MarelliMotori
Inspired solutions

MXB GENERATOR SERIES

COMBROMXB001_D - 02/2019

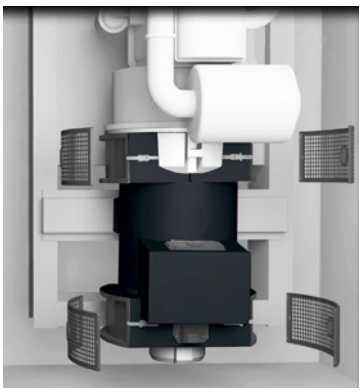
MXB SERIES A range inspired by our customers' needs

COMPACTNESS AND OPTIMIZED COST OF MANAGEMENT

- ✓ Up to 22% length reduction on previous model
- ✓ Canopy cost reduction
- ✓ Storage optimization
- ✓ Reduced transportation cost

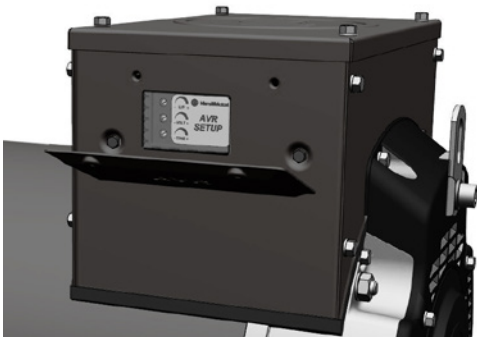
EASY MAINTENANCE & INCREASED SAFETY FEATURES

- ✓ Filters can be removed easily
- ✓ Wide openings allow fast maintenance operations
- ✓ Protection from energized parts
- ✓ No sharp edges



NEW AVR CONCEPT

- ✓ Trimmers on the back of the AVR to allow regulation from outside
- ✓ Newly designed AVR mounted on dampers
- ✓ AVR can be positioned on both lateral or front sides



FLEXIBLE DESIGN FOR INVENTORY MANAGEMENT

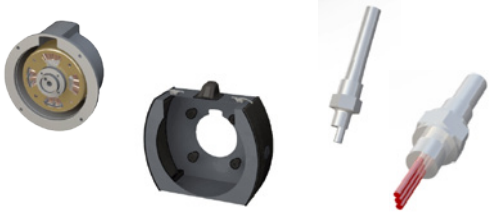
- ✓ Customers can buy options separately and mount them according to their requirements

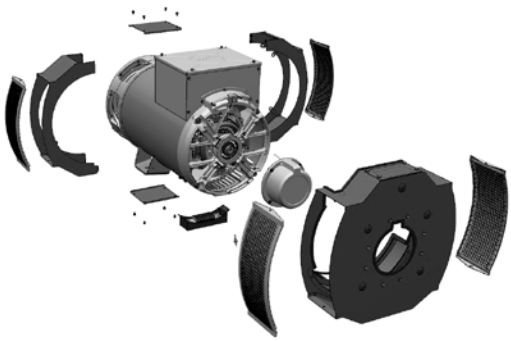
FLEXIBLE CABLE INTERFACE EASY COUPLING & ACCESSIBILITY

- ✓ Panels removable for easy drilling of cable outlet
- ✓ Cable exit on 3 sides of terminal box
- ✓ Easy dismantling of air grid
- ✓ SAE adaptor with large openings for fast coupling procedures

RETROFITTING

- ✓ Standard and extra optionals available to satisfy the power industry requirements
- ✓ Options required after installation can be mounted according to actual needs:
  - PMG
  - Inlet filter
  - Outlet filter
  - Heaters
  - Bearing PT100





STANDARD CONFIGURATION

Main components	**160**		**180**		**225**		**250**	
Magnetic steel	Low losses. Insulated on both sides							
Housing	Fabricated steel (EN 10025 - S235JR)							
N-End Endshield	Aluminum alloy 46100S T6						Cast iron GJL300	
Shaft	Carbon steel - hot rolled (EN10025 - S355 JR)							
Fan	PA 6.6 up to MXB 180 SC4 included - Aluminum alloy above							
Terminal board	PF2736 Bakelite							
	7-pins				9-pins			
Construction	**160**		**180**		**225**		**250**	
Enclosure	Open Drip Proof							
Cooling system	IC01 as per IEC 60034-6							
Degree of protection	IP23 as per IEC 60034-5		IP23 as per IEC 60034-5 (up to IP 44)					
Mounting	Horizontal single bearing		Horizontal single bearing - IM 2105 (double bearing available on request)					
Technical data	**160**		**180**		**225**		**250**	
Insulation system	Class H for stator and rotor							
Impregnation	Epoxy resin through high quality process.							
Winding pitch	2/3							
Bearing data	**160**		**180**		**225**		**250**	
Bearing type	D-End	N-End	D-End	N-End	D-End	N-End	D-End	N-End
	n/a	6207-2RS-C3	6311-2RS1-C3-LTH23	6207-2RS-C3	6215-2RS-C3-WT	6309-2RS1-C3* *single bearing 6309-2RS1-C3-WT	6218-C3	6313-2Z-C3
	Permanently greased							
Bearing lifetime	≥ 20.000 hours							
Operation at reduced speed	All regulators work to reduce the excitation current in order to protect the excitation system when the generator is used at reduced speed							
Excitation system	**160**		**180**		**225**		**250**	
Excitation type	Brushless with rotating rectifier (Graetz 6-Diode bridge)							
PMG	Optional							
Auxiliary winding	Optional				Standard			
Applicable standards	**160**		**180**		**225**		**250**	
Standards	IEC 60034-1; CEI 2-3; BS 4999-5000; VDE 0530; NF 51-100,111; OVE M-10, NEMA MG 1.32.							
Certifications	UL 1004-1, UL 1004-4, C22.2 No. 100							
AVR	**160**		**180**		**225**		**250**	
AVR model	AVR model M00FA122A - MARK VX. Dedicated AVR for optional PMG.							
AVR position	On right side viewed from D-end				Front mounted			
AVR supply	Mains				Auxiliary winding			
Voltage sensing	Single phase							
Accuracy	± 0,5% (@ rated load, balanced and not deforming, P.F. 0,8)							
EMI filter	Included							
Limiters	U/F Under Frequency							
Three phase short circuit current	Generators with auxiliary windings or PMG ensure a three phase short-circuit current (Icc) higher than 3 times the rated current (In): Icc > 3 In for 10 seconds							

Operating conditions	160	180	225	250
Overload during S1 continuous duty	10% for 1 hour / 15% for 10 minutes / 30% for 4 minutes / 50% for 2 minutes			
Air inlet	Axial and radial			
Damper cage	Rotor is provided with large sized damper cage			
Radio interference	Class B Group 1 as EN 55011			
THD / THF	THD < 2% at no load / THF < 2%			
Parallel operations	All generators are provided with an amply sized damper cage and are suitable for parallel operations with other generators, when equipped with the paralleling unit (available on 180 and 225 frame size)			

ALTITUDE

The rated outputs refer to installation up to 1.000 m a.s.l. Above this level the following derating factors must be applied.

Altitude (m asl)	< 1.000	< 1.500	< 2.000	< 2.500	< 3.000
K factor	1,00	0,96	0,93	0,90	0,86

AMBIENT TEMPERATURE

The rated outputs given in this catalogue are based on a maximum ambient temperature of 40°C.

When operating at different ambient temperatures the output rating can be obtained by applying the factors as in the following table.

Ambient temperature (°C)	30	35	40	45	50	55
K factor	1,04	1,00	1,00	0,96	0,93	0,9

POWER FACTOR

The nominal power factor is 0,8 lagging. For different power factor values the following derating factors must be applied.

Power factor	1,0	0,8	0,7	0,6	0,5	0,3	0
K factor	1,00	1,00	0,93	0,88	0,84	0,82	0,80

VOLTAGE AND FREQUENCY

Generators can operate at 50 Hz and 60 Hz with below voltage values. Other voltages are possible with optional adapted windings.

Connection	50 Hz	60 Hz
Series star	380V - 440V	380V - 480V
Parallel star	190V - 220V	190V - 240V
Series delta	220V - 254V	220V - 277V

OPTIONS AVAILABLE

	160	180	225	250
Operating conditions				
Special voltage including 380 V, R3, R6 (LV only)	o	o	o	o
Provision for parallel operation with similar generators with AVR	n/a	o*	o	o
Terminal box				
IP55 terminal box	o	o	o	o
Large terminal box	n/a	o	n/a	n/a
Separate auxiliary terminal box	n/a	o	o	o
Non-magnetic exit cable panel	n/a	n/a	n/a	o
6-leads winding	n/a	n/a	n/a	o
Heatings				
Anti-condensation heaters (V=220 V)	o	o	o	o
Temperature sensors				
N. 3 PTC thermistors	o	o	o	o
N. 3 PT100 resistance temperature detectors in stator winding	n/a	o	o	o
N. 1 PT100 on N-end bearing	o	o	o	o
N. 1 PT100 on D-end bearing (for double bearing configuration)	n/a	o	o	o
N. PT100 duplex type on N-End bearing	n/a	o	o	o
N. PT100 duplex type on D-End bearing (for double bearing configuration)	n/a	o	o	o
N. 1PT100 air inlet	n/a	n/a	n/a	o
N. 1PT100 air outlet	n/a	n/a	n/a	o
Protection degree				
Inlet filter	n/a	o	o	o
Inlet + outlet filter (IP43)	n/a	o	o	o
Inlet + outlet filter (IP44)	n/a	o	o	o
Air to fresh water heat exchanger top mounted on generator (IP44)	n/a	n/a	n/a	o
Air to salt water heat exchanger top mounted on generator (IP44)	n/a	n/a	n/a	o
Air to air heat exchanger top mounted on generator	n/a	n/a	n/a	o
AVR				
Single-phase sensing AVR (Mark VX), side mounted	s	s	o	o
Single-phase sensing AVR (Mark VX), front mounted	n/a	o*	s	s
Three-phase sensing AVR (MEC-20), side mounted	n/a	o*	o	o
Three-phase sensing AVR (MEC-20), front mounted	n/a	o*	n/a	o
Digital AVR D-Vo (mounted on board)	n/a	n/a	n/a	o
Automatic power factor regulator (mounted on board)	n/a	n/a	n/a	o
Painting				
Non standard colour (MM ref. F96831)	o	o	o	o
Special painting cycle (MM ref. F96819)	o	o	o	o
Special painting cycle (MM ref. F96826)	o	o	o	o
Environmental solutions				
Tropicalization (CW1081)	o	o	o	o
Excitation system				
PMG with single-phase AVR (Mark XX) side mounted	o	o	o	o
PMG with single-phase AVR (Mark XX) front mounted	n/a	o*	o	o
PMG with three-phase AVR (MEC-20) side mounted	n/a	o*	o	o
PMG with three-phase AVR (MEC-20) front mounted	n/a	o*	n/a	o
PMG with digital AVR D-Vo (mounted on board)	n/a	n/a	n/a	o
Mechnical configuration				
Special shaft extension	n/a	n/a	n/a	o
Second shaft extension (as per catalogue)	n/a	n/a	n/a	o
Special housing	n/a	n/a	n/a	o
Neutral point terminal box for B2-B3-B34 construction	n/a	n/a	n/a	o
NDE grease nipple	n/a	n/a	n/a	o
DE grease nipple	n/a	n/a	n/a	o
Other accessories				
Toothed wheel (n. 60 teeth) with provision for speed sensor (sensor not included)	n/a	n/a	n/a	o
64R - Brush connection with rotor for earth fault detection (without protection device)	n/a	n/a	n/a	o
N. 3 CT single core on neutral point (low voltage)	n/a	n/a	n/a	o

* This option includes also large terminal box

o: optional n/a: not available s: standard

TECHNICAL DATA

4 POLES - 400 V - 50 Hz — 1500 rpm

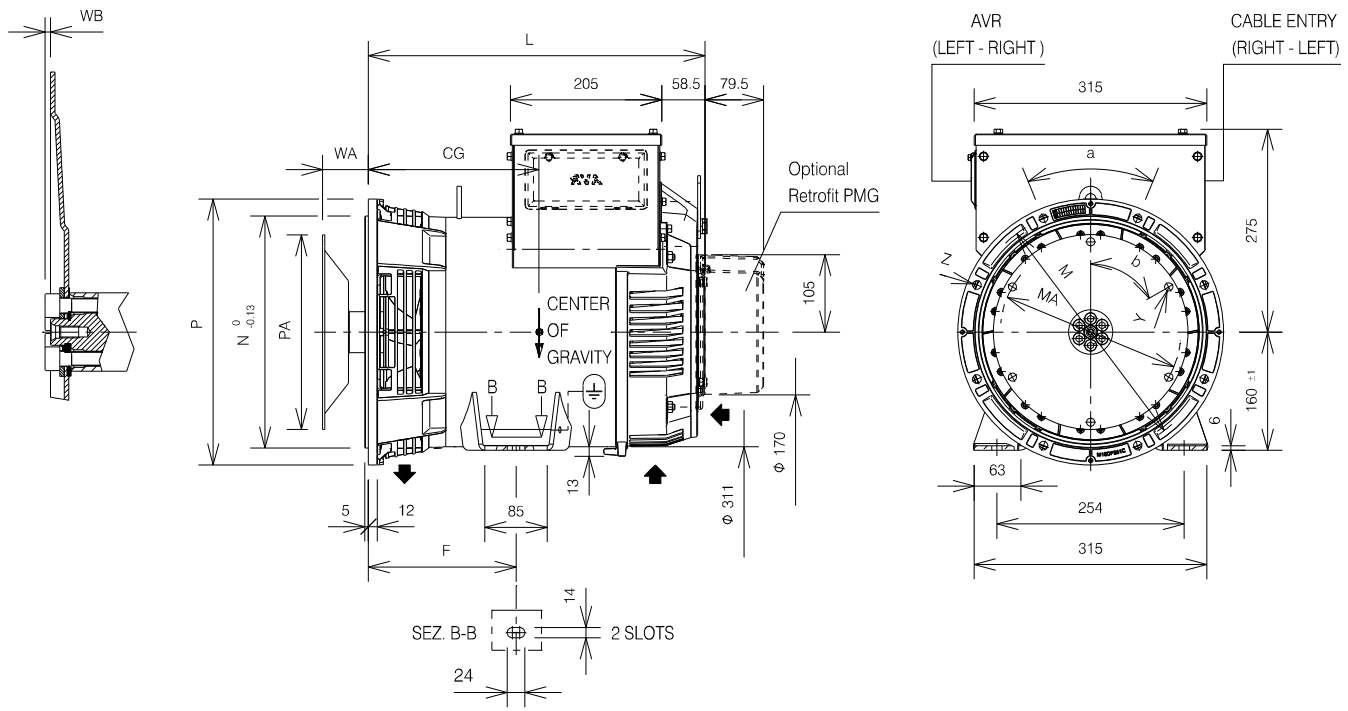
Type	Continuous duty rating (kVA)			Stand by kVA		Single Phase 230 V	Efficiency	Weight
	125/40 ΔT Cl,H	105/40 ΔT Cl, F	80/40 ΔT Cl, B	163/27	150/40	Derating factor Zig-zag	P,F, 0,8 4/4 LOAD %	Kg
MXB 160 SA4	10,0	9,2	8,0	11,0	10,5	0,66	81,2	82
MXB 160 SB4	12,5	11,5	10,0	13,8	13,1	0,66	82,6	89
MXB 160 MA4	15,0	13,7	12,0	16,5	15,8	0,66	83,7	97
MXB 160 MB4	17,5	16,0	14,0	19,3	18,4	0,66	84,6	103
MXB 180 XA4	20,0	18,3	16,0	22,0	21,2	0,66	84,9	110
MXB 180 SA4	25,0	22,9	20,0	27,5	26,5	0,66	87,6	132
MXB 180 SB4	30,0	27,5	24,0	33,0	31,8	0,66	88,4	144
MXB 180 SC4	34,0	31,2	27,2	37,4	36,0	0,66	89,5	157
MXB 180 MA4	40,0	36,7	32,0	44,0	42,4	0,66	89,8	181
MXB 180 MC4	45,0	41,2	36,0	49,5	47,7	0,62	90,3	193
MXB 180 LA4	50,0	45,8	40,0	55,0	53,0	0,60	89,2	206
MXB 180 LB4	63,0	57,7	50,4	69,3	66,8	0,55	90,1	234
MXB 225 SA4	75,0	68,7	60,0	82,5	78,8	0,60	90,6	311
MXB 225 SB4	85,0	77,9	68,0	93,5	89,3	0,60	91,6	337
MXB 225 MA4	100,0	91,7	80,0	110,0	105,0	0,60	91,8	382
MXB 225 MB4	120,0	110,0	96,0	132,0	126,0	0,60	92,3	401
MXB 225 LA4	135,0	123,7	108,0	148,5	141,8	0,55	92,4	451
MXB 225 LB4	150,0	137,5	120,0	165,0	157,5	0,55	93,0	483
MXB 225 LC4	160,0	146,0	128,0	176,0	168,0	0,51	92,5	485
MXB 250 SA4	180,0	165,0	144,0	198,0	189,0	0,6	92	466
MXB 250 SB4	200,0	183,3	160,0	220,0	210,0	0,6	91,7	505
MXB 250 MA4	230,0	210,8	184,0	253,0	242,0	0,6	92,2	558
MXB 250 MB4	250,0	229,1	200,0	275,0	263,0	0,6	92,8	640
MXB 250 LA4	275,0	252,0	220,0	302,0	288,0	0,55	93,7	810
MXB 250 LB4	300,0	275,0	240,0	330,0	315,0	0,52	93,5	810

TECHNICAL DATA

4 POLES - 480 V - 60 Hz — 1800 rpm

Type	Continuous duty rating (kVA)			Stand by kVA		Single Phase 277 V	Efficiency	Weight
	125/40 ΔT Cl.H	105/40 ΔT Cl. F	80/40 ΔT Cl. B	163/27	150/40	Derating factor Zig-zag	P.F. 0,8 4/4 LOAD %	Kg
MXB 160 SA4	12,5	11,5	10,0	13,8	13,1	0,66	82,4	82
MXB 160 SB4	15,6	14,3	12,5	17,2	16,4	0,66	83,7	89
MXB 160 MA4	18,8	17,2	15,0	20,6	19,7	0,66	84,8	97
MXB 160 MB4	21,9	20,0	17,5	24,1	23,0	0,66	85,6	103
MXB 180 XA4	25,0	22,9	20,0	27,5	26,5	0,66	85,7	110
MXB 180 SA4	31,3	28,7	25,0	34,4	33,2	0,66	88,6	132
MXB 180 SB4	37,5	34,4	30,0	41,3	39,8	0,66	89,9	144
MXB 180 SC4	42,5	39,0	34,0	46,8	45,1	0,66	90,0	152
MXB 180 MA4	50,0	45,8	40,0	55,0	53,0	0,66	90,6	181
MXB 180 MC4	56,3	51,6	45,0	61,9	59,7	0,62	91,0	193
MXB 180 LA4	62,5	57,3	50,0	68,8	66,3	0,60	90,4	206
MXB 180 LB4	78,8	72,2	63,0	86,7	83,5	0,55	90,7	234
MXB 225 SA4	94,0	86,0	75,0	103,0	98,0	0,60	91,2	311
MXB 225 SB4	106,0	97,4	85,0	117,0	112,0	0,60	92,2	337
MXB 225 MA4	125,0	114,6	100,0	137,5	131,0	0,60	92,6	382
MXB 225 MB4	150,0	137,5	120,0	165,0	157,5	0,60	92,8	401
MXB 225 LA4	169,0	154,7	135,0	185,6	177,0	0,55	93,1	451
MXB 225 LB4	187,5	171,8	150,0	206,0	197,0	0,55	93,6	483
MXB 225 LC4	200,0	182,5	160,0	220,0	210,0	0,51	93,1	485
MXB 250 SA4	225,0	206,0	180,0	248,0	236,0	0,6	92,6	466
MXB 250 SB4	250,0	229,0	200,0	275,0	263,0	0,6	92,3	505
MXB 250 MA4	288,0	263,0	230,0	316,0	302,0	0,6	92,8	558
MXB 250 MB4	313,0	286,0	250,0	344,0	328,0	0,6	93,4	640
MXB 250 LA4	344,0	315,0	275,0	378,0	361,0	0,55	94,3	810
MXB 250 LB4	375,0	344,0	300,0	413,0	394,0	0,52	94,1	810

DIMENSIONS
MXB 160 - single bearing



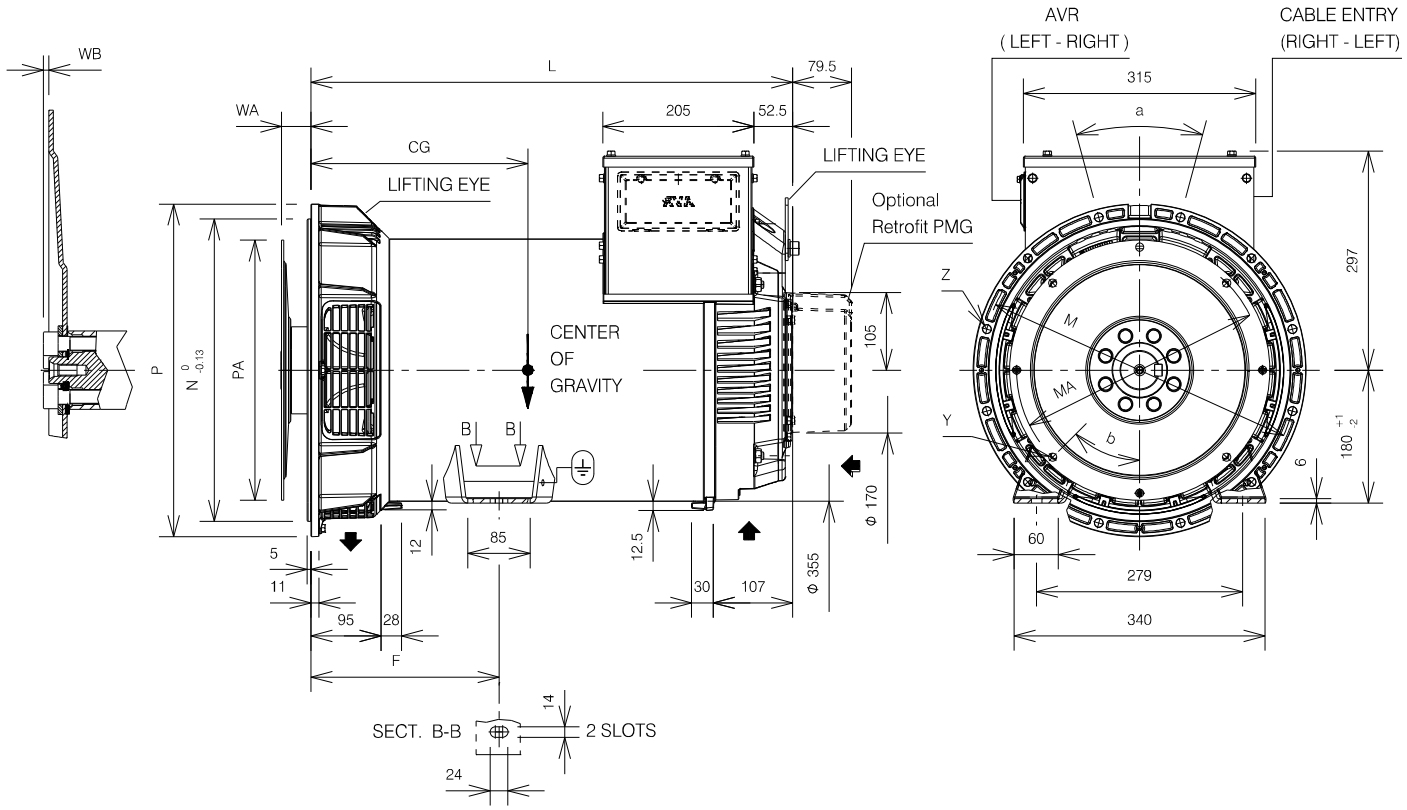
Type	Dimensions [mm]		
	L	F	CG
			SAE 3-SAE 4-SAE 5
MXB 160 SA	416	200	202
MXB 160 SB			204
MXB 160 MA	441		210
MXB 160 MB			212

Connections			
COUPLING	FLANGE		
SAE J620	SAE J617		
	5	4	3
6 1/2	●		
7 1/2	○	●	
8	●	●	●
10		●	●
11 1/2			●

● Available ○ Most common

Dimensions [mm]													
FLANGE						COUPLING							
SAE J617	N	P	Z NR	Z Ø	a	SAE J620	PA	MA	Y NR	Y Ø	b	WA	WB
5	314,32	360	8	11,5	45°	6 1/2	215,9	200	6	9	60°	30,2	13
4	361,95	407	12	11,5	30°	7 1/2	241,3	222,3	8	9	45°	30,2	13
3	409,58	455	12	11,5	30°	8	263,52	244,48	6	11	60°	62	-
						10	314,3	295,3	8	11	45°	53,8	13
						11 1/2	352,4	333,4	8	11	45°	39,6	13

DIMENSIONS
MXB 180 - single bearing



Type	Dimensions [mm]			
	L	F	CG	CG
			SAE 4-SAE 5	SAE 2-SAE 3
MXB 180 XA 4	426	205	201	206
MXB 180 SA 4	496		223	228
MXB 180 SB 4			233	238
MXB 180 SC 4			245	250
MXB 180 MA 4	546	255	250	254
MXB 180 MC 4			260	264
MXB 180 LA 4	651		289	294
MXB 180 LB 4			314	319

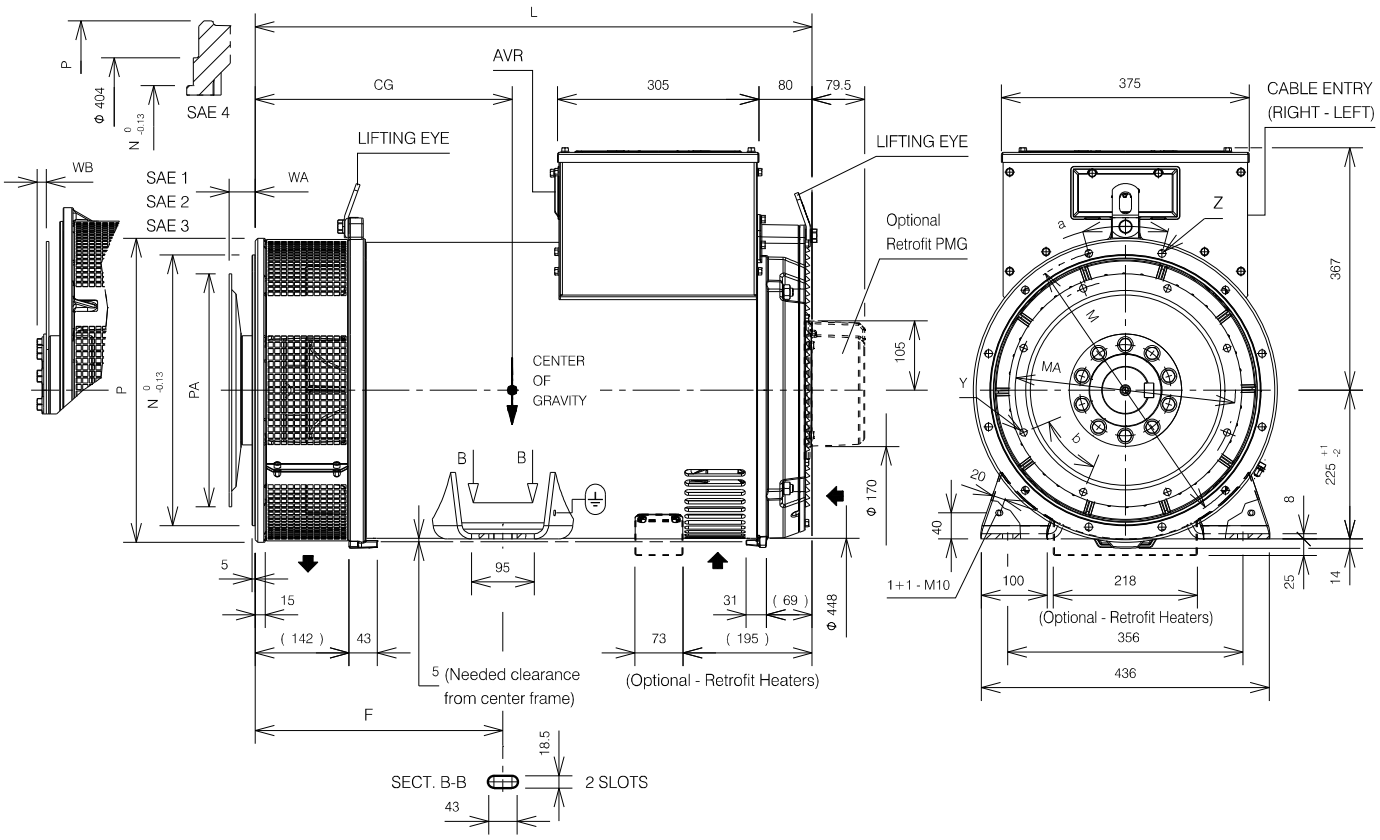
Connections				
COUPLING	FLANGE			
SAE J620	SAE J617			
	5(*)	4	3	2
6 1/2	●			
7 1/2	●	●		
8	●	●	●	●
10		●	●	●
11 1/2			○	●

● Available ○ Most common

(*) Not available for frame size MA4, MC4, LA4 and LB4

Dimensions [mm]													
FLANGE							COUPLING						
SAE J617	N	P	M	Z NR	Z Ø	a	SAE J620	PA	MA	Y NR	Y Ø	b	WA	WB
5	314,32	355,6	333,38	8	11	45°	6 1/2	215,90	200,02	6	9	60°	30,2	13
4	361,95	403,4	381,00	12	11	30°	7 1/2	241,30	222,25	8	9	45°	30,2	13
3	409,58	450,8	428,62	12	11	30°	8	263,52	244,48	6	11	60°	62,0	-
2	447,68	489,0	466,72	12	11	30°	10	314,32	295,28	8	11	45°	53,8	13
							11 1/2	352,42	333,38	8	11	45°	39,6	13

DIMENSIONS
MXB 225 - single bearing



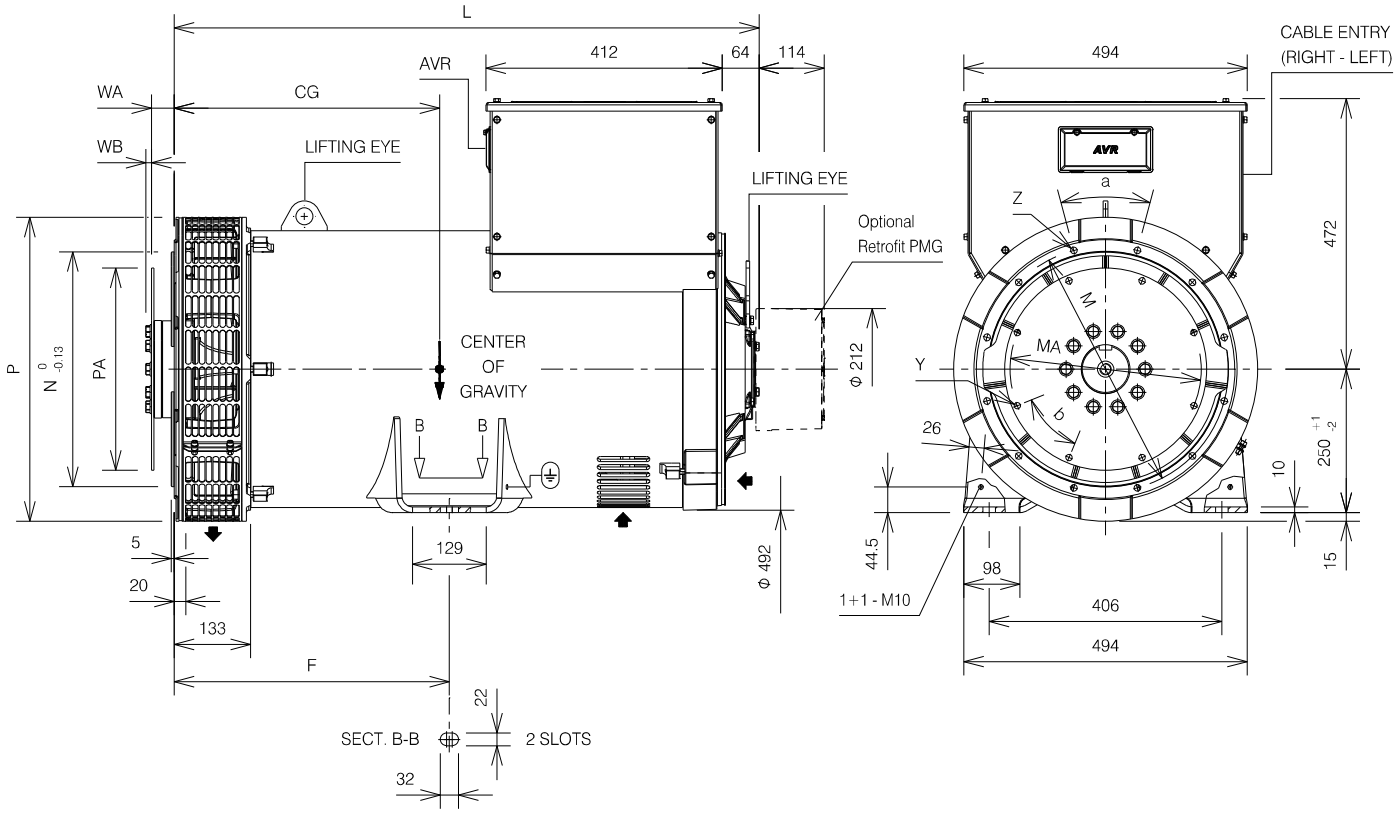
Type	Dimensions [mm]			
	L	F	CG SAE4-SAE3	CG SAE2-SAE1
MXB 225 SA 4	708	325	303	310
MXB 225 SB 4			352	348
MXB 225 MA 4	778	375	344	331
MXB 225 MB 4			386	372
MXB 225 LA 4	843		389	377
MXB 225 LB 4			436	423
MXB 225 LC 4				

Connections				
COUPLING	FLANGE			
SAE J620	SAE J617			
	4	3	2	1
10	●	●		
11 1/2		○	●	●
14				●

● Available ○ Most common

Dimensions [mm]														
FLANGE							COUPLING							
SAE J617	N	P	M	Z NR	Z Ø	a	SAE J620	PA	MA	Y NR	Y Ø	b	WA	WB
4	361,95	460	381,00	12	11	30°	10	314,32	295,28	8	11	45°	53,8	-
3	409,58	460	428,62	12	11	30°	11 1/2	352,42	333,38	8	11	45°	39,6	-
2	447,68	495	466,72	12	11	30°	14	466,72	438,15	8	14	45°	25,4	14
1	511,18	552,5	530,22	12	11	30°								

DIMENSIONS
MXB 250 - single bearing



Type	Dimensions [mm]		
	L	F	CG
MXB 250 SA 4	800	360	350
MXB 250 SB 4			363
MXB 250 MA 4	910	425	380
MXB 250 MB 4			408
MXB 250 LA 4	1020	480	463
MXB 250 LB4			

Connections			
COUPLING	FLANGE		
SAE J620	SAE J617		
	3	2	1
11 1/2	○	●	●
14			●
● Available	○ Most common		

Dimensions [mm]														
FLANGE							COUPLING							
SAE J617	N	P	M	Z No	Z DIA	a	SAE J620	PA	MA	Y No	Y DIA	b	WA	WB
3	409.58	530	428.62	12	11.5	30°	11 1/2	325.42	333.38	8	11	45°	39.6	10
2	447.68	530	466.72	12	11.5	30°	14	466.72	438.15	8	14	45°	25.4	10
1	511.18	552	530.22	12	11.5	30°								

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