RHM International

TEL. +1 888 495 0008 E-MAIL INFO@RHMINTL.COM WWW.RHMINTL.COM

THE NEW STATE OF THE ART IN HV BUSHINGS

Reliable, Explosion-free High-Voltage Bushings That Never Need Maintenance

THE RIF® ADVANTAGES - Safe and reliable bushing technology.

We are enabling total safety for lower risk and cost of ownership.

ISO 9001 Certified We have more than 40 years of HV T&D technology experience.

Built on the proven concept of finely graded condenser insulations, our high voltage transformer bushings' patented core insulation is composed of fiberglass impregnated with epoxy resin cleverly layered between capacitance screens while the outer insulation is exclusively featuring silicone rubber, compounding a uniquely stress-free paperless core insulation with superior pollution and climate resistance.

Introduced in 2002 with immediate success, RIF® bushings have triggered a whole new phase of high voltage bushing technology in the industry.

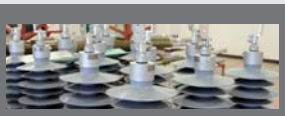
Those proprietary RIF® bushings don't feature any gap or open cavity in their paperless structure. They are totally solid and dry.

As a result, there isn't any interstitial insulating filler in any open space between capacitive cores and outer insulators. Freed from critical seals the insulation configuration is then better waterproofed by design and related manufacturing processes are much simplified. This simplicity translates into robustness, reliability, safety and shorter lead times.

Consequently the RIF® technology delivers four major improvements:

A totally dry type paperless condenser structure with superior electrical performance and a uniform electrical field profile along the bushing.

Long-term sustainability of performance under multidimensional operational stresses. No specific long term storage conditions needed.



A remarkable resistance to mechanical and seismic shocks as well as thermal stresses.

A core insulation condition that can be monitored in real time thanks to a unique and safe built-in tap (option).

This provides our customers with key benefits:

BENEFITS

- Long term steady operation with very low and consistently stable PD and tanδ values
- Discretionary maintenance, explosion-free and environmentally-friendly operation in extreme operational conditions (thermal, climatic, pollution, mechanical) for long term reliability, lower cost of ownership and increased transformer reliability and uptime
- Lower spare parts inventory thanks to shorter lead times combined with higher reliability
- Strengthened protection of assets by leveraging smart bushings that can continuously monitor the insulation's condition thus protecting host power transformer from critical damage that would be generated by a failing bushing

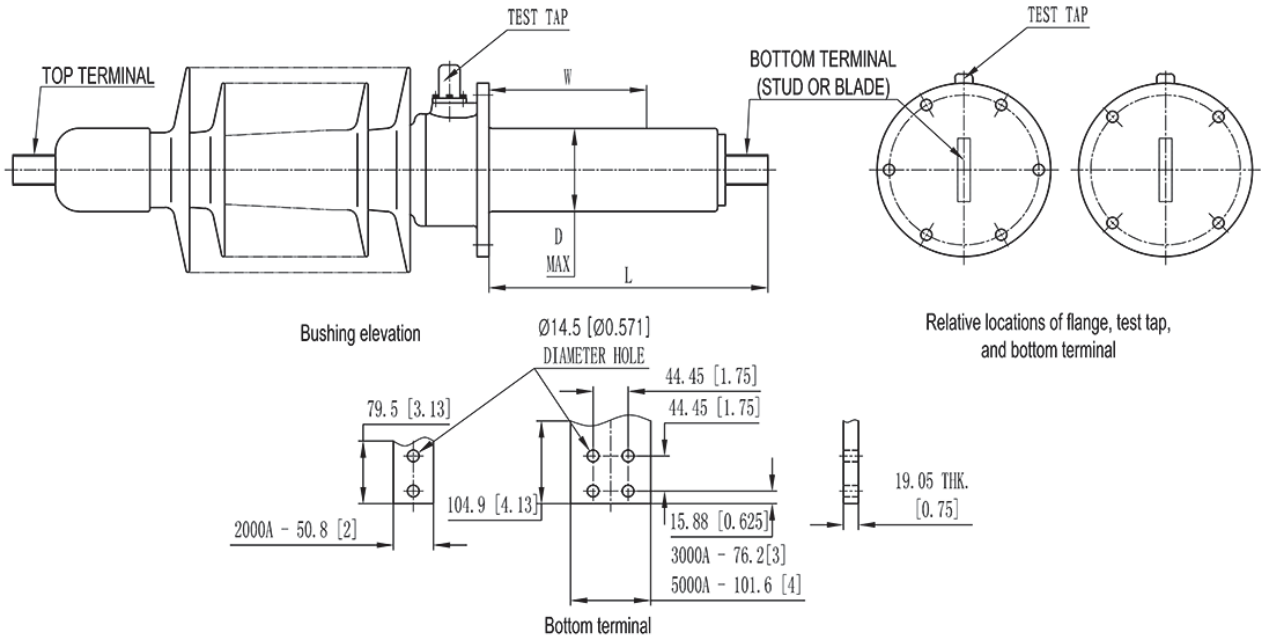
All products are developed and manufactured in an ISO 9001 certified plant. Quality is central to all aspects of our technologies and processes.

In short, the RIF® technology uniquely reduces risks for power transformer operators along with their total costs of ownership. Available up to 345kV.

Ultra-reliable. Ultra-safe. Up to 345kV. RIF®: the fully dry transformer bushing technology that leaves less room for error.

PRODUCT SPECIFICATION OUTLINE & TABLE

Outline Drawing for RIF® Bushings (nominal system voltage through 69 kV)



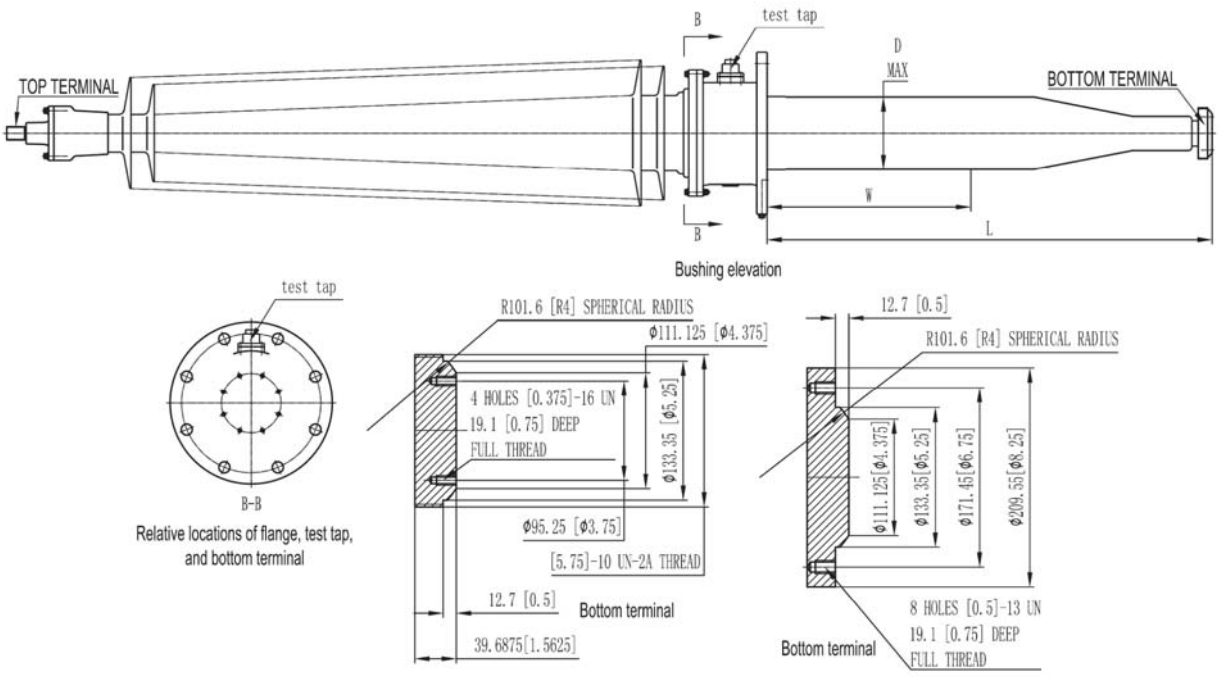
Ratings		Oil End Dimensions (inch)		
Rated Voltage (kV)	Rated Current (A)	Oil-end Length (L)	CT Space (W)	Oil-end Core Diameter (D)
15	1200 (Solid rod)	20	16.5	3.125
15	2000 (Solid rod)	24.5	21	3.125
23/25	400 (Draw lead)	29.5	16.5	3.125
23/25	1200 (Solid rod)	29.5	16.5	3.125
34.5	400 (Draw lead)	31.5	21	3.5
34.5	1200 (Solid rod)	31.5	21	3.5
34.5	2000 (Solid rod)	33.5	21	4
34.5	3000 (Solid rod)	33.5	21	5
34.5	5000 (Solid rod)	33.5	21	8.63
46	400 (Draw lead)	33.5	16.5	4
46	1200 (Solid rod)	33.5	16.5	4
69	400 (Draw lead)	37.5	21	5.25
69	1200 (Solid rod)	37.5	21	5.25
69	2000 (Solid rod)	39.5	21	5.5
69	3000 (Solid rod)	39.5	21	6.5

High Quality
innovative bushings

Ultra-reliable. Ultra-safe. Up to 345kV.
RIF®: the fully dry transformer bushing technology that leaves less room for error.

PRODUCT SPECIFICATION OUTLINE & TABLE

Outline Drawing for RIF® Bushings (from 115 kV to 230 kV)

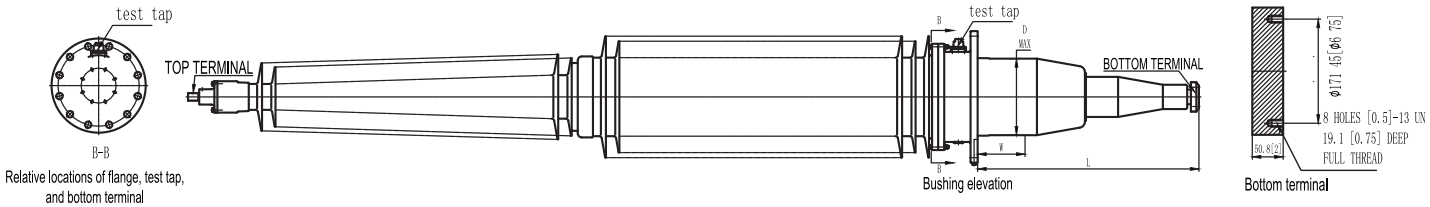


Ratings		Oil End Dimensions (inch)		
Rated Voltage (kV)	Rated Current (A)	Oil-end Length (L)	CT Space (W)	Oil-end Core Diameter (D)
115	1200 (Solid rod)	43	23	8.75
115	1600 (Solid rod)	43	23	9.75
115	2500 (Solid rod)	43	23	9.75
138	800 (Draw lead)	46.75	23	9.75
138	1200 (Solid rod)	46.75	23	9.75
138	2000 (Solid rod)	46.75	23	9.75
138	3000 (Solid rod)	46.75	23	9.75
161	1200 (Solid rod)	50.25	23	12
161	1600 (Solid rod)	50.25	23	12
161	2500 (Solid rod)	50.25	23	12
196	1200 (Solid rod)	59.5	26.75	14.625
196	1600 (Solid rod)	59.5	26.75	14.625
196	2500 (Solid rod)	59.5	26.75	14.625
230	800 (Draw lead)	50.25	23	12
230	1200 (Solid rod)	50.25	23	12
230	2000 (Solid rod)	50.25	23	12
230	3000 (Solid rod)	50.25	23	12

Controlled Environment
Manufacturing is conducted in controlled clean rooms.

KEY PARAMETERS COMPARISON

Outline Drawing for RIF® Bushings (nominal system voltage 345 kV)



Relative locations of flange, test tap, and bottom terminal

Rated Voltage (kV)	Rated Current (A)	Oil-end Length (L)	CT Space (W)	Oil-end Core Diameter (D)
345	800 (Draw lead)	51	23	15.75
345	1200 (Solid rod)	51	23	15.75
345	2000 (Solid rod)	51	23	15.75
345	3000 (Solid rod)	51	23	15.75

Comparison of RIF® performance with IEEE Standard for Power factor, Mechanical Strength and Max temperature

	IEEE specifications			RHM International				
C1 Power factor	≤0.5%			≤0.4%				
Maximum temperature	105℃			130℃				
Cantilever Strength					Rated continuous current (A)			
	Nominal system voltage (kV)	Rated continuous current (A)	Cantilever test load (N)	Highest voltage for equipment Um (kV)	≤800	1000~1600	2000~2500	≥3150
					Cantilever test load (N)			
	34.5-69	Up to 2000	890	≤36	1000	1250	2000	3150
		3000	1300	52	1600	1600	2500	3150
		5000	2200	72.5 to 100	2000	2000	3150	4000
	138	All	3100	123 to 145	3150	3150	4000	4000
	230 and above	All	4000	≥170	4000	4000	5000	5000

Inquiry Checklist

When placing an order, customer's specification should include:

- Highest voltage Um
- Rated current
- Rated frequency
- Outdoor insulator's minimum creepage distance
- Mounting flange configuration
- Reference Standard
- Environmental Conditions (altitude, pollution class)

For special requirements, custom designs are available.

CONTACT US

Contact Us

RHM International
280 Clark Road
Brookline, MA 02445
USA

Tel: +1 888 495 0008
Fax: +1 617 608 0274

www.rhmintl.com

RHM International considers all inquiries, worldwide.

For any inquiries about the products and their availability, please call or email us at: **info@rhmintl.com**

© 2014-2015 RHM International, LLC. All Rights Reserved.