

Hi-Flow™ Plus Membranes and SureWick® Pad Materials

Quality materials for use in rapid diagnostic lateral flow tests



Quality Hi-Flow™ Plus Membranes sealed in an easy-to-use card format

Merck Millipore, an industry leader and partner to global diagnostic manufacturers, offers materials, components and custom services including membrane cards for your rapid diagnostic test applications. Membrane cards provide an easy-to-use subassembly so you don't have to allocate time and resources assembling cards, thereby reducing and simplifying your manufacturing design process and production. Utilizing our quality Hi-Flow™ Plus membranes, these cards are assembled in a highly precise manner to deliver consistency of the product's performance in your test.

Key Features of Merck Millipore's Hi-Flow™ Plus Membrane Cards

Convenience

Buying membrane cards from Merck Millipore increases your efficiency, providing you with a single source for high-quality, lateral-flow membranes on a plastic card support. The membrane cards also ensure optimal performance by eliminating the need to manually assemble cards for development or production of rapid diagnostic kits and tests.

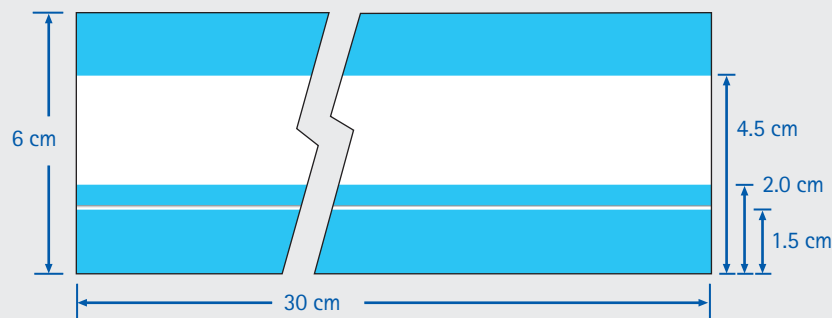
Choose a Lateral Flow Membrane Card That Works to Your Advantage

Merck Millipore offers laminated membrane cards in both standard and custom sizes, with 5 Hi-Flow™ Plus membrane choices.

Each Hi-Flow™ Plus membrane card type has a distinctive flow range.

Speed	Membrane Type	Description
Fast	HF075, HF090	For assays where sample and analyte are abundant and sensitivity is not a major concern
Medium	HF120, HF135	For assays that require moderate speed and sensitivity
Slow	HF180	For assays where sample is limited or high sensitivity is needed

Standard Hi-Flow™ Plus membrane card dimensions



Hi-Flow™ Plus Membranes

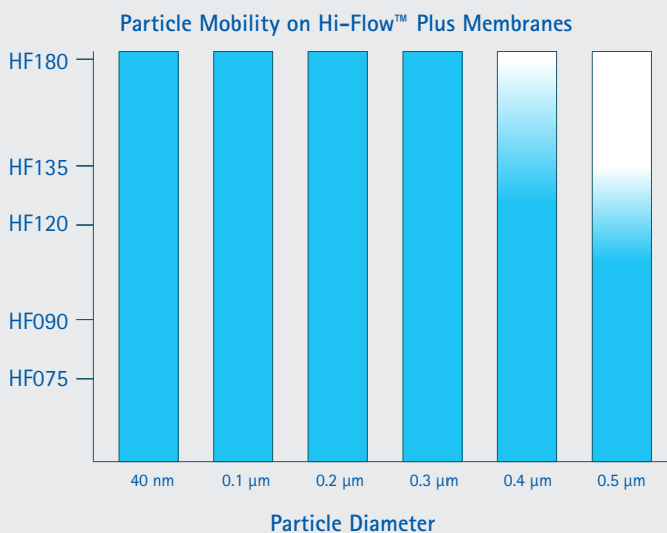
For diagnostic tests and kits that require superior consistency and performance, we offer our Hi-Flow™ Plus membranes.

Membrane consistency can greatly improve the reliability of your rapid diagnostic test strip or device.

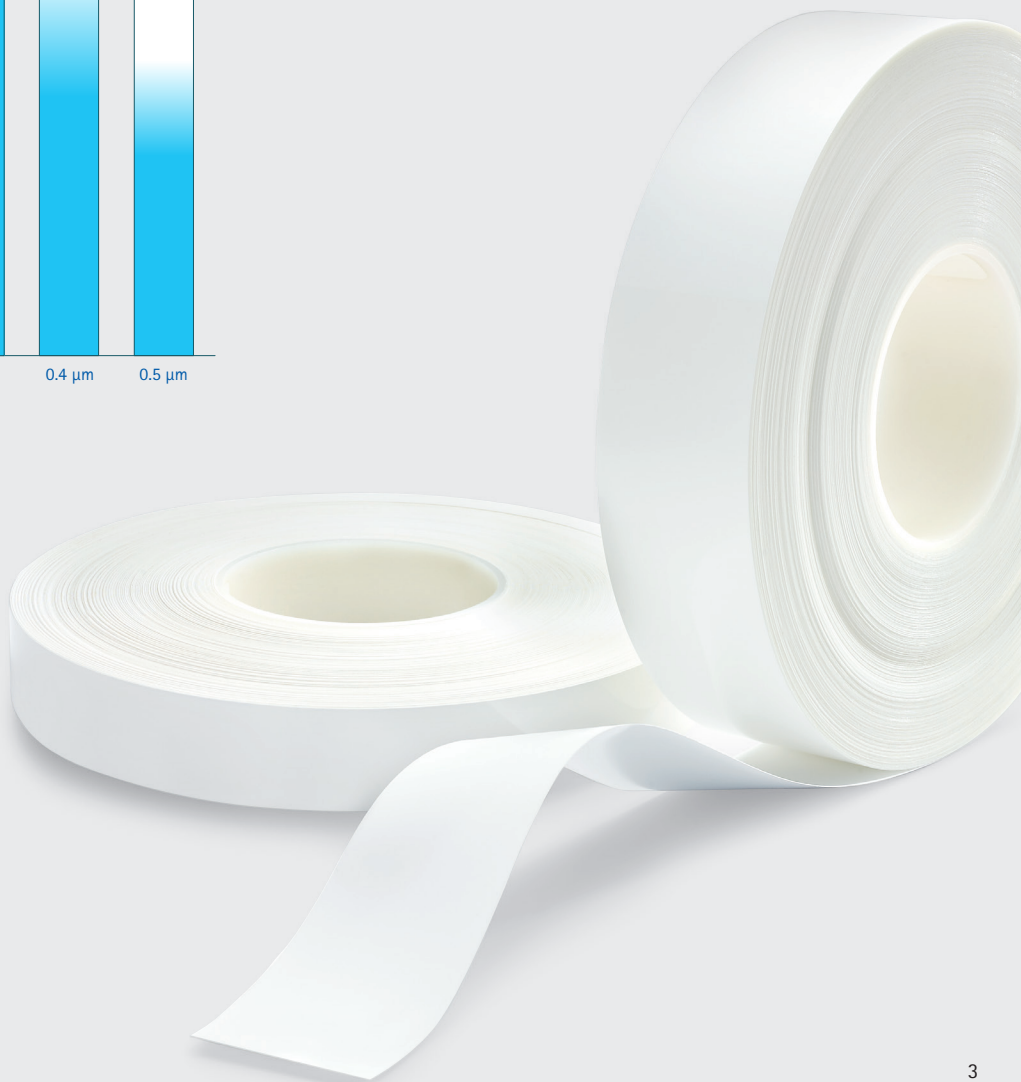
Merck Millipore's Hi-Flow™ Plus membranes are manufactured to the tightest specifications of any lateral flow membrane, which means you can expect consistent performance, reliability and lot-to-lot consistency.

Particle Mobility

The chart below illustrates which membranes allow for the greatest particle mobility. It is important to test mobility on the membranes which indicate a transition from blue to white, as these areas may show variability.



With colloidal gold there is little or no restriction on the flow of particles as they pass through the membrane. With larger beads, mobility may be restricted depending on the size of your particles and the viscosity of the sample.



Key Features of Merck Millipore's Hi-Flow™ Plus Membranes

Consistent Flow and Thickness

Hi-Flow™ Plus membrane's consistent capillary flow time keeps the effective analyte concentration in your assay consistent. As a result, you can develop assays with greater precision and accurately determine the appropriate membrane for your application.



Available Flow Rates

The capillary flow rate is the speed at which a sample material moves along a membrane strip in a rapid diagnostic test strip or application. Moreover, there is a direct correlation between the flow rate and sensitivity of the membrane. Understanding these requirements for your application will enable you to select the appropriate membrane. For example, you can use fast-flowing Hi-Flow™ Plus 75 for tests where speed is critical, sample is plentiful, and sensitivity is not a concern. On the other extreme, use slow-flowing Hi-Flow™ Plus 180 for tests where speed is less important, sample is limited, or high sensitivity is needed. Or use our other Hi-Flow™ Plus membranes for assays that balance speed and sensitivity.

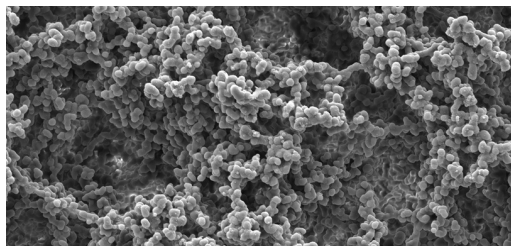
Membrane	Capillary Flow Time Specification** (sec/4 cm)	Flow Rate	Sensitivity
HF180	180 ± 45	Slowest ↓ Fastest	Most sensitive ↓ Least sensitive
HF135	135 ± 34		
HF120	120 ± 30		
HF090	90 ± 23		
HF075	75 ± 19		

*For additional details, request our most recent version of Merck Millipore's development guide for rapid lateral flow test strips (Merck Millipore publication no. TB500EN00 Rev C.).

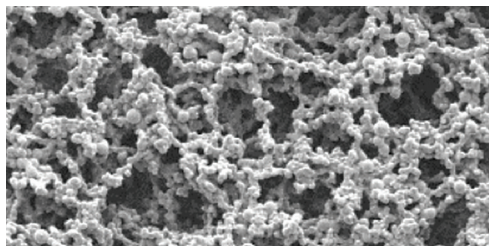
**The range is for all measured values on a roll and represents ± 3σ; the acceptable range for the mean is ± 10% of the target.

Superior Surface Quality

Hi-Flow™ Plus membranes are manufactured to have a superior surface morphology that allows for the consistent and even flow distribution of reagents across the membrane surface. This excellent surface quality improves reagent addition and the clarity of the test results.



HF075 Air side view



HF180 Air side view

Membrane Backing Options

Membrane	Capillary Flow Time	Available Backing Material	Backing	Overall Thickness (µm)
HF075	75	2 mil and 4 mil	UB	135
HF090	90	2 mil and 4 mil	2 mil	185
HF120	120	2 mil and 4 mil	4 mil	235
HF135	135	2 mil and 4 mil		
HF180	180	UB*, 2 mil and 4 mil		

Also available through Merck Millipore are sample, absorbent and conjugate pads needed for rapid diagnostic test strip applications and kits. These pad materials are standards in the industry and are available in multiple formats to suit your specific needs.

*Only HF180 is available unbacked (UB).



SureWick® Pad Materials for use as sample, absorbent and conjugate Pads

Merck Millipore offers glass fiber conjugate pads as well as nonwoven sample and absorbent pads. Both products are available in a variety of widths and formats (i.e. sheets or rolls) as a complement to a variety of manufacturing and development processes.

Glass Fiber Conjugate Pads

Our glass fiber pads have low extractables and excellent consistency. Advances in the production of these glass fiber substrates ensure uniform surfaces and low cost.

Sample and Absorbent Pads

Made from nonwoven, 100% pure cellulose fiber, these pads can be used as sample or absorbent pads. As with our conjugate pads, these pads are manufactured to ensure consistency in your assay. Our pads do not contain binders or glues, which can interfere with assay performance.

Ordering Information

Hi-Flow™ Plus Membrane Cards

Standard cards are available in the following specifications, however custom cards may also be ordered.

Contact your local account manager to discuss the options, or visit www.merckmillipore.com/offices to locate your local Merck Millipore office.

Description	Card Dimension	Qty/Pack	Catalogue No.
Hi-Flow™ Plus 75 Membrane Cards	6 cm x 30 cm	100 cards	HF075MC100
Hi-Flow™ Plus 90 Membrane Cards	6 cm x 30 cm	100 cards	HF090MC100
Hi-Flow™ Plus 120 Membrane Cards	6 cm x 30 cm	100 cards	HF120MC100
Hi-Flow™ Plus 135 Membrane Cards	6 cm x 30 cm	100 cards	HF135MC100
Hi-Flow™ Plus 180 Membrane Cards	6 cm x 30 cm	100 cards	HF180MC100

Sample Packs

Description	Card Dimension	Qty/Pack	Catalogue No.
Hi-Flow™ Plus 75 Sample Pack	6 cm x 30 cm	5 cards	HF075MC5PK
Hi-Flow™ Plus 90 Sample Pack	6 cm x 30 cm	5 cards	HF090MC5PK
Hi-Flow™ Plus 120 Sample Pack	6 cm x 30 cm	5 cards	HF120MC5PK
Hi-Flow™ Plus 135 Sample Pack	6 cm x 30 cm	5 cards	HF135MC5PK
Hi-Flow™ Plus 180 Sample Pack	6 cm x 30 cm	5 cards	HF180MC5PK

Hi-Flow™ Plus Membranes

Standard membranes are available in the following formats, however custom slits and sheet sizes are also available. Contact your local account manager to discuss the options, or visit www.merckmillipore.com/offices to locate your local Merck Millipore office.

Variety Pack	Backing	Dimensions	Qty	Catalogue No.
Hi-Flow™ Plus 75, 90, 120, 135, 180	2 mil	25 cm x 30.5 cm sheets	10 sh/pk (2 sheets of each speed)	HFSAMPLE02
Hi-Flow™ Plus 75, 90, 120, 135, 180	4 mil	25 cm x 30.5 cm sheets	10 sh/pk (2 sheets of each speed)	HFSAMPLE04

Sheets: 25 cm x 30.5 cm

Description	Backing Thickness	Dimensions	Qty/Pack	Catalogue No.
Hi-Flow™ Plus 075	2 mil	25 cm x 30.5 cm sheets	5	HF07502XSS
Hi-Flow™ Plus 075	4 mil	25 cm x 30.5 cm sheets	5	HF07504XSS
Hi-Flow™ Plus 090	2 mil	25 cm x 30.5 cm sheets	5	HF09002XSS
Hi-Flow™ Plus 090	4 mil	25 cm x 30.5 cm sheets	5	HF09004XSS
Hi-Flow™ Plus 120	2 mil	25 cm x 30.5 cm sheets	5	HF12002XSS
Hi-Flow™ Plus 120	4 mil	25 cm x 30.5 cm sheets	5	HF12004XSS
Hi-Flow™ Plus 135	2 mil	25 cm x 30.5 cm sheets	5	HF13502XSS
Hi-Flow™ Plus 135	4 mil	25 cm x 30.5 cm sheets	5	HF13504XSS
Hi-Flow™ Plus 180	unbacked	25 cm x 30.5 cm sheets	5	HF180UBXSS
Hi-Flow™ Plus 180	2 mil	25 cm x 30.5 cm sheets	5	HF18002XSS
Hi-Flow™ Plus 180	4 mil	25 cm x 30.5 cm sheets	5	HF18004XSS

Rolls: 2.5 cm x 100 m

Description	Backing Thickness	Dimensions	Qty/Roll	Catalogue No.
Hi-Flow™ Plus 075	2 mil	2.5 cm W Roll	100 m	SHF0750225
Hi-Flow™ Plus 075	4 mil	2.5 cm W Roll	100 m	SHF0750425
Hi-Flow™ Plus 090	2 mil	2.5 cm W Roll	100 m	SHF0900225
Hi-Flow™ Plus 090	4 mil	2.5 cm W Roll	100 m	SHF0900425
Hi-Flow™ Plus 120	2 mil	2.5 cm W Roll	100 m	SHF1200225
Hi-Flow™ Plus 120	4 mil	2.5 cm W Roll	100 m	SHF1200425
Hi-Flow™ Plus 135	2 mil	2.5 cm W Roll	100 m	SHF1350225
Hi-Flow™ Plus 135	4 mil	2.5 cm W Roll	100 m	SHF1350425
Hi-Flow™ Plus 180	2 mil	2.5 cm W Roll	100 m	SHF1800225
Hi-Flow™ Plus 180	4 mil	2.5 cm W Roll	100 m	SHF1800425

Master Rolls: slit to order*

Description	Backing	Length
Hi-Flow™ Plus 075	2 mil	100 m
Hi-Flow™ Plus 075	4 mil	100 m
Hi-Flow™ Plus 090	2 mil	100 m
Hi-Flow™ Plus 090	4 mil	100 m
Hi-Flow™ Plus 120	2 mil	100 m
Hi-Flow™ Plus 120	4 mil	100 m
Hi-Flow™ Plus 135	2 mil	100 m
Hi-Flow™ Plus 135	4 mil	100 m
Hi-Flow™ Plus 180	2 mil	100 m
Hi-Flow™ Plus 180	4 mil	100 m
Hi-Flow™ Plus 180	unbacked	100 m

*A master roll is 30 cm wide x 100 meters long, and can be slit to a width that meets your design requirements. Contact your local account manager to obtain the catalogue number.

SureWick® Conjugate Pads and Absorbent Pads – Standard Products

Description	Dimensions	Qty/Pk	Catalogue No.
GFDX Glass Fiber Conjugate Pads			
Strips	1.0 cm x 30 cm	100	GFDX 103000
Sheets	20 cm x 30 cm	100	GFDX 203000
Rolls	0.8 cm x 100 meters	1	GFDX 000800
	1.0 cm x 100 meters	1	GFDX 001000
C083 Cellulose Absorbent Sample Pads			
Strips	1.7 cm x 30 cm	100	CFSP1 730 00
	2.0 cm x 30 cm	100	CFSP2 030 00
Sheets	20 cm x 30 cm	100	CFSP2 230 00
Rolls	2.0 cm x 100 meters	1	CFSP0 020 00
	1.7 cm x 100 meters	1	CFSP0 017 00

Custom Products

In addition to our standard products, we also have the ability to customize our membranes to improve assay performance in rapid diagnostic tests and applications. Contact your local account manager to discuss your assay optimization and product customization requirements.

All Merck Millipore pad materials provide the consistency in sample and conjugate pads that is needed to positively impact the performance of test strips used in diagnostic assay devices. The release of detector reagents and sample flow across lateral flow membranes are determined by pad quality.

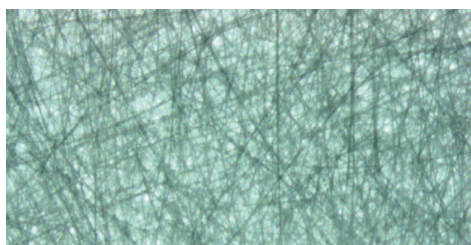
Selecting the right pads for use in your device is easy to do with our broad range of products, offering superior characteristics to deliver consistent assay performance.

Specifications

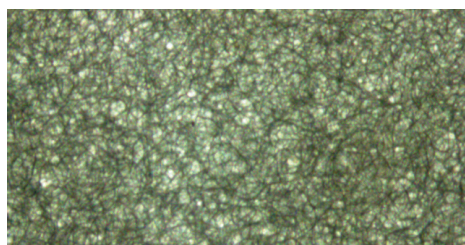
Materials are available in slit rolls, sheets, or strips.

Code	Material	Intended Use	Thickness (mm)	Weight (g/m ²)
G027	Glass	Conjugate pad	0.27	50
GFDX	Glass	Conjugate pad	0.41	75

Code	Material	Intended Use	Thickness (mm)	Weight (g/m ²)	Flow Rate (mL/min)	Retention (µm)
C048	Cellulose	Absorbent/sample pad	0.48	179	360	19
C068	Cellulose	Absorbent/sample pad	0.68	186	260	22
C083	Cellulose	Absorbent/sample pad	0.83	291	196	18
C248	Cellulose	Absorbent/sample pad	2.48	702	220	14



Glass Fiber Conjugate Pad (6.3x)



Cellulose Absorbent Sample Pad (6.3x)

Quality Assurance You Can Trust

Tighter Tolerances Reduce Your Incoming Quality Control (QC)

Our tight release criteria ensure that your membrane will perform consistently between different product supply lots, which means minimal incoming QC testing on each new supply you receive.

Detailed Certificate of Analysis

Every lot of Hi-Flow™ Plus membrane includes a certificate of analysis to provide details ensuring that:

- The lot complies with all test specifications
- There have been no changes in critical raw materials (membrane polymers)
- The membrane was produced in compliance with validated and documented manufacturing processes and material specifications

On each quality certificate, you will find the specific lot information and QC test data for your product.

ISO, GMP Manufacturing

Our manufacturing sites are ISO® 9001:2000 certified and GMP compliant. Customer plant audits are available upon request.

All Hi-Flow™ Plus membrane materials are manufactured in our state-of-the-art manufacturing facility. These products benefit from Merck Millipore's 55 years plus of experience. Our materials should always be stored in ambient temperature/humidity and away from direct light.

Merck Millipore provides the components and services you need to manufacture and optimize your diagnostic products—we are your global partner. Quality. Consistency. Reliability.







To place an order or receive technical assistance

In Europe, please call Customer Service:

France: 0825 045 645

Germany: 069 86798021

Italy: 848 845 645

Spain: 901 516 645 Option 1

Switzerland: 0848 645 645

United Kingdom: 0870 900 4645

For other countries across Europe,
please call: +44 (0) 115 943 0840

Or visit: www.merckmillipore.com/offices

For Technical Service visit:

www.merckmillipore.com/techservice



www.merckmillipore.com/diagnostics

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