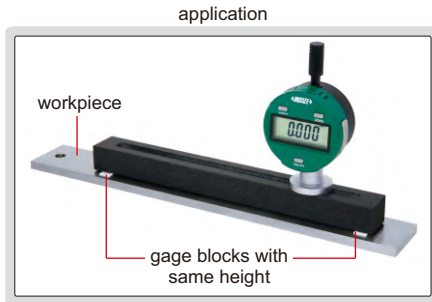
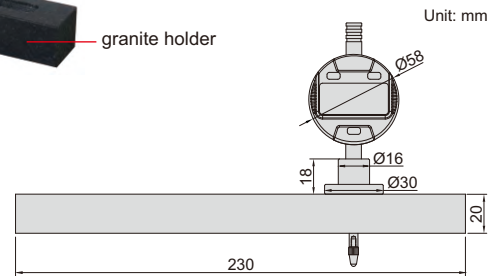


## STRAIGHTNESS/FLATNESS GAGE

GRANITE HODLER CAN BE CUSTOMIZED ACCORDING TO WORKPIECES



2144-200



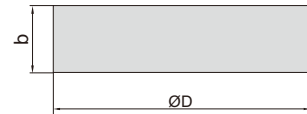
| Code     | Range | Digital indicator resolution | Straightness measurement accuracy | Parallelism of top and bottom surfaces of granite holder | Flatness of top and bottom surfaces of granite holder |
|----------|-------|------------------------------|-----------------------------------|----------------------------------------------------------|-------------------------------------------------------|
| 2144-200 | 200mm | 0.001mm/0.00005"             | 3µm                               | 2µm                                                      | 1.5µm                                                 |

## OPTICAL FLATS

- Check flatness
- Single working face, the arrow indicates the working face



4191-45B



| Code     | b    | ØD   | Flatness |
|----------|------|------|----------|
| 4191-45A | 12mm | 45mm | 0.03µm   |
| 4191-60A | 15mm | 60mm | 0.03µm   |

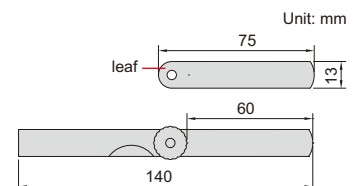
| Code     | b    | ØD   | Flatness |
|----------|------|------|----------|
| 4191-45B | 12mm | 45mm | 0.1µm    |
| 4191-60B | 15mm | 60mm | 0.1µm    |

## FEELER GAGE

- Made of hardened alloy steel
- Meet DIN2275/grade TC1
- Accuracy:  $\pm(3+T/80)$  µm, 'T' is the thickness of leaves in µm



4601-25



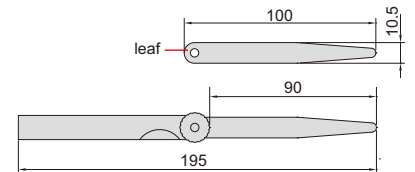
| Code    | Range       | Thickness of leaves included (mm)                                                                                                                    | Quantity of leaves |
|---------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 4601-25 | 0.04-1.00mm | 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.10, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, 1.00 | 25                 |

## FEELER GAGES



**4602-20**

Unit: mm



- Made of hardened alloy steel
- Meet DIN2275/grade TC1
- Accuracy:  $\pm(3+T/80)$   $\mu\text{m}$ ,  
'T' is the thickness of leaves in  $\mu\text{m}$

| Code     | Range       | Thickness of leaves included (mm)                                                                                                                                                              | Quantity of leaves |
|----------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 4602-13A | 0.03-0.50mm | 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.10, 0.15, 0.20, 0.30, 0.40, 0.50                                                                                                                   | 13                 |
| 4602-13  | 0.05-1.00mm | 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00                                                                                                                   | 13                 |
| 4602-17  | 0.02-1.00mm | 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.10, 0.15, 0.20, 0.25, 0.30, 0.40, 0.50, 0.75, 1.00                                                                                           | 17                 |
| 4602-20  | 0.05-1.00mm | 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, 1.00                                                                         | 20                 |
| 4602-28  | 0.05-1.00mm | 0.05, 0.06, 0.07, 0.08, 0.09, 0.10, 0.11, 0.12, 0.13, 0.14, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, 1.00                         | 28                 |
| 4602-32  | 0.03-1.00mm | 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.10, 0.13, 0.15, 0.18, 0.20, 0.23, 0.25, 0.28, 0.30, 0.33, 0.35, 0.38, 0.40, 0.45, 0.50, 0.55, 0.60, 0.63, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 1.00 | 32                 |

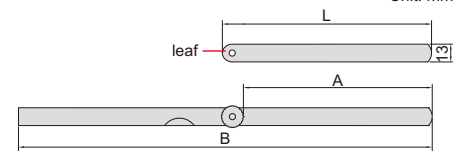
11

## LONG FEELER GAGES



**4605-20**

Unit: mm



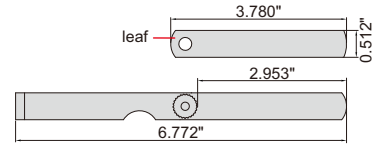
- Made of hardened alloy steel
- Meet DIN2275/grade TC1
- Accuracy:  $\pm(3+T/80)$   $\mu\text{m}$ ,  
'T' is the thickness of leaves in  $\mu\text{m}$

| Code     | Range       | Thickness of leaves included (mm)                                                                                      | Quantity of leaves | L     | A     | B     |
|----------|-------------|------------------------------------------------------------------------------------------------------------------------|--------------------|-------|-------|-------|
| 4605-13  | 0.05-1.00mm | 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00                                           | 13                 | 150mm | 135mm | 295mm |
| 4605-131 | 0.05-1.00mm |                                                                                                                        | 13                 | 200mm | 185mm | 395mm |
| 4605-132 | 0.05-1.00mm |                                                                                                                        | 13                 | 300mm | 285mm | 590mm |
| 4605-20  | 0.05-1.00mm | 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, 1.00 | 20                 | 150mm | 135mm | 295mm |
| 4605-201 | 0.05-1.00mm |                                                                                                                        | 20                 | 200mm | 185mm | 395mm |
| 4605-202 | 0.05-1.00mm |                                                                                                                        | 20                 | 300mm | 285mm | 590mm |

## INCH FEELER GAGE



4608-31



- 0.010" is made of brass, others are made of hardened alloy steel
- Each blade is marked with inch/metric size

| Thickness of leaves included                    | Accuracy  |
|-------------------------------------------------|-----------|
| 0.010" (brass)                                  | ±0.00039" |
| 0.0015", 0.002"                                 | ±0.0002"  |
| 0.0025", 0.003", 0.004", 0.005", 0.006", 0.007" | ±0.00028" |
| 0.008", 0.009"                                  | ±0.00035" |
| 0.010", 0.011"                                  | ±0.00039" |
| 0.012", 0.013"                                  | ±0.00047" |
| 0.014", 0.015"                                  | ±0.00051" |

| Thickness of leaves included | Accuracy  |
|------------------------------|-----------|
| 0.016", 0.017"               | ±0.00055" |
| 0.018", 0.019"               | ±0.00059" |
| 0.020", 0.021"               | ±0.00067" |
| 0.022", 0.023"               | ±0.00071" |
| 0.024", 0.025", 0.026"       | ±0.00075" |
| 0.028"                       | ±0.00091" |
| 0.030"                       | ±0.00094" |
| 0.032", 0.035"               | ±0.00102" |

| Code    | Range          | Quantity of Leaves |
|---------|----------------|--------------------|
| 4608-31 | 0.0015"~0.035" | 32                 |

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## FEELER GAGE STOCKS

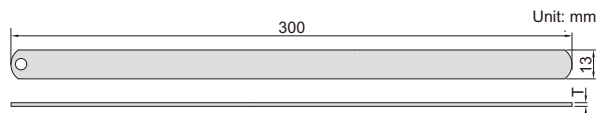


10 pcs per package



4622-10

- Used as shims to accurately set spacing
- Made of hardened alloy steel
- Length 300mm
- Width 13mm
- 10 pcs per package



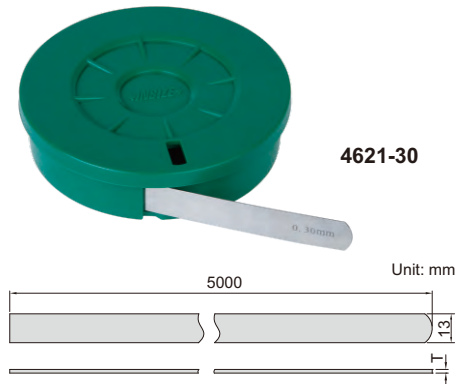
| Code    | Thickness (T) | Accuracy |
|---------|---------------|----------|
| 4622-02 | 0.02mm        | ±3µm     |
| 4622-03 | 0.03mm        | ±3µm     |
| 4622-04 | 0.04mm        | ±3µm     |
| 4622-05 | 0.05mm        | ±3µm     |
| 4622-06 | 0.06mm        | ±3µm     |
| 4622-07 | 0.07mm        | ±4µm     |
| 4622-08 | 0.08mm        | ±4µm     |
| 4622-09 | 0.09mm        | ±4µm     |
| 4622-10 | 0.10mm        | ±4µm     |
| 4622-12 | 0.12mm        | ±5µm     |

| Code    | Thickness (T) | Accuracy |
|---------|---------------|----------|
| 4622-15 | 0.15mm        | ±5µm     |
| 4622-18 | 0.18mm        | ±6µm     |
| 4622-20 | 0.20mm        | ±6µm     |
| 4622-25 | 0.25mm        | ±6µm     |
| 4622-30 | 0.30mm        | ±7µm     |
| 4622-35 | 0.35mm        | ±7µm     |
| 4622-40 | 0.40mm        | ±8µm     |
| 4622-45 | 0.45mm        | ±8µm     |
| 4622-50 | 0.50mm        | ±9µm     |
| 4622-55 | 0.55mm        | ±9µm     |

| Code     | Thickness (T) | Accuracy |
|----------|---------------|----------|
| 4622-60  | 0.60mm        | ±9µm     |
| 4622-65  | 0.65mm        | ±9µm     |
| 4622-70  | 0.70mm        | ±12µm    |
| 4622-75  | 0.75mm        | ±12µm    |
| 4622-80  | 0.80mm        | ±13µm    |
| 4622-85  | 0.85mm        | ±13µm    |
| 4622-90  | 0.90mm        | ±14µm    |
| 4622-95  | 0.95mm        | ±14µm    |
| 4622-100 | 1.00mm        | ±16µm    |

## FEELER GAGE TAPES

| Code    | Thickness (T) | Accuracy | Code     | Thickness (T) | Accuracy |
|---------|---------------|----------|----------|---------------|----------|
| 4621-02 | 0.02mm        | ±4µm     | 4621-30  | 0.30mm        | ±9µm     |
| 4621-03 | 0.03mm        | ±4µm     | 4621-35  | 0.35mm        | ±11µm    |
| 4621-04 | 0.04mm        | ±4µm     | 4621-40  | 0.40mm        | ±12µm    |
| 4621-05 | 0.05mm        | ±4µm     | 4621-45  | 0.45mm        | ±12µm    |
| 4621-06 | 0.06mm        | ±4µm     | 4621-50  | 0.50mm        | ±14µm    |
| 4621-07 | 0.07mm        | ±5µm     | 4621-55  | 0.55mm        | ±14µm    |
| 4621-08 | 0.08mm        | ±5µm     | 4621-60  | 0.60mm        | ±14µm    |
| 4621-09 | 0.09mm        | ±5µm     | 4621-65  | 0.65mm        | ±14µm    |
| 4621-10 | 0.10mm        | ±5µm     | 4621-70  | 0.70mm        | ±17µm    |
| 4621-12 | 0.12mm        | ±5µm     | 4621-75  | 0.75mm        | ±17µm    |
| 4621-15 | 0.15mm        | ±6µm     | 4621-80  | 0.80mm        | ±19µm    |
| 4621-18 | 0.18mm        | ±7µm     | 4621-85  | 0.85mm        | ±19µm    |
| 4621-20 | 0.20mm        | ±8µm     | 4621-90  | 0.90mm        | ±22µm    |
| 4621-25 | 0.25mm        | ±9µm     | 4621-95  | 0.95mm        | ±22µm    |
|         |               |          | 4621-100 | 1.00mm        | ±24µm    |



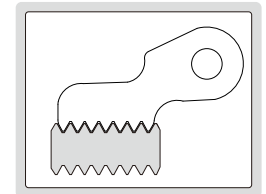
- Used as shims to accurately set spacing
- Made of hardened alloy steel
- Length 5m
- Width 13mm

- Identify the pitch of screw thread
- Made of medium carbon steel



4820-122

## PITCH GAGES



### Metric 60° screw

| Code      | Range      | Pitch of leaves included (mm)                                                                                    | Quantity of leaves |
|-----------|------------|------------------------------------------------------------------------------------------------------------------|--------------------|
| 4820-122  | 0.4-7.0mm  | 0.4, 0.5, 0.6, 0.7, 0.75, 0.8, 0.9, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7                | 22                 |
| 4820-124  | 0.25-7.0mm | 0.25, 0.3, 0.35, 0.4, 0.5, 0.7, 0.75, 0.8, 0.9, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7    | 24                 |
| 4820-1241 | 0.25-6.0mm | 0.25, 0.3, 0.35, 0.4, 0.45, 0.5, 0.6, 0.7, 0.75, 0.8, 0.9, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6 | 24                 |

### Unified 60° screw

| Code     | Range   | Pitch of leaves included                                                                                                      | Quantity of leaves |
|----------|---------|-------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 4820-230 | 4-42TPI | 4, 4-1/2, 5, 5-1/2, 6, 7, 8, 9, 10, 11, 11-1/2, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42TPI | 30                 |

### Whitworth 55° screw

| Code     | Range   | Pitch of leaves included                                                                                                  | Quantity of leaves |
|----------|---------|---------------------------------------------------------------------------------------------------------------------------|--------------------|
| 4820-330 | 4-42TPI | 4, 4-1/2, 5, 5-1/2, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42TPI | 30                 |
| 4820-328 | 4-62TPI | 4, 4-1/2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 22, 24, 25, 26, 28, 30, 32, 36, 40, 48, 60, 62TPI            | 28                 |

### Metric 60° and Whitworth 55° screw

| Code     | Range      | Pitch of leaves included                                                                                           | Quantity of leaves |
|----------|------------|--------------------------------------------------------------------------------------------------------------------|--------------------|
| 4820-452 | 0.25-6.0mm | 0.25, 0.3, 0.35, 0.4, 0.45, 0.5, 0.6, 0.7, 0.75, 0.8, 0.9, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6mm | 52                 |
|          | 4-62TPI    | 4, 4-1/2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 22, 24, 25, 26, 28, 30, 32, 36, 40, 48, 60, 62TPI     |                    |
| 4820-450 | 0.4-7.0mm  | 0.4, 0.5, 0.6, 0.7, 0.75, 0.8, 0.9, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7mm                | 50                 |
|          | 4-62TPI    | 4, 4-1/2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 22, 24, 25, 26, 28, 30, 32, 36, 40, 48, 60, 62TPI     |                    |

### Metric 60° and Unified 60° screw

| Code     | Range     | Pitch of leaves included                                                                                                      | Quantity of leaves |
|----------|-----------|-------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 4820-552 | 0.4-7.0mm | 0.4, 0.5, 0.6, 0.7, 0.75, 0.8, 0.9, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7mm                           | 52                 |
|          | 4-42TPI   | 4, 4-1/2, 5, 5-1/2, 6, 7, 8, 9, 10, 11, 11-1/2, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42TPI |                    |