



Vertiv™
E Series battery
12V33~200Ah
VALVE REGULATED
SEALED GEL BATTERY



E (Endurance) Series valve regulated lead acid gel battery

The E series 12V VRLA gel battery features flat pasted positive and negative plates made of lead-calcium-tin grid alloy. The electrolyte consists of SiO₂ gelled sulfuric acid, with a fluid volume gas recombination design. The plate curing process and formation technique ensure the battery's excellent deep discharge performance, charging loop performance and improved security and reliability. It is excellently suited to the harsh requirements of industrial applications.

Product Characteristics

15 Year Design Life

The positive and negative plates consist of flat pasted plates with lead-calcium-tin grid alloy, and the electrolyte is SiO₂ gelled sulfuric acid, thus reducing any corrosion. The gas recombination design, plate curing process, and formation technique ensure the battery floating design life of 15 years.

Operating range: -20°C~ 55°C

The battery can be operated in environments from -20°C to +55°C. Even in overcharge conditions at high temperatures it will still continue to work reliably, without "drying out".

High discharge performance

The battery has excellent recovery characteristics following deep discharging. Even after 100% discharge, the battery can still pick up the load, and even after 4 weeks, the battery can still be restored to its original

capacity. The excess electrolyte design ensures the battery can remain in a long-term charging status without "drying out". The battery will not be damaged.

Better security and reliability - Suitable for industrial applications

The battery gel electrolyte is SiO₂ based, ensuring no leakage or stratification occurs. Furthermore, the fluid volume design guarantees good charging even in high temperature environments - the battery will not suffer from drying out or thermal runaway. The long service life of the battery is guaranteed throughout the whole cycle (50% depth of discharge up to 1600 times) - it also exhibits excellent discharge resistance and can continue to discharge even after extended periods without power, making it very well suited to industrial applications.

Type	Nominal voltage	Nominal capacity
VRLA	12V	330~200Ah
Grid plate	Standards	Design life
Flat pasted plate	IEC60896-21/22 DIN43539-T5	15years

Main Applications

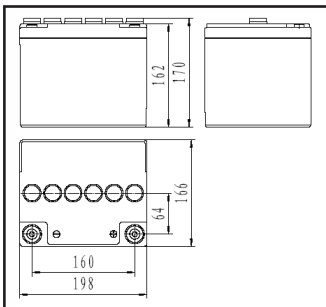
- Oil and Gas - offshore and onshore
- Refineries and petrochemical plants
- Power generation
- Transportation (rail, metro, tramway)



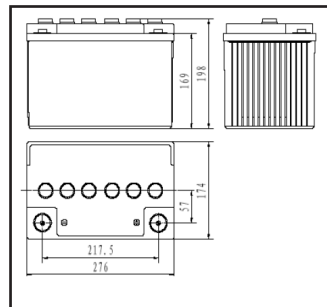
General Specifications

Battery Type	Rated Voltage(V)	C10(Ah) @25°C	Watts/Cell@30min (wpc/1.75V)	Dimensions (mm)				Weight (kg)	Terminal (mm)	Torque (N.m)
				Length	Width	Height	Total Height			
U12V33E/A	12	33	56.5	198	166	162	170	14	M6	8-10
U12V50E/A	12	50	85.6	276	174	169	198	21	M8	12-16
U12V65E/A	12	65	111	310	174	209	236	27	M8	12-16
U12V85E/A	12	85	146	414	174	218	228	34	M8	12-16
U12V100E/A	12	100	171	513	163	218	228	40	M8	12-16
U12V120E/A	12	120	205	513	232	218	228	47	M8	12-16
U12V150E/A	12	150	257	513	232	218	228	59	M8	12-16
U12V200E/A	12	200	342	513	296.5	218	228	75.5	M8	12-16

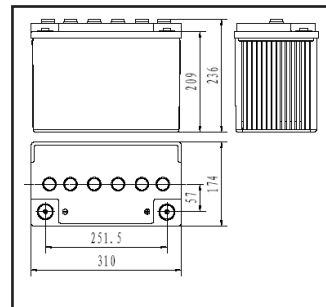
Battery Structure



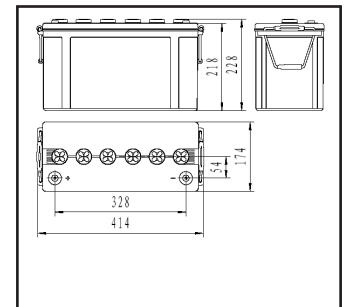
U12V33E/A



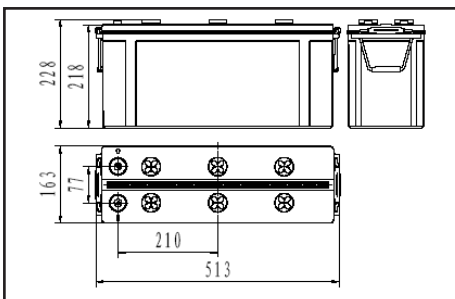
U12V50E/A



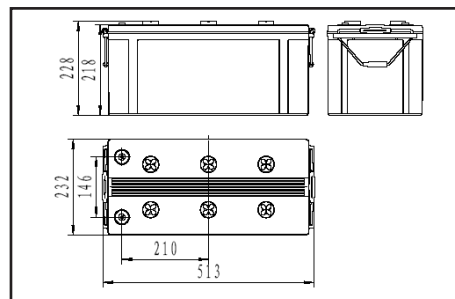
U12V65E/A



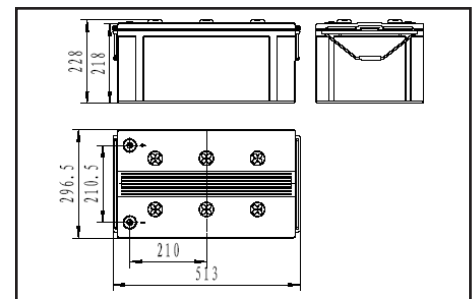
U12V85E/A



U12V100E/A



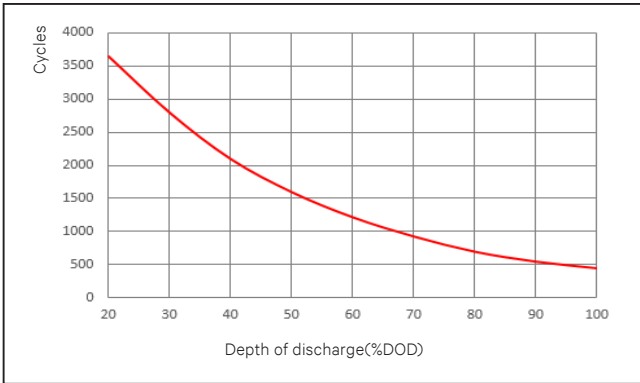
U12V120E/A-U12V150E/A



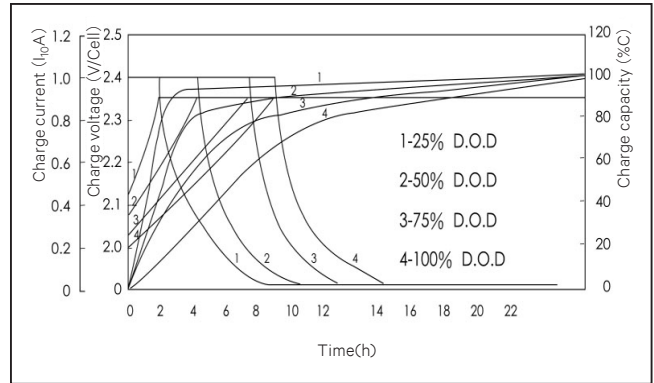
U12V200E/A

Performance Curve

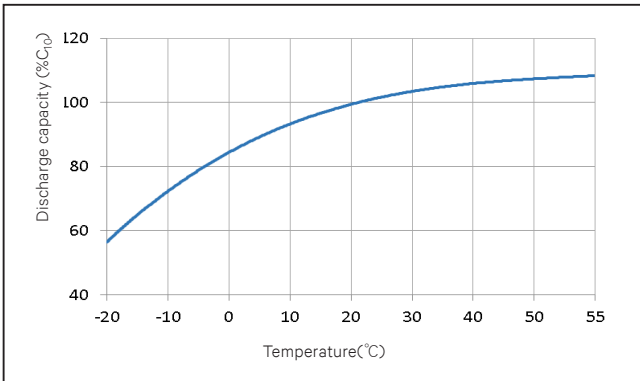
Cycle performance curve (25°C)



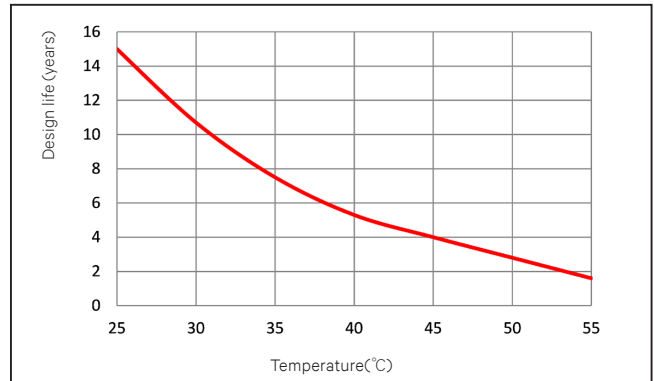
Charge characteristic curve under different depths of discharge



Temperature effect on battery capacity curve



Temperature effect on battery service life curve



Constant current discharge data sheet

1.60V/C-Discharge in A at 25°C

Type/ discharge time	15min	30min	45min	1h	1.5h	2h	3h	4h	5h	6h	8h	10h	20h	24h	48h	100h	120h	240h
U12V33E/A	51.5	33	23	19.5	14.8	11.6	9	7.2	6.1	5.6	4.3	3.6	1.86	1.57	0.78	0.38	0.36	0.19
U12V50E/A	78	50	34.9	29.5	22.5	17.5	13.7	11	9.3	8.5	6.6	5.5	2.82	2.38	1.19	0.57	0.55	0.29
U12V65E/A	101.4	65	45.3	38.3	29.2	22.8	17.8	14.2	12.1	11	8.5	7.1	3.67	3.9	1.54	0.74	0.71	0.37
U12V85E/A	133	85	59.3	50.1	38.2	29.8	23.3	18.6	15.8	14.4	11.2	9.3	4.79	4.5	2.2	0.97	0.93	0.49
U12V100E/A	156	100	69.8	59	44.9	35.1	27.4	21.9	18.6	17	13.1	11	5.64	4.76	2.37	1.14	1.19	0.57
U12V120E/A	187	120	83.7	70.8	53.9	42.1	32.8	26.3	22.3	20.4	15.8	13.1	6.77	5.71	2.84	1.37	1.31	0.68
U12V150E/A	234	150	105	88.4	67.4	52.6	41	32.9	27.9	25.4	19.7	16.4	8.46	7.14	3.56	1.71	1.64	0.86
U12V200E/A	312	200	140	118	89.8	70.1	54.7	43.8	37.2	33.9	26.3	21.9	11.3	9.52	4.74	2.28	2.18	1.14

1.65V/C-Discharge in A at 25°C

Type/ discharge time	15min	30min	45min	1h	1.5h	2h	3h	4h	5h	6h	8h	10h	20h	24h	48h	100h	120h	240h
U12V33E/A	49.9	32.3	22.6	19.1	14.5	11.3	8.9	7.1	6	5.5	4.3	3.5	1.82	1.54	0.77	0.37	0.36	0.19
U12V50E/A	75.7	49	34.2	28.9	22	17.2	13.4	10.7	9.1	8.3	6.4	5.4	2.76	2.34	1.16	0.57	0.54	0.28
U12V65E/A	98.4	63.7	44.4	37.6	28.6	22.3	17.4	14	11.9	10.8	8.4	7	3.59	3.4	1.51	0.74	0.7	0.36
U12V85E/A	129	83.3	58.1	49.1	37.4	29.2	22.8	18.2	15.5	14.1	11	9.1	4.69	3.97	1.97	0.96	0.92	0.48
U12V100E/A	151	98	68.4	57.8	44	34.4	26.8	21.5	18.2	16.6	12.9	10.7	5.52	4.67	2.32	1.13	1.18	0.57
U12V120E/A	182	118	82	69.3	52.8	41.2	32.2	25.8	21.9	20	15.5	12.9	6.62	5.6	2.78	1.36	1.3	0.67
U12V150E/A	227	147	103	86.7	66	51.5	40.2	32.2	27.4	24.9	19.3	16.1	8.28	7.1	3.48	1.7	1.62	0.84
U12V200E/A	303	196	137	116	88	68.7	53.6	42.9	36.5	33.3	25.8	21.5	11.0	9.34	4.64	2.26	2.16	1.12

1.70V/C-Discharge in A at 25°C

Type/ discharge time	15min	30min	45min	1h	1.5h	2h	3h	4h	5h	6h	8h	10h	20h	24h	48h	100h	120h	240h
U12V33E/A	48.4	31.7	22.1	18.7	14.2	11.1	8.7	6.9	5.9	5.4	4.2	3.5	1.79	1.51	0.76	0.37	0.35	0.18
U12V50E/A	73.4	48	33.5	28.3	21.6	16.9	13.1	10.5	8.9	8.2	6.3	5.3	2.71	2.29	1.15	0.56	0.54	0.28
U12V65E/A	95.4	62.4	43.6	36.8	28	21.9	17.1	13.7	11.6	10.6	8.2	6.8	3.52	2.98	1.49	0.73	0.7	0.36
U12V85E/A	125	81.6	57	48.1	36.7	28.7	22.3	17.9	15.2	13.9	10.7	8.9	4.6	3.89	1.95	0.95	0.91	0.47
U12V100E/A	147	96	67	56.6	43.1	33.7	26.3	21	17.9	16.3	12.6	10.5	5.41	4.58	2.29	1.12	1.17	0.55
U12V120E/A	176	115	80.4	68	51.8	40.4	31.5	25.2	21.5	19.6	15.1	12.6	6.49	5.5	2.75	1.34	1.28	0.66
U12V150E/A	220	144	101	84.9	64.7	50.6	39.4	31.5	26.8	24.5	18.9	15.8	8.12	6.87	3.44	1.68	1.61	0.83
U12V200E/A	293	192	134	113	86.3	67.4	52.5	42.1	35.8	32.6	25.2	21	10.8	9.16	4.58	2.24	2.14	1.1

1.75V/C-Discharge in A at 25°C

Type/ discharge time	15min	30min	45min	1h	1.5h	2h	3h	4h	5h	6h	8h	10h	20h	24h	48h	100h	120h	240h
U12V33E/A	47	31.1	21.6	18.3	14	10.9	8.5	6.8	5.8	5.3	4.1	3.4	1.75	1.48	0.74	0.37	0.35	0.18
U12V50E/A	71.2	47	32.8	27.8	21.1	16.5	12.9	10.3	8.8	8	6.2	5.2	2.66	2.25	1.13	0.56	0.53	0.27
U12V65E/A	92.6	61.2	42.6	36.1	27.5	21.5	16.7	13.4	11.4	10.4	8	6.7	3.45	2.92	1.46	0.72	0.69	0.35
U12V85E/A	121	80	55.7	47.2	35.9	28.1	21.9	17.5	14.9	13.6	10.5	8.8	4.51	3.82	1.91	0.94	0.9	0.46
U12V100E/A	142	94.1	65.6	55.5	42.3	33	25.7	20.6	17.5	16	12.4	10.3	5.31	4.49	2.25	1.11	16	0.54
U12V120E/A	171	113	78.7	66.6	50.7	39.6	30.9	24.7	21	19.2	14.8	12.4	6.37	5.39	2.7	1.33	1.27	0.65
U12V150E/A	214	141	98.3	83.3	63.4	49.5	38.6	30.9	26.3	24	18.6	15.5	7.97	6.74	3.38	1.67	1.59	0.81
U12V200E/A	285	188	131	111	84.5	66	51.4	41.2	35	31.9	24.7	20.6	10.6	8.98	4.5	2.22	2.12	1.08

1.80V/C-Discharge in A at 25°C

Type/ discharge time	15min	30min	45min	1h	1.5h	2h	3h	4h	5h	6h	8h	10h	20h	24h	48h	100h	120h	240h
U12V33E/A	44.7	30.1	21	17.8	13.5	10.6	8.3	6.6	5.6	5.1	4	3.3	1.72	1.45	0.73	0.36	0.35	0.18
U12V50E/A	67.7	45.6	31.9	26.9	20.5	16	12.5	10	8.5	7.8	6	5	2.6	2.2	1.11	0.55	0.53	0.27
U12V65E/A	88	59.3	41.4	35	26.7	20.8	16.3	13	11.1	10.1	7.8	6.5	3.38	2.86	1.44	0.72	0.68	0.35
U12V85E/A	115	77.6	54.1	45.8	34.9	27.2	21.3	17	14.5	13.2	10.2	8.5	4.42	3.74	1.89	0.94	0.89	0.45
U12V100E/A	135	91.3	63.7	53.8	41	32	25	20	17	15.5	12	10	5.2	4.4	2.22	1.1	15	0.53
U12V120E/A	162	110	76.4	64.6	49.2	38.4	30	24	20.4	18.6	14.4	12	6.24	5.28	2.66	1.32	1.26	0.64
U12V150E/A	203	137	95.5	80.7	61.5	48	37.5	30	25.5	23.3	18	15	7.8	6.6	3.33	1.65	1.58	0.8
U12V200E/A	271	183	127	108	82	64	50	40	34	31	24	20	10.4	8.8	4.44	2.2	2.1	1.06

Constant power discharge data sheet

1.60V/C-Discharge in W/cell at 25°C

Type/ discharge time	15min	30min	45min	1h	1.5h	2h	3h	4h	5h	6h	8h	10h	20h	24h	48h	100h	120h	240h
U12V33E/A	896	577	403	34.2	26.1	20.4	16.2	13.2	11.2	10.2	8	6.7	3.57	35	153	0.75	0.72	0.38
U12V50E/A	136	87.5	61	51.9	39.5	30.9	24.5	19.9	17	15.4	12.1	10.2	5.41	4.62	2.32	1.13	19	0.58
U12V65E/A	176	114	79.4	67.5	51.4	40.1	31.8	25.9	22.2	20.1	15.7	13.2	7.4	60	32	1.48	1.42	0.75
U12V85E/A	231	149	104	88.2	67.2	52.5	41.6	33.9	29	26.2	20.6	17.3	9.2	7.85	3.95	1.93	1.85	0.98
U12V100E/A	271	175	122	104	79	61.7	49	39.9	34.1	30.9	24.2	20.4	10.8	9.23	4.65	2.27	2.18	1.15
U12V120E/A	326	210	146	125	94.8	74	58.8	47.8	40.9	37	29	24.4	13	11.1	5.57	2.72	2.62	1.38
U12V150E/A	407	262	183	156	119	92.6	73.5	59.8	51.1	46.3	36.3	30.6	16.2	13.9	6.97	3.4	3.27	1.73
U12V200E/A	543	350	244	208	158	123	97.9	79.7	68.1	61.7	48.4	40.7	21.7	18.5	9.29	4.54	4.36	2.3

1.65V/C-Discharge in W/cell at 25°C

Type/ discharge time	15min	30min	45min	1h	1.5h	2h	3h	4h	5h	6h	8h	10h	20h	24h	48h	100h	120h	240h
U12V33E/A	879	572	399	339	26	20.3	16.1	13	11.1	10.2	7.9	6.7	3.53	32	1.52	0.75	0.72	0.38
U12V50E/A	133	86.7	60.5	51.4	39.4	30.8	24.4	19.7	16.9	15.4	12	10.1	5.35	4.58	2.3	1.13	19	0.57
U12V65E/A	173	113	78.7	66.9	51.2	40	31.7	25.7	21.9	20	15.6	13.2	6.96	5.95	2.99	1.47	1.41	0.74
U12V85E/A	226	147	103	87.4	67	52.3	41.5	33.6	28.7	26.2	20.4	17.2	9.1	7.78	3.91	1.92	1.85	0.97
U12V100E/A	266	173	121	103	78.8	61.5	48.8	39.5	33.7	30.8	24	20.3	10.7	9.15	4.59	2.26	2.17	1.14
U12V120E/A	320	208	145	123	94.5	73.8	58.6	47.4	40.5	36.9	28.7	24.3	12.9	11	5.51	2.71	2.6	1.36
U12V150E/A	399	260	181	154	118	92.3	73.2	59.2	50.6	46.1	35.9	30.4	16.1	13.7	6.89	3.39	3.26	1.71
U12V200E/A	533	347	242	206	158	123	97.6	79	67.5	61.5	47.9	40.6	21.4	18.3	9.19	4.52	4.34	2.27

1.70V/C-Discharge in W/cell at 25°C

Type/ discharge time	15min	30min	45min	1h	1.5h	2h	3h	4h	5h	6h	8h	10h	20h	24h	48h	100h	120h	240h
U12V33E/A	86.2	56.7	39.6	33.6	25.8	20.2	15.9	12.8	11	10.1	7.9	6.7	3.5	3.01	1.5	0.74	0.71	0.37
U12V50E/A	131	85.9	60	51	39	30.7	24.2	19.5	16.7	15.3	11.9	10.1	5.3	4.56	2.28	1.13	18	0.56
U12V65E/A	170	112	78	66.3	50.7	39.9	31.4	25.3	21.7	19.9	15.5	13.1	6.89	5.92	2.96	1.46	1.41	0.73
U12V85E/A	222	146	102	86.6	66.4	52.1	41.1	33.1	28.4	26.1	20.3	17.2	9.1	7.75	3.87	1.91	1.84	0.95
U12V100E/A	261	172	120	102	78.1	61.3	48.3	38.9	33.4	30.6	23.9	20.2	10.6	9.11	4.56	2.25	2.16	1.12
U12V120E/A	313	206	144	122	93.7	73.6	58	46.7	40.1	36.8	28.6	24.2	12.7	10.9	5.47	2.7	2.59	1.35
U12V150E/A	392	258	180	153	117	92	72.5	58.4	50.2	46	35.8	30.3	15.9	13.7	6.84	3.38	3.24	1.68
U12V200E/A	522	344	240	204	156	123	96.6	77.8	66.9	61.3	47.7	40.4	21.2	18.2	9.11	4.50	4.32	2.24

1.75V/C-Discharge in W/cell at 25°C

Type/ discharge time	15min	30min	45min	1h	1.5h	2h	3h	4h	5h	6h	8h	10h	20h	24h	48h	100h	120h	240h
U12V33E/A	85.1	56.5	39.4	33.3	25.7	20.2	15.8	12.7	10.9	10.1	7.8	6.6	3.45	2.96	1.49	0.74	0.71	0.37
U12V50E/A	129	85.6	59.7	50.5	38.9	30.5	23.9	19.3	16.5	15.3	11.9	10	5.23	4.49	2.25	1.12	18	0.55
U12V65E/A	168	111	77.6	65.7	50.5	39.7	31.1	25.1	21.5	19.8	15.4	13.1	6.8	5.84	2.93	1.46	1.4	0.72
U12V85E/A	219	146	101	85.9	66.1	51.9	40.7	32.8	28.1	25.9	20.2	17.1	8.89	7.63	3.83	1.91	1.83	0.94
U12V100E/A	258	171	119	101	77.8	61.1	47.8	38.6	33.1	30.5	23.8	20.1	10.5	8.98	4.5	2.24	2.15	1.11
U12V120E/A	309	205	143	121	93.3	73.3	57.4	46.3	39.7	36.6	28.5	24.1	12.6	10.8	5.4	2.69	2.58	1.33
U12V150E/A	387	257	179	152	117	91.6	71.8	57.8	49.6	45.8	35.6	30.1	15.7	13.5	6.75	3.36	3.23	1.66
U12V200E/A	515	342	239	202	156	122	95.7	77.1	66.2	61	47.5	40.2	20.9	18	9	4.48	4.3	2.21

1.80V/C-Discharge in W/cell at 25°C

Type/ discharge time	15min	30min	45min	1h	1.5h	2h	3h	4h	5h	6h	8h	10h	20h	24h	48h	100h	120h	240h
U12V33E/A	83.1	55.7	38.9	33	25.4	20.1	15.7	12.6	10.8	10	7.8	6.5	3.43	2.92	1.47	0.74	0.71	0.36
U12V50E/A	126	84.4	58.9	50.1	38.5	30.4	23.8	19.1	16.4	15.1	11.8	9.9	5.2	4.42	2.23	1.12	1.07	0.55
U12V65E/A	164	110	76.6	65.1	50.1	39.5	30.9	24.8	21.3	19.7	15.3	12.9	6.76	5.75	2.9	1.45	1.39	0.71
U12V85E/A	214	143	100	85.1	65.5	51.7	40.4	32.5	27.9	25.7	20	16.8	8.84	7.52	3.79	1.9	1.82	0.93
U12V100E/A	252	169	118	100	77.1	60.8	47.5	38.2	32.8	30.2	23.5	19.8	10.4	8.84	4.46	2.23	2.14	1.09
U12V120E/A	302	203	141	120	92.5	73	57	45.8	39.4	36.3	28.2	23.8	12.5	10.6	5.35	2.68	2.57	1.31
U12V150E/A	377	253	177	150	116	91.2	71.3	57.3	49.2	45.3	35.3	29.7	15.6	13.3	6.69	3.35	3.21	1.64
U12V200E/A	503	338	236	200	154	122	95	76.4	65.6	60.5	47	39.6	20.8	17.7	8.92	4.47	4.28	2.18



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