

# Kvick Lab cross flow system and cassette holder

## Kvick Lab cross flow system

Engineered for consistency and precise control, the Kvick™ lab cross flow system is a flexible laboratory-scale separations system. Designed to work together, the 2.5 liter reservoir, pump, pressure gauges, cassette holder, piping, and fittings make the system quick to set up and easy to use.

The rotary lobe pump minimizes product shear. The system offers a full range of flexibility, with the ability to concentrate product down to as little as a volume of 200 milliliters.

With the Kvick family, trial data can be scaled to larger systems. The GE Healthcare family of cross flow equipment is consistent and repeatable across all size ranges, so scale-up is linear, from laboratory-scale to pilot- and production-scale equipment.

## Kvick Lab system features

Benefiting from a design and engineering approach usually reserved for large-scale production systems, the Kvick Lab cross flow system provides:

- Stainless steel, jacketed feed tank with multiple ports, for flexibility in process configuration
- Low-shear, rotary lobe pump with touch controls and an LCD operating parameter display
- Sanitary diaphragm valves and zero dead leg pressure gauges
- Protection against over pressurization
- Available Kvick cassettes are state-of-the-art and include several features that increase safety, facilitate use, and improve process control and product quality



## Components

The Kwick Lab system is a full-featured cross flow membrane separations system that includes a jacketed feed reservoir, pump, Kwick Lab cassette holder, pressure gauges, piping, and fittings. Additional fittings and accessories are available.

## Cassettes

The Kwick Lab holder can hold up to five Kwick Lab cassettes. Kwick Lab cassettes are available with 0.01 m<sup>2</sup> (0.1 ft<sup>2</sup>) or 0.12 m<sup>2</sup> (1.25 ft<sup>2</sup>) of membrane surface area. Kwick Lab cassettes are available in molecular weight cutoffs of 10kD, 30kD, 50kD, and 100kD to fit a broad range of cross flow applications. The membrane material is polyethersulfone (PES) and is resistant to commonly used chemicals.

## Typical applications

- Monoclonal antibody clarification/concentration
- Plasmid concentration/diafiltration
- Protein concentration
- Vaccine concentration/purification
- Plasma purification/concentration
- Buffer depyrogenation
- Colloidal suspension concentration/diafiltration
- Continuous buffer exchange

## Kwick Lab system specifications

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Holder connections:	3/4 in sanitary
Maximum operating temperature:	60°C (140°F)
Maximum temperature:	121°C (250°F)
Maximum inlet pressure:	4 barg (60 psig)
Installable membrane area:	0.1 to 0.58 m <sup>2</sup> (1 to 6.25 ft <sup>2</sup> )
System holdup volume:	<30 ml
Dimensions, approximate (W × L × H):	38 × 61 × 53 cm (15 × 24 × 21 in.)
Weight, approximate:	68 kg (150 lb)
Materials of construction Wetted parts:	Polished 316 l stainless steel, Ra = <0.8 μm

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**Figure 1.** Kwick Lab system showing feed tank and full featured rotary lobe pump that can be used for shear-sensitive products.

## Kvick Lab cassette holder

The Kvick Lab cross flow cassette holder is used in cross flow membrane separations applications at laboratory volumes of one to 25 liters. The holder facilitates fast assembly, thanks to a design that offers fewer parts and connections than other holders. Front-facing connectors provide easy handling. The holder is designed for excellent drainage and product recovery, with less than 30-ml holdup volume.

## Kvick Lab cassette holder features

Benefiting from a design and engineering approach usually reserved for large-scale production systems, the Kvick Lab cassette holder provides:

- Capacity of 1 to 5 Kvick Lab cassettes
- Three forward facing ports for convenience
- Vertically-oriented inlet and outlet flow paths for excellent drainage and product recovery, with less than 30-ml holdup volume
- Perfectly sized to fit GE Healthcare Kvick Lab cassettes, with state-of-the-art membranes, and features that increase safety, facilitate use, and improve process control and product quality
- Adjustable stand for ease of use on the laboratory bench

Together, the holder and Kvick cassettes enable concentration and diafiltration of biological solutions with speed and accuracy.

## Components

The main components include a flow distribution manifold, backing plate, and tie rods. These components hold the cassettes in place and manage the flow of process fluids into and out of the cassettes. The holder is made of high quality 316 l stainless steel and is designed for robustness and ease of use. All wetted parts are electropolished to a surface finish of 25 Ra (0.8 microns).

To ensure ease of use, the holder is mounted on a stand and uses industry-standard sanitary fittings.

## Holder and cassettes

The Kvick Lab holder can hold up to five Kvick Lab cassettes. Kvick Lab cassettes are available with 0.01 m<sup>2</sup> (0.1 ft<sup>2</sup>) or 0.12 m<sup>2</sup> (1.25 ft<sup>2</sup>) of membrane surface area. Kvick Lab cassettes are available in molecular weight cutoffs of 10kD, 30kD, 50kD, and 100kD to fit a broad range of cross flow applications. The membrane material is PES, and is resistant to commonly used chemicals.



**Figure 2.** Kvick Lab holder is designed for fast assembly and utilizes sanitary connections. Adjustable stand provides ease of use on the laboratory bench.

## Kvick Lab holder specifications

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Feed, retentate, and permeate port fittings:	3/4 in sanitary
Dimensions (W × L × H):	3.2 × 22.6 × 16.7 cm (5.2 × 8.9 × 6.6 in)
Weight:	7.7 kg (17 lb)
Maximum temperature:	121°C (250°F)
Recommended operating pressure:	0.34 to 4 barg (5 to 60 psig)
Maximum membrane area:	0.58 m <sup>2</sup> (6.25 ft <sup>2</sup> )
Holdup volume (feed/retentate):	Less than 30 ml
Materials of construction	
Wetted parts:	Polished 316 l, stainless steel, Ra <0.8 µm
Nonwetted parts:	
Tie rods, washers, stand:	Stainless steel
Tie rod nuts:	Bronze

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## Cartridge adapter kit

### *Installing the hollow fiber cartridge adaptor kit on a Kvick Lab system*

The Kvick Lab cartridge adaptor kit can hold the following types of cartridges depending upon the cassette type and the membrane area your application requires: Xampler™ size 3M and 3x2M, Xampler size 4, 4M, and 4x2M, Pilot size 5 and 6. (For detailed instructions see document entitled: Using the Cartridge Adaptor Kit, lit number 11-0003-20)

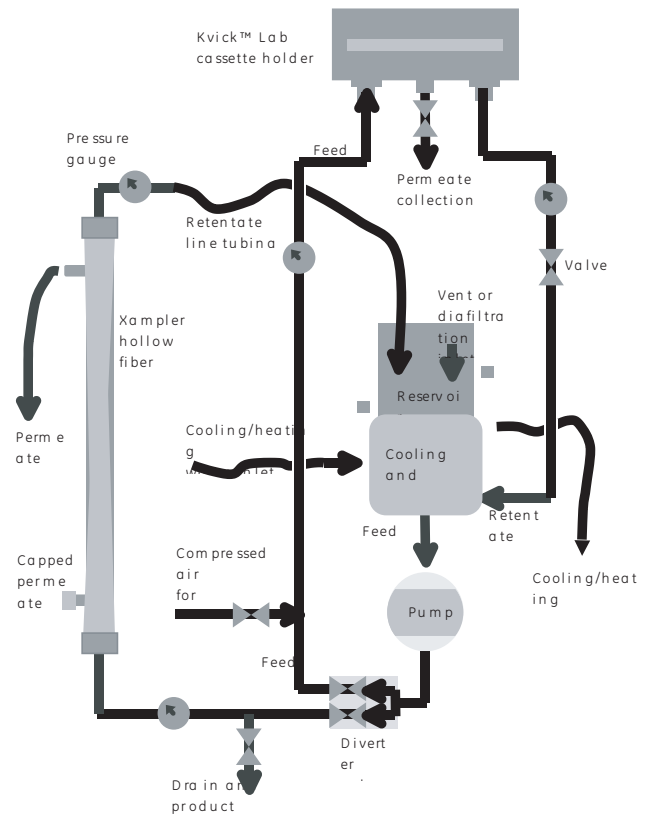
## Parts in the adapter kit

Your adaptor kit contains the following parts:

- 8-inch x 8-inch base plate with 2-piece support rod
- Cartridge mounting bracket (top) with manifold
- Cartridge mounting bracket (bottom) with mounting blocks
- Two, 0 to 4 barg (0 to 60 psig) pressure gauges
- Two pressure gauge mounting adaptors with TC ends
- Drain valve
- Three elbows with TC ends
- Short-outlet tee with TC ends
- Feed manifold with TC ends
- Two, 1 1/2-inch TC clamps
- Twelve, 1/2-inch gaskets
- Twelve, 1/2-inch clamp
- Three, 3/8-inch hose barb fittings with TC ends
- Three, 3-foot sections of 3/8-inch ID tubing
- Three hose clamps
- Two, 1 1/2-inch TC to 1/2-inch TC adaptors, polysulfone
- Two, 1 1/2-inch TC gaskets, silicone
- Two, 1 1/2-inch TC quick disconnect clamps, nylon

## Operating parameters

- Recommended operating temperature, 5°C to 50°C (41°F to 122°F)
- Maximum steaming/autoclaving temperature (no cartridge), 121°C (250°F)
- Maximum operating temperature (pump rotor limited), 60°C (140°F)
- Recommended maximum inlet pressure, 3 barg (45 psig)
- Operating pH, 1 to 14
- Reservoir volume, 2500 ml
- System holdup volume, 20 ml
- System working volume with size 3M cartridge, 200 ml
- System working volume with size 6 cartridge, 500 ml



**Figure 3.** Process flow diagram of a Kwick Lab system with the cartridge adaptor kit and hollow fiber cartridge installed

## Ordering information - systems

Code number	Model number	Description
56-4112-77	KLSY0105RLPSS15	Kvick Lab system 115 VAC
56-4112-78	KLSY0105RLPSS20	Kvick Lab system 220 VAC
56-4112-79	KLHR0105000SS	Kvick Lab cassette holder
56-4112-95	KFSY01071DV05	Retentate or permeate valve
56-4113-08	KLSY0105DDV05	Feed-drain valve with two outlets
56-4113-07	KLSY0105PGA60	In-line pressure gauge, 0 to 4 barg (0 to 60 psig)
56-4112-85	KFSY0107TCL05	1/2 inch sanitary clamp
56-4112-86	KFSY0107TCG05	1/2 inch sanitary gasket, EPDM
56-4113-17	KYSL0105TCG10	3/4-inch sanitary gasket, EPDM
56-4113-64	KYLAGS001011	1 Kvick Lab cassette gasket
56-4113-65	KYLAGS001033	3 Kvick Lab cassette gaskets

## Ordering information - holders

Code number	Model number	Description
56-4112-79	KLHR0105000SS	Kvick Lab cassette holder
56-4112-95	KFSY01071DV05	Retentate or permeate valve (ITT Biotek® valve, 25 Ra, EP 1/2-inch sanitary clamp)
56-4113-07	KLSY0105PGA60	In-line pressure gauge, 0 to 4 barg (0 to 60 psig)
56-4112-85	KFSY0107TCL05	1/2-inch sanitary clamp
56-4112-86	KFSY0107TCG05	1/2-inch EPDM gasket
56-4112-84	KLW0001	Kvick Lab holder torque wrench
56-4113-64	KYLAGS001011	1 Kvick Lab cassette gasket
56-4113-65	KYLAGS001033	3 Kvick Lab cassette gaskets

## For additional product and ordering information

Please contact your local GE Healthcare representative.



[www.gehealthcare.com](http://www.gehealthcare.com)

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