

Motive Power High Frequency Chargers

FILON FUTUR
High Frequency



systems-sunlight.com

 **SUNLIGHT**
Reliable Battery Solutions

Filon Futur Charger Series

SUNLIGHT offers a wide range of High Frequency Chargers suitable for all Lead-Acid battery types. Filon Futur Chargers support the charging needs of every battery application while providing strong reliability, low battery recharge times and excellent utilization of the energy used for recharging. Their operational flexibility as well as their modular design make them easy to install and easier to maintain.

High Frequency Chargers Series with Pulse Ionic Electrolyte Mixing

Product Range

FILON FUTUR S

TECHNICAL CHARACTERISTICS

Charging voltage

12 V, 24 V, 36 V, 48 V

Mains voltage

207 V-253 V, 50/60 Hz also available in 100 V-120 V and 100 V-253 V

Protection category

IP21 (higher protection categories up to IP54 upon request)

Protection Class

II



FILON FUTUR M

TECHNICAL CHARACTERISTICS

Charging voltage

12 V, 24 V, 36 V, 48 V

Mains voltage

207 V-253 V, 50/60 Hz also available in 100 V-120 V and 100 V-253 V

Protection category

IP21 (higher protection categories up to IP54 upon request)

Protection Class

I

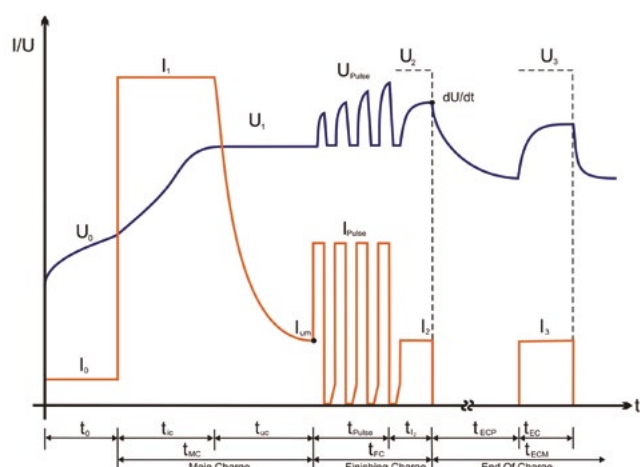


DIMENSIONS (mm)

Casing	Width	Height	Depth
HF 90	177	69	112

DIMENSIONS (mm)

Casing	Width	Height	Depth
HF 180	260	164	93
HF 190	260	164	113
HF 210	268	244	115
HF 450.2	430	256	115



Fields of Application

Lead Acid batteries Traction PzS, PzB (tubular), GiS (flat) - Low maintenance
LM PzS, PzB (tubular) - Maintenance free (GEL) PzV (tubular), GiV (flat), AGM,
Nickel-Cadmium, Lithium-Ion



FILON FUTUR L

TECHNICAL CHARACTERISTICS

Charging voltage

24 V, 36 V, 48 V, 72 V, 80 V

Mains voltage

207 V-253 V, 50/60 Hz
also available in
100 V-120 V and 100 V-253 V

Protection category

IP21 (higher protection categories up to IP54 upon request)

Protection Class

I



DIMENSIONS (mm)

Casing	Width	Height	Depth
HF 450	430	260	115
HF 455	430	393	157
HF 460	295	491	133

FILON FUTUR XL

TECHNICAL CHARACTERISTICS

Charging voltage

24 V, 36 V, 48 V, 72 V, 80 V, 96 V

Mains voltage

360 V-440 V, 50/60 Hz

Protection category

IP21 (higher protection categories up to IP54 upon request)

Protection Class

I



DIMENSIONS (mm)

Casing	Width	Height	Depth
HF 550	430	400	300
HF 560	430	485	300
HF 650	430	700	300
HF 750	430	790	300

Benefits of Filon Futur Technology & Design

Benefits

- Energy saving up to 25% compared to conventional chargers
- Water consumption reduction up to (50%) compared to conventional chargers.
- Faster charging with low charge factor (1.1)
- Lower battery temperatures
- High efficiency (up to 95%).
- Dynamic adjustment of the charging according to age, temperature and the state of charge of the battery
- Modular design for easier service and maintenance (L and XL models)
- High flexibility with up to 16 pre-installed charging curves.
- Soft-start function from deep discharge
- **Excellent energy utilization**
Charging efficiency, cost saving
- **Extended battery life**
Quality of charging, reduced TCO
- **Maximum battery availability**
Fast charging increased operational efficiency
- **Minimum battery down time**
Focus on quality charging
- **Minimum cost of use**
User friendly devices, flexibility, convenience, effectiveness, smaller footprint, less space, less cost.

Features

- Cutting edge technology in HF power electronics
- Wide range of input voltages (95 V to 265 V)
- Data Management with unlimited history of charging cycles and efficient data readout using Convision / Convision Plus (optional)
- Easy to use with 5 LED indicators for charge status and malfunction indications (4 LED for S and M series). High definition LCD Mono display optionally
- Charge cycle self monitoring and alarm warnings (temperature, charge performance and time management)
- Minimum installation space requirements
- Compatible with data management and monitoring systems
- Pre-loaded service charge curves (de-sulphation, formation)
- Extremely low AC ripple in the output current



Important

Correct charger selection is crucial for the proper operation of your batteries. It is very important for the service life of your battery to select its charger based on the battery's capacity and voltage, the required charging time and its operating conditions.



Options	Description	Availability per model			
		S	M	L	XL
Air Lift	Electrolyte circulation for reducing the charge time by up to 2,5 hours		✓ (HF 450.2 housing)	✓	✓
Aquamatic	Automatic top up of the battery near the end of the recharge cycle		✓	✓	✓
ConVision/ConVision Plus	Programming and data analysis package consisting of the service module and its software (Service App for ConVision Plus)	✓	✓	✓	✓
On-Board	Customized design for permanent installation on the vehicle	✓	✓	✓	✓
Temperature Compensation	Temperature Controlled Charge, e.g. cold storage applications		✓	✓	✓
Charger Management System (CMS)	Central monitoring system (controls up to 80 chargers)		✓ (HF 210 housing)	✓	✓
Battery Management Counter (BMC)	External display, shows the elapsed time from the end of recharge		✓ (HF 210 housing)	✓	✓
Dust/Air Filter	Easy install on the charger. Provides protection from dust (from casing HF 450)			✓	✓
High definition graphic display	Easy to see, multiple information display (charge settings, time, battery voltage, etc)		✓ (HF 210 housing)	✓	✓
ID chip	Automatic battery identification and assignment		✓ (HF 210 housing)	✓	✓
Filon Futur Expert	Special display with menu-driven parameter settings for battery voltage, charge current, battery capacity, battery type, required charge time		✓ (HF 210 housing)	✓	✓
New charging characteristic	Automatic selection of charging characteristic for safe and efficient recharging of AGM and GEL batteries	✓	✓	✓	✓
LED remote indication	External LED indicators for remote monitoring	✓	✓	✓	✓
I-Light	Battery monitoring system for charging stations. Indicates the coolest charged battery		✓ (HF 210 housing)	✓	✓
Signal Lights	External lamp post indicators for the remote visibility of the charger status		✓ (HF 210 housing)	✓	✓
Cool Down Indication	Indication of the cooling phase when the battery charging is complete		✓ (HF 210 housing)	✓	✓
Slimline HF 460	Slim design in HF 460			✓	
Protection category IP 54	Special cabinet for IP54 protection	✓ (HF 154 Housing)	✓ (HF 254 Housing)	✓	✓
Dual Charger with 2 outputs	2 chargers installed in one case with dual exit cables		✓ (HF 190*2 housing)		
Circuit Board Coating	Water resistant coating of the PCB boards	✓	✓	✓	✓

FILON FUTUR S

Charger Type					Casing	Weight (kg)	Charging Time / Futur Pulse Curve / Battery Type / Battery Capacity C ₅ (Ah)													
Mains Voltage (V)	Battery Voltage (V)	Nominal Charge Current (A)	Type	6.5 - 7.5 h			7.5 - 8.5 h		8.5 - 10 h		10 - 14 h		12 - 14 h		11 - 14 h					
				Futur PzS, PzB				Futur PzS, PzB		Futur PzS, PzB		Futur PzS, PzB		PzV		GiV				
12V	E 230	G 12	2	B65-FP	HF 90	1.5	10	12	13	16	16	20	20	25	14	17	12	18		
	E 230	G 12	3	B65-FP	HF 90	1.5	15	18	19	24	24	30	30	37	20	25	17	25		
	E 230	G 12	4	B65-FP	HF 90	1.5	20	25	25	32	32	40	40	50	27	33	23	34		
	E 230	G 12	5	B65-FP	HF 90	1.5	25	31	32	40	40	50	50	62	34	42	28	42		
	E 230	G 12	6	B65-FP	HF 90	1.5	30	48	38	48	48	60	60	75	40	50	34	51		
	E 230	G 12	8	B65-FP	HF 90	1.5	40	50	50	64	64	80	80	100	54	67	45	67		
	E 230	G 12	10	B65-FP	HF 90	1.5	50	62	63	80	80	100	100	125	67	83	56	84		
	E 230	G 12	12	B65-FP	HF 90	1.5	60	75	75	96	96	120	120	150	80	100	67	100		
	E 230	G 12	13	B65-FP	HF 90	1.5	65	81	82	104	104	130	130	162	87	108	73	109		
E 230	G 12	15	B65-FP	HF 90	1.5	75	93	94	120	120	150	150	187	100	125	84	126			
24V	E 230	G 24	2	B65-FP	HF 90	1.5	10	12	13	16	16	20	20	25	14	17	12	18		
	E 230	G 24	3	B65-FP	HF 90	1.5	15	18	19	24	24	30	30	37	20	25	17	25		
	E 230	G 24	4	B65-FP	HF 90	1.5	20	25	25	32	32	40	40	50	27	33	23	34		
	E 230	G 24	5	B65-FP	HF 90	1.5	25	31	32	40	40	50	50	62	34	42	28	42		
	E 230	G 24	6	B65-FP	HF 90	1.5	30	48	38	48	48	60	60	75	40	50	34	51		
	E 230	G 24	8	B65-FP	HF 90	1.5	40	50	50	64	64	80	80	100	54	67	45	67		
	E 230	G 24	10	B65-FP	HF 90	1.5	50	62	63	80	80	100	100	125	67	83	56	84		
	E 230	G 24	12	B65-FP	HF 90	1.5	60	75	75	96	96	120	120	150	80	100	67	100		
	E 230	G 24	13	B65-FP	HF 90	1.5	65	81	82	104	104	130	130	162	87	108	73	109		
	E 230	G 24	15	B65-FP	HF 90	1.5	75	93	94	120	120	150	150	187	100	125	84	126		
36V	E 230	G 36	3	B65-FP	HF 90	1.5	15	18	19	24	24	30	30	37	20	25	17	25		
	E 230	G 36	4	B65-FP	HF 90	1.5	20	25	25	32	32	40	40	50	27	33	23	34		
	E 230	G 36	5	B65-FP	HF 90	1.5	25	31	32	40	40	50	50	62	34	42	28	42		
	E 230	G 36	6	B65-FP	HF 90	1.5	30	48	38	48	48	60	60	75	40	50	34	51		
	E 230	G 36	8	B65-FP	HF 90	1.5	40	50	50	64	64	80	80	100	54	67	45	67		
48V	E 230	G 48	3	B65-FP	HF 90	1.5	15	18	19	24	24	30	30	37	20	25	17	25		
	E 230	G 48	4	B65-FP	HF 90	1.5	20	25	25	32	32	40	40	50	27	33	23	34		
	E 230	G 48	5	B65-FP	HF 90	1.5	25	31	32	40	40	50	50	62	34	42	28	42		
	E 230	G 48	6	B65-FP	HF 90	1.5	30	48	38	48	48	60	60	75	40	50	34	51		
	E 230	G 48	8	B65-FP	HF 90	1.5	40	50	50	64	64	80	80	100	54	67	45	67		

FILON FUTUR M

	Charger Type				Casing	Weight (kg)	Charging Time / Futur Pulse Curve / Battery Type / Battery Capacity C ₅ (Ah)													
	Mains Voltage (V)	Battery Voltage (V)	Nominal Charge Current (A)	Type			6.5 - 7.5 h / Futur 5.5 - 6.5 h / Air Lift		7.5 - 8.5 h / Futur 6.5 - 7.5 h / Air Lift		8.5 - 10 h / Futur 7.5 - 9 h / Air Lift		10 - 14 h / Futur 9 - 12 h / Air Lift		12 - 14 h		11 - 14 h			
							PzS, PzB	PzS, PzB	PzS, PzB	PzS, PzB	PzS, PzB	PzS, PzB	PzV	GiV						
12V	E 230	G 12	6	B50-FP	HF 180	3.0	30	48	38	48	48	60	60	75	40	50	34	51		
	E 230	G 12	8	B50-FP	HF 180	3.0	40	50	50	64	64	80	80	100	54	67	45	67		
	E 230	G 12	10	B50-FP	HF 180	3.0	50	62	63	80	80	100	100	125	67	83	56	84		
	E 230	G 12	12	B50-FP	HF 180	3.0	60	75	75	96	96	120	120	150	80	100	67	100		
	E 230	G 12	15	B50-FP	HF 180	3.0	75	93	94	120	120	150	150	187	100	125	84	126		
	E 230	G 12	20	B50-FP	HF 180	3.0	100	125	125	160	160	200	200	250	134	167	112	168		
	E 230	G 12	25	B50-FP	HF 180	3.0	125	156	157	200	200	250	250	312	167	208	139	208		
	E 230	G 12	30	B50-FP	HF 180	3.0	150	187	188	240	240	300	300	375	200	250	167	250		
	E 230	G 12	35	B50-FP	HF 180	3.0	175	218	219	280	280	350	350	437	234	292	195	292		
	E 230	G 12	40	B50-FP	HF 190	3.5	200	250	250	320	320	400	400	500	267	333	223	334		
E 230	G 12	45	B50-FP	HF 190	3.5	225	281	282	360	360	450	450	562	300	375	250	375			
E 230	G 12	50	B50-FP	HF 190	3.5	250	312	313	400	400	500	500	625	334	417	278	417			
24V	E 230	G 24	6	B50-FP	HF 180	3.0	30	48	38	48	48	60	60	75	40	50	34	51		
	E 230	G 24	8	B50-FP	HF 180	3.0	40	50	50	64	64	80	80	100	54	67	45	67		
	E 230	G 24	10	B50-FP	HF 180	3.0	50	62	63	80	80	100	100	125	67	83	56	84		
	E 230	G 24	12	B50-FP	HF 180	3.0	60	75	75	96	96	120	120	150	80	100	67	100		
	E 230	G 24	15	B50-FP	HF 180	3.0	75	93	94	120	120	150	150	187	100	125	84	126		
	E 230	G 24	20	B50-FP	HF 180	3.0	100	125	125	160	160	200	200	250	134	167	112	168		
	E 230	G 24	25	B50-FP	HF 180	3.0	125	156	157	200	200	250	250	312	167	208	139	208		
	E 230	G 24	30	B50-FP	HF 180	3.0	150	187	188	240	240	300	300	375	200	250	167	250		
	E 230	G 24	35	B50-FP	HF 180	3.0	175	218	219	280	280	350	350	437	234	292	195	292		
	E 230	G 24	40	B50-FP	HF 190	3.5	200	250	250	320	320	400	400	500	267	333	223	334		
E 230	G 24	45	B50-FP	HF 190	3.5	225	281	282	360	360	450	450	562	300	375	250	375			
E 230	G 24	50	B50-FP	HF 190	3.5	250	312	313	400	400	500	500	625	334	417	278	417			
36V	E 230	G 36	10	B50-FP	HF 180	3.0	50	62	63	80	80	100	100	125	67	83	56	84		
	E 230	G 36	12	B50-FP	HF 180	3.0	60	75	75	96	96	120	120	150	80	100	67	100		
	E 230	G 36	15	B50-FP	HF 180	3.0	75	93	94	120	120	150	150	187	100	125	84	126		
	E 230	G 36	20	B50-FP	HF 180	3.0	100	125	125	160	160	200	200	250	134	167	112	168		
	E 230	G 36	25	B50-FP	HF 190	3.5	125	156	157	200	200	250	250	312	167	208	139	208		
	E 230	G 36	30	B50-FP	HF 190	3.5	150	187	188	240	240	300	300	375	200	250	167	250		
	E 230	G 36	35	B50-FP	HF 190	3.5	175	218	219	280	280	350	350	437	234	292	195	292		
E 230	G 36	40	B50-FP	HF 190	3.5	200	250	250	320	320	400	400	500	267	333	223	334			
48V	E 230	G 48	10	B50-FP	HF 180	3.0	50	62	63	80	80	100	100	125	67	83	56	84		
	E 230	G 48	12	B50-FP	HF 180	3.0	60	75	75	96	96	120	120	150	80	100	67	100		
	E 230	G 48	15	B50-FP	HF 180	3.0	75	93	94	120	120	150	150	187	100	125	84	126		
	E 230	G 48	20	B50-FP	HF 190	3.5	100	125	125	160	160	200	200	250	134	167	112	168		
	E 230	G 48	25	B50-FP	HF 190	3.5	125	156	157	200	200	250	250	312	167	208	139	208		
	E 230	G 48	30	B50-FP	HF 190	3.5	150	187	188	240	240	300	300	375	200	250	167	250		

FILON FUTUR L

	Charger Type				Casing	Weight (kg)	Charging Time / Futur Pulse Curve / Battery Type / Battery Capacity C ₅ (Ah)													
	Mains Voltage (V)	Battery Voltage (V)	Nominal Charge Current (A)	Type			6.5 - 7.5 h / Futur 5.5 - 6.5 h / Air Lift		7.5 - 8.5 h / Futur 6.5 - 7.5 h / Air Lift		8.5 - 10 h / Futur 7.5 - 9 h / Air Lift		10 - 14 h / Futur 9 - 12 h / Air Lift		12 - 14 h		11 - 14 h			
							PzS, PzB	PzS, PzB	PzS, PzB	PzS, PzB	PzV	GiV								
24V	E 230	G 24	30	B25-FP	HF 450	10	150	187	188	240	240	300	300	375	200	250	167	250		
	E 230	G 24	40	B25-FP	HF 450	10	200	250	250	320	320	400	400	500	267	333	223	334		
	E 230	G 24	45	B25-FP	HF 450	10	225	281	282	360	360	450	450	562	300	375	250	375		
	E 230	G 24	50	B25-FP	HF 450	10	250	312	313	400	400	500	500	625	334	417	278	417		
	E 230	G 24	60	B25-FP	HF 450	10	300	375	375	480	480	600	600	750	400	500	334	501		
	E 230	G 24	65	B25-FP	HF 450	10	325	406	407	520	520	650	650	812	434	542	362	543		
	E 230	G 24	70	B25-FP	HF 450	10	350	437	438	560	560	700	700	875	467	583	389	583		
	E 230	G 24	75	B25-FP	HF 450	10	375	468	469	600	600	750	750	937	500	625	417	625		
	E 230	G 24	80	B25-FP	HF 450	10	400	500	500	640	640	800	800	1000	534	667	445	667		
	E 230	G 24	90	B25-FP	HF 450	10	450	562	563	720	720	900	900	1125	600	750	500	750		
	E 230	G 24	100	B25-FP	HF 450	10	500	625	625	800	800	1000	1000	1250	667	833	556	834		
	E 230	G 24	110	B25-FP	HF 450	10	550	687	688	880	880	1100	1100	1375	734	917	612	918		
E 230	G 24	120	B25-FP	HF 450	10	600	750	750	960	960	1200	1200	1500	800	1000	667	1000			
36V	E 230	G 36	30	B25-FP	HF 450	10	150	187	188	240	240	300	300	375	200	250	167	250		
	E 230	G 36	35	B25-FP	HF 450	10	175	218	219	280	280	350	350	437	234	292	195	292		
	E 230	G 36	40	B25-FP	HF 450	10	200	250	250	320	320	400	400	500	267	333	223	334		
	E 230	G 36	45	B25-FP	HF 450	10	225	281	282	360	360	450	450	562	300	375	250	375		
	E 230	G 36	50	B25-FP	HF 450	10	250	312	313	400	400	500	500	625	334	417	278	417		
	E 230	G 36	60	B25-FP	HF 450	10	300	375	375	480	480	600	600	750	400	500	334	501		
	E 230	G 36	65	B25-FP	HF 450	10	325	406	407	520	520	650	650	812	434	542	362	543		
48V	E 230	G 48	35	B25-FP	HF 450	10	175	218	219	280	280	350	350	437	234	292	195	292		
	E 230	G 48	40	B25-FP	HF 450	10	200	250	250	320	320	400	400	500	267	333	223	334		
	E 230	G 48	45	B25-FP	HF 450	10	225	281	282	360	360	450	450	562	300	375	250	375		
	E 230	G 48	50	B25-FP	HF 450	10	250	312	313	400	400	500	500	625	334	417	278	417		
	E 230	G 48	55	B25-FP	HF 450	10	275	343	344	440	440	550	550	687	367	458	306	459		
	E 230	G 48	60	B25-FP	HF 450	10	300	375	375	480	480	600	600	750	400	500	334	501		
	E 230	G 48	65	B25-FP	HF 450	10	325	406	407	520	520	650	650	812	434	542	362	543		
72V	E 230	G 72	10	B25-FP	HF 450	10	50	62	63	80	80	100	100	125	67	83	56	84		
	E 230	G 72	15	B25-FP	HF 450	10	75	93	94	120	120	150	150	187	100	125	84	126		
	E 230	G 72	20	B25-FP	HF 450	10	100	125	125	160	160	200	200	250	134	167	112	168		
	E 230	G 72	25	B25-FP	HF 450	10	125	156	157	200	200	250	250	312	167	208	139	208		
	E 230	G 72	30	B25-FP	HF 450	10	150	187	188	240	240	300	300	375	200	250	167	250		
	E 230	G 72	35	B25-FP	HF 450	10	175	218	219	280	280	350	350	437	234	292	195	292		
	E 230	G 72	40	B25-FP	HF 450	10	200	250	250	320	320	400	400	500	267	333	223	334		
80V	E 230	G 80	10	B25-FP	HF 450	10	50	62	63	80	80	100	100	125	67	83	56	84		
	E 230	G 80	15	B25-FP	HF 450	10	75	93	94	120	120	150	150	187	100	125	84	126		
	E 230	G 80	20	B25-FP	HF 450	10	100	125	125	160	160	200	200	250	134	167	112	168		
	E 230	G 80	25	B25-FP	HF 450	10	125	156	157	200	200	250	250	312	167	208	139	208		
	E 230	G 80	30	B25-FP	HF 450	10	150	187	188	240	240	300	300	375	200	250	167	250		
	E 230	G 80	35	B25-FP	HF 450	10	175	218	219	280	280	350	350	437	234	292	195	292		
	E 230	G 80	40	B25-FP	HF 450	10	200	250	250	320	320	400	400	500	267	333	223	334		

FILON FUTUR XL

	Charger Type				Casing		Weight (kg)		Charging Time / Futur Pulse Curve / Battery Type / Battery Capacity C ₅ (Ah)													
	Mains Voltage (V)	Battery Voltage (V)	Nominal Charge Current (A)	Type					6.5 - 7.5 h / Futur 5.5 - 6.5 h / Air Lift		7.5 - 8.5 h / Futur 6.5 - 7.5 h / Air Lift		8.5 - 10 h / Futur 7.5 - 9 h / Air Lift		10 - 14 h / Futur 9 - 12 h / Air Lift		12 - 14 h		11 - 14 h			
									PzS, PzB		PzS, PzB		PzS, PzB		PzS, PzB		PzV		GiV			
24V	Z 400	G 24	110	B25-FP	HF 550	23	550	687	688	880	880	1100	1100	1375	734	917	612	918				
	Z 400	G 24	115	B25-FP	HF 550	23	575	718	719	920	920	1150	1150	1437	767	958	639	958				
	Z 400	G 24	120	B25-FP	HF 550	23	600	750	750	960	960	1200	1200	1500	800	1000	667	1000				
	Z 400	G 24	130	B25-FP	HF 550	23	650	812	813	1040	1040	1300	1300	1625	867	1083	723	1084				
	Z 400	G 24	140	B25-FP	HF 550	23	700	875	875	1120	1120	1400	1400	1750	934	1167	778	1167				
	Z 400	G 24	150	B25-FP	HF 550	23	750	937	938	1200	1200	1500	1500	1875	1000	1250	834	1251				
	Z 400	G 24	160	B25-FP	HF 550	23	800	1000	1000	1280	1280	1600	1600	2000	1067	1333	889	1333				
	Z 400	G 24	170	B25-FP	HF 550	23	850	1062	1063	1360	1360	1700	1700	2125	1134	1417	945	1417				
	Z 400	G 24	180	B25-FP	HF 550	23	900	1125	1125	1440	1440	1800	1800	2250	1200	1500	1000	1500				
	Z 400	G 24	190	B25-FP	HF 550	23	950	1187	1188	1520	1520	1900	1900	2375	1267	1583	1056	1584				
	Z 400	G 24	200	B25-FP	HF 550	23	1000	1250	1250	1600	1600	2000	2000	2500	1334	1667	1112	1668				
	Z 400	G 24	210	B25-FP	HF 550	23	1050	1312	1313	1680	1680	2100	2100	2625	1400	1750	1167	1750				
	Z 400	G 24	220	B25-FP	HF 550	23	1100	1375	1375	1760	1760	2200	2200	2750	1467	1833	1223	1834				
	Z 400	G 24	230	B25-FP	HF 550	23	1150	1437	1438	1840	1840	2300	2300	2875	1534	1917	1278	1917				
	Z 400	G 24	240	B25-FP	HF 550	23	1200	1500	1500	1920	1920	2400	2400	3000	1600	2000	1334	2001				
	D 400	G 24	250	B25-FP	HF 550	28	1250	1562	1563	2000	2000	2500	2500	3125	1667	2083	1389	2083				
	D 400	G 24	260	B25-FP	HF 550	28	1300	1625	1625	2080	2080	2600	2600	3250	1734	2167	1445	2167				
	D 400	G 24	270	B25-FP	HF 550	28	1350	1687	1688	2160	2160	2700	2700	3375	1800	2250	1500	2250				
D 400	G 24	280	B25-FP	HF 550	28	1400	1750	1750	2240	2240	2800	2800	3500	1867	2333	1556	2334					
D 400	G 24	290	B25-FP	HF 550	28	1450	1812	1813	2320	2320	2900	2900	3625	1934	2417	1612	2418					
D 400	G 24	300	B25-FP	HF 550	28	1500	1875	1875	2400	2400	3000	3000	3750	2000	2500	1667	2500					
36V	Z 400	G 36	70	B25-FP	HF 550	23	350	437	438	560	560	700	700	875	467	583	389	583				
	Z 400	G 36	75	B25-FP	HF 550	23	375	468	469	600	600	750	750	937	500	625	417	625				
	Z 400	G 36	80	B25-FP	HF 550	23	400	500	500	640	640	800	800	1000	534	667	445	667				
	Z 400	G 36	90	B25-FP	HF 550	23	450	562	563	720	720	900	900	1125	600	750	500	750				
	Z 400	G 36	100	B25-FP	HF 550	23	500	625	625	800	800	1000	1000	1250	667	833	556	834				
	Z 400	G 36	110	B25-FP	HF 550	23	550	687	688	880	880	1100	1100	1375	734	917	612	918				
	Z 400	G 36	115	B25-FP	HF 550	23	575	718	719	920	920	1150	1150	1437	767	958	639	958				
	Z 400	G 36	120	B25-FP	HF 550	23	600	750	750	960	960	1200	1200	1500	800	1000	667	1000				
	D 400	G 36	130	B25-FP	HF 550	28	650	812	813	1040	1040	1300	1300	1625	867	1083	723	1084				
	D 400	G 36	140	B25-FP	HF 550	28	700	875	875	1120	1120	1400	1400	1750	934	1167	778	1167				
	D 400	G 36	150	B25-FP	HF 550	28	750	937	938	1200	1200	1500	1500	1875	1000	1250	834	1251				
	D 400	G 36	160	B25-FP	HF 550	28	800	1000	1000	1280	1280	1600	1600	2000	1067	1333	889	1333				
	D 400	G 36	170	B25-FP	HF 550	28	850	1062	1063	1360	1360	1700	1700	2125	1134	1417	945	1417				
	D 400	G 36	180	B25-FP	HF 550	28	900	1125	1125	1440	1440	1800	1800	2250	1200	1500	1000	1500				
	D 400	G 36	190	B25-FP	HF 560	45	950	1187	1188	1520	1520	1900	1900	2375	1267	1583	1056	1584				
	D 400	G 36	200	B25-FP	HF 560	45	1000	1250	1250	1600	1600	2000	2000	2500	1334	1667	1112	1668				
	D 400	G 36	210	B25-FP	HF 560	45	1050	1312	1313	1680	1680	2100	2100	2625	1400	1750	1167	1750				
	D 400	G 36	220	B25-FP	HF 560	45	1100	1375	1375	1760	1760	2200	2200	2750	1467	1833	1223	1834				
	D 400	G 36	230	B25-FP	HF 560	45	1150	1437	1438	1840	1840	2300	2300	2875	1534	1917	1278	1917				
	D 400	G 36	240	B25-FP	HF 560	45	1200	1500	1500	1920	1920	2400	2400	3000	1600	2000	1334	2001				
	D 400	G 36	250	B25-FP	HF 560	45	1250	1562	1563	2000	2000	2500	2500	3125	1667	2083	1389	2083				
	D 400	G 36	260	B25-FP	HF 560	45	1300	1625	1625	2080	2080	2600	2600	3250	1734	2167	1445	2167				
	D 400	G 36	270	B25-FP	HF 650	50	1350	1687	1688	2160	2160	2700	2700	3375	1800	2250	1500	2250				
	D 400	G 36	280	B25-FP	HF 650	50	1400	1750	1750	2240	2240	2800	2800	3500	1867	2333	1556	2334				
	D 400	G 36	290	B25-FP	HF 650	50	1450	1812	1813	2320	2320	2900	2900	3625	1934	2417	1612	2418				
	D 400	G 36	300	B25-FP	HF 650	50	1500	1875	1875	2400	2400	3000	3000	3750	2000	2500	1667	2500				

FILON FUTUR XL

	Charger Type				Casing	Weight (kg)	Charging Time / Futur Pulse Curve / Battery Type / Battery Capacity C ₅ (Ah)											
	Mains Voltage (V)	Battery Voltage (V)	Nominal Charge Current (A)	Type			6.5 - 7.5 h / Futur 5.5 - 6.5 h / Air Lift		7.5 - 8.5 h / Futur 6.5 - 7.5 h / Air Lift		8.5 - 10 h / Futur 7.5 - 9 h / Air Lift		10 - 14 h / Futur 9 - 12 h / Air Lift		12 - 14 h		11 - 14 h	
							PzS, PzB	PzS, PzB	PzS, PzB	PzS, PzB	PzV	GiV						
48V	Z 400	G 48	60	B25-FP	HF 550	23	300	375	375	480	480	600	600	750	400	500	334	501
	Z 400	G 48	65	B25-FP	HF 550	23	325	406	407	520	520	650	650	812	434	542	362	543
	Z 400	G 48	70	B25-FP	HF 550	23	350	437	438	560	560	700	700	875	467	583	389	583
	Z 400	G 48	75	B25-FP	HF 550	23	375	468	469	600	600	750	750	937	500	625	417	625
	Z 400	G 48	80	B25-FP	HF 550	23	400	500	500	640	640	800	800	1000	534	667	445	667
	Z 400	G 48	90	B25-FP	HF 550	23	450	562	563	720	720	900	900	1125	600	750	500	750
	Z 400	G 48	100	B25-FP	HF 550	23	500	625	625	800	800	1000	1000	1250	667	833	556	834
	Z 400	G 48	110	B25-FP	HF 550	23	550	687	688	880	880	1100	1100	1375	734	917	612	918
	Z 400	G 48	120	B25-FP	HF 550	23	600	750	750	960	960	1200	1200	1500	800	1000	667	1000
	D 400	G 48	120	B25-FP	HF 550	28	600	750	750	960	960	1200	1200	1500	800	1000	667	1000
	D 400	G 48	130	B25-FP	HF 550	28	650	812	813	1040	1040	1300	1300	1625	867	1083	723	1084
	D 400	G 48	140	B25-FP	HF 550	28	700	875	875	1120	1120	1400	1400	1750	934	1167	778	1167
	D 400	G 48	150	B25-FP	HF 550	28	750	937	938	1200	1200	1500	1500	1875	1000	1250	834	1251
	D 400	G 48	160	B25-FP	HF 550	28	800	1000	1000	1280	1280	1600	1600	2000	1067	1333	889	1333
	D 400	G 48	170	B25-FP	HF 550	28	850	1062	1063	1360	1360	1700	1700	2125	1134	1417	945	1417
	D 400	G 48	180	B25-FP	HF 550	28	900	1125	1125	1440	1440	1800	1800	2250	1200	1500	1000	1500
	D 400	G 48	190	B25-FP	HF 560	45	950	1187	1188	1520	1520	1900	1900	2375	1267	1583	1056	1584
	D 400	G 48	200	B25-FP	HF 560	45	1000	1250	1250	1600	1600	2000	2000	2500	1334	1667	1112	1668
	D 400	G 48	210	B25-FP	HF 560	45	1050	1312	1313	1680	1680	2100	2100	2625	1400	1750	1167	1750
	D 400	G 48	220	B25-FP	HF 560	45	1100	1375	1375	1760	1760	2200	2200	2750	1467	1833	1223	1834
D 400	G 48	230	B25-FP	HF 560	45	1150	1437	1438	1840	1840	2300	2300	2875	1534	1917	1278	1917	
D 400	G 48	240	B25-FP	HF 560	45	1200	1500	1500	1920	1920	2400	2400	3000	1600	2000	1334	2001	
D 400	G 48	250	B25-FP	HF 650	50	1250	1562	1563	2000	2000	2500	2500	3125	1667	2083	1389	2083	
D 400	G 48	260	B25-FP	HF 650	50	1300	1625	1625	2080	2080	2600	2600	3250	1734	2167	1445	2167	
D 400	G 48	270	B25-FP	HF 650	50	1350	1687	1688	2160	2160	2700	2700	3375	1800	2250	1500	2250	
D 400	G 48	280	B25-FP	HF 650	50	1400	1750	1750	2240	2240	2800	2800	3500	1867	2333	1556	2334	
72V	Z 400	G 72	40	B25-FP	HF 550	23	200	250	250	320	320	400	400	500	267	333	223	334
	Z 400	G 72	45	B25-FP	HF 550	23	225	281	282	360	360	450	450	562	300	375	250	375
	Z 400	G 72	50	B25-FP	HF 550	23	250	312	313	400	400	500	500	625	334	417	278	417
	Z 400	G 72	60	B25-FP	HF 550	23	300	375	375	480	480	600	600	750	400	500	334	501
	Z 400	G 72	65	B25-FP	HF 550	23	325	406	407	520	520	650	650	812	434	542	362	543
	Z 400	G 72	70	B25-FP	HF 550	23	350	437	438	560	560	700	700	875	467	583	389	583
	D 400	G 72	70	B25-FP	HF 550	28	350	437	438	560	560	700	700	875	467	583	389	583
	D 400	G 72	80	B25-FP	HF 550	28	400	500	500	640	640	800	800	1000	534	667	445	667
	D 400	G 72	90	B25-FP	HF 550	28	450	562	563	720	720	900	900	1125	600	750	500	750
	D 400	G 72	100	B25-FP	HF 550	28	500	625	625	800	800	1000	1000	1250	667	833	556	834
	D 400	G 72	110	B25-FP	HF 550	28	550	687	688	880	880	1100	1100	1375	734	917	612	918
	D 400	G 72	120	B25-FP	HF 550	28	600	750	750	960	960	1200	1200	1500	800	1000	667	1000
	D 400	G 72	130	B25-FP	HF 560	45	650	812	813	1040	1040	1300	1300	1625	867	1083	723	1084
	D 400	G 72	140	B25-FP	HF 560	45	700	875	875	1120	1120	1400	1400	1750	934	1167	778	1167
	D 400	G 72	150	B25-FP	HF 560	45	750	937	938	1200	1200	1500	1500	1875	1000	1250	834	1251
	D 400	G 72	160	B25-FP	HF 560	45	800	1000	1000	1280	1280	1600	1600	2000	1067	1333	889	1333
	D 400	G 72	170	B25-FP	HF 650	50	850	1062	1063	1360	1360	1700	1700	2125	1134	1417	945	1417
	D 400	G 72	180	B25-FP	HF 650	50	900	1125	1125	1440	1440	1800	1800	2250	1200	1500	1000	1500
	D 400	G 72	190	B25-FP	HF 650	50	950	1187	1188	1520	1520	1900	1900	2375	1267	1583	1056	1584
	D 400	G 72	200	B25-FP	HF 650	50	1000	1250	1250	1600	1600	2000	2000	2500	1334	1667	1112	1668
	D 400	G 72	210	B25-FP	HF 650	55	1050	1312	1313	1680	1680	2100	2100	2625	1400	1750	1167	1750
	D 400	G 72	220	B25-FP	HF 650	55	1100	1375	1375	1760	1760	2200	2200	2750	1467	1833	1223	1834
	D 400	G 72	230	B25-FP	HF 650	55	1150	1437	1438	1840	1840	2300	2300	2875	1534	1917	1278	1917
	D 400	G 72	240	B25-FP	HF 650	55	1200	1500	1500	1920	1920	2400	2400	3000	1600	2000	1334	2001
	D 400	G 72	250	B25-FP	HF 750	67	1250	1562	1563	2000	2000	2500	2500	3125	1667	2083	1389	2083
	D 400	G 72	260	B25-FP	HF 750	67	1300	1625	1625	2080	2080	2600	2600	3250	1734	2167	1445	2167
	D 400	G 72	270	B25-FP	HF 750	67	1350	1687	1688	2160	2160	2700	2700	3375	1800	2250	1500	2250
	D 400	G 72	280	B25-FP	HF 750	67	1400	1750	1750	2240	2240	2800	2800	3500	1867	2333	1556	2334

FILON FUTUR XL

Charger Type				Casing	Weight (kg)	Charging Time / Futur Pulse Curve / Battery Type / Battery Capacity C ₅ (Ah)													
Mains Voltage (V)	Battery Voltage (V)	Nominal Charge Current (A)	Type			6.5 - 7.5 h / Futur 5.5 - 6.5 h / Air Lift		7.5 - 8.5 h / Futur 6.5 - 7.5 h / Air Lift		8.5 - 10 h / Futur 7.5 - 9 h / Air Lift		10 - 14 h / Futur 9 - 12 h / Air Lift		12 - 14 h		11 - 14 h			
						PzS, PzB	PzS, PzB	PzS, PzB	PzS, PzB	PzV	GiV								
80V	Z 400	G 80	35	B25-FP	HF 550	23	175	218	219	280	280	350	350	437	234	292	195	292	
	Z 400	G 80	40	B25-FP	HF 550	23	200	250	250	320	320	400	400	500	267	333	223	334	
	Z 400	G 80	45	B25-FP	HF 550	23	225	281	282	360	360	450	450	562	300	375	250	375	
	Z 400	G 80	50	B25-FP	HF 550	23	250	312	313	400	400	500	500	625	334	417	278	417	
	Z 400	G 80	60	B25-FP	HF 550	23	300	375	375	480	480	600	600	750	400	500	334	501	
	Z 400	G 80	65	B25-FP	HF 550	23	325	406	407	520	520	650	650	812	434	542	362	543	
	Z 400	G 80	70	B25-FP	HF 550	23	350	437	438	560	560	700	700	875	467	583	389	583	
	D 400	G 80	70	B25-FP	HF 550	28	350	437	438	560	560	700	700	875	467	583	389	583	
	D 400	G 80	80	B25-FP	HF 550	28	400	500	500	640	640	800	800	1000	534	667	445	667	
	D 400	G 80	90	B25-FP	HF 550	28	450	562	563	720	720	900	900	1125	600	750	500	750	
	D 400	G 80	100	B25-FP	HF 550	28	500	625	625	800	800	1000	1000	1250	667	833	556	834	
	D 400	G 80	110	B25-FP	HF 550	28	550	687	688	880	880	1100	1100	1375	734	917	612	918	
	D 400	G 80	120	B25-FP	HF 550	28	600	750	750	960	960	1200	1200	1500	800	1000	667	1000	
	D 400	G 80	130	B25-FP	HF 560	45	650	812	813	1040	1040	1300	1300	1625	867	1083	723	1084	
	D 400	G 80	140	B25-FP	HF 560	45	700	875	875	1120	1120	1400	1400	1750	934	1167	778	1167	
	D 400	G 80	150	B25-FP	HF 560	45	750	937	938	1200	1200	1500	1500	1875	1000	1250	834	1251	
	D 400	G 80	160	B25-FP	HF 650	50	800	1000	1000	1280	1280	1600	1600	2000	1067	1333	889	1333	
	D 400	G 80	170	B25-FP	HF 650	50	850	1062	1063	1360	1360	1700	1700	2125	1134	1417	945	1417	
	D 400	G 80	180	B25-FP	HF 650	50	900	1125	1125	1440	1440	1800	1800	2250	1200	1500	1000	1500	
	D 400	G 80	190	B25-FP	HF 650	50	950	1187	1188	1520	1520	1900	1900	2375	1267	1583	1056	1584	
	D 400	G 80	200	B25-FP	HF 650	55	1000	1250	1250	1600	1600	2000	2000	2500	1334	1667	1112	1668	
	D 400	G 80	210	B25-FP	HF 650	55	1050	1312	1313	1680	1680	2100	2100	2625	1400	1750	1167	1750	
	D 400	G 80	220	B25-FP	HF 650	55	1100	1375	1375	1760	1760	2200	2200	2750	1467	1833	1223	1834	
	D 400	G 80	230	B25-FP	HF 650	55	1150	1437	1438	1840	1840	2300	2300	2875	1534	1917	1278	1917	
	D 400	G 80	240	B25-FP	HF 650	55	1200	1500	1500	1920	1920	2400	2400	3000	1600	2000	1334	2001	
	D 400	G 80	250	B25-FP	HF 750	67	1250	1562	1563	2000	2000	2500	2500	3125	1667	2083	1389	2083	
	D 400	G 80	260	B25-FP	HF 750	67	1300	1625	1625	2080	2080	2600	2600	3250	1734	2167	1445	2167	
	D 400	G 80	270	B25-FP	HF 750	67	1350	1687	1688	2160	2160	2700	2700	3375	1800	2250	1500	2250	
	D 400	G 80	280	B25-FP	HF 750	67	1400	1750	1750	2240	2240	2800	2800	3500	1867	2333	1556	2334	
96V	Z 400	G 96	35	B25-FP	HF 550	23	175	218	219	280	280	350	350	437	234	292	195	292	
	Z 400	G 96	40	B25-FP	HF 550	23	200	250	250	320	320	400	400	500	267	333	223	334	
	Z 400	G 96	45	B25-FP	HF 550	23	225	281	282	360	360	450	450	562	300	375	250	375	
	Z 400	G 96	50	B25-FP	HF 550	23	250	312	313	400	400	500	500	625	334	417	278	417	
	Z 400	G 96	60	B25-FP	HF 550	23	300	375	375	480	480	600	600	750	400	500	334	501	
	D 400	G 96	70	B25-FP	HF 550	28	350	437	438	560	560	700	700	875	467	583	389	583	
	D 400	G 96	75	B25-FP	HF 550	28	375	468	469	600	600	750	750	937	500	625	417	625	
	D 400	G 96	80	B25-FP	HF 550	28	400	500	500	640	640	800	800	1000	534	667	445	667	
	D 400	G 96	90	B25-FP	HF 550	28	450	562	563	720	720	900	900	1125	600	750	500	750	
	D 400	G 96	100	B25-FP	HF 560	45	500	625	625	800	800	1000	1000	1250	667	833	556	834	
	D 400	G 96	110	B25-FP	HF 560	45	550	687	688	880	880	1100	1100	1375	734	917	612	918	
	D 400	G 96	120	B25-FP	HF 560	45	600	750	750	960	960	1200	1200	1500	800	1000	667	1000	
	D 400	G 96	130	B25-FP	HF 650	50	650	812	813	1040	1040	1300	1300	1625	867	1083	723	1084	
	D 400	G 96	140	B25-FP	HF 650	50	700	875	875	1120	1120	1400	1400	1750	934	1167	778	1167	
	D 400	G 96	150	B25-FP	HF 650	50	750	937	938	1200	1200	1500	1500	1875	1000	1250	834	1251	
	D 400	G 96	160	B25-FP	HF 650	55	800	1000	1000	1280	1280	1600	1600	2000	1067	1333	889	1333	
	D 400	G 96	170	B25-FP	HF 650	55	850	1062	1063	1360	1360	1700	1700	2125	1134	1417	945	1417	
	D 400	G 96	180	B25-FP	HF 650	55	900	1125	1125	1440	1440	1800	1800	2250	1200	1500	1000	1500	
	D 400	G 96	190	B25-FP	HF 750	67	950	1187	1188	1520	1520	1900	1900	2375	1267	1583	1056	1584	
	D 400	G 96	200	B25-FP	HF 750	67	1000	1250	1250	1600	1600	2000	2000	2500	1334	1667	1112	1668	
	D 400	G 96	210	B25-FP	HF 750	67	1050	1312	1313	1680	1680	2100	2100	2625	1400	1750	1167	1750	



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