

DARAK[®] 5000

Separators for
INDUSTRIAL BATTERIES

DARAMIC[®]

DARAK[®] 5000

Product description

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

DARAK[®] 5000 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[®] 5000 separator is especially suitable for applications in stationary, submarine and traction batteries.

The DARAK[®] 5000 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[®] 5000 separators have a typical backweb thickness of 0.6 mm and integrated ribs, which consist of the same material as the backweb.

The DARAK[®] 5000 separator is also available with an overall thickness from 3.40 mm to 4.15 mm without glass mat and up to 4.60 mm with glass mat.

This high overall thickness (HOT) separator is designed to be used in batteries with wider plate spacing. The high overall thickness allows to avoid additional spacers in stationary batteries.

Due to the good inherent stability of the DARAK[®] 5000 separator in the battery, no harmful substances are generated. No chlorine is released to the electrolyte because DARAK[®] 5000 contains no PVC. Furthermore, the DARAK[®] 5000 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[®] 5000 separator the best choice for industrial cells and gelled cells.

Quality characteristics

Separator dimensions

DARAK[®] 5000

	Unit	Value	Test Method
Height	mm	87 - 1250	BS-TE-2015
Width	mm	65 - 800	BS-TE-2015
Thickness	mm	0.90 - 4.15	BS-TE-2005

DARAK[®] 5000 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	1.45 - 4.40 1.65 - 4.60	BS-TE-2005
Special dimensions available upon request			

Quality characteristics

Electrical resistance

	Unit	Typical Value*	Test Method
1. DARAK® 5000 Separators	$\Omega \text{ cm}^2$	0.12	BS-TE-2003/2000
2. DARAK® 5000 HOT Separators	$\Omega \text{ cm}^2$	0.13	BS-TE-2003/2000
3. DARAK® 5000 / DARAK® 5000 HOT with glass mat 04	$\Omega \text{ cm}^2$	0.15	BS-TE-2003/2000
4. DARAK® 5000 / DARAK® 5000 HOT with glass mat 06	$\Omega \text{ cm}^2$	0.16	BS-TE-2003/2000

Physical and chemical properties (DARAK® 5000 / DARAK® 5000 HOT)

	Unit	Typical Value*	Test Method
1. Wettability	s	6	BS-TE-2061
2. Acid weight loss	%	4	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			
DARAK® 5000	ml/m^2	240	BS-TE-2060
DARAK® 5000 HOT	ml/m^2	340	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® 5000 separators can be supplied in the following versions:

Positive ribs:

rib slope of 10°, called "diagonal ribs"

rib spacing:
- typically 12 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
- typically 6 mm

diagonal:
rib spacing:
- typically 12 mm

Other rib configurations are available upon request.

DARAK® 5000 HOT is only available with diagonal ribs on both sides.

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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