

# ISM - BSM

## INPUT SOLID SHAFT AND BACK-STOP MODULES

for assembly on gearbox Series:

- RS
- RT
- RD
- RN
- RO
- RV



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## ISM - BSM

### Description

The input modules ISM with solid shaft and BSM with back-stop can be easily fitted on the majority of VARVEL gearboxes, no-flange input version «S», and flexible coupling «G» in few minutes and with a simple screwdriver help only.

#### ISM - Input shaft module

The input shaft is supported by two sealed grease-packed ball bearings type 2RS and therefore, does not need any lubrication for life. A half-coupling is provided for direct coupling to corresponding VARVEL gearboxes.

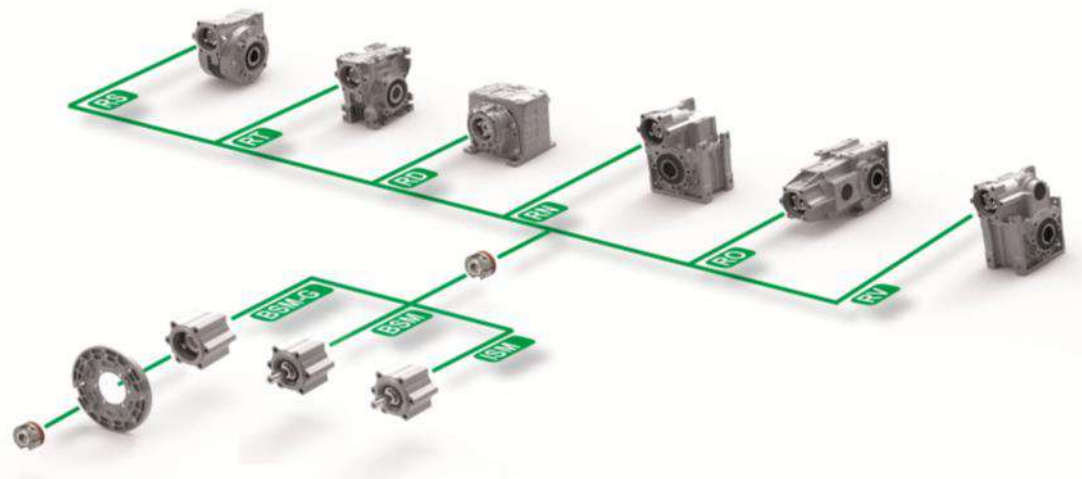
#### BSM - Back-stop module

Manufactured in two versions, solid shaft input with ball bearing and back-stop bearing and IEC or NEMA flange, allows the mounting to any Varvel gearboxes with flexible coupling «G» input.

Information on availability of motor flanges, powers, torques and reduction ratios of the gearbox to which the modules ISM and BSM are fitted to, are shown in relevant catalogues RS-RT, RD and RN-RO-RV.

Input loads of ISM modules are the external input loads that are shown on page 20 of the catalogue RS-RT.

### Modular System





| ISM<br>BSM<br>BSM-G | Coupling | RS  | RT  | RD<br>(2) | RD<br>(3) | RN<br>(2) | RN<br>(3) | RO<br>(2) | RO<br>(3) | RV  |
|---------------------|----------|-----|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----|
| 40                  | G3       | 40  | 40  | 02 (*)    | 03        | ---       | ---       | ---       | ---       | --- |
| 50                  | G5       | 50  | 50  | 12        | 13        | 12        | 13        | 02        | 13        | 13  |
| 60                  | G5       | 60  | 60  | ---       | ---       | ---       | ---       | ---       | ---       | --- |
| 70                  | G6       | 70  | 70  | 22        | 23 (§)    | 22        | 23        | 12        | 23        | 23  |
|                     |          |     |     | 32        | 33        | 32        | 33        |           |           |     |
| 85                  | G6       | 85  | 85  | 42        | 43        | 42        | 43        | 22        | 33        | 33  |
| 110                 | G6       | 110 | 110 | ---       | ---       | ---       | ---       | 32        | 43        | 43  |

(2) - two stages

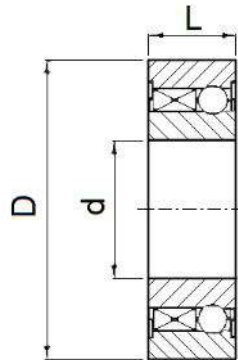
(3) - three stages

(\*) - RD02 → G5

(§) - RD23 → G5

## Advantages of the built-in clamp-jaw coupling:

- One gearbox only for multiple motor frames of IEC, NEMA, Brushless and DC motors thanks to a unique motor-adaptor/coupling kit package
- Greater flexibility
- Increased stock rotation
- Elimination of fretting corrosion between key and keyway
- Gearbox / motor connection with zero backlash
- Allowed angular misalignment 1° max.
- High torsional rigidity
- High vibration damping



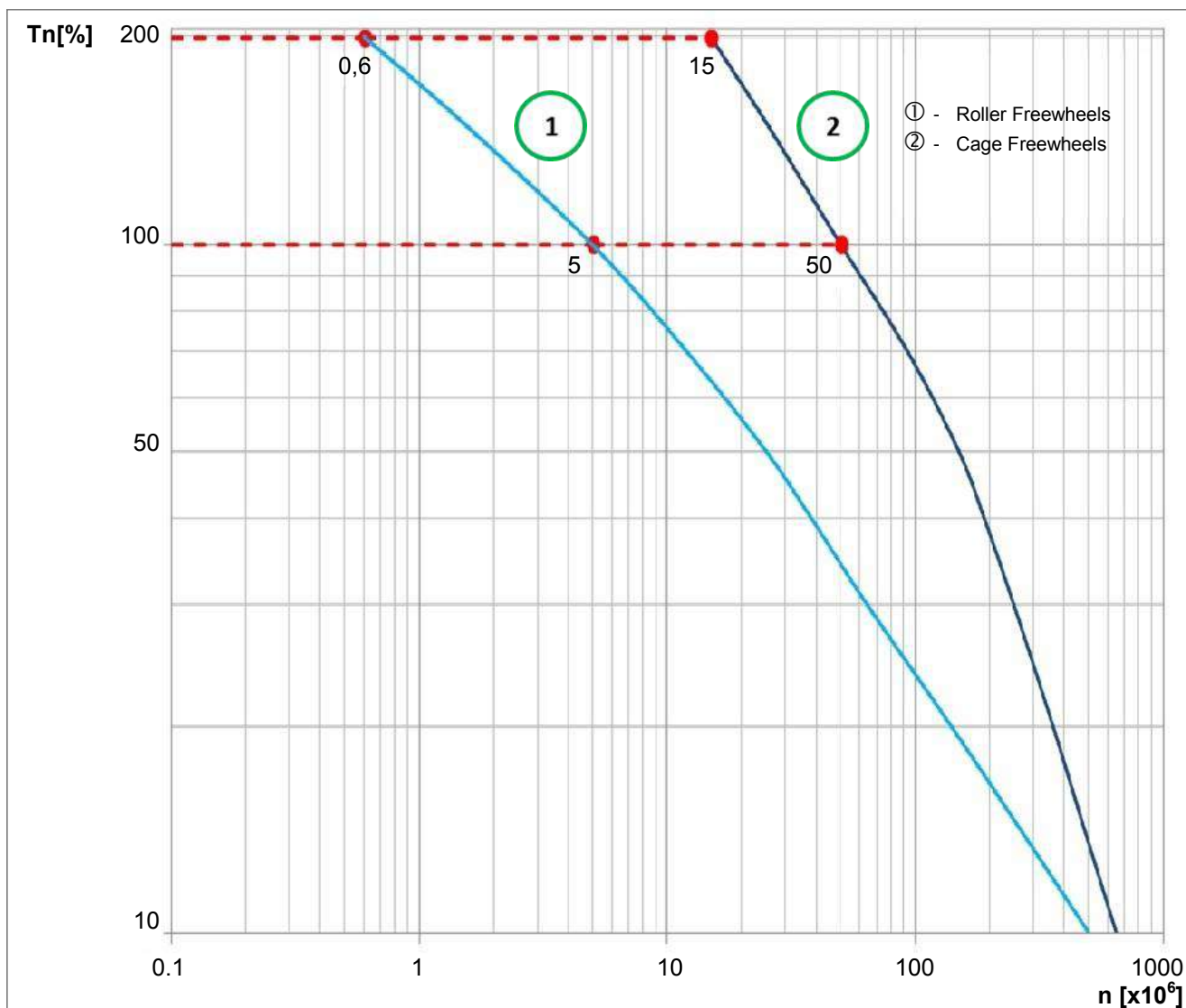
| BSM<br>BSM-G                                                      | Freewheel        | d <sub>0.01</sub><br>mm | D <sub>h5</sub><br>mm | L<br>mm | rpm <sub>max</sub> | Load capacity |       | Torque<br>[Nm] | C<br>[Nm] | Weight<br>[kg] |
|-------------------------------------------------------------------|------------------|-------------------------|-----------------------|---------|--------------------|---------------|-------|----------------|-----------|----------------|
|                                                                   |                  |                         |                       |         |                    | A [N]         | B [N] |                |           |                |
| <b>BSM40</b>                                                      | <b>UK 17 2RS</b> | 17                      | 40                    | 17      | 7350               | 7900          | 3800  | 30             | 0.056     | 0.09           |
| <b>BSM-G40</b><br><b>BSM50</b><br><b>BSM60</b>                    | <b>UK 20 2RS</b> | 20                      | 47                    | 19      | 6000               | 9400          | 4450  | 50             | 0.060     | 0.15           |
| <b>BSM-G50</b><br><b>BSM70</b>                                    | <b>UK 25 2RS</b> | 25                      | 52                    | 20      | 5200               | 10700         | 5450  | 85             | 0.060     | 0.18           |
| <b>BSM-G60</b><br><b>BSM-G70</b><br><b>BSM85</b><br><b>BSM110</b> | <b>UK 30 2RS</b> | 30                      | 62                    | 21      | 4200               | 11700         | 6450  | 138            | 0.075     | 0.27           |
| <b>BSM-G85</b><br><b>BSM-G110</b>                                 | <b>UK 35 ZZ</b>  | 35                      | 72                    | 17      | 3600               | 12600         | 7250  | 175            | 0.058     | 0.30           |

A - Dynamic load

B - Static load

C - Resistant torque (idle)

Max. torque = 2 x nominal torque



BSM and BSM-G modules are fitted with cage freewheels of the type ② only .

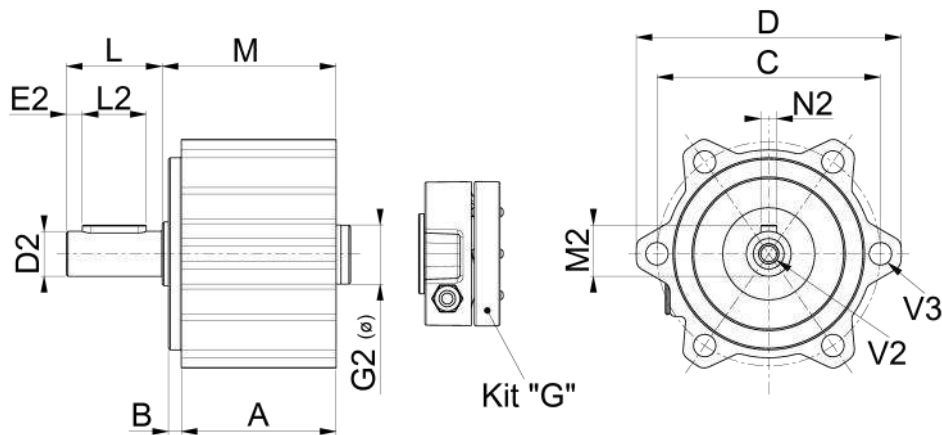
The curve shows the lifetime of the freewheels according to the application load and possible starting-up number.

Starting up is meant as the locking action of force feedback of the wheel as regards to idle motion direction.

Bigger the load  $T_n$  [%] lower the possible starting-up  $n$  [x 10<sup>6</sup>] and working hours.

### ISM & BSM

**ISM - Input shaft module**  
**BSM - Back-stop module**



| ISM<br>BSM             | 40           | 50       | 60       | 70           | 85       | 110      |
|------------------------|--------------|----------|----------|--------------|----------|----------|
| <b>A</b>               | 45.5         | 48.5     | 48.5     | 55.5         | 57       | 58       |
| <b>B</b>               | 3.5          | 4        | 5        | 5            | 5        | 6        |
| <b>C</b>               | 61           | 70       | 80       | 85           | 100      | 106      |
| <b>D</b>               | 73           | 83       | 94.5     | 101.5        | 118.5    | 125      |
| <b>D2<sub>h6</sub></b> | 11           | 14       | 19       | 19           | 24       | 28       |
| <b>E2</b>              | 2.5          | 5        | 5        | 5            | 5        | 5        |
| <b>G2</b>              | 14           | 19       | 19       | 24           | 28       | 28       |
| <b>L</b>               | 23           | 30       | 40       | 40           | 50       | 60       |
| <b>L2</b>              | 18           | 20       | 30       | 30           | 40       | 50       |
| <b>M</b>               | 53           | 54.5     | 56.75    | 64.75        | 62       | 71.5     |
| <b>M2</b>              | 12.5         | 16       | 21.5     | 21.5         | 27       | 31       |
| <b>N2</b>              | 4            | 5        | 6        | 6            | 8        | 8        |
| <b>V2</b>              | M4x10        | M6x15    | M8x20    | M8x20        | M8x20    | M8x20    |
| <b>V3</b>              | 6            | 7        | 7        | 9            | 9        | 9        |
| <b>Kit "G2"</b>        | G3 (Ø14) (*) | G5 (Ø19) | G5 (Ø19) | G6 (Ø24) (§) | G6 (Ø28) | G6 (Ø28) |
| <b>ISM [kg]</b>        | 0.45         | 0.65     | 0.85     | 1.1          | 1.6      | 2.2      |
| <b>BSM [kg]</b>        | 0.55         | 0.80     | 1.0      | 1.4          | 1.8      | 2.4      |

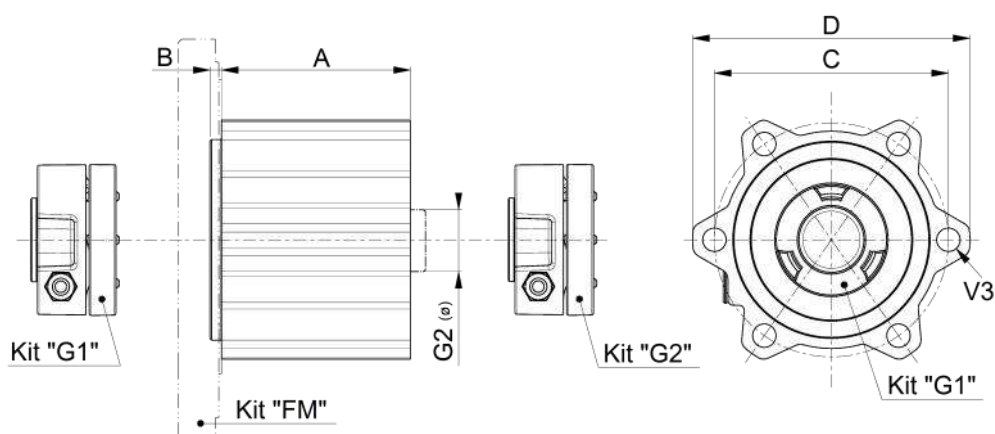
(\*) - RD02 → G5

(§) - RD23 → G5

Note - Kit "G" coupling not included in ISM-BSM modules; to order separate.

## BSM-G

### BSM-G - Back-stop module for FM motor adapter



| BSM-G      | 40           | 50           | 60           | 70           | 85           | 110           |
|------------|--------------|--------------|--------------|--------------|--------------|---------------|
| A          | 50.5         | 56.5         | 57           | 66.5         | 67           | 67            |
| B          | 3.5          | 3.5          | 4.75         | 4.75         | 5            | 6             |
| C          | 61           | 70           | 80           | 85           | 100          | 106           |
| D          | 73           | 83           | 94.5         | 101.5        | 118.5        | 125           |
| G2         | 14           | 19           | 24           | 24           | 28           | 28            |
| V3         | 6            | 7            | 7            | 9            | 9            | 9             |
| Kit "G1"   | G3           | G5           | G5           | G5           | G6           | G6            |
| Kit "G2"   | G3 (Ø14) (*) | G5 (Ø19)     | G5 (Ø24)     | G6 (Ø24) (§) | G6 (Ø28)     | G6 (Ø28)      |
| Kit "FM"   | K531.206.--- | K532.206.--- | K539.206.--- | K533.206.--- | K534.206.--- | K535..206.--- |
| BSM-G [kg] | 0.40         | 0.50         | 0.70         | 1.0          | 1.2          | 1.6           |

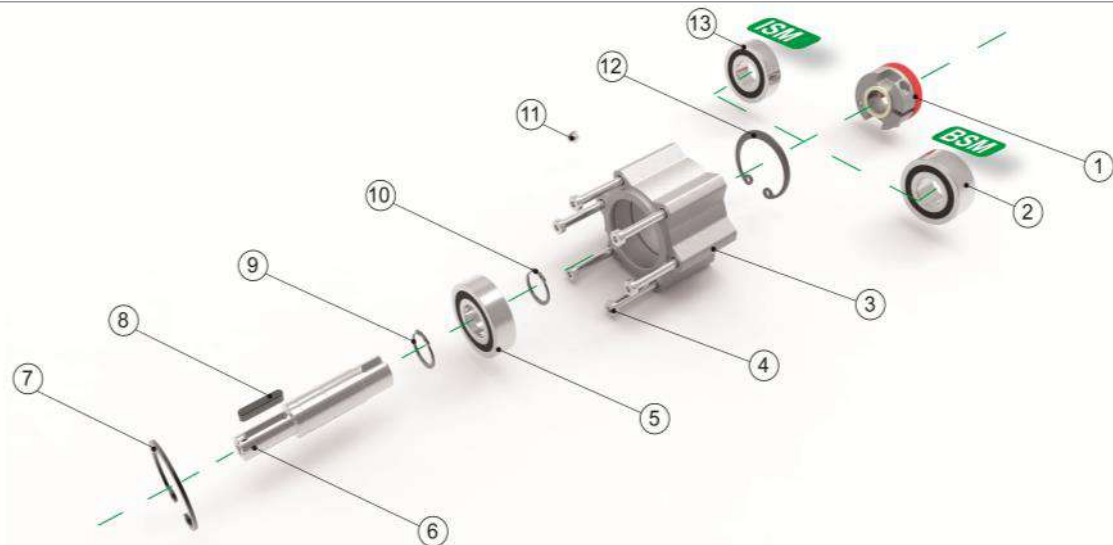
G2 - Motor shaft diameter

(\*) - RD02 → G5

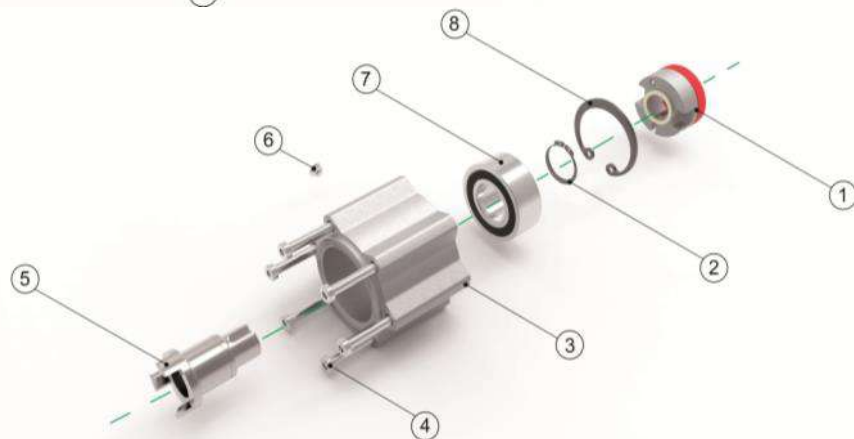
(§) - RD23 → G5

Note - Kit "G" coupling not included in ISM-BSM modules; to order separate.

**ISM &  
BSM**



**BSM-G**



| ISM<br>BSM | Description | BSM-G | Description |
|------------|-------------|-------|-------------|
| 1          | Coupling    | 1     | Coupling    |
| 2          | Back-stop   | 2     | Seeger ring |
| 3          | Body        | 3     | Body        |
| 4          | Screw       | 4     | Screw       |
| 5          | Bearing     | 5     | Input shaft |
| 6          | Input shaft | 6     | Plug        |
| 7          | Seeger ring | 7     | Back-stop   |
| 8          | Key         | 8     | Seeger ring |
| 9          | Seeger ring |       |             |
| 10         | Seeger ring |       |             |
| 11         | Plug        |       |             |
| 12         | Seeger ring |       |             |
| 13         | Bearing     |       |             |