

# BERKSHIRE TRANSFORMER

Varivolt



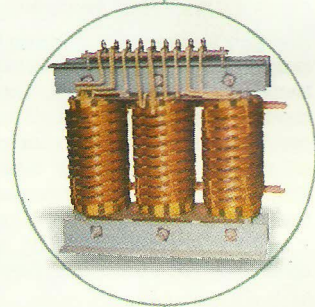
Steadyvolt



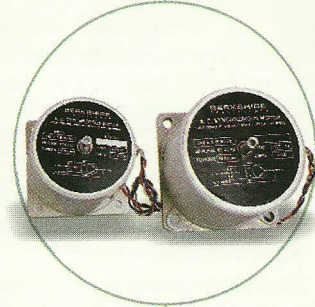
Toropower



L.V. Transformers



A. C. Synchronous Motor



## Berkshire Transformer

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# VARIVOLT

## CONTINUOUSLY VARIABLE VOLTAGE AUTO TRANSFORMERS

**"VARIVOLT" AUTO TRANSFORMER** is a continuously variable voltage auto transformer, having a movable carbon tip, fixed to brush arm sliding on a silver plated commutator. Rotation of the brush arm by either manual or motor drive, delivers an output voltage from zero to or above line voltage.

### SALIENT FEATURES :

- i. **Rugged Construction** : "VARIVOLT" Auto transformers are designed for heavy duty trouble free operation. All components are designed to give maximum life to the unit under extreme operating conditions. Except for carbon tips, no other part needs any specific maintenance. Even carbon tips do not require to be changed frequently. This practically makes the "VARIVOLT" a maintenance free electrical equipment.
- ii. **Excellent Regulation** : The drop in voltage from "no load to full load" is minimal in "VARIVOLT" Auto-transformers. (See fig...II for regulation characteristics)
- iii. **High Efficiency** : Careful copper, core selection and design assures the user of low watt loss, as compared to other controllers. (See fig....III ....for efficiency characteristics)
- iv. **No Wave form Distortion** : "VARIVOLT" provides an output voltage wave-form, which is a distortionless replica of the input voltage wave-form.
- v. **Silver Plated Commutator** : A special silver plating technique is used on the commutator, enabling it to withstand high overloads and maintain constant contact drop. It also ensures smooth operation, long life and increased resistance to corrosion.
- vi. **Over-load Capacity** : Because of its careful designing, "VARIVOLT" can withstand many over-loads, Fig...I gives an idea of the maximum overloading allowed with its relevant time limits. When repeated overloading takes place, care has to be exercised to provide sufficient off time to reduce the temperature build up.
- vii. **Low Operating Torque** : A glass smooth commutator, special sintered bushings for the shaft and perfect assembling of coils results in low operating torque for all "VARIVOLT" Auto-transformers.
- viii. **Smooth and Linear Output** : As voltage between turns is small and as the brush arm is in constant contact with more than one turn, harmful sparking is avoided and output voltage can be set to a fraction of a volt from zero onwards.
- ix. **Low Magnetizing Current** : By using an adequate section of high quality grain oriented silicon steel, the iron losses in "VARIVOLT", are controlled to the minimum. The no load current in all "VARIVOLT" transformers, is invariably less than 3% of the rated current.
- x. **Negligible Maintenance and Trouble Free Long Life** : "VARIVOLT" has been carefully designed. No special care has to be taken to maintain "VARIVOLT" auto transformers in normal working environments. The only components needing inspection and maintenance are the carbon tips and the commutator. Timely replacement of carbon tips and cleaning off foreign particles and accumulated dust, from the commutators surface, will ensure a considerably long, maintenance free, and uninterrupted life to the unit. Normally "VARIVOLT" auto transformers up to 28 Amps. are offered in air cooled or oil cooled construction. Models of 40 Amps. & above are offered in oil cooled construction. In very special cases "VARIVOLT", above 40 Amps, can be offered in air cooled construction. This is possible due to the special paralleling techniques adopted by us.

### HIGH CURRENT "VARIVOLT" AUTO TRANSFORMERS - OUR SPECIALITY :

"VARIVOLT" is now available in high current ranges from 225 Amps. up to 2000 Amps. in single, two and three phase models. Special paralleling techniques designed by us, have made it possible to surpass the previous current limit of 200 Amps. for toroidal Auto transformers. The following are the salient features of High Current "VARIVOLT" auto transformers :-

- i. Special forced current paralleling techniques, result in current sharing of each coil  $\pm 2\%$ .
- ii. Flanged type pressed steel radiators, are supplied separately packed, making the units easy for transportation.
- iii. Chain/Gear Driven High Torque A.C. Synchronous Motor drive.
- iv. Terminals in the form of bus-bars.
- v. All other features of oil cooled auto transformers.

Fig. I OVERLOAD CHARACTERISTICS

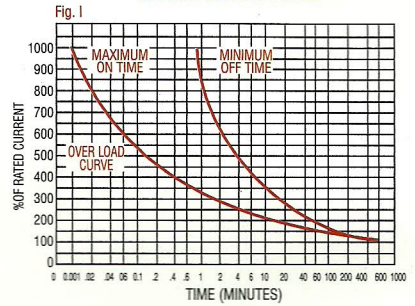


Fig. II REGULATION

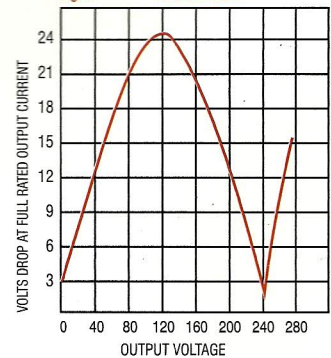


Fig. III EFFICIENCY

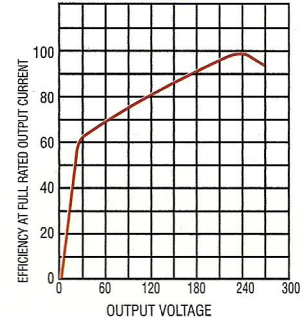
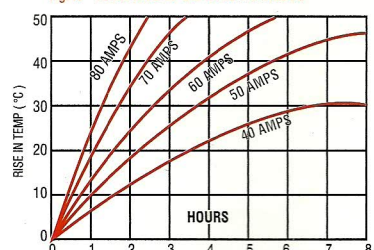
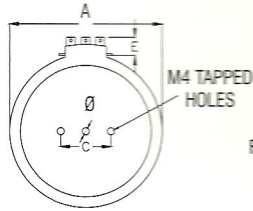
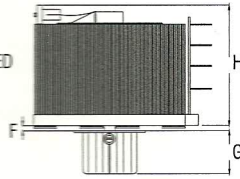


Fig. IV TEMP. RISE OF OIL IN 40 T-3 MODEL





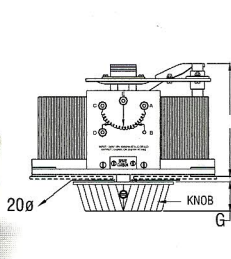
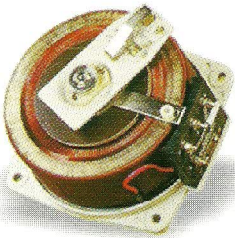
**BOTTOM VIEW  
(W/O KNOB)**



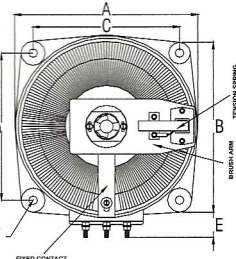
**SIDE VIEW**

**SINGLE PHASE FLUSH/BACK OF PANEL/OPEN MOUNTING TYPE**

Type	A	C	E	F	G	H	Ø
0.7F-1	85	28	12	3	24	68	6
1F-1	85	28	12	3	24	78	6



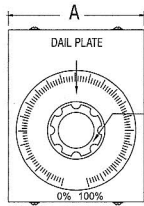
**FRONT VIEW**



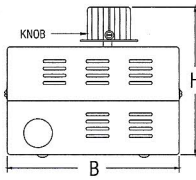
**TOP VIEW**

**SINGLE PHASE FLUSH/BACK OF PANEL/OPEN MOUNTING TYPE**

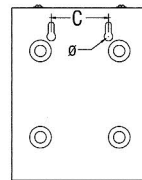
Type	A	B	C	D	E	F	G	H	Ø
1.5F-1	110	110	92	92	25	8	25	85	7
2F-1	110	110	92	92	25	9	26	105	7
3F-1	110	110	92	92	25	9	26	115	7
4F-1	175	175	146	146	25	9	30	110	10
5F-1	175	175	146	146	25	9	30	115	10
6F-1	175	175	146	146	25	9	30	115	10
8F-1	175	175	146	146	25	9	30	125	10
10F-1	175	175	146	146	25	9	30	130	10
15F-1	220	220	176	176	30	16	35	135	10
17.5F-1	220	220	176	176	30	16	35	135	10
20F-1	220	220	176	176	30	16	35	140	10
28F-1	300	300	238	238	55	16	35	170	14



**TOP VIEW**



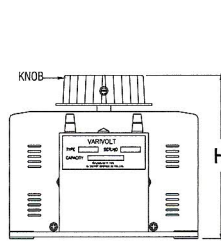
**SIDE VIEW**



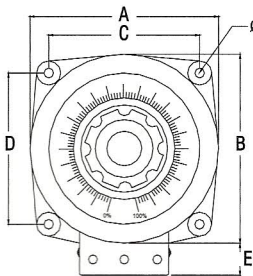
**BACK VIEW**

**SINGLE PHASE TABLE/FLOOR MOUNTING ENCLOSED TYPE**

Type	A	B	C	H	Ø
0.7P-1	95	120	40	125	6
1P-1	95	120	40	125	6
1.5P-1	130	160	40	157	6
2P-1	130	160	40	157	6
3P-1	130	160	40	157	6



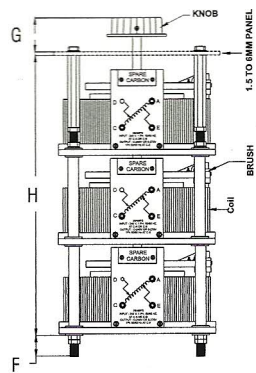
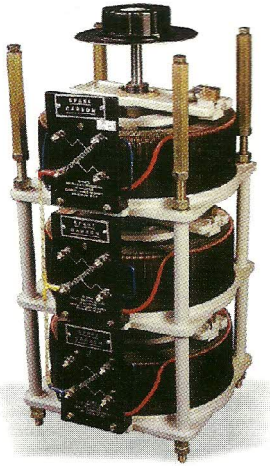
**FRONT VIEW**



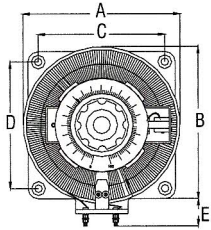
**TOP VIEW**

**SINGLE PHASE TABLE/FLOOR MOUNTING ENCLOSED TYPE**

Type	A	B	C	D	E	H	Ø
4P-1	175	175	146	146	35	150	10
5P-1	175	175	146	146	35	150	10
6P-1	175	175	146	146	35	150	10
8P-1	175	175	146	146	35	170	10
10P-1	175	175	146	146	35	170	10
15P-1	220	220	176	176	40	190	11
17.5P-1	220	220	176	176	40	190	11
20P-1	220	220	176	176	40	190	11
28P-1	300	300	238	238	80	220	13



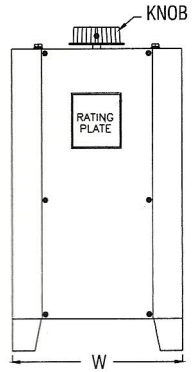
FRONT VIEW



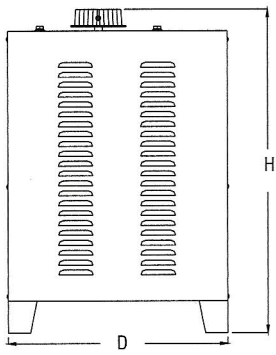
TOP VIEW

**THREE PHASE FLUSH/BACK OF PANEL/OPEN MOUNTING TYPE**

Type	A	B	C	D	E	F	G	H
1.5F-3	110	110	92	92	25	40	40	365
2F-3	110	110	92	92	25	40	40	365
3F-3	110	110	92	92	25	40	40	365
4F-3	175	175	146	146	25	40	50	410
5F-3	175	175	146	146	25	40	50	410
6F-3	175	175	146	146	25	40	50	410
8F-3	175	175	146	146	25	40	50	410
10F-3	175	175	146	146	25	40	50	410
15F-3	220	220	176	176	30	40	70	440
17.5F-3	220	220	176	176	30	40	70	440
20F-3	220	220	176	176	30	40	70	440
28F-3	300	300	238	238	55	40	55	525



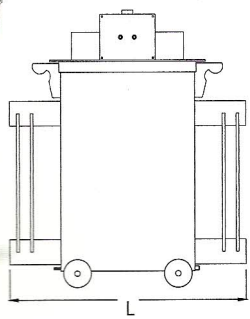
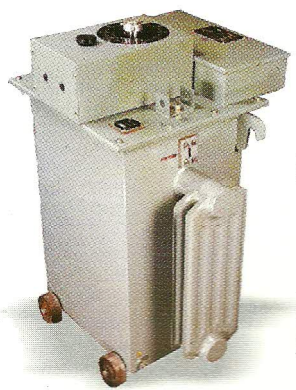
FRONT VIEW



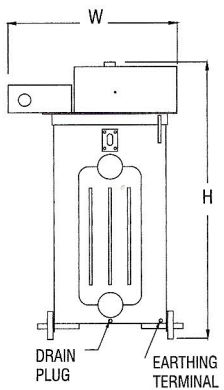
SIDE VIEW

**THREE PHASE TABLE/FLOOR MOUNTING ENCLOSED TYPE**

Type	W	D	H
1.5P-3	150	180	465
2P-3	150	180	465
3P-3	150	180	465
4P-3	190	240	505
5P-3	190	240	505
6P-3	190	240	505
8P-3	190	240	505
10P-3	190	240	505
15P-3	240	310	560
17.5P-3	240	310	560
20P-3	240	310	560
28P-3	345	445	655



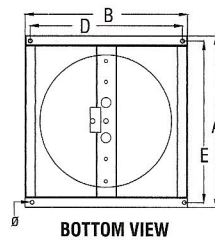
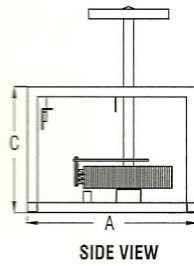
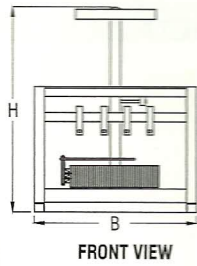
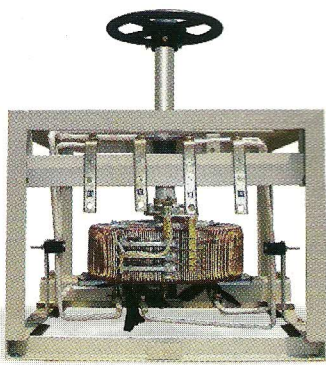
FRONT VIEW



SIDE VIEW

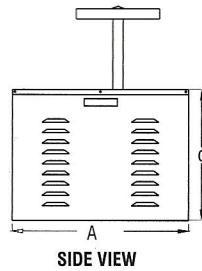
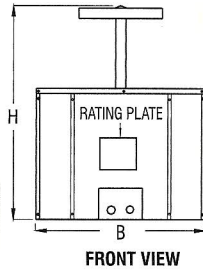
**THREE PHASE OIL COOLED MODELS**

AMPS	FLOOR SPACE mm L X W	HEIGHT mm H
40	745 x 630	1100
50	840 x 630	1100
60	1115 x 630	1100
75	1175 x 630	1400
100	1475 x 630	1400
150	1485 x 1200	1500
200	1750 x 1350	1500
300	1340 x 1460	1600
400	1340 x 1650	1600
500	1900 x 2300	2100
600	1900 x 2630	2100



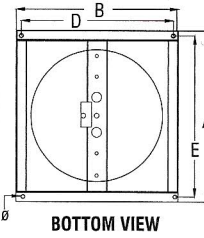
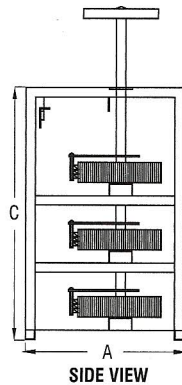
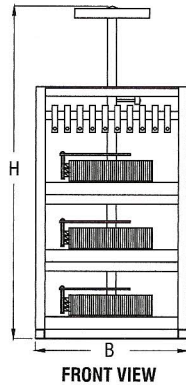
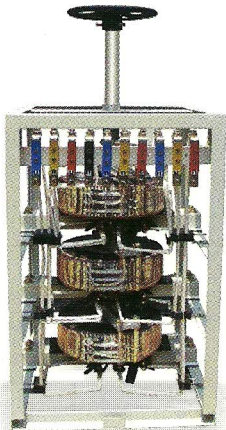
**SINGLE PHASE FLUSH/BACK OF PANEL/OPEN MOUNTING TYPE**

Type	A	B	C	D	E	H	∅
40F-1	510	485	375	455	480	630	12
50F-1	510	485	375	455	480	630	12



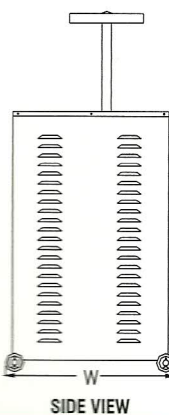
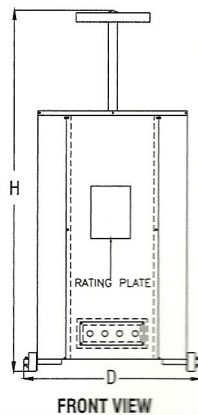
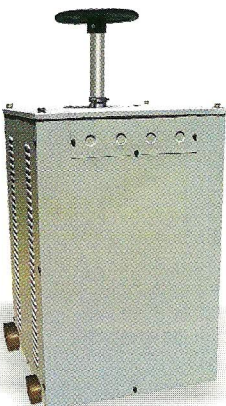
**SINGLE PHASE TABLE/FLOOR MOUNTING ENCLOSED TYPE**

Type	A	B	C	H
40P-1	510	485	375	630
50P-1	510	485	375	630



**THREE PHASE FLUSH/BACK OF PANEL/OPEN MOUNTING TYPE**

Type	A	B	C	D	E	H	∅
40F-3	510	485	810	455	480	1050	12
50F-3	510	485	810	455	480	1050	12



**THREE PHASE TABLE/FLOOR MOUNTING ENCLOSED TYPE**

Type	W	D	H
40P-3	550	575	1100
50P-3	550	575	1100

