



# Product Change Notification

Current Date: 08-Mar-2023

## TE Connectivity

Product Change Notification: E-19-009407

PCN Date: 17-JUN-19

TE would like to inform you of the following change(s) to the listed TE Connectivity Product. In case of any further questions about this change(s), please contact your TE Connectivity Sales Engineer. Affected part, drawing and/or specification numbers are listed on the attached sheet(s).

### General Product Description:

Superseding of CRN Black products currently manufactured & supplied from Menlo park, USA.

### Description of Changes

The following part numbers are being obsoleted (obsolete status). If there are suggested TE Connectivity substitute part numbers or alternate part numbers, they are shown below with any significant difference described. Please verify that all substitute or alternate part numbers provided below are suitable for your specific application.

#### Other attachments:

[PCN CRN 0006 Black](#)  
[PCN CRN 0006 Black Notification](#)  
[CRN Product Spec 108-120021](#)

### Reason for Changes:

Discontinuance. Product Improvement. Material change. Manufacturing location change. UOM change, -SP Sales UOM from Ft to M, -STK Sales UOM from M to PC. Dear Customer, You are receiving this notice because TE Connectivity has record of you purchasing a part or multiple parts on the list below. Within our continued efforts to manage/optimize our product portfolio throughout the lifecycle, we've made the decision to obsolete the parts stated thereafter.

### Estimated Dates:

<b>Last Order Date</b> (Obsolete Parts Only):	<b>First Date To Ship</b> (Changed Parts Only):
09-SEP-2019	
<b>Last Ship Date</b> (Obsolete Parts Only):	<b>Last Date for Mixed Shipments:</b> (Changed Parts Only):
09-DEC-2019	No Mixed Shipments

### Part Number(s) being Modified:

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
<a href="#">5200082006</a>	YES		6-1194081-5, <b>CRN-1/2-0-STK</b>	NB15252001		Sales UOM change
<a href="#">5200172005</a>	YES		1-1194082-2, <b>CRN-1/4-0-STK</b>	NB15272001		Sales UOM change
<a href="#">5200174016</a>	YES		1-1194082-7, <b>CRN-1/4-0-SP</b>	NB33754001		Sales UOM change
<a href="#">5200242005</a>	YES		6-1194082-3, <b>CRN-1/16-0-STK</b>	NB31682001		Sales UOM change
<a href="#">5200244019</a>	YES		6-1194082-8, <b>CRN-1/16-0-SP</b>	NB31694001		Sales UOM change
<a href="#">5200252015</a>	YES		1194083-1, <b>CRN-3/16-0-STK</b>	NB15352001		Sales UOM change
<a href="#">5200262004</a>	YES		4-1194083-8, <b>CRN-3/8-0-STK</b>	NB15402001		Sales UOM change
<a href="#">5200266053</a>	YES		8-1194083-5, <b>CRN-3/8-0-60MM</b>	NB34056001		Sales UOM change
<a href="#">5200266061</a>	YES		1899222-8, <b>CRN-3/8-0-80MM</b>	NB34066001		Sales UOM change
<a href="#">5200292009</a>	YES		1194084-3, <b>CRN-3/32-0-STK</b>	NB31702001		Sales UOM change
<a href="#">5200292033</a>	YES		1194084-5, <b>CRN-3/32-0-MS-STK</b>	NB31702001		Sales UOM change
<a href="#">5200294006</a>	YES		1-1194084-0, <b>CRN-3/32-0-SP</b>	NB31734001		Sales UOM change
<a href="#">5200382008</a>	YES		6-1194084-2, <b>CRN-1/8-0-STK</b>	NB15312001		Sales UOM change
<a href="#">5200384005</a>	YES		"6-1194084-7"	NB15304001		Sales UOM change
<a href="#">5200532004</a>	YES		4-1194085-0, <b>CRN-3/64-0-STK</b>	NB15382001		Sales UOM change
<a href="#">520053D012</a>	YES		5-1194085-2, <b>CRN-3/64-0</b>			
<a href="#">5200572002</a>	YES		5-1194085-8, <b>CRN-3/4-0-STK</b>	NB31712001		Sales UOM change
<a href="#">CA3272-000</a>	YES		"8-1899593-1"	NB34026001		Sales UOM change
<a href="#">CA3274-000</a>	YES		<b>CRN-1/2-0-40MM</b>	NB33896001		Sales UOM change
<a href="#">CA3275-000</a>	YES		<b>CRN-3/8-0-150MM</b>	NB33986001		Sales UOM change
<a href="#">CA3276-000</a>	YES		<b>CRN-3/8-0-50MM</b>	NB34036001		Sales UOM change
<a href="#">CN9299-000</a>	YES		<b>CRN-3/8-0-230MM</b>			
<a href="#">CP2706-000</a>	YES		<b>CRN-3/8-0-55MM</b>	NB34046001		Sales UOM change
<a href="#">CY6790-000</a>	YES		<b>CRN-3/64-0-MS-SP</b>	NB32674001		Sales UOM change
<a href="#">CY6791-000</a>	YES		<b>CRN-3/64-0-MS-STK</b>	NB15392001		Sales UOM change
<a href="#">CY6792-000</a>	YES		"CRN-1/16-0-MS-STK", "4-1899832-6"	NB31682001		Sales UOM change

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
<a href="#">F83086-000</a>	YES		8-1201409-6, CRN-1/2-0-60MM	NB33926001		Sales UOM change

Original Tyco Electronics Corporate Part Nbr	Part Description	New Tyco Electronics Corporate Part Nbr where applicable	Original UOM
CY6792-000	CRN-1/16-0-MS-STK	Superseeded by The new number NB31682001	MR
5200244019	CRN-1/16-0-SP	NB31694001	MR
5200242005	CRN-1/16-0-STK	NB31682001	MR
CA3274-000	CRN-1/2-0-40MM	NB33896001	PC
F83086-000	CRN-1/2-0-60MM	NB33926001	PC
5200082006	CRN-1/2-0-STK	NB15252001	MR
520008L022	CRN-1/2-0-STK-CS5005	NB33732001	MR
CU3025-000	CRN-1/2-0-STK-CS7210	NB33742001	MR
5200174016	CRN-1/4-0-SP	NB33754001	MR
5200172005	CRN-1/4-0-STK	NB15272001	MR
5200384005	CRN-1/8-0-SP	NB15304001	MR
5200382008	CRN-1/8-0-STK	NB15312001	MR
084748-000	CRN-1/8-0-STK-CS5005	Obsolete	MR
CJ2652-000	CRN-3/16-0-15MM-CS7838	NB33946001	PC
5200256026	CRN-3/16-0-200MM	Obsolete	PC
5200252015	CRN-3/16-0-STK	NB15352001	MR
520025L029	CRN-3/16-0-STK-CS5005	Obsolete	MR
5200292033	CRN-3/32-0-MS-STK	Superseeded by The new number NB31702001	MR
5200294006	CRN-3/32-0-SP	NB31734001	MR
5200292009	CRN-3/32-0-STK	NB31702001	MR
5200572002	CRN-3/4-0-STK	NB31712001	MR
520053D012	CRN-3/64-0	Obsolete	MR
CZ2165-000	CRN-3/64-0-MS-125MM	Superseeded by The new number from non MS tube equivalent	PC
CZ2163-000	CRN-3/64-0-MS-50MM	Superseeded by The new number from non MS tube equivalent	PC
CZ2164-000	CRN-3/64-0-MS-65MM	Superseeded by The new number from non MS tube equivalent	PC
CY6790-000	CRN-3/64-0-MS-SP	Superseeded by The new number NB32674001	MR

CY6791-000	CRN-3/64-0-MS-STK	Superseeded by The new number NB15392001	MR
5200532004	CRN-3/64-0-STK	NB15382001	MR
CM0278-000	CRN-3/8-0-100MM	NB33956001	PC
CA3275-000	CRN-3/8-0-150MM	NB33986001	PC
CH25686001	CRN-3/8-0-170MM	NB33996001	PC
CU4952-000	CRN-3/8-0-180MM	NB34006001	PC
CN3423-000	CRN-3/8-0-230MM	NB34016001	PC
CN9299-000	CRN-3/8-0-230MM	Obsolete	PC
5200266052	CRN-3/8-0-30MM	NB34116001	PC
CA3272-000	CRN-3/8-0-40MM	NB34026001	PC
CA3276-000	CRN-3/8-0-50MM	NB34036001	PC
CP2706-000	CRN-3/8-0-55MM	NB34046001	PC
5200266053	CRN-3/8-0-60MM	NB34056001	PC
5200266061	CRN-3/8-0-80MM	NB34066001	PC
5200262004	CRN-3/8-0-STK	NB15402001	MR
CP6532-000	CRN-3/8-0-STK-CS5005	NB33762001	MR
0626374004	CRN-B-NR531-0-CS-04039	NA	MR



Piece	1000		250	1000	250
	1000		1000	16000	16000
	1000		1000	12000	12000
	1000		1000	10000	10000
	1000		1000	10000	10000
	1000	1000	1000	7000	7000
	5000		5000	30000	30000
	5000		5000	20000	20000
	5000		5000	30000	30000
	5000		5000	30000	30000
	5000		5000	15000	15000
	5000		5000	5000	5000
Piece	1000		250	1000	250
	1000		250	1000	250
		5000	2100		2100



<b>Type of Notification</b>	<b>Manufacturing Location Change, Material modifications, Unit of Measure changes, and new part numbers Appliances Tubing CRN Black Products</b>
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<b>Issue Date</b>	<b>Notification No.</b>
14th June , 2018	XX-XXX

<b>Description of Change</b>
<p>Reference previous notifications 2nd November 2015. PCN's P-15-012191, 012092, 012093, 012194, 012195 and 012196</p> <p>TE Connectivity is continuing to move production of CRN Black tubing to Trutnov CZ Republic. This on-going transfer is being made in phases until all appropriate equipment has moved. Different parts will move in different phases, consequently not all new part numbers will be immediately available at the end of the notification period. We will start to ship CRN Black products from the Czech Republic after September 4<sup>th</sup> 2019. After this date TE reserves the right to provide qualified products from any of the manufacturing locations during this transfer until the final closure date of Menlo Park location by the end of 2019. As not all part numbers will transfer at the same time customers may still receive Products from the Menlo Park location after this transfer date due to inventory. Where necessary TE will continue with internal qualification and testing of products after they are received at the new locations.</p> <p>IMDS records will be updated and aligned to new part numbers. Product performance is enhanced with all products meeting the requirements of UL 224, and MIL specification.</p> <p>As part of this transfer TE Connectivity will be issuing new part numbers for these products being made in Trutnov CZ Republic. New part numbers have been issued to identify changes to Units of Measure, the new manufacturing location and modifications to the compound used. The <b>New part numbers</b> and a cross reference to the current and old original part numbers can be found in the attached documents.</p> <p><u>Please note:</u> For Spooled (-SP) and Stick (-STK) parts the sales Unit of measure will change to 'Metres' for the Spooled parts, and 'Piece' for the -STK parts.</p> <p>The part number list attached shows you the CRN Black products that are affected.</p> <p>Please note the specifications RT-360 and RK-6003 have been updated and is now referenced as 108-120021</p> <p>As the notification for transfer was issued earlier TE has assumed that any required PPAP's and samples have already been requested if this is not the case and you require a PPAP or specific testing please inform us within 30 days of receiving this notification, so we can coordinate the</p>



## Product Change Notification

documentation and support your requirements. This should be requested from your local customer care representative.

For any questions or concerns please contact your Customer Care Professional.

John Sandwell	Global Director Product Management
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# RAYCHEM CRN SPECIFICATION

108-120021

## Raychem RT-360 / RK 6003 CRN TUBING Semi-rigid, Flame-retardant, Polyolefin

**CRN is a semi-rigid, electrically insulating, extruded 2:1 heat shrink tubing whose diameter will reduce to a pre-determined size upon application of heat in excess of 135°C (275°F). Well suited for wire strain-relief applications and will provide mechanical protection for delicate components. CRN is flame-retardant (Type 1 only).  
UL recognized (Type 1 only).  
RoHS and REACH compliant.  
Continuous operating temperature: -55°C to 135°C (-67°F to 275°F).**

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**RT-360 / RK 6003 CRN TUBING****1. SCOPE**

This specification establishes the quality standard for CRN tubing. CRN is a semi-rigid, electrically insulating, extruded heat shrinkable tubing.

Continuous operating temperature -55°C to 135°C (-67°F to 275°F)

**1.1 Type 1**

Type 1 tubing shall be flame retarded and be black in colour.

**1.2 Type 2**

Type 2 tubing shall is not flame retarded and shall be clear.

**2. REVISION HISTORY**

This document replaces RT-360 issue 9 and RK-6003 revision 4

**As RT-360**

Revision number	Change request	Date	Incorporated By
9	Not available	24-09-2012	Not Available

**As RK6003**

4	CR/IND/0036 CR98-DM-0198	03-10-1996 24-09-1998	L.Abrams C.Woosnam
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**As TEC-108-120021**

A	Via PDM link		C.Diss

**3. RELATED DOCUMENTS**

This specification takes precedence over documents referenced herein. Unless otherwise specified, the latest issue of referenced documents applies. The following documents form a part of this specification to the extent specified herein.

ASTM D882	Standard Test Methods for Tensile Properties of Thin Plastic Sheeting
ASTM D2671	Standard Test Methods for Heat Shrinkable Tubing for Electrical Use
IEC 60212	Standard Conditions for Use Prior to and During Testing of Solid Electrical Insulating Materials
IEC 60243-1	Methods of Test for Electric Strength of Solid Insulating Materials Part 1 Tests at Power Frequencies

**RT-360 / RK 6003 CRN TUBING**

IEC 60243-1	Methods of Test for Electric Strength of Solid Insulating Materials part1 Tests at Power Frequencies
MIL-G-5572	Gasoline, Aviation , Grades 80/87 100/130 and 115/145
MIL-PRF-5606	Hydraulic Fluid, Petroleum Base, Aircraft, Missile and Ordinance
MIL-T-83133	Turbine fuel, Aviation, grades JP-8
ISO 37	Rubber, vulcanized or thermoplastic – Determination of Tensile Stress-Strain Properties
ISO 62	Determination of Water Absorption
ISO 188	Rubber, vulcanized -Accelerated Ageing or Heat Resistance Tests
ISO 1183	Methods for determining the density and relative density of non-cellular plastics
ISO 1817	Rubber, vulcanized – Determination of the effect of liquids

**4. REQUIREMENTS****4.1 COMPOSITION, APPEARANCE AND COLOUR**

The tubing shall be fabricated from thermally stabilized, modified polyolefin and shall be crosslinked by irradiation. It shall be homogeneous and essentially free from flaws, defects, pinholes, bubbles, seams, cracks, and contaminants.

**4.2 PROPERTIES**

The tubing shall meet the requirements of Table 3.

**5. QUALITY ASSURANCE PROVISIONS****5.1 CLASSIFICATION OF TESTS**

Tests shall be carried out on a sample taken at random from each batch of finished tubing. A batch of tubing is defined as that quantity of tubing extruded at any one time. Testing frequency shall be Qualification, or Production routine as detailed below:

**5.1.1 Qualification Tests ( frequency in accordance with the Design Authority)**

Qualification tests are those performed on tubing submitted for qualification as a satisfactory product and shall consist of all tests listed in this specification. Test samples shall consist of 15m of black and clear tubing. Qualification of any size within each range specified below shall qualify all sizes within that size range.

**Range of Sizes**

**3/64 - 1/4**

**3/8 - 3/4**



### 5.1.2 Production routine tests (Every Batch)

Visual examination  
 Dimensions  
 Longitudinal change  
 Tensile strength  
 Ultimate elongation  
 Secant modulus (Expanded)  
 Flammability (Type 1 only)  
 Heat shock

Production routine test samples shall consist of not less than 5m of tubing selected at random from each compound batch or the first sleeving production lot of the the batch of compound.

Physical property tests performed at this time qualify subsequent sleeving lots produced from the same compound batch.

## 6.0 TEST METHODS

### 6.1 Preparation of Test Specimens

Unless otherwise specified, tests shall be carried out on specimens of tubing recovered by conditioning in a fan assisted air circulating oven at  $200 \pm 5^{\circ}\text{C}$  for  $3 \pm 1$  minutes and allowed to cool in air to ambient temperature. Condition the test specimens (and measurement gauges where applicable) for 3 hours at  $23 \pm 2^{\circ}\text{C}$  and at  $50 \pm 5\%$  relative humidity prior to testing. Use mechanical convection type ovens in which air passes the specimens at a velocity of 30 to 60m per minute.

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### 6.2 Dimensional and Longitudinal Change

The test method shall be as specified in ASTM D2671.

The length and inside diameter of three  $150\text{mm} \pm 1\text{mm}$  long specimens of expanded tubing shall be measured in accordance with ASTM 2671. Condition the specimens for 3 minutes in a  $200 \pm 5^{\circ}\text{C}$  oven, cool to  $23 \pm 2^{\circ}\text{C}$  and re-measure. Prior to and after conditioning, the dimensions of the tubing shall be in accordance with the TABLE 2 and the longitudinal change shall be in accordance with Table 1.

Calculate the longitudinal change as follows:

$$C = \frac{(L_1 - L_0)}{L_0} \times 100$$

Where: C = Longitudinal Change [Percent]  
 L<sub>0</sub> = Length Before Conditioning [mm (*inch*)]  
 L<sub>1</sub> = Length After Conditioning [mm (*inch*)]



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### 6.3 Tensile Strength and Ultimate Elongation

The test method shall be as specified in ASTM D2671  
For tubing of recovered bore greater than 4mm, five tubular specimens five type 2 dumb-bell specimens shall be tested. For tubing of recovered bore less than or equal to 4mm, five tubular specimen 125mm long shall be tested. Initial jaw separation shall be 25mm and rate of jaw separation shall be  $50 \pm 5$ mm per minute.  
The test shall be carried out at a temperature of  $23 \pm 2$ °C.

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### 6.4 Rejection and Retest

Failure of any sample of tubing to conform to any one of the requirements of this specification shall be cause for rejection of the lot represented. Tubing which has been rejected may be replaced or reworked to correct the defects and re-submitted for acceptance. Before re-submitting, full particulars concerning the previous rejection and action taken to correct the defects shall be furnished to the inspector.

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### 7.0 Packaging

Packaging shall be in accordance with good commercial practice. Each package shall bear an identification label showing material quantity, description, size, colour and batch number. Additional information shall be supplied as specified in the contract or order



**TABLE 1**  
**Requirements**

PROPERTY	TEST METHOD	REQUIREMENT	
		TYPE 1	TYPE 2
<b>PHYSICAL</b>			
Dimensions	mm (inches)	TABLE 2	TABLE 2
Longitudinal Change	ASTM D 2671 Section 6.2	+5 to -5%	+5 to -5%
Tensile Strength	ASTM D 2671 Section 6.3	13.8 MPa (2000psi) minimum	13.8 MPa (2000psi) minimum
Ultimate Elongation	ASTM D 2671 Section 6.3	200% minimum	200% minimum
Secant Modulus @ 2% strain (expanded)	ASTM D 2671	172 MPa (2.5 x 10 <sup>4</sup> psi) minimum	172 MPa (2.5 x 10 <sup>4</sup> psi) minimum
Specific Gravity	ISO 1183	1.35 maximum	1.0 maximum
Low Temperature Flexibility 4 hours at -55 ± 1°C (-67 ± 2°F)	Table 3 ASTM D 2671 Procedure C	No cracking	No cracking
Heat Shock 4h ± 15m at 250 ± 5°C (482 ± 5°F)	ASTM D 2671	No dripping, cracking or flowing of outer wall	No dripping, cracking or flowing of outer wall
Heat Ageing 168 ± 2h at 175 ± 2°C (347 ± 4°F) Followed by test for: Ultimate Elongation	ASTM D 2671	150% minimum	150% minimum
<b>ELECTRICAL</b>			
Dielectric Strength	ASTM D 2671 Note 1	19, 680 Volts/mm (500 Volts/mil) Minimum	19, 680 Volts/mm (500 Volts/mil) Minimum
Volume resistivity	ASTM D 2671	10 <sup>14</sup> ohm-cm minimum	10 <sup>16</sup> ohm-cm minimum



PROPERTY	TEST METHOD	REQUIREMENT	
		TYPE 1	TYPE 2
<b>CHEMICAL</b>			
Flammability	ASTM D 2671 Procedure B	Self-extinguishing within 1 minute, 25% maximum flag burn, no falling burning particles	Not applicable
Copper Mirror Corrosion 16h ± 2h at 150 ± 3°C (302 ± 4°F)	ASTM D 2671 Procedure A	No removal of copper	No removal of copper
Copper Contact Corrosion 168 hours at 150 ± 2°C (302 ± 4°F)	ASTM D 2671 Procedure B	No pitting or blackening of copper	No pitting or blackening of copper
Fungus Resistance  Followed by tests for: Tensile Strength  Ultimate Elongation Dielectric Strength	ISO 846 Method B  Section 6.3	13.8 MPa (2000 psi) minimum 200% minimum 19,680 Volts/mm (500 Volts/mil) minimum	13.8 MPa (2000 psi) minimum 200% minimum 19,680 Volts/mm (500 Volts/mil) minimum
Water Absorption (24 ± 2h at 23 ± 2°C) (73 ± 5°F)	ASTM D 2671	0.5% maximum	0.2% max





PROPERTY	TEST METHOD	REQUIREMENT	
		TYPE 1	TYPE 2
<b>Fluid Resistance</b>			
24 ± 2h immersion at 23 ± 2°C (73 ± 5°F)	ISO1817		
Gasoline Fuel to ISO 1817 Test liquid B			
Hydraulic fluid (phosphate Ester based) to ISO 1817 Test liquid 103			
Lubricating oil (Ester based) to ISO1817 Test liquid 101			
- Tensile strength - Ultimate elongation	Sec 6.3	12MPa (1740 psi) min 200% minimum	N/A N/A
JP-8 Fuel (MIL-T-83133) Skydrol * 500 Hydraulic Fluid (MIL-PRF-5606) Aviation Gasoline (100/130) MIL-G-5572 Water Followed by test for: - Dielectric strength	ASTM D2671	15,760 Volts/mm (400 Volts/mil) minimum	15,760 Volts/mm (400 Volts/mil) minimum
Tensile strength	Sec 6.3	11.0 MPa (1600 psi) minimum	11.0 MPa (1600 psi) minimum

### Notes

Note 1: Recover the specimens on the metal mandrels for 10 minutes, minimum, at 175 ± 3°C (347 ± 5°F) or until the tubing is completely shrunk on the mandrels.

\*Trademark of the Monsanto Company



**TABLE 2**  
**Tubing Dimensions**

	As Supplied		As Recovered							
	Inside diameter		Inside Diameter		Wall Thickness					
	Minimum		Maximum		Minimum		Maximum		Nominal	
	mm	in	mm	in	mm	in	mm	in	mm	in
3/64	1.17	.046	0.58	.023	0.43	.017	0.58	.023	0.50	.020
1/16	1.60	.063	0.79	.031	0.43	.017	0.58	.023	0.50	.020
3/32	2.36	.093	1.17	.046	0.43	.017	0.58	.023	0.50	.020
1/8	3.17	.125	1.57	.062	0.43	.017	0.58	.023	0.50	.020
3/16	4.74	.187	2.36	.093	0.56	.022	0.71	.028	0.63	.025
1/4	6.35	.250	3.17	.125	0.56	.022	0.71	.028	0.63	.025
3/8	9.50	.375	4.74	.187	0.69	.027	0.84	.033	0.76	.030
1/2	12.70	.500	6.35	.250	0.69	.027	0.84	.033	0.76	.030
3/4	19.05	.750	9.53	.375	0.76	.030	1.016	.040	0.889	.035

**TABLE 3**  
**Mandrel Dimensions for Bend Testing**

Tubing Size	Mandrel Diameter	
	mm	in
3/64 to 1/4 inclusive	7.9	5/16
3/8 to 1/2 inclusive	9.5	3/8