	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022




<b>Project Acronym:</b>	<b>FEMTOSURF</b>
<b>Project Full Title:</b>	Functional surface treatments using ultra-short pulse laser system
<b>Grant Agreement:</b>	825512
<b>Project Duration:</b>	1 January 2019 – 30 June 2022


## FINAL COMMUNICATION KIT

Work Package:	WP8 - FemtoSurf Dissemination & Communication
Deliverables	D8.7
Lead Beneficiary:	Femtika
Due Date:	Month 42
Deliverable Status:	Final
Deliverable Type:	R
Dissemination Level:	P
File Name:	D8.7-Final-communication-kit

### FEMTOSURF Consortium

  <small>PHOTONICS PUBLIC PRIVATE PARTNERSHIP</small>
<p><b>This project received funding from the European Union's Horizon 2020 Research and Innovation programme under Grant Agreement No. 825512.</b></p> <p><b>This project is funded by one of the calls under the Photonics Public Private Partnership (PPP)</b>  <b>(<a href="http://www.photonics21.org">www.photonics21.org</a>)</b></p>

	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

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			Date:	7/11/2022

Participant No	Participant organization name	Country
1 (Coordinator)	Femtika	Lithuania
2 Partner	Amphos	Denmark
3 Partner	FORTH	Greece
4 Partner	SUPSI	Switzerland
5 Partner	ROLLA	Switzerland
6 Partner	Aerea	Italy
7 Partner	Straumann	Switzerland
8 Partner	MTC	United Kingdom
9 Partner	Heliotis	Switzerland
10 Partner	Ramteid	Germany

### Authors List


Leading Author (Editor)			
Surname	First Name	Beneficiary	Contact email
Grigaleviciute	Giedre	Femtika	Giedre.grigaleviciute@femtika.com

### Reviewers List

List of Reviewers (in alphabetic order)			
Surname	First Name	Beneficiary	Contact email
Nemickas	Gedvinas	Femtika	Gedvinas.nemikas@femtika.com


### Revision Control

Version	Status	Modifications made by
0.1	Initial Draft	Femtika
0.3	Final improvements	Femtika
3	Submission to the EC	Femtika

	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

## 1. Contents

1.	Introduction .....	5
2.	FemtoSurf logo.....	7
2.1.	Primary colors .....	7
2.2.	Logo in monochrome .....	7
2.3.	Minimum size .....	7
2.4.	Logo clear space .....	8
2.5.	Logo on photo background .....	9
2.6.	Protection of logo integrity .....	9
2.7.	Typography .....	11
3.	Design elements.....	12
4.	Email templates .....	13
5.	PPT templates .....	14
6.	Newspaper print template.....	15
7.	X-banner template .....	18
8.	Other design examples .....	20
9.	The example photos.....	24
10.	Posters .....	25
11.	Dissemination texts.....	30
12.	Conclusions .....	32


	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

## 1. Introduction

The main objective of FemtoSurf project is to develop, test and demonstrate industrial-grade solid-state 2-3 kW-level fs laser with parameters suitable for metal surface patterning applicable in industrial settings. FemtoSurf industrial-grade 2-3kW-level fs laser will be integrated in propose-built optical chain enabling multi-beam processing (several simultaneous beams) with individually tailored spatial distributions in each laser spot, integrated into a fully automated processing setup for efficient patterning arbitrary shaped metal components with sizes exceeding several meters while retaining

### Project description


Creating 3D patterns on surfaces changes their properties and the way they interact with other materials. Ultrafast lasers are proving particularly promising in this realm. Surface features on scales from nanometer to millimeter sizes can be controlled to fine-tune functionality and performance in numerous applications from aerospace to biomedicine with particular interest in wettability, attraction and repelling. The FemtoSurf project has a bold idea for these tiny patterns. The project partners are developing the technology to enable the simultaneous several beams of ultrafast laser beam for surface patterning. When integrated into an automated industrial setup, the system will enable patterning at the micrometer scale in components exceeding several meters in length. This technology will open the door to exciting possibilities to optimize aerodynamics in large structures such as planes, ships and implants.

	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

## The document scopes

The present document is the Interim communication kit of the FemtoSurf project (Grant Agreement No.: 825512), funded by the European Union's Horizon 2020 Research and Innovation program (H2020).

This visual Identity Guide has been designed to ensure that throughout the 3 years of operation of the FemtoSurf project the members of the project consortium can prepare their communication materials in a coherent way. This manual includes usage rules of the communication elements aimed at promoting the FemtoSurf project and acknowledgment of the EU funding. These visual identity guidelines are in line with the obligations of beneficiaries regarding information and communication and dissemination measures included in Articles 29 and 38.

	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

## 2. FemtoSurf logo

### 2.1. Primary colors



CMYK 0-77-98-0	CMYK 69-47-42-30
RGB 240-90-34	RGB 84-102-111
WEB #F05A22	WEB #54666F


### 2.2. Logo in monochrome

Black or white version of the logo should be used whenever the full-color version of the logo cannot be applied. For example:

- On dark or motley background;
- When the background color is similar to the colors of the logo;
- In monochrome print, such as documents.





### 2.3. Minimum size

	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

When decreasing the size of the logo, it is important to retain clarity and readability.

Below are the acceptable minimum sizes of the logo for the usage in print and on the web.


Minimum logo size 20 mm x 2,5 mm	
<p><b>Minimum size in print</b></p> 	<p><b>Minimum size on the web</b></p> 

## 2.4. Logo clear space

Shown bellow is the minimum distance around the logo that must remain clear of any other graphic elements or texts. It is also the minimum distance from the logo to the edge of the page.

Clear space around the logo separates it from other graphic elements, complicated visuals and texts in order for the logo to remain clearly visible and presentable.

**The basis for clear space is the height of the logo.**

	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022



## 2.5. Logo on photo background

When using the logo on photo backgrounds it is important to ensure its visibility and recognition.


**White or full-color version of the logo should be used on photo backgrounds.**

The appropriate version is chosen by creating a contrast between the logo and the background.



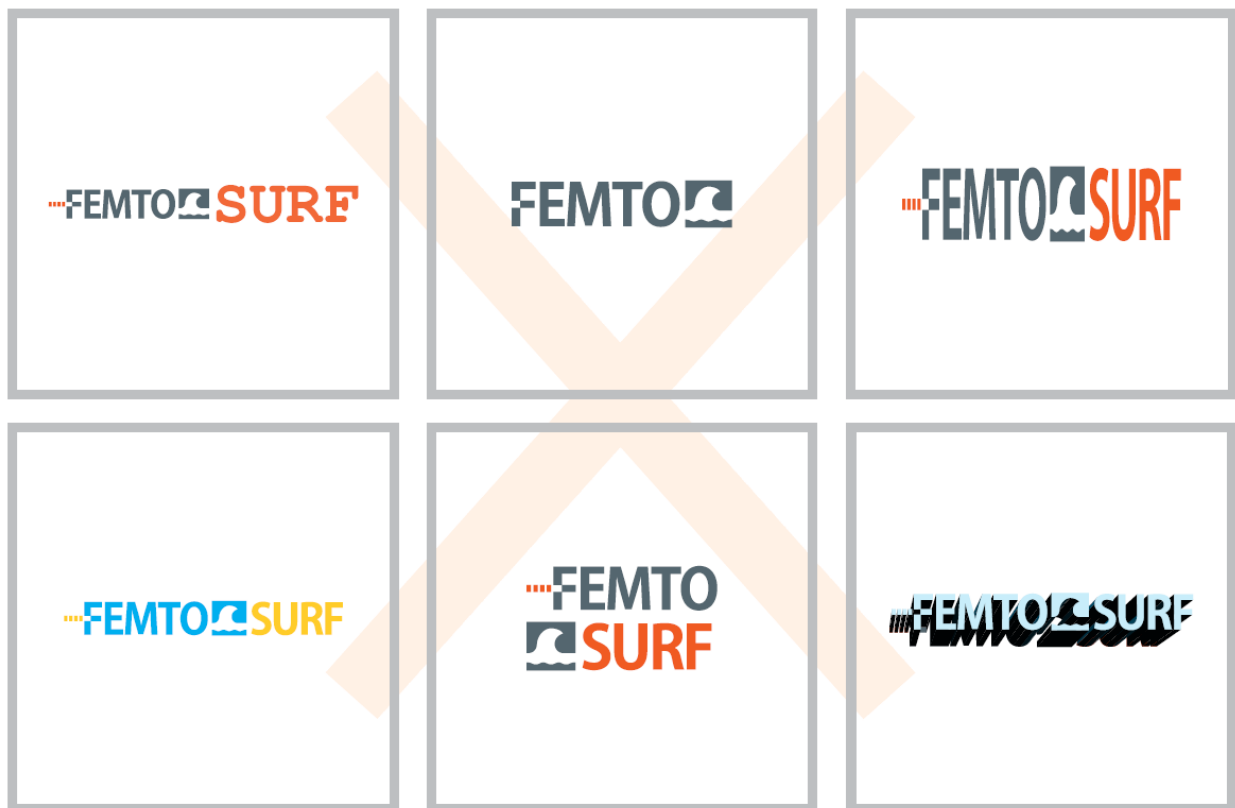
## 2.6. Protection of logo integrity


The background must not compromise the readability and visibility of the logo.

	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022



The logo should not be altered in any way such as changing its typography, proportion, adding or removing elements, using additional effects or changing its colors.




	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

## 2.7. Typography

Typography is one of the main elements in creating the visual identity of an organization within all means of communication.

**For the FemtoSurf project the font Myriad Pro was chosen.**

The font is used in creating all means of visual identity, press projects, presentations, internet communication, etc.

	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

### 3. Design elements


These design elements are created for the use in various design production to retain and strengthen the recognition of project identity.

The design elements are made based on the logo in order to complement it and maintain the same style and idea.



Examples of usage:



	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

## 4. Email templates

### Newsletter / invitation

Logo: *email\_header.jpg*

Heading: Myriad Pro Bold, FemtoSurf orange

Text: Myriad Pro Regular, black



### Signature

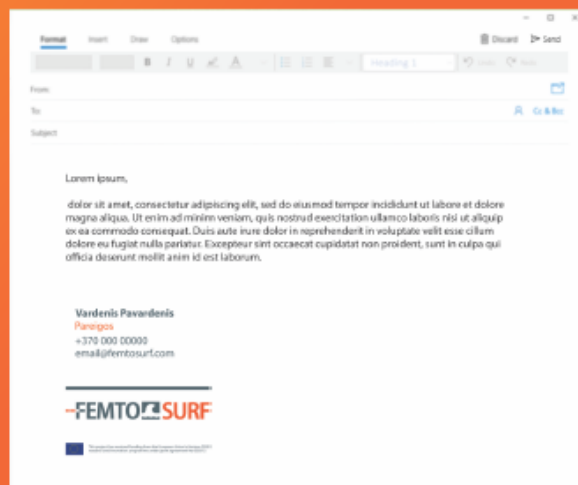
Text: Myriad Pro Regular, black


Name, surname: Myriad Pro Bold, FemtoSurf gray

Position: Myriad Pro Regular, FemtoSurf orange

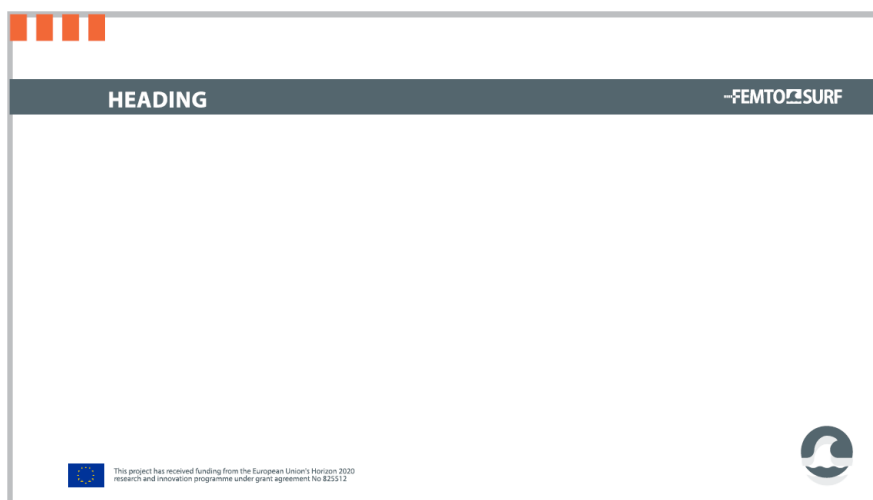
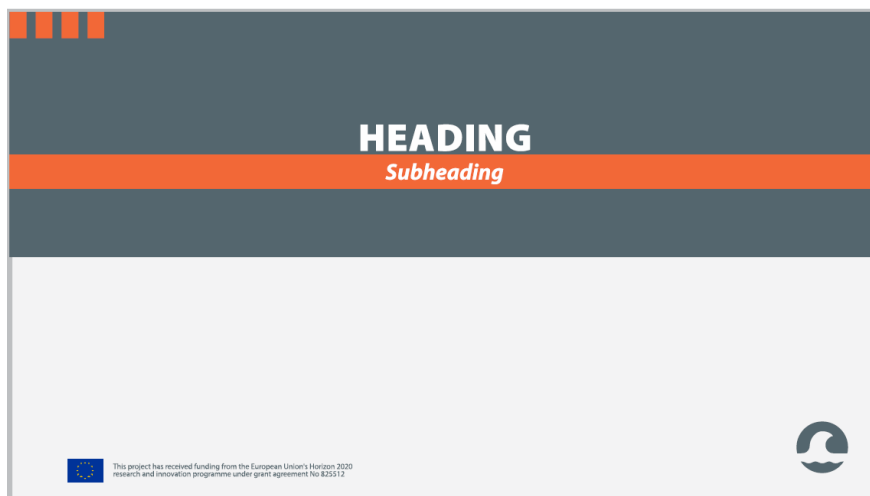
Contact information: Myriad Pro Regular, FemtoSurf gray


Logo: *email\_footer.jpg*

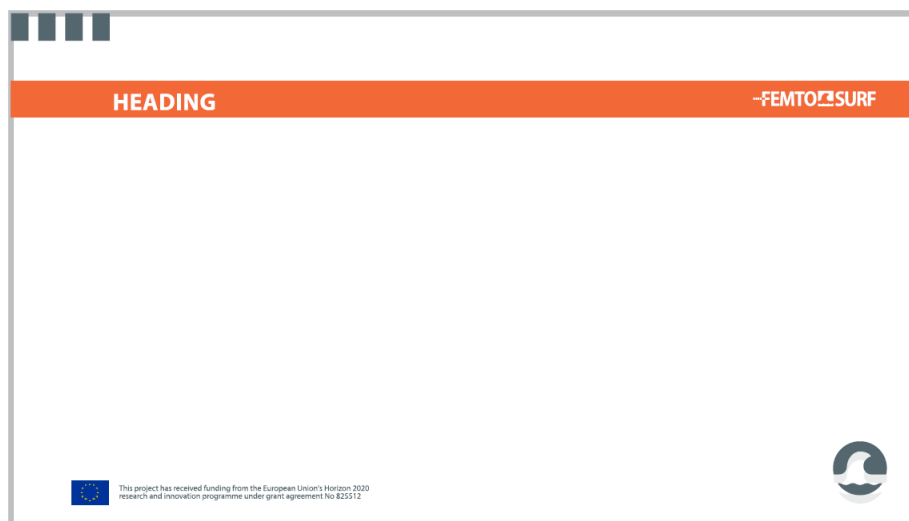


	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

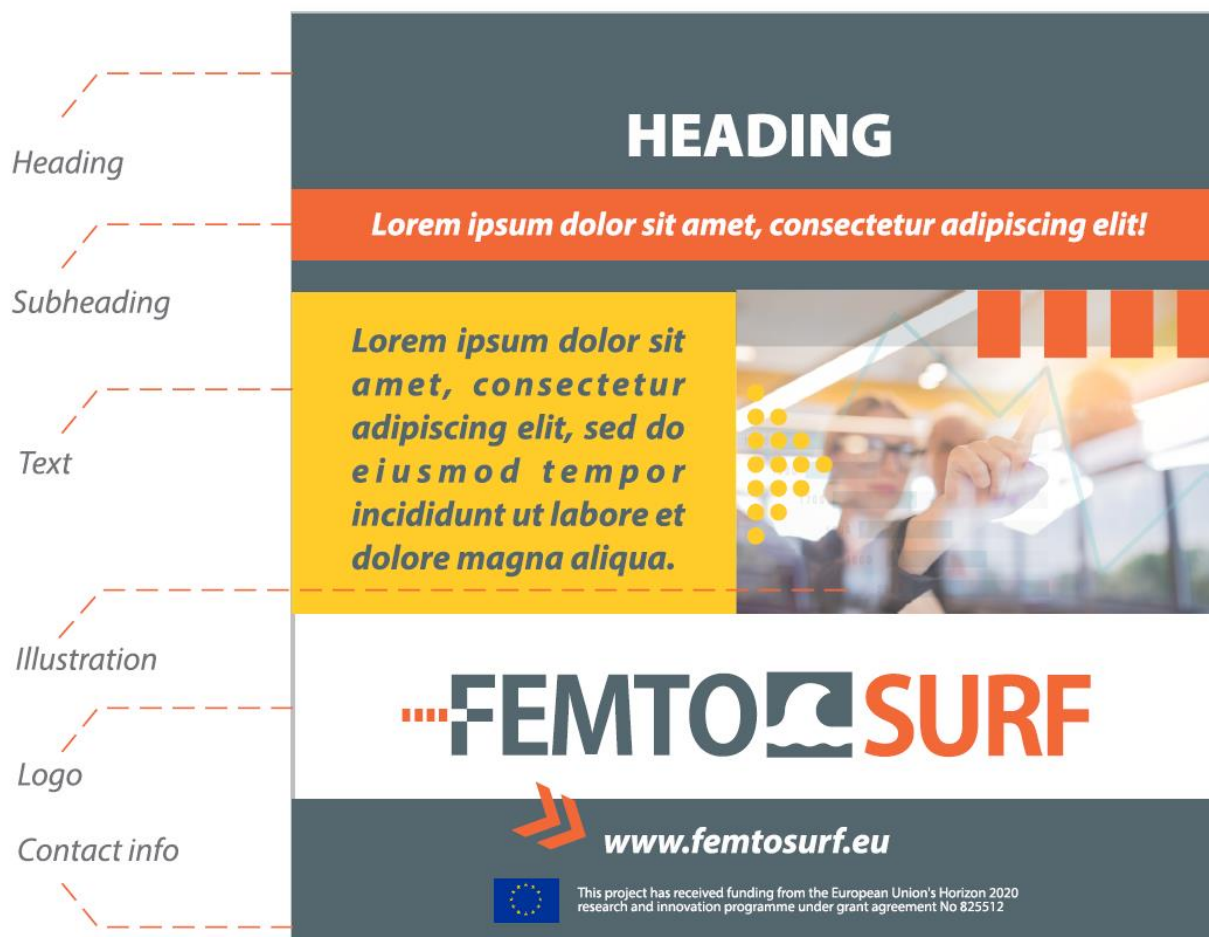
## 5. PPT templates




	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022



## 6. Newspaper print template



	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

The newspaper print template has been used in order to inform about the FemtoSurf project. These brochures could be used as an example of what kind of information can be used, how many text the brochure should contain, what pictures are preferred to be used (the same as in femtosurf.eu web page in order to remain visual identity).

## CHALLENGES

### The main challenges of FemtoSurf project

- Developing 2-3 kW femtosecond industrial grade laser.
- Advanced system of guiding and controlling kW level radiation.
- Arbitrary shaped metal parts available for micro-patterning process.




[www.femt surf.eu](http://www.femt surf.eu)

 This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 825512

## CONCEPT


### The overall concept of FemtoSurf project

- Development of a system for the treatment of large surface areas using kW-level femtosecond laser for enhanced surface repelling and/or adhesion properties, leading to increased durability, self-cleaning, anti-fouling or enhanced tissue attachment.




[www.femt surf.eu](http://www.femt surf.eu)

 This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 825512

	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

# OBJECTIVES


The main objectives of FemtoSurf project

Fully automated kW level femtosecond laser processing setup for efficient patterning arbitrary shaped metal components with sizes exceeding several meters while retaining micrometer level precision and on-the-fly quality assessment (zero faulty parts delivered).







[www.femt surf.eu](http://www.femt surf.eu)

	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

## 7. X-banner template



The X-banner template has been used in order to inform about the FemtoSurf project. This brochure could be used as an example of what kind of information can be used, how many text the brochure should contain, what pictures are preferred to be used (the same as in femtosurf.eu web page in order to remain visual identity).

	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022



## Femtosecond laser 3D surface micro-structuring

The overall concept of the project is the development of a system for the treatment of large 3D surface areas using kW-level femtosecond laser




Anti-bacterial,  
self-cleaning, anti-fouling,  
anti-icing surfaces,  
friction reduction,  
heat dissipation



[www.femtosurf.eu](http://www.femtosurf.eu)



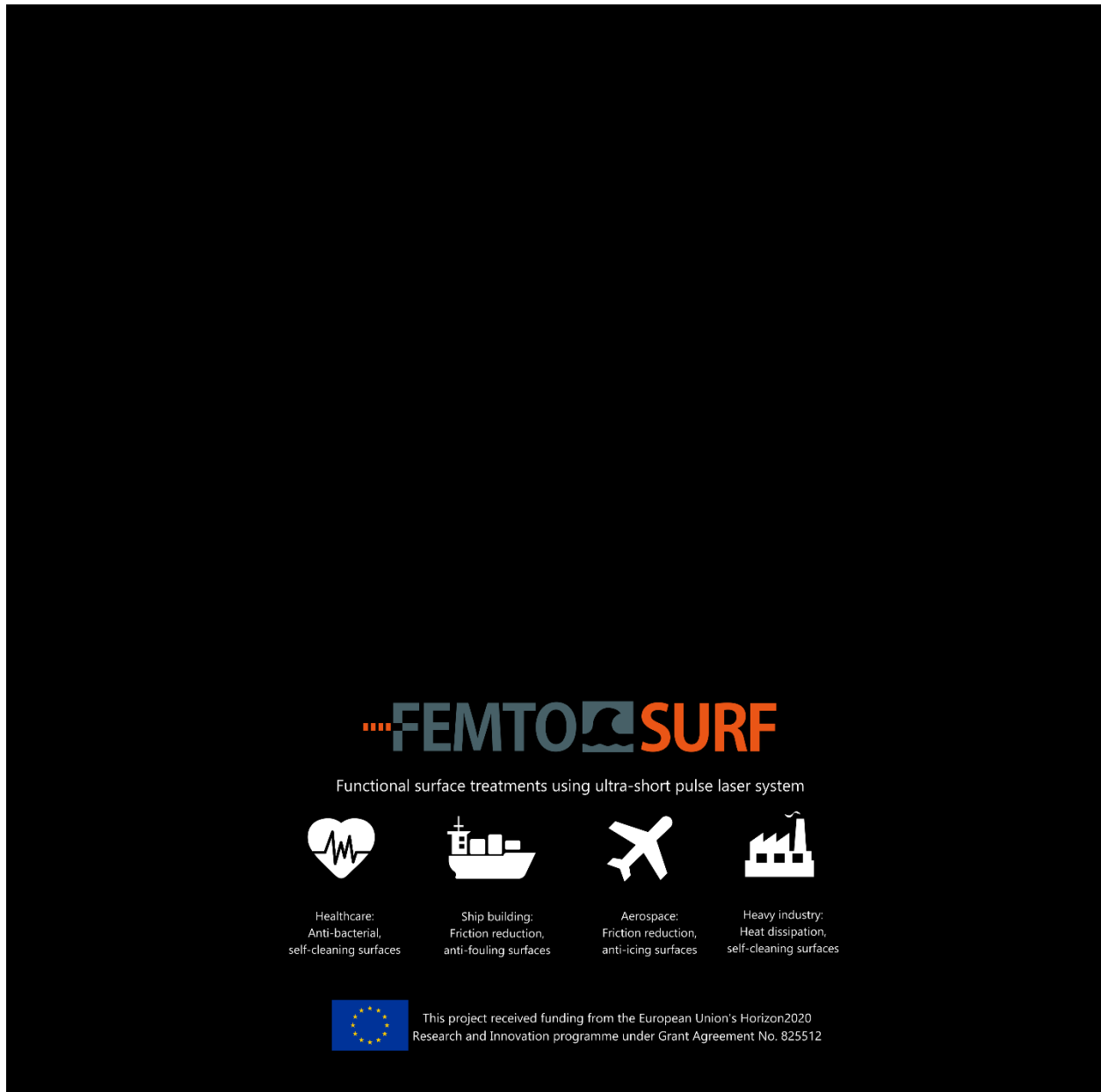
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	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

## 8. Other design examples

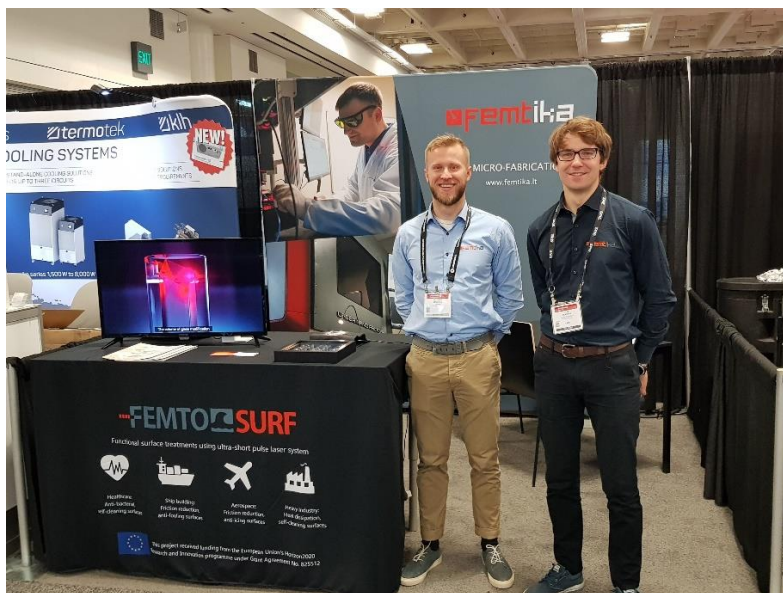
During the project, there were an additional design elements created that could be also used for FemtoSurf communication and dissemination activities.

The informational FemtoSurf tablecloth was designed:




	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

The example how the tablecloth was used in the Photonics West 2020 exhibition in Femtika booth:




What is more, the design of entire exhibition booth dedicated for the communication and dissemination of FemtoSurf project was created, remaining the main colors, design elements, fonts described in this document. This design can be also used as an example for future booths. This example was presented in the online exhibition LPM 2020 (Laser Precision Microfabrication).

	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

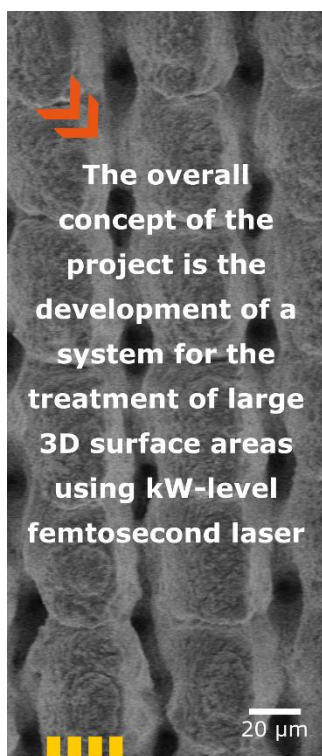


Design elements that were used in this exhibition booth:

	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022



Femtosecond laser 3D  
surface micro-structuring



**Healthcare**  
Anti-bacterial, self  
cleaning surfaces



**Ship building**  
Friction reduction, anti-  
fouling surfaces



**Aerospace**  
Anti-icing properties,  
friction reduction



**Heavy industry**  
Heat dissipation, self-  
cleaning properties




This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 825512

[www.femtosurf.eu](http://www.femtosurf.eu)

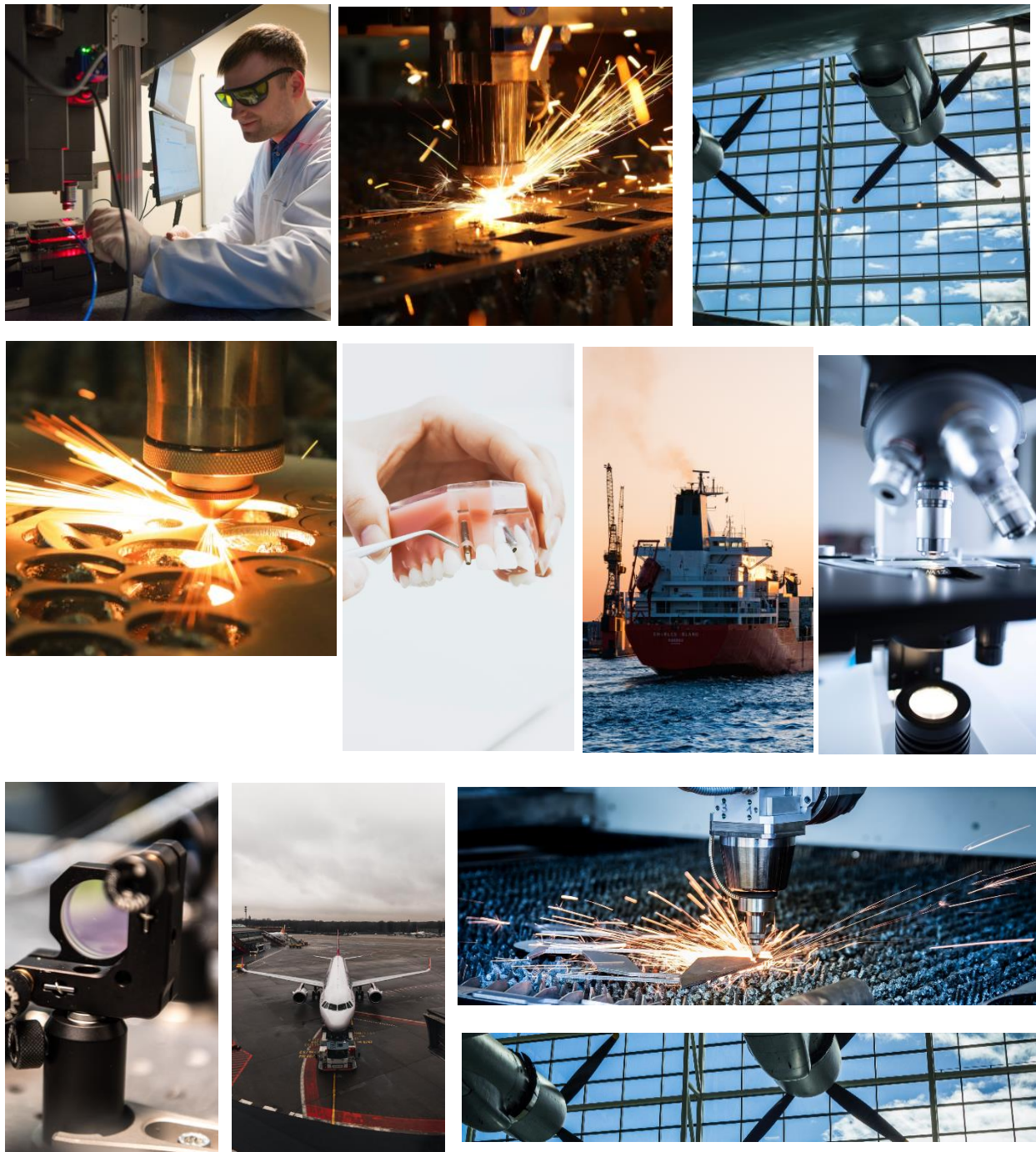
Project partners:




	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

## 9. The example photos

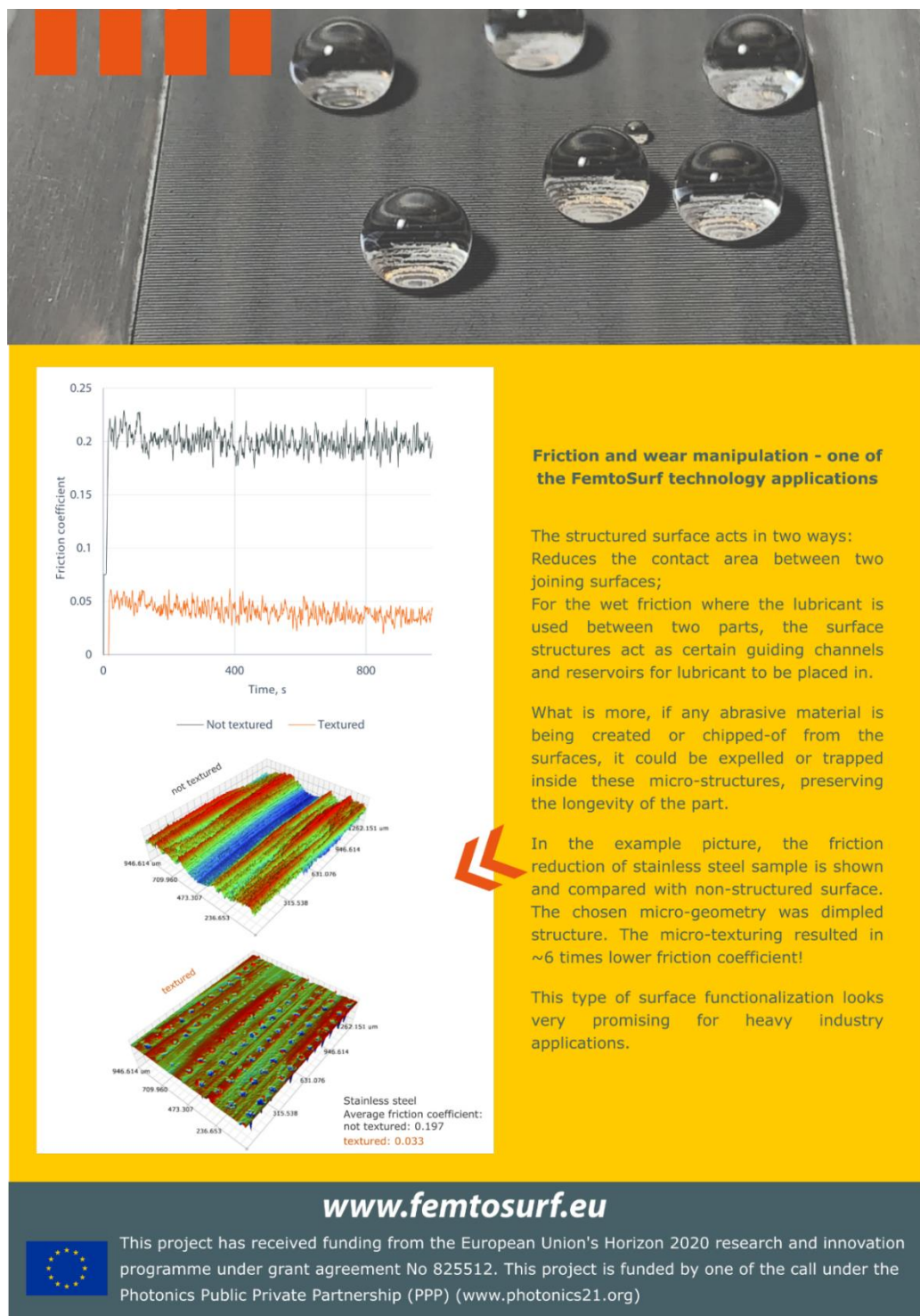
Here are provided the photos and pictures that are preferred to be used in the communication material. These photos are already used in FemtoSurf web page.




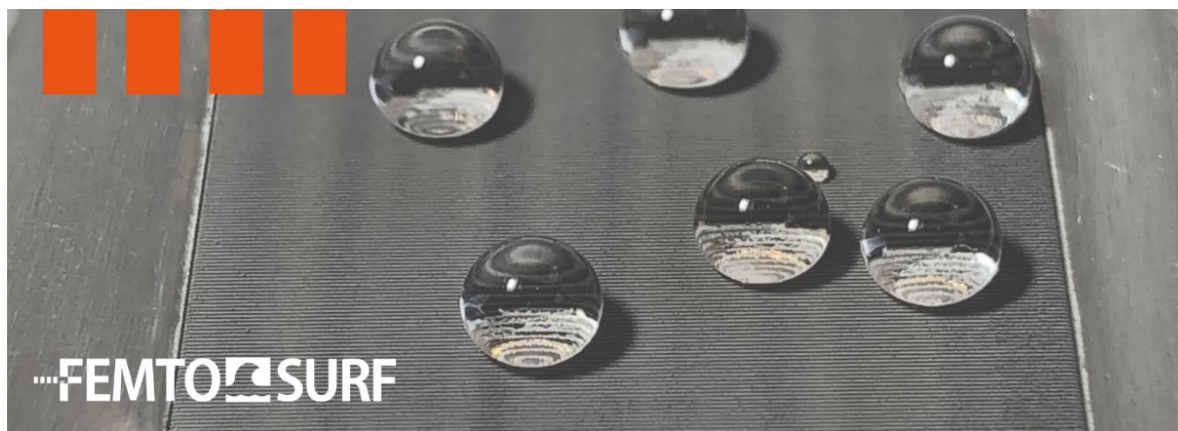
	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

## 10. Posters

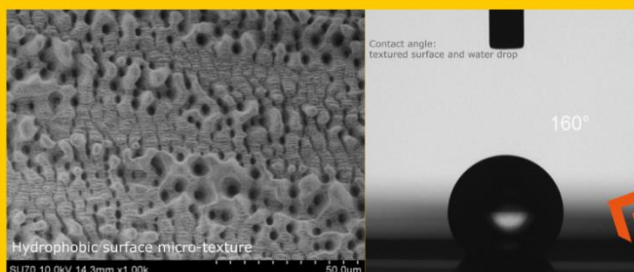
The posters describing the main project results and achievements were created. Based on the posters' design, the following results can be disseminated by creation of similar posters.



	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

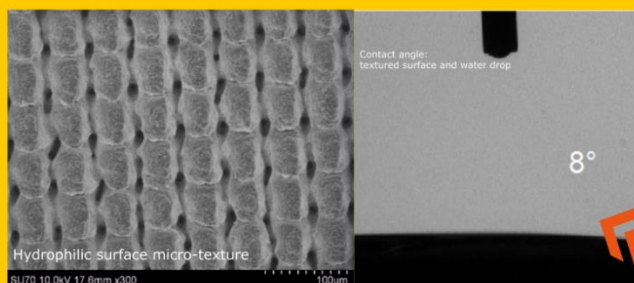


## Hydrophobic and hydrophilic surfaces



**Femtosecond laser 3D surface structuring** has a number of application areas, including healthcare, ship building, aerospace and heavy industry. Different micro-textures create different properties of processed surfaces: anti-bacterial, self-cleaning, anti-fouling, anti-icing, etc.

One of the FemtoSurf project applications is self-cleaning based on **superhydrophobicity** and high water contact angles. A drop of water is almost spherical on the surface and rolls off taking the dirt away with it. In the shown picture the 160 degrees contact angle indicates hydrophobic surface.




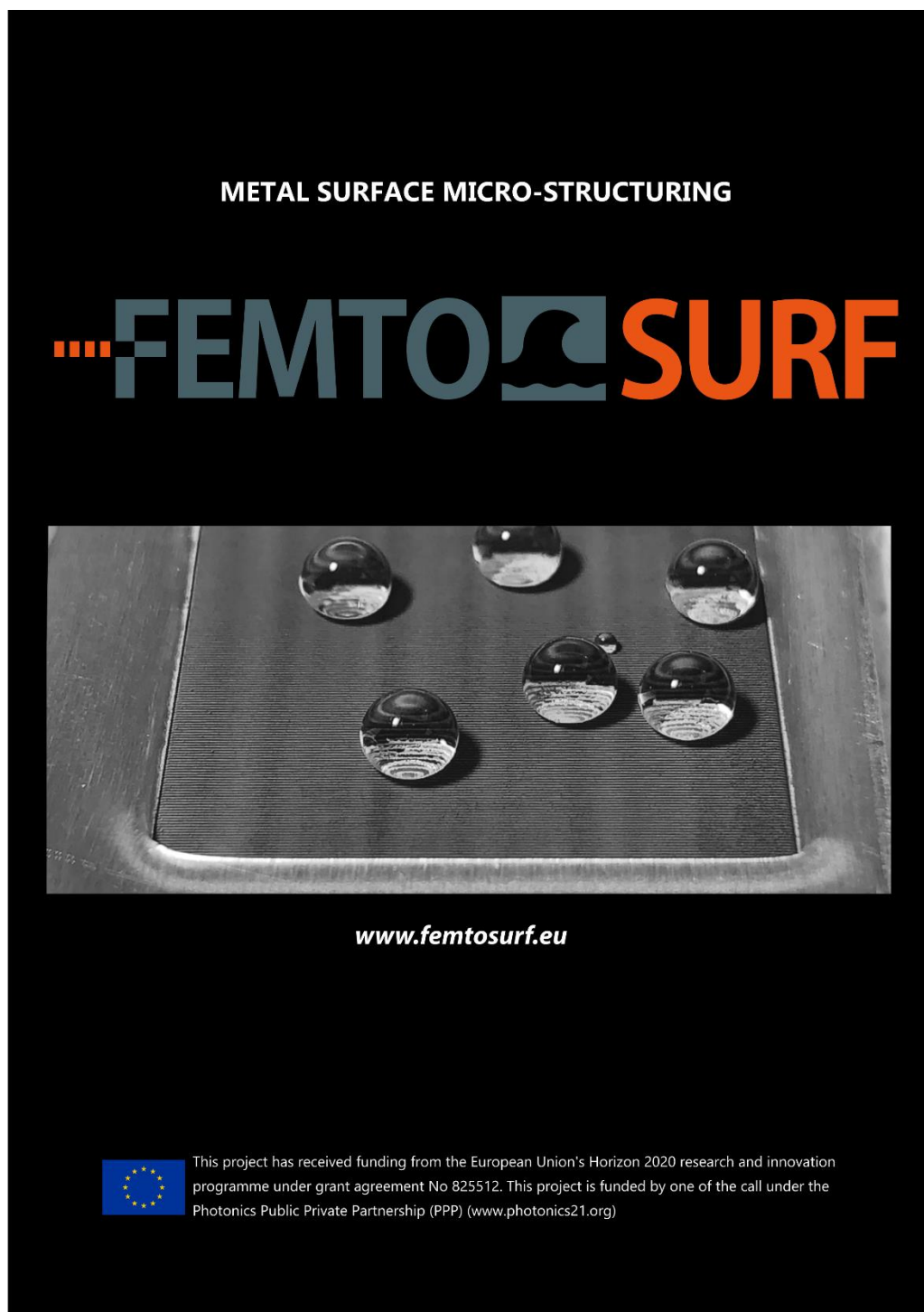
On the other hand, **hydrophilicity** is also demanded property for such applications as the friction reduction. It helps to distribute the liquid more efficiently, to spread the lubricant more evenly. The 8 degrees contact angle indicates hydrophilic surface in the shown picture.

[www.femtосurf.eu](http://www.femtосurf.eu)




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	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

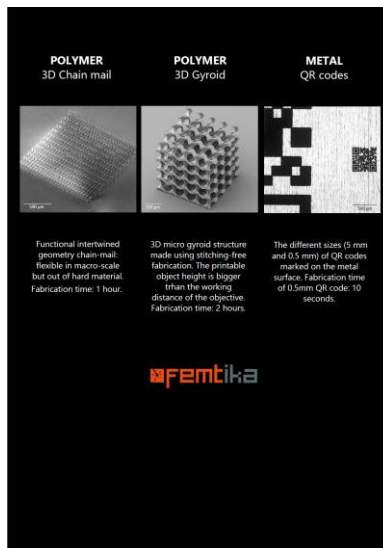
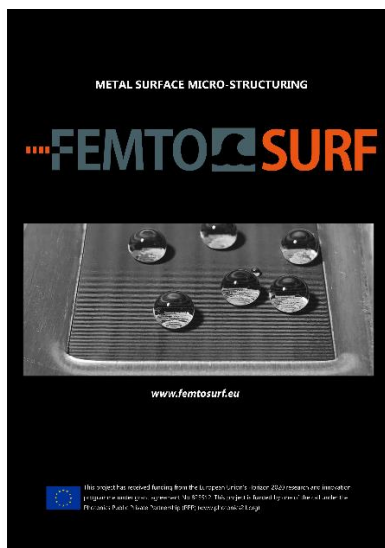



The poster above is a sample of the poster modification when the need to fit to the surrounding design is needed. The main objects must remain: FemtoSurf logo, FemtoSurf keywords, webpage address, acknowledgement to project funding, well recognized project illustrations.

	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

Example how the poster design contains all crucial design elements and fits to surrounding design in the project partner booth during the exhibition:

	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

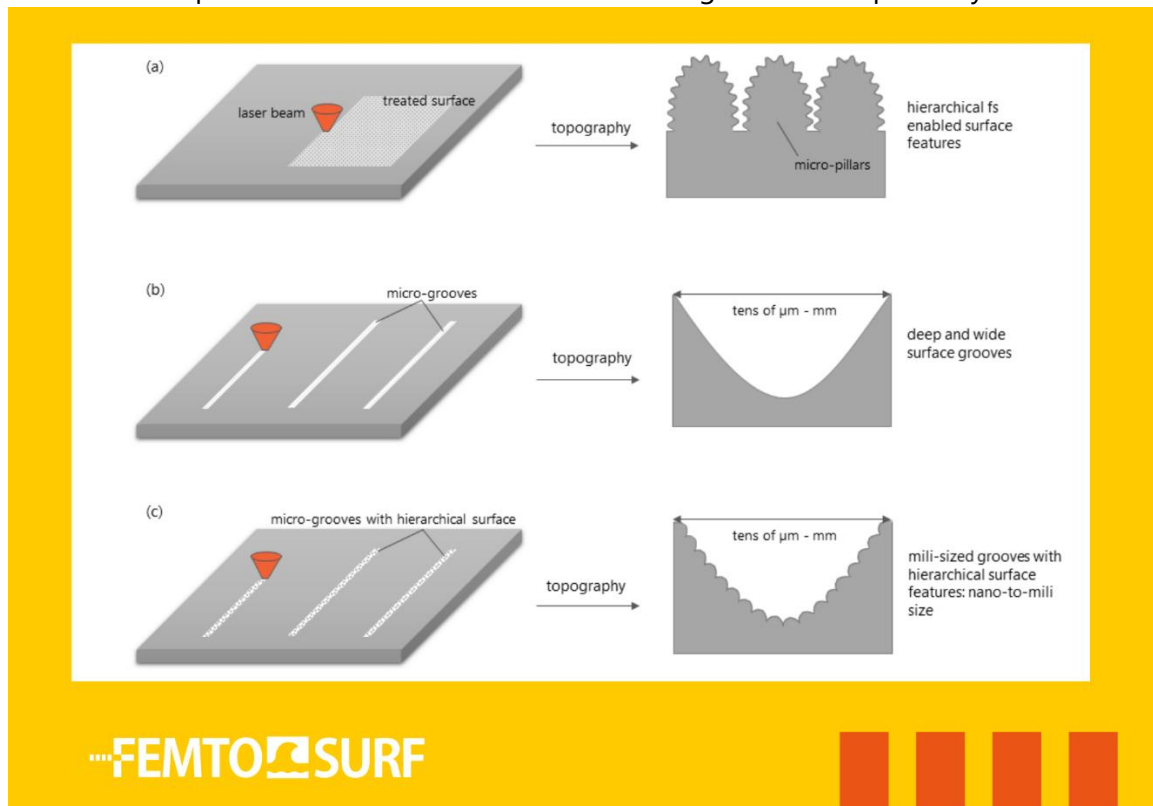



	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

## 11. Dissemination texts

The dissemination texts/messages that can be used for various dissemination channels were created. It includes the main goals of the project, explains the main achievements and results, are dedicated for the end-users and other stakeholders. The texts are:

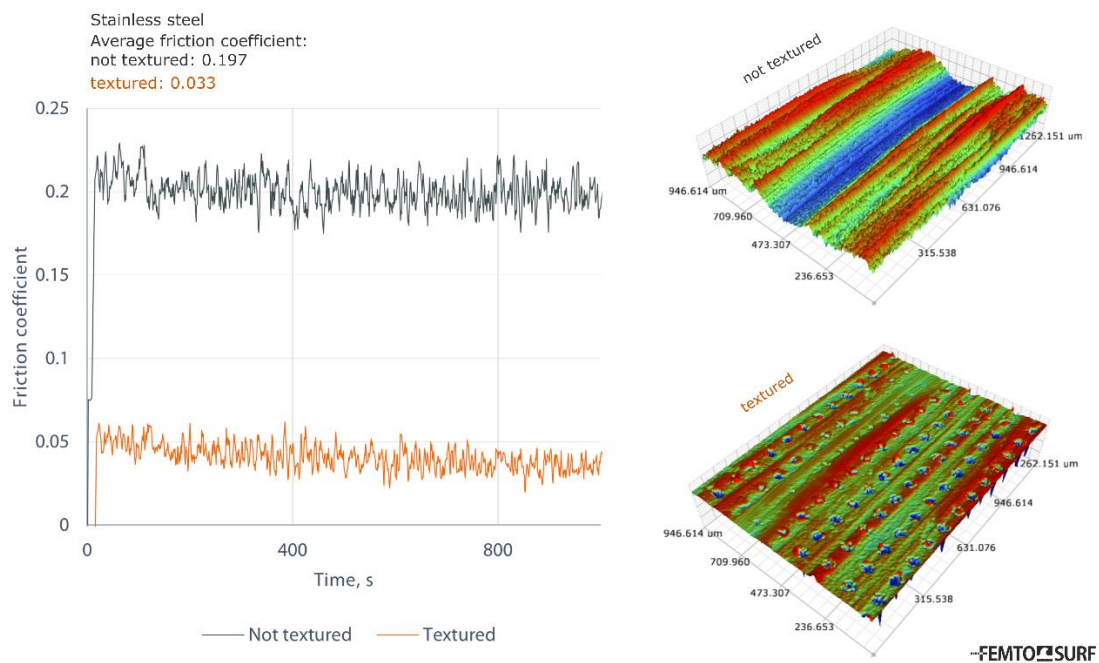
1. About FemtoSurf system: "FemtoSurf industrial-grade 2-3kW level femtosecond laser will be integrated in propose built optical chain enabling multi-beam processing, integrated into a fully automated processing setup for efficient patterning arbitrary shaped metal components with sizes exceeding several meters while retaining #micrometer level precision and on-the fly quality assessment (zero faulty parts delivered)."
2. About FemtoSurf technology's fundamentals (must be followed by the picture bellow): "Depending on the pulse duration, light intensity and the material of the sample, various textures can be formed on the surface. What is more, different textures can even be combined on the same surface resulting in what is called hierarchical surface features, as shown in the picture below. The picture demonstrates the differentiation between micro- (a), macro- (b) and hierarchical (c) surface patterns induced using femtosecond laser. Switching between these types is relatively easy and requires to only change exposure parameters, like laser power, repetition rate or translation velocity. This kind of texturing allows to manipulate the surface features in wider range and more precisely."




	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

3. About one of the project applications (paint adhesion): "During the project experiments, new application areas were noticed. One of them - enhancement of paint adhesion. Micro-texturing of the metal surface resulted in 20% better paint adhesion compared with standard methods. What is more, it meets ISO 1 / ASTM 4B standard, which indicates very good adhesion! The scratch tests were made and it showed that the best results were achieved with dimple-textured surface."
4. About one of the project applications (friction and wear manipulation. Must be followed by the picture bellow): "Friction and wear manipulation - one of the FemtoSurf technology applications. The structured surface acts in two ways: a) Reduces the contact area between two joining surfaces; b) For the wet friction where the lubricant is used between two parts, the surface structures act as certain guiding channels and reservoirs for lubricant to be placed in.

What is more, if any abrasive material is being created or chipped-of from the surfaces, it could be expelled or trapped inside these micro-structures, preserving the longevity of the part. In the example picture, the friction reduction of stainless steel sample is shown and compared with non-structured surface. The chosen micro-geometry was dimpled structure. The micro-texturing resulted in ~6 times lower friction coefficient! This type of surface functionalization looks very promising for heavy industry applications.



	Document:	Final communication kit		
	Author:	FEMTIKA	Version:	3
			Date:	7/11/2022

## 12. Conclusions

This Final Communication kit should be used by all project partners, based on the needs and the results that should be disseminated. However, the main principles described in this document should remain the same in order to maintain a unified design and visual identity.