

SP1000 series



Surge Pack Protection for

AC Rotating Machines

Description:

SurgePak **SP1000** protection equipment is provided on induction motors to protect the motor against line surges. Line surges may be caused by lightning strikes, capacitor switching, arcing strikes, intermittent grounds, and power distribution failures.

A surge protection package consists of an indoor or outdoor enclosure with lightning arrestors and / or surge capacitors.

Lightning Arrestor:

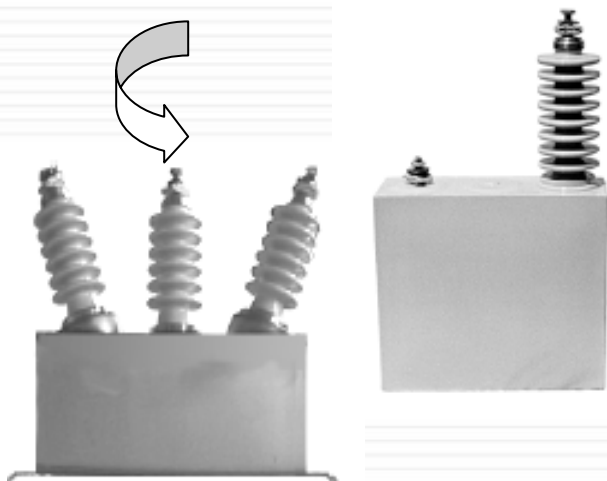
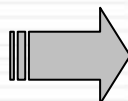
Lightning arrestors limit the crest value of an impulse voltage. When the voltage reaches a pre-determined value it provides a discharge path to ground. It provides a "Spillover Effect".

Surge Capacitor:

Single or three phases Surge Capacitors reduce the slope of the surge (rate of voltage rise) by momentarily absorbing initial energy, then releasing it; providing a "Damping Effect".

Installation:

The surge capacitor should be located between the motor and the lightning arrestors and as close to the motor as possible for maximum effectiveness (Limiting capacitor lead length to 3 feet is recommended).



Selection:

The selection of the surge protection package is based on the motor voltage. System Voltage supplies 600V and 2400V, to 13800V surge packages are standard.

Voltage class	kV	kV	kV	kV	kV	kV
System Voltage	2.4	4.16	7.2	15	25	35
Capacitance rated (uFarad per Phase)	0.1 to 0.5	0.1 to 0.5	0.1 to 0.5	0.1 to 0.5	0.1 to 0.5	0.1 to 0.5
Rated Voltage per Phase	2.4	4.2	7.2	15	25	35
Impulse Test Voltage BIL	60	60	75	95	125	150

Surgepropak SP1000 is designed and built to protect your equipment and assure continuous safety operation.

Protection for motors, rotating machines, transformers and processes is critical in many applications across industry. A common concern in electrical systems are power surges, faults, or lightning strikes, which may be damaging to various apparatus. To guard against these occurrences, Gentec offers Surgepropak, a protection device helping to assure continuous operation of equipment.



General Features

Surgepropack SP1000 consists of a heavy gauge metal enclosure, capacitors, surge arresters, isolated busses and a common ground connection. Assemblies are typically intended for use on 2.4kV to 13.8kV, three phase systems.

Enclosure: Two standard sizes of vented enclosures are available, either for indoor or (optional) outdoor use. Standard finished paint colour is ANSI 61 (light grey). Hinged doors include a 3-point latching mechanism, with a padlockable handle. Assemblies have anchor bolt holes for foundation mounting. Enclosure provides maximum safety for personnel, plus allows ample space for cable connections and servicing.

Surge capacitors are Nokian capacitors, type VSLS, offering high transient voltage withstand, low loss dielectric, and long life design. Stainless steel cases, painted light grey are supplied with porcelain bushings. The all film capacitors utilize Jarylek, a dielectric fluid which is non-PCB and completely bio-degradable. Capacitor discharge time from peak rated voltage is less than 50 volts, within 5 minutes of de-energization. Operating conditions (ambient temperature) are -40° C to + 46° C.

Surge arresters are heavy-duty station class, incorporating metal oxide and/or gapped arrester technologies. Intermediate class arresters (optional) are also available.


Internal cable connections include phase leads tied to isolated busses, which are housed on insulators. Pre-punched bus bar allows for simpler wiring installation.

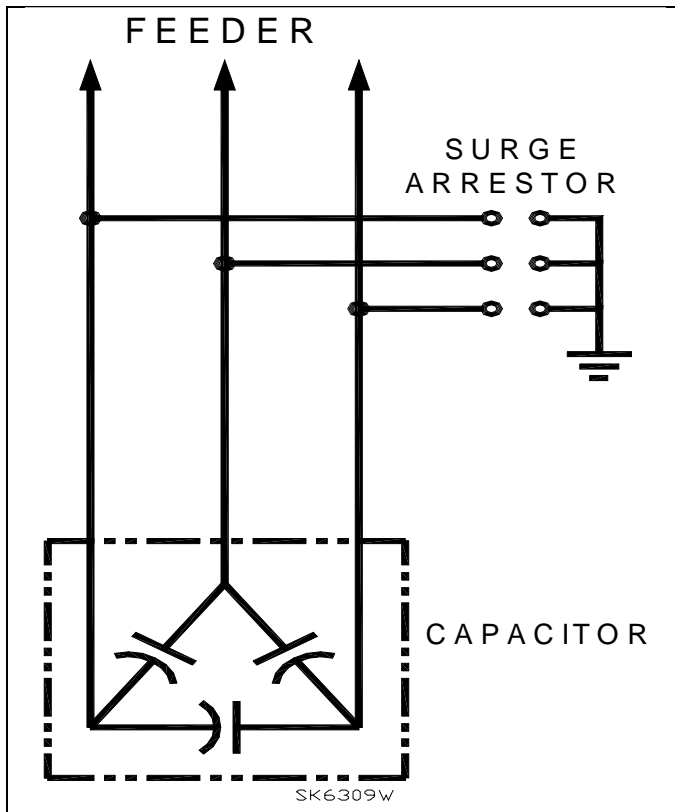
The Surgepropak unit should be located as close as possible to the machinery or equipment, for maximum protection. Surge protection assemblies are virtually maintenance free. Only an occasional inspection may be necessary to check tightness of connections or to clean the internals of the enclosure.

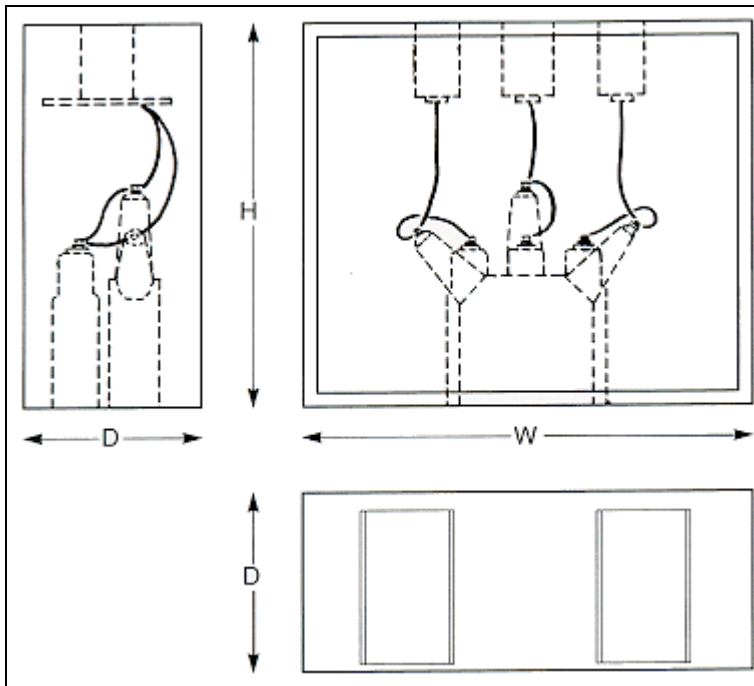
Gentec **SP1000** products are completely factory assembled and tested, ready for installation and operation. Gentec can also provide assemblies for specific customer requirements and unique applications. The Surgepropak SP1000 is a total protection system for many types of equipment.

System	SP1000 series Surge Pack					Options		
Voltage	Basic Part. #	System Voltage	Surge uFarad	Arrestors Station class	Type 1, 12, 3R			
Volts	+ -->	Suffix	Suffix	Suffix	Suffix	Suffix	Suffix	Suffix
2400	SP1000	2400	.5	3.0	3R			
4160	SP1000	4160	.5	4.5	3R			
4800	SP1000	4800	.5	6.0	3R			
13200	SP1000	13200	.25	13.5	3R			
13800 ***	SP1000	13800	.25	15.0	3R			
Part No ...	1	2	3	4	5	6	7	8
	PS1000	4160	.5	4.5	1			

*** Contact Factory Special configuration are available on request

1	SP1000 Series (AC Rotating Machine Application)	
2	System Voltage applied	
3	Surge capacitor uFard value	
4	Arrestor Voltage class	
5	Type Enclosure 1, 12, 3R, 4X	
6	Option : Current Limiting Fuses	
7	Option : KK = Kirk Key interlock	





Consult factory for:

- Other available ratings
- Other enclosure
- Arrangement/Configurations

Options:

- Current transformers
- Stress cones, potheads
- Intermediate arresters
- Other paint colors
- Steel skid rails

Openings with removable bottom plates.
Customer to drill for pothead or cable entrance.

Model Number : SP1000 - 024 - 13.8 - 01
A B C D

A - SP1000 = SurgePak series

B - S = Station class or I = Intermediate class

C - System Voltage

D = Enclosure type : 01 indoor or 3R = Outdoor

Application	Enclosure	Size*	Capacitors	Arresters
2.4kV to 4.16kV	NEMA 1	56H x 36W x 36D	(1) 3-Pole	(3) 6kV Station Class
4.8kV to 7.2kV	NEMA 1	56H x 48W x 48D	(1) 3-Pole	(3) 9kV Station Class
12.5kV to 13.8kV	NEMA 1	68H x 54W x 48D	(3) 1-Pole	(3) 15kV Station Class

Dimensions subject to change without notice.

Custom designed configurations are available to meet virtually any requirement or dimensional constraint.