

TMEiC

We drive industry



TM-AC

Series 800 Frame Sizes

Replacing DC Auxiliary Motors
with the Latest in AC Motor Technology

TOSHIBA MITSUBISHI-ELECTRIC INDUSTRIAL SYSTEMS CORPORATION

Upgrade to the Latest Technology.

TMEIC's new TM-AC line of green, energy-saving motors are designed to mount directly to existing systems with standard DC motors. They also match DC motor electrical characteristics and performance.

Characteristics



Compatibility with existing 800 Frame DC motors

- The newest induction motor is based on JEC-2137 / IEC 60034-1 standards, maintaining compatibility with mechanical dimensions and electrical performance of DC motors.



Contributes to energy saving and CO₂ reduction due to improved operating efficiency

- Using the most appropriate structural and electrical designs, TMEIC has achieved significant improvement in efficiency compared with existing DC motors.

| Frame sizes | Direct Current auxiliary Rolling Mill Motor specifications | | | TM-AC specifications | |
|-------------|--|-------------------|------------|----------------------|------------------------|
| | kW | min ⁻¹ | Efficiency | Efficiency | Efficiency Improvement |
| 806 | 22 | 650 | 87.6% | 91.1% | 3.5% |
| 808 | 37 | 575 | 88.3% | 92.5% | 4.2% |
| 810 | 52 | 550 | 88.6% | 92.8% | 4.2% |
| 812 | 75 | 515 | 89.1% | 93.5% | 4.4% |
| 814 | 110 | 500 | 90.4% | 94.2% | 3.8% |
| 816 | 150 | 480 | 91.3% | 94.8% | 3.5% |
| 818 | 185 | 435 | 91.8% | 95.0% | 3.2% |



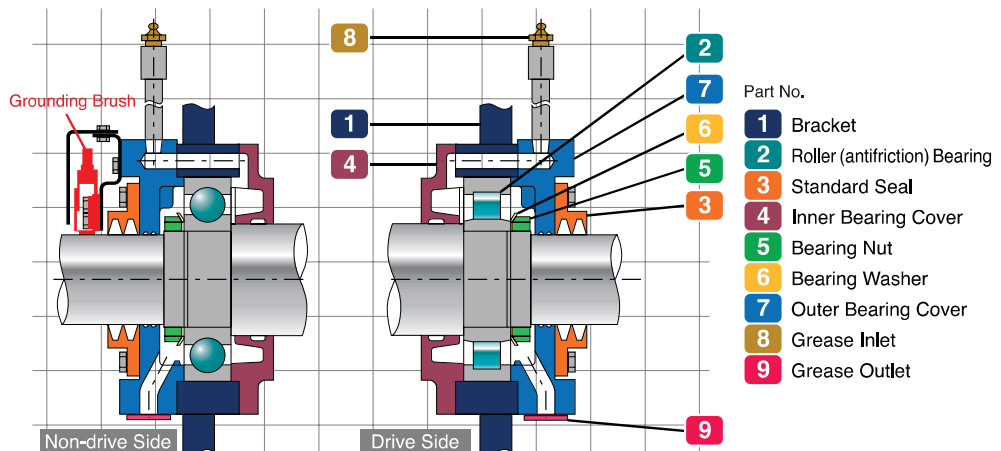
Robust structure

- Using the latest technology for analysis and testing, TMEIC has improved the mechanical strength compared with the motors for general industries.



Easy Bearing Maintenance

- TMEIC has made improvements in our conventional bearing designs, which already had a reputation for long service life. As a result of these improvements, the greasing interval is twice as long as conventional bearings. TMEIC has achieved the longest lubrication interval of any supplier.
- Highly water resistant bearings are used due to the extremely harsh operating environment.



As an option, a more water resistant labyrinth bearing structure can be applied.

Stator & Rotor

A form wound coil is used for the stator winding for excellent durability and long service life



STATOR (#816)



ROTOR (#816)

Standard Rating List

TMEIC offers products which have three speed ratings to match the existing DC motor ratings. (Full, Half, and Quarter Speed designs)

| Frame Size | Standard Speed | | Half Speed | | Low Speed (Quarter Speed) | |
|------------|-------------------|--------------------------|-------------------|--------------------------|---------------------------|--------------------------|
| | Rated Output (kW) | Rotational Speed (min-1) | Rated Output (kW) | Rotational Speed (min-1) | Rated Output (kW) | Rotational Speed (min-1) |
| 806 | 44 | 1300 | 22 | 650 | 11 | 325 |
| 808 | 74 | 1150 | 37 | 575 | 14.8 | 287 |
| 810 | 104 | 1100 | 52 | 550 | 20.8 | 275 |
| 812 | 150 | 1030 | 75 | 515 | 30 | 216 |
| 814 | 220 | 1000 | 110 | 500 | 44 | 200 |
| 816 | 300 | 960 | 150 | 480 | 60 | 192 |
| 818 | 370 | 870 | 185 | 435 | 74 | 174 |

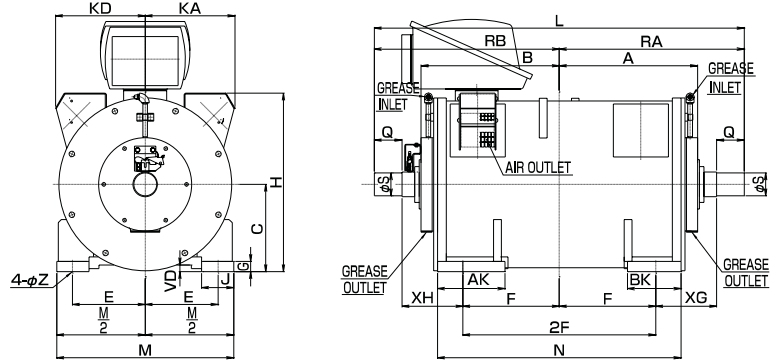
(NOTE) Half Speed is the standard speed rating for existing DC motors.
Standard Speed is the rated speed for double-voltage applications.

Specifications

| | | |
|-----------------------------------|---------------------------------------|--|
| Basic Specifications | Standard | Standard Based on JEC-2137 / IEC 60034-1 |
| | Type | Totally Enclosed Force-Ventilated (TEFV) (IP44), Drip Proof Force- Ventilated (DPFV) (IP24S), Totally Enclosed Non Ventilated (TENV)(IP44) |
| | Frame Size | All 7 Frame Sizes (806, 808, 810, 812, 814, 816, 818) |
| | Insulation | Insulation classifications: Thermal classification 155(Class F), Temperature rise:105K(by resistance method) |
| | Standard Accessories | Grounding Brush, Terminal Box |
| Optional Accessories | RTD, Speed Sensor, Brake, Shaft Cover | |
| Electrical Characteristics | Rating | TENV;1hour Rating, TEFV; Continuous Rating |
| | Voltage | Standard Maximum Voltage: 420Vac max.(Low speed type, Multiple motor drive : 400Vac max.) Maximum Inverter DC bus voltage:680Vdc |
| | Maximum Torque | Maximum Torque at base speed and Rated voltage: 300% or higher. |
| Mechanical Specifications | Structure | Frame is made of Steel plate, Non-split type |
| | Shaft / end of shaft | Two shaft extensions type, The end of shaft : Sealed Structure (Corresponds to IP55), labyrinth structure is optional. |
| | Vibration Rating | 3G |
| | Terminal Box | Fr806-812: Frame Top(changeable as an option), Fr814-818: Frame Side(changeable as an option) |
| | Coupling | Cylindrical Shaft with Key |

Drawings

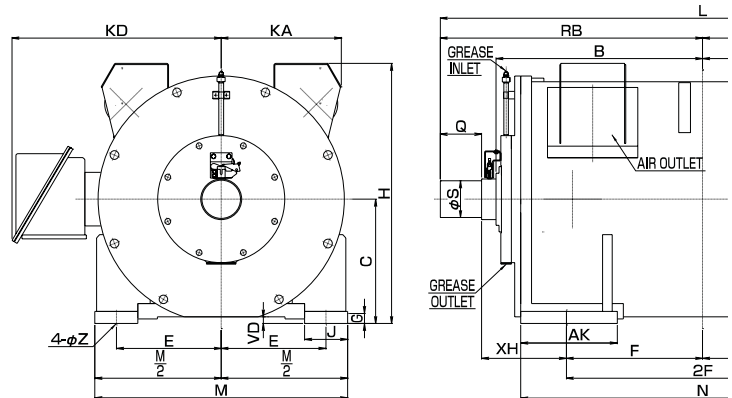
806 808 810 812



| Frame size | A | B | C | KA | KD | E | F | G | H | J | AK | BK | L | M | N | RA | RB | Z | S | Q |
|------------|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|------|-----|-----|-----|-----|----|----|-----|
| 806 | 410 | 410 | 254 | 273 | 273 | 210 | 265 | 27 | 532 | 95 | 200 | 170 | 1074 | 508 | 698 | 537 | 537 | 28 | 65 | 80 |
| 808 | 454 | 454 | 285 | 293 | 293 | 238 | 315 | 33 | 583 | 105 | 220 | 175 | 1208 | 578 | 795 | 604 | 604 | 35 | 75 | 90 |
| 810 | 475 | 475 | 311 | 321 | 321 | 260 | 330 | 33 | 671 | 110 | 225 | 185 | 1276 | 622 | 825 | 638 | 638 | 35 | 85 | 100 |
| 812 | 520 | 520 | 339 | 362 | 362 | 285 | 362 | 33 | 730 | 115 | 255 | 195 | 1396 | 685 | 915 | 698 | 698 | 35 | 95 | 112 |

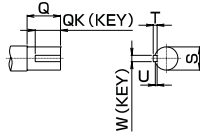
| Frame size | A | B | C | KA | KD | E | F | G | H | J | AK | BK | L | M | N | RA | RB | Z | S | Q |
|------------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|-------|------|-------|-------|-------|-------|-------|------|---------|-----|
| 806 | 16.14 | 16.14 | 10.00 | 10.75 | 10.75 | 8.27 | 10.43 | 1.06 | 29.92 | 3.74 | 7.87 | 6.69 | 42.28 | 20.00 | 27.48 | 21.14 | 21.14 | 1.10 | φ2.56p6 | 3.1 |
| 808 | 17.87 | 17.87 | 11.22 | 11.54 | 11.54 | 9.37 | 12.40 | 1.30 | 32.20 | 4.13 | 8.66 | 6.89 | 47.56 | 22.76 | 31.30 | 23.78 | 23.78 | 1.38 | φ2.95p6 | 3.5 |
| 810 | 18.70 | 18.70 | 12.24 | 12.64 | 12.64 | 10.24 | 12.99 | 1.30 | 34.96 | 4.33 | 8.86 | 7.28 | 50.24 | 24.49 | 32.48 | 25.12 | 25.12 | 1.38 | φ3.35p6 | 3.9 |
| 812 | 20.47 | 20.47 | 13.35 | 14.25 | 14.25 | 11.22 | 14.25 | 1.30 | 37.24 | 4.53 | 10.04 | 7.68 | 54.96 | 26.97 | 36.02 | 27.48 | 27.48 | 1.38 | φ3.74p6 | 4.4 |

814 816 818

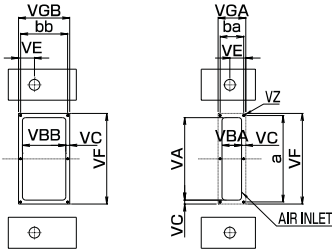


| Frame size | A | B | C | KA | KD | E | F | G | H | J | AK | BK | L | M | N | RA | RB | Z | S | Q |
|------------|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|------|-----|------|-----|-----|----|-----|-----|
| 814 | 589 | 589 | 374 | 361 | 361 | 318 | 405 | 40 | 781 | 130 | 270 | 235 | 1542 | 762 | 1055 | 771 | 771 | 42 | 110 | 122 |
| 816 | 660 | 660 | 406 | 392 | 683 | 342 | 445 | 40 | 849 | 140 | 315 | 270 | 1714 | 825 | 1188 | 857 | 857 | 42 | 120 | 140 |
| 818 | 698 | 698 | 450 | 441 | 723 | 380 | 495 | 45 | 925 | 155 | 335 | 265 | 1792 | 915 | 1265 | 896 | 896 | 47 | 130 | 140 |

| Frame size | A | B | C | KA | KD | E | F | G | H | J | AK | BK | L | M | N | RA | RB | Z | S | Q |
|------------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|------|---------|-----|
| 814 | 23.19 | 23.19 | 14.72 | 14.21 | 25.55 | 12.52 | 15.94 | 1.57 | 30.75 | 5.12 | 10.63 | 9.06 | 60.71 | 30.00 | 41.54 | 30.35 | 30.35 | 1.65 | φ4.33p6 | 4.9 |
| 816 | 25.98 | 25.98 | 15.98 | 15.43 | 28.54 | 13.46 | 17.52 | 1.57 | 33.43 | 5.51 | 12.40 | 10.63 | 67.48 | 32.48 | 46.77 | 33.74 | 33.74 | 1.65 | φ4.72p6 | 5.5 |
| 818 | 27.48 | 27.48 | 17.72 | 17.36 | 30.16 | 14.96 | 19.49 | 1.77 | 36.42 | 6.10 | 13.19 | 10.43 | 70.55 | 36.02 | 49.80 | 35.28 | 35.28 | 1.85 | φ5.12p6 | 5.5 |



Unit

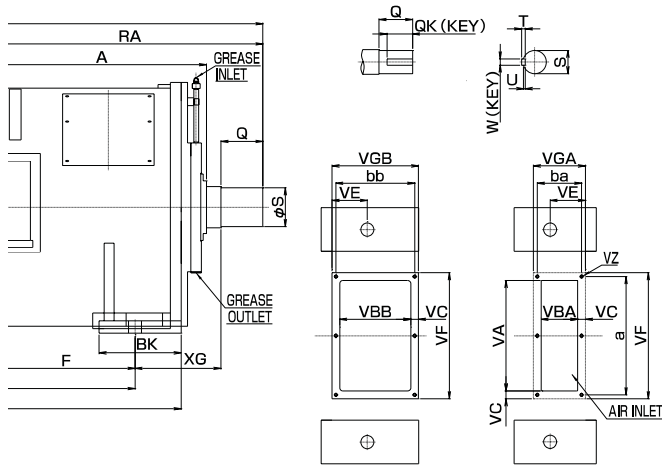


(unit: mm)

| Q | QK | W | U | T | XG | XH | VA | VBA | VBB | VC | VD | VE | VF | VGA | VGB | a | ba | bb | VZ |
|----|----|----|-----|----|-----|-----|-----|-----|-----|----|----|----|-----|-----|-----|-----|-----|-----|------|
| 30 | 65 | 18 | 7 | 11 | 192 | 192 | 234 | 60 | 126 | 13 | 13 | 54 | 260 | 86 | 152 | 247 | 73 | 139 | 4-M6 |
| 30 | 75 | 20 | 7.5 | 12 | 199 | 199 | 266 | 63 | 139 | 13 | 22 | 51 | 292 | 89 | 165 | 279 | 76 | 152 | 6-M6 |
| 60 | 80 | 22 | 9 | 14 | 208 | 208 | 279 | 66 | 152 | 13 | 22 | 54 | 305 | 92 | 178 | 292 | 79 | 165 | 6-M6 |
| 12 | 92 | 25 | 9 | 14 | 224 | 224 | 317 | 92 | 178 | 16 | 22 | 64 | 349 | 124 | 210 | 333 | 108 | 194 | 6-M6 |

(unit: inch)

| Q | QK | W | U | T | XG | XH | VA | VBA | VBB | VC | VD | VE | VF | VGA | VGB | a | ba | bb | VZ |
|----|------|------|------|------|------|------|-------|------|------|------|------|------|-------|------|------|-------|------|------|------|
| 15 | 2.56 | 0.71 | 0.28 | 0.43 | 7.56 | 7.56 | 9.21 | 2.36 | 4.96 | 0.51 | 0.51 | 2.13 | 10.24 | 3.39 | 5.98 | 9.72 | 2.87 | 5.47 | 4-M6 |
| 54 | 2.95 | 0.79 | 0.30 | 0.47 | 7.83 | 7.83 | 10.47 | 2.48 | 5.47 | 0.51 | 0.87 | 2.01 | 11.50 | 3.50 | 6.50 | 10.98 | 2.99 | 5.98 | 6-M6 |
| 94 | 3.15 | 0.87 | 0.35 | 0.55 | 8.19 | 8.19 | 10.98 | 2.60 | 5.98 | 0.51 | 0.87 | 2.13 | 12.01 | 3.62 | 7.01 | 11.50 | 3.11 | 6.50 | 6-M6 |
| 41 | 3.62 | 0.98 | 0.35 | 0.55 | 8.82 | 8.82 | 12.48 | 3.62 | 7.01 | 0.63 | 0.87 | 2.52 | 13.74 | 4.88 | 8.27 | 13.11 | 4.25 | 7.64 | 6-M6 |



(unit: mm)

| Q | QK | W | U | T | XG | XH | VA | VBA | VBB | VC | VD | VE | VF | VGA | VGB | a | ba | bb | VZ |
|----|-----|----|----|----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-------|
| 25 | 105 | 28 | 10 | 16 | 241 | 241 | 355 | 108 | 203 | 16 | 22 | 86 | 387 | 140 | 235 | 371 | 124 | 219 | 6-M6 |
| 40 | 115 | 32 | 11 | 18 | 272 | 272 | 356 | 118 | 229 | 25 | 22 | 114 | 406 | 168 | 279 | 381 | 143 | 254 | 6-M10 |
| 40 | 115 | 32 | 11 | 18 | 261 | 261 | 407 | 131 | 255 | 25 | 22 | 98 | 457 | 181 | 305 | 432 | 156 | 280 | 6-M10 |

(unit: inch)

| Q | QK | W | U | T | XG | XH | VA | VBA | VBB | VC | VD | VE | VF | VGA | VGB | a | ba | bb | VZ |
|----|------|------|------|------|-------|-------|-------|------|-------|------|------|------|-------|------|-------|-------|------|-------|-------|
| 92 | 4.13 | 1.10 | 0.39 | 0.63 | 9.49 | 9.49 | 13.98 | 4.25 | 7.99 | 0.63 | 0.87 | 3.39 | 15.24 | 5.51 | 9.25 | 14.61 | 4.88 | 8.62 | 6-M6 |
| 51 | 4.53 | 1.26 | 0.43 | 0.71 | 10.71 | 10.71 | 14.02 | 4.65 | 9.02 | 0.98 | 0.87 | 4.49 | 15.98 | 6.61 | 10.98 | 15.00 | 5.63 | 10.00 | 6-M10 |
| 51 | 4.53 | 1.26 | 0.43 | 0.71 | 10.28 | 10.28 | 16.02 | 5.16 | 10.04 | 0.98 | 0.87 | 3.86 | 17.99 | 7.13 | 12.01 | 17.01 | 6.14 | 11.02 | 6-M10 |



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