

Thermo™-Expansion Valves T-, L-, 935-, ZZ-Series

EMERSON Take-apart Thermo™-Expansion Valves are designed for air conditioning, chillers, rooftops, close control, A/C transportation, heat pumps, industrial cooling process, refrigeration and numerous special applications. The take-apart expansion valves are ideal for those applications requiring flexibility in selection of capacity and excellent stable superheat control under varying operating conditions such as high and low head pressure, wide load variation and partial load down to 10%. Valves with XB power elements can be applied in systems with Copeland Digital Scroll™ Compressors.

Features

- Take-apart design consists of power element, cage and flange
- Large diaphragm eliminates disturbances to the valve and provides smoother and consistent valve control over wide range of operation
- Constant superheat across a wide application range
- ZZ-Series: expansion valves for evaporating temperature down to -100°C
- L / 935-Series: desuperheating of two stage compressors or hot gas bypass applications



Selection table T-Series

Series	Capacity R448A/R449A		Capacity R450A		Capacity R513A		Capacity R1234ze		Orifice	Power Element
	Type	[kW]	Type	[kW]	Type	[kW]	Type	[kW]	Type	
TCLE-	25BW	1.9	20DW	1.3	20CW	1.3	20EW	1.1	X22440-B1B	XB1019...1B
	100BW	3.7	50DW	2.5	50CW	2.6	50EW	2.2	X22440-B2B	
	200BW	7.9	100DW	5.4	100CW	5.5	120EW	4.8	X22440-B3B	
	250BW	11.9	150DW	8.1	150CW	8.3	150EW	7.2	X22440-B3.5B	
	300BW	17.3	200DW	11.8	200CW	12.1	200EW	10.5	X22440-B4B	
	500BW	22.1	250DW	15.1	250CW	15.5	300EW	13.4	X22440-B5B	
	800BW	30.3	400DW	20.7	400CW	21.2	450EW	18.4	X22440-B6B	
	1100BW	41.0	500DW	28.0	500CW	28.7	600EW	24.8	X22440-B7B	
TJRE-	1300BW	47.7	600DW	32.6	600CW	33.4	700EW	28.9	X22440-B8B	XB1019...1B
	15BW	58	8DW	40	8CW	40	9EW	35	X11873-B4B	
TERE	18BW	74	9DW	50	9CW	52	10EW	45	X11873-B5B	XC726...2B
	23BW	91	11DW	62	11CW	64	13EW	55	X9117-B6B	
	26BW	104	13DW	71	13CW	73	15EW	63	X9117-B7B	
	35BW	143	17DW	98	17CW	100	20EW	86	X9117-B8B	
TIRE-	44BW	174	22DW	119	22CW	121	24EW	105	X9117-B9B	XC726...2B
	60BW	222	31DW	152	31CW	156	35EW	135	X9166-B10B	
THRE-	78BW	252	38DW	173	38CW	177	43EW	153	X9144-B11B	XC726...2B
	98BW	301	47DW	206	47CW	211	53EW	183	X9144-B13B	

Note 1: For detailed information see flange table and connections sizes at the end of T-, L-, 935-, & ZZ Series chapter.

Note 2: Products are classified based on fluid group 2 (non-flammable) according European pressure equipment directive.

For selection of other operating condition, please use quick selection tables in the next pages or Controls Navigator selection program.

The nominal capacity is based on the following conditions:

Refrigerant	Evaporating temperature [°C]	Condensing temperature [°C]	Subcooling
R448A, R449A	+4°C dew point	+38°C bubble / +43°C dew point	1K
R450A		+38°C bubble / +38.6°C dew point	
R513A, R1234ze		+38°C bubble / +38°C dew point	

Important consideration

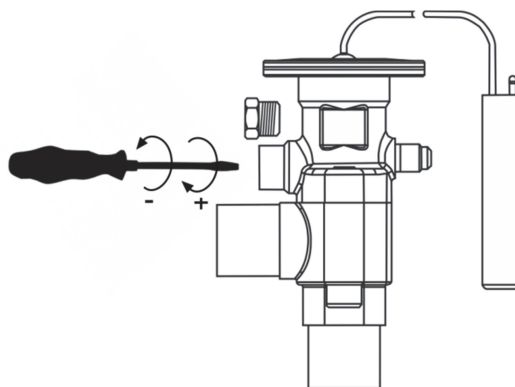
In general, take a part valves are based on three different major parts i.e. power element, cage assembly and flange. It is important to consider the combination of power element with cage assembly as follows:

Valve series	Power element		Cage assembly type	Readjustment of cage assembly
	Type	Charge code		
T-series	XB-1019-...	BW, DW, CW, EW	X22440-B1B....B8B and X11873-B4B....B5B	Factory setting
		SW, MW		Filed setting is required
	XC-726-...	BW, DW, CW, EW	X9117-B6B....B13B	Factory setting
		SW, MW		Filed setting is required
ZZ-series	XC-726-...	BW, SW	X10-B1B...B7B	Filed setting is required
LL-series	XB-1019-...	CL, GL, UL	X22440-B1B....B8B and X11873-B4B....B5B	Factory setting
	XC726-...		X9117-B6B....B10B	
935-series	XB-1019-...	UL, KL, YL, JL, LL	X10-A/B/C01 A/B/C07	Factory setting

Note: BW, DW, CW, EW charges upon request and minimum 100 pieces order quantity.

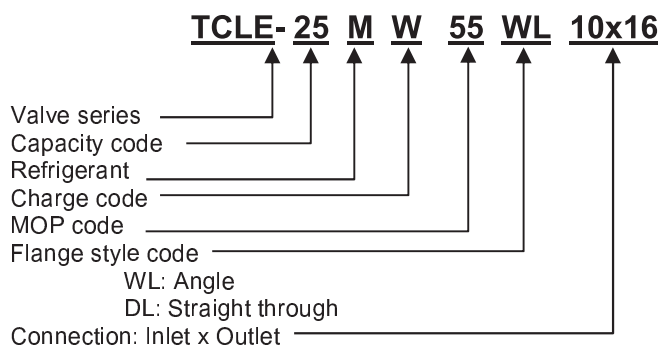
The following table/graphic is a guideline for readjustment

Evaporating temperature [°C]	HFO Power element							
	XB-1019-MW...			XB-1019-SW...	XC726-MW...			XC726-SW...
	System refrigerant							
	R450A	R513A	R1234ze	R448A/ R449A	R450A	R513A	R1234ze	R448A/ R449A
	Number of turn				Number of turn			
-40	1.5	-1.5	3	6.5	2	-2	3.5	8.5
-35	2	-2	3.5	8	2.5	-2.5	5	10
-30	2.5	-2	4.5	9	3	-3	6	12
-25	3	-3	5.5	10.5	4	-3.5	7.5	13.5
-20	4	-3	7	12	5	-4	9.5	15.5
-15	4.5	-3.5	8.5	13.5	6	-5	11.5	18
-10	5.5	-4	10	15	7.5	-5.5	13.5	20
-5	6.5	-5	12.5	17	9	-6.5	16.5	-
0	8	-5.5	15	19	10.5	-7	-	-
5	9.5	-6	18	-	12.5	-8	-	-
10	11	-6.5	-	-	14.5	-9	-	-



Note: Number of turns in direction of clockwise as positive number and in direction of counterclockwise as negative number.

Type designation T-Series



Selection table ZZ Series

Series	R448A/ R449A		Orifice	Connection Standard-Flange, Angle Solder/ODF		Power Element
	Type	Nominal Capacity [kW]		[mm]	[inch]	
ZZCE	1BW	1.7	X 10-B01	C501 – 5 mm 10 X 16	C501 - 5 3/8" X 5/8"	XC726 ... 2B
	2BW	3.7	X 10-B02			
	3BW	6.2	X 10-B03			
	5BW	9.8	X 10-B04	C501 – 7 mm 12 X 16	C501 - 7 1/2" X 5/8"	
	6BW	14.8	X 10-B05			
	10BW	19.8	X 10-B06	A 576 mm 16 X 22 (22 X 28 ODM)	A 576 5/8" X 7/8" (7/8" X 1 1/8" ODM)	
	12BW	24.7	X 10-B07			

Note 1: To withstand stress at extremely low temperatures, ZZ-Series valves feature bronze bolts

Note 2: See flange table and connection sizes at the end of T-, L-, 935-, & ZZ Series chapter.

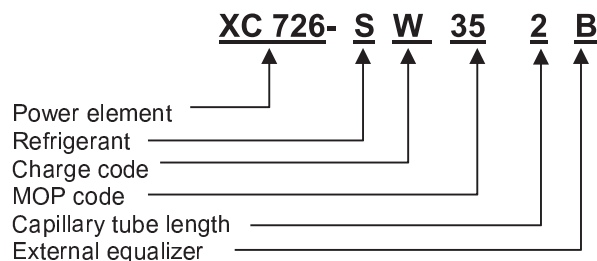
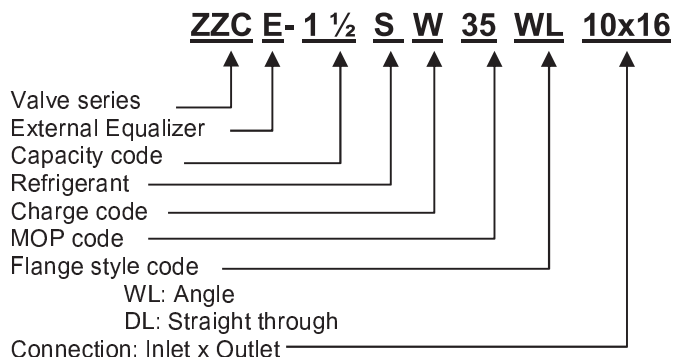
Note 3: Products are classified based on fluid group 2 (non-flammable) according European pressure equipment directive.

The nominal capacity is based on the following conditions:

Refrigerant	Evaporating temperature [°C]	Condensing temperature [°C]	Subcooling
R448A, R449A	-40°C dew point	+25°C bubble / +30°C dew point	1K

For selection of other operating condition, please use quick selection tables in the next pages or Controls Navigator selection program.

Type designation ZZ-Series



TCLE: Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature [°C]	R448A/R449A				Capacity [kW]						R448A/R449A				Cage assembly type
	Evaporating temperature [°C]														
	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45		
60 bubble/ 63.4 dew point	1.7	1.7	1.8	1.8	1.7	1.7	1.5	1.3	1.1	0.9	0.7	0.6	0.5	X22440-B1B	
	3.4	3.4	3.4	3.4	3.4	3.4	3.0	2.5	2.1	1.7	1.3	1.1	0.9	X22440-B2B	
	7.2	7.3	7.3	7.3	7.2	7.2	6.3	5.4	4.4	3.6	2.9	2.3	1.9	X22440-B3B	
	10.8	10.9	11.0	11.0	10.9	10.8	9.6	8.1	6.6	5.4	4.3	3.5	2.8	X22440-B3.5B	
	15.7	15.9	16.0	16.0	15.9	15.7	13.9	11.7	9.6	7.8	6.3	5.1	4.1	X22440-B4B	
	20.2	20.4	20.5	20.5	20.4	20.2	17.8	15.1	12.4	10.0	8.1	6.5	5.3	X22440-B5B	
	27.7	28.0	28.1	28.1	27.9	27.6	24.4	20.6	16.9	13.7	11.0	8.9	7.2	X22440-B6B	
	37.4	37.8	38.0	37.9	37.7	37.3	33.0	27.9	22.9	18.5	14.9	12.0	9.7	X22440-B7B	
	43.5	44.0	44.2	44.1	43.9	43.4	38.4	32.4	26.6	21.5	17.3	14.0	11.3	X22440-B8B	
50 bubble/ 54 dew point	1.8	1.8	1.8	1.8	1.9	1.9	1.7	1.4	1.2	0.9	0.8	0.6	0.5	X22440-B1B	
	3.4	3.5	3.6	3.6	3.6	3.6	3.2	2.7	2.3	1.8	1.5	1.2	1.0	X22440-B2B	
	7.3	7.5	7.6	7.7	7.7	7.7	6.9	5.9	4.8	3.9	3.2	2.6	2.1	X22440-B3B	
	11.0	11.3	11.5	11.6	11.6	11.6	10.3	8.8	7.3	5.9	4.8	3.9	3.2	X22440-B3.5B	
	16.0	16.4	16.7	16.8	16.9	16.9	15.0	12.8	10.6	8.6	7.0	5.7	4.6	X22440-B4B	
	20.5	21.1	21.4	21.6	21.7	21.7	19.3	16.4	13.6	11.1	9.0	7.3	6.0	X22440-B5B	
	28.1	28.8	29.3	29.6	29.7	29.7	26.4	22.5	18.6	15.2	12.3	10.0	8.2	X22440-B6B	
	38.0	39.0	39.6	40.0	40.2	40.1	35.7	30.4	25.2	20.5	16.6	13.5	11.0	X22440-B7B	
	44.2	45.3	46.1	46.5	46.7	46.6	41.6	35.4	29.3	23.9	19.4	15.7	12.8	X22440-B8B	
40 bubble/ 44.5 dew point	1.6	1.7	1.8	1.8	1.9	1.9	1.7	1.4	1.2	1.0	0.8	0.7	0.5	X22440-B1B	
	3.2	3.4	3.5	3.6	3.6	3.6	3.3	2.8	2.3	1.9	1.6	1.3	1.1	X22440-B2B	
	6.8	7.2	7.4	7.6	7.7	7.8	7.0	6.0	5.0	4.1	3.3	2.7	2.2	X22440-B3B	
	10.3	10.8	11.2	11.4	11.6	11.7	10.5	9.0	7.5	6.2	5.0	4.1	3.4	X22440-B3.5B	
	15.0	15.7	16.2	16.6	16.9	17.0	15.3	13.1	10.9	9.0	7.3	6.0	4.9	X22440-B4B	
	19.2	20.1	20.8	21.3	21.7	21.9	19.6	16.9	14.0	11.5	9.4	7.7	6.3	X22440-B5B	
	26.3	27.6	28.5	29.2	29.7	29.9	26.9	23.1	19.2	15.8	12.9	10.5	8.6	X22440-B6B	
	35.5	37.3	38.6	39.5	40.1	40.5	36.4	31.2	26.0	21.3	17.4	14.2	11.7	X22440-B7B	
	41.3	43.4	44.9	46.0	46.7	47.1	42.3	36.3	30.2	24.8	20.2	16.6	13.6	X22440-B8B	
30 bubble/ 33.5 dew point	1.4	1.5	1.6	1.7	1.7	1.8	1.6	1.4	1.2	1.0	0.8	0.7	0.5	X22440-B1B	
	2.7	2.9	3.1	3.3	3.4	3.5	3.2	2.7	2.3	1.9	1.6	1.3	1.1	X22440-B2B	
	5.7	6.3	6.7	7.0	7.3	7.4	6.8	5.9	4.9	4.1	3.3	2.7	2.3	X22440-B3B	
	8.6	9.5	10.1	10.6	11.0	11.2	10.2	8.8	7.4	6.1	5.0	4.1	3.4	X22440-B3.5B	
	12.5	13.7	14.7	15.4	15.9	16.3	14.8	12.8	10.8	8.9	7.3	6.0	5.0	X22440-B4B	
	16.0	17.6	18.9	19.8	20.4	20.9	19.0	16.5	13.8	11.4	9.4	7.7	6.4	X22440-B5B	
	21.9	24.2	25.8	27.1	28.0	28.6	26.0	22.6	18.9	15.6	12.9	10.6	8.7	X22440-B6B	
	29.6	32.7	34.9	36.6	37.9	38.7	35.2	30.5	25.6	21.2	17.4	14.3	11.8	X22440-B7B	
	34.4	38.0	40.6	42.6	44.0	45.0	40.9	35.5	29.8	24.6	20.2	16.6	13.7	X22440-B8B	
20 bubble/ 25.3 dew point		1.1	1.3	1.4	1.5	1.6	1.5	1.3	1.1	0.9	0.8	0.6	0.5	X22440-B1B	
		2.2	2.5	2.8	3.0	3.1	2.9	2.6	2.2	1.8	1.5	1.2	1.0	X22440-B2B	
		4.6	5.4	6.0	6.4	6.7	6.2	5.5	4.6	3.9	3.2	2.6	2.2	X22440-B3B	
		6.9	8.1	9.0	9.6	10.1	9.3	8.2	7.0	5.8	4.8	4.0	3.3	X22440-B3.5B	
		10.1	11.8	13.1	14.0	14.7	13.6	11.9	10.1	8.5	7.0	5.8	4.8	X22440-B4B	
		12.9	15.2	16.8	18.0	18.8	17.4	15.3	13.0	10.8	9.0	7.4	6.2	X22440-B5B	
		17.7	20.8	23.0	24.6	25.8	23.9	21.0	17.8	14.9	12.3	10.2	8.5	X22440-B6B	
		24.0	28.1	31.1	33.2	34.9	32.3	28.4	24.1	20.1	16.6	13.8	11.4	X22440-B7B	
		27.9	32.7	36.1	38.7	40.5	37.5	33.0	28.0	23.4	19.3	16.0	13.3	X22440-B8B	

TJRE/TERE/TIRE/THRE: Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature [°C]	R448A/R449A				Capacity [kW]						R448A/R449A				Cage assembly type
	Evaporating temperature [°C]														
	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45		
60 bubble/ 63.4 dew point	53	53	54	54	53	53	47	39	32	26	21	17	14	X11873-B4B	
	67	68	68	68	68	67	59	50	41	33	27	22	18	X11873-B5B	
	83	84	84	84	83	83	73	62	51	41	33	27	22	X9117-B6B	
	95	96	96	96	95	94	84	71	58	47	38	30	25	X9117-B7B	
	130	132	132	132	131	130	115	97	80	64	52	42	34	X9117-B8B	
	158	160	161	161	160	158	140	118	97	78	63	51	41	X9117-B9B	
	203	205	206	206	205	203	179	151	124	100	81	65	53	X9166-B10B	
	230	233	234	233	232	230	203	172	141	114	92	74	60	X9144-B11B	
	275	278	279	279	277	274	242	205	168	136	110	88	72	X9144-B13B	
50 bubble/ 54 dew point	54	55	56	56	57	57	50	43	36	29	23	19	16	X11873-B4B	
	68	70	71	72	72	72	64	55	45	37	30	24	20	X11873-B5B	
	84	86	88	89	89	89	79	67	56	45	37	30	24	X9117-B6B	
	96	99	100	101	102	101	90	77	64	52	42	34	28	X9117-B7B	
	132	136	138	139	140	140	124	106	88	71	58	47	38	X9117-B8B	
	161	165	168	169	170	170	151	129	107	87	70	57	47	X9117-B9B	
	206	212	215	217	218	218	194	165	137	111	90	73	60	X9166-B10B	
	234	240	244	246	247	247	220	187	155	126	102	83	68	X9144-B11B	
40 bubble/ 44.5 dew point	50	53	54	56	57	57	51	44	37	30	25	20	16	X11873-B4B	
	64	67	69	71	72	73	65	56	47	38	31	26	21	X11873-B5B	
	79	83	85	87	89	90	81	69	58	47	39	32	26	X9117-B6B	
	90	94	98	100	102	102	92	79	66	54	44	36	30	X9117-B7B	
	124	130	134	137	140	141	127	109	90	74	61	50	41	X9117-B8B	
	150	158	163	167	170	171	154	132	110	90	74	60	49	X9117-B9B	
	193	202	209	214	218	220	197	169	141	116	94	77	63	X9166-B10B	
	219	230	238	243	247	249	224	192	160	131	107	88	72	X9144-B11B	
	261	274	284	290	295	297	267	229	191	157	128	105	86	X9144-B13B	
30 bubble/ 33.5 dew point	42	46	49	52	53	55	50	43	36	30	25	20	17	X11873-B4B	
	53	59	63	66	68	70	63	55	46	38	31	26	21	X11873-B5B	
	66	72	77	81	84	86	78	68	57	47	38	32	26	X9117-B6B	
	75	83	88	93	96	98	89	77	65	54	44	36	30	X9117-B7B	
	103	114	122	127	132	135	122	106	89	74	60	50	41	X9117-B8B	
	125	138	148	155	160	164	149	129	108	90	74	60	50	X9117-B9B	
	161	177	189	199	205	210	191	166	139	115	94	78	64	X9166-B10B	
	182	201	215	225	233	238	217	188	158	130	107	88	73	X9144-B11B	
	218	240	257	269	278	284	259	224	188	155	128	105	87	X9144-B13B	
20 bubble/ 25.3 dew point		34	40	44	47	49	46	40	34	28	23	19	16	X11873-B4B	
		43	51	56	60	63	58	51	43	36	30	25	21	X11873-B5B	
		53	62	69	74	77	71	63	53	44	37	30	25	X9117-B6B	
		61	71	79	84	88	82	72	61	51	42	35	29	X9117-B7B	
		83	98	108	116	121	112	99	84	70	58	48	40	X9117-B8B	
		101	119	131	141	148	137	120	102	85	70	58	48	X9117-B9B	
		130	152	168	180	189	175	154	131	109	90	75	62	X9166-B10B	
		148	173	191	205	215	199	175	148	124	102	85	70	X9144-B11B	
		176	206	228	244	256	237	209	177	148	122	101	84	X9144-B13B	
10 bubble/ 15.5 dew point				30	36	40	39	35	30	26	21	18	15	X11873-B4B	
				39	46	51	49	45	39	33	27	23	19	X11873-B5B	
				48	57	63	61	55	47	40	34	28	24	X9117-B6B	
				54	65	72	69	63	54	46	38	32	27	X9117-B7B	
				75	89	99	95	86	75	63	53	44	37	X9117-B8B	
				91	108	121	116	105	91	77	64	54	45	X9117-B9B	
				117	139	155	149	134	116	98	82	69	58	X9166-B10B	
				132	158	175	169	152	132	112	94	78	65	X9144-B11B	
				158	188	209	202	182	158	133	112	93	78	X9144-B13B	

TCLE: Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature [°C]	R450A													Cage assembly type
	Capacity [kW]													
	Evaporating temperature [°C]													
	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	
70	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.0	0.8	0.7	0.5	X22440-B1B
	2.4	2.5	2.5	2.5	2.5	2.4	2.4	2.3	2.3	2.0	1.6	1.3	1.0	X22440-B2B
	5.2	5.3	5.3	5.3	5.3	5.2	5.1	5.0	4.9	4.3	3.5	2.7	2.1	X22440-B3B
	7.9	8.0	8.0	8.0	7.9	7.8	7.7	7.5	7.3	6.4	5.3	4.1	3.2	X22440-B3.5B
	11.4	11.6	11.7	11.6	11.5	11.4	11.2	10.9	10.6	9.3	7.7	6.0	4.6	X22440-B4B
	14.7	14.9	15.0	14.9	14.8	14.6	14.3	14.0	13.6	12.0	9.8	7.7	5.9	X22440-B5B
	20.1	20.4	20.5	20.4	20.3	20.0	19.6	19.2	18.7	16.4	13.4	10.6	8.1	X22440-B6B
	27.2	27.5	27.7	27.6	27.4	27.1	26.6	26.0	25.3	22.2	18.2	14.3	11.0	X22440-B7B
	31.6	32.0	32.2	32.2	31.9	31.5	30.9	30.2	29.4	25.8	21.1	16.6	12.8	X22440-B8B
60	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.1	0.9	0.7	0.6	X22440-B1B
	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.2	1.8	1.4	1.1	X22440-B2B
	4.9	5.1	5.3	5.3	5.4	5.4	5.3	5.3	5.2	4.6	3.8	3.0	2.4	X22440-B3B
	7.4	7.7	7.9	8.0	8.1	8.1	8.0	7.9	7.8	6.9	5.7	4.5	3.5	X22440-B3.5B
	10.8	11.2	11.5	11.7	11.8	11.8	11.7	11.5	11.3	10.1	8.3	6.6	5.2	X22440-B4B
	13.8	14.4	14.8	15.0	15.1	15.1	15.0	14.8	14.6	12.9	10.7	8.5	6.6	X22440-B5B
	18.9	19.7	20.2	20.5	20.7	20.7	20.5	20.3	19.9	17.7	14.6	11.6	9.1	X22440-B6B
	25.6	26.6	27.3	27.8	27.9	27.9	27.7	27.4	26.9	23.9	19.8	15.7	12.2	X22440-B7B
	29.8	31.0	31.8	32.3	32.5	32.5	32.3	31.9	31.3	27.8	23.0	18.3	14.2	X22440-B8B
50	1.0	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.1	0.9	0.8	0.6	X22440-B1B
	1.9	2.1	2.2	2.3	2.4	2.4	2.5	2.5	2.4	2.2	1.8	1.5	1.2	X22440-B2B
	4.1	4.5	4.8	5.0	5.1	5.2	5.2	5.2	5.2	4.7	3.9	3.1	2.5	X22440-B3B
	6.1	6.8	7.2	7.5	7.7	7.9	7.9	7.9	7.9	7.1	5.9	4.7	3.7	X22440-B3.5B
	8.9	9.8	10.5	10.9	11.2	11.4	11.5	11.5	11.4	10.3	8.6	6.9	5.4	X22440-B4B
	11.5	12.6	13.4	14.0	14.4	14.6	14.8	14.8	14.7	13.2	11.0	8.8	6.9	X22440-B5B
	15.7	17.3	18.4	19.2	19.7	20.1	20.2	20.2	20.1	18.0	15.0	12.0	9.5	X22440-B6B
	21.2	23.4	24.9	26.0	26.7	27.1	27.3	27.3	27.1	24.4	20.3	16.3	12.8	X22440-B7B
	24.7	27.2	29.0	30.2	31.0	31.5	31.8	31.8	31.6	28.3	23.7	18.9	14.9	X22440-B8B
40	0.5	0.8	0.9	1.0	1.1	1.1	1.2	1.2	1.2	1.1	0.9	0.7	0.6	X22440-B1B
	1.0	1.5	1.8	2.0	2.1	2.2	2.3	2.3	2.3	2.1	1.8	1.4	1.1	X22440-B2B
	2.2	3.2	3.8	4.2	4.5	4.7	4.9	4.9	5.0	4.5	3.8	3.1	2.4	X22440-B3B
	3.4	4.8	5.7	6.3	6.8	7.1	7.3	7.4	7.5	6.8	5.7	4.6	3.7	X22440-B3.5B
	4.9	7.0	8.3	9.2	9.9	10.3	10.6	10.8	10.9	9.9	8.4	6.8	5.4	X22440-B4B
	6.3	9.0	10.7	11.8	12.7	13.3	13.6	13.9	14.0	12.7	10.7	8.7	6.9	X22440-B5B
	8.6	12.3	14.6	16.2	17.4	18.2	18.7	19.0	19.2	17.4	14.7	11.9	9.4	X22440-B6B
	11.6	16.6	19.7	21.9	23.5	24.5	25.3	25.7	25.9	23.5	19.8	16.0	12.7	X22440-B7B
	13.5	19.3	23.0	25.5	27.3	28.5	29.4	29.9	30.1	27.4	23.1	18.7	14.8	X22440-B8B
30				0.7	0.8	0.9	1.0	1.0	1.1	1.0	0.8	0.7	0.6	X22440-B1B
				1.3	1.6	1.8	1.9	2.0	2.1	1.9	1.6	1.3	1.1	X22440-B2B
				2.7	3.4	3.8	4.1	4.3	4.5	4.1	3.5	2.9	2.3	X22440-B3B
				4.1	5.1	5.7	6.2	6.5	6.7	6.2	5.3	4.3	3.5	X22440-B3.5B
				6.0	7.4	8.3	9.0	9.4	9.7	9.0	7.7	6.3	5.1	X22440-B4B
				7.6	9.5	10.7	11.5	12.1	12.5	11.6	9.9	8.1	6.5	X22440-B5B
				10.5	13.0	14.6	15.8	16.6	17.1	15.8	13.6	11.1	8.9	X22440-B6B
				14.2	17.5	19.8	21.3	22.4	23.2	21.4	18.3	15.0	12.0	X22440-B7B
			16.5	20.4	23.0	24.8	26.1	26.9	24.9	21.3	17.4	14.0	X22440-B8B	

TCLE: Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature [°C]	R513A				Capacity [kW]								R513A		Cage assembly type
	Evaporating temperature [°C]														
	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30		
70	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	0.9	0.8	0.6	0.5	X22440-B1B	
	2.3	2.4	2.4	2.4	2.3	2.3	2.2	2.2	2.1	1.8	1.5	1.2	0.9	X22440-B2B	
	5.0	5.1	5.1	5.0	5.0	4.9	4.7	4.6	4.4	3.9	3.2	2.5	1.9	X22440-B3B	
	7.5	7.6	7.6	7.6	7.5	7.3	7.1	6.9	6.7	5.9	4.8	3.8	2.9	X22440-B3.5B	
	11.0	11.1	11.1	11.0	10.9	10.6	10.4	10.1	9.7	8.5	7.0	5.5	4.2	X22440-B4B	
	14.1	14.2	14.2	14.1	13.9	13.7	13.3	12.9	12.5	10.9	9.0	7.0	5.4	X22440-B5B	
	19.3	19.5	19.5	19.3	19.1	18.7	18.2	17.7	17.1	15.0	12.3	9.7	7.4	X22440-B6B	
	26.0	26.3	26.3	26.2	25.8	25.3	24.7	23.9	23.1	20.2	16.6	13.0	10.1	X22440-B7B	
	30.3	30.6	30.6	30.4	30.0	29.4	28.7	27.8	26.8	23.5	19.3	15.2	11.7	X22440-B8B	
60	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.1	0.9	0.7	0.6	X22440-B1B	
	2.3	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.4	2.1	1.7	1.4	1.1	X22440-B2B	
	4.9	5.1	5.2	5.3	5.3	5.3	5.2	5.1	5.0	4.5	3.7	3.0	2.3	X22440-B3B	
	7.4	7.7	7.9	8.0	8.0	8.0	7.9	7.7	7.6	6.7	5.6	4.5	3.5	X22440-B3.5B	
	10.8	11.2	11.4	11.6	11.6	11.6	11.4	11.3	11.0	9.8	8.2	6.5	5.1	X22440-B4B	
	13.8	14.3	14.7	14.9	14.9	14.8	14.7	14.4	14.1	12.6	10.5	8.4	6.6	X22440-B5B	
	18.9	19.6	20.1	20.4	20.4	20.3	20.1	19.8	19.3	17.2	14.3	11.4	9.0	X22440-B6B	
	25.6	26.6	27.2	27.5	27.6	27.5	27.2	26.7	26.2	23.3	19.4	15.5	12.1	X22440-B7B	
	29.7	30.9	31.6	32.0	32.1	32.0	31.6	31.1	30.4	27.1	22.5	18.0	14.1	X22440-B8B	
50	1.0	1.1	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.1	1.0	0.8	0.6	X22440-B1B	
	2.0	2.2	2.3	2.4	2.4	2.5	2.5	2.5	2.5	2.2	1.9	1.5	1.2	X22440-B2B	
	4.2	4.6	4.9	5.1	5.2	5.3	5.3	5.3	5.3	4.7	4.0	3.2	2.6	X22440-B3B	
	6.3	6.9	7.4	7.7	7.9	8.0	8.0	8.0	7.9	7.1	6.0	4.9	3.8	X22440-B3.5B	
	9.2	10.1	10.7	11.2	11.5	11.6	11.7	11.6	11.5	10.4	8.7	7.1	5.6	X22440-B4B	
	11.8	13.0	13.8	14.3	14.7	14.9	15.0	14.9	14.8	13.3	11.2	9.1	7.2	X22440-B5B	
	16.2	17.7	18.9	19.6	20.1	20.4	20.5	20.4	20.2	18.2	15.3	12.4	9.8	X22440-B6B	
	21.8	24.0	25.5	26.5	27.2	27.6	27.7	27.6	27.4	24.6	20.7	16.8	13.3	X22440-B7B	
	25.4	27.9	29.7	30.9	31.6	32.1	32.2	32.1	31.8	28.7	24.1	19.5	15.5	X22440-B8B	
40	0.6	0.8	1.0	1.1	1.1	1.2	1.2	1.2	1.2	1.1	1.0	0.8	0.6	X22440-B1B	
	1.1	1.6	1.9	2.1	2.2	2.3	2.4	2.4	2.4	2.2	1.9	1.5	1.2	X22440-B2B	
	2.4	3.4	4.0	4.4	4.7	4.9	5.1	5.1	5.2	4.7	4.0	3.3	2.6	X22440-B3B	
	3.6	5.1	6.0	6.7	7.1	7.4	7.6	7.7	7.8	7.1	6.0	4.9	3.9	X22440-B3.5B	
	5.3	7.4	8.7	9.7	10.3	10.8	11.1	11.2	11.3	10.3	8.8	7.2	5.7	X22440-B4B	
	6.8	9.5	11.2	12.4	13.3	13.8	14.2	14.4	14.5	13.2	11.3	9.2	7.4	X22440-B5B	
	9.3	13.0	15.4	17.0	18.2	18.9	19.5	19.8	19.9	18.1	15.4	12.6	10.1	X22440-B6B	
	12.5	17.6	20.8	23.0	24.5	25.6	26.3	26.7	26.9	24.5	20.8	17.0	13.6	X22440-B7B	
	14.6	20.4	24.2	26.7	28.6	29.8	30.6	31.1	31.2	28.5	24.2	19.8	15.8	X22440-B8B	
30				0.7	0.9	1.0	1.1	1.1	1.1	1.1	0.9	0.8	0.6	X22440-B1B	
				1.4	1.7	1.9	2.1	2.2	2.2	2.1	1.8	1.5	1.2	X22440-B2B	
				3.0	3.6	4.1	4.4	4.6	4.7	4.4	3.8	3.1	2.5	X22440-B3B	
				4.5	5.5	6.1	6.6	6.9	7.1	6.6	5.7	4.7	3.8	X22440-B3.5B	
				6.6	8.0	8.9	9.6	10.1	10.4	9.6	8.3	6.9	5.6	X22440-B4B	
				8.4	10.2	11.5	12.3	12.9	13.3	12.3	10.7	8.8	7.1	X22440-B5B	
				11.5	14.0	15.7	16.9	17.7	18.2	16.9	14.6	12.1	9.8	X22440-B6B	
				15.6	19.0	21.2	22.8	23.9	24.6	22.9	19.7	16.3	13.2	X22440-B7B	
				18.1	22.1	24.7	26.5	27.8	28.6	26.6	23.0	19.0	15.4	X22440-B8B	

TJRE/TERE/TIRE/THRE: Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature [°C]	R450A													Cage assembly type
	Capacity [kW]													
	Evaporating temperature [°C]													
	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	
70	38	39	39	39	39	38	37	37	36	31	26	20	16	X11873-B4B
	49	50	50	50	49	49	48	47	45	40	33	26	20	X11873-B5B
	60	61	61	61	61	60	59	57	56	49	40	32	24	X9117-B6B
	69	70	70	70	69	68	67	66	64	56	46	36	28	X9117-B7B
	94	96	96	96	95	94	92	90	88	77	63	50	38	X9117-B8B
	115	117	117	117	116	115	112	110	107	94	77	60	47	X9117-B9B
	147	149	150	150	149	147	144	141	137	120	99	77	60	X9166-B10B
	167	170	170	170	169	167	163	160	155	137	112	88	68	X9144-B11B
	200	202	204	203	202	199	195	191	186	163	134	105	81	X9144-B13B
60	36	38	39	39	39	39	39	39	38	34	28	22	17	X11873-B4B
	46	48	49	50	50	50	50	49	49	43	36	28	22	X11873-B5B
	57	59	61	61	62	62	61	61	60	53	44	35	27	X9117-B6B
	65	67	69	70	71	71	70	69	68	61	50	40	31	X9117-B7B
	89	93	95	97	97	97	96	95	94	83	69	55	43	X9117-B8B
	108	113	116	118	118	118	117	116	114	101	84	67	52	X9117-B9B
	139	145	148	151	152	151	150	149	146	130	107	85	66	X9166-B10B
	158	164	168	171	172	172	171	169	166	147	122	97	75	X9144-B11B
	188	196	201	204	205	205	204	201	198	176	145	115	90	X9144-B13B
50	30	33	35	37	38	38	39	39	38	34	29	23	18	X11873-B4B
	38	42	45	47	48	49	49	49	49	44	37	29	23	X11873-B5B
	47	52	55	57	59	60	60	60	60	54	45	36	28	X9117-B6B
	54	59	63	66	68	69	69	69	69	62	51	41	32	X9117-B7B
	74	81	87	90	93	94	95	95	94	85	71	57	45	X9117-B8B
	90	99	105	110	113	115	116	116	115	103	86	69	54	X9117-B9B
	115	127	135	141	145	147	148	148	147	132	110	88	69	X9166-B10B
	131	144	153	160	164	167	168	168	167	150	125	100	79	X9144-B11B
	156	172	183	191	196	199	201	201	199	179	149	120	94	X9144-B13B
40	16	23	28	31	33	35	36	36	37	33	28	23	18	X11873-B4B
	21	30	36	39	42	44	45	46	47	42	36	29	23	X11873-B5B
	26	37	44	49	52	54	56	57	57	52	44	36	28	X9117-B6B
	29	42	50	55	59	62	64	65	66	60	50	41	32	X9117-B7B
	40	58	69	76	82	85	88	89	90	82	69	56	44	X9117-B8B
	49	70	84	93	99	104	107	109	110	100	84	68	54	X9117-B9B
	63	90	107	119	127	133	137	139	141	128	108	87	69	X9166-B10B
	71	102	121	135	144	151	156	158	160	145	122	99	78	X9144-B11B
	85	122	145	161	172	180	186	189	190	173	146	118	93	X9144-B13B
30				20	25	28	30	32	33	30	26	21	17	X11873-B4B
				25	32	36	38	40	42	39	33	27	22	X11873-B5B
				31	39	44	47	50	51	47	41	33	27	X9117-B6B
				36	44	50	54	57	59	54	46	38	30	X9117-B7B
				49	61	69	74	78	81	74	64	52	42	X9117-B8B
				60	74	84	90	95	98	91	78	63	51	X9117-B9B
				77	95	107	116	122	126	116	99	81	65	X9166-B10B
				87	108	122	131	138	143	132	113	92	74	X9144-B11B
			104	129	145	157	165	170	157	135	110	88	X9144-B13B	

TJRE/TERE/TIRE/THRE: Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature [°C]	R513A Capacity [kW]													Cage assembly type
	Evaporating temperature [°C]													
	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	
70	37	37	37	37	36	36	35	34	33	29	23	18	14	X11873-B4B
	47	47	47	47	46	46	44	43	42	36	30	23	18	X11873-B5B
	58	58	58	58	57	56	55	53	51	45	37	29	22	X9117-B6B
	66	67	67	66	65	64	62	61	58	51	42	33	25	X9117-B7B
	91	92	92	91	90	88	86	83	80	70	58	45	35	X9117-B8B
	110	111	112	111	109	107	104	101	98	86	70	55	43	X9117-B9B
	141	143	143	142	140	137	134	130	125	110	90	71	55	X9166-B10B
	160	162	162	161	159	156	152	147	142	125	102	80	62	X9144-B11B
	191	193	194	192	190	186	181	176	170	149	122	96	74	X9144-B13B
60	36	37	38	39	39	39	38	38	37	33	27	22	17	X11873-B4B
	46	48	49	50	50	49	49	48	47	42	35	28	22	X11873-B5B
	57	59	60	61	61	61	60	59	58	52	43	34	27	X9117-B6B
	65	67	69	70	70	70	69	68	66	59	49	39	31	X9117-B7B
	89	92	95	96	96	96	95	93	91	81	67	54	42	X9117-B8B
	108	112	115	116	117	116	115	113	111	99	82	66	51	X9117-B9B
	139	144	147	149	150	149	147	145	142	126	105	84	66	X9166-B10B
	157	163	167	169	170	169	167	165	161	143	119	95	75	X9144-B11B
	188	195	200	202	203	202	200	196	192	171	142	114	89	X9144-B13B
50	31	34	36	37	38	39	39	39	39	35	29	24	19	X11873-B4B
	39	43	46	48	49	50	50	50	49	44	37	30	24	X11873-B5B
	48	53	56	59	60	61	61	61	61	55	46	37	29	X9117-B6B
	55	61	65	67	69	70	70	70	69	62	52	42	34	X9117-B7B
	76	83	89	92	95	96	96	96	95	86	72	58	46	X9117-B8B
	92	102	108	112	115	117	117	117	116	104	88	71	56	X9117-B9B
	118	130	138	144	148	150	150	150	149	134	113	91	72	X9166-B10B
	134	148	157	163	167	170	171	170	168	152	128	103	82	X9144-B11B
	160	176	187	195	200	203	204	203	201	181	152	123	98	X9144-B13B
40	18	25	29	32	35	36	37	38	38	35	29	24	19	X11873-B4B
	23	32	37	41	44	46	47	48	48	44	38	31	25	X11873-B5B
	28	39	46	51	54	57	58	59	59	54	46	38	30	X9117-B6B
	32	44	53	58	62	65	67	68	68	62	53	43	34	X9117-B7B
	44	61	72	80	85	89	92	93	93	85	73	59	47	X9117-B8B
	53	74	88	97	104	108	111	113	114	104	88	72	58	X9117-B9B
	68	95	113	125	133	139	143	145	146	133	113	92	74	X9166-B10B
	77	108	128	142	151	158	162	164	165	151	128	105	84	X9144-B11B
	92	129	153	169	180	188	193	196	197	180	153	125	100	X9144-B13B
30				22	27	30	32	34	35	32	28	23	19	X11873-B4B
				28	34	38	41	43	44	41	36	29	24	X11873-B5B
				35	42	47	51	53	54	51	44	36	29	X9117-B6B
				39	48	54	58	60	62	58	50	41	33	X9117-B7B
				54	66	74	79	83	86	80	69	57	46	X9117-B8B
				66	80	90	97	101	104	97	84	69	56	X9117-B9B
				85	103	115	124	130	133	124	107	89	72	X9166-B10B
				96	117	131	140	147	151	141	122	100	81	X9144-B11B
			115	139	156	168	176	181	168	145	120	97	X9144-B13B	