Air Cooled Chiller
VLS 524–1204

137–308 kW HFC 410A Scroll

Technical feature

- 8 sizes.
- Cooling capacity from 137 to 308 kW.
- 4 versions:
  STD (Standard); HSE (High Seasonal Efficiency);
  HT (High Temperature); HPF (High Pressure Fans).
- 3 acoustic versions:
  BLN (Basic Low Noise), LN (Low Noise) and ELN (Extra Low Noise).
- Two refrigerant circuits.
- Scroll compressors.
- Microprocessor control.
- Electronic expansion valve.
- Inverter fans (Standard HSE & HT).

Accessories and options

- Hydrokit with 1 or 2 pumps with ot without buffer tank (500 lt).
- Desuperheater and totaly heat recovery VLR.
- Coils treatments.
- Unit protection grilles.
- Sofstart.
- BMS interface.
- Overload protection for compressors.
- Automatic circuit breaker.
- Flow switch.
- Differential pressure switch (standard).
- Water filter.
- Fan speed control (-18°C).
- Power factor corrector capacitors.
- Sequence phases control (standard).
- Mechanical gauges kit.
- Compressors acoustic box (standard).
- Compressors jackets.

Operating limit

VLS			524		604		704		804		904		1004		1004		1204	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Leaving water temperature	Water	°C	from +6 to +15															
	Water with glycol	°C	from -8 to +15															
	Δ T	K	from 3 to 8															
Air temperature	BLN	°C	from 0 to +46 (3)		from -5 to +47 (3)		from -5 to +47 (3)		from 0 to +46 (3)		from 0 to +47 (3)		from 0 to +46 (3)		from 0 to +45 (3)		from 0 to +45 (3)	
	LN/ELN (1)	°C	from 0 to +44		from -5 to +45 (3)		from -5 to +45 (3)		from 0 to +44 (3)		from 0 to +45 (3)		from 0 to +44 (3)		from 0 to +42 (3)		from 0 to +42 (3)	
	HT	°C	from -18 to +48		from -18 to +49 (3)		from -18 to +49 (3)		from -18 to +48 (3)		from -18 to +49 (3)		from -18 to +48 (3)		from -18 to +47 (3)		from -18 to +47(3)	
External static pressure	Standard fans	Pa	0															
	Inverter fans SIF	Pa	≤120															

(1) Minimum air temperature -18°C with Fan speed control (standard ELN).
(3) High Pressure at 40.5 ba.

Chillers suitable for operation without buffer tank for water content greater than 3 liters of water per kW of output.

Technical feature VLS STD/HSE/SIF 524–1204 BLN

Model VLS STD/HSE/SIF-BLN		524	604	704	804	904	1004	1104	1204
Cooling capacity (1)	kW	136,6	154,3	176,9	198,8	228,9	250,9	279,6	307,7
Power input (2)	kW	45,0	49,7	59,4	65,5	74,6	78,5	91,6	106,2
GROSS EER		2,80	2,79	2,72	2,79	2,78	2,91	2,82	2,70
GROSS ESEER		3,79	3,77	3,68	3,78	3,77	3,94	3,81	3,66
EER		2,76	2,75	2,67	2,74	2,75	2,88	2,79	2,67
ESEER		3,62	3,50	3,47	3,44	3,43	3,59	3,52	3,45
GROSS EER HSE		2,87	2,87	2,79	2,86	2,86	2,99	2,89	2,76
GROSS ESEER HSE		4,36	4,37	4,24	4,35	4,36	4,55	4,39	4,20
EER HSE		2,83	2,82	2,74	2,81	2,83	2,95	2,85	2,71
ESEER HSE		3,89	3,81	3,79	3,89	3,90	4,07	3,97	3,86
Number of refrigerant circuits		2	2	2	2	2	2	2	2
Part load steps	%	25-50-75-100	28-57-78-100	20-50-70-100	25-50-75-100	28-50-78-100	25-50-75-100	23-50-73-100	25-50-75-100
Refrigerant									
Type		HFC 410A							
Charge	kW	26,6	30,0	34,4	39,4	47,3	49,2	55,1	60,4
Compressor									
Qty		4	4	4	4	4	4	4	4
Type		Scroll							
Evaporator									
Qty		1	1	1	1	1	1	1	1
Type		Plate exchanger AISI 316							
Water flow	l/h	23.495	26.540	30.427	34.194	39.371	43.155	48.091	52.924
Connection type		Male gas threaded							
Inlet/outlet diameter	inch	2½"	2½"	2½"	2½"	3"	3"	3"	3"
Condenser									
Qty		2	2	2	2	2	2	2	2
Frontal surface	mm^2	3,5	3,5	4,8	4,8	4,8	4,8	4,8	4,8
Fan									
Qty		2	3	3	3	4	4	4	4
Speed	rpm/min	900	900	900	900	900	900	900	900
Air flow	m^3/h	46.300	63.000	68.300	68.300	85.000	80.000	75.500	75.500
Power input	kW	3,8	5,7	5,7	5,7	7,6	7,6	7,6	7,6
Power input*	kW	2,6	4,0	4,0	4,0	5,3	5,3	5,3	5,3
Static head pressure	Pa	from 0 to 120 Pa**							
Weight									
Shipping	kg	1.188	1.413	1.603	1.746	1.880	2.010	2.100	2.110
Operating	kg	1.200	1.425	1.615	1.760	1.905	2.035	2.125	2.135
Additional weights									
Versions HSE/SIF	kg	30	30	30	30	40	40	40	40
With desuperheater	kg	20	20	20	30	30	30	30	30
With one pump	kg	50	50	85	85	90	90	95	95
With two pumps	kg	140	140	200	200	205	205	215	215
With copper/copper coils	kg	380	380	520	520	520	700	880	880
Dimensions									
Length	mm	3.300	3.300	4.300	4.300	4.300	4.300	4.300	4.300
Width	mm	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
Height	mm	2.300	2.300	2.300	2.300	2.300	2.300	2.300	2.300
Acoustical data									
Sound power level (3)	dB(A)	92	93	93	93	94	94	95	95
Sound pressure level (4)	dB(A)	60	61	61	61	62	62	63	63

** For version with High Pressure Fans (HPF).
(1) Data based on 7°C leaving chilled water temperature and 35°C ambient air temperature.
(2) Only compressors.
(3) Acoustic data are at full load. Sound power values in accordance with ISO 3744 and Eurovent 8/1.
(4) Pressure power values in accordance with ISO 3744.
GROSS EER: efficiency in cooling mode without considering the available head of the pump or the pressure drop of the heat exchanger.
EER: efficiency in cooling unit according to EN14511-2011.

Technical feature VLS STD/HSE 524–1204 LN

Model VLS STD/HSE-LN		524	604	704	804	904	1004	1104	1204
Cooling capacity (1)	kW	132,2	149,8	172,2	193,1	222,8	241,6	267,2	292,8
Power input (2)	kW	47,3	52,1	62,2	68,9	78,4	83,1	98,2	114,5
GROSS EER		2,66	2,69	2,62	2,66	2,68	2,75	2,59	2,45
GROSS ESEER		3,90	3,94	3,84	3,90	3,93	4,03	3,80	3,60
EER		2,63	2,65	2,58	2,62	2,66	2,72	2,56	2,43
ESEER		3,79	3,72	3,63	3,65	3,58	3,75	3,66	3,57
GROSS EER HSE		2,72	2,78	2,69	2,73	2,75	2,82	2,65	2,50
GROSS ESEER HSE		4,30	4,38	4,24	4,31	4,35	4,45	4,19	3,95
EER		2,69	2,74	2,65	2,68	2,73	2,80	2,64	2,48
ESEER		4,05	4,10	3,95	3,96	3,89	4,07	4,00	3,84
Number of refrigerant circuits		2	2	2	2	2	2	2	2
Part load steps	%	25-50-75-100	28-57-78-100	20-50-70-100	25-50-75-100	28-50-78-100	25-50-75-100	23-50-73-100	25-50-75-100
Refrigerant									
Type		HFC 410A							
Charge	kW	26,6	30,0	34,4	39,4	43,7	49,2	55,1	60,4
Compressor									
Qty		4	4	4	4	4	4	4	4
Type		Scroll							
Evaporator									
Qty		1	1	1	1	1	1	1	1
Type		Plate exchanger AISI 316							
Water flow	l/h	22.738	25.765	29.618	33.213	38.321	41.555	45.958	50.361
Connection type		Male gas threaded							
Inlet/outlet diameter	inch	2½"	2½"	2½"	2½"	3"	3"	3"	3"
Condenser									
Qty		2	2	2	2	2	2	2	2
Frontal surface	mm^2	3,5	3,5	4,8	4,8	4,8	4,8	4,8	4,8
Fan									
Qty		2	3	3	3	4	4	4	4
Speed	rpm/min	700	700	700	700	700	700	700	700
Air flow	m^3/h	35.400	47.300	52.200	52.200	63.700	58.800	54.900	54.900
Power input	kW	2,4	3,6	3,6	3,6	4,8	4,8	4,8	4,8
Power input*	kW	1,2	1,9	1,9	1,9	2,5	2,5	2,5	2,5
Static head pressure	Pa	0							
Weight									
Shipping	kg	1.188	1.413	1.603	1.746	1.880	2.010	2.100	2.110
Operating	kg	1.200	1.425	1.615	1.760	1.905	2.035	2.125	2.135
Additional weights									
Versions HSE/SIF	kg	30	30	30	30	40	40	40	40
With desuperheater	kg	20	20	20	30	30	30	30	30
With one pump	kg	50	50	85	85	90	90	95	95
With two pumps	kg	140	140	200	200	205	205	215	215
With copper/copper coils	kg	380	380	520	520	520	700	880	880
Dimensions									
Length	mm	3.300	3.300	4.300	4.300	4.300	4.300	4.300	4.300
Width	mm	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
Height	mm	2.300	2.300	2.300	2.300	2.300	2.300	2.300	2.300
Acoustical data									
Sound power level (3)	dB(A)	86	87	87	87	88	88	89	89
Sound pressure level (4)	dB(A)	54	55	55	55	56	56	57	57

* For version High Seasonal Efficiency (HSE) with inverter fans.
(1) Data based on 7°C leaving chilled water temperature and 35°C ambient air temperature.
(2) Only compressors.
(3) Acoustic data are at full load. Sound power values in accordance with ISO 3744 and Eurovent 8/1.
(4) Pressure power values in accordance with ISO 3744.
GROSS EER: efficiency in cooling mode without considering the available head of the pump or the pressure drop of the heat exchanger.
EER: efficiency in cooling unit according to EN14511-2011.

Technical feature VLS STD/HSE 524–1204 ELN

Model VLS STD/HSE-ELN		524	604	704	804	904	1004	1104	1204
Cooling capacity (1)	kW	127,7	146,0	167,2	186,8	216,7	234,7	258,8	282,9
Power input (2)	kW	49,7	54,2	65,1	72,4	81,8	86,6	102,6	120,0
GROSS EER		2,47	2,55	2,46	2,48	2,53	2,59	2,43	2,28
GROSS ESEER		3,85	3,98	3,83	3,86	3,94	4,04	3,78	3,56
GROSS EER HSE		2,54	2,65	2,53	2,55	2,61	2,67	2,49	2,33
GROSS ESEER HSE		4,21	4,39	4,20	4,23	4,33	4,43	4,14	3,87
Number of refrigerant circuits		2	2	2	2	2	2	2	2
Part load steps	%	25-50-75-100	28-57-78-100	20-50-70-100	25-50-75-100	28-50-78-100	25-50-75-100	23-50-73-100	25-50-75-100
Refrigerant									
Type		HFC 410A							
Charge	kW	26,6	30	34,4	39,4	43,7	49,2	55,1	60,4
Compressor									
Qty		4	4	4	4	4	4	4	4
Type		Scroll							
Evaporator									
Qty		1	1	1	1	1	1	1	1
Type		Plate exchanger AISI 316							
Water flow	l/h	21.964	25.112	28.758	32.129	37.272	40.368	44.513	48.658
Connection type		Male gas threaded							
Inlet/outlet diameter	inch	2½"	2½"	2½"	2½"	3"	3"	3"	3"
Condenser									
Qty		2	2	2	2	2	2	2	2
Frontal surface	mm^2	3,5	3,5	4,8	4,8	4,8	4,8	4,8	4,8
Fan									
Qty		2	3	3	3	4	4	4	4
Speed	rpm/min	550	550	550	550	550	550	550	550
Air flow	m^3/h	28.300	38.500	41.800	41.800	52.000	48.900	46.200	46.200
Power input	kW	2	3	3	3	4	4	4	4
Power input*	kW	0,6	0,9	0,9	0,9	1,2	1,2	1,2	1,2
Static head pressure	Pa	0							
Weight									
Shipping	kg	1.218	1.448	1.638	1.781	1.915	2.050	2.140	2.150
Operating	kg	1.230	1.460	1.650	1.795	1.940	2.075	2.165	2.175
Additional weights									
Versions HSE/SIF	kg	30	30	30	30	40	40	40	40
With desuperheater	kg	20	20	20	30	30	30	30	30
With one pump	kg	50	50	85	85	90	90	95	95
With two pumps	kg	140	140	200	200	205	205	215	215
With copper/copper coils	kg	380	380	520	520	520	700	880	880
Dimensions									
Length	mm	3.300	3.300	4.300	4.300	4.300	4.300	4.300	4.300
Width	mm	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
Height	mm	2.300	2.300	2.300	2.300	2.300	2.300	2.300	2.300
Acoustical data									
Sound power level (3)	dB(A)	83	83	83	83	84	84	85	85
Sound pressure level (4)	dB(A)	51	51	51	51	52	52	53	53

* For version High Seasonal Efficiency (HSE) with inverter fans.
(1) Data based on 7°C leaving chilled water temperature and 35°C ambient air temperature.
(2) Only compressors.
(3) Acoustic data are at full load. Sound power values in accordance with ISO 3744 and Eurovent 8/1.
(4) Pressure power values in accordance with ISO 3744.
GROSS EER: efficiency in cooling mode without considering the available head of the pump or the pressure drop of the heat exchanger.
EER: efficiency in cooling unit according to EN14511-2011.

Technical feature VLS HT 524–1204

Model VLS HT		524	604	704	804	904	1004	1104	1204
Cooling capacity (1)	kW	138,1	156,1	178,6	200,9	231,7	254,2	282,4	313,3
Power input (2)	kW	44,2	48,7	58,4	64,4	73,2	76,8	89,9	103,1
GROSS EER		2,84	2,79	2,74	2,82	2,80	2,93	2,83	2,77
Number of refrigerant circuits		2	2	2	2	2	2	2	2
Part load steps	%	25-50-75-100	28-57-78-100	20-50-70-100	25-50-75-100	28-50-78-100	25-50-75-100	23-50-73-100	25-50-75-100
Refrigerant									
Type		HFC 410A							
Charge	kW	26,6	30	34,4	39,4	43,7	49,2	55,1	60,4
Compressor									
Qty		4	4	4	4	4	4	4	4
Type		Scroll							
Evaporator									
Qty		1	1	1	1	1	1	1	1
Type		Plate exchanger AISI 316							
Water flow	l/h	23.753	26.849	30.719	34.554	39.852	43.722	48.572	53.887
Connection type		Male gas threaded							
Inlet/outlet diameter	inch	2½"	2½"	2½"	2½"	3"	3"	3"	3"
Condenser									
Qty		2	2	2	2	2	2	2	2
Frontal surface	mm^2	3,5	3,5	4,8	4,8	4,8	4,8	4,8	4,8
Fan									
Qty		2	3	3	3	4	4	4	4
Speed	rpm/min	1.110	1.110	1.110	1.110	1.110	1.110	1.110	1.110
Air flow	m^3/h	51.700	71.800	76.200	76.200	95.800	91.200	87.600	87.600
Power input*	kW	4,5	7,2	6,9	6,9	9,6	9,9	10	10
Static head pressure	Pa	0							
Weight									
Shipping	kg	1.218	1.443	1.633	1.776	1.920	2.050	2.140	2.150
Operating	kg	1.230	1.455	1.645	1.790	1.945	2.075	2165	2.175
Additional weights									
With desuperheater	kg	20	20	20	30	30	30	30	30
With one pump	kg	50	50	85	85	90	90	95	95
With two pumps	kg	140	140	200	200	205	205	215	215
With copper/copper coils	kg	380	380	520	520	520	700	880	880
Dimensions									
Length	mm	3.300	3.300	4.300	4.300	4.300	4.300	4.300	4.300
Width	mm	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
Height	mm	2.300	2.300	2.300	2.300	2.300	2.300	2.300	2.300
Acoustical data									
Sound power level (3)	dB(A)	97	99	99	99	100	100	100	100
Sound pressure level (4)	dB(A)	65	67	67	67	68	68	68	68

* For version High Temperature (HT) with inverter fans.
(1) Data based on 7°C leaving chilled water temperature and 35°C ambient air temperature.
(2) Only compressors.
(3) Acoustic data are at full load. Sound power values in accordance with ISO 3744 and Eurovent 8/1.
(4) Pressure power values in accordance with ISO 3744.
GROSS EER: efficiency in cooling mode without considering the available head of the pump or the pressure drop of the heat exchanger.

Technical feature VLR 524–1204 with totaly heat recovery

Modello VLR		524	604	704	804	904	1004	1104	1204
Cooling capacity (1)	kW	136,0	152,0	176,0	200,0	230,0	250,0	277,0	306,0
Power input (2)	kW	44,5	49,0	58,5	64,5	73,5	77,0	90,0	103,0
Total heat rejection	kW	171,5	191,0	222,8	251,3	288,3	310,7	348,7	388,6
GROSS EER		3,06	3,10	3,01	3,10	3,13	3,25	3,08	2,97
Number of refrigerant circuits		2	2	2	2	2	2	2	2
Part load steps	%	25-50-75-100	28-57-78-100	20-50-70-100	25-50-75-100	28-50-78-100	25-50-75-100	23-50-73-100	25-50-75-100
Refrigerant									
Type		HFC 410A							
Charge	kW	26,6	30,4	34,4	39,4	43,7	49,2	55,1	60,4
Compressor									
Qty		4	4	4	4	4	4	4	4
Type		Scroll							
Evaporator									
Qty		1	1	1	1	1	1	1	1
Type		Plate exchanger AISI 316							
Water flow	l/h	23.392	26.144	30.272	34.400	39.560	43.000	47.644	52.632
Connection type		Male gas threaded							
Inlet/outlet diameter	inch	2½"	2½"	2½"	2½"	3"	3"	3"	3"
Condenser									
Qty		2	2	2	2	2	2	2	2
Frontal surface	mm^2	3,5	3,5	4,8	4,8	4,8	4,8	4,8	4,8
Heat recovery									
Qty		1	1	1	1	1	1	1	1
Type		Plate exchanger AISI 316							
Water volume	l	11,5	11,5	11,5	13,3	25,2	25,2	25,2	25,2
Connection type		Male gas threaded							
Inlet/outlet connection diameter	inch	2½"	2½"	2½"	2½"	3"	3"	3"	3"
Weight									
Shipping	kg	1.290	1.513	1.702	1.853	2.051	2.180	2.270	2.279
Operating	kg	1.313	1.536	1.725	1.880	2.101	2.230	2.320	2.329
Additional weights									
Version ELN	kg	30	35	35	35	35	40	40	40
Versions HSE/SIF/HT	kg	30	30	30	30	40	40	40	40
Dimensions									
Length	mm	3.300	3.300	4.300	4.300	4.300	4.300	4.300	4.300
Width	mm	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
Height	mm	2.300	2.300	2.300	2.300	2.300	2.300	2.300	2.300

(1) Data based on 7°C leaving chilled water temperature and 35°C ambient air temperature.
(2) Only compressors.
GROSS EER: efficiency in cooling mode without considering the available head of the pump or the pressure drop of the heat exchanger.