ECO FRIENDLY

PASSION FOR COOLING

IMMERSION CHILLERS FOR OIL AND EMULSION

COOLING CAPACITY 4 ÷ 72 kW

diper



[IM] AIR-COOLED IMMERSION CHILLERS FOR OIL AND EMULSION

RPS Cooling S.r.l. - Via Veneto n.12A/B - 46029 Suzzara (MN) – Italy Tel.: +39 0376 1430010 -web www.rpscooling.com sales@rpscooling.com

CONFIGURATION
Q – STANDARD LEG HEIGHT
T – CUSTOM LEG HEIGHT

VERSION
ST – WITHOUT STIRRER
AG – WITH AGITATOR

MODELS
DO007 → DO072

DESCRIPTION
Chillers for EMULSION / OIL, compact air-cooled immersion for industrial applications. DIPER product family, they are suitable to be combined with filtration tanks for industrial processes. These units are suitable for cooling industrial oils or emulsifying solutions. They are built with high-efficiency scroll compressors. Environmentally friendly refrigerant gas R513A and R454B (A2L).
The machines have been designed with ease of maintenance in mind and maintaining high efficiency.
All machines are assembled and tested 100% in RPS Cooling according to specific quality procedures, they are already assembled with all electrical connections, refrigerators and loaded with refrigerant gas.

STRUCTURE
Built in a lightweight carpentry structure in galvanized sheet metal and then painted with polyester powder, color **RAL7035** peeled (standard). Eyebolts for lifting and modifying. Easy access through the side panels. Built-in electrical panel on the front. The condensation airflow is sucked in on the sides and expelled from the roof. The inside of the machine is easily accessible from removable side panels for all maintenance and/or control operations.

SCROLL COMPRESSORS

All compressors are equipped with thermal protection against overheating and overcurrent and are mounted on rubber anti-vibration dampers

AIR-COOLED CONDENSER
Copper-aluminium condensing coil, high efficiency, with aluminium air filters with metal frame to protect against clogging. Washable wire mesh filters. High finning pitch for less maintenance. Tubes staggered and mechanically mandred in the aluminium finned pack.

STAINLESS STEEL COIL EVAPORATOR
AIS304 stainless steel coil evaporator, smooth tube.

AXIAL FANS
A close up of a car wheel Description automatically generated with low confidence


REFRIGERANT CIRCUIT
Refrigerant circuit consisting of the following components:
1. Liquid indicator light
2. Filter drier
3. High and low pressure switches
4. Mechanical thermostatic valve with MOP
5. Service sockets for maintenance

ELECTRICAL PANEL
Electrical panel built in compliance with the 60204-1/IEC 204-1 standard, inside which the control system and the components for starting the motors, wired and tested in the factory, are located. It consists of a metal cabinet, containing the power and control devices, the microprocessor electronic board complete with keyboard and display, for displaying the various functions available. Yellow/red main lock-door switch, isolation transformer for auxiliary circuits, contactors and circuit breakers for compressor and fan. Free general alarm at voltage and remote ON/OFF contact with alarm signal on the display. Terminal block, phase failure sequence control relay.

POWER SUPPLY
Bi-frequency power supply 400V (+/-10%) 3p 50Hz / 460V (+/-10%) 3p 60Hz (without neutral cable), 24Vac auxiliary circuit.

ELECTRONIC CONTROL UNIT
Electronic control unit with RS485 connection (optional) with Modbus communication. Parametric control unit capable of timing motor loads for maintenance. Dual display for fluid temperature and set-point display. DIXELL controller.


AVAILABLE ACCESSORIES
EC - Electronic Fans
LA - Low ambient temperature operation
DC - Secondary circuit in 24VDC
TD - Dynamic set-point with room probe
BSG - Hot gas by-pass for +/-0.5°C accuracy
PC - ILME Electrical Connector
UL-CSA Version with certified components

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TECHNICAL DATA - [IM] Air-cooled immersion chillers for oil and emulsion

	MODEL - DO		007	008	009	010	011	012	013	014	015	018
EMULSION	**Cooling capacity. (1) 50Hz (60Hz)**	**kW**	**3,6** (4,1)	**4,5** (5,2)	**6,6** (7,5)	**8,0** (9,4)	**10,0** (11,8)	**12,2** (13,5)	**13,4** (15,0)	**14,1** (16,0)	**15,9** (18,7)	**18,0** (19,8)
	Electrical power abs. (1) 50Hz 60Hz	kW	1,26 (1,31)	1,63 (1,70)	1,90 (1,98)	2,27 (2,32)	2,43 (2,52)	2,76 (2,87)	3,02 (3,13)	3,17 (3,30)	4,05 (4,20)	4,21 (4,38)
	EER (3)		2,86	2,76	3,47	3,52	4,11	4,42	4,43	4,45	3,90	4,27
OIL	**Cooling capacity . (2) 50Hz 60Hz**	**kW**	**3,4** (3,9)	**4,3** (4,9)	**6,3** (7,2)	**7,7** (9,0)	**9,5** (11,3)	**11,7** (13,0)	**12,9** (14,3)	**13,5** (15,4)	**15,0** (17,5)	**17,1** (19,0)
	Electrical power abs. (2) 50Hz 60Hz	kW	1,26 (1,31)	1,63 (1,70)	1,90 (1,98)	2,27 (2,32)	2,43 (2,52)	2,76 (2,87)	3,02 (3,13)	3,17 (3,30)	4,05 (4,20)	4,21 (4,38)
	EER (3)		2,70	2,63	3,32	3,39	3,90	4,24	4,27	4,26	3,70	4,06
	Minimum Flow Rate (4)	l/min	90,0					150,0				
	Operating Limits											
	Ambient Operation Limits	°C	10°C ÷ 45°C									
	Set-point setting limits	°C	15°C ÷ 40°C									
	Accuracy	K	±2									
	Refrigerant gas											
	Type		R513A					R454B				
	Global Warming Potential GWP		1430					467				
	Class ASHRAE		A1					A2L				
	Compressor											
	Type			Rotary			Scroll					
	Quantity / Refrigerant circuits	n°/n°	1 / 1									
	Partialization	%	0–100%									
	Starting		Direct									
	Fans											
	Type		Axial									
	Quantity / Diameter	n°/mm	1 / 350				2 / 350					
	Air flow rate	m^3/h	2.500				5.000					
	Noise											
	Sound power (1) (4)	dB(A)	77,0				82,0					
	Sound pressure level (1) (4)	dB(A)	49,0				54,0					
	Dimensions & Weights											
	Overall Footprint (Width / Depth / Height)	mm	550 x 550 x 1.450				550 x 1.000 x 1.660					
	External machine height	mm	880				1.090					
	Altezza parte immersa	mm	570				570					
	Immersed Part Width	mm	450				910					
	Depth of the submerged part	mm	480				480					
	Minimum fluid level	mm	290				290					
	Weight	kg										
	Size		DIPER 1				DIPER 2					
	Electrical Data											
	Power supply	V/ph/Hz	400V 3ph 50Hz – 440V 3ph 60Hz					400V 3ph 50Hz – 460V 3ph 60Hz				
	IP protection rate	IP	54									
	Auxiliary circuit	V	24Vac									
	Digital Controller		RS30									

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FLI – Maximum power consumption	kW 50Hz 60Hz	1,4 1,8	3,3 3,5	3,3 3,4	3,8 4,6	5,7 6,7	5,6 7,2	5,8 7,2	6,0 7,3	6,5 7,8	7,9 9,4
FLA – Maximum current consumption	A 50Hz 60Hz	2,9 3,0	6,1 6,4	6,2 6,0	6,9 7,2	8,1 8,3	9,8 10,6	9,9 10,6	9,9 10,7	10,7 11,4	13,3 13,7
LRA – Inrush current	A	11,0	28,0	28,0	30,0	32,0	35,0	38,0	38,0	44,0	45,0
Agitator											
Q.tà		1									
Power consumption	kW										
Current consumption	A										

(1) External air temperature +32°C, Emulsion to 20°C or Oil to 25°C (ΔT in/out 5°C)
(2) EER energy efficiency ratio
(3) External air temperature 7°C and 87% r.h., input condenser water temperature and output temperature 40/45°C, fluid water.
(4) COP coefficient operating performance
(5) Technical information in according of Commission Regulation (EU) 2015/1095 on 5 May 2015, that implementing Directive 813/2013/EC on "EcoDesign" requirements.
(4) Sound pressure level derived from measurements made according to ISO 3744, refers to a distance of 10 meters from the unit in free field conditions with direction factor 2.



TECHNICAL DATA - [IM] Air-cooled immersion chillers for oil and emulsion

	MODEL - DO		020	025	028	032	036	042	052	056	064	072
EMULSION	**Cooling capacity.** (1) 50Hz (60Hz)	**kW**	**19,8** (22,0)	**24,0** (27,4)	**28,0** (31,9)	**32,0** (36,1)	**36,0** (41,1)	**42,0** (48,1)	**49,3** (57,2)	**57,5** (66,4)	**63,9** (73,5)	**70,9** (81,8)
	Electrical power abs. (1) 50Hz 60Hz	kW	**4,7** (5,24)	**5,5** (6,28)	**6,8** 7,78)	**7,5** (8,49)	**9,2** (10,5)	**9,5** (10,9)	**11,5** (13,3)	**14,0** (16,2)	**14,9** (17,09)	**16,9** (19,4)
	EER (3)		4,2	4,36	4,1	4,25	3,9	4,4	4,3	4,1	4,3	4,2
OIL	**Cooling capacity .** (2) 50Hz 60Hz	**kW**	**18,9** (21,0)	**22,9** (26,3)	**26,6** (30,7)	**30,0** (34,6)	**33,5** (39,8)	**40,1** (46,3)	**46,1** (53,9)	**53,9** (62,3)	**60,0** (68,7)	**66,4** (76,7)
	Electrical power abs. (2) 50Hz 60Hz	kW	**4,7** (5,25)	**5,6** (6,41)	**6,8** 7,87)	**7,4** (8,54)	**8,9** (10,6)	**9,5** (11,2)	**11,2** (13,15)	**13,8** (15,9)	**14,6** (16,7)	**16,6** (19,2)
	EER (3)		4,0	4,1	3,9	4,05	3,75	4,2	4,1	3,9	4,1	4,0
	Minimum Flow Rate (4)	l/min	250,0						400,0			
	Operating Limits											
	Ambient Operation Limits	°C	10°C ÷ 45°C									
	Set-point setting limits	°C	15°C ÷ 40°C									
	Accuracy	K	±2									
	Refrigerant gas											
	Type		R454B									
	Global Warming Potential GWP		467									
	Class ASHRAE		A2L									
	Compressor											
	Type		Scroll									
	Quantity / Refrigerant circuits	n°/n°	1						2			
	Partialization	%	0–100%						0 -50-100%			
	Starting		Direct									
	Fans											
	Type		Axial									
	Quantity / Diameter	n°/mm	4 / 450						6 / 450			
	Air flow rate	m^3/h	110.000						165.000			
	Noise											
	Sound power (1) (4)	dB(A)	90,0						97,0			
	Sound pressure level (1) (4)	dB(A)	60,0						65,0			
	Dimensions & Weights											
	Overall Footprint (Width / Depth / Height)	mm	1230 x 980 x 1.695						1860 x 1150 x 2.330			
	External machine height	mm	990						1.250			
	Altezza parte immersa	mm	570						570			
	Immersed Part Width	mm	450						450			
	Depth of the submerged part	mm	480						480			
	Minimum fluid level	mm										
	Weight	kg				340			560			
	Size		DIPER 3						DIPER 4			
	Electrical Data											
	Power supply	V/ph/Hz	400V 3ph 50Hz – 460V 3ph 60Hz									
	IP protection rate	IP	54									
	Auxiliary circuit	V	24Vac									

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Digital Controller		RS30									
FLI – Maximum power consumption	kW 50Hz 60Hz	6,5 7,8	7,9 9,5	10,05 11,7	10,5 12,7	11,8 14,2	13,8 16,6	16,2 19,5	18,9 22,7	21,0 25,3	23,3 28,0
FLA – Maximum current consumption	A 50Hz 60Hz	10,7 11,4	12,98 13,8	17,3 18,4	17,8 19,9	19,47 20,8	22,72 24,2	26,66 28,4	31,10 33,2	34,56 36,8	38,35 40,9
LRA – Inrush current	A	44	53,43	28	71,24	80,15	93,50	109,76	128,01	142,26	157,84
Agitator											
Q.tà		1									
Power consumption	kW										
Current consumption	A										

(1)External air temperature +32°C, Emulsion to 20°C or Oil to 25°C (ΔT in/out 5°C)
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