

Water Cooled Chiller, Heat Pump and Condenserless WQL/WQH/WQRC 20–190



Technical features

- 14 sizes.
- Cooling capacity from 21 to 193 kW.
- Heating capacity from 23 to 211 kW.
- 3 versions:
 - WQL (Cooling only);
 - WQH (Heat pump);
 - WQRC (Condenserless).
- 2 acoustic versions:
 - BLN (Basic Low Noise);
 - ELN (Extra Low Noise).
- 2 frames:
 - F1 (size from 20 to 45);
 - F2 (size from 50 to 190).
- One refrigerant circuit.
- Scroll compressors.

Accessories and options

- Hydrokit with 1 or 2 pumps for evaporator and condenser.
- Desuperheater available for frame 2.
- Sofstart.
- BMS interface.
- Flow switch.
- Power factor corrector capacitors.
- Electronic expansion valve.
- Water filter.
- Differential pressure switch as standard.
- Compressors jackets.
- Power factor corrector capacitors.
- Sequence phases control as standard.
- Mechanical gauges kit.
- Compressors acoustic box (standard on ELN).



Operating limit**WQL-WQH 20-190**

WQL-WQH			
Leaving water temperature (cooling)	Water	°C	from +5 to +18
	Water + glycol	°C	-8 / +5 (with glycol + electronic expansion valve); +5/+18 (standard)
	ΔT	K	from 3 to 8
Leaving water temperature (heating)	Water	°C	from +25 to +55
	ΔT	°C	from 3 to 15

Note: maximum % glycol (ethylenic or propilenic): 40%.

WQRC 20-190

WQRC			
Leaving water temperature (cooling)	Water	°C	from +5 to +18
	Water + glycol	°C	-8 / +5 (with glycol + electronic expansion valve); +5/+18 (standard)
	ΔT	K	from 3 to 8

Note: maximum % glycol (ethylenic or propilenic): 40%.

Technical feature WQL 20–45 R410A

Model WQL		20	25	30	35	40	45
Cooling capacity (1)	kW	21,3	26,4	31,3	35,1	39,5	46,9
Power input (2)	kW	4,43	5,48	6,44	7,17	8,16	9,65
GROSS EER		4,81	4,82	4,86	4,90	4,84	4,86
GROSS ESEER		5,44	5,43	5,41	5,38	5,21	5,44
EER		4,58	4,54	4,46	4,53	4,48	4,57
ESEER		5,16	5,09	4,93	4,95	4,81	5,08
Number of refrigerant circuits		1	1	1	1	1	1
Part load steps	%	0-100	0-100	0-100	0-100	0-100	0-100
Power supply	V/ph/Hz	400/3/50					
Refrigerant							
Type		HFC 410A					
Charge	kW	2,8	2,8	2,8	2,8	2,9	5,2
Compressor							
Qty		1					
Type		Scroll					
Crankcase heater	W	70	90	90	90	90	90
Evaporator							
Qty		1					
Type		Plate exchanger AISI 316					
Water flow	l/s	1,02	1,26	1,5	1,68	1,89	2,24
Water pressure drop	kPa	17,7	26,2	35,6	43,9	40,5	39,7
Connection type		Victaulic					
Inlet/outlet diameter	inch	1½"	1½"	1½"	1½"	1½"	1½"
Evaporator pump							
Power input	kW	1,06	1,06	1,06	1,32	1,32	1,32
Available static pressure	kPa	251	222	189	198	187	159
Condenser							
Qty		1					
Type		Plate exchanger AISI 316					
Water flow	l/s	1,23	1,52	1,80	2,02	2,28	2,70
Water pressure drop	kPa	14,5	21,4	57,4	35,8	44,8	26,5
Connection type		Victaulic					
Inlet/outlet diameter	inch	1½"	1½"	1½"	1½"	1½"	1½"
Condenser pump							
Power input	kW	1,06	1,06	1,32	1,32	1,32	1,32
Available static pressure	kPa	236	199	161	183	155	132
Weight							
Shipping	kg	156	176	174	179	185	203
Operating	kg	162	182	179	185	191	214
Dimensions							
Length	mm	821	821	821	821	821	821
Width	mm	455	455	455	455	455	455
Height	mm	1.350	1.350	1.350	1.350	1.350	1.350
Acoustical data							
Sound power level (3)/(4)	dB(A)	65/62	67/64	67/64	68/65	68/66	70/67
Sound pressure level at 10 m (3)/(4)*	dB(A)	34/31	36/33	36/33	37/34	38/35	39/36

(1) Data referred to evaporator water temperature 12/7°C and condenser water temperature 30/35°C.

(2) Only compressors.

(3) BLN version.

(4) ELN version.

* 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 WQH 20-45 R410A

Model WQH		20	25	30	35	40	45
Cooling capacity (1)	kW	20,9	26,1	30,3	34,2	38,4	45,8
Power input (3)	kW	4,49	5,52	6,52	7,32	8,26	9,84
GROSS EER		4,65	4,73	4,65	4,67	4,65	4,65
GROSS ESEER		5,16	5,37	5,26	5,26	5,05	5,19
EER		4,45	4,47	4,28	4,35	4,34	4,39
ESEER		4,95	5,03	4,80	4,86	4,67	4,86
Heating capacity (2)		23,5	28,6	33,6	38,5	42,9	51,2
Power input (3)		5,66	6,90	8,06	9,21	10,3	12,2
COP		4,15	4,14	4,19	4,17	4,18	4,20
Number of refrigerant circuits		1	1	1	1	1	1
Part load steps	%	0-100	0-100	0-100	0-100	0-100	0-100
Power supply	V/ph/Hz	400/3/50					
Refrigerant							
Type		HFC 410A					
Charge	kW	3,0	3,1	3,1	3,1	3,2	5,5
Compressor							
Qty		1					
Type		Scroll					
Crankcase heater	W	70	90	90	90	90	90
Internal heat exchanger							
Qty		1					
Type		Plate exchanger AISI 316					
Water flow rate - cooling	l/s	1,00	1,25	1,45	1,63	1,83	2,19
Pressure drop - cooling	kPa	17,0	25,6	33,4	41,7	38,3	38,2
Water flow rate - heating	l/s	1,13	1,38	1,61	1,84	2,05	2,45
Pressure drop - heating	kPa	21,8	31,4	41,1	52,8	47,8	47,7
Connection type		Victaulic					
Inlet/outlet diameter	inch	1½"	1½"	1½"	1½"	1½"	1½"
Internal heat exchanger pump							
Power input	kW	1,06	1,06	1,06	1,32	1,32	1,32
Available static pressure - cooling	kPa	253	224	196	203	193	165
Available static pressure - heating	kPa	239	208	172	181	171	139
External heat exchanger							
Qty		1					
Type		Plate exchanger AISI 316					
Water flow	l/s	1,21	1,51	1,76	1,98	2,23	2,66
Water pressure drop	kPa	13,6	20,5	54,8	33,8	42,2	25,5
Connection type		Victaulic					
Inlet/outlet diameter	inch	1½"	1½"	1½"	1½"	1½"	1½"
Internal heat exchanger pump							
Power input	kW	1,06	1,06	1,32	1,32	1,32	1,32
Available static pressure - heating	kPa	238	201	167	187	161	137
Weight							
Shipping	kg	159	181	179	184	190	208
Operating	kg	165	187	184	190	195	219
Dimensions							
Length	mm	821	821	821	821	821	821
Width	mm	455	455	455	455	455	455
Height	mm	1.350	1.350	1.350	1.350	1.350	1.350
Acoustical data							
Sound power level (4)/(5)	dB(A)	65/62	67/64	67/64	68/65	68/66	70/67
Sound pressure level at 10 m (4)/(5)*	dB(A)	34/31	36/33	36/33	37/34	38/35	39/36

(1) Data referred to evaporator water temperature 12/7°C and condenser water temperature 30/35°C.

(2) Data referred to evaporator water temperature 10/7°C and condenser water temperature 40/45°C.

(3) Only compressors.

(4) BLN version.

(5) ELN version.

* Pressure power values in accordance with ISO 3744.

GROSS EER-COP: efficiency in cooling-heating mode without considering the available head of the pump or the pressure drop of the heat exchanger.

EER-COP: efficiency in cooling-heating unit according to EN14511-2011.

Technical feature WQRC 20–45 R410A

Model WQRC		20	25	30	35	40	45
Cooling capacity (1)	kW	20,9	26,0	31,3	34,8	39,3	46,2
Power input (2)	kW	4,54	5,61	6,37	7,24	8,15	9,89
Number of refrigerant circuits		1	1	1	1	1	1
Part load steps	%	0-100	0-100	0-100	0-100	0-100	0-100
Power supply	V/ph/Hz	400/3/50					
Refrigerant							
Type		HFC 410A					
Compressor							
Qty		1					
Type		Scroll					
Crankcase heater	W	70	90	90	90	90	90
Evaporator							
Qty		1					
Type		Plate exchanger AISI 316					
Water flow	l/s	1,00	1,24	1,50	1,66	1,88	2,21
Water pressure drop	kPa	17,1	25,4	35,6	43,7	34,3	38,9
Connection type		Victaulic					
Inlet/outlet diameter	inch	1½"	1½"	1½"	1½"	1½"	1½"
Evaporator pump							
Qty		1	1	1	1	1	1
Power input	kW	1,06	1,06	1,06	1,32	1,32	1,32
Available static pressure	kPa	253	225	188	200	188	163
Remove condenser refrigerant connections							
Connection type		To be brazed					
Inlet diameter	inch	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"
Outlet diameter	inch	5/8"	7/8"	7/8"	7/8"	7/8"	7/8"
Weight							
Shipping	kg	142	161	163	163	169	168
Operating	kg	144	164	166	166	172	172
Dimensions							
Length	mm	821	821	821	821	821	821
Width	mm	455	455	455	455	455	455
Height	mm	1.350	1.350	1.350	1.350	1.350	1.350
Acoustical data							
Sound power level (3)/(4)	dB(A)	65/62	67/64	67/64	68/65	68/66	70/67
Sound pressure level at 10 m (3)/(4)*	dB(A)	34/31	36/33	36/33	37/34	38/35	39/36

(1) Data referred to evaporator water temperature 12/7°C and condenser water temperature 30/35°C.

(2) Only compressors.

(3) BLN version.

(4) ELN version.

* Pressure power values in accordance with ISO 3744.

Technical feature WQL 50–190 R410A

Model WQL		50	60	75	90	120	150	170	190
Cooling capacity (1)	kW	51,1	61,3	77,6	91,4	118,8	147,5	170,5	193,3
Power input (2)	kW	11,30	13,10	16,60	20,10	25,70	31,90	36,50	41,40
GROSS EER		4,52	4,68	4,67	4,55	4,62	4,62	4,67	4,67
GROSS ESEER		6,45	6,62	6,11	6,59	6,24	5,95	6,05	6,04
EER		4,15	4,24	4,36	4,20	4,26	4,34	4,34	4,28
ESEER		5,48	5,62	5,43	5,60	5,25	5,22	5,31	5,09
Number of refrigerant circuits		1	1	1	1	1	1	1	1
Part load steps	%	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100
Power supply	V/ph/Hz	400/3/50							
Refrigerant									
Type		HFC 410A							
Charge	kW	4,4	5,7	6,9	8,3	11,3	13,8	15,5	18,1
Compressor									
Qty		2							
Type		Scroll							
Crankcase heater	W	90+90	90+90	90+90	90+90	120+120	150+150	150+150	150+150
Evaporator									
Qty		1							
Type		Plate exchanger AISI 316							
Water flow	l/s	2,44	2,93	3,71	4,37	5,68	7,05	8,15	9,24
Water pressure drop	kPa	25,1	20,2	21,4	20,7	21,2	22,6	24,4	25,0
Connection type		Victaulic							
Inlet/outlet diameter	inch	2½"	2½"	2½"	2½"	2½"	2½"	2½"	2½"
Evaporator pump									
Power input (SP version)	kW	1,10	1,10	1,99	1,99	2,45	2,45	3,00	3,00
Available static pressure (SP version)	kPa	127	124	154	145	157	121	180	152
Power input (HP version)	kW	2,20	2,20	3,26	3,26	3,00	3,00	4,00	4,00
Available static pressure (HP version)	kPa	244	241	246	235	241	214	248	221
Condenser									
Qty		1							
Type		Plate exchanger AISI 316							
Water flow	l/s	2,98	3,55	4,50	5,33	6,90	8,57	9,89	11,21
Water pressure drop	kPa	35,0	27,0	29,0	28,0	29,0	32,0	34,0	35,0
Connection type		Victaulic							
Inlet/outlet diameter	inch	2½"	2½"	2½"	2½"	2½"	2½"	2½"	2½"
Condenser pump									
Power input (SP version)	kW	1,10	1,10	1,99	1,99	2,45	3,00	3,00	4,00
Available static pressure (SP version)	kPa	107	100	134	116	114	165	115	145
Power input (HP version)	kW	2,20	2,20	3,26	3,26	3,00	4,00	5,50	5,50
Available static pressure (HP version)	kPa	226	221	224	211	206	234	247	200
Desuperheater									
Qty		1							
Type		Plate exchanger AISI 316							
Heat recovery	kW	11,0	14,2	18,1	21,0	25,2	34,1	39,1	41,0
Water flow	l/s	0,53	0,68	0,86	1,00	1,20	1,63	1,87	1,96
Water pressure drop	kPa	8,3	4,5	5,1	5,7	5,0	8,7	10,3	7,5
Weight									
Shipping	kg	433	481	528	577	818	942	1.013	1.113
Operating	kg	440	491	540	591	837	966	1.041	1.145
Dimensions									
Length	mm	1.210	1.210	1.210	1.210	1.210	1.210	1.210	1.210
Width	mm	850	850	850	850	850	850	850	850
Height	mm	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
Acoustical data									
Sound power level (4)/(5)	dB(A)	70/68	70/68	72/70	73/71	78/76	81/79	81/79	81/79
Sound pressure level at 10 m (4)/(5)*	dB(A)	39/37	39/37	40/39	42/40	47/45	50/48	50/48	50/48

(1) Data referred to evaporator water temperature 12/7°C and condenser water temperature 30/35°C.

(2) Only compressors.

(4) BLN version.

(5) ELN version.

* Pressure power values in accordance with ISO 3744.

SP version: low pressure pump.

HP version: high pressure pump.

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 WQH 50–190 R410A

Model WQH		50	60	75	90	120	150	170	190
Cooling capacity (1)	kW	50,2	59,2	76,4	89,0	115,3	144,8	166,3	186,1
Cooling capacity (3)	kW	11,40	13,30	16,70	20,30	26,00	32,10	36,80	41,90
GROSS EER		4,40	4,45	4,57	4,38	4,43	4,51	4,52	4,44
GROSS ESEER		6,20	6,23	5,99	6,20	5,85	5,76	5,96	5,66
EER		4,15	4,24	4,36	4,20	4,26	4,34	4,34	4,28
ESEER		5,48	5,62	5,43	5,60	5,25	5,22	5,31	5,09
Heating capacity (1)	kW	57,5	67,8	85,8	101,6	131,1	163,7	189,5	211,6
Power input (3)	kW	13,70	16,50	20,30	24,30	31,30	38,50	44,70	50,10
COP		4,18	4,09	4,21	4,16	4,18	4,25	4,23	4,22
Number of refrigerant circuits		1	1	1	1	1	1	1	1
Part load steps	%	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100
Power supply	V/ph/Hz	400/3/50							
Refrigerant									
Type		HFC 410A							
Charge	kg	4,7	6	7,2	8,6	11,8	14,3	16	18,6
Compressor									
Qty		2							
Type		Scroll							
Crankcase heater	W	90+90	90+90	90+90	90+90	120+120	150+150	150+150	150+150
Internal heat exchanger									
Qty		1							
Type		Plate exchanger AISI 316							
Water flow rate - cooling	l/s	2,40	2,83	3,65	4,25	5,51	6,92	7,95	8,89
Pressure drop - cooling	kPa	24,1	18,8	20,7	19,7	20,0	21,8	23,2	23,3
Water flow rate - heating	l/s	2,73	3,23	4,09	4,84	6,24	7,78	9,00	10,05
Pressure drop - heating	kPa	31,3	24,4	26,0	25,5	25,7	27,6	29,8	29,7
Connection type		Victaulic							
Inlet/outlet diameter	inch	2½"	2½"	2½"	2½"	2½"	2½"	2½"	2½"
Internal heat pump									
Operation		Cooling							
Available static pressure (SP version)	kPa	129	127	156	148	162	126	187	164
Available static pressure (HP version)	kPa	245	244	247	238	245	218	254	233
Operating		Heating							
Available static pressure (SP version)	kPa	115	113	144	132	139	93	150	121
Available static pressure (HP version)	kPa	233	231	236	223	225	192	219	192
External heat exchanger									
Qty		1							
Type		Plate exchanger AISI 316							
Water flow	l/s	2,94	3,46	4,45	5,22	6,75	8,45	9,7	10,9
Water pressure drop	kPa	37,3	28,7	31,2	29,2	29,5	32,1	34,8	34,1
Connection type		Victaulic							
Inlet/outlet diameter	inch	2½"	2½"	2½"	2½"	2½"	2½"	2½"	2½"
Internal heat pump									
Available static pressure (SP version)	kPa	108	104	135	120	120	170	123	158
Available static pressure (HP version)	kPa	227	224	226	214	210	238	255	215
Weight									
Shipping	kg	441	489	539	588	831	959	1.031	1.130
Operating	kg	448	499	551	602	850	983	1.058	1.162
Dimensions									
Length	mm	1.210	1.210	1.210	1.210	1.210	1.210	1.210	1.210
Width	mm	850	850	850	850	850	850	850	850
Height	mm	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
Acoustical data									
Sound power level (4)/(5)	dB(A)	70/68	70/68	72/70	73/71	78/76	81/79	81/79	81/79
Sound pressure level at 10 m (4)/(5)*	dB(A)	39/37	39/37	40/39	42/40	47/45	50/48	50/48	50/48

(1) Data referred to evaporator water temperature 12/7°C and condenser water temperature 30/35°C.

(2) Data referred to evaporator water temperature 10/7°C and condenser water temperature 40/45°C.

(3) Only compressors.

(4) BLN version.

(5) ELN version.

* Pressure power values in accordance with ISO 3744.

SP version: low pressure pump.

HP version: high pressure pump.

GROSS EER-COP: efficiency in cooling-heating mode without considering the available head of the pump or the pressure drop of the heat exchanger.

EER-COP: efficiency in cooling-heating unit according to EN14511-2011.

Technical feature WQRC 50-190 R410A

Model WQRC		50	60	75	90	120	150	170	190
Cooling capacity (1)	kW	51,2	61,7	77,8	91,4	118,7	147,6	169,4	193,2
Power input (3)	kW	11,2	12,9	16,5	20,0	25,7	31,8	36,9	41,4
Number of refrigerant circuits		1	1	1	1	1	1	1	1
Part load steps	%	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100
Power supply	V/ph/Hz	400/3/50							
Refrigerant									
Type		HFC 410A							
Compressor									
Qty		2							
Type		Scroll							
Crankcase heater	W	90+90	90+90	90+90	90+90	120+120	150+150	150+150	150+150
Evaporator									
Qty		1							
Type		Plate exchanger AISI 316							
Water flow	l/s	2,45	2,95	3,72	4,37	5,67	7,05	8,09	9,23
Water pressure drop	kPa	25,2	20,5	21,5	20,7	21,2	22,6	24,1	24,9
Connection type		Victaulic							
Inlet/outlet diameter	inch	2½"	2½"	2½"	2½"	2½"	2½"	2½"	2½"
Evaporator pump									
Qty		1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Power Input (SP version)	kW	1,10	1,10	1,99	1,99	2,45	2,45	3,00	3,00
Available static pressure (SP version)	kPa	127	123	154	145	157	121	182	152
Power Input (HP version)	kW	2,20	2,20	3,26	3,26	3,00	3,00	4,00	4,00
Available static pressure (HP version)	kPa	244	240	245	235	241	214	250	221
Remote condenser refrigerant connections									
Connection type		To be brazed							
Inlet diameter	inch	7/8"	7/8"	1½"	1½"	1¾"	1½"	1½"	1½"
Outlet diameter	inch	5/8"	5/8"	7/8"	7/8"	7/8"	7/8"	1½"	1½"
Weight									
Shipping	kg	373	399	433	459	668	750	799	858
Operating	kg	376	404	439	466	678	762	813	874
Dimensions									
Length	mm	1.210	1.210	1.210	1.210	1.210	1.210	1.210	1.210
Width	mm	850	850	850	850	850	850	850	850
Height	mm	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
Acoustical data									
Sound power level (3)/(4)	dB(A)	70/68	70/68	72/70	73/71	78/76	81/79	81/79	81/79
Sound pressure level at 10 m (3)/(4)*	dB(A)	39/37	39/37	41/39	42/40	47/45	50/48	50/48	50/48

(1) Data referred to evaporator water temperature 12/7°C and condenser temperature 40°C.

(2) Only compressors.

(3) BLN version.

(4) ELN version.

* Pressure power values in accordance with ISO 3744.

SP version: low pressure pump.

HP version: high pressure pump.