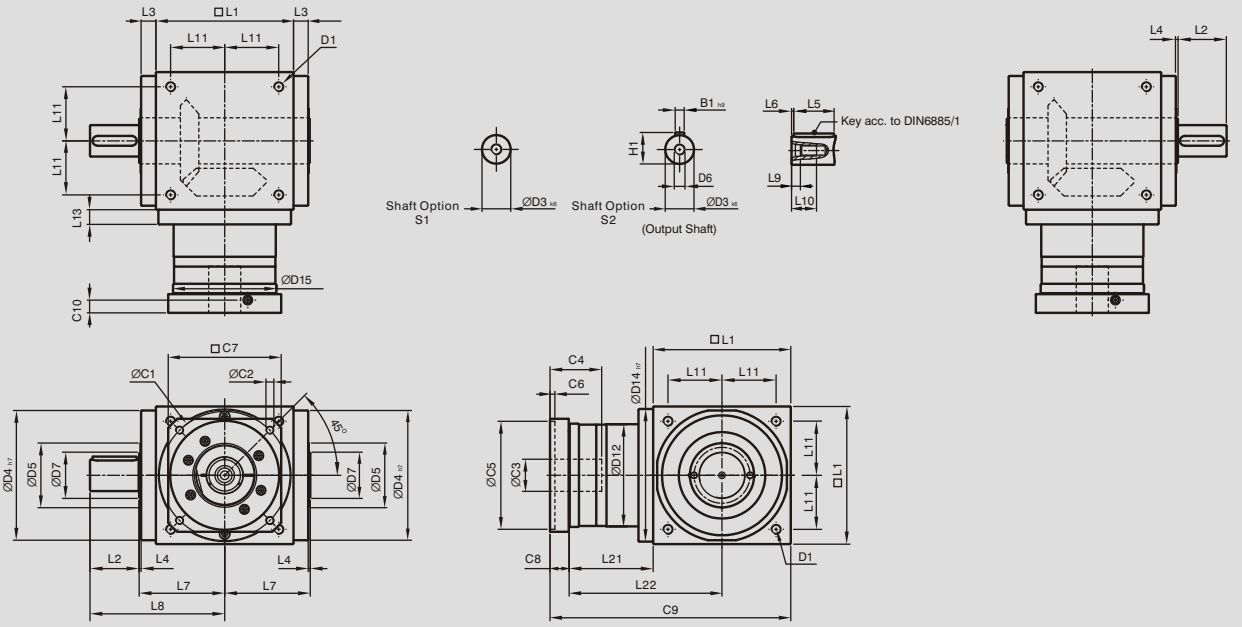
# AT-FL1 / FR1 Series

## Dimensions (1-stage, Ratio i=1~5)

### AT-FL1

### AT-FR1




[unit: mm]

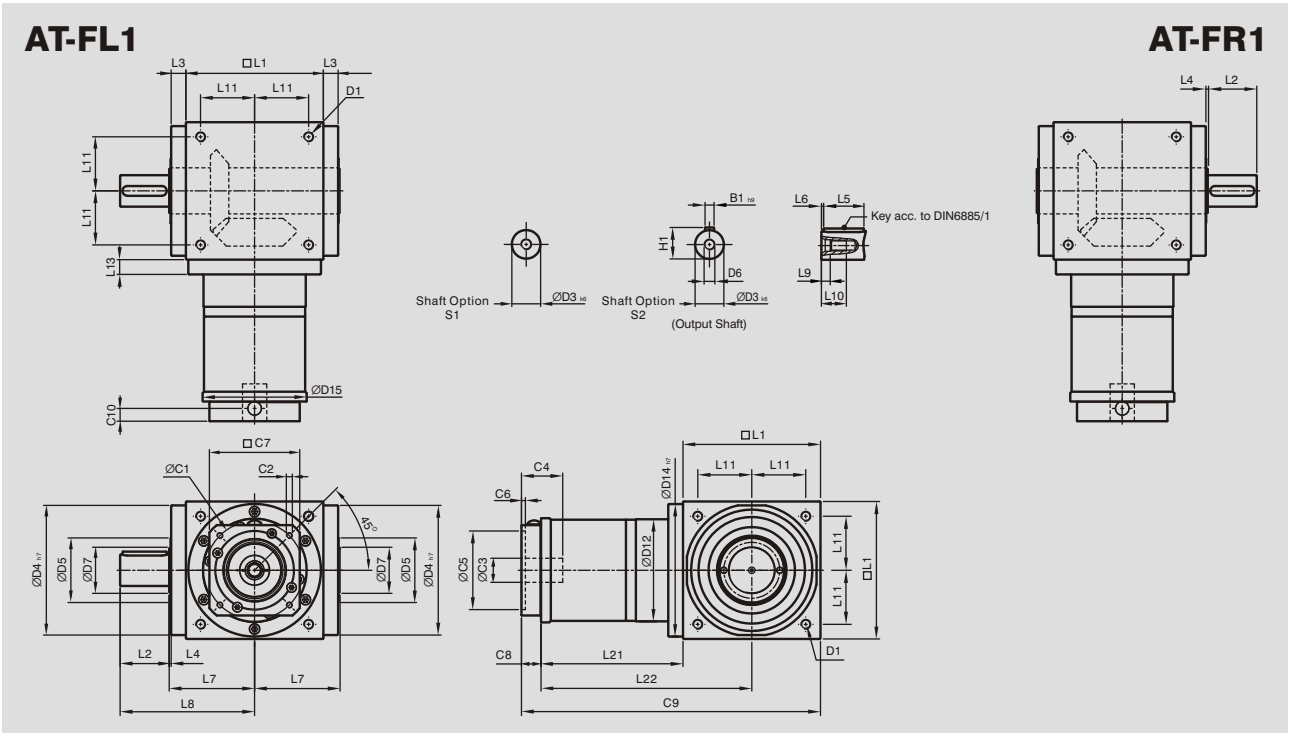
| Dimension | AT065 FL1/FR1 | AT075 FL1/FR1 | AT090 FL1/FR1 | AT110 FL1/FR1 | AT140 FL1/FR1 | AT170 FL1/FR1 | AT210 FL1/FR1 | AT240 FL1/FR1 | AT280 FL1/FR1 |
|---|---|---|---|---|---|---|---|---|---|
| D1 | M4 | M6 | M6 | M8 | M10 | M12 | M16 | M16 | M16 |
| D3 k6 | 13 | 16 | 18 | 22 | 32 | 40 | 50 | 55 | 60 |
| D4 h7 | 63 | 73 | 88 | 108 | 135 | 165 | 205 | 235 | 275 |
| D5 | 31 | 35 | 43 | 53 | 68 | 83 | 104 | 124 | 144 |
| D6 | M4 | M5 | M5 | M8 | M12 | M16 | M16 | M16 | M20 |
| D7 | 21 | 22 | 28 | 33 | 47 | 55 | 75 | 85 | 110 |
| D12 | 62 | 72 | 86 | 106 | 104 | 128 | 160 | 180 | 200 |
| D14 h7 | 63 | 73 | 88 | 108 | 135 | 165 | 205 | 235 | 275 |
| D15 | 62.9 | 72.9 | 87 | 107 | 105 | 127 | 158 | 178 | 198 |
| L1 | 65 | 75 | 90 | 110 | 140 | 170 | 210 | 240 | 280 |
| L2 | 19.5 | 30 | 35 | 40 | 50 | 60 | 75 | 85 | 110 |
| L3 | 13 | 14.5 | 15 | 15 | 15 | 15 | 20 | 25 | 25 |
| L4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| L5 | 16 | 25 | 28 | 32 | 45 | 50 | 70 | 80 | 100 |
| L6 | 2 | 2.5 | 3.5 | 4 | 2.5 | 5 | 2.5 | 2.5 | 5 |
| L7 | 47.5 | 54 | 62 | 72 | 87 | 102 | 127 | 147 | 167 |
| L8 | 67 | 84 | 97 | 112 | 137 | 162 | 202 | 232 | 277 |
| L9 | 4.5 | 4.8 | 4.8 | 7.2 | 10 | 12 | 12 | 12 | 15 |
| L10 | 10 | 12.5 | 12.5 | 19 | 28 | 36 | 36 | 36 | 42 |
| L11 | 27 | 30 | 36 | 44 | 55 | 67 | 85 | 95 | 110 |
| L13 | 13 | 15 | 15 | 15 | 15 | 15 | 20 | 25 | 25 |
| L21 | 49 | 60.5 | 63 | 69.5 | 85.5 | 95 | 130 | 144.5 | 135 |
| L22 | 81.5 | 98 | 108 | 124.5 | 155.5 | 180 | 235 | 264.5 | 275 |
| C1[6] | 46 | 70 | 100 | 100 | 130 | 165 | 215 | 215 | 235 |
| C2[6] | M4 | M5 | M6 | M6 | M8 | M10 | M12 | M12 | M12 |
| C3[6] | ★ ≤11 / ≤12 | ★ ≤14 / ≤15.875 / ≤16 | ≤19 | ≤24 | ≤32 | ≤38 | ≤42 | ≤48 | ≤55 |
| C4[6] | 30 | 34 | 40 | 40 | 50 | 60 | 85 | 85 | 116 |
| C5[6] | 30 | 50 | 80 | 80 | 110 | 130 | 180 | 180 | 200 |
| C6[6] | 3.5 | 8 | 4 | 4 | 5 | 6 | 6 | 6 | 6 |
| C7[6] | 42 | 60 | 90 | 90 | 115 | 142 | 190 | 190 | 220 |
| C8[6] | 19.5 | 19 | 17 | 17 | 19.5 | 22.5 | 29 | 29 | 63 |
| C9[6] | 133.5 | 154.5 | 170 | 196.5 | 245 | 287.5 | 369 | 413.5 | 478 |
| C10[6] | 13.25 | 13.5 | 10.75 | 10.75 | 13 | 15 | 20.75 | 20.75 | 53.5 |
| B1 h9 | 5 | 5 | 6 | 6 | 10 | 12 | 14 | 16 | 18 |
| H1 | 15 | 18 | 20.5 | 24.5 | 35 | 43 | 53.5 | 59 | 64 |

6. C1~C10 are motor specific dimensions (metric std shown). Refer to Apexdyna.com and Design Tool to view your specific motor mounting system.

★ AT065 FL1/FR1M1 offers C3 ≤12 option. ★ AT075 FL1/FR1M1 offers C3 ≤16 option. ★ AT075 FL1/FR1M2 offers C3 ≤15.875 option.

# AT-FL1 / FR1 Series

## Dimensions (2-stage, Ratio i=7~50)



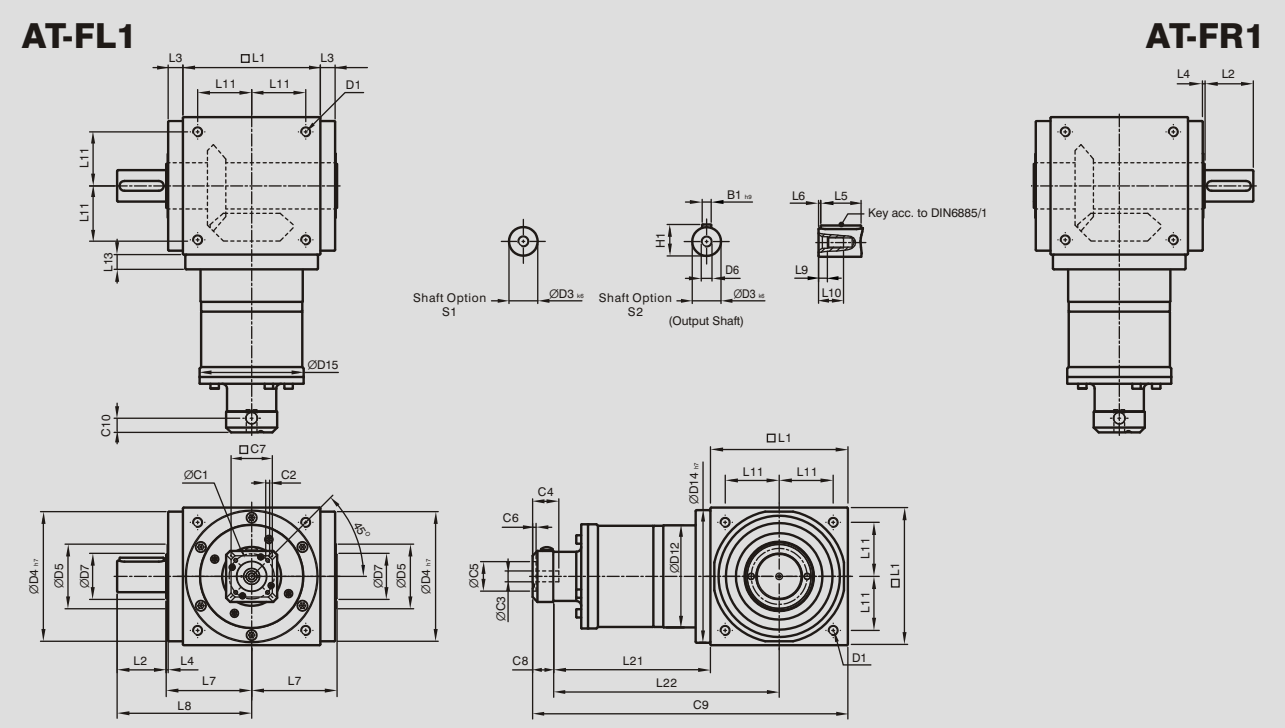

[unit: mm]

| Dimension | AT065 FL1/FR1 | AT075 FL1/FR1 | AT090 FL1/FR1 | AT110 FL1/FR1 | AT140 FL1/FR1 | AT170 FL1/FR1 | AT210 FL1/FR1 | AT240 FL1/FR1 | AT280 FL1/FR1 |
|---|---|---|---|---|---|---|---|---|---|
| D1 | M4 | M6 | M6 | M8 | M10 | M12 | M16 | M16 | M16 |
| D3 k6 | 13 | 16 | 18 | 22 | 32 | 40 | 50 | 55 | 60 |
| D4 h7 | 63 | 73 | 88 | 108 | 135 | 165 | 205 | 235 | 275 |
| D5 | 31 | 35 | 43 | 53 | 68 | 83 | 104 | 124 | 144 |
| D6 | M4 | M5 | M5 | M8 | M12 | M16 | M16 | M16 | M20 |
| D7 | 21 | 22 | 28 | 33 | 47 | 55 | 75 | 85 | 110 |
| D12 | 62 | 72 | 86 | 106 | 104 | 128 | 160 | 180 | 200 |
| D14 h7 | 63 | 73 | 88 | 108 | 135 | 165 | 205 | 235 | 275 |
| D15 | 62.9 | 72.9 | 87 | 107 | 106 | 127 | 158 | 178 | 198 |
| L1 | 65 | 75 | 90 | 110 | 140 | 170 | 210 | 240 | 280 |
| L2 | 19.5 | 30 | 35 | 40 | 50 | 60 | 75 | 85 | 110 |
| L3 | 13 | 14.5 | 15 | 15 | 15 | 15 | 20 | 25 | 25 |
| L4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| L5 | 16 | 25 | 28 | 32 | 45 | 50 | 70 | 80 | 100 |
| L6 | 2 | 2.5 | 3.5 | 4 | 2.5 | 5 | 2.5 | 2.5 | 5 |
| L7 | 47.5 | 54 | 62 | 72 | 87 | 102 | 127 | 147 | 167 |
| L8 | 67 | 84 | 97 | 112 | 137 | 162 | 202 | 232 | 277 |
| L9 | 4.5 | 4.8 | 4.8 | 7.2 | 10 | 12 | 12 | 12 | 15 |
| L10 | 10 | 12.5 | 12.5 | 19 | 28 | 36 | 36 | 36 | 42 |
| L11 | 27 | 30 | 36 | 44 | 55 | 67 | 85 | 95 | 110 |
| L13 | 13 | 15 | 15 | 15 | 15 | 15 | 20 | 25 | 25 |
| L21 | 75 | 84.5 | 99 | 122 | 144.5 | 157.5 | 206.5 | 239 | 248 |
| L22 | 107.5 | 122 | 144 | 177 | 214.5 | 242.5 | 311.5 | 359 | 388 |
| C1[7] | 46 | 46 | 70 | 100 | 100 | 100 | 130 | 165 | 165 |
| C2[7] | M4 | M4 | M5 | M6 | M6 | M6 | M8 | M10 | M10 |
| C3[7] | ≤12 | ≤12 | ≤16 | ≤24 | ≤24 | ≤24 | ≤32 | ≤38 | ≤38 |
| C4[7] | 30 | 30 | 34 | 40 | 40 | 40 | 50 | 60 | 60 |
| C5[7] | 30 | 30 | 50 | 80 | 80 | 80 | 110 | 130 | 130 |
| C6[7] | 3.5 | 3.5 | 8 | 4 | 4 | 4 | 5 | 6 | 6 |
| C7[7] | 42 | 42 | 60 | 92 | 92 | 92 | 115 | 142 | 142 |
| C8[7] | 21.5 | 21.5 | 21.5 | 20 | 20 | 20 | 24 | 31 | 31 |
| C9[7] | 161.5 | 181 | 210.5 | 252 | 304.5 | 347.5 | 440.5 | 510 | 559 |
| C10[7] | 14.55 | 14.5 | 15.5 | 13 | 13 | 13 | 16 | 21 | 21 |
| B1 h9 | 5 | 5 | 6 | 6 | 10 | 12 | 14 | 16 | 18 |
| H1 | 15 | 18 | 20.5 | 24.5 | 35 | 43 | 53.5 | 59 | 64 |

7. C1~C10 are motor specific dimensions (metric std shown). Refer to Apexdyna.com and Design Tool to view your specific motor mounting system.

# AT-FL1 / FR1 Series

## Dimensions (3-stage, Ratio i=75~500)




[unit: mm]

| Dimension | AT110 FL1/FR1 | AT140 FL1/FR1 | AT170 FL1/FR1 | AT210 FL1/FR1 | AT240 FL1/FR1 | AT280 FL1/FR1 |
|---|---|---|---|---|---|---|
| D1 | M8 | M10 | M12 | M16 | M16 | M16 |
| D3 k6 | 22 | 32 | 40 | 50 | 55 | 60 |
| D4 h7 | 108 | 135 | 165 | 205 | 235 | 275 |
| D5 | 53 | 68 | 83 | 104 | 124 | 144 |
| D6 | M8 | M12 | M16 | M16 | M16 | M20 |
| D7 | 33 | 47 | 55 | 75 | 85 | 110 |
| D12 | 106 | 104 | 128 | 160 | 180 | 200 |
| D14 h7 | 108 | 135 | 165 | 205 | 235 | 275 |
| D15 | 107 | 106 | 127 | 158 | 178 | 198 |
| L1 | 110 | 140 | 170 | 210 | 240 | 280 |
| L2 | 40 | 50 | 60 | 75 | 85 | 110 |
| L3 | 15 | 15 | 15 | 20 | 25 | 25 |
| L4 | 2 | 2 | 2 | 2 | 2 | 2 |
| L5 | 32 | 45 | 50 | 70 | 80 | 100 |
| L6 | 4 | 2.5 | 5 | 2.5 | 2.5 | 5 |
| L7 | 72 | 87 | 102 | 127 | 147 | 167 |
| L8 | 112 | 137 | 162 | 202 | 232 | 277 |
| L9 | 7.2 | 10 | 12 | 12 | 12 | 15 |
| L10 | 19 | 28 | 36 | 36 | 36 | 42 |
| L11 | 44 | 55 | 67 | 85 | 95 | 110 |
| L13 | 15 | 15 | 15 | 20 | 25 | 25 |
| L21 | 136.5 | 159.5 | 183.5 | 226 | 269 | 278 |
| L22 | 191.5 | 229.5 | 268.5 | 331 | 389 | 418 |
| C1[8] | 46 | 46 | 70 | 70 | 100 | 100 |
| C2[8] | M4 | M4 | M5 | M5 | M6 | M6 |
| C3[8] | ≤12 | ≤12 | ≤16 | ≤16 | ≤24 | ≤24 |
| C4[8] | 30 | 30 | 34 | 34 | 40 | 40 |
| C5[8] | 30 | 30 | 50 | 50 | 80 | 80 |
| C6[8] | 3.5 | 3.5 | 8 | 8 | 4 | 4 |
| C7[8] | 42 | 42 | 60 | 60 | 92 | 92 |
| C8[8] | 21.5 | 21.5 | 21.5 | 21.5 | 20 | 20 |
| C9[8] | 268 | 321 | 375 | 457.5 | 529 | 578 |
| C10[8] | 14.5 | 14.5 | 15.5 | 15.5 | 13 | 13 |
| B1 h9 | 6 | 10 | 12 | 14 | 16 | 18 |
| H1 | 24.5 | 35 | 43 | 53.5 | 59 | 64 |

8. C1~C10 are motor specific dimensions (metric std shown). Refer to Apexdyna.com and Design Tool to view your specific motor mounting system.