



Shark
Scorpion
Cobra
Seawolf
Sparrow
Stealth F15
Stealth F9
XF9

Setting world standard in trawl doors



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Creating value
through innovative
trawl door
technology



Scorpion

TRAWLING HAS NEVER BEEN THE SAME since Helgi Larsen's breakthrough invention brought us the aeronautically designed, hydro dynamically optimised trawl doors—also known as the Injector doors.

Today, Injector doors are widely recognized as the world's most highly developed trawl doors and have revolutionised a crucial element of trawling through innovation and the use of new technology. This has greatly enhanced the performance of trawlers both in terms of fishing efficiency, fuel economy, environmental care, and operational effectiveness.

Our mission is to keep finding new ways to apply the Injector principles, which is derived from aeronautics—a lift is defined as a mechanical force generated by a solid object moving through a fluid.

Technically, what we do is applying the dynamics of the downwash force in our trawl doors—in order to help trawlers get their catch as effectively, effortlessly, economically and responsible as possible.

Since our breakthrough with the Injector Shark model, which has earned a legendary status as an unbeatable door, Injector has developed a wide range of different trawl door designs to be able to fulfil the requirements for fishing vessels around the world to make fishing more profitable.



Shark

Turning trawling into pleasure

USER BENEFITS

- MORE EFFICIENT TO SPREAD THE TRAWL
- LIGHTER TO TOW
- BETTER STABILITY
- EASIER TO SHOOT
- EXTREMELY STABLE IN TURNINGS
- MORE POWERFUL WHEN FISHING IN STRONG CURRENT
- SUBSTANTIAL LOWER WEAR AND TEAR OF WEAR PLATES

SHARK

The Injector Shark model revolutionized the very concept of trawl doors. The Shark model was the first trawl door introduced to the fishing industry, using a single towing point system or better known as the Injector back stop rigging. This enables the doors to be more flexible when towing and allows the doors to find its most efficient angle of attack.

SCORPION

The Injector Scorpion model is an updated version of the legendary Shark design, making the Scorpion a more powerful trawl door. This enables vessels to reduce the door size and achieve fuel savings. The Scorpion was the first model with the Injector Pinbracket® implemented on the main wire attachment point. This pinbracket makes it possible to adjust the doors horizontal and vertical settings at the same time, if this is required. The Scorpion model uses the same Injector back stop rigging setup as the Injector Shark.

COBRA

The Injector Cobra is Injector's 3rd generation bottom trawl door design. The Cobra is based on 10 years of knowledge and experience in designing trawl doors for the leading fishing companies in the world. The Cobra model is the first 3 foil bottom trawl door introduced to the fishing industry, where advanced aeronautical design is applied. The Cobra model uses the Injector back stop rigging setup and the Injector Pinbracket® implemented on main wire bracket.

SPARROW

The Injector Sparrow model is an extremely powerful and efficient multi function trawl door that is used to bottom

trawls, semi-pelagic and pelagic trawls. The Injector Sparrow design is created by combining the Injector F15 pelagic door and the Injector Cobra bottom door designs together in one model. By combining these aspects and principles together, the Sparrow model is as powerful and stable as our pelagic doors and as efficient and flexible as our bottom doors. Sparrow is delivered with a bottom door keel, with bolted shoes and double angled wear plates attached on the keel as standard.

F15

The Injector F15 model is the ultimate pelagic trawl door for midwater trawling. The F15 design uses a combination of floats, weights and flaps to stabilize the doors when towing. To minimize the drag on and around the door while towing the F15 is produced with a flat wire side.

F9

The Injector F9 model is a very powerful traditional pelagic trawl door that is based on same principles as the Injector F15. The F9 is produced without using floats and with the traditional curved wire side.



Sparrow



Cobra



Stealth F15

XF9

The Injector XF9 is based on the Injector F9 model. The XF9 is used as pelagic door with bottom trawls and to semi pelagic fishing. XF9 is delivered with a bottom door keel and wear plates attached on keel as standard.



Shark Bottom Door	Standard Model
SIZE IN M2	WEIGHT IN KG
1,0	200
1,5	450
2,0	550
2,5	700
3,0	900
3,5	1050
4,0	1150
4,5	1350
5,0	1700
5,5	1900
6,0	2200
6,5	2500
7,0	2800
7,5	3000
8,0	3400
8,5	3800
9,0	4000
9,5	4200
10,0	4400
10,5	4600
11,0	4800
11,5	5000
12,0	5100
12,5	5200
13,0	5400
13,5	5600
14,0	6000
14,5	6200
15,0	6400
15,5	6600
16,0	6800
Other sizes / weights on request	

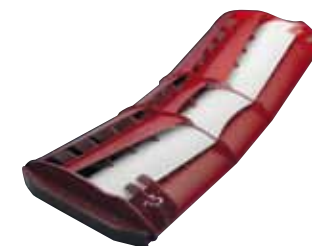
Scorpion Bottom Door	Standard Model
SIZE IN M2	WEIGHT IN KG
1,0	275
1,5	475
2,0	575
2,5	800
3,0	950
3,5	1100
4,0	1300
4,5	1450
5,0	1800
5,5	2000
6,0	2300
6,5	2600
7,0	2900
7,5	3100
8,0	3500
8,5	3850
9,0	4050
9,5	4250
10,0	4450
10,5	4650
11,0	4850
11,5	5050
12,0	5150
12,5	5300
13,0	5550
13,5	5750
14,0	6100
14,5	6300
15,0	6500
15,5	6700
16,0	6900
Other sizes / weights on request	

Cobra Bottom Door	Standard Model	Arctic Model
SIZE IN M2	WEIGHT IN KG	WEIGHT IN KG
1,0	250	
1,5	500	
2,0	600	
2,5	850	
3,0	1000	
3,5	1250	
4,0	1400	
4,5	1500	
5,0	2000	
5,5	2200	
6,0	2400	
6,5	2700	
7,0	3000	
7,5	3200	
8,0	3600	
8,5	3900	
9,0	4100	4600
9,5	4300	4900
10,0	4500	5100
10,5	4700	5300
11,0	4900	5600
11,5	5100	5800
12,0	5300	6000
12,5	5500	6100
13,0	5700	6400
13,5	5900	6600
14,0	6200	6800
14,5	6400	6900
15,0	6600	7000
15,5	6800	7200
16,0	7000	7400
Other sizes / weights on request		

Sparrow Semi pealgic	Standard Model
SIZE IN M2	WEIGHT IN KG
1,0	250
1,5	500
2,0	600
2,5	850
3,0	1000
3,5	1250
4,0	1400
4,5	1500
5,0	2000
5,5	2200
6,0	2400
6,5	2700
7,0	3000
7,5	3200
8,0	3600
8,5	3900
9,0	4100
9,5	4300
10,0	4500
10,5	4700
11,0	4900
12,0	5300
13,0	5700
14,0	6200
15,0	6600
16,0	7000
17,0	7400
Other sizes / weights on request	

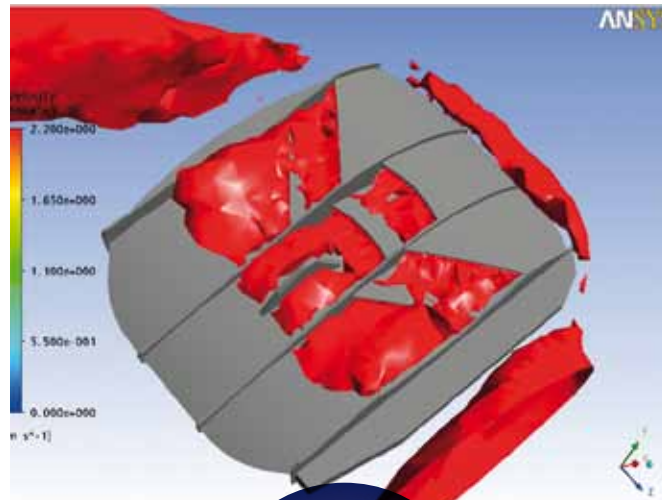
F9	XF9 Standard Model	F9 Pelagic Standard Model
SIZE IN M2	WEIGHT IN KG	WEIGHT IN KG
1,0	170	170
1,5	275	275
2,0	335	335
2,5	510	510
3,0	620	620
3,5	750	750
4,0	930	930
4,5	1020	1020
5,0	1300	1300
5,5	1450	1450
6,0	1800	1800
6,5	2000	2000
7,0	2350	2350
7,5	2500	2500
8,0	2600	2600
8,5	2850	2850
9,0	2950	2950
9,5	3100	3100
10,0	3250	3250
10,5	3350	3350
11,0	3460	3450
11,5	3520	3500
12,0	3630	3600
12,5	3750	3700
13,0	3920	3850
13,5	4040	3950
14,0	4100	4000
Other sizes / weights on request		

F15	F15 Pelagic Standard Model
SIZE IN M2	WEIGHT IN KG
6,0	1900
6,5	2000
7,0	2550
7,5	2750
8,0	3050
8,5	3500
9,0	3650
9,5	3800
10,0	4000
10,5	4100
11,0	4200
11,5	4300
12,0	4400
12,5	4500
13,0	4700
13,5	4800
14,0	4900
14,5	5000
15,0	5100
15,5	5200
16,0	5300
16,5	5400
17,0	5500
17,5	5600
18,0	5700
18,5	5800
19,0	5900
Other sizes / weights on request	

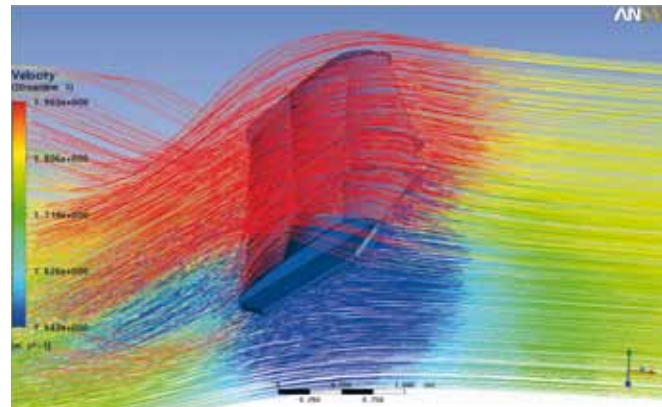


Injector doors are produced using EUROPEAN STEEL, HARDOX and WELDOX High Strength Steel.

All doors are quality controlled during production and inspected according to quality check inspection regulations before shipped from factory.



Since the introduction of our first model Injector Shark back in 1997, the technology tools for designing and testing our trawl doors has developed rapidly the past few years. Both in terms of computerised simulations and flume tank testing. Using the aerodynamic airfoil principles to the hydrodynamic environment has made it possible to develop highly efficient trawl door designs, creating the spread force by underpressure.



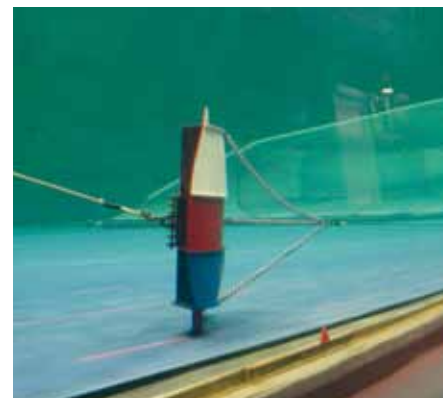
Today, all Injector designs have undergone comprehensive CFD analyses, flume and tow tank scale testing and open sea full scale testing to get the best results in terms of efficiency, stability and functionality. All different stages in the testing process have a significant impact in designing and producing a great trawl door.

CFD Analysis

Before physical prototyping and testing, Injector doors are analysed in ANSYS CFD flow simulation program, which is predicting what will happen under a given set of circumstances and can answer many “what if” questions. By providing a set of boundary conditions, the software gives us the outcomes how the trawl door design will perform, and allow us to test many variations until achieving an optimal result.

Tank Test

A flume tank test allows us to see how the prototype behaves in water in different angles of attack (AOA). For every test carried out on a trawl door, Lift Coefficient (CL), Drag Coefficient (CD) and total tension is measured in different AOA, to determine the efficiency of the trawl door.



A tow tank is used mainly to find the trawl doors’ single towing point, which is a very important factor in our bottom trawl door design.

Open Sea Test

Open sea full scale test is the most crucial test in the process. This is where the doors will prove their endurance in terms of efficiency, stability, functionality and straightness in the harsh environment of trawling.

Since 2006, Injector doors and other fishing and fish farming equipment is produced at Baco Steel, which is owned by Injector Door Ltd. This European company is based in Guangdong Province South China, specialized in all kinds of steel processing, machining and Steel & Iron casting.

Baco’s production facility area is 4000 m2, where cutting, assembling, surface treatment and painting are undertaken. The factory is equipped with CNC Plasma Cutting Machine, Flame Cutting Machines, Plate Rolling Machine, Press Brake, Milling Machine, Bench Lathe, CO2 welding-, Electro welding-, MIG/MAG and TIG welding machines.

The factory has highly skilled engineers and technical designers. All welders are obliged to have welding certificate



before performing work on our products, such Lloyds approved welding certificate. The Management at Baco Steel is Danish and all Product Quality Control is based on newest ISO standard 2553 to offer product quality at the highest level.

Injector doors are produced using imported European STEEL and HARDOX High Strength Steel, delivered from SSAB Swedish Steel stock in Shanghai.

As all our products are used in harsh environments, we need to produce trawl doors and other equipment in high quality, both in terms of strength and function, and always strive to make things better in close co-operation with our customers.

