

**LIST OF COMPONENTS**

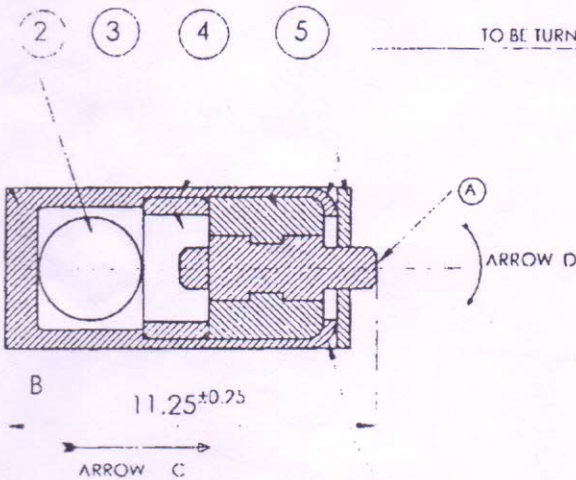
| ITEM NO. | DESCRIPTION           | DRAWING No   |
|----------|-----------------------|--------------|
| 1        | HOUSING               | 770-33-41-00 |
| 2        | BALL                  | 770-33-42-00 |
| 3        | SLEEVE                | 770-33-43-00 |
| 4        | PIN CONTACT ASSEMBLED | 770-33-44-00 |
| 5        | WASHER                | 770-33-45-00 |

**NOTES**

10% X-RAY EXAMINATION OF IMPACT DEVICES WILL BE CARRIED OUT BY PLACING THE DEVICES WITH THE AXIS AT ANGLE OF 10 deg. TO THE HORIZONTAL PLANE. EACH IMPACT DEVICE SHOULD SHOW CLEAR GAP BETWEEN BALL AND THE CONTACT PIN.

**SILVER CONDUCTIVE VARNISH**

(PRODUCT OF M/S SOCIETY PROTEx, FRANCE)  
IT SHOULD BE APPLIED ON PERIPHERY OF THE OUTSIDE DIA OF SLEEVE PRIOR TO ITS ASSEMBLY WITH HOUSING TO ENSURE POSITIVE CONTACT BETWEEN SLEEVE AND HOUSING. UTMOST CARE TO BE TAKEN THAT NO TRACES OF CEMENT ARE SPREAD ON TO ANY OTHER COMPONENT OF THE ASSEMBLY.



TO BE TURNED OVER BY SPINNING

**ELECTRICAL TESTS**

THE RESISTANCE WHEN TESTED BETWEEN THE CONTACT A AND B AS FOLLOWS-

- a) WHEN THE DEVICE IS HELD VERTICAL ALONG THE LONGITUDINAL AXIS WITH PIN AT TOP (ARROW C) - INFINITY
- b) WHEN THE IMPACT DEVICE IS TILTED WITH ITS AXIS AT ANGLE OF 10 deg. TO THE HORIZONTAL IN THE DIRECTION OF ARROW 'D' - INFINITY
- c) WHEN THE IMPACT DEVICE IS TILTED AT ANGLE OF 70deg. - 80deg. TO THE HORIZONTAL IN THE DIRECTION OF ARROW 'D' NOT GREATER THAN 5 OHMS.

THE ELECTRICAL TEST MAY BE CARRIED OUT WITH THE 'ELECTRICAL TEST UNIT' AS PER DRG. NO 1613.

WASHER NEED NOT BE USED AND GAP FILLED WITH PASTE ARALDITE ENG. AP. RP. 30 OF AND POLY PRODUCT. MAKE SURE IT WILL NOT SPILL OVER THE HOUSING

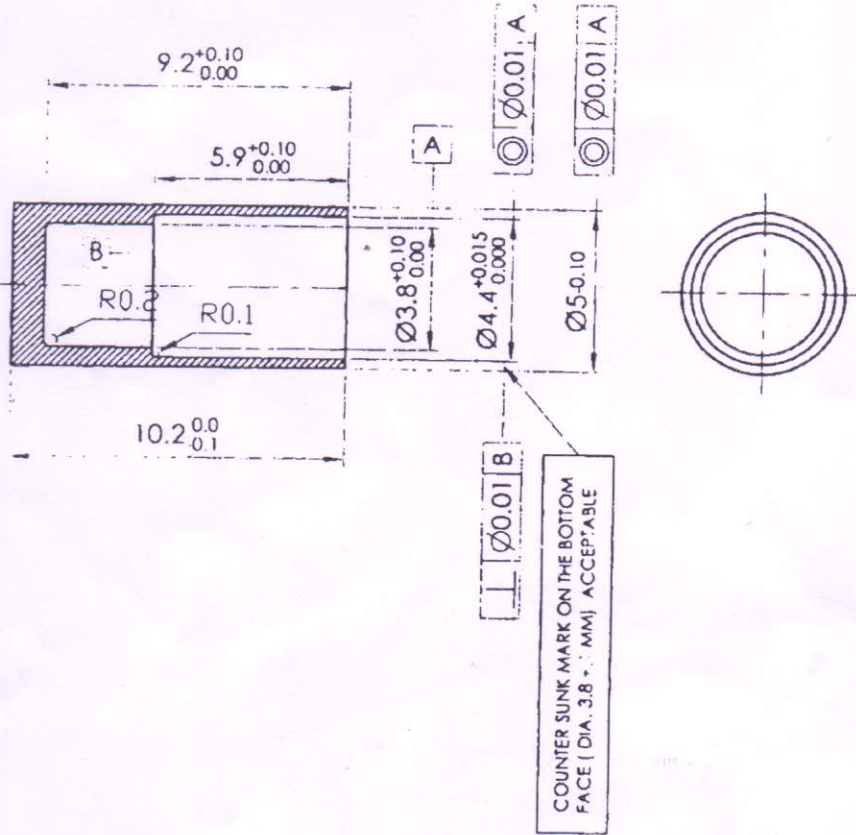
| संख्या विवरण  |                           | पुंजा क्र.         | पदार्थ     | मानक  | परिमाण   | अध्यक्षित  |
|---|---------------------------|--------------------|------------|---|--|--|
| NO OFF  | DESCRIPTION               | PART NO.           | MATERIAL   | STANDARD  | DIMENSIONS   | REMARKS  |
| SEE COMPONENTS DRAWINGS   |                           |                    |            |   |  |  |
| सामान्य सहिष्णुता   |                           |                    |            |   |  |  |
| GENERAL TOLERANCE   |                           |                    |            |   |  |  |
| रेखिक परिमाण  |                           |                    |            |   |  |  |
| LINEAR DIMENSION  |                           |                    |            |   |  |  |
| 0-6   | ±0.1                      |                    |            |   |  |  |
| 6-30  | ±0.2                      |                    |            |   |  |  |
| 30-120  | ±0.3                      |                    |            |   |  |  |
| 120-315   | ±0.5                      |                    |            |   |  |  |
| 315-1000  | ±0.8                      |                    |            |   |  |  |
| 1000-2000   | ±1.2                      |                    |            |   |  |  |
| कोणिक परिमाण  |                           |                    |            |   |  |  |
| ANGULAR DIMENSION   |                           |                    |            |   |  |  |
| 1-10  | ±1                        |                    |            |   |  |  |
| 10-50   | ±30                       |                    |            |   |  |  |
| 50-100  | ±20                       |                    |            |   |  |  |
| 100   | ±10                       |                    |            |   |  |  |
| मापक 'मू एम' से   |                           |                    |            |   |  |  |
| VALUE IN MM   |                           |                    |            |   |  |  |
|   | ±.25                      |                    |            |   |  |  |
|   | ±.25                      |                    |            |   |  |  |
|   | ±.6                       |                    |            |   |  |  |
|   | ±0.5 - 1                  |                    |            |   |  |  |
|   | ±0.25                     |                    |            |   |  |  |
| संख्या  |                           | संबंधित पुंजा क्र. | सूचक       | संशोधन  | दिनांक   | नाम  |
| NO OFF  | DRG NO OF ASSOCIATED PART | INDEX              | ALTERATION | DATE  | NAME   |  |
| <p><b>BALL AND HOUSING ASSY.</b><br/><b>FOR E-MODULE HOUSING ASSY.</b><br/><b>MK-1</b></p>  |                           |                    |            |   | <p>मापमान SCALE</p> <p>5:1</p>                               | <p>आरेखित DRAWN</p> <p>जेवा CHECKED</p> <p>अनुमोदित APPROVED</p> |
| <p>मशीनी औजार आदिरूप फैक्टरी, अम्बरनाथ</p> <p>MACHINE TOOL PROTOTYPE FACTORY, AMBERNATH</p> |                           |                    |            |   | <p>द्वारा बदला REPLACED BY</p> <p>हेतु बदला REPLACED FOR</p> | <p>3/5/17</p> <p>3/5/17</p> <p>3/5/17</p>                        |
| <p>कार्यालय OFFICE</p> <p><b>ODC</b></p>  |                           |                    |            | <p>आरेखण क्र. DRAWING NO.</p> <p>770-24-33-00</p> |  |  |

मूलमाप व अन्वयानजन

विवचन DEVIATION

Regulated by F.L. 407 sheets

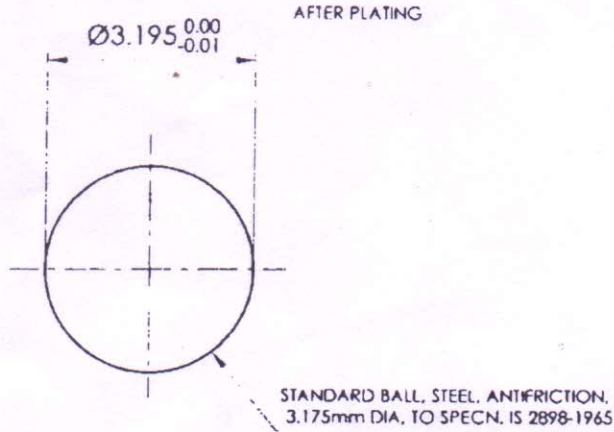
S-380000307 1/7



**NOTE :**

1. ALL DIMENSIONS ARE IN mm
2. DIMENSIONS APPLY AFTER PLATING ADDED
3. PROTECTIVE FINISH DTD 819
4. ALTERNATE MATERIAL BRASS TO SPEC IS : 319-1989, GRADE I, HARD (HD)@

| संख्या<br>NO OFF                       |  | विवरण<br>DESCRIPTION |  | पुरजा क्र.<br>PART NO   | पदार्थ<br>MATERIAL | मानक<br>STANDARD  | परिमाण<br>DIMENSIONS  | अन्यविवरण<br>REMARKS       |
|--|--|----------------------|--|---|--------------------|---|---|----------------------------|
| सामान्य सहिष्णुता<br>GENERAL TOLERANCE |  |                      |  |   | @                  | ALTERNATE MATERIAL BRASS TO SPEC IS 319-1989 GRADE I, HARD (HD) ADDED |   | 6/11/17                    |
| रेखक परिमाण<br>LINEAR DIMENSION        |  |                      |  |   |                    |   |   |                            |
| 0-6                                    |  | ±0.1                 |  |   |                    |   |   |                            |
| 6-30                                   |  | ±0.2                 |  |   |                    |   |   |                            |
| 30-120                                 |  | ±0.3                 |  |   |                    |   |   |                            |
| 120-315                                |  | ±0.5                 |  |   |                    |   |   |                            |
| 315-1000                               |  | ±0.8                 |  |   |                    |   |   |                            |
| 1000-2000                              |  | ±1.2                 |  |   |                    |   |   |                            |
| कोणीय परिमाण<br>ANGULAR DIMENSION      |  |                      |  |   |                    |   |   |                            |
| 1-10                                   |  | ±1                   |  |   |                    |   |   |                            |
| 10-50                                  |  | ±30                  |  |   |                    |   |   |                            |
| 50-100                                 |  | ±20                  |  |   |                    |   |   |                            |
| 100                                    |  | ±10                  |  |   |                    |   |   |                            |
| मापांक 'यू एच' में<br>VALUE IN 'UM'    |  |                      |  |   |                    |   |   |                            |
|  |  | -25                  |  |   |                    |   |   |                            |
|  |  | 15.6                 |  |   |                    |   |   |                            |
|  |  | 0.025-1.6            |  |   |                    |   |   |                            |
|  |  | +0.025               |  |   |                    |   |   |                            |
| मूलमाप व अन्वयोजन<br>FORMAL SIZE & FIT |  | विचलन<br>DEVIATION   |  | <b>HOUSING<br/>FOR BALL AND HOUSING ASSY.<br/>MK-1</b>                                  |                    | मापमान<br>SCALE<br><b>5:1</b>   | आरेखित<br>DRAWN<br>9/11/17                                    | जांच<br>CHECKED<br>9/11/17 |
|  |  |                      |  | मशीनी औजार आदिरूप फैक्टरी, अम्बरनाथ<br><b>MACHINE TOOL PROTOTYPE FACTORY, AMBERNATH</b> |                    | कर्पालय<br>OFFICE<br><b>ODC</b>                                       | द्वारा बदला<br>REPLACED<br>BY<br>हेतु बदला<br>REPLACED<br>FOR | दिनांक<br>DATE<br>9/11/17  |
|  |  |                      |  |   |                    | जांचक क्र. DRAWING NO.<br><b>770-33-41-00</b>                         |   | नाम<br>NAME<br>2/7         |



**NOTE :**

1. ALL DIMENSIONS ARE IN mm
2. PROTECTIVE FINISH TO BE GOLD PLATED TO SPECN IS 4252-1967  
A LAYER OF COPPER PLATING PERMITTED BEFORE GOLD PLATING  
GOLD PLATING LAYER OF 2 TO 3 MICRONS REQUIRED.

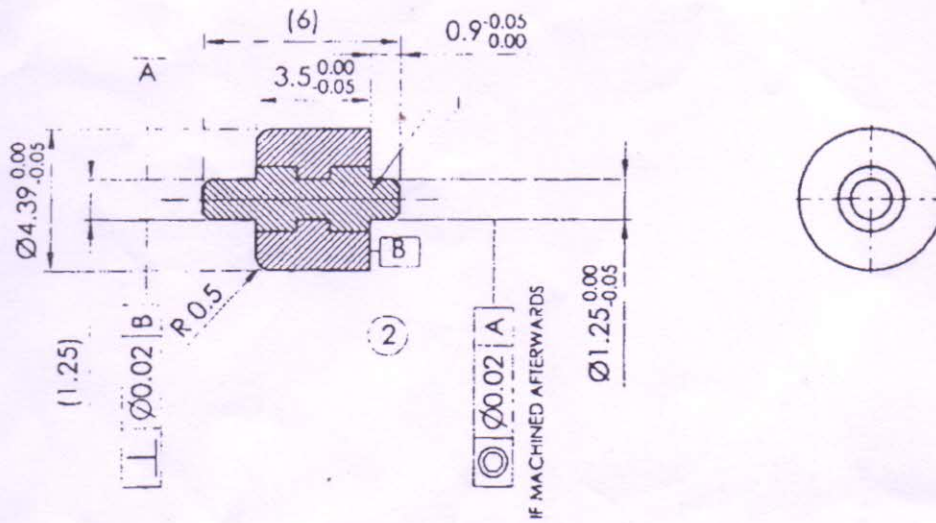
|  |   |  |                   |                      |                           |                                |   |
|--|---|--|-------------------|----------------------|---------------------------|--------------------------------|---|
| 1  |   | STEEL TO SPEC. IS 2898-1967  |                   |                      |                           |                                |   |
| संख्या<br>NO. OF                         | विवरण<br>DESCRIPTION  | पुर्जा क्र.<br>PART NO.  | कार्य<br>MATERIAL | मानक<br>STANDARD     | परिमाण<br>DIMENSIONS      | अभ्यक्ति<br>REMARKS            |   |
| सामान्य स्तरेच्छुता<br>GENERAL TOLERANCE |   |  |                   |                      |                           |                                |   |
| रेखिक परिमाण<br>LINEAR DIMENSION         |   |  |                   |                      |                           |                                |   |
| 0-6                                      | ±0.1  |  |                   |                      |                           |                                |   |
| 6-30                                     | ±0.2  |  |                   |                      |                           |                                |   |
| 30-120                                   | ±0.3  |  |                   |                      |                           |                                |   |
| 120-315                                  | ±0.5  |  |                   |                      |                           |                                |   |
| 315-1000                                 | ±0.8  |  |                   |                      |                           |                                |   |
| 1000-2000                                | ±1.2  |  |                   |                      |                           |                                |   |
| कोणिक परिमाण<br>ANGULAR DIMENSION        | संख्या<br>NO. OF  | संबंधित पुर्जा क्र. आरेखण क्र.<br>DRG. NO. OF ASSOCIATED PART                    | सूचक<br>INDEX     | संशोधन<br>ALTERATION | दिनांक<br>DATE            | नाम<br>NAME                    |   |
| 1-15                                     | ±1'   |  |                   |                      |                           |                                |   |
| 16-30                                    | ±30'  |  |                   |                      |                           |                                |   |
| 30-100                                   | ±20'  |  |                   |                      |                           |                                |   |
| 100                                      | ±15'  |  |                   |                      |                           |                                |   |
| मापक 'म्यू एम' में<br>VALUE IN μm        | <b>BALL</b><br><b>FOR BALL AND HOUSING ASSY.</b><br><b>MK-I</b> |  |                   |                      |                           | मापमान<br>SCALE<br><b>10:1</b> | आरेखित<br>DRAWN<br>9/5/77<br>जांचा<br>CHECKED<br>अनुमोदित<br>APPROVED<br>9/5/77 |
| 1-15                                     | ±25   |  |                   |                      |                           |                                |   |
| 16-30                                    | ±20   |  |                   |                      |                           |                                |   |
| 30-100                                   | ±15   |  |                   |                      |                           |                                |   |
| 100                                      | ±10   |  |                   |                      |                           |                                |   |
| 1-15                                     | ±0.025-1.6  |  |                   |                      |                           |                                |   |
| 16-30                                    | ±0.025  |  |                   |                      |                           |                                |   |
| 30-100                                   | ±0.025  |  |                   |                      |                           |                                |   |
| 100                                      | ±0.025  |  |                   |                      |                           |                                |   |
| मूलमाप व अन्वयोजन<br>NORMAL SIZE & FIT   | विचलन<br>DEVIATION  | मशीनी औजार आदिरूप फैक्टरी, अम्बरनाथ<br>MACHINE TOOL PROTOTYPE FACTORY, AMBERNATH |                   | कार्यालय<br>OFFICE   | हस्त बदला<br>REPLACED FOR | द्वारा बदला<br>REPLACED BY     |   |
|  |   |  |                   | <b>ODC</b>           | आरेखण क्र.<br>DRAWING NO. | 770-33-42-00                   |   |

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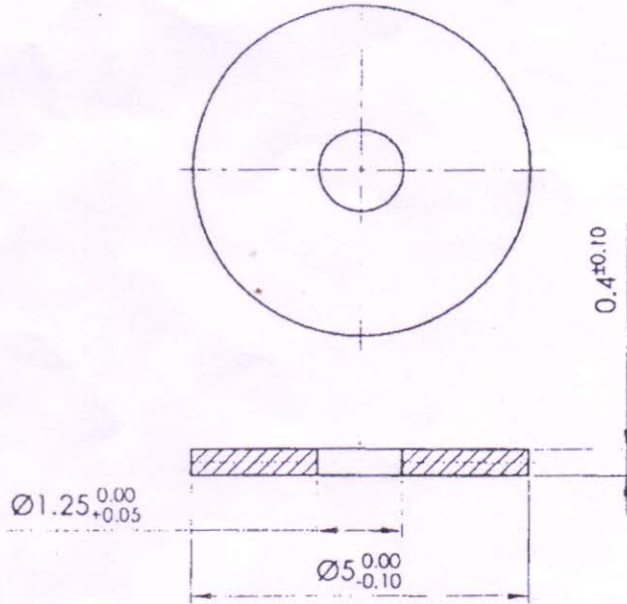
| LIST OF COMPONENTS |  |
|--------------------|--|
| ITEM No.           | DESCRIPTION  |
| 1                  | PIN CONTACT  |
| 2                  | BODY TO MATERIAL E GRADE MOULDED PLASTIC (PHENOLIC) TO SPEC .SS 1097 OR ITS EQUIVALENT. COLOUR BLACK |



**NOTE :**

1. ALL DIMENSIONS ARE IN mm
2. CONTACT PIN TO BE INCORPORATED DURING MOULDING.
3. BOTH SIDES OF PIN TO BE SILVER PLATED TO SPECN. DTD 919B

| 1  |                      | HX 5621  |   |                  |                      |                               |  |
|--|----------------------|--|---|------------------|----------------------|-------------------------------|--|
| संख्या<br>NO OFF                         | विवरण<br>DESCRIPTION | पुर्जा क्र.<br>PART NO   | पदार्थ<br>MATERIAL  | मानक<br>STANDARD | परिमाण<br>DIMENSIONS | अभ्यक्ति<br>REMARKS           |  |
| सामान्य सहिष्णुता<br>GENERAL TOLERANCE   |                      |  |   |                  |                      |                               |  |
| रेखक परिमाण<br>LINEAR DIMENSION          |                      |  |   |                  |                      |                               |  |
| 0-6                                      | ±0.1                 |  |   |                  |                      |                               |  |
| 6-30                                     | ±0.2                 |  |   |                  |                      |                               |  |
| 30-120                                   | ±0.3                 |  |   |                  |                      |                               |  |
| 120-315                                  | ±0.5                 |  |   |                  |                      |                               |  |
| 315-1000                                 | ±0.8                 |  |   |                  |                      |                               |  |
| 1000-2000                                | ±1.2                 |  |   |                  |                      |                               |  |
| कोणिक परिमाण<br>ANGULAR DIMENSION        |                      | संख्या<br>NO OFF   | संबंधित पुर्जा क्र. आरेखण क्र.<br>DRG NO OF ASSOCIATED PART | सूचक<br>INDEX    | संशोधन<br>ALTERATION | दिनांक<br>DATE                | नाम<br>NAME  |
| 1-10                                     | ±1°                  |  |   |                  |                      |                               |  |
| 10-50                                    | ±30'                 |  |   |                  |                      |                               |  |
| 50-100                                   | ±30'                 |  |   |                  |                      |                               |  |
| >100                                     | ±1°                  |  |   |                  |                      |                               |  |
| मापक 'यू एम' में<br>VALLE IN/UNIT        |                      | <b>PIN CONNECTED ASSEMBLED<br/>FOR BALL AND HOUSING ASSY.<br/>MK-1</b>           |   |                  |                      | मापमान<br>SCALE<br><b>5:1</b> | आरेखित<br>DRAWN<br>जाँच<br>CHECKED<br>अनुमोदित<br>APPROVED |
| ±0.25                                    |                      |  |   |                  |                      | द्वारा बदला<br>REPLACED BY    | दिनांक<br>DATE   |
| ±0.025-1.5                               |                      | मशीनी औजार आदिरूप फैक्टरी, अम्बरनाथ<br>MACHINE TOOL PROTOTYPE FACTORY, AMBERNATH |   |                  |                      | हेतु बदला<br>REPLACED FOR     | आरेखण क्र. DRAWING NO.<br>770-33-44-00                     |
| ±0.025                                   |                      | कार्यालय<br>OFFICE<br><b>ODC</b>   |   |                  |                      |                               |  |
| भूतमाप व अन्वयोजन<br>ORIGINAL SIZE & FIT | विवचन<br>DEVIATION   |  |   |                  |                      |                               |  |



**NOTE :**

1. ALL DIMENSIONS ARE IN mm
2. PROTECTIVE FINISH

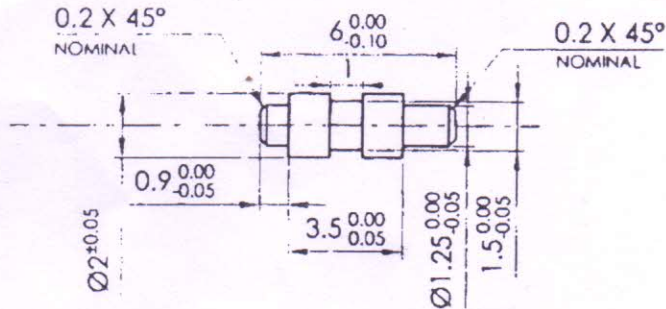
**MATERIAL**

VUNCANISED FIBRE SPECN. B S 2768 OR HYLAM AS ALTERNATIVE.

| संख्या<br>NO OFF   | विवरण<br>DESCRIPTION | पुर्जा क्र.<br>PART NO. | पदार्थ<br>MATERIAL | मानक<br>STANDARD           | परिमाण<br>DIMENSIONS      | अभ्यक्ति<br>REMARKS |
|--|----------------------|-------------------------|--------------------|----------------------------|---------------------------|---------------------|
| सामान्य सहिष्णुता<br>GENERAL TOLERANCE   |                      |                         |                    |                            |                           |                     |
| रेखिक परिमाण<br>LINEAR DIMENSION   |                      |                         |                    |                            |                           |                     |
| 0-30   | ±0.1                 |                         |                    |                            |                           |                     |
| 30-120   | ±0.2                 |                         |                    |                            |                           |                     |
| 120-315  | ±0.3                 |                         |                    |                            |                           |                     |
| 315-1000   | ±0.5                 |                         |                    |                            |                           |                     |
| 1000-2000  | ±1.2                 |                         |                    |                            |                           |                     |
| कोणिक परिमाण<br>ANGULAR DIMENSION  |                      |                         |                    |                            |                           |                     |
| 1-10   | ±1'                  |                         |                    |                            |                           |                     |
| 10-50  | ±30'                 |                         |                    |                            |                           |                     |
| 50-100   | ±20'                 |                         |                    |                            |                           |                     |
| ±100   | ±10'                 |                         |                    |                            |                           |                     |
| मापक 'घू एम' में<br>VALUE IN 'MM'  |                      |                         |                    |                            |                           |                     |
|  | ±25                  |                         |                    |                            |                           |                     |
|  | ±25                  |                         |                    |                            |                           |                     |
|  | 1:5                  |                         |                    |                            |                           |                     |
|  | 0.025-1.6            |                         |                    |                            |                           |                     |
|  | -0.025               |                         |                    |                            |                           |                     |
| <b>WASHER</b><br><b>FOR BALL AND HOUSING ASSY.</b><br><b>MK-1</b>                |                      |                         |                    | मापमान<br>SCALE            | आरेखित<br>DRAWN           | दिनांक<br>DATE      |
|  |                      |                         |                    | 10:1                       | जोया<br>CHECKED           | नाम<br>NAME         |
|  |                      |                         |                    |                            | अनुमोदित<br>APPROVED      | 6/7                 |
|  |                      |                         |                    | द्वारा बदला<br>REPLACED BY |                           |                     |
|  |                      |                         |                    | हेतु बदला<br>REPLACED FOR  |                           |                     |
|  |                      |                         |                    | कार्यालय<br>OFFICE         | आरेखण क्र.<br>DRAWING NO. |                     |
| मशीनी औजार आदिरूप फैक्टरी, अम्बरनाथ<br>MACHINE TOOL PROTOTYPE FACTORY, AMBERNATH |                      |                         |                    | ODC                        | 770-33-45-00              |                     |

मूलमाप व अन्वायेजन  
MINIMAL SIZE & FIT

विचलन  
DEVIATION



**NOTE :**

1. ALL DIMENSIONS ARE IN mm
2. DIMENSIONS APPLY AFTER PLATING
3. ALTERNATE MATERIAL BRASS TO SPEC IS : 319-1989, GRADE I, HARD (HD)@

|  |  |  |  |  |   |
|--|--|--|--|--|---|
|  |  | BS 287 4 CZ1 22 M  |  |  |   |
| संख्या<br>NO OFF                         | विवरण<br>DESCRIPTION                   | पुर्जा क्र.<br>PART NO   | पदार्थ<br>MATERIAL                               | मानक<br>STANDARD   | परिमाण<br>DIMENSIONS  |
|  | सामान्य सहिष्णुता<br>GENERAL TOLERANCE |  | @  | ALTERNATE MATERIAL BRASS TO SPEC IS 319-1989 GRADE I HARD HD | दिनांक<br>DATE  |
|  | रेखिक परिमाण<br>LINEAR DIMENSION       |  |  |  | नाम<br>NAME   |
|  | 0-6 20.1                               |  |  |  |   |
|  | 6-30 10.7                              |  |  |  |   |
|  | 30-120 10.3                            |  |  |  |   |
|  | 120-215 10.5                           |  |  |  |   |
|  | 315-1000 10.8                          |  |  |  |   |
|  | 1000-2500 11.2                         |  |  |  |   |
|  | कोणिक परिमाण<br>ANGULAR DIMENSION      | संख्या<br>NO OFF   | संबंधित पुर्जा क्र.<br>DRG NO OF ASSOCIATED PART | सूचक<br>INDEX  | संशोधन<br>ALTERATION  |
|  | 1-10 1°                                |  |  |  |   |
|  | 10-50 130'                             |  |  |  |   |
|  | 50-100 120'                            |  |  |  |   |
|  | >100 110'                              |  |  |  |   |
|  | मापक 'म्यू एम' में<br>SCALE IN 'MUM'   | <b>PIN CONTACT<br/>FOR BALL AND HOUSING ASSY.<br/>MK-I</b>                       |  |  | मापमान<br>SCALE<br>5:1  |
|  | 0.25                                   |  |  |  | आरेखित<br>DRAWN<br>9/5/17                                     |
|  | 0.75                                   |  |  |  | जांच<br>CHECKED<br>कौशिक                                      |
|  | 1.5                                    |  |  |  | अनुमोदित<br>APPROVED<br>9/5/17                                |
|  | 0.025                                  |  |  |  | द्वारा बदला<br>REPLACED<br>BY<br>हेतु बदला<br>REPLACED<br>FOR |
| मूलमाप व अन्यायेजन<br>NOMINAL SIZE & FIT | विवलन<br>DEVIATION                     | मशीनी औजार आदिस्व फैक्टरी, अम्बरनाथ<br>MACHINE TOOL PROTOTYPE FACTORY, AMBERNATH |  |  | कार्यालय<br>OFFICE<br>ODC                                     |
|  |  |  |  |  | आरेखण क्र. DRAWING NO.<br>770-44-51-00                        |

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