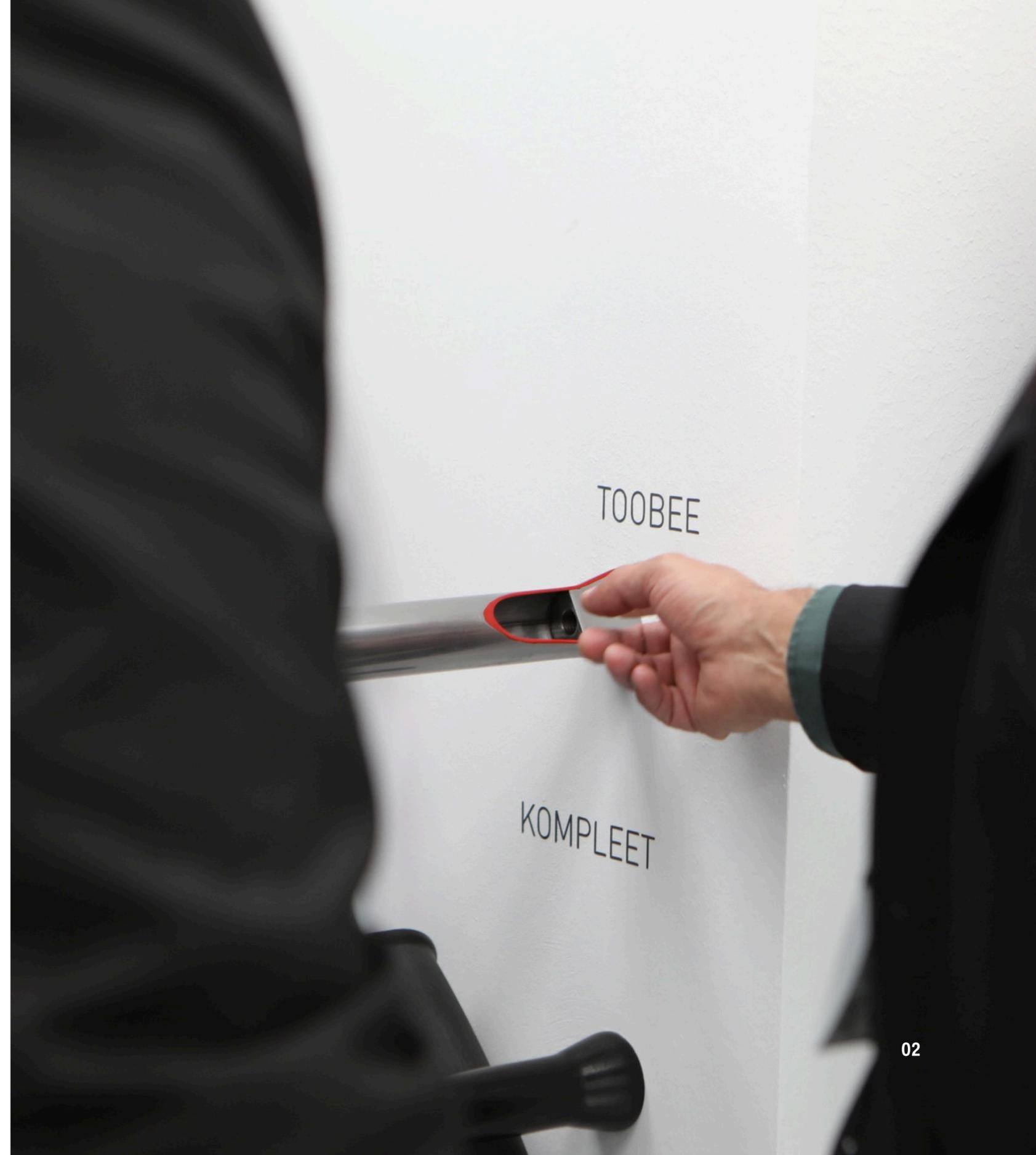


T O O B E E

INTRODUCTION

TooBee **redefines** the mounting of **traditional configuration mudguards** on heavy and light commercial vehicles.

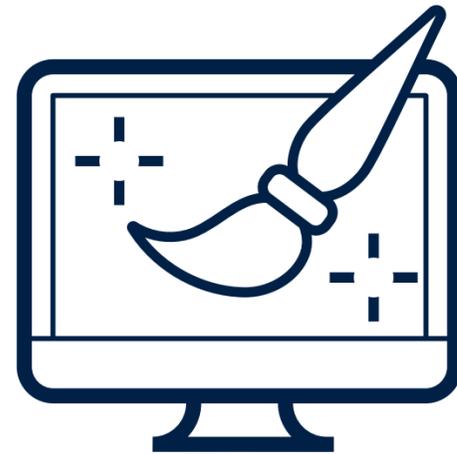
While working like a traditional mudguard mounting pipes, the way it is manufactured **presents a series of benefits that extend well beyond the cosmetic and qualitative realm.**



KEY POINTS



**STRONGER
AND
MORE DURABLE
THAN
TRADITIONAL
WING STAYS**



**STREAMLINED DESIGN
AND
CLEANER
PRODUCTION
PROCESS**



**HIGH QUALITY
SURFACE COATING**



**COMPETITIVE
PRICE
POSITIONING**



PROS



TooBee aims to overcome the described disadvantages by eliminating the need for welding.

Allowing the following **benefits**:

- **Major reproducibility.**
- **Smoother surfaces** for enhanced coating adhesion
- **Cleaner, safer** production process.
- **Stronger, more reliable** connection without welding
- **Better surface preparation** for coatings.
- **Possibility of using thinner pipe** stock suited to mechanical requirements
- **Less material compatibility constraints.**

CONS



In prior art, mudguard supporting pipes are made of two parts, which are welded together: a pipe and a flange used to mount the pipe to the vehicle chassis.

Welding presents the following **disadvantages**:

- **Difficult reproducibility.**
- **Quality** issues.
- **Environment** and **health concerns.**
- **Weakest link** in the assembly.
- Surface **coating issues.**
- **Need to increase pipe thickness** beyond what is required to achieve a suitable weld bead.
- **It is necessary to carefully match the** pipe and flange materials.

TOOBEE PATENT PENDING

Toobee system introduces a key innovation compared to prior art: **it eliminates welding from the wing stay.**

According to stress tests conducted on various pipe sizes, welding often represents the weakest structural link in the assembly.

In conventional solutions, achieving a solid weld bead requires that the **pipe thickness closely match the flange thickness.**

As a result, tubes are often made **thicker than mechanically necessary**, simply to meet welding requirements.

Since **Toobee does not rely on welding**, it allows for the use of pipe stock with **reduced thickness.**



STANDARD OFFER - STEEL

Toobee is supplied with endcap preassembled and individual mounting hardware kit is included.

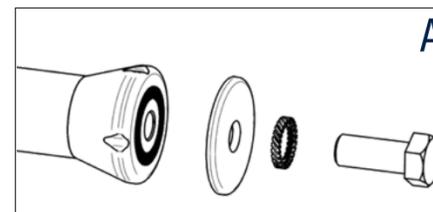
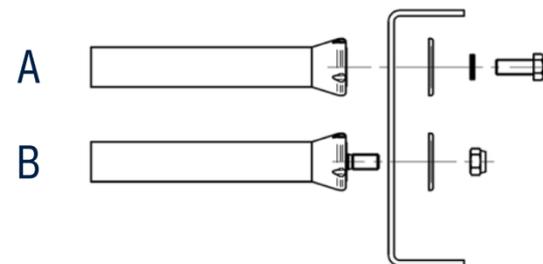
Toobee is available in various geometries, dimensions and surface finishes.

Code	description	Ø	thickness	length	finishing	kg	std packaging
16 11 01 034	Straight tube	42	2	811	Galvanized	2,2	12 pcs
16 11 31 360	Straight tube	42	2	750	Galvanized	2,1	12 pcs
16 11 31 375	Straight tube	42	2	600	Galvanized	1,8	12 pcs
16 20 01 120	Straight tube	42	2	811	Galvanized - Black epoxy coating	2,2	12 pcs
16 41 31 360	Straight tube	42	2	750	Galvanized - Black epoxy coating	2,1	12 pcs
16 41 31 375	Straight tube	42	2	600	Galvanized - Black epoxy coating	1,8	12 pcs
18 11 01 033	Double bent tube	42	2	811	Galvanized	2,3	12 pcs
18 11 31 365	Double bent tube	42	2	730	Galvanized	2,1	12 pcs
18 11 31 380	Double bent tube	42	2	580	Galvanized	1,8	12 pcs
18 20 01 010	Double bent tube	42	2	811	Galvanized - Black epoxy coating	2,3	12 pcs
18 41 31 365	Double bent tube	42	2	730	Galvanized - Black epoxy coating	2,1	12 pcs
18 41 31 380	Double bent tube	42	2	580	Galvanized - Black epoxy coating	1,8	12 pcs

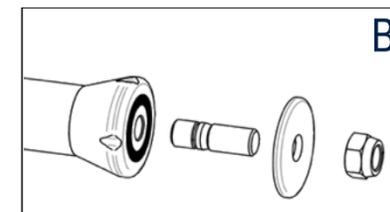


all dimensions are in mm

MOUNTING HARDWARE KIT



Standard bolt mounting kit included.



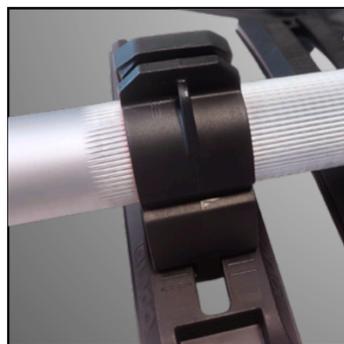
Captive screw mounting kit upon request.

STANDARD OFFER - STAINLESS STEEL/ANODIZED ALUMINIUM

Toobee is supplied with endcap preassembled and individual mounting hardware kit is included.

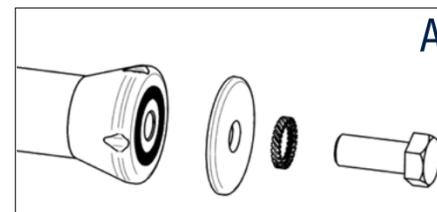
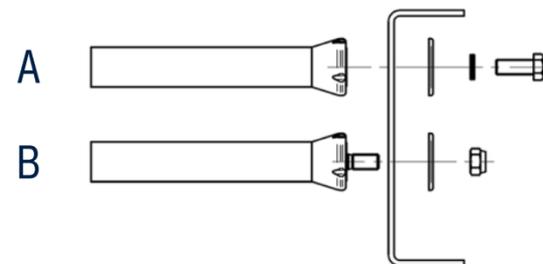
Toobee is available in various geometries, dimensions and surface finishes.

Code	description	Ø	thickness	length	finishing	kg	std packaging
16 30 31 353	Straight tube	42	2	811	Stainless steel	2,2	12 pcs
16 30 31 360	Straight tube	42	2	750	Stainless steel	2,1	12 pcs
16 30 31 375	Straight tube	42	2	600	Stainless steel	1,6	12 pcs
16 49 33 353	Straight tube	42	3	811	Anodized aluminium	1,2	12 pcs
16 49 33 360	Straight tube	42	3	750	Anodized aluminium	1,1	12 pcs
16 49 33 375	Straight tube	42	3	600	Anodized aluminium	0,9	12 pcs
18 30 31 353	Double bent tube	42	2	811	Stainless steel	2,3	12 pcs
18 30 31 365	Double bent tube	42	2	730	Stainless steel	2,1	12 pcs
18 30 31 380	Double bent tube	42	2	580	Stainless steel	1,6	12 pcs
18 49 33 353	Double bent tube	42	3	811	Anodized aluminium	1,2	12 pcs
18 49 33 365	Double bent tube	42	3	730	Anodized aluminium	1,1	12 pcs
18 49 33 380	Double bent tube	42	3	580	Anodized aluminium	0,9	12 pcs

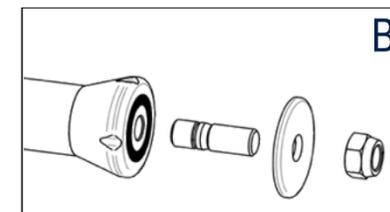


all dimensions are in mm

MOUNTING HARDWARE KIT



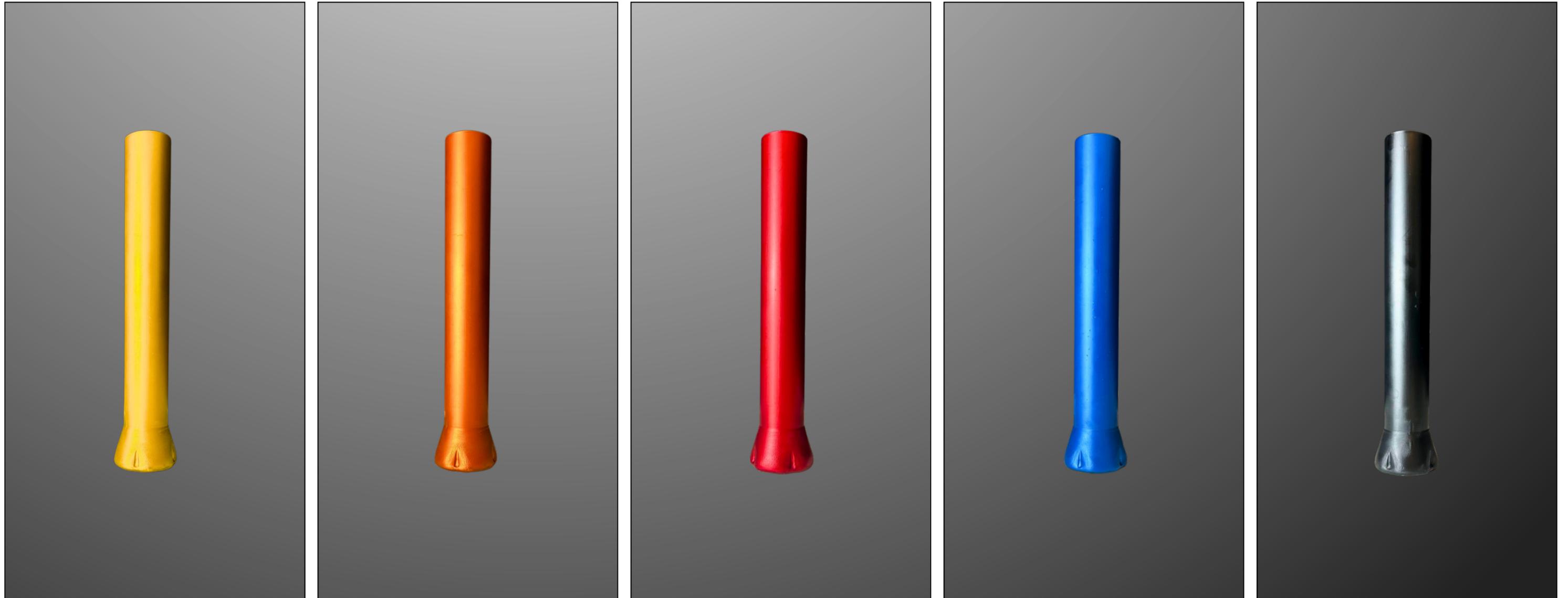
Standard bolt mounting kit included.



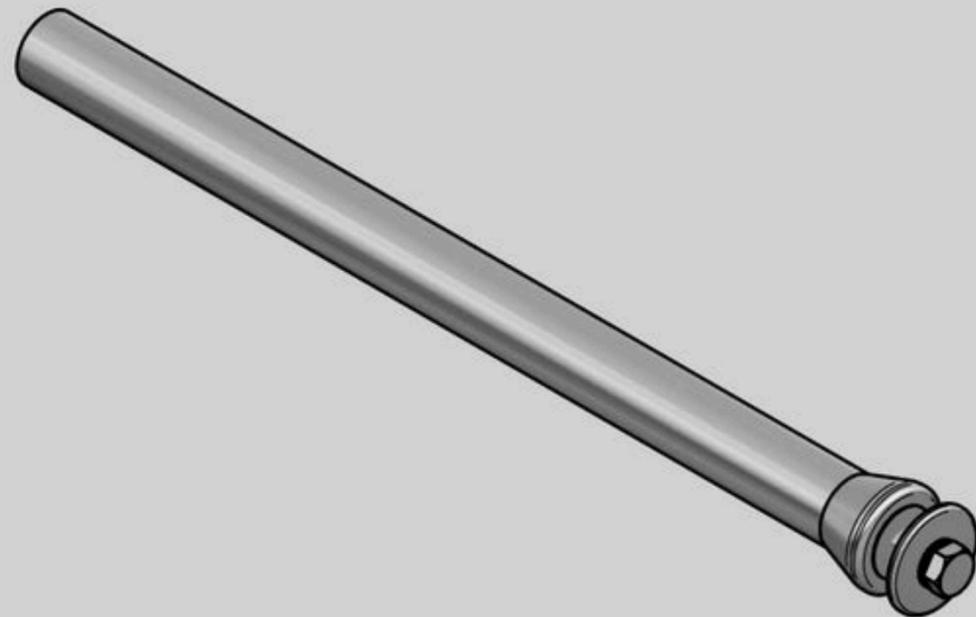
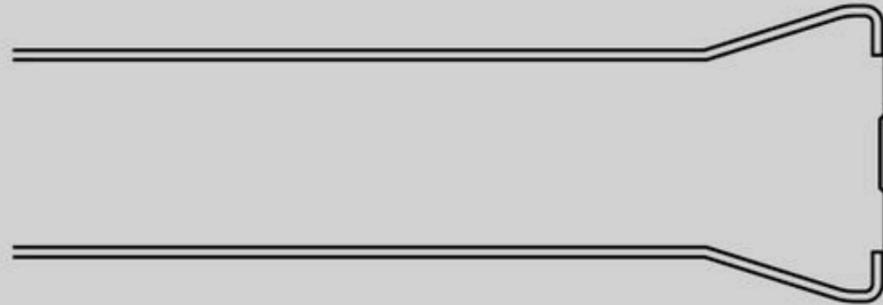
Captive screw mounting kit upon request.

ADDITIONAL POSSIBILITIES

Colors on request, subject to minimum quantity



STRONG BY DESIGN

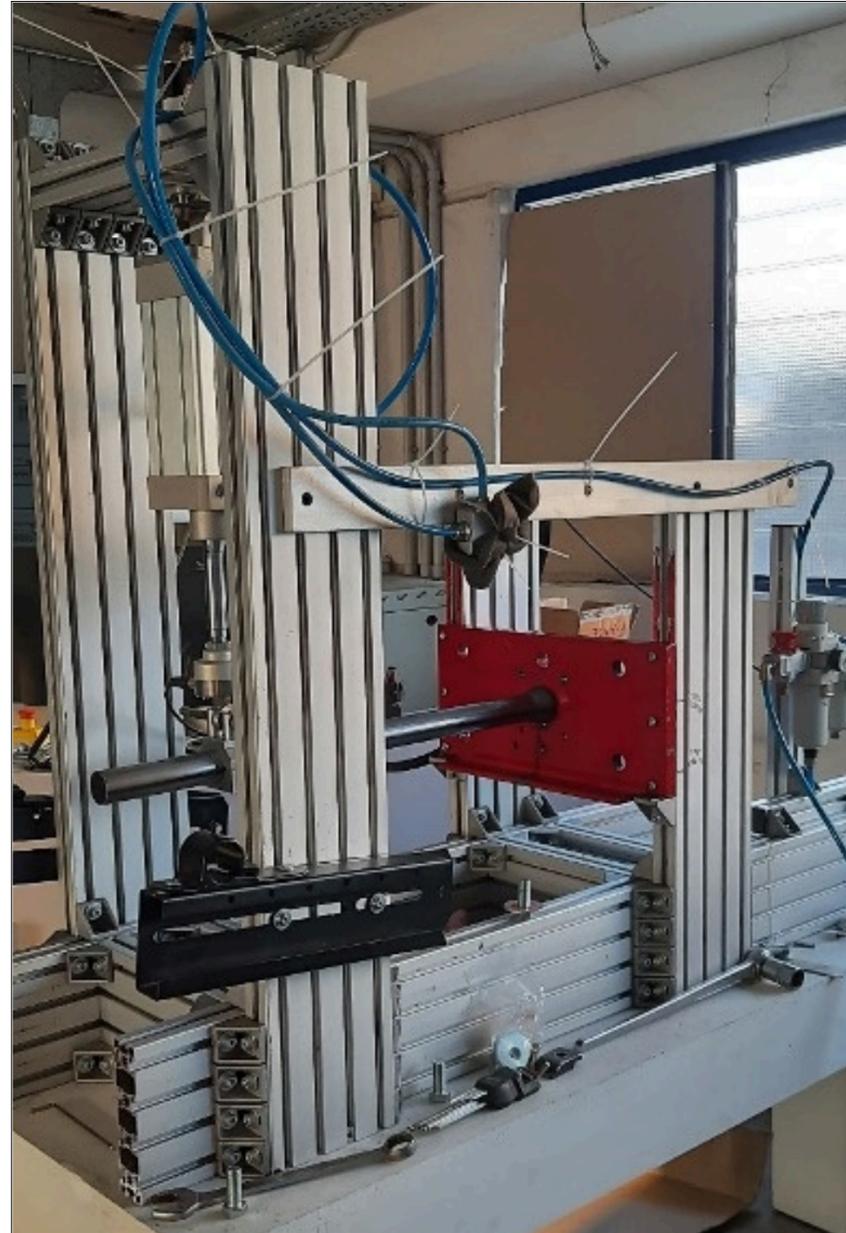


TECHNICAL REPORT

TEST PARAMETERS

STRUCTURAL TESTS

- **STATIC:** forces applied included between 500 and 1200 N with 100N increments.
- **DYNAMIC:** force applied min 100N max 1000N, 3Hz Frequency (distance from frame 575mm).
- **TEST EQUIPMENT:** engineLab Hardware LiTeM Software.



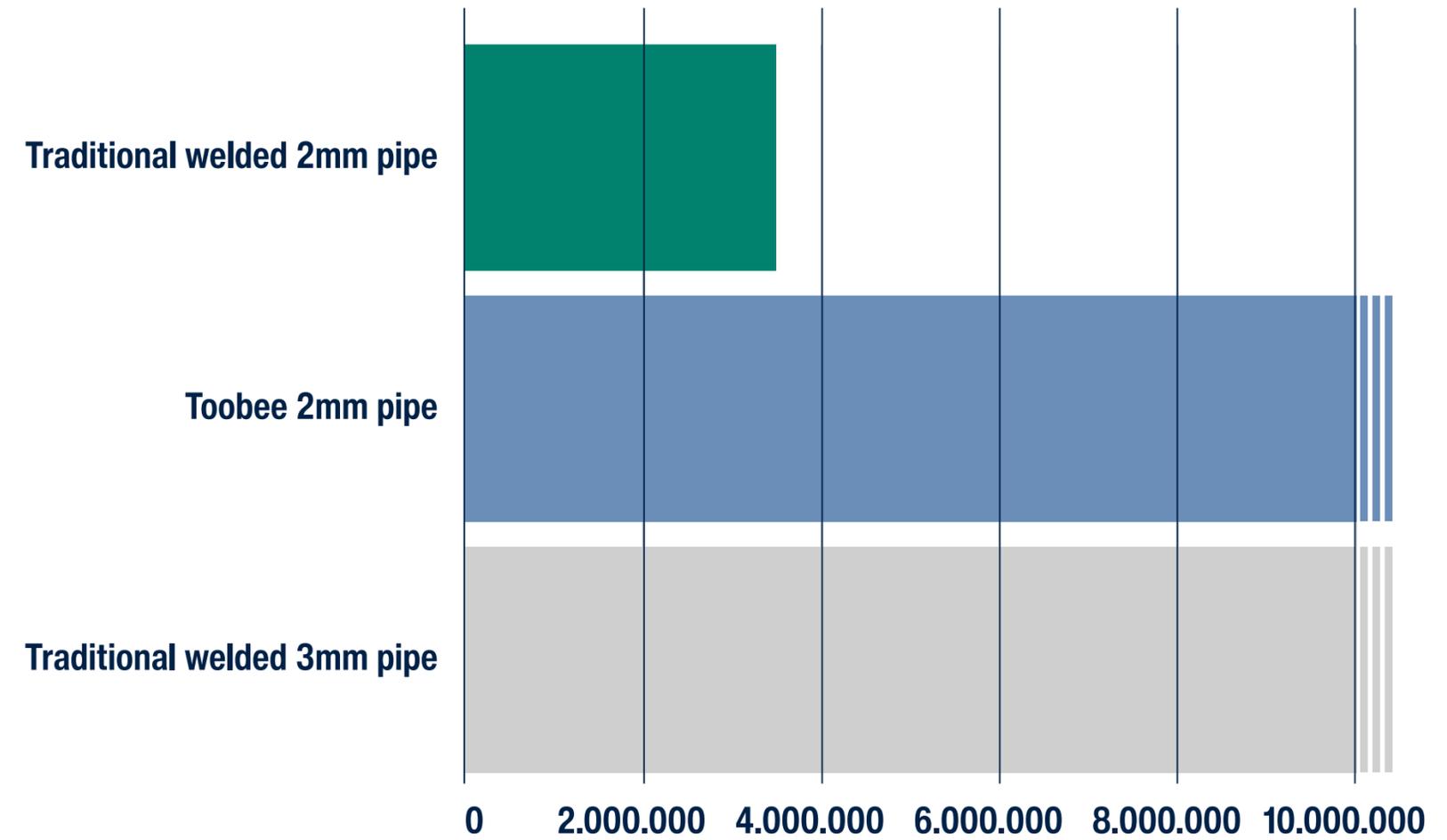
CORROSION TESTS

- Reference Standards UNI EN ISO 9227:2017.
- Neutral salt fog 480 hours.
- Executed by: UNILAB LABORATORI IND. Certified Lab.
- Tested Surface Finishes: Cold Zinc Plating + Powder Coating.

STRUCTURAL TEST

Traditional straight pipe (welding) vs TOOBEE

	TESTED SAMPLE	CYCLES	FAILED
	Traditional welded 2mm pipe	349.600	YES
	TooBee 2mm pipe	< 1.000.000	NO
	Traditional welded 3mm pipe	< 1.000.000	NO



TECHNICAL REPORT



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RAPPORTO DI ANALISI N. RA240085
Analysis Report No.

Data di emissione 27/03/2024
Issue Date

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RA240085
27/03/2024
Pagina / Page 2 di / of 5

Norma di riferimento/ Test according to: UNI EN ISO 9227:2017	
Prova / Test:	TEST DI CORROSIONE IN NEBBIA SALINA Salt spray corrosion test
Strumentazione / Equipments:	ANGELANTONI DCTC 1200P
Inizio prova / Initial test date:	05/03/24
Fine prova / End test date:	25/03/24
Temperatura della camera / Chamber temperature	35±2°C
pH soluzione salina / Salt solution pH	6.5±7.2

ESAME VISIVO PRIMA DELLA PROVA / VISUAL EXAMINATION BEFORE THE TEST






Commenti: Aspetto visivo rappresentativo del campione prima della prova.

Operatore / Operator
Ing. Marco Breda

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Mod.046 Rev.00 del 24/08/2022



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Temperatura della camera / Chamber temperature	35±2°C
pH soluzione salina / Salt solution pH	6.5±7.2

ESAME VISIVO DOPO 240h / VISUAL EXAMINATION AFTER 240h






Commenti: Assenza di alterazioni generalizzate; presenza di ossidazione rossa in corrispondenza degli spigoli e delle interfacce (superficie frontale e parte posteriore).

Operatore / Operator
Ing. Marco Breda

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Inizio prova / Initial test date:	05/03/24
Fine prova / End test date:	25/03/24
Temperatura della camera / Chamber temperature	35±2°C
pH soluzione salina / Salt solution pH	6.5±7.2

ESAME VISIVO DOPO 480h / VISUAL EXAMINATION AFTER 480h






Commenti: Al termine della prova, non si osservano alterazioni generalizzate; presenza di ossidazione rossa in corrispondenza degli spigoli e delle interfacce (superficie frontale e parte posteriore).

Operatore / Operator
Ing. Marco Breda

FINE RAPPORTO DI ANALISI

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In a context which calls for cleaner, more sustainable and higher-performing solutions,
where the quest of design is that of doing MORE by using LESS,
TooBee is a true demonstration of the often-unachievable paradigm of

LESS IS MORE

LAGOACCESSORI.IT