



Кондиционеры для наземного обслуживания самолетов

ADX

Технические характеристики

По вопросам продаж и поддержки обращайтесь:

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сайт: www.ciat.nt-rt.ru|| эл. почта: cta@nt-rt.ru



Decentralised PCA units for aircrafts on ground

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ADX



Decentralised PCA units for aircrafts on ground



Cooling capacity: 42.4 to 214.5 kW

Scroll compressors

Refrigerant R-134a, R-407C

Low power consumption and maximum comfort

Silent operation

DESCRIPTION

ADX units are autonomous air conditioning units with direct expansion and a horizontal compact design. They are used for cooling and ventilation in platform aircrafts. Optionally, they can operate in heating mode using electrical heaters.

These stand-alone air/air units are designed to be installed on the ground, at the foot of boarding bridges or suspended from them. They are a global, autonomous solution for new projects or terminal and airport renovation projects.

All of the units are tested and checked in factory.

OPERATING LIMITS R-134a

Inlet air conditions	Cooling
Minimum	-15 °C
Maximum	46 °C / 30 % RH

OPERATING LIMITS R-407C

Inlet air conditions	Cooling
Minimum	-15 °C
Maximum	42 °C / 30 % RH

RANGE R-134a

- ADX series: 2 cooling circuits, 2 compressors, 2 models:
ADX-240-2C / ADX-600-2C
- ADX series: 3 cooling circuits, 3 compressors, 3 models:
ADX-720-3C-NB / ADX-720-3C-WB / ADX-900-3C
- ADX series: 4 cooling circuits, 4 compressors, 1 model:
ADX-1200-4C
- ADX series: 5 cooling circuits, 2 models:
ADX-1500-5C (5 compressors) / ADX-1800-5C (6 compressors)

Note: All of the models can be installed on the ground or suspended from the bridge, except model 240 which cannot be suspended.

RANGE R-407C

- ADX series: 2 cooling circuits, 2 compressors, 1 model:
ADX-370-2C
- ADX series: 3 cooling circuits, 3 compressors, 1 model:
ADX-555-3C-NB
- ADX series: 4 cooling circuits, 4 compressors, 1 model:
ADX-740-4C
- ADX series: 5 cooling circuits, 2 models:
ADX-925-5C (5 compressors) / ADX-1110-5C (6 compressors)

Note: All of the models can be installed on the ground or suspended from the bridge.



Decentralised PCA units for aircrafts on ground

ADX

UNIT COMPONENTS

Standard equipment

- Casing made of galvanised steel metal, cold-rolled in accordance with European standards EN 10 142. Finished in polyester paint. Resistant to the elements.
- Self-supporting frame and removable fans to enable comfortable and complete access to any inside part. This feature makes maintenance easier.

- Automatic switch in the control circuit.
- Magnetothermic protection switches for the compressor power line and fan motor.
- Smoke detection.
- Clogged filter detector.

Outdoor circuit

- Axial 2-speed fans directly coupled. Watertight motor class F, IP55 with internal protection using magnetothermals. Dynamically balanced propellers and outdoor protective grille.
- Anti-bird grid, in aspiration.
- Coil with copper pipes and aluminium fins.

Electric panel

- Complete and fully wired electrical panel. Protection IP55.
- High electromagnetic compatibility EMC.
- Main ground connection.
- Compressor and fan motor contacts.

electronic CONTROL PCA

System comprised of a PLC and an NQ display which performs the following functions:

- Selection of the operating mode and display of the operating parameters.
- Ambient temperature control with cabin probe.
- Outdoor temperature compensation.
- Anti-short-cycle timings.
- Failure diagnosis and main alarm.
- Electromagnetic compatibility EMC kit.
- External remote keypad.

Optional functions:

- Potentiometer (replaces the cabin probe).
- Measurement of the unit's electric energy consumption.
- Measurement of the available pressure in duct.
- Management of "Pits".
- This enables communication with the Modbus protocol RTU RS485 or RS232.
- Possibility of connection to a local network with ETHERNET Modbus protocol.
- Management programme for maintenance and supervision: HEMSA.

CONTROL PCA PRO (optional)

In addition to the functions described above for the CONTROL PCA, CONTROL PCA PRO allows knowing the operating conditions for the cooling circuits at any time (undercooling and overheating) by measuring:

- Aspiration temperature and compressor discharge.
- Liquid temperature.
- High and low pressures using transducers.

This improves control of the unit and facilitates its maintenance.

With this control the external remote keypad is optional.

Indoor circuit

- Centrifugal fan with direct coupling. Electric motor class F, IP55 and internal thermal protection. Turbine balanced statically and dynamically, assembled on permanently lubricated bearings.
- Discharge nozzle 14" (except in models 925, 1110, 1500 and 1800, whose standard nozzle is 18").
- Frequency variator for the air flow control.
- Prefilter and G4 air filter.
- Condensates drain pan in galvanised steel. This pan is tilted to prevent water from stagnating.
- Condensate pump.
- Coil with copper pipes and aluminium fins.

Cooling circuit

- Hermetic scroll-type compressors assembled over shock absorbers.
- Crankcase heater.
- Anti-acid dehydrator filters.
- Thermostatic expansion valves with external equalisation.

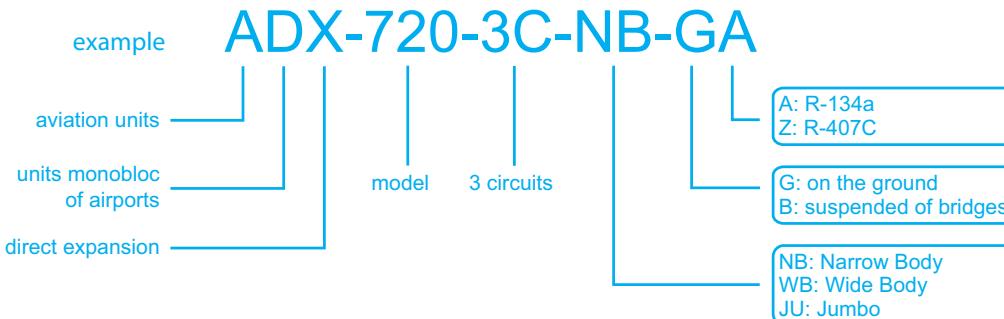
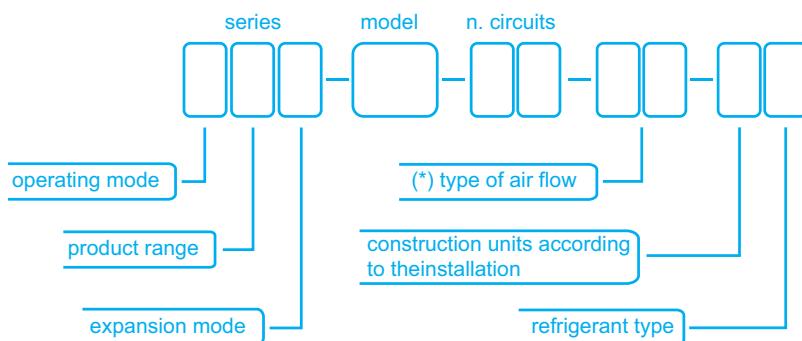
Protections

- High pressure pressostat.
- Low pressure pressostat or transducer.
- Main door switch.
- Compressor discharge temperature control.
- Klixon in the compressor.
- Phase control relay.

OPTIONS

- Copper pipe coils and copper fins.
- Coils with copper pipes and aluminium fins with polyurethane and blygold polual coating.
- Noise level reduction which enables reducing sound pressure to 10 dBA:
 - Basic level: Electronic EC axial fans in the outdoor circuit which adapt their rotation speed to the installation requirements, thereby reducing electricity consumption, the sound level at partial charge and improving the average seasonal output of the unit.
 - Complete level: Sound insulation of the main fan (motor and fan) and acoustic casing of the compressors.
- Outdoor plug-fans with condensation pressure control for ducted installation.
- Optional functions as part of the electronic CONTROL PCA and CONTROL PCA PRO (consult the corresponding brochure).
- Electric panel with protection IP-65.
- Lighting of the electric panel with microswitch.
- Fan in the electric panel for its ventilation whilst the unit is at a standstill. Especially recommended for very warm climates.
- Auxiliary electrical heaters.
- Discharge nozzle 18" (standard in models with 5 circuits).
- Additional discharge nozzle 14" (for JUMBO/NLA units).
- Motorised valve for additional nozzle (for JUMBO units with additional nozzle 14").
- Flange for additional nozzle (JUMBO units with additional nozzle 14").
- 2nd condensate pump for units suspended from the bridge.
- Change in the RAL colour and finish.
- Support feet (600 mm) avec silent-block.
- Assembly of the unit in a trailer (on a trolley).
- Sea freight packaging.

DESIGNATION





Decentralised PCA units for aircrafts on ground

ADX

TECHNICAL CHARACTERISTICS

ADX		240	600		720						
R-134a	Aircraft type	Regional	NB		NB		WB				
	Assembly	GA	GA	BA	GA	BA	GA				
	Cooling capacities	Cooling capacity ① (kW)	37,5	74,1		95,3					
		Power input ② (kW)	19,1	41,8		54,5					
		Outlet temperature (°C)	2,3	2,9		-1,8					
	Outdoor circuit fan	Nominal air flow (m³/h)	36.000	36.000		45.800					
		Type	Axial								
		Number	2	2		3					
		Diameter (mm)	2 x 800	2 x 800		3 x 800	2 x 910 + 1 x 500				
		Output (kW)	2 x 2,0	2 x 2,0		3 x 2,0	2 x 2,4 + 1 x 0,8				
	Indoor circuit fan	Speed (r.p.m.)	895	895		895	870 1.330				
		Nominal air flow (kg/min)	41	80		90					
		Nominal Avai. static pressure (Pa)	3.000	5.000		4.500					
		Minimum air flow (kg/min)	33	64		72					
		Maximum air flow (kg/min)	51	84		95					
	Compressor	Type	Centrifugal								
		Number / no. turbines	1/1								
		Output (kW)	5,5	11,0		11,0					
		Type	Scroll								
	Electrical characteristics	Number	2	2		3					
		Number of circuits	2	2		3					
		Number stages	2	2		3					
		Oil type	Copeland 3MAF 32 cST, Danfoss POE 160 SZ, ICI Emkarate RL 32 CF, Mobil EAL Artic 22 CC								
	Current	Volume of oil (l)	2 x 3,25	2 x 8,0		3 x 8,0					
		Electrical power supply	400 V / III ph / 50 Hz (+/-5%)								
	Refrigerant	Power supply	3 Wires + Ground								
		Maximum input (A)	46,0	40,1	40,1	114,3	110,5				
		Locked rotor (A)	163,6	279,7	279,7	309,9	306,1				
	Dimensions	Type	R-134a								
		Global warming potential (GWP) ③	1.300								
		Charge (kg)	30,5	26,3		37,9					
	Weight	Length (mm)	3.105	3.105	1.349	4.260	4.269				
		Width (mm)	2.355	2.355	2.365	2.355	2.372				
		Height (mm)	1.388	1.388	1.274	1.638	1.638				
	Condensate outlet Ø		3/4" adaptor								

① Cooling net capacity between conditions of entry and air exit, set for 35°C outdoor temperature and 40 % HR.

② Total power input by compressor and motorised fans under nominal conditions.

③ Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.



Decentralised PCA units for aircrafts on ground

TECHNICAL CHARACTERISTICS

ADX		900		1200		1500		1800					
Aircraft type			WB		WB		JU / NLA		JU / NLA				
Assembly			GA	BA	GA	BA	GA	BA	GA BA				
Cooling capacities	Cooling capacity ① (kW)		126,8		147,8		188,6		211,6				
Outdoor circuit fan	Power input ② (kW)		72,0		95,3		102,2		129,9				
	Outlet temperature (°C)		0,5		0,6		-2,0		-1,6				
	Nominal air flow (m³/h)		54.000		59.200		86.000		86.000				
	Type		Axial										
	Number		3		4		5	6	5 6				
	Diameter (mm)		3 x 800	2 x 910 + 1 x 500	4 x 800	2 x 910 + 2 x 560	5 x 800	2 x 910 + 2 x 560 + 2 x 500	5 x 800 2 x 800 + 4 x 560				
	Output (kW)		3 x 2,0	2 x 2,4 + 1 x 0,8	4 x 2,0	2 x 2,4 + 2 x 1,0	5 x 2,0	2 x 2,4 + 2 x 1,0 + 2 x 0,8	5 x 2,0 2 x 2,4 + 4 x 1,0				
Indoor circuit fan	Speed (r.p.m.)		895	870 1.330	895	870 1.220	895	870 1.220	895 870 1.220				
	Nominal air flow (kg/min)		122		150		180		203				
	Nominal Avai. static pressure (Pa)		7.500		7.000		8.650		8.000				
	Minimum air flow (kg/min)		98		120		144		168				
	Maximum air flow (kg/min)		128		158		189		214				
	Type		Centrifugal										
	Number / no. turbines		1/1										
Compressor	Output (kW)		30,0		30,0		45,0		45,0				
	Type		Scroll										
	Number		3		4		5		6				
	Number of circuits		3		4		5		5				
	Number stages		3		4		5		6				
	Oil type		Copeland 3MAF 32 cST, Danfoss POE 160 SZ, ICI Emkarate RL 32 CF, Mobil EAL Artic 22 CC										
Electrical characteristics	Volume of oil (l)		3 x 8,0		4 x 8,0		5 x 8,0		6 x 8,0				
	Electrical power supply		400 V / III ph / 50 Hz (+/-5%)										
	Power supply		3 Wires + Ground										
Current	Maximum input (A)		149,5	145,7	208,5	202,3	229,8	221,0	292,1 285,2				
	Locked rotor (A)		388,9	385,1	446,7	440,5	468,9	460,1	759,9 753,0				
Refrigerant	Type		R-134a										
	Global warming potential (GWP) ③		1.300										
	Charge (kg)		36,9		42,5		49,9		56,5				
Dimensions	Length (mm)		4.260	4.269	4.710	4.719	4.710	5.412	4.710 5.412				
	Width (mm)		2.355	2.372	2.355	2.372	2.355	2.372	2.355 2.372				
	Height (mm)		1.638	1.530	1.638	1.530	1.375	1.524	1.375 1.524				
Weight	(kg)	2.819	2.977	3.270	3.429	3.742	3.882	3.917	4.205				
Condensate outlet Ø		3/4" adaptor											

① Cooling net capacity between conditions of entry and air exit, set for 35°C outdoor temperature and 40 % HR.

② Total power input by compressor and motorised fans under nominal conditions.

③ Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.

R-134a

ADX



Decentralised PCA units for aircrafts on ground

ADX

TECHNICAL CHARACTERISTICS

ADX		370		555		740		925		1110	
Aircraft type	NB		WB		WB		JU / NLA		JU / NLA		
Assembly	GZ	BZ	GZ	BZ	GZ	BZ	GZ	BZ	GZ	BZ	
Cooling capacities	Cooling capacity ① (kW)	70,5		109,6		138,6		177,8		205,1	
Outdoor circuit fan	Power input ② (kW)	39,3		63,6		89,2		95,9		121,7	
Indoor circuit fan	Outlet temperature (°C)	-0,4		0,8		2,7		0		1,3	
Compressor	Nominal air flow (m³/h)	36.000		54.000		59.200		86.000		86.000	
Electrical characteristics	Type	Axial									
Current	Number	2		3		4		5	6	5	6
Refrigerant	Diameter (mm)	2 x 800	2 x 800	3 x 800	2 x 910 + 1 x 500	4 x 800	2 x 910 + 2 x 560	5 x 800	2 x 910 + 2 x 560 + 2 x 500	5 x 800	2 x 910 + 4 x 560
Dimensions	Output (kW)	2 x 2,0		3 x 2,0	2 x 2,4 + 1 x 0,8	4 x 2,0	2 x 2,4 + 2 x 1,0	5 x 2,0	2 x 2,4 + 2 x 1,0 + 1 x 0,8	5 x 2,0	2 x 2,4 + 4 x 1,0
Weight	Speed (r.p.m.)	895		895	870 1.330	895	870 1.220	895	870 1.220	895	870 1.330
Condensate outlet Ø	3/4" adaptor										

R-407C

① Cooling net capacity between conditions of entry and air exit, set for 35°C outdoor temperature and 40 % HR.

② Total power input by compressor and motorised fans under nominal conditions.

③ Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.



Decentralised PCA units for aircrafts on ground

ADX

SOUND PRESSURE LEVEL dB(A)

These units are designed to work with a low acoustic level.

The **sound pressure** of the unit, with the ducted supply, measured at a distance of 5 meters, in open field, the directivity at 2 and 1.5 meters from the ground is:

R-134a	ADX	240	600	720 NB	720 WB	900	1200	1500	1800
	dB(A)	71	72	72	74	73	76	76	77

R-470C	ADX	370	555	740	925	1110			
	dB(A)	72	73	75	77	77			

Note: The sound pressure level depends on the installation conditions and, as such, is only indicated as a guide.

HEATING (OPTION)

Available capacities

Electrical heater assembly in 6 stages.

R-134a	ADX	Total output (kW)	40	60	81	120	144	162
		Installed output (kW)	6+12+22	10+20+30	13,5+27+40,5	24+40+ (20+40)	24+(24+24)+ (24+24+24)	27+(27+27) +(27+27+27)
240	Intensity (A) 400 V / III ph / 50 Hz (+/-5%)	57,7	--	--	--	--	--	--
		57,7	86,6	--	--	--	--	--
		57,7	86,6	116,9	173,2	--	--	--
		57,7	86,6	116,9	173,2	207,8	233,8	

R-470C	ADX	Total output (kW)	40	60	81	120	144	162
		Installed output (kW)	6+12+22	10+20+30	13,5+27+40,5	24+40+ (20+40)	24+(24+24)+ (24+24+24)	27+(27+27) +(27+27+27)
370	Intensity (A) 400 V / III ph / 50 Hz (+/-5%)	57,7	86,6	--	--	--	--	--
		57,7	86,6	116,9	173,2	--	--	--
		57,7	86,6	116,9	173,2	207,8	233,8	
		57,7	86,6	116,9	173,2	207,8	233,8	

Note: in units with electrical heaters from 144 or 162 kW, an 18" discharge nozzle has to be assembled or an additional 14" nozzle.

Distribution of stages

The electrical heaters are dimensioned according to the total heating capacity of the unit at 1/3, 2/3 and 3/3. This enables combining them in 6 power stages for better control of the unit. The various stages of the electrical heaters will be connected in accordance with the control of the cabin temperature and depending on the unit model and the aeroplane size (NB, WB or JB).

Example: ADX-1200-4C

Mode NB

	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6
HEAT 1:	◆		◆	◆	◆	◆
HEAT 2:	x	◆	◆	◆	◆	◆
HEAT 3:	x	x	x	x	x	x

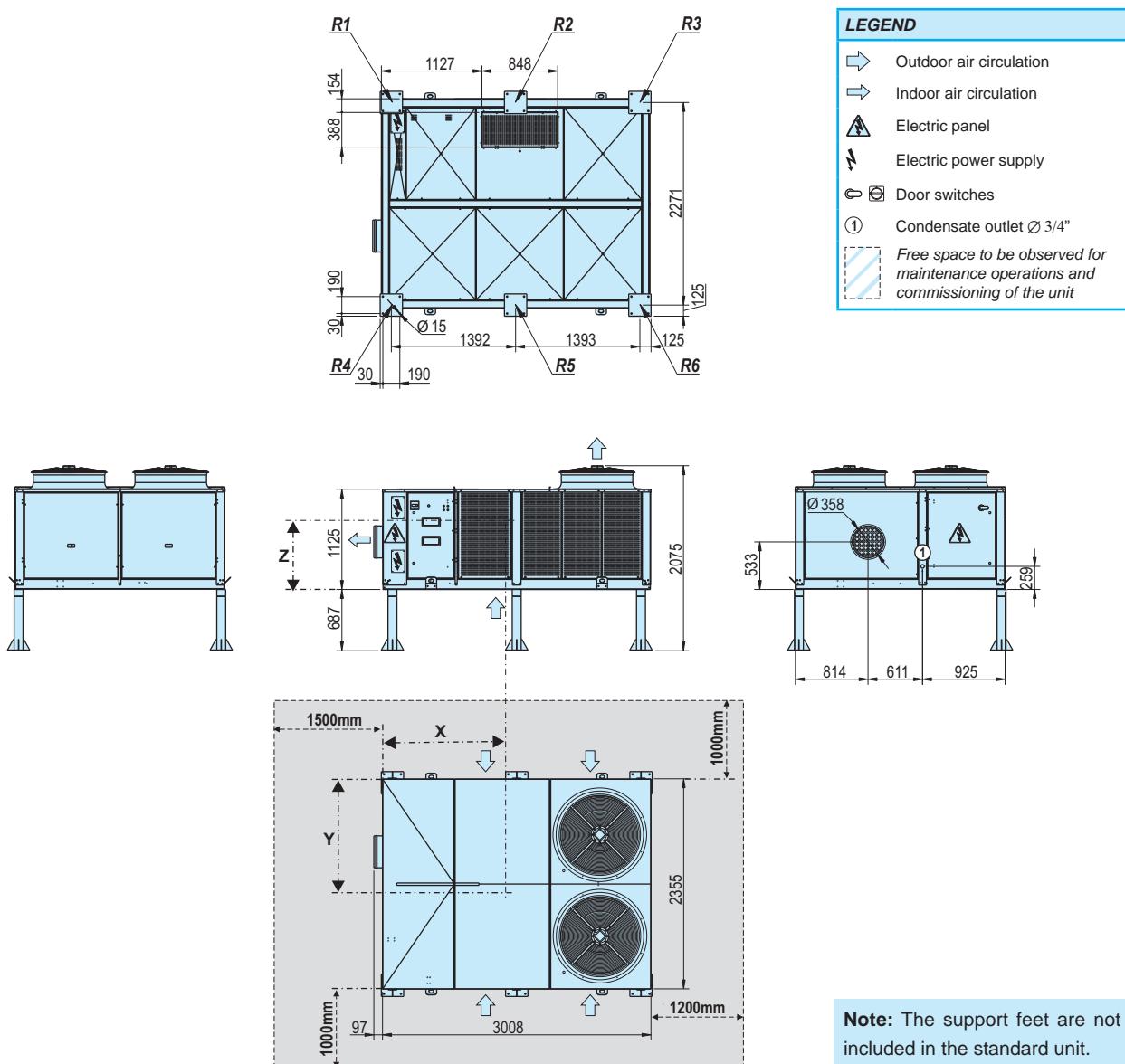
Mode WB

	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6
HEAT 1:	◆			◆		◆
HEAT 2:	x	◆			◆	◆
HEAT 3:	x	x	◆	◆	◆	◆

DIAGRAM OF DIMENSIONS

G Assembly: ground units

ADX - 240, 370 and 600 (mm)



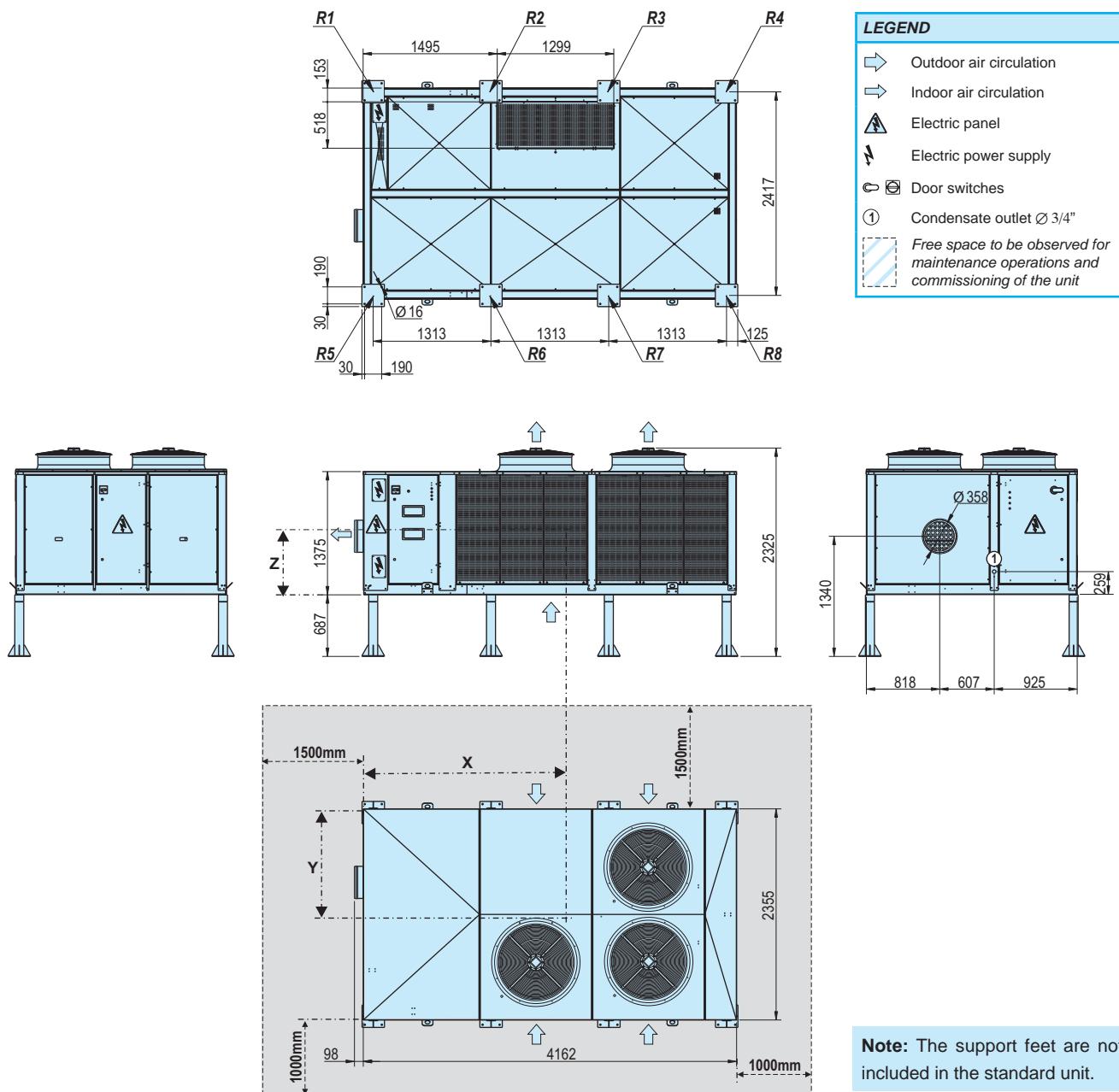
ADX	Centre of gravity (mm)			Reactions in the supports (kg)						
	X	Y	Z	Weight	R1	R2	R3	R4	R5	R6
240	1.512	1.284	515	2.086	301	532	307	236	467	242
370	1.550	1.133	516	2.168	434	534	159	406	505	130
600	1.563	1.135	480	2.288	336	562	288	308	534	259

Decentralised PCA units for aircrafts on ground

DIAGRAM OF DIMENSIONS

G Assembly: ground units

ADX - 555, 720 and 900 (mm)

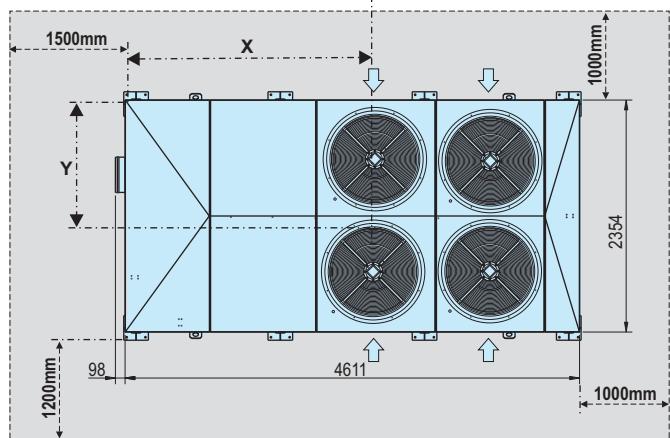
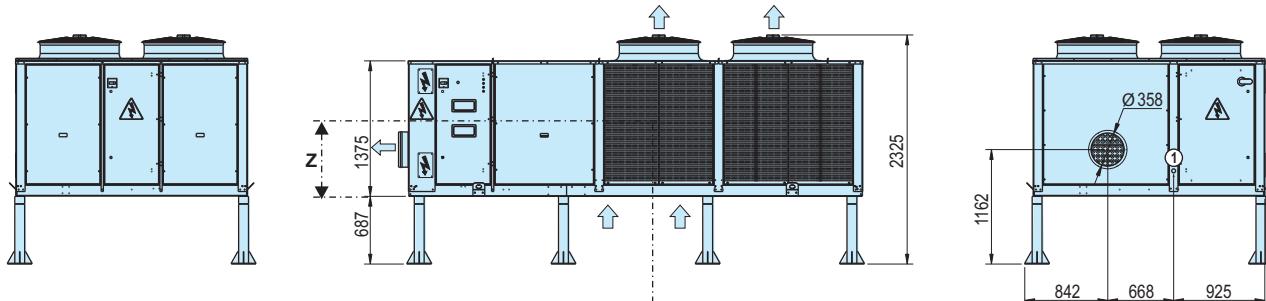
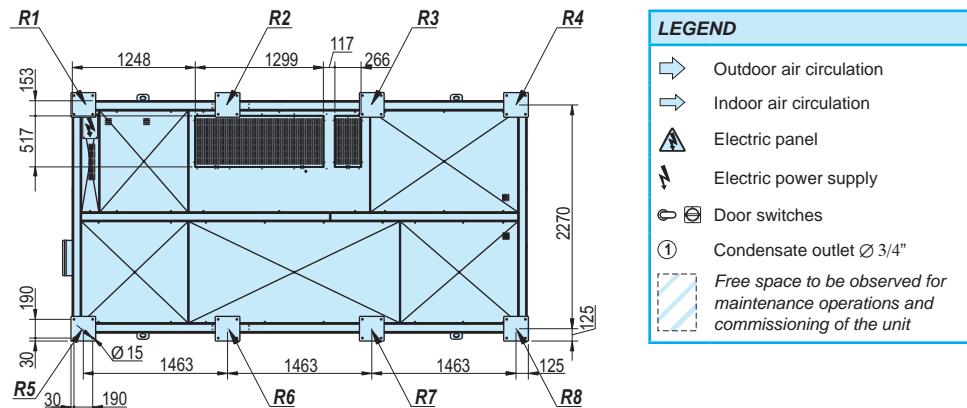


ADX	Centre of gravity (mm)			Reactions in the supports (kg)								
	X	Y	Z	Weight	R1	R2	R3	R4	R5	R6	R7	R8
555	2.120	1.166	612	2.609	238	386	412	256	245	392	418	262
720 NB	2.223	1.190	609	2.526	223	358	428	269	215	351	421	262
720 WB	2.211	1.167	606	2.819	243	395	467	290	250	402	474	297
900	2.211	1.167	606	2.819	243	395	467	290	250	402	474	297

DIAGRAM OF DIMENSIONS

G Assembly: ground units

ADX - 740 and 1200 (mm)



Note: The support feet are not included in the standard unit.

ADX	Centre of gravity (mm)			Reactions in the supports (kg)								
	X	Y	Z	Weight	R1	R2	R3	R4	R5	R6	R7	R8
740	2.404	1.144	616	2.952	250	411	477	294	272	433	499	316
1200	2.496	1.137	618	3.270	252	419	561	346	280	448	589	375

Decentralised PCA units for aircrafts on ground

DIAGRAM OF DIMENSIONS

G Assembly: ground units

ADX - 925, 1110, 1500 and 1800 (mm)

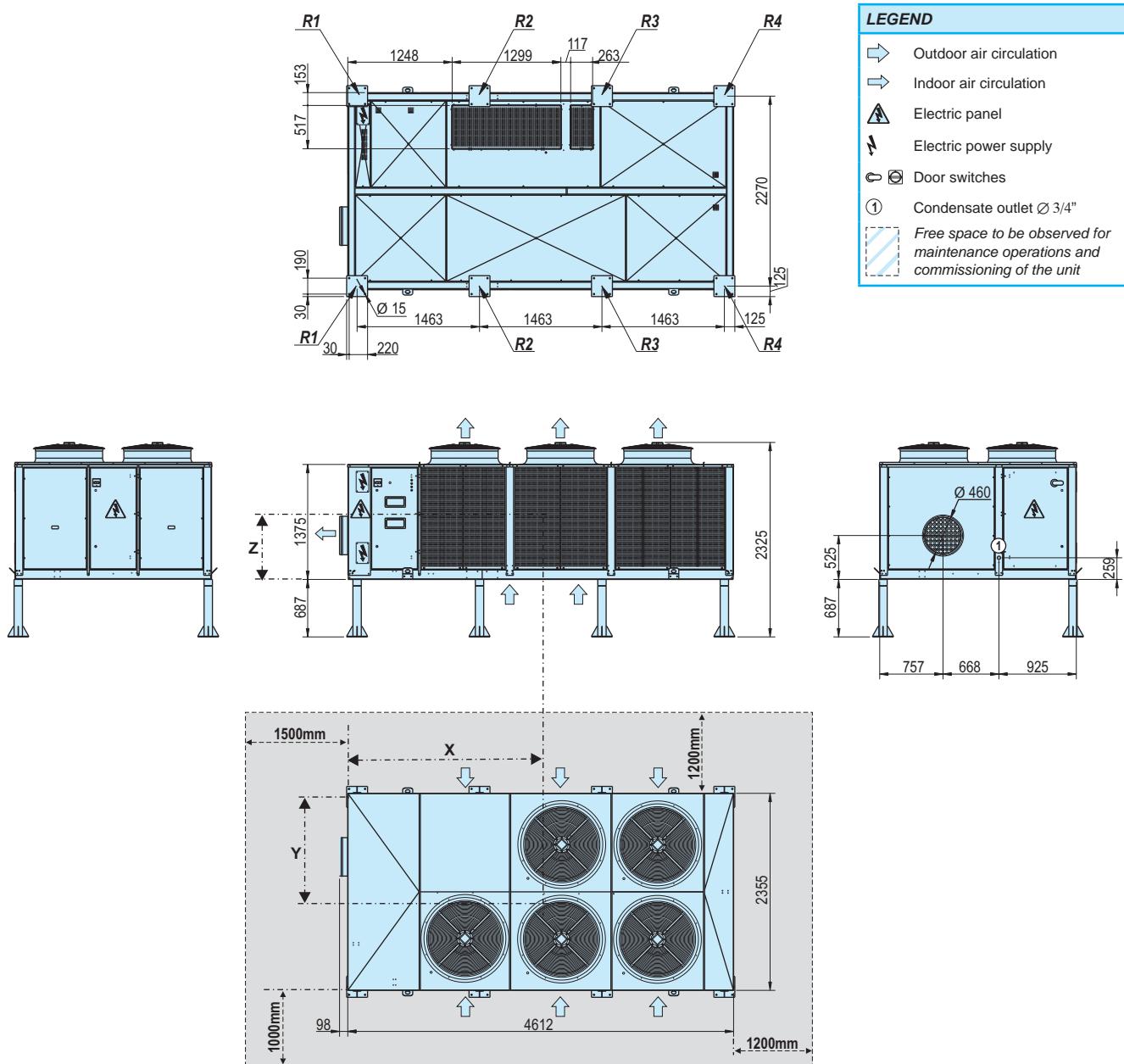
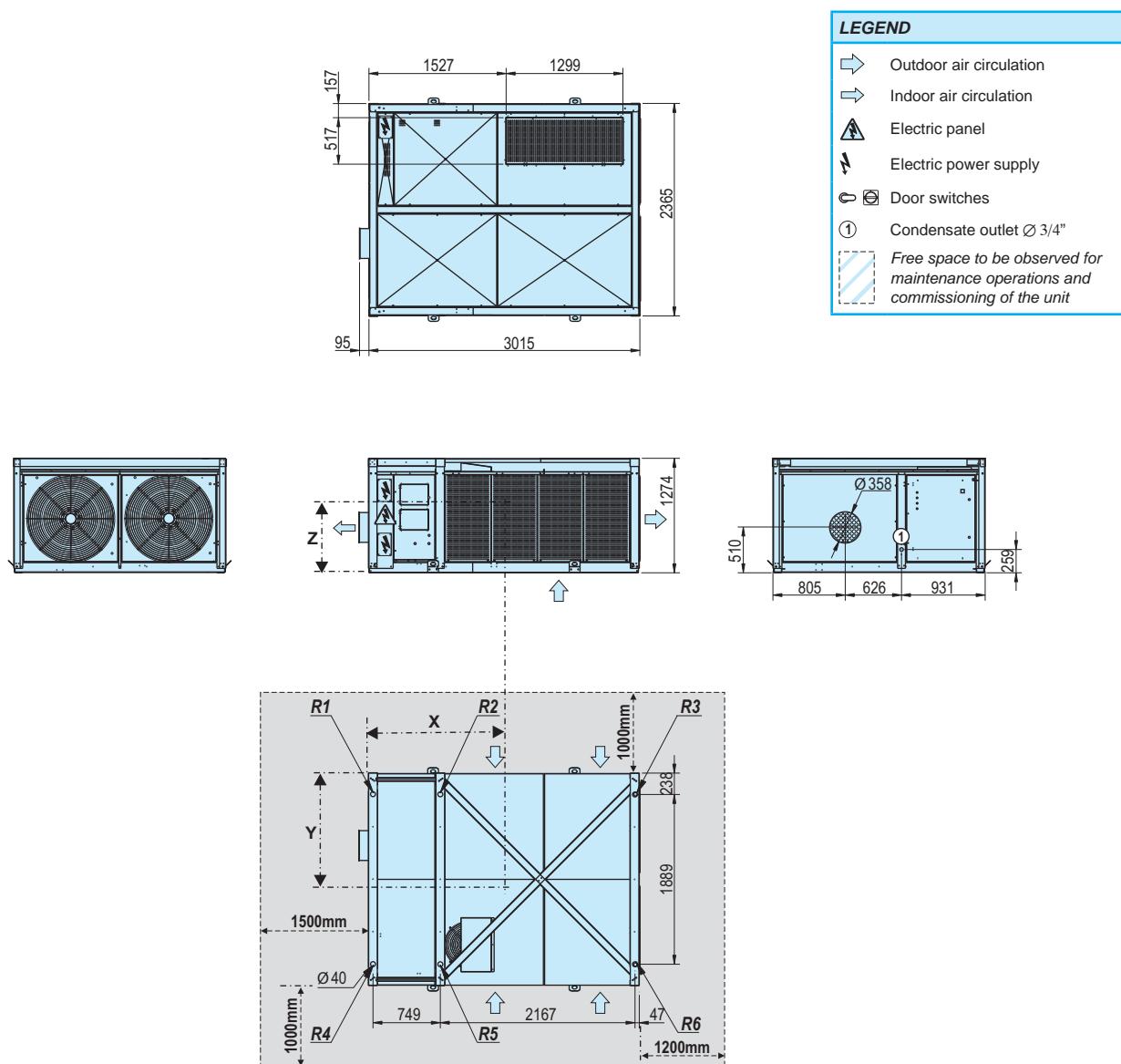


DIAGRAM OF DIMENSIONS

Assembly B: suspended units

ADX - 370 and 600 (mm)



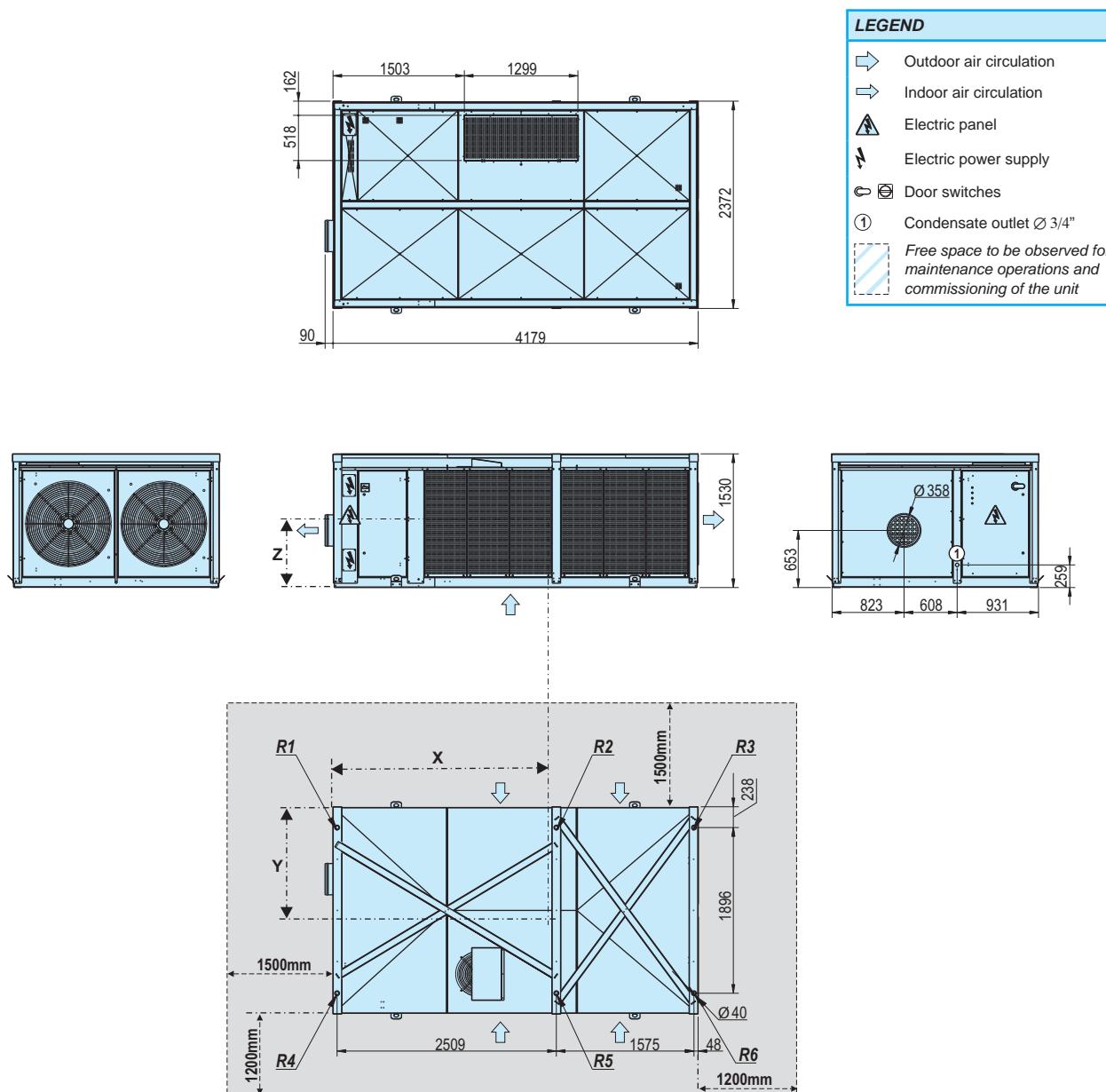
ADX	Centre of gravity (mm)			Reactions in the supports (kg)							
	X	Y	Z	Weight	R1	R2	R3	R4	R5	R6	
370	1.486	1185	509	2.004	265	479	255	267	481	257	
600	1.428	1.187	503	2.124	294	507	255	298	511	259	

Decentralised PCA units for aircrafts on ground

DIAGRAM OF DIMENSIONS

Assembly B: suspended units

ADX - 555, 720 and 900 (mm)

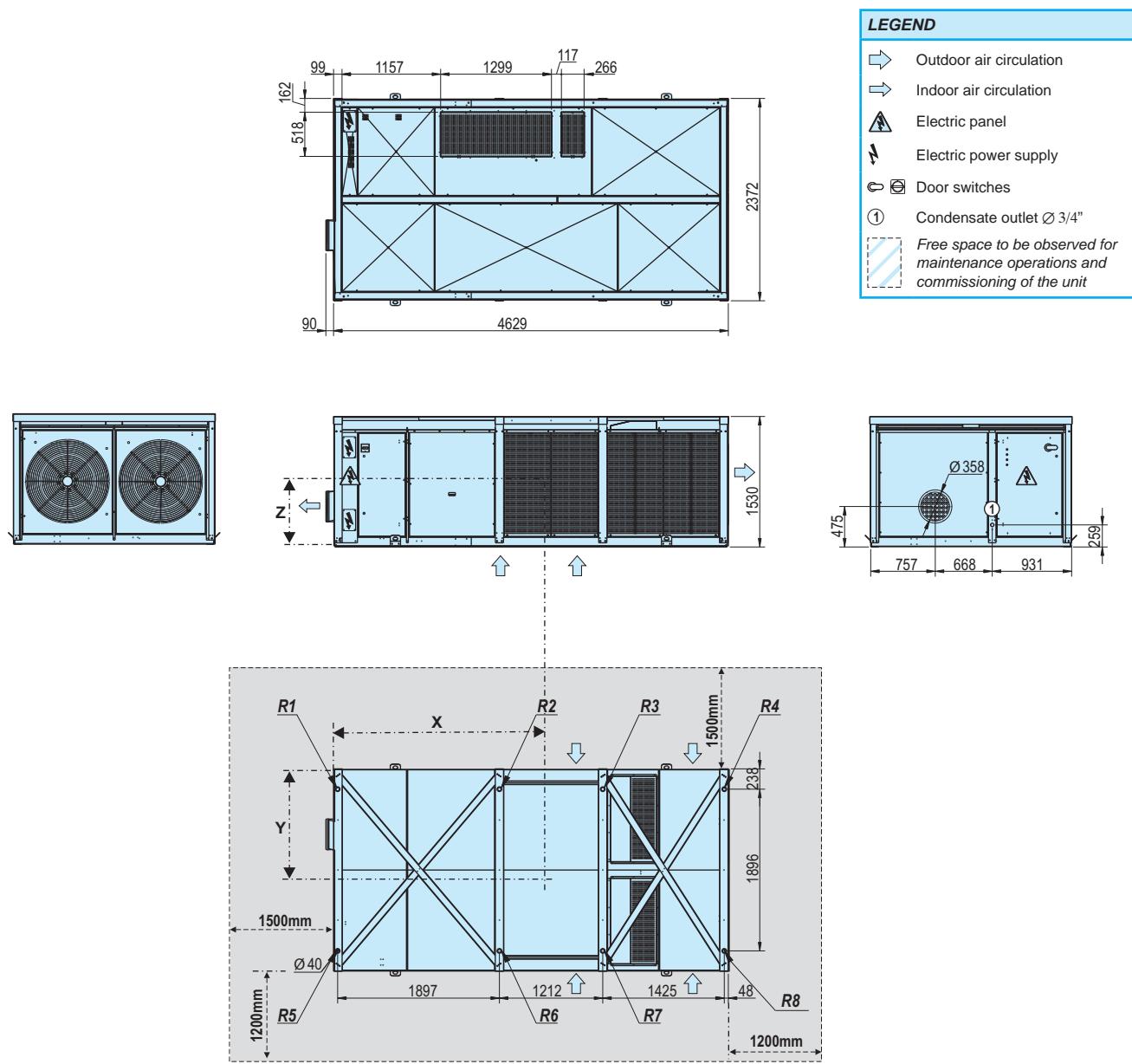


ADX	Centre of gravity (mm)			Reactions in the supports (kg)							
	X	Y	Z	Weight	R1	R2	R3	R4	R5	R6	
555	2.106	1.169	609	2.797	368	678	377	351	662	360	
720 NB	2.012	1.152	602	2.767	398	679	355	365	646	322	
720 WB	2.024	1.170	602	2.977	415	722	377	399	705	360	
900	2.024	1.170	602	2.977	415	722	377	399	705	360	

DIAGRAM OF DIMENSIONS

Assembly B: suspended units

ADX - 740 and 1200 (mm)



ADX	Centre of gravity (mm)			Reactions in the supports (kg)								
	X	Y	Z	Weight	R1	R2	R3	R4	R5	R6	R7	R8
740	2.215	1.222	617	3.191	309	505	449	272	340	535	479	302
1200	2.428	1.146	615	3.429	324	513	581	369	288	476	545	333

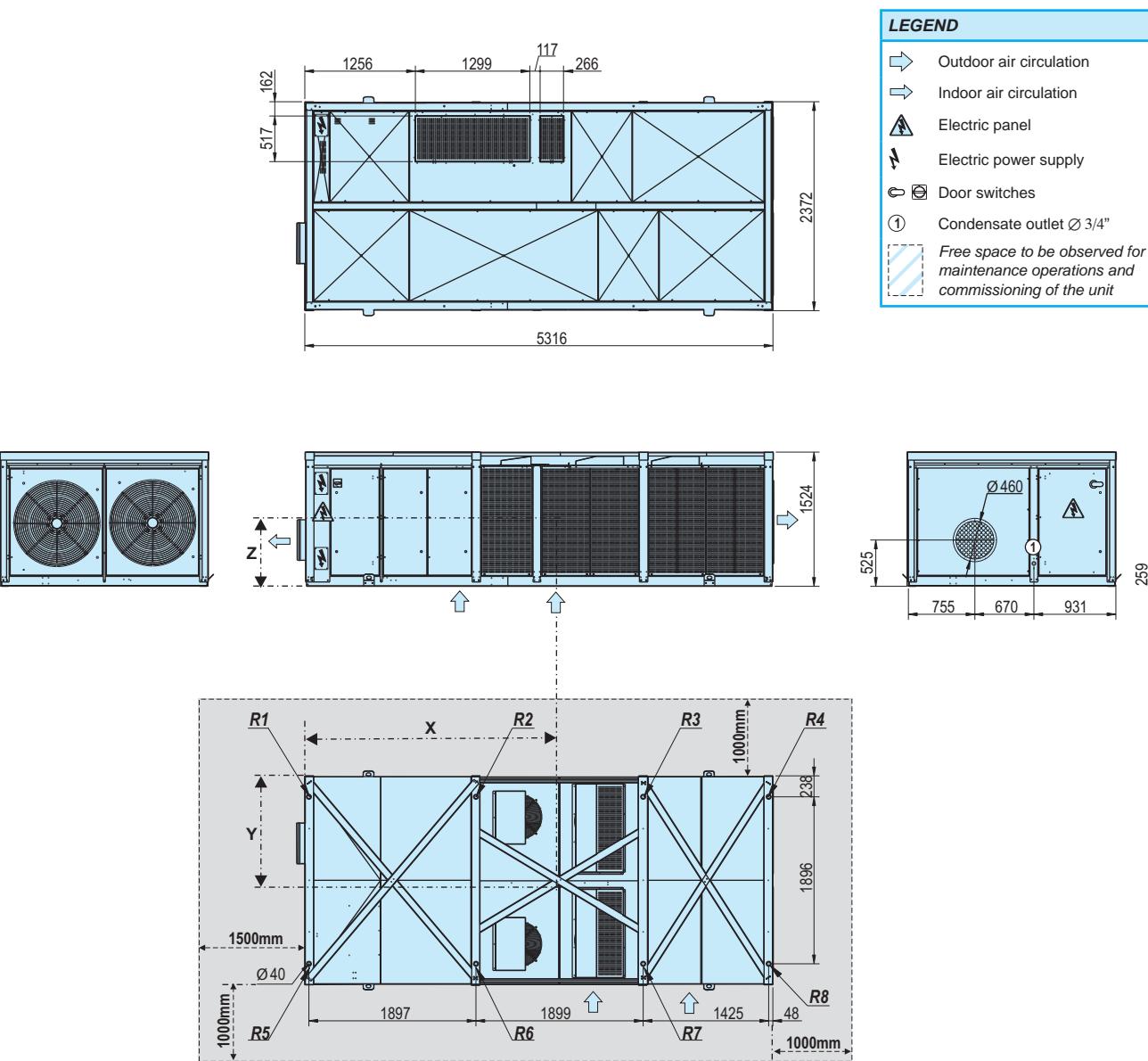


Decentralised PCA units for aircrafts on ground

DIAGRAM OF DIMENSIONS

Assembly B: suspended units

ADX - 925 and 1500 (mm)

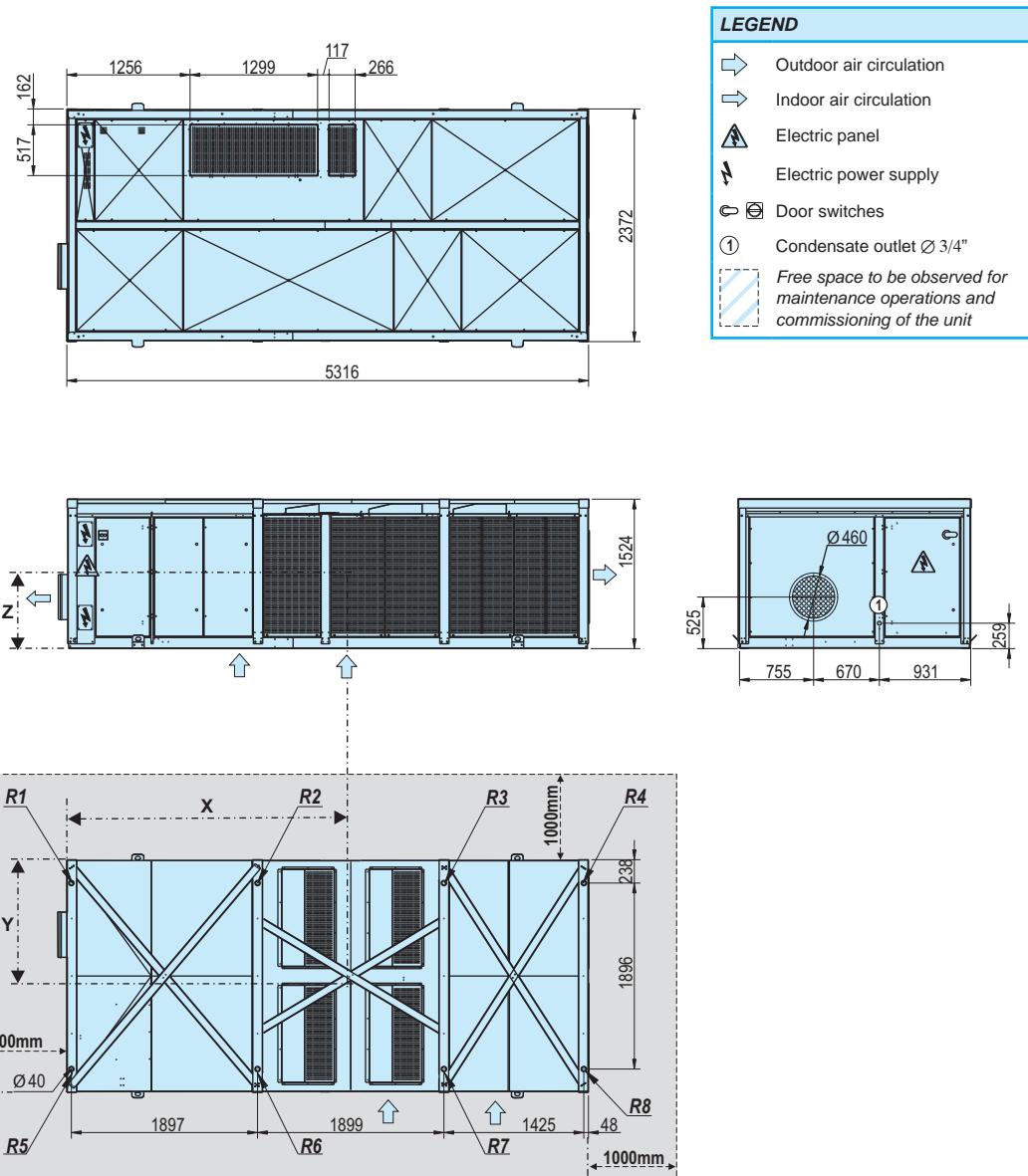


ADX	Centre of gravity (mm)			Reactions in the supports (kg)								
	X	Y	Z	Weight	R1	R2	R3	R4	R5	R6	R7	R8
925	2.644	1.181	605	3.583	349	559	550	343	344	554	546	338
1500	2.540	1.181	593	3.882	401	641	561	348	396	636	556	343

DIAGRAM OF DIMENSIONS

Assembly B: suspended units

ADX - 1100 and 1800 (mm)



ADX	Centre of gravity (mm)			Reactions in the supports (kg)								
	X	Y	Z	Weight	R1	R2	R3	R4	R5	R6	R7	R8
1110	2.664	1.150	612	3.783	379	599	603	382	343	563	567	346
1800	2.808	1.149	601	4.205	387	613	724	460	346	572	683	419



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