

## SHAFT TOLERANCE TABLE (ISO)

| ≥   | <   | c9           | d8           | e7           | e8           | f7          | g6         | h5       | h6       | h7       | h8       | js6    | js7  | k6         | m6         | n6         | p6          | p7          | r6           | s6           |
|-----|-----|--------------|--------------|--------------|--------------|-------------|------------|----------|----------|----------|----------|--------|------|------------|------------|------------|-------------|-------------|--------------|--------------|
| -   | 3   | -60<br>-85   | -20<br>-34   | -14<br>-24   | -14<br>-28   | -6<br>-16   | -2<br>-8   | 0<br>-4  | 0<br>-6  | 0<br>-10 | 0<br>-14 | ± 3    | ± 5  | +6<br>0    | +8<br>+2   | +10<br>+4  | +12<br>+6   | +16<br>+6   | +16<br>+10   | +20<br>+14   |
| 3   | 6   | -70<br>-100  | -30<br>-48   | -20<br>-32   | -20<br>-38   | -10<br>-22  | -4<br>-12  | 0<br>-5  | 0<br>-8  | 0<br>-12 | 0<br>-18 | ± 4    | ± 6  | +9<br>+1   | +12<br>+4  | +16<br>+8  | +20<br>+12  | +24<br>+12  | +23<br>+15   | +27<br>+19   |
| 6   | 10  | -80<br>-116  | -40<br>-62   | -25<br>-40   | -25<br>-47   | -13<br>-28  | -5<br>-14  | 0<br>-6  | 0<br>-9  | 0<br>-15 | 0<br>-22 | ± 4.5  | ± 7  | +10<br>+1  | +15<br>+6  | +19<br>+10 | +24<br>+15  | +30<br>+15  | +28<br>+19   | +32<br>+23   |
| 10  | 18  | -95<br>-138  | -50<br>-77   | -32<br>-50   | -32<br>-59   | -16<br>-34  | -6<br>-17  | 0<br>-8  | 0<br>-11 | 0<br>-18 | 0<br>-27 | ± 5.5  | ± 9  | +12<br>+1  | +18<br>+7  | +23<br>+12 | +29<br>+18  | +36<br>+18  | +34<br>+23   | +39<br>+28   |
| 18  | 24  | -110<br>-162 | -65<br>-98   | -40<br>-61   | -40<br>-73   | -20<br>-41  | -7<br>-20  | 0<br>-9  | 0<br>-13 | 0<br>-21 | 0<br>-33 | ± 6.5  | ± 10 | +15<br>+2  | +21<br>+8  | +28<br>+15 | +35<br>+22  | +43<br>+22  | +41<br>+28   | +48<br>+35   |
| 24  | 30  |              |              |              |              |             |            |          |          |          |          |        |      |            |            |            |             |             |              |              |
| 30  | 40  | -120<br>-182 | -80<br>-119  | -50<br>-75   | -50<br>-89   | -25<br>-50  | -9<br>-25  | 0<br>-11 | 0<br>-16 | 0<br>-25 | 0<br>-39 | ± 8    | ± 12 | +18<br>+2  | +25<br>+9  | +33<br>+17 | +42<br>+26  | +51<br>+26  | +50<br>+34   | +59<br>+43   |
| 40  | 50  | -130<br>-192 |              |              |              |             |            |          |          |          |          |        |      |            |            |            |             |             |              |              |
| 50  | 65  | -140<br>-214 | -100<br>-146 | -60<br>-90   | -60<br>-106  | -30<br>-60  | -10<br>-29 | 0<br>-13 | 0<br>-19 | 0<br>-30 | 0<br>-46 | ± 9.5  | ± 15 | +21<br>+2  | +30<br>+11 | +39<br>+20 | +51<br>+32  | +62<br>+32  | +60<br>+41   | +72<br>+53   |
| 65  | 80  | -150<br>-224 |              |              |              |             |            |          |          |          |          |        |      |            |            |            |             |             |              |              |
| 80  | 100 | -170<br>-257 | -120<br>-174 | -72<br>-107  | -72<br>-126  | -36<br>-71  | -12<br>-34 | 0<br>-15 | 0<br>-22 | 0<br>-35 | 0<br>-54 | ± 11   | ± 17 | +25<br>+3  | +35<br>+13 | +45<br>+23 | +59<br>+37  | +72<br>+37  | +73<br>+51   | +93<br>+71   |
| 100 | 120 | -180<br>-267 |              |              |              |             |            |          |          |          |          |        |      |            |            |            |             |             |              |              |
| 120 | 140 | -200<br>-300 | -145<br>-208 | -85<br>-125  | -85<br>-148  | -43<br>-83  | -14<br>-39 | 0<br>-18 | 0<br>-25 | 0<br>-40 | 0<br>-63 | ± 12.5 | ± 20 | +28<br>+3  | +40<br>+15 | +52<br>+27 | +68<br>+43  | +83<br>+43  | +88<br>+63   | +117<br>+92  |
| 140 | 160 | -210<br>-310 |              |              |              |             |            |          |          |          |          |        |      |            |            |            |             |             |              |              |
| 160 | 180 | -230<br>-330 | -170<br>-242 | -100<br>-146 | -100<br>-172 | -50<br>-96  | -15<br>-44 | 0<br>-20 | 0<br>-29 | 0<br>-46 | 0<br>-72 | ± 14.5 | ± 23 | +33<br>+14 | +46<br>+17 | +60<br>+31 | +79<br>+50  | +96<br>+50  | +90<br>+65   | +125<br>+100 |
| 180 | 200 | -240<br>-355 |              |              |              |             |            |          |          |          |          |        |      |            |            |            |             |             |              |              |
| 200 | 225 | -260<br>-375 | -190<br>-271 | -110<br>-162 | -110<br>-191 | -56<br>-108 | -17<br>-49 | 0<br>-23 | 0<br>-32 | 0<br>-52 | 0<br>-81 | ± 16   | ± 26 | +36<br>+14 | +52<br>+20 | +66<br>+34 | +88<br>+56  | +108<br>+56 | +106<br>+77  | +151<br>+122 |
| 225 | 250 | -280<br>-395 |              |              |              |             |            |          |          |          |          |        |      |            |            |            |             |             |              |              |
| 250 | 280 | -300<br>-430 | -210<br>-299 | -125<br>-182 | -125<br>-214 | -62<br>-119 | -18<br>-54 | 0<br>-25 | 0<br>-36 | 0<br>-57 | 0<br>-89 | ± 18   | ± 28 | +40<br>+4  | +57<br>+21 | +73<br>+37 | +98<br>+62  | +119<br>+62 | +126<br>+94  | +190<br>+158 |
| 280 | 315 | -330<br>-460 |              |              |              |             |            |          |          |          |          |        |      |            |            |            |             |             |              |              |
| 315 | 355 | -360<br>-500 | -230<br>-327 | -135<br>-198 | -135<br>-232 | -68<br>-131 | -20<br>-60 | 0<br>-27 | 0<br>-40 | 0<br>-63 | 0<br>-97 | ± 20   | ± 31 | +45<br>+5  | +63<br>+23 | +80<br>+40 | +108<br>+68 | +131<br>+68 | +114<br>+108 | +226<br>+190 |
| 355 | 400 | -400<br>-540 |              |              |              |             |            |          |          |          |          |        |      |            |            |            |             |             |              |              |
| 400 | 450 | -440<br>-595 | -480<br>-635 | -135<br>-198 | -135<br>-232 | -68<br>-131 | -20<br>-60 | 0<br>-27 | 0<br>-40 | 0<br>-63 | 0<br>-97 | ± 20   | ± 31 | +45<br>+5  | +63<br>+23 | +80<br>+40 | +108<br>+68 | +131<br>+68 | +166<br>+126 | +272<br>+232 |
| 450 | 500 | -480<br>-635 |              |              |              |             |            |          |          |          |          |        |      |            |            |            |             |             |              |              |

## HOUSING TOLERANCE TABLE (ISO)

| ≥   | <   | B10          | C9           | D8           | E7           | E8           | F7           | G7            | H6           | H7            | H8           | JS7  | K7         | M7        | N7         | P7          | R7          | S7           | T7 |
|-----|-----|--------------|--------------|--------------|--------------|--------------|--------------|---------------|--------------|---------------|--------------|------|------------|-----------|------------|-------------|-------------|--------------|----|
| -   | 3   | +180<br>+140 | +85<br>+60   | +34<br>+20   | +24<br>+14   | +28<br>+14   | +16<br>+6    | +12<br>+2     | +6<br>0      | +10<br>0      | +14<br>0     | ± 5  | 0<br>-10   | -2<br>-12 | -4<br>-14  | -6<br>-16   | -10<br>-20  | -14<br>-24   | -  |
| 3   | 6   | +188<br>+140 | +100<br>+70  | +48<br>+30   | +32<br>+20   | +38<br>+20   | +22<br>+10   | +16<br>+4     | +8<br>0      | +12<br>0      | +18<br>0     | ± 6  | +3<br>-9   | 0<br>-12  | -4<br>-16  | -8<br>-20   | -11<br>-23  | -15<br>-27   | -  |
| 6   | 10  | +208<br>+150 | +116<br>+80  | +62<br>+40   | +40<br>+25   | +47<br>+25   | +28<br>+13   | +20<br>+5     | +9<br>0      | +15<br>0      | +22<br>0     | ± 7  | +5<br>-10  | 0<br>-15  | -4<br>-19  | -9<br>-24   | -13<br>-28  | -17<br>-32   | -  |
| 10  | 14  | +200<br>+150 | +138<br>+95  | +77<br>+50   | +50<br>+32   | +59<br>+32   | +34<br>+16   | +24<br>+6     | +11<br>0     | +18<br>0      | +27<br>0     | ± 9  | +6<br>-12  | 0<br>-18  | -5<br>-23  | -11<br>-29  | -16<br>-34  | -21<br>-39   | -  |
| 14  | 18  |              |              |              |              |              |              |               |              |               |              |      |            |           |            |             |             |              |    |
| 18  | 24  | +244<br>+160 | +162<br>+110 | +98<br>+65   | +61<br>+40   | +73<br>+40   | +41<br>+20   | +28<br>+7     | +13<br>0     | +21<br>0      | +33<br>0     | ± 10 | +6<br>-15  | 0<br>-21  | -7<br>-28  | -14<br>-35  | -20<br>-41  | -27<br>-48   | -  |
| 24  | 30  |              |              |              |              |              |              |               |              |               |              |      |            |           |            |             |             |              |    |
| 30  | 40  | +270<br>+170 | +182<br>+120 | +119<br>+80  | +75<br>+50   | +89<br>+50   | +50<br>+25   | +34<br>+9     | +16<br>0     | +25<br>0      | +39<br>0     | ± 12 | +7<br>-18  | 0<br>-25  | -8<br>-33  | -17<br>-42  | -25<br>-50  | -34<br>-59   | -  |
| 40  | 50  |              |              |              |              |              |              |               |              |               |              |      |            |           |            |             |             |              |    |
| 50  | 65  | +310<br>+190 | +214<br>+140 | +146<br>+100 | +90<br>+60   | +106<br>+60  | +60<br>+30   | +40<br>+10    | +19<br>0     | +30<br>0      | +46<br>0     | ± 15 | +9<br>-21  | 0<br>-30  | -9<br>-39  | -21<br>-51  | -30<br>-60  | -42<br>-72   | -  |
| 65  | 80  |              |              |              |              |              |              |               |              |               |              |      |            |           |            |             |             |              |    |
| 80  | 100 | +360<br>+220 | +257<br>+170 | +174<br>+120 | +107<br>+72  | +125<br>+72  | +71<br>+36   | +47<br>+12    | +22<br>0     | +35<br>0      | +54<br>0     | ± 17 | +10<br>-25 | 0<br>-35  | -10<br>-45 | -24<br>-59  | -38<br>-73  | -58<br>-93   | -  |
| 100 | 120 |              |              |              |              |              |              |               |              |               |              |      |            |           |            |             |             |              |    |
| 120 | 140 | +420<br>+260 | +300<br>+200 | +208<br>+145 | +125<br>+85  | +148<br>+85  | +83<br>+43   | +54<br>+14    | +25<br>0     | +40<br>0      | +63<br>0     | ± 20 | +12<br>-28 | 0<br>-40  | -12<br>-52 | -28<br>-68  | -48<br>-88  | -77<br>-117  | -  |
| 140 | 160 |              |              |              |              |              |              |               |              |               |              |      |            |           |            |             |             |              |    |
| 160 | 180 | +470<br>+310 | +330<br>+230 | +242<br>+170 | +146<br>+100 | +172<br>+100 | +96<br>+50   | +61<br>+15    | +29<br>0     | +46<br>0      | +72<br>0     | ± 23 | +13<br>-33 | 0<br>-46  | -14<br>-60 | -33<br>-79  | -50<br>-90  | -85<br>-125  | -  |
| 180 | 200 |              |              |              |              |              |              |               |              |               |              |      |            |           |            |             |             |              |    |
| 200 | 225 | +565<br>+380 | +375<br>+260 | +271<br>+190 | +162<br>+110 | +191<br>+110 | +108<br>+56  | +69<br>+17    | +32<br>0     | +52<br>0      | +81<br>0     | ± 26 | +16<br>-36 | 0<br>-52  | -14<br>-66 | -36<br>-88  | -60<br>-106 | -105<br>-151 | -  |
| 225 | 250 |              |              |              |              |              |              |               |              |               |              |      |            |           |            |             |             |              |    |
| 250 | 280 | +605<br>+420 | +395<br>+280 | +299<br>+210 | +182<br>+125 | +214<br>+125 | +119<br>+62  | +75<br>+18    | +36<br>0     | +57<br>0      | +89<br>0     | ± 28 | +17<br>-40 | 0<br>-57  | -16<br>-73 | -41<br>-98  | -63<br>-109 | -113<br>-159 | -  |
| 280 | 315 |              |              |              |              |              |              |               |              |               |              |      |            |           |            |             |             |              |    |
| 315 | 355 | +690<br>+480 | +430<br>+300 | +327<br>+230 | +198<br>+135 | +232<br>+135 | +131<br>+68  | +83<br>+20    | +40<br>0     | +63<br>0      | +97<br>0     | ± 31 | +18<br>-45 | 0<br>-63  | -17<br>-80 | -45<br>-108 | -74<br>-126 | -138<br>-190 | -  |
| 355 | 400 |              |              |              |              |              |              |               |              |               |              |      |            |           |            |             |             |              |    |
| 400 | 450 | +830<br>+600 | +500<br>+360 | +750<br>+540 | +460<br>+330 | +910<br>+680 | +540<br>+400 | +1010<br>+760 | +595<br>+440 | +1090<br>+840 | +635<br>+480 | ± 31 | +18<br>-45 | 0<br>-63  | -17<br>-80 | -45<br>-108 | -87<br>-144 | -169<br>-226 | -  |
| 450 | 500 |              |              |              |              |              |              |               |              |               |              |      |            |           |            |             |             |              |    |