

BREIMER-ROTH
TRANSFORMATOREN



ONE WAVE FASTER



UL STANDARDS AND APPROVALS

**Transformers and
Industrial Control Panels**





To use transformers or other electrical components in the USA and Canada, it is generally necessary to obtain the corresponding UL/CSA approval. Since there are various different UL/CSA approvals, it is important to check which standard and Category Code the product is approved under. Often, people simply look for the corresponding logo on the product and consider it suitable. However, this can lead to significant problems during commissioning in the USA and Canada. You can check under which standard a product is approved by visiting www.ul.com and navigating to the "Online Certification Directory" section.

The following explains the possible approvals for transformers and industrial control panels:

Construction only

Category Code XORU2/XORU8

This is the most cost-effective approval. There is no separate standard for this. During the testing, only a few samples from the desired series are checked to ensure that the air and creepage distances are complied with. No further electrical tests are conducted. If a transformer with this approval is used, additional tests according to UL are mandatory.

Electrical Insulation System

Norm: UL1446, Category Code OBJY2/8

This approval is required as the basis for full approval. All materials used in the transformers are tested for chemical compatibility under the influence of temperature in a long-term test. As a result, an approval is granted for the corresponding insulation system with respect to a temperature class.

Breimer-Roth approval data:

File No: E475312

Insulation System Name: BRE-155

Temperature Class: 155°C/F

Full Approval

Norm: UL5085, Category Code XPTQ2/XPTQ8

In this approval, all desired transformers are tested for their electrical values, heating, and the materials used. Transformers that have this approval can be installed in switch cabinets or other systems without further concerns. No additional tests by UL are required.

Breimer-Roth approval data:

File No: E483928

Current series: BE, BEV, BS, BSV, BDF, BDVA

Approval for Industrial Control Panels

Norm: UL508A, Category Code NITW7/8

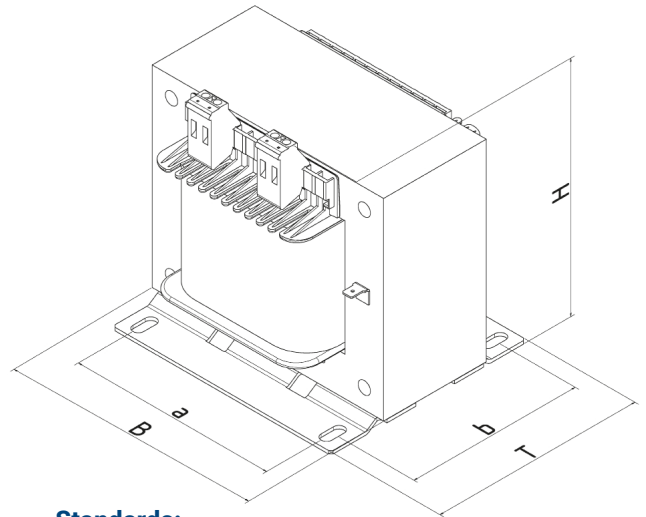
This approval applies to enclosures for the US and Canadian markets. All materials used must be appropriately approved. In addition, UL wires must be used, required air and creepage distances must be maintained, and various labeling requirements must be met. If the switchgear meets all the requirements, it is labeled with an approval sticker and a serial number.

Breimer-Roth approval data:

File No: E469721

General characteristics:

- transformer with customized voltages
- cost optimized
- welded
- open design for stationary installation
- back of hand and finger contact protected terminals, according to DGUV rule 3
- IP xx B, insulation class B, max ambient temperature 40°C (ta 40°C/B)
- available in several standards
- 50-250 VA versions with combined DIN rail mounting plate
- UL approval (UL5085 - XPTQ2) available on request

**Standards:**

EN 61558-2-2 Control transformers

EN 61558-2-4 Isolation transformer

EN 61558-2-6 Safety transformer

EN 61558-2-13 Auto transformers

UL 5085 Low voltage transformers

XPTQ2/8, E483928

UL 1446 Electrical insulation System

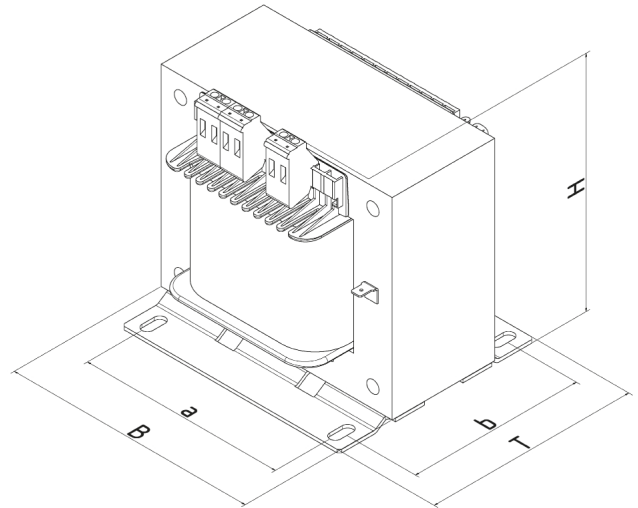
OBJY2/8, E475312



Model	Item No.	Power [VA]	Size	Copper [kg]	Total [kg]	Dimensions [mm]					
						B	T	H	a	b	Screw
BE 25 UL-CSA	0521-20-xxxxxx	25	EI 60/21	0,13	0,50	78	65	76	44	36	M3
BE 35 UL-CSA	0521-20-xxxxxx	35	EI 60/31	0,14	0,52	78	75	76	44	46	M3
BE 50 UL-CSA	0521-20-xxxxxx	50	EI 66/36	0,20	0,98	78	80	83	56	56	M4
BE 63 UL-CSA	0521-20-xxxxxx	63	EI 78/27	0,27	1,20	78	78	91	56	56	M4
BE 80 UL-CSA	0521-20-xxxxxx	80	EI 78/36	0,29	1,48	78	80	91	56	56	M4
BE 100 UL-CSA	0521-20-xxxxxx	100	EI 84/43	0,37	1,68	85	88	97	64	65	M4
BE 160 UL-CSA	0521-20-xxxxxx	160	EI 84/52	0,47	2,30	85	98	97	64	65	M4
BE 161 UL-CSA	0521-20-xxxxxx	160	EI 96/35	0,57	2,38	96	78	104	84	87	M5
BE 200 UL-CSA	0521-20-xxxxxx	200	EI 96/45	0,63	2,95	96	88	104	84	87	M5
BE 201 UL-CSA	0521-20-xxxxxx	200	EI 105/37	0,71	3,20	105	80	110	84	62	M5
BE 250 UL-CSA	0521-20-xxxxxx	250	EI 96/59	0,73	3,80	96	102	104	84	87	M5
BE 270 UL-CSA	0521-20-xxxxxx	270	EI 105/45	0,85	3,70	105	88	110	84	69	M5
BE 320 UL-CSA	0521-20-xxxxxx	320	EI 105/60	0,93	4,70	105	104	110	80	85	M5
BE 321 UL-CSA	0521-20-xxxxxx	320	EI 120/41	1,15	4,30	120	88	121	90	70	M5
BE 400 UL-CSA	0521-20-xxxxxx	400	EI 120/53	1,25	5,40	120	100	120	90	82	M5
BE 450 UL-CSA	0521-20-xxxxxx	450	EI 120/61	1,30	6,20	120	108	120	90	88	M5
BE 500 UL-CSA	0521-20-xxxxxx	500	EI 120/73	1,46	7,30	120	120	120	90	102	M5
BE 570 UL-CSA	0521-20-xxxxxx	570	EI 135/52	1,76	6,60	135	105	131	104	86	M5
BE 630 UL-CSA	0521-20-xxxxxx	630	EI 135/62	1,75	7,00	135	115	131	104	96	M5
BE 700 UL-CSA	0521-20-xxxxxx	700	EI 135/72	1,90	8,00	135	125	131	104	106	M5
BE 720 UL-CSA	0521-20-xxxxxx	720	EI 150N/49	2,30	8,30	150	107	145	122	84	M6
BE 800 UL-CSA	0521-20-xxxxxx	800	EI 150N/66	2,60	10,1	150	124	145	122	101	M6
BE 1000 UL-CSA	0521-20-xxxxxx	1000	EI 150N/92	2,80	13,0	150	150	145	122	127	M6
BE 1200 UL-CSA	0521-20-xxxxxx	1200	EI 174/60	3,75	13,7	174	126	157	135	94	M6
BE 1600 UL-CSA	0521-20-xxxxxx	1600	EI 174/74	4,30	15,7	174	140	157	135	110	M6
BE 1800 UL-CSA	0521-20-xxxxxx	1800	EI 174/82	4,60	17,7	174	148	157	135	110	M6
BE 2000 UL-CSA	0521-20-xxxxxx	2000	EI 174/102	4,90	22,0	174	168	157	135	136	M6
BE 2001 UL-CSA	0521-20-xxxxxx	2000	EI 192/70	5,40	23,0	195	142	178	150	110	M8
BE 2200 UL-CSA	0521-20-xxxxxx	2200	EI 192/82	5,90	24,0	195	154	178	150	122	M8
BE 2500 UL-CSA	0521-20-xxxxxx	2500	EI 192/104	6,00	24,6	195	176	178	150	144	M8
BE 3000 UL-CSA	0521-20-xxxxxx	3000	EI 192/110	6,60	26,9	195	182	178	150	150	M8

General characteristics:

- control transformer with standard voltages
- cost optimized
- welded
- voltage adjustment through $\pm 5\%$ tapings on the input side
- open design for stationary installation
- back of hand and finger contact protected terminals, according to DGUV rule 3
- IP xx B, insulation class B, max ambient temperature 40°C (ta 40°C/B)
- 50-250 VA versions with combined DIN rail mounting plate
- UL approval (UL5085 - XPTQ2) as standard

**Standard voltages:**

AC 220/230/240V // AC 24V (up to 1200VA)

AC 220/230/240V // AC 230V

AC 380/400/420V // AC 24V (up to 1200VA)

AC 380/400/420V // AC 230V

AC 440/460/480/500V // AC 24V (up to 1200VA)

AC 440/460/480/500V // AC 230V

Standards:

EN 61558-2-2 Control transformers

EN 61558-2-4 Isolation transformer

EN 61558-2-6 Safety transformer

UL 5085 Low voltage transformers

XPTQ2/8, E483928

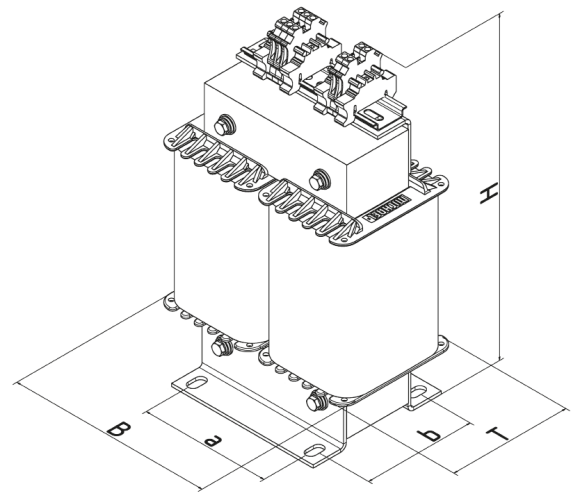


Model	Power [VA]	230 // 24 V Item No.	230 // 230 V Item No.	400 // 24 V Item No.	400 // 230 V Item No.	500 // 24 V Item No.	500 // 230 V Item No.
BS 50	50	0510-10-000050	0511-10-000050	0512-10-000050	0513-10-000050	0514-10-000050	0515-10-000050
BS 63	63	0510-10-000063	0511-10-000063	0512-10-000063	0513-10-000063	0514-10-000063	0515-10-000063
BS 80	80	0510-10-000080	0511-10-000080	0512-10-000080	0513-10-000080	0514-10-000080	0515-10-000080
BS 100	100	0510-10-000100	0511-10-000100	0512-10-000100	0513-10-000100	0514-10-000100	0515-10-000100
BS 160	160	0510-10-000160	0511-10-000160	0512-10-000160	0513-10-000160	0514-10-000160	0515-10-000160
BS 200	200	0510-10-000200	0511-10-000200	0512-10-000200	0513-10-000200	0514-10-000200	0515-10-000200
BS 250	250	0510-10-000250	0511-10-000250	0512-10-000250	0513-10-000250	0514-10-000250	0515-10-000250
BS 320	320	0510-10-000320	0511-10-000320	0512-10-000320	0513-10-000320	0514-10-000320	0515-10-000320
BS 400	400	0510-10-000400	0511-10-000400	0512-10-000400	0513-10-000400	0514-10-000400	0515-10-000400
BS 500	500	0510-10-000500	0511-10-000500	0512-10-000500	0513-10-000500	0514-10-000500	0515-10-000500
BS 630	630	0510-10-000630	0511-10-000630	0512-10-000630	0513-10-000630	0514-10-000630	0515-10-000630
BS 800	800	0510-10-000800	0511-10-000800	0512-10-000800	0513-10-000800	0514-10-000800	0515-10-000800
BS 1000	1000	0510-10-001000	0511-10-001000	0512-10-001000	0513-10-001000	0514-10-001000	0515-10-001000
BS 1200	1200	0510-10-001200	0511-10-001200	0512-10-001200	0513-10-001200	0514-10-001200	0515-10-001200
BS 1600	1600	---	0511-10-001600	---	0513-10-001600	---	0515-10-001600
BS 2000	2000	---	0511-10-002000	---	0513-10-002000	---	0515-10-002000
BS 2500	2500	---	0511-10-002500	---	0513-10-002500	---	0515-10-002500
BS 3000	3000	---	0511-10-003000	---	0513-10-003000	---	0515-10-003000

Model	Size	Copper [kg]	Total [kg]	Dimensions [mm]					
				B	T	H	a	b	Screw
BS 50	EI 66/36	0,16	0,98	78	82	80	56	56	M4/HS
BS 63	EI 78/27	0,23	1,20	78	82	90	56	56	M4/HS
BS 80	EI 78/36	0,24	1,48	78	82	90	56	56	M4/HS
BS 100	EI 84/43	0,24	1,68	84	84	95	64	64	M4/HS
BS 160	EI 84/52	0,39	2,30	84	90	95	64	64	M4/HS
BS 200	EI 96/45	0,53	2,85	96	102	104	84	86	M5/HS
BS 250	EI 96/59	0,58	3,70	96	102	104	84	86	M5/HS
BS 320	EI 105/60	0,77	4,60	105	104	110	84	85	M5
BS 400	EI 120/53	1,02	5,20	120	90	120	90	80	M5
BS 500	EI 120/73	0,99	6,90	120	120	120	90	100	M5
BS 630	EI 135/62	1,66	6,90	135	115	135	104	96	M5
BS 800	EI 150N/66	1,73	9,30	150	120	145	122	101	M6
BS 1000	EI 150N/92	2,04	12,30	150	150	145	122	126	M6
BS 1200	EI 174/60	2,81	12,80	174	125	160	135	102	M6
BS 1600	EI 174/74	3,77	15,10	174	140	160	135	112	M6
BS 2000	EI 174/102	4,22	21,30	174	168	160	135	136	M6
BS 2500	EI 192/104	5,40	24,00	192	176	178	150	144	M8
BS 3000	EI 192/110	5,90	26,30	192	182	178	150	150	M8

General characteristics:

- transformer with customized voltages up to 1000 V
- cost-optimized execution
- open version for stationary installation
- hand-back and finger-touch-proof terminals, according to DGUV regulation 3 (IPxxB)
- up to 50A connections to transformer terminals, up to 340 A terminal blocks, above that copper bars or cable lugs
- IP xx B, insulation class B up to 5000 VA, max. ambient temperature 40°C (ta 40°C/B)
- Insulation class F from 6000 VA, max. ambient temperature 40°C (ta 40°C/F)
- standard: vertical design, others on request
- for loss-optimized versions see BUVA series
- available in different standards

**Standards:**

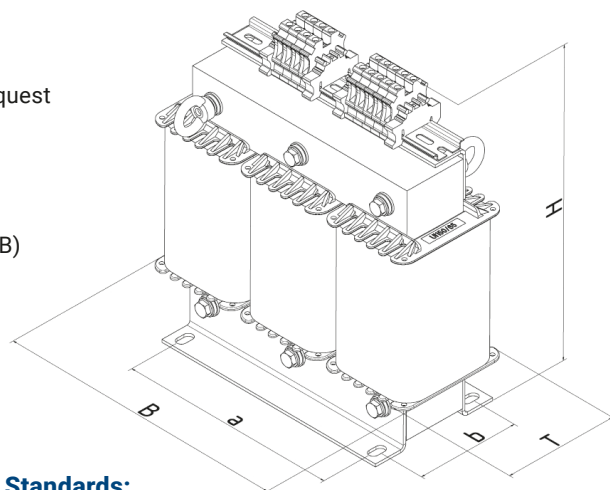
- EN 61558-2-2 Control transformers
 EN 61558-2-4 Isolating transformers
 EN 61558-2-6 Safety transformers
 EN 61558-2-13 Autotransformers
 UL 1446 Electrical insulation system
 OBJ2/8, E475312



Model	Item No.	Power [VA]	Size	Copper [kg]	Total [kg]	Dimensions [mm]					
						B	T	H	a	b	Screw
BUF 250 UL	0530-20-xxxxxxx	250	UI 75/26	1,20	3,00	100	66	132	63	49	M5
BUF 500 UL	0530-20-xxxxxxx	500	UI 90/31	2,10	5,00	120	75	157	76	56	M6
BUF 750 UL	0530-20-xxxxxxx	750	UI 90/51	2,50	7,00	120	95	157	76	76	M6
BUF 1000 UL	0530-20-xxxxxxx	1.000	UI 120/41	4,70	11,0	158	95	213	100	89	M6
BUF 1500 UL	0530-20-xxxxxxx	1.500	UI 120/51	5,10	14,0	158	105	213	100	79	M6
BUF 2000 UL	0530-20-xxxxxxx	2.000	UI 120/71	6,00	17,0	158	135	213	100	99	M6
BUF 3000 UL	0530-20-xxxxxxx	3.000	UI 150/52	12,0	27,0	195	122	257	124	94	M8
BUF 4000 UL	0530-20-xxxxxxx	4.000	UI 150/77	13,0	31,0	195	147	264	124	119	M8
BUF 5000 UL	0530-20-xxxxxxx	5.000	UI 150/92	16,0	37,0	195	165	264	124	134	M8
BUF 6000 UL	0530-20-xxxxxxx	6.000	UI 180/63	17,0	39,0	236	153	372	144	125	M8
BUF 8000 UL	0530-20-xxxxxxx	8.000	UI 180/78	24,0	48,0	236	168	372	144	140	M8
BUF 10000 UL	0530-20-xxxxxxx	10.000	UI 210/63	36,0	63,0	280	163	430	176	133	M10
BUF 13000 UL	0530-20-xxxxxxx	13.000	UI 210/88	37,0	75,0	280	188	430	176	158	M10
BUF 16000 UL	0530-20-xxxxxxx	16.000	UI 210/103	40,0	86,0	280	203	430	176	173	M10
BUF 20000 UL	0530-20-xxxxxxx	20.000	UI 240/110	51,0	121	320	220	490	196	184	M12
BUF 25000 UL	0530-20-xxxxxxx	25.000	UI 240/140	62,0	139	320	250	490	196	214	M12

General characteristics:

- transformer with customized voltages up to 1000V, larger voltage on request
- cost optimized model with sheet (M330-50A)
- reduced sizes
- open design for stationary installation
- back of hand finger protected terminals, according to DGUV rule 3 (IPxxB)
- electric currents above 340A, needs electric connections on cable lugs or copper plates (IP00)
- insulation class B, max ambient temp. 40°C (ta 40°C/B) up to 3500 VA
- insulation class F, max ambient temp. 40°C (ta 40°C/F) from 4000 VA
- available in various standards
- standard: standing construction with mounting brackets
- in sizes up to 40 kVA change the measurements of high and depth from currents higher than 50A
- loss optimized models, see BDVA

**Standards:**

- EN 61558-2-2 Control transformers
- EN 61558-2-4 Isolation transformers
- EN 61558-2-6 Safety transformers
- EN 61558-2-13 Auto transformers
- UL 5085 Low voltage transformers
XPTQ2/8, E483928
- UL1446 Electrical insulation System
OBJY2/8, E475312



Model	Item No.	Power [VA]	Size	Copper [kg]	Total [kg]	Dimensions [mm]					
						B	T	H	a	b	Screw
BDF 50 UL-CSA	0602-20-xxxxxx	50	3UI 48/26	0,44	1,40	96	86	100	71	48	M4
BDF 100 UL-CSA	0602-20-xxxxxx	100	3UI 60/21	0,67	1,70	120	81	110	90	39	M4
BDF 200 UL-CSA	0602-20-xxxxxx	200	3UI 60/31	0,87	2,50	120	91	110	90	49	M4
BDF 300 UL-CSA	0602-20-xxxxxx	300	3UI 75/26	1,58	4,40	150	86	135	113	49	M5
BDF 400 UL-CSA	0602-20-xxxxxx	400	3UI 75/41	1,90	6,10	150	101	135	113	64	M5
BDF 500 UL-CSA	0602-20-xxxxxx	500	3UI 90/31	2,96	7,40	180	91	155	136	57	M6
BDF 700 UL-CSA	0602-20-xxxxxx	700	3UI 90/41	3,40	9,30	180	101	155	136	67	M6
BDF 900 UL-CSA	0602-20-xxxxxx	900	3UI 90/51	3,71	11,1	180	111	155	136	77	M6
BDF 1000 UL-CSA	0602-20-xxxxxx	1.000	3UI 114/40	5,60	13,5	228	110	195	176	71	M6
BDF 1300 UL-CSA	0602-20-xxxxxx	1.300	3UI 114/40	6,24	15,1	228	110	195	176	71	M6
BDF 1600 UL-CSA	0602-20-xxxxxx	1.600	3UI 120/41	6,83	17,5	240	111	205	185	81	M8
BDF 2000 UL-CSA	0602-20-xxxxxx	2.000	3UI 114/64	7,09	20,9	228	134	195	176	95	M6
BDF 2500 UL-CSA	0602-20-xxxxxx	2.500	3UI 120/71	8,32	25,3	240	141	205	185	101	M8
BDF 3000 UL-CSA	0602-20-xxxxxx	3.000	3UI 132/60	10,3	29,5	265	140	230	200	90	M8
BDF 3500 UL-CSA	0602-20-xxxxxx	3.500	3UI 132/72	10,9	32,5	265	152	230	200	102	M8
BDF 4000 UL-CSA	0602-20-xxxxxx	4.000	3UI 150/52	12,2	33,0	300	140	260	224	94	M8
BDF 5000 UL-CSA	0602-20-xxxxxx	5.000	3UI 150/65	15,2	39,0	300	153	260	224	108	M8
BDF 6000 UL-CSA	0602-20-xxxxxx	6.000	3UI 150/77	18,1	48,5	300	165	260	224	120	M8
BDF 7000 UL-CSA	0602-20-xxxxxx	7.000	3UI 150/92	20,0	54,0	300	180	260	224	134	M8
BDF 8000 UL-CSA	0602-20-xxxxxx	8.000	3UI 150/103	19,2	56,0	300	191	260	224	145	M8
BDF 9000 UL-CSA	0602-20-xxxxxx	9.000	3UI 180/63	28,7	64,0	360	165	310	264	125	M8
BDF 10000 UL-CSA	0602-20-xxxxxx	10.000	3UI 180/78	29,6	72,0	360	180	310	264	140	M8
BDF 13000 UL-CSA	0602-20-xxxxxx	13.000	3UI 180/93	32,1	82,0	360	195	310	264	155	M8
BDF 16000 UL-CSA	0602-20-xxxxxx	16.000	3UI 210/73	46,7	99,0	420	180	360	316	143	M10
BDF 20000 UL-CSA	0602-20-xxxxxx	20.000	3UI 210/88	54,4	118	420	195	360	316	158	M10
BDF 24000 UL-CSA	0602-20-xxxxxx	24.000	3UI 210/103	54,1	128	420	210	360	316	173	M10
BDF 28000 UL-CSA	0602-20-xxxxxx	28.000	3UI 210/133	59,2	154	420	240	360	316	203	M10
BDF 30000 UL-CSA	0602-20-xxxxxx	30.000	3UI 210/133	65,0	160	420	240	360	316	203	M10
BDF 36000 UL-CSA	0602-20-xxxxxx	36.000	3UI 240/110	77,8	178	480	240	415	356	184	M12
BDF 40000 UL-CSA	0602-20-xxxxxx	40.000	3UI 240/140	89,3	218	480	270	415	356	214	M12

Our services in this sector include, among others, the planning, design, and construction of complete industrial control panel assemblies and systems. We approach new challenges with creativity and a spirit of innovation. Our goal is to relieve the customer of as much work and effort as possible during the execution of their project.

Our strengths at a glance:

- Development of system concepts with customer-specific requirements
- Design using the latest software such as Eplan P8 and Autodesk Inventor
- Construction of the complete system according to relevant standards
- Commissioning and training at the customer's site
- Maintenance service



UL / CSA Approval:

Do you need a system for the American or Canadian market? No problem. We have the necessary approvals to design and build systems for you in compliance with industry standards and regulations, and to certify them with the appropriate approval seal.

File No: E492554

Category Code: NITW7/8

CONDITIONS OF ACCEPTABILITY | FILE E483928

- The transformers/autotransformers shall be enclosed and mounted in the end equipment in the manner and with the spacing required by the end product application.
- These transformers/autotransformers employ a Class 155(F) insulation system.
- The acceptability of the mounting means have not been evaluated. It shall be and end product evaluation.
- The suitability of the length, routing and termination of leads or terminals shall be determined in the end-use application. These devices are not suitable for field wiring.
- These Transformers/Autotransformers were evaluated for use in ambient temperature of 40°C.
- The Transformers/Autotransformers may be provided with thermal switch. No protection was tested during the testing session (nor for heating test nor for overload test). The suitable operation and acceptance of the component (including mounting and spacing) shall be determined in the end-product.
- Spacing at wiring terminals were evaluated per Table 6 of UL5085-2 and CSA C22.2 No.66.2. Being also suitable for use in 40°C ambient these units are suitable for industrial application.
- The grounding means were not evaluated, the suitability shall be determined in the final application.
- Evaluation of the metal foil was limited to a Dielectric Voltage Withstand Test conducted between the foil and the adjacent windings. Any other evaluation, including the suitability as grounding mean, shall be determined in the final application.

