

LDK

Air to water chillers and heat pumps



The LDK water chillers range is an efficient and low-noise product designed for medium to big applications.

The LDK water chillers are suitable for water outlet temperatures at 7°C, commonly used in combinations with fan coils or/ and air handling units.

The use of tandem scroll compressors offer high efficiencies (especially at partial loads) and low noise levels, making suitable their use in any application.

The different versions available allow the user to select the most suitable solution thanks to a wide range of accessories.

VERSIONS

- LDK cooling only version.
- LDK/XLextra low noise version.
- LDK/CN condensing unit version.
- LDK/HP reversible heat pump version.
- LDK/FC free-cooling version.
- LDK/FC100 free-cooling 100% version.

ACCESSORIES

- LS low noise version.
- Hydraulic kit A1ZZ with: pump, expansion valve, safety valve, flow switch, insulated tank.
- Hydraulic kit A2ZZ: As A1ZZ with twin pumps.
- Hydraulic kit A1NT with: pump, expansion valve, safety valve, flow switch.
- Hydraulic kit A0NP with insulated tank, no pumps.
- Partial heat recovery.
- Evaporator antifreeze heater (basic version only).
- Antifreeze kit (only for A versions).
- Condensing coil protection mesh with metallic filter.
- Remote control panel.
- Low ambient condensing pressure control (-20°C).
- Electronic soft starter.
- Liquid line solenoid valve.

Versions LDK ÷ LDK/HP		039	045	050	060	070	080	090	110	120	130	152
Cooling capacity ⁽¹⁾	kW	37,0	45,0	52,0	58,0	64,0	78,0	90,0	104,0	115,5	128	144
Compressor input power ⁽¹⁾	kW	12,6	15,1	17,2	19,3	21,5	25,8	29,9	33,9	38,0	42,1	46,0
Water flow ⁽¹⁾	m³/h	6,2	7,7	8,8	9,8	10,8	13,4	15,7	18,2	19,5	21,8	24,6
Heating capacity ⁽²⁾	kW	38,5	47,0	54,5	62,0	68,0	83,0	95,0	107,0	120,0	132,0	147,0
Compressor input power ⁽²⁾	kW	12,9	15,2	17,3	19,5	21,7	26,4	31,0	34,2	38,5	42,9	51,0
Water flow ⁽²⁾	m³/h	6,7	8,0	9,3	10,5	11,6	14,1	16,1	18,2	20,9	22,5	25,1
Power supply	V/Ph/Hz	400/3+N/50										
Nominal input power	A	32,4	36,0	37,4	40,1	42,8	52,6	62,0	67,5	76,4	85,5	94,2
Max input power	A	39,4	45,4	49,4	54,4	59,4	69,4	81,1	91,1	102,1	113,1	124,8
Peak current	A	121,4	148,4	154,4	194,4	194	235,4	265,1	275,1	322,1	333,1	334,0
Compressors / Circuits	n°	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1
Fans	n° x kW	2 x 0,37	2 x 0,37	2 x 0,69	2 x 0,69	2 x 0,69	2 x 0,69	3 x 0,69	3 x 0,69	3 x 0,69	3 x 0,69	4 x 0,69
Sound power level ⁽³⁾	dB(A)	78,5	78,5	80,5	80,5	81,5	81,5	83,5	84	84,4	84,6	85
Sound pressure level ⁽⁴⁾	dB(A)	50,5	50,5	52,5	52,5	53,5	53,5	55,5	56	56,4	56,5	57
Water Pump	kW	1,3	1,3	1,3	1,3	1,3	1,5	1,5	2,2	2,2	2,2	3
Pump available static press.	kPa	165	160	141	125	110	150	130	150	120	130	105
Water tank	l	180	180	300	300	300	300	500	500	500	500	500

Versions LDK ÷ LDK/HP		162	190	210	240	260	300	320	380	430	500
Cooling capacity ⁽¹⁾	kW	160,0	181,0	206,1	232,0	256,0	290,0	321,0	383,0	432,0	476,2
Compressor input power ⁽¹⁾	kW	51,0	59,7	67,8	76,0	84,2	92,4	100,6	126,4	138,7	150,9
Water flow ⁽¹⁾	m³/h	27,8	31,1	35,4	39,8	43,9	49,8	55,1	65,7	74,1	81,7
Heating capacity ⁽²⁾	kW	160,0	189,0	217,0	242,0	267,0	336,5	362,0	436,3	482,7	516,2
Compressor input power ⁽²⁾	kW	55,0	60,6	68,4	77,1	85,8	89,8	97,0	136,3	147,7	159,4
Water flow ⁽²⁾	m³/h	28,1	33,6	38,7	43,0	47,5	59,9	64,4	74,2	82,0	87,7
Power supply	V/Ph/Hz	400/3/50									
Nominal input power	A	101,7	126,6	144,0	160,2	175,4	201,4	220,0	279,2	301,7	324,2
Max input power	A	135,3	167,6	185,6	221,6	238,6	262,6	287,2	362,0	393,5	425,0
Peak current	A	383,0	351,0	369,0	431,0	453,0	510,0	534,0	582,0	641,0	672,5
Compressors / Circuits	n°	2/1	4/2	4/2	4/2	4/2	4/2	4/2	6/2	6/2	6/2
Fans	n° x kW	4 x 0,69	3 x 2	3 x 2	4 x 2	4 x 2	6 x 2	6 x 2	8 x 2	8 x 2	8 x 2
Sound power level ⁽³⁾	dB(A)	85,5	87,5	87,5	90,5	90,5	91,5	91,5	92,5	92,5	92,5
Sound pressure level ⁽⁴⁾	dB(A)	57,5	59,5	59,5	62,5	62,5	63,5	63,5	64,5	64,5	64,5
Water Pump	kW	3	3	3	4	4	5,5	5,5	7,5	7,5	7,5
Pump available static press.	kPa	180	140	110	170	155	185	172	210	190	160
Water tank	l	500	600	600	600	600	1000	1000	1000	1000	1000

⁽¹⁾ Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C.

⁽²⁾ Heating: condenser water temperature in/out 40/45 °C, ambient air temperature 7°C DB, 6°C WB.

⁽³⁾ Sound power level according to ISO 3746.

⁽⁴⁾ Sound pressure level at 10 mt from the unit in free field conditions direction factor Q = 2 according to ISO 3746.

LDK

LDK

Versions LDK/XL ÷ LDK/HP/XL		039	045	050	060	070	080	090	110	120	130	152
Cooling capacity ⁽¹⁾	kW	-	-	52,0	58,0	64,0	78,0	90,0	104,0	115,5	128	144
Compressors input power ⁽¹⁾	kW	-	-	17,2	19,3	21,5	25,8	29,9	33,9	38,0	42,1	46,0
Water flow ⁽¹⁾	m³/h	-	-	8,8	9,8	10,8	13,4	15,7	18,2	19,5	21,8	24,6
Heating capacity ⁽²⁾	kW	-	-	54,5	62,0	68,0	83,0	95,0	107,0	120,0	132,0	147,0
Compressors input power ⁽²⁾	kW	-	-	17,3	19,5	21,7	26,4	31,0	34,2	38,5	42,9	51,0
Water flow ⁽²⁾	m³/h	-	-	9,3	10,5	11,6	14,1	16,1	18,2	20,9	22,5	25,1
Power supply	V/Ph/Hz	400/3/50										
Nominal input power	A	-	-	37,4	40,1	42,8	52,6	62,0	67,5	76,4	85,5	94,2
Max input power	A	-	-	49,4	54,4	59,4	69,4	81,1	91,1	102,1	113,1	124,8
Peak current	A	-	-	154,4	194,4	194	235,4	265,1	275,1	322,1	333,1	334,0
Compressors / Circuits	n°	-	-	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1
Fans	n° x kW	-	-	2 x 1,23	2 x 1,23	2 x 1,23	2 x 1,23	3 x 1,23	3 x 1,23	3 x 1,23	3 x 1,23	3 x 1,23
Sound power level ⁽³⁾	dB(A)	-	-	76	76	78	78	79,5	79,9	80,1	80,5	81
Sound pressure level ⁽⁴⁾	dB(A)	-	-	48	48	50	50	51,5	51,9	52,1	52,5	53
Water pump	kW	-	-	-	-	-	-	-	-	-	-	-
Pump available static press.	kPa	-	-	141	125	110	150	130	150	120	130	105
Water tank	l	-	-	300	300	300	300	500	500	500	500	500

Versions LDK/XL ÷ LDK/HP/XL		162	190	210	240	260	300	320	380	430	500
Cooling capacity ⁽¹⁾	kW	160,0	181,0	206,1	-	-	-	-	-	-	-
Compressors input power ⁽¹⁾	kW	51,0	59,7	67,8	-	-	-	-	-	-	-
Water flow ⁽¹⁾	m³/h	27,8	31,1	35,4	-	-	-	-	-	-	-
Heating capacity ⁽²⁾	kW	160,0	189,0	217,0	-	-	-	-	-	-	-
Compressors input power ⁽²⁾	kW	55,0	60,6	68,4	-	-	-	-	-	-	-
Water flow ⁽²⁾	m³/h	28,1	33,6	38,7	-	-	-	-	-	-	-
Power supply	V/Ph/Hz	400/3/50									
Nominal input power	A	101,7	126,6	144,0	-	-	-	-	-	-	-
Max input power	A	135,3	167,6	185,6	-	-	-	-	-	-	-
Peak current	A	383,0	351,0	369,0	-	-	-	-	-	-	-
Compressors / Circuits	n°	2/1	4/2	4/2	-	-	-	-	-	-	-
Fans	n° x kW	3 x 1,23	4 x 1,25	4 x 1,25	-	-	-	-	-	-	-
Sound power level ⁽³⁾	dB(A)	81,3	84	84	-	-	-	-	-	-	-
Sound pressure level ⁽⁴⁾	dB(A)	53,3	56	56	-	-	-	-	-	-	-
Water pump	kW	-	-	-	-	-	-	-	-	-	-
Pump available static press.	kPa	180	140	110	-	-	-	-	-	-	-
Water tank	l	500	600	600	-	-	-	-	-	-	-

⁽¹⁾ Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C.

⁽²⁾ Heating : condenser water temperature in/out 40/45 °C, ambient air temperature 7°C DB, 6°C WB.

⁽³⁾ Sound power level according to ISO 3746.

⁽⁴⁾ Sound pressure level at 10 mt from the unit in free field conditions direction factor Q = 2 according to ISO 3746.

Versions LDK/FC		039	045	050	060	070	080	090	110	120	130	152
Cooling capacity ⁽¹⁾	kW	-	-	51,5	57,4	63,3	77,4	89,3	103,1	114,5	126,2	142,8
Compressors input power ⁽¹⁾	kW	-	-	17,2	19,3	21,5	25,8	29,9	33,9	38,0	41,9	46,0
Water flow ⁽¹⁾	m³/h	-	-	9,3	10,7	11,4	13,8	16,5	19,0	20,6	22,8	26,5
Free cooling capacity ⁽⁵⁾	kW	-	-	49,1	50,9	50,5	51,3	76,4	75,6	75,3	76,9	104,1
Compressors input power ⁽⁵⁾	kW	-	-	1,4	1,4	1,4	2,1	2,1	2,1	2,1	2,1	2,8
Water flow ⁽⁵⁾	m³/h	-	-	9,3	10,7	11,4	13,8	16,5	19,0	20,6	22,8	26,5
Power supply	V/Ph/Hz	400/3/50										
Nominal input current	A	-	-	37,4	40,1	42,8	52,6	62,0	67,5	76,4	85,5	94,2
Max input current	A	-	-	49,4	54,4	59,4	69,4	81,1	91,1	102,1	113,1	124,8
Peak current	A	-	-	154,4	194,4	194,0	235,4	265,1	275,1	322,1	333,1	334,0
Compressors / Circuits	n°	-	-	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1
Fans	n° x kW	-	-	2 x 0,69	2 x 0,69	2 x 0,69	2 x 0,69	3 x 0,69	3 x 0,69	3 x 0,69	3 x 0,69	4 x 0,69
Sound power level ⁽³⁾	dB(A)	-	-	80,5	80,5	81,5	81,5	83,5	84	84,4	84,6	85
Sound power level ⁽⁴⁾	dB(A)	-	-	52,5	52,5	53,5	53,5	55,5	56	56,4	56,5	57
Water pump	kW	-	-	1,3	1,3	1,3	1,5	1,5	2,2	2,2	2,2	3
Pump available static press.	kPa	-	-	141	125	110	150	130	150	120	130	105
Water tank	l	-	-	300	300	300	300	500	500	500	500	500

Versions LDK/FC		162	190	210	240	260	300	320	380	430	500
Cooling capacity ⁽¹⁾	kW	159,1	175,5	198,3	225,4	248,9	286,6	317,5	378,5	427,0	470,9
Compressors input power ⁽¹⁾	kW	50,7	60,8	69,7	77,0	85,2	91,4	99,4	125,0	137,2	149,2
Water flow ⁽¹⁾	m³/h	29,4	31,9	36,0	40,9	45,2	52,0	57,6	68,7	77,5	85,5
Free cooling capacity ⁽⁵⁾	kW	106,2	132,7	136,1	163,3	166,6	235,8	242,4	313,4	322,6	329,5
Compressors input power ⁽⁵⁾	kW	2,8	6	6	8	8	12	12	16	16	16
Water flow ⁽⁵⁾	m³/h	29,4	31,9	36,0	40,9	45,2	52,0	57,6	68,7	77,5	85,5
Power supply	V/Ph/Hz	400/3/50									
Nominal input current	A	101,7	126,6	144,0	160,2	175,4	201,4	220,0	279,2	301,7	324,2
Max input current	A	135,3	167,6	185,6	221,6	238,6	262,6	287,2	362,0	393,5	425,0
Peak current	A	383,0	351,0	369,0	431,0	453,0	510,0	534,0	582,0	641,0	672,5
Compressors / Circuits	n°	2/1	4/2	4/2	4/2	4/2	4/2	4/2	6/2	6/2	6/2
Fans	n° x kW	4 x 0,69	3 x 2	3 x 2	4 x 2	4 x 2	6 x 2	6 x 2	8 x 2	8 x 2	8 x 2
Sound power level ⁽³⁾	dB(A)	85,5	87,5	87,5	90,5	90,5	91,5	91,5	92,5	92,5	92,5
Sound power level ⁽⁴⁾	dB(A)	57,5	59,5	59,5	62,5	62,5	63,5	63,5	64,5	64,5	64,5
Water pump	kW	3	3	3	4	4	5,5	5,5	7,5	7,5	7,5
Pump available static press.	kPa	180	140	110	170	155	185	172	210	190	160
Water tank	l	500	600	600	600	600	1000	1000	1000	1000	1000

⁽¹⁾ Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C glycol 20%.

⁽³⁾ Sound power level according to ISO 3746.

⁽⁴⁾ Sound pressure level at 10 mt Q = 2 from the unit in free field conditions direction factor Q=2 according to ISO 3746.

⁽⁵⁾ Free Cooling : ambient air temperature 2°C, water inlet temperature 15°C, glycol 20%, nominal water flow, compressors switched off.

LDK

LDK

Versions LDK/FC100		039	045	050	060	070	080	090	110	120	130	152
Cooling capacity ⁽¹⁾	kW	-	-	50,8	56,0	62,7	77,6	84,8	96,1	114,4	123,2	134,6
Compressors input power ⁽¹⁾	kW	-	-	15,9	18,4	20,3	24,1	28,5	31,6	35,6	40,4	45,9
Water flow ⁽¹⁾	m³/h	-	-	9,4	10,3	11,3	13,9	15,7	17,6	20,7	21,9	24,3
Free cooling capacity ⁽⁵⁾	kW	-	-	73,5	77,4	76,2	88,4	108,1	115,8	125,4	128,7	159,9
Compressors input power ⁽⁵⁾	kW	-	-	1,4	1,4	1,4	1,4	2,1	2,1	2,1	2,1	2,8
Water flow ⁽⁵⁾	m³/h	-	-	9,4	10,3	11,3	13,9	15,7	17,6	20,7	21,9	24,3
Power supply	V/Ph/Hz	400/3/50										
Nominal input current	A	-	-	37,4	40,1	42,8	52,6	62,0	67,5	76,4	85,5	94,2
Max input current	A	-	-	49,4	54,4	59,4	69,4	81,1	91,1	102,1	113,1	124,8
Peak current	A	-	-	154,4	194,4	194,0	235,4	265,1	275,1	322,1	333,1	334,0
Compressors / Circuits	n°	-	-	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1
Fans	n° x kW	-	-	2 x 0,69	2 x 0,69	2 x 0,69	2 x 0,69	3 x 0,69	3 x 0,69	3 x 0,69	3 x 0,69	4 x 0,69
Sound power level ⁽³⁾	dB(A)	-	-	80,5	80,5	81,5	81,5	83,5	84	84,4	84,6	85
Sound power level ⁽⁴⁾	dB(A)	-	-	52,5	52,5	53,5	53,5	55,5	56	56,4	56,5	57
Water pump	kW	-	-	1,3	1,3	1,3	1,5	1,5	2,2	2,2	2,2	3
Pump available static press.	kPa	-	-	141	125	110	150	130	150	120	130	105
Water tank	l	-	-	300	300	300	300	500	500	500	500	500

Versions LDK/FC100		162	190	210	240	260	300	320	380	430	500
Cooling capacity ⁽¹⁾	kW	145,6	179,9	200,6	225,4	244,7	-	-	-	-	-
Compressors input power ⁽¹⁾	kW	48,5	60,4	71,0	78,9	89,7	-	-	-	-	-
Water flow ⁽¹⁾	m³/h	26,8	32,7	36,4	40,9	44,4	-	-	-	-	-
Free cooling capacity ⁽⁵⁾	kW	164,0	191,4	198,7	206,0	210,7	-	-	-	-	-
Compressors input power ⁽⁵⁾	kW	2,8	6	6	8	8	-	-	-	-	-
Water flow ⁽⁵⁾	m³/h	26,8	32,7	36,4	40,9	44,4	-	-	-	-	-
Power supply	V/Ph/Hz	400/3/50									
Nominal input current	A	101,7	126,6	144,0	160,2	175,4	-	-	-	-	-
Max input current	A	135,3	167,6	185,6	221,6	238,6	-	-	-	-	-
Peak current	A	383,0	351,0	369,0	431,0	453,0	-	-	-	-	-
Compressors / Circuits	n°	2/1	4/2	4/2	4/2	4/2	-	-	-	-	-
Fans	n° x kW	4 x 0,69	3 x 2	3 x 2	4 x 2	4 x 2	-	-	-	-	-
Sound power level ⁽³⁾	dB(A)	85,5	87,5	87,5	90,5	90,5	-	-	-	-	-
Sound power level ⁽⁴⁾	dB(A)	57,5	59,5	59,5	62,5	62,5	-	-	-	-	-
Water pump	kW	3	3	3	4	4	-	-	-	-	-
Pump available static press.	kPa	180	140	110	170	155	-	-	-	-	-
Water tank	l	500	600	600	600	600	-	-	-	-	-

⁽¹⁾ Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C glycol 20%.

⁽³⁾ Sound power level according to ISO 3746.

⁽⁴⁾ Sound pressure level at 10 mt Q = 2 from the unit in free field conditions direction factor Q=2 according to ISO 3746.

⁽⁵⁾ Free Cooling : ambient air temperature 2°C, water inlet temperature 15°C, glycol 20%, nominal water flow, compressors switched off.

Versions LDK/CN		039	045	050	060	070	080	090	110	120
Cooling capacity ⁽¹⁾	kW	43	52	61	67,5	75,5	90	103	120,5	135,5
Compressors input power ⁽¹⁾	kW	13,1	15,7	17,5	20,5	22,3	27,8	32,1	34,9	39,9
Power supply	V/Ph/Hz	400/3+N/50			400/3/50					
Nominal input current	A	29,5	33,1	34,5	37,2	39,9	49,7	57,7	62,2	71,1
Max input current	A	32,7	38,5	44,5	49,1	53,7	58,1	70,6	81,8	90,3
Peak current	A	116,6	143,5	150,5	190,5	195,1	228,3	256,6	267,8	292,8
Compressors / Circuits	n°	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1
Fans	n° x kW	2 x 0,37	2 x 0,37	2 x 0,69	2 x 0,69	2 x 0,69	2 x 0,69	3 x 0,69	3 x 0,69	3 x 0,69
Sound power level ⁽³⁾	dB(A)	78,5	78,5	80,5	80,5	81,5	81,5	83,5	84	84,4
Sound pressure level ⁽⁴⁾	dB(A)	50,5	50,5	52,5	52,5	53,5	53,5	55,5	56	56,4

Versions LDK/CN		130	152	162	190	210	240	260
Cooling capacity ⁽¹⁾	kW	146	163	181	210	239	273	297,5
Compressors input power ⁽¹⁾	kW	45,2	46,4	50,5	62	73,8	79,8	90,4
Power supply	V/Ph/Hz	400/3/50						
Nominal input current	A	80,2	89,0	96,4	117,0	134,4	150,6	168,8
Max input current	A	98,8	119,5	130,0	145,6	168,0	189,0	206,0
Peak current	A	301,3	329,0	377,5	331,6	354,0	391,5	408,5
Compressors / Circuits	n°	2/1	2/1	2/1	4/2	4/2	4/2	4/2
Fans	n° x kW	3 x 0,69	4 x 0,69	4 x 0,69	3 x 2	3 x 2	4 x 2	4 x 2
Sound power level ⁽³⁾	dB(A)	84,6	85	85,5	87,5	87,5	90,5	90,5
Sound pressure level ⁽⁴⁾	dB(A)	56,5	57	57,5	59,5	59,5	62,5	62,5

⁽¹⁾ Cooling: ambient air temperature 35°C, evaporation temperature 5 °C.

⁽³⁾ Sound power level ISO 3746.

⁽⁴⁾ Sound pressure level at 10 mt from the unit in free field conditions direction factor Q = 2 according to ISO 3746.

LDK

LDK

Versions LDK/CN/XL		039	045	050	060	070	080	090	110	120
Cooling capacity ⁽¹⁾	kW	43	52	61	67,5	75,5	90	103	120,5	135,5
Compressors input power ⁽¹⁾	kW	13,1	15,7	17,5	20,5	22,3	27,8	32,1	34,9	39,9
Power supply	V/Ph/Hz	400/3+N/50			400/3/50					
Nominal input current	A	29,5	33,1	34,5	37,2	39,9	49,7	57,7	62,2	71,1
Max input current	A	32,7	38,5	44,5	49,1	53,7	58,1	70,6	81,8	90,3
Peak current	A	116,6	143,5	150,5	190,5	195,1	228,3	256,6	267,8	292,8
Compressors / Circuits	n°	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1
Fans	n° x kW	2 x 0,37	2 x 0,37	2 x 0,69	2 x 0,69	2 x 0,69	2 x 0,69	3 x 0,69	3 x 0,69	3 x 0,69
Sound power level ⁽³⁾	dB(A)	78,5	78,5	80,5	80,5	81,5	81,5	83,5	84	84,4
Sound pressure level ⁽⁴⁾	dB(A)	50,5	50,5	52,5	52,5	53,5	53,5	55,5	56	56,4

Versions LDK/CN/XL		130	152	162	190	210	240	260
Cooling capacity ⁽¹⁾	kW	146	163	181	210	239	273	297,5
Compressors input power ⁽¹⁾	kW	45,2	46,4	50,5	62	73,8	79,8	90,4
Power supply	V/Ph/Hz	400/3/50						
Nominal input current	A	80,2	89,0	96,4	117,0	134,4	150,6	168,8
Max input current	A	98,8	119,5	130,0	145,6	168,0	189,0	206,0
Peak current	A	301,3	329,0	377,5	331,6	354,0	391,5	408,5
Compressors / Circuits	n°	2/1	2/1	2/1	4/2	4/2	4/2	4/2
Fans	n° x kW	3 x 0,69	4 x 0,69	4 x 0,69	3 x 2	3 x 2	4 x 2	4 x 2
Sound power level ⁽³⁾	dB(A)	84,6	85	85,5	87,5	87,5	90,5	90,5
Sound pressure level ⁽⁴⁾	dB(A)	56,5	57	57,5	59,5	59,5	62,5	62,5

⁽¹⁾ Cooling: ambient air temperature 35°C, evaporation temperature 5 °C.

⁽³⁾ Sound power level ISO 3746.

⁽⁴⁾ Sound pressure level at 10 mt from the unit in free field conditions direction factor Q = 2 according to ISO 3746.

LDK

FRAME

All LDK units are made from hot-galvanised thick sheet metal, painted with polyurethane powder enamel at 180°C to ensure the best resistance against the atmospheric agents. The frame is self-supporting with removable panels. All screws and rivets for outdoor installations are in stainless steel. The colour of the units is RAL 9018.

REFRIGERANT CIRCUIT

The refrigerant gas used in these units is R407C. The refrigerant circuit is made by using international primary brands components and according to ISO 97/23 concerning welding procedures. Each refrigerant circuit is totally independent from the other. Any incorrect operation of one circuit does not influence the other circuit. The refrigerant circuit includes: liquid line manual shut-off valve, sight glass, filter drier, thermal expansion valve with external equalizer, electric expansion valve with electronic control to optimize the efficiency in part load conditions (option), reverse cycle valve (for heat pump version only), one way valve (for heat pump version only), liquid receiver (for heat pump version only), Schrader valves form maintenance and control, pressure safety device (according to PED regulation).

COMPRESSORS

The compressors are scroll type, with crankcase heater and thermal overload protection by a Klaxon embedded in the motor winding. They are mounted in a separate chamber in order to be separated from the air stream. The crankcase heater is always powered when the compressors are in stand-by. The inspection is possible through the frontal panel of the unit that allows the maintenance of the compressors even if the unit is working. The compressors used are all in tandem execution. This solution allows much higher efficiencies in partial loads compared to the units with independent refrigerant circuits.

CONDENSERS

The condensers are made of copper pipes and aluminium fins. The diameter of the copper pipes is 3/8" and the thickness of the aluminium fins is 0,1 mm. The tubes are mechanically expanded into the aluminium fins to improve the heat exchange factor. The geometry of these condensers guarantees

a low air side pressure drop and then the use of low rotation (and low noise emission) fans. The condensers can be protected by a metallic filter to be installed on request.

FANS

The fans are axial type with aerofoil blades. They are statically and dynamically balanced and supplied complete of the safety fan guard according to EN 60335. They are mounted on the unit frame by interposition of rubber vibration dampers. The electric motors are all at 6 poles (about 900 rpm) in the low noise versions, 8 poles (about 750 rpm) in the extra low noise versions. The motors are directly driven with an integrated thermal overload protection. The protection class of the motors is IP 54.

EVAPORATORS

The evaporators are made of AISI 316 stainless steel braze-welded plates type. From size 039 to size 162 are single water side circuit, from the size 190 they are double circuit "cross flow" type. The use of these kinds of evaporators allows a massive reduction of the refrigerant charge of the unit compared to the traditional shell-in-tube evaporators and increases the efficiency of the refrigerant cycle in partial loads. The evaporators are factory insulated with flexible close cell material and can be equipped with antifreeze heater (optional). Each evaporator is provided with a temperature sensor as antifreeze protection.

MICROPROCESSORS

All LDK units are supplied standard with microprocessor controls. The microprocessor controls the following functions: regulation of the water temperature, antifreeze protection, compressor timing, compressor automatic starting sequence, alarm reset, potential free contact for remote general alarm, alarms and operation leds. Upon request any microprocessor can be connected to a BMS system for the remote control and management. The technical department is available to study, together with the customer, different solutions using MODBUS; LONWORKS; BACNET or TREND protocols.

ELECTRIC BOX

The electric switch board is made according to electromagnetic compatibility norms CEE 73/23 and 89/336. The accessibility

to the board is possible after removing the front panel of the unit and the OFF positioning of the main switch. In all LDK units are installed, standard, the compressors sequence relay which disables the operation of the compressor in case the power supply phase sequence is not the correct one (scroll compressors in fact, can be damaged if they rotate reverse wise). The following components are also standard installed: main switch, magnetic-thermal switches (as a protection of pumps and fans), compressors fuses, control circuit automatic breakers, compressor contactors, fan contactors, pump contactors. The terminal board is supplied with voltage free contacts for remote ON-OFF, Summer / winter change over (heat pumps only) and general alarm.

CONTROL AND PROTECTION DEVICES

All units are supplied with the following control and protection devices: Return water temperature sensor, installed on the return water line from the plant (12°C), antifreeze protection sensor installed on the outlet water temperature (7°C), high pressure switch with manual reset, low pressure switch with automatic reset, high pressure safety valve, compressor thermal overload protection, fans thermal overload protection, plate mechanical flow switch.

HEAT PUMPS VERSIONS (HP)

The heat pump versions are provided with a 4 way reverse cycle valve and are suitable to produce hot water up to a temperature of 45-50°C. They are always supplied with liquid receiver and a second thermostatic valve to optimize the efficiency of the refrigerant cycle in heating and in cooling. The microprocessor is set for automatic defrost (in case of operation in severe ambient conditions) and for summer/winter change over.

LDK

FREE COOLING VERSION FC-FC100%

The Free Cooling system is designed to grant important energy savings in case the unit has to work during the whole year.

These applications are required, for example, in computers or telephone rooms.

The Free Cooling uses the external low temperature to cool the water in the system. In favorable conditions the Free Cooling can grant the correct refrigerant capacity even without the operation of the compressors, granting an important energy saving.

The Free Cooling systems is available in 2 different versions:

FC; Standard Free Cooling capacity;

FC100; Oversized Free Cooling capacity;
The Free Cooling systems are composed by the following components:

Thermal exchange coil:

It's basically an air to water heat exchanger built in copper pipes and aluminium fins. It's supplied with shut-off valves.

Microprocessor control:

It's the "heart" of the system; It permits the control of all the parameters allowing the best performance of the system in different conditions.

3 way valve:

It's an ON/OFF 3 way valve which gives power to the Free Cooling system according to the signals arriving from the micro-processor.

Low ambient pressure control:

It's a device which controls the condensing pressure of the refrigerant circuit in low external conditions.

This device is composed by the solenoid valve which intercept some refrigerant circuits in the condensing coil. In this way the thermal exchange is reduced and a certain condensing pressure is maintained.

CONDENSING UNITS REFRIGERANT CONNECTIONS

Condensing unit (CN versions) must be connected to the indoor unit by refrigerant lines. The condensing units are supplied without refrigerant charge and filled with nitrogen.

Piping layout and max distance between the sections.

On split-system applications, piping layout is determined by sections location and building structure. Piping should be as shorter as possible in order to reduce pressure drops in refrigerant circuit and the refrigerant charge in the system. Maximum admitted pipe length is 30 meters.

Our technicians are available to study other kinds of applications which don't respect the limits reported above.

Condensing unit installed at a higher level than the evaporation section:

On the rising vertical pipes, oil traps should be fitted every 6 metres to allow oil circulation to the compressor;

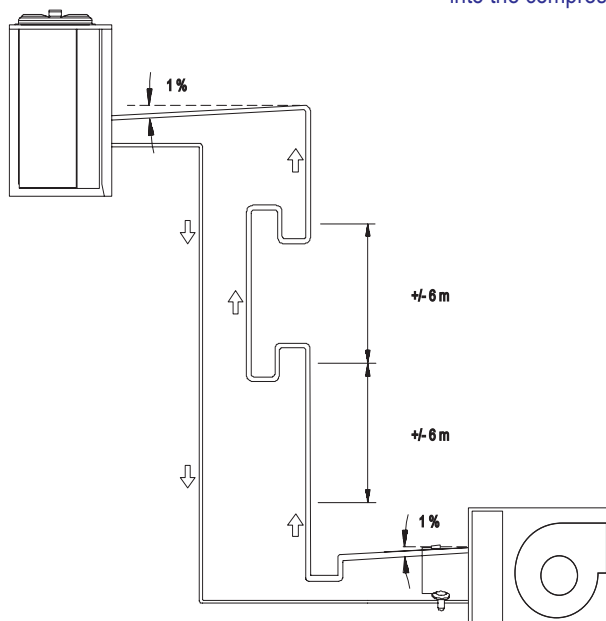
On horizontal suction pipelines a minimum 1% slope should be allowed in order to let the oil easily come back to compressor. Pipelines diameter can be read in Table II depending on the unit size and the length of refrigerant pipelines.

Condensing unit installed at a lower level than the evaporation section:

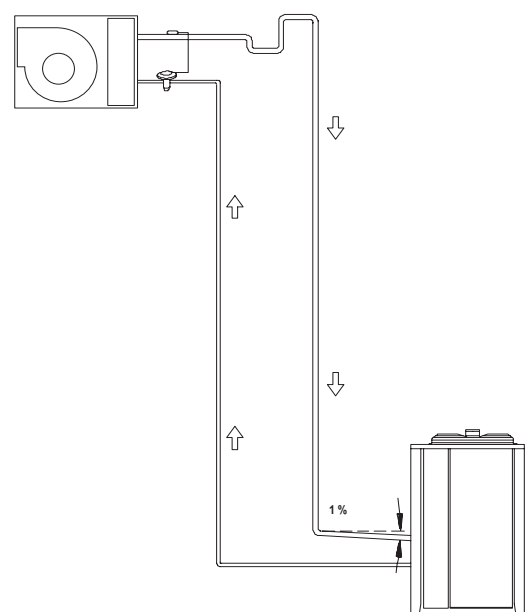
Install a liquid trap on suction line at the evaporator outlet whit the same height of the evaporator so that liquid refrigerant, when the system is not running, will not fall into the compressor;

Install a collection pit immediately downstream from the bulb of the thermostatic valve so that liquid refrigerant, when the system is not running, can be collected by this pit. In this way, when the compressor is turned on, the rapid evaporation of the coolant fluid in the pit, will not affect the bulb of the thermostatic valve;

On horizontal suction pipelines a minimum 1% slope should be allowed in order to let the oil easily come back to the compressor.



Condensing unit higher than the remote evaporator



Condensing unit lower than the remote evaporator

Refrigerant line diameters for CN versions						
Max distance (m)	10		20		30	
Mod.	Gas (mm)	Liquid (mm)	Gas (mm)	Liquid (mm)	Gas (mm)	Liquid (mm)
039	35	18	42	18	42	22
045	42	18	42	22	42	22
050	42	22	42	22	54	22
060	42	22	54	22	54	28
070	54	22	54	22	54	28
080	54	22	54	28	54	28
090	54	28	54	28	54	28
110	54	28	64	28	64	28
120	64	28	64	28	64	35
130	64	28	64	35	64	35
152	64	35	64	35	67	35
162	67	35	67	35	76	35
190	54x2	28x2	54x2	28x2	54x2	28x2
210	54x2	28x2	64x2	28x2	64x2	28x2
240	64x2	28x2	64x2	28x2	64x2	35x2
260	64x2	28x2	64x2	35x2	64x2	35x2
300	Contact the company					
320						
380						
430						
500						

Refrigerant charge for liquid line			
Liquid line diameter	Refrigerant charge g/m	Liquid line diameter	Refrigerant charge g/m
18 (mm)	220	28 (mm)	570
22 (mm)	340	35 (mm)	860

Cooling capacity correction factors				
Mod.	Refr. Line 0 mt.	Refr. Line = 10 mt.	Refr. Line 20 mt.	Refr. Line 30 mt.
LDK/CN	1	0,98	0,96	0,95

LDK

LDK

Versions LDK ÷ HP ÷ FC	Code	039	045	050	060	070	080	090	110	120	130	152
Flow switch	–	●	●	●	●	●	●	●	●	●	●	●
LS low noise version	LS00	○	○	○	○	○	○	○	○	○	○	○
Hydraulic kit A1ZZ with tank and one pump.	A1ZZ	○	○	○	○	○	○	○	○	○	○	○
Hydraulic kit A1NT with one pump without tank.	A1NT	○	○	○	○	○	○	○	○	○	○	○
Hydraulic kit A2ZZ with tank and two pump.	A2ZZ	○	○	○	○	○	○	○	○	○	○	○
Hydraulic kit A2NT with two pump without tank.	A2NT	○	○	○	○	○	○	○	○	○	○	○
Hydraulic kit A0NP without tank and pump.	A0NP	○	○	○	○	○	○	○	○	○	○	○
Partial heat recovery	RP00	○	○	○	○	○	○	○	○	○	○	○
Manometers	MAML	○	○	○	○	○	○	○	○	○	○	○
Remote control panel	PCRL	○	○	○	○	○	○	○	○	○	○	○
Evaporator antifreeze heater	RAEV	○	○	○	○	○	○	○	○	○	○	○
Antifreeze kit*	RAES	○	○	○	○	○	○	○	○	○	○	○
Liquid line solenoid valve**	VSOG	○	○	○	○	○	○	○	○	○	○	○
Electronic expansion valve	–	○	○	○	○	○	○	○	○	○	○	○
Electronic soft starter	DSSE	○	○	○	○	○	○	○	○	○	○	○
Condensing coil protection mesh with metallic filter	FAMM	○	○	○	○	○	○	○	○	○	○	○
Low ambient condensing pressure control (-20°C)	DCCF	○	○	○	○	○	○	○	○	○	○	○
Serial interface card RS485	INSE	○	○	○	○	○	○	○	○	○	○	○
Rubber vibration dampers	KAVG	○	○	○	○	○	○	○	○	○	○	○
Spring vibration dampers	KAVM	○	○	○	○	○	○	○	○	○	○	○
Condensate discharge drip tray with antifreeze heater	BRCA	○	○	○	○	○	○	○	○	○	○	○

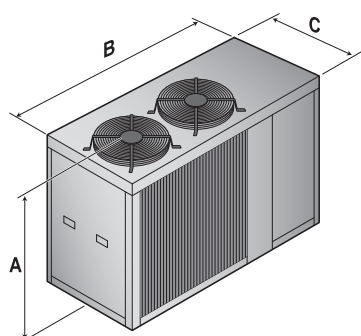
Versions LDK ÷ HP ÷ FC	Code	162	190	210	240	260	300	320	380	430	500
Flow switch	–	●	●	●	●	●	●	●	●	●	●
LS low noise version	LS00	○	○	○	○	○	○	○	○	○	○
Hydraulic kit A1ZZ with tank and one pump.	A1ZZ	○	○	○	○	○	○	○	○	○	○
Hydraulic kit A1NT with one pump without tank.	A1NT	○	○	○	○	○	○	○	○	○	○
Hydraulic kit A2ZZ with tank and two pump.	A2ZZ	○	○	○	○	○	○	○	○	○	○
Hydraulic kit A2NT with two pump without tank.	A2NT	○	○	○	○	○	○	○	○	○	○
Hydraulic kit A0NP without tank and pump.	A0NP	○	○	○	○	○	○	○	○	○	○
Partial heat recovery	RP00	○	○	○	○	○	○	○	○	○	○
Manometers	MAML	○	○	○	○	○	○	○	○	○	○
Remote control panel	PCRL	○	○	○	○	○	○	○	○	○	○
Evaporator antifreeze heater	RAEV	○	○	○	○	○	○	○	○	○	○
Antifreeze kit*	RAES	○	○	○	○	○	○	○	○	○	○
Liquid line solenoid valve**	VSOG	○	○	○	○	○	○	○	○	○	○
Electronic expansion valve	–	○	○	○	○	○	○	○	○	○	○
Electronic soft starter	DSSE	○	○	○	○	○	○	○	○	○	○
Condensing coil protection mesh with metallic filter	FAMM	○	○	○	○	○	○	○	○	○	○
Low ambient condensing pressure control (-20°C)	DCCF	○	○	○	○	○	○	○	○	○	○
Serial interface card RS485	INSE	○	○	○	○	○	○	○	○	○	○
Rubber vibration dampers	KAVG	○	○	○	○	○	○	○	○	○	○
Spring vibration dampers	KAVM	○	○	○	○	○	○	○	○	○	○
Condensate discharge drip tray with antifreeze heater	BRCA	○	○	○	○	○	○	○	○	○	○

● Standard, ○ Optional, – Not available.

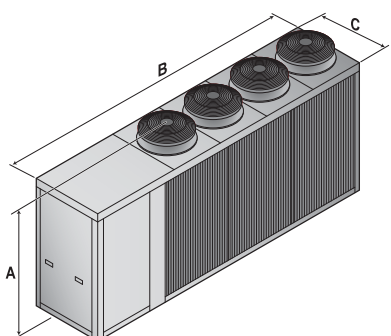
* Only for hydraulic kit version.
** Standard for HP version.

Versions LDK/CN	Code	039	045	050	060	070	080	090	110	120	130	152	162	190	210	240	260
Main switch	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Microprocessor control	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Free contacts for remote on/off	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Free contacts for general alarm	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Liquid line solenoid valve	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Rubber vibration dampers	KAVG	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Spring vibration dampers	KAVM	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Expansion valve	VTER	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Remote control panel	PCRL	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Condensing coil protection mesh with metallic filter	FAMM	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Low ambient condensing pressure control (-20°C)	DCCF	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

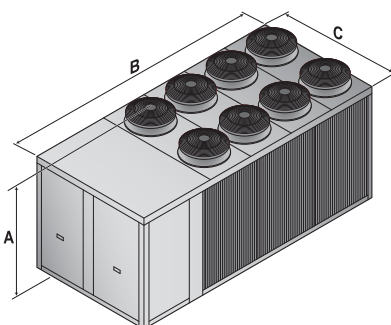
● Standard, ○ Optional, — Not available.



Mod.	A (mm)	B (mm)	C (mm)	Kg
039/039A	1406	1870	850	570/890
045/045A	1406	1870	850	590/910
050/050A	1759	2608	1105	710/1030
060/060A	1759	2608	1105	725/1045
070/070A	1759	2608	1105	760/1070
080/080A	1759	2608	1105	810/1130
090/090A	1759	3608	1105	1070/1590
110/110A	1759	3608	1105	1150/1670
120/120A	1759	3608	1105	1200/1720
130/120A	1759	3608	1105	1230/1750



Mod.	A (mm)	B (mm)	C (mm)	Kg
152/152A	2179	3608	1105	1390/1910
162/162A	2179	3608	1105	1580/2100
190/190A	2350	4708	1105	1960/2580
210/210A	2350	4708	1105	2050/2670
240/240A	2350	4708	1105	2160/2780
260/260A	2350	4708	1105	2480/3000



Mod.	A (mm)	B (mm)	C (mm)	Kg
300/300A	2350	4108	2210	3150/4300
320/320A	2350	4108	2210	3220/4370
380/380A	2350	4708	2210	3560/4710
430/430A	2350	4708	2210	3650/4800
500/500A	2350	4708	2210	3750/4900