

# TYPE MSW

**SEALLESS**

## STAINLESS STEEL REGENERATIVE TURBINE VANE MAGNET DRIVE PUMPS

Motor output :

**0.75kW to 3.7kW**

- ▶ The best selection for **low flow / high head applications**.
- ▶ No leakage because of magnet drive (sealless) construction.
- ▶ **SiC-D bearings withstand accidental dry-run on start up.**
- ▶ **Low heat rise and low minimum flow.**
- ▶ Quieter than typical mechanical seal pumps.
- ▶ **Steep performance curve** and dependable capacity regardless of pressure variations.
- ▶ Can be run in reverse without any problem.



**TYPE MSW** -30°C~+150°C 0.75kW~3.7kW

**For liquid of high temperature**

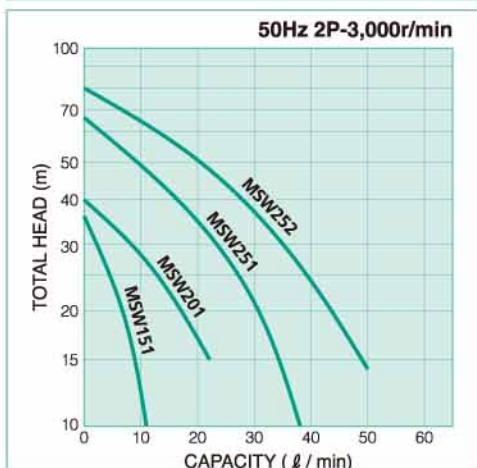
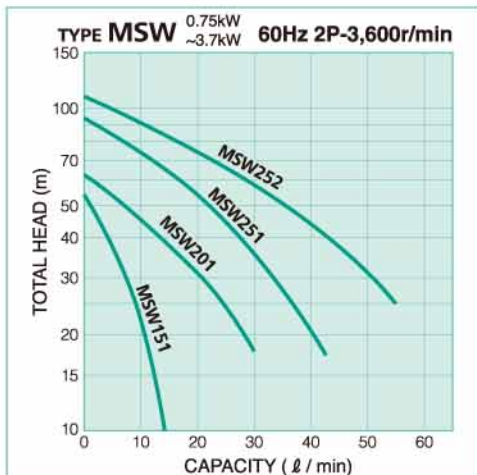
**TYPE MHW** RT~+230°C 0.75kW~3.7kW



Cascade-bladed impeller →

- ▶ Fin type frame adapter dissipates heat away from pump.
- ▶ High temperature SmCo magnets are used for temperatures above 150°C.

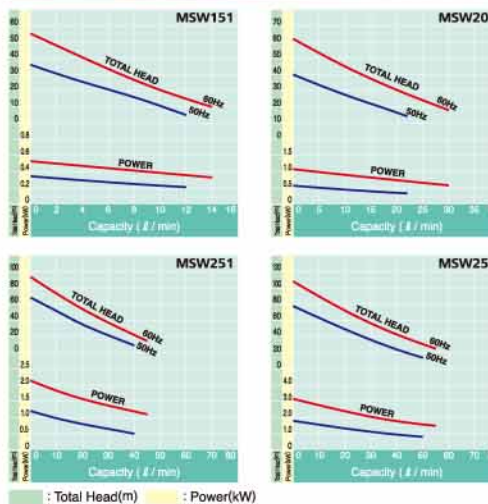
### Selection charts



### Specifications

|                              | MSW                                    | MHW      |
|------------------------------|--|----------|
| Frequency                    | 50Hz                                   | 60Hz     |
| Max. total head              | 65m                                    | 90m      |
| Max. capacity                | 45 l/min                               | 50 l/min |
| Max. temperature applicable  | 150°C                                  | 230°C    |
| Min. temperature applicable  | -30°C                                  | RT       |
| Max. liquid specific gravity | 2                                      |          |
| Max. liquid viscosity        | 50mPa·s(cP)                            |          |
| Design pressure              | 1.6MPaG                                |          |
| Bore (suction x discharge)   | 15x15~25x25mm                          |          |
| Flange standard              | Rc thread / JIS 10K RF / ASME 150LB RF |          |
| Type of impeller             | Cascade blades                         |          |
| Motor output rating          | 0.75~3.7kW(2P)                         |          |
| Pump material                | SCS14(SUS316)                          |          |
| Liquid-immersed bearings     | SiC-D                                  |          |

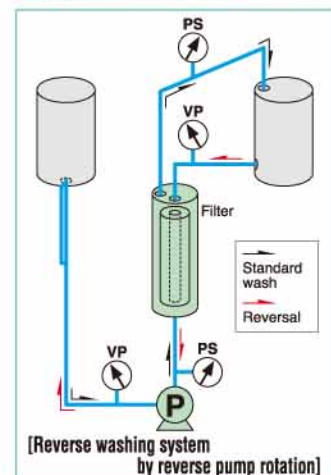
### Performance curves (60Hz 2P-3,600r/min, 50Hz 2P-3,000r/min)



### Examples of usage

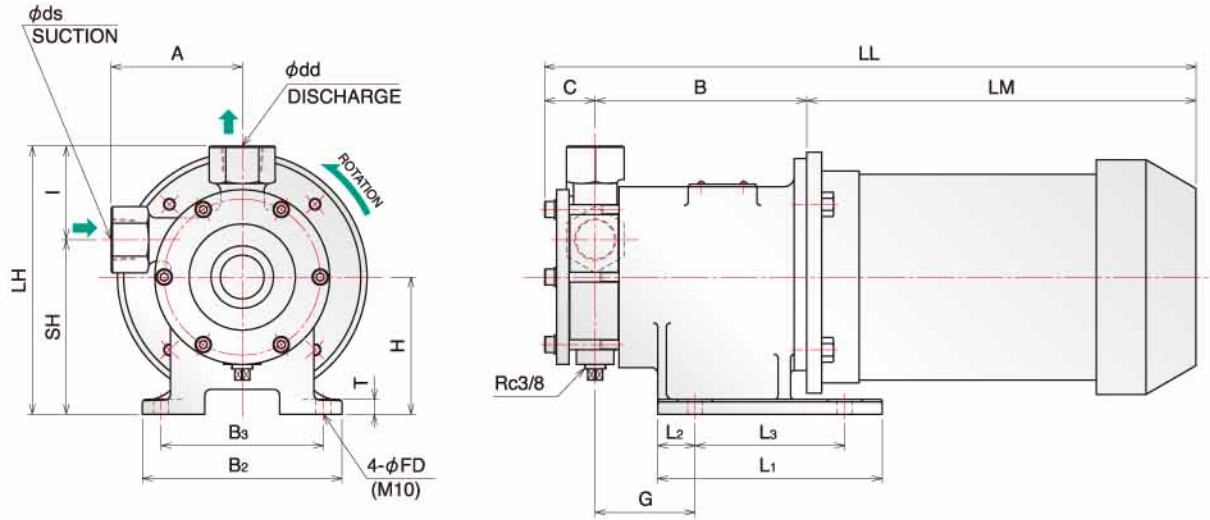
| Use  | Liquid used              |
|--|--------------------------|
|  | Exfoliation liquid       |
| Washing device                               | Hydrocarbon system       |
|  | Alcoholic system         |
| Synchrotron orbital radiation/Cooling device | Freon replacing material |
| Pure water processing                        | Lithium bromide          |
| Sterilizer/Hot water                         | Pure water               |
| Absorption type freezer                      | Ozone water              |
| Low temperature chiller                      | Fluorinert, Galden       |
| Temperature controller/Dryer                 | Heat medium              |
| Filter                                       | Various medicines        |
| Solvent collector                            | Organic solvent          |
| Fine chemicals                               | Various chemicals        |

### Application example





**Outline dimension**

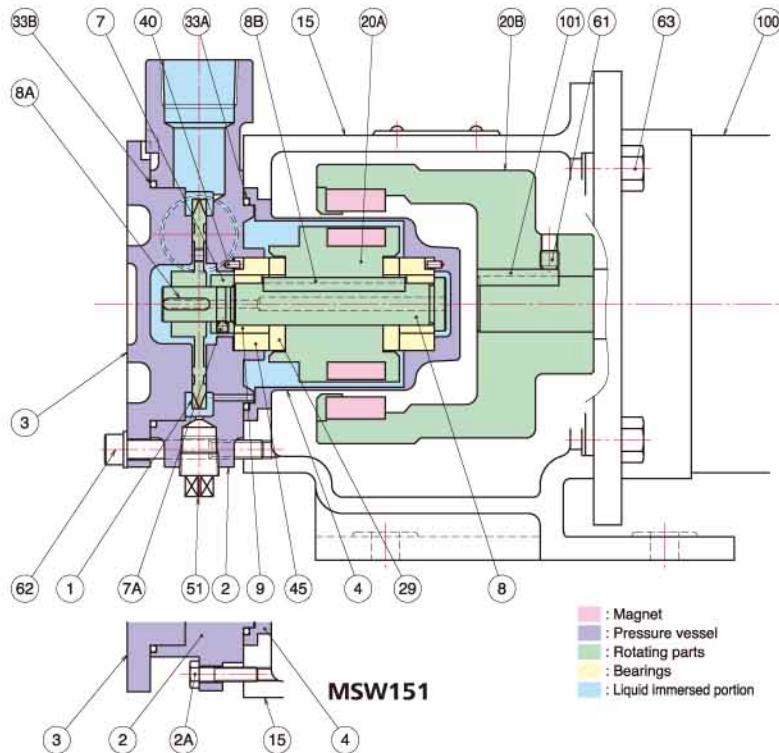


(In the unit of mm)

| PUMP SIZE | MOTOR      |             | PUMP & MOTOR |       |     |     |    |     |    |     |     |     |     |     |                | BASE PLATE     |                |                |                |     |     | WEIGHT APPROX.(kg) |       |       |
|-----------|------------|-------------|--------------|-------|-----|-----|----|-----|----|-----|-----|-----|-----|-----|----------------|----------------|----------------|----------------|----------------|-----|-----|--------------------|-------|-------|
|           | FRAME SIZE | OUTPUT (kW) | BORE         |       | A   | B   | C  | H   | I  | SH  | LH  | LM  | LL  | G   | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | B <sub>2</sub> | B <sub>3</sub> | t   | FD  | PUMP               | MOTOR | TOTAL |
| MSW151    | 80M        | 0.75        | 15           | 15    | 80  | 165 | 30 | 110 | 55 | 135 | 190 | 260 | 455 | 76  | 180            | 30             | 120            | 160            | 130            | 12  | φ12 | 16                 | 17    | 33    |
|           |            |             | Rc1/2        | Rc1/2 |     |     |    |     |    |     |     |     |     |     |                |                |                |                |                |     |     |                    |       |       |
| MSW201    | 80M        | 0.75        | 20           | 20    | 80  | 170 | 35 | 110 | 55 | 135 | 190 | 260 | 465 | 80  | 180            | 30             | 120            | 160            | 130            | 12  | φ12 | 20                 | 17    | 37    |
|           |            | 1.5         | Rc3/4        | Rc3/4 |     |     |    |     |    |     |     | 312 | 517 |     |                |                |                |                |                |     |     | 20                 | 24    | 44    |
| MSW251    | 90L        | 1.5,2.2     | 25           | 25    | 105 | 170 | 40 | 110 | 75 | 140 | 215 | 312 | 522 | 80  | 180            | 30             | 120            | 160            | 130            | 12  | φ12 | 20                 | 24    | 44    |
|           |            | (2.2)       | Rc1          | Rc1   |     |     |    |     |    |     | 200 | 275 | 328 | 548 |                | 250            | 30             | 190            | 200            | 160 | 18  |                    | 25    | 30    |
| MSW252    | 90L        | 2.2         | 25           | 25    | 105 | 170 | 40 | 110 | 75 | 140 | 215 | 312 | 522 | 80  | 180            | 30             | 120            | 160            | 130            | 12  | φ12 | 20                 | 24    | 44    |
|           |            | (2.2),3.7   | Rc1          | Rc1   |     |     |    |     |    |     | 200 | 275 | 364 | 584 |                | 250            | 30             | 190            | 200            | 160 | 18  |                    | 25    | 47    |

# LM,LL dimensions and motor weight may vary depending on motor used.

**Construction and materials**



|      |   |            |                |
|------|---|------------|----------------|
| 101  | COUPLING KEY(M)                           | S45C       | 1              |
| 100  | MOTOR                                     | -          | 1              |
| 63   | HEXAGON HEAD BOLT                         | SUS304     | 4              |
| 62   | HEXAGON SOCKET HEAD CAP SCREW WITH WASHER | SUS304     | 6 <sup>S</sup> |
| 61   | SET SCREW                                 | SCM435     | 1              |
| 51   | PLUG                                      | SUS316     | 1              |
| 45   | BUSHING                                   | SIC        | 2              |
| 40   | PIN                                       | SUS316     | 2              |
| 33B  | O RING                                    | PTFE       | 1              |
| 33A  | O RING                                    | PTFE       | 1              |
| 29   | THRUST RING                               | SIC        | 2              |
| 20B  | MAGNET                                    | RARE EARTH | 1 <sup>S</sup> |
|      | MAGNET COUPLING(M)                        | SS400      | 1              |
| 20A  | MAGNET                                    | RARE EARTH | 1 <sup>S</sup> |
|      | MAGNET COUPLING(P)                        | SUS316     | 1              |
| 15   | FRAME ADAPTER                             | FC200      | 1              |
| 9    | SLEEVE                                    | SIC-D      | 2              |
| 8B   | COUPLING KEY(P)                           | SUS316     | 1              |
| 8A   | IMPELLER KEY                              | SUS316     | 1              |
| 8    | SHAFT                                     | SUS316     | 1              |
| 7A   | SET SCREW                                 | SUS316     | 2              |
| 7    | SET RING                                  | SUS316     | 1              |
| 4    | REAR CASING                               | SUS316     | 1              |
| 3    | CASING COVER                              | SCS14      | 1              |
| 2A   | HEXAGON SOCKET HEAD CAP SCREW             | SUS304     | 2              |
| 2    | CASING                                    | SCS14      | 1              |
| 1    | IMPELLER                                  | SUS316     | 1              |
| MARK | NAME OF PART                              | MAT'L      | No.REQ'D       |