AMCAL
INDUSTRIAL PUMP SOLUTIONS

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PRODUCT GUIDE

AIR POWERED PUMP TECHNOLOGY
MANUFACTURED IN JAPAN



yamada

ABOUT YAMADA...



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Yamada Corporation has been a leading producer of industrial equipment since 1905, and for pneumatic pumps for over 77 years. As a leader in pneumatic pumping technology, Yamada is known in many industries worldwide for its innovative products, superior quality and unmatched reliability. Yamada has an impressive history of delivering new products and solving customer problems which confirm Yamada's position as the industry leader.

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.

Yamada Corporation has its primary headquarters in Tokyo, Japan, with manufacturing based in Sagamihara City. Assembly facilities are located in Chicago, Illinois, USA and Hengelo, The Netherlands; an office in Thailand; and Shanghai is covering the emerging markets of China. These offices are supportcenters for over 400 Yamada distributors worldwide.

Yamada Europe B.V., a wholly owned subsidiary of Yamada Corporation, was established in 1986 to provide sales and service and support for Europe, the Middle East and Africa, through a highly trained network of distributors.

Our professional staff provides:
- Customer service
- Product training
- Research & development
- Parts and service for all Yamada pumps
- Application engineering
- Industry knowledge

With a wide customer network, Yamada is in position to service the global market needs worldwide. Contact Yamada Europe for the closest distributor location.

We build our pumps with quality and innovation. This is the cornerstone of the Yamada design and manufacturing process.

For additional information, product literature, and drawings please visit www.yamada-europe.com or contact our sales team at +31 (0)74-24 220 32.



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ENGINEERED TO PERFORM

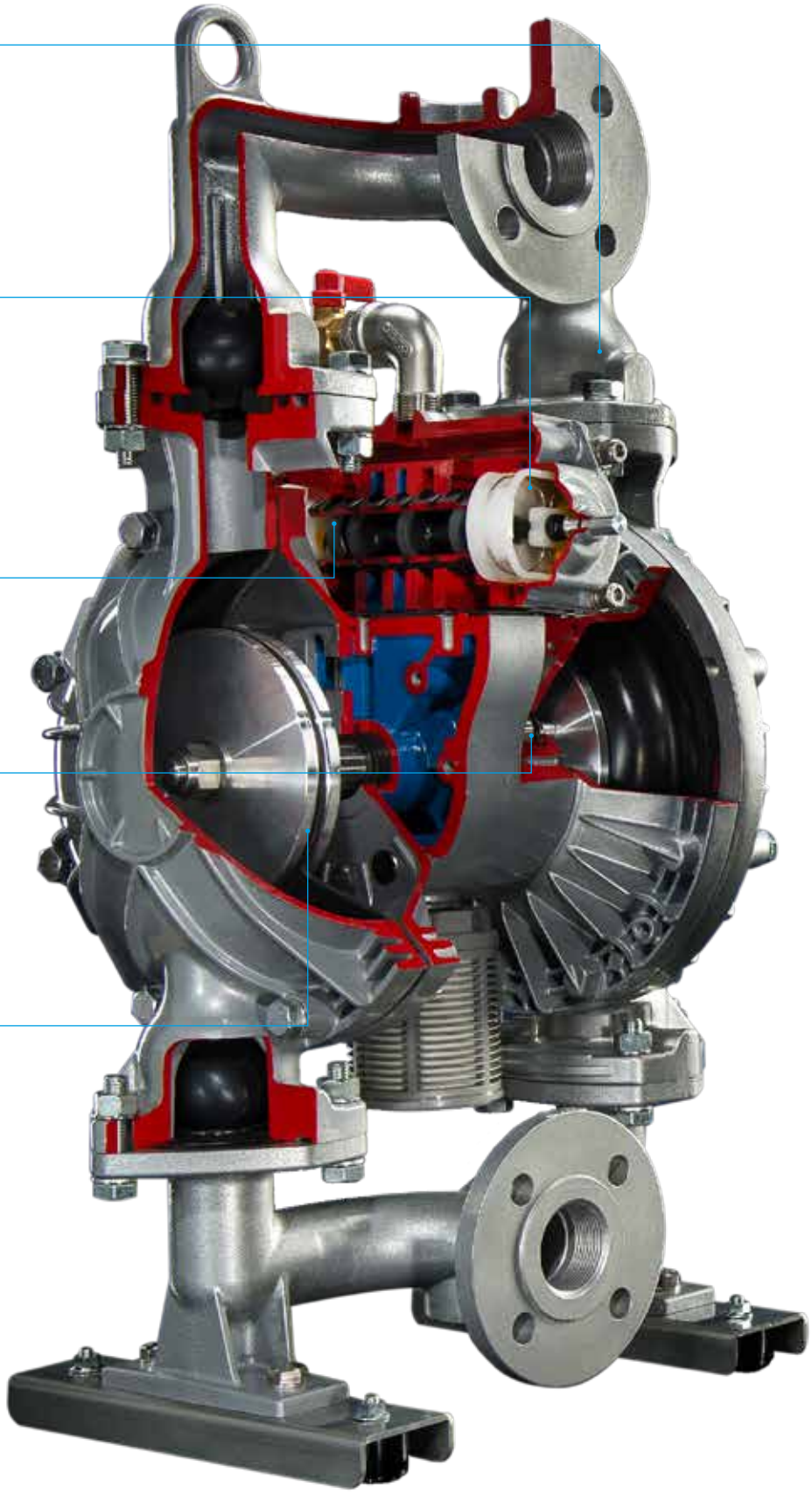
Fully bolted leak free mating surfaces
All Yamada pumps incorporate registered fit bolted construction, which simplifies reassembly after maintenance. No leak-prone clamp bands are utilized.

One air valve fits all
The NDP-40, 50 & 80 series pumps utilize one common air valve assembly, reducing parts inventory and assembly confusion. The NDP-20 & 25 have a common air valve as well. One air valve concept is used in all Yamada NDP series pumps!

Outside accessible
Inspection or maintenance of every Yamada air valve can be performed without removing the pump from service.

Pilot valve
Unique design is an individual modular pilot valve that actuates the air valve. It is maintenance- free, with no cumbersome snap rings or lubricated dynamic o-rings to replace or repair.

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



BUILT TO LAST

AIR VALVE TECHNOLOGY

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

To simplify, Yamada offers two common size air valve assemblies within five sizes of pumps (3/4" & 1" pumps and 1-1/2" 2" & 3" pumps) further reducing reassembly confusion and parts inventory. We try to unify to reduce multiple air valve designs and revisions. 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 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.

Component Replaceable

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

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 (closing a valve in the discharge without closing the air pressure) applications for reliable startup.



Common-size air valve assemblies reduce parts confusion.



Air Valve fits
NDP–20 (3/4")
NDP–25 (1")
Series Pumps

Air Valve fits
NDP–40 (1-1/2")
NDP–50 (2")
NDP–80 (3")
Series Pumps



For additional information on Yamada products and services, visit www.yamada-europe.com

TEN FEATURES OF A YAMADA DIAPHRAGM PUMP

1. Handles 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) allows for high suction lift even at dry start-up and with heavier fluids.
3. Ability to run dry: No close fittings 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 your air supply line and liquid lines; the pump is ready to perform. There are no complex controls to install and 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 makes Yamada pumps an excellent choice for shear sensitive fluids.
8. Explosion Proof: Yamada pumps are operated by compressed air, therefore, they are intrinsically safe.
9. Submersible: If external components are compatible– Yamada pumps can be submerged in the liquid 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.

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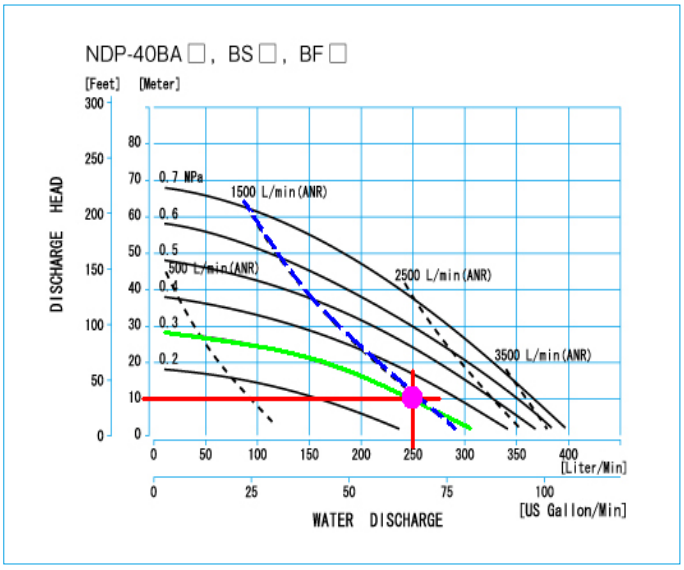
ATEX

Yamada offers also pumps and dampeners according ATEX 114 Explosion safety guidelines.
For additional information please contact our sales team at +31 (0)74-24 220 32

UNDERSTANDING 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 (l/min or GPM)
2 Total Dynamic Head (back pressure)
10 m water height is 1 Bar (0,1 MPa) back pressure.
As an example, consider an NDP-40 Series Pump with rubber diaphragms performance curve. Pump pumping at 250 l/min (66 GPM) (|) at 10 m (33 Feet) (–) back pressure.
Point "•" on the performance curve is where the desired Flow Rate (l/min or GPM) and Total Dynamic Head points intersect. This point determines compressed air requirements for the particular pump.

At performance point "•", the pump will require approximately 3 Bar (0,3MPa or 45 PSI) air inlet pressure.
To arrive at this figure, follow the solid curve (–) to the left to read the air pressure rating in MPa.
By looking at the dashed line (·····), it is determined the pump will require approximately 1500 l/min of air volume.



0,1 MPa	= 1 Bar
1 Bar	= 14,5 PSI
1 l	= 0,26 Gallon (gal.)
1 m	= 3,28 Feet (ft.)
1 m^3/h	= 0,58 SCFM
1000 l/min	= 34 SCFM
SCFM	= Standard Cubic Feet Per Minute

NDP-5 SERIES

Maximum Capacity 11,7 l/min (3,1 GPM)
Port Size 1/4" (5 mm)



NDP-5 Polypropylene
Dimensions:
156 mm W x 152 mm H
Net Wt.: 1,36 kg
Shipping Wt.: 1,81 kg

NDP-5 Conductive Kynar®
Dimensions:
156 mm W x 152 mm H
Net Wt.: 1,67 kg
Shipping Wt.: 2,1 kg



NDP-5 Conductive Acetal
Dimensions:
156 mm W x 152 mm H
Net Wt.: 1,67 kg
Shipping Wt.: 2,1 kg



NDP-5 Stainless Steel
Dimensions:
155 mm W x 149 mm H
Net Wt.: 2,68 kg
Shipping Wt.: 3,1 kg

NDP-5 Aluminum
Dimensions:
155 mm W x 149 mm H
Net Wt.: 1,5 kg
Shipping Wt.: 1,9 kg



NDP-5 SPECIFICATIONS

Port Dimensions

Intake & discharge connection:	1/4" 5 mm Female Rc
Air inlet (incl. ball valve):	1/4" 5 mm Female Rc
Air exhaust (internal silencer):	3/8" 10 mm Female Rc

Air Supply Pressure (All Models)
1,4 – 7 Bar (0,14 – 0,7 MPa)

Discharge Volume Per Cycle
29 cc

Maximum Cycles Per Minute: 400

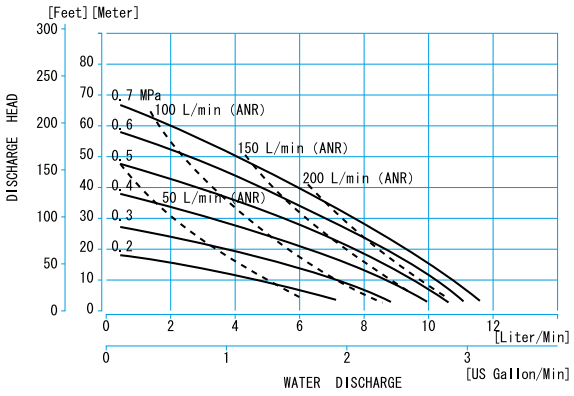
Maximum Dry Suction Lift: 1,5 m

Air Motor
Standard: Ryton® air motor

Model Number Nomenclature

Polypropylene (PPG)	NDP-5FPT
Conductive Kynar® (PVDF)	NDP-5FVT
Conductive Acetal (POM)	NDP-5FDT
Aluminum (ADC-12)	NDP-5FAT
Stainless Steel (316)	NDP-5FST

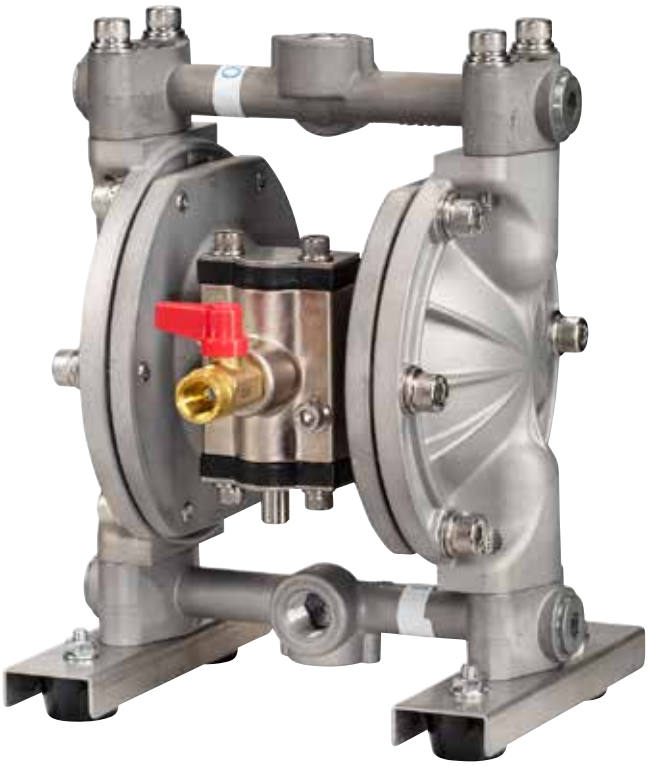
NDP-5 serie Performance Curve



DP-10 SERIES / DP-15 SERIES

Maximum Capacity 22 l/min
Port Size 3/8" (10 mm)

Maximum Capacity 28 l/min
Port Size 1/2" (15 mm)



DP-10 Aluminum
Dimensions:
186 mm W x 241 mm H
Net Wt.: 3,6 kg
Shipping Wt.: 4, 5 kg

DP-10 Polypropylene
Dimensions:
196 mm W x 196 mm H
Net Wt.: 3,1 kg
Shipping Wt.: 4,0 kg



DP-15 Polypropylene
Dimensions:
246 mm W x 297 mm H
Net Wt.: 4,0 kg
Shipping Wt.: 5,4 kg



DP-10 Stainless Steel
Dimensions:
186 mm W x 241 H
Net Wt.: 5,3 kg
Shipping Wt.: 6,2 kg



DP-10 / DP-15 SERIES SPECIFICATIONS

DP-10 Port Dimensions

Intake & discharge connection:	
Polypropylene (PPG)	3/8" 10 mm Female Rc
Aluminum (ADC-12)	3/8" 10 mm Female Rc
Stainless Steel (316)	3/8" 10 mm Female Rc

DP-15 Port Dimensions

Intake & discharge connection:	
Polypropylene (PPG)	1/2" 15 mm Female Rc
Conductive Acetal (POM)	1/2" 15 mm Female Rc

Air Inlet/Exhaust

Air inlet (incl. ball valve):	1/4" 5 mm Female Rc
Air exhaust (incl. silencer):	3/8" 10 mm Female Rc

Air Supply Pressure (All Models)

1,4 – 7 Bar (0,14 – 0,7 MPa)

Discharge Volume Per Cycle

DP-10: 76 cc
DP-15: 93 cc

Maximum Cycles Per Minute

All diaphragms: 300

Maximum Size Solid

1,0 mm (1/32")

Maximum Dry Suction Lift

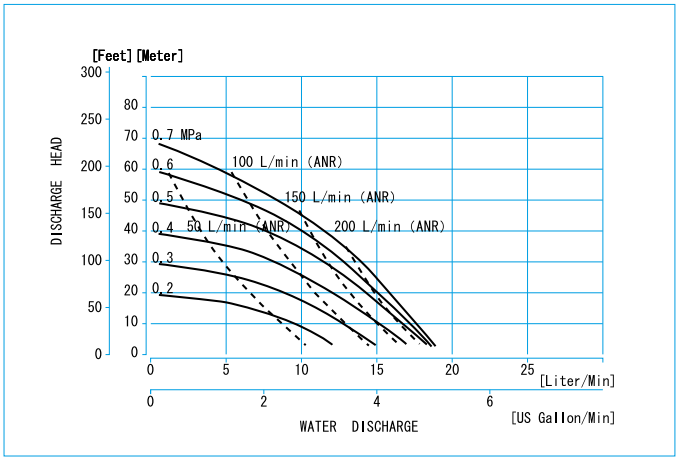
All diaphragms: 3 m

Air Motors

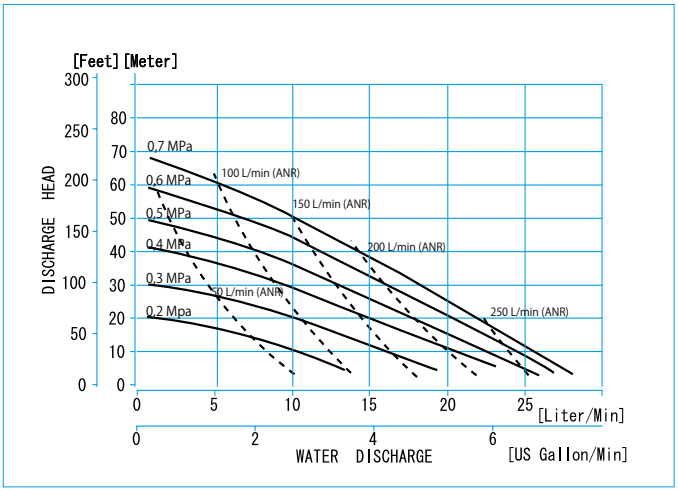
Standard: Aluminum
Optional: Teflon®-coated or Electroless Nickel Plate

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

DP-1X X X X

Series:
DP-10 pump
DP-15 pump

Valve Type:
B = Ball
F = Flat

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

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

DP-15 standard with flat valves.
Ball valve is optional.
Additional options listed on page 35.

NDP-10 SERIES / NDP-15 SERIES

Maximum Capacity 22 l/min
Port Size 3/8" (10 mm)

Maximum Capacity 51 l/min
Port Size 1/2" (15 mm)

NDP-10 Polypropylene
Dimensions:
185 mm W x 190 mm H
Net Wt.: 2,74 kg
Shipping Wt.: 3,5 kg





NDP-15 Conductive Kynar®
Dimensions:
220 mm W x 298 mm H
Net Wt.: 4,3 kg
Shipping Wt.: 5,0 kg



NDP-15 Polypropylene
Dimensions:
220 mm W x 298 mm H
Net Wt.: 3,5 kg
Shipping Wt.: 4,3 kg

NDP-15 Aluminum
Dimensions:
220 mm W x 272 mm H
Net Wt.: 4,0 kg
Shipping Wt.: 5,0 kg

NDP-15 Stainless Steel
Dimensions:
212 mm W x 246,4 mm H
Net Wt.: 6,2 kg
Shipping Wt.: 7,0 kg



NDP-10 / NDP-15 SERIES SPECIFICATIONS

NDP-10 Port Dimensions

Intake & discharge connection:	
Polypropylene (PPG)	3/8" 10 mm Female Rc

NDP-15 Port Dimensions

Intake & discharge connection:	
Polypropylene (PPG)	1/2" 15 mm Female Rc
Conductive Kynar® (PVDF)	1/2" 15 mm Female Rc
Conductive Acetal (POM)	1/2" 15 mm Female Rc
Aluminum (ADC-12)	1/2" 15 mm Female Rc
Stainless Steel (316)	1/2" 15 mm Female Rc

Air Inlet/Exhaust

Air inlet (incl. ball valve):	1/4" 5 mm Female Rc
Air exhaust (internal silencer):	3/8" 10 mm Female Rc

Air Supply Pressure (All Models)

1,4 – 7 Bar (0,14 – 0,7 MPa)

Discharge Volume Per Cycle

NDP-10: 50 cc
NDP-15: 128 cc

Maximum Cycles Per Minute

All diaphragms: 400

Maximum Size Solid

1,0 mm (1/32")

Maximum Dry Suction Lift

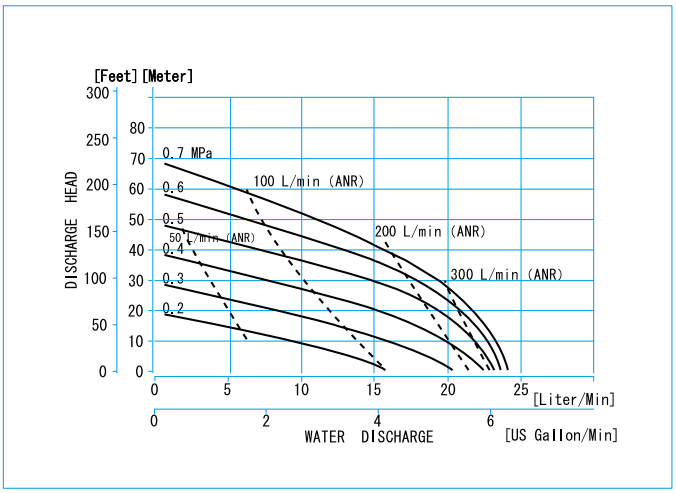
NDP-10: All diaphragms: 1,5 m
NDP-15: Flat-type check valve: 2,4 m
Ball-type check valve: 1,5 m

Air Motor

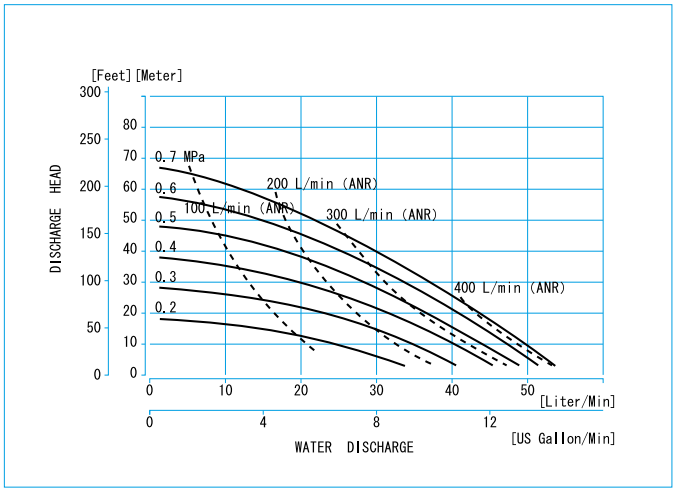
Standard: Ryton® air motor

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 Teflon® include Teflon® o-rings.
Flat valves are standard PTFE.

NDP-10 Series Performance Curve



NDP-15 Series Performance Curve



Model Number Nomenclature

NDP-1X X X X

Series:
NDP-10 pump
NDP-15 pump

Valve Type:
B = Ball*
F = Flat*

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

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

* NDP-10 standard in PPG execution only
* Flat valves standard for NDP-15 Plastic pumps
* Ball valves optional for PPG pumps NDP-15 only

Additional options listed on page 35.

NDP-20 SERIES

Maximum Capacity 120 l/min
Port Size 3/4" (20 mm)



NDP-20 Aluminum
Dimensions:
249 mm W x 320 mm H
Net Wt.: 9,0 kg
Shipping Wt.: 10,4 kg

NDP-P20 Polypropylene–Rc
Dimensions:
316 mm W x 368 mm H
Net Wt.: 8,2 kg
Shipping Wt.: 10,2 kg



NDP-P20 Polypropylene–DN Flange
Dimensions:
316 mm W x 375 mm H
Net Wt.: 8,2 kg
Shipping Wt.: 10,2 kg



NDP-20 Stainless Steel
Dimensions:
249 mm W x 320 mm H
Net Wt.: 13,9 kg
Shipping Wt.: 14,5 kg



NDP-20 SERIES SPECIFICATIONS

Port Dimensions

Intake & discharge connection:

Polypropylene (PPG)	3/4" 20 mm Female Rc
Aluminum (ADC-12)	3/4" 20 mm Female Rc
Stainless Steel (316)	3/4" 20 mm Female Rc
Air inlet (incl. ball valve):	3/8" 10 mm Female Rc
Air exhaust (incl. silencer):	3/4" 20 mm Female Rc

DN & ANSI Flange also available—consult Yamada.

Notes: Flange connections are equivalent to DN 20 PN 10 and JIS 10K 20A and ANSI 150 3/4 B

Air Supply Pressure (All Models)

1,4 – 7 Bar (0,14 – 0,7 MPa)

Discharge Volume Per Cycle

Rubber diaphragm: 615 cc
PTFE diaphragm: 539 cc

Maximum Cycles Per Minute

Rubber diaphragm: 195
PTFE diaphragm: 195

Maximum Size Solid

2,0 mm (1/16")

Maximum Dry Suction Lift

Rubber-fitted pump capability: 5,5 m

Air Motors

Metal pumps standard with aluminum motor.
Options for aluminum motor: Teflon®-coated protection
Electroless Nickel plate
Plastic pumps standard with PPG motor.
PPG motor also optional for metal pumps.

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

Model Number Nomenclature

NDP-(P) 20 B X X

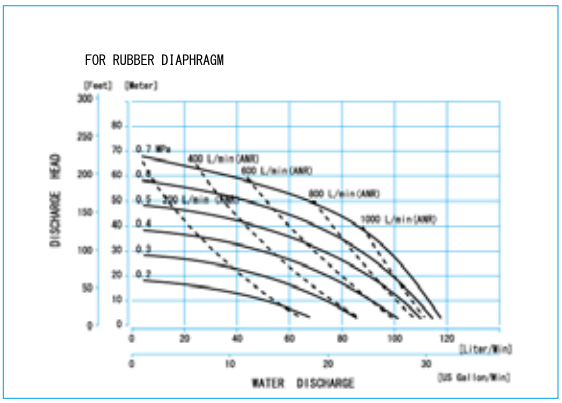
Series:
NDP-20 pump

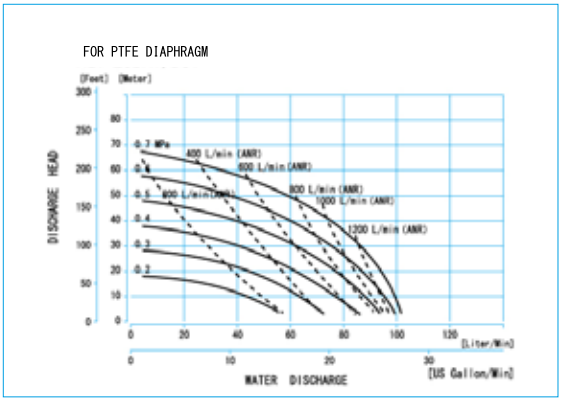
Valve Type:
B = Ball

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

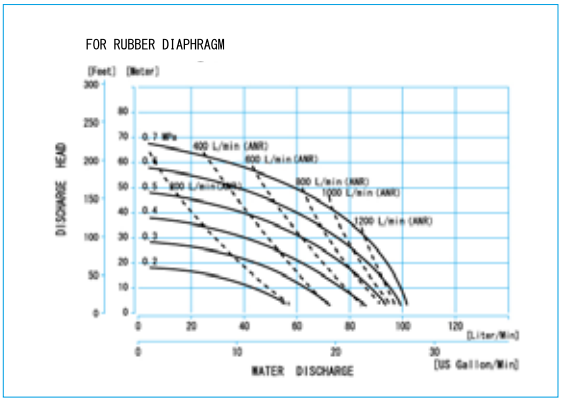
Diaphragm Material:
C = Neoprene (CR)
N = Buna N (NBR)
E = Nordel™ (EPDM)
S = Santoprene® (TPO)
T = Teflon® (PTFE)
V = Viton® (FKM)
H = Hytrel® (TPEE)
TU = Ultimate Teflon (PTFE/EPDM)

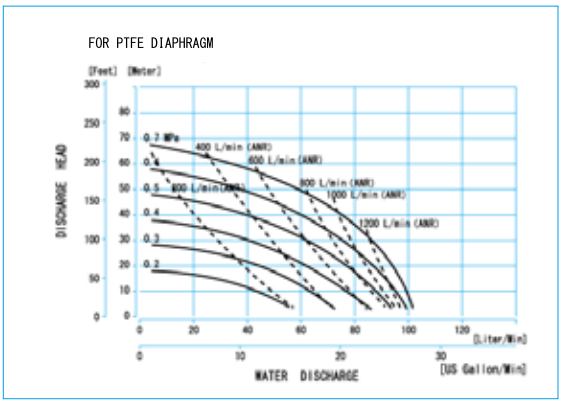
Metal Pump Performance Curve





Plastic Pump Performance Curve





Additional options listed on page 35.

NDP-25 SERIES

Maximum Capacity 170 l/min
Port Size 1" (25 mm)



NDP-P25 Polypropylene –DN Flange
Dimensions: 366 mm W x 422 mm H
Net Wt.: 10,9 kg
Shipping Wt.: 12,6 kg

NDP-P25 Polypropylene –Rc
Dimensions:
366 mm W x 429 mm H
Net Wt.: 10,9 kg
Shipping Wt.: 12,6 kg



NDP-25 Conductive Kynar®-Rc
Dimensions:
366 mm W x 429 mm H
Net Wt.: 13,4 kg
Shipping Wt.: 15,0 kg



NDP-P25 Kynar®-DN Flange
Dimensions:
366 mm W x 442 mm H
Net Wt.: 13,4 kg
Shipping Wt.: 15,0 kg



NDP-25 Aluminum
Dimensions: 287 mm W x 383 mm H
Net Wt.: 13,0 kg
Shipping Wt.: 14,0 kg

NDP-25 Stainless Steel
Dimensions: 287 mm W x 383 mm H
Net Wt.: 19,9 kg
Shipping Wt.: 21,0 kg

NDP-25 Cast Iron
Dimensions: 287 mm W x 383 mm H
Net Wt.: 19,9 kg
Shipping Wt.: 21,0 kg



NDP-25 SERIES SPECIFICATIONS

Port Dimensions

Intake & discharge connection:	
Polypropylene (PPG)	1" 25 mm Female Rc
Conductive Kynar® (PVDF)	1" 25 mm Female Rc
Aluminum (ADC-12)	1" 25 mm Female Rc
Stainless Steel (316)	1" 25 mm Female Rc
Cast Iron	1" 25 mm Female Rc
Air inlet (incl. ball valve):	3/8" 10 mm Female Rc
Air exhaust (incl. silencer):	3/4" 20 mm Female Rc
DN & ANSI Flange also available—consult Yamada.	

Notes: Flange connections are equivalent to DN 25 PN 10 and JIS 10K 25A

Air Supply Pressure (All Models)

1,4 – 7 Bar (0,14 – 0,7 MPa)

Discharge Volume Per Cycle

Rubber diaphragm: 833 cc
PTFE diaphragm: 787 cc

Maximum Cycles Per Minute

Rubber diaphragm: 210
PTFE diaphragm: 210

Maximum Size Solid

4,8 mm (3/16")

Maximum Dry Suction Lift

Rubber-fitted pump capability: 5,5 m

Air Motors:

Metal pumps standard with aluminum motor.
Options for aluminum motor: Teflon®-coated protection
Electroless Nickel plate
Plastic pumps standard with PPG motor.
PPG motor also optional for metal pumps.
Anodic coated aluminum motor for ATEX conform PVDF pump.

Notes:

Hytrel®-fitted pumps include Buna-N wetted o-rings.
Santoprene®-fitted pumps include EPDM wetted o-rings.
Kynar® (PVDF) pumps:
fitted with Santoprene ® includes: santoprene balls and PTFE o-rings.
fitted with Hytrel® includes: hytrel balls and PTFE o-rings.

Model Number Nomenclature

NDP-(P)25 B X X

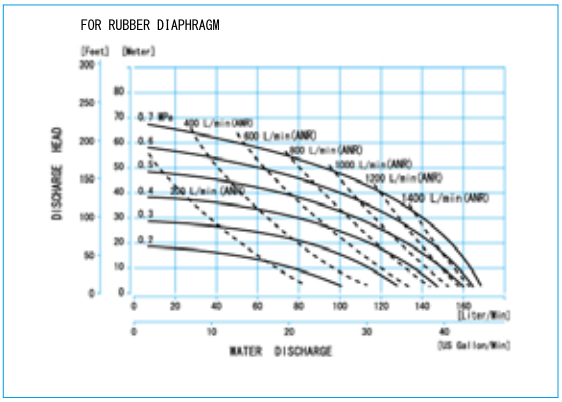
Series:
NDP-25 pump

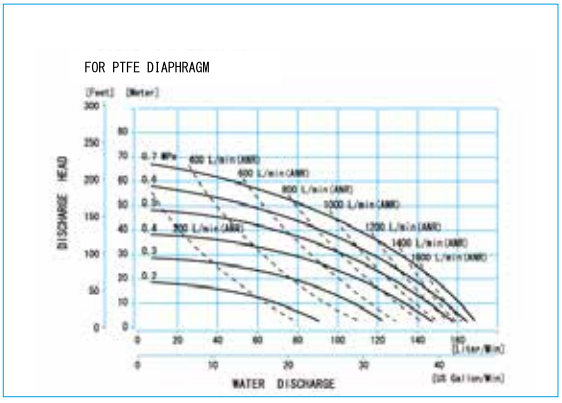
Valve Type:
B = Ball

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

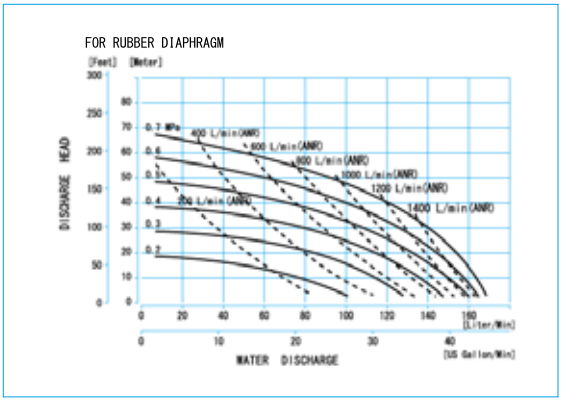
Diaphragm Material:
C = Neoprene (CR)
N = Buna N (NBR)
E = Nordel™ (EPDM)
S = Santoprene® (TPO)
T = Teflon® (PTFE)
V = Viton® (FKM)
H = Hytrel® (TPEE)
TU = Ultimate Teflon (PTFE/EPDM)

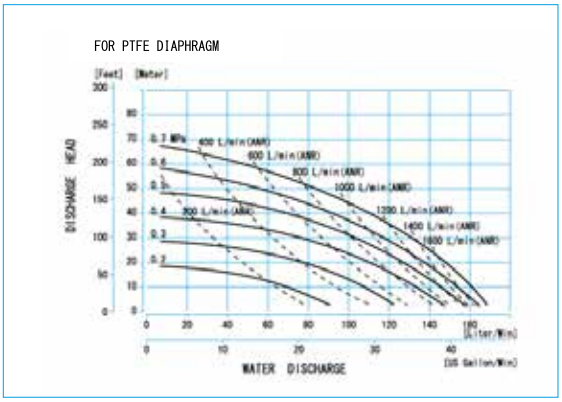
Metal Pump Performance Curve





Plastic Pump Performance Curve





Additional options listed on page 35.

NDP-40 SERIES

Maximum Capacity 405 l/min
Port Size 1-1/2" (40 mm)



NDP-40 Polypropylene
Dimensions:
405 mm W x 752 mm H
Net Wt.: 27,0 kg
Shipping Wt.: 35,5 kg



NDP-40 Aluminum
Dimensions:
412 mm W x 710 mm H
Net Wt.: 29,0 kg
Shipping Wt.: 38,0 kg

NDP-40 Stainless Steel
Dimensions:
411 mm W x 705 mm H
Net Wt.: 43,0 kg
Shipping Wt.: 51,5 kg



NDP-40 Conductive Kynar® (PVDF)
Dimensions:
405 mm W x 752 mm H
Net Wt.: 32,0 kg
Shipping Wt.: 40,5 kg

NDP-40 Cast Iron
Dimensions:
411 mm W x 704 mm H
Net Wt.: 47,0 kg
Shipping Wt.: 55,5 kg



ANSI 150 FLANGE AVAILABLE ON POLYPROPYLENE, ALUMINUM, STAINLESS STEEL AND KYNAR PUMPS.

NDP-40 SERIES SPECIFICATIONS

Port Dimensions

Intake & discharge connection:	
Polypropylene (PPG)	1-1/2" 40 mm DN40 PN10
Conductive Kynar® (PVDF)	1-1/2" 40 mm DN40 PN10
Aluminum(ADC-12)	1-1/2" 40 mm DN40 PN10
(Combi Flange with tapped	1-1/2" 40 mm Female Rc)
Electro-Polished Stainless Steel (316)	1-1/2" 40 mm DN40 PN10
Cast Iron	1-1/2" 40 mm Female Rc
Air inlet (incl. ball valve):	1/2" 15 mm Female Rc
Air exhaust (incl. silencer):	1" 25 mm Female Rc

Notes: Flange connections are equivalent to DN 40 PN 10 and JIS 10K 40A

Air Supply Pressure (All Models)

1,4 – 7 Bar (0,14 – 0,7 MPa)

Discharge Volume Per Cycle

Rubber diaphragm: 2,74 liters
PTFE diaphragm: 1,40 liters

Maximum Cycles Per Minute

Rubber diaphragm: 148
PTFE diaphragm: 270

Maximum Size Solid

7,0 mm (9/32")

Maximum Dry Suction Lift

Rubber-fitted pump capability: 5,5 m

Air Motor

Standard: Aluminum
Optional: Teflon®-coated or Electroless Nickel Plate

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

Model Number Nomenclature

NDP-40 B X X

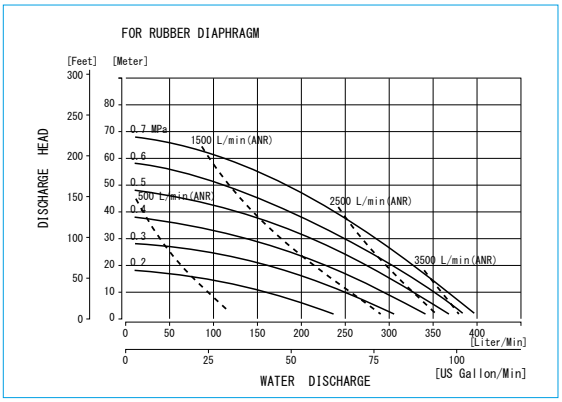
Series:
NDP-40 pump

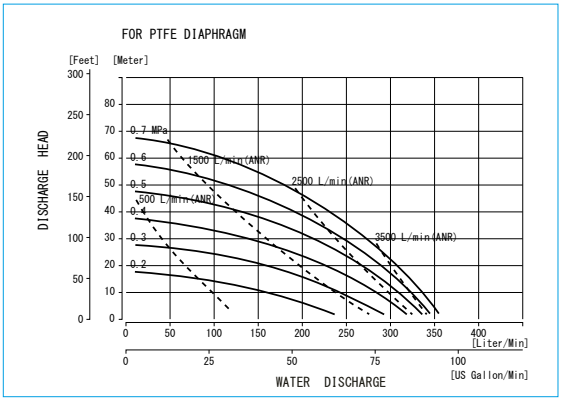
Valve Type:
B = Ball

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

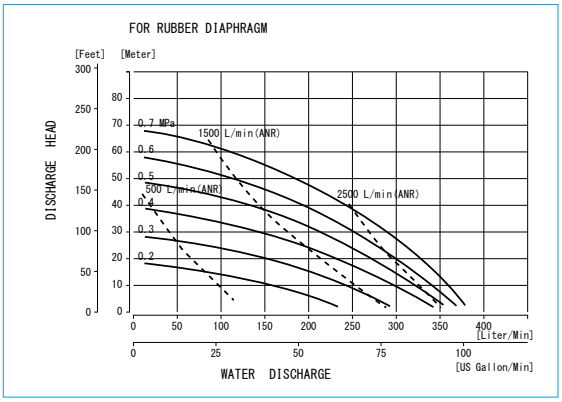
Diaphragm Material:
C = Neoprene (CR)
N = Buna N (NBR)
E = Nordel™ (EPDM)
S = Santoprene® (TPO)
T = Teflon® (PTFE)
V = Viton® (FKM)
H = Hytrel® (TPEE)

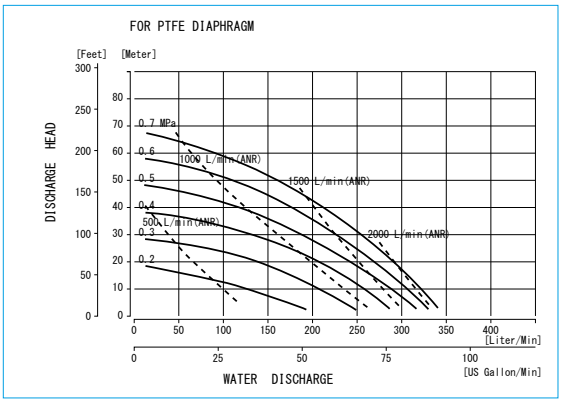
Metal pump Performance Curve





Plastic Pump Performance Curve





Additional options listed on page 35.

NDP-50 SERIES

Maximum Capacity 620 l/min
Port Size 2 Inch (50 mm)



NDP-50 Cast-iron
Dimensions: 450 mm W x 776 mm H
Net Wt.: 64,0 kg
Shipping Wt.: 76,0 kg

NDP-50 Aluminum
Dimensions:
452 mm W x 779 mm H
Net Wt.: 36,0 kg
Shipping Wt.: 48,0 kg

NDP-50 Stainless Steel
Dimensions:
450 mm W x 782 mm H
Net Wt.: 63,0 kg
Shipping Wt.: 75,0 kg



NDP-P50 Polypropylene
Dimensions:
472 mm W x 821 mm H
Net Wt.: 37,0 kg
Shipping Wt.: 49,0 kg



NDP-50 Conductive Kynar® (PVDF)
Dimensions:
472 mm W x 821 mm H
Net Wt.: 42,0 kg
Shipping Wt.: 54,0 kg



NDP-50 SERIES SPECIFICATIONS

Port Dimensions

Intake & discharge connection:	
Polypropylene (PPG)	2" 50 mm DN50 PN10
Conductive Kynar® (PVDF)	2" 50 mm DN50 PN10
Aluminum (ADC-12)	2" 50 mm DN50 PN10
(Combi Flange with tapped 2" 50 mm Female Rc)	
Electro-Polished Stainless Steel (316)	2" 50 mm DN50 PN10
Cast Iron	2" 50 mm Female Rc
Air inlet (incl. ball valve):	3/4" 20 mm Female Rc
Air exhaust (incl. silencer):	1" 25 mm Female Rc

Notes: Flange connections are equivalent to DN 50 PN 10 and JIS 10K 50A and ANSI 150 2

Air Supply Pressure (All Models)

1,4 – 7 Bar (0,14 – 0,7 MPa)

Discharge Volume Per Cycle

Rubber diaphragm: 4,25 liters
PTFE diaphragm: 2,61 liters

Maximum Cycles Per Minute

Rubber diaphragm: 146
PTFE diaphragm: 220

Maximum Size Solid

8,0 mm (5/16")

Maximum Dry Suction Lift

Rubber-fitted pump capability: 5,8 m

Air Motor

Standard: PPG for Polypropylene pumps
Standard: Aluminum for all others.
Optional: Teflon®-coated or Electroless Nickel Plate.
Optional for all pumps standard fitted with aluminum motor is the PPG motor.

Notes:

Hytrel®-fitted pumps include Buna-N wetted o-rings.
Santoprene®-fitted pumps include EPDM wetted o-rings.
Kynar® (PVDF) pumps:
fitted with Santoprene ® includes: santoprene balls and PTFE o-rings.
fitted with Hytrel® includes: hytrel balls and PTFE o-rings.

Model Number Nomenclature

NDP-50 B X X

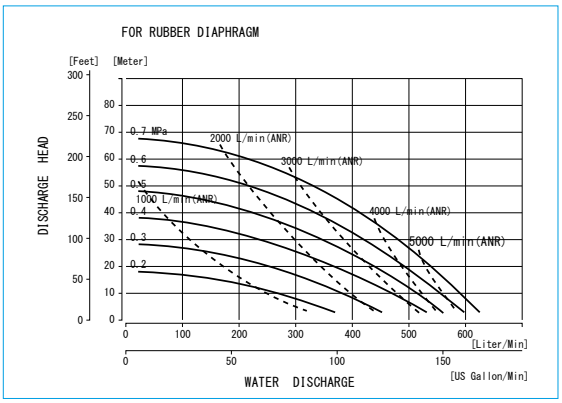
Series:
NDP-50 pump

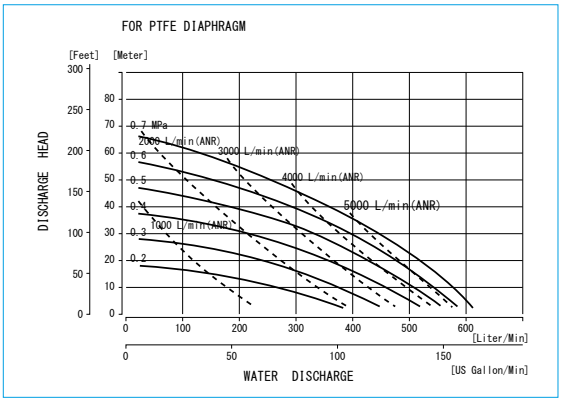
Valve Type:
B = Ball

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

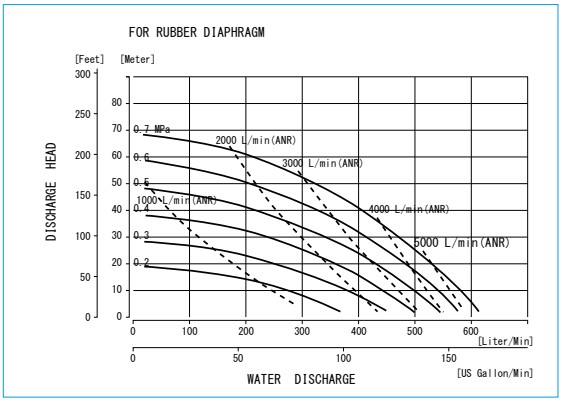
Diaphragm Material:
C = Neoprene (CR)
N = Buna N (NBR)
E = Nordel™ (EPDM)
S = Santoprene® (TPO)
T = Teflon® (PTFE)
V = Viton® (FKM)
H = Hytrel® (TPEE)
TU = Ultimate Teflon (PTFE/EPDM)

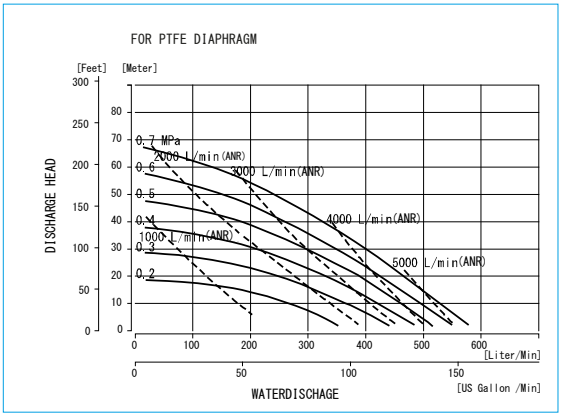
Metalpump Performance Curve





Plastic Pump Performance Curve





Additional options listed on page 35.

NDP-80 SERIES

Maximum Capacity 814 l/min
Port Size 3" (80 mm)



NDP-80 Stainless Steel
Dimensions: 521 mm W x 984 mm H
Net Wt.: 104,0 kg
Shipping Wt.: 119,0 kg

NDP-80 Aluminum
Dimensions:
522 mm W x 998 mm H
Net Wt.: 62,0 kg
Shipping Wt.: 77,0 kg



NDP-80 Cast Iron
Dimensions:
521 mm W x 984 mm H
Net Wt.: 110,0 kg
Shipping Wt.: 125,0 kg



NDP-80 Polypropylene
Dimensions:
580 mm W x 1044 mm H
Net Wt.: 70,0 kg
Shipping Wt.: 85,0 kg



NDP-80 SERIES SPECIFICATIONS

Port Dimensions

Intake & discharge connection:

Polypropylene (PPG)	3" 80 mm DN 80 PN 10
Aluminum (ADC-12)	3" 80 mm DN 80 PN 10
(Combi Flange with tapped 3" 80 mm Female Rc)	
Electro-Polished Stainless Steel (316)	3" 80 mm DN 80 PN 10
Cast Iron	3" 80 mm Female Rc
Air inlet (incl. ball valve):	3/4" 20 mm Female Rc
Air exhaust (incl. silencer):	1" 25 mm Female Rc

Notes: Flange connections are equivalent to DN 80 PN 10 and JIS 10K 80A and ANSI 150 3

Air Supply Pressure (All Models)

1,4 – 7 Bar (0,14 – 0,7 MPa)

Discharge Volume Per Cycle

Rubber diaphragm: 8,57 liters
PTFE diaphragm: 3,8 liters

Maximum Cycles Per Minute

Rubber diaphragm: 95
PTFE diaphragm: 160

Maximum Size Solid

10,0 mm (13/32")

Maximum Dry Suction Lift

Rubber-fitted pump capability: 5,8 m

Air Motor

Standard: Aluminum
Optional: Teflon®-coated or Electroless Nickel Plate

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

Model Number Nomenclature

NDP-80 B X X

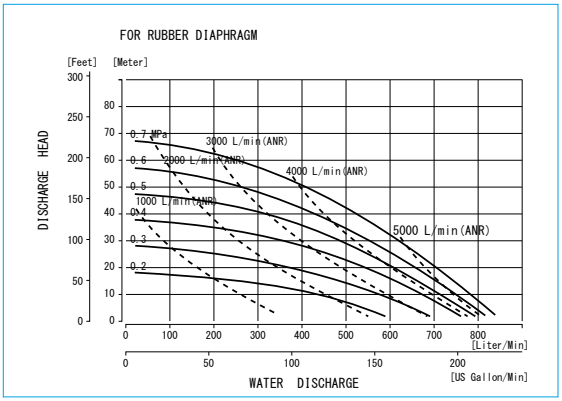
Series:
NDP-80 pump

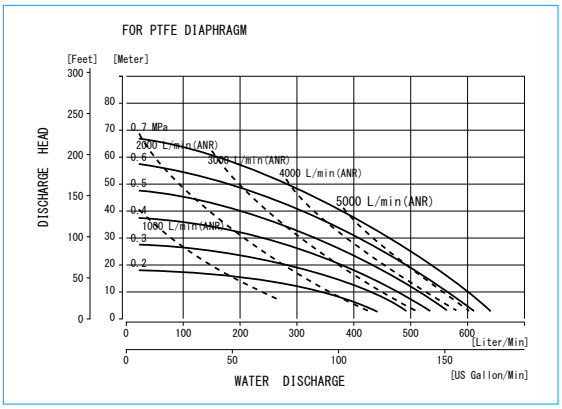
Valve Type:
B = Ball

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

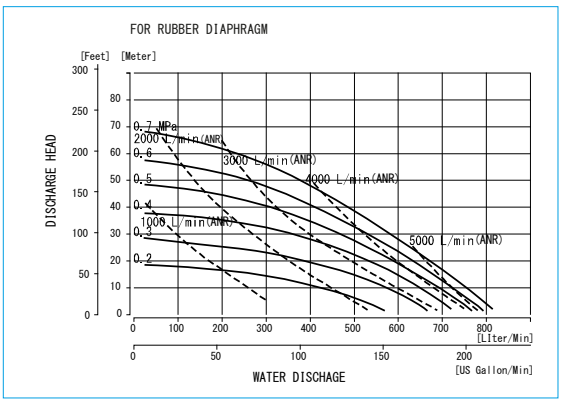
Diaphragm Material:
C = Neoprene (CR)
N = Buna N (NBR)
E = Nordel™ (EPDM)
S = Santoprene® (TPO)
T = Teflon® (PTFE)
V = Viton® (FKM)
H = Hytrel® (TPEE)

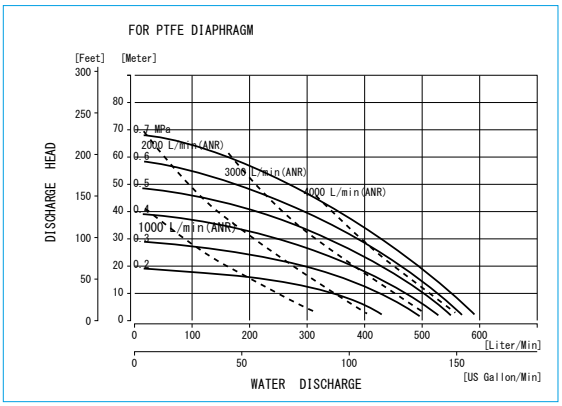
Metal Pump Performance Curve





Plastic Pump Performance Curve



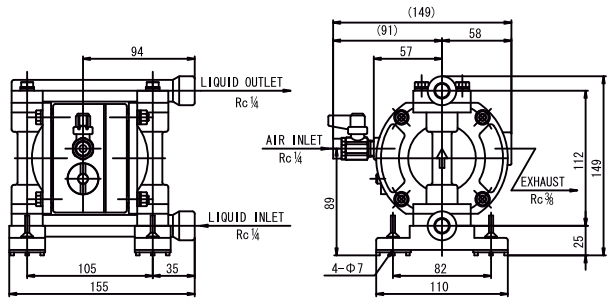


Additional options listed on page 35.

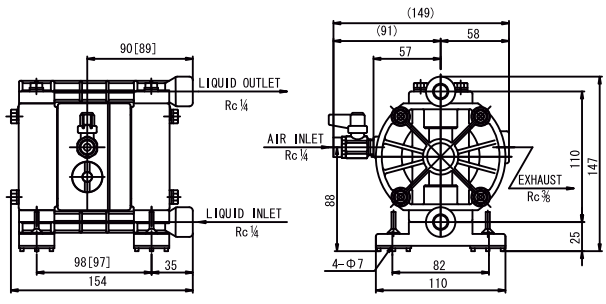
DIMENSIONAL DRAWINGS

NDP-5, DP-10, NDP-10, NDP-15, NDP-20
and NDP-25 Series

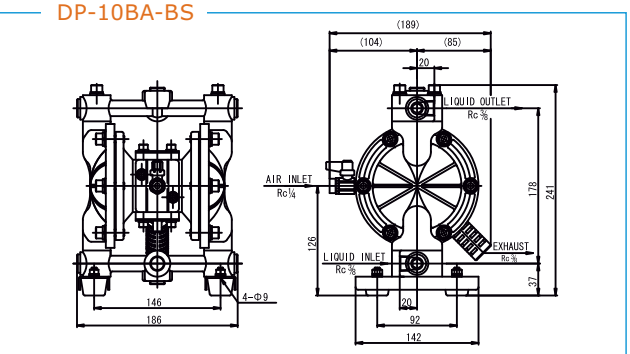
NDP-5FAT-FST



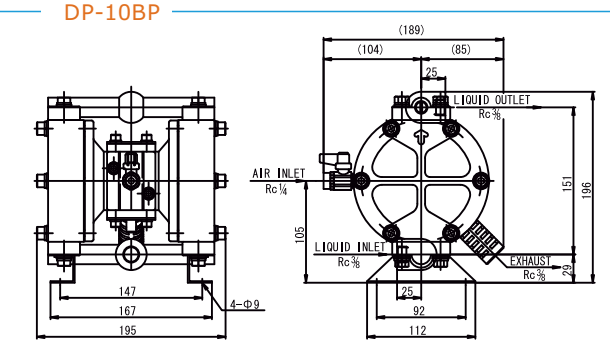
NDP-5FPT-FVT-FDT



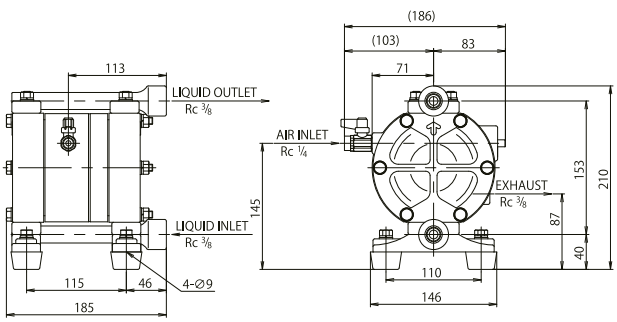
DP-10BA-BS



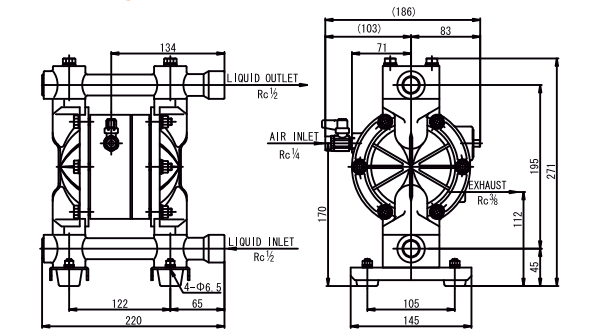
DP-10BP



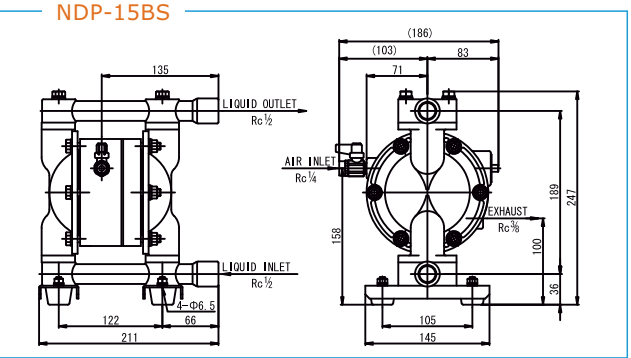
NDP-10BP



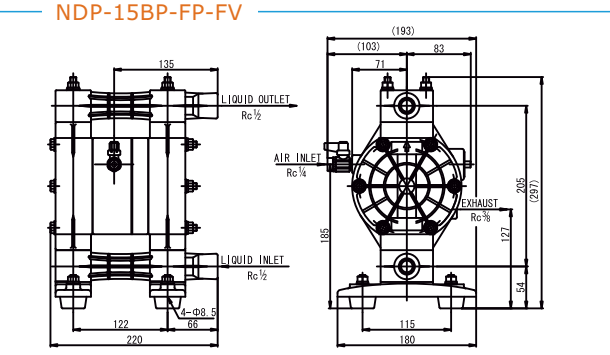
NDP-15BA



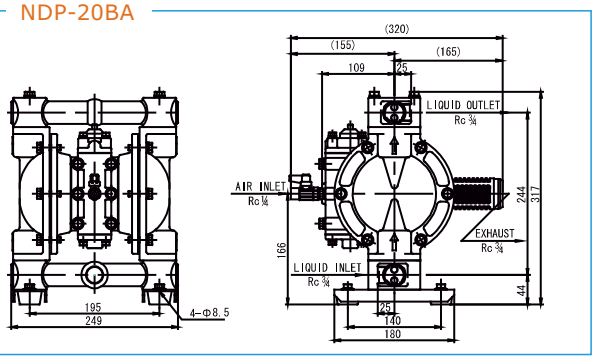
NDP-15BS



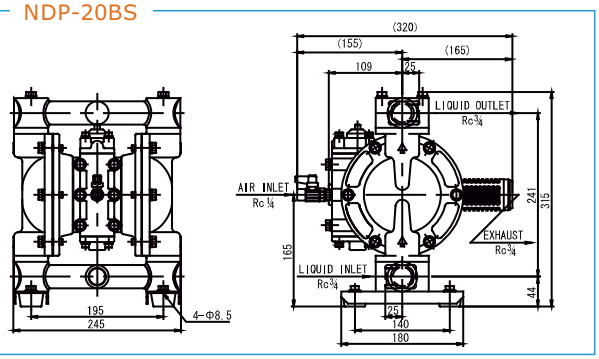
NDP-15BP-FP-FV



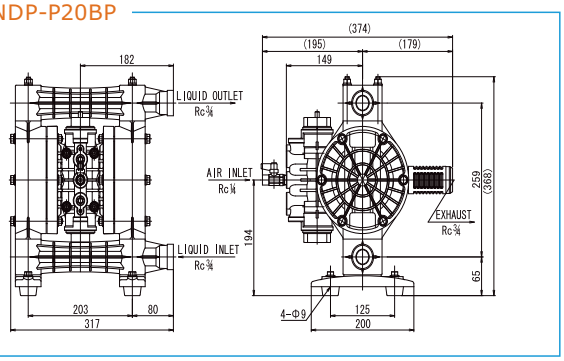
NDP-20BA



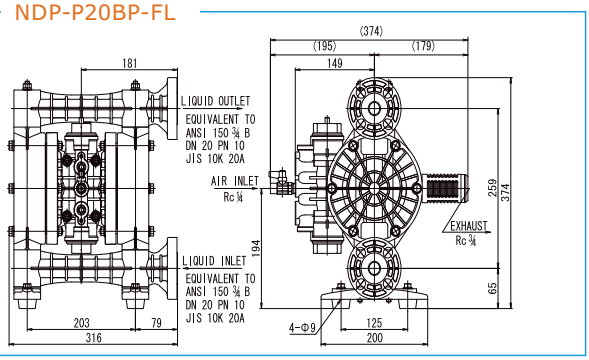
NDP-20BS



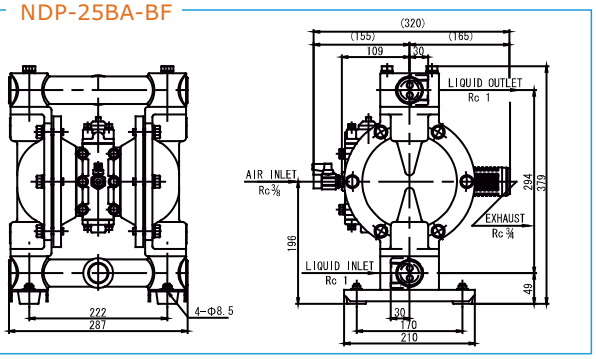
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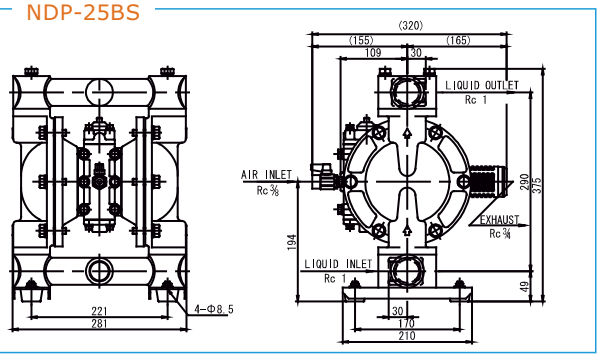
NDP-P20BP-FL



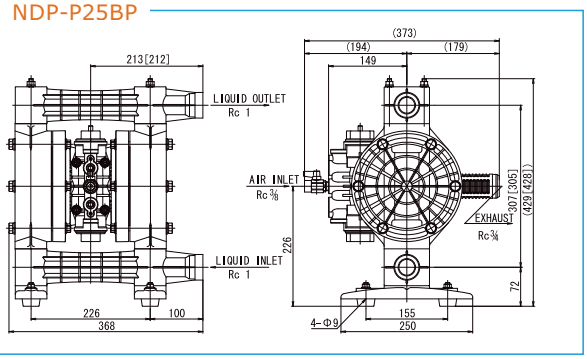
NDP-25BA-BF



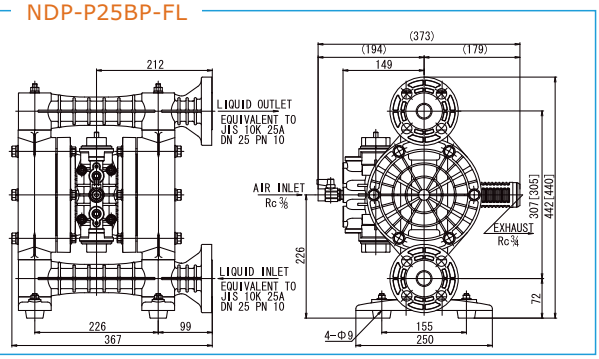
NDP-25BS



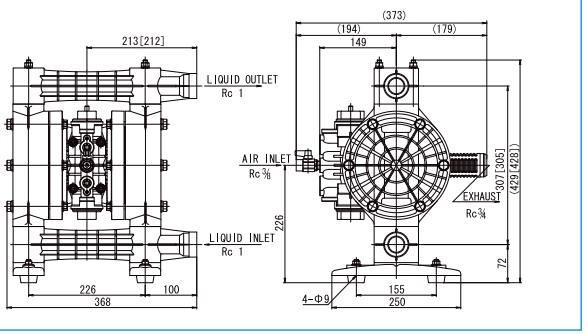
NDP-P25BP



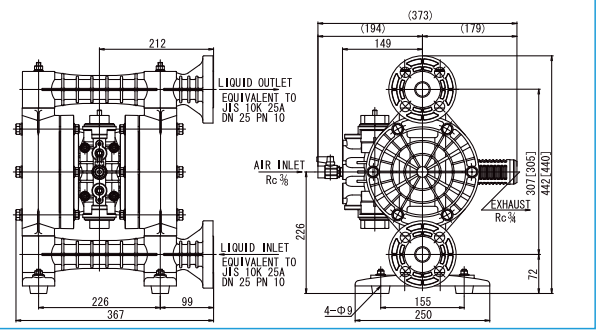
NDP-P25BP-FL



NDP-P25BV



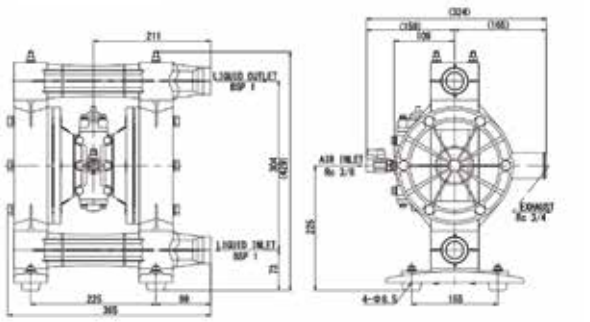
NDP-P25BV-FL



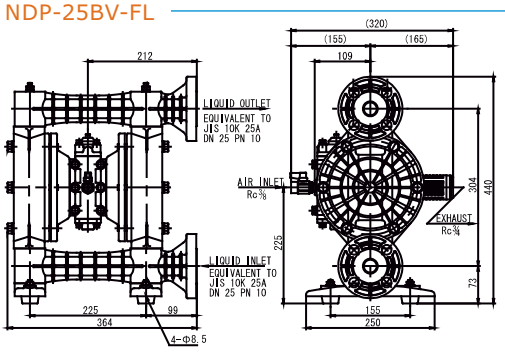
DIMENSIONAL DRAWINGS

NDP-25, NDP-32, NDP-40, NDP-50
and NDP-80 Series

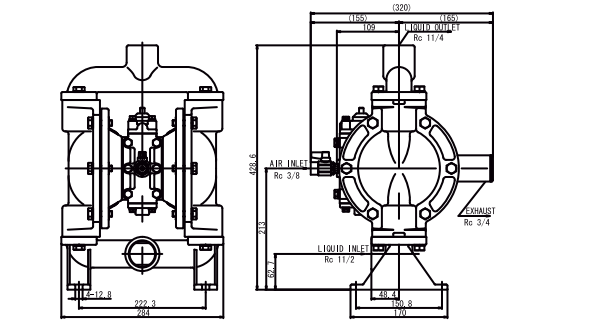
NDP-25BV



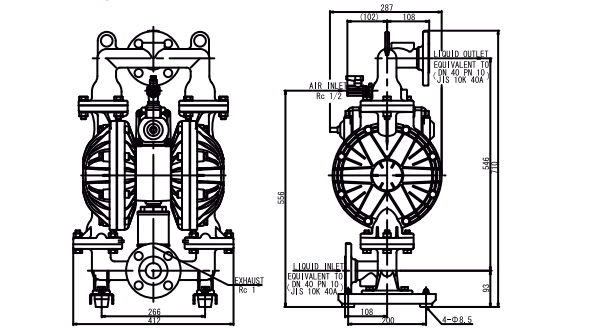
NDP-25BV-FL



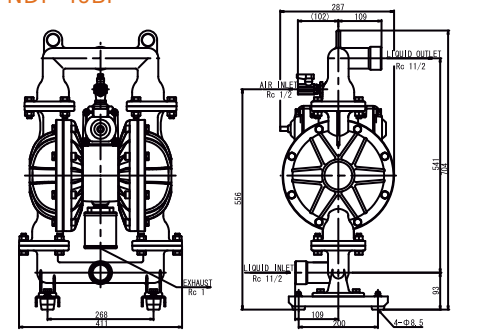
NDP-32BA



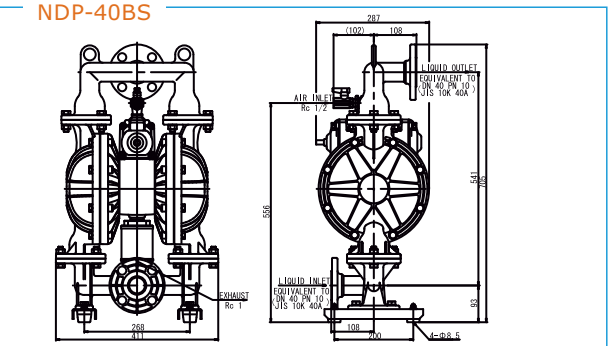
NDP-40BA



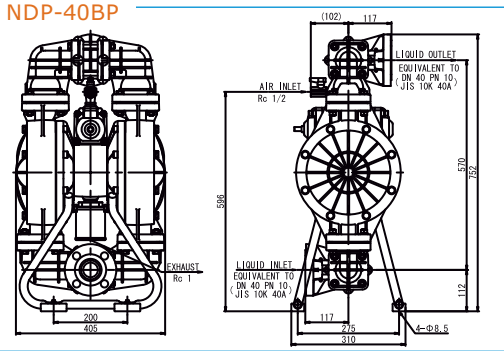
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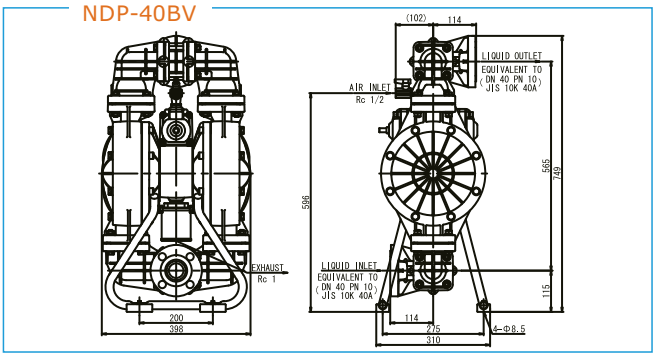
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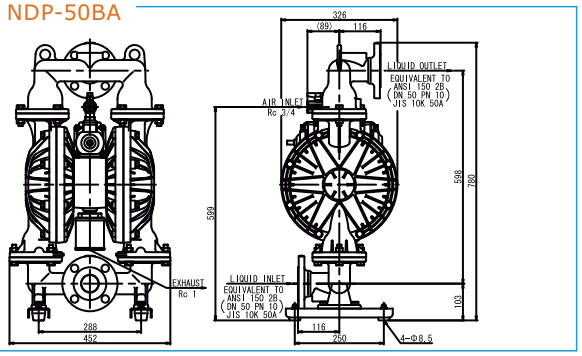
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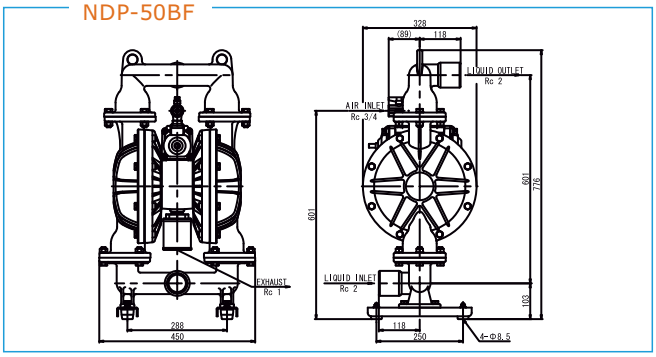
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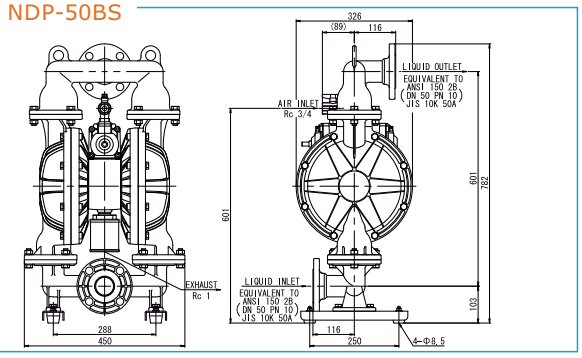
NDP-50BA



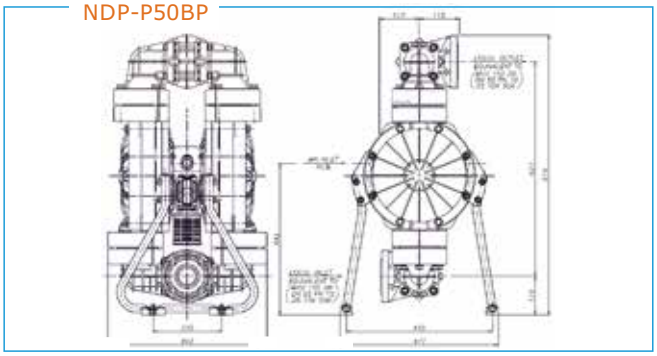
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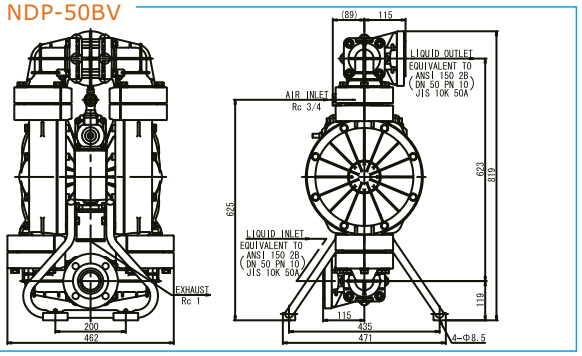
NDP-50BS



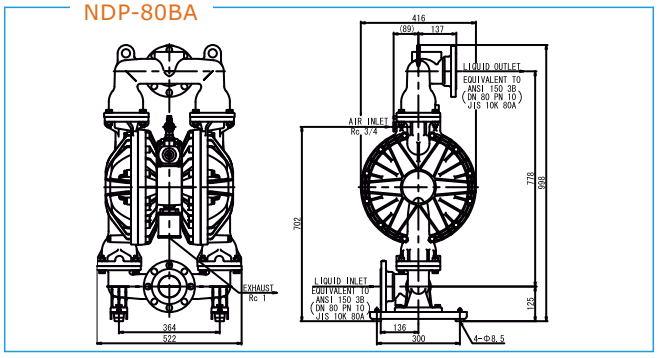
NDP-P50BP



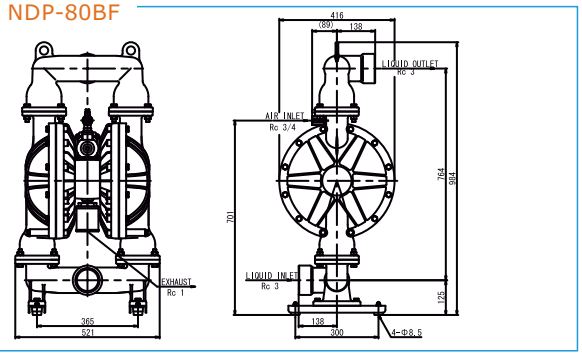
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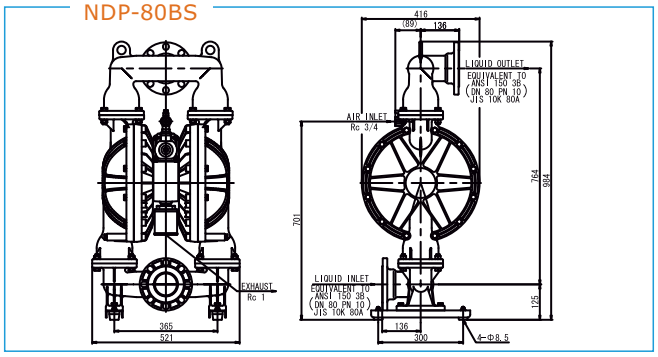
NDP-80BA



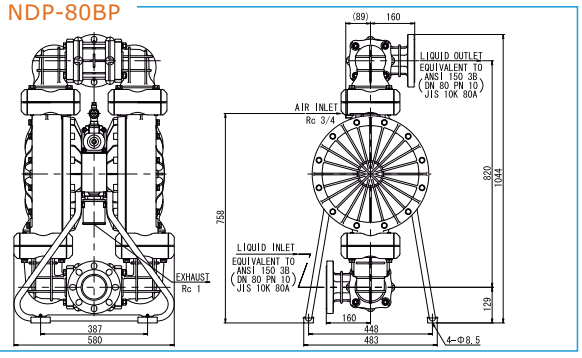
NDP-80BF



NDP-80BS



NDP-80BP





Model NDP-40 HP



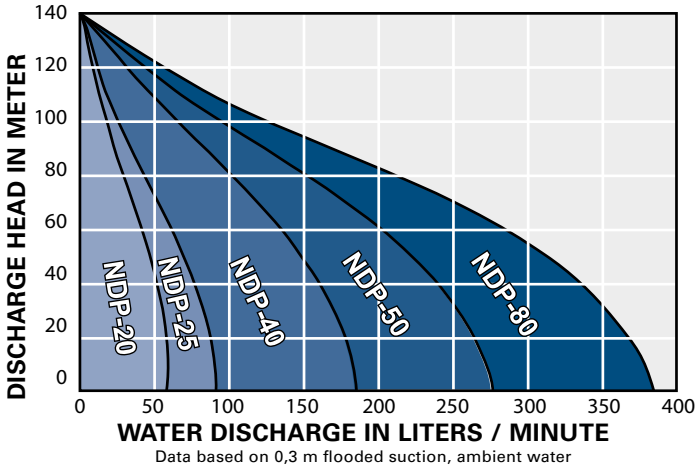
Model NDP-25 HP

HIGH PRESSURE 2:1

2:1 Ratio High Pressure Pumps are designed for applications when a maximum 7 Bar 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 13 Bar can be achieved with only 7 Bar 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"–3"	Capacity: 1 to 378 l/min
Construction	Stainless Steel, Cast Iron or Aluminum wetted materials

Controls: No elaborate bypass, relief valves, or complicated controls required. Excellent pressure retention.





Model NDP-5FPT-Z



Model NDP-15BA.-Z



Model NDP-15FP-Z



Model NDP-20BA.-I



Optional:
1" Rc inlet & outlet side ports. Available for aluminum 20 pumps only.

MANIFOLD OPTIONS

Many Yamada pumps come with a variety of multi manifold options offering the user various process solutions.
Some options available are 2 in 1 out, 2 in 2 out, 1 in 2 out, vertical middle or side inlets etc. For more information on manifold options please contact Yamada or your local distributor.

Port sizes:	1/4", 3/8", 1/2", 3/4" and 1"
Construction	Polypropylene Aluminium or Stainless Steel
Modes of operation	1/4", 3/8", 1/2", 3/4" and 1"
Construction	Stainless Steel, Cast Iron or Aluminum wetted materials



XDP Series Pump

XDP SERIES

The 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.

Air power is conserved by actuating the air valve using a mechanical linkage instead of relying on air pressure. Air power is reduced by 20% vs. A standard air-actuated valve providing more pressure to drive the diaphragm assembly.

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 the world's only mechanically-actuated air motor.

Xtreme Duty Pro™ XDP pumps are capable of running on air pressure equivalents as high as 9 Bar or as low as 0,4 Bar and provide the same liquid side performance as the NDP Series pumps.

For additional information, product literature, and drawings please visit www.yamada-europe.com or contact your local Yamada distributor.



Model BH-2



Model BH-22











Options

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
Diaphragms	Rubber ones only

Three series of pumps are offered.

Series BH-1
- Vacuum Activated Aeration Valve mounted to suction manifold.

Series BH-2
- Includes all features of the BH-1. Compressed air induction system fluidizes all four check valves while the pump is operating.

Series BH-22
- Includes all features of the BH-1 and BH-2, however the air fluidization system is separated from the pump working pressure.

Extra options:
Reinforced center rod with bolted diaphragms
Y-manifold to optimize the flow

Drum Pumps
3/8", 1/2", & 3/4" Port Sizes



FDA-Compliant Drum Pumps are available. Please consult the factory for details.

DRUM PUMPS

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

Models are available in Polypropylene, Aluminum, and Stainless Steel.

Drum pumps are available in 3/8", 1/2", and 3/4" port sizes with flow rates up to 105 l/min.

Refer to DP-10 & NDP-20 technical information for additional performance data. 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) Includes Aluminum Male Rc Bung adapter and suction pipe	3/8", 1/2" or 3/4" Female Rc
Stainless Steel (316) Includes Stainless Steel Male Rc Bung adapter and suction pipe	3/8", 1/2" or 3/4" Female Rc
Polypropylene (PPG) Includes PVC suction pipe, elbow, & Bung adapter (PPG also avail.)	1/2" or 3/4" Female Rc
Drum inlet connection	2" Bung



NDP-32BAN

NDP-32 SERIE

The NDP-32 series is a compact, lightweight and easily portable pump with a 1-1/2" liquid inlet and a 1-1/4" vertical outlet. This model corresponds in both footprint dimensions, body size and outlet positions to many pumps used in the marine, oil & gas and mining applications throughout the world. This size pump is often used for waste water or sump / mine dewatering applications and has the ability to pump solid laden slurry solutions. The body is in aluminium with Buna-N diaphragms however can also be prepared with other materials if required. Due to the dimensional standardization it is possible to carryout hard piped pump changeovers without having to modify the piping or system configuration.

Pump model is available in aluminum
Inlet 1-1/2" NPT Outlet 1-1/4" NPT
Air supply pressure 1,4 – 7 Bar



FDA Compliant
316 Stainless Steel

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, teflon coated air motor, sanitary tri-clamp fittings, and FDA compliant elastomers: Hytrel®, EPDM, PTFE, PTFE coated Aluminum motor for sizes 10, 40, 50 and 80.
PPS motor for sizes 5 and 15.
PPG motor for sizes 20 and 25

Eight sizes from 3/4" to 4" sanitary clamp connections	
Flow ranges from 1 - 800 l/min	
Air pressures ranging from 1,4 to 7 Bar.	
Air motor:	
Aluminum Epoxy®-coated	DP-10, NDP-40/50/80
Ryton	NDP-5-15
Polypropylene (PPG)	NDP-20/25
Finish	Interior mechanical polish available on most models. Consult Yamada

Note:
FDA Series pumps are constructed with oversized sanitary ports.

ELECTRICAL CONTROLLED SERIES DM(B)(X)

Accurate flow control and measurement options. Less parts and extended life expectancy of moving parts including diaphragms. Low pressure movement (from 0,7Bar) is possible in some cases. Unmatched start stop reliability, remote monitoring and control. Variable pump speed control. And many more.

Yamada's range of electrical controlled pumps with direct mounted 5/3 solenoid valves 24V DC are specially designed for process applications which require metering, batching or variable of constant flow control.These pumps offer extreme operation reliability, parts life time and a perfect balanced energy consumption. They are well suited to intense process applications. All DM(B)(X) pumps are operated through a locally positioned or remote PLC device (sold separately) and are available beside standard also as ATEX (X) approved in combination with the conductive pump materials such as metals, Kynar (PVDF) or Acetal.



DM(X) Series

Up till the NDP series 25, Yamada offers standard a DMB motor. The motor is specially prepared for direct mounting of the solenoid valves. The motors of NDP-5, 10 and 15 are made of a conductive plastic, which means they are suitable for an ATEX environment in combination with ATEX coils. For series 20, 23, 25 and 32 Yamada offers an aluminum DMB motor which of course can be protected with the well known high quality PTFE coating Yamada offers.

For series DP-10 and NDP-40, 50 and 80 we use special adaptor plates to mount the 5/3 solenoids, replacing the standard pneumatic valve house.

Al pumps can be combined with a sensor for center rod movement detection, stroke or cycle counting , sensor shifting or in extreme situations for calibration. With cycle length calibration a PLC is able to use just a certain percentage of the cycle movement for fine dosing.

For more information, please contact Yamada or your local distributor.



NDP-50FAN

SOLIDS HANDLING PUMP

Flap Valve Pump designed to pump large solids

The Yamada Flap Valve Pump was designed and engineered to address the problems normally associated with flap valve pumps. I.e. Normally due to severe working conditions, there is often a need to remove a pump from service for repairs, cleaning or parts changeovers.

Based on Yamada field proven NDP series foundation, this pump has all of the features and benefits associated with every Yamada pump.

Ingenious Flap Valve design allows for passage of large solids up to 50 mm

Easy access to valve chambers allows easy maintenance when you need it most without the need to remove the pump from service.

Vented diaphragm chambers serve to alleviate problems associated with trapped air/gas.



Repair/clean in place design



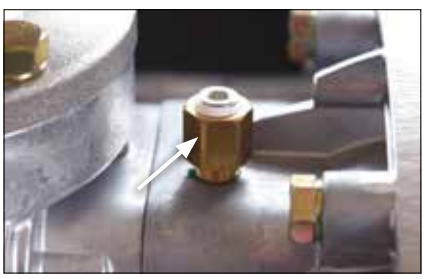
Only 4 bolts to access flap valves

FEATURES AND BENEFITS

- Repair/clean in place design enables quick servicing of pump
- Up to 50 mm solids handling
- Vent ports to alleviate build-up of air/gas in liquid chamber
- Quick removable flap valves
- Top suction, bottom discharge design will not allow solids to settle in pump.
- Fully non lubricated Air-Valve
- Fully bolted construction
- Short stroke design to help improve diaphragm life.
- Outside-Accessible Air Valve
- Modular Pilot valve design
- No dynamic O-rings to replace or repair.

Modular Heavy Duty Flap Check Valves





Vent ports to alleviate vapour lock and help with priming



LIQUID LEVEL CONTROLLER

The Yamada LLC-2Y Liquid Level Controller is a totally 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 6 meter away from the pump.



DRY-RUN DETECTION

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



Model AD-10



Model AD-25

Model AD-40





Model AD-50

PULSATION DAMPENERS

AD Series

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 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.

Dampener Model	Fits Pump Models
AD-10	NDP-5, DP-10/15, & NDP-15
AD-25	NDP-20 & NDP-25
AD-40	NDP-40
AD-50	NDP-50 & NDP-80

Dampener Model	Connections
AD-10	3/8" Rc port
AD-25	1" Rc port
AD-40	1-1/2" Rc port
AD-50	2" Rc port

Material

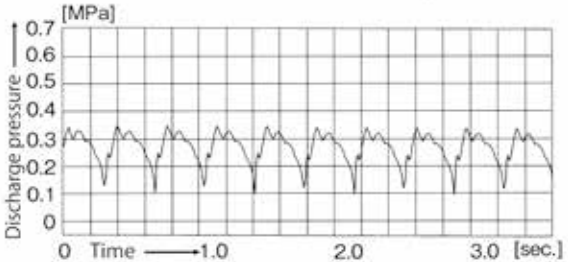
Aluminum (ADC-12)	All models
Stainless Steel (316)	All models
Cast Iron	AD-25, AD-40, & AD-50
Polypropylene (PPG)	All models
Kynar® (PVDF)	AD-25, AD-40 & AD-50

Diaphragm
Choice of seven elastomers:
Santoprene®, Hytrel®, Buna N, EPDM, Neoprene, Viton® & PTFE

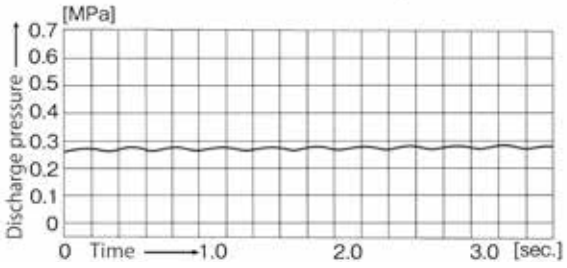
Air Side Coating Options
Teflon®, or Electroless-Nickel plate air-side

For additional information, product literature, please visit www.yamada-europe.com or contact your local Yamada distributor.

Without Pulsation Dampeners



With Pulsation Dampeners





PUMP DIAPHRAGMS

What to consider when selecting the proper diaphragm material

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

Also beside the correct diaphragm, the correct pump material must be selected, being chemical, temperature and abrasive resistant.

Rubber Compounds

Neoprene (CR)
Excellent for non-corrosive abrasive applications.
Identification: dull black with no color dot
Temperature range: -18°C to 82°C

Buna-N (NBR)
Excellent for petroleum based fluids.
Identification: black with a red or pink dot
Temperature range: -12°C to 82°C

Nordel™ (EPDM)
Excellent for low temperatures, caustics and some acids.
FDA Compliant EPDM Material (must be specified).
Identification: black with green dot
Temperature range: -40°C to 100°C

Viton® (FKM)
Excellent for aggressive fluids and high temperature applications.
Identification: black with silver or blue dot
Temperature range: -29°C to 120°C

Thermoplastic Compounds

Hytrel® (TPEE)
Excellent general-purpose diaphragm for non-corrosive abrasive applications and high-flex life. FDA compliant material.
Identification: Tan/Cream Thermoplastic
Temperature Range: -18°C to 120°C

Santoprene® (TPO)
Excellent for acids or caustics with a very high flex life.
Identification: Black Thermoplastic
Temperature Range: -23°C to 100°C

Teflon® (PTFE)
Excellent choice for pumping highly aggressive fluids, including solvents.
Identification: White Thermoplastic
Temperature Range: 4°C to 100°C





Ultimate Teflon bonded Diaphragms

TU® (PTFE/EPDM)
This so called high performance easy clean PTFE diaphragm has earned its reputation already in the ink, paint and printing industry for more than 15 years. In this 24/7 industry the diaphragm has proven its reliability. This high flexible PTFE diaphragm has a much better estimated life time compared to standard PTFE diaphragms. Standard diaphragms have thread, nuts and center disks inside the liquid area.
The TU diaphragm has a rod connection only at the air side and an easy to clean liquid surface. This means no ink or paint residue will accumulate behind bolts, center disks etc. which prevents color contamination. Temperature Range: 0°C to 85°C with a short peak load up till max 100°C

* Please note that excessive inlet pressure or excessive suction lift can shorten diaphragm life. Please consult Yamada for further information.

MIN/MAX FLUID TEMPERATURE TO PUMP

For metal pumps it is dictated by the elastomer (diaphragm material.
For the synthetic pumps, it depends.
PPG and POM may not be used for temperatures below 0°C or higher as 82°C.
PVDF pump may be used until a minimum temperature of -17°C only when the diaphragm material is also able to handle that. As a max temperature it can handle 100°C. Also here it depends if the diaphragm material can handle that temperature also.

Pump Material	Code	Min °C	Max °C	Min °F	Max °F
Polypropylene reinforced (PPG)	BP./FP.	0	82	32	180
Conductive Delrin® (POM)	FDT	0	82	32	180
Conductive Kynar® (PVDF)	BV./FV.	-17	100	1.4	212

Diaphragm Material	Code	Min °C	Max °C	Min °F	Max °F
Neoprene (CR)	C	-18	82	-0.4	180
Nordel™ (EPDM)	E	-40	100	-40	212
Hytrel® (TPEE)	H	-18	120	-0.4	248
Buna-N (NBR)	N	-12	82	10.4	180
Santoprene® (TPO)	S	-23	100	-9.4	212
Teflon® (PTFE)	T	4	100	39.2	212
Ultimate Teflon® (TU®)	TU®	4	100	39.2	212
Viton®	V	-29	120	-20.2	248



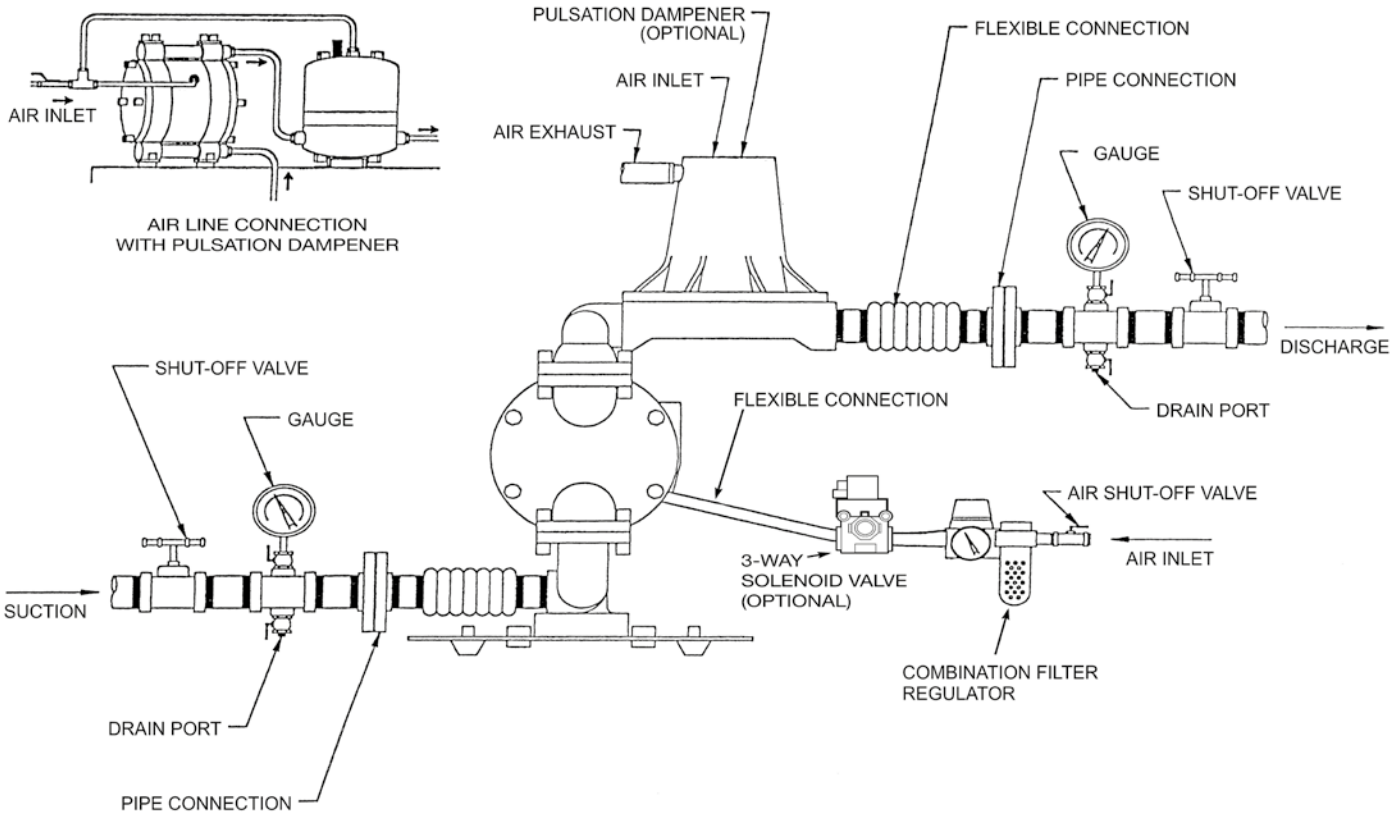
Teflon® Coating

Electroless-Nickel Plating

OPTIONAL COATINGS ALUMINIUM AIR MOTORS

Teflon® coating and Electroless-Nickel plating 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; or
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 or plated then assembled.

IDEAL AIR-POWERED DOUBLE DIAPHRAGM PUMP INSTALLATION



ADDITIONAL OPTIONS

Model Number Nomenclature

XXX– X XX X X X – X

- PUMP SERIES; NDP / DP
- MOTOR (OPTION)
- CONNECTION SIZE
- CHECK VALVE TYPE
- BODY MATERIAL
- DIAPHRAGM MATERIAL

C:	CR	NEOPRENE
E:	EPDM	NORDEL™
H:	TPEE	HYTREL
N:	NBR	BUNA-N
S:	TPO	SANTOPRENE®
T:	PTFE	TEFLON®
TU®:	PTFE/EPDM	
V:	FPM	VITON®

A:	ALUMINIUM
S:	SS316
F:	CAST IRON
P:	PPG
D:	DELRIN
V:	PVDF KYNAR
T:	PTFE TEFLON®

B:	BALL VALVE
F:	FLAT VALVE NDP-5
	NDP-15 PLASTIC
F:	FLAP VALVE 50FAN

5:	1/4"	12 l/min
10:	3/8"	22 l/min
15:	1/2"	51 l/min
20:	3/4"	120 l/min
25:	1"	170 l/min
32:	(in) 1,5"	
	(out)1,25"	190 l/min
40:	1,5"	405 l/min
50:	2"	620 l/min
80:	3"	814 l/min

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

- Material to pump
- Viscosity
- Density
- Particle size
- Required capacity L/min
- Corrosive
- Abrasive
- Temperature
- Available air pressure
- Application details like: Diameter, length, height, depth etc. all fluid lines.

Yamada sales team and your distributor are there to help you, choosing the best and most cost effective pump solution.

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Kynar® is a registered trademark of Arkema.
Nordel™is a registered trademark of Dupont Dow Elastomers.
Ryton® is a registered trademark of Chevron Phillips Chemical Company.
Santoprene® is a registered trademark of Monsanto Co.
Viton® is a registered trademark of Dupont Performance Elastomers

Motor (option)

P:	PPG motor, size P20, P25 and P50 (=standard all PPG pumps 20, 25 and 50)
H:	XDP motor, size H40, H50 and H80 (see page 27)

Special Pumps:

BH1:	Powder pumps Series 1
BH2:	Powder pumps Series 2
BH22:	Powder pumps Series 22
P:	Reinforced rod + bolted diaphragms
Y:	Y-manifold stainless steel NDP-40, 50, 80
HP:	High pressure 2:1 pump metal 20 until 80
D:	Drum pump until size 20
FDA:	FDA compliant series

Additional Options

Ball Options

NBR:	Ball-N
E:	Nordel™
S:	Santoprene®
T:	Teflon® ball
V:	Viton® ball
S1:	Stainless steel ball (until size 50)
	Stainless steel flat (NDP-5/15)

Valve seat Options

T2:	Teflon® (only NDP-40 and 50)
V2:	Viton®
S2:	Stainless steel machined seat

Combi SUS ball/seat/guide:

S3:	Stainless steel guide (until size 25)
SS:	Stainless steel seat + ball (S1 + S2)
ST:	Stainless steel seat + guide (S2+S3)
ST1:	S1 + S2 + S3

Connection options:

I:	Split inlet manifold (Double in)
O:	Split outlet manifold (Double out)
Z:	Double in and out
	I, O and Z only until size 25
FLG:	DN flange connection ≥ size 15
FLGA:	ANSI flange connection ≥ size 15
NPT:	NPT female thread connection

Air Motor options:

X2:	Nickel plated aluminum motor
XS:	PTFE coated aluminum motor

Electrical control options:

P2:	Proximity sensor
PX:	Proximity sensor ATEX
RM:	Electr. on/off solenoid 24VDC
RMX:	Electr. on/off solenoid 24VDC ATEX
DM:	Full solenoid control 24VDC
DMX:	Full solenoid control 24VDC ATEX+ (DM(X) DP-10, NDP-P20/P25, 40, (P)50 and 80)
DMB:	Full solenoid control 24VDC
DMBX:	Full solenoid control 24VDC ATEX (DMB(X) for NDP-5, 15, 20, 23, 25, 32)
Q:	Leak sensor(s) (Diaphragm rupture)

Specific options:

1:	PTFE O-rings
1S:	1" side connection NDP-20BA
N:	Special bearing dry air
XPS:	Extreme duty C-spool NDP-20/25

Accessories options:

AP:	Abrasion PAD
J:	Speed control muffler
L:	De-stroke NDP-20 until 80



Due to Dutch, European and international trade laws, Yamada-products may require licensing prior to export or re-export. We request that when dealing with Yamada-products that you take the utmost care in ensuring that all required legal procedures are carried out correctly.

Your Local Distributor/Sales & Service Centre:

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