

# Model: SH300

## Data

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**Type: Hermetic scroll compressors**

**Producer: Danfoss-Maneurop**

**Series: SH**

## Model: SH300

### Technical data

|  |       |
|--|-------|
| Displacement [m <sup>3</sup> /h]:                  | 49,7  |
| Swept volume [cm <sup>3</sup> /rev]:               | 285,5 |
| RPM [min <sup>-1</sup> ]:                          | 2900  |
| Weight [kg]:                                       | 153   |
| Oil charge [dm <sup>3</sup> ]:                     | 6,7   |
| Oil type:  | 160SZ |
| Maximum system test pressure low side / high side: | 30/45 |
| Maximum number of starts without softstart [1/h]:  | 12    |
| Refrigerant charge limit [dm <sup>3</sup> ]:       | 13,5  |
| Sound power [dB]:                                  | 82    |
| Refrigerant:                                       | R410A |

### Connections

|  | <u>milimeters</u> | <u>inches</u> |
|--|-------------------|---------------|
| Suction connection with supplied sleeve:   | 41                | 1 5/8"        |
| Discharge connection with supplied sleeve: | 35                | 1 3/8"        |

# Model: SH300

## Capacity

R410A

### Cooling capacity [W]

| $t_c \setminus t_e$ | -25    | -20    | -15    | -10    | -5     | 0      | 5       | 10      | 15      |
|---------------------|--------|--------|--------|--------|--------|--------|---------|---------|---------|
| 20                  | 32 709 | 40 139 | 48 932 | 59 260 | 71 295 | 85 209 | 101 175 | -       | -       |
| 25                  | 31 068 | 38 444 | 47 117 | 57 259 | 69 042 | 82 639 | 98 222  | 115 963 | -       |
| 30                  | 29 273 | 36 536 | 45 031 | 54 928 | 66 401 | 79 622 | 94 762  | 111 995 | 131 492 |
| 35                  | 27 348 | 34 440 | 42 697 | 52 291 | 63 395 | 76 181 | 90 820  | 107 486 | 126 350 |
| 40                  | -      | 32 180 | 40 141 | 49 373 | 60 049 | 72 340 | 86 420  | 102 460 | 120 633 |
| 45                  | -      | 29 780 | 37 386 | 46 197 | 56 386 | 68 125 | 81 586  | 96 942  | 114 364 |
| 50                  | -      | -      | 34 456 | 42 787 | 52 431 | 63 558 | 76 342  | 90 955  | 107 568 |
| 55                  | -      | -      | -      | 39 169 | 48 208 | 58 665 | 70 713  | 84 523  | 100 269 |
| 60                  | -      | -      | -      | -      | 43 741 | 53 469 | 64 722  | 77 672  | 92 491  |
| 65                  | -      | -      | -      | -      | -      | 47 995 | 58 394  | 70 424  | 84 258  |

### Power input [W]

| $t_c \setminus t_e$ | -25    | -20    | -15    | -10    | -5     | 0      | 5      | 10     | 15     |
|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 20                  | 11 932 | 12 020 | 12 075 | 12 106 | 12 120 | 12 125 | 12 128 | -      | -      |
| 25                  | 13 122 | 13 227 | 13 297 | 13 337 | 13 357 | 13 362 | 13 361 | 13 361 | -      |
| 30                  | 14 429 | 14 552 | 14 636 | 14 686 | 14 711 | 14 718 | 14 714 | 14 706 | 14 703 |
| 35                  | 15 883 | 16 025 | 16 123 | 16 184 | 16 215 | 16 223 | 16 216 | 16 201 | 16 186 |
| 40                  | -      | 17 677 | 17 790 | 17 861 | 17 898 | 17 908 | 17 898 | 17 877 | 17 851 |
| 45                  | -      | 19 538 | 19 666 | 19 748 | 19 792 | 19 804 | 19 792 | 19 764 | 19 727 |
| 50                  | -      | -      | 21 783 | 21 877 | 21 927 | 21 942 | 21 929 | 21 895 | 21 847 |
| 55                  | -      | -      | -      | 24 277 | 24 334 | 24 352 | 24 338 | 24 298 | 24 240 |
| 60                  | -      | -      | -      | -      | 27 045 | 27 066 | 27 050 | 27 005 | 26 938 |
| 65                  | -      | -      | -      | -      | -      | 30 114 | 30 097 | 30 047 | 29 971 |

### Current [A]

| $t_c \setminus t_e$ | -25   | -20   | -15   | -10   | -5    | 0     | 5     | 10    | 15    |
|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 20                  | 29.08 | 29.29 | 29.32 | 29.23 | 29.09 | 28.93 | 28.84 | -     | -     |
| 25                  | 30.51 | 30.80 | 30.91 | 30.88 | 30.78 | 30.66 | 30.58 | 30.61 | -     |
| 30                  | 31.89 | 32.27 | 32.45 | 32.48 | 32.42 | 32.33 | 32.26 | 32.29 | 32.45 |
| 35                  | 33.35 | 33.80 | 34.04 | 34.12 | 34.10 | 34.03 | 33.98 | 34.00 | 34.15 |
| 40                  | -     | 35.51 | 35.81 | 35.94 | 35.95 | 35.90 | 35.85 | 35.86 | 35.99 |
| 45                  | -     | 37.51 | 37.86 | 38.03 | 38.07 | 38.04 | 37.99 | 37.99 | 38.09 |
| 50                  | -     | -     | 40.30 | 40.51 | 40.57 | 40.55 | 40.50 | 40.48 | 40.55 |
| 55                  | -     | -     | -     | 43.49 | 43.57 | 43.55 | 43.50 | 43.45 | 43.49 |
| 60                  | -     | -     | -     | -     | 47.18 | 47.16 | 47.09 | 47.02 | 47.01 |
| 65                  | -     | -     | -     | -     | -     | 51.48 | 51.39 | 51.29 | 51.24 |

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## Capacity

### Mass flow [kg/h]

| $t_c \setminus t_e$ | -25    | -20    | -15    | -10      | -5       | 0        | 5        | 10       | 15       |
|---------------------|--------|--------|--------|----------|----------|----------|----------|----------|----------|
| 20                  | 574.28 | 701.87 | 848.21 | 1 016.40 | 1 209.52 | 1 430.66 | 1 682.92 | -        | -        |
| 25                  | 568.56 | 698.92 | 848.13 | 1 019.29 | 1 215.48 | 1 439.81 | 1 695.36 | 1 985.22 | -        |
| 30                  | 560.12 | 692.62 | 844.09 | 1 017.60 | 1 216.26 | 1 443.15 | 1 701.37 | 1 994.00 | 2 324.14 |
| 35                  | 548.89 | 682.93 | 836.03 | 1 011.28 | 1 211.78 | 1 440.62 | 1 700.89 | 1 995.68 | 2 328.09 |
| 40                  | -      | 669.77 | 823.89 | 1 000.26 | 1 201.99 | 1 432.16 | 1 693.87 | 1 990.20 | 2 324.25 |
| 45                  | -      | 653.08 | 807.60 | 984.48   | 1 186.82 | 1 417.71 | 1 680.23 | 1 977.49 | 2 312.56 |
| 50                  | -      | -      | 787.10 | 963.88   | 1 166.21 | 1 397.19 | 1 659.92 | 1 957.48 | 2 292.97 |
| 55                  | -      | -      | -      | 938.38   | 1 140.09 | 1 370.56 | 1 632.87 | 1 930.12 | 2 265.40 |
| 60                  | -      | -      | -      | -        | 1 108.41 | 1 337.74 | 1 599.02 | 1 895.34 | 2 229.80 |
| 65                  | -      | -      | -      | -        | -        | 1 298.67 | 1 558.30 | 1 853.08 | 2 186.10 |

### C.O.P. [W/W]

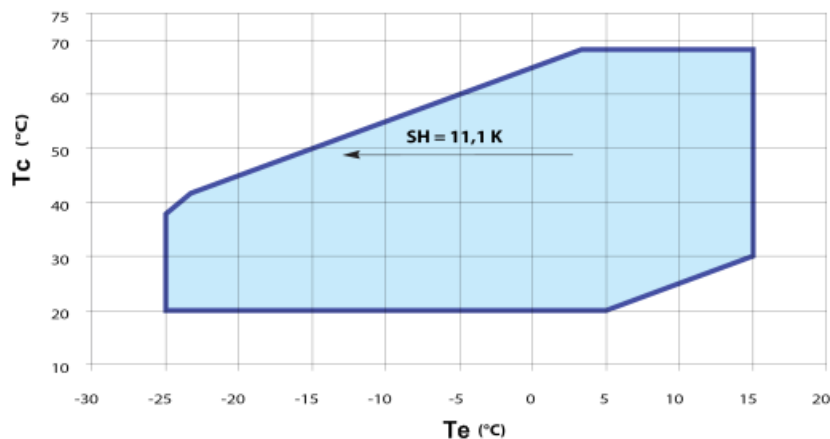
| $t_c \setminus t_e$ | -25  | -20  | -15  | -10  | -5   | 0    | 5    | 10   | 15   |
|---------------------|------|------|------|------|------|------|------|------|------|
| 20                  | 2.74 | 3.34 | 4.05 | 4.90 | 5.88 | 7.03 | 8.34 | -    | -    |
| 25                  | 2.37 | 2.91 | 3.54 | 4.29 | 5.17 | 6.18 | 7.35 | 8.68 | -    |
| 30                  | 2.03 | 2.51 | 3.08 | 3.74 | 4.51 | 5.41 | 6.44 | 7.62 | 8.94 |
| 35                  | 1.72 | 2.15 | 2.65 | 3.23 | 3.91 | 4.70 | 5.60 | 6.63 | 7.81 |
| 40                  | -    | 1.82 | 2.26 | 2.76 | 3.36 | 4.04 | 4.83 | 5.73 | 6.76 |
| 45                  | -    | 1.52 | 1.90 | 2.34 | 2.85 | 3.44 | 4.12 | 4.90 | 5.80 |
| 50                  | -    | -    | 1.58 | 1.96 | 2.39 | 2.90 | 3.48 | 4.15 | 4.92 |
| 55                  | -    | -    | -    | 1.61 | 1.98 | 2.41 | 2.91 | 3.48 | 4.14 |
| 60                  | -    | -    | -    | -    | 1.62 | 1.98 | 2.39 | 2.88 | 3.43 |
| 65                  | -    | -    | -    | -    | -    | 1.59 | 1.94 | 2.34 | 2.81 |

Operating conditions: superheating: 11.1 K, subcooling: 8.3 K

$t_c$  - Condensing temperature [°C]

$t_e$  - Evaporating temperature [°C]

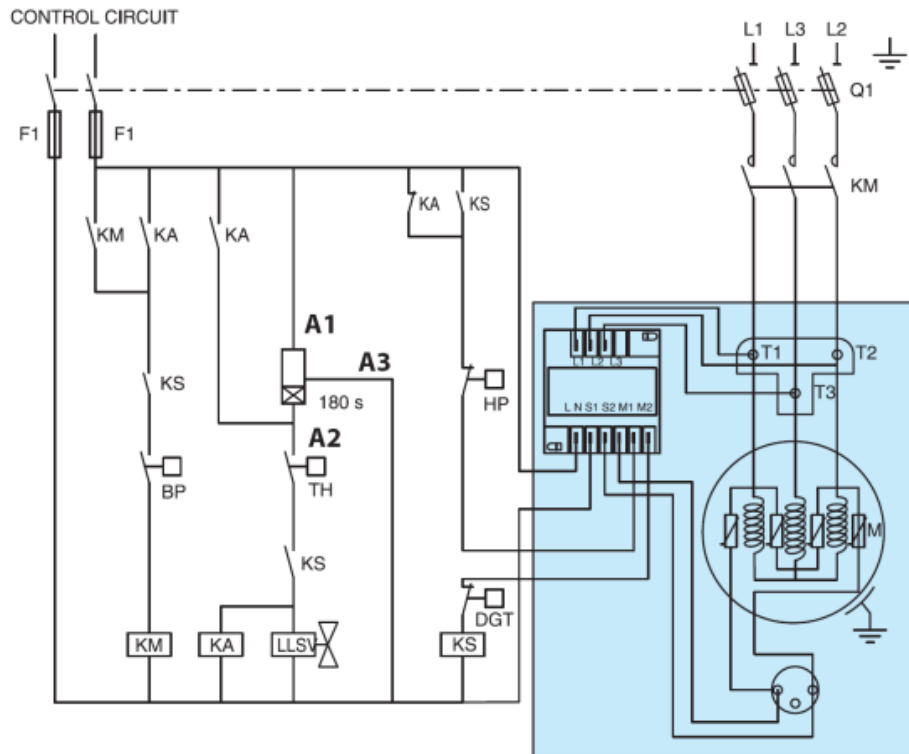
### Application range



### Single phase power supply

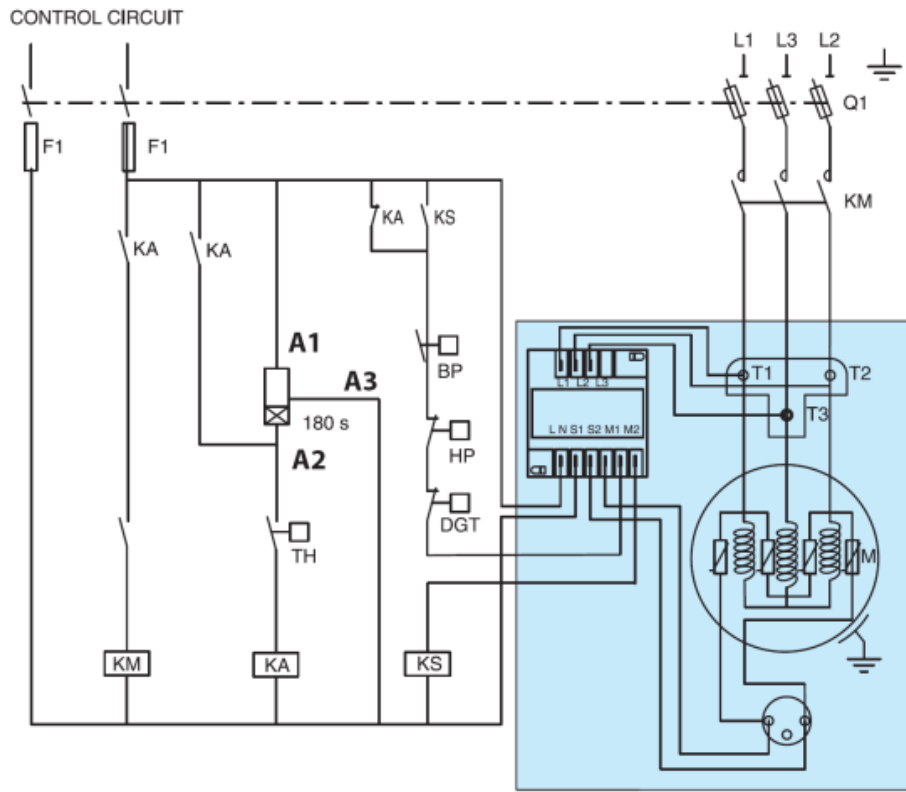
Motor voltage code: 4  
Power supply: 400V/3/50Hz  
Maximum Continuous Current (MCC) [A]: 54,1

### Wiring diagram with pump-down cycle



- TH: Control device
- 180 s: Optional short cycle timer (3min) 5 pts
- KA: Control relay
- LLSV: Liquid Line Solenoid valve
- KM: Compressor contactor
- KS: Safety lock out relay
- BP: Pump-down control and low pressure switch
- HP: High pressure safety switch
- Q1: Fused disconnect
- F1: Fuses / S: External overload protection
- F2: External overload protection
- M: Compressor's engine
- thM: Motor safety thermostat
- DGT: Discharge gas thermostat
- MPM: Motor Protection Module
- S: Thermistor chain

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