

# VERTEX

## Refrigerant condensers



### Key benefits

- Reliability
- Easy access and safety
- Low maintenance and easy inspection

#### VERTEX characteristics

- Counter flow, axial fan, forced draft
- PED 2014/68/EU coil design

#### Capacity range

655 - 2785 kW  
(for single cell models, nominal R717 kW's)

#### Typical applications

- Industrial refrigeration applications with focus on reliability, efficiency and minimal maintenance
- Tight enclosures and installations requiring a single air inlet
- Dry operation in winter time



## Reliable operation guaranteed

- Enjoy peace of mind an uninterrupted operation with multiple fans, motors and operational redundant pumps.
- Multiple, individually driven fans guarantee **redundancy**.
- Fans, motor and drive system (V-belt) are located in the **dry air**, preventing moisture and condensation. No external moving parts, helping it withstand the toughest weather conditions.
- Various corrosion-resistant materials, including the unique [Baltibond® hybrid coating](#) for guaranteed long service life.

## Low maintenance and easy inspection

- Inspect and maintain safely Vertex® condensers with **unrivalled comfort, while standing** inside on the internal walkway.
- **Access** via **large hinged door** to **optional internal walkway**: no basin draining needed for unit interior inspection.
- Easy to inspect the **coil** from the outside or from the inside via the **removable drift eliminators modules** or **internal walkway**.
- Ground level access to the drive system, pump(s) and terminal box eliminates the need for platforms or ladders to access them.
- **Reduce maintenance labor cost** by **50%** and address confined space hazards with a walkable, spacious interior and easy entry and exit.

## More compact

- Compact design for **confined spaces**.
- Single-side air inlet let you install **next to a solid wall**.
- Vertex® units are **factory assembled**.
- We ship larger models in 2 sections to reduce the size and weight of the heaviest section for **easy on-site assembly** with smaller cranes.
- Vertex offers high capacity and minimal operating weight. **Save on steel supports**, both underneath the equipment and in the building itself for rooftop installations.

## Easy access and safety

- Easy cleaning and improved hygiene with a compact, **sloped water basin**.
- The **air inlet shields** block sunlight to prevent biological growth in the unit and stops water splashing outside without reducing the condenser's capacity.
- Removable **suction strainer** anti-vortex hood.
- Make-up, drain and overflow **easily accessible** for inspection and cleaning.
- High efficient **drift eliminators** certified by Eurovent to prevent droplets escaping into the air.
- Optional clean out port **helps remove silt and sludge** from the cooling tower basin.



- Optional sump sweeper piping **prevents sediment collecting** in the cold water basin.

## Energy efficient

- Evaporative condensers yield the lowest condensing temperatures and thereby minimize the system energy consumption.
- Highest capacity per footprint brings higher capacity or reduced energy usage for many replacement jobs.
- Axial fans, with high efficiency fan motors, use half the energy of similar centrifugal fan units.

**Interested in the Vertex<sup>®</sup> evaporative condenser for your industrial refrigeration application?** Contact your local [BAC representative](#) for more information.

## Downloads

- [Vertex Evaporative Condenser Sales Brochure](#)
- [Operating and Maintenance - Vertex](#)
- [Rigging and Installation - Vertex](#)
- [Spare Parts for Vertex](#)
- [Retrofit Opportunities Vertex](#)
- [Vertex Evaporative Condenser](#)



# Principle of operation

Refrigerant condensers

Principle of operation



**Refrigerant vapour (1)** circulates through an **evaporative condensing coil (2)**, which is continuously wetted by the **spray system (3)** installed at the top of the condenser. At the same time the **individual driven axial fans (4)**, located at the bottom of the unit, blow ambient **air (5)** upwards through the condenser. During operation, heat is transferred from the refrigerant to the water, and then to the atmosphere as a portion of the water that evaporates. The condensed vapour then **exits the unit (6)**. The remaining spray water is collected into the **sloping sump (7)**. The **air inlet shields (8)** prevent water splash-out to the outside of the unit. The spray water **pump (9)** recirculates the water up to the water spray system. The warm saturated **air (10)** leaves the condenser through the drift **eliminators (11)**, which remove water droplets from the air.

**Interested in the Vertex<sup>®</sup> condenser?** Contact your local [BAC representative](#) for more information.



# Construction details

Refrigerant condensers

Construction details

## 1. Material options



- Heavy-gauge hot-dip galvanized steel is used for external unit steel panels and structural elements featuring [Baltiplus Corrosion Protection](#).
- The unique [Baltibond<sup>®</sup> hybrid coating](#) is an **optional extra**. A hybrid polymer coating for longer service life, applied pre-assembly to all hot-dip galvanized steel components of the unit.
- Optional [stainless steel](#) panels and structural elements of type 304L or 316L for extreme applications.
- Or the economical alternative: a **water-contact stainless steel cold water basin**. Its key components and the basin itself are stainless steel. The rest is protected with the Baltibond<sup>®</sup> hybrid coating.

## 2. Heat transfer media

- Our heat transfer media is a **condensing coil**. Its thermal performance is proven during comprehensive [lab thermal performance tests](#), and it offers you unrivalled system efficiency.
- The coil is constructed of prime surface steel, hot-dip galvanized after fabrication. Designed for maximum 23 bar operating pressure according to PED. Pneumatically tested at 34 bar.
- All hot dip galvanized and stainless steel coils are delivered with BAC's **Internal Coil Corrosion Protection**, to ensure an optimal internal corrosion protection and guaranteed quality.

Try our Vertex<sup>®</sup> coil options:

- **Multiple circuit coils (split coils)** for your halo carbon refrigerants, maintaining individual compressor systems. Or use it for compressor jacket water or glycol cooling.
- **Stainless steel coils** are in type 304L or 316L.
- **High pressure coils** are designed for 28 bar operating pressure and pneumatically tested for 40 bar. Hot-dip galvanized after fabrication.

All coils are designed for low pressure drop with sloping tubes for free drainage of fluid.

## 3. Air movement system



- The air movement system consists of **multiple, belt driven axial fans**. You can easily remove the entire motor base for proper belt tensioning to ensure constantly correct belt alignment. Together with the **heavy duty fan shaft bearings** this guarantees optimal operational efficiency. Single and multi speed are available.
- **Drift eliminators** come in UV-resistant plastic, which will not rot, decay or decompose and their performance is tested and **certified by Eurovent**. They are assembled in **easily handled and removable sections**, for easy inspection of the water distribution system.
- Steel drift eliminators, protected with the unique [Baltibond® hybrid coating](#) for optimal corrosion protection, are also available for specific applications.

## 4. Water distribution system

These consist of:





- **Spray branches** with wide non-clog plastic **nozzles**, secured by rubber **grommets**. You can easily remove, clean and flush both nozzles and spray branches from outside the unit.
- A sloping cold water basin with:



- **Strainers** which are easy to lift out and the anti-vortexing device also helps to stop trapped air
- Mechanical **make-up**
- Man-sized rectangular **access door**.
- A close couple, bronze fitted centrifugal **spray pump** with totally enclosed fan cooled (TEFC) motor, installed horizontally to **reduce the basin water volume**. Water treatment system connections in the pump piping and cold water basin are provided as standard.





The bottom of the coil is easily to inspect via the **man-sized rectangular access door** and the optional **internal walkway**. They provide **full access to all components** of the **lower section** without the need to drain the complete pan section, thus making it **quick and safe to inspect and maintain** the system.

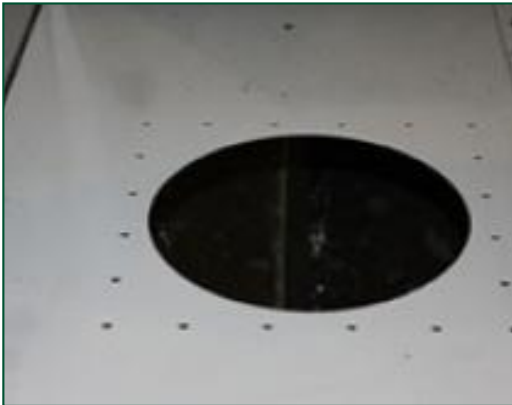
**Like to know more about the Vertex<sup>®</sup> construction details?** Contact your [local BAC representative](#).

# Options and Accessories

## Refrigerant condensers

### Options and Accessories

Below is a listing of the main Vertex<sup>®</sup> options and accessories. If your required option or accessory is not listed, look no further than your [local BAC representative](#).



#### Remote sump connection

The best way to **prevent a sump freezing** is to use the auxiliary remote variety within a heated area. Shutting off the circulating pump allows all the water in the water distribution, as well as that in suspension and the sump to drain freely to the auxiliary sump.



#### Basin heater package

Thanks to our factory-installed heaters, the water stays at 4°C and **never freezes**, even during equipments downtime and however cold it gets outside.



## Vibration cut out switch

When excessive vibration occurs, this switch shuts down the fan, ensuring your cooling equipment **operates safely**.



## Electric water level control package

For perfectly precise water level control, replace the standard mechanical valve with our electrical water level controller.



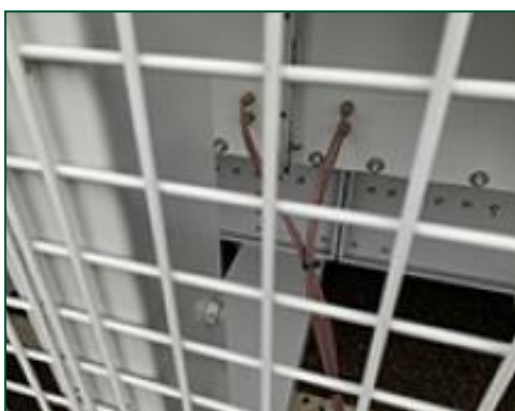
## Platforms

To inspect and maintain from the top of the unit more **easily** and **safely**, platforms can be installed.



## Ladder, safety cage and handrail

A ladder, safety cage and handrails **all facilitate access to the top of the unit** and safe inspection of your condenser.



## Extended lubrication lines

Extended lubrication lines with easily accessible grease fittings can be used **to lubricate** fan shaft bearings.



## Internal walkway

An internal walkway for **easy access to the unit water basin**.



## Safety switch

Cuts power to motors **with safety in mind** during inspection or maintenance.



## Solid bottom panels

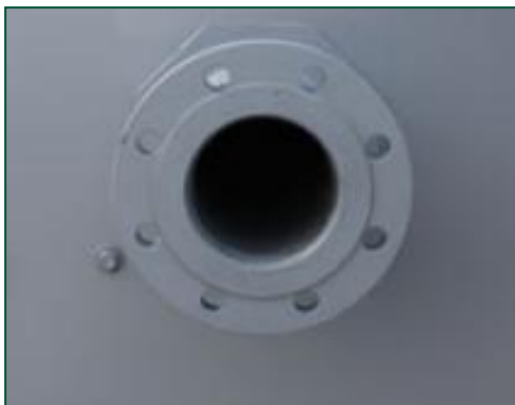
Solid bottom panels are required when the unit is installed elevated by 30 cm or more and when intake air is ducted to the unit.



## Standby pump

Install a standby **reserve spray pump** as failure backup!





## Flanges

Flanges facilitate **pipng connections** on-site.



## Water treatment equipment

Devices to control water treatment are needed to ensure proper **condenser water care**. Not only does this help protect the components, controlling corrosion, scaling and fouling, it also avoids the proliferation of harmful bacteria, including **legionella**, in the recirculating water.



## Filter

Separators and media filters efficiently **remove suspended solids** in the recirculating water, reducing system cleaning costs and optimizing water treatment results. Filtration helps you keep the recirculating water clean.



## Sump sweeper piping

Sump sweeper piping **prevents sediment collecting in the cold water basin** of the unit. A complete piping system, including nozzles, is installed in the basin of the condenser **for connection to side stream filtration** equipment.



## Clean out port

Clean out port **makes it easy to eliminate silt and sludge** from the condenser basin when cleaning and flushing the sump.



# VRC\_08

## Refrigerant condensers

### Engineering data

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#### General notes

1. Standard refrigerant in- and outlet connection sizes are ND100. Consult your local BAC representative for locations. Refrigerant connections are closed and coils are filled with an inert gas.
2. Unit height is indicative. For precise value refer to certified print.
3. Shipping/operating weights indicated are for units without accessories such as sound attenuators, discharge hoods, etc. Consult factory certified prints to obtain weight additions and the heaviest section to be lifted. Operating weights shown in the tables is based on total unit weight, weight of refrigerant operating charge and basin filled to overflow level.
4. Drawings show the standard right hand arrangement (air inlet side on the right when facing the connection end). Left hand arrangement can be supplied upon request.

**Last update:** 22/03/2021

### VRC\_08





1. Refrigerant in ND100; 2. Refrigerant out ND100; 3. Make up ND40; 4. Overflow ND80; 5. Drain ND50; 6. Bleed ND25; 7. Access door.



Model	Weights (kg)			Dimensions (mm)			Air Flow (m <sup>3</sup> /s)	Fan Motor (kW)	Water Flow (l/s)	Pump Motor (kW)	R717 charge (kg)
	Oper. Weight (kg)	Ship. Weight(kg)	Heaviest Section (kg)	L	W	H					
VRC 0 147A-0 812E- GA	5882	5160	3300	3651	2394	4045	16.9	(2x) 2.2	22.1	(1x) 2.2	132.0
VRC 0 184A-0 812E- JA	5969	5247	3300	3651	2394	4045	23.0	(2x) 5.5	22.1	(1x) 2.2	132.0
VRC 0 162A-0 812E- GA	6536	5776	3917	3651	2394	4232	15.9	(2x) 2.2	22.1	(1x) 2.2	164.0
VRC 0 202A-0 812E- JA	6623	5863	3917	3651	2394	4232	21.6	(2x) 5.5	22.1	(1x) 2.2	164.0
VRC 0 172A-0 812E- GA	7146	6349	4490	3651	2394	4421	15.6	(2x) 2.2	22.1	(1x) 2.2	196.0
VRC 0 199A-0 812E- HA	7162	6365	4490	3651	2394	4421	19.1	(2x) 4.0	22.1	(1x) 2.2	196.0
VRC 0 215A-0 812E- JA	7233	6436	4490	3651	2394	4421	21.2	(2x) 5.5	22.1	(1x) 2.2	196.0
VRC 0 231A-0 812E- KA	7250	6453	4490	3651	2394	4421	23.5	(2x) 7.5	22.1	(1x) 2.2	196.0
VRC 0 223A-0 812E- JA	7930	7096	5149	3651	2394	4612	21.0	(2x) 5.5	22.1	(1x) 2.2	228.0
VRC 0 241A-0 812E- KA	7947	7113	5149	3651	2394	4612	23.3	(2x) 7.5	22.1	(1x) 2.2	228.0
VRC 0 224A-0 818E- GA	9017	7926	4743	5480	2394	4045	25.2	(3x) 2.2	30.6	(1x) 4.0	198.0
VRC 0 258A-0 818E- HA	9042	7950	4743	5480	2394	4045	30.8	(3x) 4.0	30.6	(1x) 4.0	198.0
VRC 0 279A-0 818E- JA	9148	8057	4743	5480	2394	4045	34.2	(3x) 5.5	30.6	(1x) 4.0	198.0
VRC 0 292A-0 818E-	10004	8856	5649	5480	2394	4232	29.6	(3x) 4.0	30.6	(1x) 4.0	246.0



HA											
VRC 0 315A-0 818E- JA	10110	8962	5649	5480	2394	4232	32.9	(3x) 5.5	30.6	(1x) 4.0	246.0
VRC 0 340A-0 818E- KA	10136	8988	5649	5480	2394	4232	36.5	(3x) 7.5	30.6	(1x) 4.0	246.0
VRC 0 264A-0 818E- GA	10890	9686	6503	5480	2394	4421	23.8	(3x) 2.2	30.6	(1x) 4.0	294.0
VRC 0 305A-0 818E- HA	10914	9710	6503	5480	2394	4421	29.0	(3x) 4.0	30.6	(1x) 4.0	294.0
VRC 0 329A-0 818E- JA	11020	9816	6503	5480	2394	4421	32.3	(3x) 5.5	30.6	(1x) 4.0	294.0
VRC 0 354A-0 818E- KA	11046	9842	6503	5480	2394	4421	35.8	(3x) 7.5	30.6	(1x) 4.0	294.0
VRC 0 342A-0 818E- JA	11968	10708	7394	5480	2394	4612	32.0	(3x) 5.5	30.6	(1x) 4.0	342.0
VRC 0 369A-0 818E- KA	11994	10733	7394	5480	2394	4612	35.5	(3x) 7.5	30.6	(1x) 4.0	342.0



# VRC\_10

## Refrigerant condensers

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#### General notes

1. Standard refrigerant in- and outlet connection sizes are ND100. Consult your local BAC representative for locations. Refrigerant connections are closed and coils are filled with an inert gas.
2. Unit height is indicative. For precise value refer to certified print.
3. Shipping/operating weights indicated are for units without accessories such as sound attenuators, discharge hoods, etc. Consult factory certified prints to obtain weight additions and the heaviest section to be lifted. Operating weights shown in the tables is based on total unit weight, weight of refrigerant operating charge and basin filled to overflow level.
4. Drawings show the standard right hand arrangement (air inlet side on the right when facing the connection end). Left hand arrangement can be supplied upon request.

**Last update:** 22/03/2021

#### VRC\_10







1. Refrigerant in ND100; 2. Refrigerant out ND100; 3. Make up ND40; 4. Overflow ND80; 5. Drain ND50; 6. Bleed ND25; 7. Access door.



Model	Weights (kg)			Dimensions (mm)			Air Flow (m³/s)	Fan Motor (kW)	Water Flow (l/s)	Pump Motor (kW)	R717 charge (kg)
	Oper. Weight (kg)	Ship. Weight(kg)	Heaviest Section (kg)	L	W	H					
VRC 0 166A-1 012E-GA	7020	6046	3333	3651	2997	4388	21.0	(2x) 2.2	31.5	(1x) 3.0	168.0
VRC 0 185A-1 012E-GA	7669	6657	3944	3651	2997	4575	19.1	(2x) 2.2	31.5	(1x) 3.0	208.0
VRC 0 211A-1 012E-HA	7667	6656	3944	3651	2997	4575	22.9	(2x) 4.0	31.5	(1x) 3.0	208.0
VRC 0 235A-1 012E-JA	7725	6713	3944	3651	2997	4575	26.4	(2x) 5.5	31.5	(1x) 3.0	208.0
VRC 0 229A-1 012E-HA	8758	7684	4972	3651	2997	4764	19.9	(2x) 4.0	31.5	(1x) 3.0	276.0
VRC 0 253A-1 012E-KA	8394	7346	4555	3651	2997	4764	29.2	(2x) 7.5	31.5	(1x) 3.0	248.0
VRC 0 274A-1 012E-KA	8837	7763	4972	3651	2997	4764	25.4	(2x) 7.5	31.5	(1x) 3.0	276.0
VRC 0 305A-1 012E-LA	8984	7910	4972	3651	2997	4764	29.4	(2x) 11.0	31.5	(1x) 3.0	276.0
VRC 0 317A-1 012E-LA	9707	8591	5654	3651	2997	4955	29.6	(2x) 11.0	31.5	(1x) 3.0	322.0
VRC 0 284A-1 018E-GA	10806	9319	5633	5480	2997	4575	30.8	(3x) 2.2	47.9	(1x) 5.5	312.0
VRC 0 325A-1 018E-HA	10804	9317	5633	5480	2997	4575	36.9	(3x) 4.0	47.9	(1x) 5.5	312.0
VRC 0 361A-1 018E-JA	10890	9403	5633	5480	2997	4575	41.0	(3x) 5.5	47.9	(1x) 5.5	312.0
VRC 0 390A-1 018E-KA	10922	9435	5633	5480	2997	4575	45.5	(3x) 7.5	47.9	(1x) 5.5	312.0
VRC 0 304A-1 018E-	11759	10216	6530	5480	2997	4764	24.9	(3x) 2.2	47.9	(1x) 5.5	372.0



GA											
VRC 0 390A-1 018E- JA	12483	10901	7131	5480	2997	4764	34.9	(3x) 5.5	47.9	(1x) 5.5	414.0
VRC 0 421A-1 018E- KA	12515	10933	7131	5480	2997	4764	38.5	(3x) 7.5	47.9	(1x) 5.5	414.0
VRC 0 446A-1 018E- XA	12719	11137	7131	5480	2997	4764	41.8	(3x) 9.0	47.9	(1x) 5.5	414.0
VRC 0 365A-1 018E- HA	13457	11812	8128	5480	2997	4955	30.3	(3x) 4.0	47.9	(1x) 5.5	482.0
VRC 0 406A-1 018E- JA	13543	11898	8128	5480	2997	4955	35.0	(3x) 5.5	47.9	(1x) 5.5	482.0
VRC 0 487A-1 018E- LA	13796	12150	8128	5480	2997	4955	44.8	(3x) 11.0	47.9	(1x) 5.5	482.0



# VRC\_12

## Refrigerant condensers

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4. Drawings show the standard right hand arrangement (air inlet side on the right when facing the connection end). Left hand arrangement can be supplied upon request.

**Last update:** 22/03/2021

#### VRC\_12





1. Refrigerant in ND100; 2. Refrigerant out ND100; 3. Make up ND40; 4. Overflow ND80; 5. Drain ND50; 6. Bleed ND25; 7 Access door.



Model	Weights (kg)			Dimensions (mm)			Air Flow (m³/s)	Fan Motor (kW)	Water Flow (l/s)	Pump Motor (kW)	R717 charge (kg)
	Oper. Weight (kg)	Ship. Weight(kg)	Heaviest Section (kg)	L	W	H					
VRC 0 243A-1 212E- HA	8805	7678	4741	3651	3607	4575	25.3	(2x) 4.0	38.5	(1x) 4.0	256.0
VRC 0 270A-1 212E- JA	8862	7735	4741	3651	3607	4575	29.2	(2x) 5.5	38.5	(1x) 4.0	256.0
VRC 0 229A-1 212E- GA	10047	8848	5911	3651	3607	4764	19.7	(2x) 2.2	38.5	(1x) 4.0	334.0
VRC 0 292A-1 212E- JA	10103	8904	5911	3651	3607	4764	27.4	(2x) 5.5	38.5	(1x) 4.0	334.0
VRC 0 314A-1 212E- KA	10125	8926	5911	3651	3607	4764	30.2	(2x) 7.5	38.5	(1x) 4.0	334.0
VRC 0 349A-1 212E- LA	10272	9073	5911	3651	3607	4764	35.0	(2x) 11.0	38.5	(1x) 4.0	334.0
VRC 0 377A-1 212E- MA	10328	9129	5911	3651	3607	4764	38.7	(2x) 15.0	38.5	(1x) 4.0	334.0
VRC 0 392A-1 212E- MA	11198	9948	6730	3651	3607	4955	35.4	(2x) 15.0	38.5	(1x) 4.0	388.0
VRC 0 415A-1 212E- NA	11234	9984	6730	3651	3607	4955	38.3	(2x) 18.5	38.5	(1x) 4.0	388.0
VRC 0 321A-1 218E- GA	12351	10684	6777	5480	3607	4575	30.5	(3x) 2.2	56.2	(1x) 5.5	384.0
VRC 0 367A-1 218E- HA	12349	10682	6777	5480	3607	4575	36.5	(3x) 4.0	56.2	(1x) 5.5	384.0
VRC 0 408A-1 218E- JA	12435	10768	6777	5480	3607	4575	42.1	(3x) 5.5	56.2	(1x) 5.5	384.0
VRC 0 467A-1 218E- XA	12671	11004	6777	5480	3607	4575	50.5	(3x) 9.0	56.2	(1x) 5.5	384.0
VRC 0 441A-1 218E-	14245	12470	8479	5480	3607	4764	40.6	(3x) 5.5	56.2	(1x) 5.5	500.0





JA											
VRC 0 570A-1 218E- MA	14583	12808	8479	5480	3607	4764	57.4	(3x) 15.0	56.2	(1x) 5.5	500.0
VRC 0 495A-1 218E- KA	15551	13699	9676	5480	3607	4955	40.7	(3x) 7.5	56.2	(1x) 5.5	582.0
VRC 0 550A-1 218E- LA	15771	13920	9676	5480	3607	4955	46.9	(3x) 11.0	56.2	(1x) 5.5	582.0
VRC 0 593A-1 218E- MA	15856	14005	9676	5480	3607	4955	51.9	(3x) 15.0	56.2	(1x) 5.5	582.0
VRC 0 629A-1 218E- NA	15910	14059	9676	5480	3607	4955	56.2	(3x) 18.5	56.2	(1x) 5.5	582.0