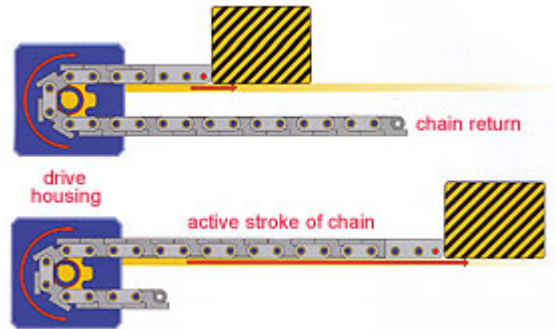


SERAPID Horizontal Rigid Chain Systems

Power is applied to the chain by means of pinions on a drive shaft. The shaft and the pinions are integrated in the chain drive housing. As the shaft rotates the pinions, their teeth engage with rollers on the links' cross-axes, moving the chain forward or backward link by link.

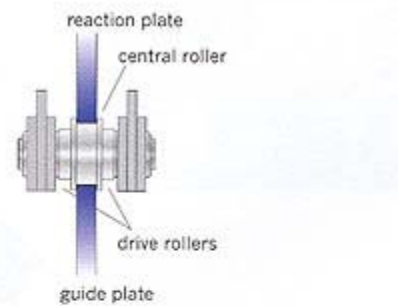
As the chain moves out of the drive housing, it pushes the load forward along the stroke path. **When the pinions rotate the other way, the chain does not push but pulls the load back towards the housing.**



The length required for the chain is always the length of the stroke plus only the few additional links that have to remain on the pinions. The retracted chain can be coiled, redirected to free machine space (if required) and stored in very efficient ways.

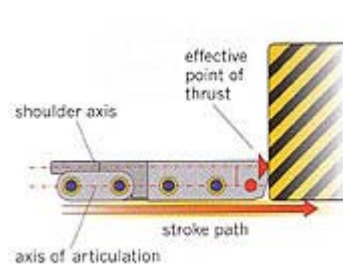
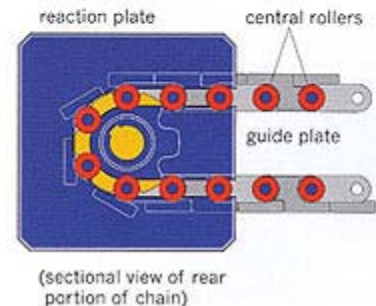
Inside the drive chain

The chain's path through the housing is defined by guide and reaction plates which counter the thrust resistance and direct the links precisely onto the stroke path. These plates control the chain's proper course in a simple way. On each of the chain links' cross-axes between the drive rollers, there is a big central roller. The central rollers run between the edges of the guide and the reaction plates which serve as rails and thus hold the chain links on the track.



Locking and unlocking

As it goes around the pinions, a chain link will eventually exit the curve and reach the point where it is in a straight line with the stroke path. This is where the forward thrust is applied to the link and the subsequent piece of chain. **At its end, a special front link shifts the target of the thrust above the axis of articulation. This creates a moment which locks the shoulders of the chain links.**



Thus, the shoulder axis of the chain links is used for pushing while the axis of pulling remains at the height level of the cross-axes on the axis of articulation. In contrast to a conventional chain or jack, the rigid chain has two geometrical axes. **In both directions of movement, during a pushing or pulling operation, the guide and reaction plates lock outgoing links along the upper axis and unlock incoming links along the lower axis** - stiffening or coiling the chain respectively.

Three basic ways of using the chain

Depending on stability requirements and space availability, the SERAPID chain can be used in three different ways:

1. **Guided Chain** – **The use of guides provides optimum stability and are recommended** whenever space permits. They also provide maximum flexibility for storing the chain return. Link shoulders can be used up or down with the chain return above or below the stroke path.
2. **Unguided Chain, Shoulders Down** - Of the two unguided options, shoulders down provides the better stability. This is because the interlocking shoulders receive additional support through their contact with the worktop. With this configuration, the return path must be above the stroke path.
3. **Unguided Chain, Shoulders Up** - This option should only be used when the return path is required below the stroke path due to space constraints and guides cannot be used. It is not recommended for longer strokes as the chain may not be stable enough.