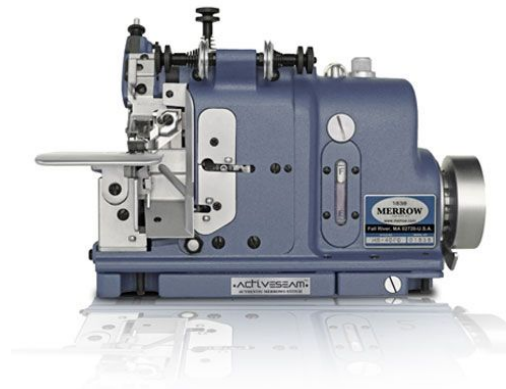


MERROW®

INSTRUCTIONS
FOR STITCH DESIGN AND DEVELOPMENT

ACTIVESEAM®



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Merrow Class MB ACTIVESEAM Design Guide

To the Designers, Dreamers, and Creators,

Activeseam is not a single stitch; it is a collection of seam possibilities. And, the secret to unlocking the beauty and advantage of Activeseam is to understand the Mechanical Advantage of the Merrow MB machine. Activeseam replaces Flatlock with a stronger, more elastic, and infinitely more attractive seam construction that should be used on everything from delicate knit underwear to rugged neoprene wetsuits. It is a beautiful and functional stitch with amazing potential.

Sincerely,

Charlie Merrow & Owen Merrow
The Merrow Sewing Machine Company



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Merrow ActiveSeam® is a simple to produce alternative to flatlock stitching. ActiveSeam comes in a nearly infinite number of variations, from micro to wide, dense to elongated, 2D or 3D Infused. ActiveSeam has captured the imagination of major brands around the globe and adds significant technical advantages over traditional stitching. With twice the stretch built into the seam, and a flat profile, ActiveSeam garments are extraordinarily comfortable and do not restrict athletic movement. When compared to a 6-thread flatlock seam with identical thread, fabric, and SPI, Merrow ActiveSeam 2 & 3-thread seams proved to be more than 30% stronger and had the ability to stretch (linear travel) 100% further.

The Class MB machines overseam and trim simultaneously and form one of the following ActiveSeam stitch formations:

- **two thread slim stitch**
- **two thread comfort stitch**
- **three thread 3D infused stitch**

Other formations exist to create micro, wide, and 4 thread variants. The Class MB machines may be used on a wide variety of weights of knitted, woven, and non-woven fabrics. Do not hesitate to contact the Merrow Stitch Lab with questions.

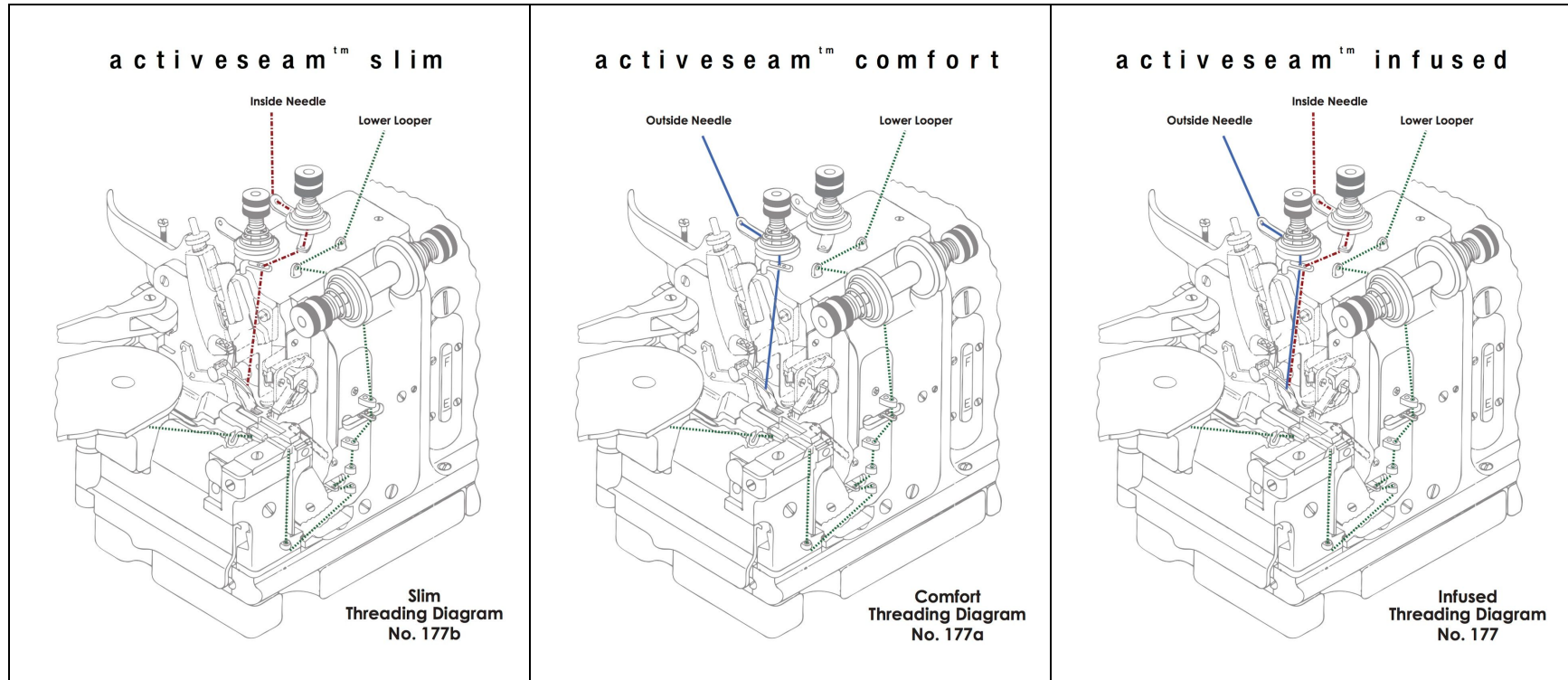
ActiveSeam machines are available 2.1, 2.2, 2.3, 2.4, and 2.7 factory standard models. Recommended material and standard stitch widths (for each of the three stitch configurations) are listed below.

<u>Machine Model</u>	<u>Material</u>	<u>Slim</u>	<u>Comfort</u>	<u>Infused</u>	<u>Max Needle</u>	<u>Feed System</u>	<u>Looper Throw</u>	<u>Presser Foot</u>
MB-4DFO_2.1	lightweight	3/32"	3/16"	3/16"	A2DF	Single Row	Standard Lift	Hinged, Pivot
MB-4DFO_2.2	midweight	1/8"	7/32"	7/32"	A2DF	Single Row	Standard Lift	Hinged, Pivot
MB-4DFO_2.3	footwear	1/8"	7/32"	7/32"	A3DF	Single Row	Standard Lift	Fixed, Wheel
MB-4DFO_2.4	midweight	3/16"	1/4"	1/4"	A5DF	Double Row	Standard Lift	Hinged, Pivot
MB-4DFO_2.7	high lift	1/8"	1/4"	1/4"	A5DF	Single Row	High Lift	Hinged, Pivo

1. Threading.

The first step in creating an Activeseam stitch is to choose the desired stitch type. The machine must be threaded according to the following guideline (use Threading Diagram No. 177 for reference):

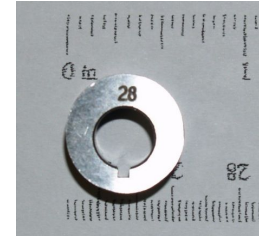
<u>Stitch Type</u>	<u>No. of threads</u>	<u>Outside Needle</u>	<u>Inside Needle</u>	<u>Lower Looper</u>
SLIM	2	NO	Yes	Yes
COMFORT	2	Yes	NO	Yes
INFUSED	3	Yes	Yes	Yes



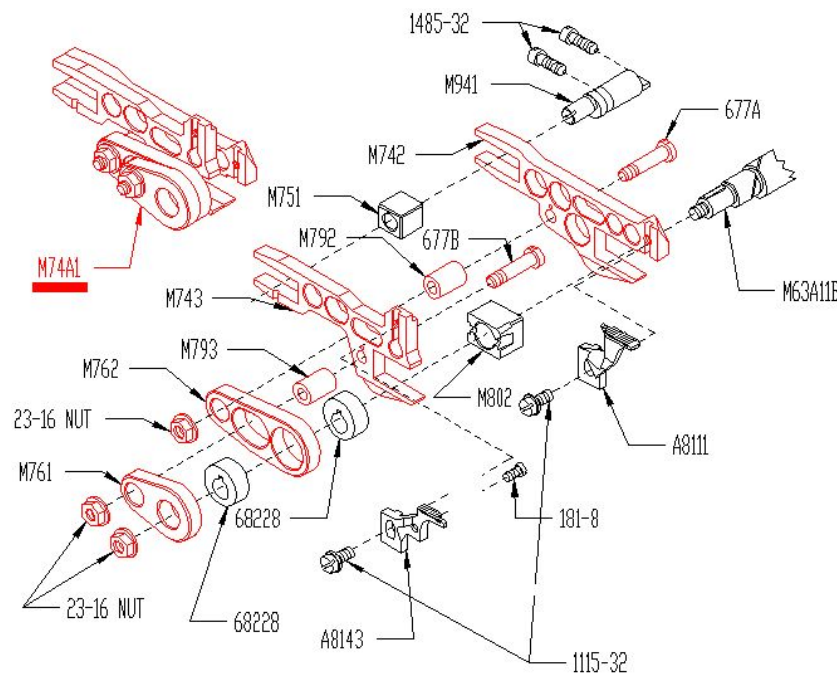
2. Feed Eccentrics (Stitch Density)

Feed eccentrics control the number of stitches per inch (the stitch density) of your Activeseam stitch. The number printed on the feed eccentric corresponds to the number of stitches per inch (SPI) that the machine will sew. For example, the #28 feed eccentric will produce 28 SPI.

Increasing the feed eccentric number will create a denser stitch. Decreasing the feed eccentric number will create a spaced out stitch. Merrow feed eccentrics are available from size 4 SPI to a size 100 SPI.



Activeseam machines have two feed eccentrics (see Diagram 6) that control the two (front and rear) feed dogs. This is known as a differential feed system. The outside feed eccentric controls the rear feed dog. The inside feed eccentric controls the front feed dog. Creating a differential (different SPI between the feed dogs) can help reduce pucker with stretchy material (eg. Athletic Knits, Medical Compression Garments). Different materials may require different feed eccentric set-ups.



- Helpful Hint** Figure out your desired stitch density without a differential (use the same SPI outside and inside). If the resulting stitch has too much wave (if it is not flat), **reduce the Inside Feed Eccentric SPI by 50%**. For example, if you achieve the desired stitch density with a 28/28 set-up, but the stitch is too wavy, you can adjust the set-up to 28/14 to flatten the seam. You may need to make minor adjustments after the 50% reduction, but it will be a helpful starting point.

Below is a list of common feed eccentric arrangements to use as a general guideline:

<u>Outside Feed Eccentric</u>	<u>Inside Feed Eccentric</u>	<u>Material Stretch</u>	<u>Stitch Density</u>
28	28	Minimal	Medium
36	36	Minimal	Dense
16	16	Minimal	Spaced Out
28	14	Medium	Medium
36	18	Medium	Dense
14	10	Medium	Spaced Out
28	10	Extreme	Medium
60	18	Extreme	Dense
18	8	Extreme	Spaced Out

3. Thread Choice

Thread can have a huge impact on the aesthetic and performance of your stitch, and many different thread-types and thread brands can be used successfully when sewing Activeseam. For athletic knits, we recommend textured polyester sewing threads such as A&E **Wildcat Plus®** or Coats **Seamsoft®**). These style threads combine many desired Activeseam properties such as softness, cover-ability, stretch, and strength. Using the proper thread will also prevent stitch issues such as looping of the needle thread(s) (not laying flat on the fabric), Infused seam 3D clarity, and

- **Helpful Hint 1** To help the stitch **lay flat and open easily**, use a smaller Tex thread-size in the Lower Looper than the needle(s). For example, a common **2-thread Activeseam COMFORT Stitch on an Athletic Knit** would have the following feed eccentric and A&E thread arrangement:

<u>Outer Needle Thread</u>	<u>Inside Needle Thread</u>	<u>Lower Looper Thread</u>	<u>Outside Feed Eccentric</u>	<u>Inside Feed Eccentric</u>
Tex-24 Wildcat Plus	None	Tex-18 Wildcat Plus	28	14

- **Helpful Hint 2** If you want the **3D color contrast of an Infused Stitch** to be more visible, use a larger Tex thread-size in the Inside Needle than the Outside Needle. For example, a common **3-thread Activeseam INFUSED Stitch on an Athletic Knit** would have the following feed eccentric and A&E thread arrangement:

<u>Outer Needle Thread</u>	<u>Inside Needle Thread</u>	<u>Lower Looper Thread</u>	<u>Outside Feed Eccentric</u>	<u>Inside Feed Eccentric</u>
Tex-24 Wildcat Plus	Tex-35 Wildcat Plus	Tex-18 Wildcat Plus	28	14

- **Helpful Hint 3** If you want to increase the **abrasion resistance** of one side of the seam, use a different lower looper thread such as a Corespun, Nylon, or Synthetic thread to make a more rugged seam. For example, a **2-thread Activeseam COMFORT Stitch on an Athletic Knit** would have the following feed eccentric and A&E thread arrangement:

<u>Outer Needle Thread</u>	<u>Inside Needle Thread</u>	<u>Lower Looper Thread</u>	<u>Outside Feed Eccentric</u>	<u>Inside Feed Eccentric</u>
Tex-24 Wildcat Plus	None	Tex-18 Permacore	28	14

- **Helpful Hint 4** If you want to **increase the stitch density** without changing the feed eccentrics, you can use a larger Tex thread-size in the needle thread to increase stitch coverage. For example, a **2-thread Activeseam COMFORT Stitch on an Athletic Knit** would have the following feed eccentric and A&E thread arrangement:

<u>Outer Needle Thread</u>	<u>Inside Needle Thread</u>	<u>Lower Looper Thread</u>	<u>Outside Feed Eccentric</u>	<u>Inside Feed Eccentric</u>
Tex-35 Wildcat Plus	None	Tex-18 Permacore	28	14

4. Cutter Alignment

Moving the cutters left and right will change the amount of material in the stitch. This can be done by loosening the lower cutter holder and upper cutter holder, and then adjusting them in the desired direction.

Moving the cutters to the right will **INCREASE** the amount of material in the stitch. This can increase the strength of the seam but prevent the Activeseam from laying completely flat.

Moving the cutters to the left will **DECREASE** the amount of material in the stitch. This can help the Activeseam lay completely flat but can cause a gap between the material if too much material is removed.

- **Helpful Hint** A simple way to test the cutter alignment (after adjustment) is to cut a sample thread. To do this, raise the upper cutter to its highest point and then lay a piece of thread across the lower cutter. Using the handwheel, lower the upper cutter onto the thread. The thread should cut cleanly without any pulling or stretch.

5. Thread Tension

Thread tension is a simple way to adjust the formation of the Activeseam stitch. Tension is adjusted using the round knobs on top of each thread tension assembly. The bottom knob adjusts the tension and the top knob locks the bottom one in place.

- **Helpful Hint 1** Small tension adjustments can have a huge impact. Try adjusting tension ¼ turn at a time.
- **Helpful Hint 2** To make the stitch lay flat, the Outer Needle thread tension and the Lower Looper thread tension should be equal.
- **Helpful Hint 3** For an INFUSED stitch, the Inside Needle thread tension should be greater than the Outside Needle thread tension.

6. Needle Selection

The wrong needle size and shape can cause a number of problems. A needle that is too big, or with the wrong head shape for your material, can cause rips, tears, or large puncture holes that weaken the stitch. A needle that is too small can break easily upon impact or during stitching. The most common Activeseam needle shape is a ballpoint and the size is dependent on material weight. Merrow Activeseam needles are available in the following ballpoint sizes:

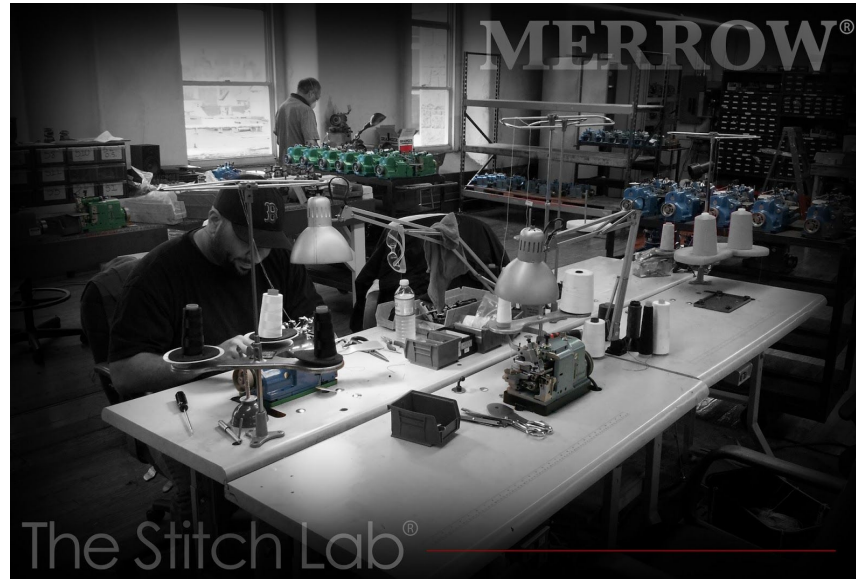
A (Activeseam), # (Needle Size), D (Curved), F (Ballpoint):

A00DF
A0DF
A1DF
A2DF
A3DF
A4DF
A5DF

Additional sizes and blade styles are available upon request. Please contact Merrow customer service with any questions.

- **Helpful Hint 1** Always make sure your needle(s) are set all the way back to the stop pin on the needle carrier.
- **Helpful Hint 2** Remember to always use Genuine Merrow needles in your Activeseam machine. Merrow needles are made to exacting engineering standards to maintain their shape and temper and will help to ensure you sew a consistent and quality seam.

The Merrow Stitch Lab



Merrow offers a comprehensive stitch lab designed to sew sample seams on customer fabric. Our stitch lab will sew a range of Activeseam (Slim, Comfort, Infused) stitches on your fabric to help implement your design and to display the proper stitch formation and flat profile. Generally, our sample department is able to sew-off material within a few days of receipt. This is a FREE service, available to all Merrow customers.

Please contact Merrow (p: 508.689.4095, e: support@merrow.com) if you are interested in Stitch Lab service.



RECOMMENDED ACCESSORIES AND RESOURCES

Merrow Activeseam Stitch Cam Development Kit

A collection of 16 feed eccentrics, ranging in size from 8 SPI to 40 SPI. Designed to allow an operator the flexibility to create spaced out, medium density, and total coverage Activeseam stitches on a wide range of materials..

MB-4DFO-2.0 Spare Parts Package

A discounted bundle of the most common Genuine Spare Parts, including needles, loopers, and cutters. Save money and keep your machine running without interruption.

Merrow Tool Kit

The Merrow tool kit contains all of the required tools to efficiently adjust and maximize the mechanical advantages of a Merrow machine. This kit includes a looper bender, multi-head nut driver, screwdriver, feed eccentric extractor, threading wires, tweezers, and thread snips.

High Efficiency Servo Motor

This is an extremely quiet and energy efficient Servo Motor with a digital display and needle positioner. With a Servo motor, you can control the speed of the motor with a switch that lets you adjust between 0 and 3450 RPM. This makes it ideal for experimental sewing and design work. The High Efficiency Servo motor is easy to program and is 75% more energy efficient than a standard clutch motor.

THE MERROW DEVELOPMENT CENTER

The Merrow Development Center works with Activeseam customers to develop and configure unique stitch designs. This fee-based program goes beyond the standard sew-off offered by the Stitch Lab, and works with customers to understand your goals for fit, function, and design. The Development Center then creates stitching to achieve those goals. Please contact Merrow Customer Service if you are interested in working with our Development Center.

MERROW FACTORY TRAINING

(FREE WITH THE PURCHASE OF A NEW MACHINE!)

Come visit Merrow and learn how to service and support your Merrow Machine. We have trainings for ActiveSeam, Emblem, End-to-End Seaming and Merrow Stitch Design Development scheduled throughout the year. Trainings are designed for agents, mechanics, operators, designers, and plant managers. Please contact Merrow if you're interested - we would love to see you in Fall River!

HOW TO ORDER

Please contact your nearest certified Merrow Distributor or contact the Merrow Sewing Machine Company, 502 Bedford Street, Fall River, MA 02720, U.S.A. Phone (508) 689 4095, Fax (508) 689 4098, Email support@merrow.com. Descriptive literature and samples of stitches will be provided upon request.



MODELS:

- MB-4DFO_2.1
- MB-4DFO_2.2
- MB-4DFO_2.3
- MB-4DFO_2.4
- MB-4DFO_2.7

DESCRIPTION:

THE MERROW MB-4DFO.2 IS A DOUBLE NEEDLE, TWO OR THREE THREAD, SINGLE ROW DIFFERENTIAL FEED INDUSTRIAL SEWING MACHINE WITH CUTTERS, USED TO CREATE A FLAT OVERLOCK ACTIVESEAM STITCH ON KNITS, WOVENS, AND NONWOVENS.

OPERATING SPEED	5500 RPM
STITCH WIDTH	3/32"-1/4"
STITCH RANGE	4-100 spi
STANDARD NEEDLE	A0DF (65 Nm)
MERROW NEEDLE RANGE	A00DF-A5DF (60-110 Nm)
FEDERAL STITCH TYPE	521 ACTIVESEAM
MOTOR REQUIRED*	3450 RPM, 110/220 volt, 1/2HP
NUMBER OF THREADS	2 (slim, comfort threading), 3 (infused)
RECOMMENDED OIL	Spindle Oil of 46 cst at 40° Celsius
NOISE LEVEL	80 dB
WARRANTY	10 year limited warranty**
SHIPPING WEIGHT	38.58 lbs (17.5 kg)
SHIPPING CARTON DIMENSIONS:	L: 15 in (38 cm) / W: 12 in (30 cm) / H: 14 in (35 cm)
HARMONIZED CODE	8452290000

*Sewing machine heads MB-4DFO_2.1, MB-4DFO_2.2, MB-4DFO_2.3, MB-4DFO_2.4, MB-4DFO_2.7 are intended for integration into sewing units (table & motor sold separately). Applicable assembly and installation must be done according to instructions provided by the manufacturer or by an authorized Merrow distributor.

**Behind every Merrow sewing machine is more than 170 years of sewing machine building experience. Quality control is at the heart of the manufacturing process; accordingly, Merrow (The manufacturer) warrants all machines for a 1-year Limited Warranty for all materials and assembly, and a 10-Year limited warranty for the machine frame and internal cams. Please contact Merrow for complete details.