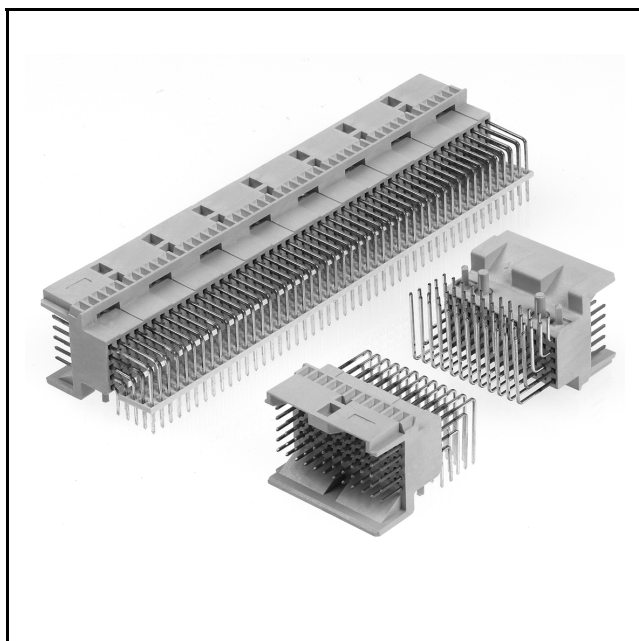


# 3M™ MetPak™ 2-FB Inverse Header

2 mm 5-Row, Right Angle, Solder Tail

MP2 Series



- Three levels of early mate, late break (EMLB) sequencing or selective loading options
- Footprint compatible with standard Futurebus+®
- Solder tail with true-position wafer
- Ideal for hot swapping applications
- End-to-end stackable
- Right angle male for daughter card
- Mates with MP2-R for backplane applications and MP2-SXXXG for coplanar applications
- See Regulatory Information Appendix (RIA) for chemical compliance information

Date Modified: March 28, 2007

TS-1122-04  
Sheet 1 of 4

## Physical

### Insulation

Material: High Temp LCP  
Flammability: UL 94V-0  
Color: Beige

### Contact

Material: Copper Alloy

### Plating

Underplating: 50 μ" [1.27 μm] Nickel  
Wiping Area: See Ordering Information  
Solder Tails: See Ordering Information

## Electrical

**Current Rating:** Signal: 1.5 A - All contacts simultaneously  
**Insulation Resistance:** 10<sup>3</sup> MΩ  
**Withstanding Voltage:** 1000 V<sub>AC</sub>

## Environmental

**Temperature Rating:** -55°C to +125°C  
**Process Temperature Rating:** 260°C (Profile per J-STD-020C)  
**Moisture Sensitivity Level:** 1 (per J-STD-020C)

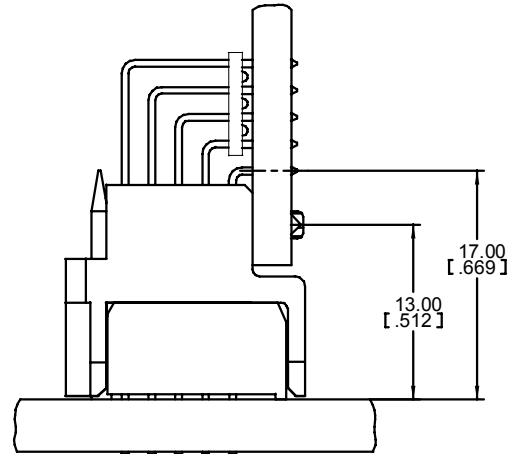
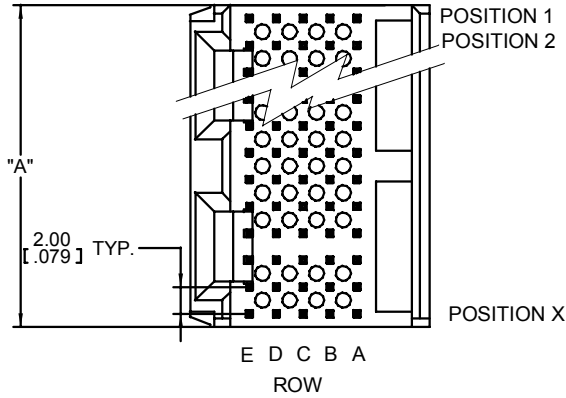
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MetPak is a trademark of 3M Company.  
Futurebus+ is a registered trademark of the Institute of Electrical and Electronic Engineers, Inc. (IEEE)

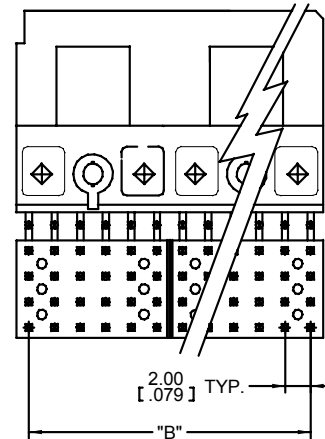
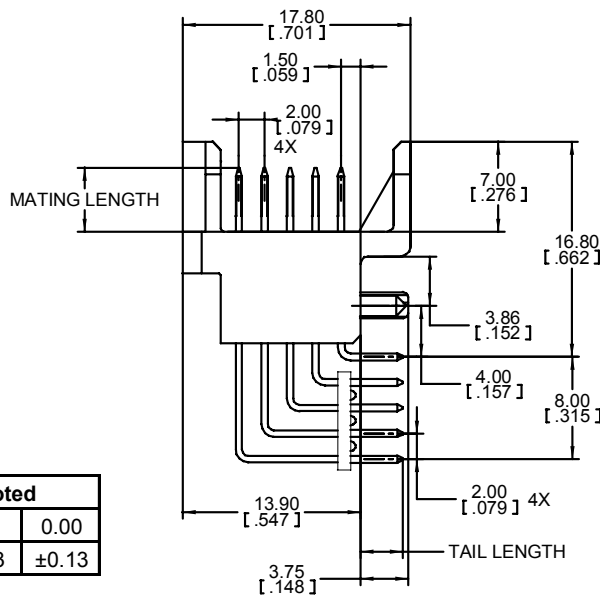
# 3M™ MetPak™ 2-FB Inverse Header

2 mm 5-Row, Right Angle, Solder Tail

MP2 Series



MATED WITH MP2-RXXX-5XXX-XXXX



Tolerance Unless Noted		
	mm	[inch]
	0	0.0
	±3	±0.3
	±0.3	±0.13

[ ] Dimensions for Reference Only

Note:

1. Refer to IEC 61076-4-104 Futurebus+® global standard.
2. For special pin arrangements, contact 3M.

## Ordering Information

**MP2 - PXXX - 5XM1 - XXXXX**



TS-1122-04  
Sheet 2 of 4

# 3M™ MetPak™ 2-FB Inverse Header

2 mm 5-Row, Right Angle, Solder Tail

MP2 Series

Pin Count	Dim. "A" mm [inch]	Dim "B" mm [inch]	Rows
030	11.95 [0.471]	10.00 [0.394]	5
060	23.95 [0.943]	22.00 [0.866]	5
090	35.95 [1.415]	34.00 [1.339]	5
120	47.95 [1.889]	46.00 [1.811]	5
150	59.95 [2.36]	58.00 [2.283]	5
180	71.95 [2.833]	70.00 [2.756]	5
210	83.95 [3.305]	82.00 [3.228]	5
240	95.95 [3.778]	94.00 [3.701]	5
270	107.95 [4.251]	106.00 [4.173]	5
300	119.95 [4.722]	118.00 [4.646]	5
420	167.95 [6.612]	166.00 [6.535]	5

Loading Pattern	Description	Mate Length Row A	Mate Length Row B	Mate Length Row C	Mate Length Row D	Mate Length Row E	Tail Length Row A	Tail Length Row B	Tail Length Row C	Tail Length Row D	Tail Length Row E
1	ALL POSITIONS FILLED	5.00	5.00	5.00	5.00	5.00	3.30	3.30	3.30	3.30	3.30
2	ALL POSITIONS FILLED	4.25	5.00	5.00	5.00	5.00	4.05	3.30	3.30	3.30	3.30
3	ALL POSITIONS FILLED	3.50	4.25	4.25	5.00	5.00	4.80	4.05	3.30	3.30	3.30
4	ALL POSITIONS FILLED	4.25	5.00	4.25	4.25	4.25	4.05	3.30	4.05	4.05	4.05
5	ROWS A, B, C, AND D FILLED	5.00	5.00	5.00	5.00	NA	3.30	3.30	3.30	3.30	NA
6	ROWS A, B, C, AND D FILLED	5.00	4.25	4.25	5.00	NA	3.30	4.05	4.05	3.30	NA
7	ALL POSITIONS FILLED	4.25	5.00	4.25	5.00	4.25	4.05	3.30	4.05	3.30	4.05
8	ALL POSITIONS FILLED	4.25	4.25	4.25	4.25	4.25	4.05	4.05	4.05	4.05	4.05
9	ALL POSITIONS FILLED	5.00	3.50	3.50	3.50	4.25	3.30	4.80	4.80	4.80	4.05
A	ALL POSITIONS FILLED	3.75	4.50	5.25	4.50	3.75	4.55	3.80	3.05	3.80	4.55
B	ALL POSITIONS FILLED	3.75	4.50	3.75	4.50	3.75	4.55	3.80	4.55	3.80	4.55
C	ALL POSITIONS FILLED	5.75	5.75	5.75	5.75	5.75	2.55	2.55	2.55	2.55	2.55
D	ALL POSITIONS FILLED	4.25	5.00	5.75	5.00	4.25	4.05	3.30	2.55	3.30	4.05
F	ALL POSITIONS FILLED	5.00	5.75	5.75	5.75	5.00	4.05	4.05	4.05	4.05	4.05
G	ROWS A, B, C, AND D FILLED	5.00	4.25	4.25	5.00	NA	3.30	4.05	4.05	3.30	NA

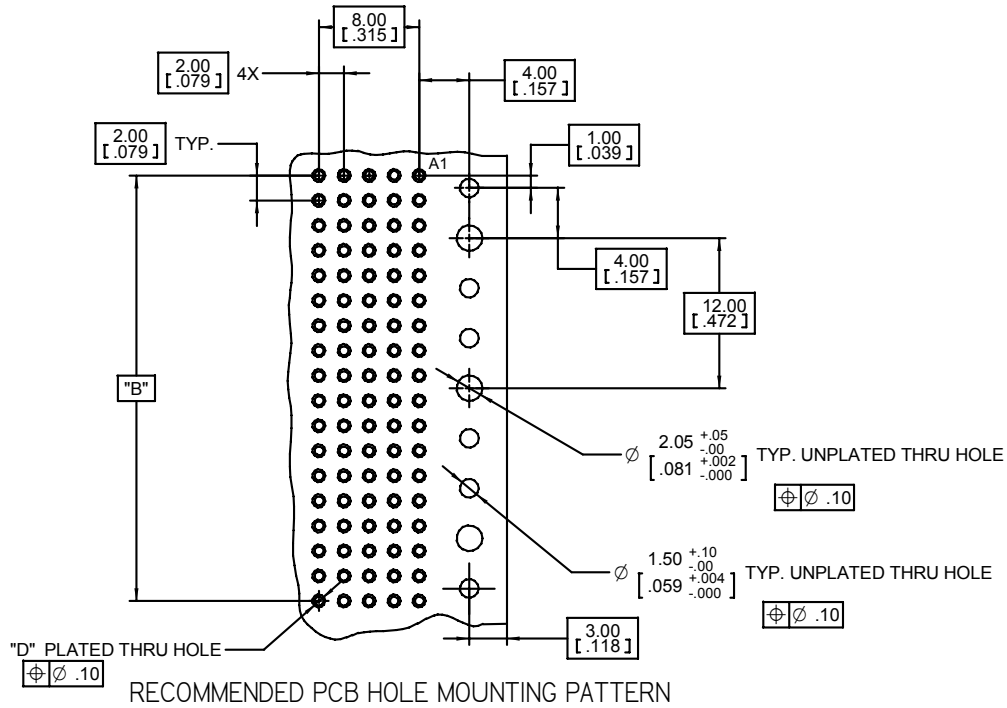
Plating Suffix	Plating Composition	Plating Suffix	Plating Composition
TG (RIA E3 & C2 apply)	0.25 µm [10 µ"] Min. Au Contact Area	FJ (RIA E1 & C1 apply)	0.25 µm [10 µ"] Min. Au Contact Area
	2.54 µm [100 µ"] Min. SnPb Tail Area		5.08 µm [200 µ"] Min. Matt Whisker Mitigating Sn Tail Area
	1.27 µm [50 µ"] Min. Ni all over		1.27 µm [50 µ"] Min. Ni all over
TG30 (RIA E3 & C2 apply)	0.76 µm [30 µ"] Min. Au Contact Area	KR (RIA E1 & C1 apply)	0.76 µm [30 µ"] Min. Au Contact Area
	2.54 µm [100 µ"] Min. SnPb Tail Area		5.08 µm [200 µ"] Min. Matt Whisker Mitigating Sn Tail Area
	1.27 µm [50 µ"] Min. Ni all over		1.27 µm [50 µ"] Min. Ni all over
TR30 (RIA E3 & C2 apply)	0.08 µm [3 µ"] Min. Au Contact Area	RF (RIA E1 & C1 apply)	1.27 µm [50 µ"] Min. Au Contact Area, Lubricated
	0.67 µm [27 µ"] Min. PdNi Contact Area		5.08 µm [200 µ"] Min. Matt Whisker Mitigating Sn Tail Area
	2.54 µm [100 µ"] Min. SnPb Tail Area		1.27 µm [50 µ"] Min. Ni all over
	1.27 µm [50 µ"] Min. Ni all over		0.08 µm [3 µ"] Min. Au Contact Area
TR40B (RIA E3 & C2 apply)	0.13 µm [5 µ"] Min. Hard Au Contact Area, Lubricated	LR (RIA E1 & C1 apply)	0.67 µm [27 µ"] Min. PdNi Contact Area
	1.02 µm [40 µ"] Min. PdNi Contact Area		5.08 µm [200 µ"] Min. Matt Whisker Mitigating Sn Tail Area
	0.10 µm [4 µ"] Min. Pd Contact Area		1.27 µm [50 µ"] Min. Ni all over
	2.54 µm [100 µ"] Min. SnPb Tail Area		0.13 µm [5 µ"] Min. Hard Au Contact Area, Lubricated
	1.27 µm [50 µ"] Min. Ni all over		1.02 µm [40 µ"] Min. PdNi Contact Area
		PD (RIA E1 & C1 apply)	0.10 µm [4 µ"] Min. Pd Contact Area
			5.08 µm [200 µ"] Min. Matt Whisker Mitigating Sn Tail Area
			1.27 µm [50 µ"] Min. Ni all over

TS-1122-04  
Sheet 3 of 4

# 3M™ MetPak™ 2-FB Inverse Header

2 mm 5-Row, Right Angle, Solder Tail

MP2 Series

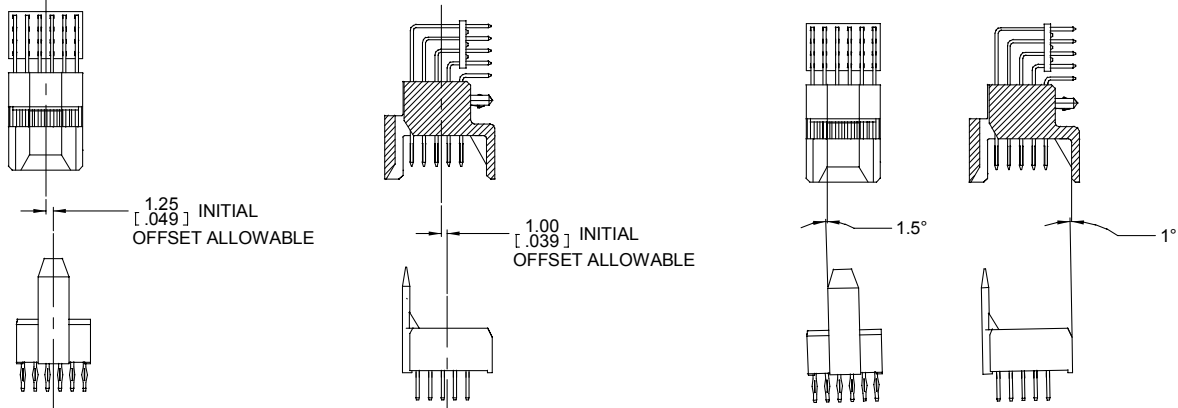


**Table 4 -- HOLE PLATING For TG, TG30, TR30, TR40B FINISHES ONLY**

HOLE	Finished Dia. mm [in]	Cu Thickness mm [in]	SnPb Thickness microns [μ"]	Drilled Hole Dia. mm [in]
"D"	0.65-0.80 [.0256-.0315]	0.025 [.001] min	15 [600] max	0.81-0.86 [.0319-.0339]

**Table 5 -- HOLE PLATING For FJ, KR, RF, LR, and PD FINISHES ONLY**

Hole	Finished Dia. mm [in]	Cu Thickness mm [in]	Immersion Matte Sn Thickness microns [μ"]	Electrolytic Au Thickness microns [μ"]	OSP ENTEK Thickness microns [μ"]	Drilled Hole Dia. mm [in]
"D"	0.700-0.800 [.0276-.0315]	0.025-0.045 [0.001-0.002]	0.5 - 2.5 [20 - 100]	0.1 - 0.5 [4 - 20]	0.2 - 0.5 [8 - 20]	0.830-0.860 [.0330-.0340] or 0.85mm [#66] TWIST DRILL



TS-1122-04  
Sheet 4 of 4

## Regulatory Information Appendix

### 3M Electronic Solutions Division/Interconnect

#### EUROPE

##### **Appendix E1: European Union RoHS**

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

**This product is RoHS Compliant 2005/95/EC.**

“RoHS Compliant 2005/95/EC” means that the product or part (“Product”) does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.

##### **Appendix E2: European Union RoHS**

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

**This product contains lead in the compliant pin area in excess of the maximum concentration value allowed but is compliant by exemption under EU Commission Decision 2005/747/EC.**

“RoHS Compliant 2005/95/EC” means that the product or part (“Product”) does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.

##### **Appendix E3: European Union RoHS**

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment as amended by Commission Decision 2005/618/EC.

**This product contains lead in the solder tail area in excess of the maximum concentration value allowed.**

Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.

##### **Appendix E4: European Union RoHS**

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

This product contains decaBDE in the insulating material in excess of the maximum concentration value allowed but is compliant by exemption under EU Commission Decision 2005/17/EC.

“RoHS Compliant 2005/95/EC” means that the product or part (“Product”) does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.



## Appendix C1: China RoHS

Electronic Industry Standard of the People's Republic of China, SJ/T11363-2006, Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.

This symbol, per Marking for the Control of Pollution Caused by Electronic Information Products, SJ/T11364-2006, means that the product or part **does not** contain any of the following substances in excess of the following maximum concentration values in any homogeneous material: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers; or (b) 0.01% (by weight) for cadmium. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the Warranty stated below.



## Appendix C2: China RoHS

Electronic Industry Standard of the People's Republic of China, SJ/T11363-2006, Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.

This symbol, per Marking for the Control of Pollution Caused by Electronic Information Products, SJ/T11364-2006, means that the product or part **does** contain a substance, as detailed in the chart below, in excess of the following maximum concentration values in any homogeneous material: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers; or (b) 0.01% (by weight) for cadmium. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

The numerical reference in the symbol above should not be construed as a representation regarding the product's life or an extension of a product warranty. The product warranty is stated below. In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the product Warranty stated below.

产品中有毒有害物质或元素的名称及含量 Name and Content of Hazardous Substances or Elements

部件名称 (Part or Component Name)	有毒有害物质或元素 (Hazardous Substances or Elements)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
端子镀层 (contact plating)	×	○	○	○	○	○
○: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006 标准规定的限量要求以下。(Indicates that this hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.) ×: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。(Indicates that this hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.)						

### Important Notice

All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Any statements related to the product which are not contained in 3M's current publications, or any contrary statements contained on your purchase order shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M.

### Warranty; Limited Remedy; Limited Liability.

This product will be free from defects in material and manufacture for a period of ninety (90) days from the time of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. **Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.**



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