



# ALTUS X60 Uno

ALTUS Uno is the world's safest and most powerful UAV propulsion system, designed specifically for 20kg quadcopters and 30kg hexacopters with 12S batteries and 28" or 30" propellers. Designed with IP-55 rating and 1000h lifetime ALTUS Uno is the natural choice for safety critical missions.

The propulsion system consists of Alva's FiberPrinted™ X60 motor, VESC based Alva ESC and a propeller developed in conjunction with Mejzlik Propellers s.r.o.

## ALTUS X60 Uno



©ALVA Industries A/S

System data			
MTOW – Hexacopter	30 kg	Dependent on configuration & safety-factor	
MTOW – Quadcopter	20 kg		
Continuous thrust	7.4 kg	At 20°C & 44VDC (30")	
Peak thrust	11.6 kg	At 20°C & 44VDC (30")	
Thrust ratio	2.32	(30")	
Throttle input	UAVCAN, PPM		
Telemetry output	UAVCAN	RPM, Temp, Voltage, Current, Error msg	
Motor	X60-Kv120		
Propeller	Alva-Mejzlik 30"		
ESC	Alva ESC-12S		
Nominal voltage	44.4 V (12S)	FOC commutation	
Drone Arm Dimensions	Round: 30 mm, 40mm Octagonal: 25x38mm(RJX)		
System mass	30mm: 715 g	40mm: 737g	25x38mm: 697g
P/N	30mm: 105292-03	40mm: 105292-04	25x38mm: 105292-02

System performance		
Hover thrust	5 kg	8.2 g/W
Continuous thrust	7.4 kg	6.4 g/W
Peak thrust	11.6 kg	4.8 g/W
<i>At 40°C &amp; 44VDC, higher thrust levels can be reached with lower ambient temperature and higher voltage.</i>		

Classification: CONFIDENTIAL



Motor data		
Motor	X60-Kv120	
Ambient operating temp	Min: -15°C Max: +40°C	Dependent on configuration & safety-factor
IP rating	IP-55	Protected against dust and rain.
Design Life	1000h	
Winding connection	Wye	
Stator/Rotor Poles	34	
Voltage Constant*	8.02 V/kRPM	Peak line-line back-EMF
Speed Constant(Kv)*	124.7 rpm/V	
Torque Constant*	93.2 mNm/A <sub>RMS</sub>	Sinusoidal current (FOC drive)
No-load speed	5536 RPM	
No-load current	542.5 mA <sub>RMS</sub>	Sinusoidal current (FOC drive)
Line-to-line Inductance	9.05 µH	
Line-to-line Resistance*	154.2 mΩ	
P/N	104306	
*Provided values are based on simulation, under assumption of 20 C magnet and winding temperature. Actual values depend on operating conditions and load cycle.		

©ALVA Industries A/S

ALTUS X60 Uno - 28"							
X60-Kv120			Alva-Mejzlik 28"			Single	
@44.4VDC & 20°C							
Duty cycle (%)	Thrust (g)	Torque (Nm)	Speed (RPM)	Battery current (A)	Power (W)	Efficiency (g/W)	Continuous
40	2293	0.73	2019	4.5	198	11.6	
45	2844	0.90	2239	6.1	270	10.5	
50	3457	1.10	2459	8.1	359	9.6	
55	4111	1.31	2672	10.4	464	8.9	
60	4789	1.53	2875	13.2	585	8.2	
65	5496	1.75	3071	16.3	724	7.6	
70	6213	1.98	3257	19.8	879	7.1	
75	6913	2.21	3428	23.6	1049	6.6	
80	7586	2.42	3584	27.7	1231	6.2	
							Transient
85	8225	2.63	3726	32.2	1428	5.8	
90	8787	2.81	3846	36.7	1630	5.4	
95	9467	3.03	3985	41.8	1856	5.1	
100	10115	3.23	4114	46.5	2063	4.9	

Classification: CONFIDENTIAL



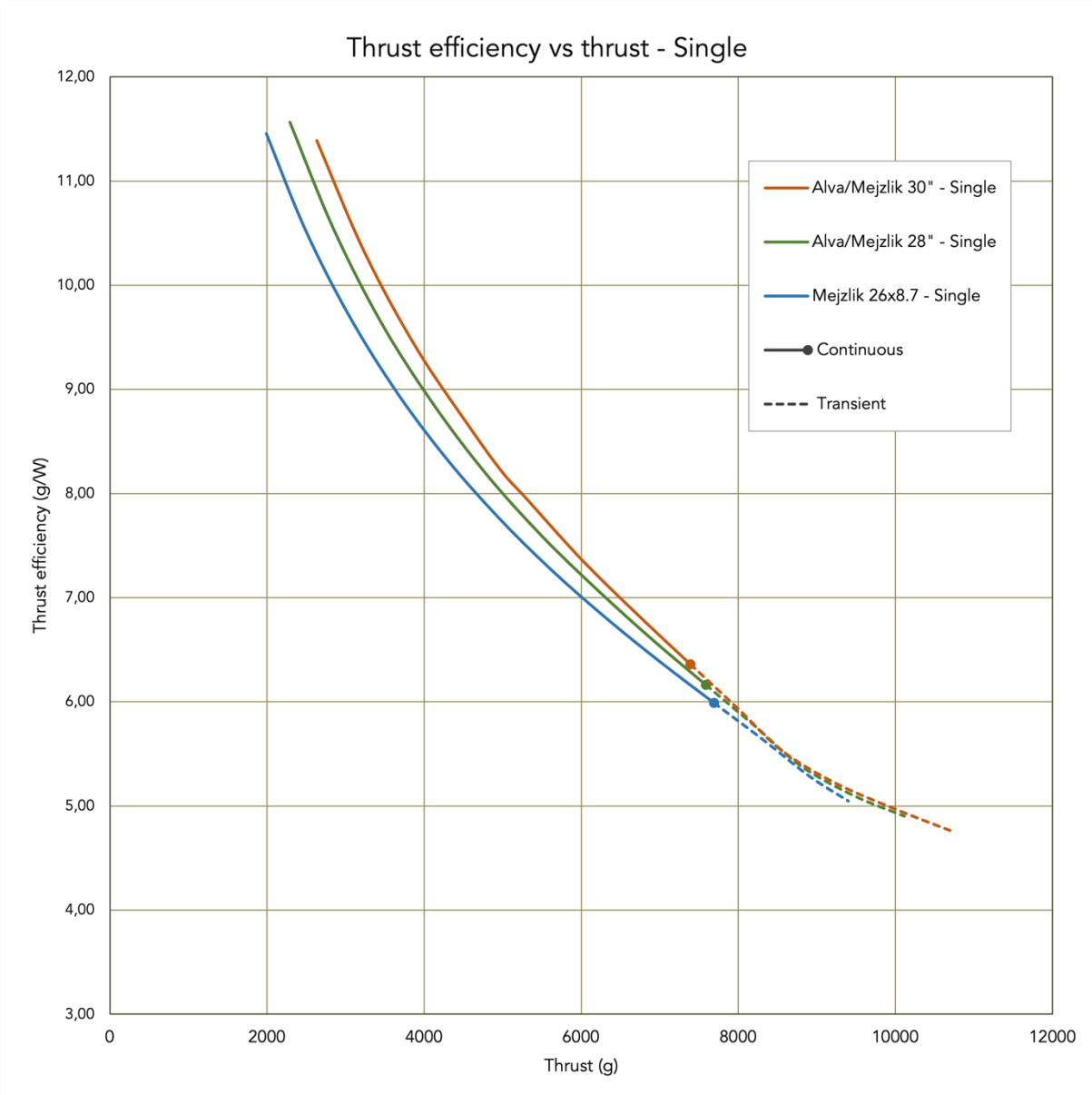
ALTUS X60 Uno – 30"							
X60-Kv120		Alva-Mejzlik 30"			Single		
@44.4VDC & 20°C							
Duty cycle (%)	Thrust (g)	Torque (Nm)	Speed (RPM)	Battery current (A)	Power (W)	Efficiency (g/W)	Continuous
40	2635	0.86	1981	5.2	231	11.4	
45	3238	1.06	2193	7.1	314	10.3	
50	3898	1.28	2404	9.3	415	9.4	
55	4584	1.51	2604	12.0	531	8.6	
60	5297	1.75	2797	15.0	666	8.0	
65	6008	1.98	2976	18.4	816	7.4	
70	6718	2.22	3145	22.1	983	6.8	
75	7388	2.44	3296	26.2	1162	6.4	
80	8007	2.64	3430	30.4	1351	5.9	
							Transient
85	8556	2.82	3544	34.9	1548	5.5	
90	9245	3.05	3682	39.9	1773	5.2	
95	10054	3.32	3838	45.7	2031	5.0	
100	10694	3.53	3957	50.6	2245	4.8	

© ALVA Industries A/S

### Alternative propeller configurations

X60-Kv120		Mejzlik 26x8.7			Single		
@44.4VDC & 20°C							
Throttle (µs)	Thrust (g)	Torque (Nm)	Speed (RPM)	Battery current (A)	Power (W)	Efficiency (g/W)	Continuous
40	1991	0.63	2048	3.9	173.8	11.5	
45	2486	0.78	2276	5.3	236.0	10.5	
50	3036	0.95	2503	7.0	312.4	9.7	
55	3634	1.13	2726	9.1	404.2	9.0	
60	4270	1.33	2943	11.5	511.5	8.3	
65	4929	1.53	3151	14.3	633.3	7.8	
70	5618	1.74	3353	17.4	773.0	7.3	
75	6319	1.96	3546	20.9	929.0	6.8	
80	7009	2.17	3725	24.7	1099	6.4	
							Transient
85	7692	2.38	3893	28.9	1285	6.0	
90	8330	2.58	4043	33.3	1480	5.6	
95	8908	2.76	4174	38.0	1686	5.3	
100	9401	2.91	4282	42.0	1863	5.0	

Classification: CONFIDENTIAL



© ALVA Industries A/S

#### Contact Details

Alva Industries A/S  
Fossegrenda 1  
7038 Trondheim, Norway  
+47 969 43 427  
[sales@alvaindustries.com](mailto:sales@alvaindustries.com) | [www.alvaindustries.com](http://www.alvaindustries.com)

Classification: CONFIDENTIAL