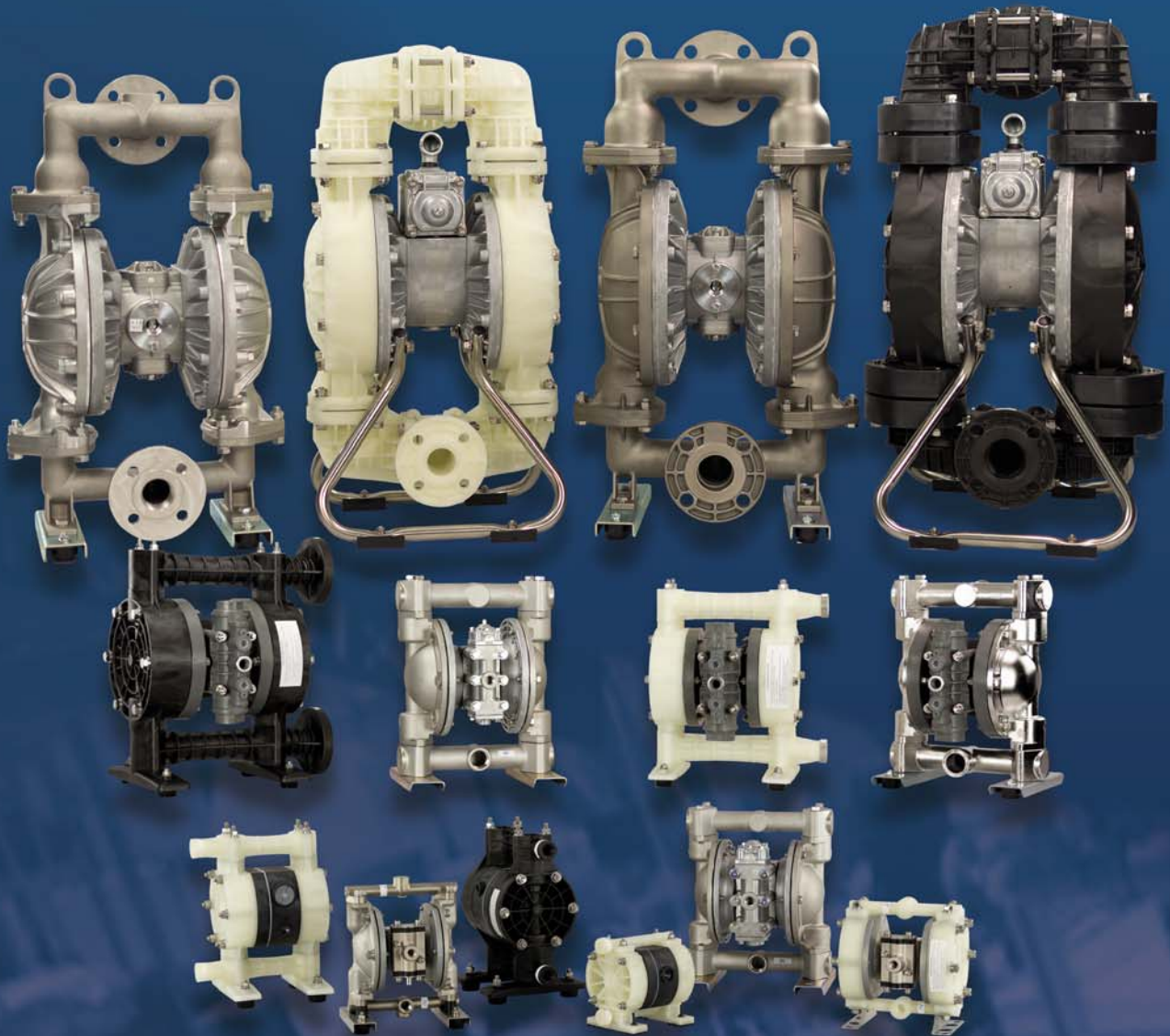




PRODUCT SPECIFICATION GUIDE

[yamadapump.com](http://yamadapump.com)



Air-Powered Double Diaphragm Pumps

# About Yamada

Engineers and Manufacturers of  
Air Powered Double Diaphragm Pumps



**yamada**<sup>®</sup>

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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](http://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**.*

## 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.

↓ 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

## 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](http://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

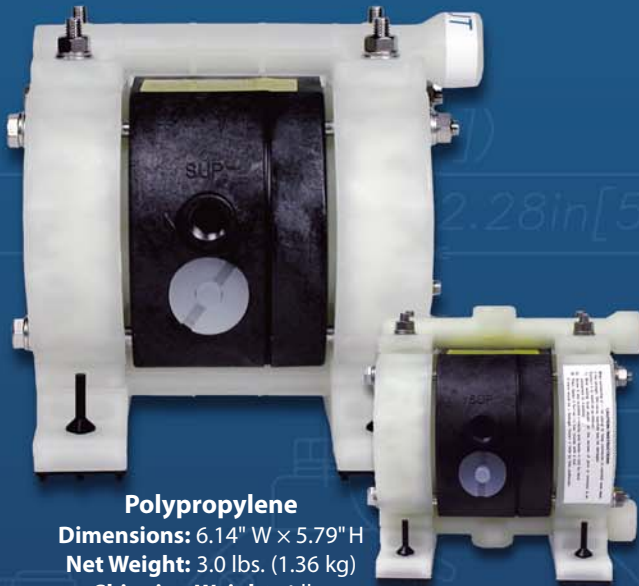
1. **Handle a wide variety of fluids with high solids content:** No close fitting or rotating parts so liquid with high solids content and/or size can be easily pumped.
2. **Self Priming:** The Yamada pump design (incorporating internal check valves) provides high suction lift even at dry start-up and 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](http://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<sup>2</sup>)

## Discharge Volume Per Cycle

0.0078 gallons (29 cc)

## Maximum Cycles Per Minute: 400

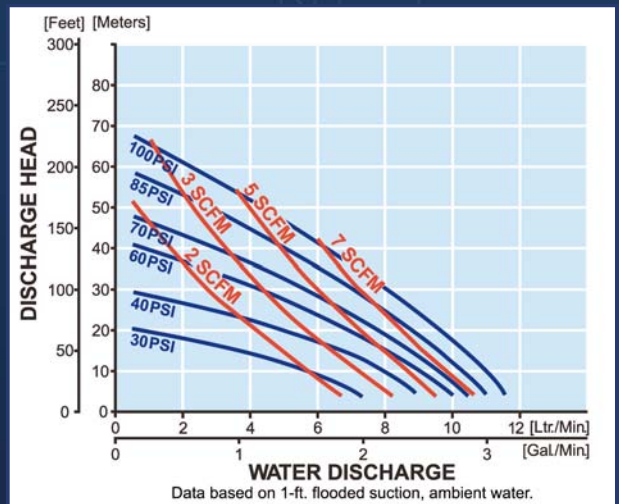
## Maximum Dry Suction Lift: 5-feet

## 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

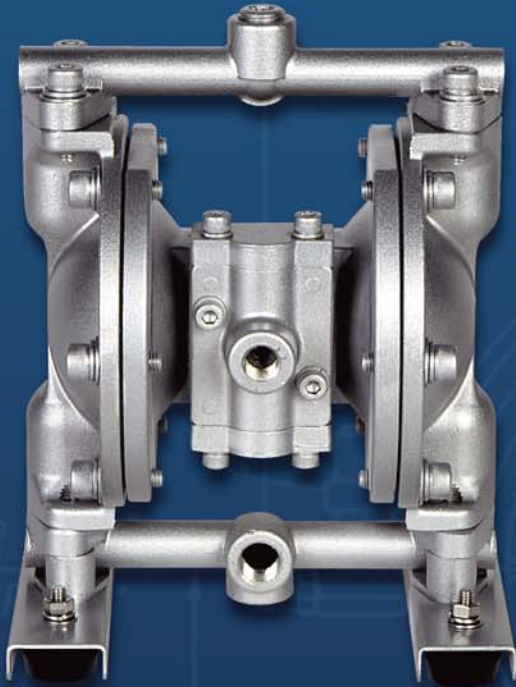


AutoCAD® drawings are available on CDROM  
 or at [yamadapump.com](http://yamadapump.com)

# 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

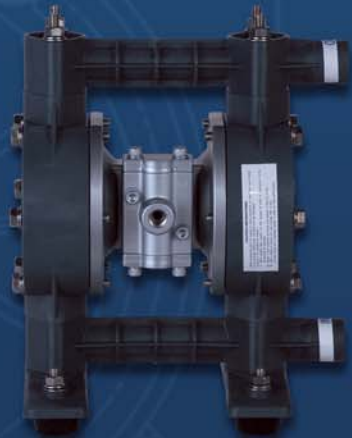
### Groundable Acetal

**Dimensions:**

9.68" W × 11.69" H

**Net Weight:** 9 lbs. (4 kg)

**Shipping Weight:** 12 lbs.



## DP-15

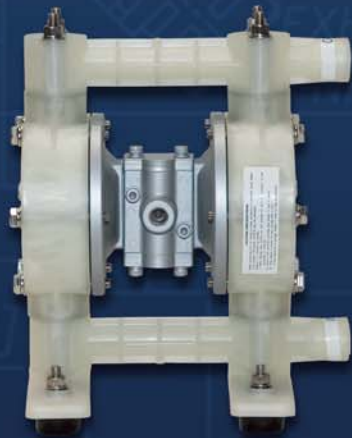
### Polypropylene

**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](http://yamadapump.com)



**YAMADA**

DP-10/DP-15 SERIES



# 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<sup>2</sup>)

## 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

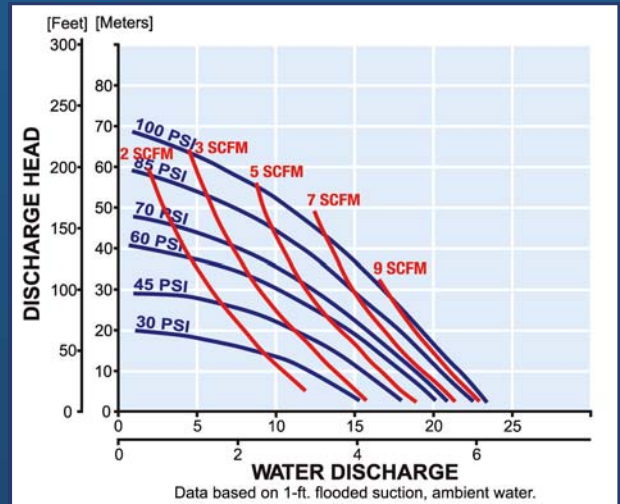
Aluminum Air Motor – Standard

Optional coating: PTFE grey coated (XP)

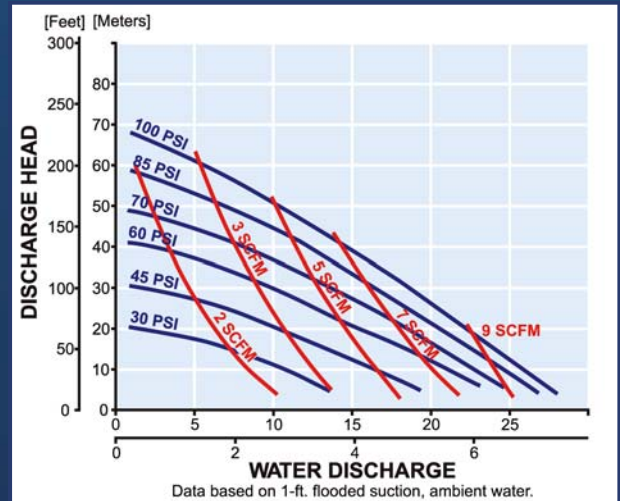
**Optional Split Manifold** – contact Yamada

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

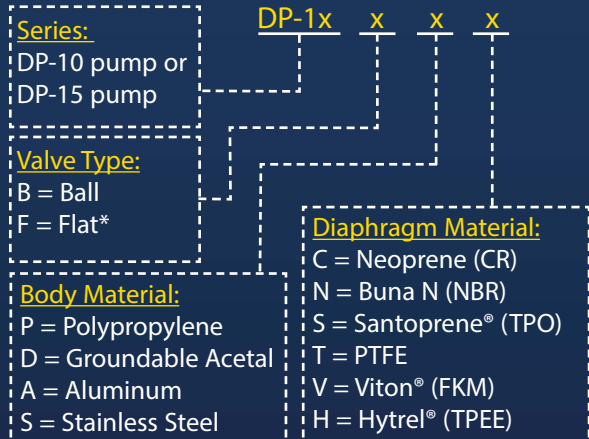
## DP-10 Series Performance Curve



## DP-15 Series Performance Curve



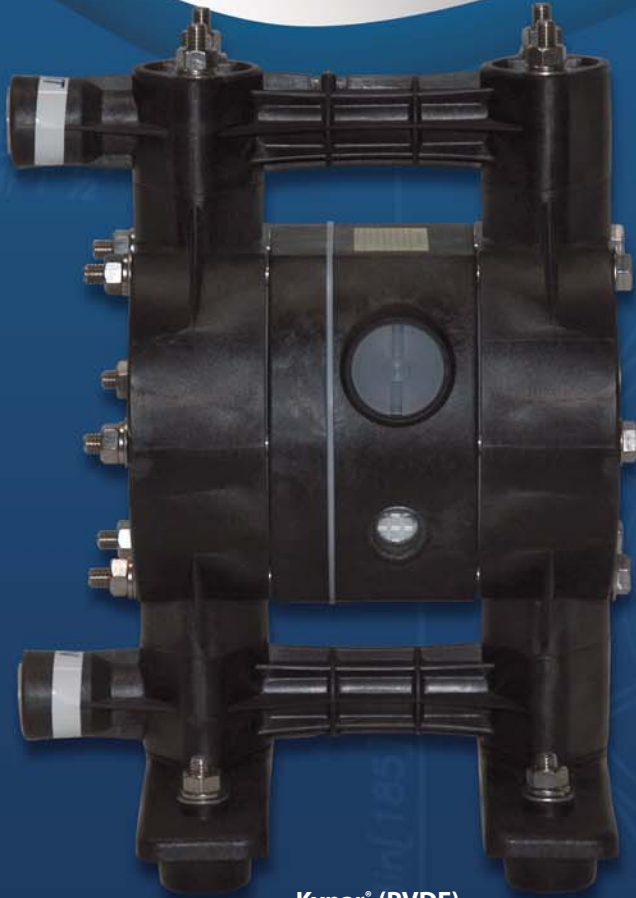
## Model Number Nomenclature



\* 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



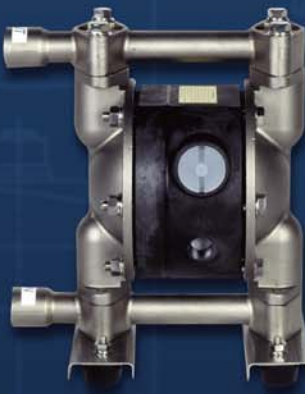
**Kynar® (PVDF)**  
Dimensions: 8.66" W × 11.73" H  
Net Weight: 9.4 lbs. (4.2 kg)  
Shipping Weight: 11 lbs.



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



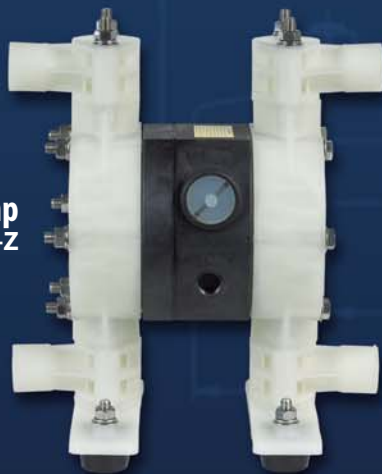
**Groundable Acetal**  
Dimensions:  
8.66" W × 11.73" H  
Net Weight: 9 lbs. (4 kg)  
Shipping Weight: 11 lbs.



**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](http://yamadapump.com)



**YAMADA**

NDP-15 SERIES



# 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<sup>2</sup>)

## 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

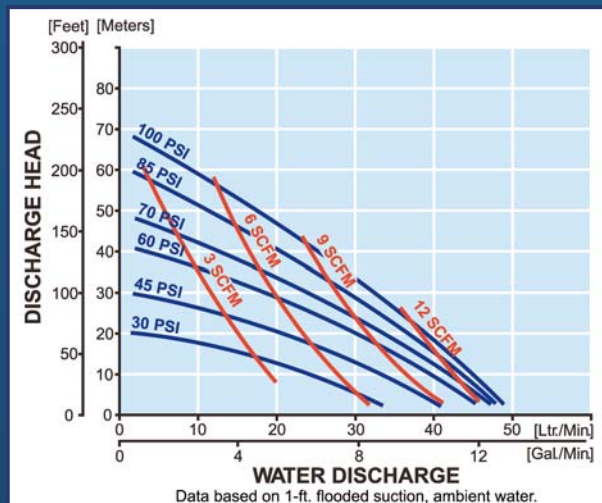
Flat-type check valve: 8-feet  
Ball-type check valve: 5-feet

## Pump Air Motor: Ryton® air motor standard

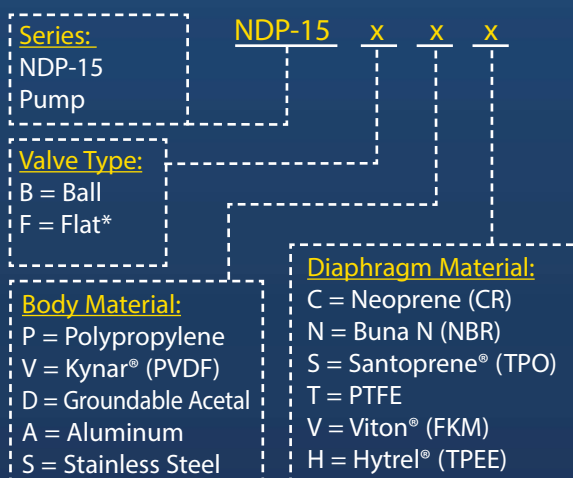
Notes: Hytrel® fitted pumps include Buna N wetted o-rings.  
Santoprene® fitted pumps include EPDM wetted o-rings.

## All Diaphragm Materials

(both ball and flat check valves)



## Model Number Nomenclature



\* 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**



**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.

**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  
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 CDROM or at [yamadapump.com](http://yamadapump.com)



**YAMADA®**

NDP-20 SERIES



# 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<sup>2</sup>)

## 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.

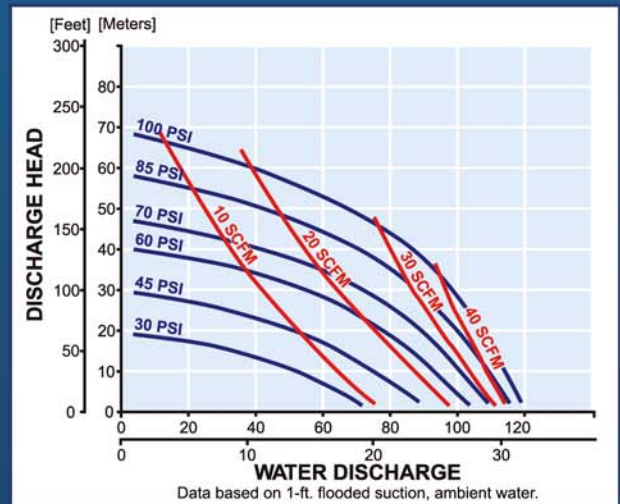
## Air motor options:

Polypropylene air motor for metal pumps. PTFE grey coating (XP) for aluminum motors.

## Optional Split Manifold – contact Yamada

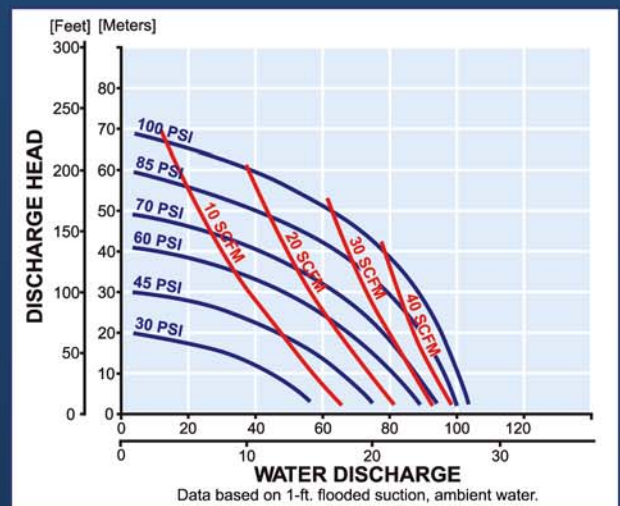
Notes: Hytrel® fitted pumps include Buna N check balls & wetted o-rings. Santoprene® fitted pumps include Santoprene® check balls & EPDM wetted o-rings.

## 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

**Plastic Pump**  
**Air Motor:**  
PP=Polypropylene  
**Flange**  
Option

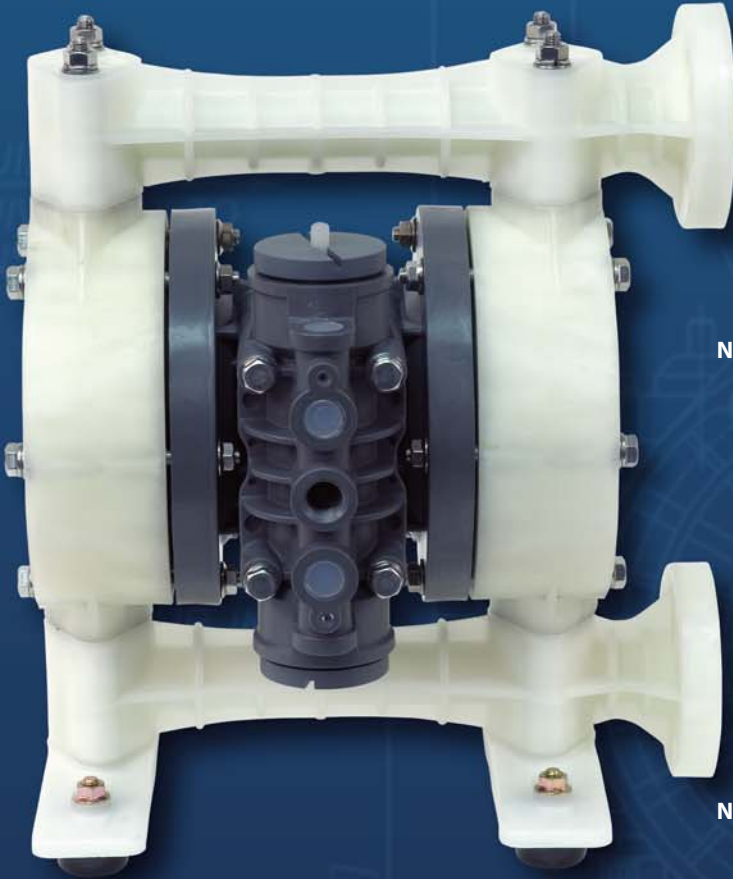
**Body Material:**  
P = Polypropylene  
A = Aluminum  
S = Stainless Steel

**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**

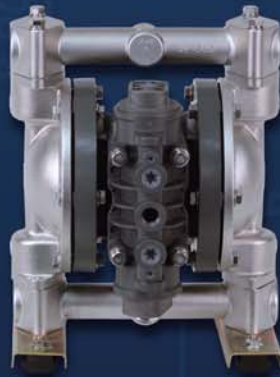


**Polypropylene – ANSI Flange**  
**Dimensions:** 14.40" W × 17.40" H  
**Net Weight:** 29 lbs. (10.9 kg)  
**Shipping Weight:** 30 lbs.

**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.



**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.



**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](http://yamadapump.com)



**YAMADA**

NDP-25 SERIES



# 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<sup>2</sup>)

## 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

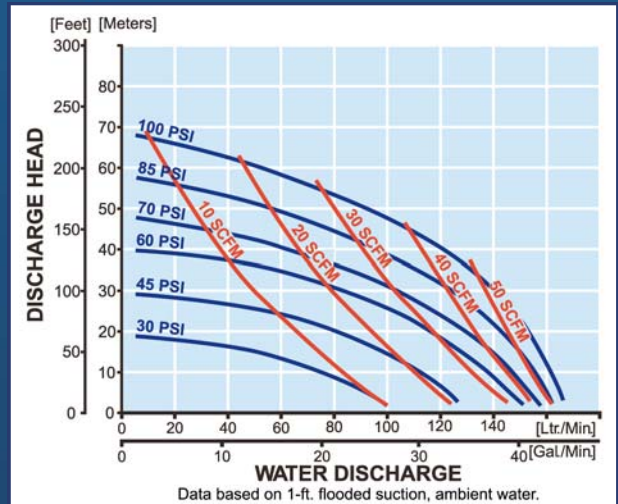
Rubber fitted pump capability: 18-feet

**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

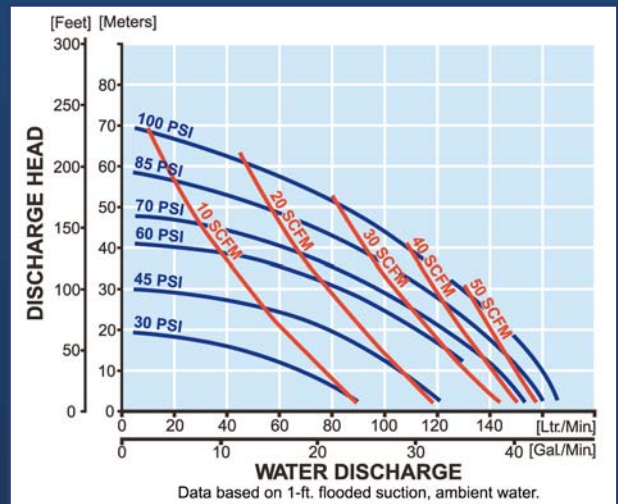
Notes: Santoprene® fitted pumps include EPDM wetted o-rings. Kynar® (PVDF) pumps fitted with Santoprene®, Hytrel®, or PTFE include PTFE check balls & o-rings. Kynar®/EPDM fitted pumps include EPDM check balls & o-rings. Viton® fitted pumps include Viton® balls & o-rings.

## 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

**Plastic Pump**  
**Air Motor:**  
PP=Polypropylene  
**Flange**  
**Option**

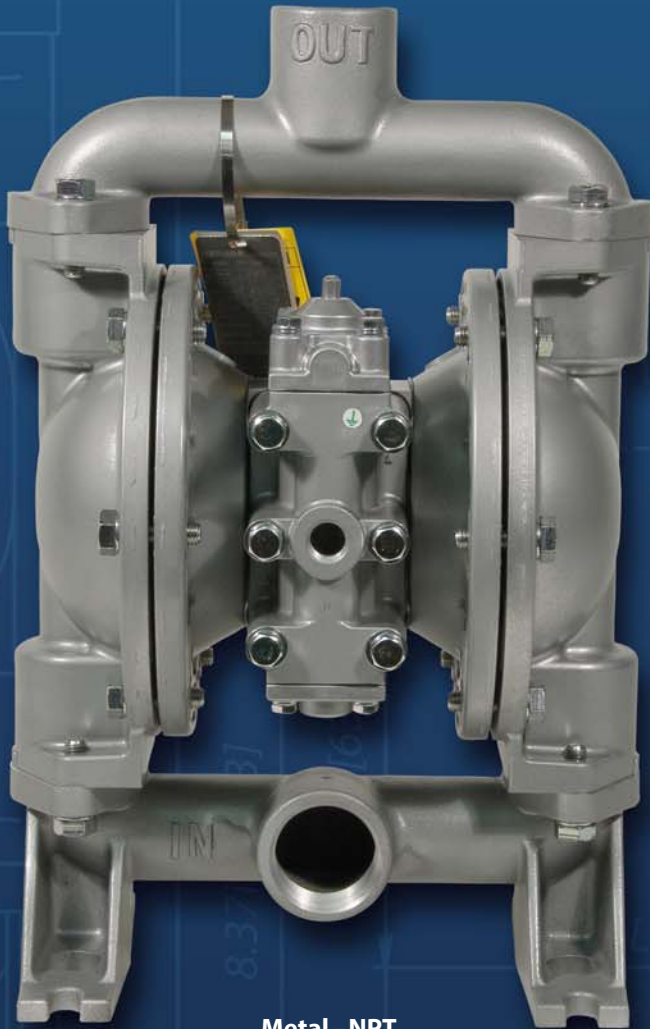
**Body Material:**  
P = Polypropylene  
A = Aluminum  
S = Stainless Steel  
F = Cast Iron  
V = Kynar®

**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-32 Series

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



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



1-1/2" NPT intake

1-1/4" NPT discharge



LIQUID INLET  
NPT 1 1/2"

1.91in [48]

5.94in [151]

6.69in [170]

AutoCAD® drawings are available on  
CDROM or at [yamadapump.com](http://yamadapump.com)



**YAMADA**

NDP-32 SERIES



# 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<sup>2</sup>)

## Discharge Volume Per Cycle

0.18 gallons (681 cc)

**Maximum Cycles Per Minute:** 279

**Maximum Size Solid:** 3 mm

## Sound Pressure Level:

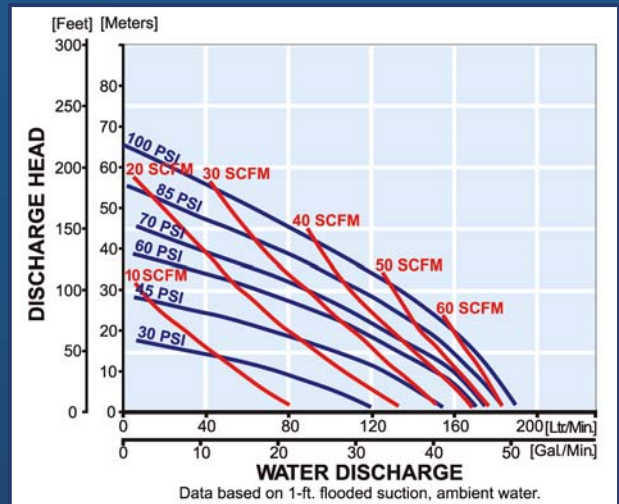
81 dB (a-weighted, ISO 1996)

**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.

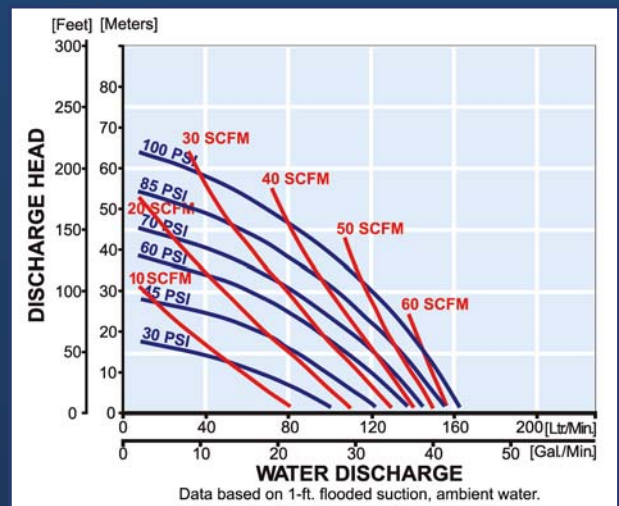
Additional options listed on page 32.

## Rubber Diaphragm Performance Curve

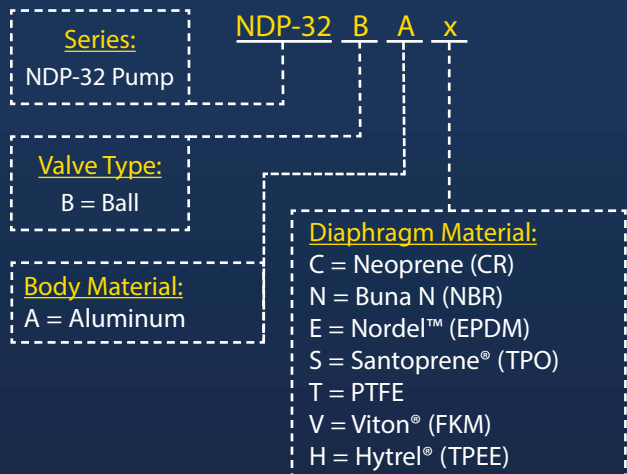


To calculate performance for Santoprene® and Hytrel® fitted pumps, use Rubber Diaphragm Curve.

## PTFE Diaphragm Performance Curve

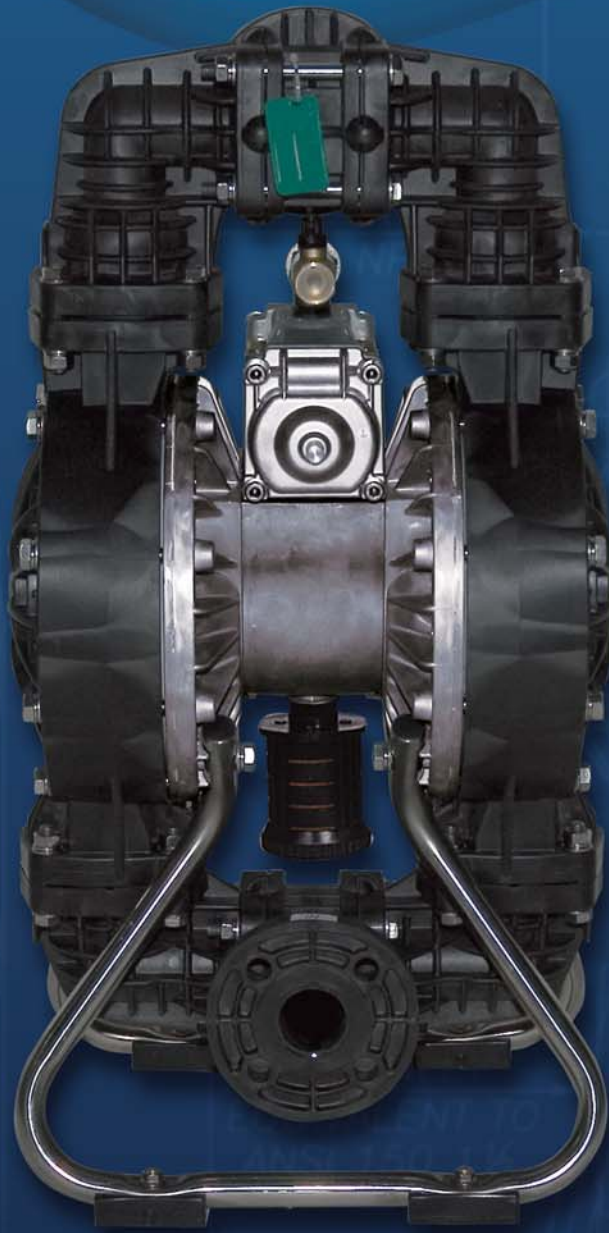


## Model Number Nomenclature



# NDP-40 Series

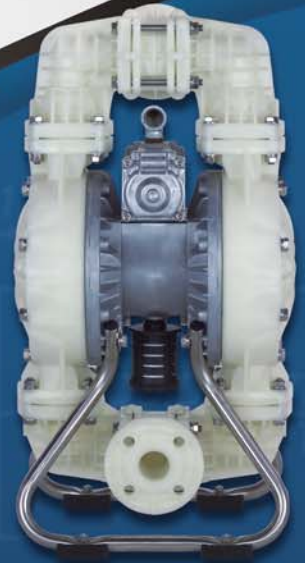
**107 GPM Maximum Flow Rate**  
**1-1/2 inch Port Size**



**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  
CDROM or at [yamadapump.com](http://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 Specifications

## Port Dimensions

Intake & discharge connection:

Polypropylene (PPG)	1-1/2" ANSI B16.5 #150
Kynar® (PVDF)	1-1/2" ANSI B16.5 #150
Aluminum (ADC-12)	1-1/2" ANSI B16.5 #150 (with tapped 1-1/2" Female NPT)
Stainless Steel (316)	1-1/2" ANSI B16.5 #150 or 1-1/2" Female NPT
Cast Iron	1-1/2" Female NPT
Air inlet (incl. ball valve):	1/2" Female NPT
Air exhaust (incl. silencer):	1" 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 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<sup>2</sup>)

## Discharge Volume Per Cycle

Rubber diaphragm: 0.73 gallons (2.74 liters)

PTFE diaphragm: 0.37 gallons (1.40 liters)

## Maximum Cycles Per Minute

Rubber diaphragm: 148

PTFE diaphragm: 270

## Maximum Size Solid

9/32" (7 mm)

## Maximum Dry Suction Lift

Rubber fitted pump capability: 18-feet

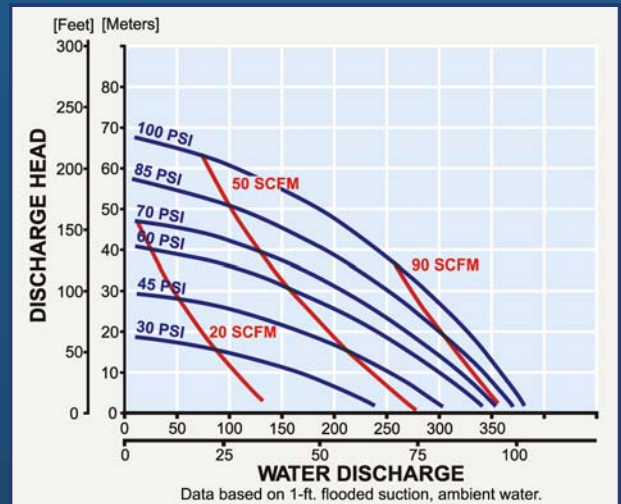
## Air Motor

Aluminum Air Motor – Standard

Optional coating: PTFE grey coated (XP)

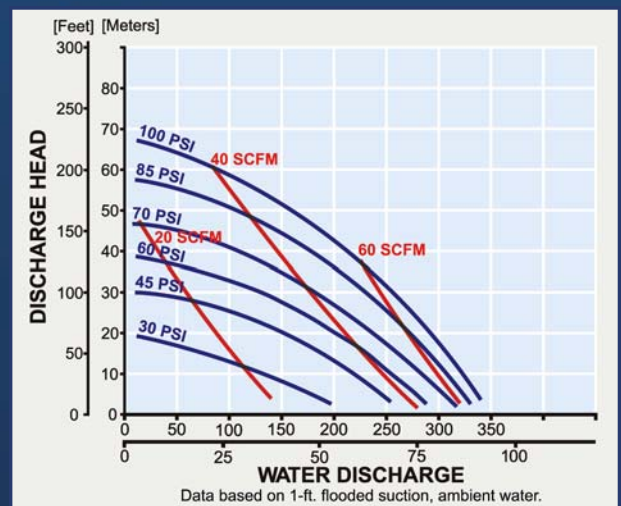
Notes: Hytrel® fitted pumps include Buna N wetted o-rings.  
Santoprene® fitted pumps include EPDM wetted o-rings.  
Kynar® (PVDF) pumps fitted with Santoprene®, Hytrel®, or PTFE include PTFE check balls and o-rings.

## Rubber Diaphragm Performance Curve

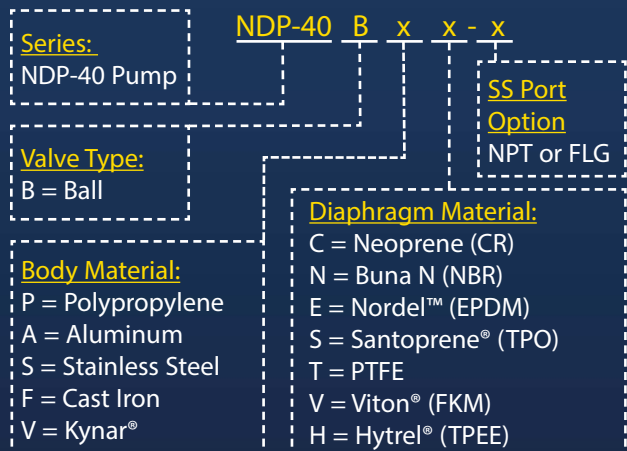


To calculate performance for Santoprene® and Hytrel® fitted pumps, use Rubber Diaphragm Curve.

## PTFE Diaphragm Performance Curve



## Model Number Nomenclature



Note: For NPT fitted SS, add "NPT" at end of model number nomenclature. Additional options listed on page 32.

# NDP-50 Series

**164 GPM Maximum Flow Rate**  
**2 inch Port Size**



**Cast Iron or Stainless Steel**  
**Dimensions:** 17.72" W × 30.55" H  
**Net Weight:** Cast Iron – 159 lbs. (72.1 kg)  
Stainless Steel – 162 lbs. (73.5 kg)  
**Shipping Weight:** Cast Iron – 168 lbs.  
Stainless Steel – 173 lbs.

AutoCAD® drawings are available on  
CDROM or at [yamadapump.com](http://yamadapump.com)



**Aluminum**  
**Dimensions:**  
17.68" W × 30.67" H  
**Net Weight:** 88 lbs. (39.9 kg)  
**Shipping Weight:** 99 lbs.  
*Tapped with 2" NPT  
ANSI flange*



**Polypropylene**  
**Dimensions:**  
18.63" W × 32.32" H  
**Net Weight:** 84 lbs. (38.1 kg)  
**Shipping Weight:** 108 lbs.

Optional ANSI #150  
Flange for Stainless  
Steel models.



**Kynar® (PVDF)**  
**Dimensions:**  
18.63" W × 32.32" H  
**Net Weight:** 103 lbs. (46.7 kg)  
**Shipping Weight:** 121 lbs.



# Yamada® NDP-50 Series Specifications

## Port Dimensions

Intake & discharge connection:

Polypropylene (PPG)	2" ANSI B16.5 #150
Kynar® (PVDF)	2" ANSI B16.5 #150
Aluminum (ADC-12)	2" ANSI B16.5 #150 (with tapped 2" Female NPT)
Stainless Steel (316)	2" ANSI B16.5 #150 or 2" Female NPT
Cast Iron	2" Female NPT
Air inlet (incl. ball valve):	3/4" Female NPT
Air exhaust (incl. silencer):	1" 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 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<sup>2</sup>)

## Discharge Volume Per Cycle

Rubber diaphragm: 1.12 gallons (4.25 liters)

PTFE diaphragm: 0.69 gallons (2.61 liters)

## Maximum Cycles Per Minute

Rubber diaphragm: 146

PTFE diaphragm: 220

## Maximum Size Solid

5/16" (8 mm)

## Maximum Dry Suction Lift

Rubber fitted pump capability: 19-feet

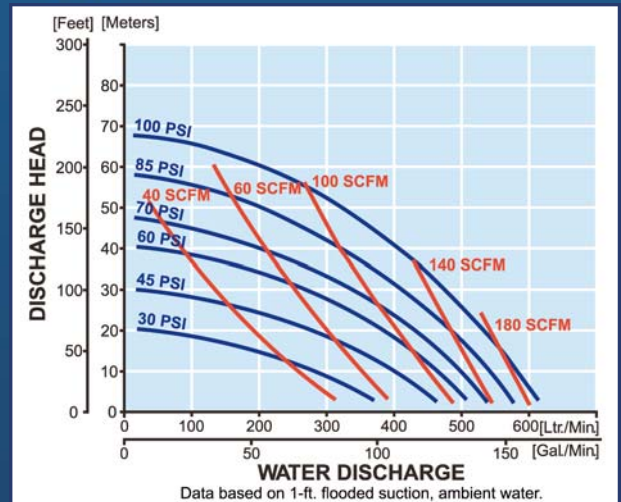
## Air Motor

Aluminum Air Motor – Standard

Optional coating: PTFE grey coated (XP)

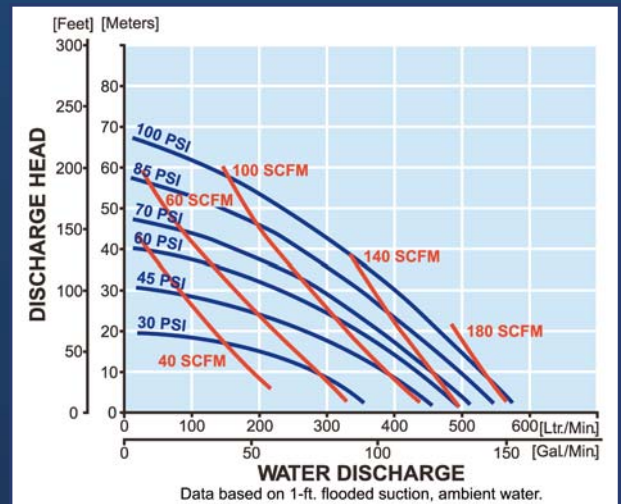
Notes: Hytrel® fitted pumps include Buna N wetted o-rings.  
Santoprene® fitted pumps include EPDM wetted o-rings.  
Kynar® (PVDF) pumps fitted with Santoprene®, Hytrel®, or PTFE include PTFE check balls and o-rings.

## Rubber Diaphragm Performance Curve

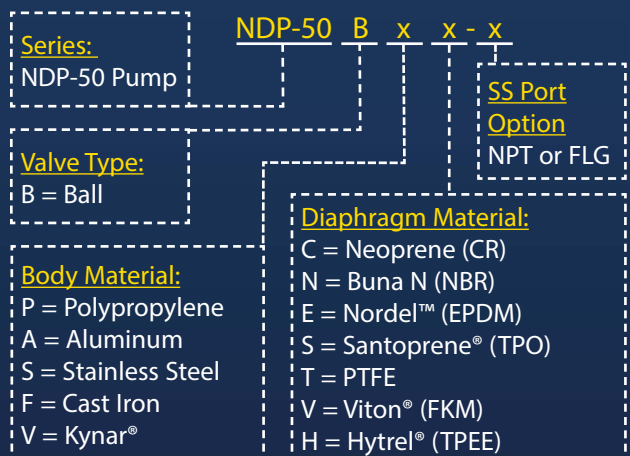


To calculate performance for Santoprene® and Hytrel® fitted pumps, use Rubber Diaphragm Curve.

## PTFE Diaphragm Performance Curve



## Model Number Nomenclature



Note: For NPT fitted SS, add "NPT" at end of model number nomenclature. Additional options listed on page 32.

# NDP-80 Series

**215 GPM Maximum Flow Rate**  
**3 inch Port Size**



**Stainless Steel**  
**Dimensions:** 20.43" W x 38.74" H  
**Net Weight:** 252 lbs. (114.3 kg)  
**Shipping Weight:** 271 lbs.



**Aluminum**  
**Dimensions:**  
20.43" W x 40.75" H  
**Net Weight:** 151 lbs. (68.5 kg)  
**Shipping Weight:** 165 lbs.  
*Tapped with 3" NPT  
ANSI flange*



**Cast Iron – NPT**  
**Dimensions:**  
20.54" W x 38.74" H  
**Net Weight:** 271 lbs. (122.9 kg)  
**Shipping Weight:** 277 lbs.



**Polypropylene**  
**Dimensions:**  
22.83" W x 41.10" H  
**Net Weight:** 162 lbs. (73.5 kg)  
**Shipping Weight:** 177 lbs.



# Yamada® NDP-80 Series Specifications

## Port Dimensions

Intake & discharge connection:

Polypropylene (PPG)	3" ANSI B16.5 #150
Aluminum (ADC-12)	3" ANSI B16.5 #150 (with tapped 3" Female NPT)
Stainless Steel (316)	3" ANSI B16.5 #150 or 3" Female NPT
Cast Iron	3" Female NPT
Air inlet (incl. ball valve):	3/4" Female NPT
Air exhaust (incl. silencer):	1" 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). 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<sup>2</sup>)

## Discharge Volume Per Cycle

Rubber diaphragm: 2.26 gallons (8.57 liters)  
PTFE diaphragm: 1.0 gallons (3.8 liters)

## Maximum Cycles Per Minute

Rubber diaphragm: 95  
PTFE diaphragm: 160

## Maximum Size Solid

13/32" (10 mm)

## Maximum Dry Suction Lift

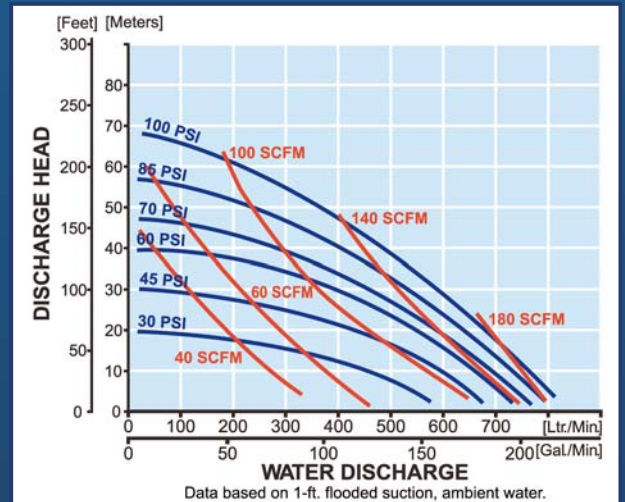
Rubber fitted pump capability: 19-feet

## Air Motor

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

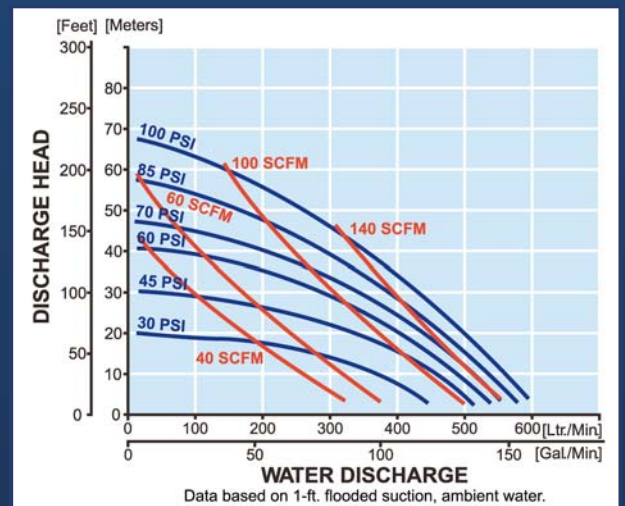
Notes: Hytrel® fitted pumps include Buna N wetted o-rings.  
Santoprene® fitted pumps include EPDM wetted o-rings.  
AutoCAD® drawings are available on CDROM or at yamadapump.com.  
Additional options listed on page 32.

## Rubber Diaphragm Performance Curve

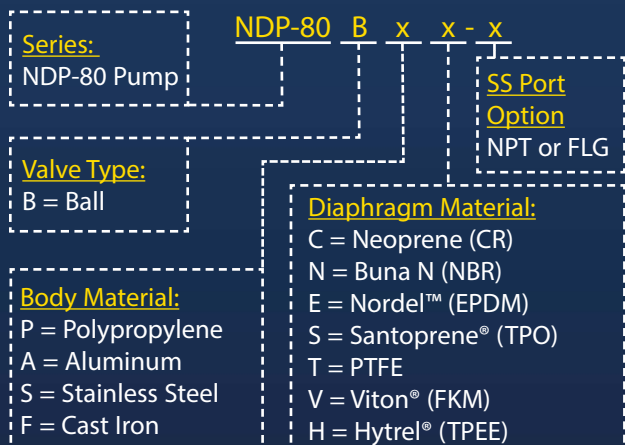


To calculate performance for Santoprene® and Hytrel® fitted pumps, use Rubber Diaphragm Curve.

## PTFE Diaphragm Performance Curve



## Model Number Nomenclature



# Yamada® SolidPRO®

**Yamada SOLID PRO**  
Designed to Pump Fluids Containing Solids

## Designed to Pump Fluids Containing Solids

The Yamada® SolidPRO® pump is designed to pump fluids containing solids up to 2 inches (50mm) in diameter. Built on the foundation of the NDP Series line of pumps, the SolidPRO incorporates the Yamada patented stall-free/lube-free air valve and rugged, easy-to-service bolted construction.

Designed for durability in the field, the SolidPRO pump's innovative flap-type check valve technology provides streaming passage of solids while minimizing clogging and downtime. Four external bolts release valve covers on either side permitting service and maintenance without removing the pump from service.

## Design Specifications

Nominal Diameter:	2 inch (50 mm)
Fluid Connections:	NPT 2" or ANSI flange 150# 2"
Air Connection:	NPT 3/4" / NPT 1"
Normal Air Supply Pressure:	30 -100 PSI (0.2 -0.7 MPa)
Maximum Discharge Pressure:	100 PSI (0.7 MPa)
Discharge Volume per Cycle:	1.056 GPM (4.0 L/min)
Slurry Limitation:	maximum 2" solids
Weight:	110 lbs (50 kg)



Yamada® SolidPRO® streams liquids with solids content up to 2 inches diameter

# Xtreme Duty Pro XDP®

## For Xtremely Demanding Process Applications

The Yamada® Xtreme Duty Pro XDP® is designed for use in process type applications including filter press, high pressure, extended deadheading, long runs of discharge pipe, and where air consumption is critical.

Available in 1-1/2", 2" and 3" port sizes, these pumps are built on the liquid platform of a standard NDP Series pump, but with a **mechanically-actuated air motor**.

Air power is conserved by actuating the air valve using a mechanical linkage instead of relying on air pressure. Air power is reduced versus a standard air-actuated valve, providing higher pump efficiency.

Yamada® Xtreme Duty Pro XDP® pumps are capable of running on air pressure equivalents as high as 125 PSI or as low as 5 PSI and provide the same liquid side performance as the NDP series pumps.



Yamada® XDP-40® aluminum (left) and polypropylene

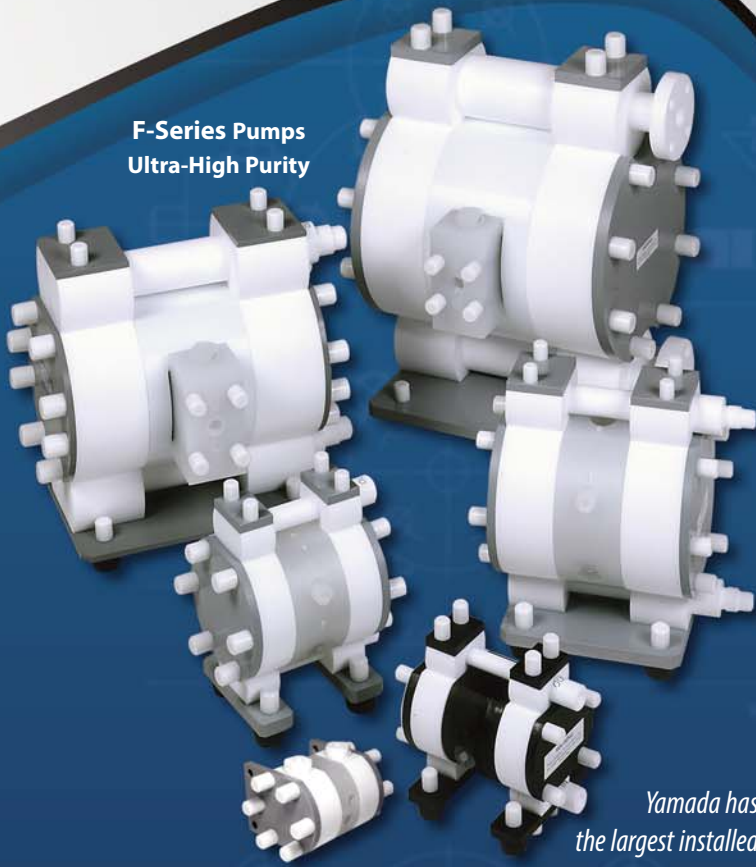


YAMADA®



# Yamada® F-Series

F-Series Pumps  
Ultra-High Purity



Yamada has the largest installed base of high-purity pumps in the world!

## Clean Room Ultra-High Purity

Extensively field proven, Yamada® F-Series clean room manufactured pumps are specifically designed for the safe and efficient transfer of **ultra high-purity process chemistries**. They provide maximum corrosion resistance, ultra high-purity levels and low particle generation.

Pumps include 100% machined virgin PTFE diaphragms, liquid chambers and manifolds.

F-Series pumps are available in six sizes

Fluid connections	Flaretek®, ANSI Flange, or FNPT
Flow rate	1 to 35 GPM
Air control	internal shuttle valve or external timer-based control
Air pressure range	20 to 100 PSI
Temperatures up to	212°F (100°C)

For additional information, please request the *Yamada High-Purity PTFE Pumps* catalog or visit [yamadapump.com](http://yamadapump.com).

Model NDP-50 HP



Model NDP-25 HP

# Yamada® High Pressure

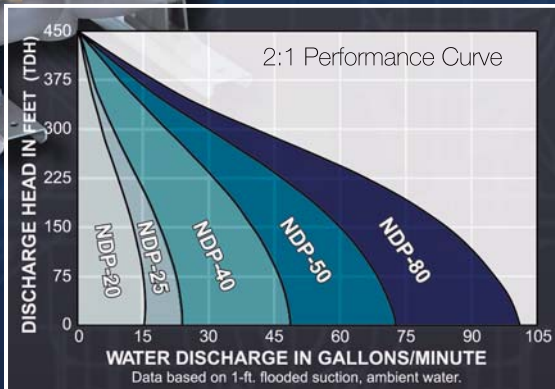
## 2:1 Ratio Pumps

Yamada® **High Pressure Pumps** are designed for applications when a maximum 100 PSI operating pressure is insufficient to overcome system requirements.

The flow rate is roughly half of the equivalent size pump output, though a maximum discharge pressure of 200 PSI can be achieved with only 100 PSI air inlet pressure supplied.

The 2:1 discharge ratio is achieved by applying air pressure to the surface area of both diaphragms, doubling the discharge output.

Port sizes: 3/4" to 3"	Capacity: 1 to 100 GPM
Construction:	Stainless Steel, Cast Iron, or Aluminum wetted materials
Diaphragm:	Choice of six elastomers
Controls:	No elaborate bypass, relief valves, or complicated controls required. Excellent pressure retention.



# Yamada® Drum Pumps

Yamada APDD Pumps have distinct design advantages, making them versatile and cost effective drum pumps.

Models are available in Polypropylene, PVDF (Kynar®), Aluminum, and Stainless Steel, which includes a 2" bung adapter and 33" suction tube.

Drum pumps are available in 3/8", 1/2", and 3/4" port sizes. (3/8" metal only & 1/2" plastic only) with flow rates up to 28 GPM.

Note: NDP-15 and NDP-20 plastic pumps utilize side ports with a 90° elbow atop the drum. Due to their weight, aluminum and stainless steel pumps utilize center ports to help maintain pump balance.

Refer to DP-10, NDP-15 & NDP-20 technical information for additional performance data. When ordering, use applicable NDP nomenclature, adding a "D" at the end of the model number. Other sizes and materials are available, consult Yamada.

## Port Dimensions

Intake & discharge connection:

**Aluminum (ADC-12)** 3/8" or 3/4" Female NPT  
Includes Aluminum Male NPT  
Bung adapter and suction pipe

**Stainless Steel (316)** 3/8" or 3/4" Female NPT  
Includes Stainless Steel Male NPT  
Bung adapter and suction pipe

**Polypropylene (PPG)** 1/2" or 3/4" Female NPT  
Includes PVC suction pipe, elbow,  
& Bung adapter (PPG also avail.)  
Note: Yamada recommends utilizing flat-type check valves for the  
NDP-15 series polypropylene pumps.

**Kynar® (PVDF)** 1/2" Female NPT  
Includes PVDF suction pipe, elbow, and Bung adapter  
Drum inlet connection 2" Bung

# Yamada® Powder Pumps

Yamada powder pumps are designed to move bulk powders more effectively throughout your process vs. other unsafe and labor intensive means. These heavy duty pumps will consistently transfer fine-grained, low-bulk density dry powders in a dust-free operation.

**Port sizes:** 1-1/2", 2", or 3"

**Construction:** Aluminum, Cast Iron, or Stainless Steel

**Availability:** Three series of pumps are offered, dependent upon requirements.

Also refer to the *Powder Pump flyer* and *Pumpable Powders data sheet*.

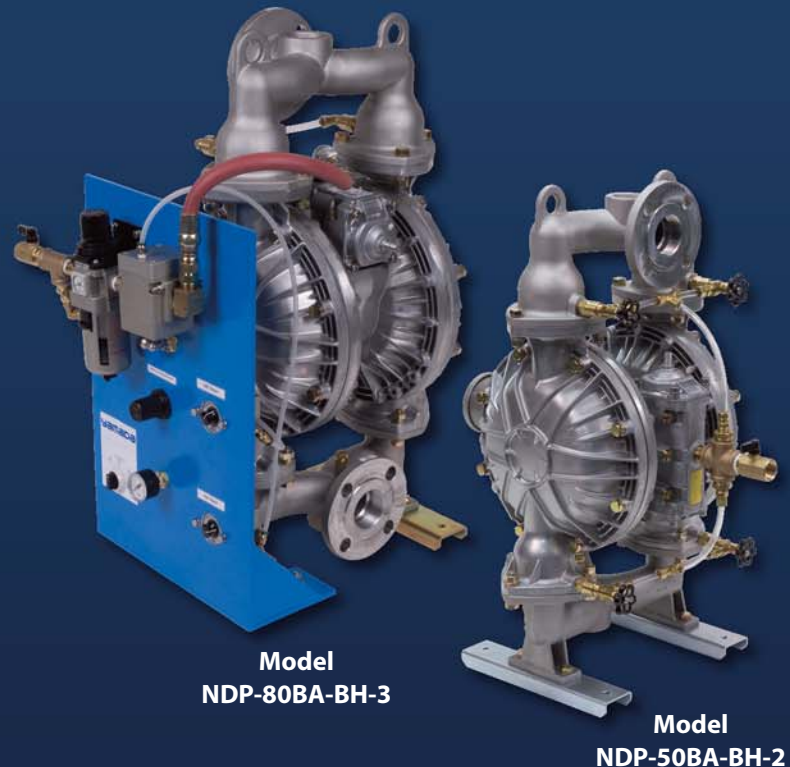
**Metal Drum Pump  
with Center Port**  
Port Sizes 3/8" or 3/4"



**Plastic Drum Pump  
with Side Port**  
Port Sizes 1/2" or 3/4"  
Kynar pumps 1/2" only

## FDA-Compliant Drum Pumps

Please consult the  
factory for details.



**Model  
NDP-80BA-BH-3**

**Model  
NDP-50BA-BH-2**



# FDA Compliant Pumps

**Yamada® FDA compliant pumps** are specifically designed for Food, Pharmaceutical & Cosmetic industries where 3A or USDA standards are not required.

Pumps include 316 Stainless Steel wetted components with passivated satin finish, PTFE-coated air motor, sanitary clamp fittings, and FDA compliant elastomers.

## Key features of Yamada® FDA series pumps:

- self-priming, lube-free air valve
- intrinsically safe and portable
- no mechanical seals
- ability to run dry without pump damage

Available in eight sizes from 3/4" to 4" ports with flow ranges from 1–215 gallons per minute.

## Sanitary Fitting / Flow Rate / Maximum Size Solid

NDP-5-FDA	3/4"	3.1 GPM	N/A
DP-10-FDA	3/4"	6.0 GPM	<1/32"
NDP-15-FDA	1"	13.5 GPM	<1/32"
NDP-20-FDA	1"	31.7 GPM	<1/16"
NDP-25-FDA	1-1/2"	46.2 GPM	<3/16"
NDP-40-FDA	2"	107 GPM	<9/32"
NDP-50-FDA	2-1/2"	164 GPM	<5/16"
NDP-80-FDA	4"	215 GPM	<13/32"

## FDA Compliant Elastomers

Diaphragm Material	Temperature
EPDM*	212°F (100°C)
PTFE	212°F (100°C)
Hytrel® (TPEE)	248°F (120°C)

\* EPDM available only for NDP-20 and larger pumps.

## Air Supply Pressure (all sizes)

20–100 PSI (1.4–7 kgf/cm<sup>2</sup>)

## Additional Option

20RA interior mechanical polish available for some models, consult Yamada.



FDA Compliant 316 Stainless Steel  
2", 2-1/2", and 4" sanitary ports



FDA Compliant 316 Stainless Steel  
1" and 1-1/2" sanitary port



FDA Compliant 316 Stainless Steel  
3/4" sanitary port

# Specialty Pumps

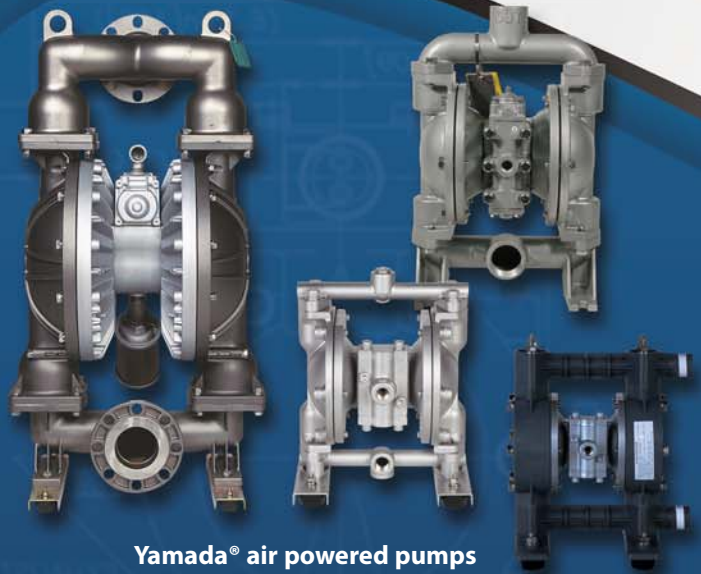
## Atex Compliant Pumps

### Yamada® ATEX Compliant Air Powered Pumps

Select Yamada® DP and Yamada® NDP Series pumps are compliant with ATEX guidelines for safe pump operation in potentially dangerous or explosive areas. Please consult Yamada.



II 2 GD IIB/IIC 95°C  
European Standard EN 13463-1:2001  
European Standard EN 809/ October 1998  
Directive 98/37/EC



Yamada® air powered pumps are intrinsically safe

## CSA Certified Pumps

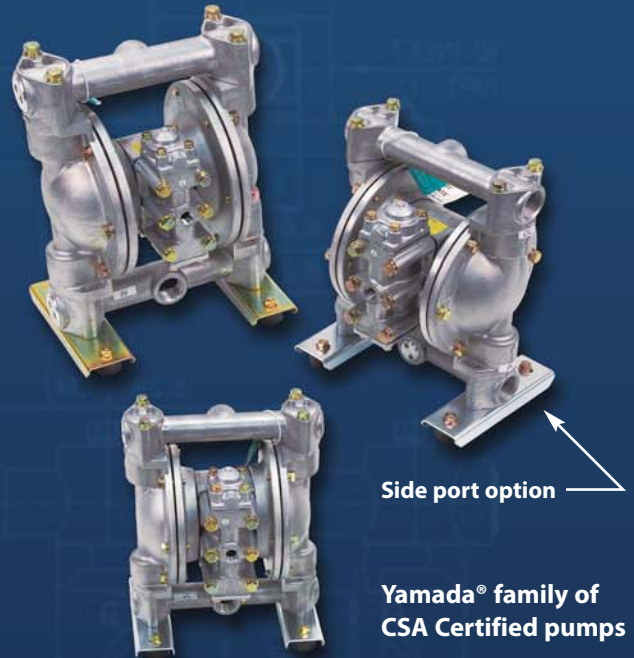
### Yamada® CSA Certified Aluminum Pumps

Yamada offers a series of three CSA certified pumps, each built on the consistently designed foundation of the field proven DP- and NDP-Series pumps. Pumps are constructed with aluminum wetted components and durable Buna N elastomers certified by CSA International.

Available in 3/4" & 1" port sizes with flow rates from 1–46 GPM. **Note:** CSA Certification Class 3305-10 & 3305-90 limits natural gas temperature range to 32°F–125°F.



CSA Gas Accessory Devices-  
Natural Gas-Operated  
Diaphragm Pumps



Side port option

Yamada® family of CSA Certified pumps

## U.L. Listed Pumps

### Yamada® U.L. Listed Code 79 Pumps

Yamada U.L. listed pumps are manufactured for the petrochemical, chemical, and petroleum industries to meet safety requirements established by Underwriters Laboratory Code 79. Pumps include Aluminum wetted components with durable Hytrel® and PTFE elastomers, approved by U.L. to transfer volatile fluids.

Pumps are available in 3/4" and 1" port sizes, with flow ranges from 1–46 gallons per minute.

U.L. Code 79 limits pump discharge pressures to no more than 50 PSI and pumping temperatures must adhere to the range of -20°F to 125° F.

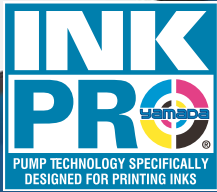


Listed  
Air-Powered Double Diaphragm Pump  
For Petroleum Products 19GL



Yamada® U.L. Listed pumps





# Printing Ink Pumps

## Yamada® InkPRO®

Yamada® InkPRO® 200  
Drum Type



Yamada® InkPRO® 140  
Tote Type



Yamada® InkPRO® 200  
Tote Type

### Pump Technology Specifically Designed for Printing Inks

The Yamada® InkPRO® series ink pumps were developed exclusively for the transfer of high viscosity printing inks for both roll-fed webs and high-volume sheet-fed printing presses.

Engineered with the same criterion as Yamada's industrial line of pumps, the Yamada® InkPRO® incorporates a non-stalling, outside accessible air valve and bolted frame construction.

Yamada® InkPRO® ink pumps are available in two types and three sizes: Drum type and Tote type; InkPRO® models 140, 200, and 250.

#### Design Features

##### Outside Accessible Air Valve

Air valve is replaceable without removing the pump from service.

##### Unique Inductor Plate (drum type)

The transformable sealing system (U.S. patent no. 6,422,430) is designed to allow for very easy and clean drum changes.

##### Oil Container

The visible plastic oil container protects against ink leakage (see through container), maintains a lubricated plunger, and extends gasket life. Lubrication maintenance is minimal.

##### Low-Level Sensor

Easily adjustable pneumatic low-level sensor prevents pump dry running.

##### Anti-Freezing Design

The high efficiency air valve is designed to reduce air consumption and cycling speed is optimized to eliminate freezing.

##### Ink Metering

Precision, high quality construction insures consistent, accurate ink flow.

##### Less Noise

Quiet operation (less than 70dB within 3 feet) vs. competitive models.

##### Optional

Flat Inductor Assembly

# Filter/Regulators

## Yamada® FR/FRL Filter/Regulators

These easy-to-install filter/regulators provide the precise pressure control necessary to optimize pump performance and efficiency. They feature built-in moisture and particulate removal to 5 microns, analog pressure gauge, "locking" pressure control, standard manual drain, with optional automatic drain available. The automatic drain option is recommended for long term performance.

**Broad Operating Parameters** – Handles operating pressures from 7 psig to 125 psig and temperatures from 40 to 140°F.

**Precise Pressure Adjustment** – Locking adjustment knob provides precise and secure pressure control and allows for infinitely variable flow rates.

**Quick Release Bayonet Polypropylene Bowl** – Provides access to filter element with quick 1/4-turn of the bowl.

**High Visibility Bowl Guard** – Unique liquid level indicator allows monitoring up to 30 ft. away and 20 angles.

**Embedded Pressure Gauge**

**Optional** – Auto drain available for all filter/regulators.

\* Lubrication oil bottle included



**FR-1** fits NDP-5, 15, & 20  
**FR-3** fits NDP-25  
**FR-4** fits NDP-40  
**FR-5** fits NDP-50 & 80



**FRL-2\*** fits DP-10  
**FRL-4\*** fits XDP-40  
**FRL-5\*** fits XDP-50 & 80

# Pump Controllers

## Yamada® YSC-3EX and YSC-3B Controllers

**YSC Series Pump Controllers** are designed to control the operating speed of solenoid-operated air-powered double diaphragm pumps.

The YSC-3EX is a state-of-the-art controller used to maintain a predetermined cycle rate. The YSC-3B is used for batch metering applications.

**Controller functions:**

Speed control  
 (cycle rate or flow rate),  
 batch control

**Speed range:** 1–400 cycles per minute

**Operating voltage:** 110 VAC (220V–240V available)

**Output voltage:** 12 VDC

*pump sold separately*



**YSC-3EX (left) / YSC-3B (right)**  
 Pump Controllers



# Liquid Level Controller



**LLC-2Y**  
Liquid Level Controller



**VGA-342**  
Power Valve

## Yamada® LLC-2Y Liquid Level Controller

The Yamada® LLC-2Y Liquid Level Controller is a completely pneumatic system designed to **automatically start and stop** Yamada® air-powered double diaphragm pumps when the liquid level within a tank, sump, etc. reaches predetermined levels.

An extremely versatile controller, the LLC-2Y can be used in both **single and dual pump** applications with any size or model Yamada® pump. Used in a single pump configuration, it automatically controls either the filling or emptying of a tank or other vessel. When connected to two separate pumps, it will control both the filling and emptying of the tank. This **dual pump capability** is particularly useful for waste water storage, contaminated water clean up, and other applications where liquids are regularly transferred into and out of a single vessel.

The LLC-2Y consists of a sophisticated **air logic control valve** housed in an impact-resistant fiberglass reinforced plastic enclosure. As the liquid level within the tank rises or falls, the subtle changes in pressure are transmitted through high and low level dip tubes to the air logic control valve. When the liquid level reaches a **predetermined level** (tubing is cut in the field to the preferred HIGH and LOW level points), the power valve supplying air pressure to the pump is turned ON or OFF as required.

The LLC-2Y is capable of **maintaining liquid levels** in virtually any unpressurized vessel. Its liquid level control span ranges from a few inches to dozens of feet. For added convenience, it may be mounted up to 20 feet away from the pump.

## Dry-Run Detection

### Yamada® DRD-100 Dry-Run Detector

The Yamada® DRD-100 detects increases in air volume due to loss of prime or dry-running, and automatically shuts down the pump to prevent excess cycling and increased diaphragm wear.

---

Extends life of diaphragm

---

Eliminate air consumption in dry run applications

---

Prevents air valve from premature failure

---

Intrinsically safe operation

---

Supports remote warning systems

---



**DRD-100**  
Dry-Run Detector

SUPPLY	SET
25PSI	15PSI
40PSI	25PSI
55PSI	40PSI
70PSI	55PSI
85PSI	70PSI
100PSI	85PSI

# Pulsation Dampeners

## Yamada® AD Series Pulsation Dampeners

### Metering / Injection / Dosing

Equalizes discharge pressure spikes, increasing accuracy.

### Filter Press/Inline Filters

Increases filter efficiency and life by providing a smooth flow.

### Spraying

Smooth, consistent spray pattern.

### Filling

Eliminates inconsistent filling and splashing.

### Transfer

Eliminates harmful water hammer, preventing pipe and valve damage.

Yamada® AD Pulsation Dampeners incorporate a flow-through design which keeps solids in suspension, maintaining dampener effectiveness.

A completely automatic air motor self-relieves if reduction of discharge head condition occurs.

**Port Sizes:** 3/8", 1", 1-1/2", and 2"

Dampener Model	Fits Pump Models
AD-10 (3/8" port)	NDP-5, NDP-15, DP-10, DP-15
AD-25 (1" port)	NDP-20, NDP-25, NDP-32
AD-40 (1-1/2" port)	NDP-40, XDP-40
AD-50 (2" port)	NDP-50, NDP-80, XDP-50, XDP-80

### Material

Aluminum (ADC-12)	All models
Stainless Steel (316)	All models
Cast Iron	AD-25, AD-40, AD-50
Polypropylene (PPG)	All models
Kynar®	AD-25, AD-50

### Diaphragm

Choice of seven elastomers.

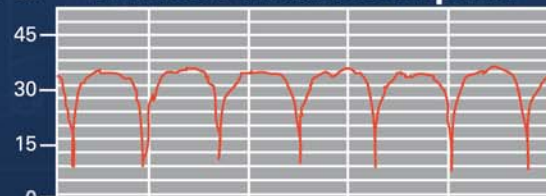
### Air Side Coating Option

PTFE grey coating (XP)

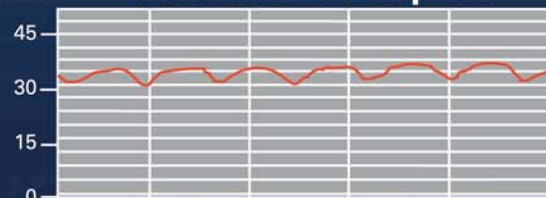
For additional information see the *Yamada AD Dampeners* flyer. Refer to inside back cover for installation diagram.



PSI Without Pulsation Dampener



PSI With Pulsation Dampener





# Pump Diaphragms



## Rubber Compounds

### Neoprene (CR)

Excellent for non-corrosive abrasive applications.

Identification: Dull Black with No Dot

Temperature Range: 0°F to 180°F

### Buna-N (NBR)

Excellent for petroleum based fluids.

Identification: Black with a Red or Pink Dot

Temperature Range: 10°F to 180°F

### Nordel™ (EPDM)

Excellent for low temperatures, caustics and some acids.

FDA Compliant Material (must be specified).

Identification: Black with Green Dot

Temperature Range: -40°F to 212°F

### Viton® (FKM)

Excellent for aggressive fluids and high temperature applications.

Identification: Black with Silver or Blue Dot

Temperature Range: -20°F to 248°F

## What to Consider When Selecting the Proper Diaphragm Material

- Chemical resistance
- Cost
- Estimated flex life
- Temperature limitations
- Abrasion resistance

## Thermoplastic Compounds

### Hytrel® (TPEE)

Excellent general-purpose diaphragm for non-corrosive abrasive applications and high-flex life. FDA compliant material.

Identification: Tan/Cream material with No Dot

Temperature Range: 0°F to 248°F

### Santoprene® (TPO)

Excellent for acids or caustics with a very high flex life.

Identification: Black Thermoplastic

Temperature Range: -10°F to 180°F

### PTFE

Excellent choice for pumping highly aggressive fluids, including solvents.

Identification: White diaphragm with No Dot

Temperature Range: 40°F to 212°F

■ Please note that excessive inlet pressure or excessive suction lift can shorten diaphragm life. Please consult Yamada when both the pressure and temperature exceed 70 PSI and 180°F, respectively.

## Optional Coatings

Air motor PTFE grey coating (XP) is available for Yamada pumps for two primary reasons:

**Environment:** Pump installation in a chemically aggressive location where material or fumes *not compatible with aluminum* may contact the air motor.

**Diaphragm Failure:** If properly selected, the coating or plating will *defend the major aluminum air valve components* from the fluid being pumped.

For internal and external protection, the four major air motor components are independently coated, then assembled.

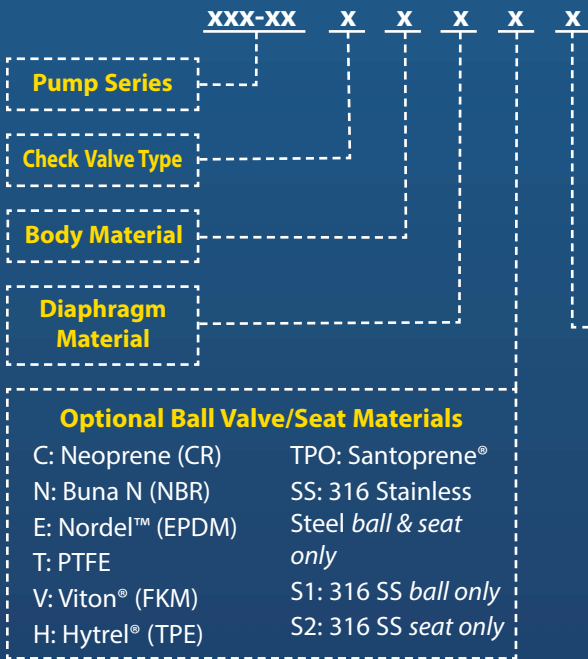
*Note: Coating is not available for NDP-5 & NDP-15 series pumps.*



PTFE Grey Coating (XP)

# Pump Options

## Model Number Nomenclature



## 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

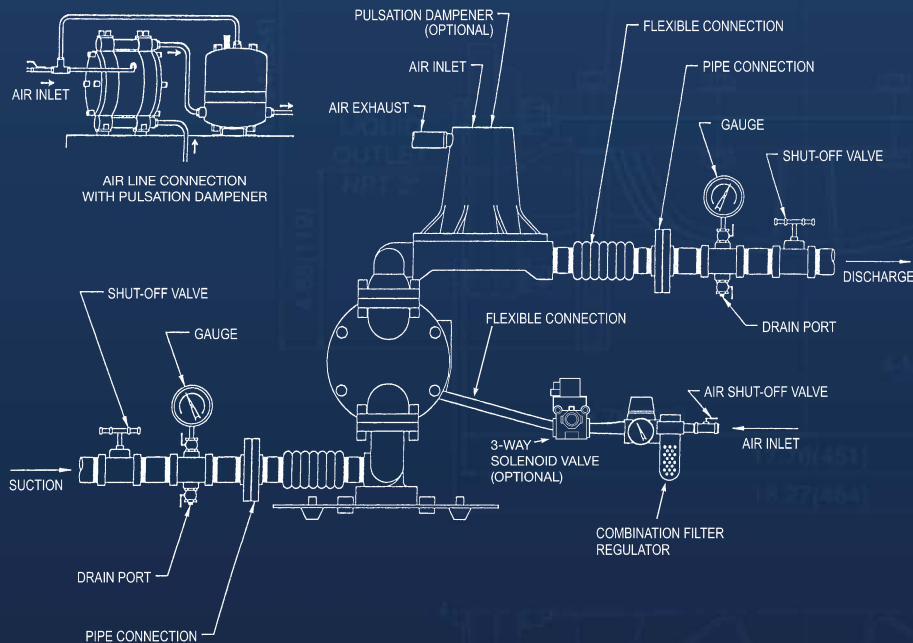
- AP: Abrasion pads
- L: Destroke (NDP-20—80)

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

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

A complete specification form and pump selector is available at [yamadapump.com](http://yamadapump.com)

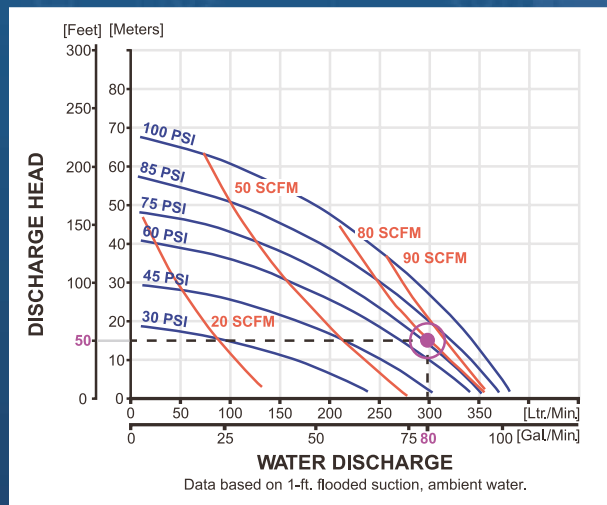
## Ideal Air-Powered Double Diaphragm Pump Installation





# Pump Requirements

## Using Performance Curves



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.

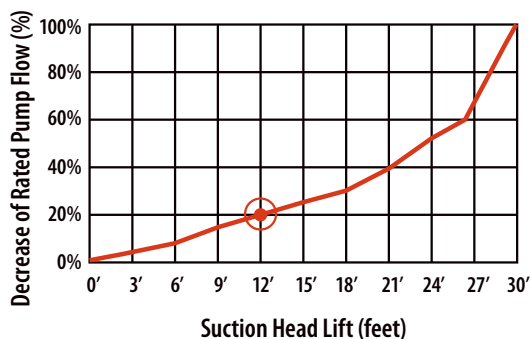
Point A (⊙) on the performance curve is where the desired Flow Rate (GPM) and Total Dynamic Head (TDH) points intersect. This point determines compressed air requirements for the particular pump.

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

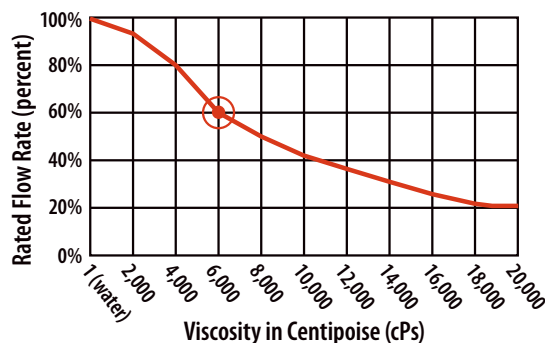
### Decrease in Flow Rate as Suction Head Lift Rises



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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Due to Yamada's continued commitment to product improvement, specifications may change without notice.

*Engineers and Manufacturers of*

## Air-Powered Double Diaphragm Pumps



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