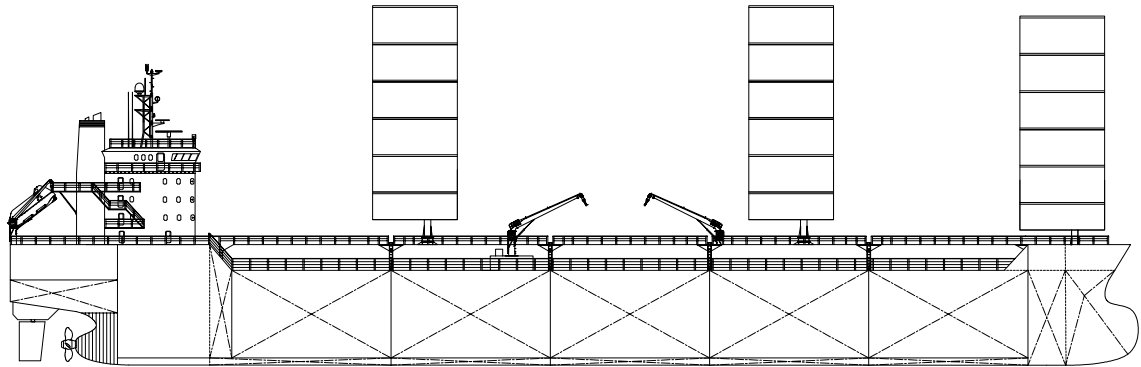


# APPLICATION TO A CHEMICAL TANKER



## VESSEL TECHNICAL SPECIFICATIONS

|                 |            |
|-----------------|------------|
| Length oa       | 157 m      |
| Beam            | 23,5 m     |
| Draft           | 9,6 m      |
| Deadweight      | 19.350 dwt |
| Main Engine MCR | 5.110 kW   |
| Service Speed   | 13 kt      |

## WINGSAIL SYSTEM TECHNICAL SPECIFICATIONS

|                       |           |
|-----------------------|-----------|
| # of wingsails        | 1 to 3    |
| Height                | 30 m      |
| Width                 | 12 m      |
| Weight (per wingsail) | 14 Tn     |
| Airfoil               | NACA 0025 |

|                                   |   |
|-----------------------------------|---|
| Route                             | Rotterdam <-> N. Orleans                  |
| Distance                          | 4.729 NM                                  |
| Travel time                       | 364 hours (15 days)                       |
| Av. fuel consumption <sup>1</sup> | 0,578 Tn/h<br>210,2 Tn (per one way trip) |

|                                   |   |
|-----------------------------------|---|
| Route                             | Seattle <-> Yokohama                      |
| Distance                          | 4.104 NM                                  |
| Travel time                       | 316 hours (13 days)                       |
| Av. fuel consumption <sup>1</sup> | 0,578 Tn/h<br>182,4 Tn (per one way trip) |

## SAIL-ASSISTED VESSEL PERFORMANCES

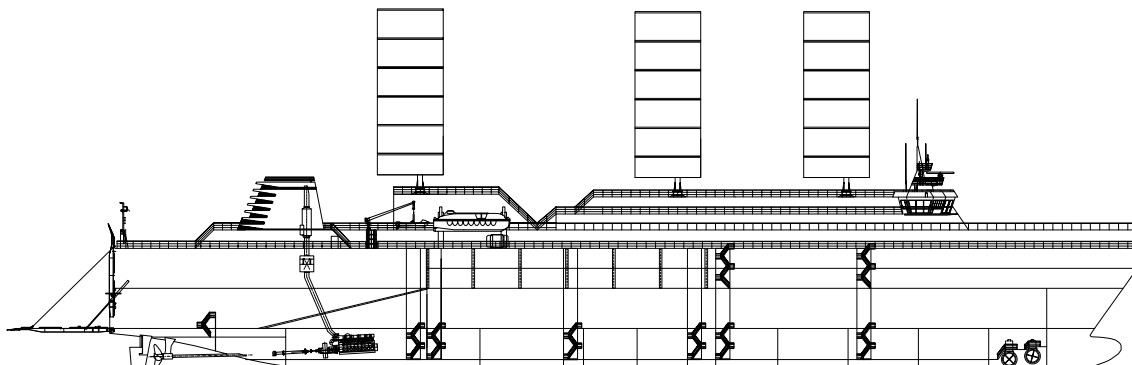
| # wingsails                 | 1        | 2        | 3        |
|-----------------------------|----------|----------|----------|
| Fuel reduction <sup>2</sup> | 5,86%    | 11,51%   | 17,06%   |
| Days at sea                 | 208 days | 208 days | 208 days |
| Yearly fuel reduction       | 169 Tn   | 332 Tn   | 492 Tn   |
| Fuel cost                   | 550€/Tn  | 550€/Tn  | 550€/Tn  |
| Yearly economy              | 92.969€  | 182.544€ | 270.659€ |

## SAIL-ASSISTED VESSEL PERFORMANCES

| # wingsails                 | 1        | 2        | 3        |
|-----------------------------|----------|----------|----------|
| Fuel reduction <sup>2</sup> | 7,12%    | 13,97%   | 20,69%   |
| Days at sea                 | 208 days | 208 days | 208 days |
| Yearly fuel reduction       | 205 Tn   | 403 Tn   | 597 Tn   |
| Fuel cost                   | 550€/Tn  | 550€/Tn  | 550€/Tn  |
| Yearly economy              | 112.953€ | 221.566€ | 328.307€ |

<sup>(1)</sup> Without wingsails | <sup>(2)</sup> 10 years averaged values

# APPLICATION TO A FERRY



## VESSEL TECHNICAL SPECIFICATIONS

|                 |           |
|-----------------|-----------|
| Length oa       | 182,80 m  |
| Beam            | 31,5 m    |
| Draft           | 31,80 m   |
| Deadweight      | 6.100 dwt |
| Main Engine MCR | 12.798 kW |
| Service Speed   | 16 kt     |

## WINGSAIL SYSTEM TECHNICAL SPECIFICATIONS

|                       |           |
|-----------------------|-----------|
| # of wingsails        | 1 to 3    |
| Height                | 30 m      |
| Width                 | 12 m      |
| Weight (per wingsail) | 14 Tn     |
| Airfoil               | NACA 0025 |

|                                   |                             |
|-----------------------------------|-----------------------------|
| Route                             | Seattle <-> Yokohama        |
| Distance                          | 4.104 NM                    |
| Travel time                       | 257 hours (11 days)         |
| Av. fuel consumption <sup>1</sup> | 1,052 Tn/h                  |
|                                   | 269,8 Tn (per one way trip) |

|                                   |                            |
|-----------------------------------|----------------------------|
| Route                             | Santander <-> Portsmouth   |
| Distance                          | 560 NM                     |
| Travel time                       | 35 hours                   |
| Av. fuel consumption <sup>1</sup> | 1,052 Tn/h                 |
|                                   | 36,8 Tn (per one way trip) |

## SAIL-ASSISTED VESSEL PERFORMANCES

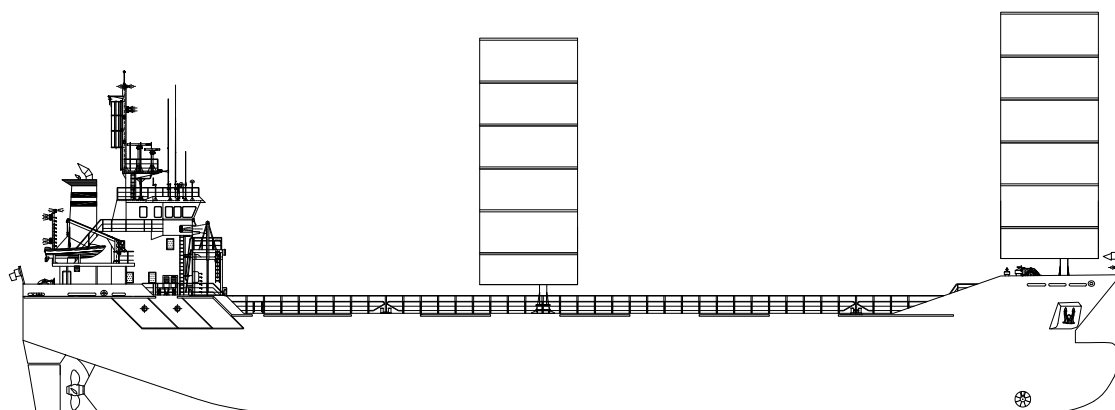
| # wingsails                 | 1        | 2        | 3        |
|-----------------------------|----------|----------|----------|
| Fuel reduction <sup>2</sup> | 5,11%    | 10,02%   | 14,87%   |
| Days at sea                 | 270 days | 270 days | 270 days |
| Yearly fuel reduction       | 348 Tn   | 683 Tn   | 1014 Tn  |
| Fuel cost                   | 550€/Tn  | 550€/Tn  | 550€/Tn  |
| Yearly economy              | 191.530€ | 375.687€ | 557.503€ |

## SAIL-ASSISTED VESSEL PERFORMANCES

| # wingsails                 | 1        | 2        | 3        |
|-----------------------------|----------|----------|----------|
| Fuel reduction <sup>2</sup> | 3,71%    | 7,31%    | 10,84%   |
| Days at sea                 | 270 days | 270 days | 270 days |
| Yearly fuel reduction       | 253 Tn   | 498 Tn   | 739 Tn   |
| Fuel cost                   | 550€/Tn  | 550€/Tn  | 550€/Tn  |
| Yearly economy              | 139.187€ | 274.040€ | 406.522€ |

<sup>(1)</sup> Without wingsails | <sup>(2)</sup> 10 years averaged values

# APPLICATION TO A BULK CARRIER



## VESSEL TECHNICAL SPECIFICATIONS

|                 |           |
|-----------------|-----------|
| Length oa       | 89,5 m    |
| Beam            | 13,7 m    |
| Draft           | 5,9 m     |
| Deadweight      | 4,500 dwt |
| Main Engine MCR | 1,850 kW  |
| Service Speed   | 9 kt      |

## WINGSAIL SYSTEM TECHNICAL SPECIFICATIONS

|                       |           |
|-----------------------|-----------|
| # of wingsails        | 1 to 2    |
| Height                | 30 m      |
| Width                 | 12 m      |
| Weight (per wingsail) | 14 Tn     |
| Airfoil               | NACA 0025 |

|                                   |  |
|-----------------------------------|--|
| Route                             | Lisboa <-> St. Nazaire                     |
| Distance                          | 930 NM                                     |
| Travel time                       | 103 hours (4 days)                         |
| Av. fuel consumption <sup>1</sup> | 0,287 Tn/h<br>712,59 Tn (per one way trip) |

|                                   |   |
|-----------------------------------|---|
| Route                             | Seattle <-> Yokohama                        |
| Distance                          | 4,104 NM                                    |
| Travel time                       | 456 hours (19 days)                         |
| Av. fuel consumption <sup>1</sup> | 0,287 Tn/h<br>3144,58 Tn (per one way trip) |

## SAIL-ASSISTED VESSEL PERFORMANCES

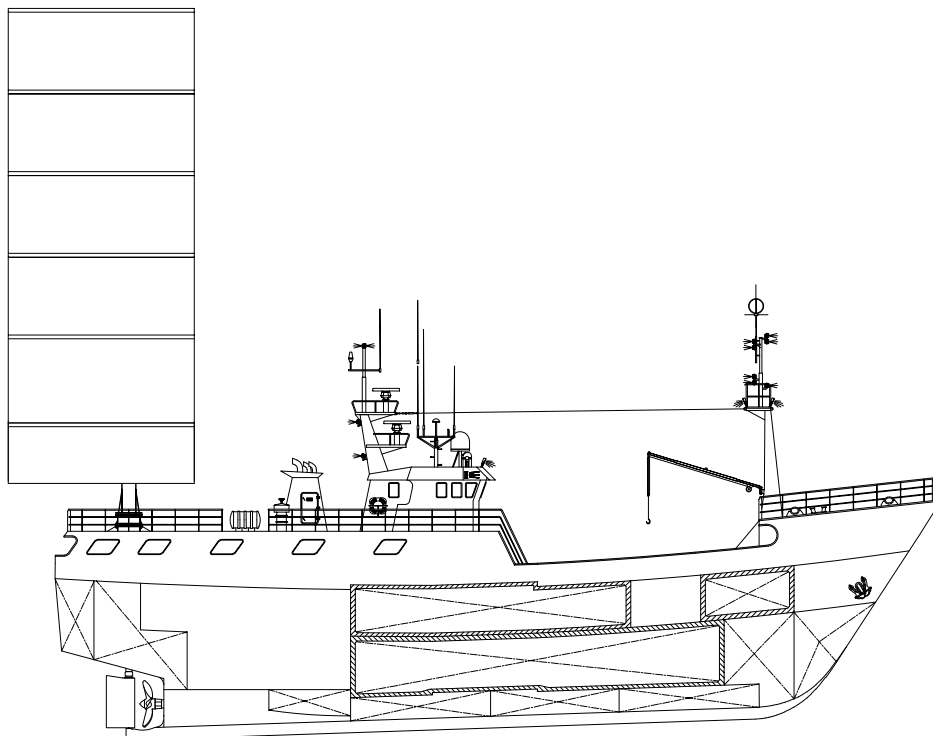
| # wingsails                 | 1          | 2           |
|-----------------------------|------------|-------------|
| Fuel reduction <sup>2</sup> | 8,68%      | 15,63%      |
| Days at sea                 | 200 days   | 200 days    |
| Yearly fuel reduction       | 120 Tn     | 216 Tn      |
| Fuel cost                   | 550€/Tn    | 550€/Tn     |
| Yearly economy              | 65.843,01€ | 118.562,93€ |

## SAIL-ASSISTED VESSEL PERFORMANCES

| # wingsails                 | 1           | 2           |
|-----------------------------|-------------|-------------|
| Fuel reduction <sup>2</sup> | 14,13%      | 23,51%      |
| Days at sea                 | 200 days    | 200 days    |
| Yearly fuel reduction       | 195 Tn      | 324 Tn      |
| Fuel cost                   | 550€/Tn     | 550€/Tn     |
| Yearly economy              | 107.184,53€ | 178.337,46€ |

<sup>(1)</sup> Without wingsails | <sup>(2)</sup> 10 years averaged values

# APPLICATION TO A FISHING VESSEL



## VESSEL TECHNICAL SPECIFICATIONS

|                 |         |
|-----------------|---------|
| Length oa       | 37.3 m  |
| Beam            | 7 m     |
| Draft           | 3.45 m  |
| Deadweight      | 262 dwt |
| Main Engine MCR | 824 kW  |
| Service Speed   | 7,6 kt  |

## WINGSAIL SYSTEM TECHNICAL SPECIFICATIONS

|                       |           |
|-----------------------|-----------|
| # of wingsails        | 1         |
| Height                | 20 m      |
| Width                 | 8 m       |
| Weight (per wingsail) | 5 Tn      |
| Airfoil               | NACA 0025 |

|                                   |  |
|-----------------------------------|--|
| Route                             | Peru area <-> Fishing                        |
| Travel time                       | 130 days                                     |
| Av. fuel consumption <sup>1</sup> | 1,437 Tn/day<br>186,85 Tn (per fishing trip) |

## SAIL-ASSISTED VESSEL PERFORMANCES

|                             |            |
|-----------------------------|------------|
| # wingsails                 | 1          |
| Fuel reduction <sup>2</sup> | 20,40%     |
| Days at sea                 | 330 days   |
| Yearly fuel reduction       | 97 Tn      |
| Fuel cost                   | 765€/Tn    |
| Yearly economy              | 74.021,06€ |

<sup>(1)</sup> Without wingsails | <sup>(2)</sup> 10 years averaged values

# INFORMATION REQUEST TO CARRY OUT PRELIMINARY STUDY



## Vessel general information

---

- Vessel dimensions (choose between):
  - Main dimensions:
  - General arrangement plan
- Main vessel characteristics:

## Hull longitudinal water resistance resistance (choose between)

---

- Lines plan
- Curve of hull longitudinal resistance vs. vessel speed (for the vessel load condition defined)
- Coefficients for resistance calculation
  - Block coefficient:
  - Prismatic coefficient:
  - Midship section coefficient:
  - Waterplane area coefficient:
  - Longitudinal center of buoyancy:
  - Bulb characteristics
    - Transverse bulb area:
    - Bulb height:

## Main engine

---

- Model:
- MCR:
- Fuel consumption curve:
- Fuel used:
- Cost of fuel used:

## bound4blue contact

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- Website: [www.bound4blue.com](http://www.bound4blue.com)
- E-mail: [enquiries@bound4blue.com](mailto:enquiries@bound4blue.com)
- Phone: +34 942305095 / +34 938337392

## Definition of a nominal vessel load condition

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- Waterline length:
- Waterline breadth:
- Draft:
- Displacement:

## Vessel lateral stability (choose between)

---

- Stability information manual
- Stability parameters (for the vessel load condition defined)
  - KG:
  - GM (initial metacentric height):

## Nominal operation data (for the selected load condition)

---

- Vessel speed:
- Main engine regime:
- Engine fuel consumption at selected engine regime:
- Route (origin – destination):
- Navigation time (hours/days of navigation per day/year):

## bound4blue member

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