

# KNOWLEDGE BASE ARTICLE

## W8 Technology



The PRO-SWING 45 harness has been designed for ultimate convenience and functionality and incorporates Minelab's innovative weight (W8) distribution system.

W8 technology evenly distributes the detector's weight, so that even after many hours of detecting you are unable to feel that any specific part of your body is carrying the detector's weight. This means that you can detect for much longer without feeling any strain.



### J-strut Innovation

The patented J-strut is at the heart of Minelab's W8 technology.

The J-strut is made up of four pieces to allow maximum adjustability for a customised fit. The upper and lower strut pieces fit together in two ways to allow left and right handed detecting. The upper and lower screws allow the J-strut to be customised for height and width.

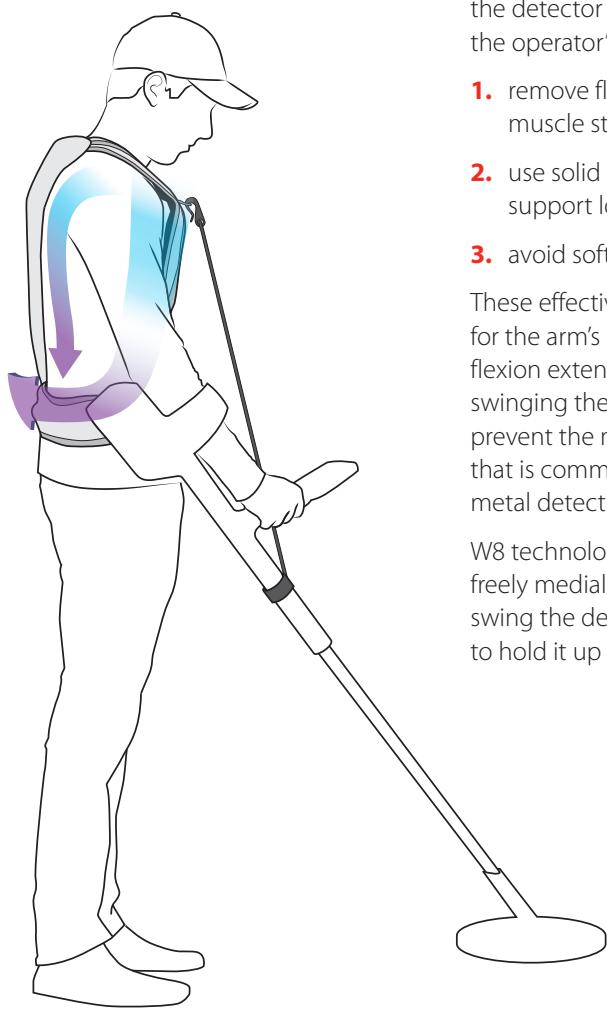
The J-strut is made from nylon with a 33% mix of glass fibres for added strength and has been tested to withstand 20 kg (44 lbs) of load.



## W8 Technology and Biomechanics

### With W8 technology

Detector's weight is evenly distributed



W8 technology employs three biomechanical strategies to transfer the detector mass (weight) away from the operator's arm:

1. remove flexion and extension muscle strain,
2. use solid skeletal structure to support loads,
3. avoid soft tissue anchor points.

These effectively remove the need for the arm's muscles to tense in a flexion extension position while swinging the detector, and therefore prevent the muscle fatigue and soreness that is commonly experienced with metal detecting.

W8 technology also allows the arm to freely medially rotate and abduct to swing the detector without the need to hold it up off the ground.

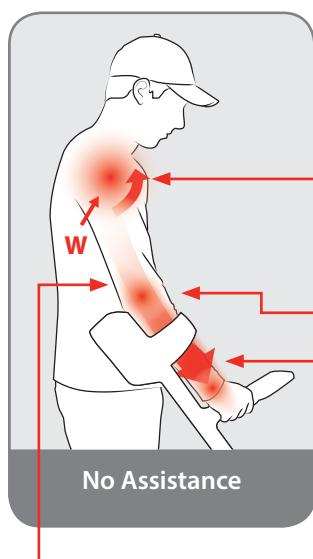
Most traditional bungey and harness systems are only effective at removing the load from the upper arm and forearm, leaving the shoulder to bear the weight of the detector. Other systems attempt to rectify this by using a strut to transfer the weight from the shoulder to the front of the hip in a concentrated point. However, this is a soft tissue area and incapable of supporting a load without discomfort. Additionally, since this area of the body is soft, the strut sinks into the hip and pulls down on the shoulder, thus becomes ineffective at releasing the strain in the shoulder.

W8 is the first technology that significantly reduces the load on the shoulder without transferring it to a soft tissue area. W8 technology achieves this by directing the load to the back of the hip, which is a solid anchor point for the strut. This ensures the shoulder is released from the majority of the strain, the only load left is to hold the top of the strut upright. This small remaining load is dissipated by the wide shoulder straps and back cushioning.

The result is a detecting harness that allows the operator to detect in comfort for longer, resulting in more finds and more enjoyment.

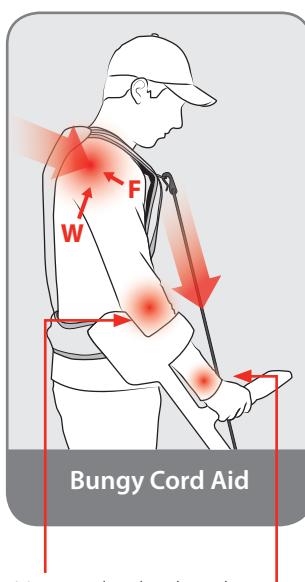
### Without W8 technology

Detector's weight is not evenly distributed

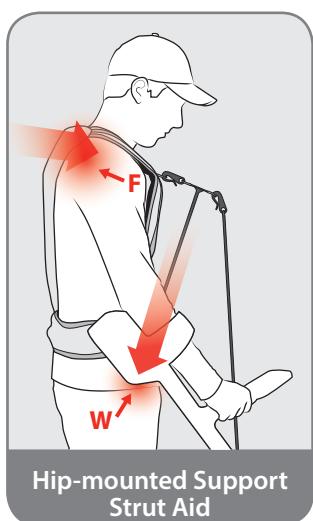


Moment load on shoulder to hold coil off the ground and to maintain arm in flexion/extension  
Moment load to hold coil off the ground and forearm flexes/extension

Full weight of detector and arm



Moment load reduced



Point load applied to soft tissue causing discomfort

**KEY** **W** = Reaction to the mass of detector and portion of arm extended  
**F** = Reaction force equivalent to moment load of coil/shaft forward of handle