

**3M**

# Hot Melt Adhesive Systems

For strength, speed, choice and convenience  
Stick with it



# Why 3M™ Jet-melt™ Hot Melt adhesives?

*The 3M Jet-melt Adhesive Bonding Systems have been specifically developed to provide a versatile and convenient method of joining a wide range of substrates used in manufacturing.*

*Jet-melt Adhesives are solvent-free thermoplastic resins that become liquid when heated.*

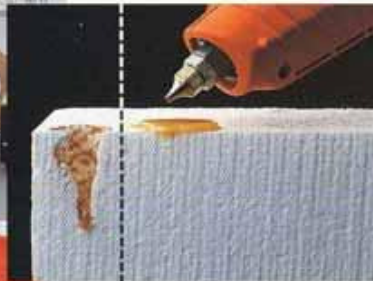
*They are applied in their molten state and, upon cooling, immediately form a strong bond to most surfaces including wood, plastic, foam, fabric, expanded polystyrene foam and cardboard.*



## 3M Continuous Innovation

Traditional Hot Melts are applied at approximately 210°C. This can cause problems on materials with low heat resistance and increases the risk of operator burns. Continuous product development has

resulted in the introduction of the Jet-melt Low Melt adhesives range. Being applied at 130°C these adhesives minimise the mentioned disadvantages, but still have similar performance as the standard Hot Melt versions. Smell and fuming is reduced at the same time.



Standard Hot Melt adhesive

3M Low Melt adhesive

## 3M Jet-melt Application Equipment

3M believes that robust, reliable and easy to use Hot Melt application equipment is key to achieving high productivity, high quality and long term satisfaction of operators. For these reasons 3M has concentrated on offering the ideal range of applicators to meet your application and production needs.

### 3M Polygun™ EC Applicator

Our newest and most versatile applicator, which is likely to meet the requirements of most customers, is the Polygun EC. This gun provides multiple application temperatures to dispense the adhesive at the optimum temperature.

**Adhesive throughput 50 gms/min.**  
 Weight: 860 gms. Output 380 watts.  
 30 gms of Quadrack stick gives 7.1 m bead.  
 Temperature range adjustable from 130°C up to 232°C with pre-set temperature module kits that insert into the handle.

Positive adhesive shut off system eliminates excessive dripping so common in ball-check valve designs.



Special Quadrack adhesive shape assures positive adhesive feed for maximum throughput.

Adjustable backstop allows predetermined shot sizes.

Ergonomically designed palm trigger reduces operator fatigue.

Compact, light-weight and rugged - weighing only 860 gr.

Vented double wall construction dissipates heat away from handle for user comfort.

Unique heat block design. 380 watt heating system ensures maximum throughput.

Temperature range adjustable from 130°C up to 232°C with pre-set temperature module kits that insert into the handle.



## 3M Jet-melt Polygun LT Low Melt Applicator

Use of a palm trigger reduces operator fatigue where longer beads are required.

**Adhesive throughput 36 gms/min.**  
 Weight: 370 gms. Output 150 watts.  
 30 gms Quadrack Low Melt adhesive stick gives 7,1 metre bead.  
 Adhesive temperature = 130°C.

Available as Jet-melt TC Quadrack™ Applicator for applying Hot Melt adhesives at = 210°C.



## 3M Jet-melt II Air-Powered Applicator

This air powered gun has the highest output of the range. Used where long beads or large volumes of adhesive are required, a high capacity adhesive slug magazine feeder is available. Additionally the gun can be semi-automated when bench mounted and used in conjunction with a foot pedal.

**Adhesive throughput 60 gms/min.**  
 Weight: 1500 gms. Output 500 watts.  
 Operates at 80 psi (5.5 bars).  
 Uses 37 gm adhesive slugs, this gives a 9,8 metre bead. (not suitable for Low Melt adhesives).

## 3M Jet-melt Touch Control Applicator

The Jet-melt TC gun is recommended for intricate work such as dot and spot applications often found in the electronics industry.

**Adhesive throughput 36 gms/min.**  
 Weight: 330 gms. Output 150 watts.  
 Various nozzles available, easy reload.  
 8 gm mini stick gives 2,1 metre bead. (not suitable for Low Melt adhesives).



## Equipment segmentation

Application Size	Application Speed		
	Slow	Medium	Fast
Small	TC	TCQ/LT	EC
Medium	TCQ/LT	EC	JMII
Large	EC	JMII	JMII

TC = Touch Control Applicator  
 TCQ = TC Quadrack Applicator  
 LT = Polygun LT Applicator  
 EC = Polygun EC Applicator  
 JMII = Jet-melt II Applicator



## 3M Jet-melt Systems in the woodworking and furniture industries

Rapid handling and high bond strength has meant that 3M Jet-melt adhesives are widely chosen for wood bonding. Jet-melt 3738 adhesive was designed specifically for this application. Development of our wood bonding Jet-melt adhesives has meant the introduction of 3778LM Low Melt and 3747 adhesive - a higher performance version of 3738 adhesive.



## 3M Jet-melt Systems for general purpose/fancy goods assembly

3M Jet-melt 3792 adhesive is a general purpose clear adhesive used for a whole array of applications including the manufacturing of toys, Christmas decorations, point of sale displays and window blinds. The product is popular in the soft furnishing industry for hemming, welting and fringeing applications. The introduction of 3M Jet-melt Quadrack 3792LM Low Melt adhesive now means that more delicate materials can be bonded without fear of distortion or discolouration.

## 3M Jet-melt Systems in packaging

The need for high initial grab, quick setting adhesives in packaging has made Jet-melt adhesives popular in this market. The high instant tack of Jet-melt 3762 adhesive has ensured rapid and efficient carton sealing. The new Jet-melt Quadrack 3762LM Low Melt adhesive offers even higher levels of instant tack and improves worker safety and conditions. The new all-electric Polygun EC applicator gives high levels of adhesive output normally associated with air powered guns - offering much greater flexibility within the packaging area.



## 3M Jet-melt Systems for plastic bonding

3M Jet-melt 3764 adhesive has always been a popular product for rigid plastic bonding. The introduction of Jet-melt Quadrack 3789 adhesive has now completed the range with a product specifically designed for flexible plastics with a high plasticiser content. Using the Polygun EC applicator the adhesive is applied at the optimum temperature to ensure excellent bonding characteristics.



## 3M Jet-melt Systems for the electronics industry

Much of 3M's research and development efforts have focused upon introducing products to provide for the needs of this market.

The 3M range of polyamide adhesives, 3779 and 3789 are popular for potting and encapsulating where high temperature resistance and stability of performance under wide-ranging conditions are essential. 3M has also developed 3M Jet-melt 3748 adhesive for excellent thermal shock resistance. Jet-melt 3748 adhesive can in many cases replace polyamides where high heat resistance is not required. This product represents significant cost savings to electronics producers.



# Physical Properties

Jet-melt Adhesive	Features/application ideas:	Colour	Available for (a)	Heat Resistance (b)	Viscosity (c)		Tensile Strength at 22°C	Shear on Douglas Fir at 22°C (d)	Impact Resist. Joules (inch Lbs.)	Peel Strength at 22°C (e)		Delivery rate (secs) (f)	EC Temp. Control Setting		
					at 190°C	at 230°C				N/cm	P/W				
<b>LOW MELT TECHNOLOGY:</b> Applied at only 130°C, these Jet-melt™ LM adhesives can bond many heat sensitive substrates such as polystyrene foam.															
3762LM	<b>Improved "hot-tack"</b> when dispersed at low melt temperature. Can bond expanded polystyrene, corrugated packaging, displays	light tan	LT, EC	55°C	(4000 @ 121°C)	4.1	600	3.3	480	1.1 (10)	1.4 (13)	10	5	45	1
3778LM	Can bond many wood and wood-like products, as well as many plastics	light tan	LT, EC	55°C	(7000 @ 121°C)	2.1	300	3.0	435	1.1 (10)	1.5 (14)	14	10.5	62	1
3792LM	<b>Long bonding range</b> when dispersed at low melt temperature. Can bond woods, P.O.S. displays, corrugated packaging, polyolefins, and other lightweight materials.	clear	LT, EC	60°C	(10500 @ 121°C)	3.8	547	2.4	350	1.2 (11)	7.0 (64)	22	13	57	1
<b>HOT MELT TECHNOLOGY</b>															
3738	<b>High delivery and long bonding range.</b> General purpose for foundry sand cores, exhibits, wood bonding, corrugated, and chipboard.	medium tan	TC, TOO, EC, JM/IL	55°C	2875	1200	360	2.58	375	1.4 (13)	4.0 (36)	23	13	35	4
3747	<b>General purpose including plastic and wood.</b> Good heat resistance and flexibility. Medium performance. Can bond light gauge metal.	light amber	TC, TOO, EC, JM/IL	65°C	4100	2400	750	2.96	430	1.3 (11)	2.8 (25)	35	20	45	4
3748	<b>Good thermal and electrical properties.</b> Non-corrosive to copper. Can bond polypropylene, polyethylene.	off white	TC, TOO, EC, JM/IL	80°C	5000	2400	375	1.7	250	1.3 (11)	2.6 (24)	31	18	66	4
3748V-O	<b>Self-extinguishing</b> version of 3748 adhesive meets <b>UL 94 V-O</b> , UL 1410 requirements. Can bond FRP epoxy board, polypropylene.	pale yellow	TC, TOO, EC	80°C	5500	2700	200	1.89	275	1.1 (10)	5.5 (50)	26	15	65	4
3762	<b>Excellent "hot-tack", fast-setting</b> for corrugated packaging, hospitalization, repacking area, warehouse. <b>Low cost, general purpose.</b> Can bond chipboard, wood.	medium tan	TC, TOO, EC, JM/IL	55°C	1870	750	450	3.75	545	1.3 (11)	2.2 (20)	12	7	30	3
3764	<b>Can bond many plastics.</b> Good impact resistance at low temperature. Can bond ABS, polycarbonates, rigid PVC, polypropylene, polyethylene.	clear	TC, TOO, EC, JM/IL	60°C	6000	4250	850	2.69	390	1.5 (14)	6.4 (58)	25	14	55	4
3779	<b>Good electrical properties</b> with high heat resistance for potting, wire staking, <b>UL 94 V-O</b> . Good fuel and oil resistance.	translucent, light amber	TC, TOO, EC, JM/IL	150°C	7000	2000	2100	4.82	700	1.2 (11)	2.4 (22)	32	18	75	5
3789	<b>High performance for plastic.</b> Impact resistant. Also can bond wood, vinyl, ABS, FRP.	translucent, amber	TC, TOO, EC, JM/IL	105°C	5200	1400	520	3.9	570	1.5 (14)	4.25 (40)	28	16	70	5
3792	<b>Clear multi-purpose product</b> for wood, corrugated packaging, lightweight substrates, furniture, upholstery, novelties. Can bond fabric and other lightweight materials.	clear	TC, TOO, EC, JM/IL	60°C	5000	2200	400	1.7	250	1.4 (13)	4.6 (42)	23	13	45	4
3796	Multi-purpose with heat resistance. <b>High performance for plastics and light gauge metals.</b>	tan	TC, JM/IL	100°C	37750	7500	363	3.8	550	1.4 (13)	3.3 (28)	51	29	100	-

(a) TC = Touch Coated Applicator (15 x 48 mm mini sticks)  
 TOO = TC Quadtrack Applicator (15 x 300 mm Quadtrack shaped Hot Melt sticks)  
 LT = Polygun LT Applicator (15 x 200 mm Quadtrack shaped Low Melt sticks)  
 EC = Polygun EC Applicator (15 x 200 mm Quadtrack shaped Low Melt sticks)  
 JM/IL = Jet-melt II Applicator (20 x 76 mm, 9-gauge)

(b) Highest temp with strength 25 mm GLS Douglas Fir 2 PSI (13.79 MPa) aboard boat; temp is raised 5-5°C every 30 mins; temp recorded is just before load temp with strength.

(c) Brookfield Thermoseal viscosity in mPa.s (1 = c.p.s.)

(d) Overlap shear strength was measured on 25 x 100 mm specimens overlapped 25 mm. The specimens were tested at room temperature, pulled at 50 mm/min.

(e) Peel strength was measured on 25 x 200 mm canvas duck specimens pulled in peel at 250 mm/min, 3748 peel strength measured on high density polypropylene - canvas test not applicable.

(f) 26 x 76 mm "Jet-melt" cartridge with Jet-melt II Air-Powered Applicator. Time taken to extrude 1 cartridge in seconds.

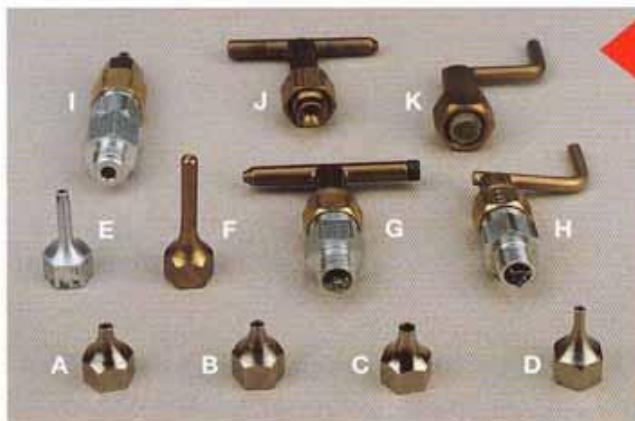
Our recommendations on the use of our products are based on tests believed to be reliable, but we would ask that you conduct your own tests to determine their suitability for your applications. This is because 3M cannot accept any responsibility or liability, direct or consequential, for the loss of damage caused as a result of our recommendations.

# Selection Chart

Bonding of	to	Jet-Melt
Plastics: Acrylic Vinyl, flexible Vinyl, rigid Polyester PE/PP ABS/Polycarbonate Polystyrene, rigid Polystyrene, expanded Polyurethane foam	Plastics, wood or cardboard	3764, 3792, 3792LM 3789
		3764, 3789, 3792, 3792LM
		3764, 3792, 3792LM
		3748, 3764, 3792, 3792LM
		3764, 3792, 3792LM
		3764, 3789
		3782LM, 3778LM, 3792LM
		3764, 3789, 3792, 3792LM
Rubber	Plastics, rubber or wood	3747, 3748, 3789
Metal	Metal	3738, 3747, 3796*
	Rubber	3738, 3747, 3796*
	Wood, paper, textile, canvas	3738, 3747
	Glass or ceramics	3796*
	Leather	3789, 3796*
	Plastics	3747, 3796*
Paper, cardboard	Paper or cardboard	3762, 3762LM
	Metal, plastics, woods or glass	3738, 3747, 3792, 3792LM
Wood	Metal	3738, 3778LM, 3796*
	Rubber	3747, 3789
	Wood	3738, 3747, 3789, 3792, 3792LM
	Paper, cardboard, textile or canvas	3738, 3747, 3789, 3792, 3792LM
Textile, canvas	Plastics, wood or glass	3738, 3764, 3778LM, 3789, 3792, 3792LM
Glass, ceramics	Glass, ceramics, textile, canvas, cardboard or plastics	3764, 3789
	Metal	3796*
Leather	Leather, metal or wood	3789, 3796*

See physical properties chart for detailed information per product

\* only available for JMII and TC gun



## 3M Jet-melt accessories

### Job-tailored applicator tips

Every Jet-melt applicator comes with a standard tip engineered for optimum general purpose use. To maximize productivity on specific jobs, however, you can select from a variety of optional tips and spreaders.

Tip	Description	Adhesive gun	Stock number
A	.063" (1.6 mm) Fluted tip	TC/TCQ/LT/EC	62-9922-0066-7
B	.090" (2.3 mm) Fluted tip (standard)	TC/TCQ/LT/EC	62-9921-0066-9
C	.125" (3.2 mm) Fluted tip	TC/TCQ/LT/EC	62-9940-6920-1
D	.072" (1.8 mm) Mini Extension Tip	TC/TCQ/LT/EC	62-9725-9930-2
E	.070" (1.8 mm) Tapered Aluminium Extension Tip	TC/TCQ/LT/EC	62-9785-9930-6
F	.072" (1.8 mm) Brass Extension Tip	TC/TCQ/LT/EC	62-9946-6980-2
G	"T" Tip. For regular slotted cartons	TC/TCQ/LT/EC	62-9726-9930-0
H	"L" Tip. For full overlap cartons	TC/TCQ/LT/EC	62-9727-9930-8
I	High flow valve	TC/TCQ/LT/EC	62-9729-9930-4
J	"T" Tip. For regular slotted cartons	JMII	XS-0034-0073-5
K	"L" Tip. For full overlap cartons	JMII	XS-0034-0074-3
	Bench Stand (not shown)	TC/TCQ/LT/EC	62-9945-9935-5
	Bench Stand (not shown)	JMII	XS-0034-0065-1

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