

# Scotch-Weld™

## EPX™ Grey Epoxy Adhesive DP190

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### Product Data Sheet

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Updated : March 1996  
Supersedes : November 1993

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#### Product Description

DP190 grey epoxy adhesive is a room temperature curing, two part epoxy adhesive supplied in 3M Duo-Pak cartridge for use with 3M EPX Applicator.

DP190 offers:

Good peel, cleavage and shock resistance.

Retains strength after environmental ageing.

1:1 premix system allowing gap filling.

Good plastic adhesion.

Suitable for bonding metals, wood, masonry products, most plastics and rubbers and PCB mounting.

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#### Physical Properties

Not for specification purposes

	BASE	ACCELERATOR
<b>Base</b>	Modified Epoxy	Modified Amine
<b>Specific Gravity</b>	1.33	1.29
<b>Viscosity</b> (cP at 27°C)	112,500	60,000
<b>Colour</b>	White	Grey
<b>Work Life</b>	90 minutes at 24°C.	
<b>Handling Strength</b>	480 minutes at 23°C	
<b>Full Strength</b>	7 days (test full performance at one week).	
<b>Shelf Life</b>	15 months from date of despatch by 3M when stored in the original carton at 21°C (70°F) & 50 % Relative Humidity	

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#### Performance Characteristics

Not for specification purposes

<b>T-Peel Strength</b>	Measured on abraded, steel (0.8mm) at 24°C 43.9 N/cm (25 piw)	
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**Performance Characteristics (Cont...)**  
 Not for specification purposes

**Overlap Shear Strength**

The following strength values were obtained with DP190 when tested after 7 day cure cycle at 24°C.

Substrates solvent wiped, abraded and solvent wiped prior to bonding.

	MPa	psi
Galvanised Steel	11.4	1650
Cold Rolled Steel	11.7	1700
FPL Etched Aluminium	17.6	2550
Copper	8.6	1250
Stainless Steel	11.4	1650
Brass	7.9	1150
Acrylic	6.6*	960*
PVC	6.1*	880*
Polycarbonate	10.1*	1470*
Neoprene/Steel	1.7*	250*
SBR/Steel	1.4*	210*
ABS	6.8*	990*
FRP	11.0*	1590*

\* Denotes Substrate Failure

**Durability**

Percent of bond strength remaining after exposure to 90% relative humidity/32°C for 90 days.

All materials were solvent wiped/abraded/solvent wiped prior to bonding.

Aluminium	100	Aluminium Primed with EC1945 B/A	100
Steel	92	Steel Primed with EC1945 B/A	100
ABS	99	FRP	97

3M Primer EC1945 B/A was applied by dip-coating  
 Metals were 1.6mm thick  
 Plastics were 3mm thick

**Electrical Properties**

Dielectric Strength (Volts / mm)	3.1 x 10 <sup>4</sup>
Volume Resistivity (Ohms / cm)	4.5 x 10 <sup>13</sup>

**Thermal Properties**

Thermal Conductivity W/m°C	0.337
Coefficient of Thermal Expansion (cm/cm/°C)	
-50°C to 30°C	62 x 10 <sup>-6</sup>
50°C to 110°C	177 x 10 <sup>-6</sup>

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**Storage Conditions**

Store product at 16 to 27°C for maximum storage life. High temperatures reduce normal storage life.

Rotate stock on a "first in-first out" basis.

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**Directions for Use**

Place the cartridge into the 3M EPX Applicator and clip into position.

Remove the resealable cap.

Expel a small quantity of adhesive and ensure both components flow freely.

Attach correct mixer nozzle (this should have 20 or more elements).

Dispense the adhesive as required.

When finished either leave the nozzle in place and store, or remove the nozzle, wipe clean the tip, and replace cap.

To re-start after storage remove the old nozzle with cured adhesive and re-fit a new nozzle, or remove the cap and fit a new nozzle.

**Surface Preparation:**

The degree of surface preparation depends on the bond strength required and the environment likely to be encountered by the bonded structure. For most plastics solvent wiping with 3M VHB surface cleaner, followed by abrasion with 3M Scotchbrite 7447, followed by a further solvent wipe until clean, will give good performance (except for acetal, polyethylene and polypropylene and some other low surface energy materials). This also applies to powder coat paints and other stoved paint systems.

The same surface preparation will also give good adhesion to metal surfaces. The objective is to remove loosely attached surface films such as oils, waxes, dusts, mill-scale, loose paints and all other

surface contaminants in addition to enhancing mechanical adhesion. Grit-blasting using a clean, fine grit also offers excellent adhesion on many metallic substrates.

Where humid environments are likely to be encountered by metallic substrates we recommend additional priming with 3M Scotch-Weld 1945B/A or 3M Scotch-Weld 3901. Alternatively, chemical conversion coating techniques combined with priming can offer the best durability. 3M Scotch-Weld 1945B/A is best used with flexible adhesives, it also provides a protective anti-corrosion coating. 3M Scotch-Weld 3901 can be used in conjunction with both flexible and toughened adhesives and it improves specific adhesion. 3M Scotch-Weld 3901 is also an excellent glass primer.

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**Clean Up**

**Clean-Up:**  
Excess uncured adhesive can be removed with the following solvents:

**3M VHB Surface Cleaner**  
(mild alcohol based cleaner)  
**3M Scotch-Grip Solvent No2.** (Ketone blend)  
**3M Industrial Cleaner**  
(Aerosol).

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**Health & Safety  
Information****Precautions:**

Causes severe eye irritation, may cause permanent eye damage. Irritating to skin. May cause sensitisation by skin contact. Avoid contact with the skin and eyes. Wear suitable gloves and eye/face protection.

Launder contaminated clothing before re-use. Avoid prolonged breathing of vapours. Avoid inhalation of dust when grinding or cutting cured material.

**First Aid:**

**Eye Contact:** Immediately flush eyes with copious amounts of water for at least 15 minutes, holding eyes open. Call a physician.

**Skin Contact:** Wash immediately with plenty of soap and water.

For further information please contact the Toxicology Department at the Bracknell Head Office on (0344) 858000.