

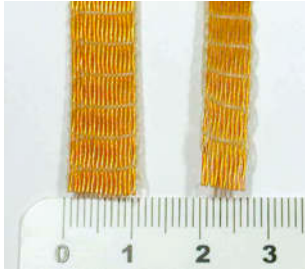
In Vacuum Wires, Cables, Connectors and Accessories



6.1 KAPTON WIRES FOR UHV

-> Page 6.2

Insulated Copper Wires from 0.1mm up to 1.7mm \varnothing
 Highly flexible multi-strand cables 0.25mm up to 2mm \varnothing
 Shielded coaxial wires for signal and high frequency



6.2 KAPTON TWISTED PAIR AND RIBBON CABLES

-> Page 6.4

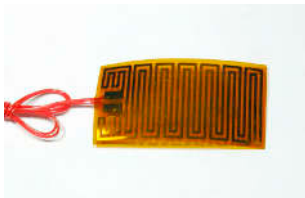
Twisted Pair with 1 and two pairs, shielded
 Ribbon Cables with 4, 10, 15 strands



6.3 CRYOGENIC WIRES

-> Page 6.5

Special thin wires
 Materials: Copper, Manganin and Konstantan



6.4 READY MADE VACUUM CABLES

-> Page 6.6

Coax cables for: SMA/ BNC/ MHV/ SH / N
 Coax cables for single sided BNC/ MHV
 Sub-D cables with 9 to 50 conductors
 Special custom assemblies



6.5 CRIMP PINS, CONNECTORS, ACCESSORIES

-> Page 6.9

Crimp pins and connectors 0.5mm to 19mm \varnothing
 UHV Limit Switches, Heaters, PT100 sensors
 Insulators, ceramic beads, Kapton tubes, UHV Shrink hose
 Braid, UHV Solder , UHV Glue, UHV grease



6.6 TOOLS CRIMPING AND WIRE STRIPPING

-> Page 6.16

Wire Stripper
 Pin Insertion and Removing tools
 Crimp tools for Crimp pins and coaxial connectors



- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

Overview table

Alllectra offers the original types and a wide range of new Kapton® Wire Types for use in UHV and High Vacuum. These include:

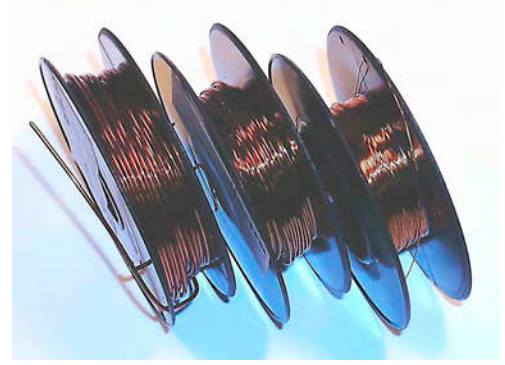
- Single Strand Dipped Kapton Wire
- Highly Flexible Multi-strand Types
- Coaxial Wires including 50 Ohm types
- Shielded Twisted Pairs and Ribbon Cable
- The original Caburn UHV® KAP1 and KAP2 types.



Type	∅ Cond. mm	∅ max. mm	V max V DC	I max A	Cond. mm ²	R □ /km	Application Examples
Plain Copper Wire, dipped							
311-KAP-010	0,10	0,12	2.000	0,1	0,01	2.270	STM/ AFM, radiation environment
311-KAP-012	0,12	0,14	2.000	0,2	0,01	1.580	Fine instrumentation, radiation environment
311-KAP-014	0,14	0,16	2.000	0,2	0,02	1.160	Fine instrumentation, radiation environment
311-KAP-025	0,25	0,28	2.000	1,0	0,05	360	Fine instrumentation, radiation environment
311-KAP-060	0,63	0,69	2.000	5,0	0,31	58	Standard instrumentation, radiation environment
311-KAP-100	1,00	1,10	10.000	10,0	0,79	23	High current and high voltage applications, radiation environment
311-KAP-130	1,30	1,40	5.000	13,0	1,33	13,8	High current, radiation environment
311-KAP-170	1,70	1,85	12.000	17,0	2,2	8	Very high current and voltage
Silver Plated Copper, wrapped							
311-KAP1	0,25	0,55	4.000	1,0	0,05	360	Caburn UHV® Type, Signals and Sensors, easy to strip, general instrumentation
311-KAP2	0,60	0,90	4.000	4,5	0,28	64	Caburn UHV® Type, medium Current, easy to strip
311-KAPM-025	0,23	0,39	1.000	0,5	0,05	508	Highly Flexible instrumentaion, low current and low voltages
311-KAPM-035	0,35	0,50	1.000	1,0	0,08	225	Highly Flexible Wire, Sub-D connectors, low current and low voltage
311-KAPM-060	0,60	0,67	1.000	2,5	0,15	119	Highly flexible, Sub-D connectors, higher current
311-KAPM-075	0,75	0,81	1.000	5,0	0,33	53	Highly flexible high current wire, up to 10A for short periods
311-KAPM-100	1,00	1,17	1.000	9,0	0,6	30	Highly flexible high current wire, up to 10A for short periods
311-KAPM-200	2,00	2,20	1.000	20,0	2,0	8,9	Heaters, ideal for use with COMBO Sub-D f/t's
50 Ohm and other Coax-Wire, shielded Twisted Pair Wire							
311-KAP50	0,45	2,30	5.000	1,0	0,12	144	All 50 Ohm connectors/ signals, specially for use with SMA F/Ts which need shielding
311-KAP50S	0,23	1,45	1.000	0,50	0,12	508	Thin and highly flexible 50 Ohm wire, similar to RG178
311-KAPM-025-SHIELD	0,23	0,90	1.000	0,50	0,04	508	For all connectors, where shielding is required and shielding is grounded.
311-KAPM-060-COAX	0,60	1,40	1.000	2,5	0,15	119	For all connectors, where shielding is required but no high frequency is involved.
311-KAPM-060-PAIR1	2 x 0,6	1,70	1.000	2,0	0,15	119	Signals, high frequency supplies, Limit Switches
311-KAPM-060-PAIR2	4 x 0,6	2,20	1.000	2,0	0,15	119	Signals, Stepper Motor connections
Ribbon Cable							
311-KAP-RIB04/ 4 Way Compact	4 x 0,35	0,5 x 3	1.000	1,0	0,08	225	Sub-D Connections, General Purpose
311-KAP-RIB10/ 10 Way Compact	10 x 0,35	0,5 x 6	1.000	1,0	0,08	225	Sub-D Connections, General Purpose
311-KAP-RIB15/ 15 Way Compact	15 x 0,35	0,5 x 10	1.000	1,0	0,08	225	Sub-D Connections, General Purpose
Manganin Wire							
312-KAP-MAN-014	0,14	0,18	1.000	0,1	0,02	27.900	Manganin® Wire for Low temperature applications
312-KAP-MAN-025	0,25	0,55	6.000	0,2	0,05	8.700	Manganin® Wire for Low temperature applications

KAPTON WIRES and RIBBON CABLE

- Suitable for use in UHV
- No trapped volumes because Kapton is a porous material
- Bakeable to 250°C
- Single Strand or Multi-strand (high flexibility) Types
- Wire Stripper, Kapton Solvent and Accessories
- Very thin wires for applications like STM/AFM
- High current wires up to 20 Amps



Single Strand Specifications

Vacuum	UHV
Conductor	Copper
Insulation	Dipped Kapton®



311-KAP-060

Silver Plated Specifications

Vacuum	UHV
Conductor	Copper, silver plated
Insulation	Wrapped Kapton®

Multistrand Specifications

Vacuum	UHV
Conductor	Copper stranded, silver plated
Insulation	Wrapped Kapton®



Our Exclusive KAP301 Radiation Resistant versions (up to 10⁹ rad) are now available in 0,25mm / 0,35mm / 0,60mm ø (see details right)

Ribbon cable specifications

Vacuum	UHV
Wire	311-KAPM-035
Binding	PEEK unfilled



311-KAP-PIB15
311-KAP-RIB10

KAPTON WIRES: UHV

**Kapton Wires for UHV
Single strand dipped types - Copper conductor**

Ø	AWG	LENGTH	PART NUMBER
0.10 mm	38	5 m	311-KAP-010-5M
0.10 mm	38	10 m	311-KAP-010-10M
0.12 mm	36	10 m	311-KAP-012-10M
0.14 mm	35	10 m	311-KAP-014-10M
0.25 mm	30	10 m	311-KAP-025-10M
0.40 mm	26	10 m	311-KAP-040-10M
0.63 mm	22	10 m	311-KAP-060-10M
1.00 mm	18	10 m	311-KAP-100-10M
1.02mm	2kV Ver.	10 m	311-KAP-102-10M
1.30 mm	16	5 m	311-KAP-130-5M
1.30 mm	16	10 m	311-KAP-130-10M
1.70 mm	14	5 m	311-KAP-170-5M
1.80 mm	13	5m	311-KAP-180-5M

**Kapton Wires for UHV
Silver Plated Copper Conductor**

Ø	AWG	LENGTH	PART NUMBER
0.25 mm	30	10 m	311-KAP1-10M
0.6 mm	22	10 m	311-KAP2-10M

**Kapton Wires for UHV
Multi-strand High Flexibility types**

Ø	AWG	LENGTH	PART NUMBER
0.25 mm	30	10 m	311-KAPM-025-10M
0.35 mm	28	10 m	311-KAPM-035-10M
0.60 mm	22	10 m	311-KAPM-060-10M
0.75 mm	21	10 m	311-KAPM-075-10M
1.00 mm	18	10 m	311-KAPM-100-10M
2.20 mm	11	5 m	311-KAPM-200-5M
0,25 mm		10m	301-KAPM-025-10M
0.35 mm		10m	301-KAPM-035-10M
0.60 mm		10m	301-KAPM-060-10M

**Kapton Ribbon Cable for UHV
Silver plated Copper conductor**

No. OF WIRES	LENGTH	PART NUMBER
4	1 m	311-KAP-RIB4-1000
10	1 m	311-KAP-RIB10-1000
15	1 m	311-KAP-RIB15-1000
25	1 m	311-KAP-RIB25-1000

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
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- 7 Viewports Fiberoptic
- 8 Valves
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Kapton® Coaxial types and Twisted Pairs for UHV

- Coaxial Kapton Wires with or without outer shield
- 50 \square Coaxial Wire
- Shielded Twisted Pairs recommended for In-vacuum Motors
- PTFE Coaxial Wires for High Frequency applications



Specification Coaxial types

Construction 311-KAPM060-COAX:

Conductor 0.6mm \varnothing (19x 0.12mm), Kapton insulation, Shield silver plated copper, Kapton insulation, ~500pF/m

Construction 311-KAPM025-SHIELD:

Conductor 0.23mm \varnothing (7x 0.08mm), Kapton insulation, Shield silver plated copper, blank, ~125pF/m

50 Ohm Coaxial types

Standard type	311-KAP50
Impedance	50 Ohm
Conductor	Silver plated Cu -7 x 0.15mm
Capacitance	115pf/m
Damping	0.1 db/m at 100MHz 1.1 db/m at 500MHz 1.9 db/m at 1GHz
Miniature type	311-KAP50S
Impedance	50 Ohm
Conductor	Silver plated Cu -7 x 0.08mm
Capacitance	120pf/m
Damping	~3 db/m at 1GHz



311-KAP50S

General Specification Twisted Pair

Type	1 or 2 pairs with shield
Wire:	uses 311-KAPM060 Multi-strand type
Outer Coating:	Kapton
One wire per pair is	Coloured Kapton
Capacitance	~150 pF/m, core - core ~245 pF/m, core - shield

Coaxial Kapton Wires for UHV Shielded Multi-strand/ High Flexibility types

OD DIAMETER	LENGTH	PART NUMBER
1.4 mm	10 m	311-KAPM-060-COAX-10M
0.9 mm*	10 m	311-KAPM-025-SHIELD-10M

* no outer insulation

50 \square Coaxial Kapton Wires for UHV Outer Diameter 2.3 mm

IMPEDANCE	LENGTH	PART NUMBER
50 Ohm	5 m	311-KAP50-5M
50 Ohm	1 m	311-KAP50-1M

Miniature 50 \square Coaxial Kapton Wires for UHV Outer Diameter 1.4 mm

IMPEDANCE	LENGTH	PART NUMBER
50 Ohm	5 m	311-KAP50S-5M
50 Ohm	1 m	311-KAP50S-1M

PTFE 50 \square Coaxial Wire for UHV Outer Diameter 1.75 mm - RG 178 and 2.9 mm - RG316D

TYPE*	LENGTH	PART NUMBER
RG 316D	1 m	312-PTFE50-D
RG 178	1 m	312-PTFE50-S

* Please ask for PTFE wires data sheet

Twisted Pair Wires for UHV Shielded with Kapton Insulation

PAIRS	LENGTH	PART NUMBER
1	5 m	311-KAPM-060-PAIR1-5M-V2
2	5 m	311-KAPM-060-PAIR2-5M-V2

Cryogenic and Other Wires

- Manganin Wire for CRYOGENIC use
- PTFE Insulated Constantan Wire
- Nickel Plated Copper Braid
- PTFE Ribbon Cable
- Bare Tungsten and Tantalum Wire for heaters


Specification Manganin Wire

Vacuum:	UHV
Conductor:	Manganin® (CuNiMn)
Insulation:	Kapton
Voltage:	1KV (0.14 mm) / 6KV (0.25 mm)
Resistivity	0.43 \square mm ² / m
Conductance	22 W/ m K

Specification Constantan Wire

Vacuum:	UHV
Conductor:	Constantan®
Insulation:	PTFE
Voltage:	2KV
Resistivity	0.49 \square mm ² / m
Conductance	23 W/ m K

Specification Braid

Vacuum	UHV
Material	Copper, Nickel plated



Braid, packed on a plastic tube for easy use

Specification PTFE RIBBON Cable

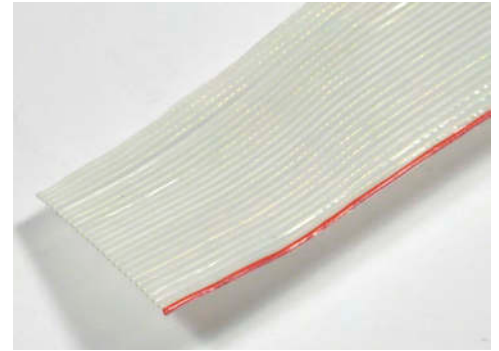
Conductor	Silver plated Copper multi-strand 7 x 0.127 mm \varnothing , 1.27 mm Pitch
Insulation	PTFE



Typical application of bare wire: Used together with ceramic tubes (see page 6.13), a compact heater can be made.

Specification Heater Wire

Vacuum	UHV
Wire	Tantalum/ Tungsten



*PTFE ribbon cable
312-PTFE-RIB-25*

KAPTON insulated Manganin Wire for cryogenic use

DIAMETER	LENGTH	PART NUMBER
0.14 mm	5 m	312-KAP-MAN-014-5M
0.14 mm	10 m	312-KAP-MAN-014-10M
0.25 mm	5 m	312-KAP-MAN-025-5M
0.25 mm	10 m	312-KAP-MAN-025-10M

PTFE insulated Constantan Wire for cryogenic use

DIAMETER	LENGTH	PART NUMBER
0.08 mm	10 m	312-PTFE-008-KON-10M

Braid Nickel plated Copper, per Meter

NOM. ID	RANGE	PART NUMBER
3.0 mm	2 - 6 mm	316-BRAID3
4.0 mm	3 - 8 mm	316-BRAID4

PTFE Ribbon Cable for UHV Silver plated Copper conductor

No. OF WIRES	LENGTH	PART NUMBER
10	1 m	312-PTFE-RIB10-1000
15	1 m	312-PTFE-RIB15-1000
25	1 m	312-PTFE-RIB25-1000

Bare Wire for heaters Tantalum/ Tungsten, per Meter

DIAMETER	Material	PART NUMBER
0.25 mm	Tantalum	315-TA-025
0.2 mm	Tungsten	315-W-020

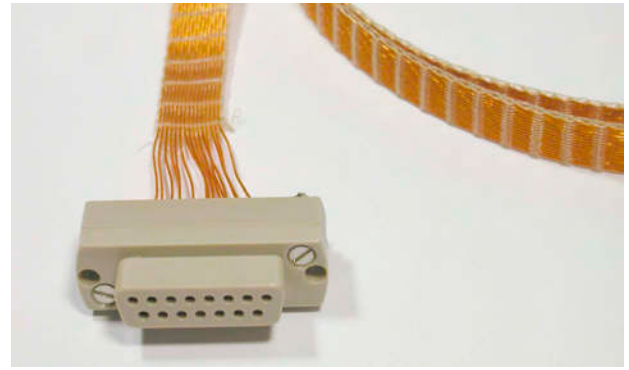
- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
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- 16 Atlas Bi-Metal

Ready Made In-vacuum Cables

Sub-miniature D Types

Standard Sub-D cables are made with ribbon cable (Kapton or PTFE). These versions are listed here. Many other types can be offered on request:

- Single strand wires or shielded cables
- HV and UHV Types
- Different connectors at either end
- Second Shielding



**Sub-D KAPTON Ribbon Cable - 500 mm long
HV Socket to Open End**

No. OF WIRES	LENGTH	PART NUMBER
9	500 mm	380-D09-FXHR-500
15	500 mm	380-D15-FXHR-500
25	500 mm	380-D25-FXHR-500
37	500 mm	380-D37-FXHR-500
50	500 mm	380-D50-FXHR-500

**Sub-D PTFE Ribbon Cable - 500 mm long
HV Socket to Open End**

No. OF WIRES	LENGTH	PART NUMBER
9	500 mm	380-D09-FXHPT-500
15	500 mm	380-D15-FXHPT-500
25	500 mm	380-D25-FXHPT-500

**Sub-D KAPTON Ribbon Cable - 500 mm long
PEEK UHV Socket to Open End**

No. OF WIRES	LENGTH	PART NUMBER
9	500 mm	380-D09-FXPR-500
15	500 mm	380-D15-FXPR-500
25	500 mm	380-D25-FXPR-500
37	500 mm	380-D37-FXPR-500
50	500 mm	380-D50-FXPR-500

**Sub-D KAPTON Ribbon Cable - 500 mm long
CERAMIC UHV Socket to Open End**

No. OF WIRES	LENGTH	PART NUMBER
9	500 mm	380-D09-FXUR-500
15	500 mm	380-D15-FXUR-500
25	500 mm	380-D25-FXUR-500
37	500 mm	380-D37-FXUR-500
50	500 mm	380-D50-FXUR-500

**Sub-D KAPTON Ribbon Cable - Extension lengths
All Ribbon cables**

No. OF WIRES	LENGTH	PART NUMBER
9	+500 mm	380-EXT-09
15	+500 mm	380-EXT-15
25	+500 mm	380-EXT-25
37	+500 mm	380-EXT-37
50	+500 mm	380-EXT-50

Ribbon Cable Specification

Vacuum	HV/ UHV
Type of connector	HV / UHV PEEK / UHV CERAMIC
Gender	Female (fits to Feedthrough)
Type of cable	PTFE Ribbon / Kapton Ribbon



Example of two custom cables:
 Top: Single wires used with HV Sub-D connectors including housing and strain relief

Bottom: Single wires with second shielding. A standard and a small 15-way connector are used on this type



- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
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SMA / BNC 50 OHM Cables

For signal and High Frequency use, Coaxial cables with SMA and BNC connectors are listed here.

Versions with open end as well as with two connectors are offered, SMA is also offered with female types.

Standard length are 0.5 m and 1m, other lengths can be made according to your requirements.



Specification SMA-Cable

Vacuum	UHV
Type	Male/ Female/ Open
Test voltage	500V DC
Insulation test	>1 GOhm (core to shield)

- 18 GHz cables see Sec. 3 -

Specification BNC Cable

Vacuum	UHV
Type	Male/ Open
Test voltage	500V DC
Insulation test	>1 GOhm (core to shield)



380-BNC-MX-500



Female SMA connector on the cable 380-SMA-MF-500

SMA 50 OHM Cables 500 mm long MALE plug to open end/ SMA male/ SMA female

TYPE1	TYPE2	PART NUMBER
SMA	OPEN	380-SMA-MX-500
SMA	SMA	380-SMA-MM-500
SMA	SMA female	380-SMA-MF-500

BNC 50 OHM Cables, 500 mm long BNC to open end/ BNC

TYPE1	TYPE2	PART NUMBER
BNC	OPEN	380-BNC-MX-500
BNC	BNC	380-BNC-MM-500

SMA/ BNC 50 OHM Cables Extended length per 500 mm

TYPE	LENGTH	PART NUMBER
SMA	per 0.5 m	380-SMA-EXT05
BNC	per 0.5 m	380-BNC-EXT05

SMA/ BNC 50 OHM Cables - Additional cost up to 1.0 m Double shielded TRIAX cables - horseshoe contact option

TYPE	LENGTH	PART NUMBER
No contact	to 1m	360-DS
Contact	to 1m	360-DS-C

380-SMA-MM-500 cable with double shield option and contact 360-DS-C

The standard horseshoe used is for an M3 screw.



- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
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- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
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Other In-Vacuum Cables and spare Sockets

On this page you will find cables with the following connectors:

- SHV / MHV / Microdot
- IVCX Type for Single Sided BNC (also fits Single Sided MHV)

In addition all the various connectors are offered on their own for customer installation.



380-IVCX-500

Vacuum Ready Cables Specification

Vacuum	UHV
Temperature	-40°C to 200°C
Surface	SHV / MHV: Silver plated with gold plated conductor Microdot: Gold plated IVCX: Stainless steel with gold plated conductor
Insulation	PTFE; PEEK (for IVCX)
Test-Resistivity	>1 GOhm conductor to screen

**Kapton Coaxial SHV Cable - 50 Ohm type
SHV5 to open end**

TYPE	LENGTH	PART NUMBER
SHV	500 mm	380-SHV-FX-500
SHV	1000 mm	380-SHV-FX-1000

Feedthrough is Male

**Kapton Coaxial MHV Cable - 50 Ohm type
MHV to open end**

TYPE	LENGTH	PART NUMBER
MHV	500 mm	380-MHV-FX-500
MHV	1000 mm	380-MHV-FX-1000

Notice: Cable with male connector available.

Feedthrough is Male

**Kapton Co-axial MICRODOT Cable - 50 Ohm type,
500 mm long MICRODOT to open end or SMA or BNC**

TYPE 1	TYPE 2	PART NUMBER
MIC	open	380-MIC-MX-500
MIC	MIC	380-MIC-MM-500
MIC	SMA	380-MIC-SMA-500
MIC	BNC	380-MIC-BNC-500

Microdot Feedthrough is Female



Cables with SHV (left) and MHV (right) UHV connectors. SHV, MHV and Microdot connectors use a Viton tube for cable clamping



380-MIC-MX-500

380-IVCL Connector for F/T's which require a 19.8mm connection. For details please contact the sales office.



Components of the 245-CON-MIC connector. All connectors come with an assembly manual

**Coaxial Kapton Cables
General purpose type fits 241-BNC and 241-MHV types**

TYPE	LENGTH	PART NUMBER
Coaxial	0.5 m	380-IVCX-500
Coaxial	0.5 m	380-IVCL-500

Impedance of these connectors not constant

**Self assembly In-Vacuum Cable Connectors
fit to 311-KAP50 cable**

TYPE	No PER PKT.	PART NUMBER
BNC	1	245-CON-BNC
MHV	1	245-CON-MHV
MHV-male	1	245-CON-MHV-M
SHV	1	245-CON-SHV
N	1	245-CON-N
Microdot	1	245-CON-MIC

Sub-D
1
CM + DIL
F/T
2
Coax
F/T
3
Power
High Voltage
4
Thermo-
couple
5
Cables
Accessories
6
Viewports
Fiberoptic
7
Valves
8
Motion
Manipulation
9
Process
Control
10
Hardware
CF
11
KF
Hardware
12
ISO-K
Hardware
13
Adaptors
Specials
14
HV / UHV
Chambers
15
Atlas
Bi-Metal
16

Sockets and Crimps

Here you can find a Selection of Accessories for In-Vacuum Cables:

- Screw on Connectors
- Crimp pins and Connectors 0.5 mm to 2.4 mm \varnothing
- Push-On screw connectors

More components like Insulators, Ceramic Beads, Kapton tubes, UHV Shrink Hose, Braid, UHV Solder , UHV Glue, UHV grease will follow on the next pages

Specification Screw-on Socket

Max Current	20 ... 35A
Temperature	300 °C
Material	Copper-Beryllium
Reference	PIC

Specification Power-Crimp

Max Current	3A (0.8mm) / 10A (1.3 + 1.6mm)
Temperature	300 °C
Material	Copper-Beryllium
Reference	CRBC

Specification Push-on Socket

Max Current	25 A
Temperature	250 °C
Material	Copper-Beryllium
Reference	PPO



360-CRIMP-1.3

360-CRIMP-1.3 on High Current Feedthrough



360-PPO-1.3

Max. wire diameter is 1.25mm (up to 360-PPO-2.4) and 2.4mm for 360-PPO-6.3



Screw-on Socket Beryllium Copper

MAX ID	No PER PKT.	PART NUMBER
1.5 mm	10	360-PIC-1.5
1.8 mm	10	360-PIC-1.8
3.0 mm	10	360-PIC-3.0
3.4 mm	10	360-PIC-3.4
6.6 mm	10	360-PIC-6.6

Power Crimps Beryllium Copper

MAX ID	No PER PKT.	PART NUMBER
0.8 mm	10	360-CRBC-0.8
1.3 mm	10	360-CRBC-1.3
1.4mm	10	360-CRBC-1.4
1.6 mm	10	360-CRBC-1.6

Push-on Sockets Beryllium Copper

MAX ID	No PER PKT.	PART NUMBER
1.0 mm	10	360-PPO-1.0
1.3 mm	10	360-PPO-1.3
1.5 mm	10	360-PPO-1.5
2.4 mm	10	360-PPO-2.4
6.3 mm	2	360-PPO-6.3

Crimps Female to fit Feedthroughs Gold plated copper alloy

MAX ID	No PER PKT.	PART NUMBER
0.5 mm	10	360-CRF-05-10
0.75 mm	10	360-CRF-07-10
1.5 mm	5	360-CRIMP-1.3
2.4 mm	5	360-CRIMP-2.4

Crimps MALE to fit Female Crimps Gold plated copper alloy

MAX ID	No PER PKT.	PART NUMBER
0.75 mm	10	360-CRM-07-10
1.5 mm	5	360-CRIMP-1.3-M
2.4 mm	5	360-CRIMP-2.4-M

1 Sub-D
 2 CM + DIL F/T
 3 Coax F/T
 4 Power High Voltage
 5 Thermo-couple
 6 Cables Accessories
 7 Viewports Fiberoptic
 8 Valves
 9 Motion Manipulation
 10 Process Control
 11 CF Hardware
 12 KF Hardware
 13 ISO-K Hardware
 14 Adaptors Specials
 15 HV / UHV Chambers
 16 Atlas Bi-Metal

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Crimps, Connector blocks; Limit Switches

Cable-lugs are a convenient way to connect In-vacuum Cable to other parts.

The In-vacuum Cable connectors can be used either for high current lines or for coaxial cables.

Normally Closed Limit Switches are offered in 2 different sizes. They come with plug-in contacts of 1mm diameter.



Specification Cable Shoes with Ring

Vacuum	HV/ UHV
Diameter	max. cable Ø 1.0mm to 2.5mm
Material	Cu, Tin plated / Nickel
Temp.	max 200°C / 400°C Nickel versions



Cable Shoes with Ring or Horseshoe connection Fit M2 to M5 screws

CABLE	MOUNT HOLE	QTY	PART NUMBER
1.5 mm	M3	5*	360-RING-1.5-M3-NI
1.5 mm	M4	5*	360-RING-1.5-M4-NI
2.2mm	M4	5*	360-RING-2.2-M4-NI
1.0 mm	M2	10	360-RING-1.0-M2
1.0 mm	M3	10	360-RING-1.0-M3
1.7 mm	M2	10	360-RING-1.7-M2
1.7 mm	M3	10	360-RING-1.7-M3
2.4 mm	M3	10	360-RING-2.4-M3
1.0 mm	M3	10	360-LUG-1.0
1.7 mm	M3	10	360-LUG-1.7
2.5 mm	M5	5	360-LUG-2.5

*) Nickel versions



For installation of cable lugs and rings use 321-CTOOL-RING

Specification Connector Block

Vacuum	UHV
Material	PEEK housing
Temp.	bakeable to 230°C
High current	up to 10A

360-CON-HC with these connectors either a high current connection or a coaxial connection (360-CON-COAX) can be made.



Connector Blocks for UHV PEEK

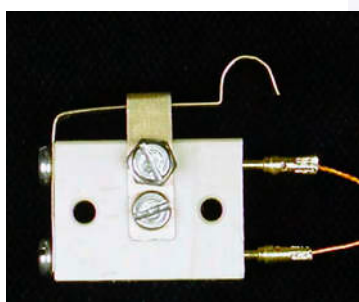
PINS	CONTACTS	PART NUMBER
4	2 X 2	360-SC2X2-1.8
4	1 X 4	360-SC1X4-1.8
6	1 X 6	360-SC1X6-1.8
8	1 X 8	360-SC1X8-1.8

In-Vacuum Cable Connectors PEEK set of Plug and Socket

TYPE	FITS	PART NUMBER
HC	KAPM-200	360-CON-HC
Co-axial	KAP50	360-CON-COAX

UHV Limit Switch Normally Closed Gold Plated Contacts

SIZE (mm)	MAIN BODY	PART NUMBER
25x17x8	15x10x6	363-SWITCH-1
25x17x8	20x10x6	363-SWITCH-2
25x23x8	20x15x6	363-SWITCH-3



363-SWITCH-3

UHV Lubricants, Thermal Contact pads, Glue and Kapton Solvent

Here you can find a Selection of In-Vacuum Accessories:

- UHV Lubricant
- UHV Leak Sealant
- Liquid Metal / Contact pads
- UHV Glue
- Kapton removal paste



Specification UHV Lubricant

Temperature	-50°C to 200 °C
Vapour pressure at	
20°C	~5 x 10 ⁻¹³ mbar
100°C	~1 x 10 ⁻¹⁰ mbar
125°C	~1 x 10 ⁻⁹ mbar
150°C	~1 x 10 ⁻⁸ mbar

UHV Lubricant suitable for use from -50°C to 200°C

SIZE	PART NUMBER
10g	330-MCOTE-296



Specification UHV Dry Lubricant

Quality	highly pure MoS ₂
Temperature	in-vacuum 1100°C air-side up to 450°C

UHV Dry Lubricant MoS₂

SIZE	MAX.TEMP	PART NUMBER
10g	1100°C (Vac)	330-MOS2-10G

Specification Vacseal

Operational Area	Leak-proof medium for small leaks
Size	Container with brush, 14ml
Vacuum	UHV

Leak Sealant VACSEAL

SIZE	PART NUMBER
14ml	330-VACSEAL-S

Specification thermal Contact Pad/ Liquid

Thermal contact, not suitable for Aluminium	
Melting point	8°C (TCL) / 58°C (TCP)
Contain no Cadmium, Lead, Zinc	
Vapour pressure	<10 ⁻⁸ mbar at 500°C
Boilung point	>1300°C (TCL) / >1500°C (TCP)

thermal Contact Pad/ Liquid

TYPE	QTY	PART NUMBER
Metal foil	20x20 mm	317-TCP-20X20
Metal foil	38x38 mm	317-TCP-38X38
Liquid Metal	1g	317-TCL-1

Specification UHV Glue

2 component glue, solvent-free, hot hardening (130°C)	
No filler, high chemical stability, Temperature stability from 77K up to 250°C	
Glue1	General use, medium viscosity, leak tight
Glue2	Use like varnish, high viscosity
Glue3	Silver filled glue, conducting

UHV Glue 2 component solvent free

TYPE	QTY	PART NUMBER
UHV	30g	330-GLUE1
UHV	30g	330-GLUE2
UHV	25g	330-GLUE3

Specification KAPEX Solvent Paste

Description	
Kapex dissolves Kapton and allows the insulation of Kapton Wire to be removed. The wire is coated in Kapex and Al foil and heated to 60-80°C. The dissolved Kapton can then be washed off.	
Ready for use paste in syringe.	

KAPEX Kapton Solvent Paste

SIZE	PART NUMBER
15g	315-KAPEX-S
30g	315-KAPEX-M

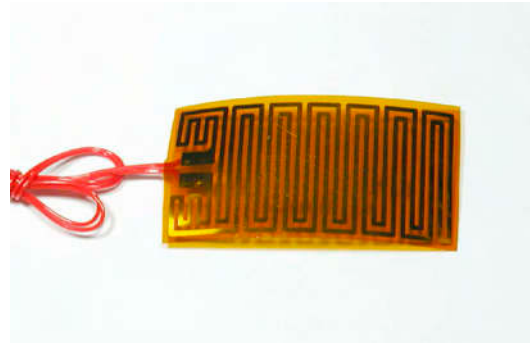
- 1 Sub-D
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Heaters, Ceramic Beads, Cable Ties

Various heaters are offered here: Heater Foils and Miniature Ceramic Heaters.

Ceramic Beads can be used, when temperatures are too high for Kapton insulated cables.

Cable Ties made from 316 SS are useful for cable fixation inside the vacuum system.



Specification Kapton Heater Foils

Vacuum	to 10 ⁻⁹ mbar
Temperature	-200°C to 200°C

Kapton Heater Foils - Circular or square Cable length 300 mm - PTFE wires

POWER	SIZE	PART NUMBER
8W/26□/0.55A	12.7 ø	317-KAPH-0.5
42W/78□/0.73A	25 x 25	317-KAPH-1/1
91W/39□/1.5A	25 x 50	317-KAPH-1/2
110W/185□/0.77A	50 x 50	317-KAPH-2/2
490W/43□/3.37A	102 x 102	317-KAPH-4/4



316-TIE-150

Kapton Heater Foils - Cable length 500 mm

Circular or Square with Kapton wires (311-KAPM-035)

POWER	SIZE	PART NUMBER
45W/60□/0.9A	15 x 76	317-KAPH-15x76
125W/160□/0.9A	46 x 56	317-KAPH-46x56
50W/75□/0.8A	38 ø	317-KAPH-38
230W/275□/0.9A	66 ø	317-KAPH-66



316-CBEAD-1.5

Specification Miniature Heater

Temperature	-40°C ... 500°C
Material	Al ₂ O ₃ , Pt, Glass
Size	1.9 x 9.5 mm
Thickness	< 0.2 mm (contact area ~ 0.4 mm)
Connections	0.1 mm Pt-Wire ~3.5 mm long
High current	up to 2 A
Voltage	13.5 V
Resistivity	6.8 Ohm

Miniature Heater UHV

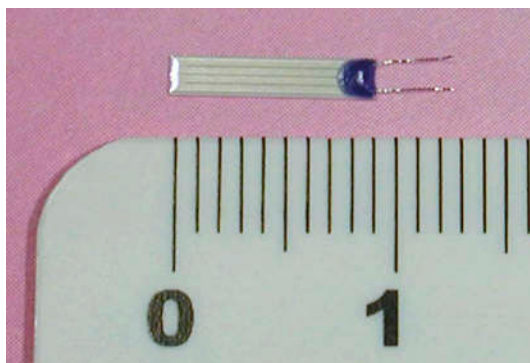
POWER	SIZE	PART NUMBER
27W	9.5 x 2.0	343-HEATER-2x10

Ceramic Beads Pack for 250 mm Wire length

ID	OD	PART NUMBER
1.5 mm	4 mm	316-CBEAD-1.5
2.5 mm	5 mm	316-CBEAD-2.5
2.7 mm	6 mm	316-CBEAD-2.7

SS Cable Ties 316 SS, Pack of 5

LENGTH	MAX ø	PART NUMBER
150 mm	40 mm	316-TIE150
200 mm	55 mm	316-TIE200
360 mm	105 mm	316-TIE360



343-HEATER-2x10

UHV Solder, PEEK material, ceramic tubes

- Here you can find a Selection of In-Vacuum Accessories:
- UHV Solder (High Temperature and Lead Free version)
 - PEEK raw Material in various shapes
 - Ceramic Tubes for cable insulation with 1, 2 and 4 holes
 - Coloured Glass Beads for Cable marking
 - Material of ceramic tubes: Al_2O_3

Specification UHV Solder

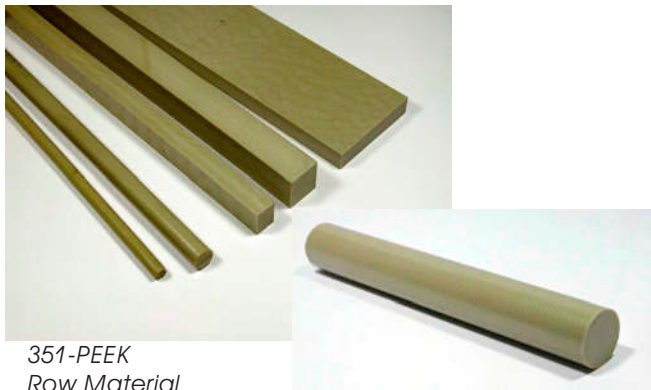
	315-SOLDER	315-LF-Solder
Melting point	300°C	225°C
Vapour press. (250°C)	<1.5 10 ⁻¹¹	<10 ⁻¹² mbar
Material	Pb/Ag	Sn/Cu/Ag
RoHS conformity	Yes	Yes



315-LF-SOLDER
 It includes flux
 (~10m)

Specification PEEK Raw Material

Vacuum UHV
 Temperature bakeable to 250°C
 The material is brittle and should be used with care.
 Allectra is pleased to quote for machined PEEK parts.



351-PEEK
 Raw Material

351-PEEK-20D



Various ceramic tubes



**UHV Solder
 High Temperature Type to 300°C**

TYPE	LENGTH	PART NUMBER
LEADED	0.5 m	315-SOLDER
LEADED	1.0 m	315-SOLDER-1M

**UHV Solder
 Lead Free type to 225°C**

TYPE	LENGTH	PART NUMBER
NO LEAD	0.5 m	315-LF-SOLDER
NO LEAD	1.0 m	315-LF-SOLDER-1M

**PEEK Raw Material Rods - 250 mm long
 Circular(C) or Rectangular(R) Section**

SECTION	SIZE	PART NUMBER
C	Ø 6 mm	351-PEEK-6D
C	Ø 10 mm	351-PEEK-10D
C	Ø 16 mm	351-PEEK-16D
C	Ø 20 mm	351-PEEK-20D
R	6 x 15 mm	351-PEEK-6X15
R	10 x 14 mm	351-PEEK-10X14
R	10 x 50 mm	351-PEEK-10X50

Ceramic Tubes, 300mm Length

TYPE	OD / ID	PART NUMBER
1 hole	2.0 / 1.0	358-TUBE-20
2 holes	2.1 / 2 x 0.8	358-TUBE-21-2
4 holes	2.6 / 4 x 0.6	358-TUBE-26-4
	---	358-TUBE-CUT

**Coloured Marker Beads
 6 different colours**

ID / OD	Pack off	PART NUMBER
1mm/ 2mm	300	316-COLBEADS
0.6mm/ 2.4mm	500	316-COLBEADS-06
0.6mm/ 2.4mm	2000	316-COLBEADS-06-2000

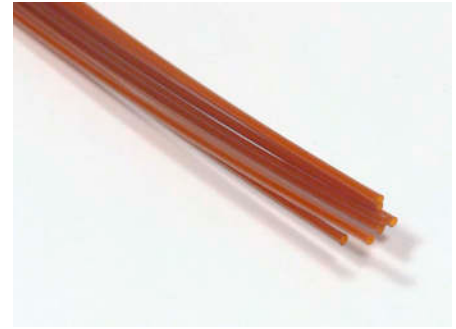
- 1 Sub-D
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UHV Shrink Hose, Kapton Tubes Viton- and PTFE Hoses

Shrink Hose based on PTFE can be used as a problem solver for many applications in UHV.

Kapton Tube allows easy insulation of bare wires and thermocouples.

Viton and PTFE Hose is offered in various sizes per meter

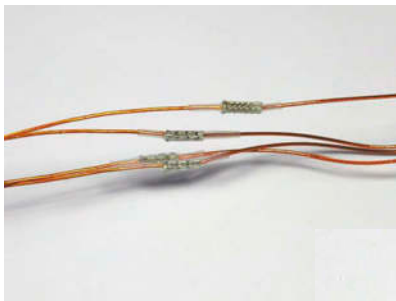


Specification for UHV Shrink Hose

Vacuum	UHV
Temperature	Shrink: >350°C UHV use up to 260°C
Shrink rate	4 : 1

UHV compatible Shrink Hose 500mm per Pack

TYPE	MAX ID	PART NUMBER
PTFE	2.0 mm	316-SHRINK-20
PTFE	3.2 mm	316-SHRINK-32
PTFE	6.3 mm	316-SHRINK-63
PTFE	9.5 mm	316-SHRINK-95
PTFE	14 mm	316-SHRINK-140

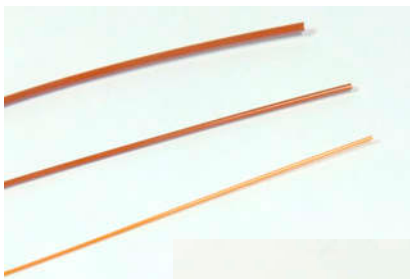


316-SHRINK-Applications

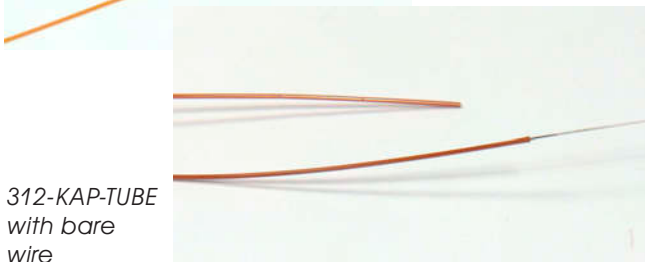


Kapton® Tubes, 300 mm long extruded

TYPE	MAX ID	PART NUMBER
KAPTON	0.32 mm	312-KAP-TUBE-03-300
KAPTON	0.51 mm	312-KAP-TUBE-05-300
KAPTON	0.64 mm	312-KAP-TUBE-06-300
KAPTON	0.72 mm	312-KAP-TUBE-07-300
KAPTON	0.81 mm	312-KAP-TUBE-08-300
KAPTON	1.0 mm	312-KAP-TUBE-10-300
KAPTON	1.4 mm	312-KAP-TUBE-14-300



312-KAP-TUBE



312-KAP-TUBE
 with bare
 wire

PTFE Tubes extruded, per Metre

TYPE	ID/ OD	PART NUMBER
PTFE	2/4 mm	370-PTFE-TUBE2
PTFE	3/5 mm	370-PTFE-TUBE3
PTFE	4/6 mm	370-PTFE-TUBE4
PTFE	10/12 mm	370-PTFE-TUBE10
PTFE	12/14 mm	370-PTFE-TUBE12

Specification KAPTON® Tubes

Temperature	-270 ... 260°C
Material	Kapton®, extruded quality
Thickness	0.3 ... 0.8mm: 25µm 1.0 ... 1.4mm: 50µm

VITON® Tubes extruded, per Metre

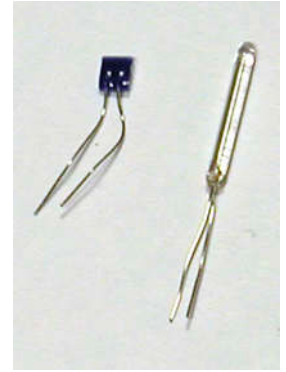
TYPE	ID/ OD	PART NUMBER
VITON	1/3 mm	370-VIT-TUBE1
VITON	2/4 mm	370-VIT-TUBE2
VITON	3/5 mm	370-VIT-TUBE3
VITON	4/6 mm	370-VIT-TUBE4
VITON	5/7 mm	370-VIT-TUBE5
VITON	6/9 mm	370-VIT-TUBE6
VITON	10/13 mm	370-VIT-TUBE10

Pt Resistance Thermometers, Kapton Foil and Cable Crimp tubes

For accurate temperature measurement, PT100 resistors are offered. They are available without wires and optionally with pre-fitted Kapton wires for 4-wire connection.

Kapton Foil can be cut to size with scissors. Two thicknesses are offered.

Crimp Tubes can be used to combine cables without using solder.



Left: 342-PT100-C2
 Right: 343-PT100-1.3-B

Specification for PT100 Glass Thermometer

Vacuum	UHV 10 ⁻¹⁰ mbar
Temperature	-200 °C ... 450°C
Accuracy	Class B (0.3 + 0.005*T)
Dimension	1.3mm Ø x 10mm
Wire lengths	~10mm

Platinum Resistance Thermometer GLASS Tube with or without 4x1m KAPM-025 wires

TYPE	SIZE	PART NUMBER
NO WIRES	1.3 x 10	343-PT100-1.3-B
WIRES	1.3 x 10	343-PT100-1.3-B-1M



Specification for PT100 Ceramic Thermometer

Vacuum	UHV 10 ⁻¹⁰ mbar
Temperature	-70 °C ... 500°C
Accuracy	Class 1/3 B (0.1 + 0.0017*T)
Dimension	2.3mm x 2.1mm x ~0.5mm
Wire lengths	~10mm

Platinum Resistance Thermometers CERAMIC Plate with or without 4x1m KAPM-025 wires

TYPE	SIZE	PART NUMBER
NO WIRES	2.3 x 2.1	343-PT100-C2
WIRES	2.3 x 2.1	343-PT100-C2-1M



Specification for Kapton Foil

Vacuum	UHV
Temperature	-270 ... 260°C
Material	Kapton®
Size	~200 x 300mm sheet
Thickness	25µm / 50µm / 75µm / 125µm
Voltage rating	2KV / 4KV / 6KV / 10KV in vacuum

Kapton Foil 200 x 300 mm sheet

VOLTAGE	THICKNESS	PART NUMBER
2KV	25µ	312-KAPF-25-M
4KV	50µ	312-KAPF-50-M
6KV	75µ	312-KAPF-75-M
10KV	125µ	312-KAPF-125-M



Various sizes of crimp tubes. Use 214-CTOOL for crimping.

Crimp Tubes, Tin plated Copper 10 Pieces per pack

ID	OD / LENGTH	PART NUMBER
1,0mm	1,4 / 6 mm	360-CRTUBE-10
1,2mm	1,6 / 6 mm	360-CRTUBE-12
1,4mm	1,8 / 6 mm	360-CRTUBE-14
1,7mm	2,0 / 7 mm	360-CRTUBE-17
2,2mm	2,6 / 7 mm	360-CRTUBE-22
2,8mm	3,2 / 9 mm	360-CRTUBE-28
3,5mm	4,0 / 10 mm	360-CRTUBE-35
4,5mm	5,0 / 12 mm	360-CRTUBE-45
5,9mm	6,4 / 16 mm	360-CRTUBE-59

1 Sub-D
 2 CM + DIL F/T
 3 Coax F/T
 4 Power High Voltage
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Crimp tool overview

Here an overview of CRIMP PINS supplied by Allectra and the recommended CRIMP TOOLS.
The tools 321-CTOOL-SMA and CTOOL-SMA-BNC use the same basic tool with different crimp inserts.
Crimp results depend also on the used cable diameter.
In some cases, the locators must be removed.

Pin Type	Pin Type 2	214-CTOOL	214-CTOOL-SUB-D *)	214-CTOOL-HQ *)	214-CTOOL-TC	214-CTOOL-TC-HQ *)	214-CTOOL-TP *)	214-CTOOL-SMA	214-CTOOL-SMA-BNC	214-CTOOL-RING	Remarks
212-PINF	212-PINF-B	X	X	XX	(X)	(X)		(X)			Cable 0,25 - 1mm
212-PINF-S			X	XX	(X)	(X)		(X)			Cable 0,1 to 0,6mm
212-PINM		X	X	XX	(X)	(X)		(X)			Cable 0,25 - 1mm
212-PINM-S			X	XX	(X)	(X)		(X)			Cable 0,1 - 0,6mm
213-PINF-K/J...	213-PINM-K/J...				X	XX					
212-PINF-NH		X	X	XX	(X)	(X)		(X)			
212-PINF-HD		X	X	X		(X)		(X)			
212-POWER-F	212-POWER-M								X		for 311-KAPM-200
220-CM-PINF		(X)	X	XX	(X)	(X)					
220-CM-PINF-S		(X)	X	XX	(X)	(X)					
245-CON-SMA	245-CON-SMA-CER							X	XX		
245-CON-SMA-S									X		
245-CON-SMA-F	245-CON-SMA-90							X	X		
245-CON-BNC								X			
245-CON-BNC-S									X		for 311-KAP50-S
245-CON-MIC								X			
245-CON-SMB									X		
245-CON-N									X		
360-CRF-05		(X)	X	X				(X)			
360-CRF-07		X	X	X				(X)			
360-CRM-07		X	X	X				(X)			
360-CRIMP-1.3		X		X			X				
360-CRIMP-1.3-M		X		X			X				
360-CRIMP-2.4		(X)					X				
360-CRIMP-2.4-M		(X)					X				
360-TCRIMP-x		X		X			X				
360-CRBC-0.8		(X)		X			X				
360-CRBC-1.3		(X)		X			X				
360-CRBC-1.6		(X)		X			X				
360-LUG-xxx										XX	
360-RING-xxx										XX	

*) : Crimp tool with Locator

XX: Best

X: Good

(X): Possible in some cases

Tools

The full range of Allectra Crimp tools are listed here.
 In addition Wire Strippers for Kapton Wires are listed here.



214-CTOOL
 Standard tool for Sub-D Pins.(212-PINF & 212-PINM)
 Four brackets type.
 No positioner.



214-CTOOL-SUB-D
 Low cost four-indent crimp tool with positioner.
 Good for wires of 0.6mm to 1mm



214-CTOOL-HQ
 High Quality four-indent crimp tool with positioner
 Depths of crimp can be adjusted.
 Also used for "Small" crimps with thick wall.



214-CTOOL-TC
 Simple tool for thermocouple and other stamped pins.



214-CTOOL-TC-HQ
 High quality Crimp Tool for T/C and other stamped pins. Includes positioner, easy and reliable crimp action.



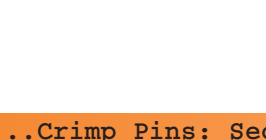
321-CTOOL-TP
 Similar to 214-CTOOL-SUB-D but for bigger pins up to 4.8 mm outer diameter.
 With positioner.



321-CTOOL-SMA
 Tool with exchangeable inserts.
 Hex crimping. 6 positions including the small sizes 1.07 and 0.72mm



321-CTOOL-SMA-BNC
 Tool with insert for BNC(2.6mm), 3 positions



321-CTOOL-RING
 Tool with insert for cable ending connectors. 3 positions



Crimp tools

PART NUMBER
214-CTOOL
214-CTOOL-SUB-D
214-CTOOL-HQ
214-CTOOL-TC
214-CTOOL-TC-HQ
214-CTOOL-TP
214-CTOOL-SMA
214-CTOOL-SMA-BNC
214-CTOOL-RING

Kapton Wire Strippers Precision Stripper

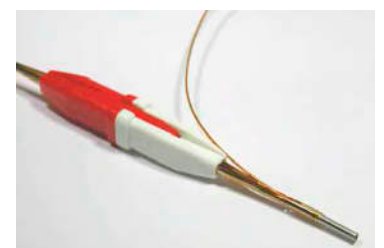
SIZE mm	SIZE AWG	PART NUMBER
0.12-0.4	36-26	321-STRIP04
0.3-1.0	28-18	321-STRIP10



321-STRIP-10

Pin demounting Tool for Sub-D ONLY FOR HV TYPES

TYPE	No. PER PKT.	PART NUMBER
DEMOUNT	1	214-CRIMPINS



214-CRIMPINS with cable

1 Sub-D
 2 CM + DIL F/T
 3 Coax F/T
 4 Power High Voltage
 Thermo-couple
 Cables Accessories
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