

# Spindle and table drive

GM | RAM | MSD | MSR

**REDEX**  
The Machine Drives Company

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## Spindle and table drive

GM | **RAM** | MSD | MSR



GM

**RAM**

MSD

MSR

**All-in-one two-speed spindle motors**

**Built-in two-speed spindle drive**

**Off-line two speed gearbox**

**Turnkey Turntable Drive solution**

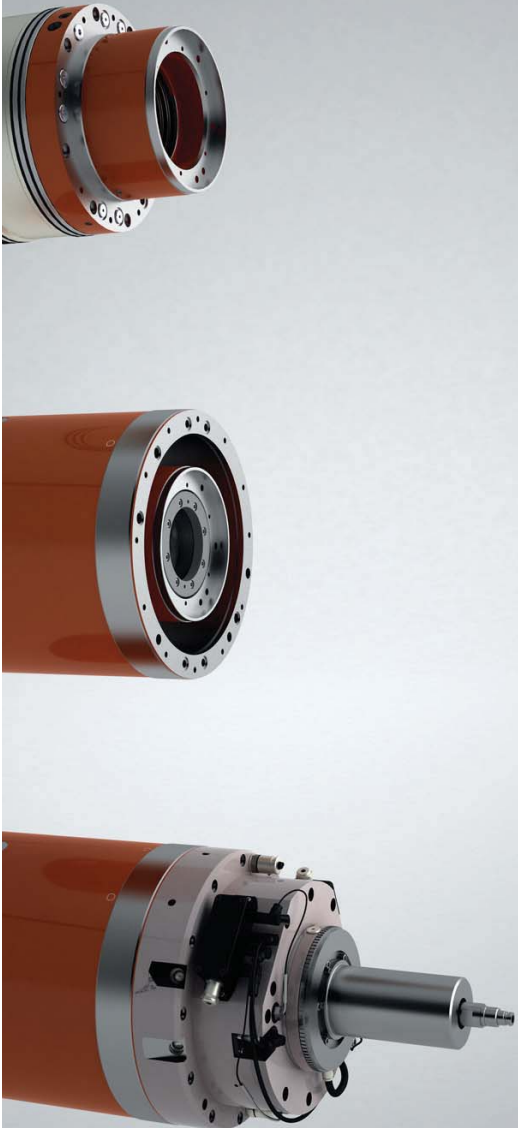
Optimized for performance and reliability, GM exclusive design offers complete mechatronics integration, high-torque and high-speed in a record diameter, large hollow shaft for easy integration, and thermal stability.

The RAM 2speed gearboxes have been designed to extend the constant power range of the machine tool spindle drive motors. This two-speed gearbox is integrated inside the RAM, this compact, lightweight design in-line between a water-cooled motor and spindle matches the latest spindle drive motor technology.

Conventional Spindle Drive Milling or turning spindle gearbox, versatile interfaces for any spindle arrangement with high torque capacity, MSD provides a perfect solution for air cooled spindle motor with a particular high radial load capacity for belts input and output.

Original machine-tool sub assembly, MSR is the natural choice for the new generation of VTL and turntable combining continuous turning and C-axis functions, MSR offers design and assembly cost killing solution for OEMs.

# RAM SIZE 190



## S1 - 100%

|        |            |       |
|--------|------------|-------|
| Speed  | <b>N1B</b> | [rpm] |
| Power  | <b>P</b>   | [kW]  |
| Torque | <b>T2N</b> | [Nm]  |

| Gear 1:1 |            | Gear 5:1  |  |
|----------|------------|-----------|--|
| Speed    | 1500 12000 | 300 2400  |  |
| Power    | 25.6 25.6  | 24.8 24.8 |  |
| Torque   | 163 20     | 790 99    |  |

## S6 - 40%

|        |            |       |
|--------|------------|-------|
| Speed  | <b>N1B</b> | [rpm] |
| Power  | <b>P</b>   | [kW]  |
| Torque | <b>T2N</b> | [Nm]  |

| Gear 1:1 |            | Gear 5:1  |  |
|----------|------------|-----------|--|
| Speed    | 1500 12000 | 300 2400  |  |
| Power    | 35.6 35.6  | 34.5 34.5 |  |
| Torque   | 227 28     | 1100 137  |  |



## Technical Features

|                          |         |
|--------------------------|---------|
| Mounting position        |         |
| Control                  |         |
| Interface                |         |
| Cooling/Flow rate        | [l/min] |
| Cooling/Loss power       | [kW]    |
| Bearings lubrication     |         |
| Lubrication/Flow rate    | [l/min] |
| Lubrication/Loss power   | [kW]    |
| Speed shifting/Pressure  | [bar]   |
| Speed shifting/Flow rate | [l/min] |

|                          |                                    |
|--------------------------|------------------------------------|
| Mounting position        | Vertical, horizontal and Swiveling |
| Control                  | Siemens/Fanuc/Heidenhain           |
| Interface                | Internal splines                   |
| Cooling/Flow rate        | 25                                 |
| Cooling/Loss power       | 0.77                               |
| Bearings lubrication     | Grease                             |
| Lubrication/Flow rate    | 1.5                                |
| Lubrication/Loss power   | 0.46                               |
| Speed shifting/Pressure  | 50 to 100                          |
| Speed shifting/Flow rate | 5 to 7                             |

RAM design for external forced lubrication

## Interface

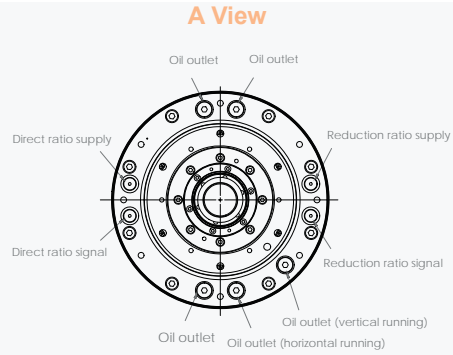
|   |
|---|
| Gearbox only  |
| Gearbox + Cooling Jacket                            |
| Gearbox + Cooling Jacket + output shaft arrangement |

|     |  |
|-----|--|
| HIT |  |
| FOT |  |
| FOA |  |

# RAM SIZE 190

## DIMENSIONS

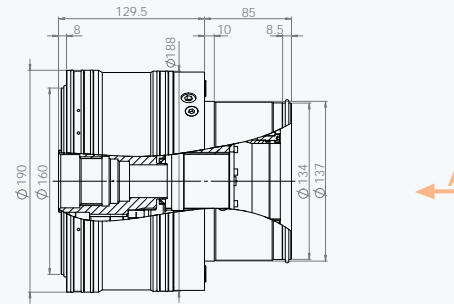
HIT



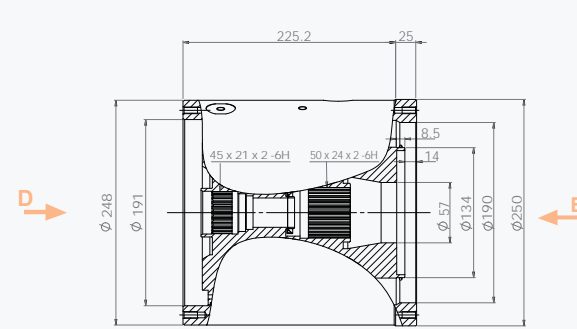
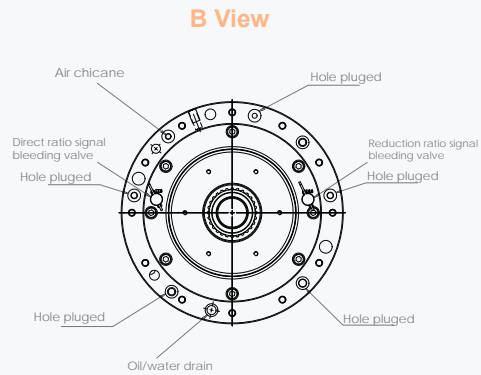
## DIMENSIONS

GM 800

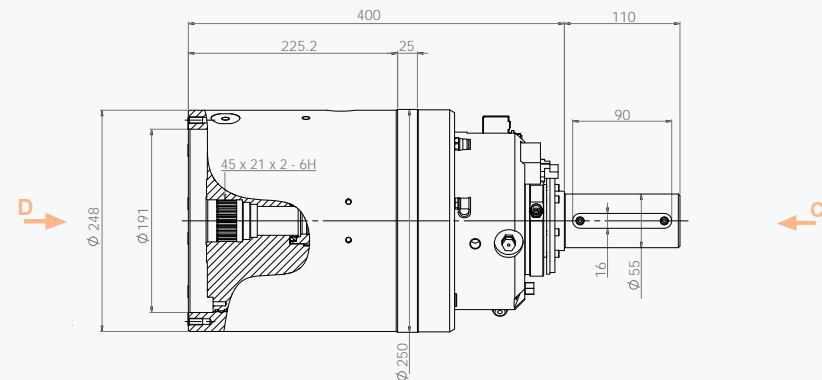
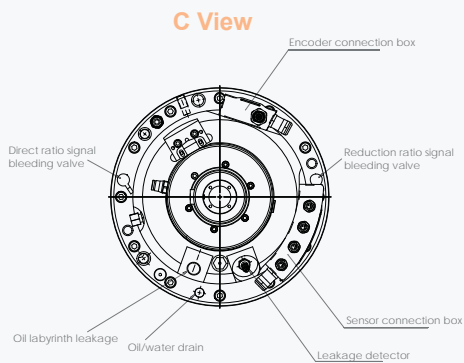
RAM 190



FOT



FOA



# RAM SIZE 220



## S1 - 100%

|        |            |              |
|--------|------------|--------------|
| Speed  | <b>N1B</b> | <b>[rpm]</b> |
| Power  | <b>P</b>   | <b>[kW]</b>  |
| Torque | <b>T2N</b> | <b>[Nm]</b>  |

|        | Gear 1:1 |      | Gear 5:1 |      |
|--------|----------|------|----------|------|
| Speed  | 1500     | 9000 | 300      | 1800 |
| Power  | 43.7     | 43.7 | 42.4     | 42.4 |
| Torque | 278      | 46   | 1349     | 225  |

## S6 - 40%

|        |            |              |
|--------|------------|--------------|
| Speed  | <b>N1B</b> | <b>[rpm]</b> |
| Power  | <b>P</b>   | <b>[kW]</b>  |
| Torque | <b>T2N</b> | <b>[Nm]</b>  |

|        | Gear 1:1 |      | Gear 5:1 |      |
|--------|----------|------|----------|------|
| Speed  | 1500     | 9000 | 300      | 1800 |
| Power  | 60.9     | 60.9 | 59.1     | 59.1 |
| Torque | 388      | 65   | 1880     | 313  |

## Technical Features

|                          |               |
|--------------------------|---------------|
| Mounting position        |               |
| Control                  |               |
| Interface                |               |
| Cooling/Flow rate        | <b>[l/mn]</b> |
| Cooling/Loss power       | <b>[kW]</b>   |
| Bearings lubrication     |               |
| Lubrication/Flow rate    | <b>[l/mn]</b> |
| Lubrication/Loss power   | <b>[kW]</b>   |
| Speed shifting/Pressure  | <b>[bar]</b>  |
| Speed shifting/Flow rate | <b>[l/mn]</b> |

|                          |                                    |
|--------------------------|------------------------------------|
| Mounting position        | Vertical, horizontal and Swiveling |
| Control                  | Siemens/Fanuc/Heidenhain           |
| Interface                | Internal splines                   |
| Cooling/Flow rate        | 35                                 |
| Cooling/Loss power       | 1.31                               |
| Bearings lubrication     | Grease                             |
| Lubrication/Flow rate    | 2                                  |
| Lubrication/Loss power   | 0.61                               |
| Speed shifting/Pressure  | 50 to 100                          |
| Speed shifting/Flow rate | 5 to 7                             |

RAM design for external forced lubrication

## Interface

|   |
|---|
| Gearbox only  |
| Gearbox + Cooling Jacket                            |
| Gearbox + Cooling Jacket + output shaft arrangement |

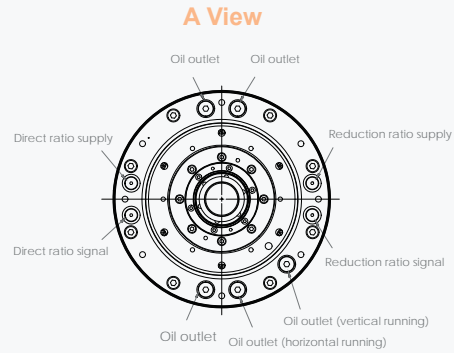
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|-----|--|
| HIT |  |
| FOT |  |
| FOA |  |



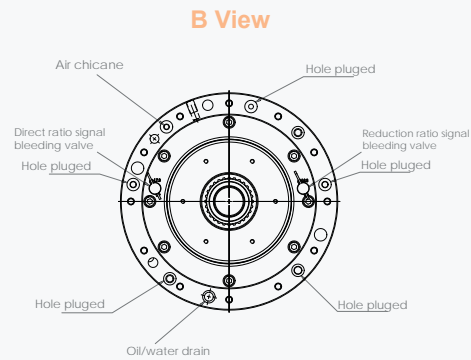
# RAM SIZE 220

## DIMENSIONS

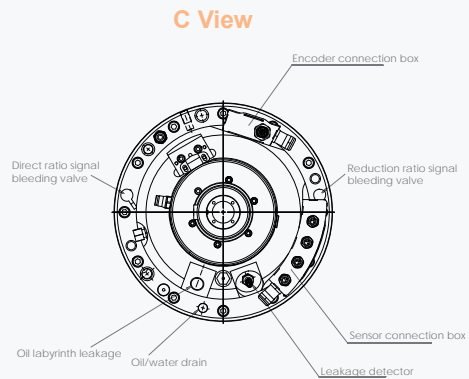
HIT



FOT



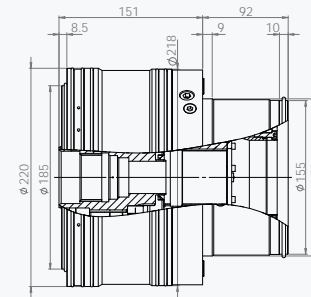
FOA



## DIMENSIONS

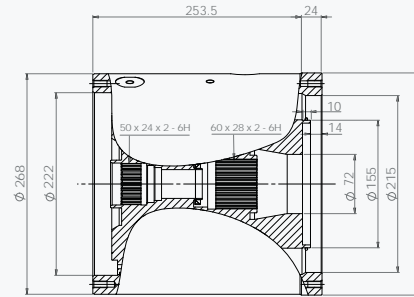
GM 1300

RAM 220



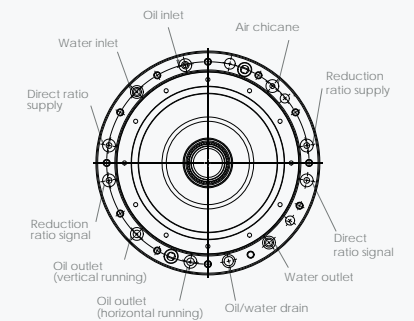
A

D

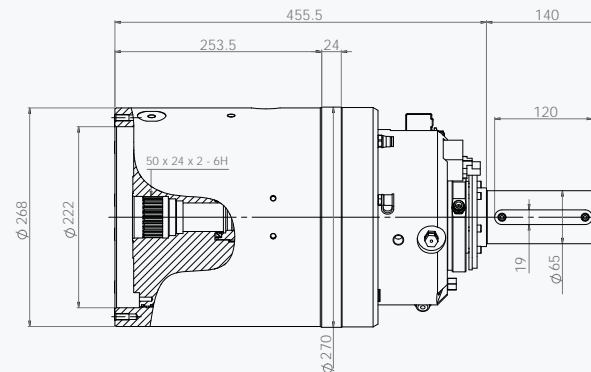


B

## D View

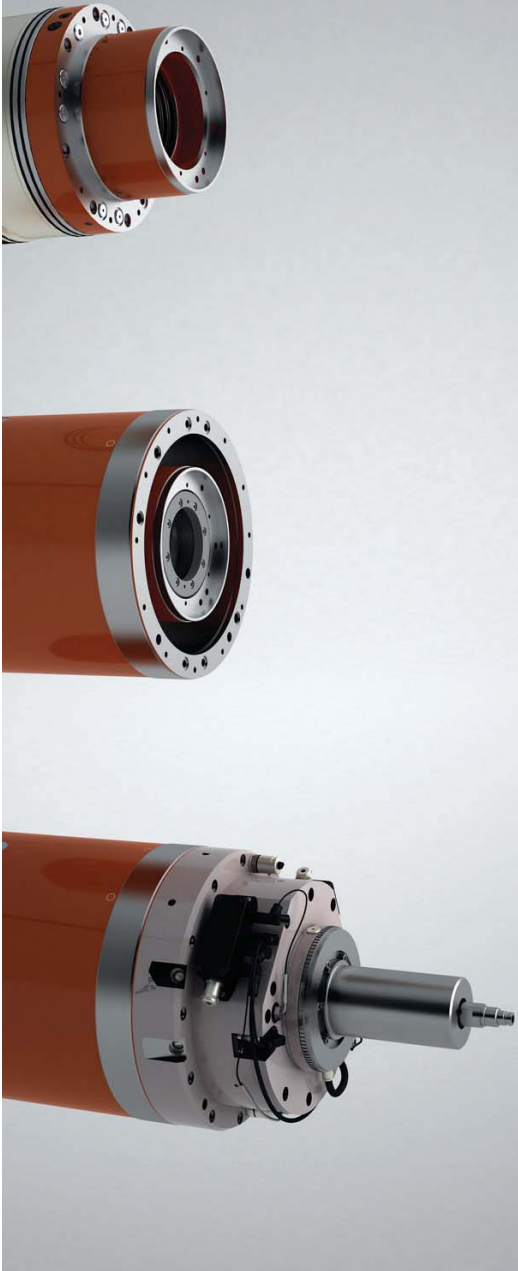


D



C

# RAM SIZE 250



## S1 - 100%

|        |            |       |
|--------|------------|-------|
| Speed  | <b>N1B</b> | [rpm] |
| Power  | <b>P</b>   | [kW]  |
| Torque | <b>T2N</b> | [Nm]  |

| Gear 1:1 |           | Gear 5:1  |  |
|----------|-----------|-----------|--|
| Speed    | 1500 8000 | 300 1600  |  |
| Power    | 60.2 60.2 | 58.4 58.4 |  |
| Torque   | 384 72    | 1860 349  |  |

## S6 - 40%

|        |            |       |
|--------|------------|-------|
| Speed  | <b>N1B</b> | [rpm] |
| Power  | <b>P</b>   | [kW]  |
| Torque | <b>T2N</b> | [Nm]  |

| Gear 1:1 |           | Gear 5:1 |  |
|----------|-----------|----------|--|
| Speed    | 1500 8000 | 300 1600 |  |
| Power    | 83.6 83.6 | 81 81    |  |
| Torque   | 532 100   | 2580 484 |  |

## Technical Features

|                          |        |
|--------------------------|--------|
| Control                  |        |
| Interface                |        |
| Cooling/Flow rate        | [l/mn] |
| Cooling/Loss power       | [kW]   |
| Bearings lubrication     |        |
| Lubrication/Flow rate    | [l/mn] |
| Lubrication/Loss power   | [kW]   |
| Speed shifting/Pressure  | [bar]  |
| Speed shifting/Flow rate | [l/mn] |

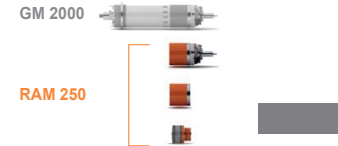
|                          |           |
|--------------------------|-----------|
| Siemens/Fanuc/Heidenhain |           |
| Internal splines         |           |
|                          | 40        |
|                          | 1.81      |
|                          | Grease    |
|                          | 2.5       |
|                          | 0.77      |
|                          | 50 to 100 |
|                          | 8 to 10   |

RAM design for external forced lubrication

## Interface

|   |
|---|
| Gearbox only  |
| Gearbox + Cooling Jacket                            |
| Gearbox + Cooling Jacket + output shaft arrangement |

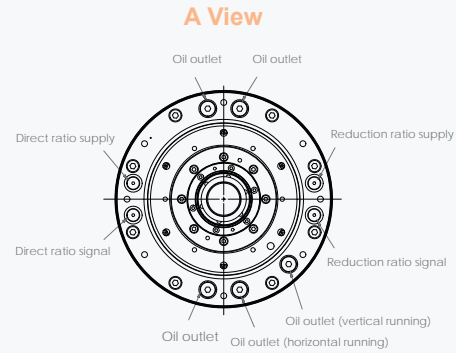
|     |  |
|-----|--|
| HIT |  |
| FOT |  |
| FOA |  |



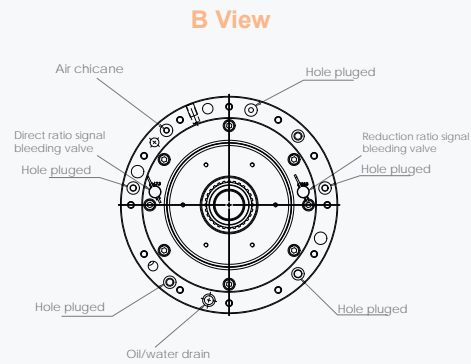
# RAM SIZE 250

## DIMENSIONS

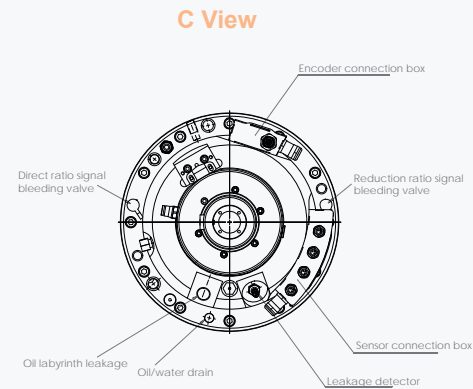
HIT



FOT



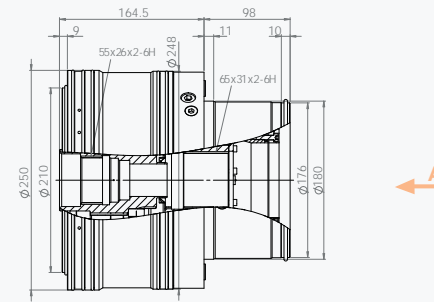
FOA



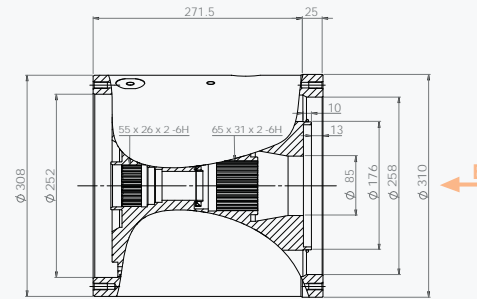
## DIMENSIONS

GM 2000

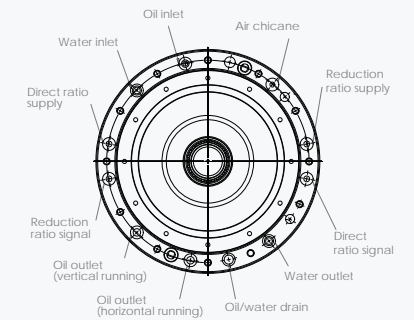
RAM 250



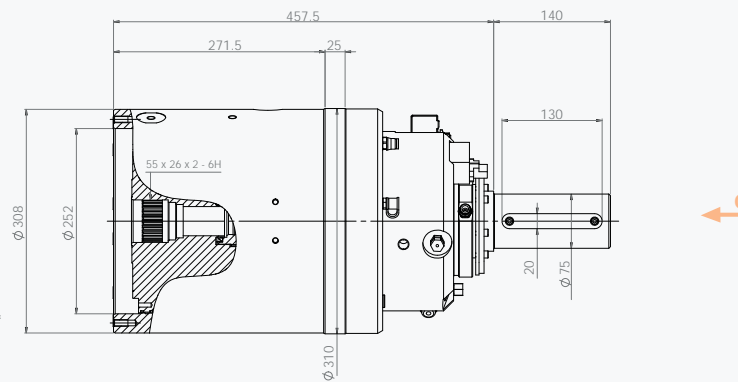
D



## D View

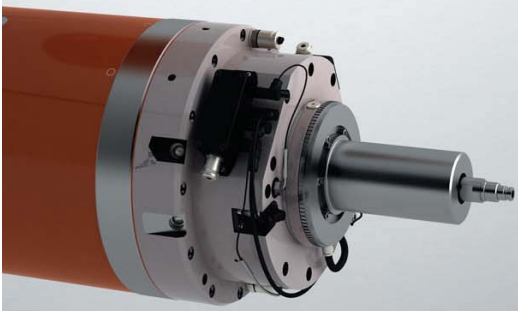
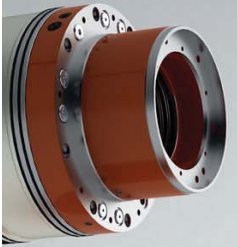


D



C

# RAM SIZE 280



## S1 - 100%

|        |            |       |
|--------|------------|-------|
| Speed  | <b>N1B</b> | [rpm] |
| Power  | <b>P</b>   | [kW]  |
| Torque | <b>T2N</b> | [Nm]  |

| Gear 1:1 |           | Gear 5:1  |  |
|----------|-----------|-----------|--|
| Speed    | 1500 7000 | 300 1400  |  |
| Power    | 97.1 97.1 | 94.2 94.2 |  |
| Torque   | 619 133   | 3000 643  |  |

## S6 - 40%

|        |            |       |
|--------|------------|-------|
| Speed  | <b>N1B</b> | [rpm] |
| Power  | <b>P</b>   | [kW]  |
| Torque | <b>T2N</b> | [Nm]  |

| Gear 1:1 |             | Gear 5:1    |  |
|----------|-------------|-------------|--|
| Speed    | 1500 7000   | 300 1400    |  |
| Power    | 145.7 145.7 | 141.3 141.3 |  |
| Torque   | 928 199     | 4500 964    |  |

## Technical Features

|                          |        |
|--------------------------|--------|
| Mounting position        |        |
| Control                  |        |
| Interface                |        |
| Cooling/Flow rate        | [l/mn] |
| Cooling/Loss power       | [kW]   |
| Bearings lubrication     |        |
| Lubrication/Flow rate    | [l/mn] |
| Lubrication/Loss power   | [kW]   |
| Speed shifting/Pressure  | [bar]  |
| Speed shifting/Flow rate | [l/mn] |

|                          |                          |
|--------------------------|--------------------------|
| Mounting position        | Vertical and horizontal  |
| Control                  | Siemens/Fanuc/Heidenhain |
| Interface                | Internal splines         |
| Cooling/Flow rate        | 40                       |
| Cooling/Loss power       | 2.91                     |
| Bearings lubrication     | Grease                   |
| Lubrication/Flow rate    | 3                        |
| Lubrication/Loss power   | 0.92                     |
| Speed shifting/Pressure  | 50 to 100                |
| Speed shifting/Flow rate | 8 to 10                  |

RAM design for external forced lubrication

|   |
|---|
| Gearbox only  |
| Gearbox + Cooling Jacket                            |
| Gearbox + Cooling Jacket + output shaft arrangement |

## Interface

|     |  |
|-----|--|
| HIT |  |
| FOT |  |
| FOA |  |

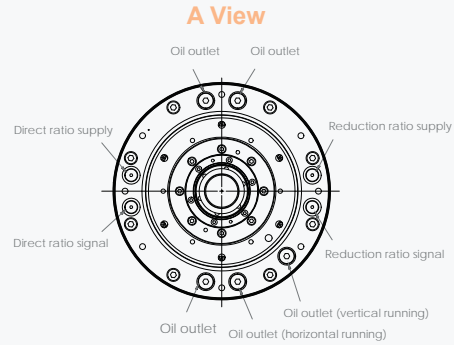




# RAM SIZE 280

## DIMENSIONS

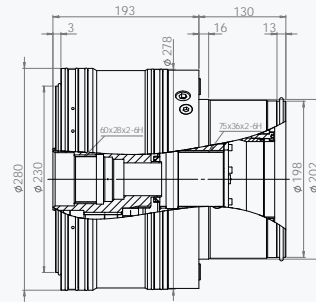
HIT



## DIMENSIONS

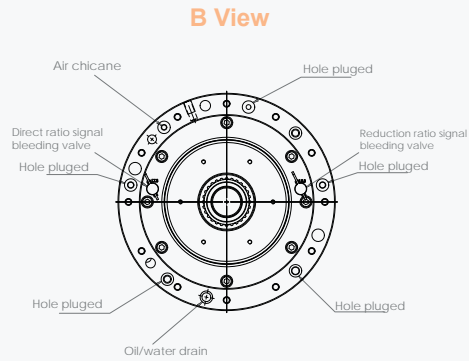
GM 3000

RAM 280

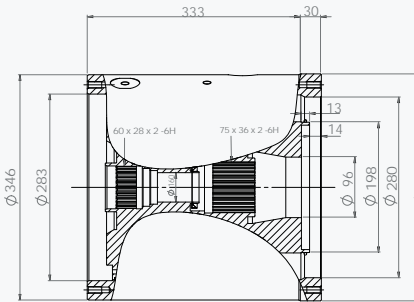


A

FOT

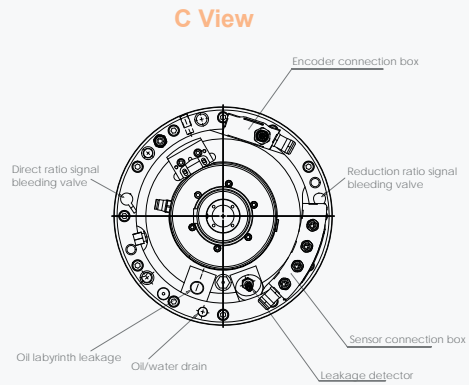


D

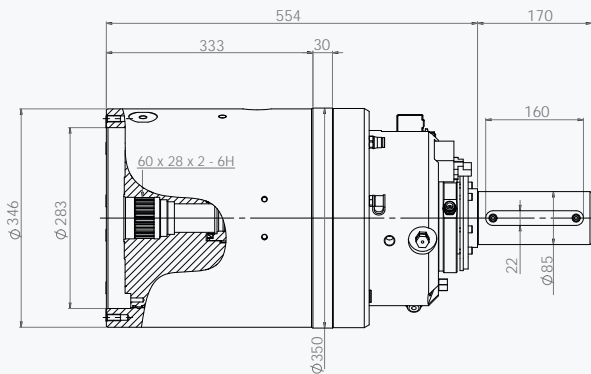


B

FOA



D



C

# RAM SIZE 350



## S1 - 100%

|        |            |       |
|--------|------------|-------|
| Speed  | <b>N1B</b> | [rpm] |
| Power  | <b>P</b>   | [kW]  |
| Torque | <b>T2N</b> | [Nm]  |

| Gear 1:1 |           |
|----------|-----------|
| Speed    | 550 6000  |
| Power    | 83.1 83.1 |
| Torque   | 1443 132  |

| Gear 5:1 |           |
|----------|-----------|
| Speed    | 110 1200  |
| Power    | 80.6 80.6 |
| Torque   | 7000 642  |

## S6 - 40%

|        |            |       |
|--------|------------|-------|
| Speed  | <b>N1B</b> | [rpm] |
| Power  | <b>P</b>   | [kW]  |
| Torque | <b>T2N</b> | [Nm]  |

| Gear 1:1 |          |
|----------|----------|
| Speed    | 550 6000 |
| Power    | 133 133  |
| Torque   | 2309 212 |

| Gear 5:1 |            |
|----------|------------|
| Speed    | 110 1200   |
| Power    | 129 129    |
| Torque   | 11200 1027 |

## Technical Features

|                          |        |
|--------------------------|--------|
| Control                  |        |
| Interface                |        |
| Cooling/Flow rate        | [l/mn] |
| Cooling/Loss power       | [kW]   |
| Bearings lubrication     |        |
| Lubrication/Flow rate    | [l/mn] |
| Lubrication/Loss power   | [kW]   |
| Speed shifting/Pressure  | [bar]  |
| Speed shifting/Flow rate | [l/mn] |

|                          |                          |
|--------------------------|--------------------------|
| Control                  | Siemens/Fanuc/Heidenhain |
| Interface                | Internal splines         |
| Cooling/Flow rate        | 40                       |
| Cooling/Loss power       | 2.49                     |
| Bearings lubrication     | Grease                   |
| Lubrication/Flow rate    | 3.5                      |
| Lubrication/Loss power   | 1.07                     |
| Speed shifting/Pressure  | 50 to 100                |
| Speed shifting/Flow rate | 8 to 10                  |

RAM design for external forced lubrication

## Interface

|   |
|---|
| Gearbox only  |
| Gearbox + Cooling Jacket                            |
| Gearbox + Cooling Jacket + output shaft arrangement |

|         |  |
|---------|--|
| HIT     |  |
| FOT     |  |
| FOA/FOB |  |



