technogrid®

Control that impact

ADVANTAGES:

- ❑ **Prevents damage to counter weight;**
- ❑ **Prevents damages caused from falling to the ground;**
- ❑ **Prevents damage to structures;**
- ❑ **Reduces down time after belt failure;**
- ❑ **Technogrid® is adaptable for many applications;**
- ❑ **Maintenance Free.**

Closer view of the Technogrids®.

View of Technogrids® and catch frame from underneath installation.

One of the more cost effective applications of **Techno**grids® is in arresting a falling gravity take-up conveyor counter weight. In some applications, If the belt fails and the counter weight falls, there is potential for damage to occur to structures or equipment below - then counter weight arresting needs to be considered.

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Technogrids® provide the ideal solution to this problem, reducing expensive down time. The specified **Techno**grids® are simply “hung-up” vertically next to or below the counter weights with a catch frame attached to the bottom of the **Techno**grids®. The catch frame is situated just below the lowest point of the normal vertical movement allowed for the counter weight. The tops of the **Techno**grids® are anchored to the structure. The structure must be able to handle the reaction forces which are generated by the impact. **Techno**grids® will stop the fall of the counter weight, absorbing all the impact energy. The counter weight will remain on the catch frame until reinstalled on the repaired conveyor belt. After a full impact, the **Techno**grids® simply need to be replaced. A wide range of **Techno**grids® is available and can be used in different combinations to absorb very high impact energy.

View of Technogrids® deployed after impact

Predictable Impact Energy Absorption

SPECIFYING THE TECHNOGRID® COUNTER WEIGHT ARRESTING SYSTEM

General Notes

The crash beam should be installed just below the point of normal travel of the counter weight so as not to interfere with the normal movement of the counter weight. This also reduces the impact energy that needs to be absorbed.

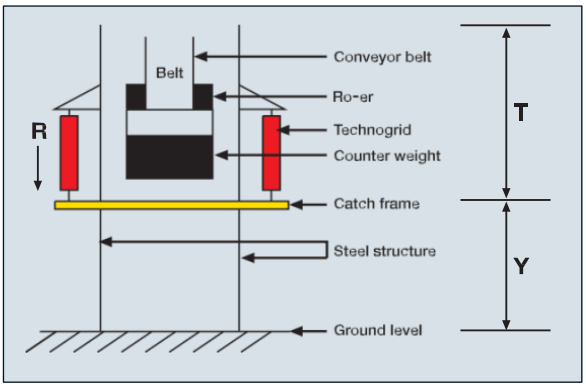
The **Techno**grids® can be installed in any configuration from 2 or 4 grids in parallel or strings of **Techno**grids® mounted in series in 2 or 4 strings.

Symbols

T Maximum distance that counter weight can fall if the counter weight is at its highest position

Y Maximum stroke area permitted for impact energy to be absorbed, the **Techno**grid® stroke must be less than Y

R Maximum reaction force that will be transmitted into the **Techno**grid® connection point (top)



Formulas used in the calculation process

Ep = m.g.h

Ep = potential energy

m = mass of counter weight

s = stroke of **Techno**grid®

h = maximum fall distance of counter weight

(h = T + s, s is the stroke of selected unit)

n = Number of **Techno**grids® used in parallel

Example to specify your **techno**grid®

Parameters of example

M = 4 tons; T = 2m; Y = 5m

Calculations

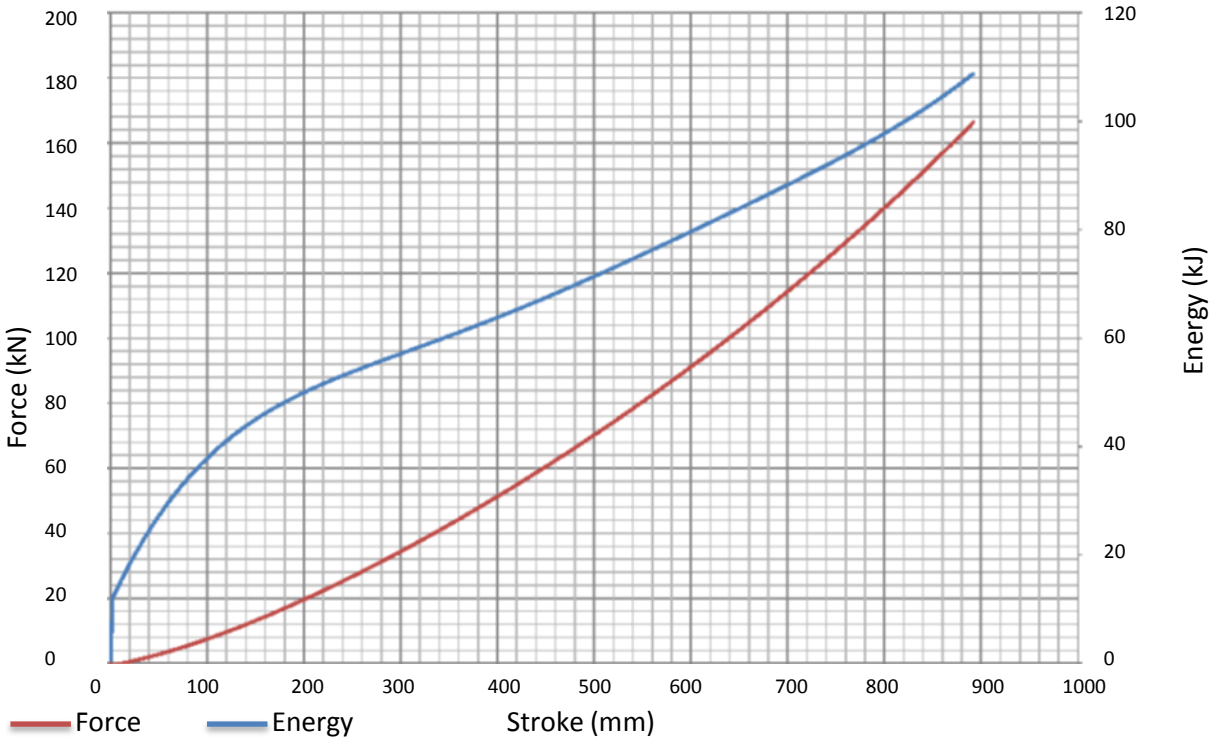
Assuming a **Techno**grid® with 100kJ capacity and a stroke of 900mm, use the data sheet to choose the **Techno**grid® with its maximum stroke.

E =	mgh	E per unit =	E total / N
=	4 x 9.81 x (2+0.9)	=	113.8kJ / 2
=	113.8kJ	=	56.9kJ

Two 100kJ **Techno**grids® will absorb the 113.8kJ of total energy with each **Techno**grid® absorbing 56.9kJ.

Predictable Impact Energy Absorption

100kJ Double Bar technogrid®



How to read the graph

1. Take the energy value and read off from the right hand side of the graph inwards until the energy curve is intersected.
2. Extend the intersection point vertically in both directions until the force curve above is intersected and the stroke distance of the **Techno**grid® is intersected on the bottom.
3. Where the vertical line intersects the force curve, move horizontally to the left and read off the end force of the **Techno**grid®**.**

In this example 80kJ intersects the energy curve at a stroke of approx. 600mm and the end force per **Techno**grid® is approximately 132kN.

HORNE OFFERS A FREE DESIGN SERVICE FOR SPECIFYING THE COUNTER WEIGHT TECHNOGRIDS®. THIS BROCURE IS INTENDED AS A GUIDELINE AND THE BROCHURE IS USED AT YOUR OWN RISK. IT IS ADVISABLE TO CONTACT HORNE FOR THE VERIFICATION OF DESIGN CALCULATIONS AND FINAL DIMENSIONS.

If you have received this brochure and not the accompanying data sheet, the data sheet can be downloaded from the website. The data sheet on the website will always have the latest information with additional graphs added which are not on the data sheet. The graphs are to be used for indication purposes only.