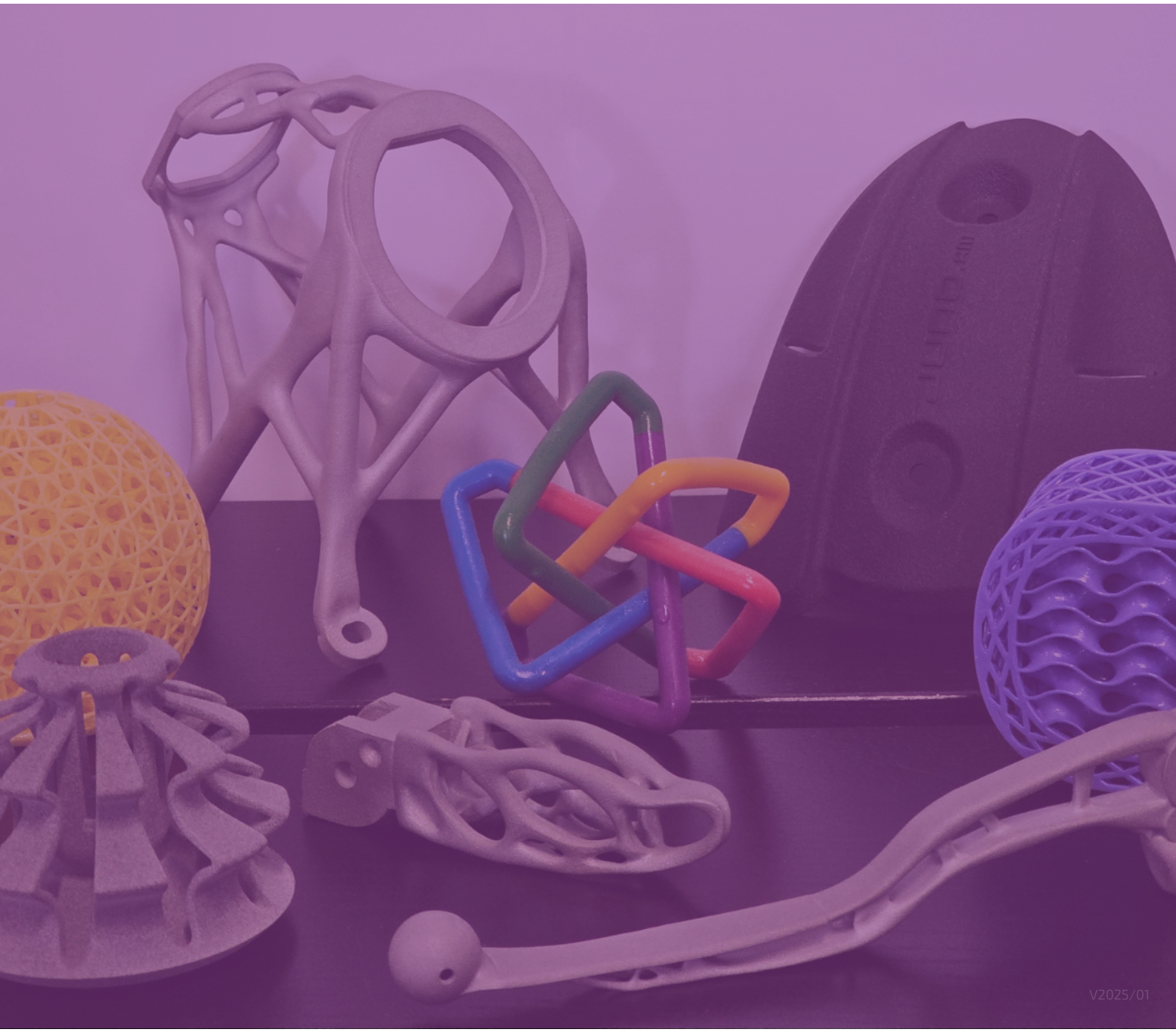
HANDBOOK

JUNO.AM



V2025/01

The Additive Manufacturing Galaxy

Chi siamo

Progettazione & Manifattura Digitale
Un servizio a 360° per tutte le necessità

FUTURE
Innovation & Collabs

SUPPLY
MSA & Technology Transfer

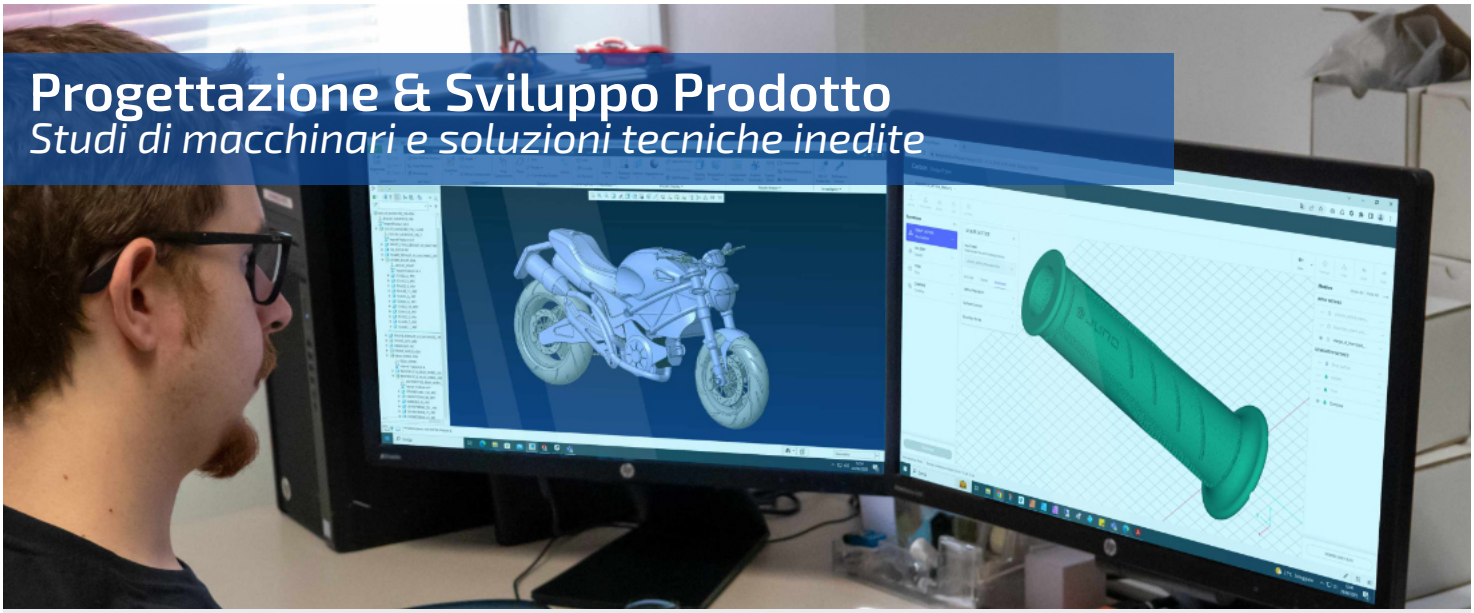
R&D
Advanced Projects Research & Development

DESIGN
Advanced Design & Styling Center

3DPRINT
Digital Fabrication 3D Printing Services

By Studio Pedrini

Ufficio Tecnico per ogni esigenza

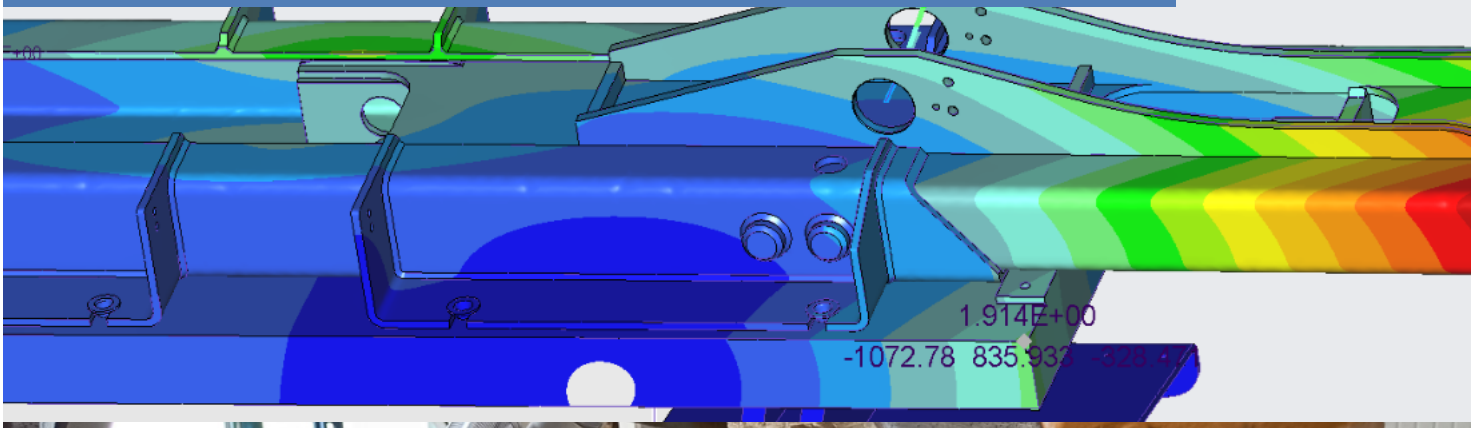


Progettazione & Sviluppo Prodotto

Studi di macchinari e soluzioni tecniche inedite

Industrializzazione & Simulazioni FEM

Analisi delle criticità e approccio Cost-Saving



Reverse Engineering

Superfici organiche e oggetti meccanici

Personalità e funzionalità

Emergi dal mercato con stile

Ricerca di Stile

Sketch iniziali per sondare i gusti del cliente

Modellazione & Rendering

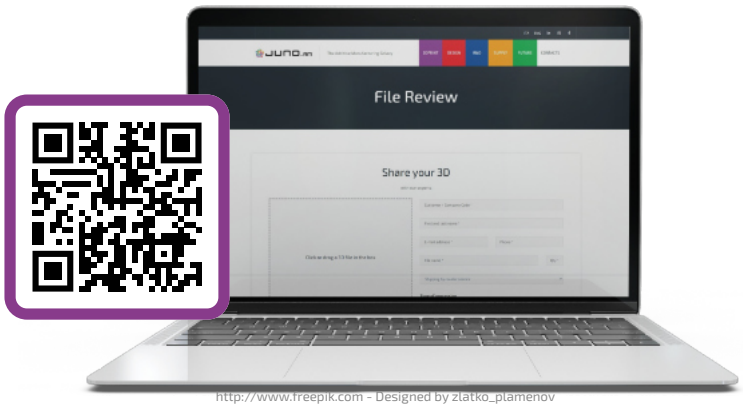
Realizzazione in 3D della proposta scelta

Ingegnerizzazione & Prototipazione

Industrializzazione per la produzione seriale

Chiedi ai nostri esperti
Flessibilità senza limiti

REVISIONE DEI TUOI FILE 3D



http://www.freepik.com - Designed by zlatko_plamenov

RIDUZIONE del MAGAZZINO
Oggi l'unico magazzino necessario è quello virtuale.

CUSTOMIZZAZIONE
Personalizzazione senza limiti: cambio di dettagli, forme, incisioni, loghi...

TIME TO MARKET
Ricerca e sviluppo più flessibile, iterazioni fra i progettisti più rapide.

Esperti nell'additive manufacturing
Più di 15 anni di esperienza

Guidiamo il cliente nella scelta della tecnologia...
Con creatività e additive-mindset

...e dei materiali
La più ampia scelta sul mercato

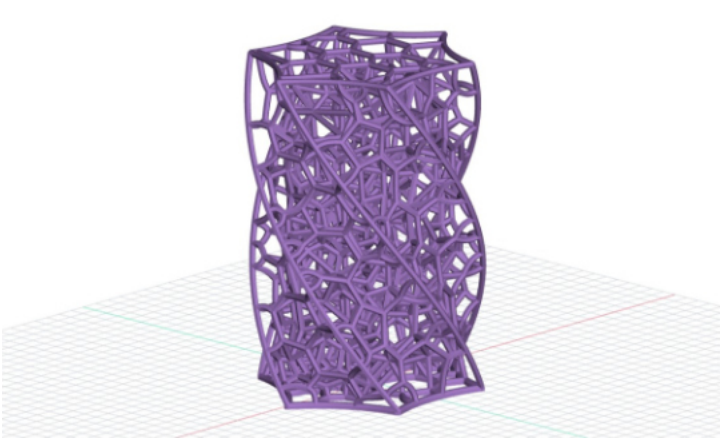
Carbon®
CERTIFIED PARTNER

hp Digital Manufacturing Partner

Lattice estetica
Tante geometrie base per differenti rese estetiche.

Lattice funzionale
Riduci le deformazioni nella stampa 3D.

Lattice per alleggerimento
Diminuisci il peso del componente senza compromettere le prestazioni dell'oggetto.



Main lattice cells:

Voronoi
Foam-like non-linear stress-strain response

Icosahedral
High stiffness to mass ratio

Rhombic
Absorb energy at high strains

Tetrahedral
Constant force stress plateau

Kagome
Linear stress-strain response
High stiffness to mass ratio

...and more lattice types

Custom cells available

Topology Optimization

Ridurre il peso senza diminuire le prestazioni meccaniche

Ogni applicazione ha le sue necessità

3DPRINT

Materiali concettuali
Ideali per una rapida visualizzazione di forme o finiture (resina, filo…).

Materiali funzionali
Ideali per la produzione o lo studio di prototipi funzionali (polvere, resine…).

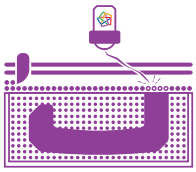
Materiali prestazionali
Adatti ad applicazioni nel mondo reale, anche con elevate proprietà meccaniche.

Materiali elastomerici
Gomme ad alta resa estetica e/o funzionale disponibili in differenti shoraggi.

Photo courtesy of Carbon, Inc.

Contact us: 3D@JUNO.AM

Le principali tecnologie additive sul mercato:

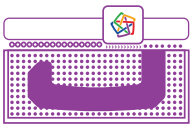


LPBF
Laser Powder Bed Fusion

Stainless Steel
Aluminium

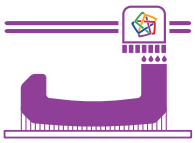
DLS
Direct Light Synthesis

Resin
Production



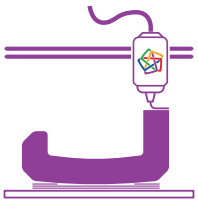
MJF
Multi JetFusion

Nylon PA12



PJ
PolyJet

Multimaterial



FDM
Fused Deposition Modeling

Functional
Concept

INFO INFO INFO INFO INFO

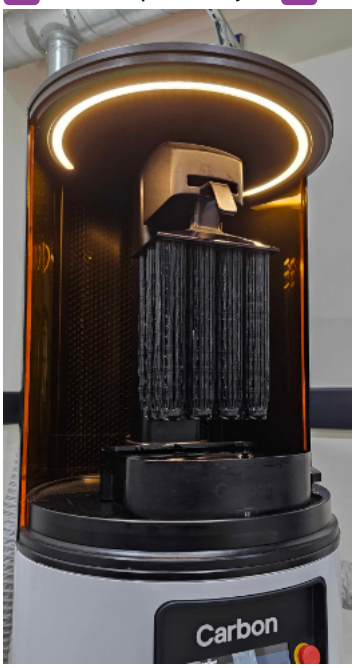
Tutte le informazioni ivi contenute possono essere suscettibili di errori di revisione o incomplete; sollecitiamo i gentili clienti a verificare le informazioni utilizzando i link alle schede dei materiali di loro interesse, per una miglior comprensione delle proprietà e dei limiti di questi.
Chiedi sempre al nostro responsabile di riferimento esplicando tutti i dettagli di progetto.
Every information hereby written is mistake-susceptible. We kindly advice our customers to verify materials' properties and informations through the various clickable links in the following pages, in order to check better every material's limits and behaviour. Feel free to ask more to our experts.

PRODUCTION GRADE

	EPX 82	EPX 86 FR	EPX 150	RPU 70	MPU 100	IND 147	LOCTITE 3843
Technology							
Ultimate tensile strenght (Mpa)	80	90	79	40	35	67±16	51±2
Elongation at break (%)	5	5	4	100	25	2,4±0,7	43±10
Tensile modulus (Mpa)	2800	3300	2900	1700	1200	1150±160	1806±47
Shore hardness	89D	88D	86D	80D	81D	94D	75D
Impact Strenght (J/m) Notched Izod, ASTM D256	45	30	26	15	30	14.6±0.1	53±4
Heat Deflection Temp (°C) @ 0,45 Mpa, ASTM D648	130	135	142	60	50	291±15	63
Comparable thermoplastic	20% glass filled PBT	20% glass filled PBT	PEEK, PEI, PBT, PC, Nylons	ABS PC ABS	Medical grade ABS	Ideal for moulds	Ideal for tooling
Certifications	B* C*	Fire Retardant	B* C*	B*	B* C*	-	-

*Carbon is not responsible for the results of any biocompatibility tests other than those case specified in the Carbon Official Technical Data Sheet.

B* Biocompatibility* C* Citotoxicity*



PRODUCTION GRADE

Possibilità di personalizzare lo shoraggio (EPU)	SIL 30	EPU 40	EPU 41	EPU 43	EPU 45	EPU 46	EPU46 Soft	EPU46 Extra Soft
Technology								
Ultimate tensile strenght (Mpa)	1	19	15	17	24	23	19	13
Elongation at break (%)	350	300	300	380	290	300	300	270
Tensile modulus (Mpa)	1	8	8	10	17	15	9	4
Shore hardness (Instant/5 sec.)	35/31A	72/71A	71/70A	76/71A	77/62A	80/78A	71/71A	59/56A
Comparable thermoplastic	Silicone	TPU	High resiliency	Soft, Durable	Energy damping	TPU	TPU	TPU
Certifications	B* C*	B* C*	B*	B*	B*	B* C* *Black	B* C* *Grey	B* C* *Grey

*Carbon is not responsible for the results of any biocompatibility tests other than those case specified in the Carbon Official Technical Data Sheet.

B* Biocompatibility* C* Citotoxicity*

PROTOTYPING

Possibilità di simulazione di costampaggio	RUBBER FAMILY
Technology	
Ultimate tensile strenght (Mpa)	0.8-5*
Elongation at break (%)	45-240*
Tensile modulus (Mpa)	N.A.
Shore hardness (Instant/5 sec.)	26-77*A
Certifications	N.A.

*This is a range of values of different materials available

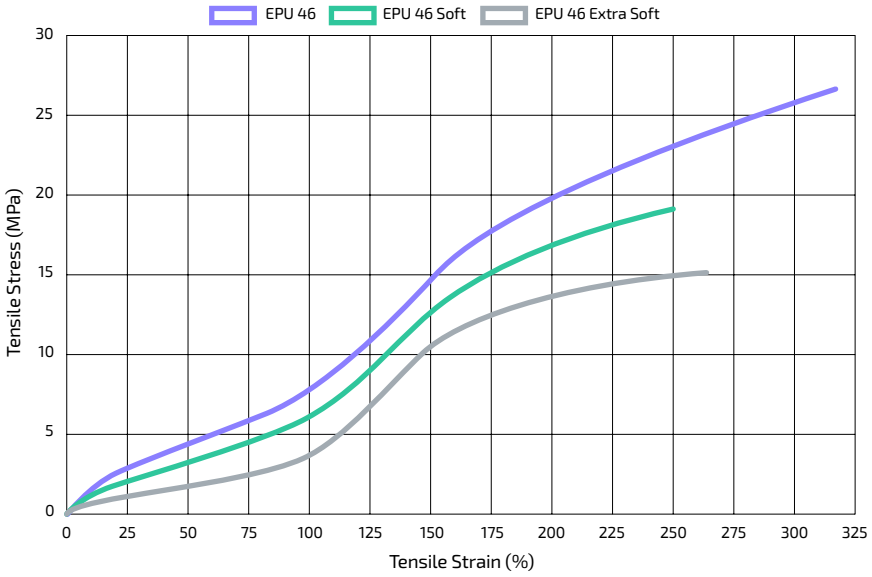


Photo courtesy of Carbon, Inc.

PRODUCTION GRADE

Nylon adatto a tanti campi di applicazione, elevata precisione dimensionale.

PA 12 Nylon

Technology	
Parts density g/cm³, ASTM D792	1,01
Tensile Strength, max load (XY) (Mpa)/6960 psi	50
Tensile Strength, max load (Z) (Mpa)/6960 psi	50
Traction module (XY) (Mpa)/245 ksi	1700
Traction module (Z) (Mpa)/245 ksi	1900
Elongation at Break (XY) %, ASTM D638	17
Elongation at Break (Z) %, ASTM D638	9
Heat Deflection Temp (0,45 MPa) (Z) °C	175
Heat Deflection Temp (1,82 MPa) (Z) °C, ASTM D648	95

*See each datasheet to check the real application of any biocompatibility Tests other than those case specified in the Official Technical Data Sheet.

Nylon PA12 - Dyeing Colouring

Grigio Grezzo

Toys Certified

Grigio Scuro

Nero

Rosso

Blu

Verde Scuro

POST PROCESSING:

Acrilic Painting

Disponibili servizi di:

- Verniciatura
- Fresatura di precisione
- Finitura superficiale
- Incollaggio
- ecc...

Chrome/Metal Plating

PRODUCTION GRADE

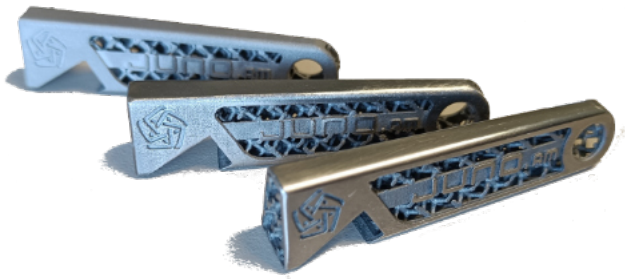
	Aluminium AlSi10Mg	Stainless Steel 316L	Titanium Ti6Al4V
Technology			
Tensile Strenght MPa	411±12	620±9	1200±40
Yield Strenght % (MPa)	207±3	N.A.	1100±50
Elongation at break %	5±1	40±4	8±2
Hardness HBW	120±5	≈18 HRC	34 HRC
Density g/cm³	2.67	7.90	4.43
Test method	ISO 6892-1	ISO 6892-1	ASTM E8 / E8M (round unmachined specimen with ø 5mm at gauge section)

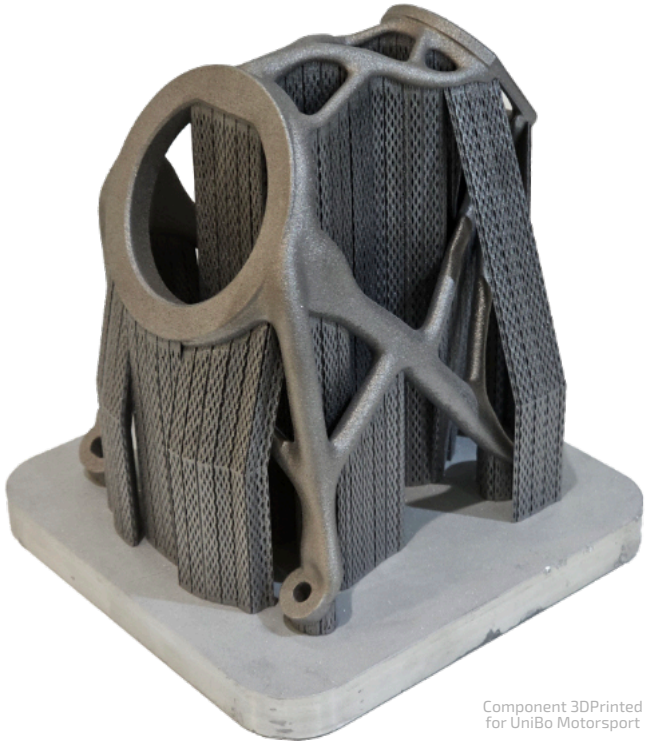
FINITURE

Sabbiatura

Satinatura

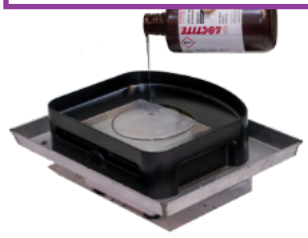
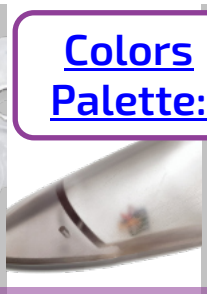
Lucidatura





Component 3DPrinted for UniBo Motorsport

Thermal Treatments Available

PRODUCTION GRADE		PROTOTYPING			
					
Biocompatibile (solo trasparente) *ISO 10993-5, ISO 10993-23*	**IND 405**	*Possibilità di simulazione di costampaggio*	**Clear MED610** B*	**VERO CLEAR**	**FULLCURE RGD720**
Technology		**Technology**			
Ultimate tensile strenght (Mpa)	**39±1**	**Tensile strenght** MPa	**50-65**	**50-65**	**45-65**
Elongation at break (%)	**127±6**	**Elongation at break** %	**10-25**	**10-25**	**15-25**
Tensile modulus (Mpa)	**1378±41**	**Modulus of elasticity** MPa	**2000-3000**	**2000-3000**	**1700-2500**
Shore hardness	**79/76D**	**Flexural Strenght** MPa	**75-110**	**75-110**	**75-110**
Impact Strenght (J/m) Notched Izod, ASTM D256	**72±2**	**Flexural Modulus** MPa	**2200-3200**	**2200-3200**	**2100-3300**
Heat Deflection Temp (°C) @ 0,45 Mpa, ASTM D648	**53**	**Shore Hardness**	**83-86 D**	**83-86 D**	**N.A.**
Comparable thermoplastic	**PP**	**Izod Notched Impact** J/m	**20-30**	**20-30**	**20-30**
		Heat Deflection Temp °C @ 0,45 MPa	**45-50**	**45-50**	**45-50**
Certifications	**-**	**Tg** °C	**52-54**	**52-54**	**N.A.**
*Carbon is not responsible for the results of any biocompatibility tests other than those case specified in the Carbon Official Technical Data Sheet.		Check the Official Technical Data Sheet for more informations.			

Colors Palette:

B* Biocompatibility*

IND 405 - Juno Colors Palette

Trasparente

8244

Grigio

8211

Nero

3674

Blu

8241

Verde

4157

Rosso

8239

Arancione

5766

Arancione 1

937

Giallo

937-8239

Giallo 1

PROTOTYPING

Colors Palette:

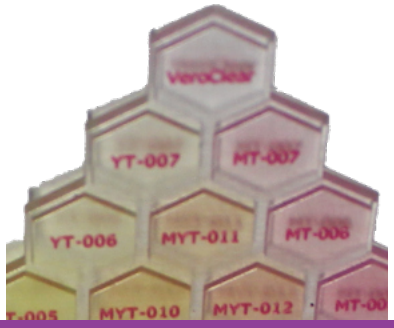
Possibilità di simulazione di costampaggio

		RIGUR RGD450	VERO FAMILY	PLA	TOUGH
Technology		White only			
Tensile strenght MPa	Method ASTM D638-03	40-45	50-65	62	35
Elongation at break %	Metodo ASTM D638-05	20-35	10-25	>4.4	>52.7
Modulus of elasticity MPa	Metodo ASTM D638-04	1700-2100	2000-3000	3600	2800
Flexural Strenght MPa	Metodo ASTM D790-03	52-59	75-110	-	-
Flexural Modulus MPa	Metodo ASTM D790-04	1500-1700	2200-3200	2600	2600
Shore Hardness	Metodo ASTM Scale D	80-84 D	83-86 D	-	-
Izod Notched Impact J/m	Metodo ASTM D256-06	30-35	20-30	32	220
Heat Deflection Temp °C @ 0,45 MPa	Metodo ASTM D648-06	49-54	45-50	52-49	52-49
Tg °C	Metodo ASTM DMA, E››	48-52	52-54	-	-

Check the Official Technical Data Sheet for more informations.

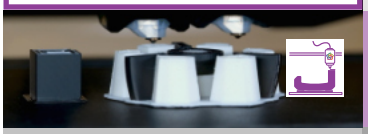
AMPIA GAMMA FILAMENTI DISPONIBILE **CONTATTACI** PER UNA CONSULENZA

Prototipi dal feeling reale



MultiMateriale	MultiColore	Traslucido
Rigido Gomma	Cyan Magenta Yellow	Colori traslucidi

PROTOTYPING /PRODUCTION

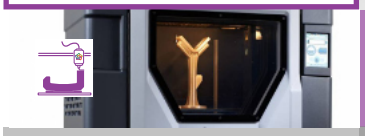


	PETG	ASA	NYLON	NYLON 6 C. F.	NYLON 12 C. F.	PC	PC-ABS FR
Tensile strenght Metodo ASTM D638 MPa	44	49	66	110	66	XZ orient. 57.3	ISO 527 60
Elongation at break Metodo ASTM D638 %	>3.8	>6	>10	N.A.	N.A.	5.2	ISO 527 >50
Modulus of elasticity Metodo ASTM D638 MPa	1900	2100	2200	7600	6000	2250	ISO 527 2850
Flexural Modulus Metodo ASTM D790 MPa	2000	2300	1700	N.A.	N.A.	N.A.	N.A.
Notched Impact Strenght Metodo ASTM D256 J/m	18.7	140	187	N.A.	N.A.	76.8	N.A.
Heat Deflection Temp °C @ 0,45 MPa Metodo ASTMD648	70	96	91	184	154	142	N.A.

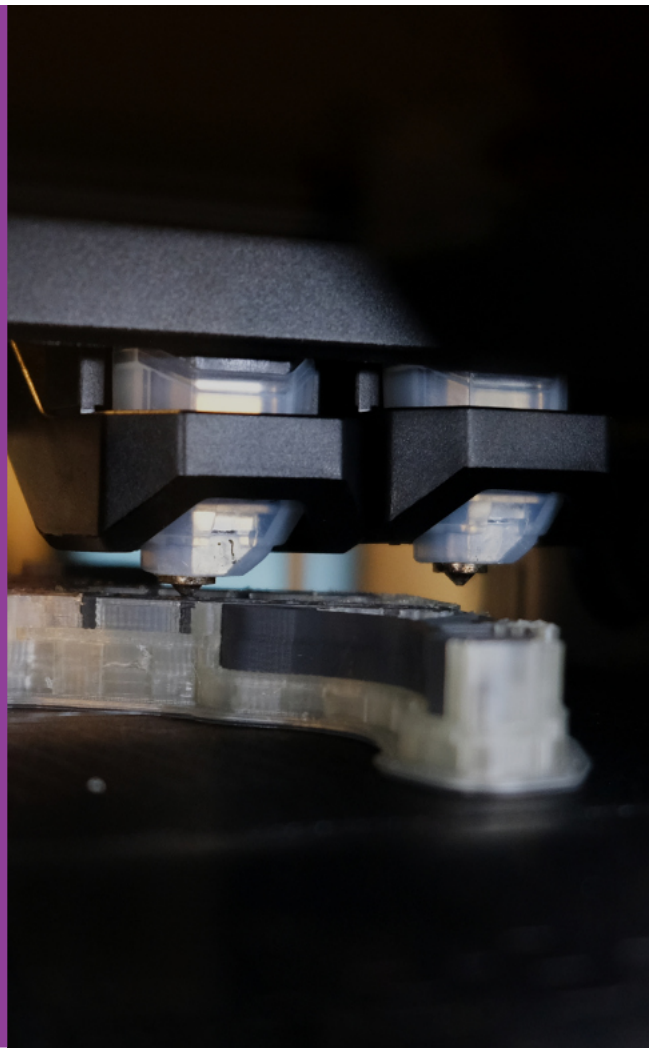
AMPIA GAMMA FILAMENTI DISPONIBILE
CONTATTACI PER UNA CONSULENZA

Impact Strenght Charpy method 23°C ISO 179 (kJ/m²)	42.5
Vicat Softening Temp ISO 306	104
Flammability Rating UL94	V0

PRODUCTION GRADE



	ABS	ULTEM 1010	ULTEM 9085
Tensile strenght Metodo ASTM D638 MPa	31-26 (Ultimate)	81-37 (Ultimate)	69-42 (Ultimate)
Elongation at break Metodo ASTM D638 %	7-2	3.3-2.0	5.8-2.2
Modulus of elasticity Metodo ASTM D638 MPa	2230 (XZ) 2180 (ZX)	2770 (XZ) 2200 (ZX)	2150 (XZ) 2270 (ZX)
Flexural Modulus Metodo ASTM D790 MPa	2060 (XZ) 1760 (ZX)	2820 (XZ) 2230 (ZX)	2300 (XZ) 2050 (ZX)
Notched Impact Strenght Metodo ASTM D256 J/m	128-300	41-24	120-48
Heat Deflection Temp °C @ 0,45 MPa Metodo ASTMD648	82	216	153
Check the Official Technical Data Sheet for more informations.			
Tg °C		209	177
Bio Compatibility Certification USP Class		VI	VI
Flammability Rating UL94		V0	V0



FUTURE

Ricerca & Network

Le nostre competenze per l'innovazione

ALMA MATER STUDIORUM A.D. 1088 · bi-rex · CLUST-ER MECH · FABLAB NETWORK · CONTEMPORARY ART

Software & AI

Workflow software AI for AM

3FESTO · ANY3DP .APP · ANY3DP .SMART

SUPPLY

MASTER SERVICE AGREEMENT
Scalabilità produttiva e ottimizzazione dei costi.

PLANNED DELIVERY
Produzione continuativa e tempi di consegna certi.

CONTACS

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40132 Bologna
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40132 Bologna
P.IVA/VAT (IT)02190761201

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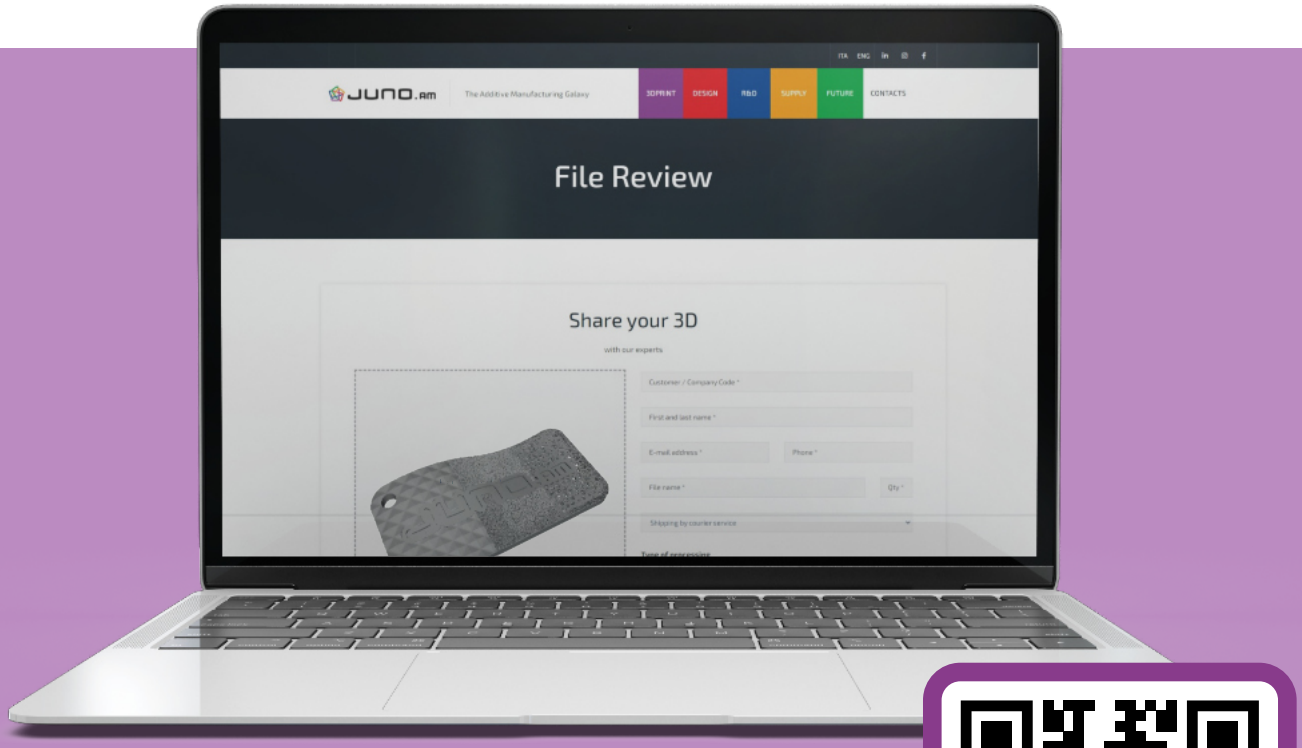
3D@JUNO.AM
051 619 2116

3DPRINT

REVIEW YOUR 3D FILES!



JUNO.AM/file-review

Additive Manufacturing: **3D@JUNO.AM**

Design & Engineering: **UT@JUNO.AM**

Contattaci per un appuntamento in sede!
Contact us to plan a meeting on site!

V2025/01

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