

# Induction Motors

Medium & High Voltage



Rotating Machinery

# Environment-Friendly Technology

Hyundai Heavy Industries Co., Ltd.  
is known for its environment-friendly technology!  
HHI's Induction Motor Series  
is the latest Hyundai innovation.



Global Leader in  
**Medium & High Voltage Induction Motors**



# Medium & High Voltage Induction Motors

Hyundai rotating machines have been supplied and tested in accordance with worldwide classification societies, including IEC, NEMA, EN, API, BSI, AS, IS, KS, JIS, IEEE, and JEC for industrial applications and Lloyd, ABS, DNV, and KR for marine use.



Durability

Low Vibration,  
Low Noise

Environmentally  
Friendly

High  
Efficiency

## Features

- VPI insulation provides high reliability and a longer life
- Uni-directional cooling fan for high efficiency and low noise
- Vibration free shaft system with rated speed balancing
- Heavy duty rotor construction
- Compact size and simple installation



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We offer seven models of Hyundai Induction Motors, each of which is designed for a high level of efficiency, low vibration, low noise and simple installation.

## Product Line

| Totally Enclosed Fan Cooled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Totally Enclosed Air to Air Cooled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Totally Enclosed Air to Air Cooled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>HLE5</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>HRQ3</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>HRQ3 - Vertical</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <ul style="list-style-type: none"> <li>• Rotor Type: Squirrel Cage</li> <li>• Number of Poles: 2-8 (Above 8 Pole as Option)</li> <li>• Voltage: 2-7.2 kV (Above 7.2 kV as Option)</li> <li>• Output Range: 120-1,000 kW (at 60 Hz, 6,600 V, 4 Pole)</li> <li>• Type of Construction: IM B3 (IM V1 as Optional)</li> <li>• Frame: 280-450</li> <li>• Degree of Protection: IP 54 (IEC 60034-5)</li> <li>• Method of Cooling: IC 411 (IEC 60034-6)</li> <li>• Type of Enclosure: Totally Enclosed Fan-Cooled (NEMA MG-1)</li> </ul> | <ul style="list-style-type: none"> <li>• Rotor Type: Squirrel Cage</li> <li>• Number of Poles: 2-12 (Above 12 Pole as Option)</li> <li>• Voltage: 2-14 kV</li> <li>• Output Range: 830-8,000 kW (at 60 Hz, 6,600 V, 4 Pole) (Above 8,000 kW as Option)</li> <li>• Type of Construction: IM B3</li> <li>• Frame: 355-710</li> <li>• Degree of Protection: IP 54 (IEC 60034-5)</li> <li>• Method of Cooling: IC 611 (IEC 60034-6)</li> <li>• Type of Enclosure: Totally Enclosed Air to Air Cooled (NEMA MG-1)</li> </ul> | <ul style="list-style-type: none"> <li>• Rotor Type: Squirrel Cage</li> <li>• Number of Poles: 4-14 (Above 14 Pole as Option)</li> <li>• Voltage: 2-14 kV</li> <li>• Output Range: 810-6,070 kW (at 60 Hz, 6,600 V, 4 Pole) (Above 6,070 kW as Option)</li> <li>• Type of Construction: IM V10</li> <li>• Frame: 400-630</li> <li>• Degree of Protection: IP 54 (IEC 60034-5)</li> <li>• Method of Cooling: IC 611 (IEC 60034-6)</li> <li>• Type of Enclosure: Totally Enclosed Air to Air Cooled (NEMA MG-1)</li> </ul> |

| Totally Enclosed Water to Air Cooled                                                                                                                                             | Open Drip Proof                                                                                                                                                     | Weather Protected                                                                                                                                                                | Weather Protected                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                 |                                                                                    |                                                                                                |                                                                                              |
| <b>HRN3</b>                                                                                                                                                                      | <b>HRE5</b>                                                                                                                                                         | <b>HRP3</b>                                                                                                                                                                      | <b>HRP3 - Vertical</b>                                                                                                                                                          |
| <ul style="list-style-type: none"> <li>• Rotor Type: Squirrel Cage</li> <li>• Number of Poles: 2-12 (Above 12 Pole as Option)</li> <li>• Voltage: 2-14 kV</li> </ul>             | <ul style="list-style-type: none"> <li>• Rotor Type: Squirrel Cage</li> <li>• Number of Poles: 2-8 (Above 8 Pole as Option)</li> <li>• Voltage: 2-7.2 kV</li> </ul> | <ul style="list-style-type: none"> <li>• Rotor Type: Squirrel Cage</li> <li>• Number of Poles: 2-12 (Above 12 Pole as Option)</li> <li>• Voltage: 2-14 kV</li> </ul>             | <ul style="list-style-type: none"> <li>• Rotor Type: Squirrel Cage</li> <li>• Number of Poles: 4-14 (Above 14 Pole as Option)</li> <li>• Voltage: 2-14 kV</li> </ul>            |
| <ul style="list-style-type: none"> <li>• Output Range: 1,030-10,800 kW (at 60 Hz, 6,600 V, 4 Pole) (Above 10,800 kW as Option)</li> <li>• Type of Construction: IM B3</li> </ul> | <ul style="list-style-type: none"> <li>• Output Range: 280-1,400 kW (at 60 Hz, 6,600 V, 4 Pole)</li> <li>• Type of Construction: IM B3</li> </ul>                   | <ul style="list-style-type: none"> <li>• Output Range: 1,030-10,800 kW (at 60 Hz, 6,600 V, 4 Pole) (Above 10,800 kW as Option)</li> <li>• Type of Construction: IM B3</li> </ul> | <ul style="list-style-type: none"> <li>• Output Range: 1,140-8,840 kW (at 60 Hz, 6,600 V, 4 Pole) (Above 8,840 kW as Option)</li> <li>• Type of Construction: IM V10</li> </ul> |
| <ul style="list-style-type: none"> <li>• Frame: 400-710</li> </ul>                                                                                                               | <ul style="list-style-type: none"> <li>• Frame: 280-450</li> </ul>                                                                                                  | <ul style="list-style-type: none"> <li>• Frame: 280-710</li> </ul>                                                                                                               | <ul style="list-style-type: none"> <li>• Frame: 400-630</li> </ul>                                                                                                              |
| <ul style="list-style-type: none"> <li>• Degree of Protection: IP 54 (IEC 60034-5)</li> </ul>                                                                                    | <ul style="list-style-type: none"> <li>• Degree of Protection: IP 23 (IEC 60034-5)</li> </ul>                                                                       | <ul style="list-style-type: none"> <li>• Degree of Protection: IP 23 W-IP 24 W (IEC 60034-5)</li> </ul>                                                                          | <ul style="list-style-type: none"> <li>• Degree of Protection: IP 23 W-IP 24 W (IEC 60034-5)</li> </ul>                                                                         |
| <ul style="list-style-type: none"> <li>• Method of Cooling: IC 81W (IEC 60034-6)</li> </ul>                                                                                      | <ul style="list-style-type: none"> <li>• Method of Cooling: IC 01 (IEC 60034-6)</li> </ul>                                                                          | <ul style="list-style-type: none"> <li>• Method of Cooling: IC 01 (IEC 60034-6)</li> </ul>                                                                                       | <ul style="list-style-type: none"> <li>• Method of Cooling: IC 01 (IEC 60034-6)</li> </ul>                                                                                      |
| <ul style="list-style-type: none"> <li>• Type of Enclosure: Totally Enclosed Water to Air Cooled (NEMA MG-1)</li> </ul>                                                          | <ul style="list-style-type: none"> <li>• Type of Enclosure: Open Drip Proof, WP II (NEMA MG-1)</li> </ul>                                                           | <ul style="list-style-type: none"> <li>• Type of Enclosure: Weather Protected Type I &amp; II : WPI, WP II (NEMA MG-1)</li> </ul>                                                | <ul style="list-style-type: none"> <li>• Type of Enclosure: Weather Protected Type I &amp; II : WPI, WP II (NEMA MG-1)</li> </ul>                                               |
| <ul style="list-style-type: none"> <li>• Cooling Water Inlet Temp: Max. 25°C (Other case, please enquiry)</li> </ul>                                                             |                                                                                                                                                                     |                                                                                                                                                                                  |                                                                                                                                                                                 |



Hyundai Induction Motors

offer many advantages,

including & High levels of

efficiency, stability,

and durability

## Product Features

### Standard Specifications

|                       |                                                                                                                   |
|-----------------------|-------------------------------------------------------------------------------------------------------------------|
| • Applicable Standard | IEC, NEMA, EN, API, BSI, AS, IS, KS, JIS, IEEE, JEC                                                               |
| • Voltage             | 2,000-14,000 V                                                                                                    |
| • Frequency           | 50 Hz, 60 Hz                                                                                                      |
| • Time Duty           | Continuous duty (S1)                                                                                              |
| • Service Factor      | 1.0                                                                                                               |
| • Ambient Temperature | -20 to +40°C<br>(Cooling Water Inlet Temp. Max. 25°C for TEWAC type),<br>(0-40°C for self cooling sleeve bearing) |
| • Insulation Class    | F                                                                                                                 |
| • Temperature Rise    | 80°C (Resistance method)                                                                                          |

### Application

|                         |                                                                                                                           |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------|
| • Power Condition       | Voltage $\pm 10\%$ , frequency $\pm 5\%$ and 10 % max. of combined voltage and frequency with frequency not to exceed 5 % |
| • Environment Condition | Non-hazardous area                                                                                                        |
| • Permissible Load WK2  | NEMA MG1-20.11                                                                                                            |
| • Starting Duty         | Two times from cold condition, One time from hot condition                                                                |
| • Threads               | ISO metric                                                                                                                |
| • Color of Finish Paint | Munsell No. 7.5 BG 6/1.5                                                                                                  |
| • Direction of Rotation | Uni-direction (Bi-direction is possible by requirement except for 2 pole)                                                 |
| • Method of Starting    | Full voltage direct on line (in case of squirrel cage rotor)                                                              |

### Construction

|               |                                                                                                           |
|---------------|-----------------------------------------------------------------------------------------------------------|
| • Frame       | Cast iron or fabricated steel plate                                                                       |
| • End Bracket | Cast iron or fabricated steel plate                                                                       |
| • Shaft       | Normalized carbon steel, Single extension with keyway & key (Double extension is possible by requirement) |
| • Bearing     | High-quality anti-friction or Split sleeve bearings                                                       |
| • Enclosure   | ODP, WP I, WP II, TEFC, TEAAC, TEWAC etc.                                                                 |



## Derating Factors

### Ambient Air Inlet Temperature

| No. | Ambient Temp.<br>(Water Temp.) | Type Factor | HLE5, HRQ3, HRN3 | HRE5, HRP3 |
|-----|--------------------------------|-------------|------------------|------------|
| 1   | 40°C (25°C)                    |             | 1.0              | 1.0        |
| 2   | 45°C (30°C)                    |             | 0.95             | 0.96       |
| 3   | 50°C (35°C)                    |             | 0.9              | 0.91       |
| 4   | 55°C (40°C)                    |             | 0.84             | 0.86       |
| 5   | 60°C (45°C)                    |             | 0.78             | 0.81       |

### Site Altitude

| No. | Factor                   | Type | HLE5, HRQ3 | HRE5, HRP3 |
|-----|--------------------------|------|------------|------------|
| 1   | 0 m < S.A. ≤ 1,000 m     |      | 1.0        | 1.0        |
| 2   | 1,000 m < S.A. ≤ 1,500 m |      | 0.96       | 0.96       |
| 3   | 1,500 m < S.A. ≤ 2,000 m |      | 0.92       | 0.93       |
| 4   | 2,000 m < S.A. ≤ 2,500 m |      | 0.88       | 0.90       |
| 5   | 2,500 m < S.A. ≤ 3,000 m |      | 0.84       | 0.86       |
| 6   | 3,000 m < S.A. ≤ 3,500 m |      | 0.80       | 0.83       |
| 7   | 3,500 m < S.A. ≤ 4,000 m |      | 0.76       | 0.80       |

# 01

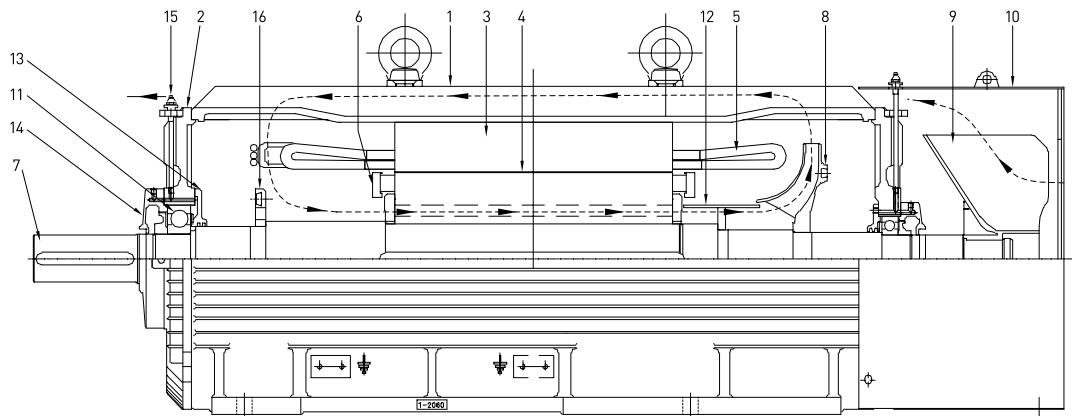


**HLE5 Series** | Totally Enclosed Fan Cooled, Squirrel Cage

## | HLE5 |

|                        |                                          |
|------------------------|------------------------------------------|
| • Rotor Type           | Squirrel Cage                            |
| • Number of Poles      | 2-8                                      |
| • Voltage              | 2-7.2 kV                                 |
| • Output Range         | 120-1,000 kW (at 60 Hz, 6,600 V, 4 Pole) |
| • Type of Construction | IM B3 (IM V1 as Optional)                |
| • Frame                | 280-450                                  |
| • Degree of Protection | IP 54 (IEC 60034-5)                      |
| • Method of Cooling    | IC 411 (IEC 60034-6)                     |
| • Type of Enclosure    | Totally Enclosed Fan-Cooled (NEMA MG-1)  |

## Sectional View and Parts Name



## Parts Name

|                 |                         |                         |                         |
|-----------------|-------------------------|-------------------------|-------------------------|
| 1. Stator Frame | 5. Stator Winding       | 9. External Cooling Fan | 13. Inner Bearing Cover |
| 2. End Shield   | 6. Rotor End Ring       | 10. Fan Cover           | 14. Outer Bearing Cover |
| 3. Stator Core  | 7. Shaft                | 11. Bearing             | 15. Grease Nipple       |
| 4. Rotor Core   | 8. Internal Cooling Fan | 12. Air Guide           | 16. Balance-Ring        |

## | Rated Power at 50 Hz |

### | 3.0 kV |

Unit: kW

| Type | Poles | 2P  | 4P  | 6P  | 8P  | 10P | 12P |
|------|-------|-----|-----|-----|-----|-----|-----|
| HLE5 | 282   | -   | -   | -   | -   | -   | -   |
|      | 284   | -   | -   | -   | -   | -   | -   |
|      | 286   | 170 | 185 | -   | -   | -   | -   |
|      | 288   | 195 | 205 | 170 | -   | -   | -   |
|      | 312   | 240 | 235 | 185 | -   | -   | -   |
|      | 313   | 265 | 285 | 210 | 135 | -   | -   |
|      | 314   | 295 | 325 | 235 | 165 | -   | -   |
|      | 316   | 335 | 340 | 265 | 185 | -   | -   |
|      | 317   | 345 | 365 | 300 | 220 | -   | -   |
|      | 318   | 360 | 410 | 330 | 235 | -   | -   |
|      | 351   | 420 | 485 | 350 | 265 | -   | -   |
|      | 352   | 470 | 525 | 395 | 295 | 230 | 145 |
|      | 353   | 500 | 545 | 405 | 315 | -   | -   |
|      | 354   | 530 | 580 | 430 | 340 | 265 | 170 |
|      | 401   | 575 | 600 | 490 | 400 | -   | -   |
|      | 402   | 600 | 655 | 540 | 445 | 340 | 210 |
|      | 403   | 625 | 700 | 560 | 460 | -   | -   |
|      | 404   | 650 | 725 | 585 | 475 | 365 | 225 |
|      | 451   | -   | 745 | 605 | 505 | -   | -   |
|      | 452   | -   | 790 | 630 | 540 | 415 | 350 |
|      | 453   | -   | 830 | 665 | 575 | -   | -   |
|      | 454   | -   | 870 | 700 | 610 | 475 | 400 |

### | 6.0 kV |

Unit: kW

| Type | Poles | 2P  | 4P  | 6P  | 8P  | 10P | 12P |
|------|-------|-----|-----|-----|-----|-----|-----|
| HLE5 | 282   | -   | -   | -   | -   | -   | -   |
|      | 284   | -   | -   | -   | -   | -   | -   |
|      | 286   | 165 | 170 | -   | -   | -   | -   |
|      | 288   | 180 | 190 | 150 | -   | -   | -   |
|      | 312   | 210 | 225 | 165 | -   | -   | -   |
|      | 313   | 235 | 275 | 190 | 120 | -   | -   |
|      | 314   | 275 | 305 | 220 | 150 | -   | -   |
|      | 316   | 300 | 325 | 235 | 165 | -   | -   |
|      | 317   | 325 | 350 | 275 | 195 | -   | -   |
|      | 318   | 350 | 390 | 305 | 210 | -   | -   |
|      | 351   | 390 | 460 | 325 | 245 | -   | -   |
|      | 352   | 440 | 500 | 365 | 275 | 215 | 140 |
|      | 353   | 465 | 520 | 375 | 295 | -   | -   |
|      | 354   | 500 | 550 | 400 | 320 | 250 | 160 |
|      | 401   | 525 | 565 | 470 | 365 | -   | -   |
|      | 402   | 570 | 635 | 520 | 405 | 315 | 195 |
|      | 403   | 595 | 660 | 535 | 415 | -   | -   |
|      | 404   | 620 | 685 | 560 | 440 | 340 | 210 |
|      | 451   | -   | 710 | 575 | 485 | -   | -   |
|      | 452   | -   | 750 | 600 | 520 | 400 | 340 |
|      | 453   | -   | 790 | 635 | 545 | -   | -   |
|      | 454   | -   | 830 | 670 | 580 | 450 | 380 |

#### Note

- Suffix "-B" denotes for V-belt drive.
- Tolerance on "D" and "DA" dimension will be m6.
- The bores of the transmission elements should be made to an ISO fit H6.
- The dimensions printed in bold face in the table to IEC : A, B, C, D, E, F, GA, H, K are certified.
- Type of bearings.
  - Greased lubricated anti-friction
  - Forced feed oil lubrication sleeve bearings
- For vertical motor output, HLE5 & HRE5 model shall not be applied to 316, 317, 318 & 450 frame.

7. The following tolerances are applicable to dimensions A, B, and H

| Dimensions | Tolerance (mm)       |      |
|------------|----------------------|------|
| A and B    | Over 500 up to 750   | ±1.5 |
|            | Over 750 up to 1,000 | ±1.5 |
|            | Over 1,000           | ±1.5 |
| H          | Over 250 up to 600   | -1.0 |
|            | Over 600 up to 1,000 | -1.5 |

8. "R" dimension of the shaft extension part is as follows

| Shaft Diameter (mm) | R (mm) |
|---------------------|--------|
| 50-80               | 1.6    |
| 85-120              | 2.5    |
| 130-190             | 4.0    |

## | Rated Power at 60 Hz |

## | 3.3 kV |

Unit: kW

| Type | Poles | 2P  | 4P   | 6P  | 8P  | 10P | 12P |
|------|-------|-----|------|-----|-----|-----|-----|
| HLE5 | 282   | 110 | 150  | -   | -   | -   | -   |
|      | 284   | 160 | 190  | 160 | -   | -   | -   |
|      | 286   | 210 | 225  | 180 | -   | -   | -   |
|      | 288   | 240 | 250  | 205 | 120 | -   | -   |
|      | 312   | 260 | 285  | 230 | 140 | -   | -   |
|      | 313   | 305 | 330  | 255 | 160 | -   | -   |
|      | 314   | 330 | 370  | 290 | 200 | -   | -   |
|      | 316   | 360 | 410  | 320 | 225 | -   | -   |
|      | 317   | 385 | 440  | 370 | 265 | -   | -   |
|      | 318   | 410 | 490  | 395 | 280 | -   | -   |
|      | 351   | 435 | 535  | 440 | 315 | -   | -   |
|      | 352   | 490 | 580  | 495 | 355 | 255 | 180 |
|      | 353   | 530 | 615  | 515 | 370 | -   | -   |
|      | 354   | 560 | 660  | 550 | 405 | 295 | 205 |
|      | 401   | 600 | 690  | 585 | 495 | -   | -   |
|      | 402   | 655 | 770  | 645 | 550 | 400 | 320 |
|      | 403   | -   | 815  | 665 | 565 | -   | -   |
|      | 404   | -   | 850  | 700 | 590 | 430 | 345 |
|      | 451   | -   | 895  | 725 | 615 | -   | -   |
|      | 452   | -   | 950  | 760 | 660 | 480 | 440 |
|      | 453   | -   | 995  | 795 | 695 | -   | -   |
|      | 454   | -   | 1050 | 840 | 740 | 540 | 495 |

## | 4.16 kV |

Unit: kW

| Type | Poles | 2P  | 4P   | 6P  | 8P  | 10P | 12P |
|------|-------|-----|------|-----|-----|-----|-----|
| HLE5 | 282   | 105 | 145  | -   | -   | -   | -   |
|      | 284   | 155 | 185  | 150 | -   | -   | -   |
|      | 286   | 205 | 220  | 165 | -   | -   | -   |
|      | 288   | 230 | 240  | 190 | 105 | -   | -   |
|      | 312   | 255 | 275  | 205 | 125 | -   | -   |
|      | 313   | 300 | 315  | 240 | 145 | -   | -   |
|      | 314   | 320 | 355  | 270 | 185 | -   | -   |
|      | 316   | 350 | 390  | 300 | 210 | -   | -   |
|      | 317   | 370 | 425  | 345 | 245 | -   | -   |
|      | 318   | 400 | 470  | 385 | 260 | -   | -   |
|      | 351   | 430 | 520  | 415 | 310 | -   | -   |
|      | 352   | 480 | 560  | 465 | 345 | 240 | 180 |
|      | 353   | 510 | 595  | 485 | 365 | -   | -   |
|      | 354   | 540 | 640  | 520 | 395 | 280 | 200 |
|      | 401   | 580 | 670  | 565 | 465 | -   | -   |
|      | 402   | 630 | 760  | 620 | 520 | 380 | 310 |
|      | 403   | -   | 795  | 640 | 540 | -   | -   |
|      | 404   | -   | 830  | 670 | 570 | 420 | 330 |
|      | 451   | -   | 875  | 710 | 610 | -   | -   |
|      | 452   | -   | 930  | 740 | 650 | 470 | 430 |
|      | 453   | -   | 980  | 780 | 680 | -   | -   |
|      | 454   | -   | 1030 | 820 | 720 | 520 | 480 |

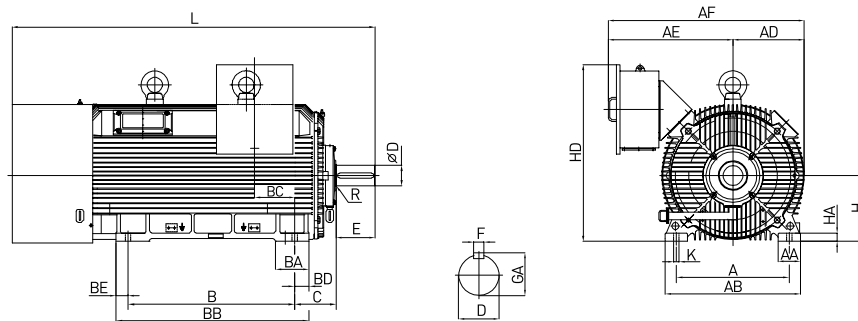
## | 6.6 kV |

Unit: kW

| Type | Poles | 2P  | 4P   | 6P  | 8P  | 10P | 12P |
|------|-------|-----|------|-----|-----|-----|-----|
| HLE5 | 282   | 100 | 120  | -   | -   | -   | -   |
|      | 284   | 150 | 150  | 130 | -   | -   | -   |
|      | 286   | 200 | 210  | 150 | -   | -   | -   |
|      | 288   | 225 | 235  | 185 | 100 | -   | -   |
|      | 312   | 245 | 270  | 200 | 120 | -   | -   |
|      | 313   | 280 | 310  | 235 | 140 | -   | -   |
|      | 314   | 310 | 350  | 270 | 175 | -   | -   |
|      | 316   | 340 | 390  | 290 | 200 | -   | -   |
|      | 317   | 360 | 420  | 340 | 235 | -   | -   |
|      | 318   | 385 | 465  | 365 | 250 | -   | -   |
|      | 351   | 420 | 510  | 410 | 300 | -   | -   |
|      | 352   | 470 | 550  | 460 | 335 | 240 | 180 |
|      | 353   | 500 | 580  | 480 | 360 | -   | -   |
|      | 354   | 530 | 620  | 510 | 390 | 280 | 200 |
|      | 401   | 570 | 660  | 565 | 450 | -   | -   |
|      | 402   | 620 | 750  | 620 | 500 | 365 | 300 |
|      | 403   | -   | 770  | 640 | 520 | -   | -   |
|      | 404   | -   | 800  | 670 | 550 | 400 | 320 |
|      | 451   | -   | 850  | 690 | 590 | -   | -   |
|      | 452   | -   | 900  | 720 | 630 | 460 | 430 |
|      | 453   | -   | 950  | 760 | 660 | -   | -   |
|      | 454   | -   | 1000 | 800 | 700 | 510 | 470 |

## | HLE5 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A   | AA  | AB  | AD  | AE  | AF   | B    | BA  | BB   | BC  | BD   | BE   |
|------|-----|-------|-----|-----|-----|-----|-----|------|------|-----|------|-----|------|------|
| HLE5 | 282 | 2 -   | 457 | 91  | 560 | 325 | 830 | 1155 | 630  | 200 | 770  | 120 | 60   | 80   |
|      | 284 | 2 -   |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 286 | 2 -   |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 288 | 2 -   |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 312 | 2 -   | 508 | 124 | 635 | 350 | 880 | 1230 | 508  | 180 | 925  | 244 | 66   | 351  |
|      | 313 | 2 -   |     |     |     |     |     |      | 630  |     | 1045 |     |      | 349  |
|      | 314 | 2 -   |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 316 | 2 -   |     |     |     |     |     |      | 900  |     | 1270 |     |      | 304  |
|      | 317 | 2 -   |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 318 | 2 -   |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 350 | 2 -   | 610 | 120 | 730 | 385 | 900 | 1285 | 900  | 180 | 1043 | 244 | 79.5 | 63.5 |
|      | 351 | 2 -   |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 352 | 2 -   |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 353 | 2 -   |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 354 | 2 -   |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 401 | 2 -   | 686 | 150 | 836 | 435 | 945 | 1380 | 1120 | 220 | 1320 | 206 | 100  | 100  |
|      | 402 | 2 -   |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 403 | 2 -   |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 404 | 2 -   |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 451 | 4 -   | 750 | 160 | 920 | 480 | 975 | 1455 | 1250 | 220 | 1450 | 217 | 100  | 100  |
|      | 452 | 4 -   |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 453 | 4 -   |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 454 | 4 -   |     |     |     |     |     |      |      |     |      |     |      |      |

**Note:** For the bearing type and tolerance of dimensions, see page 12.



## | HLE5 |

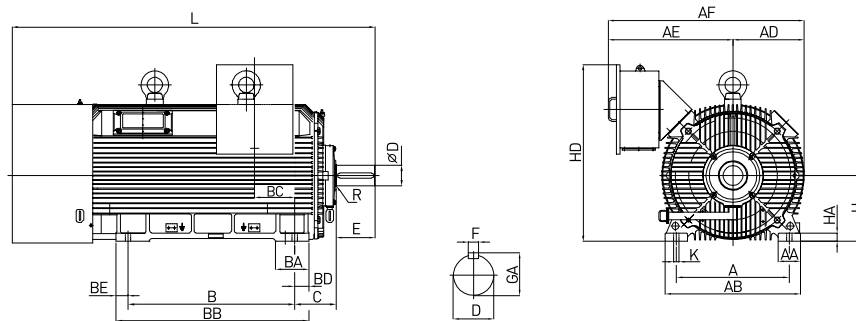
Unit: mm

| Type | Poles | C    | H    | HA   | HD  | K    | L    | D    | E   | F   | GA   | Weight (kg) |      |     |     |      |      |      |
|------|-------|------|------|------|-----|------|------|------|-----|-----|------|-------------|------|-----|-----|------|------|------|
| HLE5 | 282   | 2    | 210  | 280  | 30  | 915  | 24   | 1540 | 70  | 140 | 20   | 74.5        | 1110 |     |     |      |      |      |
|      | 4 -   | 190  | 1445 |      |     |      |      | 85   | 170 | 22  | 90   | 1160        |      |     |     |      |      |      |
|      | 284   | 2    | 210  |      |     |      |      | 1540 | 70  | 140 | 20   | 74.5        | 1190 |     |     |      |      |      |
|      | 4 -   | 190  | 1445 |      |     |      |      | 85   | 170 | 22  | 90   | 1240        |      |     |     |      |      |      |
|      | 286   | 2    | 210  |      |     |      |      | 1540 | 70  | 140 | 20   | 74.5        | 1290 |     |     |      |      |      |
|      | 4     | 190  | 1445 |      |     |      |      | 85   | 170 | 22  | 90   | 1320        |      |     |     |      |      |      |
|      | 288   | 2    | 210  |      |     |      |      | 1540 | 70  | 140 | 20   | 74.5        | 1340 |     |     |      |      |      |
|      | 4     | 190  | 1445 |      |     |      |      | 85   | 170 | 22  | 90   | 1380        |      |     |     |      |      |      |
|      | 6 -   | 190  | 1445 |      |     |      |      | 85   | 170 | 22  | 90   | 1470        |      |     |     |      |      |      |
|      | 312   | 2    | 216  |      |     |      |      | 315  | 35  | 965 | 30   | 1690        | 75   | 140 | 20  | 79.5 | 1630 |      |
|      | 4 -   | 1720 |      | 90   | 170 | 25   | 95   |      |     |     |      | 1620        |      |     |     |      |      |      |
|      | 313   | 2    |      | 1800 | 75  | 140  | 20   |      |     |     |      | 79.5        | 1830 |     |     |      |      |      |
|      | 4 -   | 1840 |      | 90   | 170 | 25   | 95   |      |     |     |      | 1820        |      |     |     |      |      |      |
|      | 314   | 2    |      | 1800 | 75  | 140  | 20   |      |     |     |      | 79.5        | 1880 |     |     |      |      |      |
|      | 4 -   | 1840 |      | 90   | 170 | 25   | 95   |      |     |     |      | 1920        |      |     |     |      |      |      |
|      | 316   | 2    |      | 2010 | 75  | 140  | 20   |      |     |     |      | 79.5        | 2150 |     |     |      |      |      |
|      | 4 -   | 2090 |      | 95   | 210 | 25   | 100  |      |     |     |      | 2140        |      |     |     |      |      |      |
|      | 317   | 2    |      | 2010 | 75  | 140  | 20   |      |     |     |      | 79.5        | 2250 |     |     |      |      |      |
|      | 4 -   | 2090 |      | 95   | 210 | 25   | 100  |      |     |     |      | 2280        |      |     |     |      |      |      |
|      | 318   | 2    | 2010 | 75   | 140 | 20   | 79.5 | 2320 |     |     |      |             |      |     |     |      |      |      |
|      | 4 -   | 2090 | 95   | 210  | 25  | 100  | 2360 |      |     |     |      |             |      |     |     |      |      |      |
|      | 351   | 2    | 224  | 355  | 45  | 1030 | 30   | 2080 | 80  | 170 | 22   | 85          | 2650 |     |     |      |      |      |
|      | 4 -   | 2125 |      |      |     |      |      | 110  | 210 | 28  | 116  | 2690        |      |     |     |      |      |      |
|      | 352   | 2    |      |      |     |      |      | 2080 | 80  | 170 | 22   | 85          | 2800 |     |     |      |      |      |
|      | 4 -   | 2125 |      |      |     |      |      | 110  | 210 | 28  | 116  | 2910        |      |     |     |      |      |      |
|      | 353   | 2    |      |      |     |      |      | 2085 | 80  | 170 | 22   | 85          | 2900 |     |     |      |      |      |
|      | 4 -   | 2125 |      |      |     |      |      | 110  | 210 | 28  | 116  | 3010        |      |     |     |      |      |      |
|      | 354   | 2    |      |      |     |      |      | 2085 | 80  | 170 | 22   | 85          | 3010 |     |     |      |      |      |
|      | 4 -   | 2125 |      |      |     |      |      | 110  | 210 | 28  | 116  | 3120        |      |     |     |      |      |      |
|      | 401   | 2    |      |      |     |      |      | 254  | 400 | 55  | 1120 | 35          | 2180 | 85  | 170 | 22   | 90   | 3460 |
|      | 4 -   | 2220 |      |      |     |      |      |      |     |     |      |             | 120  | 210 | 32  | 127  | 3590 |      |
|      | 402   | 2    | 2180 | 85   | 170 | 22   | 90   |      |     |     |      |             | 3600 |     |     |      |      |      |
|      | 4 -   | 2220 | 120  | 210  | 32  | 127  | 3790 |      |     |     |      |             |      |     |     |      |      |      |
|      | 403   | 2    | 2180 | 85   | 170 | 22   | 90   |      |     |     |      |             | 3710 |     |     |      |      |      |
|      | 4 -   | 2220 | 120  | 210  | 32  | 127  | 3840 |      |     |     |      |             |      |     |     |      |      |      |
|      | 404   | 2    | 2180 | 85   | 170 | 22   | 90   |      |     |     |      |             | 3850 |     |     |      |      |      |
|      | 4 -   | 2220 | 120  | 210  | 32  | 127  | 3940 |      |     |     |      |             |      |     |     |      |      |      |
|      | 451   | 4 -  | 280  | 450  | 59  | 1200 | 35   |      |     |     |      |             | 2490 | 130 | 250 | 32   | 137  | 4890 |
|      | 452   | 4 -  |      |      |     |      |      |      |     |     |      |             |      |     |     |      |      | 5200 |
|      | 453   | 4 -  |      |      |     |      |      | 5360 |     |     |      |             |      |     |     |      |      |      |
|      | 454   | 4 -  |      |      |     |      |      | 5500 |     |     |      |             |      |     |     |      |      |      |

**Note:** For the bearing type and tolerance of dimensions, see page 12.

## | HLE5 |

### Mounting B3 / Degree of Protection IP54, Belt-Pulley Type



Unit: mm

| Type |       | Poles | A   | AA  | AB  | AD  | AE  | AF   | B   | BA  | BB   | BC  | BD   | BE   |
|------|-------|-------|-----|-----|-----|-----|-----|------|-----|-----|------|-----|------|------|
| HLE5 | 282-B | 4 -   | 457 | 91  | 560 | 325 | 830 | 1155 | 630 | 200 | 770  | 120 | 60   | 80   |
|      | 284-B | 4 -   |     |     |     |     |     |      |     |     |      |     |      |      |
|      | 286-B | 4 -   |     |     |     |     |     |      |     |     |      |     |      |      |
|      | 288-B | 4 -   |     |     |     |     |     |      |     |     |      |     |      |      |
|      | 312-B | 4 -   | 508 | 124 | 635 | 350 | 880 | 1230 | 508 | 180 | 925  | 244 | 66   | 351  |
|      | 313-B | 4 -   |     |     |     |     |     |      | 630 |     | 1045 |     |      | 349  |
|      | 314-B | 4 -   |     |     |     |     |     |      |     |     |      |     |      |      |
|      | 316-B | 4 -   |     |     |     |     |     |      | 900 |     | 1270 |     |      | 304  |
|      | 317-B | 4 -   |     |     |     |     |     |      |     |     |      |     |      |      |
|      | 318-B | 4 -   |     |     |     |     |     |      |     |     |      |     |      |      |
|      | 351-B | 4 -   | 610 | 120 | 730 | 385 | 900 | 1285 | 900 | 180 | 1043 | 244 | 79.5 | 63.5 |
|      | 352-B | 4 -   |     |     |     |     |     |      |     |     |      |     |      |      |
|      | 353-B | 4 -   |     |     |     |     |     |      |     |     |      |     |      |      |
|      | 354-B | 4 -   |     |     |     |     |     |      |     |     |      |     |      |      |

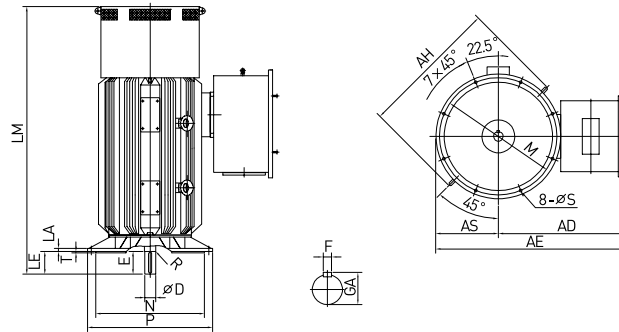
Unit: mm

| Type |       | Poles | C   | H   | HA | HD   | K  | L    | D   | E   | F  | GA  | Weight (kg) |
|------|-------|-------|-----|-----|----|------|----|------|-----|-----|----|-----|-------------|
| HLE5 | 282-B | 4 -   | 190 | 280 | 30 | 915  | 24 | 1445 | 85  | 170 | 22 | 90  | 1160        |
|      | 284-B | 4 -   |     |     |    |      |    |      |     |     |    |     | 1240        |
|      | 286-B | 4     |     |     |    |      |    |      |     |     |    |     | 1320        |
|      | 288-B | 4     |     |     |    |      |    |      |     |     |    |     | 1380        |
|      | 288-B | 6 -   |     |     |    |      |    |      |     |     |    |     | 1470        |
|      | 312-B | 4 -   | 216 | 315 | 35 | 965  | 30 | 1750 | 100 | 210 | 28 | 106 | 1620        |
|      | 313-B | 4 -   |     |     |    |      |    | 1870 |     |     |    |     | 1820        |
|      | 314-B | 4 -   |     |     |    |      |    | 1870 |     |     |    |     | 1920        |
|      | 316-B | 4 -   |     |     |    |      |    | 2090 |     |     |    |     | 2150        |
|      | 317-B | 4 -   |     |     |    |      |    | 2090 |     |     |    |     | 2280        |
|      | 318-B | 4 -   |     |     |    |      |    | 2090 |     |     |    |     | 2360        |
|      | 351-B | 4 -   | 224 | 355 | 45 | 1030 | 30 | 2125 | 110 | 210 | 28 | 116 | 2690        |
|      | 352-B | 4 -   |     |     |    |      |    |      |     |     |    |     | 2910        |
|      | 353-B | 4 -   |     |     |    |      |    |      |     |     |    |     | 3010        |
|      | 354-B | 4 -   |     |     |    |      |    |      |     |     |    |     | 3120        |

**Note:** For the bearing type and tolerance of dimensions, see page 12.

## | HLE5 |

## Mounting V1 / Degree of Protection IP54



If the external thrust is applied, please enquire. (This motor only withstand wight of the rotor of motor with coupling)

Unit: mm

| Type | Poles | AD  | AE   | AH   | AS   | LA  | LE   | LM  | M    | N   | P   | S    | T  | D | E   | F    | GA   | Weight (kg) |      |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|------|-------|-----|------|------|------|-----|------|-----|------|-----|-----|------|----|---|-----|------|------|-------------|------|------|------|------|------|-----|-----|-----|----|---|-----|-----|----|-----|------|
| HLE5 | 282   | 4 - | 930  | 1330 | 890  | 400 | 25   | 170 | 1620 | 740 | 680 | 800  | 23 | 6 | 85  | 170  | 22   | 90          | 1250 |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 284   | 4 - |      |      |      |     |      |     |      |     |     |      |    |   | 85  | 170  | 22   | 90          | 1320 |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 286   | 4 - |      |      |      |     |      |     |      |     |     |      |    |   | 85  | 170  | 22   | 90          | 1380 |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 288   | 4 - |      |      |      |     |      |     |      |     |     |      |    |   | 85  | 170  | 22   | 90          | 1450 |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 310   | 4 - | 940  | 1340 | 930  | 400 | 25   | 170 | 1890 | 740 | 680 | 800  | 23 | 6 | 90  | 170  | 25   | 95          | 1540 |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 310-B | 4 - |      |      |      |     |      |     |      |     |     |      |    |   | 100 | 210  | 28   | 106         | 1540 |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 311   | 4 - |      |      |      |     |      |     |      |     |     |      |    |   | 170 | 1890 | 90   | 170         | 25   | 95   | 1630 |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 311-B | 4 - |      |      |      |     |      |     |      |     |     |      |    |   | 210 | 1930 | 100  | 210         | 28   | 106  | 1630 |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 312   | 4 - |      |      |      |     |      | 170 | 1890 |     |     |      |    |   |     | 90   | 170  | 25          | 95   | 1730 |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 312-B | 4 - |      |      |      |     |      |     |      |     |     |      |    |   |     | 210  | 1930 | 100         | 210  | 28   | 106  | 1730 |      |     |     |     |    |   |     |     |    |     |      |
|      | 313   | 4 - |      |      |      |     |      |     |      |     |     |      |    |   |     | 170  | 2010 | 90          | 170  | 25   | 95   | 1930 |      |     |     |     |    |   |     |     |    |     |      |
|      | 313-B | 4 - |      |      |      |     |      |     |      |     |     |      |    |   |     | 210  | 2050 | 100         | 210  | 28   | 106  | 1930 |      |     |     |     |    |   |     |     |    |     |      |
|      | 314   | 4 - |      |      |      |     |      | 170 | 2010 |     |     |      |    |   |     |      | 90   | 170         | 25   | 95   | 2030 |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 314-B | 4 - |      |      |      |     |      |     |      |     |     |      |    |   |     |      | 210  | 2050        | 100  | 210  | 28   | 106  | 2030 |     |     |     |    |   |     |     |    |     |      |
|      | 351   | 4 - |      |      |      |     |      |     |      |     |     |      |    |   |     |      | 970  | 1420        | 1135 | 450  | 25   | 210  | 2315 | 840 | 780 | 900 | 23 | 6 | 110 | 210 | 28 | 116 | 3010 |
|      | 351-B | 4 - |      |      |      |     |      |     |      |     |     |      |    |   |     |      |      |             |      |      |      |      |      |     |     |     |    |   | 110 | 210 | 28 | 116 | 3010 |
|      | 352   | 4 - | 110  | 210  | 28   | 116 | 3040 |     |      |     |     |      |    |   |     |      |      |             |      |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 352-B | 4 - | 110  | 210  | 28   | 116 | 3040 |     |      |     |     |      |    |   |     |      |      |             |      |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 353   | 4 - | 110  | 210  | 28   | 116 | 3220 |     |      |     |     |      |    |   |     |      |      |             |      |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 353-B | 4 - | 110  | 210  | 28   | 116 | 3220 |     |      |     |     |      |    |   |     |      |      |             |      |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 354   | 4 - | 110  | 210  | 28   | 116 | 3250 |     |      |     |     |      |    |   |     |      |      |             |      |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 354-B | 4 - | 110  | 210  | 28   | 116 | 3250 |     |      |     |     |      |    |   |     |      |      |             |      |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 401   | 4   | 1035 | 1535 | 1280 | 500 | 25   | 210 | 2410 | 940 | 880 | 1000 | 23 | 6 | 120 | 210  | 32   | 127         | 3800 |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 402   | 4 - |      |      |      |     |      |     |      |     |     |      |    |   | 120 | 210  | 32   | 127         | 3960 |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 403   | 4 - |      |      |      |     |      |     |      |     |     |      |    |   | 120 | 210  | 32   | 127         | 4040 |      |      |      |      |     |     |     |    |   |     |     |    |     |      |
|      | 404   | 4 - |      |      |      |     |      |     |      |     |     |      |    |   | 120 | 210  | 32   | 127         | 4110 |      |      |      |      |     |     |     |    |   |     |     |    |     |      |

**Note:** For the bearing type and tolerance of dimensions, see page 12.

02

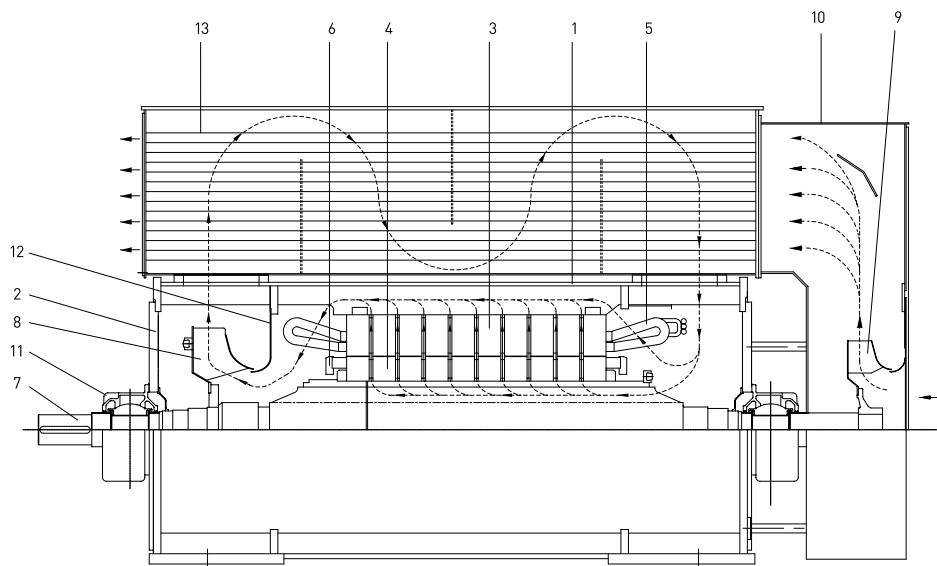


**HRQ3 Series** | Totally Enclosed Air-to-Air Cooled Squirrel Cage

## | HRQ3 |

|                        |                                                |
|------------------------|------------------------------------------------|
| • Rotor Type           | Squirrel Cage                                  |
| • Number of Pole       | 2-12                                           |
| • Voltage              | 2-14 kV                                        |
| • Output Range         | 830-8,000 kW (at 60 Hz, 6,600 V, 4 Pole)       |
| • Type of Construction | IM B3                                          |
| • Frame                | 355-710                                        |
| • Degree of Protection | IP 54 (IEC 60034-5)                            |
| • Method of Cooling    | IC 611 (IEC 60034-6)                           |
| • Type of Enclosure    | Totally Enclosed Air to Air Cooled (NEMA MG-1) |

## Sectional View and Parts Name



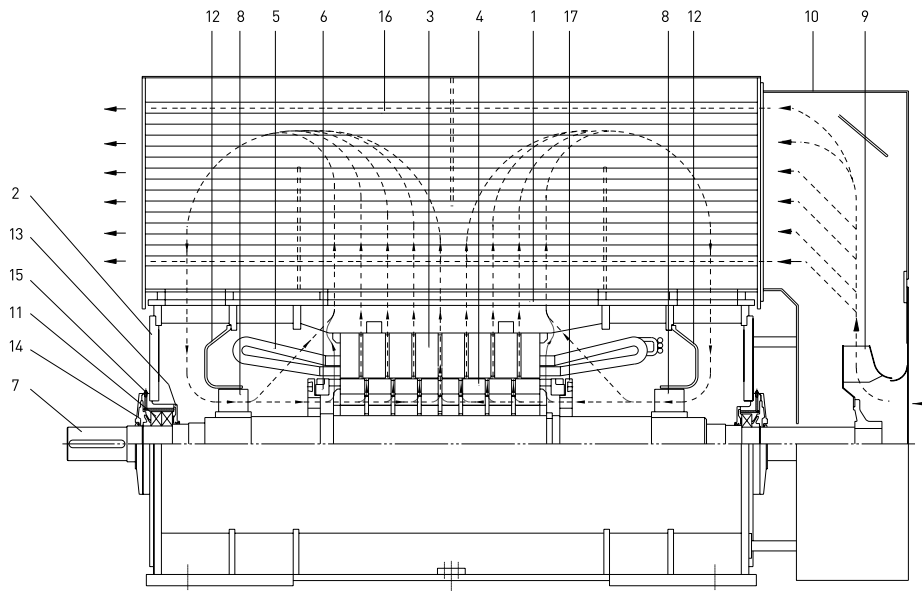
## Parts Name Type - I (Uni-directional cooling circuit)

|                 |                   |                         |                        |
|-----------------|-------------------|-------------------------|------------------------|
| 1. Stator Frame | 5. Stator Winding | 8. Internal Cooling Fan | 11. Bearing            |
| 2. End Shield   | 6. Rotor End Ring | 9. External Cooling Fan | 12. Air Guide Plate    |
| 3. Stator Core  | 7. Shaft          | 10. Fan Cover           | 13. Heat-Exchange Pipe |
| 4. Rotor Core   |                   |                         |                        |

## | HRQ3 |

|                        |                                                |
|------------------------|------------------------------------------------|
| • Rotor Type           | Squirrel Cage                                  |
| • Number of Pole       | 2-12                                           |
| • Voltage              | 2-14 kV                                        |
| • Output Range         | 830-8,000 kW (at 60 Hz, 6,600 V, 4 Pole)       |
| • Type of Construction | IM B3                                          |
| • Frame                | 355-710                                        |
| • Degree of Protection | IP 54 (IEC 60034-5)                            |
| • Method of Cooling    | IC 611 (IEC 60034-6)                           |
| • Type of Enclosure    | Totally Enclosed Air to Air Cooled (NEMA MG-1) |

### Sectional View and Parts Name



#### Parts Name Type - II (Bi-directional cooling circuit)

|                   |                         |                            |                            |
|-------------------|-------------------------|----------------------------|----------------------------|
| 1. Stator Frame   | 6. Rotor End Ring       | 10. Fan Cover              | 14. External Bearing Cover |
| 2. End Shield     | 7. Shaft                | 11. Bearing                | 15. Grease Nipple          |
| 3. Stator Core    | 8. Internal Cooling Fan | 12. Air Guide Plate        | 16. Heat-Exchange Pipe     |
| 4. Rotor Core     | 9. External Cooling Fan | 13. Internal Bearing Cover | 17. Balance-Ring           |
| 5. Stator Winding |                         |                            |                            |

## | Rated Power at 50 Hz |

## | 3.0 kV |

Unit: kW

| Type | Poles | 2P   | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|------|
| HRQ3 | 313   | 340  | -    | -    | -    | -    | -    | -    | -    |
|      | 315   | 380  | -    | -    | -    | -    | -    | -    | -    |
|      | 317   | 440  | -    | -    | -    | -    | -    | -    | -    |
|      | 355   | 700  | -    | -    | -    | -    | -    | -    | -    |
|      | 357   | 780  | -    | -    | -    | -    | -    | -    | -    |
|      | 403   | 850  | 720  | 560  | 440  | -    | -    | -    | -    |
|      | 405   | 950  | 810  | 630  | 500  | -    | -    | -    | -    |
|      | 407   | 1060 | 910  | 710  | 560  | -    | -    | -    | -    |
|      | 409   | -    | 1020 | 800  | 630  | -    | -    | -    | -    |
|      | 451   | 1450 | -    | -    | -    | -    | -    | -    | -    |
|      | 453   | 1570 | 1110 | 880  | 690  | 450  | 340  | -    | -    |
|      | 455   | 1750 | 1240 | 990  | 780  | 510  | 380  | -    | -    |
|      | 457   | -    | 1390 | 1110 | 870  | 570  | 420  | -    | -    |
|      | 459   | -    | 1560 | 1250 | 980  | 640  | 480  | -    | -    |
|      | 501   | 1970 | -    | -    | -    | -    | -    | -    | -    |
|      | 503   | 2130 | 1670 | 1390 | 1090 | 760  | 560  | 440  | -    |
|      | 505   | 2500 | 1880 | 1560 | 1220 | 850  | 630  | 490  | -    |
|      | 507   | -    | 2100 | 1750 | 1370 | 950  | 710  | 550  | -    |
|      | 509   | -    | 2360 | 1960 | 1540 | 1070 | 800  | 620  | -    |
|      | 561   | 2870 | -    | -    | -    | -    | -    | -    | -    |
|      | 563   | 3170 | 2450 | 2140 | 1790 | 1230 | 980  | 690  | 550  |
|      | 565   | 3600 | 2730 | 2430 | 2000 | 1370 | 1100 | 770  | 610  |
|      | 567   | -    | 3090 | 2700 | 2250 | 1540 | 1240 | 860  | 690  |
|      | 569   | -    | -    | -    | 2520 | 1730 | 1390 | 970  | 770  |
|      | 631   | 4060 | 3470 | 2920 | -    | -    | -    | -    | -    |
|      | 633   | 4550 | 3860 | 3320 | 2790 | 1990 | 1620 | 1220 | 970  |
|      | 635   | 5100 | 4350 | 3680 | 3120 | 2230 | 1810 | 1370 | 1090 |
|      | 637   | -    | 4830 | 4140 | 3500 | 2500 | 2030 | 1530 | 1220 |
|      | 639   | -    | -    | -    | 3920 | 2800 | 2280 | 1720 | 1370 |
|      | 711   | 5920 | -    | -    | -    | -    | -    | -    | -    |
|      | 713   | 6630 | -    | -    | -    | -    | -    | -    | -    |
|      | 715   | 7430 | 5890 | 4780 | 4140 | 3110 | 2450 | 1900 | 1460 |
|      | 717   | -    | 6600 | 5370 | 4640 | 3490 | 2750 | 2130 | 1640 |
|      | 719   | -    | 7370 | 6010 | 5200 | 3910 | 3080 | 2390 | 1840 |

**Note:** - Bearing type of horizontal motors:  
 □ Grease lubricated anti-friction  
 ■ Forced feed oil lubrication sleeve bearings

## | Rated Power at 50 Hz |

### | 6.0 kV |

Unit: kW

| Type | Poles | 2P   | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|------|
| HRQ3 | 313   | 310  | -    | -    | -    | -    | -    | -    | -    |
|      | 315   | 340  | -    | -    | -    | -    | -    | -    | -    |
|      | 317   | 400  | -    | -    | -    | -    | -    | -    | -    |
|      | 355   | 630  | -    | -    | -    | -    | -    | -    | -    |
|      | 357   | 700  | -    | -    | -    | -    | -    | -    | -    |
|      | 403   | 760  | 660  | 520  | 410  | -    | -    | -    | -    |
|      | 405   | 850  | 750  | 580  | 460  | -    | -    | -    | -    |
|      | 407   | 950  | 850  | 650  | 510  | -    | -    | -    | -    |
|      | 409   | -    | 950  | 730  | 580  | -    | -    | -    | -    |
|      | 451   | 1330 | -    | -    | -    | -    | -    | -    | -    |
|      | 453   | 1440 | 1030 | 830  | 640  | 420  | 320  | -    | -    |
|      | 455   | 1600 | 1160 | 930  | 720  | 470  | 350  | -    | -    |
|      | 457   | -    | 1300 | 1040 | 810  | 530  | 400  | -    | -    |
|      | 459   | -    | 1460 | 1170 | 910  | 600  | 450  | -    | -    |
|      | 501   | 1890 | -    | -    | -    | -    | -    | -    | -    |
|      | 503   | 2050 | 1570 | 1300 | 1010 | 710  | 530  | 360  | -    |
|      | 505   | 2400 | 1760 | 1450 | 1130 | 790  | 590  | 410  | -    |
|      | 507   | -    | 1970 | 1630 | 1270 | 890  | 660  | 460  | -    |
|      | 509   | -    | 2210 | 1830 | 1430 | 1000 | 750  | 520  | -    |
|      | 561   | 2710 | -    | -    | -    | -    | -    | -    | -    |
|      | 563   | 2990 | 2390 | 2020 | 1670 | 1140 | 930  | 650  | 500  |
|      | 565   | 3400 | 2660 | 2280 | 1880 | 1280 | 1040 | 720  | 570  |
|      | 567   | -    | 3010 | 2540 | 2100 | 1430 | 1160 | 810  | 640  |
|      | 569   | -    | -    | -    | 2360 | 1610 | 1310 | 910  | 720  |
|      | 631   | 3820 | 3290 | 2750 | -    | -    | -    | -    | -    |
|      | 633   | 4280 | 3650 | 3120 | 2610 | 1860 | 1520 | 1120 | 900  |
|      | 635   | 4800 | 4130 | 3480 | 2920 | 2080 | 1700 | 1260 | 1000 |
|      | 637   | -    | 4570 | 3900 | 3270 | 2330 | 1910 | 1410 | 1120 |
|      | 639   | -    | -    | -    | 3670 | 2620 | 2140 | 1590 | 1260 |
|      | 711   | 5580 | -    | -    | -    | -    | -    | -    | -    |
|      | 713   | 6250 | -    | -    | -    | -    | -    | -    | -    |
|      | 715   | 7000 | 5560 | 4510 | 3910 | 2820 | 2310 | 1750 | 1350 |
|      | 717   | -    | 6230 | 5070 | 4380 | 3160 | 2590 | 1960 | 1510 |
|      | 719   | -    | 6960 | 5680 | 4910 | 3540 | 2910 | 2200 | 1700 |

**Note:** - Bearing type of horizontal motors:  
■ Grease lubricated anti-friction  
■ Forced feed oil lubrication sleeve bearings



## | Rated Power at 60 Hz |

## | 3.3 kV |

Unit: kW

| Type | Poles | 2P   | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|------|
| HRQ3 | 313   | 430  | -    | -    | -    | -    | -    | -    | -    |
|      | 315   | 480  | -    | -    | -    | -    | -    | -    | -    |
|      | 317   | 560  | -    | -    | -    | -    | -    | -    | -    |
|      | 355   | 900  | -    | -    | -    | -    | -    | -    | -    |
|      | 357   | 1000 | -    | -    | -    | -    | -    | -    | -    |
|      | 403   | 1030 | 890  | 690  | 530  | -    | -    | -    | -    |
|      | 405   | 1150 | 1000 | 770  | 590  | -    | -    | -    | -    |
|      | 407   | 1280 | 1110 | 860  | 660  | -    | -    | -    | -    |
|      | 409   | -    | 1230 | 970  | 750  | -    | -    | -    | -    |
|      | 451   | 1750 | -    | -    | -    | -    | -    | -    | -    |
|      | 453   | 1890 | 1330 | 1060 | 830  | 540  | 410  | -    | -    |
|      | 455   | 2100 | 1490 | 1190 | 940  | 610  | 460  | -    | -    |
|      | 457   | -    | 1660 | 1330 | 1050 | 680  | 510  | -    | -    |
|      | 459   | -    | 1870 | 1500 | 1180 | 770  | 580  | -    | -    |
|      | 501   | 2360 | -    | -    | -    | -    | -    | -    | -    |
|      | 503   | 2560 | 2010 | 1670 | 1300 | 910  | 680  | 530  | -    |
|      | 505   | 3000 | 2250 | 1870 | 1460 | 1020 | 760  | 590  | -    |
|      | 507   | -    | 2520 | 2090 | 1640 | 1150 | 850  | 660  | -    |
|      | 509   | -    | 2830 | 2350 | 1840 | 1290 | 960  | 750  | -    |
|      | 561   | 3420 | -    | -    | -    | -    | -    | -    | -    |
|      | 563   | 3780 | 2950 | 2420 | 2150 | 1470 | 1190 | 830  | 660  |
|      | 565   | 4300 | 3290 | 2750 | 2410 | 1650 | 1330 | 930  | 740  |
|      | 567   | -    | 3720 | 3060 | 2700 | 1840 | 1500 | 1040 | 830  |
|      | 569   | -    | -    | -    | 3030 | 2070 | 1680 | 1170 | 930  |
|      | 631   | 4780 | 4170 | 3300 | -    | -    | -    | -    | -    |
|      | 633   | 5360 | 4640 | 3750 | 3350 | 2390 | 1950 | 1470 | 1170 |
|      | 635   | 6000 | 5230 | 4160 | 3760 | 2680 | 2190 | 1650 | 1310 |
|      | 637   | -    | 5800 | 4690 | 4210 | 3000 | 2450 | 1840 | 1470 |
|      | 639   | -    | -    | -    | 4720 | 3370 | 2750 | 2070 | 1650 |
|      | 711   | 6850 | -    | -    | -    | -    | -    | -    | -    |
|      | 713   | 7670 | -    | -    | -    | -    | -    | -    | -    |
|      | 715   | 8570 | 6780 | 5500 | 4770 | 3580 | 3020 | 2280 | 1760 |
|      | 717   | -    | 7590 | 6180 | 5340 | 4010 | 3390 | 2560 | 1970 |
|      | 719   | -    | 8480 | 6920 | 5990 | 4500 | 3800 | 2870 | 2210 |

**Note:** - Bearing type of horizontal motors:  
 □ Grease lubricated anti-friction  
 ■ Forced feed oil lubrication sleeve bearings

## | Rated Power at 60 Hz |

| 4.16 kV |

Unit: kW

| Type | Poles | 2P   | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|------|
| HRQ3 | 313   | 390  | -    | -    | -    | -    | -    | -    | -    |
|      | 315   | 430  | -    | -    | -    | -    | -    | -    | -    |
|      | 317   | 500  | -    | -    | -    | -    | -    | -    | -    |
|      | 355   | 810  | -    | -    | -    | -    | -    | -    | -    |
|      | 357   | 900  | -    | -    | -    | -    | -    | -    | -    |
|      | 403   | 920  | 860  | 660  | 510  | -    | -    | -    | -    |
|      | 405   | 1030 | 956  | 740  | 580  | -    | -    | -    | -    |
|      | 407   | 1150 | 1070 | 830  | 650  | -    | -    | -    | -    |
|      | 409   | -    | 1190 | 935  | 730  | -    | -    | -    | -    |
|      | 451   | 1580 | -    | -    | -    | -    | -    | -    | -    |
|      | 453   | 1710 | 1285 | 1025 | 800  | 530  | 390  | -    | -    |
|      | 455   | 1900 | 1440 | 1150 | 900  | 590  | 430  | -    | -    |
|      | 457   | -    | 1610 | 1290 | 1000 | 660  | 490  | -    | -    |
|      | 459   | -    | 1810 | 1450 | 1130 | 750  | 550  | -    | -    |
|      | 501   | 2210 | -    | -    | -    | -    | -    | -    | -    |
|      | 503   | 2390 | 1945 | 1615 | 1270 | 880  | 660  | 490  | -    |
|      | 505   | 2800 | 2180 | 1810 | 1420 | 980  | 740  | 550  | -    |
|      | 507   | -    | 2440 | 2025 | 1590 | 1100 | 830  | 620  | -    |
|      | 509   | -    | 2740 | 2275 | 1790 | 1240 | 930  | 700  | -    |
|      | 561   | 3190 | -    | -    | -    | -    | -    | -    | -    |
|      | 563   | 3520 | 2850 | 2490 | 2080 | 1430 | 1150 | 810  | 640  |
|      | 565   | 4000 | 3180 | 2820 | 2330 | 1600 | 1290 | 910  | 720  |
|      | 567   | -    | 3600 | 3140 | 2610 | 1790 | 1440 | 1020 | 810  |
|      | 569   | -    | -    | -    | 2930 | 2010 | 1620 | 1150 | 910  |
|      | 631   | 4460 | 4030 | 3400 | -    | -    | -    | -    | -    |
|      | 633   | 5000 | 4490 | 3850 | 3240 | 2320 | 1890 | 1430 | 1130 |
|      | 635   | 5600 | 5060 | 4280 | 3630 | 2590 | 2120 | 1600 | 1270 |
|      | 637   | -    | 5610 | 4820 | 4070 | 2910 | 2370 | 1790 | 1420 |
|      | 639   | -    | -    | -    | 4560 | 3260 | 2660 | 2010 | 1600 |
|      | 711   | 6400 | -    | -    | -    | -    | -    | -    | -    |
|      | 713   | 7160 | -    | -    | -    | -    | -    | -    | -    |
|      | 715   | 8000 | 6590 | 5340 | 4630 | 3480 | 2880 | 2180 | 1680 |
|      | 717   | -    | 7380 | 6000 | 5180 | 3900 | 3230 | 2440 | 1880 |
|      | 719   | -    | 8240 | 6720 | 5810 | 4375 | 3620 | 2740 | 2110 |

**Note:** - Bearing type of horizontal motors:  
☐ Grease lubricated anti-friction  
☒ Forced feed oil lubrication sleeve bearings

## | Rated Power at 60 Hz |

## | 6.6 kV |

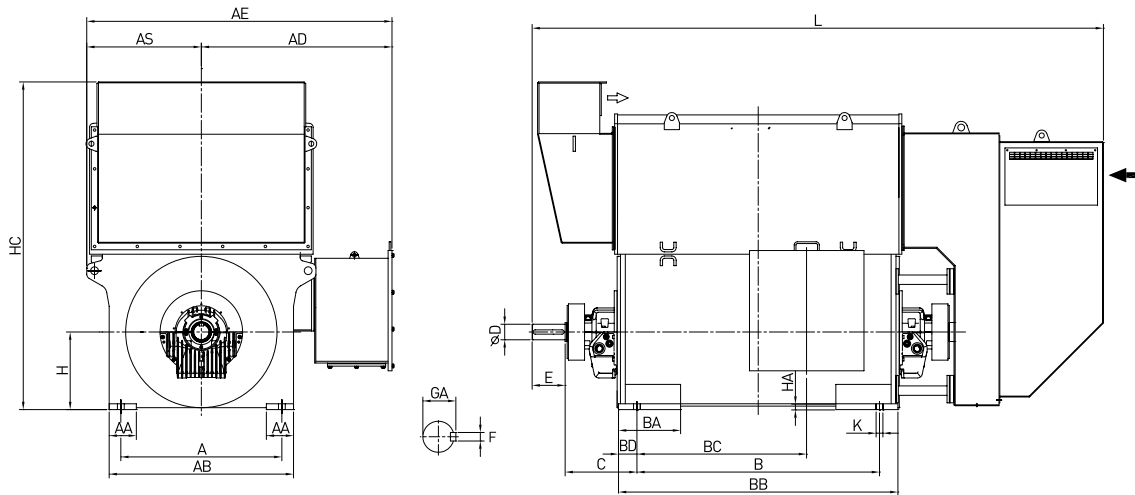
Unit: kW

| Type | Poles | 2P   | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|------|
| HRQ3 | 313   | 390  | -    | -    | -    | -    | -    | -    | -    |
|      | 315   | 430  | -    | -    | -    | -    | -    | -    | -    |
|      | 317   | 500  | -    | -    | -    | -    | -    | -    | -    |
|      | 355   | 810  | -    | -    | -    | -    | -    | -    | -    |
|      | 357   | 900  | -    | -    | -    | -    | -    | -    | -    |
|      | 403   | 920  | 830  | 630  | 490  | -    | -    | -    | -    |
|      | 405   | 1030 | 930  | 710  | 550  | -    | -    | -    | -    |
|      | 407   | 1150 | 1030 | 800  | 620  | -    | -    | -    | -    |
|      | 409   | -    | 1150 | 900  | 700  | -    | -    | -    | -    |
|      | 451   | 1580 | -    | -    | -    | -    | -    | -    | -    |
|      | 453   | 1710 | 1240 | 990  | 780  | 510  | 380  | -    | -    |
|      | 455   | 1900 | 1390 | 1110 | 870  | 570  | 430  | -    | -    |
|      | 457   | -    | 1560 | 1250 | 980  | 640  | 480  | -    | -    |
|      | 459   | -    | 1750 | 1400 | 1100 | 720  | 540  | -    | -    |
|      | 501   | 2210 | -    | -    | -    | -    | -    | -    | -    |
|      | 503   | 2390 | 1880 | 1560 | 1230 | 850  | 640  | 440  | -    |
|      | 505   | 2800 | 2110 | 1750 | 1370 | 950  | 710  | 500  | -    |
|      | 507   | -    | 2360 | 1960 | 1540 | 1070 | 800  | 560  | -    |
|      | 509   | -    | 2650 | 2200 | 1730 | 1200 | 900  | 630  | -    |
|      | 561   | 3190 | -    | -    | -    | -    | -    | -    | -    |
|      | 563   | 3520 | 2840 | 2420 | 2010 | 1380 | 1110 | 780  | 610  |
|      | 565   | 4000 | 3160 | 2750 | 2250 | 1540 | 1250 | 870  | 690  |
|      | 567   | -    | 3580 | 3060 | 2520 | 1730 | 1400 | 980  | 770  |
|      | 569   | -    | -    | -    | 2830 | 1940 | 1570 | 1100 | 870  |
|      | 631   | 4460 | 3900 | 3300 | -    | -    | -    | -    | -    |
|      | 633   | 5000 | 4340 | 3750 | 3130 | 2240 | 1820 | 1350 | 1080 |
|      | 635   | 5600 | 4890 | 4160 | 3510 | 2510 | 2040 | 1520 | 1210 |
|      | 637   | -    | 5420 | 4690 | 3930 | 2810 | 2290 | 1700 | 1350 |
|      | 639   | -    | -    | -    | 4410 | 3150 | 2570 | 1910 | 1520 |
|      | 711   | 6400 | -    | -    | -    | -    | -    | -    | -    |
|      | 713   | 7160 | -    | -    | -    | -    | -    | -    | -    |
|      | 715   | 8000 | 6400 | 5190 | 4500 | 3380 | 2790 | 2110 | 1620 |
|      | 717   | -    | 7160 | 5830 | 5040 | 3790 | 3120 | 2360 | 1820 |
|      | 719   | -    | 8000 | 6530 | 5650 | 4250 | 3500 | 2650 | 2040 |

**Note:** - Bearing type of horizontal motors:  
 □ Grease lubricated anti-friction  
 ■ Forced feed oil lubrication sleeve bearings

## | HRQ3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A   | AA  | AB   | AD   | AE   | AS  | B             | BA  | BB            | BC  | BD  | C           |
|------|-----|-------|-----|-----|------|------|------|-----|---------------|-----|---------------|-----|-----|-------------|
| HRQ3 | 313 | 2     | 690 | 130 | 820  | 885  | 1410 | 525 | 1000          | 280 | 1240          | 720 | 120 | 280         |
|      | 315 | 2     |     |     |      |      |      |     |               |     |               |     |     |             |
|      | 317 | 2     |     |     |      |      |      |     |               |     |               |     |     |             |
|      | 355 | 2     | 830 | 140 | 950  | 950  | 1540 | 590 | 1120<br>*1120 | 320 | 1450<br>*1450 | 780 | 165 | 375<br>*375 |
|      | 357 | 2     |     |     |      |      |      |     | **1120        |     | **1450        |     |     | **475       |
|      | 403 | 2     | 870 | 150 | 1030 | 1155 | 1810 | 655 | 1250          | 320 | 1550          | 875 | 150 | 400         |
|      | 405 | 2     |     |     |      |      |      |     | *1250         |     | *1550         |     |     | *400        |
|      | 407 | 2     |     |     |      |      |      |     | **1370        |     | **1670        |     |     | **400       |

Unit: mm

| Type |     | Poles | H   | HA | HC   | L             | K     | D         | E           | F         | GA        | Weight (kg) |
|------|-----|-------|-----|----|------|---------------|-------|-----------|-------------|-----------|-----------|-------------|
| HRQ3 | 313 | 2     | 315 | 30 | 1350 | 2410          | 38-48 | 80        | 140         | 22        | 85        | 2450        |
|      | 315 | 2     |     |    |      |               | Slot  |           |             |           |           | 2550        |
|      | 317 | 2     |     |    |      |               |       |           |             |           |           | 2700        |
|      | 355 | 2     | 355 | 30 | 1700 | 2900<br>*2900 | 38-48 | 90<br>*90 | 170<br>*170 | 25<br>*25 | 95<br>*95 | 3300        |
|      | 357 | 2     |     |    |      | **2900        | Slot  | **90      | **170       | **25      | **95      | 3500        |
|      | 403 | 2     | 400 | 35 | 1720 | 3150          | 38-48 | 110       | 210         | 28        | 116       | 4800        |
|      | 405 | 2     |     |    |      | *3000         | Slot  | *90       | *170        | *25       | *95       | 5000        |
|      | 407 | 2     |     |    |      | **3150        |       | **90      | **170       | **25      | **95      | 5200        |

#### Note

- Suffix "-B" denotes for V-belt drive.
- Tolerance on "D" and "DA" dimension will be m6.
- The bores of the transmission elements should be made to an ISO fit H6.
- The dimensions printed in bold face in the table to IEC : A, B, C, D, E, F, GA, H, K are certified.
- Type of bearings.
  - Greased lubricated anti-friction
  - Forced feed oil lubrication sleeve bearings
  - \* : Self cooled sleeve bearing dimension (60 Hz)
  - \*\* : Self cooled sleeve bearing dimension (50 Hz)

6. The following tolerances are applicable to dimensions A, B, and H.

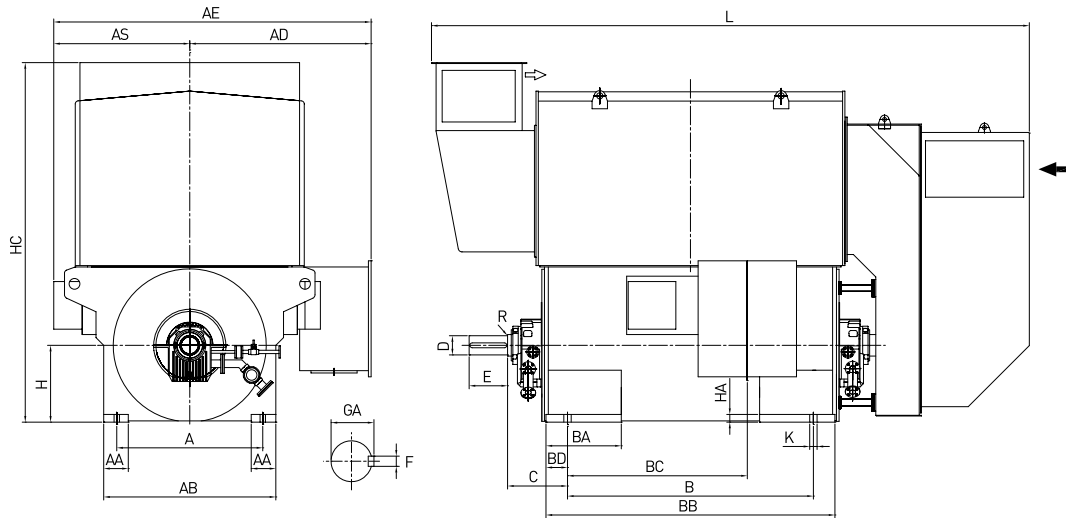
| Dimensions | Tolerance (mm)            |
|------------|---------------------------|
| A and B    | Over 500 up to 750 ±1.5   |
|            | Over 750 upto 1,000 ±1.5  |
|            | Over 1,000 ±1.5           |
| H          | Over 250 up to 600 -1.0   |
|            | Over 600 up to 1,000 -1.5 |

7. "R" dimension of the shaft extension part is as follows.

| Shaft Diameter (mm) | R (mm) |
|---------------------|--------|
| 50-80               | 1.6    |
| 85-120              | 2.5    |
| 130-190             | 4.0    |

## | HRQ3 |

## Mounting B3 / Degree of protection IP54



Unit: mm

| Type |     | Poles | A   | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD   | C    |      |      |      |     |      |
|------|-----|-------|-----|-----|------|------|------|-----|------|-----|------|------|------|------|------|------|------|-----|------|
| HRQ3 | 451 | 2     | 850 | 150 | 1000 | 1180 | 1920 | 740 | 1400 | 450 | 1790 | 1050 | 195  | 450  |      |      |      |     |      |
|      | 453 | 2     |     |     |      |      |      |     |      |     |      |      |      |      |      |      |      |     | *530 |
|      | 455 | 2     |     |     |      |      |      |     |      |     |      |      |      | 1400 | 450  | 1860 | 1080 | 230 | 480  |
|      |     |       |     |     |      |      |      |     |      |     |      |      |      | *560 |      |      |      |     |      |
|      | 501 | 2     | 950 | 160 | 1120 | 1280 | 2130 | 850 | 1600 | 490 | 1880 | 1170 | 140  | 390  |      |      |      |     |      |
|      | 503 | 2     |     |     |      |      |      |     |      |     |      |      |      |      |      |      |      |     | *475 |
| 505  | 2   |       |     |     |      |      |      |     |      |     |      |      | 1600 | 490  | 1990 | 1230 | 195  | 460 |      |
|      |     |       |     |     |      |      |      |     |      |     |      |      |      | *530 |      |      |      |     |      |

Unit: mm

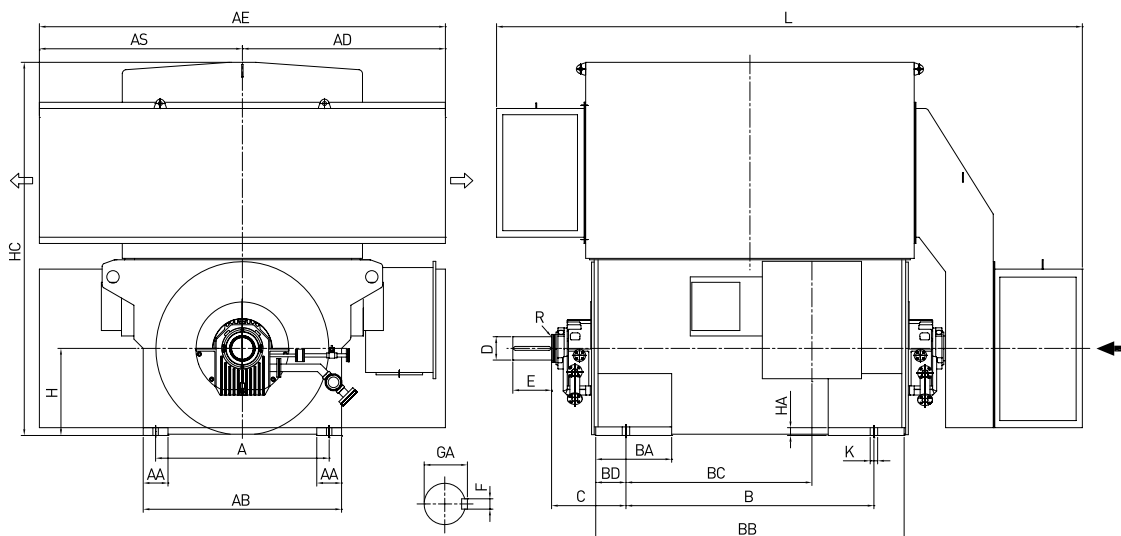
| Type |     | Poles | H   | HA | HC   | L      | K  | D     | E     | F    | GA    | Weight [kg] |
|------|-----|-------|-----|----|------|--------|----|-------|-------|------|-------|-------------|
| HRQ3 | 451 | 2     | 450 | 45 | 1950 | 3410   | 35 | 110   | 210   | 28   | 116   | 6500        |
|      | 453 | 2     |     |    |      | * 3455 |    | * 90  | * 170 | * 25 | * 95  | 6800        |
|      | 455 | 2     |     |    |      | 3480   |    |       |       |      |       | 7200        |
|      |     |       |     |    |      | * 3525 |    |       |       |      |       |             |
|      | 501 | 2     | 500 | 45 | 2340 | 3890   | 48 | 125   | 250   | 32   | 132   | 8300        |
|      | 503 | 2     |     |    |      | * 3455 |    | * 100 | * 210 | * 28 | * 106 | 8800        |
|      | 505 | 2     |     |    |      | 4000   |    |       |       |      |       | 9100        |
|      |     |       |     |    |      | * 3525 |    |       |       |      |       |             |

**Note:** - For the bearing type and tolerances of dimensions, see page 26.

\* : Self cooled sleeve bearing dimension

## | HRQ3 |

**Mounting B3 / Degree of protection IP54**



Unit: mm

| Type |     | Poles | A    | AA  | AB   | AD   | AE   | AS   | B    | BA  | BB   | BC   | BD  | C    |     |      |      |     |
|------|-----|-------|------|-----|------|------|------|------|------|-----|------|------|-----|------|-----|------|------|-----|
| HRQ3 | 561 | 2     | 1120 | 160 | 1280 | 1330 | 2530 | 1200 | 1600 | 490 | 1990 | 1200 | 195 | 500  |     |      |      |     |
|      | 563 | 2     |      |     |      |      |      |      |      |     |      |      |     |      |     |      |      |     |
|      | 565 | 2     |      |     |      |      |      |      |      |     |      |      |     | 1800 | 490 | 2140 | 1300 | 170 |
|      | 631 | 2     | 1250 | 190 | 1420 | 1400 | 2620 | 1220 | 1800 | 540 | 2220 | 1350 | 210 | 510  |     |      |      |     |
|      | 633 | 2     |      |     |      |      |      |      |      |     |      |      |     |      |     |      |      |     |
|      | 635 | 2     |      |     |      |      |      |      |      |     |      |      |     | 2000 | 540 | 2320 | 1500 | 160 |

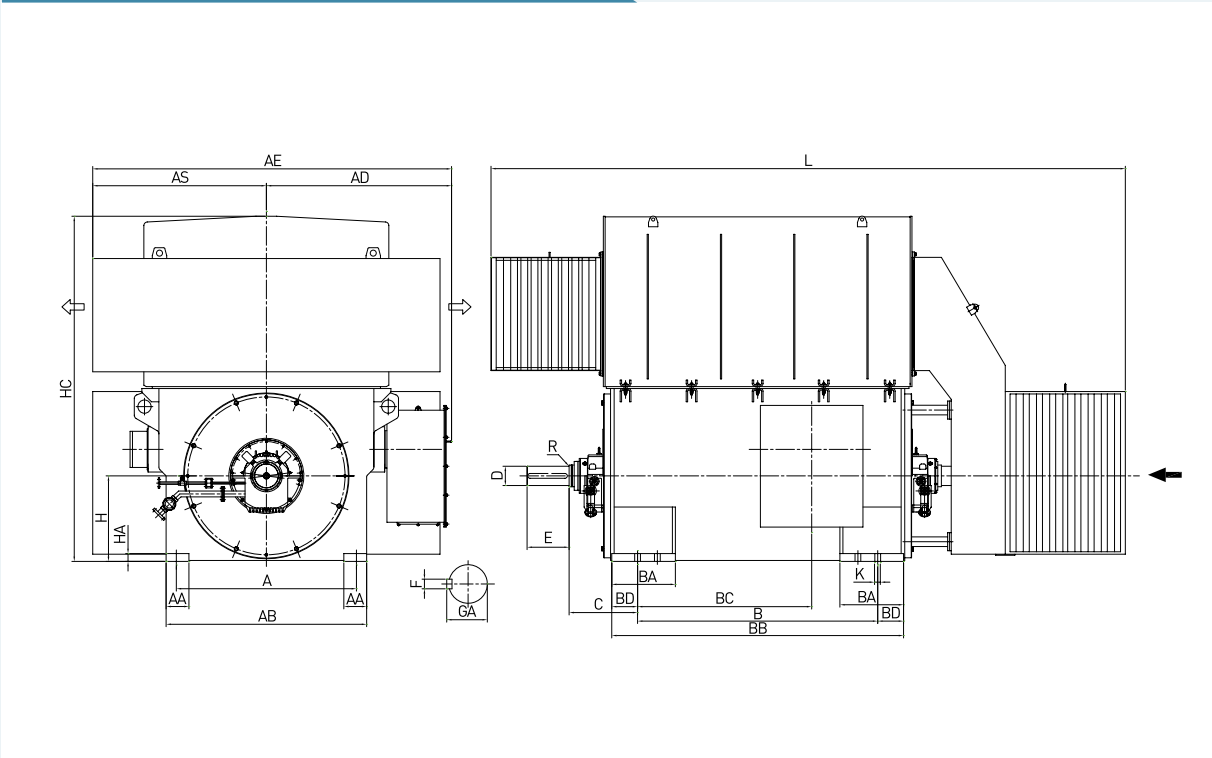
Unit: mm

| Type |     | Poles | H   | HA | HC   | L     | K  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|-----|----|------|-------|----|-----|-----|----|-----|-------------|
| HRQ3 | 561 | 2     | 560 | 50 | 2410 | 3810  | 48 | 150 | 250 | 36 | 158 | 10900       |
|      | 563 | 2     |     |    |      | 11500 |    |     |     |    |     |             |
|      | 565 | 2     |     |    |      | 3930  |    |     |     |    |     | 12200       |
|      | 631 | 2     | 630 | 65 | 2530 | 4610  | 48 | 160 | 300 | 40 | 169 | 15300       |
|      | 633 | 2     |     |    |      | 16000 |    |     |     |    |     |             |
|      | 635 | 2     |     |    |      | 4710  |    |     |     |    |     | 16900       |

**Note:** For the bearing type and tolerances of dimensions, see page 26.

| HRQ3 |

Mounting B3 / Degree of Protection IP54



Unit: mm

| Type | Poles    | A    | AA  | AB   | AD   | AE   | AS   | B    | BA  | BB   | BC   | BD  | C   |
|------|----------|------|-----|------|------|------|------|------|-----|------|------|-----|-----|
| HRQ3 | 711<br>2 | 1500 | 190 | 1670 | 1700 | 3145 | 1445 | 2000 | 515 | 2350 | 1450 | 175 | 510 |
|      | 713<br>2 |      |     |      |      |      |      | 2000 | 530 | 2430 | 1450 | 215 | 570 |
|      | 715<br>2 |      |     |      |      |      |      |      |     |      |      |     |     |

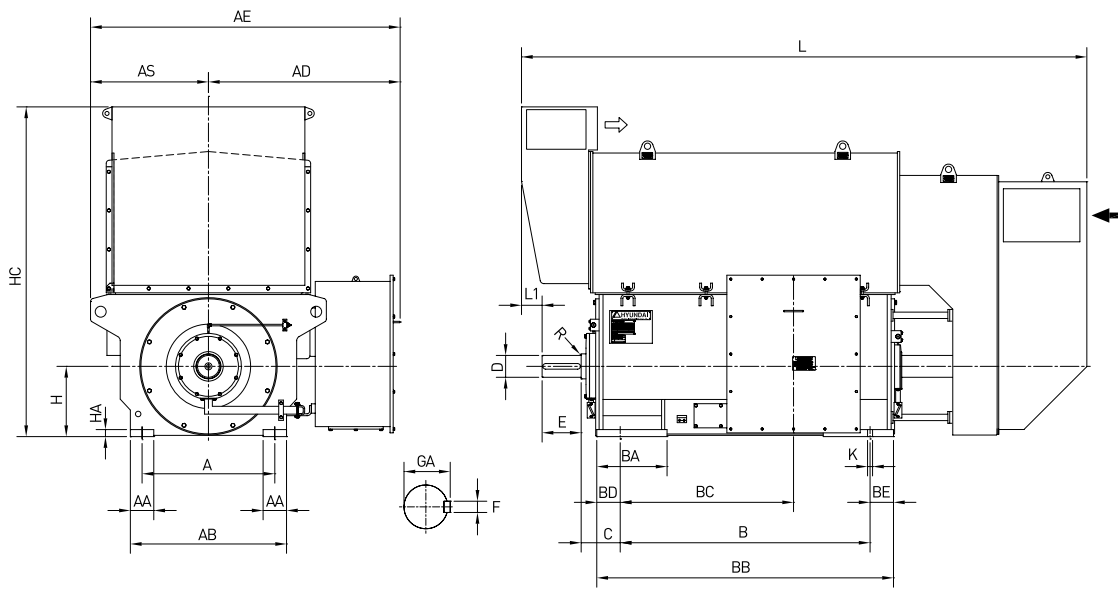
Unit: mm

| Type | Poles    | H   | HA | HC   | L    | K  | D   | E   | F  | GA  | Weight (kg) |
|------|----------|-----|----|------|------|----|-----|-----|----|-----|-------------|
| HRQ3 | 711<br>2 | 710 | 65 | 2865 | 5210 | 48 | 160 | 350 | 40 | 169 | 21200       |
|      | 713<br>2 |     |    |      |      |    |     |     |    |     | 21900       |
|      | 715<br>2 |     |    |      | 5290 |    |     |     |    |     | 22500       |

**Note:** For the bearing type and tolerances of dimensions, see page 26.

## | HRQ3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A   | AA  | AB  | AD   | AE   | AS   | B    | BA   | BB   | BC  | BD  | BE  |
|------|-----|-------|-----|-----|-----|------|------|------|------|------|------|-----|-----|-----|
| HRQ3 | 403 | 4     | 830 | 140 | 950 | 1120 | 1790 | 670  | 1120 | 275  | 1420 | 760 | 177 | 123 |
|      |     | 6-8   |     |     |     |      |      |      | 1120 |      | 1420 | 760 |     | 123 |
|      | 405 | 4     |     |     |     |      |      | 1120 |      | 1420 | 760  | 123 |     |     |
|      |     | 6-8   |     |     |     |      |      | 1120 |      | 1420 | 760  | 123 |     |     |
|      | 407 | 4     |     |     |     |      |      | 1250 |      | 1565 | 905  | 138 |     |     |
|      |     | 6-8   |     |     |     |      |      | 1250 |      | 1565 | 905  | 138 |     |     |
|      | 409 | 4     |     |     |     |      |      | 1250 |      | 1565 | 905  | 138 |     |     |
|      |     | 6-8   |     |     |     |      |      | 1250 |      | 1565 | 905  | 138 |     |     |

Unit: mm

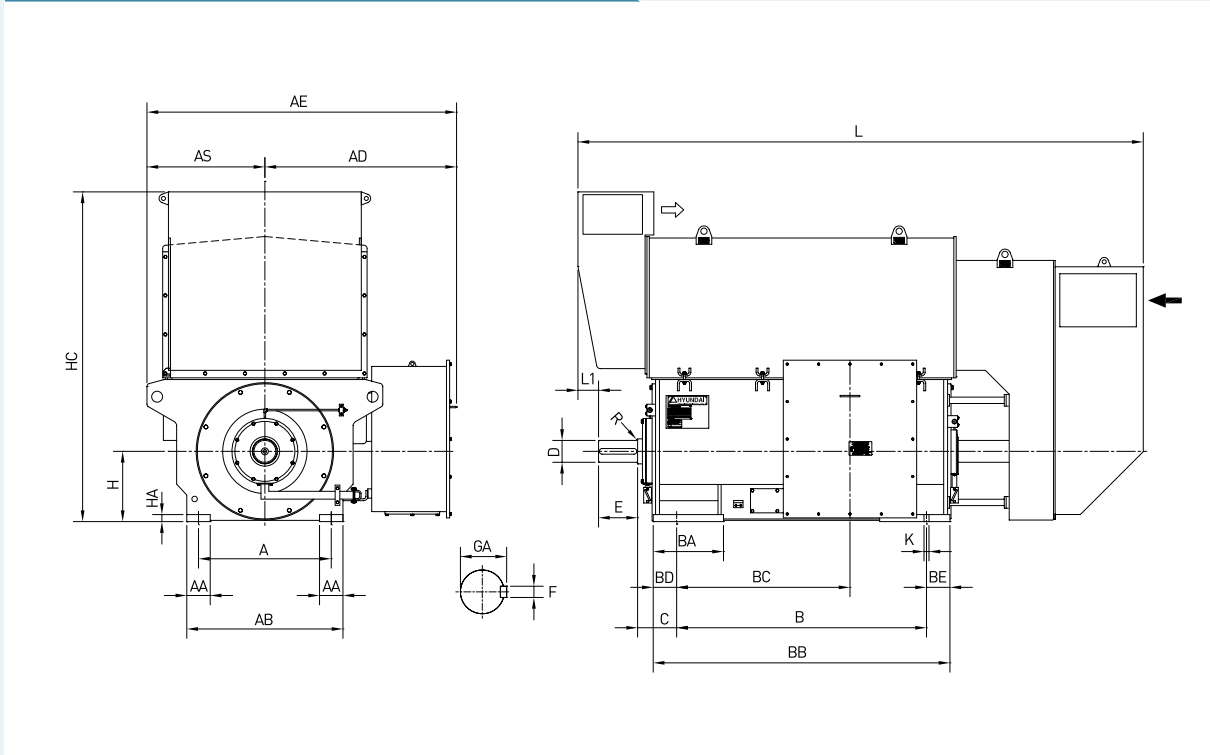
| Type |     | Poles | C   | H   | HA | HC   | K    | L    | L1  | D   | E   | F   | GA   | Weight (kg) |
|------|-----|-------|-----|-----|----|------|------|------|-----|-----|-----|-----|------|-------------|
| HRQ3 | 403 | 4     | 270 | 400 | 30 | 1720 | 35   | 2750 | 87  | 110 | 210 | 28  | 116  | 4100        |
|      |     | 6-8   |     |     |    |      |      |      |     |     |     |     |      |             |
|      | 405 | 4     |     |     |    |      | 2750 |      | 110 | 210 | 28  | 116 | 4230 |             |
|      |     | 6-8   |     |     |    |      | 2750 |      | 110 | 210 | 28  | 116 | 4260 |             |
|      | 407 | 4     |     |     |    |      | 2890 |      | 120 | 210 | 32  | 127 | 4530 |             |
|      |     | 6-8   |     |     |    |      | 2890 |      | 120 | 210 | 32  | 127 | 4570 |             |
|      | 409 | 4     |     |     |    |      | 2890 |      | 120 | 210 | 32  | 127 | 4710 |             |
|      |     | 6-8   |     |     |    |      | 2890 |      | 120 | 210 | 32  | 127 | 4740 |             |

**Note:** For the bearing type and tolerances of dimensions, see page 26.



## | HRQ3 |

## Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A   | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|-------|-----|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRQ3 | 453 | 4 - 6 | 850 | 150 | 1000 | 1180 | 1935 | 755 | 1400 | 450 | 1700 | 910  | 150 | 150 |
|      | 455 | 4 - 6 |     |     |      |      |      |     | 1400 |     | 1700 | 910  |     |     |
|      | 457 | 4 - 6 |     |     |      |      |      |     | 1600 |     | 1900 | 1110 |     |     |
|      | 459 | 4 - 6 |     |     |      |      |      |     | 1600 |     | 1900 | 1110 |     |     |

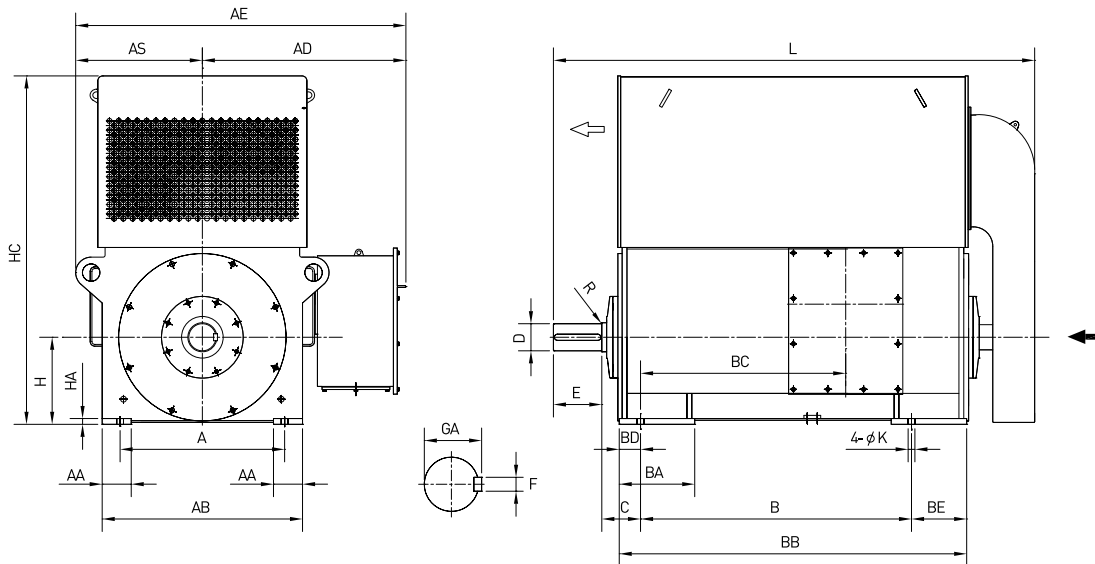
Unit: mm

| Type |     | Poles | C    | H   | HA  | HC   | K   | L    | L1  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|------|-----|-----|------|-----|------|-----|-----|-----|----|-----|-------------|
| HRQ3 | 453 | 4     | 250  | 450 | 45  | 1945 | 35  | 3200 | 140 | 130 | 250 | 32 | 137 | 6900        |
|      |     | 6     |      |     |     |      |     | 3200 |     | 130 | 250 | 32 | 137 | 6850        |
|      | 455 | 4     | 3200 | 130 | 250 | 32   | 137 | 7050 |     |     |     |    |     |             |
|      |     | 6     | 3200 | 130 | 250 | 32   | 137 | 7050 |     |     |     |    |     |             |
|      | 457 | 4     | 3400 | 140 | 250 | 36   | 148 | 7600 |     |     |     |    |     |             |
|      |     | 6     | 3400 | 140 | 250 | 36   | 148 | 7600 |     |     |     |    |     |             |
|      | 459 | 4     | 3400 | 140 | 250 | 36   | 148 | 7800 |     |     |     |    |     |             |
|      |     | 6     | 3400 | 140 | 250 | 36   | 148 | 7850 |     |     |     |    |     |             |

**Note:** For the bearing type and tolerances of dimensions, see page 26.

## | HRQ3 |

### Mounting B3 / Degree of Protection IP54



Unit : mm

| Type |     | Poles  | A   | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|--------|-----|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRQ3 | 453 | 8 - 16 | 850 | 160 | 1035 | 1110 | 1695 | 585 | 1250 | 390 | 1635 | 885  | 110 | 275 |
|      | 455 | 8 - 16 |     |     |      |      |      |     | 1250 |     | 1635 | 885  |     | 275 |
|      | 457 | 8 - 16 |     |     |      |      |      |     | 1400 |     | 1795 | 1045 |     | 285 |
|      | 459 | 8 - 16 |     |     |      |      |      |     | 1400 |     | 1795 | 1045 |     | 285 |

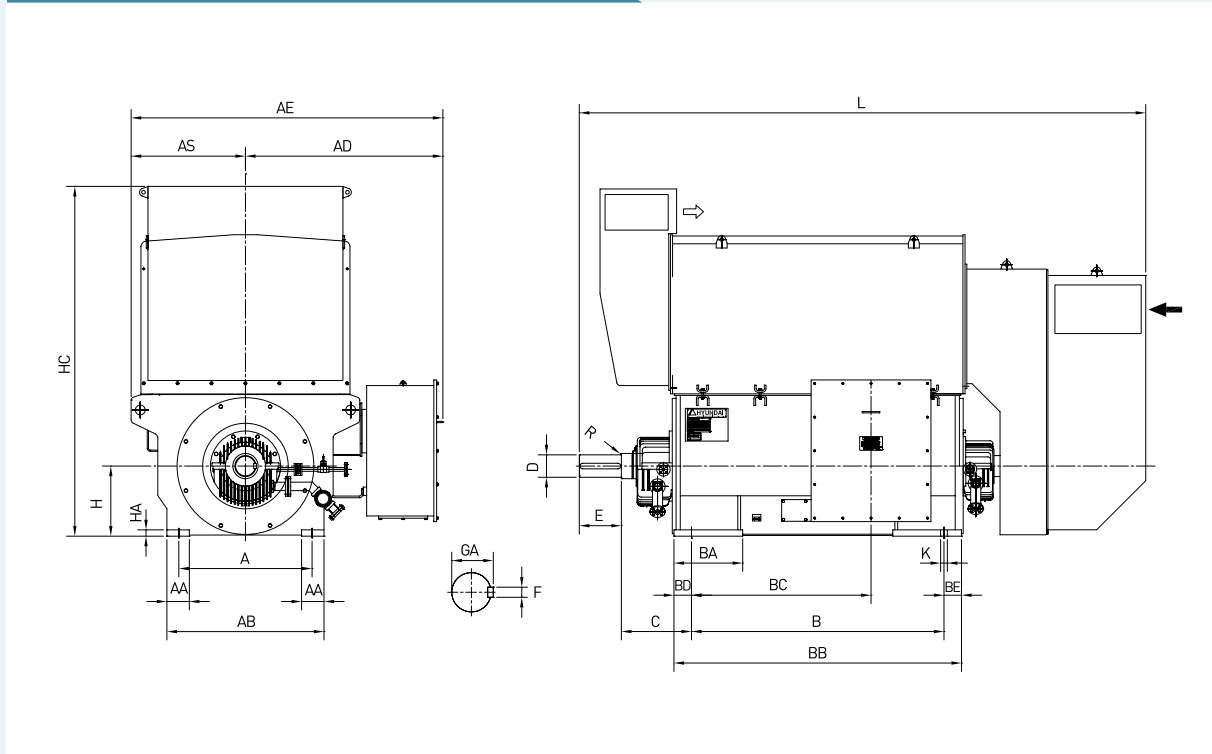
Unit : mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|-----|-----|----|------|----|------|-----|-----|----|-----|-------------|
| HRQ3 | 453 | 8-16  | 200 | 450 | 30 | 1820 | 35 | 2430 | 130 | 250 | 32 | 137 | 5000        |
|      | 455 | 8-16  |     |     |    |      |    | 2430 | 130 | 250 | 32 | 137 | 5100        |
|      | 457 | 8-16  |     |     |    |      |    | 2600 | 140 | 250 | 36 | 148 | 5600        |
|      | 459 | 8-16  |     |     |    |      |    | 2600 | 140 | 250 | 36 | 148 | 5850        |

**Note:** For the bearing type and tolerances of dimensions, see page 26.

## | HRQ3 |

## Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A   | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|-------|-----|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRQ3 | 503 | 4     | 950 | 160 | 1120 | 1240 | 2055 | 815 | 1600 | 490 | 1850 | 1080 | 125 | 125 |
|      | 505 | 4     |     |     |      |      |      |     | 1600 |     | 1850 | 1080 |     |     |
|      | 507 | 4     |     |     |      |      |      |     | 1800 |     | 2050 | 1280 |     |     |
|      | 509 | 4     |     |     |      |      |      |     | 1800 |     | 2050 | 1280 |     |     |

Unit: mm

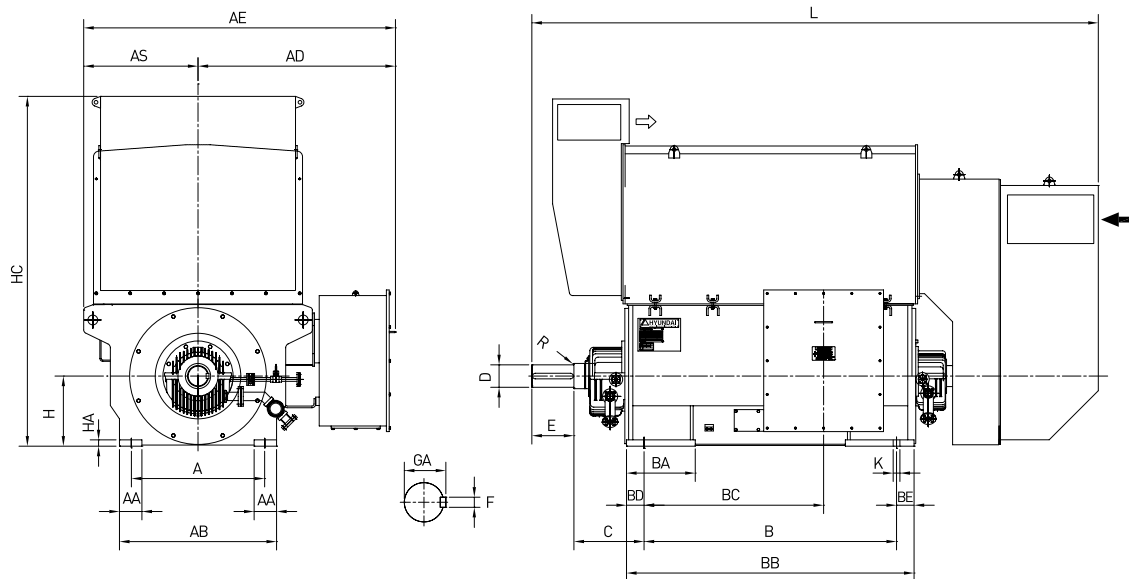
| Type |     | Poles | C   | H   | HA | HC   | K  | L      | D     | E     | F    | GA    | Weight (kg) |
|------|-----|-------|-----|-----|----|------|----|--------|-------|-------|------|-------|-------------|
| HRQ3 | 503 | 4     | 500 | 500 | 45 | 2500 | 48 | 3640   | 150   | 250   | 36   | 158   | 9200        |
|      | 505 | 4     |     |     |    |      |    |        | * 140 |       |      | * 148 | 9450        |
|      | 507 | 4     |     |     |    |      |    | 3890   | 160   | 300   | 40   | 169   | 10150       |
|      | 509 | 4     |     |     |    |      |    | * 3840 | * 150 | * 250 | * 36 | * 158 | 10500       |

**Note:** - For the bearing type and tolerances of dimensions, see page 26.

\* : Self cooled sleeve bearing dimension

## | HRQ3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type | Poles | A | AA  | AB  | AD   | AE   | AS   | B   | BA  | BB   | BC   | BD  | BE  |
|------|-------|---|-----|-----|------|------|------|-----|-----|------|------|-----|-----|
| HRQ3 | 503   | 6 | 950 | 160 | 1120 | 1240 | 2055 | 815 | 490 | 1850 | 1080 | 125 | 125 |
|      | 505   | 6 |     |     |      |      |      |     |     |      |      |     |     |
|      | 507   | 6 |     |     |      |      |      |     |     |      |      |     |     |
|      | 509   | 6 |     |     |      |      |      |     |     |      |      |     |     |

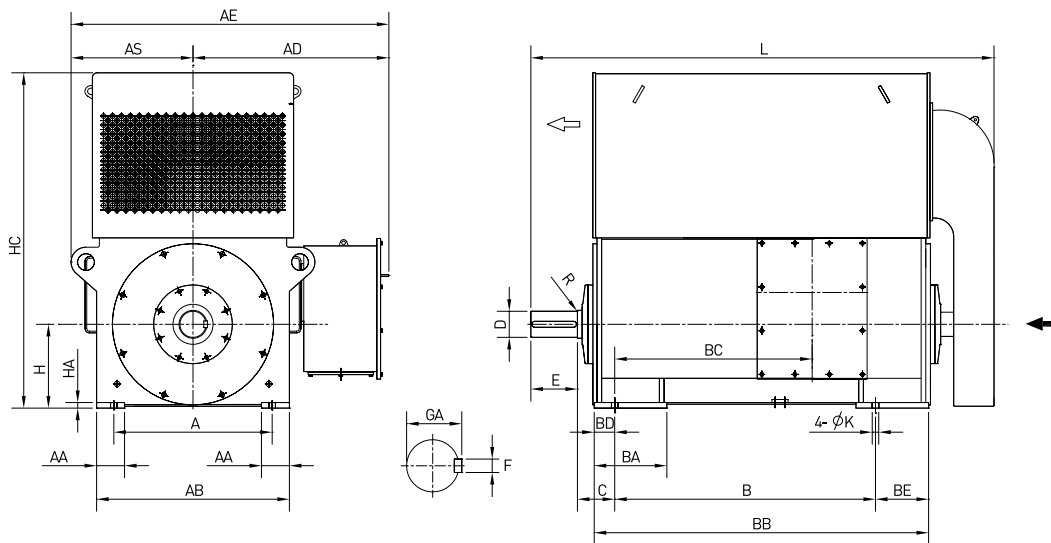
Unit: mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | L1  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|-----|-----|----|------|----|------|-----|-----|-----|----|-----|-------------|
| HRQ3 | 503 | 6     | 250 | 500 | 45 | 2500 | 48 | 3520 | 240 | 150 | 250 | 36 | 158 | 8850        |
|      | 505 | 6     |     |     |    |      |    | 3520 |     | 150 | 250 | 36 | 158 | 9100        |
|      | 507 | 6     |     |     |    |      |    | 3720 | 190 | 160 | 300 | 40 | 169 | 9800        |
|      | 509 | 6     |     |     |    |      |    | 3720 |     | 160 | 300 | 40 | 169 | 10150       |

**Note:** For the bearing type and tolerances of dimensions, see page 26.

## | HRQ3 |

## Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles  | A   | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|--------|-----|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRQ3 | 503 | 8 - 16 | 950 | 180 | 1155 | 1190 | 1930 | 740 | 1400 | 345 | 1755 | 980  | 135 | 220 |
|      | 505 | 8 - 16 |     |     |      |      |      |     | 1400 |     | 1755 | 980  |     | 220 |
|      | 507 | 8 - 16 |     |     |      |      |      |     | 1600 |     | 1945 | 1170 |     | 210 |
|      | 509 | 8 - 16 |     |     |      |      |      |     | 1600 |     | 1945 | 1170 |     | 210 |

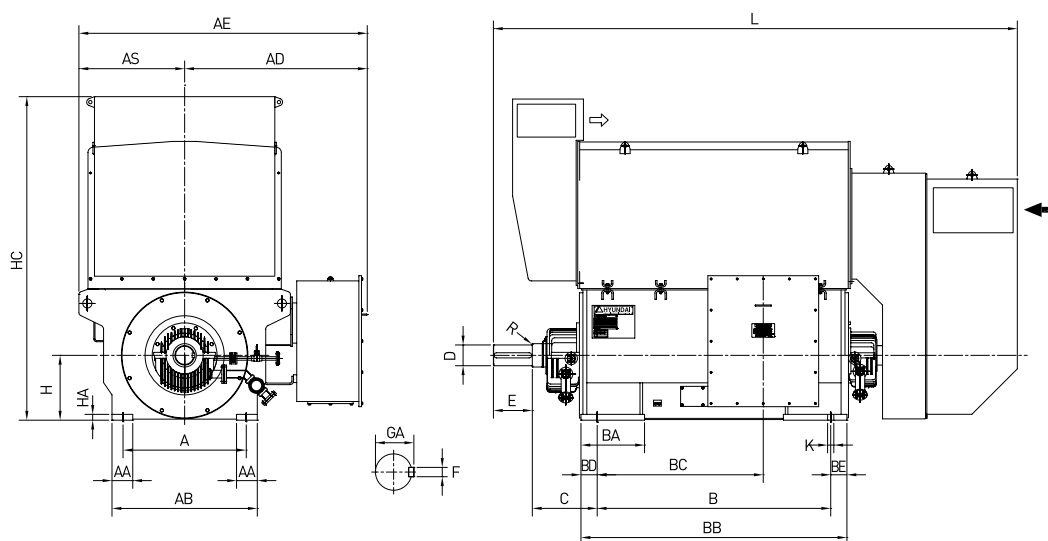
Unit: mm

| Type |     | Poles  | C   | H   | HA | HC   | K  | L    | D   | E   | F  | GA  | Weight (kg) |
|------|-----|--------|-----|-----|----|------|----|------|-----|-----|----|-----|-------------|
| HRQ3 | 503 | 8 - 16 | 224 | 500 | 34 | 2010 | 42 | 2590 | 150 | 250 | 36 | 158 | 6800        |
|      | 505 | 8 - 16 |     |     |    |      |    | 2590 | 150 | 250 | 36 | 158 | 7050        |
|      | 507 | 8 - 16 |     |     |    |      |    | 2830 | 160 | 300 | 40 | 169 | 7650        |
|      | 509 | 8 - 16 |     |     |    |      |    | 2830 | 160 | 300 | 40 | 169 | 8100        |

**Note:** For the bearing type and tolerances of dimensions, see page 26.

## | HRQ3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type | Poles | A | AA   | AB  | AD   | AE   | AS   | B    | BA   | BB   | BC   | BD   | BE  |
|------|-------|---|------|-----|------|------|------|------|------|------|------|------|-----|
| HRQ3 | 563   | 4 | 1120 | 160 | 1280 | 1450 | 2355 | 905  | 1600 | 520  | 1930 | 1115 | 165 |
|      | 565   | 4 |      |     |      |      |      | 1800 |      | 2130 | 1315 |      |     |
|      | 567   | 4 |      |     |      |      |      | 1800 |      | 2130 | 1315 |      |     |

Unit: mm

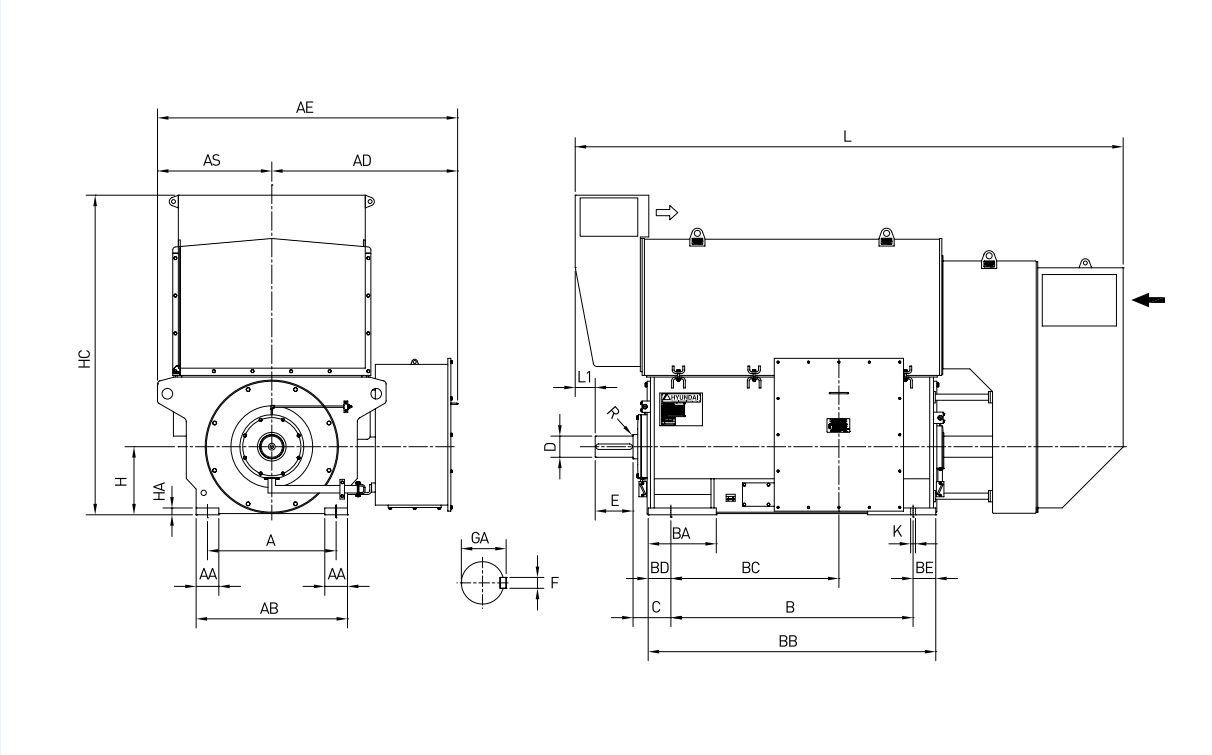
| Type | Poles | C | H    | HA  | HC | K    | L  | D    | E   | F   | GA   | Weight (kg) |
|------|-------|---|------|-----|----|------|----|------|-----|-----|------|-------------|
| HRQ3 | 563   | 4 | 560  | 560 | 50 | 2790 | 48 | 4200 | 160 | 300 | 40   | 11850       |
|      | 565   | 4 | *530 |     |    |      |    | 4460 | 160 | 300 | 40   | 12650       |
|      | 567   | 4 |      |     |    |      |    | 4460 | 170 | 300 | 40   | 13050       |
|      |       |   |      |     |    |      |    | *160 |     |     | *169 |             |

**Note:** - For the bearing type and tolerances of dimensions, see page 26.

\* : Self cooled sleeve bearing dimension

| HRQ3 |

Mounting B3 / Degree of Protection IP54



Unit: mm

| Type | Poles | A | AA   | AB  | AD   | AE   | AS   | B   | BA   | BB  | BC   | BD   | BE  |
|------|-------|---|------|-----|------|------|------|-----|------|-----|------|------|-----|
| HRQ3 | 563   | 6 | 1120 | 160 | 1280 | 1450 | 2355 | 905 | 1600 | 520 | 1930 | 1115 | 165 |
|      | 565   | 6 |      |     |      |      |      |     | 1800 |     | 2130 | 1315 |     |
|      | 567   | 6 |      |     |      |      |      |     | 1800 |     | 2130 | 1315 |     |

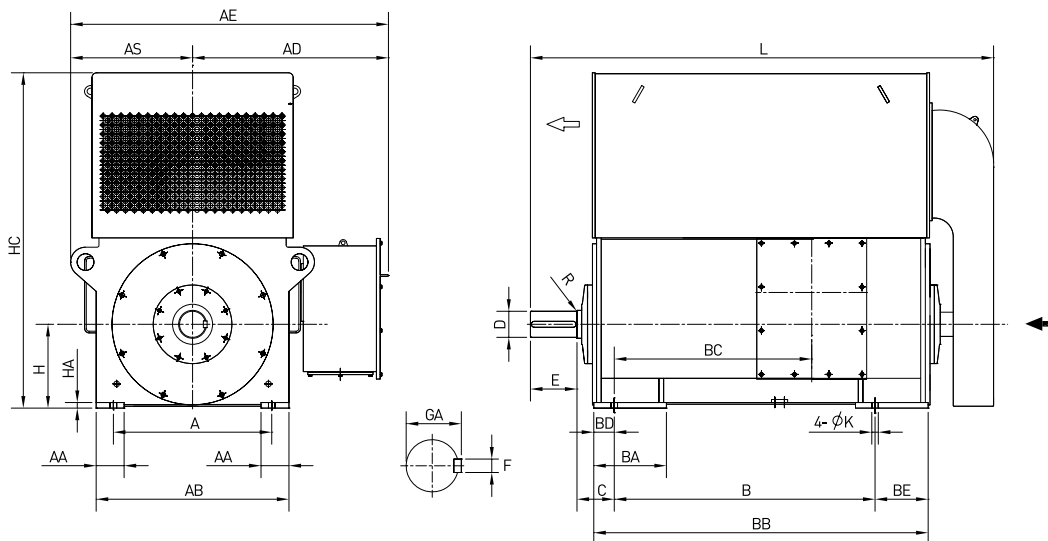
Unit: mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | L1  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|-----|-----|----|------|----|------|-----|-----|-----|----|-----|-------------|
| HRQ3 | 563 | 6     | 280 | 560 | 50 | 2790 | 48 | 4020 | 220 | 160 | 300 | 40 | 169 | 11950       |
|      | 565 | 6     |     |     |    |      |    | 4220 |     | 160 | 300 | 40 | 169 | 12800       |
|      | 567 | 6     |     |     |    |      |    | 4220 |     | 170 | 300 | 40 | 179 | 13250       |

**Note:** For the bearing type and tolerances of dimensions, see page 26.

## | HRQ3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles  | A    | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|--------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRQ3 | 563 | 8 - 16 | 1120 | 180 | 1285 | 1300 | 2080 | 780 | 1600 | 445 | 1945 | 1125 | 170 | 175 |
|      | 565 | 8 - 16 | 1600 |     |      |      |      |     | 1945 |     | 1125 |      |     |     |
|      | 567 | 8 - 16 | 1800 |     |      |      |      |     | 2145 |     | 1325 |      |     |     |
|      | 569 | 8 - 16 | 1800 |     |      |      |      |     | 2145 |     | 1325 |      |     |     |

Unit: mm

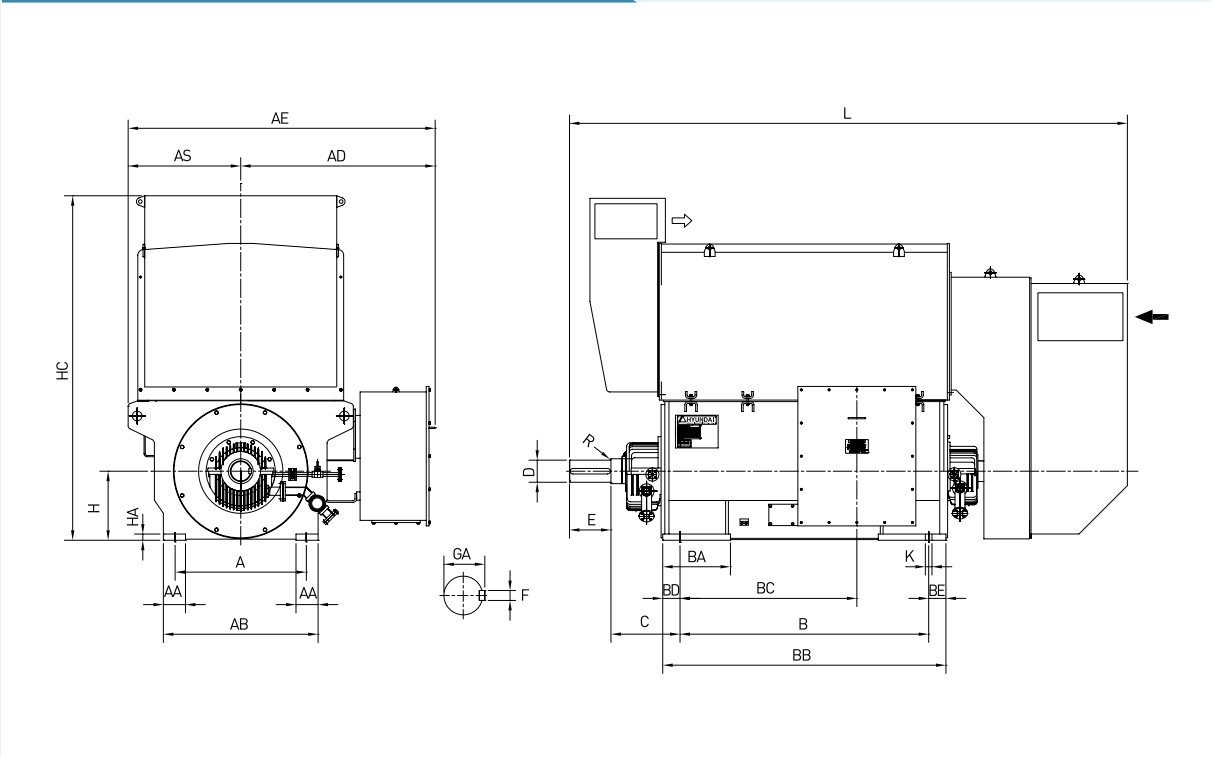
| Type |     | Poles  | C   | H   | HA | HC   | K  | L    | D   | E   | F  | GA  | Weight (kg) |
|------|-----|--------|-----|-----|----|------|----|------|-----|-----|----|-----|-------------|
| HRQ3 | 563 | 8 - 16 | 280 | 560 | 35 | 2160 | 48 | 2950 | 160 | 300 | 45 | 169 | 10000       |
|      | 565 | 8 - 16 |     |     |    |      |    | 2950 | 160 | 300 | 45 | 169 | 10300       |
|      | 567 | 8 - 16 |     |     |    |      |    | 3150 | 170 | 300 | 45 | 179 | 11100       |
|      | 569 | 8 - 16 |     |     |    |      |    | 3150 | 170 | 300 | 45 | 179 | 11600       |

**Note:** For the bearing type and tolerances of dimensions, see page 26.



| HRQ3 |

Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A    | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|-------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRQ3 | 631 | 4     | 1250 | 190 | 1420 | 1380 | 2355 | 975 | 1800 | 540 | 2110 | 1305 | 155 | 155 |
|      | 633 | 4     |      |     |      |      |      |     | 1800 |     | 2110 | 1305 |     |     |
|      | 635 | 4     |      |     |      |      |      |     | 2000 |     | 2310 | 1505 |     |     |
|      | 637 | 4     |      |     |      |      |      |     | 2000 |     | 2310 | 1505 |     |     |

Unit: mm

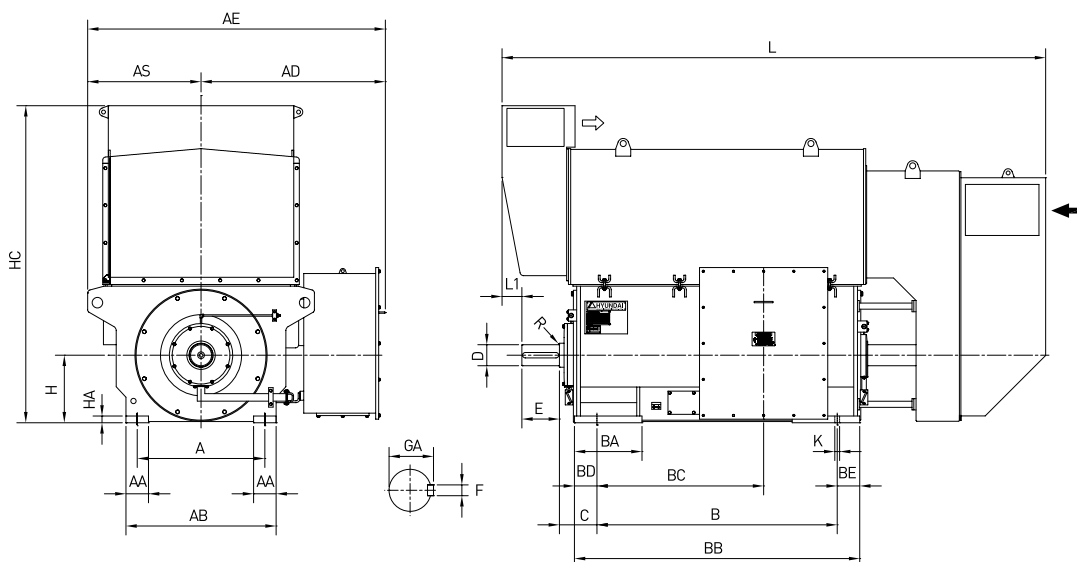
| Type |     | Poles | C     | H   | HA | HC   | K  | L    | D    | E    | F   | GA   | Weight [kg] |
|------|-----|-------|-------|-----|----|------|----|------|------|------|-----|------|-------------|
| HRQ3 | 631 | 4     | 600   | 630 | 55 | 3310 | 48 | 4230 | 180  | 350  | 50  | 190  | 16700       |
|      | 633 | 4     | * 530 |     |    |      |    | 4230 | *170 | *300 | *40 | *179 | 17100       |
|      | 635 | 4     | 600   |     |    |      |    | 4480 | 200  | 350  | 50  | 210  | 18300       |
|      | 637 | 4     | 600   |     |    |      |    | 4480 | 200  | 350  | 50  | 210  | 18900       |

**Note:** - For the bearing type and tolerances of dimensions, see page 26.

\* : Self cooled sleeve bearing dimension

## | HRQ3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A    | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|-------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRQ3 | 631 | 6     | 1250 | 190 | 1420 | 1380 | 2355 | 975 | 1800 | 540 | 2110 | 1305 | 155 | 155 |
|      | 633 | 6     |      |     |      |      |      |     | 1800 |     | 2110 | 1305 |     |     |
|      | 635 | 6     |      |     |      |      |      |     | 2000 |     | 2310 | 1505 |     |     |
|      | 637 | 6     |      |     |      |      |      |     | 2000 |     | 2310 | 1505 |     |     |

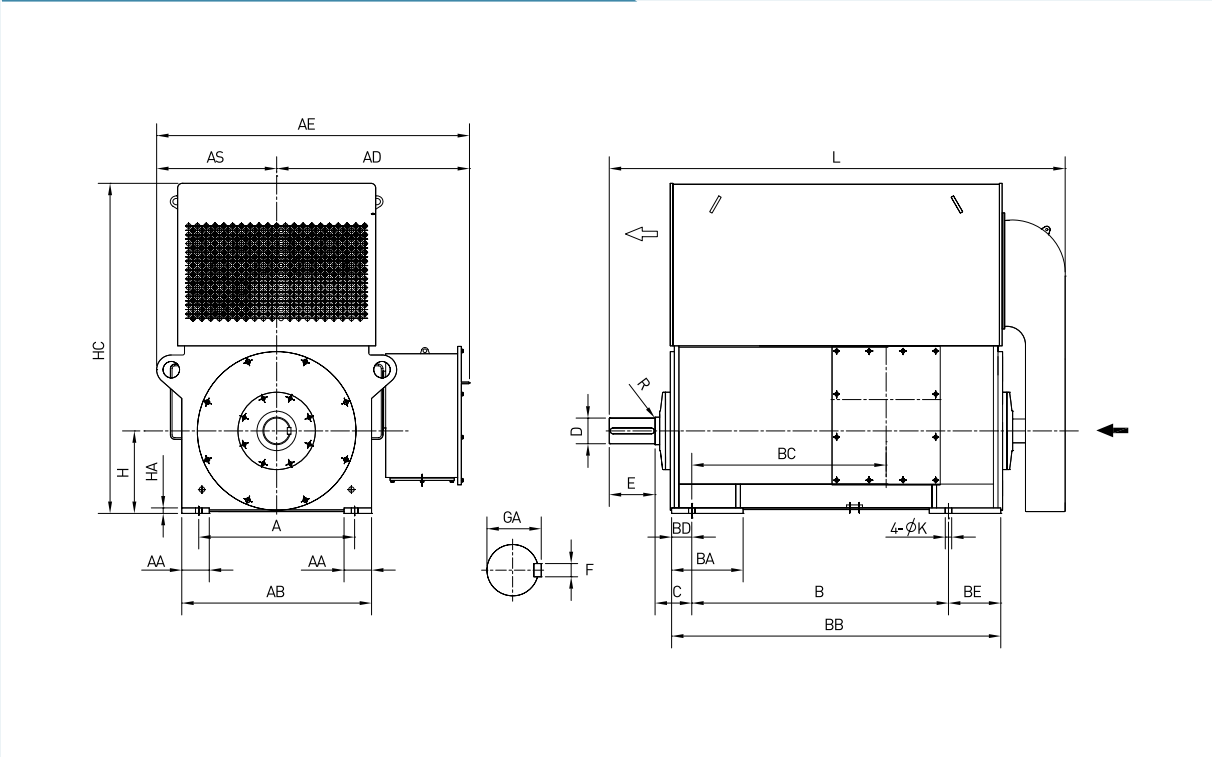
Unit: mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | L1  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|-----|-----|----|------|----|------|-----|-----|-----|----|-----|-------------|
| HRQ3 | 631 | 6     | 280 | 630 | 55 | 3410 | 48 | 3960 | 260 | 180 | 300 | 45 | 190 | 16100       |
|      | 633 | 6     |     |     |    |      |    | 3960 |     | 180 | 300 | 45 | 190 | 16600       |
|      | 635 | 6     |     |     |    |      |    | 4160 | 210 | 200 | 350 | 45 | 210 | 17800       |
|      | 637 | 6     |     |     |    |      |    | 4160 |     | 200 | 350 | 45 | 210 | 18400       |

**Note:** For the bearing type and tolerances of dimensions, see page 26.

| HRQ3 |

Mounting B3 / Degree of Protection IP54



Unit: mm

| Type | Poles      | A    | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|------------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRQ3 | 633 8 - 16 | 1180 | 220 | 1420 | 1310 | 2185 | 875 | 1800 | 500 | 2240 | 1440 | 145 | 295 |
|      | 635 8 - 16 |      |     |      |      |      |     | 1800 |     | 2240 | 1440 |     | 295 |
|      | 637 8 - 16 |      |     |      |      |      |     | 2000 |     | 2480 | 1680 |     | 335 |
|      | 639 8 - 16 |      |     |      |      |      |     | 2000 |     | 2480 | 1680 |     | 335 |

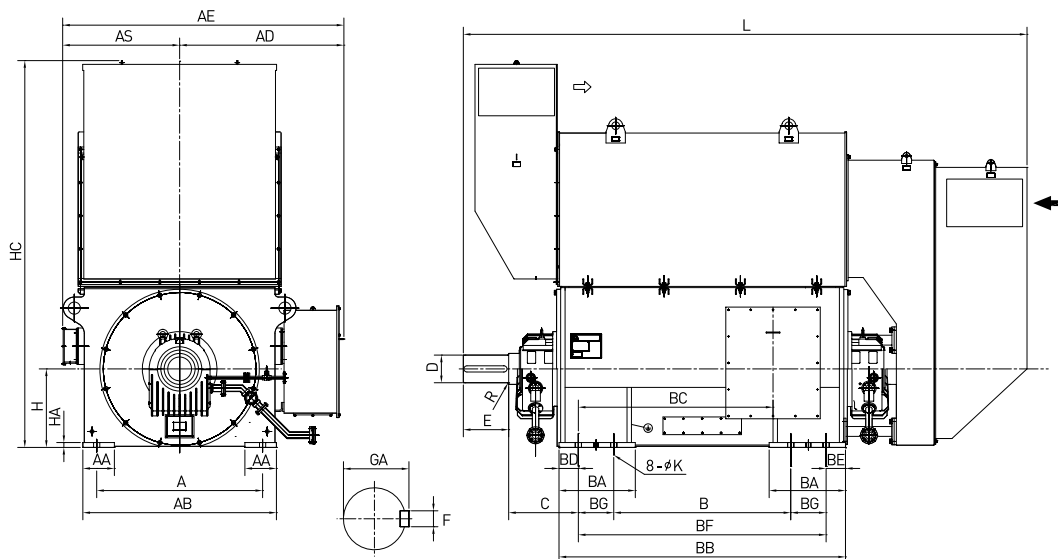
Unit: mm

| Type | Poles      | C   | H   | HA | HC   | K  | L    | D   | E   | F  | GA  | Weight [kg] |
|------|------------|-----|-----|----|------|----|------|-----|-----|----|-----|-------------|
| HRQ3 | 633 8 - 16 | 315 | 630 | 38 | 2400 | 48 | 3320 | 180 | 300 | 45 | 190 | 14000       |
|      | 635 8 - 16 |     |     |    |      |    | 3320 | 180 | 300 | 45 | 190 | 14600       |
|      | 637 8 - 16 |     |     |    |      |    | 3560 | 200 | 350 | 45 | 210 | 15900       |
|      | 639 8 - 16 |     |     |    |      |    | 3560 | 200 | 350 | 45 | 210 | 16600       |

**Note:** For the bearing type and tolerances of dimensions, see page 26.

## | HRQ3 |

Mounting B3 / Degree of Protection IP54



Unit: mm

| Type | Poles         | A    | AA  | AB   | AD   | AE   | AS   | B    | BA  | BB   | BC   | BD  | BE  | BF   | BG  |
|------|---------------|------|-----|------|------|------|------|------|-----|------|------|-----|-----|------|-----|
| HRQ3 | 715<br>4 - 16 | 1500 | 285 | 1750 | 1460 | 2520 | 1060 | 1400 | 690 | 2390 | 1560 | 175 | 175 | 2040 | 320 |
|      | 717<br>4 - 16 |      |     |      |      |      |      | 1600 |     | 2590 | 1760 |     |     | 2240 |     |
|      | 719<br>4 - 16 |      |     |      |      |      |      | 1600 |     | 2590 | 1760 |     |     | 2240 |     |

Unit: mm

| Type |     | Poles | C   | D   | E    | F     | GA  | H   | HA | HC   | K  | L    | Weight (kg) |
|------|-----|-------|-----|-----|------|-------|-----|-----|----|------|----|------|-------------|
| HRQ3 | 715 | 4     | 630 | 210 | 350  | 50    | 222 | 710 | 44 | 3500 | 56 | 4900 | 22300       |
|      |     | 6     |     | 210 |      |       | 222 |     |    |      |    | 4900 | 22100       |
|      |     | 8-16  |     | 210 |      |       | 222 |     |    |      |    | 4900 | 22400       |
|      | 717 | 4     | 220 | 232 | 5100 | 23900 |     |     |    |      |    |      |             |
|      |     | 6     | 220 | 232 | 5100 | 23400 |     |     |    |      |    |      |             |
|      |     | 8-16  | 220 | 232 | 5100 | 24000 |     |     |    |      |    |      |             |
|      | 719 | 4     | 220 | 232 | 5100 | 24700 |     |     |    |      |    |      |             |
|      |     | 6     | 220 | 232 | 5100 | 24600 |     |     |    |      |    |      |             |
|      |     | 8-16  | 220 | 232 | 5100 | 25000 |     |     |    |      |    |      |             |

**Note:** For the bearing type and tolerances of dimensions, see page 26.



Totally Enclosed Air to Air Cooled, Squirrel Cage |

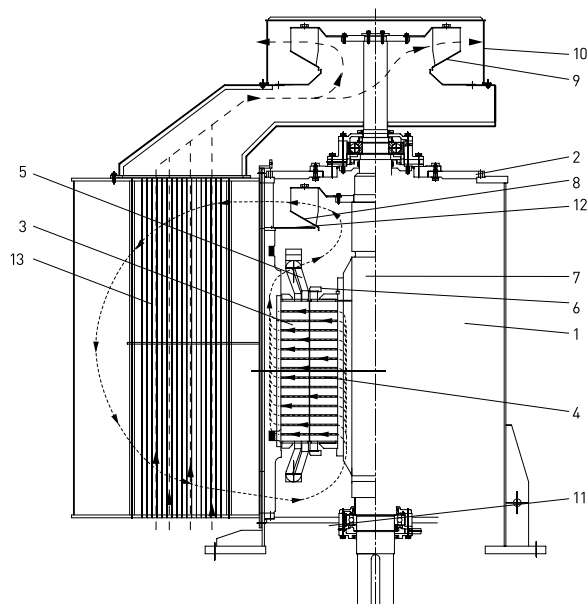
## HRQ3 Series -Vertical

# 03

## | HRQ3 | - Vertical

|                        |                                                |
|------------------------|------------------------------------------------|
| • Rotor Type           | Squirrel Cage                                  |
| • Number of Pole       | 4-14                                           |
| • Voltage              | 2-14 kV                                        |
| • Output Range         | 810-6,070 kW (at 60 Hz, 6,600 V, 4 Pole)       |
| • Type of Construction | IM V10                                         |
| • Frame                | 400-630                                        |
| • Degree of Protection | IP 54 (IEC 60034-5)                            |
| • Method of Cooling    | IC 611 (IEC 60034-6)                           |
| • Type of Enclosure    | Totally Enclosed Air to Air Cooled (NEMA MG-1) |

### Sectional View and Parts Name



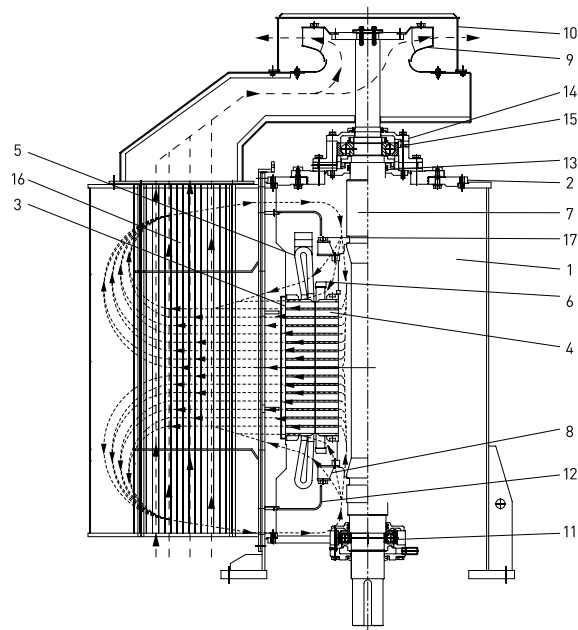
#### Parts Name Type - I (Uni-directional cooling circuit)

|                 |                   |                         |                        |
|-----------------|-------------------|-------------------------|------------------------|
| 1. Stator Frame | 5. Stator Winding | 8. Internal Cooling Fan | 11. Bearing            |
| 2. End Shield   | 6. Rotor End Ring | 9. External Cooling Fan | 12. Air Guide Plate    |
| 3. Stator Core  | 7. Shaft          | 10. Fan Cover           | 13. Heat-Exchange Pipe |
| 4. Rotor Core   |                   |                         |                        |

| HRQ3 | - Vertical

|                        |                                                |
|------------------------|------------------------------------------------|
| • Rotor Type           | Squirrel Cage                                  |
| • Number of Pole       | 4-14                                           |
| • Voltage              | 2-14 kV                                        |
| • Output Range         | 810-6,070 kW (at 60 Hz, 6,600 V, 4 Pole)       |
| • Type of Construction | IM V10                                         |
| • Frame                | 400-630                                        |
| • Degree of Protection | IP 54 (IEC 60034-5)                            |
| • Method of Cooling    | IC 611 (IEC 60034-6)                           |
| • Type of Enclosure    | Totally Enclosed Air to Air Cooled (NEMA MG-1) |

Sectional View and Parts Name



**Parts Name** Type - II (Bi-directional cooling circuit)

|                   |                         |                            |                            |
|-------------------|-------------------------|----------------------------|----------------------------|
| 1. Stator Frame   | 6. Rotor End Ring       | 10. Fan Cover              | 14. External Bearing Cover |
| 2. End Shield     | 7. Shaft                | 11. Bearing                | 15. Grease Nipple          |
| 3. Stator Core    | 8. Internal Cooling Fan | 12. Air Guide Plate        | 16. Heat-Exchange Pipe     |
| 4. Rotor Core     | 9. External Cooling Fan | 13. Internal Bearing Cover | 17. Balance-Ring           |
| 5. Stator Winding |                         |                            |                            |

## | Rated Power at 50 Hz |

### | 3.3 kV |

Unit: kW

| Type | Poles | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|
| HRQ3 | 403   | -    | -    | 440  | -    | -    | -    | -    |
|      | 405   | 730  | 560  | 500  | -    | -    | -    | -    |
|      | 407   | 820  | 630  | 560  | -    | -    | -    | -    |
|      | 409   | 930  | 700  | 630  | -    | -    | -    | -    |
|      | 40L   | 1050 | 790  | -    | -    | -    | -    | -    |
|      | 453   | -    | -    | 690  | 450  | 340  | -    | -    |
|      | 455   | 1240 | 990  | 780  | 510  | 380  | -    | -    |
|      | 457   | 1390 | 1100 | 870  | 570  | 420  | -    | -    |
|      | 459   | 1540 | 1240 | 980  | 640  | 480  | -    | -    |
|      | 45L   | 1700 | 1380 | -    | -    | -    | -    | -    |
|      | 503   | -    | -    | 1090 | 760  | 560  | -    | -    |
|      | 505   | 1790 | 1510 | 1220 | 850  | 630  | -    | -    |
|      | 507   | 1990 | 1700 | 1370 | 950  | 710  | -    | -    |
|      | 509   | 2240 | 1890 | 1540 | 1070 | 800  | -    | -    |
|      | 50L   | 2490 | 2120 | -    | -    | -    | -    | -    |
|      | 563   | -    | -    | 1790 | 1230 | 980  | 725  | 550  |
|      | 565   | 2920 | 2560 | 2000 | 1370 | 1100 | 800  | 610  |
|      | 567   | 3270 | 2860 | 2250 | 1540 | 1240 | 885  | 690  |
|      | 569   | 3650 | 3190 | 2520 | 1730 | 1390 | 965  | 770  |
|      | 633   | 3860 | 3340 | 2790 | 1990 | 1620 | 1210 | 970  |
|      | 635   | 4340 | 3710 | 3120 | 2230 | 1810 | 1355 | 1090 |
|      | 637   | 4830 | 4150 | 3500 | 2500 | 2030 | 1525 | 1220 |
|      | 639   | 5410 | 4640 | 3920 | 2800 | 2280 | 1710 | 1370 |

### | 6.6 kV |

Unit: kW

| Type | Poles | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|
| HRQ3 | 403   | -    | -    | 410  | -    | -    | -    | -    |
|      | 405   | 630  | 510  | 460  | -    | -    | -    | -    |
|      | 407   | 710  | 570  | 510  | -    | -    | -    | -    |
|      | 409   | 800  | 640  | 580  | -    | -    | -    | -    |
|      | 40L   | 910  | 720  | -    | -    | -    | -    | -    |
|      | 453   | -    | -    | 640  | 420  | 320  | -    | -    |
|      | 455   | 1150 | 900  | 720  | 470  | 350  | -    | -    |
|      | 457   | 1290 | 1000 | 810  | 530  | 400  | -    | -    |
|      | 459   | 1430 | 1130 | 910  | 600  | 450  | -    | -    |
|      | 45L   | 1580 | 1260 | -    | -    | -    | -    | -    |
|      | 503   | -    | -    | 1010 | 710  | 530  | -    | -    |
|      | 505   | 1750 | 1400 | 1130 | 790  | 590  | -    | -    |
|      | 507   | 1950 | 1580 | 1270 | 890  | 660  | -    | -    |
|      | 509   | 2190 | 1750 | 1430 | 1000 | 750  | -    | -    |
|      | 50L   | 2440 | 1970 | -    | -    | -    | -    | -    |
|      | 563   | -    | -    | 1670 | 1140 | 930  | 640  | 500  |
|      | 565   | 2810 | 2440 | 1880 | 1280 | 1040 | 720  | 570  |
|      | 567   | 3140 | 2730 | 2100 | 1430 | 1160 | 810  | 640  |
|      | 569   | 3510 | 3040 | 2360 | 1610 | 1310 | 910  | 720  |
|      | 633   | 3670 | 3220 | 2610 | 1860 | 1520 | 1120 | 900  |
|      | 635   | 4130 | 3580 | 2920 | 2080 | 1700 | 1260 | 1000 |
|      | 637   | 4590 | 4010 | 3270 | 2330 | 1910 | 1420 | 1120 |
|      | 639   | 5150 | 4480 | 3670 | 2620 | 2140 | 1590 | 1260 |



## | Rated Power at 60 Hz |

## | 3.3 kV |

Unit: kW

| Type | Poles | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|
| HRQ3 | 403   | -    | -    | 530  | -    | -    | -    | -    |
|      | 405   | 960  | 700  | 590  | -    | -    | -    | -    |
|      | 407   | 1080 | 780  | 660  | -    | -    | -    | -    |
|      | 409   | 1220 | 880  | 750  | -    | -    | -    | -    |
|      | 40L   | 1380 | 990  | -    | -    | -    | -    | -    |
|      | 453   | -    | -    | 830  | 540  | 410  | -    | -    |
|      | 455   | 1500 | 1190 | 940  | 610  | 460  | -    | -    |
|      | 457   | 1680 | 1320 | 1050 | 680  | 510  | -    | -    |
|      | 459   | 1860 | 1490 | 1180 | 770  | 580  | -    | -    |
|      | 45L   | 2050 | 1660 | -    | -    | -    | -    | -    |
|      | 503   | -    | -    | 1300 | 910  | 680  | -    | -    |
|      | 505   | 2260 | 1870 | 1460 | 1020 | 760  | -    | -    |
|      | 507   | 2510 | 2110 | 1640 | 1150 | 850  | -    | -    |
|      | 509   | 2820 | 2340 | 1840 | 1290 | 960  | -    | -    |
|      | 50L   | 3140 | 2630 | -    | -    | -    | -    | -    |
|      | 563   | -    | -    | 2150 | 1470 | 1190 | 830  | 660  |
|      | 565   | 3520 | 3030 | 2410 | 1650 | 1330 | 935  | 740  |
|      | 567   | 3930 | 3380 | 2700 | 1840 | 1500 | 1050 | 830  |
|      | 569   | 4390 | 3770 | 3030 | 2070 | 1680 | 1175 | 930  |
|      | 633   | 4640 | 4010 | 3350 | 2390 | 1950 | 1470 | 1170 |
|      | 635   | 5220 | 4450 | 3760 | 2680 | 2190 | 1645 | 1310 |
|      | 637   | 5800 | 4990 | 4210 | 3000 | 2450 | 1850 | 1470 |
|      | 639   | 6500 | 5570 | 4720 | 3370 | 2750 | 2070 | 1650 |

## | 4.16 kV |

Unit: kW

| Type | Poles | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|
| HRQ3 | 403   | -    | -    | 510  | -    | -    | -    | -    |
|      | 405   | 910  | 670  | 580  | -    | -    | -    | -    |
|      | 407   | 1020 | 750  | 650  | -    | -    | -    | -    |
|      | 409   | 1150 | 840  | 730  | -    | -    | -    | -    |
|      | 40L   | 1300 | 950  | -    | -    | -    | -    | -    |
|      | 453   | -    | -    | 800  | 530  | 390  | -    | -    |
|      | 455   | 1460 | 1160 | 900  | 590  | 430  | -    | -    |
|      | 457   | 1640 | 1290 | 1000 | 660  | 490  | -    | -    |
|      | 459   | 1820 | 1450 | 1130 | 750  | 550  | -    | -    |
|      | 45L   | 2000 | 1620 | -    | -    | -    | -    | -    |
|      | 503   | -    | -    | 1270 | 880  | 660  | -    | -    |
|      | 505   | 2210 | 1830 | 1420 | 980  | 740  | -    | -    |
|      | 507   | 2450 | 2060 | 1590 | 1100 | 830  | -    | -    |
|      | 509   | 2760 | 2290 | 1790 | 1240 | 930  | -    | -    |
|      | 50L   | 3070 | 2570 | -    | -    | -    | -    | -    |
|      | 563   | -    | -    | 2080 | 1430 | 1150 | 810  | 640  |
|      | 565   | 3400 | 2960 | 2330 | 1600 | 1290 | 910  | 720  |
|      | 567   | 3800 | 3300 | 2610 | 1790 | 1440 | 1025 | 810  |
|      | 569   | 4250 | 3680 | 2930 | 2010 | 1620 | 1150 | 910  |
|      | 633   | 4530 | 3920 | 3240 | 2320 | 1890 | 1425 | 1130 |
|      | 635   | 5100 | 4360 | 3630 | 2590 | 2120 | 1595 | 1270 |
|      | 637   | 5660 | 4880 | 4070 | 2910 | 2370 | 1795 | 1420 |
|      | 639   | 6350 | 5450 | 4560 | 3260 | 2660 | 2010 | 1600 |

## | Rated Power at 60 Hz |

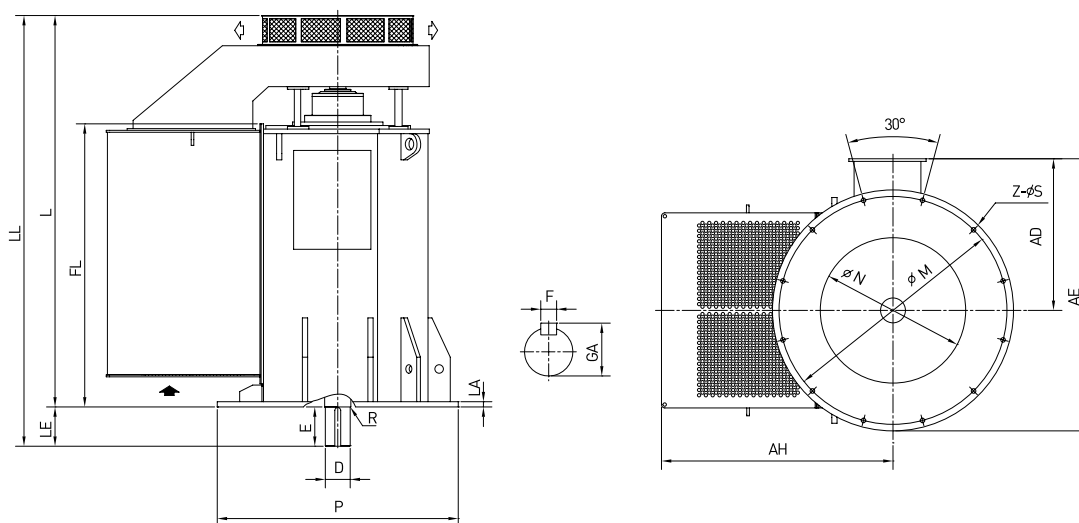
### | 6.6 kV |

Unit: kW

| Type | Poles | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|
| HRQ3 | 403   | -    | -    | 490  | -    | -    | -    | -    |
|      | 405   | 810  | 620  | 550  | -    | -    | -    | -    |
|      | 407   | 910  | 690  | 620  | -    | -    | -    | -    |
|      | 409   | 1020 | 770  | 700  | -    | -    | -    | -    |
|      | 40L   | 1160 | 870  | -    | -    | -    | -    | -    |
|      | 453   | -    | -    | 780  | 510  | 380  | -    | -    |
|      | 455   | 1400 | 1110 | 870  | 570  | 430  | -    | -    |
|      | 457   | 1570 | 1240 | 980  | 640  | 480  | -    | -    |
|      | 459   | 1740 | 1390 | 1100 | 720  | 540  | -    | -    |
|      | 45L   | 1920 | 1550 | -    | -    | -    | -    | -    |
|      | 503   | -    | -    | 1230 | 850  | 640  | 440  | -    |
|      | 505   | 2110 | 1750 | 1370 | 950  | 710  | 500  | -    |
|      | 507   | 2350 | 1970 | 1540 | 1070 | 800  | 560  | -    |
|      | 509   | 2640 | 2190 | 1730 | 1200 | 900  | 630  | -    |
|      | 50L   | 2940 | 2460 | -    | -    | -    | -    | -    |
|      | 563   | -    | -    | 2010 | 1380 | 1110 | 775  | 610  |
|      | 565   | 3190 | 2810 | 2250 | 1540 | 1250 | 870  | 690  |
|      | 567   | 3570 | 3140 | 2520 | 1730 | 1400 | 980  | 770  |
|      | 569   | 3990 | 3500 | 2830 | 1940 | 1570 | 1100 | 870  |
|      | 633   | 4330 | 3760 | 3130 | 2240 | 1820 | 1355 | 1080 |
|      | 635   | 4870 | 4180 | 3510 | 2510 | 2040 | 1515 | 1210 |
|      | 637   | 5410 | 4680 | 3930 | 2810 | 2290 | 1705 | 1350 |
|      | 639   | 6070 | 5230 | 4410 | 3150 | 2570 | 1910 | 1520 |

## | HRQ3 |

Mounting V10 / Degree of protection IP54



Unit: mm

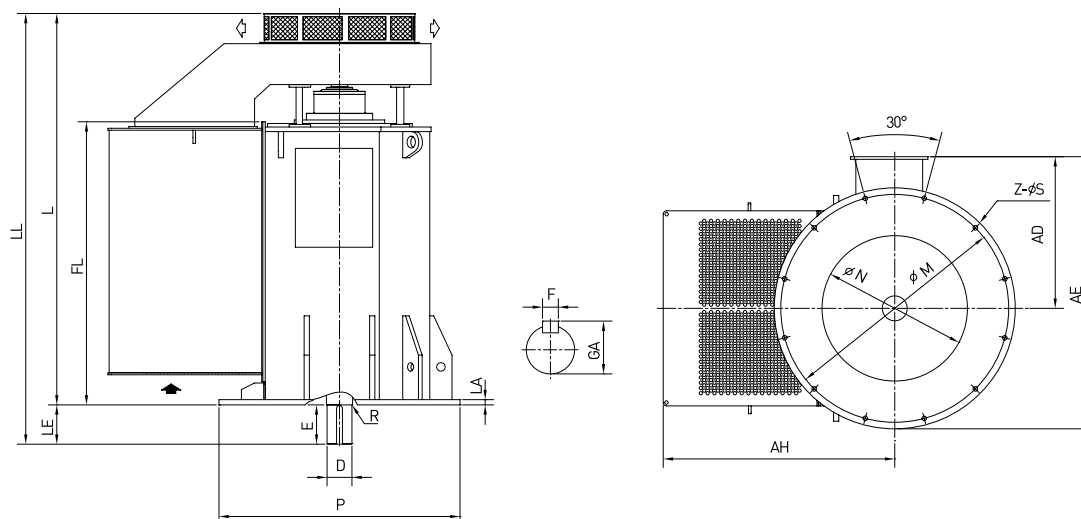
| Type | Poles | AD  | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N   |
|------|-------|-----|------|------|----|-----|------|------|------|------|-----|
| HRQ3 | 403   | 970 | 1595 | 1290 | 35 | 200 | 2420 | 2620 | 1740 | 1170 | 860 |
|      | 405   |     |      |      |    |     | 2420 | 2620 | 1740 |      |     |
|      | 6     |     |      |      |    |     | 2420 | 2620 | 1740 |      |     |
|      | 8     |     |      |      |    |     | 2420 | 2620 | 1740 |      |     |
|      | 407   |     |      |      |    |     | 2420 | 2620 | 1740 |      |     |
|      | 4     |     |      |      |    |     | 2420 | 2620 | 1740 |      |     |
|      | 6     |     |      |      |    |     | 2420 | 2620 | 1740 |      |     |
|      | 8     |     |      |      |    |     | 2590 | 2790 | 1910 |      |     |
|      | 409   |     |      |      |    |     | 2590 | 2790 | 1910 |      |     |
|      | 4     |     |      |      |    |     | 2590 | 2790 | 1910 |      |     |
|      | 6     |     |      |      |    |     | 2590 | 2790 | 1910 |      |     |
|      | 8     |     |      |      |    |     | 2590 | 2790 | 1910 |      |     |
| 40L  | 4     |     |      |      |    |     | 2590 | 2790 | 1910 |      |     |
|      | 6     |     |      |      |    |     | 2590 | 2790 | 1910 |      |     |

Unit: mm

| Type | Poles | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|-------|------|---|----|----|-----|-----|----|-----|-------------|
| HRQ3 | 403   | 1250 | 2 | 28 | 12 | 130 | 200 | 32 | 137 | 4900        |
|      | 405   |      |   |    |    |     |     |    |     | 5200        |
|      | 6     |      |   |    |    |     |     |    |     | 5050        |
|      | 8     |      |   |    |    |     |     |    |     | 5050        |
|      | 407   |      |   |    |    |     |     |    |     | 5300        |
|      | 4     |      |   |    |    |     |     |    |     | 5200        |
|      | 6     |      |   |    |    |     |     |    |     | 5200        |
|      | 8     |      |   |    |    |     |     |    |     | 5200        |
|      | 409   |      |   |    |    |     |     |    |     | 5750        |
|      | 4     |      |   |    |    |     |     |    |     | 5600        |
|      | 6     |      |   |    |    |     |     |    |     | 5600        |
|      | 8     |      |   |    |    |     |     |    |     | 5600        |
| 40L  | 4     |      |   |    |    |     |     |    |     | 5950        |
|      | 6     |      |   |    |    |     |     |    |     | 5800        |

## | HRQ3 |

Mounting V10 / Degree of protection IP54



Unit: mm

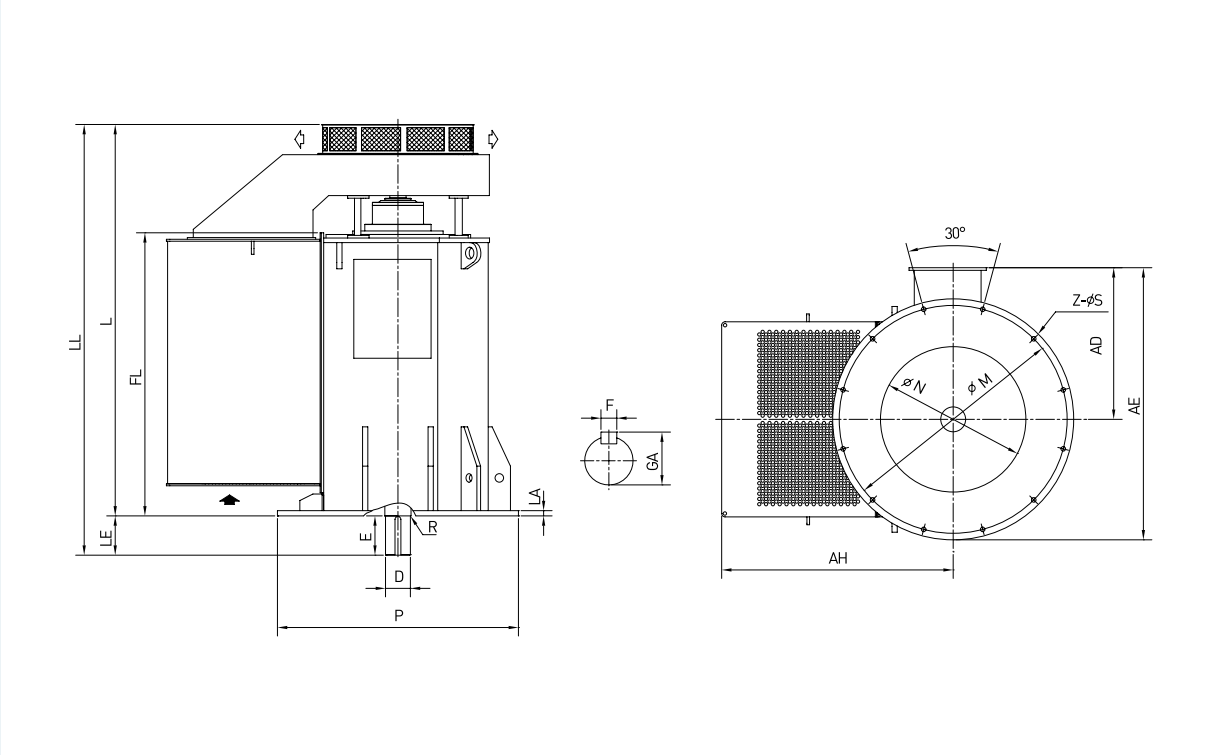
| Type |     | Poles | AD   | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N   |
|------|-----|-------|------|------|------|----|-----|------|------|------|------|-----|
| HRQ3 | 455 | 4     | 1150 | 1850 | 1530 | 35 | 200 | 2730 | 2930 | 2000 | 1280 | 940 |
|      |     | 6     |      |      |      |    |     | 2730 | 2930 | 2000 |      |     |
|      | 457 | 4     |      |      |      |    |     | 2730 | 2930 | 2000 |      |     |
|      |     | 6     |      |      |      |    |     | 2730 | 2930 | 2000 |      |     |
|      | 459 | 4     |      |      |      |    |     | 2890 | 3090 | 2160 |      |     |
|      |     | 6     |      |      |      |    |     | 2890 | 3090 | 2160 |      |     |
|      | 45L | 4     |      |      |      |    |     | 2890 | 3090 | 2160 |      |     |
|      |     | 6     |      |      |      |    |     | 2890 | 3090 | 2160 |      |     |

Unit: mm

| Type |     | Poles | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|------|---|----|----|-----|-----|----|-----|-------------|
| HRQ3 | 455 | 4     | 1360 | 2 | 28 | 12 | 150 | 200 | 36 | 158 | 6750        |
|      |     | 6     |      |   |    |    |     |     |    |     | 6750        |
|      | 457 | 4     |      |   |    |    |     |     |    |     | 7000        |
|      |     | 6     |      |   |    |    |     |     |    |     | 7000        |
|      | 459 | 4     |      |   |    |    |     |     |    |     | 7450        |
|      |     | 6     |      |   |    |    |     |     |    |     | 7500        |
|      | 45L | 4     |      |   |    |    |     |     |    |     | 7700        |
|      |     | 6     |      |   |    |    |     |     |    |     | 7750        |

| HRQ3 |

Mounting V10 / Degree of protection IP54



| Type |     | Poles  | AD   | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N   |
|------|-----|--------|------|------|------|----|-----|------|------|------|------|-----|
| HRQ3 | 453 | 8 - 16 | 1150 | 1850 | 1530 | 35 | 200 | 2670 | 2870 | 1940 | 1280 | 940 |
|      | 455 | 8 - 16 |      |      |      |    |     | 2670 | 2870 | 1940 |      |     |
|      | 457 | 8 - 16 |      |      |      |    |     | 2790 | 2990 | 2060 |      |     |
|      | 459 | 8 - 16 |      |      |      |    |     | 2790 | 2990 | 2060 |      |     |

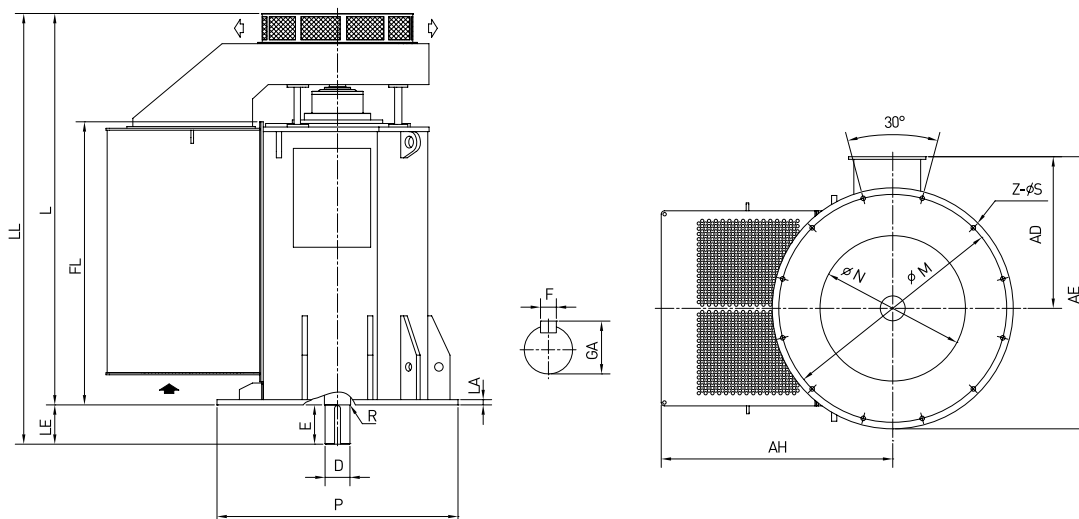
Unit: mm

|      |     |        |      |   |    |    |     |     |    |     | Unit: mm    |
|------|-----|--------|------|---|----|----|-----|-----|----|-----|-------------|
| Type |     | Poles  | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
| HRQ3 | 453 | 8 - 16 | 1360 | 2 | 28 | 12 | 150 | 200 | 36 | 158 | 6950        |
|      | 455 | 8 - 16 |      |   |    |    |     |     |    |     | 7200        |
|      | 457 | 8 - 16 |      |   |    |    |     |     |    |     | 7650        |
|      | 459 | 8 - 16 |      |   |    |    |     |     |    |     | 7900        |

Unit: mm

## | HRQ3 |

Mounting V10 / Degree of protection IP54



Unit: mm

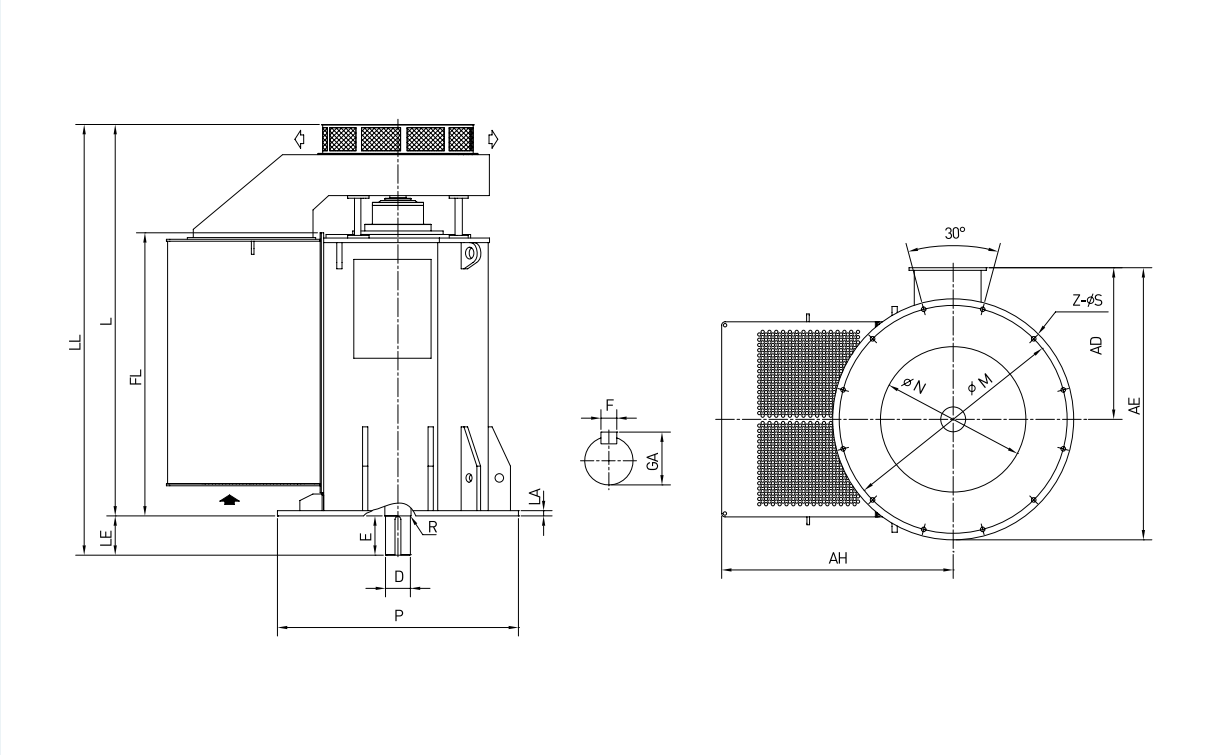
| Type |     | Poles | AD   | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N    |
|------|-----|-------|------|------|------|----|-----|------|------|------|------|------|
| HRQ3 | 505 | 4     | 1210 | 2010 | 1640 | 35 | 240 | 2860 | 3100 | 2080 | 1420 | 1050 |
|      |     | 6     |      |      |      |    |     | 2860 | 3100 | 2080 |      |      |
|      | 507 | 4     |      |      |      |    |     | 2860 | 3100 | 2080 |      |      |
|      |     | 6     |      |      |      |    |     | 2860 | 3100 | 2080 |      |      |
|      | 509 | 4     |      |      |      |    |     | 3060 | 3300 | 2280 |      |      |
|      |     | 6     |      |      |      |    |     | 3060 | 3300 | 2280 |      |      |
|      | 50L | 4     |      |      |      |    |     | 3060 | 3300 | 2280 |      |      |
|      |     | 6     |      |      |      |    |     | 3060 | 3300 | 2280 |      |      |

Unit: mm

| Type |     | Poles | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|------|---|----|----|-----|-----|----|-----|-------------|
| HRQ3 | 505 | 4     | 1500 | 2 | 28 | 12 | 170 | 240 | 40 | 179 | 8610        |
|      |     | 6     |      |   |    |    |     |     |    |     | 8660        |
|      | 507 | 4     |      |   |    |    |     |     |    |     | 8900        |
|      |     | 6     |      |   |    |    |     |     |    |     | 9020        |
|      | 509 | 4     |      |   |    |    |     |     |    |     | 9640        |
|      |     | 6     |      |   |    |    |     |     |    |     | 9740        |
|      | 50L | 4     |      |   |    |    |     |     |    |     | 10010       |
|      |     | 6     |      |   |    |    |     |     |    |     | 10150       |

| HRQ3 |

Mounting V10 / Degree of protection IP54



| Type |     | Poles  | AD   | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N    |
|------|-----|--------|------|------|------|----|-----|------|------|------|------|------|
| HRQ3 | 503 | 8 - 12 | 1210 | 2010 | 1640 | 35 | 240 | 2860 | 3100 | 2080 | 1420 | 1050 |
|      | 505 | 8 - 12 |      |      |      |    |     | 2860 | 3100 | 2080 |      |      |
|      | 507 | 8 - 12 |      |      |      |    |     | 3060 | 3300 | 2280 |      |      |
|      | 509 | 8 - 12 |      |      |      |    |     | 3060 | 3300 | 2280 |      |      |

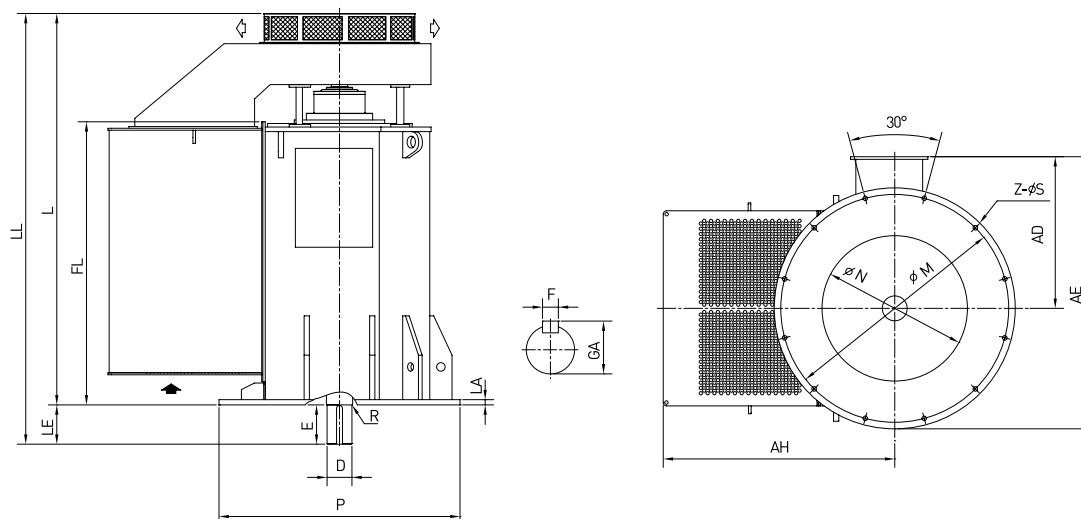
Unit: mm

| Type |     | Poles  | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|--------|------|---|----|----|-----|-----|----|-----|-------------|
| HRQ3 | 503 | 8 - 12 | 1500 | 2 | 28 | 12 | 170 | 240 | 40 | 179 | 8660        |
|      | 505 | 8 - 12 |      |   |    |    |     |     |    |     | 8950        |
|      | 507 | 8 - 12 |      |   |    |    |     |     |    |     | 9840        |
|      | 509 | 8 - 12 |      |   |    |    |     |     |    |     | 10210       |

Unit: mm

## | HRQ3 |

Mounting V10 / Degree of protection IP54



Unit: mm

| Type |     | Poles | AD   | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N    |
|------|-----|-------|------|------|------|----|-----|------|------|------|------|------|
| HRQ3 | 563 | 4     | 1290 | 2190 | 1750 | 40 | 280 | 2950 | 3230 | 2120 | 1580 | 1160 |
|      |     | 6     |      |      |      |    |     | 2950 | 3230 | 2120 |      |      |
|      | 565 | 4     |      |      |      |    |     | 2950 | 3230 | 2120 |      |      |
|      |     | 6     |      |      |      |    |     | 2950 | 3230 | 2120 |      |      |
|      | 567 | 4     |      |      |      |    |     | 3170 | 3450 | 2320 |      |      |
|      |     | 6     |      |      |      |    |     | 3170 | 3450 | 2320 |      |      |
|      | 569 | 4     |      |      |      |    |     | 3170 | 3450 | 2320 |      |      |
|      |     | 6     |      |      |      |    |     | 3170 | 3450 | 2320 |      |      |

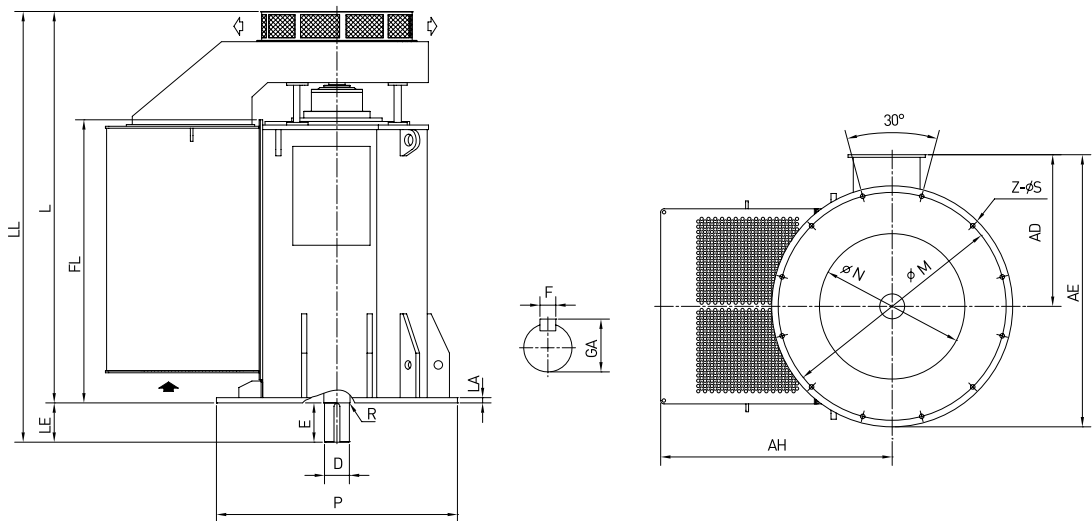
Unit: mm

| Type |     | Poles | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|------|---|----|----|-----|-----|----|-----|-------------|
| HRQ3 | 563 | 4     | 1680 | 2 | 35 | 12 | 190 | 280 | 45 | 200 | 11400       |
|      |     | 6     |      |   |    |    |     |     |    |     | 11500       |
|      | 565 | 4     |      |   |    |    |     |     |    |     | 11850       |
|      |     | 6     |      |   |    |    |     |     |    |     | 11950       |
|      | 567 | 4     |      |   |    |    |     |     |    |     | 12650       |
|      |     | 6     |      |   |    |    |     |     |    |     | 12800       |
|      | 569 | 4     |      |   |    |    |     |     |    |     | 13050       |
|      |     | 6     |      |   |    |    |     |     |    |     | 13300       |



| HRQ3 |

Mounting V10 / Degree of protection IP54



Unit: mm

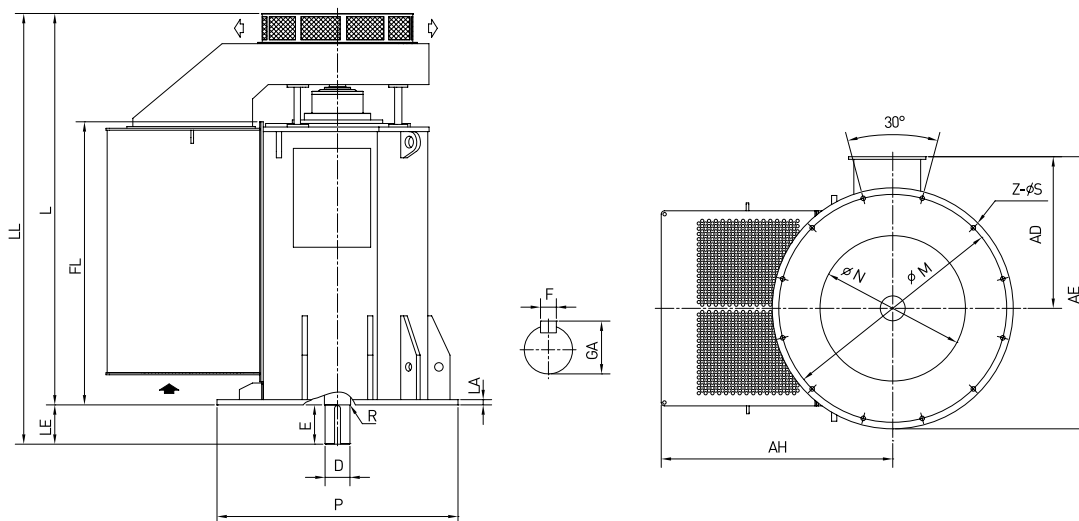
| Type |     | Poles   | AD   | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N    |
|------|-----|---------|------|------|------|----|-----|------|------|------|------|------|
| HRQ3 | 563 | 8 - 10  | 1290 | 2190 | 1750 | 40 | 280 | 2890 | 3170 | 2090 | 1580 | 1160 |
|      |     | 12 - 14 |      |      |      |    |     | 2890 | 3170 | 2090 |      |      |
|      | 565 | 8 - 10  |      |      |      |    |     | 2890 | 3170 | 2090 |      |      |
|      |     | 12 - 14 |      |      |      |    |     | 2890 | 3170 | 2090 |      |      |
|      | 567 | 8 - 10  |      |      |      |    |     | 3090 | 3370 | 2290 |      |      |
|      |     | 12 - 14 |      |      |      |    |     | 3090 | 3370 | 2290 |      |      |
|      | 569 | 8 - 10  |      |      |      |    |     | 3090 | 3370 | 2290 |      |      |
|      |     | 12 - 14 |      |      |      |    |     | 3090 | 3370 | 2290 |      |      |

Unit: mm

| Type |     | Poles   | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|---------|------|---|----|----|-----|-----|----|-----|-------------|
| HRQ3 | 563 | 8 - 10  | 1680 | 2 | 35 | 12 | 190 | 280 | 45 | 200 | 11000       |
|      |     | 12 - 14 |      |   |    |    |     |     |    |     | 11100       |
|      | 565 | 8 - 10  |      |   |    |    |     |     |    |     | 11300       |
|      |     | 12 - 14 |      |   |    |    |     |     |    |     | 11400       |
|      | 567 | 8 - 10  |      |   |    |    |     |     |    |     | 12200       |
|      |     | 12 - 14 |      |   |    |    |     |     |    |     | 12300       |
|      | 569 | 8 - 10  |      |   |    |    |     |     |    |     | 12600       |
|      |     | 12 - 14 |      |   |    |    |     |     |    |     | 12700       |

## | HRQ3 |

Mounting V10 / Degree of protection IP54



Unit: mm

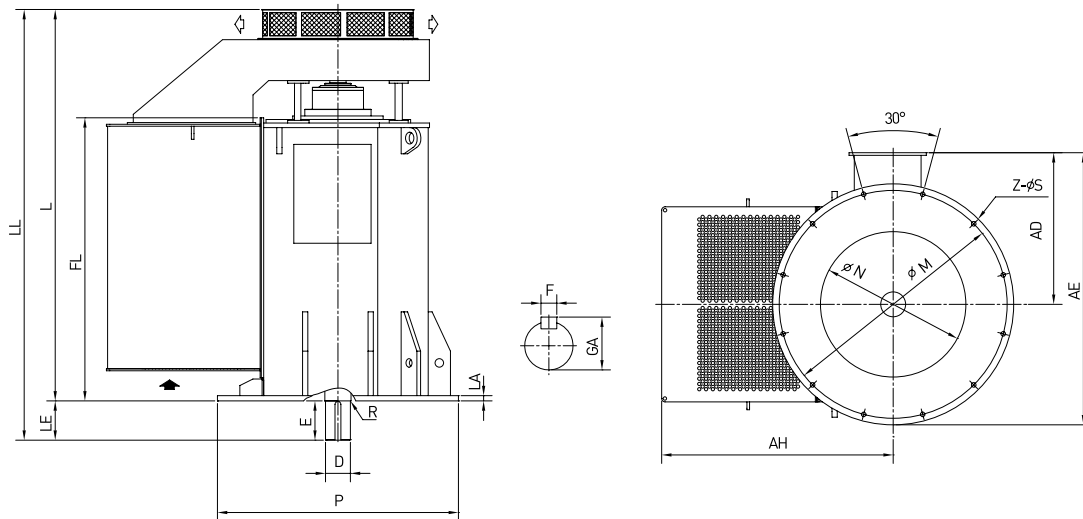
| Type |     | Poles | AD   | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N    |
|------|-----|-------|------|------|------|----|-----|------|------|------|------|------|
| HRQ3 | 633 | 4     | 1350 | 2350 | 1920 | 40 | 280 | 3280 | 3560 | 2410 | 1700 | 1300 |
|      |     | 6     |      |      |      |    |     | 3280 | 3560 | 2410 |      |      |
|      | 635 | 4     |      |      |      |    |     | 3280 | 3560 | 2410 |      |      |
|      |     | 6     |      |      |      |    |     | 3280 | 3560 | 2410 |      |      |
|      | 637 | 4     |      |      |      |    |     | 3490 | 3770 | 2620 |      |      |
|      |     | 6     |      |      |      |    |     | 3490 | 3770 | 2620 |      |      |
|      | 639 | 4     |      |      |      |    |     | 3490 | 3770 | 2620 |      |      |
|      |     | 6     |      |      |      |    |     | 3490 | 3770 | 2620 |      |      |

Unit: mm

| Type |     | Poles | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|------|---|----|----|-----|-----|----|-----|-------------|
| HRQ3 | 633 | 4     | 1800 | 4 | 35 | 12 | 200 | 280 | 45 | 210 | 15320       |
|      |     | 6     |      |   |    |    | 200 | 280 | 45 | 210 | 15470       |
|      | 635 | 4     |      |   |    |    | 200 | 280 | 45 | 210 | 15890       |
|      |     | 6     |      |   |    |    | 200 | 280 | 45 | 210 | 15980       |
|      | 637 | 4     |      |   |    |    | 220 | 280 | 50 | 231 | 16890       |
|      |     | 6     |      |   |    |    | 220 | 280 | 50 | 231 | 17070       |
|      | 639 | 4     |      |   |    |    | 220 | 280 | 50 | 231 | 17540       |
|      |     | 6     |      |   |    |    | 220 | 280 | 50 | 231 | 17740       |

## | HRQ3 |

## Mounting V10 / Degree of protection IP54



Unit: mm

| Type | Poles      | AD   | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N    |
|------|------------|------|------|------|----|-----|------|------|------|------|------|
| HRQ3 | 633 8 - 10 | 1350 | 2350 | 1920 | 40 | 280 | 3200 | 3480 | 2390 | 1700 | 1300 |
|      | 12 - 14    |      |      |      |    |     | 3200 | 3480 | 2390 |      |      |
|      | 635 8 - 10 |      |      |      |    |     | 3200 | 3480 | 2390 |      |      |
|      | 12 - 14    |      |      |      |    |     | 3200 | 3480 | 2390 |      |      |
|      | 637 8 - 10 |      |      |      |    |     | 3490 | 3770 | 2620 |      |      |
|      | 12 - 14    |      |      |      |    |     | 3490 | 3770 | 2620 |      |      |
|      | 639 8 - 10 |      |      |      |    |     | 3490 | 3770 | 2620 |      |      |
|      | 12 - 14    |      |      |      |    |     | 3490 | 3770 | 2620 |      |      |

Unit: mm

| Type | Poles      | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|------------|------|---|----|----|-----|-----|----|-----|-------------|
| HRQ3 | 633 8 - 10 | 1800 | 4 | 35 | 12 | 200 | 280 | 45 | 210 | 14900       |
|      | 12 - 14    |      |   |    |    | 200 | 280 | 45 | 210 | 15000       |
|      | 635 8 - 10 |      |   |    |    | 200 | 280 | 45 | 210 | 15400       |
|      | 12 - 14    |      |   |    |    | 200 | 280 | 45 | 210 | 15500       |
|      | 637 8 - 10 |      |   |    |    | 220 | 280 | 50 | 231 | 16700       |
|      | 12 - 14    |      |   |    |    | 220 | 280 | 50 | 231 | 16800       |
|      | 639 8 - 10 |      |   |    |    | 220 | 280 | 50 | 231 | 17400       |
|      | 12 - 14    |      |   |    |    | 220 | 280 | 50 | 231 | 17500       |

04

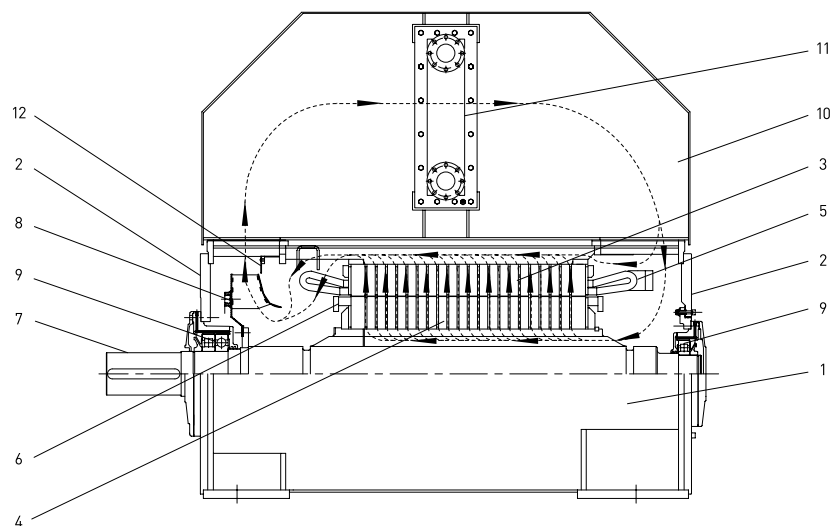


**HRN3 Series** | Totally Enclosed Water to Air Cooled, Squirrel Cage

| HRN3 |

|                             |                                                  |
|-----------------------------|--------------------------------------------------|
| • Rotor Type                | Squirrel Cage                                    |
| • Number of Poles           | 2-30                                             |
| • Voltage                   | 2-14 kV                                          |
| • Output Range              | 1,030-10,800 kW (at 60 Hz, 6,600 V, 4 Pole)      |
| • Type of Construction      | IM B3                                            |
| • Frame                     | 400-710                                          |
| • Degree of Protection      | IP 54 (IEC 60034-5)                              |
| • Method of Cooling         | IC 81W (IEC 60034-6)                             |
| • Type of Enclosure         | Totally Enclosed Water to Air Cooled (NEMA MG-1) |
| • Cooling Water Inlet Temp. | Max. 25°C (Other case, please enquiry)           |

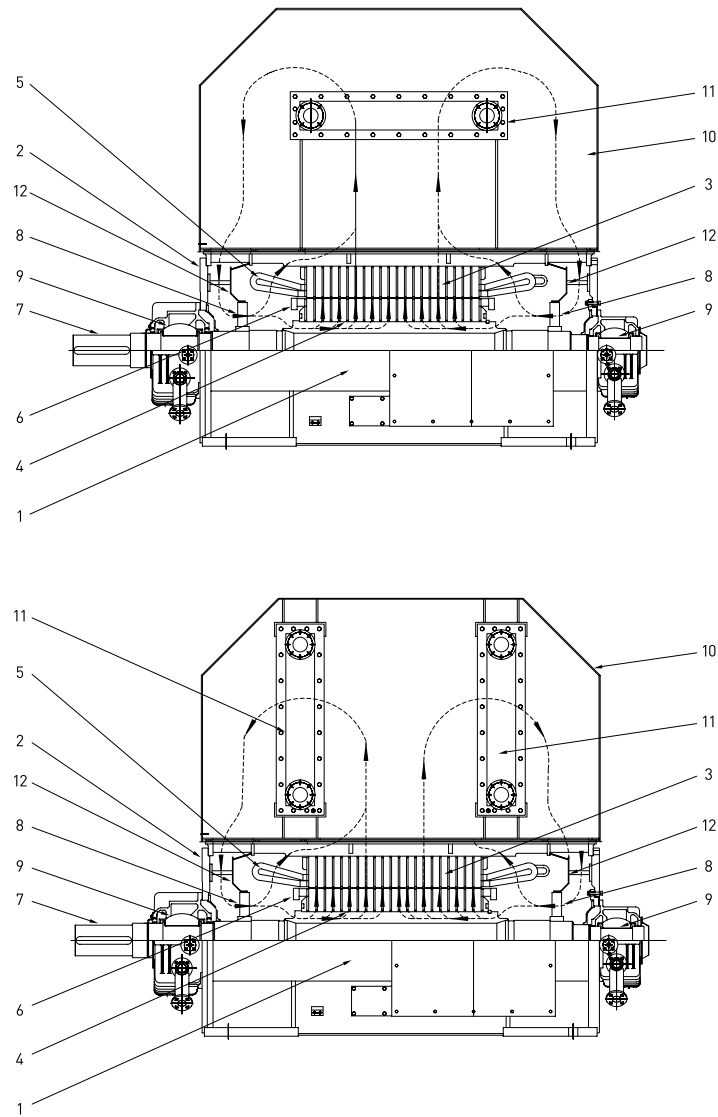
Sectional View and Parts Name



Parts Name    Type - I (Uni-directional cooling circuit)

|                 |                   |                         |                     |
|-----------------|-------------------|-------------------------|---------------------|
| 1. Stator Frame | 4. Rotor Core     | 7. Shaft                | 10. Air Housing     |
| 2. End Shield   | 5. Stator Winding | 8. Internal Cooling Fan | 11. Air Cooler      |
| 3. Stator Core  | 6. Rotor End Ring | 9. Bearing              | 12. Air Guide Plate |

### Sectional View and Parts Name



#### Parts Name Type - II (Bi-directional cooling circuit)

|                 |                   |                         |                     |
|-----------------|-------------------|-------------------------|---------------------|
| 1. Stator Frame | 4. Rotor Core     | 7. Shaft                | 10. Air Housing     |
| 2. End Shield   | 5. Stator Winding | 8. Internal Cooling Fan | 11. Air Cooler      |
| 3. Stator Core  | 6. Rotor End Ring | 9. Bearing              | 12. Air Guide Plate |

## | Rated Power at 50 Hz |

| 3.0 kV |

Unit: kW

| Type | Poles | 2P   | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|------|
| HRN3 | 403   | 1300 | 900  | 690  | 550  | -    | -    | -    | -    |
|      | 405   | 1490 | 1010 | 780  | 620  | -    | -    | -    | -    |
|      | 407   | 1570 | 1130 | 870  | 690  | -    | -    | -    | -    |
|      | 409   | -    | 1280 | 970  | 780  | -    | -    | -    | -    |
|      | 451   | 1790 | -    | -    | -    | -    | -    | -    | -    |
|      | 453   | 1940 | 1450 | 1110 | 860  | 560  | 420  | -    | -    |
|      | 455   | 2150 | 1630 | 1240 | 970  | 630  | 470  | -    | -    |
|      | 457   | -    | 1830 | 1390 | 1080 | 710  | 530  | -    | -    |
|      | 459   | -    | 2050 | 1560 | 1220 | 800  | 600  | -    | -    |
|      | 501   | 2440 | -    | -    | -    | -    | -    | -    | -    |
|      | 503   | 2650 | 2270 | 1700 | 1360 | 940  | 710  | 540  | -    |
|      | 505   | 3100 | 2550 | 1910 | 1530 | 1060 | 790  | 610  | -    |
|      | 507   | -    | 2850 | 2140 | 1710 | 1180 | 890  | 680  | -    |
|      | 509   | -    | 3200 | 2400 | 1920 | 1330 | 1000 | 770  | -    |
|      | 561   | 3580 | -    | -    | -    | -    | -    | -    | -    |
|      | 563   | 3960 | 3420 | 2640 | 2140 | 1470 | 1180 | 820  | 650  |
|      | 565   | 4500 | 3800 | 2990 | 2400 | 1650 | 1320 | 920  | 730  |
|      | 567   | -    | 4300 | 3330 | 2690 | 1840 | 1480 | 1030 | 820  |
|      | 569   | -    | -    | -    | 3020 | 2070 | 1660 | 1160 | 920  |
|      | 631   | 5020 | 4880 | 3700 | -    | -    | -    | -    | -    |
|      | 633   | 5620 | 5420 | 4200 | 3340 | 2390 | 1940 | 1460 | 1160 |
|      | 635   | 6300 | 6120 | 4670 | 3740 | 2670 | 2170 | 1640 | 1300 |
|      | 637   | -    | 6780 | 5250 | 4190 | 3000 | 2430 | 1830 | 1460 |
|      | 639   | -    | -    | -    | 4700 | 3360 | 2730 | 2060 | 1640 |
|      | 711   | 7180 | -    | -    | -    | -    | -    | -    | -    |
|      | 713   | 8050 | -    | -    | -    | -    | -    | -    | -    |
|      | 715   | 9030 | 7940 | 6210 | 5180 | 3730 | 2940 | 2270 | 1750 |
|      | 717   | -    | 8900 | 6970 | 5800 | 4180 | 3290 | 2550 | 1960 |
|      | 719   | -    | 9940 | 7810 | 6500 | 4690 | 3690 | 2860 | 2200 |

**Note:** - Bearing type of horizontal motors:  
 □ Grease lubricated anti-friction  
 ■ Forced feed oil lubrication sleeve bearings

## | Rated Power at 50 Hz |

### | 6.0 kV |

Unit: kW

| Type | Poles | 2P   | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|------|
| HRN3 | 403   | 1120 | 830  | 630  | 510  | -    | -    | -    | -    |
|      | 405   | 1300 | 940  | 710  | 570  | -    | -    | -    | -    |
|      | 407   | 1490 | 1050 | 800  | 640  | -    | -    | -    | -    |
|      | 409   | -    | 1180 | 900  | 720  | -    | -    | -    | -    |
|      | 451   | 1660 | -    | -    | -    | -    | -    | -    | -    |
|      | 453   | 1800 | 1360 | 1030 | 800  | 530  | 390  | -    | -    |
|      | 455   | 2000 | 1530 | 1160 | 900  | 590  | 440  | -    | -    |
|      | 457   | -    | 1710 | 1300 | 1000 | 660  | 500  | -    | -    |
|      | 459   | -    | 1920 | 1460 | 1130 | 750  | 560  | -    | -    |
|      | 501   | 2320 | -    | -    | -    | -    | -    | -    | -    |
|      | 503   | 2520 | 2130 | 1600 | 1260 | 880  | 660  | 460  | -    |
|      | 505   | 2950 | 2390 | 1790 | 1410 | 990  | 740  | 510  | -    |
|      | 507   | -    | 2670 | 2000 | 1580 | 1110 | 830  | 580  | -    |
|      | 509   | -    | 3000 | 2250 | 1780 | 1250 | 930  | 650  | -    |
|      | 561   | 3380 | -    | -    | -    | -    | -    | -    | -    |
|      | 563   | 3740 | 3300 | 2610 | 2010 | 1370 | 1110 | 770  | 610  |
|      | 565   | 4250 | 3680 | 2970 | 2250 | 1530 | 1250 | 860  | 680  |
|      | 567   | -    | 4160 | 3300 | 2520 | 1720 | 1400 | 970  | 760  |
|      | 569   | -    | -    | -    | 2830 | 1930 | 1570 | 1090 | 860  |
|      | 631   | 4780 | 4620 | 3530 | -    | -    | -    | -    | -    |
|      | 633   | 5360 | 5140 | 4010 | 3130 | 2230 | 1820 | 1350 | 1070 |
|      | 635   | 6000 | 5810 | 4460 | 3500 | 2500 | 2040 | 1510 | 1200 |
|      | 637   | -    | 6440 | 5010 | 3920 | 2800 | 2280 | 1690 | 1340 |
|      | 639   | -    | -    | -    | 4400 | 3140 | 2560 | 1900 | 1510 |
|      | 711   | 6840 | -    | -    | -    | -    | -    | -    | -    |
|      | 713   | 7670 | -    | -    | -    | -    | -    | -    | -    |
|      | 715   | 8600 | 7500 | 5850 | 4880 | 3380 | 2780 | 2100 | 1620 |
|      | 717   | -    | 8400 | 6580 | 5470 | 3780 | 3110 | 2350 | 1820 |
|      | 719   | -    | 9390 | 7380 | 6130 | 4240 | 3490 | 2640 | 2040 |

**Note:** - Bearing type of horizontal motors:

- Grease lubricated anti-friction
- Forced feed oil lubrication sleeve bearings



## | Rated Power at 60 Hz |

## | 3.3 kV |

Unit: kW

| Type | Poles | 2P    | 4P    | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|-------|-------|------|------|------|------|------|------|
| HRN3 | 403   | 1490  | 1100  | 870  | 660  | -    | -    | -    | -    |
|      | 405   | 1680  | 1210  | 970  | 740  | -    | -    | -    | -    |
|      | 407   | 1865  | 1370  | 1070 | 830  | -    | -    | -    | -    |
|      | 409   | -     | 1550  | 1200 | 930  | -    | -    | -    | -    |
|      | 451   | 2200  | -     | -    | -    | -    | -    | -    | -    |
|      | 453   | 2390  | 1750  | 1330 | 1040 | 680  | 510  | -    | -    |
|      | 455   | 2650  | 1960  | 1490 | 1170 | 760  | 570  | -    | -    |
|      | 457   | -     | 2190  | 1660 | 1310 | 850  | 640  | -    | -    |
|      | 459   | -     | 2460  | 1870 | 1470 | 960  | 720  | -    | -    |
|      | 501   | 2960  | -     | -    | -    | -    | -    | -    | -    |
|      | 503   | 3200  | 2740  | 2050 | 1630 | 1140 | 850  | 660  | -    |
|      | 505   | 3750  | 3060  | 2300 | 1830 | 1280 | 950  | 740  | -    |
|      | 507   | -     | 3430  | 2580 | 2050 | 1430 | 1070 | 830  | -    |
|      | 509   | -     | 3850  | 2890 | 2300 | 1610 | 1200 | 930  | -    |
|      | 561   | 4260  | -     | -    | -    | -    | -    | -    | -    |
|      | 563   | 4710  | 4110  | 3170 | 2580 | 1760 | 1430 | 990  | 790  |
|      | 565   | 5350  | 4580  | 3600 | 2890 | 1970 | 1600 | 1110 | 880  |
|      | 567   | -     | 5170  | 4000 | 3240 | 2210 | 1790 | 1250 | 990  |
|      | 569   | -     | -     | -    | 3630 | 2480 | 2010 | 1400 | 1110 |
|      | 631   | 5980  | 5870  | 4460 | -    | -    | -    | -    | -    |
|      | 633   | 6700  | 6520  | 5050 | 4020 | 2870 | 2340 | 1760 | 1400 |
|      | 635   | 7500  | 7360  | 5620 | 4510 | 3220 | 2630 | 1970 | 1570 |
|      | 637   | -     | 8160  | 6320 | 5050 | 3600 | 2940 | 2210 | 1760 |
|      | 639   | -     | -     | -    | 5660 | 4040 | 3300 | 2480 | 1980 |
|      | 711   | 8560  | -     | -    | -    | -    | -    | -    | -    |
|      | 713   | 9580  | -     | -    | -    | -    | -    | -    | -    |
|      | 715   | 10710 | 9140  | 7140 | 5950 | 4180 | 3630 | 2740 | 2110 |
|      | 717   | -     | 10230 | 8020 | 6660 | 4685 | 4070 | 3070 | 2360 |
|      | 719   | -     | 11440 | 8990 | 7480 | 5400 | 4560 | 3440 | 2650 |

**Note:** - Bearing type of horizontal motors:  
 □ Grease lubricated anti-friction  
 ■ Forced feed oil lubrication sleeve bearings

## | Rated Power at 60 Hz |

### | 4.16 kV |

Unit: kW

| Type | Poles | 2P    | 4P    | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|-------|-------|------|------|------|------|------|------|
| HRN3 | 403   | 1490  | 1065  | 835  | 640  | -    | -    | -    | -    |
|      | 405   | 1680  | 1170  | 935  | 720  | -    | -    | -    | -    |
|      | 407   | 1865  | 1320  | 1035 | 810  | -    | -    | -    | -    |
|      | 409   | -     | 1500  | 1160 | 910  | -    | -    | -    | -    |
|      | 451   | 2040  | -     | -    | -    | -    | -    | -    | -    |
|      | 453   | 2210  | 1690  | 1285 | 1000 | 660  | 480  | -    | -    |
|      | 455   | 2450  | 1895  | 1440 | 1120 | 740  | 540  | -    | -    |
|      | 457   | -     | 2120  | 1610 | 1250 | 830  | 600  | -    | -    |
|      | 459   | -     | 2380  | 1810 | 1410 | 930  | 680  | -    | -    |
|      | 501   | 2760  | -     | -    | -    | -    | -    | -    | -    |
|      | 503   | 2990  | 2650  | 1985 | 1580 | 1100 | 820  | 610  | -    |
|      | 505   | 3500  | 2960  | 2225 | 1770 | 1230 | 920  | 690  | -    |
|      | 507   | -     | 3320  | 2495 | 1990 | 1380 | 1030 | 770  | -    |
|      | 509   | -     | 3725  | 2795 | 2230 | 1550 | 1160 | 870  | -    |
|      | 561   | 3980  | -     | -    | -    | -    | -    | -    | -    |
|      | 563   | 4400  | 3980  | 3110 | 2490 | 1710 | 1380 | 980  | 770  |
|      | 565   | 5000  | 4420  | 3520 | 2790 | 1920 | 1540 | 1100 | 860  |
|      | 567   | -     | 5000  | 3920 | 3130 | 2150 | 1730 | 1230 | 970  |
|      | 569   | -     | -     | -    | 3510 | 2410 | 1940 | 1380 | 1090 |
|      | 631   | 5580  | 5670  | 4310 | -    | -    | -    | -    | -    |
|      | 633   | 6250  | 6310  | 4890 | 3890 | 2780 | 2270 | 1710 | 1360 |
|      | 635   | 7000  | 7120  | 5440 | 4360 | 3110 | 2540 | 1920 | 1530 |
|      | 637   | -     | 7890  | 6110 | 4880 | 3490 | 2840 | 2150 | 1710 |
|      | 639   | -     | -     | -    | 5470 | 3910 | 3190 | 2410 | 1920 |
|      | 711   | 8000  | -     | -    | -    | -    | -    | -    | -    |
|      | 713   | 8950  | -     | -    | -    | -    | -    | -    | -    |
|      | 715   | 10000 | 8890  | 6930 | 5780 | 4180 | 3450 | 2610 | 2010 |
|      | 717   | -     | 9950  | 7790 | 6470 | 4685 | 3870 | 2920 | 2250 |
|      | 719   | -     | 11120 | 8730 | 7260 | 5250 | 4340 | 3280 | 2530 |

**Note:** - Bearing type of horizontal motors:

- Grease lubricated anti-friction
- Forced feed oil lubrication sleeve bearings

## | Rated Power at 60 Hz |

## | 6.6 kV |

Unit: kW

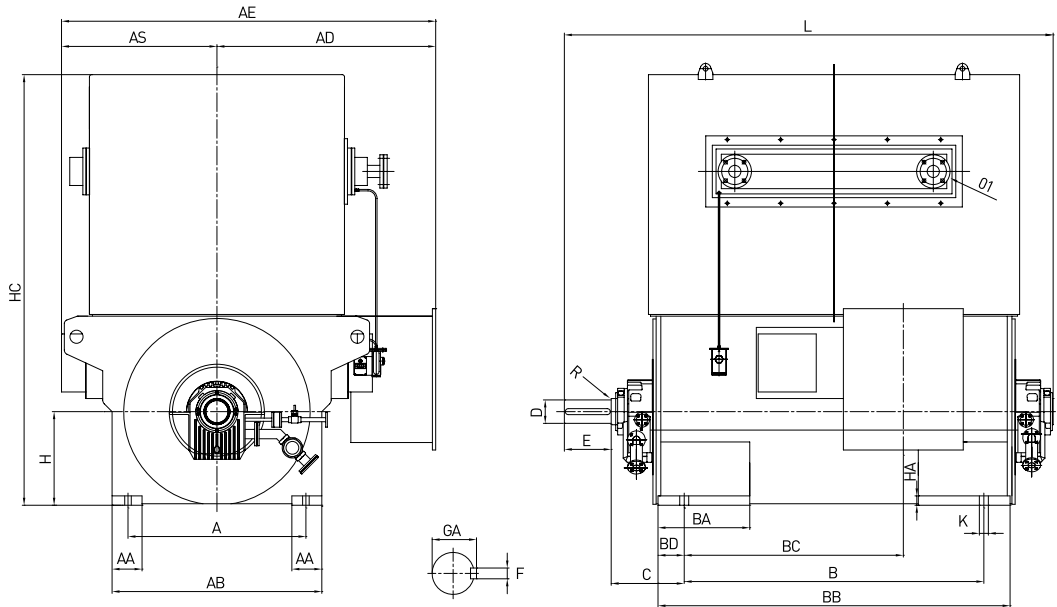
| Type | Poles | 2P    | 4P    | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|-------|-------|------|------|------|------|------|------|
| HRN3 | 403   | 1490  | 1030  | 800  | 610  | -    | -    | -    | -    |
|      | 405   | 1680  | 1130  | 900  | 690  | -    | -    | -    | -    |
|      | 407   | 1865  | 1270  | 1000 | 770  | -    | -    | -    | -    |
|      | 409   | -     | 1450  | 1120 | 870  | -    | -    | -    | -    |
|      | 451   | 2040  | -     | -    | -    | -    | -    | -    | -    |
|      | 453   | 2210  | 1630  | 1240 | 970  | 640  | 470  | -    | -    |
|      | 455   | 2450  | 1830  | 1390 | 1090 | 710  | 530  | -    | -    |
|      | 457   | -     | 2050  | 1560 | 1220 | 800  | 590  | -    | -    |
|      | 459   | -     | 2300  | 1750 | 1370 | 900  | 670  | -    | -    |
|      | 501   | 2760  | -     | -    | -    | -    | -    | -    | -    |
|      | 503   | 2990  | 2560  | 1920 | 1530 | 1060 | 790  | 550  | -    |
|      | 505   | 3500  | 2860  | 2150 | 1720 | 1190 | 890  | 620  | -    |
|      | 507   | -     | 3210  | 2410 | 1920 | 1330 | 1000 | 690  | -    |
|      | 509   | -     | 3600  | 2700 | 2160 | 1500 | 1120 | 780  | -    |
|      | 561   | 3980  | -     | -    | -    | -    | -    | -    | -    |
|      | 563   | 4400  | 3910  | 3070 | 2410 | 1650 | 1330 | 930  | 740  |
|      | 565   | 5000  | 4350  | 3480 | 2700 | 1840 | 1490 | 1050 | 820  |
|      | 567   | -     | 4920  | 3870 | 3020 | 2070 | 1670 | 1170 | 920  |
|      | 569   | -     | -     | -    | 3390 | 2320 | 1880 | 1320 | 1040 |
|      | 631   | 5580  | 5480  | 4230 | -    | -    | -    | -    | -    |
|      | 633   | 6250  | 6100  | 4800 | 3760 | 2690 | 2190 | 1620 | 1290 |
|      | 635   | 7000  | 6880  | 5330 | 4210 | 3010 | 2450 | 1820 | 1450 |
|      | 637   | -     | 7620  | 6000 | 4720 | 3370 | 2750 | 2040 | 1620 |
|      | 639   | -     | -     | -    | 5290 | 3780 | 3080 | 2290 | 1820 |
|      | 711   | 8000  | -     | -    | -    | -    | -    | -    | -    |
|      | 713   | 8950  | -     | -    | -    | -    | -    | -    | -    |
|      | 715   | 10000 | 8640  | 6730 | 5620 | 4060 | 3340 | 2530 | 1940 |
|      | 717   | -     | 9660  | 7570 | 6300 | 4550 | 3750 | 2830 | 2170 |
|      | 719   | -     | 10800 | 8480 | 7060 | 5100 | 4200 | 3180 | 2440 |

**Note:** - Bearing type of horizontal motors:

- Grease lubricated anti-friction
- Forced feed oil lubrication sleeve bearings

## | HRN3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type | Poles | A   | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC  | BD  | C    |
|------|-------|-----|-----|------|------|------|-----|------|-----|------|-----|-----|------|
| HRN3 | 403   | 870 | 150 | 1030 | 1150 | 1885 | 735 | 1250 | 320 | 1550 | 875 | 150 | 400  |
|      | 405   |     |     |      |      |      |     |      |     |      |     |     | *425 |
|      | 407   |     |     |      |      |      |     |      |     |      |     |     |      |

Unit: mm

| Type | Poles | H   | HA | HC   | L     | K  | D   | E   | F  | GA  | O1  | Weight (kg) |
|------|-------|-----|----|------|-------|----|-----|-----|----|-----|-----|-------------|
| HRN3 | 403   | 400 | 35 | 1935 | 2240  | 38 | 110 | 210 | 28 | 116 | 50A | 4100        |
|      | 405   |     |    |      | *2265 |    |     |     |    |     |     | 4300        |
|      | 407   |     |    |      |       |    |     |     |    |     |     | 4500        |

#### Note

- Suffix "-B" denotes for V-belt drive.
- Tolerance on "D" and "DA" dimension will be m6.
- The bores of the transmission elements should be made to an ISO fit H6.
- The dimensions printed in bold face in the table to IEC : A, B, C, D, E, F, GA, H, K are certified.
- Type of bearings.
  - Greased lubricated anti-friction
  - Forced feed oil lubrication sleeve bearings

6. The following tolerances are applicable to dimensions A, B, and H

| Dimensions | Tolerance (mm)       |      |
|------------|----------------------|------|
| A and B    | Over 500 up to 750   | ±1.5 |
|            | Over 750 up to 1,000 | ±1.5 |
|            | Over 1,000           | ±1.5 |
| H          | Over 250 up to 600   | -1.0 |
|            | Over 600 up to 1,000 | -1.5 |

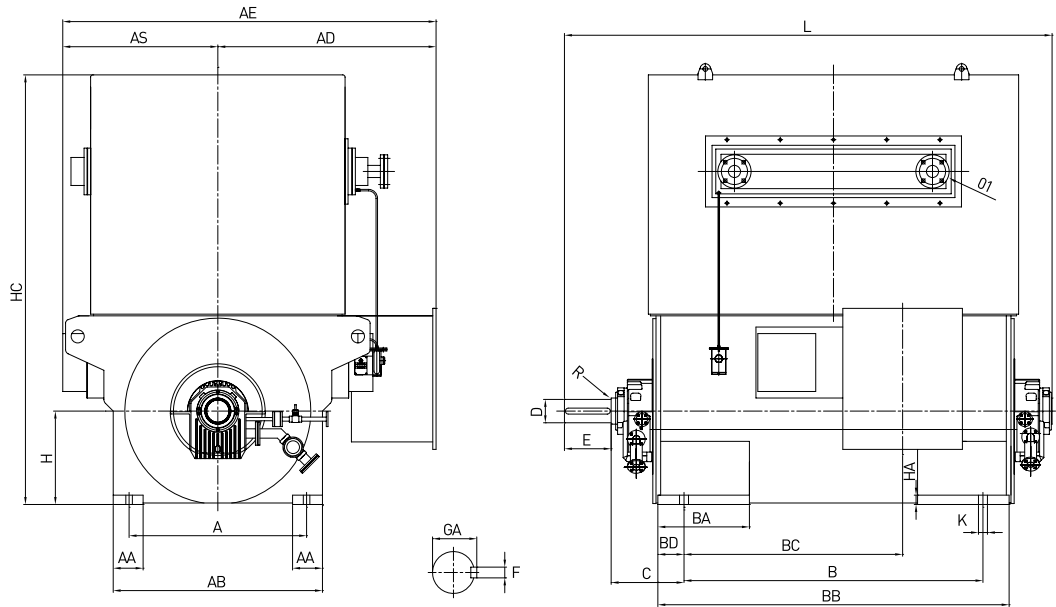
7. "R" dimension of the shaft extension part is as follows

| Shaft Diameter (mm) | R (mm) |
|---------------------|--------|
| 50-80               | 1.6    |
| 85-120              | 2.5    |
| 130-190             | 4.0    |

8. \* : Self cooled sleeve shaft dimension

## | HRN3 |

## Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A   | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | C    |
|------|-----|-------|-----|-----|------|------|------|-----|------|-----|------|------|-----|------|
| HRN3 | 451 | 2     | 850 | 150 | 1000 | 1180 | 1920 | 740 | 1400 | 450 | 1790 | 1050 | 195 | 450  |
|      | 453 | 2     |     |     |      |      |      |     |      |     |      |      |     | *530 |
|      | 455 | 2     |     |     |      |      |      |     | 1400 | 450 | 1860 | 1080 | 230 | 480  |
|      |     |       |     |     |      |      |      |     |      |     |      |      |     | *560 |
|      | 501 | 2     | 950 | 160 | 1120 | 1280 | 2130 | 850 | 1600 | 490 | 1880 | 1170 | 140 | 390  |
|      | 503 | 2     |     |     |      |      |      |     |      |     |      |      |     | *475 |
|      | 505 | 2     |     |     |      |      |      |     | 1600 | 490 | 1990 | 1230 | 195 | 460  |
|      |     |       |     |     |      |      |      |     |      |     |      |      |     | *530 |

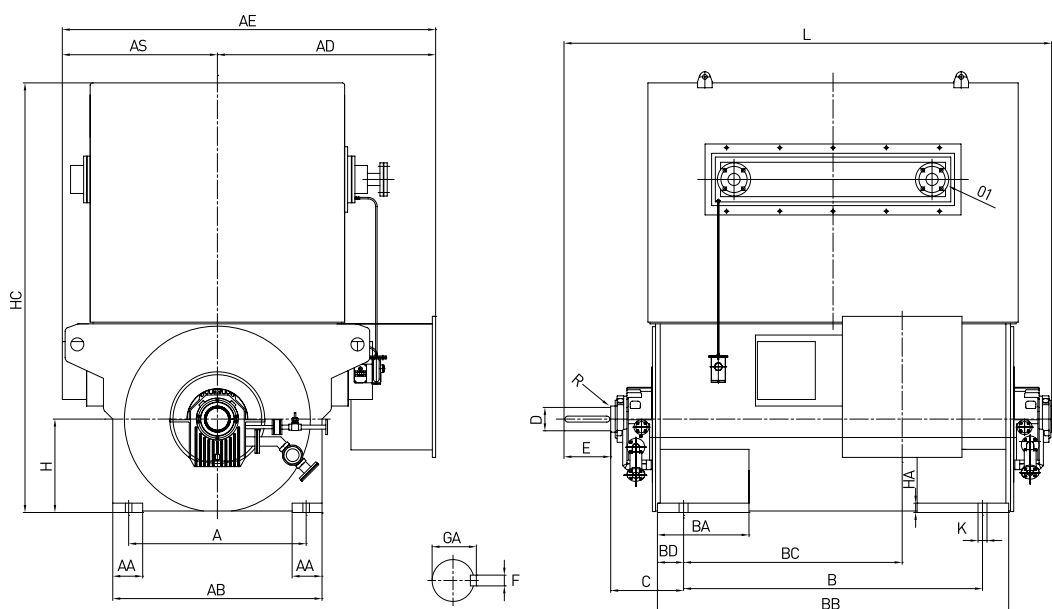
Unit: mm

| Type |     | Poles | H   | HA | HC    | L     | K  | D   | E   | F  | GA  | O1  | Weight (kg) |      |      |      |      |
|------|-----|-------|-----|----|-------|-------|----|-----|-----|----|-----|-----|-------------|------|------|------|------|
| HRN3 | 451 | 2     | 450 | 45 | 2060  | 2465  | 35 | 110 | 210 | 28 | 116 | 65A | 5200        |      |      |      |      |
|      | 453 | 2     |     |    |       | *2630 |    |     |     |    |     |     | *100        | *106 | 5400 |      |      |
|      | 455 | 2     |     |    |       | 2530  |    |     |     |    |     |     |             |      | 5800 |      |      |
|      |     |       |     |    |       | *2695 |    |     |     |    |     |     |             |      |      |      |      |
|      | 501 | 2     | 500 | 45 | 2300  | 2610  | 48 | 125 | 250 | 32 | 132 | 80A | 6700        |      |      |      |      |
|      | 503 | 2     |     |    |       | *2725 |    |     |     |    |     |     | *110        | *210 | *28  | *116 | 7000 |
|      | 505 | 2     |     |    |       | 2735  |    |     |     |    |     |     |             |      |      |      | 7600 |
|      |     |       |     |    | *2835 |       |    |     |     |    |     |     |             |      |      |      |      |

Note: \* : Self cooled sleeve bearing dimension

## | HRN3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A    | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | C   |  |  |  |  |
|------|-----|-------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|--|--|--|--|
| HRN3 | 561 | 2     | 1120 | 160 | 1280 | 1330 | 2235 | 905 | 1600 | 490 | 1990 | 1200 | 195 | 500 |  |  |  |  |
|      | 563 | 2     |      |     |      |      |      |     |      |     |      |      |     |     |  |  |  |  |
|      | 565 | 2     |      |     |      |      |      |     | 1800 | 490 | 2140 | 1300 | 170 | 480 |  |  |  |  |

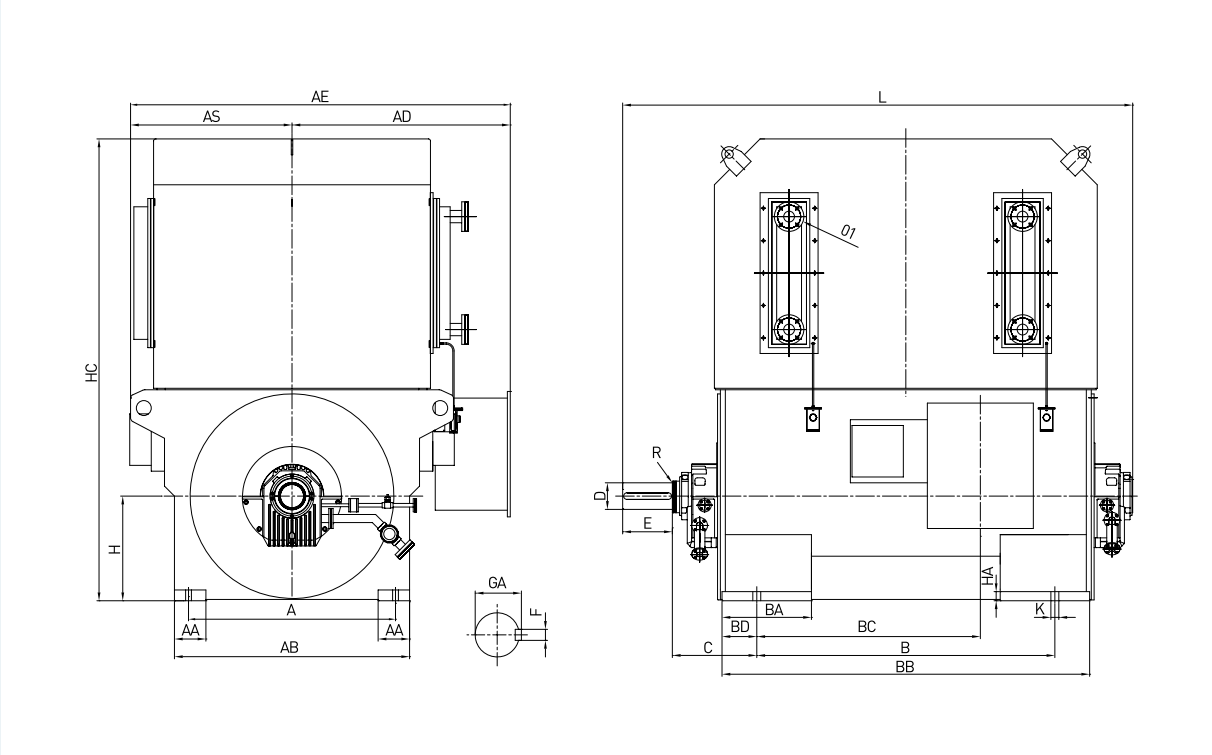
Unit: mm

| Type |     | Poles | H   | HA | HC   | L    | K  | D   | E   | F  | GA  | O1   | Weight [kg] |
|------|-----|-------|-----|----|------|------|----|-----|-----|----|-----|------|-------------|
| HRN3 | 561 | 2     | 560 | 50 | 2420 | 2800 | 48 | 150 | 250 | 36 | 158 | 100A | 8500        |
|      | 563 | 2     |     |    |      | 9000 |    |     |     |    |     |      |             |
|      | 565 | 2     |     |    |      | 9600 |    |     |     |    |     |      |             |

**Note:** For the bearing type and tolerances of dimensions, see page 66.

| HRN3 |

Mounting B3 / Degree of Protection IP54



Unit: mm

| Type | Poles    | A    | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | C   |
|------|----------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRN3 | 631<br>2 | 1250 | 190 | 1420 | 1400 | 2375 | 975 | 1800 | 540 | 2220 | 1350 | 210 | 510 |
|      | 633<br>2 |      |     |      |      |      |     |      |     |      |      |     |     |
|      | 635<br>2 |      |     |      |      |      |     | 2000 | 540 | 2320 | 1500 | 160 | 460 |

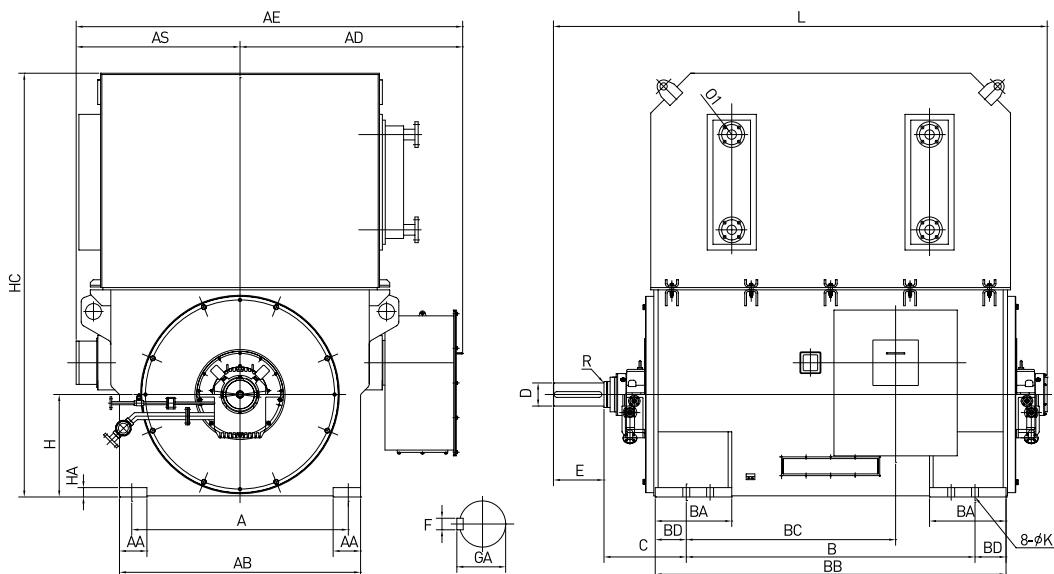
Unit: mm

| Type | Poles    | H   | HA | HC   | L    | K  | D   | E   | F  | GA  | O1  | Weight (kg) |
|------|----------|-----|----|------|------|----|-----|-----|----|-----|-----|-------------|
| HRN3 | 631<br>2 | 630 | 65 | 2780 | 3080 | 48 | 160 | 300 | 40 | 169 | 80A | 11500       |
|      | 633<br>2 |     |    |      |      |    |     |     |    |     |     | 12600       |
|      | 635<br>2 |     |    |      | 3180 |    |     |     |    |     |     | 13500       |

**Note:** For the bearing type and tolerances of dimensions, see page 66.

## | HRN3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A    | AA  | AB   | AD   | AE   | AS   | B    | BA  | BB   | BC   | BD  | C   |
|------|-----|-------|------|-----|------|------|------|------|------|-----|------|------|-----|-----|
| HRN3 | 711 | 2     | 1500 | 190 | 1670 | 1700 | 2835 | 1135 | 2000 | 515 | 2350 | 1450 | 175 | 510 |
|      | 713 | 2     |      |     |      |      |      |      |      |     |      |      |     |     |
|      | 715 | 2     |      |     |      |      |      |      |      | 530 | 2430 | 1450 | 215 | 570 |

Unit: mm

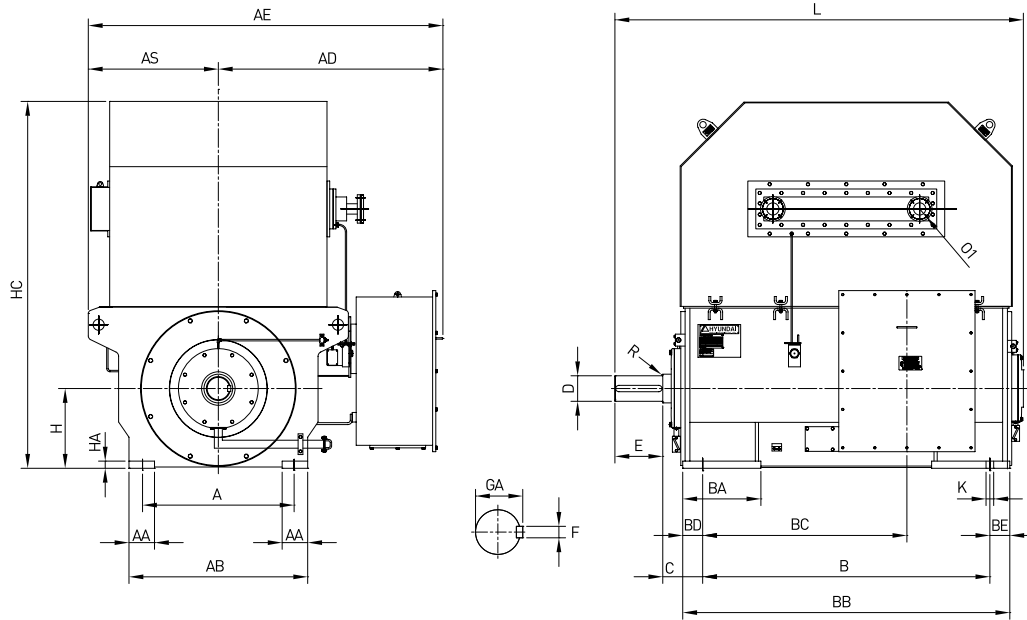
| Type |     | Poles | H   | HA | HC   | L    | K  | D   | E   | F  | GA  | O1  | Weight (kg) |
|------|-----|-------|-----|----|------|------|----|-----|-----|----|-----|-----|-------------|
| HRN3 | 711 | 2     | 710 | 65 | 2970 | 3325 | 48 | 160 | 350 | 40 | 169 | 80A | 16270       |
|      | 713 | 2     |     |    |      |      |    |     |     |    |     |     | 16900       |
|      | 715 | 2     |     |    |      | 3420 |    |     |     |    |     |     | 17500       |

**Note:** For the bearing type and tolerances of dimensions, see page 66.



## | HRN3 |

## Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A   | AA  | AB  | AD   | AE   | AS  | B    | BA  | BB   | BC  | BD  | BE  |
|------|-----|-------|-----|-----|-----|------|------|-----|------|-----|------|-----|-----|-----|
| HRN3 | 403 | 4     | 830 | 140 | 950 | 1120 | 1790 | 670 | 1120 | 275 | 1420 | 760 | 177 | 123 |
|      |     | 6     |     |     |     |      |      |     | 1120 |     | 1420 | 760 |     | 123 |
|      | 405 | 4     |     |     |     |      |      |     | 1120 |     | 1420 | 760 |     | 123 |
|      |     | 6     |     |     |     |      |      |     | 1120 |     | 1420 | 760 |     | 123 |
|      | 407 | 4     |     |     |     |      |      |     | 1250 |     | 1565 | 905 |     | 138 |
|      |     | 6     |     |     |     |      |      |     | 1250 |     | 1565 | 905 |     | 138 |
|      | 409 | 4     |     |     |     |      |      |     | 1250 |     | 1565 | 905 |     | 138 |
|      |     | 6     |     |     |     |      |      |     | 1250 |     | 1565 | 905 |     | 138 |

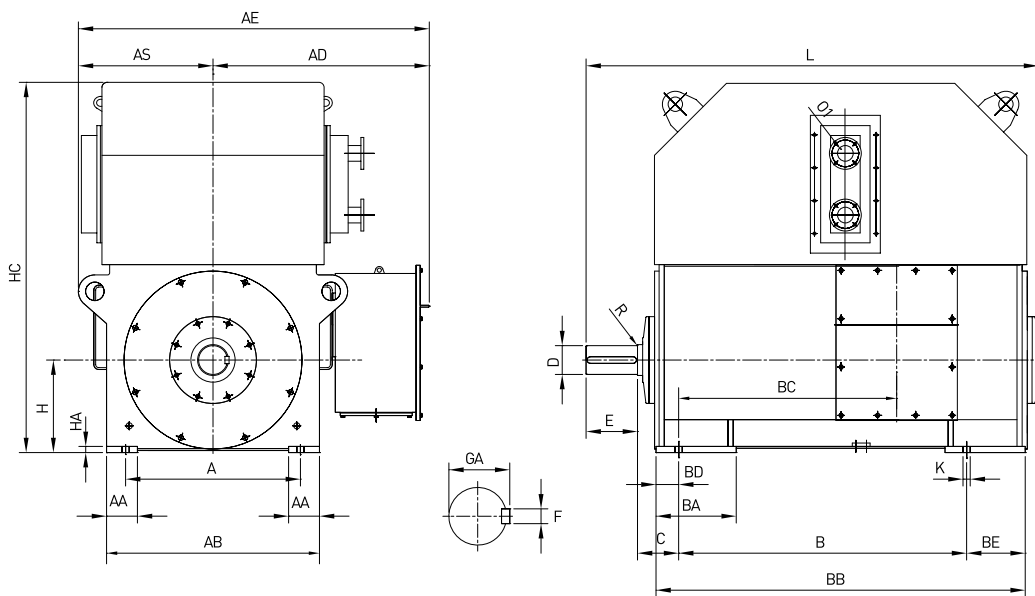
Unit: mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | O1  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|-----|-----|----|------|----|------|-----|-----|-----|----|-----|-------------|
| HRN3 | 403 | 4     | 270 | 400 | 30 | 1560 | 35 | 1770 | 50A | 120 | 210 | 32 | 127 | 3300        |
|      |     | 6     |     |     |    |      |    | 1770 |     | 120 | 210 | 32 | 127 | 4000        |
|      | 405 | 4     |     |     |    |      |    | 1930 |     | 120 | 210 | 32 | 127 | 4230        |
|      |     | 6     |     |     |    |      |    | 1770 |     | 120 | 210 | 32 | 127 | 4110        |
|      | 407 | 4     |     |     |    |      |    | 1970 |     | 130 | 250 | 32 | 137 | 4400        |
|      |     | 6     |     |     |    |      |    | 1970 |     | 130 | 250 | 32 | 137 | 4420        |
|      | 409 | 4     |     |     |    |      |    | 1970 |     | 130 | 250 | 32 | 137 | 5200        |
|      |     | 6     |     |     |    |      |    | 1970 |     | 130 | 250 | 32 | 137 | 4600        |

**Note:** For the bearing type and tolerances of dimensions, see page 66.

## | HRN3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A   | AA  | AB  | AD   | AE   | AS  | B    | BA  | BB   | BC  | BD  | BE  |
|------|-----|-------|-----|-----|-----|------|------|-----|------|-----|------|-----|-----|-----|
| HRN3 | 403 | 8     | 830 | 140 | 950 | 1120 | 1790 | 670 | 1120 | 275 | 1420 | 760 | 177 | 123 |
|      | 405 | 8     |     |     |     |      |      |     | 1120 |     | 1420 | 760 |     | 123 |
|      | 407 | 8     |     |     |     |      |      |     | 1250 |     | 1565 | 905 |     | 138 |
|      | 409 | 8     |     |     |     |      |      |     | 1250 |     | 1565 | 905 |     | 138 |

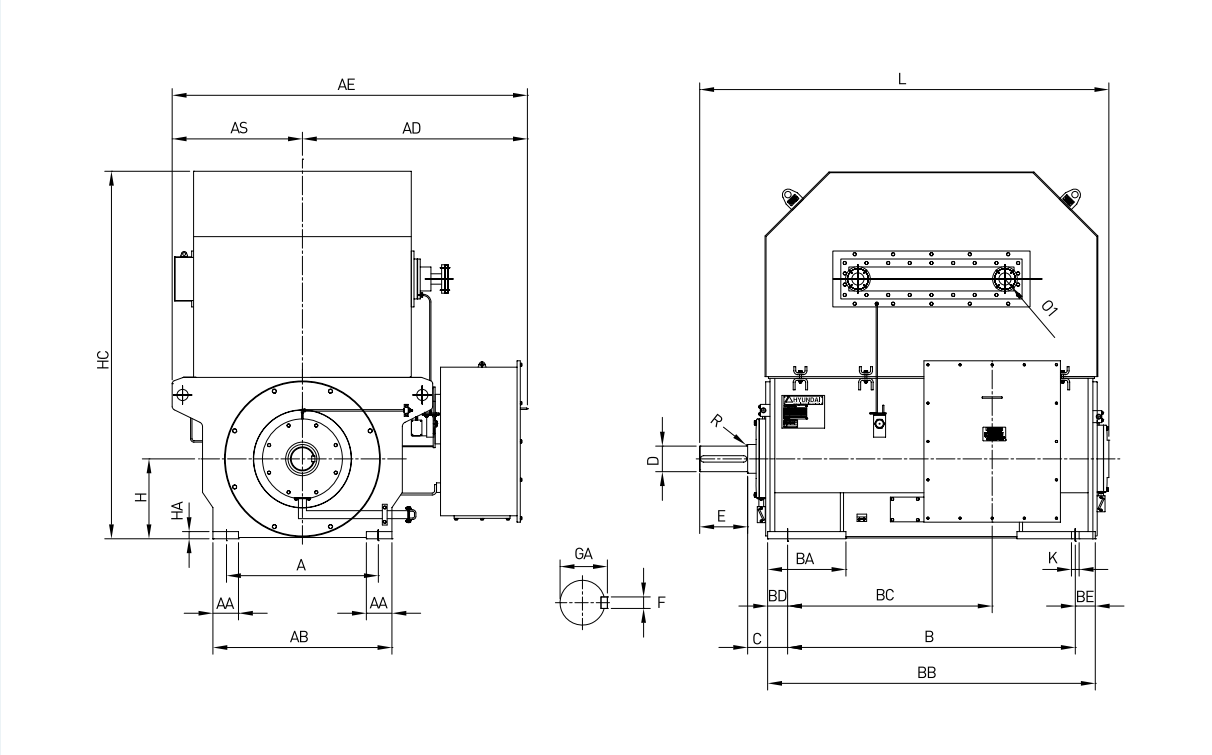
Unit: mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | O1  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|-----|-----|----|------|----|------|-----|-----|-----|----|-----|-------------|
| HRN3 | 403 | 8     | 270 | 400 | 30 | 1560 | 35 | 1770 | 50A | 120 | 210 | 32 | 127 | 4000        |
|      | 405 | 8     |     |     |    |      |    | 1770 |     | 120 | 210 | 32 | 127 | 4110        |
|      | 407 | 8     |     |     |    |      |    | 1970 |     | 130 | 250 | 32 | 137 | 4420        |
|      | 409 | 8     |     |     |    |      |    | 1970 |     | 130 | 250 | 32 | 137 | 4600        |

**Note:** For the bearing type and tolerances of dimensions, see page 66.

| HRN3 |

Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A   | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|-------|-----|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRN3 | 453 | 4 - 6 | 850 | 150 | 1000 | 1180 | 1935 | 755 | 1400 | 450 | 1700 | 910  | 150 | 150 |
|      | 455 | 4 - 6 |     |     |      |      |      |     | 1400 |     | 1700 | 910  |     |     |
|      | 457 | 4 - 6 |     |     |      |      |      |     | 1600 |     | 1900 | 1110 |     |     |
|      | 459 | 4 - 6 |     |     |      |      |      |     | 1600 |     | 1900 | 1110 |     |     |

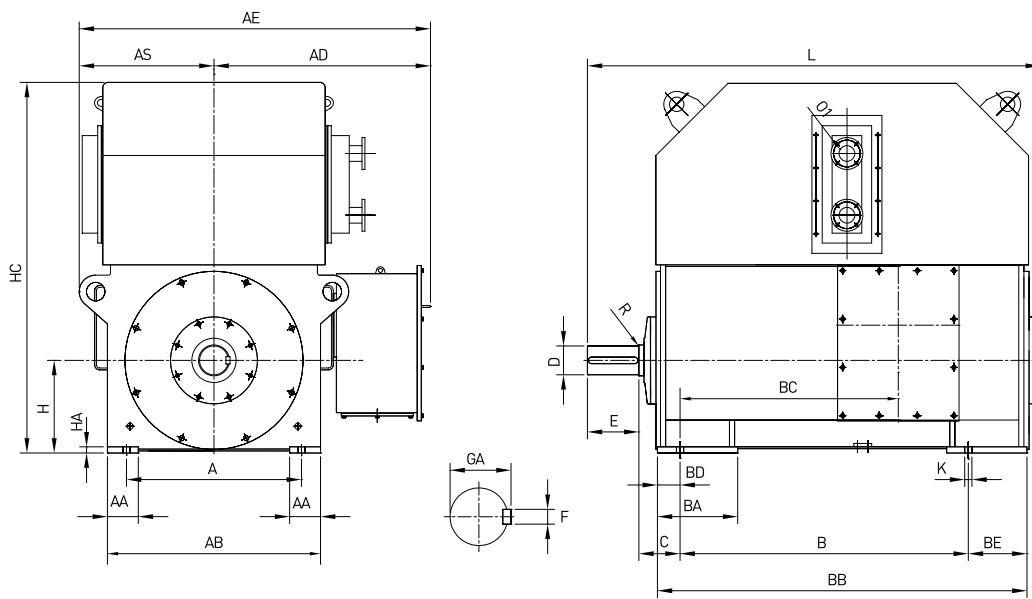
Unit: mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | O1  | D   | E   | F  | GA  | Weight [kg] |
|------|-----|-------|-----|-----|----|------|----|------|-----|-----|-----|----|-----|-------------|
| HRN3 | 453 | 4     | 250 | 450 | 45 | 2120 | 35 | 2120 | 65A | 140 | 250 | 36 | 148 | 5400        |
|      |     | 6     |     |     |    |      |    | 2120 |     | 140 | 250 | 36 | 148 | 5400        |
|      | 455 | 4     |     |     |    |      |    | 2120 |     | 140 | 250 | 36 | 148 | 5600        |
|      |     | 6     |     |     |    |      |    | 2120 |     | 140 | 250 | 36 | 148 | 5600        |
|      | 457 | 4     |     |     |    |      |    | 2320 |     | 150 | 250 | 36 | 158 | 6000        |
|      |     | 6     |     |     |    |      |    | 2320 |     | 150 | 250 | 36 | 158 | 6000        |
|      | 459 | 4     |     |     |    |      |    | 2320 |     | 150 | 250 | 36 | 158 | 6250        |
|      |     | 6     |     |     |    |      |    | 2320 |     | 150 | 250 | 36 | 158 | 6300        |

Note: For the bearing type and tolerances of dimensions, see page 66.

## | HRN3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles  | A   | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|--------|-----|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRN3 | 453 | 8 - 16 | 850 | 160 | 1035 | 1110 | 1695 | 585 | 1250 | 390 | 1635 | 885  | 110 | 275 |
|      | 455 | 8 - 16 |     |     |      |      |      |     | 1250 |     | 1635 | 885  |     | 275 |
|      | 457 | 8 - 16 |     |     |      |      |      |     | 1400 |     | 1795 | 1045 |     | 285 |
|      | 459 | 8 - 16 |     |     |      |      |      |     | 1400 |     | 1795 | 1045 |     | 285 |

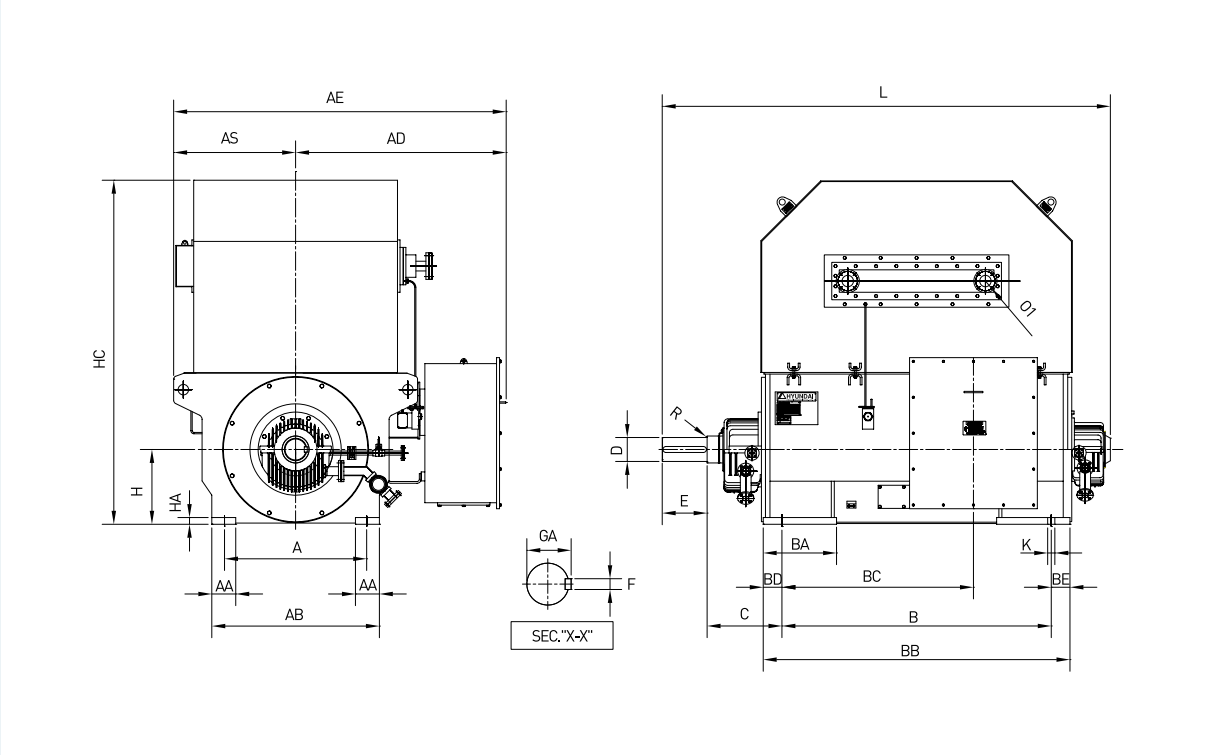
Unit: mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | O1  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|-----|-----|----|------|----|------|-----|-----|-----|----|-----|-------------|
| HRN3 | 453 | 8-16  | 200 | 450 | 30 | 1820 | 35 | 2090 | 65A | 140 | 250 | 36 | 148 | 5400        |
|      | 455 | 8-16  |     |     |    |      |    | 2090 |     | 140 | 250 | 36 | 148 | 5500        |
|      | 457 | 8-16  |     |     |    |      |    | 2250 |     | 150 | 250 | 36 | 158 | 6000        |
|      | 459 | 8-16  |     |     |    |      |    | 2250 |     | 150 | 250 | 36 | 158 | 6250        |

**Note:** For the bearing type and tolerances of dimensions, see page 66.

| HRN3 |

Mounting B3 / Degree of Protection IP54



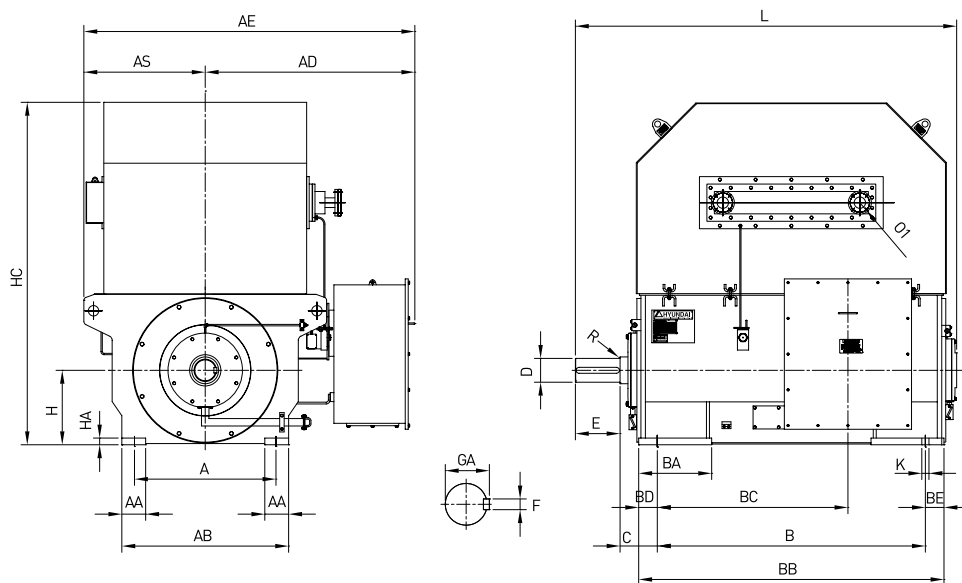
| Unit: mm |     |       |     |     |      |      |      |     |      |     |      |      |     |     |
|----------|-----|-------|-----|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| Type     |     | Poles | A   | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
| HRN3     | 503 | 4     | 950 | 160 | 1120 | 1240 | 2055 | 815 | 1600 | 490 | 1850 | 1080 | 125 | 125 |
|          | 505 | 4     |     |     |      |      |      |     | 1600 |     | 1850 | 1080 |     |     |
|          | 507 | 4     |     |     |      |      |      |     | 1800 |     | 2050 | 1280 |     |     |
|          | 509 | 4     |     |     |      |      |      |     | 1800 |     | 2050 | 1280 |     |     |

| Unit: mm |     |       |     |     |    |      |    |      |     |       |     |    |       |             |
|----------|-----|-------|-----|-----|----|------|----|------|-----|-------|-----|----|-------|-------------|
| Type     |     | Poles | C   | H   | HA | HC   | K  | L    | O1  | D     | E   | F  | GA    | Weight (kg) |
| HRN3     | 503 | 4     | 500 | 500 | 45 | 2360 | 48 | 2800 | 65A | 160   | 300 | 40 | 169   | 7050        |
|          | 505 | 4     |     |     |    |      |    | 2800 |     | 160   | 300 | 40 | 169   | 7300        |
|          | 507 | 4     |     |     |    |      |    | 3000 |     | 170   | 300 | 40 | 179   | 7850        |
|          | 509 | 4     |     |     |    |      |    | 3000 |     | * 160 |     |    | * 169 | 8200        |

**Note:** - For the bearing type and tolerances of dimensions, see page 66.  
\* : Self cooled sleeve bearing dimension

## | HRN3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A   | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|-------|-----|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRN3 | 503 | 6     | 950 | 160 | 1120 | 1240 | 2055 | 815 | 1600 | 490 | 1850 | 1080 | 125 | 125 |
|      | 505 | 6     |     |     |      |      |      |     | 1600 |     | 1850 | 1080 |     |     |
|      | 507 | 6     |     |     |      |      |      |     | 1800 |     | 2050 | 1280 |     |     |
|      | 509 | 6     |     |     |      |      |      |     | 1800 |     | 2050 | 1280 |     |     |

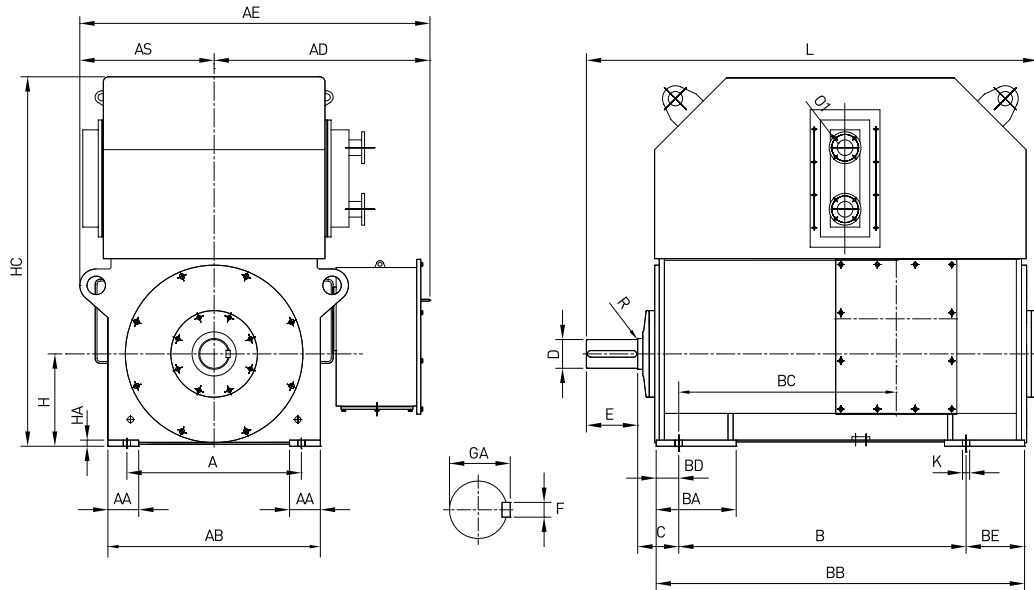
Unit: mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | O1  | D   | E   | F  | GA  | Weight [kg] |
|------|-----|-------|-----|-----|----|------|----|------|-----|-----|-----|----|-----|-------------|
| HRN3 | 503 | 6     | 250 | 500 | 45 | 2360 | 48 | 2360 | 65A | 160 | 300 | 40 | 169 | 6650        |
|      | 505 | 6     |     |     |    |      |    | 2360 |     | 160 | 300 | 40 | 169 | 6900        |
|      | 507 | 6     |     |     |    |      |    | 2560 |     | 170 | 300 | 40 | 179 | 7500        |
|      | 509 | 6     |     |     |    |      |    | 2560 |     | 170 | 300 | 40 | 179 | 7850        |

**Note:** For the bearing type and tolerances of dimensions, see page 66.

## | HRN3 |

## Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles  | A   | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|--------|-----|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRN3 | 503 | 8 - 16 | 950 | 180 | 1155 | 1190 | 1930 | 740 | 1400 | 345 | 1755 | 980  | 135 | 220 |
|      | 505 | 8 - 16 |     |     |      |      |      |     | 1400 |     | 1755 | 980  |     | 220 |
|      | 507 | 8 - 16 |     |     |      |      |      |     | 1600 |     | 1945 | 1170 |     | 210 |
|      | 509 | 8 - 16 |     |     |      |      |      |     | 1600 |     | 1945 | 1170 |     | 210 |

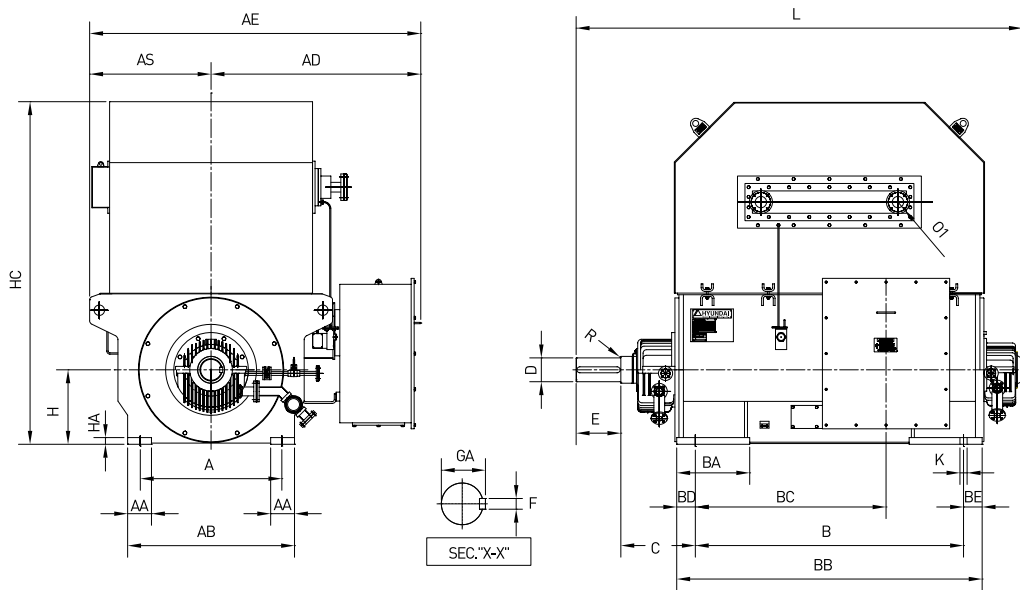
Unit: mm

| Type |     | Poles  | C   | H   | HA | HC   | K  | L    | O1  | D   | E   | F  | GA  | Weight [kg] |
|------|-----|--------|-----|-----|----|------|----|------|-----|-----|-----|----|-----|-------------|
| HRN3 | 503 | 8 - 16 | 224 | 500 | 34 | 2010 | 42 | 2230 | 65A | 160 | 300 | 40 | 169 | 6450        |
|      | 505 | 8 - 16 |     |     |    |      |    | 2230 |     | 160 | 300 | 40 | 169 | 6650        |
|      | 507 | 8 - 16 |     |     |    |      |    | 2420 |     | 170 | 300 | 40 | 179 | 7400        |
|      | 509 | 8 - 16 |     |     |    |      |    | 2420 |     | 170 | 300 | 40 | 179 | 7750        |

**Note:** For the bearing type and tolerances of dimensions, see page 66.

## | HRN3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A    | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|-------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRN3 | 563 | 4     | 1120 | 160 | 1280 | 1450 | 2355 | 905 | 1600 | 520 | 1930 | 1115 | 165 | 165 |
|      | 565 | 4     |      |     |      |      |      |     | 1800 |     | 2130 | 1315 |     |     |
|      | 567 | 4     |      |     |      |      |      |     | 1800 |     | 2130 | 1315 |     |     |

Unit: mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | O1  | D     | E     | F    | GA    | Weight [kg] |
|------|-----|-------|-----|-----|----|------|----|------|-----|-------|-------|------|-------|-------------|
| HRN3 | 563 | 4     | 560 | 560 | 50 | 2480 | 48 | 2970 | 80A | 190   | 350   | 45   | 200   | 9150        |
|      | 565 | 4     |     |     |    |      |    | 3170 |     | * 170 | * 300 | * 40 | * 179 | 9750        |
|      | 567 | 4     |     |     |    |      |    | 3170 |     |       |       |      |       | 10150       |

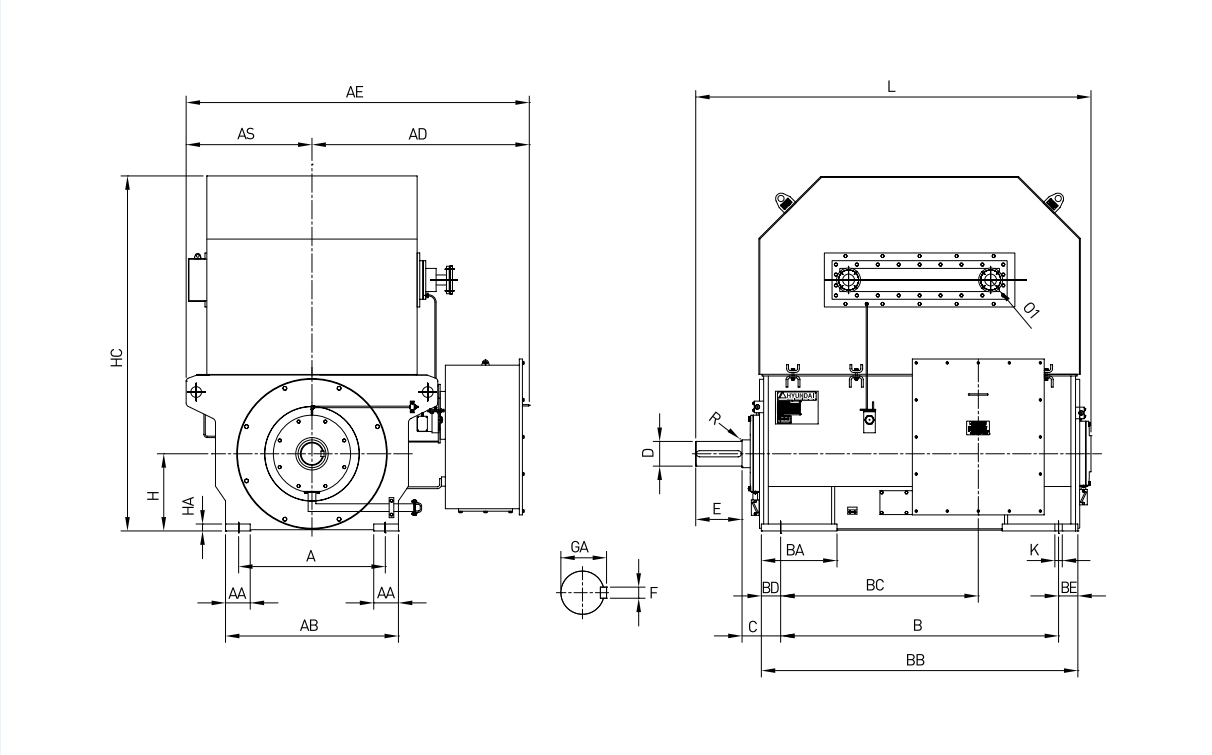
**Note:** - For the bearing type and tolerances of dimensions, see page 66.

\* : Self cooled sleeve bearing dimension



| HRN3 |

Mounting B3 / Degree of Protection IP54



Unit: mm

| Type | Poles | A | AA   | AB  | AD   | AE   | AS   | B   | BA   | BB  | BC   | BD   | BE  |
|------|-------|---|------|-----|------|------|------|-----|------|-----|------|------|-----|
| HRN3 | 563   | 6 | 1120 | 160 | 1280 | 1450 | 2355 | 905 | 1600 | 520 | 1930 | 1115 | 165 |
|      | 565   | 6 |      |     |      |      |      |     | 1800 |     | 2130 | 1315 |     |
|      | 567   | 6 |      |     |      |      |      |     | 1800 |     | 2130 | 1315 |     |

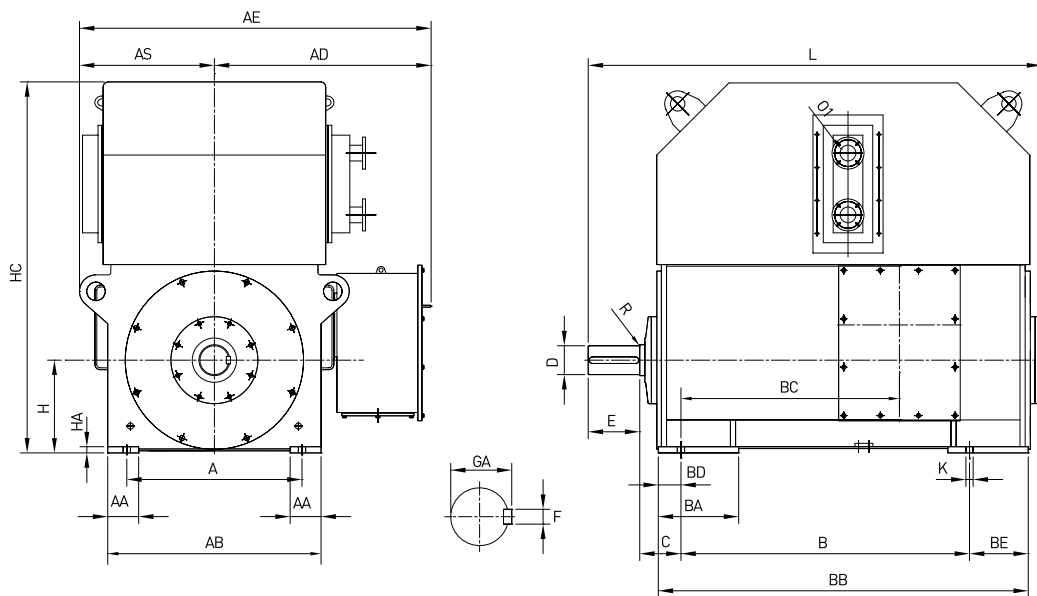
Unit: mm

| Type | Poles | C | H   | HA  | HC | K    | L    | O1   | D   | E   | F   | GA | Weight [kg] |
|------|-------|---|-----|-----|----|------|------|------|-----|-----|-----|----|-------------|
| HRN3 | 563   | 6 | 280 | 560 | 50 | 2480 | 48   | 2500 | 80A | 180 | 300 | 45 | 9250        |
|      | 565   | 6 |     |     |    |      | 2700 |      |     | 180 | 300 | 45 | 9900        |
|      | 567   | 6 |     |     |    |      | 2700 |      |     | 190 | 350 | 45 | 10350       |

**Note:** For the bearing type and tolerances of dimensions, see page 66.

## | HRN3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles  | A    | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|--------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRN3 | 563 | 8 - 16 | 1120 | 180 | 1285 | 1300 | 2080 | 780 | 1600 | 445 | 1945 | 1125 | 170 | 175 |
|      | 565 | 8 - 16 |      |     |      |      |      |     | 1600 |     | 1945 | 1125 |     |     |
|      | 567 | 8 - 16 |      |     |      |      |      |     | 1800 |     | 2145 | 1325 |     |     |
|      | 569 | 8 - 16 |      |     |      |      |      |     | 1800 |     | 2145 | 1325 |     |     |

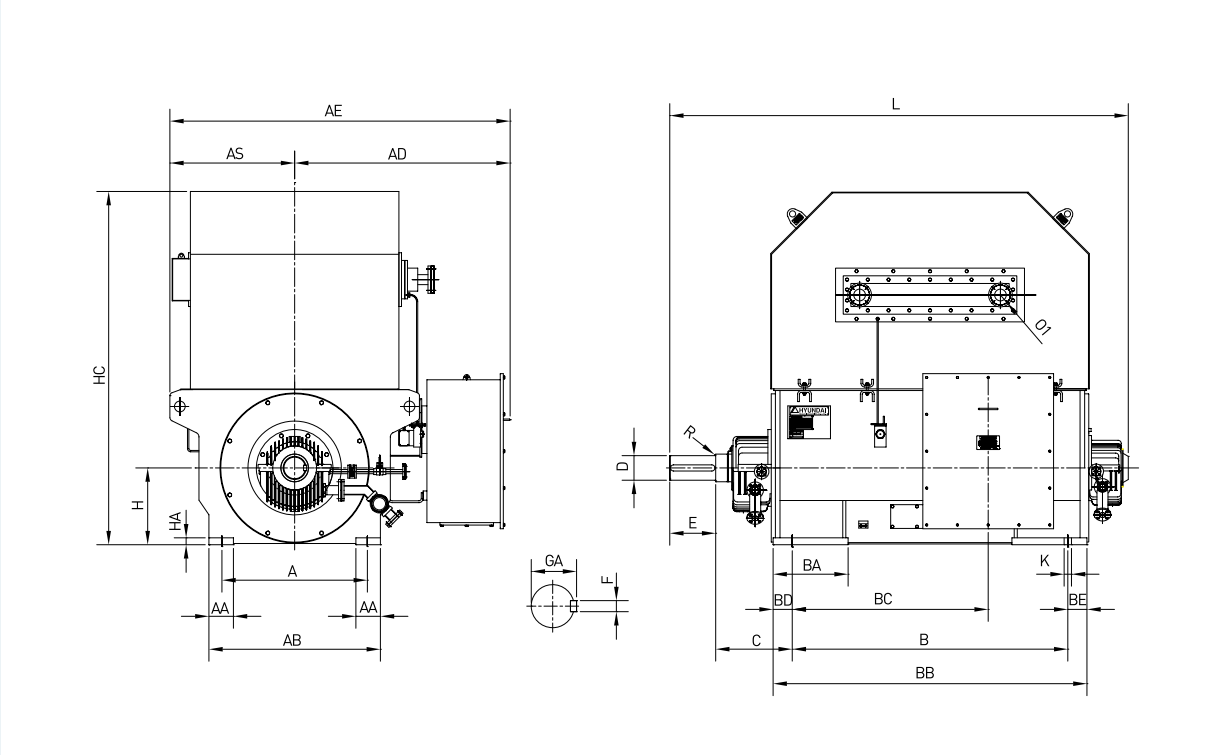
Unit: mm

| Type |     | Poles  | C   | H   | HA | HC   | K  | L    | O1  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|--------|-----|-----|----|------|----|------|-----|-----|-----|----|-----|-------------|
| HRN3 | 563 | 8 - 16 | 280 | 560 | 35 | 2160 | 48 | 2500 | 80A | 180 | 300 | 45 | 190 | 9300        |
|      | 565 | 8 - 16 |     |     |    |      |    | 2500 |     | 180 | 300 | 45 | 190 | 9600        |
|      | 567 | 8 - 16 |     |     |    |      |    | 2700 |     | 190 | 350 | 45 | 200 | 10300       |
|      | 569 | 8 - 16 |     |     |    |      |    | 2700 |     | 190 | 350 | 45 | 200 | 10800       |

**Note:** For the bearing type and tolerances of dimensions, see page 66.

| HRN3 |

Mounting B3 / Degree of Protection IP54



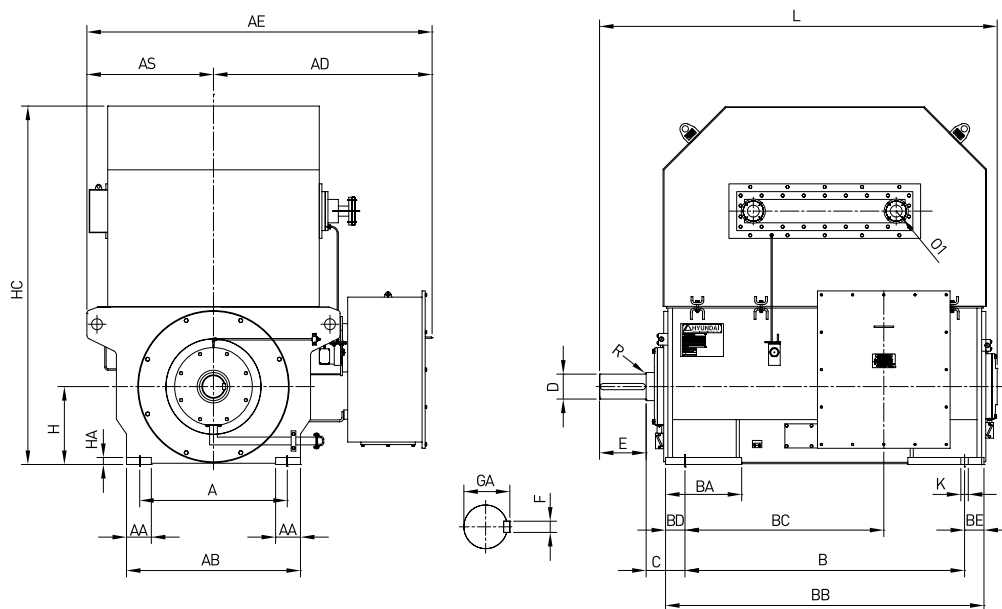
| Unit: mm |       |   |      |     |      |      |      |     |      |     |      |      |     |
|----------|-------|---|------|-----|------|------|------|-----|------|-----|------|------|-----|
| Type     | Poles | A | AA   | AB  | AD   | AE   | AS   | B   | BA   | BB  | BC   | BD   | BE  |
| HRN3     | 631   | 4 | 1250 | 190 | 1420 | 1380 | 2355 | 975 | 1800 | 540 | 2110 | 1305 | 155 |
|          | 633   | 4 |      |     |      |      |      |     | 1800 |     | 2110 | 1305 |     |
|          | 635   | 4 |      |     |      |      |      |     | 2000 |     | 2310 | 1505 |     |
|          | 637   | 4 |      |     |      |      |      |     | 2000 |     | 2310 | 1505 |     |

| Unit: mm |     |       |     |     |    |      |    |      |      |     |     |    |     |             |
|----------|-----|-------|-----|-----|----|------|----|------|------|-----|-----|----|-----|-------------|
| Type     |     | Poles | C   | H   | HA | HC   | K  | L    | O1   | D   | E   | F  | GA  | Weight (kg) |
| HRN3     | 631 | 4     | 600 | 630 | 55 | 2830 | 48 | 3280 | 100A | 200 | 350 | 45 | 210 | 12400       |
|          | 633 | 4     |     |     |    |      |    | 3280 |      | 200 | 350 | 45 | 210 | 12800       |
|          | 635 | 4     |     |     |    |      |    | 3480 |      | 220 | 350 | 50 | 231 | 13700       |
|          | 637 | 4     |     |     |    |      |    | 3480 |      | 220 | 350 | 50 | 231 | 14300       |

**Note:** For the bearing type and tolerances of dimensions, see page 66.

## | HRN3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A    | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|-------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRN3 | 631 | 6     | 1250 | 190 | 1420 | 1380 | 2355 | 975 | 1800 | 540 | 2110 | 1305 | 155 | 155 |
|      | 633 | 6     |      |     |      |      |      |     | 1800 |     | 2110 | 1305 |     |     |
|      | 635 | 6     |      |     |      |      |      |     | 2000 |     | 2310 | 1505 |     |     |
|      | 637 | 6     |      |     |      |      |      |     | 2000 |     | 2310 | 1505 |     |     |

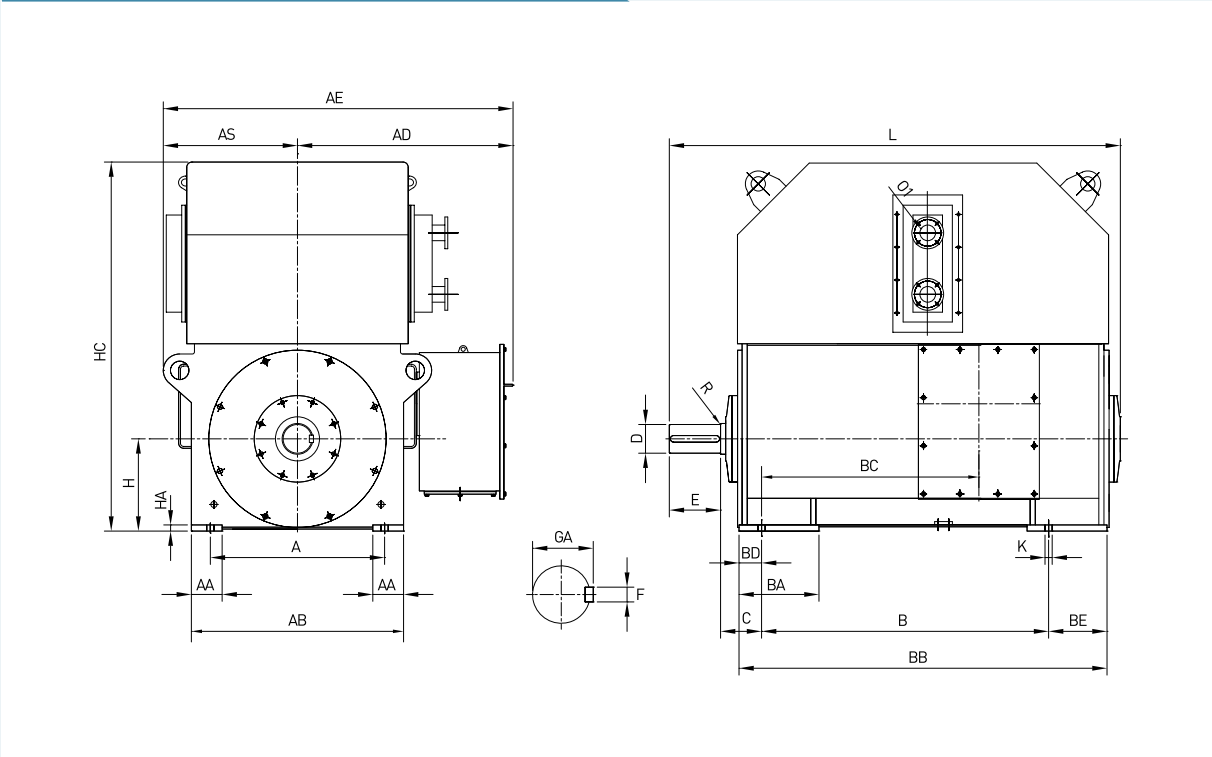
Unit: mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | O1   | D   | E   | F  | GA  | Weight[kg] |
|------|-----|-------|-----|-----|----|------|----|------|------|-----|-----|----|-----|------------|
| HRN3 | 631 | 6     | 280 | 630 | 55 | 2830 | 48 | 2690 | 100A | 200 | 350 | 45 | 210 | 11800      |
|      | 633 | 6     |     |     |    |      |    | 2690 |      | 200 | 350 | 45 | 210 | 12300      |
|      | 635 | 6     |     |     |    |      |    | 2890 |      | 220 | 350 | 50 | 231 | 13200      |
|      | 637 | 6     |     |     |    |      |    | 2890 |      | 220 | 350 | 50 | 231 | 13800      |

**Note:** For the bearing type and tolerances of dimensions, see page 66.

| HRN3 |

Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles  | A    | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|--------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRN3 | 633 | 8 - 16 | 1180 | 220 | 1420 | 1310 | 2185 | 875 | 1800 | 500 | 2240 | 1440 | 145 | 295 |
|      | 635 | 8 - 16 |      |     |      |      |      |     | 1800 |     | 2240 | 1440 |     | 295 |
|      | 637 | 8 - 16 |      |     |      |      |      |     | 2000 |     | 2480 | 1680 |     | 335 |
|      | 639 | 8 - 16 |      |     |      |      |      |     | 2000 |     | 2480 | 1680 |     | 335 |

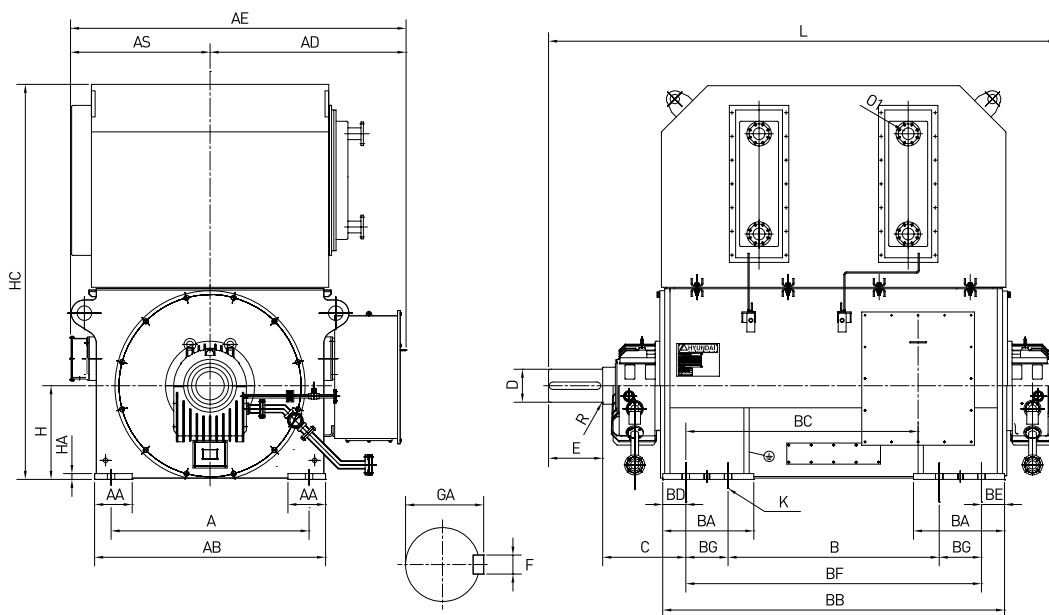
Unit: mm

| Type |     | Poles  | C   | H   | HA | HC   | K  | L    | O1   | D   | E   | F  | GA  | Weight [kg] |
|------|-----|--------|-----|-----|----|------|----|------|------|-----|-----|----|-----|-------------|
| HRN3 | 633 | 8 - 16 | 315 | 630 | 38 | 2400 | 48 | 2860 | 100A | 200 | 350 | 45 | 210 | 12900       |
|      | 635 | 8 - 16 |     |     |    |      |    | 2860 |      | 200 | 350 | 45 | 210 | 13500       |
|      | 637 | 8 - 16 |     |     |    |      |    | 3100 |      | 220 | 350 | 50 | 231 | 14600       |
|      | 639 | 8 - 16 |     |     |    |      |    | 3100 |      | 220 | 350 | 50 | 231 | 15300       |

**Note:** For the bearing type and tolerances of dimensions, see page 66.

## | HRN3 |

### Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles | A    | AA  | AB   | AD   | AE   | AS   | B    | BA  | BB   | BC   | BD  | BE  | BF   | BG  |
|------|-----|-------|------|-----|------|------|------|------|------|-----|------|------|-----|-----|------|-----|
| HRN3 | 715 | 4 - 6 | 1500 | 285 | 1750 | 1460 | 2520 | 1060 | 1400 | 690 | 2390 | 1560 | 175 | 175 | 2040 | 320 |
|      | 717 | 4 - 6 |      |     |      |      |      |      | 1600 |     | 2590 | 1760 |     |     | 2240 |     |
|      | 719 | 4 - 6 |      |     |      |      |      |      | 1600 |     | 2590 | 1760 |     |     | 2240 |     |

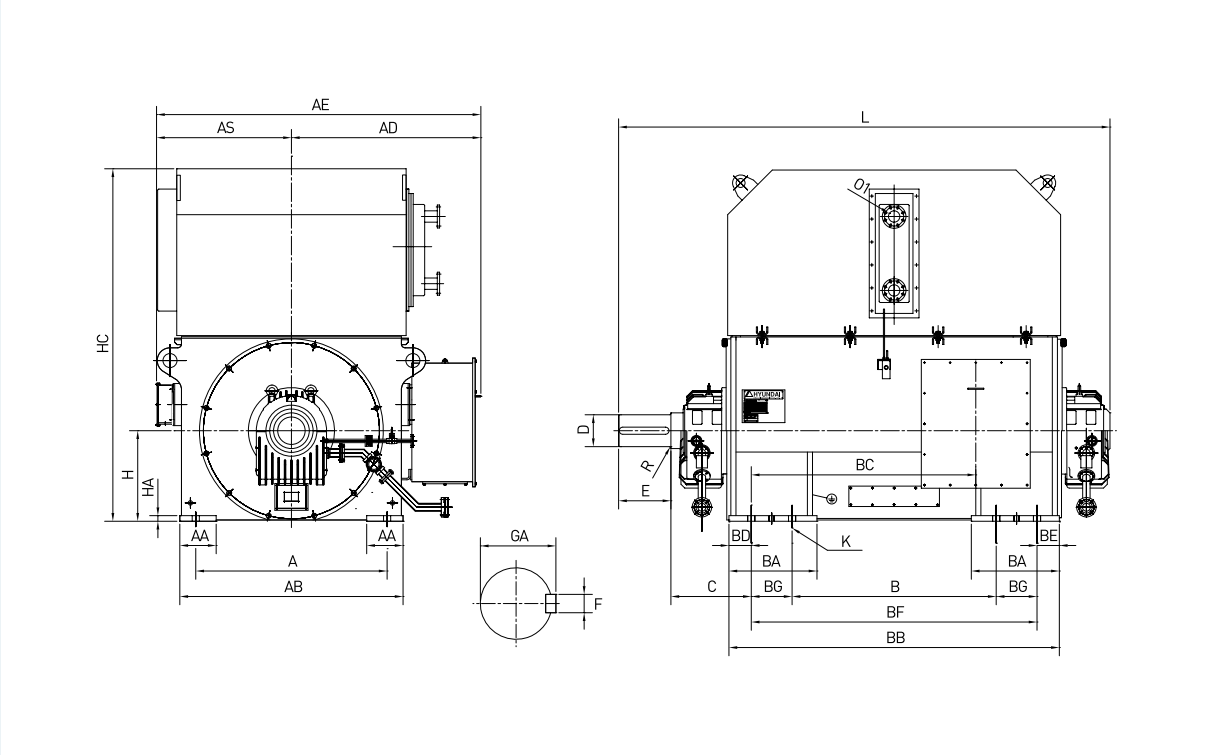
Unit: mm

| Type |     | Poles | C   | D   | E   | F  | GA  | H   | HA | HC   | K  | L    | O1   | Weight (kg) |  |  |  |  |  |  |  |  |  |  |
|------|-----|-------|-----|-----|-----|----|-----|-----|----|------|----|------|------|-------------|--|--|--|--|--|--|--|--|--|--|
| HRN3 | 715 | 4     | 630 | 250 | 410 | 56 | 262 | 710 | 44 | 3120 | 56 | 3650 | 150A | 19800       |  |  |  |  |  |  |  |  |  |  |
|      |     | 6     |     |     |     |    |     |     |    |      |    | 3650 |      | 19400       |  |  |  |  |  |  |  |  |  |  |
|      | 717 | 4     |     |     |     |    |     |     |    |      |    | 3850 |      | 21100       |  |  |  |  |  |  |  |  |  |  |
|      |     | 6     |     |     |     |    |     |     |    |      |    | 3850 |      | 20700       |  |  |  |  |  |  |  |  |  |  |
|      | 719 | 4     |     |     |     |    |     |     |    |      |    | 3850 |      | 22000       |  |  |  |  |  |  |  |  |  |  |
|      |     | 6     |     |     |     |    |     |     |    |      |    | 3850 |      | 21800       |  |  |  |  |  |  |  |  |  |  |
|      |     |       |     |     |     |    |     |     |    |      |    |      |      |             |  |  |  |  |  |  |  |  |  |  |
|      |     |       |     |     |     |    |     |     |    |      |    |      |      |             |  |  |  |  |  |  |  |  |  |  |

**Note:** For the bearing type and tolerances of dimensions, see page 66.

| HRN3 |

Mounting B3 / Degree of Protection IP54



Unit: mm

| Type |     | Poles  | A    | AA  | AB   | AD   | AE   | AS   | B    | BA  | BB   | BC   | BD  | BE  | BF   | BG  |
|------|-----|--------|------|-----|------|------|------|------|------|-----|------|------|-----|-----|------|-----|
| HRN3 | 715 | 8 - 16 | 1500 | 285 | 1750 | 1460 | 2520 | 1060 | 1400 | 690 | 2390 | 1560 | 175 | 175 | 2040 | 320 |
|      | 717 | 8 - 16 |      |     |      |      |      |      | 1600 |     | 2590 | 1760 |     |     | 2240 |     |
|      | 719 | 8 - 16 |      |     |      |      |      |      | 1600 |     | 2590 | 1760 |     |     | 2240 |     |

Unit: mm

| Type |     | Poles  | C   | D   | E   | F  | GA  | H   | HA | HC   | K  | L    | O1   | Weight (kg) |
|------|-----|--------|-----|-----|-----|----|-----|-----|----|------|----|------|------|-------------|
| HRN3 | 715 | 8 - 16 | 630 | 250 | 410 | 56 | 262 | 710 | 44 | 3120 | 56 | 3650 | 150A | 20000       |
|      | 717 | 8 - 16 |     |     |     |    |     |     |    |      |    | 3850 |      | 21500       |
|      | 719 | 8 - 16 |     |     |     |    |     |     |    |      |    | 3850 |      | 22500       |

**Note:** For the bearing type and tolerances of dimensions, see page 66.

05



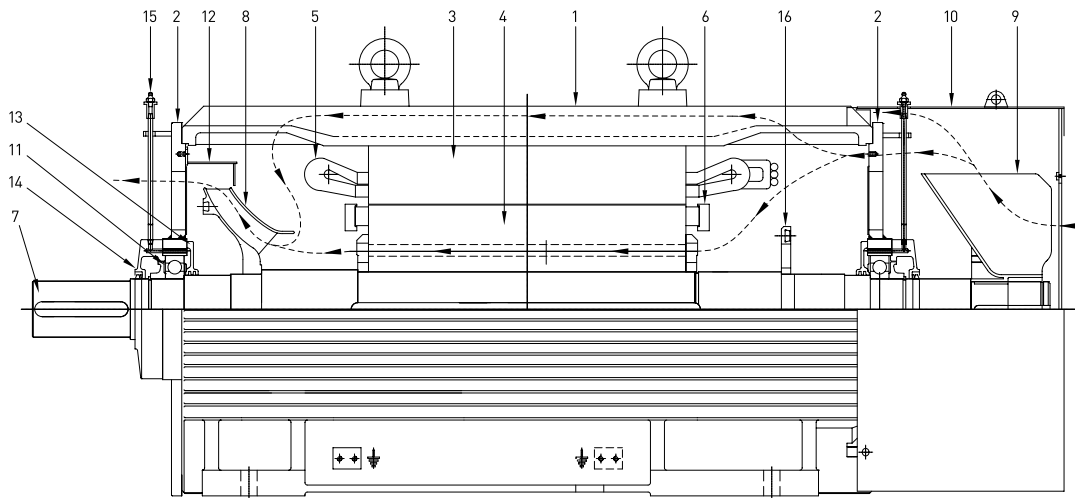
**HRE5 Series** | Open Drip Proof, Squirrel Cage



## | HRE5 |

|                        |                                          |
|------------------------|------------------------------------------|
| • Rotor Type           | Squirrel Cage                            |
| • Number of Poles      | 2-8                                      |
| • Voltage              | 2-7.2 kV                                 |
| • Output Range         | 280-1,400 kW (at 60 Hz, 6,600 V, 4 Pole) |
| • Type of Construction | IM B3                                    |
| • Frame                | 280-450                                  |
| • Degree of Protection | IP 23 (IEC 60034-5)                      |
| • Method of Cooling    | IC 01 (IEC 60034-6)                      |
| • Type of Enclosure    | Open Drip Proof (NEMA MG-1)              |

### Sectional View and Parts Name



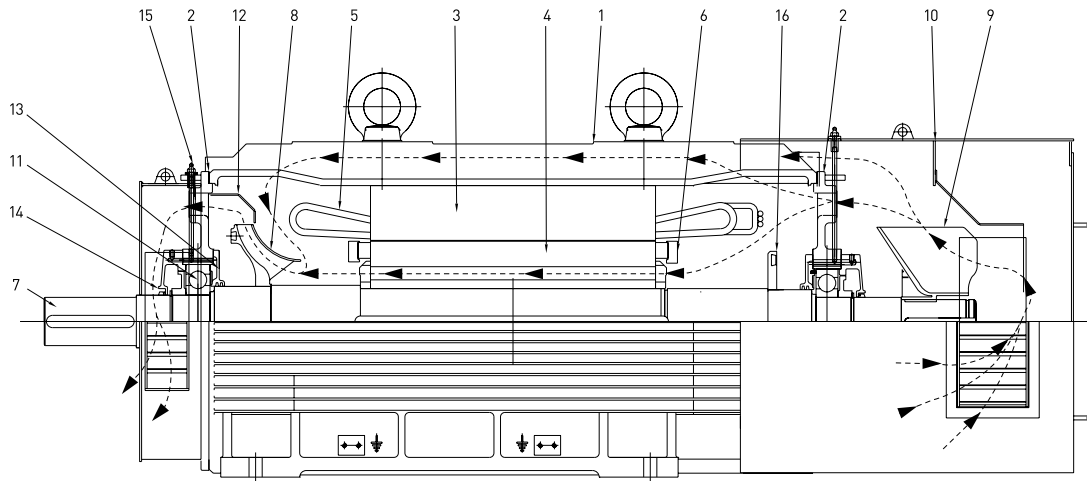
#### Parts Name

|                 |                         |                         |                            |
|-----------------|-------------------------|-------------------------|----------------------------|
| 1. Stator Frame | 5. Stator Winding       | 9. External Cooling Fan | 13. Internal Bearing Cover |
| 2. End Shield   | 6. Rotor End Ring       | 10. Fan Cover           | 14. External Bearing Cover |
| 3. Stator Core  | 7. Shaft                | 11. Bearing             | 15. Grease Nipple          |
| 4. Rotor Core   | 8. Internal Cooling Fan | 12. Air Guide Plate     | 16. Balance Ring           |

## | HRE5 |

|                        |                                          |
|------------------------|------------------------------------------|
| • Rotor Type           | Squirrel Cage                            |
| • Number of Poles      | 2-8                                      |
| • Voltage              | 2-7.2 kV                                 |
| • Output Range         | 280-1,400 kW (at 60 Hz, 6,600 V, 4 Pole) |
| • Type of Construction | IM B3                                    |
| • Frame                | 280-450                                  |
| • Degree of Protection | IP 24W (IEC 60034-5)                     |
| • Method of Cooling    | IC 01 (IEC 60034-6)                      |
| • Type of Enclosure    | Weather Protected type-II (NEMA MG-1)    |

## Sectional View and Parts Name



### Parts Name

|                 |                         |                         |                            |
|-----------------|-------------------------|-------------------------|----------------------------|
| 1. Stator Frame | 5. Stator Winding       | 9. External Cooling Fan | 13. Internal Bearing Cover |
| 2. End Shield   | 6. Rotor End Ring       | 10. Fan Cover           | 14. External Bearing Cover |
| 3. Stator Core  | 7. Shaft                | 11. Bearing             | 15. Grease Nipple          |
| 4. Rotor Core   | 8. Internal Cooling Fan | 12. Air Guide Plate     | 16. Balance Ring           |

## | Rated Power at 50 Hz |

## | 3.0 kV |

Unit: kW

| Type | Poles | 2P  | 4P   | 6P  | 8P  |
|------|-------|-----|------|-----|-----|
| HRE5 | 286   | -   | 250  | -   | -   |
|      | 288   | 230 | 280  | 180 | -   |
|      | 312   | -   | 310  | 210 | -   |
|      | 313   | -   | 350  | 250 | 170 |
|      | 314   | 370 | 400  | 300 | 210 |
|      | 316   | -   | 450  | 330 | -   |
|      | 317   | -   | -    | 380 | 250 |
|      | 318   | -   | 540  | 410 | -   |
|      | 350   | 590 | -    | -   | -   |
|      | 352   | -   | 710  | 500 | 350 |
|      | 354   | -   | 810  | 580 | 400 |
|      | 400   | 700 | -    | -   | -   |
|      | 402   | -   | 950  | 650 | 460 |
|      | 404   | -   | 1010 | 740 | 540 |
|      | 452   | -   | 1090 | 820 | 640 |
|      | 454   | -   | 1210 | 910 | 720 |

## | 6.0 kV |

Unit: kW

| Type | Poles | 2P  | 4P   | 6P  | 8P  |
|------|-------|-----|------|-----|-----|
| HRE5 | 286   | -   | 230  | -   | -   |
|      | 288   | 210 | 260  | 160 | -   |
|      | 312   | -   | 300  | 190 | -   |
|      | 313   | -   | 330  | 230 | 140 |
|      | 314   | 360 | 380  | 280 | 180 |
|      | 316   | -   | 430  | 300 | -   |
|      | 317   | -   | -    | 350 | 220 |
|      | 318   | -   | 510  | 370 | -   |
|      | 350   | 560 | -    | -   | -   |
|      | 352   | -   | 670  | 470 | 330 |
|      | 354   | -   | 760  | 540 | 370 |
|      | 400   | 630 | -    | -   | -   |
|      | 402   | -   | 890  | 630 | 420 |
|      | 404   | -   | 950  | 710 | 500 |
|      | 452   | -   | 1040 | 790 | 610 |
|      | 454   | -   | 1160 | 880 | 690 |

**Note**

- Suffix "-B" denotes for V-belt drive.
- Tolerance on "D" and "DA" dimension will be m6.
- The bores of the transmission elements should be made to an ISO fit H6.
- The dimensions printed in bold face in the table to IEC : A, B, C, D, E, F, GA, H, K are certified.
- Type of bearings.
  - Greased lubricated anti-friction
  - Forced feed oil lubrication sleeve bearings
- For vertical motor output, HLE5 & HRE5 model shall not be applied to 316, 317, 318 & 450 frame.

- Output of WP II TYPE = Above output X 0.938

- The following tolerances are applicable to dimensions A, B, and H

| Dimensions | Tolerance (mm)       |      |
|------------|----------------------|------|
| A and B    | Over 500 up to 750   | ±1.5 |
|            | Over 750 up to 1,000 | ±1.5 |
|            | Over 1,000           | ±1.5 |
| H          | Over 250 up to 600   | -1.0 |
|            | Over 600 up to 1,000 | -1.5 |

- "R" dimension of the shaft extension part is as follows

| Shaft Diameter (mm) | R (mm) |
|---------------------|--------|
| 50 - 80             | 1.6    |
| 85 - 120            | 2.5    |
| 130 - 190           | 4.0    |

## | Rated Power at 60 Hz |

### | 3.3 kV |

Unit: kW

| Type | Poles | 2P  | 4P   | 6P   | 8P  |
|------|-------|-----|------|------|-----|
| HRE5 | 286   | -   | 300  | -    | -   |
|      | 288   | 280 | 340  | 220  | -   |
|      | 312   | -   | 380  | 250  | -   |
|      | 313   | -   | 410  | 300  | 200 |
|      | 314   | 420 | 480  | 360  | 250 |
|      | 316   | -   | 540  | 400  | -   |
|      | 317   | -   | -    | 460  | 310 |
|      | 318   | -   | 640  | 490  | -   |
|      | 350   | 620 | -    | -    | -   |
|      | 352   | -   | 810  | 650  | 420 |
|      | 354   | -   | 920  | 750  | 480 |
|      | 400   | 740 | -    | -    | -   |
|      | 402   | -   | 1110 | 790  | 570 |
|      | 404   | -   | 1190 | 880  | 680 |
|      | 452   | -   | 1320 | 990  | 780 |
|      | 454   | -   | 1470 | 1100 | 880 |

### | 4.16 kV |

Unit: kW

| Type | Poles | 2P  | 4P   | 6P   | 8P  |
|------|-------|-----|------|------|-----|
| HRE5 | 286   | -   | 290  | -    | -   |
|      | 288   | 265 | 325  | 205  | -   |
|      | 312   | -   | 365  | 235  | -   |
|      | 313   | -   | 400  | 280  | 180 |
|      | 314   | 410 | 465  | 340  | 230 |
|      | 316   | -   | 520  | 370  | -   |
|      | 317   | -   | -    | 430  | 275 |
|      | 318   | -   | 620  | 460  | -   |
|      | 350   | 610 | -    | -    | -   |
|      | 352   | -   | 780  | 615  | 410 |
|      | 354   | -   | 885  | 710  | 470 |
|      | 400   | 730 | -    | -    | -   |
|      | 402   | -   | 1070 | 770  | 540 |
|      | 404   | -   | 1140 | 865  | 640 |
|      | 452   | -   | 1285 | 960  | 755 |
|      | 454   | -   | 1420 | 1070 | 845 |

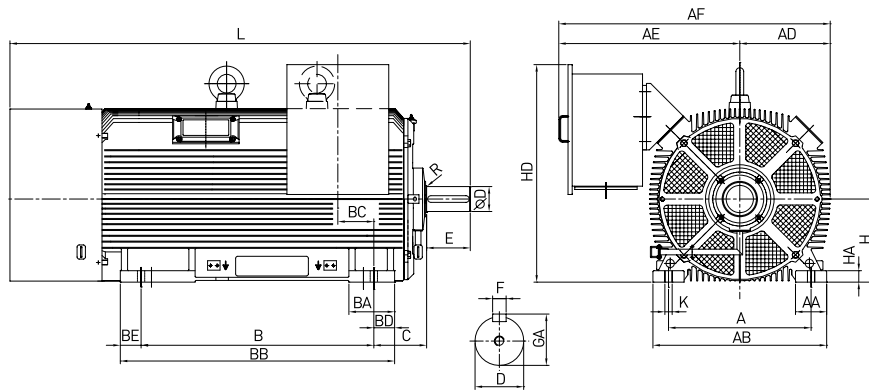
### | 6.6 kV |

Unit: kW

| Type | Poles | 2P  | 4P   | 6P   | 8P  |
|------|-------|-----|------|------|-----|
| HRE5 | 286   | -   | 280  | -    | -   |
|      | 288   | 260 | 320  | 200  | -   |
|      | 312   | -   | 360  | 230  | -   |
|      | 313   | -   | 390  | 270  | 170 |
|      | 314   | 400 | 450  | 330  | 220 |
|      | 316   | -   | 510  | 360  | -   |
|      | 317   | -   | -    | 420  | 270 |
|      | 318   | -   | 610  | 450  | -   |
|      | 350   | 600 | -    | -    | -   |
|      | 352   | -   | 760  | 600  | 400 |
|      | 354   | -   | 870  | 700  | 460 |
|      | 400   | 720 | -    | -    | -   |
|      | 402   | -   | 1050 | 750  | 530 |
|      | 404   | -   | 1120 | 850  | 630 |
|      | 452   | -   | 1260 | 945  | 740 |
|      | 454   | -   | 1400 | 1050 | 830 |

**Note:** Output of WP II TYPE = Above output X 0.938

## Mounting B3 / Degree of Protection IP23



Unit : mm

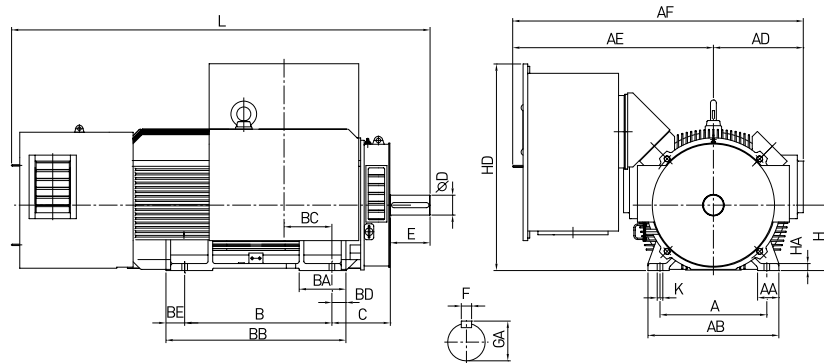
| Type |            | Poles      | A   | AA  | AB  | AD  | AE  | AF   | B    | BA  | BB   | BC  | BD   | BE   |
|------|------------|------------|-----|-----|-----|-----|-----|------|------|-----|------|-----|------|------|
| HRE5 | 286<br>288 | 2 -<br>2 - | 457 | 91  | 560 | 325 | 830 | 1155 | 630  | 200 | 770  | 120 | 60   | 80   |
|      | 312        | 2 -        | 508 | 124 | 635 | 350 | 880 | 1230 | 508  | 180 | 925  | 244 | 66   | 351  |
|      | 313        | 2 -        |     |     |     |     |     |      | 630  |     | 1045 |     |      | 349  |
|      | 314        | 2 -        |     |     |     |     |     |      | 900  |     | 1270 |     |      | 304  |
|      | 316        | 2 -        |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 317        | 6 -        |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 318        | 2 -        | 610 | 120 | 730 | 385 | 900 | 1285 | 900  | 180 | 1043 | 244 | 79.5 | 63.5 |
|      | 350        | 2 -        |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 352        | 2 -        |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 354        | 2 -        |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 400        | 4          | 686 | 150 | 836 | 435 | 945 | 1380 | 1120 | 220 | 1320 | 206 | 100  | 100  |
|      | 402        | 2 -        |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 404        | 2 -        |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 452        | 4 -        |     |     |     |     |     |      |      |     |      |     |      |      |
|      | 454        | 4 -        | 750 | 160 | 920 | 480 | 975 | 1455 | 1250 | 220 | 1450 | 217 | 100  | 100  |

Unit : mm

| Type | Poles | C   | H    | HA  | HD  | K    | L   | D    | E   | F   | GA   | Weight (kg) |      |
|------|-------|-----|------|-----|-----|------|-----|------|-----|-----|------|-------------|------|
| HRE5 | 286   | 2   | 190  | 280 | 30  | 915  | 24  | 1520 | 70  | 140 | 20   | 74.5        | 1290 |
|      | 288   | 2   |      |     |     |      |     | 1520 | 70  | 140 | 20   | 74.5        | 1340 |
|      | 286   | 4   |      |     |     |      |     | 1445 | 85  | 170 | 22   | 90          | 1320 |
|      | 288   | 4   |      |     |     |      |     | 1445 | 85  | 170 | 22   | 90          | 1380 |
|      |       | 6   |      |     |     |      |     | 1445 | 85  | 170 | 22   | 90          | 1470 |
|      |       |     |      |     |     |      |     |      |     |     |      |             |      |
|      | 312   | 2   | 216  | 315 | 35  | 965  | 30  | 1690 | 75  | 140 | 20   | 79.5        | 1630 |
|      |       | 4 - |      |     |     |      |     | 1720 | 90  | 170 | 25   | 95          | 1620 |
|      |       |     |      |     |     |      |     |      |     |     |      |             |      |
|      | 313   | 2   |      |     |     |      |     | 1800 | 75  | 140 | 20   | 79.5        | 1830 |
|      |       | 4 - |      |     |     |      |     | 1840 | 90  | 170 | 25   | 95          | 1820 |
|      |       |     |      |     |     |      |     |      |     |     |      |             |      |
|      | 314   | 2   |      |     |     |      |     | 1800 | 75  | 140 | 20   | 79.5        | 1880 |
|      |       | 4 - |      |     |     |      |     | 1840 | 90  | 170 | 25   | 95          | 1920 |
|      |       |     |      |     |     |      |     |      |     |     |      |             |      |
|      | 316   | 2   |      |     |     |      |     | 2010 | 75  | 140 | 20   | 79.5        | 2150 |
|      |       | 4 - |      |     |     |      |     | 2090 | 95  | 210 | 25   | 100         | 2140 |
|      |       |     |      |     |     |      |     |      |     |     |      |             |      |
|      | 317   | 6 - |      |     |     |      |     | 2090 | 95  | 210 | 25   | 100         | 2280 |
|      |       | 2   |      |     |     |      |     | 2010 | 75  | 140 | 20   | 79.5        | 2320 |
|      |       | 4 - |      |     |     |      |     | 2090 | 95  | 210 | 25   | 100         | 2360 |
|      | 352   | 2   |      |     |     |      |     | 224  | 355 | 45  | 1030 | 30          | 2080 |
|      |       | 4 - | 2125 | 110 | 210 | 28   | 116 |      |     |     |      |             | 2910 |
|      |       |     |      |     |     |      |     |      |     |     |      |             |      |
|      | 354   | 2   | 2085 | 80  | 170 | 22   | 85  |      |     |     |      |             | 3010 |
|      |       | 4 - | 2125 | 110 | 210 | 28   | 116 | 3120 |     |     |      |             |      |
|      |       |     |      |     |     |      |     |      |     |     |      |             |      |
|      | 400   | 4   | 254  | 400 | 55  | 1120 | 35  | 2215 | 120 | 210 | 32   | 127         | 3600 |
|      | 402   | 2   |      |     |     |      |     | 2180 | 85  | 170 | 22   | 90          | 3600 |
|      |       | 4 - |      |     |     |      |     | 2220 | 120 | 210 | 32   | 127         | 3790 |
|      |       |     |      |     |     |      |     |      |     |     |      |             |      |
|      | 404   | 2   |      |     |     |      |     | 2180 | 85  | 170 | 22   | 90          | 3850 |
|      |       | 4 - |      |     |     |      |     | 2220 | 120 | 210 | 32   | 127         | 3940 |
|      |       |     |      |     |     |      |     |      |     |     |      |             |      |
|      | 452   | 4 - | 280  | 450 | 59  | 1200 | 35  | 2490 | 130 | 250 | 32   | 137         | 5200 |
|      | 454   | 4 - |      |     |     |      |     |      |     |     |      |             |      |

Note: For the bearing type and tolerance of dimensions, see page 89.

## Mounting B3 / Degree of Protection IP24W



Unit : mm

| Type |     | Poles | A   | AA  | AB  | AD  | AE  | AF   | B                 | BA  | BB   | BC  | BD   | BE   |
|------|-----|-------|-----|-----|-----|-----|-----|------|-------------------|-----|------|-----|------|------|
| HRE5 | 286 | 2 -   | 457 | 91  | 560 | 384 | 866 | 1250 | 630               | 200 | 770  | 120 | 60   | 80   |
|      | 288 | 2 -   | 508 | 124 | 635 | 476 | 884 | 1360 | 508<br>630<br>900 | 180 | 925  | 244 | 66   | 351  |
|      | 312 | 2 -   |     |     |     |     |     |      |                   |     | 1045 |     |      | 349  |
|      | 313 | 2 -   |     |     |     |     |     |      |                   |     |      |     |      |      |
|      | 314 | 2 -   |     |     |     |     |     |      |                   |     |      |     |      |      |
|      | 316 | 2 -   |     |     |     |     |     |      |                   |     |      |     |      | 304  |
|      | 317 | 6 -   |     |     |     |     |     |      |                   |     |      |     |      |      |
|      | 318 | 2 -   |     |     |     |     |     |      |                   |     |      |     |      |      |
|      | 350 | 2 -   | 610 | 120 | 730 | 507 | 913 | 1420 | 900               | 180 | 1043 | 244 | 79.5 | 63.5 |
|      | 352 | 2 -   |     |     |     |     |     |      |                   |     |      |     |      |      |
|      | 354 | 2 -   |     |     |     |     |     |      |                   |     |      |     |      |      |
|      | 400 | 4     | 686 | 150 | 836 | 582 | 938 | 1520 | 1120              | 220 | 1320 | 206 | 100  | 100  |
|      | 402 | 2 -   |     |     |     |     |     |      |                   |     |      |     |      |      |
|      | 404 | 2 -   |     |     |     |     |     |      |                   |     |      |     |      |      |
|      | 452 | 4 -   | 750 | 160 | 920 | 625 | 975 | 1600 | 1250              | 220 | 1450 | 217 | 100  | 100  |
| 454  | 4 - |       |     |     |     |     |     |      |                   |     |      |     |      |      |

Unit : mm

| Type | Poles | C   | H   | HA  | HD | K    | L  | D    | E   | F   | GA | Weight (kg) |      |
|------|-------|-----|-----|-----|----|------|----|------|-----|-----|----|-------------|------|
| HRE5 | 286   | 2   | 250 | 280 | 30 | 915  | 24 | 1875 | 70  | 140 | 20 | 74.5        | 1360 |
|      | 288   | 2   |     |     |    |      |    | 1875 | 70  | 140 | 20 | 74.5        | 1410 |
|      | 286   | 4   |     |     |    |      |    | 1800 | 85  | 170 | 22 | 90          | 1390 |
|      | 288   | 4   |     |     |    |      |    | 1800 | 85  | 170 | 22 | 90          | 1450 |
|      |       | 6   |     |     |    |      |    | 1800 | 85  | 170 | 22 | 90          | 1540 |
|      | 312   | 2   | 270 | 315 | 35 | 965  | 30 | 1950 | 75  | 140 | 20 | 79.5        | 1740 |
|      |       | 4 - |     |     |    |      |    | 1980 | 90  | 170 | 25 | 95          | 1730 |
|      | 313   | 2   |     |     |    |      |    | 2060 | 75  | 140 | 20 | 79.5        | 1940 |
|      |       | 4 - |     |     |    |      |    | 2100 | 90  | 170 | 25 | 95          | 1930 |
|      | 314   | 2   |     |     |    |      |    | 2060 | 75  | 140 | 20 | 79.5        | 1990 |
|      |       | 4 - |     |     |    |      |    | 2100 | 90  | 170 | 25 | 95          | 2030 |
|      | 316   | 2   |     |     |    |      |    | 2270 | 75  | 140 | 20 | 79.5        | 2260 |
|      |       | 4 - |     |     |    |      |    | 2350 | 95  | 210 | 25 | 100         | 2250 |
|      | 317   | 6 - |     |     |    |      |    | 2350 | 95  | 210 | 25 | 100         | 2390 |
|      | 318   | 2   |     |     |    |      |    | 2270 | 75  | 140 | 20 | 79.5        | 2430 |
|      |       | 4 - |     |     |    |      |    | 2350 | 95  | 210 | 25 | 100         | 2470 |
|      | 352   | 2   | 272 | 355 | 45 | 1030 | 30 | 2355 | 80  | 170 | 22 | 85          | 2920 |
|      |       | 4 - |     |     |    |      |    | 2400 | 110 | 210 | 28 | 116         | 3030 |
|      | 354   | 2   |     |     |    |      |    | 2360 | 80  | 170 | 22 | 85          | 3130 |
|      |       | 4 - |     |     |    |      |    | 2400 | 110 | 210 | 28 | 116         | 3240 |
|      | 400   | 4   | 348 | 400 | 55 | 1120 | 35 | 2595 | 120 | 210 | 32 | 127         | 3750 |
|      | 402   | 2   |     |     |    |      |    | 2560 | 85  | 170 | 22 | 90          | 3750 |
|      |       | 4 - |     |     |    |      |    | 2600 | 120 | 210 | 32 | 127         | 3940 |
|      | 404   | 2   |     |     |    |      |    | 2560 | 85  | 170 | 22 | 90          | 4000 |
|      |       | 4 - |     |     |    |      |    | 2600 | 120 | 210 | 32 | 127         | 4090 |
|      | 452   | 4 - | 325 | 450 | 59 | 1200 | 35 | 2800 | 130 | 250 | 32 | 137         | 5370 |
|      | 454   | 4 - |     |     |    |      |    |      |     |     |    |             | 5670 |

Note: For the bearing type and tolerance of dimensions, see page 89.



Weather Protected, Squirrel Cage |

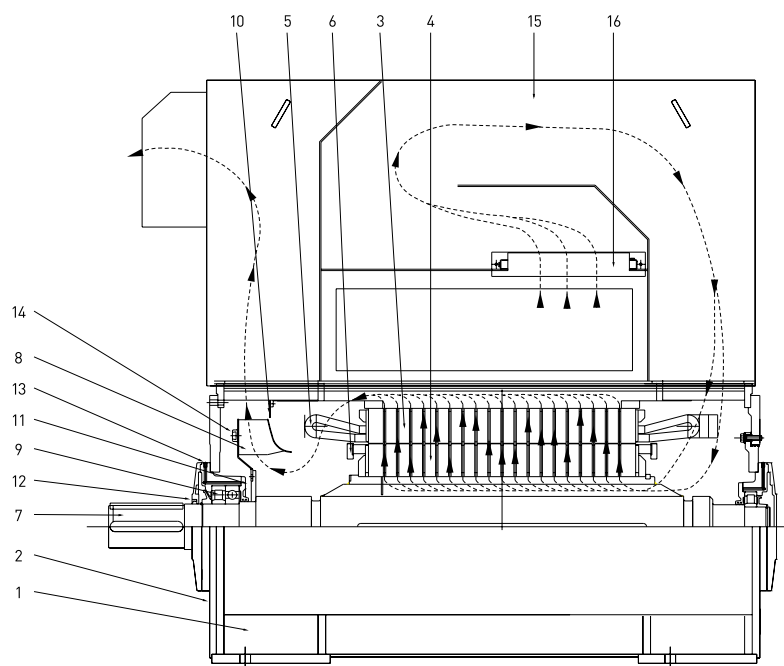
**HRP3 Series**

06

## | HRP3 |

|                        |                                                       |
|------------------------|-------------------------------------------------------|
| • Rotor Type           | Squirrel Cage                                         |
| • Number of Pole       | 2-12                                                  |
| • Voltage              | 2-14 kV                                               |
| • Output Range         | 1,030-10,800 kW (at 60 Hz, 6,600 V, 4 Pole)           |
| • Type of Construction | IM B3                                                 |
| • Frame                | 280-710                                               |
| • Degree of Protection | IP 23W-IP 24W (IEC 60034-5)                           |
| • Method of Cooling    | IC 01 (IEC 60034-6)                                   |
| • Type of Enclosure    | Weather Protected Type I & II : WPI, WPII (NEMA MG-1) |

### Sectional View and Parts Name



#### Parts Name Type - I (Uni-directional cooling circuit)

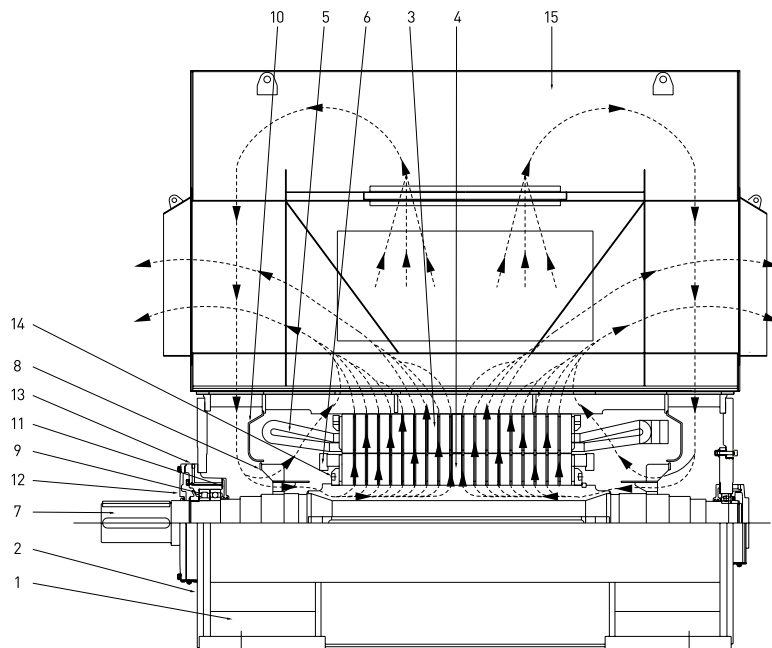
|                 |                         |                            |                   |
|-----------------|-------------------------|----------------------------|-------------------|
| 1. Stator Frame | 5. Stator Winding       | 9. Bearing                 | 13. Grease Nipple |
| 2. End Shield   | 6. Rotor End Ring       | 10. Air Guide Plate        | 14. Balance Ring  |
| 3. Stator Core  | 7. Shaft                | 11. Internal Bearing Cover | 15. Air Housing   |
| 4. Rotor Core   | 8. Internal Cooling Fan | 12. External Bearing Cover | 16. Air Filter    |



## | HRP3 |

|                        |                                                       |
|------------------------|-------------------------------------------------------|
| • Rotor Type           | Squirrel Cage                                         |
| • Number of Pole       | 2-12                                                  |
| • Voltage              | 2-14 kV                                               |
| • Output Range         | 1,030-10,800 kW (at 60 Hz, 6,600 V, 4 Pole)           |
| • Type of Construction | IM B3                                                 |
| • Frame                | 280-710                                               |
| • Degree of Protection | IP 23W-IP 24W (IEC 60034-5)                           |
| • Method of Cooling    | IC 01 (IEC 60034-6)                                   |
| • Type of Enclosure    | Weather Protected Type I & II : WPI, WPII (NEMA MG-1) |

### Sectional View and Parts Name



#### Parts Name Type - II (Bi-directional cooling circuit)

|                 |                         |                            |                   |
|-----------------|-------------------------|----------------------------|-------------------|
| 1. Stator Frame | 5. Stator Winding       | 9. Bearing                 | 13. Grease Nipple |
| 2. End Shield   | 6. Rotor End Ring       | 10. Air Guide Plate        | 14. Balance Ring  |
| 3. Stator Core  | 7. Shaft                | 11. Internal Bearing Cover | 15. Air Housing   |
| 4. Rotor Core   | 8. Internal Cooling Fan | 12. External Bearing Cover |                   |

## | Rated Power at 50 Hz |

### | 3.0 kV |

Unit: kW

| Type | Poles | 2P   | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|------|
| HRP3 | 283   | 300  | -    | -    | -    | -    | -    | -    | -    |
|      | 285   | 370  | -    | -    | -    | -    | -    | -    | -    |
|      | 287   | 450  | -    | -    | -    | -    | -    | -    | -    |
|      | 289   | 530  | -    | -    | -    | -    | -    | -    | -    |
|      | 313   | 600  | -    | -    | -    | -    | -    | -    | -    |
|      | 315   | 670  | -    | -    | -    | -    | -    | -    | -    |
|      | 317   | 750  | -    | -    | -    | -    | -    | -    | -    |
|      | 355   | 930  | -    | -    | -    | -    | -    | -    | -    |
|      | 357   | 1120 | -    | -    | -    | -    | -    | -    | -    |
|      | 403   | 1300 | 900  | 690  | 550  | -    | -    | -    | -    |
|      | 405   | 1490 | 1010 | 780  | 620  | -    | -    | -    | -    |
|      | 407   | 1570 | 1130 | 870  | 690  | -    | -    | -    | -    |
|      | 409   | -    | 1280 | 970  | 780  | -    | -    | -    | -    |
|      | 451   | 1790 | -    | -    | -    | -    | -    | -    | -    |
|      | 453   | 1940 | 1450 | 1110 | 860  | 560  | 420  | -    | -    |
|      | 455   | 2150 | 1630 | 1240 | 970  | 630  | 470  | -    | -    |
|      | 457   | -    | 1830 | 1390 | 1080 | 710  | 530  | -    | -    |
|      | 459   | -    | 2050 | 1560 | 1220 | 800  | 600  | -    | -    |
|      | 501   | 2440 | -    | -    | -    | -    | -    | -    | -    |
|      | 503   | 2650 | 2270 | 1700 | 1360 | 940  | 710  | 540  | -    |
|      | 505   | 3100 | 2550 | 1910 | 1530 | 1060 | 790  | 610  | -    |
|      | 507   | -    | 2850 | 2140 | 1710 | 1180 | 890  | 680  | -    |
|      | 509   | -    | 3200 | 2400 | 1920 | 1330 | 1000 | 770  | -    |
|      | 561   | 3580 | -    | -    | -    | -    | -    | -    | -    |
|      | 563   | 3960 | 3420 | 2640 | 2140 | 1470 | 1180 | 820  | 650  |
|      | 565   | 4500 | 3800 | 2990 | 2400 | 1650 | 1320 | 920  | 730  |
|      | 567   | -    | 4300 | 3330 | 2690 | 1840 | 1480 | 1030 | 820  |
|      | 569   | -    | -    | -    | 3020 | 2070 | 1660 | 1160 | 920  |
|      | 631   | 5020 | 4880 | 3700 | -    | -    | -    | -    | -    |
|      | 633   | 5620 | 5420 | 4200 | 3340 | 2390 | 1940 | 1460 | 1160 |
|      | 635   | 6300 | 6120 | 4670 | 3740 | 2670 | 2170 | 1640 | 1300 |
|      | 637   | -    | 6780 | 5250 | 4190 | 3000 | 2430 | 1830 | 1460 |
|      | 639   | -    | -    | -    | 4700 | 3360 | 2730 | 2060 | 1640 |
|      | 711   | 7180 | -    | -    | -    | -    | -    | -    | -    |
|      | 713   | 8050 | -    | -    | -    | -    | -    | -    | -    |
|      | 715   | 9030 | 7940 | 6210 | 5180 | 3730 | 2940 | 2270 | 1750 |
|      | 717   | -    | 8900 | 6970 | 5800 | 4180 | 3290 | 2550 | 1960 |
|      | 719   | -    | 9940 | 7810 | 6500 | 4690 | 3690 | 2860 | 2200 |

**Note:** - Bearing type of horizontal motors:

- Grease lubricated anti-friction
- Forced feed oil lubrication sleeve bearings

## | Rated Power at 50 Hz |

## | 6.0 kV |

Unit: kW

| Type | Poles | 2P   | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|------|
| HRP3 | 283   | 220  | -    | -    | -    | -    | -    | -    | -    |
|      | 285   | 300  | -    | -    | -    | -    | -    | -    | -    |
|      | 287   | 370  | -    | -    | -    | -    | -    | -    | -    |
|      | 289   | 450  | -    | -    | -    | -    | -    | -    | -    |
|      | 313   | 530  | -    | -    | -    | -    | -    | -    | -    |
|      | 315   | 600  | -    | -    | -    | -    | -    | -    | -    |
|      | 317   | 670  | -    | -    | -    | -    | -    | -    | -    |
|      | 355   | 750  | -    | -    | -    | -    | -    | -    | -    |
|      | 357   | 930  | -    | -    | -    | -    | -    | -    | -    |
|      | 403   | 1120 | 830  | 630  | 510  | -    | -    | -    | -    |
|      | 405   | 1300 | 940  | 710  | 570  | -    | -    | -    | -    |
|      | 407   | 1490 | 1050 | 800  | 640  | -    | -    | -    | -    |
|      | 409   | -    | 1180 | 900  | 720  | -    | -    | -    | -    |
|      | 451   | 1660 | -    | -    | -    | -    | -    | -    | -    |
|      | 453   | 1800 | 1360 | 1030 | 800  | 530  | 390  | -    | -    |
|      | 455   | 2000 | 1530 | 1160 | 900  | 590  | 440  | -    | -    |
|      | 457   | -    | 1710 | 1300 | 1000 | 660  | 500  | -    | -    |
|      | 459   | -    | 1920 | 1460 | 1130 | 750  | 560  | -    | -    |
|      | 501   | 2320 | -    | -    | -    | -    | -    | -    | -    |
|      | 503   | 2520 | 2130 | 1600 | 1260 | 880  | 660  | 460  | -    |
|      | 505   | 2950 | 2390 | 1790 | 1410 | 990  | 740  | 510  | -    |
|      | 507   | -    | 2670 | 2000 | 1580 | 1110 | 830  | 580  | -    |
|      | 509   | -    | 3000 | 2250 | 1780 | 1250 | 930  | 650  | -    |
|      | 561   | 3380 | -    | -    | -    | -    | -    | -    | -    |
|      | 563   | 3740 | 3300 | 2610 | 2010 | 1370 | 1110 | 770  | 610  |
|      | 565   | 4250 | 3680 | 2970 | 2250 | 1530 | 1250 | 860  | 680  |
|      | 567   | -    | 4160 | 3300 | 2520 | 1720 | 1400 | 970  | 760  |
|      | 569   | -    | -    | -    | 2830 | 1930 | 1570 | 1090 | 860  |
|      | 631   | 4780 | 4620 | 3530 | -    | -    | -    | -    | -    |
|      | 633   | 5360 | 5140 | 4010 | 3130 | 2230 | 1820 | 1350 | 1070 |
|      | 635   | 6000 | 5810 | 4460 | 3500 | 2500 | 2040 | 1510 | 1200 |
|      | 637   | -    | 6440 | 5010 | 3920 | 2800 | 2280 | 1690 | 1340 |
|      | 639   | -    | -    | -    | 4400 | 3140 | 2560 | 1900 | 1510 |
|      | 711   | 6840 | -    | -    | -    | -    | -    | -    | -    |
|      | 713   | 7670 | -    | -    | -    | -    | -    | -    | -    |
|      | 715   | 8600 | 7500 | 5850 | 4880 | 3380 | 2780 | 2100 | 1620 |
|      | 717   | -    | 8400 | 6580 | 5470 | 3780 | 3110 | 2350 | 1820 |
|      | 719   | -    | 9390 | 7380 | 6130 | 4240 | 3490 | 2640 | 2040 |

Note: - Bearing type of horizontal motors:

- Grease lubricated anti-friction
- Forced feed oil lubrication sleeve bearings

## | Rated Power at 60 Hz |

### | 3.3 kV |

Unit: kW

| Type | Poles | 2P    | 4P    | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|-------|-------|------|------|------|------|------|------|
| HRP3 | 283   | 370   | -     | -    | -    | -    | -    | -    | -    |
|      | 285   | 450   | -     | -    | -    | -    | -    | -    | -    |
|      | 287   | 530   | -     | -    | -    | -    | -    | -    | -    |
|      | 289   | 600   | -     | -    | -    | -    | -    | -    | -    |
|      | 313   | 670   | -     | -    | -    | -    | -    | -    | -    |
|      | 315   | 750   | -     | -    | -    | -    | -    | -    | -    |
|      | 317   | 930   | -     | -    | -    | -    | -    | -    | -    |
|      | 355   | 1120  | -     | -    | -    | -    | -    | -    | -    |
|      | 357   | 1300  | -     | -    | -    | -    | -    | -    | -    |
|      | 403   | 1490  | 1100  | 870  | 660  | -    | -    | -    | -    |
|      | 405   | 1680  | 1210  | 970  | 740  | -    | -    | -    | -    |
|      | 407   | 1865  | 1370  | 1070 | 830  | -    | -    | -    | -    |
|      | 409   | -     | 1550  | 1200 | 930  | -    | -    | -    | -    |
|      | 451   | 2200  | -     | -    | -    | -    | -    | -    | -    |
|      | 453   | 2390  | 1750  | 1330 | 1040 | 680  | 510  | -    | -    |
|      | 455   | 2650  | 1960  | 1490 | 1170 | 760  | 570  | -    | -    |
|      | 457   | -     | 2190  | 1660 | 1310 | 850  | 640  | -    | -    |
|      | 459   | -     | 2460  | 1870 | 1470 | 960  | 720  | -    | -    |
|      | 501   | 2960  | -     | -    | -    | -    | -    | -    | -    |
|      | 503   | 3200  | 2740  | 2050 | 1630 | 1140 | 850  | 660  | -    |
|      | 505   | 3750  | 3060  | 2300 | 1830 | 1280 | 950  | 740  | -    |
|      | 507   | -     | 3430  | 2580 | 2050 | 1430 | 1070 | 830  | -    |
|      | 509   | -     | 3850  | 2890 | 2300 | 1610 | 1200 | 930  | -    |
|      | 561   | 4260  | -     | -    | -    | -    | -    | -    | -    |
|      | 563   | 4710  | 4110  | 3170 | 2580 | 1760 | 1430 | 990  | 790  |
|      | 565   | 5350  | 4580  | 3600 | 2890 | 1970 | 1600 | 1110 | 880  |
|      | 567   | -     | 5170  | 4000 | 3240 | 2210 | 1790 | 1250 | 990  |
|      | 569   | -     | -     | -    | 3630 | 2480 | 2010 | 1400 | 1110 |
|      | 631   | 5980  | 5870  | 4460 | -    | -    | -    | -    | -    |
|      | 633   | 6700  | 6520  | 5050 | 4020 | 2870 | 2340 | 1760 | 1400 |
|      | 635   | 7500  | 7360  | 5620 | 4510 | 3220 | 2630 | 1970 | 1570 |
|      | 637   | -     | 8160  | 6320 | 5050 | 3600 | 2940 | 2210 | 1760 |
|      | 639   | -     | -     | -    | 5660 | 4040 | 3300 | 2480 | 1980 |
|      | 711   | 8560  | -     | -    | -    | -    | -    | -    | -    |
|      | 713   | 9580  | -     | -    | -    | -    | -    | -    | -    |
|      | 715   | 10710 | 9140  | 7140 | 5950 | 4180 | 3630 | 2740 | 2110 |
|      | 717   | -     | 10230 | 8020 | 6660 | 4685 | 4070 | 3070 | 2360 |
|      | 719   | -     | 11440 | 8990 | 7480 | 5400 | 4560 | 3440 | 2650 |

**Note:** - Bearing type of horizontal motors:

- Grease lubricated anti-friction
- Forced feed oil lubrication sleeve bearings

## | Rated Power at 60 Hz |

## | 4.16 kV |

Unit: kW

| Type | Poles | 2P    | 4P    | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|-------|-------|------|------|------|------|------|------|
| HRP3 | 283   | 370   | -     | -    | -    | -    | -    | -    | -    |
|      | 285   | 450   | -     | -    | -    | -    | -    | -    | -    |
|      | 287   | 530   | -     | -    | -    | -    | -    | -    | -    |
|      | 289   | 600   | -     | -    | -    | -    | -    | -    | -    |
|      | 313   | 670   | -     | -    | -    | -    | -    | -    | -    |
|      | 315   | 750   | -     | -    | -    | -    | -    | -    | -    |
|      | 317   | 930   | -     | -    | -    | -    | -    | -    | -    |
|      | 355   | 1120  | -     | -    | -    | -    | -    | -    | -    |
|      | 357   | 1300  | -     | -    | -    | -    | -    | -    | -    |
|      | 403   | 1490  | 1065  | 835  | 640  | -    | -    | -    | -    |
|      | 405   | 1680  | 1170  | 935  | 720  | -    | -    | -    | -    |
|      | 407   | 1865  | 1320  | 1035 | 810  | -    | -    | -    | -    |
|      | 409   | -     | 1500  | 1160 | 910  | -    | -    | -    | -    |
|      | 451   | 2040  | -     | -    | -    | -    | -    | -    | -    |
|      | 453   | 2210  | 1690  | 1285 | 1000 | 660  | 480  | -    | -    |
|      | 455   | 2450  | 1895  | 1440 | 1120 | 740  | 540  | -    | -    |
|      | 457   | -     | 2120  | 1610 | 1250 | 830  | 600  | -    | -    |
|      | 459   | -     | 2380  | 1810 | 1410 | 930  | 680  | -    | -    |
|      | 501   | 2760  | -     | -    | -    | -    | -    | -    | -    |
|      | 503   | 2990  | 2650  | 1985 | 1580 | 1100 | 820  | 610  | -    |
|      | 505   | 3500  | 2960  | 2225 | 1770 | 1230 | 920  | 690  | -    |
|      | 507   | -     | 3320  | 2495 | 1990 | 1380 | 1030 | 770  | -    |
|      | 509   | -     | 3725  | 2795 | 2230 | 1550 | 1160 | 870  | -    |
|      | 561   | 3980  | -     | -    | -    | -    | -    | -    | -    |
|      | 563   | 4400  | 3980  | 3110 | 2490 | 1710 | 1380 | 980  | 770  |
|      | 565   | 5000  | 4420  | 3520 | 2790 | 1920 | 1540 | 1100 | 860  |
|      | 567   | -     | 5000  | 3920 | 3130 | 2150 | 1730 | 1230 | 970  |
|      | 569   | -     | -     | -    | 3510 | 2410 | 1940 | 1380 | 1090 |
|      | 631   | 5580  | 5670  | 4310 | -    | -    | -    | -    | -    |
|      | 633   | 6250  | 6310  | 4890 | 3890 | 2780 | 2270 | 1710 | 1360 |
|      | 635   | 7000  | 7120  | 5440 | 4360 | 3110 | 2540 | 1920 | 1530 |
|      | 637   | -     | 7890  | 6110 | 4880 | 3490 | 2840 | 2150 | 1710 |
|      | 639   | -     | -     | -    | 5470 | 3910 | 3190 | 2410 | 1920 |
|      | 711   | 8000  | -     | -    | -    | -    | -    | -    | -    |
|      | 713   | 8950  | -     | -    | -    | -    | -    | -    | -    |
|      | 715   | 10000 | 8890  | 6930 | 5780 | 4180 | 3450 | 2610 | 2010 |
|      | 717   | -     | 9950  | 7790 | 6470 | 4685 | 3870 | 2920 | 2250 |
|      | 719   | -     | 11120 | 8730 | 7260 | 5250 | 4340 | 3280 | 2530 |

Note: - Bearing type of horizontal motors:

- Grease lubricated anti-friction
- Forced feed oil lubrication sleeve bearings

## | Rated Power at 60 Hz |

| 6.6 kV |

Unit: kW

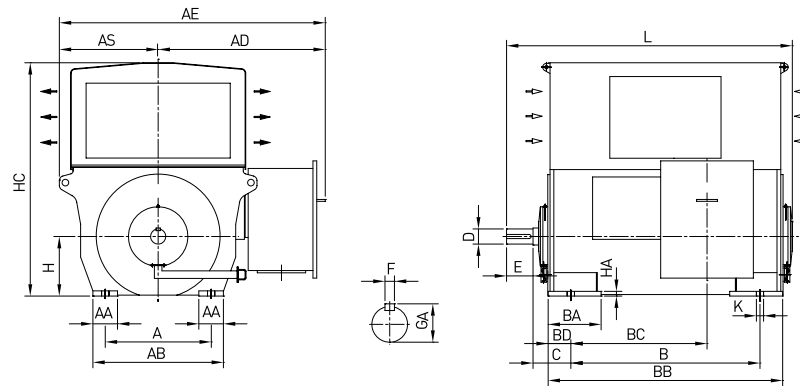
| Type | Poles | 2P    | 4P    | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|-------|-------|------|------|------|------|------|------|
| HRP3 | 283   | 370   | -     | -    | -    | -    | -    | -    | -    |
|      | 285   | 450   | -     | -    | -    | -    | -    | -    | -    |
|      | 287   | 530   | -     | -    | -    | -    | -    | -    | -    |
|      | 289   | 600   | -     | -    | -    | -    | -    | -    | -    |
|      | 313   | 670   | -     | -    | -    | -    | -    | -    | -    |
|      | 315   | 750   | -     | -    | -    | -    | -    | -    | -    |
|      | 317   | 930   | -     | -    | -    | -    | -    | -    | -    |
|      | 355   | 1120  | -     | -    | -    | -    | -    | -    | -    |
|      | 357   | 1300  | -     | -    | -    | -    | -    | -    | -    |
|      | 403   | 1490  | 1030  | 800  | 610  | -    | -    | -    | -    |
|      | 405   | 1680  | 1130  | 900  | 690  | -    | -    | -    | -    |
|      | 407   | 1865  | 1270  | 1000 | 770  | -    | -    | -    | -    |
|      | 409   | -     | 1450  | 1120 | 870  | -    | -    | -    | -    |
|      | 451   | 2040  | -     | -    | -    | -    | -    | -    | -    |
|      | 453   | 2210  | 1630  | 1240 | 970  | 640  | 470  | -    | -    |
|      | 455   | 2450  | 1830  | 1390 | 1090 | 710  | 530  | -    | -    |
|      | 457   | -     | 2050  | 1560 | 1220 | 800  | 590  | -    | -    |
|      | 459   | -     | 2300  | 1750 | 1370 | 900  | 670  | -    | -    |
|      | 501   | 2760  | -     | -    | -    | -    | -    | -    | -    |
|      | 503   | 2990  | 2560  | 1920 | 1530 | 1060 | 790  | 550  | -    |
|      | 505   | 3500  | 2860  | 2150 | 1720 | 1190 | 890  | 620  | -    |
|      | 507   | -     | 3210  | 2410 | 1920 | 1330 | 1000 | 690  | -    |
|      | 509   | -     | 3600  | 2700 | 2160 | 1500 | 1120 | 780  | -    |
|      | 561   | 3980  | -     | -    | -    | -    | -    | -    | -    |
|      | 563   | 4400  | 3910  | 3070 | 2410 | 1650 | 1330 | 930  | 740  |
|      | 565   | 5000  | 4350  | 3480 | 2700 | 1840 | 1490 | 1050 | 820  |
|      | 567   | -     | 4920  | 3870 | 3020 | 2070 | 1670 | 1170 | 920  |
|      | 569   | -     | -     | -    | 3390 | 2320 | 1880 | 1320 | 1040 |
|      | 631   | 5580  | 5480  | 4230 | -    | -    | -    | -    | -    |
|      | 633   | 6250  | 6100  | 4800 | 3760 | 2690 | 2190 | 1620 | 1290 |
|      | 635   | 7000  | 6880  | 5330 | 4210 | 3010 | 2450 | 1820 | 1450 |
|      | 637   | -     | 7620  | 6000 | 4720 | 3370 | 2750 | 2040 | 1620 |
|      | 639   | -     | -     | -    | 5290 | 3780 | 3080 | 2290 | 1820 |
|      | 711   | 8000  | -     | -    | -    | -    | -    | -    | -    |
|      | 713   | 8950  | -     | -    | -    | -    | -    | -    | -    |
|      | 715   | 10000 | 8640  | 6730 | 5620 | 4060 | 3340 | 2530 | 1940 |
|      | 717   | -     | 9660  | 7570 | 6300 | 4550 | 3750 | 2830 | 2170 |
|      | 719   | -     | 10800 | 8480 | 7060 | 5100 | 4200 | 3180 | 2440 |

**Note:** - Bearing type of horizontal motors:

- Grease lubricated anti-friction
- Forced feed oil lubrication sleeve bearings

## | HRP3 |

## Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles | A   | AA  | AB   | AD   | AE   | AS  | B                       | BA  | BB                      | BC  | BD  | C                    |
|------|-----|-------|-----|-----|------|------|------|-----|-------------------------|-----|-------------------------|-----|-----|----------------------|
| HRP3 | 283 | 2     | 630 | 120 | 750  | 848  | 1330 | 482 | 800                     | 270 | 1100                    | 620 | 150 | 224                  |
|      | 285 | 2     |     |     |      |      |      |     |                         |     |                         |     |     |                      |
|      | 287 | 2     |     |     |      |      |      |     | 900                     |     | 1200                    | 670 |     |                      |
|      | 289 | 2     |     |     |      |      |      |     |                         |     |                         |     |     |                      |
|      | 313 | 2     | 690 | 130 | 820  | 884  | 1406 | 522 | 1000                    | 280 | 1240                    | 720 | 120 | 200                  |
|      | 315 | 2     |     |     |      |      |      |     |                         |     |                         |     |     |                      |
|      | 317 | 2     |     |     |      |      |      |     |                         |     |                         |     |     |                      |
|      | 355 | 2     | 830 | 140 | 950  | 943  | 1533 | 590 | 1120<br>*1120<br>**1120 | 320 | 1450<br>*1450<br>**1450 | 780 | 165 | 375<br>*375<br>**475 |
|      | 357 | 2     |     |     |      |      |      |     |                         |     |                         |     |     |                      |
|      | 403 | 2     | 870 | 150 | 1030 | 1150 | 1803 | 653 | 1250<br>*1250<br>**1370 | 320 | 1550<br>*1550<br>**1670 | 875 | 150 | 400<br>*400<br>**400 |
| 405  | 2   |       |     |     |      |      |      |     |                         |     |                         |     |     |                      |
| 407  | 2   |       |     |     |      |      |      |     |                         |     |                         |     |     |                      |

Unit: mm

| Type |     | Poles | H   | HA | HC   | L    | K  | D     | E     | F    | GA   | Weight (kg) |
|------|-----|-------|-----|----|------|------|----|-------|-------|------|------|-------------|
| HRP3 | 283 | 2     | 280 | 30 | 1139 | 1370 | 38 | 70    | 140   | 20   | 74.5 | 1450        |
|      | 285 | 2     |     |    |      | 1470 |    |       |       |      |      |             |
|      | 287 | 2     |     |    |      |      |    |       |       |      |      | 1550        |
|      | 289 | 2     |     |    |      | 1600 |    |       |       |      |      |             |
|      | 313 | 2     | 315 | 30 | 1234 | 1515 | 38 | 80    | 140   | 22   | 85   | 1850        |
|      | 315 | 2     |     |    |      |      |    |       |       |      |      | 1950        |
|      | 317 | 2     |     |    |      |      |    |       |       |      |      | 2100        |
|      | 355 | 2     | 355 | 30 | 1364 | 2020 | 38 | 90    | 170   | 25   | 95   | 2550        |
|      | 357 | 2     |     |    |      |      |    | *90   | *170  | *25  | *95  | 2700        |
|      |     |       |     |    |      |      |    | **90  | **170 | **25 | **95 |             |
|      | 403 | 2     | 400 | 35 | 1454 | 2192 | 38 | 110   | 210   | 28   | 116  | 3700        |
|      | 405 | 2     |     |    |      |      |    | *90   | *170  | *25  | *95  | 3850        |
| 407  | 2   | **90  |     |    |      |      |    | **170 | **25  | **95 | 4000 |             |

**Note**

- Suffix "-B" denotes for V-belt drive.
- Tolerance on "D" and "DA" dimension will be m6.
- The bores of the transmission elements should be made to an ISO fit H6.
- The dimensions printed in bold face in the table to IEC : A, B, C, D, E, F, GA, H, K are certified.
- Type of bearings
  - Greased lubricated anti-friction
  - Forced feed oil lubrication sleeve bearings
- \* : Self cooled sleeve bearing dimension (60 Hz)
- \*\* : Self cooled sleeve bearing dimension (50 Hz)

6. The following tolerances are applicable to dimensions A, B, and H.

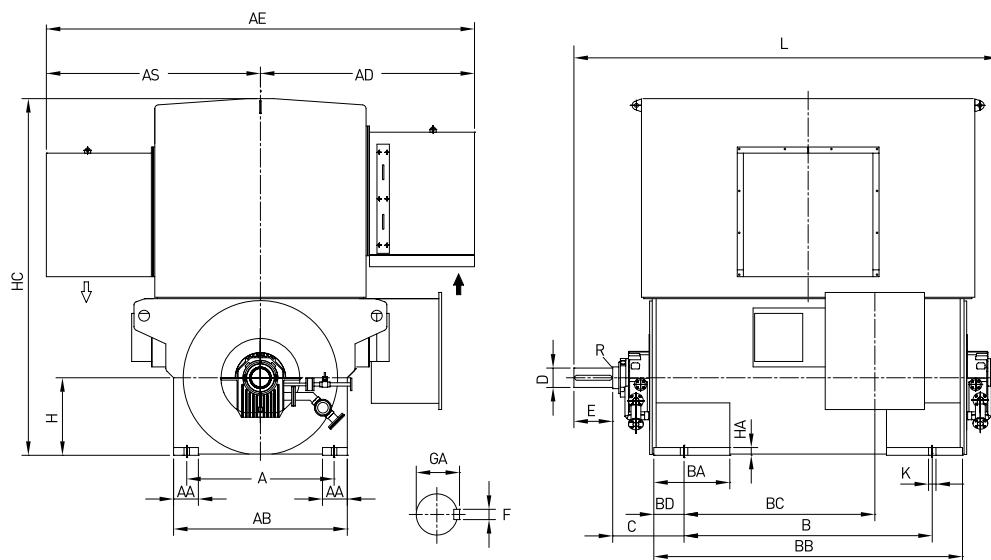
| Dimensions | Tolerance (mm)       |      |
|------------|----------------------|------|
| A and B    | Over 500 up to 750   | ±1.5 |
|            | Over 750 up to 1,000 | ±1.5 |
|            | Over 1,000           | ±1.5 |
| H          | Over 250 up to 600   | -1.0 |
|            | Over 600 up to 1,000 | -1.5 |

7. "R" dimension of the shaft extension part is as follows.

| Shaft Diameter (mm) | R (mm) |
|---------------------|--------|
| 50 - 80             | 1.6    |
| 85 - 120            | 2.5    |
| 130 - 190           | 4.0    |

## | HRP3 |

### Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles | A   | AA  | AB   | AD   | AE   | AS   | B    | BA  | BB   | BC   | BD   | C    |
|------|-----|-------|-----|-----|------|------|------|------|------|-----|------|------|------|------|
| HRP3 | 451 | 2     | 850 | 150 | 1000 | 1260 | 2520 | 1260 | 1400 | 450 | 1790 | 1050 | 195  | 450  |
|      | 453 | 2     |     |     |      |      |      |      |      |     |      |      |      | *530 |
|      | 455 | 2     |     |     |      |      |      |      | 1400 | 450 | 1860 | 1080 | 230  | 480  |
|      |     |       |     |     |      |      |      |      |      |     |      |      |      | *560 |
|      | 501 | 2     | 950 | 160 | 1120 | 1380 | 2760 | 1380 | 1600 | 490 | 1880 | 1170 | 140  | 390  |
|      | 503 | 2     |     |     |      |      |      |      |      |     |      |      |      | *475 |
|      | 505 | 2     |     |     |      |      |      |      | 1600 | 490 | 1990 | 1230 | 195  | 460  |
|      |     |       |     |     |      |      |      |      |      |     |      |      | *530 |      |

Unit: mm

| Type |     | Poles | H   | HA | HC    | L     | K  | D   | E   | F  | GA  | Weight (kg) |      |      |      |      |
|------|-----|-------|-----|----|-------|-------|----|-----|-----|----|-----|-------------|------|------|------|------|
| HRP3 | 451 | 2     | 450 | 45 | 2060  | 2465  | 35 | 110 | 210 | 28 | 116 | 5200        |      |      |      |      |
|      | 453 | 2     |     |    |       | *2630 |    |     |     |    |     | *100        | *106 | 5400 |      |      |
|      | 455 | 2     |     |    |       | 2530  |    |     |     |    |     |             |      | 5800 |      |      |
|      |     |       |     |    | *2695 |       |    |     |     |    |     |             |      |      |      |      |
|      | 501 | 2     | 500 | 45 | 2300  | 2610  | 48 | 125 | 250 | 32 | 132 | 6700        |      |      |      |      |
|      | 503 | 2     |     |    |       | *2725 |    |     |     |    |     | *110        | *210 | *28  | *116 | 7000 |
|      | 505 | 2     |     |    |       | 2735  |    |     |     |    |     |             |      |      |      | 7600 |
|      |     |       |     |    |       | *2835 |    |     |     |    |     |             |      |      |      |      |

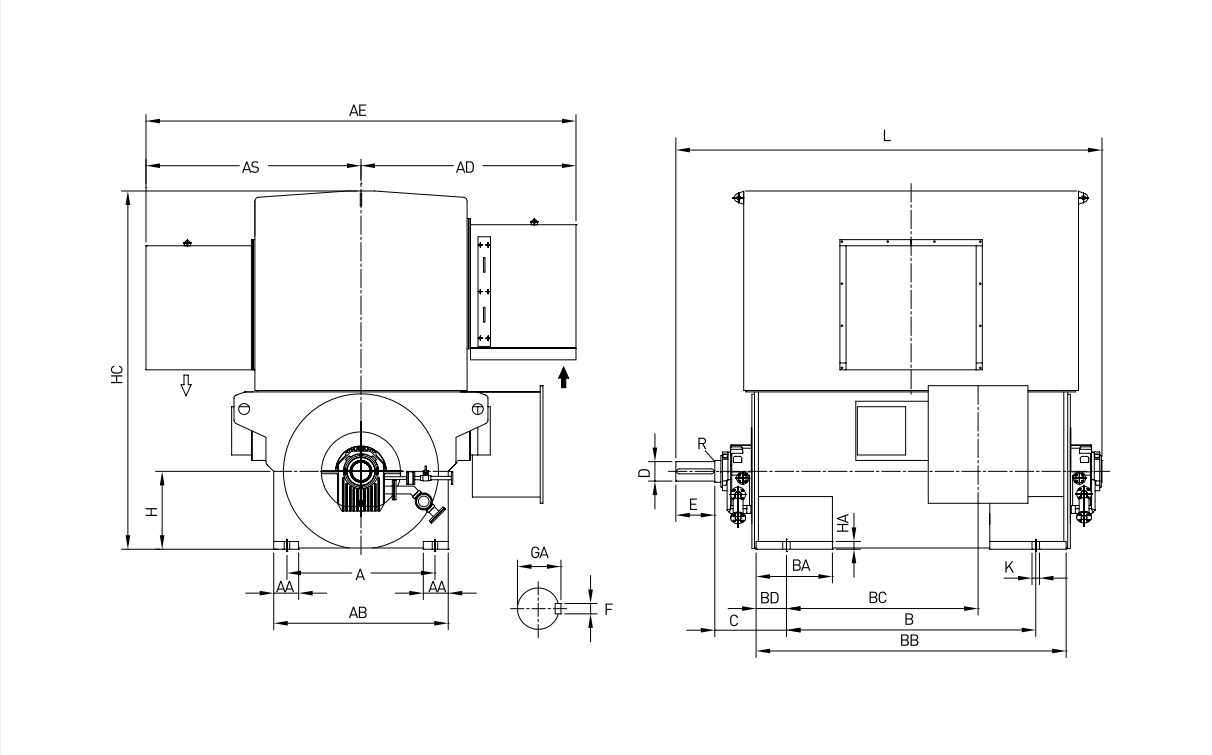
**Note:** - For the bearing type and tolerances of dimensions, see page 101.

\* : Self cooled sleeve bearing dimension



| HRP3 |

Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type | Poles    | A    | AA  | AB   | AD   | AE   | AS   | B    | BA  | BB   | BC   | BD  | C   |
|------|----------|------|-----|------|------|------|------|------|-----|------|------|-----|-----|
| HRP3 | 561<br>2 | 1120 | 160 | 1280 | 1470 | 2940 | 1470 | 1600 | 490 | 1990 | 1200 | 195 | 500 |
|      | 563<br>2 |      |     |      |      |      |      | 1800 | 490 | 2140 | 1300 | 170 | 480 |
|      | 565<br>2 |      |     |      |      |      |      |      |     |      |      |     |     |
|      | 631<br>2 | 1250 | 190 | 1420 | 1530 | 3060 | 1530 | 1800 | 540 | 2220 | 1350 | 210 | 510 |
|      | 633<br>2 |      |     |      |      |      |      | 2000 | 540 | 2320 | 1500 | 160 | 460 |
|      | 635<br>2 |      |     |      |      |      |      |      |     |      |      |     |     |

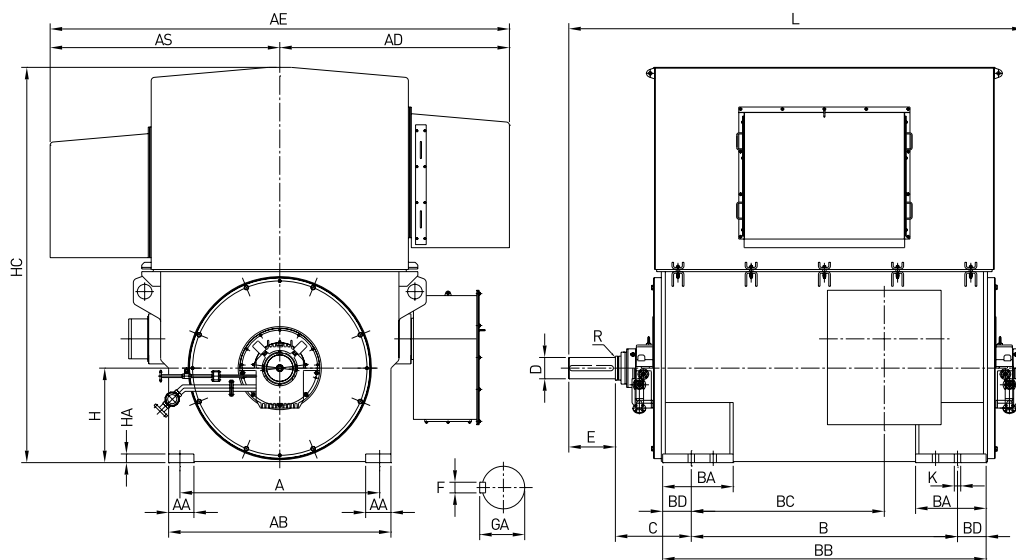
Unit: mm

| Type |     | Poles | H   | HA | HC   | L    | K  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|-----|----|------|------|----|-----|-----|----|-----|-------------|
| HRP3 | 561 | 2     | 560 | 50 | 2550 | 2800 | 48 | 150 | 250 | 36 | 158 | 8500        |
|      | 563 | 2     |     |    |      |      |    |     |     |    |     | 9000        |
|      | 565 | 2     |     |    |      | 2980 |    |     |     |    |     | 9600        |
|      | 631 | 2     | 630 | 65 | 2780 | 3080 | 48 | 160 | 300 | 40 | 169 | 11500       |
|      | 633 | 2     |     |    |      |      |    |     |     |    |     | 12600       |
|      | 635 | 2     |     |    |      | 3180 |    |     |     |    |     |             |

Note: For the bearing type and tolerances of dimensions, see page 101.

## | HRP3 |

### Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles | A    | AA  | AB   | AD   | AE   | AS   | B    | BA  | BB   | BC   | BD  | C   |
|------|-----|-------|------|-----|------|------|------|------|------|-----|------|------|-----|-----|
| HRP3 | 711 | 2     | 1500 | 190 | 1670 | 1725 | 3450 | 1725 | 2000 | 515 | 2350 | 1450 | 175 | 510 |
|      | 713 | 2     |      |     |      |      |      |      |      |     |      |      |     |     |
|      | 715 | 2     |      |     |      |      |      |      | 2000 | 530 | 2430 | 1450 | 215 | 570 |

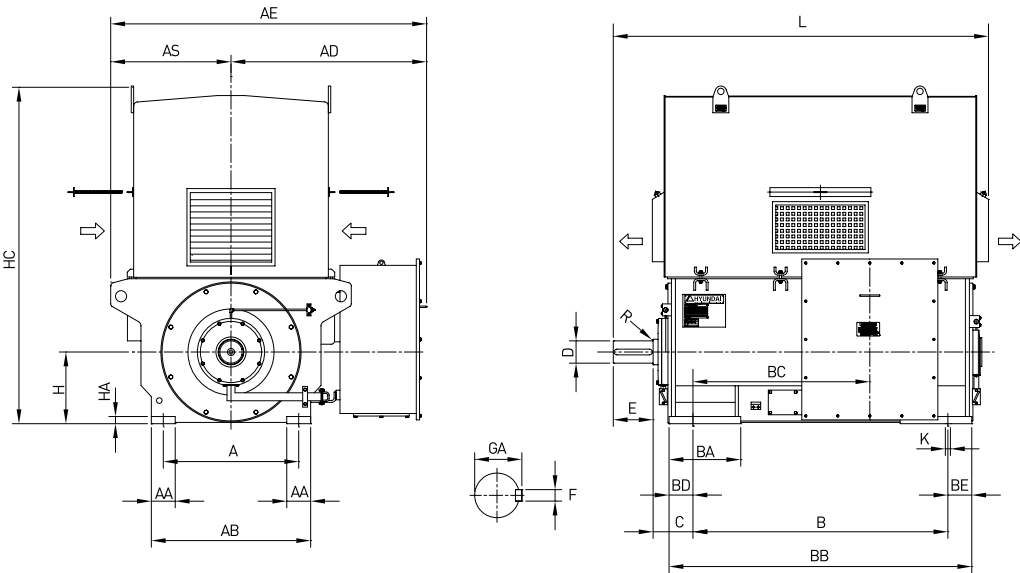
Unit: mm

| Type |     | Poles | H   | HA | HC   | L     | K  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|-----|----|------|-------|----|-----|-----|----|-----|-------------|
| HRP3 | 711 | 2     | 710 | 65 | 2970 | 3325  | 48 | 160 | 350 | 40 | 169 | 14260       |
|      | 713 | 2     |     |    |      | 14890 |    |     |     |    |     |             |
|      | 715 | 2     |     |    |      | 3420  |    |     |     |    |     | 15460       |

**Note:** For the bearing type and tolerances of dimensions, see page 101.

| HRP3 |

Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles | A   | AA  | AB  | AD   | AE   | AF  | B    | BA  | BB   | BC  | BD  | BE  |
|------|-----|-------|-----|-----|-----|------|------|-----|------|-----|------|-----|-----|-----|
| HRP3 | 403 | 4     | 830 | 140 | 950 | 1120 | 1790 | 670 | 1120 | 275 | 1420 | 760 | 177 | 123 |
|      |     | 6 - 8 |     |     |     |      |      |     | 1120 |     | 1420 | 760 |     | 123 |
|      | 405 | 4     |     |     |     |      |      |     | 1120 |     | 1420 | 760 |     | 123 |
|      |     | 6 - 8 |     |     |     |      |      |     | 1120 |     | 1420 | 905 |     | 123 |
|      | 407 | 4     |     |     |     |      |      |     | 1250 |     | 1565 | 905 |     | 138 |
|      |     | 6 - 8 |     |     |     |      |      |     | 1250 |     | 1565 | 905 |     | 138 |
|      | 409 | 4     |     |     |     |      |      |     | 1250 |     | 1565 | 905 |     | 138 |
|      |     | 6 - 8 |     |     |     |      |      |     | 1250 |     | 1565 | 905 |     | 138 |

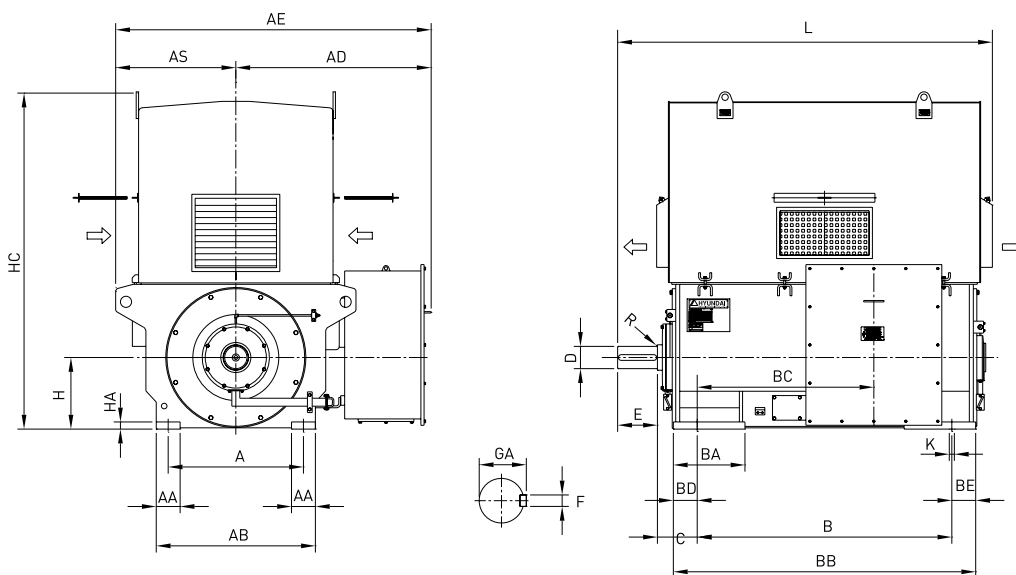
Unit: mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|-----|-----|----|------|----|------|-----|-----|----|-----|-------------|
| HRP3 | 403 | 4     | 270 | 400 | 30 | 2000 | 35 | 1770 | 120 | 210 | 32 | 127 | 3200        |
|      |     | 6-8   |     |     |    |      |    | 1770 | 120 | 210 | 32 | 127 | 3880        |
|      | 405 | 4     |     |     |    |      |    | 1770 | 120 | 210 | 32 | 127 | 4130        |
|      |     | 6-8   |     |     |    |      |    | 1770 | 120 | 210 | 32 | 127 | 4010        |
|      | 407 | 4     |     |     |    |      |    | 1970 | 130 | 250 | 32 | 137 | 4280        |
|      |     | 6-8   |     |     |    |      |    | 1970 | 130 | 250 | 32 | 137 | 4320        |
|      | 409 | 4     |     |     |    |      |    | 1970 | 130 | 250 | 32 | 137 | 5060        |
|      |     | 6-8   |     |     |    |      |    | 1970 | 130 | 250 | 32 | 137 | 4490        |

Note: For the bearing type and tolerances of dimensions, see page 101.

## | HRP3 |

### Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles | A   | AA  | AB   | AD   | AE   | AF  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|-------|-----|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRP3 | 453 | 4 - 6 | 850 | 150 | 1000 | 1180 | 1935 | 755 | 1400 | 450 | 1700 | 910  | 150 | 150 |
|      | 455 | 4 - 6 |     |     |      |      |      |     | 1400 |     | 1700 | 910  |     |     |
|      | 457 | 4 - 6 |     |     |      |      |      |     | 1600 |     | 1900 | 1110 |     |     |
|      | 459 | 4 - 6 |     |     |      |      |      |     | 1600 |     | 1900 | 1110 |     |     |

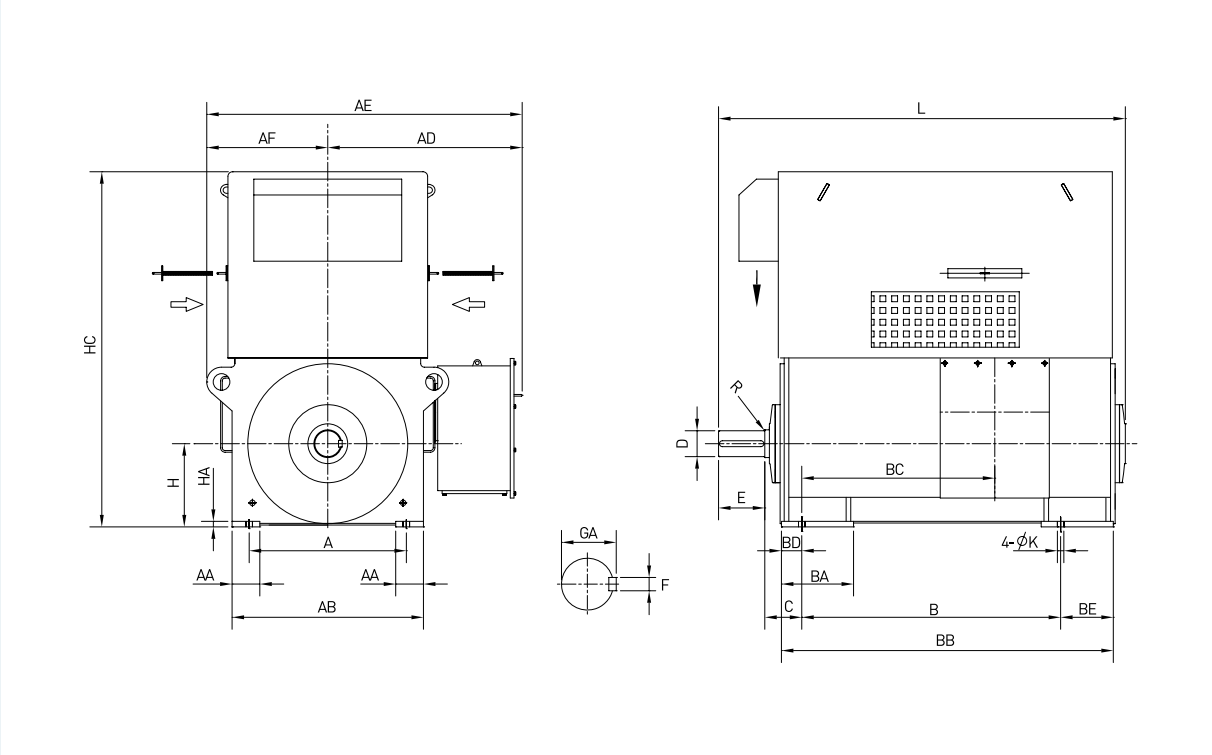
Unit: mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|-----|-----|----|------|----|------|-----|-----|----|-----|-------------|
| HRP3 | 453 | 4     | 250 | 450 | 45 | 2370 | 35 | 2120 | 140 | 250 | 36 | 148 | 5050        |
|      |     | 6     |     |     |    |      |    | 2120 | 140 | 250 | 36 | 148 | 5050        |
|      | 455 | 4     |     |     |    |      |    | 2120 | 140 | 250 | 36 | 148 | 5250        |
|      |     | 6     |     |     |    |      |    | 2120 | 140 | 250 | 36 | 148 | 5250        |
|      | 457 | 4     |     |     |    |      |    | 2320 | 150 | 250 | 36 | 158 | 5650        |
|      |     | 6     |     |     |    |      |    | 2320 | 150 | 250 | 36 | 158 | 5650        |
|      | 459 | 4     |     |     |    |      |    | 2320 | 150 | 250 | 36 | 158 | 5850        |
|      |     | 6     |     |     |    |      |    | 2320 | 150 | 250 | 36 | 158 | 5900        |

**Note:** For the bearing type and tolerances of dimensions, see page 101.

| HRP3 |

Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles  | A   | AA  | AB   | AD   | AE   | AF  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|--------|-----|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRP3 | 453 | 8 - 16 | 850 | 160 | 1035 | 1110 | 1695 | 585 | 1250 | 390 | 1635 | 885  | 110 | 275 |
|      | 455 | 8 - 16 |     |     |      |      |      |     | 1250 |     | 1635 | 885  |     | 275 |
|      | 457 | 8 - 16 |     |     |      |      |      |     | 1400 |     | 1795 | 1045 |     | 285 |
|      | 459 | 8 - 16 |     |     |      |      |      |     | 1400 |     | 1795 | 1045 |     | 285 |

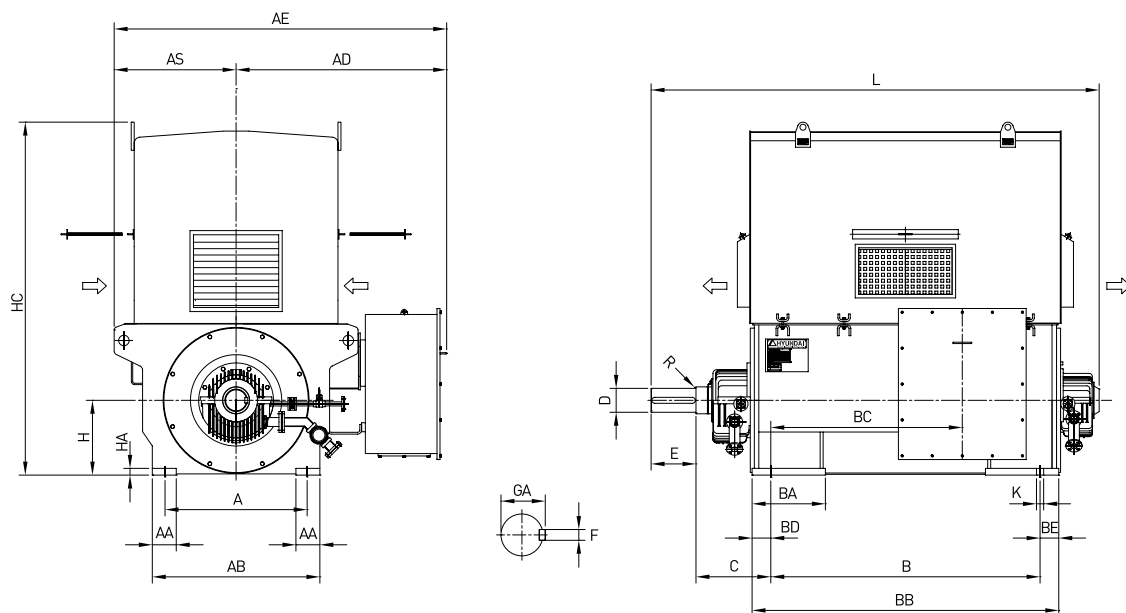
Unit: mm

| Type |     | Poles  | C   | H   | HA | HC   | K  | L    | LT   | D   | E   | F  | GA  | Weight [kg] |
|------|-----|--------|-----|-----|----|------|----|------|------|-----|-----|----|-----|-------------|
| HRP3 | 453 | 8 - 16 | 200 | 450 | 30 | 2080 | 35 | 2090 | 2390 | 140 | 250 | 36 | 148 | 5250        |
|      | 455 | 8 - 16 |     |     |    |      |    | 2090 | 2390 | 140 | 250 | 36 | 148 | 5350        |
|      | 457 | 8 - 16 |     |     |    |      |    | 2250 | 2450 | 150 | 250 | 36 | 158 | 5850        |
|      | 459 | 8 - 16 |     |     |    |      |    | 2250 | 2450 | 150 | 250 | 36 | 158 | 6100        |

**Note:** For the bearing type and tolerances of dimensions, see page 101.

## | HRP3 |

### Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles | A   | AA  | AB   | AD   | AE   | AF  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|-------|-----|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRP3 | 503 | 4     | 950 | 160 | 1120 | 1240 | 2055 | 815 | 1600 | 490 | 1850 | 1080 | 125 | 125 |
|      | 505 | 4     |     |     |      |      |      |     | 1600 |     | 1850 | 1080 |     |     |
|      | 507 | 4     |     |     |      |      |      |     | 1800 |     | 2050 | 1280 |     |     |
|      | 509 | 4     |     |     |      |      |      |     | 1800 |     | 2050 | 1280 |     |     |

Unit: mm

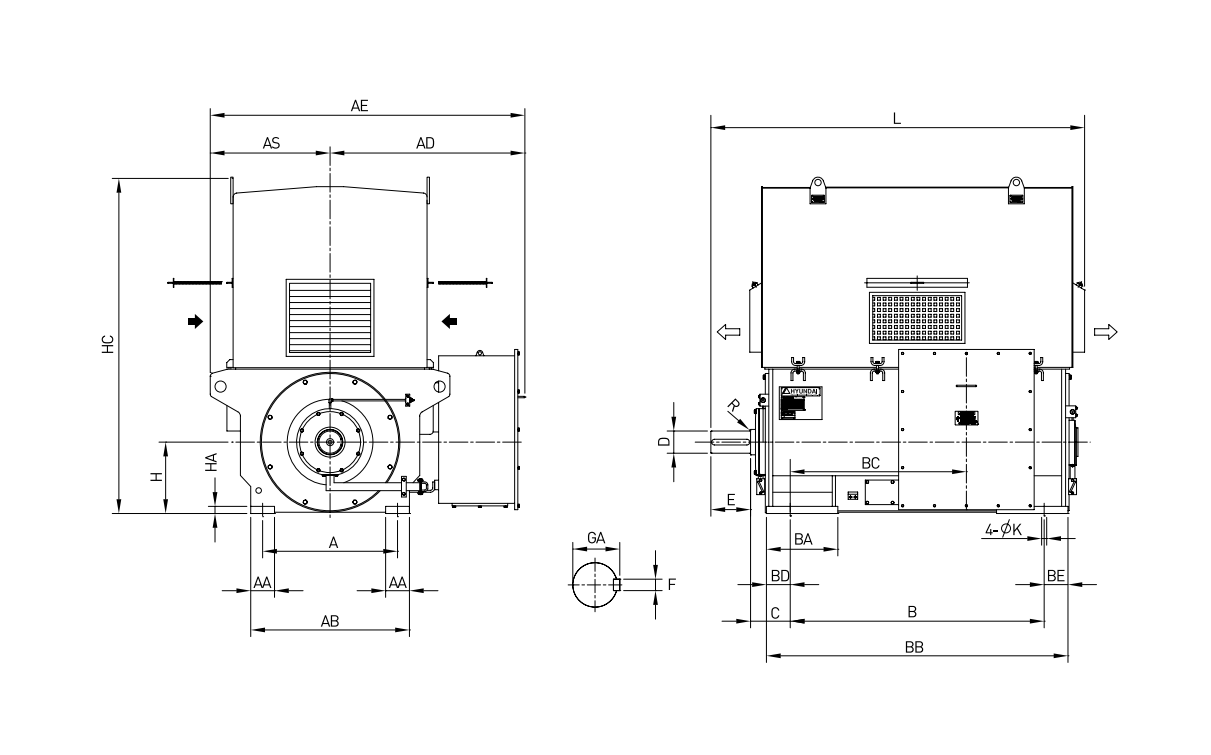
| Type |     | Poles | C   | H   | HA | HC   | K  | L    | D    | E   | F    | GA   | Weight (kg) |
|------|-----|-------|-----|-----|----|------|----|------|------|-----|------|------|-------------|
| HRP3 | 503 | 4     | 500 | 500 | 45 | 2610 | 48 | 2800 | 160  | 300 | 40   | 169  | 6550        |
|      | 505 | 4     |     |     |    |      |    | 2800 | 160  | 300 | 40   | 169  | 6800        |
|      | 507 | 4     |     |     |    |      |    | 3000 | 170  | 300 | 40   | 179  | 7300        |
|      | 509 | 4     |     |     |    |      |    | 3000 | *160 |     | *169 | 7650 |             |

**Note:** - For the bearing type and tolerances of dimensions, see page 101.

\* : Self cooled sleeve bearing dimension

| HRP3 |

Mounting B3 / Degree of Protection IP23W, IP24W



| Unit: mm |     |       |     |     |      |      |      |     |      |     |      |      |     |     |
|----------|-----|-------|-----|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| Type     |     | Poles | A   | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
| HRP3     | 503 | 6     | 950 | 160 | 1120 | 1240 | 2055 | 815 | 1600 | 490 | 1850 | 1080 | 125 | 125 |
|          | 505 | 6     |     |     |      |      |      |     | 1600 |     | 1850 | 1080 |     |     |
|          | 507 | 6     |     |     |      |      |      |     | 1800 |     | 2050 | 1280 |     |     |
|          | 509 | 6     |     |     |      |      |      |     | 1800 |     | 2050 | 1280 |     |     |

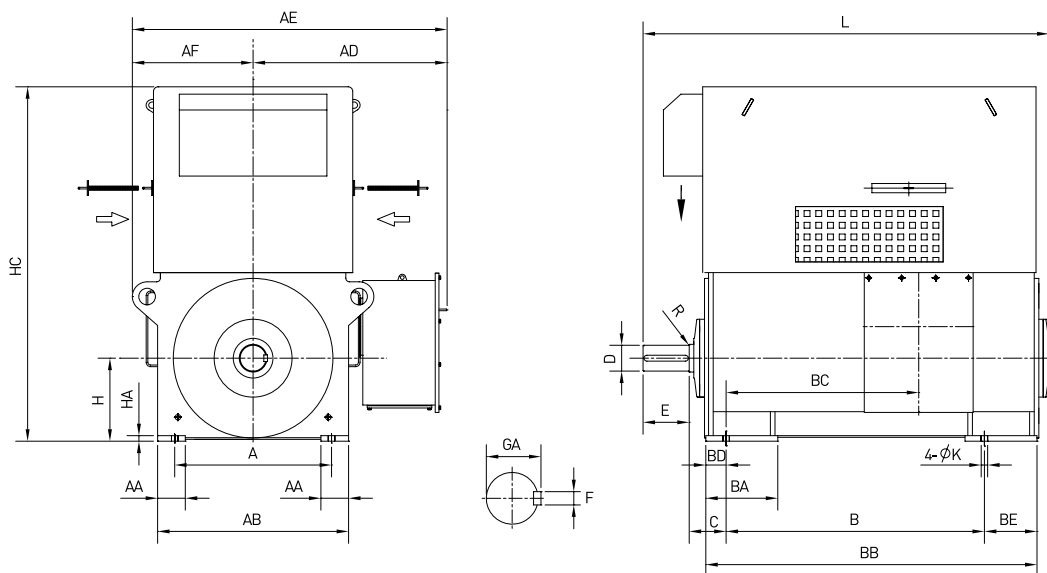
Unit: mm

| Type | Poles | C | H   | HA  | HC | K    | L  | D    | E   | F   | GA | Weight (kg) |      |
|------|-------|---|-----|-----|----|------|----|------|-----|-----|----|-------------|------|
| HRP3 | 503   | 6 | 250 | 500 | 45 | 2610 | 48 | 2360 | 160 | 300 | 40 | 169         | 6150 |
|      | 505   | 6 |     |     |    |      |    | 2360 | 160 | 300 | 40 | 169         | 6400 |
|      | 507   | 6 |     |     |    |      |    | 2560 | 170 | 300 | 40 | 179         | 6950 |
|      | 509   | 6 |     |     |    |      |    | 2560 | 170 | 300 | 40 | 179         | 7300 |

**Note:** For the bearing type and tolerances of dimensions, see page 101.

## | HRP3 |

### Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles  | A   | AA  | AB   | AD   | AE   | AF  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|--------|-----|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRP3 | 503 | 8 - 16 | 950 | 180 | 1155 | 1190 | 1930 | 740 | 1400 | 345 | 1755 | 980  | 135 | 220 |
|      | 505 | 8 - 16 |     |     |      |      |      |     | 1400 |     | 1755 | 980  |     | 220 |
|      | 507 | 8 - 16 |     |     |      |      |      |     | 1600 |     | 1945 | 1170 |     | 210 |
|      | 509 | 8 - 16 |     |     |      |      |      |     | 1600 |     | 1945 | 1170 |     | 210 |

Unit: mm

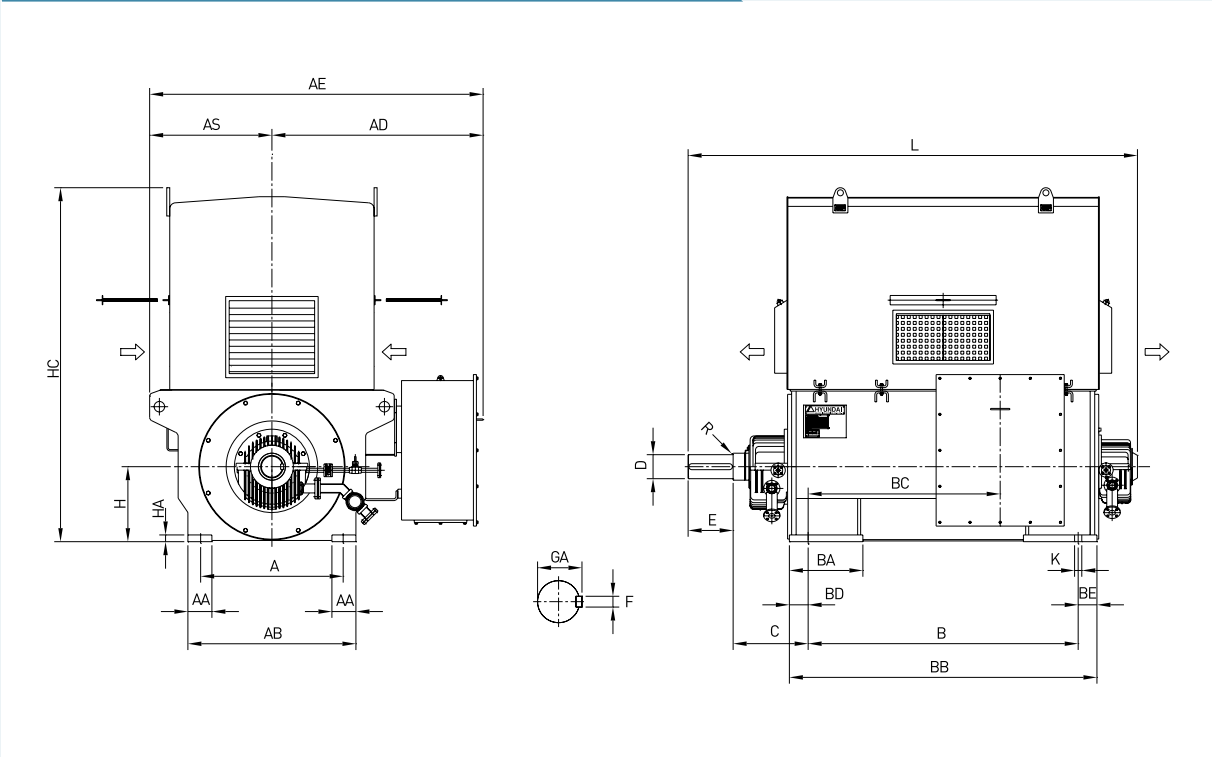
| Type |     | Poles  | C   | H   | HA | HC   | K  | L    | D   | E   | F  | GA  | Weight [kg] |
|------|-----|--------|-----|-----|----|------|----|------|-----|-----|----|-----|-------------|
| HRP3 | 503 | 8 - 16 | 224 | 500 | 34 | 2540 | 42 | 2230 | 160 | 300 | 40 | 169 | 6200        |
|      | 505 | 8 - 16 |     |     |    |      |    | 2230 | 160 | 300 | 40 | 169 | 6400        |
|      | 507 | 8 - 16 |     |     |    |      |    | 2420 | 170 | 300 | 40 | 179 | 7150        |
|      | 509 | 8 - 16 |     |     |    |      |    | 2420 | 170 | 300 | 40 | 179 | 7500        |

**Note:** For the bearing type and tolerances of dimensions, see page 101.



| HRP3 |

Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles | A    | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|-------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRP3 | 563 | 4     | 1120 | 160 | 1280 | 1450 | 2355 | 905 | 1600 | 520 | 1930 | 1115 | 165 | 165 |
|      | 565 | 4     |      |     |      |      |      |     | 1800 |     | 2130 | 1315 |     |     |
|      | 567 | 4     |      |     |      |      |      |     | 1800 |     | 2130 | 1315 |     |     |

Unit: mm

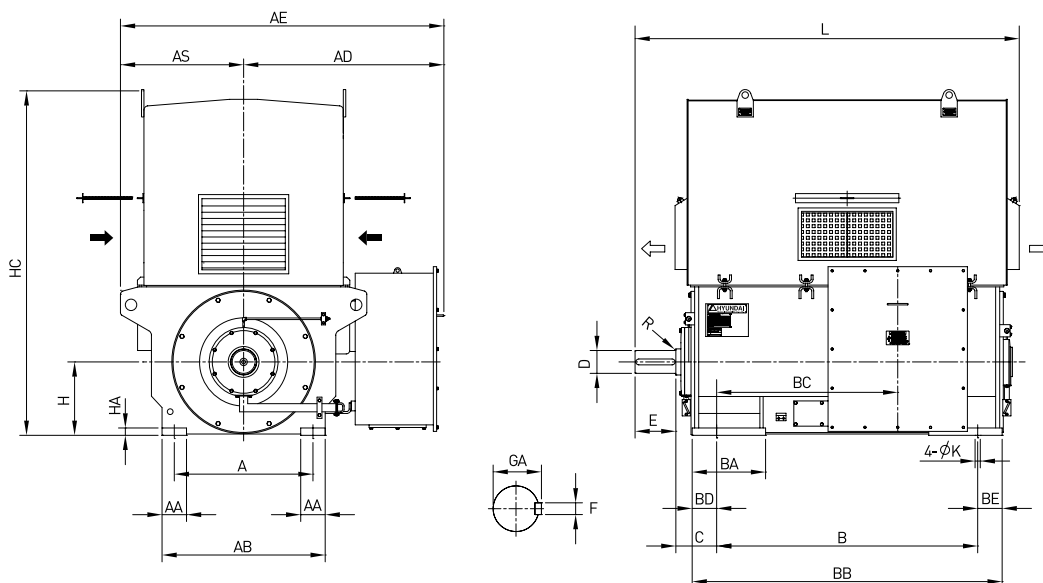
| Type |     | Poles | C   | H   | HA | HC   | K  | L    | D    | E    | F   | GA   | Weight (kg) |
|------|-----|-------|-----|-----|----|------|----|------|------|------|-----|------|-------------|
| HRP3 | 563 | 4     | 560 | 560 | 50 | 2450 | 48 | 2970 | 190  | 350  | 45  | 200  | 8950        |
|      | 565 | 4     |     |     |    |      |    | 3170 | *170 | *300 | *40 | *179 | 9500        |
|      | 567 | 4     |     |     |    |      |    | 3170 |      |      |     |      | 9950        |

**Note:** - For the bearing type and tolerances of dimensions, see page 101.

\* : Self cooled sleeve bearing dimension

## | HRP3 |

### Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles | A    | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|-------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRP3 | 563 | 6     | 1120 | 160 | 1280 | 1450 | 2355 | 905 | 1600 | 520 | 1930 | 1115 | 165 | 165 |
|      | 565 | 6     |      |     |      |      |      |     | 1800 |     | 2130 | 1315 |     |     |
|      | 567 | 6     |      |     |      |      |      |     | 1800 |     | 2130 | 1315 |     |     |

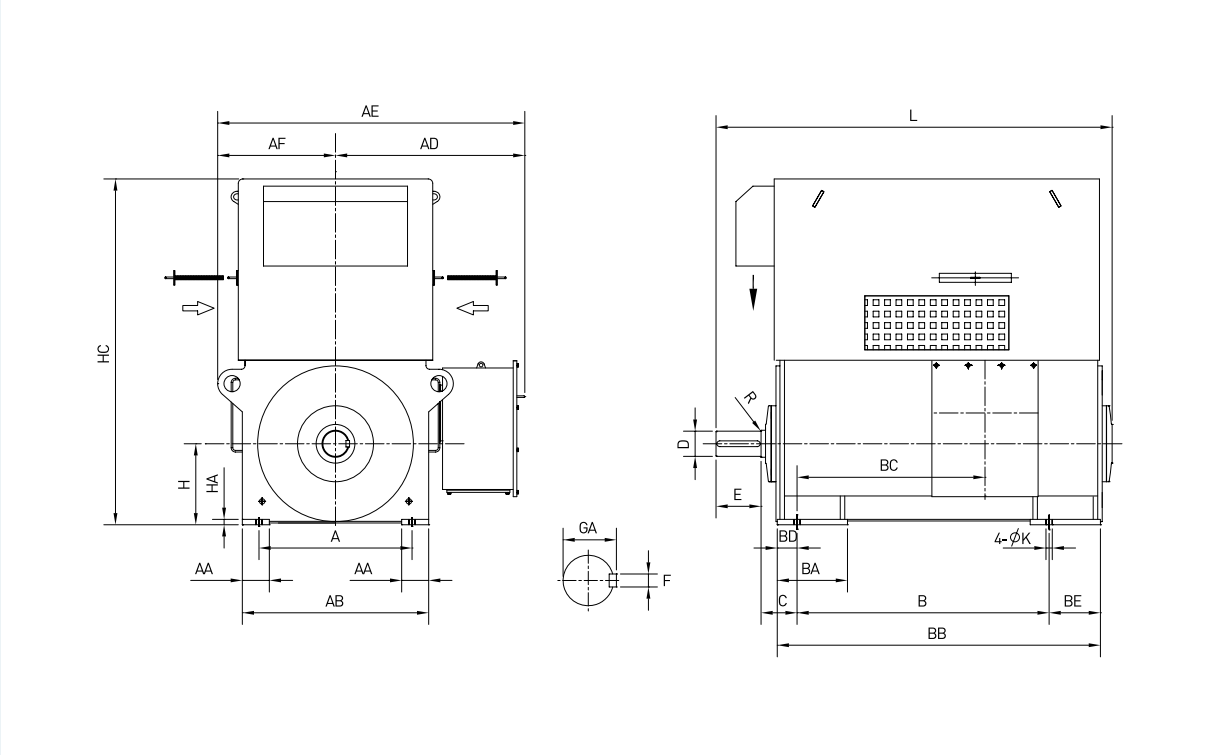
Unit: mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|-----|-----|----|------|----|------|-----|-----|----|-----|-------------|
| HRP3 | 563 | 6     | 280 | 560 | 50 | 2450 | 48 | 2500 | 190 | 350 | 45 | 200 | 9000        |
|      | 565 | 6     |     |     |    |      |    | 2700 |     |     |    |     | 9700        |
|      | 567 | 6     |     |     |    |      |    | 2700 |     |     |    |     | 10100       |

**Note:** For the bearing type and tolerances of dimensions, see page 101.

| HRP3 |

Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles  | A    | AA  | AB   | AD   | AE   | AF  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|--------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRP3 | 563 | 8 - 16 | 1120 | 180 | 1285 | 1300 | 2080 | 780 | 1600 | 445 | 1945 | 1125 | 170 | 175 |
|      | 565 | 8 - 16 |      |     |      |      |      |     | 1600 |     | 1945 | 1125 |     |     |
|      | 567 | 8 - 16 |      |     |      |      |      |     | 1800 |     | 2145 | 1325 |     |     |
|      | 569 | 8 - 16 |      |     |      |      |      |     | 1800 |     | 2145 | 1325 |     |     |

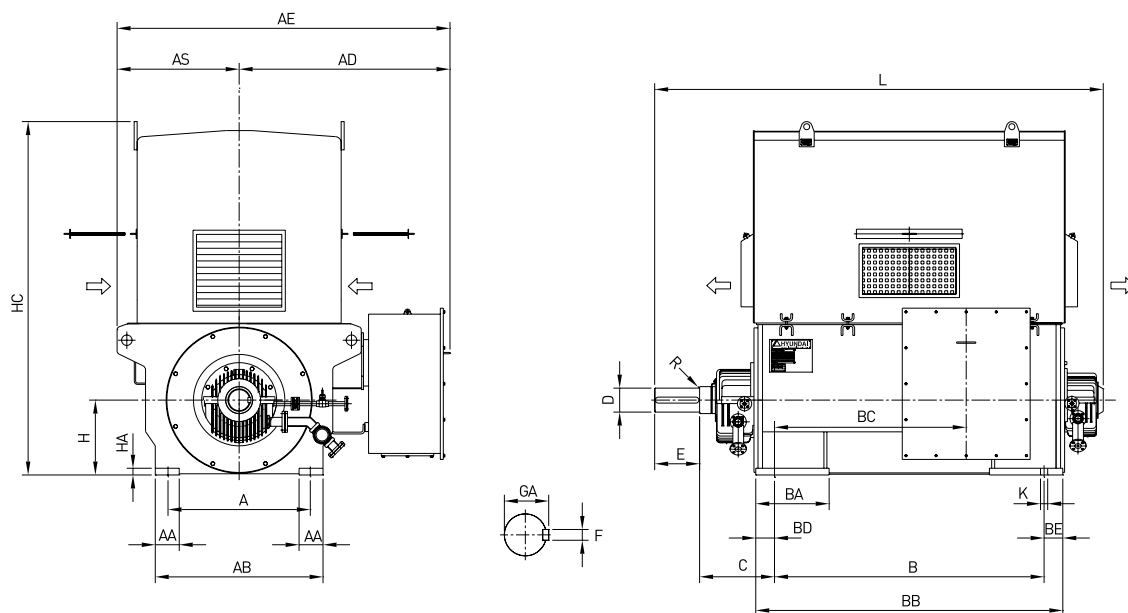
Unit: mm

| Type |     | Poles  | C   | H   | HA | HC   | K  | L    | D   | E   | F  | GA  | Weight (kg) |
|------|-----|--------|-----|-----|----|------|----|------|-----|-----|----|-----|-------------|
| HRP3 | 563 | 8 - 16 | 280 | 560 | 35 | 2760 | 48 | 2500 | 180 | 300 | 45 | 190 | 9050        |
|      | 565 | 8 - 16 |     |     |    |      |    | 2500 | 180 | 300 | 45 | 190 | 9350        |
|      | 567 | 8 - 16 |     |     |    |      |    | 2700 | 190 | 350 | 45 | 200 | 10050       |
|      | 569 | 8 - 16 |     |     |    |      |    | 2700 | 190 | 350 | 45 | 200 | 10550       |

**Note:** For the bearing type and tolerances of dimensions, see page 101.

## | HRP3 |

### Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles | A    | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|-------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRP3 | 631 | 4     | 1250 | 190 | 1420 | 1380 | 2355 | 975 | 1800 | 540 | 2110 | 1305 | 155 | 155 |
|      | 633 | 4     |      |     |      |      |      |     | 1800 |     | 2110 | 1305 |     |     |
|      | 635 | 4     |      |     |      |      |      |     | 2000 |     | 2310 | 1505 |     |     |
|      | 637 | 4     |      |     |      |      |      |     | 2000 |     | 2310 | 1505 |     |     |

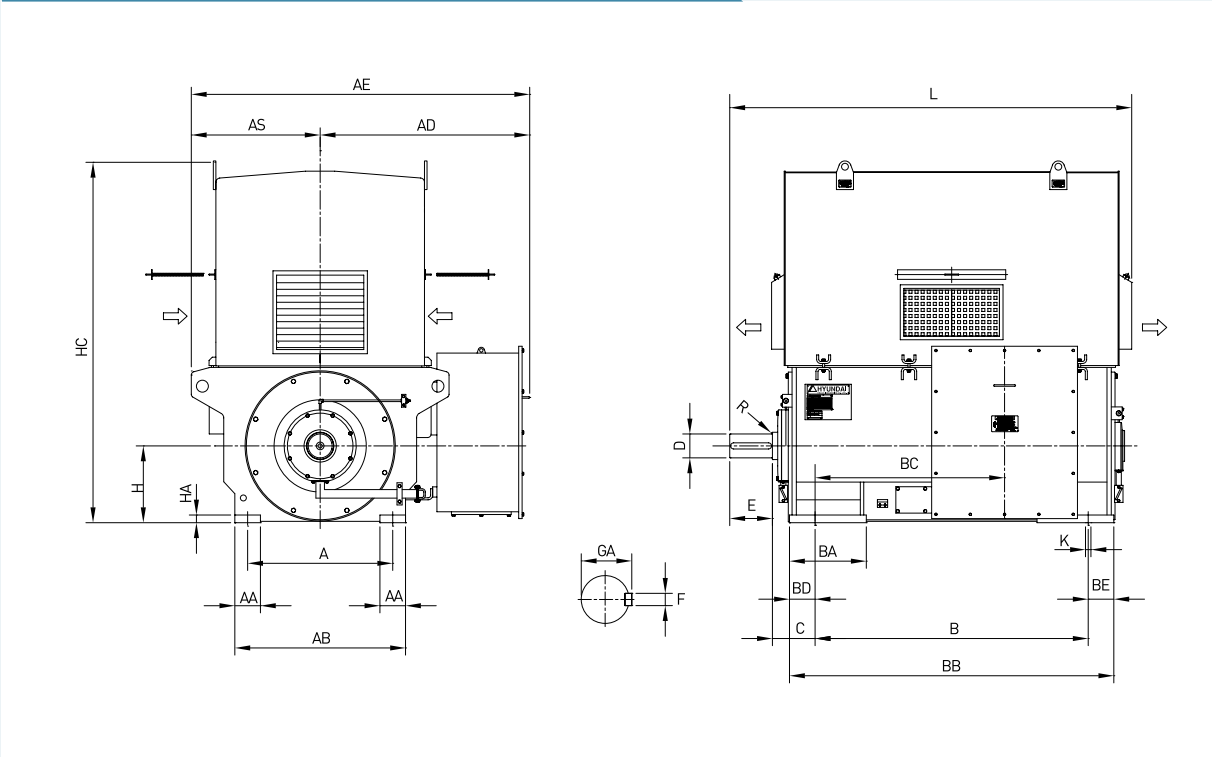
Unit: mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|-----|-----|----|------|----|------|-----|-----|----|-----|-------------|
| HRP3 | 631 | 4     | 600 | 630 | 55 | 3080 | 48 | 3280 | 200 | 350 | 45 | 210 | 12200       |
|      | 633 | 4     |     |     |    |      |    | 3280 | 200 | 350 | 45 | 210 | 12600       |
|      | 635 | 4     |     |     |    |      |    | 3480 | 220 | 350 | 50 | 231 | 13500       |
|      | 637 | 4     |     |     |    |      |    | 3480 | 220 | 350 | 50 | 231 | 14100       |

**Note:** For the bearing type and tolerances of dimensions, see page 101.

| HRP3 |

Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles | A    | AA  | AB   | AD   | AE   | AS  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|-------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRP3 | 631 | 6     | 1250 | 190 | 1420 | 1380 | 2355 | 975 | 1800 | 540 | 2110 | 1305 | 155 | 155 |
|      | 633 | 6     |      |     |      |      |      |     | 1800 |     | 2110 | 1305 |     |     |
|      | 635 | 6     |      |     |      |      |      |     | 2000 |     | 2310 | 1505 |     |     |
|      | 637 | 6     |      |     |      |      |      |     | 2000 |     | 2310 | 1505 |     |     |

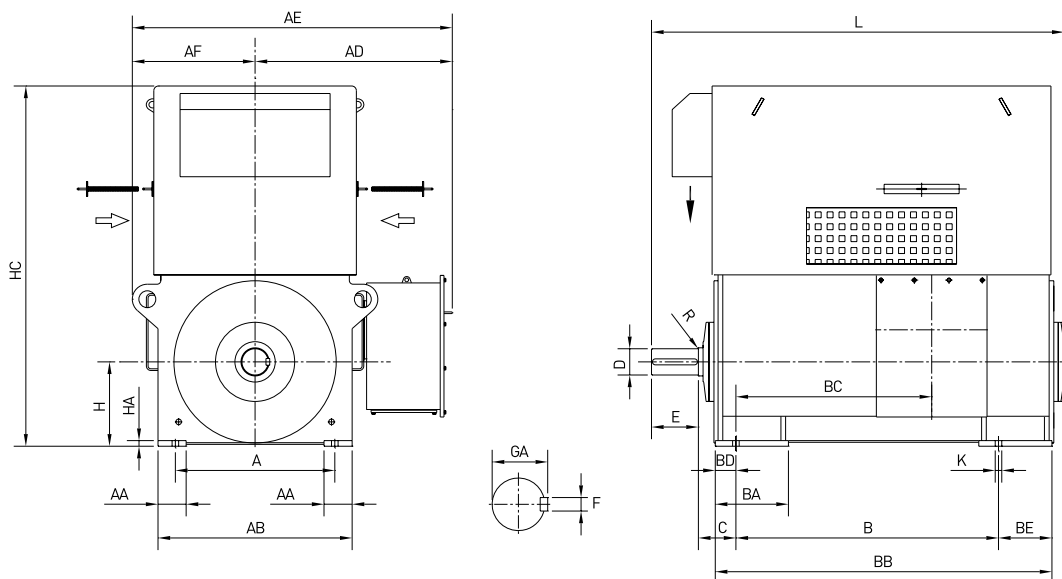
Unit: mm

| Type |     | Poles | C   | H   | HA | HC   | K  | L    | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|-----|-----|----|------|----|------|-----|-----|----|-----|-------------|
| HRP3 | 631 | 6     | 280 | 630 | 55 | 3080 | 48 | 2690 | 200 | 350 | 45 | 210 | 11600       |
|      | 633 | 6     |     |     |    |      |    | 2690 | 200 | 350 | 45 | 210 | 12100       |
|      | 635 | 6     |     |     |    |      |    | 2890 | 220 | 350 | 50 | 231 | 13000       |
|      | 637 | 6     |     |     |    |      |    | 2890 | 220 | 350 | 50 | 231 | 13600       |

**Note:** For the bearing type and tolerances of dimensions, see page 101.

## | HRP3 |

### Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles  | A    | AA  | AB   | AD   | AE   | AF  | B    | BA  | BB   | BC   | BD  | BE  |
|------|-----|--------|------|-----|------|------|------|-----|------|-----|------|------|-----|-----|
| HRP3 | 633 | 8 - 16 | 1180 | 220 | 1420 | 1310 | 2185 | 875 | 1800 | 500 | 2240 | 1440 | 145 | 295 |
|      | 635 | 8 - 16 |      |     |      |      |      |     | 1800 |     | 2240 | 1440 |     | 295 |
|      | 637 | 8 - 16 |      |     |      |      |      |     | 2000 |     | 2480 | 1680 |     | 335 |
|      | 639 | 8 - 16 |      |     |      |      |      |     | 2000 |     | 2480 | 1680 |     | 335 |

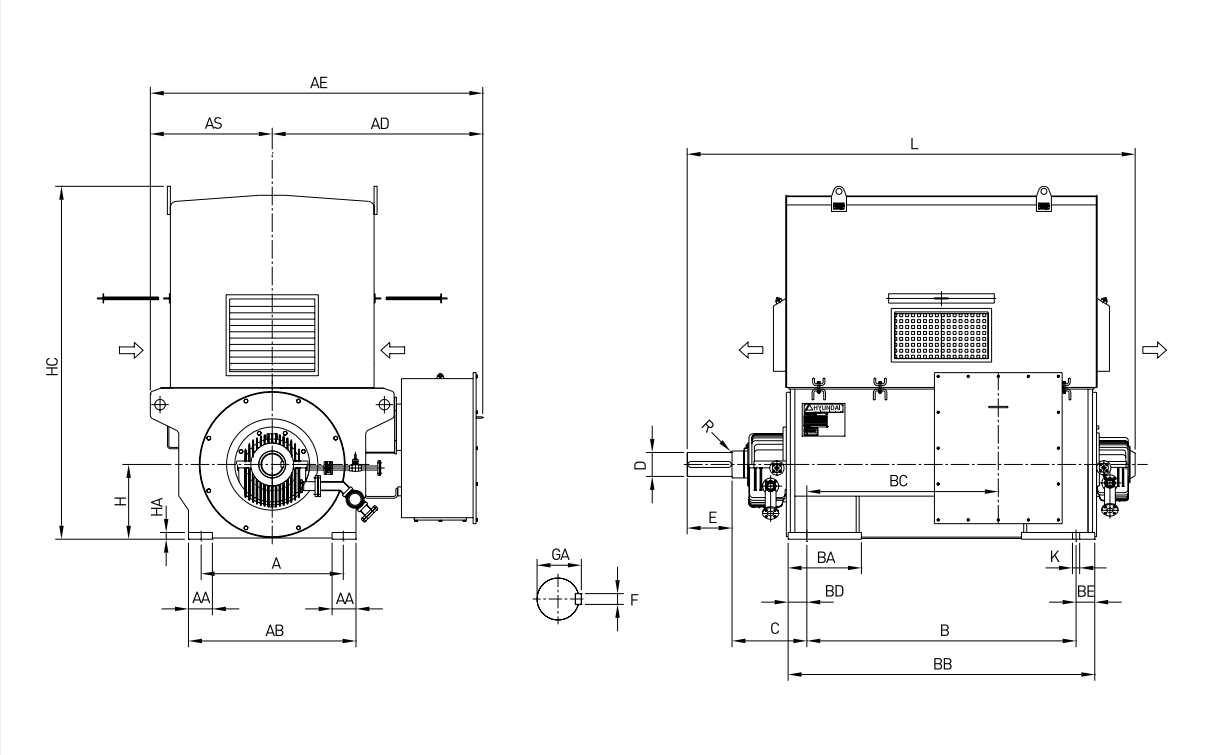
Unit: mm

| Type |     | Poles  | C   | H   | HA | HC   | K  | L    | LT   | D   | E   | F  | GA  | Weight (kg) |
|------|-----|--------|-----|-----|----|------|----|------|------|-----|-----|----|-----|-------------|
| HRP3 | 633 | 8 - 16 | 315 | 630 | 38 | 2600 | 48 | 2860 | 3210 | 200 | 350 | 45 | 210 | 12650       |
|      | 635 | 8 - 16 |     |     |    |      |    | 2860 | 3210 | 200 | 350 | 45 | 210 | 13250       |
|      | 637 | 8 - 16 |     |     |    |      |    | 3100 | 3350 | 220 | 350 | 50 | 231 | 14350       |
|      | 639 | 8 - 16 |     |     |    |      |    | 3100 | 3350 | 220 | 350 | 50 | 231 | 15050       |

**Note:** For the bearing type and tolerances of dimensions, see page 101.

| HRP3 |

Mounting B3 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles | A    | AA  | AB   | AD   | AE   | AS   | B    | BA  | BB   | BC   | BD  | BE  | BF   | BG  |
|------|-----|-------|------|-----|------|------|------|------|------|-----|------|------|-----|-----|------|-----|
| HRP3 | 715 | 4 - 6 | 1500 | 285 | 1750 | 1460 | 2520 | 1060 | 1400 | 690 | 2390 | 1560 | 175 | 175 | 2040 | 320 |
|      | 717 | 4 - 6 |      |     |      |      |      |      | 1600 |     | 2590 | 1760 |     |     | 2240 |     |
|      | 719 | 4 - 6 |      |     |      |      |      |      | 1600 |     | 2590 | 1760 |     |     | 2240 |     |

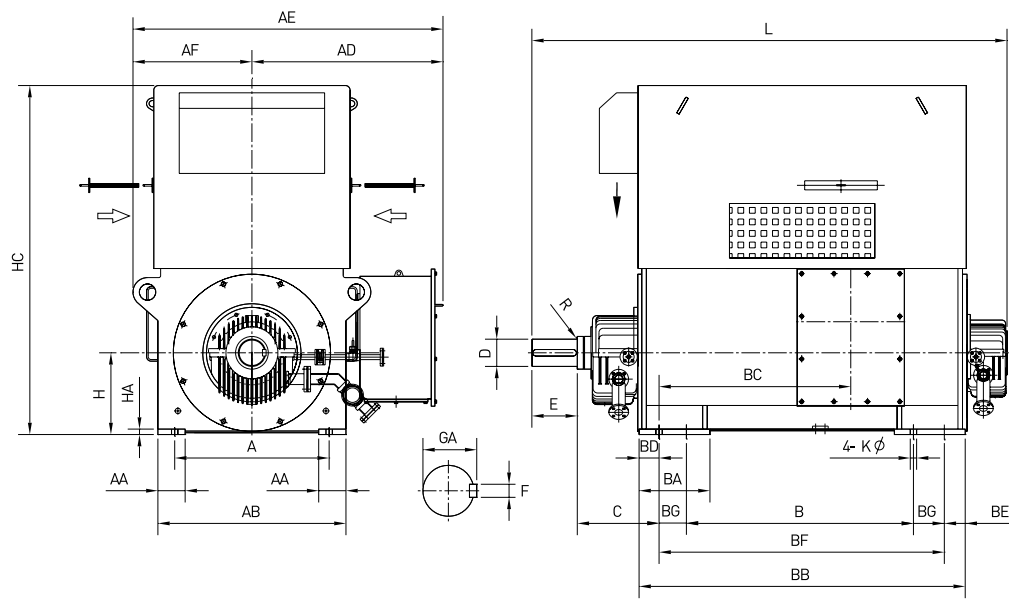
Unit: mm

| Type |     | Poles | C   | D   | E   | F  | GA  | H   | HA | HC   | K  | L    | Weight (kg) |  |  |  |  |  |  |  |  |  |
|------|-----|-------|-----|-----|-----|----|-----|-----|----|------|----|------|-------------|--|--|--|--|--|--|--|--|--|
| HRP3 | 715 | 4     | 630 | 250 | 410 | 56 | 262 | 710 | 44 | 3280 | 56 | 3650 | 19200       |  |  |  |  |  |  |  |  |  |
|      |     | 6     |     |     |     |    |     |     |    |      |    | 3650 | 18800       |  |  |  |  |  |  |  |  |  |
|      | 717 | 4     |     |     |     |    |     |     |    |      |    | 3850 | 20500       |  |  |  |  |  |  |  |  |  |
|      |     | 6     |     |     |     |    |     |     |    |      |    | 3850 | 20100       |  |  |  |  |  |  |  |  |  |
|      | 719 | 4     |     |     |     |    |     |     |    |      |    | 3850 | 21400       |  |  |  |  |  |  |  |  |  |
|      |     | 6     |     |     |     |    |     |     |    |      |    | 3850 | 21200       |  |  |  |  |  |  |  |  |  |
|      |     |       |     |     |     |    |     |     |    |      |    |      |             |  |  |  |  |  |  |  |  |  |
|      |     |       |     |     |     |    |     |     |    |      |    |      |             |  |  |  |  |  |  |  |  |  |

Note: For the bearing type and tolerances of dimensions, see page 101.

## | HRP3 |

**Mounting B3 / Degree of Protection IP23W, IP24W**



Unit: mm

| Type |     | Poles  | A    | AA  | AB   | AD   | AE   | AS   | B    | BA  | BB   | BC   | BD  | BE  | BF   | BG  |
|------|-----|--------|------|-----|------|------|------|------|------|-----|------|------|-----|-----|------|-----|
| HRP3 | 715 | 8 - 16 | 1500 | 285 | 1750 | 1460 | 2520 | 1060 | 1400 | 690 | 2390 | 1560 | 175 | 175 | 2040 | 320 |
|      | 717 | 8 - 16 |      |     |      |      |      |      | 1600 |     | 2590 | 1760 | 175 | 175 | 2240 | 320 |
|      | 719 | 8 - 16 |      |     |      |      |      |      | 1600 |     | 2590 | 1760 | 175 | 175 | 2240 | 320 |

Unit: mm

| Type |     | Poles | C   | D   | E   | F  | GA  | H   | HA | HC   | K  | L    | Weight (kg) |
|------|-----|-------|-----|-----|-----|----|-----|-----|----|------|----|------|-------------|
| HRP3 | 715 | 8-16  | 630 | 250 | 410 | 56 | 262 | 710 | 44 | 3280 | 56 | 3650 | 19400       |
|      | 717 | 8-16  |     |     |     |    |     |     |    |      |    | 3850 | 20900       |
|      | 719 | 8-16  |     |     |     |    |     |     |    |      |    | 3850 | 21900       |

**Note:** For the bearing type and tolerances of dimensions, see page 101.





Weather Protected, Squirrel Cage |

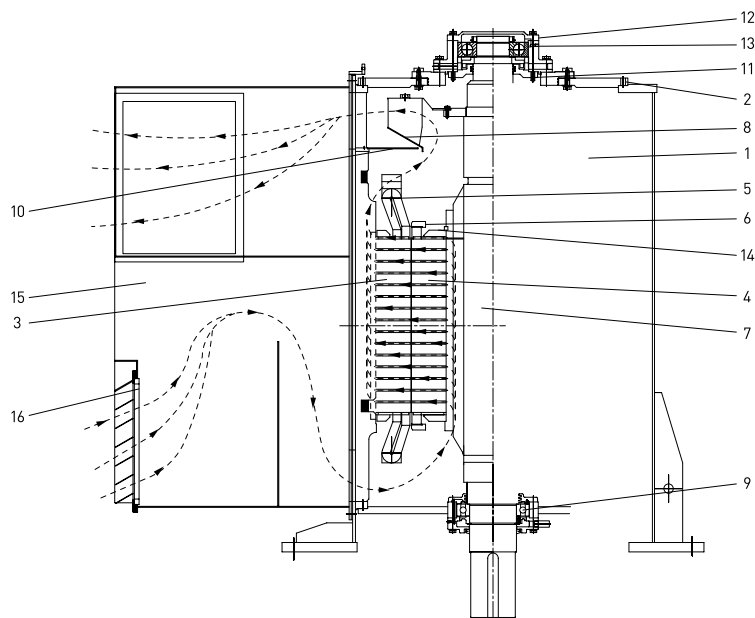
## HRP3 Series -Vertical

# 07

## | HRP3 |

|                        |                                                        |
|------------------------|--------------------------------------------------------|
| • Rotor Type           | Squirrel Cage                                          |
| • Number of Poles      | 4-14                                                   |
| • Voltage              | 2-14 kV                                                |
| • Output Range         | 1,140-8,840 kW (at 60 Hz, 6,600 V, 4 Pole)             |
| • Type of Construction | IM V10                                                 |
| • Frame                | 400-630                                                |
| • Degree of Protection | IP 23W-IP 24W (IEC 60034-5)                            |
| • Method of Cooling    | IC 01 (IEC 60034-6)                                    |
| • Type of Enclosure    | Weather Protected Type I & II : WPI, WP II (NEMA MG-1) |

### Sectional View and Parts Name



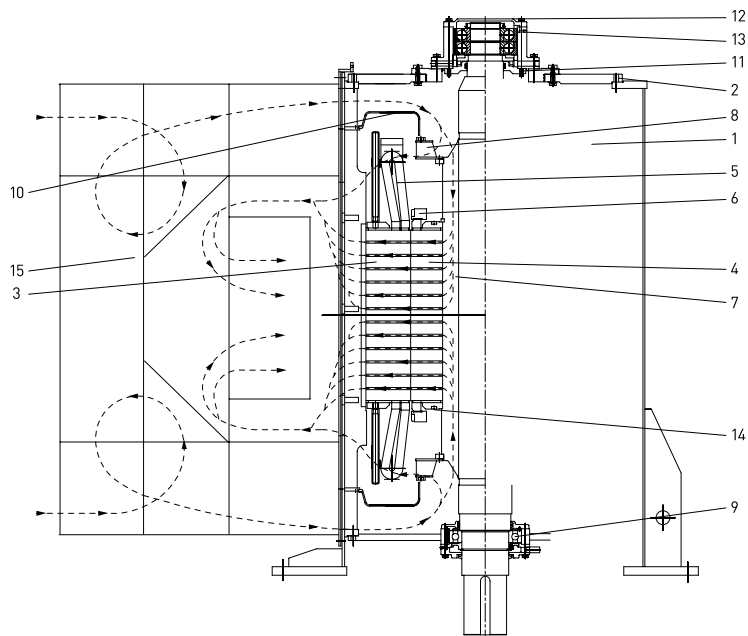
#### Parts Name Type - I (Uni-directional cooling circuit)

|                 |                         |                            |                   |
|-----------------|-------------------------|----------------------------|-------------------|
| 1. Stator Frame | 5. Stator Winding       | 9. Bearing                 | 13. Grease Nipple |
| 2. End Shield   | 6. Rotor End Ring       | 10. Air Guide Plate        | 14. Balance Ring  |
| 3. Stator Core  | 7. Shaft                | 11. Internal Bearing Cover | 15. Air Housing   |
| 4. Rotor Core   | 8. Internal Cooling Fan | 12. External Bearing Cover | 16. Air Filter    |

| HRP3 |

|                        |                                                       |
|------------------------|-------------------------------------------------------|
| • Rotor Type           | Squirrel Cage                                         |
| • Number of Poles      | 4-14                                                  |
| • Voltage              | 2-14 kV                                               |
| • Output Range         | 1,140-8,840 kW (at 60 Hz, 6,600 V, 4 Pole)            |
| • Type of Construction | IM V10                                                |
| • Frame                | 400-630                                               |
| • Degree of Protection | IP 23W-IP 24W (IEC 60034-5)                           |
| • Method of Cooling    | IC 01 (IEC 60034-6)                                   |
| • Type of Enclosure    | Weather Protected Type I & II : WPI, WPII (NEMA MG-1) |

Sectional View and Parts Name



Parts Name    Type - II (Bi-directional cooling circuit)

|                 |                         |                            |                   |
|-----------------|-------------------------|----------------------------|-------------------|
| 1. Stator Frame | 5. Stator Winding       | 9. Bearing                 | 13. Grease Nipple |
| 2. End Shield   | 6. Rotor End Ring       | 10. Air Guide Plate        | 14. Balance Ring  |
| 3. Stator Core  | 7. Shaft                | 11. Internal Bearing Cover | 15. Air Housing   |
| 4. Rotor Core   | 8. Internal Cooling Fan | 12. External Bearing Cover |                   |

## | Rated Power at 50 Hz |

### | 3.3 kV |

Unit: kW

| Type | Poles | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|
| HRP3 | 403   | -    | -    | 550  | -    | -    | -    | -    |
|      | 405   | 960  | 720  | 620  | -    | -    | -    | -    |
|      | 407   | 1080 | 800  | 690  | -    | -    | -    | -    |
|      | 409   | 1220 | 900  | 780  | -    | -    | -    | -    |
|      | 40L   | 1380 | 1010 | -    | -    | -    | -    | -    |
|      | 453   | -    | -    | 860  | 560  | 420  | -    | -    |
|      | 455   | 1630 | 1230 | 970  | 630  | 470  | -    | -    |
|      | 457   | 1830 | 1370 | 1080 | 710  | 530  | -    | -    |
|      | 459   | 2030 | 1540 | 1220 | 800  | 600  | -    | -    |
|      | 45L   | 2230 | 1720 | -    | -    | -    | -    | -    |
|      | 503   | -    | -    | 1360 | 940  | 710  | -    | -    |
|      | 505   | 2350 | 1850 | 1530 | 1060 | 790  | -    | -    |
|      | 507   | 2610 | 2080 | 1710 | 1180 | 890  | -    | -    |
|      | 509   | 2940 | 2320 | 1920 | 1330 | 1000 | -    | -    |
|      | 50L   | 3270 | 2600 | -    | -    | -    | -    | -    |
|      | 563   | -    | -    | 2140 | 1470 | 1180 | 775  | 650  |
|      | 565   | 4060 | 3220 | 2400 | 1650 | 1320 | 870  | 730  |
|      | 567   | 4540 | 3590 | 2690 | 1840 | 1480 | 980  | 820  |
|      | 569   | 5070 | 4000 | 3020 | 2070 | 1660 | 1100 | 920  |
|      | 633   | 5420 | 4230 | 3340 | 2390 | 1940 | 1475 | 1160 |
|      | 635   | 6100 | 4700 | 3740 | 2670 | 2170 | 1650 | 1300 |
|      | 637   | 6780 | 5260 | 4190 | 3000 | 2430 | 1855 | 1460 |
|      | 639   | 7600 | 5880 | 4700 | 3360 | 2730 | 2080 | 1640 |

### | 6.6 kV |

Unit: kW

| Type | Poles | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|
| HRP3 | 403   | -    | -    | 510  | -    | -    | -    | -    |
|      | 405   | 880  | 680  | 570  | -    | -    | -    | -    |
|      | 407   | 1000 | 760  | 640  | -    | -    | -    | -    |
|      | 409   | 1120 | 850  | 720  | -    | -    | -    | -    |
|      | 40L   | 1270 | 960  | -    | -    | -    | -    | -    |
|      | 453   | -    | -    | 800  | 530  | 390  | -    | -    |
|      | 455   | 1520 | 1120 | 900  | 590  | 440  | -    | -    |
|      | 457   | 1710 | 1240 | 1000 | 660  | 500  | -    | -    |
|      | 459   | 1890 | 1400 | 1130 | 750  | 560  | -    | -    |
|      | 45L   | 2080 | 1560 | -    | -    | -    | -    | -    |
|      | 503   | -    | -    | 1260 | 880  | 660  | -    | -    |
|      | 505   | 2440 | 1880 | 1410 | 990  | 740  | -    | -    |
|      | 507   | 2720 | 2120 | 1580 | 1110 | 830  | -    | -    |
|      | 509   | 3060 | 2350 | 1780 | 1250 | 930  | -    | -    |
|      | 50L   | 3400 | 2640 | -    | -    | -    | -    | -    |
|      | 563   | -    | -    | 2010 | 1370 | 1110 | 675  | 610  |
|      | 565   | 4160 | 3180 | 2250 | 1530 | 1250 | 760  | 680  |
|      | 567   | 4650 | 3550 | 2520 | 1720 | 1400 | 855  | 760  |
|      | 569   | 5190 | 3960 | 2830 | 1930 | 1570 | 960  | 860  |
|      | 633   | 5350 | 4210 | 3130 | 2230 | 1820 | 1310 | 1070 |
|      | 635   | 6020 | 4680 | 3500 | 2500 | 2040 | 1465 | 1200 |
|      | 637   | 6690 | 5240 | 3920 | 2800 | 2280 | 1650 | 1340 |
|      | 639   | 7500 | 5850 | 4400 | 3140 | 2560 | 1850 | 1510 |

## | Rated Power at 60Hz |

## | 3.3 kV |

Unit: kW

| Type | Poles | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|
| HRP3 | 403   | -    | -    | 660  | -    | -    | -    | -    |
|      | 405   | 1270 | 900  | 740  | -    | -    | -    | -    |
|      | 407   | 1430 | 1010 | 830  | -    | -    | -    | -    |
|      | 409   | 1610 | 1130 | 930  | -    | -    | -    | -    |
|      | 40L   | 1820 | 1270 | -    | -    | -    | -    | -    |
|      | 453   | -    | -    | 1040 | 680  | 510  | -    | -    |
|      | 455   | 1980 | 1490 | 1170 | 760  | 570  | -    | -    |
|      | 457   | 2220 | 1650 | 1310 | 850  | 640  | -    | -    |
|      | 459   | 2460 | 1860 | 1470 | 960  | 720  | -    | -    |
|      | 45L   | 2700 | 2070 | -    | -    | -    | -    | -    |
|      | 503   | -    | -    | 1630 | 1140 | 850  | -    | -    |
|      | 505   | 2970 | 2300 | 1830 | 1280 | 950  | -    | -    |
|      | 507   | 3300 | 2590 | 2050 | 1430 | 1070 | -    | -    |
|      | 509   | 3710 | 2880 | 2300 | 1610 | 1200 | -    | -    |
|      | 50L   | 4130 | 3230 | -    | -    | -    | -    | -    |
|      | 563   | -    | -    | 2580 | 1760 | 1430 | 990  | 790  |
|      | 565   | 4890 | 3800 | 2890 | 1970 | 1600 | 1115 | 880  |
|      | 567   | 5460 | 4240 | 3240 | 2210 | 1790 | 1250 | 990  |
|      | 569   | 6100 | 4730 | 3630 | 2480 | 2010 | 1400 | 1110 |
|      | 633   | 6520 | 5080 | 4020 | 2870 | 2340 | 1745 | 1400 |
|      | 635   | 7340 | 5640 | 4510 | 3220 | 2630 | 1960 | 1570 |
|      | 637   | 8160 | 6320 | 5050 | 3600 | 2940 | 2190 | 1760 |
|      | 639   | 9140 | 7060 | 5660 | 4040 | 3300 | 2450 | 1980 |

## | 4.16 kV |

Unit: kW

| Type | Poles | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|
| HRP3 | 403   | -    | -    | 640  | -    | -    | -    | -    |
|      | 405   | 1220 | 870  | 720  | -    | -    | -    | -    |
|      | 407   | 1370 | 980  | 810  | -    | -    | -    | -    |
|      | 409   | 1550 | 1090 | 910  | -    | -    | -    | -    |
|      | 40L   | 1750 | 1230 | -    | -    | -    | -    | -    |
|      | 453   | -    | -    | 1000 | 660  | 480  | -    | -    |
|      | 455   | 1930 | 1450 | 1120 | 740  | 540  | -    | -    |
|      | 457   | 2170 | 1610 | 1250 | 830  | 600  | -    | -    |
|      | 459   | 2400 | 1810 | 1410 | 930  | 680  | -    | -    |
|      | 45L   | 2640 | 2020 | -    | -    | -    | -    | -    |
|      | 503   | -    | -    | 1580 | 1100 | 820  | -    | -    |
|      | 505   | 2930 | 2260 | 1770 | 1230 | 920  | -    | -    |
|      | 507   | 3260 | 2540 | 1990 | 1380 | 1030 | -    | -    |
|      | 509   | 3670 | 2830 | 2230 | 1550 | 1160 | -    | -    |
|      | 50L   | 4080 | 3170 | -    | -    | -    | -    | -    |
|      | 563   | -    | -    | 2490 | 1710 | 1380 | 955  | 770  |
|      | 565   | 4830 | 3750 | 2790 | 1920 | 1540 | 1075 | 860  |
|      | 567   | 5400 | 4190 | 3130 | 2150 | 1730 | 1205 | 970  |
|      | 569   | 6030 | 4670 | 3510 | 2410 | 1940 | 1350 | 1090 |
|      | 633   | 6450 | 5020 | 3890 | 2780 | 2270 | 1690 | 1360 |
|      | 635   | 7260 | 5580 | 4360 | 3110 | 2540 | 1890 | 1530 |
|      | 637   | 8070 | 6250 | 4880 | 3490 | 2840 | 2125 | 1710 |
|      | 639   | 9040 | 6980 | 5470 | 3910 | 3190 | 2380 | 1920 |

## | Rated Power at 60Hz |

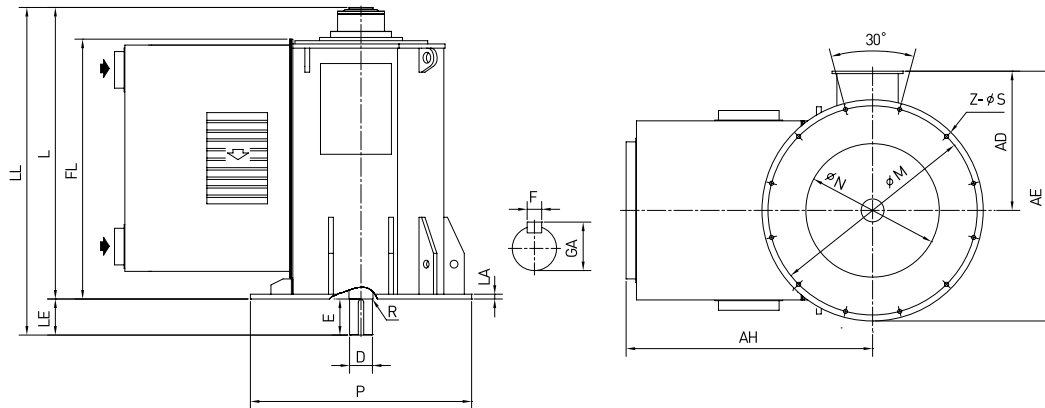
| 6.6 kV |

Unit: kW

| Type | Poles | 4P   | 6P   | 8P   | 10P  | 12P  | 14P  | 16P  |
|------|-------|------|------|------|------|------|------|------|
| HRP3 | 403   | -    | -    | 610  | -    | -    | -    | -    |
|      | 405   | 1140 | 830  | 690  | -    | -    | -    | -    |
|      | 407   | 1280 | 930  | 770  | -    | -    | -    | -    |
|      | 409   | 1440 | 1040 | 870  | -    | -    | -    | -    |
|      | 40L   | 1630 | 1170 | -    | -    | -    | -    | -    |
|      | 453   | -    | -    | 970  | 640  | 470  | -    | -    |
|      | 455   | 1850 | 1380 | 1090 | 710  | 530  | -    | -    |
|      | 457   | 2080 | 1540 | 1220 | 800  | 590  | -    | -    |
|      | 459   | 2300 | 1730 | 1370 | 900  | 670  | -    | -    |
|      | 45L   | 2530 | 1930 | -    | -    | -    | -    | -    |
|      | 503   | -    | -    | 1530 | 1060 | 790  | 550  | -    |
|      | 505   | 2880 | 2180 | 1720 | 1190 | 890  | 610  | -    |
|      | 507   | 3200 | 2450 | 1920 | 1330 | 1000 | 690  | -    |
|      | 509   | 3600 | 2730 | 2160 | 1500 | 1120 | 770  | -    |
|      | 50L   | 4000 | 3060 | -    | -    | -    | -    | -    |
|      | 563   | -    | -    | 2410 | 1650 | 1330 | 885  | 740  |
|      | 565   | 4730 | 3670 | 2700 | 1840 | 1490 | 995  | 820  |
|      | 567   | 5280 | 4090 | 3020 | 2070 | 1670 | 1115 | 920  |
|      | 569   | 5900 | 4560 | 3390 | 2320 | 1880 | 1250 | 1040 |
|      | 633   | 6310 | 4910 | 3760 | 2690 | 2190 | 1585 | 1290 |
|      | 635   | 7100 | 5460 | 4210 | 3010 | 2450 | 1775 | 1450 |
|      | 637   | 7890 | 6110 | 4720 | 3370 | 2750 | 2000 | 1620 |
|      | 639   | 8840 | 6830 | 5290 | 3780 | 3080 | 2240 | 1820 |

## | HRP3 |

## Mounting V10 / Degree of Protection IP23W, IP24W



Unit: mm

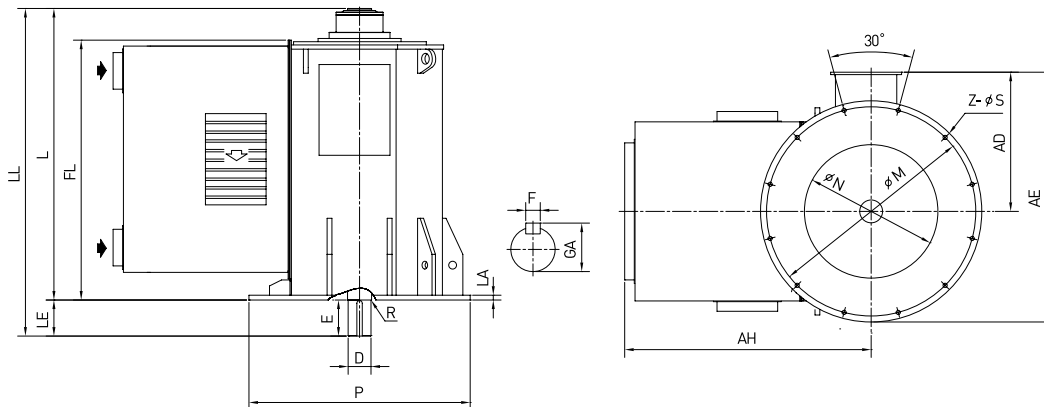
| Type |     | Poles | AD   | AE   | AH   | LA   | LE   | L    | LL   | FL   | M    | N   |
|------|-----|-------|------|------|------|------|------|------|------|------|------|-----|
| HRP3 | 403 | 8     | 970  | 1595 | 1290 | 35   | 200  | 1950 | 2150 | 1740 | 1170 | 860 |
|      | 405 | 4     |      |      |      |      |      | 1950 | 2150 | 1740 |      |     |
|      | 6   | 1950  |      |      |      |      |      | 2150 | 1740 |      |      |     |
|      | 8   | 1950  |      |      |      |      |      | 2150 | 1740 |      |      |     |
|      | 407 | 4     | 1950 | 2150 | 1740 | 1170 | 860  |      |      |      |      |     |
|      | 6   | 1950  | 2150 | 1740 |      |      |      |      |      |      |      |     |
|      | 8   | 2100  | 2300 | 1910 |      |      |      |      |      |      |      |     |
|      | 409 | 4     | 2100 | 2300 | 1910 |      |      |      |      |      |      |     |
|      | 6   | 2100  | 2300 | 1910 | 1170 | 860  |      |      |      |      |      |     |
|      | 8   | 2100  | 2300 | 1910 |      |      |      |      |      |      |      |     |
|      | 40L | 4     | 2100 | 2300 |      |      | 1910 |      |      |      |      |     |
|      | 6   | 2100  | 2300 | 1910 |      |      |      |      |      |      |      |     |

Unit: mm

| Type |     | Poles | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|------|---|----|----|-----|-----|----|-----|-------------|
| HRP3 | 403 | 8     | 1250 | 2 | 28 | 12 | 130 | 200 | 32 | 137 | 4000        |
|      | 405 | 4     |      |   |    |    |     |     |    |     | 4250        |
|      |     | 6     |      |   |    |    |     |     |    |     | 4150        |
|      |     | 8     |      |   |    |    |     |     |    |     | 4150        |
|      |     | 407   | 4    |   |    |    |     |     |    |     | 4400        |
|      | 407 | 6     |      |   |    |    |     |     |    |     | 4300        |
|      |     | 8     |      |   |    |    |     |     |    |     | 4300        |
|      |     | 409   | 4    |   |    |    |     |     |    |     | 4800        |
|      | 409 | 6     |      |   |    |    |     |     |    |     | 4700        |
|      |     | 8     |      |   |    |    |     |     |    |     | 4700        |
|      |     | 40L   | 4    |   |    |    |     |     |    |     | 5000        |
|      |     | 6     |      |   |    |    |     |     |    |     | 4900        |

## | HRP3 |

Mounting V10 / Degree of Protection IP23W, IP24W



Unit: mm

| Type |     | Poles | AD   | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N   |
|------|-----|-------|------|------|------|----|-----|------|------|------|------|-----|
| HRP3 | 455 | 4     | 1150 | 1850 | 1530 | 35 | 200 | 2200 | 2400 | 2000 | 1280 | 940 |
|      |     | 6     |      |      |      |    |     | 2200 | 2400 | 2000 |      |     |
|      | 457 | 4     |      |      |      |    |     | 2200 | 2400 | 2000 |      |     |
|      |     | 6     |      |      |      |    |     | 2200 | 2400 | 2000 |      |     |
|      | 459 | 4     |      |      |      |    |     | 2350 | 2550 | 2160 |      |     |
|      |     | 6     |      |      |      |    |     | 2350 | 2550 | 2160 |      |     |
|      | 45L | 4     |      |      |      |    |     | 2350 | 2550 | 2160 |      |     |
|      |     | 6     |      |      |      |    |     | 2350 | 2550 | 2160 |      |     |

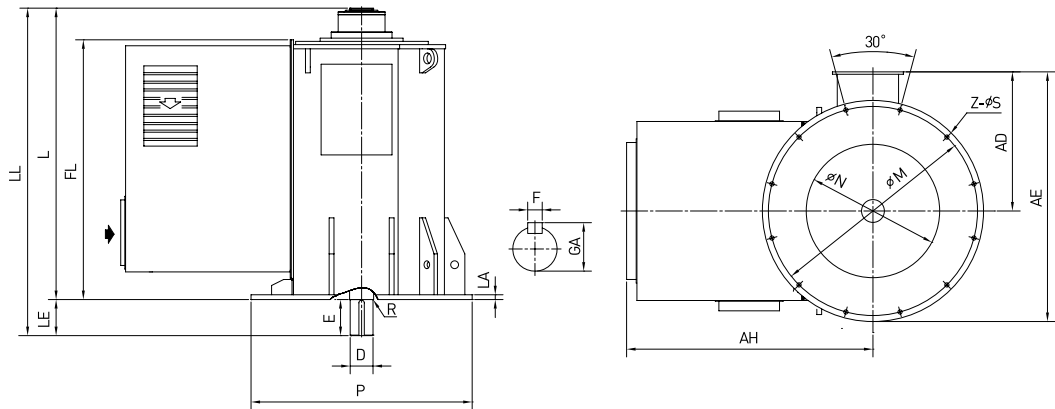
Unit: mm

| Type |     | Poles | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|------|---|----|----|-----|-----|----|-----|-------------|
| HRP3 | 455 | 4     | 1360 | 2 | 28 | 12 | 150 | 200 | 36 | 158 | 5600        |
|      |     | 6     |      |   |    |    |     |     |    |     | 5550        |
|      | 457 | 4     |      |   |    |    |     |     |    |     | 5800        |
|      |     | 6     |      |   |    |    |     |     |    |     | 5800        |
|      | 459 | 4     |      |   |    |    |     |     |    |     | 6200        |
|      |     | 6     |      |   |    |    |     |     |    |     | 6250        |
|      | 45L | 4     |      |   |    |    |     |     |    |     | 6450        |
|      |     | 6     |      |   |    |    |     |     |    |     | 6550        |



| HRP3 |

Mounting V10 / Degree of Protection IP23W, IP24W



Unit: mm

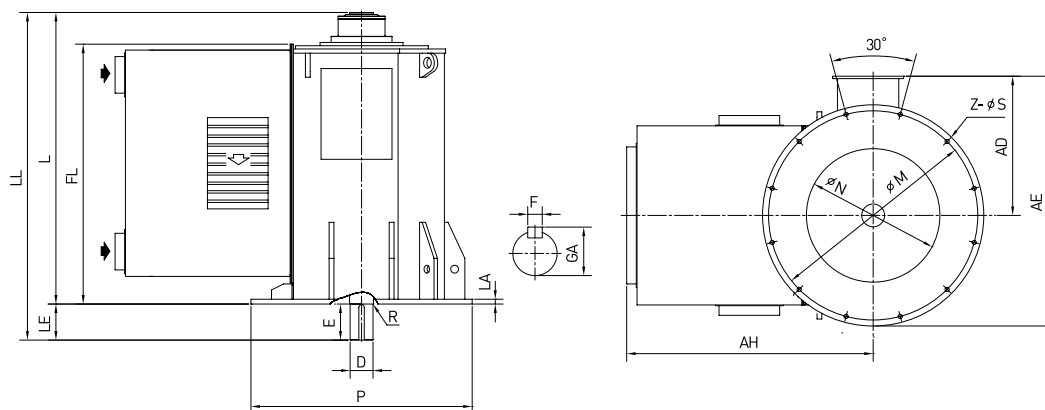
| Type |     | Poles  | AD   | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N   |
|------|-----|--------|------|------|------|----|-----|------|------|------|------|-----|
| HRP3 | 453 | 8 - 12 | 1150 | 1850 | 1530 | 35 | 200 | 2140 | 2340 | 1940 | 1280 | 940 |
|      | 455 | 8 - 12 |      |      |      |    |     | 2140 | 2340 | 1940 |      |     |
|      | 457 | 8 - 12 |      |      |      |    |     | 2250 | 2450 | 2060 |      |     |
|      | 459 | 8 - 12 |      |      |      |    |     | 2250 | 2450 | 2060 |      |     |

Unit: mm

| Type |     | Poles  | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|--------|------|---|----|----|-----|-----|----|-----|-------------|
| HRP3 | 453 | 8 - 12 | 1360 | 2 | 28 | 12 | 150 | 200 | 36 | 158 | 5800        |
|      | 455 | 8 - 12 |      |   |    |    |     |     |    |     | 6000        |
|      | 457 | 8 - 12 |      |   |    |    |     |     |    |     | 6450        |
|      | 459 | 8 - 12 |      |   |    |    |     |     |    |     | 6750        |

## | HRP3 |

Mounting V10 / Degree of Protection IP23W, IP24W



Unit: mm

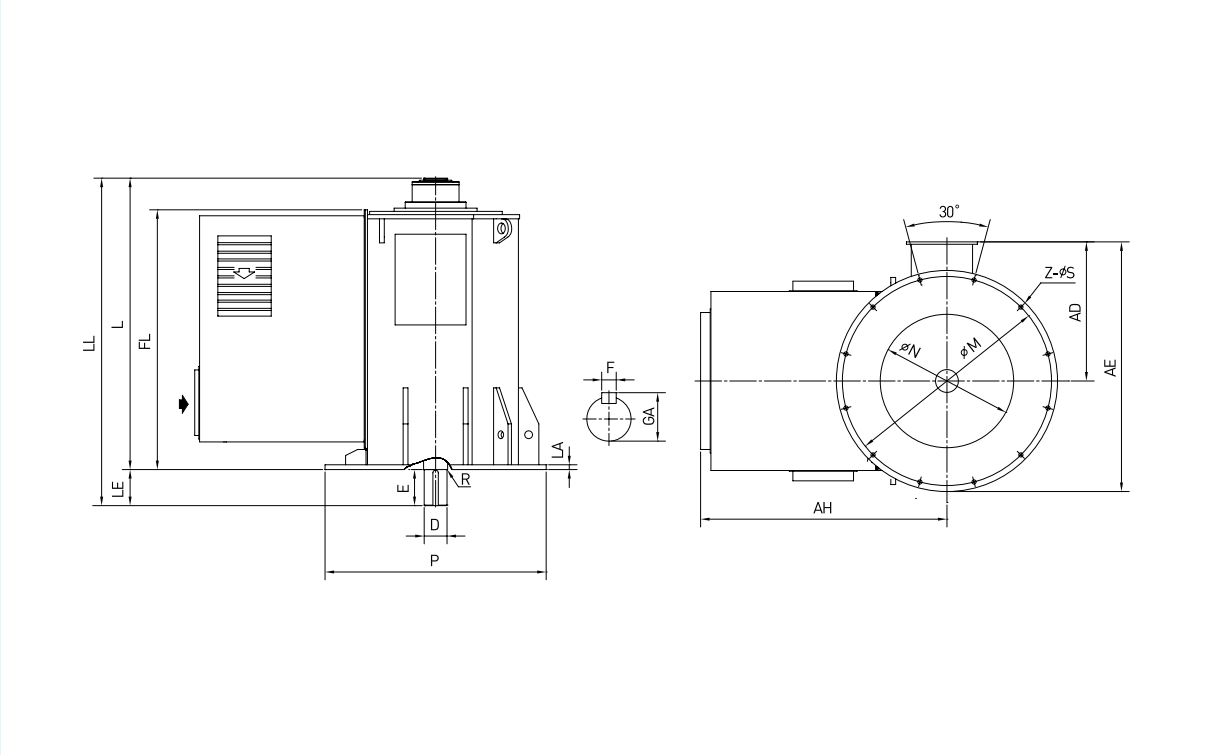
| Type |     | Poles | AD   | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N    |
|------|-----|-------|------|------|------|----|-----|------|------|------|------|------|
| HRP3 | 505 | 4     | 1210 | 2010 | 1640 | 35 | 240 | 2330 | 2570 | 2080 | 1420 | 1050 |
|      |     | 6     |      |      |      |    |     | 2330 | 2570 | 2080 |      |      |
|      | 507 | 4     |      |      |      |    |     | 2330 | 2570 | 2080 |      |      |
|      |     | 6     |      |      |      |    |     | 2330 | 2570 | 2080 |      |      |
|      | 509 | 4     |      |      |      |    |     | 2530 | 2770 | 2280 |      |      |
|      |     | 6     |      |      |      |    |     | 2530 | 2770 | 2280 |      |      |
|      | 50L | 4     |      |      |      |    |     | 2530 | 2770 | 2280 |      |      |
|      |     | 6     |      |      |      |    |     | 2530 | 2770 | 2280 |      |      |

Unit: mm

| Type |     | Poles | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|------|---|----|----|-----|-----|----|-----|-------------|
| HRP3 | 505 | 4     | 1500 | 2 | 28 | 12 | 170 | 240 | 40 | 179 | 7110        |
|      |     | 6     |      |   |    |    |     |     |    |     | 7160        |
|      | 507 | 4     |      |   |    |    |     |     |    |     | 7400        |
|      |     | 6     |      |   |    |    |     |     |    |     | 7510        |
|      | 509 | 4     |      |   |    |    |     |     |    |     | 7960        |
|      |     | 6     |      |   |    |    |     |     |    |     | 8060        |
|      | 50L | 4     |      |   |    |    |     |     |    |     | 8330        |
|      |     | 6     |      |   |    |    |     |     |    |     | 8470        |

| HRP3 |

Mounting V10 / Degree of Protection IP23W, IP24W



Unit: mm

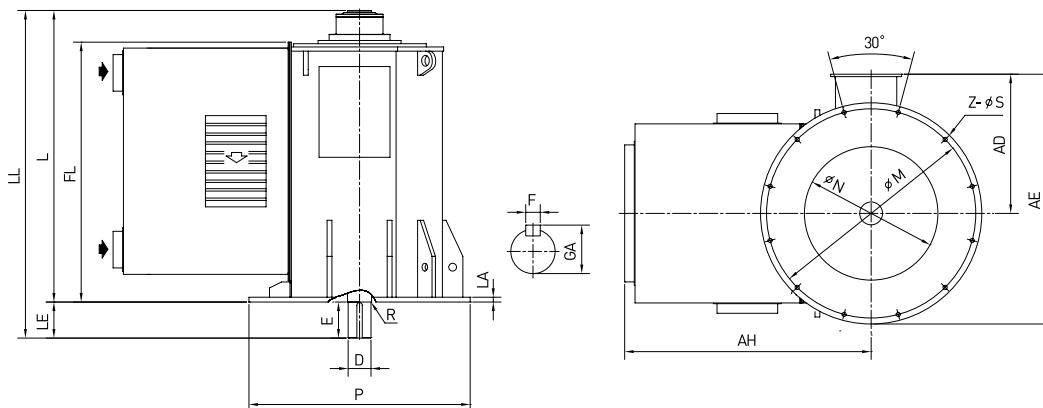
| Type |     | Poles  | AD   | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N    |
|------|-----|--------|------|------|------|----|-----|------|------|------|------|------|
| HRP3 | 503 | 8 - 16 | 1210 | 2010 | 1640 | 35 | 240 | 2250 | 2490 | 2000 | 1420 | 1050 |
|      | 505 | 8 - 16 |      |      |      |    |     | 2250 | 2490 | 2000 |      |      |
|      | 507 | 8 - 16 |      |      |      |    |     | 2440 | 2680 | 2190 |      |      |
|      | 509 | 8 - 16 |      |      |      |    |     | 2440 | 2680 | 2190 |      |      |

Unit: mm

| Type |     | Poles  | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|--------|------|---|----|----|-----|-----|----|-----|-------------|
| HRP3 | 503 | 8 - 16 | 1500 | 2 | 28 | 12 | 170 | 240 | 40 | 179 | 7210        |
|      | 505 | 8 - 16 |      |   |    |    |     |     |    |     | 7560        |
|      | 507 | 8 - 16 |      |   |    |    |     |     |    |     | 8260        |
|      | 509 | 8 - 16 |      |   |    |    |     |     |    |     | 8670        |

## | HRP3 |

Mounting V10 / Degree of Protection IP23W, IP24W



Unit: mm

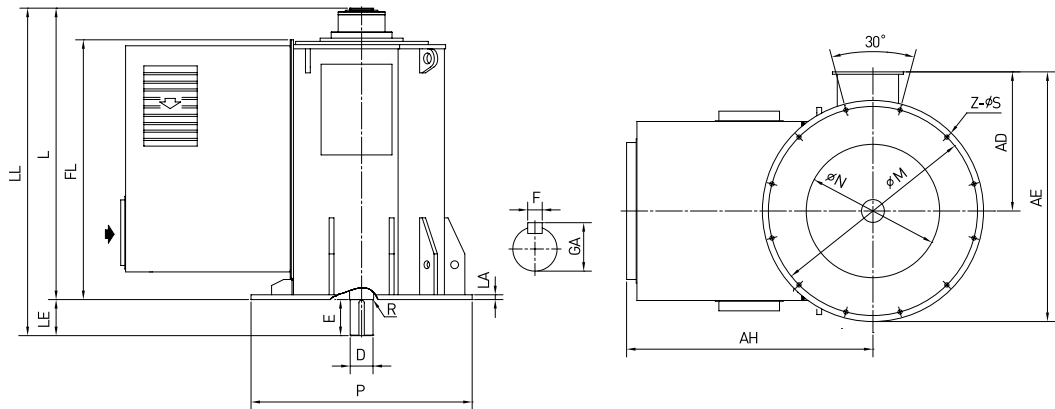
| Type |     | Poles | AD   | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N    |
|------|-----|-------|------|------|------|----|-----|------|------|------|------|------|
| HRP3 | 563 | 4     | 1290 | 2190 | 1750 | 40 | 280 | 2300 | 2580 | 2120 | 1580 | 1160 |
|      |     | 6     |      |      |      |    |     | 2300 | 2580 | 2120 |      |      |
|      | 565 | 4     |      |      |      |    |     | 2300 | 2580 | 2120 |      |      |
|      |     | 6     |      |      |      |    |     | 2300 | 2580 | 2120 |      |      |
|      | 567 | 4     |      |      |      |    |     | 2600 | 2880 | 2320 |      |      |
|      |     | 6     |      |      |      |    |     | 2600 | 2880 | 2320 |      |      |
|      | 569 | 4     |      |      |      |    |     | 2600 | 2880 | 2320 |      |      |
|      |     | 6     |      |      |      |    |     | 2600 | 2880 | 2320 |      |      |

Unit: mm

| Type |     | Poles | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|------|---|----|----|-----|-----|----|-----|-------------|
| HRP3 | 563 | 4     | 1680 | 2 | 35 | 12 | 190 | 280 | 45 | 200 | 9750        |
|      |     | 6     |      |   |    |    |     |     |    |     | 9900        |
|      | 565 | 4     |      |   |    |    |     |     |    |     | 10250       |
|      |     | 6     |      |   |    |    |     |     |    |     | 10300       |
|      | 567 | 4     |      |   |    |    |     |     |    |     | 10850       |
|      |     | 6     |      |   |    |    |     |     |    |     | 11000       |
|      | 569 | 4     |      |   |    |    |     |     |    |     | 11250       |
|      |     | 6     |      |   |    |    |     |     |    |     | 11500       |

| HRP3 |

Mounting V10 / Degree of Protection IP23W, IP24W



Unit: mm

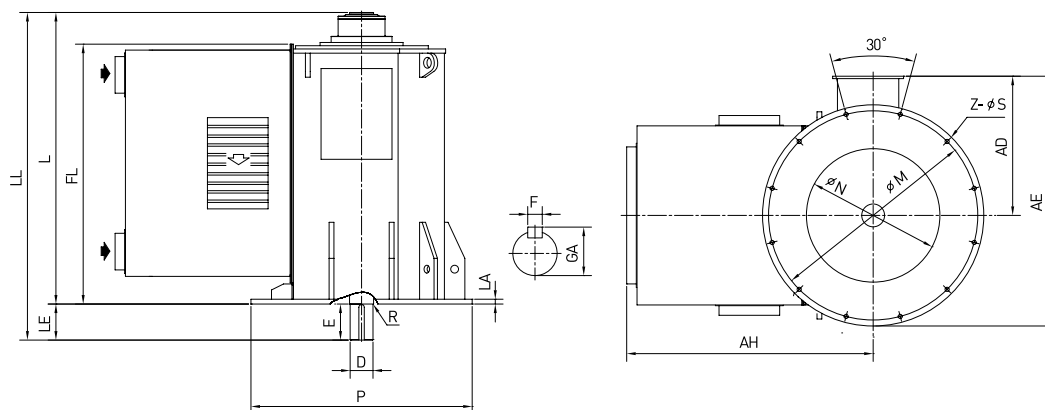
| Type |     | Poles   | AD   | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N    |
|------|-----|---------|------|------|------|----|-----|------|------|------|------|------|
| HRP3 | 563 | 8 - 10  | 1290 | 2190 | 1750 | 40 | 280 | 2300 | 2580 | 2090 | 1580 | 1160 |
|      |     | 12 - 16 |      |      |      |    |     | 2300 | 2580 | 2090 |      |      |
|      | 565 | 8 - 10  |      |      |      |    |     | 2300 | 2580 | 2090 |      |      |
|      |     | 12 - 16 |      |      |      |    |     | 2300 | 2580 | 2090 |      |      |
|      | 567 | 8 - 10  |      |      |      |    |     | 2600 | 2880 | 2290 |      |      |
|      |     | 12 - 16 |      |      |      |    |     | 2600 | 2880 | 2290 |      |      |
|      | 569 | 8 - 10  |      |      |      |    |     | 2600 | 2880 | 2290 |      |      |
|      |     | 12 - 16 |      |      |      |    |     | 2600 | 2880 | 2290 |      |      |

Unit: mm

| Type |     | Poles   | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|---------|------|---|----|----|-----|-----|----|-----|-------------|
| HRP3 | 563 | 8 - 10  | 1680 | 2 | 35 | 12 | 190 | 280 | 45 | 200 | 9550        |
|      |     | 12 - 16 |      |   |    |    |     |     |    |     | 9650        |
|      | 565 | 8 - 10  |      |   |    |    |     |     |    |     | 9900        |
|      |     | 12 - 16 |      |   |    |    |     |     |    |     | 10000       |
|      | 567 | 8 - 10  |      |   |    |    |     |     |    |     | 10800       |
|      |     | 12 - 16 |      |   |    |    |     |     |    |     | 10850       |
|      | 569 | 8 - 10  |      |   |    |    |     |     |    |     | 11250       |
|      |     | 12 - 16 |      |   |    |    |     |     |    |     | 11250       |

## | HRP3 |

Mounting V10 / Degree of Protection IP23W, IP24W



Unit: mm

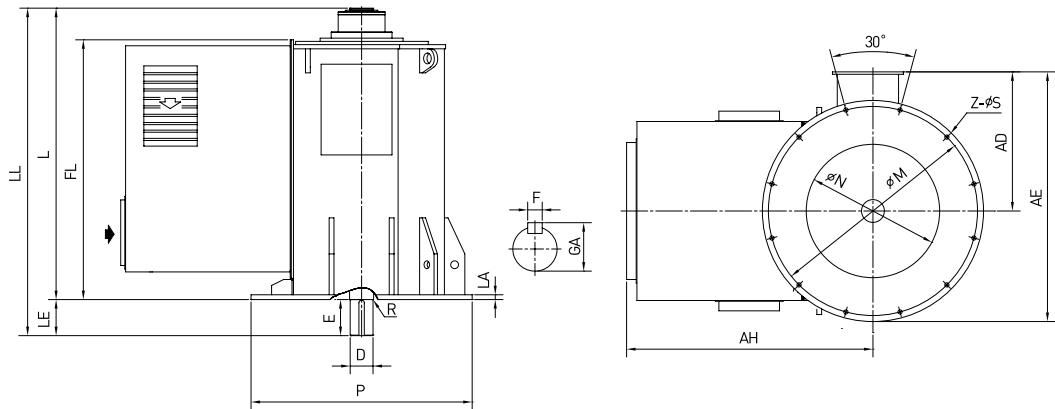
| Type |     | Poles | AD   | AE   | AH   | LA | LE   | L    | LL   | FL   | M    | N    |
|------|-----|-------|------|------|------|----|------|------|------|------|------|------|
| HRP3 | 633 | 4     | 1350 | 2350 | 1920 | 40 | 280  | 2700 | 2980 | 2410 | 1700 | 1300 |
|      |     | 6     |      |      |      |    |      | 2700 | 2980 | 2410 |      |      |
|      | 635 | 4     |      |      |      |    | 2700 | 2980 | 2410 |      |      |      |
|      |     | 6     |      |      |      |    | 2700 | 2980 | 2410 |      |      |      |
|      | 637 | 4     |      |      |      |    | 2900 | 3180 | 2620 |      |      |      |
|      |     | 6     |      |      |      |    | 2900 | 3180 | 2620 |      |      |      |
|      | 639 | 4     |      |      |      |    | 2900 | 3180 | 2620 |      |      |      |
|      |     | 6     |      |      |      |    | 2900 | 3180 | 2620 |      |      |      |

Unit: mm

| Type |     | Poles | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|-----|-------|------|---|----|----|-----|-----|----|-----|-------------|
| HRP3 | 633 | 4     | 1800 | 4 | 35 | 12 | 200 | 280 | 45 | 210 | 13090       |
|      |     | 6     |      |   |    |    | 200 | 280 | 45 | 210 | 13240       |
|      | 635 | 4     |      |   |    |    | 200 | 280 | 45 | 210 | 13660       |
|      |     | 6     |      |   |    |    | 200 | 280 | 45 | 210 | 13750       |
|      | 637 | 4     |      |   |    |    | 220 | 280 | 50 | 231 | 14600       |
|      |     | 6     |      |   |    |    | 220 | 280 | 50 | 231 | 14780       |
|      | 639 | 4     |      |   |    |    | 220 | 280 | 50 | 231 | 15250       |
|      |     | 6     |      |   |    |    | 220 | 280 | 50 | 231 | 15450       |

| HRP3 |

Mounting V10 / Degree of Protection IP23W, IP24W



Unit: mm

| Type | Poles      | AD   | AE   | AH   | LA | LE  | L    | LL   | FL   | M    | N    |
|------|------------|------|------|------|----|-----|------|------|------|------|------|
| HRP3 | 633 8 - 10 | 1350 | 2350 | 1920 | 40 | 280 | 2700 | 2980 | 2390 | 1700 | 1300 |
|      | 12 - 16    |      |      |      |    |     | 2700 | 2980 | 2390 |      |      |
|      | 635 8 - 10 |      |      |      |    |     | 2700 | 2980 | 2390 |      |      |
|      | 12 - 16    |      |      |      |    |     | 2700 | 2980 | 2390 |      |      |
|      | 637 8 - 10 | 1350 | 2350 | 1920 | 40 | 280 | 2900 | 3180 | 2620 | 1700 | 1300 |
|      | 12 - 16    |      |      |      |    |     | 2900 | 3180 | 2620 |      |      |
|      | 639 8 - 10 |      |      |      |    |     | 2900 | 3180 | 2620 |      |      |
|      | 12 - 16    |      |      |      |    |     | 2900 | 3180 | 2620 |      |      |

Unit: mm

| Type | Poles      | P    | R | S  | Z  | D   | E   | F  | GA  | Weight (kg) |
|------|------------|------|---|----|----|-----|-----|----|-----|-------------|
| HRP3 | 633 8 - 10 | 1800 | 4 | 35 | 12 | 200 | 280 | 45 | 210 | 13250       |
|      | 12 - 16    |      |   |    |    | 200 | 280 | 45 | 210 | 13250       |
|      | 635 8 - 10 |      |   |    |    | 200 | 280 | 45 | 210 | 13800       |
|      | 12 - 16    |      |   |    |    | 200 | 280 | 45 | 210 | 13800       |
|      | 637 8 - 10 | 1800 | 4 | 35 | 12 | 220 | 280 | 50 | 231 | 14800       |
|      | 12 - 16    |      |   |    |    | 220 | 280 | 50 | 231 | 14850       |
|      | 639 8 - 10 |      |   |    |    | 220 | 280 | 50 | 231 | 15500       |
|      | 12 - 16    |      |   |    |    | 220 | 280 | 50 | 231 | 15550       |

# Order Specification

| Output (kW) | Phase | Speed | Voltage (V) | Frequency(Hz) | Quantity | Service Factor | Application | Motor Delivery |
|-------------|-------|-------|-------------|---------------|----------|----------------|-------------|----------------|
|             |       |       |             |               |          |                |             |                |

APPLICABLE STANDARD (CODES) ☐ IEC ☐ NEMA ☐ IEEE ☐ API ☐ BS ☐ Special (Specify)

## 1. DUTY

- ☐ Continuous \*
- ☐ Time rated (specify) \_\_\_\_\_

## \*\* 2. ROTOR

- ☐ Squirrel Cage ☐ Wound

## 3. INSULATION CLASS

- ☐ Class B ☐ Class F \*
- ☐ Special (Specify) \_\_\_\_\_

## 4. TEMPERATURE RISE (By resistance method)

- ☐ Class B \* ☐ Class F
- ☐ Special (Specify) \_\_\_\_\_

## \*\* 5. TYPE OF MOUNTING

- ☐ B3/Horizontal-Foot
- ☐ V1, V10/Vertical
- ☐ Special (Specify) \_\_\_\_\_

## 6. ENVIRONMENT

- ☐ High Humidity ☐ Dusty ☐ Tropical
- ☐ Special (Specify) \_\_\_\_\_

## 7. AMBIENT TEMPERATURE

- ☐ Max. 40°C \*
- ☐ Special (Specify) \_\_\_\_\_

## 8. ALTITUDE

- ☐ Standard (Less than 1000m A.S.L.) \*
- ☐ Special (Specify) \_\_\_\_\_

## \*\* 9. AREA CLASSIFICATION

- ☐ Non-Hazardous Area \*
- ☐ Hazardous Area
- ☐ Class I, Zone 1 / Class I, Division 1
- ☐ Class I, Zone 2 / Class I, Division 2
- ☐ Gas Group, Ignition Temp. \_\_\_\_\_
- ☐ Special (Specify) \_\_\_\_\_

## \*\* 10. ENCLOSURE

- ☐ TEFC (IC411) ☐ TEAAC (IC511)
- ☐ TEAAC (IC611) ☐ TEWAC (IC81W)
- ☐ WPI (IC01) ☐ WPII (IC01)
- ☐ ODP (IC01)
- ☐ Explosion Proof
- ☐ Ex-nA ☐ Ex-d ☐ Ex-p
- ☐ Ex-e ☐ Certification \_\_\_\_\_
- ☐ Special (Specify) \_\_\_\_\_

## 11. PROTECTION DEGREE

- ☐ IP54 ☐ IP55 ☐ IP23
- ☐ IPW23 ☐ IPW24
- ☐ Special (Specify) \_\_\_\_\_

## 12. LOCATION

- ☐ Indoor ☐ Outdoor
- ☐ Special (Specify) \_\_\_\_\_

## \*\* 13. STARTING METHOD

- ☐ Full voltage (Direct on line) \* ☐ Star-Delta
- ☐ Secondary rheostat (for wound)
- ☐ Reduce Voltage ( % Tap.) \_\_\_\_\_
- ☐ V.V.V.F. (Speed Range) \_\_\_\_\_
- ☐ Current Source (Maker) \_\_\_\_\_
- ☐ Voltage Source (Maker) \_\_\_\_\_
- ☐ Soft Starter

## 14. STARTING DUTY

- ☐ Not Exceeding NEMA MG 1-20.43 (Cold : 2, Hot : 1)
- ☐ Special (Specify) \_\_\_\_\_

## 15. MAX. INRUSH CURRENT

- ☐ 650% \* ☐ 600% ☐ 550%
- ☐ Special (Specify) \_\_\_\_\_

## \*\* 16. LOAD INERTIA (Referred to Motor Shaft)

- ☐ Not Exceeding NEMA MG 1-20.42 \*
- ☐ Actual WK2 (lb-ft²) \_\_\_\_\_
- ☐ Actual GD2 (kg-m²) \_\_\_\_\_
- ☐ Speed-torque curve of load attached
- ☐ Starting Condition - Valve Closed
- ☐ Starting Condition - Valve Open

## 17. SHAFT EXTENSION

- ☐ Single \* ☐ Double

## 18. COUPLING METHOD

- ☐ Direct Connected \* ☐ Belt
- ☐ Special (Specify) \_\_\_\_\_

## 19. MOTOR ROTATION (Viewed from Drive End)

- ☐ C.W. \* ☐ C.C.W.
- ☐ Bi-directional

## 20. LOCATION OF MAIN TERMINAL BOX (Viewed from Drive End)

- ☐ Right \* ☐ Left
- ☐ Special (Specify) \_\_\_\_\_

## 21. LOCATION OF AUX. TERMINAL BOX (Viewed from Drive End)

- ☐ Right ☐ Left \*
- ☐ Special (Specify) \_\_\_\_\_

## \*\* 22. BEARING TYPE

- ☐ Anti-friction Bearing
- ☐ Split Sleeve Bearing
- ☐ Tilting Pad Bearing
- ☐ Special (Specify) \_\_\_\_\_



## 23. BEARING LUBRICATION TYPE

- ☐ Grease Lubricated  
☐ Self Cooled Oil Lubricated  
☐ Forced Feed Oil Lubricated  
☐ Special (Specify) \_\_\_\_\_

## 24. CABLE ENTRY OPENING

- ☐ Blind Steel Plate      ☐ Threaded  
☐ Cable Gland Type  
☐ Special (Specify) \_\_\_\_\_

## 25. PAINTING COLOR

- ☐ Munsell No : 7.5 BG 6/1.5, Light Grey \*  
☐ Special (Specify) \_\_\_\_\_

## 26. TEST AND INSPECTION

- ☐ Un-witnessed Routine Test \*  
☐ Special (Specify) \_\_\_\_\_

## \*\* 27. EXTERNAL THRUST (VERTICAL MOTOR ONLY)

- ☐ No Thrust  
☐ Normal Down Thrust (Kg or LBS) \_\_\_\_\_  
☐ Max. Down Thrust (Kg or LBS) \_\_\_\_\_  
☐ Momentary Up Thrust (Kg or LBS) \_\_\_\_\_

HHI's standard is to withstand the thrust of the rotor and coupling of motor only.

## 28. WINDING TEMPERATURE DETECTORS

- ☐ Not required  
☐ Required. Quantity per phase \_\_\_\_\_  
☐ PT 100 ohm, Single  
☐ PT 100 ohm, Dual  
☐ PTC  
☐ Special (Specify) \_\_\_\_\_  
☐ 4 - 20 mA transmitters (Type) \_\_\_\_\_

## 29. BEARING TEMPERATURE DETECTORS

- ☐ Not required  
☐ Required. Quantity per bearing \_\_\_\_\_  
☐ PT 100 ohm, Single  
☐ PT 100 ohm, Dual  
☐ Thermocouples (Type) \_\_\_\_\_  
☐ Dial type Indicators  
☐ Without Contact  
☐ With Contact  
☐ Special (Specify) \_\_\_\_\_  
☐ 4 - 20 mA transmitters (Type) \_\_\_\_\_

## 30. ANTI-CONDENSATION HEATER

- ☐ Not required  
☐ Required (Phase, Volts) \_\_\_\_\_

## \*\* 31. COOLING WATER (For TEWAC Motor)

- ☐ Fresh Water  
☐ Sea Water  
☐ Water Inlet Temp. (Max.) \_\_\_\_\_

## 32. REQUIRED SPARE PARTS

- ☐ Bearing (Anti-friction)  
☐ Sleeve Bearing Shell  
☐ Special (Specify) \_\_\_\_\_

## 33. APPLICABLE CUSTOMER'S SPEC.

- ☐ YES      ☐ NO

Attached : \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## 34. SPECIAL REQUIREMENTS

\_\_\_\_\_  
 \_\_\_\_\_

## NOTES

1. The asterisk(\*) marks shown on below information are our (Hyundai) standard.
2. The asterisk(\*\*) marks must fill up. We can not figure out the motor type and price without these information.



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## ELECTRO ELECTRIC SYSTEMS

|                                                |                                                                                                                                                                                     |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Head Office</b>                             | 1000, Bangeojinsunhwan-doro, Dong-gu, Ulsan, Korea<br>Tel: 82-52-202-8101~8 Fax: 82-52-202-8100                                                                                     |
| <b>Seoul</b><br><b>(Sales &amp; Marketing)</b> | 75, Yulgok-ro, Jongno-gu, Seoul, Korea<br>Tel: 82-2-746-7627, 4607, 7621, 8568 Fax: 82-2-746-7679                                                                                   |
| <b>Atlanta</b>                                 | 6100 Atlantic Blvd. Suite 201, Norcross, GA30097, USA<br>Tel: 1-678-823-7839 Fax: 1-678-823-7553                                                                                    |
| <b>London</b>                                  | 2nd Floor, The Triangle, 5-17 Hammersmith Grove London, W6 0LG, UK<br>Tel: 44-20-8741-0501 Fax: 44-20-8741-5620                                                                     |
| <b>Tokyo</b>                                   | 8th Floor, Yurakucho Denki Bldg. 1-7-1 Yuraku-Cho, Chiyoda-Ku, Tokyo, 100-0006, Japan<br>Tel: 81-3-3212-2076, 3215-7159 Fax: 81-3-3211-2093                                         |
| <b>Osaka</b>                                   | 1-Room 5th Floor Nagahori Plaza Bldg. 2-4-8 Minami Senba, Chuo-Ku, Osaka, 542-0081, Japan<br>Tel: 81-6-6261-5766~7 Fax: 81-6-6261-5818                                              |
| <b>Mumbai</b>                                  | 5th Floor, East Quadrant, The IL & FS Financial Centre, Plot No. C-22, G-Block, Bandra-kurla Complex, Bandra(E), Mumbai 400 051, India<br>Tel: 91-22-2653-3424 Fax: 91-22-2653-3429 |
| <b>Riyadh</b>                                  | 2nd Floor, The Plaza, P.O Box 21840, Riyadh 11485, Saudi Arabia<br>Tel: 966-1-462-2331 Fax: 966-1-464-4696                                                                          |
| <b>Dubai</b>                                   | 205, Building 4, Emaar Square, Sheikh Zayed Road, Pobox 252458, Dubai, UAE<br>Tel: 971-4-425-7995 Fax: 971-4-425-7996                                                               |
| <b>Kuwait</b>                                  | 15th Floor, Al Sour Tower, Al Sour Street, Al-Qiblah, Kuwait<br>Tel: 965-2291-5354 Fax: 965-2291-5355                                                                               |
| <b>Moscow</b>                                  | World Trade Center, Ent. 3# 1902, Krasnopresnenskays Nab. 12, Moscow, 123610, Russia<br>Tel: 7-495-258-1381 Fax: 7-495-258-1382                                                     |
| <b>Madrid</b>                                  | Paseo De La Castellana 216, Planta 0, 28046 Madrid, Spain<br>Tel: 34-91-732-0454, 733-6069 Fax: 34-91-733-2389                                                                      |
| <b>Sofia</b>                                   | 1271, Sofia 41, Rojen Blvd., Bulgaria<br>Tel: 359-2-803-3200, 3220 Fax: 359-2-803-3203                                                                                              |
| <b>Montgomery</b>                              | 201 Folmar Parkway, Montgomery, AL 36105, USA<br>Tel: 1-334-481-2000 Fax: 1-334-240-6869                                                                                            |
| <b>Yangzhong</b>                               | No.9 Xiandai Road, Xinba Scientific and Technologic Zone, Yangzhong, Jiangsu, P.R.C. Zip: 212212, China<br>Tel: 86-511-8842-0666, 0212 Fax: 86-511-8842-0668, 0231                  |