



# TECHNICAL SPECIFICATION

Bulletin : DRI-HRW-014-0  
 Effective : March 01<sup>st</sup>, 2014  
 Supersedes :  
 Dated :

**DESICCANT ROTORS INTERNATIONAL PVT. LTD.**  
 ARCTIC INDIA HOUSE, 20, RAJPUR ROAD, DELHI - 110054 (INDIA)  
 PHONE : 91-11-23906666 FAX: 91-11-23906600  
 E-MAIL: dri@pahwa.com, Website: www.drirotors.com



## HEAT RECOVERY WHEEL HRW SERIES (MS-270A-1.8mm)

HEAT RECOVERY WHEEL (HRW-500 to 5000) COMES WITH **ECO FRESH** WHEEL/ROTOR  
 ALL HRW SERIES UNIT HAVE THE FOLLOWING OUTSTANDING FEATURES

### High efficiency and reliability

- \* Galvenised steel sheet casing (upto 2200mm)
- \* Optional HRW-2200 & 2400 are available in Galvenised Steel (MonoG).
- \* Epoxy painted structural steel frame & Powder coated panel/casing (above 2400mm).
- \* Molecular sieve coated aluminium "EcoFresh" total energy recovery wheel.
- \* Equal sensible and latent recovery.
- \* Designed for low rotor speed around 30 rpm.
- \* The rotor is made of alternate flat and corrugated aluminium foil of very uniform pitch and height.

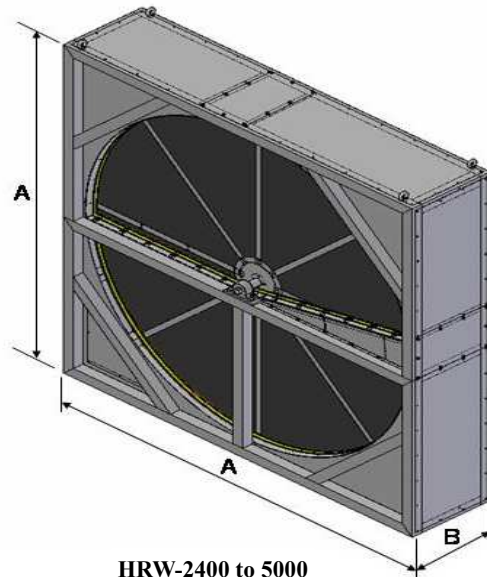
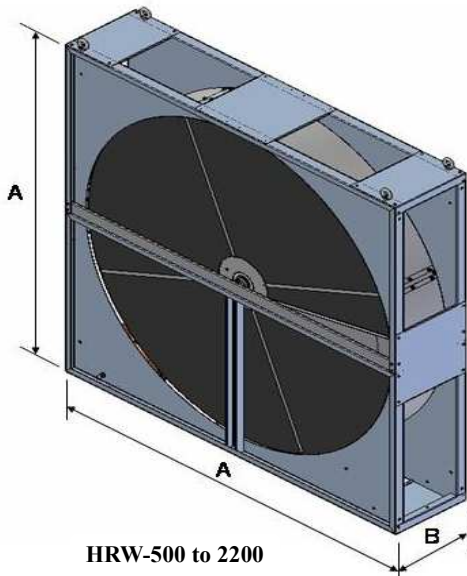
- \* The media is cleanable with compressed air.
- \* Highest efficiency wheel in its category.
- \* The surface of the wheel is highly polished to ensure that the vertical runout does not exceed  $\pm 1$ mm for every 1 meter diameter.
- \* Rotor depth 270mm.
- \* The face and radial seals are brush seal (upto 2200mm)
- \* The face and radial seals are four (4) pass non contact labyrinth seals (above 2400mm) for effective sealing between the two air streams.
- \* Rotor face edges are hardend which ensures long life of the media.

### WHEEL CONSTRUCTION

|            |                  |
|------------|------------------|
| MONOLITHIC | HRW-500 to 2200  |
| HALF MOON  | HRW-2400 to 3800 |
| SEGMENTED  | HRW-4000 to 5000 |

### POWER REQUIREMENT

|                  |                        |
|------------------|------------------------|
| HRW-500 to 1100  | 0.09 KW, 415V/3PH/50HZ |
| HRW-1200 to 1600 | 0.18 KW, 415V/3PH/50HZ |
| HRW-1700 to 2200 | 0.37 KW, 415V/3PH/50HZ |
| HRW-2400 to 5000 | 0.75 KW, 415V/3PH/50HZ |



### OPTIONS AVAILABLE

|                         |                         |
|-------------------------|-------------------------|
| SENSIBLE ONLY           | AVAILABLE               |
| VARIABLE SPEED DRIVE    | AVAILABLE ON REQUEST    |
| SINGLE PHASE DRIVE      | AVAILABLE ON REQUEST    |
| CUSTOMISED FLUTE HEIGHT | AVAILABLE ON REQUEST    |
| HORIZONTAL MOUNTING     | CONSULT FACTORY         |
| ARRANGEMENT CODE        | 1-8 (REFER PAGE 4 of 4) |
| SEGMENTED WHEELS        | AVAILABLE ON REQUEST    |

ALL DATA SUBJECT TO CHANGE WITHOUT NOTICE

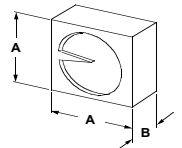
## Heat Recovery Wheel - Performance Data HRW SERIES (MS-270A-1.8mm)



| Velocity                      | M/S             | 1.0        | 1.5   | 2.0   | 2.5   | 3.0    | 3.5    | 4.0    | 4.5    | 5.0    | Height and Width "A" mm Inches | Depth in Flow Direction "B" mm Inches | Net Weight Kg. Pounds |  |
|-------------------------------|-----------------|------------|-------|-------|-------|--------|--------|--------|--------|--------|--------------------------------|---------------------------------------|-----------------------|--|
|                               | FPM             | 200        | 300   | 400   | 500   | 600    | 700    | 800    | 900    | 1000   |                                |                                       |                       |  |
| Sensible                      | Efficiency in % | 90         | 88    | 85    | 82    | 80     | 78     | 77     | 75     | 73     |                                |                                       |                       |  |
| Latent (Winter Heating)       |                 | 89         | 86    | 83    | 80    | 78     | 76     | 74     | 72     | 70     |                                |                                       |                       |  |
| Latent (Summer Cooling)       |                 | 88         | 85    | 82    | 79    | 77     | 75     | 73     | 71     | 69     |                                |                                       |                       |  |
| Total (Winter Heating)        |                 | 90         | 87    | 84    | 81    | 79     | 78     | 76     | 74     | 72     |                                |                                       |                       |  |
| Total (Summer Cooling)        |                 | 89         | 86    | 83    | 80    | 78     | 76     | 75     | 73     | 71     |                                |                                       |                       |  |
| Pressure Drop                 | Pa              | 76         | 97    | 127   | 165   | 203    | 234    | 264    | 295    | 325    |                                |                                       |                       |  |
|                               | #VALUE!         | 0.30       | 0.38  | 0.50  | 0.65  | 0.80   | 0.92   | 1.04   | 1.16   | 1.28   |                                |                                       |                       |  |
| Model Number                  |                 | Air Volume |       |       |       |        |        |        |        |        |                                |                                       |                       |  |
| HRW-500-MS 270A               | CMH             | 273        | 409   | 546   | 682   | 765    | 955    | 1092   | 1228   | 1365   | 700                            | 365                                   | 63                    |  |
|                               | CFM             | 161        | 241   | 321   | 402   | 450    | 562    | 642    | 723    | 803    | 27.6                           | 14.4                                  | 139                   |  |
| HRW-600-MS 270A               | CMH             | 416        | 623   | 831   | 1039  | 1189   | 1454   | 1662   | 1870   | 2078   | 800                            | 365                                   | 71                    |  |
|                               | CFM             | 245        | 367   | 489   | 611   | 700    | 856    | 978    | 1100   | 1223   | 31.5                           | 14.4                                  | 156                   |  |
| HRW-700-MS 270A               | CMH             | 586        | 879   | 1172  | 1465  | 1699   | 2051   | 2345   | 2638   | 2931   | 850                            | 365                                   | 79                    |  |
|                               | CFM             | 345        | 517   | 690   | 862   | 1000   | 1207   | 1380   | 1552   | 1725   | 33.5                           | 14.4                                  | 174                   |  |
| HRW-800-MS 270A               | CMH             | 785        | 1177  | 1569  | 1962  | 2379   | 2746   | 3139   | 3531   | 3923   | 950                            | 365                                   | 90                    |  |
|                               | CFM             | 462        | 693   | 924   | 1154  | 1400   | 1616   | 1847   | 2078   | 2309   | 37.4                           | 14.4                                  | 198                   |  |
| HRW-900-MS 270A               | CMH             | 1011       | 1517  | 2022  | 2528  | 3059   | 3539   | 4044   | 4550   | 5055   | 1030                           | 365                                   | 103                   |  |
|                               | CFM             | 595        | 893   | 1190  | 1488  | 1800   | 2083   | 2380   | 2678   | 2975   | 40.6                           | 14.4                                  | 227                   |  |
| HRW-1000-MS 270A              | CMH             | 1265       | 1898  | 2531  | 3164  | 3738   | 4429   | 5062   | 5695   | 6327   | 1130                           | 365                                   | 113                   |  |
|                               | CFM             | 745        | 1117  | 1489  | 1862  | 2200   | 2607   | 2979   | 3351   | 3724   | 44.5                           | 14.4                                  | 249                   |  |
| HRW-1100-MS 270A              | CMH             | 1548       | 2322  | 3096  | 3869  | 4588   | 5417   | 6191   | 6965   | 7739   | 1230                           | 365                                   | 153                   |  |
|                               | CFM             | 911        | 1366  | 1822  | 2277  | 2700   | 3188   | 3643   | 4099   | 4554   | 48.4                           | 14.4                                  | 337                   |  |
| HRW-1200-MS 270A              | CMH             | 1820       | 2730  | 3640  | 4550  | 5438   | 6371   | 7281   | 8191   | 9101   | 1330                           | 365                                   | 169                   |  |
|                               | CFM             | 1071       | 1607  | 2142  | 2678  | 3200   | 3749   | 4285   | 4820   | 5356   | 52.4                           | 14.4                                  | 372                   |  |
| HRW-1300-MS 270A              | CMH             | 2105       | 3157  | 4210  | 5262  | 6287   | 7367   | 8419   | 9472   | 10524  | 1430                           | 365                                   | 199                   |  |
|                               | CFM             | 1239       | 1858  | 2477  | 3097  | 3700   | 4335   | 4955   | 5574   | 6193   | 56.3                           | 14.4                                  | 439                   |  |
| HRW-1400-MS 270A              | CMH             | 2467       | 3701  | 4934  | 6168  | 7307   | 8635   | 9869   | 11103  | 12336  | 1530                           | 365                                   | 221                   |  |
|                               | CFM             | 1452       | 2178  | 2904  | 3630  | 4300   | 5082   | 5808   | 6534   | 7260   | 60.2                           | 14.4                                  | 487                   |  |
| HRW-1500-MS 270A              | CMH             | 2858       | 4286  | 5715  | 7144  | 8666   | 10002  | 11430  | 12859  | 14288  | 1630                           | 365                                   | 239                   |  |
|                               | CFM             | 1682       | 2523  | 3363  | 4204  | 5100   | 5886   | 6727   | 7568   | 8409   | 64.2                           | 14.4                                  | 527                   |  |
| HRW-1600-MS 270A              | CMH             | 3239       | 4859  | 6479  | 8099  | 9686   | 11338  | 12958  | 14577  | 16197  | 1730                           | 395                                   | 276                   |  |
|                               | CFM             | 1906       | 2860  | 3813  | 4766  | 5700   | 6672   | 7626   | 8579   | 9532   | 68.1                           | 15.6                                  | 608                   |  |
| HRW-1700-MS 270A              | CMH             | 3683       | 5524  | 7366  | 9207  | 11045  | 12890  | 14732  | 16573  | 18415  | 1830                           | 395                                   | 318                   |  |
|                               | CFM             | 2167       | 3251  | 4335  | 5418  | 6500   | 7586   | 8670   | 9753   | 10837  | 72.0                           | 15.6                                  | 701                   |  |
| HRW-1800-MS 270A              | CMH             | 4154       | 6232  | 8309  | 10386 | 12574  | 14540  | 16617  | 18695  | 20772  | 1930                           | 395                                   | 342                   |  |
|                               | CFM             | 2445       | 3667  | 4890  | 6112  | 7400   | 8557   | 9779   | 11002  | 12224  | 76.0                           | 15.6                                  | 754                   |  |
| HRW-1900-MS 270A              | CMH             | 4654       | 6981  | 9307  | 11634 | 13934  | 16288  | 18615  | 20942  | 23269  | 2030                           | 395                                   | 365                   |  |
|                               | CFM             | 2739       | 4108  | 5477  | 6847  | 8200   | 9585   | 10955  | 12324  | 13694  | 79.9                           | 15.6                                  | 804                   |  |
| HRW-2000-MS 270A              | CMH             | 5181       | 7771  | 10362 | 12952 | 15633  | 18333  | 20724  | 23314  | 25905  | 2130                           | 395                                   | 392                   |  |
|                               | CFM             | 3049       | 4574  | 6098  | 7623  | 9200   | 10672  | 12196  | 13721  | 15245  | 83.9                           | 15.6                                  | 864                   |  |
| HRW-2130-MS 270A              | CMH             | 6024       | 9036  | 12049 | 15061 | 18182  | 21085  | 24097  | 27109  | 30122  | 2201                           | 395                                   | 427                   |  |
|                               | CFM             | 3545       | 5318  | 7091  | 8863  | 10700  | 12409  | 14181  | 15954  | 17727  | 86.7                           | 15.6                                  | 941                   |  |
| HRW-2200-MS 270A (MonoG)      | CMH             | 6355       | 9532  | 12709 | 15887 | 19031  | 22241  | 25419  | 28596  | 31773  | 2201                           | 395                                   | 427                   |  |
|                               | CFM             | 3740       | 5610  | 7479  | 9349  | 11200  | 13089  | 14959  | 16829  | 18699  | 86.7                           | 15.6                                  | 941                   |  |
| HRW-2200-MS 270A (H.M. & SEG) | CMH             | 6355       | 9532  | 12709 | 15887 | 19031  | 22241  | 25419  | 28596  | 31773  | 2400                           | 530                                   | 772                   |  |
|                               | CFM             | 3740       | 5610  | 7479  | 9349  | 11200  | 13089  | 14959  | 16829  | 18699  | 94.5                           | 20.9                                  | 1701                  |  |
| HRW-2400-MS 270A (MonoG)      | CMH             | 7608       | 11413 | 15217 | 19021 | 22940  | 26630  | 30434  | 34238  | 38042  | 2480                           | 395                                   | 485                   |  |
|                               | CFM             | 4478       | 6716  | 8955  | 11194 | 13500  | 15671  | 17910  | 20149  | 22388  | 97.6                           | 15.6                                  | 1069                  |  |
| HRW-2400-MS 270A (H.M. & SEG) | CMH             | 7608       | 11413 | 15217 | 19021 | 22940  | 26630  | 30434  | 34238  | 38042  | 2600                           | 530                                   | 851                   |  |
|                               | CFM             | 4478       | 6716  | 8955  | 11194 | 13500  | 15671  | 17910  | 20149  | 22388  | 102.4                          | 20.9                                  | 1876                  |  |
| HRW-2600-MS 270A              | CMH             | 8974       | 13461 | 17948 | 22435 | 27018  | 31409  | 35896  | 40383  | 44870  | 2800                           | 530                                   | 932                   |  |
|                               | CFM             | 5281       | 7922  | 10562 | 13203 | 15900  | 18484  | 21125  | 23765  | 26406  | 110.2                          | 20.9                                  | 2054                  |  |
| HRW-2800-MS 270A              | CMH             | 10451      | 15677 | 20902 | 26128 | 31436  | 36579  | 41805  | 47030  | 52256  | 3000                           | 530                                   | 1016                  |  |
|                               | CFM             | 6150       | 9226  | 12301 | 15376 | 18500  | 21527  | 24602  | 27677  | 30752  | 118.1                          | 20.9                                  | 2239                  |  |
| HRW-3000-MS 270A              | CMH             | 12040      | 18060 | 24080 | 30100 | 36194  | 42140  | 48160  | 54180  | 60200  | 3200                           | 530                                   | 1105                  |  |
|                               | CFM             | 7086       | 10628 | 14171 | 17714 | 21300  | 24800  | 28342  | 31885  | 35428  | 126.0                          | 20.9                                  | 2435                  |  |
| HRW-3200-MS 270A              | CMH             | 13741      | 20611 | 27481 | 34352 | 41291  | 48093  | 54963  | 61833  | 68704  | 3400                           | 584                                   | 1453                  |  |
|                               | CFM             | 8086       | 12130 | 16173 | 20216 | 24300  | 28302  | 32346  | 36389  | 40432  | 133.9                          | 23.0                                  | 3202                  |  |
| HRW-3400-MS 270A              | CMH             | 15553      | 23330 | 31106 | 38883 | 46729  | 54436  | 62213  | 69989  | 77766  | 3600                           | 584                                   | 1565                  |  |
|                               | CFM             | 9153       | 13730 | 18306 | 22883 | 27500  | 32036  | 36612  | 41189  | 45765  | 141.7                          | 23.0                                  | 3449                  |  |
| HRW-3600-MS 270A              | CMH             | 17477      | 26216 | 34954 | 43693 | 52506  | 61170  | 69909  | 78648  | 87386  | 3800                           | 584                                   | 1680                  |  |
|                               | CFM             | 10285      | 15428 | 20571 | 25713 | 30900  | 35999  | 41141  | 46284  | 51427  | 149.6                          | 23.0                                  | 3703                  |  |
| HRW-3800-MS 270A              | CMH             | 19513      | 29270 | 39026 | 48783 | 58624  | 68296  | 78052  | 87809  | 97565  | 4000                           | 584                                   | 1799                  |  |
|                               | CFM             | 11483      | 17225 | 22967 | 28709 | 34500  | 40192  | 45934  | 51676  | 57417  | 157.5                          | 23.0                                  | 3965                  |  |
| HRW-4000-MS 270A              | CMH             | 21661      | 32491 | 43321 | 54152 | 65081  | 75812  | 86643  | 97473  | 108303 | 4200                           | 584                                   | 1922                  |  |
|                               | CFM             | 12747      | 19121 | 25495 | 31868 | 38300  | 44616  | 50989  | 57363  | 63737  | 165.4                          | 23.0                                  | 4236                  |  |
| HRW-4200-MS 270A              | CMH             | 23920      | 35880 | 47840 | 59800 | 71878  | 83720  | 95680  | 107640 | 119600 | 4400                           | 584                                   | 2569                  |  |
|                               | CFM             | 14077      | 21115 | 28154 | 35192 | 42300  | 49269  | 56308  | 63346  | 70384  | 173.2                          | 23.0                                  | 5662                  |  |
| HRW-4400-MS 270A              | CMH             | 26291      | 39436 | 52582 | 65727 | 79014  | 92018  | 105164 | 118309 | 131455 | 4600                           | 584                                   | 2722                  |  |
|                               | CFM             | 15472      | 23208 | 30944 | 38681 | 46500  | 54153  | 61889  | 69625  | 77361  | 181.1                          | 23.0                                  | 5999                  |  |
| HRW-4600-MS 270A              | CMH             | 28774      | 43161 | 57547 | 71934 | 86321  | 100708 | 115095 | 129482 | 143869 | 4800                           | 584                                   | 2778                  |  |
|                               | CFM             | 16933      | 25400 | 33867 | 42333 | 50800  | 59267  | 67733  | 76200  | 84667  | 189.0                          | 23.0                                  | 6123                  |  |
| HRW-4800-MS 270A              | CMH             | 31368      | 47052 | 62736 | 78421 | 94138  | 109789 | 125473 | 141157 | 156841 | 5000                           | 584                                   | 3038                  |  |
|                               | CFM             | 18460      | 27690 | 36920 | 46150 | 55400  | 64611  | 73841  | 83071  | 92301  | 196.9                          | 23.0                                  | 6696                  |  |
| HRW-5000-MS 270A              | CMH             | 34074      | 51112 | 68149 | 85186 | 102294 | 119260 | 136298 | 153335 | 170372 | 5200                           | 584                                   | 3175                  |  |
|                               | CFM             | 20053      | 30079 | 40106 | 50132 | 60200  | 70185  | 80211  | 90238  | 100264 | 204.7                          | 23.0                                  | 6998                  |  |

**Note :**

- (1) 2200mm diameter and above rotor are available with removable segmented media. Half moon cassettes complete with half moon rotors for containerisation and ease of shipping are available as options. Dimensions and weight shall vary in such cases.
- (2) Because of our policy of continuous product improvements, specifications are subject to change without notice.
- (3) The above models carry a Suffix (N) when intended for sale in North America, as a ARI certified Product, with 60Hz Drive Motor.



# EcoFresh Heat Recovery Wheel

## Product Selection Chart, MS-270A

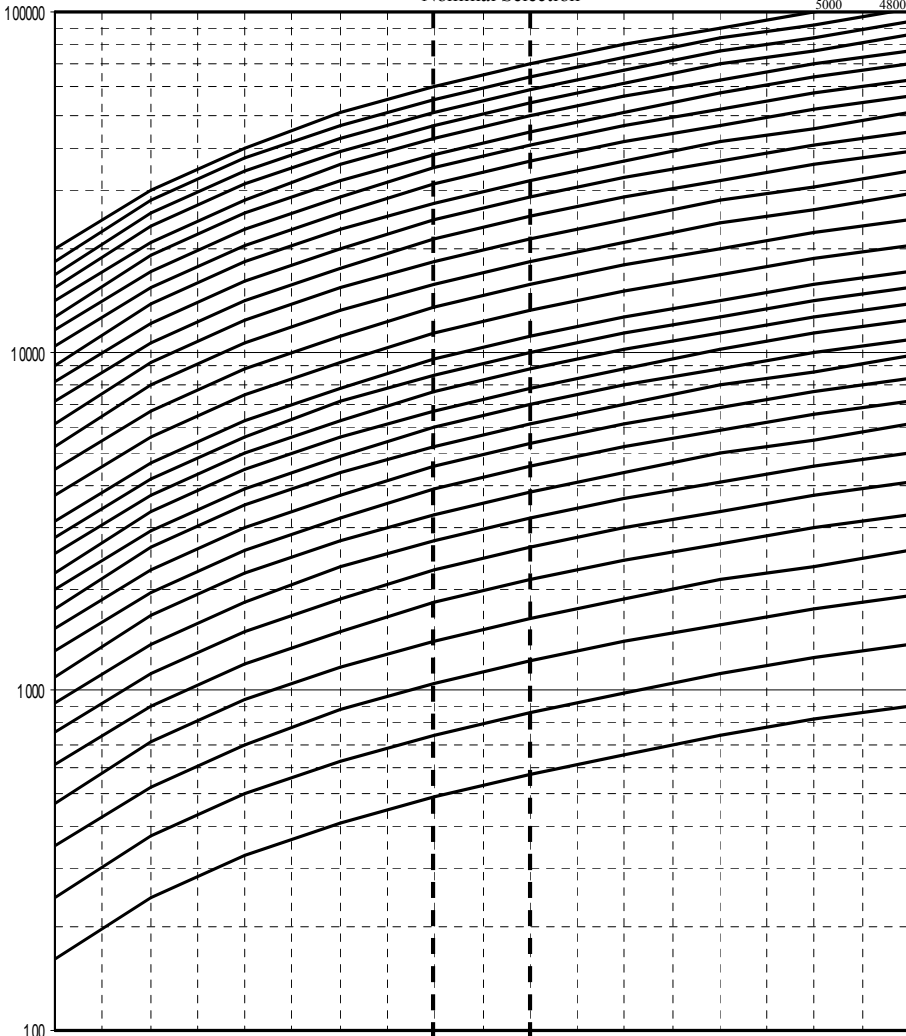
Wheel Diameter (mm)

Nominal Selection

5000 4800

Chart 1

Air Flow Rate  
CFM

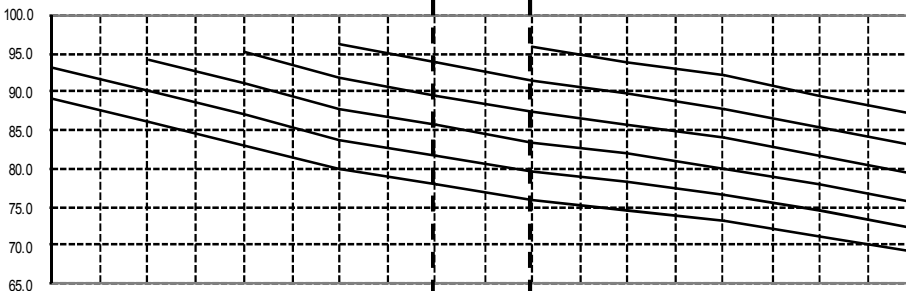


190000  
170000  
4600  
4400  
4200  
4000  
3800  
3600  
3400  
3200  
3000  
2800  
2600  
2400  
2200  
2000  
1900  
1800  
1700  
1600  
1500  
1400  
1300  
1200  
1100  
1000  
900  
800  
700  
600  
500  
17000  
1700  
170

Air Flow Rate (CMH)

Chart 2

Effectiveness,  
Percent

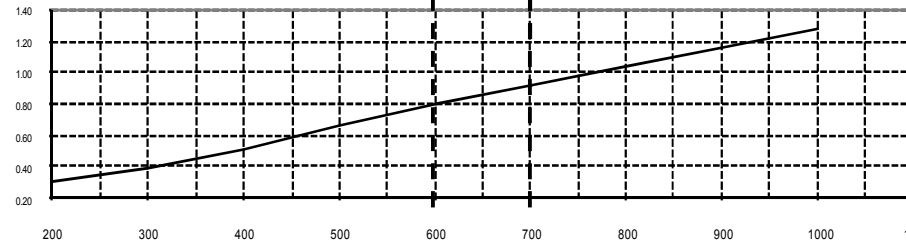


0.5  
0.6  
0.7  
0.8  
0.9  
1.0

Air Flow Ratio

Chart 3

Pressure Drop,  
Inches w.g.



350  
300  
250  
200  
150  
100  
50  
Pressure Drop  
Pascals

Air Velocity (FPM)



## DESICCANT ROTORS INTERNATIONAL Pvt. Ltd. ECO-FRESH PRODUCT BIBLE (Heat Recovery Wheel)

Date : \_\_\_\_\_  
Customer Order No. : \_\_\_\_\_  
Customer Name : \_\_\_\_\_

Sales Order No. : \_\_\_\_\_  
Unit Model : HRW - \_\_\_\_\_ - \_\_\_\_\_

### ORDERING CODE

**HRW - a - b - c - d - e - f - g**

**Product Designation,**  
Heat Recovery Wheel

#### Rotor Size (a)

Denotes Rotor Diameter in mm/inches.  
Standard Sizes 500, 600, 700,.....5000

#### Desiccant Type (b)

- 0 - Sensible Energy Recovery
- 1 - MS (Eco-Sorb 300)
- 2 - SG (Eco-Sorb 100)

#### Wheel Depth (c)

- 1 - 270mm\*
- 2 - 200mm\*\*, \*\*\*

#### Rotor Construction (d)

- 1 - Monolithic Rotor
- 2 - Sectorized Rotor
- 3 - Half Moon Construction

#### Arrangement Code (e)

- 1, 2, 3 ..... 8, per Chart at right
- 0 - Rotor Only, without Frame & Drive.

#### Drive Motor Type (f)

- 0 - No Drive Motor
- 1 - Fixed Speed Motor, 1 Phase
- 2 - Fixed Speed Motor, 3 Phase
- 3 - Variable Speed Motor

#### Cassette (g)

- 1 - Standard (Without Side Panel)
- 2 - With Side Panel

#### SPECIAL ITEM(s) (IF ANY)

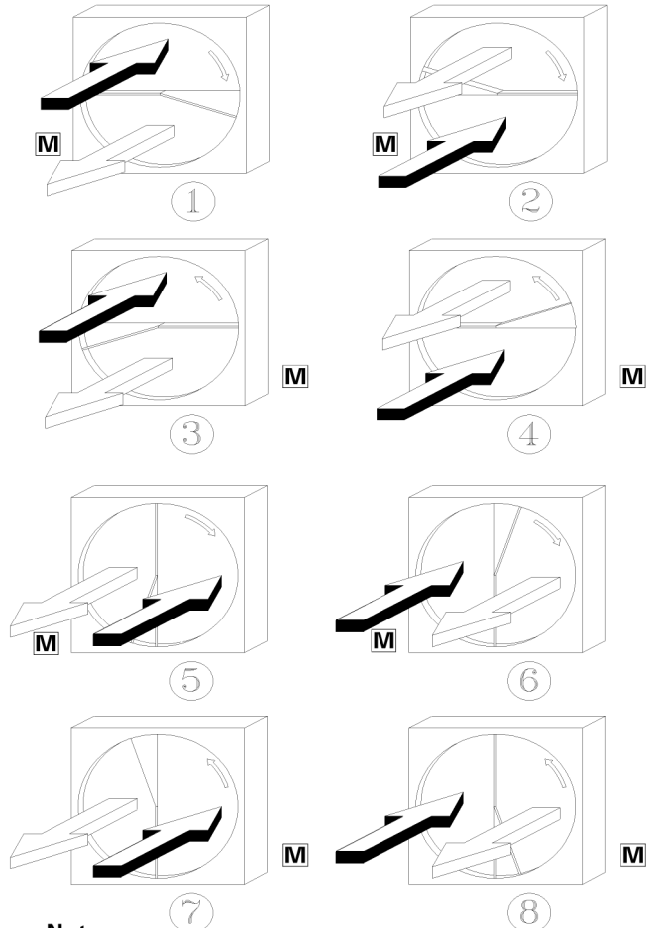
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#### Note:-

- \* 270mm Deep MS Series is AHRI Certified
- \*\* 200mm Deep MS Series is AHRI Certified
- \*\*\* 200mm Deep SG & MS Series are Eurovent Certified

**Cassette upto 2200mm Diameter are Made of Galvanised Sheet Metal. HRW-2400 & above Epoxy Painted Structural Steel Frame & Powder Coated Panel/Casing.**

### ARRANGEMENT CODES



#### Note:-

Cassette may be Mounted  
Horizontal or Vertical

Supply Air Stream

Exhaust Air Stream

Drive Motor Location

Purge Location

**CONSULT DRI PLANT FOR HORIZONTAL WHEEL REQUIREMENT**