



# Product catalogue

## **WAVE Doble**

Modular Air Handlers

Air Handler – Doble-walled

Air flow 1.200 – 40.000 m<sup>3</sup>/h

Standard Forward-Curved and

Backward-Curved Fans

50/60 Hz



### **Models**

WAVE Doble 02  
WAVE Doble 06  
WAVE Doble 12  
WAVE Doble 21  
WAVE Doble 35

WAVE Doble 03  
WAVE Doble 08  
WAVE Doble 14  
WAVE Doble 25  
WAVE Doble 40

WAVE Doble 04  
WAVE Doble10  
WAVE Doble 17  
WAVE Doble 31

# I-Introduction

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## WAVE Doble

### Far much more than a handler

Designed to meet commercial and industrial market requirements. All WAVE Doble models have been designed to provide easy installation and maintenance.

**Fan** – Standard *Forward-Curved* and *Backward-Curved* (optional)  
Air flow 1,200 – 40,000 m<sup>3</sup>/h

**Galvanized sheet steel panel**  
Standard

**Doble-walled**  
Panels internally coated with 1" expanded polyurethane

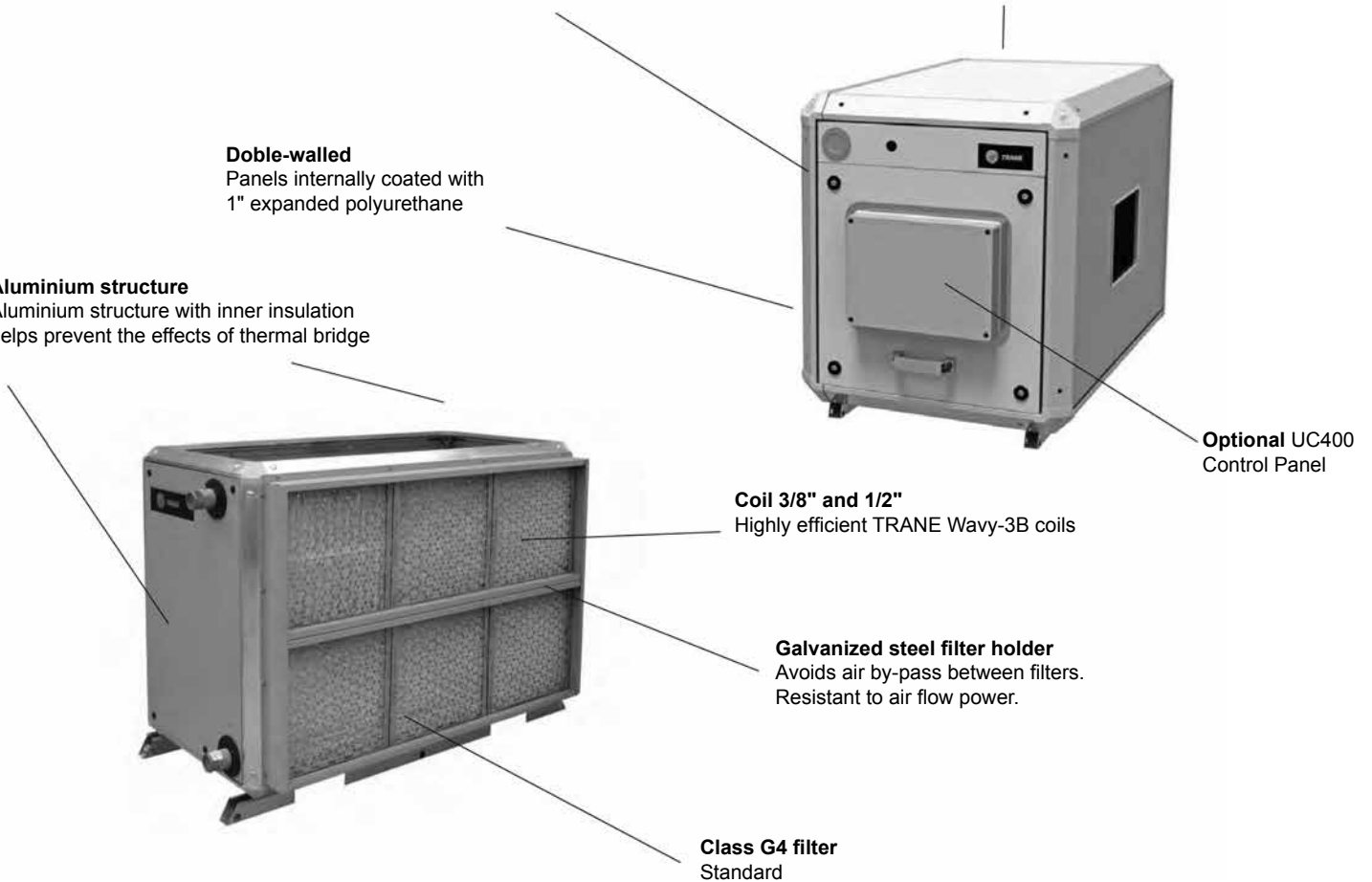
**Aluminium structure**  
Aluminium structure with inner insulation helps prevent the effects of thermal bridge

**Optional UC400**  
Control Panel

**Coil 3/8" and 1/2"**  
Highly efficient TRANE Wavy-3B coils

**Galvanized steel filter holder**  
Avoids air by-pass between filters.  
Resistant to air flow power.

**Class G4 filter**  
Standard



# Introduction

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## **WAVE Doble** **The best choice**

The WAVE *Doble* is clearly the best choice in the market. Countless advantages make Trane Air Handler one of the most prominent brands in the industry. See below the benefits of obtaining a WAVE *Doble* by Trane.

### **Easy maintenance**

Side panels with exclusive knobs make maintenance easier.



### **Internal hex screw**

The reduced number of screws makes maintenance easier and ensures module tightness.



### **Strength and lightness**

In addition to its modern design, the aluminium structure provides rigidity, strength and lightness.



### **Latch-type lock**

Panels close in an internal, simplified way through the latches.



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# Introduction

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**IMPORTANT:**  
Dimensional measuring units in this catalogue are in millimeters (mm). (Except those which are referenced)

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## Refrigerant emission control

Preservation and reduction of gas emissions should be achieved by following the operating and service procedures recommended by Trane.

The refrigerant used in any type of air conditioning unit should be recovered and/or recycled for reuse, retained, or fully destroyed whenever it is removed from the unit. **It should never be released into the atmosphere.**

An eventual recycling or reprocessing of the transferred refrigerant should be considered before starting the recovery process by any method.

ARI 700 standard outlines issues regarding recovered refrigerants and acceptable qualities. Use safe and approved cylinders.

Comply with all applicable safety and transport standards when carrying refrigerant containers. Use recycling equipment to minimize emissions while transferring refrigerant gas. Always use methods that turn the vacuum as low as possible while recovering and condensing the refrigerant inside the cylinder.

## WAVE Doble

Trane has used the best production, marketing and developing engineering resources available to produce high quality equipment.

TRANE offers its line of handlers **WAVE Doble**, developed to meet all the needs required by the most demanding markets as regards air quality, durability, safety and comfort. This comes along with the easy installation and maintenance capabilities inherent in TRANE's traditional technology and quality.

The **WAVE Doble** line's main features are:

**Fast Cycle**, is an option with configuration standard offering quick production time.

**Modular units**, factory-set by the customer for vertical or horizontal assembly with several discharge options. Units stand on galvanized steel rails, "U" profile, to facilitate lifting and be used as support.

**There are 14 models**, with volumes ranging from 1,200 m<sup>3</sup>/h to 40,000 m<sup>3</sup>/h, and from 02 to 40 tons capacities, depending on desired settings.

**Doble-walled**. The sheet steel panels are internally isolated with 25mm thick expanded

polyurethane.

**Down Flow discharge option.** The WAVE Doble has several discharge options. Down Flow discharge is one of them, which allows more operation versatility.

**The TraneConnect concept** is an innovative automation solution, and now it is also available as an option in the Wave Doble climate control. The UC400 is factory set with basic settings for cold water coil systems, but it may be customized and extended by the BAS Trane team, according to the customer's command requirements, with a wide range of applications and needs.

**Highly efficient TRANE Wavy-3B coils.** For a better coil choice, the cooling coil copper tube may be chosen with several diameters according to the project-specific requirements.

**Aluminium structure.** Polished laminated aluminum structure with inner thermal insulation coating to prevent the effects of thermal bridge.

**Different filtering options.** Simple or double filtering with permanent or disposable filters.

**Fans, forward-curved type.** With forward-curved blades, dimensioned to exceed total static pressures of up to 60 mmca.

**Fans, backward-curved type (optional).** With backward-curved blades, dimensioned to exceed total static pressures of up to 160 mmca.

**Modules exposed to atmospheric agents (optional)** Modules suitable for outdoor use, with no need for engine room installation. (Only upon request)

**Precautions against product corrosion** It is recommended that air conditioning equipment shall not be installed in environments with a corrosive atmosphere such as acid or alkali gases and environments with a sea breeze. In need of installing air conditioning equipment in these areas, Trane of Brazil recommends the application of extra protection against corrosion, such as Phenolic protection or the application of ADSIL®. For more information, contact your local distributor.



# II-Model description

GENERAL										VENT MODULE				FILTERS				COIL				Factory Kit's				CONTROLS										optional equipment	S/E												
W	D	P	A	1	4	A	A	A	D	3	0	E	B	0	0	B	0	0	B	4	B	2	B	A	0	0	0	0	B	1	0	0	A	0	0	A	0	0	0	0	0	0	0	0	1	1	1	B	0
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47			

**Digits 1,2 - General Unit model**

**WD = Wave Doble Standard**

WL = Wave Doble Limit Load

**Digit 3 - General**

**Module configuration**

**S = Coil Module**

**V = Fan Module**

**M = Standard Mixing Box Module**

E = Mixing box without damper module

F = Return Filter Module

G = Final Filter Module

N = Empty Module

**P = S + V**

T = S + V + M

**Q = S + V + E**

R = S + V + F

D = S + V + G

J = S + V + E + G

K = S + V + M + G

U = S + V + F + G

**Digit 4 - General**

**Project Sequence**

A = Sequence A

**Digits 5,6 - General**

**Unit Size**

02 = Size 02

03 = Size 03

04 = Size 04

06 = Size 06

08 = Size 08

10 = Size 10

12 = Size 12

14 = Size 14

17 = Size 17

21 = Size 21

25 = Size 25

31 = Size 31

35 = Size 35

40 = Size 40

**Digit 7 - General**

**General Project minor mod. seq.**

A = Sequência A

**Digit 8 - General**

**Service Digit**

E = Digit E

F = Digit F

G = Digit G

**Digit 9 - General**

**Fram. Assembly/Air Supply**

0 = Not applicable

A = Vertical / Vertical

B = Vertical / Horizontal

C = Vertical / Floor

D = Horizontal / Horizontal

E = Horizontal / Vertical

F = Horizontal / Floor

**Digit 10 - General**

**Hydraulics positioning**

0 = Not applicable

D = RIGHT SIDE

E = LEFT SIDE

**Digit 11 - General Voltage**

0 = Not applicable

3 = 220V / 60 Hz

K = 380V / 60 Hz

4 = 440V / 60 Hz

H = 380V / 50 Hz

P = 460V / 60 Hz

**Digit 12 - Auxiliary**

**Identification for Factory assembly**

**S = Coil Module**

**V = Fan Module**

M = Module Cx. Standard mixture

**E = Module box mixture without dampers**

F = Return Filter Module

G = Final Filter Module

N = Empty Module

**P = S + V**

T = S + V + M

**Q = S + V + E**

R = S + V + F

D = S + V + G

J = S + V + E + G

K = S + V + M + G

U = S + V + F + G

**Digit 13 - Fan Module**

**Motor Power**

0 = Not applicable

A = 1/2 CV

B = 3/4 CV

C = 1,0 CV

D = 1,5 CV

E = 2,0 CV

F = 3,0 CV

G = 4,0 CV

H = 5,0 CV/ (5,5 CV QDO 50HZ)

Y = 6,0 CV

J = 7,5 CV

K = 10,0 CV

L = 12,5 CV

M = 15,0 CV

N = 20,0 CV

P = 25,0 CV

Q = 30,0 CV

R = 40,0 CV

**Digit 14 - Fan Module**

**Transmission Option (News)**

**0 = Not applicable**

Specific Table Each Unit

**Digit 15 - Reservado**

0 = Not applicable

**Digit 16 - Reservado**

0 = Not applicable

**Digit 17 - Air Filters**

**Return - Coil Module**

0 = Without filters or Not applicable

A = G1 Metallic 1"

**B = Glass wool 1" G4 - Std**

**D = F5 Pleated 2"**

E = F8 Plan 3"

F = F8 Bag \*\*

G = A + B H = A + C

Y = B + D

K = B + E

M = B + F \*\*

\*\* Requires Return Filter Module

**Digit 18 - Air Filters**

**Final Filters Module**

0 = Without filters or Not applicable

1 = Filter Bag F8

5 = Bag F8 + Absolute Filter A3

**Digit 19 - Reserved**

0 = Not applicable

**Digit 20 - Coil**

**Tube Diameter**

0 = Not applicable

**A = 3/8"**

**B = 1/2"**

**Digit 21 - Coil**

**Qtde de Rows**

0 = Not applicable

**4 = 4 Rows**

**6 = 6 Rows**

**8 = 8 Rows**

**Digit 22 - Coil**

**Série de Aletas**

0 = Not applicable

A = 120 fpf \*

**B = 144 fpf**

Note: Only with tube of 1/2".

**Digit 23 - Coil Circuitagem**

0 = Not applicable

**W = Circuit W**

**2 = Circuit P1/2**

**4 = Circuit P1/4**

**Digit 24 - Coil**

**Water Connection**

0 = Not applicable

**B = BSP**

N = NPT

**Digit 25 - Coil**

**Aluminium**

0 = Not applicable

**A = Standard**

Y = Yellow Fin

# Model description

GERAL					MODULO VENT					FILTROS					SERPENTINA					Kit's de Fábrica					CONTROLES					S/E																
W	D	P	A	1	4	A	A	A	D	3	0	E	B	0	0	B	0	0	B	4	B	2	B	A	0	0	0	0	B	1	0	0	A	0	0	A	0	0	0	0	0	1	1	1	B	0
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47

**Digit 26 - Factory kits**  
**Heating**  
 0 = Without heating or not applicable  
 2 = Heating coil 2 rows  
 A = 1 x 3,0 Kw Electrical  
 B = 1 x 4,5 Kw Electrical  
 D = 1 x 7,5 Kw Electrical  
 G = 2 x 3,0 Kw Electrical  
 H = 2 x 4,5 Kw Electrical  
 Y = 2 x 6,0 Kw Electrical  
 J = 2 x 7,5 Kw Electrical  
 K = 2 x 9,0 Kw Electrical  
 P = 2 x 24,0 Kw Electrical

**Digit 27 - Factory kits**  
**Humidification**  
 0 = Without humidification or not applicable  
 A = 1,5 kg/h (1,12 kW)\*  
 B = 3,0 kg/h (2,25 Kw) \*  
 C = 5,0 kg/h (3,75 Kw) \*  
 D = 8,0 kg/h (6,0 Kw) \*  
 E = 10,0 kg/h (7,5 Kw) \*  
 F = 15,0 kg/h (11,25 Kw) \*  
 G = 25,0 kg/h (18,75 Kw) \*  
 \* Elements under external electrical system

**Digit 28 - Controls Kit**  
 PPS - Pre Packaged Solutions  
 0 = Other controller/not applicable

**Digit 29 - Trane Connect**  
 0 = Other controllers/not applicable  
 1 = UC 400 STD - TS0059

**Digit 30 - Controls**  
**Starter type**  
 0 = Não Aplicável  
 1 = Right  
 2 = Star-delta

**Digit 31 - Controls Electronic**  
**Controller**  
 0 = Other controller/not applicable  
 Controllers in command 24V

**Digit 32 - Controls**  
**Electric panels**  
 0 = Without electric panel or not applicable  
 A = Starter switch/heat-humidif. without electr. panel.  
 C = QE heating \*  
 \* Tables command 24V

**Digit 33 - Controls**  
 Inverter  
 0 = Without inverter or not applicable  
 1 = Include Inverter

**Digit 34 - Controls**  
**Damper Actuator**  
 0 = Without actuator or not applicable  
 3 = Manual Damper  
 4 = Damper prepared for Actuator

**Digit 35 - Controls**  
 Temperature sensors  
 0 = Without sensors or not applicable

**Digit 36 - Controls**  
 Other sensors  
 0 = Without sensors or not applicable

**Digit 37 - Controls Thermostats**  
 0 = Without thermostats or not applicable

**Digit 38 - Controls Air**  
**pressure switches**  
 0 = Without pressure switches or not applicable  
 A = Air differential pressure switch  
 B = Dirty filter pressure switch  
 C = A + B \*  
 \* These options are valid only for the AH 540/ MP 580 controller

**Digit 39 - Controls AG Valve – Type**  
 0 = Without valve or not applicable

**Digit 40 - Controls AG Valve – Diameter/Cv**  
 0 = Without valves or not applicable

**Digit 41 - Destino da Unidade**  
 L = Mercado local (Brasil)  
 E = Exportação

**Digit 42 - Opcional**  
**Power factor capacitor**  
 0 = Not applicable  
 1 = Capacitor

**Digit 43 - Optional fan motor**  
 0 = Not applicable/STD  
 (Up to 3,0CV IP21, others W22 PLUS IP55))  
 1 = W22 PREMIUM EFFICIENCY IP55  
 3 = W22 PREMIUM EFFICIENCY IPW55

**Digit 44 - Optional**  
**Fan module**  
 0 = Without optional or not applicable  
 1 = Mancal NTN + Elastic Sleeve  
 2 = Painted fan  
 3 = Mancal NTN + Elastic Sleeve + painted

**Digit 45 - Optional Coil module**  
 0 = Without optional or not applicable  
 1 = Stainless steel tray

**Digit 46 - Optional Others**  
 0 = Without optional or not applicable  
 A = Packaging  
 B = IGO (Aluminium profile insulation)  
 C = Weather protection  
 D = A + B  
 E = A + C  
 F = B + C  
 G = A + B + C  
 \* Time Protection, through SPE for:  
 Return Filter and Empty Module  
 \* Final filter does not accept weather protection

**Digit 47 - Produto**  
 0 = STD  
 Z = ESPECIAL  
 F = FAST CYCLE



# III-General Data

Forward-curved

Tab. III-01 – General Data WAVE *Doble* – 02 to 12 (with Forward Curved Fan)

Model	WD02	WD03	WD04	WD06	WD08	WD10	WD12
Air flow (m <sup>3</sup> /h)	1200/2000	1500/3000	2000/4000	3000/6000	4400/8000	5500/10000	6000/12000
<b>Coil Module</b>							
Length (mm)	810	810	960	1120	1430	1500	1500
Depth (mm)	530	580	580	740	740	740	740
Height (mm)	550	660	660	800	800	1100	1100
<b>Fan Module</b>							
Length (mm)	810	810	960	1120	1430	1500	1500
Depth (mm)	530	580	580	740	740	740	740
Height (mm)	550	660	660	800	800	1100	1100
<b>Mixing Box without Damper Module (blind)</b>							
Length (mm)	810	810	960	1120	1430	1500	1500
Depth (mm)	600	650	650	700	750	800	850
Height (mm)	550	660	660	800	800	1100	1100
<b>Mixing Box with Damper Module</b>							
Length (mm)	810	810	960	1120	1430	1500	1500
Depth (mm)	723	773	773	823	873	923	973
Height (mm)	673	783	783	923	923	1223	1223
<b>Return Filter Module</b>							
Length (mm)	810	810	960	1120	1430	1500	1500
Depth (mm)	600	600	600	600	600	800	800
Height (mm)	550	660	660	800	800	1100	1100
<b>Empty Module</b>							
Length (mm)	810	810	960	1120	1430	1500	1500
Depth (mm)	530	580	580	740	740	740	740
Height (mm)	550	660	660	800	800	1100	1100
<b>Return Air Filters – Coil Module</b>							
Size (mm)	349X415	349X525	424X525	504X665	439X665	462X477	462X477
Quantity	02	02	02	02	03	06	06
Filtering type	G1 metallic; G4 standard;				F8 flat 3"; F8 bag		
Size (mm)	349X413	349X523	424X523	504X663	439X663	462X475	462X475
Quantity	02	02	02	02	03	06	06
Filtering type	F5 pleated 2"						

Notes:

- (1) The measures presented in the table above are nominal measures for all the modules and do not include the module support measures, since they are to be considered or not, depending on the selected type of assembly.
- (2) As for the coil module, the measures listed in the table above are nominal measures and do not include the filter holder measures. The size for all the models is 85.5 mm; check the outlined figure next to the measures.



# General Data

## Forward-curved

Tab. III-02 – General Data WAVE *Doble* – 14 to 40 (with Forward Curved Fan)

Model	WD14	WD17	WD21	WD25	WD31	WD35	WD40
Air flow (m <sup>3</sup> /h)	7000/14000	9000/17000	12000/21000	15000/25000	17500/31000	20000/35000	25000/40000
<b>Coil Module</b>							
Length (mm)	1700	2000	2400	2770	2770	2770	2770
Depth (mm)	740	740	930	930	930	930	930
Height (mm)	1100	1100	1100	1100	1300	1500	1680
<b>Fan Module</b>							
Length (mm)	1700	2000	2400	2770	2770	2770	2770
Depth (mm)	740	740	930	930	930	930	930
Height (mm)	1100	1100	1100	1100	1300	1300	1300
<b>Mixing Box without Damper Module (blind)</b>							
Length (mm)	1700	2000	2400	2770	2770	2770	2770
Depth (mm)	850	850	850	850	950	1000	1050
Height (mm)	1100	1100	1100	1100	1300	1500	1680
<b>Mixing Box with Damper Module</b>							
Length (mm)	1700	2000	2400	2770	2770	2770	2770
Depth (mm)	973	973	973	973	1073	1123	1173
Height (mm)	1223	1223	1223	1223	1423	1623	1803
<b>Return Filter Module</b>							
Length (mm)	1700	2000	2400	2770	2770	2770	2770
Depth (mm)	800	800	800	800	800	800	800
Height (mm)	1100	1100	1100	1100	1300	1500	1680
<b>Empty Module</b>							
Length (mm)	1700	2000	2400	2770	2770	2770	2770
Depth (mm)	740	740	930	930	930	930	930
Height (mm)	1100	1100	1100	1100	1300	1300	1300
<b>Return Air Filters – Coil Module</b>							
Size (mm)	529X477	472X477	572X477	531X477	531X577	531X677	531X765
Quantity	06	08	08	10	10	10	10
Filtering type	G1 metallic; G4 standard;						
Size (mm)	529X475	472X475	572X475	531X475	531X575	531X675	531X765
Quantity	06	08	08	10	10	10	10
Filtering type	F5 pleated 2"						

**Notes:**

- (1) The measures presented in the table above are nominal measures for all the modules and do not include the module support measures, since they are to be considered or not, depending on the selected type of assembly.
- (2) As for the coil module, the measures listed in the table above are nominal measures and do not include the filter holder measures. The size for all the models is 85.5 mm; check the outlined figure next to the measures.

# General Data

## Backward-curved

Tab.III-03 – General Data WAVE *Doble* – 02 to 12 (with Backward-Curved fan)

Model	WL02	WL03	WL04	WL06	WL08	WL10	WL12
Air flow (m <sup>3</sup> /h)	1200/2000	1500/3000	2000/4000	3000/6000	4400/8000	5500/10000	6000/12000
<b>Coil Module</b>							
Length (mm)	960	1000	1120	1300	1430	1500	1700
Depth (mm)	580	660	740	850	850	740	740
Height (mm)	550	660	660	800	800	1100	1100
<b>Fan Module</b>							
Length (mm)	960	1000	1120	1300	1430	1500	1700
Depth (mm)	580	660	740	850	850	740	740
Height (mm)	660	660	800	900	800	1100	1100
<b>Mixing Box without Damper Module (blind)</b>							
Length (mm)	960	1000	1120	1300	1430	1500	1700
Depth (mm)	600	650	650	700	750	800	850
Height (mm)	550	660	660	800	800	1100	1100
<b>Mixing Box with Damper Module</b>							
Length (mm)	960	1000	1120	1300	1430	1500	1700
Depth (mm)	723	773	773	823	873	923	973
Height (mm)	673	783	783	923	923	1223	1223
<b>Return Filter Module</b>							
Length (mm)	960	1000	1120	1300	1430	1500	1700
Depth (mm)	600	600	600	600	600	800	800
Height (mm)	550	660	660	800	800	1100	1100
<b>Filters Final Module</b>							
Length (mm)	960	1000	1120	1300	1430	1500	1700
Depth (mm)	2100	2100	2100	2100	2100	2100	2100
Height (mm)	660	660	800	900	800	1100	1100
Filtering type	A1; A3 or F8						
Length (mm)	960	1000	1120	1300	1430	1500	1700
Depth (mm)	2500	2500	2500	2500	2500	2500	2500
Height (mm)	660	660	800	900	800	1100	1100
Filtering type	F8+A1 ou F8 + A3						
<b>Empty Module</b>							
Length (mm)	960	1000	1120	1300	1430	1500	1700
Depth (mm)	580	660	740	850	850	740	740
Height (mm)	660	660	800	900	800	1100	1100
<b>Return Air Filters – Coil Module</b>							
Size (mm)	349X415	349X525	424X525	504X665	439X665	462X477	462X477
Quantity	02	02	02	02	03	06	06
Filtering type	G1 metallic; G4 standard;				F8 flat 3"; F8 bag		
Size (mm)	349X413	349X523	424X523	504X663	439X663	462X475	462X475
Quantity	02	02	02	02	03	06	06
Filtering type	F5 pleated 2"						
<b>Air Filters – Filters Final Module</b>							
Size (mm)	424X525	424X525	504X665	595X762	439X665	462X477	462X477
Quantity	02	02	02	02	03	06	06
Filtering type	F8 bag						
Size (mm)	405X510	425X510	485X650	575X750	640X650	675X475	516X475
Quantity	02	02	02	02	03	06	06
Filtering type	A1; A3						

**Notes:**

- (1) The measures presented in the table above are nominal measures for all the modules and do not include the module support measures, since they are to be considered or not, depending on the selected type of assembly.
- (2) As for the coil module, the measures listed in the table above are nominal measures and do not include the filter holder measures. The size for all the models is 85.5 mm; check the outlined figure next to the measures.

# General Data

## Backward-curved

Tab. III-04 – General Data WAVE *Doble* – 14 to 40 (with Backward-Curved fan)

Model	WL14	WL17	WL21	WL25	WL31	WL35	WL40
Air flow (m <sup>3</sup> /h)	7000/14000	9000/17000	12000/21000	15000/25000	17500/31000	20000/35000	25000/40000
<b>Coil Module</b>							
Length (mm)	2000	2000	2400	2770	2770	2770	2770
Depth (mm)	800	800	930	930	930	1050	1050
Height (mm)	1100	1100	1100	1100	1300	1500	1680
<b>Fan Module</b>							
Length (mm)	2000	2000	2400	2770	2770	2770	2770
Depth (mm)	800	800	930	930	930	1050	1050
Height (mm)	1250	1250	1350	1500	1500	1600	1600
<b>Mixing Box without Damper Module (blind)</b>							
Length (mm)	2000	2000	2400	2770	2770	2770	2770
Depth (mm)	850	850	850	850	950	1000	1050
Height (mm)	1100	1100	1100	1100	1300	1500	1680
<b>Mixing Box with Damper Module</b>							
Length (mm)	2000	2000	2400	2770	2770	2770	2770
Depth (mm)	973	973	973	973	1073	1123	1173
Height (mm)	1223	1223	1223	1223	1423	1623	1803
<b>Return Filter Module</b>							
Length (mm)	2000	2000	2400	2770	2770	2770	2770
Depth (mm)	800	800	800	800	800	800	800
Height (mm)	1100	1100	1100	1100	1300	1500	1680
<b>Filters Final Module</b>							
Length (mm)	2000	2000	2400	2770	2770	2770	2770
Depth (mm)	2100	2450	2450	2450	2450	2450	2450
Height (mm)	1250	1250	1350	1500	1500	1600	1600
Filtering type	A1, A3 or F8						
Length (mm)	2000	2000	2400	2770	2770	2770	2770
Depth (mm)	2500	2850	2850	2850	2850	2850	2850
Height (mm)	1250	1250	1350	1500	1500	1600	1600
Filtering type	F8+A1 ou F8 + A3						
<b>Empty Module</b>							
Length (mm)	2000	2000	2400	2770	2770	2770	2770
Depth (mm)	800	800	930	930	930	1050	1050
Height (mm)	1250	1250	1350	1500	1500	1600	1600
<b>Return Air Filters – Coil Module</b>							
Size (mm)	529X477	472X477	572X477	531X477	531X577	531X677	531X765
Quantity	06	08	08	10	10	10	10
Filtering type	G1 metallic; G4 standard;						
Size (mm)	529X475	472X475	572X475	531X475	531X575	531X675	531X765
Quantity	06	08	08	10	10	10	10
Filtering type	F5 pleated 2"						
<b>Air Filters – Filters Final Module</b>							
Size (mm)	529X552	472X552	572X602	531X677	531X677	531X727	531X727
Quantity	06	08	08	10	10	10	10
Filtering type	F8 bag						
Size (mm)	616X550	616X550	750X600	870X675	870X675	870X725	870X725
Quantity	06	06	06	06	06	06	06
Filtering type	A1, A3						

**Notes:**

(1) The measures presented in the table above are nominal measures for all the modules and do not include the module support measures, since they are to be considered or not, depending on the selected type of assembly.

(2) As for the coil module, the measures listed in the table above are nominal measures and do not include the filter holder measures. The size for all the models is 85.5 mm; check the outlined figure next to the measures.

# IV-Coil

## Cooling

### Coil configuration

The coil configuration is defined by the following data:

- Tubes diameter;
- Number of rows;
- Number and type of circuit;
- Number of fins per foot.

The cooling coils of WAVE *Doble* can be manufactured with a 1/2" or 3/8" tube, depending on the selection conditions. All the coils may be manufactured with 4, 6 or 8 rows.

The coil configuration defines the selection results. The following practical rules below will help in the selection:

1. The larger number of rows, the bigger coil capacity.
2. The larger number of fins per foot, the bigger coil capacity.
3. The smaller number of circuits, the bigger coil capacity; but be careful, since in case the number of circuits is reduced, not only the water speed inside the pipes may increase but also the water pressure drop.

There are three types of circuits available for cooling coils:

- **Circuit W:** it means that the number of circuits is the same as the number of tubes in height.
- **Circuit P 1/2:** it means that the number of circuits is half the number of tubes in height.
- **Circuit P 1/4:** it means that the number of coil circuits is 1/4 the number of tubes in height.

Tab. IV-01 – Tube with a nominal diameter of 3/8".

Model	Front area (m <sup>2</sup> )	4 rows			6 rows			8 rows		
		W	P1/2	P1/4	W	P1/2	P1/4	W	P1/2	P1/4
02	0.19	14	7	—	14	7	—	14	7	—
03	0.28	20	10	5	20	10	5	20	10	5
04	0.37	20	10	5	20	10	5	20	10	5
06	0.53	24	12	6	24	12	—	24	12	—
08	0.71	24	12	—	24	12	—	24	12	—
10	0.93	36	18	—	36	18	—	36	18	—
12	1.11	36	18	—	36	18	—	36	18	—
14	1.30	36	18	—	36	18	—	36	—	—
17	1.58	36	18	—	36	—	—	36	—	—
21	1.95	36	18	—	36	—	—	36	—	—
25	2.23	—	—	—	—	—	—	—	—	—
31	2.85	—	—	—	—	—	—	—	—	—
35	3.22	—	—	—	—	—	—	—	—	—
40	3.72	—	—	—	—	—	—	—	—	—

**Note:** Coils manufactured with a 3/8" tube can be assembled with 144 fins per foot.

# Coil

## Cooling

WAVE cooling coils can work with an ethylene glycol solution for applications with ice thermal accumulation.

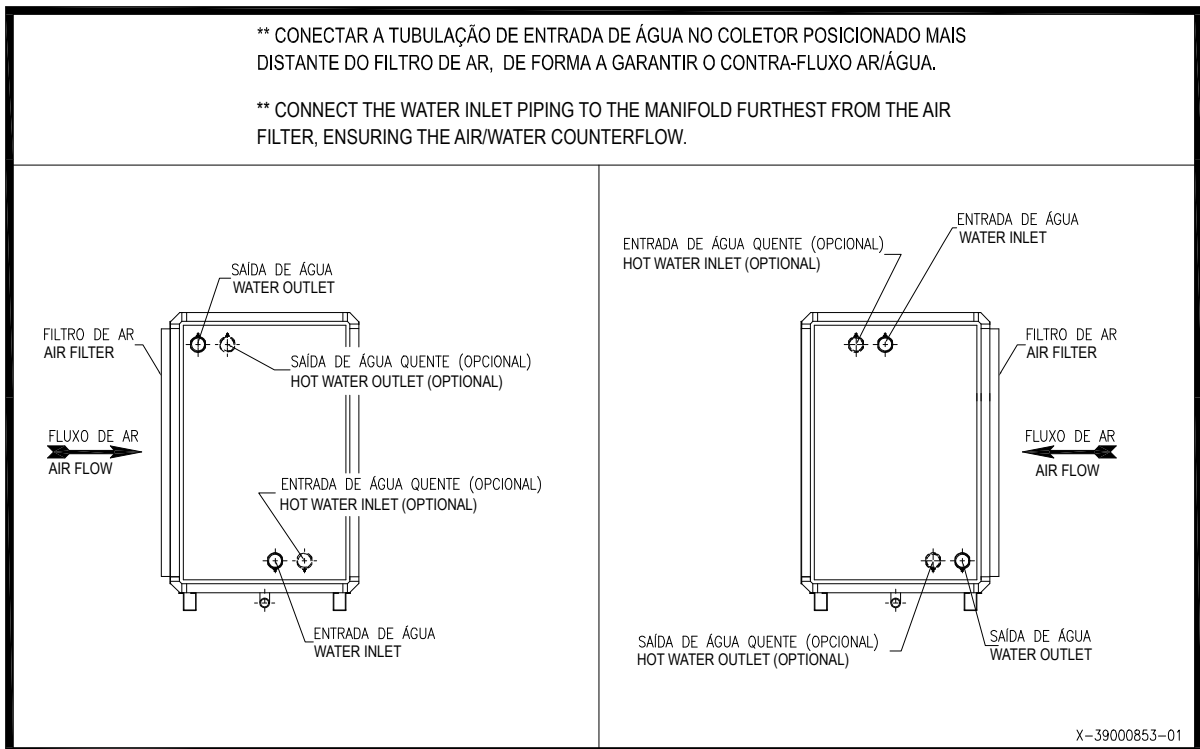
The following data are necessary when selecting cooling coils:

1. Air supply flow;
2. Dry bulb and wet bulb temperatures at the air inlet in the coil (mix point);
3. Premises height at the building site;
4. Total thermal load required;
5. Required temperature at the air outlet in the coil;
6. Water inlet temperature or ethylene glycol solution;
7. Ethylene glycol concentration, in case there is some;
8. Water/solution differential or water flow required

Tab.IV-02 – Front area and number of circuits for cooling coil with a tube of nominal diameter of 1/2".

Model	Front area (m <sup>2</sup> )	4 Rows			6 Rows			8 Rows		
		W	P1/2	P1/4	W	P1/2	P1/4	W	P1/2	P1/4
02	0.19	14	7	—	14	7	—	14	7	—
03	0.28	20	10	5	20	10	5	20	10	5
04	0.37	20	10	5	20	10	5	20	10	5
06	0.53	24	12	6	24	12	—	24	12	—
08	0.71	24	12	—	24	12	—	24	12	—
10	0.93	36	18	—	36	18	—	36	18	—
12	1.11	36	18	—	36	18	—	36	18	—
14	1.30	36	18	—	36	18	—	36	—	—
17	1.58	36	18	—	36	—	—	36	—	—
21	1.95	36	18	—	36	—	—	36	—	—
25	2.23	—	—	—	—	—	—	—	—	—
31	2.85	—	—	—	—	—	—	—	—	—
35	3.22	—	—	—	—	—	—	—	—	—
40	3.72	—	—	—	—	—	—	—	—	—

**Note:** Coils manufactured with a 1/2" tube can be assembled with 120 or 144 fins per foot.





# Coil

# Heating

### Coil configuration

The heating coils are available as an option. They are manufactured with tubes of 1/2" nominal diameter, with 2 rows and 120 fins per foot, depending on the selection results.

The 2-row heating coil has the same number of circuits as the number of front tubes and it is called circuit W. The number of circuits are shown in the table below.

The following data are necessary when selecting heating:

1. Air supply flow;
2. Dry bulb temperature of the air inlet

in the coil;

3. Premises height at the building site;
4. Thermal load required;
5. Hot water inlet temperature;
6. Differential of hot water or flow.

Tab. IV-03 – General data for heating coil with a tube of a nominal diameter of 1/2".

Model		02	03	04	06	08	10	12
Number of circuits	2 Rows – W	12	16	16	20	20	28	28
	(ft <sup>2</sup> )	2.08	3.00	4.00	5.99	8.00	10.00	11.67
Front area	(m <sup>2</sup> )	0.19	0.28	0.37	0.56	0.74	0.93	1.08

Model		14	17	21	25	31	35	40
Number of circuits	2 Rows – W	28	28	28	30	36	42	48
	(ft <sup>2</sup> )	13.61	16.53	20.42	25.00	30.00	35.00	40.00
Front area	(m <sup>2</sup> )	1.26	1.54	1.90	2.32	2.79	3.25	3.72

### Important: maximum allowable assembly option.

Some combinations of cooling, heating and electrical heating coil and a humidification tank are not allowed:

For the **Wave Doble 02 model**, the following combinations are not allowed:

- 8-row cooling coil with a tube of 1/2" nominal diameter and heating coil or electrical heating.
- 6-row cooling coil with a tube of 1/2" nominal diameter, heating coil or electrical heating and a humidification tank.
- 8-row cooling coil with a tube of 3/8" nominal diameter, heating coil or electrical heating and a humidification tank.

For **Wave Doble 03** and **Wave Doble 04 models**, the following combinations are not allowed:

- 8-row cooling coil with a tube of 1/2" nominal diameter, heating coil or electrical heating.

# Coil

Tab. IV04 – Drops in the coil – Wave Doble 04 to 40.

Module	Air flow (m <sup>3</sup> /h)	2000	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000
WD* or WL* 04	Drop in coil (mmca)	8	10	11	13	15	17	19	21	23	25	27
Module	Air flow (m <sup>3</sup> /h)	3000	3300	3600	3900	4200	4500	4800	5100	5400	5700	6000
WD* or WL* 06	Drop in coil (mmca)	9	11	12	14	16	18	20	22	25	27	29
Module	Air flow (m <sup>3</sup> /h)	4400	4800	5200	5600	6000	6400	6800	7200	7600	8000	
WD* or WL* 08	Drop in coil (mmca)	11	12	14	16	18	20	22	25	27	29	
Module	Air flow (m <sup>3</sup> /h)	5500	6000	6500	7000	7500	8000	8500	9000	9500	10000	
WD* or WL* 10	Drop in coil (mmca)	10	11	13	15	17	19	21	23	25	27	
Module	Air flow (m <sup>3</sup> /h)	6000	6600	7200	7800	8400	9000	9600	10200	10800	11400	12000
WD* or WL* 12	Drop in coil (mmca)	8	10	12	13	15	17	19	21	23	25	28
Module	Air flow (m <sup>3</sup> /h)	7000	7700	8400	9100	9800	10500	11200	11900	12600	13300	14000
WD* or WL* 14	Drop in coil (mmca)	10	11	13	14	16	18	21	23	25	27	30
Module	Air flow (m <sup>3</sup> /h)	9000	9800	10600	11400	12200	13000	13800	14600	15400	16200	17000
WD* or WL* 17	Drop in coil (mmca)	11	12	14	16	18	20	22	24	27	29	32
Module	Air flow (m <sup>3</sup> /h)	12000	13000	14000	15000	16000	17000	18000	19000	20000	21000	
WD* or WL* 21	Drop in coil (mmca)	12	14	16	18	20	22	24	27	29	31	
Module	Air flow (m <sup>3</sup> /h)	15000	16000	17000	18000	19000	20000	21000	22000	23000	24000	25000
WD* or WL* 25	Drop in coil (mmca)	12	14	16	17	19	21	22	24	26	28	30
Module	Air flow (m <sup>3</sup> /h)	17500	19000	20500	22000	23500	25000	26500	28000	29500	31000	
WD* or WL* 31	Drop in coil (mmca)	12	14	16	18	20	22	24	27	29	32	
Module	Air flow (m <sup>3</sup> /h)	20000	21500	23000	24500	26000	27500	29000	30500	32000	33500	35000
WD* or WL* 35	Drop in coil (mmca)	11	13	15	16	18	20	22	24	26	28	30
Module	Air flow (m <sup>3</sup> /h)	25000	26500	28000	29500	31000	32500	34000	35500	37000	38500	40000
WD* or WL* 40	Drop in coil (mmca)	13	15	16	18	19	21	23	24	26	28	30



# V-Ice cold water valve

## Control valves selection

- 1) The valve diameter should be selected as shown in the table below, according of the water pipeline.
- 2) Valve pressure drop > Coil pressure drop
- 3) Valve pressure drop < 10 PSI
- 4) Authority number shall be greater than 0.5
- 5) Valve pressure drop is calculated by the equation:

$$\Delta P_{valve} = \frac{(Q_{H_2O})^2}{(C_v max)^2}$$

Where:  $\Delta P_{Valve}$  = Valve pressure drop, unit PSI

$Q_{H_2O}$  = Water flow inside coil, unit GPM

$C_v max$  = Valve maximum water flow coefficient. In 3-way valves, multiply by 0.7.

- 6) Authority number (definition: pressure drop in the control valve when opening completely the project flow) calculated by the equation:

$$Authority\ No. = \frac{\Delta P_{Valve}}{\Delta P_{Valve} + \Delta P_{Coil}}$$

Where:  $\Delta P_{Valve}$  = Valve pressure drop, unit PSI

$\Delta P_{Coil}$  = Coil pressure drop, unit PSI

Tab. V-01 – Selection of valves diameter according to the line diameter

		Valve per tube										
		Piping diameter										
		1/2"	3/4"	1"	1.1/4"	1.1/2"	2"	2.1/2"	3"	4"	5"	6"
Valve diameter	1/2"	X	X	X								
	3/4"		X	X	X	X						
	1"			X	X	X	X					
	1.1/4"				X	X	X	X				
	1.1/2"					X	X	X	X			
	2"						X	X	X	X		
	2.1/2"							X	X	X	X	
	3"									X	X	X

Note: The purchase of the item cold water valve must be made directly with the BAS team: Building automation system of Trane by email: [automação@trane.com](mailto:automação@trane.com)



# Ice cold water valve

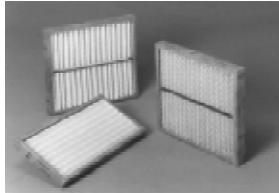
Tab.V-02 – Existing 2-way and 3-way valves

Valve Size	Cv	2Way	3Way
1/2"	1,2	X	X
1/2"	1,9	X	X
1/2"	3	X	X
3/4"	4,7	X	X
3/4"	7,4	X	X
3/4"	10	X	
3/4"	24	X	X
1"	7,4	X	X
1"	10	X	X
1"	19	X	
1"	30	X	X
1.1/4"	10	X	X
1.1/4"	19	X	X
1.1/4"	25	X	X
1.1/4"	37	X	X
1.1/2"	19	X	X
1.1/2"	29	X	X
1.1/2"	37	X	X
2"	29	X	X
2"	46	X	X
2"	57	X	X
2"	65	X	
2"	85	X	
2"	120	X	
2"	240	X	
2.1/2"	60	X	
2.1/2"	75	X	
2.1/2"	110	X	
3"	70	X	
3"	130	X	
3"	170	X	

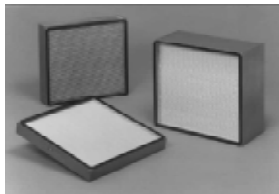
Note: The purchase of the item cold water valve must be made directly with the BAS team: Building automation system of Trane by email: [automação@trane.com](mailto:automação@trane.com)

Note: Control valves are manufactured with NPT connections, for BSP connections, via Digit 24 (B) identification, a coupling will be placed to fit the connection (supplied by the factory). Reductions and other connections required for installation shall be carried out by the installer.

## VI-Air filters



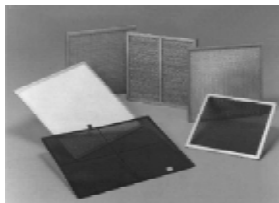
Pleated filters



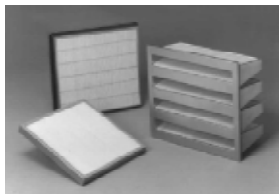
Absolute filters



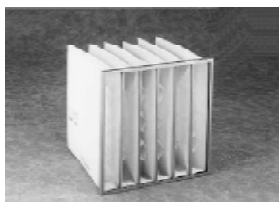
Disposable glass wool filters



Metallic filters



Pleated fine filters



Multibag filters

Available filtering for WAVE Doble handler ranges from thick filters (G1 and G4) and fine filtering options (F5 and F8) up to absolute filters (A3) H.E.P.A.\*

Filters can be placed both in the coil module and the mixing box. There is also the possibility of a final filtering module where fine filtering (class F) and absolute filtering (class A) can be configured.

In the coil module you may set a frame to place up to two filters of 1" each, resulting in a filtering option of two stages. When a mixing box module is used in the climate control assembly, the filter frame is installed inside the module so as to allow filter removal from the sides. The mixing box features the same filtering options as the coil module.

Disposable flat filters (class G) are made with a cardboard frame which is reinforced by perforated metallic fabric (treated with anti-corrosive resin) on both sides. The filter medium consists of a mesh of expanded glass wool with long threads and different diameters with a progressive density. There is a filtering option which includes antibacterial treatment to further avoid the proliferation of microorganisms.

There is also the possibility of an additional module for final filtering. This option provides fine filtering (class F8 filter) and absolute filtering (classes A1 and A3) options to the climate control. Absolute filters are made of microfiber (pleated glass) with progressive density.

On the other hand, class F filters are made of pleated synthetic mesh (F5) and micropleated paper (F8); they provide a large filtering surface along with a high resistance to humidity.

### Dimensions and number

Dimensions and number of available filters can be found in general data tables. The standard filtering consists of a disposable glass wool filter, 1" thick and a grade of filtering ABNT G4, according to NBR6401.

As an option, other filter types and double filtering can be supplied, as listed below:

Tab. VI-01 – Remote air filter coil/mixing box module

Filtering class	Features	Average gravimetric efficiency
F5	Pleated synthetic mesh 2"	96%
F8	Flat 3" Microfiber	>90%
F8	Bag 300mm	>90%
G1	Aluminium corrugated fabric 1"	60-70%
G4	Glass wool 1"	>90%

Tab. VI-02 – Air filter final filtering module

Filtering class	Features	Average gravimetric efficiency
F8	Bag 300mm	>90%
A3	Absolute H.E.P.A.*	>99.97%

(\*)H.E.P.A. – High Efficiency Particulate Air Filter

# Air filters

Tab. VI-03 – Comparison of standards.

Thick filter			
Rated efficiency (coarse particles)	En779 / NBR16401-3:2008	NBR6401	Ashrae 52.2
39%	G - 1	G - 0	MERV 1
50%			
59%			
60%			
64%	G - 2	G - 1	MERV 2
65%			
69%			
70%		G - 2	MERV 3
74%			
75%			
79%	G - 3	G - 2	MERV 4
80%			
84%		G - 3	MERV 5
85%			
89%	G - 3	G - 3	MERV 6
> 90%			

Thin filter			
Rated efficiency (fine particles)	EN779	NBR6401	Ashrae 52.2
20%	F - 5	F - 1	MERV 7
24%			
25%			
29%			
30%			
39%			
40%			
45%			
50%			
55%			
59%	F - 6	F - 2	MERV 8
60%			
65%			
69%			
70%			
75%			
79%	F - 7	F - 2	MERV 9
80%			
89%	F - 8	F - 3	MERV 10
90%			
94%			
95%			
> 95%	F - 9	F - 3	MERV 11
			MERV 12
			MERV 13
			MERV 14
			MERV 15
			MERV 16

## Filters

The coil module includes a frame to place up to two filters of 1" each, to suit the option of 02-stage filtering. When using the mixing box module, the filter frame is placed inside the mixing box so as to allow the filters removal from the sides. The mixing box has the same filtering options as the coil module.

## Standard filter

The standard filtering consists of a disposable glass wool filter, 1" thick and a grade of filtering ABNT G4. As an option, other types of filters and double filtering can be provided, as shown in the list below:

Tab. VI-04 – Pressure drop in filters (clean)

Filter	Drop (mmca) Initial (phase velocity 2.0 m/s)	Final (Recommended)
G4	3	16
F5	8	30
F8	12	50
A3	38	60

# VII-Fans: Discharge option

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### Fans

Doble-inlet centrifugal fans, made of galvanized sheet steel with forward-curved blades and statically and dynamically balanced rotors which operate on self-aligning and self-lubricating bearings. For vertical assembly, the fan module can be set in the following discharge options:

### Discharge option

Every module is manufactured according to a previous selection of vertical or horizontal assembly. Once H or V manufacturing is determined, it is impossible to modify it on site. For Horizontal or Vertical assembly, the following discharge options are available:

Fig. VII-01 – Vertical cabinet discharge option

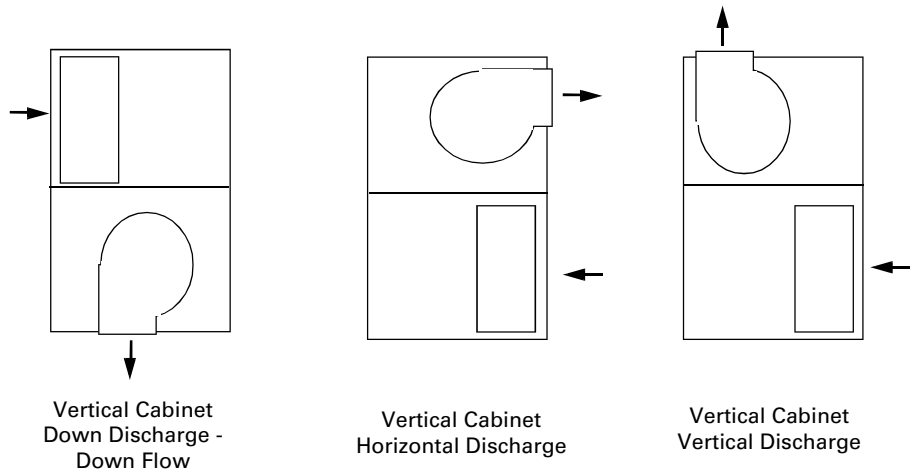
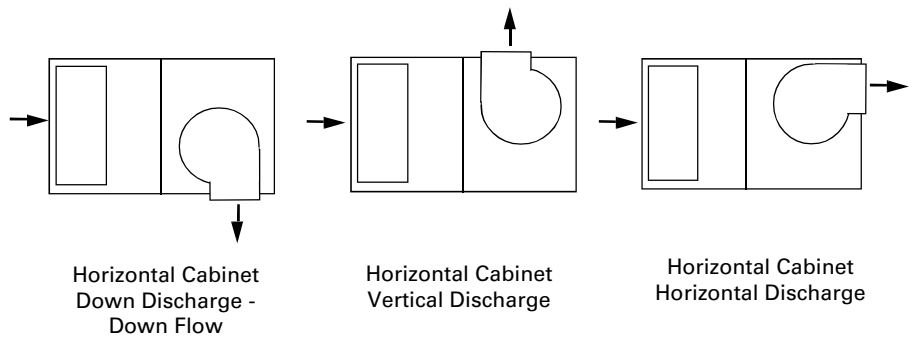


Fig. VII-02 – Horizontal cabinet discharge option



## VIII-Damper actuator

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### Application

Damper actuators are used to monitor dampers in HVAC systems. Proportional Floating *actuators*.

The correct setting of the controller should be consulted with the BAS.

### Selection of Damper

The selection of the damper will be essential for the application of the actuator. For this make sure that the option was chosen of damper actuator prepared in #34 digit of the Model Number.

Fig. VIII-01 – Damper actuator



Note: The purchase of the item Damper Actuator must be made directly with the BAS team: Building automation system of Trane by email: [automação@trane.com](mailto:automação@trane.com)

# IX-Heating resistor

Electrical resistors consist of smooth TUBULAR models, mounted in a galvanized steel box and fixed between porcelain insulators.

They are protected by a safety thermostat with automatic reset. The following tables show available options of electrical heating for each model.

Tab. IX-01 – Electrical heating

Model	Power kW								
	01 Heating stage			02 Heating stage					
	3	4.5	7.5	3	4.5	6	7.5	9	24
<b>02</b>	1x3								
<b>03</b>	1x3								
<b>04</b>	1x3	1x4.5		2x3	2x4.5				
<b>06</b>	1x3	1x4.5	1x7.5	2x3	2x4.5				
<b>08</b>	1x3	1x4.5	1x7.5	2x3	2x4.5	2x6			
<b>10</b>	1x3	1x4.5	1x7.5	2x3	2x4.5	2x6	2x7.5		
<b>12</b>	1x3	1x4.5	1x7.5	2x3	2x4.5	2x6	2x7.5	2x9	
<b>14</b>		1x4.5	1x7.5		2x4.5	2x6	2x7.5	2x9	
<b>17</b>		1x4.5	1x7.5		2x4.5	2x6	2x7.5	2x9	
<b>21</b>		1x4.5	1x7.5		2x4.5	2x6	2x7.5	2x9	
<b>25</b>							2x7.5	2x9	
<b>31</b>							2x7.5	2x9	2x24
<b>35</b>							2x7.5	2x9	2x24
<b>40</b>							2x7.5	2x9	2x24
	<b>3</b>	<b>4.5</b>	<b>7.5</b>	<b>6</b>	<b>9</b>	<b>12</b>	<b>15</b>	<b>18</b>	<b>48</b>

Note: for security reasons the Trane of Brazil recommends the optional differential pressure air (digit #38 option A) to control the interface with the heating equipment, this device can offer the interface of control through the flow sensor of air current, not allowing that the heating elements remain connected if the air flow is interrupted.

## X-Humidifier

---

Trane humidification system is based on a simple physical principle. Steam production is the result of immersed electrodes warming until water boils after being subjected to an electric current (Joule effect).

These are some of the advantages in this type of system:

AFS System (Anti Foaming System): identifies and reacts to prevent foam production along with steam;

Built-in conductivity sensor and control software to optimize energy conservation and costs while maintaining constant performance throughout the cylinder service life.



It has cylinders with different capacities including zinc electrodes and antiscalant filters at the bottom, for a long maintenance-free service life cycle. Washable cylinders are also available;



Steam production is controlled through an external signal: ON/OFF type, one single switch (e.g., humidity sensor) activates ON/OFF function for steam production.



# XI-Setting the humidifier with cooling coils and heating

Certain combinations are allowed (Cooling coil + Heating coil + humidification and Cooling coil + Electrical heating + humidification). Remember always to be guided by the following tables:

Tab.XI-01 – Configuration

MODEL	HUMIDIFIER (kg/h)	WITH COOLING COIL AND HEATING RESISTOR											
		4 Rows	6 Rows	8 Rows	4 Rows	6 Rows	8 Rows	4 Rows	6 Rows	8 Rows	4 Rows	6 Rows	8 Rows
02	1.5 to 3.0 (single-phase, 230VAC)	X	X	NA	NA	NA	NA	X	X	NA	NA	NA	NA
03	1.5 to 3.0	X	X	NA	X	NA	NA	X	X	X	X	NA	NA
04	1.5 to 3.0	X	X	NA	X	NA	NA	X	X	X	X	NA	NA
06	1.5 to 3.0	X	X	X	X	X	X	X	X	X	X	X	X
	5	X	X	X	X	X	X	X	X	X	X	X	X
08	1.5 to 3.0	X	X	X	X	X	X	X	X	X	X	X	X
	5.0 to 8.0	X	X	X	X	X	NA	X	X	X	X	X	X
10	1.5 to 3.0	X	X	X	X	X	X	X	X	X	X	X	X
	5.0 to 8.0	X	X	X	X	X	NA	X	X	X	X	X	X
	10 to 15	X	X	X	X	X	NA	X	X	X	X	X	NA
12	3	X	X	X	X	X	X	X	X	X	X	X	X
	5.0 to 8.0	X	X	X	X	X	NA	X	X	X	X	X	X
	10 to 15	X	X	X	X	X	NA	X	X	X	X	X	NA
14	3	X	X	X	X	X	X	X	X	X	X	X	X
	5.0 to 8.0	X	X	X	X	X	NA	X	X	X	X	X	X
	10 to 15	X	X	X	X	X	NA	X	X	X	X	X	NA
	25	X	X	NA	NA	NA	NA	X	X	NA	NA	NA	NA
17	3	X	X	X	X	X	NA	X	X	X	X	X	X
	5.0 to 8.0	X	X	X	X	NA	NA	X	X	X	X	NA	NA
	10 to 15	X	X	X	X	NA	NA	X	X	X	X	NA	NA
	25	X	X	NA	NA	NA	NA	X	X	NA	NA	NA	NA
21/25	5.0 to 8.0	X	X	X	X	X	X	X	X	X	X	X	X
	10 to 15	X	X	X	X	X	X	X	X	X	X	X	X
	25	X	X	X	X	X	NA	X	X	X	X	X	NA
31 to 40	8	X	X	X	X	X	X	X	X	X	X	X	X
	10 to 15	X	X	X	X	X	X	X	X	X	X	X	X
	25	X	X	X	X	X	NA	X	X	X	X	X	NA

Tab. XI-02 – Configuration

MODEL	HUMIDIFIER (kg/h)	WITH COOLING COIL AND HEATING RESISTOR					
		COIL 1/2"			COIL 3/8"		
		4 Rows	6 Rows	8 Rows	4 Rows	6 Rows	8 Rows
02	1.5 to 3.0 (single-phase 230VAC)	NA	NA	NA	X	NA	NA
03	1.5 to 3.0	X	NA	NA	X	NA	NA
04	1.5 to 3.0	X	NA	NA	X	NA	NA
06	1.5 to 3.0	X	X	X	X	X	X
	5	X	X	X	X	X	X
08	1.5 to 3.0	X	X	X	X	X	X
	5.0 to 8.0	X	X	X	X	X	X
10	1.5 to 3.0	X	X	X	X	X	X
	5.0 to 8.0	X	X	X	X	X	X
	10 to 15	X	X	X	X	X	X
12	3	X	X	X	X	X	X
	5.0 to 8.0	X	X	X	X	X	X
	10 to 15	X	X	X	X	X	X
14/17	3	X	X	X	X	X	X
	5.0 to 8.0	X	X	X	X	X	X
	10 to 15	X	X	X	X	X	X
21/25	5.0 to 8.0	X	X	X	X	X	X
	10 to 15	X	X	X	X	X	X
	25	X	X	X	X	X	X
31 to 40	8	X	X	X	X	X	X
	10 to 15	X	X	X	X	X	X
	25	X	X	X	X	X	X

ND: Not available



## XII-TraneConnect UC400

### Tracer Unit Controllers (BACnet®)

...Expanding and sharing through flexibility



#### Tracer UC400 controller is

##### **Value for the customer:**

- Flexibility to meet the needs of clients who use non-standard operation sequences.
- Use of open protocol: BACnet®

##### **Main features:**

Graphical programming  
BACnet® compatible  
Modular hardware  
Flexibility at the points used

##### **Features in Tracer™ UC400**

- BACnet® MS/TP – Can be used with Tracer™ SC
- 23 available points in the controller – Expandable with XM30
- Can be Programmable/Configurable
- Analog outputs/PWM that may be used with:
  - Heating control via SCR (Silicon Controlled Rectifier) – a faster response than PWM control.
  - Fan motor speed control – via Inverter.
  - Ice cold water valve control

##### **Maintenance**

Data record  
Removable connectors  
Assembly on DIN rail  
Connection option via multiples  
Tool options

##### **Improvements in AHUs with UC400**

Availability – With the UC400 controller, there are 23 Input-Output points that may be configured as needed, where:

03 Binary inputs;  
05 Analog inputs (type: Temperature, Setpoint, Resistor);  
02 Universal inputs – configurable (Type: 4-20mA, 0-10Vdc, Thermistor, Resistor, Binary-dry contact, Pulse);  
09 Binary outputs, where: 03 – relay outputs (dry contact) and 06 – Triac outputs;

02 Configurable analog outputs (4-20mA; 0-10Vdc) or configure as a binary output;

02 Pressure inputs to 03 cables.  
Simplicity – It uses BacNet open Protocol, graphics programming – via Tracer™ Service Tool TU.

##### **Operation sequence:**

Constant Volume Climate Control with Cooling

##### **Interface with housing automation system:**

A housing automation system will enable the equipment and change the ambient temperature setpoint through the BACnet MSTP protocol. Additionally, useful information for equipment supervision will be available via protocol. If no housing automation system is present or the communication with the system is lost, the controller will operate in “stand alone” mode using the local sensor to control and reset the temperature setpoint.

##### **Enables/Disables:**

The equipment environment sensor is provided with an Auto/Off selector switch to control the equipment locally. The equipment turns off in the OFF position, and it turns on in the AUTO position. When an automation system is connected to the controller, it can operate the equipment if the sensor selector switch is set in the AUTO position.

##### **Temporary occupancy**

If an automation system is connected to the equipment and such system disables the equipment, the operator can connect it by using the Temporary Occupancy function. The environment sensor is provided with two switches to enable or disable this function. When enabled, the equipment will work in the timed occupancy mode and it will remain connected for one hour. The operator can disable this mode at any time using the sensor button that overrides the temporary occupancy.

# TraneConnect UC400

## Temperature control:

A PID algorithm is used to control ambient temperature, which determines the water valve ideal opening percentage to keep a stable control range. The control takes into account the difference between ambient temperature and the preset temperature setpoint.

Fig. XII-01 – Dimensional design.

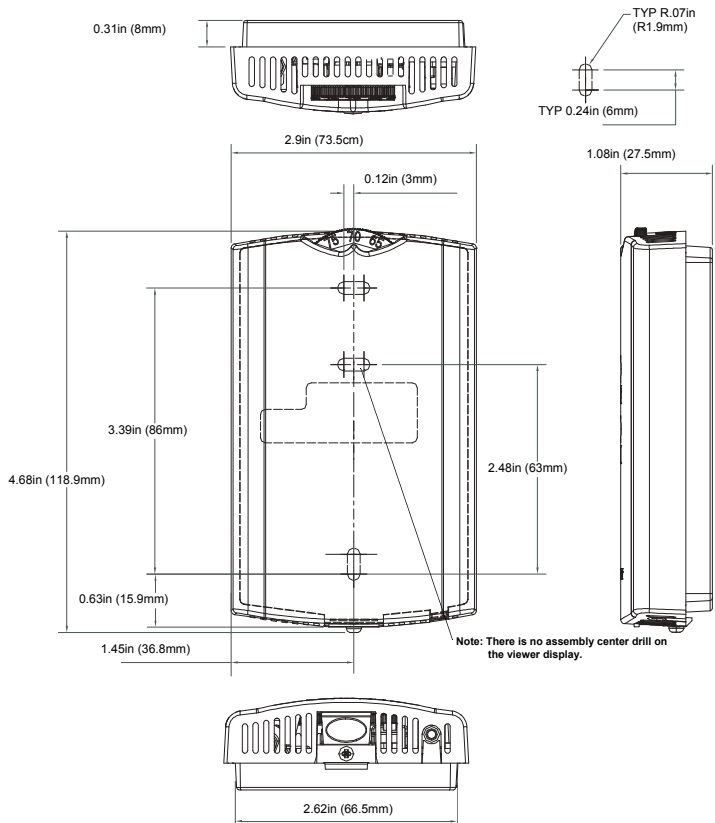
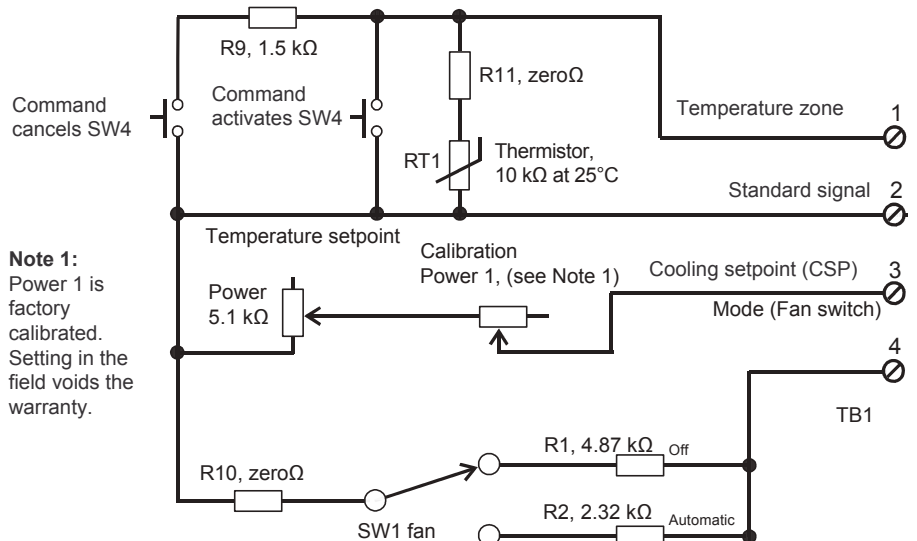


Fig. XII-02 – Internal and external connection diagram.



# Submittals

## Recommendations for electrical wiring:

1. The equipment installation manuals should be consulted for more electrical information.
2. All field electrical wiring must be in accordance with prevailing Brazilian technical standards.
3. All field wiring cables must be identified at both ends, in accordance with the control design.
4. Avoid squeezing or crushing the field wiring cables since this may damage them.
5. Prevent the wiring cables from contacting water, steam or other harmful elements.
6. In open linings, avoid passing wiring cables near fluorescent lamp ballasts.
7. Do not pass the communication cable together with power cables carrying voltages greater than 30 V.
8. The installation of the field elements and electrical panels contained in this control design must be performed by the contractor.
9. The assembly of field elements must be in accordance with the control design and Trane must be informed of any change.
10. The control panel must not be used with a junction box for power cables.
11. The recommended cable types must be used, otherwise Trane cannot guarantee correct operation of the devices.

- Power, digital inputs and outputs:  
1mm<sup>2</sup> cable  
Construction characteristics (NBR NM 247-3):  
Electrolytic bare copper wires, circular cross-section, annealed, class 4 and 5 (NBR NM 280) stranding, PVC-based insulation, flame retardant, thermal class - 70°C.  
Isolation voltage: 750V.

- Analog inputs, outputs:  
Instrumentation with 1 wire pair:

Model: 0520033-s  
Brand: Windy City  
Supply: Trane  
Trane code: BAS/OU/150.

- Instrumentation with 1 trio of wires:  
MA type cable for instrumentation with PVC insulation and total electrostatic shielding, aluminum tape and drain wire (shield).  
Cross Section: 0.75 mm<sup>2</sup>  
Reference:  
Brand: Poliron  
Model: 01023BA20100001 / 375 MA FR.

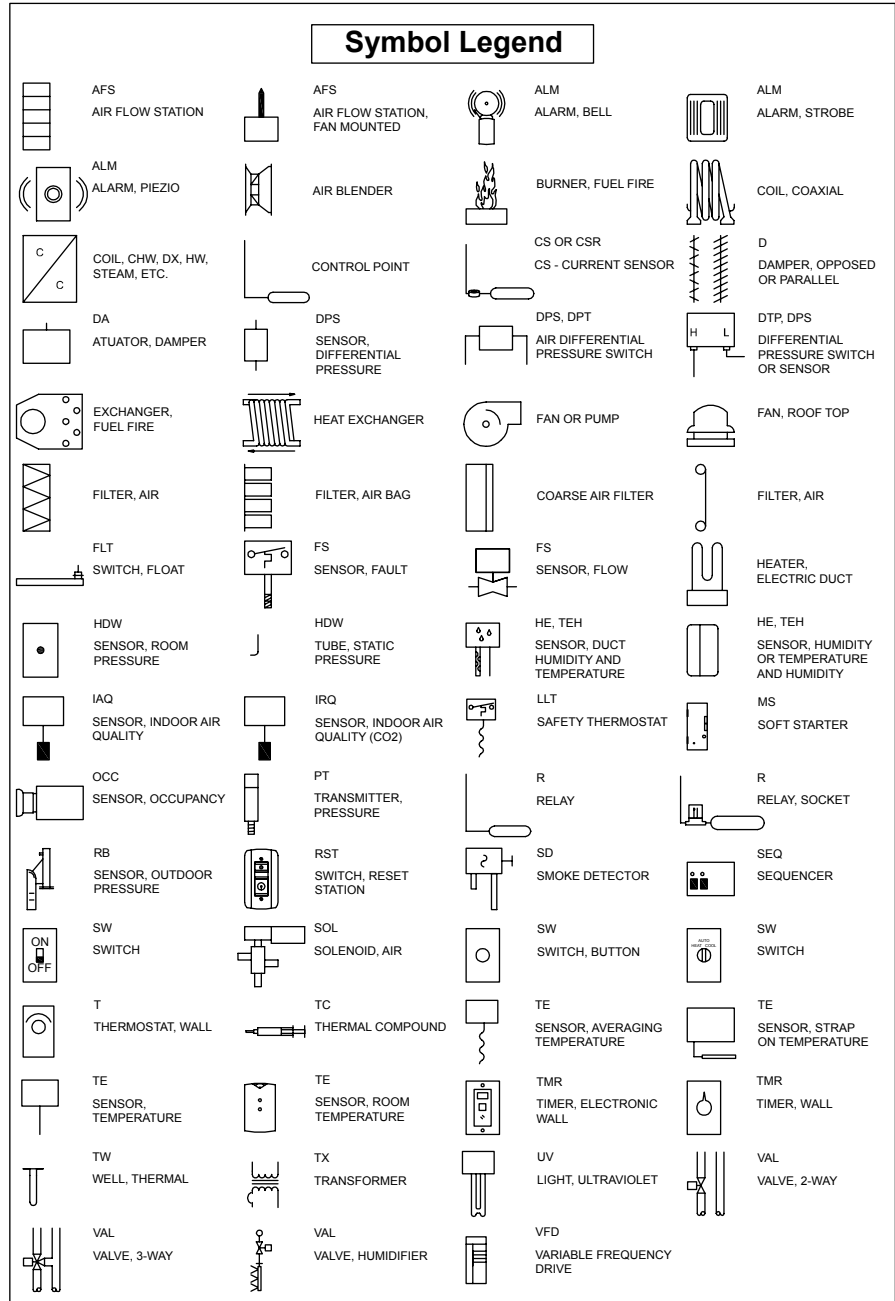
- Instrumentation with 2 pairs of wires and BCU display and MP580:  
ITM type cable for instrumentation with polyethylene insulation and total electrostatic shielding, aluminum tape and drain wire (shield).  
Cross-section: 0.75 mm<sup>2</sup>  
Reference:  
Brand: Poliron  
Model: 01052BA20200003 / 275 MA FR

- Communication  
Comm3 and Comm4 communication:  
Model: 0520033-s  
Brand: Windy City  
Supply: Trane  
Trane code: BAS/OU/150  
Gauge: 18awg, low capacitance (capacitance between wires: 72 ± 6 pf/m), 1 twisted pair and 1 shield, PVC insulation, Standards: ABNT / NEC - class 2 / NEC Article 725 type CL3 (UL: 75°C, 150V) / NEC Article 800 type CMR (UL: 75°C, 300V)

- LonTalk communication (Comm5) and I/O bus communication:  
Model: 105540-s  
Brand: Windy City  
Supply: Trane  
Trane code: BAS/OU/151  
Gauge: 18 awg, low capacitance, 2 twisted wires, no shield, PVC insulation, Standards: LonTalk level 4 / ABNT / NEC - class 2 / NEC Article 725 type CL3 (UL: 75°C, 150V) / NEC Article 800 type CMR (UL: 75°C, 300V)

Ethernet communication  
Application: 10Base-T / 100Base-TX  
Cable model: UTP or STP.  
Category: 5e or above  
24awg diameter bare copper with 4 pairs and PVC insulation  
Flame retardant, standards: ANSI/TIA/EIA-568b.2, certifications: Anatel: 0037-08-0256 / UL listed: E160837 / ETL 3 connections (F/UTP): 310262112.  
Maximum distances for controller inputs and outputs that must be respected:  
- for digital inputs and outputs: maximum length of 300 meters.  
- for 0~10 VDC analog inputs: maximum length of 100 meters.  
- for 0~20 mA analog inputs: maximum length of 300 meters.  
- for resistive analog inputs: maximum length of 100 meters.  
- for analog outputs: maximum length of 300 meters.  
- for Comm3, Comm4 and LonTalk communication: maximum length of 1400 meters.  
- for I/O bus communication (EX2 modules): maximum length of 300 meters.  
- for ethernet communication: maximum length of 100 meters.

Fig. XII 03



	LEGEND							
	CID:	PID:	PROJECT ID:	NUM.	REVISION	DATE:	BY:	
				5				
	PROJECT: CONSTANT VOLUME FANCOIL UC400 CONTROLLER				4			
					3			
2								
				1	FIRST ISSUE	1/3/2012	SHG	
SELECT: RUA PINHEIRINHO, 144 SÃO PAULO, SP 04321-170 11 5014 6300				SALESPERSON: C SOBERON	DESIGNED BY: F ROSA	CHECKED BY: SHG		
				FILE NAME:	PPS FANCOIL UC400 R1.AXD		DWG: 3	

# Submittals

TraneConnect

Table XII 01

## Cable Matrix

CT	PART NO.	DESCRIPTION	CABLE COLORS
C	BAS/OU/151	105540-S (22AWG) CABLE - ORANGE CABLE	WHITE, BLACK
D	BAS/OU/150	0520033-S CABLE (18AWG) - YELLOW CABLE	WHITE, BLACK
E	01023BA20100001	375 MA FR CABLE (0.75mm <sup>2</sup> ) - SUP.: POLIRON	WHITE, BLACK, RED
F	01052BA20200003	275 ITM FR CABLE (0.75mm <sup>2</sup> ) - SUP.: POLIRON	WHITE, BLACK, WHITE, BLACK
J		CABLE (1.0mm <sup>2</sup> ) - MAX. CURRENT: 10A	WHITE, BLACK
L		RG58 ETHERNET COAXIAL CABLE	
M		ETHERNET 4 PAIR UTP	
O			
P			
Q			
2C			
3C			
5C			
8C			
10C			
12C			

**NOTES:**  
KEEP ALL COMMUNICATION WIRING IN A DAISY CHAIN CONFIGURATION, IN ACCORDANCE WITH THE NETWORK ARCHITECTURE DESIGN. ALL CABLES MUST COMPLY WITH TRANE RECOMMENDATIONS, ESPECIALLY COMMUNICATION CABLES. CONTACT TRANE FOR MORE DETAILS.

**INFORMATION ON CABLES:**  
EACH CABLE CONNECTED TO THE CONTROLLER IN THE DESIGN INCLUDES ALL INFORMATION, AS SHOWN IN THE FOLLOWING EXAMPLE:

**SHIELDING NOTE:**

**FIELD WIRING NOTE:**

**Field, Factory And Existing Device:**

**ARCHITECTURE:**

**FACTORY MOUNTED DEVICE WITH CABLING WIRED TO THE CONTROLLER:**

**ARCHITECTURE NOTES:**

**LEGEND**

CID:	PID:	PROJECT ID:	NUM.	REVISION	DATE:	BY:
			5			
PROJECT: CONSTANT VOLUME FANCOIL UC400 CONTROLLER						
SELECT: RUA PINHEIRINHO, 144 SAO PAULO, SP 04321-170 11 5014 6300						
SALESPERSON: C SOBERON			DESIGNED BY: F ROSA		1/3/2012 SHG	
FILE NAME: PPS FANCOIL UC400 R1.AXD			CHECKED BY: SHG		DWG: 3	

**Sequence of Operation:**  
**Constant Volume Air Handler with Cooling**

**Interface with the building automation system:**

A building automation system can turn on the equipment and change the room temperature setpoint via the BACnet MSTP protocol. In addition, information for monitoring the equipment is made available via protocol. If there is no building automation system present or communication with the system is lost, the controller will operate in “stand alone” mode using the local sensor to control and adjust the temperature setpoint.

**Auto/Off:**

The equipment's ambient sensor has an Auto/Off selector switch which enables local control of the equipment. In the Off position, the equipment shuts down and in the Auto position, the machine is turned on. When an automation system is connected to the controller, it can control the equipment provided the selector switch on the local sensor is in the Auto position.

**Occupancy Timer**

If an automation system is connected to the equipment and the system shuts down the equipment, the operator is able to turn it on using the Occupancy Timer function. The ambient sensor has two buttons that allow the function to be enabled and disabled. When enabled, the equipment enters into occupancy mode for time and stays on for 1 additional hour. In this situation, the operator can use the button on the sensor to cancel the occupancy timer at any time.

**Temperature control:**

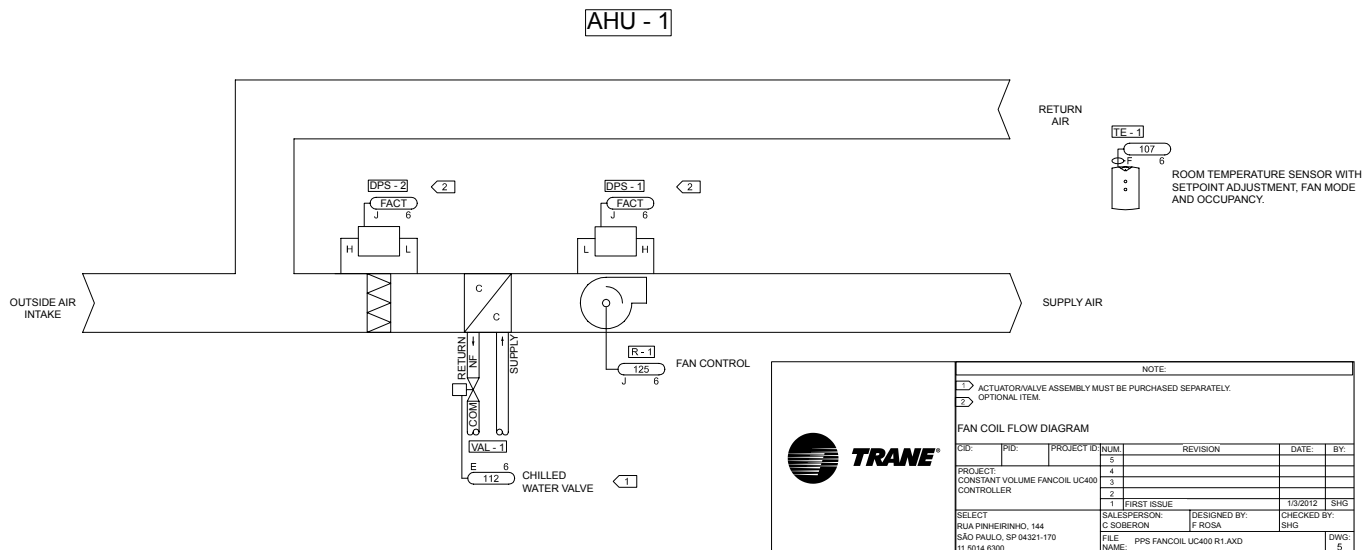
A PID algorithm is used to control the ambient temperature that determines the optimal percentage of water valve opening in order to maintain a stable range of control. The control takes into account the difference between the ambient temperature and the adjusted temperature setpoint.

Fan status (Optional): A differential air pressure switch monitors the differential air pressure at the fan. If the pressure switch contact opens and remains open during normal operation of the fan, the fan will shut down.

Air Filter Saturation Monitoring (Optional):

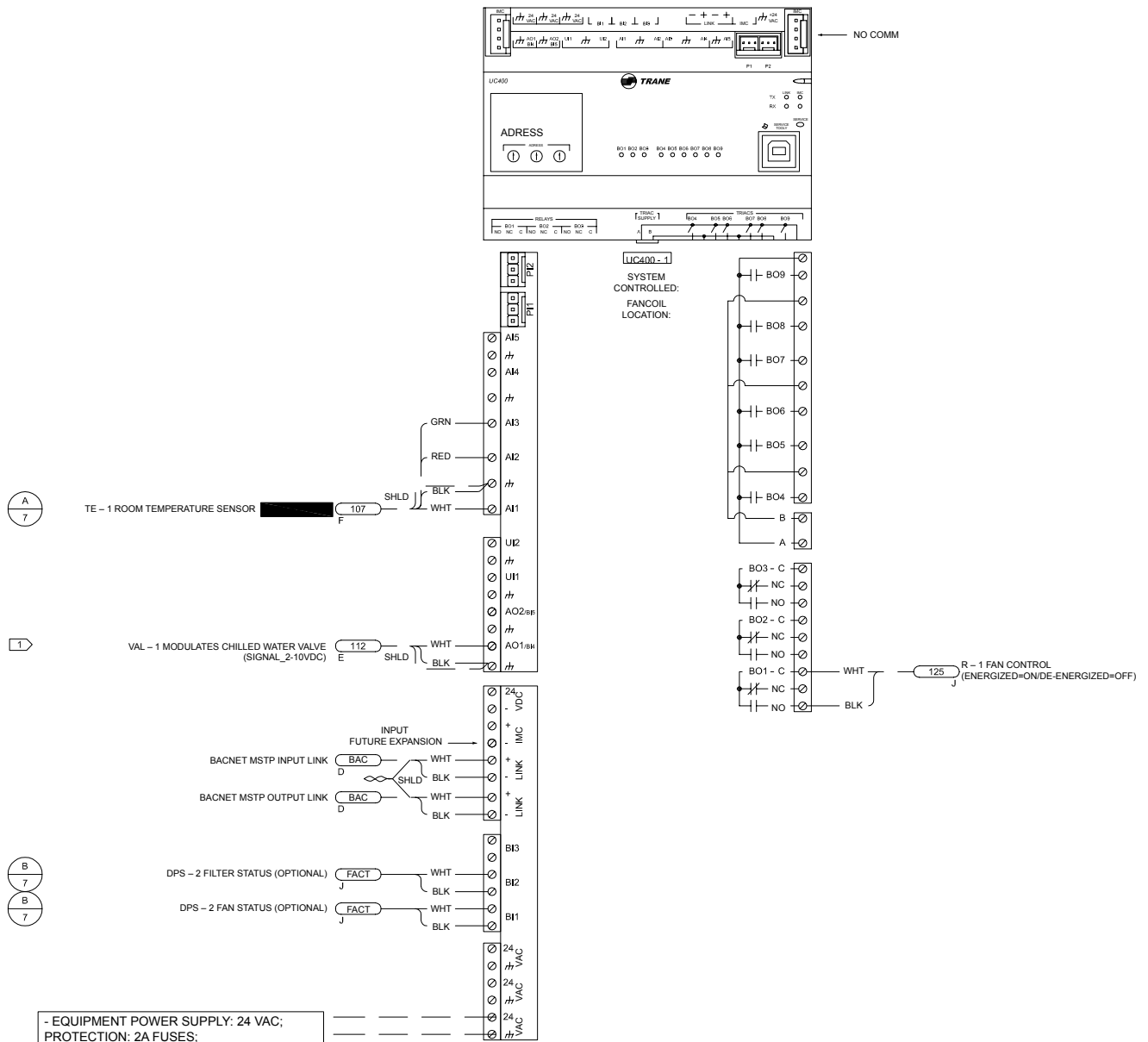
A differential air pressure switch monitors the differential air pressure in the filter when the fan is operating. If the dry contact of the pressure switch closes during normal operation, a dirty filter alarm is generated by the controller.

**Fig. XII 04 - Fan Coil Flow Diagram - Valid for the UC400 controller**



# Submittals

Fig. XII 05 - Details of the UC400 Controller - installed in the electrical panel of the machine



NOTE:						
1 ACTUATOR/VALVE ASSEMBLY MUST BE PURCHASED SEPARATELY.						
UC400 CONTROLLER DETAILS						
GID:	PID:	PROJECT ID:	NUM:	REVISION	DATE:	BY:
			5			
PROJECT: CONSTANT VOLUME FANCOIL UC400 CONTROLLER						
			4			
			3			
			2			
			1	FIRST ISSUE	1/3/2012	SHG
SELECT RUA PINHEIRINHO, 144 SAO PAULO, SP 04321-170 11 5014 6300		SALESPERSON: C SOBERON	DESIGNED BY: F ROSA	CHECKED BY: SHG		
		FILE NAME: PPS FANCOIL UC400 R1.AXD				DWG: 6





# XIII-Fan performance and Transmission option



Forward-curved  
50 Hz

Tab. XIII-01 – WAVE *Doble* 02 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1200	—	—	810	0.11	940	0.15	—	—	1160	0.22	1260	0.27	1360	0.31	1450	0.36	1530	0.41	1610	0.46	—	—
1300	—	—	810	0.12	940	0.16	1050	0.20	1160	0.24	1260	0.28	1350	0.33	1440	0.38	1520	0.43	1600	0.48	1680	0.54
1400	—	—	810	0.13	940	0.17	1050	0.21	1150	0.25	1250	0.30	1340	0.35	1430	0.40	1510	0.45	1590	0.5	1670	0.56
1500	—	—	820	0.15	940	0.19	1050	0.23	1150	0.27	1250	0.32	1340	0.37	1420	0.42	1510	0.47	1590	0.52	1660	0.58
1600	—	—	820	0.16	940	0.20	1050	0.25	1150	0.29	1240	0.34	1330	0.39	1420	0.44	1500	0.49	1580	0.55	1650	0.61
1700	700	0.14	830	0.18	940	0.22	1050	0.27	1150	0.31	1240	0.36	1330	0.41	1410	0.46	1500	0.52	1570	0.57	1650	0.63
1800	710	0.15	830	0.20	950	0.24	1050	0.29	1150	0.33	1240	0.38	1330	0.44	1410	0.49	1490	0.55	1570	0.6	1640	0.66
1900	730	0.17	840	0.21	950	0.26	1050	0.31	1150	0.36	1240	0.41	1330	0.46	1410	0.52	1490	0.57	1560	0.63	1640	0.69
2000	740	0.19	850	0.23	960	0.28	1060	0.33	1150	0.38	1240	0.44	1330	0.49	1410	0.55	1490	0.61	1560	0.67	1630	0.73

Tab. XIII-02 – WAVE *Doble* 03 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1500	—	—	850	0.13	970	0.17	1090	0.22	1200	0.27	1300	0.33	1400	0.38	1490	0.44	1580	0.51	1670	0.58	1750	0.65
1650	—	—	850	0.15	980	0.19	1090	0.24	1190	0.29	1290	0.35	1390	0.40	1480	0.47	1570	0.53	1650	0.60	1730	0.67
1800	—	—	860	0.17	980	0.21	1090	0.26	1190	0.31	1290	0.37	1380	0.43	1470	0.49	1550	0.56	1640	0.62	1720	0.70
1950	—	—	870	0.19	990	0.23	1090	0.29	1190	0.34	1290	0.40	1380	0.46	1460	0.52	1550	0.59	1630	0.65	1700	0.73
2100	—	—	880	0.21	990	0.26	1100	0.31	1200	0.37	1290	0.43	1380	0.49	1460	0.55	1540	0.62	1620	0.69	1700	0.76
2250	—	—	890	0.24	1000	0.29	1110	0.34	1200	0.40	1290	0.46	1380	0.52	1460	0.59	1540	0.66	1620	0.73	1690	0.80
2400	—	—	910	0.26	1010	0.32	1110	0.37	1210	0.43	1300	0.49	1380	0.56	1460	0.63	1540	0.70	1610	0.77	1690	0.84
2550	—	—	920	0.30	1030	0.35	1120	0.41	1220	0.47	1300	0.53	1390	0.60	1460	0.67	1540	0.74	1620	0.81	1690	0.89
2700	830	0.27	940	0.33	1040	0.39	1140	0.45	1230	0.51	1310	0.58	1390	0.64	1470	0.71	1540	0.79	1620	0.86	1690	0.94
2850	850	0.30	960	0.37	1060	0.43	1150	0.49	1240	0.56	1320	0.62	1400	0.69	1480	0.76	1550	0.84	1620	0.91	1690	0.99
3000	880	0.34	980	0.41	1070	0.47	1160	0.54	1250	0.60	1330	0.67	1410	0.74	1480	0.82	1560	0.89	1630	0.97	1690	1.05

Tab. XIII-03 – Transmission options WAVE *Doble* 02 and 03

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	MOTOR RPM	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.							
A	02	VERT.	0.5	1420	TDA-9/7 L	679	902	76	101	159							
B		HOR.															
C		FLOOR															
D		VERT.															
E		HOR.															
F		FLOOR															
G		VERT.	0.75	1430		1300	1728	76	101	83							
H		HOR.															
Y		FLOOR															
J		VERT.															
K		HOR.															
L		FLOOR															
A	03	VERT.	0.5	1420	TDA-9/9 L	811	1078	76	101	133							
B		HOR.															
C		FLOOR															
D		VERT.															
E		HOR.															
F		FLOOR															
G		VERT.	0.75	1430		1144	1520	76	101	95							
H		HOR.															
Y		FLOOR															
J		VERT.									1	1400	1309	1740	76	101	83
K		HOR.															
L		FLOOR															
M	VERT.																
N	HOR.																
P	FLOOR																

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

Forward-curved  
50 Hz

Tab. XIII-04 – WAVE Doble 04 – Forward-Curved

Air flow (m³/h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2000	—	—	710	0.20	820	0.25	920	0.31	1020	0.37	1110	0.44	1200	0.51	1280	0.57	1370	0.65	1450	0.72	1530	0.79
2200	—	—	720	0.22	820	0.28	920	0.34	1010	0.41	1100	0.48	1180	0.55	1260	0.62	1340	0.70	1420	0.77	1500	0.85
2400	—	—	730	0.26	820	0.32	920	0.38	1010	0.45	1090	0.52	1170	0.60	1250	0.67	1330	0.75	1400	0.83	1470	0.91
2600	—	—	740	0.29	830	0.36	920	0.42	1000	0.50	1090	0.57	1160	0.65	1240	0.73	1310	0.81	1380	0.89	1450	0.98
2800	—	—	750	0.34	840	0.40	930	0.47	1010	0.55	1090	0.62	1160	0.70	1230	0.78	1300	0.87	1370	0.96	1440	1.04
3000	—	—	760	0.38	850	0.45	930	0.52	1010	0.60	1090	0.68	1160	0.76	1230	0.85	1300	0.94	1370	1.02	1430	1.12
3200	—	—	780	0.44	860	0.51	940	0.58	1020	0.66	1090	0.74	1160	0.83	1230	0.92	1300	1.01	1360	1.10	1420	1.19
3400	710	0.41	790	0.50	870	0.57	950	0.65	1030	0.73	1100	0.81	1170	0.90	1230	0.99	1300	1.08	1360	1.18	1420	1.28
3600	730	0.46	810	0.56	890	0.64	960	0.72	1040	0.80	1110	0.89	1170	0.98	1240	1.07	1300	1.17	1360	1.27	1420	1.37
3800	750	0.52	830	0.63	900	0.71	980	0.80	1050	0.88	1110	0.97	1180	1.06	1240	1.16	1300	1.26	1360	1.36	1420	1.46
4000	770	0.57	850	0.70	920	0.79	990	0.88	1060	0.97	1130	1.06	1190	1.16	1250	1.25	1310	1.36	1370	1.46	1420	1.56

Tab. XIII-05 – WAVE Doble 06 – Forward-Curved

Air flow (m³/h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3000	—	—	510	0.29	590	0.37	670	0.46	740	0.55	810	0.64	870	0.74	940	0.85	1000	0.96	1060	1.07	1110	1.19
3300	—	—	510	0.33	590	0.42	660	0.51	730	0.60	790	0.70	860	0.80	920	0.91	980	1.02	1040	1.14	1090	1.26
3600	—	—	510	0.38	590	0.47	660	0.56	720	0.66	790	0.77	850	0.87	910	0.98	960	1.10	1020	1.22	1070	1.34
3900	—	—	510	0.43	590	0.53	650	0.63	720	0.73	780	0.84	840	0.95	900	1.06	950	1.18	1000	1.31	1060	1.43
4200	—	—	520	0.48	590	0.59	650	0.69	720	0.80	780	0.92	830	1.03	890	1.15	940	1.27	990	1.40	1040	1.53
4500	—	—	530	0.55	590	0.66	660	0.77	720	0.88	770	1.00	830	1.12	880	1.25	940	1.37	990	1.50	1030	1.64
4800	—	—	540	0.61	600	0.73	660	0.85	720	0.97	770	1.10	830	1.22	880	1.35	930	1.48	980	1.61	1030	1.75
5100	—	—	550	0.69	610	0.81	670	0.94	720	1.07	780	1.20	830	1.33	880	1.46	930	1.60	970	1.73	1020	1.88
5400	500	0.64	560	0.77	610	0.90	670	1.04	730	1.17	780	1.30	830	1.44	880	1.58	930	1.72	970	1.86	1020	2.01
5700	510	0.72	570	0.85	620	1.00	680	1.14	730	1.28	780	1.42	830	1.56	880	1.71	930	1.85	970	2.00	1020	2.15
6000	—	—	580	0.95	630	1.10	690	1.25	740	1.40	780	1.54	830	1.69	880	1.84	930	1.99	970	2.15	1010	2.31

Tab. XIII-06 – Transmission options WAVE Doble 04 and 06

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	MOTOR RPM	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	04	VERT.	0.5	1420	TDA-10/10 L	679	902	76	101	159
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.								
F		FLOOR								
G		VERT.	0.75	1430		684	908	76	101	159
H		HOR.								
Y		FLOOR								
J		VERT.								
K		HOR.								
L		FLOOR								
M		VERT.	1	1430	1144	1520	76	101	95	
N		HOR.								
P		FLOOR								
Q		VERT.								
R		HOR.								
S		FLOOR								
T		VERT.	1.5	1400	887	1178	76	101	120	
U		HOR.								
V	FLOOR									
X	VERT.									
Z	HOR.									
W	FLOOR									

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.		
A	06	VERT.	1	1400	TDA-15/11 L	509	677	76	101	209		
B		HOR.										
C		FLOOR										
D		VERT.										
E		HOR.										
F		FLOOR										
G		VERT.				1.5	1400	578	768	76	101	184
H		HOR.										
Y		FLOOR										
J		VERT.										
K		HOR.										
L		FLOOR										
M		VERT.	2	1410	806	1071	76	101	133			
N		HOR.										
P		FLOOR										
Q		VERT.										
R		HOR.										
S		FLOOR										

Note:

- Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- Heat produced by fan motor (MBh) = 3.15 x BHP

# Fan performance and Transmission option

Forward-curved  
50 Hz

Tab. XIII-07 – WAVE *Doble* 08 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																							
	10		15		20		25		30		35		40		45		50		55		60			
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp		
4400	—	—	510	0.44	600	0.58	670	0.72	750	0.88	820	1.05	880	1.23	950	1.42	1010	1.62	1070	1.82	1130	2.04		
4800	—	—	510	0.49	590	0.63	670	0.79	740	0.95	810	1.12	870	1.30	930	1.49	990	1.69	1050	1.90	1110	2.12		
5200	—	—	510	0.55	590	0.70	660	0.86	730	1.02	800	1.20	860	1.39	920	1.58	980	1.78	1030	1.99	1090	2.21		
5600	—	—	520	0.62	590	0.77	660	0.93	730	1.10	790	1.29	850	1.48	910	1.67	970	1.88	1020	2.10	1070	2.32		
6000	—	—	520	0.69	590	0.85	660	1.02	730	1.19	790	1.38	850	1.57	900	1.78	960	1.99	1010	2.21	1060	2.43		
6400	450	0.61	530	0.77	600	0.93	660	1.11	720	1.29	780	1.48	840	1.68	900	1.89	950	2.10	1000	2.33	1050	2.56		
6800	460	0.70	530	0.86	600	1.03	660	1.21	720	1.40	780	1.59	840	1.80	890	2.01	940	2.23	1000	2.46	1050	2.69		
7200	470	0.79	540	0.95	600	1.13	670	1.32	730	1.51	780	1.72	840	1.92	890	2.14	940	2.37	990	2.60	1040	2.84		
7600	480	0.89	550	1.06	610	1.24	670	1.44	730	1.64	780	1.85	840	2.06	890	2.28	940	2.51	990	2.75	1030	3.00		
8000	490	1.00	560	1.18	620	1.37	670	1.57	730	1.77	780	1.99	840	2.21	890	2.44	940	2.67	980	2.91	1030	3.16		

Tab. XIII-08 – WAVE *Doble* 10 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																							
	10		15		20		25		30		35		40		45		50		55		60			
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp		
5500	—	—	660	0.55	770	0.74	870	0.95	960	1.18	1040	1.43	—	—	—	—	—	—	—	—	—	—		
6000	—	—	660	0.60	770	0.80	860	1.01	950	1.24	1030	1.50	1110	1.77	1180	2.05	—	—	—	—	—	—		
6500	550	0.49	660	0.67	770	0.87	860	1.08	950	1.32	1030	1.57	1100	1.84	1170	2.13	1240	2.43	—	—	—	—		
7000	550	0.56	660	0.74	760	0.94	860	1.16	940	1.40	1020	1.66	1100	1.93	1170	2.22	1240	2.52	1300	2.84	1360	3.18		
7500	560	0.64	670	0.82	760	1.03	850	1.25	940	1.50	1020	1.75	1090	2.03	1160	2.32	1230	2.62	1290	2.94	1360	3.28		
8000	570	0.72	670	0.91	770	1.12	850	1.35	940	1.60	1010	1.86	1090	2.14	1160	2.43	1230	2.74	1290	3.06	1350	3.39		
8500	580	0.82	680	1.01	770	1.23	850	1.46	940	1.71	1010	1.98	1090	2.26	1150	2.56	1220	2.86	1280	3.19	1350	3.52		
9000	590	0.92	680	1.12	770	1.34	860	1.58	940	1.84	1010	2.11	1080	2.39	1150	2.69	1220	3.00	1280	3.33	1340	3.67		
9500	600	1.04	690	1.25	780	1.47	860	1.72	940	1.98	1010	2.25	1080	2.54	1150	2.84	1210	3.16	1280	3.49	1340	3.83		
10000	610	1.17	700	1.38	780	1.61	860	1.86	940	2.12	1010	2.40	1080	2.70	1150	3.01	1210	3.32	1270	3.66	1330	4.00		

Tab. XIII-09 – Transmission options WAVE *Doble* 08 and 10

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	MOTOR RPM	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	08	VERT.	1	1400	TDA-15/15 L	453	602	76	101	235
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.								
F		FLOOR								
G		VERT.	1.5	1400		578	768	76	101	184
H		HOR.								
Y		FLOOR								
J		VERT.								
K		HOR.								
L		FLOOR								
M		VERT.	2	1410		674	896	76	101	159
N		HOR.								
P		FLOOR								
Q		VERT.								
R		HOR.								
S		FLOOR								
T		VERT.	3	1410		805	1024	125	159	219
U		HOR.								
V		FLOOR								
X		VERT.								
Z		HOR.								
W		FLOOR								

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.													
A	10	VERT.	TDA-12/12 T2L	1400	509	677	76	101	209														
B		HOR.																					
C		FLOOR																					
D		VERT.								1	1400	669	889	76	101	159							
E		HOR.																					
F		FLOOR																					
G		VERT.															1.5	1400	578	768	76	101	184
H		HOR.																					
Y		FLOOR																					
J		VERT.								2	1410	806	1071	76	101	133							
K		HOR.																					
L		FLOOR																					
M		VERT.															3	1410	909	1156	125	159	194
N		HOR.																					
P		FLOOR																					
Q		VERT.								4	1400	1224	1557	125	159	143							
R		HOR.																					
S		FLOOR																					
T		VERT.																					
U		HOR.																					
V		FLOOR																					
X		VERT.																					
Z		HOR.																					
W		FLOOR																					
1		VERT.																					
2		HOR.																					
3		FLOOR																					

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

Forward-curved  
50 Hz

Tab. XIII-10 – WAVE Doble 12 – Forward-Curved

Air flow (m³/h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6000	440	0.46	530	0.62	620	0.79	700	0.98	770	1.17	850	1.38	920	1.60	980	1.82	1050	2.06	1110	2.31	1170	2.56
6600	440	0.53	530	0.71	620	0.89	690	1.09	760	1.29	830	1.51	900	1.73	960	1.96	1030	2.20	1090	2.46	1150	2.72
7200	450	0.62	540	0.81	620	1.01	690	1.21	760	1.42	830	1.65	890	1.88	950	2.12	1010	2.37	1070	2.62	1130	2.89
7800	460	0.71	540	0.92	620	1.13	690	1.35	750	1.57	820	1.80	880	2.04	940	2.29	1000	2.54	1050	2.81	1110	3.08
8400	470	0.82	550	1.04	620	1.27	690	1.49	750	1.73	830	1.97	880	2.22	930	2.47	990	2.74	1040	3.01	1100	3.29
9000	480	0.93	550	1.18	620	1.42	690	1.66	750	1.90	810	2.15	870	2.41	930	2.68	980	2.95	1040	3.23	1090	3.52
9600	490	1.06	560	1.32	630	1.58	690	1.83	750	2.09	810	2.35	870	2.62	920	2.90	970	3.18	1030	3.47	1080	3.77
10200	510	1.21	570	1.48	640	1.75	700	2.02	760	2.30	810	2.57	870	2.85	920	3.14	970	3.43	1020	3.73	1070	4.04
10800	520	1.37	580	1.65	650	1.94	700	2.23	760	2.52	820	2.80	870	3.10	920	3.39	970	3.70	1020	4.01	1070	4.32
11400	540	1.55	600	1.83	660	2.14	710	2.45	770	2.75	820	3.05	870	3.36	920	3.67	970	3.98	1020	4.31	1070	4.63
12000	—	—	610	2.04	670	2.36	720	2.68	770	3.00	830	3.32	880	3.64	930	3.96	970	4.29	1020	4.62	1070	4.96

Tab. XIII-11 – WAVE Doble 14 – Forward-Curved

Air flow (m³/h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
7000	440	0.50	550	0.74	640	1.01	730	1.31	820	1.64	890	1.99	970	2.36	—	—	—	—	—	—	—	—
7700	440	0.56	540	0.81	630	1.09	720	1.40	800	1.73	880	2.08	950	2.46	1020	2.86	—	—	—	—	—	—
8400	440	0.64	540	0.90	630	1.18	710	1.50	790	1.83	860	2.19	940	2.57	1000	2.98	1070	3.40	1130	3.84	—	—
9100	440	0.72	540	0.99	620	1.29	710	1.61	780	1.95	850	2.32	920	2.70	990	3.11	1050	3.54	1110	3.98	1170	4.44
9800	450	0.81	540	1.09	620	1.40	700	1.73	770	2.08	840	2.45	910	2.84	980	3.26	1040	3.69	1100	4.14	1160	4.61
10500	450	0.91	540	1.20	620	1.52	700	1.86	770	2.22	840	2.60	900	3.00	960	3.42	1030	3.86	1080	4.31	1140	4.79
11200	460	1.02	540	1.33	620	1.65	690	2.00	760	2.37	830	2.76	890	3.17	960	3.60	1020	4.04	1070	4.51	1130	4.98
11900	460	1.14	550	1.46	620	1.80	690	2.16	760	2.54	830	2.94	890	3.36	950	3.79	1010	4.25	1060	4.71	1120	5.20
12600	470	1.28	550	1.61	620	1.96	690	2.33	760	2.72	820	3.13	880	3.56	940	4.00	1000	4.46	1050	4.94	1110	5.43
13300	480	1.43	560	1.77	630	2.13	700	2.52	760	2.92	820	3.34	880	3.77	940	4.22	990	4.69	1050	5.18	1100	5.68
14000	490	1.59	560	1.95	630	2.32	700	2.71	760	3.13	820	3.56	880	4.00	940	4.46	990	4.94	1040	5.44	1090	5.94

Tab. XIII-12 – Transmission options WAVE Doble 12 and 14

TRANS. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	MOTOR RPM	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	12	VERT.	1.5	1400	TDA-15/11/T2L	453	602	76	101	235
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.								
F		FLOOR								
G		VERT.	3	1410		595	757	125	159	296
H		HOR.								
Y		FLOOR								
J		VERT.								
K		HOR.								
L		FLOOR								
M		VERT.	4	1400		774	985	125	159	226
N		HOR.								
P		FLOOR								
Q		VERT.								
R		HOR.								
S		FLOOR								
T	VERT.	5.5	1440	931	1184	125	159	188		
U	HOR.									
V	FLOOR									
X	VERT.									
Z	HOR.									
W	FLOOR									

TRANS. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	MOTOR RPM	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	14	VERT.	1.5	1400	TDA-15/15/T2SR	453	602	76	101	235
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.								
F		FLOOR								
G		VERT.	3	1410		509	648	125	159	346
H		HOR.								
Y		FLOOR								
J		VERT.								
K		HOR.								
L		FLOOR								
M		VERT.	4	1400		805	1024	125	159	219
N		HOR.								
P		FLOOR								
Q		VERT.								
R		HOR.								
S		FLOOR								
T	VERT.	5.5	1440	774	985	125	159	226		
U	HOR.									
V	FLOOR									
X	VERT.									
Z	HOR.									
W	FLOOR									

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

## Forward-curved 50 Hz

Tab. XIII-13 – WAVE *Doble* 17 – Forward-Curved

Air flow (m³/h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
9000	440	0.71	540	0.98	630	1.27	710	1.59	780	1.93	850	2.30	920	2.68	990	3.09	1050	3.51	1120	3.96	1180	4.42
9800	450	0.81	540	1.09	620	1.40	700	1.73	770	2.08	840	2.45	910	2.85	980	3.26	1040	3.69	1100	4.14	1160	4.61
10600	450	0.93	540	1.22	620	1.54	700	1.88	770	2.24	840	2.63	900	3.03	960	3.45	1020	3.88	1080	4.34	1140	4.81
11400	460	1.06	540	1.37	620	1.70	690	2.05	760	2.42	830	2.82	890	3.23	950	3.65	1010	4.10	1070	4.56	1130	5.04
12200	470	1.20	550	1.53	620	1.87	690	2.24	760	2.62	830	3.02	890	3.44	950	3.88	1000	4.34	1060	4.81	1110	5.29
13000	480	1.37	550	1.70	630	2.06	700	2.44	760	2.84	820	3.25	880	3.68	940	4.13	1000	4.59	1050	5.07	1100	5.57
13800	490	1.55	560	1.90	630	2.27	700	2.66	760	3.07	820	3.50	880	3.94	940	4.40	990	4.87	1040	5.36	1100	5.87
14600	500	1.75	570	2.11	640	2.50	700	2.90	760	3.32	820	3.76	880	4.22	930	4.69	990	5.17	1040	5.67	1090	6.18
15400	510	1.97	580	2.35	640	2.75	710	3.16	770	3.60	820	4.05	880	4.52	930	5.00	980	5.49	1030	6.00	1080	6.53
16200	520	2.21	590	2.60	650	3.02	710	3.45	770	3.89	830	4.36	880	4.84	930	5.33	980	5.84	1030	6.36	1080	6.89
17000	540	2.48	600	2.88	660	3.31	720	3.75	770	4.21	830	4.69	880	5.18	930	5.69	980	6.21	1030	6.74	1080	7.29

Tab. XIII-14 – WAVE *Doble* 21 – Forward-Curved

Air flow (m³/h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
12000	—	—	460	1.18	530	1.56	600	1.97	660	2.41	720	2.87	—	—	—	—	—	—	—	—	—	—
13000	—	—	460	1.30	530	1.69	600	2.12	660	2.57	720	3.04	770	3.54	—	—	—	—	—	—	—	—
14000	—	—	460	1.43	530	1.84	590	2.28	650	2.74	710	3.22	770	3.73	820	4.24	870	4.79	—	—	—	—
15000	—	—	460	1.57	530	2.00	590	2.45	650	2.93	710	3.43	760	3.95	810	4.47	860	5.03	910	5.61	—	—
16000	—	—	470	1.73	530	2.17	590	2.64	650	3.13	700	3.64	750	4.18	800	4.70	850	5.28	900	5.87	940	6.48
17000	—	—	470	1.90	530	2.36	590	2.84	650	3.35	700	3.87	750	4.42	800	4.96	840	5.55	890	6.15	940	6.78
18000	—	—	480	2.08	540	2.56	590	3.06	650	3.58	700	4.12	750	4.68	800	5.27	840	5.83	890	6.45	930	7.09
19000	—	—	480	2.28	540	2.78	600	3.29	650	3.83	700	4.39	750	4.96	790	5.56	840	6.13	880	6.77	920	7.42
20000	430	2.01	490	2.50	540	3.01	600	3.54	650	4.10	700	4.67	750	5.26	790	5.87	830	6.45	880	7.10	920	7.76
21000	440	2.23	490	2.73	550	3.26	600	3.81	650	4.38	700	4.97	750	5.58	790	6.15	830	6.79	870	7.45	920	8.13

Tab. XIII-15 – Transmission options WAVE *Doble* 17 and 21

TRANS. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	MOTOR RPM	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	17	VERT.	2	1410	TDA-15/15-T2L	456	606	76	101	235
B		HOR.								
C		FLOOR	3	1410						
D		VERT.								
E		HOR.	4	1400						
F		FLOOR								
G		VERT.	5.5	1440						
H		HOR.								
I		FLOOR	7.5	1450						
J		VERT.								
K		HOR.	3	1410						
L		FLOOR								
M		VERT.	4	1400						
N		HOR.								
O		FLOOR	5.5	1440						
P		VERT.								
Q		HOR.	7.5	1450						
R		FLOOR								
S	VERT.									
T	HOR.									
U	FLOOR									
V	VERT.									
X	HOR.									
Z	FLOOR									
W	VERT.									
1	21	HOR.	3	1410	TDA-18/18-T2L	444	565	125	159	397
2		VERT.								
3		FLOOR	4	1400						
4		VERT.								
5		HOR.	5.5	1440						
6		FLOOR								
7		VERT.	7.5	1450						
8		HOR.								
9		FLOOR	3	1410						
A		VERT.								
B		HOR.	4	1400						
C		FLOOR								
D	VERT.	5.5	1440							
E	HOR.									
F	FLOOR	7.5	1450							
G	VERT.									
H	HOR.									
I	FLOOR									
J	VERT.									
K	HOR.									
L	FLOOR									
M	VERT.									
N	HOR.									
P	FLOOR									
Q	VERT.									
R	HOR.									
S	FLOOR									

Note:

- Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

## Forward-curved 50 Hz

Tab. XIII-16 – WAVE *Doble* 25 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
15000	—	—	460	1.57	530	2.00	590	2.45	650	2.93	700	3.40	760	3.92	810	4.47	860	5.03	910	5.61	—	—
16000	—	—	470	1.73	530	2.17	590	2.64	650	3.13	700	3.61	750	4.15	800	4.70	850	5.28	900	5.87	940	6.48
17000	—	—	470	1.90	530	2.36	590	2.84	650	3.35	700	3.84	750	4.39	800	4.96	840	5.55	890	6.15	940	6.78
18000	—	—	480	2.08	540	2.56	590	3.06	650	3.58	700	4.09	750	4.65	800	5.27	840	5.83	890	6.45	930	7.09
19000	—	—	480	2.28	540	2.78	600	3.29	650	3.83	700	4.34	740	4.92	790	5.56	840	6.13	880	6.77	920	7.42
20000	430	2.01	490	2.50	540	3.01	600	3.54	650	4.10	700	4.62	740	5.21	790	5.87	830	6.45	880	7.10	920	7.76
21000	440	2.23	490	2.73	550	3.26	600	3.81	650	4.38	700	4.92	740	5.52	790	6.15	830	6.79	870	7.45	920	8.13
22000	440	2.41	500	2.93	550	3.48	600	4.04	650	4.63	700	5.23	740	5.85	790	6.49	830	7.15	870	7.83	910	8.52
23000	450	2.65	500	3.20	560	3.76	610	4.34	660	4.94	700	5.56	750	6.20	790	6.86	830	7.53	870	8.22	910	8.93
24000	460	2.92	510	3.48	560	4.06	610	4.66	660	5.28	700	5.92	750	6.57	790	7.24	830	7.93	870	8.64	—	—
25000	470	3.20	520	3.78	570	4.38	620	5.00	660	5.64	710	6.29	750	6.96	790	7.65	830	8.35	870	9.07	—	—

Tab. XIII-17 – WAVE *Doble* 31 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
17500	—	—	470	1.73	550	2.30	620	2.91	690	3.56	750	4.25	—	—	—	—	—	—	—	—	—	—
19000	—	—	470	1.90	540	2.49	610	3.12	680	3.80	740	4.50	800	5.25	—	—	—	—	—	—	—	—
20500	—	—	470	2.09	540	2.70	610	3.36	670	4.05	730	4.78	790	5.54	840	6.34	—	—	—	—	—	—
22000	—	—	470	2.30	540	2.94	610	3.61	670	4.33	730	5.07	780	5.86	840	6.67	890	7.52	940	8.35	—	—
23500	—	—	480	2.53	550	3.19	610	3.89	670	4.62	720	5.39	780	6.20	830	7.03	880	7.89	930	8.74	970	9.66
25000	—	—	480	2.78	550	3.47	610	4.19	670	4.94	720	5.74	770	6.56	820	7.41	870	8.30	920	9.16	970	10.09
26500	—	—	490	3.05	550	3.76	610	4.51	670	5.29	720	6.10	770	6.95	820	7.82	870	8.72	910	9.60	950	10.88
28000	430	2.65	490	3.35	550	4.08	610	4.85	670	5.66	720	6.49	770	7.36	820	8.26	860	9.18	910	10.06	950	11.04
29500	440	2.94	500	3.67	560	4.43	620	5.23	670	6.05	720	6.91	770	7.80	820	8.72	860	9.67	900	10.56	950	11.56
31000	450	3.26	510	4.01	560	4.80	620	5.62	670	6.48	720	7.36	770	8.27	820	9.21	860	10.18	900	11.09	940	12.10

Tab. XIII-18 – Transmission options WAVE *Doble* 25 and 31

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	25	VERT.	3	1410	TDA-18/18-T2L	444	565	125	159	397
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.								
F		FLOOR								
G		VERT.	4	1400		441	561	125	159	397
H		HOR.								
Y		FLOOR								
J		VERT.								
K		HOR.								
L		FLOOR								
M		VERT.	5.5	1440		608	774	125	159	296
N		HOR.								
P		FLOOR								
Q		VERT.								
R		HOR.								
S		FLOOR								
T		VERT.	7.5	1450		740	941	125	159	245
U		HOR.								
V		FLOOR								
X		VERT.								
Z	HOR.									
V	FLOOR									

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	31	VERT.	3	1410	TDA-18/18-T3R	444	565	125	159	397
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.								
F		FLOOR								
G		VERT.	5.5	1440		453	577	125	159	397
H		HOR.								
Y		FLOOR								
J		VERT.								
K		HOR.								
L		FLOOR								
M		VERT.	7.5	1450		612	779	125	159	296
N		HOR.								
P		FLOOR								
Q		VERT.								
R		HOR.								
S		FLOOR								
T		VERT.	10	1455		742	970	125	159	245
U		HOR.								
V		FLOOR								
X		VERT.								
Z	HOR.									
W	FLOOR									

Note:

- Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

Forward-curved  
50 Hz

Tab. XIII-19 – WAVE *Doble* 35 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
20000	—	—	470	2.03	540	2.63	610	3.28	670	3.96	730	4.68	790	5.44	850	6.23	—	—	—	—	—	—
21500	—	—	470	2.23	540	2.86	610	3.53	670	4.23	730	4.97	780	5.75	840	6.56	890	7.40	—	—	—	—
23000	—	—	480	2.45	540	3.10	610	3.79	670	4.52	720	5.28	780	6.08	830	6.91	880	7.76	930	8.61	980	9.52
24500	—	—	480	2.69	550	3.37	610	4.09	670	4.84	720	5.62	770	6.43	830	7.28	880	8.16	920	9.01	970	9.95
26000	—	—	490	2.96	550	3.66	610	4.40	670	5.17	720	5.98	770	6.81	820	7.68	870	8.58	910	9.45	960	10.40
27500	—	—	490	3.25	550	3.97	610	4.74	670	5.53	720	6.36	770	7.22	820	8.11	870	9.03	910	9.91	950	10.88
29000	430	2.84	500	3.56	560	4.31	610	5.10	670	5.92	720	6.77	770	7.65	820	8.56	860	9.50	900	10.39	950	11.38
30500	440	3.15	500	3.89	560	4.67	620	5.49	670	6.33	720	7.21	770	8.11	820	9.04	860	10.00	900	10.91	940	11.92
32000	450	3.48	510	4.26	570	5.06	620	5.90	670	6.77	720	7.67	770	8.60	820	9.56	860	10.54	900	11.45	940	12.48
33500	460	3.84	520	4.65	570	5.48	630	6.35	680	7.24	720	8.17	770	9.12	820	10.10	860	11.10	900	12.03	940	13.08
35000	470	4.23	530	5.07	580	5.93	630	6.82	680	7.74	730	8.69	770	9.67	820	10.67	860	11.70	900	12.63	—	—

Tab. XIII-20 – Transmission options WAVE *Doble* 35

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	35	VERT.	4	1400	TDA-18/18-T3R	441	561	125	159	397
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.								
F		FLOOR								
G		VERT.	5.5	1440		453	577	125	159	397
H		HOR.								
Y		FLOOR								
J		VERT.								
K		HOR.	7.5	1450		608	790	125	159	296
L		FLOOR								
M		VERT.	10	1455		612	779	125	159	296
N		HOR.								
P		FLOOR								
Q		VERT.								
R		HOR.	12.5	1455		740	941	125	159	245
S		FLOOR								
T		VERT.	12.5	1455		742	980	125	159	245
U		HOR.								
V	FLOOR	12.5	1455	970	-	191	-	296		
X	VERT.									
Z	HOR.									
W	FLOOR									

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

Forward-curved  
50 Hz

Tab. XIII-21 – WAVE Doble 40 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
25000	—	—	480	2.78	550	3.47	610	4.19	670	4.94	720	5.74	770	6.56	820	7.41	870	8.30	920	9.16	970	10.09
26500	—	—	490	3.05	550	3.76	610	4.51	670	5.29	720	6.10	770	6.95	820	7.82	870	8.72	910	9.60	960	10.55
28000	—	—	490	3.35	550	4.08	610	4.85	670	5.66	720	6.49	770	7.36	820	8.26	860	9.18	910	10.06	950	11.04
29500	440	2.94	500	3.67	560	4.43	620	5.23	670	6.05	720	6.91	770	7.80	820	8.72	860	9.67	900	10.56	950	11.56
31000	450	3.26	510	4.01	560	4.80	620	5.62	670	6.48	720	7.36	770	8.27	820	9.21	860	10.18	900	11.09	940	12.10
32500	450	3.60	510	4.38	570	5.20	620	6.05	670	6.93	720	7.83	770	8.77	820	9.73	860	10.72	900	11.64	940	12.68
34000	460	3.97	520	4.78	580	5.63	630	6.50	680	7.41	730	8.34	770	9.30	820	10.28	860	11.30	900	12.23	940	13.29
35500	480	4.37	530	5.21	580	6.08	630	6.99	680	7.91	730	8.87	770	9.86	820	10.87	860	11.90	900	12.84	940	13.92
37000	490	4.80	540	5.67	590	6.57	640	7.50	690	8.46	730	9.44	780	10.45	820	11.48	860	12.54	900	13.49	940	14.60
38500	500	5.26	550	6.16	600	7.09	650	8.05	690	9.03	740	10.04	780	11.07	820	12.13	860	13.22	900	14.17	940	15.30
40000	510	5.75	560	6.68	610	7.64	650	8.62	700	9.64	740	10.67	790	11.73	830	12.82	870	13.92	900	14.89	940	16.04

Tab. XIII-22 – Transmission options WAVE Doble 40

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.							
A	40	VERT.	7.5	1450	TDA-18/18-T3R	457	581	125	159	397							
B		HOR.															
C		FLOOR															
D		VERT.															
E		HOR.															
F		FLOOR															
G		VERT.															
H		HOR.															
Y		FLOOR															
J		VERT.	10	1455		742	944	125	159	245							
K		HOR.															
L		FLOOR															
M		VERT.															
N		HOR.															
P		FLOOR															
Q		VERT.	12.5	1455		970	-	191	-	296							
R		HOR.															
S		FLOOR															
T		VERT.									15	1455	970	-	191	-	296
U		HOR.															
V	FLOOR																

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP





# Fan performance and Transmission option

## Backward-curved 50 Hz

Tab. XIII-23 – WAVE Doble 02 – Backward-curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																											
	40		50		60		70		80		90		100		110		120		130		140		150		160			
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1200	2358	0.33	2504	0.39	2645	0.46	2783	0.53	2919	0.6	3054	0.68	3190	0.76	3326	0.85	3463	0.94	—	—	—	—	—	—	—	—	—	—
1300	2456	0.37	2596	0.44	2730	0.51	2860	0.58	2987	0.66	3113	0.74	3238	0.82	3363	0.9	3488	0.99	—	—	—	—	—	—	—	—	—	—
1400	2558	0.42	2693	0.49	2821	0.56	2945	0.64	3066	0.72	3185	0.80	3302	0.88	3418	0.97	3534	1.06	—	—	—	—	—	—	—	—	—	—
1500	2663	0.47	2793	0.54	2917	0.62	3036	0.70	3151	0.78	3264	0.86	3375	0.95	3485	1.04	—	—	—	—	—	—	—	—	—	—	—	—
1600	2770	0.52	2896	0.60	3016	0.68	3131	0.77	3242	0.85	3351	0.94	3457	1.03	3561	1.12	—	—	—	—	—	—	—	—	—	—	—	—
1700	2878	0.58	3002	0.67	3118	0.75	3230	0.84	3337	0.93	3442	1.02	3544	1.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1800	2988	0.65	3108	0.74	3222	0.83	3331	0.92	3435	1.01	3537	1.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1900	3098	0.72	3217	0.82	3328	0.91	3434	1.00	3536	1.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2000	2310	0.80	3327	0.90	3436	1.00	3539	1.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Tab. XIII-24 – WAVE Doble 03 – Backward-curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																											
	40		50		60		70		80		90		100		110		120		130		140		150		160			
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1500	1983	0.37	2122	0.46	2254	0.54	2381	0.63	2505	0.72	2626	0.81	2745	0.91	2864	1.01	2982	1.11	3101	1.22	3219	1.32	3339	1.43	—	—	—	—
1650	2067	0.42	2202	0.51	2202	0.51	2449	0.70	2566	0.79	2679	0.89	2791	0.99	2900	1.09	3009	1.20	3117	1.31	3225	1.42	3332	1.53	—	—	—	—
1800	2154	0.47	2285	0.57	2408	0.67	2524	0.77	2636	0.87	2744	0.97	2849	1.08	2953	1.19	3055	1.30	3155	1.41	3255	1.52	3354	1.64	—	—	—	—
1950	2243	0.53	2372	0.63	2491	0.74	2604	0.84	2712	0.95	2816	1.06	2917	1.17	3016	1.29	3112	1.40	3207	1.52	3301	1.64	3394	1.76	—	—	—	—
2100	2333	0.60	2460	0.70	2577	0.81	2687	0.93	2792	1.04	2893	1.16	2991	1.27	3086	1.39	3179	1.51	3270	1.64	3359	1.76	3447	1.89	—	—	—	—
2250	2425	0.67	2550	0.78	2665	0.90	2773	1.02	2876	1.14	2974	1.26	3069	1.38	3161	1.51	3251	1.63	3339	1.76	3425	1.89	3510	2.02	—	—	—	—
2400	2517	0.74	2640	0.86	2754	0.99	2861	1.11	2961	1.24	3058	1.36	3151	1.49	3240	1.62	3328	1.76	3413	1.89	3496	2.03	—	—	—	—	—	—
2550	2610	0.82	2732	0.95	2845	1.08	2950	1.21	3049	1.34	3144	1.48	3235	1.61	3323	1.75	3251	1.63	3491	2.03	—	—	—	—	—	—	—	—
2700	2704	0.91	2825	1.05	2936	1.18	3040	1.32	3138	1.46	3231	1.60	3321	1.74	3407	1.89	3491	2.03	—	—	—	—	—	—	—	—	—	—
2850	2798	1.01	2918	1.15	3028	1.29	3131	1.44	3228	1.58	3320	1.73	3408	1.88	3493	2.03	—	—	—	—	—	—	—	—	—	—	—	—
3000	2892	1.11	3011	1.26	3120	1.41	3222	1.56	3318	1.71	3410	1.87	3497	2.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Tab. XIII-25 – Transmission options WAVE Doble 02 and 03 – Backward-curved

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	02	VERT.	0.75	2710	LMD250Q	2168	2881	76	101	95
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.	2770	2216		2945	76	101	95	
F		FLOOR								
G		VERT.	1	2770		2699	3587	76	101	78
H		HOR.								
Y		FLOOR								
J		VERT.								
K		HOR.	1.5	2770		2699	3587	76	101	78
L		FLOOR								
M		VERT.								
N		HOR.								
P	FLOOR	03	0.75	2710	LMD280Q	1907	2534	76	101	108
A	VERT.									
B	HOR.									
C	FLOOR									
D	VERT.		2770	2536		3371	76	101	83	
E	HOR.									
F	FLOOR		1.5	2770		2536	3371	76	101	83
G	VERT.									
H	HOR.									
Y	FLOOR									
J	VERT.	2	2840	2600	3456	76	101	83		
K	HOR.									
L	FLOOR									

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option Backward-curved 50 Hz

Tab. XIII-26 – WAVE Doble 04 – Backward-curved

Air flow (m³/h)	Total static pressure (mmca)																									
	40		50		60		70		80		90		100		110		120		130		140		150		160	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2000	—	—	1918	0.53	2042	0.63	2165	0.74	2287	0.85	2410	0.97	2534	1.10	2660	1.24	2788	1.38	2920	1.54	3054	1.71	3193	1.89	3336	2.09
2200	—	—	1988	0.60	2104	0.70	2217	0.81	2329	0.92	2440	1.05	2552	1.17	2663	1.31	2776	1.45	2890	1.60	3006	1.76	3124	1.92	3244	2.10
2400	1948	0.57	2064	0.68	2174	0.78	2280	0.90	2385	1.01	2488	1.13	2590	1.26	2692	1.4	2794	1.54	2896	1.68	2999	1.84	3104	2.00	3209	2.16
2600	2033	0.65	2144	0.76	2249	0.87	2351	0.99	2449	1.11	2546	1.24	2642	1.37	2736	1.5	2831	1.64	2925	1.79	3019	1.94	3113	2.10	3208	2.26
2800	2120	0.74	2227	0.86	2329	0.98	2426	1.10	2521	1.22	2613	1.35	2703	1.49	2792	1.62	2880	1.77	2968	1.91	3056	2.06	3143	2.22	3230	2.38
3000	2209	0.85	2313	0.96	2412	1.09	2506	1.21	2596	1.34	2685	1.48	2771	1.62	2856	1.76	2940	1.90	3022	2.05	3105	2.21	3187	2.37	3268	2.53
3200	2299	0.96	2401	1.08	2497	1.21	2588	1.34	2676	1.48	2761	1.62	2844	1.76	2925	1.91	3005	2.05	3084	2.21	3163	2.36	3240	2.53	3317	2.69
3400	2391	1.08	2490	1.21	2584	1.35	2673	1.48	2758	1.62	2841	1.77	2921	1.92	2999	2.07	3076	2.22	3152	2.38	3227	2.54	3301	2.70	3375	2.87
3600	2483	1.22	2581	1.36	2672	1.49	2759	1.64	2842	1.78	2923	1.93	3001	2.08	3077	2.24	3151	2.40	3225	2.56	3297	2.73	3368	2.89	3438	3.07
3800	2577	1.38	2672	1.51	2762	1.66	2847	1.80	2928	1.96	3007	2.11	3083	2.27	3157	2.43	3230	2.59	3301	2.76	3370	2.93	3439	3.10	3507	3.28
4000	2671	1.55	2765	1.69	2853	1.83	2936	1.99	3016	2.14	3093	2.30	3167	2.47	3240	2.63	3310	2.80	3379	2.97	3447	3.15	3514	3.32	—	—

Tab. XIII-27 – WAVE Doble 06 – Backward-curved

Air flow (m³/h)	Total static pressure (mmca)																									
	40		50		60		70		80		90		100		110		120		130		140		150		160	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3000	1315	0.60	1430	0.74	1538	0.89	1641	1.04	1740	1.19	1834	1.35	1925	1.51	2012	1.68	2097	1.84	2180	2.01	2260	2.18	2339	2.35	—	—
3300	1354	0.67	1463	0.82	1567	0.97	1667	1.14	1762	1.30	1853	1.47	1942	1.64	2027	1.82	2109	2.00	2189	2.18	2267	2.36	2343	2.54	2418	2.72
3600	1397	0.74	1502	0.90	1601	1.07	1697	1.24	1789	1.42	1877	1.60	1963	1.78	2046	1.96	2126	2.15	2204	2.34	2280	2.54	2354	2.73	2426	2.93
3900	1444	0.83	1544	1.00	1639	1.17	1731	1.35	1820	1.54	1905	1.73	1988	1.92	2069	2.12	2147	2.31	2223	2.52	2297	2.72	2369	2.93	2440	3.14
4200	1493	0.92	1589	1.10	1681	1.28	1769	1.47	1854	1.66	1937	1.86	2017	2.07	2096	2.27	2172	2.48	2246	2.69	2318	2.91	2389	3.13	2458	3.35
4500	1545	1.02	1637	1.21	1725	1.40	1810	1.60	1893	1.80	1972	2.01	2050	2.22	2126	2.44	2200	2.66	2272	2.88	2342	3.10	2411	3.33	2479	3.56
4800	1598	1.12	1687	1.32	1772	1.53	1854	1.73	1934	1.95	2011	2.16	2086	2.38	2160	2.61	2231	2.84	2301	3.07	2370	3.30	2437	3.54	2505	3.78
5100	1654	1.24	1739	1.45	1822	1.66	1901	1.88	2040	2.33	2052	2.33	2125	2.56	2196	2.79	2266	3.03	2334	3.27	2401	3.52	2466	3.76	2531	4.01
5400	1710	1.37	1793	1.59	1873	1.81	1949	2.04	2024	2.27	2096	2.50	2167	2.74	2236	2.98	2303	3.23	2370	3.48	2435	3.74	2498	3.99	2561	4.25
5700	1767	1.51	1848	1.74	1926	1.97	2000	2.20	2072	2.44	2142	2.69	2211	2.94	2278	3.19	2343	3.44	2408	3.70	2471	3.97	2533	4.23	—	—
6000	1825	1.66	1905	1.89	1980	2.14	2052	2.38	2122	2.63	2190	2.89	2257	3.14	2322	3.40	2386	3.67	2448	3.94	2510	4.21	—	—	—	—

Tab. XIII-28 – Transmission options WAVE Doble 04 and 06 – Backward-curved

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	04	VERT.	1	2770	LMD315Q	1949	2590	76	101	108
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.	1.5	2770		2216	2945	76	101	95
F		FLOOR								
G		VERT.								
H		HOR.								
Y		FLOOR	2	2840	1767	2390	76	101	120	
J		VERT.								
K		HOR.								
L		FLOOR								
M		VERT.	3	2810	2600	3456	76	101	83	
N		HOR.								
P		FLOOR								

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	06	VERT.	1.5	2770	LMD400Q	1324	1853	76	101	159
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.	2	2840		1623	2157	76	101	133
F		FLOOR								
G		VERT.								
H		HOR.								
Y		FLOOR	3	2810		1811	2303	125	159	194
J		VERT.								
K		HOR.								
L		FLOOR								
			4	2870	2123	2700	125	159	169	

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

## Backward-curved

### 50 Hz

Tab. XIII-29 – WAVE Doble 08 – Backward-curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																											
	40		50		60		70		80		90		100		110		120		130		140		150		160			
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
4400	1503	0.93	1626	1.16	1749	1.40	1872	1.67	1997	1.96	2125	2.28	2257	2.63	2395	3.02	2538	3.45	—	—	—	—	—	—	—	—	—	—
4800	1552	1.04	1667	1.27	1780	1.51	1892	1.78	2004	2.06	2118	2.37	2234	2.70	2353	3.06	2475	3.45	2601	3.88	2731	4.34	2866	4.85	—	—	—	—
5200	1606	1.15	1714	1.39	1820	1.64	1924	1.91	2027	2.20	2131	2.50	2235	2.82	2341	3.17	2449	3.54	2559	3.93	2672	4.35	2787	4.81	2906	5.30	—	—
5600	1663	1.28	1766	1.53	1866	1.79	1964	2.06	2060	2.35	2156	2.66	2253	2.98	2349	3.32	2447	3.67	2545	4.05	2646	4.45	2748	4.88	2852	5.33	—	—
6000	1722	1.43	1822	1.68	1917	1.95	2010	2.24	2101	2.53	2191	2.84	2281	3.16	2370	3.49	2460	3.85	2551	4.22	2642	4.61	2734	5.01	2828	5.44	—	—
6400	1783	1.58	1879	1.85	1971	2.13	2060	2.42	2147	2.72	2232	3.04	2317	3.36	2401	3.70	2485	4.05	2569	4.42	2654	4.80	2739	5.20	2824	5.62	—	—
6800	1846	1.76	1939	2.04	2028	2.33	2114	2.63	2197	2.94	2279	3.26	2359	3.59	2439	3.93	2518	4.29	2597	4.66	2676	5.04	2756	5.43	2835	5.84	—	—
7200	1910	1.94	2001	2.24	2087	2.54	2170	2.85	2250	3.17	2329	3.50	2406	3.83	2482	4.18	2557	4.54	2633	4.92	2707	5.30	2782	5.70	2857	6.11	—	—
7600	1975	2.15	2063	2.45	2147	2.76	2228	3.09	2306	3.42	2382	3.75	2456	4.10	2529	4.46	2602	4.83	2673	5.20	2744	5.59	2815	5.99	2886	6.40	—	—
8000	2041	2.37	2127	2.69	2209	3.01	2288	3.34	2363	3.68	2437	4.03	2509	4.39	2580	4.75	2649	5.13	2718	5.51	2786	5.91	2854	6.31	—	—	—	—

Tab. XIII-30 – WAVE Doble 10 – Backward-curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																											
	40		50		60		70		80		90		100		110		120		130		140		150		160			
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
5500	1923	1.36	2068	1.66	2206	2.00	2340	2.32	2471	2.68	2601	3.04	2730	3.40	2859	3.80	2988	4.20	3119	4.60	—	—	—	—	—	—	—	—
6000	1991	1.50	2131	1.84	2262	2.18	2389	2.54	2512	2.90	2633	3.28	2753	3.66	2871	4.06	2989	4.46	3108	4.88	3227	5.32	3346	5.76	—	—	—	—
6500	2063	1.68	2198	2.02	2325	2.40	2446	2.76	2563	3.14	2678	3.54	2790	3.94	2901	4.34	3011	4.76	3120	5.20	3230	5.64	3339	6.10	3448	6.56	—	—
7000	2136	1.86	2268	2.22	2391	2.62	2508	3.00	2621	3.40	2731	3.82	2838	4.22	2943	4.66	3046	5.10	3149	5.54	3251	6.00	3353	6.46	3454	6.94	—	—
7500	2211	2.04	2340	2.44	2460	2.84	2574	3.26	2684	3.68	2789	4.10	2892	4.54	2993	4.98	3092	5.44	3189	5.90	3286	6.36	3381	6.84	3477	7.34	—	—
8000	2287	2.26	2414	2.68	2532	3.10	2643	3.52	2750	3.96	2852	4.42	2952	4.88	3049	5.34	3144	5.80	3237	6.28	3330	6.76	3421	7.26	3511	7.76	—	—
8500	2365	2.48	2490	2.92	2605	3.36	2715	3.82	2819	4.28	2919	4.74	3015	5.22	3109	5.70	3201	6.20	3292	6.68	3380	7.18	3468	7.70	—	—	—	—
9000	2443	2.72	2566	3.18	2680	3.66	2787	4.12	2890	4.60	2987	5.10	3082	5.58	3174	6.08	3263	6.60	3351	7.12	3437	7.64	3521	8.16	—	—	—	—
9500	2521	2.98	2643	3.46	2756	3.96	2862	4.46	2962	4.96	3058	5.46	3151	5.98	3241	6.50	3328	7.02	3413	7.56	3497	8.10	—	—	—	—	—	—
10000	2601	3.26	2721	3.76	2833	4.28	2937	4.80	3036	5.32	3131	5.86	3222	6.38	3310	6.92	3395	7.48	3479	8.02	—	—	—	—	—	—	—	—

Tab. XIII-31 – Transmission options WAVE Doble 08 and 10 – Backward-curved

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	08	VERT.	2	2840	RLD355L	1623	2157	76	101	133
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.								
F		FLOOR								
G		VERT.	4	2870		2123	2700	125	159	169
H		HOR.								
Y		FLOOR								
J		VERT.	5.5	2875		2513	3197	125	159	143
K		HOR.								
L		FLOOR	7.5	2910		2544	3236	125	159	143
M		VERT.								
N	HOR.									
O	FLOOR									
P	FLOOR									

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	10	VERT.	3	2810	RLD280Q	2078	2644	125	159	169
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.								
F		FLOOR								
G		VERT.	4	2870		2509	3191	125	159	143
H		HOR.								
Y		FLOOR								
J		VERT.	5.5	2875		2513	3197	125	159	143
K		HOR.								
L		FLOOR	7.5	2910		3083	3921	125	159	118
M		VERT.								
N	HOR.									
O	FLOOR									
P	FLOOR									

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Backward-curved Transmission option 50 Hz

Tab. XIII-32 – WAVE Doble 12 – Backward-curved

Air flow	Total static pressure (mmca)																									
	40		50		60		70		80		90		100		110		120		130		140		150		160	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6000	—	—	1803	1.62	1970	2.02	2141	2.46	2321	2.98	2510	3.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6600	—	—	1828	1.76	1976	2.14	2127	2.58	2281	3.04	2441	3.58	2607	4.16	2780	4.80	—	—	—	—	—	—	—	—	—	—
7200	—	—	1865	1.92	2001	2.30	2137	2.72	2274	3.18	2414	3.68	2558	4.22	2706	4.82	2859	5.46	3018	6.18	3184	6.96	—	—	—	—
7800	1780	0.86	1910	2.08	2037	2.48	2162	2.90	2288	3.36	2414	3.84	2543	4.36	2673	4.92	2807	5.54	2944	6.18	3085	6.88	3231	7.64	3383	8.46
8400	1837	1.90	1961	2.28	2081	2.70	2198	3.12	2315	3.58	2431	4.06	2548	4.58	2667	5.12	2787	5.70	2909	6.30	3033	6.96	3161	7.66	3291	8.42
9000	1897	2.10	2016	2.50	2130	2.92	2242	3.36	2351	3.82	2460	4.30	2569	4.82	2678	5.36	2788	5.92	2899	6.52	3011	7.14	3125	7.82	3241	8.52
9600	1960	2.32	2075	2.74	2184	3.18	2291	3.62	2395	4.10	2498	4.58	2600	5.10	2702	5.64	2804	6.20	2906	6.78	3010	7.40	3114	8.04	3219	8.72
10200	2024	2.58	2136	3.00	2241	3.46	2344	3.92	2444	4.40	2542	4.90	2639	5.42	2735	5.96	2831	6.52	2927	7.10	3023	7.72	3119	8.36	3217	9.02
10800	2090	2.84	2198	3.28	2301	3.76	2400	4.22	2496	4.72	2590	5.24	2683	5.76	2774	6.32	2865	6.88	2956	7.46	3047	8.08	3137	—	—	—
11400	2157	3.14	2263	3.60	2363	4.08	2459	4.56	2552	5.08	2643	5.60	2732	6.14	2820	6.70	2906	7.28	2993	7.86	3079	8.48	3165	—	—	—
12000	2225	3.46	2329	3.92	2426	4.42	2520	4.94	2610	5.46	2698	6.00	2784	6.56	2869	7.12	2952	7.70	3035	8.30	3117	8.92	3199	—	—	—

Tab. XIII-33 – WAVE Doble 14 – Backward-curved

Air flow	Total static pressure (mmca)																									
	40		50		60		70		80		90		100		110		120		130		140		150		160	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
7000	1422	1.50	1578	1.94	1741	2.46	1912	3.06	2095	3.78	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7700	1447	1.62	1587	2.06	1729	2.56	1876	3.12	2028	3.76	2189	4.48	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8400	1481	1.76	1609	2.22	1738	2.70	1868	3.24	2001	3.84	2139	4.50	2282	5.24	2433	6.06	—	—	—	—	—	—	—	—	—	—
9100	1521	1.94	1641	2.40	1759	2.88	1877	3.42	1997	3.98	2120	4.62	2245	5.30	2374	6.06	2509	6.88	2648	7.78	—	—	—	—	—	—
9800	1565	2.12	1678	2.60	1789	3.08	1899	3.62	2009	4.18	2120	4.80	2233	5.46	2348	6.16	2466	6.94	2587	7.76	2712	8.66	2842	9.64	2976	10.72
10500	1613	2.34	1721	2.82	1825	3.32	1928	3.86	2031	4.44	2133	5.04	2237	5.68	2341	6.36	2448	7.10	2556	7.88	2667	8.72	2780	9.62	2897	10.58
11200	1663	2.56	1766	3.06	1866	3.58	1964	4.12	2060	4.70	2156	5.32	2253	5.96	2349	6.64	2447	7.34	2545	8.10	2646	8.90	2748	9.76	2852	10.66
11900	1714	2.82	1814	3.32	1910	3.86	2004	4.42	2096	5.02	2186	5.62	2277	6.26	2367	6.94	2458	7.64	2549	8.38	2642	9.16	2735	9.98	2830	10.86
12600	1768	3.08	1865	3.62	1957	4.18	2047	4.74	2135	5.34	2222	5.96	2307	6.62	2393	7.30	2478	8.00	2564	8.74	2650	9.50	2736	10.3	2824	11.14
13300	1822	3.38	1917	3.94	2006	4.50	2093	5.10	2178	5.70	2261	6.34	2343	7.00	2424	7.68	2505	8.40	2586	9.12	2667	9.90	2748	10.68	2830	11.52
14000	1878	3.70	1970	4.26	2057	4.86	2141	5.46	2223	6.10	2303	6.74	2382	7.42	2460	8.12	2537	8.82	2614	9.56	2691	10.32	2768	11.12	2845	11.94

Tab. XIII-34 – Transmission options WAVE Doble 12 and 14 – Backward-curved

TRANS. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	12	VERT.	3	2810	RLD315Q	1811	2321	125	159	194
B		HOR.								
C		FLOOR								
D		FLOOR								
E		VERT.	5.5	2875		2126	2780	125	159	169
F		HOR.								
G		FLOOR								
H		FLOOR								
Y		VERT.	7.5	2910		2544	3236	125	159	143
J		HOR.								
K		FLOOR								
L		FLOOR								
A	14	VERT.	4	2870	RLD355Q	1464	1863	125	159	245
B		HOR.								
C		FLOOR								
D		FLOOR								
E		VERT.	5.5	2875		1638	2095	125	159	219
F		HOR.								
G		FLOOR								
H		FLOOR								
Y		VERT.	7.5	2910		1852	2356	125	159	194
J		HOR.								
K		FLOOR								
L		FLOOR								
M		VERT.	10	2900		2152	2738	125	159	169
N		HOR.								
P		FLOOR								
Q		FLOOR								
R	VERT.	12.5	2910	2535	3224	125	159	143		
S	HOR.									
	FLOOR									
	FLOOR									

Note:

(1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.

(2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

## Backward-curved 50 Hz

Tab. XIII-35 – WAVE Doble 17 – Backward-curved

Air flow	Total static pressure (mmca)																									
	40		50		60		70		80		90		100		110		120		130		140		150		160	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
9000	—	—	1636	2.36	1755	2.86	1875	3.38	1997	3.96	2121	4.60	2249	5.28	2380	6.04	2517	6.88	2660	7.80	—	—	—	—	—	—
9800	—	—	1678	2.60	1789	3.08	1899	3.62	2009	4.18	2120	4.80	2233	5.46	2348	6.16	2466	6.94	2587	7.76	2712	8.66	2842	9.64	2976	10.72
10600	1620	2.36	1727	2.84	1831	3.36	1933	3.90	2035	4.46	2136	5.08	2238	5.72	2342	6.40	2447	7.14	2553	7.92	2663	8.74	2774	9.64	2889	10.58
11400	1677	2.64	1780	3.14	1879	3.66	1975	4.22	2070	4.80	2164	5.40	2259	6.04	2353	6.72	2449	7.42	2545	8.18	2643	8.98	2742	9.82	2844	10.70
12200	1737	2.92	1836	3.46	1930	4.00	2022	4.56	2112	5.16	2201	5.76	2289	6.42	2377	7.08	2466	7.80	2554	8.54	2644	9.30	2734	10.12	2826	10.96
13000	1799	3.26	1894	3.80	1985	4.36	2073	4.94	2159	5.56	2244	6.18	2327	6.84	2410	7.52	2493	8.22	2576	8.96	2659	9.72	2742	10.52	2826	11.34
13800	1862	3.60	1954	4.16	2043	4.76	2127	5.36	2210	5.98	2291	6.62	2370	7.30	2449	7.98	2528	8.70	2606	9.44	2683	10.20	2761	11.00	2840	11.82
14600	1926	3.98	2016	4.58	2102	5.18	2184	5.82	2264	6.46	2342	7.12	2418	7.80	2493	8.50	2568	9.22	2642	9.98	2716	10.74	2790	11.54	2863	12.36
15400	1991	4.40	2079	5.02	2163	5.64	2243	6.30	2320	6.96	2395	7.64	2469	8.34	2542	9.06	2613	9.80	2684	10.56	2754	11.34	2825	12.14	2894	12.96
16200	2057	4.86	2143	5.50	2225	6.14	2303	6.82	2378	7.50	2451	8.20	2523	8.92	2593	9.66	2662	10.42	2730	11.18	2798	11.98	2865	12.78	—	—
17000	2124	5.36	2208	6.00	2288	6.68	2364	7.38	2438	8.08	2509	8.82	2578	9.56	2646	10.30	2713	11.08	2779	11.86	2844	12.68	2909	13.50	—	—

Tab. XIII-36 – WAVE Doble 21 – Backward-curve

Air flow	Total static pressure (mmca)																									
	40		50		60		70		80		90		100		110		120		130		140		150		160	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
12000	—	—	1436	2.98	1544	3.58	1647	4.18	1745	4.82	1840	5.44	1930	6.10	2017	6.74	2102	7.40	2185	8.08	2265	8.76	—	—	—	—
13000	1355	2.66	1465	3.26	1569	3.88	1669	4.52	1764	5.18	1856	5.86	1944	6.54	2030	7.22	2113	7.94	2193	8.64	2271	9.36	2347	10.08	2422	10.80
14000	1391	2.92	1497	3.54	1598	4.20	1694	4.88	1787	5.56	1876	6.28	1962	7.00	2045	7.72	2126	8.46	2205	9.22	2281	9.96	2356	10.74	2429	11.50
15000	1430	3.20	1532	3.86	1629	4.54	1722	5.24	1812	5.96	1899	6.70	1983	7.46	2064	8.22	2143	9.00	2220	9.80	2295	10.58	2368	11.40	2439	12.20
16000	1471	3.50	1569	4.18	1662	4.90	1753	5.64	1840	6.40	1924	7.16	2006	7.96	2085	8.76	2163	9.56	2238	10.38	2311	11.22	2383	12.06	2453	12.90
17000	1513	3.82	1608	4.54	1699	5.28	1786	6.06	1870	6.84	1952	7.64	2032	8.46	2109	9.30	2185	10.14	2258	11.00	2300	11.86	2400	12.74	2469	13.62
18000	1557	4.16	1649	4.92	1737	5.70	1821	6.50	1903	7.32	1983	8.14	2060	9.00	2136	9.86	2209	10.74	2281	11.62	2352	12.54	2420	13.44	2488	14.36
19000	1603	4.54	1692	5.34	1777	6.14	1859	6.96	1938	7.82	2016	8.68	2091	9.56	2165	10.46	2236	11.36	2307	12.28	2375	13.22	2443	14.16	2509	15.12
20000	1650	4.94	1736	5.76	1818	6.60	1898	7.46	1975	8.34	2050	9.24	2124	10.14	2195	11.08	2265	12.02	2334	12.96	2401	13.94	2467	14.92	2532	15.90
21000	1697	5.38	1781	6.22	1861	7.10	1939	8.00	2014	8.90	2087	9.82	2158	10.76	2228	11.72	2297	12.70	2364	13.68	2429	14.68	2494	15.68	2557	16.70

Tab. XIII-37 – Transmission options WAVE Doble 17 and 21 – Backward-curved

TRANS. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	17	VERT.	5.5	2875	RLD355Q	1641	2087	125	159	219
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.								
F		FLOOR								
G		VERT.								
H		HOR.								
Y		FLOOR								
J		VERT.	7.5	2910		2152	2738	125	159	169
K		HOR.								
L		FLOOR								
M		VERT.	10	2900		2535	3224	125	159	143
N		HOR.								
P		FLOOR								
		VERT.								
		HOR.	12.5	2910		2544	3236	125	159	143
	FLOOR									

TRANS. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	21	VERT.	5.5	2875	RLD400Q	1467	1866	125	159	245
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.								
F		FLOOR								
G		VERT.								
H		HOR.								
Y		FLOOR								
J		VERT.	7.5	2910		1661	2113	125	159	219
K		HOR.								
L		FLOOR								
M		VERT.	10	2900		1869	2377	125	159	194
N		HOR.								
P		FLOOR								
		VERT.								
		HOR.	12.5	2910		2152	2738	125	159	169
	FLOOR									
	VERT.	15	2930	2618	-	151	-	169		
	FLOOR									

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option Backward-curved 50 Hz

Tab. XIII-38 – WAVE Doble 25 – Backward-curved

Air flow	Total static pressure (mmca)																										
	40		50		60		70		80		90		100		110		120		130		140		150		160		
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm
15000	—	—	1273	3.72	1370	4.46	1461	5.22	1549	6.00	1633	6.80	1714	7.60	1792	8.42	1868	9.24	1941	10.08	2013	10.92	—	—	—	—	
16000	—	—	1293	3.98	1387	4.76	1476	5.56	1562	6.36	1644	7.20	1723	8.04	1800	8.90	1874	9.76	1946	10.64	2016	11.52	2085	12.42	2152	13.32	
17000	—	—	1314	4.26	1405	5.06	1493	5.90	1577	6.74	1657	7.60	1735	8.48	1810	9.38	1883	10.28	1953	11.20	2022	12.14	2089	13.06	2155	14.00	
18000	—	—	1337	4.56	1426	5.40	1511	6.26	1593	7.14	1672	8.04	1748	8.94	1822	9.88	1893	10.82	1963	11.78	2030	12.74	2096	13.72	2161	14.70	
19000	1271	4.02	1362	4.86	1448	5.74	1531	6.62	1611	7.54	1688	8.46	1763	9.42	1835	10.38	1905	11.36	1973	12.36	2040	13.36	2105	14.38	2168	15.40	
20000	1300	4.32	1388	5.20	1472	6.10	1552	7.02	1630	7.96	1706	8.92	1779	9.90	1850	10.90	1919	11.92	1986	12.94	2051	13.98	2115	15.04	2178	16.10	
21000	1329	4.64	1415	5.54	1496	6.46	1575	7.42	1651	8.40	1725	9.40	1796	10.40	1866	11.44	1934	12.48	2000	13.56	2064	14.62	2127	15.72	2186	16.82	
22000	1360	4.98	1443	5.90	1523	6.86	1599	7.84	1673	8.86	1746	9.88	1816	10.92	1884	12.00	1950	13.08	2015	14.18	2078	15.28	2140	16.40	2201	17.54	
23000	1391	5.34	1472	6.30	1550	7.28	1625	8.30	1697	9.34	1767	10.40	1836	11.46	1903	12.56	1968	13.68	2032	14.80	2094	15.96	2155	17.12	2214	18.28	
24000	1423	5.70	1502	6.70	1578	7.72	1651	8.76	1722	9.84	1791	10.92	1858	12.02	1923	13.16	1987	14.30	2049	15.46	2111	16.64	2170	17.84	2229	19.04	
25000	1456	6.10	1533	7.14	1607	8.18	1678	9.26	1747	10.36	1815	11.48	1880	12.62	1945	13.78	2007	14.94	2068	16.14	2129	17.36	2187	18.58	2245	19.82	

Tab. XIII-39 – WAVE Doble 31 – Backward-curved

Air flow	Total static pressure (mmca)																										
	40		50		60		70		80		90		100		110		120		130		140		150		160		
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm
17500	1231	3.62	1325	4.40	1415	5.22	1502	6.08	1584	6.94	1664	7.82	1741	8.72	1816	9.64	1888	10.56	1958	11.50	2026	12.44	2092	13.40	2157	14.36	
19000	1271	4.02	1362	4.86	1448	5.74	1531	6.62	1611	7.54	1688	8.46	1763	9.42	1835	10.38	1905	11.36	1973	12.36	2040	13.36	2105	14.38	2168	15.40	
20500	1315	4.48	1401	5.36	1484	6.28	1564	7.22	1641	8.18	1715	9.16	1787	10.16	1858	11.18	1926	12.20	1993	13.24	2058	14.30	2121	15.38	2183	16.46	
22000	1360	4.98	1443	5.90	1523	6.86	1599	7.84	1673	8.86	1746	9.88	1816	10.92	1884	12.00	1950	13.08	2015	14.18	2078	15.28	2140	16.40	2201	17.54	
23500	1407	5.52	1487	6.50	1564	7.50	1638	8.52	1709	9.58	1779	10.66	1847	11.74	1913	12.86	1977	13.98	2040	15.14	2102	16.30	2162	17.48	2222	18.66	
25000	1456	6.10	1533	7.14	1607	8.18	1678	9.26	1747	10.36	1815	11.48	1880	12.62	1945	13.78	2007	14.94	2068	16.14	2129	17.36	2187	18.58	2245	19.82	
26500	1506	6.74	1581	7.82	1652	8.92	1721	10.04	1788	11.18	1853	12.34	1917	13.54	1979	14.74	2040	15.96	2099	17.20	2158	18.46	2215	19.72	2271	21.02	
28000	1557	7.44	1629	8.56	1699	9.70	1765	10.88	1830	12.06	1893	13.28	1955	14.50	2015	15.76	2074	17.02	2132	18.30	2189	19.62	2245	20.94	—	—	
29500	1609	8.18	1679	9.34	1747	10.54	1812	11.76	1874	13.00	1936	14.26	1995	15.54	2054	16.84	2111	18.14	2168	19.48	2223	20.82	2278	22.20	—	—	
31000	1661	8.98	1730	10.20	1796	11.44	1859	12.72	1920	14.00	1979	15.30	2038	16.62	2095	17.98	2150	19.34	2205	20.70	2259	22.10	—	—	—	—	

Tab. XIII-40 – Transmission options WAVE Doble 25 and 31 – Backward-curved

TRANS. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	25	VERT.	7.5	2910	RLD450Q	1229	1563	125	159	296
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.	10	2900		1480	1882	125	159	245
F		FLOOR								
G		VERT.								
H		HOR.								
Y		FLOOR	12.5	2910		1875	2385	125	159	194
J		VERT.								
K		HOR.								
L		FLOOR								
M		VERT.	15	2930		2281	-	151	-	194
N		HOR.								
P		FLOOR								
P		FLOOR								
P	FLOOR									

TRANS. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.					
A	31	VERT.	7.5	2910	RLD450Q	1229	1584	125	159	296					
B		HOR.													
C		FLOOR													
D		VERT.													
E		HOR.	10	2900		1480	1882	125	159	245					
F		FLOOR													
G		VERT.													
H		HOR.													
Y		FLOOR	12.5	2910		1661	2113	125	159	219					
J		VERT.													
K		HOR.													
L		FLOOR													
M		VERT.	15	2930		2281	-	151	-	194					
N		HOR.													
P		FLOOR													
P		FLOOR									20	2935	2284	-	151
P	FLOOR														
P	FLOOR	25	2935	2236	-	160	-	210							
P	FLOOR														

- Note:
- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
  - (2) Heat produced by fan motor (MBh) = 3.15 x BHP

# Fan performance and Transmission option

## Backward-curved 50 Hz

Tab. XIII-41 – WAVE Doble 35 – Backward-curved

Air flow	Total static pressure (mmca)																									
	40		50		60		70		80		90		100		110		120		130		140		150		160	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
20000	1078	4.04	1167	4.96	1251	5.92	1331	6.92	1408	7.92	1482	8.96	1553	10.00	1622	11.06	1688	12.14	1753	13.24	1815	14.34	1877	15.24	1937	16.56
21500	1106	4.42	1191	5.40	1272	6.40	1350	7.44	1425	8.50	1497	9.58	1566	10.68	1633	11.80	1698	12.94	1761	14.08	1823	15.24	1883	16.42	1941	17.60
23000	1135	4.82	1217	5.84	1296	6.90	1371	7.98	1444	9.10	1514	10.22	1581	11.38	1647	12.56	1710	13.74	1772	14.94	1833	16.16	1891	17.40	1949	18.64
24500	1166	5.26	1245	6.34	1321	7.42	1394	8.56	1464	9.72	1533	10.90	1599	12.10	1663	13.32	1725	14.56	1785	15.82	1845	17.10	1902	18.38	1958	19.68
26000	1198	5.74	1275	6.84	1348	8.00	1419	9.16	1487	10.36	1553	11.60	1618	12.84	1680	14.12	1741	15.42	1801	16.72	1858	18.06	19.15	19.40	1970	20.76
27500	1232	6.24	1306	7.40	1377	8.60	1445	9.82	1512	11.06	1576	12.34	1639	13.64	1700	14.96	1759	16.30	1817	17.66	1874	19.04	1930	20.44	1984	21.84
29000	1266	6.78	1338	8.00	1407	9.22	1474	10.50	1538	11.78	1601	13.10	1662	14.46	1721	15.82	1779	17.22	1836	18.62	1892	20.06	1946	21.50	1999	22.96
30500	1302	7.36	1371	8.62	1438	9.90	1503	11.22	1566	12.56	1627	13.92	1686	15.32	1744	16.72	1801	18.16	1856	19.62	1911	21.10	1964	22.60	2016	24.10
32000	1338	7.98	1406	9.28	1471	10.62	1534	11.98	1595	13.36	1654	14.78	1712	16.22	1769	17.68	1824	19.16	1878	20.66	1931	22.18	1984	23.72	2035	25.28
33500	1375	8.64	1441	10.00	1504	11.38	1566	12.78	1625	14.22	1683	15.68	1739	17.16	1795	18.66	1849	20.18	1902	21.74	1954	23.32	2005	24.90	2055	26.52
35000	1412	9.36	1477	10.76	1539	12.18	1598	13.64	1656	15.12	1713	16.62	1768	18.14	1822	19.70	1875	21.26	1926	22.86	1977	24.48	2027	26.12	2076	27.78

Tab. XIII-42 – WAVE Doble 40 – Backward-curved

Air flow	Total static pressure (mmca)																									
	40		50		60		70		80		90		100		110		120		130		140		150		160	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
25000	1176	5.42	1255	6.50	1330	7.62	1402	8.76	1472	9.92	1539	11.12	1605	12.34	1668	13.58	1730	14.84	1790	16.12	1849	17.42	1906	18.72	1962	20.04
26500	1209	5.90	1285	7.02	1358	8.18	1428	9.38	1495	10.60	1561	11.84	1625	13.10	1687	14.40	1747	15.70	1806	17.04	1863	18.38	1920	19.74	1975	21.12
28000	1243	6.42	1316	7.60	1387	8.80	1455	10.04	1520	11.30	1584	12.58	1646	13.90	1707	15.24	1766	16.30	1823	17.98	1880	19.38	1935	20.78	1989	22.22
29500	1278	6.98	1349	8.20	1417	9.44	1483	10.72	1547	12.04	1609	13.38	1670	14.74	1729	16.12	1786	17.52	1843	18.96	1898	20.40	1952	21.86	2005	23.34
31000	1314	7.56	1383	8.84	1449	10.14	1513	11.46	1575	12.82	1636	14.20	1695	15.60	1752	17.04	1808	18.48	1864	19.96	1917	21.46	1970	22.96	2022	24.50
32500	1350	8.20	1417	9.52	1482	10.86	1544	12.24	1605	13.64	1664	15.06	1721	16.52	1777	18.00	1832	19.50	1886	21.02	1939	22.56	1990	24.12	2041	25.70
34000	1387	8.88	1453	10.24	1516	11.64	1576	13.06	1635	14.50	1693	15.98	1749	17.48	1803	19.00	1857	20.54	1910	22.12	1961	23.70	2012	25.30	2062	26.92
35500	1425	9.60	1489	11.02	1550	12.46	1610	13.92	1667	15.42	1723	16.94	1778	18.48	1831	20.06	1883	21.64	1935	23.26	1985	24.88	2035	26.54	2084	28.20
37000	1463	10.36	1526	11.82	1586	13.32	1644	14.84	1700	16.38	1754	17.94	1808	19.54	1860	21.14	1911	22.78	1961	24.44	2011	26.12	2059	27.82	2107	29.54
38500	1501	11.18	1563	12.68	1622	14.24	1678	15.80	1733	17.38	1786	19.00	1839	20.64	1890	22.30	1940	23.98	1989	25.68	2037	27.40	2085	29.14	2132	30.92
40000	1539	12.04	1601	13.60	1658	15.20	1714	16.80	1767	18.44	1819	20.10	1870	21.80	1920	23.50	1969	25.22	2018	26.98	2065	28.74	2111	30.54	2157	32.34

Tab. XIII-43 – Transmission options WAVE Doble 35 and 40 – Backward-curved

TRANS. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	35	VERT.	RLD500Q	2910	2910	1051	1337	125	159	346
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.								
F		FLOOR								
G		VERT.								
H		HOR.								
Y		FLOOR								
J		VERT.								
K		HOR.								
L		FLOOR								
M		VERT.								
N		HOR.								
P		FLOOR								
Q		VERT.								
R		HOR.								
S		FLOOR								
T		VERT.								
U		HOR.								
V		FLOOR								
X		VERT.								
Z		HOR.								
W		FLOOR								

TRANS. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MIN. MOTOR	Φ MAX. MOTOR	Φ VENT.
A	40	VERT.	RLD500Q	2900	2900	1048	1450	125	159	346
B		HOR.								
C		FLOOR								
D		VERT.								
E		HOR.								
F		FLOOR								
G		VERT.								
H		HOR.								
Y		FLOOR								
J		VERT.								
K		HOR.								
L		FLOOR								
M		VERT.								
N		HOR.								
P		FLOOR								
Q		VERT.								
R		HOR.								
S		FLOOR								

Note:

- Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

Forward-curved  
60 Hz

Tab. XIII-44 – WAVE Doble 02 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1200	—	—	810	0.11	940	0.15	—	—	1160	0.22	1260	0.27	1360	0.31	1450	0.36	1530	0.41	1610	0.46	—	—
1300	—	—	810	0.12	940	0.16	1050	0.20	1160	0.24	1260	0.28	1350	0.33	1440	0.38	1520	0.43	1600	0.48	1680	0.54
1400	—	—	810	0.13	940	0.17	1050	0.21	1150	0.25	1250	0.30	1340	0.35	1430	0.40	1510	0.45	1590	0.5	1670	0.56
1500	—	—	820	0.15	940	0.19	1050	0.23	1150	0.27	1250	0.32	1340	0.37	1420	0.42	1510	0.47	1590	0.52	1660	0.58
1600	—	—	820	0.16	940	0.20	1050	0.25	1150	0.29	1240	0.34	1330	0.39	1420	0.44	1500	0.49	1580	0.55	1650	0.61
1700	700	0.14	830	0.18	940	0.22	1050	0.27	1150	0.31	1240	0.36	1330	0.41	1410	0.46	1500	0.52	1570	0.57	1650	0.63
1800	710	0.15	830	0.20	950	0.24	1050	0.29	1150	0.33	1240	0.38	1330	0.44	1410	0.49	1490	0.55	1570	0.6	1640	0.66
1900	730	0.17	840	0.21	950	0.26	1050	0.31	1150	0.36	1240	0.41	1330	0.46	1410	0.52	1490	0.57	1560	0.63	1640	0.69
2000	740	0.19	850	0.23	960	0.28	1060	0.33	1150	0.38	1240	0.44	1330	0.49	1410	0.55	1490	0.61	1560	0.67	1630	0.73

Tab. XIII-45 – WAVE Doble 03 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1500	—	—	850	0.13	970	0.17	1090	0.22	1200	0.27	1300	0.33	1400	0.38	1490	0.44	1580	0.51	1670	0.58	1750	0.65
1650	—	—	850	0.15	980	0.19	1090	0.24	1190	0.29	1290	0.35	1390	0.40	1480	0.47	1570	0.53	1650	0.60	1730	0.67
1800	—	—	860	0.17	980	0.21	1090	0.26	1190	0.31	1290	0.37	1380	0.43	1470	0.49	1550	0.56	1640	0.62	1720	0.70
1950	—	—	870	0.19	990	0.23	1090	0.29	1190	0.34	1290	0.40	1380	0.46	1460	0.52	1550	0.59	1630	0.65	1700	0.73
2100	—	—	880	0.21	990	0.26	1100	0.31	1200	0.37	1290	0.43	1380	0.49	1460	0.55	1540	0.62	1620	0.69	1700	0.76
2250	—	—	890	0.24	1000	0.29	1110	0.34	1200	0.40	1290	0.46	1380	0.52	1460	0.59	1540	0.66	1620	0.73	1690	0.80
2400	—	—	910	0.26	1010	0.32	1110	0.37	1210	0.43	1300	0.49	1380	0.56	1460	0.63	1540	0.70	1610	0.77	1690	0.84
2550	—	—	920	0.30	1030	0.35	1120	0.41	1220	0.47	1300	0.53	1390	0.60	1460	0.67	1540	0.74	1620	0.81	1690	0.89
2700	830	0.27	940	0.33	1040	0.39	1140	0.45	1230	0.51	1310	0.58	1390	0.64	1470	0.71	1540	0.79	1620	0.86	1690	0.94
2850	850	0.30	960	0.37	1060	0.43	1150	0.49	1240	0.56	1320	0.62	1400	0.69	1480	0.76	1550	0.84	1620	0.91	1690	0.99
3000	880	0.34	980	0.41	1070	0.47	1160	0.54	1250	0.60	1330	0.67	1410	0.74	1480	0.82	1560	0.89	1630	0.97	1690	1.05

Tab. XIII-46 – Transmission options WAVE Doble 02 and 03

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.		
A	02	VERT.	0.5	1730	TDA-9/7 L	705	1062	88	184		
B		HOR.									
C		FLOOR									
D		VERT.									
E		HOR.									
F		FLOOR									
G		VERT.	0.75	1735							
H		HOR.									
Y		FLOOR									
A		03				VERT.	0.5	1730	TDA-9/9 L	816	1229
B	HOR.										
C	FLOOR										
D	VERT.										
E	HOR.										
F	FLOOR										
G	VERT.		1	1720							
H	HOR.										
Y	FLOOR										

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

Forward-curved  
60 Hz

Tab. XIII-47 – WAVE *Doble* 04 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2000	—	—	710	0.20	820	0.25	920	0.31	1020	0.37	1110	0.44	1200	0.51	1280	0.57	1370	0.65	1450	0.72	1530	0.79
2200	—	—	720	0.22	820	0.28	920	0.34	1010	0.41	1100	0.48	1180	0.55	1260	0.62	1340	0.70	1420	0.77	1500	0.85
2400	—	—	730	0.26	820	0.32	920	0.38	1010	0.45	1090	0.52	1170	0.60	1250	0.67	1330	0.75	1400	0.83	1470	0.91
2600	—	—	740	0.29	830	0.36	920	0.42	1000	0.50	1090	0.57	1160	0.65	1240	0.73	1310	0.81	1380	0.89	1450	0.98
2800	—	—	750	0.34	840	0.40	930	0.47	1010	0.55	1090	0.62	1160	0.70	1230	0.78	1300	0.87	1370	0.96	1440	1.04
3000	—	—	760	0.38	850	0.45	930	0.52	1010	0.60	1090	0.68	1160	0.76	1230	0.85	1300	0.94	1370	1.02	1430	1.12
3200	—	—	780	0.44	860	0.51	940	0.58	1020	0.66	1090	0.74	1160	0.83	1230	0.92	1300	1.01	1360	1.10	1420	1.19
3400	710	0.41	790	0.50	870	0.57	950	0.65	1030	0.73	1100	0.81	1170	0.90	1230	0.99	1300	1.08	1360	1.18	1420	1.28
3600	730	0.46	810	0.56	890	0.64	960	0.72	1040	0.80	1110	0.89	1170	0.98	1240	1.07	1300	1.17	1360	1.27	1420	1.37
3800	750	0.52	830	0.63	900	0.71	980	0.80	1050	0.88	1110	0.97	1180	1.06	1240	1.16	1300	1.26	1360	1.36	1420	1.46
4000	770	0.57	850	0.70	920	0.79	990	0.88	1060	0.97	1130	1.06	1190	1.16	1250	1.25	1310	1.36	1370	1.46	1420	1.56

Tab. XIII-48 – WAVE *Doble* 06 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3000	—	—	510	0.29	590	0.37	670	0.46	740	0.55	810	0.64	870	0.74	940	0.85	1000	0.96	1060	1.07	1110	1.19
3300	—	—	510	0.33	590	0.42	660	0.51	730	0.60	790	0.70	860	0.80	920	0.91	980	1.02	1040	1.14	1090	1.26
3600	—	—	510	0.38	590	0.47	660	0.56	720	0.66	790	0.77	850	0.87	910	0.98	960	1.10	1020	1.22	1070	1.34
3900	—	—	510	0.43	590	0.53	650	0.63	720	0.73	780	0.84	840	0.95	900	1.06	950	1.18	1000	1.31	1060	1.43
4200	—	—	520	0.48	590	0.59	650	0.69	720	0.80	780	0.92	830	1.03	890	1.15	940	1.27	990	1.40	1040	1.53
4500	—	—	530	0.55	590	0.66	660	0.77	720	0.88	770	1.00	830	1.12	880	1.25	940	1.37	990	1.50	1030	1.64
4800	—	—	540	0.61	600	0.73	660	0.85	720	0.97	770	1.10	830	1.22	880	1.35	930	1.48	980	1.61	1030	1.75
5100	—	—	550	0.69	610	0.81	670	0.94	720	1.07	780	1.20	830	1.33	880	1.46	930	1.60	970	1.73	1020	1.88
5400	500	0.64	560	0.77	610	0.90	670	1.04	730	1.17	780	1.30	830	1.44	880	1.58	930	1.72	970	1.86	1020	2.01
5700	510	0.72	570	0.85	620	1.00	680	1.14	730	1.28	780	1.42	830	1.56	880	1.71	930	1.85	970	2.00	1020	2.15
6000	—	—	580	0.95	630	1.10	690	1.25	740	1.40	780	1.54	830	1.69	880	1.84	930	1.99	970	2.15	1010	2.31

Tab. XIII-49 – Transmission options WAVE *Doble* 04 and 06

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.							
A	04	VERT.	1	1720	TDA-10/10 L	701	1056	88	184							
B		HOR.														
C		FLOOR														
D		VERT.														
E		HOR.														
F		FLOOR														
G		VERT.	1.5	1720	TDA-15/15 L	1068	1610	88	120							
H		HOR.														
Y		FLOOR														
A	06	VERT.	1.5	1710	TDA-15/15 L	491	740	88	261							
B		HOR.														
C		FLOOR														
D		VERT.														
E		HOR.														
F		FLOOR														
G		VERT.	2	1700	TDA-15/15 L	692	1044	88	184							
H		HOR.														
Y		FLOOR														
J		VERT.								3	1730	TDA-15/15 L	882	1122	142	245
K		HOR.														
L		FLOOR														

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

Forward-curved  
60 Hz

Tab. XIII-50 – WAVE Doble 08 – Forward-Curved

Air flow (m³/h)	Total static pressure (mmca)																							
	10		15		20		25		30		35		40		45		50		55		60			
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp		
4400	—	—	510	0.44	600	0.58	670	0.72	750	0.88	820	1.05	880	1.23	950	1.42	1010	1.62	1070	1.82	1130	2.04		
4800	—	—	510	0.49	590	0.63	670	0.79	740	0.95	810	1.12	870	1.30	930	1.49	990	1.69	1050	1.90	1110	2.12		
5200	—	—	510	0.55	590	0.70	660	0.86	730	1.02	800	1.20	860	1.39	920	1.58	980	1.78	1030	1.99	1090	2.21		
5600	—	—	520	0.62	590	0.77	660	0.93	730	1.10	790	1.29	850	1.48	910	1.67	970	1.88	1020	2.10	1070	2.32		
6000	—	—	520	0.69	590	0.85	660	1.02	730	1.19	790	1.38	850	1.57	900	1.78	960	1.99	1010	2.21	1060	2.43		
6400	450	0.61	530	0.77	600	0.93	660	1.11	720	1.29	780	1.48	840	1.68	900	1.89	950	2.10	1000	2.33	1050	2.56		
6800	460	0.70	530	0.86	600	1.03	660	1.21	720	1.40	780	1.59	840	1.80	890	2.01	940	2.23	1000	2.46	1050	2.69		
7200	470	0.79	540	0.95	600	1.13	670	1.32	730	1.51	780	1.72	840	1.92	890	2.14	940	2.37	990	2.60	1040	2.84		
7600	480	0.89	550	1.06	610	1.24	670	1.44	730	1.64	780	1.85	840	2.06	890	2.28	940	2.51	990	2.75	1030	3.00		
8000	490	1.00	560	1.18	620	1.37	670	1.57	730	1.77	780	1.99	840	2.21	890	2.44	940	2.67	980	2.91	1030	3.16		

Tab. XIII-51 – WAVE Doble 10 – Forward-Curved

Air flow (m³/h)	Total static pressure (mmca)																							
	10		15		20		25		30		35		40		45		50		55		60			
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp		
5500	—	—	660	0.55	770	0.74	870	0.95	960	1.18	1040	1.43	—	—	—	—	—	—	—	—	—	—		
6000	—	—	660	0.60	770	0.80	860	1.01	950	1.24	1030	1.50	1110	1.77	1180	2.05	—	—	—	—	—	—		
6500	550	0.49	660	0.67	770	0.87	860	1.08	950	1.32	1030	1.57	1100	1.84	1170	2.13	1240	2.43	—	—	—	—		
7000	550	0.56	660	0.74	760	0.94	860	1.16	940	1.40	1020	1.66	1100	1.93	1170	2.22	1240	2.52	1300	2.84	1360	3.18		
7500	560	0.64	670	0.82	760	1.03	850	1.25	940	1.50	1020	1.75	1090	2.03	1160	2.32	1230	2.62	1290	2.94	1360	3.28		
8000	570	0.72	670	0.91	770	1.12	850	1.35	940	1.60	1010	1.86	1090	2.14	1160	2.43	1230	2.74	1290	3.06	1350	3.39		
8500	580	0.82	680	1.01	770	1.23	850	1.46	940	1.71	1010	1.98	1090	2.26	1150	2.56	1220	2.86	1280	3.19	1350	3.52		
9000	590	0.92	680	1.12	770	1.34	860	1.58	940	1.84	1010	2.11	1080	2.39	1150	2.69	1220	3.00	1280	3.33	1340	3.67		
9500	600	1.04	690	1.25	780	1.47	860	1.72	940	1.98	1010	2.25	1080	2.54	1150	2.84	1210	3.16	1280	3.49	1340	3.83		
10000	610	1.17	700	1.38	780	1.61	860	1.86	940	2.12	1010	2.40	1080	2.70	1150	3.01	1210	3.32	1270	3.66	1330	4.00		

Tab. XIII-52 – Transmission options WAVE Doble 08 and 10

TRANS. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.						
A	08	VERT.	2	1700	TDA-15/11 L	445	671	88	261						
B		HOR.													
C		FLOOR													
D		VERT.													
E		HOR.													
F		FLOOR													
G		VERT.	3	1730		730	929	142	296						
H		HOR.													
Y		FLOOR													
J		VERT.								4	1715	948	1206	142	226
K		HOR.													
L		FLOOR													
A	VERT.	10	2	1700	TDA-12/12 T2 L	542	817	88	235						
B	HOR.														
C	FLOOR														
D	VERT.														
E	HOR.		3	1730		882	1122	142	245						
F	FLOOR														
G	VERT.									4	1715	1053	1481	142	194
H	HOR.														
Y	FLOOR														

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP

# Fan performance and Transmission option

Forward-curved  
60 Hz

Tab. XIII-53 – WAVE *Doble* 12 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6000	440	0.46	530	0.62	620	0.79	700	0.98	770	1.17	850	1.38	920	1.60	980	1.82	1050	2.06	1110	2.31	1170	2.56
6600	440	0.53	530	0.71	620	0.89	690	1.09	760	1.29	830	1.51	900	1.73	960	1.96	1030	2.20	1090	2.46	1150	2.72
7200	450	0.62	540	0.81	620	1.01	690	1.21	760	1.42	830	1.65	890	1.88	950	2.12	1010	2.37	1070	2.62	1130	2.89
7800	460	0.71	540	0.92	620	1.13	690	1.35	750	1.57	820	1.80	880	2.04	940	2.29	1000	2.54	1050	2.81	1110	3.08
8400	470	0.82	550	1.04	620	1.27	690	1.49	750	1.73	830	1.97	880	2.22	930	2.47	990	2.74	1040	3.01	1100	3.29
9000	480	0.93	550	1.18	620	1.42	690	1.66	750	1.90	810	2.15	870	2.41	930	2.68	980	2.95	1040	3.23	1090	3.52
9600	490	1.06	560	1.32	630	1.58	690	1.83	750	2.09	810	2.35	870	2.62	920	2.90	970	3.18	1030	3.47	1080	3.77
10200	510	1.21	570	1.48	640	1.75	700	2.02	760	2.30	810	2.57	870	2.85	920	3.14	970	3.43	1020	3.73	1070	4.04
10800	520	1.37	580	1.65	650	1.94	700	2.23	760	2.52	820	2.80	870	3.10	920	3.39	970	3.70	1020	4.01	1070	4.32
11400	540	1.55	600	1.83	660	2.14	710	2.45	770	2.75	820	3.05	870	3.36	920	3.67	970	3.98	1020	4.31	1070	4.63
12000	—	—	610	2.04	670	2.36	720	2.68	770	3.00	830	3.32	880	3.64	930	3.96	970	4.29	1020	4.62	1070	4.96

Tab. XIII-54 – WAVE *Doble* 14 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
7000	440	0.50	550	0.74	640	1.01	730	1.31	820	1.64	890	1.99	970	2.36	—	—	—	—	—	—	—	—
7700	440	0.56	540	0.81	630	1.09	720	1.40	800	1.73	880	2.08	950	2.46	1020	2.86	—	—	—	—	—	—
8400	440	0.64	540	0.90	630	1.18	710	1.50	790	1.83	860	2.19	940	2.57	1000	2.98	1070	3.40	1130	3.84	—	—
9100	440	0.72	540	0.99	620	1.29	710	1.61	780	1.95	850	2.32	920	2.70	990	3.11	1050	3.54	1110	3.98	1170	4.44
9800	450	0.81	540	1.09	620	1.40	700	1.73	770	2.08	840	2.45	910	2.84	980	3.26	1040	3.69	1100	4.14	1160	4.61
10500	450	0.91	540	1.20	620	1.52	700	1.86	770	2.22	840	2.60	900	3.00	960	3.42	1030	3.86	1080	4.31	1140	4.79
11200	460	1.02	540	1.33	620	1.65	690	2.00	760	2.37	830	2.76	890	3.17	960	3.60	1020	4.04	1070	4.51	1130	4.98
11900	460	1.14	550	1.46	620	1.80	690	2.16	760	2.54	830	2.94	890	3.36	950	3.79	1010	4.25	1060	4.71	1120	5.20
12600	470	1.28	550	1.61	620	1.96	690	2.33	760	2.72	820	3.13	880	3.56	940	4.00	1000	4.46	1050	4.94	1110	5.43
13300	480	1.43	560	1.77	630	2.13	700	2.52	760	2.92	820	3.34	880	3.77	940	4.22	990	4.69	1050	5.18	1100	5.68
14000	490	1.59	560	1.95	630	2.32	700	2.71	760	3.13	820	3.56	880	4.00	940	4.46	990	4.94	1040	5.44	1090	5.94

Tab. XIII-55 – Transmission options WAVE *Doble* 12 and 14

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.
A	12	VERT.	2	1700	TDA-15/11/T2 L	440	671	88	261
B		HOR.							
C		FLOOR							
D		VERT.							
E		HOR.							
F		FLOOR							
G		VERT.	3	1730		625	795	142	346
H		HOR.							
Y		FLOOR							
J		VERT.							
K		HOR.							
L		FLOOR							
M		VERT.	4	1715		724	921	142	296
N		HOR.							
P	FLOOR								
Q	VERT.								
R	HOR.								
S	FLOOR								
T	VERT.	5	1735	875	1113	142	245		
U	HOR.								
V	FLOOR								

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.
A	14	VERT.	2	1700	TDA-15/15-T2SR	440	671	88	261
B		HOR.							
C		FLOOR							
D		VERT.							
E		HOR.							
F		FLOOR							
G		VERT.	3	1730		625	795	142	346
H		HOR.							
Y		FLOOR							
J		VERT.							
K		HOR.							
L		FLOOR							
M		VERT.	4	1715		724	921	142	296
N		HOR.							
P	FLOOR								
Q	VERT.								
R	HOR.								
S	FLOOR								
T	VERT.	6	1740	887	1129	142	245		
U	HOR.								
V	FLOOR								

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

Forward-curved  
60 Hz

Tab. XIII-56 – WAVE Doble 17 – Forward-Curved

Air flow (m³/h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
9000	440	0.71	540	0.98	630	1.27	710	1.59	780	1.93	850	2.30	920	2.68	990	3.09	1050	3.51	1120	3.96	1180	4.42
9800	450	0.81	540	1.09	620	1.40	700	1.73	770	2.08	840	2.45	910	2.85	980	3.26	1040	3.69	1100	4.14	1160	4.61
10600	450	0.93	540	1.22	620	1.54	700	1.88	770	2.24	840	2.63	900	3.03	960	3.45	1020	3.88	1080	4.34	1140	4.81
11400	460	1.06	540	1.37	620	1.70	690	2.05	760	2.42	830	2.82	890	3.23	950	3.65	1010	4.10	1070	4.56	1130	5.04
12200	470	1.20	550	1.53	620	1.87	690	2.24	760	2.62	830	3.02	890	3.44	950	3.88	1000	4.34	1060	4.81	1110	5.29
13000	480	1.37	550	1.70	630	2.06	700	2.44	760	2.84	820	3.25	880	3.68	940	4.13	1000	4.59	1050	5.07	1100	5.57
13800	490	1.55	560	1.90	630	2.27	700	2.66	760	3.07	820	3.50	880	3.94	940	4.40	990	4.87	1040	5.36	1100	5.87
14600	500	1.75	570	2.11	640	2.50	700	2.90	760	3.32	820	3.76	880	4.22	930	4.69	990	5.17	1040	5.67	1090	6.18
15400	510	1.97	580	2.35	640	2.75	710	3.16	770	3.60	820	4.05	880	4.52	930	5.00	980	5.49	1030	6.00	1080	6.53
16200	520	2.21	590	2.60	650	3.02	710	3.45	770	3.89	830	4.36	880	4.84	930	5.33	980	5.84	1030	6.36	1080	6.89
17000	540	2.48	600	2.88	660	3.31	720	3.75	770	4.21	830	4.69	880	5.18	930	5.69	980	6.21	1030	6.74	1080	7.29

Tab. XIII-57 – WAVE Doble 21 – Forward-Curved

Air flow (m³/h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
12000	—	—	460	1.18	530	1.56	600	1.97	660	2.41	720	2.87	—	—	—	—	—	—	—	—	—	—
13000	—	—	460	1.30	530	1.69	600	2.12	660	2.57	720	3.04	770	3.54	—	—	—	—	—	—	—	—
14000	—	—	460	1.43	530	1.84	590	2.28	650	2.74	710	3.22	770	3.73	820	4.24	870	4.79	—	—	—	—
15000	—	—	460	1.57	530	2.00	590	2.45	650	2.93	710	3.43	760	3.95	810	4.47	860	5.03	910	5.61	—	—
16000	—	—	470	1.73	530	2.17	590	2.64	650	3.13	700	3.64	750	4.18	800	4.70	850	5.28	900	5.87	940	6.48
17000	—	—	470	1.90	530	2.36	590	2.84	650	3.35	700	3.87	750	4.42	800	4.96	840	5.55	890	6.15	940	6.78
18000	—	—	480	2.08	540	2.56	590	3.06	650	3.58	700	4.12	750	4.68	800	5.27	840	5.83	890	6.45	930	7.09
19000	—	—	480	2.28	540	2.78	600	3.29	650	3.83	700	4.39	750	4.96	790	5.56	840	6.13	880	6.77	920	7.42
20000	430	2.01	490	2.50	540	3.01	600	3.54	650	4.10	700	4.67	750	5.26	790	5.87	830	6.45	880	7.10	920	7.76
21000	440	2.23	490	2.73	550	3.26	600	3.81	650	4.38	700	4.97	750	5.58	790	6.15	830	6.79	870	7.45	920	8.13

Tab. XIII-58 – Transmission options WAVE Doble 17 and 21

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Ø MOTOR	Ø VENT.
A	17	VERT.	2	1700	TDA-15/15 T2L	445	671	88	286
B		HOR.							
C		FLOOR							
D		VERT.							
E		HOR.							
F		FLOOR							
G		VERT.	3	1730		544	692	142	296
H		HOR.							
Y		FLOOR							
J		VERT.							
K		HOR.							
L		FLOOR							
M		VERT.	5	1735		626	797	142	346
N		HOR.							
P		FLOOR							
Q		VERT.							
R	HOR.								
S	FLOOR								
T	VERT.	7.5	1740	885	1125	142	245		
U	HOR.								
V	FLOOR								

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Ø MOTOR	Ø VENT.		
A	21	VERT.	3	1730	TDA-18/18-T2 L	433	551	142	499		
B		HOR.									
C		FLOOR									
D		VERT.									
E		HOR.									
F		FLOOR									
G		VERT.	5	1735		583	741	142	372		
H		HOR.									
Y		FLOOR									
J		VERT.									
K		HOR.									
L		FLOOR									
M		VERT.	7.5	1740		732	931	142	296		
N		HOR.									
P		FLOOR									
Q		VERT.									
R	HOR.										
S	FLOOR										
T	VERT.	10	1760	677	861	142	321				
U	HOR.										
V	FLOOR										
X	VERT.							743	945	142	296
Z	HOR.										
W	FLOOR										

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP

# Fan performance and Transmission option

Forward-curved  
60 Hz

Tab. XIII-59 – WAVE Doble 25 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
15000	—	—	460	1.57	530	2.00	590	2.45	650	2.93	700	3.40	760	3.92	810	4.47	860	5.03	910	5.61	—	—
16000	—	—	470	1.73	530	2.17	590	2.64	650	3.13	700	3.61	750	4.15	800	4.70	850	5.28	900	5.87	940	6.48
17000	—	—	470	1.90	530	2.36	590	2.84	650	3.35	700	3.84	750	4.39	800	4.96	840	5.55	890	6.15	940	6.78
18000	—	—	480	2.08	540	2.56	590	3.06	650	3.58	700	4.09	750	4.65	800	5.27	840	5.83	890	6.45	930	7.09
19000	—	—	480	2.28	540	2.78	600	3.29	650	3.83	700	4.34	740	4.92	790	5.56	840	6.13	880	6.77	920	7.42
20000	430	2.01	490	2.50	540	3.01	600	3.54	650	4.10	700	4.62	740	5.21	790	5.87	830	6.45	880	7.10	920	7.76
21000	440	2.23	490	2.73	550	3.26	600	3.81	650	4.38	700	4.92	740	5.52	790	6.15	830	6.79	870	7.45	920	8.13
22000	440	2.41	500	2.93	550	3.48	600	4.04	650	4.63	700	5.23	740	5.85	790	6.49	830	7.15	870	7.83	910	8.52
23000	450	2.65	500	3.20	560	3.76	610	4.34	660	4.94	700	5.56	750	6.20	790	6.86	830	7.53	870	8.22	910	8.93
24000	460	2.92	510	3.48	560	4.06	610	4.66	660	5.28	700	5.92	750	6.57	790	7.24	830	7.93	870	8.64	—	—
25000	470	3.20	520	3.78	570	4.38	620	5.00	660	5.64	710	6.29	750	6.96	790	7.65	830	8.35	870	9.07	—	—

Tab. XIII-60 – WAVE Doble 31 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
17500	—	—	470	1.73	550	2.30	620	2.91	690	3.56	750	4.25	—	—	—	—	—	—	—	—	—	—
19000	—	—	470	1.90	540	2.49	610	3.12	680	3.80	740	4.50	800	5.25	—	—	—	—	—	—	—	—
20500	—	—	470	2.09	540	2.70	610	3.36	670	4.05	730	4.78	790	5.54	840	6.34	—	—	—	—	—	—
22000	—	—	470	2.30	540	2.94	610	3.61	670	4.33	730	5.07	780	5.86	840	6.67	890	7.52	940	8.35	—	—
23500	—	—	480	2.53	550	3.19	610	3.89	670	4.62	720	5.39	780	6.20	830	7.03	880	7.89	930	8.74	970	9.66
25000	—	—	480	2.78	550	3.47	610	4.19	670	4.94	720	5.74	770	6.56	820	7.41	870	8.30	920	9.16	970	10.09
26500	—	—	490	3.05	550	3.76	610	4.51	670	5.29	720	6.10	770	6.95	820	7.82	870	8.72	910	9.60	950	10.88
28000	430	2.65	490	3.35	550	4.08	610	4.85	670	5.66	720	6.49	770	7.36	820	8.26	860	9.18	910	10.06	950	11.04
29500	440	2.94	500	3.67	560	4.43	620	5.23	670	6.05	720	6.91	770	7.80	820	8.72	860	9.67	900	10.56	950	11.56
31000	450	3.26	510	4.01	560	4.80	620	5.62	670	6.48	720	7.36	770	8.27	820	9.21	860	10.18	900	11.09	940	12.10

Tab. XIII-61 – Transmission options WAVE Doble 25 and 31

TRANS. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.
A	25	VERT.	2	1730	TDA-18/18-T2L	433	551	142	499
B		HOR.							
C		FLOOR							
D		VERT.							
E		HOR.	5	1735		581	739	142	372
F		FLOOR							
G		VERT.							
H		HOR.							
Y		FLOOR	5	1735		583	741	142	372
J		VERT.							
K		HOR.							
L		FLOOR							
M		VERT.	7.5	1740		677	861	142	321
N		HOR.							
P		FLOOR							
Q		VERT.							
R	HOR.	10	1760	734	934	142	296		
S	FLOOR								
T	VERT.								
U	HOR.								
V	FLOOR	10	1760	743	945	142	296		
X	VERT.								
Z	HOR.								
W	FLOOR								

TRANS. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.
A	31	VERT.	3	1730	TDA-18/18-T3R	433	551	142	499
B		HOR.							
C		FLOOR							
D		VERT.							
E		HOR.	5	1735		581	739	142	372
F		FLOOR							
G		VERT.							
H		HOR.							
Y		FLOOR	5	1735		583	741	142	372
J		VERT.							
K		HOR.							
L		FLOOR							
M		VERT.	7.5	1740		677	861	142	321
N		HOR.							
P		FLOOR							
Q		VERT.							
R	HOR.	10	1760	734	934	142	296		
S	FLOOR								
T	VERT.								
U	HOR.								
V	FLOOR	15	1760	743	945	142	296		
X	VERT.								
Z	HOR.								
W	FLOOR								

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

Forward-curved  
60 Hz

Tab. XIII-62 – WAVE Doble 35 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
20000	—	—	470	2.03	540	2.63	610	3.28	670	3.96	730	4.68	790	5.44	850	6.23	—	—	—	—	—	—
21500	—	—	470	2.23	540	2.86	610	3.53	670	4.23	730	4.97	780	5.75	840	6.56	890	7.40	—	—	—	—
23000	—	—	480	2.45	540	3.10	610	3.79	670	4.52	720	5.28	780	6.08	830	6.91	880	7.76	930	8.61	980	9.52
24500	—	—	480	2.69	550	3.37	610	4.09	670	4.84	720	5.62	770	6.43	830	7.28	880	8.16	920	9.01	970	9.95
26000	—	—	490	2.96	550	3.66	610	4.40	670	5.17	720	5.98	770	6.81	820	7.68	870	8.58	910	9.45	960	10.40
27500	—	—	490	3.25	550	3.97	610	4.74	670	5.53	720	6.36	770	7.22	820	8.11	870	9.03	910	9.91	950	10.88
29000	430	2.84	500	3.56	560	4.31	610	5.10	670	5.92	720	6.77	770	7.65	820	8.56	860	9.50	900	10.39	950	11.38
30500	440	3.15	500	3.89	560	4.67	620	5.49	670	6.33	720	7.21	770	8.11	820	9.04	860	10.00	900	10.91	940	11.92
32000	450	3.48	510	4.26	570	5.06	620	5.90	670	6.77	720	7.67	770	8.60	820	9.56	860	10.54	900	11.45	940	12.48
33500	460	3.84	520	4.65	570	5.48	630	6.35	680	7.24	720	8.17	770	9.12	820	10.10	860	11.10	900	12.03	940	13.08
35000	470	4.23	530	5.07	580	5.93	630	6.82	680	7.74	730	8.69	770	9.67	820	10.67	860	11.70	900	12.63	—	—

Tab. XIII-63 – Transmission options WAVE Doble 35

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.
A	35	VERT.	5	1735	TDA-18/18T3R	434	552	142	499
B		HOR.							
C		FLOOR							
D		VERT.							
E		HOR.	7.5	1740		677	861	142	321
F		FLOOR							
G		VERT.							
H		HOR.							
Y		FLOOR	10	1760		685	871	142	321
J		VERT.							
K		HOR.							
L		FLOOR							
M		VERT.	15	1760		743	945	142	296
N		HOR.							
P		FLOOR							
Q		VERT.							
R	HOR.	15	1760	957	-	161	296		
S	FLOOR								
T	VERT.								
U	HOR.								
V	FLOOR								

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

Forward-curved  
60 Hz

Tab. XIII-64 – WAVE *Doble* 40 – Forward-Curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																					
	10		15		20		25		30		35		40		45		50		55		60	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
25000	—	—	480	2.78	550	3.47	610	4.19	670	4.94	720	5.74	770	6.56	820	7.41	870	8.30	920	9.16	970	10.09
26500	—	—	490	3.05	550	3.76	610	4.51	670	5.29	720	6.10	770	6.95	820	7.82	870	8.72	910	9.60	960	10.55
28000	—	—	490	3.35	550	4.08	610	4.85	670	5.66	720	6.49	770	7.36	820	8.26	860	9.18	910	10.06	950	11.04
29500	440	2.94	500	3.67	560	4.43	620	5.23	670	6.05	720	6.91	770	7.80	820	8.72	860	9.67	900	10.56	950	11.56
31000	450	3.26	510	4.01	560	4.80	620	5.62	670	6.48	720	7.36	770	8.27	820	9.21	860	10.18	900	11.09	940	12.10
32500	450	3.60	510	4.38	570	5.20	620	6.05	670	6.93	720	7.83	770	8.77	820	9.73	860	10.72	900	11.64	940	12.68
34000	460	3.97	520	4.78	580	5.63	630	6.50	680	7.41	730	8.34	770	9.30	820	10.28	860	11.30	900	12.23	940	13.29
35500	480	4.37	530	5.21	580	6.08	630	6.99	680	7.91	730	8.87	770	9.86	820	10.87	860	11.90	900	12.84	940	13.92
37000	490	4.80	540	5.67	590	6.57	640	7.50	690	8.46	730	9.44	780	10.45	820	11.48	860	12.54	900	13.49	940	14.60
38500	500	5.26	550	6.16	600	7.09	650	8.05	690	9.03	740	10.04	780	11.07	820	12.13	860	13.22	900	14.17	940	15.30
40000	510	5.75	560	6.68	610	7.64	650	8.62	700	9.64	740	10.67	790	11.73	830	12.82	870	13.92	900	14.89	940	16.04

Tab. XIII-65 – Transmission options WAVE *Doble* 40

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.
A	40	VERT.	5	1735	TDA-18/18 T3R	434	552	142	499
B		HOR.							
C		FLOOR							
D		VERT.							
E		HOR.							
F		FLOOR							
G		VERT.	7.5	1740		677	861	142	321
H		HOR.							
Y		FLOOR							
J		VERT.							
K		HOR.							
L		FLOOR							
M		VERT.	10	1760		685	871	142	321
N		HOR.							
P		FLOOR							
Q		VERT.							
R		HOR.							
S		FLOOR							
T		VERT.	15	1760		768	-	151	346
U		HOR.							
V		FLOOR							
X		VERT.							
Z		HOR.							
W		FLOOR							
1		VERT.	957	-		161	296		
2		HOR.							
3		FLOOR							

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option Backward-curved 60 Hz

Tab. XIII-66 – WAVE Doble 02 – Backward-curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																											
	40		50		60		70		80		90		100		110		120		130		140		150		160			
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1200	2358	0.33	2504	0.39	2645	0.46	2783	0.53	2919	0.6	3054	0.68	3190	0.76	3326	0.85	3463	0.94	—	—	—	—	—	—	—	—	—	—
1300	2456	0.37	2596	0.44	2730	0.51	2860	0.58	2987	0.66	3113	0.74	3238	0.82	3363	0.9	3488	0.99	—	—	—	—	—	—	—	—	—	—
1400	2558	0.42	2693	0.49	2821	0.56	2945	0.64	3066	0.72	3185	0.80	3302	0.88	3418	0.97	3534	1.06	—	—	—	—	—	—	—	—	—	—
1500	2663	0.47	2793	0.54	2917	0.62	3036	0.70	3151	0.78	3264	0.86	3375	0.95	3485	1.04	—	—	—	—	—	—	—	—	—	—	—	—
1600	2770	0.52	2896	0.60	3016	0.68	3131	0.77	3242	0.85	3351	0.94	3457	1.03	3561	1.12	—	—	—	—	—	—	—	—	—	—	—	—
1700	2878	0.58	3002	0.67	3118	0.75	3230	0.84	3337	0.93	3442	1.02	3544	1.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1800	2988	0.65	3108	0.74	3222	0.83	3331	0.92	3435	1.01	3537	1.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1900	3098	0.72	3217	0.82	3328	0.91	3434	1.00	3536	1.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2000	2310	0.80	3327	0.90	3436	1.00	3539	1.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Tab. XIII-67 – WAVE Doble 03 – Backward-curved

Air flow (m <sup>3</sup> /h)	Total static pressure (mmca)																											
	40		50		60		70		80		90		100		110		120		130		140		150		160			
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1500	1983	0.37	2122	0.46	2254	0.54	2381	0.63	2505	0.72	2626	0.81	2745	0.91	2864	1.01	2982	1.11	3101	1.22	3219	1.32	3339	1.43	—	—	—	—
1650	2067	0.42	2202	0.51	2202	0.51	2449	0.70	2566	0.79	2679	0.89	2791	0.99	2900	1.09	3009	1.20	3117	1.31	3225	1.42	3332	1.53	—	—	—	—
1800	2154	0.47	2285	0.57	2408	0.67	2524	0.77	2636	0.87	2744	0.97	2849	1.08	2953	1.19	3055	1.30	3155	1.41	3255	1.52	3354	1.64	—	—	—	—
1950	2243	0.53	2372	0.63	2491	0.74	2604	0.84	2712	0.95	2816	1.06	2917	1.17	3016	1.29	3112	1.40	3207	1.52	3301	1.64	3394	1.76	—	—	—	—
2100	2333	0.60	2460	0.70	2577	0.81	2687	0.93	2792	1.04	2893	1.16	2991	1.27	3086	1.39	3179	1.51	3270	1.64	3359	1.76	3447	1.89	—	—	—	—
2250	2425	0.67	2550	0.78	2665	0.90	2773	1.02	2876	1.14	2974	1.26	3069	1.38	3161	1.51	3251	1.63	3339	1.76	3425	1.89	3510	2.02	—	—	—	—
2400	2517	0.74	2640	0.86	2754	0.99	2861	1.11	2961	1.24	3058	1.36	3151	1.49	3240	1.62	3328	1.76	3413	1.89	3496	2.03	—	—	—	—	—	—
2550	2610	0.82	2732	0.95	2845	1.08	2950	1.21	3049	1.34	3144	1.48	3235	1.61	3323	1.75	3251	1.63	3491	2.03	—	—	—	—	—	—	—	—
2700	2704	0.91	2825	1.05	2936	1.18	3040	1.32	3138	1.46	3231	1.60	3321	1.74	3407	1.89	3491	2.03	—	—	—	—	—	—	—	—	—	—
2850	2798	1.01	2918	1.15	3028	1.29	3131	1.44	3228	1.58	3320	1.73	3408	1.88	3493	2.03	—	—	—	—	—	—	—	—	—	—	—	—
3000	2892	1.11	3011	1.26	3120	1.41	3222	1.56	3318	1.71	3410	1.87	3497	2.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Tab. XIII-68 – Transmission options WAVE Doble 02 and 03 – Backward-curved

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.
A	02	VERT.	1	3465	LMD250Q	2406	3625	88	108
B		HOR.							
C		FLOOR							
A	03	VERT.	1	3465	LMD280Q	1953	2631	88	133
B		HOR.							
C		FLOOR							
D		VERT.							
E		HOR.							
F		FLOOR							
G	VERT.	2	3450		2723	3667	88	95	
H	HOR.								
Y	FLOOR								

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP





# Fan performance and Transmission option

## Backward-curved

### 60 Hz

Tab. XIII-69 – WAVE Doble 04 – Backward-curved

Air flow (m³/h)	Total static pressure (mmca)																									
	40		50		60		70		80		90		100		110		120		130		140		150		160	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2000	—	—	1918	0.53	2042	0.63	2165	0.74	2287	0.85	2410	0.97	2534	1.10	2660	1.24	2788	1.38	2920	1.54	3054	1.71	3193	1.89	3336	2.09
2200	—	—	1988	0.60	2104	0.70	2217	0.81	2329	0.92	2440	1.05	2552	1.17	2663	1.31	2776	1.45	2890	1.60	3006	1.76	3124	1.92	3244	2.10
2400	1948	0.57	2064	0.68	2174	0.78	2280	0.90	2385	1.01	2488	1.13	2590	1.26	2692	1.4	2794	1.54	2896	1.68	2999	1.84	3104	2.00	3209	2.16
2600	2033	0.65	2144	0.76	2249	0.87	2351	0.99	2449	1.11	2546	1.24	2642	1.37	2736	1.5	2831	1.64	2925	1.79	3019	1.94	3113	2.10	3208	2.26
2800	2120	0.74	2227	0.86	2329	0.98	2426	1.10	2521	1.22	2613	1.35	2703	1.49	2792	1.62	2880	1.77	2968	1.91	3056	2.06	3143	2.22	3230	2.38
3000	2209	0.85	2313	0.96	2412	1.09	2506	1.21	2596	1.34	2685	1.48	2771	1.62	2856	1.76	2940	1.90	3022	2.05	3105	2.21	3187	2.37	3268	2.53
3200	2299	0.96	2401	1.08	2497	1.21	2588	1.34	2676	1.48	2761	1.62	2844	1.76	2925	1.91	3005	2.05	3084	2.21	3163	2.36	3240	2.53	3317	2.69
3400	2391	1.08	2490	1.21	2584	1.35	2673	1.48	2758	1.62	2841	1.77	2921	1.92	2999	2.07	3076	2.22	3152	2.38	3227	2.54	3301	2.70	3375	2.87
3600	2483	1.22	2581	1.36	2672	1.49	2759	1.64	2842	1.78	2923	1.93	3001	2.08	3077	2.24	3151	2.40	3225	2.56	3297	2.73	3368	2.89	3438	3.07
3800	2577	1.38	2672	1.51	2762	1.66	2847	1.80	2928	1.96	3007	2.11	3083	2.27	3157	2.43	3230	2.59	3301	2.76	3370	2.93	3439	3.10	3507	3.28
4000	2671	1.55	2765	1.69	2853	1.83	2936	1.99	3016	2.14	3093	2.30	3167	2.47	3240	2.63	3310	2.80	3379	2.97	3447	3.15	3514	3.32	—	—

Tab. XIII-70 – WAVE Doble 06 – Backward-curved

Air flow (m³/h)	Total static pressure (mmca)																									
	40		50		60		70		80		90		100		110		120		130		140		150		160	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3000	1315	0.60	1430	0.74	1538	0.89	1641	1.04	1740	1.19	1834	1.35	1925	1.51	2012	1.68	2097	1.84	2180	2.01	2260	2.18	2339	2.35	—	—
3300	1354	0.67	1463	0.82	1567	0.97	1667	1.14	1762	1.30	1853	1.47	1942	1.64	2027	1.82	2109	2.00	2189	2.18	2267	2.36	2343	2.54	2418	2.72
3600	1397	0.74	1502	0.90	1601	1.07	1697	1.24	1789	1.42	1877	1.60	1963	1.78	2046	1.96	2126	2.15	2204	2.34	2280	2.54	2354	2.73	2426	2.93
3900	1444	0.83	1544	1.00	1639	1.17	1731	1.35	1820	1.54	1905	1.73	1988	1.92	2069	2.12	2147	2.31	2223	2.52	2297	2.72	2369	2.93	2440	3.14
4200	1493	0.92	1589	1.10	1681	1.28	1769	1.47	1854	1.66	1937	1.86	2017	2.07	2096	2.27	2172	2.48	2246	2.69	2318	2.91	2389	3.13	2458	3.35
4500	1545	1.02	1637	1.21	1725	1.40	1810	1.60	1893	1.80	1972	2.01	2050	2.22	2126	2.44	2200	2.66	2272	2.88	2342	3.10	2411	3.33	2479	3.56
4800	1598	1.12	1687	1.32	1772	1.53	1854	1.73	1934	1.95	2011	2.16	2086	2.38	2160	2.61	2231	2.84	2301	3.07	2370	3.30	2437	3.54	2505	3.78
5100	1654	1.24	1739	1.45	1822	1.66	1901	1.88	2040	2.33	2052	2.33	2125	2.56	2196	2.79	2266	3.03	2334	3.27	2401	3.52	2466	3.76	2531	4.01
5400	1710	1.37	1793	1.59	1873	1.81	1949	2.04	2024	2.27	2096	2.50	2167	2.74	2236	2.98	2303	3.23	2370	3.48	2435	3.74	2498	3.99	2561	4.25
5700	1767	1.51	1848	1.74	1926	1.97	2000	2.20	2072	2.44	2142	2.69	2211	2.94	2278	3.19	2343	3.44	2408	3.70	2471	3.97	2533	4.23	—	—
6000	1825	1.66	1905	1.89	1980	2.14	2052	2.38	2122	2.63	2190	2.89	2257	3.14	2322	3.40	2386	3.67	2448	3.94	2510	4.21	—	—	—	—

Tab. XIII-71 – Transmission options WAVE Doble 04 and 06 – Backward-curved

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.
A	04	VERT.	1	3465	LMD315Q	1953	2631	88	133
B		HOR.							
C		FLOOR							
D		VERT.	2	3450		2391	3226	88	108
E		HOR.							
F		FLOOR							
G		VERT.	3	3370		3167	4028	142	143
H		HOR.							
Y		FLOOR							
A	06	VERT.	2	3450	LMD400Q	1236	1667	88	209
B		HOR.							
C		FLOOR							
D		VERT.							
E		HOR.							
F		FLOOR							
G		VERT.	3	3370		1900	2559	142	133
H		HOR.							
Y		FLOOR							
J		VERT.	5	3500		2255	2868	142	194
K		HOR.							
L		FLOOR							

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

## Backward-curved 60 Hz

Tab. XIII-72 – WAVE Doble 08 – Backward-curved

Air flow (m³/h)	Total static pressure (mmca)																										
	40		50		60		70		80		90		100		110		120		130		140		150		160		
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm
4400	1503	0.93	1626	1.16	1749	1.40	1872	1.67	1997	1.96	2125	2.28	2257	2.63	2395	3.02	2538	3.45	—	—	—	—	—	—	—	—	—
4800	1552	1.04	1667	1.27	1780	1.51	1892	1.78	2004	2.06	2118	2.37	2234	2.70	2353	3.06	2475	3.45	2601	3.88	2731	4.34	2866	4.85	—	—	—
5200	1606	1.15	1714	1.39	1820	1.64	1924	1.91	2027	2.20	2131	2.50	2235	2.82	2341	3.17	2449	3.54	2559	3.93	2672	4.35	2787	4.81	2906	5.30	—
5600	1663	1.28	1766	1.53	1866	1.79	1964	2.06	2060	2.35	2156	2.66	2253	2.98	2349	3.32	2447	3.67	2545	4.05	2646	4.45	2748	4.88	2852	5.33	—
6000	1722	1.43	1822	1.68	1917	1.95	2010	2.24	2101	2.53	2191	2.84	2281	3.16	2370	3.49	2460	3.85	2551	4.22	2642	4.61	2734	5.01	2828	5.44	—
6400	1783	1.58	1879	1.85	1971	2.13	2060	2.42	2147	2.72	2232	3.04	2317	3.36	2401	3.70	2485	4.05	2569	4.42	2654	4.80	2739	5.20	2824	5.62	—
6800	1846	1.76	1939	2.04	2028	2.33	2114	2.63	2197	2.94	2279	3.26	2359	3.59	2439	3.93	2518	4.29	2597	4.66	2676	5.04	2756	5.43	2835	5.84	—
7200	1910	1.94	2001	2.24	2087	2.54	2170	2.85	2250	3.17	2329	3.50	2406	3.83	2482	4.18	2557	4.54	2633	4.92	2707	5.30	2782	5.70	2857	6.11	—
7600	1975	2.15	2063	2.45	2147	2.76	2228	3.09	2306	3.42	2382	3.75	2456	4.10	2529	4.46	2602	4.83	2673	5.20	2744	5.59	2815	5.99	2886	6.40	—
8000	2041	2.37	2127	2.69	2209	3.01	2288	3.34	2363	3.68	2437	4.03	2509	4.39	2580	4.75	2649	5.13	2718	5.51	2786	5.91	2854	6.31	—	—	—

Tab. XIII-73 – WAVE Doble 10 – Backward-curved

Air flow (m³/h)	Total static pressure (mmca)																										
	40		50		60		70		80		90		100		110		120		130		140		150		160		
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm
5500	1923	1.36	2068	1.66	2206	2.00	2340	2.32	2471	2.68	2601	3.04	2730	3.40	2859	3.80	2988	4.20	3119	4.60	—	—	—	—	—	—	—
6000	1991	1.50	2131	1.84	2262	2.18	2389	2.54	2512	2.90	2633	3.28	2753	3.66	2871	4.06	2989	4.46	3108	4.88	3227	5.32	3346	5.76	—	—	—
6500	2063	1.68	2198	2.02	2325	2.40	2446	2.76	2563	3.14	2678	3.54	2790	3.94	2901	4.34	3011	4.76	3120	5.20	3230	5.64	3339	6.10	3448	6.56	—
7000	2136	1.86	2268	2.22	2391	2.62	2508	3.00	2621	3.40	2731	3.82	2838	4.22	2943	4.66	3046	5.10	3149	5.54	3251	6.00	3353	6.46	3454	6.94	—
7500	2211	2.04	2340	2.44	2460	2.84	2574	3.26	2684	3.68	2789	4.10	2892	4.54	2993	4.98	3092	5.44	3189	5.90	3286	6.36	3381	6.84	3477	7.34	—
8000	2287	2.26	2414	2.68	2532	3.10	2643	3.52	2750	3.96	2852	4.42	2952	4.88	3049	5.34	3144	5.80	3237	6.28	3330	6.76	3421	7.26	3511	7.76	—
8500	2365	2.48	2490	2.92	2605	3.36	2715	3.82	2819	4.28	2919	4.74	3015	5.22	3109	5.70	3201	6.20	3292	6.68	3380	7.18	3468	7.70	—	—	—
9000	2443	2.72	2566	3.18	2680	3.66	2787	4.12	2890	4.60	2987	5.10	3082	5.58	3174	6.08	3263	6.60	3351	7.12	3437	7.64	3521	8.16	—	—	—
9500	2521	2.98	2643	3.46	2756	3.96	2862	4.46	2962	4.96	3058	5.46	3151	5.98	3241	6.50	3328	7.02	3413	7.56	3497	8.10	—	—	—	—	—
10000	2601	3.26	2721	3.76	2833	4.28	2937	4.80	3036	5.32	3131	5.86	3222	6.38	3310	6.92	3395	7.48	3479	8.02	—	—	—	—	—	—	—

Tab. XIII-74 – Transmission options WAVE Doble 08 and 10 – Backward-curved

TRANS. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.						
A	08	VERT.	3	3370	RLD355L	1423	1810	142	296						
B		HOR.													
C		FLOOR													
D		VERT.													
E		HOR.													
F		FLOOR													
G		VERT.	5	3500		2255	2868	142	194						
H		HOR.													
Y		FLOOR													
J		VERT.								7.5	3495	2585	3288	142	169
K	HOR.														
L	FLOOR														
A	10	VERT.	3	3370	RLD280Q	1923	2446	142	219						
B		HOR.													
C		FLOOR													
D		VERT.													
E		HOR.													
F		FLOOR													
G		VERT.	5	3500		2588	3292	142	169						
H		HOR.													
Y		FLOOR													
J		VERT.								7.5	3495	3055	3886	142	143
K	HOR.														
L	FLOOR														

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

## Backward-curved 60 Hz

Tab. XIII-75 – WAVE Doble 12 – Backward-curved

Air flow	Total static pressure (mmca)																									
	40		50		60		70		80		90		100		110		120		130		140		150		160	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6000	—	—	1803	1.62	1970	2.02	2141	2.46	2321	2.98	2510	3.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6600	—	—	1828	1.76	1976	2.14	2127	2.58	2281	3.04	2441	3.58	2607	4.16	2780	4.80	—	—	—	—	—	—	—	—	—	—
7200	—	—	1865	1.92	2001	2.30	2137	2.72	2274	3.18	2414	3.68	2558	4.22	2706	4.82	2859	5.46	3018	6.18	3184	6.96	—	—	—	—
7800	1780	0.86	1910	2.08	2037	2.48	2162	2.90	2288	3.36	2414	3.84	2543	4.36	2673	4.92	2807	5.54	2944	6.18	3085	6.88	3231	7.64	3383	8.46
8400	1837	1.90	1961	2.28	2081	2.70	2198	3.12	2315	3.58	2431	4.06	2548	4.58	2667	5.12	2787	5.70	2909	6.30	3033	6.96	3161	7.66	3291	8.42
9000	1897	2.10	2016	2.50	2130	2.92	2242	3.36	2351	3.82	2460	4.30	2569	4.82	2678	5.36	2788	5.92	2899	6.52	3011	7.14	3125	7.82	3241	8.52
9600	1960	2.32	2075	2.74	2184	3.18	2291	3.62	2395	4.10	2498	4.58	2600	5.10	2702	5.64	2804	6.20	2906	6.78	3010	7.40	3114	8.04	3219	8.72
10200	2024	2.58	2136	3.00	2241	3.46	2344	3.92	2444	4.40	2542	4.90	2639	5.42	2735	5.96	2831	6.52	2927	7.10	3023	7.72	3119	8.36	3217	9.02
10800	2090	2.84	2198	3.28	2301	3.76	2400	4.22	2496	4.72	2590	5.24	2683	5.76	2774	6.32	2865	6.88	2956	7.46	3047	8.08	3137	—	—	—
11400	2157	3.14	2263	3.60	2363	4.08	2459	4.56	2552	5.08	2643	5.60	2732	6.14	2820	6.70	2906	7.28	2993	7.86	3079	8.48	3165	—	—	—
12000	2225	3.46	2329	3.92	2426	4.42	2520	4.94	2610	5.46	2698	6.00	2784	6.56	2869	7.12	2952	7.70	3035	8.30	3117	8.92	3199	—	—	—

Tab. XIII-76 – WAVE Doble 14 – Backward-curved

Air flow	Total static pressure (mmca)																									
	40		50		60		70		80		90		100		110		120		130		140		150		160	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
7000	1422	1.50	1578	1.94	1741	2.46	1912	3.06	2095	3.78	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7700	1447	1.62	1587	2.06	1729	2.56	1876	3.12	2028	3.76	2189	4.48	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8400	1481	1.76	1609	2.22	1738	2.70	1868	3.24	2001	3.84	2139	4.50	2282	5.24	2433	6.06	—	—	—	—	—	—	—	—	—	—
9100	1521	1.94	1641	2.40	1759	2.88	1877	3.42	1997	3.98	2120	4.62	2245	5.30	2374	6.06	2509	6.88	2648	7.78	—	—	—	—	—	—
9800	1565	2.12	1678	2.60	1789	3.08	1899	3.62	2009	4.18	2120	4.80	2233	5.46	2348	6.16	2466	6.94	2587	7.76	2712	8.66	2842	9.64	2976	10.72
10500	1613	2.34	1721	2.82	1825	3.32	1928	3.86	2031	4.44	2133	5.04	2237	5.68	2341	6.36	2448	7.10	2556	7.88	2667	8.72	2780	9.62	2897	10.58
11200	1663	2.56	1766	3.06	1866	3.58	1964	4.12	2060	4.70	2156	5.32	2253	5.96	2349	6.64	2447	7.34	2545	8.10	2646	8.90	2748	9.76	2852	10.66
11900	1714	2.82	1814	3.32	1910	3.86	2004	4.42	2096	5.02	2186	5.62	2277	6.26	2367	6.94	2458	7.64	2549	8.38	2642	9.16	2735	9.98	2830	10.86
12600	1768	3.08	1865	3.62	1957	4.18	2047	4.74	2135	5.34	2222	5.96	2307	6.62	2393	7.30	2478	8.00	2564	8.74	2650	9.50	2736	10.3	2824	11.14
13300	1822	3.38	1917	3.94	2006	4.50	2093	5.10	2178	5.70	2261	6.34	2343	7.00	2424	7.68	2505	8.40	2586	9.12	2667	9.90	2748	10.68	2830	11.52
14000	1878	3.70	1970	4.26	2057	4.86	2141	5.46	2223	6.10	2303	6.74	2382	7.42	2460	8.12	2537	8.82	2614	9.56	2691	10.32	2768	11.12	2845	11.94

Tab. XIII-77 – Transmission options WAVE Doble 12 and 14 – Backward-curved

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.		
A	12	VERT.	5	3500	RLD315Q	1785	2271	142	245		
B		HOR.									
C		FLOOR									
D		VERT.									
E		HOR.									
F		FLOOR									
G		VERT.	7.5	3495							
H		HOR.									
Y		FLOOR									
J		VERT.				10	3515				
K		HOR.									
L		FLOOR									
A	VERT.	14	5	3500	RLD355Q			1478	1880	142	296
B	HOR.										
C	FLOOR										
D	VERT.										
E	HOR.										
F	FLOOR										
G	VERT.		7.5	3495							
H	HOR.										
Y	FLOOR										
J	VERT.					10	3515				
K	HOR.										
L	FLOOR										
M	VERT.	15	3520								
N	HOR.										
P	FLOOR										

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

## Backward-curved 60 Hz

Tab. XIII-78 – WAVE Doble 17 – Backward-curved

Air flow	Total static pressure (mmca)																										
	40		50		60		70		80		90		100		110		120		130		140		150		160		
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm
9000	—	—	1636	2.36	1755	2.86	1875	3.38	1997	3.96	2121	4.60	2249	5.28	2380	6.04	2517	6.88	2660	7.80	—	—	—	—	—	—	
9800	—	—	1678	2.60	1789	3.08	1899	3.62	2009	4.18	2120	4.80	2233	5.46	2348	6.16	2466	6.94	2587	7.76	2712	8.66	2842	9.64	2976	10.72	
10600	1620	2.36	1727	2.84	1831	3.36	1933	3.90	2035	4.46	2136	5.08	2238	5.72	2342	6.40	2447	7.14	2553	7.92	2663	8.74	2774	9.64	2889	10.58	
11400	1677	2.64	1780	3.14	1879	3.66	1975	4.22	2070	4.80	2164	5.40	2259	6.04	2353	6.72	2449	7.42	2545	8.18	2643	8.98	2742	9.82	2844	10.70	
12200	1737	2.92	1836	3.46	1930	4.00	2022	4.56	2112	5.16	2201	5.76	2289	6.42	2377	7.08	2466	7.80	2554	8.54	2644	9.30	2734	10.12	2826	10.96	
13000	1799	3.26	1894	3.80	1985	4.36	2073	4.94	2159	5.56	2244	6.18	2327	6.84	2410	7.52	2493	8.22	2576	8.96	2659	9.72	2742	10.52	2826	11.34	
13800	1862	3.60	1954	4.16	2043	4.76	2127	5.36	2210	5.98	2291	6.62	2370	7.30	2449	7.98	2528	8.70	2606	9.44	2683	10.20	2761	11.00	2840	11.82	
14600	1926	3.98	2016	4.58	2102	5.18	2184	5.82	2264	6.46	2342	7.12	2418	7.80	2493	8.50	2568	9.22	2642	9.98	2716	10.74	2790	11.54	2863	12.36	
15400	1991	4.40	2079	5.02	2163	5.64	2243	6.30	2320	6.96	2395	7.64	2469	8.34	2542	9.06	2613	9.80	2684	10.56	2754	11.34	2825	12.14	2894	12.96	
16200	2057	4.86	2143	5.50	2225	6.14	2303	6.82	2378	7.50	2451	8.20	2523	8.92	2593	9.66	2662	10.42	2730	11.18	2798	11.98	2865	12.78	—	—	
17000	2124	5.36	2208	6.00	2288	6.68	2364	7.38	2438	8.08	2509	8.82	2578	9.56	2646	10.30	2713	11.08	2779	11.86	2844	12.68	2909	13.50	—	—	

Tab. XIII-79 – WAVE Doble 21 – Backward-curved

Air flow	Total static pressure (mmca)																										
	40		50		60		70		80		90		100		110		120		130		140		150		160		
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm
12000	—	—	1436	2.98	1544	3.58	1647	4.18	1745	4.82	1840	5.44	1930	6.10	2017	6.74	2102	7.40	2185	8.08	2265	8.76	—	—	—	—	
13000	1355	2.66	1465	3.26	1569	3.88	1669	4.52	1764	5.18	1856	5.86	1944	6.54	2030	7.22	2113	7.94	2193	8.64	2271	9.36	2347	10.08	2422	10.80	
14000	1391	2.92	1497	3.54	1598	4.20	1694	4.88	1787	5.56	1876	6.28	1962	7.00	2045	7.72	2126	8.46	2205	9.22	2281	9.96	2356	10.74	2429	11.50	
15000	1430	3.20	1532	3.86	1629	4.54	1722	5.24	1812	5.96	1899	6.70	1983	7.46	2064	8.22	2143	9.00	2220	9.80	2295	10.58	2368	11.40	2439	12.20	
16000	1471	3.50	1569	4.18	1662	4.90	1753	5.64	1840	6.40	1924	7.16	2006	7.96	2085	8.76	2163	9.56	2238	10.38	2311	11.22	2383	12.06	2453	12.90	
17000	1513	3.82	1608	4.54	1699	5.28	1786	6.06	1870	6.84	1952	7.64	2032	8.46	2109	9.30	2185	10.14	2258	11.00	2330	11.86	2400	12.74	2469	13.62	
18000	1557	4.16	1649	4.92	1737	5.70	1821	6.50	1903	7.32	1983	8.14	2060	9.00	2136	9.86	2209	10.74	2281	11.62	2352	12.54	2420	13.44	2488	14.36	
19000	1603	4.54	1692	5.34	1777	6.14	1859	6.96	1938	7.82	2016	8.68	2091	9.56	2165	10.46	2236	11.36	2307	12.28	2375	13.22	2443	14.16	2509	15.12	
20000	1650	4.94	1736	5.76	1818	6.60	1898	7.46	1975	8.34	2050	9.24	2124	10.14	2195	11.08	2265	12.02	2334	12.96	2401	13.94	2467	14.92	2532	15.90	
21000	1697	5.38	1781	6.22	1861	7.10	1939	8.00	2014	8.90	2087	9.82	2158	10.76	2228	11.72	2297	12.70	2364	13.68	2429	14.68	2494	15.68	2557	16.70	

Tab. XIII-80 – Transmission options WAVE Doble 17 and 21 – Backward-curved

TRANS. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.							
A	17	VERT.	5	3500	RLD355Q	1478	1880	142	296							
B		HOR.														
C		FLOOR														
D		VERT.														
E		HOR.														
F		FLOOR														
G		VERT.	7.5	3495	RLD400Q	1994	2537	142	219							
H		HOR.														
Y		FLOOR														
J		VERT.	10	3515	RLD355Q	2264	2880	142	194							
K		HOR.														
L		FLOOR														
M		VERT.														
N		HOR.	15	3520	RLD355Q	2921	-	161	194							
P	FLOOR															
A	21	VERT.								5	3500	RLD400Q	1264	1608	142	346
B		HOR.														
C		FLOOR														
D		VERT.														
E		HOR.														
F		FLOOR														
G		VERT.	7.5	3495	RLD400Q	1475	1877	142	296							
H		HOR.														
Y		FLOOR														
J		VERT.	10	3515	RLD355Q	1783	2268	142	245							
K		HOR.														
L		FLOOR														
M		VERT.														
N		HOR.	15	3520	RLD355Q	1793	2281	142	245							
P	FLOOR															
Q	VERT.	15								3520	RLD355Q	2427	-	151	219	
R	HOR.															
S	FLOOR															

Note:

- (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.
- (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

Backward-curved  
60 Hz

Tab. XIII-81 – WAVE Doble 25 – Backward-curved

Air flow	Total static pressure (mmca)																									
	40		50		60		70		80		90		100		110		120		130		140		150		160	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
15000	—	—	1273	3.72	1370	4.46	1461	5.22	1549	6.00	1633	6.80	1714	7.60	1792	8.42	1868	9.24	1941	10.08	2013	10.92	—	—	—	—
16000	—	—	1293	3.98	1387	4.76	1476	5.56	1562	6.36	1644	7.20	1723	8.04	1800	8.90	1874	9.76	1946	10.64	2016	11.52	2085	12.42	2152	13.32
17000	—	—	1314	4.26	1405	5.06	1493	5.90	1577	6.74	1657	7.60	1735	8.48	1810	9.38	1883	10.28	1953	11.20	2022	12.14	2089	13.06	2155	14.00
18000	—	—	1337	4.56	1426	5.40	1511	6.26	1593	7.14	1672	8.04	1748	8.94	1822	9.88	1893	10.82	1963	11.78	2030	12.74	2096	13.72	2161	14.70
19000	1271	4.02	1362	4.86	1448	5.74	1531	6.62	1611	7.54	1688	8.46	1763	9.42	1835	10.38	1905	11.36	1973	12.36	2040	13.36	2105	14.38	2168	15.40
20000	1300	4.32	1388	5.20	1472	6.10	1552	7.02	1630	7.96	1706	8.92	1779	9.90	1850	10.90	1919	11.92	1986	12.94	2051	13.98	2115	15.04	2178	16.10
21000	1329	4.64	1415	5.54	1496	6.46	1575	7.42	1651	8.40	1725	9.40	1796	10.40	1866	11.44	1934	12.48	2000	13.56	2064	14.62	2127	15.72	2186	16.82
22000	1360	4.98	1443	5.90	1523	6.86	1599	7.84	1673	8.86	1746	9.88	1816	10.92	1884	12.00	1950	13.08	2015	14.18	2078	15.28	2140	16.40	2201	17.54
23000	1391	5.34	1472	6.30	1550	7.28	1625	8.30	1697	9.34	1767	10.40	1836	11.46	1903	12.56	1968	13.68	2032	14.80	2094	15.96	2155	17.12	2214	18.28
24000	1423	5.70	1502	6.70	1578	7.72	1651	8.76	1722	9.84	1791	10.92	1858	12.02	1923	13.16	1987	14.30	2049	15.46	2111	16.64	2170	17.84	2229	19.04
25000	1456	6.10	1533	7.14	1607	8.18	1678	9.26	1747	10.36	1815	11.48	1880	12.62	1945	13.78	2007	14.94	2068	16.14	2129	17.36	2187	18.58	2245	19.82

Tab. XIII-82 – WAVE Doble 31 – Backward-curved

Air flow	Total static pressure (mmca)																									
	40		50		60		70		80		90		100		110		120		130		140		150		160	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
17500	1231	3.62	1325	4.40	1415	5.22	1502	6.08	1584	6.94	1664	7.82	1741	8.72	1816	9.64	1888	10.56	1958	11.50	2026	12.44	2092	13.40	2157	14.36
19000	1271	4.02	1362	4.86	1448	5.74	1531	6.62	1611	7.54	1688	8.46	1763	9.42	1835	10.38	1905	11.36	1973	12.36	2040	13.36	2105	14.38	2168	15.40
20500	1315	4.48	1401	5.36	1484	6.28	1564	7.22	1641	8.18	1715	9.16	1787	10.16	1858	11.18	1926	12.20	1993	13.24	2058	14.30	2121	15.38	2183	16.46
22000	1360	4.98	1443	5.90	1523	6.86	1599	7.84	1673	8.86	1746	9.88	1816	10.92	1884	12.00	1950	13.08	2015	14.18	2078	15.28	2140	16.40	2201	17.54
23500	1407	5.52	1487	6.50	1564	7.50	1638	8.52	1709	9.58	1779	10.66	1847	11.74	1913	12.86	1977	13.98	2040	15.14	2102	16.30	2162	17.48	2222	18.66
25000	1456	6.10	1533	7.14	1607	8.18	1678	9.26	1747	10.36	1815	11.48	1880	12.62	1945	13.78	2007	14.94	2068	16.14	2129	17.36	2187	18.58	2245	19.82
26500	1506	6.74	1581	7.82	1652	8.92	1721	10.04	1788	11.18	1853	12.34	1917	13.54	1979	14.74	2040	15.96	2099	17.20	2158	18.46	2215	19.72	2271	21.02
28000	1557	7.44	1629	8.56	1699	9.70	1765	10.88	1830	12.06	1893	13.28	1955	14.50	2015	15.76	2074	17.02	2132	18.30	2189	19.62	2245	20.94	—	—
29500	1609	8.18	1679	9.34	1747	10.54	1812	11.76	1874	13.00	1936	14.26	1995	15.54	2054	16.84	2111	18.14	2168	19.48	2223	20.82	2278	22.20	—	—
31000	1661	8.98	1730	10.20	1796	11.44	1859	12.72	1920	14.00	1979	15.30	2038	16.62	2095	17.98	2150	19.34	2205	20.70	2259	22.10	—	—	—	—

Tab. XIII-83 – Transmission options WAVE Doble 25 and 31 – Backward-curved

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.
A	25	VERT.	7.5	3495	RLD450Q	1271	1617	142	346
B		HOR.							
C		FLOOR							
D		VERT.	10	3515		1484	1888	142	296
E		HOR.							
F		FLOOR							
G		VERT.	15	3520		2091	-	161	271
H		HOR.							
Y		FLOOR							
J		VERT.	20	3530		2227	-	171	271
K		HOR.							
L		FLOOR							
M		VERT.	31	7.5		3495	RLD450Q	1262	1606
N	HOR.								
P	FLOOR								
A	VERT.	10		3515	1484	1888		142	296
B	HOR.								
C	FLOOR								
D	VERT.	15		3520	2091	-		161	271
E	HOR.								
F	FLOOR								
G	VERT.	20		3530	2227	-		171	271
H	HOR.								
Y	FLOOR								
J	VERT.	25		7.5	3495	RLD450Q		1271	1617
K	HOR.								
L	FLOOR								
M	VERT.		10	3515	1484		1888	142	296
N	HOR.								
P	FLOOR								
A	VERT.		15	3520	2091		-	161	271
B	HOR.								
C	FLOOR								
D	VERT.		20	3530	2227		-	171	271
E	HOR.								
F	FLOOR								

Note:  
 (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.  
 (2) Heat produced by fan motor (MBh) = 3.15 x BHP



# Fan performance and Transmission option

## Backward-curved 60 Hz

Tab. XIII-84 - WAVE Doble 35 - Backward-curved

Air flow	Total static pressure (mmca)																											
	40		50		60		70		80		90		100		110		120		130		140		150		160			
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
20000	1078	4.04	1167	4.96	1251	5.92	1331	6.92	1408	7.92	1482	8.96	1553	10.00	1622	11.06	1688	12.14	1753	13.24	1815	14.34	1877	15.24	1937	16.56		
21500	1106	4.42	1191	5.40	1272	6.40	1350	7.44	1425	8.50	1497	9.58	1566	10.68	1633	11.80	1698	12.94	1761	14.08	1823	15.24	1883	16.42	1941	17.60		
23000	1135	4.82	1217	5.84	1296	6.90	1371	7.98	1444	9.10	1514	10.22	1581	11.38	1647	12.56	1710	13.74	1772	14.94	1833	16.16	1891	17.40	1949	18.64		
24500	1166	5.26	1245	6.34	1321	7.42	1394	8.56	1464	9.72	1533	10.90	1599	12.10	1663	13.32	1725	14.56	1785	15.82	1845	17.10	1902	18.38	1958	19.68		
26000	1198	5.74	1275	6.84	1348	8.00	1419	9.16	1487	10.36	1553	11.60	1618	12.84	1680	14.12	1741	15.42	1801	16.72	1858	18.06	1915	19.40	1970	20.76		
27500	1232	6.24	1306	7.40	1377	8.60	1445	9.82	1512	11.06	1576	12.34	1639	13.64	1700	14.96	1759	16.30	1817	17.66	1874	19.04	1930	20.44	1984	21.76		
29000	1266	6.78	1338	8.00	1407	9.22	1474	10.50	1538	11.78	1601	13.10	1662	14.46	1721	15.82	1779	17.22	1836	18.62	1892	20.06	1946	21.50	1999	22.96		
30500	1302	7.36	1371	8.62	1438	9.90	1503	11.22	1566	12.56	1627	13.92	1686	15.32	1744	16.72	1801	18.16	1856	19.62	1911	21.10	1964	22.60	2016	24.10		
32000	1338	7.98	1406	9.28	1471	10.62	1534	11.98	1595	13.36	1654	14.78	1712	16.22	1769	17.68	1824	19.16	1878	20.66	1931	22.18	1984	23.72	---	---		
33500	1375	8.64	1441	10.00	1504	11.38	1566	12.78	1625	14.22	1683	15.68	1739	17.16	1795	18.66	1849	20.18	1902	21.74	1954	23.32	2005	24.90	---	---		
35000	1412	9.36	1477	10.76	1539	12.18	1598	13.64	1655	15.12	1713	16.62	1768	18.14	1822	19.70	1875	21.26	1926	22.86	1977	24.48	---	---	---	---		

Tab. XIII-85 - WAVE Doble 40 - Backward-curved

Air flow	Total static pressure (mmca)																											
	40		50		60		70		80		90		100		110		120		130		140		150		160			
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
25000	1176	5.42	1255	6.50	1330	7.62	1402	8.72	1472	9.92	1539	11.12	1605	12.34	1668	13.58	1730	14.84	1790	16.12	1849	17.42	1906	18.72	1962	20.04		
26500	1209	5.90	1285	7.02	1358	8.18	1428	9.38	1495	10.60	1561	11.84	1625	13.10	1687	14.40	1747	15.70	1806	17.04	1863	18.38	1920	19.74	1975	21.12		
28000	1243	6.42	1316	7.60	1387	8.80	1455	10.04	1520	11.30	1584	12.58	1646	13.90	1707	15.24	1766	16.30	1823	17.98	1880	19.38	1935	20.78	1989	22.22		
29500	1278	6.98	1349	8.20	1417	9.44	1483	10.72	1547	12.04	1609	13.38	1670	14.74	1729	16.12	1786	17.52	1843	18.96	1898	20.40	1952	21.86	2005	23.34		
31000	1314	7.56	1383	8.84	1449	10.14	1513	11.46	1575	12.82	1636	14.20	1695	15.60	1752	17.04	1808	18.48	1864	19.96	1917	21.46	1970	22.96	2022	24.50		
32500	1350	8.20	1417	9.52	1482	10.86	1544	12.24	1605	13.64	1664	15.06	1721	16.52	1777	18.00	1832	19.50	1886	21.02	1939	22.56	1990	24.12	---	---		
34000	1387	8.88	1453	10.24	1516	11.64	1576	13.06	1635	14.50	1693	15.98	1749	17.48	1803	19.00	1857	20.54	1910	22.12	1961	23.70	---	---	---	---		
35500	1425	9.60	1489	11.02	1550	12.46	1610	13.92	1667	15.42	1723	16.94	1778	18.48	1831	20.06	1883	21.64	1935	23.26	1985	24.88	---	---	---	---		
37000	1463	10.36	1526	11.82	1586	13.32	1644	14.84	1700	16.38	1754	17.94	1808	19.54	1860	21.14	1911	22.78	1961	24.44	---	---	---	---	---	---		
38500	1501	11.18	1563	12.68	1622	14.24	1678	15.80	1733	17.38	1786	19.00	1839	20.64	1890	22.30	1940	23.98	---	---	---	---	---	---	---	---		
40000	1539	12.04	1601	13.60	1658	15.20	1714	16.80	1767	18.44	1819	20.10	1870	21.80	1920	23.50	---	---	---	---	---	---	---	---	---	---		

Tab. XIII-86 - Transmission options WAVE Doble 35 and 40 - Backward-curved

TRANSM. OPTION	UNIT MODEL	DISCH. TYPE	MOTOR	RPM MOTOR	VENT	MIN. RPM	MAX. RPM	Φ MOTOR	Φ VENT.
A	35	VERT.	10	3515	RLD450Q	996	1267	142	441
B		HOR.							
C		FLOOR							
D		VERT.							
E		HOR.							
F		FLOOR							
G		VERT.							
H		HOR.							
Y		FLOOR							
J		VERT.							
K		HOR.							
L		FLOOR							
M		VERT.							
N		HOR.							
P	FLOOR								
Q	VERT.								
R	HOR.								
S	FLOOR								
A	40	VERT.	20	3530	RLD450Q	1990	-	181	321
B		HOR.							
C		FLOOR							
D		VERT.							
E		HOR.							
F		FLOOR							
G		VERT.							
H		HOR.							
Y		FLOOR							
J		VERT.							
K		HOR.							
L		FLOOR							
M		VERT.							
N		HOR.							
P	FLOOR								
Q	VERT.								
R	HOR.								
S	FLOOR								
A	25	VERT.	25	3530	RLD450Q	2034	-	200	347
B		HOR.							
C		FLOOR							
D		VERT.							
E		HOR.							
F		FLOOR							
G		VERT.							
H		HOR.							
Y		FLOOR							
J		VERT.							
K		HOR.							
L		FLOOR							
M		VERT.							
N		HOR.							
P	FLOOR								
Q	VERT.								
R	HOR.								
S	FLOOR								

Note:  
 (1) Total static pressure in fan performance tables is at standard density. Standard density is based on air density at 21°C and a barometric pressure of 760 mmHg. This total pressure is the external static pressure required to the fan under operating condition, and shall include the pressure drop sums occurring in the components placed along the air flow and the typical drops in the duct that takes the expelled air through the fan.  
 (2) Heat produced by fan motor (MBh) = 3.15 x BHP

# XIV-Electrical characteristics

STD  
50 Hz

Tab. XIV-01 – Motor electrical characteristics and Motor options per model – Forward Curved Fans

Cap. Motors		0,5	0,75	1	1,5	2	3	4	5,5	7,5	10	12,5	15	20	25	30	40	50
Pole N°		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Level of protection		IP21	IP21	IP21	IP21	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55
Rated RPM		1420	1430	1400	1400	1440	1435	1420	1440	1460	1455	1465	1470	1465	1465	1465	1470	1475
Rated power (kW)		0,42	0,66	0,83	1,16	1,20	1,76	2,40	3,20	4,40	6,00	7,36	8,80	12,00	14,80	17,60	24,00	29,60
Max. power (kW)		0,53	0,82	1,04	1,45	1,50	2,20	3,00	4,00	5,50	7,50	9,20	11,00	15,00	18,50	22,00	30,00	37,00
220 V	CNO (A)	1,64	2,42	2,76	4,01	4,75	6,76	8,98	12,11	15,29	20,53	26,06	30,87	41,79	51,11	58,97	81,83	96,97
	CMO (A)	2,05	3,03	3,45	5,01	5,93	8,44	11,23	15,14	19,11	25,66	32,58	38,58	52,23	63,88	73,71	102,28	121,21
	CRT (A)	8,61	14,60	16,70	27,56	37,38	59,11	72,99	99,94	139,50	184,77	195,47	246,94	323,85	421,62	501,23	644,39	800,00
380 V	CNO (A)	0,95	1,40	1,59	2,31	2,74	3,90	5,18	6,99	8,82	11,85	15,04	17,81	24,11	29,49	34,02	47,21	55,95
	CMO (A)	1,18	1,75	1,99	2,89	3,42	4,87	6,48	8,74	11,03	14,81	18,80	22,26	30,14	36,86	42,53	59,02	69,94
	CRT (A)	4,97	8,42	9,64	15,90	21,57	34,11	42,12	57,67	80,49	106,61	112,79	142,48	186,86	243,28	289,21	371,81	461,60

Notes:

- (1) CNO = Rated Operational Current (A)
- (2) CMO = Maximum Operational Current (A)
- (3) CRT = Locked-Rotor Current (A)

	0,5	1	1,5	2	3	5	7,5	10	15	20
WD 02	X	X								
WD 03		X	X							
WD 04		X		X						
WD 06			X		X					
WD 08				X	X	X				
WD 10				X	X	X				
WD 12				X	X	X	X			
WD 14				X	X	X	X			
WD 17				X	X		X		X	
WD 21					X	X	X	X		
WD 25					X	X	X	X		
WD 31						X	X	X	X	X
WD 35							X	X	X	X
WD 40								X	X	X

Tab. XIV-02 – Motor electrical characteristics and Motor options per model – Backward Curved Fans

Cap. Motores		0,5	0,75	1	1,5	2	3	4	5,5	7,5	10	12,5	15	20	25	30	40	50
Pole N°		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Level of protection		IP21	IP21	IP21	IP21	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55
Rated RPM		2840	2820	2830	2810	2865	2840	2880	2880	2910	2910	2915	2935	2930	2940	2945	2955	2950
Rated power (kW)		0,42	0,61	0,78	1,18	1,20	1,76	2,40	3,20	4,40	6,00	7,36	8,80	12,00	14,80	17,60	24,00	29,60
Max. power (kW)		0,52	0,76	0,97	1,48	1,50	2,20	3,00	4,00	5,50	7,50	9,20	11,00	15,00	18,50	22,00	30,00	37,00
220 V	CNO (A)	1,40	1,93	2,41	3,45	4,57	6,67	8,62	11,11	15,43	20,53	25,19	29,70	40,19	49,07	56,93	78,04	95,80
	CMO (A)	1,75	2,41	3,01	4,31	5,71	8,34	10,78	13,89	19,29	25,66	31,49	37,13	50,23	61,33	71,16	97,55	119,76
	CRT (A)	10,50	13,26	18,06	23,71	39,97	55,04	86,24	97,20	131,19	174,50	239,29	259,90	351,62	453,87	519,48	634,09	814,34
380 V	CNO (A)	0,81	1,11	1,39	1,99	2,64	3,85	4,98	6,41	8,91	11,85	14,53	17,14	23,19	28,31	32,85	45,03	55,28
	CMO (A)	1,01	1,39	1,74	2,49	3,29	4,81	6,22	8,01	11,13	14,81	18,17	21,42	28,98	35,39	41,06	56,29	69,10
	CRT (A)	6,06	7,65	10,42	13,68	23,06	31,76	49,76	56,09	75,69	100,69	138,07	149,96	202,89	261,88	299,74	365,87	469,87

Notes:

- (1) CNO = Rated Operational Current (A)
- (2) CMO = Maximum Operational Current (A)
- (3) CRT = Locked-Rotor Current (A)

	1,5	2	3	5	7,5	10	15	20	25	30	40
WL 02	X										
WL 03	X		X								
WL 04		X	X	X							
WL 06		X	X	X							
WL 08	X		X	X	X						
WL 10			X	X		X					
WL 12				X	X	X					
WL 14				X	X	X	X				
WL 17				X		X	X			X	
WL 21					X	X	X			X	
WL 25					X	X		X	X		
WL 31							X	X	X		
WL 35								X	X		X
WL 40									X	X	X

# Electrical characteristics

High  
50 Hz

Tab. XIV-03 - Motor electrical characteristics and Motor options per model (High Efficiency) - Fans Forward Curve

Cap. Motore s		0,5	0,75	1	1,5	2	3	4	5,5	7,5	10	12,5	15	20	25	30	40	50
Pole N°		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Level of protection		IP21	IP21	IP21	IP21	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55
Rated RPM		1420	1430	1400	1400	1450	1435	1440	1450	1465	1465	1465	1470	1470	1470	1470	1480	1480
Rated power (kW)		0,42	0,66	0,83	1,16	1,20	1,76	2,40	3,20	4,40	6,00	7,36	8,80	12,00	14,80	17,60	24,00	29,60
Max. power (kW)		0,53	0,82	1,04	1,45	1,50	2,20	3,00	4,00	5,50	7,50	9,20	11,00	15,00	18,50	22,00	30,00	37,00
220 V	CNO (A)	1,64	2,42	2,76	4,01	4,59	6,64	8,95	11,65	15,00	20,24	25,33	30,14	41,35	50,81	59,55	81,68	95,51
	CMO (A)	2,05	3,03	3,45	5,01	5,73	8,30	11,19	14,56	18,75	25,30	31,67	37,67	51,69	63,52	74,44	102,10	119,39
	CRT (A)	8,61	14,60	16,70	27,56	42,42	61,41	87,31	101,92	159,34	215,03	272,34	263,72	377,32	463,68	543,40	745,34	931,26
380 V	CNO (A)	0,95	1,40	1,59	2,31	2,65	3,83	5,17	6,72	8,65	11,68	14,62	17,39	23,86	29,32	34,36	47,13	55,11
	CMO (A)	1,18	1,75	1,99	2,89	3,31	4,79	6,46	8,40	10,82	14,60	18,27	21,74	29,82	36,65	42,95	58,91	68,89
	CRT (A)	4,97	8,42	9,64	15,90	24,48	35,44	50,38	58,81	91,94	124,07	157,14	152,17	217,72	267,54	313,54	430,06	537,34
4000 V	CNO (A)	0,90	1,33	1,52	2,20	2,52	3,65	4,92	6,40	8,24	11,12	13,92	16,56	22,72	27,92	32,72	44,88	52,48
	CMO (A)	1,13	1,67	1,90	2,76	3,15	4,56	6,15	8,00	10,30	13,90	17,40	20,70	28,40	34,90	40,90	56,10	65,60
	CRT (A)	4,74	8,03	9,19	15,16	23,31	33,74	47,97	56,00	87,55	118,15	149,64	144,90	207,32	254,77	298,57	409,53	511,68

Notes:

- (1) CNO = Rated Operational Current (A)
- (2) CMO = Maximum Operational Current (A)
- (3) CRT = Locked-Rotor Current (A)

Tab. XIV-04 - Motor electrical characteristics and Motor options per model (High Efficiency) - Fans Backward Curved

Cap. Motores		0,5	0,75	1	1,5	2	3	4	5,5	7,5	10	12,5	15	20	25	30	40	50
Pole N°		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Level of protection		IP21	IP21	IP21	IP21	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55
Rated RPM		2840	2820	2830	2810	2875	2870	2910	2900	2930	2930	2930	2950	2950	2950	2955	2965	2965
Rated power (kW)		0,42	0,61	0,78	1,18	1,20	1,76	2,40	3,20	4,40	6,00	7,36	8,80	12,00	14,80	17,60	24,00	29,60
Max. power (kW)		0,52	0,76	0,97	1,48	1,50	2,20	3,00	4,00	5,50	7,50	9,20	11,00	15,00	18,50	22,00	30,00	37,00
220 V	CNO (A)	1,40	1,93	2,41	3,45	4,47	6,45	8,40	10,92	14,71	20,24	24,17	29,27	39,46	48,48	56,78	77,90	95,51
	CMO (A)	1,75	2,41	3,01	4,31	5,59	8,06	10,50	13,65	18,38	25,30	30,21	36,58	49,32	60,61	70,98	97,37	119,39
	CRT (A)	10,50	13,26	18,06	23,71	42,46	60,47	89,26	105,11	152,57	215,03	256,80	292,66	394,58	509,09	567,84	710,80	871,56
380 V	CNO (A)	0,81	1,11	1,39	1,99	2,58	3,72	4,85	6,30	8,49	11,68	13,95	16,89	22,77	27,98	32,76	44,95	55,11
	CMO (A)	1,01	1,39	1,74	2,49	3,22	4,65	6,06	7,88	10,61	14,60	17,43	21,11	28,46	34,97	40,96	56,18	68,89
	CRT (A)	6,06	7,65	10,42	13,68	24,50	34,89	51,50	60,65	88,03	124,07	148,17	168,86	227,67	293,75	327,64	410,13	502,89
400 V	CNO (A)	0,77	1,06	1,32	1,90	2,46	3,54	4,62	6,00	8,08	11,12	13,28	16,08	21,68	26,64	31,20	42,80	52,48
	CMO (A)	0,96	1,33	1,66	2,37	3,07	4,43	5,77	7,50	10,10	13,90	16,60	20,10	27,10	33,30	39,00	53,50	65,60
	CRT (A)	5,78	7,29	9,93	13,04	23,33	33,23	49,05	57,75	83,83	118,15	141,10	160,80	216,80	279,72	312,00	390,55	478,88

Notes:

- (1) CNO = Rated Operational Current (A)
- (2) CMO = Maximum Operational Current (A)
- (3) CRT = Locked-Rotor Current (A)



# Electrical characteristics

STD  
60 Hz

Tab. XIV-05 - Motor electrical characteristics and Motor options per model - Fans Forward Curved

Cap. Motors	0,5	0,75	1	1,5	2	3	4	5	6	7,5	10	12,5	15	20	25	30	40	50	
Pole N°	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
Level of protection	IP21	IP21	IP21	IP21	IP21	IP21	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	
Rated RPM	1730	1735	1720	1710	1710	1740	1715	1735	1740	1740	1760	1760	1760	1765	1765	1765	1770	1770	
Rated power (KW)	0,38	0,60	0,81	1,18	1,50	2,12	2,40	2,96	3,60	4,40	6,00	7,36	8,80	12,00	14,80	17,60	24,00	29,60	
Max. power (KW)	0,48	0,75	1,01	1,47	1,88	2,65	3,00	3,70	4,50	5,50	7,50	9,20	11,00	15,00	18,50	22,00	30,00	37,00	
220 V	CNO (A)	1,54	2,26	2,84	3,85	5,18	7,94	8,88	10,96	13,28	16,16	20,64	25,12	29,76	42,08	51,68	59,20	79,36	97,60
	CMO (A)	1,92	2,82	3,55	4,81	6,48	9,93	11,10	13,70	16,60	20,20	25,80	31,40	37,20	52,60	64,60	74,00	99,20	122,00
	CRT (A)	9,62	15,00	19,20	27,42	37,58	77,45	71,04	109,60	102,92	127,26	203,82	251,20	305,04	357,68	439,28	473,60	615,04	756,40
380 V	CNO (A)	0,89	1,30	1,64	2,22	2,99	4,58	5,12	6,32	7,66	9,32	11,91	14,49	17,17	24,28	29,82	34,16	45,79	56,32
	CMO (A)	1,11	1,63	2,05	2,78	3,74	5,73	6,40	7,90	9,58	11,66	14,89	18,12	21,46	30,35	37,27	42,70	57,24	70,39
	CRT (A)	5,55	8,66	11,08	15,82	21,69	44,69	40,99	63,24	59,38	73,43	117,60	144,94	176,01	206,38	253,46	273,27	354,88	436,44
440 V	CNO (A)	0,77	1,13	1,42	1,92	2,59	3,97	4,44	5,48	6,64	8,08	10,32	12,56	14,88	21,04	25,84	29,60	39,68	48,80
	CMO (A)	0,96	1,41	1,78	2,41	3,24	4,97	5,55	6,85	8,30	10,10	12,90	15,70	18,60	26,30	32,30	37,00	49,60	61,00
	CRT (A)	4,81	7,50	9,60	13,71	18,79	38,73	35,52	54,80	51,46	63,63	101,91	125,60	152,52	178,84	219,64	236,80	307,52	378,20
460 V	CNO (A)	0,73	1,08	1,36	1,84	2,48	3,80	4,25	5,24	6,35	7,73	9,87	12,01	14,23	20,13	24,72	28,31	37,95	46,68
	CMO (A)	0,92	1,35	1,70	2,30	3,10	4,75	5,31	6,55	7,94	9,66	12,34	15,02	17,79	25,16	30,90	35,39	47,44	58,35
	CRT (A)	4,60	7,17	9,18	13,11	17,97	37,04	33,98	52,42	49,22	60,86	97,48	120,14	145,89	171,06	210,09	226,50	294,15	361,76

Notes:

- (1) CNO = Rated Operational Current (A)
- (2) CMO = Maximum Operational Current (A)
- (3) CRT = Locked-Rotor Current (A)

WAVE	0,5	0,75	1	1,5	2	3	4	5	6	7,5	10	15	20
WD 02	X	X											
WD 03	X		X										
WD 04			X	X									
WD 06				X									
WD 08					X	X							
WD 10					X	X	X						
WD 12					X	X	X	X					
WD 14					X	X	X		X				
WD 17					X	X		X		X			
WD 21						X		X		X	X		
WD 25						X		X		X	X		
WD 31						X		X		X	X	X	
WD 35								X		X	X	X	
WD 40								X		X	X	X	

Tab. XIV-06 - Motor electrical characteristics and Motor options per model – Backward Curved Fans

Cap. Motors	0,5	0,75	1	1,5	2	3	4	5	6	7,5	10	12,5	15	20	25	30	40	50	
Pole N°	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Level of protection	IP21	IP21	IP21	IP21	IP21	IP21	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	
Rated RPM	3450	3455	3465	3440	3450	3400	3450	3500	3480	3495	3515	3515	3520	3530	3530	3535	3550	3555	
Rated power (KW)	0,42	0,62	0,81	1,10	1,47	2,22	2,40	2,96	3,60	4,40	6,00	7,36	8,80	12,00	14,80	17,60	24,00	29,60	
Max. power (KW)	0,53	0,77	1,01	1,37	1,84	2,78	3,00	3,70	4,50	5,50	7,50	9,20	11,00	15,00	18,50	22,00	30,00	37,00	
220 V	CNO (A)	1,38	2,00	2,62	3,27	4,50	6,48	8,56	10,24	12,08	15,04	20,00	24,00	28,96	39,84	48,80	57,76	79,20	96,80
	CMO (A)	1,73	2,50	3,27	4,09	5,62	8,10	10,70	12,80	15,10	18,80	25,00	30,00	36,20	49,80	61,00	72,20	99,00	121,00
	CRT (A)	13,84	14,25	21,26	34,77	45,52	53,46	79,18	112,64	108,72	156,04	180,00	225,00	300,46	328,68	414,80	541,50	633,60	871,20
380 V	CNO (A)	0,80	1,15	1,51	1,89	2,59	3,74	4,94	5,91	6,97	8,68	11,54	13,85	16,71	22,99	28,16	33,33	45,70	55,85
	CMO (A)	1,00	1,44	1,89	2,36	3,24	4,67	6,17	7,39	8,71	10,85	14,43	17,31	20,89	28,73	35,20	41,66	57,12	69,82
	CRT (A)	7,99	8,22	12,26	20,06	26,27	30,85	45,69	64,99	62,73	90,04	103,86	129,83	173,37	189,65	239,34	312,45	365,59	502,68
440 V	CNO (A)	0,69	1,00	1,31	1,64	2,25	3,24	4,28	5,12	6,04	7,52	10,00	12,00	14,48	19,92	24,40	28,88	39,60	48,40
	CMO (A)	0,87	1,25	1,64	2,05	2,81	4,05	5,35	6,40	7,55	9,40	12,50	15,00	18,10	24,90	30,50	36,10	49,50	60,50
	CRT (A)	6,92	7,13	10,63	17,38	22,76	26,73	39,59	56,32	54,36	78,02	90,00	112,50	150,23	164,34	207,40	270,75	316,80	435,60
460 V	CNO (A)	0,66	0,96	1,25	1,56	2,15	3,10	4,09	4,90	5,78	7,19	9,57	11,48	13,85	19,05	23,34	27,62	37,88	46,30
	CMO (A)	0,83	1,20	1,56	1,96	2,69	3,87	5,12	6,12	7,22	8,99	11,96	14,35	17,31	23,82	29,17	34,53	47,35	57,87
	CRT (A)	6,62	6,82	10,17	16,63	21,77	25,57	37,87	53,87	52,00	74,63	86,09	107,61	143,70	157,19	198,38	258,98	303,03	416,66

Notes:

- (1) CNO = Rated Operational Current (A)
- (2) CMO = Maximum Operational Current (A)
- (3) CRT = Locked-Rotor Current (A)

WAVE	1	1,5	2	3	4	5	6	7,5	10	15	20	25
WL 02	X											
WL 03	X		X									
WL 04	X		X	X								
WL 06			X	X		X						
WL 08			X	X		X		X				
WL 10			X	X		X		X				
WL 12			X	X		X		X	X			
WL 14			X	X		X		X	X	X		
WL 17			X	X		X		X	X	X		
WL 21			X	X		X		X	X	X		
WL 25								X	X	X	X	
WL 31								X	X	X	X	
WL 35								X	X	X	X	
WL 40								X	X	X	X	

# Electrical characteristics

High  
60 Hz

Tab. XIV-07 - Motor electrical characteristics and Motor options per model - Fans Forward Curved

Cap. Motors	0,5	0,75	1	1,5	2	3	4	5	6	7,5	10	12,5	15	20	25	30	40	50	
Pole N°	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
Level of protection	IP21	IP21	IP21	IP21	IP21	IP21	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	
Rated RPM	1730	1735	1720	1710	1710	1740	1725	1730	1745	1750	1765	1765	1760	1770	1770	1775	1775	1775	
Rated power (KW)	0,38	0,60	0,81	1,18	1,50	2,12	2,40	2,96	3,60	4,40	6,00	7,36	8,80	12,00	14,80	17,60	24,00	29,60	
Max. power (KW)	0,48	0,75	1,01	1,47	1,88	2,65	3,00	3,70	4,50	5,50	7,50	9,20	11,00	15,00	18,50	22,00	30,00	37,00	
220 V	CNO (A)	1,54	2,26	2,84	3,85	5,18	7,94	8,88	10,88	13,20	15,84	20,32	25,12	30,08	41,12	51,04	59,20	79,36	97,60
	CMO (A)	1,92	2,82	3,55	4,81	6,48	9,93	11,10	13,60	16,50	19,80	25,40	31,40	37,60	51,40	63,80	74,00	99,20	122,00
	CRT (A)	9,62	15,00	19,20	27,42	37,58	77,45	74,37	100,64	115,50	144,54	208,28	266,90	312,08	375,22	465,74	532,80	654,72	780,80
380 V	CNO (A)	0,89	1,30	1,64	2,22	2,99	4,58	5,12	6,28	7,62	9,14	11,72	14,49	17,36	23,73	29,45	34,16	45,79	56,32
	CMO (A)	1,11	1,63	2,05	2,78	3,74	5,73	6,40	7,85	9,52	11,42	14,66	18,12	21,70	29,66	36,81	42,70	57,24	70,39
	CRT (A)	5,55	8,66	11,08	15,82	21,69	44,69	42,91	58,07	66,64	83,40	120,18	154,00	180,07	216,50	268,73	307,43	377,77	450,52
440 V	CNO (A)	0,77	1,13	1,42	1,92	2,59	3,97	4,44	5,44	6,60	7,92	10,16	12,56	15,04	20,56	25,52	29,60	39,68	48,80
	CMO (A)	0,96	1,41	1,78	2,41	3,24	4,97	5,55	6,80	8,25	9,90	12,70	15,70	18,80	25,70	31,90	37,00	49,60	61,00
	CRT (A)	4,81	7,50	9,60	13,71	18,79	38,73	37,19	50,32	57,75	72,27	104,14	133,45	156,04	187,61	232,87	266,40	327,36	390,40
460 V	CNO (A)	0,73	1,08	1,36	1,84	2,48	3,80	4,25	5,20	6,31	7,58	9,72	12,01	14,39	19,67	24,41	28,31	37,95	46,68
	CMO (A)	0,92	1,35	1,70	2,30	3,10	4,75	5,31	6,50	7,89	9,47	12,15	15,02	17,98	24,58	30,51	35,39	47,44	58,35
	CRT (A)	4,60	7,17	9,18	13,11	17,97	37,04	35,57	48,13	55,24	69,13	99,61	127,65	149,26	179,45	222,75	254,82	313,13	373,43
480 V	CNO (A)	0,70	1,03	1,30	1,76	2,38	3,64	4,07	4,99	6,05	7,26	9,31	11,51	13,79	18,85	23,39	27,13	36,37	44,73
	CMO (A)	0,88	1,29	1,63	2,20	2,97	4,55	5,09	6,23	7,56	9,08	11,64	14,39	17,23	23,56	29,24	33,92	45,47	55,92
	CRT (A)	4,41	6,88	8,80	12,57	17,23	35,50	34,09	46,13	52,94	66,25	95,46	122,33	143,04	171,98	213,46	244,20	300,08	357,87

Notes:

- (1) CNO = Rated Operational Current (A)
- (2) CMO = Maximum Operational Current (A)
- (3) CRT = Locked-Rotor Current (A)

Tab. XIV-08 - Motor electrical characteristics and Motor options per model – Backward Curved Fans

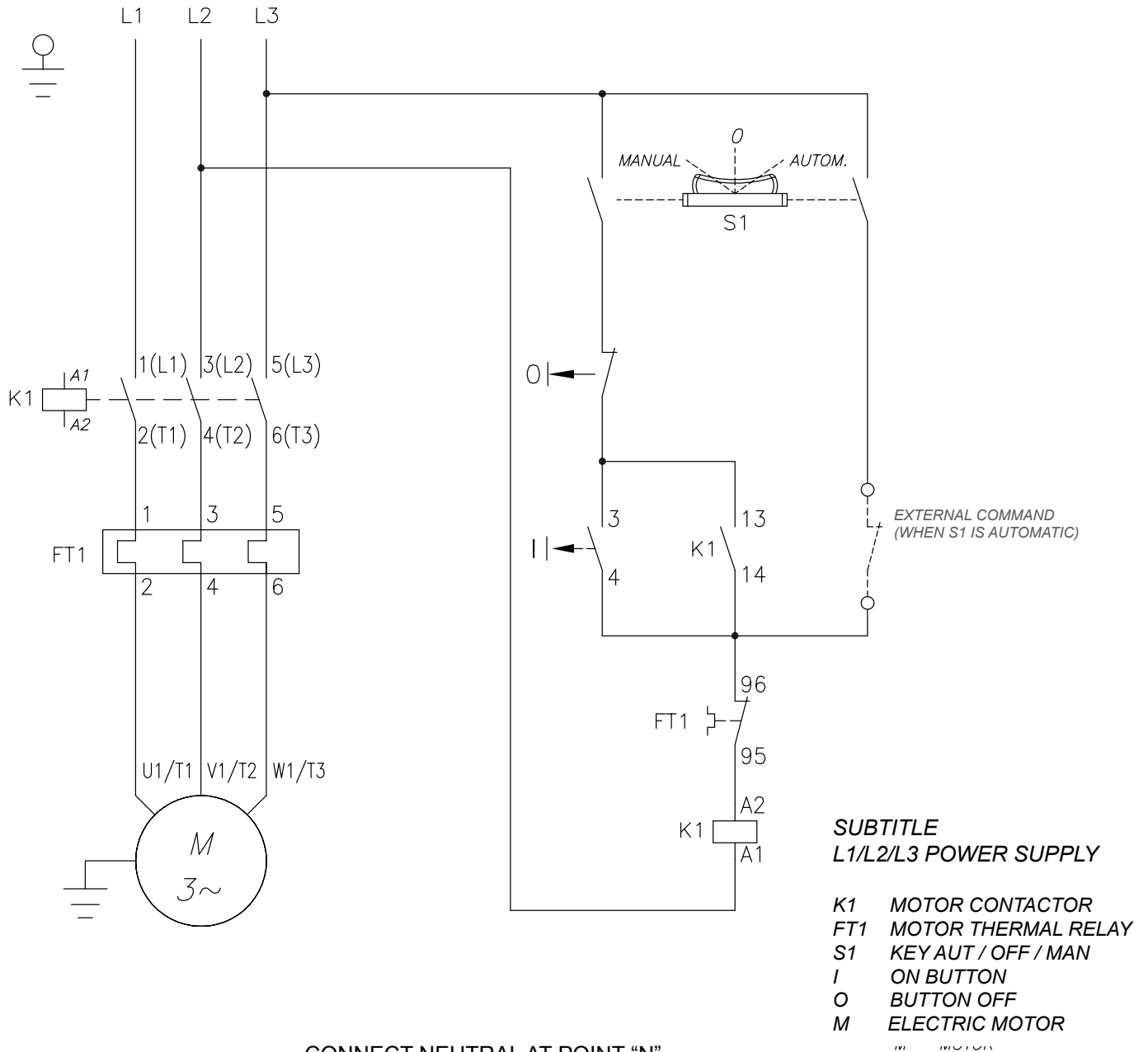
Cap. Motors	0,5	0,75	1	1,5	2	3	4	5	6	7,5	10	12,5	15	20	25	30	40	50	
Pole N°	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Level of protection	IP21	IP21	IP21	IP21	IP21	IP21	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	IP55	
Rated RPM	3450	3455	3465	3440	3450	3400	3475	3505	3490	3500	3530	3525	3525	3540	3540	3545	3560	3565	
Rated power (KW)	0,42	0,62	0,81	1,10	1,47	2,22	2,40	2,96	3,60	4,40	6,00	7,36	8,80	12,00	14,80	17,60	24,00	29,60	
Max. power (KW)	0,53	0,77	1,01	1,37	1,84	2,78	3,00	3,70	4,50	5,50	7,50	9,20	11,00	15,00	18,50	22,00	30,00	37,00	
220 V	CNO (A)	1,38	2,00	2,62	3,27	4,50	6,48	8,72	10,24	12,00	14,80	19,84	23,84	28,32	38,16	48,16	56,96	78,40	95,20
	CMO (A)	1,73	2,50	3,27	4,09	5,62	8,10	10,90	12,80	15,00	18,50	24,80	29,80	35,40	48,00	60,20	71,20	98,00	119,00
	CRT (A)	13,84	14,25	21,26	34,77	45,52	53,46	85,02	111,36	112,50	151,70	200,88	241,38	300,90	140,60	469,56	555,36	725,20	892,50
380 V	CNO (A)	0,80	1,15	1,51	1,89	2,59	3,74	5,03	5,91	6,92	8,54	11,45	13,76	16,34	8,77	27,79	32,87	45,24	54,93
	CMO (A)	1,00	1,44	1,89	2,36	3,24	4,67	6,29	7,39	8,66	10,67	14,31	17,19	20,43	10,96	34,74	41,08	56,55	68,66
	CRT (A)	7,99	8,22	12,26	20,06	26,27	30,85	49,06	64,25	64,91	87,53	115,91	139,28	173,62	81,13	270,94	320,44	418,44	514,97
440 V	CNO (A)	0,69	1,00	1,31	1,64	2,25	3,24	4,36	5,12	6,00	7,40	9,92	11,92	14,16	7,60	24,08	28,48	39,20	47,60
	CMO (A)	0,87	1,25	1,64	2,05	2,81	4,05	5,45	6,40	7,50	9,25	12,40	14,90	17,70	9,50	30,10	35,60	49,00	59,50
	CRT (A)	6,92	7,13	10,63	17,38	22,76	26,73	42,51	55,68	56,25	75,85	100,44	120,69	150,45	70,30	234,78	277,68	362,60	446,25
460 V	CNO (A)	0,66	0,96	1,25	1,56	2,15	3,10	4,17	4,90	5,74	7,08	9,49	11,40	13,54	7,27	23,03	27,24	37,50	45,53
	CMO (A)	0,83	1,20	1,56	1,96	2,69	3,87	5,21	6,12	7,17	8,85	11,86	14,25	16,93	9,09	28,79	34,05	46,87	56,91
	CRT (A)	6,62	6,82	10,17	16,63	21,77	25,57	40,66	53,26	53,80	72,55	96,07	115,44	143,91	67,24	224,57	265,61	346,83	426,85
480 V	CNO (A)	0,63	0,92	1,20	1,50	2,06	2,97	4,00	4,69	5,50	6,78	9,09	10,93	12,98	6,97	22,07	26,11	35,93	43,63
	CMO (A)	0,79	1,15	1,50	1,87	2,58	3,71	5,00	5,87	6,88	8,48	11,37	13,66	16,23	8,71	27,59	32,63	44,92	54,54
	CRT (A)	6,34	6,53	9,74	15,93	20,86	24,50	38,97	51,04	51,56	69,53	92,07	110,63	137,91	64,44	215,22	254,54	332,38	409,06

Notes:

- (1) CNO = Rated Operational Current (A)
- (2) CMO = Maximum Operational Current (A)
- (3) CRT = Locked-Rotor Current (A)

# XV-Electrical diagram

Fig. XV-01 – Electrical diagram Direct starter switch (PDW)

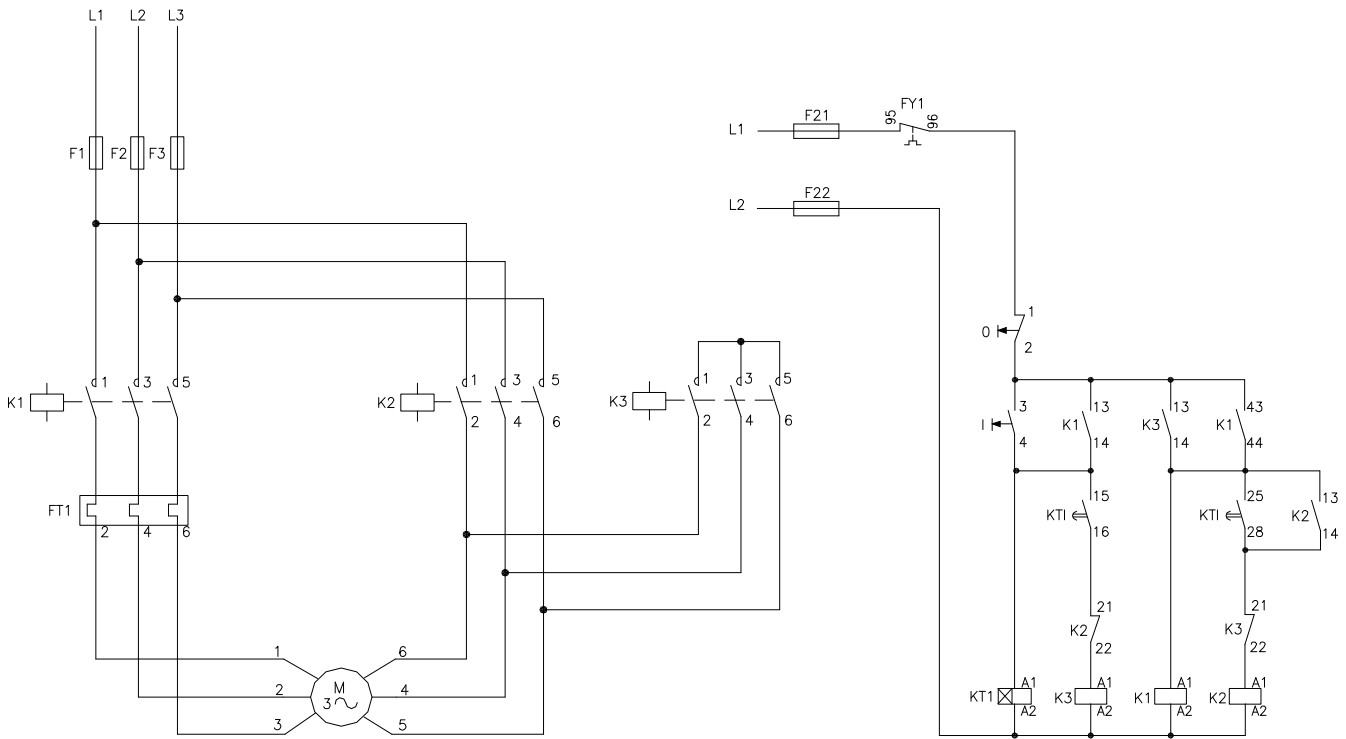


CONNECT NEUTRAL AT POINT "N"










- 1- 220 V MAINS - CONTROL PHASE / (ALREADY EXECUTED)
- 2- 380 V MAINS - CONTROL PHASE/ NEUTRAL

## Electrical diagram

Fig. XV-02 – Electrical diagram Star-Delta starter switch (ETW)



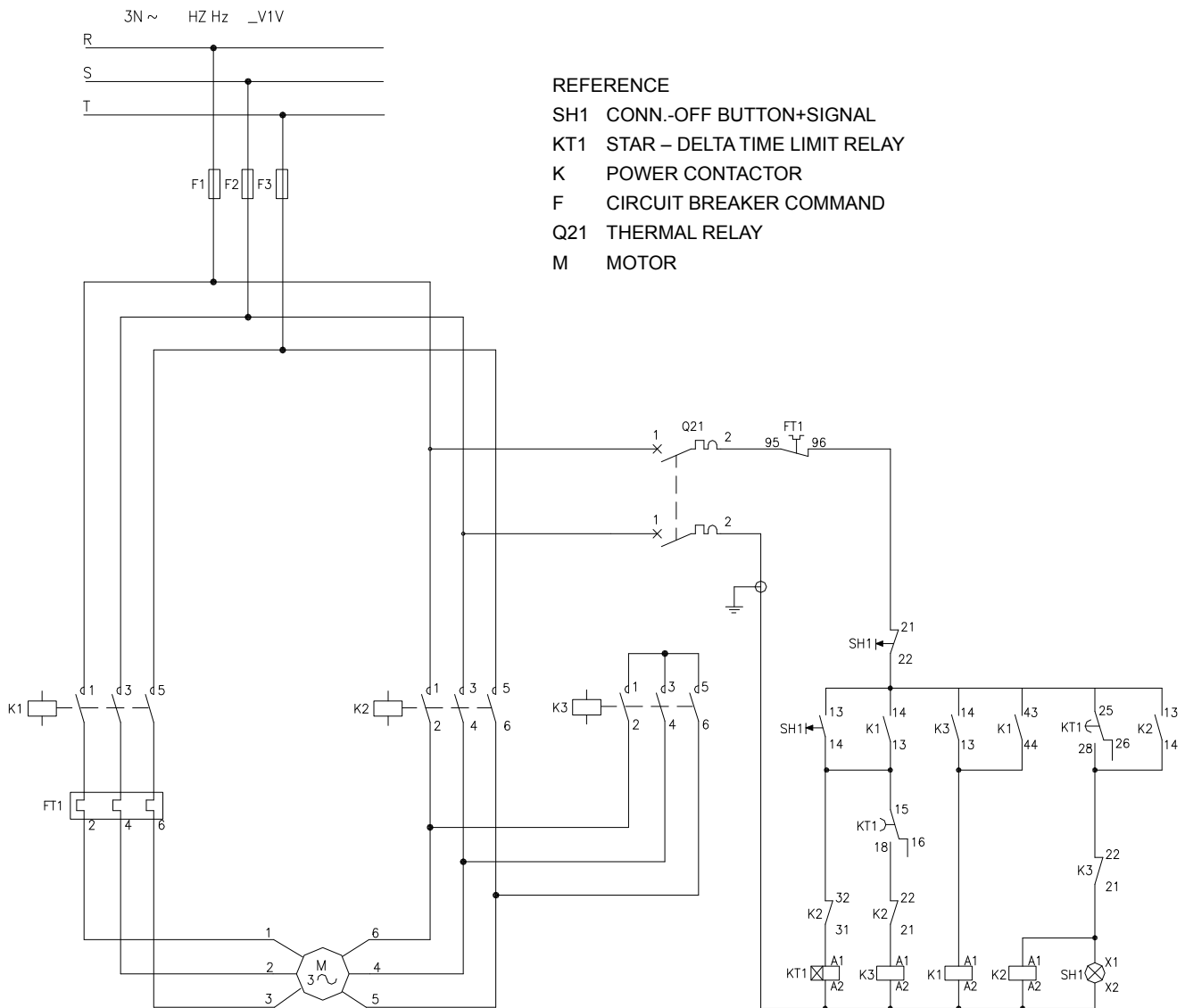
### REFERENCES

	L1/L2/L3	POWER
	K2	MOTOR CONTACTOR
	K3	DELTA CONTACTOR
	KT1	STAR CONTACTOR
	FT	TIMER
	S1	MOTOR THERMAL RELAY
	S0	POWER ON BUTTON
	M1	POWER OFF BUTTON
	F1/2/3	ELECTRIC MOTOR
	F21/22	POWER FUSE

1-RED 220V – PHASE COMMAND (ALREADY PERFORMED)  
 2-RED 380 V – PHASE COMMAND/NEUTRAL

## Electrical diagram

Fig. XV-03 – Wiring diagram Star-Delta starter switch – (PEW)



# Starter switch dimensions

Fig. XV-04 – Direct start-up key (PDW)

SIZE	DIMENSIONS L x W x D
02	90 x 155 x 98
04	105 x 185 x 111
06	120 x 210 x 126
08	180 x 280 x 143
10	250 x 360 x 167

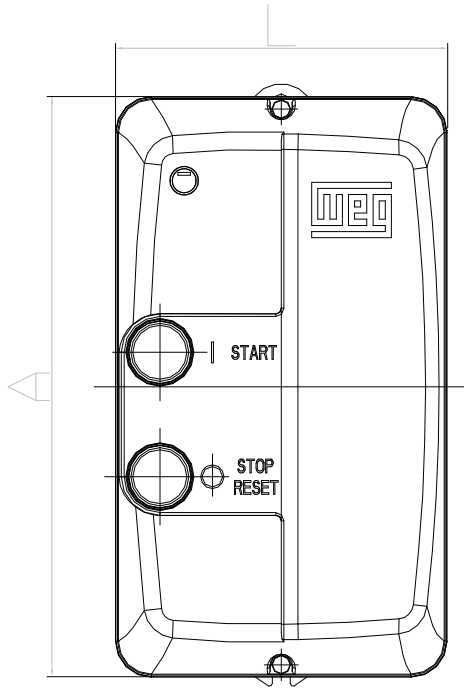
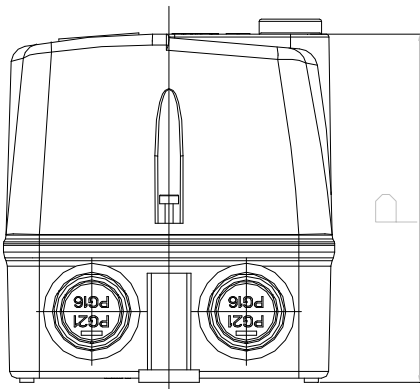


Fig. XV-05 – Star-delta start-up key (ETW)

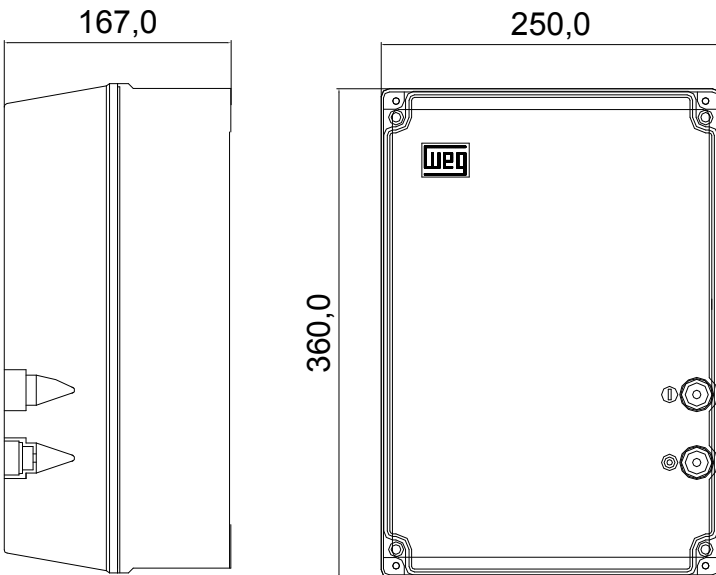
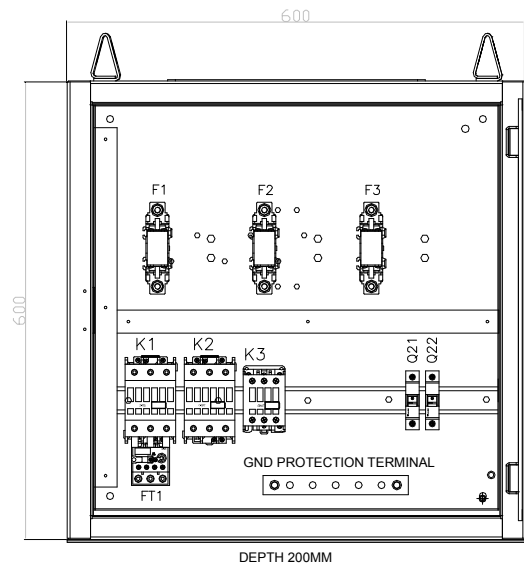


Fig. XV-06 – Main electrical dimensions Star-Delta (PEW)









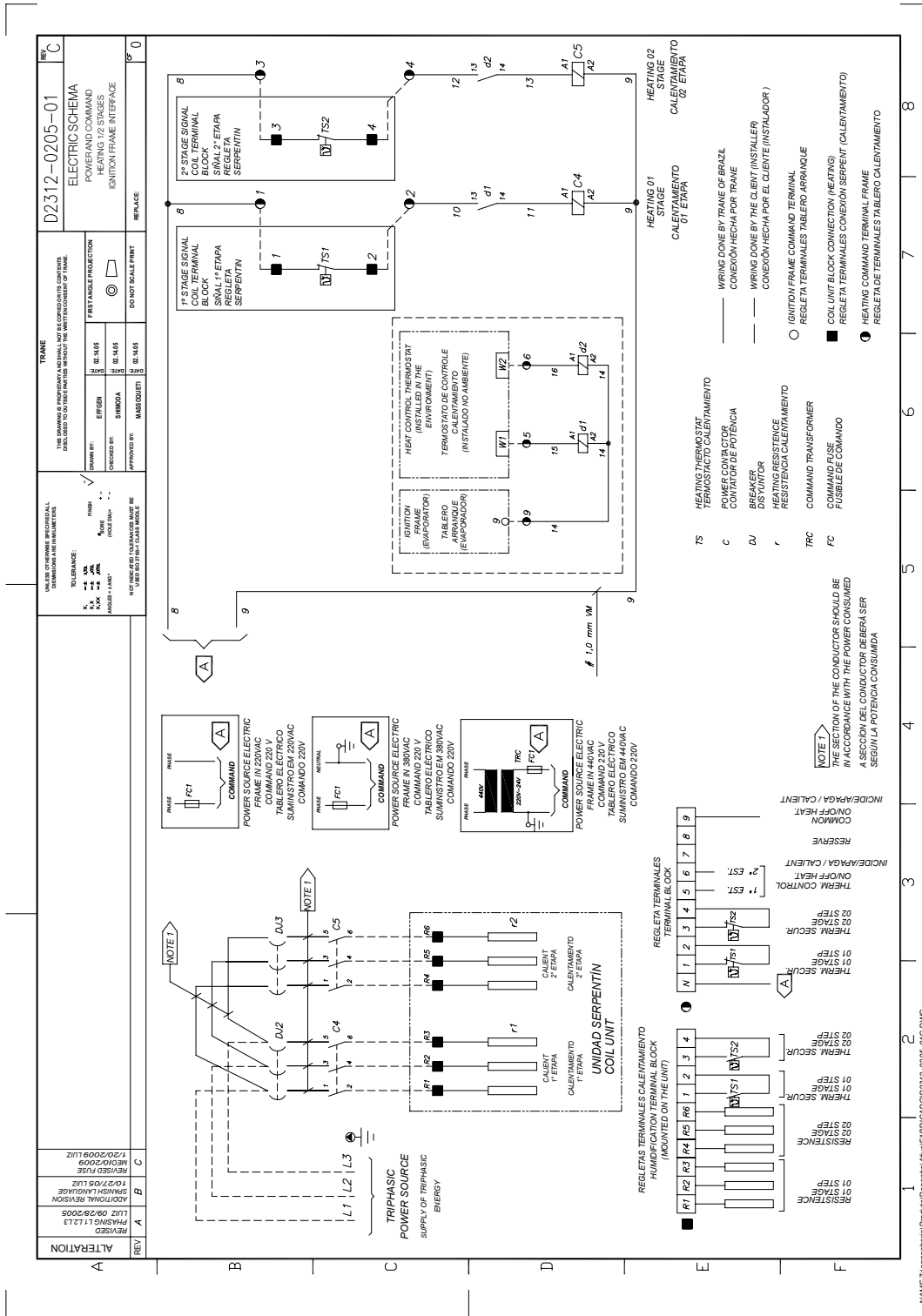




# Electrical diagram Power and Command

Calentamiento

Fig. XV-11 – Electrical diagram Power and Command – Heating



NAME: Z:\ingeniería\Proyecto\Diseno\Ade\PRC\0205-0205-01-05-010-DWG

# Electrical board dimensions

Heating

Fig. XV-12 – Electrical board – Heating

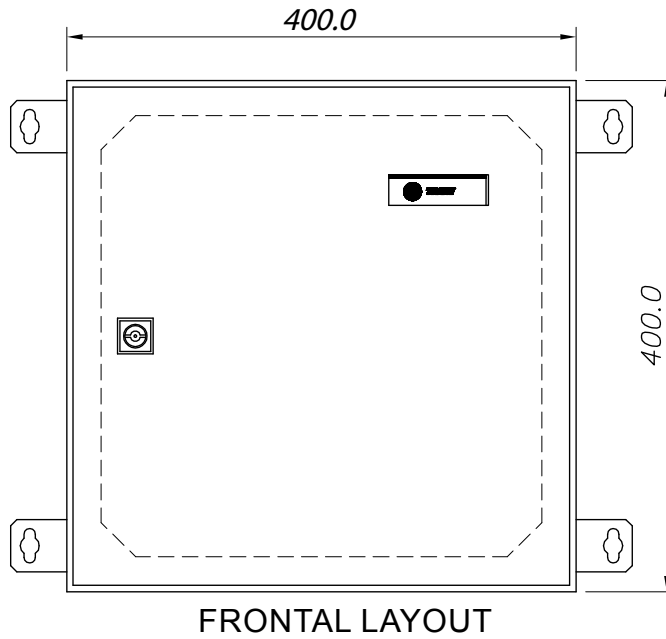
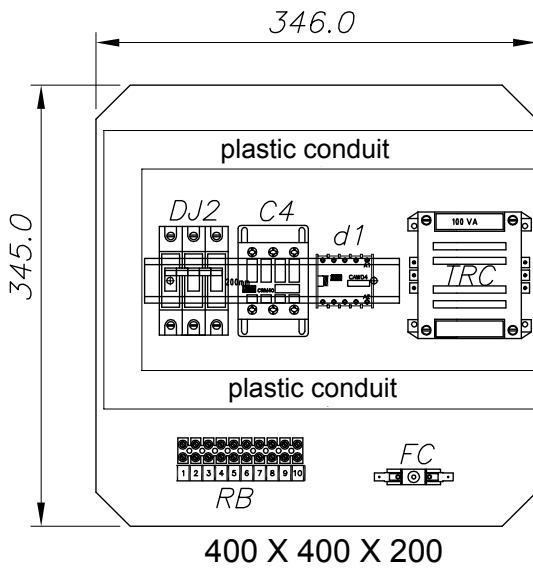
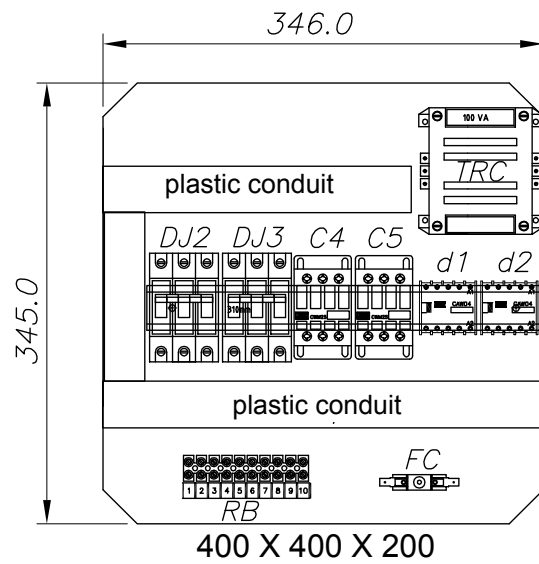


Fig. XVI 07



HEATING  
1 STAGE  
3,0 a 12,0 Kw



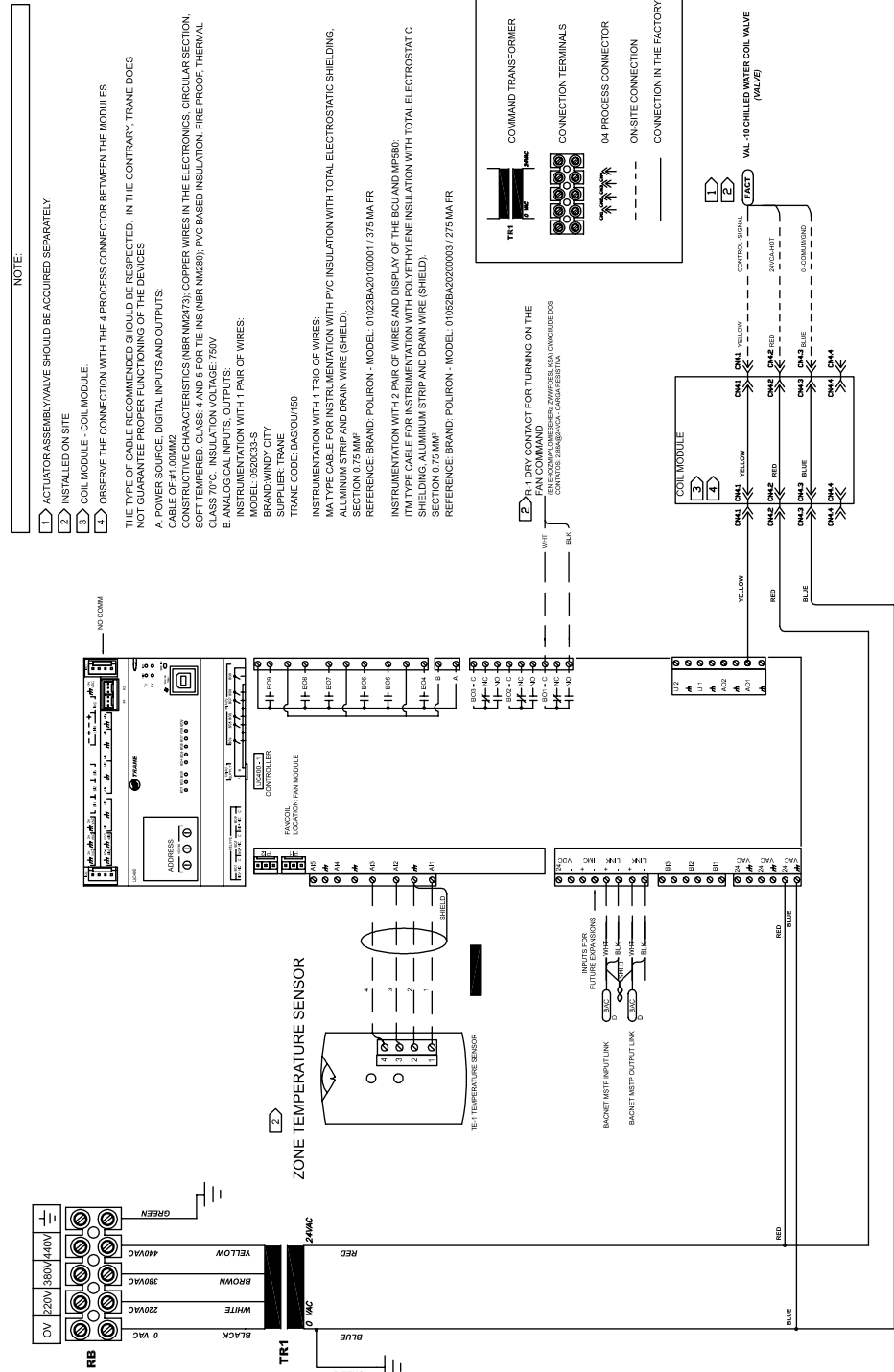
HEATING  
2 STAGES  
3,0 a 30,0 Kw

# Electrical diagram Power and Command

UC400

Fig. XV-13 – Electrical diagram

(UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS) (TOLERANCE) X, Y, Z, Ø, ±, ±0.05, ±0.1, ±0.2, ±0.3, ±0.5, ±1, ±2, ±3, ±5, ±10, ±20, ±30, ±50, ±100, ±200, ±500, ±1000, ±2000, ±5000, ±10000 (ANGLES) ±0.1, ±0.2, ±0.5, ±1, ±2, ±5, ±10, ±30, ±45, ±90, ±180 (NOT INDICATED TOLERANCES MUST BE USED ISO 2768-1 CLASS MEDIUM)		TRANE (THIS DRAWING IS PROPRIETARY AND SHALL NOT BE COPIED OR ITS CONTENTS DISCLOSED TO OUTSIDE PARTIES WITHOUT THE WRITTEN CONSENT OF TRANE.)		X39010515-01	REV 0
(DRAWN BY) SHIMODA	(CHECKED BY) CESAR	(APPROVED BY) (REPLACE)	(FIRST ANGLE PROJECTION)	DATE 09/03/2012	DATE 09/03/2012

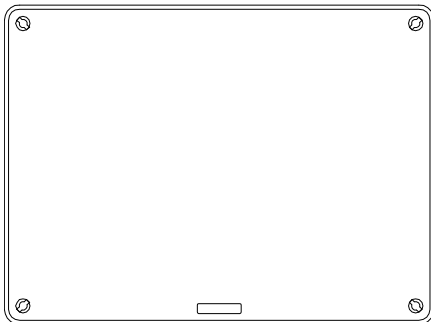
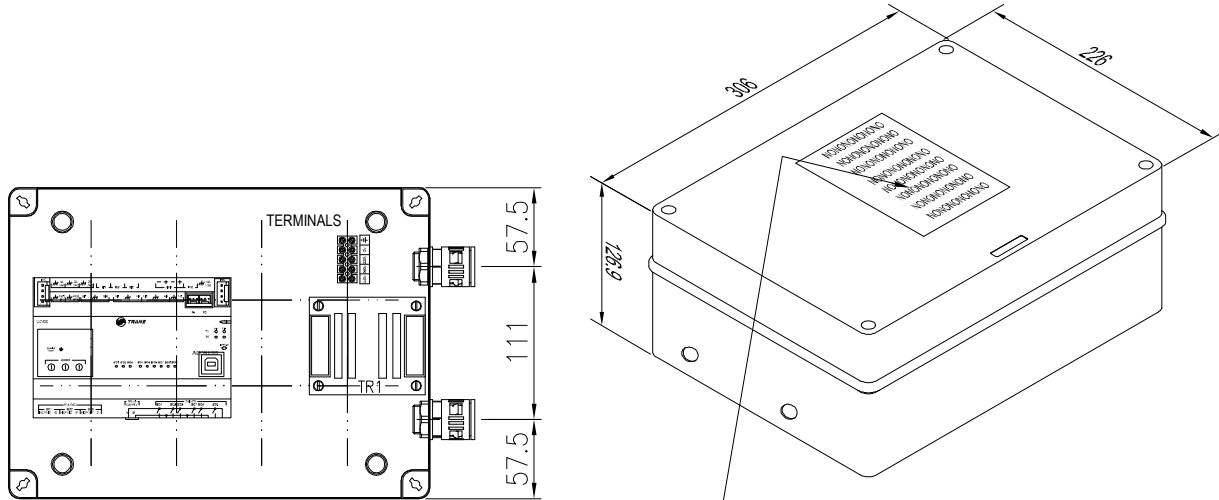


- NOTES :
- SPECIFICATIONS :
  - FRONTAL : WHITE PVC FILM , 0.08 mm THICKNESS .
  - ADHESIVE : PERMANENT PRESSURE SENSITIVE ; CODE : FASSON : S-0308 ;
  - TEMPERATURE RATING : -54 °C TO 93 °C .
  - BACKING : SPLIT , WHITE "COUCHE" PAPER , 0.14 mm THICKNESS .
  - BORDERS , DRAWINGS AND LETTERS SHALL BE BLACK .

# Electrical dimensions Power and Command

UC400

Fig. XV-14 – Electrical board dimensions




To expand the control functional options of this product, contact:

**Customer Support Center**  
**INGERSOLL RAND IND.**  
**COM. SER. LTDA**

✉ Rua Pinheiro, 144  
 04321-170 - Jabaquara - SP  
 ☎ Phone: (11) 5014-6300  
 📠 Fax: (11) 5014-6299  
 ✉ e-mail: [bas@irco.com](mailto:bas@irco.com)  
[www.trane.com.br](http://www.trane.com.br)

For other countries within Latin America:  
 If you wish to expand or learn about the different control options of this unit, contact your nearest sales office, or visit [www.trane.com](http://www.trane.com) to find the dealer closest to you.

X39063367-01 



# XVI-Frequency inverter

VFD-TR200

TR200 Series plays an important role in the system to reduce the use of energy, extend service life of the AC motor, optimize speed control of the AC motor, enhance occupant comfort and reduce costs. They are available from factory or on site. Moreover, the TR200 Series drive support of open standard protocols makes them virtually compatible with all HVAC equipment and automatic construction systems. They may also be specifically requested for a particular project and be easily installed on the premises for new or recycling applications. Resources and flexibility of TR200 Series drives, along with a complete available range from 1½ to 1350 HP, makes it ideal for stand-alone controls or cooling towers, pumps and a variety of air handlers.

## Energy savings

Automatic Energy Optimization (AEO) – continuously monitors motor speed and load to maximize energy savings.  
Sleep mode – drive stops automatically whenever speed is different from the programmed levels, saving energy.

## Cost savings

Intelligent HVAC Controller – four autotune PID loops reduce costs by eliminating external controllers.  
HVAC protocols included – TR200 drivers are an essential part of the construction management system.

## Trouble-free operation

DC-link double reactors – without saturation to yield the best smooth performance of 5% AC online reactors.  
High environment automatic derating – drive can warn about overheating conditions while it is still running and controls temperature by reducing current output and conveyor frequency.

## Easy to install

Compact size – reduces footprint of the most popular sizes.  
Run-permissive circuit – guarantees shock absorbers and other auxiliary equipment are in proper conditions for drive operation.  
Real time clock – brings sophistication for control basic diagram performance in order to improve comfort and save energy.  
Plenum rated – all drives and options are UL-listed to be installed in air handling compartments.

## Easy to use

Simple parameters with common flexible preset menu default allow easy configuration and rapid confirmation.  
Trane Drive Utility software enables PC easy access for operation and problem-solving through the USB port included in the drive.  
Advanced firefighters override – offers emergency operation options for enhancing the safety of building inhabitants.

## Network communication

While providing single source solutions, Trane remains committed to open standard protocols to satisfy the needs of construction professionals. This has been reflected in TR200 Series “plug and play” communication capacities which reduce or eliminate the need for integration gateways.  
The TR200 support of the main communication protocols in construction enables integral communication with open standard protocols such as bACnet™, LonWorks™ and Modbus™, as well as with other automatic system protocols of popular construction. Factory-installed in Trane HVAC equipment, on site in the new equipment or readjusted for the existing equipment, the result is an easily

programmable drive with an easy-to-use package which simplifies installations, resulting in a lower total ownership cost.

## Stand Alone capacities

Control capacities included in TR200 Vfd simplify the architecture system by reducing or eliminating the need for an additional application controller. TR200 Smart logic controller offers power and flexibility to customer-program so as the drive can direct a wide range of control requirements. Use Trane Drive software to graphically define the 20-stage status controller and carry out the simple application control. The main PID circuit of the closed loop controller allows three feedback signals for the advanced control of stand alone applications. The TR200 has three independent and additional PID closed loop controllers to allow the drive to directly monitor and control other system equipment, cutting down cost.

## Bypass options

A higher level of system reliability will be obtained by selecting either of the two available bypass options. These options include a 24 VDC-switch mode power supply that eliminates contractor drops under conditions with a voltage lower than 70% of the rated voltage. The electromechanical bypass option provides a reliable bypass operation by means of advanced resources, such as a common on/off function in bypass mode, run enable signal, self-bypass operation and a selectable mode of bypass fire. The electromechanically controlled bypass option enables the access to bypass and drive operations from a keyboard button. This option allows all drive communications and the control capacity to be available during bypass operation in order to keep internal environmental quality.



# Frequency inverter

VFD-TR200

Tab. XVI-01 – Specifications

<b>Control power</b>	
Three-phase input voltage	200–240 or 380–460 or 525–600 VAC
Input voltage interval for full output	Rated $\pm 10\%$
Undervoltage trip point	164, 313 VAC, or 394 VAC
Overvoltage trip point	299, 538, or 690 (792 for 100 HP and over) VAC
Input Frequency	50 or 60 Hz, $\pm 2$ Hz
Displacement power factor	0.98 or higher for all speeds and loads
Total power factor	0.90 or higher at total load and motor rated speed

<b>Control output power</b>	
Output frequency	Selectable 0 to 120 Hz
Motor voltages	200, 208, 220, 230; 380, 400, 415, 440, 460; 550 or 575 VAC
100% of rated current	Direct output current
Output current limit setting	Adjustable at 110% of rated control
Current limit timer	0 to 60 seconds or limitless
Max. speed Adjustable	from minimum speed to 120 Hz
Min. speed Adjustable	from maximum speed to 0 Hz
Acceleration time	At 3600 seconds base speed
Deceleration time	At 3600 seconds from base speed
Separation torque time	0.0 to 0.5 seconds (1.6 times the current indicated on the name plate)
Initial voltage	0 to 10%
Output time of direct current	0 to 60 seconds
Output start of direct current	0 at maximum frequency
output current of direct current	0 at 50% motor rated current

<b>Protections</b>	
Low and high frequency warnings	0 at 120 Hz
High and low current warnings	0 at maximum current
Low and high reference warnings	-999,999 to 999,999
High and low feedback warnings	. -999,999 to 999,999
Grounding fault	protected
Motor stop	protected
Motor excessive temperature	Protected (motor preset temperature)
Motor condensation	Protected (motor preheating circuit)
Motor overload	Protected (programmable function)
Protection from vibration	Protected (automatic programming)

<b>Environmental limits</b>	
Efficiency	97% or over at total load and motor rated speed





# Frequency inverter

VFD-TR200

Tab. XVI-02 – Specifications (continuation)

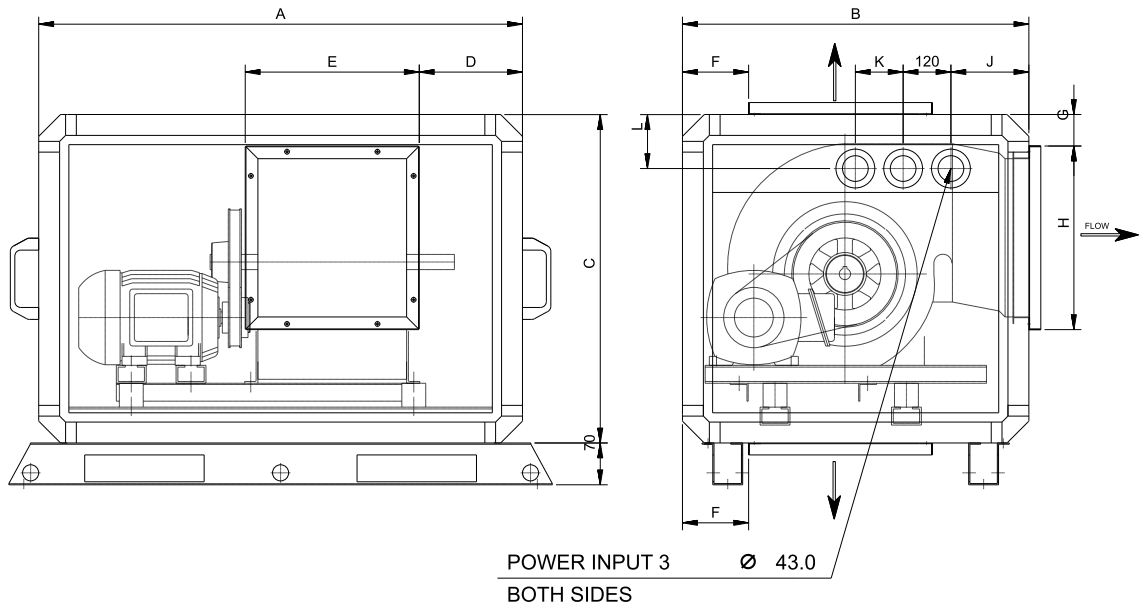
<b>Environmental Limits</b>	
Efficiency	97% or greater at full load and nominal motor speed
Operational ambient temperature	14°F to 113°F (-10°C to 45°C) structures A2–C2; 14°F to 104°F; (-10°C a 40°C) structures D1–E1
Humidity	< 95%, without condensation
Height: Maximum without rate reduction	3,300 feet (1,000 m)
Options/inverters compartment(s)	NEMA/UL Types 1 or 12; 3R optional

<b>Control connections</b>	
Tracking signal, analog input	2; selectable voltage or current, reverse or direct-acting
Programmable digital inputs	6 (2 can be used as digital outputs)
Programmable analog inputs	1; 0/4 to 20 mA
Programmable relay outputs	2 standard C 240 V AC, 2 A; 1 or 3 additional optional
Auxiliary voltage	.+24 V DC, maximum 200 mA

<b>Software</b>	
Action plan of lost speed	You may select a preset speed, maximum speed, last speed, halt, switch off or stop and drive
Delay for the action plan of lost speed	1 to 99 seconds
Adjustable delay for automatic restart	0 to 600 seconds
Automatic restart attempts	0 to 20 or limitless
Automatic restart delay	0 to 600 seconds between attempts
ON relay delay and OFF relay delay	0 to 600 seconds
Maximum number of preset speeds	16
Maximum number of frequency procedures	4
Procedure maximum width	100 Hz
Maximum number of acceleration rates	4
Delayed start	4
Maximum number of deceleration rates	0 to 120 seconds

# XVII-Dimensional data

Fig. XVII-01 – Horizontal, vertical and floor discharge equipment WD02 to WD08 – *Forward-curved and Backward-curved*



Tab. XVII-01 – Fan module dimensions WD02 to WD08 – *Forward-curved*

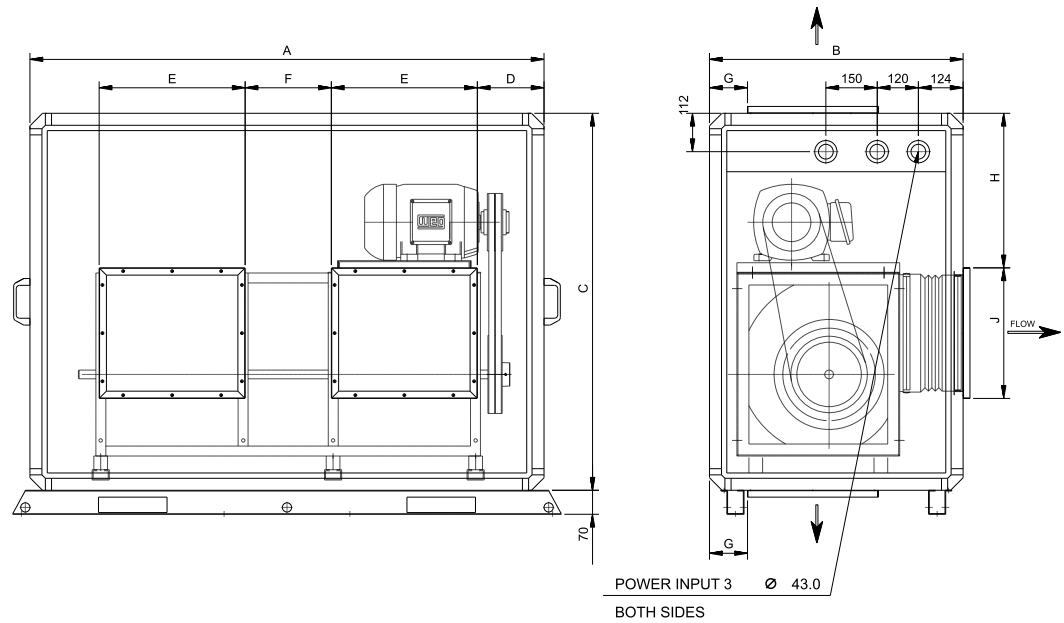
MOD.	A	B	C	D	E	F	G	H	J	K	L
2	810	530	550	173	289	111	54	305	98	120	97
3	810	580	660	111	338	111	138	305	98	120	97
4	860	580	660	189	366	111	89	329	98	120	97
6	1120	740	800	283	412	111	56	442	124	150	112
8	1430	740	800	458	513	111	56	442	124	150	112

Tab. XVII-02 - Fan module dimensions WD02 to WD08 - *Backward-curved*

MOD.	A	B	C	D	E	F	G	H	J	K	L
2	960	580	660	179	343	111	92	225	98	120	97
3	1000	660	660	179	378	111	110	245	98	120	97
4	1120	740	800	209	418	111	118	270	98	120	97
6	1300	850	900	279	518	111	68	325	124	150	112
8	1430	850	800	329	573	111	56	397	124	150	112

# Dimensional data

Fig. XVII-02 – Horizontal, vertical and floor discharge equipment WD10 to WD25 – Forward-curved y Backward-curved



Tab. XVII-03 – Dimensional data Fan module WD10 to WD25 – Forward-curved

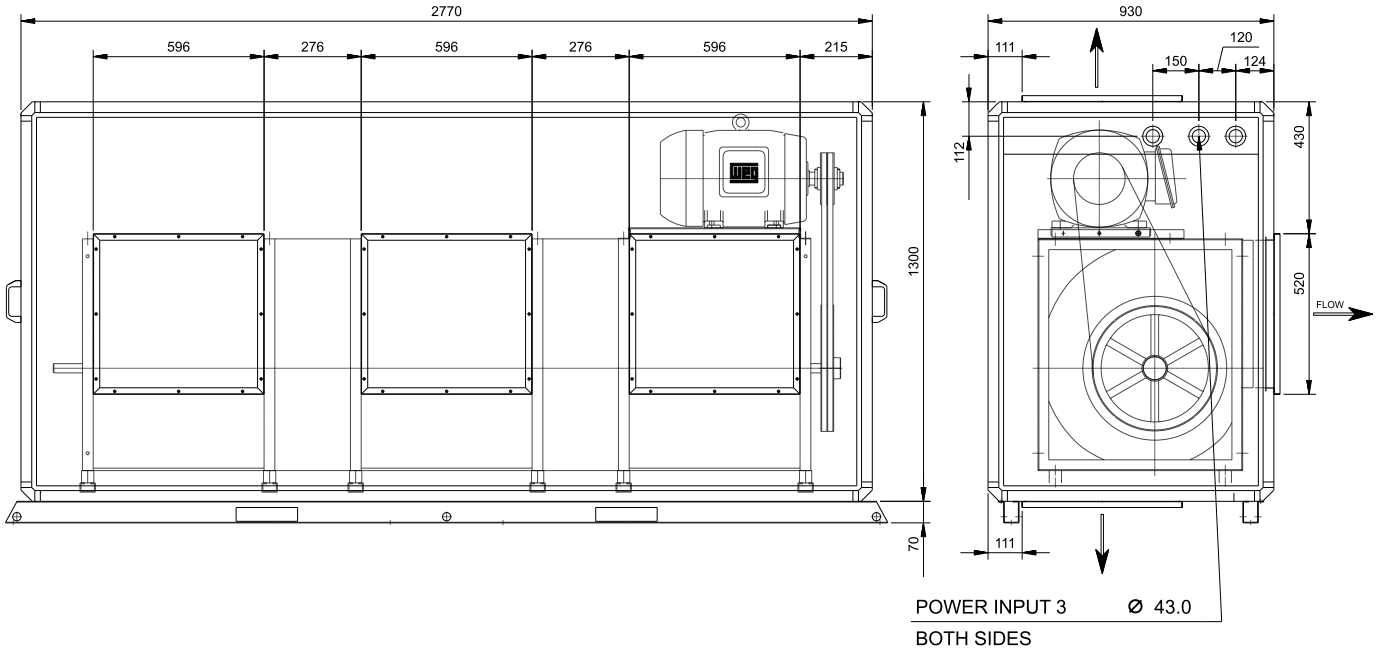
MOD.	A	B	C	D	E	F	G	H	J
10	1500	740	1100	216,5	426	215	111	450	381
12	1500	740	1100	167,5	412	341	111	362	442
14	1700	740	1100	166,5	513	341	111	362	442
17	2000	740	1100	316,5	513	341	111	362	442
21	2400	930	1100	239,5	596	417	111	230	520
25	2770	930	1100	409,5	596	417	111	230	520

Tab. XVII-04 - Dimensional data Fan module WD10 to WD25 - Backward-curved

MOD.	A	B	C	D	E	F	G	H	J
10	1500	740	1100	161,5	468	240	111	312	322
12	1700	740	1100	194	518	275	111	347	357
14	2000	800	1250	269	573	315	111	387	397
17	2000	800	1250	269	573	315	111	387	397
21	2400	930	1350	375,5	644	360	111	432	443
25	2770	930	1500	464,5	715	410	111	482	493
31	2770	930	1500	464,5	715	410	111	482	493
35	2770	1050	1600	359,5	795	460	111	532	543
40	2770	1050	1600	359,5	795	460	111	532	543

# Dimensional data

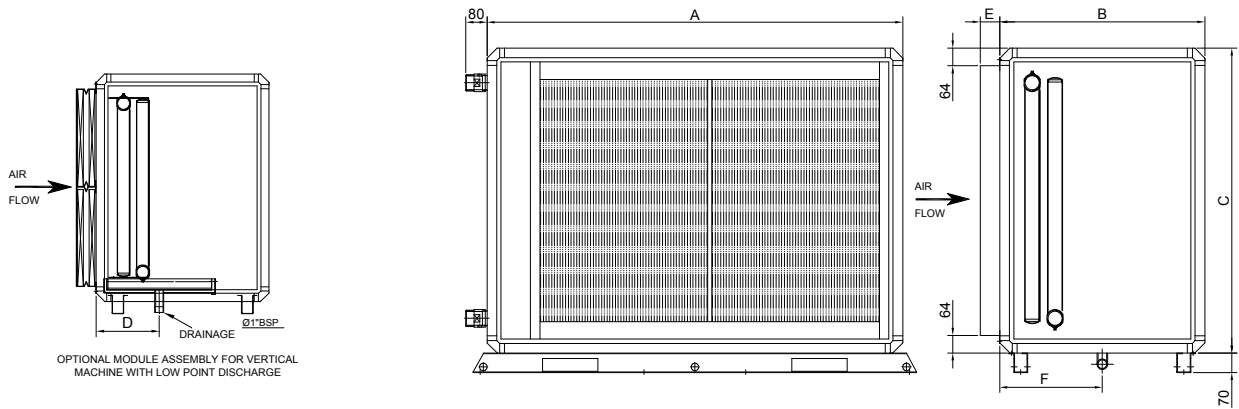
Fig. XVII-03 – Equipment with horizontal, vertical and floor discharge WL31 to WL40 – Backward-curved



# Dimensional data

## Coil

Fig. XVII-04 – Coil module dimensions 02 to 40 (WD – Forward-curved and WL – Backward-curved)



Tab. XVII-05 – Coil module dimensional data WD02 to WD40 – Forward-curved

MOD.	2	3	4	6	8	10	12	14	17	21	25	31	35	40
A	810	810	960	1120	1430	1500	1500	1700	2000	2400	2770	2770	2770	2770
B	530	580	580	740	740	740	740	740	740	930	930	930	930	930
C	550	660	660	800	800	1100	1100	1100	1100	1100	1100	1300	1500	1680
D	205	205	205	232	232	232	232	232	232	232	232	232	232	232

Tab. XVII-06 – Coil module dimensional data WL02 to WL40 – Forward-curved

MOD.	2	3	4	6	8	10	12	14	17	21	25	31	35	40
A	960	1000	1120	1300	1430	1500	1700	2000	2000	2400	2770	2770	2770	2770
B	580	660	740	850	850	740	740	800	800	930	930	930	1050	1050
C	550	660	660	800	800	1100	1100	1100	1100	1100	1100	1300	1500	1680
D	205	205	232	232	232	232	232	232	232	232	232	232	232	232

Tab. XVII-07 – Filtering stages

MODEL	FILTERING STAGES	E
02 TO 40 FORWARD-CURVED AND BACKWARD-CURVED	01 STAGE 1"	36
	02 STAGES 1"+1"	86
	01 STAGE 2"	61
	01 STAGE 3"	93
	02 STAGES 1"+2"	110
	02 STAGES 1"+3"	143

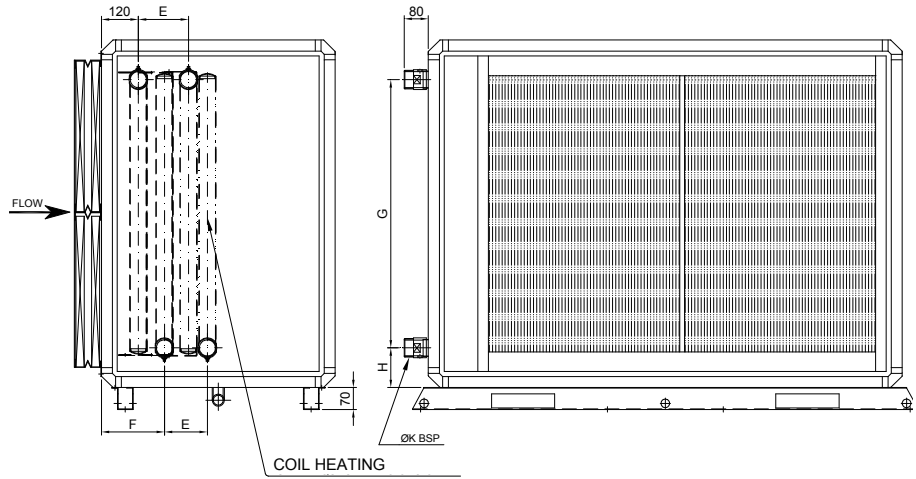
Tab. XVII-08 – Drainage position Assembly of horizontal/vertical discharge, vertical and horizontal discharge

MODEL	N° of Rows	Fan	F
02-21	03/04	Forward-curved and Backward-curved	217
25-40	06/08		235
02		Forward-curved	265
02		Backward-curved	290
03/04		Forward-curved	
25-40		Forward-curved and Backward-curved	
06-21		Forward-curved	272
03-21		Backward-curved	

# Dimensional data

## Coil

Fig. XVII-05 – Measures for hydraulics positioning – WL02 to WL40



Tab. XVII-09 – Dimensional data of hydraulics positions – WL02 to WL40

MOD.	2	3	4	6	8	10	12	14	17	21	25	31	35	40
A	810	810	960	1120	1430	1500	1500	1700	2000	2400	2770	2770	2770	2770
B	530	580	580	660	660	740	740	740	740	930	930	930	930	930
C	550	660	660	800	800	1100	1100	1100	1100	1100	1100	1300	1500	1680
D	205	205	205	232	232	232	232	232	232	232	232	232	232	232

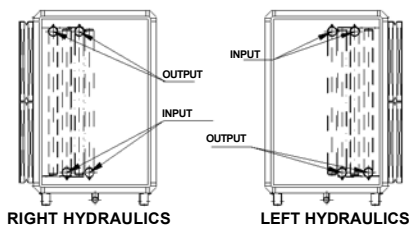
Tab. XVII-10 – Dimensional data of hydraulics positions – Coil tube 3/8" – WL02 to WL40

MOD.	2	3	4	6	8	10	12	14	17	21
G	326	478	478	580	573	878	878	878	869	869
H	112	91	91	110	113.5	111	111	111	115.5	115.5
ØK	1.1/2"	1.1/2"	1.1/2"	1.1/2"	2"	2"	2"	2"	2.1/2"	2.1/2"

Tab. XVII-11 – Dimensional data of hydraulics positions – Coil tube 1/2" – WL02 to WL40

MOD.	2	3	4	6	8	10	12	14	17	21	25	31	35	40	40
G	348	475	475	602	595	849	849	849	840.5	840.5	904	1083.5	1274	1464.5	2770
H	101	92.5	92.5	99	102.5	125.5	125.5	125.5	130	130	98	108	113	108	930
ØK	1.1/2"	1.1/2"	1.1/2"	1.1/2"	2"	2"	2"	2"	2.1/2"	2.1/2"	2.1/2"	3"	3"	3"	1680

Fig. XVII-06 – Hydraulics side

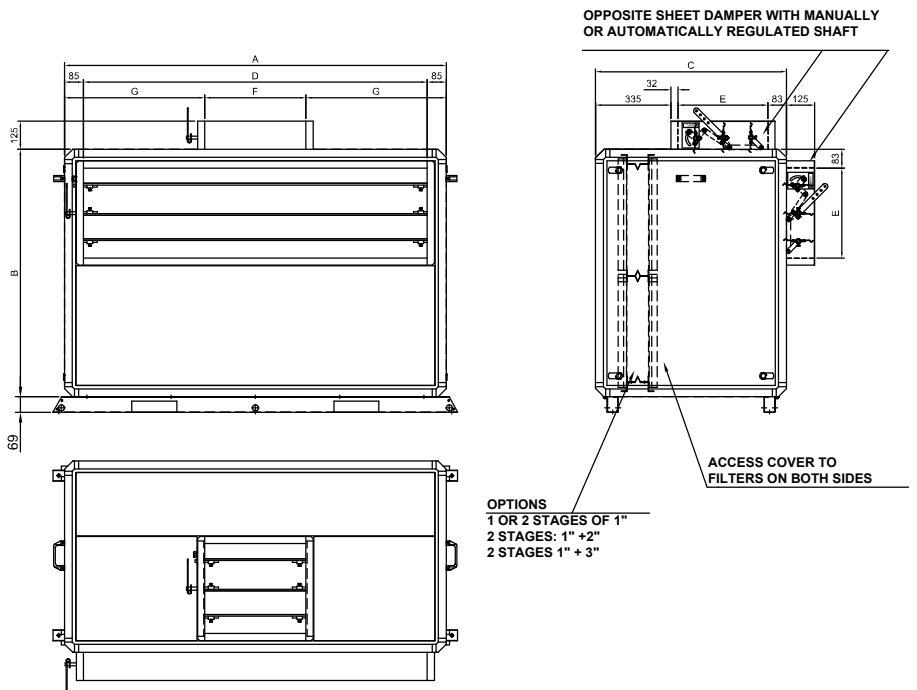


Tab. XVII-12 – Dimensional data of hydraulics positions

COIL TUBE 3/8"					COIL TUBE 1/2"						
MOD.	ROWS	3	4	6	8	MOD.	ROWS	3	4	6	8
2 to 6	E	94	116	160	204	2 to 6	E	105	132.5	187.5	242.5
		120	142	186	230			131	158.5	213.5	268.5
		154	176	220	264			165	192.5	247.5	302.5
8 to 14	F	164	186	230	274	31 to 40	F	165	192.5	247.5	302.5
		180	186	230	274	2 to 6		175	202.5	257.5	312.5
17/21	F	202.5	202.5	230	274	8 to 14	175	202.5	257.5	312.5	
						17 to 25	202.5	202.5	257.5	312.5	
						31 to 40	202.5	202.5	257.5	312.5	

# Dimensional data Standard mixing box

Fig. XVII-07 – Mixing box measures of modules 02 to 40 – (1 or 2 stages of 1", 2 stages: 1"+2", 2 stages: 1"+3")



Tab. XVII-13 – Mixing box module dimensions from WD02 to WD40 – (*Forward-curved*)

MODEL	A	B	C	D	E	F	G
02	810	550	600	640	150	200	305
03	810	660	650	640	200	200	305
04	960	660	650	790	200	200	380
06	1120	800	700	950	250	300	410
08	1430	800	750	1260	300	300	565
10	1500	1100	800	1330	350	350	575
12	1500	1100	850	1330	400	400	550
14	1700	1100	850	1530	400	450	625
17	2000	1100	850	1830	400	450	775
21	2400	1100	850	2230	400	550	925
25	2770	1100	850	2600	400	650	1060
31	2770	1300	950	2600	500	700	1035
35	2770	1500	1000	2600	550	750	1010
40	2770	1680	1050	2600	600	800	985

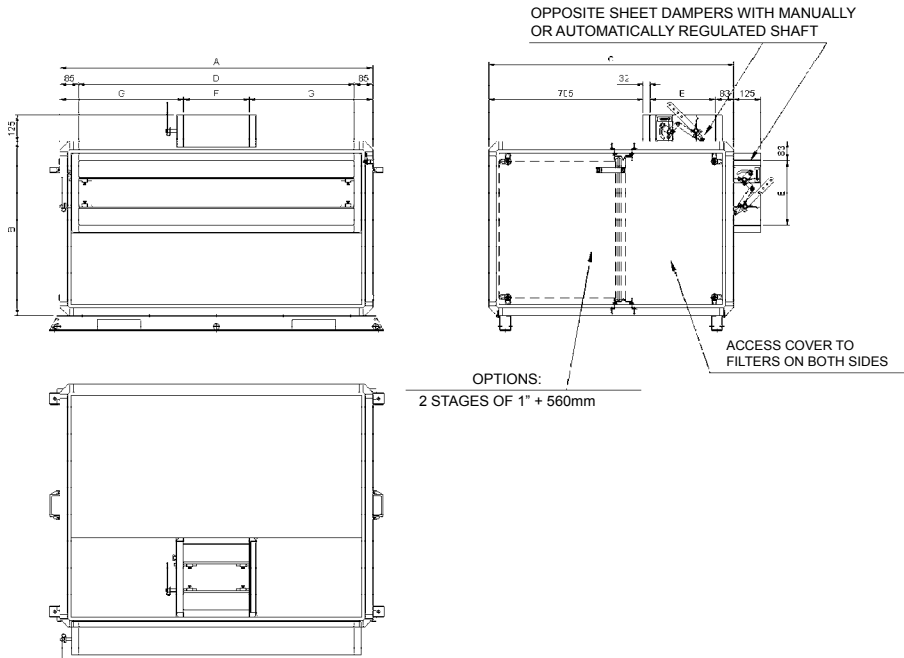
Tab. XVII-14 – Mixing box module dimensions from WL02 to WL40 – (*Backward-curved*)

MODEL	A	B	C	D	E	F	G
02	960	550	600	790	150	200	380
03	1000	660	650	830	200	200	400
04	1120	660	650	950	200	200	460
06	1300	800	700	1130	250	300	500
08	1430	800	750	1260	300	300	565
10	1500	1100	800	1330	350	350	575
12	1700	1100	850	1530	400	450	625
14	2000	1100	850	1830	400	450	775
17	2000	1100	850	1830	400	450	775
21	2400	1100	850	2230	400	550	925
25	2770	1100	850	2600	400	650	1060
31	2770	1300	950	2600	500	700	1035
35	2770	1500	1000	2600	550	750	1010
40	2770	1680	1050	2600	600	800	985

# Dimensional data

## Standard mixing box with bag filter

Fig. XVII-08 – Mixing box measures of modules 02 to 40 – (2 stages of 1" + bag 560 mm)



Tab. XVII-15 – Mixing box module dimensions from WD02 to WD40 – (*Forward-curved*)

MODEL	A	B	C	D	E	F	G
02	810	550	970	640	150	200	305
03	810	660	1020	640	200	200	305
04	960	660	1020	790	200	200	380
06	1120	800	1070	950	250	300	410
08	1430	800	1120	1260	300	300	565
10	1500	1100	1200	1330	350	350	575
12	1500	1100	1250	1330	400	400	550
14	1700	1100	1250	1530	400	450	625
17	2000	1100	1250	1830	400	450	775
21	2400	1100	1250	2230	400	550	925
25	2770	1100	1250	2600	400	650	1060
31	2770	1300	1380	2600	500	700	1035
35	2770	1500	1430	2600	550	750	1010
40	2770	1680	1520	2600	600	800	985

Tab. XVII-16 – Mixing box module dimensions from WL02 to WL40 – (*Backward-curved*)

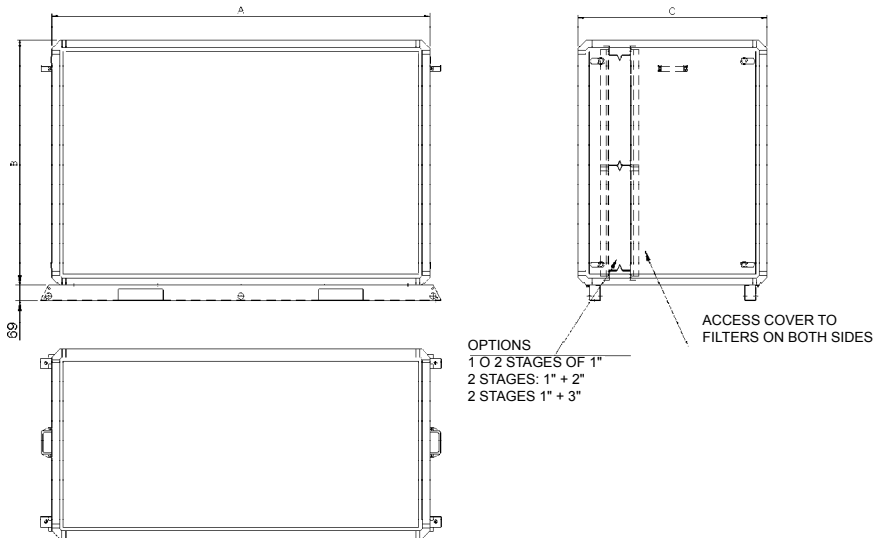
MODEL	A	B	C	D	E	F	G
02	960	550	970	790	150	200	380
03	1000	660	1020	830	200	200	400
04	1120	660	1020	950	200	200	460
06	1300	800	1070	1130	250	300	500
08	1430	800	1120	1260	300	300	565
10	1500	1100	1200	1330	350	350	575
12	1700	1100	1250	1530	400	450	625
14	2000	1100	1250	1830	400	450	775
17	2000	1100	1250	1830	400	450	775
21	2400	1100	1250	2230	400	550	925
25	2770	1100	1250	2600	400	650	1060
31	2770	1300	1380	2600	500	700	1035
35	2770	1500	1430	2600	550	750	1010
40	2770	1680	1520	2600	600	800	985



# Dimensional data

## Mixing box without dampers

Fig. XVII-09 – Mixing box measures without dampers of modules 02 to 40 – (1 or 2 stages of 1", 2 stages: 1"+2", 2 stages: 1"+3")



Tab. XVII-17 – Mixing box module dimensions from WD02 to WD40 – (Forward-curved)

MODEL	A	B	C
02	810	550	600
03	810	660	650
04	960	660	650
06	1120	800	700
08	1430	800	750
10	1500	1100	800
12	1500	1100	850
14	1700	1100	850
17	2000	1100	850
21	2400	1100	850
25	2770	1100	850
31	2770	1300	950
35	2770	1500	1000
40	2770	1680	1050

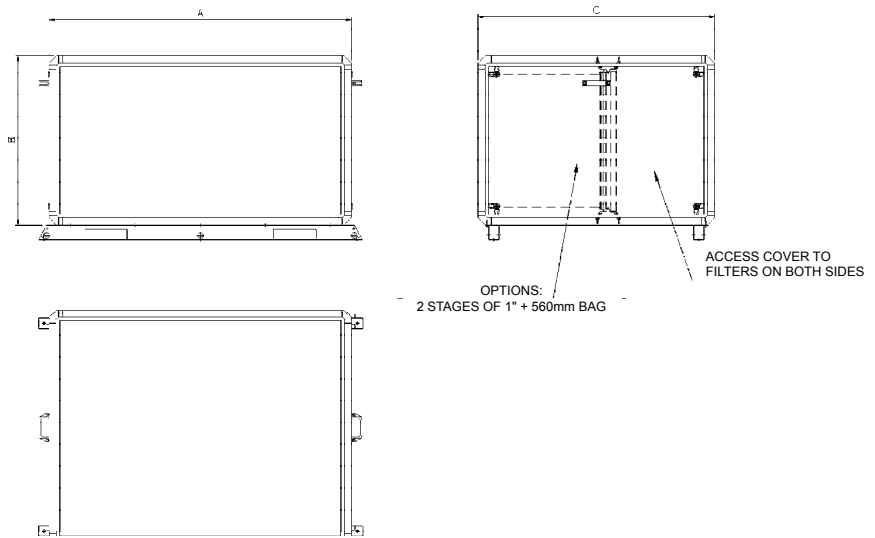
Tab. XVII-18 – Mixing box module dimensions from WL02 to WL40 – (Backward-curved)

MODEL	A	B	C
02	960	550	600
03	1000	660	650
04	1120	660	650
06	1300	800	700
08	1430	800	750
10	1500	1100	800
12	1700	1100	850
14	2000	1100	850
17	2000	1100	850
21	2400	1100	850
25	2770	1100	850
31	2770	1300	950
35	2770	1500	1000
40	2770	1680	1050

# Dimensional data

## Mixing box without bag filter

Fig. XVII-10 – Mixing box without dampers dimensions of modules 02 to 40 (2 stages: 1"+Bag 560mm)



Tab. XVII-19 – Mixing box module dimensions from 02 to 40 – module WD (*Forward-curved*)

DOBLE	A	B	C
02	810	550	970
03	810	660	1020
04	960	660	1020
06	1120	800	1070
08	1430	800	1120
10	1500	1100	1200
12	1500	1100	1250
14	1700	1100	1250
17	2000	1100	1250
21	2400	1100	1250
25	2770	1100	1250
31	2770	1300	1380
35	2770	1500	1430
40	2770	1680	1520

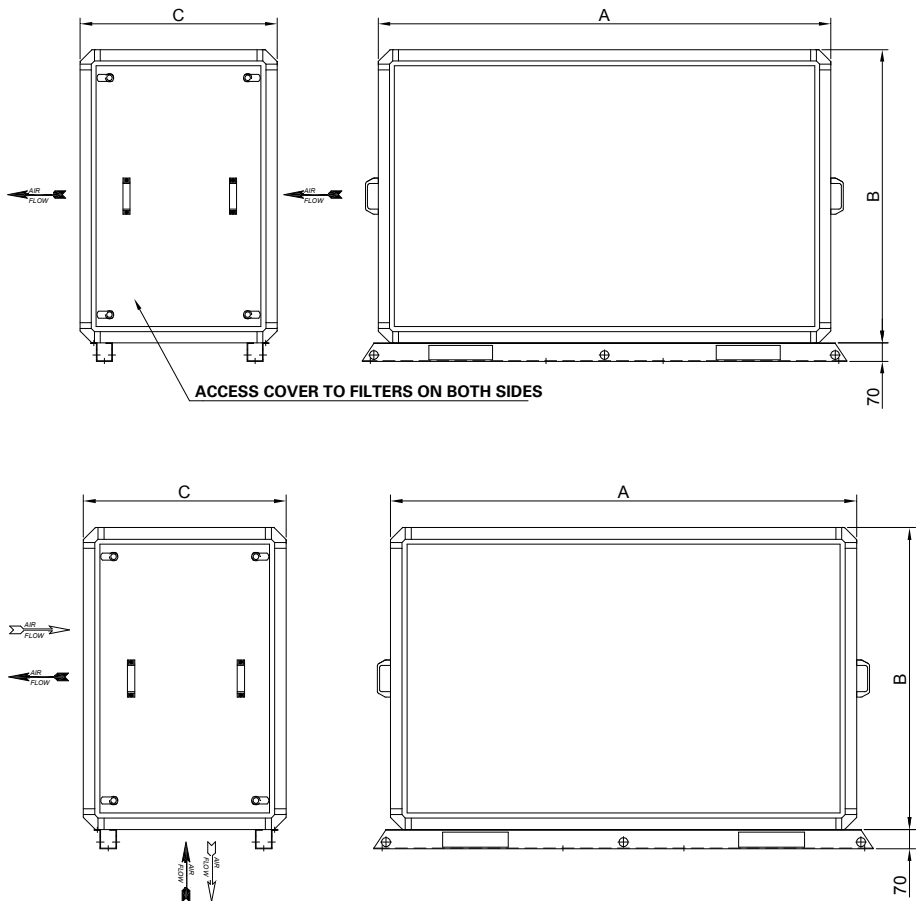
Tab. XVII-20 – Mixing box module dimensions from 02 to 40 – module WL (*Backward-curved*)

DOBLE	A	B	C
02	960	550	970
03	1000	660	1020
04	1120	660	1020
06	1300	800	1070
08	1430	800	1120
10	1500	1100	1200
12	1700	1100	1250
14	2000	1100	1250
17	2000	1100	1250
21	2400	1100	1250
25	2770	1100	1250
31	2770	1300	1380
35	2770	1500	1430
40	2770	1680	1520

# Dimensional data

Empty

Fig. XVII-11 – Empty module dimensions from 02 to 40 (WD and WL)



Tab. XVII-21 – Empty module dimensions from WD02 to WD40 (*Forward-curved*)

MOD.	2	3	4	6	8	10	12	14	17	21	25	31	35	40
A	810	810	960	1120	1430	1500	1500	1700	2000	2400	2770	2770	2770	2770
B	550	660	660	800	800	1100	1100	1100	1100	1100	1100	1300	1300	1300
C	530	580	580	740	740	740	740	740	740	930	930	930	930	930

Tab. XVII-22 – Empty module dimensions from WL02 to WL40 (*Backward-curved*)

MOD.	2	3	4	6	8	10	12	14	17	21	25	31	35	40
A	960	1000	1120	1300	1430	1500	1700	2000	2000	2400	2770	2770	2770	2770
B	660	660	800	900	800	1100	1100	1250	1250	1350	1500	1500	1600	1600
C	580	660	740	850	850	740	740	800	800	930	930	930	1050	1050

# Dimensional data

## Return filter

Fig. XVII-12 – Return filter module measures WD/WL – F8 bag + 1" or only F8 bag (02 to 08)  
*Forward-curved and Backward-curved*

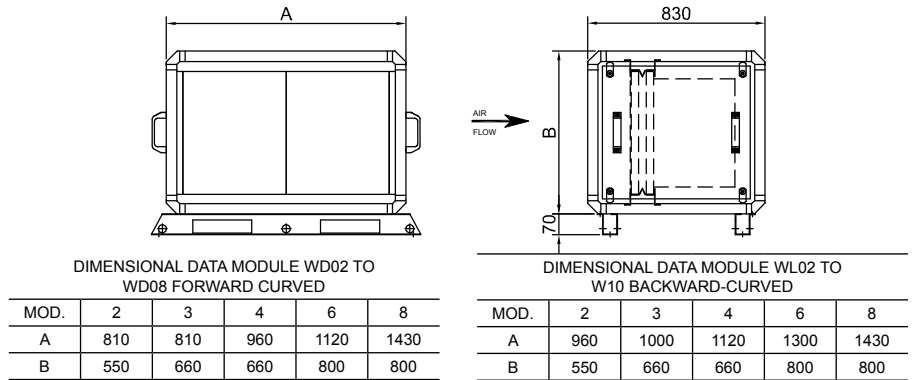
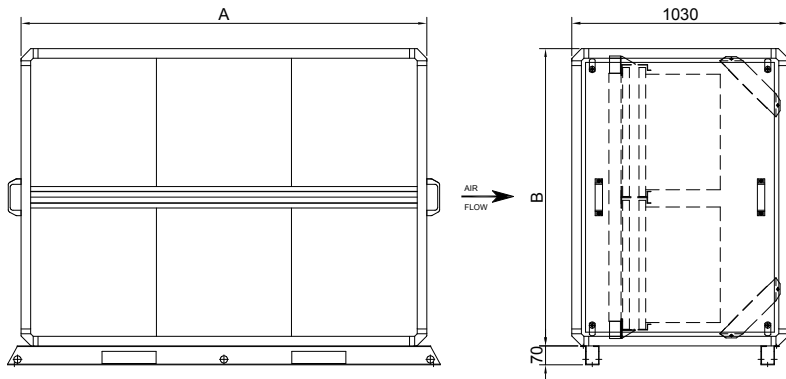


Fig. XVII-13 – Return filter module measures WD/WL – F8 bag + 1" or only F8 bag (10 to 40)  
*Forward-curved and Backward-curved*



Tab. XVII-23 – Return filter module dimensions from WD10 to WD40 (*Forward-curved*)

MOD.	10	12	14	17	21	25	31	35	40
A	1500	1500	1700	2000	2400	2770	2770	2770	2770
B	1100	1100	1100	1100	1100	1100	1300	1500	1680

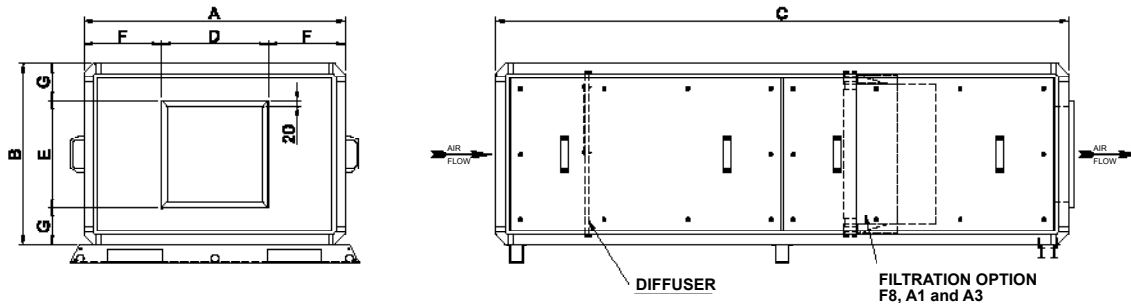
Tab. XVII-24 – Return filter module dimensions from WL10 to WL40 (*Backward-curved*)

MOD.	10	12	14	17	21	25	31	35	40
A	1500	1700	2000	2000	2400	2770	2770	2770	2770
B	1100	1100	1100	1100	1100	1100	1300	1500	1680

# Dimensional data

## Final filter (WL)

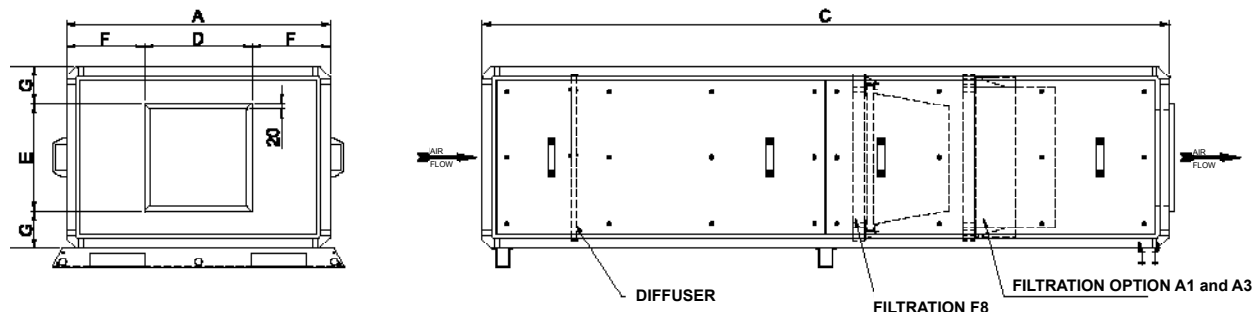
Fig. XVII-14 – Final filter module measures 1 filtering stage WL02 to WL40



Tab. XVII-25 – Final filter module dimensions 1 filtering stage WL02 to WL40

MOD.	2	3	4	6	8	10	12	14	17	21	25	31	35	40
A	960	1000	1120	1300	1430	1500	1700	2000	2000	2400	2770	2770	2770	2770
B	660	660	800	900	800	1100	1100	1250	1250	1350	1500	1500	1600	1600
C	2100	2100	2100	2100	2100	2100	2100	2100	2450	2450	2450	2450	2450	2450
D	390	390	640	740	740	740	840	890	1040	1040	1240	1240	1540	1540
E	390	300	390	390	390	440	490	540	540	640	790	790	790	790
F	295	305	290	280	345	380	430	555	480	660	765	765	615	615
G	135	135	205	255	205	330	300	355	355	355	355	355	405	405

Fig. XVII-15 – Final filter module measures 2 filtering stages WL02 to WL40



Tab. XVII-26 – Final filter module dimensions 2 filtering stages WL02 to WL40

MOD.	2	3	4	6	8	10	12	14	17	21	25	31	35	40
A	960	1000	1120	1300	1430	1500	1700	2000	2000	2400	2770	2770	2770	2770
B	660	660	600	900	900	1100	1100	1250	1250	1350	1500	1500	1600	1600
C	2500	2500	2500	2500	2500	2500	2500	2500	2850	2850	2850	2850	2850	2850
D	390	390	640	740	740	740	840	890	1040	1040	1240	1240	1640	1640
E	390	390	390	390	390	440	490	540	540	640	790	790	790	790
F	285	305	290	280	345	380	430	555	430	660	765	765	615	615
G	135	135	205	255	205	330	305	355	355	355	355	355	405	405

# Dimensional data

## Assembly

Fig. XVII-16 – Horizontal assembly 02 to 40 (WD/WL)

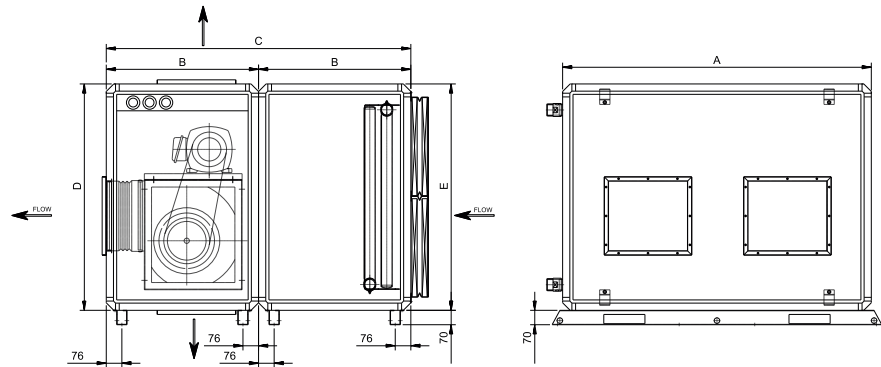
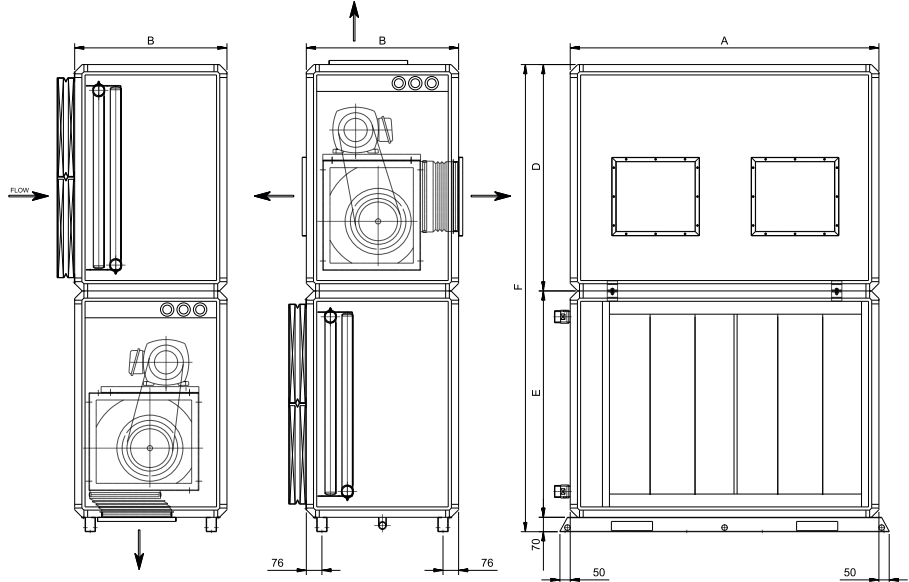


Fig. XVII-17 – Vertical assembly 02 to 40 – WD/WL



Tab. XVII-27 – Assembly dimensional data of fan and coil modules WD02 to WD40

Model	02	03	04	06	08	10	12	14	17	21	25	31	35	40
A	810	810	960	1120	1430	1500	1500	1700	2000	2400	2770	2770	2770	2770
B	530	580	580	740	740	740	740	740	740	930	930	930	930	930
C	1145	1245	1245	1565	1565	1565	1565	1565	1565	1945	1945	1945	1945	1945
D	550	660	660	800	800	1100	1100	1100	1100	1100	1100	1300	1300	1300
E	550	660	660	800	800	1100	1100	1100	1100	1100	1100	1300	1500	1680
F	1170	1390	1390	1670	1670	2270	2270	2270	2270	2270	2270	2670	2870	3050

Tab. XVII-28 – Assembly dimensional data of fan and coil modules WL02 to WL40

Model	02	03	04	06	08	10	12	14	17	21	25	31	35	40
A	960	1000	1120	1300	1430	1500	1700	2000	2000	2400	2770	2770	2770	2770
B	580	660	740	850	850	740	740	800	800	930	930	930	1050	1050
C	1160	1320	1480	1700	1700	1480	1480	1600	1600	1860	1860	1860	2100	2100
D	660	660	800	900	800	1100	1100	1250	1250	1350	1500	1500	1600	1600
E	550	660	660	800	800	1100	1100	1100	1100	1100	1100	1300	1500	1680
F	1280	1390	1530	1770	1670	2270	2270	2420	2420	2520	2670	2870	3170	3350

# Dimensional data

## Assembly

Fig. XVII-18 – Horizontal assembly 02 to 40 – WD/WL

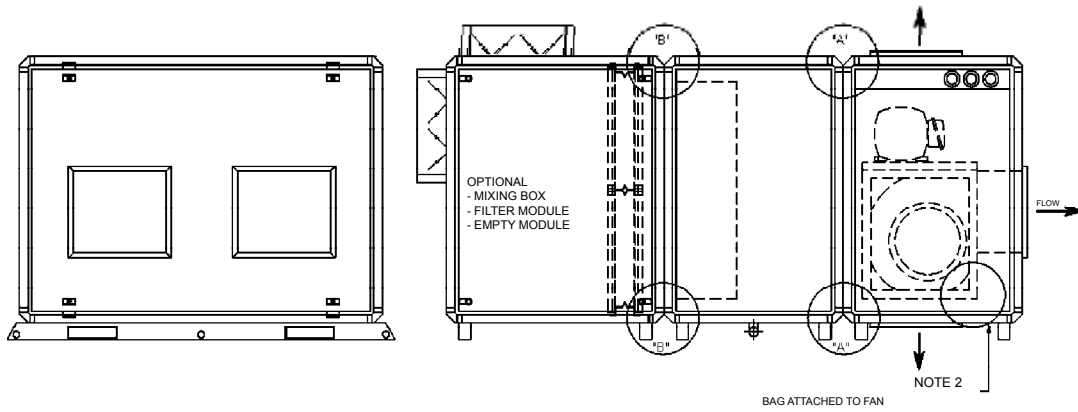
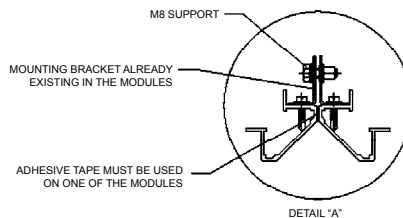
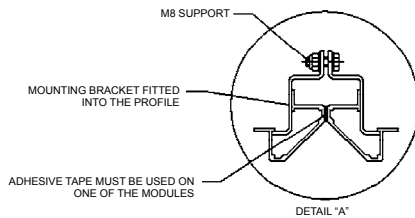
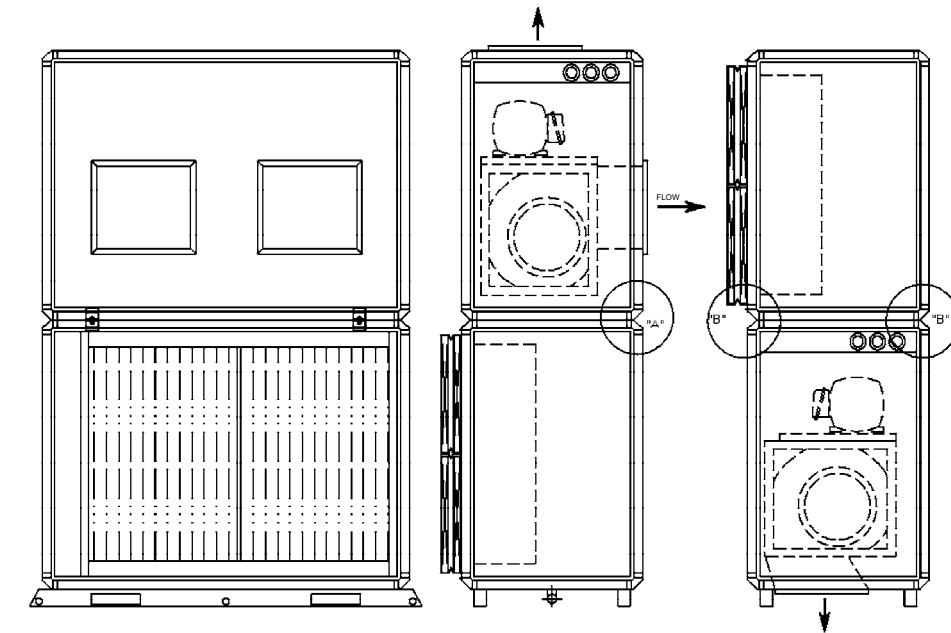


Fig. XVII-19 – Vertical assembly 02 to 40 – WD/WL



NOTES:

- (1) ASSEMBLY OF VERTICAL MACHINE WITH GROUNDING AND MIXING BOX IS NOT POSSIBLE.
- (2) FOR MODULE ASSEMBLY, REMOVE THE PLASTIC BAG WITH THE MOUNTING KIT INCLUDED IN THE FAN MODULE.
- (3) FIGURES 44, 45, 46 AND 47 ARE FOR REFERENCE ONLY AND SHOW THE MODULE MOUNTING DETAILS. SOME LAYOUTS ARE NOT AVAILABLE FOR CERTAIN MODELS.

# Dimensional data

# Assembly

Fig. XVII-20 – Horizontal assembly 02 to 40 – WD/WL

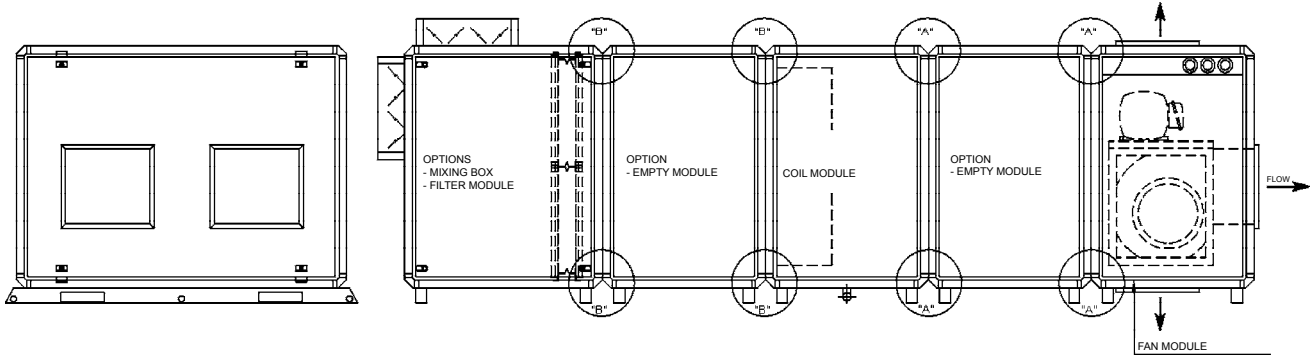


Fig. XVII-21 – Horizontal/vertical assembly 02 to 40 – WL (Only by design special requiring)

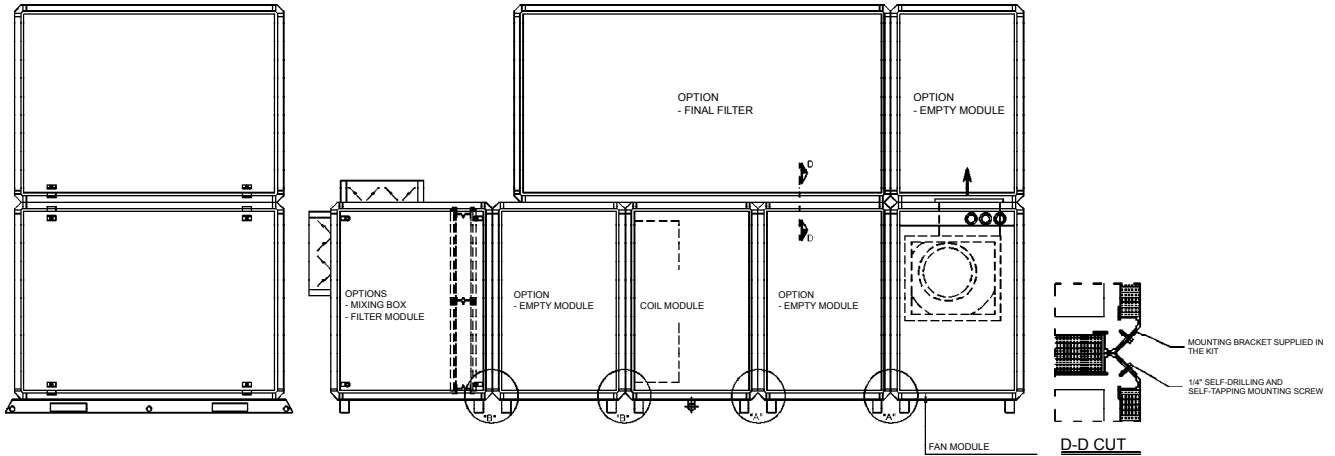
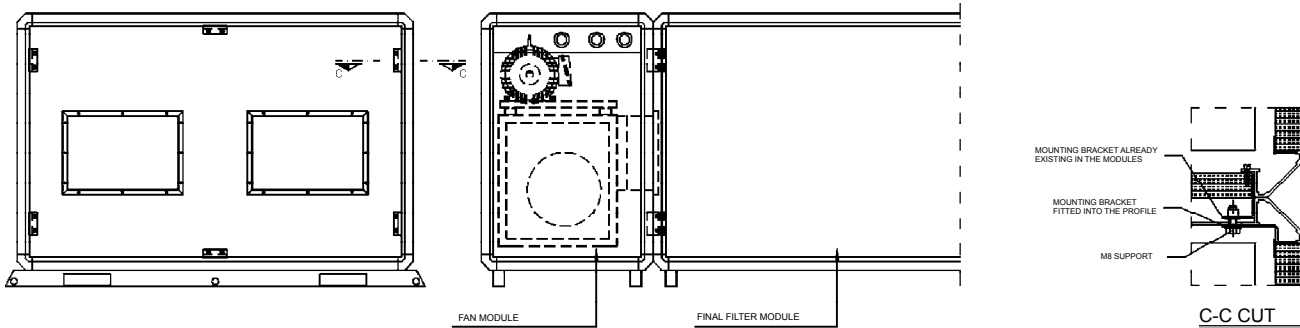


Fig. XVII-22 – Horizontal assembly with Final Filter





## XVIII - Mechanical specifications

### The Wave *Doble* is totally modular.

It has seven modules:

- Coil module
  - Fan module
  - Standard mixing box module\*
  - Mixing box without dampers module\*
  - Return filter module\*
  - Final filter module\*
  - Empty module\*
- \*Optional equipment

### Coil module

This module consists of a filter, a cooling coil and/or heating coil and a drain pan. As an option, it may be supplied with heating resistors.

This module has two frames for the placement of up to two filters of 1" each.

### Fan module

Consisting of a forward-curved blades fan, backward-curved blades fan, modules with backward-curved fans (optional), driving motor, fixed or adjustable driving pulley, fan pulley and belts. The fan module has several options of air discharge. It has a canvas neck with a PVC coating to facilitate the process of fixing the inlet ducts of external air and return air. Neck widths may range from 120 to 370 mm, depending on the model.

### Mixing box module

Made of galvanized sheet steel panels, stamped and screwed together, internally coated with expanded polyurethane. It can be provided or not with a damper – optional. The mixing box module is always mounted before the coil module. The mixing box is a box where inlet ducts of external air and return air can be attached. The mixing box module has galvanized sheet steel dampers, with opposed sheets and a manual or automatic drive shaft through the damper for air regulation.

When the *WAVE Doble* is mounted with a mixing box, filters are incorporated to the box. There are filter access covers on both sides of the box.

### Final Module Filter

This module is an option for installations that require a better air treatment. Positioned after the fan module and the module serpentine this option makes it possible to use fine filter (type pouch) and Absolute (H. E. P. A).

Filters of this type should be allocated in this module because the depth of the filters do not allow to be used in another module.

### Return filter module

To the treatment of the return air there is this option of cabinet. Ditto the module final filter, the return module is used to receive filters with bigger depth (Bag F8).

### Empty module

Cabinet with the same characteristics of other modules (see descriptive of cabinet). It is an empty module that is used for installation of accessories in the field (attenuator noise, humidifier, electric heater, etc).

### Cabinet

Made of galvanized sheet steel panels, painted graphite. Internal insulation with expanded polyurethane of an average density of 38 kg/m<sup>3</sup>, and 25mm thick, provide *WAVE Doble* an outstanding thermal efficiency with low noise levels.

### Condensate pan

Made of galvanized sheet steel and with EPS and polyethylene thermal insulation. Designed to prevent any water accumulation, thereby avoiding fungal and bacterial growth, in accordance with IAQ standards – "Indoor Air Quality" by ASHRAE. Subjected to the same paint treatment as the cabinet.

### Air filter

Disposable glass wool filter, grade ABNT G3. Optionally, other types may be available.

### Fans

Doble-inlet centrifugal fans with forward-curved blades (standard) or

backward-curved blades (optional). Made of galvanized sheet steel with statically and dynamically balanced rotors, supported on self-aligning bearings with reinforced ball-bearings. Fan drive performed via pulleys and belts. The driving pulley is adjustable and the fan pulley is fixed.

Fans are supported on galvanized sheet steel rails, "U" profile.

### Coils

Highly efficient TRANE Wavy-3B coils. The coil is made of seamless copper tubes. Copper tubes are mechanically expanded in the aluminium fins so as to obtain a perfect contact between fins and tubes. Collectors are made of seamless copper tubes and welded in the tubes. Connections are made of steel, and screwed and welded on the inlet and outlet sides. The assembly is framed by galvanized sheet steel headbends, forming a rigid, single structure. Coils are subjected to explosion proofs and leakage tests. Optionally, hydraulics may be on the left or the right side.

### Heating coil

Operates with hot water. Made of a tube of 1/2" diameter and mounted with 120 fins on each foot. It is made with 2 rows.

### Cooling coil

In order to get an optimized selection of the cooling coil, there are two available options when choosing the copper tube diameter: 1/2" and 3/8". Coils manufactured with tubes of 1/2" rated diameter can be assembled with 120 or 144 fins per foot. A coil manufactured with a tube of 3/8" diameter is assembled with 144 fins per foot.

The cooling coil may be made of 4, 6 or 8 rows and several circuit options.

The cooling coil can operate with water or with an ethylene glycol solution.

### Selection program

The selection program in *Wave Doble* climate controls is available in TOPSS, an "easy-to-operate" program running in a Windows environment.

# Mechanical specifications

## Optional equipment

### Start-up electrical board

This board is mounted in a thermoplastic box, with a wide powerband, compact dimensions, IP52 protection rate and technical specifications in accordance with the IEC 947-4 standard.

The electric board has a remote installation and it is defined on site by the client; it may be close or not to the equipment.

Refer to electric board dimensions

### Controllers

As a control system, the *Wave Doble* has the following options:

#### - Trane Connect

Equipment with TraneConnect concept is provided with a basically configured UC400 controller. But they can also be completely customized by the BAS Trane team or even you can indicate the model number and your preferences and the equipment may leave factory with the desired configuration.

### Packaging

Special packaging in wooden box

### 2-3 way valves

For the control of water or ethylene glycol flow through the coil.

Provided by team BAS: Building automation system of Trane

### Fan air differential pressure switch

It controls fan air flow.

Dirty filter differential pressure switch

It is used to open damper, causing a static pressure drop in the system. Provided by team BAS: Building automation system of Trane

### Capacitor

Used for power factor correction

### Electrical heating

It consists of electrical resistors, SMOOTH TUBULAR type. It is protected by a safety thermostat with automatic reset.

### Damper actuator

Actuators are used to carry out damper control

**Frequency inverter** – The VFD in TR200 series by Trane are specially designed for HVAC applications. Provided by team BAS: Building automation system of Trane.

**Stainless steel pan** – Condensate stainless steel pan offers the stainless steel high durability in addition to an enhanced air quality due to total absence of oxidation.

### Special – Modules exposed to atmospheric agents

Trane offers a special option to the market for modules exposed to atmospheric agents. This project consists of modules prepared to operate exposed to atmospheric agents, with no need for engine room installation. These modules dimensions are the same as the WD and WL series models and keep the same selected configurations. The difference in these modules consist of the development of special fittings to let them operate exposed to atmospheric agents.

These modules are made with their own reference material. These modules sale will be possible after a prior consultation with Trane commercial area for the request of special products.

### Motors – IP55

The letter W, between IP letters and the indicative figures of protection level, indicates that the motor is protected against atmospheric agents. EX.: IPW55 indicates a motor with an IP55 protection level against dust and water, as well as against atmospheric agents (rain, sea breeze, etc.); these motors are also called naval use motors.

### IP55 Premium Efficiency

Premium Efficiency motors are highly efficient and provide the highest market performance, even beating Plus motors, which are positioned above the required performance levels, specified in ABNT

NBR 17094-1 standard and subject to the provisions of Decree 553 of the Energy Conservation Act 10.295, in force since January, 2010. Premium Efficiency line is focused on operating with high efficiency, and this results in optimum customer benefit and productivity, enhanced cost/benefit, low levels of noise and vibration, easy maintenance while reducing consumption of electrical energy, preserving the environment. 90% of an electric motor operating costs on average, over its life service, result from the consumption of electrical energy, while 10% relate to purchase, installation and maintenance costs.

### Fans – Epoxy powder paint

Electrostatic powder paint has excellent mechanical properties and provides a good resistance to aggressive atmosphere (industry, marine moisture, etc.), by reducing corrosion and offering a longer service life to the fan. It also gives a low roughness surface, which simplifies the fan cleaning to fulfill the requirements for clean internal air.

### Elastic coupling

It makes maintenance easier for those units installed in small spaces which use duplex or triplex-type fans. In these cases, the total length of the single-piece shaft is very long. With the elastic coupling, the shaft is divided in two or three parts, which allows an easy removal without removing the unit from where it is installed or completely dismantling the fan assembly. Additionally, a better load distribution on bearings is obtained, since it allows to use two bearings for each housing/rotor section instead of only three bearings in the entire assembly. Therefore, potential misalignments, shock loads and vibrations are better absorbed.

### Cast iron bearings

They are required every time elastic alignment is applied, so as to ensure perfect alignment of shafts divided in two or three parts.

# XIX-Weight table

Forward-Curved

Tab. XIX-01 – Weight of Modules Wave Doble WD02 to WD40 (Forward-curved)

FAN MODULE								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1026	723	692	108	955	625	630	101
3	1026	773	802	111	955	675	740	104
4	1176	773	802	127	1070	675	740	119
6	1336	933	942	172	1265	835	880	161
8	1646	933	942	209	1575	835	880	195
10	1716	933	1242	253	1645	835	1180	236
12	1716	933	1242	281	1645	835	1180	263
14	1916	933	1242	305	1845	835	1180	285
17	2216	933	1242	341	2145	835	1180	319
21	2616	1123	1242	510	2545	1025	1180	477
25	2986	1123	1242	591	2915	1025	1180	552
31	2986	1123	1642	583	2915	1025	1380	545
35	2986	1123	1642	583	2915	1025	1380	545
40	2986	1123	1822	767	2915	1025	1580	717

STANDARD COIL MODULE								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	986	660	692	104	920	560	650	97
3	986	710	802	124	1050	610	760	116
4	1136	710	802	142	1090	610	760	133
6	1296	870	942	195	1230	770	900	182
8	1606	870	942	241	1540	770	900	225
10	1676	870	1242	307	1610	770	1200	287
12	1676	870	1242	310	1610	770	1200	290
14	1876	870	1242	353	1810	770	1200	330
17	2176	870	1242	402	2110	770	1200	376
21	2576	1060	1242	444	2510	960	1200	415
25	2946	1060	1242	565	2880	960	1200	528
31	2946	1060	1442	701	2880	960	1400	655
35	2946	1060	1442	701	2880	960	1400	655
40	2946	1060	1442	769	2880	960	1400	719

MIXING BOX MODULE (1"×1" E 3"×1")								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	986	930	790	79	920	700	550	74
3	986	980	900	83	920	750	660	78
4	1136	1030	900	98	1070	800	660	92
6	1296	1080	1040	121	1230	850	800	113
8	1606	1080	1040	139	1540	850	800	130
10	1676	1130	1340	170	1610	900	1100	159
12	1676	1230	1676	179	1610	1000	1100	167
14	1876	1230	1340	193	1810	1000	1100	180
17	2176	1230	1340	218	2110	1000	1100	204
21	2576	1230	1340	250	2510	1000	1100	234
25	2946	1280	1340	277	2880	1050	1100	259
31	2946	1430	1740	331	2880	1200	1500	309
35	2946	1430	1740	331	2880	1200	1500	309
40	2946	1530	1920	358	2880	1300	1680	335

BLIND MIXING BOX AND FILTER MODULE 1"×F8 3"								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	976	820	690	65	810	700	620	41
3	976	870	800	72	810	750	730	46
4	1126	920	800	83	960	800	730	54
6	1286	970	940	102	1120	850	870	69
8	1596	970	940	122	1430	850	870	84
10	1666	1020	1240	158	1500	900	1170	112
12	1666	1120	1240	164	1500	1000	1170	117
14	1866	1120	1240	168	1700	1000	1170	118
17	2166	1120	1240	207	2000	1000	1170	151
21	2566	1120	1240	247	2400	1000	1170	186
25	2936	1170	1240	286	2770	1050	1170	217
31	2936	1320	1640	317	2880	1150	1300	241
35	2936	1320	1640	341	2770	1200	1570	260
40	2936	1420	1820	384	2770	1300	1750	296

BLIND MIXING BOX AND FILTER MODULE F8 BAG/1"								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	976	1168	690	85	810	1048	620	58
3	976	1218	800	95	810	1098	730	65
4	1126	1268	800	108	960	1148	730	75
6	1286	1318	940	130	1120	1198	870	97
8	1596	1318	940	156	1430	1198	870	118
10	1666	1368	1240	212	1500	1248	1170	169
12	1666	1468	1240	238	1500	1348	1170	188
14	1866	1468	1240	260	1700	1348	1170	205
17	2166	1468	1240	309	2000	1348	1170	248
21	2566	1648	1240	369	2400	1528	1170	301
25	2936	1518	1240	401	2770	1398	1170	325
31	2936	1618	1440	462	2770	1498	1370	379
35	2936	1668	1640	496	2770	1548	1570	407
40	2936	1768	1820	531	2770	1648	1750	435

MIXING BOX W/ DAMPER AND FILTER MODULE F8 BAG/1"								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	976	1269	781	100	810	1170	743	68
3	976	1319	891	111	810	1220	853	77
4	1126	1369	891	117	960	1270	853	80
6	1286	1419	1031	162	1120	1320	993	119
8	1596	1419	1031	195	1430	1320	993	147
10	1666	1469	1331	259	1500	1370	1293	202
12	1666	1569	1331	277	1500	1470	1293	219
14	1866	1569	1331	300	1700	1470	1293	238
17	2166	1569	1331	358	2000	1470	1293	291
21	2566	1569	1331	417	2400	1470	1293	341
25	2936	1619	1331	473	2770	1520	1293	390
31	2936	1719	1531	538	2770	1620	1493	447
35	2936	1769	1731	538	2770	1670	1693	447
40	2936	1869	1911	634	2770	1770	1873	530

Notes:

- (1) Weights for standard configuration, i.e., without accessories.
  - (2) Weight to consider:
    - Fan module: consider the largest motor of the transmission option.
    - Coil module: consider the largest cooling coil
- \*Weight in kg and dimensions in mm.



# Weight table

## Forward-Curved

Tab. XIX-02 – Weight of Modules Wave *Doble* WD02 to WD40 (*Forward-curved*)

MODULE FAN WITH ELECTRIC BOARD COUPLED								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1276	723	692	119	1205	625	630	112
3	1276	773	802	122	1205	675	740	115
4	1426	773	802	138	1320	675	740	130
6	1586	933	942	183	1515	835	880	172
8	1896	933	942	220	1825	835	880	206
10	1966	933	1242	264	1895	835	1180	247
12	1966	933	1242	292	1895	835	1180	274
14	2166	933	1242	316	2095	835	1180	296
17	2466	933	1242	352	2395	835	1180	330
21	2866	1123	1242	521	2795	1025	1180	488
25	3236	1123	1242	602	3165	1025	1180	563
31	3236	1123	1642	594	3165	1025	1380	556
35	3236	1123	1642	594	3165	1025	1380	556
40	3236	1123	1822	778	3165	1025	1580	728

COIL WITH FILTER MODULE F8 3" AND/OR COLD WATER SENSOR								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1111	763	692	111	981	665	620	78
3	1111	813	802	115	981	715	730	81
4	1261	813	802	131	1131	715	730	92
6	1421	973	942	177	1291	875	870	124
8	1731	973	942	215	1601	875	870	151
10	1801	973	1242	260	1671	875	1170	182
12	1801	973	1242	290	1671	875	1170	203
14	2001	973	1242	314	1871	875	1170	220
17	2301	973	1242	351	2171	875	1170	246
21	2701	1163	1242	525	2571	1065	1170	368
25	3071	1163	1242	607	2941	1065	1170	425
31	3071	1163	1442	598	2941	1065	1370	419
35	3071	1163	1642	600	2941	1065	1570	420
40	3071	1163	1822	790	2941	1065	1750	553

MODULE WITH FILTER 1" E F8 BAG (RETURN)								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	976	720	690	61	810	600	648	39
3	976	730	800	62	810	610	730	39
4	1126	720	800	76	960	600	730	50
6	1286	720	940	93	1120	600	870	63
8	1596	720	940	119	1430	600	870	84
10	1666	920	1240	179	1500	800	1170	135
12	1666	920	1240	179	1500	800	1170	135
14	1886	920	1240	194	1720	800	1170	147
17	2166	920	1240	210	2000	800	1170	158
21	2566	920	1240	257	2400	800	1170	199
25	2936	920	1240	294	2770	800	1170	230
31	2936	920	1440	323	2770	800	1370	254
35	2936	920	1640	354	2770	800	1570	281
40	2936	920	1820	379	2770	800	1750	301

EMPTY MODULE								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	986	660	692	53	920	560	650	30
3	986	710	802	59	1050	610	760	35
4	1176	773	802	66	1070	675	740	39
6	1296	870	942	85	1230	770	900	55
8	1606	870	942	98	1540	770	900	61
10	1676	870	1242	93	1610	770	1200	49
12	1676	870	1242	93	1610	770	1200	49
14	1876	870	1242	108	1810	770	1200	61
17	2176	870	1242	124	2110	770	1200	72
21	2576	1060	1242	193	2510	960	1200	133
25	2946	1060	1242	259	2880	960	1200	192
31	2946	1060	1442	279	2880	960	1400	208
35	2946	1060	1642	279	2880	960	1400	208
40	2946	1060	1842	279	2880	960	1400	208

Notes:

- (1) Weights for standard configuration, i.e., without accessories.
  - (2) Weight to consider:
    - Fan module: consider the largest motor of the transmission option.
    - Coil module: consider the largest cooling coil
- \*Weight in kg and dimensions in mm.

# Weight table

## Backward-curved

Tab. XIX-03 – Weight of Modules Wave Doble WL02 to WL40 (Backward-curved)

FAN MODULE								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1176	773	692	109	1105	675	630	102
3	1216	853	802	135	1145	755	740	126
4	1336	933	802	180	1265	835	740	168
6	1516	1043	942	227	1445	945	880	212
8	1646	1043	942	226	1575	945	880	211
10	1716	933	1242	292	1645	835	1180	273
12	1916	933	1242	286	1845	835	1180	267
14	2216	933	1242	375	2145	895	1180	350
17	2216	993	1242	375	2145	895	1180	350
21	2616	1123	1242	515	2545	1025	1180	481
25	2986	1123	1242	565	2915	1025	1180	528
31	2986	1123	1442	565	2915	1025	1380	528
35	2986	1243	1642	843	2915	1025	1580	788
40	2986	1243	1822	843	2915	1025	1760	788

STANDARD COIL MODULE								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1136	710	802	112	1070	610	760	105
3	1176	790	802	131	1110	690	760	122
4	1296	870	942	155	1230	770	900	145
6	1476	980	1042	200	1410	880	1000	187
8	1606	980	942	228	1540	880	900	213
10	1676	870	1242	284	1610	770	1200	265
12	1876	870	1242	307	1810	770	1200	287
14	2176	933	1392	355	2110	830	1350	332
17	2176	930	1392	379	2110	830	1350	354
21	2576	1060	1492	455	2510	960	1450	425
25	2946	1060	1642	519	2880	960	1600	485
31	2946	1060	1642	581	2880	960	1600	543
35	2946	1180	1742	657	2880	1080	1700	614
40	2946	1180	1742	718	2880	1080	1700	671

MIXING BOX MODULE (1"+1" E 3"+1")								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Depth (mm)	Height (mm)	Weight (kg)	Length (mm)	Depth (mm)	Height (mm)	Weight (kg)
2	1136	930	790	111	1070	700	550	104
3	1176	980	980	129	1110	750	660	121
4	1296	1030	900	144	1230	800	660	135
6	1476	1080	1040	172	1410	850	800	161
8	1606	1080	1040	187	1540	850	800	175
10	1676	1130	1340	223	1610	900	1100	208
12	1876	1230	1340	246	1810	1000	1100	230
14	2176	1230	1340	278	2110	1000	1100	260
17	2176	1230	1340	284	2110	1000	1100	265
21	2576	1230	1340	328	2510	1000	1100	307
25	2946	1280	1340	367	2880	1050	1100	343
31	2946	1380	1540	398	2880	1150	1300	372
35	2946	1430	1740	423	2880	1200	1500	395
40	2946	1530	1920	453	2880	1300	1680	423

BLIND MIXING BOX AND FILTER MODULE 1"/F8 3"								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Depth (mm)	Height (mm)	Weight (kg)	Length (mm)	Depth (mm)	Height (mm)	Weight (kg)
2	1126	820	690	72	960	700	620	47
3	1166	870	800	82	1000	750	730	53
4	1286	920	800	91	1120	800	730	61
6	1466	970	940	113	1300	850	870	76
8	1596	970	940	122	1430	850	870	84
10	1666	1020	1240	158	1500	900	1170	112
12	1866	1120	1240	178	1700	1000	1170	127
14	2166	1120	1240	207	2000	1000	1170	151
17	2166	1120	1240	207	2000	1000	1170	151
21	2566	1120	1240	247	2400	1000	1170	186
25	2936	1170	1240	286	2770	1050	1170	217
31	2936	1320	1640	282	2880	1150	1300	282
35	2936	1320	1640	341	2770	1200	1570	260
40	2936	1420	1820	384	2770	1300	1750	296

BLIND MIXING BOX AND FILTER MODULE F8 BAG/1"								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1126	1168	690	94	960	1048	620	64
3	1166	1218	800	106	1000	1098	730	73
4	1286	1218	800	118	1120	1098	730	83
6	1466	1318	940	145	1300	1198	870	104
8	1596	1318	940	156	1430	1198	870	118
10	1666	1368	1240	212	1500	1248	1170	169
12	1866	1468	1240	260	1700	1348	1170	205
14	2166	1468	1240	309	2000	1348	1170	248
17	2166	1468	1240	309	2000	1348	1170	248
21	2566	1648	1240	369	2400	1528	1170	301
25	2936	1518	1240	401	2770	1398	1170	325
31	2936	1618	1440	462	2770	1498	1370	379
35	2936	1668	1640	496	2770	1548	1570	407
40	2936	1768	1820	531	2770	1648	1750	435

MIXING BOX W/ DAMPER AND FILTER MODULE F8 BAG/1"								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1126	1269	781	112	960	1170	743	77
3	1166	1319	891	126	1000	1220	853	88
4	1286	1369	891	143	1120	1270	853	102
6	1466	1419	1031	183	1300	1320	993	137
8	1596	1419	1031	195	1430	1320	993	147
10	1666	1469	1331	300	1500	1370	1293	202
12	1866	1569	1331	358	1700	1470	1293	238
14	2166	1569	1331	300	2000	1470	1293	291
17	2166	1569	1331	358	2000	1470	1293	291
21	2566	1569	1331	425	2400	1470	1293	350
25	2936	1619	1331	376	2770	1520	1293	293
31	2936	1719	1531	538	2770	1620	1493	447
35	2936	1769	1731	538	2770	1670	1693	447
40	2936	1869	1911	634	2770	1770	1873	530

Notes:

- (1) Weights for standard configuration, i.e., without accessories.
  - (2) Weight to consider:
    - Fan module: consider the largest motor of the transmission option.
    - Coil module: consider the largest cooling coil
- \*Weight in kg and dimensions in mm.



# Weight table

## Backward-curved

Tab. XIX-04 – Weight of Modules Wave *Doble* WL02 to WL40 (*Backward-curved*)

MODULE FAN WITH ELECTRIC BOARD COUPLED								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1426	773	692	120	1355	675	630	113
3	1466	853	802	146	1395	755	740	137
4	1586	933	802	191	1515	835	740	179
6	1766	1043	942	238	1695	945	880	223
8	1896	1043	942	237	1825	945	880	222
10	1966	933	1242	303	1895	835	1180	284
12	2166	933	1242	297	2095	835	1180	278
14	2466	933	1242	386	2395	895	1180	361
17	2466	993	1242	386	2395	895	1180	361
21	2866	1123	1242	526	2795	1025	1180	492
25	3236	1123	1242	576	3165	1025	1180	539
31	3236	1123	1442	576	3165	1025	1380	539
35	3236	1243	1642	854	3165	1025	1580	799
40	3236	1243	1822	854	3165	1025	1760	799

COIL WITH FILTER MODULE F8 3" AND/OR COLD WATER SENSOR								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1261	813	692	129	1131	715	620	109
3	1301	893	802	139	1171	795	730	116
4	1421	973	802	185	1291	875	730	159
6	1601	1083	942	233	1471	985	870	163
8	1731	1083	942	236	1601	985	870	202
10	1801	973	1242	273	1671	875	1170	191
12	1801	973	1242	290	1671	875	1170	203
14	2301	1033	1242	385	2171	935	1170	315
17	2301	1033	1242	385	2171	935	1170	315
21	2701	1163	1242	525	2571	1065	1170	368
25	3071	1163	1242	607	2941	1065	1170	425
31	3071	1163	1442	620	2941	1065	1370	434
35	3071	1283	1642	867	2941	1185	1570	803
40	3071	1283	1822	870	2941	1185	1750	800

MODULE WITH FILTER 1" AND F8 BAG (RETURN)								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1126	720	690	68	960	600	648	43
3	1166	720	800	82	1000	600	730	55
4	1286	720	800	82	1120	600	730	54
6	1466	720	940	106	1300	600	870	73
8	1596	720	940	119	1430	600	870	84
10	1666	920	1240	179	1500	800	1170	135
12	1886	920	1240	194	1720	800	1170	147
14	2166	920	1240	210	2000	800	1170	158
17	2166	920	1240	210	2000	800	1170	158
21	2566	920	1240	257	2400	800	1170	199
25	2936	920	1240	294	2770	800	1170	230
31	2936	920	1440	323	2770	800	1370	254
35	2936	920	1640	354	2770	800	1570	281
40	2936	920	1820	379	2770	800	1750	301

EMPTY MODULE								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1136	710	802	60	1070	610	760	48
3	1176	790	802	70	1110	690	760	56
4	1296	870	942	79	1230	770	900	64
6	1476	980	1042	93	1410	880	1000	75
8	1606	980	942	107	1540	880	900	86
10	1676	870	1242	112	1610	770	1200	90
12	1876	870	1242	120	1810	770	1200	96
14	2176	933	1392	130	2110	830	1350	104
17	2176	930	1392	143	2110	830	1350	114
21	2576	1060	1492	193	2510	960	1450	155
25	2946	1060	1642	259	2880	960	1600	210
31	2946	1060	1642	279	2880	960	1600	224
35	2946	1180	1742	279	2880	1080	1700	257
40	2946	1180	1742	279	2880	1080	1700	257

FINAL FILTER MODULE 1 STAGE (F8 BAG)								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1136	710	802	60	1070	610	760	48
3	1176	790	802	70	1110	690	760	56
4	1296	870	942	79	1230	770	900	64
6	1476	980	1042	93	1410	880	1000	75
8	1606	980	942	107	1540	880	900	86
10	1676	870	1242	112	1610	770	1200	90
12	1876	870	1242	120	1810	770	1200	96
14	2176	933	1392	130	2110	830	1350	104
17	2176	930	1392	143	2110	830	1350	114
21	2576	1060	1492	193	2510	960	1450	155
25	2946	1060	1642	259	2880	960	1600	210
31	2946	1060	1642	279	2880	960	1600	224
35	2946	1180	1742	279	2880	1080	1700	257
40	2946	1180	1742	279	2880	1080	1700	257

Notes:

- (1) Weights for standard configuration, i.e., without accessories.
  - (2) Weight to consider:
    - Fan module: consider the largest motor of the transmission option.
    - Coil module: consider the largest cooling coil
- \*Weight in kg and dimensions in mm.

# Weight table

Backward-curved

Tab. XIX-05– Weight of Modules Wave *Doble* WL02 to WL40 (*Backward-curved*)

FINAL FILTER MODULE 1 STAGE (A1)								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1126	2200	800	248	960	2100	730	205
3	1166	2220	800	261	1000	2120	730	216
4	1286	2220	940	300	1120	2120	870	250
6	1466	2220	1040	349	1300	2120	970	294
8	1596	2220	940	352	1430	2120	870	297
10	1666	2220	1240	432	1500	2120	1170	369
12	1866	2220	1240	495	1700	2120	1170	429
14	2166	2220	1390	611	2000	2120	1320	536
17	2166	2570	1390	626	2000	2470	1320	546
21	2566	2570	1490	749	2400	2470	1420	657
25	2936	2570	1640	887	2770	2470	1570	784
31	2936	2570	1640	887	2770	2470	1570	784
35	2936	2570	1740	909	2770	2470	1670	803
40	2936	2570	1740	909	2770	2470	1670	803

FINAL FILTER MODULE 1 STAGE (A3)								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1126	2200	800	258	960	2100	730	215
3	1166	2220	800	271	1000	2120	730	227
4	1286	2220	940	314	1120	2120	870	265
6	1466	2220	1040	367	1300	2120	970	313
8	1596	2220	940	369	1430	2120	870	314
10	1666	2220	1240	454	1500	2120	1170	392
12	1866	2220	1240	523	1700	2120	1170	457
14	2166	2220	1390	651	2000	2120	1320	577
17	2166	2570	1390	667	2000	2470	1320	587
21	2566	2570	1490	803	2400	2470	1420	712
25	2936	2570	1640	957	2770	2470	1570	855
31	2936	2570	1640	957	2770	2470	1570	855
35	2936	2570	1740	984	2770	2470	1670	879
40	2936	2570	1740	984	2770	2470	1670	879

FINAL FILTER MODULE 2 STAGES (F8 BAG + A1)								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1126	2620	800	297	960	2520	730	248
3	1166	2620	800	304	1000	2520	730	255
4	1286	2620	940	362	1120	2520	870	307
6	1466	2620	1040	413	1300	2520	970	352
8	1596	2620	940	400	1430	2520	870	339
10	1666	2620	1240	534	1500	2520	1170	464
12	1866	2620	1240	576	1700	2520	1170	502
14	2166	2620	1390	696	2000	2520	1320	612
17	2166	2970	1390	703	2000	2870	1320	613
21	2566	2970	1490	969	2400	2870	1420	867
25	2936	2970	1640	1090	2770	2870	1570	975
31	2936	2970	1640	1090	2770	2870	1570	975
35	2936	2970	1740	1137	2770	2870	1670	1019
40	2936	2970	1740	1137	2770	2870	1670	1019

FINAL FILTER MODULE 2 STAGES (F8 BAG + A3)								
Model	WITH PACKAGING				WITHOUT PACKAGING			
	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
2	1126	2620	800	308	960	2520	730	259
3	1166	2620	800	314	1000	2520	730	265
4	1286	2620	940	376	1120	2520	870	321
6	1466	2620	1040	432	1300	2520	970	372
8	1596	2620	940	417	1430	2520	870	356
10	1666	2620	1240	556	1500	2520	1170	487
12	1866	2620	1240	603	1700	2520	1170	530
14	2166	2620	1390	736	2000	2520	1320	652
17	2166	2970	1390	744	2000	2870	1320	654
21	2566	2970	1490	1023	2400	2870	1420	921
25	2936	2970	1640	1151	2770	2870	1570	1037
31	2936	2970	1640	1151	2770	2870	1570	1037
35	2936	2970	1740	1212	2770	2870	1670	1095
40	2936	2970	1740	1212	2770	2870	1670	1095

**Notes:**

- (1) Weights for standard configuration, i.e., without accessories.
  - (2) Weight to consider:
    - Fan module: consider the largest motor of the transmission option.
    - Coil module: consider the largest cooling coil
- \*Weight in kg and dimensions in mm.



# XX-Conversion Table

<b>From Length</b>	<b>To</b>	<b>Conversion factor</b>	<b>From Speed</b>	<b>To</b>	<b>Conversion factor</b>
Feet (ft)	meters (m)	0.305	Feet per minute (ft/min)	meter per second (m/s)	0.005
Inches (in)	millimeters (mm)	25.4	Feet per second (ft/s)	meter per second (m/s)	0.305
<b>Area</b>			<b>Energy, power, capacity</b>		
Square feet (ft <sup>2</sup> )	square meters (m <sup>2</sup> )	0.93	British Thermal Units (BTU)	kilowatt (kW)	0.000
Square inches (in <sup>2</sup> )	square millimeters (mm <sup>2</sup> )	645.2	British Thermal Units (BTU)	kilocalorie (kcal)	0.252
			Ton of refrigeration (TR)	kilowatt (kW)	3.516
			Ton of refrigeration (TR)	kilocalorie per hour (kcal/h)	3024
<b>Volume</b>			Horsepower (HP)	kilowatt (kW)	0.746
Cubic feet (ft <sup>3</sup> )	cubic meters (m <sup>3</sup> )	0.028			
Cubic inches (in <sup>3</sup> )	cubic millimeters (mm <sup>3</sup> )	16387			
Gallons (gal)	liters (L)	3.785			
Gallons (gal)	cubic meters (m <sup>3</sup> )	0.004			
<b>Vazão</b>			<b>Pressure</b>		
Cubic feet per minute (cfm)	cubic meters per second (m <sup>3</sup> )	0.000	Feet of water (ftH <sub>2</sub> O)	Pascal (Pa)	2990
Cubic feet per minute (cfm)	cubic meters per hour (m <sup>3</sup> )	1.699	Inches of water (inH <sub>2</sub> O)	Pascal (Pa)	249
Gallons per minute (gpm)	cubic meters per hour (m <sup>3</sup> )	0.227	Pound per square inches (psi)	Pascal (Pa)	6895
Gallons per minute (gpm)	liters per second (l/s)	0.063	Pound per square inches (psi)	Bar ou kg/cm <sup>2</sup>	6.895x10-2
			<b>Weight</b>		
			Ounces (oz)	Kilograms (Kg)	0.028
			Pounds (lbs)	Kilograms (Kg)	0.454

Temperature		
°C	C or F	°F
-40.0	-40	-40
-39.4	-39	-38.2
-38.9	-38	-36.4
-38.3	-37	-34.6
-37.8	-36	-32.8
-37.2	-35	-31
-36.7	-34	-29.2
-36.1	-33	-27.4
-35.6	-32	-25.6
-35.0	-31	-23.8
-34.4	-30	-22
-33.9	-29	-20.2
-33.3	-28	-18.4
-32.8	-27	-16.6
-32.2	-26	-14.8
-31.7	-25	-13
-31.1	-24	-11.2
-30.6	-23	-9.4
-30.0	-22	-7.6
-29.4	-21	-5.8
-28.9	-20	-4
-28.3	-19	-2.2
-27.8	-18	-0.4
-27.2	-17	1.4
-26.7	-16	3.2
-26.1	-15	5
-25.6	-14	6.8
-25.0	-13	8.6
-24.4	-12	10.4
-23.9	-11	12.2
-23.3	-10	14
-22.8	-9	15.8
-22.2	-8	17.6
-21.7	-7	19.4
-21.1	-6	21.2
-20.6	-5	23
-20.0	-4	24.8
-19.4	-3	26.6
-18.9	-2	28.4
-18.3	-1	30.2
-17.8	0	32
-17.2	1	33.8
-16.7	2	35.6
-16.1	3	37.4
-15.6	4	39.2

Temperature		
°C	C or F	°F
-15.0	5	41
-14.4	6	42.8
-13.9	7	44.6
-13.3	8	46.4
-12.8	9	48.2
-12.2	10	50
-11.7	11	51.8
-11.1	12	53.6
-10.6	13	55.4
-10.0	14	57.2
-9.4	15	59
-8.9	16	60.8
-8.3	17	62.6
-7.8	18	64.4
-7.2	19	66.2
-6.7	20	68
-6.1	21	69.8
-5.6	22	71.6
-5.0	23	73.4
-4.4	24	75.2
-3.9	25	77
-3.3	26	78.8
-2.8	27	80.6
-2.2	28	82.4
-1.7	29	84.2
-1.1	30	86
-0.6	31	87.8
0.0	32	89.6
0.6	33	91.4
1.1	34	93.2
1.7	35	95
2.2	36	96.8
2.8	37	98.6
3.3	38	100.4
3.9	39	102.2
4.4	40	104
5.0	41	105.8
5.6	42	107.6
6.1	43	109.4
6.7	44	111.2
7.2	45	113
7.8	46	114.8
8.3	47	116.6
8.9	48	118.4
9.4	49	120.2

Temperature		
°C	C or F	°F
10.0	50	122
10.6	51	123.8
11.1	52	125.6
11.7	53	127.4
12.2	54	129.2
12.8	55	131
13.3	56	132.8
13.9	57	134.6
14.4	58	136.4
15.0	59	138.2
15.6	60	140
16.1	61	141.8
16.7	62	143.6
17.2	63	145.4
17.8	64	147.2
18.3	65	149
18.9	66	150.8
19.4	67	152.6
20.0	68	154.4
20.6	69	156.2
21.1	70	158
21.7	71	159.8
22.2	72	161.6
22.8	73	163.4
23.3	74	165.2
23.9	75	167
24.4	76	168.8
25.0	77	170.6
25.6	78	172.4
26.1	79	174.2
26.7	80	176
27.2	81	177.8
27.8	82	179.6
28.3	83	181.4
28.9	84	183.2
29.4	85	185
30.0	86	186.8
30.6	87	188.6
31.1	88	190.4
31.7	89	192.2
32.2	90	194
32.8	91	195.8
33.3	92	197.6
33.9	93	199.4
34.4	94	201.2

Temperature		
°C	C or F	°F
35.0	95	203
35.6	96	204.8
36.1	97	206.6
36.7	98	208.4
37.2	99	210.2
37.8	100	212
38.3	101	213.8
38.9	102	215.6
39.4	103	217.4
40.0	104	219.2
40.6	105	221
41.1	106	222.8
41.7	107	224.6
42.2	108	226.4
42.8	109	228.2
43.3	110	230
43.9	111	231.8
44.4	112	233.6
45.0	113	235.4
45.6	114	237.2
46.1	115	239
46.7	116	240.8
47.2	117	242.6
47.8	118	244.4
48.3	119	246.2
48.9	120	248
49.4	121	249.8
50.0	122	251.6
50.6	123	253.4
51.1	124	255.2
51.7	125	257
52.2	126	258.8
52.8	127	260.6
53.3	128	262.4
53.9	129	264.2
54.4	130	266
55.0	131	267.8
55.6	132	269.6
56.1	133	271.4
56.7	134	273.2
57.2	135	275
57.8	136	276.8
58.3	137	278.6
58.9	138	280.4
59.4	139	282.2

Temperature		
°C	C or F	°F
60.0	140	284
60.6	141	285.8
61.1	142	287.6
61.7	143	289.4
62.2	144	291.2
62.8	145	293
63.3	146	294.8
63.9	147	296.6
64.4	148	298.4
65.0	149	300.2
65.6	150	302
66.1	151	303.8
66.7	152	305.6
67.2	153	307.4
67.8	154	309.2
68.3	155	311
68.9	156	312.8
69.4	157	314.6
70.0	158	316.4
70.6	159	318.2
71.1	160	320
71.7	161	321.8
72.2	162	323.6
72.8	163	325.4
73.3	164	327.2
73.9	165	329
74.4	166	330.8
75.0	167	332.6
75.6	168	334.4
76.1	169	336.2
76.7	170	338
77.2	171	339.8
77.8	172	341.6
78.3	173	343.4
78.9	174	345.2
79.4	175	347
80.0	176	348.8
80.6	177	350.6
81.1	178	352.4
81.7	179	354.2
82.2	180	356
82.8	181	357.8
83.3	182	359.6
83.9	183	361.4
84.4	184	363.2





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WAVE-PRC003C-EN December 2017  
Supersedes WAVE-PRC003B-EN October 2017

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