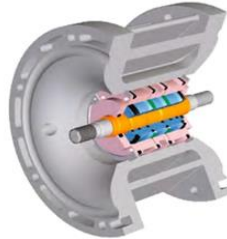
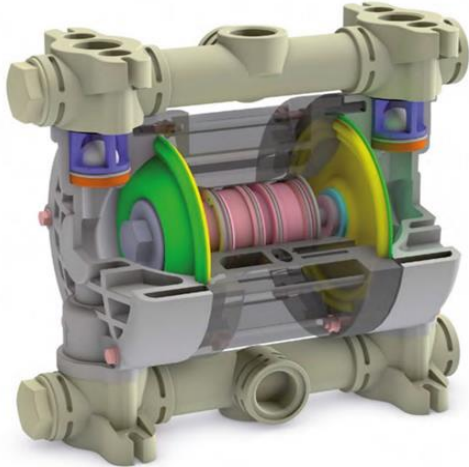


# REVOLUTIONARY BOXER® Technology



## WHY DEBEM PATENTED PNEUMATIC EXCHANGER



**REVOLUTIONARY**  
Worldwide  
**PATENTED Technology**



DEBEM  
6 PIECES (CUSTOMER'S AIR-SIDE KIT)

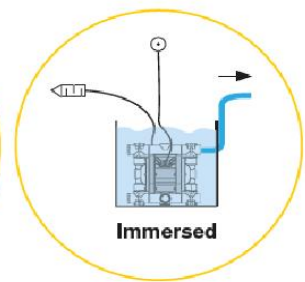
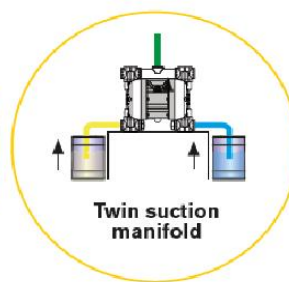
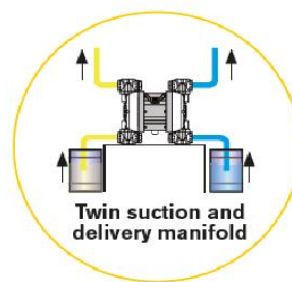
**NO Conventional SPOOL  
Valves used in BOXER  
Technology Pumps**

## LOW AIR CONSUMPTION

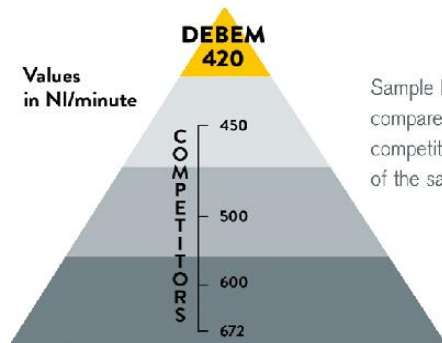
- Available in PP, PVDF/ECTFE, ALUMINIUM and AISI 316 STAINLESS STEEL
- Use in potentially-explosive atmospheres (ATEX zone 1-2 certification)
- Suitable for demanding applications and high-humidity environments
- Dry operation
- Dry self-priming
- Actuated using non-lubricated air
- Stall-prevention pneumatic circuit
- Adjustable flow rate and head
- Fine tuning of motor speed at constant pressure

- Twin-manifold option (two suction and two delivery)
- Bench or ceiling installation
- Three suction and delivery positions

**INSTALLATION**  
The pumps **must be installed vertically** with special bolts on the feet or holes provided.



## BOXER Technology Special Attributes



Sample Debem BOXER 50, compared to four different competitor pumps of the same size (1/2")



DEBEM LONG LIFE  
DIAPHRAGM



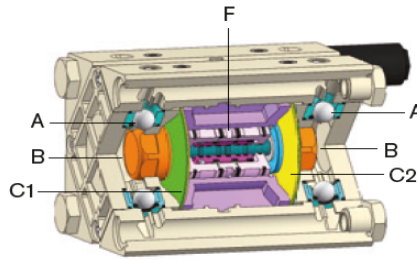
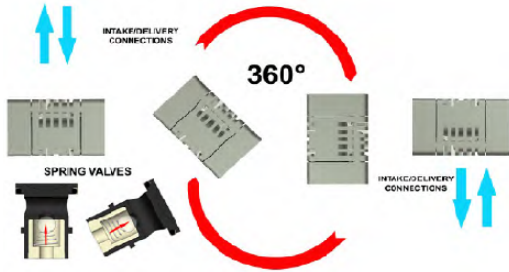
COMPETITOR

## LOW AIR CONSUMPTION

- PTFE is treated in several ways
- MORE ELASTIC and RESISTANT
  - Crystals Removal
  - Perforation v/s Deformation
  - Thermal Treatment like in Steel Quenching



# REVOLUTIONARY BOXER® - CUBIC® Technology Smallest AODD Pump in the World

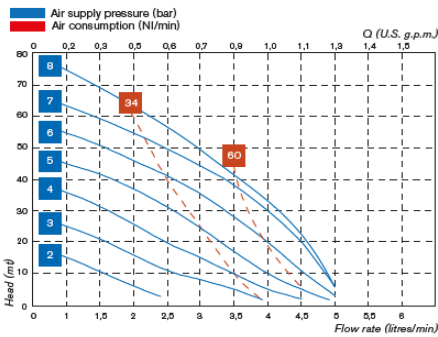
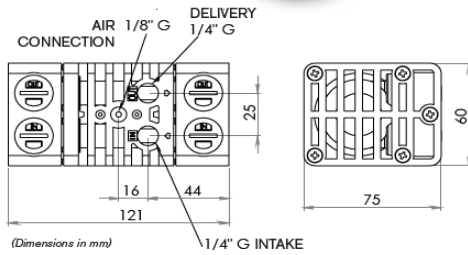


- A = ball valves
- B = pumping chamber
- C1 = product-side diaphragm
- C2 = air-side diaphragm
- F = pneumatic exchangers



## MIDGETBOX

**STANDARD:** II 3/3 GD c IIB T135°C (zone 2)  
**CONDUCT:** II 2/2 GD c IIB T135°C (zone 1)



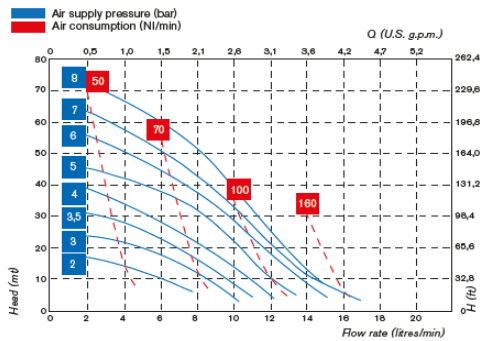
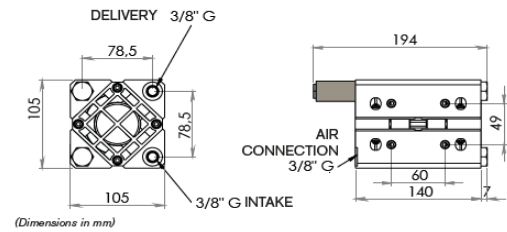
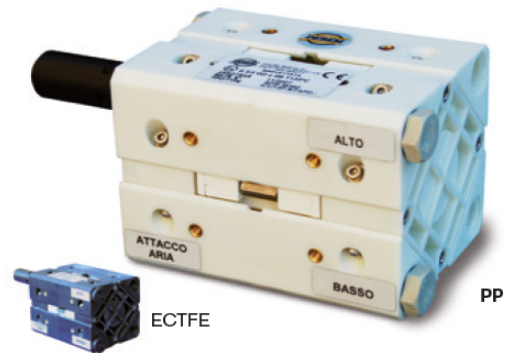
Intake/delivery connections	G 1/4" f (*)		
Air connection	G 1/8" f		
Max self-priming capacity**	3 mt		
Max flow rate*	5 l/min		
Max head*	80 mt		
Max air supply pressure	8 bar		
Max diameter of passing solids	0 mm		
Construction materials and net weight	PP	0,5 Kg	65°C Max Temp.

(\*) Available with NPT connections (on request)

\*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material. \*\*The value depends on the configuration of the pump.

## CUBIC 15

**STANDARD:** II 3/3 GD c IIB T135°C (zone 2)  
**CONDUCT:** II 2/2 GD c IIB T135°C (zone 1)



Intake/delivery connections	G 3/8" f (*)		
Air connection	G 3/8" f (*)		
Max self-priming capacity**	3 mt		
Max flow rate*	17 l/min		
Max head*	80 mt		
Max air supply pressure	8 bar		
Max diameter of passing solids	0,5 mm		
Construction materials and net weight	PP	1 Kg	65°C Max Temp.
	ECTFE	1,5 Kg	95°C Max Temp.

(\*) Available with NPT connections (on request)

\*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material. \*\*The value depends on the configuration of the pump.

# REVOLUTIONARY BOXER® Technology



## BOXER COMPOSITION CODES

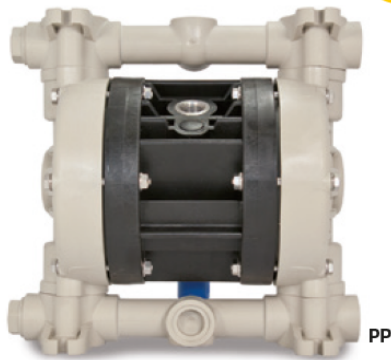
ex. IB50-P-HTTPV--

Internal Exchanger, Boxer 50, body PP, air side diaphragm Hytrel®, fluid side diaphragm PTFE, balls PTFE, ball seats PP, O-Ring Viton®.

I	B50	P	H	T	T	P	V	-	-
INTERNAL EXCHANGER	PUMP MODEL	PUMP BODY	AIR SIDE DIAPHRAGM	FLUID SIDE DIAPHRAGM	BALLS	BALL SEATS	O-RING*	TWIN MANIFOLD	CONDUCT VERSION
I	MICR - Microboxer <sup>1</sup> MIN - Miniboxer <sup>2</sup> B15 - Boxer 15 B50 - Boxer 50 <sup>3</sup> B81 - Boxer 81 <sup>4</sup> B100 - Boxer 100 B150 - Boxer 150 B251 - Boxer 251 B502 - Boxer 502 <sup>5</sup> B522 - Boxer 522 <sup>6</sup> B503 - Boxer 503	P - PP PC - PP + CF FC - PVDF + CF AL - ALU A - AISI 316	H - Hytrel® M - Santoprene® D - EPDM N - NBR	T - PTFE	T - PTFE A - AISI 316 D - EPDM N - NBR	P - Polypropylene F - PVDF A - AISI 316 L - Aluminium I - HMWHDPE R - PPS-V (only for BOXER 100 and BOXER 150)	T - PTFE D - EPDM V - Viton® N - NBR	X	C

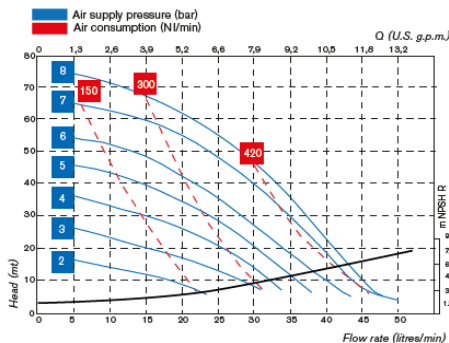
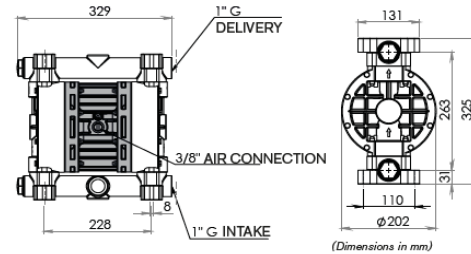
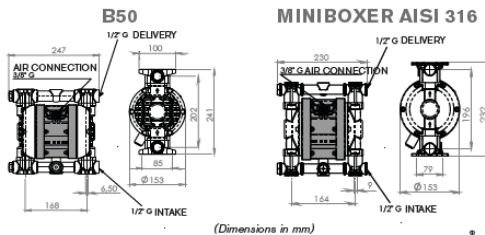
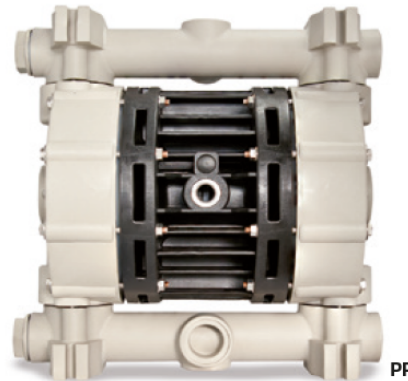
## MINIBOXER - BOXER 50

STANDARD: II 3/3 GD c IIB T135°C (zone 2)  
CONDUCT: II 2/2 GD c IIB T135°C (zone 1)



## BOXER 100

STANDARD: II 3/3 GD c IIB T135°C (zone 2)  
CONDUCT: II 2/2 GD c IIB T135°C (zone 1)

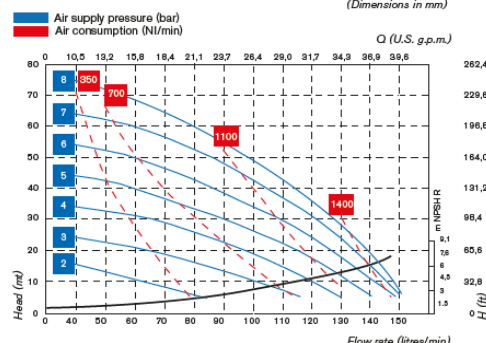


Intake/delivery connections	G 1/2" f or DN 15 (*)		
Air connection	G 3/8" f		
Max self-priming capacity**	4 mt		
Max flow rate*	50 l/min		
Max head*	80 mt		
Max air supply pressure	8 bar		
Max diameter of passing solids	4 mm		

Construction materials and net weight	PP	3,6 Kg	65°C Max Temp.
	PVDF	4,2 Kg	95°C Max Temp.
	Alu	4 Kg	95°C Max Temp.
	AISI 316	6,5 Kg	95°C Max Temp.

(\*) Available with NPT connections (on request)

The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the configuration of the pump.



Intake/delivery connections	G 1" f or DN 25 (*)		
Air connection	G 3/8" f		
Max self-priming capacity**	4 mt		
Max flow rate*	150 l/min		
Max head*	80 mt		
Max air supply pressure	8 bar		
Max diameter of passing solids	4 mm		

Construction materials and net weight	PP	7,5 Kg	65°C Max Temp.
	PVDF	8,5 Kg	95°C Max Temp.
	Alu	8,2 Kg	95°C Max Temp.
	AISI 316	11 Kg	95°C Max Temp.

(\*) Available with NPT connections (on request)

The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the configuration of the pump.

# REVOLUTIONARY BOXER® Technology



## BOXER COMPOSITION CODES

ex. IB50-P-HTTPV--

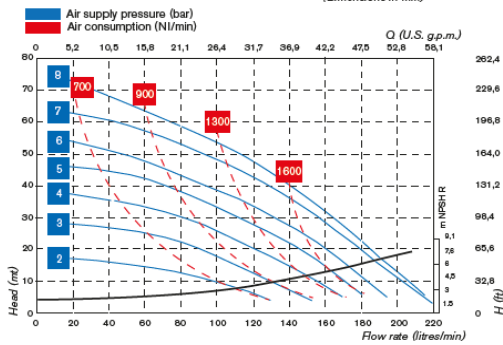
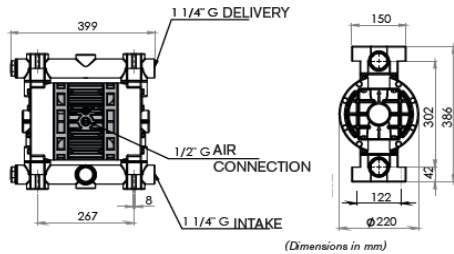
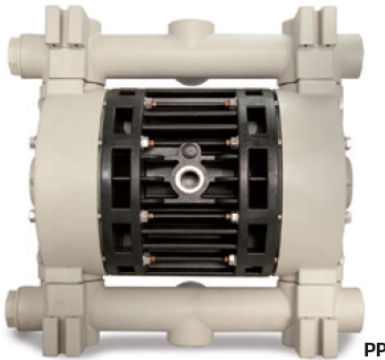
Internal Exchanger, Boxer 50, body PP, air side diaphragm Hytrel®, fluid side diaphragm PTFE, balls PTFE, ball seats PP, O-Ring Viton®.

I	B50	P	H	T	T	P	V	-	-
INTERNAL EXCHANGER	PUMP MODEL	PUMP BODY	AIR SIDE DIAPHRAGM	FLUID SIDE DIAPHRAGM	BALLS	BALL SEATS	O-RING*	TWIN MANIFOLD	CONDUCT VERSION
I	<b>MICR</b> - Microboxer <sup>1</sup> <b>MIN</b> - Miniboxer <sup>2</sup> <b>B15</b> - Boxer 15 <b>B50</b> - Boxer 50 <sup>2</sup> <b>B81</b> - Boxer 81 <sup>4</sup> <b>B100</b> - Boxer 100 <b>B150</b> - Boxer 150 <b>B251</b> - Boxer 251 <b>B502</b> - Boxer 502 <sup>2</sup> <b>B522</b> - Boxer 522 <sup>2</sup> <b>B503</b> - Boxer 503	<b>P</b> - PP <b>PC</b> - PP + CF <b>FC</b> - PVDF + CF <b>AL</b> - ALU <b>A</b> - AISI 316	<b>H</b> - Hytrel® <b>M</b> - Santoprene® <b>D</b> - EPDM <b>N</b> - NBR	<b>T</b> - PTFE	<b>T</b> - PTFE <b>A</b> - AISI 316 <b>D</b> - EPDM <b>N</b> - NBR	<b>P</b> - Polypropylene <b>F</b> - PVDF <b>A</b> - AISI 316 <b>L</b> - Aluminium <b>I</b> - HMWHDPE <b>R</b> - PPS-V (only for BOXER 100 and BOXER 150)	<b>T</b> - PTFE <b>D</b> - EPDM <b>V</b> - Viton® <b>N</b> - NBR	<b>X</b>	<b>C</b>



## BOXER 150

STANDARD: II 3/3 GD c IIB T135°C (zone 2)  
CONDUCT: II 2/2 GD c IIB T135°C (zone 1)



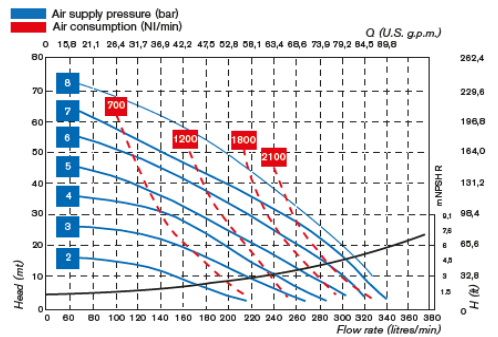
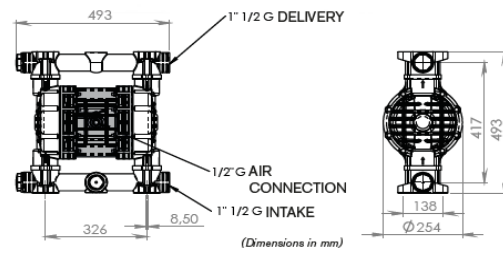
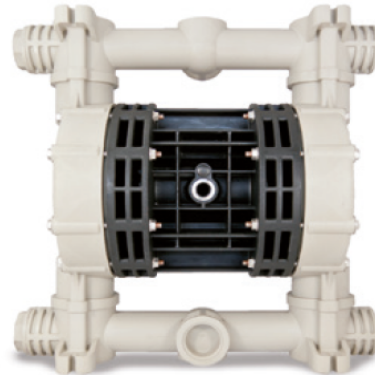
Intake/delivery connections	G 1" 1/4 f or DN 32 (*)		
Air connection	G 1/2" f		
Max self-priming capacity**	4 mt		
Max flow rate*	220 l/min		
Max head*	80 mt		
Max air supply pressure	8 bar		
Max diameter of passing solids	5 mm		
Construction materials and net weight	PP	12 Kg	65°C Max Temp.
	PVDF	14 Kg	95°C Max Temp.
	Alu	16 Kg	95°C Max Temp.
	AISI 316	21 Kg	95°C Max Temp.

(\*) Available with NPT connections (on request)

\*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material. \*\* The value depends on the configuration of the pump.

## BOXER 251

STANDARD: II 3/3 GD c IIB T135°C (zone 2)  
CONDUCT: II 2/2 GD c IIB T135°C (zone 1)



Intake/delivery connections	G 1" 1/2 f or DN 40 (*)		
Air connection	G 1/2" f		
Max self-priming capacity**	4 mt		
Max flow rate*	340 l/min		
Max head*	80 mt		
Max air supply pressure	8 bar		
Max diameter of passing solids	6 mm		
Construction materials and net weight	PP	16 Kg	65°C Max Temp.
	PVDF	20 Kg	95°C Max Temp.
	Alu	21 Kg	95°C Max Temp.
	AISI 316	32 Kg	95°C Max Temp.

(\*) Available with NPT connections (on request)

\*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material. \*\* The value depends on the configuration of the pump.

# REVOLUTIONARY BOXER® Technology



## BOXER COMPOSITION CODES

ex. IB50-P-HTPV--

Internal Exchanger, Boxer 50, body PP, air side diaphragm Hytrel®, fluid side diaphragm PTFE, balls PTFE, ball seats PP, O-Ring Viton®.

I	B50	P	H	T	T	P	V	-	-
INTERNAL EXCHANGER	PUMP MODEL	PUMP BODY	AIR SIDE DIAPHRAGM	FLUID SIDE DIAPHRAGM	BALLS	BALL SEATS	O-RING*	TWIN MANIFOLD	CONDUCT VERSION
I	MICR - Microboxer <sup>1</sup> MIN - Miniboxer <sup>2</sup> B15 - Boxer 15 B50 - Boxer 50 <sup>3</sup> B81 - Boxer 81 <sup>4</sup> B100 - Boxer 100 B150 - Boxer 150 B251 - Boxer 251 B502 - Boxer 502 <sup>3</sup> B522 - Boxer 522 <sup>4</sup> B503 - Boxer 503	P - PP PC - PP + CF FC - PVDF + CF AL - ALU A - AISI 316	H - Hytrel® M - Santoprene® D - EPDM N - NBR	T - PTFE	T - PTFE A - AISI 316 D - EPDM N - NBR	P - Polypropylene F - PVDF A - AISI 316 L - Aluminium I - HMWHDPE R - PPS-V (only for BOXER 100 and BOXER 150)	T - PTFE D - EPDM V - Viton® N - NBR	X	C

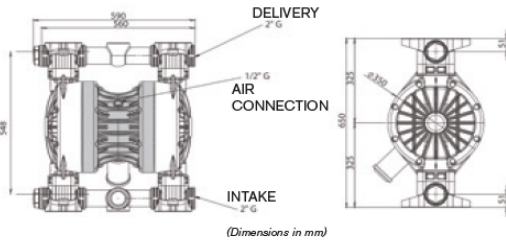


## BOXER 522

STANDARD: II 3/3 GD c IIB T135°C (zone 2)  
CONDUCT: II 2/2 GD c IIB T135°C (zone 1)



PP

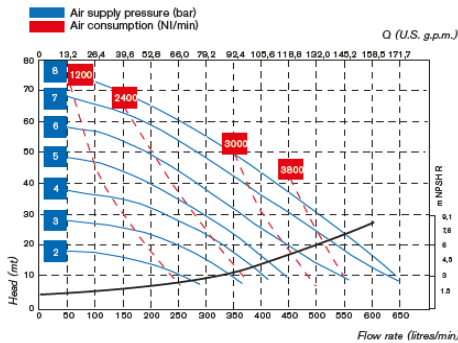
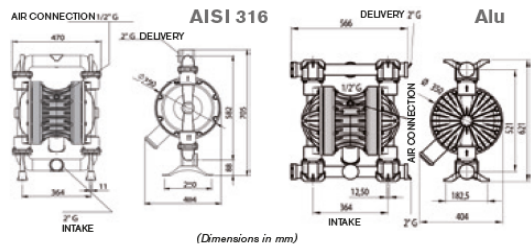


## BOXER 502

STANDARD: II 3/3 GD c IIB T135°C (zone 2)  
CONDUCT: II 2/2 GD c IIB T135°C (zone 1)



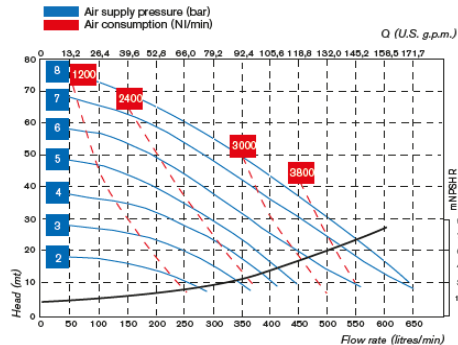
Alu



Intake/delivery connections	G 2" f or DN 50 (*)	
Air connection	G 1/2" f	
Max self-priming capacity**	5 mt	
Max flow rate*	650 l/min	
Max head*	80 mt	
Max air supply pressure	8 bar	
Max diameter of passing solids	8 mm	
Construction materials and net weight	PP	38 Kg 65°C Max Temp.
	PVDF	45 Kg 95°C Max Temp.

(\*) Available with NPT connections (on request)

\*The curves and performance are referred to pumps with submerged suction and a free delivery inlet with water at 20°C and vary according to the construction material. \*\* The value depends on the configuration of the pump.



Intake/delivery connections	G 2" f or DN 50 (*)	
Air connection	G 1/2" f	
Max self-priming capacity**	5 mt	
Max flow rate*	650 l/min	
Max head*	80 mt	
Max air supply pressure	8 bar	
Max diameter of passing solids	8 mm	
Construction materials and net weight	Alu	49 Kg 95°C Max Temp.
	AISI 316	54 Kg 95°C Max Temp.

(\*) Available with NPT connections (on request)

\*The curves and performance are referred to pumps with submerged suction and a free delivery inlet with water at 20°C and vary according to the construction material. \*\* The value depends on the configuration of the pump.

# REVOLUTIONARY BOXER® Technology



## BOXER COMPOSITION CODES

ex. IB50-P-HTTPV--

Internal Exchanger, Boxer 50, body PP, air side diaphragm Hytrel®, fluid side diaphragm PTFE, balls PTFE, ball seats PP, O-Ring Viton®.

I	B50	P	H	T	T	P	V	-	-
INTERNAL EXCHANGER	PUMP MODEL	PUMP BODY	AIR SIDE DIAPHRAGM	FLUID SIDE DIAPHRAGM	BALLS	BALL SEATS	O-RING*	TWIN MANIFOLD	CONDUCT VERSION
I	MICR - Microboxer <sup>1</sup> MIN - Miniboxer <sup>2</sup> B15 - Boxer 15 B50 - Boxer 50 <sup>3</sup> B81 - Boxer 81 <sup>4</sup> B100 - Boxer 100 B150 - Boxer 150 B251 - Boxer 251 B502 - Boxer 502 <sup>5</sup> B522 - Boxer 522 <sup>6</sup> B503 - Boxer 503	P - PP PC - PP + CF FC - PVDF + CF AL - ALU A - AISI 316	H - Hytrel® M - Santoprene® D - EPDM N - NBR	T - PTFE	T - PTFE A - AISI 316 D - EPDM N - NBR	P - Polypropylene F - PVDF A - AISI 316 L - Aluminium I - HMWHDPE R - PPS-V (only for BOXER 100 and BOXER 150)	T - PTFE D - EPDM V - Viton® N - NBR	X	C



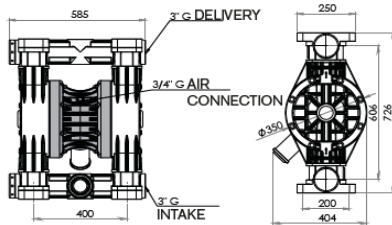
## BOXER 503 plastic

STANDARD: II 3/3 GD c IIB T135°C (zone 2)  
CONDUCT: II 2/2 GD c IIB T135°C (zone 1)



PVDF

PP



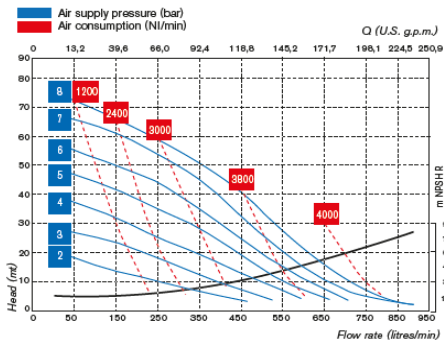
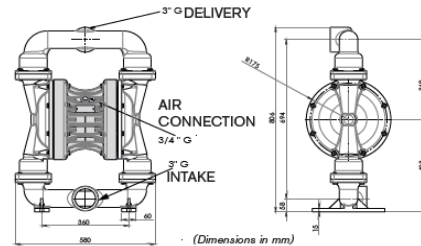
## BOXER 503 metal

STANDARD: II 3/3 GD c IIB T135°C (zone 2)  
CONDUCT: II 2/2 GD c IIB T135°C (zone 1)



Alu

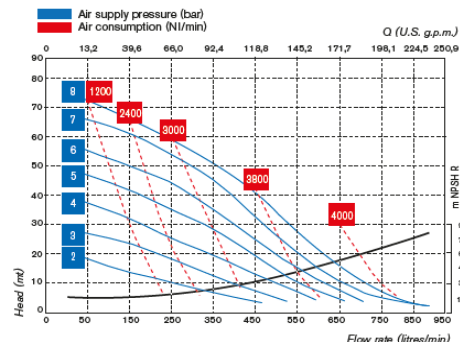
AISI 316



Intake/delivery connections	G 3" f or DN 80 (*)		
Air connection	G 3/4" f		
Max self-priming capacity**	4 mt		
Max flow rate*	900 l/min		
Max head*	80 mt		
Max air supply pressure	8 bar		
Max diameter of passing solids	10 mm		
Construction materials and net weight	PP	50 Kg	65°C Max Temp.
	PVDF	67 Kg	95°C Max Temp.

(\*) Available with NPT connections (on request)

The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material. \*\* The value depends on the configuration of the pump.



Intake/delivery connections	G 3" f or DN 80 (*)		
Air connection	G 3/4" f		
Max self-priming capacity**	4 mt		
Max flow rate*	900 l/min		
Max head*	80 mt		
Max air supply pressure	8 bar		
Max diameter of passing solids	10 mm		
Construction materials and net weight	Alu	66 Kg	95°C Max Temp.
	AISI 316	71 Kg	95°C Max Temp.

(\*) Available with NPT connections (on request)

The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material. \*\* The value depends on the configuration of the pump.

# REVOLUTIONARY BOXER® Technology



## DIAPHRAGM PUMPS - FDA

# FOODBOXER

Debem FDA Foodboxer pumps are made of electro-polished stainless steel, and are ideal for the food, cosmetics and beverage industries in compliance with FDA requirements. The parts in contact with the liquid are made exclusively of electro-polished AISI 316 and PTFE FDA.

### FOODBOXER COMPOSITION CODES

ex. **FB50-A-HTAAT--**

Foodboxer 50, body AISI 316, air side diaphragm Hytrel®, fluid side diaphragm PTFE, balls PTFE AISI 316, ball seats AISI 316, O-Ring PTFE.

FB50	A	H	T	A	A	T	-	-
PUMP MODEL	PUMP BODY	AIR SIDE DIAPHRAGM	FLUID SIDE DIAPHRAGM	BALLS	BALL SEATS	O-RING	TWIN MANIFOLD	CONDUCT VERSION
<b>FB30</b> - Foodboxer 30 <b>FB50</b> - Foodboxer 50 <b>FB81</b> - Foodboxer 81 <b>FB100</b> - Foodboxer 100 <b>FB150</b> - Foodboxer 150 <b>FB251</b> - Foodboxer 251 <b>FB502</b> - Foodboxer 502 <b>FB503</b> - Foodboxer 503	<b>A</b> - AISI 316 electropolished	<b>H</b> - Hytrel®	<b>T</b> - PTFE	<b>A</b> - AISI 316 <b>T</b> - PTFE	<b>A</b> - AISI 316	<b>T</b> - PTFE	<b>X</b>	<b>C</b>

- **FDA Compliant Series**
- ½" to 3" Sizes
- Electro-Polished Stainless Steel AISI 316 and PTFE – FDA Grade
- Ideal for Food, Cosmetics and Beverage Industry
- Flows up to 900 LPM Max
- Max Head 8 bar / 80 Meters
- Built-in with ALL – WHY DEBEM Features



## DIAPHRAGM PUMPS - 3A

# SANIBOXER

3A certified, made with mechanically polished AISI 316 L, the SANIBOXER pump is designed for the Food-Processing, Cosmetic and Pharmaceutical industry.

### SANIBOXER COMPOSITION CODES

ex. **SB100A-DTTAT--**

Saniboxer 100 AISI 316 L, diaphragm EPDM +PTFE, balls PTFE AISI 316, ball seats AISI 316, O-Ring PTFE.

SB100	A	D	T	T	A	T
PUMP MODEL	PUMP BODY	SINGLE DIAPHRAGM		BALLS	BALL SEATS	O-RING*
<b>SB100</b> - Saniboxer 100	<b>A</b> - AISI 316 L mechanically polished	<b>AIR SIDE</b> <b>D</b> - EPDM	<b>FLUID SIDE</b> <b>T</b> - PTFE	<b>T</b> - PTFE <b>A</b> - AISI 316 L	<b>A</b> - AISI 316	<b>T</b> - PTFE



- **3A Sanitary – FDA Certified SERIES**
- 1-½" Size
- Mechanically Polished AISI 316 L and PTFE – FDA Grade
- Ideal for Food, Cosmetics and Beverage
- Flows up to 120 LPM Max
- Max Head 8 bar / 80 Meters
- Built-in with ALL – WHY DEBEM Features



# REVOLUTIONARY BOXER® Technology



## CUSTOM FEATURES

- Carved from **SOLID PTFE** – Entire Pump
- Stainless Steel ARMOR
- Flange connections 1" ANSI
- Built-in ALL FEATURES of WHY DEBEM Pumps
- Patented LOW AIR CONSUMPTION Pneumatic Exchanger
- DEBEM Diaphragms inside

**SOLID PTFE  
AODD PUMP**



## CUSTOM FEATURES

- Max Solid Size : 45 mm (1.77 Inches)
- Max Cloth Length : 600 mm
- Based on USER Request, we can increase the Length Flow thru'
- Displacement: 650 LPM
- Max Head : 50 Meters
- Air Supply Pressure : 5 bar
- Air Connection : ½" BSP
- Inlet x Outlet : 50 mm (2")
- Max Self-Priming : 3.5 Meters
- Also available in PP Construction
- Built-in with ALL – WHY DEBEM Features

**REVOLUTIONARY  
AODD PUMP**



## EQUAFLUX

- 98% SMOOTH FLOW – ASSURED
- PP, PPS-V, PVDF, AL, AISI 316
- Automatic Self-Regulation – NO Manual intervention needed
- ATEX – Certified
- Used with liquids with HIGH apparent Viscosity even if containing suspended Solids of considerable size
- Works on Non-Lubricated AIR
- FDA Approved – FOOD Grade Series
- ¾" to 2" Sizes available

**REVOLUTIONARY  
PULSATION  
DAMPENER**



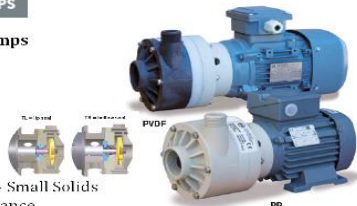
## MAGNETIC DRIVE CENTRIFUGAL PUMPS

- **Magnetic Sealless Pumps – NO LEAKAGES**
- Available in PP and PVDF
- **WELDLESS** Technology used
- High Flow Rates 5 m<sup>3</sup>/hr to 35 m<sup>3</sup>/hr
- Quick and Easy Maintenance
- Inexpensive Spares
- Head up to 24 Meters
- Viscosity up to 150 cP
- NO Mechanical Seals
- Easily Dis-mantled, Very LOW Maintenance



## HORIZONTAL CENTRIFUGAL PUMPS

- **Standard Centrifugal Horizontal Pumps**
- Available in PP and PVDF
- **WELDLESS** Technology used
- Mechanical Bellow or LIP Seal Options
- High Flow Rates 6 m<sup>3</sup>/hr to 75 m<sup>3</sup>/hr
- Quick and Easy Maintenance
- Inexpensive Spares
- Head up to 38 Meters
- Viscosity up to 500 cP – Dirty Liquids – Small Solids
- Easily Dis-mantled, Very LOW Maintenance



## VERTICAL CENTRIFUGAL PUMPS

- **Standard Centrifugal Vertical Pumps**
- Operation by Immersed in Tank
- Available in PP and PVDF
- **WELDLESS** Technology used
- Avoids use of Internal Mechanical Seal
- High Flow Rates 6 m<sup>3</sup>/hr to 75 m<sup>3</sup>/hr
- Quick and Easy Maintenance
- Inexpensive Spares
- Head up to 38 Meters
- Viscosity up to 500 cP – Dirty Liquids – Small Solids
- Easily Dis-mantled, Very LOW Maintenance

