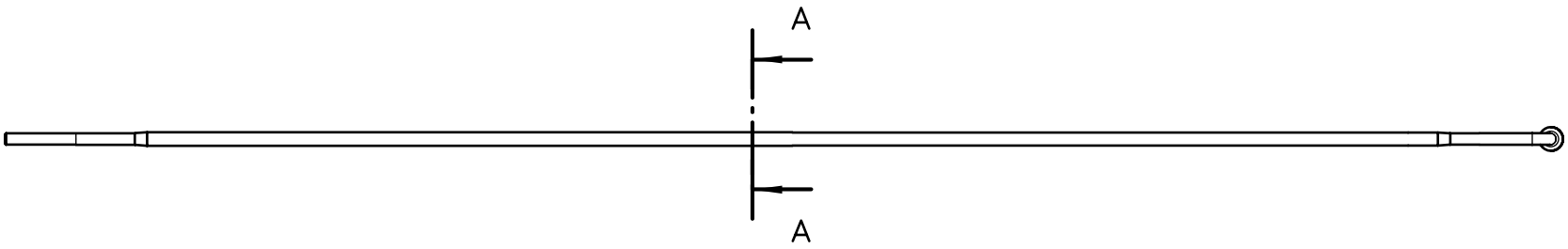


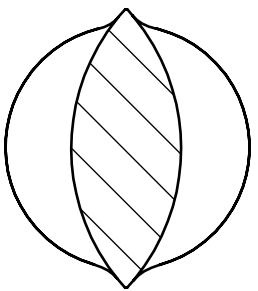


A – A
SECTION

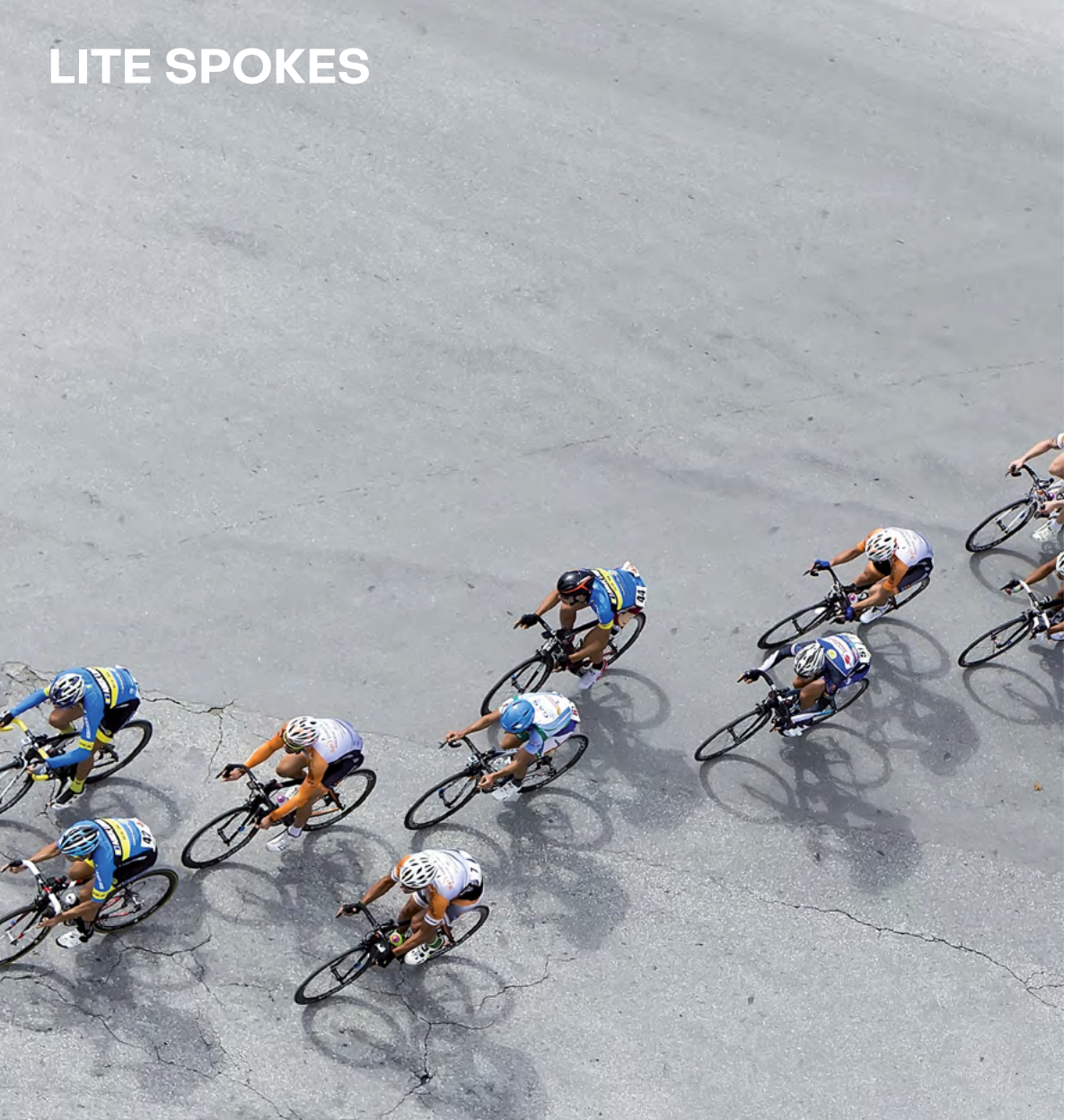
AERO PROFILE

An aerodynamic solution with an innovative elliptical design





A – A
SECTION



LITE SPOKES

HYPERLITE

ULTRALITE

SUPERLITE

EXTRALITE

BASICLITE

FINISHING - MATERIAL - SURFACE TREATMENT

STAINLESS STEEL	
SILVER	NO TREATMENT
BLACK	OXIDATION

CARBON STEEL	
BLACK	ED (cathodic electrodeposition)

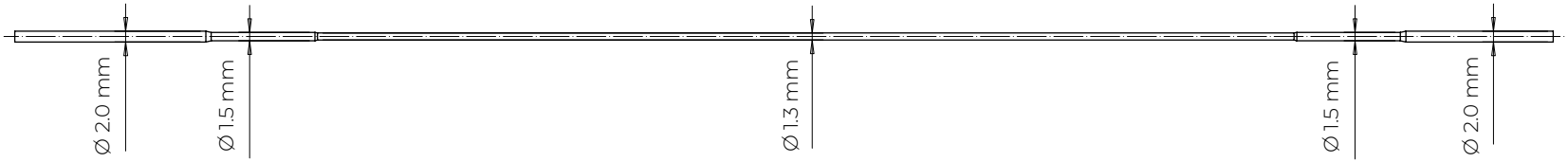
In addition to providing aerodynamic benefit, these spokes are extremely lightweight and exceptionally strong at the same time, made from high-quality **European AISI 302 stainless steel and C45 / C76 carbon steel.** Alpina spokes are produced with exact thread tolerances to ensure durability and the highest level of quality.

Born to win. Alpina spokes embody the technical and sporting qualities that distinguish the brand: lightness, performance and resistance are the key words that describe this product. All Alpina spoke dimensions can be tailored to meet the specific needs of customers.

*All the Alpina Spokes weights are calculated with CAD software.

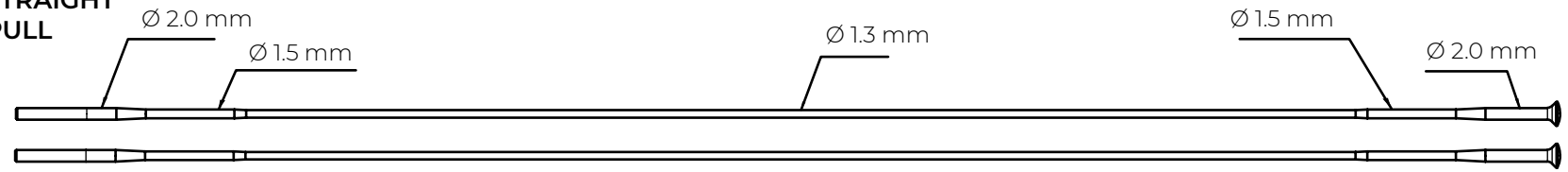
HYPERLITE

BAR Ø 2,0 / Ø 1,5 / Ø 1,3 / Ø 1,5 / Ø 2,0 mm

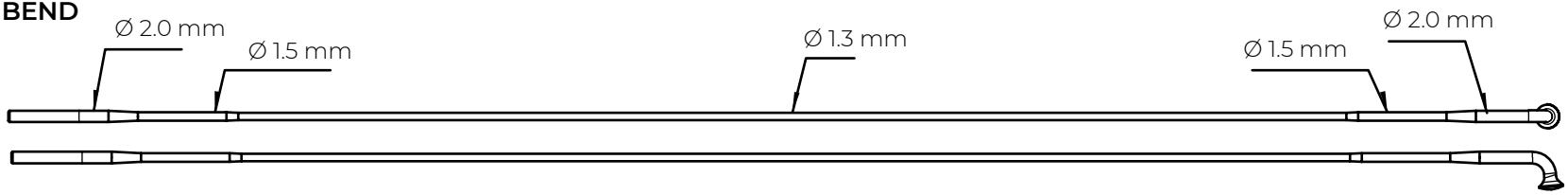


MATERIAL	WIRE - BREAKING STRENGTH
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545
CARBON STEEL C76	N/mmq 1575 - 1775

STRAIGHT PULL

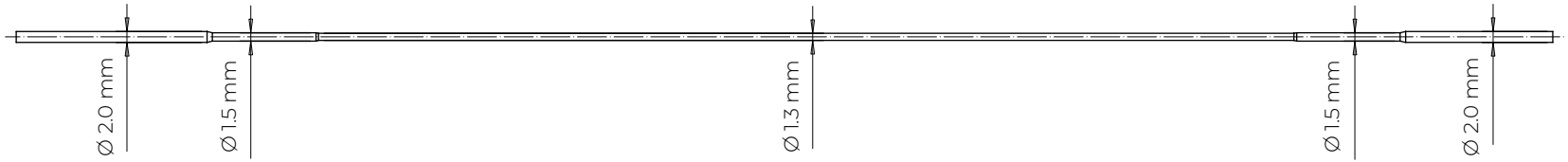


J BEND



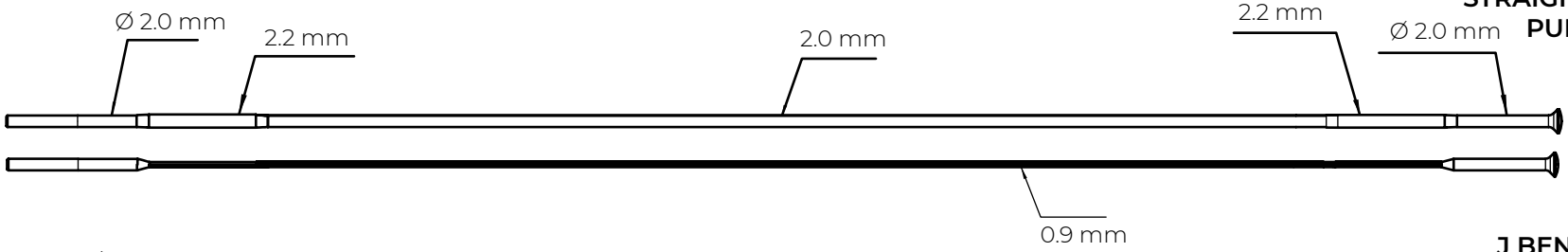
DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,0 / Ø 1,5 / Ø 1,3 / Ø 1,5 / Ø 2,0	FG 2,3	DIN 79012, BC56	3,5 g

BAR Ø 2,0 / Ø 1,5 / Ø 1,3 / Ø 1,5 / Ø 2,0 mm



MATERIAL	WIRE - BREAKING STRENGTH
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545
CARBON STEEL C76	N/mmq 1575 - 1775

STRAIGHT PULL



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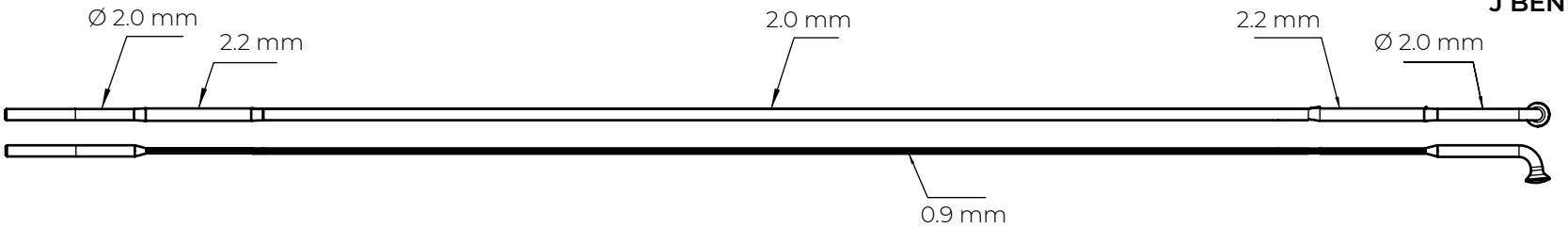
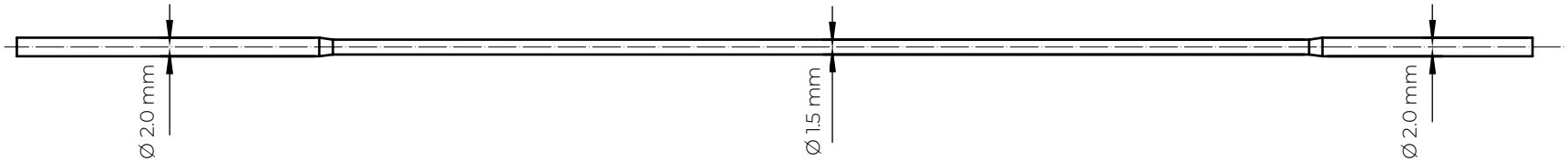


THICKNESS & DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,0 -□(0,9 x 2,20) -□(0,9 x 2,0) -□(0,9 x 2,20) - Ø 2,0	FG 2,3	DIN 79012, BC56	3,5 g

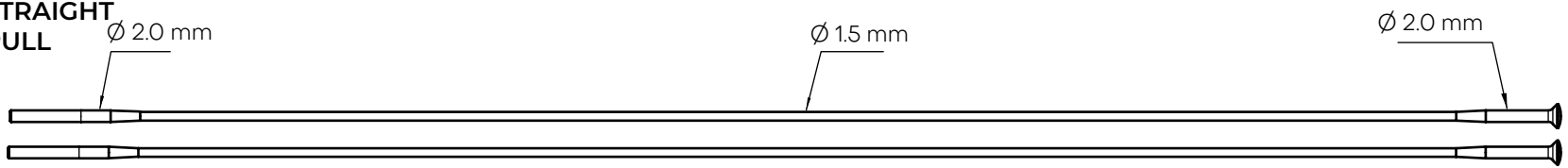
ULTRALITE

BAR Ø 2,0 / Ø 1,5 / Ø 2,0 mm



MATERIAL	WIRE - BREAKING STRENGTH
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545
CARBON STEEL C76	N/mmq 1575 - 1775

STRAIGHT PULL



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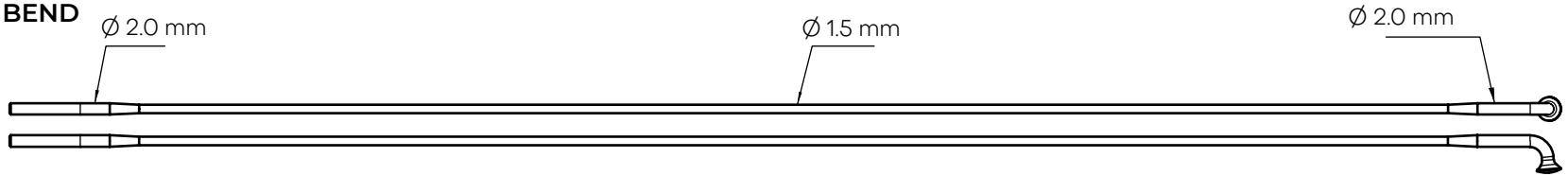
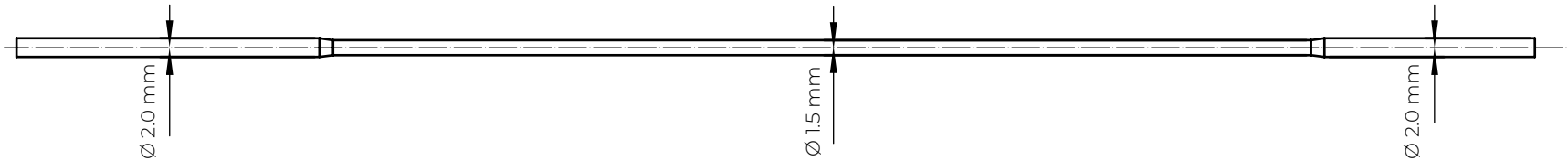


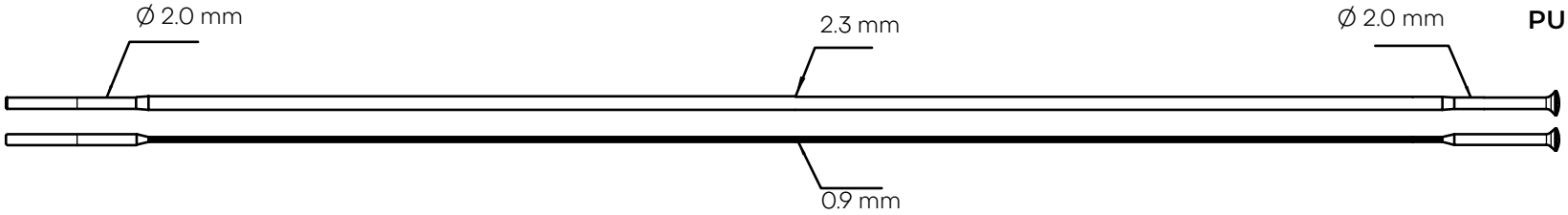
DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,0 / Ø 1,5 / Ø 2,0	FG 2,3	DIN 79012, BC56	4,2 g

BAR Ø 2,0 / Ø 1,5 / Ø 2,0 mm



MATERIAL	WIRE - BREAKING STRENGTH
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545
CARBON STEEL C76	N/mmq 1575 - 1775

STRAIGHT PULL



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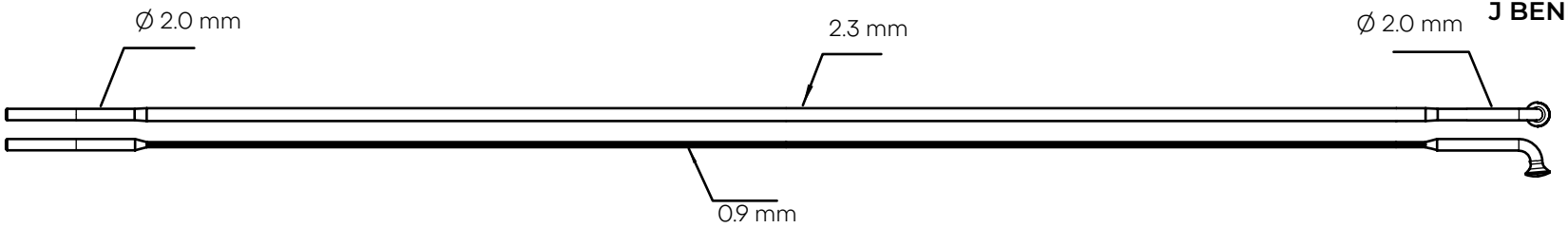
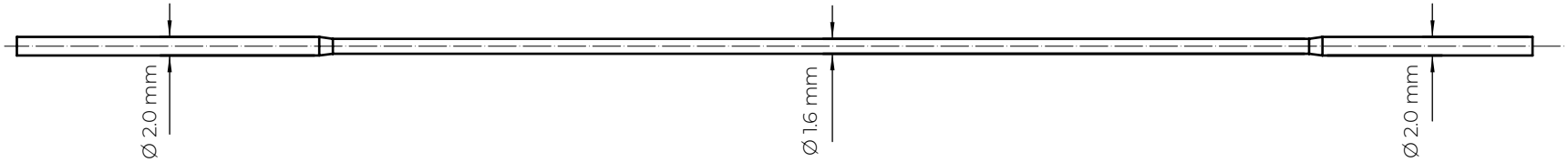


THICKNESS & DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,0 - ⬭ (0,9 x 2,3) - Ø 2,0	FG 2,3	DIN 79012, BC56	4,2 g

SUPERLITE

BAR Ø 2,0 / Ø 1,6 / Ø 2,0 mm



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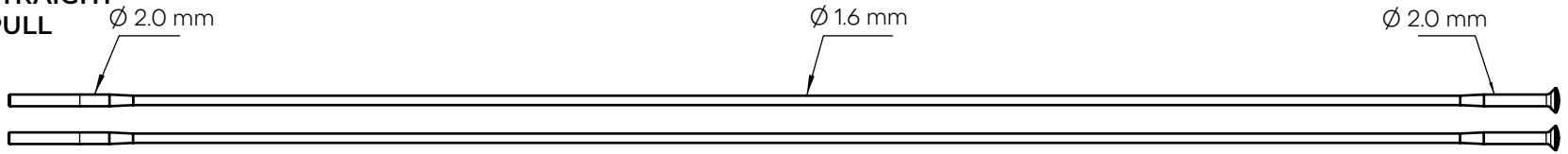
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545
CARBON STEEL C76	N/mmq 1575 - 1775

STRAIGHT PULL



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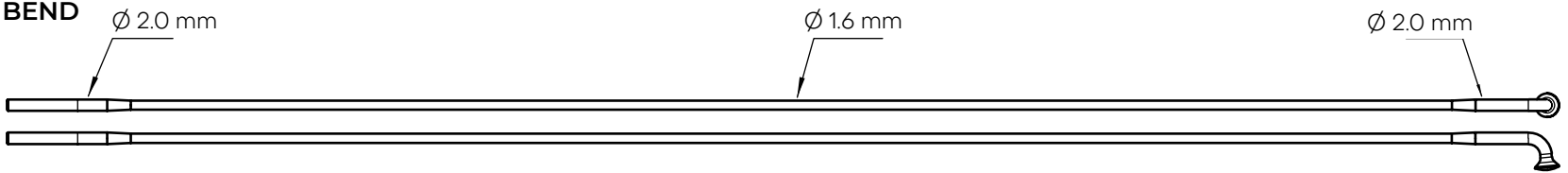
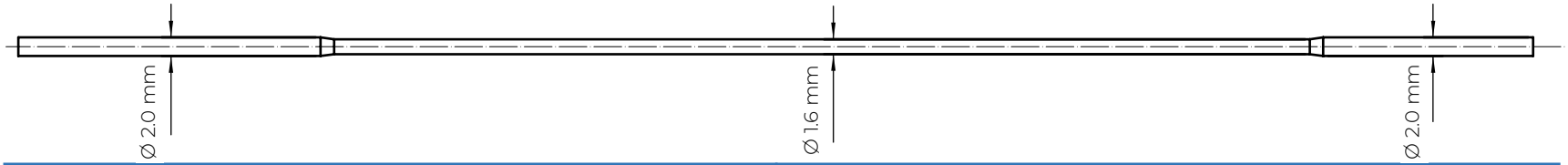


DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,0 / Ø 1,6 / Ø 2,0	FG 2,3	DIN 79012, BC56	4,6 g

BAR Ø 2,0 / Ø 1,6 / Ø 2,0 mm



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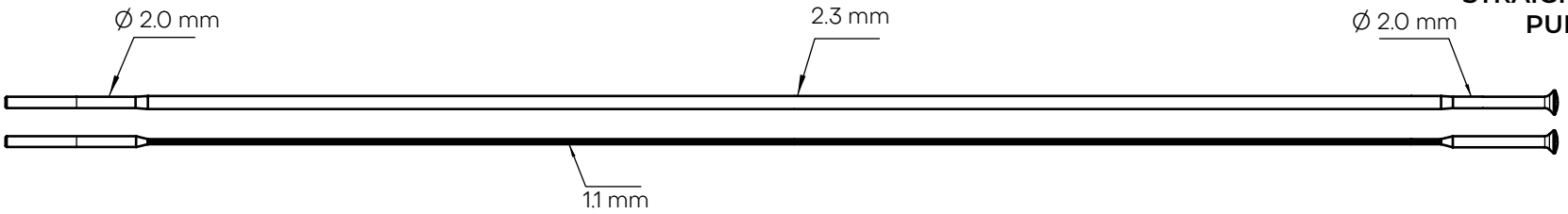
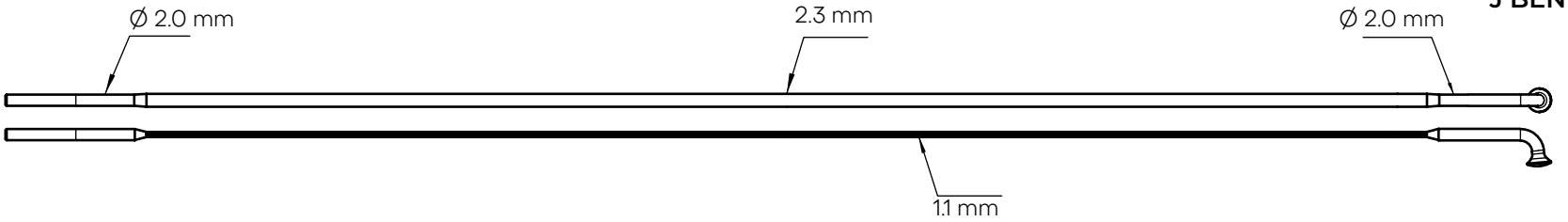
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545
CARBON STEEL C76	N/mmq 1575 - 1775

STRAIGHT PULL



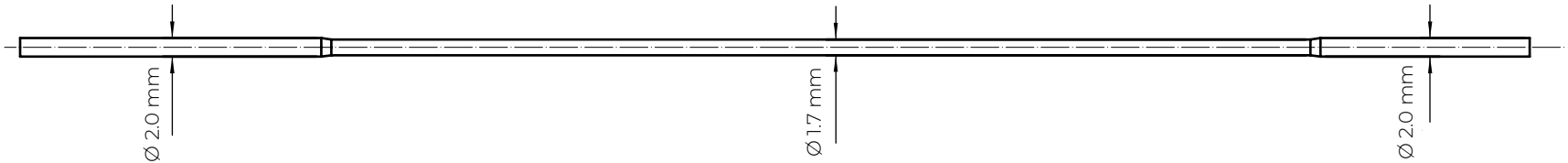
J BEND



THICKNESS & DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,0 - ⬭ (1,1 x 2,3) - Ø 2,0	FG 2,3	DIN 79012, BC56	4,6 g

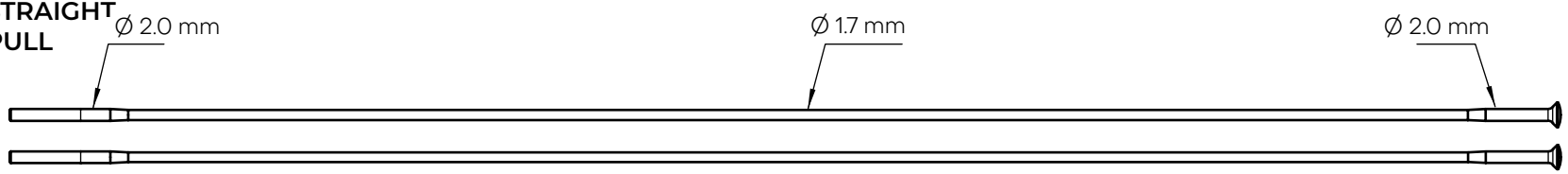
EXTRALITE

BAR Ø 2,0 / Ø 1,7 / Ø 2,0 mm



MATERIAL	WIRE - BREAKING STRENGTH
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545
CARBON STEEL C76	N/mmq 1575 - 1775

STRAIGHT PULL



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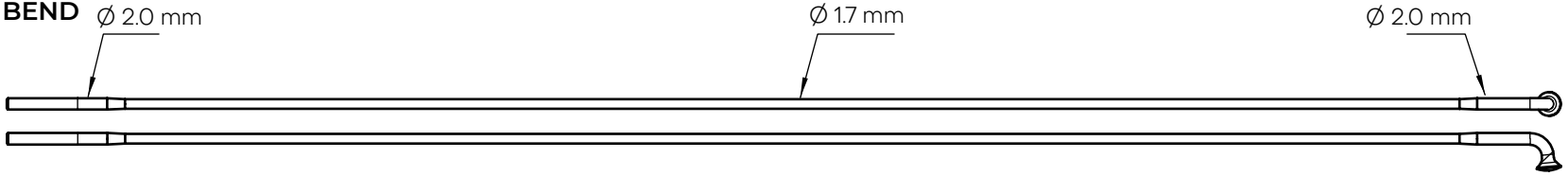
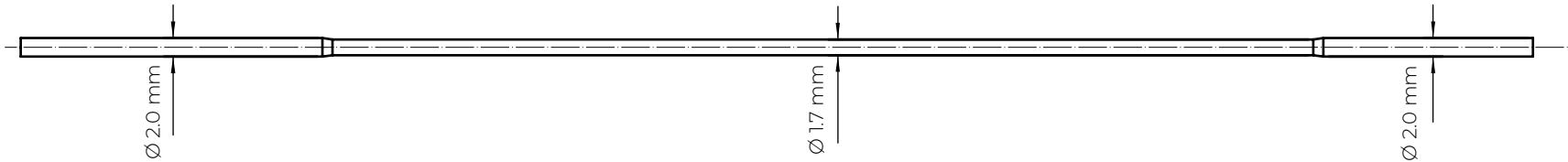


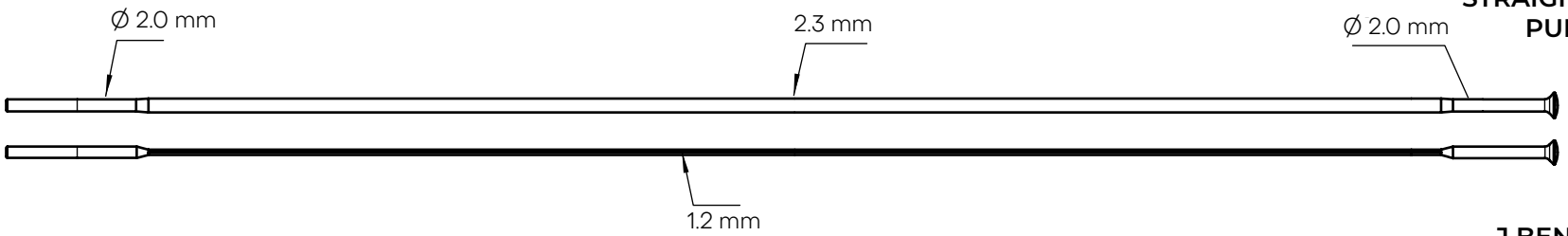
DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,0 / Ø 1,7 / Ø 2,0	FG 2,3	DIN 79012, BC56	5,1 g

BAR Ø 2,0 / Ø 1,7 / Ø 2,0 mm

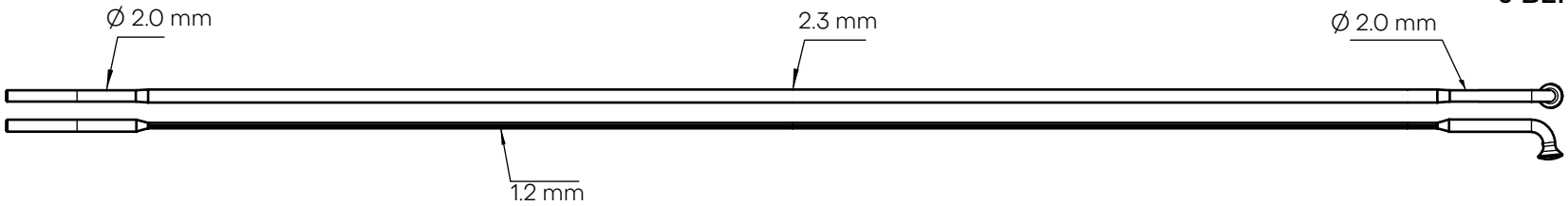


MATERIAL	WIRE - BREAKING STRENGTH
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545
CARBON STEEL C76	N/mmq 1575 - 1775

STRAIGHT PULL



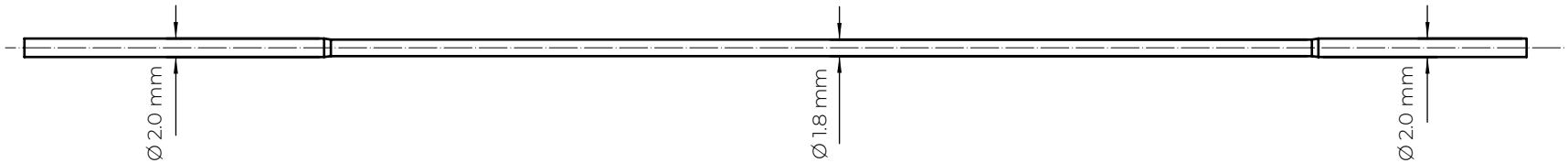
J BEND



THICKNESS & DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,0 - ⬭ (1,2 x 2,3) - Ø 2,0	FG 2,3	DIN 79012, BC56	5,1 g

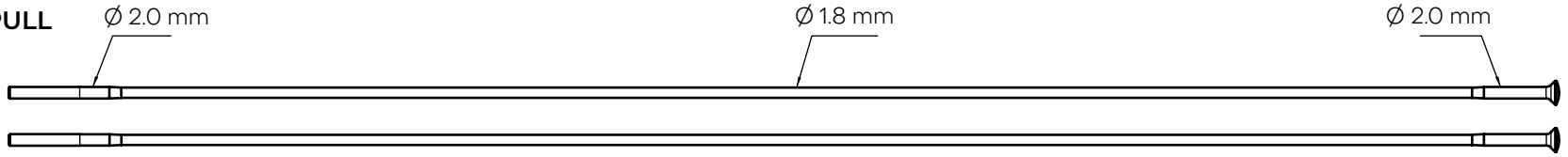
BASICLITE

BAR Ø 2,0 / Ø 1,8 / Ø 2,0 mm



MATERIAL	WIRE - BREAKING STRENGTH
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545
CARBON STEEL C76	N/mmq 1575 - 1775

STRAIGHT PULL



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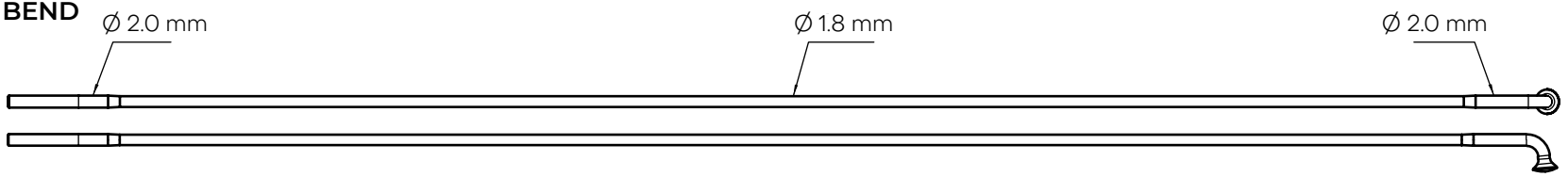
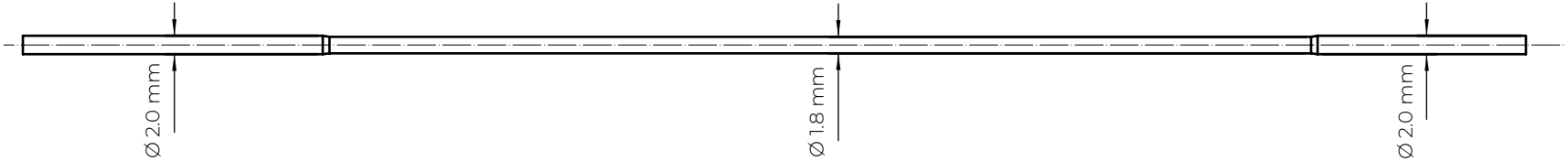


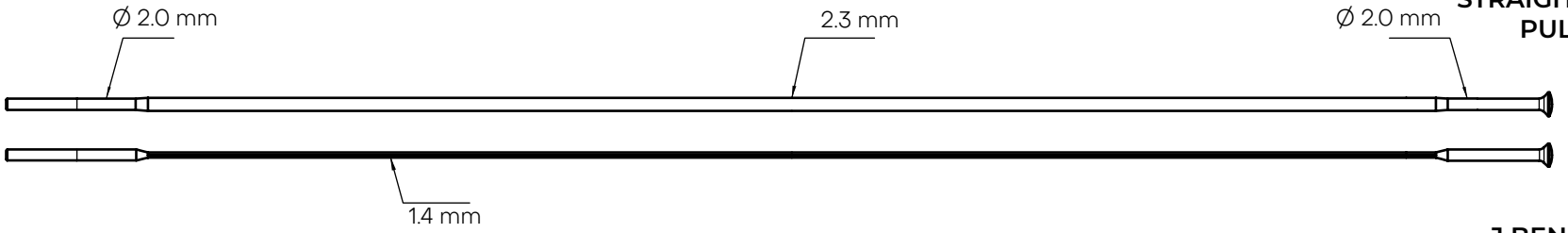
DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,0 / Ø 1,8 / Ø 2,0	FG 2,3	DIN 79012, BC56	5,5 g

BAR Ø 2,0 / Ø 1,8 / Ø 2,0 mm



MATERIAL	WIRE - BREAKING STRENGTH
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545
CARBON STEEL C76	N/mmq 1575 - 1775

STRAIGHT PULL



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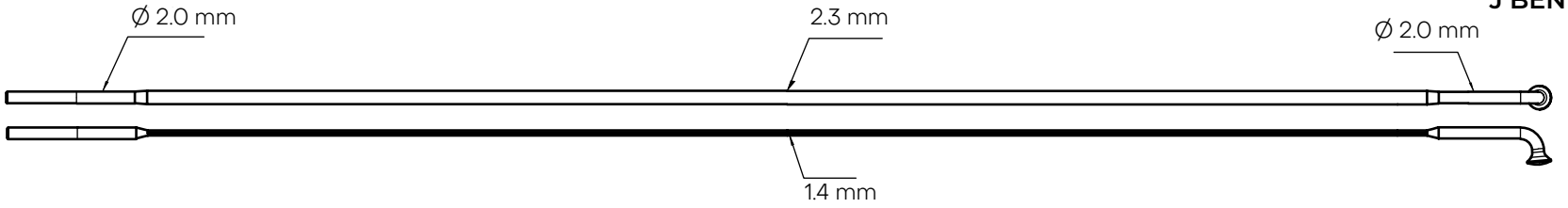


THICKNESS & DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,0 - ⬭ (1,4 x 2,3) - Ø 2,0	FG 2,3	DIN 79012, BC56	5,5 g

SPARK

SPARK XL

FINISHING - MATERIAL - SURFACE TREATMENT

STAINLESS STEEL	
SILVER	NO TREATMENT
BLACK	OXIDATION

CARBON STEEL	
BLACK	ED (cathodic electrodeposition)

High-quality **European stainless steel AISI 302 and carbon steel C45 / C76** are used in single-butted spokes, which are thicker at the hub end than normal, then tapered to a thinner section all the way to the threads. Single-butted spokes are not common, but they are becoming more popular in heavy-duty applications (such as E-bikes). Spokes are thicker at the ends than in the middle. Double-butted spokes do more than reduce weight. The thick ends make them as strong in the highly stressed areas as straight-gauge spokes of the same thickness, but the thinner middle sections make the spokes effectively more elastic.

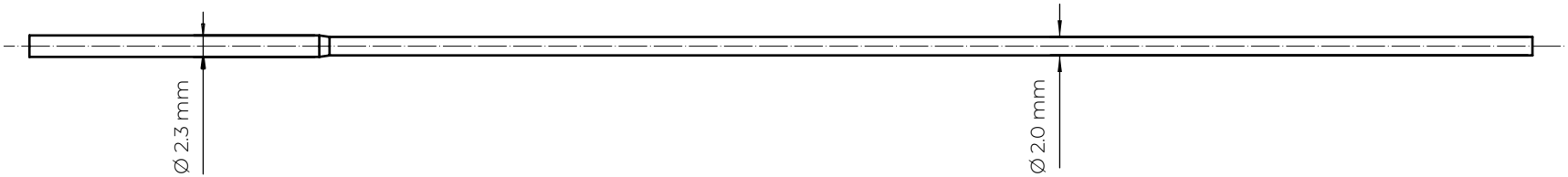
Electric & Cargo. Designed for e-bikes and cargo bikes, the spokes of the Electric & Cargo range have an increased thickness, ideal to ensure durability over time and high resistance to stress.

All Alpina spoke dimensions can be tailored to meet the specific needs of customers.

*All the Alpina Spokes weights are calculated with CAD software.

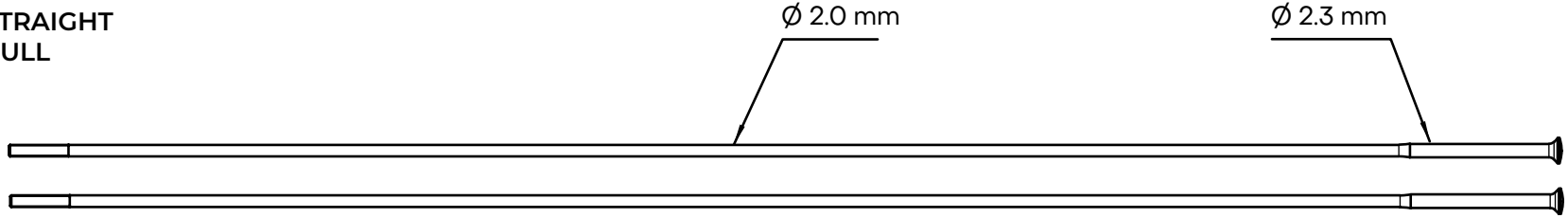
SPARK

BAR Ø 2,3 / Ø 2,0 mm



MATERIAL	WIRE - BREAKING STRENGTH
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545

STRAIGHT PULL



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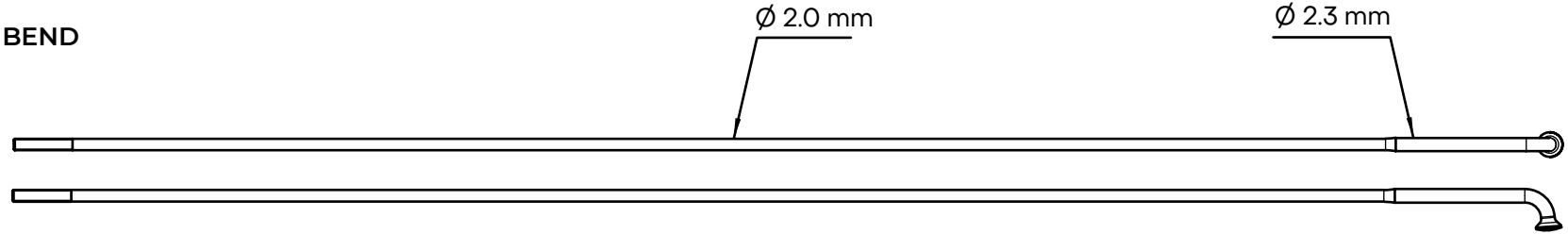
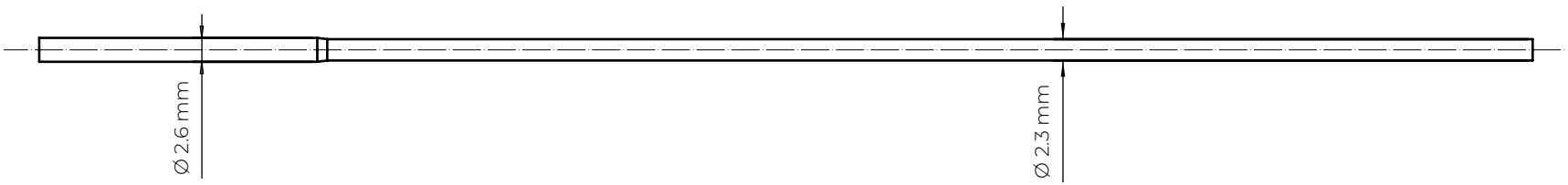


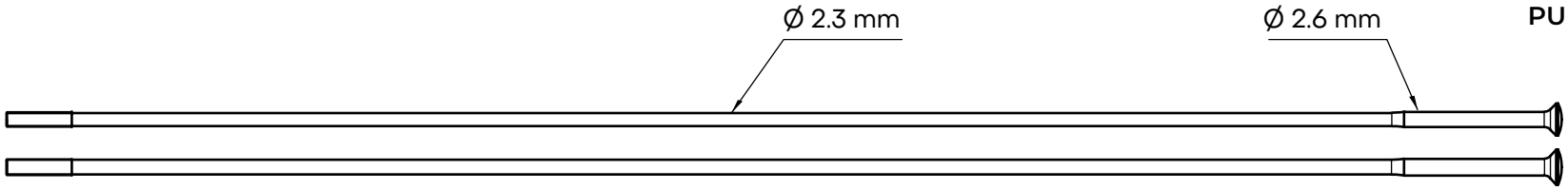
DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,3 / Ø 2,0	FG 2,3	DIN 79012, BC56	6,9 g

BAR Ø 2,6 / Ø 2,3 mm



MATERIAL	WIRE - BREAKING STRENGTH
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545

STRAIGHT PULL



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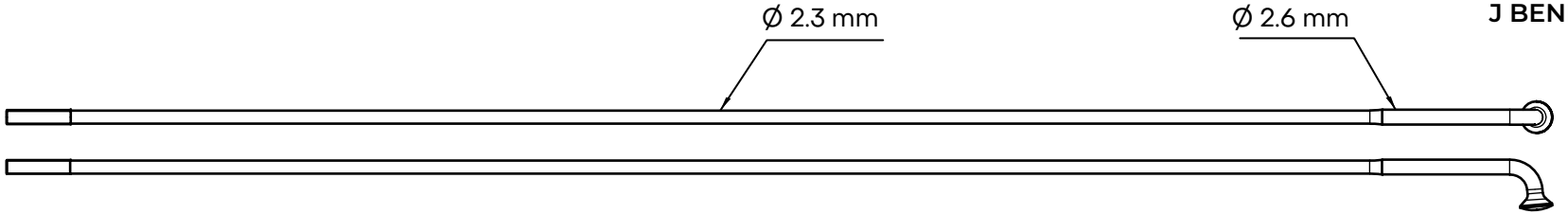


DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,6 / Ø 2,3	FG 2,6	DIN 79012, BC56	9,4 g

ONE

ONE AERO

ONE XL

ONE XXL

FINISHING - MATERIAL - SURFACE TREATMENT

STAINLESS STEEL	
SILVER	NO TREATMENT
BLACK	OXIDATION

CARBON STEEL	
BLACK	ED (cathodic electrodeposition)

Exceptionally strong, made from high-quality **European stainless steel AISI 302, and C45 / C76 carbon steel** Alpina spokes are produced with exact thread tolerances to ensure durability and the highest level of quality.

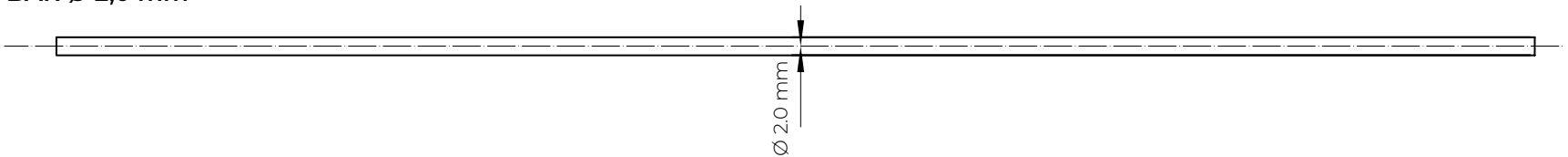
Simple and essential, this spoke is the result of a careful selection of materials and surface treatments, as well as the precision of our production processes.

All Alpina spoke dimensions can be tailored to meet the specific needs of customers.

*All the Alpina Spokes weights are calculated with CAD software.

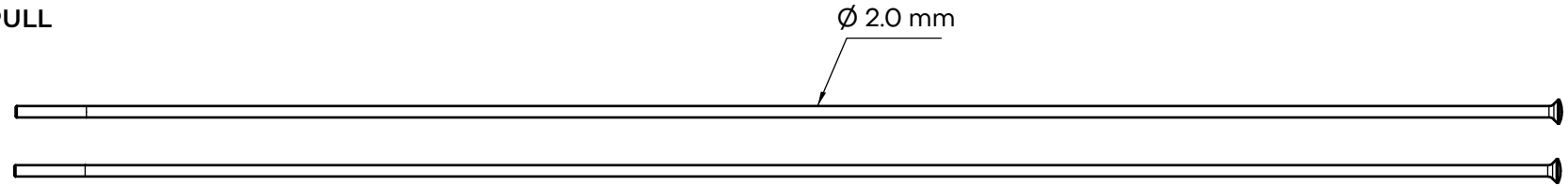
ONE

BAR Ø 2,0 mm



MATERIAL	WIRE - BREAKING STRENGTH
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545
CARBON STEEL C76	N/mmq 1575 - 1775

STRAIGHT PULL



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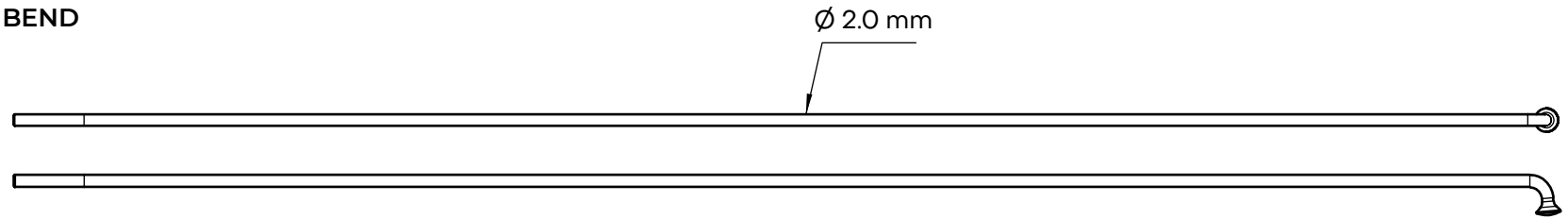
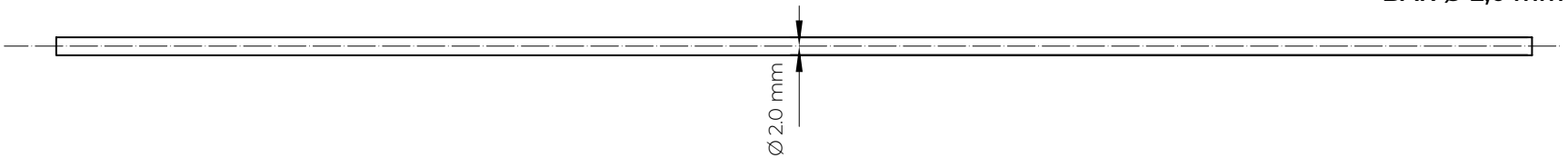


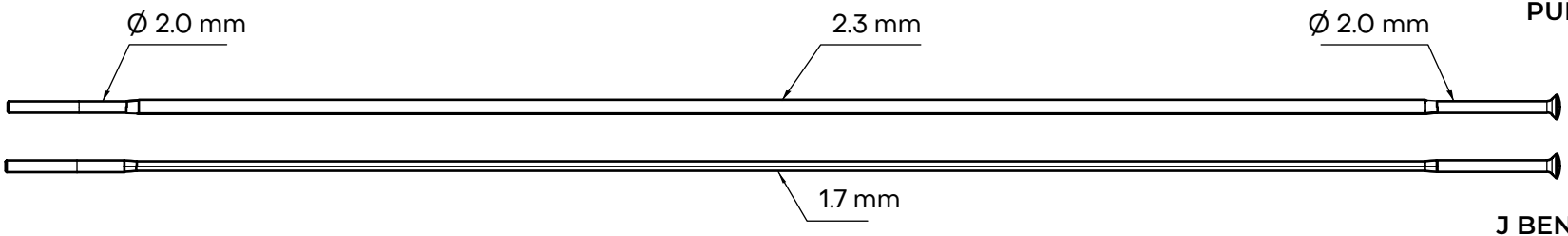
DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,0	FG 2,3	DIN 79012, BC56	6,5 g

BAR Ø 2,0 mm

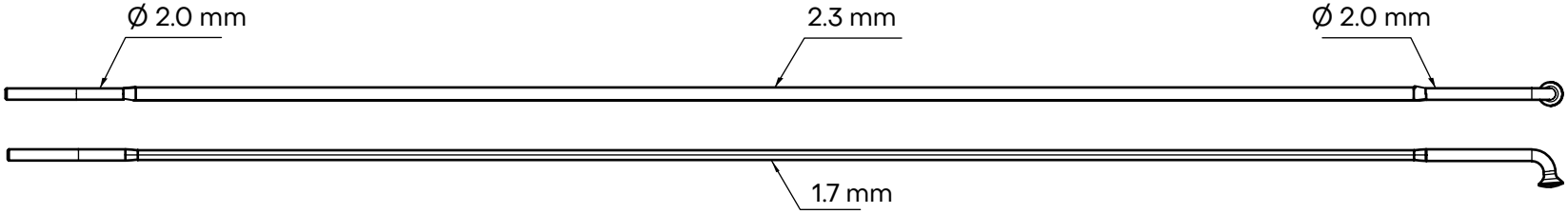


MATERIAL	WIRE - BREAKING STRENGTH
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545
CARBON STEEL C76	N/mmq 1575 - 1775

STRAIGHT PULL



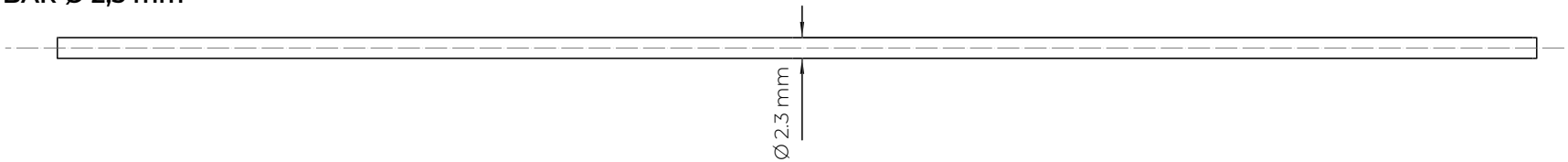
J BEND



THICKNESS & DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,0 - ⬭ (1,7 x 2,3) - Ø 2,0	FG 2,3	DIN 79012, BC56	6,5 g

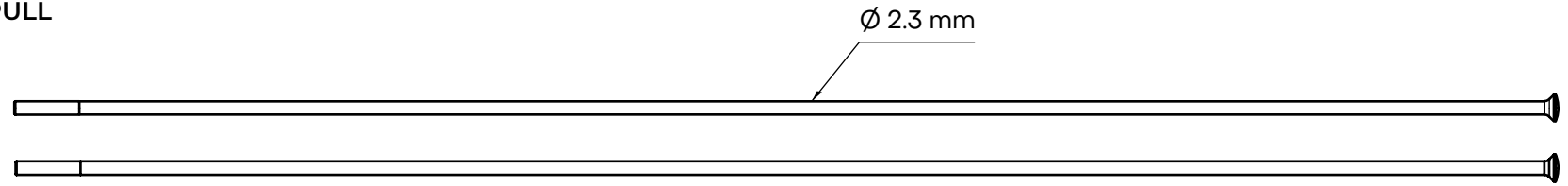
ONE XL

BAR Ø 2,3 mm



MATERIAL	WIRE - BREAKING STRENGTH
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545
CARBON STEEL C76	N/mmq 1575 - 1775

STRAIGHT PULL



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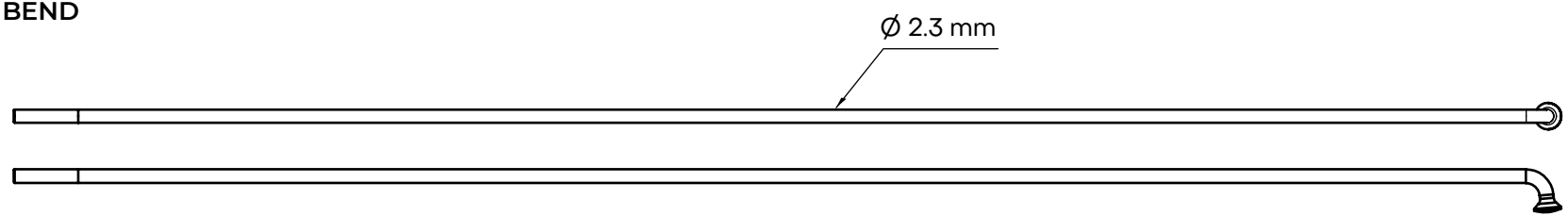
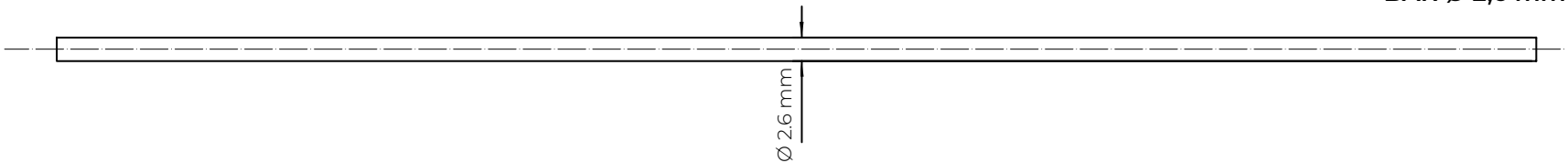


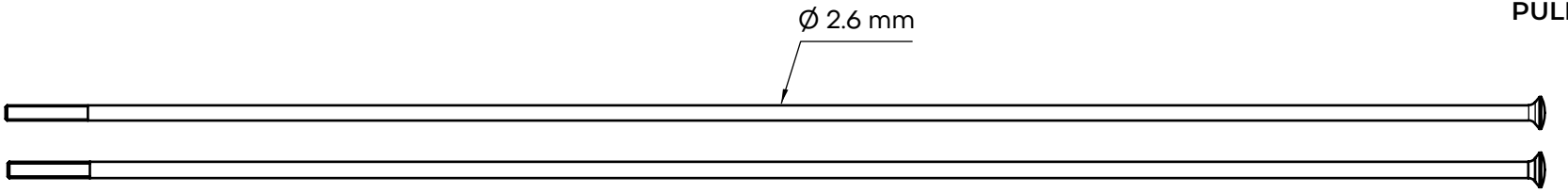
DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,3	FG 2,6	DIN 79012, BC56	9,1 g

BAR Ø 2,6 mm

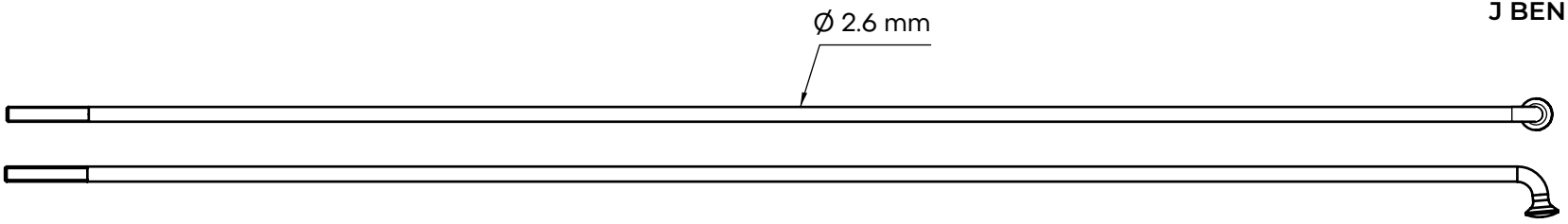


MATERIAL	WIRE - BREAKING STRENGTH
STAINLESS STEEL AISI 302	N/mmq 1000 - 1200
CARBON STEEL C45	N/mmq 1345 - 1545
CARBON STEEL C76	N/mmq 1575 - 1775

STRAIGHT PULL



J BEND



DIAMETER	ROLLED THREAD	STANDARD THREAD	*WEIGHT (L = 260 mm)
Ø 2,6	M3x0,5	965-1	11,5 g

NIPPLES

- STANDARD L. 12,3 Ø 4
- STANDARD L. 14 Ø 4
- STANDARD L. 14 Ø 5
- STANDARD L. 16 Ø 4
- STANDARD L. 15 Ø 4
- STANDARD DOUBLE SQUARE
- MULTILINE
- ABS BLUE POWER
- ABS HEXAGONAL HEAD
- ABT SELF LOCKING DOUBLE SQUARE

FINISHING - MATERIAL - SURFACE TREATMENT

	BRASS	STEEL	ALUMINIUM
BLACK	NICKEL-PLATED	ZINC-PLATED	ANODIZATION / HR (High Resistance)
SILVER	NICKEL-PLATED	ZINC-PLATED	ANODIZATION / HR (High Resistance)

Other colors upon request, only for Anodized Aluminium

Made from high-quality **European Steel, European Brass and Aluminium 7075.**

Alpina nipples are produced with exact thread tolerances to ensure durability and the highest level of quality.

*All the Alpina nipples weights are calculated with CAD software.

TECNICAL APPLICATION

ABT/ABS - PATENTED

The revolutionary self-locking patented nipple that, due to the inserted nylon, eliminates entirely the possibility that nipples get loose on assembled wheels, and the routing between nipples and spokes remains identical to the traditional way. Therefore, it does not require special operations whether it is assembled automatically or manually.

To prevent screw loosening, ABS/ABT nipples leverage interference generated by the spoke thread and nylon during screwing. All necessary adjustments on wheels can be made without special instructions or using fastening liquids subsequently. ABS nipples offer tangible advantages on traditional wheels while their use is essential when using straight head spokes.

Self-locking, patented system, assuring highest functionality and reliability.

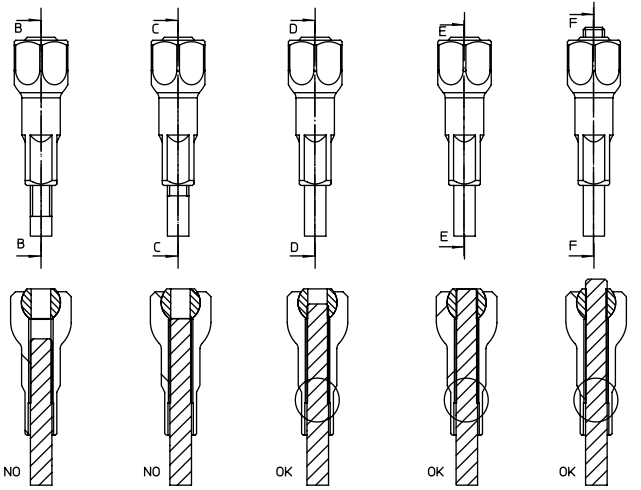
Nylon shock-absorber insert, absorption of micro-vibrations to increase the durability of the spoke.

Star spline improving the connection of the **self locking insert.**

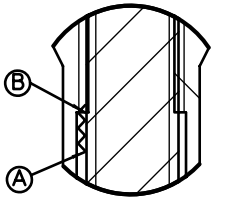
Gauged hole to obtain a perfect elastic interference with the thread part of the spoke.

The self-locking nipples assure long lasting centering of the wheel, safe braking, more comfort, and no need for maintenance.

Exchangeability - immediately useable on any kind of automatic wheel building machinery, no need for any regulation or modification of the standard applications.

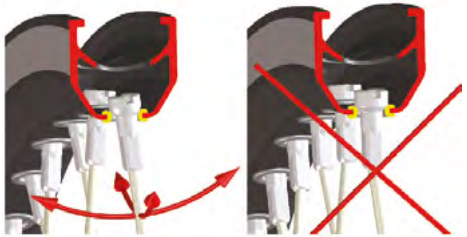


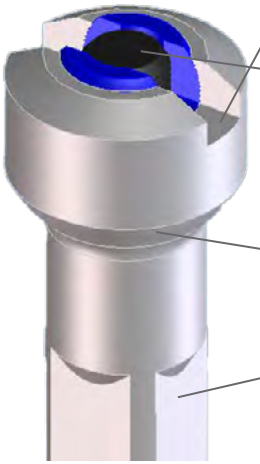
The ending part of the threaded spoke "A" can come near to the nipple head, screwing itself together to coincode with the beginning part of the threaded nipple "B" without never overcoming.



ABS SELF LOCKING - PATENTED
SPHERICAL UNDER-HEAD

THAT ALLOWS THE OSCILLATION
It is available for: basic round head nipples, and special abs blue power round head nipples



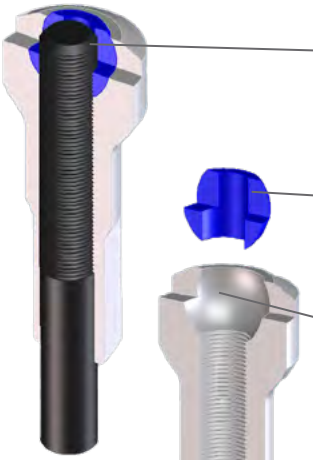


TRADITIONAL SCREW-DRIVER CUT
for universal and standard use of the product

GAUGED HOLE
to obtain a perfect elastic interference with the threaded part of the spoke

SPHERICAL
self-locking under-head

THE RAW NIPPLE IS COLD-PRESSED
with a control system for applied forces



SELF-LOCKING, PATENTED SYSTEM
assuring highest functionality and reliability

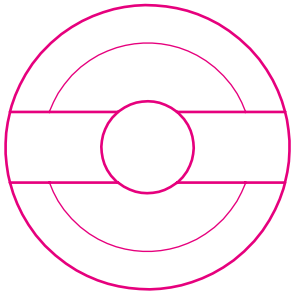
BLUE SHOCK-ABSORBER INSERT
absorption of micro-vibrations to increase the durability of the spoke

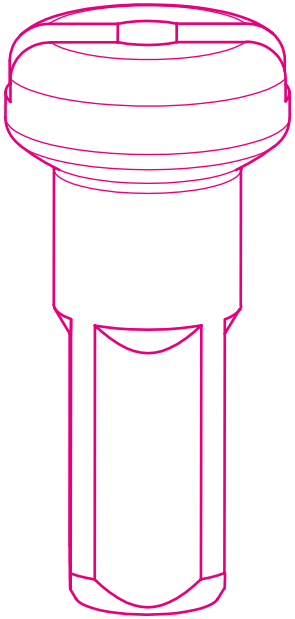
STAR SPLINE
improving the connection of the self locking insert

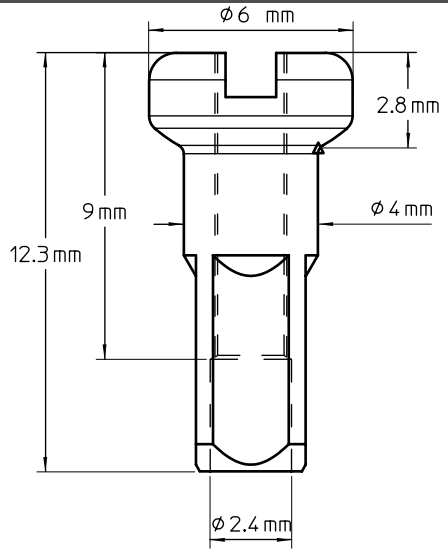
STANDARD L. 12,3 Ø 4

NIPPLES WITH ROUND HEAD

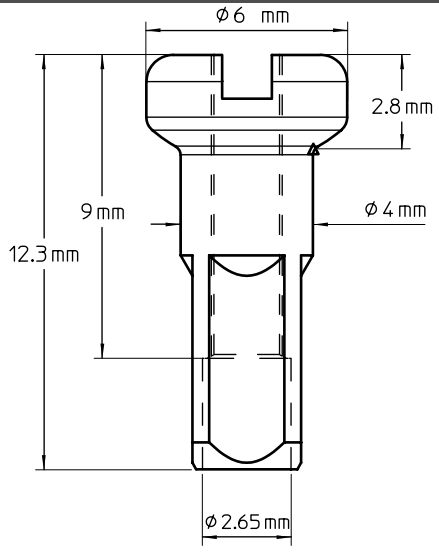
Ideal for all applications







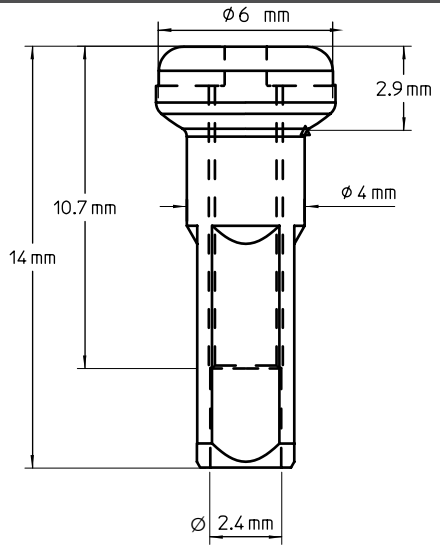
FG 2,3



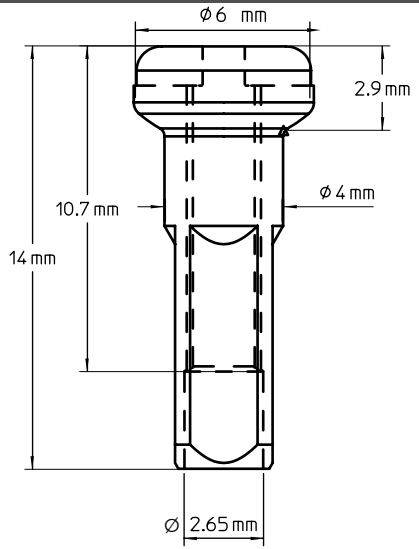
FG 2,6

STANDARD NIPPLES - L. 12,3 mm - Ø 4

	BODY DIAMETER	LENGTH	STANDARD	DEFORMATION THREAD	WEIGHT
BRASS	Ø 4	12,3	DIN 79012, BC56	FG 2,3	1 g
				FG 2,6	0,9 g
STEEL	Ø 4	12,3	DIN 79012, BC56	FG 2,3	1 g
				FG 2,6	0,9 g
ALUMINIUM 7075	Ø 4	12,3	DIN 79012, BC56	FG 2,3	0,3 g



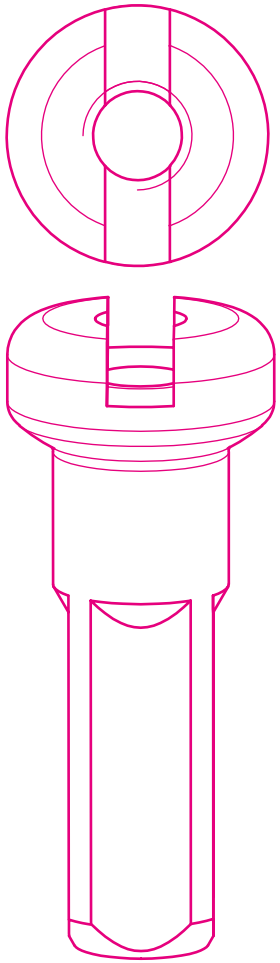
FG 2,3



FG 2,6

NIPPLES WITH ROUND HEAD

Ideal for all applications



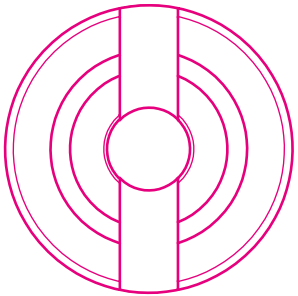
STANDARD NIPPLES - L. 14 mm - Ø 4

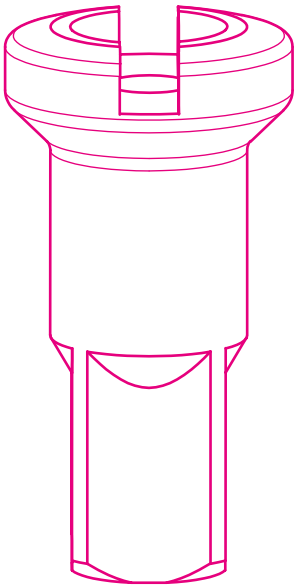
	BODY DIAMETER	LENGTH	STANDARD	DEFORMATION THREAD	WEIGHT
BRASS	Ø 4	14	DIN 79012, BC56	FG 2,3	1,1 g
				FG 2,6	1 g
STEEL	Ø 4	14	DIN 79012, BC56	FG 2,3	1,1 g
				FG 2,6	1 g
ALUMINIUM 7075	Ø 4	14	DIN 79012, BC56	FG 2,3	0,4 g

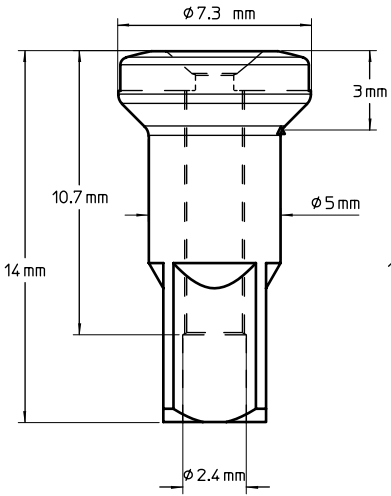
STANDARD L. 14 Ø 5

NIPPLES WITH ROUND HEAD

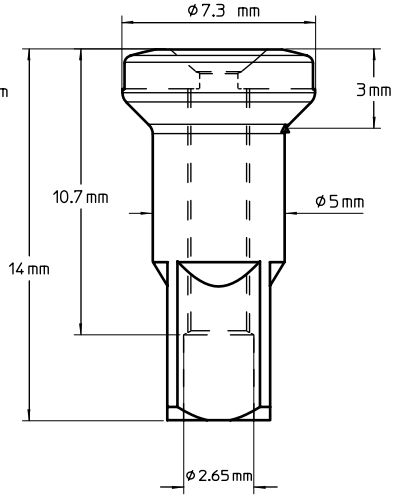
Ideal for all applications



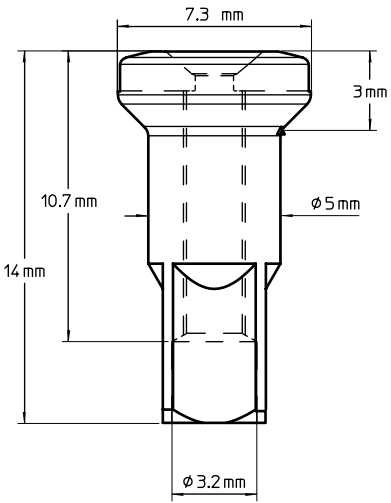




FG 2,3



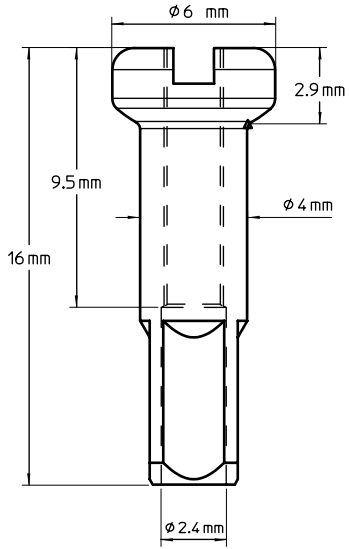
FG 2,6



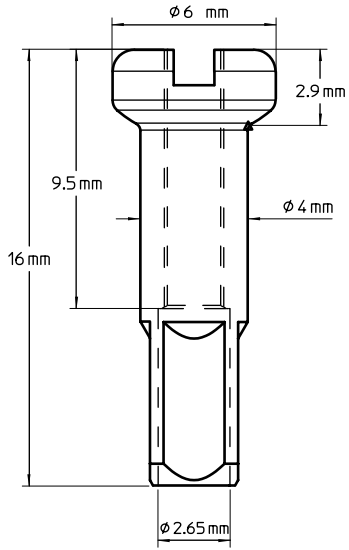
M3X0,5

STANDARD NIPPLES - L. 14 mm - Ø 5

	BODY DIAMETER	LENGTH	STANDARD	DEFORMATION THREAD	WEIGHT
BRASS	Ø 5	14	DIN 79012, BC56	FG 2,3	1,9 g
	Ø 5	14	DIN 79012, BC56	FG 2,6	1,9 g
	Ø 5	14	965-1	M3X0,5	1,8 g



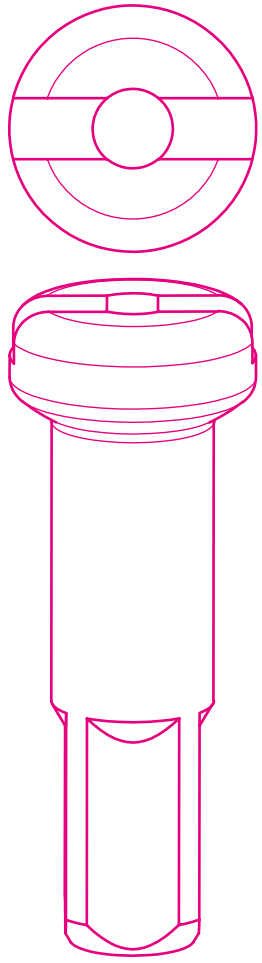
FG 2,3



FG 2,6

NIPPLES WITH ROUND HEAD

Ideal for all applications



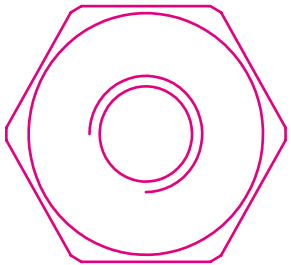
STANDARD NIPPLES - L. 16 mm - Ø 4

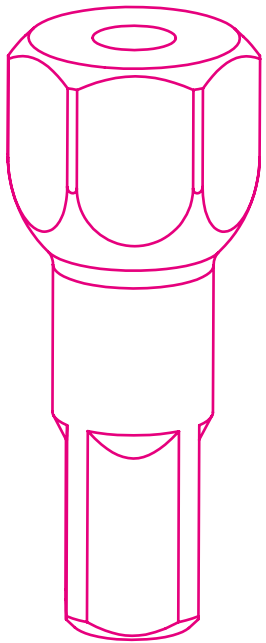
	BODY DIAMETER	LENGTH	STANDARD	DEFORMATION THREAD	WEIGHT
BRASS	Ø 4	16	DIN 79012, BC56	FG 2,3	1,2 g
				FG 2,6	1,1 g
STEEL	Ø 4	16	DIN 79012, BC56	FG 2,3	1,2 g
				FG 2,6	1,1 g

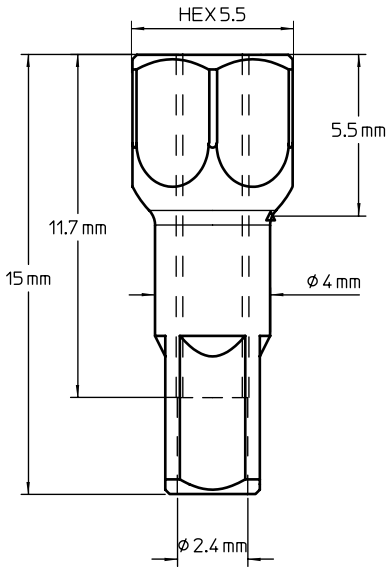
STANDARD L. 15 Ø 4

NIPPLES WITH HEXAGONAL HEAD

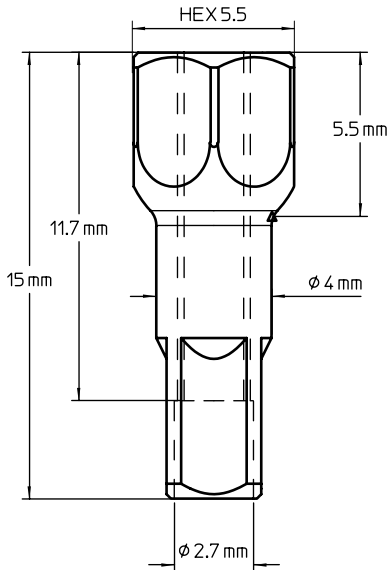
Ideal for special rim profiles







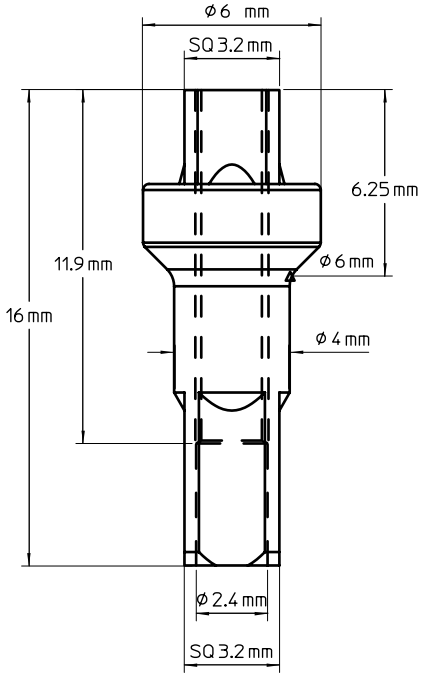
FG 2,3



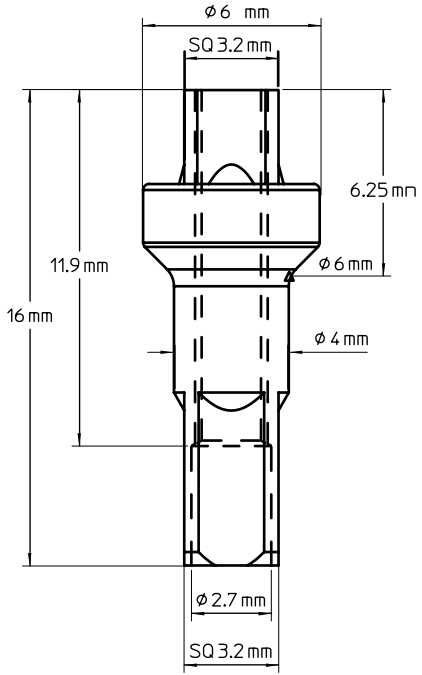
FG 2,6

STANDARD NIPPLES - L. 15 mm - Ø 4

	BODY DIAMETER	LENGTH	STANDARD	DEFORMATION THREAD	WEIGHT
BRASS	Ø 4	15	DIN 79012, BC56	FG 2,3	1,5 g
				FG 2,6	1,4 g
STEEL	Ø 4	15	DIN 79012, BC56	FG 2,3	1,5 g
				FG 2,6	1,4 g
ALUMINIUM 7075	Ø 4	15	DIN 79012, BC56	FG 2,3	0,5 g
				FG 2,6	0,5 g



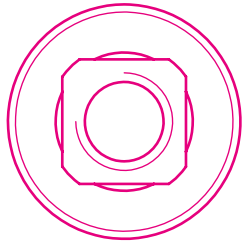
FG 2,3

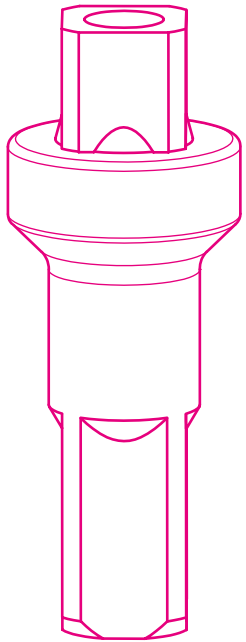


FG 2,6

NIPPLES WITH SQUARE HEAD

Developed for automatic assembly machines





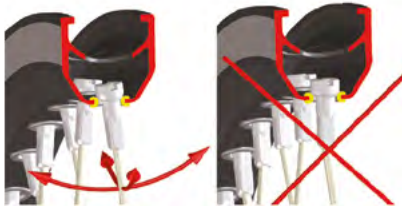
STANDARD NIPPLES - DOUBLE SQUARE

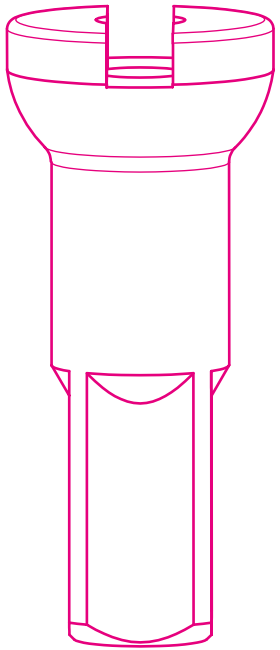
	BODY DIAMETER	LENGTH	STANDARD	DEFORMATION THREAD	WEIGHT
BRASS	Ø 4	16	DIN 79012, BC56	FG 2,3	1,3 g
				FG 2,6	1,3 g
ALUMINIUM 7075	Ø 4	16	DIN 79012, BC56	FG 2,3	0,4 g
				FG 2,6	0,4 g

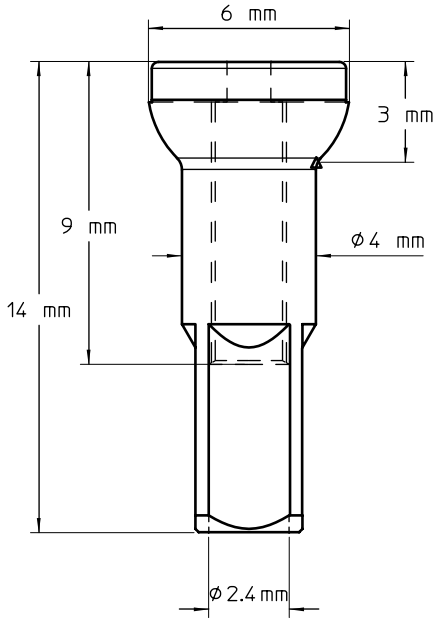
NIPPLES WITH ROUND HEAD

Spherical under-head

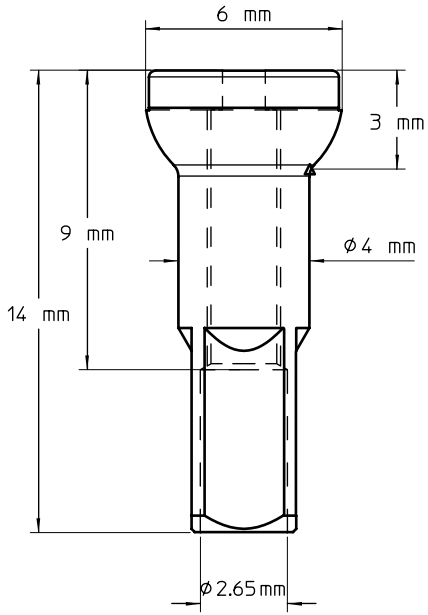
Allows an extreme oscillation between the rim and the nipple ensuring a better spoke/nipple line.







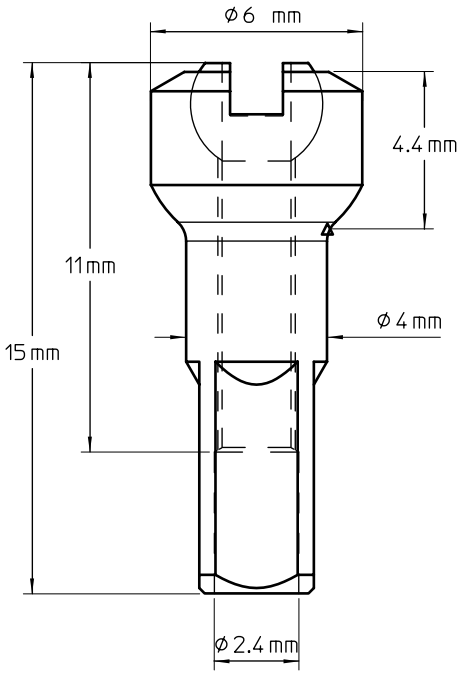
FG 2,3



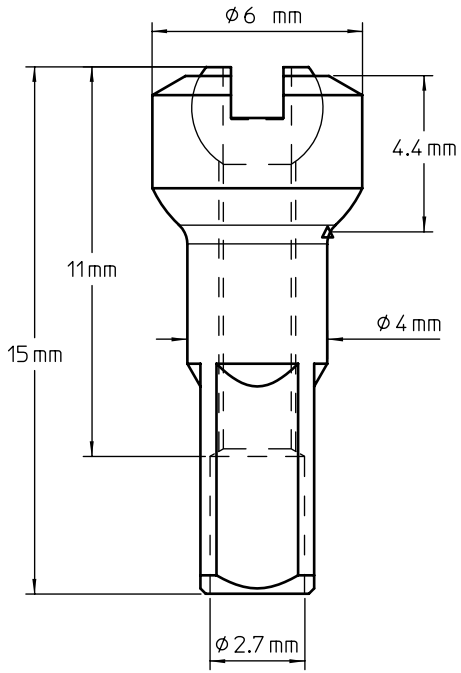
FG 2,6

MULTILINE NIPPLES - L. 14 mm - Ø 4

	BODY DIAMETER	LENGTH	STANDARD	DEFORMATION THREAD	WEIGHT
BRASS	Ø 4	14	DIN 79012, BC56	FG 2,3	1,1 g
				FG 2,6	1,1 g
ALUMINIUM 7075	Ø 4	14	DIN 79012, BC56	FG 2,3	0,4 g
				FG 2,6	0,4 g



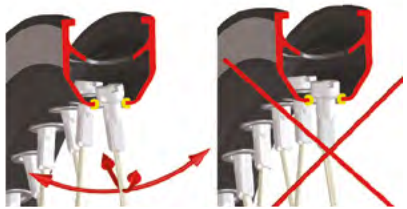
FG 2,3

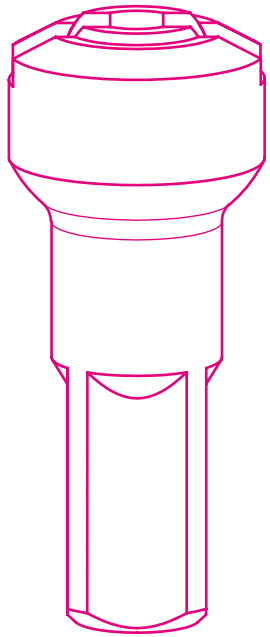


FG 2,6

SELF-LOCKING
NIPPLES WITH ROUND HEAD
Spherical under-head

Allows a wide oscillation between the rim and the nipple ensuring a better spoke/nipple line.





ABS SELF-LOCKING L. 15 mm

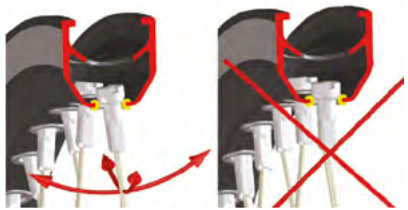
	BODY DIAMETER	LENGTH	STANDARD	DEFORMATION THREAD	WEIGHT
BRASS	Ø 4	15	DIN 79012, BC56	FG 2,3	1,3 g
	Ø 4	15	DIN 79012, BC56	FG 2,6	1,3 g

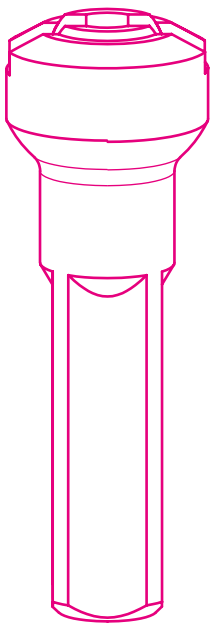
ABS - BLUE POWER L. 18

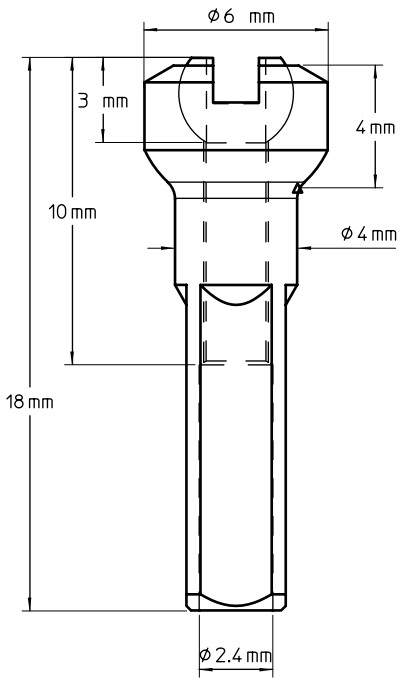
SELF-LOCKING
NIPPLES WITH ROUND HEAD

Spherical under-head

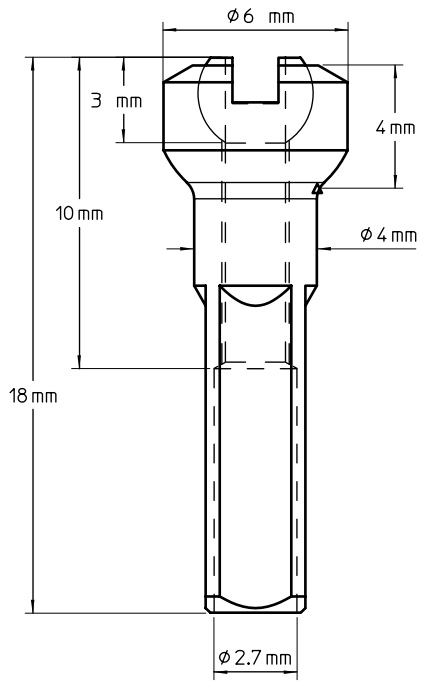
Allows a wide oscillation between the rim and the nipple ensuring a better spoke/nipple line.







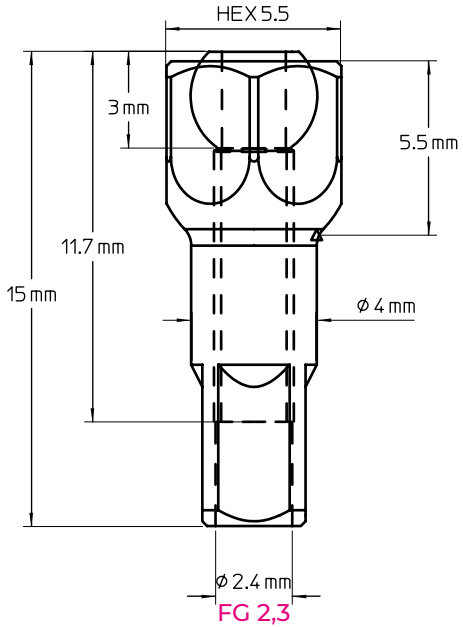
FG 2,3



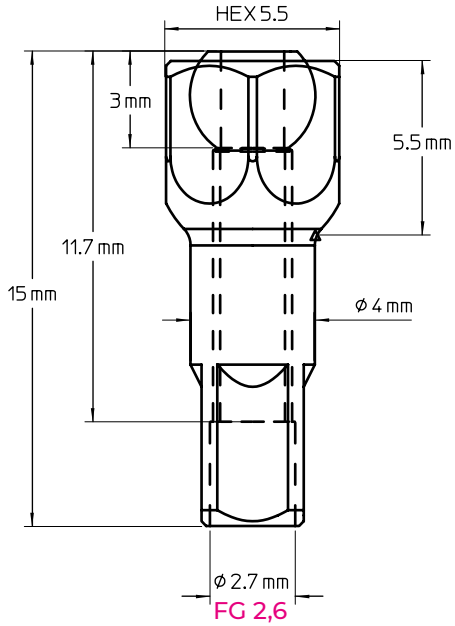
FG 2,6

ABS SELF-LOCKING L. 18 mm

	BODY DIAMETER	LENGTH	STANDARD	DEFORMATION THREAD	WEIGHT
BRASS	Ø 4	18	DIN 79012, BC56	FG 2,3	1,4 g
	Ø 4	18	DIN 79012, BC56	FG 2,6	1,3 g



FG 2,3

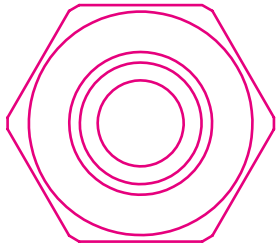


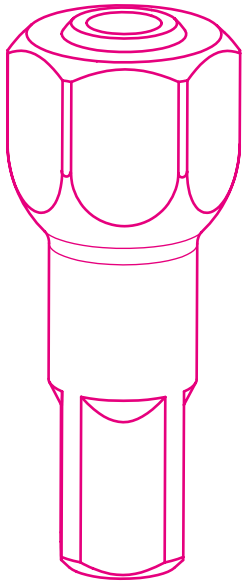
FG 2,6

SELF-LOCKING

NIPPLES WITH HEXAGONAL HEAD

Ideal for all rim profiles



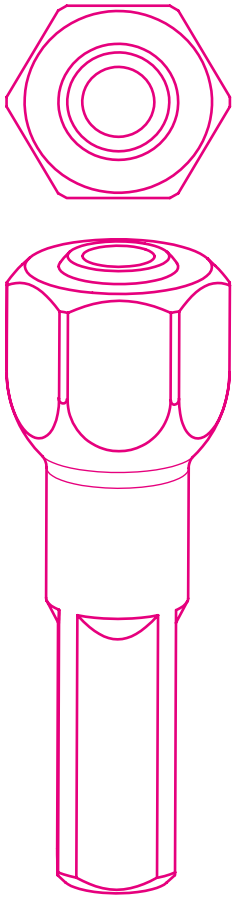


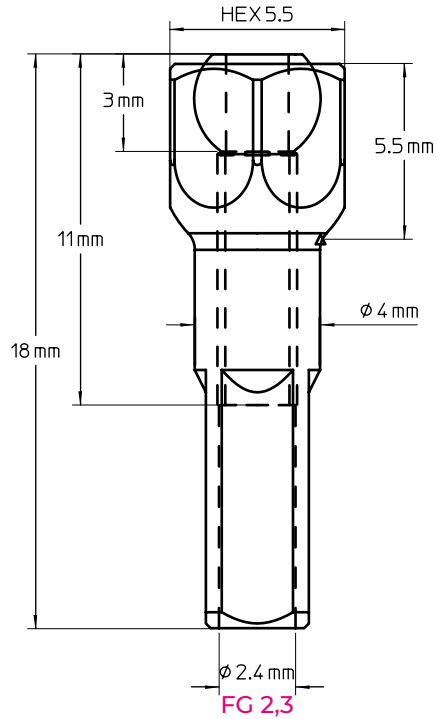
ABS SELF-LOCKING - HEXHEAD L. 15 mm

	BODY DIAMETER	LENGTH	STANDARD	DEFORMATION THREAD	WEIGHT
BRASS	Ø 4	15	DIN 79012, BC56	FG 2,3	1,4 g
				FG 2,6	1,3 g
STEEL	Ø 4	15	DIN 79012, BC56	FG 2,3	1,4 g
				FG 2,6	1,3 g
ALUMINIUM 7075	Ø 4	15	DIN 79012, BC56	FG 2,3	0,4 g

ABS - HEXAGONAL HEAD L. 18

SELF-LOCKING
NIPPLES WITH HEXAGONAL HEAD
Ideal for all rim profiles

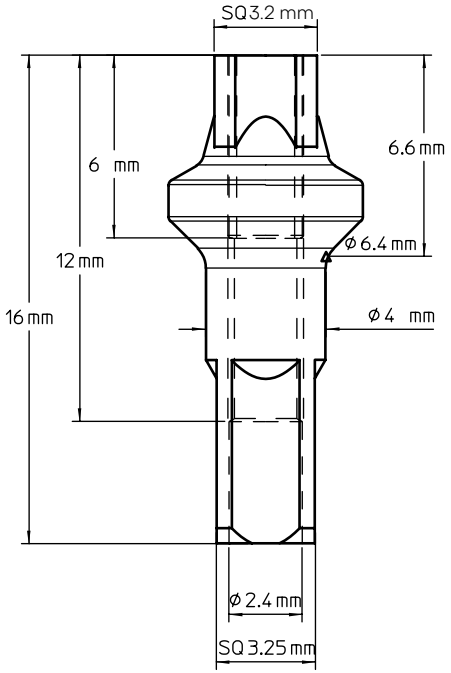




FG 2,3

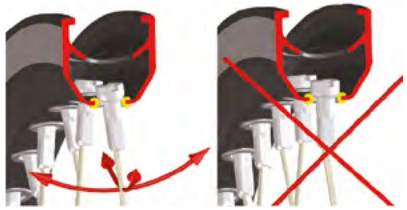
ABS SELF-LOCKING - HEXHEAD L. 18 mm

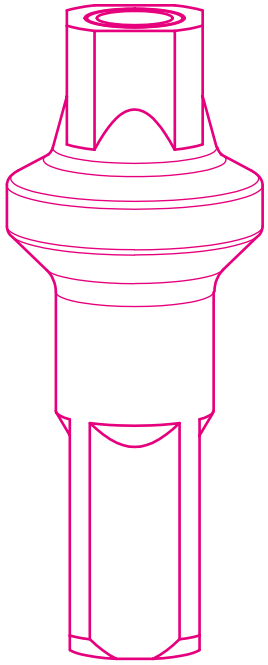
	BODY DIAMETER	LENGTH	STANDARD	DEFORMATION THREAD	WEIGHT
BRASS	Ø 4	18	DIN 79012, BC56	FG 2,3	1,5 g
ALUMINIUM 7075	Ø 4	18	DIN 79012, BC56	FG 2,3	0,5 g



FG 2,3

SELF-LOCKING
NIPPLES WITH SQUARE HEAD
Developed for automatic assembly machines





DOUBLE SQUARE - ABT - PATENTED

	BODY DIAMETER	LENGTH	STANDARD	DEFORMATION THREAD	WEIGHT
BRASS	Ø 4	16	DIN 79012, BC56	FG 2,3	1,3 g
ALUMINIUM 7075	Ø 4	16	DIN 79012, BC56	FG 2,3	0,4 g

NOTES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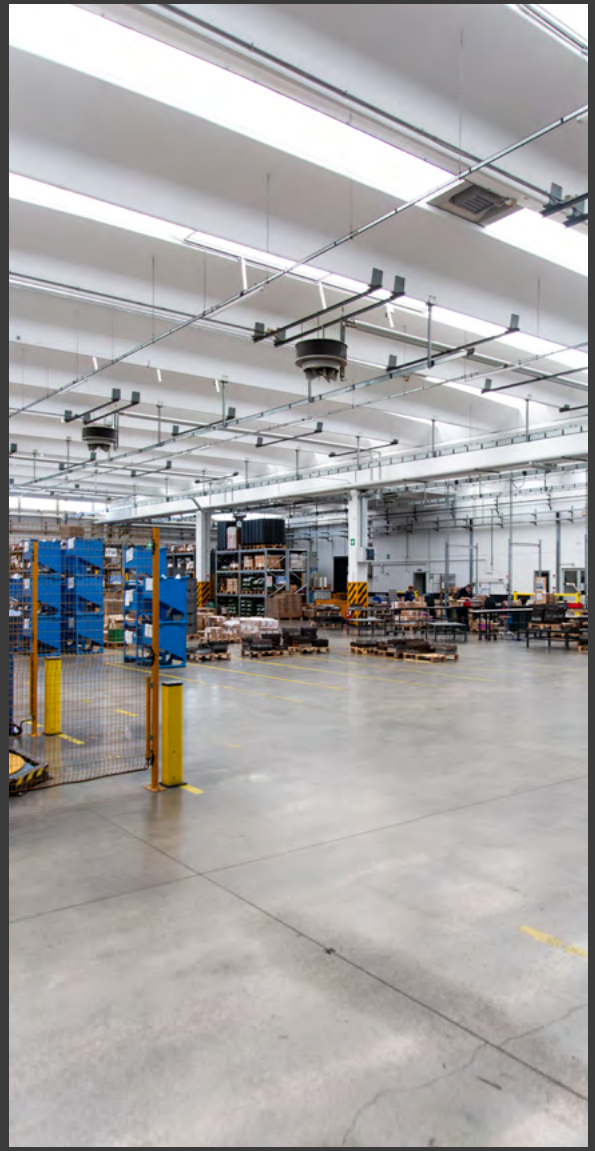

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