

Voltage Stabilisers



Founded in 1969, ORTEA SpA is a leading company in manufacturing and engineering voltage stabilisers and magnetic components.

Over forty years in the business and ongoing technical research have made of ORTEA a competitive and technologically advanced company. Close co-operation between design, production and marketing enables to meet the requirements of a constantly growing number of customers.

In 1996 ORTEA joined ICAR Group, made of Italian and European industrial units specialised in manufacturing capacitors and power factor correction systems.

Beside standard production, ORTEA can be extremely flexible in developing and manufacturing special equipment according to User's specification. All this thanks to the experience gained over many years of applied technological development.

Such development includes IT tools that enable the technical staff to elaborate electrical and mechanical designs for each «custom product» on a quick and cost-effective basis.



The belief that product quality and Customer satisfaction are the core of a modern organisation, led to the implementation of an ISO9001:2008 certified Company Managing System.

The achievement of the ISO14001:2004 and OHSAS18001:2007 accreditation was a natural integration in order to optimise the Company's performance, showing at the same time the commitment towards environmental and safety at work issues.



ISO 9001 • ISO 14001
OHSAS 18001



CERTIFICATE OF APPROVAL
This is to certify that the Quality, Environmental and Occupational Health & Safety Management System of:

Ortea S.p.A.
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20873 Cavenago Brianza (Monza e della Brianza) – Italia

has been approved by Lloyd's Register Quality Assurance to the following Management System Standard:

ISO 9001:2008
ISO 14001:2004
OHSAS 18001:2007

The Quality, Environmental and Occupational Health & Safety Management System is applied to:

Design of...



ORTEA is well established in the global market. Thanks to strategically positioned offices and distributors and efficient commercial relations, ORTEA's products are installed and working in a large number of countries.



- ▲ ORTEA headquarters (Italy)
- ▲ ORTEA branches (Russia, Ivory Coast, Kenya, Venezuela)



Orion

three-phase
2-250kVA



Standard features

Voltage stabilisation	Independent phase control
Selectable output voltage (dip-switch)*	220-230-240V (L-N) / 380-400-415V (L-L)
Frequency	50/60Hz $\pm 5\%$
Admitted load variation	Up to 100%
Admitted load imbalance	100%
Cooling	Natural air ventilation up to 45kVA $\pm 15\%$ Aided with fans from 60kVA $\pm 15\%$
Ambient temperature	-25/+45°C
Storage temperature	-25/+60°C
Max relative humidity	95%
Admitted overload	200% 2 min.
Harmonic distortion	None introduced
Colour	RAL 7035
Protection degree	IP21
Instrumentation	Output digital multimeter
Installation	Indoor
Overvoltage protection	Class II output surge arrester (from 60kVA $\pm 15\%$)

* The output voltage can be adjusted by choosing **one** of the indicated values.
Such choice sets the new nominal value as a reference for all the stabiliser parameters.

Accessories

Interrupting devices
Load protection against over/undervoltage
Manual by-pass line
Input isolating transformer
SPD surge arrester
EMI/RFI filters
Neutral point reactor
IP54 protection degree for indoor and outdoor installation



All ORTEA stabilisers are designed and built in compliance with the Low Voltage and Electromagnetic Compatibility European Directives with regard to the CE marking requirements. ORTEA products are built with suitable quality components and that the manufacturing process is constantly verified in accordance with the Quality Control Plans which the Company applies in compliance with the ISO 9001:2008 Standards. The commitment towards environmental issues and safety at work matters is guaranteed by the certification of the Management System according to the ISO14001:2004 and OHSAS18001:2007 Standards. In order to obtain better performance, the products described in the present document can be altered by the Company at any date and without prior notice. Technical data and descriptions do hold therefore any contractual value.

Orion three-phase 2-250kVA



Rating in relation to the input variation percentage

±15%	±20%	±25%	±30%	+15%/-25%	+15%/-35%	+15%/-45%
5	4	3	2	4	3	2
10	7	4	3	7	4	3
15	10	7	4	10	7	4
20	15	10	7	15	10	7
30	20	15	10	20	15	10
45	30	20	15	30	20	15
60	45	30	20	45	30	20
80	60	45	30	60	45	30
105	80	60	45	80	60	45
135	105	80	60	105	80	60
150	120	90	80	n.d.	n.d.	n.d.
175	135	105	90	n.d.	n.d.	n.d.
200	150	120	105	n.d.	n.d.	n.d.
250	175	135	120	n.d.	n.d.	n.d.

Orion stabilisers are available for different ranges of input voltage fluctuation.

Standard models offer a **double input connection** so that with the same unit two different input variations ($\pm 1.5\%$ / $\pm 20\%$ or $\pm 25\%$ / $\pm 30\%$) can be dealt with.

The output voltage regulation is performed **independently on each phase** (stabilization of each phase-to-neutral voltage).

Orion stabilisers are used with **three-phase loads** and **single-phase loads** with **100% current imbalance** across the phases and asymmetrical mains voltage.

For the correct operation, Orion voltage stabilisers require the **neutral wire presence**. Operation without neutral wire connection is achievable by adding a device able to generate it (D/Yn isolating transformer or neutral point reactor).

An automatic **circuit breaker** is mounted on the regulation circuit **to protect** against overload and short circuit on the voltage regulator, whilst the auxiliary circuit is protected by **fuses**.

The instrumentation consists of a **multi-task digital line analyser**. Such instrument is able to provide with information regarding the voltage stabiliser output parameters, such as phase and linked voltage, current, power factor, active power, apparent power, reactive power, etc..

The alarms (min/max output voltage, gearmotor lock, internal overheating, regulator overload) are recognizable by means of LEDs on the control card.

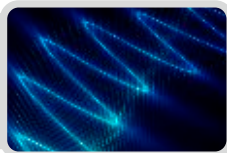
Voltage control and stabilisation, performed on the **true RMS value**, are managed by the digital **microprocessor**.

Each phase of every stabiliser belonging to this range is controlled by the **same control board** used on Vega and Antares models, thus simplifying maintenance operations and spare parts storage.

Up to 45kVA, the stabilisers are equipped with wheels for easy handling.

Orion

three-phase
2-250kVA



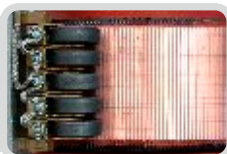
Wide range

- symmetrical: **±15%, ±20%, ±25%, ±30%** (other on request)
 - asymmetrical: **+15%/-25%, +15%/-35%, +15%/-45%** (other on request)
- Output voltage accuracy: **±0.5%**.



Technology

Control and stabilisation, performed on the **true RMS** value, are based on a digital **microprocessor** operating with a software specifically developed for Ortea.
Independent regulation on each phase.



Long life

Ortea system voltage regulator with **rollers** (without brushes, which are subject to heavy wear & tear).



Protection

The voltage regulator is protected by a **circuit breaker** with magneto thermal release.
The auxiliary circuit is protected by **fuses**.
Overvoltage protection: Class II output **surge arrester**.



Instrumentation

Multi-task digital analyser mounted on the front panel (linked and phase voltage, current, frequency, power factor, active power, reactive power, apparent power etc.).

Orion

three-phase
2-250kVA

Type	Input voltage variation range	Rating	Input voltage range	Maximum input current	Output voltage $\pm 0.5\%$	Output current	Efficiency	Speed regulation	Cabinet	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]	Type	[kg]

Input voltage variation range **$\pm 20\%/\pm 15\%$** (the values listed in the table are referred to 400V nominal voltage)

4-20	± 20	4	320-480	7.3		5.8		12		
5-15	± 15	5	340-460	8.5	400	7.2	>96	16	22	90
7-20	± 20	7	320-480	13		10		12		
10-15	± 15	10	340-460	16	400	14	>96	16	22	96
10-20	± 20	10	320-480	17		14		12		
15-15	± 15	15	340-460	25	400	21	>96	16	22	110
15-20	± 20	15	320-480	26		21		12		
20-15	± 15	20	340-460	34	400	29	>98	16	23	155
20-20	± 20	20	320-480	36		29		12		
30-15	± 15	30	340-460	51	400	43	>98	16	23	180
30-20	± 20	30	320-480	54		43		12		
45-15	± 15	45	340-460	76	400	65	>98	16	23	200
45-20	± 20	45	320-480	81		65		12		
60-15	± 15	60	340-460	102	400	87	>98	16	31	310
60-20	± 20	60	320-480	109		86		12		
80-15	± 15	80	340-460	136	400	116	>98	16	40	430
80-20	± 20	80	320-480	145		116		12		
105-15	± 15	105	340-460	179	400	152	>98	16	51	490
105-20	± 20	105	320-480	190		152		12		
135-15	± 15	135	340-460	230	400	195	>98	16	51	580
120-20	± 20	120	320-480	217		174		12		
150-15	± 15	150	340-460	255	400	217	>98	16	55	710
135-20	± 20	135	320-480	244		195		12		
175-15	± 15	175	340-460	298	400	253	>98	16	55	850
150-20	± 20	150	320-480	271		217		12		
200-15	± 15	200	340-460	340	400	289	>98	16	55	910
175-20	± 20	175	320-480	316		253		12		
250-15	± 15	250	340-460	425	400	361	>98	16	55	950

Orion

three-phase
2-250kVA

Type	Input voltage variation range	Rating	Input voltage range	Maximum input current	Output voltage $\pm 0.5\%$	Output current	Efficiency	Speed regulation	Cabinet	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]	Type	[kg]

Input voltage variation range $\pm 30\%/\pm 25\%$ (the values listed in the table are referred to 400V nominal voltage)

2-30	± 30	2	280-520	4.1	400	2.9	>96	8	22	90
3-25	± 25	3	300-500	5.7	400	4.3	>96	10	22	96
3-30	± 30	3	280-520	6.1	400	4.3	>96	8	22	96
4-25	± 25	4	300-500	7.7	400	5.8	>96	10	22	110
4-30	± 30	4	280-520	8.3	400	5.8	>96	8	22	110
7-25	± 25	7	300-500	13	400	10	>96	10	22	155
7-30	± 30	7	280-520	14	400	10	>98	8	23	155
10-25	± 25	10	300-500	19	400	14	>98	10	23	180
10-30	± 30	10	280-520	20	400	14	>98	8	23	180
15-25	± 25	15	300-500	29	400	22	>98	10	23	200
15-30	± 30	15	280-520	31	400	22	>98	8	23	200
20-25	± 25	20	300-500	39	400	29	>98	10	31	310
20-30	± 30	20	280-520	41	400	29	>98	8	31	310
30-25	± 25	30	300-500	57	400	43	>98	10	40	430
30-30	± 30	30	280-520	61	400	43	>98	8	40	430
45-25	± 25	45	300-500	86	400	65	>98	10	51	490
45-30	± 30	45	280-520	93	400	65	>98	8	51	490
60-25	± 25	60	300-500	116	400	87	>98	10	55	580
60-30	± 30	60	280-520	124	400	87	>98	8	55	580
80-25	± 25	80	300-500	155	400	116	>98	10	55	710
80-30	± 30	80	280-520	165	400	116	>98	8	55	710
90-25	± 25	90	300-500	173	400	130	>98	10	55	850
90-30	± 30	90	280-520	185	400	130	>98	8	55	850
105-25	± 25	105	300-500	203	400	152	>98	10	55	910
105-30	± 30	105	280-520	217	400	152	>98	8	55	910
120-25	± 25	120	300-500	231	400	173	>98	10	55	950
120-30	± 30	120	280-520	247	400	173	>98	8	55	950
135-25	± 25	135	300-500	260	400	195	>98	10	55	950

Orion

three-phase

2-250kVA

Type	Input voltage variation range	Rating	Input voltage range	Maximum input current	Output voltage $\pm 0.5\%$	Output current	Efficiency	Speed regulation	Cabinet	Weight
	[%]	[kVA]	[V]	[A]	[V]	[A]	[%]	[ms/V]	Type	[kg]

Input voltage variation range **+15%/-25%** (the values listed in the table are referred to 400V nominal voltage)

4-15/25	+15/-25	4	300-460	7.7	400	5.8	>96	14	22	100
7-15/25	+15/-25	7	300-460	13	400	10	>96	14	22	110
10-15/25	+15/-25	10	300-460	19	400	14	>96	14	22	120
15-15/25	+15/-25	15	300-460	29	400	22	>98	14	23	165
20-15/25	+15/-25	20	300-460	39	400	29	>98	14	23	190
30-15/25	+15/-25	30	300-460	57	400	43	>98	14	23	220
45-15/25	+15/-25	45	300-460	87	400	65	>98	14	31	330
60-15/25	+15/-25	60	300-460	116	400	87	>98	14	40	450
80-15/25	+15/-25	80	300-460	155	400	116	>98	14	51	510
105-15/25	+15/-25	105	300-460	203	400	152	>98	14	51	600

Input voltage variation range **+15%/-35%** (the values listed in the table are referred to 400V nominal voltage)

3-15/35	+15/-35	3	260-460	6.6	400	4.3	>96	10	22	100
4-15/35	+15/-35	4	260-460	8.9	400	5.8	>96	10	22	110
7-15/35	+15/-35	7	260-460	15	400	10	>96	10	22	120
10-15/35	+15/-35	10	260-460	22	400	14	>98	10	23	165
15-15/35	+15/-35	15	260-460	34	400	22	>98	10	23	190
20-15/35	+15/-35	20	260-460	45	400	29	>98	10	23	220
30-15/35	+15/-35	30	260-460	66	400	43	>98	10	31	330
45-15/35	+15/-35	45	260-460	100	400	65	>98	10	40	450
60-15/35	+15/-35	60	260-460	134	400	87	>98	10	51	510
80-15/35	+15/-35	80	260-460	178	400	116	>98	10	51	600

Input voltage variation range **+15%/-45%** (the values listed in the table are referred to 400V nominal voltage)

2-15/45	+15/-45	2	220-460	5.3	400	2.9	>96	8	22	100
3-15/45	+15/-45	3	220-460	7.8	400	4.3	>96	8	22	110
4-15/45	+15/-45	4	220-460	11	400	5.8	>96	8	22	120
7-15/45	+15/-45	7	220-460	18	400	10	>98	8	23	165
10-15/45	+15/-45	10	220-460	25	400	14	>98	8	23	190
15-15/45	+15/-45	15	220-460	39	400	22	>98	8	23	220
20-15/45	+15/-45	20	220-460	53	400	29	>98	8	31	330
30-15/45	+15/-45	30	220-460	78	400	43	>98	8	40	450
45-15/45	+15/-45	45	220-460	118	400	65	>98	8	51	510
60-15/45	+15/-45	60	220-460	158	400	87	>98	8	51	600



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