



CHOKES

58 | Basic information

59 | RENDr

60 | RDNDr

61 | RFDr

62 | RNDr

63 | RDMDr

64 | RDMF

65 | RDSF

Choke coils:

Choke coils are inductors and hence reactance coils. The energy content of the magnetic field generated by a coil with current flowing through it is significantly increased through a high-permeability iron core.

Riedel — Choke coils are designed as iron core chokes with air gap.

Our range encompasses, apart from extensive specially manufactured products calculated for the concrete application cases, a standard supply range consisting of:

Single-phase line chokes

RENDr series

Nominal voltage: 230VAC, voltage drop: 4%

Single-phase double line chokes

RDNDr series

Nominal voltage: 400VAC, voltage drop: 2 x 2%

Three-phase filter circuit chokes

RFDr 7 series

Nominal voltage: 3AC 400V, choke factor: 7%

Three-phase line chokes

RNDr series

Nominal voltage: 3AC 400V, voltage drop: 4%

Line chokes

(commutation chokes)

Use of line chokes is necessary for current limitation and for suppressing line reactions and commutating dips.

The current I_G limited by the line choke is calculated as follows:

$$I_G = \frac{I_N \times 100 \%}{U_K}$$

For connection of converters to the AC grid inductances are always necessary on the grid side for limitation of commutating dips in grid voltage. If the converter is fed via a converter transformer its control inductance assumes the limitation. For direct connection or supply via autotransformer use of a current-limiting line current choke is absolutely necessary to comply with the criteria specified in DIN VDE 0160 part 2.

Three-phase filter circuit chokes

Three-phase filter circuit chokes are used in reactive current compensation systems. With the capacitors in the reactive current compensation system they form a series resonant circuit and thereby produce defined grid conditions. Through the choking of reactive current compensation systems resonance with the grid harmonics is avoided. The inductance of the filter circuit chokes is selected such that the resonance frequency of the series resonant circuit built from capacitor and filter circuit choke lies below the lowest frequency of the occurring harmonics.

Through increasing operation of converters and inverters harmonics occur in the grid. From operation of 6-pulse bridge circuits the grid is loaded with currents with the harmonic order

$$n = 6 \times k \pm 1 \quad \text{for } k = 1, 2, 3, \dots$$

. The amplitudes of the currents get smaller as the harmonic order increases.

$$I_{(n)} \sim \frac{1}{n} \times I_{(1)}$$

The **choke factor p** is yielded from the relationship between reactive resistances of the filter circuit chokes to the capacitor

$$p = \frac{X_L}{X_C}$$

The **resonance frequency** for the series resonant circuit is calculated as follows:

$$f_R = \frac{f_{\text{grid}}}{\sqrt{p}}$$

In the selection of resonance frequency and hence the choke factor the ripple control frequency in the grid is to be considered and the compatibility with the energy supply company in charge to be ensured.

Design of the three-phase filter circuit chokes is based on the following premises:

Base load:

$$I_1 = -1.06 \times I_{\text{nominal}} \quad \text{where } I_{\text{nominal}} = \frac{N_{\text{comp}}}{\sqrt{3} \times U_{\text{nominal}}}$$

and N_{comp} is the effective compensation power of the choked capacitor arrangement.

Harmonic content of the grid voltage

$$U_3 = 0.5 \% U_{\text{nominal}} \quad U_7 = 5 \% U_{\text{nominal}}$$

$$U_5 = 5 \% U_{\text{nominal}} \quad U_{11} = 5 \% U_{\text{nominal}}$$

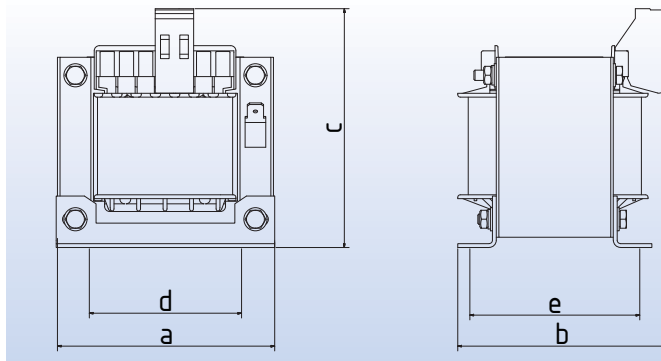
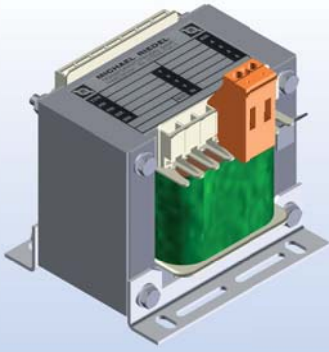
Thermal current

$$I_{\text{therm}} = 1.05 \times \sqrt{I_1^2 + I_3^2 + I_5^2 + I_7^2 + I_{11}^2}$$

Linearity

$$I_{\text{lin}} = 1.2 \times (I_1 + I_3 + I_5 + I_7 + I_{11})$$

where the inductance is at least 95% of its nominal value.



Single-phase line chokes according to VDE 0570 part 2-20



General information:

Use of line chokes is necessary for current limitation and for suppressing line reactions and commutating dips.

Current limitation is carried out preferentially at 25 times the value of the nominal current. For this line chokes with a short circuit voltage of 4% must be used.

The line choke must be selected according to the nominal current of the consumer.

Design:

Open frame design, stationary, for device installation and assembly in dry rooms. Connection to leakage current-resistant transformer terminals with screw fastening. The terminals are protected against back of hand and finger contact according to accident prevention regulations (BGV A3).

PE connection as 6.3x0.8mm tab connector.

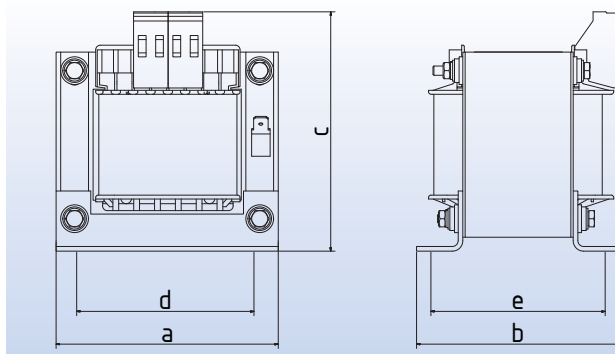
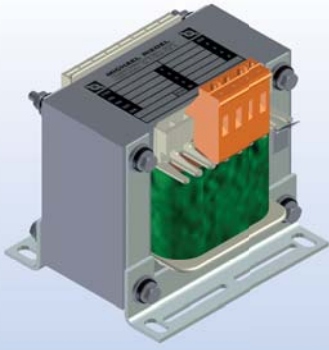
IP 00, insulation class E, max. ambient temperature of 40°C (ta40°C/E)

Technical data:

Nominal voltage:	AC 230V
Nominal voltage drop (Uk):	4% (4.8% at 60Hz)
Nominal frequency:	50Hz (60Hz)

Line chokes with deviating technical data available upon request.

Type	Current A	Induct. mH	Item no:	Copper kg	Total kg	Dimensions approx. in mm					Mounting
						a	b	c	d	e	
RENDr 1	1,0	29,300	0400-00000001	0,05	0,30	48	44	66	38	34	M3
RENDr 2	2,0	14,600	0400-00000002	0,06	0,35	55	46	73	44	36	M3
RENDr 3	3,0	9,760	0400-00000003	0,07	0,38	55	46	73	44	36	M3
RENDr 4	4,0	7,320	0400-00000004	0,08	0,45	60	48	62	44	38	M3
RENDr 5	5,0	5,860	0400-00000005	0,08	0,65	60	58	62	44	48	M3
RENDr 6	6,0	4,880	0400-00000006	0,12	0,65	66	55	67	50	42	M4
RENDr 8	8,0	3,660	0400-00000008	0,12	0,90	66	67	67	50	54	M4
RENDr 10	10,0	2,930	0400-00000010	0,24	1,10	78	60	76	56	47	M4
RENDr 12,5	12,5	2,340	0400-000012,5	0,25	1,40	78	69	76	56	56	M4
RENDr 16	16,0	1,830	0400-00000016	0,25	1,90	85	76	79	64	63	M4
RENDr 20	20,0	1,460	0400-00000020	0,35	2,00	85	76	79	64	63	M4
RENDr 25	25,0	1,170	0400-00000025	0,45	2,30	96	78	92	84	62	M5
RENDr 32	32,0	0,915	0400-00000032	0,50	2,90	96	88	92	84	72	M5



Single-phase double line chokes according to VDE 0570 part 2-20



General information:

Use of double line chokes is necessary for current limitation and for suppressing line reactions and commutating dips. By dividing of the inductance to both grid supply lines symmetric connection of the consumer is achieved. About half of the voltage drop occurs on each coil section. Coil connection in series and in parallel yields additional application possibilities up to double the nominal current and half the voltage drop.

Current limitation is carried out preferentially at 25 times the nominal current. For this line chokes with a short circuit voltage of 4% (2 x 2%) must be used.

The grid choke must be selected according to the nominal current of the consumer.

Design:

Open frame design, stationary, for device installation and assembly in dry rooms. Connection to leakage current-resistant transformer terminals with screw fastening. The terminals are protected against back of hand and finger contact according to accident prevention regulations (BGV A3).

Coil consisting of 2 equivalent coil sections isolated from each other.

PE connection as 6.3x0.8mm tab connector.

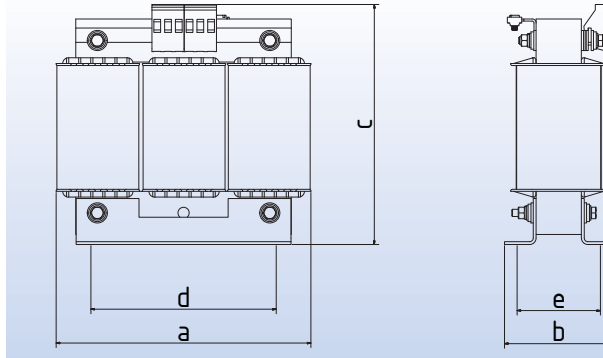
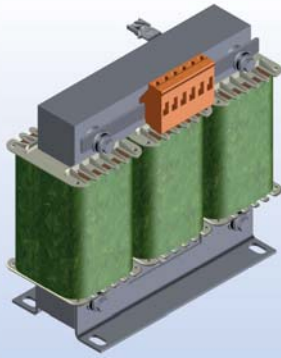
IP 00, insulation class E, max. ambient temperature of 40°C (ta40°C/E)

Technical data:

Nominal voltage:	AC 400V
Nominal voltage drop (UK):	2 x 2% (2 x 2.4% at 60Hz) (Series connection of sub-coils: 4%) (Parallel connection of sub-coils: 1%)
Nominal frequency:	50Hz (60Hz)

Double line chokes with deviating technical data available upon request.

Type	Current A	Induct. mH	Item no:	Copper kg	Total kg	Dimensions approx. in mm					Mounting
						a	b	c	d	e	
RDNDr 2	2	2 x 12,70	0410-00000002	0,07	0,45	60	48	62	44	38	M3
RDNDr 3	3	2 x 8,49	0410-00000003	0,08	0,65	60	58	62	44	48	M3
RDNDr 4	4	2 x 6,37	0410-00000004	0,08	0,85	66	67	67	50	54	M4
RDNDr 5	5	2 x 5,09	0410-00000005	0,12	0,90	66	67	67	50	54	M4
RDNDr 6	6	2 x 4,24	0410-00000006	0,24	1,10	78	60	76	56	47	M4
RDNDr 8	8	2 x 3,18	0410-00000008	0,25	1,40	78	69	76	56	56	M4
RDNDr 10	10	2 x 2,55	0410-00000010	0,25	1,90	85	76	79	64	63	M4
RDNDr 12,5	12,5	2 x 2,04	0410-000012,5	0,35	2,20	96	78	92	84	62	M5
RDNDr 16	16	2 x 1,59	0410-00000016	0,40	2,80	96	88	92	84	72	M5
RDNDr 20	20	2 x 1,27	0410-00000020	0,50	3,50	96	102	92	84	86	M5
RDNDr 25	25	2 x 1,02	0410-00000025	0,70	3,60	105	86	110	84	70	M5
RDNDr 32	32	2 x 0,796	0410-00000032	0,80	4,50	105	101	110	84	85	M5



Three-phase filter circuit chokes according to VDE 0570 part 2-20



Adapted-output

General information:

Three-phase filter circuit chokes are used in reactive current compensation systems. With the capacitors in the reactive current compensation system they form a series resonant circuit and thereby produce defined grid conditions.

Three-phase filter circuit chokes with adapted outputs ensure the specified compensation reactive power when interconnected with capacitors of the given capacity.

Three-phase filter circuit chokes without adapted outputs are designed according to the capacitors used and lead to deviating compensation reactive powers.

For frequently selected chokes of 7% the series resonant circuit formed from the filter circuit choke and the compensating capacitors yields a resonance frequency of 189Hz.

Design:

Open frame upright design, stationary, for device installation and assembly in dry rooms. Connection up to 12.5kVAr to leakage current-resistant transformer terminals with screw and tab connectors 2.8x0.8mm to 5A, 6.3x0.8mm to 20A. The 2.8x0.8mm tab connector must only be loaded to 5A in accordance with DIN 46249 and 6.3x0.8mm to 20A. Above 12.5kVAr to 25kVAr universal terminal blocks with screw connection and at 30kVAr and above pressed cable lugs are used. The terminals are protected against back of hand and finger contact according to accident prevention regulations (BGV A3). With temperature switch in middle coil.

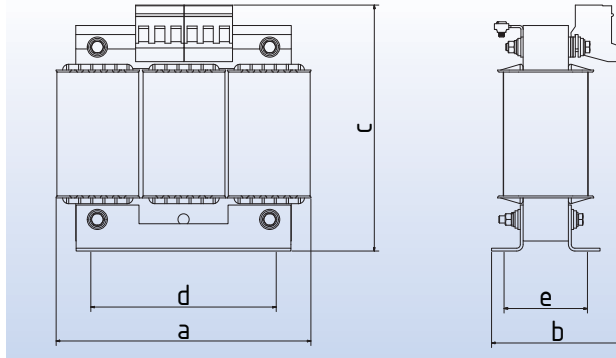
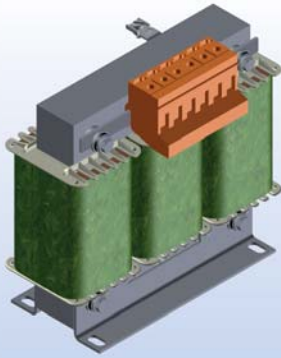
IP 00, insulation class E, max. ambient temperature of 40°C (ta40°C/E)

Technical data:

Nominal voltage:	3AC 400V
Choke factor:	7%
Resonance frequency:	189Hz
Nominal frequency:	50Hz
50Hz current:	1 .06 x nominal current
150Hz current:	0.04 x nominal current
250Hz current:	0.31 x nominal current
350Hz current:	0.13 x nominal current

Filter circuit chokes with deviating technical data available upon request.

Type	Current A	Induct. mH	Reactive power kVAr	Capacity µF	Item no:	Copper kg	Total kg	Dimensions approx. in mm					Mounting
								a	b	c	d	e	
RFDr 7/2,5	3,6	15,34	2,5	46,3	0420-000002,5	0,8	2,0	125	73	115	90	39	M4
RFDr 7/5	7,2	7,67	5,0	92,5	0420-00000005	0,9	5,0	155	92	140	113	49	M6
RFDr 7/7,5	10,8	5,11	7,5	138,8	0420-000007,5	1,2	5,3	155	92	140	113	49	M6
RFDr 7/10	14,4	3,84	10,0	185,0	0420-00000010	1,8	9,0	190	102	165	136	57	M6
RFDr 7/12,5	18,0	3,07	12,5	231,3	0420-000012,5	2,6	9,5	190	102	165	136	57	M6
RFDr 7/15	21,7	2,56	15,0	277,5	0420-00000015	3,5	10,5	190	102	210	136	57	M6
RFDr 7/17,5	25,3	2,19	17,5	323,8	0420-000017,5	3,5	15,0	210	117	230	175	97	M6
RFDr 7/20	28,9	1,92	20,0	370,0	0420-00000020	4,5	16,0	210	117	230	150	80	M6
RFDr 7/25	36,1	1,53	25,0	462,5	0420-00000025	4,8	19,0	230	148	240	176	95	M6
RFDr 7/30	43,3	1,28	30,0	555,1	0420-00000030	6,5	20,5	230	148	205	176	95	M6
RFDr 7/40	57,7	0,96	40,0	740,1	0420-00000040	10,0	28,0	240	146	215	190	120	M8
RFDr 7/50	72,2	0,77	50,0	925,1	0420-00000050	10,5	33,0	265	152	235	200	102	M8



Three-phase line chokes according to VDE 0570 part 2-20



General information:

Use of line chokes is necessary for current limitation and for suppressing line reactions and commutating dips.

Current limitation is carried out preferentially at 25 times the value of the nominal current. For this line chokes with a short circuit voltage of 4 % must be used.

The line choke must be selected according to the nominal current of the consumer.

Design:

Open frame upright design, stationary, for device installation and assembly in dry rooms, strong base bracket for mounting. Connection to leakage current-resistant transformer terminals with screw fastening. Above 50A screw block terminals or cable lugs are used. The terminals are protected against back of hand and finger contact according to accident prevention regulations (BGV A3).

For terminal connection of 50A and higher the dimensions b and c change.

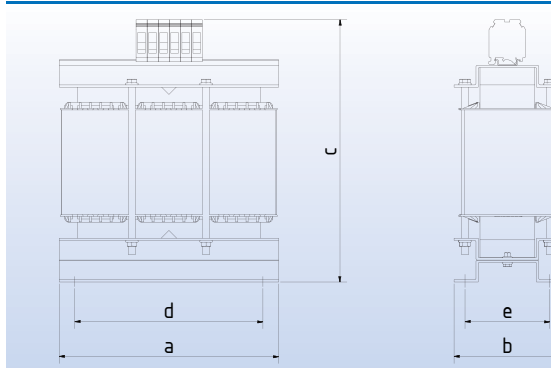
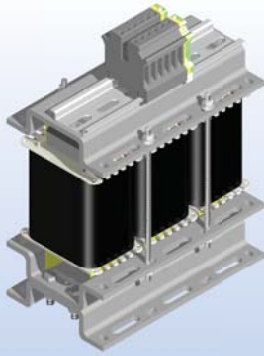
IP 00, insulation class E, from 250A insulation class F, max. ambient temperature of 40°C (ta40°C)

Technical data:

Nominal voltage:	3AC 400V
Nominal voltage drop (Uk):	4% (4.8% at 60Hz)
Nominal frequency:	50Hz (60Hz)

Line chokes with deviating technical data available upon request.

Type	Current A	Induct. mH	Item no:	Copper kg	Total kg	Dimensions approx. in mm					Mounting
						a	b	c	d	e	
RNDr 2,5	2,5	11,73	0430-000002,5	0,2	1,0	78	62	75	50	38	M4
RNDr 4	4	7,33	0430-00000004	0,3	1,3	96	55	90	71	39	M4
RNDr 6	6	4,90	0430-00000006	0,4	1,7	96	64	90	71	48	M4
RNDr 8	8	3,67	0430-00000008	0,6	1,9	120	58	118	90	39	M4
RNDr 10	10	2,94	0430-00000010	0,6	2,8	120	58	118	90	39	M4
RNDr 13	13	2,26	0430-00000013	0,8	3,0	120	68	118	90	49	M4
RNDr 16	16	1,84	0430-00000016	0,9	3,4	150	69	138	113	50	M5
RNDr 20	20	1,47	0430-00000020	1,2	3,7	150	69	138	113	50	M5
RNDr 25	25	1,18	0430-00000025	1,2	5,1	150	84	138	113	65	M5
RNDr 30	30	0,98	0430-00000030	1,5	5,4	150	102	138	113	65	M5
RNDr 40	40	0,74	0430-00000040	2,7	6,8	180	92	160	136	57	M6
RNDr 50	50	0,59	0430-00000050	2,7	8,2	180	102	160	136	67	M6
RNDr 60	60	0,49	0430-00000060	3,1	9,8	180	96	205	136	77	M6
RNDr 80	80	0,37	0430-00000080	3,5	13,0	210	106	234	175	86	M6
RNDr 90	90	0,33	0430-00000090	4,0	14,0	210	117	234	175	97	M6
RNDr 100	100	0,29	0430-00000100	4,3	16,0	210	117	234	175	97	M6
RNDr 120	120	0,25	0430-00000120	5,9	18,0	228	154	195	176	95	M8
RNDr 140	140	0,21	0430-00000140	7,5	22,0	240	159	205	185	91	M8
RNDr 160	160	0,184	0430-00000160	7,7	25,0	240	159	205	185	91	M8
RNDr 180	180	0,163	0430-00000180	8,5	29,0	240	164	205	185	96	M8
RNDr 200	200	0,147	0430-00000200	10,0	30,0	240	164	205	185	96	M8
RNDr 250	250	0,117	0430-00000250	8,5	30,0	300	227	260	224	94	M8
RNDr 315	315	0,093	0430-00000315	10,1	37,0	300	240	260	224	108	M8
RNDr 400	400	0,074	0430-00000400	11,3	47,0	300	300	260	224	145	M8
RNDr 500	500	0,059	0430-00000500	14,0	57,0	360	280	310	264	140	M8



Three-phase motor chokes for operation on frequency converters according to VDE 0570 part 2-20, EN 61558-2-20



Motor choke (series RDMDr):

The motor chokes are supplied standard up to a nominal voltage of 3AC 690 V and a nominal current up to 1200 A.

In addition the noise emission is significantly reduced due to a unique core geometry.

The use of RDMDr is recommended for motor cable supply lines of up to 150 m length.

Technical data:

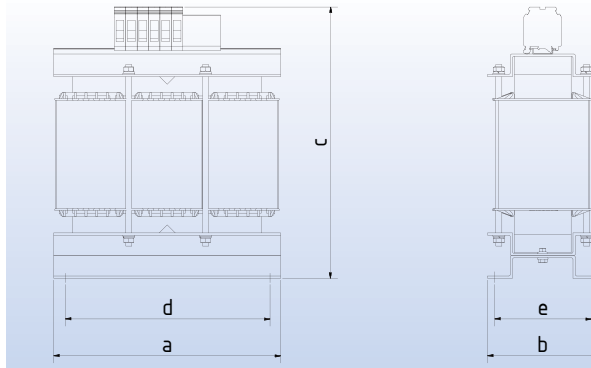
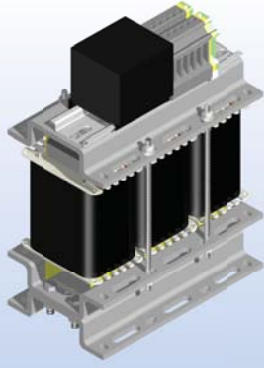
Rated voltages:	3AC 400V to 3AC 690V (higher voltages available on request)
Rated current:	up to 1200 A (higher currents available on request)
Frequency:	50Hz to 60Hz (higher frequencies available on request)
Cycle frequencies (PWM):	1.5kHz up to 8.0kHz
Ambient temperature:	ta = 40°C / F, S1/100% ED
Cooling types:	AN
Protection class:	IP00 (higher protection classes available on request)
Design:	compact, open design for installation in dry rooms

Advantages:

- Low noise filter due to new core geometry (verified by noise level measurements on the Aalen Hochschule)
- Reduction of overvoltages on the motor insulation (longer motor running times)
- Lower noise development on motor

Type	Current A	Induct. mH	Item no:	PWM kHz	Copper kg	Total kg	Dimensions approx. in mm					Mounting
							a	b	c	d	e	
RDMDr 24	24	0,766	0440-0000024	≥ 4,0 kHz	1,2	5,2	150	89	210	135	75	M5
RDMDr 32	32	0,574	0440-0000032	≥ 4,0 kHz	1,6	5,7	150	89	210	135	75	M5
RDMDr 38	38	0,484	0440-0000038	≥ 4,0 kHz	2,3	6,2	150	89	210	135	75	M5
RDMDr 44	44	0,418	0440-0000044	≥ 4,0 kHz	2,5	6,4	150	89	210	135	75	M5
RDMDr 61	61	0,301	0440-0000061	≥ 4,0 kHz	2,8	7,3	180	85	240	165	67	M6
RDMDr 73	73	0,252	0440-0000073	≥ 3,0 kHz	3,2	8,5	180	95	245	165	77	M6
RDMDr 90	90	0,204	0440-0000090	≥ 3,0 kHz	3,3	10,2	180	105	250	165	87	M6
RDMDr 106	106	0,173	0440-0000106	≥ 3,0 kHz	3,4	14,1	228	100	290	208	75	M6
RDMDr 147	147	0,125	0440-0000147	≥ 3,0 kHz	6,7	18,9	240	105	330	220	77	M8
RDMDr 177	177	0,104	0440-0000177	≥ 3,0 kHz	7,4	22,0	240	115	330	220	87	M8
RDMDr 212	212	0,087	0440-0000212	≥ 3,0 kHz	10,1	28,4	240	135	340	220	107	M8
RDMDr 260	260	0,071	0440-0000260	≥ 3,0 kHz	12,6	34,7	300	125	415	275	99	M8
RDMDr 315	315	0,058	0440-0000315	≥ 3,0 kHz	13,8	48,6	300	155	425	275	124	M8
RDMDr 395	395	0,047	0440-0000395	≥ 3,0 kHz	21,6	62,6	360	165	478	335	121	M8
RDMDr 480	480	0,038	0440-0000480	≥ 1,5 kHz	23,7	80,4	360	260	380	335	151	M8
RDMDr 600	600	0,031	0440-0000600	≥ 1,5 kHz	26,4	124,8	420	280	420	390	170	M10
RDMDr 658	658	0,028	0440-0000658	≥ 1,5 kHz	32,5	136,4	420	310	420	380	200	M10
RDMDr 745	745	0,025	0440-0000745	≥ 1,5 kHz	34,7	144,5	480	265	480	440	160	M14
RDMDr 800	800	0,023	0440-0000800	≥ 1,5 kHz	49,9	179,0	480	295	480	440	190	M14
RDMDr 880	880	0,021	0440-0000880	≥ 1,5 kHz								Customer-specific - only on request
RDMDr 990	990	0,019	0440-0000990	≥ 1,5 kHz								Customer-specific - only on request
RDMDr 1120	1120	0,016	0440-0001120	≥ 1,5 kHz								Customer-specific - only on request

The given values are typical characteristic values and can deviate depending on manufacture !



Three-phase motor filter for operation on frequency converters according to VDE 0570 part 2-20, EN 61558-2-20



Motor filter (series RDMF):

The motor filters RDMF from Michael Riedel Transformatorenbau GmbH reduce the voltage increase speeds to less than 500V/μs. The motor filters are supplied standard up to a nominal voltage of 3AC 690 V and a nominal current up to 1200A. In addition the noise emission is significantly reduced due to a unique core geometry. The use of RDMF is recommended for motor cable supply lines of up to 250 m length.

Technical data:

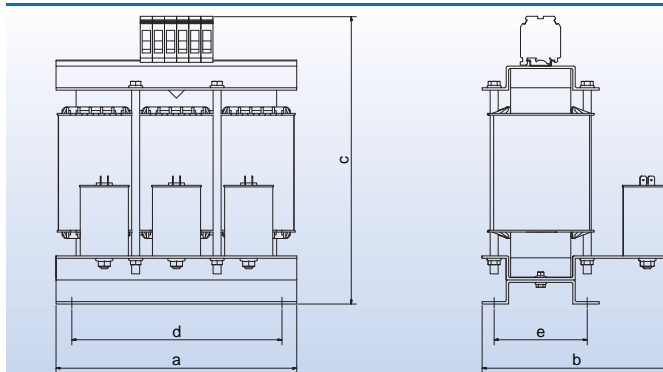
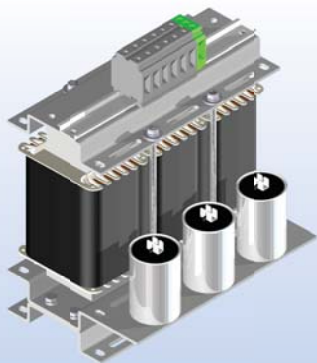
Rated voltages:	33AC 400V to 3AC 690V (higher voltages available on request)
Rated current:	up to 1200 A (higher currents available on request)
Frequency:	50Hz to 60Hz (higher frequencies available on request)
Cycle frequencies (PWM):	1.5kHz up to 8.0kHz
Ambient temperature:	ta = 40°C / F, S1/100% ED
Cooling types:	AN
Protection class:	IP00 (higher protection classes available on request)
Design:	compact, open design for installation in dry rooms

Advantages:

- Low noise filter due to new core geometry (verified by noise level measurements on the Aalen Hochschule)
- Reduction of overvoltages on the motor insulation (longer motor running times)
- Long motor feed lines possible
- Lower noise development on motor

Type	Current A	Induct. mH	Item no:	PWM kHz	Copper kg	Total kg	Dimensions approx. in mm					Mounting
							a	b	c	d	e	
RDMF 24	24	11	0445-0000024	≥ 4,0 kHz	1,2	5,2	150	89	210	135	75	M5
RDMF 32	32	15	0445-0000032	≥ 4,0 kHz	1,6	5,7	150	89	210	135	75	M5
RDMF 38	38	18,5	0445-0000038	≥ 4,0 kHz	2,3	6,2	150	89	210	135	75	M5
RDMF 44	44	22	0445-0000044	≥ 4,0 kHz	2,5	6,4	150	89	210	135	75	M5
RDMF 61	61	30	0445-0000061	≥ 4,0 kHz	2,8	7,3	180	85	240	165	67	M6
RDMF 73	73	37	0445-0000073	≥ 3,0 kHz	3,2	8,5	180	95	245	165	77	M6
RDMF 90	90	45	0445-0000090	≥ 3,0 kHz	3,3	10,2	180	105	250	165	87	M6
RDMF 106	106	55	0445-0000106	≥ 3,0 kHz	3,4	14,1	228	100	290	208	75	M6
RDMF 147	147	75	0445-0000147	≥ 3,0 kHz	6,7	18,9	240	105	330	220	77	M8
RDMF 177	177	90	0445-0000177	≥ 3,0 kHz	7,4	22,0	240	115	330	220	87	M8
RDMF 212	212	110	0445-0000212	≥ 3,0 kHz	10,1	28,4	240	135	340	220	107	M8
RDMF 260	260	132	0445-0000260	≥ 3,0 kHz	12,6	34,7	300	125	415	275	99	M8
RDMF 315	315	160	0445-0000315	≥ 3,0 kHz	13,8	48,6	300	155	425	275	124	M8
RDMF 395	395	200	0445-0000395	≥ 3,0 kHz	21,6	62,6	360	165	478	335	121	M8
RDMF 480	480	250	0445-0000480	≥ 1,5 kHz	23,7	80,4	360	260 *	460 *	335	151	M8
RDMF 600	600	315	0445-0000600	≥ 1,5 kHz	26,4	124,8	420	280 *	500 *	390	170	M10
RDMF 658	658	355	0445-0000658	≥ 1,5 kHz	32,5	136,4	420	310 *	500 *	380	200	M10
RDMF 745	745	400	0445-0000745	≥ 1,5 kHz	34,7	144,5	480	265 *	560 *	440	160	M14
RDMF 800	800	450	0445-0000800	≥ 1,5 kHz	49,9	179,0	480	295 *	560 *	440	190	M14
RDMF 880	880	500	0445-0000880	≥ 1,5 kHz								Kundenspezifisch - nur auf Anfrage
RDMF 990	990	560	0445-0000990	≥ 1,5 kHz								Kundenspezifisch - nur auf Anfrage
RDMF 1120	1120	630	0445-0001120	≥ 1,5 kHz								Kundenspezifisch - nur auf Anfrage

The given values are typical characteristic values and can deviate depending on manufacture !
 *) Starting with a current intensity > 415 A the width and height of the filter can deviate depending on the design !



Three-phase sine filter for operation on frequency converters according to VDE 0570 part 2-20, EN 61558-2-20



Sinus filter (series RDSF):

The sine filter series RDSF (output filter for frequency converter) from Michael Riedel Transformatorenbau GmbH are tailor-made for the technical requirements of modern drives (FC). By using modern frequency converters in motor control, high harmonic components result with the cycled output voltages. These „harmonic components“ additionally load the motor insulation, which leads to shorter motor lifetimes. Through the use of the RDSF sine filters these additional losses are reduced even when using longer motor feed lines and thus help to prevent premature failures and costly downtimes.

Technical data:

Rated voltages:	3AC 400V to 3AC 690V (higher voltages available on request)
Rated current:	up to 1200 A (higher currents available on request)
Frequency:	50Hz to 60Hz (higher frequencies available on request)
Cycle frequencies (PWM):	1.5kHz up to 8.0kHz
Ambient temperature:	ta = 40°C / F, S1/100% ED
Cooling types:	AN
Protection class:	IP00 (higher protection classes available on request)
Design:	compact, open design for installation in dry rooms

Advantages:

- Low noise filter due to new core geometry (verified by noise level measurements on the Aalen Hochschule)
- Reduction of overvoltages on the motor insulation (longer motor running times)
- Long motor feed lines possible
- Lower noise development on motor

Type	Current A	Induct. mH	Item no:	PWM kHz	Copper kg	Total kg	Dimensions approx. in mm					Mounting
							a	b	c	d	e	
RDSF 8	8	4,0	0450-0000008	≥ 5,0 kHz	1,2	11,6	180	160 *	210	135	75	
RDSF 16	16	8,0	0450-0000016	≥ 5,0 kHz	3,0	11,6	180	160 *	250	165	77	
RDSF 24	24	11,0	0450-0000024	≥ 4,0 kHz	3,5	11,6	180	160 *	250	165	87	
RDSF 32	32	15,0	0450-0000032	≥ 4,0 kHz	4,5	11,6	180	160 *	250	165	87	
RDSF 38	38	18,5	0450-0000038	≥ 4,0 kHz	6,3	18,2	240	180 *	280	220	111	
RDSF 44	44	22,0	0450-0000044	≥ 4,0 kHz	7,7	29,8	240	190 *	280	220	111	
RDSF 61	61	30,0	0450-0000061	≥ 4,0 kHz	12,6	36,4	300	200 *	350	275	97	
RDSF 73	73	37,0	0450-0000073	≥ 3,0 kHz	13,9	48,6	300	240 *	350	275	97	
RDSF 90	90	45,0	0450-0000090	≥ 3,0 kHz	14,5	52,3	300	240 *	350	275	97	
RDSF 106	106	55,0	0450-0000106	≥ 3,0 kHz	21,2	78,9	360	250 *	410	335	136	
RDSF 147	147	75,0	0450-0000147	≥ 3,0 kHz	24,1	84,4	360	270 *	410	335	151	
RDSF 177	177	90,0	0450-0000177	≥ 3,0 kHz	27,2	120	420	320 *	500	380	170	
RDSF 212	212	110	0450-0000212	≥ 3,0 kHz	34,2	135	420	350 *	500	380	200	
RDSF 260	260	132	0450-0000260	≥ 3,0 kHz	54,5	188	480	360 *	580	440	190	
RDSF 315	315	132	0450-0000315	≥ 3,0 kHz	60,4	195	480	360 *	590	440	190	
RDSF 395	395	160	0450-0000395	≥ 3,0 kHz	74,2	230	480	390 *	590	440	220	
RDSF 480	480	200	0450-0000480	≥ 1,5 kHz								Customer-specific - only on request
RDSF 600	600	315	0450-0000600	≥ 1,5 kHz								Customer-specific - only on request
RDSF 658	658	355	0450-0000658	≥ 1,5 kHz								Customer-specific - only on request
RDSF 745	745	400	0450-0000745	≥ 1,5 kHz								Customer-specific - only on request
RDSF 800	800	450	0450-0000800	≥ 1,5 kHz								Customer-specific - only on request
RDSF 880	880	500	0450-0000880	≥ 1,5 kHz								Customer-specific - only on request
RDSF 990	990	560	0450-0000990	≥ 1,5 kHz								Customer-specific - only on request
RDSF 1120	1120	630	0450-0001120	≥ 1,5 kHz								Customer-specific - only on request
RDSF 1260	1260	710	0450-0001260	≥ 1,5 kHz								Customer-specific - only on request

The given values are typical characteristic values and can deviate depending on manufacture!
 *) The range of the sine filters vary depending on the choice of resonance frequency!

