

TANGENX™ PRO PD CASSETTE INSTALLATION

1. Lift the end plate off the manifold of the TangenX™ PRO PD cassette holder.
2. Remove the protective blue sheet and rinse the EPDM gaskets with deionized water or WFI. Place a rinsed gasket flat against the bottom manifold; ensure that the holes in the gasket line up with the holes in the manifold.
3. Using scissors carefully open the cassette bag to remove cassette.

WARNING: Each cassette is stored in an aqueous solution containing 15-20% glycerin and 0.1% sodium azide, pH 7 – 10. Follow standard safety procedures for handling aqueous glycerin/sodium azide, including the use of gloves, safety goggles, and lab coat.

4. Place the cassette into the holder flat against the gasket. Place another gasket on top of the cassette. Ensure that the holes in the manifold, gaskets, and cassette are completely aligned. If you are using multiple cassettes, continue the same gasket/cassette/gasket pattern, ending with a gasket between the last cassette and the end plate.
5. Place the end plate on top of the last gasket of the cassette or cassette stack.
6. Install the tie-rod spacers (if used) and washers on each bolt leaving a minimum of 18 mm (0.75 inch) of thread exposed on the rod. By hand, screw the nut on each bolt and hand tighten evenly by alternating from one nut to the other. Bolts must be further tightened to within the recommended torque values using a calibrated manual torque wrench.
7. Proceed to step 8 for a two bolt hardware design or skip to step 9 for a four bolt hardware design.
8. Using the calibrated torque wrench with a deep style socket, tighten each hex nut ¼ turn following the torque sequence illustrated in Figure 2 for a two bolt hardware. Tighten the first nut ¼ turn, and then tighten the second nut ¼ turn alternating back and forth until the torque wrench "clicks". Repeat this sequence until the wrench "clicks" without turning the nut. The "click" of the torque wrench indicates that the nut has reached the set point torque value.



FIGURE 2
TORQUE SEQUENCE FOR TANGENX™ PRO PD CASSETTES
(2 Bolt Design)

9. Using the calibrated torque wrench with a deep style socket, tighten each hex nut ¼ turn following the torque sequence illustrated in Figure 3 for a four bolt hardware. In ¼ turn increments, tighten the first, second, third, and fourth nut alternating back and forth until the torque wrench "clicks". Repeat this sequence until the wrench "clicks" without turning the nut. The "click" of the torque wrench indicates that the nut has reached the set point torque value.

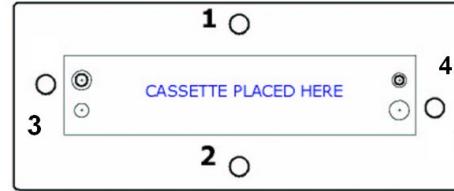


FIGURE 3
TORQUE SEQUENCE FOR TANGENX™ PRO PD CASSETTES
(4 Bolt Design)

CAUTION: Nuts must be tightened uniformly to avoid damaging the cassette. Leakage may result from non-parallel plate alignment or over compression of the cassettes at one end.

10. Wait 5-10 minutes and allow the gaskets to relax before re-torquing. Check each nut, per Figure 1 or 2 sequences, using the torque wrench at its set point torque value.
11. Re-torque as needed, to create a liquid-tight seal.

NOTE: Torque may change during processing as the cassettes may compress, or as the cassettes expand or contract with temperature changes. Periodically check the torque of the bolts and adjust torque as needed.

REPLIGEN TANGENX™ STANDARD WARRANTY

Repligen Corporation warrants its TangenX™ products will meet their applicable published specifications when used in accordance with their applicable instructions for a period of one year from shipment of the products. **REPLIGEN MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** The warranty provided herein and the data, specifications and descriptions of Repligen TangenX™ products appearing in published catalogues and product literature may not be altered except by express written agreement signed by an officer of Repligen. Representations, oral or written, which are inconsistent with this warranty or such publications are not authorized and if given, should not be relied upon.

In the event of a breach of the foregoing warranty, Repligen's sole obligation shall be to repair or replace, at its option, the applicable product or part thereof, provided the customer notifies Repligen promptly of any such breach. If after exercising reasonable efforts, Repligen is unable to repair or replace the product or part, then Repligen shall refund to the customer all monies paid for such applicable product or part. **REPLIGEN SHALL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL OR ANY OTHER DAMAGES RESULTING FROM ECONOMIC LOSS OR PROPERTY DAMAGE SUSTAINED.**

TangenX™ PRO PD Cassette Holder

COMPATIBILITY GUIDE



Phone 508.845.6400 | Fax 508.845.3030

www.repligen.com/tangenx

TXCustomerService@repligen.com

INTRODUCTION

Tangential flow filtration cassettes are typically installed in a stainless steel cassette holder consisting of two steel plates, one acting as a flow distribution manifold and the other as a mating solid flat surface. Repligen offers a complete series of high performance stainless steel cassette holders and are designed for optimal performance with TangenX™ PRO PD cassettes. In addition to TangenX™ cassette holders, TangenX™ PRO PD cassettes have been designed to be compatible with other types from alternative manufacturers. The following guide will outline the compatibility of the TangenX™ PRO PD cassettes with these other types of cassette holders and act as a supplement to the standard user guide.

TANGENX™ PRO PD CASSETTES

- TangenX™ PRO PD cassettes are offered with two different notch patterns on the end of the cassette. One has notches located the 0.850in (21.59mm) from the edge and the other with notches located 0.756in (19.21mm) from the edge.
- Initially identify which type of corresponding bolt pattern the intended cassette holder uses. The following is a partial list of cassette holders and their bolt pattern offset measurement.
 - 0.850in (21.59mm) Offset
TangenX™ PRO Holder (TX002, TX003)
Pall – Centramate Holder (CM018LV, FS001K10)
 - 0.756in (19.21mm) Offset
Millipore – Pellicon Mini Holder (XX42PMINI)
Sartorius – Sartocoon Slice Holder (17525--01, 17521--02)
GE – Kwick Lab Holder (KLPH01SSU, KLHR0105000SS)

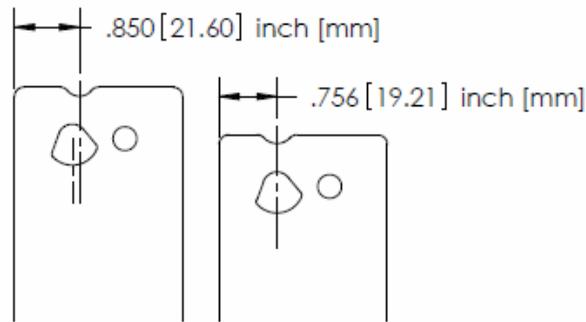


FIGURE 1

- Once the cassette holder's offset bolt pattern has been identified, confirm the cassette matches the bolt pattern and continue to the next section for the supplemental guide to the standard user guide.
- Only use the gaskets provided by Repligen that are supplied with each TangenX™ PRO PD cassette.

TANGENX™ PRO PD CASSETTE | SUPPLEMENTAL INSTALLATION

• Pall Centramate Cassette Holder

Reference TangenX™ User Guide IF.PUG.003 for basic cassette installation instructions, further details are below.

The Pall Centramate cassette holder uses 0.850in (21.59mm) notch pattern and is compatible with all TangenX™ PRO PD cassettes with the part number xxxxAxxx. There are two points of interest to be aware of when installing TangenX™ PRO cassette in the Centramate holder.



The TangenX™ PRO PD cassette must be placed in the cassette holder with the cassette's identification label facing "down" or towards the lower flow-path manifold and away from the brass retaining nuts.

The Centramate cassette holder has four bolts (vs. two), thus reducing the required torque required to seal the TangenX™ PRO PD cassette. The corrected torque values are shown in Table 1 below. Tighten the two center bolts and then the two outer bolts in ¼ turn increments until the recommended torque is achieved.

Table 1 Recommended Torque Values | Pall Centramate 4-Bolt Holder

Holder Part Number	Torque Range (in-lbs)	Torque Range (Nm)
CM018LV	60 - 90	7 - 10
FS001K10	60 - 90	7 - 10

• GE Kwick Lab Cassette Holder

Reference TangenX™ User Guide IF.PUG.003 for basic cassette installation instructions, further details are below.

The Kwick packet holder uses the 0.756in (19.21mm) notch pattern while using 4 bolts to secure the assembly. The Kwick lab cassette holder uses the same bolt pattern, but uses only 2 bolts to secure the assembly. Both are compatible with all TangenX™ PRO PD cassettes with the part number xxxxAxxx.



The TangenX™ PRO cassette must be placed in the cassette holder with the identification label facing away from the feed/retentate ports and towards the brass retaining nuts. The recommended torque values are shown below.

Table 2 Recommended Torque Values | GE Kwick Holder

Holder Part Number	Torque Range (in-lbs)	Torque Range (Nm)
KLPH001SSU (4 Bolt)	60 - 90	7 - 10
KLHR0105000SS (2 Bolt)	120 - 180	14 - 20

• Millipore Pellicon Mini Cassette Holder

Reference TangenX™ User Guide IF.PUG.003 for basic cassette installation instructions. The Millipore Pellicon Mini cassette holder uses the 0.756in (19.21mm) notch pattern and is compatible with all TangenX™ PRO PD cassettes with the part number xxxxAxxx.

The TangenX™ PRO PD cassette must be placed in the cassette holder with the identification label facing away from the feed/retentate ports and towards the brass retaining nuts. The recommended torque values are shown below.



Table 3 Recommended Torque Values | Millipore Pellicon Mini 2-Bolt

Holder Part Number	Torque Range (in-lbs)	Torque Range (Nm)
XX42PMINI	120-180	14-20

• Sartorius Sartocoon Slice Cassette Holder

Reference TangenX™ User Guide IF.PUG.003 for basic cassette installation instructions, further details are below.

The Sartorius Sartocoon cassette holder uses the 0.756in (19.21mm) notch pattern and is compatible with all TangenX™ PRO PD cassettes with the part number xxxxAxxx. The TangenX™ PRO PD cassette must be placed in the cassette holder with the identification label facing away from the feed/retentate ports and towards the brass retaining nuts. The recommended torque values are shown in Table 4.



Table 4 Recommended Torque Values | Sartorius Sartocoon Slice 2-Bolt

Holder Part Number	Torque Range (in-lbs)	Torque Range (Nm)
17525-- 01	120 - 180	14 - 20
17521-- 02	120 - 180	14 - 20

• TangenX™ PRO Cassette Holder

Follow the instructions outlined in the TangenX™ User Guide IF.PUG.003 for cassette installation procedures. A copy is included in the box of every TangenX™ PRO cassette.

Every TangenX™ PRO PD cassette holder uses the 0.850in (21.59mm) notch pattern and are ideally compatible with all TangenX™ PRO PD cassettes with the part number xxxxAxxx.

