

Electric motors

DC motors of 1GDC Series

Powerful, efficient and flexible...

Technical catalogue





DC motors for all types of industry



Quality management and certificates



VYBO Electric is a modern High-tech energy saving company that pays high attention to quality, environment, safety and precision and efficiency of work and energy in production. Therefore, it holds a lot of certificates and quality control systems. **Our priority is quality control.**

Basic certificates include:

ISO9001

The primary task of the ISO 9001 standard is to focus on system management and quality management in the organization. The satisfaction of the customer and the fulfillment of his requirements, which are specified in contracts, orders, or technical drawings, are in the first place. The quality management system is linked to all processes in the company. The standard focuses on the management of human and financial resources, on the stability of infrastructure, including buildings, transport, hardware, software and other communication or information technologies. An important part is also the planning of production and services, the management of the purchasing process, but also the management of non-conforming products.



ISO14001

The main priority of the ISO 14001 standard is to identify and understand the environmental aspects and activities that are related to the entire infrastructure of the company and, based on this, to regulate the environmental impact on the environment.

In its scope, the ISO 14001 standard creates the conditions for determining environmental goals and plans, the fulfillment of which is examined at regular intervals by top management and also by an independent body during internal audits.

This standard is intended for all organizations and companies that consider environmental protection as their primary goal.

The benefit of the standard for society is mainly:

- control over the environmental impact on the environment
- control over produced emissions and waste
- saving material and energy
- prevention of accidents
- compliance of the company's activities with legal requirements
- zero fines for environmental behavior
- creation of a good reputation and prestige of the company



The ISO 45001

Specification (formerly known as OHSAS 18001) is an internationally recognized standard that declares compliance with the principles of a safe enterprise, managing risks at work and protecting the health of workers during work. It does not only concern danger and accidents, but also emphasizes other aspects such as the good condition and mental well-being of the employee.

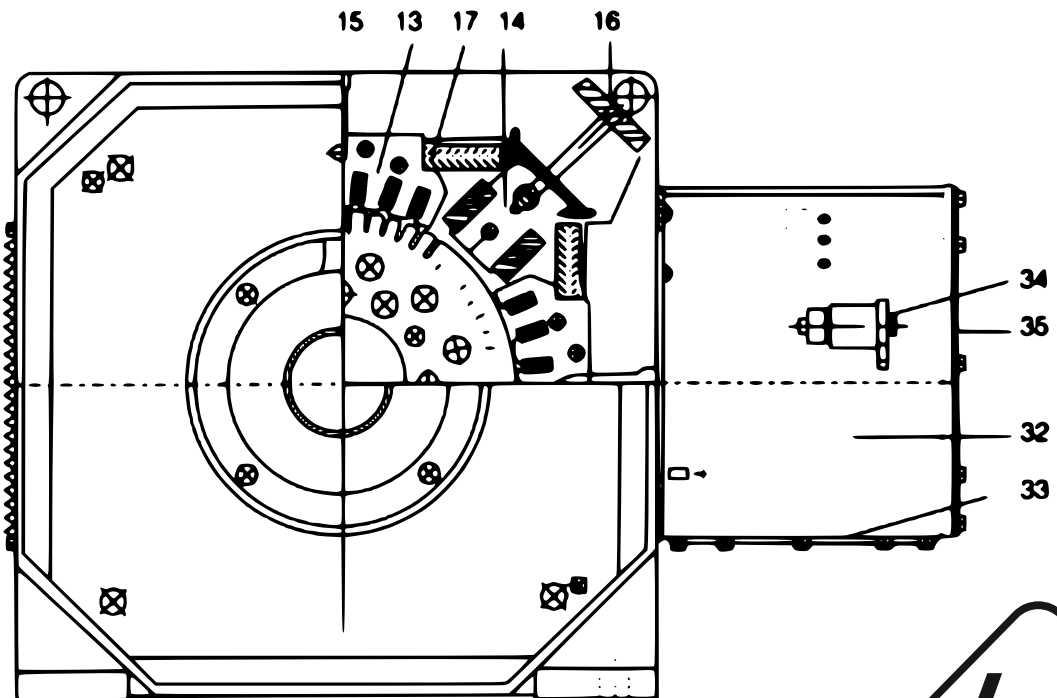
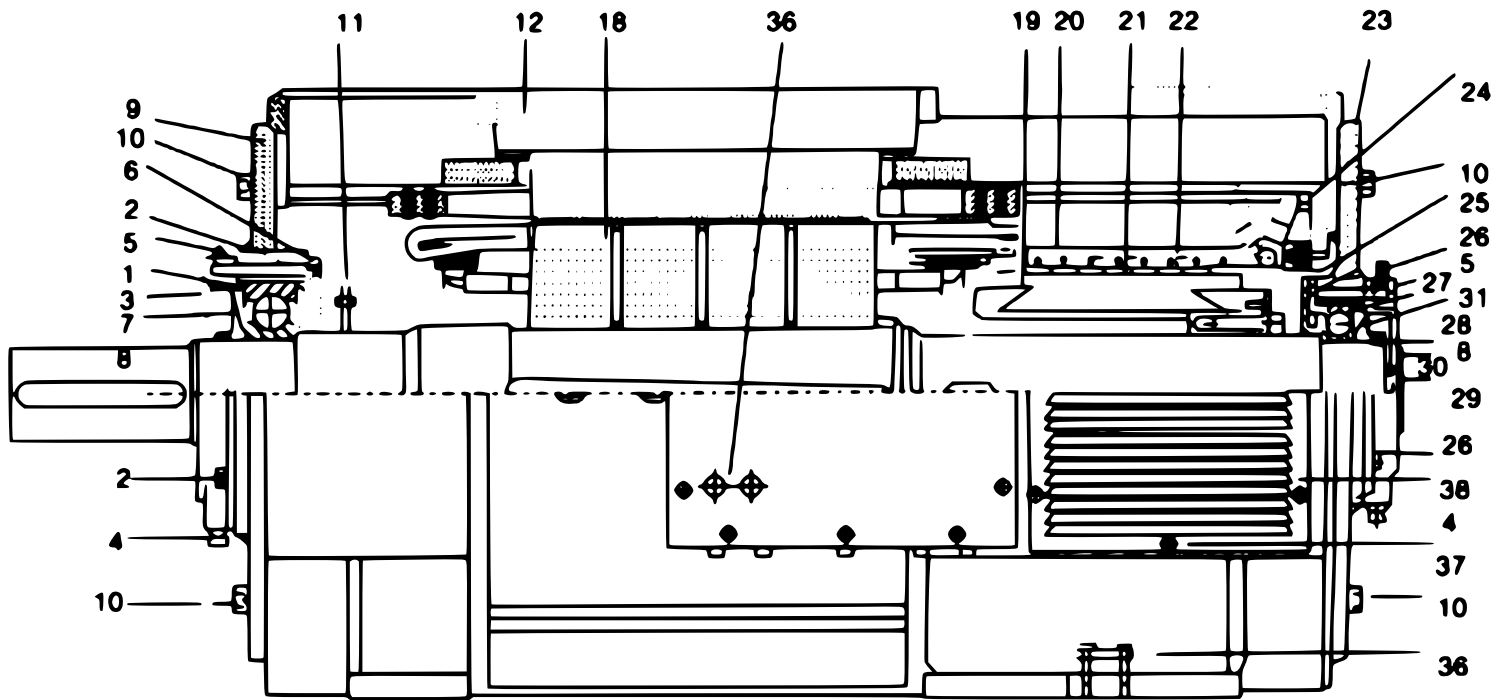
The certificate is held in Slovakia as STN ISO 45001:2019 and is under the title Management systems of safety and health protection at work. Requirements with guidance for use. It replaces the STN OHSAS 18001 standard.



ISO 50001

Energy management systems Energy efficiency help organizations save money, save energy resources and also help to prevent climate change. ISO 50001 encourages organizations in all sectors to use energy more efficiently through the development of an energy management system. The international standard ISO 50001: 2011 specifies the requirements for building, maintaining and improving the energy system. It aims to enable organizations to implement a systematic approach that will help achieve lasting improvements in energy efficiency, energy use and consumption.





1. Ball bearing AS*
2. Screw of bearing cover AS
3. Bearing cover AS outer
4. Oil-cap of ball bearing AS&NS**
5. Oil nipple AS&NS**
6. Bearing cover AS inner
7. Centrifugal disc AS
8. Headless screw for centrifugal disc AS&NS
9. End shield AS
10. Fastening screw of end shield AS&NS
11. Balancing disc AS
12. Frame
13. Main pole
14. Compole
15. Screw of main pole
16. Screw of compole
17. Compensating winding
18. Armature
19. Commutator
20. Brush rocker
21. Brush holder
22. Carbon brush
23. End shield NS
24. Fastening screw with washer
25. Bearing over NS5 inner
26. Screw of bearing cover NS
27. Bearing cover NS outer
28. Centrifugal disc NS
29. Endplate
30. Screw of endplate
31. Ball bearing NS
32. Terminal box
33. Outlet plate with gasket-sealing
34. Terminal
35. Terminal box lid
36. Grounding bolt
37. Screw of louvre NS
38. Louvre NS

Note:

*AS: Drive side

**NS: Non-drive side



Technical data for 1GDC

| Frame reference and size | Rated power | Full load speed in revolutions per minute | | | Speed with field weakened | Arm. current | Field power | Arm. circuit resistance | Arm. circuit resistance | Field inductance | smooreins induct. | Efficiency | Moment of inertia | Weight |
|--------------------------|-------------|---|------|------|---------------------------|--------------|-------------|-------------------------|-------------------------|------------------|-------------------|------------|--------------------------------------|-------------|
| | | 160V | 400V | 440V | | | | | | | | | | |
| Type | Power kW | 160V | 400V | 440V | Speed r/min | LN | PF | R (Ω (20°C)) | R (mH) | LF (H) | LR (mH) | η (%) | GD ² (kg*m ²) | Weight (kg) |
| 1GDC-100-1 | 2.2 | 1490 | | | 3000 | 17.9 | 31.5 | 1.19 | 11.2 | 22 | 15 | 67.8 | 0.044 | 72 |
| | 1.5 | 955 | | | 2000 | 13.3 | | 2.17 | 21.4 | 13 | 15 | 58.5 | | |
| | 4 | | 2630 | | 4000 | 12 | | 2.82 | 26 | 18 | | 78.9 | | |
| | 4 | | | 2960 | 4000 | 10.7 | | | | | | 80.1 | | |
| | 2 | | 1310 | | 3000 | 6.6 | | 9.12 | 86 | 18 | | 68.4 | | |
| | 2.2 | | | 1480 | 3000 | 6.5 | | | | | | 70.6 | | |
| | 1.4 | | 860 | | 2000 | 5.1 | | 16.76 | 163 | 18 | | 60.3 | | |
| | 1.5 | | | 990 | 2000 | 4.77 | | | | | | 63.2 | | |
| 1GDC-112/2-1 | 3 | 1540 | | | 3000 | 24 | 320 | 0.785 | 7.1 | 14 | 20 | 69.1 | 0.072 | 100 |
| | 2.2 | 975 | | | 2000 | 19.6 | | 1.498 | 14.1 | 13 | 20 | 62.1 | | |
| | 5.5 | | 2630 | | 4000 | 16.4 | | 1.933 | 17.9 | 17 | | 79.9 | | |
| | 5.5 | | | 2940 | 4000 | 14.7 | | | | | | 81.1 | | |
| | 2.8 | | 1340 | | 3000 | 9.1 | | 6 | 59 | 17 | | 71.2 | | |
| | 3 | | | 1500 | 3000 | 8.6 | | | | | | 72.8 | | |
| | 1.9 | | 855 | | 2000 | 6.9 | | 11.67 | 110 | 13 | | 61.1 | | |
| | 2.2 | | | 965 | 2000 | 7.1 | | | | | | 63.5 | | |
| 1GDC-112/2-2 | 4 | 1450 | | | 3000 | 31.3 | 350 | 0.567 | 6.2 | 14 | 12 | 72.6 | 0.088 | 107 |
| | 3 | 1070 | | | 2000 | 24.8 | | 0.934 | 10.3 | 14 | 10 | 66.8 | | |
| | 7 | | 2660 | | 4000 | 20.4 | | 1.305 | 14 | 19 | | 82.4 | | |
| | 7.5 | | | 2980 | 4000 | 19.7 | | | | | | 83.5 | | |
| | 3.7 | | 1320 | | 3000 | 11.7 | | 4.24 | 48.5 | 19 | | 74.1 | | |
| | 4 | | | 1500 | 3000 | 11.2 | | | | | | 76 | | |
| | 2.6 | | 895 | | 2000 | 9 | | 7.62 | 83 | 14 | | 65.1 | | |
| | 3 | | | 1010 | 2000 | 9.1 | | | | | | 67.3 | | |
| 1GDC-112/4-1 | 5.5 | 1520 | | | 3000 | 42.5 | 500 | 0.38 | 3.85 | 6.8 | 6.5 | 73 | 0.128 | 106 |
| | 4 | 990 | | | 2000 | 33.7 | | 0.741 | 7.7 | 6.7 | 4.5 | 64.9 | | |
| | 10 | | 2680 | | 3500 | 29 | | 0.89 | 9 | 6.8 | | 82.7 | | |
| | 11 | | | 2950 | 3500 | 28.8 | | | | | | 83.3 | | |
| | 5 | | 1340 | | 1800 | 15.7 | | 3.01 | 30.5 | 6.8 | | 74.3 | | |
| | 5.5 | | | 1480 | 1800 | 15.4 | | | | | | 75.7 | | |
| | 3.7 | | 855 | | 1100 | 13 | | 5.78 | 60 | 6.7 | | 65.2 | | |
| | 4 | | | 980 | 1100 | 12.2 | | | | | | 68.7 | | |
| 1GDC-112/4-2 | 5.5 | 1090 | | | 2000 | 43.5 | 570 | 0.441 | 5.1 | 7.8 | 6 | 69.5 | 0.156 | 114 |
| | 13 | | 2740 | | 3600 | 37 | | 0.574 | 6.4 | 5.8 | | 84.4 | | |
| | 15 | | | 3035 | 3600 | 38.6 | | | | | | 85.4 | | |
| | 6.7 | | 1330 | | 1800 | 20.6 | | 2.12 | 24.1 | 7.8 | | 76.8 | | |
| | 7.5 | | | 1480 | 1800 | 20.6 | | | | | | 78.4 | | |
| | 5 | 955 | | | 1200 | 16.1 | | | | | | 71.1 | | |
| | 5.5 | | | 1025 | 1200 | 15.7 | | 3.46 | 40.5 | 5.8 | | 71.9 | | |



Technical data for 1GDC

| Frame reference and size | Rated power | Full load speed in revolutions per minute | | Speed with field weakened | Arm. current | Field power | Arm. circuit resistance | Arm. circuit resistance | Field inductance | Efficiency | Moment of inertia | Weight | |
|--------------------------|-------------|---|------|---------------------------|--------------|-------------|-------------------------|-------------------------|------------------|------------|-------------------|--------|-----|
| | | 400V | 440V | | | | | | | | | | NF |
| Type | kW | r/min | | r/min | A | W | (Ω (20°C)) | mH | H | (%) | kg·m ² | kg | |
| 1GDC-132-1 | 18.5 | 2610 | | 4000 | 52.2 | 650 | 0.368 | 5.3 | 6.5 | 85 | 0.32 | 140 | |
| | 18.5 | 2850 | | 4000 | 47.1 | | | | | 85.9 | | | |
| | 10 | 1330 | | 2100 | 30.1 | | 1.309 | 18.9 | 8.9 | 79.4 | | | |
| | 11 | 1480 | | 2200 | 29.6 | | 2.56 | 37.5 | 6.3 | 80.9 | | | |
| | 7 | 865 | | 1600 | 22.7 | | | | | 71.9 | | | |
| | 7.5 | 975 | | 1600 | 21.4 | | | | | 74.5 | | | |
| 20 | 2800 | | 3600 | 55.4 | 730 | 0.226 | | | | 3.65 | 10 | 87.8 | |
| 22 | 3090 | | 3600 | 55.3 | | | 88.3 | | | | | | |
| 15 | 1360 | | 2500 | 44.5 | | 0.811 | 13.5 | 7.7 | 81.2 | | | | |
| 15 | 1510 | | 2500 | 39.5 | | 1.565 | 26 | 6 | 83.4 | | | | |
| 10 | 905 | | 1400 | 31.1 | | | | | 75.6 | | | | |
| 11 | 995 | | 1400 | 30.5 | | | | | 77.7 | | | | |
| 27 | 2720 | | 3600 | 74.5 | 800 | | | | 0.1905 | 3.4 | 21 | 88.2 | |
| 30 | 3000 | | 3600 | 75 | | 88.6 | | | | | | | |
| 18.5 | 1390 | | 2100 | 53.2 | | 0.531 | 9.8 | 6.6 | 83.6 | | | | |
| 18.5 | 1540 | | 2200 | 47.6 | | 0.976 | 19.4 | 6.5 | 84.7 | | | | |
| 13.5 | 945 | | 1600 | 40.5 | | | | | 79.4 | | | | |
| 15 | 1050 | | 1600 | 40.5 | | | | | 80.5 | | | | |
| 33 | 2710 | | 3500 | 93.4 | 820 | | | | 0.1835 | 3.15 | 10 | 87.4 | |
| 37 | 3000 | | 3500 | 93.4 | | 88.5 | | | | | | | |
| 19.5 | 1350 | | 3000 | 58.8 | | 0.593 | 10.4 | 7.7 | 80.4 | | | | |
| 22 | 1500 | | 3000 | 58.8 | | 82.6 | | | | | | | |
| 1GDC-160- | 22 | 40.5 | | 2710 | 3500 | 113 | 920 | 0.1426 | 2.7 | 10 | 88.2 | 0.76 | 242 |
| | 45 | 3000 | | 3500 | 113 | 89.1 | | | | | | | |
| | 21 | 16.5 | | 900 | 2000 | 50.5 | | 0.862 | 17.7 | 6 | 77.9 | | |
| | 18.5 | 1000 | | 2000 | 50.5 | 79.4 | | | | | | | |
| 1GDC-160- | 32 | 49.5 | | 2710 | 3500 | 137 | 1050 | 0.097 | 2.07 | 11 | 89.1 | 0.88 | 268 |
| | 55 | 3010 | | 3500 | 137 | 90.2 | | | | | | | |
| | 31 | 27 | | 1350 | 3000 | 77.8 | | 0.376 | 8.3 | 10 | 84.7 | | |
| | 30 | 1500 | | 3000 | 77.8 | 0.675 | | 15.2 | 6.3 | 85.7 | | | |
| | 31 | 19.5 | | 900 | 2000 | | | | | 59.1 | 79.1 | | |
| | 22 | 1000 | | 2000 | 59.1 | | | | | 81.7 | | | |
| 33 | 1350 | | 3000 | 95.4 | 1200 | | 0.29 | | | 5.8 | 7.1 | 84.7 | |
| 37 | 1500 | | 3000 | 95.4 | | 86.5 | | | | | | | |
| 16.5 | 670 | | 1900 | 51.4 | | 0.947 | 17.6 | 5.6 | 75.5 | | | | |
| 18.5 | 750 | | 1900 | 51.4 | | 1.264 | 25 | 5.6 | 78.1 | | | | |
| 13 | 540 | | 1400 | 42.4 | | | | | 73 | | | | |
| 15 | 600 | | 1400 | 42.4 | | | | | 74.1 | | | | |



Technical data for 1GDC

| Frame reference and size | Rated power | Full load speed in revolutions per minute | | Speed with field weakened | Arm. current | Field power | Arm. circuit resistance | Arm. circuit resistance | Field inductance | Efficiency | Moment of inertia | Weight |
|--------------------------|-------------|---|------|---------------------------|--------------|-------------|-------------------------|-------------------------|------------------|------------|-------------------|--------|
| | | 400V | 440V | | | | | | | | | |
| Type | kW | r/min | | r/min | A | W | (Ω [20°C]) | mH | H | (%) | kg*m ² | kg |
| 1GDC-180- | 22 | 67 | 2710 | 3400 | 185 | 1400 | 0.0555 | 1.16 | 6.9 | 89.5 | 1.72 | 350 |
| | | 75 | 3000 | | | | | | | 90.7 | | |
| | 21 | 40.5 | 1350 | 2800 | 115 | | 0.2125 | 4.65 | 6.6 | 85.8 | | |
| | | 45 | 1500 | | | | | | | 87 | | |
| | 21 | 27 | 900 | 2000 | 79 | | 0.419 | 9.3 | 7.3 | 82.2 | | |
| | | 30 | 1000 | | | | | | | 83.7 | | |
| 21 | 19.5 | 670 | 1400 | 61 | 0.756 | 15.7 | 7.1 | 77.3 | | | | |
| | 22 | 750 | | | | | | 79.7 | | | | |
| 21 | 16.5 | 540 | 1600 | 52 | 1.003 | 21.9 | 5 | 73.8 | | | | |
| | 18.5 | 600 | | | | | | 76.8 | | | | |
| 1GDC-180-31 | 33 | 900 | 2000 | 97 | 1500 | 0.332 | 7.7 | 6.6 | 82.8 | 1.92 | 380 | |
| | | 37 | | | | | | | 1000 | | | 83.6 |
| | 19.5 | 540 | 1250 | 62 | | 0.801 | 19 | 6.6 | 74.8 | | | |
| | 22 | 600 | | | | | | | 76.6 | | | |
| 1GDC-180- | 42 | 81 | 2710 | 3200 | 221 | 1700 | 0.051 | 1.16 | 12 | 91 | 2.2 | 410 |
| | | 90 | 3000 | | | | | | 91.3 | | | |
| | 41 | 50 | 1350 | 3000 | 139 | | 0.1417 | 3.2 | 5.7 | 87.5 | | |
| | | 55 | 1500 | | | | | | | 87.7 | | |
| | 41 | 27 | 670 | 2000 | 80 | | 0.454 | 10.4 | 6.3 | 80.4 | | |
| | | 30 | 750 | | | | | | | 81.1 | | |
| 1GDC-200- | 12 | 99 | 2710 | 3000 | 271 | 1400 | 0.0373 | 0.83 | 7.62 | 90.2 | 3.68 | 485 |
| | | 110 | 3000 | | | | | | 91.6 | | | |
| | 11 | 40.5 | 900 | 2000 | 118 | | 0.2653 | 8.4 | 7.01 | 83.4 | | |
| | | 45 | 1000 | | | | | | | 85.5 | | |
| | 11 | 33 | 670 | 1600 | 99 | | 0.369 | 10.6 | 7.77 | 80.2 | | |
| | | 37 | 750 | | | | | | | 82.9 | | |
| 11 | 19.5 | 450 | 1000 | 64 | 0.93 | 21.9 | 7.3 | 72.2 | | | | |
| | 22 | 500 | | | | | | 77.4 | | | | |
| 1GDC-200- | 21 | 67 | 1350 | 3000 | 188 | 1500 | 0.0885 | 2.8 | 6.78 | 88.7 | 4.2 | 530 |
| | | 75 | 1500 | | | | | | 89.6 | | | |
| | 21 | 27 | 540 | 1000 | 82 | | 0.535 | 14 | 9.64 | 78.8 | | |
| | | 30 | 600 | | | | | | | 80.4 | | |
| 1GDC-200- | 32 | 119 | 2710 | 3200 | 322 | 1750 | 0.0266 | 0.79 | 10.9 | 91.7 | 4.8 | 580 |
| | | 132 | 3000 | | | | | | 92.4 | | | |
| | 31 | 81 | 1350 | 2800 | 224 | | 0.0771 | 2.6 | 5.61 | 88.7 | | |
| | | 90 | 1500 | | | | | | | 90 | | |
| | 31 | 49.5 | 900 | 2000 | 141 | | 0.1751 | 4.8 | 8.54 | 85.6 | | |
| | | 55 | 1000 | | | | | | | 87.1 | | |
| | 31 | 40.5 | 670 | 1400 | 119 | | 0.283 | 8.5 | 8.35 | 82.5 | | |
| | | 45 | 750 | | | | | | | 84.1 | | |
| | 31 | 33 | 540 | 1200 | 101 | | 0.42 | 12.2 | 8.42 | 79.6 | | |
| | | 37 | 600 | | | | | | | 82 | | |
| | 31 | 27 | 450 | 750 | 84 | | 0.593 | 17.1 | 8.4 | 77.5 | | |
| | | 30 | 500 | | | | | | | 79.5 | | |



Technical data for 1GDC

| Frame reference and size | Rated power | Full load speed in revolutions per minute | | Speed with field weakened | Arm. current | Field power | Arm. circuit resistance | Arm. circuit resistance | Field inductance | Efficiency | Moment of inertia | Weight |
|--------------------------|-------------|---|------|---------------------------|--------------|-------------|-------------------------|-------------------------|------------------|------------|-------------------|--------|
| | | 400V | 440V | | | | | | | | | |
| Type | kW | r/min | | r/min | A | W | (Ω (20°C)) | mH | H | (%) | kg·m ² | kg |
| 1GDC-225-11 | 99 | 1360 | | 3000 | 276 | 2300 | 0.0664 | 2.1 | 4.45 | 87.9 | 5 | 680 |
| | 110 | 1500 | | | | | | | | 89.4 | | |
| | 67 | 900 | | 2000 | 193 | | 0.1406 | 4.9 | 4.28 | 84.4 | | |
| | 75 | 1000 | | | | | 86.5 | | | | | |
| | 49 | 680 | | 1300 | 146 | | 0.2433 | 8.7 | 5.77 | 81.2 | | |
| | 55 | 750 | | | | | 84 | | | | | |
| | 40 | 540 | | 1200 | 123 | | 0.356 | 9.5 | 6.38 | 78.2 | | |
| | 45 | 600 | | | | | 80.8 | | | | | |
| | 33 | 450 | | 1000 | 103 | | 0.476 | 15.2 | 6.10 | 76.5 | | |
| | 37 | 500 | | | | | 78.8 | | | | | |
| 1GDC-225-21 | 49 | 540 | | 1000 | 148 | 2470 | 0.2648 | 9.5 | 4.14 | 79.3 | 5.6 | 740 |
| | 55 | 600 | | | | | | | | 82.4 | | |
| | 40 | 450 | | 1000 | 125 | | 0.397 | 13.7 | 5.41 | 76.6 | | |
| | 45 | 500 | | | | | 78.9 | | | | | |
| 1GDC-225-31 | 119 | 1360 | | 2400 | 327 | 2580 | 0.0454 | 1.5 | 5.33 | 89.3 | 6.2 | 800 |
| | 132 | 1500 | | | | | | | | 90.5 | | |
| | 81 | 900 | | 2000 | 227 | | 0.093 | 3.4 | 5.3 | 86.9 | | |
| | 90 | 1000 | | | | | 88 | | | | | |
| | 67 | 680 | | 2250 | 197 | | 0.167 | 5.1 | 5.44 | 82.5 | | |
| | 75 | 750 | | | | | 85.1 | | | | | |
| 1GDC-250- | 12 | 1360 | | 2100 | 399 | 2500 | 0.0444 | 1.3 | 4.29 | 88.8 | 8.8 | 890 |
| | 160 | 1500 | | | | | | | | 89.9 | | |
| | 99 | 900 | | 2000 | 281 | | 0.0911 | 2.4 | 4.55 | 86.2 | | |
| | 110 | 1000 | | | | | 88.1 | | | | | |
| 1GDC-250-21 | 167 | 1360 | | 2200 | 459 | 2750 | 0.0325 | 0.91 | 4.28 | 89.8 | 10 | 970 |
| | 185 | 1500 | | | | | | | | 90.5 | | |
| | 81 | 680 | | 2250 | 234 | | 0.1306 | 3.9 | 5.41 | 83.2 | | |
| | 90 | 750 | | | | | 85.2 | | | | | |
| 1GDC-250-31 | 180 | 1360 | | 2400 | 493 | 2850 | 0.1281 | 0.87 | 5.32 | 90.4 | 11.2 | 1070 |
| | 200 | 1500 | | | | | | | | 91.5 | | |
| | 119 | 900 | | 2000 | 334 | | 0.0668 | 1.7 | 5.46 | 87.4 | | |
| | 132 | 1000 | | | | | 89.1 | | | | | |
| | 67 | 540 | | 2000 | 204 | | 0.202 | 4.0 | 4.0 | 80.8 | | |
| | 75 | 600 | | | | | 84.6 | | | | | |
| | 49 | 450 | | 1200 | 152 | | 0.305 | 7.3 | 5.1 | 78.5 | | |
| | 55 | 500 | | | | | 82.4 | | | | | |



Technical data for 1GDC

| Frame reference and size | Rated power | Full load speed in revolutions per minute | | Speed with field weakened | Arm. current | Field power | Arm. circuit resistance | Arm. circuit resistance | Field inductance | Efficiency | Moment of inertia | Weight | |
|--------------------------|-------------|---|------|---------------------------|--------------|-------------|-------------------------|-------------------------|------------------|------------|-------------------|--------|------|
| | | 400V | 440V | | | | | | | | | | NF |
| Type | kW | r/min | | r/min | A | W | (Ω [20°C]) | mH | H | (%) | kg·m ² | kg | |
| 1GDC-250- | 41 | 198 | 1360 | 2400 | 539 | 3000 | 0.0237 | 0.93 | 6.19 | 91 | 12.8 | 1180 | |
| | | 220 | 1500 | | | | | | | 91.7 | | | |
| | 42 | 144 | 900 | 2000 | 401 | | 0.0485 | 1.9 | 4.63 | 88.11 | | | |
| | | 160 | 1000 | | | | | | | 89.2 | | | |
| | | 41 | 99 | 680 | 1900 | | 283 | 0.0102 | 2.6 | 5.3 | | | 85.8 |
| | | | 110 | 750 | | | | | | | | | 87.4 |
| | 41 | 81 | 540 | 1600 | 236 | 0.141 | 4.7 | 6.36 | 83.4 | | | | |
| | | 90 | 600 | | | | | | 85 | | | | |
| | 41 | 67 | 450 | 1800 | 201 | 0.195 | 5.1 | 4.97 | 80 | | | | |
| | | 75 | 500 | | | | | | 83.4 | | | | |
| 1GDC-280-11 | 226 | 1355 | 2000 | 614 | 3100 | 0.02134 | 0.69 | 4.58 | 90.9 | 16.4 | 1280 | | |
| | | 250 | | | | | | | 1500 | | | 91.6 | |
| 1GDC-280- | 22 | 253 | 1355 | 1800 | 684 | 3500 | 0.01796 | 0.77 | 5.3 | 91.5 | 18.4 | 1400 | |
| | | 280 | 1500 | | | | | | | 92.1 | | | |
| | 21 | 180 | 900 | 2000 | 498 | | 0.0373 | 1.2 | 4.46 | 89.1 | | | |
| | | 200 | 1000 | | | | | | | 90.1 | | | |
| | | 21 | 119 | 675 | 1600 | | 333 | 0.0662 | 2.3 | 4.37 | | | 87.1 |
| | | | 132 | 750 | | | | | | | | | 88.6 |
| | 21 | 99 | 540 | 1500 | 281 | 0.093 | 3.1 | 4.57 | 84.7 | | | | |
| | | 110 | 600 | | | | | | 86 | | | | |
| 1GDC-280- | 32 | 284 | 1360 | 1800 | 768 | 3600 | 0.01493 | 0.59 | 6.94 | 91.7 | 21.2 | 1550 | |
| | | 315 | 1500 | | | | | | | 92.6 | | | |
| | 31 | 198 | 900 | 2000 | 545 | | 0.0314 | 1.1 | 5.54 | 89.7 | | | |
| | | 220 | 1000 | | | | | | | 90.6 | | | |
| | | 32 | 144 | 675 | 1700 | | 402 | 0.0532 | 2 | 5.47 | | | 87.8 |
| | | | 160 | 750 | | | | | | | | | 89.1 |
| | 31 | 118 | 540 | 1000 | 339 | 0.0839 | 2.6 | 5.77 | 85.4 | | | | |
| | | 132 | 600 | | | | | | 86.8 | | | | |
| | 31 | 80 | 450 | 1400 | 234 | 0.1377 | 5.3 | 9.03 | 84.1 | | | | |
| | | 90 | 500 | | | | | | 85.4 | | | | |
| 1GDC-280- | 42 | 225 | 900 | 1800 | 616 | 4000 | 3.02545 | 0.96 | 5.29 | 90.2 | 24 | 1700 | |
| | | 250 | 1000 | | | | | | | 91.1 | | | |
| | 41 | 166 | 675 | 1900 | 464 | | 0.0457 | 1.7 | 5.19 | 88.1 | | | |
| | | 185 | 750 | | | | | | | 89.4 | | | |
| | | 41 | 98 | 450 | 1000 | | 282 | 0.0993 | 3.7 | 6.86 | | | 85.1 |
| | | | 110 | 500 | | | | | | | | | 86.9 |



Technical data 1GDC

| Frame reference and size | Rated power | Full load speed in revolutions per minute | | Speed with field weakened | Arm. current | Field power | Arm. circuit resistance | Arm. circuit resistance | Field inductance | Efficiency | Moment of inertia | Weight |
|--------------------------|-------------|---|------|---------------------------|--------------|-------------|-------------------------|-------------------------|------------------|------------|-------------------|--------|
| | | 400V | 440V | | | | | | | | | |
| Type | kW | r/min | | r/min | A | W | (Ω [20°C]) | mH | H | (%) | kg*m ² | kg |
| 1GDC-315-12 | 321 | 1360 | | 1800 | 865 | 3850 | 0.015 | 0.39 | 8.64 | 92.2 | 21.2 | 1890 |
| | 355 | 1500 | | | | | | | | 92.8 | | |
| | 253 | 900 | | 1600 | 690 | | 0.2355 | 0.46 | 5.06 | 90.4 | | |
| | 280 | 1000 | | | | | 91.6 | | | | | |
| | 180 | 680 | | 1900 | 500 | | 0.04371 | 0.83 | 4.97 | 88.4 | | |
| | 200 | 750 | | | | | 89.4 | | | | | |
| 1GDC-315-11 | 144 | 540 | | 1900 | 409 | 4350 | 0.06919 | 1.3 | 7.6 | 86.4 | 24 | 2080 |
| | 160 | 600 | | | | | | | | 87.4 | | |
| | 118 | 450 | | 1600 | 344 | | 0.1 | 2.3 | 9.43 | 84.4 | | |
| | 132 | 500 | | | | | 86.3 | | | | | |
| | 98 | 360 | | 1200 | 294 | | 0.1415 | 2.9 | 9.96 | 81.7 | | |
| | 110 | 400 | | | | | 84.3 | | | | | |
| 1GDC-315-22 | 284 | 900 | | 1600 | 772 | 4350 | 0.02034 | 0.49 | 5.91 | 91 | 24 | 2080 |
| | 315 | 1000 | | | | | | | | 91.5 | | |
| | 225 | 680 | | 1600 | 624 | | 0.03392 | 0.74 | 18.8 | 88.7 | | |
| | 250 | 750 | | | | | 89.6 | | | | | |
| 1GDC-315-21 | 166 | 540 | | 1600 | 468 | 4350 | 0.05382 | 1.2 | 25 | 87.2 | 24 | 2080 |
| | 185 | 600 | | | | | | | | 88.5 | | |
| | 143 | 450 | | 1500 | 413 | | 0.076 | 1.5 | 19 | 84.7 | | |
| | 190 | 500 | | | | | 86 | | | | | |
| 1GDC-315-32 | 320 | 900 | | 1600 | 867 | 4650 | 0.01658 | 0.39 | 23.1 | 91.0 | 27.2 | 2290 |
| | 355 | 1000 | | | | | | | | 92.0 | | |
| | 252 | 680 | | 1600 | 697 | | 0.03043 | 0.82 | 21.5 | 89.1 | | |
| | 280 | 750 | | | | | 89.8 | | | | | |
| | 180 | 540 | | 1500 | 501 | | 0.04536 | 0.95 | 31.6 | 88.2 | | |
| 200 | 600 | | 89.4 | | | | | | | | | |
| 1GDC-315-31 | 118 | 360 | | 1200 | 344 | 4650 | 0.1002 | 2.1 | 23.3 | 83.2 | 30.8 | 2520 |
| | 132 | 400 | | | | | | | | 85.3 | | |
| 1GDC-315-42 | 361 | 900 | | 1400 | 971 | 5200 | 0.01302 | 0.33 | 29 | 92.1 | 30.8 | 2520 |
| | 400 | 1000 | | | | | | | | 92.7 | | |
| | 284 | 680 | | 1600 | 778 | | 0.02364 | 0.67 | 20.8 | 90 | | |
| | 315 | 750 | | | | | 90.7 | | | | | |
| | 225 | 540 | | 1600 | 626 | | 0.03554 | 0.87 | 21.9 | 88.3 | | |
| 250 | 600 | | 89 | | | | | | | | | |
| 1GDC-315-41 | 166 | 450 | | 1500 | 468 | 5200 | 0.055 | 1.4 | 37.4 | 87.3 | 30.8 | 2520 |
| | 185 | 500 | | | | | | | | 88.3 | | |
| | 143 | 360 | | 1200 | 416 | | 0.0803 | 1.8 | 22.2 | 84 | | |
| | 160 | 400 | | | | | 85.3 | | | | | |



Technical data for 1GDC

| Frame reference and size | Rated power | Full load speed in revolutions per minute | | Speed with field weakened | Arm. current | Field power | Arm. circuit resistance | Arm. circuit resistance | Field inductance | Efficiency | Moment of inertia | Weight | | | | |
|--------------------------|-------------|---|------|---------------------------|--------------|-------------|-------------------------|-------------------------|------------------|------------|-------------------|--------|------|------|----|------|
| | | 400V | 440V | | | | | | | | | | NF | LN | PF | R |
| Type | kW | r/min | | r/min | A | W | (Ω (20°C)) | mH | H | (%) | kg*m ² | kg | | | | |
| 1GDC-400- | 22 | 435 | 680 | 1400 | 1175 | 5700 | 0.0139 | 0.33 | 7.385 | 90,8 | 74 | 4500 | | | | |
| | | 480 | 750 | | | | | | | 92 | | | | | | |
| | 21 | 235 | 360 | 1200 | 675 | | 0.0497 | 1 | 7.3 | 84,8 | | | | | | |
| | | 260 | 400 | | | | | | | 86,3 | | | | | | |
| | 21 | 180 | 270 | 900 | 537 | | 0.0804 | 1.6 | 7.44 | 81,8 | | | | | | |
| | | 200 | 300 | | | | | | | 83,1 | | | | | | |
| 1GDC-400- | 32 | 500 | 680 | 1400 | 1340 | 6400 | 0.0112 | 0.3 | 9.57 | 91,2 | 84 | 4900 | | | | |
| | | 550 | 750 | | | | | | | 92,5 | | | | | | |
| | 32 | 400 | 540 | 1300 | 1083 | | 0.0162 | 0.35 | 4.51 | 89,9 | | | | | | |
| | | 440 | 600 | | | | | | | 91,9 | | | | | | |
| | 32 | 344 | 450 | 1300 | 952 | | 0.0248 | 0.58 | 6 | 88,1 | | | | | | |
| | | 380 | 500 | | | | | | | 89,5 | | | | | | |
| | 31 | 270 | 360 | 1200 | 768 | | 0.03821 | 0.82 | 6.11 | 86 | | | | | | |
| | | 300 | 400 | | | | | | | 87,5 | | | | | | |
| | 31 | 208 | 270 | 900 | 611 | | 0.0659 | 1.5 | 5.89 | 82,8 | | | | | | |
| | | 230 | 300 | | | | | | | 84 | | | | | | |
| | 1GDC-400- | 42 | 435 | 540 | 1300 | | 1175 | 7100 | 0.0134 | 0.32 | | | 5.54 | 90,8 | 94 | 5300 |
| | | | 480 | 600 | | | | | | | | | | 92 | | |
| 42 | | 390 | 450 | 1400 | 1070 | 0.0201 | 0.47 | | 6.86 | 88,6 | | | | | | |
| | | 430 | 500 | | | | | | | 90 | | | | | | |
| 41 | | 316 | 360 | 1200 | 880 | 0.0274 | 0.73 | | 5.41 | 97,7 | | | | | | |
| | | 350 | 400 | | | | | | | 89 | | | | | | |
| 41 | | 235 | 270 | 900 | 676 | 0.0508 | 1.2 | | 5.38 | 84 | | | | | | |
| | | 260 | 300 | | | | | | | 85,4 | | | | | | |
| 1GDC-450- | | 22 | 472 | 540 | 1200 | 1286 | 6500 | | 0.0133 | 0.29 | 10.2 | 90,8 | 138 | 5600 | | |
| | | | 520 | 600 | | | | | | | | 92,1 | | | | |
| | 22 | 408 | 450 | 1400 | 1114 | 0.0159 | | 0.41 | 7.99 | 90 | | | | | | |
| | | 450 | 500 | | | | | | | 91,3 | | | | | | |
| | 22 | 362 | 360 | 1200 | 1010 | 0.0232 | | 0.61 | 5.79 | 88,1 | | | | | | |
| | | 400 | 400 | | | | | | | 89,4 | | | | | | |
| | 21 | 253 | 270 | 900 | 720 | 0.0415 | | 1 | 5.82 | 85,8 | | | | | | |
| | | 280 | 300 | | | | | | | 87,1 | | | | | | |

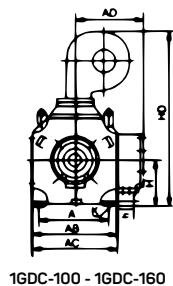
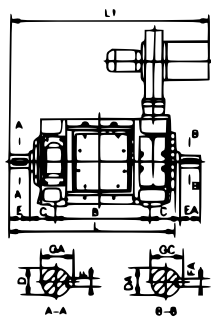


Technical data for 1GDC

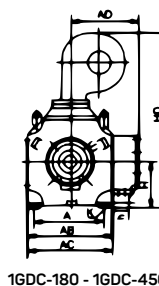
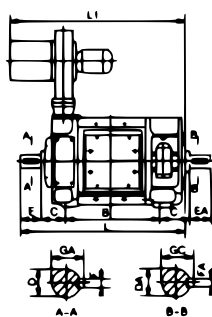
| Frame reference and size | Rated power | Full load speed in revolutions per minute | | Speed with field weakened | Arm. current | Field power | Arm. circuit resistance | Arm. circuit resistance | Field inductance | Efficiency | Moment of inertia | Weight | |
|--------------------------|-------------|---|------|---------------------------|--------------|-------------|-------------------------|-------------------------|------------------|------------|-----------------------------------|-----------|------|
| | | 400V | 440V | | | | | | | | | | |
| Type | Power kW | r/min | | r/min | A | W | R (Ω (20°C)) | LA mH | LF H | η (%) | GD ² kg*m ² | Weight kg | |
| 1GDC-450- | 32 | 500 | 540 | 600 | 1200 | 1385 | 0.0134 | 0.39 | 19.6 | 90.8 | 156 | 6000 | |
| | | 550 | | | | | | | | 92 | | | |
| | 32 | 453 | 450 | 500 | 1300 | 1228 | 0.0145 | 0.32 | 7.36 | 90 | | | |
| | | 500 | | | | | | | | 91.4 | | | |
| | 32 | 408 | 360 | 400 | 1200 | 1130 | 7100 | 0.0208 | 0.53 | 7.17 | | | 88.5 |
| | | 450 | | | | | | | | 89.7 | | | |
| 1GDC-450- | 32 | 309 | 270 | 300 | 900 | 875 | 0.0342 | 0.83 | 4.8 | 85.9 | 174 | 6700 | |
| | | 340 | | | | | | | | 87.1 | | | |
| | 31 | 200 | 180 | 200 | 600 | 595 | 0.0751 | 1.9 | 9.09 | 81.3 | | | |
| | | 220 | | | | | | | | 82.6 | | | |
| | 42 | 545 | 540 | 600 | 1100 | 1492 | 0.0134 | 0.51 | 28.2 | 90.3 | | | |
| | | 600 | | | | | | | | 91.5 | | | |
| 1GDC-450- | 42 | 500 | 450 | 500 | 1100 | 1367 | 0.0145 | 0.43 | 18.6 | 90 | 174 | 6700 | |
| | | 550 | | | | | | | | 91.4 | | | |
| | 42 | 453 | 360 | 400 | 1200 | 1254 | 7800 | 0.0178 | 0.42 | 5.85 | | | 88,9 |
| | | 500 | | | | | | | | 90 | | | |
| | 42 | 345 | 270 | 300 | 900 | 972 | 0.0275 | 0.81 | 5.62 | 86.8 | | | |
| | | 380 | | | | | | | | 88.1 | | | |
| 1GDC-450- | 41 | 235 | 180 | 200 | 600 | 698 | 0.0612 | 1.7 | 5.73 | 81,7 | 174 | 6700 | |
| | | 260 | | | | | | | | 83 | | | |



Mounting and outline dimensions



1GDC-100 - 1GDC-160



1GDC-180 - 1GDC-450

| Type | Mounting dimensions | | | | | | | | | | | | | Outline dimensions | | | | | | |
|--------------|---------------------|-----|-----|----|-----|----|------|----|-----|----|------|-----|----|--------------------|-----|-----|-----|------|------|----|
| | A | B | C | D | E | F | GA | DA | EA | FA | GC | H | K | AB | AC | AD | HD | L | L1 | h1 |
| 1GDC-100-1 | 160 | 318 | 63 | 24 | 50 | 8 | 27 | 24 | 50 | 8 | 27 | 100 | 12 | 197 | 234 | 197 | 398 | 500 | 580 | 10 |
| 1GDC-100-2 | | 358 | | | | | | | | | | | | | | | | 540 | 620 | |
| 1GDC-112/2-1 | | 337 | | | | | | | | | | | | | | | | 544 | 612 | |
| 1GDC-112/2-2 | 190 | 367 | 70 | 28 | 60 | 8 | 31 | 28 | 60 | 8 | 31 | 112 | 12 | 221 | 255 | 202 | 452 | 574 | 642 | 10 |
| 1GDC-112/2-3 | | 407 | | | | | | | | | | | | | | | | 614 | 682 | |
| 1GDC-112/2-4 | | 477 | | | | | | | | | | | | | | | | 684 | 752 | |
| 1GDC-112/4-1 | | 347 | | | | | | | | | | | | | | | | 573 | 642 | |
| 1GDC-112/4-2 | 190 | 387 | 70 | 32 | 80 | 10 | 35 | 32 | 80 | 10 | 35 | 112 | 12 | 221 | 255 | 202 | 452 | 613 | 682 | 10 |
| 1GDC-112/4-3 | | 437 | | | | | | | | | | | | | | | | 663 | 732 | |
| 1GDC-112/4-4 | | 497 | | | | | | | | | | | | | | | | 723 | 792 | |
| 1GDC-132-1 | | 355 | | | | | | | | | | | | | | | | 619 | 814 | |
| 1GDC-132-2 | 216 | 405 | 89 | 38 | 80 | 10 | 41 | 38 | 80 | 10 | 41 | 132 | 12 | 260 | 295 | 240 | 527 | 669 | 964 | 12 |
| 1GDC-132-3 | | 465 | | | | | | | | | | | | | | | | 729 | 924 | |
| 1GDC-132-4 | | 545 | | | | | | | | | | | | | | | | 809 | 1004 | |
| 1GDC-160-11 | | 411 | | | | | | | | | | | | | | | | 744 | 953 | |
| 1GDC-160-12 | | 476 | | | | | | | | | | | | | | | | 809 | 986 | |
| 1GDC-160-21 | | 451 | | | | | | | | | | | | | | | | 784 | 993 | |
| 1GDC-160-22 | | 516 | | | | | | | | | | | | | | | | 849 | 1026 | |
| 1GDC-160-31 | 254 | 501 | 108 | 48 | 110 | 14 | 51.5 | 48 | 110 | 14 | 51.5 | 160 | 15 | 316 | 346 | 283 | 625 | 834 | 1043 | 14 |
| 1GDC-160-32 | | 566 | | | | | | | | | | | | | | | | 899 | 1076 | |
| 1GDC-160-41 | | 561 | | | | | | | | | | | | | | | | 894 | 1103 | |
| 1GDC-160-42 | | 626 | | | | | | | | | | | | | | | | 959 | 1136 | |
| 1GDC-160-51 | | 631 | | | | | | | | | | | | | | | | 964 | 1173 | |
| 1GDC-160-52 | | 696 | | | | | | | | | | | | | | | | 1029 | 1206 | |
| 1GDC-180-11 | | 436 | | | | | | | | | | | | | | | | 794 | 1022 | |
| 1GDC-180-12 | | 501 | | | | | | | | | | | | | | | | 859 | 1087 | |
| 1GDC-180-21 | | 476 | | | | | | | | | | | | | | | | 834 | 1062 | |
| 1GDC-180-22 | | 541 | | | | | | | | | | | | | | | | 899 | 1127 | |
| 1GDC-180-31 | 279 | 526 | 121 | 55 | 110 | 16 | 59 | 55 | 110 | 16 | 59 | 180 | 15 | 356 | 390 | 305 | 731 | 884 | 1112 | 16 |
| 1GDC-180-32 | | 591 | | | | | | | | | | | | | | | | 949 | 1177 | |
| 1GDC-180-41 | | 586 | | | | | | | | | | | | | | | | 944 | 1172 | |
| 1GDC-180-42 | | 651 | | | | | | | | | | | | | | | | 1009 | 1237 | |
| 1GDC-180-51 | | 656 | | | | | | | | | | | | | | | | 1014 | 1242 | |



Mounting and outline dimensions

| Type | Mounting dimensions | | | | | | | | | | | | | | Outline dimensions | | | | | |
|--------------|---------------------|------|-----|-----|-----|----|------|----|-----|----|------|-----|----|-----|--------------------|-----|------|------|------|----|
| | A | B | C | D | E | F | GA | DA | EA | FA | GC | H | K | AB | AC | AD | HD | L | L1 | h1 |
| 1GDC-200-11 | | 566 | | | | | | | | | | | | | | | | 977 | 1158 | |
| 1GDC-200-12 | | 614 | | | | | | | | | | | | | | | | 1025 | 1206 | |
| 1GDC-200-21 | | 606 | | | | | | | | | | | | | | | | 1017 | 1198 | |
| 1GDC-200-22 | 318 | 654 | 133 | 65 | 140 | 18 | 69 | 65 | 140 | 18 | 69 | 200 | 19 | 396 | 430 | 355 | 779 | 1065 | 1246 | 18 |
| 1GDC-200-31 | | 686 | | | | | | | | | | | | | | | | 1099 | 1278 | |
| 1GDC-200-32 | | 734 | | | | | | | | | | | | | | | | 1145 | 1326 | |
| 1GDC-200-41 | | 756 | | | | | | | | | | | | | | | | 1167 | 1348 | |
| 1GDC-200-42 | | 804 | | | | | | | | | | | | | | | | 1215 | 1396 | |
| 1GDC-225-11 | | 701 | | | | | | | | | | | | | | | | 1140 | 1605 | |
| 1GDC-225-12 | | 761 | | | | | | | | | | | | | | | | 1200 | 1665 | |
| 1GDC-225-21 | 356 | 751 | 149 | 75 | 140 | 20 | 79.5 | 75 | 140 | 20 | 79.5 | 225 | 19 | 440 | 474 | 398 | 981 | 1190 | 1655 | 20 |
| 1GDC-225-22 | | 811 | | | | | | | | | | | | | | | | 1250 | 1715 | |
| 1GDC-225-31 | | 811 | | | | | | | | | | | | | | | | 1250 | 1715 | |
| 1GDC-225-32 | | 871 | | | | | | | | | | | | | | | | 1310 | 1775 | |
| 1GDC-250-11 | | 715 | | | | | | | | | | | | | | | | 1225 | 1657 | |
| 1GDC-250-12 | | 775 | | | | | | | | | | | | | | | | 1285 | 1717 | |
| 1GDC-250-21 | | 765 | | | | | | | | | | | | | | | | 1275 | 1707 | |
| 1GDC-250-22 | 406 | 825 | 168 | 85 | 170 | 22 | 90 | 75 | 140 | 20 | 79.5 | 250 | 24 | 490 | 524 | 432 | 1031 | 1335 | 1767 | 25 |
| 1GDC-250-31 | | 825 | | | | | | | | | | | | | | | | 1335 | 1767 | |
| 1GDC-250-32 | | 885 | | | | | | | | | | | | | | | | 1395 | 1827 | |
| 1GDC-250-41 | | 895 | | | | | | | | | | | | | | | | 1405 | 1837 | |
| 1GDC-250-42 | | 955 | | | | | | | | | | | | | | | | 1465 | 1897 | |
| 1GDC-280-11 | | 762 | | | | | | | | | | | | | | | | 1375 | 1748 | |
| 1GDC-280-12 | | 852 | | | | | | | | | | | | | | | | 1405 | 1838 | |
| 1GDC-280-21 | | 822 | | | | | | | | | | | | | | | | 1375 | 1803 | |
| 1GDC-280-22 | | 912 | | | | | | | | | | | | | | | | 1465 | 1898 | |
| 1GDC-280-31 | 457 | 892 | 190 | 95 | 170 | 25 | 100 | 85 | 170 | 22 | 90 | 280 | 24 | 550 | 584 | 462 | 1130 | 1445 | 1878 | 25 |
| 1GDC-280-32 | | 982 | | | | | | | | | | | | | | | | 1535 | 1968 | |
| 1GDC-280-41 | | 972 | | | | | | | | | | | | | | | | 1525 | 1958 | |
| 1GDC-280-42 | | 1062 | | | | | | | | | | | | | | | | 1615 | 2048 | |
| 1GDC-280-51 | | 1062 | | | | | | | | | | | | | | | | 1615 | 2048 | |
| 1GDC-280-52 | | 1152 | | | | | | | | | | | | | | | | 1705 | 2138 | |
| 1GDC-315-091 | | 817 | | | | | | | | | | | | | | | | 1462 | 1827 | |
| 1GDC-315-092 | | 907 | | | | | | | | | | | | | | | | 1552 | 1917 | |
| 1GDC-315-11 | | 887 | | | | | | | | | | | | | | | | 1532 | 1897 | |
| 1GDC-315-12 | | 977 | | | | | | | | | | | | | | | | 1622 | 1987 | |
| 1GDC-315-21 | 508 | 967 | 216 | 100 | 210 | 28 | 106 | 95 | 170 | 25 | 100 | 315 | 28 | 620 | 654 | 497 | 1221 | 1612 | 1977 | 30 |
| 1GDC-315-22 | | 1057 | | | | | | | | | | | | | | | | 1702 | 2067 | |
| 1GDC-315-31 | | 1057 | | | | | | | | | | | | | | | | 1702 | 2067 | |
| 1GDC-315-32 | | 1147 | | | | | | | | | | | | | | | | 1792 | 2157 | |
| 1GDC-315-41 | | 1157 | | | | | | | | | | | | | | | | 1802 | 2067 | |
| 1GDC-315-42 | | 1247 | | | | | | | | | | | | | | | | 1892 | 2257 | |

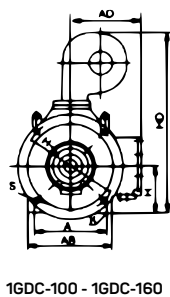
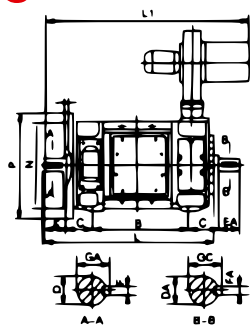


Mounting and outline dimensions

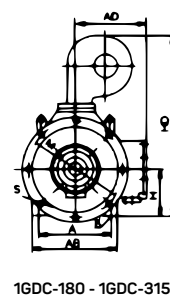
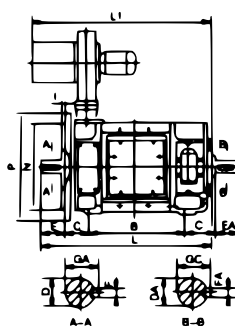
| Type | Mounting dimensions | | | | | | | | | | | | | | | Outline dimensions | | | | |
|--------------|---------------------|------|-----|-------|-----|----|-----|-----|-----|----|-----|-----|----|-----|-----|--------------------|------|------|------|----|
| | A | B | C | D | E | F | GA | DA | EA | FA | GC | H | K | AB | AC | AD | HD | L | L1 | h1 |
| 1GDC-355-081 | | 818 | | | | | | | | | | | | | | | | 1539 | 1860 | |
| 1GDC-355-082 | | 908 | | | | | | | | | | | | | | | | 1629 | 1956 | |
| 1GDC-355-091 | | 888 | | | | | | | | | | | | | | | | 1069 | 1930 | |
| 1GDC-355-092 | | 978 | | | | | | | | | | | | | | | | 1699 | 2020 | |
| 1GDC-355-11 | | 968 | | | | | | | | | | | | | | | | 1689 | 2010 | |
| 1GDC-355-12 | 610 | 1058 | 254 | 110 | 210 | 28 | 116 | 110 | 210 | 28 | 116 | 355 | 28 | 700 | 734 | 701 | 1301 | 1779 | 2100 | 30 |
| 1GDC-355-21 | | 1058 | | | | | | | | | | | | | | | | 1779 | 2100 | |
| 1GDC-355-22 | | 1148 | | | | | | | | | | | | | | | | 1869 | 2190 | |
| 1GDC-355-31 | | 1158 | | | | | | | | | | | | | | | | 1879 | 2200 | |
| 1GDC-355-32 | | 1248 | | | | | | | | | | | | | | | | 1969 | 2290 | |
| 1GDC-355-41 | | 1268 | | | | | | | | | | | | | | | | 1989 | 2310 | |
| 1GDC-355-42 | | 1358 | | | | | | | | | | | | | | | | 2079 | 2400 | |
| 1GDC-400-11 | | 959 | | | | | | | | | | | | | | | | 1732 | 1817 | |
| 1GDC-400-12 | | 1079 | | | | | | | | | | | | | | | | 1852 | 1937 | |
| 1GDC-400-21 | | 1039 | | | | | | | | | | | | | | | | 1812 | 1897 | |
| 1GDC-400-22 | 686 | 1159 | 280 | 120 | 210 | 32 | 127 | 120 | 210 | 32 | 127 | 400 | 35 | 790 | 830 | 750 | 1620 | 1932 | 2017 | 35 |
| 1GDC-400-31 | | 1129 | | | | | | | | | | | | | | | | 1902 | 1987 | |
| 1GDC-400-32 | | 1249 | | | | | | | | | | | | | | | | 2022 | 2107 | |
| 1GDC-400-41 | | 1229 | | | | | | | | | | | | | | | | 2002 | 2087 | |
| 1GDC-400-42 | | 1349 | | | | | | | | | | | | | | | | 2122 | 2207 | |
| 1GDC-450-11 | | 1061 | | | | | | | | | | | | | | | | 1944 | 2050 | |
| 1GDC-450-12 | | 1181 | | | | | | | | | | | | | | | | 2064 | 2070 | |
| 1GDC-450-21 | | 1151 | | 140 | 250 | 36 | 148 | | | | | | | | | | | 2034 | 2140 | |
| 1GDC-450-22 | | 1271 | | | | | | | | | | | | | | | | 2154 | 2260 | |
| 1GDC-450-31 | 800 | 1251 | 315 | _____ | | | | 140 | 250 | 36 | 148 | 450 | 35 | 890 | 924 | 800 | 1720 | 2134 | 2240 | 40 |
| 1GDC-450-32 | | 1371 | | | | | | | | | | | | | | | | 2254 | 2360 | |
| 1GDC-450-41 | | 1361 | | | | | | | | | | | | | | | | 2294 | 2350 | |
| 1GDC-450-42 | | 1481 | | 160 | 300 | 40 | 169 | | | | | | | | | | | 2414 | 2470 | |
| 1GDC-450-51 | | 1481 | | | | | | | | | | | | | | | | 2414 | 2470 | |
| 1GDC-450-52 | | 1601 | | | | | | | | | | | | | | | | 2534 | 2590 | |



Mounting and outline dimensions



1GDC-100 - 1GDC-160



1GDC-180 - 1GDC-315

| Type | Mounting dimensions | | | | | | | | | | | | | | | Outline dimensions | | | | | | | | | |
|--------------|---------------------|-----|-----|----|-----|----|------|----|-----|----|------|-----|----|-----|-----|--------------------|-------|---|-----|-----|-----|-----|-----|------|------|
| | A | B | C | D | E | F | GA | DA | EA | FA | GC | H | K | M | N | S | Holes | T | P | AB | AC | AD | HD | L | L1 |
| 1GDC-100-1 | 160 | 318 | 63 | 24 | 50 | 8 | 27 | 24 | 50 | 8 | 27 | 100 | 12 | 215 | 180 | 15 | 4 | 4 | 250 | 197 | 234 | 179 | 398 | 500 | 580 |
| 1GDC-100-2 | | 358 | | | | | | | | | | | | | | | | | | | | | | 540 | 620 |
| 1GDC-112/2-1 | | 337 | | | | | | | | | | | | | | | | | | | | | | 544 | 612 |
| 1GDC-112/2-2 | 190 | 367 | 70 | 28 | 60 | 8 | 31 | 28 | 60 | 8 | 31 | 112 | 12 | 215 | 180 | 15 | 4 | 4 | 250 | 221 | 255 | 202 | 452 | 574 | 642 |
| 1GDC-112/2-3 | | 407 | | | | | | | | | | | | | | | | | | | | | | 614 | 682 |
| 1GDC-112/2-4 | | 477 | | | | | | | | | | | | | | | | | | | | | | 684 | 752 |
| 1GDC-112/4-1 | | 347 | | | | | | | | | | | | | | | | | | | | | | 573 | 942 |
| 1GDC-112/4-2 | 190 | 387 | 70 | 32 | 80 | 10 | 35 | 32 | 80 | 10 | 35 | 112 | 12 | 215 | 180 | 15 | 4 | 4 | 250 | 221 | 255 | 202 | 452 | 613 | 682 |
| 1GDC-112/4-3 | | 437 | | | | | | | | | | | | | | | | | | | | | | 663 | 732 |
| 1GDC-112/4-4 | | 497 | | | | | | | | | | | | | | | | | | | | | | 723 | 792 |
| 1GDC-132-1 | | 355 | | | | | | | | | | | | | | | | | | | | | | 619 | 814 |
| 1GDC-132-2 | 216 | 405 | 89 | 38 | 80 | 10 | 41 | 38 | 80 | 10 | 41 | 132 | 12 | 265 | 230 | 15 | 4 | 4 | 300 | 260 | 295 | 240 | 527 | 669 | 864 |
| 1GDC-132-3 | | 465 | | | | | | | | | | | | | | | | | | | | | | 729 | 924 |
| 1GDC-132-4 | | 545 | | | | | | | | | | | | | | | | | | | | | | 809 | 1004 |
| 1GDC-160-11 | | 411 | | | | | | | | | | | | | | | | | | | | | | 744 | 953 |
| 1GDC-160-12 | | 476 | | | | | | | | | | | | | | | | | | | | | | 809 | 986 |
| 1GDC-160-21 | | 451 | | | | | | | | | | | | | | | | | | | | | | 784 | 993 |
| 1GDC-160-22 | | 516 | | | | | | | | | | | | | | | | | | | | | | 849 | 1026 |
| 1GDC-160-31 | 254 | 501 | 108 | 48 | 110 | 14 | 51.5 | 48 | 110 | 14 | 51.5 | 160 | 15 | 300 | 250 | 19 | 4 | 5 | 350 | 316 | 346 | 283 | 625 | 834 | 1043 |
| 1GDC-160-32 | | 566 | | | | | | | | | | | | | | | | | | | | | | 899 | 1076 |
| 1GDC-160-41 | | 561 | | | | | | | | | | | | | | | | | | | | | | 894 | 1103 |
| 1GDC-160-42 | | 626 | | | | | | | | | | | | | | | | | | | | | | 959 | 1136 |
| 1GDC-160-51 | | 631 | | | | | | | | | | | | | | | | | | | | | | 964 | 1173 |
| 1GDC-160-52 | | 696 | | | | | | | | | | | | | | | | | | | | | | 1029 | 1206 |
| 1GDC-180-11 | | 436 | | | | | | | | | | | | | | | | | | | | | | 794 | 1022 |
| 1GDC-180-12 | | 501 | | | | | | | | | | | | | | | | | | | | | | 859 | 1087 |
| 1GDC-180-21 | | 476 | | | | | | | | | | | | | | | | | | | | | | 834 | 1062 |
| 1GDC-180-22 | | 541 | | | | | | | | | | | | | | | | | | | | | | 899 | 1127 |
| 1GDC-180-31 | 279 | 526 | 121 | 55 | 110 | 16 | 59 | 55 | 110 | 16 | 59 | 180 | 15 | 250 | 300 | 19 | 4 | 5 | 400 | 356 | 390 | 304 | 731 | 884 | 1112 |
| 1GDC-180-32 | | 591 | | | | | | | | | | | | | | | | | | | | | | 949 | 1177 |
| 1GDC-180-41 | | 586 | | | | | | | | | | | | | | | | | | | | | | 944 | 1172 |
| 1GDC-180-42 | | 651 | | | | | | | | | | | | | | | | | | | | | | 1009 | 1237 |
| 1GDC-180-51 | | 656 | | | | | | | | | | | | | | | | | | | | | | 1014 | 1242 |
| 1GDC-180-52 | | 721 | | | | | | | | | | | | | | | | | | | | | | 1079 | 1307 |



Mounting and outline dimensions

| Type | Mounting dimensions | | | | | | | | | | | | | | | | Outline dimensions | | | | | | | | |
|-------------|---------------------|------|-----|-----|-----|----|------|----|-----|----|------|-----|----|-----|-----|----|--------------------|---|-----|-----|-----|-----|------|------|------|
| | A | B | C | D | E | F | GA | DA | EA | FA | GC | H | K | M | N | S | Holes | T | P | AB | AC | AD | HD | L | L1 |
| 1GDC-200-11 | | 566 | | | | | | | | | | | | | | | | | | | | | | 977 | 1158 |
| 1GDC-200-12 | | 614 | | | | | | | | | | | | | | | | | | | | | | 1025 | 1206 |
| 1GDC-200-21 | | 606 | | | | | | | | | | | | | | | | | | | | | | 1017 | 1198 |
| 1GDC-200-22 | 318 | 654 | 133 | 65 | 140 | 18 | 69 | 65 | 140 | 18 | 69 | 200 | 19 | 400 | 350 | 19 | 8 | 5 | 450 | 396 | 430 | 355 | 779 | 1065 | 1246 |
| 1GDC-200-31 | | 686 | | | | | | | | | | | | | | | | | | | | | | 1097 | 1278 |
| 1GDC-200-32 | | 734 | | | | | | | | | | | | | | | | | | | | | | 1145 | 1326 |
| 1GDC-200-41 | | 756 | | | | | | | | | | | | | | | | | | | | | | 1167 | 1348 |
| 1GDC-200-42 | | 804 | | | | | | | | | | | | | | | | | | | | | | 1215 | 1396 |
| 1GDC-225-11 | | 701 | | | | | | | | | | | | | | | | | | | | | | 1140 | 1605 |
| 1GDC-225-12 | | 761 | | | | | | | | | | | | | | | | | | | | | | 1200 | 1665 |
| 1GDC-225-21 | 356 | 751 | 149 | 75 | 140 | 20 | 79.5 | 75 | 140 | 20 | 79.5 | 225 | 19 | 500 | 450 | 19 | 8 | 5 | 550 | 440 | 474 | 398 | 981 | 1190 | 1655 |
| 1GDC-225-22 | | 811 | | | | | | | | | | | | | | | | | | | | | | 1250 | 1715 |
| 1GDC-225-31 | | 811 | | | | | | | | | | | | | | | | | | | | | | 1350 | 1715 |
| 1GDC-225-32 | | 871 | | | | | | | | | | | | | | | | | | | | | | 1310 | 1775 |
| 1GDC-250-11 | | 715 | | | | | | | | | | | | | | | | | | | | | | 1225 | 1657 |
| 1GDC-250-12 | | 775 | | | | | | | | | | | | | | | | | | | | | | 1285 | 1717 |
| 1GDC-250-21 | | 765 | | | | | | | | | | | | | | | | | | | | | | 1275 | 1707 |
| 1GDC-250-22 | 406 | 825 | 168 | 85 | 170 | 22 | 90 | 75 | 140 | 20 | 79.5 | 250 | 24 | 600 | 550 | 24 | 8 | 6 | 660 | 490 | 524 | 432 | 1031 | 1335 | 1767 |
| 1GDC-250-31 | | 825 | | | | | | | | | | | | | | | | | | | | | | 1335 | 1767 |
| 1GDC-250-32 | | 885 | | | | | | | | | | | | | | | | | | | | | | 1395 | 1827 |
| 1GDC-250-41 | | 895 | | | | | | | | | | | | | | | | | | | | | | 1405 | 1837 |
| 1GDC-250-42 | | 955 | | | | | | | | | | | | | | | | | | | | | | 1465 | 1897 |
| 1GDC-280-11 | | 762 | | | | | | | | | | | | | | | | | | | | | | 1375 | 1748 |
| 1GDC-280-12 | | 852 | | | | | | | | | | | | | | | | | | | | | | 1405 | 1838 |
| 1GDC-280-21 | | 822 | | | | | | | | | | | | | | | | | | | | | | 1375 | 1808 |
| 1GDC-280-22 | | 912 | | | | | | | | | | | | | | | | | | | | | | 1465 | 1898 |
| 1GDC-280-31 | 457 | 892 | 190 | 95 | 170 | 25 | 100 | 85 | 170 | 22 | 90 | 280 | 24 | 600 | 550 | 24 | 8 | 6 | 660 | 550 | 584 | 462 | 1130 | 1445 | 1878 |
| 1GDC-280-32 | | 982 | | | | | | | | | | | | | | | | | | | | | | 1535 | 1968 |
| 1GDC-280-41 | | 972 | | | | | | | | | | | | | | | | | | | | | | 1525 | 1958 |
| 1GDC-280-42 | | 1062 | | | | | | | | | | | | | | | | | | | | | | 1615 | 2048 |
| 1GDC-280-51 | | 1062 | | | | | | | | | | | | | | | | | | | | | | 1615 | 2048 |
| 1GDC-280-52 | | 1152 | | | | | | | | | | | | | | | | | | | | | | 1705 | 2138 |
| 1GDC-315-11 | | 887 | | | | | | | | | | | | | | | | | | | | | | 1532 | 1897 |
| 1GDC-315-12 | | 977 | | | | | | | | | | | | | | | | | | | | | | 1622 | 1987 |
| 1GDC-315-21 | | 967 | | | | | | | | | | | | | | | | | | | | | | 1612 | 1977 |
| 1GDC-315-22 | 508 | 1057 | 216 | 100 | 210 | 28 | 106 | 95 | 170 | 25 | 100 | 315 | 28 | 740 | 680 | 24 | 8 | 6 | 800 | 620 | 654 | 497 | 1221 | 1702 | 2067 |
| 1GDC-315-31 | | 1057 | | | | | | | | | | | | | | | | | | | | | | 1702 | 2067 |
| 1GDC-315-32 | | 1147 | | | | | | | | | | | | | | | | | | | | | | 1792 | 2157 |
| 1GDC-315-41 | | 1157 | | | | | | | | | | | | | | | | | | | | | | 1802 | 2067 |
| 1GDC-315-42 | | 1247 | | | | | | | | | | | | | | | | | | | | | | 1892 | 2257 |



Technical data of 1GDC series

| Frame reference and size | Rated power | Rated voltage | Full load speed in revolutions per minute | Speed with field weakened | Arm. current | Field power | Arm. circuit resistance | Arm. circuit resistance | Field inductance | Efficiency | Moment of inertia |
|--------------------------|-------------|---------------|---|---------------------------|--------------|-------------|-------------------------|-------------------------|------------------|---------------|--------------------------------------|
| Type | Power kW | us V | ns r/min | NF r/min | LN A | PF W | R (Ω (20°C)) | LA mH | LF H | η [%] | GD ² kg*m ² |
| 1GDC-250-41B | 65 | 400 | 500 | 2000 | 200 | 3000 | 0.2115 | 2.8 | 7.02 | 80.7 | 7.0 |
| 1GDC-280-21B | 100 | 400 | 600 | 3000 | 306 | 3500 | 0.1156 | 1.1 | 5.15 | 83.7 | 11.2 |
| 1GDC-280-41B | 110 | 440 | 500 | 2000 | 295 | 4000 | 0.0124 | 1.6 | 3.88 | 38.8 | 14.4 |
| 1GDC-315-092 | 375 | 500 | 1750 | 1900 | 800 | 3700 | 0.0149 | 0.31 | 21.2 | 93.2 | 18.4 |
| 1GDC-315-12 | 444 | 460 | 1770 | 1800 | 1023 | 3850 | 0.0099 | 0.17 | 10.6 | 93.7 | 21.2 |
| 1GDC-315-21 | 150 | 500 | 500 | 1700 | 343 | 4350 | 0.0983 | 1.7 | 20.6 | 87 | 24 |
| 1GDC-315-22 | 230 | 220 | 705 | 1700 | 1177 | 4350 | 0.0105 | 0.21 | 1.91 | 88.3 | 24 |
| 1GDC-355-082 | 500 | 460 | 1470 | 1500 | 1157 | 4200 | 0.0101 | 0.17 | 8.56 | 83.2 | 37 |
| 1GDC-355-32 | 520 | 520 | 850 | 900 | 1075 | 6000 | 0.0159 | 0.36 | 7.37 | 92.4 | 52 |
| 1GDC-355-32 | 500 | 660 | 1000 | 1500 | 810 | 6000 | 0.0217 | 0.49 | 5.6 | 92.9 | 52 |
| 1GDC-355-42 | 567 | 520 | 825 | 900 | 1165 | 6500 | 0.0146 | 0.37 | 8.37 | 92.7 | 60 |
| 1GDC-400-12 | 600 | 500 | 1150 | 1600 | 1281 | 5200 | 0.0098 | 0.17 | 16.1 | 93.1 | 66 |
| 1GDC-400-22 | 400 | 520 | 660 | 1300 | 845 | 6000 | 0.0295 | 0.63 | 7.1 | 91.4 | 74 |
| 1GDC-400-32 | 618 | 550 | 850 | 900 | 1200 | 6400 | 0.0128 | 0.33 | 18.2 | 93 | 84 |
| 1GDC-400-42 | 400 | 520 | 500 | 1200 | 840 | 7100 | 0.026 | 0.77 | 10.4 | 92 | 94 |
| 1GDC-400-42 | 500 | 660 | 600 | 1200 | 824 | 7100 | 0.0344 | 0.89 | 7.73 | 91.1 | 94 |
| 1GDC-400-42 | 700 | 520 | 800 | 900 | 1445 | 7100 | 0.0115 | 0.29 | 14.8 | 92.4 | 94 |
| 1GDC-450-12 | 600 | 660 | 750 | 1000 | 980 | 5100 | 0.020 | 0.55 | 9.44 | 92.5 | 122 |
| 1GDC-450-21 | 326 | 660 | 500 | 1500 | 545 | 6500 | 0.0517 | 1.1 | 14.9 | 91.2 | 138 |
| 1GDC-450-22 | 400 | 520 | 400 | 900 | 860 | 6500 | 0.038 | 0.98 | 15 | 90 | 138 |
| 1GDC-450-22 | 500 | 520 | 500 | 1000 | 1000 | 6500 | 0.023 | 0.64 | 11.7 | 91.2 | 138 |
| 1GDC-450-22 | 600 | 520 | 600 | 1200 | 1250 | 6500 | 0.016 | 0.42 | 12 | 92.7 | 138 |
| 1GDC-450-22 | 700 | 600 | 750 | 1000 | 1240 | 6500 | 0.0133 | 0.38 | 8.75 | 93 | 138 |
| 1GDC-450-32 | 480 | 520 | 400 | 900 | 1030 | 7500 | 0.0305 | 0.77 | 10.6 | 90.1 | 156 |
| 1GDC-450-32 | 600 | 520 | 500 | 1000 | 1255 | 7500 | 0.0177 | 0.55 | 5.19 | 92 | 156 |
| 1GDC-450-32 | 700 | 520 | 600 | 1000 | 1460 | 7500 | 0.0134 | 0.33 | 8.22 | 92.3 | 156 |
| 1GDC-450-42 | 570 | 520 | 400 | 900 | 1220 | 7800 | 0.022 | 0.51 | 4.5 | 90.1 | 174 |
| 1GDC-450-42 | 700 | 520 | 500 | 1000 | 1450 | 7800 | 0.0142 | 0.44 | 7.6 | 92 | 174 |
| 1GDC-450-42 | 750 | 660 | 600 | 900 | 1215 | 7800 | 0.0181 | 0.58 | 9.37 | 92.5 | 174 |
| 1GDC-450-51 | 800 | 660 | 500 | 1000 | 1310 | 8600 | 0.0202 | 0.66 | 6.99 | 92 | 196 |





Address

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Radlinského 18 | e-mail: mv@vyboelectric.eu
052 01 Spišská Nová Ves
Slovenská republika

www.vyboelectric.com



SOLUTIONS FOR INDUSTRY

BUREAU VERITAS
Certification



VYBO Electric a.s.
Radlinského 18, 052 01 Spišská Nová Ves
Slovak Republic

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

ISO 14001: 2015

Scope of certification

MANUFACTURE AND SALE OF ELECTRIC MOTORS, SALES AND DEVELOPMENT OF VARIABLE FREQUENCY DRIVES.

Original cycle start date: 18.05.2022
Expiry date of previous cycle: N/A
Certification Audit date: 31.03.2022
Certification cycle start date: 18.05.2022

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: 17.05.2025

Certificate No. SK-U22 055E Version: 1 Issue date: 18.05.2022

Certification body address: 5th Floor, 86 Prescott Street, London E1 8HG, United Kingdom
Local office: Plynárska 7/B, BRATISLAVA 821 09, Slovak Republic



Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation. To check this certificate validity please call: +421 2 2341 4165

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Bureau Veritas Certification

Certificate

Awarded to

VYBO Electric a.s.
Radlinského 18, 052 01 Spišská Nová Ves
Slovak Republic

BUREAU VERITAS CERTIFICATION (Z) s.r.o. certifies that the Management System of the above organisation has been assessed and found to be in accordance with the requirements of the management system standard detailed below

Standard

ISO 45001:2018

Scope of supply

MANUFACTURE AND SALE OF ELECTRIC MOTORS, SALES AND DEVELOPMENT OF VARIABLE FREQUENCY DRIVES.

Original Approval Date: 18-05-2022
Expiry date of previous cycle: N/A
Certification Cycle Start Date: 18-05-2022
Certification Cycle End Date: 17-05-2025
Subject to the continued satisfactory operation of the organisation's Management System, this certificate is valid until: 17-05-2025

To check this certificate validity please call: +420 210 090 215

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation.

Version 1 Issue Date: 18-05-2022
Certificate Number: CZF - 2206117

ISSUING OFFICE ADDRESS: BUREAU VERITAS CERTIFICATION CZ, s.r.o., Obchodní 1, 143 02 Praha 4, Czech Republic

1/1

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ CERTIFICADO ◆ CERTIFICAT



CERTIFICATE

TÜV SÜD Slovakia s.r.o.
Certification Body for Management Systems
Accredited by SNAS
Certificate on accreditation No. Q-011
certifies that



VYBO Electric a.s.
Radlinského 18
SK – 052 01 Spišská Nová Ves
ICO: 45 537 143

has established and applies
a Quality Management System for

**Manufacture and sale of electric motors.
Sales and development of variable frequency drives.**

An audit was performed, Report No. 2264/40/22/Q/AS/C
Proof has been furnished that the requirements
according to

STN EN ISO 9001:2016

are fulfilled. The certificate is valid from 2022-04-14 until 2025-04-13
Certificate Registration No. Q 2264-1

Bratislava, 2022-04-14

TÜV SÜD Slovakia s.r.o.
Certification Body for Management Systems
Member of Group TÜV SÜD
Jaskovka 6, 821 03 Bratislava

F-Q-019/26

Certificate SK22/3701

The management system of

VYBO Electric a.s.
Radlinského 18
052 01 Spišská Nová Ves, Slovakia

has been assessed and certified as meeting the requirements of

EN ISO 50001:2018

For the following activities

**Production & sales of electric motors.
Sales & development of variable frequency drives.**

Further clarifications regarding the scope of this certificate and the applicability of EN ISO 50001:2018 requirements may be obtained by consulting the organisation.

This certificate is valid from 7 April 2022 until 6 April 2025
and remains valid subject to satisfactory surveillance audits.
Recertification audit due a minimum of 60 days
before the expiration date.
Issue 1. Certified with SGS since 7 April 2022

Authorised by

Ing. Róbert Bodnár
Director
SGS Slovakia spol. s r. o.
Kýzucká 14, 040 11 Košice, Slovakia
t +421 55 783 61 11, f +421 55 783 61 20, www.sgs.com

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