

DARAK[®] 2000

Separators for
INDUSTRIAL BATTERIES

DARAMIC[®]

DARAK® 2000

Product description

For more than 50 years DARAMIC, LLC separators have been meeting all market requirements.

DARAK® 2000 is a microporous duroplastic separator. Due to its high temperature stability, mechanical strength, low electrical resistance, high porosity and very low acid displacement the DARAK® 2000 separator is especially suitable for applications in batteries with gelled electrolyte or in conventional high performance batteries.

In batteries, which are subjected to particular vibration or strain, DARAK® 2000 with glass mat is preferentially used.

The DARAK® 2000 separator consists of a modified phenolic resin and an integrated polyester mat for reinforcement. Owing to its small average pore diameter, this separator prevents penetration shorts.

DARAK® 2000 separators have a typical backweb thickness of 0.4 mm and integrated ribs, which consist of the same material as the backweb.

Due to the good inherent stability of the DARAK® 2000 separator in the battery, no harmful substances are generated. No chlorine is released to the electrolyte because DARAK® 2000 contains no PVC. Furthermore, the DARAK® 2000 separator is stable against additives e.g. phosphoric acid, which is sometimes added into gelled batteries for additional cycle life. The unique combination of all these excellent properties makes the DARAK® 2000 separator the best choice for industrial cells and gelled cells.

Quality characteristics

Separator dimensions

DARAK® 2000

	Unit	Value	Test Method
Height	mm	87 - 1250	BS-TE-2015
Width	mm	65 - 800	BS-TE-2015
Thickness	mm	0.70 – 3.15	BS-TE-2005

DARAK® 2000 with glass mat

	Unit	Value	Test Method	
Glass mat type		04 06		
Height	mm	87 - 1250	87 - 1250	BS-TE-2015
Width	mm	65 - 800	65 - 800	BS-TE-2015
Thickness	mm	1.25 – 3.40	1.45 – 3.60	BS-TE-2005
Special dimensions available upon request				

Quality characteristics

Electrical resistance

	Unit	Typical Value*	Test Method
1. DARAK® 2000 Separators	Ω cm ²	0.09	BS-TE-2002/2000
2. DARAK® 2000 with glass mat 04	Ω cm ²	0.12	BS-TE-2002/2000
3. DARAK® 2000 with glass mat 06	Ω cm ²	0.13	BS-TE-2002/2000

Physical and chemical properties (DARAK® 2000)

	Unit	Typical Value*	Test Method
1. Wettability	s	3	BS-TE-2061
2. Acid weight loss	%	3	BS-TE-2063
3. Trace elements			
Iron	ppm	5	BS-TE-2075
Manganese	ppm	0.1	BS-TE-2075
Nickel	ppm	0.1	BS-TE-2075
Cobalt	ppm	0.1	BS-TE-2075
Copper	ppm	0.1	BS-TE-2075
Chloride	ppm	20	BS-TE-2076
4. Acid displacement	ml/m ²	160	BS-TE-2060
5. Porosity	%	70	BS-TE-2060
6. Average pore size	μm	0.4	BS-TE-2085
7. Maximum pore diameter	μm	<1	BS-TE-2086

* depending on profile and thickness

Product description

DARAK® 2000 separators can be supplied in the following versions:

Positive ribs:

rib slope of 10°, called "diagonal ribs"

rib spacing:
standard version:
- typically 12 mm

rib spacing:
special version:
- typically 6 mm

vertical ribs:
rib spacing:
- typically 12 mm

without positive ribs, called "flat"

with glass mat on positive ribs

Negative ribs:

Vertical:
rib spacing:
- typically 3 mm

diagonal:
rib spacing:
- typically 12 mm

Other rib configurations are available upon request.

For special requests we kindly ask you to contact us.

The present data sheet supersedes all prior published communications, drawings and other product relevant information.

We reserve the right of product modifications, which are in the interest of technical progress.

The information given is based on our current knowledge and experience. However, due to the diversity of potential influences in processing and application of our products, this information cannot absolve the customer from his own testing and evaluation.

No legally binding assurance with regard to any properties not listed or to suitability for a special application can be derived from this information.

Quality System certified according to ISO 9001.

Environmental System certified according to ISO 14001.

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