THE SYNERGY VALUE

THE EXPERIENCE VALUE

THE SUPERIORITY VALUE

THE INNOVATION VALUE

THE ASSISTANCE VALUE

THE BRAND VALUE

CARRYING VALUES

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Today, manufacturers must make many commitments to provide customers with real value. Noell Straddle Carriers have greater value - all of which is focused on giving maximum benefit to customers’ container terminal operations. We strive for efficiency, innovation, flexibility, minimization of operational costs, reliability, service and support. Experience, value, know-how and innovation, advanced drive concepts, combined with the performance of the mobile CAN-bus control system CREON, are formidable examples of how Noell will always be one step ahead. Almost 40 years since it built its first Straddle Carrier, Noell is still a market leader because of one simple concept: added value, always.
Noell was founded in 1824 in Würzburg, Germany as a forge and foundry works, specialising in the manufacture of mail coaches, freight wagons and transport cranes. Almost two centuries later, Noell is an appreciated supply partner in the delivery and service of Straddle Carriers for container handling.

Noell Mobile Systems & Cranes GmbH is part of the Italian Fantuzzi-Group, and a market leader in the Straddle Carrier business. By reinvesting in the machinery and processes that are applied in our modern production facility, we continue to grow our workforce (now over 400 strong) and our production capacity (approximately 300 units per annum). The superior performance of Noell Straddle Carriers is renowned worldwide and many of the most modern and efficient container terminals use Noell equipment.
THE SUPERIORITY VALUE

Container handling is a tough business. Operational demands grow day by day, generating more and more pressure on the technical departments to provide reliable and superior equipment on a 24/7 basis. Customers require low operational costs, and this can be achieved by minimizing the number of moving and serviceable parts, as well as introducing intelligent power management. Noell Straddle Carriers provide maximum reliability, manoeuvrability, speed and innovative features, combined with more than 180 years’ experience in the manufacture of transport and lifting equipment.

Reliability

The Noell strength is underpinned by the large amount of fabrication which takes place in-house. This allows us to guarantee a high level of self-controlled quality assurance, from the smallest component to a whole fleet of Straddle Carriers. After all, we understand that time is of the essence, in your daily task of moving containers.
THE DESIGN VALUE

The design of Noell Straddle has always been focused on giving maximum benefit to container terminal operation. Noell has always had an incomparable continuity of design, being the first to adopt modern concepts such as the single engine engineering, or the v-shaped cabin - concepts which are recognized as state-of-the-art. This results in the ability to offer proven products at the highest technical standards. Values that you can see and experience, day after day.

RELIABILITY AND DURABILITY ASPECTS

Direct drives...

...eliminate gearboxes...

...and couplings

Simple systems in vulnerable areas...

...plus adequate protectors for delicate operations (e.g. railcar loading)

Combined with proven CAN-bus controls

MAINTENANCE ASPECTS

Easy access to all components likely to require regular maintenance, such as filters or measuring plugs.

MOBILE SYSTEMS

CARRYING VALUES

NSC E  NSC H  NSC T
**MODULARIZATION ASPECTS**

Unified designs for effective fabrication, resulting in best delivery times while retaining flexibility for tailormade solutions.

**ENVIRONMENTAL ASPECTS**

<table>
<thead>
<tr>
<th>Engines comply with the latest exhaust emission legislation.</th>
<th>Lowest fuel consumption (achieved by variable speed power management).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest noise levels for both vehicle operators and the surrounding environment.</td>
<td></td>
</tr>
</tbody>
</table>

**OPERATIONAL ASPECTS**

V-shaped cabins with rotating seats, electric and orbitrol steering, electrically adjustable pedals, minimisation of restricted views.
TECHNICAL HIGHLIGHTS

VALUE

MOBILE SYSTEMS

CARRYING VALUES

DRIVES
Direct drives eliminate couplings and gearbox

SPREADER
Single and twin version with 60t capacity and longshift function

POWER MANAGEMENT
Variable speed control for lowest emissions, wear and consumption

NSC E   NSC H   NSC T
CABIN
Various types with fully adjustable interior (e.g. rotating seat, electrically adjustable pedals).

GUIDES
Locked systems with extended surfaces. Standard cable chain instead of pantograph mechanics.

REMOTE DIAGNOSIS
Realtime access to cabin display and PLC from remote locations via WLAN technology.

SATELLITE TRACKING
Provision of yard coordinates to Terminal Operating System (TOS) via WLAN technology.

THE PHILOSOPHY
Straddle Carrier efficiency and reliability is dependent on a number of individual components. Noell machines embody the perfect combination of such details.
Only Noell can offer the widest range of Straddle Carrier models, ensuring that we always provide the most suitable machine for any type of container terminal. The range starts with the NSC T model, a machine “good for all seasons” which is ideally suited for small and midsize terminals and has limited maintenance needs. Our “working horse” model, NSC H, has proven reliability and durability with millions of operating hours all over the world. Our most efficient and advanced model on the market is the NSC E.

Whilst there is a large variety from which to choose, all model designs are competitively priced with short delivery times.

With Variable Electric AC Drive

- The Straddle which offers the highest standards in future container handling in regard to the environment
- Best-in-class for economic efficiency with unrivalled low levels of consumption, low emissions and low noise levels
- Robotically-precise operation, achieved by its 4-quadrant AC drive and hoist system
THE NSC H MODEL

THE WORKHORSE

With Full Hydrostatic Drive

- The long-term proven Straddle for high performance terminals
- Smooth and stepless operation due to its electronically controlled hydrostatic drive system
- Outstanding inching ability for efficient container grabbing

THE NSC T MODEL

THE TRADITION

With Mechanical Power Transmission Drive

- The Straddle for every terminal
- Easy to maintain as a result of its simple mechanic power train
- High performance at low consumption
THE SHINING STAR

The NSC E model is without doubt the shining star in the range. Since its launch, only a few years ago, it has come to dominate the market. High performance, combined with complete reliability, makes this model an outstanding carrier. Whilst it provides the same speeds, capacities and options as other models, there are additional features that give this variant many advantages. Direct drives in the travel and hoist system virtually eliminate all kinds of gears and couplings, reducing maintenance and emissions of noise and lubricants. This applies to the genset, as well as to the wheel drives and hoist system. The smart power management, only available on Noell Straddle Carriers, always keeps the engine running on the lowest revs, consequently saving fuel and reducing noise whenever full power is not required (e.g. during idling phases). Moreover, the generative effect of the patented wheel hub drives and the hoist motor feed back energy into the system when reducing speed or lowering the spreader. This energy is reused for powering other systems, thus further saving fuel and reducing emissions while operating the carrier. The direct drives on the wheels have the effect of lowering the centre of gravity on these Straddles. This, combined with intelligent assistance in stability control of the CAN-bus system (CREON) ensures safe operation under any conditions. The NSC E is perfectly prepared for later automation, as the CREON control system governs all movements from zero to maximum speed and is regulated by the state-of-the-art peripheral equipment, providing feedback from the drives. The open-plan CAN-bus links all active components and provides data for troubleshooting and statistics when requested.
# Main Technical Data NSC E

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>354 Kw</td>
</tr>
<tr>
<td>Max. Traveling speed</td>
<td>30 km/h</td>
</tr>
<tr>
<td>Max. Hoisting speed</td>
<td>24 m/min</td>
</tr>
<tr>
<td>Max. Lifting capacity</td>
<td>60 Tons</td>
</tr>
<tr>
<td>Dead weight</td>
<td>63 Tons</td>
</tr>
</tbody>
</table>

*All data subject to final specification*
THE NSC H MODEL

THE WORKHORSE

For years, in container terminals around the world, large fleets of this model, in 3-high and 4-high versions, have ensured excellent performance in handling a large volume of containers with minimal downtime. By means of a closed centre hydraulic circuit, the NSC H moves smoothly and precisely, from creep speeds to 30km/h, even when fully loaded. With the high efficiency factor arising from the hydrostatic system, fuel consumption is significantly lowered. In addition, the elimination of gears and axles minimizes the number of parts subject to wear and maintenance. The four driven wheels, equipped with liquid cooled wet disc brakes, always work with full control, even on slippery ground. Anti-slip and anti-blocking functions ensure best grip and safe driving control in any conditions, whilst hydrostatic braking conserves the mechanical components of the brakes. Automatic speed limiters help to keep this Straddle operating safely in dangerous conditions. Automatic positioning of the spreader onto containers is facilitated by the optional automatic spreader positioning system via control of the hydrostatic drive system (or longshift) and the sideshift system. The hoist system is identical to the NSC T model, consisting of a single axial piston pump and combination, controlled via the CAN-bus system to achieve the best efficiency and hoist speeds up to 24 m/min. The whole system is designed to handle loads of up to 60 tons. All options available for the other models do also apply to the NSC H, for example the range of possibilities offered by the CREON system.
### Main Technical Data **NSC H**

<table>
<thead>
<tr>
<th>Parameter</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>354 Kw</td>
</tr>
<tr>
<td>Max. Traveling speed</td>
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<tr>
<td>Max. Lifting capacity</td>
<td>60 Tons</td>
</tr>
<tr>
<td>Dead weight</td>
<td>56 Tons</td>
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</table>

*All data subject to final specification*
The NSC T model already offers everything you expect from a high performance Straddle Carrier, while complexity of the systems installed is rationalized. Based on Noell’s single engine concept, the NSC T is driven by a power train consisting of a smooth shifting torque converter gearbox with appended differential gear and angular gears, leading the power via cardan shafts down to the wheels. The four driven wheels, equipped with liquid cooled wet disc brakes, provide perfect traction under any operating conditions. The hoist system is identical to the one for the NSC H model, consisting of a single axial piston pump and motor combination, controlled via the CAN-bus system to achieve the best efficiency. With these systems, the NSC T model is able to travel at speeds of up to 28 km/h and hoist at speeds of up to 24 m/min. Weights up to 60 tons can be carried (in twin lift mode). Power train components from renowned German suppliers ensure long life and durability, whilst the reliable CREON control system offers all the controls and diagnostic functions expected from a modern machine. For example, container weighing, stability assistance, or remote troubleshooting. Customized options are available for cabins, impact bars, stairways, mudguards, etc.
## Main Technical Data

<table>
<thead>
<tr>
<th></th>
<th>NSC T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
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<td>Max. Traveling speed</td>
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<tr>
<td>Max. Hoisting speed</td>
<td>24 m/min</td>
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<tr>
<td>Max. Lifting capacity</td>
<td>60 Tons</td>
</tr>
<tr>
<td>Dead weight</td>
<td>58 Tons</td>
</tr>
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To date, Noell has built more than 1600 Straddle Carriers, which means that our machines are working everyday across the globe. That leadership position is supported by the technological content and reliability of our equipment, as well as our renowned customer service and support network. As part of the Fantuzzi Group of companies, our customers can rely on our worldwide network, a service that starts before the purchase of the machine and a support service for the entire life of the equipment. When required, this equates to an efficient and timely supply of small spare parts, to a very prompt service response by skilled regional engineering supervisors, computerized spare part order processing, components exchange programme, service package contracts, maintenance training, and continued commitment to increase efficiency in container yards and terminals.