**ЗАДАНИЕ**

**на курсовой проект (работу) студента**

1. Тема проекта (работы) *Разработать технологический процесс производства*

*детали - щит подшипниковый БИЯН 712272.002*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Взам. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Подл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | |  | | | |  | |
| Разраб.  ХГТУ НКПИ | | | Куцак | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
| Пров | | | Белоус | | |  | | |  | | | | | 090202.ДП.ТМС.1.1.2.С.01.01 | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  |  | | | | | | | | | | | | | | | | | | | | | | | |  | | |  | | |  | | | |  |
| Н. Контр. | | | Трифонова | | |  | | |  | Вилка | | | | | | | | | | | | | | | | | | | | | | | | ДП | | |  | | |  | | | | 015 |
| Наименование операции | | | | | | | Материал | | | | | | | | | Твердость | | | ЕВ | | | Мд | | Профиль и размеры | | | | | | | | | | | | | | МЗ | | | | КОИД | | |
| Вертикально-сверлильная | | | | | | | Сталь 45 ГОСТ 1050-88 | | | | | | | | | 215 HB | | | 166  кг | | | 2.015 | | Поковка | | | | | | | | | | | | | | 2.62 | | | | 1 | | |
| Оборудование, устройство ЧПУ | | | | | | | Обозначение программы | | | | | | | | | То | | Тв | | | | Тиз | | Тшт | | | | | СОЖ | | | | | | | | | | | | | | |  |
| Вертикально-сверлильный станок модели 2М55 | | | | | | |  | | | | | | | | |  |  | | | | |  | |  | | | | | Эмульсия | | | | | | | | | | | | | | |  |
| P |  | | | | | | | | | | | ПИ | | | | D или B,  мм | | | | | L,  мм | | | t,  мм | | | i | | | | S,  мм/об | | | | n,  мин-1 | | | | | | V,  м/мин | | | |
| О 1 | 1 УЗС | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 2 | 293220 приспособление специальное | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 4 | 2 Зенкеровать отверстие | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | выдерживая размер | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 5 | 291432 Втулка 6100-0141 ГОСТ 13598-85; 282440 Зенкер 2531-0518 ГОСТ 12489-71; ШЦ I-150-0.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Р 6 | XXX ∅29.4H11 65 1.6 1 0.5 195 18.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 7 | 3 Контроль-исполнителем | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 8 | 4 Уложить в тару | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1404-86 Форма 3

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Взам. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Подл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | |  | | | |  | |
| Разраб.  ХГТУ НКПИ | | | Куцак | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
| Пров | | | Белоус | | |  | | |  | | | | | 090202.ДП.ТМС.1.1.2.С.01.01 | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  |  | | | | | | | | | | | | | | | | | | | | | | | |  | | |  | | |  | | | |  |
| Н. Контр. | | | Трифонова | | |  | | |  | Вилка | | | | | | | | | | | | | | | | | | | | | | | | ДП | | |  | | |  | | | | 020 |
| Наименование операции | | | | | | | Материал | | | | | | | | | Твердость | | | ЕВ | | | Мд | | Профиль и размеры | | | | | | | | | | | | | | МЗ | | | | КОИД | | |
| Вертикально-фрезерная | | | | | | | Сталь 45 ГОСТ 1050-88 | | | | | | | | | 215 HB | | | 166  кг | | | 2.015 | | Поковка | | | | | | | | | | | | | | 2.62 | | | | 1 | | |
| Оборудование, устройство ЧПУ | | | | | | | Обозначение программы | | | | | | | | | То | | Тв | | | | Тиз | | Тшт | | | | | СОЖ | | | | | | | | | | | | | | |  |
| Вертикально-фрезерная  станок модели 6Р13 | | | | | | |  | | | | | | | | |  |  | | | | |  | |  | | | | | Эмульсия | | | | | | | | | | | | | | |  |
| P |  | | | | | | | | | | | ПИ | | | | D или B,  мм | | | | | L,  мм | | | t,  мм | | | i | | | | S,  мм/об | | | | n,  мин-1 | | | | | | V,  м/мин | | | |
| О 1 | 1 УЗС | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 2 | 293220 приспособление специальное | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 4 | 2 Фрезеровать паз выдерживая | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | размер | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 5 | 28228 Фреза ГОСТ 17026-71; ШЦ I-150-0.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Р 6 | XXX 48±0.125 99 2 1 0.42 160 23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 7 | 3 Контроль-исполнителем | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 8 | 4 Уложить в тару | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1404-86 Форма 3

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Взам. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Подл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | |  | | | |  | |
| Разраб.  ХГТУ НКПИ | | | Куцак | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
| Пров | | | Белоус | | |  | | |  | | | | | 090202.ДП.ТМС.1.1.2.С.01.01 | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  |  | | | | | | | | | | | | | | | | | | | | | | | |  | | |  | | |  | | | |  |
| Н. Контр. | | | Трифонова | | |  | | |  | Вилка | | | | | | | | | | | | | | | | | | | | | | | | ДП | | |  | | |  | | | | 025 |
| Наименование операции | | | | | | | Материал | | | | | | | | | Твердость | | | ЕВ | | | Мд | | Профиль и размеры | | | | | | | | | | | | | | МЗ | | | | КОИД | | |
| Горизонтально-протяжная | | | | | | | Сталь 45 ГОСТ 1050-88 | | | | | | | | | 215 HB | | | 166  кг | | | 2.015 | | Поковка | | | | | | | | | | | | | | 2.62 | | | | 1 | | |
| Оборудование, устройство ЧПУ | | | | | | | Обозначение программы | | | | | | | | | То | | Тв | | | | Тиз | | Тшт | | | | | СОЖ | | | | | | | | | | | | | | |  |
| Горизонтально-протяжной станок модели 7520 | | | | | | |  | | | | | | | | |  |  | | | | |  | |  | | | | | Эмульсия | | | | | | | | | | | | | | |  |
| P |  | | | | | | | | | | | ПИ | | | | D или B,  мм | | | | | L,  мм | | | t,  мм | | | i | | | | S,  мм/об | | | | n,  мин-1 | | | | | | V,  м/мин | | | |
| О 1 | 1 УЗС | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 2 | 293510 приспособление для внутреннего протягивания | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 4 | 2 Протягивать отверстие выдерживая | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | размер | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 5 | 283420 Протяжка ГОСТ 18228-72; 393120 Пробка ГОСТ 14810-68 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Р 6 | XXX ∅30H7 490 0.3 1 - - 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 7 | 3 Контроль-исполнителем | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 8 | 4 Уложить в тару | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1404-86 Форма 3

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Взам. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Подл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | |  | | | |  | |
| Разраб.  ХГТУ НКПИ | | | Куцак | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
| Пров | | | Белоус | | |  | | |  | | | | | 090202.ДП.ТМС.1.1.2.С.01.01 | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  |  | | | | | | | | | | | | | | | | | | | | | | | |  | | |  | | |  | | | |  |
| Н. Контр. | | | Трифонова | | |  | | |  | Вилка | | | | | | | | | | | | | | | | | | | | | | | | ДП | | |  | | |  | | | | 030 |
| Наименование операции | | | | | | | Материал | | | | | | | | | Твердость | | | ЕВ | | | Мд | | Профиль и размеры | | | | | | | | | | | | | | МЗ | | | | КОИД | | |
| Горизонтально-протяжная | | | | | | | Сталь 45 ГОСТ 1050-88 | | | | | | | | | 215 HB | | | 166  кг | | | 2.015 | | Поковка | | | | | | | | | | | | | | 2.62 | | | | 1 | | |
| Оборудование, устройство ЧПУ | | | | | | | Обозначение программы | | | | | | | | | То | | Тв | | | | Тиз | | Тшт | | | | | СОЖ | | | | | | | | | | | | | | |  |
| Горизонтально-протяжной станок модели 7520 | | | | | | |  | | | | | | | | |  |  | | | | |  | |  | | | | | Эмульсия | | | | | | | | | | | | | | |  |
| P |  | | | | | | | | | | | ПИ | | | | D или B,  мм | | | | | L,  мм | | | t,  мм | | | i | | | | S,  мм/об | | | | n,  мин-1 | | | | | | V,  м/мин | | | |
| О 1 | 1 УЗС | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 2 | 293510 приспособление для внутреннего протягивания | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 4 | 2 Протягивать шпоночный паз | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | выдерживая размер | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 5 | 283370 Протяжка ГОСТ 18239-72; 401451 Калибр шпоночный МН 2982-61 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Р 6 | XXX 33.3+0.2 590 3.3 1 - - 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 7 | 3 Контроль-исполнителем | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 8 | 4 Уложить в тару | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1404-86 Форма 3

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Взам. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Подл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | |  | | | |  | |
| Разраб.  ХГТУ НКПИ | | | Куцак | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
| Пров | | | Белоус | | |  | | |  | | | | | 090202.ДП.ТМС.1.1.2.С.01.01 | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  |  | | | | | | | | | | | | | | | | | | | | | | | |  | | |  | | |  | | | |  |
| Н. Контр. | | | Трифонова | | |  | | |  | Вилка | | | | | | | | | | | | | | | | | | | | | | | | ДП | | |  | | |  | | | | 035 |
| Наименование операции | | | | | | | Материал | | | | | | | | | Твердость | | | ЕВ | | | Мд | | Профиль и размеры | | | | | | | | | | | | | | МЗ | | | | КОИД | | |
| Токарно-винторезная | | | | | | | Сталь 45 ГОСТ 1050-88 | | | | | | | | | 215 HB | | | 166  кг | | | 2.015 | | Поковка | | | | | | | | | | | | | | 2.62 | | | | 1 | | |
| Оборудование, устройство ЧПУ | | | | | | | Обозначение программы | | | | | | | | | То | | Тв | | | | Тиз | | Тшт | | | | | СОЖ | | | | | | | | | | | | | | |  |
| Токарно-винторезный станок модели 16К20 | | | | | | |  | | | | | | | | |  |  | | | | |  | |  | | | | | Эмульсия | | | | | | | | | | | | | | |  |
| P |  | | | | | | | | | | | ПИ | | | | D или B,  мм | | | | | L,  мм | | | t,  мм | | | i | | | | S,  мм/об | | | | n,  мин-1 | | | | | | V,  м/мин | | | |
| О 1 | 1 УЗС | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 2 | 293140 оправка | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 4 | 2 Точиить поверхность | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | выдерживая размер , подрезать | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | торец выдерживая размер | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 5 | 281130 Резец ГОСТ 18947-73; 281150 Резец ГОСТ 18879-73; ШЦ I-150-0.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Р 6 | XXX ∅35-0.25 35 1.7 1 0.7 1250 196 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Р 7 | XXX ∅85 20 1.6 1 0.6 160 25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 8 | 3 Контроль-исполнителем | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 9 | 4 Уложить в тару | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1404-86 Форма 3

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Взам. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Подл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | |  | | | |  | |
| Разраб.  ХГТУ НКПИ | | | Куцак | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
| Пров | | | Белоус | | |  | | |  | | | | | 090202.ДП.ТМС.1.1.2.С.01.01 | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  |  | | | | | | | | | | | | | | | | | | | | | | | |  | | |  | | |  | | | |  |
| Н. Контр. | | | Трифонова | | |  | | |  | Вилка | | | | | | | | | | | | | | | | | | | | | | | | ДП | | |  | | |  | | | | 040 |
| Наименование операции | | | | | | | Материал | | | | | | | | | Твердость | | | ЕВ | | | Мд | | Профиль и размеры | | | | | | | | | | | | | | МЗ | | | | КОИД | | |
| Вертикально-фрезерная | | | | | | | Сталь 45 ГОСТ 1050-88 | | | | | | | | | 215 HB | | | 166  кг | | | 2.015 | | Поковка | | | | | | | | | | | | | | 2.62 | | | | 1 | | |
| Оборудование, устройство ЧПУ | | | | | | | Обозначение программы | | | | | | | | | То | | Тв | | | | Тиз | | Тшт | | | | | СОЖ | | | | | | | | | | | | | | |  |
| Вертикально-фрезерная  станок модели 6Р13 | | | | | | |  | | | | | | | | |  |  | | | | |  | |  | | | | | Эмульсия | | | | | | | | | | | | | | |  |
| P |  | | | | | | | | | | | ПИ | | | | D или B,  мм | | | | | L,  мм | | | t,  мм | | | i | | | | S,  мм/об | | | | n,  мин-1 | | | | | | V,  м/мин | | | |
| О 1 | 1 УЗС | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 2 | 293220 приспособление специальное | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 4 | 2 Фрезеровать поверхности | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | выдерживая размер | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 5 | 282140 Фреза ГОСТ 24351-80; ШЦ I-150-0.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Р 6 | XXX 90±0.2 104 1.6 1 2 630 198 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 7 | 3 Контроль-исполнителем | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 8 | 4 Уложить в тару | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1404-86 Форма 3

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Взам. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Подл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | |  | | | |  | |
| Разраб.  ХГТУ НКПИ | | | Куцак | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
| Пров | | | Белоус | | |  | | |  | | | | | 090202.ДП.ТМС.1.1.2.С.01.01 | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  |  | | | | | | | | | | | | | | | | | | | | | | | |  | | |  | | |  | | | |  |
| Н. Контр. | | | Трифонова | | |  | | |  | Вилка | | | | | | | | | | | | | | | | | | | | | | | | ДП | | |  | | |  | | | | 045 |
| Наименование операции | | | | | | | Материал | | | | | | | | | Твердость | | | ЕВ | | | Мд | | Профиль и размеры | | | | | | | | | | | | | | МЗ | | | | КОИД | | |
| Вертикально-сверильная | | | | | | | Сталь 45 ГОСТ 1050-88 | | | | | | | | | 215 HB | | | 166  кг | | | 2.015 | | Поковка | | | | | | | | | | | | | | 2.62 | | | | 1 | | |
| Оборудование, устройство ЧПУ | | | | | | | Обозначение программы | | | | | | | | | То | | Тв | | | | Тиз | | Тшт | | | | | СОЖ | | | | | | | | | | | | | | |  |
| Вертикально-сверильный  станок с ЧПУ модели 2Р135Ф2 | | | | | | |  | | | | | | | | |  |  | | | | |  | |  | | | | | Эмульсия | | | | | | | | | | | | | | |  |
| P |  | | | | | | | | | | | ПИ | | | | D или B,  мм | | | | | L,  мм | | | t,  мм | | | i | | | | S,  мм/об | | | | n,  мин-1 | | | | | | V,  м/мин | | | |
| О 1 | 1 УЗС | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 2 | 293140 оправка | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 4 | 2 Центровать отверстие выдерживая | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | размер 13 , зенковать фаску выдерживая | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | размеры , нарезать резьбу выдерживая | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | размеры , 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 5 | 291432 Втулка 6100-0141 ГОСТ 13598-85; 282410 Сверло центровочное ∅4 ГОСТ 18873-73; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 6 | 282410 Сверло ГОСТ 12122-77; 282460 Зенковка ГОСТ 14953-69; 283230 Метчик М6 ГОСТ 3266-81; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 7 | 401511 Пробка ГОСТ 17757-72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Р 8 | XXX ∅8 11 1 1 0.16 1000 27 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Р 9 | XXX ∅5 12 2.5 1 0.1 1400 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Р 10 | XXX ∅7 5 1 1 0.16 1400 25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1404-86 Форма 3

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. | | | |  |  | |  | |  | | | |  | |  | | |  | | |  |  | |  | |  | |  | | |  |  | | |
| Взам. | | | |  |  | |  | |  | | | | |  | |  | |  | | |  |  | |  | |  | |  | | |  |  | | |
| Подл. | | | |  |  | |  | |  | | | | |  | |  | |  | | |  |  | |  | |  | |  | | |  |  | | |
|  |  | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | |  |
|  | |  | |  | |  | |  | |  |  |  | | | | |  | | |  |  | | | | | | | |  | | | |  | |
|  | |  | |  | |  | |  | |  |  |  | | | | |  | | |  |  | | | | | | | |  | | | |  | |
|  | |  | |  | |  | |  | |  |  |  | | | | |  | | |  |  | | | | | | | |  | | | |  | |
| P | | |  | | | | | | | | | | | ПИ | | | | | D или B,  мм | | L,  мм | | t,  мм | | i | | S,  мм/об | | | n,  мин-1 | | V,  м/мин | | |
| Р 1 | | | XXX М6-7H 16 - 1 1 250 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 3 | | | 3 Контроль-исполнителем | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 4 | | | 4 Уложить в тару | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1404-86 Форма 2a

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Взам. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
| Подл. | |  | |  |  | | |  | | |  | |  | |  | | | | |  | | |  | | | | | |  | | |  |  | | | |  | | | | | |  | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | |  | | | |  | |
| Разраб.  ХГТУ НКПИ | | | Куцак | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
| Пров | | | Белоус | | |  | | |  | | | | | 090202.ДП.ТМС.1.1.2.С.01.01 | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  | | | | |  | | | | | | | | | | |  |  | |  | | | | | | | |  | | | | | | | | |
|  | | |  | | |  | | |  |  | | | | | | | | | | | | | | | | | | | | | | | |  | | |  | | |  | | | |  |
| Н. Контр. | | | Трифонова | | |  | | |  | Вилка | | | | | | | | | | | | | | | | | | | | | | | | ДП | | |  | | |  | | | | 045 |
| Наименование операции | | | | | | | Материал | | | | | | | | | Твердость | | | ЕВ | | | Мд | | Профиль и размеры | | | | | | | | | | | | | | МЗ | | | | КОИД | | |
| Вертикально-сверильная | | | | | | | Сталь 45 ГОСТ 1050-88 | | | | | | | | | 215 HB | | | 166  кг | | | 2.015 | | Поковка | | | | | | | | | | | | | | 2.62 | | | | 1 | | |
| Оборудование, устройство ЧПУ | | | | | | | Обозначение программы | | | | | | | | | То | | Тв | | | | Тиз | | Тшт | | | | | СОЖ | | | | | | | | | | | | | | |  |
| Вертикально-сверильный  станок с ЧПУ модели 2Р135Ф2 | | | | | | |  | | | | | | | | |  |  | | | | |  | |  | | | | | Эмульсия | | | | | | | | | | | | | | |  |
| P |  | | | | | | | | | | | ПИ | | | | D или B,  мм | | | | | L,  мм | | | t,  мм | | | i | | | | S,  мм/об | | | | n,  мин-1 | | | | | | V,  м/мин | | | |
| О 1 | 1 УЗС | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 2 | 293140 оправка | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 4 | 2 Центровать, сверлить, зенкеровать | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | и развернуть отверстие выдерживая | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | размер 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 5 | 291432 Втулка 6100-0141 ГОСТ 13598-85; 282410 Сверло центровочное ∅4 ГОСТ 18873-73; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 6 | 282410 Сверло ГОСТ 10903-77; 282440 Зенкер ГОСТ 3231-71; 282510 Развертка ГОСТ 883-71 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Т 7 | 393120 Пробка ГОСТ 14810-68 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Р 8 | XXX ∅8 11 1 1 0.16 1000 27 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Р 9 | XXX ∅25H12 106 12.5 1 0.32 250 19.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Р 10 | XXX ∅44.8H10 106 10 1 0.6 250 35 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Р 11 | XXX ∅45H8 106 0.07 1 1.1 250 35 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1404-86 Форма 3

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. | | | |  |  | |  | |  | | | |  | |  | | |  | | |  |  | |  | |  | |  | | |  |  | | |
| Взам. | | | |  |  | |  | |  | | | | |  | |  | |  | | |  |  | |  | |  | |  | | |  |  | | |
| Подл. | | | |  |  | |  | |  | | | | |  | |  | |  | | |  |  | |  | |  | |  | | |  |  | | |
|  |  | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | |  |
|  | |  | |  | |  | |  | |  |  |  | | | | |  | | |  |  | | | | | | | |  | | | |  | |
|  | |  | |  | |  | |  | |  |  |  | | | | |  | | |  |  | | | | | | | |  | | | |  | |
|  | |  | |  | |  | |  | |  |  |  | | | | |  | | |  |  | | | | | | | |  | | | |  | |
| P | | |  | | | | | | | | | | | ПИ | | | | | D или B,  мм | | L,  мм | | t,  мм | | i | | S,  мм/об | | | n,  мин-1 | | V,  м/мин | | |
| Р 1 | | | XXX ∅45H8 106 0.07 1 1.1 250 35 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 3 | | | 3 Контроль-исполнителем | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| О 4 | | | 4 Уложить в тару | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

|  |  |
| --- | --- |
| 12 |  |

|  |  |
| --- | --- |
| 13 |  |
| 14 |  |
| 15 |  |
| 16 |  |
| 17 |  |
| 18 |  |

mxl printed ГОСТ 3.1404-86 Форма 2a

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. | | | |  |  | |  | |  | | | |  | |  | | |  | | |  |  | |  | |  | |  | | |  |  | | |
| Взам. | | | |  |  | |  | |  | | | | |  | |  | |  | | |  |  | |  | |  | |  | | |  |  | | |
| Подл. | | | |  |  | |  | |  | | | | |  | |  | |  | | |  |  | |  | |  | |  | | |  |  | | |
|  |  | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | |  |
|  | |  | |  | |  | |  | |  |  |  | | | | |  | | |  |  | | | | | | | |  | | | |  | |
|  | |  | |  | |  | |  | |  |  |  | | | | |  | | |  |  | | | | | | | |  | | | |  | |
|  | |  | |  | |  | |  | |  |  |  | | | | |  | | |  |  | | | | | | | |  | | | |  | |
| P | | |  | | | | | | | | | | | ПИ | | | | | D или B,  мм | | L,  мм | | t,  мм | | i | | S,  мм/об | | | n,  мин-1 | | V,  м/мин | | |
| 1 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 2 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 3 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 4 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 5 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 6 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 7 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 8 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 9 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 10 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 11 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 12 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 13 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 14 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 15 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 16 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 17 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |
| 18 | | |  | | | | | | | | | | |  | | | | |  | |  | |  | |  | |  | | |  | |  | | |

mxl printed ГОСТ 3.1404-86 Форма 2a

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. |  | | |  | |  | | |  | | | |  | |  | |  | | | |  | | | |  | | |  | |  | |  | | | | | | | |  | | | | |  | | |
| Взам. |  | | |  | |  | | |  | | | |  | |  | |  | | | |  | | | |  | | |  | |  | |  | | | | | | | |  | | | | |  | | |
| Подл. |  | | |  | |  | | |  | | | |  | |  | |  | | | |  | | | |  | | |  | |  | |  | | | | | | | |  | | | | |  | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | 1 | | | 1 | | |
| Разраб.  090202.ДП.ТМС.1.1.2.С.01.01 ХГТУ НКПИ | | Куцак | | | | |  | | | |  | | | | |  | | | | | | | | | |  | | | | | | | | |  | | | | | | | | | | | | |
| Пров | | Белоус | | | | |  | | | |  | | | | |  | | | | | | | | | |  | | | | | | | | |  | | | | | | | | | | | | |
|  | |  | | | | |  | | | |  | | | | |  | | | | | | | | | |  | | | | | | | | |  | | | | | | | | | | | | |
| ДП Вилка | |  | | | | |  | | | |  | | | | | | | | | | | | | | | | | | | | | | | | |  |  | | | |  | | |  | | |  |
| Н. Контр. | | Трифонова | | | | |  | | | |  | | | | | | | | | | | | | | | | | | | | | | | | |  |  | | | |  | | |  | | |  |
| М 01 | Сталь 45 ГОСТ 1050-88 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | |
|  | Код | | | | | | | ЕВ | | МД | | ЕН | | Н.расх. | | | | КИМ | Код загот. | | | Профиль и размеры | | | | | | | КД | | | | МЗ | | | | | |  | | | | | | | | |
| М 02 | XX XX XX 166кг 2.015 1.0 2.621 | | | | | | | | | | | | | | | | | 0.79 | 41211X | | | Поковка | | | | | | | 1 2.621 | | | | | | | | | |  | | | | | | | | |
| А | Цех | | Уч. | | РМ | | | Опер. | | Код, наименование операции | | | | | | | | | Обозначение документа | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Б | Код, наименование оборудования | | | | | | | | | | | | | | | | | | СМ | Проф | | | Р | УТ | | КР | КОИД | | | | ЕН | | | ОП | | | | Кшт. | | | | | Тпз | | | Тшт. | |
| А 03 | XX XX XX 005 2170 Заготовительная ИОТ №900-99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| А 05 | XX XX XX 010 0200 Контрольная ИОТ №902-99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 06 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| А 07 | XX XX XX 015 4121 Вертикально-сверлильная ИОТ №900-99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Б 08 | 04 1211 2М55 2 17335 3 1Р 1 1 1 54 1 11 1.24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 09 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| А 10 | XX XX XX 020 4261 Вертикально-фрезерная ИОТ №600-99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Б 11 | 04 1620 6Р13 2 18632 3 1Р 1 1 1 54 1 11 0.91 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| А 13 | XX XX XX 025 4181 Горизонтально-протяжная ИОТ №700-99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Б 14 | 04 1750 7520 2 16458 3 1Р 1 1 1 54 1 11 0.64 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1118-82 Форма 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. |  | | |  | | | |  | |  | | | |  | |  | | |  | | | |  | | | | |  | | |  |  | | |  | | | |  | |  | |
| Взам. |  | | |  | | | |  | |  | | | |  | |  | | |  | | | |  | | | | |  | | |  |  | | |  | | | |  | |  | |
| Подл. |  | | |  | | | |  | |  | | | |  | |  | | |  | | | |  | | | | |  | | |  |  | | |  | | | |  | |  | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | |  | |
|  | |  | | |  | |  | | | | |  |  | |  | |  |  | | |  | | |  | |  | | | | | | | | | | |  | | | | | |
|  | |  | | |  | |  | | | | |  |  | |  | |  |  | | |  | | |  | |  | | | | | | | | | | |  | | | | | |
|  | |  | | |  | |  | | | | |  |  | |  | |  |  | | |  | | |  | |  | | | | | | | | | | |  | | | | | |
| А | Цех | | Уч. | | | РМ | | | Опер. | | Код, наименование операции | | | | | | | | | Обозначение документа | | | | | | | | | | | | | | | | | | | | | | |
| Б | Код, наименование оборудования | | | | | | | | | | | | | | | | | | | СМ | | Проф | | | Р | | УТ | | КР | КОИД | | | ЕН | | | ОП | | Кшт. | | Тпз | | Тшт. |
| К/М | Наименование детали, сб.еденицы или материала | | | | | | | | | | | | | | | | | | | Обозначение, код | | | | | | | | | | | | | ОПП | | | ЕВ | | ЕН | | КИ | | Н,ра |
| А 03 | XX XX XX 030 4181 Горизонтально-протяжная ИОТ №700-99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Б 04 | 04 1750 7520 2 16458 3 1Р 1 1 1 54 1 11 0.58 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 05 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| А 06 | XX XX XX 035 4110 Токарно-винторезная ИОТ №100-99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Б 07 | 04 1162 16К20 2 18270 3 1Р 1 1 1 54 1 11 1.86 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 08 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| А 09 | XX XX XX 040 4261 Вертикально-фрезерная ИОТ №903-99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Б 10 | 04 1620 6Р13 2 18632 3 1Р 1 1 1 54 1 11 0.99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| А 12 | XX XX XX 045 4120 Вертикально-сверлильная ИОТ №904-99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Б 13 | 04 1211 2Р135Ф2 2 17335 3 1Р 1 1 1 54 1 11 4.33 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| А 15 | XX XX XX 045 4120 Вертикально-сверлильная ИОТ №904-99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Б 16 | 04 1211 2Р135Ф2 2 17335 3 1Р 1 1 1 54 1 11 4.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| А 18 | XX XX XX 050 0200 Контрольная ИОТ №902-99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1118-82 Форма 1б

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. |  | |  |  | |  | |  |  | |  |  |  | |  | |  |  | | |  | |  | |
| Взам. |  | |  |  | |  | |  |  | |  |  |  | |  | |  |  | | |  | |  | |
| Подл. |  | |  |  | |  | |  |  | |  |  |  | |  | |  |  | | |  | |  | |
| 1 5 | | | | | | | | | | | | | | | |  | | | | | |  |  | |
| Разраб.  090202.ДП.ТМС.1.1.3.С.01 | | Россинский | | |  | |  | | |  | | | |  | | | | |  | | | | | |
|  | |  | | |  | |  | | |  | | | |  | | | | |  | | | | | |
| Скоба | |  | | |  | |  | | |  | | | |  | | | | |  | | | | | |
| 015 | |  | | |  | |  | | | | | | | | | | | | |  | | | |  |
| Н. Контр. | | Трифонова | | |  | |  | | | | | | | | | | | | |  | | | |  |
|  | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1106-84 Форма 7

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. |  | |  |  | |  | |  |  | |  |  |  | |  | |  |  | | |  | |  | |
| Взам. |  | |  |  | |  | |  |  | |  |  |  | |  | |  |  | | |  | |  | |
| Подл. |  | |  |  | |  | |  |  | |  |  |  | |  | |  |  | | |  | |  | |
| 2 5 | | | | | | | | | | | | | | | |  | | | | | |  |  | |
| Разраб.  090202.ДП.ТМС.1.1.3.С.01 | | Россинский | | |  | |  | | |  | | | |  | | | | |  | | | | | |
|  | |  | | |  | |  | | |  | | | |  | | | | |  | | | | | |
| Скоба | |  | | |  | |  | | |  | | | |  | | | | |  | | | | | |
| 020 | |  | | |  | |  | | | | | | | | | | | | |  | | | |  |
| Н. Контр. | | Трифонова | | |  | |  | | | | | | | | | | | | |  | | | |  |
|  | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1106-84 Форма 7

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. |  | |  |  | |  | |  |  | |  |  |  | |  | |  |  | | |  | |  | |
| Взам. |  | |  |  | |  | |  |  | |  |  |  | |  | |  |  | | |  | |  | |
| Подл. |  | |  |  | |  | |  |  | |  |  |  | |  | |  |  | | |  | |  | |
| 3 5 | | | | | | | | | | | | | | | |  | | | | | |  |  | |
| Разраб.  090202.ДП.ТМС.1.1.3.С.01 | | Россинский | | |  | |  | | |  | | | |  | | | | |  | | | | | |
|  | |  | | |  | |  | | |  | | | |  | | | | |  | | | | | |
| Скоба | |  | | |  | |  | | |  | | | |  | | | | |  | | | | | |
| 025 | |  | | |  | |  | | | | | | | | | | | | |  | | | |  |
| Н. Контр. | | Трифонова | | |  | |  | | | | | | | | | | | | |  | | | |  |
|  | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1106-84 Форма 7

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. |  | |  |  | |  | |  |  | |  |  |  | |  | |  |  | | |  | |  | |
| Взам. |  | |  |  | |  | |  |  | |  |  |  | |  | |  |  | | |  | |  | |
| Подл. |  | |  |  | |  | |  |  | |  |  |  | |  | |  |  | | |  | |  | |
| 4 5 | | | | | | | | | | | | | | | |  | | | | | |  |  | |
| Разраб.  090202.ДП.ТМС.1.1.3.С.01 | | Россинский | | |  | |  | | |  | | | |  | | | | |  | | | | | |
|  | |  | | |  | |  | | |  | | | |  | | | | |  | | | | | |
| Скоба | |  | | |  | |  | | |  | | | |  | | | | |  | | | | | |
| 030 | |  | | |  | |  | | | | | | | | | | | | |  | | | |  |
| Н. Контр. | | Трифонова | | |  | |  | | | | | | | | | | | | |  | | | |  |
|  | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1106-84 Форма 7

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дубл. |  | |  |  | |  | |  |  | |  |  |  | |  | |  |  | | |  | |  | |
| Взам. |  | |  |  | |  | |  |  | |  |  |  | |  | |  |  | | |  | |  | |
| Подл. |  | |  |  | |  | |  |  | |  |  |  | |  | |  |  | | |  | |  | |
| 5 5 | | | | | | | | | | | | | | | |  | | | | | |  |  | |
| Разраб.  090202.ДП.ТМС.1.1.3.С.01 | | Россинский | | |  | |  | | |  | | | |  | | | | |  | | | | | |
|  | |  | | |  | |  | | |  | | | |  | | | | |  | | | | | |
| Скоба | |  | | |  | |  | | |  | | | |  | | | | |  | | | | | |
| 035 | |  | | |  | |  | | | | | | | | | | | | |  | | | |  |
| Н. Контр. | | Трифонова | | |  | |  | | | | | | | | | | | | |  | | | |  |
|  | | | | | | | | | | | | | | | | | | | | | | | | |

mxl printed ГОСТ 3.1106-84 Форма