

Pure Lead - Long Life



The NSB RED Battery® delivers long life for reliable and unreliable grid conditions.

- Pure lead electrochemistry greatly increases temp and corrosion resistance, while reducing component aging
- Thin plates deliver large surface area, high power density and low resistance
- Design life 15+ years at 20°C (68°F)
- EUROBAT design life definition: Long Life (12+ years) Fastrecharging
- Operating temperature range -40°C to +65°C (-40°F to 149°F)
- State-of-the-art automated manufacturing ensures consistency and reliability
- Shelf life of up to 24 months
- Advanced 3 stage terminal design to ensure leak-free operation - brass terminals provide maximum performance
- High modulus Polyphenylene Oxide (PPO) plastic materials designed to withstand extended elevated operating temperatures and maintain high battery compression essential for reliable operation
- Non-halogenated, thermally sealed plastic casing
- Flame retardant (UL 94 VO) and LOI of at least 28%
- Approved as non-hazardous cargo for ground, sea, and air transport - DOT 49CFR 173.159(d), (i) and (ii)

NSB 190FT RED

Nominal Technical Specifications

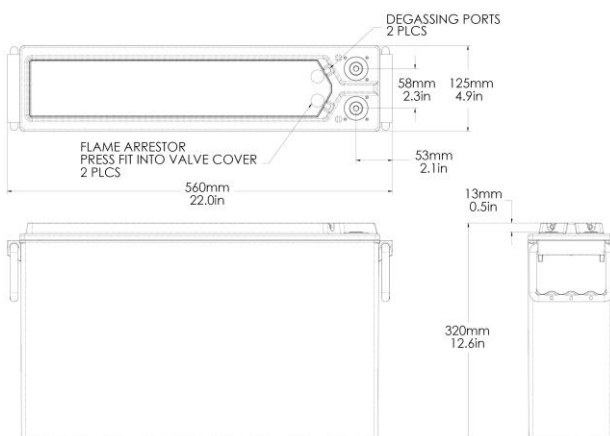
Dimensions

Height	320 mm	Width	125 mm
Length	560 mm	Weight	56 kg

Electrical

Terminal	Female M8 x 1.25
Terminal torque	8.0 Nm (71 in-lbs)
1 hr capacity to 1.70VPC @ 20/25°C (68/77°F)	123 / 129 Ah
3 hr capacity to 1.75VPC @ 20/25°C (68/77°F)	160 / 164 Ah
8 hr capacity to 1.75VPC @ 20/25°C (68/77°F)	183 / 186 Ah
10 hr capacity to 1.80VPC @ 20/25°C (68/77°F)	187 / 190 Ah
Float voltage @ 20/25°C (68/77°F)	2.28 / 2.27 VPC
Impedance (1Khz)	2.8 mΩ @ 25°C (77°F)
Conductance	1900 S
Short circuit current	5000 A
Operation temperature range	-40°C to +65°C
Nominal voltage	12 V

Technical Drawing



All NorthStar batteries are compliant with: Telcordia SR4228, IEC 60896; Bellcore GR-63-Core, Issue 1; British, German, and Russian telecom standards; UL approved and UN2800 certified. NorthStar is registered to ISO 9001 and ISO 14001.

NSB 190FT RED Battery®

Discharge tables @ 20°C (68°F)



Current / A

Duration		End of Discharge Voltage								
Minutes	Hours	1.85	1.80	1.75	1.70	1.67	1.65	1.60	1.55	1.50
2	0.03	422.0	498.6	576.2	651.6	694.1	720.8	780.0	825.9	855.4
5	0.08	365.3	414.3	462.5	508.4	534.1	550.2	586.2	614.9	635.1
10	0.17	294.1	323.9	352.7	379.7	394.6	404.0	424.9	441.8	454.0
15	0.25	248.9	269.9	289.9	308.4	318.6	324.9	339.2	350.6	359.1
20	0.33	217.5	233.3	248.3	262.0	269.5	274.2	284.7	293.2	299.4
30	0.50	175.9	186.0	195.5	204.1	208.8	211.7	218.2	223.4	227.3
45	0.75	138.7	144.8	150.5	155.6	158.3	160.0	163.8	166.8	169.0
60	1	115.6	119.7	123.4	126.8	128.6	129.7	132.1	134.1	135.5
120	2	71.1	72.5	73.6	74.7	75.2	75.5	76.2	76.7	77.0
180	3	52.1	52.7	53.2	53.6	53.8	54.0	54.2	54.4	54.4
240	4	41.4	41.6	41.9	42.1	42.2	42.2	42.3	42.3	42.3
300	5	34.4	34.5	34.6	34.7	34.7	34.8	34.8	34.8	34.8
480	8	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.8	22.8
600	10	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.7
1200	20	9.8	9.8	9.9	9.9	9.9	9.9	9.9	9.9	9.9

Capacity / Ah

Duration		End of Discharge Voltage								
Minutes	Hours	1.85	1.80	1.75	1.70	1.67	1.65	1.60	1.55	1.50
2	0.03	14.1	16.6	19.2	21.7	23.1	24.0	26.0	27.5	28.5
5	0.08	30.4	34.5	38.5	42.4	44.5	45.9	48.9	51.2	52.9
10	0.17	49.0	54.0	58.8	63.3	65.8	67.3	70.8	73.6	75.7
15	0.25	62.2	67.5	72.5	77.1	79.6	81.2	84.8	87.7	89.8
20	0.33	72.5	77.8	82.8	87.3	89.8	91.4	94.9	97.7	99.8
30	0.50	87.9	93.0	97.7	102.1	104.4	105.9	109.1	111.7	113.6
45	0.75	104.0	108.6	112.9	116.7	118.8	120.0	122.8	125.1	126.8
60	1	115.6	119.7	123.4	126.8	128.6	129.7	132.1	134.1	135.5
120	2	142.3	144.9	147.3	149.3	150.4	151.0	152.4	153.4	154.0
180	3	156.4	158.1	159.6	160.9	161.5	161.9	162.6	163.1	163.3
240	4	165.4	166.6	167.5	168.3	168.6	168.8	169.2	169.3	169.3
300	5	171.8	172.5	173.1	173.5	173.7	173.8	173.9	173.9	173.9
480	8	183.0	183.2	183.3	183.3	183.2	183.2	183.0	182.6	182.6
600	10	187.3	187.4	187.4	187.4	187.3	187.2	186.9	186.6	186.6
1200	20	196.2	196.9	197.6	198.1	198.3	198.4	198.6	198.7	198.7

Power / WPC

Duration		End of Discharge Voltage								
Minutes	Hours	1.85	1.80	1.75	1.70	1.67	1.65	1.60	1.55	1.50
2	0.03	739.5	851.2	961.5	1065.8	1123.5	1159.4	1237.7	1296.5	1332.9
5	0.08	668.3	742.3	813.5	879.5	915.6	938.0	987.0	1024.5	1049.1
10	0.17	551.9	598.1	641.6	681.3	702.8	716.1	745.2	767.7	782.8
15	0.25	473.2	505.9	536.4	564.0	578.9	588.1	608.1	623.6	634.1
20	0.33	416.8	441.6	464.6	485.3	496.4	503.2	518.1	529.6	537.4
30	0.50	340.3	356.4	371.1	384.2	391.2	395.5	404.9	412.0	416.9
45	0.75	270.7	280.5	289.4	297.2	301.3	303.9	309.4	313.5	316.4
60	1	226.7	233.3	239.2	244.4	247.2	248.9	252.5	255.2	257.0
120	2	141.0	143.2	145.0	146.7	147.5	148.0	149.0	149.8	150.2
180	3	103.8	104.8	105.6	106.3	106.6	106.8	107.2	107.5	107.6
240	4	82.6	83.1	83.5	83.8	83.9	84.0	84.2	84.3	84.3
300	5	68.7	69.0	69.2	69.4	69.4	69.5	69.5	69.5	69.5
480	8	45.9	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0
600	10	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.6	37.6
1200	20	19.8	19.9	19.9	20.0	20.0	20.0	20.0	20.1	20.1

NSB 190FT RED Battery®

Discharge tables @ 25°C (77°F)



Current / A

Duration		End of Discharge Voltage								
Minutes	Hours	1.85	1.80	1.75	1.70	1.67	1.65	1.60	1.55	1.50
2	0.03	468.3	553.3	639.4	723.0	770.2	799.8	865.6	916.5	949.3
5	0.08	397.7	451.1	503.6	553.6	581.5	599.1	638.3	669.5	691.5
10	0.17	316.0	348.0	379.0	408.0	424.0	434.1	456.5	474.7	487.8
15	0.25	265.5	287.9	309.2	328.9	339.8	346.6	361.8	374.0	383.0
20	0.33	230.9	247.7	263.5	278.1	286.1	291.1	302.2	311.2	317.8
30	0.50	185.4	196.1	206.1	215.2	220.1	223.2	230.0	235.5	239.6
45	0.75	145.3	151.7	157.7	163.0	165.9	167.7	171.6	174.7	177.0
60	1	120.5	124.8	128.8	132.3	134.1	135.3	137.8	139.8	141.3
120	2	73.5	74.9	76.1	77.1	77.7	78.0	78.7	79.2	79.6
180	3	53.6	54.2	54.7	55.1	55.3	55.4	55.7	55.9	56.0
240	4	42.4	42.6	42.9	43.1	43.2	43.2	43.3	43.4	43.4
300	5	35.1	35.2	35.4	35.4	35.5	35.5	35.5	35.5	35.5
480	8	23.2	23.3	23.3	23.3	23.3	23.3	23.2	23.2	23.2
600	10	19.0	19.0	19.0	19.0	19.0	19.0	19.0	18.9	18.9
1200	20	9.9	9.9	10.0	10.0	10.0	10.0	10.0	10.0	10.0

Capacity / Ah

Duration		End of Discharge Voltage								
Minutes	Hours	1.85	1.80	1.75	1.70	1.67	1.65	1.60	1.55	1.50
2	0.03	15.6	18.4	21.3	24.1	25.7	26.7	28.9	30.5	31.6
5	0.08	33.1	37.6	42.0	46.1	48.5	49.9	53.2	55.8	57.6
10	0.17	52.7	58.0	63.2	68.0	70.7	72.3	76.1	79.1	81.3
15	0.25	66.4	72.0	77.3	82.2	84.9	86.6	90.4	93.5	95.8
20	0.33	77.0	82.6	87.8	92.7	95.4	97.0	100.7	103.7	105.9
30	0.50	92.7	98.1	103.0	107.6	110.1	111.6	115.0	117.8	119.8
45	0.75	109.0	113.8	118.2	122.2	124.4	125.7	128.7	131.0	132.8
60	1	120.5	124.8	128.8	132.3	134.1	135.3	137.8	139.8	141.3
120	2	147.0	149.7	152.1	154.2	155.3	156.0	157.4	158.4	159.1
180	3	160.7	162.5	164.0	165.3	166.0	166.3	167.1	167.6	167.9
240	4	169.4	170.6	171.5	172.3	172.7	172.9	173.3	173.4	173.4
300	5	175.4	176.2	176.8	177.2	177.4	177.5	177.6	177.6	177.6
480	8	186.0	186.2	186.3	186.3	186.2	186.1	185.9	185.6	185.6
600	10	189.9	190.0	190.0	190.0	189.9	189.8	189.5	189.2	189.2
1200	20	197.7	198.4	199.0	199.5	199.8	199.9	200.1	200.2	200.2

Power / WPC

Duration		End of Discharge Voltage								
Minutes	Hours	1.85	1.80	1.75	1.70	1.67	1.65	1.60	1.55	1.50
2	0.03	820.6	944.6	1067.0	1182.7	1246.8	1286.6	1373.4	1438.8	1479.1
5	0.08	727.6	808.2	885.7	957.5	996.9	1021.3	1074.6	1115.4	1142.2
10	0.17	593.0	642.6	689.3	732.0	755.2	769.5	800.7	824.8	841.1
15	0.25	504.7	539.6	572.1	601.6	617.5	627.3	648.6	665.1	676.4
20	0.33	442.3	468.7	493.1	515.0	526.8	534.1	549.9	562.1	570.4
30	0.50	358.8	375.7	391.2	405.1	412.5	417.0	426.8	434.4	439.6
45	0.75	283.6	293.8	303.1	311.3	315.7	318.3	324.1	328.5	331.4
60	1	236.5	243.3	249.5	255.0	257.8	259.6	263.3	266.2	268.0
120	2	145.7	147.9	149.8	151.5	152.4	152.9	153.9	154.7	155.2
180	3	106.7	107.7	108.5	109.2	109.6	109.8	110.2	110.4	110.6
240	4	84.6	85.1	85.5	85.8	86.0	86.1	86.2	86.3	86.3
300	5	70.2	70.5	70.7	70.8	70.9	71.0	71.0	71.0	71.0
480	8	46.7	46.7	46.8	46.8	46.8	46.8	46.8	46.7	46.7
600	10	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2
1200	20	19.9	20.0	20.1	20.1	20.1	20.2	20.2	20.2	20.2