

## Tape & Reel

Tape and Reel packing system protects Pericom's products from mechanical and electrical damage and is designed for automatic pick-and-place equipment. Pericom's tape and reel specifications are in compliance with Electronics Industries Association standards for embossed carrier taping of surface mount components for Automatic Handling EIA-481, current version. It consists of a Pocket Carrier Tape sealed with a protective Cover Tape that holds devices in place.

The conductive Carrier Tape and antistatic coated Transparent Cover Tape and Reel provide ESD protection. Products are supplied either on 7-inch or 13-inch diameter reels.

Devices are loaded with leads down into the carrier pockets. For shipping, tape is wound onto a plastic reel for labeling and packing. Barcode labels are placed on each reel. Transparent Cover Tape allows device verification and brand inspection without having to remove or handle components.

TAPE & REEL										
PKG. CODE	PKG. TYPE	REEL DIAMETER (inch)	TAPE WIDTH (mm)	TAPE PITCH (mm)	PIN 1 LOCATION	TAPE TRAILER LENGTH (Min # Pockets)	QTY PER REEL	TAPE TRAILER LENGTH (Min # Pockets)	QTY PER TUBE	QTY PER TRAY
A48	TSSOP-48	13"	24	12	Top Left Corner	26 (12")	1500	43 (20")	39	N/A
A56	TSSOP-56	13"	24	12	Top Left Corner	26 (12")	1500	43 (20")	35	N/A
A64	TSSOP-64	13"	24	12	Top Left Corner	26 (12")	1500	43 (20")	28	N/A
B40	BQSOP-40	13"	16	8	Top Left Corner	39 (12")	3000	64 (20")	49	N/A
B48	BQSOP-48	13"	16	8	Top Left Corner	39 (12")	3000	64 (20")	49	N/A
B80	BQSOP-80	13"	32	12	Top Left Corner	26 (12")	2000	43 (20")	24	N/A
C5	SC70-5	7"	8	4	Bottom Left Corner	77 (12")	3000	127 (20")	N/A(canister)	N/A(canister)
C6	SC70-6	7"	8	4	Bottom Left Corner	77 (12")	3000	127 (20")	N/A(canister)	N/A(canister)
FA32	TQFP-32	13"	16	12	Top Right Corner	26 (12")	2000	43 (20")	N/A	250
FB48	LQFP-48	13"	16	12	Top Right Corner	26 (12")	2000	43 (20")	N/A	250
FB64	LQFP-64	13"	16	12	Top Right Corner	26 (12")	2000	43 (20")	N/A	250
FC64	LQFP-64	13"	24	16	Top Right Corner	20 (12")	1000	32 (20")	N/A	160
FD64	LQFP-64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	90
FD128	LQFP-128	13"	24	20	Top Right Corner	16 (12")	1000	26 (20")	N/A	90
FF80	LQFP-80	13"	24	24	Top Left Corner	13(12")	1000	22(20")	N/A	119
GA10	CSP-10	7"	8	4	Top Right Corner	77 (12")	3000	127 (20")	N/A	N/A
H20	SSOP-20	13"	16	12	Top Left Corner	26 (12")	2000	43 (20")	66	N/A
H28	SSOP-28	13"	24	12	Top Left Corner	26 (12")	2000	43 (20")	47	N/A
J32	PLCC-32	13"	24	16	Sprocket Hole Side	20 (12")	750	32 (20")	32	N/A
J44	PLCC-44	13"	32	24	Sprocket Hole Side	13 (12")	500	22 (20")	28	N/A
K48	TVSOP-48	13"	16	8	Top Left Corner	39 (12")	3000	64 (20")	50	N/A
K56	TVSOP-56	13"	24	8	Top Left Corner	39 (12")	3000	64 (20")	43	N/A
L08	TSSOP-8	13"	12	8	Top Left Corner	39 (12")	3000	64 (20")	100	N/A
L14	TSSOP-14	13"	12	8	Top Left Corner	39 (12")	3000	64 (20")	96	N/A
L16	TSSOP-16	13"	12	8	Top Left Corner	39 (12")	3000	64 (20")	96	N/A

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# Plastic IC Package Information



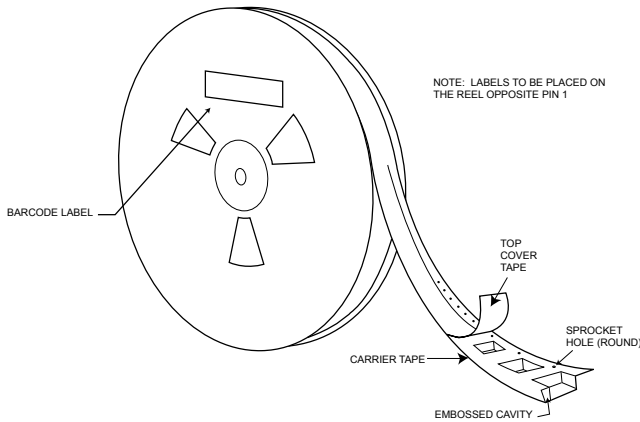
TAPE & REEL										
PKG. CODE	PKG. TYPE	REEL DIAMETER (inch)	TAPE WIDTH (mm)	TAPE PITCH (mm)	PIN 1 LOCATION	TAPE TRAILER LENGTH (Min # Pockets)	QTY PER REEL	TAPE TRAILER LENGTH (Min # Pockets)	QTY PER TUBE	QTY PER TRAY
L20	TSSOP-20	13"	16	8	Top Left Corner	39 (12")	3000	64 (20")	74	N/A
L24	TSSOP-24	13"	16	8	Top Left Corner	39 (12")	3000	64 (20")	62	N/A
L28	TSSOP-28	13"	16	8	Top Left Corner	39 (12")	3000	64 (20")	50	N/A
MA128	QFP-128	13"	44	24	Top Left Corner	13 (12")	500	22 (20")	N/A	66
MA160	MQFP-160	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24
MA208	FQFP-208	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24
NA256	PBGA-256	13"	44	32	Top Left Corner	10 (12")	360	16 (20")	N/A	40
NA272	PBGA-272	13"	44	32	Top Left Corner	10 (12")	360	16 (20")	N/A	40
NA304	PBGA-304	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	27
NB84	LFPGA-84	13"	16	12	Top Left Corner	39 (12")	2000	64 (20")	N/A	260
NB96	LFPGA-96	13"	24	8	Top Left Corner	39 (12")	2000	64 (20")	N/A	285
NB114	LFPGA-114	13"	24	8	Top Left Corner	39 (12")	3000	64 (20")	N/A	240
NB160	LFPGA-160	13"	24	16	Top Left Corner	20(12")	1000	32(20")	N/A	189
NC48	TFBGA-48	13"	12	8	Top Left Corner	39 (12")	3500	64 (20")	N/A	490
NC64	TFBGA-64	13"	16	12	Top Left Corner	26 (12")	2000	43 (20")	N/A	416
ND208	PBGA-208	13"	TBD	TBD	Top Left Corner	TBD	TBD	TBD	N/A	60
ND256	PBGA-256	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	90
NE48	TFBGA-48	13"	12	8	Top Left Corner	39 (12")	3500	64 (20")	N/A	490
NE72	TFBGA-72	13"	12	8	Top Left Corner	39 (12")	3500	64 (20")	N/A	429
NF52	VFBGA-52	13"	16	8	Top Left Corner	39 (12")	3500	64 (20")	N/A	364
NG256	LFPGA-256	TBD	TBD	TBD	Top Left Corner	TBD	TBD	TBD	TBD	TBD
NG525	LFPGA-525	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
NH304	LBGA-304	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	27
NJ100	LBGA-100	13"	24	16	Top Left Corner	20(12")	1000	32(20")	N/A	176
NJ160	LBGA-160	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	126
NK72	LFPGA-72	TBD	TBD	TBD	TBD	TBD	TBD	TBD	N/A	416
NL45	VFBGA-45	13"	16	8	Top Left Corner	39 (12")	3500	64 (20")	N/A	490
Q16	QSOP-16	13"	12	8	Top Left Corner	39 (12")	3000	64 (20")	97	N/A
Q20	QSOP-20	13"	16	8	Top Left Corner	39 (12")	3000	64 (20")	55	N/A
Q24	QSOP-24	13"	16	8	Top Left Corner	39 (12")	3000	64 (20")	55	N/A
Q28	QSOP-28	13"	16	8	Top Left Corner	39 (12")	3000	64 (20")	48	N/A
S16	SOIC-16	13"	16	12	Top Left Corner	26 (12")	1000	43 (20")	47	N/A
S20	SOIC-20	13"	24	12	Top Left Corner	26 (12")	1000	43 (20")	38	N/A
S24	SOIC-24	13"	24	12	Top Left Corner	26 (12")	1000	43 (20")	31	N/A
S28	SOIC-28	13"	24	12	Top Left Corner	26 (12")	1000	43 (20")	27	N/A
T05	SOT23-5	7"	8	4	Bottom Left Corner	77 (12")	3000	127 (20")	N/A(canister)	N/A(canister)
T06	SOT23-6	7"	8	4	Bottom Left Corner	77 (12")	3000	127 (20")	N/A(canister)	N/A(canister)
U08	MSOP-8	13"	12	8	Top Left Corner	39 (12")	4000	64 (20")	96	N/A
V48	SSOP-48	13"	32	16	Top Left Corner	20 (12")	1000	32 (20")	30	N/A
W08	SOIC-8	13"	12	8	Top Left Corner	39 (12")	3000	64 (20")	97	N/A
W14	SOIC-14	13"	16	8	Top Left Corner	39 (12")	3000	64 (20")	55	N/A

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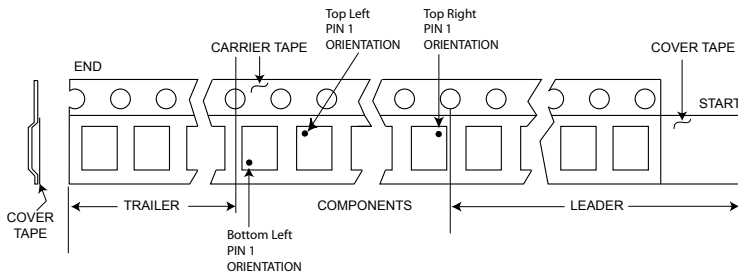
# Plastic IC Package Information



TAPE & REEL										
PKG. CODE	PKG. TYPE	REEL DIAMETER (inch)	TAPE WIDTH (mm)	TAPE PITCH (mm)	PIN 1 LOCATION	TAPE TRAILER LENGTH (Min # Pockets)	QTY PER REEL	TAPE TRAILER LENGTH (Min # Pockets)	QTY PER TUBE	QTY PER TRAY
W16	SOIC-16	13"	16	8	Top Left Corner	39 (12")	3000	64 (20")	48	N/A
XA08	TDFN-8	7"	8	4	Top Right Corner	77 (12")	3500	127 (20")	N/A	N/A
XA10	TDFN-10	TBD	TBD	TBD	Top Right Corner	TBD	TBD	TBD	TBD	TBD
ZA06	TDFN-6	7"	8	4	Top Left Corner	77 (12")	3500	127 (20")	N/A	N/A
ZA08	TDFN-8	7"	8	4	Top Right Corner	77 (12")	3500	127 (20")	N/A	N/A
ZA12	TDFN-12	7"	8	4	Top Left Corner	77 (12")	3500	127 (20")	N/A	N/A
ZB48	TQFN-48	13"	16	12	Top Left Corner	26 (12")	3000	43 (20")	48	260
ZB56	TQFN-56	13"	16	12	Top Right Corner	26 (12")	2000	43 (20")	46	348
ZD20	TQFN-20	13"	12	8	Top Right Corner	39 (12")	3500	64 (20")	TBD	490
ZD24	TQFN-24	13"	12	8	Top Right Corner	39 (12")	3500	64 (20")	N/A	N/A
ZD40	TQFN-40	13"	16	12	Top Right Corner	26 (12")	3000	43 (20")	N/A	490
ZD48	TQFN-48	13"	16	12	Top Left Corner	26 (12")	3000	43 (20")	48	260
ZD64	TQFN-64	TBD	TBD	TBD	Top Right Corner	TBD	TBD	TBD	TBD	400
ZE10	TDFN-10	13"	12	8	Top Right Corner	39 (12")	3500	64 (20")	105	TBD
ZE12	TDFN-12	13"	12	8	Top Left Corner	39 (12")	3500	64 (20")	N/A	N/A
ZF36	TQFN-36	13"	12	8	Top Left Corner	39 (12")	3500	64 (20")	60	490
ZF56	TQFN-56	13"	24	12	Top Left Corner	26 (12")	2000	43 (20")	33	294
ZG12	TDFN-12	7"	12	4	Top Left Corner	77 (12")	3500	127 (20")	TBD	TBD
ZH12	TQFN-12	13"	12	8	Top Right Corner	39 (12")	3500	64 (20")	120	TBD
ZH16	TQFN-16	13"	12	8	Top Right Corner	39 (12")	3500	64 (20")	120	TBD
ZH20	TQFN-20	13"	12	8	Top Left Corner	39 (12")	3500	64 (20")	96	N/A
ZH28	TQFN-28	13"	12	8	Top Left Corner	39 (12")	3500	64 (20")	N/A	490
ZH32	TQFN-32	13"	12	8	Top Right Corner	(15")	2500	(20")	73	TBD
ZH42	TQFN-42	13"	24	8	Top Left Corner	39 (12")	3500	64 (20")	41	400
ZI84	TQFN-84	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	240
ZJ16	TDFN-16	7"	12	4	Top Left Corner	77(12")	3500	127(20")	TBD	TBD
ZK12	TQFN-12	7"	8	4	Top Left Corner	77 (12")	3500	127 (20")	TBD	TBD
ZK24	TQFN-24	13"	12	8	Top Left Corner	39 (12")	3500	64 (20")	92	N/A
ZL10	TQFN-10	7"	8	4	Top Left Corner	77 (12")	3500	127 (20")	N/A(canister)	N/A(canister)
ZL16	TQFN-16	7"	8	4	Top Left Corner	77 (12")	3500	127 (20")	N/A(canister)	N/A(canister)
ZL20	TQFN-20	13"	12	8	Top Right Corner	39 (12")	3500	64 (20")	120	N/A
ZL42	TQFN-42	TBD	TBD	TBD	Top Left Corner	TBD	TBD	TBD	TBD	TBD
ZL32	TQFN-32	13"	16	8	Top Left Corner	39 (12")	3500	64 (20")	60	N/A
ZL52	TQFN-52	13"	24	8	Top Left Corner	39 (12")	3500	64 (20")	N/A	400
ZL64	TQFN-64	13"	16	12	Top Left Corner	26 (12")	2000	43 (20")	N/A	260
ZL72	TQFN-72	13"	24	12	Top Left Corner	26 (12")	2000	43 (20")	33	294
ZL80	TQFN-80	13"	24	8	Top Left Corner	39 (12")	3500	64 (20")	N/A	N/A
ZM10	UQFN-10	7"	8	4	Top Left Corner	77 (12")	3000	127 (20")	N/A	N/A
ZN16	TQFN-16	7"	8	4	Top Left Corner	77 (12")	3500	127 (20")	N/A	N/A
ZP80	TQFN-80	13"	24	12	Top Left Corner	26 (12")	2000	43 (20")	33	294
ZP132	TQFN-132	13"	24	12	Top Right Corner	26 (12")	2000	43 (20")	N/A	168
ZR06	UDFN-6	7"	8	4	Top Left Corner	77 (12")	3500	127 (20")	N/A	N/A
ZX136	αQFN-136	13"	16	12	Top Right Corner	26 (12")	3000	43 (20")	N/A	N/A



**Figure 1: TAPE & REEL LABEL INFORMATION**



**Figure 2: TAPE LEADER AND TRAILER PIN 1 ORIENTATIONS**

## Carrier Tape

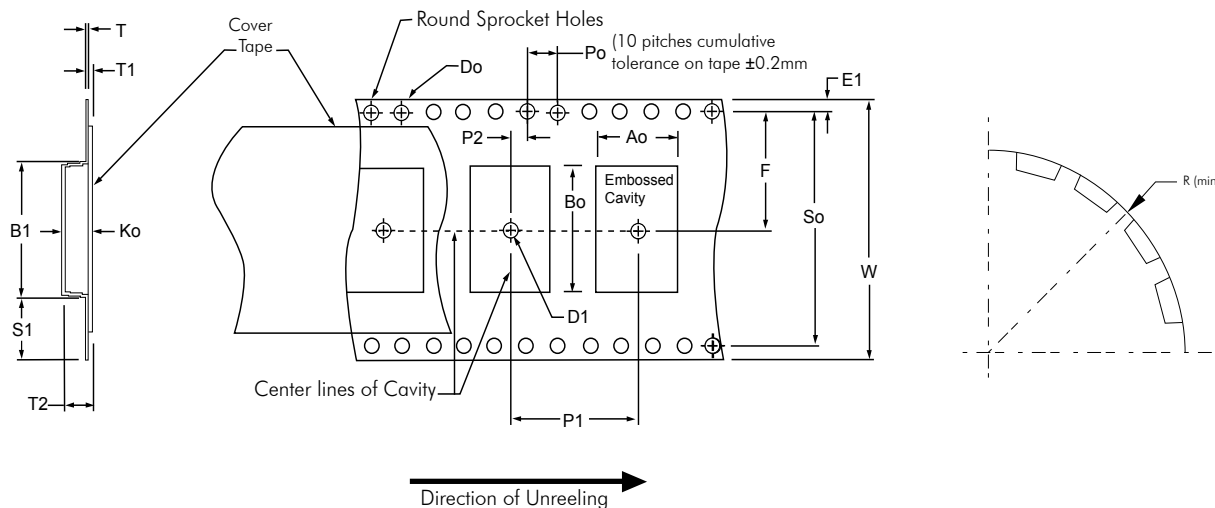
The Pocketed Carrier Tape is made of Conductive Polystyrene plus Carbon material (or equivalent). The surface resistivity is  $10^6 \text{ Ohm/sq.}$  maximum. Pocket tapes are designed so that the component remains in position for automatic handling after cover tape is removed. Each pocket has a hole in the center for automated sensing if the pocket is occupied or not, thus facilitating device removal. Sprocket holes along the edge of the center tape enable direct feeding into automated board assembly equipment. See Figures 3 and 4 for carrier tape dimensions.

## Cover Tape

Cover tape is made of Anti-static Transparent Polyester film. The surface resistivity is  $10^7 \text{ Ohm/Sq.}$  Minimum to  $10^{11} \text{ Ohm sq.}$  maximum. The cover tape is heat-sealed to the edges of the carrier tape to encase the devices in the pockets. The force to peel back the cover tape from the carrier tape shall be a MEAN value of 20 to 80gm (2N to 0.8N).

## Reel

The device loading orientation is in compliance with EIA-481, current version (Figure 2). The loaded carrier tape is wound onto either a 13-inch reel, (Figure 4) or 7-inch reel. The reel is made of Antistatic High-Impact Polystyrene. The surface resistivity  $10^7 \text{ Ohm/sq.}$  minimum to  $10^{11} \text{ Ohm/sq.}$  max.



**Figure 3: STANDARD EMBOSSED CARRIER TAPE DIMENSIONS**

## STANDARD EMBOSSED CARRIER TAPE DIMENSIONS

### Constant Dimensions

Tape Size	D <sub>0</sub>	D <sub>1</sub> (Min)	E <sub>1</sub>	P <sub>0</sub>	P <sub>2</sub>	R (See Note 2)	S <sub>1</sub> (Min)	T (Max)	T <sub>1</sub> (Max)
8mm	1.5 +0.1 -0.0	1.0	1.75 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	25	0.6	0.6	0.1
12mm		1.5			2.0 ± 0.1	30			
16mm									
24mm		2.0			2.0 ± 0.1	50	N/A (See Note 3)		
32mm									
44mm		2.0 ± 0.15							

### Variable Dimensions

Tape Size	P <sub>1</sub>	B <sub>1</sub> (Max)	E <sub>2</sub> (Min)	F	S <sub>0</sub>	T <sub>2</sub> (Max.)	W (Max)	A <sub>0</sub> , B <sub>0</sub> , & K <sub>0</sub>
8mm	Specific per package type. Refer to FR-0221 (Tape and Reel Packing Information) or visit <a href="http://www.pericom.com/pdf/gen/tapereel.pdf">www.pericom.com/pdf/gen/tapereel.pdf</a>	4.35	6.25	3.5 ± 0.05	N/A (see note 4)	2.5	8.3	See Note 1
12mm		8.2	10.25	5.5 ± 0.05		6.5	12.3	
16mm		12.1	14.25	7.5 ± 0.1		8.0	16.3	
24mm		20.1	22.25	11.5 ± 0.1	12.0	24.3		
32mm		23.0	N/A	14.2 ± 0.1		28.4 ± 0.1	32.3	
44mm		35.0	N/A	20.2 ± 0.15	40.4 ± 0.1	16.0	44.3	

NOTES:

- A<sub>0</sub>, B<sub>0</sub>, and K<sub>0</sub> are determined by component size. The cavity must restrict lateral movement of component to 0.5mm maximum for 8mm and 12mm wide tape and to 1.0mm maximum for 16,24,32, and 44mm wide carrier. The maximum component rotation within the cavity must be limited to 20° maximum for 8 and 12 mm carrier tapes and 10° maximum for 16 through 44mm.
- Tape and components will pass around reel with radius "R" without damage.
- S<sub>1</sub> does not apply to carrier width ≥ 32mm because carrier has sprocket holes on both sides of carrier where D<sub>0</sub> ≥ S<sub>1</sub>.
- S<sub>0</sub> does not exist for carrier ≤ 32mm because carrier does not have sprocket hole on both side of carrier.

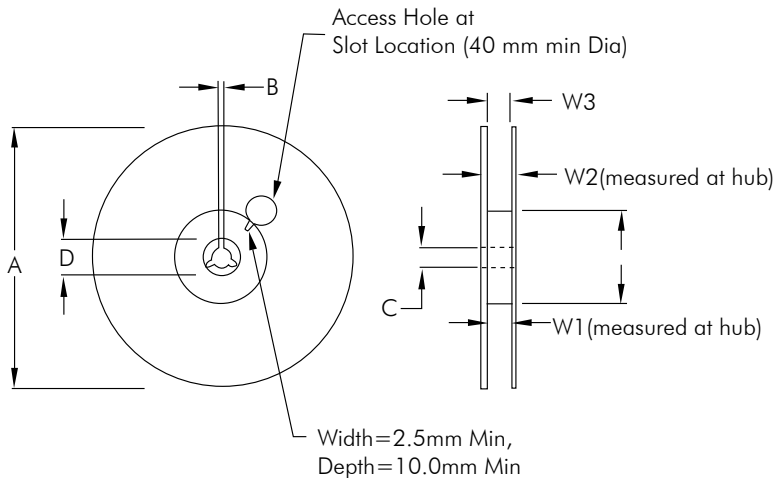


Figure 4: REEL DIMENSIONS BY TAPE SIZE

Tape Size	A	N (Min) See Note A	W <sub>1</sub>	W <sub>2</sub> (Max)	W <sub>3</sub>	B (Min)	C	D (Min)
8mm	178 ± 2.0mm or 330 ± 2.0mm	60 ± 2.0mm or 100 ± 2.0mm	8.4 + 1.5/-0.0 mm	14.4 mm	Shall Accommodate Tape Width Without Interference	1.5mm	13.0 + 0.5/-0.2 mm	20.2mm
12mm			12.4 + 2.0/-0.0 mm	18.4 mm				
16mm	330 ± 2.0mm	100 ± 2.0mm	16.4 + 2.0/-0.0 mm	22.4 mm				
24mm			24.4 + 2.0/-0.0 mm	30.4 mm				
32mm			32.4 + 2.0/-0.0 mm	38.4 mm				
44mm			44.4 + 2.0/-0.0 mm	50.4 mm				

NOTE:

A. If reel diameter A=178 ± 2.0mm, then the corresponding hub diameter (N(min)) will be 60 ± 2.0mm. If reel diameter A=330 ± 2.0mm, then the corresponding hub diameter (N(min)) will be 100 ± 2.0mm.