

# Extension of Port of Skagen, Phase 3

## Better facilities for Denmark's largest fishing port

Port of Skagen has gone through a large-scale extension with new port areas right next to the open sea to make bigger and better facilities for the key industries of the port; fishing, fishing industry and associated industries.

Per Aarsleff A/S has completed the third phase of the port extension, and the port can now receive larger ships and open up for even more business opportunities. The project comprised establishment of a 1,500-metre new outer breakwater consisting of 800,000 tons of stone and 190,000 square metres of new hinterland area with a 23,500-square-metre new quay road.

Just like the first two phases, the third phase is carried out in collaboration between Aarsleff and our sister company VG Entreprenør A/S.

### New quay road and hinterland area

For the new quay road, we delivered all technical installations, comprising illumination, power and water supply, dewatering plus a facility handling wastewater from the future factories in the area.

For the construction of the more than 160,000-square metre new hinterland area and the quay roads, we dredged and incorporated 2,700,000 cubic metres of dredged materials. All the materials were dredged and taken from the harbour basin and the harbour entrance.

### Challenging work in the open sea

One of the most complex elements of the project was the piling work from barge in the open sea during the winter months. Here, we installed a 1,500-metre quay wall with 755 metres of traditional sheet pile wall, whereas the remaining 300 metres consisted of a combi wall with tubular steel piles and sheet piles. The new 900-square-metre pier head was also constructed as a combi wall with sheet piles and up to 26-metre-long tubular steel piles.

In addition to the sheet pile quay walls, the existing northern outer breakwater was extended by 1,000 metres, and the southern outer breakwater by 500 metres. A large part of the stone materials from the existing outer breakwater was reused for the new outer breakwaters, thus making space for the new deeper harbour basins.

Despite the weather challenges in the open sea as well as the high requirements to flexibility in the execution phase and the need for suitable equipment, the project was completed on time, and we managed to establish almost 20 hectares of new land in 20 months.



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### Data

- 1,055 metres of new quay
- 500 m extension of the existing southern breakwater
- 1,050 metres of new northern enrockment
- 7,000 tons of steel
- 4,500 m<sup>3</sup> of reinforced concrete
- 800,000 tons of stone for the new breakwaters (40-50% recycling)
- 23,500 m<sup>2</sup> of quay road with paving stone
- 1,000 metres of new asphalt road

### Client

Skagen Havn A/S

### Contractor

Per Aarsleff A/S and  
VG Entreprenør A/S

### Collaboration partner

Rohde Nielsen A/S

### Type of contract

Design and build contract

### Consulting engineer

SWECO A/S

### Construction period

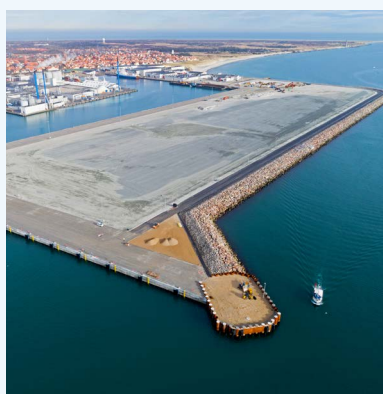
July 2019-August 2021

### Contract value

DKK 500 million



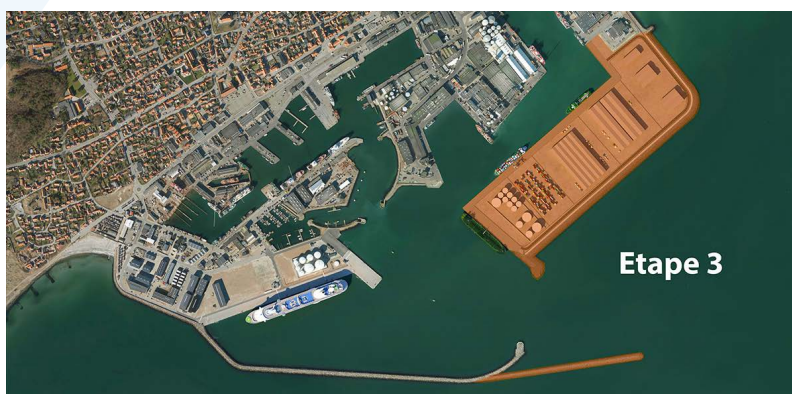
See the development of the third phase of the port extension from July 2019 to March 2021 in this timelapse of 3 minutes and 46 seconds.



### Contact

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