



# hydrovar® X Smart Motor

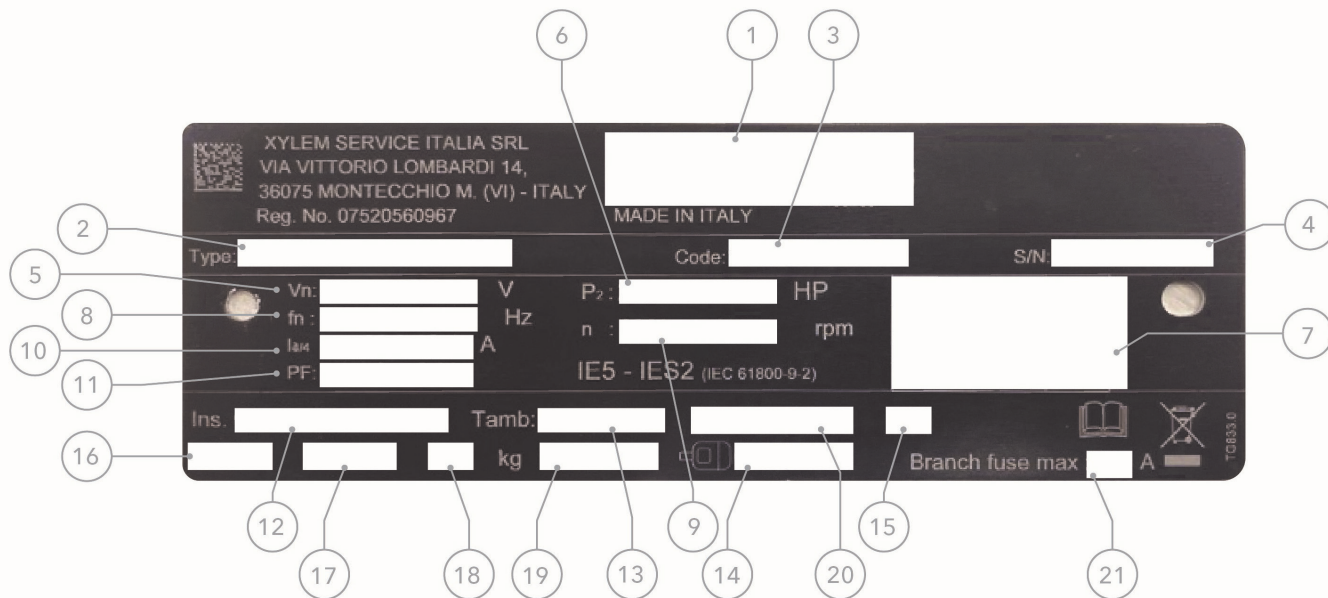
## Specifications

### **EXM143-145/4.055BH2**

5.5 HP, 1200-4000 RPM, 3PH, 60HZ, 380-480V

143-145 Frame, TEFC

## hydrovar X Nameplate Legend



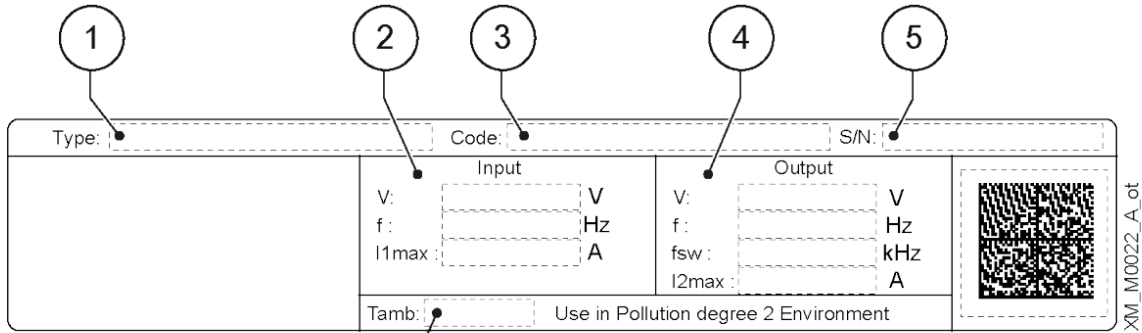
- |   |  |
|---|--|
| 1. Certification markings (CE, UKCA, UL Recognized)                     | 11. Power factor                         |
| 2. Motor type   | 12. Insulation class                     |
| 3. Motor code   | 13. Ambient operating temperature        |
| 4. Unique motor serial number   | 14. Non-drive end bearing                |
| 5. Voltage range  | 15. Service factor                       |
| 6. Output power (kW / HP)   | 16. IP environmental protection rating   |
| 7. Full load rated PDS efficiency (motor and drive combined efficiency) | 17. NEMA environmental protection rating |
| 8. Frequency compatibility  | 18. Weight                               |
| 9. Full load rated speed  | 19. Drive end bearing                    |
| 10. Full load rated current range                                       | 20. Duty cycle rating                    |
|   | 21. Circuit protection requirement       |

## hydrovar X Nameplate Information (representative example)\*

| XYLEM SERVICE ITALIA SRL<br>VIA VITTORIO LOMBARDI 14,<br>36075 MONTECCHIO M. (VI) - ITALY<br>Reg. No. 07520560967 |                               | <b>CE UK<br/>CA CA</b><br>MADE IN ITALY   | S/N:    |               |     |          |      |          |      |          |      |
|---|-------------------------------|---|---------|---------------|-----|----------|------|----------|------|----------|------|
| Type: EXM143-145/4.055BH2   | Code:                         |   |         |               |     |          |      |          |      |          |      |
| Vn: 3~ 380-480 V  | P <sub>2</sub> : 4 kW/ 5.5 HP | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>PDS Eff. 460V</th> <th>4/4</th> </tr> </thead> <tbody> <tr> <td>3000 rpm</td> <td>87.3</td> </tr> <tr> <td>3600 rpm</td> <td>89.1</td> </tr> <tr> <td>4000 rpm</td> <td>89.1</td> </tr> </tbody> </table> |         | PDS Eff. 460V | 4/4 | 3000 rpm | 87.3 | 3600 rpm | 89.1 | 4000 rpm | 89.1 |
| PDS Eff. 460V   | 4/4                           |   |         |               |     |          |      |          |      |          |      |
| 3000 rpm  | 87.3                          |   |         |               |     |          |      |          |      |          |      |
| 3600 rpm  | 89.1                          |   |         |               |     |          |      |          |      |          |      |
| 4000 rpm  | 89.1                          |   |         |               |     |          |      |          |      |          |      |
| fn: 50/60 Hz  | n: 3000 - 4000 rpm            |   |         |               |     |          |      |          |      |          |      |
| I <sub>4/4</sub> : 7.7-.6.6 A   |                               |   |         |               |     |          |      |          |      |          |      |
| PF: 0.86  | IE5 - IES2 (IEC 61800-9-2)    |   |         |               |     |          |      |          |      |          |      |
| Ins. Cl. 155 (F) DV155-J  | Tamb: -20 - 50°C              | S1 - Continuous   | SF1     |               |     |          |      |          |      |          |      |
| IP 55   | ENC.4                         | kg 6306-ZZ  | 6305-ZZ |               |     |          |      |          |      |          |      |
|   |                               | Branch fuse max :0 A  |         |               |     |          |      |          |      |          |      |


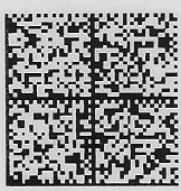
\*This is a representative example of the actual data that will be displayed on the Nameplate for the motor combination featured in this document.

### hydrovar X Data Plate Legend



1. Model
2. Input operating limits
3. Identification code
4. Output operating limits
5. Serial number
6. Room temperature range

### hydrovar X Data Plate Information (representative) image\*

|  |              |                 |               |                                       |   |
|--|--------------|-----------------|---------------|---------------------------------------|---|
| Type: 10534394-0005  |              | Code: 130141051 |               | S/N: 93748WIJ0000K                    |   |
| XYLEM SERVICE ITALIA SRL<br>VIA VITTORIO LOMBARDI 14,<br>36075 MONTECCHIO M. (VI) - ITALY<br>Reg. No. 07520560967<br>MADE IN GERMANY  US<br>E529771 | <b>Input</b> |                 | <b>Output</b> |                                       |  |
|  | V:           | 3 ~ 200 – 480   | V             | V:                                    |   |
| f:   | 50 / 60      | Hz              | f:            | 0 ÷ 133                               | Hz  |
| I1max:   | 13           | A               | fsw:          | 2 ÷ 16                                | kHz   |
|  |              |                 | I2max:        | 12                                    | A   |
| Tamb:  |              | -20 ÷ 50°C      |               | Use in Pollution degree 2 Environment |   |

\*Data Plate contains values for the motor combinations specified in this document.

**Motor Type: EXM143-145/4.055BH2**

| NEMA Frame         | Part Number | Weight lbs (kg) |
|--------------------|-------------|-----------------|
| 143-145T           | 130635213   | 47 (21)         |
| 143-145TC          | 130635253   | 47 (21)         |
| 143-145JM          | 130635293   | 48 (22)         |
| 143-145JM (footed) | 130637813   | 48 (22)         |

**Combined Motor and Drive Specifications**

| Description                        | Value               |      |  |  |
|------------------------------------|---------------------|------|--|--|
| <b>Motor HP</b>                    | 5.5                 |      |  |  |
| <b>Enclosure</b>                   | TEFC                |      |  |  |
| <b>Frame Material</b>              | Cast Iron/Aluminum  |      |  |  |
| <b>Nominal Voltage @ Frequency</b> | 460V @ 60Hz         |      |  |  |
| <b>XP Class</b>                    | None                |      |  |  |
| <b>XP Division</b>                 | Not Applicable      |      |  |  |
| <b>Agency Approvals</b>            | UL                  | CE   |  |  |
|                                    | FCC                 | UKCA |  |  |
| <b>Insulation Class</b>            | F                   |      |  |  |
| <b>Bearing Grease Type</b>         | Polymer 400         |      |  |  |
| <b>Lifting Lugs</b>                | Standard            |      |  |  |
| <b>Voltage</b>                     | 380-480 V (+/- 10%) |      |  |  |
| <b>Phase</b>                       | 3                   |      |  |  |
| <b>Input Current (380-480V)</b>    | 7.7-.6.6 A          |      |  |  |
| <b>Power Factor</b>                | 0.86                |      |  |  |
| <b>Enclosure Rating</b>            | IP55                |      |  |  |
|                                    | NEMA4               |      |  |  |
| <b>Tamb</b>                        | -4 to +122° F       |      |  |  |
|                                    | -20 to +50° C       |      |  |  |
| <b>DE Bearing</b>                  | 6306-ZZ             |      |  |  |
| <b>ODE Bearing</b>                 | 6305-ZZ             |      |  |  |
| <b>Duty Cycle</b>                  | S1                  |      |  |  |

**Combined Motor and Drive Performance (Nominal Voltage)<sup>1</sup>**

| Rated Speed | Torque (lb.ft) | Efficiency 100% | Efficiency 75% | Efficiency 50% | Sound Pressure dB(A) <sup>2</sup> |
|-------------|----------------|-----------------|----------------|----------------|-----------------------------------|
| 4000 RPM    | 7.04           | 89.1            | 88.5           | 86.8           | 70                                |
| 3600 RPM    | 7.83           | 89.1            | 88.8           | 87.3           | 64                                |
| 3000 RPM    | 9.39           | 87.3            | 87.7           | 87.5           | 61                                |

<sup>1</sup>Motor may operate below 3000 RPM at partial load. Efficiency represents PDS (power-drive-system) efficiency.

<sup>2</sup>Sound power measured at 1m distance in no-load condition according to ISO 9614-2 and sound pressure values determined according to the ISO 11203 method. Sound pressure tolerance is +/- 2 dB for all voltages.

**Drive Features and Specifications**

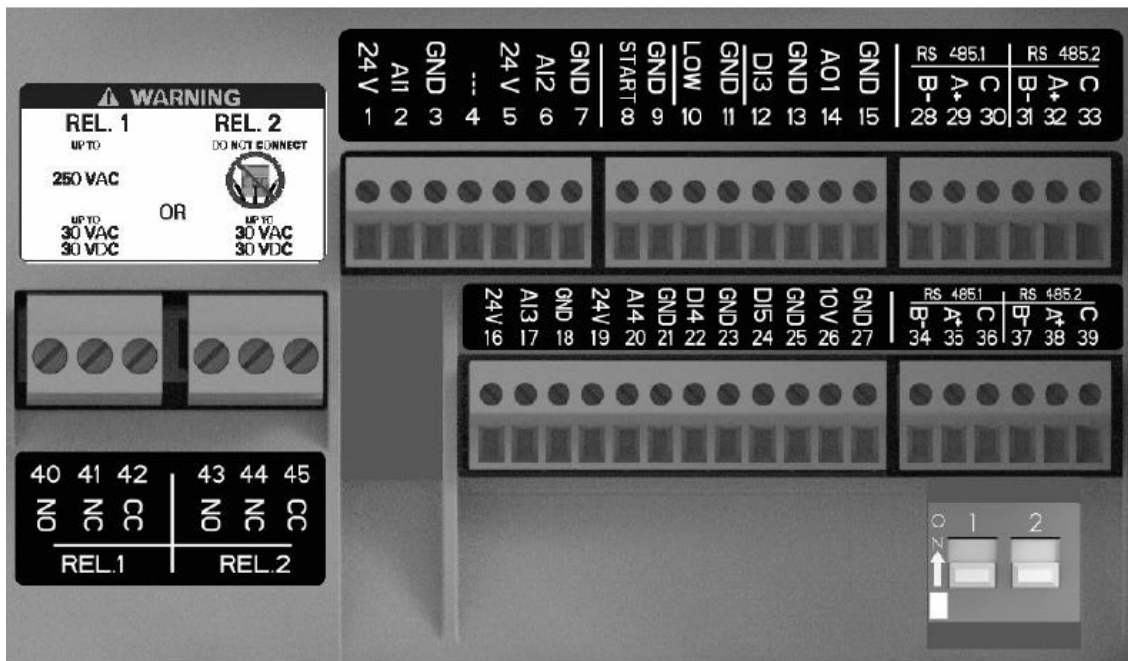
| Description                        | Value  |
|------------------------------------|--|
| <b>Display</b>                     | Graphic color display  |
| <b>Communication Protocols</b>     | MODBUS® RTU<br>BACnet MS/TP  |
| <b>Mobile App</b>                  | Bluetooth®   |
| <b>Control Modes</b>               | Actuator, Constant pressure, Proportional pressure, Proportional quadratic pressure, Constant flow, Constant temperature, Constant level |
| <b>RS485 Ports</b>                 | 2  |
| <b>Analog Inputs</b>               | 4  |
| <b>Analog Input Configuration</b>  | 0-20 mA / 4-20 mA / 0-10V / 2-10V  |
| <b>Digital Inputs*</b>             | 5  |
| <b>Analog Outputs</b>              | 1  |
| <b>Analog Output Configuration</b> | 0-20 mA / 4-20 mA / 0-10V / 2-10V  |
| <b>Relay Output (Form C)*</b>      | 2  |
| <b>10V Supply</b>                  | 1  |
| <b>Leakage Current</b>             | < 3.5 mA   |
| <b>Storage Temperature</b>         | -40 to +158° F<br>-40 to +70° C  |
| <b>Altitude (without derating)</b> | 0 to 3281 ft [0-1000 m]  |
| <b>Humidity</b>                    | Max 95% non-condensing   |

\* See Auxiliary Connections data on the next page for more detail.

**hydrovar X with Feet**



Auxiliary Connections



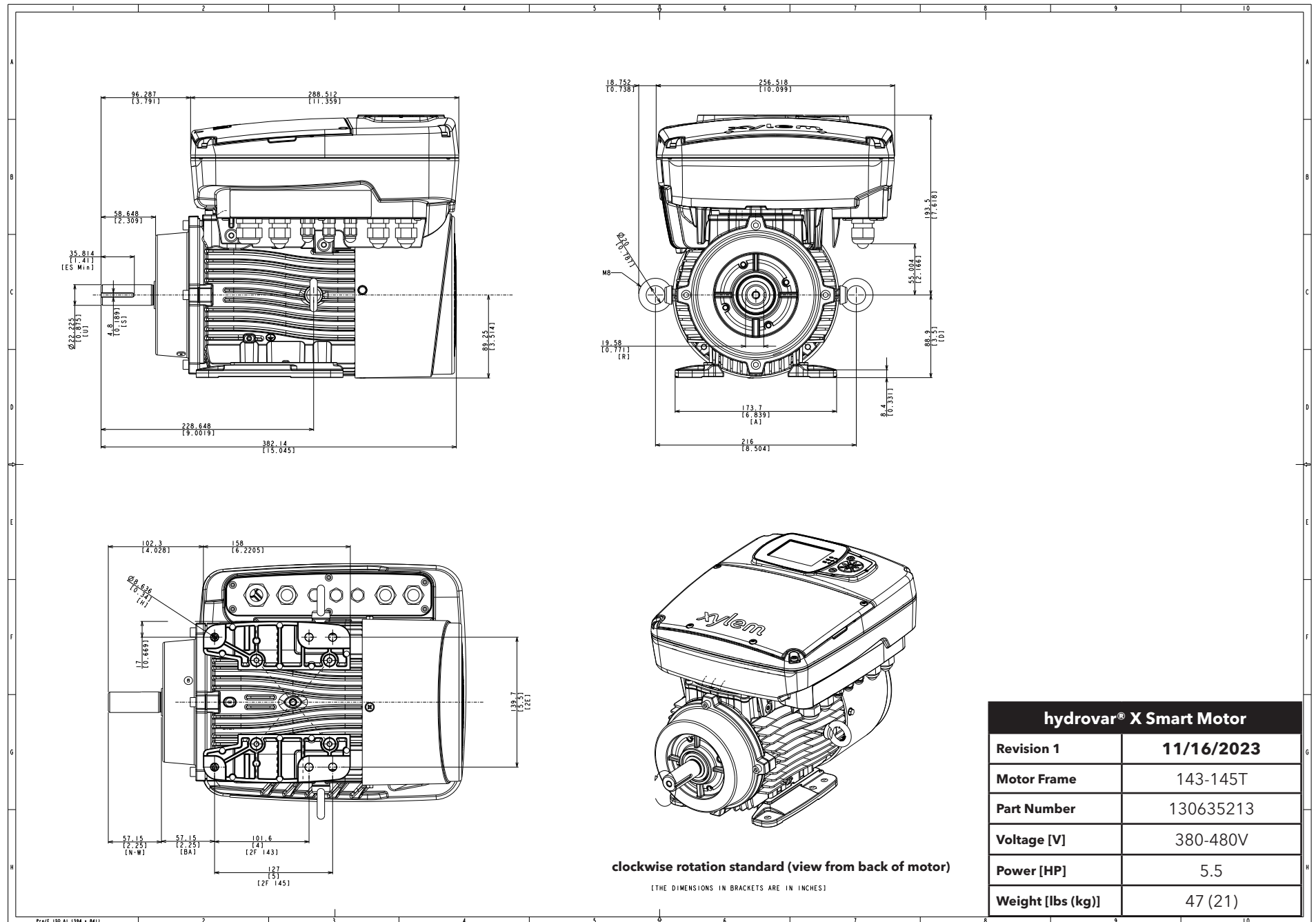
XM\_M0020\_A\_ph

| Position number | Name                   | Description   | Default setting                  |
|-----------------|------------------------|---|----------------------------------|
| 1               | Analog input 1         | Power supply +24 VDC, max. 60 mA (total, terminals 1 + 5)                     | Pressure sensor 1                |
| 2               |                        | Configurable Analog input 1   |                                  |
| 3               |                        | Electronic GND  |                                  |
| 4               | Reserved               | For internal use, do not connect  | -                                |
| 5               | Analog input 2         | Power supply +24 VDC, max. 60 mA (total, terminals 1 + 5)                     | Not selected                     |
| 6               |                        | Configurable Analog input 2   |                                  |
| 7               |                        | Electronic GND  |                                  |
| 8               | External start/stop    | Digital start/stop input, internal pull-up +24 VDC, contact current 6 mA      | -                                |
| 9               |                        | Electronic GND  |                                  |
| 10              | External lack of water | Low water level digital input, internal pull-up +24 VDC, contact current 6 mA | -                                |
| 11              |                        | Electronic GND  |                                  |
| 12              | Digital Input 3        | Configurable digital input 3, internal pull-up +24 VDC, contact current 6 mA  | Emergency start at maximum speed |
| 13              |                        | Electronic GND  |                                  |
| 14              | Analog output          | Configurable Analog output  | Motor Speed                      |
| 15              |                        | Electronic GND  |                                  |
| 16              | Analog input 3         | Power supply +24 VDC, max. 60 mA (total, terminals 16 and 19)                 | Not selected                     |
| 17              |                        | Configurable Analog input 3   |                                  |
| 18              |                        | Electronic GND  |                                  |

**Auxiliary Connections (Continued)**

| Position number | Name                | Description  | Default Setting |
|-----------------|---------------------|--|-----------------|
| 19              | Analog input 4      | Power supply +24 VDC, max. 60 mA (total, terminals 16 and 19)                | Not selected    |
| 20              |                     | Configurable Analog input 4  |                 |
| 21              |                     | Electronic GND   |                 |
| 22              | Digital input 4     | Configurable digital input 4, internal pull -up +24 VDC, contact current 6mA | Not selected    |
| 23              |                     | Electronic GND   |                 |
| 24              | Digital input 5     | Configurable digital input 4, internal pull -up +24 VDC, contact current 6mA | Not selected    |
| 25              |                     | Electronic GND   |                 |
| 26              | 10 VDC power supply | Power supply +10 VDC, max. 3 mA  | -               |
| 27              |                     | Electronic GND   |                 |
| 28              | Communication Bus 1 | RS485 port 1: RS485-1B N (-)   | Multipump       |
| 29              |                     | RS485 port 1: RS485-1A P (+)   |                 |
| 30              |                     | RS485 port 1: RS485-COM  |                 |
| 31              | Communication Bus 2 | RS485 port 2: RS485-2B (-)   | MODBUS          |
| 32              |                     | RS485 port 2: RS485-2A P (+)   |                 |
| 33              |                     | RS485 port 2: RS485-COM  |                 |
| 34              | Communication Bus 1 | RS485 port 1: RS485-1B N (-)   | Multipump       |
| 35              |                     | RS485 port 1: RS485-1A P (+)   |                 |
| 36              |                     | RS485 port 1: RS485-COM  |                 |
| 37              | Communication Bus 2 | RS485 port 2: RS485-2B N (-)   | MODBUS          |
| 38              |                     | RS485 port 2: RS485-2A P (+)   |                 |
| 39              |                     | RS485 port 2: RS485-COM  |                 |
| 40              | Relay 1             | Configurable relay 1: normally open  | Error Reporting |
| 41              |                     | Configurable relay 1: normally closed  |                 |
| 42              |                     | Configurable relay 1: normally contact                                       |                 |
| 43              | Relay 2             | Configurable relay 2: normally open  | Motor start     |
| 44              |                     | Configurable relay 2: normally closed  |                 |
| 45              |                     | Configurable relay 2: normally contact                                       |                 |

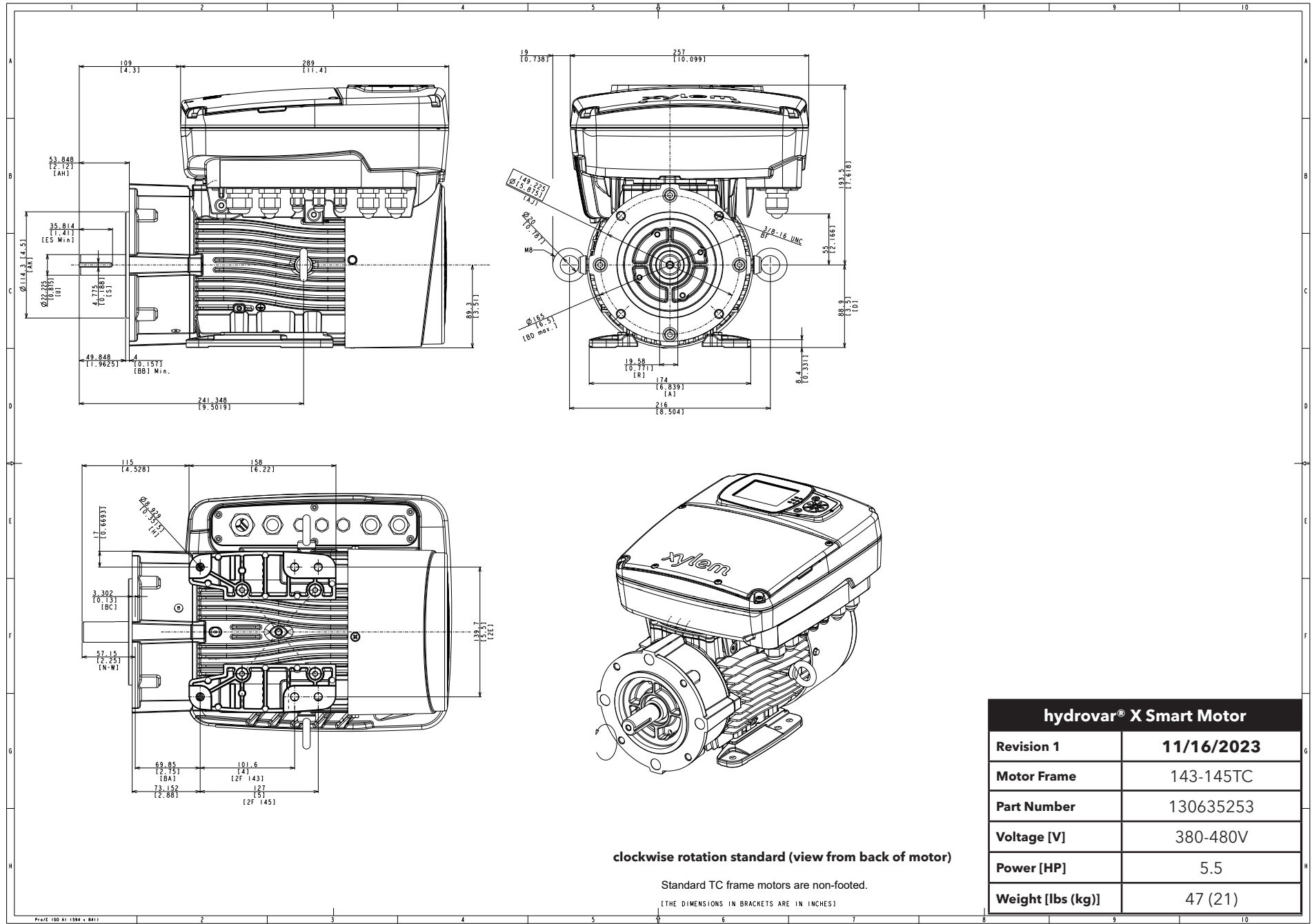
hydrovar X Smart Motor Drawings





# hydrovar® X EXM143-145/4.055BH2 - 5.5 HP, 1200-4000 RPM, 3PH, 60HZ, 380-480V, 143-145, TEFC

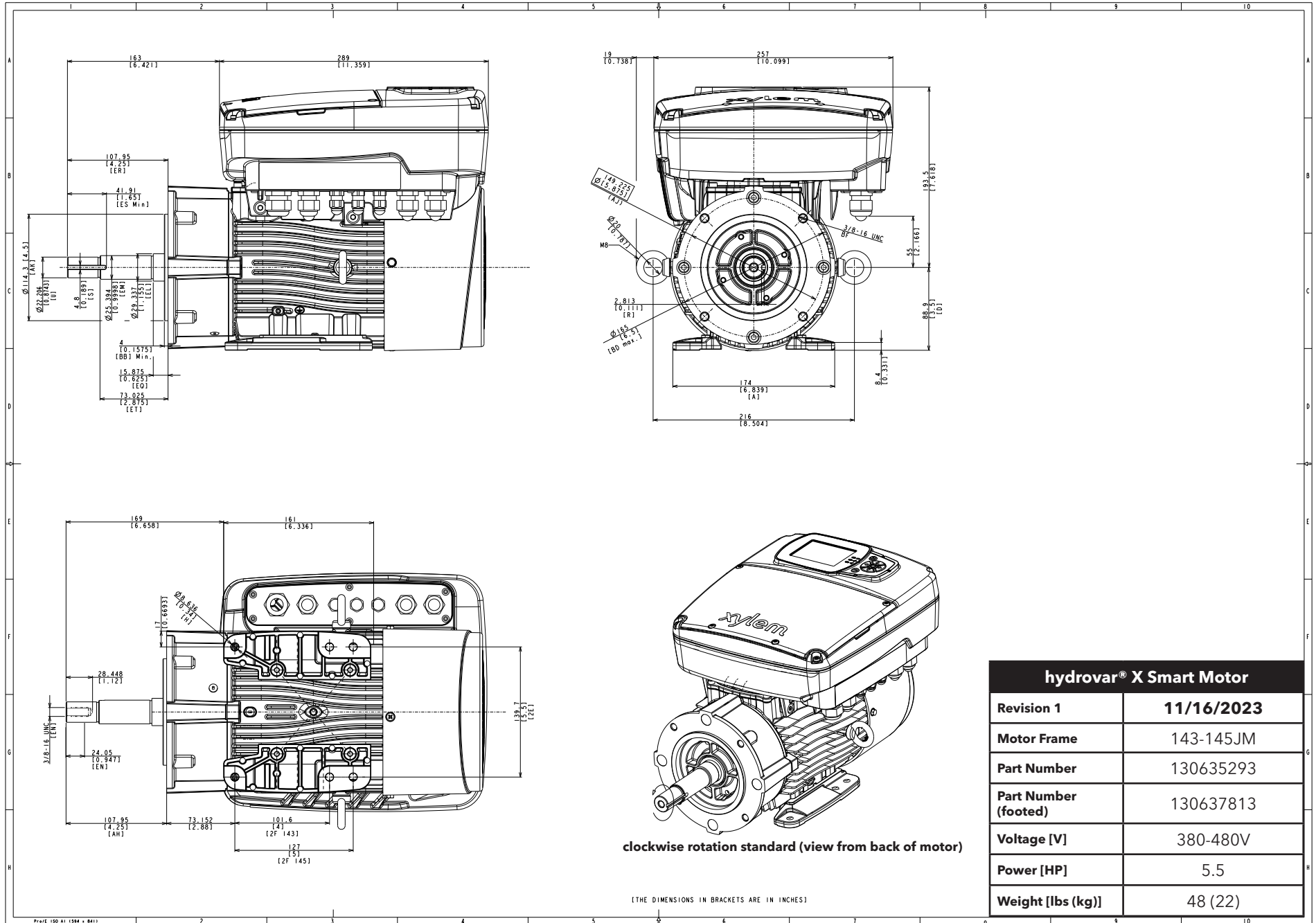
## hydrovar X Smart Motor Drawings



| hydrovar® X Smart Motor |            |
|-------------------------|------------|
| Revision 1              | 11/16/2023 |
| Motor Frame             | 143-145TC  |
| Part Number             | 130635253  |
| Voltage [V]             | 380-480V   |
| Power [HP]              | 5.5        |
| Weight [lbs (kg)]       | 47 (21)    |

# hydrovar® X EXM143-145/4.055BH2 - 5.5 HP, 1200-4000 RPM, 3PH, 60HZ, 380-480V, 143-145, TEFC

## hydrovar X Smart Motor Drawings



**NOTES**

# Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

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Xylem Inc.  
Phone: (866) 673-0428  
Fax: (888) 322-5877  
[www.xylem.com](http://www.xylem.com)

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