

# series SP & SB serie



TECHNICAL DRAWINGS - DISEGNI TECNICI

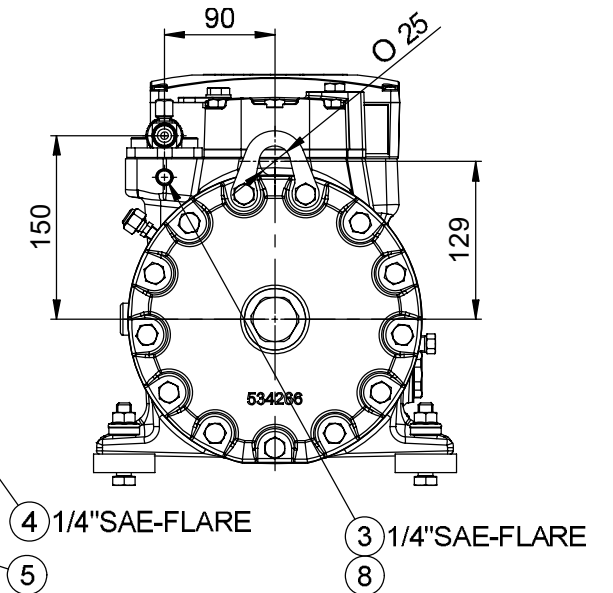
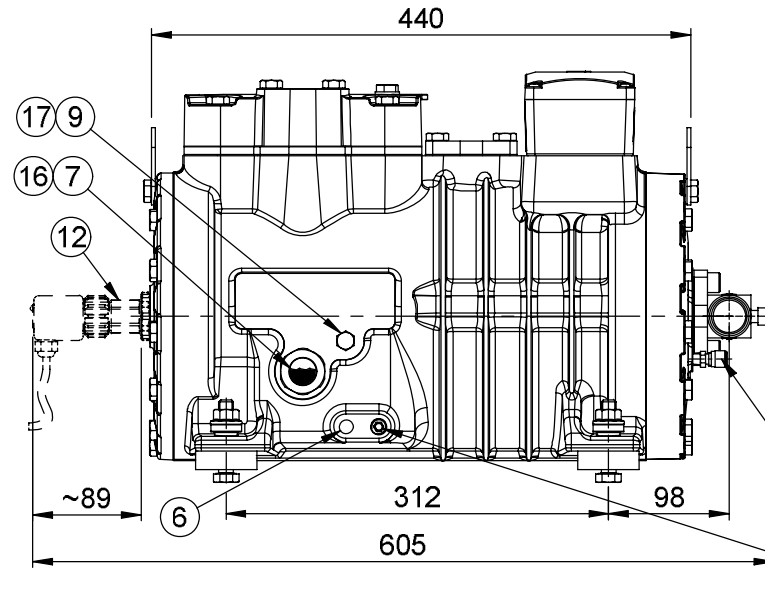
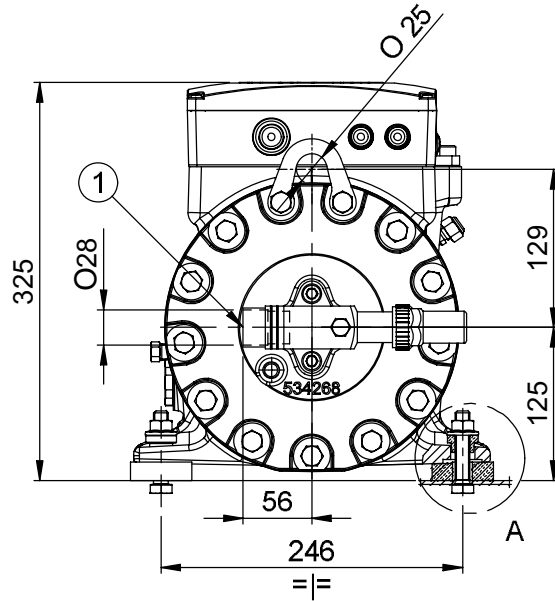
# RefPower

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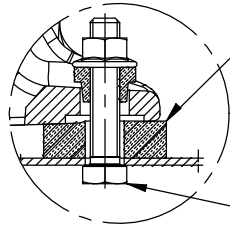
## TECHNICAL DRAWINGS DISEGNI TECNICI

### KEY / LEGENDA

<b>1</b>	Suction shut-off valve	<i>Rubinetto aspirazione</i>
<b>2</b>	Discharge shut-off valve	<i>Rubinetto mandata</i>
<b>3</b>	High pressure H.P.	<i>Alta pressione H.P.</i>
<b>4</b>	Low pressure L.P.	<i>Bassa pressione L.P.</i>
<b>5</b>	Oil drain	<i>Scarico olio</i>
<b>6</b>	Crankcase heater	<i>Resistenza carter</i>
<b>7</b>	Oil level sight glass	<i>Spia livello olio</i>
<b>8</b>	Discharge temperature sensor 1/8"NPT (option)	<i>Sensore temperatura di scarico 1/8"NPT (opzionale)</i>
<b>9</b>	Oil charge valve 1/4"NPT (option)	<i>Rubinetto carica olio 1/4"NPT (opzionale)</i>
<b>10</b>	Oil high pressure 1/4"NPT SAE-FLARE	<i>Alta pressione olio 1/4"NPTSAE-FLARE</i>
<b>11</b>	Oil low pressure 1/4"NPT SAE-FLARE	<i>Bassa pressione olio 1/4"NPT SAE-FLARE</i>
<b>12</b>	Optical oil level sensor (option)	<i>Sensore ottico livello olio (opzionale)</i>
<b>13</b>	Oil pressure differential switch (option)	<i>Attacco pressostato differenziale olio elettronico (opzionale)</i>
<b>14</b>	Oil stainer plug	<i>Tappo filtro olio</i>
<b>15</b>	LCM injection connection 1/8"NPT	<i>Attacco raccordo iniezione LCM 1/8"NPT</i>
<b>16</b>	Oil equalization (parallel operation)	<i>Equalizzazione olio (operazione parallelo)</i>
<b>17</b>	Gas equalization (parallel operation)	<i>Equalizzazione gas (operazione parallelo)</i>



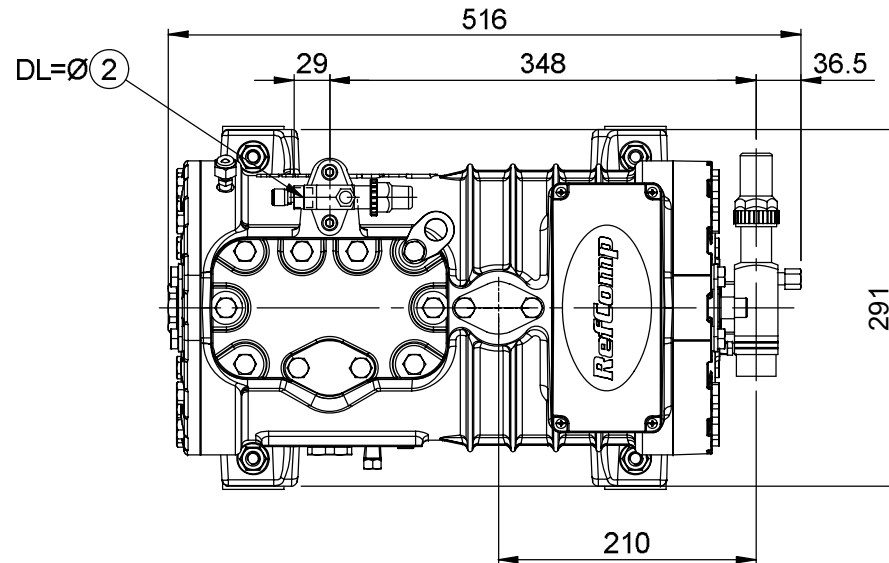
Series rubber damper  
 Antivibranti in gomma di serie

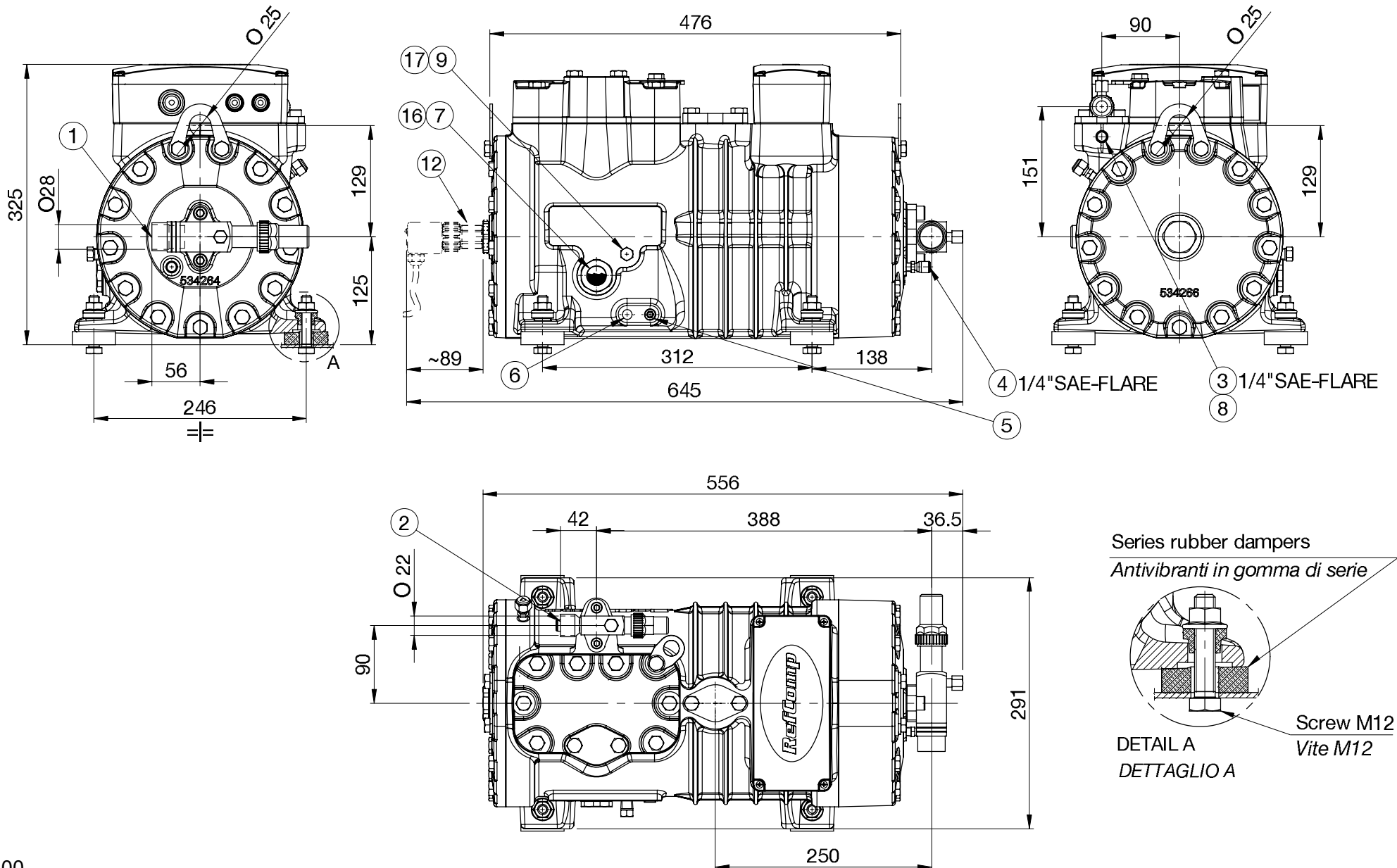
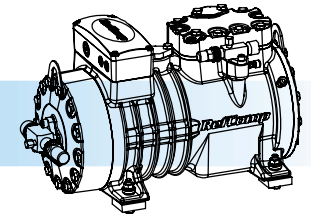


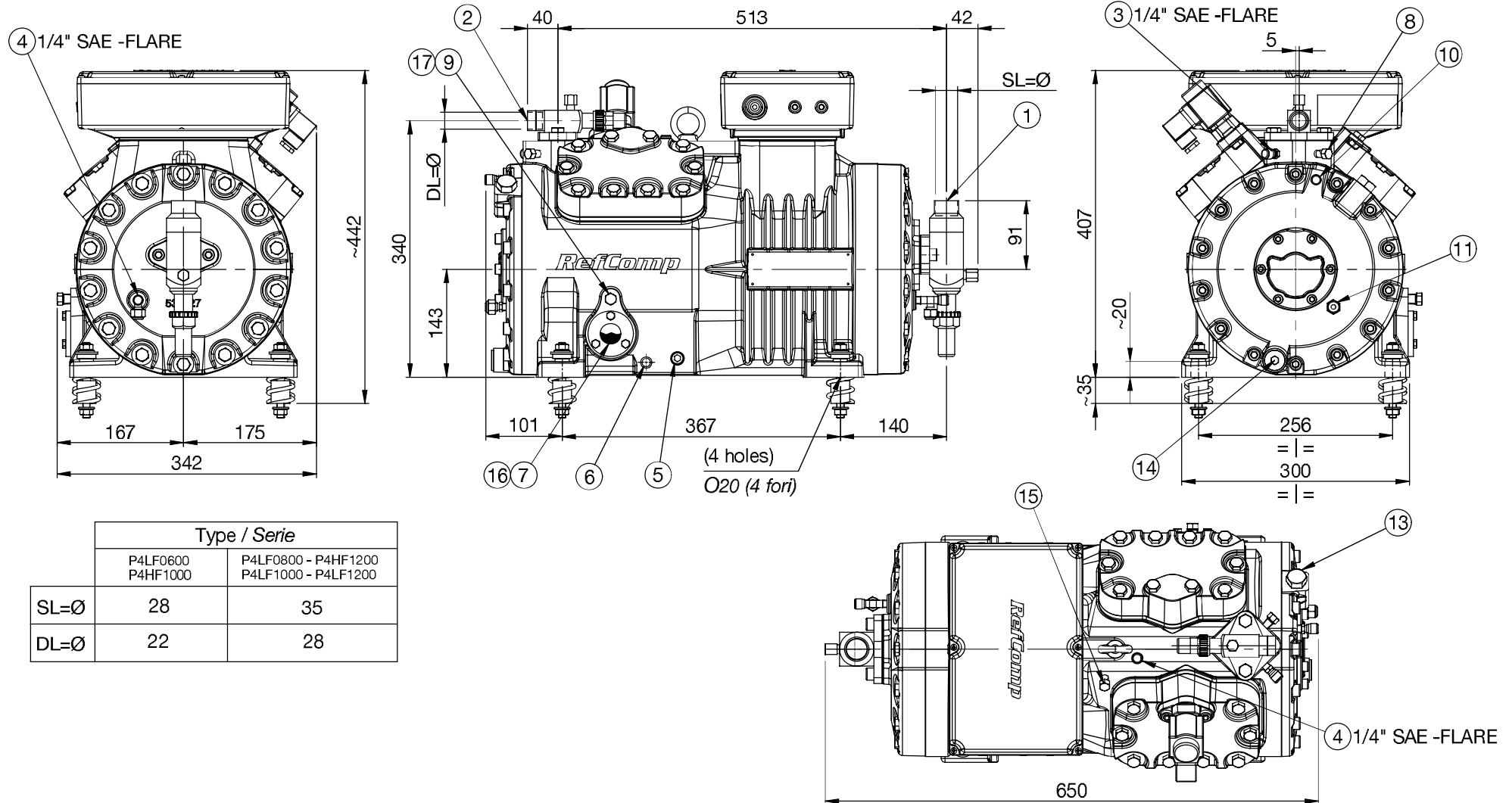
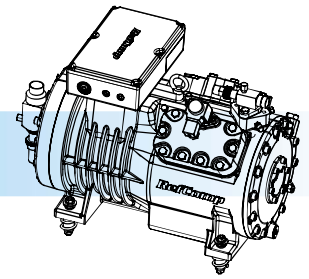
Screw M12  
 Vite M12

DETAIL A / DETTAGLIO A

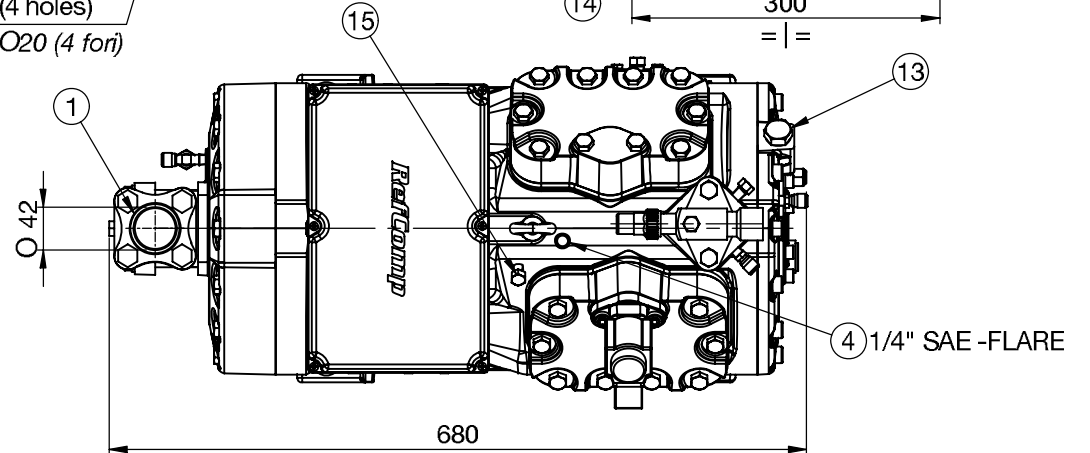
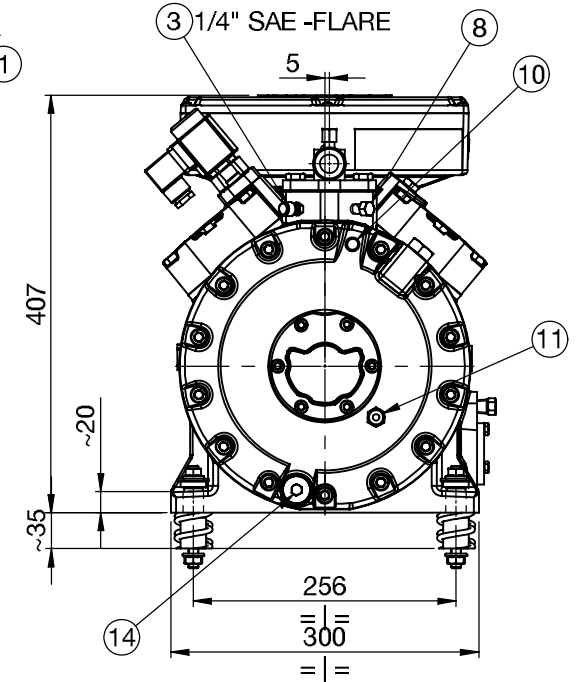
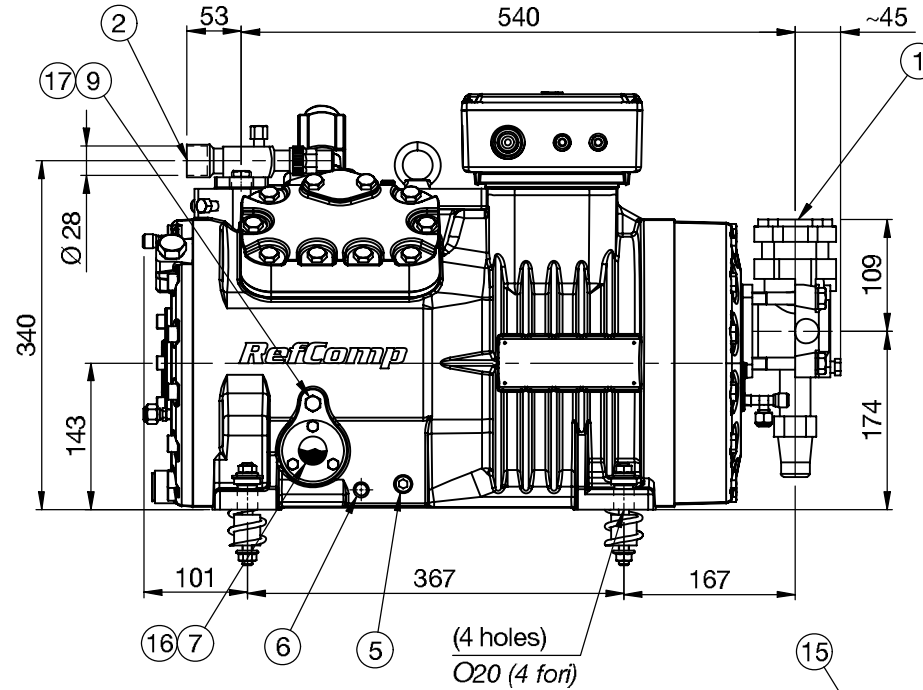
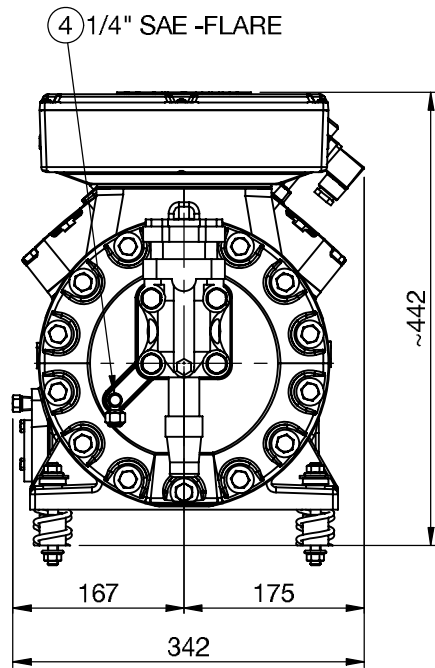
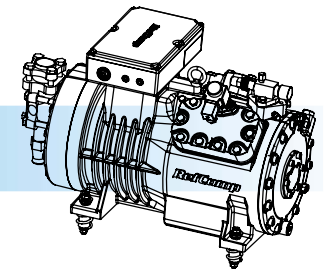
	Type / Serie	
	P2L00300 - P2H00500 P2L00400 - P2H00600	P2L00500 P2L00600
DL=Ø	16	22



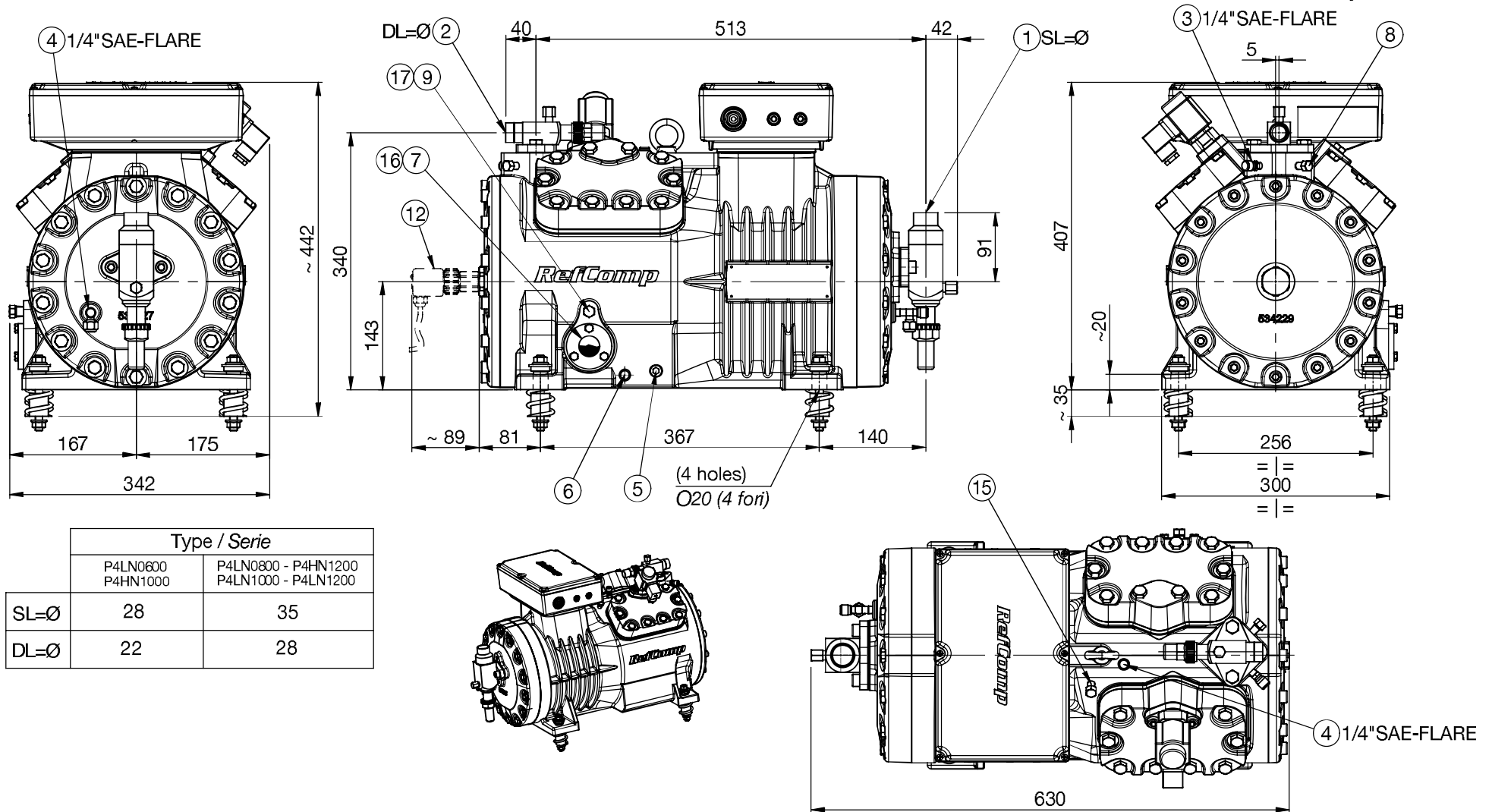
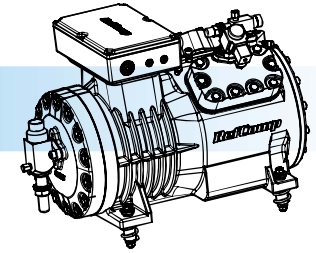




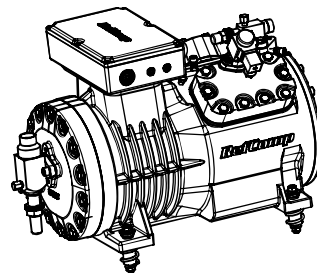
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	P4LF0600 P4HF1000	P4LF0800 - P4HF1200 P4LF1000 - P4LF1200
SL=Ø	28	35
DL=Ø	22	28

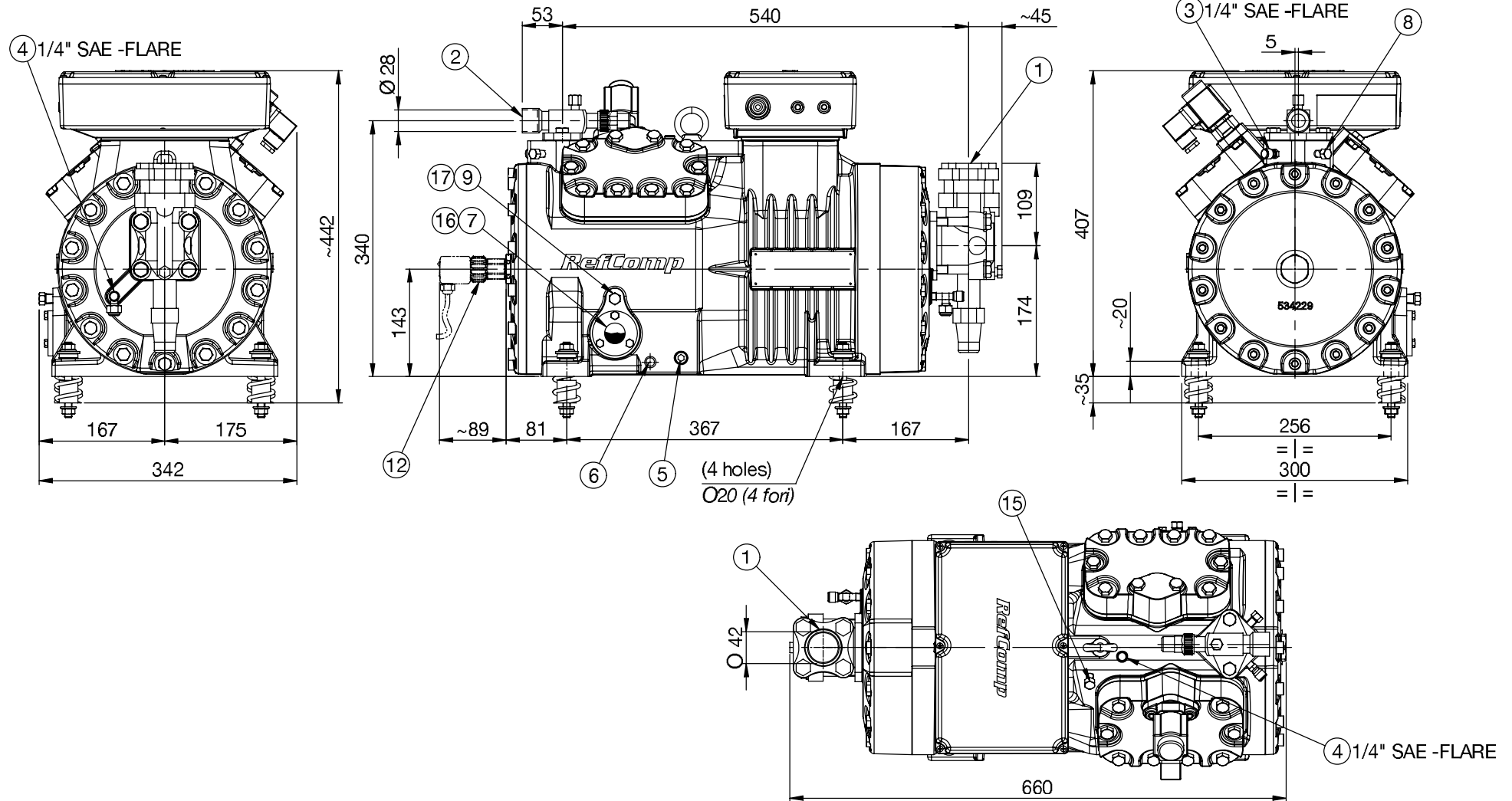
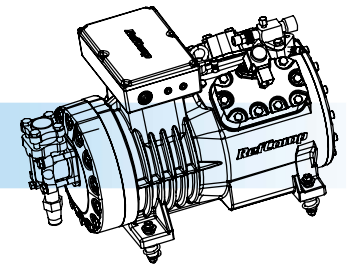


SP4LN0600 - SP4LN060E - SP4LN0800 - SP4LN080E  
 SP4HN/LN1000 - SP4HN/LN100E - SP4HN/LN1200 - SP4HN/LN120E



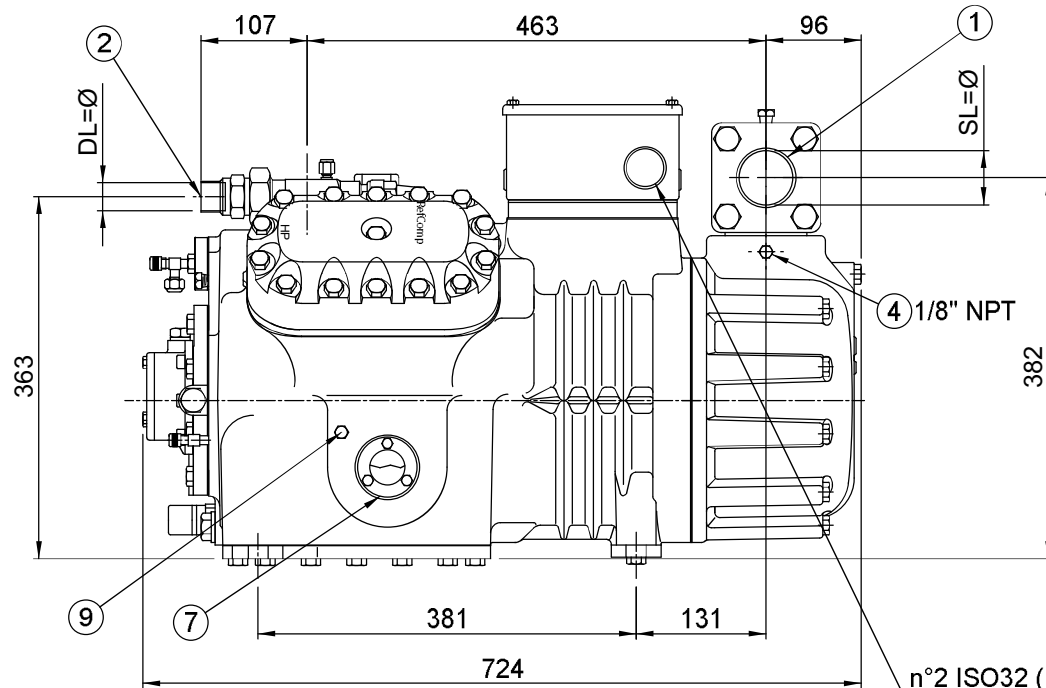
	Type / Serie	
	P4LN0600 P4HN1000	P4LN0800 - P4HN1200 P4LN1000 - P4LN1200
SL=Ø	28	35
DL=Ø	22	28





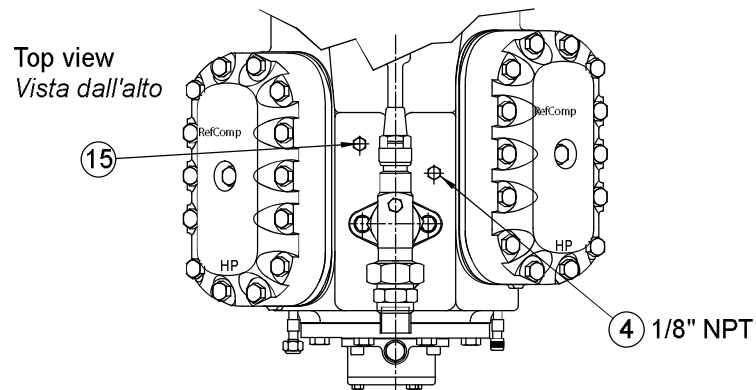
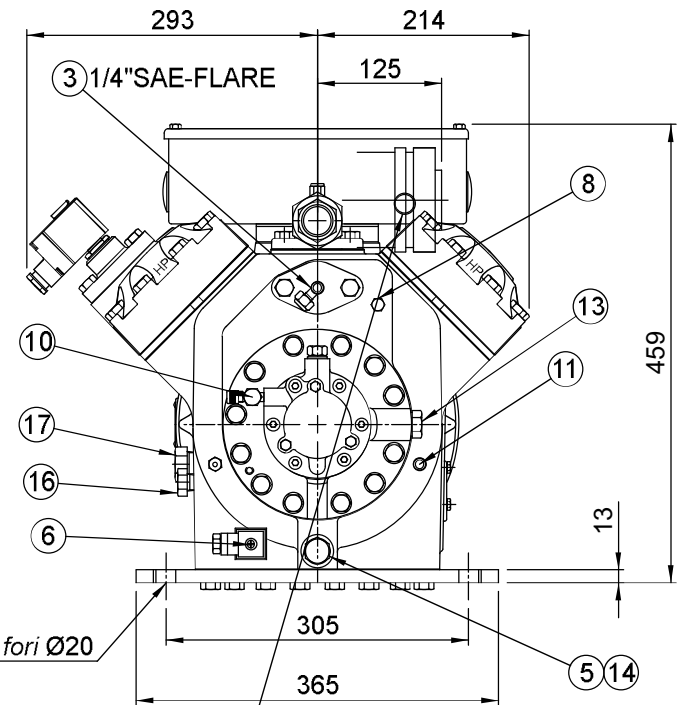


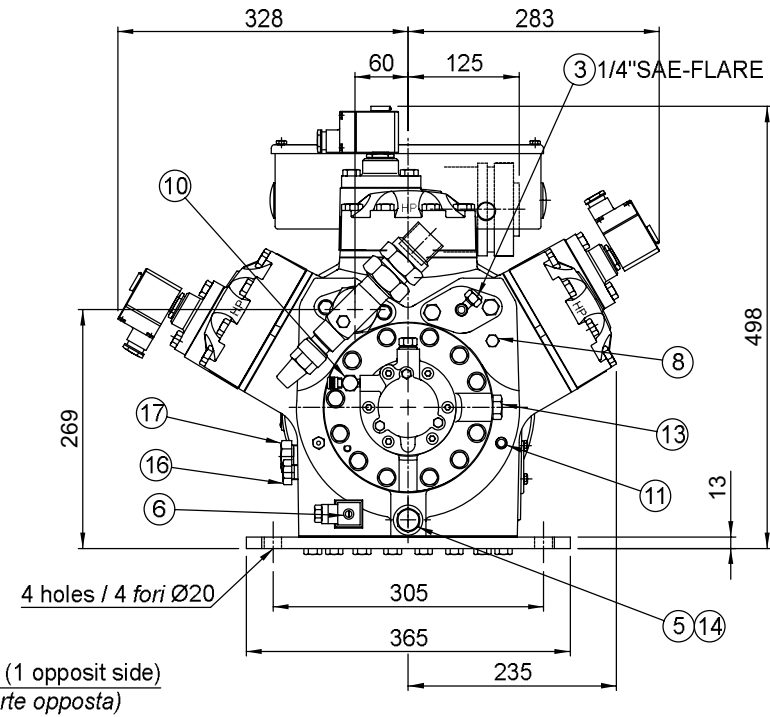
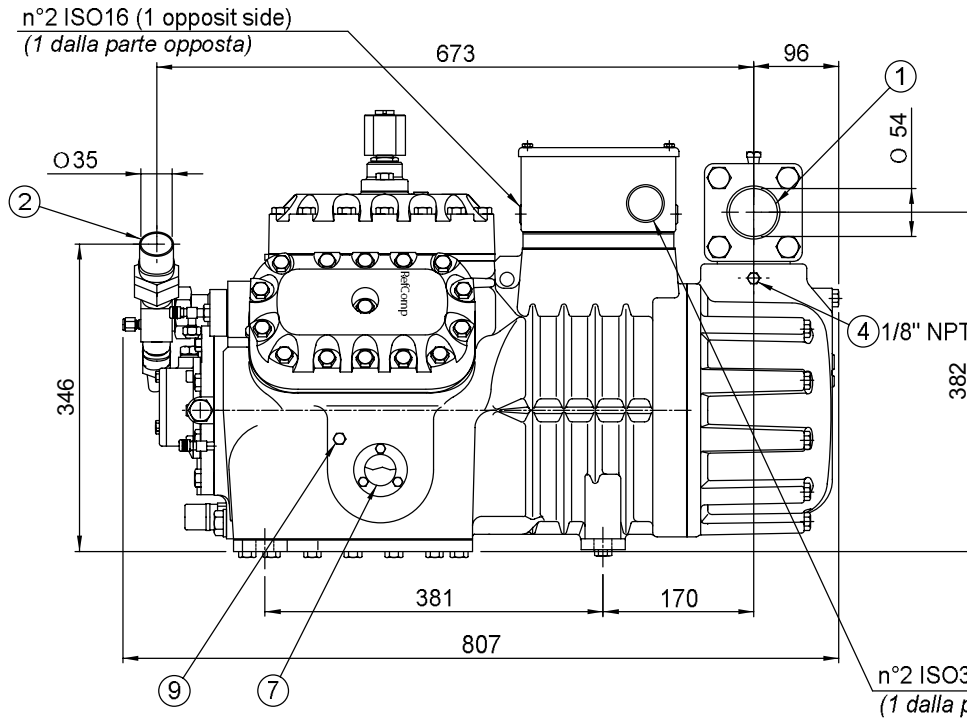
SP4L1500 - SP4L150E - SP4L1800 - SP4L180E - SP4L2200 - SP4L220E - SP4L2500 - SP4L250E  
 SP4H2200 - SP4H220E - SP4H2500 - SP4H250E - SP4H3000 - SP4H300E - SP4H3500 SP4H350E



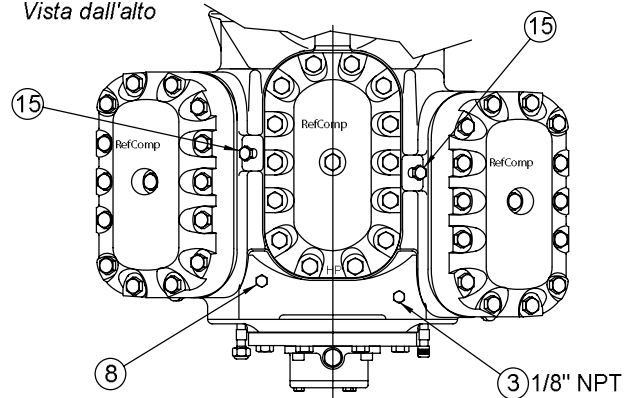
n°2 ISO32 (1 opposit side)  
 (1 dalla parte opposta)

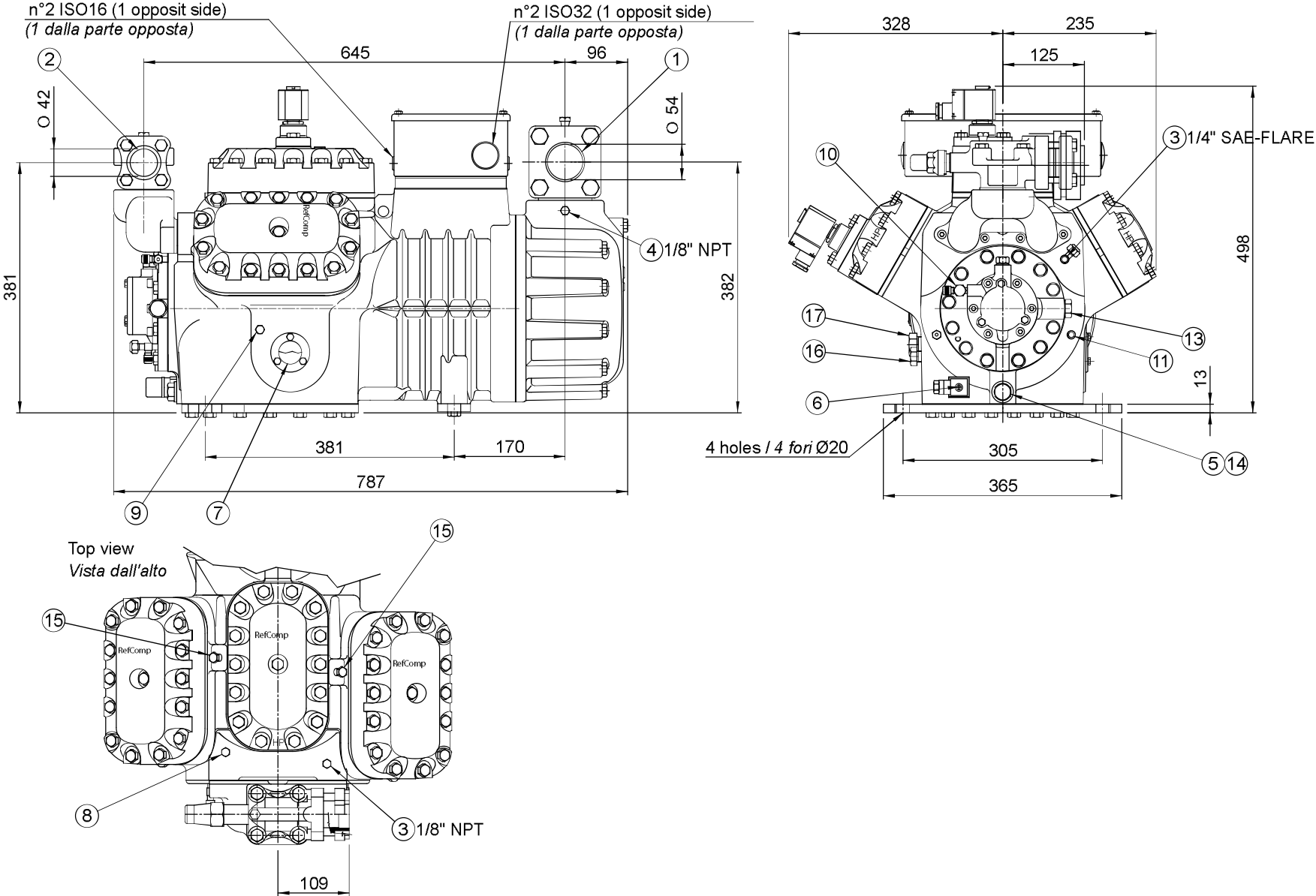
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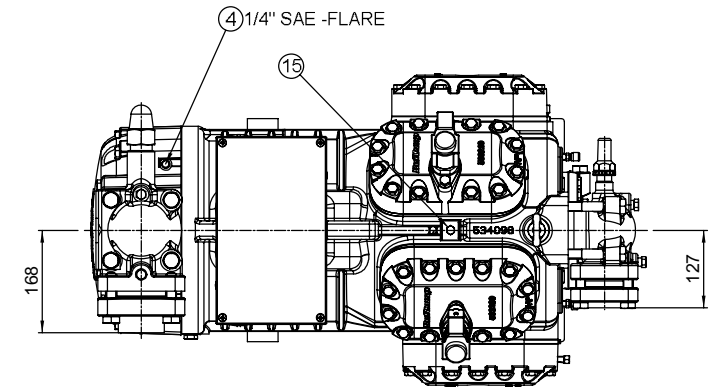
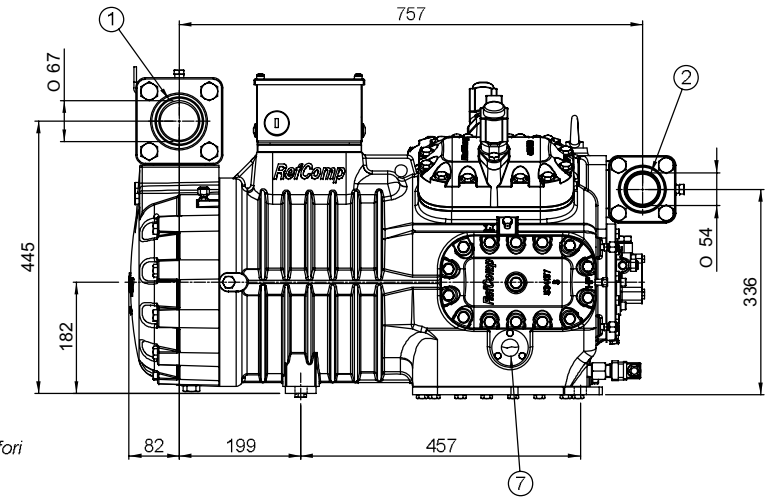
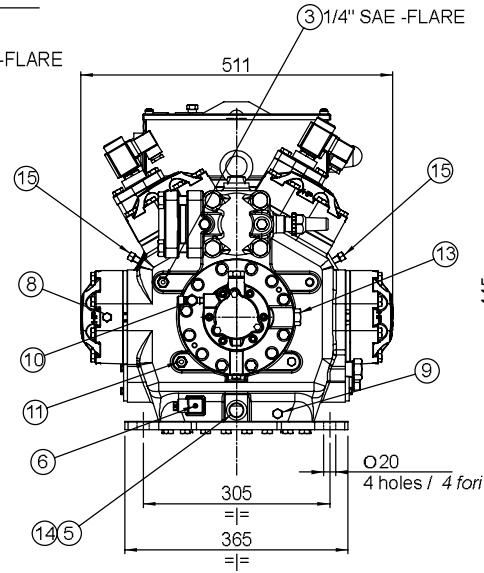
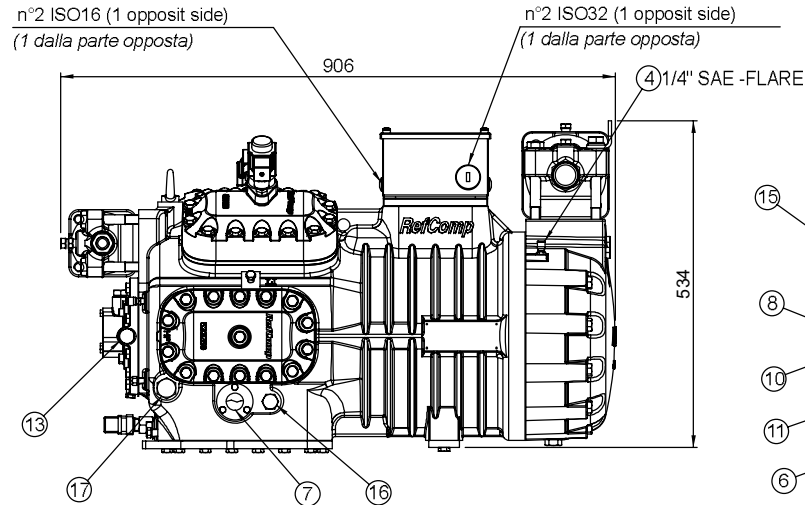
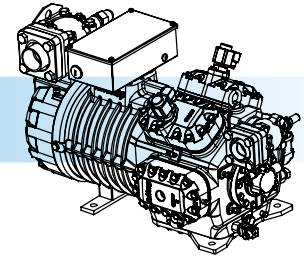




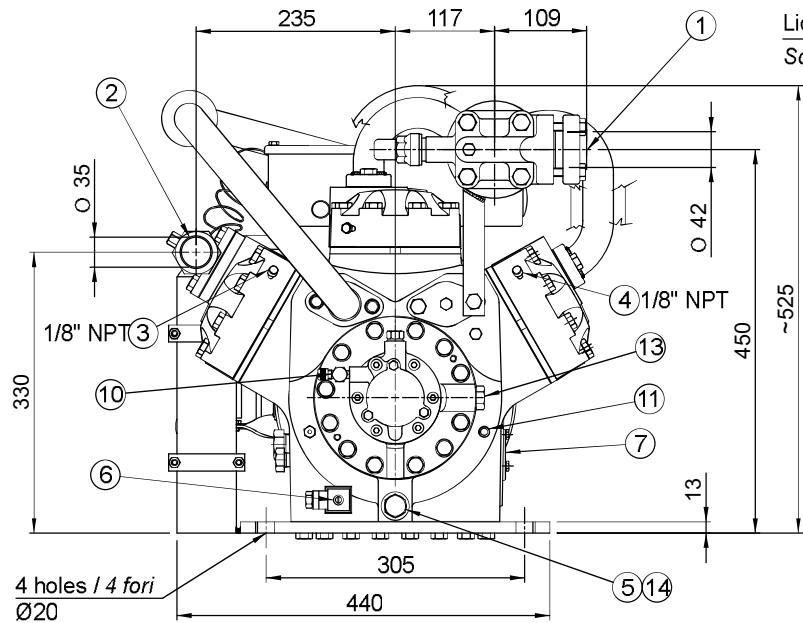
Top view  
 Vista dall'alto





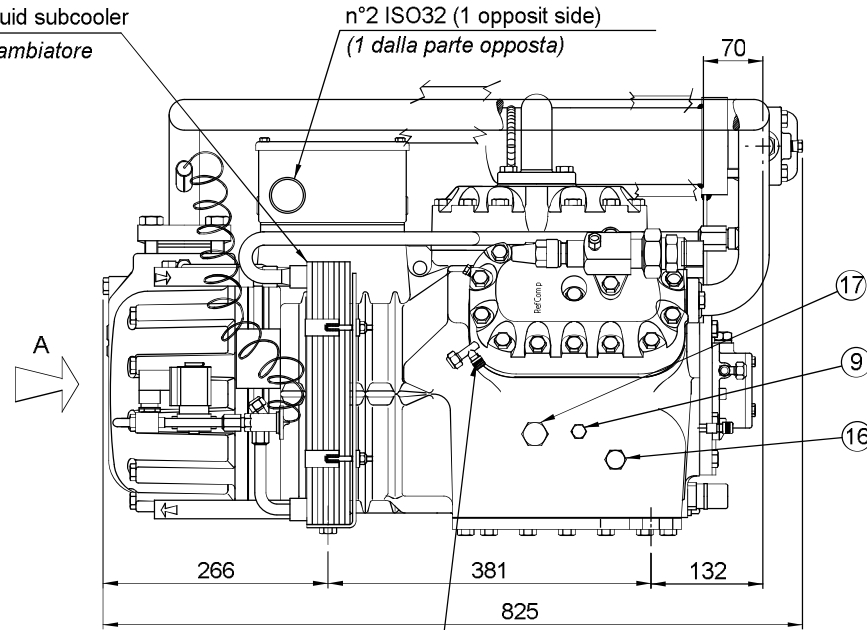


SB4 1200 - SB4 120E  
SB1400 - SB140E

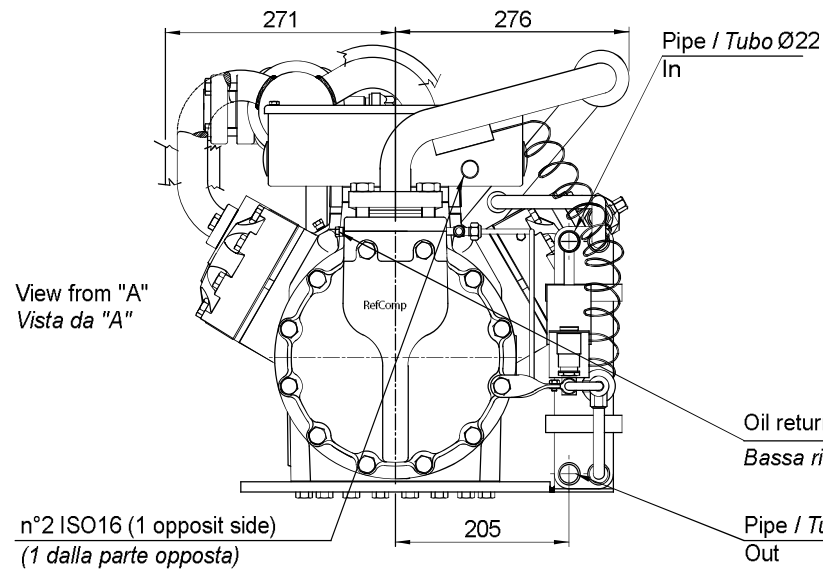


Liquid subcooler  
Scambiatore

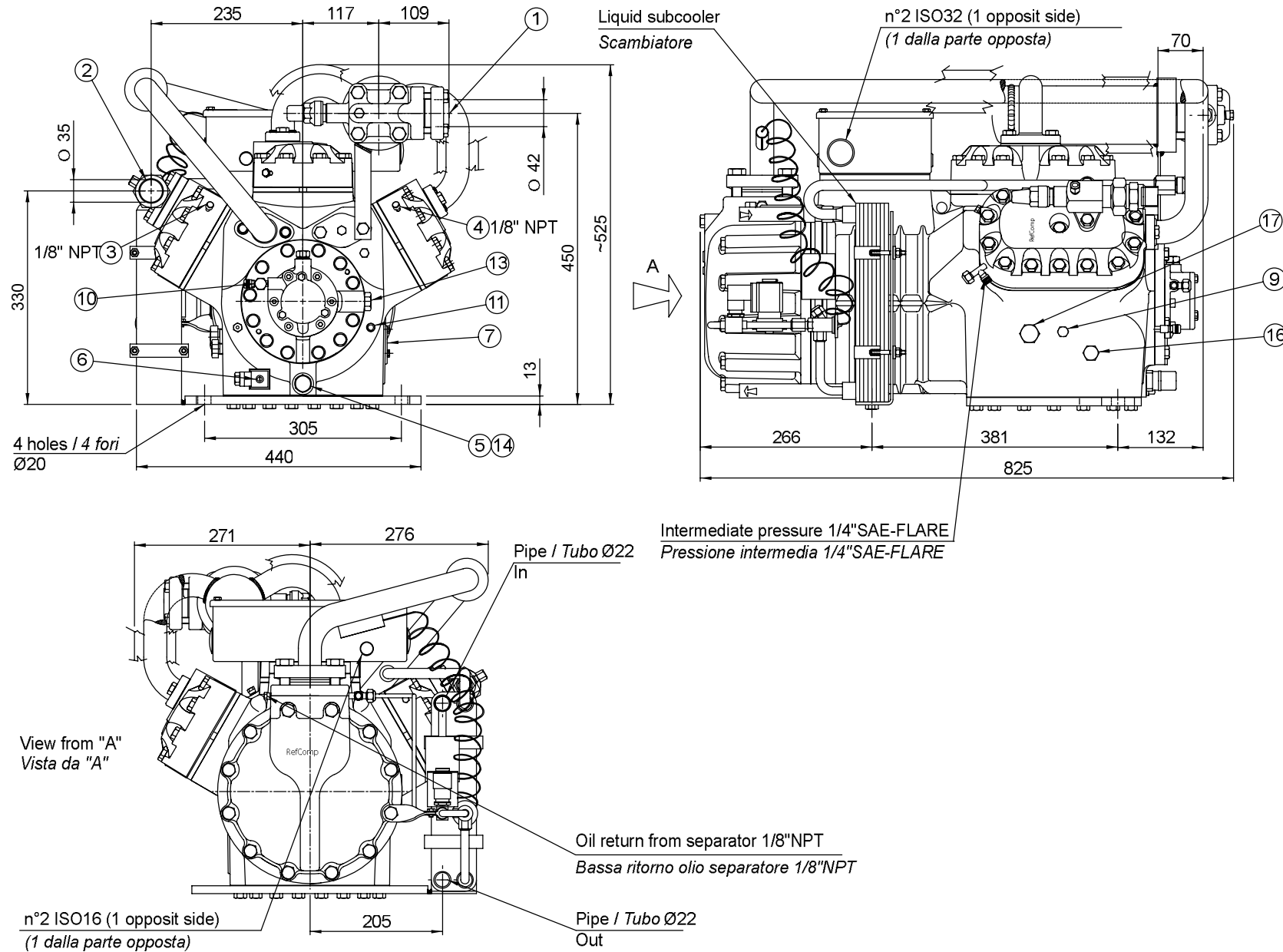
n°2 ISO32 (1 opposit side)  
(1 dalla parte opposta)



Intermediate pressure 1/4"SAE-FLARE  
Pressione intermedia 1/4"SAE-FLARE



SB61600 / SB6160E / SB62000 - SB6 200 E  
 SB6 2500 - SB6 250 E SB6 3000 - SB6 300 E



## EXTENT OF DELIVERY

### SP SERIES

Star (400 [V]) or Delta (230 [V]) motor for SP2 models, part-winding start-up motor for all the other models (400 [V] /3/50 [Hz] - 460/3/60 [Hz]); suction shut-off valve<sup>(1)</sup>; discharge shut-off valve; integrated safety relief valve; oil sight glass; oil filter<sup>(2)</sup>; oil charge; PTC sensors embedded in the electrical motor; electronic protection devices (230 [V] /1/50-60 [Hz]) INT 69 for SP2 and INT 69 VS for the rest of the models; IP54-class electrical box; nitrogen protective charge, spring vibration dampers<sup>(3)</sup>.

- (1) Except for SP8 models.
- (2) Except for SP2 and SP4\_N models (with splasher lubrication).
- (3) Except for 2- and 8-cylinder models, supplied as standard with rubber vibration dampers.

### SB SERIES

Suction and discharge shut-off valves, 4 spring vibration dampers, PTC embedded in the electrical motor and electronic motor protection device Kriwan INT 69 VS, IP54 enclosure class terminal box, internal safety relief valve, intermediate pressure line with manometer joint, oil sight glass, bridges for D.O.L. start, thermostatic valve with its own kit consisting of a solenoid valve, a liquid sight glass and a drier, all disassembled, oil charge for R22 refrigerant, nitrogen protective charge.

All electric devices, either standard or optional, are meant for 230-1-50/60 [Hz] supply.

## ESTENSIONE FORNITURA STANDARD

### SP SERIES

*Motore standard a Stella (400 [V]) o a Triangolo (230 [V]) per i modelli SP2; avviamento part-winding per gli altri. Tensione standard (400 [V] /3/50 [Hz] o 460/3/60 [Hz]), rubinetto di aspirazione (1), rubinetto di mandata, valvola di sicurezza integrata, vetro spia olio, filtro olio (2), carica olio, motore elettrico con sensori di temperatura integrati (PTC) e unità di controllo elettronico INT 69 per 2 cilindri, INT 69 VS per gli altri (230 [V] /1/50-60 [Hz]), scatola morsettiera con grado di protezione IP54, carica protettiva di azoto, antivibranti di base a molla (3).*

- (1) Ad eccezione dei modelli SP8.
- (2) Non applicabile per i modelli SP2 e SP4\_N (dotati di lubrificazione a sbattimento).
- (3) Eccetto che per i modelli a 2 e 8 cilindri, dotati, in configurazione standard, di antivibranti di base in gomma.

### SB SERIES

*Rubinetto di aspirazione, rubinetto di mandata, 4 supporti antivibranti a molla, sonde di temperatura inserite nel motore elettrico e modulo di protezione elettronico Kriwan INT 69 VS, scatola morsettiera con grado di isolamento IP54, valvola di sicurezza interna, linea di pressione intermedia con presa di pressione, vetro spia olio, ponticelli per avviamento diretto, valvola termostatica e suo kit comprensivo di valvola solenoide, spia del liquido e filtro disidratatore, disassemblati, carica olio per refrigerante R22, carica protettiva di azoto.*

*Gli accessori elettrici, siano essi standard o opzionali, sono previsti per alimentazione a 230 [V] -1-50/60 [Hz].*

## ACCESSORIES

### SP SERIES

The compressors, save for the SP2, can be equipped with an integrated capacity control system. The user can choose to have it already installed in the factory or to buy the suitable kit for a later installation. The capacity control system is achieved by the installation of one or two (4) special heads equipped with a solenoid valve.

When energized this solenoid valve stops the suction gas from entering the compression chamber, turning the compression stroke of the underlying pistons into an idle stroke. Together with the cooling capacity reduction, which is proportional to the number of the non-effective cylinders, the power consumption also reduces, keeping energy efficiency at very high levels. Specifically, the following are the available capacity steps.

(4) Two special heads only for 6- or 8-cylinder models.

Compressor type <i>Tipo compressore</i>	N° of capacity control steps <i>N° testate parzializzate</i>	Capacity control <i>Controllo capacità</i>	N° of capacity control steps <i>N° testate parzializzate</i>	Capacity control <i>Controllo capacità</i>
2 Cyl. / 2 Cil.	--	--	--	--
4 Cyl. / 4 Cil.	1	50%	--	--
6 Cyl. / 6 Cil.	1	66%	2	66%-33%
8 Cyl. / 8 Cil.	1	75%	2	75%-50%

The following accessories are also available upon request: suction shut-off valve<sup>(5)</sup>, special voltage motors, start unloader device<sup>(6)</sup> (SU), liquid injection control module LCM and related accessories<sup>(7)</sup>, fan for additional cooling<sup>(8)</sup>, spring vibration dampers<sup>(7)</sup>, discharge gas temperature monitoring sensor, crankcase heater, oil differential pressure safety switch MP54<sup>(9)</sup>, electronic oil differential pressure switch<sup>(9)</sup>, opto-electronic oil sensor<sup>(10)</sup>, oil charging service valve, connections for compressor parallel operation and special packaging.

The standard and/or optional electrical accessories such as the motor protection device, the crankcase heater and the solenoid valves, are suitable for 230 [V] AC 50/60 [Hz] power supply. However special voltages are also available upon request.

(5) Only for SP8 models. For all other models the suction shut-off valve is standard.

(6) Except for 2- and 8-cylinder models.

(7) Not valid for 2-cylinder models.

(8) Except for 8-cylinder models.

(9) Except for 4-cylinder models with splasher lubrication SP4\_N.

(10) Valid for 2 and 4 cylinder models with splasher lubrication SP4\_N.

### SB SERIES

Special electric motors; polyol-ester oil for HFC refrigerants; MP54 electromechanical oil pressure switch; electronic oil pressure switch; oil electric heater; oil charge service valve; control module (LCM) for liquid injection (as an alternative to the thermostatic valve) together with its own kit consisting of a solenoid valve, a liquid sight glass and a drier, all disassembled; liquid subcooler (fitted or not, as requested); discharge temperature control sensor; kit rubber anti-vibration dampers.

## ACCESSORI

### SP SERIES

*I compressori, ad eccezione degli SP2, possono essere corredati con un sistema di controllo della capacità integrato: il sistema può essere richiesto direttamente in fase d'ordine o come kit, per essere quindi installato in un qualsiasi momento successivo. Il controllo di capacità si basa sull'installazione di una o due (4) testate speciali dotate di una valvola solenoide. Tale valvola, se eccitata, esclude l'afflusso di gas in aspirazione alla testata stessa, rendendo così inefficace il moto dei pistoni sottostanti. La riduzione della resa, proporzionale al numero di cilindri disattivati, avviene contestualmente ad una riduzione della potenza assorbita, mantenendo così un'elevata efficienza energetica. I compressori possono essere equipaggiati con un numero variabile di gradini di parzializzazione, come indicato nella tabella qui di seguito riportata.*

(4) Due testate speciali solo per i modelli a 6 o 8 cilindri.

*Su richiesta sono inoltre disponibili anche i seguenti accessori: rubinetto o flangia di aspirazione<sup>(5)</sup>, motori per alimentazioni elettriche speciali, dispositivo di partenza a vuoto<sup>(6)</sup> (SU), modulo di controllo LCM per iniezione di liquido e relativi accessori<sup>(7)</sup>, ventilatore per raffreddamento addizionale testate<sup>(8)</sup>, antivibranti di base a molla<sup>(7)</sup>, sensore di controllo temperatura di scarico, resistenza carter, pressostato differenziale olio MP54<sup>(9)</sup>, pressostato differenziale olio elettronico<sup>(9)</sup>, sensore olio opto-elettronico<sup>(10)</sup>, rubinetto carica olio, raccordi per operazione in parallelo, imballo speciale.*

*Gli accessori elettrici, standard o opzionali, a corredo del compressore (modulo di protezione, riscaldatore olio, bobine di parzializzazione) sono a 230 [V] AC 50/60 [Hz]. A richiesta disponibili voltaggi speciali.*

(5) Solo per i modelli SP8. Per gli altri modelli il rubinetto d'aspirazione è standard.

(6) Non applicabile per i modelli a 2 e 8 cilindri.

(7) Non applicabile per i modelli a 2 cilindri.

(8) Non applicabile per i modelli ad 8 cilindri.

(9) Non applicabile per i modelli a 4 cilindri con lubrificazione a sbattimento SP4\_N.

(10) Applicabile solo per i modelli a 2 cilindri, 4 cilindri con lubrificazione a sbattimento SP4\_N

### SB SERIES

*Motori speciali; carica olio estere per refrigeranti HFC; pressostato elettromeccanico olio MP54; pressostato differenziale olio elettronico; riscaldatore olio; valvola di servizio per carica olio; modulo di controllo (LCM) per iniezione di liquido (in sostituzione della valvola termostatica) con proprio kit a parte comprensivo di valvola solenoide, spia del liquido e filtro disidratatore, disassemblati; sottoraffreddatore di liquido (montato o smontato, a scelta); sensore di controllo temperatura di scarico; kit supporti anti-vibranti in gomma.*