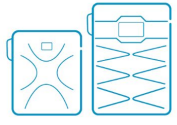

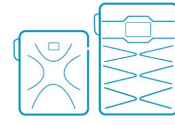
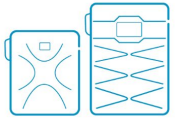


	PA12		PA11		FLEXA GREY		FLEXA BLACK	
Status	Available		In progress ²		Available		Available	
Material type	Polyamide 12		Polyamide 11		TPU		TPU	
Granulation	20 - 100 [µm] average size 38 [µm]	0,79 - 3,94 [mil] average size 1,5 [mil]	15 - 76 [µm] average size 40 [µm]	0,59 - 3 [mil] average size 1,6 [mil]	20 - 105 [µm] average size 50 [µm]	0,79 - 4,13 [mil] average size 2,5 [mil]	20 - 105 [µm] average size 50 [µm]	0,79 - 4,13 [mil] average size 2,5 [mil]
Colour	Navy Grey		Grey		Grey		Black	
Material refreshing ratio¹	30 [%]		50 [%]		0 [%]		0 [%]	
PARAMETERS								
Elongation at Break XY [%]	13 [%]		17 [%]		210 [%]		55 [%]	
Tensile Strength (Sturdy under stress)	41 [MPa]	5.9 [ksi]	54 [MPa]	7,83 [ksi]	3,6 [MPa]	0.52 [ksi]	4,5 [MPa]	0.65 [ksi]
Softening point (Vicat method type A50 / B50)	A50 / B50 172 / 155 [°C]	A50 / B50 342 / 311 [°F]	n.d.a.		A 82,3 [°C]	A 180.1 [°F]	A 82,3 [°C]	A 180.1 [°F]
Melting point	182 [°C]	359 [°F]	201 [°C]	393 [°F]	160 [°C]	320 [°F]	160 [°C]	320 [°F]
Heat deflection temperature B (0.45 MPa)	143 [°C]	289 [°F]	n.d.a.		n.d.a.		n.d.a.	
Shore Hardness in scale	D 74		D 76		A 70 - 90		A 80 - 90 D 30 - 40	
Elastic / Young's modulus E	1020,4 [Mpa]	148 [ksi]	n.d.a.		7,8 [MPa]	1.1 [ksi]	47,2 [MPa]	6.8 [ksi]
Impact resistance (Charpy test / unnotched)	15 - 20 [KJ/m ²]		Min. 150 [KJ/m ²]		n.d.a.		n.d.a.	
APPLICATIONS								
Functional prototypes	•		•		•		•	
Final products	•		•		•		•	
Detailed objects	•		•		•		•	
Complex spatial shapes	•		•		•		•	
Parts printed for environments with high mechanical stress (e.g. hinges)			•					
Temperature resistant objects	•		•					
Chemical resistant objects	•		•					
Flexible objects					•		•	
Vibration dampers					•		•	
Shock absorbers					•		•	
Dedicated for SLS 3D printer	 Lisa 1 / Lisa 2		 Lisa 2		 Lisa 1 / Lisa 2		 Lisa 1 / Lisa 2	

¹ Material refreshing ratio - percent of Fresh powder which has to be mixed with Used (unsintered) powder - to be reused to the next print. FLEXA BLACK and GREY has 100 [%] of usability.

² The material PA11 is still in the preparation phase, parameters are subject to change.