

SERVICE CATALOGUE

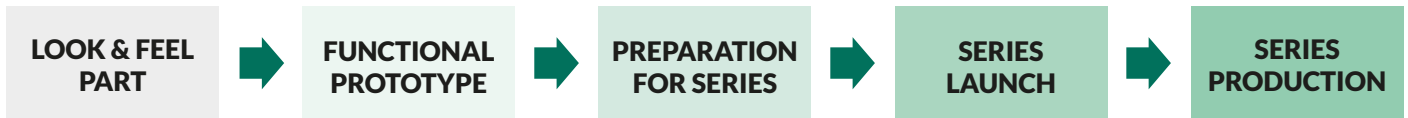
OUR LMM PRINTING SERVICES

Production services for sinter-based additive manufacturing of small and micro-precision parts.

We offer production services tailored to your individual needs, from a single prototype as an initial sample to series production of your application. The services build on each other in stages, but can also be booked individually and supplemented by additional services.

MetShape's services focus on optimizing and producing small and micro components for series production.

MetShape GmbH | www.metshape.com | requests@metshape.de



	SERIES				
	LOOK & FEEL PART	FUNCTIONAL PROTOTYPE	PREPARATION FOR SERIES	SERIES LAUNCH	SERIES PRODUCTION
Description	Prototype for the first haptic and optical evaluation without functional surfaces.	Functional prototype with design analysis and optional rework.	Finalization of the component design and preparation of an overall series production process.	Analysis of possible tolerances during series production and verification of quality requirements.	Individual series production of the application.
Design analysis	–	✓	✓	–	–
Standard delivery time	3 weeks	4 weeks	individual	individual	individual
Priority production*	2 weeks	3 weeks	–	–	–

GUARANTEED QUALITY

Dimensional accuracy (ISO 2768)	c (coarse) or better	m (medium) or better	individual	individual	individual
Mounting capability	–	✓**	✓	✓	✓
Functionality	not guaranteed	✓**	✓	✓	✓
Surface quality as sintered [Ra Rz]	<2,5µm 12,5µm	<2,5µm 12,5µm	<2,5µm 12,5µm	<2,5µm 12,5µm	<2,5µm 12,5µm

OPTIONAL SERVICES

Mechanical post-processing	please order functional prototypes for these services	see add-on-services	on request
Surfaces-processing			
Heat-treatment			
Quality assurance bundles	see add-on-services		

* additional costs, depends on capacity

**by arrangement and technical evaluation

SERVICE CATALOGUE

OUR QUALITY ASSURANCE STANDARDS

	SERIES				
	LOOK & FEEL PART	FUNCTIONAL PROTOTYPE	PREPARATION FOR SERIES	SERIES LAUNCH	SERIES PRODUCTION
Description	Prototype for the first haptic and optical evaluation without functional surfaces.	Functional prototype with design analysis and optional rework.	Finalization of the component design and preparation of an overall series production process.	Analysis of possible tolerances during series production and verification of quality requirements.	Individual series production of the Application.
Optical validation	✓	✓	✓	✓	✓
Validation of the mounting capability	–	on request	✓	✓	✓
Function test	–	on request	✓	✓	✓
Dimensional validation*	✓	✓	✓	✓	✓
Inspection quantity	according to MetShape-AQL table (Acceptable Quality Level table) - see below				
Inspection according to drawing	–	on request			

*one dimension defined by MetShape for each spatial direction

METSHAPE AQL-TABLE

ACCEPTABLE QUALITY LEVELS		AQL VALUE 6.5	
LOT SIZE	SAMPLE SIZE	ACCPTANCE VALUE (AC)	REJECTION VALUE (RE)
2 to 8	3	0	1
9 to 15	5	1	2
16 to 25	8	1	2
26 to 50	13	1	2
51 to 90	20	2	3
91 to 150	32	3	4
151 to 280	50	5	6
281 to 500	80	8	9
501 to 1.200	125	12	13
1.201 to 3.200	200	18	19
3.201 to 10.000	315	18	19
10.001 to 35.000	500	18	19
35.001 to 150.000	800	18	19
15.001 to 500.000	1250	18	19
over 500.000	2000	18	19

ADD-ON-SERVICES FOR YOUR PRINTED PARTS

We offer a wide range of optional services, which you can simply add to your order using the article number. Please note that some services can only be offered depending on the material or component geometry.

We will be happy to advise you non-bindingly on which services are best suited to your application and your needs. Please contact us via requests@metshape.de

SURFACE FINISHING

ARTICLE	SERVICE	PRICE PER PART [€]*
OPT-SPP-001	Sandblasting	5.00 €
OPT-SPP-002	Glass bead blasting	6.50 €
OPT-SPP-003	Electropolishing	40.00 €
OPT-SPP-004	Vibratory finishing	7.20 €
OPT-SPP-005	PVD coating	On request
OPT-SPP-006	Manual polishing	On request

MECHANICAL POST-PROCESSING

ARTICLE	SERVICE	PRICE PER PART [€]*
OPT-MPP-001	Thread cutting	On request
OPT-MPP-002	Fitted holes (eg. H7)	On request
OPT-MPP-003	Mechanical post-processing of functional surface	On request
OPT-MPP-004	Manufacture part according to drawing**	On request

QUALITY ASSURANCE PACKAGES

ARTICLE	SERVICE	PRICE PER PART [€]*
OPT-3DS-001	3D-Scan unidirectional	150.00 €
OPT-3DS-002	3D-Scan hemispherical	200.00 €
OPT-3DS-003	3D-Scan full	280.00 €
OPT-QSM-001	Measurement of an individual dimension (per additional dimension)	10.00 €
OPT-QSM-002	Density measurement	20.00 €
OPT-QSM-003	Determination of mechanical parameters***	500.00 €
OPT-QSM-004	Preparation of metallographic section incl. microstructure assessment	200.00 €
OPT-QSM-005	Hardness test (max. 3 hardness values)	20.00 €
OPT-QSM-006	Measurement of surface roughness (Ra/Rz)	50.00 €
OPT-QSD-001	Standard measurement protocol	50.00 €
OPT-QSD-002	Individual measurement protocol	75.00 €

HEAT TREATMENT

ARTICLE	SERVICE	PRICE PER PART [€]*
OPT-HPP-001	Hardening H900 (only 17-4 PH)	On request
OPT-HPP-003	Hardening H1100 (only 17-4 PH)	On request
OPT-HPP-004	Hardening H1150 (only 17-4 PH)	On request

SINTER SERVICES

ARTICLE	SERVICE	PRICE PER PART [€]*
SIS-001	Thermal debinding & sintering	On request
SIS-002	Solvent debinding & sintering	On request
SIS-003	Sintering run	On request

* Prices for higher quantities on request

** Feasibility must be checked in advance

*** Several components of suitable geometry required