

MGM



TRANSFORMER COMPANY



U.S. DEPARTMENT OF
ENERGY
DOE 2016 COMPLIANT



600 V Class, Dry Type, General Purpose Distribution Transformers



ISO
9001:2008
REGISTERED

**Other
Products**



Dry
Substation
(Bulletin 30)



Liquid
Substation
(Bulletin 40)



Custom 600V
Dry Type
(Bulletin 15)

BULLETIN 10

GENERAL INFORMATION

MGM Dry type transformers are designed, manufactured and tested in accordance with all applicable NEMA, ANSI and IEEE standards.

MGM 600 Volt class transformers are UL, CUL, and CSA listed in accordance to standards UL506 and UL1561 and are classified as isolation transformers.

ENCLOSURES

MGM ventilated transformers utilize a NEMA 2 rated drip proof metal enclosure with natural draft ventilation. MGM dual rated enclosures are suitable for indoor or outdoor applications and are standard on all models except the 225, 300, and 500 kVA transformers (optional Weather-shield Kits are available for these units).

VOLTAGE TAPS

Taps will compensate for the high or low line voltages.

MGM 600 Volt class transformers are provided with 6 primary taps:
 2@ 2-1/2% FCAN
 4@ 2-1/2% FCBN

STANDARD FEATURES

- DOE 2016 Compliant
- UL 506, UL 1561, CSA Listed
- Aluminum/Copper (YS, DS)
- 60 Hz
- Electrostatic Shield
- Min. 60 dB Common Mode Noise Attenuation (Single shield)
- 150°C Temperature Rise
- ANSI C57.12.01
- Seismic Zone IV Compliant
- 220°C Insulation System

COMMON OPTIONS

- Copper Windings (CS, SS)
- Outdoor NEMA-3R Kit
- 80° & 115°C Temperature Rise
- K-Factor; up to K-30
- Wall Mount Brackets (15 - 75 kVA)
- 50 Hz, 50/60 Hz, 400 Hz
- Totally Enclosed Non Ventilated
- Any Voltage Arrangement
- Stainless Steel Case (304, 316)
- Reduced Sound Level
- OSHPD Seismic Kit
- ARRA/Buy American Statues

SOUND LEVELS

MGM 600 Volt class general purpose dry type transformers are designed to meet NEMA ST-20 sound levels.

NEMA standard sound levels

KVA	dB Level
0-9	40
10-50	45
51-150	50
151-300	55
301-500	60

TESTING AND QUALITY ASSURANCE

As part of our quality assurance process, all 600 Volt MGM Transformers go through a rigorous ANSI/IEEE test plan to ensure optimum performance. These tests include:

- Winding resistance test
- Turn ratio test
- Polarity and phase relation test
- No load losses and exciting current test
- Impedance and load loss test
- Applied potential test

Single Phase Stock Transformer		
KVA	Z%	DOE 2016 Efficiency
10	4.80	N/A
15	4.58	97.70
25	4.68	98.00
37.5	4.70	98.20
50	4.93	98.30
75	5.88	98.50
100	6.19	98.60

Connection Legend

YS = 480D - 208Y/120
DS = 480D - 240D/120CT
CS = 240D - 208Y/120
SS = 240x480 - 120/240

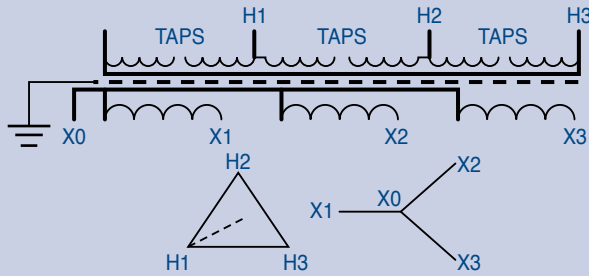
Three Phase Stock Transformer		
KVA	Connection	DOE 2016 Efficiency
15	YS DS CS	97.89
30	YS DS CS	98.23
45	YS DS CS	98.40
75	YS DS CS	98.60
112.5	YS DS CS	98.74
150	YS DS CS	98.83
225	YS DS	98.94
300	YS DS	99.02
500	YS DS	99.14



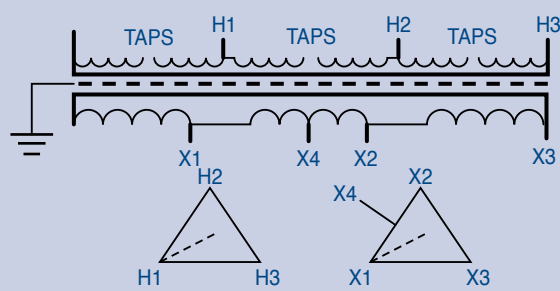
WIRING DIAGRAM / VOLTAGE TAPS

Three Phase, 15 kVA - 500 kVA

480D - 208Y/120



480D - 240D/120 CT

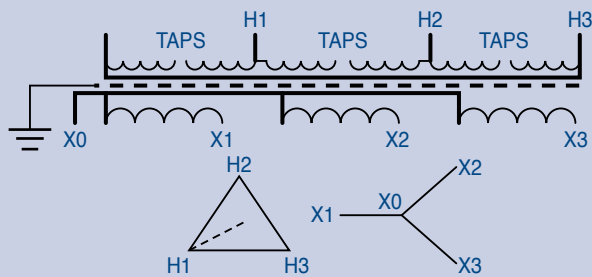


CONNECT TAPS		PRIMARY VOLTAGE	
15 - 150 kVA	225 - 500 kVA	480	240
*H-7	4-5	504	252
H-6	4-6	492	246
H-5	3-5	480	240
H-4	3-6	468	234
H-3	2-6	456	228
H-2	3-7	444	222
H-1	2-7	432	216

* H represents H1, H2, and H3 on all the three coils.

Three Phase, 15 kVA - 150 kVA

240D - 208Y/120



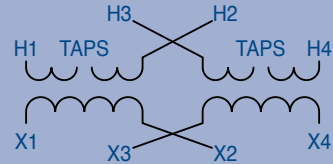
- 120 volt single phase output can be obtained between X1 and X4 (5% of capacity) & X2 and X4 (5% of capacity).
- If maximum of 10% single phase output is used, three phase capacity is reduced by 15%.
- X4 to be grounded for single phase neutral connection.
- If X4 is grounded - NO other phase (X1, X2, X3) or primary phases H1, H2, H3 should be grounded.
- Voltage between X4-X3 will be 208V - often referred as high leg.

Single Phase, 10 kVA - 100 kVA

240 X 480 - 120/240

HV LINKS ACROSS H2-H3		
VOLTAGE	CONNECT TAPS	
504	3-4	7-8
492	3-4	6-8
480	2-4	6-8
468	3-5	6-8
456	3-5	7-9
444	2-5	7-9
432	2-5	6-9

HV LINKS ACROSS H1-H3 & H2-H4		
VOLTAGE	CONNECT TAPS	
252	3-4	7-8
240	3-4	6-8
228	3-5	7-9
216	2-5	6-9

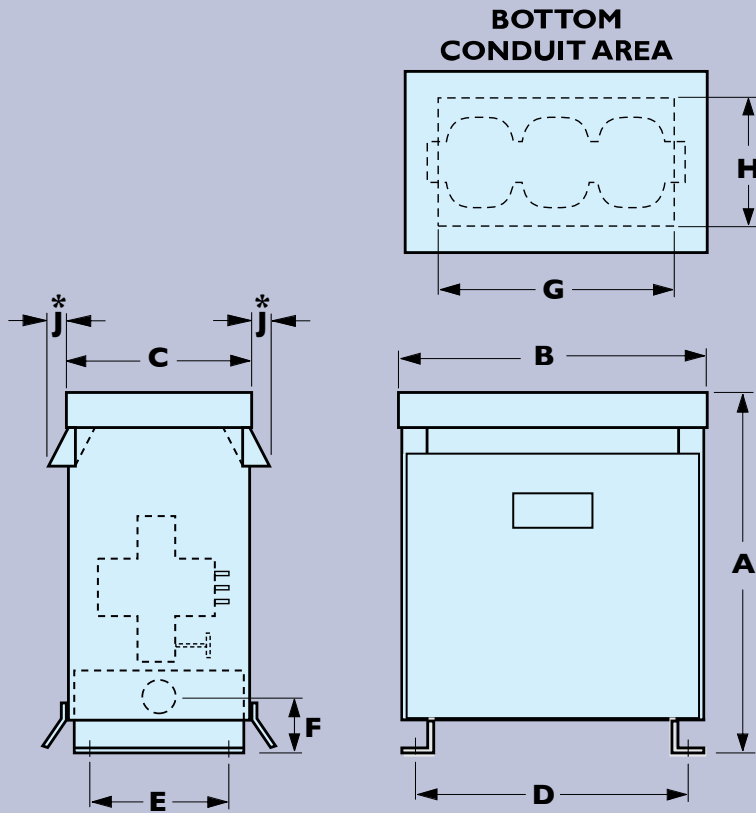


LV	CONNECT LINKS	CONNECT LINES
240	X2 - X3	X1 - X4
120/240	*X2 - X3	**X1 - X2/X3 - X4
120	X1 - X3, X2 - X4	X1 - X4

** Three (3) wire operation, X2-X3 to be grounded for neutral.

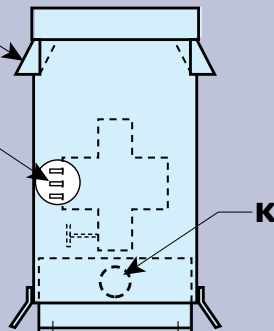
ALUMINUM WINDING			COPPER WINDING			ALUMINUM WINDING		ALUMINUM WINDING	
3ø, 480V D PRIMARY			3ø, 480V D PRIMARY			3ø, 240V D PRIMARY		1ø, 240 x 480 PRIMARY	
KVA	Secondary		KVA	Secondary		KVA	Secondary	KVA	Secondary
	208Y/120 V	240D/120 CT		208Y/120 V	240D/120 CT		208Y/120V		120/240V
15	HT15A3B2SH-D16	HT15A3K2SH-D16	15	HT15A3B1SH-D16	HT15A3K1SH-D16	15	HT15C3B2SH-D16	10	HS10C3B2SH-D16
30	HT30A3B2SH-D16	HT30A3K2SH-D16	30	HT30A3B1SH-D16	HT30A3K1SH-D16	30	HT30C3B2SH-D16	15	HS15C3B2SH-D16
45	HT45A3B2SH-D16	HT45A3K2SH-D16	45	HT45A3B1SH-D16	HT45A3K1SH-D16	45	HT45C3B2SH-D16	25	HS25C3B2SH-D16
75	HT75A3B2SH-D16	HT75A3K2SH-D16	75	HT75A3B1SH-D16	HT75A3K1SH-D16	75	HT75C3B2SH-D16	37.5	HS37C3B2SH-D16
112.5	HT112A3B2SH-D16	HT112A3K2SH-D16	112.5	HT112A3B1SH-D16	HT112A3K1SH-D16	112.5	HT112C3B2SH-D16	50	HS50C3B2SH-D16
150	HT150A3B2SH-D16	HT150A3K2SH-D16	150	HT150A3B1SH-D16	HT150A3K1SH-D16	150	HT150C3B2SH-D16	75	HS75C3B2SH-D16
225	HT225A3B2SH-D16	HT225A3K2SH-D16	225	HT225A3B1SH-D16	HT225A3K1SH-D16			100	HS100C3B2SH-D16
300	HT300A3B2SH-D16	HT300A3K2SH-D16	300	HT300A3B1SH-D16	HT300A3K1SH-D16				
500	HT500A3B2SH-D16	HT500A3K2SH-D16	500	HT500A3B1SH-D16	HT500A3K1SH-D16				

2-2.5% FCAN & 4-2.5% FCBN - An MGM Standard.



Weather-shields (optional)

Primary taps



AVAILABLE ACCESSORIES
Bottom Mount Wall Bracket
Side Mount Wall Bracket
OSHPD Seismic Kits
Rain Hoods/Weather Shield Kits
Rodent/Bird Screen

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KVA	DIMENSIONS (Inches)										Wall Bracket	Weather Shield	Enclosure
	A	B	C	D	E	F	G	H	J	K			
9 - 15	28	21	14	18 ¹ / ₂	11 ¹ / ₂	-	16	7	-	-	WB1/NWB	†	GPA
25 - 50	32	26 ¹ / ₂	17	23	14	-	21 ¹ / ₂	10	-	-	WB1/NWB	†	GPB
75	38 ¹ / ₂	28 ¹ / ₂	20	26	17 ¹ / ₂	-	23 ¹ / ₂	13 ¹ / ₂	-	-	WB2/NWB	†	GPB+
112.5	40 ¹ / ₂	31 ¹ / ₂	21 ³ / ₄	28 ¹ / ₂	19	-	26 ¹ / ₂	14 ³ / ₄	-	-	-	†	GPC
150	40 ¹ / ₂	36 ¹ / ₂	21 ³ / ₄	33 ¹ / ₂	19	-	31 ¹ / ₂	14 ³ / ₄	-	-	-	†	GPC+
225 - 300	51 ¹ / ₂	40 ¹ / ₂	26 ¹ / ₂	37	21	10 ¹ / ₂	34	19	4 ⁵ / ₈	5"	-	RH5*	GPD
500	66	50 ¹ / ₂	32	47 ¹ / ₂	24	11 ¹ / ₂	44	24	4 ⁵ / ₈	2-5"	-	RH6*	GPE

*GPD and GPE enclosures require weather shield kits for outdoor (NEMA 3R) installations.

† Dual rated enclosures suitable for indoor or outdoor installations. (NEMA 1, NEMA 3R)