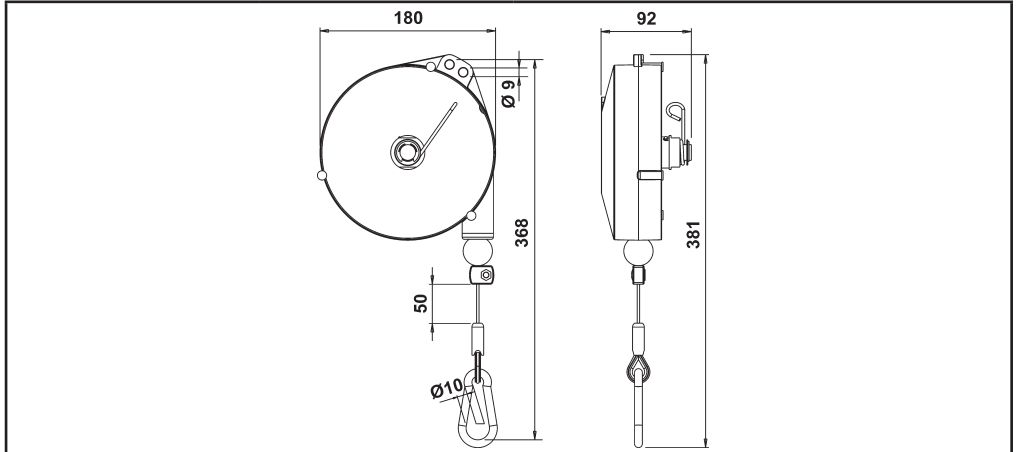







EN	BALANCER INSTRUCTIONS MANUAL	ES	MANUAL DE USO DEL EQUILBRADOR
FR	INSTRUCTIONS POUR L'UTILISATION DE L'ÉQUILIBREUR	IT	ISTRUZIONI PER L'USO DEL BILANCIATORE
DE	BETRIEBSANLEITUNG DES FEDERZUGS	NL	GEBRUIKSAANWIJZING VOOR DE BALANCER
NR	BALANSEBLOKKENS BRUKERVEILEDNING	SV	BRUKSANVISNING FÖR BALANSBLOK
DA	BRUGERVEJLEDNING TIL BALANCEBLOK	РУС	РУКОВОДСТВО ПО ЭКСПЛУАТАЦИИ БАЛАНСИР



ART. ITEM	 lb (kg)	 lb (kg)	ART. ITEM	 lb (kg)	 lb (kg)	 inch (mm)
<b>BMDLN4</b>	4.41÷8.82(2÷4)	6.92 (3.14)	<b>BMDLLN4</b>	4.41÷8.82(2÷4)	6.92 (3.14)	98.43 (2500)
<b>BMDLN6</b>	8.82÷13.23(4÷6)		<b>BMDLLN6</b>	8.82÷13.23(4÷6)		
<b>BMDLN8</b>	13.23÷17.63(6÷8)		<b>BMDLLN8</b>	13.23÷17.63(6÷8)		
<b>BMDLN10</b>	17.63÷22.05(8÷10)		<b>BMDLLN10</b>	17.63÷22.05(8÷10)		
<b>BMDLN12</b>	22.05÷30.86(10÷14)		<b>BMDLLN12Y</b>	22.05÷30.86(10÷14)		



<70 db (A)	T <sub>amb</sub> = +5°C... +60°C	
<p>Conservare queste istruzioni per tutta la vita del bilanciatore.          Save these instructions for all the balancer life.          Conserver ces instructions pendant toute la vie de l'équilibreur.          Conservar estas instrucciones durante toda la vida del equilibrador.          Diese Bedienungsanleitung muss für die Lebensdauer des Federzuges aufbewahrt werden.          Bewaar deze instructies gedurende de gehele levensduur van de balancer.          Oppbevar denne bruksanvisning for hele bruksperioden.          Spara denna bruksanvisning så länge balansblocket är i bruk.          Denne vejledning skal opbevares i hele balanceblokkens funktionsdygtige levetid.          Данное руководство следует хранить в течение всего срока службы балансира.</p>		<p>Utilizzare solo ricambi originali INGERSOLL-RAND.          Only use INGERSOLL-RAND original spare parts.          Utiliser uniquement des pièces détachées d'origine INGERSOLL-RAND.          Utilice sólo repuestos originales INGERSOLL-RAND.          Verwenden Sie nur Ersatzteile von INGERSOLL-RAND.          Gebruik alleen originele reserveonderdelen INGERSOLL-RAND.          Bruk kun originale reservedeler fra INGERSOLL-RAND.          Använd endast originalreservdelar INGERSOLL-RAND.          Benyt udelukkende originale reservedele fra INGERSOLL-RAND.          Используйте только оригинальные запчасти, выпускаемые фирмой INGERSOLL-RAND.</p>
<p>ORIGINAL INSTRUCTIONS   NOTICE ORIGINALE   MANUAL ORIGINAL     ISTRUZIONI ORIGINALI   ORIGINALBETRIEBSANLEITUNGEN VOLLE GEBRUIKSAANWIJZING          ORIGINAL INSTRUKSJONER   URSPRUNGLIGA INSTRUKTIONER   OPRINDELIG VEJLEDNING   ОРИГИНАЛЬНЫЕ ИНСТРУКЦИИ</p>		



**Install the balancer before using it. This operation is to be carried out by skilled personnel who must comply with the directions outlined in this manual:  
A WRONG INSTALLATION COULD CAUSE INJURY/DAMAGE TO PEOPLE/PROPERTY.**



**This manual contains important information in order to use the balancer safely.  
Be sure to have clearly understood all the instructions before using the balancer.  
FAILURE TO DO SO COULD CAUSE INJURY.**

The balancer was built in conformity with European Community Directives that were pertinent and applicable when the balancer was put on the market and that entail the CE marking of the product.

## INTENDED USE

The intended use of a balancer is to eliminate the constant weight of a tool during a vertical movement.

The balancer is only intended to be used manually by one operator at a time.

The balancer is intended to be used indoors with temperatures between 5°C and 60°C.



**Using the balancer at temperatures beyond this range could lead to premature deterioration of the balancer or some of its components.**

For a better use of the balancer, it is recommended that the load is suspended at the centre of gravity.



**It is necessary to use, inspect and maintain the balancer in perfect working efficiency in accordance with every regulation with regard to balancers, tools and workplaces.**



Balancer capacity from minimum to maximum value expressed in kg;



Balancer rope length expressed in mm;



Balancer mass in kg.

INGERSOLL-RAND will not be deemed liable for using these balancers for any other application.

## MISUSE

Do not permit children or people under age to use the balancer.

Do not work, transit or linger underneath the balancer.

Do not use in food or medical environments.

Do not use outdoors or in environments with corrosive chemicals.

Except for ATEX models, Balancers are not suitable for use in environments with potentially explosive atmospheres.

Do not use with loads beyond those shown on the data plate.

## STATIC AND DYNAMIC TESTS

Static and Dynamic sample testing (Machine Directive 2006/42/EC, Annex I, section 4.1.3) are performed for each production lot.

The static tests are performed by connecting to the balancer a load 1.25 times higher than the maximum allowed capacity then by accompanying it to the stroke end (rope all out) for 10 minutes (as reported on DIN 15112:1979).

The dynamic test is performed by checking the proper operation of the balancer (rope extraction and rewinding) for 1-hour time with the balancer charged 1.1 times the maximum allowed load.

## CHOOSING THE BALANCER

Assess the total load to be balanced: tool, accessories and sections of hoses or cables to be lifted by the balancer. The overall load to be balanced must fall within the balancer's minimum and maximum load-bearing capacity.

## STARTING UP THE BALANCER

Assess the range of the work area and, if appropriate, hang the balancer to a roller guide to be able to use it properly in an area wide enough to carry out the required activities.

Use the hole (A) for main suspension and hole (S) for safety suspension (Fig. 1a/b).



**For capacities up to 4 kg, refer to figure 1a; for capacities over 4 kg, refer to figure 1b.**

If screw-fixing devices are used to install the balancer, use self-locking nuts, split-pins or other safety systems.

In order to avoid anomalous wear, the load must be applied vertically. The balancer must in any case be free to move in its suspension so that it can line up with the direction of the load.

The balancer must be installed on a structure having an adequate mechanical resistance. Mechanical resistance of the structure  $> 5 \times (\text{Balancer weight} + \text{Max load})$ .

It is possible to install more than one balancer to the same main structure only if each balancer has an independent connection point and the structure has a mechanical resistance higher than five (5) times the weight of all balancers plus all maximum loads. It is possible to install more than one balancer to the same secondary structure (i.e. safety rope) only if each balancer has an independent connection point and the structure has a mechanical resistance higher than five (5) times the weight of all balancers plus all maximum loads.

When starting up a balancer, we suggest that the following procedure is used:

- Connect the balancer to the main structure through the suspension hook, if present, or fixing hole.
- Connect the safety device to the secondary structure.
- Lift the load to be hanged to the balancer.
- Hang the load to the balancer through the proper hook/snap hook.
- Lower the load by unwinding the balancer's rope and adjust the stroke limiter clamp to avoid bringing the load above the operator.
- Momentarily remove the red cap from the load adjustment bush.
- Adjust the balancer strength as long as the hanged load is balanced. Rotate in the direction of the + sign to increase the strength of the balancer. Rotate in the direction of the - sign to decrease the strength of the balancer.
- After making the adjustment, the red cap must be fitted back onto the washer.

In case of installation of the balancer at a considerable height, use the dedicated extension ropes to bring the load at the needed working height (the load must not be above the operator).

Ensure that the working area is adequately lightened to allow a good overview of the operations and of all the equipment, avoiding dark areas, dazzling and strobe effects.



**For all balancers that do not have a suspension hook, make sure that it is fixed to the main structure in such a way as not to block the movements (oscillations and rotations) which are functional to the correct operation of the balancer itself.**



**Always connect the safety suspension (S), with exclusive use of the supplied standard fittings (Fig.1a/b), to a suitably sized support. The safety support MUST NOT BE the same one used for the main suspension (A) (Fig.1a/b). If the main suspension breaks, the max falling distance must not be more than 100 mm. Let the parts of rope that are not under tension come out for at least 20 mm and tight the nuts of clamps 21215 (fig. 1) gradually together with a 2 Nm torque.**

## BALANCER ADJUSTMENT

A bushing was added to the balancer in order to safeguard its integrity from incorrect use when unloading the spring. This bushing makes it impossible to unload the spring using a wrench. The only way to unload it is through an appropriate lever foreseen by the instruction manual.

To allow the balancer to balance heavier loads within the load capacity accepted, use spanner (D) to turn knob (6) anticlockwise, identified by the "+" symbol (Fig.2). For lighter loads, press on the end of the spring (9) and turn it clockwise, identified by the "-" symbol (Fig.3).



**TO REDUCE THE LOAD DO NOT USE THE SPANNER ON THE KNOB (6)! (forcing the knob in the load reduction direction using the spanner can cause the retaining unit to break).**

After adjusting the load, check that the rope can move freely along all its length: the movement must not be limited by the complete winding of the spring. Check the stroke more than once and according to different speeds.

### **FOR BMDLLN4÷BMDLN12Y MODELS ONLY**

The BMDLLN4÷BMDLN12Y balancers are fitted with a mechanism that allows to block cable rewinding: this allows to work without cable traction, e.g. inside a car (Fig.5).

Blocking is obtained with slow re-ascend of the tool.

To release drum rotation, pull the tool slightly downwards and make it re-ascend at high speed.

To prevent undesired blocking, the ascent must take place at suitable speed.

The locking kinematism may be neutralized by tightening the screw (25) all the way while the load goes up and down (Fig. 5).

NOTE: a reduction of the ability of the balancer to hold the hanging load might mean that the drum spring is about to break. DO NOT MODIFY THE BALANCER ADJUSTMENT TO SUSTAIN THE LOAD ANYHOW, INSTEAD CALL IMMEDIATELY THE SPECIALIZED PERSONNEL AUTHORIZED TO MAINTENANCE.

Do not use by hanging a maximum load greater than the maximum load allowed and by balancing the same through the regulator.

## USING THE BALANCER

Grip the tool hanging from the balancer and carry out the required operations. Then accompany the tool as far as it balances, on the vertical line of the balancer, and release it.

The load to be balanced must be hung on snap-hook (24) (Fig.4). Ensure that the snap-hook is closed correctly after having hung the load.

The cable must never be fully unwound: the work travel must end at least 100 mm before it reaches the lower limit of the run: If necessary, move and block the clamp (20) (Fig.4) to limit the upward run.



**Do not unhook the load if the clamp (20) (Fig.4) does not lean onto the rope's swaging (POSITION SHOWN IN FIGURE 4).**

- Do not leave the load if it is not in a vertical position;
- Do not swing/throw the hanging load to another operator;
- Do not move the load by pulling the balancer's rope;
- Do not hang loads that are not within the upper and lower ranges of the admissible load-bearing capacity;
- Do not hang more than one tool on the balancer.



**The highest risk linked to the use of the balancer consists in the uncontrolled rewinding of the rope.**

- 1 If, for any reason, the rope is not rewound by the balancer, DO NOT intervene and call immediately the maintenance service;
- 2 Never unhook the load if the rope is not completely wound in the drum, prevent the rope from touching the rope-guide.
- 3 Should you find the balancer with the rope completely unwound and no load attached, DO NOT intervene and call immediately the maintenance service;
- 4 During use, the rope must be straight and must not be in contact with any pulley, ring or external structure close to the place where the balancer is installed and used;
- 5 The use of the balancer is allowed only with its rope in a vertical position.
- 6 The adjustment of the balancer stroke must be done so to ensure the positioning of the tool at a height equal or lower to that of the operator, notwithstanding the place where the balancer is installed.
- 7 Do not twist (beyond 360°) the rope during use, if the load must turn during operation then provide that the dedicated tool is used.
- 8 Should the balancer be provided with a locking device, use it when the tool hung to it is not used (end of work shift).



**After the intervention of the devices that avoid the load fall or the uncontrolled rewinding of the rope, a revision of the balancer is necessary. To this end, contact your dealer.**  
**When the balancer is used with an electrical tool, please refer to the user manual of the electrical tool for the management of eventual residual risks.**  
**Do not use the balancer by holding it from the rope; hold only the snap-hook or the hanged tool.**

## CHANGING THE LOAD / CHANGING THE TOOL

Before proceeding with the tool change, it is necessary to rewind completely the balancer rope without using the stroke adjustment device as a locking device.

Should the balancer be provided with locking devices, it is also possible to proceed as follows:

- Sustain the load in a different way (not through the balancer rope).
- Unhook the load from the balancer
- Hook the new load; bring it to a vertical position below the balancer with the rope stretched.
- Adjust the balancer, if needed, to balance the new load (when the new load has a different weight).



**Do not move away from the balancer if a load is not hooked.**

## INSPECTION

The balancer must be visually inspected on a regular basis (e.g. once at each work shift). Specifically, check the state of the suspensions (A) and (S) (Fig.1a/b), the fixing screws and self-locking systems (if used), the condition of the hooks and the cable as well as the presence and correct fit of the red high-visibility impact monitoring cap located on the adjustment system.



**To check the cables, regarding rejection criteria (cable replacement), refer to ISO 4309:2011. (See Fig.6 for some examples).**

- check that the rope's movement is smooth and that it does not make any strange noises;
- do not lubricate the balancer with flammable or volatile fluids;
- do not remove any labels. Replace any damaged labels;
- the balancer must be inspected at least once a year by skilled, authorized personnel.

In case of unusual behaviour of the balancer, contact your dealer.

## **SAFETY DEVICES (BMDLN4÷BMDLN12 - BMDLLN4÷BMDLN12Y)**

### **Drum spring breakage**

The balancer is fitted with a safety device that trips if the drum spring should break; it blocks operation, preventing the load hung from falling.

If the hanging tool cannot be lifted or lowered through ordinary strain,

**DO NOT INTERVENE BUT CONTACT THE AFTER-SALES ASSISTANCE SERVICE.**

NOTE: the balancer stops even if the drum spring is fully discharged. To restore operating conditions, try to load the spring as outlined in the "Balancer adjustment" paragraph. If the balancer does not release

**DO NOT INTERVENE BUT CONTACT THE AFTER-SALES ASSISTANCE SERVICE.**

## **MAINTENANCE**

Maintenance may be carried out only by skilled and authorized personnel.

Use original INGERSOLL-RAND spare parts only. When requesting spare parts, the Customer should kindly contact the supplier of the balancer or the manufacturer directly, specifying the equipment's identification data printed on the plate.

Do not make any modification to the rope group and, specifically, DO NOT SHORTEN the rope: if needed, please get in touch with the supplier or the manufacturer directly.



**Never disassemble the balancer. Maintenance is to be carried out only by skilled, authorized personnel.**

## **WARRANTY**

The use of non-original INGERSOLL-RAND spare parts will negatively affect safety and performance and, in any case, it will void the warranty.



**The rope and the drum-spring are not covered by warranty.**

## **DISPOSAL**

At the end of the work life of the balancer, proceed as follows:

- Rewind the rope completely
- Unhook the load from the balancer
- Unhook the balancer from the primary and safety connections.
- Proceed to fully discharge the balancer spring.

Once the balancer has been discharged, it must be disposed of complying with the rules and regulations in force.