

# NK-6 Symphony

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I've been traveling the world with a cane and an artificial leg. So, the first thing I think about is safety and security. In particular, I have felt safer when going downhill. I play badminton. And when I am tending the garden, I climb the ladder. At first, my spirits were really low. Now it's more like, "A thousand-league journey starts with the first step," and I am heading slowly but steadily towards my goals.

The geometrical lock system is highly sensitive and responsive. When there are slippery surfaces, such as a patch of frozen road, that you cannot firmly step on, the system instantly works to prevent my knee from buckling. In a strong wind, on settled snow, or in other situations, I can use selective lock to fix the knee joint. Even in snow country, this is a knee joint you can use while feeling confident of safety.



# NK-6 Symphony



This new knee joint has a stance-flexion feature that, while allowing a slight amount of flexion, instantly locks to prevent sudden buckling of the knee, it also has a hydraulic system that eases the initiating swing. This knee is named Symphony. The knee joint seamlessly orchestrates and harmonizes stability of the stance phase and smoothness of the swing phase.

Model no.:NK-6+L  
Max. flexion:170°  
Weight limit:125 kg / 275 lbs  
(Any of these specifications may change without prior notice)

## 1 Stance phase control

### ▼ Stance-flexion feature

The capability operates even when stepping on a frozen surface that cannot be firmly contacted by the heel. The instant the heel touches the slippery surface, the knee is geometrically locked and knee buckling is prevented. Moreover, because the knee joint is slightly flexed at the time of contact, the shock of impact with the ground is absorbed, and it is easy to walk comfortably (max. stance-flexion:10°).



### ▼ p-MRS system

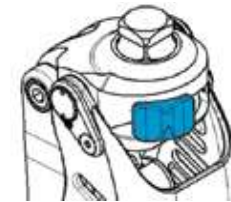
The p-MRS system is a mechanical sensing system that monitors the underfoot location of the ground reaction force. The virtual pivotal point in the polycentric link sensing system is situated at around the toe-break point. When the reaction force is detected on the heel side of the sensing point, the stance phase control is activated. Then, when the reaction force is detected on the toe side, the stance phase control geometrical lock is released to allow the swing phase. Unlike a load-monitoring system, this more sensitive system works by detecting where the force is being received. Even a small amount of force can accurately trigger activation and this enables smooth transitions between the stance and swing phases.

p-MRS\* system  
\*polycentric Mechanism of Reaction force Sensing

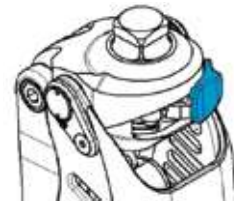


### ▼ Selective lock mechanism

At any time, the user can switch between free knee and locked knee modes. If the user feels unsafe with the knee being free, for example on settled snow, in high winds, or on uneven ground, to prevent buckling, the knee can be locked. At other times, such as when standing on a ladder working or when making a golf swing, locking the knee is also convenient.



Free Motion  
(Selective lock released)



Locked knee  
(Selective lock applied)

## 2 Swing phase control

### ▼ Hydraulic cylinder system

Conventional hydraulic cylinders make the initial swing heavy, and tiredness soon results. Using special technology, with an initial swing that feels as light as with a pneumatic cylinder, it is now possible to walk easily using hydraulics.

The knee joint has been made still more compact by enabling control of high output even from a small-capacity hydraulic cylinder.

### ▼ Extension assist spring

While standing, one cause of knee buckling with polycentric knee joints is incomplete extension. Because the extension assist spring maintains knee extension, even users with low-mobility can walk safely.