

Datasheets

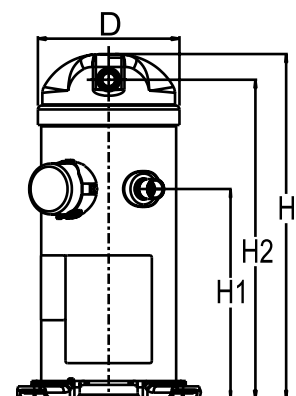
# Danfoss scroll compressors **H series**



### General Characteristics

|                                                   |  |                                  |
|---------------------------------------------------|--|----------------------------------|
| Model number (on compressor nameplate)            |  | <b>HRH038U5LP6</b>               |
| Code number for Singlepack*                       |  | 120U1181                         |
| Code number for Industrial pack**                 |  | 120U1178                         |
| Drawing number                                    |  | 0XC6301B-2                       |
| Suction and discharge connections                 |  | Brazed                           |
| Suction connection                                |  | 3/4 " ODF                        |
| Discharge connection                              |  | 1/2 " ODF                        |
| Oil sight glass                                   |  | None                             |
| Oil equalisation connection                       |  | None                             |
| Oil drain connection                              |  | None                             |
| LP gauge port                                     |  | None                             |
| IPR valve                                         |  | Yes                              |
| Swept volume                                      |  | 36.54 cm <sup>3</sup> /rev       |
| Displacement @ Nominal speed                      |  | 6.4 m <sup>3</sup> /h @ 2900 rpm |
| Net weight                                        |  | 32.2 kg                          |
| Oil charge                                        |  | 1.06 litre, PVE --               |
| Maximum system test pressure Low Side / High side |  | - bar(g) / - bar(g)              |
| Maximum differential test pressure                |  | - bar                            |
| Maximum number of starts per hour                 |  | -                                |
| Refrigerant charge limit                          |  | 3.63 kg                          |
| Approved refrigerants                             |  | R410A                            |

### Dimensions

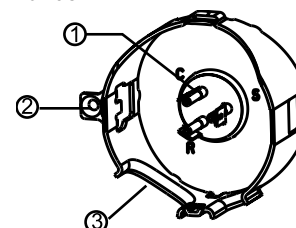


D=164.5 mm  
H=413 mm  
H1=250 mm  
H2=379 mm  
H3=- mm

### Electrical Characteristics

|                                           |                             |
|-------------------------------------------|-----------------------------|
| Nominal voltage                           | 230V/1/50Hz                 |
| Voltage range                             | 207-253 V                   |
| Winding resistance (main / start) at 25°C | 0.66 Ω / 1.61 Ω             |
| Run capacitors A + C                      | 60 μF + - μF                |
| Start capacitor B                         | 145-175 μF                  |
| Start relay                               | 3ARR3*3AL*                  |
| Rated Load Amps (RLA)                     | 17.9 A                      |
| Maximum Continuous Current (MCC)          | 28 A                        |
| Locked Rotor Amps (LRA)                   | 102.5 A                     |
| Motor protection                          | Internal overload protector |

### Terminal box



IP22

- 1: Spade connectors 1/4"
- 2: Earth connection
- 3: Power cable passage

### Recommended Installation torques

|                                      |             |
|--------------------------------------|-------------|
| Oil sight glass                      | 52.5 Nm     |
| Power connections / Earth connection | 0 Nm / 0 Nm |

### Parts shipped with compressor

|                                        |
|----------------------------------------|
| Mounting kit with grommets and sleeves |
| Initial oil charge                     |
| Installation instructions              |

**Approvals** : CE certified, UL certified (file SA11565), -

\*Singlepack: Compressor in cardboard box

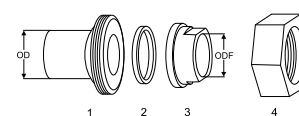
\*\*Industrial pack: 12 or 16 Unboxed compressors on pallet

**Rotolock accessories, suction side**
**Code no.**

|                                                 |         |
|-------------------------------------------------|---------|
| Solder sleeve, P04 (1-1/4" Rotolock, 3/4" ODF)  | 8153008 |
| Angle adapter, C04 (1-1/4" Rotolock, 3/4" ODF)  | 8168006 |
| Rotolock valve, V04 (1-1/4" Rotolock, 3/4" ODF) | 8168029 |
| Gasket, 1-1/4"                                  | 8156131 |

**Rotolock accessories, discharge side**
**Code no.**

|                                             |         |
|---------------------------------------------|---------|
| Solder sleeve, P06 (1" Rotolock, 1/2" ODF)  | 8153007 |
| Angle adapter, C06 (1" Rotolock, 1/2" ODF)  | 8168007 |
| Rotolock valve, V06 (1" Rotolock, 1/2" ODF) | 8168031 |
| Gasket, 1"                                  | 8156130 |

**Solder sleeve adapter set**


- 1: Rotolock adapter (Suc & Dis)
- 2: Gasket (Suc & Dis)
- 3: Solder sleeve (Suc & Dis)
- 4: Rotolock nut (Suc & Dis)

**Rotolock accessories, sets**
**Code no.**

|                                                                                |          |
|--------------------------------------------------------------------------------|----------|
| Solder sleeve adapter set (1-1/4" Rotolock, 3/4" ODF), (1" Rotolock, 1/2" ODF) | 120Z0126 |
| Gasket set, 1", 1-1/4", 1-3/4", OSG gaskets black & white                      | 8156009  |

**Oil / lubricants**
**Code no.**

|                                            |          |
|--------------------------------------------|----------|
| PVE lubricant, 320HV (FVC68D), 1 litre can | 120Z5034 |
|--------------------------------------------|----------|

**Crankcase heaters**
**Code no.**

|                                                      |          |
|------------------------------------------------------|----------|
| Belt type crankcase heater, 40 W, 230 V, CE mark, UL | 120Z0055 |
|------------------------------------------------------|----------|

**Miscellaneous accessories**
**Code no.**

|                          |          |
|--------------------------|----------|
| Acoustic hood            | 120Z5043 |
| Discharge thermostat kit | 7750009  |
| IP54 upgrade kit         | 118U0056 |

**Spare parts**
**Code no.**

|                                                                                          |          |
|------------------------------------------------------------------------------------------|----------|
| Mounting kit for 1 scroll compressor including 4 grommets, 4 sleeves, 4 bolts, 4 washers | 120Z5005 |
| Mounting kit, including 1 bolt, 1 sleeve, 1 washer                                       | 120Z5031 |
| No translation for 120Z5015                                                              | 120Z5015 |

# Datasheet, performance data

# Danfoss scroll compressor. HRH038U5

## Performance data at 50 Hz, EN 12900 rating conditions

## R410A

| Cond. temp. in<br>°C (tc) | Evaporating temperature in °C (to) |     |     |     |    |   |   |    |    |
|---------------------------|------------------------------------|-----|-----|-----|----|---|---|----|----|
|                           | -25                                | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 |

### Cooling capacity in W

|    |       |       |       |       |       |       |        |        |   |
|----|-------|-------|-------|-------|-------|-------|--------|--------|---|
| 30 | 2 761 | 3 834 | 4 958 | 6 178 | 7 536 | 9 078 | 10 848 | 12 889 | - |
| 35 | 2 410 | 3 472 | 4 574 | 5 760 | 7 073 | 8 558 | 10 258 | 12 218 | - |
| 40 | -     | 3 116 | 4 192 | 5 341 | 6 606 | 8 031 | 9 658  | 11 532 | - |
| 45 | -     | -     | 3 796 | 4 904 | 6 116 | 7 476 | 9 027  | 10 812 | - |
| 50 | -     | -     | -     | 4 429 | 5 585 | 6 876 | 8 345  | 10 036 | - |
| 55 | -     | -     | -     | -     | 4 992 | 6 208 | 7 591  | 9 180  | - |
| 60 | -     | -     | -     | -     | -     | 5 450 | 6 736  | 8 216  | - |
| 65 | -     | -     | -     | -     | -     | -     | 5 744  | 7 098  | - |

### Power input in W

|    |       |       |       |       |       |       |       |       |   |
|----|-------|-------|-------|-------|-------|-------|-------|-------|---|
| 30 | 1 894 | 1 927 | 1 933 | 1 918 | 1 883 | 1 832 | 1 768 | 1 695 | - |
| 35 | 2 077 | 2 117 | 2 132 | 2 126 | 2 102 | 2 063 | 2 013 | 1 955 | - |
| 40 | -     | 2 357 | 2 376 | 2 374 | 2 357 | 2 325 | 2 284 | 2 235 | - |
| 45 | -     | -     | 2 670 | 2 668 | 2 652 | 2 623 | 2 585 | 2 541 | - |
| 50 | -     | -     | -     | 3 013 | 2 993 | 2 962 | 2 923 | 2 880 | - |
| 55 | -     | -     | -     | -     | 3 387 | 3 348 | 3 303 | 3 255 | - |
| 60 | -     | -     | -     | -     | -     | 3 787 | 3 731 | 3 674 | - |
| 65 | -     | -     | -     | -     | -     | -     | 4 213 | 4 141 | - |

### Current consumption in A

|    |       |       |       |       |       |       |       |       |   |
|----|-------|-------|-------|-------|-------|-------|-------|-------|---|
| 30 | 9.73  | 9.69  | 9.62  | 9.53  | 9.41  | 9.24  | 9.03  | 8.76  | - |
| 35 | 10.91 | 10.83 | 10.75 | 10.64 | 10.52 | 10.36 | 10.17 | 9.95  | - |
| 40 | -     | 12.14 | 12.02 | 11.89 | 11.75 | 11.60 | 11.43 | 11.23 | - |
| 45 | -     | -     | 13.48 | 13.32 | 13.17 | 13.01 | 12.84 | 12.65 | - |
| 50 | -     | -     | -     | 14.98 | 14.80 | 14.62 | 14.45 | 14.27 | - |
| 55 | -     | -     | -     | -     | 16.69 | 16.49 | 16.30 | 16.12 | - |
| 60 | -     | -     | -     | -     | -     | 18.66 | 18.44 | 18.25 | - |
| 65 | -     | -     | -     | -     | -     | -     | 20.92 | 20.71 | - |

### Mass flow in kg/h

|    |    |    |     |     |     |     |     |     |   |
|----|----|----|-----|-----|-----|-----|-----|-----|---|
| 30 | 58 | 79 | 101 | 124 | 149 | 178 | 210 | 248 | - |
| 35 | 53 | 75 | 98  | 121 | 147 | 176 | 209 | 246 | - |
| 40 | -  | 71 | 94  | 119 | 145 | 174 | 207 | 245 | - |
| 45 | -  | -  | 91  | 116 | 142 | 172 | 205 | 243 | - |
| 50 | -  | -  | -   | 111 | 139 | 169 | 202 | 240 | - |
| 55 | -  | -  | -   | -   | 133 | 163 | 197 | 235 | - |
| 60 | -  | -  | -   | -   | -   | 156 | 190 | 228 | - |
| 65 | -  | -  | -   | -   | -   | -   | 180 | 219 | - |

### Coefficient of performance (C.O.P.)

|    |      |      |      |      |      |      |      |      |   |
|----|------|------|------|------|------|------|------|------|---|
| 30 | 1.46 | 1.99 | 2.56 | 3.22 | 4.00 | 4.96 | 6.14 | 7.60 | - |
| 35 | 1.16 | 1.64 | 2.15 | 2.71 | 3.36 | 4.15 | 5.10 | 6.25 | - |
| 40 | -    | 1.32 | 1.76 | 2.25 | 2.80 | 3.45 | 4.23 | 5.16 | - |
| 45 | -    | -    | 1.42 | 1.84 | 2.31 | 2.85 | 3.49 | 4.25 | - |
| 50 | -    | -    | -    | 1.47 | 1.87 | 2.32 | 2.86 | 3.49 | - |
| 55 | -    | -    | -    | -    | 1.47 | 1.85 | 2.30 | 2.82 | - |
| 60 | -    | -    | -    | -    | -    | 1.44 | 1.81 | 2.24 | - |
| 65 | -    | -    | -    | -    | -    | -    | 1.36 | 1.71 | - |

### Nominal performance at to = 5 °C, tc = 50 °C

|                     |       |      |
|---------------------|-------|------|
| Cooling capacity    | 8 345 | W    |
| Power input         | 2 923 | W    |
| Current consumption | 14.45 | A    |
| Mass flow           | 202   | kg/h |
| C.O.P.              | 2.86  |      |

### Pressure switch settings

|                           |     |        |
|---------------------------|-----|--------|
| Maximum HP switch setting | 45  | bar(g) |
| Minimum LP switch setting | 1.5 | bar(g) |
| LP pump down setting      | 2.3 | bar(g) |

### Sound power data

|                    |    |       |
|--------------------|----|-------|
| Sound power level  | 66 | dB(A) |
| With acoustic hood | 61 | dB(A) |

to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

Rating conditions : Superheat = 10 K , Subcooling = 0 K

All performance data +/- 5%

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**Performance data at 50 Hz, ARI rating conditions**
**R410A**

| Cond. temp. in<br>°C (tc) | Evaporating temperature in °C (to) |     |     |     |    |   |   |    |    |
|---------------------------|------------------------------------|-----|-----|-----|----|---|---|----|----|
|                           | -25                                | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 |

**Cooling capacity in W**

|    |       |       |       |       |       |       |        |        |   |
|----|-------|-------|-------|-------|-------|-------|--------|--------|---|
| 30 | 2 982 | 4 136 | 5 343 | 6 651 | 8 107 | 9 757 | 11 649 | 13 830 | - |
| 35 | -     | 3 769 | 4 960 | 6 239 | 7 655 | 9 253 | 11 081 | 13 186 | - |
| 40 | -     | -     | 4 580 | 5 829 | 7 201 | 8 744 | 10 505 | 12 532 | - |
| 45 | -     | -     | 4 185 | 5 400 | 6 726 | 8 211 | 9 903  | 11 848 | - |
| 50 | -     | -     | -     | 4 933 | 6 211 | 7 636 | 9 255  | 11 116 | - |
| 55 | -     | -     | -     | -     | 5 636 | 6 998 | 8 542  | 10 316 | - |
| 60 | -     | -     | -     | -     | -     | 6 278 | 7 744  | 9 429  | - |
| 65 | -     | -     | -     | -     | -     | -     | 6 842  | 8 434  | - |

**Power input in W**

|    |       |       |       |       |       |       |       |       |   |
|----|-------|-------|-------|-------|-------|-------|-------|-------|---|
| 30 | 1 894 | 1 927 | 1 933 | 1 918 | 1 883 | 1 832 | 1 768 | 1 695 | - |
| 35 | -     | 2 117 | 2 132 | 2 126 | 2 102 | 2 063 | 2 013 | 1 955 | - |
| 40 | -     | -     | 2 376 | 2 374 | 2 357 | 2 325 | 2 284 | 2 235 | - |
| 45 | -     | -     | 2 670 | 2 668 | 2 652 | 2 623 | 2 585 | 2 541 | - |
| 50 | -     | -     | -     | 3 013 | 2 993 | 2 962 | 2 923 | 2 880 | - |
| 55 | -     | -     | -     | -     | 3 387 | 3 348 | 3 303 | 3 255 | - |
| 60 | -     | -     | -     | -     | -     | 3 787 | 3 731 | 3 674 | - |
| 65 | -     | -     | -     | -     | -     | -     | 4 213 | 4 141 | - |

**Current consumption in A**

|    |      |       |       |       |       |       |       |       |   |
|----|------|-------|-------|-------|-------|-------|-------|-------|---|
| 30 | 9.73 | 9.69  | 9.62  | 9.53  | 9.41  | 9.24  | 9.03  | 8.76  | - |
| 35 | -    | 10.83 | 10.75 | 10.64 | 10.52 | 10.36 | 10.17 | 9.95  | - |
| 40 | -    | -     | 12.02 | 11.89 | 11.75 | 11.60 | 11.43 | 11.23 | - |
| 45 | -    | -     | 13.48 | 13.32 | 13.17 | 13.01 | 12.84 | 12.65 | - |
| 50 | -    | -     | -     | 14.98 | 14.80 | 14.62 | 14.45 | 14.27 | - |
| 55 | -    | -     | -     | -     | 16.69 | 16.49 | 16.30 | 16.12 | - |
| 60 | -    | -     | -     | -     | -     | 18.66 | 18.44 | 18.25 | - |
| 65 | -    | -     | -     | -     | -     | -     | 20.92 | 20.71 | - |

**Mass flow in kg/h**

|    |    |    |     |     |     |     |     |     |   |
|----|----|----|-----|-----|-----|-----|-----|-----|---|
| 30 | 57 | 78 | 100 | 123 | 148 | 176 | 209 | 246 | - |
| 35 | -  | 75 | 97  | 120 | 146 | 175 | 207 | 244 | - |
| 40 | -  | -  | 94  | 118 | 144 | 173 | 206 | 243 | - |
| 45 | -  | -  | 90  | 115 | 141 | 171 | 204 | 241 | - |
| 50 | -  | -  | -   | 111 | 138 | 167 | 200 | 238 | - |
| 55 | -  | -  | -   | -   | 132 | 162 | 196 | 233 | - |
| 60 | -  | -  | -   | -   | -   | 155 | 189 | 227 | - |
| 65 | -  | -  | -   | -   | -   | -   | 179 | 217 | - |

**Coefficient of performance (C.O.P.)**

|    |      |      |      |      |      |      |      |      |   |
|----|------|------|------|------|------|------|------|------|---|
| 30 | 1.57 | 2.15 | 2.76 | 3.47 | 4.31 | 5.33 | 6.59 | 8.16 | - |
| 35 | -    | 1.78 | 2.33 | 2.93 | 3.64 | 4.48 | 5.50 | 6.75 | - |
| 40 | -    | -    | 1.93 | 2.45 | 3.06 | 3.76 | 4.60 | 5.61 | - |
| 45 | -    | -    | 1.57 | 2.02 | 2.54 | 3.13 | 3.83 | 4.66 | - |
| 50 | -    | -    | -    | 1.64 | 2.08 | 2.58 | 3.17 | 3.86 | - |
| 55 | -    | -    | -    | -    | 1.66 | 2.09 | 2.59 | 3.17 | - |
| 60 | -    | -    | -    | -    | -    | 1.66 | 2.08 | 2.57 | - |
| 65 | -    | -    | -    | -    | -    | -    | 1.62 | 2.04 | - |

**Nominal performance at to = 7.2 °C, tc = 54.4 °C**

|                     |       |      |
|---------------------|-------|------|
| Cooling capacity    | 9 386 | W    |
| Power input         | 3 235 | W    |
| Current consumption | 15.98 | A    |
| Mass flow           | 212   | kg/h |
| C.O.P.              | 2.90  |      |

**Pressure switch settings**

|                           |     |        |
|---------------------------|-----|--------|
| Maximum HP switch setting | 45  | bar(g) |
| Minimum LP switch setting | 1.5 | bar(g) |
| LP pump down setting      | 2.3 | bar(g) |

**Sound power data**

|                    |    |       |
|--------------------|----|-------|
| Sound power level  | 66 | dB(A) |
| With acoustic hood | 61 | dB(A) |

to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

Rating conditions : Superheat = 11.1 K, Subcooling = 8.3 K

All performance data +/- 5%

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