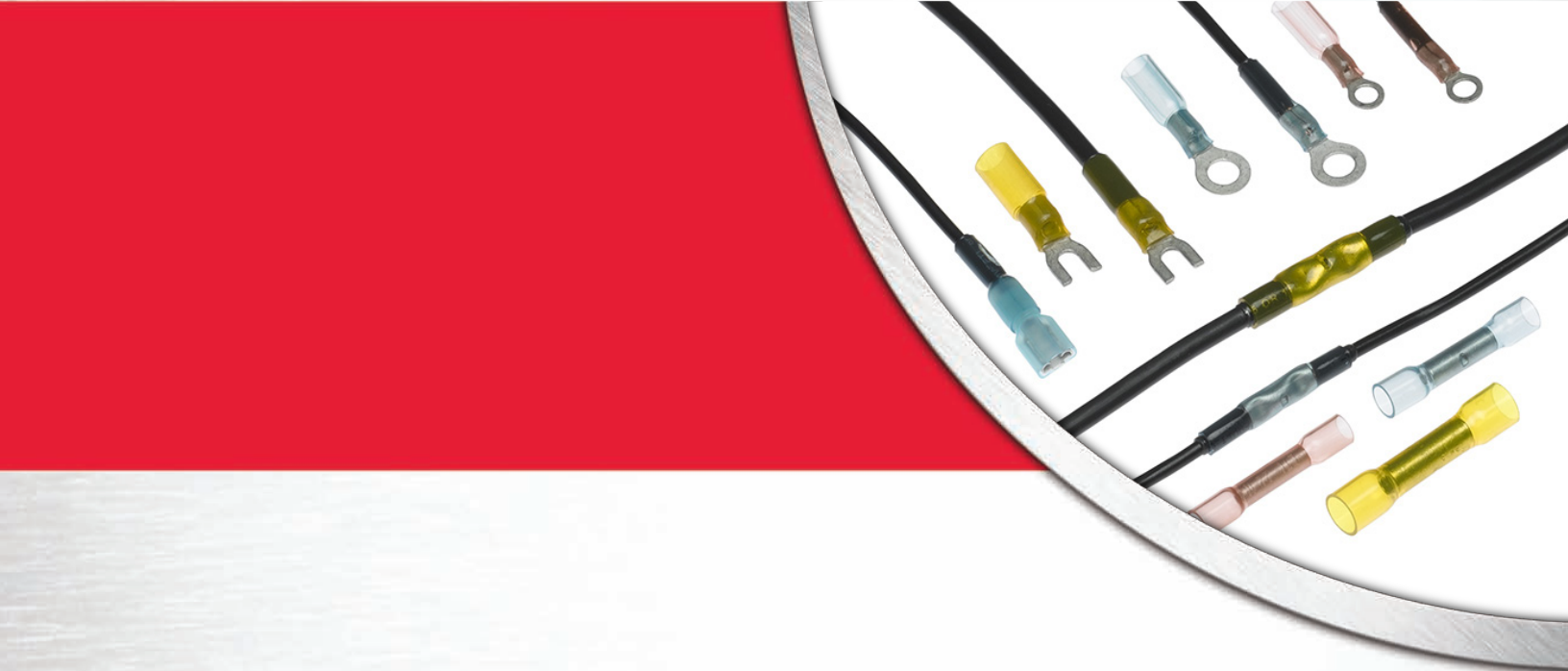


# Perma-Seal™ Terminals and Splices



**molex**®

Perma-Seal™ terminals and splices provide a rugged environmentally sealed connection for wire sizes 8 to 22 AWG. Perma-Seal insulates, protects and seals electrical connections from physical abuse, abrasion, water, salt and other corrosive compounds.

### Waterproof Adhesive Seal

Perma-Seal products are engineered to give you a long lasting, moisture proof connection. This connection withstands water, salt, condensation, corrosion and heat, all of which can cause serious problems for conventional unsealed terminations.

The inner wall of the heat-shrinkable Perma-Seal NiAc insulation is lined with a special hot melt adhesive. This adhesive is inert at room temperature allowing easy insertion of the wire. As the NiAc insulation is heated, the adhesive melts and flows under pressure surrounded by the outer shrink tubing. This action fills any existing voids and seals the connection from the environment. This seal repels moisture incursion, even during pressure cycling and performs in the most demanding of applications.

### Simple Installation

Perma-Seal terminals and splices are simply crimped onto the wire and heat is applied through either a heat gun or oven for batch processing. Our NiAc compound shrinks at a lower temperature (90°C) and shrinks up to 40% quicker than most of the competitive products in the market. We also mount our Perma-Seal on Mylar tape to facilitate semi-automatic or automatic wire termination on the production floor. Molex Perma-Seal has a lower applied cost than competitive products. The see through NiAc insulation allows for easy visual inspection of the crimped and sealed joint.

### Tough and Durable

The rugged NiAc insulation sleeve of Perma-Seal splices and terminals resists abrasion and cutting. This protection helps maintain the insulation and sealing properties both inside and out, in the most hostile environments.

## Perma-Seal™



### Versatile

Perma-Seal terminals and splices provide a reliable, impermeable seal. The heat-shrinkable NiAc sleeve has a funnel entry opening that accommodates thick wire insulations as well as thin due to its ability to shrink to less than half its original diameter to seal a wide variety of insulation types.

## FEATURE AND BENEFITS

- Wall thickness is significantly thicker than competing polyolefin or nylon products, providing excellent durability
- Shrinks fast! Up to 40% faster than polyolefin or nylon products. This saves installation costs and dramatically reduces the potential for wire insulation damage
- Insulation made of high performance NiAc third generation material
- Excellent chemical resistant properties. Perma-Seal will keep on working even when immersed in the following chemicals: Antifreeze, brake fluid, gasoline, motor oil, isopropanol, trichloroethylene, diesel fuel, salt water and battery acid

### Physical

Minimum Shrink Temperature: 90°C  
 Operating Temperature: -55°C to 125°C  
 Concentricity: 70% minimum  
 Linear Shrink: +1/-10%

## SPECIFICATIONS

### Reference Information

UL = E32244  
 CSA = LR18689

### Physical

Property	Test Method	Typical Performance
Tensile Strength	ASTM D2671	4000 psi
Elongation	ASTM D2671	450%
Longitudinal Change	ASTM D2671	10% max.
Specific Gravity		0.95
Heat Resistance (168 hrs @ 160°C)	168hrs@165±5°C	No cracking, flowing or dripping of outer wall
Heat Shock (4 hrs@250°C)	ASTM D2671	No cracking, flowing or dripping of outer wall
Low Temperature Flexibility (4 hrs @±55 °C)	ASTM D2671	No cracking or splitting of outer wall
Flammability	FMVSS 302	Passed

### Electrical

Dielectric Strength	ASTM D2671	750V/mil (30KV/mm)
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### Chemical

Fluid Resistance (24 hrs @ 23°C) (fluids tested: trichlorethylene, isopropyl alcohol, gasoline, battery acid, diesel fuel, motor oil, antifreeze, brake fluid, and 5% salt water)	ASTM D2671	Good to Excellent
Copper Corrosion	ASTM D2671 (Section 89.1 B)	Not Corrosive
Water Absorption	ASTM D2672	1% max.

Perma-Seal™

18-22 AWG

Stud	Size	Order No.
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6	Loose	19164-0085
	Tape	Contact Molex

8	Loose	19164-0086
	Tape	19164-0419

10	Loose	19164-0003
	Tape	19164-0306

1/4	Loose	19164-0004
	Tape	19164-0844

3/8	Loose	19164-0005
	Tape	19164-0845

6	Loose	19164-0006
	Tape	Contact Molex

8	Loose	19164-0007
	Tape	Contact Molex

10	Loose	19164-0008
	Tape	Contact Molex

14-16 AWG

Stud	Size	Order No.
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6	Loose	19164-0032
	Tape	19164-0310

8	Loose	19164-0033
	Tape	19164-0311

10	Loose	19164-0034
	Tape	19164-0312

1/4	Loose	19164-0026
	Tape	19164-0308

5/16	Loose	19164-0027
	Tape	19164-0309

3/8	Loose	19164-0020
	Tape	19164-0307

6	Loose	19164-0028
	Tape	19164-0948

8	Loose	19164-0029
	Tape	19164-0949

10	Loose	19164-0030
	Tape	19164-0950

10	Loose	19164-0021
	Tape	Contact Molex

10-12 AWG

Stud	Size	Order No.
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6	Loose	19164-0061
	Tape	19164-0937

8	Loose	19164-0062
	Tape	19164-0938

10	Loose	19164-0063
	Tape	19164-0316

1/4	Loose	19164-0066
	Tape	19164-0317

5/16	Loose	19164-0067
	Tape	19164-0318

3/8	Loose	19164-0068
	Tape	19164-0857

1/2	Loose	19164-0058
	Tape	Contact Molex

10-12 AWG

Stud	Size	Order No.
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6	Loose	19164-0069
	Tape	Contact Molex

8	Loose	19164-0070
	Tape	Contact Molex

10	Loose	19164-0072
	Tape	Contact Molex

10	Loose	19164-0073
	Tape	Contact Molex

8 AWG

10	Loose	19164-0080
	Tape	19164-0602

1/4	Loose	19164-0081
	Tape	19164-0603

5/16	Loose	19164-0083
	Tape	19164-0605

3/8	Loose	19164-0082
	Tape	Contact Molex

1/2	Loose	19164-0457
	Tape	Contact Molex

Perma-Seal™

Standard Butt Splices for splicing two wires of the same wire range



22-18	Loose	19164-0013
	Tape	19164-0014

16-14	Loose	19164-0044
	Tape	19164-0045

12-10	Loose	19164-0056
	Tape	19164-0057

8	Loose	19164-0079
	Tape	Contact Molex

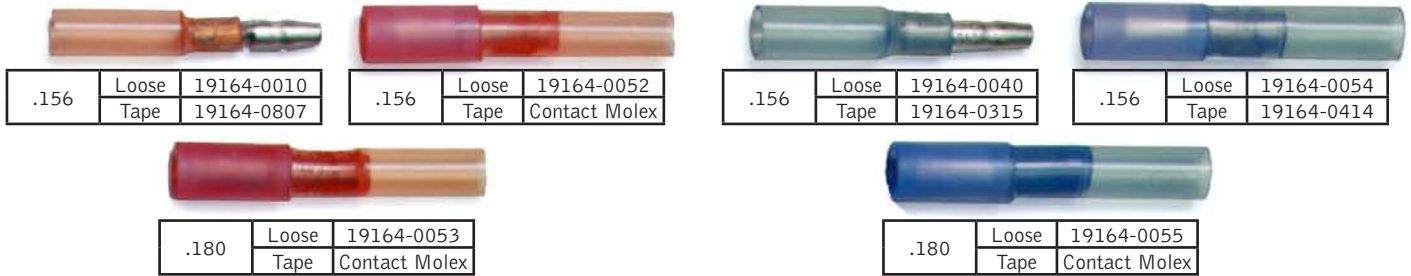
Step Down Butt Splices for splicing two wires of different wire range



16-14 to 22-28	Loose	19164-0043
	Tape	Contact Molex

12-10 to 16-14	Loose	19164-0077
	Tape	19164-0582

Snap Plug and Receptacle Products



.156	Loose	19164-0010
	Tape	19164-0807

.156	Loose	19164-0052
	Tape	Contact Molex

.156	Loose	19164-0040
	Tape	19164-0315

.156	Loose	19164-0054
	Tape	19164-0414

.180	Loose	19164-0053
	Tape	Contact Molex

.180	Loose	19164-0055
	Tape	Contact Molex

Quick Disconnects and Specialty Products



Female	Loose	19164-0017
	Tape	19164-0018

Male	Loose	19164-0015
	Tape	19164-0016

Female	Loose	19164-0050
	Tape	19164-0051

Male	Loose	19164-0048
	Tape	19164-0049

Female	Loose	19164-0012
	Tape	Contact Molex

Female	Loose	19164-0047
	Tape	Contact Molex

Male	Loose	19164-0084
	Tape	Contact Molex

Female	Loose	19164-0059
	Tape	Contact Molex

Female	Loose	19164-0076
	Tape	19164-0305

Male	Loose	19164-0075
	Tape	Contact Molex



Loose	19164-0011
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Loose	19164-0042
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Loose	19164-0074
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**TAPE MOUNTED PRODUCTS FOR MACHINE APPLIED OEM APPLICATIONS**

Molex Perma-Seal products are available on Mylar tape mounted reels for medium to high volume OEM applications. Reels mount easily onto the bench top ATP-301 series semi-automatic crimping press as well as our new Mini-Mac tape applicator compatible with most wire processing systems. Not having to individually hand crimp these parts saves production time and significantly lowers the applied cost of Molex Perma-Seal terminals and splices.

**Perma-Seal™**