

A high efficiency, low total loss option.

As energy costs continue to rise, maximizing the efficiency of electrical distribution systems becomes a top priority. Transformer efficiency is determined by losses. For a transformer to operate most efficiently, it must be designed to operate at the lowest possible total losses. The lower the losses, the lower the heat. Hevi-Duty low temperature rise transformers feature a 220°C insulation system and temperature rise of only 80°C or 115°C under full nameplate load. The result is 13-21% lower operating losses than conventional 150°C rise units. With operating costs substantially reduced, you will save more each year over the transformer's normal life.

Low losses and money savings are not the only benefits of Hevi-Duty low temperature rise transformers. The 35°C thermal reserve on 115°C rise units and 70°C reserve on 80°C rise units definitely mean lower operating costs. The extra benefit is being able to operate either of these transformers as a 150°C rise unit and have an overload capability of 15-30% **without** compromising normal life expectancy (See Figure 1).

Low temperature rise transformers are designed for any critical application requiring extra overload capability, lower than average total losses and/or cooler operating temperatures. All are available with either a 115°C or 80°C thermal rise and a fully coordinated class 220°C insulation system.



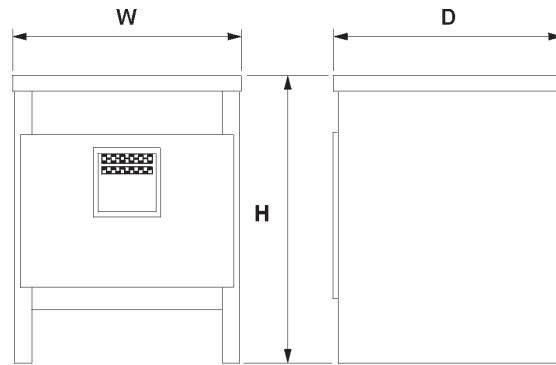
Accessories and Optional Design Styles*

- Wall mounting brackets (500 lbs maximum)
- Weather Shields (UL-3R)
- Stainless Steel Enclosures
- Totally enclosed non-ventilated designs (TENV)
- Open core and coil designs
- Copper Wound designs

* Not all optional designs are UL listed. Contact Technical Services.

	Standard Unit	Low Temperature Rise Units	
	H	HF	HB
220°C		Thermal Reserve 35°C	Thermal Reserve 70°C
185°C	Temperature Rise under Full Load 150°C	Temperature Rise under Full Load 115°C	Temperature Rise under Full Load 80°C
150°C			
70°C	Coil Hot Spot Allowance 30°C	Coil Hot Spot Allowance 30°C	Coil Hot Spot Allowance 30°C
40°C	Ambient Temperature Allowance 40°C	Ambient Temperature Allowance 40°C	Ambient Temperature Allowance 40°C
0°C	150°C Rise Unit	115°C Rise Unit	80°C Rise Unit

Figure 1



Ventilated Design

Tap Information

All Hevi-Duty low temperature rise transformers are provided with two 2½% FCAN and four 2½% FCBN taps in addition to the nominal rating tap. For actual tap voltage, refer to the appropriate electrical connection diagram.

Low Temperature Rise Transformers

Selection Tables: Single Phase



Listed



Certified

Group 1 – 240 x 480 Volt Primary, 120/240 Secondary, 60 Hz

KVA	Catalog Number 80°C Rise	Catalog Number 115°C Rise	NEMA 3R Weather Shield*	Height (inch)	Width (inch)	Depth (inch)	Approx. Ship Weight (lbs)	Elec Conn	Primary Amps	Secondary Amps
15	S5HB15S	S5HF15S	WS-15	28	16	16	235	1	62.5/31.3	125/62.5
25	S5HB25S	S5HF25S	WS-17	31	18	18	280	1	104/52.1	208/104
37.5	S5HB37S	S5HF37S	WS-17	31	18	18	350	1	156/78	313/156
50	S5HB50S	S5HF50S	WS-09	44	23	21	605	1	208/104	416/208
75	S5HB75S	S5HF75S	WS-09	44	23	21	695	1	313/156	625/313
100	S5HB100S	S5HF100S	WS-16	46	26	24	930	1	417/208	833/417

* Weather shields (set of two) must be ordered separately.

Group 2 – 600 Volt Primary, 120/240 Secondary, 60 Hz

KVA	Catalog Number 80°C Rise	Catalog Number 115°C Rise	NEMA 3R Weather Shield*	Height (inch)	Width (inch)	Depth (inch)	Approx. Ship Weight (lbs)	Elec Conn	Primary Amps	Secondary Amps
15	S10HB15S	S10HF15S	WS-15	28	16	16	235	2	25	125/62.5
25	S10HB25S	S10HF25S	WS-17	31	18	18	280	2	41.7	208/104
37.5	S10HB37S	S10HF37S	WS-17	31	18	18	350	2	62.5	313/156
50	S10HB50S	S10HF50S	WS-09	44	23	21	605	2	83.3	416/208
75	S10HB75S	S10HF75S	WS-09	44	23	21	695	2	125	625/313
100	S10HB100S	S10HF100S	WS-16	46	26	24	930	2	167	833/417

* Weather shields (set of two) must be ordered separately.

Selection Tables: Three Phase (Aluminum)

Group A – 480 Δ Primary, 208Y/120 Secondary, 60 Hz

KVA	Catalog Number 80°C Rise	Catalog Number 115°C Rise	NEMA 3R Weather Shield*	Height (inch)	Width (inch)	Depth (inch)	Approx. Ship Weight (lbs)	Elec Conn	Primary Amps	Secondary Amps
15	T2HB15S	T2HF15S	WS-14	28	23	16	245	3	18.1	41.7
30	T2HB30S	T2HF30S	WS-14	28	23	18	335	3	36.1	83.4
45	T2HB45S	T2HF45S	WS-30	34	28	22	495	3	54.2	125
75	T2HB75S	T2HF75S	WS-30	34	28	22	655	3	90.3	208
112.5	T2HB112S	T2HF112S	WS-10	44	33	21	970	3	135	313
150	T2HB150S	T2HF150S	WS-11	46	36	24	1240	3	181	417
225	T2HB225S	T2HF225S	WS-11	46	36	24	1390	3	271	625
300	T2HB300S	T2HF300S	WS-12	65	45	35	2340	3	361	834

* Weather shields (set of two) must be ordered separately.

Low Temperature Rise Transformers



Selection Tables: Three Phase (Aluminum)

Group B – 480 Δ Primary, 240 Δ Secondary with 120 V Reduced Capacity Center Tap*, 60 Hz

KVA	Catalog Number 80°C Rise	Catalog Number 115°C Rise	NEMA 3R Weather Shield**	Height (inch)	Width (inch)	Depth (inch)	Approx. Ship Weight (lbs)	Elec Conn	Primary Amps	Secondary Amps
15	T5HB15S	T5HF15S	WS-14	28	23	16	245	4	18.1	36.1
30	T5HB30S	T5HF30S	WS-14	28	23	18	335	4	36.1	72.3
45	T5HB45S	T5HF45S	WS-30	34	28	22	495	4	54.2	108
75	T5HB75S	T5HF75S	WS-30	34	28	22	655	4	90.3	181
112.5	T5HB112S	T5HF112S	WS-10	44	33	21	970	4	135	271
150	T5HB150S	T5HF150S	WS-11	46	36	24	1240	4	181	361
225	T5HB225S	T5HF225S	WS-11	46	36	24	1390	4	271	542
300	T5HB300S	T5HF300S	WS-12	65	45	35	2340	4	361	723

* See the Technical Notes section with respect to capacity of center tap.

** Weather shields (set of two) must be ordered separately.

Selection Tables: Three Phase (Copper)

Group C – 480 Δ Primary, 208Y/120 Secondary, 60 Hz, Copper-Wound

KVA	Catalog Number 115°C Rise	NEMA 3R Weather Shield*	Height (inch)	Width (inch)	Depth (inch)	Ship Weight Approx. (lbs)	Design Style	Elec Conn	Primary Amps	Secondary Amps
15	T2HF15SCU	WS-02	23	18	14	204	1	3	18.1	41.7
30	T2HF30SCU	WS-14	28	23	16	312	1	3	36.1	83.4
45	T2HF45SCU	WS-14	28	23	16	423	1	3	54.2	125.0
75	T2HF75SCU	WS-30	34	28	22	627	1	3	90.3	208.0
112.5	T2HF112SCU	WS-30	34	28	22	859	1	3	135	313.0
150	T2HF150SCU	WS-10	44	33	21	1332	1	3	181	417.0
225	T2HF225SCU	WS-11	46	36	24	1682	1	3	271	625.0
300	T2HF300SCU	WS-11	46	36	24	1863	1	3	361	834.0
500	T2HF500SCU	WS-12	65	45	35	3120	1	3	602	1390.0

*Weather shields (set of two) must be ordered separately.

Electrical Connections

240 x 480 Volt Primary,
120/240 Volt Secondary
Taps: 2, 2½% FCAN; 4, 2½% FCBN

Primary Voltage	Interconnect	Connect Lines To
504	1 to 2	H1 & H2
492	2 to 3	H1 & H2
480	3 to 4	H1 & H2
468	4 to 5	H1 & H2
456	5 to 6	H1 & H2
444	6 to 7	H1 & H2
432	7 to 8	H1 & H2
252	H1 to 2 H2 to 1	H1 & H2
240	H1 to 4 H2 to 3	H1 & H2
228	H1 to 6 H2 to 5	H1 & H2
216	H1 to 8 H2 to 7	H1 & H2
Secondary Voltage	Interconnect	Connect Lines To
240	X2 to X3	X1 & X4
120-0-120	X2 to X3 X2 to \perp	X1-X2-X4
120	X1 to X3 X2 to X4	X1 & X4

600 Volt Primary,
120/240 Volt Secondary
Taps: 2, 2½% FCAN; 4, 2½% FCBN

Primary Voltage	Interconnect	Connect Lines To
630	1 to 2	H1 & H2
615	2 to 3	H1 & H2
600	3 to 4	H1 & H2
585	4 to 5	H1 & H2
570	5 to 6	H1 & H2
555	6 to 7	H1 & H2
540	7 to 8	H1 & H2
Secondary Voltage	Interconnect	Connect Lines To
240	X2 to X3	X1 & X4
120-0-120	X2 to X3 X2 to \perp	X1-X2-X4
120	X1 to X3 X2 to X4	X1 & X4

480 Δ Volt Primary,
208Y/120 Volt Secondary
Taps: 2, 2½% FCAN; 4, 2½% FCBN

Primary	H1-H2-H3	Secondary Voltage	
@ Tap	Voltage	X1, X2, X3	X0-X1, X2, X3
1	504	208	120
2	492		
3	480		
4	468		
5	456		
6	444		
7	432		

480 Δ Volt Primary,
240 Δ W/120 CT Volt Secondary
Taps: 2, 2½% FCAN; 4, 2½% FCBN

Primary	H1-H2-H3	Secondary Voltage	
@ Tap	Voltage	X1, X2, X3	X6-X1, X6-X3
1	504	240	120
2	492		
3	480		
4	468		
5	456		
6	444		
7	432		