|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ГОСТ 11860-85 : ГАЙКИ КОЛПАЧКОВЫЕ КЛАССА ТОЧНОСТИ А.** 1. Настоящий стандарт распространяется на колпачковые гайки класса точности А с диаметром резьбы от 3 до 24 мм.Требования настоящего стандарта являются обязательными.2. Конструкция и размеры гаек исполнения 1 должны соответствовать указанным на чертеже и в табл. 1, гаек исполнения 2 - указанным на чертеже и в табл. 2.  http://www.metiz.net/files/catalog_images/image001_21.jpg \* Размер для справок.m1 - минимальная высота «под ключ».Таблица 1мм

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Номинальный диаметр резьбы d | 3 | 4 | 5 | 6 | 8 | 10 | 12 | (14) | 16 | (18) | 20 | (22) | 24 |
| Шаг резьбы | крупный | 0,5 | 0,7 | 0,8 | 1 | 1,25 | 1,5 | 1,75 | 2 | 2,5 | 3 |
| мелкий | - | - | - | - | 1 | 1,25 | 1,5 | 2 |
| Размер «под ключ» S | 5,5 | 7 | 8 | 10 | 13 | 16 | 18 | 21 | 24 | 27 | 30 | 34 | 36 |
| Диаметр описанной ок­ружности е, не менее | 6,0 | 7,7 | 8,8 | 11,1 | 14,4 | 17,8 | 20,0 | 23,4 | 26,7 | 30,1 | 33,5 | 37,7 | 40,0 |
| Н, пред откл. по h14 | 7,5 | 8,0 | 10,0 | 12,0 | 15,0 | 18,0 | 22,0 | 25,0 | 28,0 | 32,0 | 34,0 | 39,0 | 42,0 |
| m, пред откл. по h14 | 2,4 | 3,2 | 4,0 | 5,0 | 6,5 | 8,0 | 10,0 | 11,0 | 13,0 | 15,0 | 16,0 | 18,0 | 19,0 |
| D, пред. откл. по h14 | 5,0 | 6,5 | 7,5 | 9,5 | 12,5 | 15,0 | 17,0 | 20,0 | 23,0 | 26,0 | 28,0 | 33,0 | 34,0 |
| dа | не более | 3,45 | 4,60 | 5,75 | 6,75 | 8,75 | 10,8 | 13,0 | 15,1 | 17,3 | 19,4 | 21,6 | 23,8 | 25,9 |
| не менее | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| R | 2,5 | 3,2 | 3,7 | 4,7 | 6,2 | 7,5 | 8,5 | 10,0 | 11,5 | 13,0 | 14,0 | 16,5 | 17,0 |
| l, пред. откл. по js 15 | 5,0 | 5,5 | 7,5 | 8,0 | 11 | 13 | 16 | 18 | 21 | 25 | 26 | 29 | 31 |
| ll, не менее | 2 | 3 | 3,8 | 4 | 6 | 7 | 9 | 11 | 13 | 14 | 16 | 18 | 19 |
| dw, не менее | 5,0 | 5,8 | 6,8 | 8,3 | 11,3 | 14,3 | 16,2 | 19,2 | 22,2 | 25,3 | 28,2 | 31,4 | 33,2 |
| w, не менее | 2,0 | 3,0 | 4,0 | 5,0 | 6,0 |

 Таблица 2мм

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Номинальный диаметр резьбы d | 4 | 5 | 6 | 8 | 10 | 12 | (14) | 16 | (18) | 20 | (22) | 24 |
| Шаг резьбы | крупный | 0,7 | 0,8 | 1 | 1,25 | 1,5 | 1,75 | 2 | 2,5 | 3 |
| мелкий | - | - | - | 1 | 1,25 | 1,5 | 2 |
| Размер «под ключ» S, пред. откл. по h13 | 7 | 8 | 10 | 13 | 16 | 18 | 21 | 24 | 27 | 30 | 34 | 36 |
| Диаметр описанной ок­ружности е, не менее | 7,7 | 8,8 | 11,1 | 14,4 | 17,8 | 20,0 | 23,4 | 26,7 | 30,1 | 33,5 | 37,7 | 40,0 |
| Н1, пред откл. по h14 | 5,5 | 7 | 9 | 12 | 14 | 16 | 18 | 20 | 22 | 25 | 28 | 30 |
| m1, не менее | 2,75 | 3,5 | 4,5 | 6 | 7 | 8 | 9 | 10 | 11 | 12,5 | 14 | 15 |
| dа | не более | 4,60 | 5,75 | 6,75 | 8,75 | 10,8 | 13,0 | 15,1 | 17,3 | 19,4 | 21,6 | 23,8 | 25,9 |
| не менее | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| R1 | 8 | 10 | 12 | 15 | 20 | 25 | 28 | 30 | 32 | 35 | 35 | 40 |
| l2, не более | 4,4 | 5,2 | 7 | 9,5 | 11 | 13,5 | 15 | 17 | 19 | 21 | 22 | 24 |
| l3, не менее | 3 | 3,8 | 4 | 6 | 7 | 9 | И | 13 | 14 | 16 | 18 | 19 |
| dw, не менее | 6,3 | 7,2 | 9,0 | 11,7 | 14,6 | 16,6 | 19,6 | 22,5 | 25,3 | 28,2 | 31,7 | 33,6 |
| w, не менее | 1 | 1,5 | 2 | 2,5 | 3,0 |

 Примечания к табл. 1 и 2:Размеры гаек, заключенные в скобки, применять не рекомендуется.Для изделий, спроектированных до 01.01.93, допускается применять гайки М10, М12, М14 и М22 исполнений 1 и 2 с размерами, указанными в приложении 2. Пример условного обозначения гайки исполнения 1, диаметром резьбы d = 12 мм, с крупным шагом резьбы с полем допуска 6Н, класса прочности 5, без покрытия: *Гайка М12-6Н.5 ГОСТ 11860-85* То же, исполнения 2, с мелким шагом резьбы с полем допуска 6Н, класса прочности 6, с цинковым покрытием толщиной 6 мкм, хроматированным, с размером «под ключ» S - 16 мм: *Гайка 2М12 х l,25-6H.6.016(sl6) ГОСТ 11860-85* 3. Резьба - по ГОСТ 24705-81.4. Недорез резьбы - короткий по ГОСТ 10549-80.Допускается выполнение проточки - нормальная по ГОСТ 10549-80 для гаек с d>10 мм на длине l-l1.5. Неуказанные допуски и методы контроля размеров, отклонений формы и расположенияповерхностей - по ГОСТ 1759.1-82.6. Дефекты поверхности и методы контроля - по ГОСТ 1759.3-83.7. Допускается на радиусной поверхности прямая площадка диаметром не более 0,3 D.8. Конфигурация дна отверстия не регламентируется.9. Технические требования - по ГОСТ 1759.0-87 для гаек класса точности А.10. Теоретическая масса гаек исполнения 1 указана в приложении. ПРИЛОЖЕНИЕ 1Справочное Таблица 3Масса стальных гаек с крупньш шагом резьбы

|  |  |
| --- | --- |
| Номинальный диаметр резьбы, d, мм | Теоретическая масса 1000 шт. гаек, кг, исполнения |
| 1 | 2 |
| 3 | 0,92 | - |
| 4 | 1,60 | 1,30 |
| 5 | 2,43 | 2,16 |
| 6 | 4,93 | 4,40 |
| 8 | 10,00 | 9,67 |
| 10 | 17,46 | 16,91 |
| 12 | 26,06 | 22,04 |
| 14 | 40,40 | 34,74 |
| 16 | 57,80 | 48,78 |
| 18 | 83,68 | 67,48 |
| 20 | 102,13 | 94,87 |
| 22 | 167,00 | 137,10 |
| 24 | 192,60 | 174,40 |

 Для определения массы алюминиевых и латунных гаек значения массы, указанные в таблице, следует умножить на коэффициенты:0,356 - для алюминиевого сплава;1,080 - для латуни. ПРИЛОЖЕНИЕ 2СправочноеТаблица 4мм

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Номинальный диаметр резьбы d | 10 | 12 | 14 | 22 |
| Размер «под ключ» | 17 | 19 | 22 | 32 |
| Диаметр описанной окружности е, не менее | 18,9 | 21,1 | 24,5 | 35,7 |
| lw, не менее | 15,3 | 17,2 | 20,2 | 29,5 |
| D, пред. откл. по h14 | 16 | 18 | 21 | 30 |
| R | 8,0 | 9,0 | 10,5 | 15,0 |

 Пример условного обозначения гайки исполнения 1, диаметром резьбы d - 10 мм, с крупным шагом резьбы с полем допуска 6Н, класса прочности 6, без покрытия: *Гайка М10-6Н.6 ГОСТ 11860-85.*  (Введено дополнительно, Изм. № 1). |