

Flow divider with independent phase correction and anticavitation valves for each element with MOTOR

**Code:**

9RN NN M O CC CC

|     |                                     |
|-----|-------------------------------------|
| 9RN | Flow Divider Typology               |
| NN  | Number of flow divider elements     |
| M   | Code of setting range of the valves |
| O   | Number of motor elements            |
| CC  | Motor Displacement Code             |
| CC  | Flow Divider Displacement Code      |

| TABLE "M" |               |
|-----------|---------------|
| A         | 7 ÷ 210 bar   |
| B         | 105 ÷ 420 bar |

**Example:** Flow divider with two elements (same displacement) with motor RV-1N/ 3,8 x 2 with valve 7 ÷ 210 bar + 1 Motor 7,8

9RN 02 A 1 34 25

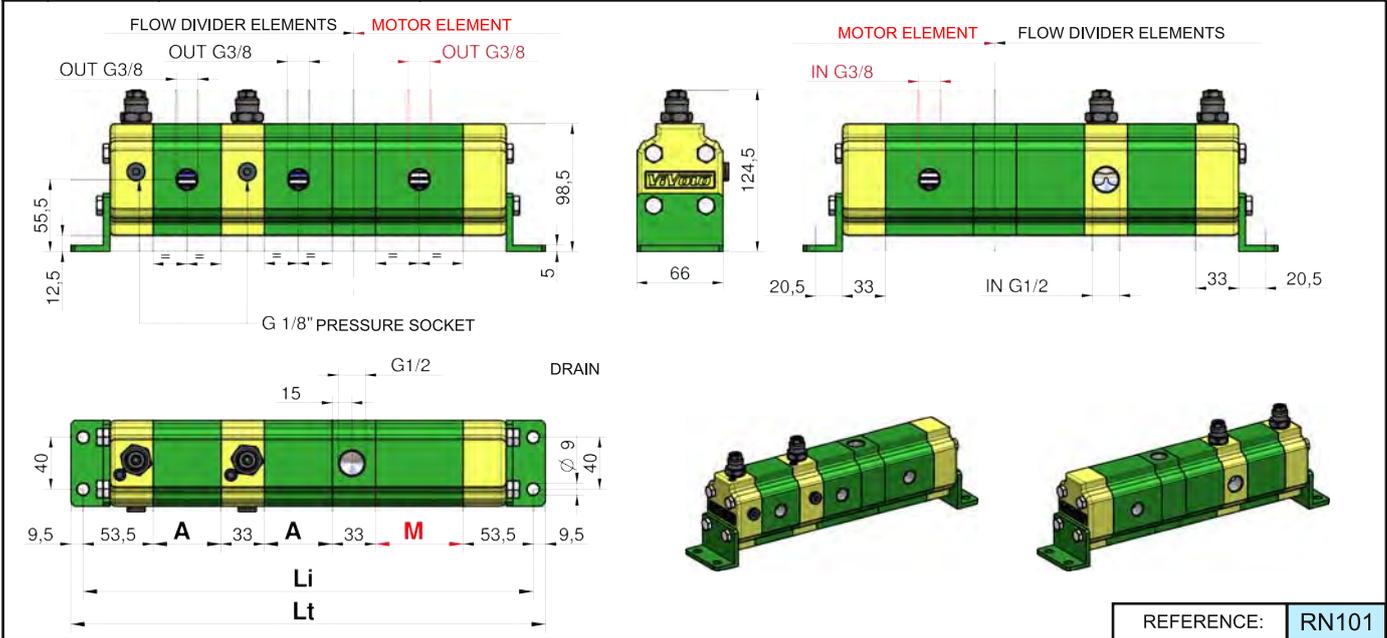
**Example:** Flow Divider 3 elements (different displacement - max 6) and Motor: RV-1N / 3,8+4,9+4,9 with valve 105 ÷ 420 bar + 1 Motor 6,5

9RN 03 B 1 32 25 29 29

**NOTE:** to define codes for flow dividers with more than 6 different displacement, please contact our sales department.

**Table: 1**

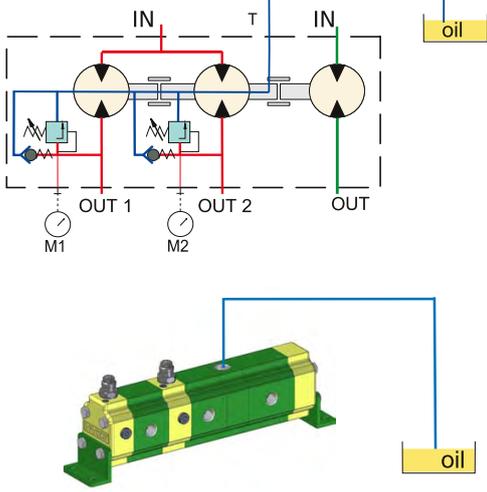
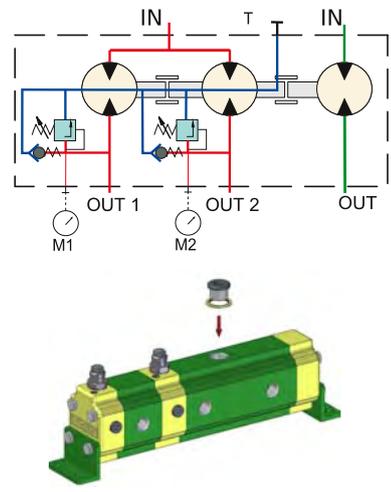
| Displacem.<br>Cm <sup>3</sup> /rev | CC<br>Code | Max<br>Pressure<br>bar | One element flow rate<br>l/min |             |      |
|------------------------------------|------------|------------------------|--------------------------------|-------------|------|
|                                    |            |                        | MIN                            | RECOMMENDED | MAX  |
| 0,9                                | 16         | 220                    | 1                              | 2           | 6    |
| 1,2                                | 17         | 220                    | 1,5                            | 3           | 7    |
| 1,7                                | 18         | 220                    | 2                              | 4           | 9    |
| 2,2                                | 20         | 220                    | 2,5                            | 5           | 13   |
| 2,6                                | 21         | 220                    | 3                              | 6           | 15,5 |
| 3,2                                | 23         | 220                    | 3,5                            | 7,5         | 18   |
| 3,8                                | 25         | 220                    | 4                              | 8,5         | 21   |
| 4,3                                | 27         | 220                    | 4,5                            | 9,5         | 23   |
| 4,9                                | 29         | 220                    | 5,5                            | 11          | 27   |
| 5,9                                | 31         | 220                    | 6,5                            | 13          | 30   |
| 6,5                                | 32         | 220                    | 7,5                            | 14          | 32   |
| 7,8                                | 34         | 210                    | 8,5                            | 16          | 35,5 |
| 9,8                                | 36         | 200                    | 11                             | 20          | 41   |



| Cm <sup>3</sup> /rev | A-M  |
|----------------------|------|
| 0,9                  | 41,5 |
| 1,2                  | 42,5 |
| 1,7                  | 44   |
| 2,2                  | 46   |
| 2,6                  | 48   |
| 3,2                  | 50   |
| 3,8                  | 52   |
| 4,3                  | 54   |
| 4,9                  | 57   |
| 5,9                  | 60,5 |
| 6,5                  | 63   |
| 7,8                  | 67   |
| 9,8                  | 76   |

**Table: 3** in this table the number of inlets in function of the number of elements are indicated.

| Number of elements    | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|-----------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| "IN" Number of inlets | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5  | 5  | 6  | 6  | 7  | 7  | 8  |

| EXTERNAL DRAIN<br><i>STANDARD SETUP</i>  | INTERNAL DRAIN   |
|--|--|
| <p>For the correct functioning of the flow divider, it has to be installed <i>under the oil level</i>. The drain tube has to pick up under the oil level and it has not to aspire air.</p> | <p>To predispose the divider to the internal drain, plug the 1/2 G drain port ( T )<br/><b>Note:</b> with this configuration the function of anticavitation valves is annulled</p> |
|   |    |

In **table 1** the functioning range of single flow divider elements is indicated.

The higher is the feeding capacity ( q ), the higher is the precision of the flow division, but in opposition there are losses of loading and higher noise. Therefore we suggest to feed the elements with capacities equal or a few superior to the ones indicated in the column **"RECOMMENDED"**.

Remember to verify the capacities even in phase of flow reunion.

The pressure indicated are to be considered as maximum of functioning, the flow divider is able to bear peaks of pressure 20 % superior.

**How to calculate the "Li" and "Lt" measures of flow dividers:**

From **table 2** it is possible to obtain the "Li" measure for flow dividers up to 16 elements with equal displacements; for flow dividers with different elements or with more than 16 elements the "Li" and "L" measure have to be calculated by the following formula:

$$Li = [(n-1) \times 33] + 107 + (A1 + A2 + A3 + \dots)$$

$$107 = 53,5 + 53,5$$

**n** = Number of elements of flow divider

**A1... An** = heights of elements of flow divider

$$Lt = Li + 19$$

$$19 = 9,5 + 9,5$$

**EXAMPLE:** To obtain the measures **Li** and **Lt** of a flow divider with three elements (n=3), **RV-1N / 3,8 x 2+ 1 MOTOR 7,8**

Distance between fixing hole centres       $Li = [(3-1) \times 33] + 107 + 52 + 52 + 67 = 344 \text{ mm}$

Total Length       $Lt = 344 + 19 = 363$

In **table 3** the number of inlets in fuction of the number of elements are indicated.

For flow dividers with many inlets, as they are all communicating it is even possible to use only one of them, by plugging the other ones. We suggest to make full us at least of **1** inlet every **40 l/min** capacity.

To obtain errors of division **inferior to 3%** there must be no difference of pressure between the elements superior to **30 bar**. To obtain high precisions the respect of the following parametres is also important:

- Environment temperature: -10°C ÷ +60°C      Oil temperature: +30°C ÷ +60°C
- Hydraulic oil based on hlp, hv (din 51524) minerals      Oil Viscosity 20 ÷ 40 cSt
- Oil filtering 10 ÷ 25 µ

**Code:**

|     |    |   |   |    |    |
|-----|----|---|---|----|----|
| 9RN | NN | M | O | CC | CC |
|-----|----|---|---|----|----|

|     |                                     |
|-----|-------------------------------------|
| 9RN | Flow Divider Typology               |
| NN  | Number of flow divider elements     |
| M   | Code of setting range of the valves |
| O   | Number of motor elements            |
| CM  | Motor Displacement Code             |
| CC  | Flow Divider Displacement Code      |

| TABLE "M" |               |
|-----------|---------------|
| A         | 7 ÷ 210 bar   |
| B         | 105 ÷ 420 bar |

**Example:** Flow divider 2 elements (same displacement) and motor:  
RV-1N/ 7,8 x 2 with valve 7 ÷ 210 bar + 1 motor 17 cc

|     |    |   |   |    |    |
|-----|----|---|---|----|----|
| 9RN | 02 | A | 1 | 51 | 34 |
|-----|----|---|---|----|----|

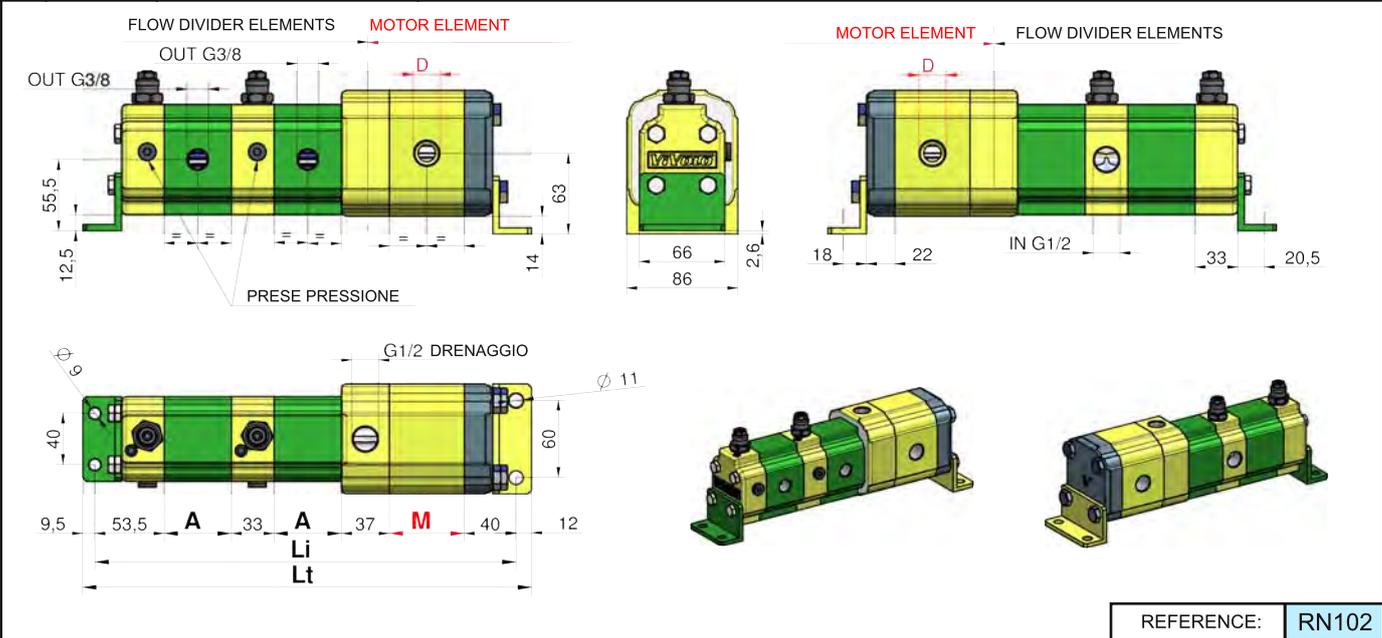
**Example:** Flow divider 4 elements (different displacement - max 6) and motor:  
RV-1N / 3,8+4,9+4,9 with valve 105 ÷ 420 bar + 1 motor 14 cc

|     |    |   |   |    |    |    |    |
|-----|----|---|---|----|----|----|----|
| 9RN | 03 | B | 1 | 49 | 25 | 29 | 29 |
|-----|----|---|---|----|----|----|----|

**NOTE:** to define codes for flow dividers with more than 6 different displacement, please contact our sales department.

**Table: 1**

| Displacem.<br>Cm <sup>3</sup> /rev | CC<br>Code | Max<br>Pressure<br>bar | One element flow rate<br>l/min |             |      |
|------------------------------------|------------|------------------------|--------------------------------|-------------|------|
|                                    |            |                        | MIN                            | RECOMMENDED | MAX  |
| 0,9                                | 16         | 220                    | 1                              | 2           | 6    |
| 1,2                                | 17         | 220                    | 1,5                            | 3           | 7    |
| 1,7                                | 18         | 220                    | 2                              | 4           | 9    |
| 2,2                                | 20         | 220                    | 2,5                            | 5           | 13   |
| 2,6                                | 21         | 220                    | 3                              | 6           | 15,5 |
| 3,2                                | 23         | 220                    | 3,5                            | 7,5         | 18   |
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| 4,3                                | 27         | 220                    | 4,5                            | 9,5         | 23   |
| 4,9                                | 29         | 220                    | 5,5                            | 11          | 27   |
| 5,9                                | 31         | 220                    | 6,5                            | 13          | 30   |
| 6,5                                | 32         | 220                    | 7,5                            | 14          | 32   |
| 7,8                                | 34         | 210                    | 8,5                            | 16          | 35,5 |
| 9,8                                | 36         | 200                    | 11                             | 20          | 41   |



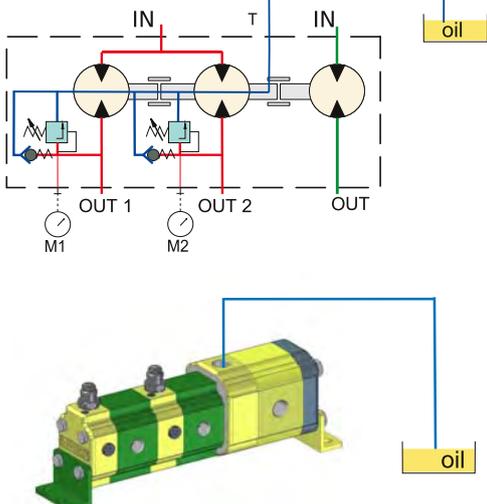
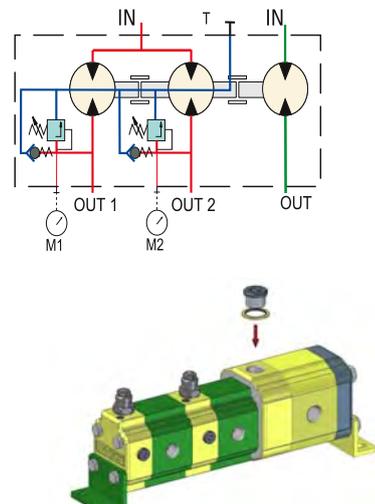
REFERENCE: RN102

| Cm <sup>3</sup> /rev | A    |
|----------------------|------|
| 0,9                  | 41,5 |
| 1,2                  | 42,5 |
| 1,7                  | 44   |
| 2,2                  | 46   |
| 2,6                  | 48   |
| 3,2                  | 50   |
| 3,8                  | 52   |
| 4,3                  | 54   |
| 4,9                  | 57   |
| 5,9                  | 60,5 |
| 6,5                  | 63   |
| 7,8                  | 67   |
| 9,8                  | 76   |

| Cm <sup>3</sup> /rev | CM | M   | D        |
|----------------------|----|-----|----------|
| 4                    | 41 | 47  | 1/2" BSP |
| 6                    | 43 | 50  | 1/2" BSP |
| 9                    | 45 | 54  | 1/2" BSP |
| 11                   | 47 | 58  | 1/2" BSP |
| 14                   | 49 | 64  | 3/4" BSP |
| 17                   | 51 | 68  | 3/4" BSP |
| 19                   | 53 | 72  | 3/4" BSP |
| 22                   | 55 | 78  | 3/4" BSP |
| 26                   | 57 | 82  | 1" BSP   |
| 30                   | 59 | 90  | 1" BSP   |
| 34                   | 61 | 97  | 1" BSP   |
| 40                   | 63 | 106 | 1" BSP   |

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Remember to verify the capacities even in phase of flow reunion.

The pressure indicated are to be considered as maximum of functioning, the flow divider is able to bear peaks of pressure 20 % superior.

**How to calculate the "Li" and "Lt" measures of flow dividers:**

$$Li = [(n-1) \times 33] + 130,5 + (M1 + M2 + M3 + \dots) + (A1 + A2 + A3 + \dots)$$

$$130,5 = 53,5 + 37 + 40$$

**n** = Number of elements of flow divider

**A1... An** = heights of elements of flow divider

**M1... Mn** = heights of elements of motor

$$Lt = Li + 21,5$$

$$21,5 = 9,5 + 12$$

**EXAMPLE:** To obtain the measures Li and Lt of a flow divider with three elements (n=3), **RV-1N / 3,8 x 2+ 1 Motor 11 cc**

Distance between fixing hole centres

$$Li = [(3-1) \times 33] + 130,5 + 47 + 52 + 52 = 314,5 \text{ mm}$$

Total Length

$$Lt = 314,5 + 21,5 = 336$$

In **table 3** the number of inlets in function of the number of elements are indicated.

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