

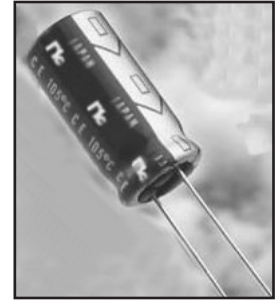
# NRB-SZ Series

## Long Life Radial Leaded Aluminum Electrolytic Capacitors



ULTRA MINIATURE, EXTENDED LOAD LIFE, RADIAL LEADS, POLARIZED  
**FEATURES**

- HIGH RIPPLE CURRENT
- LONG LIFE AT HIGH TEMPERATURE (UP TO 12,000 Hours @ +105°C)
- INCREASED CV FOR CASE SIZE
- HORIZONTAL MOUNT OPTION AVAILABLE



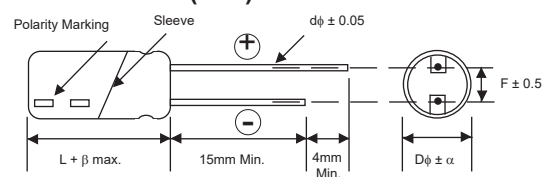
### CHARACTERISTICS

Rated Voltage Range		400 ~ 500VDC			
Capacitance Range		18 ~ 220 $\mu$ F			
Operating Temperature Range		-40°C ~ +105°C			
Capacitance Tolerance		$\pm$ 20% (M)			
Maximum Leakage Current @ +20°C		3x $\sqrt{CV}$ after 5 minute at rated voltage			
Max. Tan $\delta$ at 120Hz/20°C	W.V. (Vdc)	400	420	450	500
	S.V. (Vdc)	450	470	500	550
	Tan $\delta$	0.2	0.25	0.25	0.25
Low Temperature Stability Impedance Ratio @ 120Hz	W.V. (Vdc)	400	420	450	500
	Z-25°C/Z+20°C	5	6	6	8
	Z-40°C/Z+20°C	6	10	10	12
Load Life at W.V. & 105°C L $\leq$ 20mm: 10,000 Hours L $\geq$ 25mm: 12,000 Hours	$\Delta$ Capacitance	Within $\pm$ 20% of initial measured value			
	$\Delta$ Tan $\delta$	Less than 200% of specified maximum value			
	$\Delta$ LC	Less than specified maximum value			

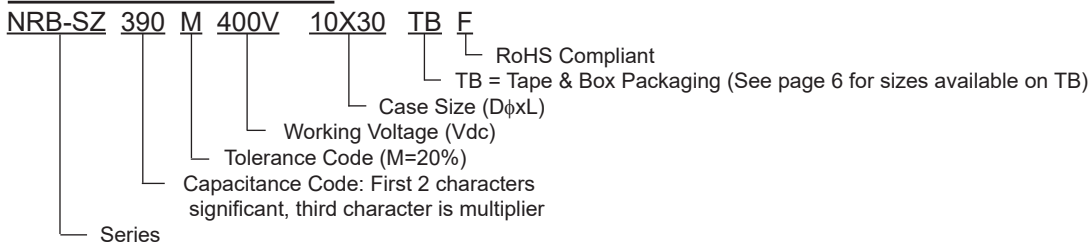
### LEAD SPACING AND DIAMETER (mm)

Case Dia. (D $\phi$ )	10	12.5	14.5	16	18
Lead Dia. (d $\phi$ )	0.6			0.8	
Lead Spacing (F)	5.0			7.5	
Dim. $\alpha$			0.5		
Dim. $\beta$			2.0		

### DIMENSIONS (mm)



### PART NUMBER SYSTEM



### PRECAUTIONS

Please review the notes on correct use, safety and precautions found at <https://www.niccomp.com/resource/files/aluminum/AlumApplInfoCautions.pdf>  
 If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: [tpmg@niccomp.com](mailto:tpmg@niccomp.com)

# NRB-SZ Series

## Long Life Radial Leaded Aluminum Electrolytic Capacitors



### STANDARD VALUES, SPECIFICATIONS AND CASE SIZES (mm)

Part Number	Cap. (µF)	Vdc	Dissipation Factor +20°C/120Hz	Max. ESR (Ω) +20°C/120Hz	Ripple Current Rating (Arms) +105°C		Load Life (Hours @ +105°C)
					120Hz	100KHz	
NRB-SZ390M400V10X30F	39	400	0.20	8.506	0.41	0.902	12,000
NRB-SZ390M400V12.5X20F	39		0.20	8.506	0.39	0.858	10,000
NRB-SZ470M400V10X35F	47		0.20	7.058	0.48	1.056	12,000
NRB-SZ470M400V12.5X25F	47		0.20	7.058	0.46	1.012	12,000
NRB-SZ470M400V14.5X20F	47		0.20	7.058	0.46	1.012	10,000
NRB-SZ560M400V10X40F	56		0.20	5.924	0.54	1.188	12,000
NRB-SZ560M400V16X20F	56		0.20	5.924	0.52	1.144	10,000
NRB-SZ680M400V10X45F	68		0.20	4.879	0.61	1.342	12,000
NRB-SZ680M400V10X50F	68		0.20	4.879	0.64	1.408	12,000
NRB-SZ680M400V12.5X30F	68		0.20	4.879	0.58	1.276	12,000
NRB-SZ680M400V12.5X35F	68		0.20	4.879	0.62	1.364	12,000
NRB-SZ680M400V14.5X25F	68		0.20	4.879	0.59	1.298	12,000
NRB-SZ820M400V10X55F	82		0.20	4.046	0.72	1.584	12,000
NRB-SZ820M400V10X60F	82		0.20	4.046	0.74	1.628	12,000
NRB-SZ820M400V12.5X40F	82		0.20	4.046	0.70	1.540	12,000
NRB-SZ820M400V14.5X30F	82		0.20	4.046	0.68	1.496	12,000
NRB-SZ820M400V16X25F	82		0.20	4.046	0.66	1.452	12,000
NRB-SZ820M400V18X20F	82		0.20	4.046	0.63	1.386	10,000
NRB-SZ101M400V12.5X45F	100		0.20	3.317	0.80	1.600	12,000
NRB-SZ101M400V12.5X50F	100		0.20	3.317	0.83	1.660	12,000
NRB-SZ101M400V14.5X35F	100		0.20	3.317	0.78	1.560	12,000
NRB-SZ101M400V16X30F	100		0.20	3.317	0.77	1.540	12,000
NRB-SZ121M400V14.5X40F	120		0.20	2.765	0.89	1.780	12,000
NRB-SZ121M400V14.5X45F	120		0.20	2.765	0.92	1.840	12,000
NRB-SZ121M400V16X35F	120		0.20	2.765	0.88	1.760	12,000
NRB-SZ121M400V18X25F	120		0.20	2.765	0.79	1.580	12,000
NRB-SZ151M400V14.5X50F	150		0.20	2.212	1.06	2.120	12,000
NRB-SZ151M400V16X40F	150		0.20	2.212	1.01	2.020	12,000
NRB-SZ151M400V18X30F	150		0.20	2.212	0.93	1.860	12,000
NRB-SZ181M400V16X45F	180		0.20	1.843	1.14	2.280	12,000
NRB-SZ181M400V16X50F	180		0.20	1.843	1.18	2.360	12,000
NRB-SZ181M400V18X35F	180		0.20	1.843	1.06	2.120	12,000
NRB-SZ181M400V18X40F	180		0.20	1.843	1.14	2.280	12,000
NRB-SZ221M400V18X45F	220	0.20	1.508	1.29	2.580	12,000	
NRB-SZ221M400V18X50F	220	0.20	1.508	1.34	2.680	12,000	
NRB-SZ330M420V12.5X20F	33	420	0.25	12.566	0.34	0.748	10,000
NRB-SZ390M420V10X30F	39		0.25	10.633	0.38	0.836	12,000
NRB-SZ470M420V10X35F	47		0.25	8.823	0.44	0.968	12,000
NRB-SZ470M420V12.5X25F	47		0.25	8.823	0.43	0.946	12,000
NRB-SZ470M420V14.5X20F	47		0.25	8.823	0.42	0.924	10,000
NRB-SZ560M420V10X40F	56		0.25	7.405	0.49	1.078	12,000
NRB-SZ560M420V10X45F	56		0.25	7.405	0.52	1.144	12,000
NRB-SZ560M420V12.5X30F	56		0.25	7.405	0.50	1.100	12,000
NRB-SZ560M420V14.5X25F	56		0.25	7.405	0.50	1.100	12,000
NRB-SZ560M420V16X20F	56		0.25	7.405	0.48	1.056	10,000
NRB-SZ680M420V10X50F	68		0.25	6.098	0.59	1.298	12,000
NRB-SZ680M420V10X55F	68		0.25	6.098	0.61	1.342	12,000
NRB-SZ680M420V12.5X35F	68		0.25	6.098	0.57	1.254	12,000
NRB-SZ680M420V18X20F	68		0.25	6.098	0.55	1.210	10,000
NRB-SZ820M420V10X60F	82		0.25	5.057	0.68	1.496	12,000
NRB-SZ820M420V12.5X40F	82		0.25	5.057	0.65	1.430	12,000
NRB-SZ820M420V14.5X30F	82		0.25	5.057	0.63	1.386	12,000
NRB-SZ820M420V16X25F	82		0.25	5.057	0.61	1.342	12,000
NRB-SZ101M420V12.5X45F	100		0.25	4.147	0.73	1.460	12,000
NRB-SZ101M420V12.5X50F	100		0.25	4.147	0.77	1.540	12,000
NRB-SZ101M420V14.5X35F	100		0.25	4.147	0.72	1.440	12,000

# NRB-SZ Series

## Long Life Radial Leaded Aluminum Electrolytic Capacitors



### STANDARD VALUES, SPECIFICATIONS AND CASE SIZES (mm)

Part Number	Cap. (μF)	Vdc	Dissipation Factor +20°C/120Hz	Max. ESR (Ω) +20°C/120Hz	Ripple Current Rating (Arms) +105°C		Load Life (Hours @ +105°C)
					120Hz	100KHz	
NRB-SZ101M420V14.5X40F	100	420	0.25	4.147	0.76	1.520	12,000
NRB-SZ101M420V16X30F	100		0.25	4.147	0.72	1.440	12,000
NRB-SZ101M420V18X25F	100		0.25	4.147	0.70	1.400	12,000
NRB-SZ121M420V14.5X45F	120		0.25	3.456	0.86	1.720	12,000
NRB-SZ121M420V14.5X50F	120		0.25	3.456	0.89	1.780	12,000
NRB-SZ121M420V16X35F	120		0.25	3.456	0.82	1.640	12,000
NRB-SZ121M420V18X30F	120		0.25	3.456	0.81	1.620	12,000
NRB-SZ151M420V16X40F	150		0.25	2.765	0.93	1.860	12,000
NRB-SZ151M420V16X45F	150		0.25	2.765	0.98	1.960	12,000
NRB-SZ151M420V18X35F	150		0.25	2.765	0.94	1.880	12,000
NRB-SZ181M420V16X50F	180		0.25	2.304	1.10	2.200	12,000
NRB-SZ181M420V18X40F	180		0.25	2.304	1.06	2.120	12,000
NRB-SZ221M420V18X45F	220		0.25	1.885	1.20	2.400	12,000
NRB-SZ221M420V18X50F	220		0.25	1.885	1.25	2.500	12,000
NRB-SZ270M450V12.5X20F	27	450	0.25	15.358	0.31	0.682	10,000
NRB-SZ330M450V10X30F	33		0.25	12.566	0.36	0.792	12,000
NRB-SZ390M450V10X35F	39		0.25	10.633	0.41	0.902	12,000
NRB-SZ390M450V12.5X25F	39		0.25	10.633	0.40	0.880	12,000
NRB-SZ390M450V14.5X20F	39		0.25	10.633	0.39	0.858	10,000
NRB-SZ470M450V10X40F	47		0.25	8.823	0.46	1.012	12,000
NRB-SZ470M450V16X20F	47		0.25	8.823	0.45	0.990	10,000
NRB-SZ560M450V10X45F	56		0.25	7.405	0.52	1.144	12,000
NRB-SZ560M450V10X50F	56		0.25	7.405	0.54	1.188	12,000
NRB-SZ560M450V12.5X30F	56		0.25	7.405	0.49	1.078	12,000
NRB-SZ560M450V14.5X25F	56		0.25	7.405	0.50	1.100	12,000
NRB-SZ680M450V10X55F	68		0.25	6.098	0.61	1.342	12,000
NRB-SZ680M450V10X60F	68		0.25	6.098	0.63	1.386	12,000
NRB-SZ680M450V12.5X35F	68		0.25	6.098	0.56	1.232	12,000
NRB-SZ680M450V12.5X40F	68		0.25	6.098	0.60	1.320	12,000
NRB-SZ680M450V14.5X30F	68		0.25	6.098	0.58	1.276	12,000
NRB-SZ680M450V16X25F	68		0.25	6.098	0.57	1.254	12,000
NRB-SZ680M450V18X20F	68		0.25	6.098	0.54	1.188	10,000
NRB-SZ820M450V12.5X45F	82		0.25	5.057	0.68	1.496	12,000
NRB-SZ820M450V12.5X50F	82		0.25	5.057	0.70	1.540	12,000
NRB-SZ820M450V14.5X35F	82		0.25	5.057	0.67	1.474	12,000
NRB-SZ820M450V16X30F	82		0.25	5.057	0.65	1.430	12,000
NRB-SZ820M450V18X25F	82		0.25	5.057	0.64	1.408	12,000
NRB-SZ101M450V14.5X40F	100		0.25	4.147	0.76	1.520	12,000
NRB-SZ101M450V16X35F	100		0.25	4.147	0.75	1.500	12,000
NRB-SZ121M450V14.5X45F	120		0.25	3.456	0.85	1.700	12,000
NRB-SZ121M450V14.5X50F	120		0.25	3.456	0.89	1.780	12,000
NRB-SZ121M450V16X40F	120		0.25	3.456	0.86	1.720	12,000
NRB-SZ121M450V18X30F	120		0.25	3.456	0.80	1.600	12,000
NRB-SZ151M450V16X45F	150		0.25	2.765	0.98	1.960	12,000
NRB-SZ151M450V16X50F	150		0.25	2.765	1.02	2.040	12,000
NRB-SZ151M450V18X35F	150		0.25	2.765	0.92	1.840	12,000
NRB-SZ151M450V18X40F	150		0.25	2.765	0.98	1.960	12,000
NRB-SZ181M450V18X45F	180		0.25	2.304	1.11	2.220	12,000
NRB-SZ221M450V18X50F	220	0.25	1.885	1.23	2.460	12,000	
NRB-SZ180M500V12.5X20F	18	500	0.25	23.038	0.25	0.550	10,000
NRB-SZ220M500V12.5X25F	22		0.25	18.849	0.29	0.638	12,000
NRB-SZ220M500V14.5X20F	22		0.25	18.849	0.28	0.616	10,000
NRB-SZ270M500V16X20F	27		0.25	15.358	0.32	0.704	10,000
NRB-SZ330M500V12.5X30F	33		0.25	12.566	0.36	0.792	12,000
NRB-SZ330M500V12.5X35F	33		0.25	12.566	0.38	0.836	12,000
NRB-SZ330M500V14.5X25F	33		0.25	12.566	0.37	0.814	12,000

# NRB-SZ Series

## Long Life Radial Leaded Aluminum Electrolytic Capacitors



### STANDARD VALUES, SPECIFICATIONS AND CASE SIZES (mm)

Part Number	Cap. (μF)	Vdc	Dissipation Factor +20°C/120Hz	Max. ESR (Ω) +20°C/120Hz	Ripple Current Rating (Arms) +105°C		Load Life (Hours @ +105°C)
					120Hz	100KHz	
NRB-SZ390M500V12.5X40F	39	500	0.25	10.633	0.44	0.968	12,000
NRB-SZ390M500V12.5X45F	39		0.25	10.633	0.50	1.100	12,000
NRB-SZ390M500V14.5X30F	39		0.25	10.633	0.43	0.946	12,000
NRB-SZ390M500V16X25F	39		0.25	10.633	0.42	0.924	12,000
NRB-SZ390M500V18X20F	39		0.25	10.633	0.41	0.902	10,000
NRB-SZ470M500V12.5X50F	47		0.25	8.823	0.56	1.232	12,000
NRB-SZ470M500V14.5X35F	47		0.25	8.823	0.49	1.078	12,000
NRB-SZ470M500V16X30F	47		0.25	8.823	0.48	1.056	12,000
NRB-SZ560M500V14.5X40F	56		0.25	7.405	0.55	1.210	12,000
NRB-SZ560M500V14.5X45F	56		0.25	7.405	0.62	1.364	12,000
NRB-SZ560M500V16X35F	56		0.25	7.405	0.59	1.298	12,000
NRB-SZ560M500V18X25F	56		0.25	7.405	0.51	1.122	12,000
NRB-SZ560M500V18X30F	56		0.25	7.405	0.59	1.298	12,000
NRB-SZ680M500V14.5X50F	68		0.25	6.098	0.69	1.518	12,000
NRB-SZ680M500V16X40F	68		0.25	6.098	0.62	1.364	12,000
NRB-SZ820M500V16X45F	82		0.25	5.057	0.71	1.562	12,000
NRB-SZ820M500V16X50F	82		0.25	5.057	0.79	1.738	12,000
NRB-SZ820M500V18X35F	82		0.25	5.057	0.68	1.496	12,000
NRB-SZ820M500V18X40F	82		0.25	5.057	0.77	1.694	12,000
NRB-SZ101M500V18X45F	100		0.25	4.147	0.86	1.720	12,000
NRB-SZ121M500V18X50F	120	0.25	3.456	0.91	1.820	12,000	

### RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Cap. (μF)	60 (50)Hz	120Hz	500Hz	1KHz	10KHz	100KHz
18 ~ 82	0.80	1.00	1.30	1.50	2.00	2.20
100 ~ 220	0.80	1.00	1.30	1.50	1.90	2.00

# NRB-SZ Series

## Long Life Radial Leaded Aluminum Electrolytic Capacitors

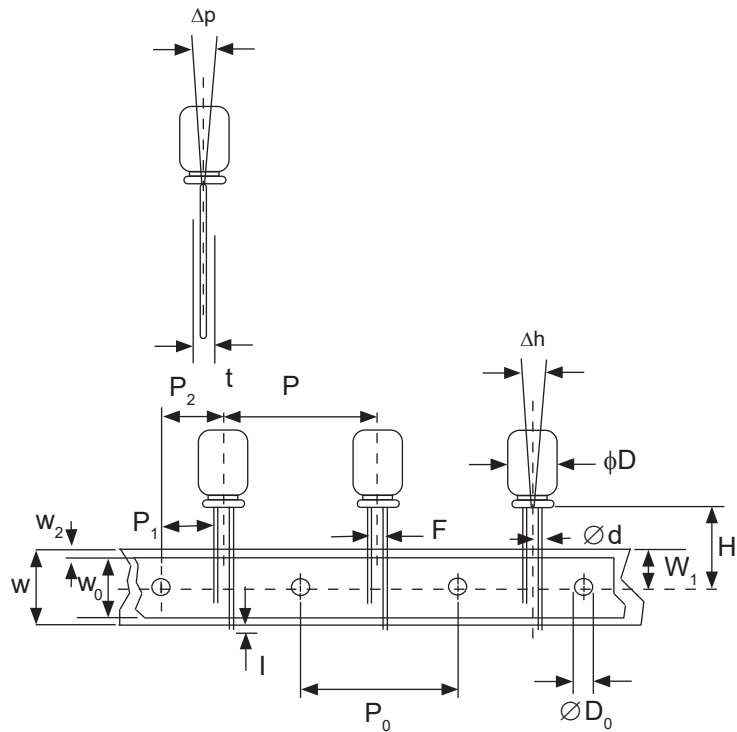


### RADIAL TAPING SPECIFICATIONS FOR 10mm & 12.5mm DIAMETER NRB-SZ PARTS PART NUMBER SUFFIX "TB"

#### TAPING DIMENSIONS (mm)

Case Dia. ( $D\phi$ )	12.5
L max.	22.0 ~ 42.0
$d\phi \pm 0.05$	0.6
$H \pm 0.75/-0.5$	18.5
$F \pm 0.8$	5.0
$P \pm 1.0$	15.0
$P_0 \pm 0.2$	15.0
$P_1 \pm 0.5$	5.0
$P_2 \pm 1.0$	7.5
$W \pm 0.3$	18.0
$W_0$ min.	5.0
$W_1 \pm 0.5$	9.0
$W_2$ max.	1.5
l max.	0.5
$D_0 \phi \pm 0.2$	4.0
$\Delta h$ max.	1.0 (off alignment of body)
$\Delta p$ max.	1.0 (off alignment of body)
$t \pm 0.3$	0.6 (not including lead)

**NOTE:** Anode (+) lead feeds off first.



# NRB-SZ Series

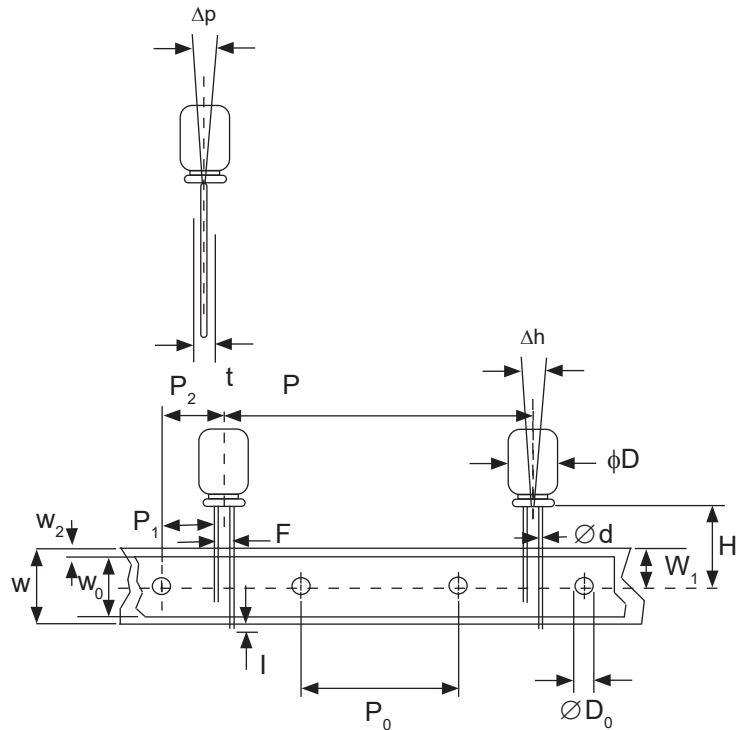
## Long Life Radial Leaded Aluminum Electrolytic Capacitors



### RADIAL TAPING SPECIFICATIONS FOR 16mm & 18mm DIAMETER NRB-SZ PARTS PART NUMBER SUFFIX "TBST"

#### TAPING DIMENSIONS (mm)

Case Dia. (D $\phi$ )	16.0	18.0
L max.	22.0 ~ 42.0	
d $\phi$ $\pm$ 0.05	0.8	
H $\pm$ 0.75/-0.5	18.5	
F $\pm$ 0.8	7.5	
P $\pm$ 1.0	30.0	
P <sub>0</sub> $\pm$ 0.3	15.0	
P <sub>1</sub> $\pm$ 0.5	3.75	
P <sub>2</sub> $\pm$ 1.0	7.5	
W $\pm$ 0.3	18.0	
W <sub>0</sub> min.	5.0	
W <sub>1</sub> $\pm$ 0.5	9.0	
W <sub>2</sub> max.	1.5	
I max.	0.5	
D <sub>0</sub> $\phi$ $\pm$ 0.2	4.0	
$\Delta$ h max.	1.0 (off alignment of body)	
$\Delta$ p max.	1.0 (off alignment of body)	
t $\pm$ 0.3	0.6 (not including lead)	



**NOTE:** Anode (+) lead feeds off first.

#### Ammo Box (Tape & Box) TB & TBST

Size of box and component quantity

Case Size	Q'ty per Box (pcs)	Dim. L	Dim. H	Dim. W
$\phi$ 12.5X20	500	340	330	70
$\phi$ 12.5X25	500	340	330	70
$\phi$ 12.5X30	500	340	330	80
$\phi$ 12.5X35	500	340	330	80
$\phi$ 12.5X40	500	340	330	85
$\phi$ 16X20	250	340	330	65
$\phi$ 16X25	250	340	330	75
$\phi$ 16X30	250	340	330	85
$\phi$ 16X35	250	340	330	85
$\phi$ 16X40	250	340	330	85
$\phi$ 18X20	250	340	330	70
$\phi$ 18X25	250	340	330	75
$\phi$ 18X30	250	340	330	85
$\phi$ 18X35	250	340	330	85
$\phi$ 18X40	250	340	330	85

Ammo Box Dimensions (mm)

