PERISTALTIC PUMPS
APPLICATIONS AND WHERE TO USE THEM

January 2025

PROMINENT DULCOFLEX COMPLETE PRODUCT LINE

DULCOFLEX DFXa

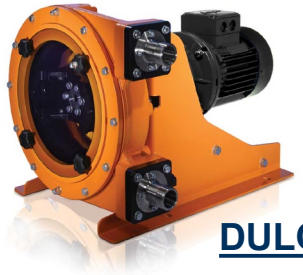
Capacities up to:
17.7 GPH (65 LPH)

DULCOFLEX DFBu

Capacities up to:
337 GPH (1,532 LPH)

DULCOFLEX DFCu

Capacities up to:
106.4USGPM (24,163 LPH)



DULCOFLEX DFYa

Capacities up to:
174.4 GPH (660 LPH)

NSF/ANSI/CAN 61
IAPMO R&T ®

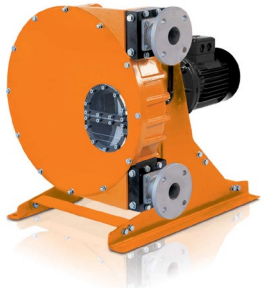
DULCOFLEX DFBr

Capacities up to:
337 GPH (1,532 LPH)

Pressures up to
218PSI/15Bar(g)

DULCOFLEX DFDu

Capacities up to:
160USGPM (36,336 LPH)



DFYA Peristaltic Pumps

NEW!!
DFYA 200

NEW!!!
DFYA660

HMI “Click Wheel” Identical To The Sigma Control Version Pumps

Variable Frequency Drive Not Required

Only Peristaltic Hose Pump in the world with internal microprocessor

DFYA0410 Capacity of 5.1LPH up to 410LPH
DFYA0200 Capacity of 3.1LPH up to 207LPH
DFYA0660 Capacity of 13.2LPH up to 660LPH

Same control cables used as all of our other control version pumps

Easy to wire/install

Pressures up to 116PSIG

Max speed of 80rpm

Various Hose Materials available NR, EPDM, NBR, and Hypalon

Suitable for viscosities up to 40,000cP

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WHEN SHOULD YOU USE A PERISTALTIC PUMP

- When pumping solids/slurries such as lime slurry, or thickener underflow applications in mining, sampling pumps in mining applications
- Applications where the fluid is shear sensitive such as polymer, yeast in wineries and breweries
- Fluids that tend to off-gas such as Sodium Hypochlorite and Hydrogen Peroxide
- High Suction Lift Applications. Peristaltic Pumps can lift up to 26ft (8m) of water
- Where the pump needs to be reversible

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WHY USE A PERISTALTIC PUMP?

• **Liquid Fully Contained within Hose/Tube**	Eliminates potential contamination
• **Abrasion Resistant**	Accommodates slurries with high solid content
• **High Suction Capacity**	More options for pump mounting location
• **Dry Running**	Pump will not be damaged if material runs out
• **Seal-Less Design**	Ideal for “sticky” materials that could “gum-up” seals
• **Valve-Less Design**	Ideal for viscous materials or solid content where valves are a problem
• **Gentle Pumping Action**	Shear sensitive products are not altered
• **Reversible Flow**	Expanded applications, e.g. to safely drain the pipeline, flush the media out of the pump and piping
• **No Slip & Accurate Dosing**	When precise dosing matters
• **Low Maintenance Cost**	Reduces Total Cost of Ownership

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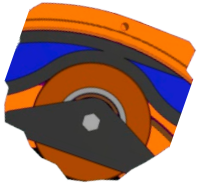
PERISTALTIC PUMPS – ROLLERS VS. SHOES



	Rollers	Shoes
Operation	Low Starting Torque Smooth Operation	Higher Torque Requirements
Efficiency	Lower Power Consumption 30-40% Less	Higher Power Consumption
Maintenance	No Liquid Lubricant Simple Hose Replacement Grease Lubricant Only	Liquid Lubricant Required Must Drain and Refill Longer Hose Change Time
Hose Life	Low Friction	Higher Friction Longer life in high pressures
Applications	Low to Med Pressure 0 to 116 psi (8 bar)	Med to High Pressure 130 to 218 psi (9 to 15 bar)

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ADVANTAGES OF PERISTALTIC PUMPS

- Abrasion Resistant
  - Hose life is not related to a product's abrasive qualities
- No moving parts are in the liquid stream
  - No contamination of material, pump or gearbox
- Has no internal backflow
  - More accurate dosing
  - No slip
  - Repeatability of +/-1%
  - Metering of +/-5%

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ADVANTAGES (CONTINUED)

- Self priming
  - Can also pump air
- Able to pump liquids containing up to 80% solids
- Smooth liquid passage
  - No valves, dead corners, or mechanical parts
- Easy and completely cleanable without disassembly

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ADVANTAGES (CONTINUED)

- Suitable for handling shear sensitive products
  - Product is not damaged
    - Polymer, Yeast in Breweries/Wineries
  - Shear rate <150 s^{-1}
- No seals
  - No leaks or parts to replace
- Easy maintenance
  - Low cost of ownership
  - Reduced down time
- The hose is the only wearing part
  - Typically 10% of the pump head cost

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ADVANTAGES (CONTINUED)

- High suction capability
  - Up to 95% vacuum or a 26ft/8m lift
- Can run dry
  - The hose is lubricated from the outside
- Reversible rotation
  - The pump can be used to empty lines or clear blockages
- Suitable for high density products
- Can pump high viscosity fluids

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VIDEO – MANAGING VISCOSITY RANGES

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WHEN NOT TO USE A PERISTALTIC PUMP

- Either a flooded suction or medium lift situation for clean chemicals
  - E.g. Sodium Hydroxide, Sulfuric Acid, Copper Sulphate, Hydrochloric Acid, etc...
  - Minimal maintenance and safer with a diaphragm metering pump
- High temperature applications
  - Limited to 80°C/176 °F
- If the fluid is not compatible with any of the available hoses/tubes
  - Tube/Hose materials include santoprene, Versilon(polyurethane), natural rubber, nitrile buna rubber, EPDM and Hypalon

WHEN NOT TO USE A PERISTALTIC PUMP

- High Pressure Applications greater than 15 Bar(g) (218 PSIG)
- Requires absolute laminar flow
  - Even with a pulsation dampener, there will always be some pulsation

ProMinent offers a variety of pump styles to suit most any application

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PERISTALTIC PUMP LIMITATIONS CHECKLIST

Factor	Limitation Reasoning
Temperature	Maximum temperature is approx. 80°C/176°F
	Hose lifetime is highly affected by high temperatures. Over 60ºC/140°F decreases the hose life.
	The inner part of the hose could become delaminated, thus decreasing hose life
Pulsating Flow	Due to the pumping principle, the compression of the hose by roller or shoe creates a pulsating flow, hence limiting the length and dimension of suction and discharge lines.
Chemical Resistance	Chemical high resistant materials such as Viton and PTFE cannot be used as hoses materials.

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Any Questions at this Time?

Peristaltic Pump Applications

By Segment

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Water & Wastewater | DOSING

Abrasive products

Lime milk

Active carbon

Potassium permanganate

Magnesium dioxide

Sodium silicate

Corrosive products

Ferric chloride

Sodium hypochlorite

Sodium hydroxide

Shear sensitive

Polymer

FRANCE: Dosing of activated carbon with DFD 25

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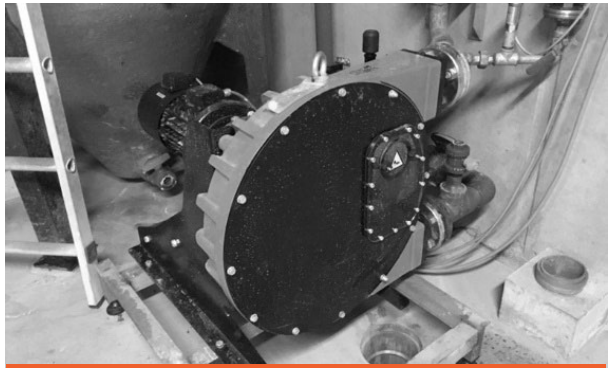
Water & Wastewater | TRANSFER

FRANCE: Transfer of lime milk or ferric chloride with Halar coated DFB 16



DENMARK: Sludge feeding to filter press with DFD 40

Abrasive products
Sludge
Lime milk
Active carbon
Centrifugal separator feed
Press filter feed

Sampling
Wastewater
Clean water
Air
Shear sensitive
Polymer

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Mining | DOSING & TRANSFER

Corrosive Products

Cyanide

Xanthate

Hydrogen peroxide

Sodium methabisulfite

Potassium permanganate

Thickener Underflow Applications

Slurry Sampling Pump Applications

Frothers for Flotation Cells

Shear Sensitive

Polymer

Flocculants

Abrasive Products

Sludge transfer

Mineral paste transfer

Wastewater transfer

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Pulp & Paper | ABRASIVE PRODUCTS

Dosing

Talc suspension

Pigment

Water with glass fiber for paper money production

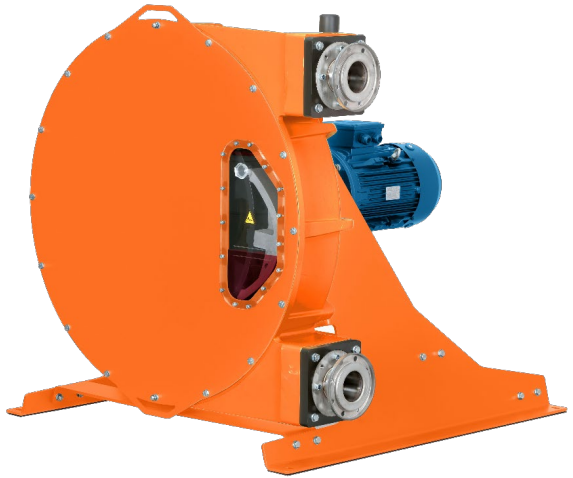
Transfer

Paper paste

Lime milk

Magnesium hydroxide sludge

Starch glue



SWEDEN: Transfer of calcinated clay with a specific weight of 1.5 and viscosity of 300 cP.

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Food & Beverage| FOOD PRODUCTS

Dosing

Bread and cakes additives

Coloring products

General additives

Sulfides

Transfer

Filling machines feed

Diatomaceous earth

Sauces

Juices with pulp/material

Wine/grapes

DENMARK: Transfer of salads with stuffing by food grade approved realax DFC 60 A41 with NBR-A hose.

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Cosmetics| DOSING

Dosing & Transfer

Detergents

Soaps

Shampoos

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Chemical Industry| DOSING

Abrasive products

Abrasive pigments

Titanium dioxide transfer

General abrasive products

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Ceramic Industry| ABRASIVE PRODUCTS

Dosing

Magnesium dioxide

Barium carbonate

Potassium permanganate

Transfer

Ceramic barbotine

Kaolin

Centrifugal separators feed

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Construction | ABRASIVE PRODUCTS

Dosing

Accelerator additive application

Pigments

Concrete repair

Waterproof coatings

Transfer

Mortar

Bentonite

Cement injection

River water with sand

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SUMMARY

- ProMinent can provide the right pump for the specific application.
- ProMinent is one of the only manufacturers that offers both roller and shoe technologies. Roller technology very beneficial for the food and beverage industry.
- **Use** Peristaltic Pumps for:
  - Viscous applications, shear sensitive applications, fluids that contain solids, fluids that off-gas, possible dry running applications, reversible applications and high suction lift applications.
- **Do not use P**eristaltic Pumps for:
  - Sulphuric Acid, Hydrochloric Acid, Nitric Acid, and other clean chemicals such as Sodium Bisulfite, Citric Acid and Sodium Hydroxide. Unless you have a high suction lift requirement Diaphragm Metering Pumps are Safer and have minimal maintenance
  - High temperature applications
  - Pressures over 218PSIG/15Bar(g)
- Make sure the media to be pumped is compatible with the hose/tube.

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UPCOMING WEBINARS

Trainings

Peristaltic Pump Overview

Dates:
Dec 12, 2024

Location:
Online Webinar

Closed

Peristaltic Pump Applications

Dates:
January 16, 2024

Location:
Online Webinar

Register Here

Peristaltic Pump Selection

Dates:
February

Location:
Online Webinar

Coming Soon

Learn About:

- Asking the right questions
- Select the appropriate pump for the application
- Quoting a complete package

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QUESTIONS

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THANK YOU FOR YOUR ATTENTION

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