

UL/CSA APPROVAL AND TRANSFORMERS FOR EX & IP65 ENCLOSURES HEAT LOSS DATA FOR SINGLE PHASE TRANSFORMERS IN CLASSES F, E & A

UL/CSA design and approval plus ongoing compliance.

Heat loss data for Ex or IP65 enclosed transformers.

Losses for Class F (155 deg C) transformers.
Losses for Class E (120 deg C) transformers.
Losses for Class A (105 deg C) transformers
with frame size data
Losses for Ex or IP65 enclosed transformers
with frame size data.



UL/CSA designs with full approval can be produced to customer own requirements. Initial testing and approval and regular inspection visits to ensure ongoing compliance is a service we can provide.

The heat loss data shown is important when transformers are fully enclosed or housed in confined control panel situations. The data shown is provided to help design engineers select the correct transformer type and insulation type.

To allow transformers to be enclosed in Ex or IP65 rated cabinets high grade core materials can be used and core sizes adapted to achieve lower temperature rises. Selection of enclosure must be based on the heat loss data provided.

Definitions and data

Insulation class	Coding	Temperature rating	Maximum temperature rise	Maximum ambient temperature
Class F	SF	155 deg C	115 deg C	35 deg C
Class E	SE	120 deg C	85 deg C	35 deg C
Class A	SA	105 deg C	70 deg C	35 deg C

High efficiency types for Ex & IP65 enclosure (Ex, IP65) for guidance only, for specific applications contact our sales department
C: Core losses are at nominal input voltage W: Winding losses (approximate) are at full load

Rating Class F	Losses C	Losses W	Frame size	Rating Class E	Losses C	Losses W	Frame size	Rating Class A	Losses C	Losses W	Frame size	Rating Ex d & IP65	Losses C	Losses W	Frame size
30VA	5W	8W	SE 25	25VA	5W	6W	SE 25	20VA	4W	4W	SE 25	20VA	0.6W	4W	SE 25
60VA	6W	12W	SE 50	50VA	6W	8W	SE 50	40VA	5W	5W	SE 50	40VA	0.8W	5W	SE 50
120VA	7W	23W	SE 100	100VA	7W	15W	SE 100	80VA	6W	8W	SE 100	80VA	1.0W	8W	SE 100
180VA	10W	30W	SE 150	150VA	10W	20W	SE 150	125VA	8W	12W	SE 150	125VA	1.5W	12W	SE 150
225VA	13W	35W	SE 200	200VA	13W	25W	SE 200	150VA	10W	13W	SE 200	150VA	2.0W	13W	SE 200
280VA	18W	40W	SE 250	250VA	18W	30W	SE 250	200VA	13W	18W	SE 250	200VA	3.2W	18W	SE 250
300VA	24W	56W	SE 250	300VA	24W	40W	SE 300	250VA	18W	21W	SE 300	250VA	4.0W	21W	SE 300
400VA	26W	60W	SE 300	400VA	26W	45W	SE 400	300VA	21W	30W	SE 400	300VA	5.0W	30W	SE 400
500VA	28W	67W	SE 400	500VA	28W	52W	SE 500	400VA	23W	38W	SE 500	400VA	6.0W	38W	SE 500
600VA	32W	85W	SE 500	600VA	32W	68W	SE 600	500VA	25W	45W	SE 600	500VA	6.0W	45W	SE 600
700VA	35W	95W	SE 600	750VA	35W	74W	SE 750	600VA	28W	56W	SE 750	600VA	6.5W	56W	SE 750
1.0kVA	38W	110W	SE 750	1.0kVA	38W	90W	SE 1000	750VA	31W	65W	SE 1000	750VA	6.0W	65W	SE 1000
1.5kVA	53W	155W	SE 1000	1.5kVA	53W	120W	SE 1500	1.25kVA	45W	90W	SE 1500	1.0kVA	11W	90W	SE 1500
2.0kVA	62W	180W	SE 1500	2.0kVA	62W	150W	SE 2000	1.5kVA	55W	100W	SE 2000	1.25kVA	13W	100W	SE 2000
2.5kVA	77W	205W	SE 2000	2.5kVA	77W	170W	SE 2500	2.0kVA	63W	110W	SE 2500	1.5kVA	15W	110W	SE 2500
3.0kVA	103W	250W	SE 2500	3.0kVA	103W	190W	SE 3000	2.5kVA	85W	140W	SE 3000	2.0kVA	21W	140W	SE 3000
4.0kVA	116W	280W	SE 3000	4.0kVA	116W	220W	SE 4000	3.0kVA	95W	165W	SE 4000	2.5kVA	24W	165W	SE 4000
5.0kVA	160W	360W	SE 4000	5.0kVA	160W	305W	SE 5000	4.0kVA	125W	190W	SE 5000	3.0kVA	33W	190W	SE 5000
6.25kVA	200W	430W	SE 5000	6.25kVA	200W	320W	SE 6250	5.0kVA	160W	230W	SE 6250	4.0kVA	42W	230W	SE 6250
7.5kVA	248W	490W	SE 6250	7.5kVA	248W	360W	SE 7500	6.25kVA	200W	280W	SE 7500	5.0kVA	51W	280W	SE 7500



Eastern Transformers & Equipment Ltd, Unit H1, Overland Business Park, Great Wheltenham,
Bury St Edmunds, Suffolk, England, United Kingdom, IP30 0UL
Tel: +44(0)1284 388 033; Fax: +44(0)1284 386 969; Web: www.ete.co.uk; Email: info@ete.co.uk