GE Healthcare

Media Wand
Media Handling Unit

User Manual

Important user information

All users must read this entire manual to fully understand the safe use of Media Wand and Media Handling Unit.

WARNING!

The WARNING! sign highlights instructions that must be followed to avoid personal injury. Do not proceed until all stated conditions are clearly understood and met.

CAUTION!

The CAUTION! sign highlights instructions that must be followed to avoid damage to the product or other equipment. Do not proceed until all stated conditions are met and clearly understood.

Note

The Note sign is used to indicate information important for trouble-free and optimal use of the product.

CE Certifying

This product meets all requirements of applicable CE-directives. A copy of the corresponding Declaration of Conformity is available on request.

The **CE** symbol and corresponding declaration of conformity, is valid for the instrument when it is:

- used as a stand-alone unit, or
- connected to other CE-marked GE Healthcare instruments, or
- connected to other products recommended or described in this manual, and
- used in the same state as it was delivered from GE Healthcare except for alterations described in this manual.

Contents

1 Introduction

1.1 Intended use

Media Wand™ is designed to be used for:

- Removing transport solution from media containers.
- Adding buffer and preparing a media slurry in a media container.
- Transferring the media slurry to a slurry tank.

The Media Wand can be used together with:

- Media Handling Unit, or with
- Chromaflow™ Packing station (Pack 100 only)

The Media Wand should not be used in EX environments or for other purposes than those described in this manual.

The user of the Media Wand should be trained in handling chromatography media in general. It is recommended to first try the Media Wand in a medium that will not be re-used.

The recommended flow when using the Media Wand is 40 ± 2 l/min.

1.2 Aim of the product

The aim of the product is to facilitate the handling of media containers. The generation of a homogenous media slurry before column packing is a cumbersome process involving heavy lifting and movements, especially for larger containers.

The use of Media Wand will considerably reduce both the handling time and work effort.

1.3 Labelling of the Media Handling Unit

The Media Handling Unit is labelled as follows:

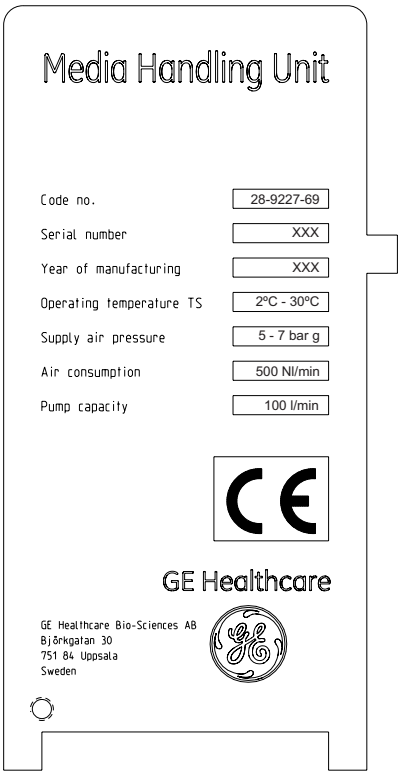


Fig 1-1. The Media Handling Unit name plate.

1.4 Specifications

1.4.1 Air supply

Dry, clean, oil free compressed air with a minimum pressure of 6 bar (max 8 bar). Capacity curve of the built-in tapflo™ TU103 pump is shown below.

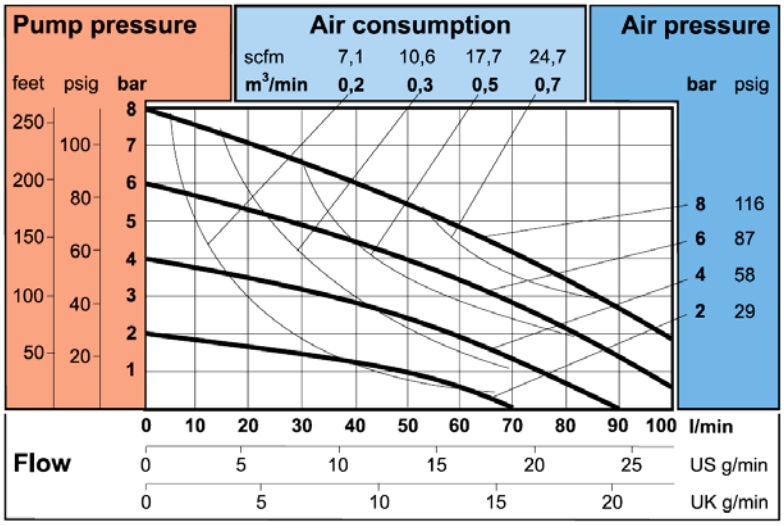


Fig 1-2. Capacity curve of the tapflo TU103 pump.

Example:

External pressure (air pressure) is 4 bar.

To obtain a pump flow of 40 l/min, the pump pressure is set to 3 bar, which will result in an air consumption of 0.3 m^3/min.

1.4.2 Chemical resistance of Media Wand and Media Handling Unit

Table 1-1 is a guide to the resistance of Media Wand and Media Handling Unit to chemicals and solvents commonly used in process chromatography. The information has been compiled from published material.

It should be noted that the effects of a chemical will be more severe at higher temperatures and pressures and that combined effects have not been taken into consideration.

In general, the use of the following chemicals should be avoided:

- Powerful oxidizers (such as peroxides)
- Fluorine and halenogenated compounds

- Chlorinated solvents (such as methylene chloride)
- Esters
- Aromatic hydrocarbons (such as toluene)
- High concentrations of strong acids

Table 1-1. Chemical resistance of materials.

Substance	Concentration by volume	Resistance 60–90 days
Acetic acid	1.7 M	OK
Ethanol	40%	OK
Ethylene glycol	50%	OK
Formaldehyde	1.7 M	OK
Formic acid	10%	OK
Glycerol	100%	OK
Hydrochloric acid	0.1 M	See note 1
Isopropyl alcohol	30%	OK
Nitric acid	0.1 M	OK
n-Propanol	100%	OK
Phosphoric acid	25%	See note 2
Sodium chloride	0.5 M	See note 1
Sodium hydroxide	2 M	OK
Trifluoroacetic acid	0.1%	OK
Triton™ X-100	100%	OK
Tween™/Tri-n-butyl phosphate	1% / 0.3%	OK
Urea	8 M	OK

Note 1: Not recommended. The stainless steel will be affected.
Note 2: Limited resistance.

1.5 Principle of operation

A buffer is sprayed through the Media Wand spray nozzle to initiate the mixing of the sedimented media directly in the transport container.

Recirculation of the slurry dissolves the sedimented media obtaining a highly concentrated slurry suitable for column packing.

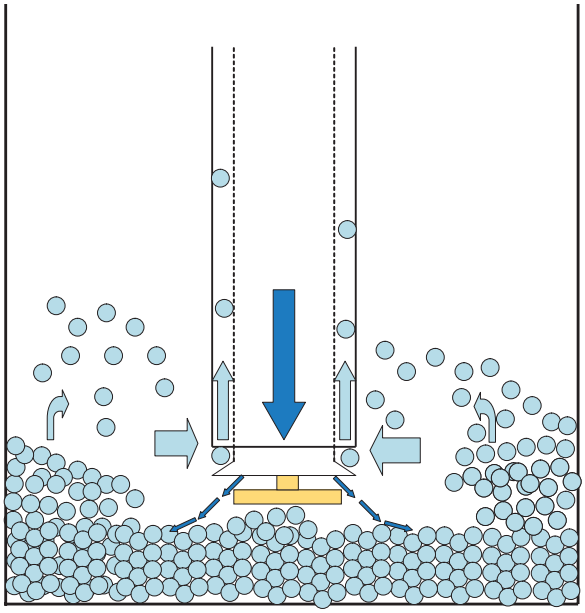


Fig 1-3. Principle of Media Wand.

1.6 Construction

1.6.1 Media Wand

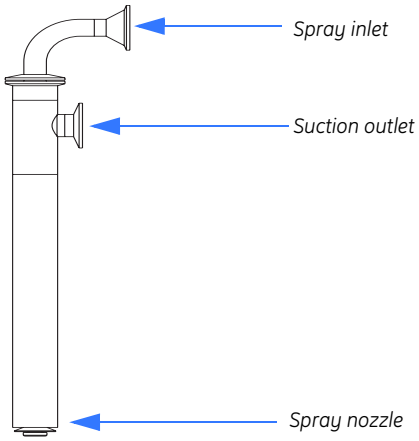


Fig 1-4. The (0.5 m) Media Wand 50

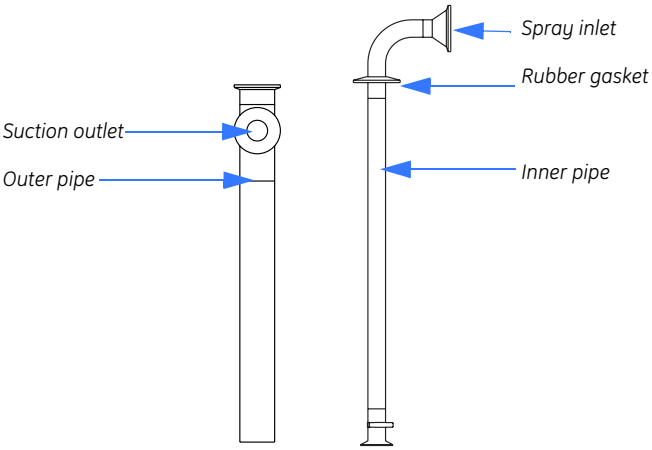


Fig 1-5. The (0.5 m) Media Wand 50 disassembled.

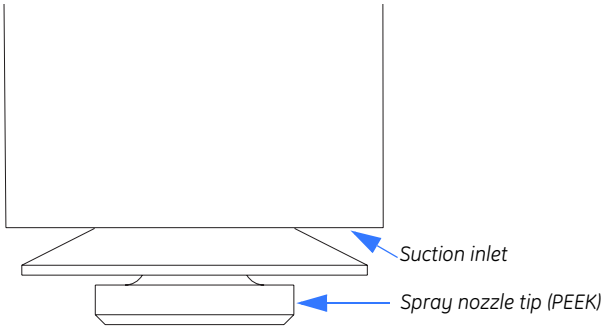


Fig 1-6. The nozzle tip area of the Media Wand.

1.6.2 Media Handling Unit

Fig 1-7. Schematic layout of the Media Handling Unit, with attached Media Wands.

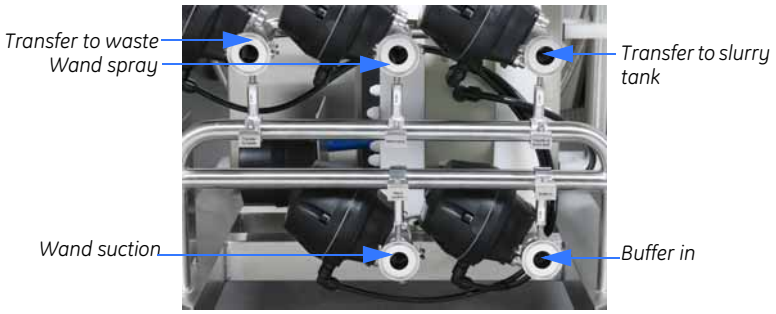


Fig 1-8. Hose connections on the Media Handling Unit.

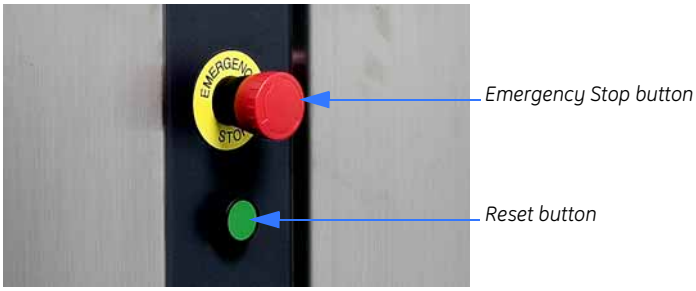


Fig 1-9. Emergency stop and Reset buttons on the Media Handling Unit.

- To stop the Media Handling Unit, press the **Emergency Stop** button.
- To reset the Emergency stop, push the **Emergency Stop** button and turn it counterclockwise. Press the **Reset** button.

1.6.3 Control panel

Fig 1-10. The layout of the control panel on the Media Handling Unit.

- **PUMP PRESSURE REGULATOR**: Regulates the air pressure to the pump.
- **PUMP PRESSURE INDICATOR**: Indicates the pump pressure.
- **PUMP CONTROL**: The switch is set to **ON** or **OFF**.
- **INLET** valve: Sets the inlet flow to “BUFFER IN” or “WAND SUCTION”.
- **OUTLET** valve: Sets the outlet flow to “TRANSFER TO” or “WAND SPRAY”.
- **TRANSFER CONTROL**: When **OUTLET** valve is set to “TRANSFER TO”, this valve sets the flow to “SLURRY TANK” or “WASTE”.

2 Operation

WARNING! Wear safety glasses, safety gloves and protective clothing.

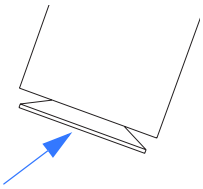
2.1 Preparing the Media Wand

2.1.1 Assembling the Media Wand

Carefully introduce the inner pipe into the outer pipe. Ensure there is a gasket in the Tri-Clamp™ connection.

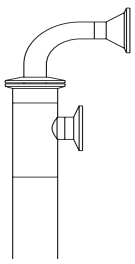
1 Place a Tri-Clamp over the connection between the pipes and tighten firmly by hand.

2 If Slurry preparation will be performed: Assemble the spray tip (finger tight) to the lower part of the Media Wand.



Optional: if removal of transport solution will be performed, attach a decanting device to the lower part of the Media Wand.
See Section 4.6.1 Accessories.

2.1.2 Connecting hoses to Media Wand



1 Connect hoses to the Suction and Spray ports of the Media Wand.

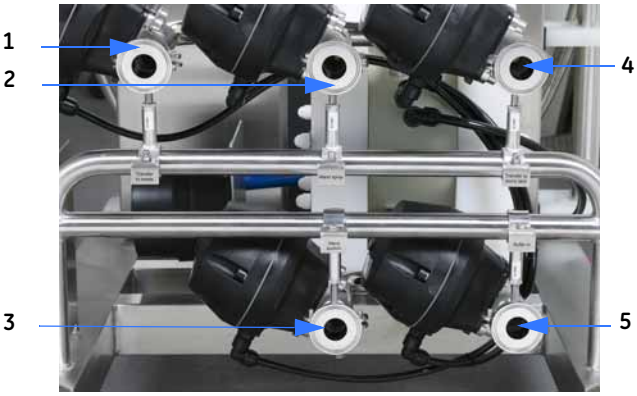
2 Use gaskets and fasten with Tri-Clamps.

2.2 Preparing the Media Handling Unit.

WARNING! NO SERVICABLE PARTS INSIDE. Do not open the Control unit box! Service and planned maintenance should be performed by personnel authorized by GE Healthcare only.

WARNING! If the risk of static electricity exists, use hoses with conductivity characteristics. Recommended length is 2 m.

1 Connect hoses to the Media Handling Unit according to the table below. Use gaskets and fasten with Tri-Clamps firmly by hand.



Position	Connection
1	Transfer to waste
2	Wand spray
3	Wand suction
4	Transfer to slurry tank
5	Buffer in

2 Set all three valve controls to “0”.

3 Set the pump switch to “OFF” and the pump pressure to minimum.

WARNING! Incorrect settings before connection to air supply may result in liquid sprays and/or movement of the Media Wand.

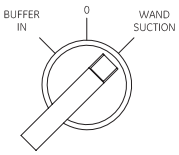
4 Connect the air supply to the air supply port. For specification of compressed air, see Section 1.4.1.

2.3 Priming of Media Handling Unit and Media Wand.

Before using the Media Wand and Media Handling Unit, all inlets and outlets have to be primed.

1 Fill a container with packing buffer, and place the Media Wand and all hoses in it.

2 Set the **INLET** switch to "WAND SUCTION". Set the **OUTLET** switch to "TRANSFER TO". Set the **TRANSFER CONTROL** switch to "WASTE OUTLET".



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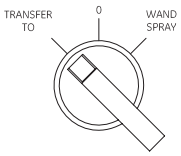

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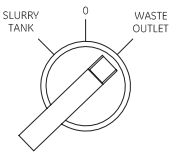
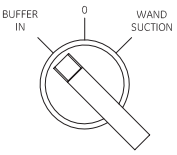


TRANSFER CONTROL

3 Set the pump pressure to 3 bar and start the pump. Prime for approximately 30 seconds.

4 Set the **INLET** switch to "BUFFER IN". Set the ***OUTLET*** switch to "WAND SPRAY". Set the **TRANSFER CONTROL** switch to "0".



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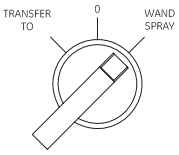

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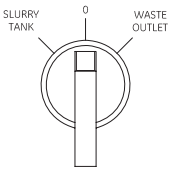
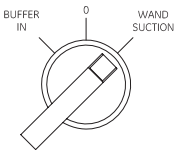


TRANSFER CONTROL

5 Prime for 30 seconds.

6 Set the **INLET** switch to "WAND SUCTION". Set the **OUTLET** switch to "WAND SPRAY". Set the **TRANSFER CONTROL** switch to "0". Prime for 30 seconds.



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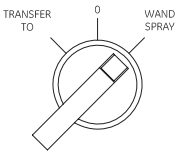

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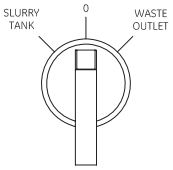
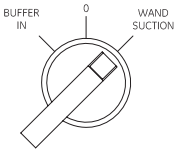


TRANSFER CONTROL

7 Set the ***INLET*** switch to "WAND SUCTION". Set the **OUTLET** switch to "TRANSFER TO". Set the **TRANSFER CONTROL** switch to "SLURRY TANK". Prime for 30 seconds.



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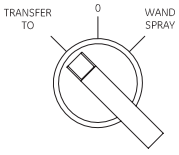

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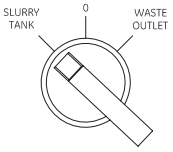


TRANSFER CONTROL

8 Stop the pump.

2.4 Checking the flow of the Media Handling Unit.

The recommended flow when preparing media slurry is 40 ± 2 l/min.
A pump pressure of approximately 3 bar will usually give this flow.

Note: Do not exceed a flow rate of 40 l/min. Ensure the system is primed before checking the flow.

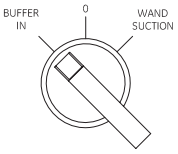
1 Record the weight of an empty container.

2 Place the hose from Media Handling Unit connection position 4 (Buffer in) in a container with water.

3 Place the Media Wand in the water tank.

4 Ensure Emergency stop is reset.

5 Set the valve controls on the control panel to the positions as shown below.



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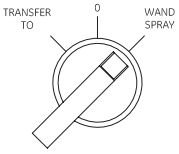

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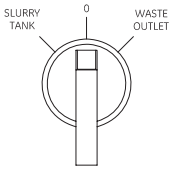


TRANSFER CONTROL

6 Start the pump with a pump pressure of 3 Bar.

7 Recirculate the liquid until the flow is stable.

8 Turn off the pump.

9 Place the Media Wand in the empty container, and start the pump with a pump pressure of 3 bar. Fill the container during a set time.

10 Weigh the container and calculate the obtained flow.

11 Repeat the procedure with an adjusted pump pressure until a flow of 40 ± 2 l/min has been obtained.

2.5 Removing transport solution from a media container

Media is delivered in a transport solution, usually 20% ethanol.

Note: To avoid loss of media, it is recommended that the transport solution is transferred to a separate container.

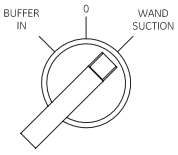
1 Measure the sedimented height of media in the container.

2 Attach a decanting device to the Media Wand (optional).

3 Remove the cap on the media container.

Note: Ensure the media is well sedimented!

4 Set the valve controls on the control panel to the positions as shown below.



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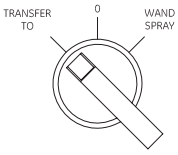

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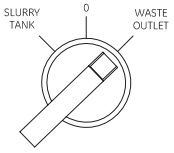


TRANSFER CONTROL

5 Set the **TRANSFER CONTROL** switch to "WASTE OUTLET".

6 Place the "Waste outlet" hose in a container.

7 Position the Media Wand above the liquid surface.

8 Start the pump with a minimum pump pressure. Adjust to approximately 2 bar. Ensure pump is running.

9 Insert the Media Wand just below the liquid surface into the container.

CAUTION! Do not allow the Media Wand to touch the media surface as this may affect media integrity.

10 Lower the Media Wand slowly and carefully to a position just below the liquid surface. It is not a problem if the Media Wand occasionally is above the liquid surface. Remove as much of transport solution as possible.

11 Lift the Media Wand while pump is running.

12 Turn off the pump.

13 If a Decanting device has been used, replace with a spray tip.

2.6 Adjusting media concentration, preparing a slurry and transferring slurry to slurry tank.

The preparation of the slurry starts with the addition of buffer to obtain an appropriate media concentration. As the Media Wand is lowered during the buffer addition, the preparation of the slurry is initiated. When all buffer has been added, the recirculation of media and buffer starts and the slurry preparation continues.

As additional buffer will be introduced to the media when the transport container and Media Wand are rinsed, it is recommended to use a media concentration of approximately 70% when preparing the slurry. The media concentration during column packing should not be below 50%. For specifications of hose and system volumes, see Section 4.1.

Note: Ensure the system is primed and a spray tip is assembled on the Media Wand. Ensure there is a hose connected to a slurry tank. Ensure there is buffer connected to the Media Handling Unit ("Buffer in" position).

CAUTION! When preparing and handling media slurry, always hold the Media Wand by hand! Never let it stand in media containers as this may affect media integrity.

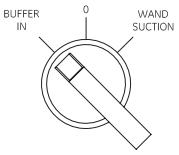
2.6.1 Procedure

1 If not performed in Section 2.5, measure the height of the sedimented media.

2 Calculate the volume to obtain a media concentration of 70%.

3 Set a mark on the container for the desired total volume.

4 Set the valve controls on the control panel to the positions as shown below.



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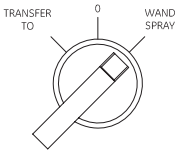

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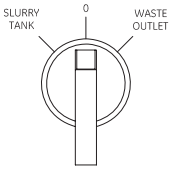


TRANSFER CONTROL

CAUTION! Do not allow the spray nozzle to come in contact with the sedimented media surface as this may affect media integrity. The spray nozzle should be positioned just above it.

5 Place the Media Wand in the media container. The spray nozzle should be positioned just above the media surface.

6 Start the pump with a flow of 40 ± 2 l/min.

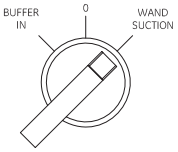
Note: Set the appropriate pump pressure to obtain the flow of 40 ± 2 l/min.

7 During the addition of buffer, lower the Media Wand slowly towards the bottom of the container during approximately 30 seconds.

CAUTION! Do not exceed the desired volume!

CAUTION! Do not let the Media Wand come in direct contact with the bottom or walls of the container as this may affect media integrity.

8 When the required volume of buffer has been added, change the valve controls as shown below.



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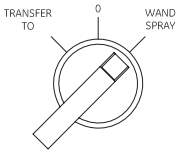

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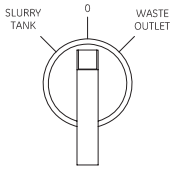


TRANSFER CONTROL

9 Continue to move the Media Wand slowly up and down and also along the container walls until all media is in slurry.

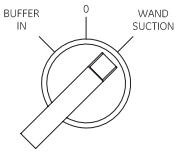
CAUTION! To maintain integrity of media, never exceed the maximum time of ~5 minutes (60 L media) or ~2 minutes (10 L). If media has been stored in cold room, add approximately one minute to the mixing time. This will compensate for the increased viscosity of the colder media.

10 Stop the pump.

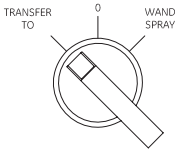
11 Immediately continue with step 12!

CAUTION! Do not leave the system with media! Do not shut down the system without rinsing the pump and flow paths as remaining media will sediment and block the system.

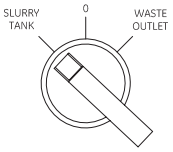
12 Set the valve controls on the control panel to the positions as shown below.



INLET



OUTLET



TRANSFER CONTROL

13 Start the pump with a flow of 40 l/min.

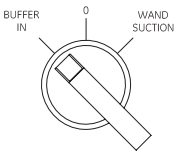
14 When the slurry level in the container is less than 5 cm (2") from the bottom, tilt the container and place the Media Wand in the bottom-most location. Remove as much as possible.

CAUTION! Do not scratch the bottom or walls of the container!

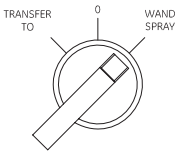
15 Stop the pump.

16 Keep the Media Wand in the container.

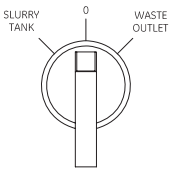
17 Set the valve controls on the control panel to the positions as shown below.



INLET



OUTLET



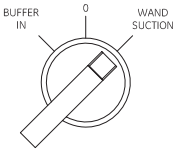
TRANSFER CONTROL

18 Start the pump at a flow of 40 l/min and rinse the interior of the container with a small volume of buffer.

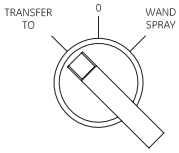
Note: Do not add a volume of buffer leading to a media concentration below 50%.

19 Stop the pump.

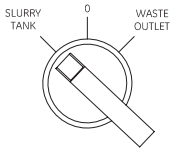
20 Change the valve controls on the control panel to the positions as shown below.



INLET



OUTLET



TRANSFER CONTROL

21 Start the pump.

22 When the slurry level in the container is less than 5 cm (2") from the bottom, tilt the container and place the Media Wand in the bottom-most location. Remove as much as possible.

23 Stop the pump.

Note: To be performed if several transport container have been used:
To minimize loss of media (container and system), rinse the last container once more.

2.7 After run procedures

Immediately after the media transfer procedure, the system must be rinsed.

CAUTION! Do not leave the system with media!

2.7.1 Rinsing the system with water

1 Place the "Buffer in" hose in clean water. Place the "Transfer" and "Waste" hoses to waste.

2 Set the **INLET** valve to "BUFFER IN", set the **OUTLET** valve to "TRANSFER TO" and set the **TRANSFER CONTROL** valve to "SLURRY TANK". Run the pump at 40 l/min until the outlet water is clear.

3 Set the **TRANSFER CONTROL** valve to "WASTE OUTLET" and run the pump at 40 l/min until the outlet water is clear. Stop the pump.

4 Place the Media Wand in a waste container, set the **INLET** valve to "BUFFER IN", set the **OUTLET** valve to "WAND SPRAY". Run the pump at 40 l/min until the outlet water is clear. Stop the pump.

5 Place the Media Wand in a container with clean water. Set the **INLET** valve to "WAND SUCTION", set the **OUTLET** valve to "WAND SPRAY". Run the pump at 40 l/min. Stop the pump.

6 Discard the water and repeat the procedure with clean water until the rinse water stays clear.

2.7.2 Cleaning of Media Wand

Dismount the Media Wand, clean the parts and/or clean the wand in an autoclave.

WARNING! HAZARDOUS CHEMICALS! Do not CIP the Media Wand using pumped NaOH through the wand due to the risk of NaOH spray.

2.7.3 Cleaning of Media Handling Unit (with CIP manifold)

Perform a CIP procedure using an assembled CIP manifold (optional) on the Media Handling Unit.

WARNING! CORROSIVE CHEMICALS. Some chemicals, for example NaOH, are corrosive and therefore dangerous to health. Avoid spillage and wear protective glasses.

If a CIP manifold is not used, perform a CIP procedure according to Section 2.7.4.

2.7.4 Cleaning of Media Handling Unit (without CIP manifold)

Equipment setup

1 Connect hoses to all outlets and place the non-connected ends in a 100 L tank with at least 20 liters of 1 M NaOH.

2 Connect the air supply to the Media Handling Unit

Priming

3 Turn on the pump and adjust the pressure to approximately 3 bar.

4 Rinse all lines by re-circulating the sodium hydroxide for at least 30 seconds per line.

Cleaning

5 Shut off the pump and leave the Media Handling Unit for 60 minutes.

Rinsing

6 Remove the Buffer inlet hose from the sodium hydroxide tank and connect it to a supply of WFI (Water for injection).

7 Start the pump (still with the pump set at 3 bar).

8 Rinse all lines with WFI for 30 seconds per line.

9 Continue pumping WFI through the pump and measure pH on the outgoing flow. When the pH on the outlet side is equivalent to pH on the inlet side, shut off the pump.

2.7.5 Contamination risks

If other types of media will be used with the Media Wand and/or Media Handling Unit, ensure the equipment is properly cleaned to avoid contamination.

2.7.6 Filling Media Handling Unit with storage solution

If the system will not be used for some time, it should be filled with 20% ethanol.

1 Start the pump and fill the system with ethanol

2 Set the **OUTLET** switch to “0”.

3 Set the **INLET** switch to “0”

4 Remove the hoses and block the hose connections.

2.7.7 Shutting down the Media Handling Unit

1 Set all valve switches to “0”

2 Set pump pressure to minimum and the pump switch to “OFF”.

3 Remove the supply of compressed air.

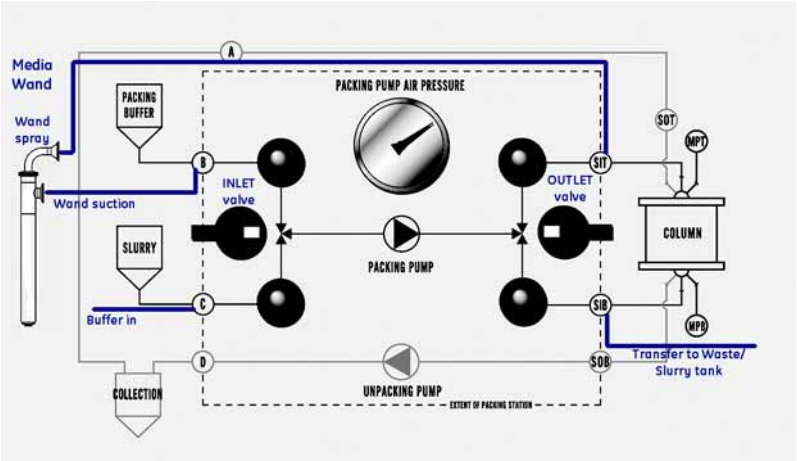
3 Operation of Media Wand with Chromaflow Packing station (Pack 100)

IMPORTANT! For detailed information of the handling of the Chromaflow Packing station, refer to *Chromaflow Packing stations Instructions for Use*.

For preparation of the Media Wand, see Section 2.1.

3.1 Preparing the Chromaflow Packing station

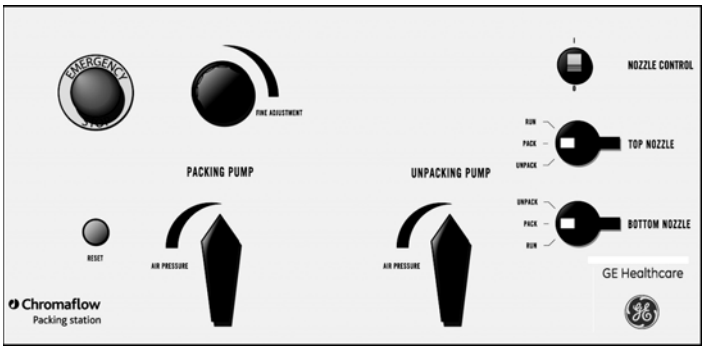
Connect hoses to the Chromaflow Packing station according to the table below. Use gaskets and fasten with Tri-Clamps firmly by hand.



Position	Connection
B	Wand suction
C	Buffer in
SIT	Wand spray
SIB	Transfer to Waste / Slurry tank

To facilitate the handling of Media Wand, a 90° connection at position **B** and **SIT** can be used.

The hose from the **SIB** outlet is used for both transfer to waste and slurry tank. To have different hoses, connect a T-valve at that position.



1 Set the PACKING PUMP and UNPACKING PUMP Air pressures to “0””.

2 Set the NOZZLE CONTROL to “0”.

3 Ensure the FINE ADJUSTMENT is set to “off”.

4 Connect air supply to the Chromaflow Packing station.

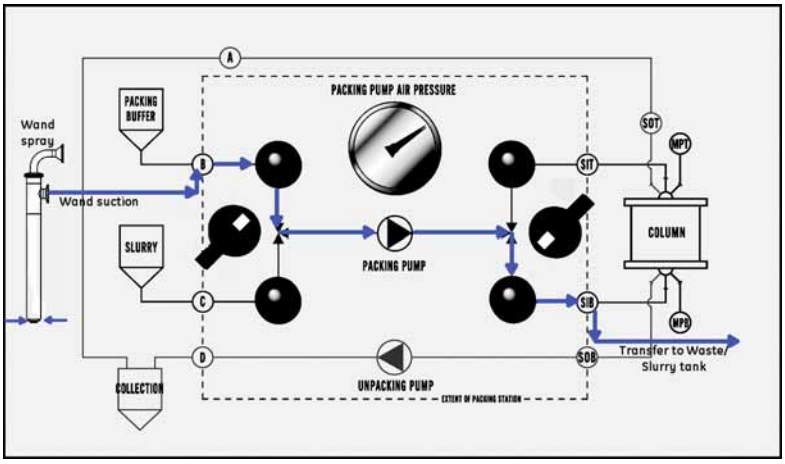
WARNING! Incorrect settings before connection to air supply may result in liquid sprays and/or movement of the Media Wand.

3.2 Priming of Chromaflow Packing station and Media Wand.

Before using the Media Wand and Chromaflow Packing station, all inlets and outlets have to be primed.

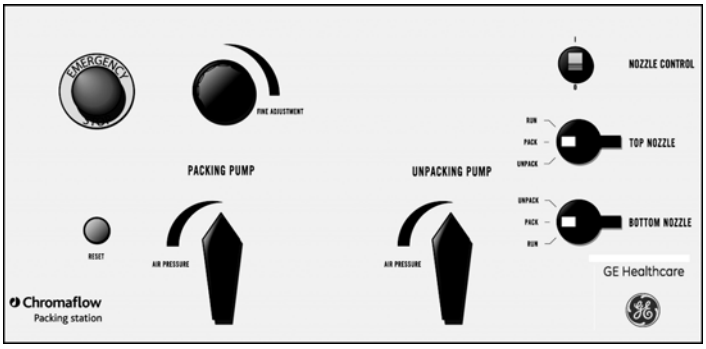
1 Fill a container with packing buffer, and place the Media Wand and all hoses in it.

2 Set the valve controls on the control panel to the positions as shown below (**INLET** valve to **B** and **OUTLET** valve to **SIB**)



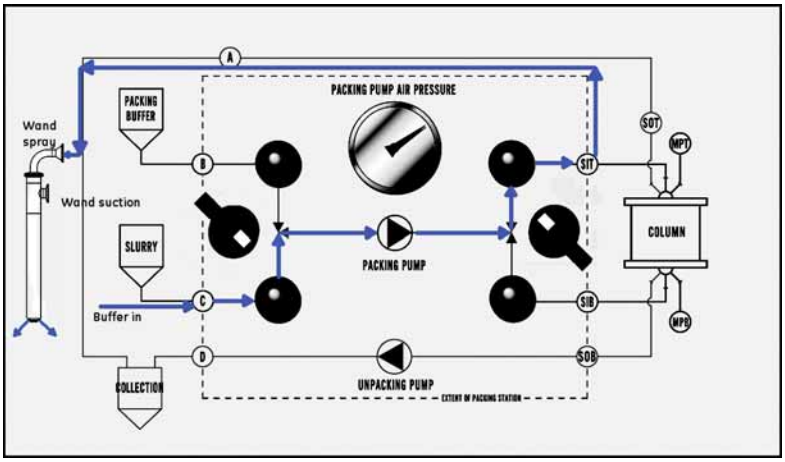
3 Start the pump by setting the pump pressure to 3 bar.

Note: Start the pump with the **FINE ADJUSTMENT** *regulator (unlock and adjust pump pressure to 3 bar).*



4 Prime for approximately 30 seconds.

5 Change the valve controls on the control panel to the positions as shown below.



6 Prime for 30 seconds.

7 Stop the pump.

3.3 Checking the flow of the Chromaflow Packing station.

The recommended flow when preparing media slurry is 40 ± 2 l/min.
A pump pressure of approximately 3 bar will usually give this flow.

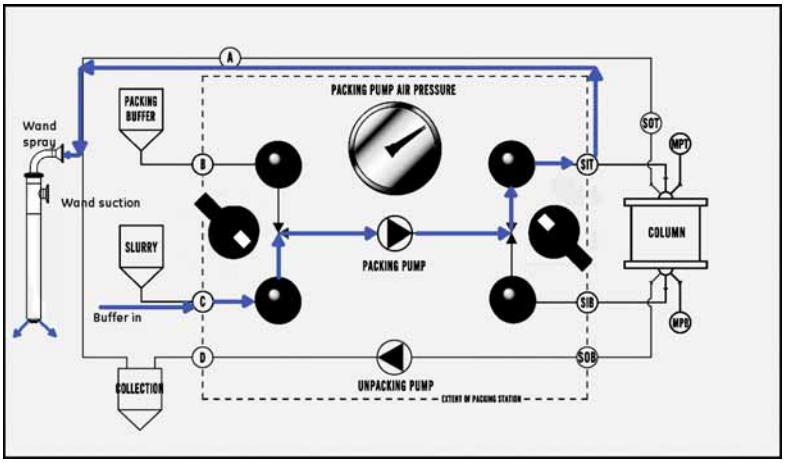
Note: Do not exceed a flow rate of 40 l/min. Ensure the system is primed before checking the flow.

1 Record the weight of an empty container.

2 Place/connect the hose from Chromaflow Packing station connection position **C** (Buffer in) in/to a container with water.

3 Place the Media Wand in the water tank.

4 Set the valve controls on the control panel to the positions as shown below.



5 Start the pump with a pump pressure of 3 Bar.

6 Recirculate the liquid until the flow is stable.

7 Turn off the pump.

8 Place the Media Wand in the empty container, and start the pump with a pump pressure of 3 bar. Fill the container during a set time.

9 Weigh the container and calculate the obtained flow.

Repeat the procedure with an adjusted pump pressure until a flow of 40 ± 2 l/min has been obtained.

3.4 Removing transport solution from a media container

Media is delivered in a transport solution, usually 20% ethanol.

Note: To avoid loss of media, it is recommended that the transport solution is transferred to a separate container.

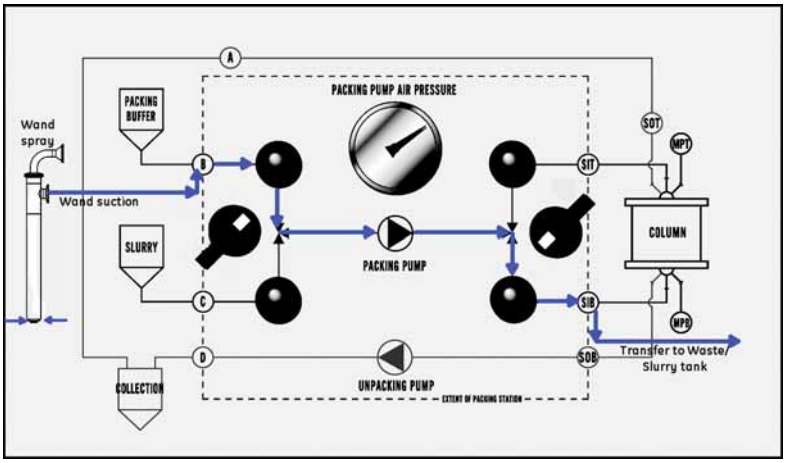
1 Measure the sedimented height of media in the container.

2 Attach a decanting device to the Media Wand (optional).

3 Remove the cap on the media container.

Note: Ensure the media is well sedimented!

4 Set the valve controls on the control panel to the positions as shown below.



5 Place /connect the “Transfer to Waste / Slurry tank” hose in/to a container.

6 Position the Media Wand above the liquid surface.

7 Start the pump with a minimum pump pressure. Adjust to 2 bar. Ensure pump is running.

8 Insert the Media Wand just below the liquid surface into the container.

CAUTION! Do not allow the Media Wand to touch the media surface as this may affect media integrity.

9 Lower the Media Wand slowly and carefully to a position just below the liquid surface. It is not a problem if the Media Wand occasionally is above the liquid surface. Remove as much of transport solution as possible.

10 Lift the Media Wand while pump is running.

11 Turn off the pump.

12 If a decanting device has been used, replace with a spray tip.

3.5 Adjusting media concentration, preparing a slurry and transferring slurry to slurry tank.

The preparation of the slurry starts with the addition of buffer to obtain a appropriate media concentration. As the Media Wand is lowered during the buffer addition, the preparation of the slurry is initiated. When all buffer has been added, the recirculation of media and buffer starts and the slurry preparation continues.

As additional buffer will be introduced to the media when the transport container and Media Wand are rinsed, it is recommended to use a media concentration of approximately 70% when preparing the slurry. The media concentration during column packing should not be below 50%. For specifications of hose and system volumes, see Section 1.4.

Note: Ensure the system is primed and a spray tip is assembled on the Media Wand. Ensure there is a hose connected from position SIB to a slurry tank. Ensure there is buffer connected to the Chromaflow Packing station position **C** *("Buffer in" position).*

CAUTION! When preparing and handling media slurry, always hold the Media Wand by hand! Never let it stand in media containers as this may affect media integrity.

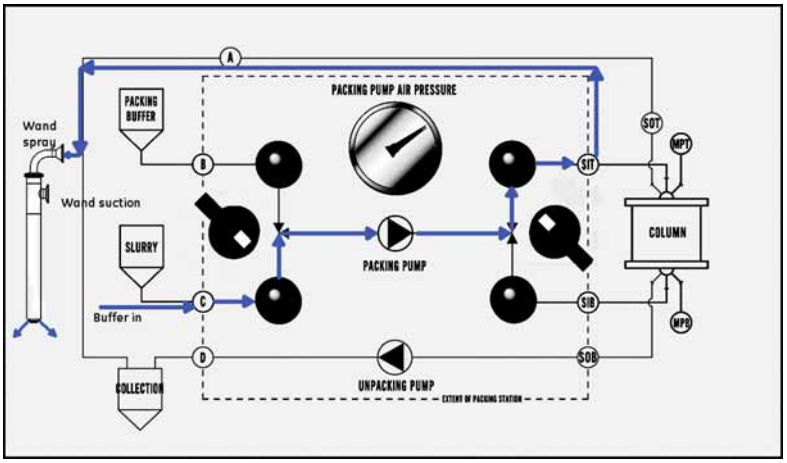
3.5.1 Procedure

1 If not performed in Section 3.4, measure the height of the sedimented media.

2 Calculate the volume to obtain a media concentration of 70%.

3 Set a mark on the container for the desired total volume.

4 Set the valve controls on the control panel to the positions as shown below.



CAUTION! Do not allow the spray nozzle to come in contact with the sedimented media surface as this may affect media integrity. The spray nozzle should be positioned just above it.

5 Place the Media Wand in the media container. The spray nozzle should be positioned just above the media surface.

6 Start the pump with a flow of 40 ± 2 l/min.

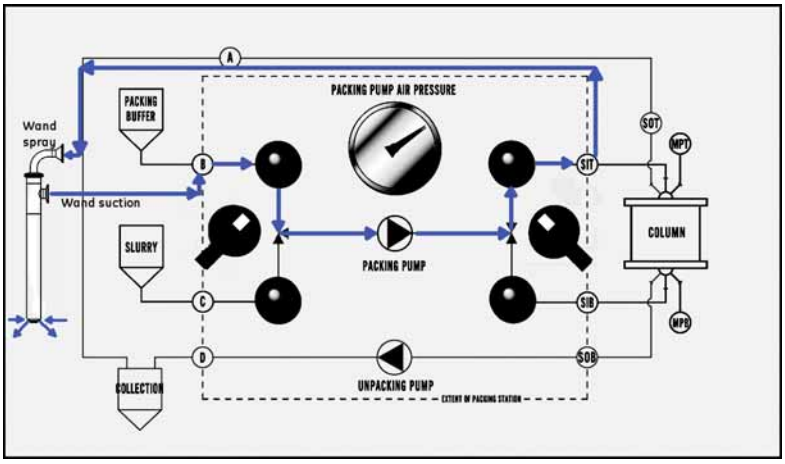
Note: Set the appropriate pump pressure to obtain the flow of 40 ± 2 l/min.

7 During the addition of buffer, lower the Media Wand slowly towards the bottom of the container during approximately 30 seconds.

CAUTION! Do not exceed the desired volume!

CAUTION! Do not let the Media Wand come in direct contact with the bottom or walls of the container as this may affect media integrity.

8 When the required volume of buffer has been added, change the valve controls as shown below.



9 Continue to move the Media Wand slowly up and down and also along the container walls until all media is in slurry.

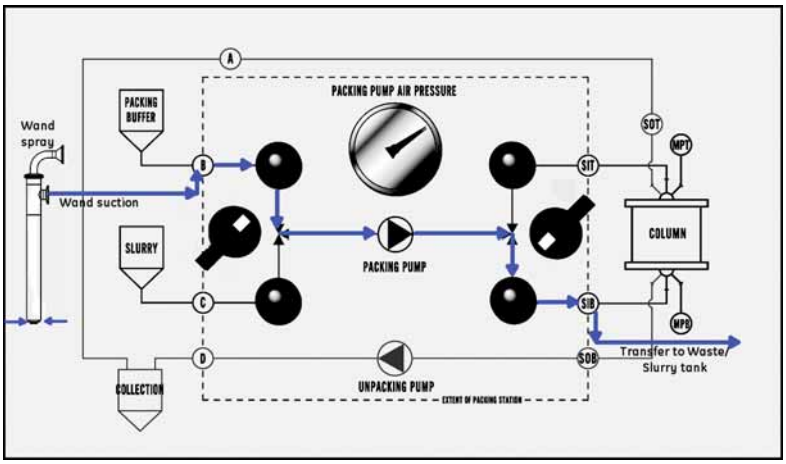
CAUTION! To maintain integrity of media, never exceed the maximum time of ~5 minutes (60 L media) or ~2 minutes (10 L). If media has been stored in cold room, add approximately one minute to the mixing time. This will compensate for the increased viscosity of the colder media.

10 Stop the pump.

11 Immediately continue with step 12!

CAUTION! Do not leave the system with media! Do not shut down the system without rinsing the pump and flow paths as remaining media will sediment and block the system.

12 Set the valve controls on the control panel to the positions as shown below.



13 Start the pump with a flow of 40 l/min.

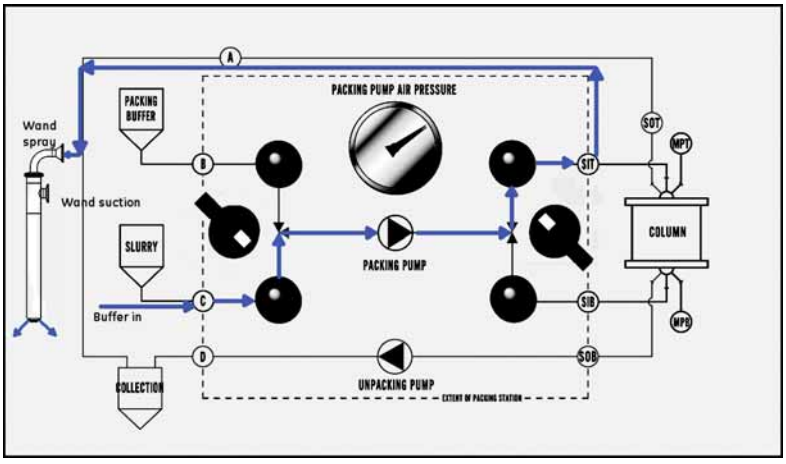
14 When the slurry level in the container is less than 5 cm (2") from the bottom, tilt the container and place the Media Wand in the bottom-most location. Remove as much as possible.

CAUTION! Do not scratch the bottom or walls of the container!

15 Stop the pump.

16 Keep the Media Wand in the container.

17 Set the valve controls on the control panel to the positions as shown below.

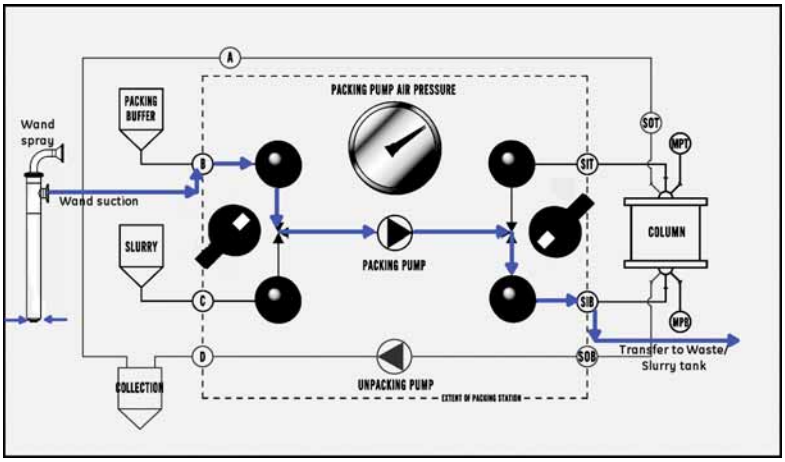


18 Start the pump at a flow of 40 l/min and rinse the interior of the container with a small volume of buffer.

Note: Do not add a volume of buffer leading to a media concentration below 50%.

19 Stop the pump.

20 Change the valve controls on the control panel to the positions as shown below.



21 Start the pump.

22 When the slurry level in the container is less than 5 cm (2") from the bottom, tilt the container and place the Media Wand in the bottom-most location. Remove as much as possible.

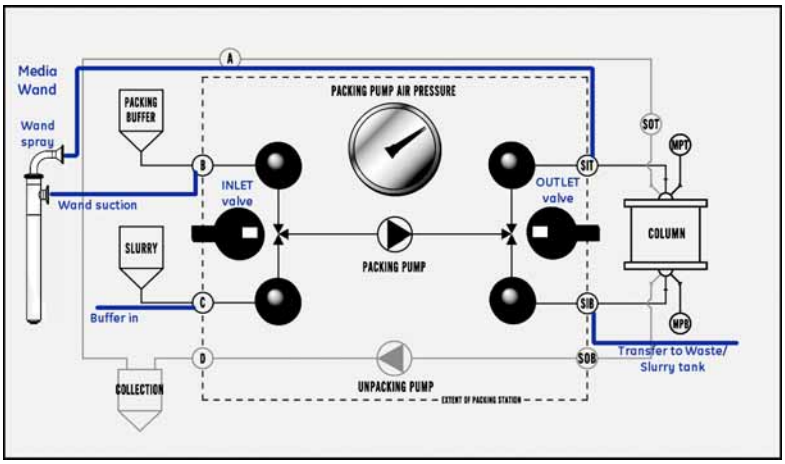
23 Stop the pump.

Note: To be performed if several transport container have been used:
To minimize loss of media (container and system), rinse the last container once more.

3.6 After run procedures

3.6.1 Rinsing the system with water

1 Place the “Buffer in” (**C**) hose in clean water. Place the “Transfer” (**SIB**) hose to waste.



2 Set the **INLET** valve to **C** (Buffer in) and set the **OUTLET** valve to **SIB** (Transfer). Run the pump at 40 l/min until the outlet water is clear. Stop the pump.

3 Place the Media Wand in a waste container, set the **INLET** valve to **C** (Buffer in), set the **OUTLET** valve to **SIT** (Transfer). Run the pump at 40 l/min until the outlet water is clear.

4 Place the Media Wand in a container with clean water. Set the **INLET** valve to **B** (Wand suction), set the **OUTLET** valve to **SIT** (Wand spray). Run the pump at 40 l/min. Stop the pump.

5 Discard the water and repeat the procedure with clean water until the rinse water stays clear.

3.6.2 Cleaning of Media Wand

See Section 2.7.2.

3.6.3 After use handling of Chromaflow Packing station

See *Chromaflow Packing stations Instructions for Use*.

4 Reference information

4.1 Specifications

4.1.1 Media Wand

The Media Wand is available in two lengths:

- Media Wand 100, 1 m length, for large (60 L) media containers.
- Media Wand 50, 0.5 m length, for smaller (5 to 10 L) media containers.

Table 4-1. Technical specifications of Media Wand.

Part	Material
Outer and inner pipe	Stainless steel, 316L
Spray nozzle tip	PEEK

4.1.2 Media Handling Unit

The tapflo pump TU 103 may run dry without any problem. The pump can be stopped either by setting the pump switch to “OFF” or by setting the valve controls to “0”. The pressure from the system will stop the pump automatically. This will not do any damage to the pump.

Note: The pump restarts immediately when the valves are re-opened.

Table 4-2. Technical specifications of Media Handling Unit.

Subject	Specification
Noise	< 70 dB(A)
System volume	1082 ml
Hose volumes (ID 21 mm)	195 ml/m
Material (Frame)	Stainless steel, 316
Material (Tubes)	Stainless steel, 316L

4.2 General specification for Media Wand 50

4.2.1 Technical data

Specification	
Design pressure	5 bar g
Design temperature	2°C - 30°C
Piping, ID	22.1 mm
Stainless steel surface finish, interior parts[1]	Ra ≤ 0.6 µm, Electropolished
Stainless steel surface finish, exterior parts[1]	Ra ≤ 0.6 µm, Electropolished

[1] Interior and exterior parts are wetted.

Wand dimensions	
Height	500 mm
Weight	6 kg

4.2.2 Materials of construction

Structural material	
Tube	316L

Wetted & pressure retaining material	
Piping	316L
Seals and gaskets	EPDM
Spray nozzle	PEEK
Chemical resistance	Refer to User Manual for Media Handling Unit (Section 1.4.2)

4.2.3 Documentation

Material certificates and welding documentations are delivered on the *"Media Wand Documentation CD"* placed in the Media Wand package.

4.2.4 Applicable codes and standards

Mechanical design: GE Healthcare standard.

4.2.5 Battery limits

Mechanical

Description	Dimension ID (mm)	Flange type
Inlet / Outlet	22.1	Tri-Clamp 50

4.3 General specification for Media Wand 100

4.3.1 Technical data

Specification	
Design pressure	5 bar g
Design temperature	2-30°C
Piping, ID	22.1 mm
Stainless steel surface finish, interior parts[1]	Ra ≤ 0.6, µm, Electropolished
Stainless steel surface finish, exterior parts[1]	Ra ≤ 0.6 µm, Electropolished

[1] Interior and exterior parts are wetted.

Wand dimensions	
Height)	1000 mm
Weight	7 kg

4.3.2 Materials of construction

Structural material	
Tube	316L

Wetted & pressure retaining material	
Piping	316L
Seals and gaskets	EPDM
Spray nozzle	PEEK
Chemical resistance	Refer to User Manual for Media Handling Unit (Section 1.4.2)

4.3.3 Documentation

Material certificates and welding documentations are delivered on the *"Media Wand Documentation CD"* placed in the Media Wand package.

4.3.4 Applicable codes and standards

Mechanical design: GE Healthcare standard

4.3.5 Battery limits

Mechanical

Description	Dimension ID (mm)	Flange type
Inlet / Outlet	22.1	Tri-Clamp 50

4.4 *General specification for Media Handling Unit*

4.4.1 Technical data

Specification	
Pump, valve control unit	Pneumatic, Semi-automatic
System pump	Pneumatic diaphragm pump
Pump flow rate, max	100 l/min
Design pressure	5 bar g
Design temperature	2°C - 30°C
Valve	Ball valve, Pneumatic actuator
Pressure gauge	0-10 bar g
Piping, ID	22.1 mm
Stainless steel surface finish, wetted parts	Ra ≤ 0.6 µm, Electropolished
Stainless steel surface finish, exterior	Ra ≤ 3.2 µm, Electropolished

Media Handling Unit dimensions	
Footprint	850 × 630 mm
Height	895 mm
Weight	70 kg

4.4.2 Media Handling Unit requirements

Pneumatical requirement	
Air Supply	5-7 bar g
Air consumption (estimated)	500 Nl/min / 5-7 bar g
Type	Instrument air

4.4.3 Materials of construction

Structural material	
Stand	316L
Castors with locking device	316

Wetted & pressure retaining material	
Piping	316L
Pump interior	PTFE/HDPE
Valve	EPDM
Pressure gauge	316L/316Ti
Seals and gaskets	EPDM
Chemical resistance:	Refer to User Manual for Media Handling Unit (Section 1.4.2)

4.4.4 Documentation

Material certificates and welding documentations are delivered on the *"Media Wand Documentation CD"* placed in the Media Wand package.

4.4.5 Applicable codes and standards

Mechanical design: GE Healthcare standard
CE directive compliance: Machinery Directive 98/37/EC

4.4.6 Battery limits

Mechanical

Description	Dimension ID (mm)	Flange type
Inlet / Outlet	22.1	Tri-Clamp 50
Air Supply	-	Quick-connect

4.5 Spare parts

4.5.1 Spare parts schematic

Fig 4-1. Media Handling Unit.

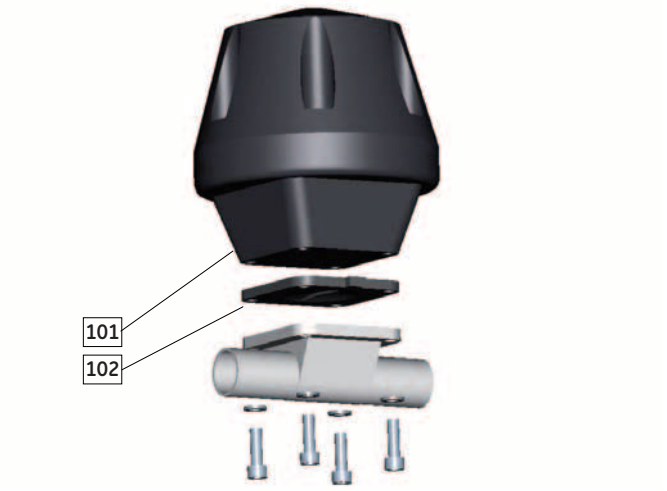


Fig 4-2. Diaphragm valve.

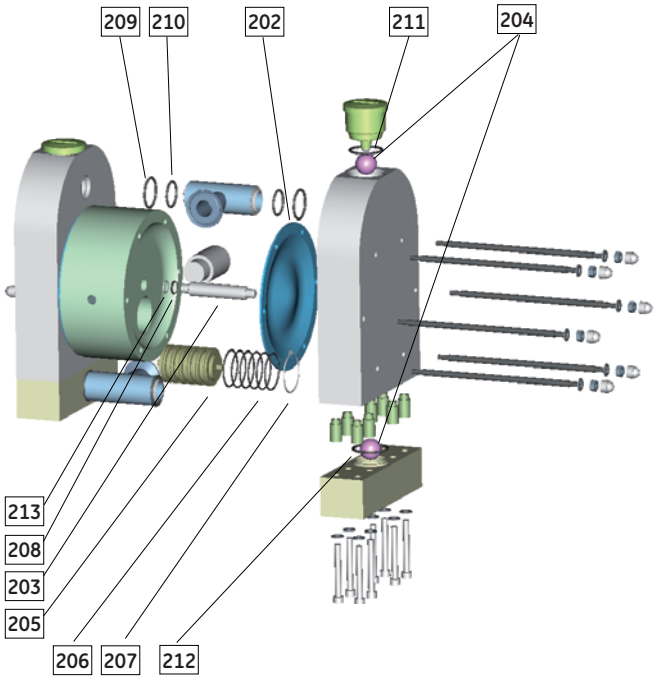


Fig 4-3. tapflo pump.

Fig 4-4. Media Wand.

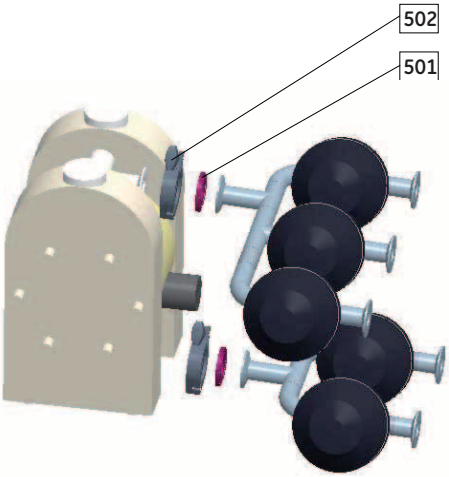


Fig 4-5. TC-gaskets and clamps.

4.5.2 Spare parts list

Pos. in Part list	Item	Description	Code no	Qty per pack	No of units installed	Recomm. Spare Part	Wetted part
	1.	Pneumatic diaphragm valve, Gemü					
101	1.1	Actuator DN25	44-5516-05	1	5	Yes	No
102	1.2	Diaphragm 600/25/M13 EPDM	44-5506-36	1	5	Yes	Yes
	2.	Pneumatic membrane pump, tapflo					
	2.1	Pump W&T Kit T103	28-9194-94	1	1	Yes	Yes
202	2.2	Pump diaphragm PTFE		2*	2	Yes	Yes
203	2.3	Diaphragm shaft, SS		1*	1	Yes	No
204	2.4	Valve ball, PTFE		4*	4	Yes	Yes
	2.5	*Muffler (Not used)*		1*	1	No	No
205/206	2.6	Air valve complete		1*	1	Yes	No
207	2.7	Circlip		2*	2	Yes	No
208	2.8	Centre block seal, PE		2*	2	Yes	No
209	2.9	O-ring EPDM		4*	4	Yes	Yes
210	2.10	O-ring EPDM		4*	4	Yes	Yes
211	2.11	O-ring EPDM		2*	2	Yes	Yes
212	2.12	O-ring EPDM		2*	2	Yes	Yes
213	2.13	O-ring EPDM		4*	4	Yes	No
	3.	Spray tip					
301/302	3.1	Spray tip & tool	28-9219-66	1	1	Yes	Yes
302	3.2	Tool, spray tip	28-9219-62	1	0	Yes	No
	4.	Silencer					
401	4.1	Silencer and PEEK net	28-9219-64	1	1	No	No
	5.	TC-gaskets & clamps					
303	5.1	TC-gasket 50/35mm EPDM	44-0515-01	5	1	Yes	Yes
501	5.2	TC-gasket 50/22mm EPDM	44-7133-01	1	2	Yes	Yes
502	5.3	TC Clamp TC50,5 SS	44-7134-00	1	3	Yes	No

* Included in W&T Kit T103

4.6 Ordering information

Code no	Item
28-9227-64	Media Wand 50
28-9227-67	Media Wand 100
28-9227-69	Media Handling Unit

4.6.1 Accessories

Code No	Item
44-7134-00	Tri-Clamp
28-9227-70	Decanting Device 50
28-9227-71	Decanting Device 100
28-9227-73	CIP-manifold, Media Handling Unit
28-9230-74	PTFE tubing L 2m, TC50, ID 22

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