II 2 GD c IIB T4
Baseefa15ATEX13DR

5 YEARS LIMITED WARRANTY

ALPHADYNAMIC PUMPS
Industrial Pumps & Flowmeters

Ruby
STRONG QUALITY INDUSTRIAL PUMP

Ruby Air Operated Diaphragm Pumps

www.alphadynamicpumps.co.uk

Ruby Air Operated Diaphragm pumps

New pump line with a brand new designing that offers reinforced pumping potentials. The updated designing provides the possibility to use also other materials at the hydraulic parts without decreasing the efficiency in pressure. Plus, it offers even bigger performance provided with economy

Ruby Pumps composition codes

Pump model	Body	Center block	Diaphragms	Valve Seats	Balls	O-ring	Other Options
Mini 005 Mini 017 Ruby 012 Ruby 015 Ruby 020 Ruby 025 Ruby 040 Ruby 140 Ruby 050 Ruby 150 Ruby 051 Ruby 080 Ruby 081	**P:** PP **V:** PVDF+CF **A:** Aluminium **S:** AISI 316 **PC:** PP+CF **SL:** AISI 316 electropolished	**P:** PP **A:** Aluminium **AN:** Alu Nickel Plated **PC:** PP+CF **W:** PP FDA	**N:** NBR Conductive **E:** EPDM Conductive **T:** TFM+(EPDM Conductive) **Z:** TFM-A+(EPDM Conductive) **ST:** PTFE+SANTOPRENE (Backup) **HY:** PTFE + HYTREL (Backup)	**N:** NBR **E:** EPDM **T:** PTFE **A:** Aluminium **V:** PVDF **S:** AISI 316 **P:** PP	**N:** NBR **E:** EPDM **T:** PTFE **S:** AISI 316	**N=**NBR **F=**FKM **T=**PTFE **E=**EPDM	**D:** Twin Manifold **F:** Flange PN10

Main features

Available in PP, PP+CF, PVDF, ALUMINIUM and AISI 316 STAINLESS STEEL

- Use in potentially explosive atmospheres (conductive series)

- High efficciency degree
- Economical air consumption, ecological designing
- Pressure / capacity high efficciency
- Oil free operation
- Very low level of icebarriers, up to zero in high wear outs
- New air valve designing, fully controled air passage, with the potential to use additional ice barrier protectives.
- Easy disassembling and re-assembling
- Easy trasportation
- New generation diaphragms with embodied inner / outer piston
- New generation PTFE diaphragms of embodied type for long-life operation (compound)
- Potential to be submersible
- Possibility to be used in dirty environments due to their closed designing
- Easy entrance orientation changing (manifold reverse)
- Automatic suction

How it works

The Ruby diaphragm pump is an air-operated, positive displacement, self-priming pump. These drawings show flow pattern through the pump upon it's initial stroke. It is assumed the pump has no fluid in it, prior to it's initial stroke

RIGHT STROKE

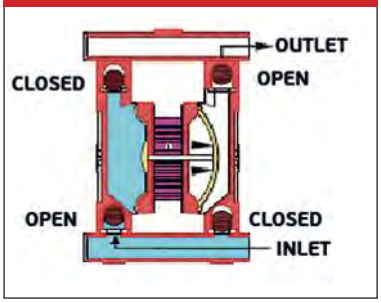


FIGURE 1 The air valve directs pressurized air to the back side of diaphragm A. The compressed air is applied directly to the liquid column separated by elastomeric diaphragms. The diaphragm acts as a separation membrane between the compressed air and liquid, balancing the load and removing mechanical stress from the diaphragm. The compressed air moves the diaphragm away from the center block of the pump. The opposite diaphragm is pulled in by the shaft connected to the pressurized diaphragm. Diaphragm B is on it's suction stroke; air behind the diaphragm has been forced out to the atmosphere through the exhaust port of the pump. The movement of diaphragm B toward the center block of the pump creates a vaccuum within chamber B. Atmospheric pressure forces fluid into the inlet manifold forcing the inlet valve ball off its seat. Liquid is free to move past the inlet valve ball and fill the liquid chamber (see shaded area).

MID STROKE

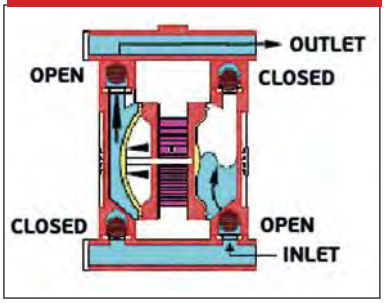


FIGURE 2 When the pressurized diaphragm, diaphragm A, reaches the limit of it's discharge stroke, the air valve redirects pressurized air to the back side of diaphragm B. The pressurized air forces diaphragm B away from the center block while pulling diaphragm A to the center block. Diaphragm B is now on its discharge stroke. Diaphragm B forces the inlet valve ball onto its seat due to the hydraulic forces developed in the liquid chamber and manifold of the pump. These same hydraulic forces lift the discharge valve ball off it's seat, while the opposite discharge valve ball is forced onto it's seat, forcing fluid to flow through the pump discharge. The movement of diaphragm A toward the center block of the pump creates a vaccuum within liquid chamber A. Atmospheric pressure forces fluid into the inlet manifold of the pump. The inlet valve ball is forced off it's seat allowing the fluid being pumped to fill the liquid chamber.

LEFT STROKE

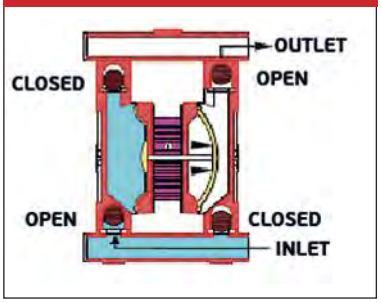
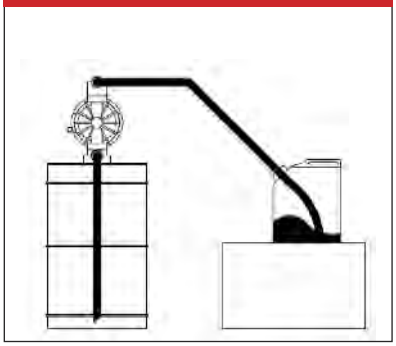


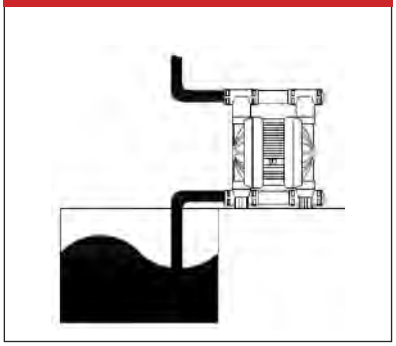
FIGURE 3 At completion of the stroke, the air valve again redirects air to the back side of diaphragm A, which starts diaphragm B on its exhaust stroke. As the pump reaches it's original starting point, each diaphragm has gone through one exhaust and one discharge stroke. This constitutes one complete pumping cycle. The pump may take several cycles to completely prime depending on the conditions of the application.

Installation

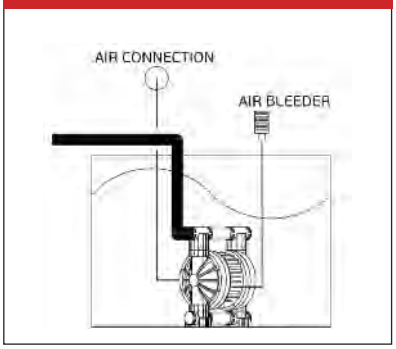
DRUM TRANSFER



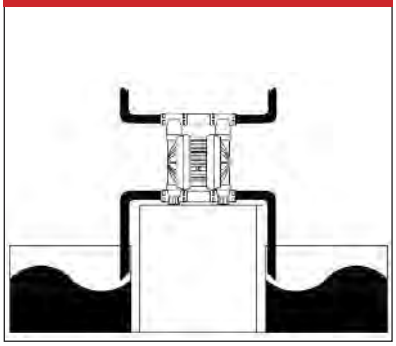
SELF PRIMING



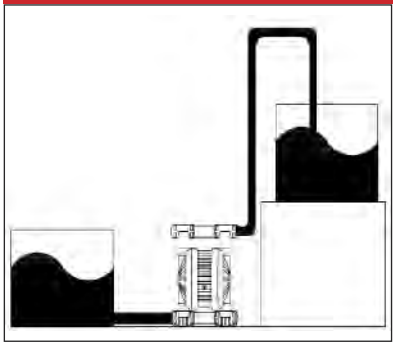
IMMERSED



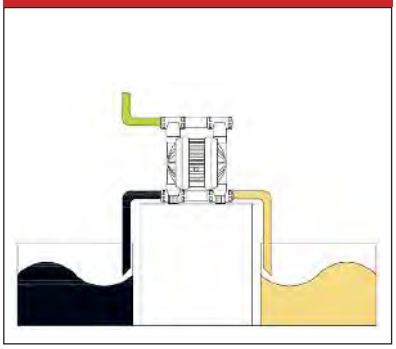
TWIN SUCTION & DELIVERY MANIFOLD



POSITIVE SUCTION HEAD



TWIN SUCTION MANIFOLD



ATEX Certificate

ALPHADYNAMIC PUMPS has stored the documentation certifying ATEX compliance according to Directive 94/9/CE for it's ranges of Ruby air operated diaphragm pumps with the SGS Baseefa Limited certification body. They are manufactured in a CONDUCT, class II 2 GD c IIB T4 version.

The equipment user is responsible for classifying it's area of use.

On the other hand, the manufacturer shall identify and affix the certification class of the manufactured equipment.

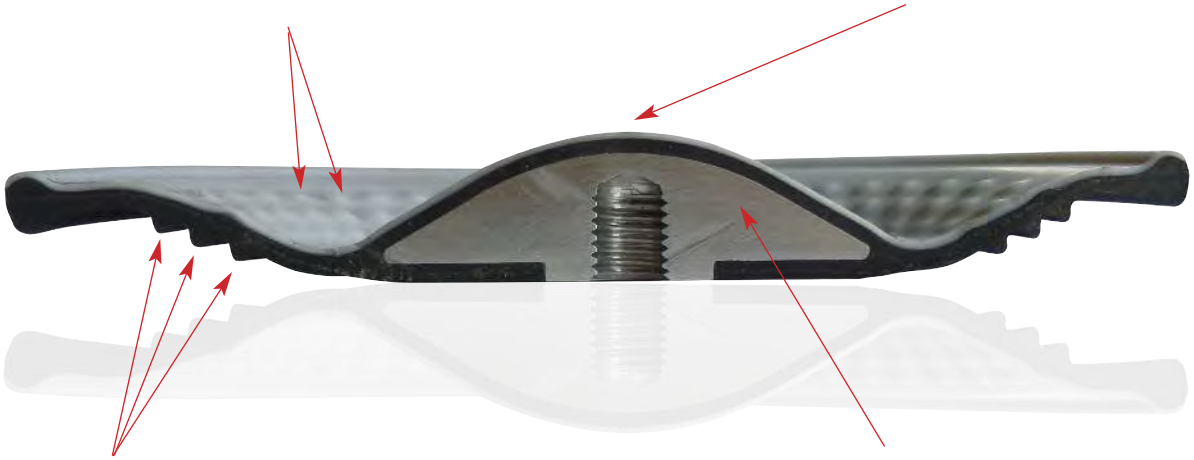
Advance Unified Diaphragms Featuring

- Easy installation and maintenance
- Excellent service life
- Inventory cost reduction
- Improved performance
- Greater displacement per cycle
- No center hole, elimination of potential leak paths.
- There is no need for the main axis to be insured
- They can be screwed and unscrewed without the use of tools

Advance Unified Diaphragm Offers:

The prominences decrease the stretching of the PTFE during the regression and prevent it from cracking.

Exclusive conical shape provides excellent service life, suction lift and lower start-up pressure



Backing ribs sustain and guide the diaphragm's flexibility for extended life and reduced cavitation on suction stroke

Oversized integrated plate supports nearly 50% of the diaphragm through the entire dynamic motion.

Minipump 005

Construction materials: **PP – PP+CF**

Minipump 005

Minipump 017

Construction materials: **PP, PP+CF, ECTFE**

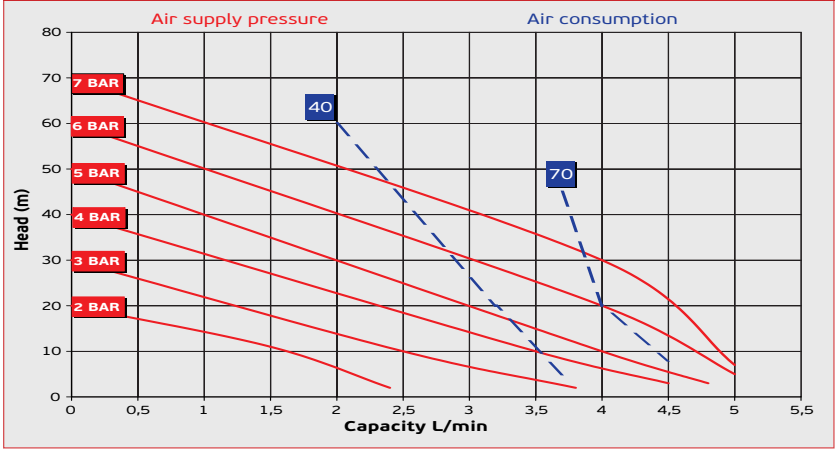
Minipump 017

Technical data

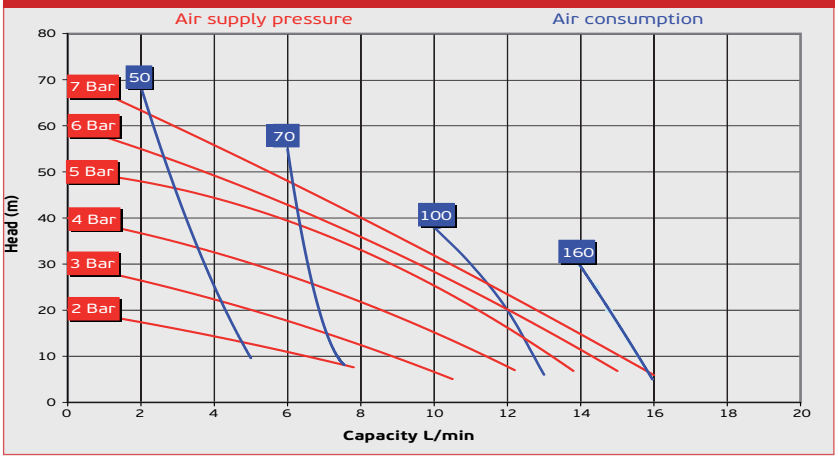
	Minipump 005	Minipump 017
ATEX certification	II 2 GD c IIB T4	II 2 GD c IIB T4
Construction materials	PP, PP+CF	PP, ECTFE, PP+CF
Intake/delivery connections (standard)	G 1/4"	G 3/8"
Air connection	1/8"	3/8"
Max. self-priming capacity	3 m	3 m
Max. flow rate	5 l/min	17 l/min
Max. head	70 m	70 m
Max. air supply pressure	7 bar	7 bar
Diameter	0,5 mm	0,5 mm
Max. operating temp.	60°C	60°C, ECTFE 90°C
Weight	0,5Kg	1Kg , ECTFE 1,5Kg

* The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

Performance Minipump 005



Performance Minipump 017



Ruby 012 Pump

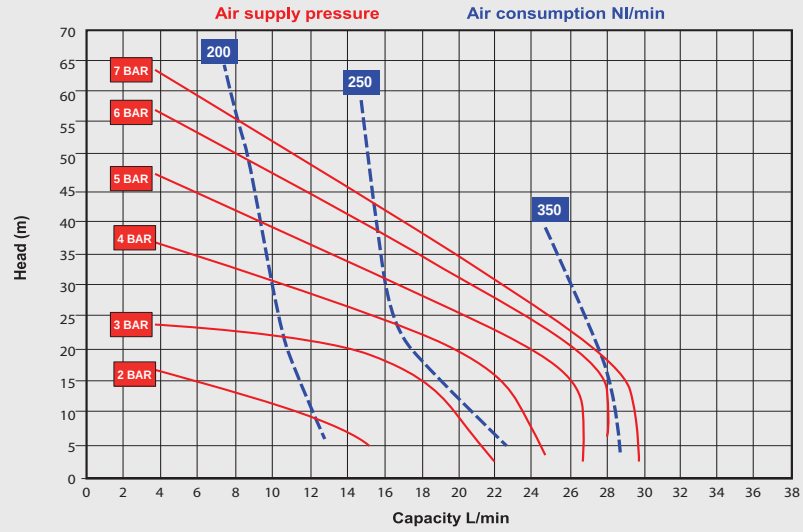
Construction materials: **PP - PVDF- PP+CF**

Technical data

ATEX certification	II 2 GD c IIB T4
Construction materials	PP, PVDF, PP+CF
Diaphragms	SANT+PTFE, HYTREL+PTFE
Intake/delivery connections	G 1/2"
Air connection	1/4"
Max. self-priming capacity	4 m
Max. flow rate	30 L/min
Max. head	70 m
Max. air supply pressure	7 bar
Max solid size (diameter)	2 mm
Max. operating temp.	PP 60°C, PVDF 95°C, P,P+CF 60°C
Weight PP , PP+CF	1,6 Kg
Weight PVDF	1,9 Kg

* The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

CURVES RUBY 012



Ruby 015 Pump

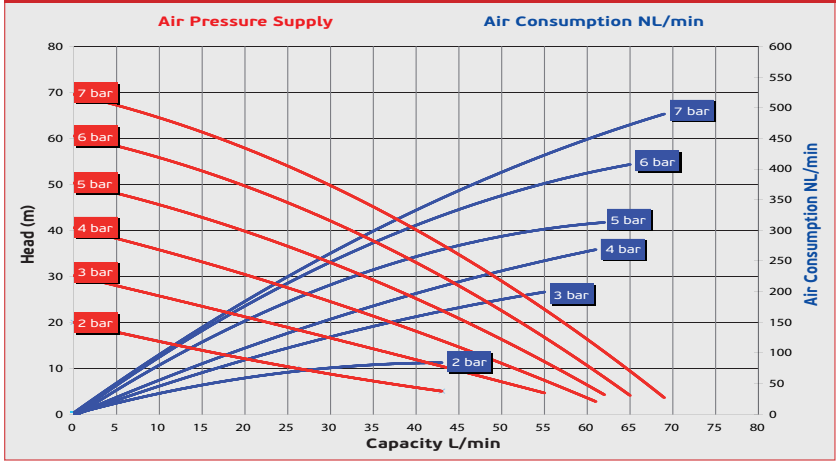
Construction materials: **PP – ALUMINIUM – PVDF – AISI 316 - PP+CF**

Technical data

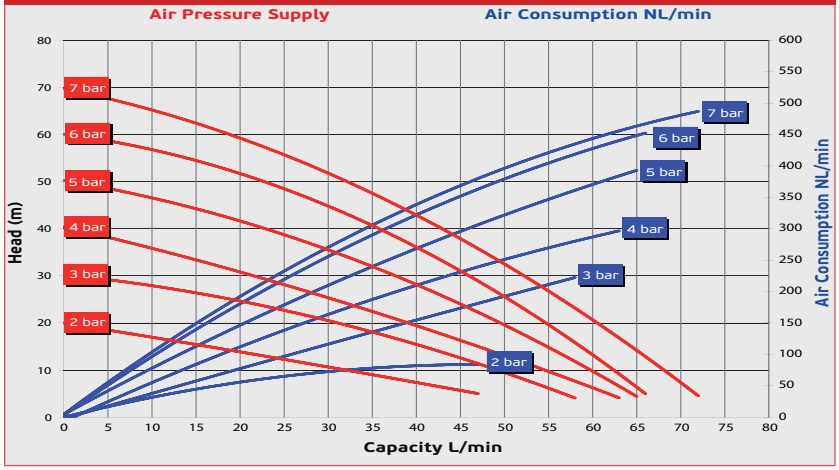
ATEX certification	II 2 GD c IIB T4
Construction materials	PP, PVDF, ALUMINIUM, AISI 316, PP+CF
Diaphragms	PTFE with Conductive EPDM (compound) PTFE-A Full Capacity with conductive EPDM (compound) NBR-BUNA Conductive EPDM Conductive
Intake/delivery connections	1/2" BSP G-Flange on Request
Air connection	½"
*Max. self-priming capacity	4 m
*Max. flow rate	72 l/min
Max. head	70 m
Max. air supply pressure	7 bar
Diameter	3,0 mm
Max. operating temp.	PP 60°C, PVDF 95°C, Alu 95°C, AISI 316 95°C
Weight PP	4,0 kg
Weight PVDF	5,5 Kg
Weight Aluminium	6,0 kg
Weight AISI 316	9,0 kg

* The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

CURVES RUBY 015 PTFE FULL CAPACITY FITTED



CURVES RUBY 015 RUBBER FITTED



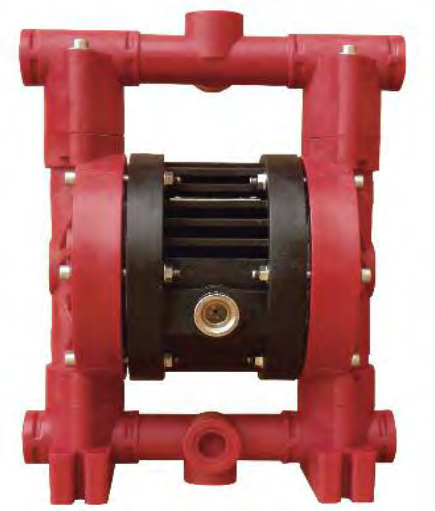
Ruby 020 Pump

Construction materials: **PP – ALUMINIUM – PVDF - PP+CF**

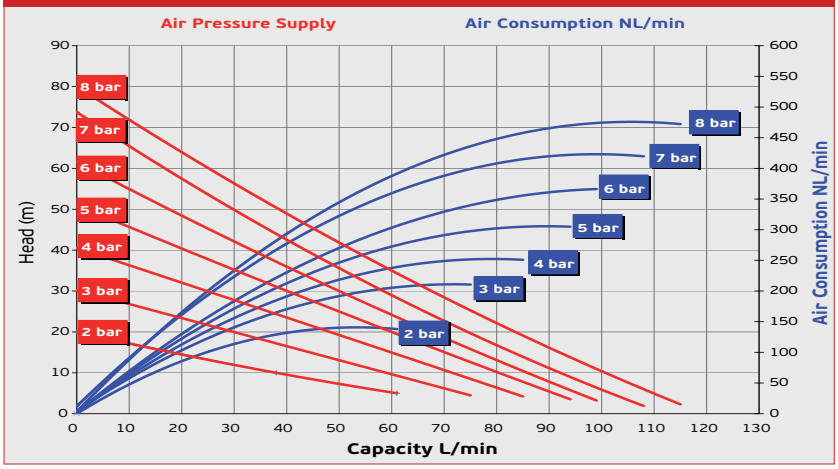
Technical data

ATEX certification	II 2 GD c IIB T4 135°C
Construction materials	PP , PVDF, ALUMINIUM, PP+CF
Diaphragms	PTFE with Conductive EPDM (compound) PTFE-A Full Capacity with conductive EPDM (compound) NBR-BUNA Conductive EPDM Conductive
Intake/delivery connections	3/4" BSP G -Flange on Request
Air connection	½ "
*Max. self-priming capacity	4 m
*Max. flow rate	117 l/min
Max. head	80 m
Max. air supply pressure	8 bar
Diameter	3,0 mm
Max. operating temp.	PP 60°C, PVDF 95°C, Alu 95°C
Weight PP	4,0 kg
Weight PVDF	5,5 Kg
Weight Aluminium	6,0 kg

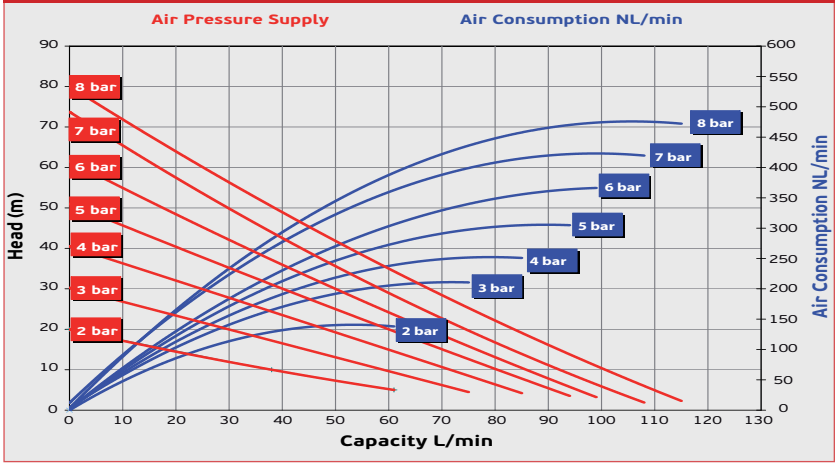
* The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.



RUBY 020 - FULL CAPACITY PTFE - A FITTED



RUBY 020 - RUBBER FITTED



Ruby 025 Pump

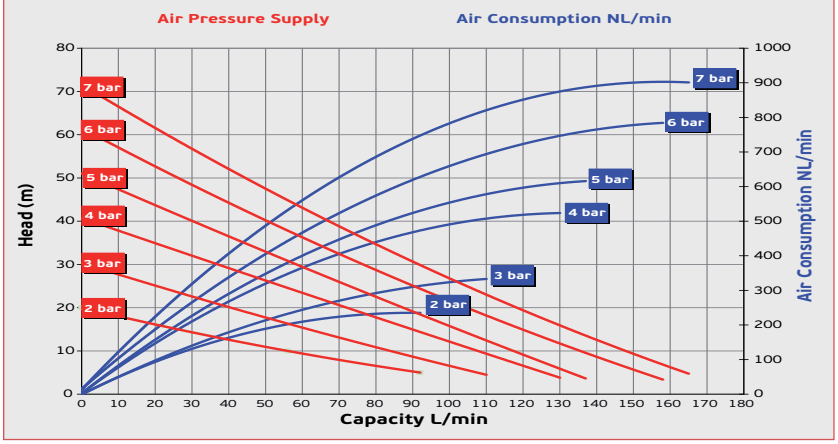
Construction materials: **PP – ALUMINIUM – PVDF – AISI 316 - PP+CF**

Technical data

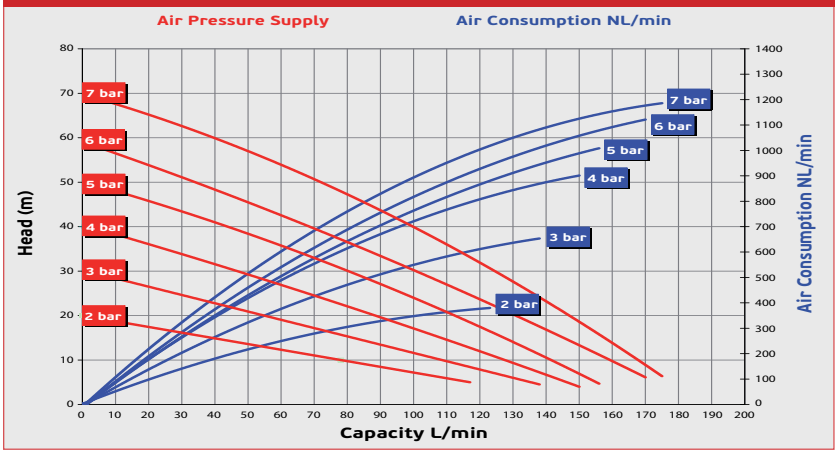
ATEX certification	II 2 GD c IIB T4
Construction materials	PP, PVDF, ALUMINIUM, AISI 316, PP+CF
Diaphragms	PTFE with Conductive EPDM (compound) PTFE-A Full Capacity with conductive EPDM (compound) NBR-BUNA Conductive EPDM Conductive
Intake/delivery connections	1" BSP G -Flange on Request
Air connection	½"
*Max. self-priming capacity	4 m
*Max. flow rate	175 l/min
Max. head	70 m
Max. air supply pressure	7 bar
Diameter	3,5 mm
Max. operating temp.	PP 60°C, PVDF 95°C, Alu 95°C, AISI 316 95°C, 130°C with Metallic center block
Weight PP	6,0 kg
Weight PVDF	7,0 Kg
Weight Aluminium	7,5 kg
Weight AISI 316	14,0 kg

* The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

RUBY 025 - FULL CAPACITY PTFE - A FITTED



RUBY 025 - RUBBER FITTED



Ruby 040 Pump

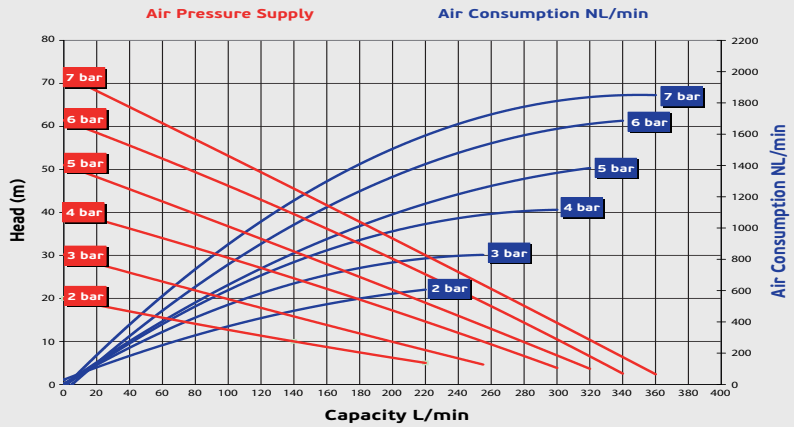
Construction materials: **PP – ALUMINIUM – PVDF – AISI 316 - PP+CF**

Technical data

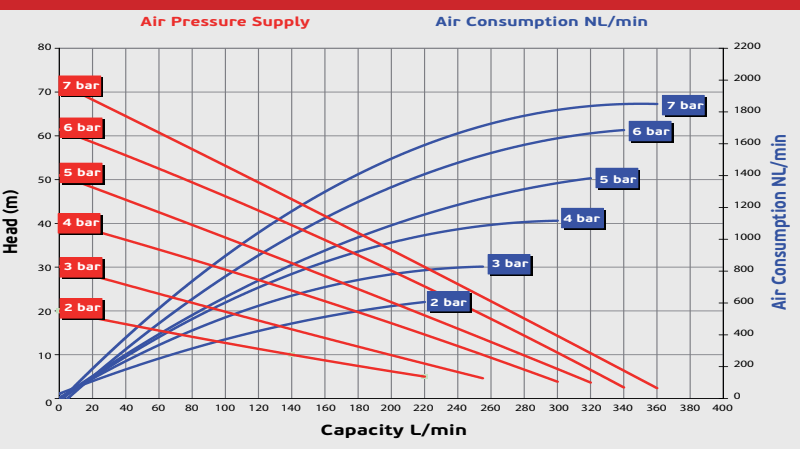
Atex Certification	II 2 GD c IIB T4
Construction materials	PP, PVDF, ALUMINIUM, AISI 316, PP+CF
Diaphragms	PTFE with Conductive EPDM (compound) PTFE-A Full Capacity with conductive EPDM (compound) NBR-BUNA Conductive EPDM Conductive
Intake/delivery connections	1 1/2 " BSP G -Flange on Request
Air connection	1/2 "
* Max self-priming capacity	5 m
* Max. flow rate	360 l/min
Max. solid size (diameter)	5mm
Max head	70 m
Max air supply	7 Bar
Max operating Temperature	PP: 60°C , PVDF: 95°C , Alu: 95°C , AISI316: 95°C 130°C with Metallic center block
Weight PP	14 kg
Weight PVDF	22 kg
Weight Alu	14 kg
Weight AISI316	30 kg

* The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

RUBY 040 - FULL CAPACITY PTFE - A FITTED



RUBY 040 - RUBBER FITTED



Ruby 140 Pump

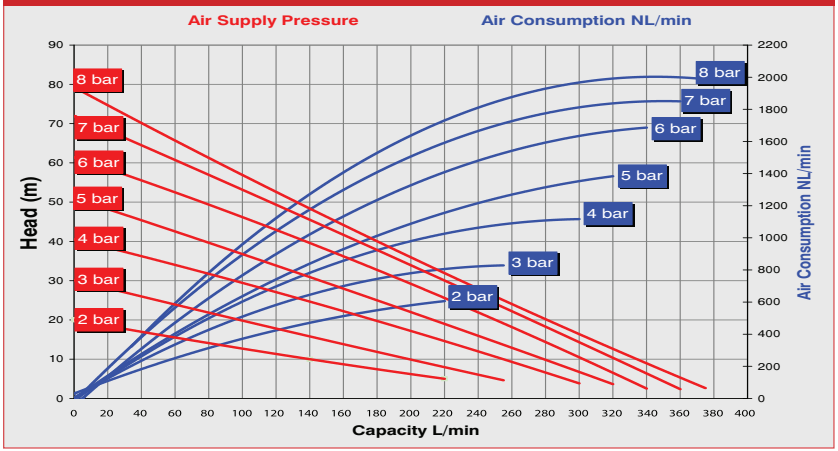
Construction materials: **ALUMINIUM**

Technical data

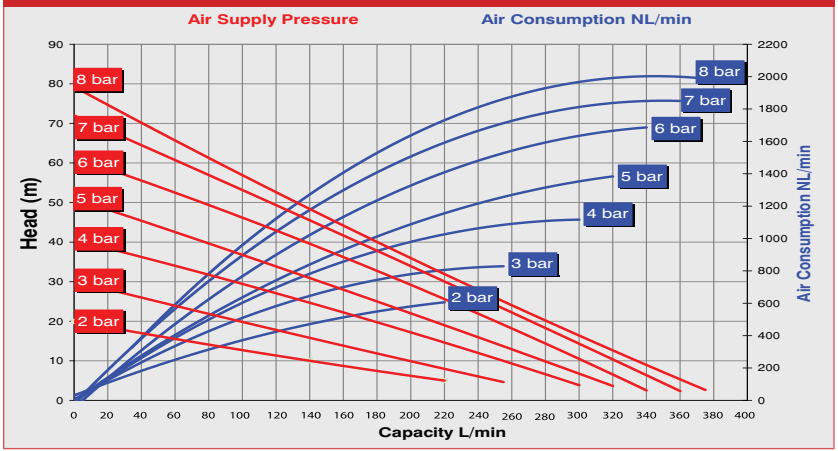
Atex Certification	II 2 GD c IIB T4 135°C
Construction materials	ALUMINIUM
Diaphragms	PTFE with Conductive EPDM (compound) PTFE-A Full Capacity with conductive EPDM (compound) NBR-BUNA Conductive EPDM Conductive
Intake / delivery connections	1 1/2" BSP G - Flange on Request
Air connection	1/2 "
* Max self-priming capacity	5 m
* Max. flow rate	375 l/min
Max. solid size (diameter)	5mm
Max head	80 m
Max air supply	8 Bar
Max operating Temperature	95°C 130°C with Metallic center block
Weight	14 kg

* The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

RUBY 140 - FULL CAPACITY PTFE - A FITTED



RUBY 140 - RUBBER FITTED



Ruby 050 Pump

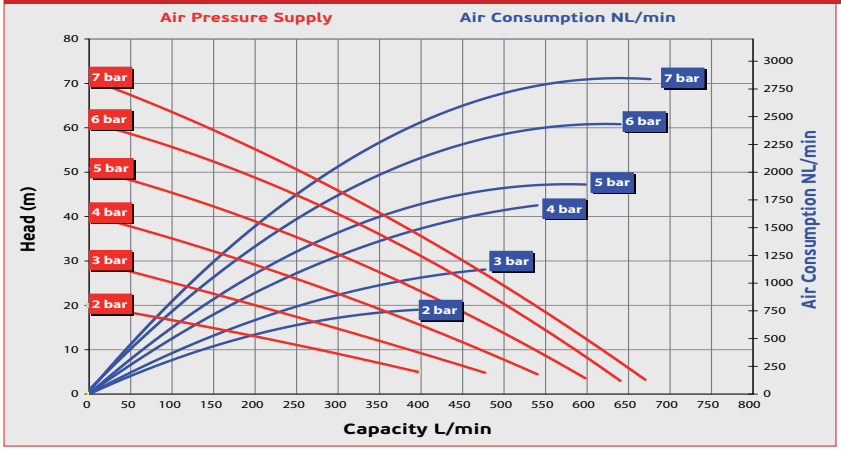
Construction materials: **PP – PVDF – PP+CF**

Technical data

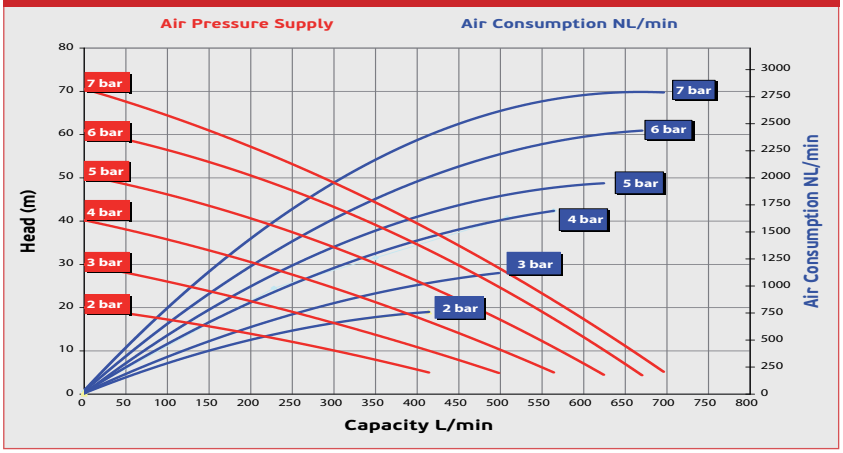
ATEX certification	II 2 GD c IIB T4 135°C
Construction materials	ALUMINIUM, AISI 316
Diaphragms	PTFE with Conductive EPDM (compound) PTFE-A Full Capacity with conductive EPDM (compound) NBR-BUNA Conductive EPDM Conductive
Intake/delivery connections	2" BSP G - Flange on Request
Air connection	3/4"
*Max. self-priming capacity	5 m
*Max. flow rate	696 l/min
Max. head	70 m
Max. air supply pressure	7 bar
Diameter	8 mm
Max. operating temp.	95°C
Weight Aluminium	50 kg
Weight AISI 316	70 Kg

* The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

RUBY 050 - FULL CAPACITY PTFE FITTED



RUBY 050 - RUBBER FITTED



Ruby 150 Pump

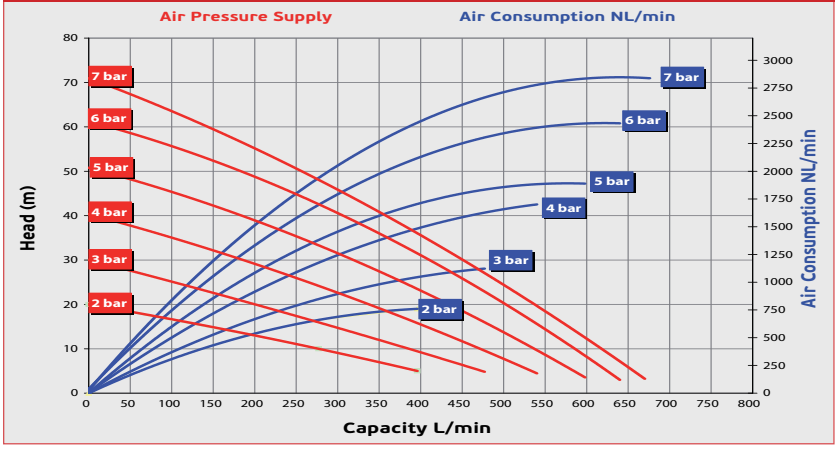
Construction materials: **ALUMINIUM**

Technical data

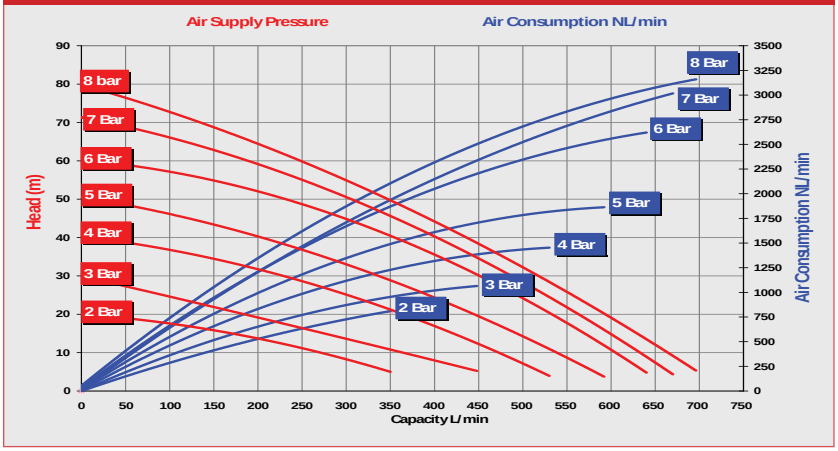
ATEX certification	II 2 GD c IIB T4 135°C
Construction materials	ALUMINIUM
Diaphragms	PTFE with Conductive EPDM (compound) PTFE-A Full Capacity with conductive EPDM (compound) NBR-BUNA Conductive EPDM Conductive
Intake/delivery connections	2" BSP G - Flange on Request
Air connection	3/4"
*Max. self-priming capacity	5 m
*Max. flow rate	696 l/min
Max. head	80 m
Max. air supply pressure	8 bar
Diameter	8 mm
Max. operating temp.	95°C
Weight Aluminium	35 kg
Weight	35 kg

* The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

RUBY 150 - FULL CAPACITY PTFE FITTED



RUBY 150 - RUBBER FITTED



Ruby 051 Pump

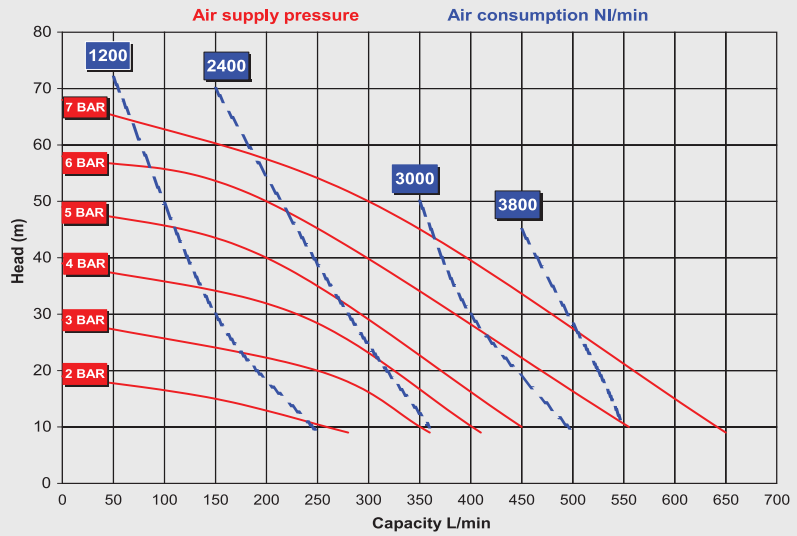
Construction materials: **PP – PVDF – PP+CF**

Technical data

ATEX certification	II 2 GD c IIB T4
Construction materials	PP, PVDF, PP+CF
Diaphragms	PTFE+SANTOPRENE, PTFE+HYTREL, NBR-BUNA, EPDM
Intake/delivery connections	2" BSP G - Flange on Request
Air connection	3/4"
Max. self-priming capacity	5 m
Max. flow rate	650 l/min
Max. head	70 m
Max. air supply pressure	7 bar
Max solid size (diameter)	8 mm
Max. operating temp.	PP 60°C, PVDF 95°C, P.P+CF 60°C
Weight PP	38 Kg
Weight PVDF	45 Kg

* The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material

RUBY 051 - FULL CAPACITY PTFE FITTED



Ruby 080 Pump

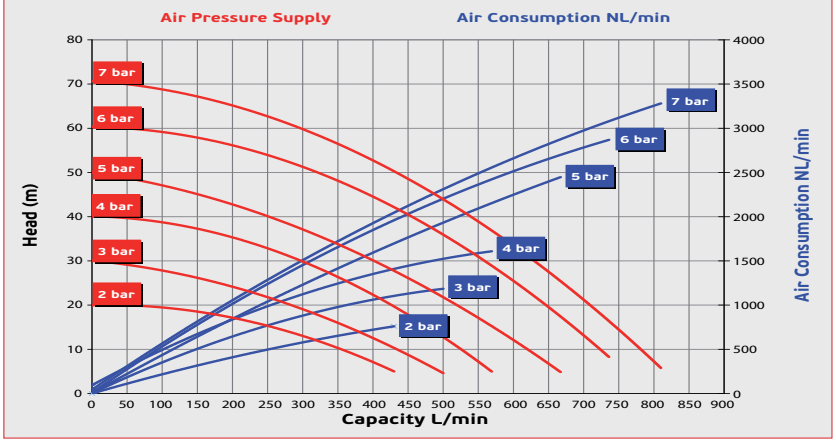
Construction materials: **ALUMINIUM, AISI 316**

Technical data

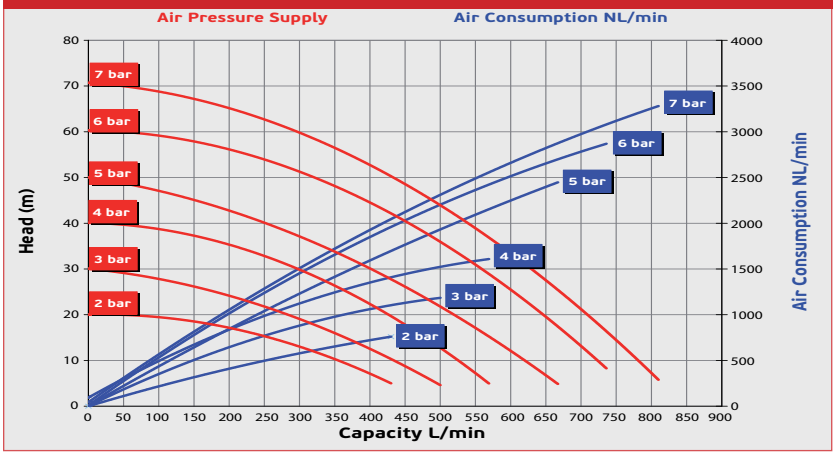
ATEX certification	II 2 GD c IIB T4 135°C
Construction materials	ALUMINIUM, AISI 316
Diaphragms	PTFE with Conductive EPDM (compound) PTFE-A Full Capacity with conductive EPDM (compound) NBR-BUNA Conductive EPDM Conductive
Intake/delivery connections	3" BSP G - Flange on Request
Air connection	3/4"
*Max. self-priming capacity	5 m
*Max. flow rate	810 l/min
Max. head	70 m
Max. air supply pressure	7 bar
Diameter	8 mm
Max. operating temp.	95°C
Weight Aluminium	50 kg
Weight AISI 316	70 Kg

* The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

RUBY 080 - FULL CAPACITY PTFE FITTED



RUBY 080 - RUBBER FITTED



Ruby 081 Pump

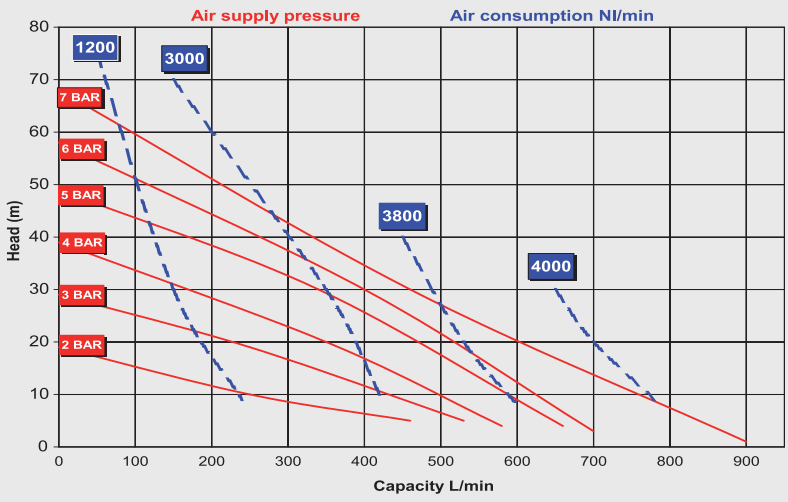
Construction materials: **PP – PVDF – PP+CF**

Technical data

ATEX certification	II 2 GD c IIB T4
Construction materials	PP, PVDF, PP+CF
Diaphragms	PTFE+SANTOPRENE, PTFE+HYTREL, NBR-BUNA, EPDM
Intake/delivery connections	G 3"
Air connection	½"
Max. self-priming capacity	5 m
Max. flow rate	900 l/min
Max. head	70 m
Max. air supply pressure	7 bar
Max solid size (diameter)	10 mm
Max. operating temp.	PP 60°C, PVDF 95°C, P.P+CF 60°C
Weight PP	50 Kg
Weight PVDF	67 Kg

* The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

RUBY 081



Certifications

Quality Standards

ALPHADYNAMIC PUMPS designs, develops and manufactures pumps and parts to the highest quality standards.

ALPHADYNAMIC PUMPS consistently exceeds the expectations of service, quality and integrity through its deep commitment to lean manufacturing and compliance with industry certifications, including ISO Certificate.

ALPHADYNAMIC PUMPS employees and distributor networks are deeply committed to excellence, innovation and customer service.

EC Declaration of Conformity ATEX 100a

II 2 GD c IIB T4

Baseefa15ATEX13DR

Manufactured By: **ALPHADYNAMIC PUMPS Co**
3 Eleftherias str - 14564 Kifisia Greece
Tel +30 210 4200338 Fax +30 211 2688837
www.alphadynamic.eu

This declaration applies to all Metallic & Conductive Plastic Ruby Air Operated Double Diaphragm pumps, ALPHADYNAMIC PUMPS (HELLAS) declares under our sole responsibility that the product listed below conforms with the relevant provisions of EC directive 94/9/EC for equipment and protective systems intended for use in potentially explosive atmospheres, and is self certified for safe use in Atex Group **I**, Category 2 area's.

We hereby decbre, that the pump units manufactured in series production

Designation: Ruby AIR OPERATED DIAPHRAGM PUMP
Series : Ruby 015 / 020 / 025 / 040 / 050 / 051 / 080 /081
Serial number : SN XXXXX

in the version delivered by us, is in compliance with the following applicable regulations:

- ☒ EC Directive 94/9/EC Equipment and protective systems intended for use in potentially explosive atmospheres (ATEX)
- ☒ EN 13463-1:2009 Non-electrical equipment for use in potentially explosive atmospheres - Part 1: Basic method and requirements
- ☒ EN 13463-5:2013 Non-electrical equipment intended for use in potentially explosive atmospheres-Part 5: Protection by construction safety " c "

Signature of manufacturer: Date : 19/01/2015

Information on signatory : Nikolaos Prodromidis

TÜV NORD

CERTIFICATE

Management system as per
ISO 9001 : 2015
In accordance with TÜV NORD CERT procedures, it is hereby certified that

ALPHADYNAMIC PUMPS CO
3, Eleftherias Str.
145 64 Kifisia
Hellas

Design, Manufacture and Export of Industrial Pumps.

IAF DAkkS

QMSCERT®
Certification Body

TECHNICAL FILE REVIEW REPORT
According to the requirements of Directive 2006 / 42 / EC

Report Nr: 221.01015 Date: 16.01.2015
Manufacturer: ALPHADYNAMIC
3 Eleftherias str. 14564
Kifisia Industrial Park - Hellas
Applicable Design Code: EN ISO 12100:2010,
EN 809:1998+A1:2009
Description: AIR – OPERATED DIAPHRAGM PUMP
Type : RUBY 015, RUBY 020
RUBY 025, RUBY 040
RUBY 050, RUBY 080
Technical Characteristics: Maximum Operating Pressure: 7 bar(g)
Minimum Operating Pressure: 2 bar(g)
Maximum Operating Temperature: -10 °C up to 130°C
(limits according to diaphragm material)
Maximum Operating Temperature: +25 °C up to 130°C
(limits according to housing material)
Maximum Noise Level: 70 – 80 db.
Maximum Viscosity: 50.000. cPa.s

The manufacturer in accordance with Annex VII of the Directive 2006/42/EC and article 12 § 2" has compiled and submitted for review to the QMSCERT, the technical construction file of the above mentioned machinery. "(Guide to application of the Machinery Directive 2006/42/EC 2nd edition 2010 §126)

The technical construction file was evaluated and found to be in accordance with Annex VII §A .1 of the Directive 2006/42/EC. The present report is an integral part of the technical file of the machinery and cannot be use as certificate.

This report must be kept with its technical documentation by the manufacturer for a period of ten years. The applicant must inform QMSCERT which reviewed the technical documentation of all modifications to the technical file of equipment.

These are subject to additional review where they may affect conformity with the essential requirements or the prescribed conditions for use of the equipment. This additional review will be given in the format of issuing a new report.

This review of the Technical File has been carried out to the best knowledge and ability and our responsibility is limited to the exercise of due care and the results concern only the items inspected.

For QMSCERT
Dimitrios Papadopoulos
Lead Auditor M Sc. Dipl. Mechanical Eng.
Dr. Welding Eng - Level II RT , MT , PT , UT

Ruby

STRONG **QUALITY** INDUSTRIAL **PUMP**

TÜV NORD CERT GmbH ISO 9001

II 2 GD c IIB T4
Baseefa15ATEX13DR

5 YEARS LIMITED WARRANTY

VER 2018.05

ALPHADYNAMIC PUMPS
Industrial Pumps & Flowmeters

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