

WINTER
REFRIGERATION
Industrial Equipment Manufacturing LLC



ChillerPack

WINTER ChillerPack

WINTER Refrigeration Industrial Equipment Manufacturing L.L.C. is known to provide smart and sophisticated solutions for industrial refrigeration applications. We, as a packager for refrigeration units with more than 30 years of experience, have the customer always in our focus. The satisfaction of the customer is our daily aim.

Our newest developed package with an ultra-low Ammonia charge is the WINTER ChillerPack and can be used for manifold applications, e.g. freezer, cold store, A/C etc. These chiller packages are able to cover a wide range of cooling capacity.

High temperature: up to 3230 kW

Low temperature: up to 1985 kW

The highly efficient WINTER ChillerPack is designed for reliable and long lasting operation while considering an easy installation and less service. Using the lowest possible footprint of the unit helps reducing shipping costs as well as space requirements for the installation. The international codes (ASME, PED, etc.) have also been applied for designing these units.

The main components are from the well-established international brands of the refrigeration industry for e.g. Howden, Parker, Alfa Laval etc.

The utilised Howden screw compressors are the markets leading equipment providing secure performances. Our oil separator which is designed and built by WINTER itself ascertains a very little oil amount ($< 5\text{ppm}$) within the refrigerant flow through the refrigerant cycle. The oil cooling can be executed either with water or thermosiphon.

The motors which are engineered in the WINTER ChillerPack are generally from the established supplier WEG.

The high efficiency compressors and motors dedicate less electric energy consumption. As per customer request a VFD can be provided. Therefore our customers start saving money from the first running hour of the WINTER ChillerPack.

The WINTER ChillerPack is commonly working with the natural refrigerant Ammonia (R-717). However, other refrigerants can be provided upon customer requirement.

While using Plate Heat Exchangers (PHE) the lowest refrigerant amount within the WINTER ChillerPack is ensured. Either cooling down water or other secondary refrigerants like water-glycol can be considered. The advantages of the PHE are the high capacity accommodated in a tiny package. The plates are made from stainless steel with NBRP for the sealing and CR for the gasket material. The high quality PHE reduces service and maintenance to a minimum.

A liquid level sensor transmits the actual refrigerant level within the system to the control panel and keeps the system in perfect balanced conditions. Furthermore a local level indication via sight glasses is provided.

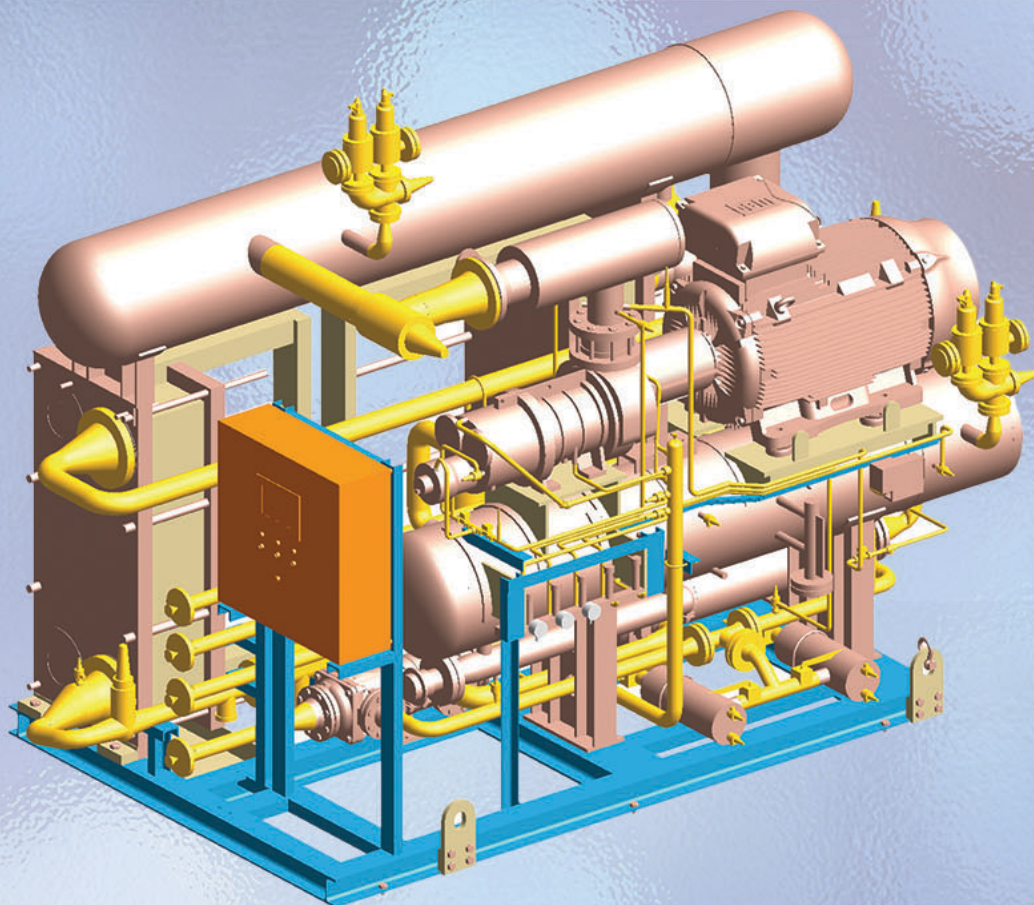
The in-house designed and manufactured liquid separator guarantees a totally droplet free return flow of the refrigerant vapor back to the compressor.

Additionally the WINTER ChillerPack includes an oil recovery system to return the accumulated lubricating oil from the evaporator back to the compressor which requires almost no service.

The capacity control is executed via a slide valve to achieve an efficient running compressor unit at a well-balanced operation mode. The slide valve is able to cover a range from 100% to 10% of the full compressor duty.

The WINTER ChillerPack is equipped with a Siemens control panel to complete the package with high class international brands.

XRV-163



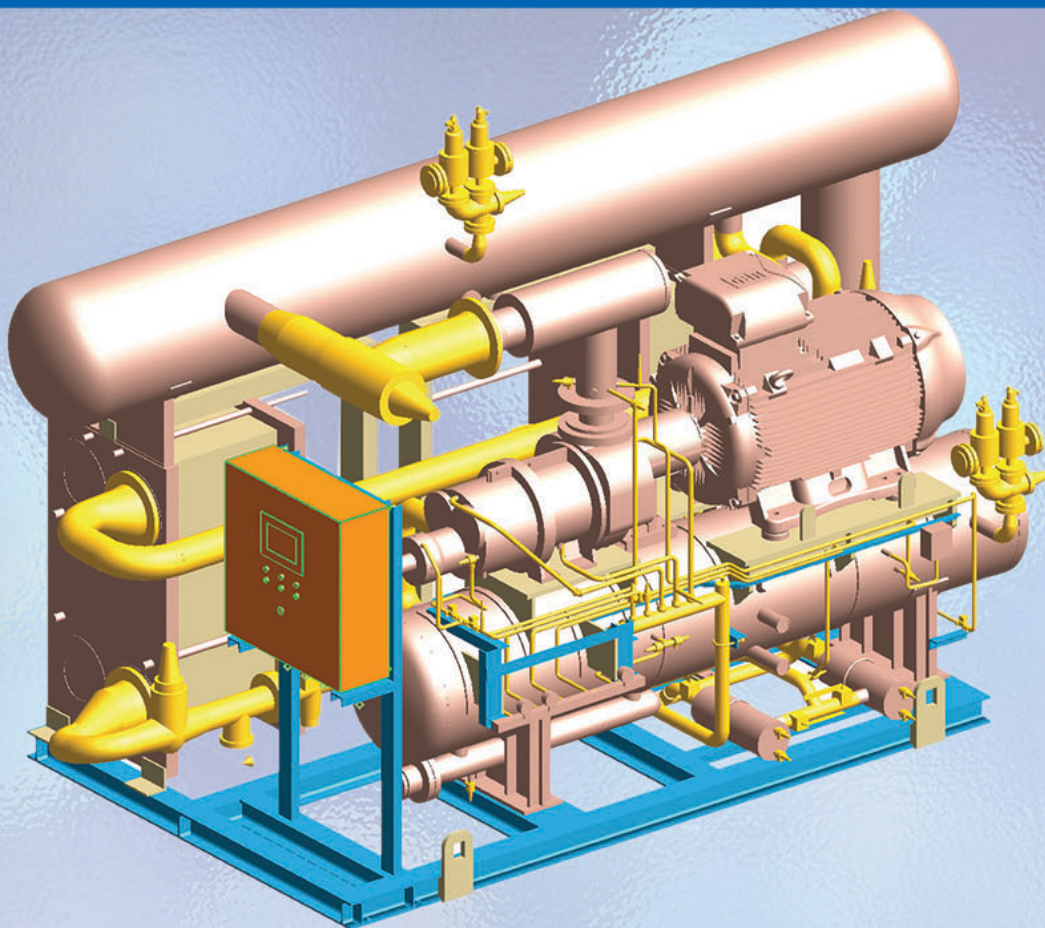
WATER CHILLER PACKAGE					
Model XRV-163	Unit	CMSC-163165X01		CMSC-163193X01	
Frequency	Hz	50	60	50	60
Cooling Capacity, nominal	kW	540.9	669.4	653.2	807.1
	TR	153.8	190.4	185.8	229.5
Absorbed Power	kW	99.2	121.1	118.7	145.0
	BHP	133.0	162.3	159.2	194.4
Coefficient of Performance	COP	5.46	5.53	5.5	5.57
Secondary Refrigerant Fluid	-	Water	Water	Water	Water
Installed Electric Motor	kW	132	150	150	185
Length (Overall)	mm	4020	4020	4020	4020
Width (Overall)	mm	2150	2150	2150	2150
Height (Overall)	mm	2350	2350	2350	2350

GLYCOL CHILLER PACKAGE					
Model XRV-163	Unit	CMSC-163165X01		CMSC-163193X01	
Frequency	Hz	50	60	50	60
Cooling Capacity, nominal	kW	327.7	407.8	396.3	492.4
	TR	93.2	116.0	112.7	140.0
Absorbed Power	kW	94.8	115.8	113.6	138.7
	BHP	127.2	155.3	152.3	186.0
Coefficient of Performance	COP	3.5	3.5	3.5	3.6
Secondary Refrigerant Fluid	-	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol
Installed Electric Motor	kW	110	132	132	160
Length (Overall)	mm	4020	4020	4020	4020
Width (Overall)	mm	2150	2150	2150	2150
Height (Overall)	mm	2350	2350	2350	2350

Notes:

- Tables based on Ammonia (R-717); other refrigerants on request
- Oil cooling applicable with water or thermosiphon
- HEX based on PHE type; Shell & Tube HEX on request
- Water cooled condenser is standard; other condenser types (evaporative / air cooled) on request
- Performance data for water chiller package with chilled water (12/6°C); cooling water (27/31°C)
- Performance data for glycol chiller package with 30% propylene-glycol (-6/0°C); cooling water (27/31°C)
- Other secondary refrigerants on request

XRV-204



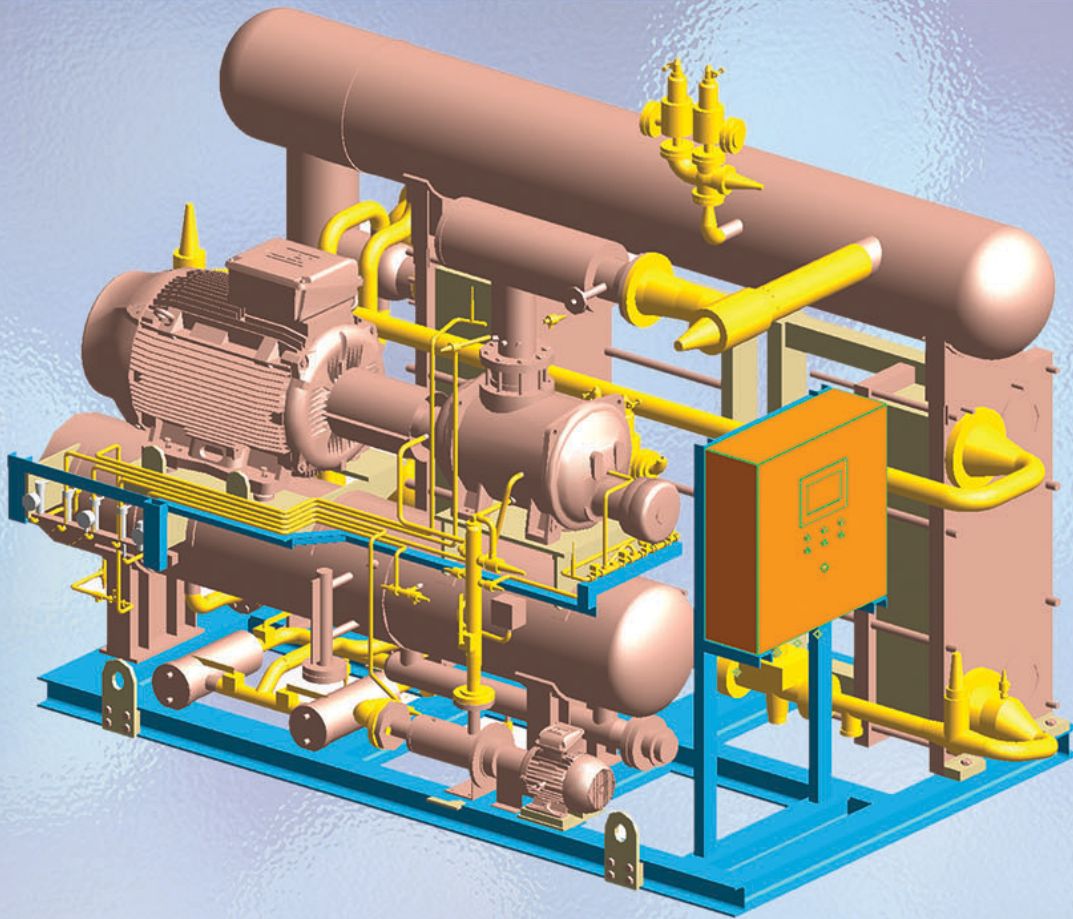
WATER CHILLER PACKAGE									
Model XRV-204	Unit	CMSC-204110X01	CMSC-204145X01	CMSC-204165X01	CMSC-204193X01	CMSC-204165X01	CMSC-204193X01	CMSC-204193X01	CMSC-204193X01
Frequency	Hz	50	60	50	60	50	60	50	60
Cooling Capacity, nominal	kW	771.4	939.1	1072.1	1301.9	1183.4	1437.0	1310.0	1590.8
	TR	219.4	267.1	304.9	370.3	336.6	408.7	372.6	452.4
Absorbed Power	kW	143.4	175.1	182.9	223.3	207.8	253.7	229.0	279.6
	BHP	192.3	234.8	245.2	299.4	278.7	340.2	307.1	375.0
Coefficient of Performance	COP	5.38	5.36	5.86	5.83	5.69	5.66	5.72	5.69
Secondary Refrigerant Fluid	-	Water	Water	Water	Water	Water	Water	Water	Water
Installed Electric Motor	kW	185	200	220	280	250	300	280	330
Length (Overall)	mm	4700	4700	4700	4700	4700	4700	4700	4700
Width (Overall)	mm	2200	2200	2200	2200	2200	2200	2200	2200
Height (Overall)	mm	2990	2990	2990	2990	2990	2990	2990	2990

GLYCOL CHILLER PACKAGE									
Model XRV-204	Unit	CMSC-204110X01	CMSC-204145X01	CMSC-204165X01	CMSC-204193X01	CMSC-204165X01	CMSC-204193X01	CMSC-204193X01	CMSC-204193X01
Frequency	Hz	50	60	50	60	50	60	50	60
Cooling Capacity, nominal	kW	472.8	576.8	657.4	799.9	725.6	882.9	803.3	977.3
	TR	134.5	164.0	187.0	227.5	206.4	251.1	228.4	278.0
Absorbed Power	kW	137.2	167.5	174.9	213.6	198.8	242.7	216.7	264.6
	BHP	183.9	224.6	234.6	286.4	266.6	325.4	290.6	354.8
Coefficient of Performance	COP	3.5	3.4	3.8	3.8	3.7	3.6	3.7	3.7
Secondary Refrigerant Fluid	-	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol
Installed Electric Motor	kW	160	200	200	250	250	280	250	300
Length (Overall)	mm	4700	4700	4700	4700	4700	4700	4700	4700
Width (Overall)	mm	2200	2200	2200	2200	2200	2200	2200	2200
Height (Overall)	mm	2990	2990	2990	2990	2990	2990	2990	2990

Notes:

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- Other secondary refrigerants on request

WRV-163



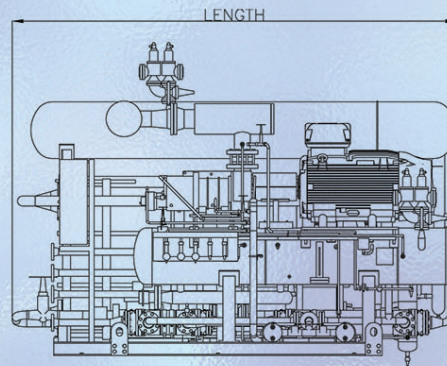
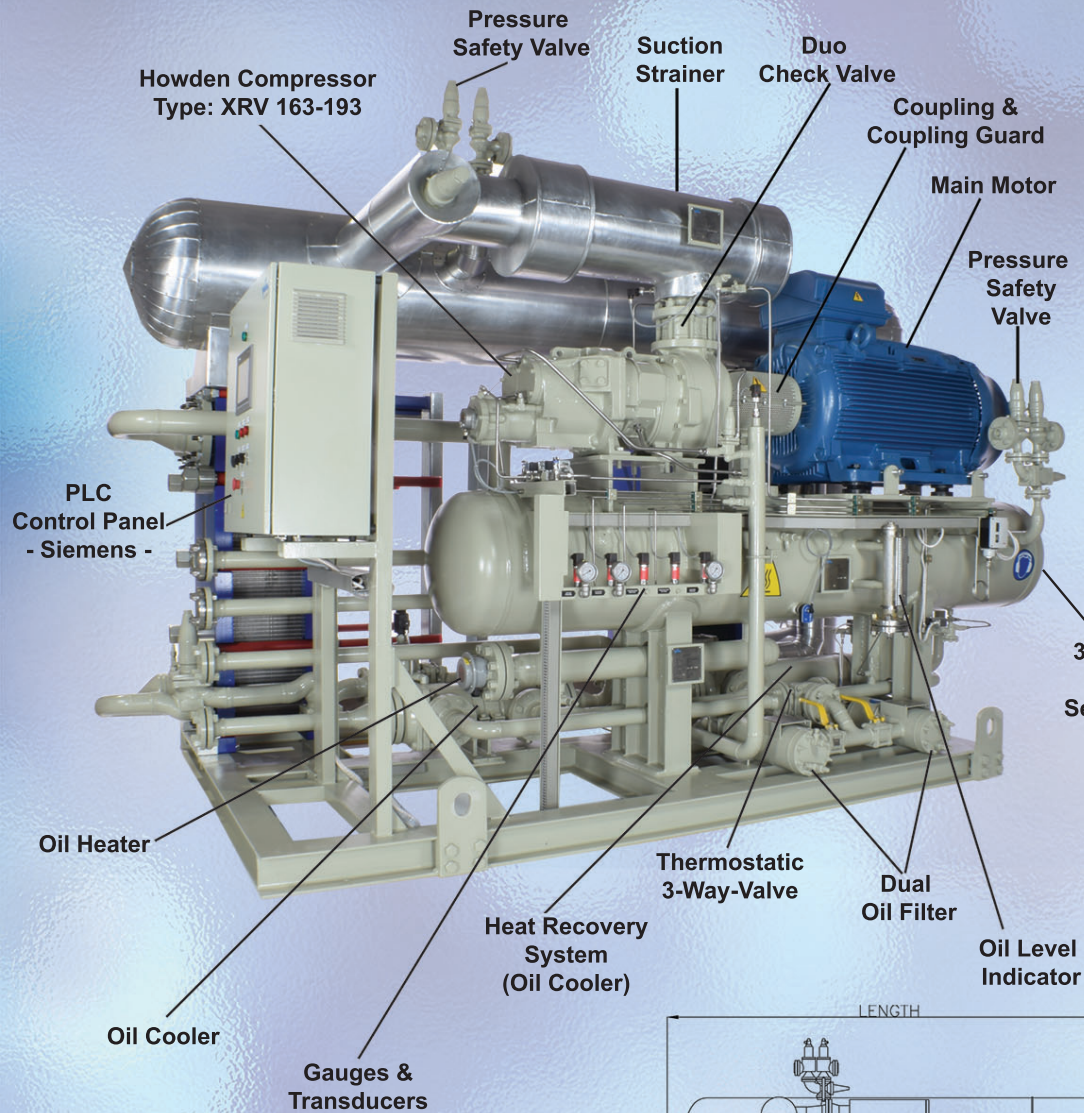
WATER CHILLER PACKAGE					
Model WRV-163	Unit	CMSC-163145W01		CMSC-163180W01	
Frequency	Hz	50	60	50	60
Cooling Capacity, nominal	kW	522.0	637.7	648.0	791.7
	TR	148.5	181.4	184.3	225.1
Absorbed Power	kW	92.8	111.9	112.9	136.2
	BHP	124.4	150.1	151.4	182.6
Coefficient of Performance	COP	5.63	5.7	5.74	5.81
Secondary Refrigerant Fluid	-	Water	Water	Water	Water
Installed Electric Motor	kW	110	132	132	160
Length (Overall)	mm	4020	4020	4020	4020
Width (Overall)	mm	2150	2150	2150	2150
Height (Overall)	mm	2350	2350	2350	2350

GLYCOL CHILLER PACKAGE					
Model WRV-163	Unit	CMSC-163145W01		CMSC-163180W01	
Frequency	Hz	50	60	50	60
Cooling Capacity, nominal	kW	317.6	389.3	394.3	483.2
	TR	90.3	110.7	112.1	137.4
Absorbed Power	kW	87.5	105.5	110.7	133.6
	BHP	117.3	141.5	148.4	179.1
Coefficient of Performance	COP	3.63	3.69	3.56	3.62
Secondary Refrigerant Fluid	-	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol
Installed Electric Motor	kW	110	132	132	160
Length (Overall)	mm	4020	4020	4020	4020
Width (Overall)	mm	2150	2150	2150	2150
Height (Overall)	mm	2350	2350	2350	2350

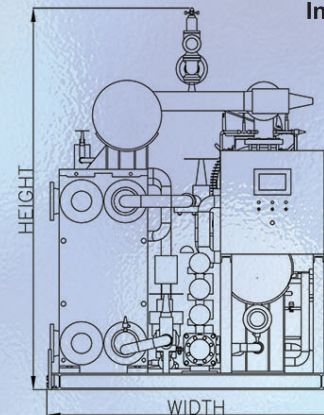
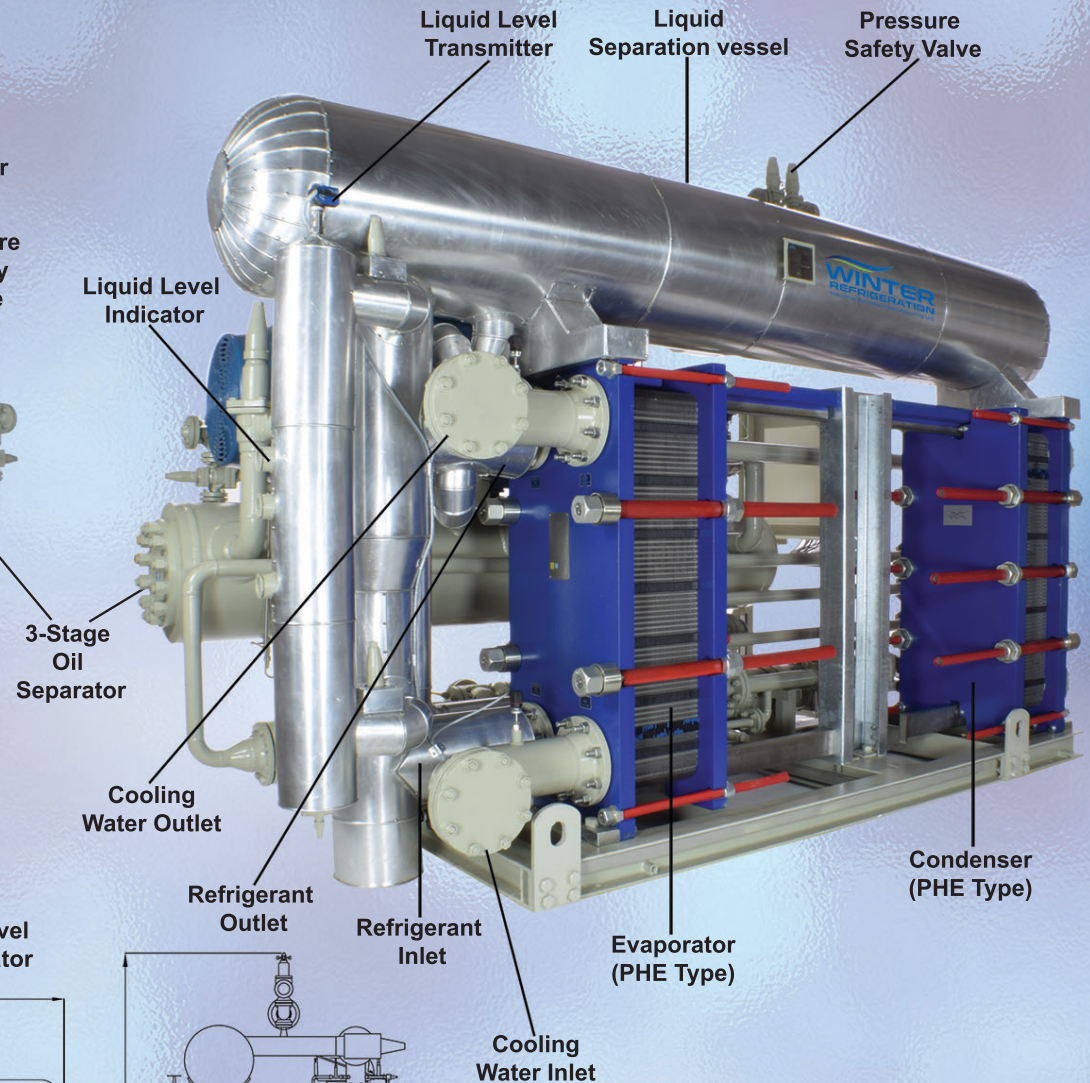
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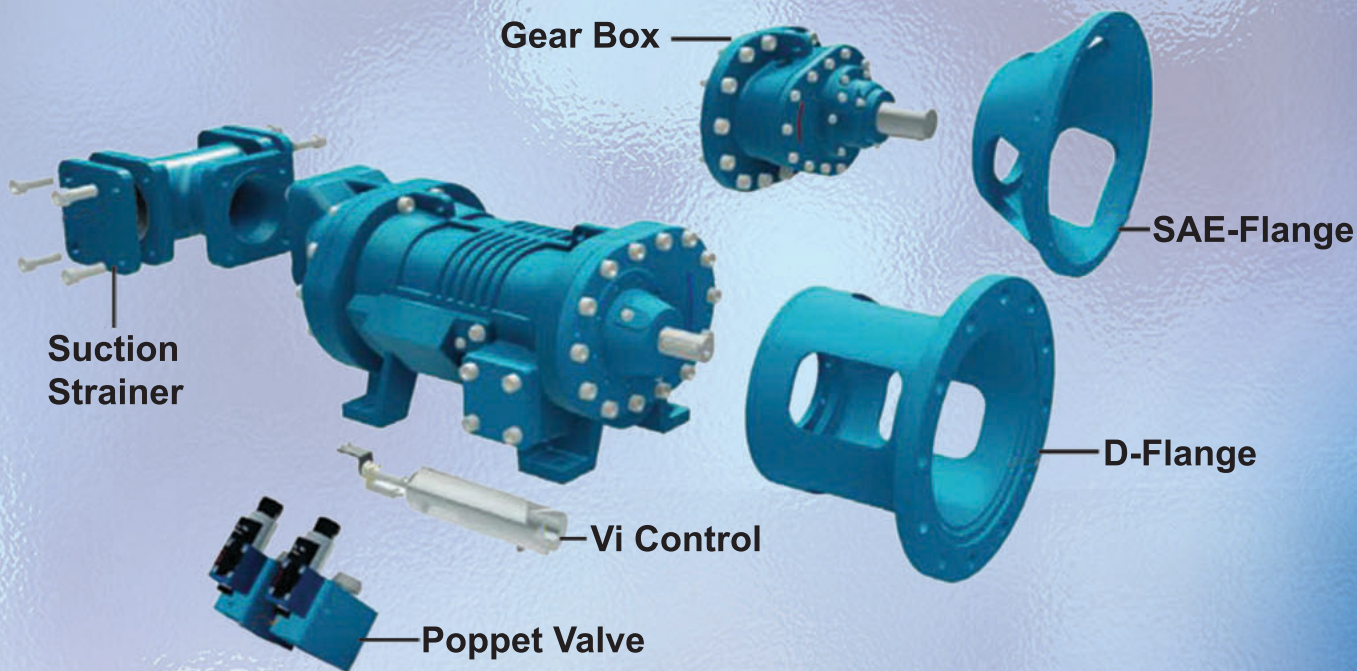
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- HEX based on PHE type; Shell & Tube HEX on request
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- Performance data for glycol chiller package with 30% propylene-glycol (-6/0°C); cooling water (27/31°C)
- Other secondary refrigerants on request

WINTER ChillerPack - Front view



WINTER ChillerPack - Back view





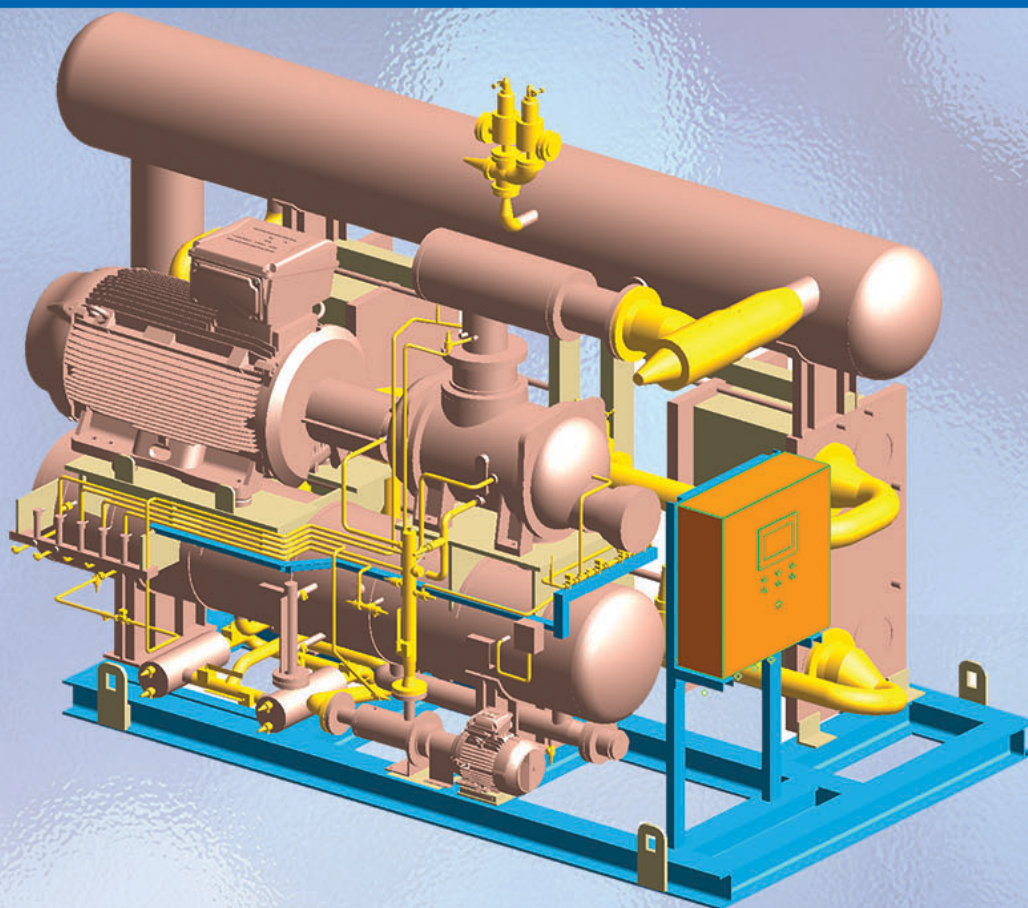
WATER CHILLER PACKAGE			
Model M-127	Unit	CMSC-127165M01	
Frequency	Hz	50	60
Cooling Capacity, nominal	kW	271.1	331.5
	TR	77.1	94.3
Absorbed Power	kW	47.5	57.6
	BHP	63.7	77.3
Coefficient of Performance	COP	5.7	5.75
Secondary Refrigerant Fluid	-	Water	Water
Installed Electric Motor	kW	55	75
Length (Overall)	mm	4020	4020
Width (Overall)	mm	2150	2150
Height (Overall)	mm	2350	2350

GLYCOL CHILLER PACKAGE			
Model M-127	Unit	CMSC-127165M01	
Frequency	Hz	50	60
Cooling Capacity, nominal	kW	164.6	202.0
	TR	46.8	57.5
Absorbed Power	kW	46.2	56.0
	BHP	62.0	75.1
Coefficient of Performance	COP	3.6	3.6
Secondary Refrigerant Fluid	-	P.-Glycol	P.-Glycol
Installed Electric Motor	kW	55	75
Length (Overall)	mm	4020	4020
Width (Overall)	mm	2150	2150
Height (Overall)	mm	2350	2350

Notes:

- Tables based on Ammonia (R-717); other refrigerants on request
- Oil cooling applicable with water or thermosiphon
- HEX based on PHE type; Shell & Tube HEX on request
- Water cooled condenser is standard; other condenser types (evaporative / air cooled) on request
- Performance data for water chiller package with chilled water (12/6°C); cooling water (27/31°C)
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- Other secondary refrigerants on request

WRV-204



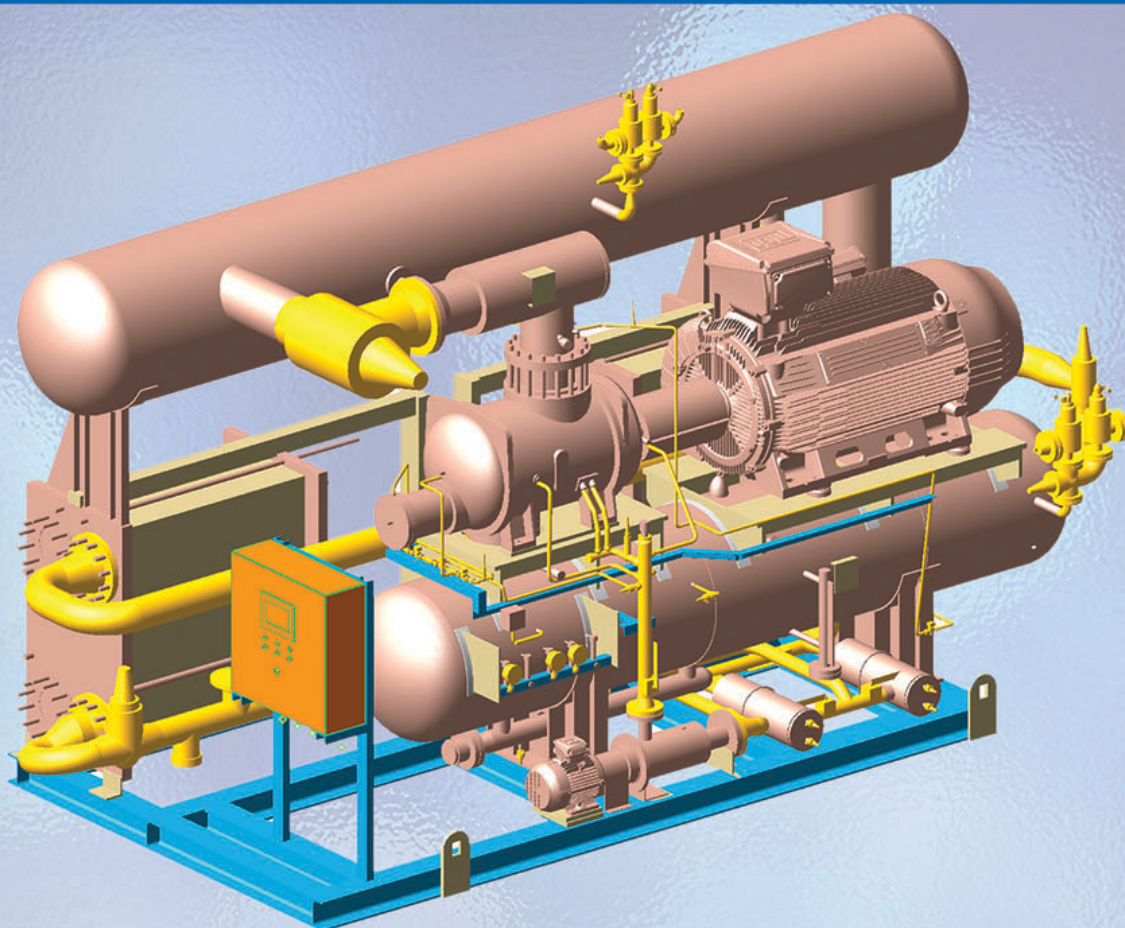
WATER CHILLER PACKAGE									
Model WRV-204	Unit	CMSC-204110W01		CMSC-204145W01		CMSC-204165W01		CMSC-204193W01	
Frequency	Hz	50	60	50	60	50	60	50	60
Cooling Capacity, nominal	kW	800.1	970.9	1087.2	1319.4	1200.1	1456.4	1350.2	1638.5
	TR	227.5	276.1	309.2	375.2	341.3	414.2	384.0	466.0
Absorbed Power	kW	145.8	177.7	196.7	239.7	210.0	255.8	236.2	287.7
	BHP	195.5	238.3	263.8	321.4	281.5	343.0	316.7	385.8
Coefficient of Performance	COP	5.49	5.46	5.53	5.5	5.72	5.69	5.72	5.7
Secondary Refrigerant Fluid	-	Water	Water	Water	Water	Water	Water	Water	Water
Installed Electric Motor	kW	185	220	250	280	250	300	280	330
Length (Overall)	mm	4850	4850	4850	4850	4850	4850	4850	4850
Width (Overall)	mm	2300	2300	2300	2300	2300	2300	2300	2300
Height (Overall)	mm	3050	3050	3050	3050	3050	3050	3050	3050

GLYCOL CHILLER PACKAGE									
Model WRV-204	Unit	CMSC-204110W01		CMSC-204145W01		CMSC-204165W01		CMSC-204193W01	
Frequency	Hz	50	60	50	60	50	60	50	60
Cooling Capacity, nominal	kW	488.7	594.5	664.1	807.8	733.0	891.7	824.7	1003.2
	TR	139.0	169.1	188.9	229.7	208.5	253.6	234.6	285.3
Absorbed Power	kW	137.2	167.3	185.1	255.6	197.6	240.7	222.2	270.7
	BHP	184.0	224.3	248.2	342.7	264.9	322.8	298.0	363.0
Coefficient of Performance	COP	3.56	3.55	3.59	3.58	3.71	3.7	3.71	3.71
Secondary Refrigerant Fluid	-	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol
Installed Electric Motor	kW	160	200	220	300	250	280	280	315
Length (Overall)	mm	4850	4850	4850	4850	4850	4850	4850	4850
Width (Overall)	mm	2300	2300	2300	2300	2300	2300	2300	2300
Height (Overall)	mm	3050	3050	3050	3050	3050	3050	3050	3050

Notes:

- Tables based on Ammonia (R-717); other refrigerants on request
- Oil cooling applicable with water or thermosiphon
- HEX based on PHE type; Shell & Tube HEX on request
- Water cooled condenser is standard; other condenser types (evaporative / air cooled) on request
- Performance data for water chiller package with chilled water (12/6°C); cooling water (27/31°C)
- Performance data for glycol chiller package with 30% propylene-glycol (-6/0°C); cooling water (27/31°C)
- Other secondary refrigerants on request

WRV-255



WATER CHILLER PACKAGE

Model WRV-255	Unit	CMSC-255110W01		CMSC-255130W01		CMSC-255145W01		CMSC-255165W01		CMSC-255193W01	
Frequency	Hz	50	60	50	60	50	60	50	60	50	60
Cooling Capacity, nominal	kW	1581.4	1914.2	1778.4	2152.6	2149.0	2601.2	2372.1	2871.2	2668.8	3230.4
	TR	449.7	544.4	505.8	612.2	611.2	739.8	674.6	816.6	759.0	918.7
Absorbed Power	kW	275.5	340.3	308.8	381.4	386.3	477.2	411.6	508.0	462.7	571.0
	BHP	369.4	456.4	414.1	511.4	518.0	639.9	551.9	681.2	620.5	765.8
Coefficient of Performance	COP	5.74	5.62	5.76	5.64	5.56	5.45	5.76	5.65	5.77	5.66
Secondary Refrigerant Fluid	-	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Installed Electric Motor	kW	315	400	355	440	450	560	500	630	560	710
Length (Overall)	mm	6100	6100	6100	6100	6100	6100	6100	6100	6100	6100
Width (Overall)	mm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
Height (Overall)	mm	3450	3450	3450	3450	3450	3450	3450	3450	3450	3450

GLYCOL CHILLER PACKAGE

Model WRV-255	Unit	CMSC-255110W01		CMSC-255130W01		CMSC-255145W01		CMSC-255165W01		CMSC-255193W01	
Frequency	Hz	50	60	50	60	50	60	50	60	50	60
Cooling Capacity, nominal	kW	970.2	1176.2	1091.1	1322.8	1318.4	1598.3	1455.2	1764.2	1637.5	1985.2
	TR	275.9	334.5	310.3	376.2	375.0	454.6	413.9	501.7	465.7	564.6
Absorbed Power	kW	259.8	321.2	291.3	360.0	364.3	450.1	387.6	478.5	435.9	538.0
	BHP	348.4	430.7	390.7	482.7	488.5	603.6	519.8	641.7	584.5	721.4
Coefficient of Performance	COP	3.73	3.66	3.75	3.67	3.62	3.55	3.75	3.69	3.76	3.69
Secondary Refrigerant Fluid	-	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol	P.-Glycol
Installed Electric Motor	kW	300	370	355	440	450	560	450	560	500	630
Length (Overall)	mm	6100	6100	6100	6100	6100	6100	6100	6100	6100	6100
Width (Overall)	mm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
Height (Overall)	mm	3450	3450	3450	3450	3450	3450	3450	3450	3450	3450

Notes:

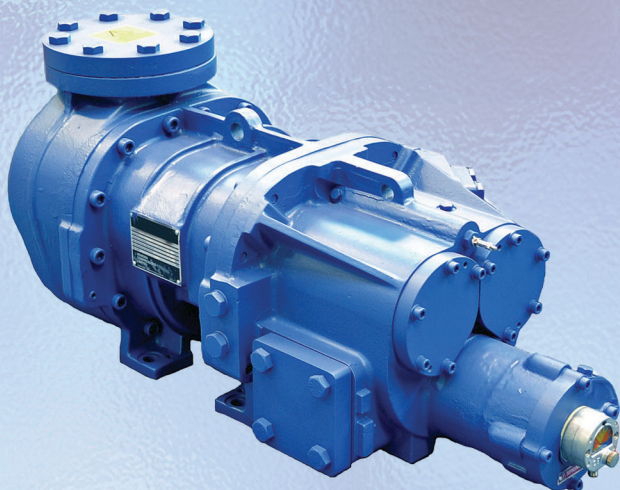
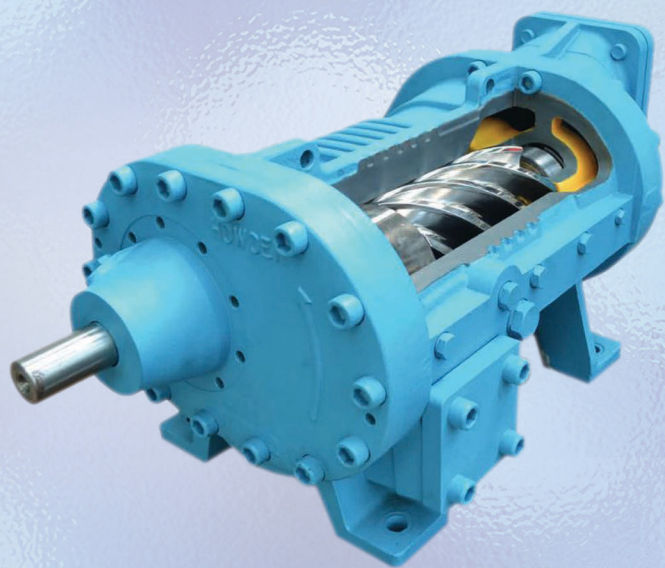
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- Other secondary refrigerants on request

Howden Compressors

Howden needs no introduction in refrigeration industry. They are pioneer in the development and commercialization of the screw compressor technology and still remain at the forefront of its development with ever-changing market demands.

Their compressors are capable of operating with all available refrigerants and gases, and do comply with all international codes and standards. Anywhere in the world and for any process system, Howden compressor can serve you.

Winter-Howden collaboration brings together unparalleled expertise and experience in refrigeration services. Together we continue to address various needs of customer, be it revamping of the existing system or procuring an entirely new system.



Howden



Pioneer in Refrigeration, Process Cooling Technology



**Winter Refrigeration Industrial Equipment
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