NDF

- Easily transfer a wide variety of materials
- Efficient – instant on and off, for low operating costs
- Fast response – installs close to vacuum point
- Easy to install – connect tubing to the vacuum and exhaust ports, and supply compressed air
- Safe operation – no electricity needed at the pump
- Ideal for adverse operating conditions

Technical Data

Fluid
Filtered (50 Micron) unlubricated, non-corrosive dry gases
Operating Pressure
Input pressure of 40 PSI or less is sufficient to move most bulk materials and individual objects
Supply Pressure
Regulate the supply pressure to develop the necessary transfer speed of the application
Operating Temperature
-100° to 400° F (-73° to 204°C)
Materials
Pump Body: Anodized Aluminum

Standard Models

Part Number	Inline Fitting	Swivel Elbow Fitting	Recommended Air Supply Line	Recommended Transfer Hose
				
NDF13-VSES-M01	124250418	124470418	1/4"	1/2" ID
NDF23-VSES-M01	124250418	124470418	1/4"	3/4" ID
NDF36-VSES-M01	124250618	124470618	3/8"	3/4" ID
NDF56-VSES-M01	124250628	124470628	3/8"	1" ID
NDF76-VSES-M01	124250738	124470738	1/2"	1 1/4" ID
NDF106-VSES-M01	124250738	124470738	1/2"	1 1/2" ID
NDF126-VSES-M01	124250738	124470738	1/2"	1 3/4" ID
NDF156-VSES-M01	124250738	124470738	1/2"	2" ID
NDF206-VSES-M01	124250738	124470738	1/2"	2 1/2" ID

Option selector

NDF★-★★-★★★★-M★★

Series	Substitute
NDF (Imperial Thread)	
NDFM (Metric Thread)	**M**

Size	Substitute
NDF13	**13**
NDF23	**23**
NDF36	**36**
NDF56	**56**
NDF76	**76**
NDF106	**106**
NDF126	**126**
NDF156	**156**
NDF206	**206**
NDF306	**306**
NDF4012	**4012**

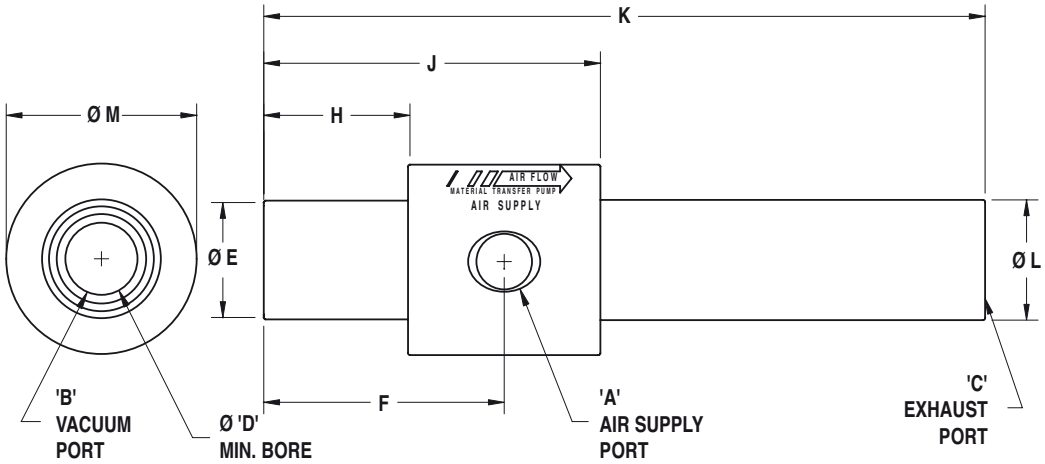
Vacuum Port Thread Options	Substitute
No thread (standard)	**VS**
Female (internal) thread	**VF**
Male (external) thread	**VM**

Exhaust Port Thread Options	Substitute
Exhaust port - no thread (standard)	**ES**
Exhaust port female - internal thread	**EF**
Exhaust port male (external) thread	**EM**

Material	Substitute
Anodized aluminum (standard)	**M01**
*303 stainless steel	**M05**
304 stainless steel	**M06**
316 stainless steel	**M07**
316L stainless steel	**M08**
PVC	**M09**
Black Acetal (Delrin®)	**M10**
White Acetal (Delrin®)	**M11**
PTFE (Teflon®)	**M12**
PEEK	**M14**

*303 stainless steel only available for NDF-13,23, and 36 pumps

Dimensions inches (mm)

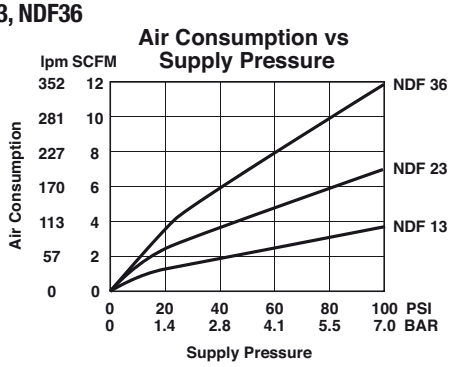


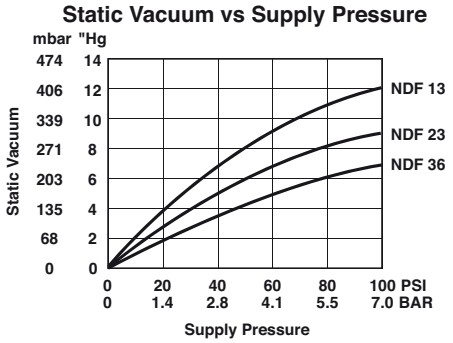
Model	A	B Optional Male Vacuum Thread	C Optional Male Exhaust Thread	B Optional Female Vacuum Thread	C Optional Female Vacuum Thread	D Minimum Bore	E	F	H	J	K	L	M	Weight lb / oz (kg)
NDF13 (NDFM13)	1/8 NPTF (G1/8)	1/8 NPT (G1/8)	1/8 NPT (G1/8)	1/8 NPT (G1/8)	1/8 NPT (G1/8)	0.15 (3.80)	0.48 (12.20)	1.00 (25.40)	0.50 (12.70)	1.50 (38.10)	3.00 (76.20)	0.49 (12.40)	0.99 (25.10)	1.5oz (42.5g)
NDF23 (NDFM23)	1/8 NPTF (G1/8)	3/8 NPT (G3/8)	3/8 NPT (G3/8)	1/4 NPT (G1/4)	1/4 NPT (G1/4)	0.25 (6.40)	0.73 (18.40)	1.25 (31.80)	0.75 (19.10)	1.75 (44.50)	3.50 (88.90)	0.74 (18.80)	1.24 (31.50)	3.2oz (91g)
NDF36 (NDFM36)	1/8 NPTF (G1/8)	3/8 NPT (G3/8)	3/8 NPT (G3/8)	1/4 NPT (G1/4)	1/4 NPT (G1/4)	0.38 (9.70)	0.73 (18.40)	1.25 (31.80)	0.75 (19.10)	1.75 (44.50)	3.50 (88.90)	0.74 (18.80)	1.24 (31.50)	2.8oz (79g)
NDF56 (NDFM56)	1/4 NPTF (G1/4)	1/2 NPT (G1/2)	1/2 NPT (G1/2)	1/2 NPT (G1/2)	1/2 NPT (G1/2)	0.50 (12.70)	0.99 (25)	1.62 (41.10)	1.00 (25.40)	2.25 (57.20)	5.50 (139.70)	1.00 (25.40)	1.48 (37.60)	6.2oz (176g)
NDF76 (NDFM76)	3/8 NPTF (G3/8)	3/4 NPT (G3/4)	3/4 NPT (G3/4)	3/4 NPT (G3/4)	3/4 NPT (G3/4)	0.75 (19.10)	1.24 (31.40)	2.50 (63.50)	1.50 (38.10)	3.50 (88.90)	7.50 (190.50)	1.25 (31.80)	1.98 (50.30)	13.4oz (380g)
NDF106 (NDFM106)	3/8 NPTF (G3/8)	1 NPT (G1)	1 NPT (G1)	1 NPT (G1)	1 NPT (G1)	1.00 (25.40)	1.46 (37.10)	2.50 (63.50)	1.50 (38.10)	3.50 (88.90)	7.50 (190.50)	1.48 (37.60)	2.23 (56.60)	1lb 5oz (468g)
NDF126 (NDFM126)	3/8 NPTF (G3/8)	*	*	*	*	1.25 (31.80)	1.71 (43.40)	2.50 (63.50)	1.50 (38.10)	3.50 (88.90)	7.50 (190.50)	1.73 (43.90)	2.47 (62.70)	1lb 3oz (541g)
NDF156 (NDFM156)	3/8 NPTF (G3/8)	1 1/2 NPT (G1 1/2)	1 1/2 NPT (G1 1/2)	1 1/4 NPT (G1 1/4)	1 1/4 NPT (G1 1/4)	1.50 (38.10)	1.96 (49.80)	2.50 (63.50)	1.50 (38.10)	3.50 (88.90)	7.50 (190.50)	1.98 (50.30)	2.73 (69.30)	1lb 5oz (607g)
NDF206 (NDFM206)	3/8 NPTF (G3/8)	2 NPT (G2)	2 NPT (G2)	2 NPT (G2)	2 NPT (G2)	2.00 (50.80)	2.46 (62.50)	2.50 (63.50)	1.50 (38.10)	3.50 (88.90)	7.50 (190.50)	2.48 (63)	3.23 (82)	1lb 9oz (777g)
NDF306 (NDFM306)	1/2 NPTF (G1/2)	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	3.00 (76.20)	3.46 (87.90)	2.50 (63.50)	1.50 (38.10)	3.50 (88.90)	8.50 (215.90)	3.48 (88.40)	4.47 (113.50)	3lbs 6oz (1.4kgs)
NDF4012 (NDFM4012)	3/4 NPTF (G3/4)	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A (N/A)	4.00 (101.60)	4.89 (124.20)	3.25 (82.60)	2.00 (50.80)	4.50 (114.30)	9.50 (241.30)	4.95 (125.70)	5.95 (151.10)	6lbs 11oz (3kgs)

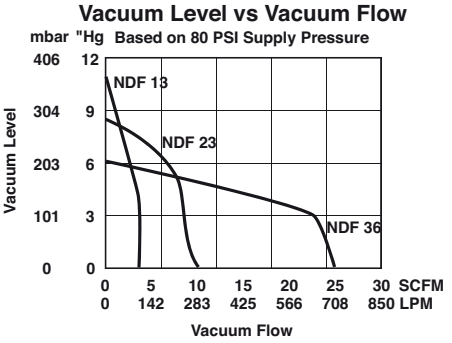
*Note: Consult factory

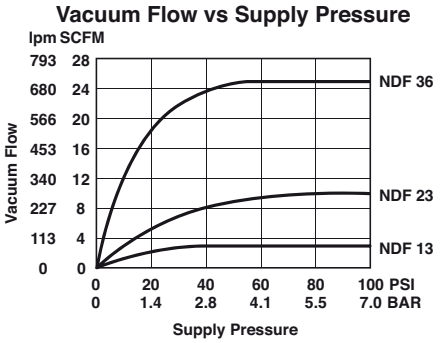
Performance Data

NDF13, NDF23, NDF36

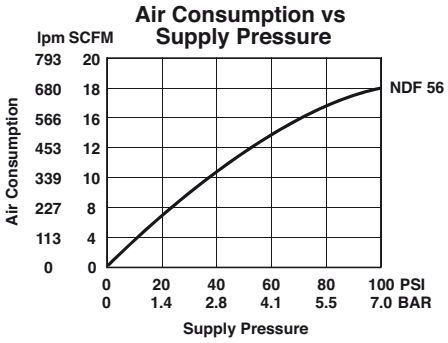


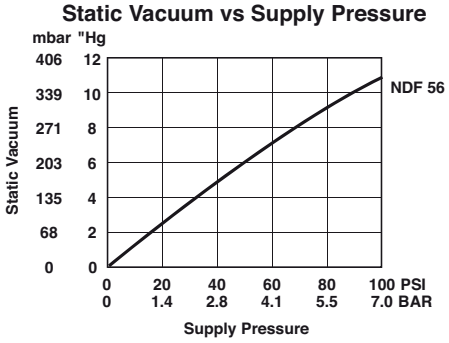


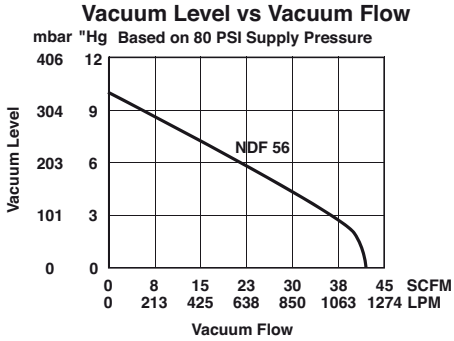


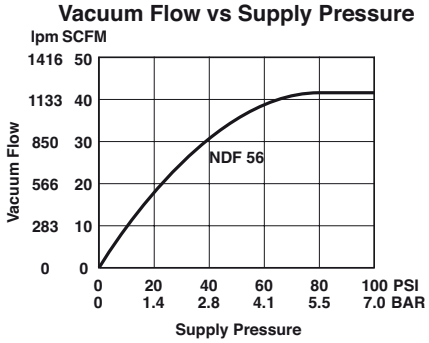


NDF56







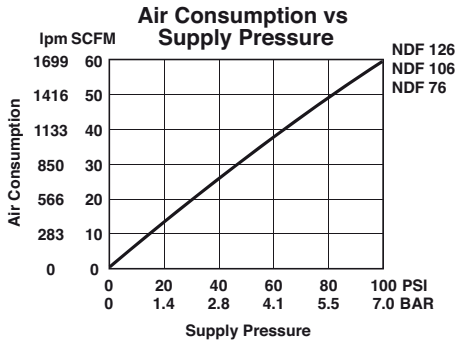


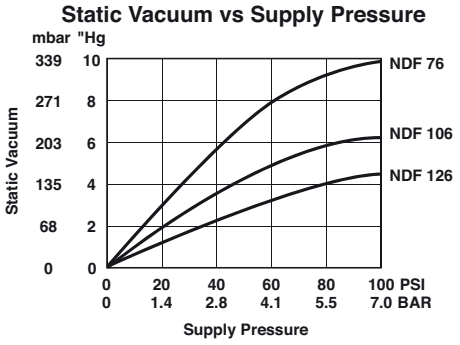
Operating Note: Above 40 PSI [2.7 bar], the increased energy consumed through rising air consumption is converted into increased vacuum level while vacuum flow stays constant. It is the vacuum flow that provides the motive force for the materials to be transferred. Higher vacuum levels are useful when lifting high molecular weight bulk materials and heavy individual objects long distances vertically.

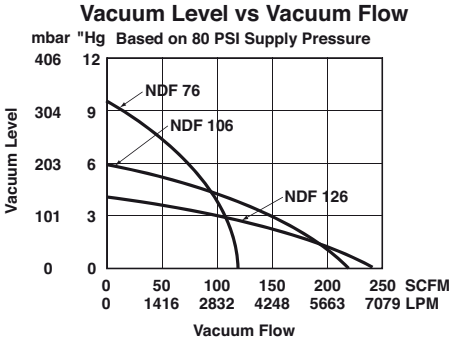
Note: Performance Charts represent average performance data. For reference only.

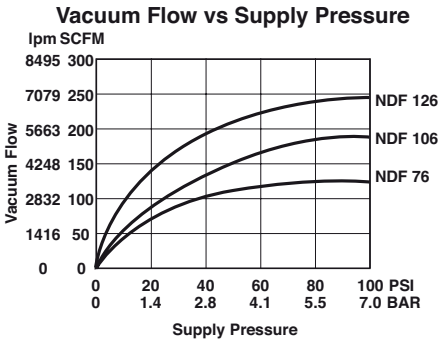
Performance Data

NDF76, NDF106, NDF126

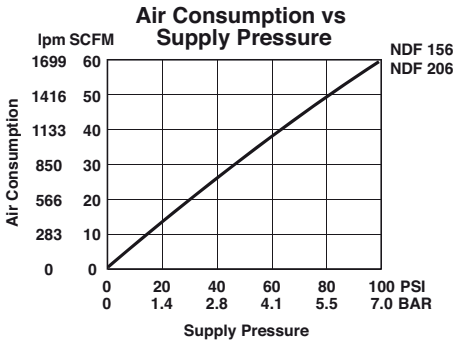


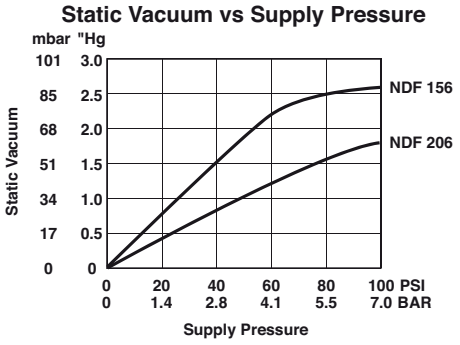


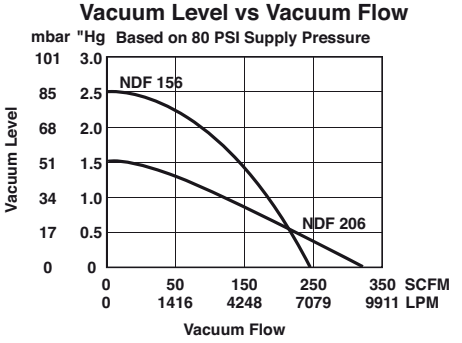


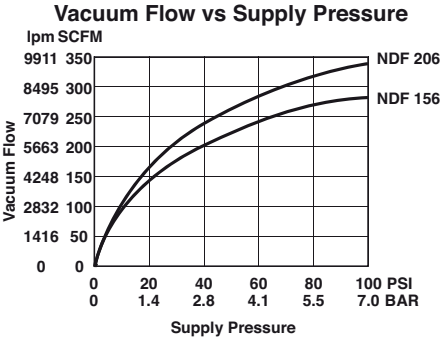


NDF156, NDF206







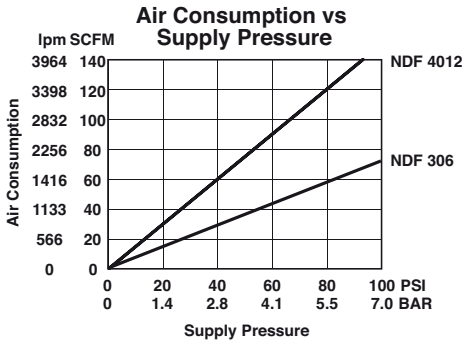


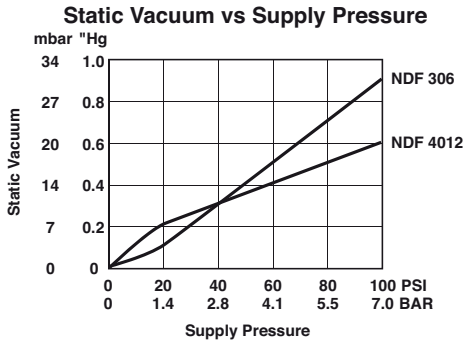
Operating Note: Above 40 PSI [2.7 bar], the increased energy consumed through rising air consumption is converted into increased vacuum level while vacuum flow stays constant. It is the vacuum flow that provides the motive force for the materials to be transferred. Higher vacuum levels are useful when lifting high molecular weight bulk materials and heavy individual objects long distances vertically.

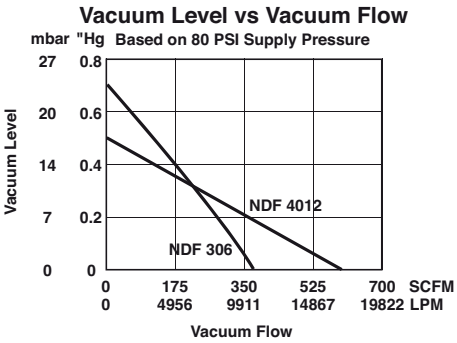
Note: Performance Charts represent average performance data. For reference only.

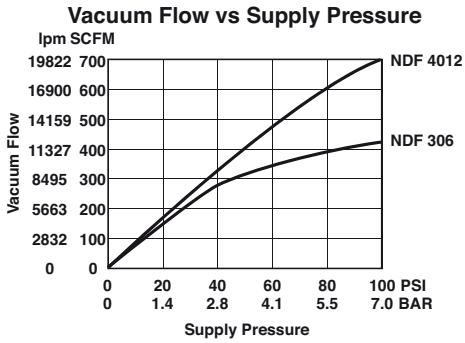
Performance Data

NDF306, NDF4012





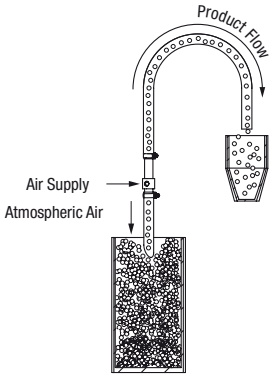




General Application Information

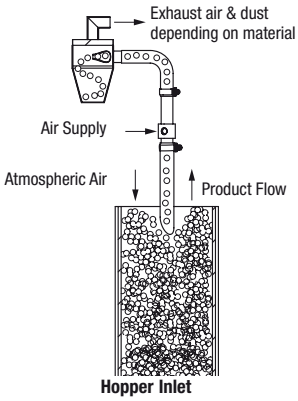
Sizing the correct NDF material transfer pump is based on the material density, particle size, transfer rate required (kg/min), elevation and length of transfer line.
For application assistance, please contact IMI Norgren Technical Support. In many cases, customers send product to IMI Norgren to test at our in-house test facility.

Transfering Bulk Materials:



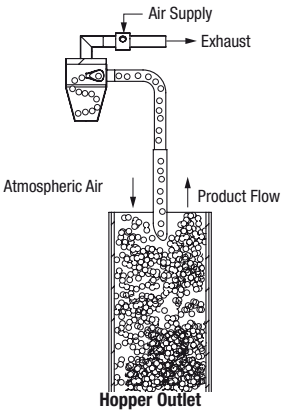
Basic Hopper

Place pump about 1/3 the overall distance from the suction. Allow the compressed air powering the pump to assist in pushing the material to the collection hopper.



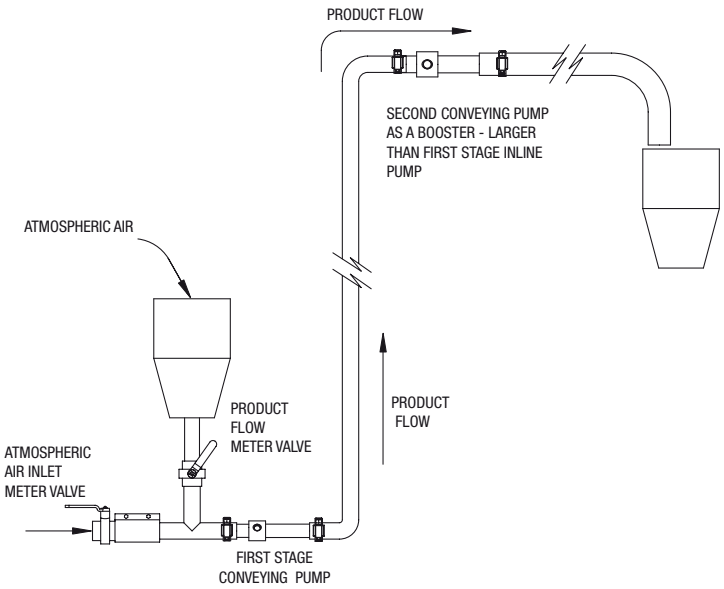
Hopper Inlet

Induced atmospheric air, compressed air and the material being transferred enter the collection hopper, where the material falls by gravity. The air vents out the top of the hopper. To capture lighter-than-air materials, connect a filter or dust collector to the hopper outlet.



Hopper Outlet

The NDF pump creates a vacuum in the collection hopper causing the material to flow up the conveyor tube into the collection hopper. Compressed air doesn't mix with the material, helping to prevent a cloud from forming when transferring fine, light powders. Material entering the hopper falls to the bottom faster due to the vacuum in the collection hopper.
To reduce noise, add an optional silencer to the NDF pump exhaust.

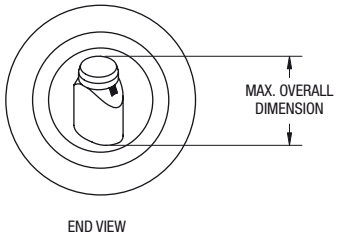


Hopper to Hopper Butterfly Extended Distance

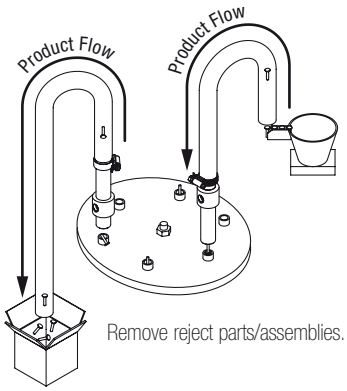
Transferring bulk and individual items vertically and horizontally over long distances may require a second conveying pump as a booster pump. To accept the flow generated by the first pump and to add power, add a booster pump that is larger than the first-stage pump. To maintain the proper balance between air intake and material intake use a valve to meter both.

Caution
When conveying materials through plastic transfer lines, you must ground the transfer line to dissipate the static charge that develops from the friction of the air and material flowing over the transfer line surface.

Transfering Bulk Materials:

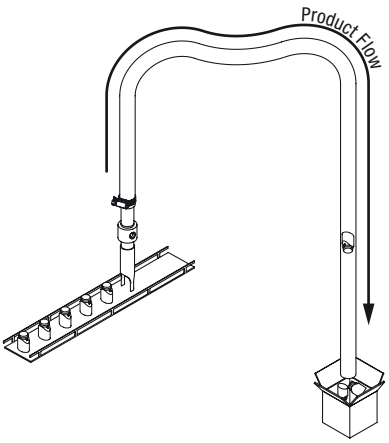


To size a NDF pump for transferring individual items, choose the pump with an inside diameter just slightly larger than the largest dimension of the object.

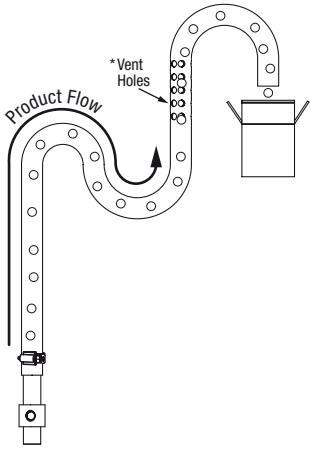


Remove reject parts/assemblies.

Load parts for assembly from a vibratory bowl feeder.



Remove non-conforming parts from conveyor line.

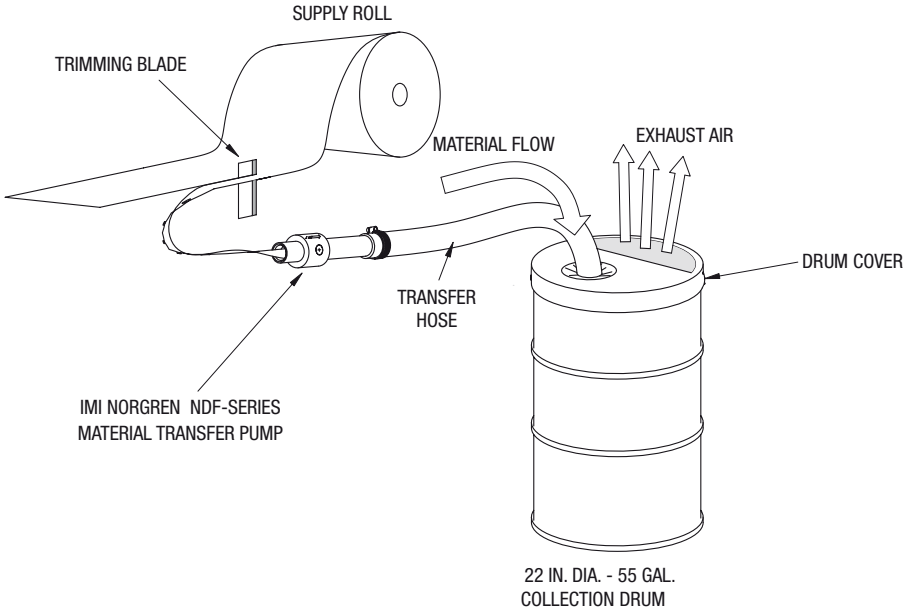


Design Tip: To prevent damage or to match the assembly speed, decrease the transfer speed by introducing a vertical bend into the tube, allowing gravity to work against the direction of travel.

* To reduce transfer speed further, add holes in the tube to allow the air to vent.

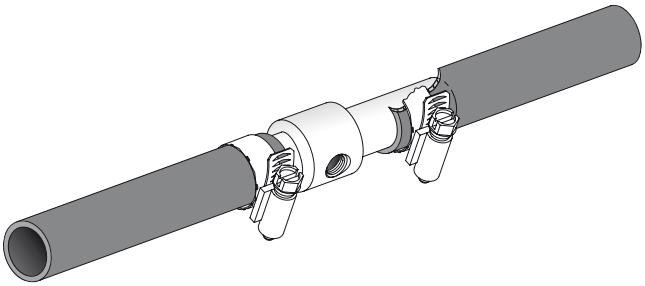
Caution: When conveying materials through plastic transfer lines, you must ground the transfer line to dissipate the static charge that develops from the friction of the air and material flowing over the transfer line surface.

Trim, Selvedge and Fiber Collection:



Installation Options

For simple applications, place the NDF pump in the transfer line, slip the transfer hose over the outside diameter of the pump and secure in place with a hose clamp. When this type of installation is not desired or appropriate for the application, IMI Norgren offers the option of adding threads to the O.D. and the I.D.



Warnings

Improper selection, misuse, age or malfunction of components used in systems can cause failure in various modes. The system designer is warned to consider the failure modes of all component parts and to provide adequate safeguards to prevent personal injury or damage to equipment or property in the event of such failure modes. System designers and end users are cautioned to consult instruction sheets and specifications available from the factory. The system designer/end user is responsible for verifying that all requirements for the application are met.

Warranty

The products described herein are warranted subject to seller's Standard Terms and Condition of Sale, available at seller's website.