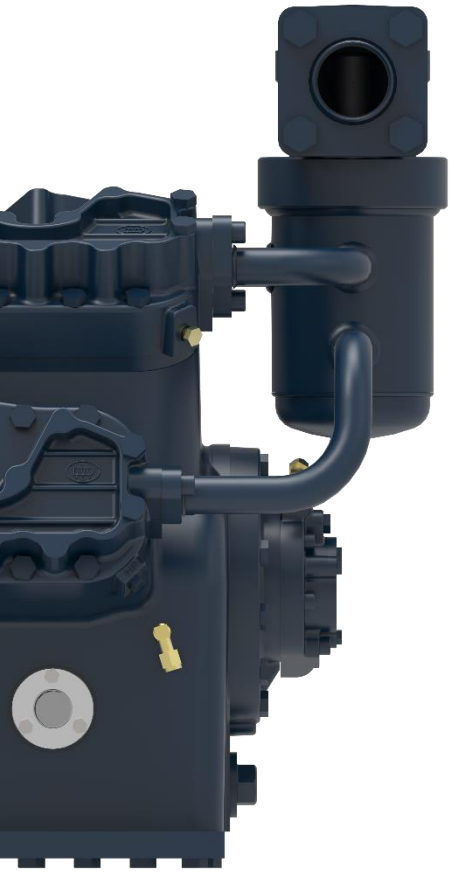
OFFICINE MARIO DORIN SINCE 1918

DORIN®

INNOVATION



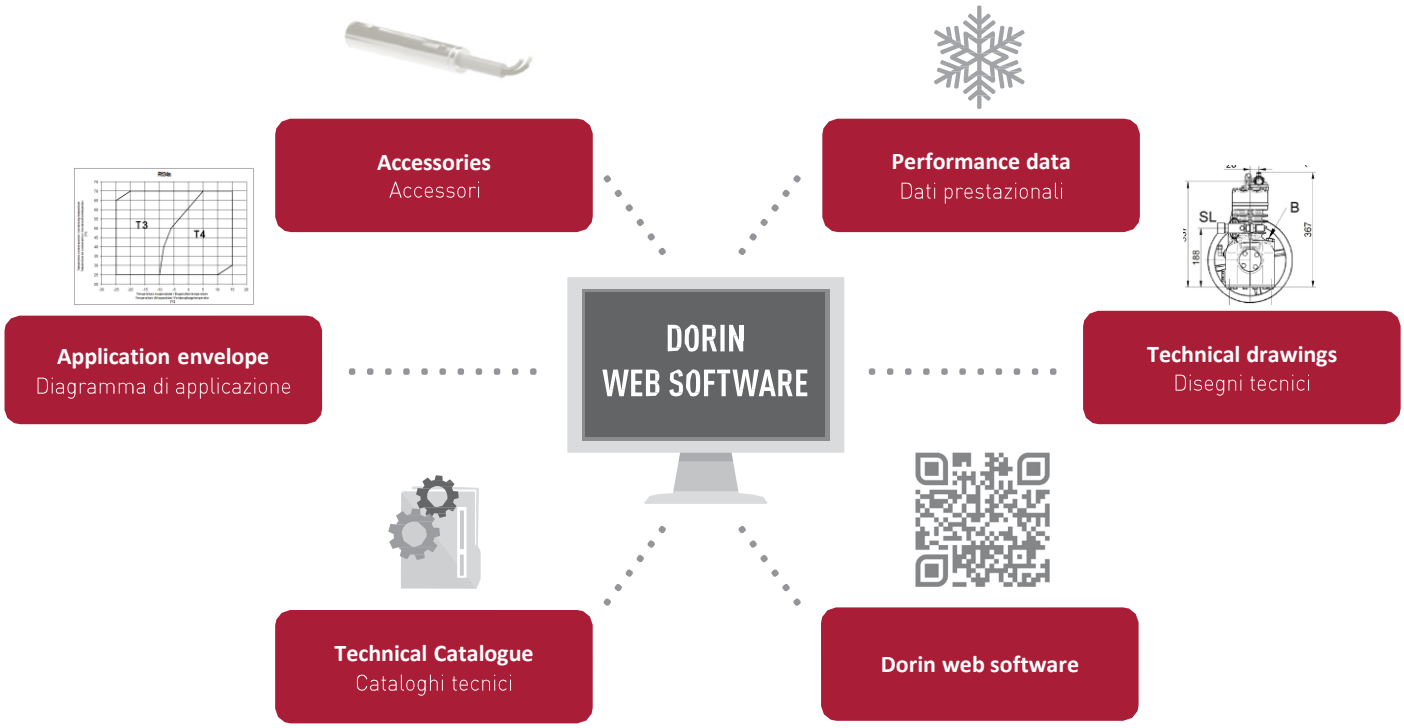
# VS & 2VS SERIES

OPEN TYPE COMPRESSORS

HFC APPLICATION

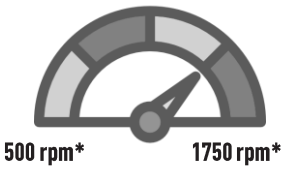
Imperial Units

## DORIN Web Software




## RPM Range

Range giri al minuto




*** Minumum and maximum operating rpm to be checked in the following pages depending on the models**

* Controllare il numero minimo e massimo di giri al minuto nelle pagine seguenti in funzione del modello

## Refrigerants in DORIN software (GWP - AR4)

Refrigeranti disponibili nel software DORIN (GWP – AR4)

| | SAFETY GROUP A1 | |
|---|---|---|
| **MT - HT** | R134A (1430) | |
| **MT - LT** | R404A (3922) | R22 (1810) |

**For all the refrigerants not available in the software please contact DORIN for the calculations**

Per tutti i refrigeranti non disponibili nel software si prega di contattare DORIN per il calcolo prestazionale

## Factory certifications

Certificazioni aziendali

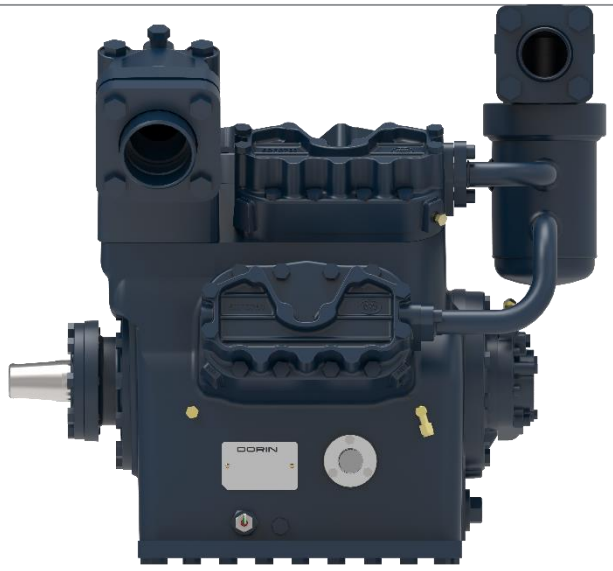
**ISO 45001:2018**
**ISO 9001:2015**

## Compressor certifications

Certificazioni di prodotto

# VS SERIES Features

Caratteristiche della gamma VS



1932

## Year of the first open type compressor produced from DORIN

Anno di produzione del primo compressore aperto DORIN

## Silent operations and low vibrations

Basse vibrazioni ed estrema silenziosità

**Crankshafts balanced individually, excellent fluid dynamics studies are our strengths**

Ogni albero è bilanciato individualmente, studi CFD per ottimizzare i flussi interni

## Suitable for direct or belt drive at variable rpm

Possibilità di collegamento tramite cinghia o direttamente al motore a velocità variabile

## Highest levels of efficiency

Livelli di efficienza ai vertici per compressori aperti

**Using latest coating technologies for reducing frictions and improving lubrication**

Trattamenti superficiali sui componenti in movimento per ridurre l'attrito e migliorare la lubrificazione

## 2 years standard warranty

2 anni di garanzia standard

## All open type compressors can be provided in accordance to Directive 2014/34/EU – ATEX

Tutti i compressori aperti possono essere forniti in accordo alla direttiva 2014/34/UE – ATEX

**Each compressor shows following ATEX marking: II 3G c IIB X**

Ogni compressore riporta la seguente marcatura ATEX: II 3G c IIB X

## Models up to 52VS included are lubricated with oil slinger, the larger ones with oil pump

I modelli fino al 51 VS incluso sono lubrificati con disco olio, i più grandi con pompa olio

**The crankshaft for the models without oil pump has to rotate in the direction pointed out by the arrow, clearly marked on the compressor, the models with oil pump can rotate in both directions**

L'albero per i modelli senza pompa deve ruotare nel senso indicato dalla freccia sul compressore, i modelli con pompa non hanno un senso preferenziale di rotazione

## VS SERIES Technical Features

Caratteristiche tecniche della gamma VS

**1** **Extra reliability and efficiency of optimised valve plate design**
Estrema affidabilità ed efficienza del disegno delle piastre valvole

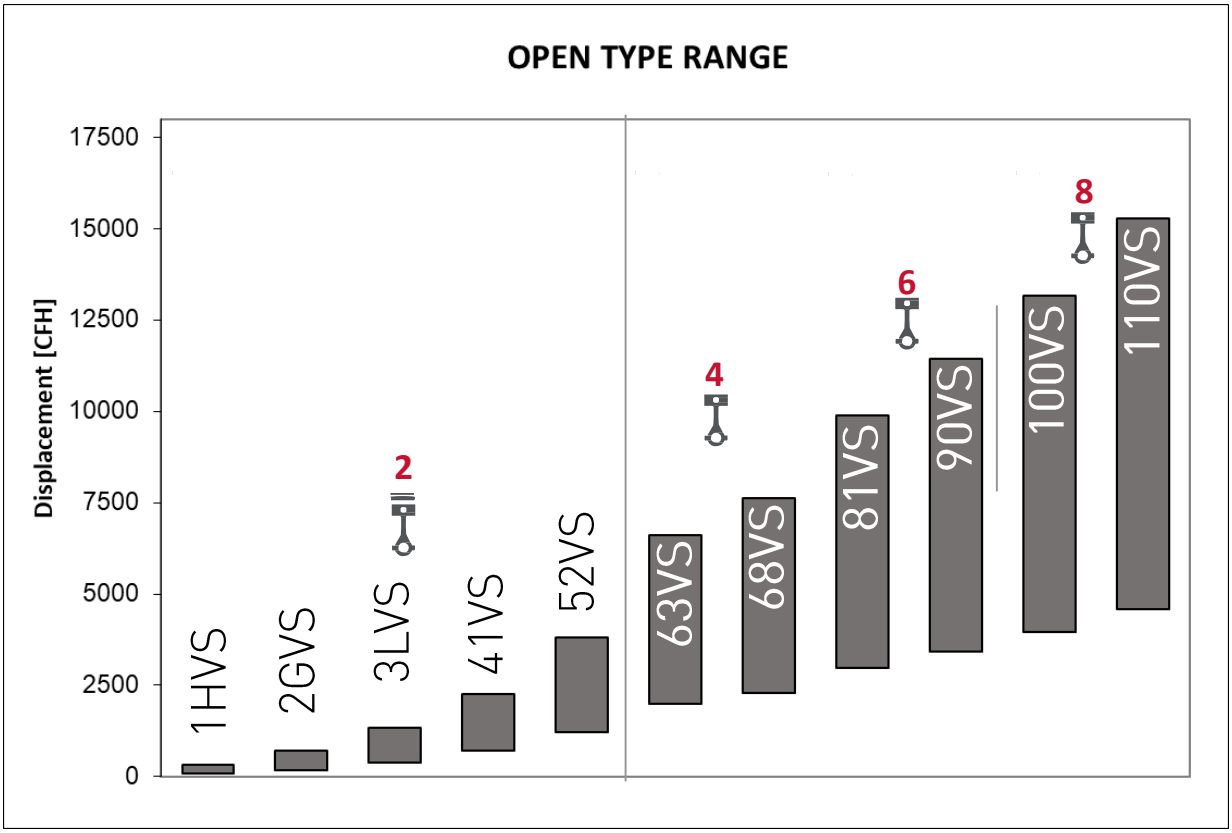
**2** **Flywheel as optional accessory**
Volano venduto come accessorio optional

**3** **Easy-to-change shaft seal for maintenance purposes**
Estrema facilità di sostituzione del premistoppa per manutenzione

**4** **High volume oil sump suitable for marine application**
Generoso volume della coppa dell'olio per applicazioni marine


## VS range - Displacement

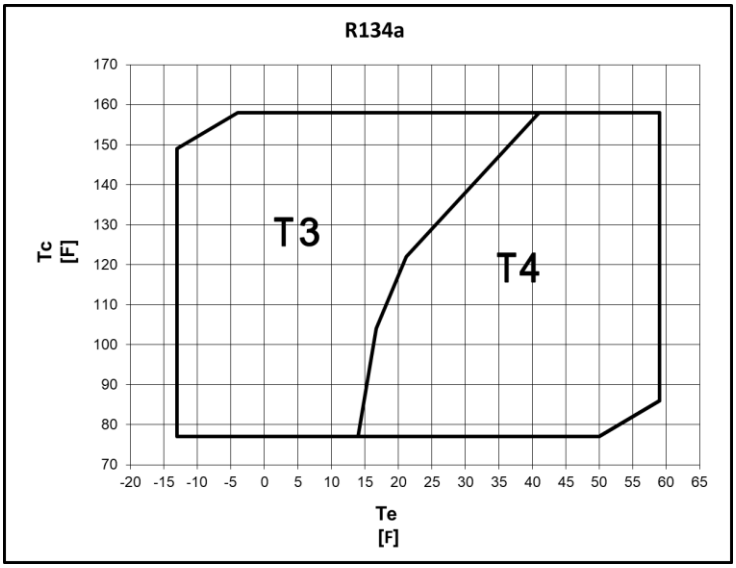
Serie VS - Spostamento volumetrico

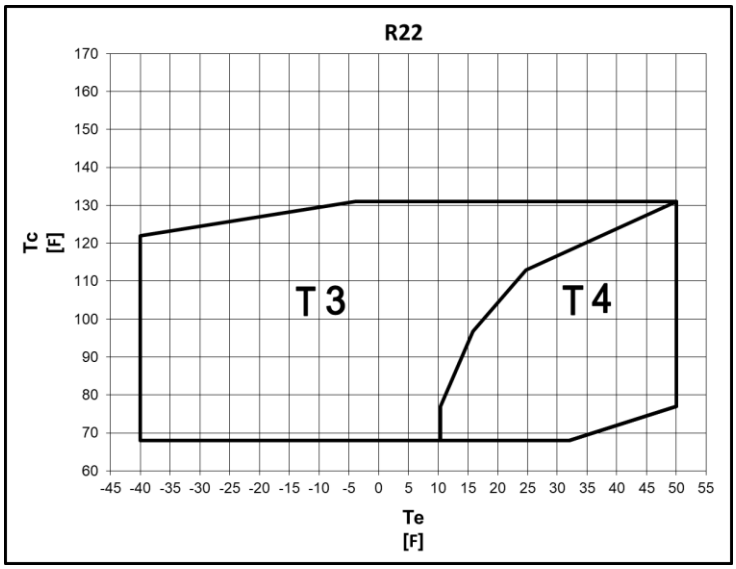


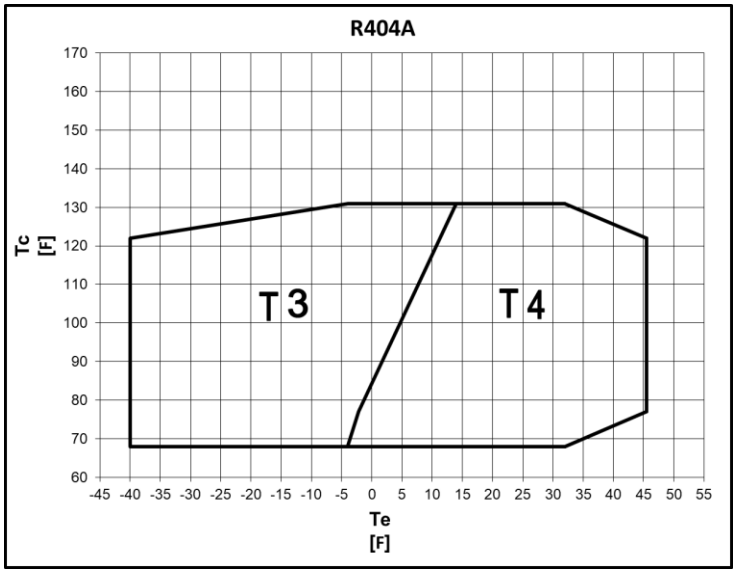

**FROM 80,52 CFH TO 10686,6 CFH**
**FROM 4,6 in³ to 1755,9 in³ SWEPT VOLUME**

## Application envelope

Diagramma di applicazione



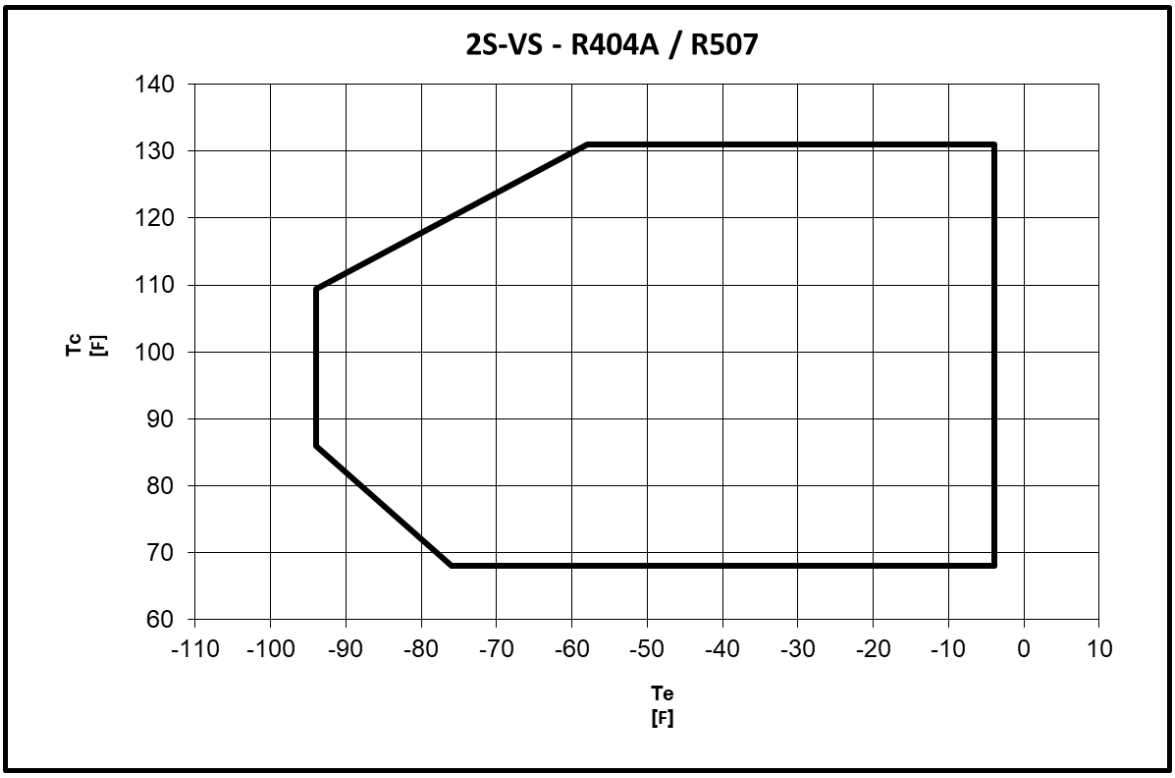



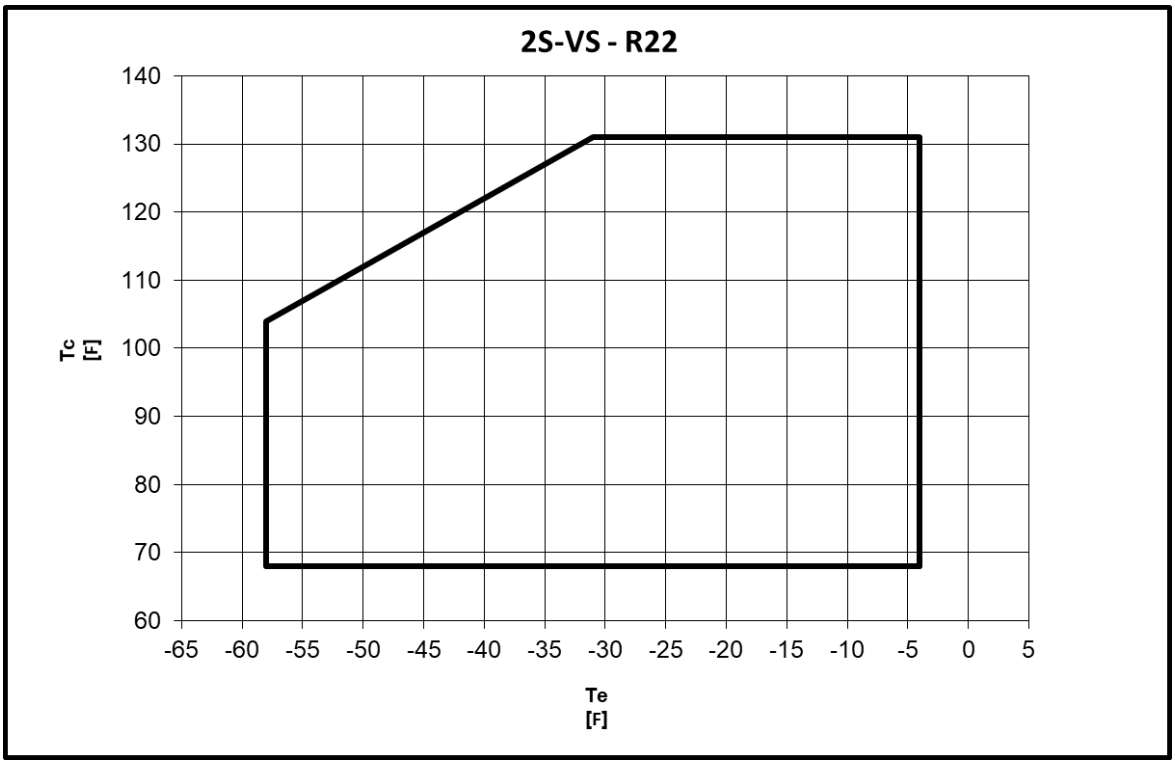




**T3 maximum surface temperature 392 F/** T3 massima temperatura superficiale 392 F
**T4 maximum surface temperature 275 F/** T4 massima temperatura superficiale 275 F
**Suction gas superheat < 54 K /** Surriscaldamento in aspirazione < 54 K

## Application envelope 2 stage models

Diagramma di applicazione modelli doppio stadio




**Use with R22 only where permitted by national legislation /** Utilizzo con R22 solo dove permesso dalle legislazioni nazionali

## Standard and Optional Accessories

Accessori standard e optional




| ● STANDARD<br>○ OPTIONAL | Flywheel (FW)<br>Volano | Crankcase heater (CH)<br>Riscaldatore olio | Water cooled head (WU)<br>Teste raffreddate ad acqua | Capacity control (CR)<br>Controllo di capacità |
|---|---|---|---|---|
| 1HVS | ○ | ○ | | |
| 2GVS | ○ | ○ | | |
| 3LVS | ○ | ○ | | |
| 41VS | ○ | ○ | ○ | |
| 52VS | ○ | ○ | ○ | |
| 63VS/63VSC | ○ | ○ | ○ | ○ |
| 68VS | ○ | ○ | ○ | ○ |
| 81VS | ○ | ○ | ○ | ○ |
| 90VS | ○ | ○ | ○ | ○ |
| 100VS | ○ | ○ | ○ | ○ |
| 110VS | ○ | ○ | ○ | ○ |
| 2S-81VS | ○ | ○ | | |
| 2S-90VS | ○ | ○ | | |

**All models are charged after the production line with POE, PAG or mineral oil**
Tutti i compressori sono caricati dopo la linea di produzione con POE, PAG o olio minerale

## Application VS SERIES

Applicazioni della gamma VS

**Refrigerated transport**

Trasporto refrigerato

**Marine Application**

Applicazioni navali e off-shore

## Technical features

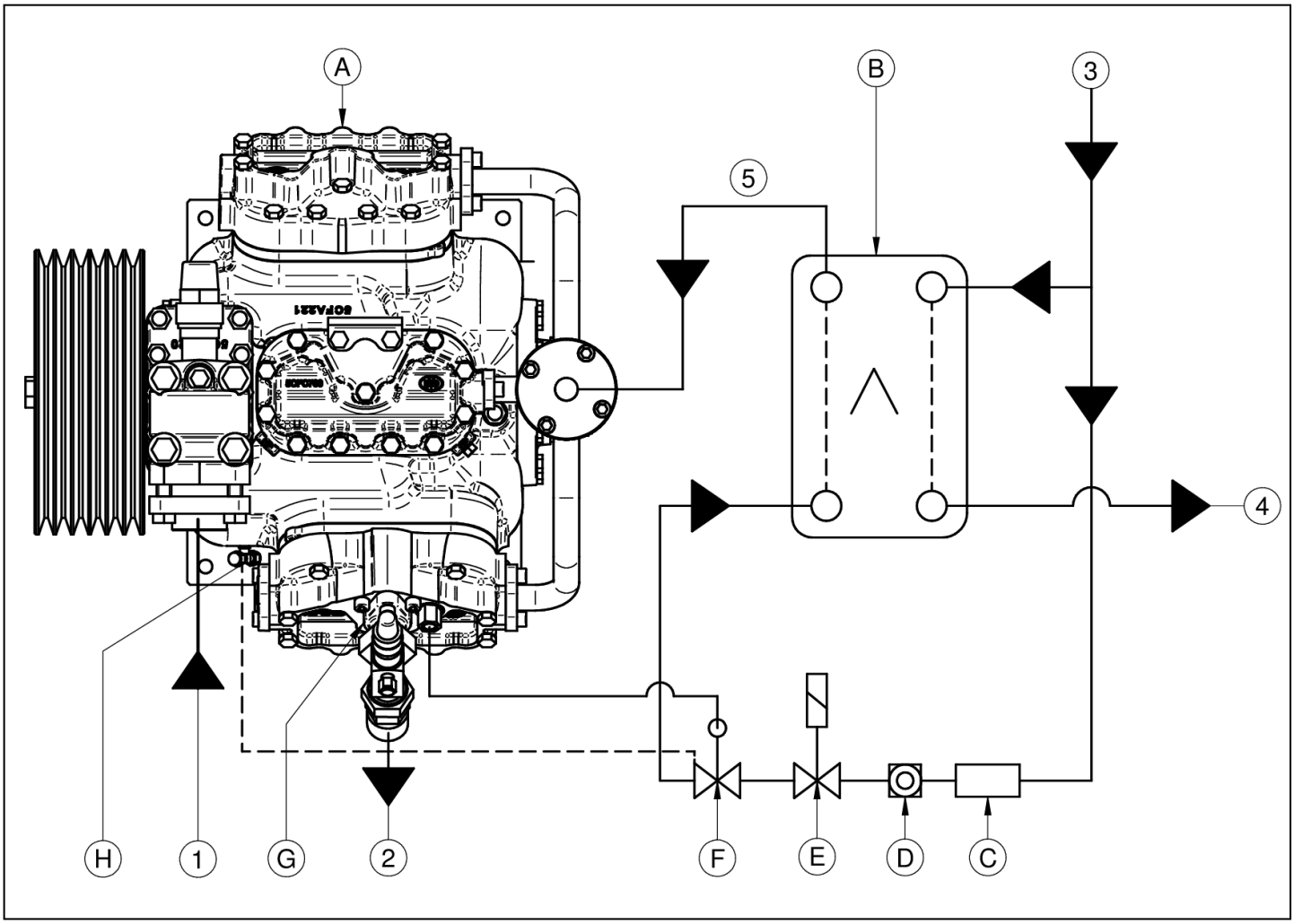
Caratteristiche tecniche

| **MODELLO** MODELLO | **NUMBER OF CYLINDERS** NUMERO DI CILINDRI | **SWEPT VOLUME** CILINDRATA | **DISPLACEMENT** VOLUME SPOSTATO | | **SUCTION** ASPIRAZIONE | **DISCHARGE** SCARICO | **FLYWHEEL** VOLANO | **OIL CHARGE** CARICA OLIO | **WEIGHT** PESO | **RPM** | | **ABSORBED POWER** POTENZA ASSORBITA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **[in³]** | **[CFH] min** | **[CFH]max** | **SL [in]** | **DL [in]** | **[in]** | **[fl.oz.]** | **[lb]** | **min** | **max** | **[kW] min** | **[kW] max** |
| **1HVS** | 2 | 4,64 | 80,69 | 234 | 5/8F | 1/2F | 5,20 | 16,87 | 24,3 | 500 | 1450 | 0,245 | 1,47 |
| **2GVS** | 2 | 10,34 | 179,65 | 521 | 3/4F | 5/8F | 6,30 | 33,75 | 48,5 | 500 | 1450 | 1,47 | 5,52 |
| **3LVS** | 2 | 21,40 | 371,53 | 966 | 1 1/8S | 3/4F | 10,63 | 50,62 | 83,8 | 500 | 1300 | 2,94 | 11,0 |
| **41VSR** | 2 | 34,17 | 712,15 | 1543 | 1 1/8S | 7/8S | 11,93 | 101,24 | 172 | 600 | 1300 | 4,05 | 14,7 |
| **41VSM/3B** | 2 | 34,17 | 712,15 | 1543 | 1 3/8S | 1 1/8S | 11,93 | 101,24 | 172 | 600 | 1300 | 4,05 | 14,7 |
| **41VSM/4B** | 2 | 34,17 | 712,15 | 1543 | 1 3/8S | 1 1/8S | 11,93 | 101,24 | 181 | 600 | 1300 | 4,05 | 14,7 |
| **52VSR** | 2 | 57,91 | 1206,46 | 2614 | 1 3/8S | 1 1/8S | 13,19 | 134,98 | 260 | 600 | 1300 | 7,35 | 22,1 |
| **52VSM** | 2 | 57,91 | 1206,46 | 2614 | 1 5/8S | 1 3/8S | 13,19 | 134,98 | 260 | 600 | 1300 | 7,35 | 22,1 |
| **63VS/4B** | 4 | 75,97 | 1639,28 | 3825 | 1 5/8S | 2 X 1 1/8S | 12,20 | 185,60 | 344 | 750 | 1750 | 11,0 | 36,8 |
| **63VS/6B** | 4 | 75,97 | 1639,28 | 3825 | 1 5/8S | 2 X 1 1/8S | 12,20 | 185,60 | 344 | 750 | 1750 | 11,0 | 36,8 |
| **63VSC/6B** | 4 | 75,97 | 1639,28 | 3825 | 1 5/8S | 1 3/8S | 12,20 | 185,60 | 344 | 750 | 1750 | 11,0 | 36,8 |
| **68VS/4B** | 4 | 87,87 | 1896 | 4424 | 2 1/8S | 1 3/8S | 12,20 | 185,60 | 344 | 750 | 1750 | 11,0 | 55,2 |
| **68VS/6B** | 4 | 87,87 | 1896 | 4424 | 2 1/8S | 1 3/8S | 12,20 | 185,60 | 344 | 750 | 1750 | 11,0 | 55,2 |
| **81VS** | 6 | 113,81 | 2455,71 | 5730 | 2 1/8S | 1 5/8S | 12,20 | 219,35 | 448 | 750 | 1750 | 11,0 | 73,5 |
| **90VS** | 6 | 131,81 | 2844 | 6636 | 2 1/8S | 1 5/8S | 12,20 | 219,35 | 448 | 750 | 1750 | 11,0 | 73,5 |
| **100VS** | 8 | 151,64 | 3272 | 7635 | 3 1/8S | 2 1/8S | 12,20 | 286,84 | 529 | 750 | 1750 | 14,7 | 91,9 |
| **110VS** | 8 | 175,87 | 3795 | 8855 | 3 1/8S | 2 1/8S | 12,20 | 286,84 | 529 | 750 | 1750 | 14,7 | 91,9 |

## 2S-VS SERIES Technical Features

Caratteristiche tecniche della gamma 2S-VS

| MODELLO MODELLO | NUMBER OF CYLINDERS NUMERO DI CILINDRI | | SWEPT VOLUME CILINDRATA | | DISPLACEMENT VOLUME SPOSTATO | | | | SUCTION ASPIRAZIONE | DISCHARGE SCARICO | FLYWHEEL VOLANO | OIL CHARGE CARICA OLIO | WEIGHT PESO | RPM | | ABSORBED POWER POTENZA ASSORBITA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LP | HP | LP | HP | [CFH] LP | | [CFH] HP | | | | | | | | | | |
| | | | [in$^3$] | | Min | max | Min | max | SL [in] | DL [in] | [in] | [fl.oz.] | [lb] | min | max | [kW] min | [kW] max |
| **2S-81VS** | 4 | 2 | 75,8 | 37,9 | 1974 | 4605 | 987 | 2302 | 2 1/8s | 1 5/8s | 12,20 | 219,79 | 476 | 750 | 1750 | 11,0 | 73,5 |
| **2S-90VS** | 4 | 2 | 87,9 | 43,9 | 2288 | 5339 | 1144 | 2670 | 2 1/8s | 1 5/8s | 12,20 | 219,79 | 476 | 750 | 1750 | 11,0 | 73,5 |




A – **Compressor** - Compressore
B – **Liquid subcooler** - Sottoraffreddatore liquido
C – **Filter** - Filtro
D – **Indicator** - Spia liquido
E – **Solenoid valve** - Valvola solenoide
F – **Expansion valve** - Valvola termostatica
G – **Non return valve** - Valvola di ritegno
H – **Low pressure tap** - Presa bassa pressione

1 – **From Evaporator** - Dall'evaporatore
2 – **To condenser** - Al condensatore
3 – **From liquid line** - Dalla linea del liquido
4 – **To evaporator** - All'evaporatore
5 – **To II stage suction** - All'aspirazione del II stadio

## 2S-VS SERIES Preliminary performance data with R404A/R507

Dati preliminari delle performance della gamma 2S-VS con R404A/R507

| RANGE SERIE | MODEL MODELLO | RPM | COND. TEMP Temp. Cond. | REFRIGERATION CAPACITY CAPACITA' FRIGORIFERA Q [BTU/h] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | EVAPORATING TEMPERATURE TEMPERATURA DI EVAPORAZIONE [ °F ] | | | | | | | |
| | | | [ °F ] | -15 | -20 | -30 | -40 | -50 | -60 | -70 | -75 |
| 2S-VS Without Liquid Subcooler | 2S-81VS | 1450 | 90 | 122217 | 109750 | 86798 | 66892 | 51445 | 38988 | 28467 | 24132 |
| | | | 105 | 108668 | 97253 | 75827 | 57191 | 43988 | 33864 | - | - |
| | | | 120 | 94027 | 83716 | 64759 | 47633 | 36669 | 27827 | - | - |
| | 2S-90VS | | 90 | 141700 | 127143 | 100657 | 77557 | 59620 | 44804 | 32829 | 27852 |
| | | | 105 | 125863 | 112415 | 87912 | 66231 | 50922 | 38275 | - | - |
| | | | 120 | 108947 | 97002 | 75072 | 55190 | 42512 | 32014 | - | - |
| 2S-VS With Liquid Subcooler | 2S-81VS | | 90 | 142324 | 130174 | 107089 | 85816 | 68614 | 53377 | 40655 | 35138 |
| | | | 105 | 134914 | 123083 | 100361 | 78862 | 63160 | 49174 | - | - |
| | | | 120 | 127569 | 115885 | 93556 | 71814 | 57819 | 45458 | - | - |
| | 2S-90VS | | 90 | 165023 | 150949 | 124187 | 99590 | 79591 | 61880 | 47168 | 40736 |
| | | | 105 | 156458 | 142751 | 116401 | 91581 | 73230 | 57077 | - | - |
| | | | 120 | 147998 | 134394 | 108517 | 83288 | 67009 | 52715 | - | - |

## 2S-VS SERIES Preliminary performance data with R22

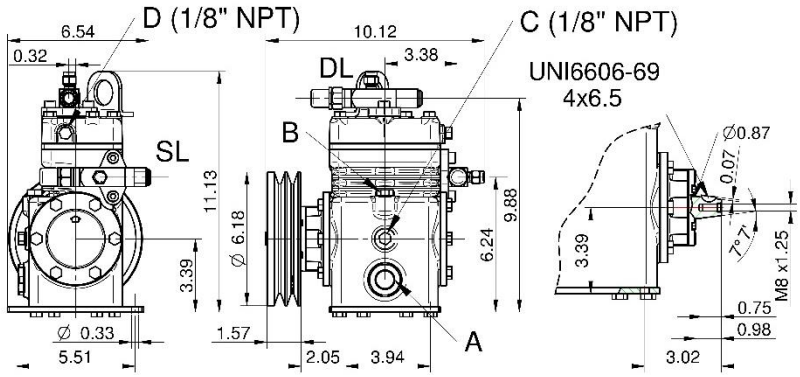
Dati preliminari delle performance della gamma 2S-VS con R22

| RANGE SERIE | MODEL MODELLO | RPM | COND. TEMP Temp. Cond. | REFRIGERATION CAPACITY CAPACITA' FRIGORIFERA Q [BTU/h] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | EVAPORATING TEMPERATURE TEMPERATURA DI EVAPORAZIONE [ °F ] | | | | | | | |
| | | | [ °F] | -15 | -20 | -30 | -40 | -50 | -60 | -70 | -75 |
| 2S-VS Without Liquid Subcooler | 2S-81VS | 1450 | 90 | 124596 | 114858 | 92650 | 74021 | 53691 | 36882 | 26057 | 19815 |
| | | | 105 | 119650 | 110258 | 90109 | 73497 | 51479 | 34432 | 26148 | 19794 |
| | | | 120 | 119005 | 107102 | 88165 | 73067 | 48680 | 32733 | 26200 | 19764 |
| | 2S-90VS | | 90 | 143383 | 132754 | 106483 | 84187 | 61470 | 42360 | 29581 | 22552 |
| | | | 105 | 136933 | 126550 | 102574 | 82291 | 59159 | 40159 | 29071 | 22086 |
| | | | 120 | 134260 | 121897 | 99519 | 80964 | 55717 | 38338 | 28703 | 21518 |
| 2S-VS With Liquid Subcooler | 2S-81VS | | 90 | 141455 | 132508 | 108984 | 88190 | 66270 | 46663 | 30681 | 23440 |
| | | | 105 | 139143 | 130438 | 107269 | 86381 | 64237 | 44348 | 30227 | 23066 |
| | | | 120 | 136937 | 128407 | 105567 | 84809 | 62427 | 43388 | 29662 | 22687 |
| | 2S-90VS | | 90 | 164122 | 153662 | 126357 | 102395 | 76834 | 54117 | 35627 | 27207 |
| | | | 105 | 161359 | 151139 | 124291 | 100175 | 74310 | 51395 | 35049 | 26709 |
| | | | 120 | 158831 | 148880 | 122391 | 98288 | 72327 | 50290 | 34379 | 26241 |

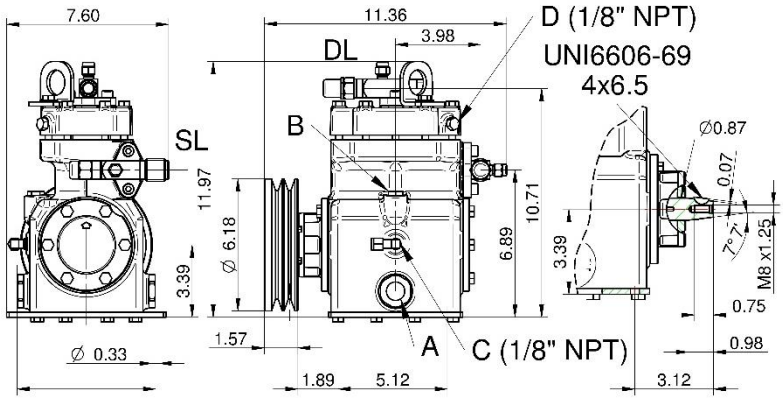
## Technical Drawings

Disegni tecnici

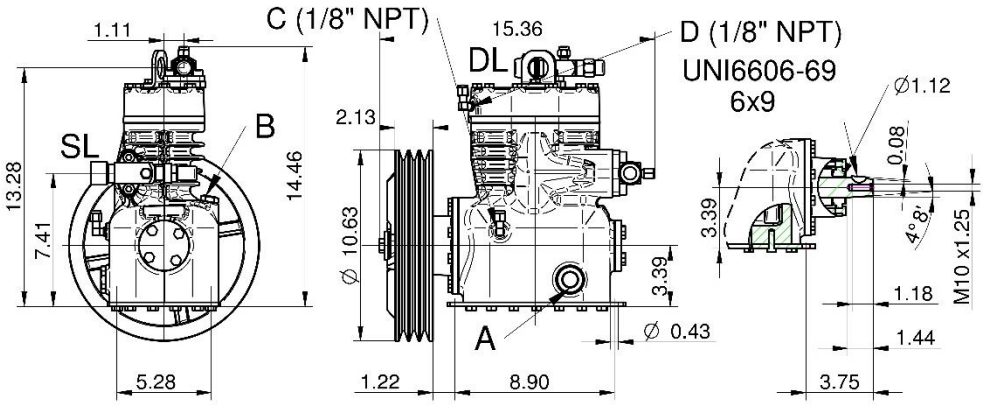
### 1HVS




### 2GVS

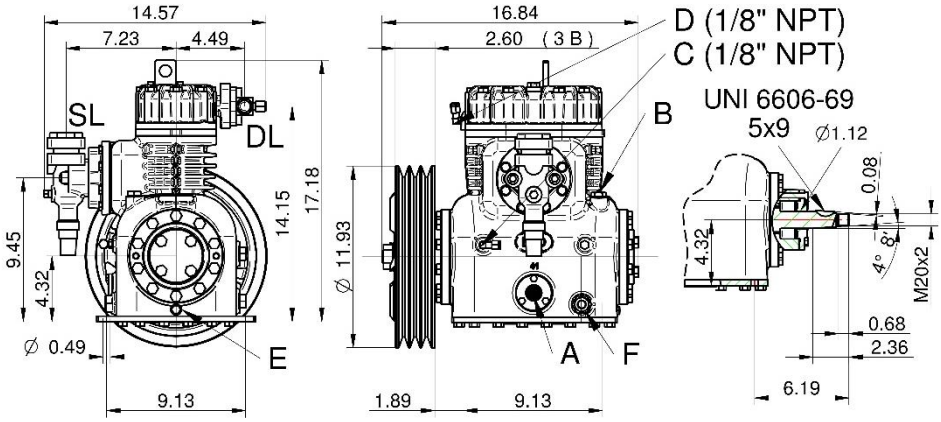



### 3LVS




### 41VSR

### 41VSM/3B



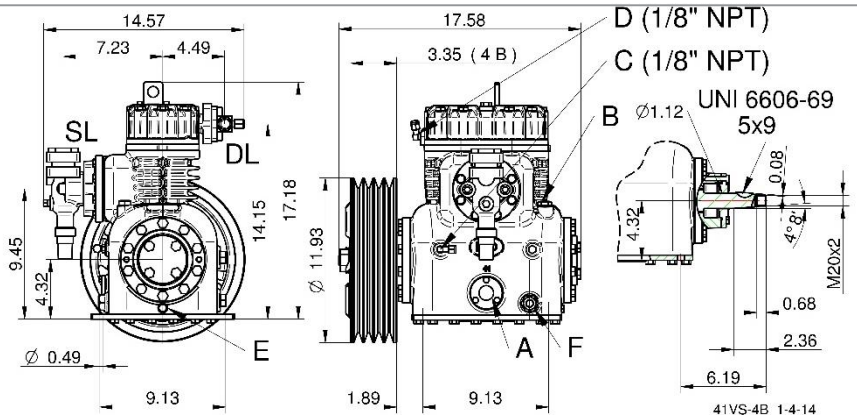

A – Oil sight glass - Spia olio
B – Oil charge plug - Tappo carica olio
C – Low pressure tap - Presa bassa pressione
D – High pressure tap – Presa alta pressione

E – Oil drain plug - Tappo scarica olio
F – Crankcase heater - Resistenza carter
DL – Discharge service valve - Rubinetto compressione
SL – Suction service valve – Rubinetto Aspirazione

## Technical Drawings

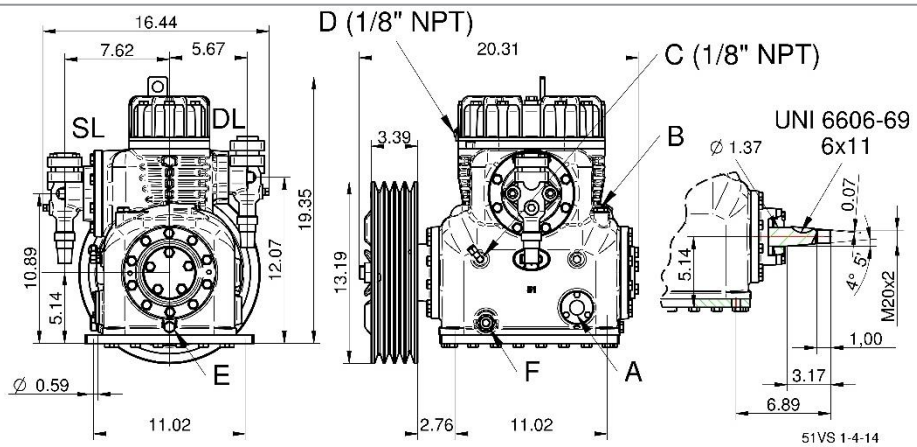
Disegni tecnici

### 41VSM/4B

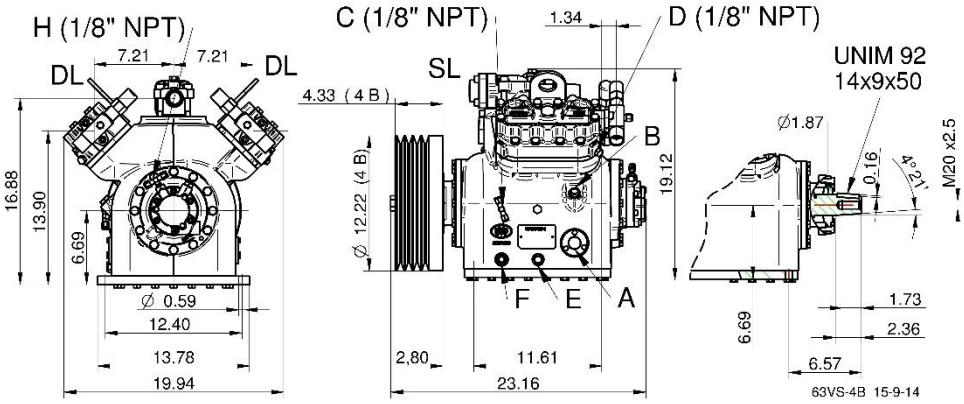



### 52VSR

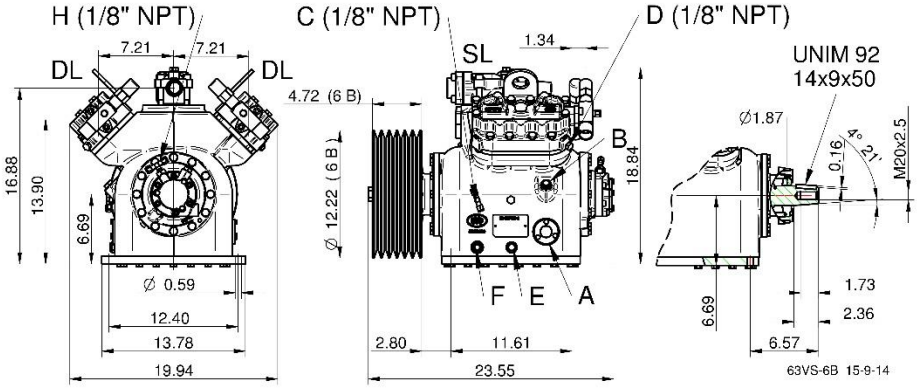
### 52VSM




### 63VS/4B




### 63VS/6B

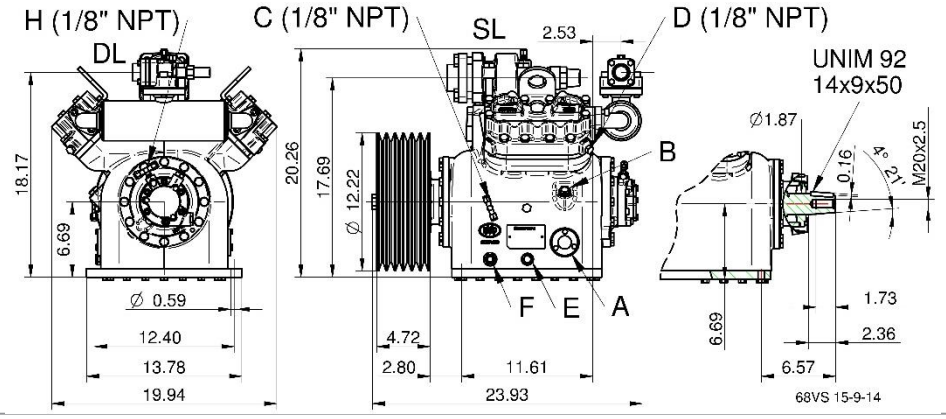



A – **Oil sight glass** - Spia olio
B – **Oil charge plug** - Tappo carica olio
C – **Low pressure tap** - Presa bassa pressione
D – **High pressure tap** - Presa alta pressione
E – **Oil drain plug** - Tappo scarica olio
F – **Crankcase heater** - Resistenza carter
H – **Oil pressure tap** - Presa alta pressione pompa
DL – **Discharge service valve** - Rubinetto compressione
SL – **Suction service valve** - Rubinetto Aspirazione

## Technical Drawings

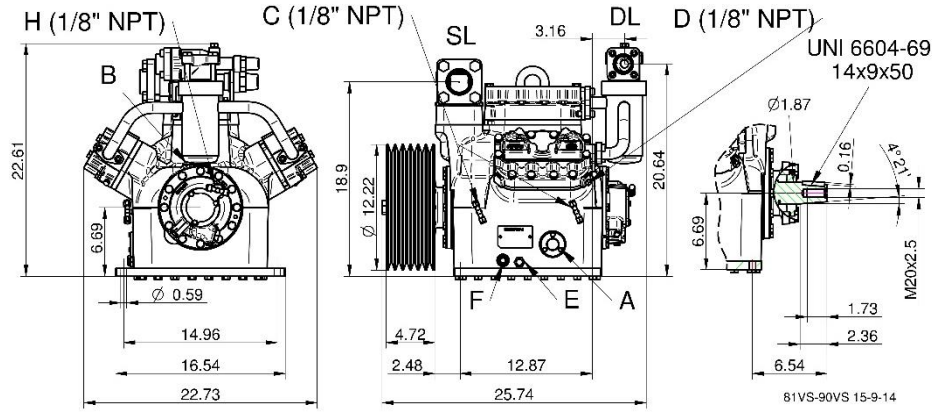
Disegni tecnici

**68VS**



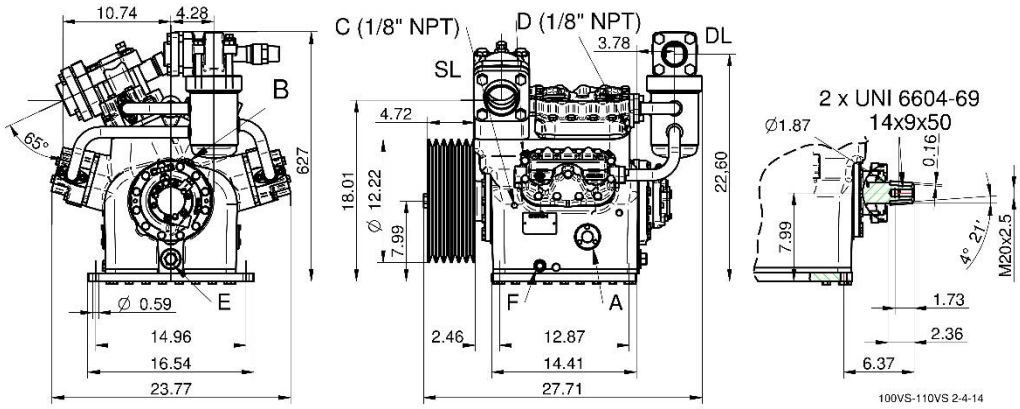

**81VS**

**90VS**




**100VS**

**110VS**



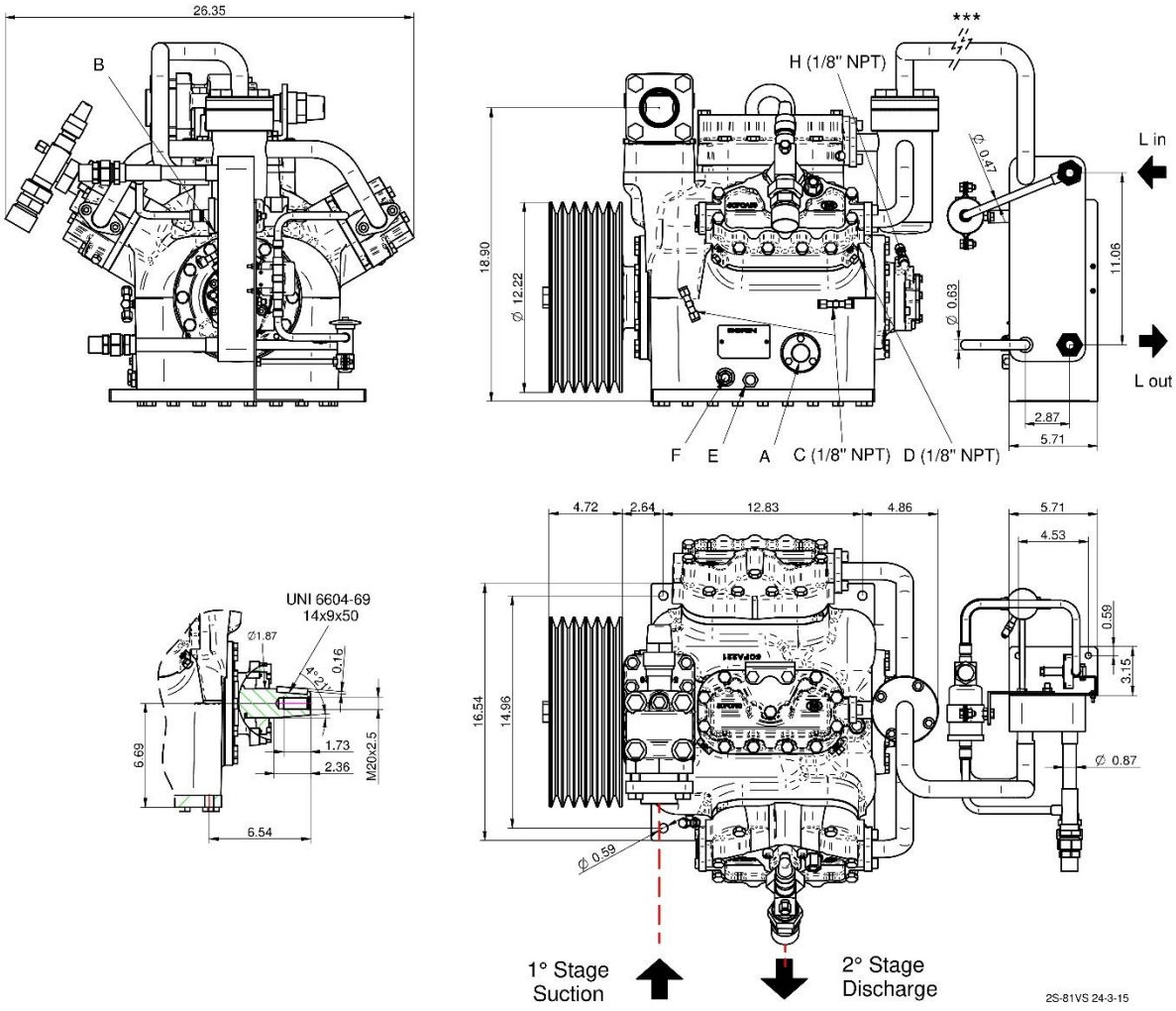

A – **Oil sight glass** - Spia olio
B – **Oil charge plug** - Tappo carica olio
C – **Low pressure tap** - Presa bassa pressione
D – **High pressure tap** - Presa alta pressione
E – **Oil drain plug** - Tappo scarica olio
F – **Crankcase heater** - Resistenza carter
H – **Oil pressure tap** - Presa alta pressione pompa
DL – **Discharge service valve** - Rubinetto compressione
SL – **Suction service valve** - Rubinetto Aspirazione

## Technical Drawings

Disegni tecnici

**2S-81VS**

**2S-90VS**




- Subcooler kit supplied loose. Position defined by customer
- Kit sottoraffreddatore fornito sciolto. Posizione definita dal cliente

*** Interstage injection line (not supplied)

*** Linea di iniezione interstadio (non fornita)

A – **Oil sight glass** - Spia olio
B – **Oil charge plug** - Tappo carica olio
C – **Low pressure tap** - Presa bassa pressione
D – **High pressure tap** - Presa alta pressione
E – **Oil drain plug** - Tappo scarica olio
F – **Crankcase heater** - Resistenza carter

H – **Oil pressure tap** - Presa alta pressione pompa
DL – **Discharge service valve** - Rubinetto compressione
SL – **Suction service valve** - Rubinetto Aspirazione
Lin – **Liquid inlet** – Ingresso liquido
Lout – **Liquid outlet** – Uscita liquido

## NOTES

Note

## DORIN WEB SOFTWARE

**Open the camera app on your device and point it at the QR code to scan it. Make sure that all the four corners of the QR code are in view. A pop-up notification will appear on your screen, tap the notifications to launch the code.**

Aprire l'app della Fotocamera sul proprio dispositivo ed inquadrare il codice QR per scannerizzarlo. Tutti i quattro angoli del codice devono essere visibili. Una notifica pop-up apparirà sullo schermo, cliccare sulla notifica per eseguire il comando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