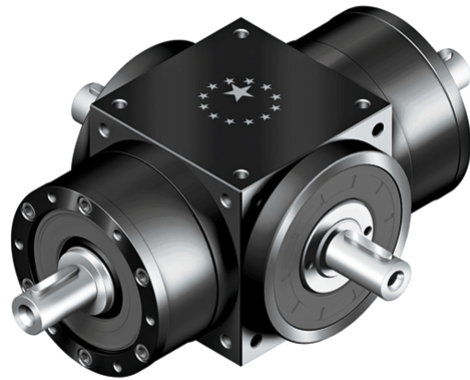
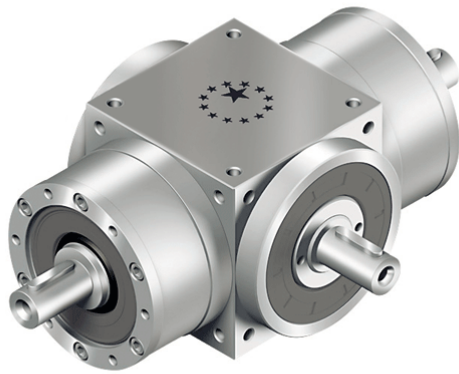


# Kania & Edinger GmbH

Winkelgetriebe AT-4M / ATB-4M



# Specifications

## AT / ATB Shaft Type Series

### Gearbox Performance (The performance and specification of ATB series are identical to AT series.)

| Model No.                                              |        | Stage | Ratio <sup>(1)</sup> | AT065 L                            | AT075 L  | AT090 L  | AT110 L  | AT140 L  | AT170 L  | AT210 L  | AT240 L  | AT280 L  |
|--------------------------------------------------------|--------|-------|----------------------|------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
|                                                        |        |       |                      | AT065 L1                           | AT075 L1 | AT090 L1 | AT110 L1 | AT140 L1 | AT170 L1 | AT210 L1 | AT240 L1 | AT280 L1 |
|                                                        |        |       |                      | AT065 H                            | AT075 H  | AT090 H  | AT110 H  | AT140 H  | AT170 H  | AT210 H  | AT240 H  | AT280 H  |
|                                                        |        |       |                      | AT065 C                            | AT075 C  | AT090 C  | AT110 C  | AT140 C  | AT170 C  | AT210 C  | AT240 C  | AT280 C  |
|                                                        |        |       |                      | AT065 R1                           | AT075 R1 | AT090 R1 | AT110 R1 | AT140 R1 | AT170 R1 | AT210 R1 | AT240 R1 | AT280 R1 |
|                                                        |        |       |                      | AT065 LM                           | AT075 LM | AT090 LM | AT110 LM | AT140 LM | AT170 LM | AT210 LM | AT240 LM | AT280 LM |
|                                                        |        |       |                      | AT065 RM                           | AT075 RM | AT090 RM | AT110 RM | AT140 RM | AT170 RM | AT210 RM | AT240 RM | AT280 RM |
|                                                        |        |       |                      | AT065 4M                           | AT075 4M | AT090 4M | AT110 4M | AT140 4M | AT170 4M | AT210 4M | AT240 4M | AT280 4M |
| Nominal Output Torque $T_{2N}$                         | Nm     | 1     | 1                    | 25                                 | 45       | 78       | 150      | 360      | 585      | 1,300    | 2,150    | 3,200    |
|                                                        |        |       | 1.5                  | 25                                 | 45       | 78       | 150      | 360      | 585      | 1,300    | 2,150    | 3,200    |
|                                                        |        |       | 2                    | 24                                 | 42       | 68       | 150      | 330      | 544      | 1,220    | 2,010    | 3,050    |
|                                                        |        |       | 3                    | 18                                 | 33       | 54       | 120      | 270      | 450      | 1,020    | 1,650    | 2,850    |
|                                                        |        |       | 4                    | 13                                 | 28       | 48       | 100      | 224      | 376      | 860      | 1,410    | 2,300    |
|                                                        |        |       | 5                    | 12                                 | 25       | 40       | 85       | 196      | 320      | 740      | 1,210    | 2,000    |
| Max. Acceleration Torque $T_{2B}$                      | Nm     | 1     | 1~5                  | 1.5 times of Nominal Output Torque |          |          |          |          |          |          |          |          |
| Max. Acceleration Input Speed $n_{1B}$                 | rpm    | 1     | 1~5                  | 7,500                              | 6,500    | 5,500    | 4,500    | 3,500    | 3,000    | 2,200    | 2,000    | 1,700    |
| Standard Backlash <sup>(2)</sup>                       | arcmin | 1     | 1~5                  | ≤6                                 | ≤6       | ≤6       | ≤6       | ≤6       | ≤6       | ≤6       | ≤6       | ≤6       |
| Max. Radial Load $F_{1rB}$ <sup>(3)</sup><br>Input d1  | N      | 1     | 1~5                  | 700                                | 950      | 1,450    | 2,100    | 2,700    | 3,800    | 7,800    | 9,600    | 10,500   |
| Max. Radial Load $F_{2rB}$ <sup>(4)</sup><br>Output d2 | N      | 1     | 1~5                  | 900                                | 1,100    | 1,700    | 2,700    | 4,800    | 6,600    | 11,500   | 16,000   | 18,000   |
| Max. Axial Load $F_{1aB}$ <sup>(3)</sup><br>Input d1   | N      | 1     | 1~5                  | 350                                | 425      | 725      | 1,050    | 1,350    | 1,900    | 3,900    | 4,800    | 5,250    |
| Max. Axial Load $F_{2aB}$ <sup>(4)</sup><br>Output d2  | N      | 1     | 1~5                  | 450                                | 550      | 850      | 1,350    | 2,400    | 3,300    | 5,750    | 8,500    | 9,000    |
| Efficiency $\eta$                                      | %      | 1     | 1~5                  | ≥98%                               |          |          |          |          |          |          |          |          |
| Operating Temp                                         | °C     | 1     | 1~5                  | -10°C ~ 90°C                       |          |          |          |          |          |          |          |          |
| Lubrication                                            |        |       |                      | Synthetic lubrication oils         |          |          |          |          |          |          |          |          |
| Noise Level <sup>(5)</sup>                             | dB (A) | 1     | 1~5                  | ≤68                                | ≤70      | ≤74      | ≤76      | ≤77      | ≤78      | ≤80      | ≤82      | ≤83      |

### Gearbox Inertia (The performance and specification of ATB series are identical to AT series.)

| Model No.                     |                      | Stage | Ratio <sup>(1)</sup> | AT065 L  | AT075 L  | AT090 L  | AT110 L  | AT140 L  | AT170 L  | AT210 L  | AT240 L  | AT280 L  |
|-------------------------------|----------------------|-------|----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                               |                      |       |                      | AT065 L1 | AT075 L1 | AT090 L1 | AT110 L1 | AT140 L1 | AT170 L1 | AT210 L1 | AT240 L1 | AT280 L1 |
|                               |                      |       |                      | AT065 H  | AT075 H  | AT090 H  | AT110 H  | AT140 H  | AT170 H  | AT210 H  | AT240 H  | AT280 H  |
|                               |                      |       |                      | AT065 C  | AT075 C  | AT090 C  | AT110 C  | AT140 C  | AT170 C  | AT210 C  | AT240 C  | AT280 C  |
|                               |                      |       |                      | AT065 R1 | AT075 R1 | AT090 R1 | AT110 R1 | AT140 R1 | AT170 R1 | AT210 R1 | AT240 R1 | AT280 R1 |
|                               |                      |       |                      | AT065 LM | AT075 LM | AT090 LM | AT110 LM | AT140 LM | AT170 LM | AT210 LM | AT240 LM | AT280 LM |
|                               |                      |       |                      | AT065 RM | AT075 RM | AT090 RM | AT110 RM | AT140 RM | AT170 RM | AT210 RM | AT240 RM | AT280 RM |
|                               |                      |       |                      | AT065 4M | AT075 4M | AT090 4M | AT110 4M | AT140 4M | AT170 4M | AT210 4M | AT240 4M | AT280 4M |
| Mass Moments of Inertia $J_i$ | kg · cm <sup>2</sup> | 1     | 1                    | 0.51     | 1.30     | 3.16     | 7.70     | 23.57    | 58.99    | 195.40   | 369.34   | 799.12   |
|                               |                      |       | 1.5                  | 0.64     | 1.16     | 2.82     | 6.74     | 19.37    | 49.28    | 155.45   | 283.58   | 595.78   |
|                               |                      |       | 2                    | 0.44     | 1.11     | 2.70     | 6.31     | 17.75    | 45.35    | 140.24   | 249.74   | 511.76   |
|                               |                      |       | 3                    | 0.43     | 1.09     | 2.66     | 6.17     | 17.18    | 44.01    | 134.95   | 237.71   | 483.06   |
|                               |                      |       | 4                    | 0.43     | 1.09     | 2.65     | 6.13     | 17.06    | 43.70    | 133.58   | 234.72   | 476.26   |
|                               |                      |       | 5                    | 0.43     | 1.09     | 2.65     | 6.12     | 17.02    | 43.60    | 133.14   | 233.67   | 473.58   |

### Weight

| Model No. |    | Stage | Ratio <sup>(1)</sup> | AT065 | AT075 | AT090 | AT110 | AT140 | AT170 | AT210 | AT240 | AT280 |
|-----------|----|-------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L Series  | kg | 1     | 1~5                  | 2.6   | 4.2   | 6.8   | 11.6  | 19.8  | 34.8  | 66.2  | 98.1  | 155.7 |
| L1 Series |    | 1     | 1~5                  | 2.6   | 4.1   | 6.7   | 11.5  | 19.5  | 34.2  | 65.1  | 96.6  | 153.4 |
| H Series  |    | 1     | 1~5                  | 2.5   | 3.9   | 6.4   | 11.0  | 18.1  | 31.6  | 60.0  | 89.4  | 143.4 |
| C Series  |    | 1     | 1~5                  | 2.8   | 4.2   | 6.9   | 11.4  | 19.6  | 33.7  | 63.3  | 97.9  | 149.1 |
| R1 Series |    | 1     | 1~5                  | 2.6   | 4.1   | 6.7   | 11.5  | 19.5  | 34.2  | 65.1  | 96.6  | 153.4 |
| LM Series |    | 1     | 1                    | 3.5   | 5.6   | 9.0   | 15.2  | 24.1  | 42.4  | 81.4  | 122.0 | 190.9 |
| RM Series |    | 1     | 1                    | 3.5   | 5.6   | 9.0   | 15.2  | 24.1  | 42.4  | 81.4  | 122.0 | 190.9 |
| 4M Series |    | 1     | 1                    | 3.5   | 5.6   | 9.1   | 15.4  | 24.8  | 42.6  | 82.5  | 123.5 | 193.3 |

(1) Ratio (  $i = N_n / N_{out}$  ). AT-LM / RM / 4M offer ratio 1 : 1 only.

(2) Backlash is measured at 2% Nominal Torque  $T_{2N}$ .

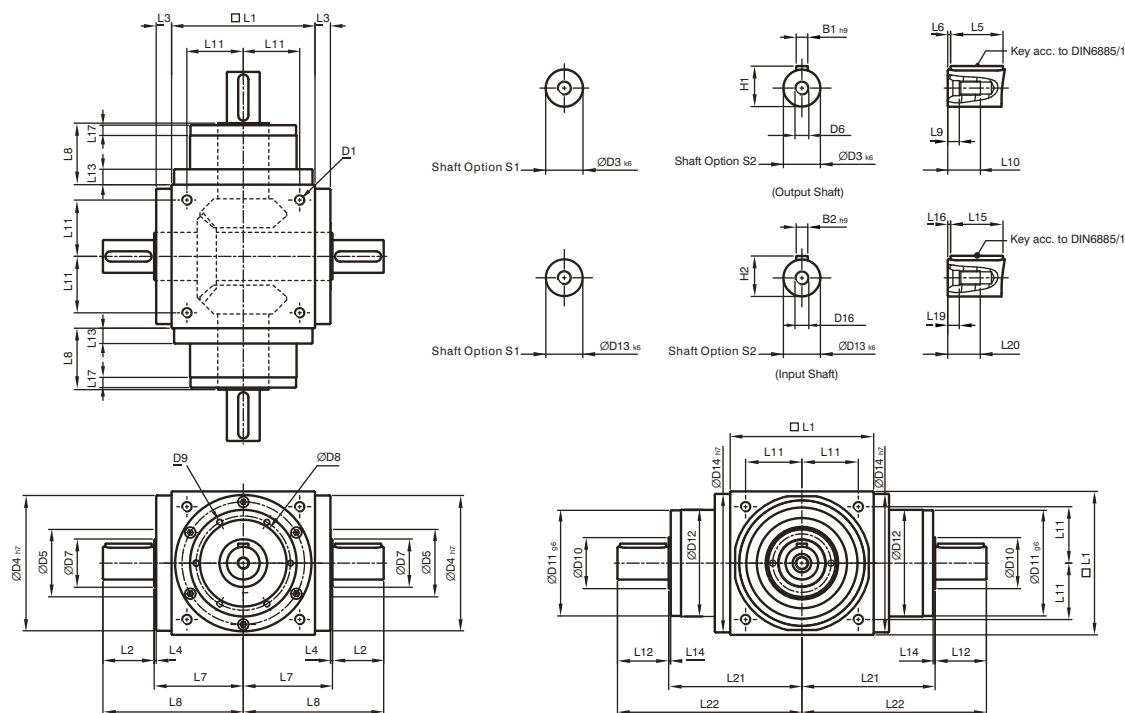
(3) Apply to the Input shaft center at  $n_{1B}$ .

(4) Apply to the output shaft center at  $n_{1B}$ .

(5) The dB values are measured by gearbox with ratio 5 (1-stage), no loading at 1,500 RPM or at the respective Nominal Input Speed by bigger model size.  
By lower ratio and/or higher RPM, the noise level could be 3 to 5 dB higher.

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

### AT-4M / ATB-4M Series



\* The dimensions of ATB series are identical to AT series.

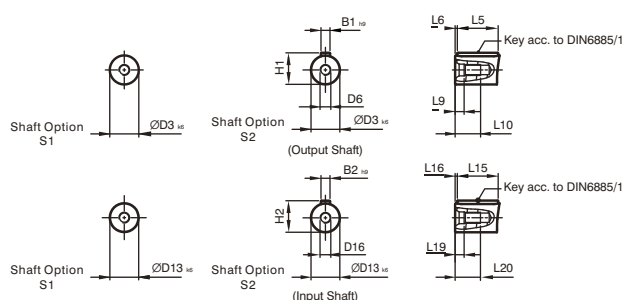
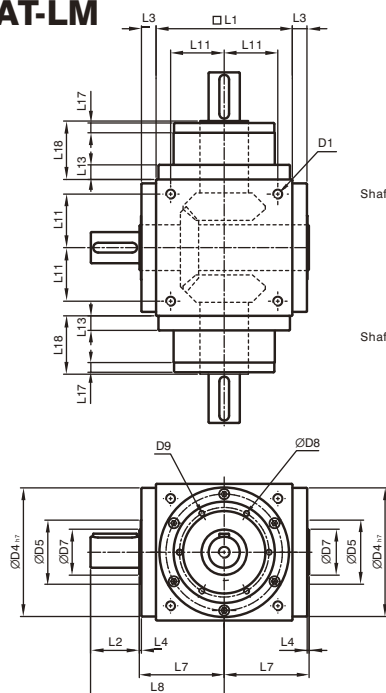
[unit: mm]

| Dimension         | AT065 4M | AT075 4M | AT090 4M | AT110 4M | AT140 4M | AT170 4M   | AT210 4M   | AT240 4M   | AT280 4M  |
|-------------------|----------|----------|----------|----------|----------|------------|------------|------------|-----------|
| D1                | M4       | M6       | M6       | M8       | M10      | M12        | M16        | M16        | M16       |
| D3 <sub>k6</sub>  | 13       | 16       | 18       | 22       | 32       | 40         | 50         | 55         | 60        |
| D4 <sub>h7</sub>  | 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       |
| D8                | 53       | 62       | 76       | 95       | 92       | 114        | 142        | 160        | 176       |
| D9                | 4xM4xL7  | 4xM5xL8  | 4xM5xL8  | 6xM6xL10 | 6xM6xL10 | 6xM8xL12.5 | 6xM8xL12.5 | 6xM8xL12.5 | 6xM10xL15 |
| D10               | 15.4     | 20.4     | 25.8     | 35.8     | 49.8     | 59.3       | 79.3       | 92.3       | 102.3     |
| D11 <sub>g6</sub> | 62.9     | 72.9     | 87       | 107      | 103      | 127        | 158        | 178        | 198       |
| D12               | 62       | 72       | 86       | 106      | 104      | 128        | 160        | 180        | 200       |
| D13 <sub>k6</sub> | 13       | 16       | 18       | 22       | 32       | 40         | 50         | 55         | 60        |
| D14 <sub>h7</sub> | 63       | 73       | 88       | 108      | 135      | 165        | 205        | 235        | 275       |
| D16               | M4       | M5       | M5       | M8       | M12      | M16        | M16        | M16        | M20       |
| 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       |
| L12               | 19.5     | 30       | 35       | 40       | 50       | 60         | 75         | 85         | 110       |
| L13               | 13       | 15       | 15       | 15       | 15       | 15         | 20         | 25         | 25        |
| L14               | 2        | 2        | 2        | 2        | 2        | 2          | 2          | 2          | 2         |
| L15               | 16       | 25       | 28       | 32       | 45       | 50         | 70         | 80         | 100       |
| L16               | 2        | 2.5      | 3.5      | 4        | 2.5      | 5          | 2.5        | 2.5        | 5         |
| L17               | 6        | 8        | 8        | 8        | 10       | 10         | 10         | 10         | 10        |
| L18               | 43       | 52.5     | 55       | 60       | 60       | 70         | 90         | 105        | 120       |
| L19               | 4.5      | 4.8      | 4.8      | 7.2      | 10       | 12         | 12         | 12         | 15        |
| L20               | 10       | 12.5     | 12.5     | 19       | 28       | 36         | 36         | 36         | 42        |
| L21               | 75.5     | 90       | 100      | 115      | 130      | 155        | 195        | 225        | 260       |
| L22               | 95       | 120      | 135      | 155      | 180      | 215        | 270        | 310        | 370       |
| B1 <sub>h9</sub>  | 5        | 5        | 6        | 6        | 10       | 12         | 14         | 16         | 18        |
| B2 <sub>h9</sub>  | 5        | 5        | 6        | 6        | 10       | 12         | 14         | 16         | 18        |
| H1                | 15       | 18       | 20.5     | 24.5     | 35       | 43         | 53.5       | 59         | 64        |
| H2                | 15       | 18       | 20.5     | 24.5     | 35       | 43         | 53.5       | 59         | 64        |

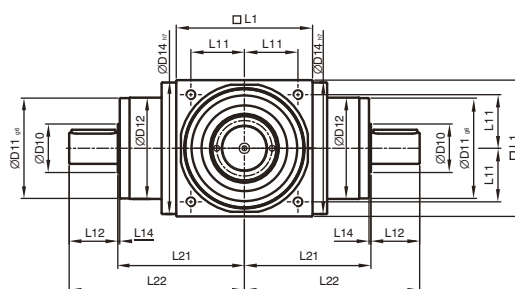
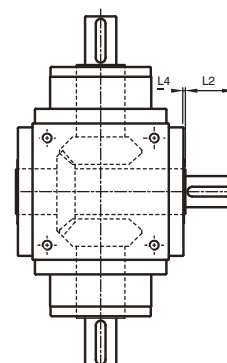
# Dimensions (1-stage, Ratio i = 1)

## AT-LM/RM | ATB-LM/RM Series

**AT-LM**



**AT-RM**



\* The dimensions of ATB series are identical to AT series.

[unit: mm]

| Dimension         | AT065LM/RM | AT075LM/RM | AT090LM/RM | AT110LM/RM | AT140LM/RM | AT170LM/RM | AT210LM/RM | AT240LM/RM | AT280LM/RM |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| D1                | M4         | M6         | M6         | M8         | M10        | M12        | M16        | M16        | M16        |
| D3 <sub>k6</sub>  | 13         | 16         | 18         | 22         | 32         | 40         | 50         | 55         | 60         |
| D4 <sub>h7</sub>  | 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        |
| D8                | 53         | 62         | 76         | 95         | 92         | 114        | 142        | 160        | 176        |
| D9                | 4xM4xL7    | 4xM5xL8    | 4xM5xL8    | 6xM6xL10   | 6xM6xL10   | 6xM8xL12.5 | 6xM8xL12.5 | 6xM8xL12.5 | 6xM10xL15  |
| D10               | 15.4       | 20.4       | 25.8       | 35.8       | 49.8       | 59.3       | 79.3       | 92.3       | 102.3      |
| D11 <sub>g6</sub> | 62.9       | 72.9       | 87         | 107        | 103        | 127        | 158        | 178        | 198        |
| D12               | 62         | 72         | 86         | 106        | 104        | 128        | 160        | 180        | 200        |
| D13 <sub>k6</sub> | 13         | 16         | 18         | 22         | 32         | 40         | 50         | 55         | 60         |
| D14 <sub>h7</sub> | 63         | 73         | 88         | 108        | 135        | 165        | 205        | 235        | 275        |
| D16               | M4         | M5         | M5         | M8         | M12        | M16        | M16        | M16        | M20        |
| 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        |
| L12               | 19.5       | 30         | 35         | 40         | 50         | 60         | 75         | 85         | 110        |
| L13               | 13         | 15         | 15         | 15         | 15         | 15         | 20         | 25         | 25         |
| L14               | 2          | 2          | 2          | 2          | 2          | 2          | 2          | 2          | 2          |
| L15               | 16         | 25         | 28         | 32         | 45         | 50         | 70         | 80         | 100        |
| L16               | 2          | 2.5        | 3.5        | 4          | 2.5        | 5          | 2.5        | 2.5        | 5          |
| L17               | 6          | 8          | 8          | 8          | 10         | 10         | 10         | 10         | 10         |
| L18               | 43         | 52.5       | 55         | 60         | 60         | 70         | 90         | 105        | 120        |
| L19               | 4.5        | 4.8        | 4.8        | 7.2        | 10         | 12         | 12         | 12         | 15         |
| L20               | 10         | 12.5       | 12.5       | 19         | 28         | 36         | 36         | 36         | 42         |
| L21               | 75.5       | 90         | 100        | 115        | 130        | 155        | 195        | 225        | 260        |
| L22               | 95         | 120        | 135        | 155        | 180        | 215        | 270        | 310        | 370        |
| B1 <sub>h9</sub>  | 5          | 5          | 6          | 6          | 10         | 12         | 14         | 16         | 18         |
| B2 <sub>h9</sub>  | 5          | 5          | 6          | 6          | 10         | 12         | 14         | 16         | 18         |
| H1                | 15         | 18         | 20.5       | 24.5       | 35         | 43         | 53.5       | 59         | 64         |
| H2                | 15         | 18         | 20.5       | 24.5       | 35         | 43         | 53.5       | 59         | 64         |