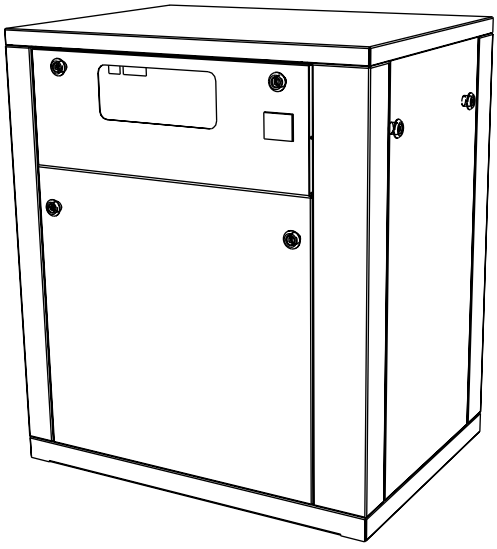
Carrier

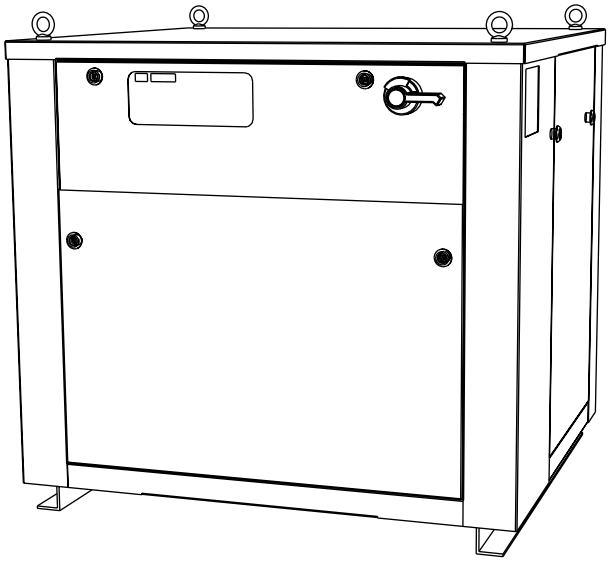
# 30SZ/SZV
## Water-Cooled/Condenserless Liquid Chillers

Nominal cooling capacity 14-112 kW

50 Hz

PRO-DIALOG PLUS





EUROVENT CERTIFIED PERFORMANCE

Carrier is participating in the Eurovent Certification Programme. Products are as listed in the Eurovent Directory of Certified Products.

For the operation of the control please refer to the Pro-Dialog PLUS Control manual for the 30SZ/SZV series

HFC-407C

**Installation, operation and maintenance instructions**

LLOYD'S REGISTER QUALITY ASSURANCE · ISO9001 · UKAS QUALITY MANAGEMENT 001

Quality Management System Approval

## 3 - PHYSICAL DATA

| 30SZ/SZV | | 004 | 005 | 006 | 007 | 009 | 011 | 018 | 024 | 027 | 036 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nominal cooling capacity** | | | | | | | | | | | |
| **30SZ*** | kW | 14.60 | 16.10 | 19.50 | 22.90 | 27.90 | 33.50 | 56.00 | 78.00 | 85.00 | 112.00 |
| **30SZV**** | kW | 13.70 | 15.40 | 18.50 | 22.10 | 26.40 | 32.30 | 52.00 | 72.00 | 77.00 | 106.00 |
| **Operating weight** | | | | | | | | | | | |
| **30SZ** | kg | 105 | 110 | 116 | 144 | 168 | 182 | 424 | 480 | 492 | 530 |
| **30SZV** | kg | 94 | 98 | 102 | 129 | 150 | 162 | 390 | 441 | 448 | 475 |
| **Refrigerant charge***** | | R-407C | | | | | | | | | |
| **30SZ** | kg | 1.5 | 1.6 | 2.20 | 2.16 | 2.30 | 2.97 | 8.10 | 9.00 | 10.20 | 11.60 |
| **Compressor type** | | Scroll | | | | | | Semi-hermetic | | | |
| **No. of control steps** | | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| **Capacity control** | % | - | - | - | - | - | - | 50-100 | 66-100 | 66-100 | 66-100 |
| **Evaporator type (30SZ/SZV)** | | Plate heat exchanger | | | | | | | | | |
| **Net water volume** | l | 1.23 | 1.42 | 1.71 | 1.90 | 2.37 | 2.85 | 4.70 | 5.60 | 6.60 | 8.40 |
| **Water connections** | | MPT gas | | | | | | | | | |
| **Inlet-outlet** | in | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/2 | 1-1/2 | 1-1/2 | 1-1/2 |
| **Max. water pressure** | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| **Condenser type (30SZ)** | | Plate heat exchanger | | | | | | | | | |
| **Net water volume** | l | 1.23 | 1.42 | 1.71 | 1.90 | 2.37 | 2.85 | 4.70 | 5.60 | 6.60 | 8.40 |
| **Water connections** | | MPT gas | | | | | | | | | |
| **Inlet-outlet** | in | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/2 | 1-1/2 | 1-1/2 | 1-1/2 |
| **Max. water pressure** | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

* Evaporator entering water temperature 12°C, evaporator leaving water temperature 7°C, condenser entering water temperature 30°C, condenser leaving water temperature 35°C.
** Evaporator entering water temperature 12°C, evaporator leaving water temperature 7°C; condensing temperature dewpoint 50°C.
*** The 30SZV units have a nitrogen holding charge only.

## 4 - ELECTRICAL DATA

| 30SZ | | 004 | 005 | 006 | 007 | 009 | 011 | 018 | 024 | 027 | 036 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nominal power supply** | V-ph-Hz | 400-3-50 | | | | | | | | | |
| **Voltage range** | V | 360-440 | | | | | | | | | |
| **Nominal unit power input*** | kW | 3.88 | 4.06 | 6.03 | 7.03 | 7.33 | 9.89 | 15.70 | 23.70 | 25.80 | 36.30 |
| **Nominal unit current drawn*** | A | 6.85 | 6.95 | 10.75 | 12.45 | 13.70 | 15.70 | 25.50 | 34.00 | 38.45 | 54.95 |
| **Maximum unit power input**** | kW | 5.34 | 6.19 | 8.51 | 10.00 | 10.87 | 13.31 | 19.58 | 26.50 | 29.83 | 42.66 |
| **Maximum unit current drawn**** | A | 9.05 | 9.70 | 14.10 | 16.50 | 18.00 | 21.16 | 33.30 | 42.55 | 53.10 | 70.10 |
| **Starting current** | A | 59.5 | 70.5 | 94.0 | 116.0 | 127.0 | 159.0 | 104.0 | 134.0 | 152.0 | 207.0 |
| **30SZV** | | **004** | **005** | **006** | **007** | **009** | **011** | **018** | **024** | **027** | **036** |
| **Nominal power supply** | V-ph-Hz | 400-3-50 | | | | | | | | | |
| **Voltage range** | V | 360-440 | | | | | | | | | |
| **Nominal unit power input†** | kW | 4.14 | 4.43 | 6.36 | 7.32 | 8.02 | 10.70 | 16.40 | 23.80 | 26.10 | 36.70 |
| **Nominal unit current drawn†** | A | 7.65 | 7.75 | 11.70 | 13.50 | 15.45 | 17.50 | 27.90 | 36.35 | 41.40 | 58.80 |
| **Maximum unit power input‡** | kW | 4.44 | 5.10 | 6.77 | 7.53 | 9.29 | 11.34 | 18.18 | 24.23 | 26.58 | 37.77 |
| **Maximum unit current drawn‡** | A | 9.05 | 9.70 | 14.10 | 16.50 | 18.00 | 21.16 | 33.30 | 42.55 | 53.10 | 70.10 |
| **Starting current** | A | 59.5 | 70.5 | 94.0 | 116.0 | 127 | 159.0 | 104.0 | 134.0 | 152.0 | 207.0 |

* Evaporator entering water temperature 12°C, evaporator leaving water temperature 7°C, condenser entering water temperature 30°C, condenser leaving water temperature 35°C.
** Evaporator leaving water temperature 10°C, condenser entering water temperature 50°C, condenser leaving water temperature 55°C.
† Evaporator entering water temperature 12°C, evaporator leaving water temperature 7°C, condensing temperature dewpoint 50°C.
‡ Evaporator leaving water temperature 10°C, condensing temperature dewpoint 60°C.

## Electrical data notes

- 30SZ/SZV* units have a single power connection point.
- The control box includes the following standard features:
  - the start-up and motor protection devices for each compressor.
  - the control devices

- **Field connections:**
  All connections to the system and the electrical installations must be in full accordance with all applicable local codes.
- The Carrier 30SZ/SZV units are designed and built to ensure con-formance with these codes. The recommendations of European standard EN 60204-1 (corresponding to IEC 60204-1)-(machine safety - electrical machine components - part 1: general regulations) are specifically taken into account, when designing the electrical equipment.

**Notes**:
- Conformance with EN 60204-1 is the best means of ensuring compliance with the Machines Directive § 1.5.1. Generally the recommendations of IEC 60364 are accepted as compliance with the requirements of the installation directives.
- Annex B of EN 60204-1 describes the electrical characteristics used for the operation of the machines.

1. The operating environment for 30SZ/SZV units is specified below:
- Environment* - Environment as classified in EN 60634 § 3:
  - ambient temperature range: +5°C to +40°C, class AA4*
  - humidity range (non condensable)*:
    50% rh at 40°C
    90% rh at 20°C
  - altitude: ≤ 2000 m
  - indoor installation*
  - presence of water, class AD2* (possibility of water drops)
  - presence of hard solids, class AE2* (no significant dust present)
  - presence of corrosive and polluting substances, class AF1 (negligible)
  - vibration and shock, class AG2 , AH2
  - Competence of personnel, class BA4* (personnel trained in accordance with IEC 60364)
2. Power supply frequency variation: ± 2 Hz.
3. The neutral (N) line must not be connected directly to the unit (if necessary use a transformer).
4. Overcurrent protection of the power supply conductors is not provided with the unit.
5. The factory-installed disconnect switch(es) is (are) of a type suitable for power interruption in accordance with EN 60947-3 (corresponding to IEC 60947-3).
6. The units are designed for connection to TN networks (IEC 60364). For IT networks the earth connection must not be at the network earth. Provide a local earth, consult competent local organisations to complete the electrical installation.

***NOTE: If particular aspects of an actual installation do not conform to the conditions described above, or if there are other conditions which should be considered, always contact your local Carrier representative.***

* The required protection level for this class is IP21B (according to reference document IEC 60529). All 30SZ/SZV units are protected to IP23C and fulfil this protection condition.