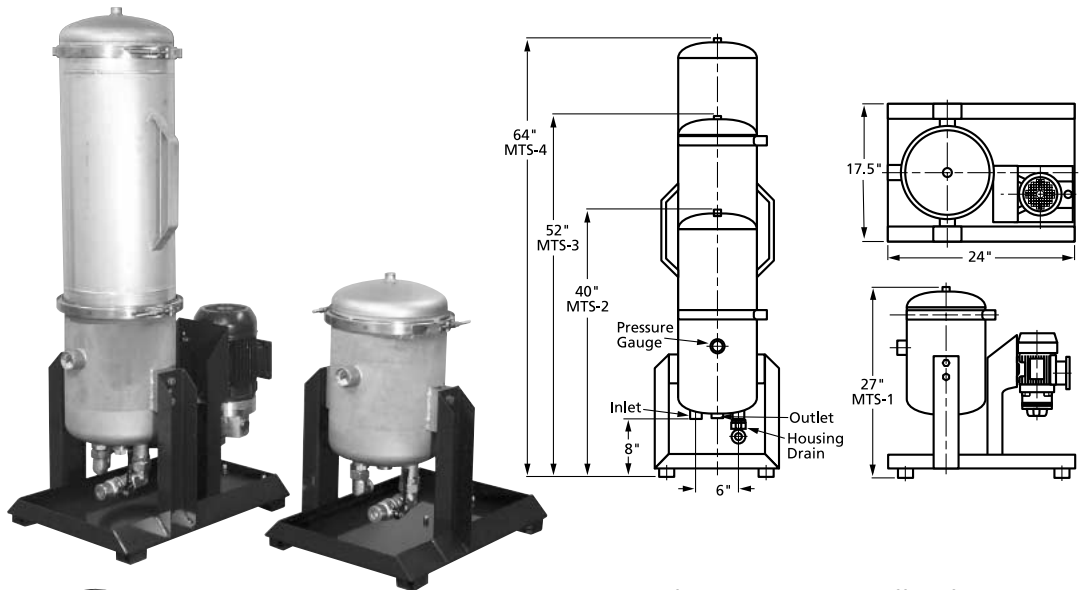


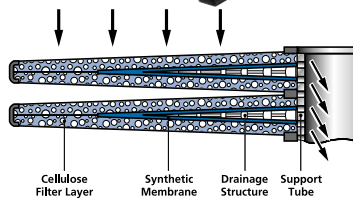
## MTS



### Description



Single  
Membrane  
Element



Element Cross Section

The MTS from Schroeder is an offline filtration system that features unique membrane elements constructed of stacked disks where dirt holding capacity is measured in pounds instead of grams, drastically reducing the amount of time required to clean up highly contaminated fluids. The abundant media surface area afforded by the stacked disk construction combined with the highly efficient membrane filtration give the MTS its very impressive dirt retention characteristics. The MTS can hold up to four filter elements and can be supplied as a stand-alone filter or with a pump and motor.

### Features

- Effectively cleans hydraulic and cleaning fluids, lubricating oils, and coolants
- Provides excellent dirt removal efficiency, even in single pass filtration
- Available with pump and motor or can be utilized as an individual filter
- Included framework makes unit ready to install
- Easy to retrofit existing system
- Test points provided on all models
- Housing drain standard on all units

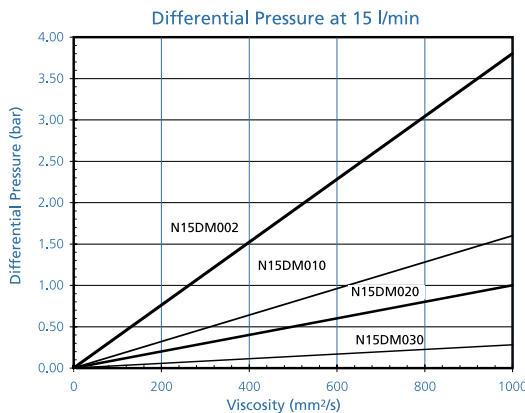
### Applications

- Offline filtration for hydraulic systems and test stands
- Bypass filtration
- Flushing and filling applications
- Inline auxiliary filtration

# Membrane Technology Systems

**FLUID  
CONDITIONING  
PRODUCTS**

	MTS-1	MTS-2	MTS-3	MTS-4
Number of Elements:	1	2	3	4
Contamination Retention Capacity:	500g (1.1lbs.)	1000g (2.2lbs.)	1500g (3.3lbs.)	2000g (4.4lbs.)
Filter Efficiency:	$\beta_x > 1000$	$\beta_x > 1000$	$\beta_x > 1000$	$\beta_x > 1000$
Permissible $\Delta p$ Across the Element:	72.5 psi	72.5 psi	72.5 psi	72.5 psi
Weight Element:	6.6 lbs.	13.2 lbs.	19.8 lbs.	26.4 lbs.
Material of Filter Housing:	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Capacity of Pressure Vessel:	5.25 gallons	10.50 gallons	15.75 gallons	20.5 gallons
Max Operating Pressure Filter Housing:	87 psi	87 psi	87 psi	87 psi
Material of Seals-Housing (standard):	Buna N	Buna N	Buna N	Buna N
Weight Housing:	25 lbs.	33 lbs.	53 lbs.	62 lbs.
Fluid Temperature:	15 to 175°F	15 to 175°F	15 to 175°F	15 to 175°F
Technical Details for Motor-Pumps Units:	5 gpm	10 gpm	15 gpm	20 gpm
Operating Pressure of the Pump:	65 psi	65 psi	65 psi	65 psi
Viscosity Range with Vane Pump (SUS):	75 to 2500	75 to 2500	75 to 2500	75 to 2500
Motor Capacity (watts) Vane Pump:	370 W	570 W	1500 W	1500W
Weight Vane Pump:	17 lbs	30 lbs	43 lbs	43 lbs
Material of Seals in Pumps (standard):	Buna N	Buna N	Buna N	Buna N
Vane Pump Connectors :	Model			
	MTS-1	1 1/16 -12UN (SAE 12)		
	MTS-2, 3, and 4	1 5/8 -12UN (SAE 20)		



Membrane Technology System	No. of* Elements	Pump Flow Rate* (must be $\leq$ no. of elements)	Type of Pump	Motor	Absolute Rating of Element Media	Dirt Alarm	Options (may specify more than one)
MTS	1 2 3 4	1 = 5 gpm 2 = 10 gpm 3 = 15 gpm 4 = 20 gpm X = no pump	V = Vane	1 = Single Phase 3 = Three Phase	02 = 2 micron 10 = 10 micron 20 = 20 micron 30 = 30 micron	I = Integrated Pressure Gauge E = Electrical Diff. Pressure Gauge	S = SAE Adapters (BSPP connections are standard) V = Viton Seals

\*See Element Selection Chart below for correlation between number of elements and flow.

Model	No. of Elements	Flow (gpm)
MTS	1, 2, 3, 4	5
MTS	2, 3, 4	10
MTS	3, 4	15
MTS	4	20

## Specifications

TPM

TIM

TIM-P

TWS

ET-100-6

ETD-100-6

TDA

EWC

EPK

HTB

GS

Trouble  
Check Plus

Test Points

Adapters

Hose  
Joiners

Microflex  
Hose

Pressure  
Gauges

Pressure  
Limiters

Test Kits

Probalizer

Filtration  
Station

AFM

MFS, MFD

AMS, AMD

KLS, KLD

AKS, AKD

X Series

HFS

**MTS**

SVD

Appendix

## Element Pressure Drop

## Model Number Selection

## Element Selection

**MTS**

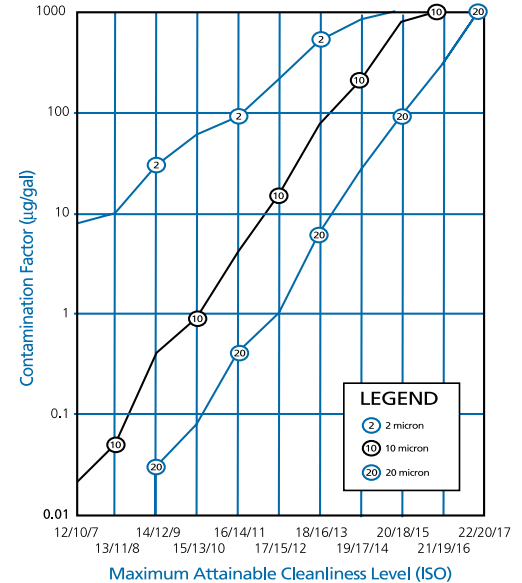
*continued*

**Sizing  
Offline  
Filtration**

The following calculations will help to approximate the attainable system cleanliness level when applying offline filtration.

**Step 1:** Select the approximate contamination ingress rate from the chart. Quantitative investigations have yielded the following approximate figures.

Type of System	Contamination Ingression (µg/gal) Surroundings		
	Clean	Normal	Polluted
Closed circuit	1	3	5
Injection molding machine	3	6	9
Standard hydraulic system	6	9	12
Lubrication system	8	11	14
Mobile equipment	10	13	16
Heavy industrial press	14	18	22
Flushing test equipment	42	60	78



**Step 2:** Make the correction required for offline filtration.

The contamination input selected above must be multiplied by the factor:

$$\text{Main System Flow Rate} / \text{Desired Offline Flow Rate}$$

**Note:** Main system flow rate must be corrected for cycle time. For example, if the flow rate is 500 gpm, but only runs for 20% of the system cycle, the main system flow rate would be 100 gpm. (500 gpm X 20%)

This yields the expression:

$$\text{Contamination Factor} = \text{Contamination Input } (\mu\text{g/gal}) \times \frac{\text{Main System Flow Rate (gpm)}}{\text{Desired Offline Flow Rate (gpm)}}$$

Calculate the contamination factor using this expression.

**Step 3:** Determine the attainable cleanliness level. Locate the calculated contamination factor on the y-axis of the attached graph. Go to the right to find the intersection point on the curve corresponding to the desired absolute filter micron rating. Read the resulting attainable cleanliness level on the x-axis. (In case of dynamic flow through the offline filter, the attainable cleanliness level will be 2 to 3 times worse than indicated by the graph.)

**Offline Filtration Sizing Example**

Type of System: Heavy industrial press

Surroundings: Normal

Main System Flow Rate: 150 gpm

Desired Offline Flow Rate: 16 gpm (MTS-4)

**Step 1:** Using this criterion select the approximate contamination ingress rate from the chart above.

This yields a contamination input of 18 µg/gal based on a heavy industrial press with normal surroundings.

**Step 2:** Make the correction required for offline filtration.

$$\text{Contamination Factor} = 18 \mu\text{g/gal} \times 150 \text{ gpm} / 20 \text{ gpm} = 135$$

**Step 3:** Determine the approximate attainable cleanliness level for each micron rating using the attached graph. If the attainable cleanliness level is not acceptable, the desired offline flow rate should be increased. The approximate attainable levels for this example are as follows.

2µm - ISO 17/15/12

20µm - Between ISO 20/18/15 and ISO 21/19/16