DILLON®

Mechanical AP Dynamometers

Installation Instructions

16951-0013
Issue AN

Table of Contents

1 General information and warnings

1.1 About this manual

This manual is divided into chapters by the chapter number and the large text at the top of a page. Subsections are labeled as shown by the 1.1 and 1.1.1 headings. The names of the chapter and the next subsection level appear at the top of alternating pages of the manual to remind you of where you are in the manual. The manual name and page numbers appear at the bottom of the pages.

1.1.1 Text conventions

Key names are shown in bold and reflect the case of the key being described. If a key has a dual function it may be referred to by its alternate function.

Displayed messages appear in bold italic type and reflect the case of the displayed message.

Annunciator names appear as italic text and reflect the case of the annunciator.

1.2 Special messages

Examples of special messages you will see in this manual are defined below. The signal words have specific meanings to alert you to additional information or the relative level of hazard.

WARNING! This is a Warning symbol. Warnings mean that failure to follow specific practices and procedures may have major consequences such as injury or death.

CAUTION! This is a Caution symbol. Cautions give information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.

NOTE: This is a Note symbol. Notes give additional and important information, hints and tips that help you to use your product.

1.3 Safe operation

WARNING: If you overload this dynamometer you could suffer severe injuries or death. The total load on the dynamometer should NEVER exceed the rated capacity.

Keep all the following in mind as you use the dynamometer.

The system capacity is equal to the rating of the dynamometers. The shackle rating should not be used to determine lift capacity of the system.

The shackles are rated in metric tonnes. Thus the 12-tonne shackles are rated to 26,450 lbf and are suitable for use on the 25,000 lbf dynamometer.

Any zeroed deadload must be considered as part of the ultimate load.

Although this instrument has a substantial overload protection rating, the instrument should not be used above the rated capacity. Doing so can significantly impact fatigue life of the instrument and cause premature and abrupt failure. If a higher capacity reading is needed, Dillon insists that a larger instrument be used.

Safety is always a concern in overhead lifting and tensioning applications. To limit your liability always insist upon factory supplied shackles and pins and factory tested and certified safe optional equipment. All DILLON products are designed to meet the published Safe Working Load (SWL) and Ultimate Safety Factor (USF) standards of the United States Military. All CE marked models meet the SWL and ULL (Ultimate Load Limit) requirements of the European Machinery Directive.

Do not grind, stamp, drill or deform the metal on the dynamometer body in any way. Protect the instrument from impact in use and storage.

Any significant damage or deformation to the loading element is cause for evaluation by Dillon.

Relieve all torsional and off axis loads.

Apply load in the center of the shackle bow with this instrument.

Off center loading results in substandard performance.

Instrument requires time to stabilize when changing temperatures.

Use only the hardware supplied with this instrument. If no hardware was supplied, insure that the mating pin and shackle bow is equivalent to the hardware used at calibration. Otherwise substandard performance or failure can result.

Dillon recommends only using qualified rigging hardware and cannot be responsible for unapproved hardware.

This instrument is not designed for the following:

- Applications that see rapid, dramatic temperature swings or thermal shock. Wide variation in readings can occur.
- Intrinsically safe environments. This unit has not been Factory Mutual or ATEX tested.

1.4 Routine maintenance

IMPORTANT: This equipment must be routinely checked for proper operation and calibration.

Application and usage will determine the frequency of calibration required for safe operation.

1.5 1.5 Cleaning the Dynamometer

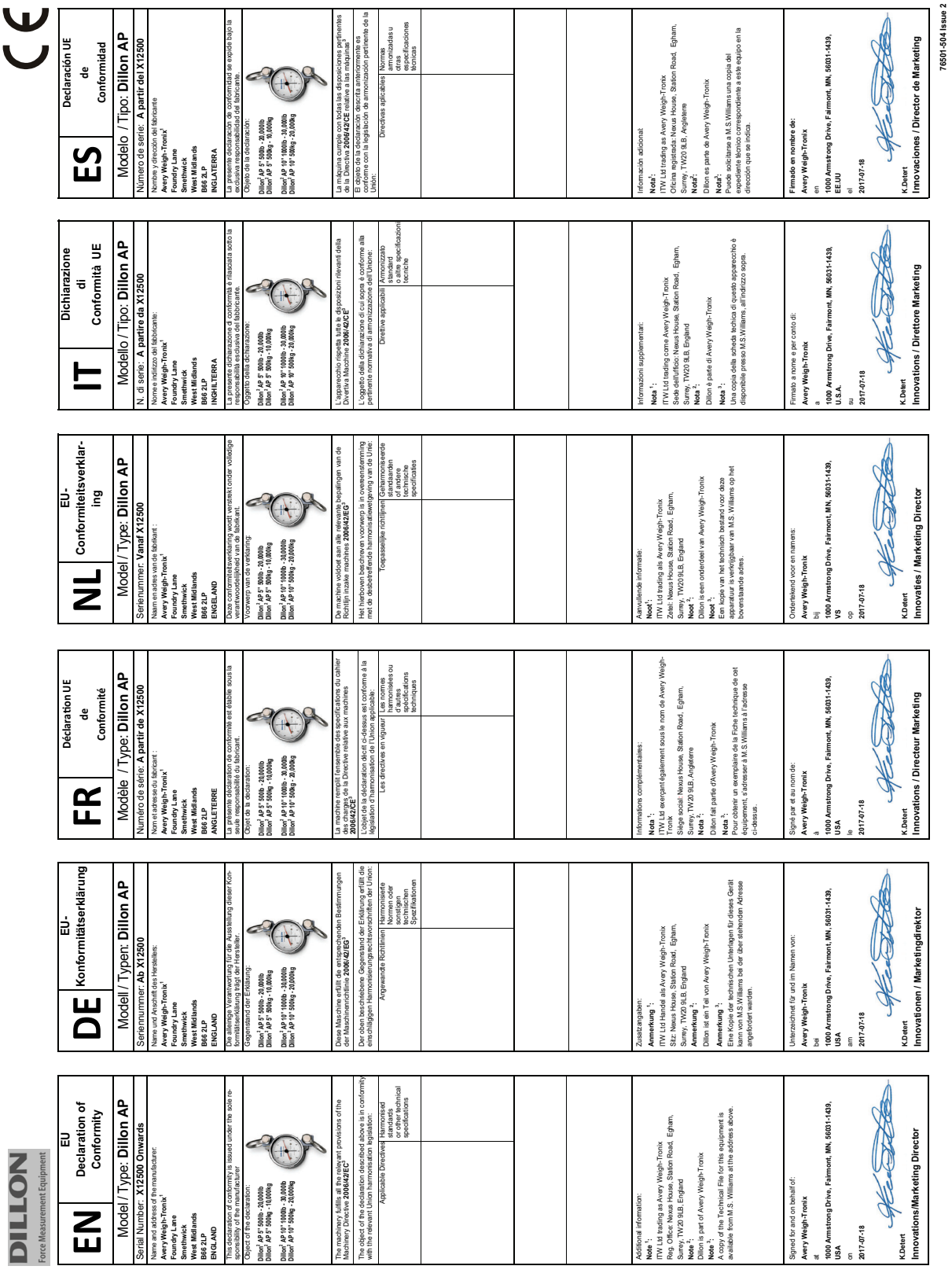
Cleaning DOs and DON'Ts

- DO - Wipe down the outside of standard products with a clean cloth, moistened with water and a small amount of mild detergent
- DO NOT - Attempt to clean the inside of the machine
- DO NOT - Use harsh abrasives, solvents, scouring cleaners or alkaline cleaning solutions

1.6 Training

Do not attempt to operate or complete any procedure on a machine unless you have received the appropriate training or read the instructions.

1.7 Declaration of conformity



DILLON
Force Measurement Equipment

EN EU Declaration of Conformity

Model / Type: **Dillon AP**

Serial Number: **X12500 Onwards**

Name and address of the manufacturer:
Avery Weigh-Tronix[1]
Foundry Lane
Smethwick
West Midlands
B66 2LP
ENGLAND

This declaration of conformity is issued under the sole responsibility of the manufacturer

Object of the declaration:
Dillon[2] AP 5" 500lb - 20,000lb
Dillon[2] AP 5" 500kg - 10,000kg
Dillon[2] AP 10" 1000lb - 30,000lb
Dillon[2] AP 10" 500kg - 20,000kg

The machinery fulfils all the relevant provisions of the Machinery Directive **2006/42/EC**[3]

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Applicable Directives	Harmonised standards and other technical specifications

Additional information:
Note [1]:
ITW Ltd trading as Avery Weigh-Tronix
Reg. Office: Nexus House, Station Road, Egham, Surrey, TW20 9LB, England
Note [2]:
Dillon is part of Avery Weigh-Tronix
Note [3]:
A copy of the Technical File for this equipment is available from M.S. Williams at the address above.

Signed for and on behalf of:
Avery Weigh-Tronix
at
1000 Armstrong Drive, Fairmont, MN, 56031-1439, USA
on
2017-07-18

K.Detert
Innovations/Marketing Director

DE EU-Konformitätserklärung

Modell / Typen: **Dillon AP**

Seriennummer: **Ab X12500**

Name und Anschrift des Herstellers:
Avery Weigh-Tronix[1]
Foundry Lane
Smethwick
West Midlands
B66 2LP
ENGLAND

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.

Gegenstand der Erklärung:
Dillon[2] AP 5" 500lb - 20,000lb
Dillon[2] AP 5" 500kg - 10,000kg
Dillon[2] AP 10" 1000lb - 30,000lb
Dillon[2] AP 10" 500kg - 20,000kg

Diese Maschine erfüllt die entsprechenden Bestimmungen der Maschinenrichtlinie **2006/42/EG**[3]

Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union:

Angewandte Richtlinien	Harmonisierte Normen oder sonstigen technischen Spezifikationen

Zusatzangaben:
Anmerkung [1]:
ITW Ltd Handel als Avery Weigh-Tronix
Sitz: Nexus House, Station Road, Egham, Surrey, TW20 9LB, England
Anmerkung [2]:
Dillon ist ein Teil von Avery Weigh-Tronix
Anmerkung [3]:
Eine Kopie der technischen Unterlagen für dieses Gerät kann von M.S.Williams bei der über stehenden Adresse angefordert werden.

Unterzeichnet für und im Namen von:
Avery Weigh-Tronix
bei
1000 Armstrong Drive, Fairmont, MN, 56031-1439, USA
am
2017-07-18

K.Detert
Innovationen / Marketingdirektor

FR Déclaration UE de Conformité

Modèle / Type: **Dillon AP**

Numéro de série: **A partir de X12500**

Nom et adresse du fabricant :
Avery Weigh-Tronix[1]
Foundry Lane
Smethwick
West Midlands
B66 2LP
ANGLETERRE

La présente déclaration de conformité est établie sous la seule responsabilité du fabricant.

Objet de la déclaration:
Dillon[2] AP 5" 500lb - 20,000lb
Dillon[2] AP 5" 500kg - 10,000kg
Dillon[2] AP 10" 1000lb - 30,000lb
Dillon[2] AP 10" 500kg - 20,000kg

La machine remplit l'ensemble des spécifications du cahier des charges de la Directive relative aux machines **2006/42/CE**[3]

L'objet de la déclaration décrit ci-dessus est conforme à la législation d'harmonisation de l'Union applicable:

Les directives en vigueur	Les normes harmonisées ou spécifications techniques

Informations complémentaires:
Nota [1]:
ITW Ltd exerçant également sous le nom de Avery Weigh-Tronix
Siège social: Nexus House, Station Road, Egham, Surrey, TW20 9LB, Angleterre
Nota [2]:
Dillon fait partie d'Avery Weigh-Tronix
Nota [3]:
Pour obtenir un exemplaire de la Fiche technique de cet équipement, s'adresser à M.S.Williams à l'adresse ci-dessus.

Signé par et au nom de:
Avery Weigh-Tronix
à
1000 Armstrong Drive, Fairmont, MN, 56031-1439, USA
le
2017-07-18

K.Detert
Innovations / Directeur Marketing

NL EU-Conformiteitsverklaring

Model / Type: **Dillon AP**

Serienummer: **Vanaf X12500**

Naam en adres van de fabrikant :
Avery Weigh-Tronix[1]
Foundry Lane
Smethwick
West Midlands
B66 2LP
ENGELAND

Deze conformiteitsverklaring wordt verstrekt onder volledige verantwoordelijkheid van de fabrikant.

Voorwerp van de verklaring:
Dillon[2] AP 5" 500lb - 20,000lb
Dillon[2] AP 5" 500kg - 10,000kg
Dillon[2] AP 10" 1000lb - 30,000lb
Dillon[2] AP 10" 500kg - 20,000kg

De machine voldoet aan alle relevante bepalingen van de Richtlijn inzake machines **2006/42/EG**[3]

Het hierboven beschreven voorwerp is in overeenstemming met de desbetreffende harmonisatiewetgeving van de Unie:

Toepasselijke richtlijnen	Geharmoniseerde standaarden of andere technische specificaties

Aanvullende informatie:
Nood [1]:
ITW Ltd trading als Avery Weigh-Tronix
Zetel: Nexus House, Station Road, Egham, Surrey, TW20 9LB, England
Nood [2]:
Dillon is een onderdeel van Avery Weigh-Tronix
Nood [3]:
Een kopie van het technisch bestand voor deze apparatuur is verkrijgbaar van M.S. Williams op het bovenstaande adres.

Ondertekend voor en namens:
Avery Weigh-Tronix
bij
1000 Armstrong Drive, Fairmont, MN, 56031-1439, VS
op
2017-07-18

K.Detert
Innovaties / Marketing Director

IT Dichiarazione di Conformità UE

Modello / Tipo: **Dillon AP**

N. di serie: **A partire da X12500**

Nome e indirizzo del fabbricante:
Avery Weigh-Tronix[1]
Foundry Lane
Smethwick
West Midlands
B66 2LP
INGHILTERRA

La presente dichiarazione di conformità è rilasciata sotto la responsabilità esclusiva del fabbricante.

Oggetto della dichiarazione:
Dillon[2] AP 5" 500lb - 20,000lb
Dillon[2] AP 5" 500kg - 10,000kg
Dillon[2] AP 10" 1000lb - 30,000lb
Dillon[2] AP 10" 500kg - 20,000kg

L'apparecchio rispetta tutte le disposizioni rilevanti della Direttiva Macchine **2006/42/CE**[3]

L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione:

Direttive applicabili	Armonizzato standard o altre specificazioni tecniche

Informazioni supplementari:
Nota [1]:
ITW Ltd trading come Avery Weigh-Tronix
Sede identificio: Nexus House, Station Road, Egham, Surrey, TW20 9LB, England
Nota [2]:
Dillon è parte di Avery Weigh-Tronix
Nota [3]:
Una copia della scheda tecnica di questo apparecchio è disponibile presso M.S.Williams, all'indirizzo sopra.

Firmato a nome e per conto di:
Avery Weigh-Tronix
a
1000 Armstrong Drive, Fairmont, MN, 56031-1439, U.S.A.
su
2017-07-18

K.Detert
Innovations / Direttore Marketing

ES Declaración UE de Conformidad

Modelo / Tipo: **Dillon AP**

Número de serie: **A partir del X12500**

Nombre y dirección del fabricante
Avery Weigh-Tronix[1]
Foundry Lane
Smethwick
West Midlands
B66 2LP
INGLATERRA

La presente declaración de conformidad se expide bajo la exclusiva responsabilidad del fabricante.

Objeto de la declaración:
Dillon[2] AP 5" 500lb - 20,000lb
Dillon[2] AP 5" 500kg - 10,000kg
Dillon[2] AP 10" 1000lb - 30,000lb
Dillon[2] AP 10" 500kg - 20,000kg

La máquina cumple con todas las disposiciones pertinentes de la Directiva **2006/42/CE** relativa a las máquinas[3]

El objeto de la declaración descrita anteriormente es conforme con la legislación de armonización pertinente de la Unión:

Directivas aplicables	Normas armonizadas u otras especificaciones técnicas

Información adicional:
Nota [1]:
ITW Ltd trading as Avery Weigh-Tronix
Oficina registrada: Nexus House, Station Road, Egham, Surrey, TW20 9LB, Angleterre
Nota [2]:
Dillon es parte de Avery Weigh-Tronix
Nota [3]:
Puede solicitarse a M.S.Williams una copia del expediente técnico correspondiente a este equipo en la dirección que se indica.

Firmado en nombre de:
Avery Weigh-Tronix
en
1000 Armstrong Drive, Fairmont, MN, 56031-1439, EE.UU
el
2017-07-18

K.Detert
Innovaciones / Director de Marketing

76501-504 Issue 2

The 50,000 lb dynamometer is not CE approved.

DILLON
Force Measurement Equipment

UK	**UK Declaration of Conformity**

Model / Type: **Dillon AP**

Serial Number: **X12500 Onwards**

Name and address of the manufacturer:
Avery Weigh-Tronix[1]
Foundry Lane
Smethwick
West Midlands
B66 2LP
ENGLAND

This declaration of conformity is issued under the sole responsibility of the manufacturer

Object of the declaration:

Dillon^2 AP 5" 500lb - 20,000lb
Dillon^2 AP 5" 500kg - 10,000kg

Dillon^2 AP 10" 1000lb - 30,000lb
Dillon^2 AP 10" 500kg - 20,000kg

The machinery fulfills all the relevant provisions of the Machinery Directive **2006/42/EC**[3]

The object of the declaration described above is in conformity with the relevant statutory requirements applicable to the specific product:

Statutory Requirements	UK standards or other technical specifications

Additional information:
Note [1]:
ITW Ltd trading as Avery Weigh-Tronix
Reg. Office: Nexus House, Station Road, Egham, Surrey, TW20 9LB, England
Note [2]:
Dillon is part of Avery Weigh-Tronix
Note [3]:
A copy of the Technical File for this equipment is available from M.S. Williams at the address above.

Signed for and on behalf of:
Avery Weigh-Tronix
at
1000 Armstrong Drive, Fairmont, MN, 56031-1439, USA
on
2021-07-16

E. Holland
Director - R&D and Innovation

76501-504UK Issue 1

2 Introduction

2.1 General description

A dynamometer is an instrument that displays the tension force exerted between the two attached shackles. It is generally used to determine tension in a line/cable or for suspended weighing.

The 50,000 lb dynamometer is not CE approved.

Figure 2.1 shows one model of dynamometer.

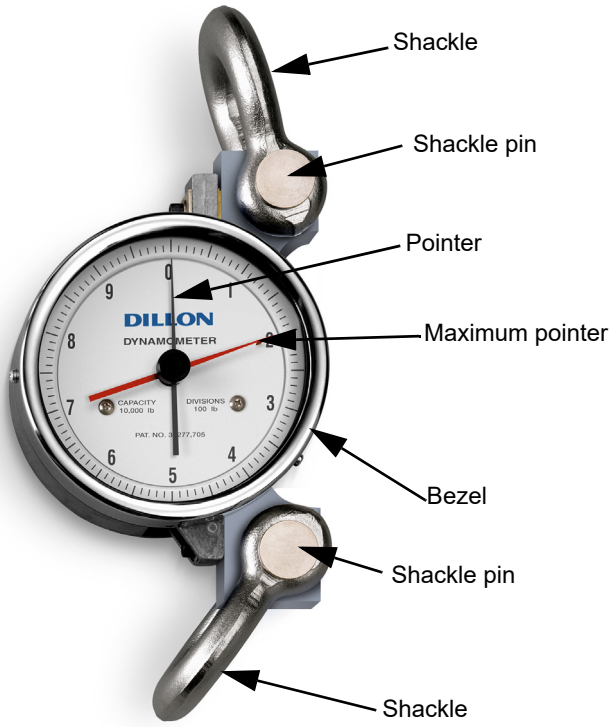


Figure 2.1 Dynamometer with shackles

CAUTION: Dillon Dynamometers are not designed for measurement of dynamic shock loads and should not be subjected to sudden force. Load or weight should be applied in a gradual manner to avoid damaging the Dynamometer. Torque loads applied to the dynamometer should be relieved or avoided.

Heavy duty needle bearings inserted in each end of the Dynamometer deflection beam (or into both sides of the shackles ears) allow the shackle pin to rotate as force is applied. See Figure 2.1. Bearings should be cleaned periodically in a suitable solvent. After drying, the bearings should be treated with a coat of light machine oil (SAE-5W non-detergent oil or lighter).

***CAUTION: DO NOT** allow oil to run into the mechanism case. The mechanism should never be oiled as this tends to attract dust or dirt.*

The case is not water-tight and if the Dynamometer should be accidentally immersed, hold it so that water is free to run out through the openings in the bottom of the case and allow to dry.

2.2 Third-party shackles and attachments

Dillon supplies shackles and pins with the dynamometers that have been confirmed to properly work with our mechanical dynamometers. Do not use shackles or shackle pins that have not been qualified by Dillon. Lower profile non-machined spots can often be observed and are normal.

If any type of accessory fitting is made for use with the Dillon Dynamometer, be sure to machine this from high grade aircraft alloy (E4340 steel or equivalent) and heat treat it in order to ensure maximum safety.

Dillon / Avery Weigh-Tronix is not responsible for failure of attachment fittings furnished by others.

2.3 Maintenance and handling

The Dillon Dynamometer is a precision instrument and will provide many years of dependable service if given reasonable care and suitable protection. Many firms make it a regular practice to return Dynamometers to their distributors at 6 to 8 month intervals (depending upon how much they are used) to have accuracy recertified. We recommend this at least once a year. Consult with your Dillon distributor concerning any questions you may have about recalibration intervals. Your area may require periodic proof testing. Consult your local regulations.

Transport and store the dynamometer in the supplied storage case when not in use.

3 Operation

Zero the dynamometer for best accuracy. To properly zero the instrument when using the max pointer, adjust the black needle below the desired zero point using the zero adjustment wheel on the rear of the case. Move the red maximum pointer counterclockwise until it contacts the black needle. Use the zero adjustment wheel to simultaneously move both pointers to the desired zero point. This procedure will prevent the slight drag of the max pointer from influencing the displayed reading. If the max pointer is not required, rotate the red pointer clockwise until it reaches the zero position and operate normally.

WARNING: Failure to adjust the max hand prior to use of the Dynamometer WILL affect the readings if the max hand is used.

Dillon Mechanical Dynamometers permit zeroing of up to 20% of instrument capacity. **Do not zero off a deadload and then use the instrument to capacity.**

AUTHORIZED DISTRIBUTORS

Ask the experts. Dillon distributors offer complete service capabilities from application assistance to sales and product support. Their experienced representatives are the most knowledgeable experts that you will find in the force measurement industry. We recommend that you consult these capable specialists for all of your measuring needs.

DILLON®

Overload Protection and
Overhead Weighing Equipment
1000 Armstrong Drive
Fairmont, Minnesota U.S.A. 56031
Toll-Free: (800) 368-2031
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www.dillon-force.com
Dillon is a brand of Avery Weigh-Tronix

DILLON ISO 9001 REGISTERED