Carrier International Sdn Bhd Malaysia

Chilled Water Fan Coil Units

Cooling Capacities 87.2 – 104.7 kW

40RW

50Hz

Specify Carrier 40RW series packaged chilled water air handling units for commercial in the space applications in factories, warehouses, offices and stores. If a source of chilled water is available, you can't afford to overlook the versatile packaged units of 40RW series.

These attractive units are available in 2 popular sizes covering from 4000 to 4800 ℓ/s range with nominal cooling capacities from 87 kW to 105 kW.

FEATURES

- Cooling coils are constructed of copper tubes with mechanically bonded, double way plate fins offering an efficient high heat transfer surface.
- Their narrow width makes them easy to get into existing spaces.
- The sooth finish powder painted cabinets are fabricated of rugged, heavy gauge galvanized steel.
- Belt driven centrifugal fans move large volumes of air quietly and efficiently.

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MADE IN MALAYSIA

MS ISO 9001 REG. NO. AR 0239

TECHNICAL SPECIFICATIONS

Model			40RW028	40RW034
Air Quantity	Nominal	ℓ/s	4000	4800
	Range	ℓ/s	2670 - 4800	3200 - 5770
Fan Motor	Type		Field Supplied & Installed	
	Horsepower	kW	3.7	5.5
	Speed	rpm	1200	
Fan	Type		Centrifugal Forward Curved Blades	
	No.. Dia (mm)		2 - 381	
Cooling Coil	Rows – Fin/m		4..433	
	Tubes in Face		32	38
	Total Face Area	m^2	1.88	2.26
Connections	Cooling Coil		2 MPT	2 ½ MPT
	Condensate Vent & Drain		1 ¼ MPT	
Unit Dimensions	Width	mm	2090	2090
	Depth	mm	760	760
	Height	Mm	1640	1846
Unit Weight	Base unit	kg	300	370

ELECTRICAL DATA

UNIT **40RW**	Fan Motor		Fan Range rpm	Pitch Diameter (mm)		V-Belt		Centre Line Distance	Fan Shaft Diameter (mm)	Fan Pulley Bore Hole
		kW		Motor Pulley	Fan Pulley	Size	No.			
028	STD	3.7	542-675	95-118	250	A-45	2	295 ± 35	+0 35 – 0.062	Fig. A
	SPEC	5.5	-	-	-	B	2	284 ± 46		
034	STD	5.5	589-763	103-134	250	B-45	2	284 ± 46		
	SPEC	7.5	-	-	-	B	2	284 ± 46		

Note: Fan speeds are based on 1450 rpm motor.

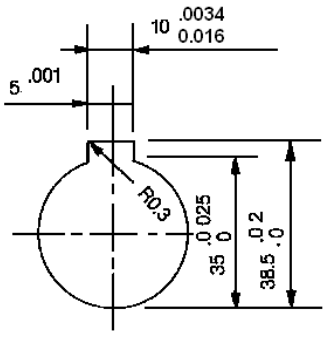


Fig. A

SELECTION PROCEDURE

Example:

1. Determine design condition, given:
   Air volume required……..3200 ℓl/s
   External static pressure specified…… 345 Pa
   Total cooling load…… 110 kW
   Alternating air temperature of 29°C DB &
   21°C WB available water temperature……. 7°C

2. Select unit.
   Enter cooling capacity table at given air volume entering air temperature and chilled water temperature (7°C). Unit size 028 will give the nearest air quantity. Read cooling capacities at air quantity of 2670 ℓ/s and 4000 ℓ/s. Chilled water flow of 375 ℓ/min will be required. Determine total cooling capacity by interpolation.

   TC = 73.85 kW at 2670 ℓ/s of air.
   TC = 114.67 at 4000 ℓ/s of air
   (chilled water flow of 375 ℓ/min at 7°C)

$$TC = \frac{114.67 - 73.85}{4000 - 2670} \times (4000 - 2670) + 73.85$$

$$= \frac{40.82}{1330} \times 1330 + 73.85$$

$$= 114.67 \text{ kW}$$

3. Determine required fan motor and fan rpm.

   Determine total S.P. by adding unit internal pressure loss to the specified external S.P. from the fan curve for 40RW028 pressure drop for unit is found 73 Pa at 3200 ℓ/s air flow.

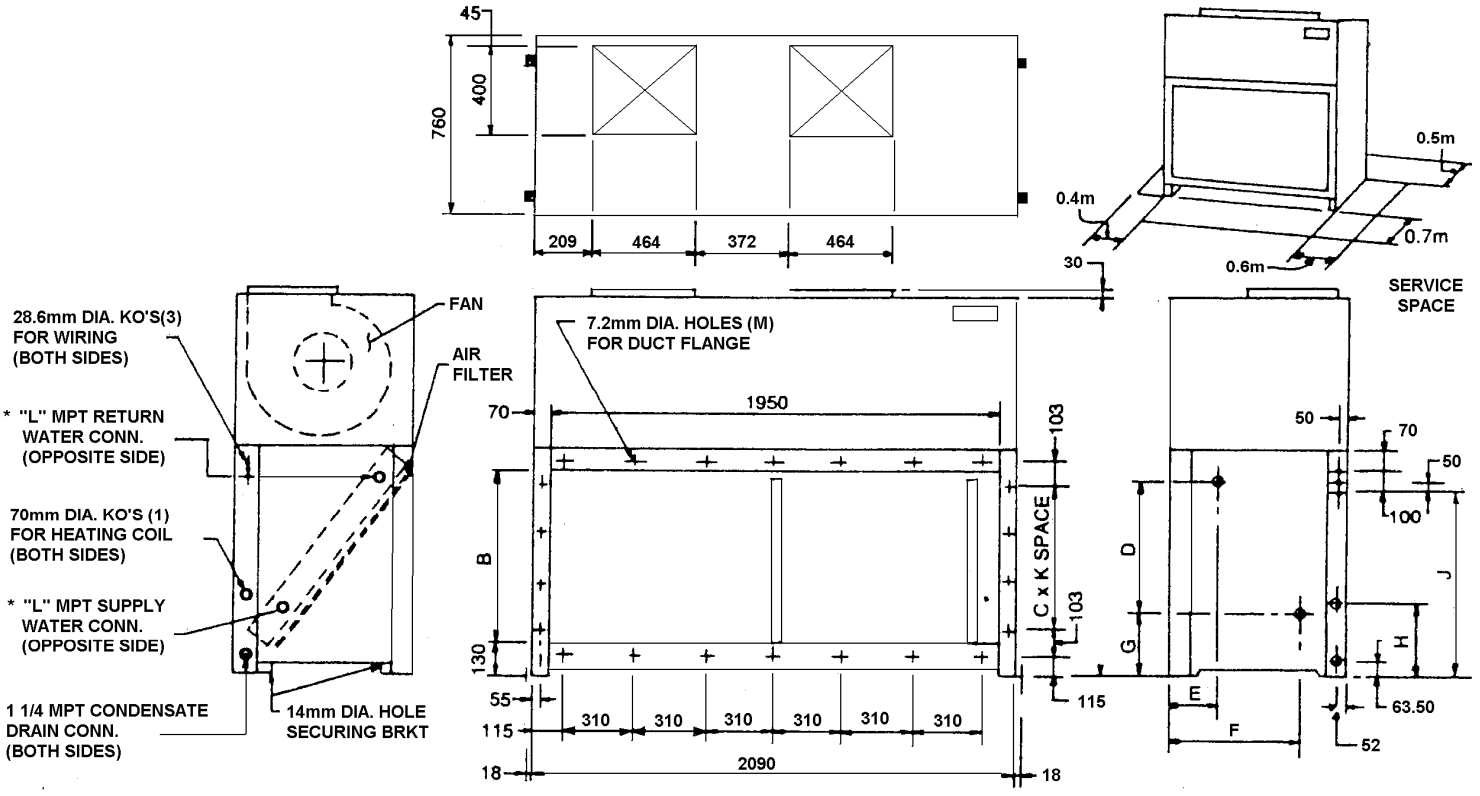
   Total S.P. = 73 + 345 = 418 Pa

   Locate on the curve where the specified air volume and total S.P. intersect. The intersect point is under 3.7 kW line and fan speed can be read as 860 rpm. The standard 3.7 kW motor satisfies the requirements.

4. Determine water pressure drop from coil water pressure drop chart, the water pressure loss can be determined as 10.0m or 95 kPa at 375 ℓ/min.

UNIT DIMENSIONS

Model	A	B	C	D	E	F	G	H	J	K	L	M
40RW028	1640	830	218	575	206	556	282	310	860	3	2	22
40RW034	1846	1066	222	539	181	573	417	341	1096	4	2½	24



PERFORMANCE RATING

40RW028

Air Quantity (ℓ/s)	Entering Water (°C)	Water Flow (ℓ/min)	Entering Air Temperature DB/WB (°C)					
			25/18		27/19.5		29/21	
			TC	SHC	TC	SHC	TC	SHC
2670	5	125	48.15	39.54	58.27	40.47	68.27	40.59
		250	55.59	42.91	67.22	44.19	78.85	44.77
		375	59.08	44.43	71.41	46.05	83.62	46.87
	6	125	44.19	37.80	54.19	38.73	64.31	39.08
		250	51.06	40.82	62.57	42.22	74.20	42.91
		375	54.08	42.22	66.41	43.85	78.74	44.77
	7	125	40.12	36.17	50.24	37.22	60.24	37.68
		250	46.40	38.84	57.92	40.36	69.55	41.17
		375	49.19	40.01	61.52	41.75	73.85	42.80
	8	125	36.17	34.54	46.17	35.59	56.29	36.17
		250	41.75	36.75	53.38	38.38	64.90	39.31
		375	44.31	37.91	56.64	39.77	68.85	40.82
	9	125	32.10	32.10	42.22	34.08	52.55	34.66
		250	37.10	34.89	48.73	36.63	60.24	37.68
		375	39.31	35.82	51.64	37.80	63.97	38.96
4000	5	125	67.92	54.89	82.11	56.17	96.30	56.64
		250	83.74	62.22	101.18	64.55	118.83	65.71
		375	91.64	66.06	110.83	68.97	129.91	70.71
	6	125	62.34	52.45	76.41	53.85	90.80	54.43
		250	76.76	58.85	94.20	61.41	111.65	62.80
		375	84.08	62.34	103.16	65.36	122.23	67.34
	7	125	56.64	50.01	70.83	51.64	84.90	52.34
		250	69.78	55.71	87.23	58.38	104.67	60.01
		375	76.41	58.73	95.48	61.99	114.87	64.08
	8	125	50.94	47.68	65.13	49.31	79.32	50.24
		250	62.80	52.68	80.25	55.48	97.69	57.22
		375	88.73	55.36	87.92	58.62	106.99	60.94
	9	125	45.36	45.36	59.43	47.22	73.62	48.15
		250	55.82	49.66	73.27	52.57	90.71	54.43
		375	61.17	51.99	80.25	55.47	99.32	57.80
4800	5	125	77.34	62.45	93.39	63.97	109.44	64.43
		250	98.39	72.22	118.86	75.13	139.33	76.76
		375	109.55	77.61	132.35	81.53	155.14	83.85
	6	125	70.83	59.66	86.99	61.29	103.04	61.87
		250	90.13	68.27	110.72	71.41	131.19	73.15
		375	100.37	73.15	123.28	77.11	146.07	79.67
	7	125	64.43	56.87	80.48	58.73	96.85	59.55
		250	81.99	64.55	102.46	67.80	122.93	69.78
		375	91.30	68.85	114.09	72.92	136.89	75.71
	8	125	57.92	54.20	74.08	56.17	90.13	57.10
		250	73.73	60.94	94.32	64.31	114.79	66.52
		375	82.11	64.66	105.02	68.85	127.81	71.75
	9	125	51.52	51.52	67.57	53.61	83.74	54.78
		250	65.59	57.45	86.06	60.94	106.53	63.27
		375	73.04	60.59	95.83	65.07	118.63	68.04

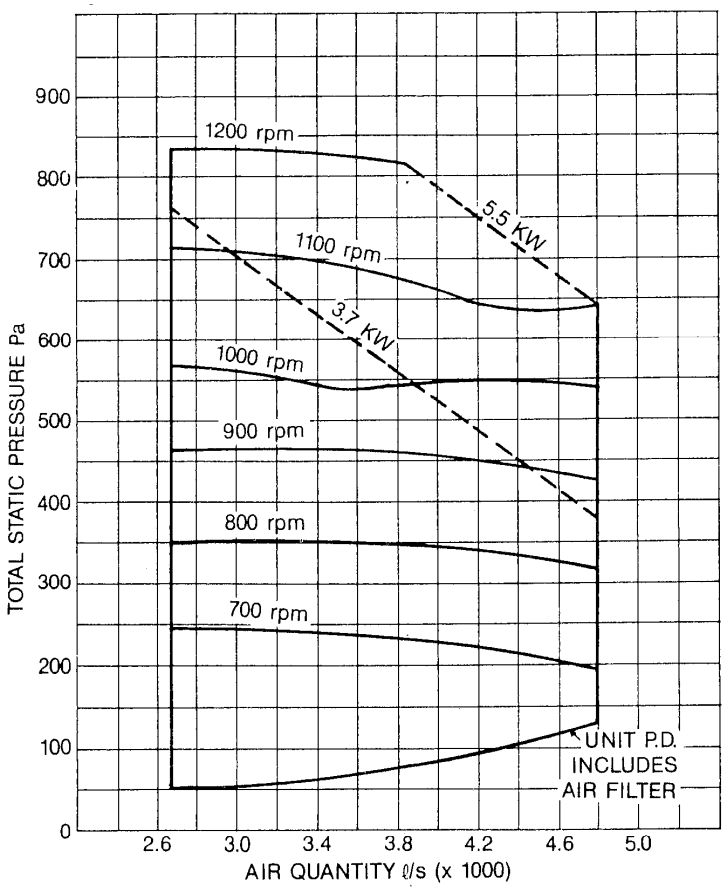
40RW034

Air Quantity (ℓ/s)	Entering Water (°C)	Water Flow (ℓ/min)	Entering Air Temperature DB/WB (°C)					
			25/18		27/19.5		29/21	
			TC	SHC	TC	SHC	TC	SHC
3200	5	125	57.80	47.57	69.90	48.50	81.88	48.73
		250	66.64	51.52	80.59	53.03	94.44	53.73
		375	70.71	53.38	85.48	55.24	100.25	56.17
	6	125	53.03	45.56	65.01	46.52	77.11	46.98
		250	61.17	48.96	75.01	50.59	88.97	51.52
		375	64.90	50.59	79.55	52.57	94.32	53.73
	7	125	48.15	43.38	60.24	44.66	72.34	45.12
		250	55.59	45.62	69.43	48.38	83.39	49.31
		375	58.96	48.03	73.73	50.12	88.39	51.29
	8	125	43.38	41.40	55.36	42.68	67.45	43.38
		250	50.01	44.19	63.97	46.05	77.80	47.22
		375	53.03	45.47	67.80	47.68	82.57	48.96
	9	125	38.50	38.50	50.59	40.94	62.69	41.64
		250	44.43	41.87	58.38	43.85	72.22	45.12
		375	47.22	42.91	61.87	45.24	76.64	46.75
4800	5	125	81.64	65.94	98.62	67.45	115.60	67.92
		250	100.48	74.66	121.42	77.34	142.35	78.85
		375	109.90	79.20	132.81	82.69	155.73	84.78
	6	125	74.78	62.92	91.76	64.66	108.86	65.36
		250	92.11	70.71	113.04	73.62	133.98	75.36
		375	100.83	74.78	123.63	78.39	146.64	80.83
	7	125	68.04	60.13	85.02	61.99	101.99	62.80
		250	83.74	66.87	104.67	70.59	125.60	71.99
		375	91.64	70.48	114.58	74.34	137.47	76.87
	8	125	61.17	57.22	78.15	59.20	95.25	60.36
		250	75.36	63.15	96.30	66.52	117.23	68.62
		375	82.46	66.29	105.27	70.36	128.28	70.04
	9	125	54.43	54.43	71.41	56.64	88.39	57.92
		250	66.99	59.66	87.92	63.15	108.86	65.36
		375	73.27	62.34	96.18	66.52	119.09	69.43
5770	5	125	92.92	75.13	112.35	76.87	131.85	77.46
		250	118.16	86.76	142.82	90.25	167.47	92.23
		375	131.54	93.27	158.98	97.81	186.31	100.60
	6	125	85.24	71.76	104.55	73.62	123.96	74.43
		250	108.39	82.11	132.93	85.83	157.59	87.92
		375	120.60	87.92	147.93	92.57	175.38	95.71
	7	125	77.46	88.38	96.76	70.59	116.18	71.52
		250	98.51	77.57	123.16	81.53	147.70	83.85
		375	109.67	82.69	137.00	87.57	164.45	90.95
	8	125	89.66	65.24	89.08	67.45	108.39	68.73
		250	88.62	73.27	113.28	77.22	137.93	79.90
		375	98.62	77.69	126.07	82.81	153.53	86.18
	9	125	61.99	61.99	81.29	64.55	100.72	65.94
		250	78.74	68.97	103.39	73.15	128.05	76.06
		375	87.69	72.80	115.14	78.04	142.47	81.76

FAN PERFORMANCE

1. The fan performance curves are based on wet coil and clean filters.
2. Maximum fan speeds are 1200 rpm on 028 & 034.
3. Total static pressure are shown on the vertical scale of the chart. To determine external static pressure, deduct unit pressure drop from the total Static Pressure value read at a given air quantity.
4. The kW values denote fan motor nominal 3.7 kW motor. For example, can cover the areas of air quantity, total Static Pressure and rpm shown under the line indicated as 3.7 kW.
5. Use curves within the ranges shown. Do not exceed the ranges.

40RW028



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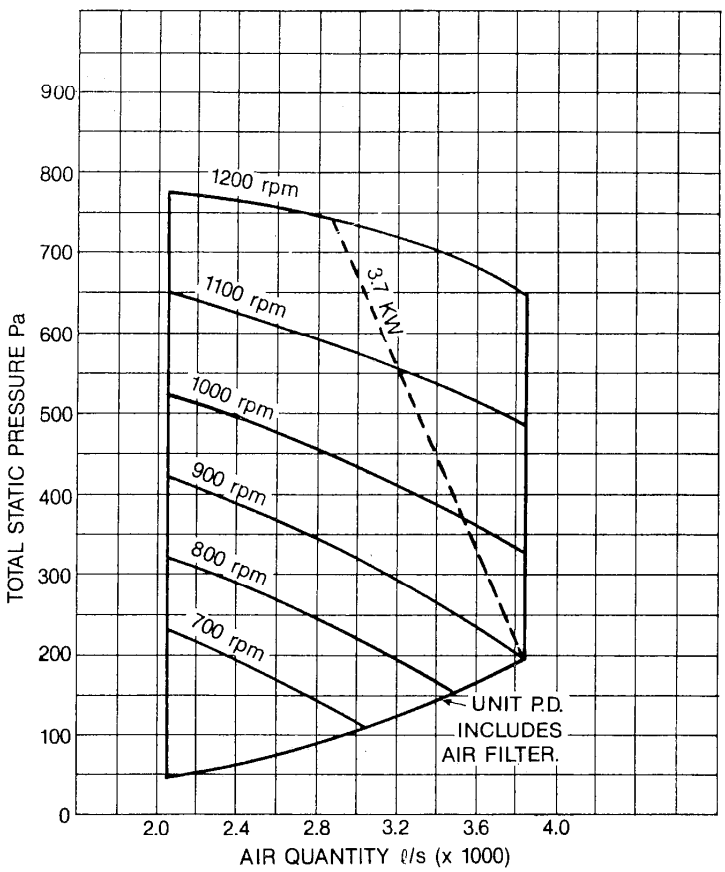
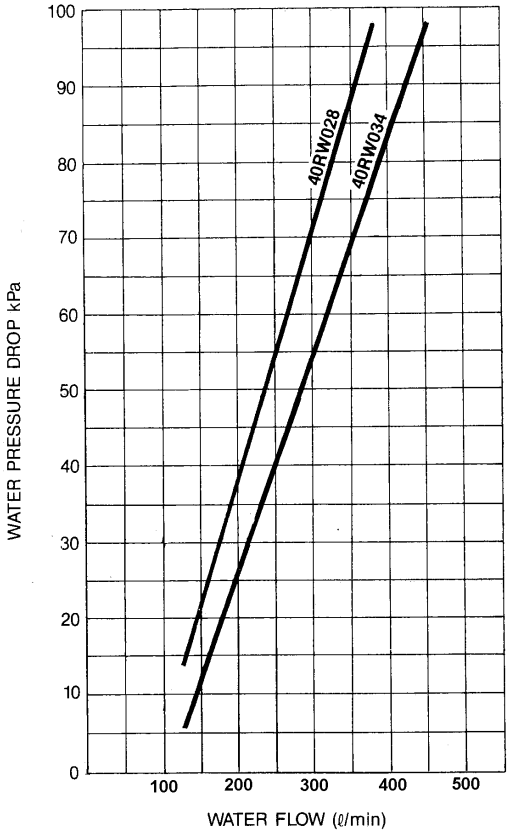


COIL WATER PRESSURE DROP (m Aq)

Unit 40RW	Total Water Flow (ℓ/min)												
	40	50	75	100	110	125	150	200	225	250	300	375	450
028	-	-	-	-	-	1.43	-	-	-	4.85	-	10	-
034	-	-	-	-	-	-	1.4	-	-	-	4.75	-	10



GUIDE SPECIFICATIONS

Furnish and install Carrier 40RW chilled water fan coil units as indicated on plans.

Units shall be certified to deliver published cooling capacities.

Base units shall be complete with water coil, one or more centrifugal fans, condensate drain pan and galvanized steel casing panels insulated with rockwool lined with aluminium foil to prevent sweating.

Coils shall be constructed with double wavy aluminium plate fins mechanically bonded to copper tubing with all joints brazed. Coil shall be ……. Rows deep with a nominal fin spacing of …… /m and shall have a face area of not less than …….. m^2. Coils shall have manual air vent.

Fan(s) shall be centrifugal forward curves belt-driven by a motor of specified horsepower.

Drain pan shall be galvanized steel, insulated and pitched for positive drainage with unit level. Drain pan shall project under the entire length and width of the coil.

Cabinets shall be constructed of galvanized steel, phosphatised and powder painted.

The dimensions of the entire assembly shall be not more than …… high, …….. Long and …….. Wide.

Carrier International Sdn Bhd, Malaysia

40RW-G12-4PD