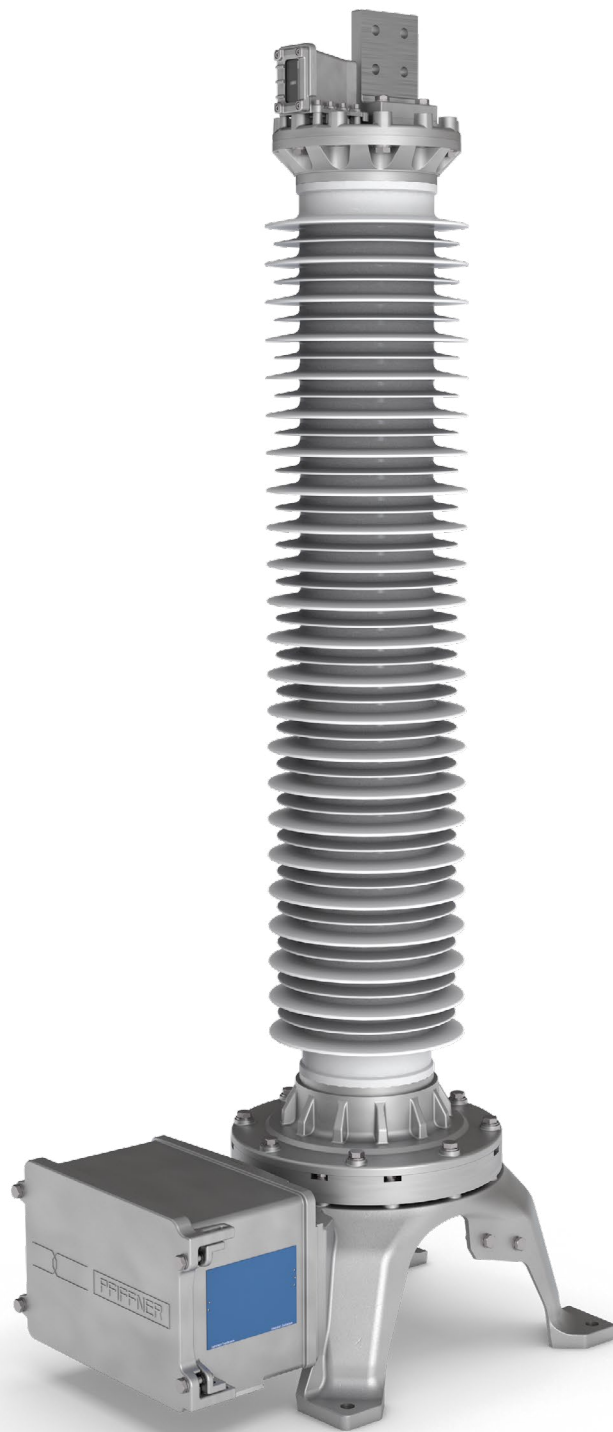


Resistive capacitive voltage divider

Outdoor operation
Oil insulated

ROF 72–550 kV



PFIFFNER

Current and voltage – our passion



General description

Resistive capacitive voltage dividers type ROF (RC divider) are used in high voltage networks within the 72.5 –550 kV (AC) range. They divide the primary voltage to standardised, equivalent secondary voltage for metering, measuring and protection devices.

The active part of the RC divider consists of capacitive and parallel connected resistive dividing elements. The length of the active part extends along the entire insulator length, which results in linear voltage distribution. Both elements are calibrated to each other and provide accurate transient voltage signals from the high voltage side to the low voltage side. The RC divider enables very high frequency bandwidth; even direct voltages (DC) can be measured.

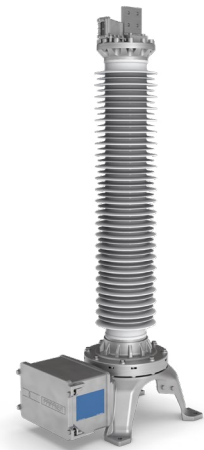
As the active part of the RC divider is hermetically sealed, an expansion bellow in the head section compensates volume changes of the oil due to temperature variations. The operating pressure will be visualised by monitoring unit.

For voltage levels of 360 kV and higher, field distortions are avoided by using a corona ring around the head of the divider.

The secondary elements, like adjustment and overvoltage protection components, are located in the terminal box together with the equivalent burden replications. The cover plate of the terminal box can be opened laterally. The connecting sockets for the measuring cables are located on the bottom side of the terminal box.

The secondary output voltage is connected with a shielded measuring cable, with which the divider is factory calibrated.

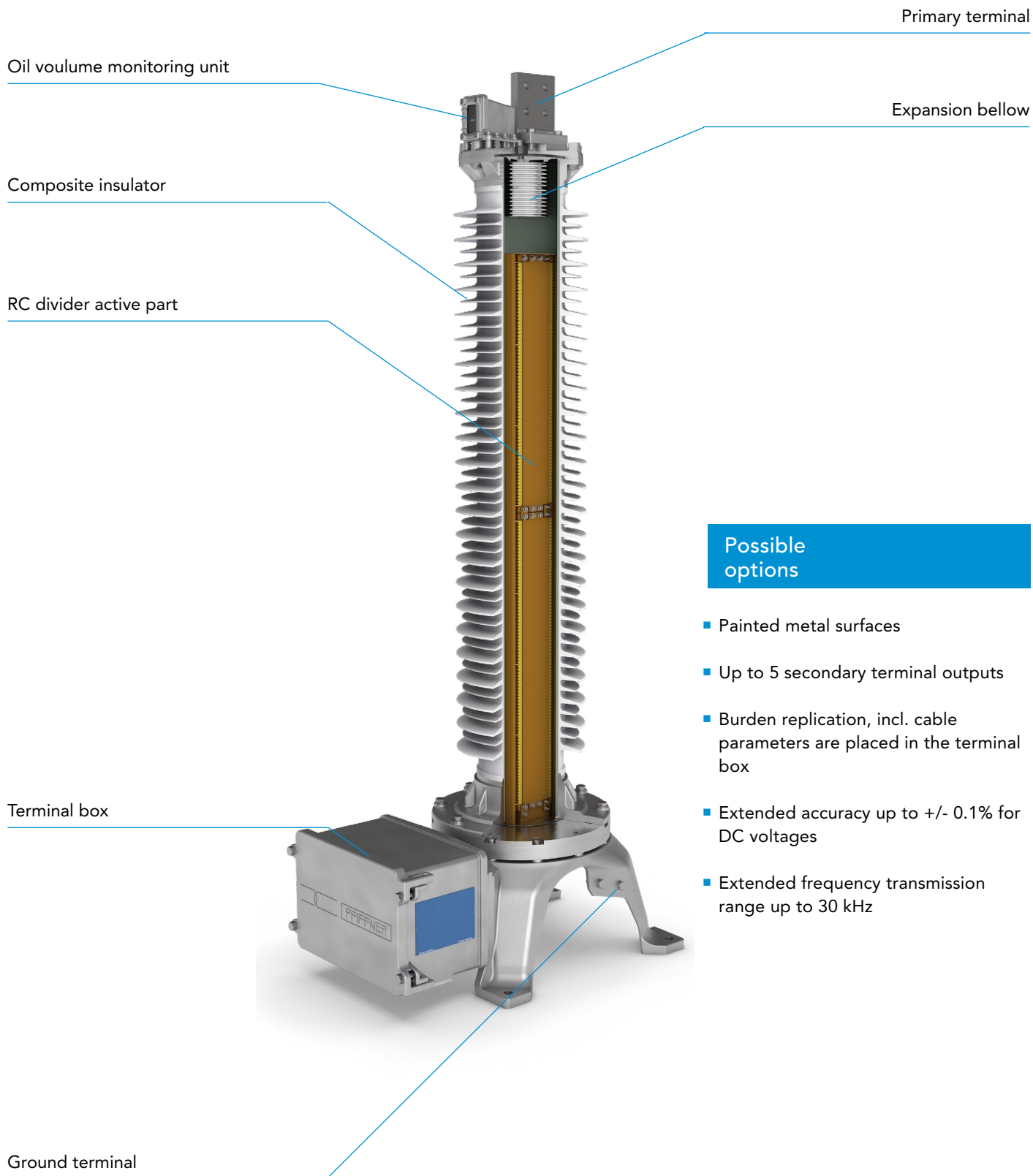
The RC-dividers can be commissioned with minimal effort. Thanks to the modern design, the dividers are generally maintenance free.



Advantages of resistive capacitive voltage dividers

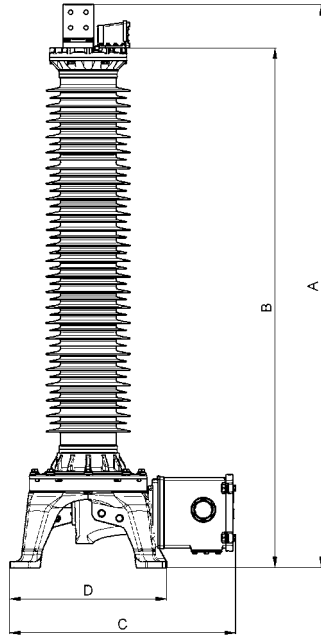
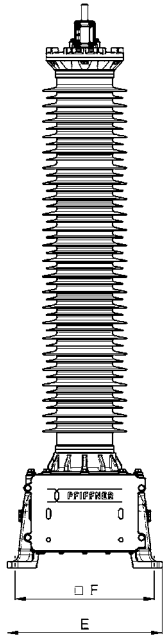
- Ferro resonance-free and no saturation effects
- Secondary output can be operated under short-circuit or no-load conditions
- AC accuracy class 0,2-WB2 according to IEC 61869-1 Ed.2
- Measurement of transients possible up to 1 MHz
- Accuracy with harmonics up to 10 kHz of $\pm 1.0\%$
- Contains only minimal amounts of oil

Design

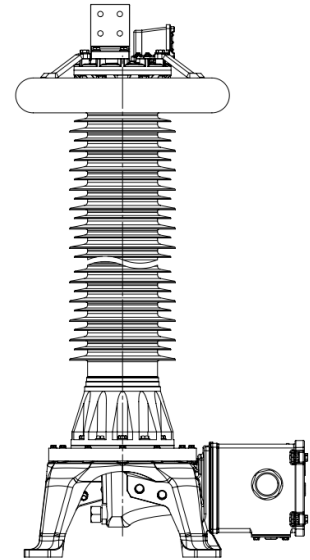


Technical data

72–300 kV



362–550 kV



Type ROF		72	123	145	170	245	300	362	420	550	550
Standard		IEC 61869-11									
Highest voltage for equipment (U_m)	kV	72.5	123	145	170	245	300	362	420	550	550
Rated power-frequency withstand voltage	kV	140	230	275	325	460	460	510	630	680	900
Rated lightning impulse withstand voltage	kV	325	550	650	750	1050	1050	1175	1425	1550	1800
Rated frequency (f_r)	Hz	16.7 / 25 / 50 / 60									
Accuracy class		0.1; 0.2; 0.5; 1.0; 3.0									
Frequency bandwidth	Hz	DC / 15 - 10'000 (30'000)									
Burden type		R or R//C									
Burden range		$\geq 100 \text{ k}\Omega$									
Rated voltage factors		1.5–30 sec / 1.9–30 sec / 1.9–8 h									

Type ROF*		72	123	145	170	245	300	362	420	550	550
Total height of unit**	A mm	1326	1626	1826	2026	2626	2869	3511	3911	4669	5570
Height to primary terminal**	B mm	1186	1486	1686	1886	2486	2729	3371	3771	4529	5430
Depth of unit including terminal box	C mm	736	736	736	736	736	736	736	736	736	736
Depth of unit base	D mm	500	500	500	500	500	500	500	500	500	500
Width of unit base	E mm	500	500	500	500	500	500	500	500	500	500
Distance between screw holes at base	F mm	450	450	450	450	450	450	450	450	450	450
Approximate weight*	kg	90	95	105	130	150	170	185	225	255	285

* Typical values, subject to change without notice

** with standard composite insulator, creepage distance 31 mm/kV



Highlights

Linear voltage distribution

- The optimised arrangement of the resistive and capacitive elements across the entire insulator length results in excellent voltage distribution.
- The RC divider shows a perfect performance under transient voltage stresses and under high pollution conditions.
- The linear voltage distribution prevents the occurrence of external partial discharges.

High accuracy at frequencies up to 10kHz

- The specially developed design of the active part with resistive and capacitive elements guarantees high measurement accuracy and stability up to the 200th harmonic of the rated system frequency.
- At the same time, high accuracy and stability in voltage variation (linearity) is achieved, starting from lower voltages up to the overvoltage factor.

Simple measurement cable connection

- The terminal box has connecting sockets on the bottom side. The measuring cable can be easily connected without any opening of the terminal box.
- In case additional measuring cable (transmission cable) is needed, the cable can be plugged into the next free available terminal socket. To do this, the prepared burden adaption must be switched off in the terminal box. The divider is still calibrated and ready for operation.

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Current and voltage – our passion



HIGH VOLTAGE



MEDIUM VOLTAGE



LOW VOLTAGE