ERK
ELEKTROTEKNİK

Manufacture that enriches energy

www.berkelektroteknik.com

CONTENTS

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About Us

Berk Elektroteknik was established in 2017 with the aim of producing high-quality electrotechnical devices needed by the energy sector. As a manufacturer of harmonic filter reactors, shunt reactors, isolation transformers, and special transformers, Berk Elektroteknik is rapidly continuing its R&D activities, not only improving existing products but also bringing new products to life.

With the flexibility provided by its solution-focused, young, and dynamic engineering team, specific products that provide the most accurate response to needs can be developed and produced in the shortest possible time. This advantage sets Berk Elektroteknik apart from its competitors.In line with its vision, Berk Elektroteknik explores global markets, develops technology considering international needs, and places importance on its sales and distribution network in targeted markets.

In the upcoming period, Berk Elektroteknik aims to further increase its R&D activities, benefiting from its technical expertise, and by combining this with its commercial experience, it strives to be an even more successful manufacturer.

Our Vision: To be a reliable brand that stands out among global solution providers in our industry.

Our Mission: To produce competitive transformers that add value to our customers' products with innovative designs, using advanced technologies and adhering to international quality standards.

Our Values: By implementing the "Value to People" and advanced engineering understanding in parallel with our commercial activities, we aim to support both the industry and Turkish industry.

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Berk Electrotechnical products are CE certified and manufactured according to the ISO quality management system. They are in compliance with international harmonized standards.

Berk Electrotechnical products are in demand not only domestically but also abroad, and we represent our country's quality in the best possible way. Positive feedback and thank you emails from our customers are also a source of pride for us.

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THE PRODUCTS WE MANUFACTURE

REACTORS	TRANSFORMERS	MEDIUM VOLTAGES REACTORS
Harmonic Filter Reactors	Auto Transformers	Air-core Current Limiting Reactors
Shunt Reactors	Isolation Transformers	Air-core Harmonic Filter Reactors
Line Reactors	Medical Transformers	
Motor Reactors	Control Transformers	

REACTORS

HARMONIC DEFINITION

In electrical installations, it is ideal for the grid voltage and the current drawn to be in sinusoidal form. However, although the grid voltage is sinusoidal, the loads are nonlinear. Due to their nonlinear nature, the current drawn is also nonlinear. Consequently, the waveform of the drawn voltage is not sinusoidal. As is known, the voltage and current waveforms generated in distribution networks exist in the system at 50 Hz and its multiples. In a healthy system, it is expected that the current drawn will also be sinusoidal. However, even in this case, the system current and voltage are not in sinusoidal form. This distortion is called HARMONICS.

Berk Elektrotechnics uses Copper or Aluminum conductors in all its products, and the insulation materials of these conductors are suitable for the determined insulation classes. Berk Elektrotechnics reactors are immersed in insulating liquid in vacuum machines and dried by baking. At Berk Elektrotechnics, production is carried out in compliance with class F insulation unless otherwise specified by our customers. Production in class H can also be carried out upon request.

ISOLATION CLASS

Class	Acceptable max. - nominal temperature	Acceptable maximum average over-temperature	
E	120 C	75 C	135 C
B	130 C	80 C	145 C
F	155 C	100 C	170 C
H	180 C	135 C	200 C

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HARMONIC FILTER REACTOR BENEFITS

- Elimination of resonance possibility
- Prevention of harmonic current increase
- Longer lifespan for capacitors
- Longer lifespan for contactors

HARMONIC FILTER REACTOR BENEFITS

Harmonic distortions caused by non-linear loads in energy systems lead to serious problems in industrial facilities. The causes of harmonic distortions and the frequently encountered problems due to these distortions are summarized below;

The sources of harmonic distortion are non-linear loads, which cause THD, or Total Harmonic Distortion, in voltage and current:

- Uninterruptible power supplies,
- Motor starters,
- Motor drives,
- Speed control devices,
- Computers and electronic lighting,
- Welding machines,
- Power electronic converters,
- Rectifiers, and similar devices increase harmonic distortion in the grid.

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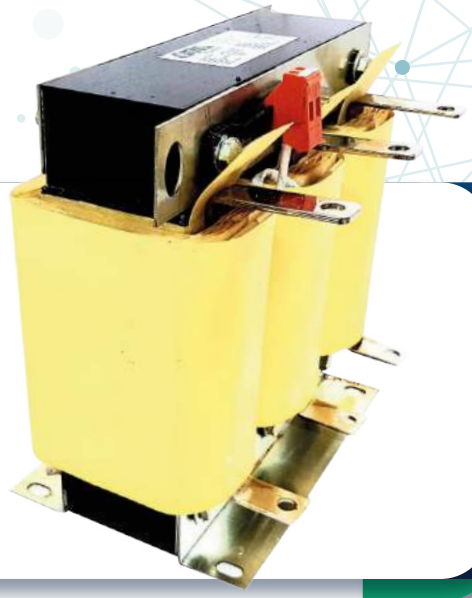
HARMONIC FILTER REACTOR FEATURES

Low loss

High linearity

Overheating protection

Air gap design

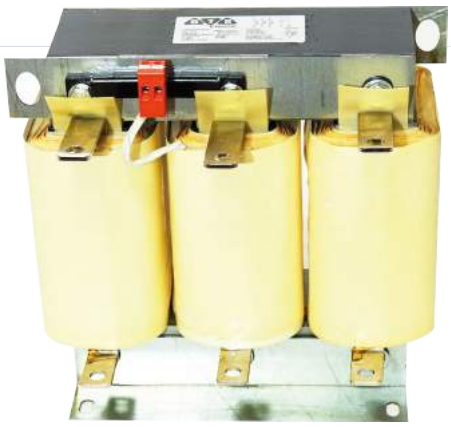


INFORMATION REQUIRED FOR HARMONIC FILTER REACTOR DEMAND

Grid voltage

Resonance frequency

Information on capacitors to be used in the system



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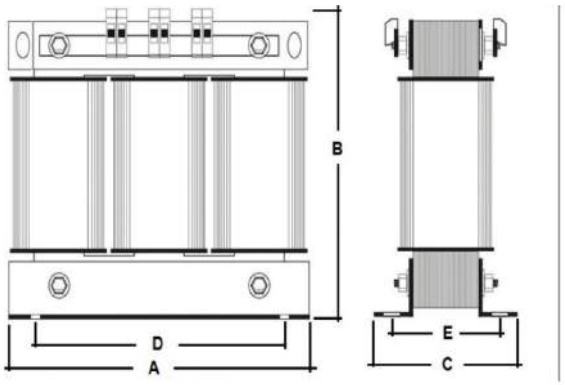
THREE-PHASE HARMONIC FILTER p=%5.67 Rv=400V F=50Hz FR=210Hz

PRODUCT CODE	Power (kVAr)	Current (A)	L (mH)	Connection	Dimensions (mm)			Mounting Size (mm)		Foot Installation	Weight (kg)	Loss Of Winding/W	Core Loss/W	Total Loss/W
					A	B	C	D	E					
BRH3 5,67/400/1	1	1.80	30.61	TERMİNAL	150	148	72	100	52	M6	2.2	-	-	-
BRH3 5,67/400/1,5	1.5	2.81	19.62	TERMİNAL	150	148	72	100	52	M6	3	-	-	-
BRH3 5,67/400/2,5	2.5	4.51	12.25	TERMİNAL	150	148	72	100	52	M6	3.3	17.75	2.58	20.33
BRH3 5,67/400/3,12	3.12	5.63	9.81	TERMİNAL	150	148	72	100	52	M8	5	18.21	3.05	21.26
BRH3 5,67/400/5	5	9.02	6.12	TERMİNAL	150	148	89	100	70	M8	5.5	19.75	3.55	23.25
BRH3 5,67/400/6,25	6.25	11.28	4.90	TERMİNAL	180	170	97	125	72	M8	6	21.72	3.85	25.57
BRH3 5,67/400/7,5	7.5	13.53	4.08	TERMİNAL	180	170	97	125	72	M8	8	17.55	7.66	25.21
BRH3 5,67/400/10	10	18.04	3.06	TERMİNAL	180	180	105	125	80	M8	9	21.82	7.54	29.36
BRH3 5,67/400/12,5	12.5	22.55	2.45	TERMİNAL	180	180	105	125	80	M8	9	23.22	4.15	27.37
BRH3 5,67/400/15	15	27.06	2.04	BUSBAR	235	230	100	175	80	M8	14.5	29.97	10.1	40.07
BRH3 5,67/400/20	20	36.08	1.53	BUSBAR	235	230	100	175	80	M8	16	27.97	15.34	43.31
BRH3 5,67/400/25	25	45.11	1.26	BUSBAR	240	235	120	175	100	M8	21	27.86	19.13	46.99
BRH3 5,67/400/30	30	49.15	1.28	BUSBAR	270	240	135	200	110	M8	21	69.98	29.88	98.86
BRH3 5,67/400/40	40	72.17	0.76	BUSBAR	270	240	150	200	125	M8	23.5	44.98	27.46	71.84
BRH3 5,67/400/50	50	90.21	0.61	BUSBAR	295	255	165	200	130	M8	27	41.18	32.89	74.07
BRH3 5,67/400/60	60	108.25	0.51	BUSBAR	295	255	170	200	135	M8	31	84.81	12.28	97.09
BRH3 5,67/400/75	75	120.16	0.41	BUSBAR	355	310	170	250	135	M10	37	44.99	30.13	75.12
BRH3 5,67/400/100	100	160.21	0.31	BUSBAR	355	310	190	250	155	M10	44	73.74	68.57	142.31



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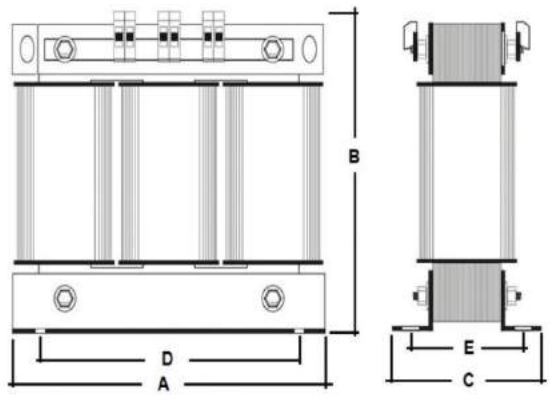
THREE-PHASE HARMONIC FILTER p=%7 Rv=400V F=50Hz FR=189Hz

PRODUCT CODE	Power (kVAr)	Current (A)	L (mH)	Connection	Dimensions (mm)			Mounting Size (mm)		Foot Installation	Weight (kg)	Loss Of Winding/W	Core Loss/W	Total Loss/W
					A	B	C	D	E					
BRH3 7/400/0,5	0.5	0,82	76,67	TERMİNAL	150	148	72	100	52	M6	1,5	-	-	-
BRH3 7/400/1	1	1,64	38,33	TERMİNAL	150	148	72	100	52	M6	2,2	12,86	1,9	14,76
BRH3 7/400/1,5	1.56	2,56	24,57	TERMİNAL	150	148	72	100	52	M6	3	5,48	3,69	9,17
BRH3 7/400/2,5	2.5	4,10	15,33	TERMİNAL	150	148	72	100	52	M6	3,3	14,17	5,06	19,23
BRH3 7/400/3,2	3.12	5,11	15,33	TERMİNAL	150	148	72	100	52	M6	4,2	14,79	6,16	20,95
BRH3 7/400/0,5	5	8,20	7,67	TERMİNAL	180	175	85	125	60	M8	5	15,96	8,66	24,62
BRH3 7/400/6,25	6.25	10,24	6,13	TERMİNAL	180	175	85	125	60	M8	6	17,16	1,46	18,62
BRH3 7/400/7,5	7.5	12,29	5,11	TERMİNAL	180	175	105	125	80	M8	6	17,55	7,66	25,21
BRH3 7/400/10	10	16,38	3,83	TERMİNAL	180	175	115	125	90	M8	7	21,82	7,54	29,36
BRH3 7/400/12,5	12.5	20,48	3,07	TERMİNAL	180	175	115	125	90	M8	9	23,22	4,15	27,37
BRH3 7/400/15	15	24,57	2,56	TERMİNAL	180	175	115	125	90	M8	11	29,97	10,1	40,07
BRH3 7/400/20	20	32,76	1,92	BUSBAR	240	210	105	175	80	M8	14,5	46,89	10,85	57,74
BRH3 7/400/25	25	41	1,53	BUSBAR	240	210	125	175	80	M8	15	33,15	15,89	49,04
BRH3 7/400/30	30	49,15	1,28	BUSBAR	240	210	135	175	110	M8	17	35,61	16,83	52,44
BRH3 7/400/40	40	65,53	0,96	BUSBAR	300	255	145	200	105	M8	21	58,88	23,63	82,51
BRH3 7/400/50	50	82	0,77	BUSBAR	270	240	150	200	125	M8	27	53,79	11,17	64,96
BRH3 7/400/60	60	98,3	0,64	BUSBAR	295	255	175	200	135	M8	30	43,27	24,54	68,81
BRH3 7/400/75	75	119,1	0,51	BUSBAR	295	255	205	200	165	M10	40	52,65	34,32	86,97
BRH3 7/400/100	100	158,8	0,38	BUSBAR	355	310	195	250	155	M10	50	86,41	47,63	134,04



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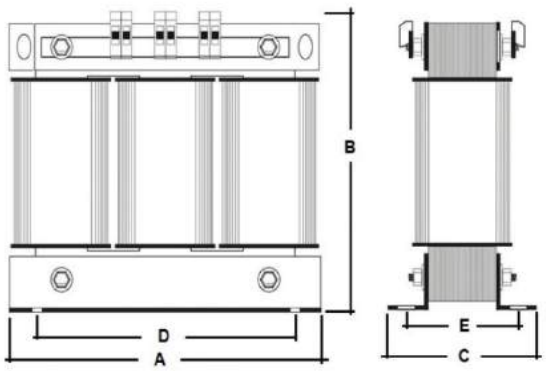
THREE-PHASE HARMONIC FILTER p=%14 Rv=400V F=50Hz FR=134Hz

PRODUCT CODE	Power (kVAr)	Current (A)	L (mH)	Connection	Dimensions (mm)			Mounting Size (mm)		Foot Installation	Weight (kg)	Loss Of Winding/W	Core Loss/W	Total Loss/W
					A	B	C	D	E					
BRH3 14/400/1	1	1,53	82,90	TERMİNAL	150	150	72	100	55	M6	2,5	-	-	-
BRH3 14/400/1,5	1,5	2,39	53,15	TERMİNAL	150	150	72	100	55	M6	4,5	-	-	-
BRH3 14/400/2,5	2,5	3,82	33,16	TERMİNAL	180	175	85	125	60	M6	5	14,66	1,82	16,48
BRH3 14/400/3,12	3,12	4,77	26,57	TERMİNAL	180	175	85	125	60	M8	6,5	16,43	4,08	20,51
BRH3 14/400/5	5	7,65	16,58	TERMİNAL	180	175	115	125	90	M8	7,5	23,41	2,82	26,23
BRH3 14/400/6,25	6,25	9,56	13,26	TERMİNAL	180	175	115	125	90	M8	8,5	17,16	1,46	18,62
BRH3 14/400/7,5	7,5	11,47	11,05	TERMİNAL	240	225	100	175	75	M8	9	18,22	4,69	22,84
BRH3 14/400/10	10	15,30	8,29	TERMİNAL	240	225	100	175	75	M8	11	19,45	5,85	25,3
BRH3 14/400/12,5	12,5	19,12	6,63	TERMİNAL	240	225	100	175	75	M8	13,5	23,22	6,89	30,11
BRH3 14/400/15	15	22,95	5,53	TERMİNAL	240	225	110	175	85	M8	14	26,28	9,13	35,41
BRH3 14/400/20	20	30,6	4,15	BUSBAR	270	240	135	200	110	M8	20,5	36,54	8,28	44,82
BRH3 14/400/25	25	38,25	3,32	BUSBAR	270	240	150	200	125	M8	22	45,68	10,35	56,03
BRH3 14/400/30	30	45,9	2,76	BUSBAR	295	255	165	200	130	M8	31	51,74	18,42	70,16
BRH3 14/400/40	40	61,2	2,07	BUSBAR	295	255	170	200	135	M8	35	59,89	24,67	84,56
BRH3 14/400/50	50	76,5	1,66	BUSBAR	300	255	180	200	145	M8	41	63,62	24,67	88,29
BRH3 14/400/60	60	91,8	1,38	BUSBAR	355	310	190	250	155	M8	44	76,08	11,04	87,12
BRH3 14/400/75	75	119	1,1	BUSBAR	355	310	210	250	175	M10	72	81,03	19,07	100,1
BRH3 14/400/100	100	159	0,82	BUSBAR	400	360	210	250	175	M10	85	92,36	28,41	120,77



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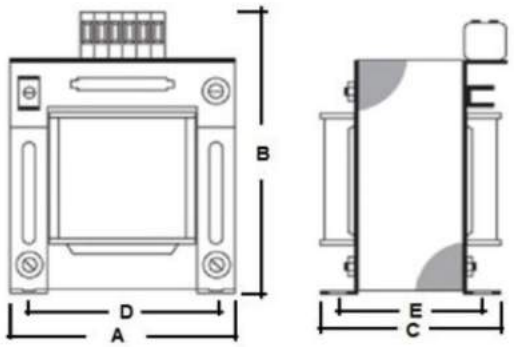
MONOPHASE HARMONIC FILTER p=%5,67 Rv=230V F=50Hz FR=210Hz

PRODUCT CODE	Power (kVAr)	Current (A)	Connection	Dimensions (mm)			Mounting Size (mm)		Foot Installation	Weight (kg)	Loss Of Winding/W	Core Loss/W	Total Loss/W
				A	B	C	D	E					
BRH1 5,67/230/0,5	0,5	2,60	TERMİNAL	84	70	60	70	45	M5	1,35	-	-	-
BRH1 5,67/230/1	1	5,21	TERMİNAL	84	70	80	70	65	M5	1,95	9,42	1,54	10,96
BRH1 5,67/230/1,5	1,5	7,82	TERMİNAL	84	70	80	70	65	M5	2,45	13,67	2,48	16,15
BRH1 5,67/230/2,5	2,5	13,04	TERMİNAL	96	80	96	80	80	M5	3,8	17,55	2,58	20,13
BRH1 5,67/230/5	5	26,08	BAR(M6)	120	100	98	100	80	M5	6,35	24,12	6,63	30,75
BRH1 5,67/230/7,5	7,5	39,13	BAR(M8)	120	100	120	100	100	M8	8,3	39,87	12,56	52,43
BRH1 5,67/230/10	10	52,17	BAR(M8)	150	125	128	125	100	M8	11,3	47,05	28,74	75,79

MONOPHASE HARMONIC FILTER p=%7 Rv=230V F=50Hz FR=189Hz

PRODUCT CODE	Power (kVAr)	Current (A)	L (mH)	Connection	Dimensions (mm)			Mounting Size (mm)		Foot Installation	Weight (kg)	Loss Of Winding/W	Core Loss/W	Total Loss/W
					A	B	C	D	E					
BRH1 7/230/0,5	0.5	2,47	25,34	TERMİNAL	84	70	60	70	45	M4	1,3	-	-	-
BRH1 7/230/1	1	4,95	12,67	TERMİNAL	84	70	80	70	65	M5	1,5	16,74	5,7	22,44
BRH1 7/230/1,5	1.5	7,43	8,45	TERMİNAL	84	70	80	70	65	M6	2,5	13,81	7,74	21,55
BRH1 7/230/2,5	2.5	12,38	5,07	TERMİNAL	96	80	96	8	80	M6	4	22,42	14,99	37,41
BRH1 7/230/5	5	24,77	2,53	BAR(M6)	120	100	98	100	80	M8	6,5	36,28	18,81	55,09
BRH1 7/230/7,5	7.5	37,16	1,69	BAR(M8)	120	100	120	100	100	M8	8,5	42,05	43,06	85,11
BRH1 7/230/10	10	49,15	1,28	BAR(M8)	150	125	110	120	80	M8	11,5	65,31	15,55	80,86



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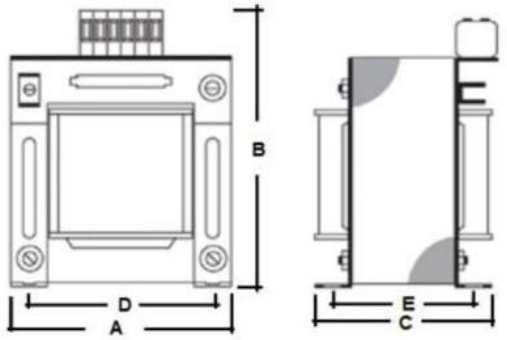
MONOPHASE HARMONIC FILTER p=%14 Rv=230V F=50Hz FR=134Hz

PRODUCT CODE	Power (kVAr)	Current (A)	Connection	Dimensions (mm)			Mounting Size (mm)		Foot Installation	Weight (kg)	Loss Of Winding/W	Core Loss/W	Total Loss/W
				A	B	C	D	E					
BRH1 14/230/0,5	0.5	2,23	TERMİNAL	84	70	60	70	45	M4	1,35	-	-	-
BRH1 14/230/1	1	4,47	TERMİNAL	84	70	80	70	65	M4	1,95	13,56	4,03	17,59
BRH1 14/230/1,5	1.5	6,71	TERMİNAL	84	70	100	70	65	M5	2,45	17,12	5,17	22,29
BRH1 14/230/2,5	2.5	11,19	TERMİNAL	96	80	96	80	80	M5	3,8	21,28	8,69	29,97
BRH1 14/230/5	5	22,39	BAR(M6)	120	100	100	100	80	M6	6,35	27,29	15,1	42,39
BRH1 14/230/7,5	7.5	33,58	BAR(M8)	120	100	120	100	100	M8	8,3	36,45	19,73	56,18
BRH1 14/230/10	10	44,78	BAR(M8)	150	125	150	125	120	M8	11,3	49,83	29,31	79,14

MONOPHASE SHUNT REACTOR 230V

PRODUCT CODE	Power (kVAr)	Current (A)	L (mH)	Connection	Dimensions (mm)			Mounting Size (mm)		Foot Installation	Weight (kg)
					A	B	C	D	E		
BRS1 230/1	1	4,45	168,38	TERMİNAL	120	105	120	95	105	M4	6,5
BRS1 230/1,5	1,5	6,52	112,25	TERMİNAL	150	130	150	125	120	M8	9
BRS1 230/3	3	13	56,13	TERMİNAL	192	165	150	160	120	M8	17,5
BRS1 230/5	5	21,74	33,68	BAR(M6)	200	265	160	115	125	M8	19
BRS1 230/7,5	7,5	32,60	22,45	BAR(M8)	200	265	185	115	155	M8	27,5
BRS1 230/10	10	43,48	16,84	BAR(M8)	235	310	195	150	155	M8	35



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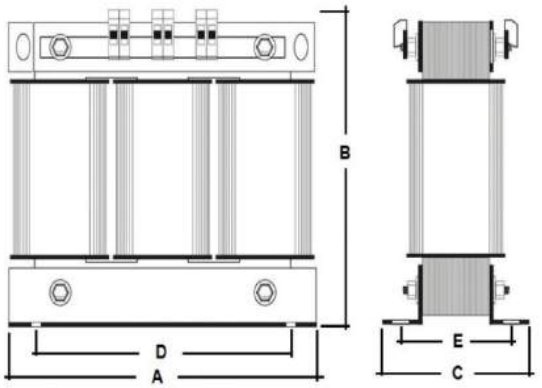
THREE-PHASE SHUNT REACTOR 400V

PRODUCT CODE	Power (kVAr)	Current (A)	L (mH)	Connection	Dimensions (mm)			Mounting Size (mm)		Foot Installation	Weight (kg)
					A	B	C	D	E		
BRS3 400/0,5	0.5	0,72	1018,60	TERMİNAL	150	150	72	100	55	M8	8
BRS3 400/1	1	1,44	509,03	TERMİNAL	180	175	85	125	60	M8	11,5
BRS3 400/1,5	1.5	2,17	339,50	TERMİNAL	180	175	115	125	90	M8	14,5
BRS3 400/2,5	2.5	3,61	203,72	TERMİNAL	240	225	100	175	75	M8	17
BRS3 400/5	5	7,22	101,86	TERMİNAL	295	255	170	200	135	M8	27
BRS3 400/7,5	7.5	10,83	67,90	TERMİNAL	295	255	180	200	145	M8	39
BRS3 400/10	10	14,43	50,93	BUSBAR	355	310	170	250	135	M8	48
BRS3 400/12,5	12,5	18,04	40,74	BUSBAR	355	310	200	250	165	M8	57
BRS3 400/15	15	21,65	33,95	BUSBAR	410	360	180	250	145	M8	67
BRS3 400/20	20	28,86	25,46	BUSBAR	400	360	210	250	175	M8	80
BRS3 400/25	25	36,08	20,37	BUSBAR	400	360	225	250	200	M10	96,5
BRS3 400/50	50	72,20	10,20	BUSBAR	560	490	270	510	235	M10	200



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GENERAL CHARACTERISTICS OF SHUNT REACTORS

- Single and Three Phase, High Permeability Iron Core, Air-Gapped Design
- Electrolytic Copper and Aluminum Wound
- Design and Production for Desired Current or Power
- Thermal Protection against Overheating on Each Leg
- Terminal, Lug, or Bus Connection According to Current
- Protection from Moisture with Vacuum Varnishing and Quiet Operation
- Compliance with EN 61558-1 and EN 61558-2-20 Standards, CE Marked

The most common usage areas for these reactors are facilities that use long energy transmission and distribution cables. In particular, in order to supply energy to systems such as radio base stations, radio and TV transmitters located in rural areas, kilometers-long cables are needed. (Cables also have certain capacity values depending on their type and characteristics.) In these facilities where the load level is low, the system becomes over-compensated due to the capacitive effect of the long cable. In this case, a constant capacitive reactive penalty is encountered. Additionally, due to over-compensation, voltage rise can be experienced in the grid and sensitive devices can be damaged.

Large campuses and places where energy needs to be transmitted over long cables, such as farms, may face similar problems. Shunt reactors can also be used in test systems where inductive reactive power consumption is desired.

These reactors, which can be produced as single-phase or three-phase, can be used to draw the desired inductive current and therefore inductive power from the grid. By adding reactors to automatic compensation systems, excessive capacitive power can be compensated for.

LINE REACTORS (Motor Drive Input Reactors)

They are used between variable speed controlled motor drives and the grid. They are used to lower the harmonic level of the current drawn by motor drives.

Our motor drive input reactor production extends up to 1000A in a wide range of fields, with operating voltages up to 1000V. The output terminals of the reactor can be terminal, bushing or bar type

.

Our motor drive input reactors comply with European standards and are CE marked. Additionally, they are produced under the ISO9001:2008 quality management system.

GENERAL FEATURES OF LINE REACTORS (MOTOR DRIVE INPUT REACTORS)

- High magnetic permeability iron core.
- As per customer demand, copper and aluminum windings.
- High linearity.
- Superior thermal design
- Voltage drop of 2% and 4% for the production of reactors of different types.
- Vacuum varnishing for silent operation and protection against humidity.
- Compliant with CE marking and EN 61558-2-20 standards.

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MOTOR REACTORS

They are used between variable speed-controlled motor drivers and motors. They are used to lower the voltage harmonic levels produced by the motor drivers.
Operating voltages are up to 1000V. We have a wide range of motor driver output reactors that extend up to 2000A. The output terminals of the reactor can be either terminal, stud or bar type.
Our motor reactors comply with European standards and bear the CE mark. They are type approved by an accredited laboratory. They are also produced under the ISO 9001:2008 quality management system.

GENERAL FEATURES OF MOTOR REACTORS

- High magnetic permeability iron core
- Copper and aluminum winding according to customer demand
- High linearity
- Superior thermal design
- Thermal protection against overloads
- Vacuum impregnation for silent operation and protection against moisture
- CE marked and compliant with EN 61558-2-20 standards
- Manufactured under ISO 9001 quality management system.

WATER-COOLED INDUCTION COILS

- Cooling liquid circulation is provided between the windings.
- They can operate smoothly in high temperature environments.
- Their losses are significantly reduced.
- Compared to dry-type transformers and induction coils, their sizes are smaller.
- The ability to cool the windings makes power consumption more efficient.
- The level of insulation between the windings is higher.
- They have a longer lifespan compared to dry-type transformers and induction coils.

TRANSFORMERS

Berk Elektroteknik uses copper or aluminum conductors in all of its products, and the insulation materials for these conductors comply with specified insulation classes. Berk Elektroteknik transformers are dipped in insulating liquid in vacuum machines and then baked to dry. Unless otherwise specified by our customers, we manufacture our transformers in compliance with Class F insulation. Upon request, we can also manufacture transformers with Class H insulation.

A transformer, or simply a "trafo," is an electrical device that connects two or more electrical circuits through electromagnetic induction. It transfers energy between electrical circuits through an electromagnetic field. Transformers are machines that can alter voltage and current values in a specific power of electrical energy. They are components that transfer electrical energy from one circuit to another or to multiple circuits. Any changing current in one coil of a transformer produces a varying magnetic flux in the core of the transformer. This flux induces an electromotive force that varies along the other coils wrapped around the same core. Electrical energy can be transmitted between two circuits without a metallic (conductive) connection between the separate coils.

The function of a transformer is to convert low current high voltage electricity to high current low voltage electricity (or vice versa) with almost no energy loss. Transformers are complementary components in many electrical devices. They are used to adjust the voltage in devices such as table lamps, battery chargers, toy cars, and computers. The size of a transformer can vary depending on its intended use, ranging from pea-sized transformers to ones that weigh 500 tons.

PURPOSE OF USE

In general, transformers are used to decrease or increase voltage or current in an electrical circuit. In electronics, they are mainly used to combine amplifiers from different circuits, convert direct current waves to higher value alternating current waves, and transmit only specific frequencies. They are also used for isolation purposes and sometimes in combination with capacitors and resistors. In electrical power transmission, transformers are primarily used to increase or decrease voltage. This is especially necessary for transmitting electrical energy over long distances from where it is generated to where it is needed. Transmitting high currents results in significant power losses, as seen in the formula P=I2R. Therefore, during electrical transmission, voltage is increased and current is decreased (due to the V=IR formula) in order to minimize power loss. Special transformers are used in measuring instruments. In essence, transformers transfer energy from one circuit to another through electromagnetic induction.

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AUTO TRANSFORMERS

Auto transformers are used to change voltage levels without providing galvanic isolation. They can be seen as an alternative to isolation transformers.

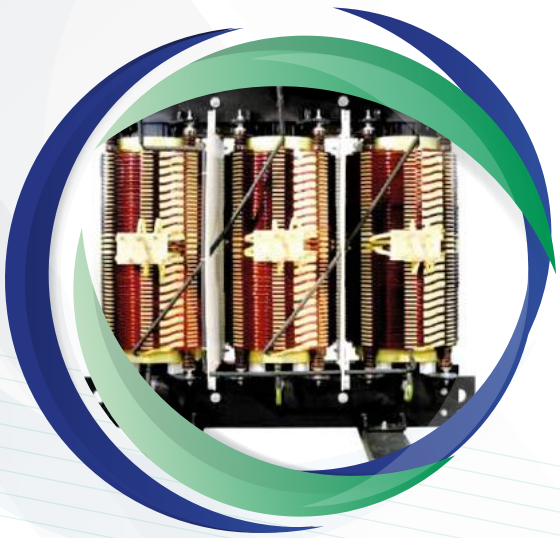
The input and output voltages of the transformers can vary up to 3000V. Production can be made with extra output terminals and screen windings according to customer demand. The power levels of these transformers can go up to 1000 kVA. Electrical connections are provided with bars or terminal blocks. Production can be made with any vertical connection type according to customer requests.

APPLICATION AREAS OF AUTO TRANSFORMERS

- Motor Starting
- Voltage Regulation
- Circuits providing energy efficiency
- Berk Elektroteknik auto transformers are produced in accordance with IEC 60076 and IEC 61558-2-13 standards and are CE marked. Our transformers are produced in accordance with ISO 9001:2008 quality management system standards.

THE SECTORS WHERE AUTO TRANSFORMERS ARE PREDOMINANTLY IN DEMAND

- Power Generation,
- Mining
- Power Electronics,
- Sound,
- Lighting,
- Machinery



ISOLATION TRANSFORMERS

Isolation transformers are used in three-phase systems when galvanic isolation is required or when switching between voltage levels is necessary. The input and output voltages can be up to 5000V, and special windings such as center-tap and shielded windings can also be provided. The power rating of the transformer is selected up to 600kVA according to the requirement. The output terminals of the transformer can be terminal block, stud terminal, or busbar terminal according to the request. The input and output vector connection group is determined according to the demand. Berk Elektroteknik transformers are compliant with European standards and CE marked. Additionally, they are produced under the ISO 9001 quality management system.

THE SECTORS IN WHICH THE PRODUCT IS SUPPLIED

Berk Elektroteknik insulation transformers are utilized across various industries in different countries around the world. These industries are categorized based on their areas of usage and include:

- Lighting
- Electrical automation
- Iron and steel
- Machinery
- Robotics
- Shipbuilding,
- Elevator
- It can be defined as all sectors that use electrical energy, such as crane industry.

GENERAL FEATURES OF INSULATION TRANSFORMERS

- High magnetic permeability iron core,
- Copper or aluminum winding according to customer request,
- Class 1 transformer,
- Effective insulation,
- Low loss, high efficiency,
- Vacuum varnishing for silent operation and moisture resistance,
- Manufactured in compliance with CE marking and any required sub-standards of EN 61558,
- Produced under ISO 9001 quality management system.

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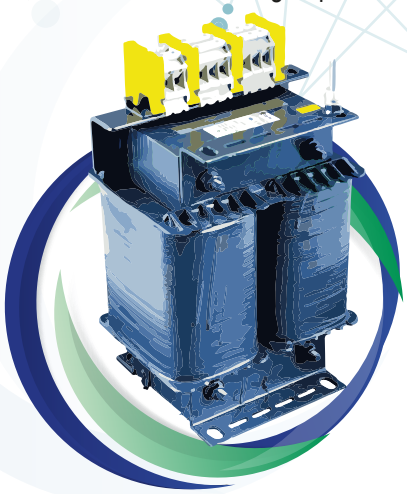
MEDICAL TRANSFORMERS

The electrical installations of medical facilities such as hospitals, health centers, eye hospitals, etc. must comply with the TS HD 60364-7-710 standard. With this international standard, all types of electrical problems that could threaten our health are controlled and secured. In this international standard, premature infant rooms, operating rooms, intensive care units, rooms where heart-related procedures are performed, and any rooms where power outages are critical, have been named as group-2 rooms. The use of separate electrical safety components for these rooms has been made mandatory.



MEDICAL TRANSFORMER APPLICATION AREAS

- Operating rooms,
- Operating room preparation areas,
- Intensive care units,
- Plaster rooms,
- Recovery rooms,
- Cardiac catheterization rooms,
- Angiographic examination rooms,
- Premature infant rooms.

CONTROL TRANSFORMERS

These transformers are commonly used in electrical panels and similar industrial applications. Input and output voltages can be up to 1000 V, and special windings such as mid-point and screen can also be provided. The power rating of the transformer is determined by the customer up to 10 kVA. The output terminals of the transformer are clamped and are produced according to screw or rail connection upon request. Berk Elektroteknik transformers comply with European standards and bear the CE mark. They are also manufactured under the ISO 9001 quality management system.

THE SECTORS WHERE THE PRODUCT IS SUPPLIED

•Lighting,
•Electric Automation,
•Iron and Steel,
•Machinery,
•Robotics,
•Shipbuilding,
•Elevator,
•All industries that utilize electric power, such as crane manufacturing, can be defined as sectors

GENERAL CHARACTERISTICS OF CONTROL TRANSFORMERS

•High magnetic permeability iron core,
• Electrolytic copper or aluminum winding,
• Class 1 transformer,
• Effective voltage regulation,
• High short-term power.
•Varnishing in vacuum for silent operation and protection against moisture,
•CE marked and compliant with EN 61558-2-2 standards.

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OMEDIUM VOLTAGE REACTORS
GENERAL FEATURES OF MEDIUM VOLTAGE REACTORS

Nominal Voltage: 6.3-34.5 kV,
Nominal Frequency: 50 Hz,
Air or iron core production,
Single-phase or three-phase structure,
Copper or aluminum wound conductor according to customer demand,
MV shunt reactors, damping reactors, and MV harmonic filter reactors are used in medium voltage compensation systems.

AIR CORE CURRENT LIMITING REACTORS

A current limiting reactor is the most effective solution for short-circuit current limitation. It restricts excessive current pressure on busbars, isolators, circuit breakers, and other high voltage devices. Current limiting reactors are the most economical and practical method for current limitation.

Current limiting reactors are positioned in locations where the potential short-circuit current exceeds the calculated breaking rate of the relevant switching device in the distribution or transmission line. During normal operation, the inductive reactance must be sufficiently low for an acceptable voltage drop, but large enough to prevent a short-circuit exceeding the capacities of the switching devices.
To balance the current in parallel circuits, they are also used as load balancing reactors. Current limiting reactors can be manufactured up to 420 kV. These reactors are designed to carry the nominal current continuously and the fault current for a certain period.

ADVANTAGES

- Longer operating life for capacitors and equipment,
- Mechanical strength against high short-circuit forces,
- Longer lifespan with limited temperature rise,
- Special surface protected against Class IV pollution areas and UV radiation,
- Maintenance-free design.

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AIR CORE HARMONIC FILTER REACTORS

The use of nonlinear loads, such as power electronics-based equipment and electric furnaces, is quite common nowadays. These types of loads decrease the power quality of the connected grid. One of the best parameters to define power quality is harmonic distortion.

AIR CORE CURRENT LIMITING REACTORS

Current limiting reactors are the most effective solution for short-circuit current limitation. They limit excessive current stress on busbars, insulators, circuit breakers, and other high voltage devices. Current limiting reactors are the most economical and practical method for current limitation. Current limiting reactors are positioned in locations where the potential short-circuit current exceeds the calculated breaking rate of the related switching device in the distribution or transmission line. During normal operation, the inductive reactance should be sufficiently low to allow for an acceptable voltage drop, but large enough to prevent a short-circuit higher than the capacities of the switching devices.

They are also used as load balancing reactors to balance the current in parallel circuits. Current limiting reactors are manufactured up to 420 kV. These reactors are designed to carry the nominal current continuously and the fault current for a certain period.

HARMONIC DISTORTIONS IN THE GRID CAUSE THE FOLLOWING ISSUES

- Heating of devices,
- Insulation failures due to overheating, and exceeding the rated peak point of voltage in sinusoidal signal form at 50 or 60 Hz,
- Equipment malfunction (zero-crossing detection error in power electronic devices),
- Interference and noise in communication,
- Noise increase in electrical machines,
- Incorrect operation of fuses and disconnectors

To prevent harmonic distortion in the grid, passive harmonic filters are generally used. These filters consist of passive RLC components, namely resistor, inductor, and capacitor.

Inductors (reactors) form a resonance path together with the capacitors in the harmonic filter. When the resonance frequency of the harmonic filter is properly adjusted, the entry of harmonic currents originating from nonlinear loads into the electrical grid is prevented.

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CERTIFICATION

Certificate

EC UYGUNLUK BEYANI
(Declaration of Conformity)

KURULUŞ / COMPANY

BERK ELEKTROTEKNİK SANAYİ VE TİCARET LİMİTED ŞİRKETİ

ADRES / ADRESS

ORHANGAZİ MAH.1730 SK. MİMSAN SANAYİ SİTESİ NO:3
ESENYURT / İSTANBUL / TÜRKİYE

PRODUCT DESCRIPTION/ ÜRÜN TANIMI	: TRANSFORMATÖR
PRODUCT COMMERCIAL BRAND / MARKA	: BERK ELEKTROTEKNİK
APPLICABLE EC DIRECTIVES / UYGULANAN YÖNETMELİKLER	: 2014/35/EU – 2014/35/AT
APPLICABLE HARMONISED STANDARDS UYGULANAN STANDARTLAR	: TS EN 61558-2-2, TS EN 60076-10
PRODUCT TYPE / ÜRÜN TİPLERİ	: BT3U, BT2U, BTM, BTA

CERTIFICATE NUMBER : 12012021CE0780
CERTIFICATE ISSUE DATE : 12.01.2021
CERTIFICATE VALIDITY DATE : 11.01.2022

KURULUŞ YETKİLİ KAŞE İMZA

CERTIFICATION

Certificate

EC UYGUNLUK BEYANI
(Declaration of Conformity)

KURULUŞ / COMPANY

BERK ELEKTROTEKNİK SANAYİ VE TİCARET LİMİTED ŞİRKETİ

ADRES / ADRESS

ORHANGAZİ MAH.1730 SK. MİMSAN SANAYİ SİTESİ NO:3
ESENYURT / İSTANBUL / TÜRKİYE

PRODUCT DESCRIPTION/ ÜRÜN TANIMI	: REAKTÖR
PRODUCT COMMERCIAL BRAND / MARKA	: BERK ELEKTROTEKNİK
APPLICABLE EC DIRECTIVES / UYGULANAN YÖNETMELİKLER	: 2014/35/EU – 2014/35/AT
APPLICABLE HARMONISED STANDARDS UYGULANAN STANDARTLAR	: TS EN 61558-2-2, TS EN 61558-1, TS EN 60076-6
PRODUCT TYPE / ÜRÜN TİPLERİ	: BRH, BRS, BRL, BRM

CERTIFICATE NUMBER : 12012021CE0779
CERTIFICATE ISSUE DATE : 12.01.2021
CERTIFICATE VALIDITY DATE : 11.01.2022

KURULUŞ YETKİLİ KAŞE İMZA

NETSERT

CERTIFICATE

NETSERT

BERK ELEKTROTEKNİK SANAYİ VE TİCARET LİMİTED Şİ

ORHAN GAZİ MAHALLESİ 1730.SOKAK MİMSAN SANAYİ SİTESİ NO:3 ESENYURT / İSTANBUL/TÜ

ISO 9001:2015
KALİTE YÖNETİM SİSTEMİ
Quality Management System

"TRANSFORMATÖR (MEDİKAL V.B.) VE REAKTÖR (HARMONİK FİLTRE REAKTÖ
V.B.)İMALATI VE SATIŞI"
Kapsamında uygunluğunu onaylar.

Sertifika No	: NS.KS.391/2018
Sertifika İlk Düzenleme Tarihi	: 26.12.2018
Sertifika Düzenleme Tarihi	: 26.12.2018
Sertifika Geçerlilik Tarihi	: 25.12.2021
Belgelendirme Periyodu	: 3 yıl
FA Kodu	: 29
Rev. No	: 00

Onay / Approved

ALiMENT
CERTIFICATION

Certificate

CE

EC UYGUNLUK BEYANI

KURULUŞ
BERK ELEKTROTEKNİK SANAYİ VE TİCARET LİMİTED ŞİRKETİ
ADRES
ORHANGAZİ MAH.1730 SK. MİMSAN SANAYİ SİTESİ NO:3 ESENYURT/İSTANBUL

Aşağıda adı, tipi / modeli verilen ürünü, TS EN 60076-10, TS EN 61558-2-2, TS EN 61558-2-13, TS EN 61588-2-15 standartlarına uygun olarak ve ilgili diğer mevzuatların gerekelerini karşılayacak şekilde üretiğimizi ve üreteceğimizi beyan ederiz.
İlgili tüm dokümanlar sistemde ilişkin kayıtlar tarafımızdan muhafaza edilecektir.

ÜRÜN TANIMI	: TRANSFORMATÖR
MARKA	: BERK ELEKTROTEKNİK
SINIF	: CLASS-I
ÜRÜN TİPLERİ	: BT3U,BT2U,BTM,BTA
UYGULANAN YÖNETMELİKLER	: 2014/90/EU MARİNE EQUİPMENT DİRECTİVE (MED)
SERTİFİKA NUMARASI	: 111018051
YAYINLAMA TARİHİ	: 11.10.2018
BİTİŞ TARİHİ	: 10.10.2020

KURULUŞ YETKİLİ UNVAN VE KAŞE/İMZA

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