

# INTERMOT DUAL DISPLACEMENT MOTORS IAC SERIES TECHNICAL CATALOGUE

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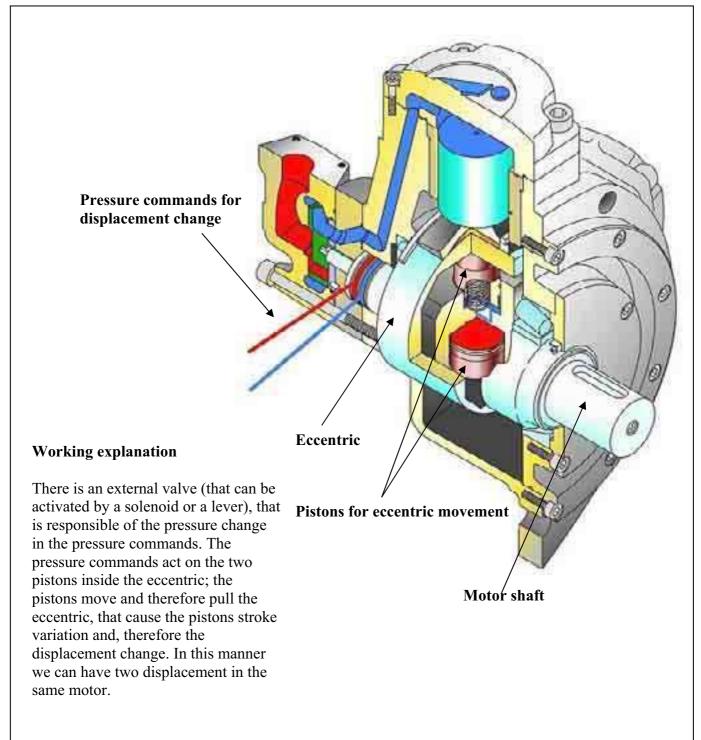
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## **GENERAL INFORMATIONS**

INTERMOT produces RADIAL PISTON HYDRAULIC MOTORS since 1985: our yearly production is more than 13.000 units which we sell all over the world through our agents and authorized sellers. Our motor range varies from 20cc to 8500cc displacement and it is completed by two-speed motors and special motors created in cooperation with our clients for different applications such as : underwater, high & low speed and wheel motors and with the possibility to assemble valves, brakes or gear reductions. You can directly contact our Technical Department which will give you all the necessary support to find the right solutions to your problems.

INTERMOT is a flexible work reality and manages deliveries also within the same day of order; we produce motors exactly interchangeable with our competitors, always ready on stock which our customers particularly appreciate.





| ORDERING INSTRUCTIONS  | IAC SERIES |
|--|------------|
| IAC       /-       H1       A -       D        SV       Image: SV (Image: | SB         |
| Shaft<br>A0 splined shaft A3 female shaft<br>A1 splined shaft<br>A2 parallel shaft<br>Distributor<br>D40 (1" BSP)<br>D47 (SAE 3000 1")<br>D75 (SAE 3000 1" 1/2)<br>D90 (SAE 6000 1" 1/2)   |            |
| Tachometer (optional)<br>TA<br>TB<br>EST<br>EST.30<br>J TACHOMETER PREDISPOSITION  |            |
| Cetop 3 fitting (optional)<br>C3 (Cetop 3 fitting)<br>C3-12 (Cetop 3 fitting, with 12V DC valve included)<br>C3-24 (Cetop 3 fitting, with 24V DC valve included)   |            |
| Shuttle valve (optional)<br>SV Spline billet (optional)<br>SB3 SB7 SB10 SB16 Valves (optional)<br>SB6 SB9 SB14 RVDAP (see valve section<br>RVDA OVDA RVDAP (see valve section<br>SB6 SB9 SB14 SB16 OVDA RVDAP (see valve section)  |            |
| OVSAORVSAcomplete ordinSpecial features (optional)01(Viton seals)01(Viton seals)02(Oxynit treatment on the external motor surface)03(Nitemper treatment on cylinder bores)   |            |
| Conversion flange (optional) (see conversion flanges section)<br>FL2 FL6<br>FL4 FL7<br>FL5   |            |
| Displacements  |            |



## MOTOR TECHNICAL DATA

## IAC 195 H1

| Displacement [cc/Rev]                | 195  | 175  | 150 | 125  | 100 | 95   | 75   | 69   |
|--------------------------------------|------|------|-----|------|-----|------|------|------|
| Specific theoretical torque [Nm/bar] | 3.1  | 2.8  | 2.4 | 2    | 1.6 | 1.5  | 1.2  | 1.1  |
| Continuous maximum speed [rpm]       | 750  | 750  | 750 | 775  | 775 | 775  | 800  | 850  |
| Minimum speed [rpm]                  | 3    | 3    | 3   | 4    | 4   | 4    | 5    | 5    |
| Mechanical efficiency [%]            | 89.5 | 89.2 | 89  | 88.5 | 88  | 87.8 | 87   | 85.5 |
| Starting mechanical efficiency [%]   | 84.5 | 84.2 | 85  | 84.5 | 84  | 83   | 81   | 78   |
| Continuous maximum power [kW]        | 36   | 34   | 32  | 30   | 28  | 28   | 26   | 24   |
| Intermittent maximum power [kW]      | 45   | 42.5 | 40  | 37.5 | 35  | 35   | 32.5 | 30   |
| Continuous maximum pressure [bar]    | 250  | 250  | 250 | 250  | 250 | 250  | 250  | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275 | 275  | 275 | 275  | 275  | 275  |
| Peak pressure [bar]                  | 350  | 350  | 350 | 350  | 350 | 350  | 350  | 350  |
| Recommended flushing flow [I/min]    | 8    | 8    | 8   | 8    | 8   | 8    | 8    | 8    |

## IAC 250 H1

| Displacement [cc/Rev]                | 257  | 232  | 195 | 175  | 150 | 125  | 100 | 95   |
|--------------------------------------|------|------|-----|------|-----|------|-----|------|
| Specific theoretical torque [Nm/bar] | 4.1  | 3.7  | 3.1 | 2.8  | 2.4 | 2    | 1.6 | 1.5  |
| Continuous maximum speed [rpm]       | 700  | 700  | 750 | 750  | 750 | 775  | 775 | 775  |
| Minimum speed [rpm]                  | 3    | 3    | 3   | 3    | 3   | 4    | 4   | 5    |
| Mechanical efficiency [%]            | 88.5 | 88.2 | 88  | 87.5 | 87  | 86.8 | 86  | 84.5 |
| Starting mechanical efficiency [%]   | 83.5 | 83.2 | 84  | 83.5 | 83  | 82   | 80  | 77   |
| Continuous maximum power [kW]        | 38   | 37   | 36  | 34   | 32  | 30   | 28  | 28   |
| Intermittent maximum power [kW]      | 47.5 | 46   | 45  | 42.5 | 40  | 37.5 | 35  | 35   |
| Continuous maximum pressure [bar]    | 250  | 250  | 250 | 250  | 250 | 250  | 250 | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275 | 275  | 275 | 275  | 275 | 275  |
| Peak pressure [bar]                  | 350  | 350  | 350 | 350  | 350 | 350  | 350 | 350  |
| Recommended flushing flow [I/min]    | 10   | 10   | 10  | 10   | 10  | 10   | 10  | 10   |

## IAC 500 H3

| Displacement [cc/Rev]                | 492  | 442 | 393 | 344  | 292  | 255  | 197  | 147 | 98   |
|--------------------------------------|------|-----|-----|------|------|------|------|-----|------|
| Specific theoretical torque [Nm/bar] | 7.8  | 7   | 6.3 | 5.5  | 4.7  | 4.1  | 3.1  | 2.3 | 1.6  |
| Continuous maximum speed [rpm]       | 450  | 505 | 520 | 545  | 580  | 595  | 600  | 600 | 600  |
| Minimum speed [rpm]                  | 2    | 2   | 2   | 2    | 2    | 3    | 3    | 3   | 4    |
| Mechanical efficiency [%]            | 87.5 | 86  | 85  | 83.6 | 82.4 | 82   | 80   | 78  | 73.4 |
| Starting mechanical efficiency [%]   | 82.5 | 81  | 80  | 77.2 | 74.3 | 69.6 | 62.1 | 52  | 30   |
| Continuous maximum power [kW]        | 61   | 60  | 57  | 50   | 44   | 36   | 26   | 20  | 9    |
| Intermittent maximum power [kW]      | 66   | 75  | 71  | 62.5 | 55   | 45   | 21   | 25  | 11   |
| Continuous maximum pressure [bar]    | 250  | 250 | 250 | 250  | 250  | 250  | 250  | 250 | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275 | 275 | 275  | 275  | 275  | 275  | 275 | 275  |
| Peak pressure [bar]                  | 350  | 350 | 350 | 350  | 350  | 350  | 350  | 350 | 350  |
| Recommended flushing flow [l/min]    | 10   | 10  | 10  | 10   | 10   | 10   | 10   | 10  | 10   |

## IAC 800 H4

| Displacement [cc/Rev]                | 792  | 660  | 575  | 493 | 410  | 328  | 273  | 245  | 165  |
|--------------------------------------|------|------|------|-----|------|------|------|------|------|
| Specific theoretical torque [Nm/bar] | 12.6 | 10.5 | 9.2  | 7.8 | 6.5  | 5.2  | 4.3  | 3.9  | 2.6  |
| Continuous maximum speed [rpm]       | 450  | 540  | 600  | 600 | 600  | 600  | 600  | 600  | 600  |
| Minimum speed [rpm]                  | 2    | 2    | 2    | 2   | 2    | 2    | 2    | 3    | 3    |
| Mechanical efficiency [%]            | 90.8 | 90.4 | 88.5 | 88  | 87.4 | 84.5 | 82.4 | 82   | 60.2 |
| Starting mechanical efficiency [%]   | 84.8 | 84.4 | 82.6 | 79  | 75   | 70.2 | 68.3 | 60.8 | 43.3 |
| Continuous maximum power [kW]        | 100  | 90   | 80   | 68  | 53   | 43   | 38   | 30   | 15   |
| Intermittent maximum power [kW]      | 120  | 108  | 96   | 82  | 64   | 52   | 46   | 36   | 18   |
| Continuous maximum pressure [bar]    | 250  | 250  | 250  | 250 | 250  | 250  | 250  | 250  | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275  | 275 | 275  | 275  | 275  | 275  | 275  |
| Peak pressure [bar]                  | 350  | 350  | 350  | 350 | 350  | 350  | 350  | 350  | 350  |
| Recommended flushing flow [I/min]    | 10   | 10   | 10   | 10  | 10   | 10   | 10   | 10   | 10   |



## IAC 1400 H5

| Displacement [cc/Rev]                | 1600 | 1499 | 1393 | 1313 | 1235 | 1150 | 1070 | 980  | 900  | 820  |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Specific theoretical torque [Nm/bar] | 25,5 | 23,9 | 22,2 | 20,9 | 19,7 | 18,3 | 17   | 15,6 | 14,3 | 13   |
| Continuous maximum speed [rpm]       | 370  | 400  | 410  | 435  | 440  | 460  | 480  | 490  | 495  | 520  |
| Minimum speed [rpm]                  | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 2    |
| Mechanical efficiency [%]            | 94,2 | 94   | 93,9 | 93,7 | 93,5 | 93,4 | 93,2 | 93   | 92,6 | 92,3 |
| Starting mechanical efficiency [%]   | 88,2 | 88   | 86,5 | 85,3 | 85,1 | 82,6 | 81,3 | 79,8 | 77,9 | 76   |
| Continuous maximum power [kW]        | 139  | 138  | 135  | 128  | 127  | 124  | 119  | 115  | 110  | 105  |
| Intermittent maximum power [kW]      | 171  | 170  | 166  | 158  | 157  | 153  | 147  | 142  | 136  | 130  |
| Continuous maximum pressure [bar]    | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275  | 275  | 275  | 275  | 275  | 275  | 275  | 275  |
| Peak pressure [bar]                  | 350  | 350  | 350  | 350  | 350  | 350  | 350  | 350  | 350  | 350  |
| Recommended flushing flow [I/min]    | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   |

| Displacement [cc/Rev]                | 737  | 655  | 574 | 492  | 410  | 328  | 246  | 164  | 82   |
|--------------------------------------|------|------|-----|------|------|------|------|------|------|
| Specific theoretical torque [Nm/bar] | 11,7 | 10,4 | 9,1 | 7,8  | 6,5  | 5,2  | 3,9  | 2,6  | 1.3  |
| Continuous maximum speed [rpm]       | 545  | 600  | 600 | 600  | 600  | 600  | 600  | 600  | 1000 |
| Minimum speed [rpm]                  | 2    | 2    | 2   | 2    | 2    | 3    | 3    | 3    | 4    |
| Mechanical efficiency [%]            | 91   | 89,3 | 87  | 83   | 81,7 | 75,5 | 65,7 | 60,5 | 0    |
| Starting mechanical efficiency [%]   | 72,9 | 83.2 | 65  | 59,2 | 51   | 39   | 18   | 0    | 0    |
| Continuous maximum power [kW]        | 98   | 91   | 78  | 65   | 53   | 39   | 28   | 14   | 0    |
| Intermittent maximum power [kW]      | 121  | 112  | 96  | 80   | 65   | 48   | 35   | 17   | 0    |
| Continuous maximum pressure [bar]    | 250  | 250  | 250 | 250  | 250  | 250  | 250  | 250  | 17   |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275 | 275  | 275  | 275  | 275  | 275  | 17   |
| Peak pressure [bar]                  | 350  | 350  | 350 | 350  | 350  | 350  | 350  | 350  | 17   |
| Recommended flushing flow [I/min]    | 12   | 12   | 12  | 12   | 12   | 12   | 12   | 12   | 15   |

## IAC 3000 H6

| Displacement [cc/Rev]                | 3085 | 2950 | 2790 | 2620 | 2460 | 2290 | 2130 | 1970 | 1800 |
|--------------------------------------|------|------|------|------|------|------|------|------|------|
| Specific theoretical torque [Nm/bar] | 49,1 | 47   | 44,4 | 41,7 | 39,2 | 36,5 | 33,9 | 31,4 | 28,7 |
| Continuous maximum speed [rpm]       | 235  | 240  | 245  | 250  | 250  | 265  | 285  | 305  | 340  |
| Minimum speed [rpm]                  | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
| Mechanical efficiency [%]            | 95   | 94,5 | 94,2 | 94   | 93,7 | 93,5 | 92,8 | 92,3 | 92   |
| Starting mechanical efficiency [%]   | 86   | 85,4 | 84,4 | 83,6 | 82,4 | 82   | 80,2 | 78   | 76   |
| Continuous maximum power [kW]        | 175  | 175  | 175  | 165  | 155  | 150  | 140  | 130  | 122  |
| Intermittent maximum power [kW]      | 196  | 196  | 196  | 185  | 174  | 168  | 157  | 146  | 137  |
| Continuous maximum pressure [bar]    | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275  | 275  | 275  | 275  | 275  | 275  | 275  |
| Peak pressure [bar]                  | 350  | 350  | 350  | 350  | 350  | 350  | 350  | 350  | 350  |
| Recommended flushing flow [I/min]    | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   |

| Displacement [cc/Rev]                | 1640 | 1470 | 1310 | 1150 | 980  | 820  | 670  | 490 | 330  |
|--------------------------------------|------|------|------|------|------|------|------|-----|------|
| Specific theoretical torque [Nm/bar] | 26,1 | 23,4 | 20,9 | 18,3 | 15,6 | 13,1 | 10,7 | 7,8 | 5,2  |
| Continuous maximum speed [rpm]       | 370  | 400  | 425  | 455  | 490  | 520  | 600  | 600 | 600  |
| Minimum speed [rpm]                  | 1    | 1    | 1    | 1    | 1    | 2    | 2    | 2   | 3    |
| Mechanical efficiency [%]            | 91   | 90,5 | 88   | 86,2 | 82,3 | 81,7 | 78   | 76  | 73,2 |
| Starting mechanical efficiency [%]   | 73   | 70   | 66,4 | 62   | 55,4 | 46,3 | 33   | 0   | 0    |
| Continuous maximum power [kW]        | 115  | 106  | 100  | 89   | 81   | 73   | 62   | 49  | 25   |
| Intermittent maximum power [kW]      | 129  | 119  | 112  | 100  | 91   | 82   | 70   | 55  | 35   |
| Continuous maximum pressure [bar]    | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250 | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275  | 275  | 275  | 275  | 275  | 275 | 275  |
| Peak pressure [bar]                  | 350  | 350  | 350  | 350  | 350  | 350  | 350  | 350 | 350  |
| Recommended flushing flow [I/min]    | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12  | 12   |



## IAC 4600 H7

| Displacement [cc/Rev]                | 4617 | 4177 | 3650 | 3280 | 2950 | 2620 | 2290 | 1970 | 1640 |
|--------------------------------------|------|------|------|------|------|------|------|------|------|
| Specific theoretical torque [Nm/bar] | 73,5 | 66,5 | 58,1 | 52,2 | 47   | 41,7 | 36,5 | 31,4 | 26,1 |
| Continuous maximum speed [rpm]       | 150  | 158  | 168  | 175  | 210  | 235  | 275  | 305  | 380  |
| Minimum speed [rpm]                  | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
| Mechanical efficiency [%]            | 95,3 | 95.1 | 94,5 | 94,4 | 93,3 | 92,4 | 91,5 | 90,1 | 86,5 |
| Starting mechanical efficiency [%]   | 85,1 | 84   | 83,3 | 82,5 | 81,2 | 80,1 | 78   | 75,2 | 72,4 |
| Continuous maximum power [kW]        | 190  | 180  | 165  | 150  | 140  | 129  | 115  | 104  | 88   |
| Intermittent maximum power [kW]      | 213  | 202  | 185  | 169  | 157  | 145  | 129  | 122  | 110  |
| Continuous maximum pressure [bar]    | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275  | 275  | 275  | 275  | 275  | 275  | 275  |
| Peak pressure [bar]                  | 350  | 350  | 350  | 350  | 350  | 350  | 350  | 350  | 350  |
| Recommended flushing flow [l/min]    | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   |

| Displacement [cc/Rev]                | 1310 | 980  | 655  | 492  | 328  | 164  | 82   | 0    |
|--------------------------------------|------|------|------|------|------|------|------|------|
| Specific theoretical torque [Nm/bar] | 20,9 | 15,6 | 10,4 | 7.8  | 5.2  | 2.6  | 0    | 0    |
| Continuous maximum speed [rpm]       | 435  | 460  | 495  | 520  | 550  | 1000 | 1000 | 1000 |
| Minimum speed [rpm]                  | 1    | 1    | 2    | 2    | 3    | 3    | 4    | 0    |
| Mechanical efficiency [%]            | 83   | 78,4 | 76,2 | 66   | 46,4 | 0    | 0    | 0    |
| Starting mechanical efficiency [%]   | 67,2 | 58   | 41   | 23,7 | 0    | 0    | 0    | 0    |
| Continuous maximum power [kW]        | 73   | 56   | 38   | 27   | 15   | 0    | 0    | 0    |
| Intermittent maximum power [kW]      | 96   | 80   | 56   | 39   | 20   | 0    | 0    | 0    |
| Continuous maximum pressure [bar]    | 250  | 250  | 250  | 250  | 250  | 250  | 17   | 17   |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275  | 275  | 275  | 275  | 17   | 17   |
| Peak pressure [bar]                  | 350  | 350  | 350  | 350  | 350  | 350  | 17   | 17   |
| Recommended flushing flow [l/min]    | 12   | 12   | 12   | 12   | 12   | 12   | 15   | 15   |

## IAC 5400 H7

|                                      |      |      |      |      |      |      |       | 1AC 5400 M |      |      |
|--------------------------------------|------|------|------|------|------|------|-------|------------|------|------|
| Displacement [cc/Rev]                | 5326 | 5080 | 4915 | 4588 | 4097 | 3650 | 3280  | 2950       | 2620 | 2295 |
| Specific theoretical torque [Nm/bar] | 84,8 | 80,9 | 78,2 | 73   | 65,2 | 58,1 | 52,2  | 47         | 41,7 | 36,5 |
| Continuous maximum speed [rpm]       | 130  | 135  | 140  | 150  | 160  | 170  | 190   | 215        | 230  | 280  |
| Minimum speed [rpm]                  | 1    | 1    | 1    | 1    | 1    | 1    | 1     | 1          | 1    | 1    |
| Mechanical efficiency [%]            | 95,2 | 95   | 95   | 95   | 95   | 94,4 | 94,3  | 93,2       | 92   | 91,5 |
| Starting mechanical efficiency [%]   | 86   | 85,8 | 85,8 | 85,4 | 85,2 | 83   | 82,2  | 82         | 79,8 | 77,7 |
| Continuous maximum power [kW]        | 190  | 190  | 190  | 190  | 178  | 162  | 152   | 140        | 130  | 120  |
| Intermittent maximum power [kW]      | 216  | 216  | 216  | 216  | 200  | 182  | 170   | 160        | 145  | 135  |
| Continuous maximum pressure [bar]    | 250  | 250  | 250  | 250  | 250  | 250  | 250   | 250        | 250  | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275  | 275  | 275  | 275  | 275   | 275        | 275  | 275  |
| Peak pressure [bar]                  | 350  | 350  | 350  | 350  | 350  | 350  | 350   | 350        | 350  | 350  |
| Recommended flushing flow [I/min]    | 12   | 12   | 12   | 12   | 12   | 12   | 12 12 |            | 12   | 12   |
|                                      |      |      |      |      |      |      |       |            |      |      |
| Displacement [cc/Rev]                | 1970 | 1640 | 1560 | 1311 | 980  | 655  | 492   | 328        | 164  | 0    |
| Specific theoretical torque [Nm/bar] | 31,4 | 26,1 | 24,8 | 20,9 | 15,6 | 10,4 | 7,8   | 5,2        | 2,6  | 0    |
| Continuous maximum speed [rpm]       | 335  | 375  | 410  | 445  | 470  | 500  | 520   | 550        | 1000 | 1000 |
| Minimum speed [rpm]                  | 1    | 1    | 1    | 1    | 1    | 2    | 2     | 3          | 3    | 0    |
| Mechanical efficiency [%]            | 90   | 86   | 84,5 | 82,3 | 78,3 | 76,2 | 66,2  | 46,5       | 0    | 0    |
| Starting mechanical efficiency [%]   | 75,3 | 72,1 | 71,3 | 67   | 58   | 41   | 24    | 0          | 0    | 0    |
| Continuous maximum power [kW]        | 105  | 90   | 85   | 75   | 58   | 40   | 26    | 15         | 0    | 0    |
| Intermittent maximum power [kW]      | 120  | 110  | 102  | 98   | 82   | 56   | 40    | 20         | 0    | 0    |
| Continuous maximum pressure [bar]    | 250  | 250  | 250  | 250  | 250  | 250  | 250   | 250        | 17   | 17   |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275  | 275  | 275  | 275  | 275   | 275        | 17   | 17   |
|                                      |      |      |      |      |      |      |       |            |      |      |

Peak pressure [bar]

Recommended flushing flow [l/min]



## HYDRAULIC FLUIDS RECOMMENDATIONS

### **HYDRAULIC FLUIDS**

We recommend the use of hydraulic oils with anti-wear additives (ISO HM or HV) and minimum viscosity index of 95. Once normal working temperature is reached, oil viscosity must be at least 44 cSt, preferably in the range from 50 to 80 cSt.

Hydraulic oils meeting Denison MF-O, Vickers M-2952-S I - 286-S performance requirements and DIN 51524 specifications, are preferred.

Pay particular attention if you use HE type oils (ecological fluid) because them can influence the motor seals compatibility, the motor performance and life. Please ask us for advice in case of HE type oils usage.

Mineral hydraulic oils are divided into four main types, designated by the International Standards Organisation (ISO) as HH, HL, HM and HV. We advise to use only products with HM or HV specifications.

### <u>HM type</u>

These are the most widely employed hydraulic oils. They include small quantities of anti-wear additives to provide significant improvement in wear reduction. "Superior" quality HM type oils can be used for all equipment, with the added assurance that they will be suitable for the highest temperature.

### <u>HV type</u>

HV hydraulic oils show minimal change in viscosity with temperature variations.

### **OIL VISCOSITY RECOMMENDATION**

Room temperature HM type ISO-VG

- -20°C / 0°C BP ENERGOL HLP HM 22
- -15°C /+5°C BP ENERGOL HLP HM 32
- -8°C /+15°C BP BNERGOL HLP HM 46
- 0°C /+22°C BP ENERGOL HLP HM 68
- +8°C /+30°C BP ENERGOL HLP HM100
- -20°C /+5°C BP BARTRAN HV 32
- -15°C /+22°C BP BARTRAN HV 46
- 0°C /+30°C BP BARTRAN HV 68

Our motors have been designed to work also with:

- oils type ATF (Automatic Transmission Fluid)
- oils with viscosity SAE 10W 20 30
- multigrade motor oils SAE 10 W/40 or 15 W/40
- universal oils

During cold start-up, avoid high-speed operation until the system is warmed up to provide adequate lubrication.

Continuous working temperature must not exceed 70°C. Every 5-8°C of increase from the optimum working temperature, the hydraulic fluid life decrease of about 40-50% (see OXIDATION). Therefore the motor life will be affected by consequence.

### FIRE RESISTANT OIL LIMITATIONS

| Max cont. | Max int.                      | Max   |  |
|-----------|-------------------------------|---|--|
| pressure  | pressure                      | speed   |  |
| 103       | 138                           | 50%   |  |
| 138       | 172                           | 100%  |  |
| 103       | 138                           | 50%   |  |
| 250       | 293                           | 100%  |  |
|           | pressure<br>103<br>138<br>103 | pressure         pressure           103         138           138         172           103         138 | pressure         pressure         speed           103         138         50%           138         172         100%           103         138         50% |

### **FILTRATION**

Hydraulic systems oil must always be filtered.

The choice of filtration grade derives from needs of service life and money spent. In order to obtain stated service life it is important to follow our recommendations concerning filtration grade.

When choosing the filter it is important to consider the amount of dirt particles that filter can absorb and still operate satisfactorily. For that reason we recommend filters showing when you need to substitute filtering cartridge.

According to NAS 1628, we recommend:

- maximum permissible oil contamination degree according to NAS 1628 class 9 (using filters with minimum efficiency  $\beta_{10}$ =100), for normal service life;
- maximum permissible oil contamination degree according to NAS 1628 class 8 (using filters with minimum efficiency  $\beta_5$ =100) for closed circuit applications and long service life;

### OXIDATION

Hydraulic oil oxidizes with time of use and temperature. Oxidation causes changes in colour and smell, acidity increase or sludge formation in the tank. Oxidation rate increases rapidly at surface temperatures above 60°C, in these situations oil should be checked more often. Every 5-8°C of increase from the optimum working temperature, the hydraulic fluid life decrease of about 40-50%.

The oxidation process increases the acidity of the fluid; the acidity is stated in terms of the "neutralization number". Oxidation is usually slow at the beginning and then it increases rapidly.

A sharp increase (by a factor of 2 to 3) in neutralization number between inspections shows that oil has oxidized too much and should be replaced immediately.

### WATER CONTENT

Oil contamination by water can be detected by sampling from the bottom of the tank. Most hydraulic oils repel the water, which then collects at the bottom of the tank. This water must be drained off at regular intervals. Certain types of transmission oils and engine oils emulsify the water; this can be detected by coatings on filter cartridges or a change in the colour of the oil. In such cases, obtain your oil supplier advice.

### **DEGREE OF CONTAMINATION**

Heavy contamination of the oil causes wear rising in hydraulic system components. Contamination causes must be immediately investigated and remedied.

### ANALYSIS

In optimum operating conditions, we recommend to perfor an oil analysis 6 months. The analysis should cover viscosity, oxidation, water content, additives and contamination. Most oil suppliers are equipped to analyze oil state and to recommend appropriate action. Oil must be immediately replaced if the analysis shows that it is exhausted.

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## **INSTRUCTIONS AND ADVICES**

### INSTALLATION

Hoses and piping must be clean and free from contamination. The motor must be fitted on a flat, robust surface using the right bolts (see the following table for your reference).

| Motor          | Bolts | Bolts preload |
|----------------|-------|---------------|
| IAC 250/S H1   | M12   | 70÷85 Nm      |
| IAC 250/BH H1  | M10   | 40÷50 Nm      |
| IAC 500 H3     | M14   | 110÷135 Nm    |
| IAC 500/B30 H3 | M16   | 128÷212 Nm    |
| IAC 800/B45 H4 | M16   | 128÷212 Nm    |
| IAC 800/C H4   | M12   | 70÷85 Nm      |
| IAC 800 H4     | M16   | 128÷212 Nm    |
| IAC 1400 H5    | M20   | 332÷413 Nm    |
| IAC 1400/C H5  | M14   | 110÷135 Nm    |
| IAC 3000 H6    | M20   | 332÷413 Nm    |
| IAC 3000/C H6  | M18   | 235÷290 Nm    |
| IAC 4600 H7    | M18   | 235÷290 Nm    |
| IAC 5400 H7    | M18   | 235÷290 Nm    |

The clearance between the motor flange diameter and the mounting diameter must not exceed a maximum value that can be set approximatively to 0.15 mm. In special working conditions, in wich the motor is operating with frequent reversing, high speed running, vibrations, and shock loadings, high tensile stress fixing bolts must be used, whereas one must be included as fitting bolt.

In the case in wich the motor is coupled in a rigid way to a shaft having indipendent bearings, the two shafts must be aligned in the way to have a maximum error of about 0.1 mm.

- Motor can be mounted in any position (refer to drain recommendations to obtain more detailed guidelines)
- In run-away conditions you must use counterbalance valves
- Consult factory for intermittent applications

Splined adaptors (sleeves) are available upon request.

### **INSTALLATION CIRCUIT**

The choice of open or closed loop circuit will be determined by the application.

Open loop circuits are cheaper and simpler to install.

Closed loop circuit is a superior circuit and usually takes up less space. It also offers better control features. In case of using closed loop circuit please contact Intermot technical departement.

### **START UP**

Motor case and pistons must be completely filled with oil before starting. Do not load motor to maximum working pressure. Increase load gradually at start-up. When it is possible, a short "running in" period of 30 minutes is higly recommended (keeping the motor in maximum displacement).

### **CASE DRAIN – CASE PRESSURE**

Referring to drain pipes, the recommended minimum size for pipe lengths up to about 5 m is 12 mm as internal diameter. If the drain pipes are longer, the internal bore drain pipe diameter must be increased by consequence. Keep the pipe length always at the minimum possible value, connecting the case drain directly to tank.

The case drain port on the motor must be located on the highest point of the installation to ensure that the motor will

always be full of oil. Intermot IAC motors are equipped with high pressure shaft seal: refer to the "shaft seal features" page for the maximum continuous case pressure estimation. Intermot performed internal tests that shows that the case pressure can be up to 10 bar continuous and 15 bar intermittent without causing damage to the shaft seal. Especially in the case in wich the drain line is quite long, a relief valve is recommended to prevent the shaft seal damage.

### **IMPORTANT**

When the motor is installed vertically with shaft pointing upwards, consult our Technical Department. If the motor is connected to high inertial loads, the hydraulic system must be designed to prevent peaks of pressure and cavitation.

### TEMPERATURE

Refer to hydraulic fluid recommendations.

### VISCOSITY

Refer to hydraulic fluid recommendations.

### **HIGH PRESSURE APPLICATIONS**

In case of high pressure applications, a Nitemper treatment on motor body or in cylinders it is suggested to increase wear and tear resistance.

### **BACK PRESSURE**

Don't exceed 70 bar back pressure. A small return line back pressure between 2 and 5 bar is recommended in some cases to attenuate the liquid born noise level. In addition the back pressure counteract the centrifugal forces in the motor. Please notice that the back pressure reduces the effective motor ouptut torque.

### **BOOST PRESSURE**

When the motor runs at a speed that can cause pumping effects, a positive pressure it is needed at the motor ports. The minimum required pressure at the motor ports can be estimated basing on different parameters, using the following formula:

$$p = 1 + p_c + C_H n^2 V^2$$

Where p is the boost pressure,  $p_c$  the case pressure, n the rotation speed, V the motor displacement, and  $C_H$  is a constant, depending by the motor serie.

| Motor            | C <sub>H</sub>         |
|------------------|------------------------|
| IAC 250 H1       | 0,25*10 <sup>-9</sup>  |
| IAC 500 H3       | 0,25*10 <sup>-9</sup>  |
| IAC 800 H4       | 0,5*10 <sup>-10</sup>  |
| IAC 1400 H5      | 0,5*10 <sup>-10</sup>  |
| IAC 3000 H6      | 0,4*10 <sup>-10</sup>  |
| IAC 4600/5400 H7 | 0,25*10 <sup>-10</sup> |

### **MINIMUM SPEED**

The minimum acceptable speed depends by different variables, like load inertia, motor displacement, system leakages, etc... For indicative values refer to motor technical data.When it is possible, always start the motor in high displacement, to avoid start-up problems.



### **DISPLACEMENT CHANGE**

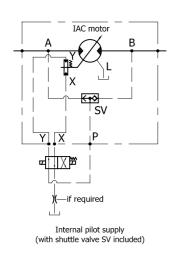
The displacement change can be performed in different ways. The user can use an internal or esternal pilot. In addition Intermot can supply a Cetop 3 fitting with or without Cetop 3 displacement change valve (with electric or hydrauilic control). To perform the displacement change, the pilot pressure must be at least 2/3 of the motor working pressure. If the motor working pressure is less than 3,5 bar, the pilot pressure must be at least 3,5 bar. Please note that in freewheeling operation it is necessary supply the displacement control mechanism with an external supply pressure/flow source. This external supply source will assure that the motor displacement during the freewheeling operation remains fixed at the minimum value, avoiding IAC motor damage.

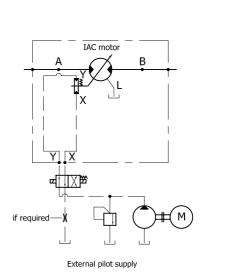
The oil flow rate required to perform the displacement change can be estimated in function of many different parameters; the most important factor that determinate the required flow rate is the motor case internal leakage. The flow rate that is shown in the next table must be considered as an indicative value that depends by many system parameters and working conditions.

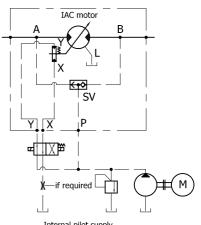
| Motor       | Required<br>flow rate | Displacement<br>change delay |
|-------------|-----------------------|------------------------------|
| IAC 250 H1  | 8 l/min               | 0,2 s                        |
| IAC 500 H3  | 12 l/min              | 0,2 s                        |
| IAC 800 H4  | 15 l/min              | 0,25 s                       |
| IAC 1400 H5 | 30 l/min              | 0,25 s                       |
| IAC 3000 H6 | 15 l/min              | 0,5 s                        |
| IAC 4600 H7 | 20 l/min              | 1 s                          |
| IAC 5400 H7 | 20 l/min              | 1 s                          |

The system components (pumps, motors...) present tear and wear phenomenons that are clearly variables during the system life, so the required flow rate is variable during the motor life, this variation is very difficult to estimate: for this reason the values reported must be considered as approximated and indicative values.

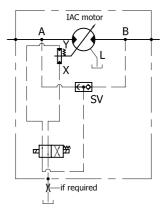
### DISPLACEMENT CHANGE HYDRAULIC CIRCUIT





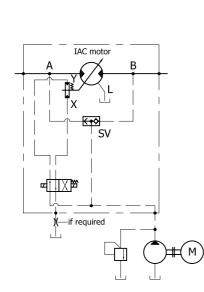


Internal pilot supply (with shuttle valve SV included and external boost pressure supply)



Internal pilot supply (displacement change valve and shuttle valve SV included)

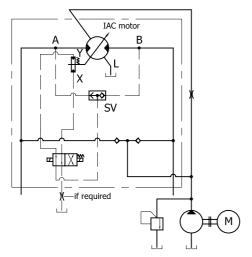




Internal pilot supply (displacement change valve and shuttle valve SV included with external boost supply)

### SMALL DISPLACEMENT/FREEWHEELING **OPERATION**

Selecting a zero displacement IAC motor, the motor can run without load at high speed, resulting in a minimum motor torque requirement. The motor ports must be connected together (refer to the following diagram) and must be supplied with an external pressure/flow source.



#### Freewheeling circuit

The maximum working pressure shown in the motor technical data for the zero displacement code are relatives to a 1000 rpm shaft speed. If the output shaft speed is less then 1000 rpm the maximum working pressure can be slightly increased. Consult Intermot technical departement to obtain more details. For output shaft speed higher than 1000 rpm the

application duty cycle must be considered by Intermot. When the motor is running at high speed, a minimum pressure must exists at the motor ports (see boost pressure paragraph), but in all cases this pressure must not exceed the maximum working pressure reported in the zero displacement code motor technical data. A crankcase flushing flow is highly recommendend in freewheeling operation, to control and reduce the motor temperature rise during the freewheeling. If the motor running speed is between 1000 and 1500 rpm, a 15 l/min (indicative value) flushing flow is compulsory.

### BEARINGS

The bearing life depends by different factors, like bearing type, motor speed, working pressure, external loads, duty cycle, fluid viscosity, cleanless, type and temperature.

Lifetime is measured by  $L_{10}$  which is called "theoretic lifetime". It represents the number of cycles that 90% of identical bearings can effort at the same load without showing wear and tear. It is calculated by the following equation:

$$L_{10} = \left(\frac{C}{P}\right)^{p}$$

where: C = theoretical dynamic coefficient (depending on the bearing size)

p = exponent

(p=3 for ball bearings, p=10/3 for roller bearings)

When you work at constant speed, you can calculate the lifetime in hours with the following equation:

 $L_{10h} = \frac{10^{6} \cdot L_{10}}{60 \cdot rpm} = \frac{10^{6}}{60 \cdot rpm} \left(\frac{C}{P}\right)^{p} [h]$ 

When you don't have only radial or axial loads, you have to calculate an equivalent load:  $\mathsf{P}=\mathsf{X}\cdot\mathsf{F}_{\mathsf{R}}\,+\mathsf{Y}\cdot\mathsf{F}_{\mathsf{A}}$ 

$$F_R$$
 = radial load,  
X = radial coefficient  
 $F_A$  = axial load,  
Y = axial coefficient

While  $F_R$  and  $F_A$  come from working conditions (i.e. torque), X

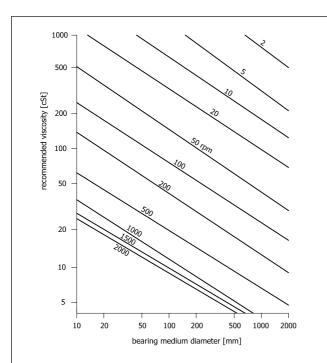
and Y depend on the type of bearing and on the ratio

L<sub>10</sub> is a theorical value, that must be corrected to take into account other important parameters, that in most applications are very difficult to estimate.

To help you in the expected lifetime calculation, Intermot provides you with an EXCEL calculation sheet. The expected lifetime that Intermot supply you by the Excel sheet is calculated supposing that the oil viscosity is equal to the recommended value in function of bearing medium diameter and rotational speed (refer to the following diagram). The reference medium bearing diameter is shown in the next table.

| Motor       | Bearing medium<br>diameter |
|-------------|----------------------------|
| IAC 250 H1  | 60 mm                      |
| IAC 500 H3  | 95 mm                      |
| IAC 800 H4  | 95 mm                      |
| IAC 1400 H5 | 125 mm                     |
| IAC 3000 H6 | 150 mm                     |
| IAC 4600 H7 | 150 mm                     |
| IAC 5400 H7 | 150 mm                     |

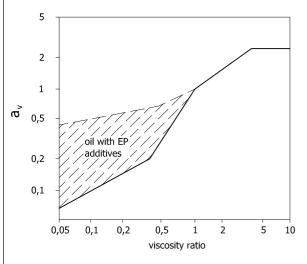




Starting from the  $L_{10}$  or  $L_{10h}$ , that are theoretical values, you can obtain a more accurate bearing lifetime estimation, supposing that the oil has a very low contamination level (refer to hydraulic fluid recommendation), using the following formula:

$$L_{na} = a_v L_{10} / f_s$$

 $a_{\rm v}$  is the viscosity factor, and can be estimated referring to the following diagram, whereas  $f_{\rm s}$  is the service factor, that is dependent by the duty cycle (refer to the service factor table).



| Continuous working<br>duty cycle | Service factor (f <sub>s</sub> ) |  |  |  |  |
|----------------------------------|----------------------------------|--|--|--|--|
| < 6 h                            | 1.2                              |  |  |  |  |
| < 12 h                           | 1.4                              |  |  |  |  |
| < 24 h                           | 2.8                              |  |  |  |  |

The viscosity ratio is the ratio between the viscosity and the recommended viscosity. In this way, using the Excel sheet, that is provided by Intermot and calculating the corrected lifetime  $L_{nar}$  you can easily estimate the bearing lifetime: you only need to choose the motor model, put speed, pressure and loads.

# For further information or to have the calculation sheet, please contact our technical department. **FLUSHING**

Cooling flow is necessary to assure the minimum oil viscosity and depends on motor displacement. On radial piston hydraulic motors with high volumetric efficiency, and therefore Intermot IAC series, there can be a phenomenon of oil-overheating in the body motor. In fixed applications, for example, where the motor is running constantly for 8 or more hours a day (like injection machines for plastic materials, press, bending machines, etc.) high volumetric efficiency can create temperature increasing in motor body. In this case temperature increasing is to be avoided with the use of flushing. Flushing consists in carrying fresh oil (taken from hydraulic circuit) in the body motor. Oil is usually taken from return line to avoid any loss of efficiency. In this way, all internal parts of the motor are protected with this lubrication and cooled with fresh oil, so that total efficiency is optimised.

## INTERCHANGEABILITY; COMPARATIVE CHART

We can provide many IAC motor types interchangeable with Intermot competitors like Staffa Kawasaki, Parker Calzoni, Dinamic Oil and SAI.

| Intermot motor code | Competitor motor code   |
|---------------------|-------------------------|
| IAC 250/S H1        | SAI GM1, SAI M1         |
| IAC 250/BH H1       | Dinamic Oil BH          |
| IAC 500/B30 H3      | Staffa HMC30 (S shaft)  |
| IAC 800/B45 H4 A1   | Staffa HMC45 (S shaft)  |
| IAC 800/B45 H4 A11  | Staffa HMC45 (Z shaft)  |
| IAC 800/B45 H4 A2   | Staffa HMC45 (P shaft)  |
| IAC 800/C H4        | Calzoni MRD700, MRDE800 |
|                     | (N1 shaft)              |
| IAC 1400 H5 A1      | Staffa HMC80 (S shaft)  |
| IAC 1400 H5 A2      | Staffa HMC80 (P shaft)  |
| IAC 1400/C H5 A0    | Calzoni MRD1100,        |
|                     | MRDE1400                |
|                     | (N1 shaft)              |
| IAC 1400/C H5 A3    | Calzoni MRD1100,        |
|                     | MRDE1400                |
|                     | (F1 shaft)              |
| IAC 3000 H6 A1      | Staffa HMC200 (S shaft) |
| IAC 3000 H6 A2      | Staffa HMC200 (P shaft) |
| IAC 3000/C H6 A0    | Calzoni MRD2800,        |
|                     | MRDE3100                |
|                     | (N1 shaft)              |
| IAC 4600 H7 A1      | Staffa HMC270 (S shaft) |
| IAC 5400 H7 A1      | Staffa HMC325 (S shaft) |



## **DRAIN RECOMMENDATIONS**

 Motor axis horizontal
 Axis vertical, shaft up

 Important
 Important

 For all motors IAC series, it is necessary TO
 Important

For all motors IAC series, it is necessary TC FILL the motor case with hydraulic fluid, through the drain pipe, before start-up.

## DISTRIBUTORS PRESSURE – FLOW

|              |            | D40/D47<br>(IAC H1, H3,<br>H4) | D75<br>(IAM H5) | D90<br>(IAC H6, H7) |
|--------------|------------|--------------------------------|-----------------|---------------------|
| Pressure bar | Continuous | 250                            | 250             | 250                 |
|              | Max        | 500                            | 500             | 500                 |
| Flow L/min   | Continuous | 200                            | 500             | 600                 |
|              | Max        | 400                            | 1000            | 1200                |



## SHAFT SEAL FEATURES

| Type:     | BABSL              |
|-----------|--------------------|
| Form:     | AS DIN 3760        |
| Material: | SIMRIT® 72 NBR 902 |
|           | SIMRIT® 75 FKM 595 |

### 1. Features

SIMMERRING® radial shaft seal with rubber covered O.D., short, flexibility suspensed, spring loaded sealing lip and additional dust lip: see Part B/ SIMMERRING®, sections 1.1 and 2.

### 2. Material

Sealing lip and O.D.:

- Acrylonitrile-butadiene rubber with 72 Shore A hardness (designation: SIMRIT® 72 NBR 902)

- Fluoro rubber with 75 Shore A hardness
  - (designation: SIMRIT®75 FKM 595)

Metal insert:

Plain steel DIN 1624

Spring:

- Spring steel DIN 17223

#### 3. Application

For sealing pressurised media without additional backup ring, e. g. for rotational pressure sealing in hydraulic pumps, hydraulic motors, hydrodynamic clutches. Rubber covered O.D. assures sealing in the housing bore even in case of considerable surface roughness, thermal expansion or split housing.

Particularly suitable for sealing low viscosity and gaseous media.

Where high thermal stability and chemical resistance are required, SIMRIT® 75 FKM 595 material should be used. Additional dust lip to avoid the entry of light and medium dust and dirt.

### 4. Operating conditions

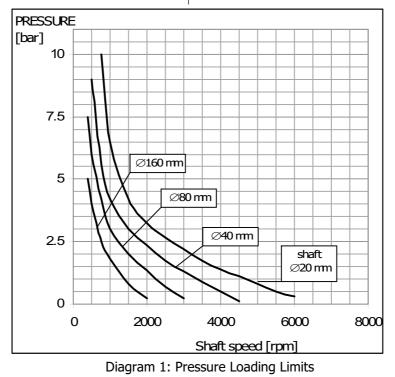
See Part B/ SIMMERRING®, sections 2. 4. Media: mineral oils, synthetic oils Temperature: -40°C to +100°C (SIMRIT® 72 NBR 902) -40°C to +160°C (SIMRIT® 75 FKM 595) Surface speed: up to 5 m/s Working pressure: see diagram 1

Maximum permitted values, depending on other operating conditions.

### 5. Housing and Machining Criteria

See Part B/ SIMMERRING®, sections 2.

| p<br>5,<br>d<br>of | Shaft:   | Tolerance:<br>Concentricity:<br>Roughness: | ISO h11<br>IT 8<br>Ra=0.2-0.8 µm<br>Rz=1-4 µm              |
|--------------------|----------|--|--|
| it<br>s            |          | Hardness:<br>Roughness:<br>preferably by   | Rmax=6 µm<br>45-60 HRc<br>non oriented;<br>plunge grinding |
| e<br>n             | Housing: | Tolerance:<br>Roughness:                   | ISO H8<br>Rmax<25 µm                                       |



#### IAC rev. 01 The data specified into the catalogue are for product description purpose only and must not be interpreted as warranted characteristic in legal sense. Intermot reserves the right to implement modifications without notice. page. 13



## FORMULAS

- TORQUE (1)
- TORQUE (2)
- POWER (1)
- POWER (2)
- SPEED
- **REQUIRED MOTOR** DISPLACEMENT
- **REQUIRED PUMP FLOW** RATE

## **CONVERSIONS**

| LENGTH | 1 m    | = 1 | 39.3701 in  |          | 1 | lbf             | = 1      | 0.4536   | kgf             |
|--------|--------|-----|-------------|----------|---|-----------------|----------|----------|-----------------|
|        |        | =   | 3.2808 ft   |          |   |                 | =        | 4.448    |                 |
|        |        | =   | 1.0936 yd   |          |   |                 |          |          |                 |
|        |        | =   | 1000 mm     | PRESSURE | 1 | bar             | = 1      | 14.223   | psi             |
|        | 1 in   | =   | 0.0833 ft   |          |   |                 | =        | 0.99     | atm             |
|        |        | =   | 25.4 mm     |          |   |                 | =        | 1.02     | ata             |
|        | 1 ft   | =   | 0.3048 m    |          |   |                 | =        | 100000   | Ра              |
|        |        | =   | 0.3333 yd   |          |   |                 | =        | 100      | kPa             |
|        |        | =   | 12 in       |          |   |                 | =        | 0.1      | MPa             |
|        | 1 yd   | =   | 0.9144 m    |          | 1 | psi             | =        | 0.0703   | bar             |
|        |        | =   | 3 ft        |          |   |                 | _        |          |                 |
|        |        | =   | 36 in       | FLOW     | 1 | l/min           | <u> </u> | 0.264    | gpm             |
|        | 1 km   | =   | 1000 m      |          |   |                 | =        | 1000     | cc/min          |
|        |        | =   | 1093.6 yd   |          | 1 | gpm             | =        | 3.785    | l/min           |
|        |        | =   | 0.6214 mile |          |   |                 | =        | 3785     | cc/min          |
|        | 1 mile | =   | 1.609 km    |          | 1 | m³/s            | =        | 60000    | l/min           |
|        |        | _ = | 1760 yd     |          |   |                 | =        | 15852    | gpm             |
|        |        |     |             |          |   |                 | _        |          |                 |
| MASS   | 1 kg   | =   | 2.2046 lb   | VOLUME   | 1 | m <sup>3</sup>  | =        | 1000     |                 |
|        | 1 lb   | =   | 0.4536 kg   |          | 1 | I               | = 1      | 61,023   |                 |
|        |        |     |             |          |   |                 | _        | 0,264    | galUS           |
| SPEED  | 1 m/s  | =   | 3.6 km/h    |          | 1 | in <sup>3</sup> | L=       | 0,01639  | <u> </u>        |
|        |        | =   | 2.237 mph   |          |   |                 | _        | 16,39    |                 |
|        |        | =   | 3.2808 ft/s |          |   |                 | _        | 0,004326 |                 |
|        | 1 km/h | =   | 0.2778 m/s  |          | 1 | galUS           | L.       | 3,7879   |                 |
|        |        | =   | 0.6214 mph  |          |   |                 | _        | 231,15   | in <sup>3</sup> |
|        |        | =   | 0.9113 ft/s | POWER    | 1 | kW              |          | 1.341    | HP              |
|        | 1 mph  | =   | 1.609 km/h  |          |   |                 | =        | 1.3596   | CV              |
|        |        | =   | 0.447 m/s   |          | 1 | HP              | <u> </u> | 0.7457   | Kw              |
|        |        | =   | 1.467 ft/s  |          |   |                 | =        | 1.0139   | CV              |
|        | 1 ft/s | =   | 0.3048 m/s  |          |   |                 |          |          |                 |
|        |        |     | 1.0973 km/h | TORQUE   | 1 | Nm              | <u> </u> | 0.102    | kgm             |
|        |        | =   | 0.6818 mph  |          |   | _               | =        | 0.7376   | lbf ft          |
| FORCE  | 1 N    |     | 0.102 kgf   |          | 1 | kgm             | LE.      | 9.806    | Nm              |
|        |        | =   | 0.2248 lbf  |          |   |                 | _        | 7.2325   | lbf ft          |
|        | 1 kgf  | =   | 2.205 lbf   |          | 1 | lbf ft          | Ŀ.       | 0.1383   | kgm             |
|        |        | =   | 9.806 N     |          |   |                 | =        | 1.3558   | Nm              |
|        |        |     |             |          |   |                 |          |          |                 |

Torque = (specific torque)  $\cdot$  (pressure)

Power  $[kW] = \frac{Torque [Nm] \cdot speed [rpm]}{V}$ 

9549 Torque [Nm] · speed [rpm]

7023

flow rate [l/min] · 1000

displacement [cc/rev] displacement [cc/rev] =  $\frac{\text{max required torque [Nm]} \cdot 62.8$ 

flow [l/min] = displacement [cc / rev] · max speed [rpm]

Torque [Nm] =

Power [CV] =

speed [rpm] =

displacement [cc/rev] · pressure [bar]

62.8

max pressure [bar]

1000



# **INTERMOT DUAL DISPLACEMENT MOTORS**

# IAC SERIES H1 MODEL

| IAC | 195/S  |
|-----|--------|
|     | 195/BH |

IAC 250/S 250/BH

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## MOTOR TECHNICAL DATA

## IAC 195 H1

| Displacement [cc/Rev]                | 195  | 175  | 150 | 125  | 100 | 95   | 75   | 69   |
|--------------------------------------|------|------|-----|------|-----|------|------|------|
| Specific theoretical torque [Nm/bar] | 3.1  | 2.8  | 2.4 | 2    | 1.6 | 1.5  | 1.2  | 1.1  |
| Continuous maximum speed [rpm]       | 750  | 750  | 750 | 775  | 775 | 775  | 800  | 850  |
| Minimum speed [rpm]                  | 3    | 3    | 3   | 4    | 4   | 4    | 5    | 5    |
| Mechanical efficiency [%]            | 89.5 | 89.2 | 89  | 88.5 | 88  | 87.8 | 87   | 85.5 |
| Starting mechanical efficiency [%]   | 84.5 | 84.2 | 85  | 84.5 | 84  | 83   | 81   | 78   |
| Continuous maximum power [kW]        | 36   | 34   | 32  | 30   | 28  | 28   | 26   | 24   |
| Intermittent maximum power [kW]      | 45   | 42.5 | 40  | 37.5 | 35  | 35   | 32.5 | 30   |
| Continuous maximum pressure [bar]    | 250  | 250  | 250 | 250  | 250 | 250  | 250  | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275 | 275  | 275 | 275  | 275  | 275  |
| Peak pressure [bar]                  | 350  | 350  | 350 | 350  | 350 | 350  | 350  | 350  |
| Recommended flushing flow [l/min]    | 8    | 8    | 8   | 8    | 8   | 8    | 8    | 8    |

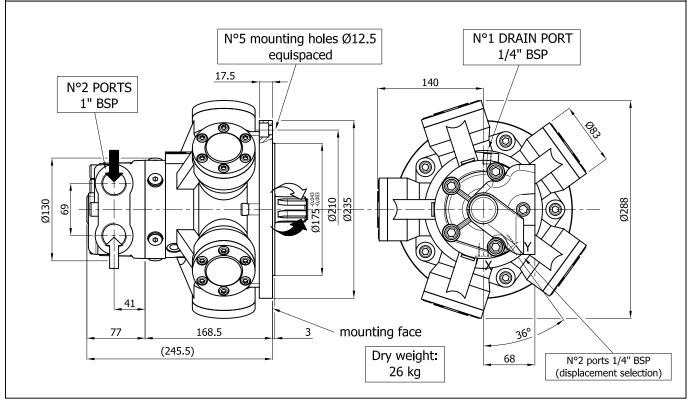
|                                      |      |      |     |      |     | IA   | C 25 | 0 H1 |
|--------------------------------------|------|------|-----|------|-----|------|------|------|
| Displacement [cc/Rev]                | 257  | 232  | 195 | 175  | 150 | 125  | 100  | 95   |
| Specific theoretical torque [Nm/bar] | 4.1  | 3.7  | 3.1 | 2.8  | 2.4 | 2    | 1.6  | 1.5  |
| Continuous maximum speed [rpm]       | 700  | 700  | 750 | 750  | 750 | 775  | 775  | 775  |
| Minimum speed [rpm]                  | 3    | 3    | 3   | 3    | 3   | 4    | 4    | 5    |
| Mechanical efficiency [%]            | 88.5 | 88.2 | 88  | 87.5 | 87  | 86.8 | 86   | 84.5 |
| Starting mechanical efficiency [%]   | 83.5 | 83.2 | 84  | 83.5 | 83  | 82   | 80   | 77   |
| Continuous maximum power [kW]        | 38   | 37   | 36  | 34   | 32  | 30   | 28   | 28   |
| Intermittent maximum power [kW]      | 47.5 | 46   | 45  | 42.5 | 40  | 37.5 | 35   | 35   |
| Continuous maximum pressure [bar]    | 250  | 250  | 250 | 250  | 250 | 250  | 250  | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275 | 275  | 275 | 275  | 275  | 275  |
| Peak pressure [bar]                  | 350  | 350  | 350 | 350  | 350 | 350  | 350  | 350  |
| Recommended flushing flow [I/min]    | 10   | 10   | 10  | 10   | 10  | 10   | 10   | 10   |

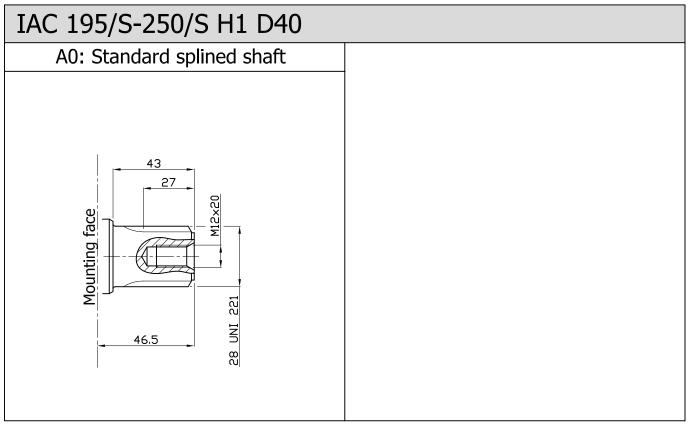


INTERCHANGEABLE WITH GM1

## SIZE



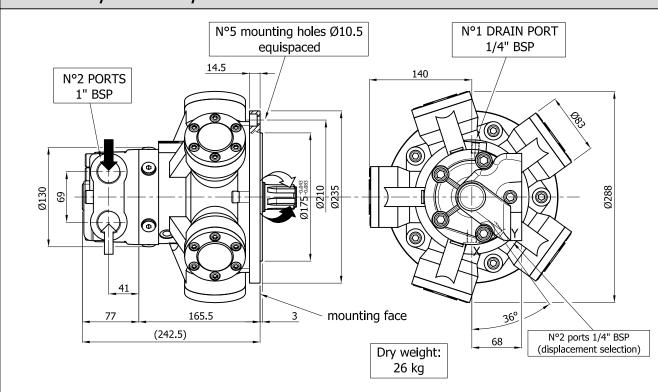


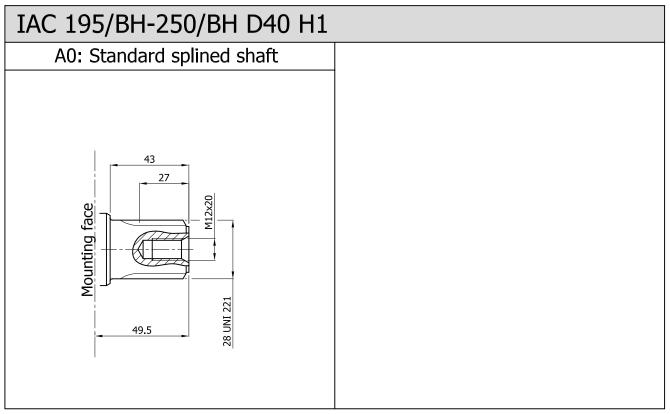




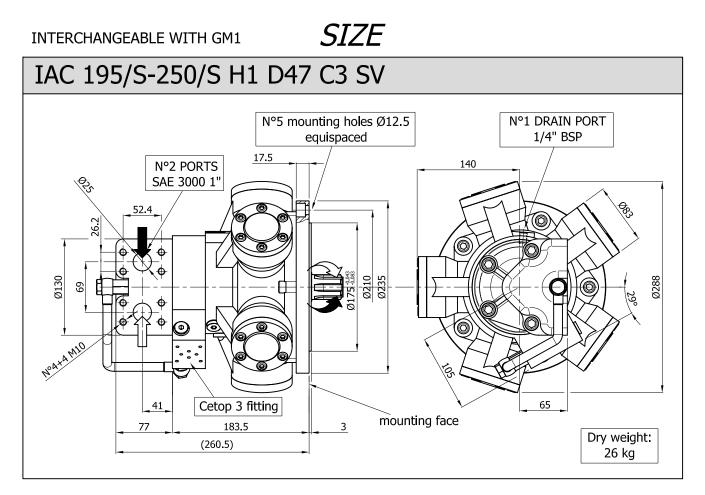
**INTERCHANGEABLE WITH BH** 

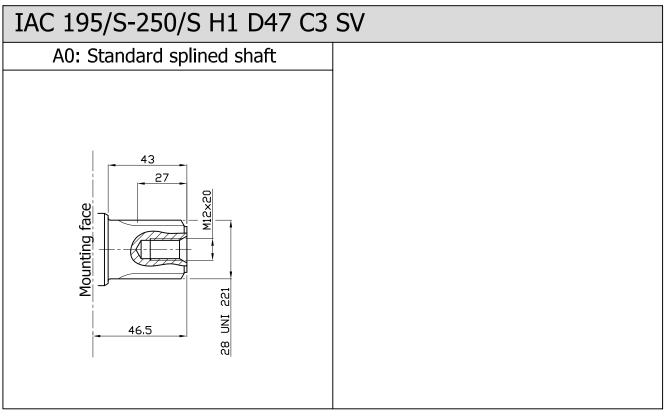
# SIZE IAC 195/BH-250/BH D40 H1





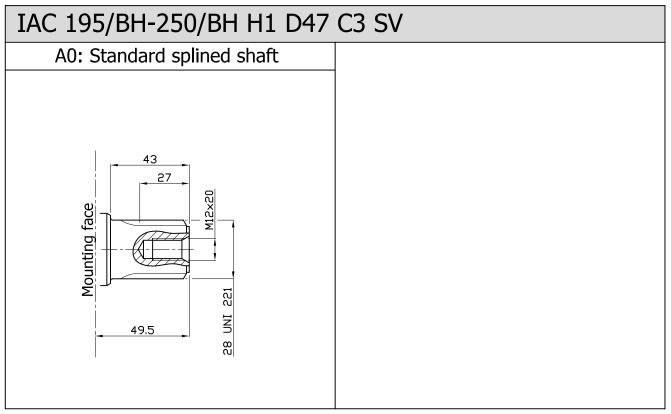




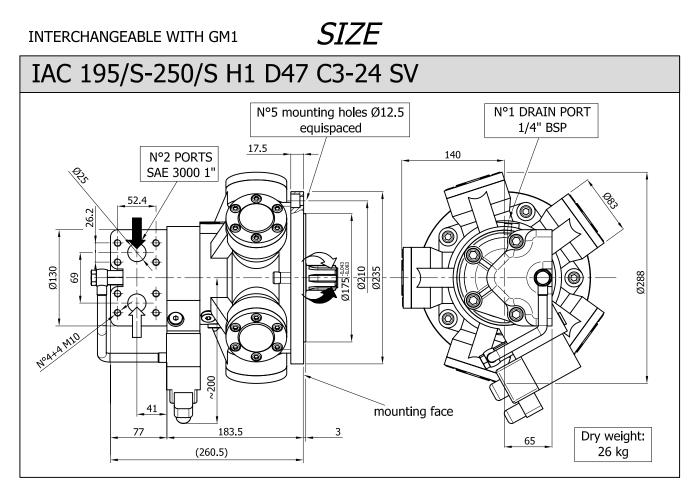


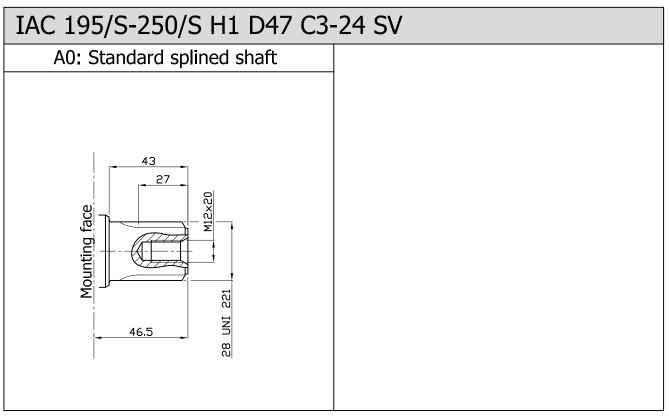


SIZE INTERCHANGEABLE WITH BH IAC 195/BH-250/BH H1 D47 C3 SV N°5 mounting holes Ø10.5 Nº1 DRAIN PORT 1/4" BSP equispaced 14.5 140 N°2 PORTS (<del>?</del>; SAE 3000 1" <del>.</del> 00; 52.4 (Ø210 Ø235 Ø130 Ø288 175 0.08 69 0 Φ 0 Nº4+4 M10 \_ 41 Cetop 3 fitting 65 mounting face 183.5 77 3 Dry weight: (260.5) 26 kg



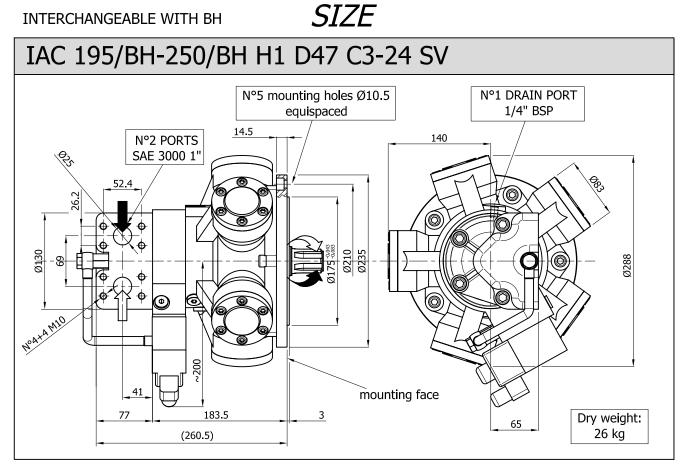


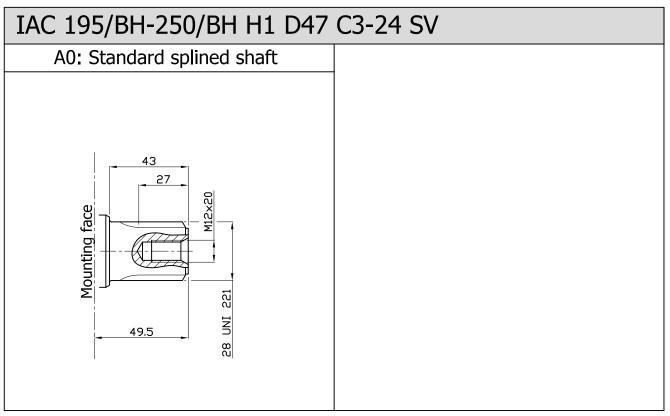






INTERCHANGEABLE WITH BH







| ORDERING INSTRUCTIC  | DNS IAC H1  |
|--|---|
| IAC /- H1 A - D S   Motor model   IAC 195   IAC 250   Motor  | V SB  |
| EST<br>EST.30<br>J TACHOMETER PREDISPOSITION<br>Cetop 3 fitting (optional, available only with D47)<br>C3 (Cetop 3 fitting)<br>C3-12 (Cetop 3 fitting, with 12V DC valve included) |   |
| C3-24(Cetop 3 fitting, with 24V DC valve included)Shuttle valve (optional)   |   |
| Spline billet (optional)<br>SB14   |   |
| Valves (optional)          RVDA         OVSA       (see valve section for details and complete ordination code)         ORVSA       RVDAP  |   |
| Special features (optional)<br>01 (Viton seals)<br>02 (Oxynit treatment on the external motor surface)<br>03 (Nitemper treatment on cylinder bores)                                | Max displacement range: 257-150 cc/Rev<br>IAC 250 H1 Min displacement range: 132-95 cc/Rev  |
|  | AC 195 H1<br>Max displacement range: 195-75 cc/Rev<br>Min displacement range: 100-69 cc/Rev<br>Different displacements on request |
| EXAMPLE: IAC.195/S.H1.A0.D47.C3-24.01.257<br>IAC.250/S.H1.A0.D40.TA.175-69<br>IAC.250/BH.H1.A0.D47.C3.03.150-  |   |



# INTERMOT DUAL DISPLACEMENT MOTORS IAC SERIES H3 MODEL

*IAC 500* 

IAC 500/B30

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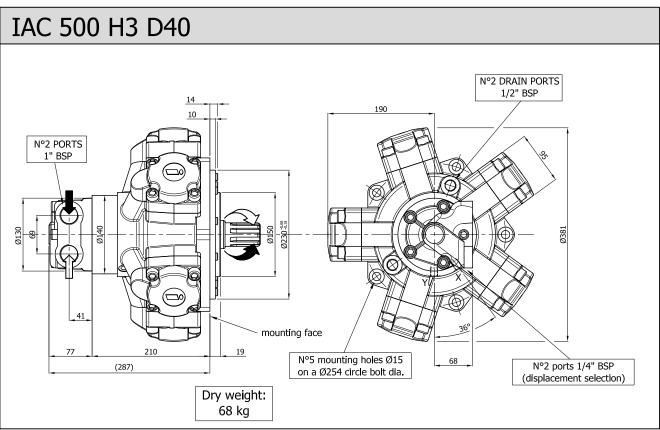
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| IAC 500 H3 D47 C3 SV        | w    | 26 |
| IAC 500/B30 H3 D47 C3 SV    | w    | 27 |
| IAC 500 H3 D47 C3-24 SV     | w    | 28 |
| IAC 500/B30 H3 D47 C3-24 SV | w    | 29 |
| ORDERING INSTRUCTIONS       | "    | 30 |

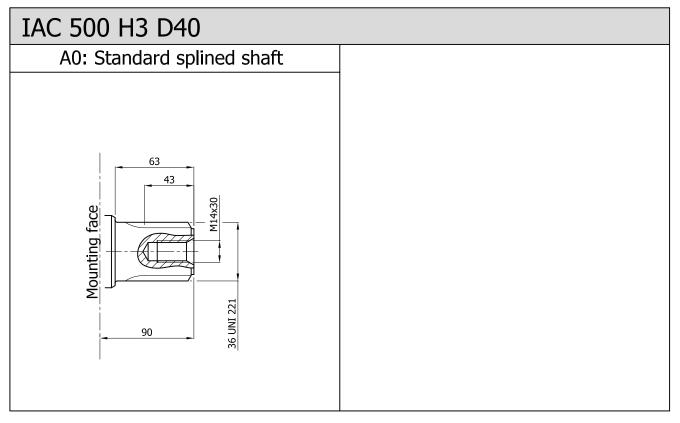
## MOTOR TECHNICAL DATA

| IAC 500 H3                           |      |     |     |      |      |      |      |     |      |
|--------------------------------------|------|-----|-----|------|------|------|------|-----|------|
| Displacement [cc/Rev]                | 492  | 442 | 393 | 344  | 292  | 255  | 197  | 147 | 98   |
| Specific theoretical torque [Nm/bar] | 7.8  | 7   | 6.3 | 5.5  | 4.7  | 4.1  | 3.1  | 2.3 | 1.6  |
| Continuous maximum speed [rpm]       | 450  | 505 | 520 | 545  | 580  | 595  | 600  | 600 | 600  |
| Minimum speed [rpm]                  | 2    | 2   | 2   | 2    | 2    | 3    | 3    | 3   | 4    |
| Mechanical efficiency [%]            | 87.5 | 86  | 85  | 83.6 | 82.4 | 82   | 80   | 78  | 73.4 |
| Starting mechanical efficiency [%]   | 82.5 | 81  | 80  | 77.2 | 74.3 | 69.6 | 62.1 | 52  | 30   |
| Continuous maximum power [kW]        | 61   | 60  | 57  | 50   | 44   | 36   | 26   | 20  | 9    |
| Intermittent maximum power [kW]      | 66   | 75  | 71  | 62.5 | 55   | 45   | 21   | 25  | 11   |
| Continuous maximum pressure [bar]    | 250  | 250 | 250 | 250  | 250  | 250  | 250  | 250 | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275 | 275 | 275  | 275  | 275  | 275  | 275 | 275  |
| Peak pressure [bar]                  | 350  | 350 | 350 | 350  | 350  | 350  | 350  | 350 | 350  |
| Recommended flushing flow [1/min]    | 10   | 10  | 10  | 10   | 10   | 10   | 10   | 10  | 10   |



SIZE



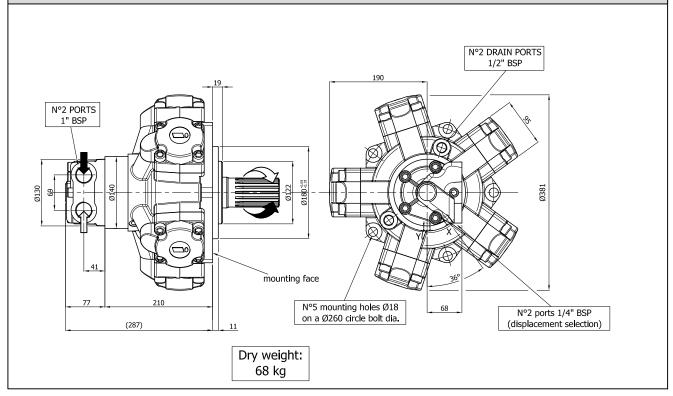


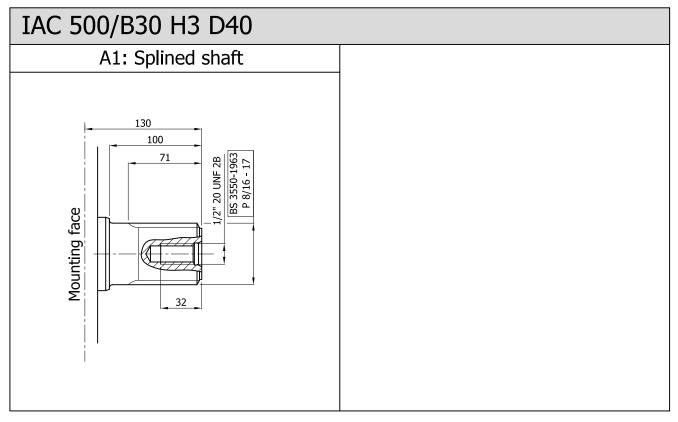


INTERCHANGEABLE WITH HMC30



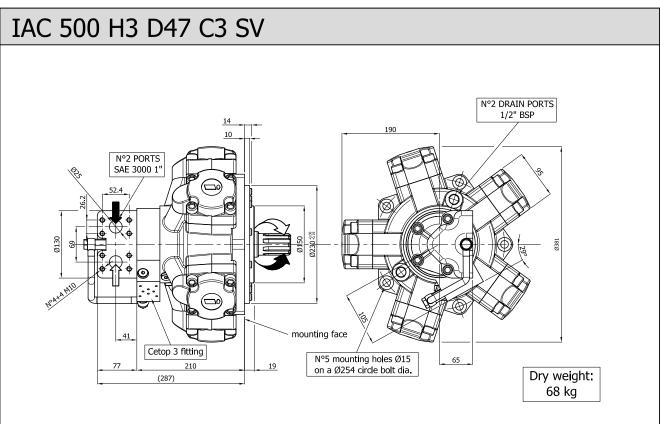
## IAC 500/B30 H3 D40

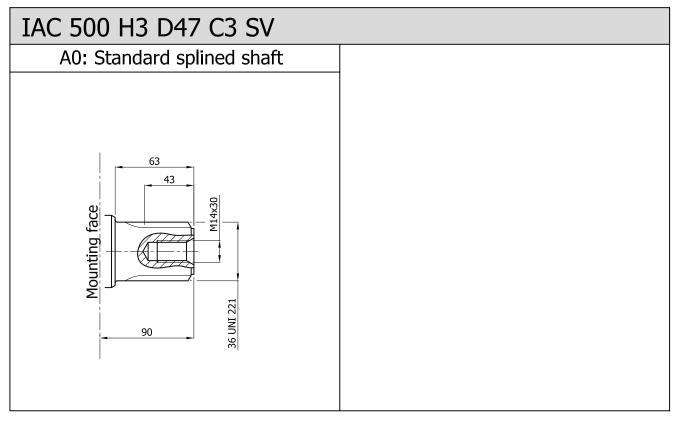






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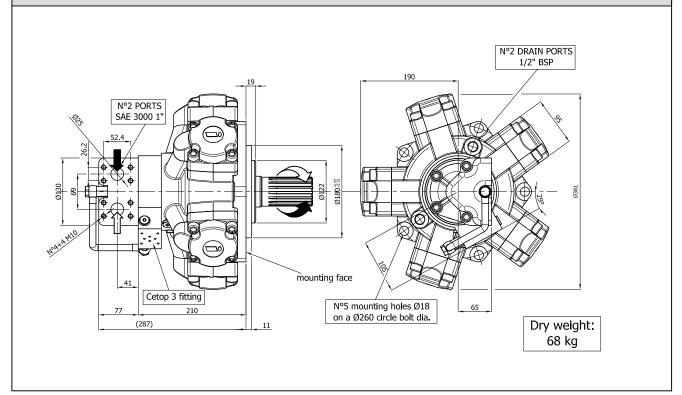




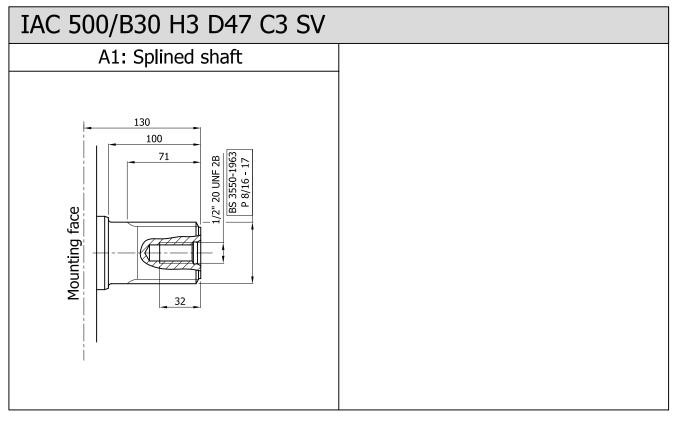


INTERCHANGEABLE WITH HMC30

## IAC 500/B30 H3 D47 C3 SV

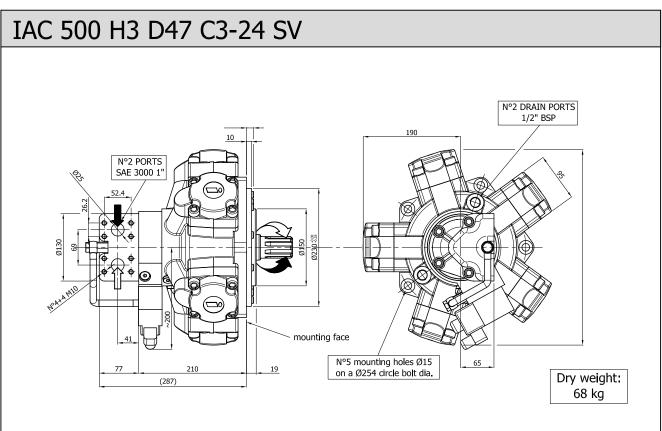


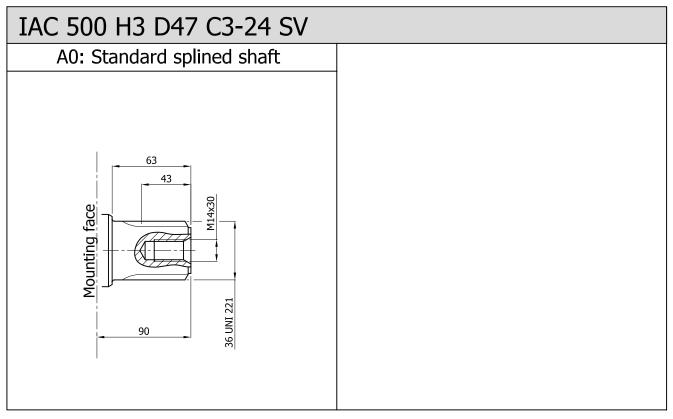
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SIZE

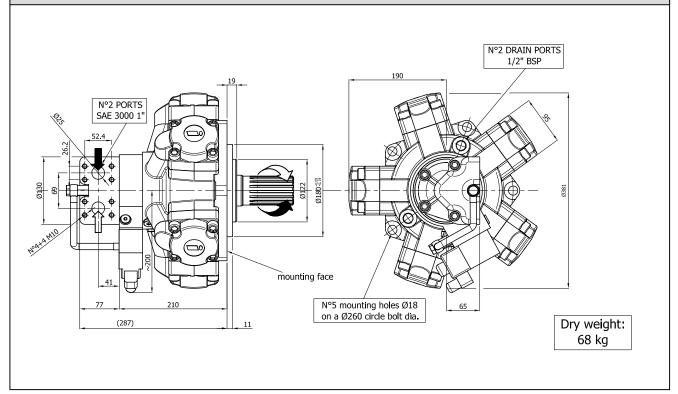




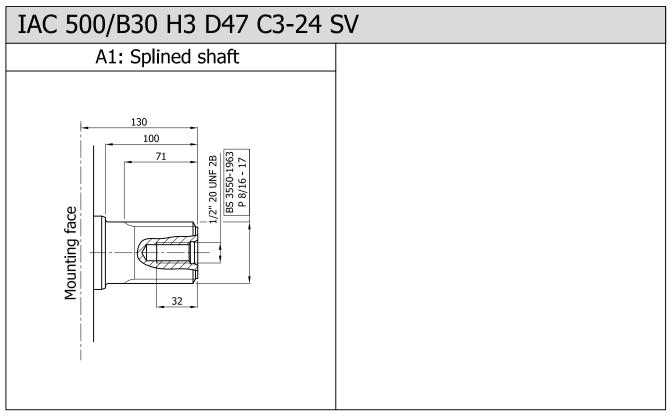


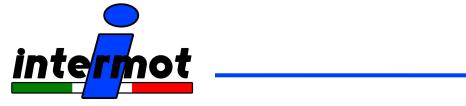
INTERCHANGEABLE WITH HMC30

## IAC 500/B30 H3 D47 C3-24 SV



SIZE





| ORDERING INSTRUCTIONS   | H3  |
|---|---|
| IAC       /-       H1       A -       D         ()         Motor model       IAC 500       Motor          | SV SB   |
| O1(Viton seals)02(Oxynit treatment on the external motor surface)03(Nitemper treatment on cylinder bores) |   |
| Displacements   | IAC 500 H3<br>Max displacement range: 492-255 cc/Rev<br>Min displacement range: 344-98 cc/Rev |
| (MAX-MIN) (MAXIMUM AND MINIMUM DISPLACEMENT OF MOTOR)   | Different displacements on request  |
| EXAMPLE: IAC.500/B30.H3.A1.D47.C3-24.0<br>IAC.500.H3.A0.D40.J.492-147<br>IAC.500/B30.H3.A1.D47.C3.393-    |   |



# INTERMOT DUAL DISPLACEMENT MOTORS IAC SERIES H4 MODEL

| IAC | 800     |
|-----|---------|
| IAC | 800/C   |
| IAC | 800/B45 |

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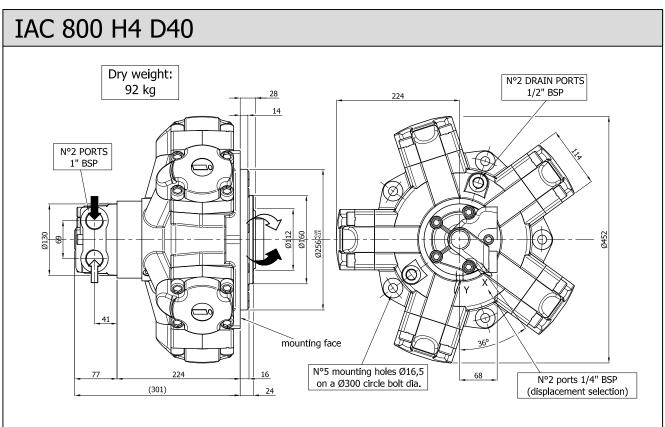
|                             | <b>D</b> = = | 22 |
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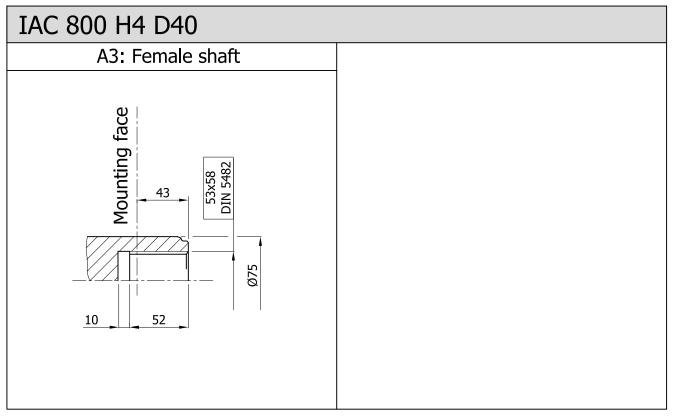
## MOTOR TECHNICAL DATA

| Displacement [cc/Rev]                | 792  | 660  | 575  | 493 | 410  | 328  | 273  | 245  | 165  |
|--------------------------------------|------|------|------|-----|------|------|------|------|------|
| Specific theoretical torque [Nm/bar] | 12.6 | 10.5 | 9.2  | 7.8 | 6.5  | 5.2  | 4.3  | 3.9  | 2.6  |
| Continuous maximum speed [rpm]       | 450  | 540  | 600  | 600 | 600  | 600  | 600  | 600  | 600  |
| Minimum speed [rpm]                  | 2    | 2    | 2    | 2   | 2    | 2    | 2    | 3    | 3    |
| Mechanical efficiency [%]            | 90.8 | 90.4 | 88.5 | 88  | 87.4 | 84.5 | 82.4 | 82   | 60.2 |
| Starting mechanical efficiency [%]   | 84.8 | 84.4 | 82.6 | 79  | 75   | 70.2 | 68.3 | 60.8 | 43.3 |
| Continuous maximum power [kW]        | 100  | 90   | 80   | 68  | 53   | 43   | 38   | 30   | 15   |
| Intermittent maximum power [kW]      | 120  | 108  | 96   | 82  | 64   | 52   | 46   | 36   | 18   |
| Continuous maximum pressure [bar]    | 250  | 250  | 250  | 250 | 250  | 250  | 250  | 250  | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275  | 275 | 275  | 275  | 275  | 275  | 275  |
| Peak pressure [bar]                  | 350  | 350  | 350  | 350 | 350  | 350  | 350  | 350  | 350  |
| Recommended flushing flow [I/min]    | 10   | 10   | 10   | 10  | 10   | 10   | 10   | 10   | 10   |



SIZE

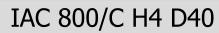


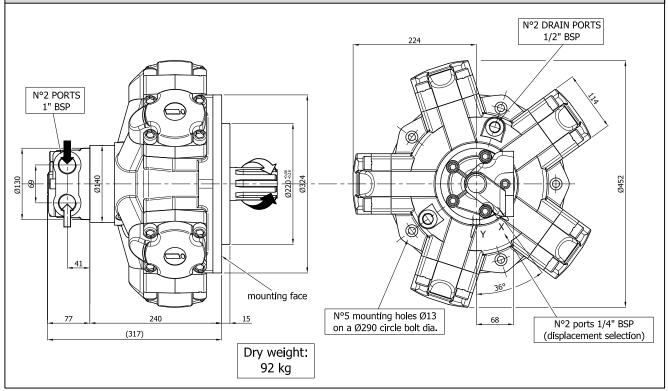


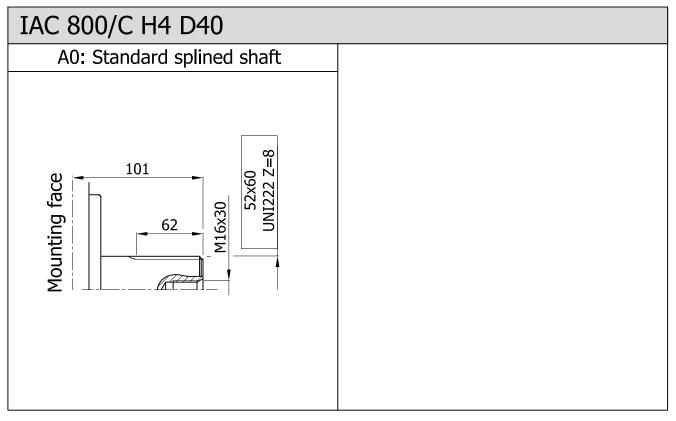


INTERCHANGEABLE WITH MRD700







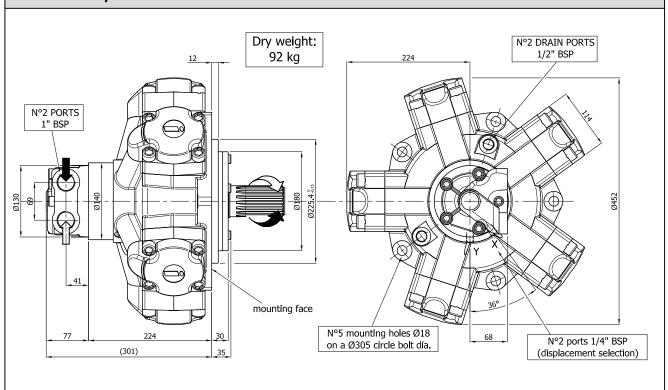


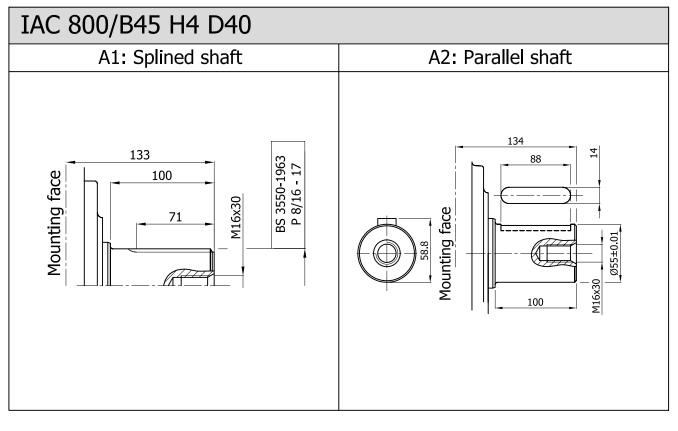


SIZE

## IAC 800/B45 H4 D40

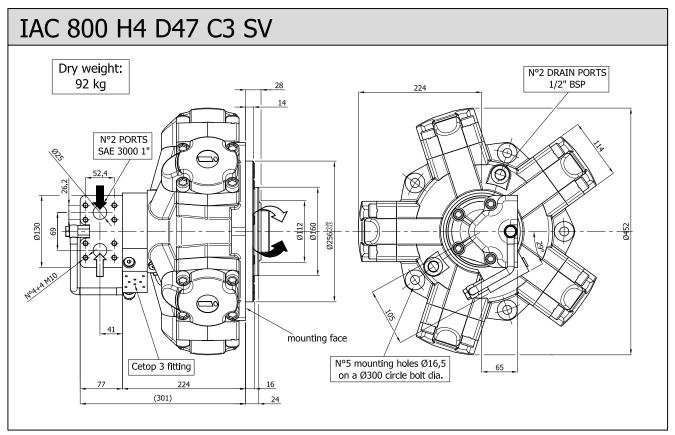
**INTERCHANGEABLE WITH HMC45** 

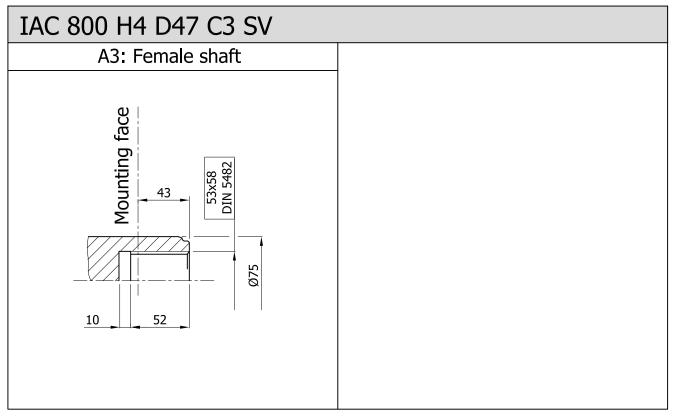






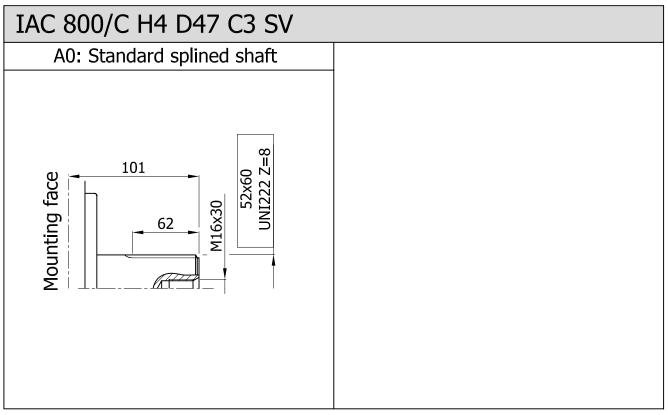
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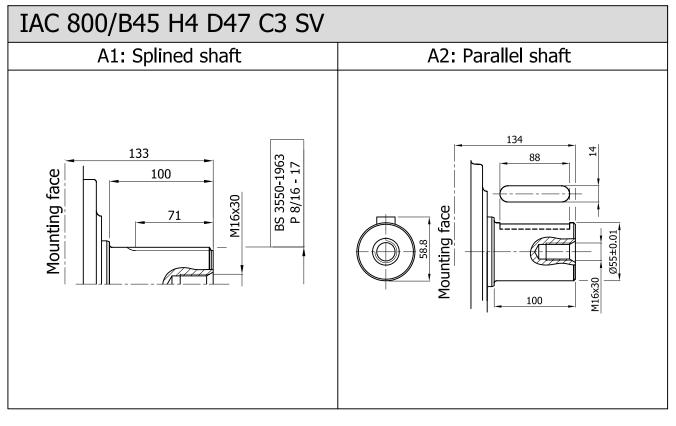


SIZE INTERCHANGEABLE WITH MRD700 IAC 800/C H4 D47 C3 SV Dry weight: N°2 DRAIN PORTS 1/2" BSP 92 kg 224 N°2 PORTS SAE 3000 1" Ø1J30 Ø324 Ø452 igodotNº4+4 M1 6 41 mounting face N°5 mounting holes Ø13 Cetop 3 fitting 65 on a Ø290 circle bolt dia. 240 15 (317)



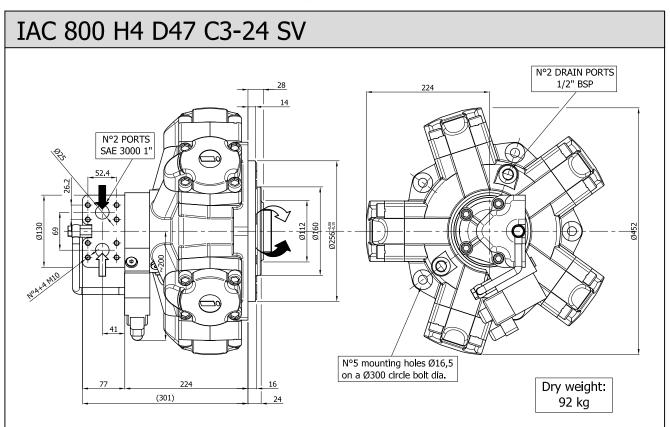


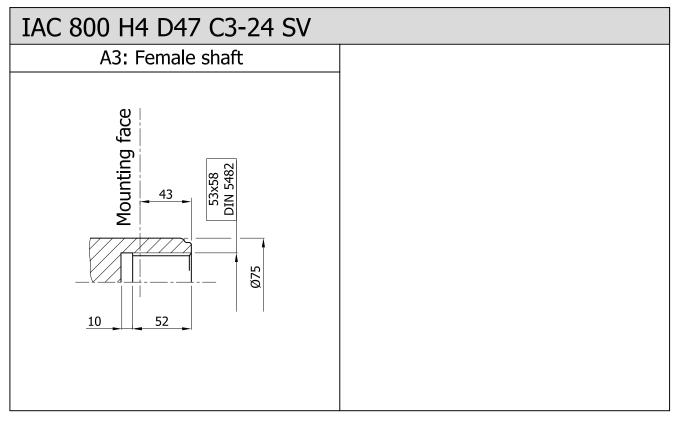
SIZE **INTERCHANGEABLE WITH HMC45** IAC 800/B45 H4 D47 C3 SV Dry weight: N°2 DRAIN PORTS 1/2" BSP 92 kg 12 224 N°2 PORTS SAE 3000 1" 66 ⊐ò Ø225 4 81 Ø130 Ø452 60 ୭ Nº4+4 M1 41 mounting face N°5 mounting holes Ø18 on a Ø305 circle bolt dia. Cetop 3 fitting 65 224 30 (301) 35





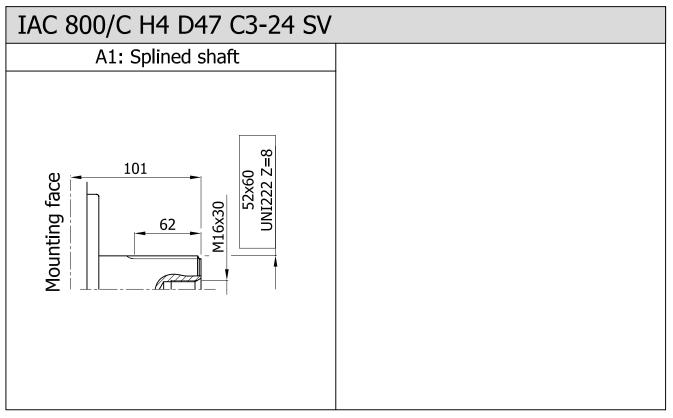
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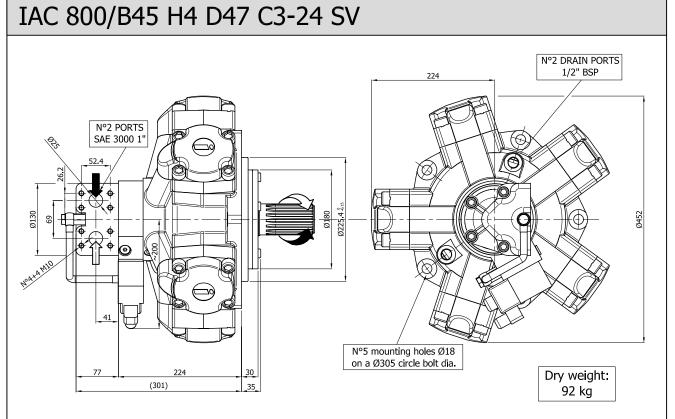


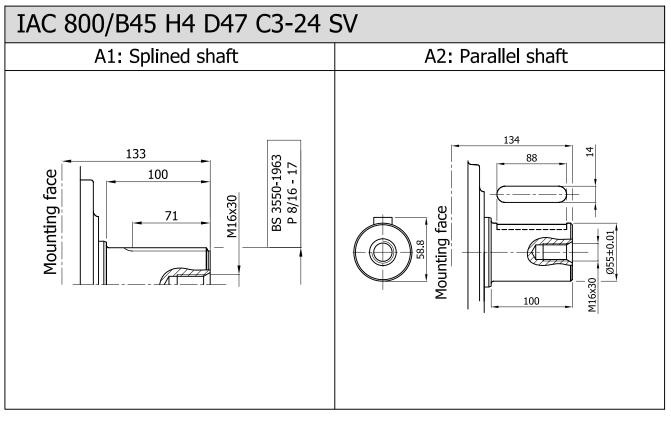
SIZE INTERCHANGEABLE WITH MRD700 IAC 800/C H4 D47 C3-24 SV N°2 DRAIN PORTS 1/2" BSP 224 N°2 PORTS SAE 3000 1" Ø130 Ø452 φ 0 Nº4+4 M10 Ø N°5 mounting holes Ø13 on a Ø290 circle bolt dia. 240 Dry weight: (317) 15 92 kg





# INTERCHANGEABLE WITH HMC45 SIZE







Η4

#### IAC - -/-(H1)(A-) (D - - ) - - -SV SB -- - -- - -- - -\_ \_ \_ \_ \_ \_ Motor model IAC 800 Motor interchangeability (**/**B45) (/C) Housing (H4) Shaft A0 splined shaft A3 female shaft A1 splined shaft A2 parallel shaft Distributor -(D40) (1" BSP) (D47) (SAE 3000 1") Tachometer (optional) TA ΤВ EST EST.30) TACHOMETER PREDISPOSITION J) Cetop 3 fitting (optional, available only with D47) (Cetop 3 fitting) **C**3 (Cetop 3 fitting, with 12V DC valve included) C3-12 C3-24 (Cetop 3 fitting, with 24V DC valve included) Shuttle valve (optional) (available only with D47 distributor) (SV) Spline billet (optional) (for A0 splined shaft) (SB16) Valves (optional) (RVDA) (OVSA) (see valve section for details and OVDA) complete ordination code) ORVSA RVDAP Special features (optional) (Viton seals) 01) 02 (Oxynit treatment on the external motor surface) 03 (Nitemper treatment on cylinder bores) Conversion flange (optional) (see conversion flanges section) (for IAC 800/C D47) (FL2) Max displacement range: 792-575 cc/Rev Displacements . IAC 800 H4 Min displacement range: 493-165 cc/Rev (MAX-MIN) (MAXIMUM AND MINIMUM DISPLACEMENT OF MOTOR) Different displacements on request IAC.800.H4.A3.D47.C3.SV.792-410 EXAMPLE:

ORDERING INSTRUCTIONS

IAC 800/B45.H4.A1.D47.C3-24.SV.792-393



# INTERMOT DUAL DISPLACEMENT MOTORS IAC SERIES H5 MODEL

*IAC 1400* 

IAC 1400/C

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|----------------------------|------|----|
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### MOTOR TECHNICAL DATA

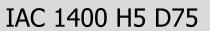
| Displacement [cc/Rev]                | 1600 | 1499 | 1393 | 1313 | 1235 | 1150 | 1070 | 980  | 900  | 820  |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Specific theoretical torque [Nm/bar] | 25,5 | 23,9 | 22,2 | 20,9 | 19,7 | 18,3 | 17   | 15,6 | 14,3 | 13   |
| Continuous maximum speed [rpm]       | 370  | 400  | 410  | 435  | 440  | 460  | 480  | 490  | 495  | 520  |
| Minimum speed [rpm]                  | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 2    |
| Mechanical efficiency [%]            | 94,2 | 94   | 93,9 | 93,7 | 93,5 | 93,4 | 93,2 | 93   | 92,6 | 92,3 |
| Starting mechanical efficiency [%]   | 88,2 | 88   | 86,5 | 85,3 | 85,1 | 82,6 | 81,3 | 79,8 | 77,9 | 76   |
| Continuous maximum power [kW]        | 139  | 138  | 135  | 128  | 127  | 124  | 119  | 115  | 110  | 105  |
| Intermittent maximum power [kW]      | 171  | 170  | 166  | 158  | 157  | 153  | 147  | 142  | 136  | 130  |
| Continuous maximum pressure [bar]    | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275  | 275  | 275  | 275  | 275  | 275  | 275  | 275  |
| Peak pressure [bar]                  | 350  | 350  | 350  | 350  | 350  | 350  | 350  | 350  | 350  | 350  |
| Recommended flushing flow [I/min]    | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   |

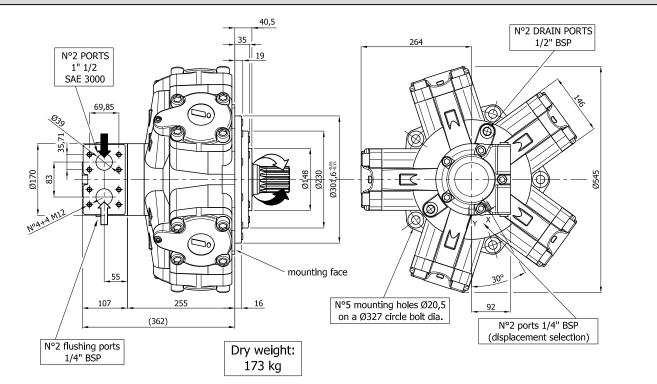
| Displacement [cc/Rev]                | 737  | 655  | 574 | 492  | 410  | 328  | 246  | 164  | 82   |
|--------------------------------------|------|------|-----|------|------|------|------|------|------|
| Specific theoretical torque [Nm/bar] | 11,7 | 10,4 | 9,1 | 7,8  | 6,5  | 5,2  | 3,9  | 2,6  | 1.3  |
| Continuous maximum speed [rpm]       | 545  | 600  | 600 | 600  | 600  | 600  | 600  | 600  | 1000 |
| Minimum speed [rpm]                  | 2    | 2    | 2   | 2    | 2    | 3    | 3    | 3    | 4    |
| Mechanical efficiency [%]            | 91   | 89,3 | 87  | 83   | 81,7 | 75,5 | 65,7 | 60,5 | 0    |
| Starting mechanical efficiency [%]   | 72,9 | 83.2 | 65  | 59,2 | 51   | 39   | 18   | 0    | 0    |
| Continuous maximum power [kW]        | 98   | 91   | 78  | 65   | 53   | 39   | 28   | 14   | 0    |
| Intermittent maximum power [kW]      | 121  | 112  | 96  | 80   | 65   | 48   | 35   | 17   | 0    |
| Continuous maximum pressure [bar]    | 250  | 250  | 250 | 250  | 250  | 250  | 250  | 250  | 17   |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275 | 275  | 275  | 275  | 275  | 275  | 17   |
| Peak pressure [bar]                  | 350  | 350  | 350 | 350  | 350  | 350  | 350  | 350  | 17   |
| Recommended flushing flow [I/min]    | 12   | 12   | 12  | 12   | 12   | 12   | 12   | 12   | 15   |

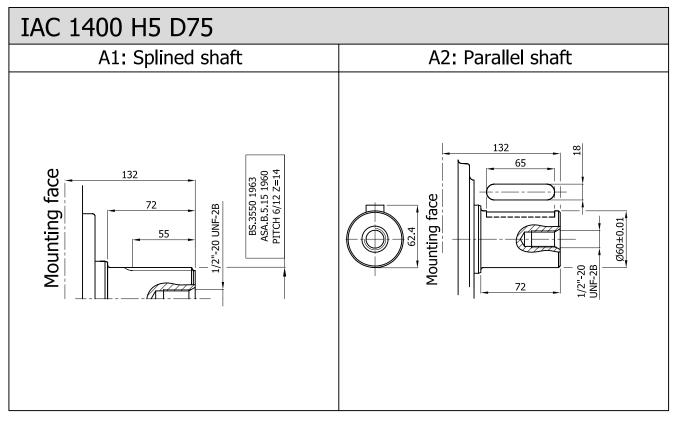


INTERCHANGEABLE WITH HMC80

SIZE





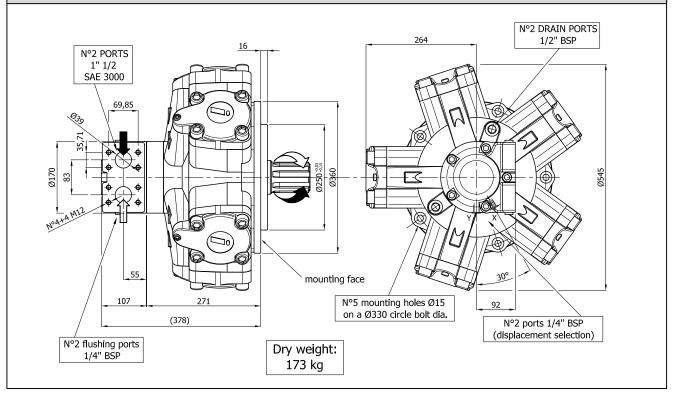


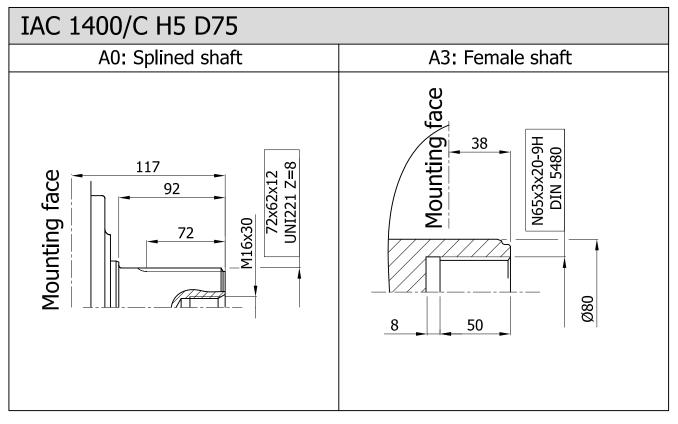


INTERCHANGEABLE WITH MRD1100

SIZE

#### IAC 1400/C H5 D75

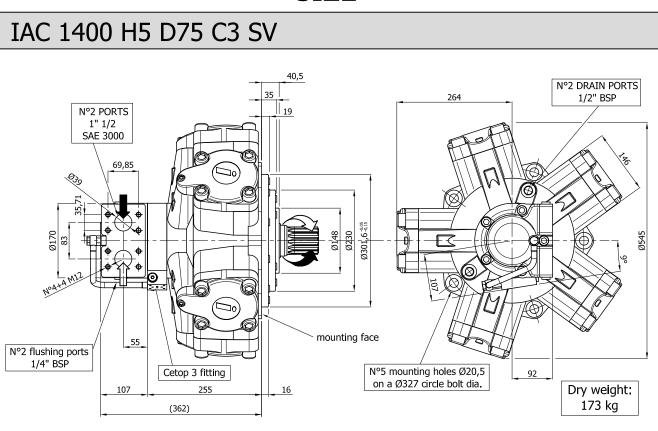


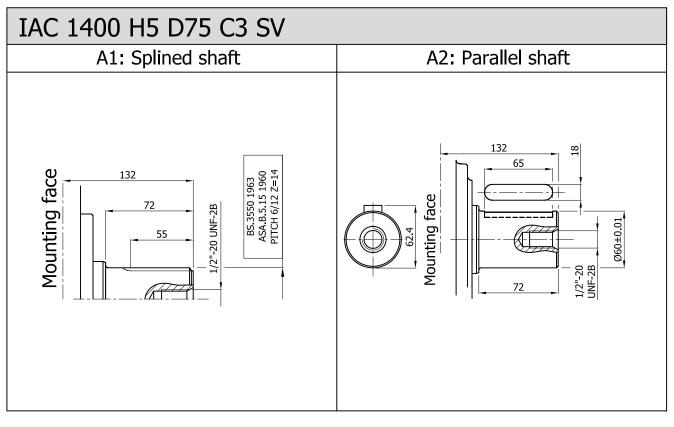




**INTERCHANGEABLE WITH HMC80** 

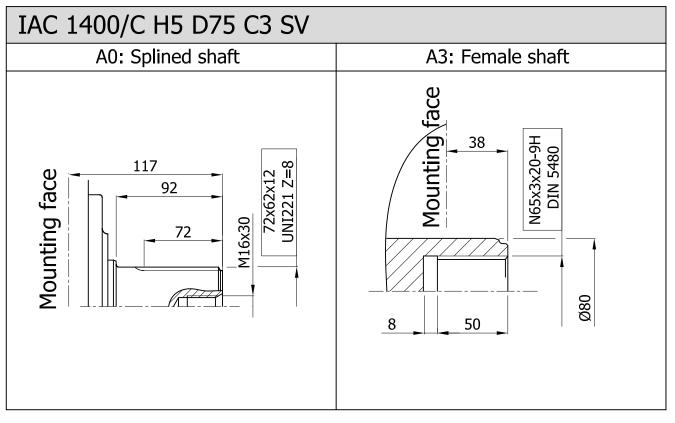
SIZE







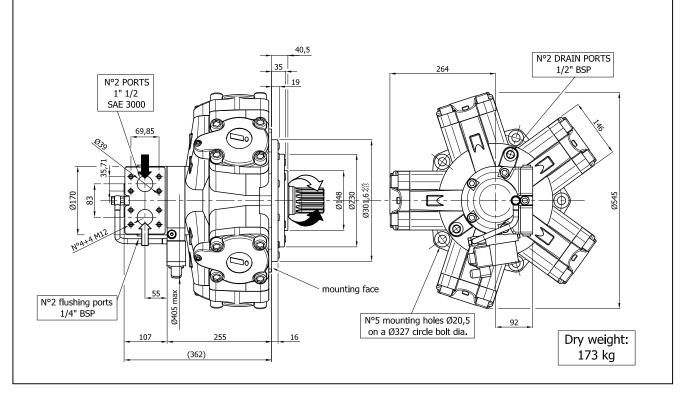
SIZE INTERCHANGEABLE WITH MRD1100 IAC 1400/C H5 D75 C3 SV N°2 DRAIN PORTS 1/2" BSP 264 16 N°2 PORTS 1" 1/2 SAE 3000 69,85 Ø545 Ø170 09E0 5 Ø Nº44 \_55 mounting face 107 271 N°5 mounting holes Ø15 92 on a Ø330 circle bolt dia. (378) Dry weight: N°2 flushing ports 1/4" BSP 173 kg

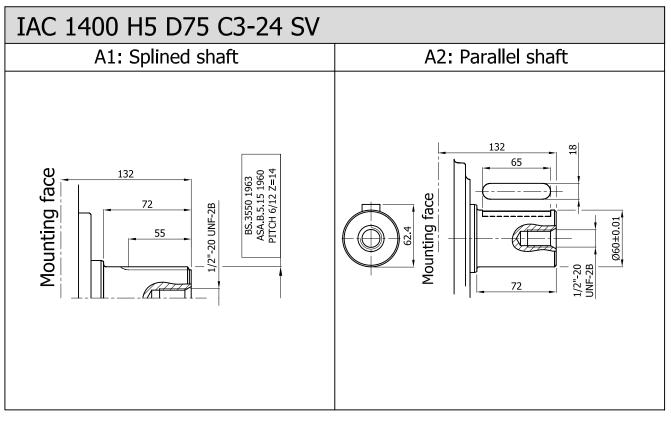




INTERCHANGEABLE WITH HMC80 SIZE

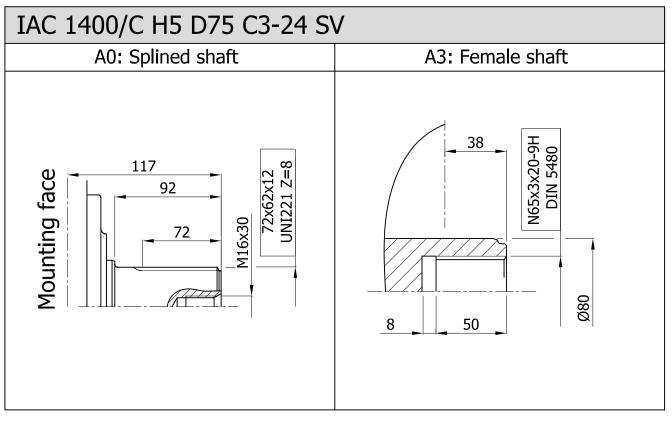








SIZE **INTERCHANGEABLE WITH MRD1100** IAC 1400/C H5 D75 C3-24 SV N°2 DRAIN PORTS 264 1/2" BSP 16 N°2 PORTS 1" 1/2 SAE 3000 69,85 Ø545 Ø170 **3360** ñ Ð ЪЮ Nº4+4 mounting face Ø405 N°5 mounting holes Ø15 92 on a Ø330 circle bolt dia. (378) Dry weight: N°2 flushing ports 1/4" BSP 173 kg





| ORDERING INSTRUCTIONS  | H5  |
|--|---|
| IAC       /-       H1       A-       D        SV         Motor model       IAC 1400       Motor  |   |
| OVSA(see valve section for details and<br>complete ordination code)ORVSARVDAP  |   |
| Special features (optional)         01       (Viton seals)         02       (Oxynit treatment on the external motor surface)         03       (Nitemper treatment on cylinder bores) |   |
| Conversion flange (optional) (see conversion flanges section)<br>FL4 (for IAC 1400/C D75)<br>FL5 (for IAC 1400 H5 D75)<br>FL6 (for IAC 1400 H5 D75)                                  | Max displacement range: 1600-746 cc/Rev<br>IAC 1400 H5 Min displacement range: 1146-82 cc/Rev |
| Displacements  | Different displacements on request  |
| EXAMPLE: IAC.1400/C.H5.A3.D75.C3.SV.1  | 393-655   |

IAC.1400.H5.A1.D75.C3.SV.1393-410



# INTERMOT DUAL DISPLACEMENT MOTORS IAC SERIES H6 MODEL

IAC 3000 H6

IAC 3000/CH6

#### **INDEX**

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| IAC 3000/C H6 D90 C3 SV  | w    | 55 |
| IAC 3000 H6 D90 C3-24 SV | w    | 56 |
| IAC 3000 H6 D90 C3-24 SV | w    | 57 |
| ORDERING INSTRUCTIONS    | w    | 58 |

### MOTOR TECHNICAL DATA

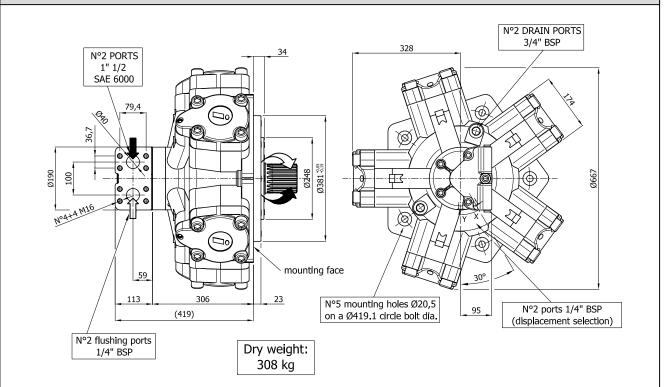
| Displacement [cc/Rev]                | 3085 | 2950 | 2790 | 2620 | 2460 | 2290 | 2130 | 1970 | 1800 |
|--------------------------------------|------|------|------|------|------|------|------|------|------|
| Specific theoretical torque [Nm/bar] | 49,1 | 47   | 44,4 | 41,7 | 39,2 | 36,5 | 33,9 | 31,4 | 28,7 |
| Continuous maximum speed [rpm]       | 235  | 240  | 245  | 250  | 250  | 265  | 285  | 305  | 340  |
| Minimum speed [rpm]                  | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
| Mechanical efficiency [%]            | 95   | 94,5 | 94,2 | 94   | 93,7 | 93,5 | 92,8 | 92,3 | 92   |
| Starting mechanical efficiency [%]   | 86   | 85,4 | 84,4 | 83,6 | 82,4 | 82   | 80,2 | 78   | 76   |
| Continuous maximum power [kW]        | 175  | 175  | 175  | 165  | 155  | 150  | 140  | 130  | 122  |
| Intermittent maximum power [kW]      | 196  | 196  | 196  | 185  | 174  | 168  | 157  | 146  | 137  |
| Continuous maximum pressure [bar]    | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275  | 275  | 275  | 275  | 275  | 275  | 275  |
| Peak pressure [bar]                  | 350  | 350  | 350  | 350  | 350  | 350  | 350  | 350  | 350  |
| Recommended flushing flow [I/min]    | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   |

| Displacement [cc/Rev]                | 1640 | 1470 | 1310 | 1150 | 980  | 820  | 670  | 490 | 330  |
|--------------------------------------|------|------|------|------|------|------|------|-----|------|
| Specific theoretical torque [Nm/bar] | 26,1 | 23,4 | 20,9 | 18,3 | 15,6 | 13,1 | 10,7 | 7,8 | 5,2  |
| Continuous maximum speed [rpm]       | 370  | 400  | 425  | 455  | 490  | 520  | 600  | 600 | 600  |
| Minimum speed [rpm]                  | 1    | 1    | 1    | 1    | 1    | 2    | 2    | 2   | 3    |
| Mechanical efficiency [%]            | 91   | 90,5 | 88   | 86,2 | 82,3 | 81,7 | 78   | 76  | 73,2 |
| Starting mechanical efficiency [%]   | 73   | 70   | 66,4 | 62   | 55,4 | 46,3 | 33   | 0   | 0    |
| Continuous maximum power [kW]        | 115  | 106  | 100  | 89   | 81   | 73   | 62   | 49  | 25   |
| Intermittent maximum power [kW]      | 129  | 119  | 112  | 100  | 91   | 82   | 70   | 55  | 35   |
| Continuous maximum pressure [bar]    | 250  | 250  | 250  | 250  | 250  | 250  | 250  | 250 | 250  |
| Intermittent maximum pressure [bar]  | 275  | 275  | 275  | 275  | 275  | 275  | 275  | 275 | 275  |
| Peak pressure [bar]                  | 350  | 350  | 350  | 350  | 350  | 350  | 350  | 350 | 350  |
| Recommended flushing flow [I/min]    | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12  | 12   |

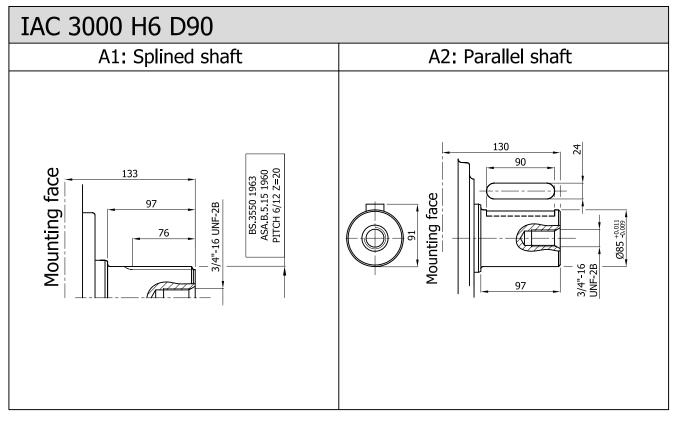


INTERCHANGEABLE WITH HMC200





SIZE

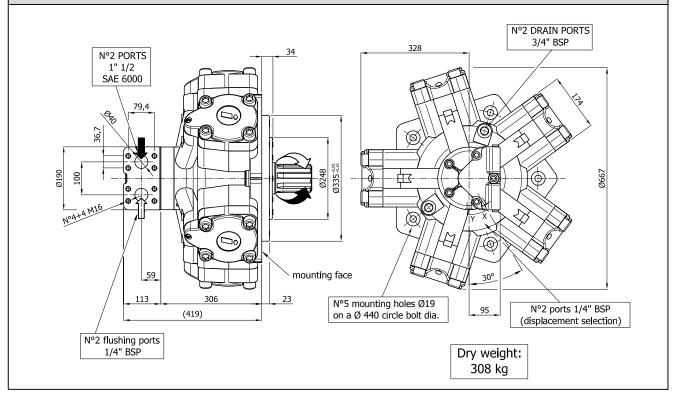


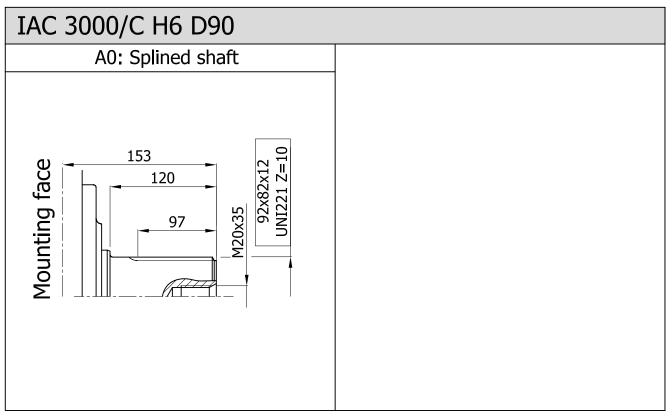


INTERCHANGEABLE WITH MRD2800

SIZE

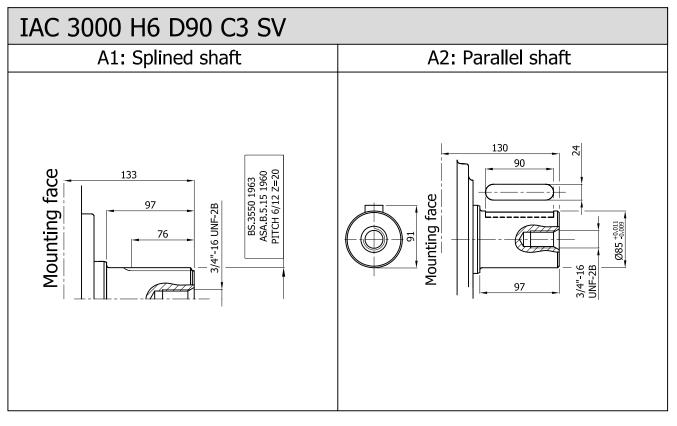
#### IAC 3000/C H6 D90





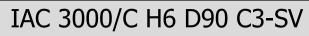


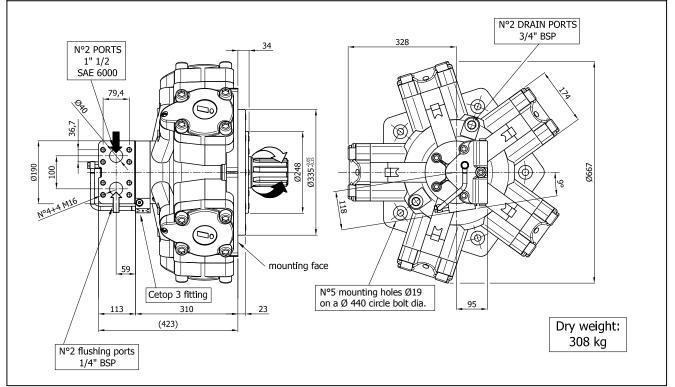
SIZE INTERCHANGEABLE WITH HMC200 IAC 3000 H6 D90 C3 SV N°2 DRAIN PORTS 3/4" BSP 328 34 N°2 PORTS 1" 1/2 SAE 6000 79,4 60 36,7 Œ Ø Ø381 -0.15 Q Ø190 0248 Ø667 100 ₽₽ ſŧ ¢ e Ð Nº4+4 M1  $(\otimes)$ ര Q  $(\Box)$ æ mounting face 59 N°5 mounting holes Ø20,5 on a Ø419.1 circle bolt dia. Cetop 3 fitting 95 310 23 113 (423) Dry weight: 308 kg N°2 flushing ports 1/4" BSP

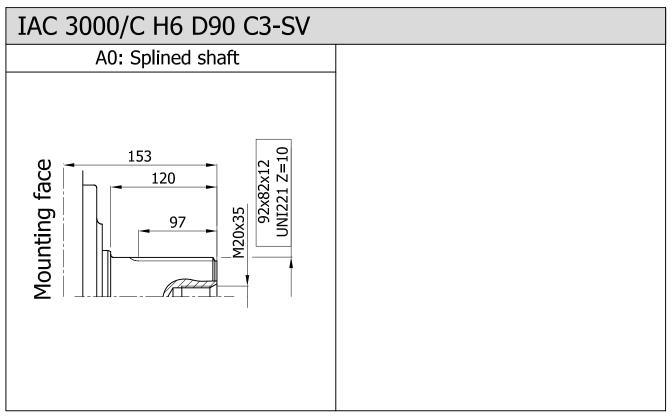




INTERCHANGEABLE WITH MRD2800 SIZE

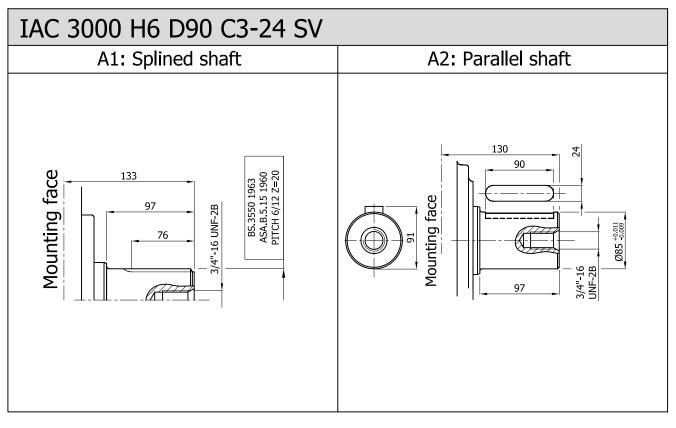








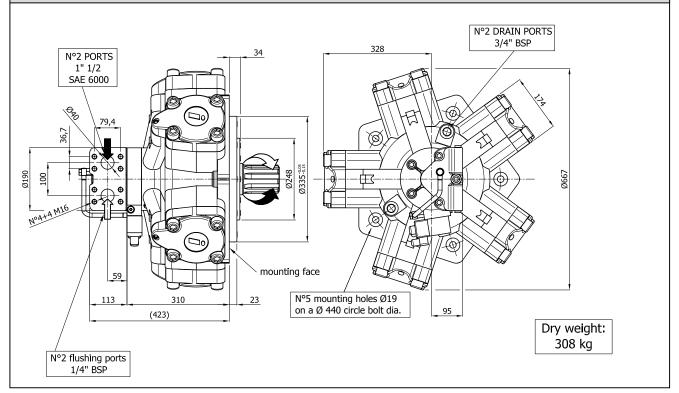
SIZE INTERCHANGEABLE WITH HMC200 IAC 3000 H6 D90 C3-24 SV N°2 DRAIN PORTS 3/4" BSP 328 N°2 PORTS 1" 1/2 SAE 6000 34  $\mathbf{\hat{\Box}}_{0}$ 6 36,7 Ø Ø381 <sup>0.05</sup> 0 Ø190 Ø248 Ø667 100 Ó +₹ 0 • Nº4+4 M16 R Q  $\supset 0$ Ð mounting face 59 N°5 mounting holes Ø20,5 113 310 23 on a Ø419.1 circle bolt dia. 95 (423) Dry weight: 308 kg N°2 flushing ports 1/4" BSP



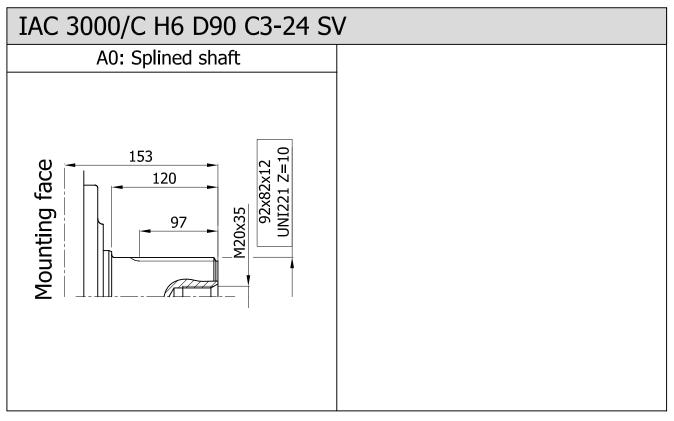


INTERCHANGEABLE WITH MRD2800

# IAC 3000/C H6 D90 C3-24 SV



SIZE





| IAC       /+       H1       A-       D-        SV       SB-            Motor model<br>IAC 3000       A       A       SUB  | ORDERING INSTRUCTIONS   | IAC H6                             |
|---|---|------------------------------------|
| Spline billet (optional) SB9 (for A0 splined shaft) SB10 (for A1 splined shaft) Valves (optional) RVDA OVSA (see valve section for details and OVDA complete ordination code) ORVSA RVDAP Special features (optional) 01 (Viton seals) 02 (Oxynit treatment on the external motor surface) 03 (Nitemper treatment on cylinder bores) Conversion flange (optional) (see conversion flanges section) FL7 (for IAC 3000 H6 D90) Displacements MAX-MIN (MAXIMUM AND MINIMUM DISPLACEMENT OF MOTOR) Active Active Active Active Conversion flange: 2290-330 cc/Rev | Motor model<br>IAC 3000<br>Motor  | ) SB                               |
| Special features (optional)       01       (Viton seals)         01       (Viton seals)       02         02       (Oxynit treatment on the external motor surface)       03         03       (Nitemper treatment on cylinder bores)         Conversion flange (optional)       (see conversion flanges section)         FL7       (for IAC 3000 H6 D90)         Displacements       IAC 3000 H6         MAX-MIN       (MAXIMUM AND MINIMUM DISPLACEMENT OF MOTOR)   | Spline billet (optional)<br>SB9 (for A0 splined shaft)<br>SB10 (for A1 splined shaft)<br>Valves (optional)<br>RVDA<br>OVSA (see valve section for details and complete ordination code) |                                    |
| (FL7)       (for IAC 3000 H6 D90)         Displacements   | Special features (optional)<br>01 (Viton seals)<br>02 (Oxynit treatment on the external motor surface)  |                                    |
| (MAX-MIN)       (MAXIMUM AND MINIMUM DISPLACEMENT OF MOTOR)       IAC 3000 H6       Min displacement range: 2290-330 cc/Rev   | (FL7) (for IAC 3000 H6 D90)   |                                    |
| Different displacements on request  | ·   |                                    |
|   |   | Different displacements on request |

IAC.3000/C.H6.A0.D90.J.C3.SV.2290-1150



# INTERMOT DUAL DISPLACEMENT MOTORS IAC SERIES H7 MODEL

IAC 4600 H7

IAC 5400 H7

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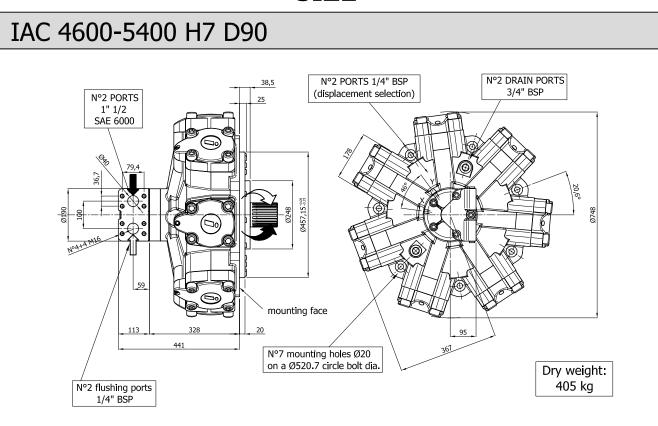
| IAC 4600-5400 H7 D90          | Pag. | 60 |  |
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| IAC 4600-5400 H7 D90 C3 SV    | w    | 61 |  |
| IAC 4600-5400 H7 D90 C3-24 SV | w    | 62 |  |
| ORDERING INSTRUCTIONS         | w    | 63 |  |

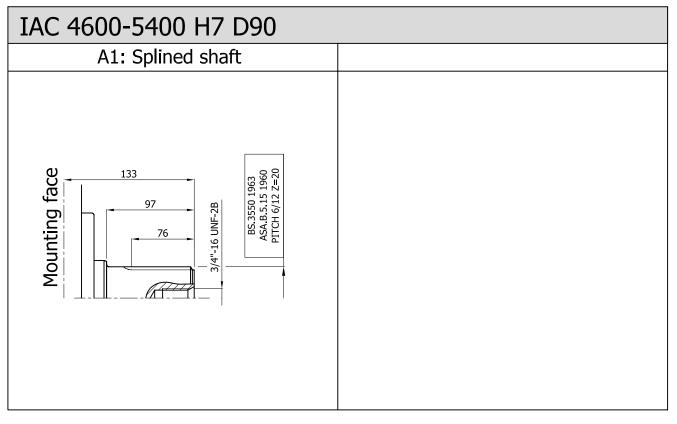
| Displacement [cc/Rev]   | 4617  | 4177  | 3650  | 3280   | 2950  | 2620  | 2290  | 1970                                     | 1640 |
|---|---|---|---|--|---|---|---|--|------|
| Specific theoretical torque [Nm/bar]  | 73,5  | 66,5  | 58,1  | 52,2   | 47  | 41,7  | 36,5  | 31,4                                     | 26,1 |
| Continuous maximum speed [rpm]  | 150   | 158   | 168   | 175  | 210   | 235   | 275   | 305                                      | 380  |
| Minimum speed [rpm]   | 1   | 1   | 1   | 1  | 1   | 1   | 1   | 1  | 1    |
| Mechanical efficiency [%]   | 95,3  | 95.1  | 94,5  | 94,4   | 93,3  | 92,4  | 91,5  | 90,1                                     | 86,5 |
| Starting mechanical efficiency [%]  | 85,1  | 84  | 83,3  | 82,5   | 81,2  | 80,1  | 78  | 75,2                                     | 72,4 |
| Continuous maximum power [kW]   | 190   | 180   | 165   | 150  | 140   | 129   | 115   | 104                                      | 88   |
| Intermittent maximum power [kW]   | 213   | 202   | 185   | 169  | 157   | 145   | 129   | 122                                      | 110  |
| Continuous maximum pressure [bar]   | 250   | 250   | 250   | 250  | 250   | 250   | 250   | 250                                      | 250  |
| Intermittent maximum pressure [bar]   | 275   | 275   | 275   | 275  | 275   | 275   | 275   | 275                                      | 275  |
| Peak pressure [bar]   | 350   | 350   | 350   | 350  | 350   | 350   | 350   | 350                                      | 350  |
| Recommended flushing flow [l/min]   | 12  | 12  | 12  | 12   | 12  | 12  | 12  | 12                                       | 12   |
|   |   |   |   |  |   |   |   |  |      |
| Displacement [cc/Rev]   | 1310  | 980   | 655   | 492  | 328   | 164   | 82  | 0  |      |
| Displacement [cc/Rev]<br>Specific theoretical torque [Nm/bar]   | <b>1310</b><br>20,9                               | <b>980</b><br>15,6                                | <b>655</b><br>10,4                                | <b>492</b><br>7.8                                | <b>328</b><br>5.2                               | <b>164</b><br>2.6                           | <b>82</b><br>0                                | <b>0</b><br>0                            |      |
|   |   |   |   | -  |   |   | -   | -  |      |
| Specific theoretical torque [Nm/bar]  | 20,9  | 15,6  | 10,4  | 7.8  | 5.2   | 2.6   | 0   | 0  |      |
| Specific theoretical torque [Nm/bar]<br>Continuous maximum speed [rpm]  | 20,9  | 15,6  | 10,4<br>495                                       | 7.8<br>520                                       | 5.2<br>550                                      | 2.6<br>1000                                 | 0<br>1000                                     | 0 1000                                   |      |
| Specific theoretical torque [Nm/bar]<br>Continuous maximum speed [rpm]<br>Minimum speed [rpm]   | 20,9<br>435<br>1                                  | 15,6<br>460<br>1                                  | 10,4<br>495<br>2                                  | 7.8<br>520<br>2                                  | 5.2<br>550<br>3                                 | 2.6<br>1000<br>3                            | 0<br>1000<br>4                                | 0<br>1000<br>0                           |      |
| Specific theoretical torque [Nm/bar]<br>Continuous maximum speed [rpm]<br>Minimum speed [rpm]<br>Mechanical efficiency [%]  | 20,9<br>435<br>1<br>83                            | 15,6<br>460<br>1<br>78,4                          | 10,4<br>495<br>2<br>76,2                          | 7.8<br>520<br>2<br>66                            | 5.2<br>550<br>3<br>46,4                         | 2.6<br>1000<br>3<br>0                       | 0<br>1000<br>4<br>0                           | 0<br>1000<br>0<br>0                      |      |
| Specific theoretical torque [Nm/bar]<br>Continuous maximum speed [rpm]<br>Minimum speed [rpm]<br>Mechanical efficiency [%]<br>Starting mechanical efficiency [%]  | 20,9<br>435<br>1<br>83<br>67,2                    | 15,6<br>460<br>1<br>78,4<br>58                    | 10,4<br>495<br>2<br>76,2<br>41                    | 7.8<br>520<br>2<br>66<br>23,7                    | 5.2<br>550<br>3<br>46,4<br>0                    | 2.6<br>1000<br>3<br>0<br>0                  | 0<br>1000<br>4<br>0<br>0                      | 0<br>1000<br>0<br>0<br>0                 |      |
| Specific theoretical torque [Nm/bar]<br>Continuous maximum speed [rpm]<br>Minimum speed [rpm]<br>Mechanical efficiency [%]<br>Starting mechanical efficiency [%]<br>Continuous maximum power [kW]   | 20,9<br>435<br>1<br>83<br>67,2<br>73              | 15,6<br>460<br>1<br>78,4<br>58<br>56              | 10,4<br>495<br>2<br>76,2<br>41<br>38              | 7.8<br>520<br>2<br>66<br>23,7<br>27              | 5.2<br>550<br>3<br>46,4<br>0<br>15              | 2.6<br>1000<br>3<br>0<br>0<br>0             | 0<br>1000<br>4<br>0<br>0<br>0                 | 0<br>1000<br>0<br>0<br>0<br>0            |      |
| Specific theoretical torque [Nm/bar]<br>Continuous maximum speed [rpm]<br>Minimum speed [rpm]<br>Mechanical efficiency [%]<br>Starting mechanical efficiency [%]<br>Continuous maximum power [kW]<br>Intermittent maximum power [kW]                                      | 20,9<br>435<br>1<br>83<br>67,2<br>73<br>96        | 15,6<br>460<br>1<br>78,4<br>58<br>56<br>80        | 10,4<br>495<br>2<br>76,2<br>41<br>38<br>56        | 7.8<br>520<br>2<br>66<br>23,7<br>27<br>39        | 5.2<br>550<br>3<br>46,4<br>0<br>15<br>20        | 2.6<br>1000<br>3<br>0<br>0<br>0<br>0<br>0   | 0<br>1000<br>4<br>0<br>0<br>0<br>0<br>0       | 0<br>1000<br>0<br>0<br>0<br>0<br>0<br>0  |      |
| Specific theoretical torque [Nm/bar]<br>Continuous maximum speed [rpm]<br>Minimum speed [rpm]<br>Mechanical efficiency [%]<br>Starting mechanical efficiency [%]<br>Continuous maximum power [kW]<br>Intermittent maximum power [kW]<br>Continuous maximum pressure [bar] | 20,9<br>435<br>1<br>83<br>67,2<br>73<br>96<br>250 | 15,6<br>460<br>1<br>78,4<br>58<br>56<br>80<br>250 | 10,4<br>495<br>2<br>76,2<br>41<br>38<br>56<br>250 | 7.8<br>520<br>2<br>66<br>23,7<br>27<br>39<br>250 | 5.2<br>550<br>3<br>46,4<br>0<br>15<br>20<br>250 | 2.6<br>1000<br>3<br>0<br>0<br>0<br>0<br>250 | 0<br>1000<br>4<br>0<br>0<br>0<br>0<br>0<br>17 | 0<br>1000<br>0<br>0<br>0<br>0<br>0<br>17 |      |

| Displacement [cc/Rev]  | 5326       | 5080 | 4915 | 4588       | 4097       | 3650 | 3280       | 2950 | 2620 | 2295 |
|--|------------|------|------|------------|------------|------|------------|------|------|------|
| Specific theoretical torque [Nm/bar]                                 | 84,8       | 80,9 | 78,2 | 73         | 65,2       | 58,1 | 52,2       | 47   | 41,7 | 36,5 |
| Continuous maximum speed [rpm]                                       | 130        | 135  | 140  | 150        | 160        | 170  | 190        | 215  | 230  | 280  |
| Minimum speed [rpm]  | 1          | 1    | 1    | 1          | 1          | 1    | 1          | 1    | 1    | 1    |
| Mechanical efficiency [%]  | 95,2       | 95   | 95   | 95         | 95         | 94,4 | 94,3       | 93,2 | 92   | 91,5 |
| Starting mechanical efficiency [%]                                   | 86         | 85,8 | 85,8 | 85,4       | 85,2       | 83   | 82,2       | 82   | 79,8 | 77,7 |
| Continuous maximum power [kW]  | 190        | 190  | 190  | 190        | 178        | 162  | 152        | 140  | 130  | 120  |
| Intermittent maximum power [kW]                                      | 216        | 216  | 216  | 216        | 200        | 182  | 170        | 160  | 145  | 135  |
| Continuous maximum pressure [bar]                                    | 250        | 250  | 250  | 250        | 250        | 250  | 250        | 250  | 250  | 250  |
| Intermittent maximum pressure [bar]                                  | 275        | 275  | 275  | 275        | 275        | 275  | 275        | 275  | 275  | 275  |
| Peak pressure [bar]  | 350        | 350  | 350  | 350        | 350        | 350  | 350        | 350  | 350  | 350  |
| Recommended flushing flow [l/min]                                    | 12         | 12   | 12   | 12         | 12         | 12   | 12         | 12   | 12   | 12   |
| Displacement [cc/Rev]  | 1970       | 1640 | 1560 | 1311       | 980        | 655  | 492        | 328  | 164  | 0    |
| Specific theoretical torque [Nm/bar]                                 | 31,4       | 26,1 | 24,8 | 20,9       | 15,6       | 10,4 | 7,8        | 5,2  | 2,6  | 0    |
| Continuous maximum speed [rpm]                                       | 335        | 375  | 410  | 445        | 470        | 500  | 520        | 550  | 1000 | 1000 |
| Minimum speed [rpm]  | 1          | 1    | 1    | 1          | 1          | 2    | 2          | 3    | 3    | 0    |
| Mechanical efficiency [%]  | 90         | 86   | 84,5 | 82,3       | 78,3       | 76,2 | 66,2       | 46,5 | 0    | 0    |
| Starting mechanical efficiency [%]                                   | 75,3       | 72,1 | 71,3 | 67         | 58         | 41   | 24         | 0    | 0    | 0    |
| Continuous maximum power [kW]  | 105        | 90   | 85   | 75         | 58         | 40   | 26         | 15   | 0    | 0    |
|  | 120        | 110  | 102  | 98         | 82         | 56   | 40         | 20   | 0    | 0    |
| Intermittent maximum power [kW]                                      | 120        | 110  |      |            |            |      |            |      |      |      |
| Intermittent maximum power [kW]<br>Continuous maximum pressure [bar] | 120<br>250 | 250  | 250  | 250        | 250        | 250  | 250        | 250  | 17   | 17   |
|  |            |      |      | 250<br>275 | 250<br>275 | 275  | 250<br>275 | 275  | 17   | 17   |
| Continuous maximum pressure [bar]                                    | 250        | 250  | 250  |            |            |      |            |      |      |      |



INTERCHANGEABLE WITH HMC270 SIZE

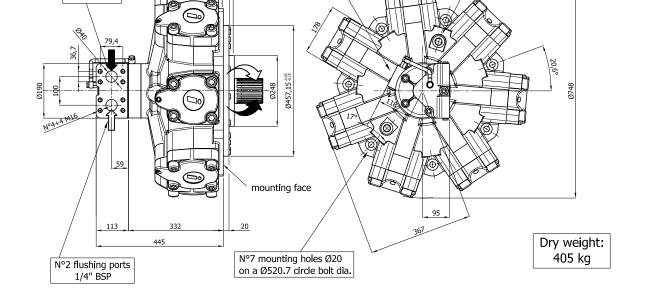




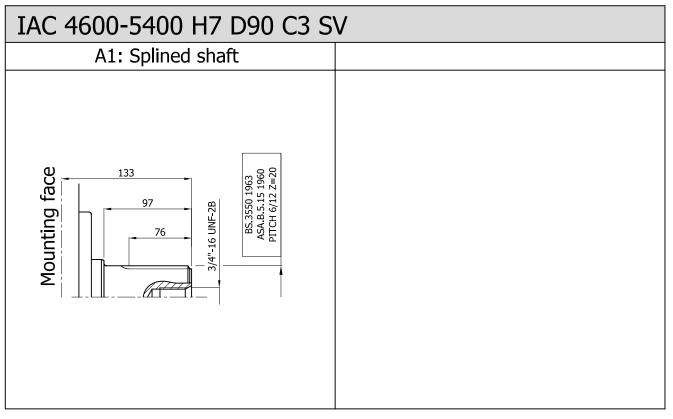


INTERCHANGEABLE WITH HMC270

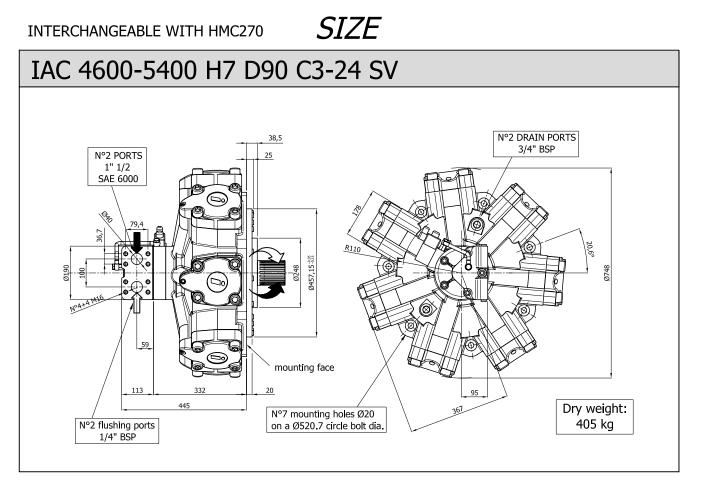


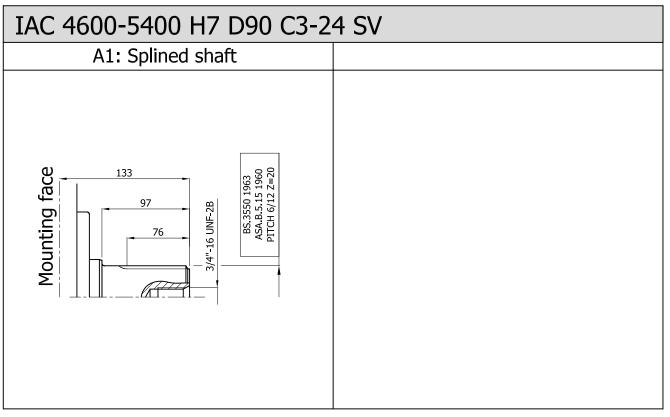


SIZE











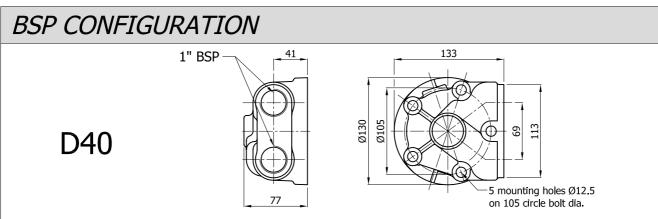
# ORDERING INSTRUCTIONS IAC H7

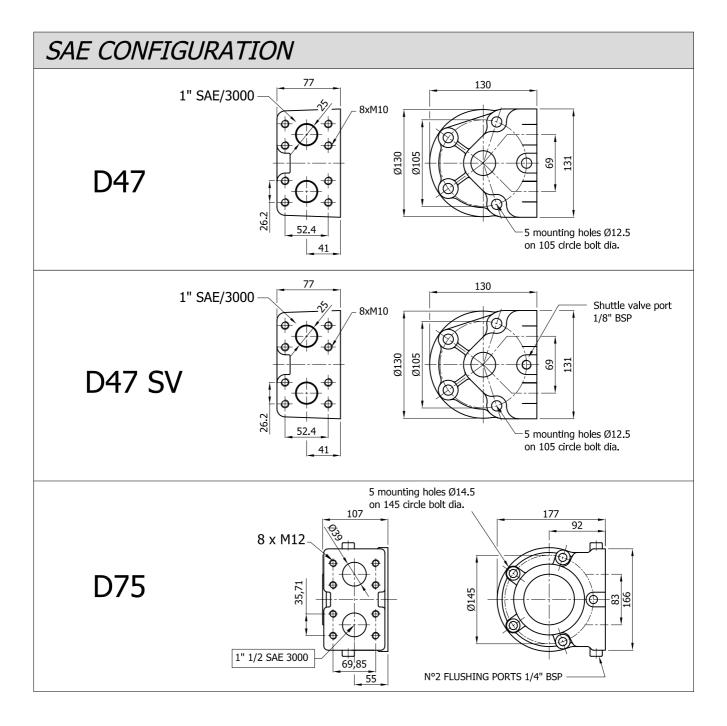
| [AC H1] (A - D SV (SB  |
|--|
|  |
| Motor model     IAC 4600       IAC 5400     IAC 5400   |
| Housing (H7)<br>Shaft<br>(A1) splined shaft  |
| Distributor  |
| D90) (SAE 6000 1" 1/2)   |
| Tachometer (optional)  |
| TA<br>TB<br>EST<br>EST.30<br>J TACHOMETER PREDISPOSITION   |
| Cetop 3 fitting (optional)   |
| C3       (Cetop 3 fitting)         C3-12       (Cetop 3 fitting, with 12V DC valve included)         (C3-24)       (Cetop 3 fitting, with 24V DC valve included)                     |
| Shuttle valve (optional)   |
| Spline billet (optional)<br>(SB10) (for A1 splined shaft)  |
| Valves (optional)  |
| RVDA       OVSA       (see valve section for details and       OVDA       complete ordination code)       ORVSA       RVDAP  |
| Special features (optional)         01       (Viton seals)         02       (Oxynit treatment on the external motor surface)         03       (Nitemper treatment on cylinder bores) |
| Conversion flange (optional) (see conversion flanges section)  |
| Displacements Min displacement range: 3280-0 cc/Rev  |
| MAX-MIN       (MAXIMUM AND MINIMUM DISPLACEMENT OF MOTOR)       Max displacement range: 4600-2295 cc/Rev         Max displacement range: 3280-0 cc/Rev                               |
| Different displacements on request   |
|  |

EXAMPLE: IAC.3000.H6.A1.D90.C3-24.SV.2950-1640 IAC.3000/C.H6.A0.D90.J.C3.SV.2290-1150

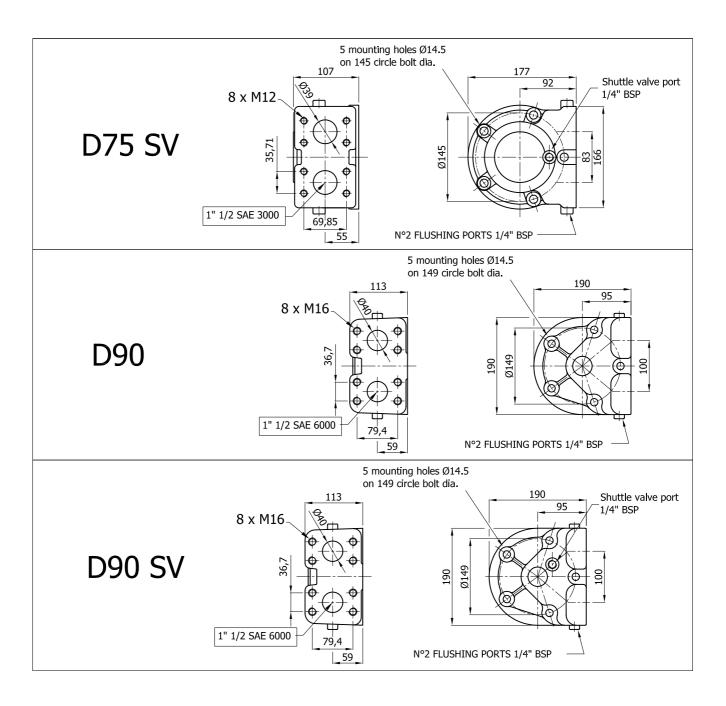


### DISTRIBUTOR



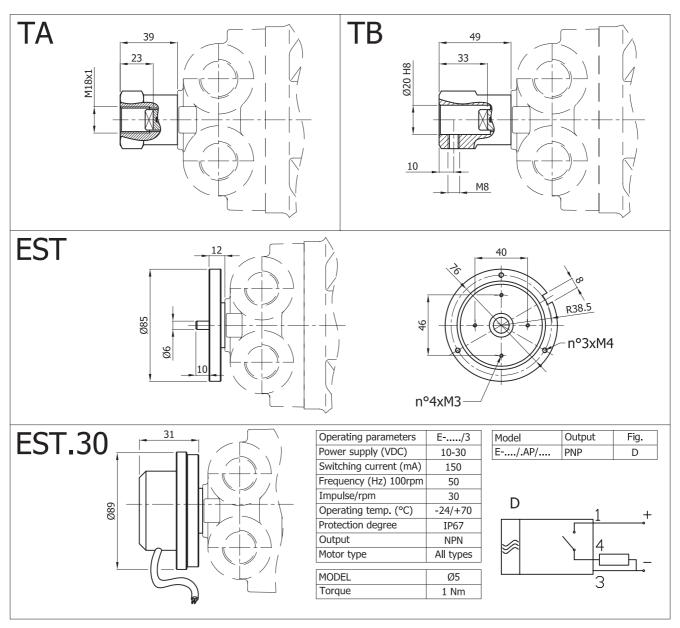




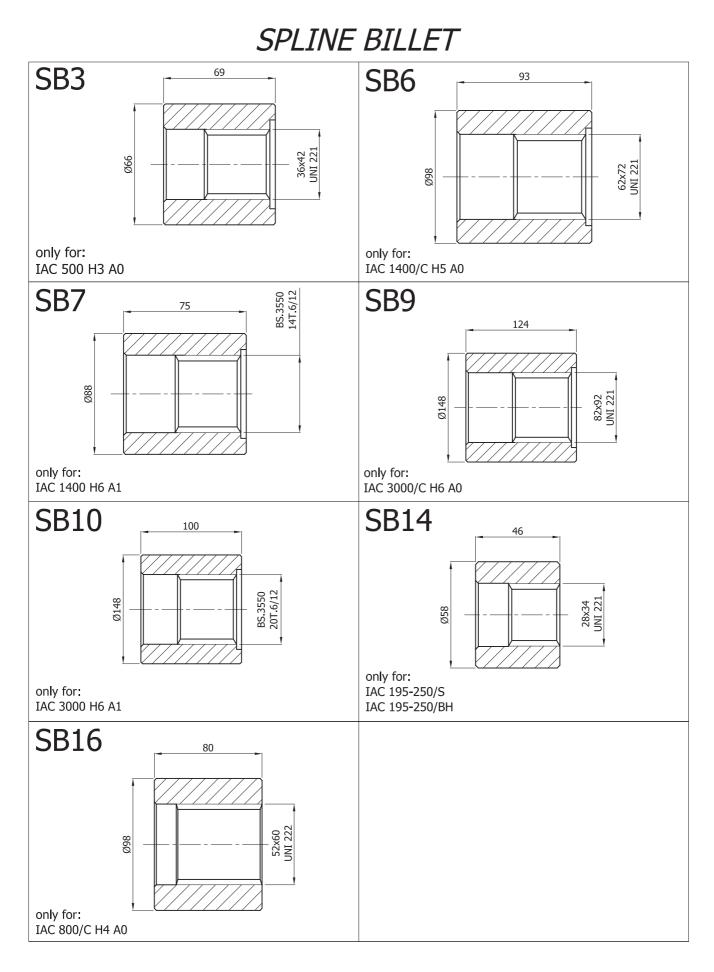




# TACHOMETER









### CONVERSION FLANGES

