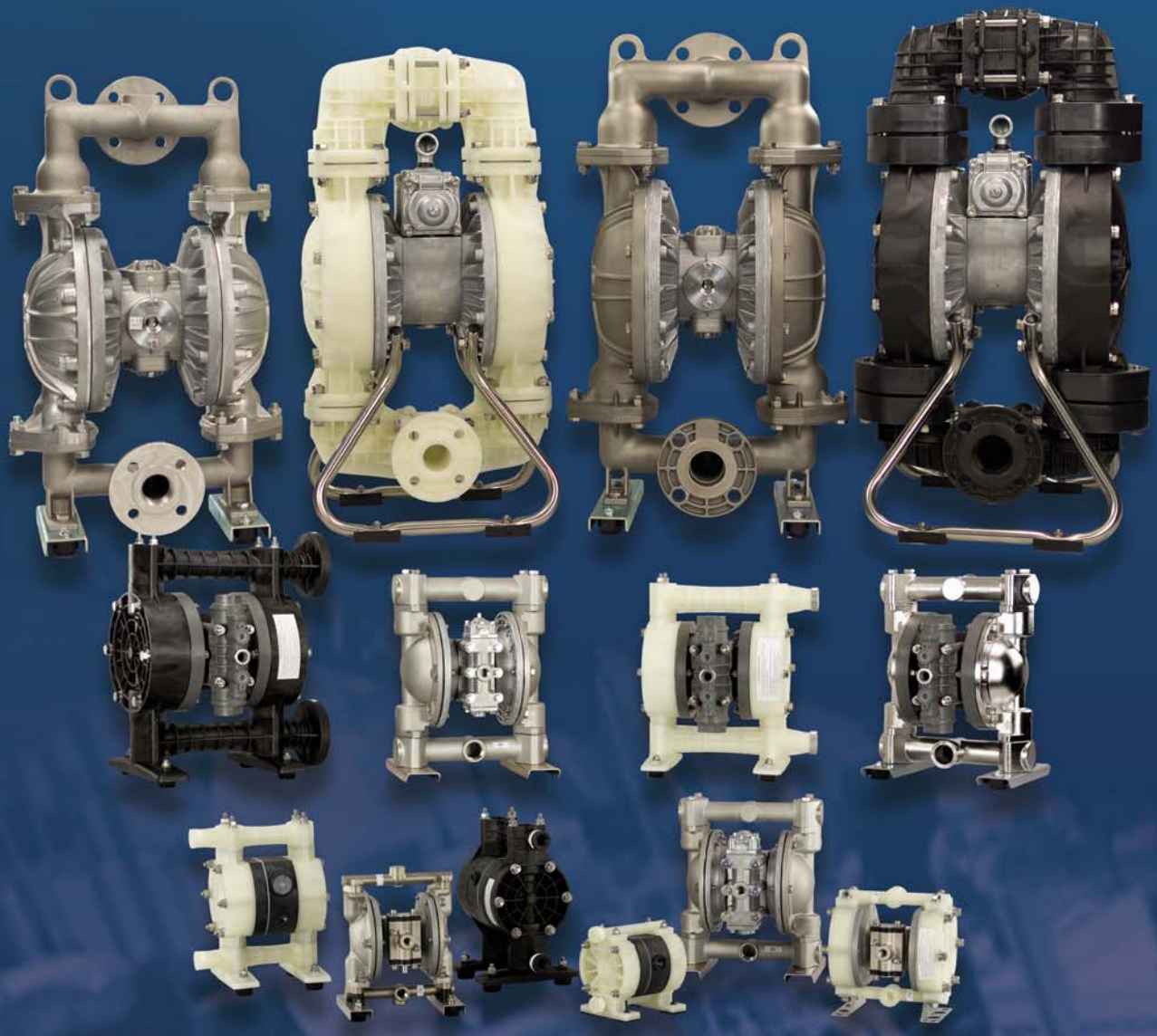
yamada®

PRODUCT SPECIFICATION GUIDE

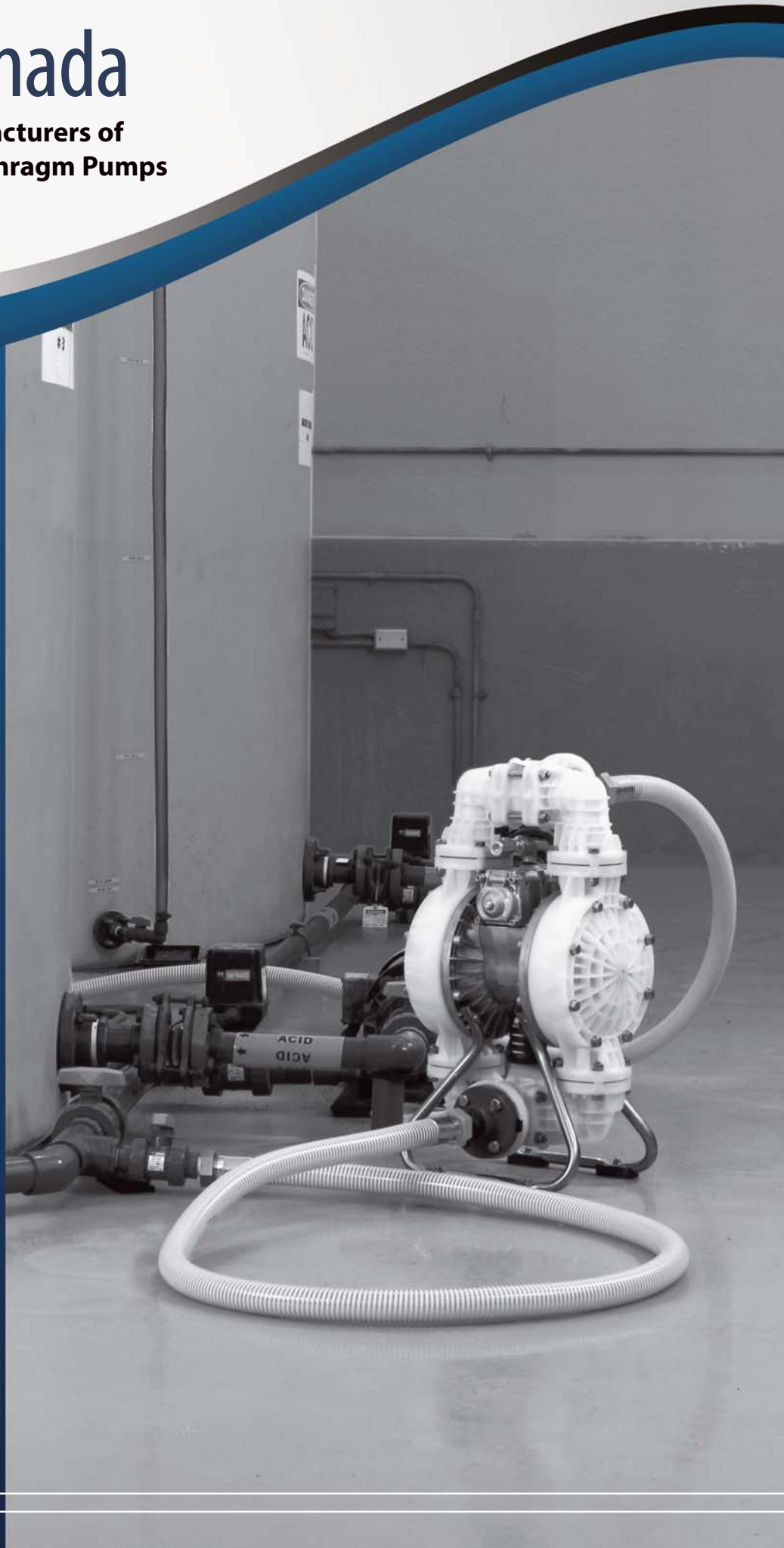
yamadapump.com



Air-Powered Double Diaphragm Pumps

About Yamada

Engineers and Manufacturers of
Air Powered Double Diaphragm Pumps



yamada®

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The Yamada Corporation

The Yamada Corporation has been a leading producer of industrial equipment since 1905, and of fluid handling products for over 65 years. As a leader in pneumatic pumping technology, Yamada is known in many industries worldwide for its innovative products, superior quality, and unmatched reliability. An impressive history of product design and engineered solutions establishes Yamada as forerunner in industrial pump technology.

Yamada's reputation for manufacturing top quality products, allied with continuing efforts in research and development have created a strong foundation for market leadership. As an ISO 9001 certified corporation, stringent quality procedures are followed throughout the manufacturing process, including liquid testing of every pump prior to shipping.

The Yamada Corporation is headquartered in **Tokyo** with manufacturing facilities located throughout Japan. Satellite facilities are located in **Arlington Heights, Illinois, USA,** servicing the Western Hemisphere; **The Netherlands,** providing support throughout Europe, Africa, and the Middle East; and **Shanghai,** covering the emerging markets of China. These offices are support centers for over 400 authorized fully stocking Yamada distributors worldwide.

Yamada America, Inc., a wholly owned subsidiary of the Yamada Corporation, was established in 1986 to provide service and support for the North, Central, and South American markets, through a highly trained network of distributors.

The Yamada America Corporation:

- Professional Customer Service
- Product Training
- Research & Development
- Yamada® Genuine Parts and Service for Yamada® Pumps
- Application Engineering
- Industry Experience and Expertise

Yamada America maintains an impressive inventory of built and tested pumps in their 40,000 square foot state-of-the-art facility, expeditiously providing Yamada® Pumps and Yamada® Genuine Parts to accommodate customer requests.

With over 150 distributors, Yamada America is effectively positioned to service your market needs. Contact Yamada America for the location of your closest local stocking distributor.

Our slogan, *The Proof's in the Pump*® underscores our solid reputation for innovation and reliability. This reputation is truly built into every Yamada pump.

For additional information, AutoCAD® drawings, product literature, and promotions, please visit yamadapump.com or contact our Sales Staff toll-free at 800 990-7867.

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Engineered to Perform. Designed for Long Life.

Rugged, Bolted Construction
All Yamada pumps feature bolted construction, which eliminates leaks and simplifies post-maintenance reassembly. Bolted construction is superior to clamp band retainers, which frequently require frustrating, unnecessary leakage rebuilds from misalignment during reassembly.

Outside-Accessible Air Valve
Inspection or maintenance of every Yamada air valve may be performed without removing the pump from service.

Unified Air Valve Concept
Common-size air valve assemblies reduce parts confusion.

Pilot Valve
Unique to the Yamada design is an individual modular pilot valve that actuates the air valve. It is depressed slightly by the inner center disk creating a pressure drop at one end of the air valve, allowing shifting to occur. It is maintenance free with no cumbersome snap rings or lubricated dynamic o-rings to replace or repair.

Optimal Stroke Length
Extensive research has led to the development of an optimal stroke length that maximizes diaphragm life and performance while minimizing downtime and maintenance costs.

Yamada® Patented Air Valve Technology

Yamada air valve technology is the heart of the air-powered double diaphragm pump and determines reliability. Yamada holds three patents on its field proven valve and enjoys a superior reputation throughout the industry.

Unified Air Valve Concept

Yamada offers two common-size air valve assemblies *(shown at right)* within six sizes of pumps, further reducing reassembly confusion and parts inventory. Other air-powered double diaphragm pump manufacturers offer multiple air valve designs and revisions in an effort to address pump reliability problems. Multiple designs and revisions typically create maintenance rebuild issues, parts confusion, and obsolete inventory. *Whether your pumps are functioning continuously or intermittently — at high or low pressure — using dirty or clean air — Yamada offers* ***one field proven design.***

↓ air valve fits pump models NDP-20, NDP-25, NDP-32

Common-size air valve assemblies reduce parts confusion.

← air valve fits pump models NDP-40, NDP-50, and NDP-80

Truly Non-Lubricated Air Valve

The patented Yamada air valve on all NDP series pumps never requires lubrication or pre-packing. The advanced design eliminates the need for external lubrication, which can lead to pumpage contamination and maintenance headaches. ***Yamada is proud to be the originator of non-lubricated air valve technology for air-powered double diaphragm pumps.***

Some air-powered double diaphragm pump manufacturers claim to offer a non-lubricated air valve. Dependent upon the competitor's design, the air valve will probably require lubrication for continuous operation, or lubricator installation if moisture is present within the air system. These valves are pre-packed with grease and are not truly non-lubricated.

Component Replaceable

All Yamada air valves can be restored with individual components, without requiring complete valve and housing replacement.

Many competitor air valves incorporate a complicated design which requires complete replacement of the valve assembly and housing, further increasing the cost of ownership.

Non-Stalling

A patented non-centering, spring-assisted shifter is incorporated into every NDP Series pump, ensuring a positive shift every time.

The 304 stainless steel C-springs provide exceptional durability and longevity and are tested to last over ***300 million cycles!***

The spring assist also aides in long dead head applications for reliable startup.

Continued on next page

For additional information on Yamada products and services, visit yamadapump.com

Yamada Advantages

Non-Metallic Components

Features & Benefits – continued from preceding page.

Non-Metallic Components

Yamada engineers utilize state-of-the-art solid modeling and finite element analysis techniques, including rib and shell methods of injection molding to design non-metallic parts structure. This *patented* technique greatly increases the component strength and reduces material usage.

NDP-40, 50, & 80 Series Stainless Steel Pump Base for Non-Metallic Pumps

The tubular 304 Stainless Steel base was designed to simplify rebuilding procedures and to absorb weight distribution. The pump can sit upright on a workbench for most of the service, making repairs safer and easier. The radially bent tubular steel base is rated to 85,000 PSI giving it exceptional strength vs. welded angle designs.

Model NDP-40
Polypropylene

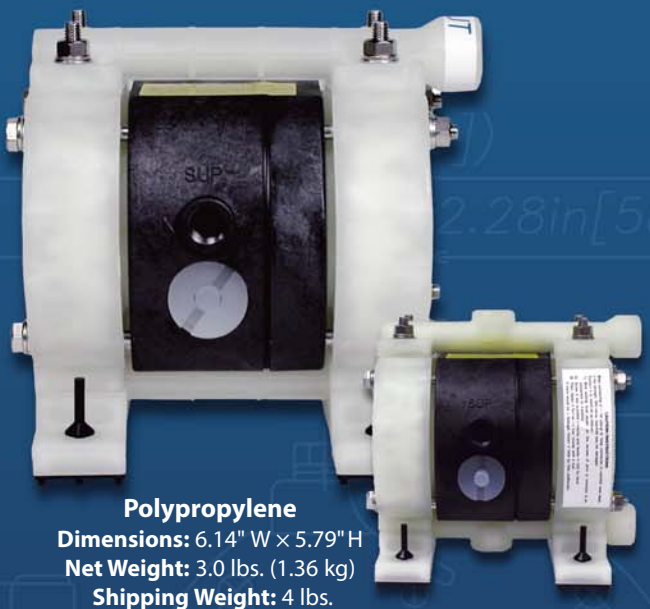
Advantages and Characteristics

1. **Handle a wide variety of fluids with high solids content:** No close fitting or rotating parts so liquid with high solids content and/or size can be easily pumped.
2. **Self Priming:** The Yamada pump design (incorporating internal check valves) provides high suction lift even at dry start-up and with heavier fluids.
3. **Ability to run dry:** No close fitting or sliding parts are at risk—the pump can run dry without damage.
4. **Variable flow rate and discharge pressure:** Yamada pumps will run at any setting within their operating range simply by adjusting the air inlet pressure and system conditions. One pump can fit a broad spectrum of applications.
5. **Portable/Simple Installation:** Yamada pumps transport easily to the application site. Simply connect an air supply, attach fluid connections, and the pump is ready to perform. There are no complex controls to install or operate.
6. **Dead Head:** Because the discharge pressure can never exceed air inlet pressure, the discharge line can be closed with no damage or wear. The pump will simply slow down and stop.
7. **Shear sensitive:** The gentle nature and minimal parts contact with the liquid make Yamada pumps an excellent choice for shear sensitive fluids.
8. **Safe Operation:** Powered by compressed air, Yamada pumps are intrinsically safe.
9. **Submersible:** If external components are compatible, Yamada pumps can be submerged in liquids by simply running the exhaust line above the liquid level.
10. **Pumping efficiency remains constant:** There are no rotors, gears, or pistons, which wear over time and lead to the gradual decline in performance/flow rate.

For additional information on Yamada products and services, visit yamadapump.com.

NDP-5 Specifications

3.4 GPM Max. Flow Rate | 1/4 in. port



Polypropylene
Dimensions: 6.14" W × 5.79" H
Net Weight: 3.0 lbs. (1.36 kg)
Shipping Weight: 4 lbs.

shown with optional center port

Groundable Acetal
Dimensions:
6.14" W × 5.79" H
Net Wt.: 3.7 lbs. (1.67 kg)
Shipping Wt.: 4.7 lbs.

Kynar® (PVDF)
Dimensions:
6.14" W × 5.79" H
Net Wt.: 3.7 lbs. (1.67 kg)
Shipping Wt.: 4.7 lbs.

Split Manifold
Dimensions:
6.6" W × 5.87" H
Net Wt.: 3.0 lbs. (1.36 kg)
Ship Wt.: 4 lbs.

Stainless Steel
Dimensions:
6.1" W × 5.87" H
Net Wt.: 5.9 lbs. (2.68 kg)
Ship Wt.: 6.9 lbs.

Aluminum
Dimensions:
6.1" W × 5.87" H
Net Wt.: 3.3 lbs. (1.5 kg)
Ship Wt.: 4.3 lbs.

Port Dimensions

Intake & discharge	1/4" Female NPT
Air inlet (incl. ball valve):	1/4" Female NPT
Air exhaust (internal silencer):	3/8" Female NPT

Maximum Liquid Temperature

Fitted with PTFE diaphragm

Pump Material	*Temperature*
Groundable Acetal	180°F (82°C)
Polypropylene (PPG)	180°F (82°C)
Aluminum (ADC-12)	212°F (100°C)
Kynar® (PVDF)	212°F (100°C)
Stainless Steel (316)	212°F (100°C)

Air Supply Pressure (All Models)

20 – 100 PSI (1.4 – 7 kgf/cm^2)

Discharge Volume Per Cycle

0.0078 gallons (29 cc)

Maximum Cycles Per Minute: 400

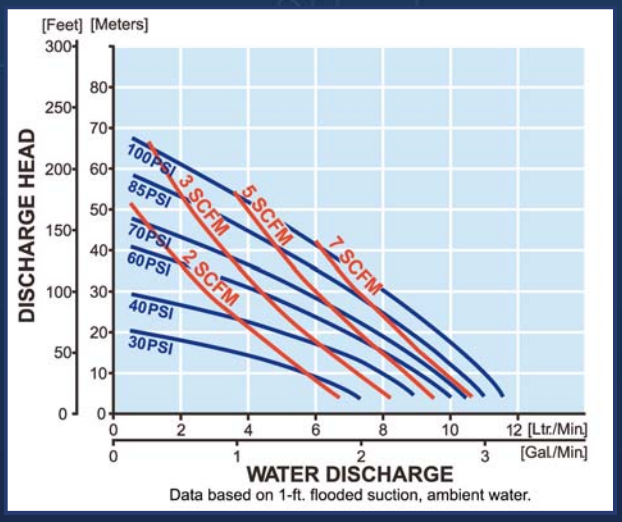
Maximum Dry Suction Lift: 5-feet

Air Motor: Ryton® air motor standard

Model Number Nomenclature

Aluminum (ADC-12)	NDP-5FAT
Groundable Acetal	NDP-5FDT
Kynar® (PVDF)	NDP-5FVT
Polypropylene (PPG)	NDP-5FPT
Stainless Steel (316)	NDP-5FST
Optional Split Manifold *contact Yamada*	NDP-5FPT-Z

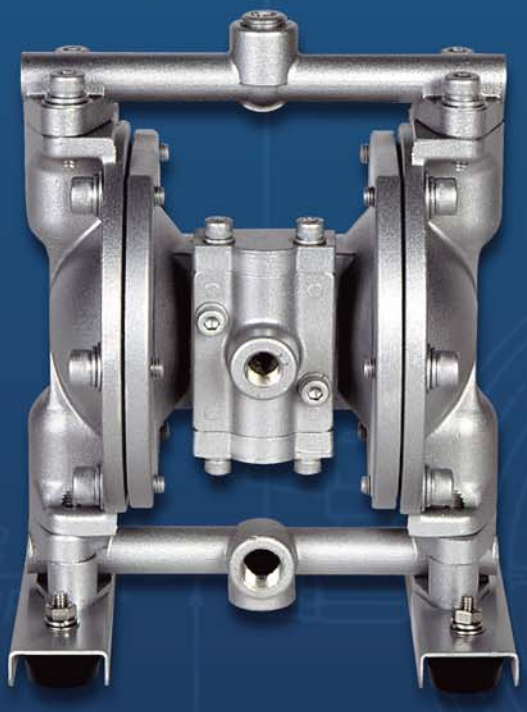
Performance Curve



AutoCAD® drawings are available on CDROM or at yamadapump.com

DP-10/DP-15 Series

DP-10: 6.0 GPM Max. Flow Rate, 3/8" port
DP-15: 7.4 GPM Max. Flow Rate, 1/2" port

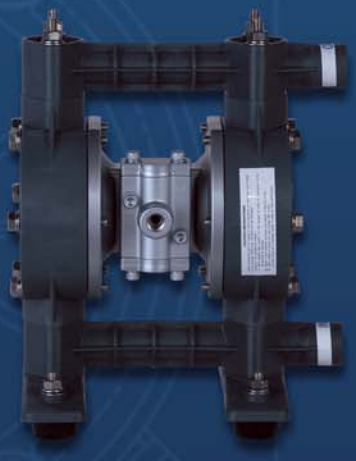


DP-10 Aluminum
Dimensions: 7.32" W × 9.49" H
Net Weight: 7.9 lbs. (3.6 kg)
Shipping Weight: 9.9 lbs.

DP-10 Stainless Steel
Dimensions: 7.32" W × 9.49" H
Net Weight: 11.7 lbs. (5.3 kg)
Shipping Weight: 13.7 lbs.

DP-10
Polypropylene
Dimensions:
7.72" W × 7.72" H
Net Weight: 6.8 lbs. (3.1 kg)
Shipping Weight: 8.8 lbs.

DP-15
Groundable Acetal
Dimensions:
9.68" W × 11.69" H
Net Weight: 9 lbs. (4 kg)
Shipping Weight: 12 lbs.



DP-15
Polypropylene
Dimensions:
9.68" W × 11.69" H
Net Weight: 9 lbs. (4 kg)
Shipping Weight: 12 lbs.

AutoCAD® drawings are available on CD ROM or at yamadapump.com

Yamada® DP-10/15 Series Specifications

DP-10 Port Dimensions

Intake & discharge connection:	
Polypropylene (PPG)	3/8" Female NPT
Aluminum (ADC-12)	3/8" Female NPT
Stainless Steel (316)	3/8" Female NPT

DP-15 Port Dimensions

Intake & discharge connection:	
Polypropylene (PPG)	1/2" Female NPT
Groundable Acetal	1/2" Female NPT

Air Inlet / Exhaust

Air inlet (incl. ball valve):	1/4" Female NPT
Air exhaust (incl. silencer):	3/8" Female NPT

Maximum Liquid Temperature*

Diaphragm Material	*Temperature*
Buna N	180°F (82°C)
Neoprene	180°F (82°C)
Santoprene® (TPO)	180°F (82°C)
PTFE	212°F (100°C)
Hytrel® (TPEE)	248°F (120°C)
Viton® fluoroelastomer	248°F (120°C)

*The maximum liquid temperature for metal and Kynar® fitted pumps is determined by the elastomer (diaphragm material). Polypropylene and Groundable Acetal pumps have a maximum liquid temperature of 180°F (82°C) regardless of diaphragm material.

Air Supply Pressure (All Models)

20 – 100 PSI (1.4 – 7 kgf/cm^2)

Discharge Volume Per Cycle

DP-10: 0.020 gallons (76 cc)
DP-15: 0.025 gallons (93 cc)

Maximum Cycles Per Minute

All diaphragms: 300

Maximum Size Solid

1/32" (1 mm)

Maximum Dry Suction Lift

All diaphragms: 10-feet

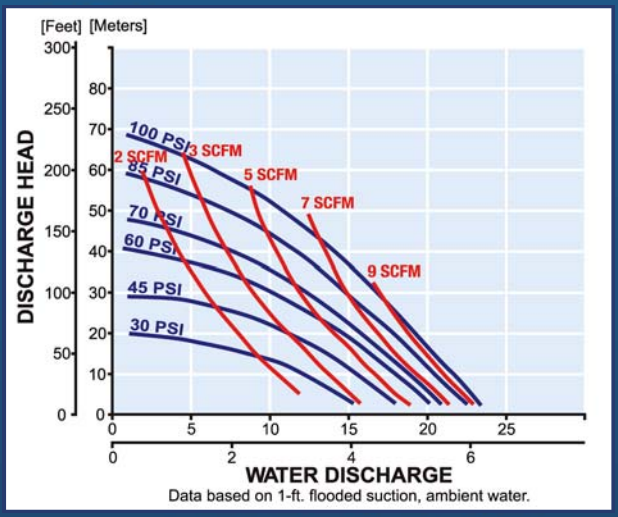
Air Motor

Aluminum Air Motor – Standard
Optional coating: PTFE grey coated (XP)

Optional Split Manifold – contact Yamada

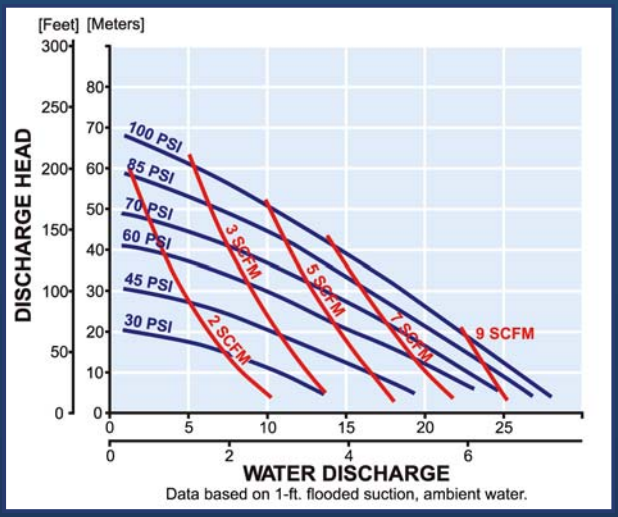
Notes: Hytrel® fitted pumps include Buna N wetted o-rings. Santoprene® fitted pumps include EPDM wetted o-rings.

DP-10 Series Performance Curve



Data based on 1-ft. flooded suction, ambient water.

DP-15 Series Performance Curve



Data based on 1-ft. flooded suction, ambient water.

Model Number Nomenclature

DP-1x x x x

Series:
DP-10 pump or
DP-15 pump

Valve Type:
B = Ball
F = Flat*

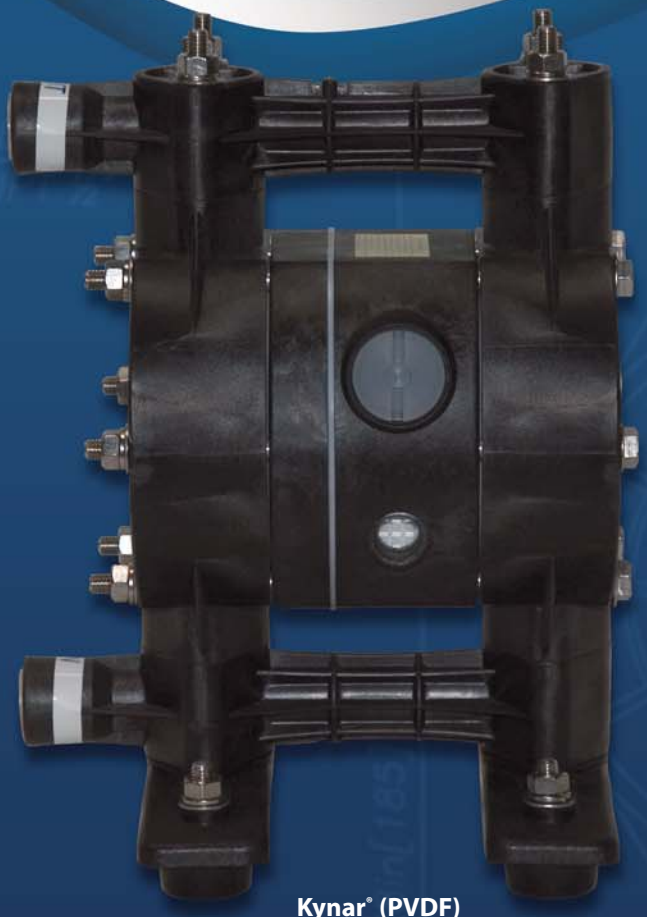
Body Material:
P = Polypropylene
D = Groundable Acetal
A = Aluminum
S = Stainless Steel

Diaphragm Material:
C = Neoprene (CR)
N = Buna N (NBR)
S = Santoprene® (TPO)
T = PTFE
V = Viton® (FKM)
H = Hytrel® (TPEE)

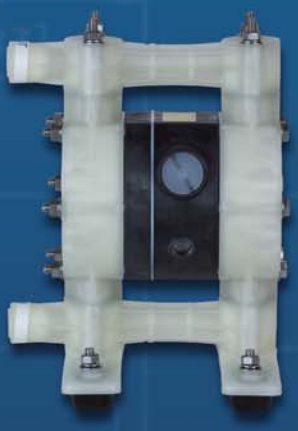
** Flat valves available for DP-15 pumps only.*
NOTE: Additional options listed on page 32.

NDP-15 Series

13.5 GPM Maximum Flow Rate
1/2 inch Port Size



Kynar® (PVDF)
Dimensions: 8.66" W × 11.73" H
Net Weight: 9.4 lbs. (4.2 kg)
Shipping Weight: 11 lbs.

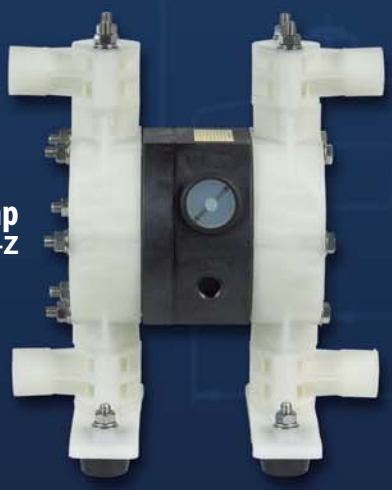


Polypropylene
Dimensions:
8.66" W × 11.73 H"
Net Weight: 7.7 lbs. (3.5 kg)
Shipping Weight: 9.5 lbs.

Groundable Acetal
Dimensions:
8.66" W × 11.73 H"
Net Weight: 9 lbs. (4 kg)
Shipping Weight: 11 lbs.

Aluminum
Dimensions:
8.66" W × 10.71" H
Net Weight: 9 lbs. (4 kg)
Shipping Weight: 11 lbs.

Stainless Steel
Dimensions:
8.31" W × 9.7" H
Net Weight: 13.6 lbs. (6.16 kg)
Shipping Weight: 15.5 lbs.



Split Manifold Pump
Model NDP-15FPT-Z

AutoCAD® drawings are available on CD ROM or at yamadapump.com

Yamada® NDP-15 Series Specifications

Port Dimensions

Intake & discharge connection:	
Polypropylene (PPG) ■	1/2" Female NPT
Kynar® (PVDF) ◆	1/2" Female NPT
Groundable Acetal ◆	1/2" Female NPT
Aluminum (ADC-12) ▲	1/2" Female NPT
Stainless Steel (316) ▲	1/2" Female NPT
Air inlet (includes ball valve):	1/4" Female NPT
Air exhaust (internal silencer):	3/8" Female NPT

■ Polypropylene pumps may be fitted with ball or flat check valves. Ball-type check valves are recommended for flooded suction applications. Flat-type check valves are recommended for suction lift applications.

◆ Kynar® and Groundable Acetal pumps are fitted with flat check valves only.

▲ Aluminum and Stainless Steel pumps are fitted with ball check valves only.

Maximum Liquid Temperature*

Diaphragm Material	*Temperature*
Buna N	180°F (82°C)
Neoprene	180°F (82°C)
Santoprene® (TPO)	180°F (82°C)
PTFE	212°F (100°C)
Hytrel® (TPEE)	248°F (120°C)
Viton® fluoroelastomer	248°F (120°C)

*The maximum liquid temperature for metal and Kynar® fitted pumps is determined by the elastomer (diaphragm material). Polypropylene and Groundable Acetal pumps have a maximum liquid temperature of 180°F (82°C) regardless of diaphragm material.

Air Supply Pressure (All Models)

20 – 100 PSI (1.4 – 7 kgf/cm^2)

Discharge Volume Per Cycle

0.0338 gallons (128 cc)

Maximum Cycles Per Minute

All diaphragms: 400

Maximum Size Solid: 1/32" (1 mm)

Maximum Dry Suction Lift

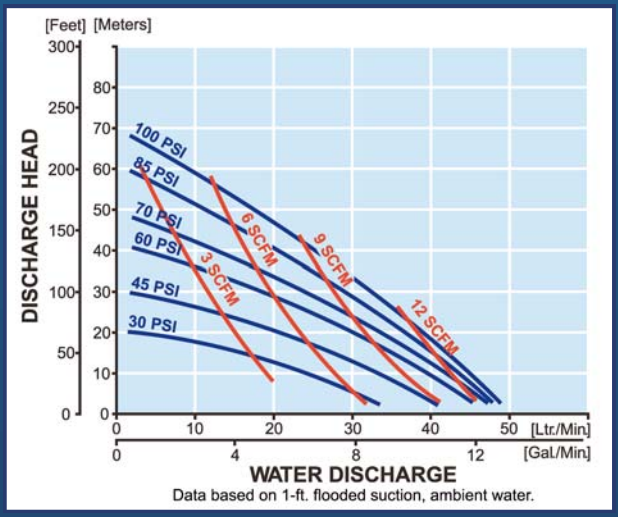
Flat-type check valve: 8-feet
Ball-type check valve: 5-feet

Pump Air Motor: Ryton® air motor standard

Notes: Hytrel® fitted pumps include Buna N wetted o-rings. Santoprene® fitted pumps include EPDM wetted o-rings.

All Diaphragm Materials

(both ball and flat check valves)



Model Number Nomenclature

NDP-15 x x x

Series:
NDP-15 Pump

Valve Type:
B = Ball
F = Flat*

Body Material:
P = Polypropylene
V = Kynar® (PVDF)
D = Groundable Acetal
A = Aluminum
S = Stainless Steel

Diaphragm Material:
C = Neoprene (CR)
N = Buna N (NBR)
S = Santoprene® (TPO)
T = PTFE
V = Viton® (FKM)
H = Hytrel® (TPEE)

** Flat valves are available for plastic pumps only.*
NOTE: Additional options listed on page 32.

Split Manifold Pumps

By utilizing one pump, Yamada offers a design in which the inlet and outlet ports can be configured to multiple combinations; ideal for pumping or combining two similar specific gravity fluids.

Construction: Polypropylene, Aluminum, or Stainless Steel

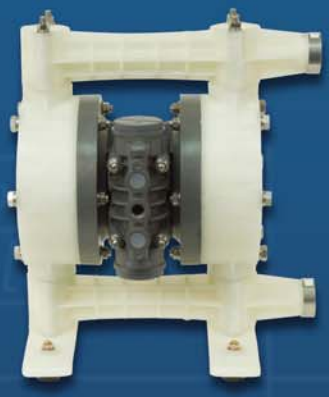
Diaphragm: Choice of seven elastomers

Modes of operation: Dual suction with dual or single discharge; single suction with dual discharge

For details, contact Yamada.

NDP-20 Series

31.7 GPM Maximum Flow Rate
3/4 inch Port Size



Polypropylene – NPT
Dimensions:
12.44" W × 14.50" H
Net Weight: 17.6 lbs. (8.2 kg)
Shipping Weight: 22.6 lbs.

Polypropylene
ANSI Flange
Dimensions:
12.44" W × 14.75" H
Net Wt: 17.6 lbs. (8.2 kg)
Shipping Wt: 22.6 lbs.

Optional: 1" NPT intake and discharge side ports; *aluminum pumps only.*

Metal Pump – NPT with Aluminum Air Motor
Dimensions: 9.80" W × 12.60" H

Aluminum
Net Weight: 19.8 lbs. (9.0 kg)
Shipping Weight: 23 lbs.

Stainless Steel
Net Weight: 30.8 lbs. (13.9 kg)
Shipping Weight: 32 lbs.

Metal Pump – NPT with Polypropylene Air Motor
Dimensions: 9.80" W × 12.60" H

Aluminum
Net Weight: 16.2 lbs. (7.3 kg)
Shipping Weight: 19 lbs.

Stainless Steel
Net Weight: 26.6 lbs. (12.1 kg)
Shipping Weight: 32 lbs.

AutoCAD® drawings are available on CD ROM or at yamadapump.com

Yamada® NDP-20 Series Specifications

Port Dimensions

Intake & discharge connection:	
Polypropylene (PPG)	3/4" Female NPT
Aluminum (ADC-12)	3/4" Female NPT
Stainless Steel (316)	3/4" Female NPT
Air inlet (incl. ball valve):	3/8" Female NPT
Air exhaust (incl. silencer):	3/4" Female NPT

***ANSI Flange** also available — consult Yamada.*

Maximum Liquid Temperature*

Diaphragm Material	*Temperature*
Buna N	180°F (82°C)
Neoprene	180°F (82°C)
Santoprene® (TPO)	180°F (82°C)
EPDM	212°F (100°C)
PTFE	212°F (100°C)
Hytrel® (TPEE)	248°F (120°C)
Viton® fluoroelastomer	248°F (120°C)

* The maximum liquid temperature for metal and Kynar® fitted pumps is determined by the elastomer (diaphragm material). Polypropylene pumps have a maximum liquid temperature of 180°F (82°C) regardless of diaphragm material.

Air Supply Pressure (All Models)

20 – 100 PSI (1.4 – 7 kgf/cm^2)

Discharge Volume Per Cycle

Rubber diaphragm: 0.163 gallons (615 cc)
PTFE diaphragm: 0.143 gallons (539 cc)

Maximum Cycles Per Minute

Rubber diaphragm: 195
PTFE diaphragm: 195

Maximum Size Solid

1/16" (2.0 mm)

Maximum Dry Suction Lift

Rubber fitted pump capability: 18-feet

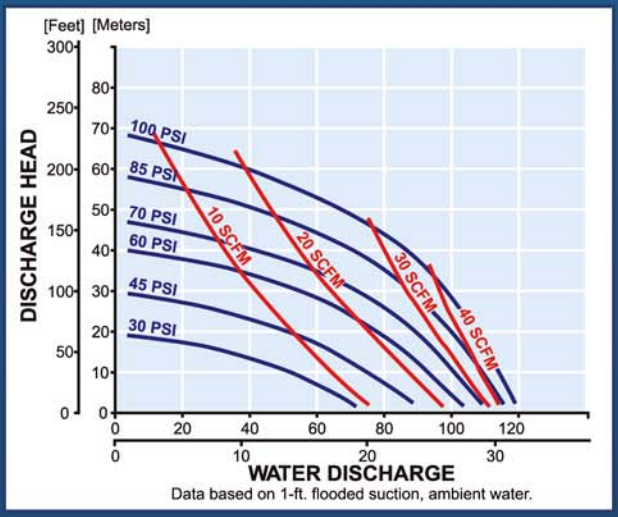
Air Motor

Aluminum air motor is standard on metal pumps. Polypropylene air motor is standard on polypropylene and Kynar® pumps.
Air motor options:
Polypropylene air motor for metal pumps.
PTFE grey coating (XP) for aluminum motors.

Optional Split Manifold – contact Yamada

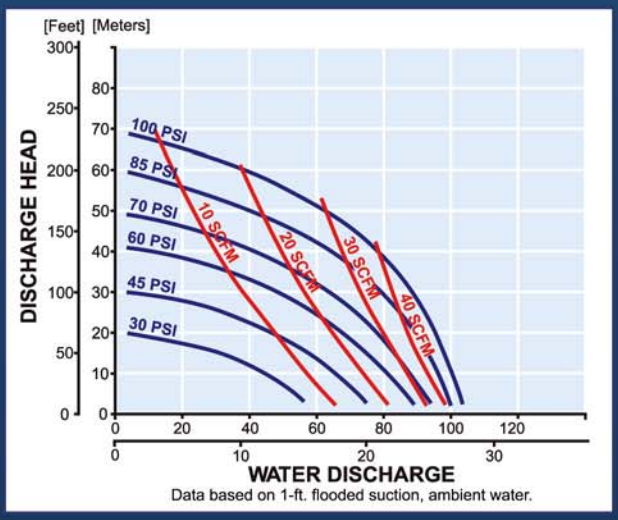
Notes: Hytrel® fitted pumps include Buna N check balls & wetted o-rings. Santoprene® fitted pumps include Santoprene® check balls & EPDM wetted o-rings.

Rubber Diaphragm Performance Curve



To calculate performance for Santoprene® and Hytrel® fitted pumps, use Rubber Diaphragm Curve.

PTFE Diaphragm Performance Curve



Model Number Nomenclature

NDP-20B x x -PP -FLG

Series:
NDP-20 Pump w/Ball Valve

Body Material:
P = Polypropylene
A = Aluminum
S = Stainless Steel

Plastic Pump Air Motor:
PP=Polypropylene

Flange Option

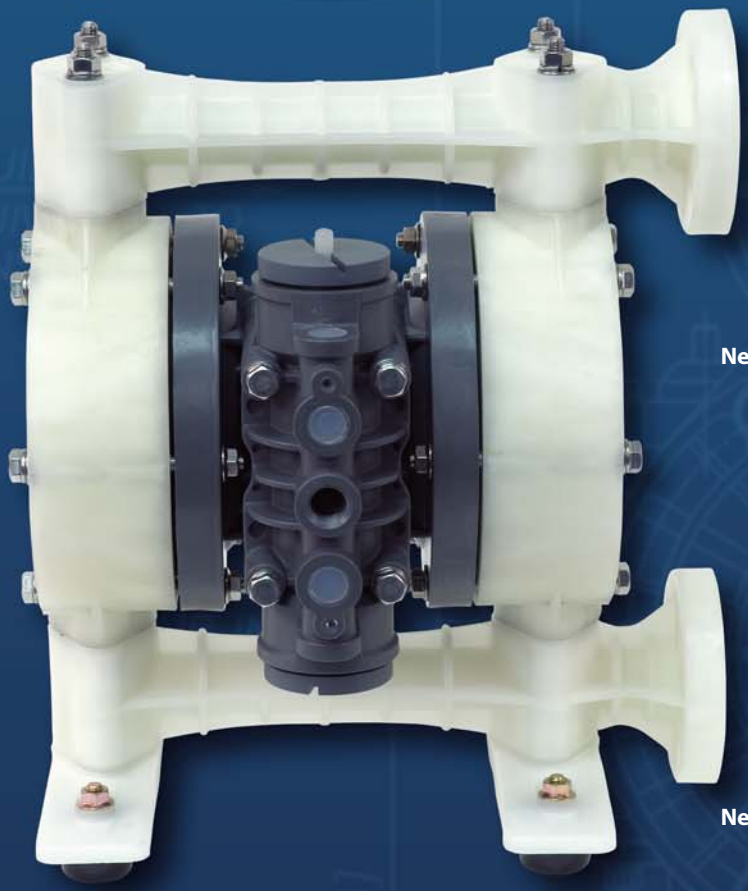
Diaphragm Material:
C = Neoprene (CR)
N = Buna N (NBR)
E = Nordel™ (EPDM)
S = Santoprene® (TPO)
T = PTFE
V = Viton® (FKM)
H = Hytrel® (TPEE)

Additional options listed on page 32.

NDP-25 Series

46.2 GPM Maximum Flow Rate
1 inch Port Size

Polypropylene – NPT
Dimensions:
14.40" W × 16.90" H
Net Weight: 29 lbs. (10.9 kg)
Shipping Weight: 30 lbs.



Kynar® (PVDF) – NPT
Dimensions:
14.40" W × 16.90" H
Net Weight: 29.7 lbs. (13.4 kg)
Shipping Weight: 33 lbs.

Kynar® (PVDF) – ANSI Flange
Dimensions:
14.40" W × 17.40" H
Net Weight: 29.7 lbs. (13.4 kg)
Shipping Weight: 33 lbs.

Polypropylene – ANSI Flange
Dimensions: 14.40" W × 17.40 " H
Net Weight: 29 lbs. (10.9 kg)
Shipping Weight: 30 lbs.

Metal Pump – NPT with Polypropylene Air Motor
Dimensions: 11.30" W × 15.08" H

Aluminum
Net Weight: 24.0 lbs. (10.9 kg)
Shipping Weight: 26.4 lbs.

Stainless Steel
Net Weight: 39.7 lbs. (18.0 kg)
Shipping Weight: 46 lbs.

Metal Pump – NPT with Aluminum Air Motor
Dimensions: 11.30" W × 15.08" H

Aluminum
Net Weight: 27 lbs. (13.0 kg)
Shipping Weight: 31 lbs.

Stainless Steel
Net Weight: 42 lbs. (19.9 kg)
Shipping Weight: 46 lbs.

Cast Iron
Net Weight: 43 lbs. (19.9 kg)
Shipping Weight: 46 lbs.

AutoCAD® drawings are available on CDROM or at yamadapump.com

Yamada® NDP-25 Series Specifications

Port Dimensions

Intake & discharge connection:	
Polypropylene (PPG)	1" Female NPT
Kynar® (PVDF)	1" Female NPT
Aluminum (ADC-12)	1" Female NPT
Stainless Steel (316)	1" Female NPT
Cast Iron	1" Female NPT
Air inlet (incl. ball valve):	3/8" Female NPT
Air exhaust (incl. silencer):	3/4" Female NPT

***ANSI Flange** also available — consult Yamada.*

Maximum Liquid Temperature*

Diaphragm Material	*Temperature*
Buna N	180°F (82°C)
Neoprene	180°F (82°C)
Santoprene® (TPO)	180°F (82°C)
EPDM	212°F (100°C)
PTFE	212°F (100°C)
Hytrel® (TPEE)	248°F (120°C)
Viton® fluoroelastomer	248°F (120°C)

*The maximum liquid temperature for metal and Kynar® fitted pumps is determined by the elastomer (diaphragm material). Polypropylene pumps have a maximum liquid temperature of 180°F (82°C) regardless of diaphragm material.

Air Supply Pressure (All Models)

20 – 100 PSI (1.4 – 7 kgf/cm^2)

Discharge Volume Per Cycle

Rubber diaphragm: 0.22 gallons (833 cc)
PTFE diaphragm: 0.21 gallons (787 cc)

Maximum Cycles Per Minute

Rubber diaphragm: 210
PTFE diaphragm: 210

Maximum Size Solid

3/16" (4.8 mm)

Maximum Dry Suction Lift

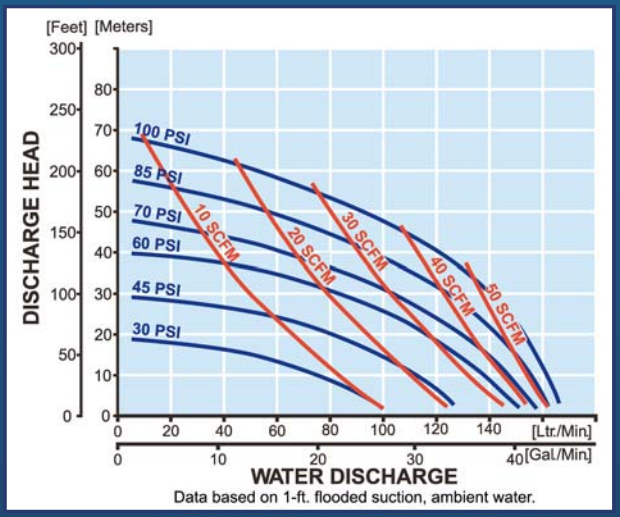
Rubber fitted pump capability: 18-feet

Air Motors: Aluminum air motors are standard on metal pumps; glass-filled polypropylene air motors are standard on plastic and Kynar® pumps. See optional air motors on page 32.

Optional Split Manifold – contact Yamada

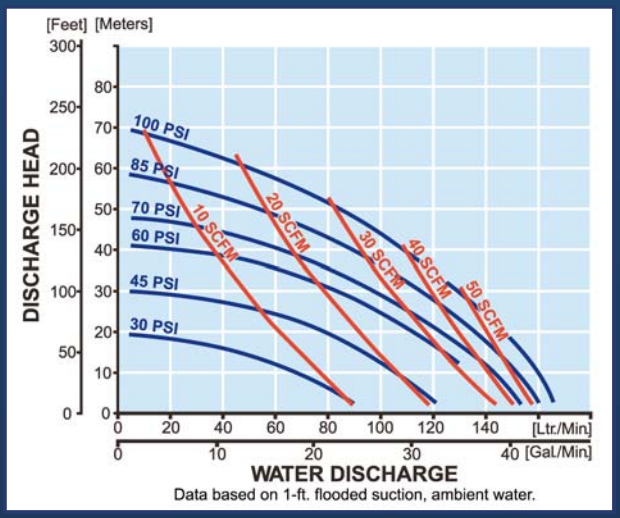
Notes: Santoprene® fitted pumps include EPDM wetted o-rings. Kynar® (PVDF) pumps fitted with Santoprene®, Hytrel®, or PTFE include PTFE check balls & o-rings. Kynar®/EPDM fitted pumps include EPDM check balls & o-rings. Viton® fitted pumps include Viton® balls & o-rings.

Rubber Diaphragm Performance Curve



To calculate performance for Santoprene® and Hytrel® fitted pumps, use Rubber Diaphragm Curve.

PTFE Diaphragm Performance Curve



Model Number Nomenclature

NDP-25B x x -PP -FLG

Series:
NDP-25 Pump w/Ball Valve

Body Material:
P = Polypropylene
A = Aluminum
S = Stainless Steel
F = Cast Iron
V = Kynar®

Additional options listed on page 32.

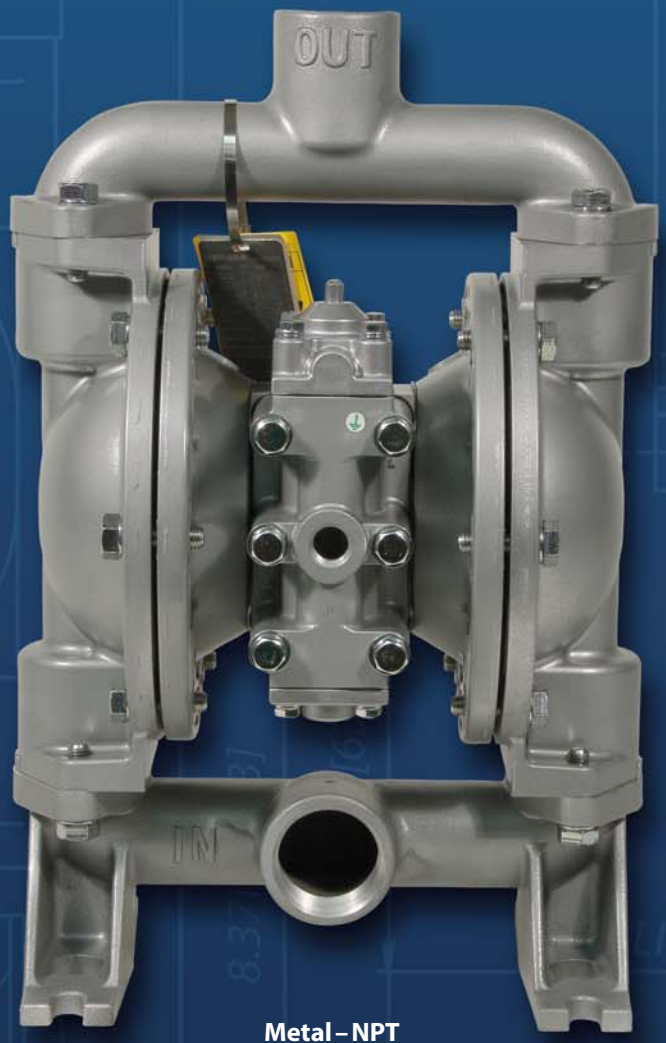
Plastic Pump Air Motor:
PP=Polypropylene

Flange Option

Diaphragm Material:
C = Neoprene (CR)
N = Buna N (NBR)
E = Nordel™ (EPDM)
S = Santoprene® (TPO)
T = PTFE
V = Viton® (FKM)
H = Hytrel® (TPEE)

NDP-32 Series

50.2 GPM Maximum Flow Rate
1-1/2" intake port /
1-1/4" discharge port



1-1/2" NPT intake

1-1/4" NPT discharge

Metal – NPT
Dimensions: 11.18" W × 16.87 "H
Net Weight: 26.5 lbs. (12.0 kg)
Shipping Weight: 28 lbs.

AutoCAD® drawings are available on CD ROM or at yamadapump.com

Yamada® NDP-32 Series Specifications

With all the features of Yamada® NDP series pumps, the NDP-32 adds port compatibility to simplify pump replacement.

Yamada addresses re-piping issues with the Yamada® NDP-32 series pump. Designed to facilitate pump replacement for existing non-Yamada pump installations, the NDP-32 utilizes a 1-1/2" NPT intake port with a 1-1/4" NPT discharge port to ensure compatibility with competitor designs.

Port Dimensions

Intake connection:	1-1/2" Female NPT
Discharge connection:	1-1/4" Female NPT
Air inlet (incl. ball valve):	3/8" Female NPT
Air exhaust (incl. silencer):	3/4" Female NPT

Maximum Liquid Temperature*

Diaphragm Material	*Temperature*
Buna N	180°F (82°C)
Neoprene	180°F (82°C)
Santoprene® (TPO)	180°F (82°C)
EPDM	212°F (100°C)
PTFE	212°F (100°C)
Hytrel® (TPEE)	248°F (120°C)
Viton® fluoroelastomer	248°F (120°C)

*The maximum liquid temperature for metal pumps is determined by the elastomer (diaphragm material).

Air Supply Pressure Range

30–100 PSI (2.1–7 kgf/cm^2)

Discharge Volume Per Cycle

0.18 gallons (681 cc)

Maximum Cycles Per Minute: 279

Maximum Size Solid: 3 mm

Sound Pressure Level:

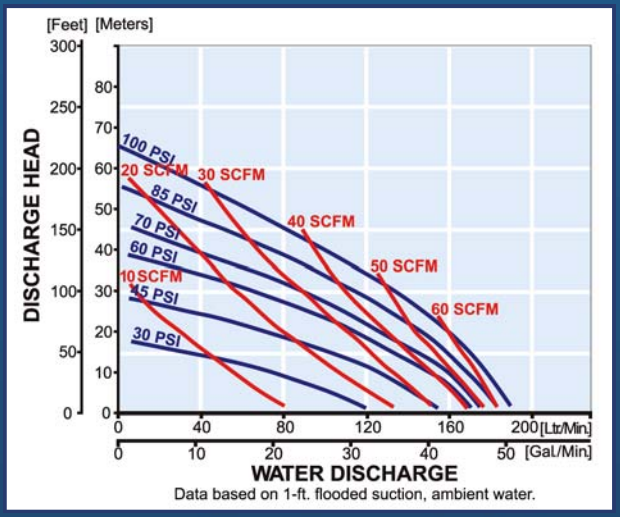
81 dB (a-weighted, ISO 1996)

Air Motor: Aluminum air motor standard.

Notes: Hytrel® fitted pumps include Buna N check balls and o-rings. Santoprene® fitted pumps include EPDM wetted o-rings.

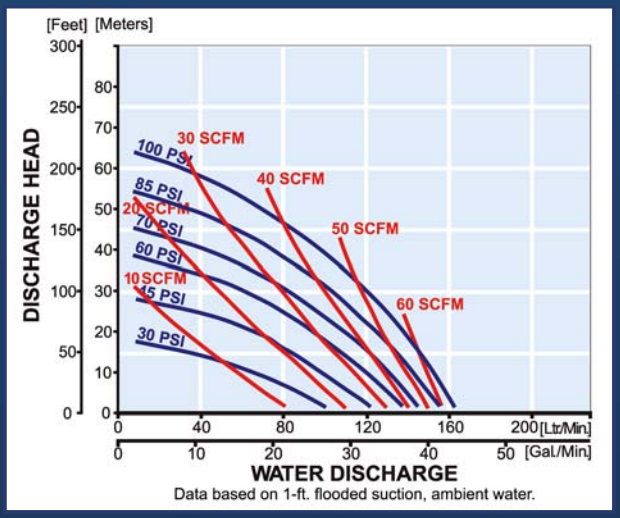
Additional options listed on page 32.

Rubber Diaphragm Performance Curve



To calculate performance for Santoprene® and Hytrel® fitted pumps, use Rubber Diaphragm Curve.

PTFE Diaphragm Performance Curve



Model Number Nomenclature

NDP-32 B A x

Series:
NDP-32 Pump

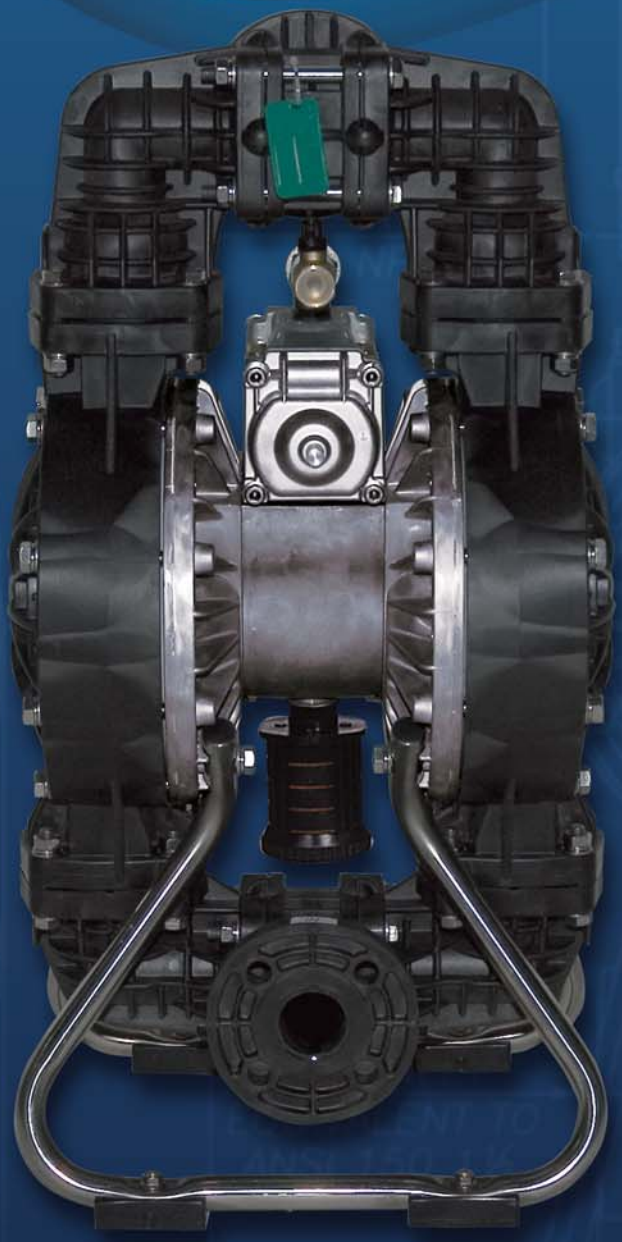
Valve Type:
B = Ball

Body Material:
A = Aluminum

Diaphragm Material:
C = Neoprene (CR)
N = Buna N (NBR)
E = Nordel™ (EPDM)
S = Santoprene® (TPO)
T = PTFE
V = Viton® (FKM)
H = Hytrel® (TPEE)

NDP-40 Series

107 GPM Maximum Flow Rate
1-1/2 inch Port Size



Kynar® (PVDF)
Dimensions: 15.75" W × 29.61" H
Net Weight: 70 lbs. (29.9 kg)
Shipping Weight: 78 lbs.

AutoCAD® drawings are available on CD ROM or at yamadapump.com

Polypropylene
Dimensions:
15.75" W × 29.61" H
Net Weight: 70 lbs. (29.9 kg)
Shipping Weight: 78 lbs.

Aluminum
Dimensions:
16.18" W × 27.91" H
Net Weight: 68 lbs. (28.9 kg)
Shipping Weight: 75 lbs.
Tapped w/1-1/2" NPT ANSI flange

Stainless Steel
Dimensions:
16.18" W × 27.75" H
Net Weight: 98 lbs. (39.9 kg)
Shipping Weight: 106 lbs.

Cast Iron - NPT
Dimensions:
16.18" W × 27.75" H
Net Weight: 112 lbs. (59.8 kg)
Shipping Weight: 120 lbs.

ANSI #150 Flange available on Stainless Steel pumps.

Yamada® NDP-40 Series Specificati

Pump Options

Model Number Nomenclature

XXX-XX X X X X X

- **Pump Series**
- **Check Valve Type**
- **Body Material**
- **Diaphragm Material**

Optional Ball Valve/Seat Materials

C: Neoprene (CR)
N: Buna N (NBR)
E: Nordel™ (EPDM)
T: PTFE
V: Viton® (FKM)
H: Hytrel® (TPE)
TPO: Santoprene®
SS: 316 Stainless Steel *ball & seat only*
S1: 316 SS *ball only*
S2: 316 SS *seat only*

Additional Options

Manifolds

I: Split suction manifold
Z: Both manifolds split
O: Split discharge manifold
MP: Multiport manifold
FLG: Flanged manifold *(cast iron only)* *(NDP-15/20/25/40/50/80)*

Air Motors

XP: PTFE grey coated
PP: Glass-filled polypropylene (20/25 series only)

Specialty Options

BH-1: Powder Pump Series 1
BH-2: Powder Pump Series 2
BH-3: Powder Pump Series 3
HP: 2:1 High Pressure pump
EP-20 RA: 20RA Electro-polished finish *(NDP-5/10/15/20/25; SS only)*

Specialty Options *(cont.)*

FDA: FDA compliant
UL: U.L. Listed
CSA: CSA Listed
D: Drum Pump *(NDP-10/15/20/25 only)*

Mufflers

U: High performance muffler
J: Speed control muffler

Proximity Sensors

P1: Proximity sensor 10–30 VDC
P2: Proximity sensor 24–240 VAC

Miscellaneous

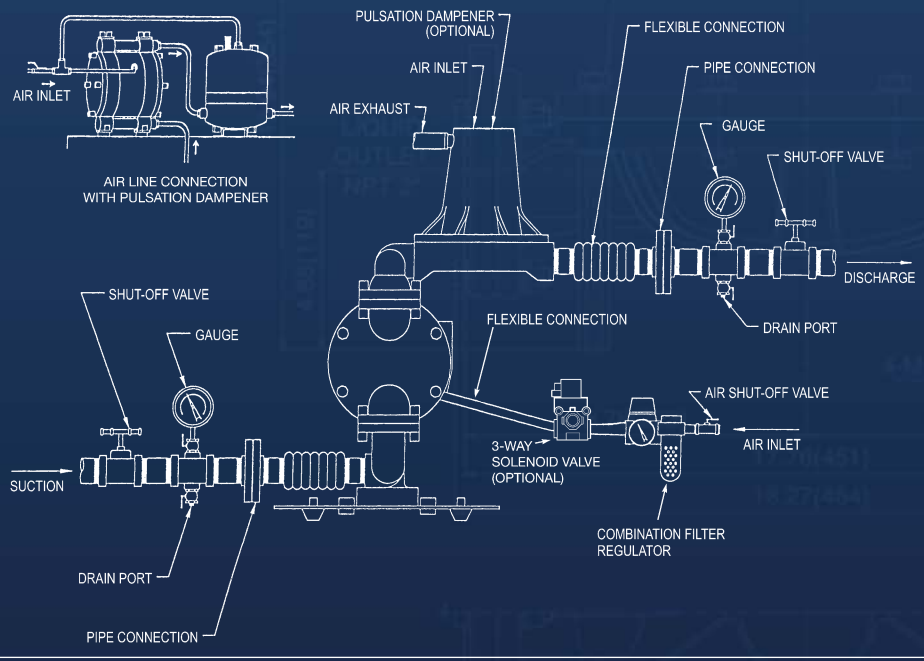
AP: Abrasion pads
L: Destroke (NDP-20—80)

To properly specify a Yamada pump, the following information is required:

- ✔ Material to be pumped (viscosity and specific gravity)
- ✔ Pumping temperature
- ✔ Capacity and operating condition
- ✔ Discharge pressure (PSI or TDH)
- ✔ Corrosive/abrasive?
- ✔ Suction line details
- ✔ Available air supply

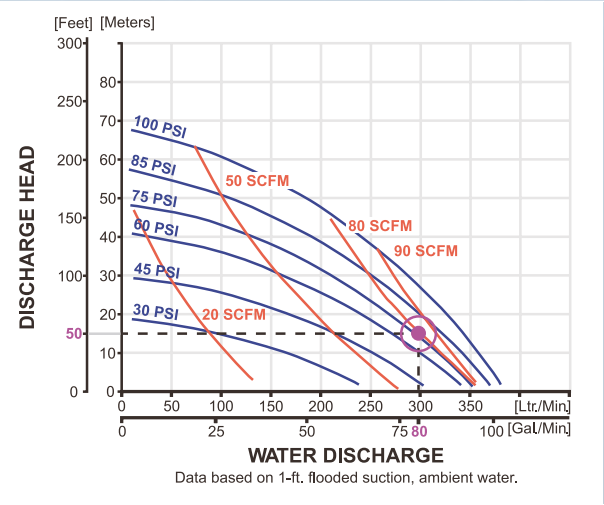
A complete specification form and pump selector is available at yamadapump.com

Ideal Air-Powered Double Diaphragm Pump Installation



Pump Requirements

Using Performance Curves



Data based on 1-ft. flooded suction, ambient water.

To determine compressed air requirements and proper size for a Yamada air-powered double diaphragm pump, two elements of information are required:

1 Required Flow Rate (GPM)

2 Total Dynamic Head (TDH)

As an example, consider an NDP-40 Series Pump performance curve with rubber diaphragms, pumping 80 GPM at 50-ft TDH.

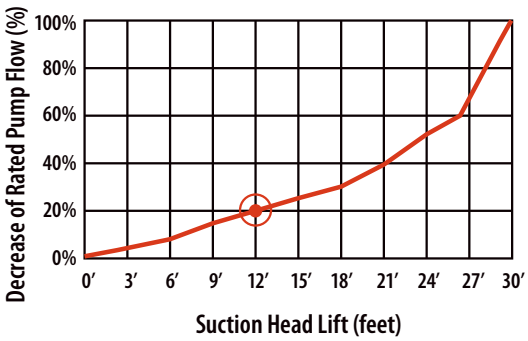
Point A (◉) on the performance curve is where the desired Flow Rate (GPM) and Total Dynamic Head (TDH) points intersect. This point determines compressed air requirements for the particular pump.

At performance point A (◉), the pump will require approximately 75 PSI air inlet pressure. To arrive at this figure, follow the solid blue curve (—) to the left to read the air pressure rating in PSI.

By looking at the nearest red curve (—), it is determined the pump will require approximately 80 SCFM (Standard Cubic Feet per Minute) of air volume.

Specified Suction Lift

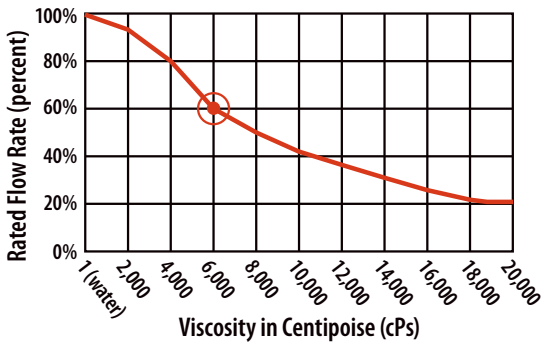
Decrease in Flow Rate as Suction Head Lift Rises



With a suction lift of 12-ft, pump rate decreases by approximately 20%. Valid for pumps 3/4" and larger; data varies with pump configuration.

Viscous Liquids Performance Data

Decrease in Flow Rate From Increase in Viscosity



During the conveyance of a fluid with a viscosity of 6000 cPs, the pump rate decreases to 60% of its rated value (100% = water). Valid for 3/4" pumps & larger.

Note: Please consult Yamada when both the pressure and temperature exceed 70 PSI and 180° F, respectively.

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