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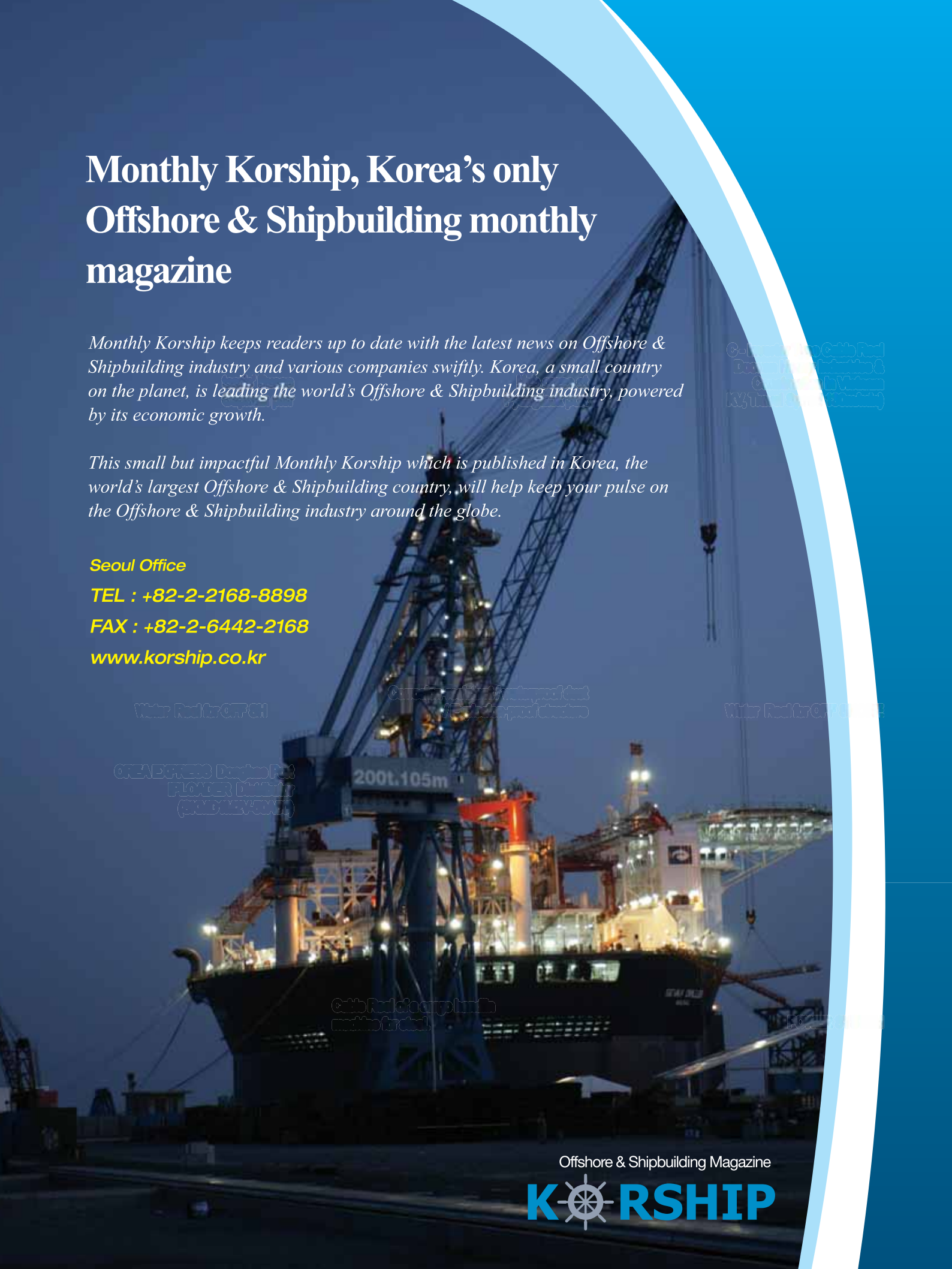

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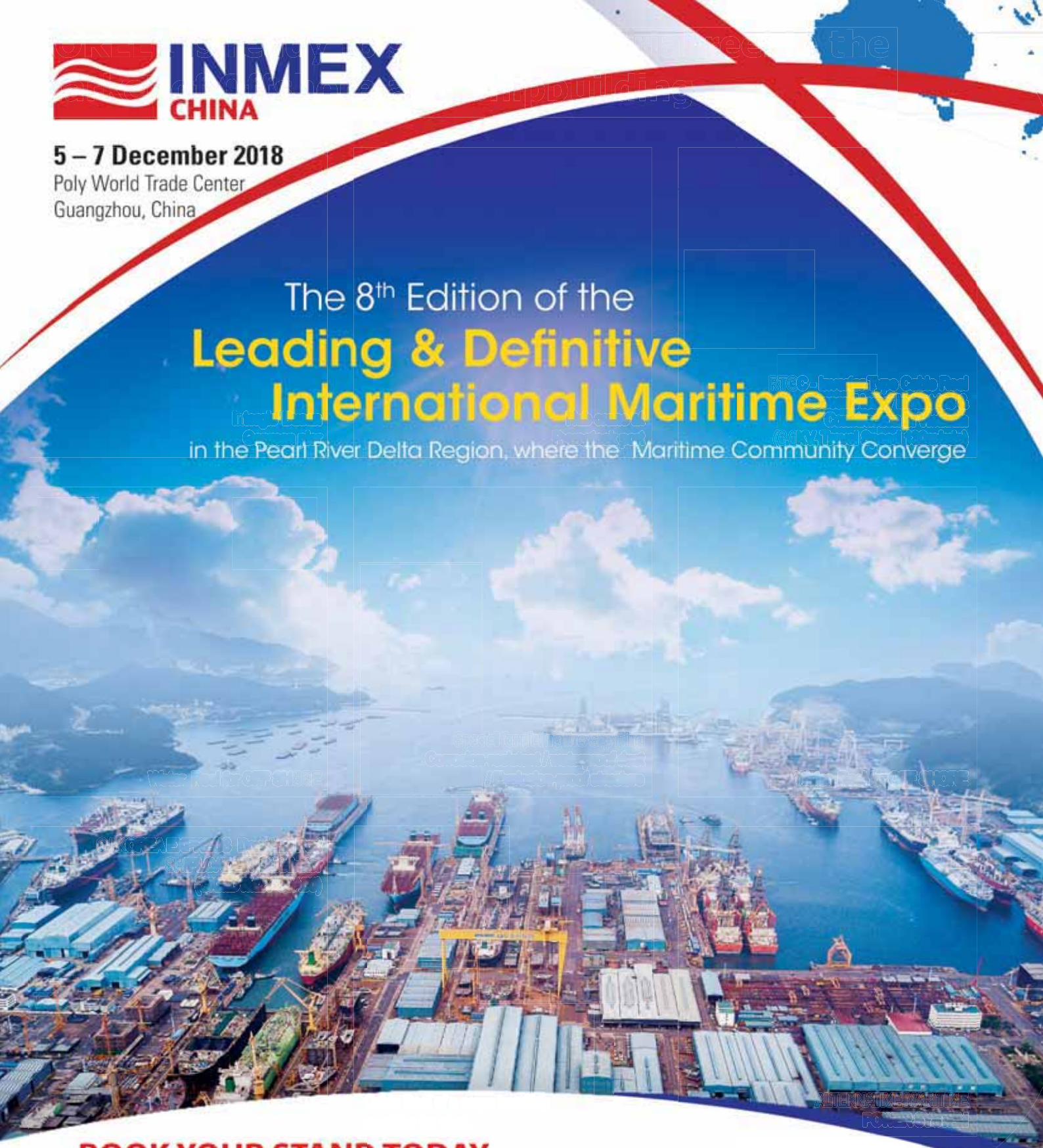

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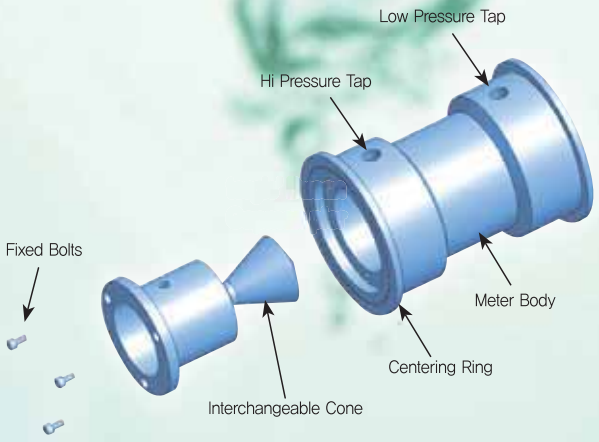

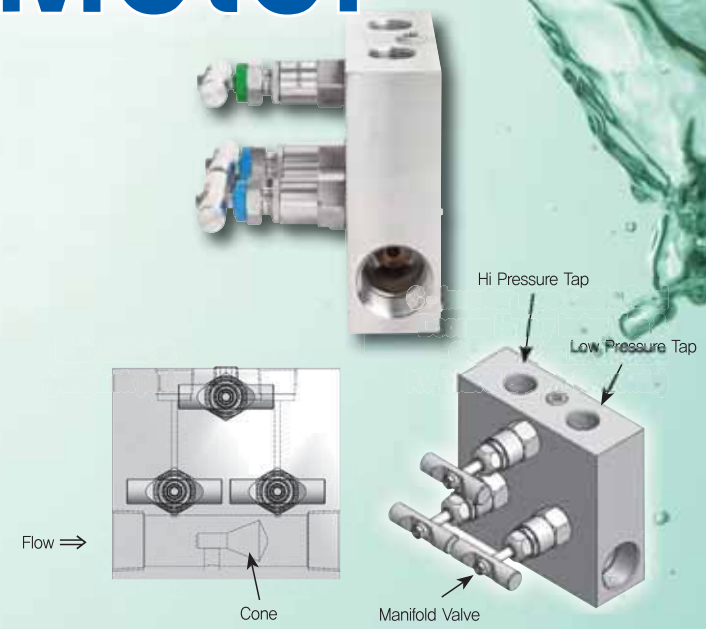

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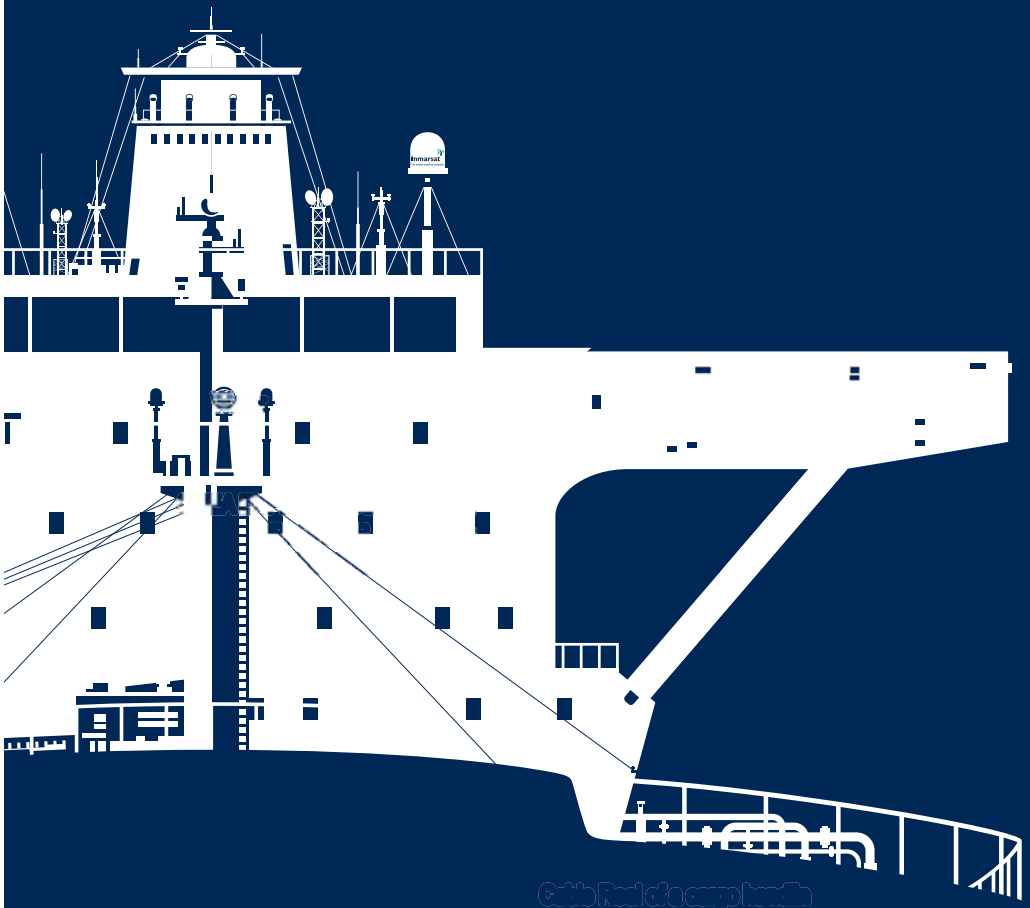

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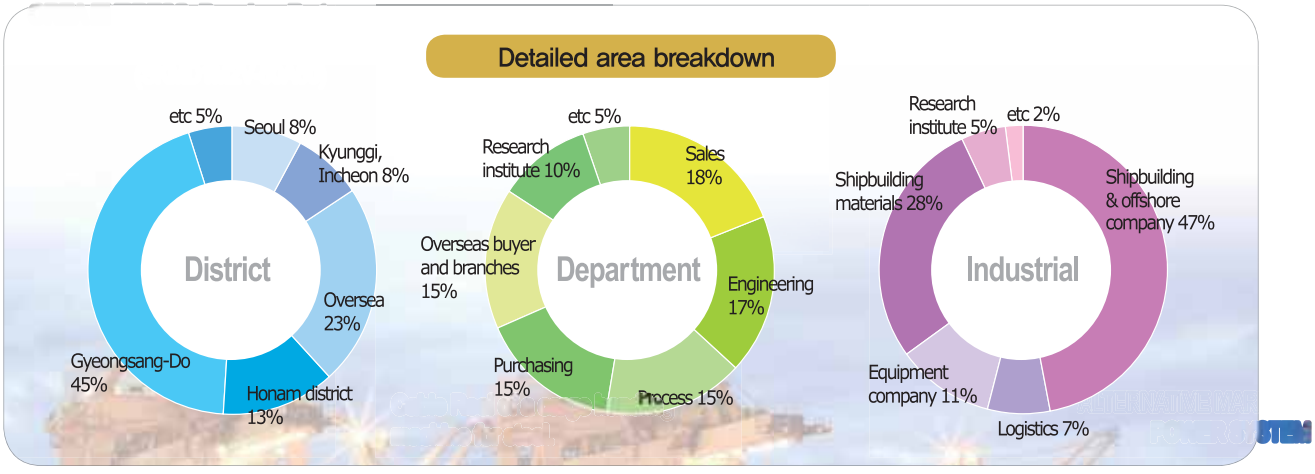

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Outlook for shipbuilding industry in the second half of 2018

< Editor's Note >

New orders at Korean shipyards have been recovering since 2017, driven by the rising demand for LNG carriers, tankers and containerships, the segments where domestic shipyards have shown strong performance. Korea dethroned China to take the top spot worldwide in terms of new order intake while China has seen a decline in market share due to weaker domestic demand. Meanwhile, the production volumes and exports plummeted as the plunge in new orders, sparked in 2016, is taking its toll in full scale. The recovery in new orders is expected to continue into the second half of 2018 on the back of strong demand for eco-friendly ships and domestic demand. Such upward trend is likely to be underpinned by the prospect for ship price increase arising from the steel plate cost increase, establishment of Korea Ocean Business Corporation which aims to reinvigorate the shipping industry with governmental support, and implementation of programs that provide support to shipping companies for expansion of fleets. However, a turnaround in production and export is unlikely. Therefore, a foundation needs to be laid to overcome current difficulties and take another leap forward. And measures would need to be taken to stimulate domestic demand which has remained weak, such as support for LNG bunker-

ing project, public order placement, replacement of old vessels with new fleets of eco-friendly ships in domestic shipping companies. Moreover, it would be necessary to strengthen the link and support of shipbuilding, maritime and financial industries so as to spur growth of exports, to promote energy-related investment and cooperation, to form the ecosystem for coping with environmental regulations, and to develop technologies for the future.

Lee Eun-chang, Associate Research Fellow,
System Industry Laboratory, Korea Institute for Industrial Economics & Trade(KIET)

1. Trends of the first half of 2018 in retrospect

New orders at Korean shipyards jumped 34% year-on-year to 3.2 million CGT until April 2018, adding the momentum to the recovery which was built from 2017. The rebound in new orders at Korean shipyards is encouraging, given the 15% year-on-year decline in global new orders. The BDI(Baltic Dry Bulk Index) averaged 1,145pt in 2017, edging up to 1,192pt by the end of May 2018. The Worldscale rates on the key VLCC(Very Large Crude Carrier) Persian Gulf-to-Japan route fell from 58pt to 41pt in the same period while the SCFI(Shanghai Containerized Freight Index) slid from 827pt to 768pt.

Global new orders have yet to recover amid sluggishness overshadowing the shipping industry, the upstream industry. The recovery in domestic shipbuilding industry is driven by factors other than the shipping market condition. The recovery in new orders at domestic shipyards is currently buttressed by the rising steel plate prices and recovery in LNG carrier segment. Steel plate prices have constantly climbed in the midst of the increase in raw material costs and restructuring of Chinese steel industry, eventually putting an upward pressure on the prices of bulk carriers, tankers, and medium-sized containerships that have been kept in low price ranges thus far. Shipping companies with relatively more financial leeway have showed a tendency to place orders when the price is dipping, which led to an increases in new orders for VLCCs(Very Large Crude Carriers) or PCs(Product carriers).

Meanwhile, there has been a surge in new order placement for LNG carriers amid expectations for an increase in LNG cargo traffic volumes. Korean shipyards have seen a recovery in new order intake and carved out larger share of the market, particularly, for oil tankers, ultra-large containerships, and LNG carriers which are more technologically challenging than bulk carriers or small and medium-sized vessel, the segments where Chinese or Japanese shipyards have shown strengths. In particular, Korean shipyards made a clean sweep of all large-scale LNG carriers ordered globally until last May, proving their unmatched technological superiority over Japanese or Chinese rivals.

Until April 2018, there was a 59% year-on-year decline in the amount of new orders placed by Chinese shipping companies which had usually awarded shipbuilding contracts to Chinese shipyards, and consequently, new orders at Chinese shipyards plummeted. As a result, Korean shipyards outstripped Chinese shipyards in terms of the share of global orders, thus dethroning China to claim the world's top spot.

Ship exports plunged, except for January and February when multiple FSRUs(Floating Storage Re-gasification Units), LNG carriers, and some offshore plants finally completed customs clearance after delay in delivery. Ship exports stood at approximately USD 11.37 million in the

<Table 1> Effect that changes in global environment have on exports in shipbuilding industry

	Degree of effect	Influential factors
Rise in international oil prices	□	It is a negative factor leading to a decline in the demand for tankers and rise in the costs incurred to shipping companies over the short-term; However, it is a positive factor in light of the increase in the demand for offshore plants
Increased trade protectionism	□	The degrading conditions of shipping industry, the upstream industry, and weaker confidence of ship owners in order placement are expected amid the reduction in maritime cargo traffic as a result of increased trade protectionism, but the resulting impact is not likely to be significant. The enforcement of even more stringent environmental regulations is a positive factor for the increase in replacement of old vessel and order placement for new vessels.
Changes in global demand, resulting from world economic growth	○	It is a positive factor likely lead to steady increase in maritime cargo traffic, bolstered by world economic growth, despite overcapacity. Particularly, the demand is strong for ultra-large containership used for carrying finished products.
Adjustment of oversupply(adjustment of stocks)	X	The competition has become intensified over the short-term in the wake of restructuring of global shipbuilding industry, but is expected to become less fierce over the long-term.
Overall evaluation	○	It is a positive factor for export in light of the growth of order intake on the back of world economic growth and enforcement of ever more stringent environmental regulations, despite global shipbuilding overcapacity as compared to the ordered volumes, and the resumption of offshore projects amid the rise in international oil prices over the long-term.

<Source: Korea Institute for Industrial Economics & Trade(KIET)>

Note: very positive ◎, positive ○, neutral □, negative X, very negative XX

first half of 2018, which represents a 52.5% decrease from same period of the previous year. The sharp reduction in ship exports is attributed to the base effect of drastic rise in export amount which arose from an unexpected increase in the number of offshore plants clearing customs after delay in delivery throughout 2017, coupled with full-fledged effect of the order intake plunge sparked in 2016. Production, as well as export amount, has been also fully affected by the aftermath of the order intake plunge witnessed in 2016. Consequently, volumes of vessels built in the first half of 2018 fell roughly 30% year-on-year to 4.2 million CGT. Faced with the diminishing order backlog, shipyards are seeing a diminishing volume of vessels to be built. The combined order backlog of Korean shipyards slid approximately 6% year-on-year to 16.9 million CGT, as of the end of April 2018. However, recent rebound in new order intake has pushed the order backlog slightly upward, compared to the level recorded in late 2017 or early 2018.

Meanwhile, imports of equipments were expected to shrink proportionally to a drastic decrease in production throughout the first half of 2018. However, the imports slid only 2.6% year-on-year due to an increased import of tankers into Japan and key marine equipments into Europe. Amid the increase in production of LNG carriers and ongoing production of some offshore plants, there has been an increase in imports of marine equipment key marine components into Europe and tankers into Japan. By contrast, a downward trend was observed in the imports of overall marine equipment and medium-to-large bulk carriers for which Korea relied on imports amid the plunge in production.

2. Changes of domestic/overseas conditions in the second half of 2018 and outlook

Changes in key conditions, such as rising oil prices, trade protectionism, ever more stringent environmental regulations, global demand changing due to world economic

<Table 2> Changes of major export markets in shipbuilding industry and outlook

	Degree of effect	Ratio of export(2017, %)	Major factors influencing the export
China	□	1.9	China, a shipbuilding leader focusing on competition, has seen weak growth of export.
Japan	□	0.6	Japan, also a shipbuilding leader, has seen weak growth of export.
United States	□	0.9	The Jones Act makes it difficult to export finished ships. The U.S. shipping companies operating the ocean-going vessels are engaged in FOC(Flags of convenience), resulting in low export figures.
EU	□	22.4	Export of high value-added vessels has been on an upward trend, driven by recovery of European economy and turnaround in containership and LNG-related market conditions. However, the export of offshore plants has dwindled due to award of contracts to domestic shipyards in Norway.

<Source: Korea Institute for Industrial Economics & Trade(KIET)>

Note: very positive ◎, positive ○, neutral □, negative X, very negative XX

Ratio of export= Ratio of each country out of total exports in shipbuilding industry in 2017

growth, and global oversupply adjustment, are expected to have a positive effect on the recovery of exports in the next 2 to 3 years although no short-term impact is likely to be produced on shipbuilding industry.

The rise in international oil prices has a negative impact on the shipping market such as cost overrun of shipping companies as a result of the shrinking market for storage oil tankers and increasing fuel oil prices over the short-term and diminishing demand for oil and cargo traffic due to world economic slowdown over the long-term. However, the upswing in international oil prices also has a positive effect, creating the opportunity for winning orders in the midst of resumption of large-scale offshore plant projects. The expansion of trade protectionism is likely to lead to a decline in maritime cargo traffic volume due to reduction of trade, making shipping companies reluctant in placing new orders. However, the protectionism is unlikely to have a serious impact on the conditions of maritime and shipbuilding market, a perfectly competitive market. The outlook for new order intake is expected to improve as a result of increased dismantling of old vessels and replacement of old fleets in response to ever-more stringent environmental regulation slated to come into force from 2020. Container cargo traffic volumes are expected to recover, rather than raw material cargo traffic volumes, spurred by expansion of trade of finished products amid the changing trend of global demand reshaped by world economic growth. In addition, cargo traffic volumes of eco-friendly LNG are expected to increase, leading to a steady rise in the demand for ultra-large containership and LNG-related vessels, the segments where Korean shipyards have shown strong performance. Meanwhile, slow recovery in shipping market, which arises from the glut of ship supply, has resulted in overcapacity of global shipbuilding industry, and consequently, even fiercer competition.

However, the glut of supply is being reduced gradually in the midst of global restructuring. Neither variation in the ratio of exports to major countries or nor any changes in market conditions are expected to have significant impact on Korean shipyards which export ships to perfectly competitive single market and are engaged in the practice of FOC(Flags of convenience) under which ship owners register their ships in third countries. In the meantime, offshore plant sector is witnessing even stricter requirement for local contents and the tendency, particularly, in

<Table 3> Outlook for domestic changes in shipbuilding industry and their impact

		Degree of effect	Influential factors
Minimum wage increase	Production	X	Large companies are also expected to see a rise in costs without adjustment of wage structure and scope of wages included in minimum wage. Financial strains on internal and external subcontractors are expected to increase.
	Domestic demand	X	Ratio of domestic demand is low. However, it can be affected by the rise in the costs incurred to domestic shipping companies.
Oil price increase	Production	X	Demand for domestic ships may decrease due to the decline in domestic refining/ petrochemical volumes over the long-term.
Recovery of private-sector demand	Domestic demand	□	Ships, the production goods, are not affected by private-sector consumption almost at all. The expansion of fleets by shipping companies amid the increased domestic cargo traffic is a positive factor. Meanwhile, domestic demand may be shrunk due to the increased financial strain, such as the cost arising from ship financing, if interest rate increases.
Domestic production	Production	X	The production base is constantly shrinking for reasons such as restructuring of medium-sized shipyards and self-rescue plans of large shipyards.
Overall evaluation		X	Cost increase or production constraints may arise from minimum wage increase or work-time reduction, etc.

<Source: Korea Institute for Industrial Economics & Trade(KIET)

Note: very positive ◎, positive ○, neutral □, negative X, very negative XX

Norway, to award contracts to domestic shipyards for reason of safety or compliance with stringent NORSOK standards. The exports of offshore plants to Norway are very likely to be reduced over the long-term.

Changes in domestic conditions, such as minimum wage increases and shorter working hours, may have a negative impact on domestic shipbuilding industry. The wage in shipbuilding industry is structured around basic wage and fixed allowances, linked to bonuses and retirement wages. If minimum wage is rapidly increased, even large companies would need to adjust the wage structure or scope of wages included in minimum wage.

Such changes in domestic labor conditions may place strains on medium-sized shipyards or internal or external subcontractors. The price competitiveness weakened by the rise in labor costs, compared to Chinese and Singaporean rivals, is likely to affect overall industry. No significant problem is expected to arise from shortened working hours, given that the operation ratio has already decreased due to reduction in ship construction. However, the system would need to be improved, considering that exiting order quantities have forced some shipyards to maintain production schedules at a level as set prior to work-hour reduction and that there are still many special types of work for which the working hours are difficult to be slashed. Typical examples include commissioning or automation equipment handling. Usually, commissioning takes at least 3 days(several weeks to several months for special purpose vessels) each time. However, safety and constraints, such as available space, leads to limitation to the number of additional workers onboard. Moreover, work-time reduction may give rise to urgent works at the request of ship owners because ships are built on custom-made to order and specific delivery time.

New orders at shipbuilding industry are not adequate for production capacity despite the rebound. Furthermore, the plunge in new orders, which was triggered in 2016, is taking the greatest toll in 2018. Therefore, it is very impor-

<Table 4> Outlook for changes of conditions facing the shipbuilding industry in the second half of 2018

	Factors behind increase(positive)	Factor behind decrease(negative)	Overall evaluation
Order Intake	- Increase in order placement due to stronger demand on the back of world economic recovery - Resumption of offshore plant project amid the rise in international oil prices	- Slow recovery of shipping market due to overcapacity - Stronger price competiveness of Singaporean and Chinese shipyards	Increase in order placement for ships and offshore plants
Domestic demand	- Order placement for ultra-large containerships for revitalization of shipping industry - Support to shipping companies for replacement of old vessels with eco-friendly ships - Continuation of public order placement	Time is taken to revitalize the liner segment	The support for reinvigoration of shipping industry and replacement of old fleets with new ones started to produce effect.
Export	Drillships that have not been delivered can be handed over to clients amid recovery of international oil prices	The plunge in new orders is taking the heaviest toll. The order backlog of high value-added offshore production facilities remains inadequate.	Sharp decline in exports
Production	Timely production of high value-added vessels such as LNG carriers and FSRU	Shipbuilding volumes have plummeted due to lack of order backlog.	Production is expected to fall to a level recorded in 2004.

<Source: Korea Institute for Industrial Economics & Trade(KIET)>

tant to withstand the crisis in 2018. To overcome the crisis, domestic shipyards are currently underpinned by the demand created by government policy for revitalization of shipping industry, such as order of ultra-large containerships and replacement of old commercial vessels with eco-friendly ships, etc.

3. Outlook for second half of 2018

The second half of 2018 is expected to witness the efforts of domestic shipping companies to secure the fleets amid the rising ship prices and upturn in new orders at domestic shipyards while the recovery of new order intake is underpinned by strong demand for eco-friendly vessels.

Korean shipyards with relative more leeway are likely to win new orders, given that the steel plate prices are increasing and that the 3 domestic shipbuilding heavyweights received orders from Hyundai Merchant Marine for 20 ultra-large containerships. In addition to the ultra-large containerships ordered by Hyundai Merchant Marine, the recovery in new orders at domestic shipyards is expected to be further buttressed by the establishment of Korea Ocean Business Corporation which aims to revive the shipping industry and by the implementation of programs that provide support to shipping companies for expansion of fleets. Moreover, domestic shipyards are also likely to win the bid for offshore plant projects in the second half of this year although they have lost the offshore projects for North Sea region to competitors such as Singapore and China since the second half of 2017. Korean shipyards are expected to win the projects as offshore plant projects resumes after delay amid recovery of international oil prices, such as North Sea Rosebank FPSO, Vietnam Block B Fixed Platform, Barrossa Platform, King's Landing Semi-submersible production facility and Marjan platform. However, difficulties are expected to continue due to aggressive low-cost contracts and attempts by Chinese shipbuilders and Singaporean shipyards to improve competitiveness. Chinese shipyards are pressing

<Table 5> Outlook for demand and supply in shipbuilding industry in 2018(Unit: 10,000 CGT, USD 1 million, %)

	2016	2017			2018		
		First half	Second half		First half	Second half	
Production	1,234 (-2.7)	601 (-13.2)	456 (-15.8)	1,057 (-14.3)	420 (-30.1)	369 (-19.1)	789 (-25.4)
Import	3,262 (-25.8)	1,302 (-23.4)	1,164 (-25.5)	2,466 (-24.4)	1,268 (-2.6)	939 (-19.4)	2,207 (-10.5)
Domestic demand	105 (-7.8)	50 (4.2)	54 (-5.3)	104 (-1.0)	47 (-6.0)	49 (-9.3)	96 (-7.7)
Export	34,258 (-14.6)	23,912 (29.1)	18,269 (16.0)	42,181 (23.1)	11,370 (-52.5)	8,133 (-55.5)	19,503 (-53.8)

<Source: Forecast by Korea Institute for Industrial Economics & Trade(KIET)

Note: 1) Figures in the parenthesis show the rate of year-on-year increase. The production and domestic demand volumes are based on 10,000 CGT. The import and export amounts are based on USD 1 million.

2) The imports and exports(MTI746) include major equipments, such as engines, turbines, etc, and hull blocks.

ahead with the merger of CSSC and CSIC, the two major shipping groups, to sharpen competitive edge, while Singaporean shipyards, such as Sembcorp Marine and Keppel O&M, are joining competition for production facilities due to delay in the recovery of drilling equipment market, raising the prospect for highly fierce competition in the market. Meanwhile, recovery in new order intake is likely to be driven more by the upturn in new order placement from the institutional aspect such as enforcement of more rigorous environmental regulations, rather than structural turnaround of market conditions, in the second half of this year, amid the possibility of reduction in maritime cargo traffic due to trade protectionism or slow recovery of shipping market as a result of persistent overcapacity. The plunge in new order intake, which was sparked in 2016, is expected to take the heaviest toll in the second half of 2018, coupled with constant base effect, which is likely to push the exports down to a level below the first half of this year. That is because the volumes, placed in the first half of 2017 amid the recovery of new orders, will begin to be delivered from the fourth quarter of 2018. The decrease in exports may be slightly slowed down if the drilling facilities are finally sold again or handed over to clients after much difficulty such as cancellation of orders or delay in delivery.

That is because there is an increasing possibility of resale or delivery of drillships after delay on the back of the recovery of market conditions, such as Sonangol, Ensco, Ocean Rig, Seadrill, etc., built by Daewoo Shipbuilding & Marine Engineering(DSME) and Samsung Heavy Industries(SHI). However, delivery of those drilling facilities is not likely to produce the effect of exporting billions of dollars of production equipment, given that each drillship is priced in the range from USD 300 million to 500 million apiece. As with exports, production is expected to dwindle, falling to an all-time low of 3.69 million CGT in the second half of 2018. The production volume of 4 million CGT in half a year is similar to the level set in 2004, but the amount of exports is expected to exceed the level recorded in 2004 due to larger proportion of high value-added vessels. Major types of vessels to be delivered are expected to be high value-added vessels, such as LNG carriers and FSRUs ordered between 2014 and 2015, ultra-large containerships ordered in 2015, and tankers

and product carriers ordered between 2015 and 2017. Imports are also expected to shrink in the second half of 2018, considering the significant reduction in the import of key equipment used for topsides of offshore plants which have high reliance on imports and the decrease in the import of blocks in the midst of constant decline in the volumes of vessels built.

4. Implications

A solid foundation would need to be laid for another leap forward in the second half of 2018 likely to be the worst period in terms of production. In the first place, it would be necessary to implement policies expeditiously for boosting domestic demand which has remained shrunken.

The policies that aim to underpin domestic demand include the creation of an eco-ship fund to support LNG bunkering business, order placement and remodeling of LNG-fuelled vessels in both public and private sectors and the support for public procurement of public ships, warships, patrol boats for maritime police, along with designation of Emission Control Area(ECA) in major domestic ports. Moreover, it is necessary to strengthen competitiveness of medium-sized shipyards by supporting domestic shipping companies for replacement of old commercial vessels with fleets of eco-friendly ships, and to develop smart manufacturing technology in order to help beef up the cost competitiveness of general-purpose vessels and medium-sized shipyards. In addition, it is necessary to strengthen the link and support of shipbuilding, maritime and financial industries so as to spur growth of exports, to promote energy-related investment and cooperation, to form the ecosystem for coping with environmental regulations, and to develop technologies for the future. From financial aspect, the ship finance should be strengthened to promote growth in new order intake while providing the R/G(Refund Guarantee). Furthermore, support would need to be provided to shipyards seeking business opportunities through involvement when they are involved in overseas energy exploitation projects, such as Novatek's Arctic LNG 2 project in Russia.

And it is also necessary to expand business opportunities through cooperation with floating LNG terminals(FSRU) and floating power generation facility projects which have been mulled over in Southeast Asia. Besides, networks comprised of large shipyards, equipment manufacturers and repair shipyards would need to be built while support is provided for small and medium-sized shipyards and equipment necessary to target the newbuilding and remodeling markets created as a result of enforcement of ever-more stringent environmental regulations. Finally, R&D and testbed projects would need to be carried out in connection with autonomous vessels in order to dominate the future market.

조선산업의 2018년 하반기 전망

〈편집자주〉

우리나라 조선사가 강점이 있는 LNG운반선, 탱커, 컨테이너선의 수요 증가로 국내 수주는 2017년에 이어 회복세를 이어갔다. 중국은 내수 감소로 시장점유율이 하락하면서 우리나라가 세계 수주 점유율에서 1위를 회복했다. 반면 2016년 수주절벽의 영향이 본격적으로 나타나고 있어, 생 산량과 수출은 대폭 감소했다. 2018년 하반기에도 친환경 선박 수요 및 내수의 영향으로 수주 회복세는 지속될 것으로 예상된다. 후판가격 상승에 따른 선가인상 가능성과 정부의 해운산업 재건을 위한 해양진흥공사 설립 및 해운사 선박확충 지원 프로그램이 시행되고 있기 때문이다. 하지만 생산과 수출은 상황이 호전되지 않을 것으로 전망된다. 따라서 이 시기를 극복하고 재도약할 수 있는 기반 마련이 필요하다. 수요 위축 대안으로 추진되고 있는 내수 활성화를 위한 방안인 LNG벙커링 사업, 공공발주, 국내 선사 노후상선의 친환경 선박으로 교체 지원 등의 추진이 필요하다. 또한 수출 촉진을 위해 조선·해운·금융 연계 및 지원을 강화하고, 에너지 관련 투자와 협력, 환경규제 대응 생태계 조성 및 미래를 위한 기술개발에도 투자해야 한다.

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〈표 1〉 글로벌 여건 변화가 조선산업 수출에 미치는 요인

	영향 정도	영향 요인
유가 상승	□	단기적으로 탱커 수요 감소와 해운사 원가 상승으로 부정적이나, 해양플랜트 수요증가는 긍정적
보호무역 강화	□	보호무역 강화에 따른 해상물동량 감소로 전방산업인 해운시황 악화와 선사들의 발주 심리 위축이 예상되나 영향은 크지 않을 것으로 판단되고, 환경규제 강화는 노후 선박의 폐선 증가와 대체선박 발주에 긍정적
세계경제 성장에 따른 글로벌 수요 변화	○	선복량 과잉에도 불구하고 세계경제 성장으로 해상물동량의 꾸준한 증가가 예상되어 긍정적이며, 특히 완제품 운송을 위한 초대형 컨테이너선 등의 수요 증가
공급과잉 조정(재고조정)	X	세계 조선산업의 구조조정으로 경쟁강도는 단기간 증가하고 있으나 장기적으로는 완화될 전망
종합평가	○	발주량 대비 세계 조선 건조능력 과잉이나 세계 경제 성장 및 환경규제 강화에 따른 선박 수주 확대와 유가상승에 따른 해양프로젝트 재개로 장기적 관점에서 수출에 긍정적

〈자료: 산업연구원(KIET) 정리〉
주: 매우 긍정적 ◎, 긍정적 ○, 중립 □, 부정적 X, 매우 부정적 XX

〈표 2〉 조선산업의 주요 수출시장 여건 변화 및 전망

	영향정도	수출비중 (2017년, %)	수출 영향 주요 요인
중국	□	1.9	중국은 경쟁관계 주력 조건국가로 수출 미미
일본	□	0.6	일본도 주력 조선국가로 수출 미미
미국	□	0.9	Jones Act로 완성 선박 수출이 어렵고, 미국 외항선사들은 제3국에 편의치적하여 대미 직접 수출 미미
EU	□	22.4	유럽 경제 회복, 컨테이너선 및 LNG 관련 시황 회복으로 고부가선박의 수출은 증가하나, 노르웨이 자국 발주로 해양플랜트의 수출은 감소

〈자료: 산업연구원(KIET) 정리〉
주: 매우 긍정적 ◎, 긍정적 ○, 중립 □, 부정적 X, 매우 부정적 XX
수출비중=2017년 조선산업의 총수출에서 각국이 차지하는 비중.

1. 2018년 상반기 동향 및 진단

국내 조선산업 수주는 2018년 4월까지 전년동기 대비 34% 증가한 320만CGT를 기록했고 2017 년에 이어 회복세를 지속하고 있다. 전세계 수주가 전년동기 대비 15% 감소한 것을 감안한다면, 우리나라의 수주회복은 고무적이다. 벌크선 운임지수인 BDI는 2017년 평균 1,145pt를 기록했는데, 2018년 5월말까지는 평균 1,192pt로 소폭 상승에 그쳤다. 동 기간 유조선 운임지수인 WS(VLCC Gulf-Japan 기준)는 58pt에서 41pt로 하락했고, 상하이 컨테이너 운임지수인 SCFI도 827pt에서 768pt로 하락했다. 전방산업인 해운 시황이 회복되지 않았기 때문에 세계 수주는 회복되지 않았고, 국내 조선산업의 수주 회복은 해운 시황보다는 다른 요인에 의한 것으로 볼 수 있다. 국내 수주 회복의 주요 요인으로는 후판가격 상승과 LNG운반선의 시황 회복을 들 수 있다. 원료가격 인상과 중국 철강산업의 구조조정 영향으로 후판가격이 지속적으로 오르면서, 그 동안 낮은 가격을 유지했던 벌크선과 탱커, 중형 컨테이너선의 선가가 상승하고 있다. 상대적으로 여유가 있는 선사들은 낮은 선가에서 발주하려는 움직임이 있어 초대형 원유운반선이나 제품선 수주가 증가했다. 한편 LNG 물동량 증가가 예상되면서 LNG운반선의 발주도 크게 증가했다. 중국이나 일본이 강점이 있는 벌크선과 중소 선박보다 기술력을 요하는 유조선, 초대형 컨테이너선, LNG운반선을 중심으로 시장이 형성되면서 우리나라 조선사는 수주 회복과 높은 시장점유율을 기록하고 있다. 특히 5월까지 발주된 대형 LNG운반선은 우리나라 조선사가 모두 수주하여, 경쟁국인 일본이나 중국보다 우월한 기술력을 실적으로 입증했다. 반면 자국 조선소에 주로 발주하는 중국 해운사의 2018년 4월까지 발주액은 전년동기 대비 59% 감소하여, 중국 조선사의 수주는 크게 감소했다. 이로 인해 우리나라의 세계 수주 점유율은 중국을 추월하여 1위를 기록하고 있다. 다수의

〈표 3〉 조선산업에서의 국내 여건 변화 전망 및 영향

		영향 정도	영향 요인
최저임금 인상	생산	X	임금구조/산업범위 조정이 없다면 대기업도 비용 상승, 사내외 협력사는 부담이 가중될 전망
	내수	X	내수비중이 낮은 편이나 국내선사 비용 상승의 영향을 받을 수 있음
유가상승	생산	X	장기적으로 국내 정유 및 석유화학 물량 감소로 국내 선박 수요 감소 가능성
민간소비 회복	내수	□	생산재인 선박은 민간소비에 영향을 거의 받지 않으나, 국내 물동량 증가로 선사의 선박 확충은 긍정적인 반면, 금리인상이 발생한다면 선박금융 조달 등의 부담 증가로 내수 위축 가능
국내생산	생산	X	중견사 구조조정, 대형사 자구노력 등으로 생산 기반은 지속적으로 축소
종합평가		X	최저임금이나 근로시간 단축 등으로 비용상승이나 생산 제약이 발생할 가능성

〈자료: 산업연구원(KIET) 정리〉
주: 매우 긍정적 ◎, 긍정적 ○, 중립 □, 부정적 X, 매우 부정적 XX

〈표 4〉 조선산업의 2018년 하반기 여건변화 전망

	증가(긍정적) 요인	감소(부정적) 요인	종합평가
수주	-세계경제 회복에 따른 수요 부문의 수급여건 개선으로 신규 발주 증가 -유가 상승에 따른 해양플랜트 프로젝트 재추진	-선복량 과잉에 따른 해운시황의 더딘 회복 -싱가포르, 중국의 가격경쟁 심화	선박 및 해양플랜트 발주 개선
내수	-해운산업 재건을 위한 초대형 컨테이너선 발주 -해운사 노후 선박의 친환경 선박 교체지원 -공공발주 추진 지속	정기선 부문의 재건에 시간 소요	해운산업의 재건 및 노후선박 교체 지원정책 효과 발생
수출	유가 회복으로 미인도 드릴십 문제의 해소 가능	수주절벽 영향이 가장 크고, 고가 해양생산설비의 수주잔량 부족	수출의 급격한 감소의 현실화
생산	LNG운반선, FSRU 등 고부가 선박의 적기 생산	수주잔량 부족으로 건조량 급감	2004년 수준으로 생산 축소 전망

〈자료: 산업연구원(KIET) 정리〉

FSRU, LNG운반선과 인도가 연기됐던 일부 해양플랜트가 통관된 1월과 2월을 제외하고 수출은 대폭 감소했다. 2018년 상반기 수출은 약 1,137만 달러로 전년동기 대비 52.5% 감소한 것으로 추정된다. 감소폭이 큰 데에는 2017년에 인도가 연기됐던 해양플랜트의 통관이 예상외로 많아지면서 수출액이 크게 증가했던 기저효과와 2016년 수주절벽의 영향이 본격적으로 나타나고 있기 때문이다. 수출액뿐만 아니라 생산도 2016년의 수주절벽 영향을 본격적으로 받고 있어, 2018년 상반기 건조량은 전년동기 대비 약 30% 하락한 420만CGT로 추정된다. 수주잔량 부족으로 생산할 물량이 부족하기 때문이다. 2018년 4월말 기준 수주잔량은 전년동기 대비 약 6% 감소한 1,690만CGT를 기록했다. 다만 최근 수주 회복으로 2017년 말이나 2018년 초 대비로는 소폭 증가했다. 2018년 상반기 수입은 큰 폭의 생산 감소에 비례하여 기자재 수입도 감소할 것으로 예상됐으나, 대일 탱커 수입, 유럽에서의 조선해양 핵심기자재 수입 증가로 전년동기 대비 2.6% 감소에 그친 것으로 추정된다. LNG운반선의 생산 증가와 일부 해양플랜트 생산 진행 등으로 유럽으로부터의 관련 해양기자재 및 선박용 핵심부품의 수입이 증가했고 대일 탱커 수입도 증가했다. 반면 대폭 감소하는 생산에 비례하여 수입에 의존하던 전체 조선 해양기자재 수입과 대중 벌크선 수입은 감소했다.

2. 2018년 하반기 국내외 여건 변화와 전망

유가상승, 보호무역·환경규제 강화, 세계 경제 성장에 따른 글로벌 수요 변화, 세계 공급과잉 조정 등 주요 여건 변화는 수주산업인 조선산업에 단기적인 영향을 미치지는 못하지만, 전반적으로는 수주 여건 개선으로 2~3년 후의 수출 회복에 긍정적인 영향을 줄 것으로 예상된다. 국제유가 상승은 선박시장에 단기적으로 저장용 유조선 시장 감소, 연료유가 상승에 따른 해운사 원가부담, 장기적으로는 유류수요 감소, 세계 경기 둔화에 따른 물동량 감소라는 부정적

〈표 5〉 2018년 조선산업의 수급전망(단위: 만 CGT, 백만 달러, %)

	2016	2017			2018		
		상반기	하반기		상반기	하반기	
생산	1,234 (–2.7)	601 (–13.2)	456 (–15.8)	1,057 (–14.3)	420 (–30.1)	369 (–19.1)	789 (–25.4)
수입	3,262 (–25.8)	1,302 (–23.4)	1,164 (–25.5)	2,466 (–24.4)	1,268 (–2.6)	939 (–19.4)	2,207 (–10.5)
내수	105 (–7.8)	50 (4.2)	54 (–5.3)	104 (–1.0)	47 (–6.0)	49 (–9.3)	96 (–7.7)
수출	34,258 (–14.6)	23,912 (29.1)	18,269 (16.0)	42,181 (23.1)	11,370 (–52.5)	8,133 (–55.5)	19,503 (–53.8)

〈자료: 산업연구원(KIET) 전망〉
주: 1) () 안은 전년동기비 증가율, 생산 및 내수는 만CGT, 수출입은 백만 달러 기준.
2) 수출입(MTI746)에는 엔진, 터빈 등 주요 기자재와 선체블록도 포함.

인 영향이 있으나, 규모가 큰 해양플랜트 프로젝트 재개에 따른 수주 가능성이라는 긍정적인 영향도 있다. 보호무역 강화로 교역 축소에 따른 해상 물동량 감소와 해운사의 발주심리를 약화시킬 가능성이 있으나, 세계가 완전경쟁시장인 해운·조선 시황에 장기적으로 심각한 영향을 미치지는 않을 것으로 예상된다.

2020년 내외로 대폭 강화되는 환경규제에 따른 노후선박의 해체와 대체 발주로 수주환경은 개선될 것으로 예상된다. 세계 경제성장에 따른 글로벌 수요 변화로 완제품 교역이 확대되면서 원자재 운송보다는 컨테이너 물동량의 회복이 기대된다. 또한 친환경 에너지인 LNG 물동량 증가도 예상되어, 우리나라 조선사가 강점이 있는 초대형 컨테이너선과 LNG 관련 선박의 수요가 꾸준할 것으로 보인다. 한편 선박 공급과잉으로 해운시황의 개선은 더디고 이로 인해 발주량 대비 세계 조선 건조능력은 과잉이어서 높은 강도의 수주경쟁은 지속되고 있다.

다만 글로벌 구조조정으로 공급과잉이 점차 완화되고 있는 추세이다. 우리나라 조선산업의 주요 시장은 세계가 완전 히 경쟁인 단일시장이고 선박은 제3국에 편의치적하는 관행이 있어, 주요 국가별 수출비중이나 시장 여건 변화에 따른 영향은 거의 없다. 하지만 해양플랜트는 Local Contents 요구가 강화되는 추세이고 노르웨이의 경우 까다로운 NORSOK 규정이나 안전 등을 이유로 자국에 발주하려는 경향이 있어 장기적으로 노르웨이로의 해양플랜트 수출은 감소할 가능성이 높다.

최저임금 인상이나 근로시간 단축과 같은 국내 여건 변화는 국내 조선산업에 부정적인 영향을 줄 가능성이 있다. 조선산업의 임금구조는 기본급과 고정수당으로 되어 있고 상여금, 퇴직금 등은 기본급과 고정수당에 연동되어, 최저임금이 급격하게 인상된다면 대기업이라고 하더라도 임금구조나 최저임금 산입범위의 조정이 필요할 것으로 예상된다. 중견조선사나 사내외 하청업체의 경우에는 부담이 가중될 수 있으며, 저임금을 무기로 우리나라와 경쟁하고 있는 중국·싱가포르 조선사 대비 인건비 증가에 따른 가격경쟁력의 약화는 산업 전반에 영향을 미칠 수 있을 것으로 판단된다. 조선 생산량 감소로 이미 가동률이 저하되어 근로시간 단축에 따른 큰 문제는 발생하지 않을 것으로 보인다. 다만 기존 수주물량은 근로시간 단축 이전의 기준으로 생산 계획이 잡혀 있을 수 있고, 규정 준수가 어려운 특수직무도 다수 존재하기 때문에 제도보완이 필요할 것으로 예상된다. 대표적인 사례로는 시운전 직종이나 자동화 설비 취급 직종 등이 있다. 통상적으로 시운전은 1회에 최소 2박 3일(특수선은 수주~수개월) 소요됨에도 안전·공간 등의 문제가 있어 추가 인원의 승선에 제약이 있다. 또한 조선산업은 대표적인 주문생산으로 납기가 정해져 있어, 선주의 요구에 의한 긴급 작업 등이 발생할 수 있다.

조선산업의 수주가 회복되고 있지만 생산능력에 비하면 충분하지 않은 수준이다. 게다가 2016년 수주절벽의 영향은 2018년에 가장 크게 영향을 미치고 있다. 따라서 2018년의 위기를 잘 견뎌 내는 것이 매우 중요하다. 초대형 컨테이너선 발주, 노후 상선을 친환경 선박으로 교체 지원 등 해운산업 재건을 위한 정부정책으로 창출된 내수가 세계적 위기에서 국내 조선산업을 유지할 수 있는 버팀목이 되고 있다.

3. 2018년 하반기 전망

2018년 하반기는 선가상승, 국내 조선사의 수주증가에 따른 해운사의 선대 확보 노력과 친환경선박 수요로 수주 회복세가 지속될 것으로 전망된다. 후판가격 상승으로 선가가 인상되고 있으며, 현대상선의 초대형 컨테이너선 20척의 조선 3사 수주 등으로 도크가 채워지고 있어, 상대적으로 여유가 있는 선사가 우리나라에 발주할 가능성은 충분하다. 현대상선의 초대형 컨테이너선 발주 외에 해운 산업 재건을 위한 정부의 해양진흥공사의 설립과 해운사 선박확충 지원 프로그램의 시행도 국내 조선 수주 증가에 기여할 것으로 전망된다. 2017년 하반기 이후 북해 지역의 해양 프로젝트를 싱가포르와 중국 등 경쟁국에 빼긴 어려움은 있었지만, 올해 하반기 입찰 예정인 해양플랜트 프로젝트에서 수주 가능성도 있을 것으로 보인다. 유가 회복으로 지연됐던 해양프로젝트가 다시 추진되면서 북해 Rosebank FPSO, 베트남 Block B Fixed Platform, Barrossa Platform, King's Landing 반잠수식 생산설비, Marjan 플랫폼 등이 진행될 가능성이 있으며, 우리나라 조선사의 수주가 기대된다. 다만 중국 조선사와 싱가포르 조선사의 경쟁력 향상을 위한 노력과 공격적인 저가수주 등으로 어려움은 지속될 것으로 예상된다. 중국 조선사는 경쟁력 향상을 위해 양대 조선그룹인 CSSC와 CSIC의 합병을 추진하고 있고, Sembcorp marine, Keppel O&M과 같은 싱가포르 조선사도 시추설비 시장의 회복지연으로 생산설비 수주에 뛰어들고 있어 고강도의 시장경쟁은 지속될 가능성이 높다. 한편 보호무역으로 인한 해상물동량 감소 가능성이나 선복 과잉에 따른 해운시황의 더딘 회복으로, 하반기에도 구조적인 시황 회복보다는 환경규제 강화로 인한 제도적 측면에서의 발주 증가 영향이 클 것으로 예상된다. 2018년 하반기에는 2016년 수주절벽의 영향이 가장 심각하게 나타나고 기저효과도 지속되어 수출 규모는 상반기보다 더 낮아질 것으로 예상된 다. 수주가 회복되기 시작한 2017년 상반기 물량은 2018년 4분기부터 본격적으로 인도가 이루어 지기 때문이다. 물론 계약 취소와 인도연기로 몸살을 앓고 있는 시추설비가 재매각 또는 인도된다면, 수출 악화는 소폭 완화될 가능성이 있다. 대우조선해양과 삼성중공업이 보유한 Sonangol, Ensco, Ocean Rig, Seadrill 등의 미인도 드릴십은 시황 회복으로 재매각이나 인도 가능성이 높아지고 있기 때문이다. 다만 드릴십은 1기당 가격이 3억~5억 달러 내외라서 인도가 되더라도 수십억 달러에 달하는 생산설비 수출과 같은 효과를 내기는 어려울 전망이다. 생산은 수출과 마찬가지로 2018년 하반기에 최저 수준을 기록할 것으로 예상되며, 규모는 369만CGT에 그칠 것으로 보인다. 물량으로 반기에 400만CGT 정도를 생산하는 것은 2004년과 유사한 수준이나, 고부가가치 선박이 많아 수출액은 2004년보다는 더 많을 전망이다. 주요 건조 선종은 2014~2015년에 수주받은 LNG운반선과 FSRU, 2015년에 수주받은 초대형 컨테이너선, 2015~2017년에 수주받은 탱커 및 제품운반선 등 고부가가치 선종으로 구성될 것으로 예상된다. 2018년 하반기 수입도 감소될 것으로 전망되는데, 선박 건조량의 감소세 지속으로 해외의존도가 높은 해양플랜트 Topside용 핵심기자재 수입이 크게 줄고 블록 수입도 감소할 것으로 예상되기 때문이다.

4. 시사점

2018년 하반기는 생산측면에서 최악의 기간이므로 이 시기를 극복하고 재도약할 수 있는 기반 마련이 필요하다. 우선 수요 위축 대안으로 추진되던 내수 활성화를 위한 정책을 빠르게 추진해 야 한다. 내수 활성화를 위한 정책에는 LNG벙커링 사업, 관공선 및 민간선의 LNG연료추진선 발 주 및 개조 사업 지원을 위한 eco-ship 펀드 조성, 관공선 및 군함·해경 등 공공발주, 국내 주요 항 만 배출가스 제한구역(ECA) 설정 등이 있다. 국내 선사의 노후 상선을 친환경 선박으로 교체 지원하여 중견조선사의 경쟁력을 높일 필요가 있으며, 범용 선박 및 중견조선사 원가경쟁력 확보를 위한 스마트 제조 기술도 개발해야 한다. 또한 수출촉진을 위한 조선·해운·금융 연계 및 지원을 강화하고, 에너지 관련 투자와 협력, 환경규제 대응 생태계 조성 및 미래를 위한 기술개발이 필요하다. 금융측면에서는 수주 촉진을 위한 선박금융을 강화하고 R/G를 제공해야 한다. 러시아 노바텍의 Arctic LNG 2 프로젝트와 같이 해외 에너지개발시 투자를 통한 조선산업의 사업기회를 확보할 수 있도록 지원해야 한다. 동남아시아에서 검토하고 있는 부유식 LNG터미널(FSRU) 및 부유식 발전설비 프로젝트에 협력을 통한 사업기회 확대도 필요하다. 글로벌 환경규제 강화로 창출되는 신조·개조 시장의 공략을 위한 기자재 및 중소조선 업체 지원, 대형 조선사와 기자재·수리조선사의 네트워크도 구축해야 한다. 미래시장 선점을 위해 자율 운항 선박 등의 연구개발 및 실증 사업의 추진도 필요하다.

최고의 나노기술 아크릴계 수성 나노페인트

나노팜

아크릴계 수성 도료에서는 실현할 수 없었던 꿈!
(완전 수성 일체형 아크릴 에멀젼 페인트)

친환경 나노팜 방오도료
Anti-Pollution

해양 부유물 부착을 방지하여 선박의 운항효율을 증대시킬 뿐만 아니라 선박의 연료 소모량을 줄임으로써 이산화탄소 배출량을 감축하는 탁월한 효과가 있습니다.

나노팜 도료만의 탁월한 장점

- **친환경 수용성 도료**(유기, 유해물질 불포함)
- **강한 접착력**(콘크리트, 목재, 금속, 염화불소, 수지, 섬유 등)
- **다양한 용도**(방오, 방청, 선저방조, 내후성, 내열, 차열)
- **취급이 용이한 "완전수성 액상"**(솔, 롤러, 건등 시공 가능)
- 알루미늄, 스텐, 구리 등에도 사용가능

취급도료 | 수성 방수 도료 | 수성 차열 도료 | 수성 단열 도료 | 수성 절연 도료 | 수성 내열 도료 | 특수 발열 시트 |

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Siemens and Bentley Systems strengthen their strategic alliance and joint investment initiatives

In the companies' latest Alliance Board meeting, Bentley Systems and Siemens decided to further strengthen their strategic alliance. The two companies have decided to extend their existing agreement, to further develop their joint business cooperation and commercial initiatives. Therefore, the joint innovation investment program will be increased from the initial €50 million funding to €100 million. In addition, as a result of the continuous investment of Siemens into secondary shares of Bentley's common stock the Siemens stake in Bentley Systems now exceeds 9%.

Klaus Helmrich, member of the Managing Board of Siemens AG, said: "I'm very pleased with how strong our alliance started. Now we are investing in the next collaboration level with Bentley, where for instance we will strengthen their engineering and project management tools with Siemens enterprise wide collaboration platform Teamcenter to create a full Digital Twin for the engineering and construction world."

He added: "Integrated company-wide data handling and IoT connectivity via MindSphere will enable our mutual customers to benefit from the holistic Digital Twins."

Greg Bentley, Bentley Systems CEO, said: "In our joint investment activities with Siemens to date, we have progressed worthwhile opportunities together with virtually every Siemens business for 'going digital' in infrastructure and industrial advancement. As our new jointly offered products and cloud services now come to market, we are enthusiastically prioritizing further digital co-ventures. We have also welcomed Siemens' recurring purchases of non-voting Bentley Systems stock on the NASDAQ Private Market, which we facilitate in order to enhance liquidity, primarily for our retiring colleagues."

Dubai joins elite top five hubs in latest International Shipping Centre Development Index

Dubai has reached a new milestone in its strategy for leadership in the international maritime sector after being selected as one of the world's top five hubs in the International Shipping Centre Development Index (ISCD). Backed by legal and legislative excellence, Dubai is known for its advanced infrastructure, world-class maritime and logistics capabilities--a competitive environment conducive to trade, business and investment, and innovative free zones that match the world's best. According to a recent report by the London-based Baltic Exchange and the Xinhua News Agency, Dubai has secured fifth position and overtaken Hamburg, which fell from fourth to seventh place. The ranking confirms anew the emirate's reputation as one of the leading maritime shipping and logistics centers in the world.

Amer Ali, Executive Director of Dubai Maritime City Authority (DMCA), was not surprised that Dubai achieved the top five ranking as the maritime world gathers SMM 2018, the Hamburg event that brings together shipping's great and good in unrivalled numbers. Ali noted that, last year, the emirate became the first Arab city to be named among the world's top five competitive and attractive maritime clusters in the Menon Business Economics Group maritime industry report, widely acknowledged as an industry benchmark. The emirate is on track to make unprecedented achievements under the relentless support of H. H. Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, who envisioned a safe, integrated, and sustainable maritime sector in support of the UAE's economic diversification policy in preparation for a post-oil future.

Ali drew attention to DMCA's delight at the new achievement, which said was a testament to the success of dedicated efforts to enhance the competitiveness of the local maritime sector and consolidate Dubai's leadership as a major global maritime player. Fruitful partnership had been forged between the public and private sectors to enhance the confidence of regional and international investors in the competitiveness of the local maritime sector and promote its components based on the pillars of research and development, innovation, and smart transformation, he said. "The components include shipping and ports, engineering and training, maritime support services and ports, and the operation and maintenance of giant maritime vessels."

Ali added that Dubai's entry into the ISCD's top five brought a major responsibility to

further develop the legislative, regulatory and logistics infrastructure to the highest international standards of operational efficiency, maritime safety, and safe navigation in a bid to attract foreign direct investments. This is in line with the objectives of the Dubai Plan 2021 to make the emirate one of the most important business centers in the world. "We are working hard to create a vibrant maritime environment to attract industry leaders and to promote Dubai's status as a global shipping center supported by a series of leading quality initiatives, including the Dubai Maritime Virtual Cluster (DMVC), Dubai Maritime Cluster Office (DMCO), and Maritime Dubai," said Ali. "These initiatives will help pave the way for establishing Dubai and the UAE as an influential force within the global maritime economy."

DNV GL at SMM 2018: DNV GL and Huangpu Wenchong: 200 ships and still going strong

A 2,750 TEU feeder container ship for China Navigation will be the 200th DNV GL classified ship built by Huangpu Wenchong Shipyard (HPWS), the companies announced at the SMM trade fair in Hamburg today. Cooperation between DNV GL and HPWS dates back to 1996 and covers ship types from feeder vessels to larger container ships, to bulk carriers, offshore supply vessels, and many others.

"The close relationship and comfortable communication between the two companies has enhanced HPWS's position in shipbuilding. Building high quality vessels that are more efficient and greener is at the core of our strategy, and DNV GL's industry expertise, technical support and services have proven a great match. This milestone underscores the mutual benefit of our partnership, and gives us encouragement to further strengthen our relationship," says Chairman Chen Zhongqian of Huangpu Wenchong Shipyard.

"DNV GL's cooperation with HPWS has been long and fruitful, and the 200th ship milestone is proof of this," says Norbert Kray, Senior Vice President and Regional Manager for Greater China in DNV GL. "We have been through many developments together, and we have maintained our trusting relationship through the good and the tough times."

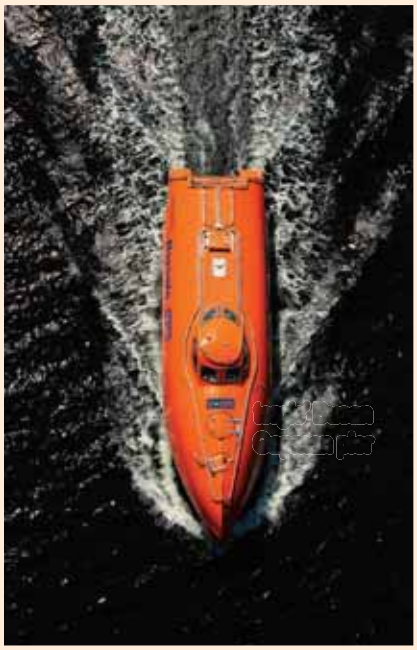
DNV GL has also assisted HPWS in their progress toward building new and more sophisticated ship types. "DNV GL's technological expertise and broad experience has been invaluable to HPWS when building more advanced vessels," says HPWS Chairman Chen Zhongqian. "There are many challenges and new technologies to be considered when moving into different vessel types, and we have shortened development time considerably by leveraging DNV GL's technology."

VIKING ACQUIRES LEADING LIFEBOAT MANUFACTURER

The acquisition of lifeboat solution provider Norsafe is another boost for VIKING's worldwide capabilities, ensuring a unique and unmatched product and service offering in the maritime safety industry.

Maritime safety equipment manufacturer and global service provider VIKING Life-Saving Equipment A/S has announced it has acquired Norsafe, the Norwegian boatbuilder whose lifeboats are used throughout the world. The acquisition is in line with VIKING's long-running strategy of putting the customer's needs and priorities first.

Established in 1903, Norsafe produces a full range of free-fall lifeboats and fast rescue boats with davits and have supplied over 28,000 lifeboats to the global ship market over the years. Its advanced life-



boat products are manufactured in accordance with the latest SOLAS requirements and approved by national and certifying authorities for both ships and offshore use.
VIKING consistently puts the customer first, ensuring the company's products and services are a close fit to the market and the acquisition is yet another step forward for thousands of VIKING customers around the world, who now stand to benefit from the world's most complete range of lifeboat, hook and davit products. And it is the strongest signal to date that VIKING is firmly committed to provide a complete safety offering that also includes the best range of lifeboat products and services – a focus that initially saw VIKING acquire the company behind the innovative and now widely installed Nadiro lifeboat Drop-in-BallTM hook, now known as VIKING Nadiro.
The synergies behind Norsafe's entry into the VIKING group are plain to see, and not just because both companies are Scandinavian-based. In fact, they share virtually identical missions, both aiming to keep people safe and leading their respective markets through constant innovation.
"This is a very close operational and cultural fit," commented VIKING CEO Henrik Uhd Christensen. "Like VIKING, Norsafe has been family-owned for generations, which creates strong and lasting relationships with customers – and it places the same emphasis on quality, on the use of advanced materials and on technological innovation as we do."

A new perspective on alternative fuels: DNV GL launches Alternative Fuels Insight (AFI) platform

The rapidly approaching 2020 fuel sulphur cap and newly announced IMO greenhouse gas (GHG) reduction strategy have put the spotlight onto alternative fuels for shipping. DNV GL's new AFI platform offers a comprehensive and continually updated overview of alternative fuel projects, bunkering infrastructure, suppliers, and technologies.
"Alternative fuels and propulsion technologies should be on the radar of every shipowner, especially those in the market for a newbuilding in the near future," says Knut Ørbeck-Nilssen, CEO of DNV GL – Maritime. "The AFI platform has been developed to provide a clear picture not only of the fuels and the surrounding infrastructure, but to build links between suppliers and owners and charterers. The knowledge collected on the platform is expanding into a 360-degree view of the sector, allowing all stakeholders to make informed decisions."
The AFI platform builds on DNV GL's well received LNGi portal, but with an expanded focus that covers LNG, LPG and methanol, as well as emission reducing technologies such as scrubbers and batteries. The platform consolidates a wealth of detailed technical information on these fuels and technologies, including their bunkering infrastructure, and examines their capabilities and limitations, as well as giving practical insights into their implementation and operation. With much of the information free to access, the AFI platform is a valuable resource for owners and operators needing to research and keep up to date in this rapidly moving sector. In addition, through the Fuel Finder tool shipowners and charterers can submit requests for bunkering, specifying fuel type, location, volume and from which date they would like to bunker. DNV GL validates these requests and then makes them available to suppliers.

Survitec stands by for Re-hooking deadline dash.

The clock is ticking for a significant number of vessels who have not yet met the rehooking regulations(IMO MSC.1 / Circ 1392) which specifies that all non compliant Lifeboat Release and Retrieval Systems(LRRS) must be replaced at the first scheduled dry docking after 1 st July 2014 but no later than 1 st July 2019.

"There is no reason to suggest this deadline will be extended" says Paul Watkins, Regulatory and Compliance Manager at Survitec. "Although, we are aware that some flag states are already being contacted by vessel owners, looking to extend the period. These dispensation requests are due to stated, future plans to scrap the vessel shortly after the deadline, or a delayed scheduled dry docking shortly after the 1 st July 2019".

It's worth noting that Flag states do have the flexibility to allow this, if they wish, within the confines of the circular. "Controversially, we may see vessels looking to re-flag to Registers which will give them this flexibility" he adds.

According to the IMO there are 160 hooks in the market place and only just over half of these are compliant, with a further 30% becoming compliant after modification. This leaves a huge number of vessels under pressure to meet the deadline in the next 9 months.

Wilhelmsen strengthens portfolio with unique Klüber Lubrication marine partnership

Klüber Lubrication and Wilhelmsen Ships Service have signed a close distribution partnership, with Wilhelmsen becoming a global partner for marine lubricants from Klüber Lubrication.

With the deal, signed at the maritime industry's largest exhibition SMM Hamburg, Wilhelmsen will strengthen its existing product portfolio in a key area, adding high-performance speciality lubricants to its global offering. Kjell Andre Engen, EVP Marine Products, says, "Joining forces with Klüber Lubrication is a real coup for us, it enables us for the first time to offer customers market leading lubricants and a wealth of in-depth product specific expertise. A key area previously missing in our portfolio, we are thrilled to also now be able to provide customers lubricants, and the world's most sophisticated ones for that matter, through our unrivalled global network".

Combining quality products, innovation, and dedication to developing environmental and sustainable solutions offered by Klüber Lubrication, with Wilhelmsen's enviable distribution network, industry-defining customer service and forward leaning solutions portfolio is seemingly a match made in marine products heaven.

Helm Operations Joins Volaris Group

Leading developer of marine software looks to accelerate growth with new backing from global technology firm

Leading marine operations software company Helm Operations announced today that it has been acquired by Toronto-based Volaris Group Inc. ("Volaris"). Volaris specializes in strengthening and growing technology companies and is a leader in the marine software space.

Founded in 1999, Helm Operations is widely known as the leading developer of marine operations software for the workboat market. Following an acquisition by ClassNK in 2014, the company released its newest platform, Helm CONNECT, in 2016, achieving tremendous growth in just two years.

Since its launch, the Helm CONNECT platform has grown to support the management of vessel maintenance, regulatory compliance, operations, and personnel, quickly becoming the leading marine software platform in North America and establishing Helm Operations as a global player in the marine industry. Today, Helm CONNECT is the fastest growing software platform in the marine industry, growing to be used by 150 companies and 3000 vessels worldwide in the 24 months since its launch.

"Our commitment to providing modern, user-friendly, powerful systems for marine operations has helped us achieve incredible growth over the past two years," says Ron deBruyne, CEO of Helm Operations. "Now, as part of Volaris, we look forward to building on that strong foundation, accelerating our growth in North America and internationally, and providing even greater value to our customers."

In keeping with Volaris' philosophy of acquiring, strengthening, and growing key technology companies, Helm Operations will maintain its own brand and independence with support and resources from Volaris. CEO Ron deBruyne, along with the existing management team, will continue to lead the business. Helm Operations joins other leading technology companies, SpecTec, ShipNet, and Idea Yacht, in Volaris' Marine vertical.

다쏘시스템 – 메타넷그룹, 디지털 제조 혁신 강화 전략적 제휴

대한민국 서울, 2018년 9월 19일 – 3D 솔루션 및 제품수명주기(PLM), 스마트팩토리 분야 글로벌 리더인 다쏘시스템 코리아(대표 조영빈, www.3ds.com/ko)와 국내 최대 디지털 비즈니스 플랫폼 기업인 메타넷그룹 (메타넷글로벌 대표 조상욱)은 19일 서울 역삼동 메타넷글로벌에서 기업 제조 경쟁력 제고 및 디지털 혁신을 가속할 스마트팩토리 사업을 강화하기 위한 MOU를 체결했다고 발표했다.

다쏘시스템 코리아와 메타넷그룹은 이번 협약을 통해 생활용품부터 자동차, 건축물, 에너지, 군수, 항공 우주 산업까지 제조업 전반의 산업 경쟁력 강화와 디지털 혁신을 주도하기 위하여 글로벌 기술 동향과 노하우를 공유할 계획이다.

다쏘시스템의 플랫폼 기반의 ▲DM (디지털 제조), ▲APS (ERP와 연계한 최적화된 자원관리 계획시스템), ▲MES (산업용 IoT와 결합한 제조실행) 솔루션 등과, 기업 혁신을 주도해온 메타넷그룹의 컨설팅

역량이 결합하여 기업의 디지털 제조 혁신

을 선도할 계획이다.
다쏘시스템은 지속가능한 혁신을 통해 기업이 새로운 가치와 비즈니스 모델을 구축하도록 자사의 3D익스피리언스 협업 플랫폼과 제품개발부터 서비스까지 전 프로세스를 관통하는 다양한 솔루션을 제공한다. 메타넷그룹의 디지털 비즈니스 컨설팅 역량을 더해 기업의 제조 혁신을 지원하고 글로벌 협업을 확대한다는 방침이다.
다쏘시스템 코리아 조영빈 대표는 "메타넷그룹과 다쏘시스템 코리아의 협력은 디지털 르네상스라 불리우는 4차산업 혁명의 환경에서, 국내 기업에 디지털 제조 혁명의 틀을 제공하여, 기업이 새로운 비즈니스 모델을 찾고 글로벌 경쟁력을 높이도록 지원할 것"이라고 밝혔다.
메타넷글로벌 조상욱 대표는 "제조•물류 부문 시스템 구축, 운영 역량을 지원하는 플랫폼을 보유한 글로벌 선진기업 다쏘시스템과 메타넷그룹의 End to End디지털 컨설팅 역량이 합쳐져 창출할 비즈니스 시너지가 기대된다"고 말했다.

현대重, '가스텍'서 차세대 LNG기술 첫 선

현대중공업이 유수의 글로벌 선주들을 대상으로 차세대 가스선에 적용될 LNG분야 선도 기술을 선보이며 독보적인 기술력을 알리고 있다. 현대중공업은 지난 9월 17일(월)부터 20일(목)까지 스페인 바르셀로나에서 열리는 가스텍(Gastech) 행사에서 호그(Hoegh), 크누센(Knutsen) 등 글로벌 고객사 700여명을 대상으로 19일(수) 테크포럼(Tech Forum)을 개최했다고 밝혔다. 가스텍 행사는 세계가스총회(WGC), LNG컨퍼런스와 함께 세계3대 국제가스행사 중 하나로, 현대중공업에서는 정기선 그룹선박해양영업본부 부문장, 주원호 중앙기술원장 등 영업, 설계, R&D분야 인원 30명이 참여해 적극적인 마케팅 활동을 펼쳤다.
이번 테크포럼을 통해 현대중공업은 차세대 LNG-FSRU에 적용될 신개념 컴팩트 재기화 시스템(new Hi-ReGAS)를 처음 공개했다. 이번에 공개된 재기화시스템은 혼합열매체를 사용하는 간접 가열 방식으로 기존 글리콜방식 대비 중량을 70톤 이상, 전력소모를 30% 이상 줄인 것이 특징이다. 이 시스템을 탑재한 차세대 LNG-FSRU는 연간 운영비용을 최대 65만불까지 절감할 수 있을 것으로 기대된다.
그동안 현대중공업은 직접 가열방식의 재기화시스템을 시작으로 글리콜방식의 간접 재기화시스템을 독자 개발하며 LNG-FSRU의 핵심기술인 재기화기술을 선도해왔다. 특히 이번 신개념 컴팩트 재기화시스템으로 LNG선 기술을 확고하게 선도해 갈 것으로 보인다.

또한 현대중공업은 이 포럼에서 세계 최고 효율을 자랑하는 혼합냉매방식의 LNG 완전재액화시스템(SMR, Single Mixed Re-liquefaction)도 선보였다. 현대중공업은 지난 2016년 단일냉매방식의 완전재액화설비가 탑재된 LNG선을, 지난 2월에는 혼합냉매방식의 완전재액화설비가 탑재된 LNG선을 세계 최초로 인도하며 LNG재액화기술의 발전을 이끌어 왔다.
현대중공업 주원호 중앙기술원장은 "이번 테크포럼을 통해 차세대 재기화시스템, 혼합냉매 완전재액화설비뿐만 아니라 세계 최초로 대형유조선에 적용된 LNG추진선박 기술, 소형 LNG벙커링선 기술 등 LNG관련 최신 기술을 공개할 예정이다"며 "차별화된 기술경쟁력을 바탕으로 지속적으로 LNG시장을 선도해나갈 것"이라고 밝혔다.

지멘스, 로우 코드 애플리케이션 개발 기업, 멘딕스 인수

지멘스는 클라우드 기반, 로우 코드 애플리케이션(low code application) 개발 분야의 선두 업체인, 멘딕스(Mendix)를 인수한다고 밝혔다. 멘딕스는 폭 넓은 에코시스템과 커뮤니티를 보유해 왔으며, 인수 후에도 멘딕스 고유의 플랫폼을 기반으로, 모든 산업 분야의 고객들에게 지속적으로 서비스를 제공하게 된다. 또한 인수 후에도 멘딕스는 자체 브랜드와 기업 문화를 유지하게 된다. 지멘스는 멘딕스의 독립 제품 로드맵에 지속적으로 투자함으로써 멘딕스가 가장 혁신적이며 개방형 로우 코드 클라우드 플랫폼으로서의 명맥을 이어갈 수 있도록 지원할 예정이다. 멘딕스는 지멘스 디지털 팩토리(Digital Factory, DF) 사업부 내 소프트웨어 사업부에 편입되며, DF 외 다른 사업부에서도 멘딕스 플랫폼이 도입될 계획이다.

최근 기업들의 운영을 디지털화하기 위한 투자가 계속됨에 따라, 비즈니스 애플리케이션에 대한 수요가 빠르게 증가하고 있다. 이 속도는 기업의 IT 조직에서 제공할 수 있는 역량보다 더 빠른 속도다. 로우 코드 애플리케이션 개발 플랫폼은 클라우드를 기반으로 하여 애플리케이션을 신속히 개발•배포하고 실행하기 위한 기능을 제공한다.

지멘스 그룹 경영이사회 멤버 클라우스 헴리히(Klaus Helmrich) 부회장은 "지멘스의 비전 2020+의 초석이라 할 수 있는 전세계 산업의 디지털화의 선도적 입지를 강화하기 위해 멘딕스를 인수했다"며, "멘딕스는 급성장하고 있는 로우 코드 부문의 선두 기업이며, 멘딕스 플랫폼은 산업용 IoT를 위한 클라우드 기반 애플리케이션 개발을 가속화함으로써, 지멘스의 고객들이 마인드스피어(MindSphere)를 더욱 빠르게 채택할 수 있도록 지원할 것이다"고 덧붙였다.

얀 므로직(Jan Mrosik) 지멘스 디지털 팩토리 사업부 CEO는 "지멘스는 디지털화 전략의 일환으로 디지털 엔터프라이즈를 위한 소프트웨어 제품에 지속적으로 투자하고 있다. 이번 멘딕스 인수를 통해 지멘스의 포괄적인 디지털 엔터프라이즈 포트폴리오와 마인드스피어 IoT 포트폴리오 위에 클라우드 전문성과 클라우드 애그노스틱(cloud agnostic) 플랫폼을 추가하고, 멘딕스의 역량있는 직원들을 보강할 수 있게 되었다"고 말했다.

멘딕스는 2005년 네덜란드 로테르담에 설립되었으며, 현재 미국 매사추세츠주 보스턴에 본사를 두고 있다. 보유 직원 수는 400명 이상이며, 서비스형 소프트웨어 비즈니스 모델이 매출의 90% 이상을 차지한다. 지멘스는 기존의 멘딕스 자체 고객 뿐만 아니라, 지멘스가 갖고 있는 고객 기반에서도 향후 견고한 성장을 이어갈 것으로 기대하고 있다. 또한 멘딕스가 지멘스의 현재 클라우드, IoT 및 디지털 엔터프라이즈 소프트웨어 역량을 더욱 강화할 수 있을 것으로 예상된다. 멘딕스는 자사의 기술을 모든 산업 분야와 기술 에코시스템에 걸쳐 고객과 파트너들에게 계속해서 제공해 나갈 계획이다.

슈나이더 일렉트릭-KTE, 합작 법인 설립

에너지 관리 및 자동화 분야 디지털 혁신을 선도하고 있는 글로벌 기업 슈나이더 일렉트릭(한국지사 대표 김경록)과 선박 및 해양 플랜트 전문 기업 KTE(대표 구본승)가 합작 법인을 설립, 시장 공략 강화에 나선다.

양사는 9월 11일 부산에 위치한 KTE 본사에서 슈나이더 일렉트릭 에너지 부문 프레데릭 고드멜 (Frederic Godemel) 글로벌 수석부사장, 슈나이더 일렉트릭 코리아 김경록 대표, 슈나이더 일렉트릭 동북아시아 에너지 부문 총괄 최승현 부사장, KTE 구본승 대표 및 KTE 사업총괄 김영신 부사장 등 주요 인사가 참석한 가운데 합작 투자회사 설립 계약 체결식을 가졌다.

양사는 공동 투자를 통해 합작 법인인 'Schneider-KTE' 설립을 위한 정식 절차에 착수할 예정이다. 이번 법인 설립의 취지는 최첨단 지능형 배전반을 필두로 하는 국내 직접 생산 기지를 구축하는 것으로, 고 신뢰성이 요구되는 국내외 에너지 다소비 플랜트 및 인텔리전트 빌딩 시장에서 확고한 입지를 다지려는 의지를 반영했다.

'Schneider-KTE'는 국내 고객만을 위해 슈나이더 일렉트릭의 중저압 배전반 모델을 제조하는 전용 생산 기지 역할을 하게 된다. 이는 글로벌 시장 내에서 중요성이 커지고 있는 한국 시장과 높은 기술 수준을 보유하고 있는 국내 고객을 만족시키기 위한 전략적 선택이다.

'Schneider-KTE'는 슈나이더 일렉트릭의 다양한 제품군, R&D 및 영업 역량에 KTE의 제조, 엔지니어링 역량을 더해 대형 플랜트 및 EPC 전용 제품들을 선보일 예정이다. 이로써 양사는 온, 오프쇼어 전체 시장을 아우르는 국내 사업 기반을 완성하고, 납기, 서비스 문제를 해소해 다양한 고객 요구에 탄력적으로 대응할 수 있게 됐다.

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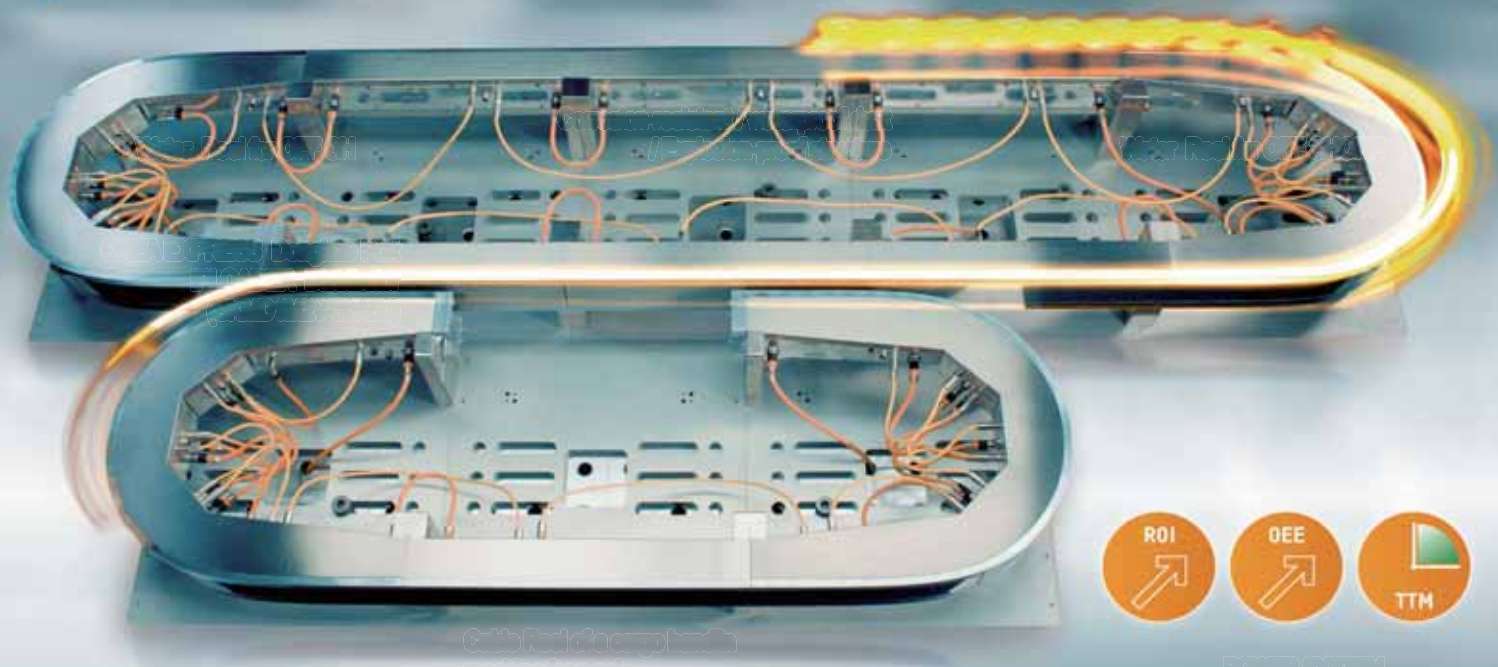

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Gibdock completes complex ballast water treatment system retrofit

Now that the IMO's Ballast Water Management Convention has entered into force, more shipowners than ever before are actively looking at the installation of ballast water treatment systems onboard their vessels. Gibraltar-based Gibdock has the skills and capabilities, and favourable geographic location, needed to undertake such work efficiently, with minimum vessel downtime periods, during routine drydocking stays. Consequently, the yard has actively geared up to meet increased shipowner demand for high quality ballast water treatment system retrofits and is in active discussions with several potential clients.

Underlining its capabilities in this field, Gibdock has just completed a complex ballast water treatment system retrofit onboard the 179m, 34,500dwt bulk carrier Zambesi. The 2013-built, DNV GL classed vessel, owned by Hamburg-based John T. Essberger, arrived in Gibraltar on June 4th this year for a month long programme of works. The vessel departed the yard on July 5th with its new ballast water treatment installed and ready for commissioning, having spent 16 days in Gibdock's No. 1 Drydock, and the rest of the time alongside.

Gibdock technicians carried out all the necessary pipework and preparations onboard, before assembling and installing the owner-supplied UV-type ballast water treatment system. The

yard worked closely on this project with Aries Marine, a UAE-based specialist in ballast water treatment retrofit engineering, which supervised this element of the drydocking schedule.

Shiprepair manager, Juan Piñero, says, "This was a complex retrofit, and our engineering staff and pipefitting team rose to the challenge magnificently and completed the works to the client's complete satisfaction. With this project we have gained further valuable experience in ballast water treatment retrofits, which will hold us in good stead for the future, as a growing number of owners look to carry out this type of work to meet IMO requirements."

Alongside the ballast water treatment retrofit, Gibdock carried out a wide range of repair and maintenance items on Zambesi. This included a total of 2500m2 of blasting and painting on the vessel's topside and underwater hull areas. The yard also carried out some cargo hold treatments, that involved spot blasting in way of the coamings and upper hoppers.

Mechanical works carried out on Zambesi included the removal and refitting of the ship's propeller, bonding of seals and the removal of the tailshaft and intermediate shaft. Juan Piñero, says, "This was a very demanding operation as it involved working in a very narrow space. Through careful preparation and planning, our engineers were able to carry out the necessary works successfully within the timescale required."

DNV GL awards AiP to Jiangnan Shipbuilding Company for 175K CBM Mark III Flex LNG Carrier "LNG JUMBO"

Maritime, presented Lin Ou, Chairman of Jiangnan Shipbuilding Company Ltd (Jiangnan Shipyard), with an approval in principle (AiP) for the "LNG JUMBO", a new Flex LNG carrier design, at the SMM trade fair in Hamburg. The flexible, efficient and environmentally friendly design was developed by Jiangnan Shipyard in cooperation with ship designer MARIC, GTT, DNV GL and major equipment manufacturers.

"Jiangnan and DNV GL have successfully collaborated on joint design development and classification for various ship types, particularly in our star product gas carriers," said Lin Ou. "We have completed China's first Mark III/Mark III Flex model tanks and moved into the membrane type liquefied gas carrier market. With this latest AiP, we have laid a solid foundation for introducing this ship type to the market and will further enrich our product portfolio in gas carriers and gas-fuelled ship types, which will benefit our clients and at the same time reduce emissions. Both Jiangnan and DNV GL will gain from the deeper and broader cooperation that this AiP represents."

The ship uses the GTT Mark III Flex cargo containment system, and is equipped with four standard cargo holds, with a capacity of in total 175,000 cubic meters. The ship's

shore connection is flexible and compatible with most shore facilities, and it can pass through the Panama Canal. The proposed WINGD X-DF low-pressure, low-speed two-stroke dual-fuel main engine propulsion system offers higher propulsion efficiency and lower fuel consumption in combination with an optimized twin skeg design and additional energy saving devices. In gas mode, the propulsion system meets IMO NOx Tier III requirements without the need for exhaust gas treatment systems. Additionally, a USCG certified ballast water treatment system means the design is ready for the incoming regulations.

"I am very pleased to be able to present this certificate to Jiangnan Shipyard, continuing a very productive and longstanding relationship," said Knut Ørbeck-Nilssen. "Jiangnan Shipyard had been continuously developing their ability to offer new and advanced vessel designs and we are very proud to have been part of this process. As the gas segment continues to gain importance in shipping, new designs that offer greater efficiency and compliance alongside safety are important in advancing the segment, and we are very proud to support Jiangnan Shipyard in realizing this new concept."

Davit reliability critical as polar vessel ordering surge continue

With onshore infrastructure to support polar operations falling behind a substantial influx of ships, manufacturers need to take responsibility as well as opportunities when it comes to meeting demand for 'winterized' shipboard equipment, according to Vestdavit.

"These are certainly encouraging times for those supplying equipment for the harshest conditions, but manufacturers must ensure that the tools are really up to the job," says Vestdavit Managing Director, Rolf Andreas Wigand. "The land-based polar service infrastructure is limited, making it critical that shipboard equipment truly offers the reliability and redundancy set by the Polar Code. This is essential for davits, whose operations involve direct interaction with the most unforgiving conditions."

A surge in publicly-funded polar scientific ships will enter service 2018-2021, joining British, Chilean, Chinese, Norwegian and Swedish polar survey and research bodies. Elsewhere, US Coast Guard plans for three new polar icebreakers are also progressing, while authorities in Canada and New Zealand recently purchased second-hand icebreakers to meet medium term needs.

Meanwhile, over the 2018-2021 period, 22 new expedition ships are due in service. Commercial shipping, too, is firmly in the mix, especially the Northern Sea Route connecting Europe and Asia.

"In all cases, the davits that launch and recover crew boats, tenders and other craft must be fully operable at extreme temperatures, where the severity of icing may not be immediately apparent," cautions Wigand. "Materials grades must be optimised for low temperatures, while the appropriate steps must be taken to protect, insulate, ventilate and heat equipment to ensure it works on demand."

Davits from Vestdavit include shock absorbers and anti-pendulum technology to enhance both the safety and efficiency of operations, Wigand adds, putting the supplier far ahead of SOLAS requirements. In addition, Vestdavit equipment performs beyond NORSOK regulations offshore Norway, which require a dual winch brake system, system redundancy, reinforced structure and hydraulic power packs/electrical cabinets built-in.

"For both safety and crew welfare reasons, we only deliver systems with our unique wave-compensation solution," says Wigand. "Constant tension in the wire avoids slack caused by the wave uplift of a crew boat as it is prepared for hoisting; slack wires can lead to jolts and falls as the wave subsides."

Self-tensioning allows the boat to rise and fall with the waves, so that the operator can judge the best time to hoist: this widens the davit's safe operational window in harsh conditions.

Wigand says that, already, Vestdavit has been securing orders based on the new generation of research, expedition and icebreaking tonnage. Recent deliveries include several HN-9000 dual point workboat davits for National Oceanic and Atmospheric Administration (NOAA) research vessels and nine PLA-2000 all-aluminum units for US Coast Guard Bay-class icebreaking tugs.

Last year, Vestadvit delivered two compact TSB-2500 rescue boat davits for installation in the aft section of two 100-passenger vessel 'National Geographic' branded cruise ships for Lindblad Expeditions Holdings Inc. "In this case, as well as being fully winterized for polar conditions, the davits supplied use environmentally-friendly hydraulic oils to ensure that any leakage will not be harmful to this most sensitive of environments," adds Wigand.

Bolidt hits all-time high as cruise refits surge

The vibrant cruise ship refurbishment market is reflected in an all-time high in refit work for Bolidt Synthetic Products & Systems, with the record including completion of five major ship projects so far this year. Bookings for a further seven large ship jobs are part of a workload that the company says includes 'dozens' of forthcoming projects planned for well into 2019.

In 2018, Bolidt has been a key participant in refurbishment and upgrade projects involving NCL's Norwegian Sun and Norwegian Star; the RCCL vessels Mariner and Independence of the Seas; and the Azamara Club Cruises ship Azamara Pursuit. Refurbishment bookings for drydocking later this year and in the first half of 2019 include Norwegian Jewel, Celebrity Summit and Celebrity Millennium; Navigator, Oasis of the Seas and Voyager of the Seas; and Carnival Triumph.

The scale of the flooring and deck system upgrades within these projects is extensive. As Jacco van Overbeek,

Bolidt Director, Maritime Division, observes: "These refits are significant and all-encompassing, and you will find us working on all decks, from 0 to 14 and above, and on a wide range of spaces onboard, including galleys, balconies, water park areas, running tracks and general public spaces, among others. The bulk of the work has required us to supply our industry-leading Bolideck® Future Teak and Bolideck® Select Soft systems, but we have also delivered other innovative solutions from our portfolio for these refits."

River cruise sector embraces the newkid on the block

ACOMarine has taken a substantial number of orders fromEuropean river cruise operators for the supply andretrofit installation of the company's advancedwastewater treatment systems.

The company, the water treatment division of Germany's ACOGroup, will supply wastewater management solutions basedaround its Maripur NF advanced sewage treatment plant toten river cruise vessels scheduled to drydock thiswinter.

In addition to the Maripur NF units, the turnkey packageincludes grease separation systems, holding and aerationtanks, pumps and piping, and crew training.

The vessels to which the ACO scope will be installed includethe Rhine and/or Danube-operating sister vessels MSMaribelle, MS Prinzessin Sisi and MS Regina Rheni, the 100m long sisters MS PrinzessinKatharina and MS Prinzesse de Provence, andthe 110m long MS Vista Fidelio.

Equipment will be delivered to various European yards forretrofitting between November 2018 and March 2019, whenthe vessels drydock before the summer season.

Pavel Havlik, Director - River Cruises, ACO Marine, said: "Our strategic decision to enter the European River Cruise and Inland Waterway market haspaid dividends not only for ACO Marine but also for theowners and operators of these remarkablevessels.

"Given the recent orders, it appears

the segment has quicklyembraced the ACO Marine solution. In addition to the tenvessels undergoing retrofit this winter, we will alsoretrofit equipment to 30 river cruise vessels scheduledto drydock winter 2019."

Mark Beavis, Managing Director, ACO Marine said one of thereasons the sector has been quick to take up the ACOsolution is because of the company's commitment to aftersales and service.

"We're not an install and forget kind of company," he said. "We have built a systematic service chain that includesremote diagnostics and maintain regular contact with ourcustomers to ensure their wastewater treatment systemsare running to optimum. Our customers and, ultimately, their passengers benefit from not only having a team ofspecialists on call 24/7, but from complete wastewatermanagement solutions designed to exceed existing andanticipated regulations."

Compared to the commercial marine sector, the regulationsgoverning pollution of inland waterways segment are veryrigid.

The European Union Commission Directive 2012/49/EU came intoforce in December 2013 laying down new standards fortesting of sewage treatment systems to ensure standardsof discharge in European inland waterways will not havean adverse impact on the environment.

"All current vessels are required to upgrade their sewagetreatment systems to compliance during their next scheduled vessel inspection and therefore there quirement for retrofit solutions will be considerable. To meet this requirement ACO Marine carries out detailedonboard surveys to enable the development of bespokesolutions

on a ship-by-ship basis working with thevessel owner/operators and the installation shipyards toincorporate all aspects of ship system integration," said Beavis.

Certified in accordance with RheinSchUO and Commission Directive2012/49/E, ACO Marine's compact Bio-Reactor(MBR), thetechnology at the heart of its Maripur NF system, allowsvessels with limited space to now benefit from amembrane-based treatment process. Historically, the low-height of the machinery space prevented river cruisevessels from adopting thetechnology.

With a low-height design and capacity to treat the wastes-treams generated from up to 250 persons, the ACOMaripur is available in modular sections to allow easieraccess to the installation site using existing accessroutes, reducing the requirement to cut a hole in theship's side.

BIO-Seainstallation a success aboard cma cgmflagship

BIO-UVGroup has successfully installed and commissioned itsBIO-SEA ballast water treatment system to CMA CGM's newflagship, the 400m long, 20,600TEU CMA CGM Antoine DeSaint Exupery.

Thevessel, one of the largest containerships to be built byHanjin Heavy Industries' yard in the Philippines, andthe largest to fly the French flag, was christened in LeHavre earlier this month by the Minister of Economy andFinance, Bruno Le Maire, and the Minister in charge ofTransport, Elisabeth Borne.

BIO-UVGroup will also supply BIO-Sea Units to nine 22,000TEUCMA CGM vessels under construction in China, followingthe signing of a supply order earlier this year.

BenoitGillmann, President and CEO, BIO-UV Group, said: "Thesuccessful installation and commissioning of the2000m3/h capacity BIO-SEA unit to this new flagship,together with new-build and retrofit installationsplanned in coming months, puts CMA CGM very

muchahead in the game.

"Weanticipate a significant spike in ballast waterretrofits over the next two to three years. Taking newbuildsand retrofits into account, the market is worth morethan €7.5 billion and if BIO-SEA can account for just 5%of this over the next six years or so, then we would bevery happy, indeed."

XavierDeval, BusinessDirector, BIO-SEA, said: "We anticipate the market-beginning to take shape in 2019, but the big boom islikely to be in the 2020-2021 period. It will inevitablybe a last-minute rush, so owners really do need to planahead to account for any increase in lead times. Depending on the size of the system, we can supply-BIO-SEA units within 8 to 12weeks."

Theshort lead time is because each BIO-SEA unit is designedand manu-factured completely in-house, at the company'sproduction plant in Lunel, France.

TheBIO-Sea system incorporates two technologies in asingle, fully automat-

ed skid-mounted or modular unit.The system first cleans ballast water usinga screen filter, in order to reduce the amount oftotal suspended particles present in the seawater.
Thesecond technology - BIO-UV Group's patented UV-baseddisinfection technology - treats thewater and eliminates all microorganismswithout the addition of chemicals or active substances.The water passes through a reactor where UV raysdestroy the microorganisms' DNA.
Sinceone 22kW UV lamp can treat flow rates of 150m3/h,overall system footprint is minimal compared to otherUV-based technologies.
Commentingon the market acceptance of the BIO-SEA system, MrGillmann said: "As a result of the recently announcedsupply order from CMA CGM, we have noticed considerableinterest in the technology. During the SMM exhibition,in Hamburg Germany, we met with over 100 shipowners,engineering advisory firms, shipyards and agents, all ofwhom were interested in the dual IMO/USCG

certificationwe received in June. Only two other companies in theworld currently have this dual certification for UVsystems."

Fuelsaveset to face the co_2 challenge

FUELSAVE, the Germany-based manufacturer of the unique fuel savingadditive FS Marine+, has applied to become a partner ofthe CO_2 Challenge, the initiative set up byUS conglomerate Cargill, entrepreneurial cooperativegroup Rainmaking and classification society DNV GL.
The CO_2 Challenge aims to partner with start-upsand technology companies with systems capable ofreducing a vessel's CO_2 emissionsin line with international climate strategies andtargets. Since the initiative was launched in June 2018, it has received some 70 applicants from 20 differentcountries.
FUELSAVE co-founder and President Marc Sima, said: "As shippinglooks at solutions capable of cutting carbon emissionsin half by 2050, the CO_2 Challenge is theoptimum platform from which to launch new technology.The initiative not only helps the industry discover newsolutions capable of reducing shipping's impact on theglobal environment, but it can provide start-ups withthe help they need to get their innovations to marketand scale up production."
Whilethe FUELSAVE application has yet to be assessed, thepartners have set strict entry criteria to ensure thatonly companies with viable technologies capable ofreducing a ship's carbon footprint by 10% can apply.
HeinoEckerich, FUELSAVE Technical Director, said: "Weofficially launched FS Marine+ at the beginning of theyear, following successful fieldand laboratory tests, specifically to address theemissions challenge the marine industry faces. Testsconfirmed the technology's ability to reduce fuelconsumption, and consequently carbon emissions, from anymarine diesel engine by 10% (net). The system alsoreduces NOx emissions between 30 - 80% and FSN/ PM / BCby 30- 40% and cleans up the combustion process forvisibly less soot and reduced engine wear & tear."

World's largest Egina FPSO departed from SHI to the offshore oil field in Nigeria

Samsung Heavy Industries(SHI) announced on August 26 that the Egina FPSO, the world's largest FPSO(Floating Production, Storage & Offloading) vessel, set sail for the offshore oil field upon successful completion of module production and installation at its local production base in Lagos, Nigeria.

Egina FPSO will be deployed in Egina offshore field by the end of this year after sea trial, producing up to 200,000 barrels of oil per day which is equivalent to 10% of Nigeria's crude oil production.

SHI established the Manufacturing Corporation(SHIN) in Lagos region of Nigeria as required under the local content standards and completed construction at the local site in accordance with the safety and quality standards same as those applicable in Geoje shipyard.

Egina FPSO is an offshore project awarded to SHI in Nigeria in 2013 and will be put into operation at Egina offshore field located 200Km off the coast of Nigeria. As an ultra-large offshore facility, Egina FPSO measures 330m in length, 61m in width, and 34m in height and has a storage capacity of 2.3 million barrels with the topside alone weighing as much as 60,000 tons.

This project was awarded to SHI on a turnkey basis, requiring SHI to complete all activities ranging from designing and procurement to production, transportation and commissioning. The contract was valued at approximately USD 3.4 billion, the largest ever for a FPSO contract.

SHI completed construction of a production base(in October 2016) in Lagos region of Nigeria through joint venture with local companies to meet the requirements of local content standards. This local production base covers an area of about 120,000㎡ and has the assembly plant, painting factory, and 500m-long quay wall facility, etc., the only yard in Africa which can produce and mount the modules of large-

scale FPSO with a storage capacity of 2 million barrels of oil. An official from SHI said, "We successfully completed the construction in Nigeria as a result of thorough preparation for production with local contents. By demonstrating the ability to carry out the ultra-large FPSO project with local contents, SHI is better positioned to win offshore projects that will be awarded in West Africa in the period ahead."

삼성重, 세계 최대 에지나 FPSO 성공적 출항

삼성중공업은 지난 8월 26일 세계 최대 규모의 에지나 FPSO가 나이지리아 라고스(Lagos) 현지 생산 거점에서의 모듈 제작 및 탑재 작업을 성공적으로 마치고 해상 유전으로 출항했다고 밝혔다. 에지나 FPSO는 해상 시운전을 거쳐 연내 에지나 해상 유전에 투입해 나이지리아 원유 생산량의 10% 수준인 하루 최대 20만 배럴의 원유를 생산할 예정이다.

삼성중공업은 로컬 콘텐츠(Local Contents, 현지 생산 규정)에 따라 나이지리아 라고스 지역에 생산법인(SHIN)을 설립했으며, 거제 조선소와 동일한 안전·품질 기준 하에 현지에서의 공사를 완료했다. 에지나 FPSO는 삼성중공업이 2013년 나이지리아에서 수주한 해양 프로젝트로, 나이지리아 연안에서 200Km 떨어진 에지나 해상 유전에 투입되는 이 FPSO는 길이 330m, 폭 61m, 높이 34m 크기로 저장용량이 230만 배럴에 상부플랜트(Topside) 중량만 60,000톤에 달하는 초대형 해양 설비이다. 삼성중공업이 설계와 구매, 제작, 운송, 시운전 등을 총괄하는 턴키 방식으로 수주한 이 프로젝트의 계약 금액은 약 34억 달러로 FPSO 사상 최대 수주 금액으로 기록된 바 있다.

삼성중공업은 로컬 콘텐츠에 대응하기 위해 현지업체와 합작으로 나이지리아 라고스(Lagos) 지역에 생산거점을 건설(2016년 10월 완공)하였음. 현지 생산거점은 면적 약 120,000㎡ 규모로 조립 공장과 도장 공장, 500m 길이의 안벽시설 등을 갖춰 아프리카 지역에서는 유일하게 200만 배럴급 대형 FPSO의 모듈 제작 및 탑재가 가능한 야드이다.

삼성중공업 관계자는 "로컬 콘텐츠 생산을 위해 철저히 준비한 결과 나이지리아 현지에서의 건조 작업을 성공적으로 완료했다"고 밝히고 "초대형 FPSO의 로컬 콘텐츠 수행 능력을 입증함으로써 향후 서아프리카 지역에서 발주 예정인 해양 프로젝트 수주에 유리한 위치를 선점했다"고 강조했다.

삼성重, 'ESD 패키지'로 친환경 고효율 선박 선도

올해 4월, 글로벌 컨테이너선사인 MSC는 2만 3,000TEU급 컨테이너선에 초대형 컨테이너선 최초로 공기윤활장치인 '세이버 에어(SAVER Air)'를 적용하기로 했다. 또한 지난 8월 16일 유럽선사인 Celsius Tankers가 발주한 LNG선 2척에도 세이버 에어를 장착하기로 하는 등 선주사들의 연료절감 기술에 대한 관심이 높아지고 있다.

삼성중공업은 세이버 핀(SAVER Fin), 러더 벌브(Rudder Bulb) 등 총 5종류의 에너지 절감장치(ESD, Energy Saving Device)들을 독자 기술로 개발해 실제 선박에 적용해 왔으며, 이어 최근에는 각각의 ESD를 선박 형태와 속도, 운항 지역의 파도 및 바람의 특성까지 고려해 연료 절감 효과를 극대화할 수 있도록 조합한 맞춤형 '삼성 ESD 패키지'를 실제 선박에 본격 적용해 선주사들의 호평을 받고 있다.

ESD 패키지는 설계 단계부터 에너지 절감장치들을 시뮬레이션해 최적화된 조합을 제공함으로써 최대 8%의 연료 절감 효과를 기대할 수 있다.

삼성중공업의 ESD는 바닷물과 공기의 흐름 제어를 통해 선박의 연료를 절감시켜 CO^2 배출량과 운항 비용을 줄여주는 친환경 고효율 기술로, 세계적으로 환경 규제가 강화되는 추세에 따라 CO^2 배출량과 운항 비용을 줄이기 위한 글로벌 선사들의 고민이 깊은 가운데 최근 삼성중공업의 독보적인 연료절감 기술이 크게 주목 받고 있다.

글로벌 컨테이너선사인 MSC의 수석감독관은 "삼성중공업의 독보적인 연료절감 기술

을 신뢰해 세이버 핀, 러더 벌브 뿐만 아니라 세계 최초로 세이버 에어와 사이드 갭 프로텍터(Side Gap Protector)까지 조합된 삼성 ESD 패키지를 새로 발주한 선박에 적용했다"며, "세계 최대 컨테이너선에 친환경 기술을 대거 적용해 연료절감을 통한 선박 운항 경쟁력 확보는 물론 CO2 배출 감소로 세계 해양 환경 보전에도 기여할 것으로 기대한다"라고 평가했다.

현재 삼성중공업은 대덕 연구단지내 선박해양연구센터에 길이 400m의 세계 최대 상업용 예인수조와 공동수조를 비롯한 각종 시험설비를 활용해 2000년대 이후 연료절감 기술 개발에 강점을 보이고 있다.

삼성중공업 이동연 선박해양연구센터장(상무)은 "삼성 ESD 패키지는 고객의 친환경 고효율이라는 니즈(Needs)를 만족시킬 수 있도록 개발한 삼성중공업만의 독보적인 기술"

이라고 강조했다.

현대重, 세계 최초 LNG선 완전재액화 실증 성공

현대중공업이 세계 최초로 LNG선에서 발생하는 증발가스를 완전재액화할 수 있는 기술을 실증하며, 발주 증가가 기대되는 LNG선 시장에서 한걸음 앞서나가게 됐다. 현대중공업은 최근 울산 본사의 LNG선 혼합냉매 완전재액화(SMR: Single Mixed Refrigerant) 시스템 실증설비에서 실시한 가스액화시험에서 증발가스를 100% 회수하는데 성공했다고 지난 8월 30일(목) 밝혔다.

혼합냉매 완전재액화 시스템은 현대중공업이 영국 가스처리엔지니어링 업체인 LGE(Liquid Gas Equipment)社와 공동 개발한 기술로, 현대중공업은 지난 2월 세계 최초로 이 시스템을 실증할 수 있는 설비를 구축한 바 있다.

이번 실증 시험은 증발가스가 액화되는 영하 163도(℃)로 설비 내부를 냉각시키는 등 실제 LNG선 운전상황을 그대로 구현한 환경에서 진행됐다. 현대중공업은 이번 실증 시험으로 세계 최고의 효율을 가진 혼합냉매 완전재액화 시스템의 성능을 입증했으며, 자체 개발한 고효율 연료공급시스템(Hi-GAS) 및 추진시스템, LNG 재기화시스템(Hi-ReGAS) 등과 함께 선주사에 최적화된 LNG선 통합 솔루션을 제공할 수 있게 됐다. 혼합냉매 완전재액화 시스템은 지난해 그리스 및 러시아 선사로부터 수주한 4척의 LNG운반선에 최초로 탑재됐으며, 올해 수주한 15척의 LNG운반선 가운데 11척에 적용할 예정이다. 이로써 현대중공업은 기존의 단일냉매 및 에너지절감 방식의 완전재액화 시스템을 비롯해 업계에서 가장 많은 종류의 완전재액화 기술 적용실적을 보유하게 됐다.

또, 지난 2013년부터 LNG선에 완전재액화 시스템을 성공적으로 적용함으로써 친환경 LNG선 분야 독보적인 기술력을 자랑하고 있다.

현대중공업 관계자는 "부분재액화보다 한 단계 진보한 완전재액화 기술을 성공적으로 실증함으로써 점차 수요가 증가하고 있는 LNG선 시장에서 기술 경쟁력을 높일 수 있게 됐다"며, "대형 LNG 선박뿐 아니라 LNG 벙커링선과 소형 LNG선에도 확대 적용해 미래 LNG선 시장을 주도해나갈 것"이라고 말했다.

한편, 현대중공업그룹은 올해 발주된 34척의 LNG운반선 가운데 15척을 수주하며, 전 세계 대형 LNG선 시장에서 40% 이상의 수주점유율을 기록하고 있다.

HHI made a foray into foreign market for passenger ship propulsion engines

Hyundai Heavy Industries(HHI) became the first domestic company that successfully entered the passenger ship engine market.

HHI announced on September 6(Wednesday) that it recently supplied 2 units of HiMSEN Engines(model name: H46/60V) producing 16,000-horsepower for ship propulsion on board 33,000-ton(GT) RO-PAX ferry(designed to carry both passengers and freight) built by Hyundai Mipo Dockyard(HMD).

The engines supplied recently can produce the highest output among the 4-stroke medium-sized HiMSEN Engines developed independently by HHI, which reduced nitrogen oxide(NOx) emissions drastically based on optimal fuel injection and incorporated various eco-friendly technologies such as low vibration and low noise systems. These engines passed a series of tests, including the fatigue test and low-load test, etc., even in a rough sea environment with high waves during the 5-day sea trials last July, proving excellent and stable performance.

HiMSEN Engine, developed in August 2000, has been continuously diversified into various models since then and has found wide-raging applications such as ship propulsion, power generation for onshore power plants, and offshore facilities. About 500 units of HiMSEN Engines have been supplied for propulsion of small and medium-sized ships. This marks the first time that HiMSEN Engine was ever mounted on a passenger ship. As many as about 11,300 HiMSEN Engines have been exported to 50 countries around the globe until last August, capturing the highest share of about 20% in global medium-sized engine market.

Using the latest installation of HiMSEN Engines on the RO-PAX ferry as springboard, HHI is moving to target the market for passenger ship propulsion engines in full scale. For that, HHI is currently developing a new dual fuel engine model that provides greater output than existing models and aims to complete the development by December this year.

An official from HIHI said, “Previously, the barrier to entry to the market for passenger ship propulsion engines remained high to an extent that only three companies could produce them. Having successfully made entry into the market, HHI will add fresh momentum to its order-taking activities.”

현대重, 여객선 엔진 수출길 열었다!

현대중공업이 국내 업계 최초로 여객선 엔진시장에 성공적으로 진입했다.

현대중공업은 최근 현대미포조선이 건조한 3만300톤(GT)급 로팩스선(RO-PAX, 여객·화물겸용선)에 1만6천마력급 선박추진용 힘센엔진(모델명: H46/60V) 2기를 공급했다고 지난 9월 6일(목) 밝혔다. 이번에 공급한 엔진은 현대중공업이 독자 개발한 4행정(4-Stroke) 중형 디젤엔진인 '힘센엔진' 가운데 최대 출력을 내는 제품으로 최적의 연료분사로 질소산화물(NOx) 배출량을 크게 줄였고, 저진동(低振動), 저소음(低騷音) 등 각종 친환경 기술이 적용됐다. 이 엔진은 지난 7월 5일간의 해상 시운전 동안 파고(波高)가 높은 거친 해상환경에서도 피로시험(Fatigue Test), 저부하(低負荷) 시험 등을 차례로 통과하며, 우수하고 안정적인 성능을 입증했다.

지난 2000년 8월 개발된 힘센엔진은 이후 지속적으로 모델을 다양화하여, 선박의 추진 및 발전용, 육상발전용, 해상설비용 등으로 시장을 넓혀왔다. 특히, 그간 500여대가 중소형 선박의 추진용으로 공급됐으나, 여객선에 탑재된 것은 이번이 처음이다. 힘센엔진은 지난 8월까지 전 세계 50개국에 1만1천300여대를 수출, 중형엔진 분야에서 약 20%의 세계 시장점유율로 1위를 차지하고 있다.

현대중공업은 이번 로팩스선 공급을 시작으로 여객선 추진엔진 시장 공략에 본격적으로 나설 계획이다. 이를 위해 오는 12월 완료를 목표로 기존 모델보다 출력을 개선한 이중연료엔진 신모델을 개발하고 있다. 현대중공업 관계자는 "여객선 추진엔진은 그동안 전 세계에서 단 3개 업체만 생산할 정도로 진입 장벽이 높은 시장이지만, 이번에 시장 진입에 성공한 만큼 수주 활동에 더욱 박차를 가할 예정"이라고 말했다.

LNG 연료추진선' 100척 건조로 조선업 활력

산업통상자원부가 2025년까지 국내 조선소에서 100척의 액화천연가스(LNG) 연료추진선박을 건조하고, LNG 연료주입(벙커링) 시설을 갖춘 항만 5곳을 조성하겠다고 밝혔다.

강감찬 산업부 조선해양플랜트과장은 지난 9월 17일 '2018 국제조선해양산업전' 주요 행사인 '국제 LNG 콘퍼런스' 기조 연설자로 나서 LNG 이슈가 조선·해운업과 어떤 연관이 있는지 설명하고, 정부 정책을 소개했다.

강 과장은 "국제해사기구(IMO)의 해상환경규제 강화가 조선·해운 분야에서 신성장 동력이 될 것이다. 그게 바로 LNG를 연료로 한 선박과 LNG 연료 주입에 필요한 시설·선박·기자재 등이다"며 "올해 4월 국제해사기구가 이산화탄소(CO2) 배출 기준을 2050년에는 2008년의 절반 이하로 줄이겠다고 한 것에 주목해야 한다"고 강조했다.

이어 그는 "연안과 유럽 내 항해를 중심으로 LNG연료추진선과 벙커링이 발달한 유럽 이외에도 항만과 해운, 조선산업에서 경쟁관계인 싱가포르와 일본, 중국 등 아시아 나라들도 LNG 벙커링에 대비하고 있다"며 "우리도 도시가스사업법과 항만·해운 관련 법률 정비를 올해 안까지 마무리해 LNG 벙커링 사업이 가능하도록 할 계획이다. 또한, 기업 투자 위험을 최소화하고자 벙커링용 LNG는 국내 LNG 시장과 분리해 운영할 계획이다. 2025년까지 국내에서 약 100척의 LNG 연료추진선 건조를 목표로 삼았고, LNG 벙커링을 할 수 있는 항만도 부산항 등 5곳에 조성할 계획"이라며 구체적인 목표를 밝혔다.

온도/ 습도/ 이슬 · 노점
기체속도/ 가스/ 압력/ 신호 전송기

온도/ 습도 신호 전송기

THM80X
합금외함 고정밀형
온습도전송기

THS80X
정밀형 온습도
신호전송기

THS30X
경제형 온습도
신호전송기

THS307
옥외 겸용
온습도 전송기

THR13/THR03
온습도 표시
신호전송기

THS13/14
선형 신호전송기

온도/ 습도/ 노점. 이슬점 측정기

THS88
노점 전송기

THS07
탐촉자형
온습도 전송기

THS86/87
삽입형
노점표시 전송기

SD05
복합형 신호 표시기

TP01
2선식 머리부착형
RTD 온도 신호전송기

TP02
레일부착 (궤조)형
온도신호 전송기

기체/ 가스 측정기

FTM84/85
고정밀 열선풍속전송기
(합금외함, 고속용)

FTS34/35
중속 유속
신호전송기

FTS14
열선풍속
전송기(저속)

FTS07
열선 풍속 전송기
(탐촉자형, 경제형)

AFMT+PMD33
평균 흐름률 측정관/
차압전송기

THG03
실내용 CO2 온습도
표시 전송기

가스/ 압력/ 신호 측정기

GTH53
복합가스 신호전송기

GS33/34
CO2 신호전송기

GM33/34
CO 신호전송기

L051/52
수위감지
신호전송기

THM80X
다기능 디지털
신호 표시 감시기

DPT02
레일부착 궤조형
신호변환기

길우트레이딩 1984

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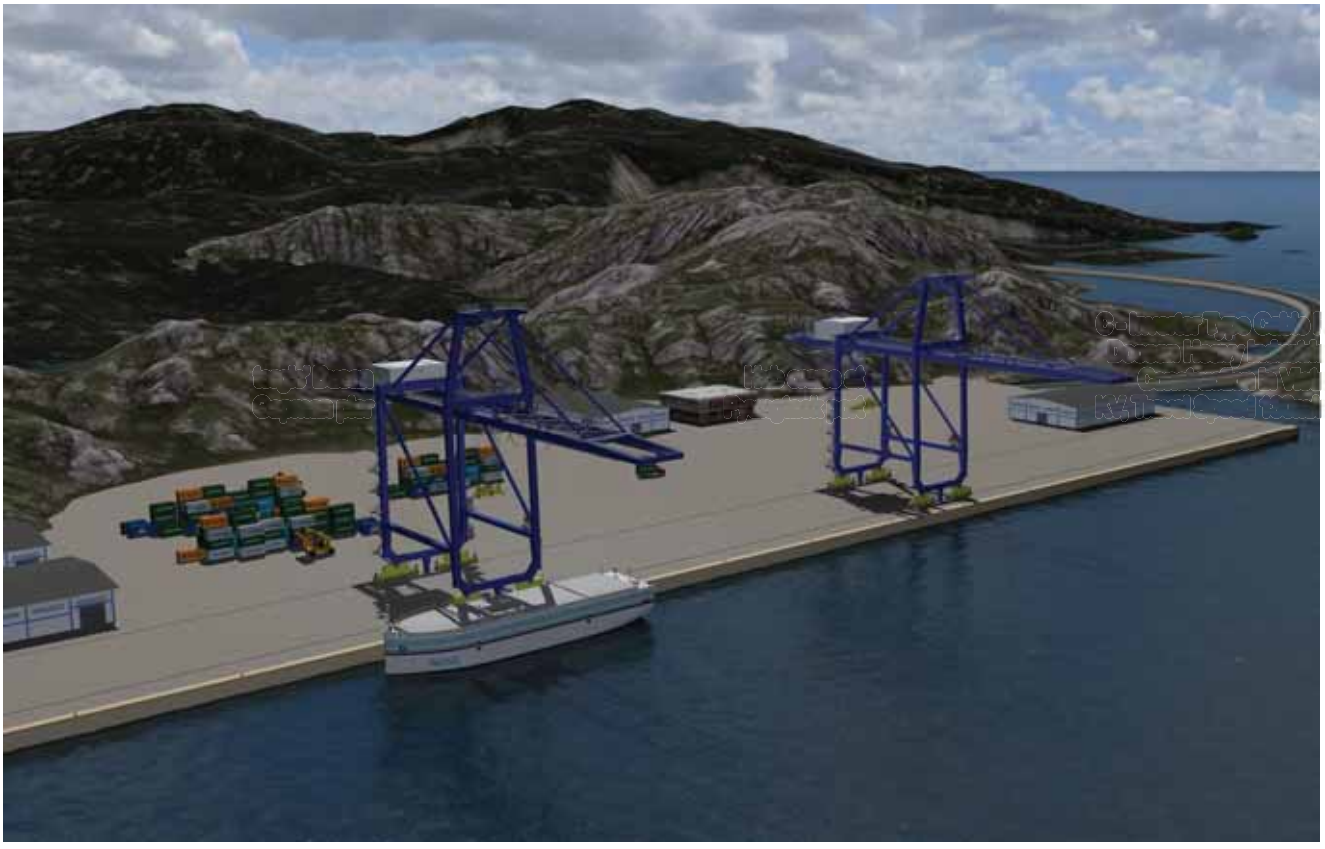


DNV GL releases autonomous and remotely operated ship guideline

This project demonstrates how greater connectivity in the maritime ecosystem allows us to resolve the big issues that impact the whole industry, such as higher safety standards and lower shipping emissions.

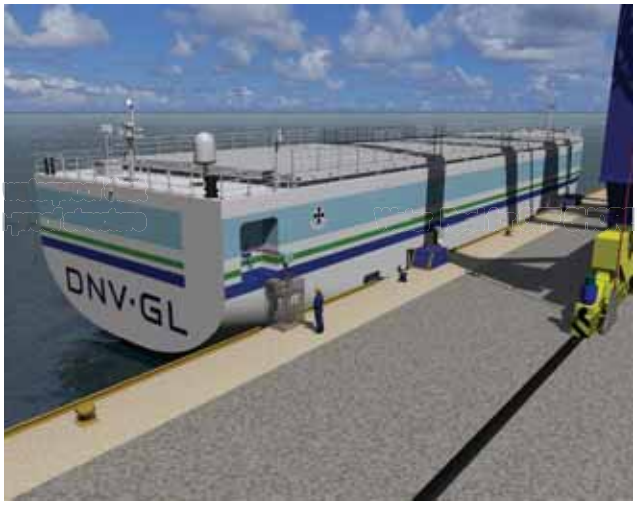
As digitalization continues to reshape the maritime industry, the first commercial autonomous vessels are due to launch in the next several years. To help build a safety culture around these new technologies, DNV GL has released a new class guideline covering autonomous and remotely operated ships.

"A new set of sensor, connectivity, analysis, and control functions in maritime technologies is laying the foundation for remote and autonomous operations in shipping," says Knut Ørbeck-Nilssen, CEO of DNV GL - Maritime. "Increased automation, whether in the form of decision support, remote operation, or autonomy, has the potential to improve the safety, efficiency and environmental performance of shipping. To reach this potential, the industry needs a robust set of standards that enables new systems to reach the market and ensure that these technologies are safely implemented."

The guideline covers new operational concepts that do not fit within existing regulations, and technologies that control functions that would normally be performed by humans. In terms of new operational concepts, the guideline helps those who would like to implement new concepts with a process towards obtaining approval under the alternative design requirements by the flag state. For novel technologies, suppliers can use the guideline to obtain an approval in principle.

The guideline covers navigation, vessel engineering, remote control centres, and communications. Particular emphasis is given in two key areas that emerge from the reliance of autonomous and remote concepts on software and communications systems: cyber-security and software testing. Both the concept qualification process and the technology qualification process include cyber security aspects in the risk analysis. Not only the systems themselves, but the associated infrastructure and network components, servers, operator stations, and other endpoints should all take cyber security into account, incorporating multiple layers of defence where possible. In terms of software, quality assurance of software-based systems is essential, and well established development processes and a multifaceted end-product testing strategy should be used to ensure safe operation.

"This is a first step in the process to fully realise these technologies," says Knut Ørbeck-Nilssen. "But we continue to develop experience from several projects currently underway. In some areas, such as navigation systems and engineering functions we can already offer technical guidance based on our current class rules and as we progress new guides and rules will follow."



2018 MARINE TECH, a unique window into future global shipbuilding & offshore industry, opened with great fanfare!

MARINE TECH 2018 was held with great éclat in Changwon Exhibition Convention Center (CECO), Gyeongsangnam-do, the hub of shipbuilding and offshore industry, for 3 days from September 17 to September19.

This event provided unique platform to keep fingers on the pulse of the latest trends of global market and offered integrated solutions, including the solution to tap into new markets and industry development policies of Gyeongsangnam-do.

Rekindling the hope of another giant leap forward in Korea's shipbuilding and offshore industry, MARINE TECH 2018 was held in Gyeongsangnam-do, home to world's leading shipyards and about 1,060 marine equipment manufacturers. MARINE TECH 2018, a biennial event launched in 2006, is organized by Gyungnam Techno-Park, Plan D co., Ltd, IM EXHIBITION CULTURE Co.,Ltd, Gyeongnam Marine Equipment Association(GMEA) and supervised by Gyeongsangnam-do, Changwon-si, Tongyeong-si, Gimhae-si, Goseong-gun, and Hadong-gun.

MARINE TECH 2018, which drew roughly 30,000 visitors from about 40 countries, has evolved in to a leading exhibition in global shipbuilding and offshore industry with a focus on high value-added equipments, including LNG carriers and offshore plants, and was held in parallel with an event revolving around the theme of LNG to better cope with environmental regulations and environmental changes.

Particularly, MARINE TECH 2018 featured exhibition halls dedicated to specific sectors, such as LNG Hall, Shipyard Hall, Marine Equipment Hall, and Offshore Plant Halls, which showcased the latest products and technologies, and attracted large number of exhibitors, including the leading shipyards and marine equipment makers in Gyeongsangnam-do.

글로벌 조선해양산업의 미래를 보다, '2018 국제조선해양산업전' 개최!

조선해양산업의 메카 경상남도에서 펼쳐진 2018 국제조선해양산업전이 지난 9월 17일부터 19일까지 창원컨벤션센터에서 그 화려한 막을 올렸다.

글로벌 시장동향, 신시장 개척, 정부 및 경상남도의 산업 육성정책 등 통합적 솔루션을 제공하며, 대한민국 조선해양산업의 재도약의 희망을 제시한 이번 전시회는 세계 조선해양산업을 선도하는 조선소와 1,060여 개 조선해양산업체가 입지한 경상남도에서 개최되었다. 지난 2006년부터 격년제로 개최한 2018 국제조선해양산업전은 경남도와 창원시, 통영시, 김해시, 고성군, 하동군이 주최하고, (재)

경남테크노파크, (주)플랜디, (주)아이엠전시문화, 경남조선해양기자재협동조합이 주관한다.

전 세계 40여 개국 30,000여 명이 관람하는 수준 높은 조선해양산업 전시회로 꼽히는 2018 국제조선해양산업전은 환경규제, 환경변화에 대비하는 LNG 특화비즈니스 행사를 개최했으며, LNG선, 해양플랜트 등 고부가가치 기자재를 중심에 특화된 전시회로 도약했다. 특히 올해 전시회는 LNG관, 조선소관, 조선해양기자재관, 해양플랜트관 등으로 구분해 운영했으며, 대우조선해양, 삼성중공업, STX조선해양 등 도내 대표조선소 및 기자재 업체가 대거 참여했다.

대한민국 에너지 효율 산업의 미래… 댄포스 '에너지 효율 서밋 2018' 성황리에 개최

덴마크의 글로벌 에너지 효율 솔루션 기업 댄포스(Danfoss)가 '댄포스 에너지 효율 서밋 2018(Danfoss Energy Efficiency Summit 2018)'을 성황리 개최했다. 지난 9월 6일 서울 드래곤시티 호텔 백두홀에서 개최된 댄포스 에너지 효율 서밋은 '4차 산업혁명과 에너지 효율'을 주제로 댄포스가 주관하고 주한 덴마크 대사관, 한국식품콜드체인협회, (사)IBS Korea, (사)한국푸드테크협회가 파트너로 함께했다.

댄포스 주요 임직원을 비롯 냉동공조(Cold Chain) 및 상업용 빌딩(Commercial Building) 전문가 200여 명이 함께한 '댄포스 에너지 효율 서밋 2018'에서는 4차 산업혁명 시대를 맞이하는 각 업계의 주요 미션과 이에 대한 댄포스의 혁신적인 솔루션이 소개됐다.

댄포스 코리아 김성엽 대표이사의 환영사와 주한 덴마크 대사 토마스 레만(Thomas Lehmann)의 축사로 막을 연 '댄포스 에너지 효율 서밋 2018'에는 댄포스 아시아태평양 지역 소렌 크오닝(Soren Kvorning) 대표를 포함한 15명의 각 산업분야 오피니언 리더가 참석해 다가오는 4차 산업혁명 시대에 효과적으로 대응할 수 있는 최신 산업 메가트렌드와 신기술을 소개하고 새롭게 발생하는 가치와 기회를 공유했다.

이날 행사를 개최한 김성엽 대표이사는 환영사를 통해 "지난 4월 제정, 공포 된 기계설비법에서 4차 산업 혁명을 바라 볼 때, 핵심은 주요 설비 제품간의 초연결성, 상호 융합 그리고 데이타의 효율적인 지능화를 이루어 내는 것이다. 이는 냉난방공조를 포함한 기계설비가 건설산업과 에너지 산업을 이루는 주요 자원으로써, IoT 기술 기반으로 센서를 통하여 생성되어 데이타를 기반으로 설계, 기자재, 시공, 시운전, 유지, 보수 등 전 가치 사슬에서 적극적인 역할을 하

여, 에너지 사용량을 줄임으로써 정부 및 글로벌 탈탄소화 정책에 이바지 할 수 있다고 본다" 며 "이번 행사를 통해 댄포스가 제공하고 있는 종합 친환경 솔루션을 산업에 제시하고 나아가 업계 관계자 분들과 함께 대한민국 에너지 효율 산업을 위한 발전적인 토론을 이어 나갈 수 있기를 바란다"고 전했다.

슈나이더 일렉트릭, '2018 이노베이션 서밋 싱가포르' 개최

에너지 관리 및 자동화 분야의 디지털 혁신을 선도하는 글로벌 기업 슈나이더 일렉트릭(www.schneider-eletric.co.kr, 한국지사 대표 김경록)이 9월 20일부터 21일까지 싱가포르 마리나 베이 샌즈 호텔에서 '2018 이노베이션 서밋 싱가포르(2018 Innovation Summit Singapore)'를 개최했다.

슈나이더 일렉트릭의 이노베이션 서밋은 세계적 전문가와 업계 종사자가 모여 디지털 트랜스포메이션 시대에 대담한 아이디어를 공유하기 위해 마련됐다. 전세계 약 20여개의 행사가 개최됐으며, 이번 '이노베이션 서밋 싱가포르'는 동아시아 최대 규모로써 전문가 약 1,500여명이 참석했다. 특히 IoT를 지원하는 개방형 플러그 앤 플레이 상호운용 아키텍처이자 플랫폼인 '에코스트럭처(EcoStruxure™)'의 최신 버전을 공개했다.

이번 서밋은 'Powering and Digitizing the Economy'를 주제로 진행되었다. 총 6개의 전략 세션과 15개 이상의 전문가 세션이 준비된다. 따라서 슈나이더 일렉트릭은 디지털 경제 시대에서 산업의 방향성과 전략을 논의할 수 있는 장을 만들었다는 평이다.

행사의 포문은 슈나이더 일렉트릭 장-파스칼 트리쿠아(Jean-Pascal Tricoire) 회장 겸 CEO의 기조연설로 시작됐다. 이와 함께 한국 시장내의 주요 고객 사례도 소개했고, 21일 오전에는 싱가포르 통상산업부 친춘싱(Chan Chun Sing) 장관도 기조 연설에 나섰다.

특히, 3,700㎡의 공간에 마련된 '이노베이션 허브(Innovation Hub)'에서는 다양한 슈나이더 일렉트릭의 소프트웨어, 솔루션 및 서비스를 선보였다. 이 밖에도 마이크로소프트, 엑센츄어, 시스코, 댄포스, 솜피, 아비바 등 기술 및 채널 파트너뿐만 아니라 주요 스타트업 기업과 슈나이더 일렉트릭의

네트워크에 대해서 다뤘다.
부대행사로 전력 및 에너지 부문 스타트업 기업이 참가하는 'APAC 대담한 아이디어 스타트업 챌린지(APAC Bold Idea Startup Challenge)'도 개최된다. 유망 기업이 경연을 펼치며 혁신적 아이디어를 발굴·지원할 목적으로 운영됐다.
슈나이더 일렉트릭의 장-파스칼 트리쿠아(Jean-Pascal Tricoire) 회장은 "디지털 경제 활성화로 인해 전 세계는 전례 없는 속도로 변화하고 있다. 사물인터넷, 인공지능, 빅데이터 분석 등 기술을 통해 기업들은 효율성과 혁신성을 향상시켜 경쟁 우위를 차지하기 위해 박차를 가하고 있다."고 말하며 "책임감 있는 업계의 리더로서 우리는 고객과 파트너가 에너지 관리 및 자동화 분야에서 성공적인 디지털 혁신을 이루는 데 슈나이더의 혁신이 어떤 도움이 될 수 있는지 증명해야 한다. 에코스트럭처에 구축된 우리의 기술은 디지털화를 기반으로 고객들이 효율성, 안전성, 안정성, 연결성, 지속가능성을 향상시켜 새로운 디지털 경제의 리더가 되도록 돕는다."고 전했다.

ShipTek Hong Kong Summit 2018 - Ship Owning & Ship Management Conference & Awards concluded successfully

Ship Owning & Ship Management Conference & Awards, concluded successfully at Renaissance Harbour View Hotel, Wanchai, Hong Kong on 30th August 2018. Launched in the year 2008, ShipTek has continued to mark its legacy as a benchmark event in the maritime industry.
A perfect amalgamation of innovative ideas and infotainment, the Hong Kong edition of this event presented a much bigger experience laced with insightful discussions and leader foresights than its predecessors. Offering a right platform to network, strike deals and take business to next level, the event created revolution in the city of Hong Kong Besides the much-appreciated conference, the event also witnessed a dazzling award ceremony where industry veterans who have been instrumental in proposing creative solutions were honored for their accomplishments.
The prestigious ShipTek Maritime Awards for creative contributions of outstanding significance to the maritime industry in the field of maritime Services were bestowed among various organizations and individual.

SHI secured an order from AET for a shuttle tanker

Samsung Heavy Industries(SHI) announced on September 3 that it won an order from Singapore-based AET Tankers for a Suezmax-class shuttle tanker with a capacity of 152,700 DWT. This order came after SHD clinched an order from same ship owner for 4 shuttle tankers last May. The unit price of this Suezmax-class shuttle tanker, ordered recently to SHI, remains undisclosed, but is considered to have risen slightly.

SHI, which became the first domestic shipyard to build a shuttle tanker in 1995, has received orders for 37 shuttle tankers, including the latest order, out of 54 units ordered worldwide since 2010. So, SHI garnered 69% share of global market, demonstrating its unrivalled competitiveness in quality.

An official from SHI said, "The latest additional order attests to the solid trust of customers towards the SHI for its leading technology and unmatched shipbuilding experience in the shuttle tanker market". He stressed, "We will continue to maintain our leadership status in the shuttle tanker market."

The latest contract brings total number of vessels ordered to SHI to 34 units worth USD 3.7 billion so far this year, out of which approximately USD 800 million worth of orders have been placed with SHII since August.

삼성重, AET社 셔틀탱커 1척 수주

삼성중공업은 싱가포르 AET社로부터 15만 2,700DWT 수에즈막스급 셔틀탱커 1척을 수주했다고 지난 9월 3일 밝혔다. 지난 5월 동일 선사로부터 셔틀탱커 4척을 수주한데 이은 추가 수주로 선가는 구체적으로 밝히지 않았으나 소폭 상승한 것으로 파악된다.

삼성중공업은 1995년 국내 조선업계 최초로 셔틀탱커를 건조하며 시장을 선도, 이번 수주를 포함해 2010년 이후 전세계에서 발주된 셔틀탱커 54척 가운데 37척을 수주해 시장 점유율 69%를 장악하며 압도적인 품질 경쟁력을 입증하고 있다.

삼성중공업 관계자는 "이번 추가 수주는 셔틀탱커 시장에서 삼성중공업의 앞선 기술력과 독보적인 건조 경험이 고객들로부터 꾸준히 신뢰 받고 있다는 증거"라며 "셔틀탱커 시장을 계속 선도해 나갈 것"이라고 강조했다. 삼성중공업은 이번 계약을 포함해 8월이후 약 8억 달러를 수주하는 등 올해 총 34척, 37억 달러의 수주 실적을 기록 중이다.

LS Cable & System to become the first domestic company to supply submarine cables to Malaysia

LS Cable & System will export submarine cables to Malaysia for the first time among domestic companies.

LS Cable & System(President: Myeong Ro-Hyeon) announced on September 04 that it signed a contract worth USD 40 billion with TNBR QATS to supply ultra-high voltage submarine cables. Under this contract, LS Cable & System lay the power cables with a total length of 28km in water depths of up to 20m between northwestern Perlis State and Langkawi Islands,

Malaysia. This project, scheduled for completion in September next year, is expected to more than double the power supply to Langkawi Islands. This project aims to create a tourisms hub, led by the government of Malaysia, and is required to meet rigorous standards in terms of technology, production, project implementation as specified in the bid process.

New power grids have been built vigorously in the South East Asian countries to accommodate rapid economic growth, urbanization, tourist site formation, etc. In particular, the demand for submarine cables is steadily growing due to the island's archipelagic characteristics. However, most submarine cables are the medium voltage(MV) cables used to connect small islands. As a result, Japanese companies have dominated this segment.

After the announcement of the bid for ultra-high voltage submarine cables in September last year, global cable makers from Europe, etc., have entered this market and competed fiercely. LS Cable & System indicated that its experience with successful completion of large-scale underwater power grid projects in North America, Europe, and the Middle East placed it in a better position to win the latest order.

LS Cable & System President Myeong Ro-Hyeon said, "Our success in winning this order is the result of our effort to strengthen the marketing campaign and better cope with the rising demand for ultra-high voltage products in the South East Asian regions. Particularly, it is meaningful very much that LS Cable & System expanded its reach even into Malaysia, winning a series of large-scale projects including the project awarded to it in Singapore last year."

LS Cable & System became the first domestic company that signed a contract(worth about KRW 62 billion) with TNBR QATS for supply of submarine cables in July last year.

LS전선, 말레이에 국내 첫 해저케이블 공급

LS전선이 국내 최초로 말레이시아에 해저 케이블을 수출한다.

LS전선(대표 명노현)은 말레이시아 전력청과 400억 원 규모의 초고압 해저 케이블 공급 계약을 체결했다고 9월 4일 밝혔다. LS전선은 말레이시아 북서부의 페를리스주와 랑카위 섬 사이 해저 28km, 최대 수심 20m 구간을 전력 케이블로 연결한다. 내년 9월 공사가 완료되면 랑카위 섬의 전력 공급을 2배 이상 늘릴 수 있다. 이번 사업은 말레이시아 정부가 자국의 관광 허브를 조성하기 위한 것인 만큼 입찰 과정에서 기술과 생산, 프로젝트 수행 등에 엄격한 기준이 제시되었던 것으로 알려졌다.

동남아는 경제 발전과 도시화, 관광지 조성 등으로 인해 신규 전력망의 구축이 활발하다. 특히 섬이 많은 특성상 해저 케이블 수요가 꾸준히 있으나, 대부분은 작은 섬들을 연결하는 중전압(MV) 케이블로 일본 업체들이 과점해 왔다. 작년 9월, 고부가가치인 초고압 해저 케이블에 대한 이번 입찰이 공고된 후 유럽 등 글로벌 전선업체들까지 가세, 수주 경쟁이 치열하게 진행됐다. LS전선측은 북미와 유럽, 중동 등에서 대규모 해저 전력망 사업을 성공적으로 완수한 경험이 수주에 큰 영향을 끼쳤다고 밝혔다.

명노현 LS전선 대표는 "동남아 지역에 초고압 제품의 수요도 증가할 것으로 보고 마케팅을 강화한 것이 주효했다"며, "특히 일본이 과점하던 동남아에서 작년 싱가포르 프로젝트에 이어 이번 말레이까지 대형 사업을 연속 수주했다는 점에서 의미가 크다"고 말했다. LS전선은 작년 7월 싱가포르 전력청과 국내 최초의 해저 케이블 공급 계약(약 620억 원)을 체결했다.

Korea Shipbuiling Orders awarded to domestic shipyards in 2015~2018

Data		Type	Number of vessel	Amount	Ship owner	Delivery	Shipyard
2015	Jan	174,000m³ LNG carriers	2 vessels	USD 400 million	Korea Line Corporation, Korea	The end of 2017	Daewoo Shipbuilding & Marine Engineering
		174,000m³ LNG carriers	2 vessels	USD 400 million	Hyundai LNG Shipping, Korea	The end of 2017	Daewoo Shipbuilding & Marine Engineering
		19,200 TEU container ships	3 vessels	USD 450 million	Scorpio Group, Monaco	-	Samsung Heavy Industries
		LNG carriers	2 vessels	USD 416 million	SK shipping, Korea	The end of 2017	Samsung Heavy Industries
		319,000 DWT VLCCs	2 vessels	USD 198 million	Maran Tankers Management, Greece	-	Daewoo Shipbuilding & Marine Engineering
	Feb	158,000 tons oil tankers	5 units (2 optional vessels)	USD 330 million	-	2017s	Sungdong Shipbuilding & Marine Engineering
		174,000m³ LNG carriers	1 vessel	USD 200 million	-	-	Daewoo Shipbuilding & Marine Engineering
		74,000 DWT oil products carriers	2 units (1 optional vessels)	USD 46 million	Valles Steamship, Hong Kong	-	STX Offshore & Shipbuilding
		300,000 DWT VLCCs	2 vessels	USD 192 million	Metrostar Management, Greece	The end of 2016	Hyundai Heavy Industries
		1,800 TEU container ships	4 units (2 optional vessels)	-	Cosmoship Management S.A, Greece	-	Dae Sun Shipbuilding & Engineering
		180,000m³ LNG carriers	1 vessel	-	Mitsui O.S.K Lines, Japan	2018s	Daewoo Shipbuilding & Marine Engineering
	Mar	38,000m³ liquefied petroleum gas and ammonia carriers	2 vessels	-	Asian ship owner	-	Hanjin Heavy Industries & Construction
		20,100TEU container ships	4 vessels	USD 619.57 million	Mitsui O.S.K Lines, Japan	2017. August	Samsung Heavy Industries
		LR1 tankers	2 vessels	KRW 320 billion	BW, Singapore	2016 ~ 2017	STX Offshore & Shipbuilding
	Apr	319,000 DWT VLCCs	2 vessels	USD 198 million	Maran Tankers Management, Greece	The end of 2016	Daewoo Shipbuilding & Marine Engineering
		20,600 TEU container ships	3 vessels	-	CMA CGM, France	The end of 2017	Hanjin Heavy Industries & Construction (HHIC)-Phil's Subic Shipyard
		21,100 TEU container ships	6 vessels	USD 950 million	OOCL, Hong Kong	The end of 2017	Samsung Heavy Industries
		10,500 TEU container ships	5 vessels	-	Hapag-Lloyd, Germany	-	Hyundai Samho Heavy Industries
		Pure Car/Truck Carriers	2 vessels	USD 130 million	Norwegian Car Carriers, Norway	The end of 2016	Hyundai Samho Heavy Industries
		11,000 TEU container ships	6 vessels	-	Asian and European ship owners	2016 ~ 2017	HHIC-Phil's Subic Shipyard
	May	156,000 tons oil tankers	2 vessels	-	Maran Tankers Management, Greece	-	Daewoo Shipbuilding & Marine Engineering
		5,200 ton training vessel	1 vessel	-	-	-	Hanjin Heavy Industries & Construction
		74,000 tons LR1 tankers	8 units (4 optional vessels)	USD 375 million	Marshall Islands-based ship owners	The end of 2016	STX Offshore & Shipbuilding
	Jun	300,000 DWT VLCCs	10 units (5 optional vessels)	USD 1 billion	The National Shipping Company of Saudi Arabia	2017s	Hyundai Samho Heavy Industries
		19,630 TEU container ships	11 vessels	USD 1.1 billion	Maersk Line A/S, Denmark	2018s	Daewoo Shipbuilding & Marine Engineering
		Tankers	2 vessels	-	Arcadia Shipmanagement, Greece	-	Hyundai Heavy Industries
		300,000 DWT VLCCs	6 units (4 optional vessels)	USD 540 million	John Fredriksen	-	STX Offshore & Shipbuilding
		174,000 CBM LNG carriers	3 units (1 optional vessels)	-	Teekay LNG Partners, Canada	First quarter of 2019	Hyundai Samho Heavy Industries
		155,000 DWT tankers	3 vessels	USD 330 million	-	2018. February	Samsung Heavy Industries
		84,000m³ VLGCs	4 vessels	USD 320 million	China Peace, China	-	Daewoo Shipbuilding & Marine Engineering
	Jul	173,400m³ LNG Carriers	1 vessel	USD 195 million	Chandris, Greece	The end of 2018	Daewoo Shipbuilding & Marine Engineering
		14,000 TEU container ships	9 vessels	USD 1.1 billion	Maersk Line A/S, Denmark	2017	Hyundai Heavy Industries
	Aug	Product Carriers	4 vessels	USD 144 million	Scorpio Tankers, U.S.A	The first of 2017	Hyundai Mipo Dockyard
	Sep	84,000m³ LPG Carriers	2 vessels	-	Asia ship owner	2017s	Daewoo Shipbuilding & Marine Engineering
		74,000 tons LR1 tankers	4 units (2 optional vessels)	-	Greece ship owner	The second half of 2017	STX Offshore & Shipbuilding
	Oct	173,400m³ LNG Carriers	2 vessels	USD 400 million	BW Group, Singapore	The first half of 2019	Daewoo Shipbuilding & Marine Engineering
		84,000m³ LPG carriers	2 vessels	-	Asia ship owner	2017s	Daewoo Shipbuilding & Marine Engineering
	Nov	319,000 tons VLCCs	2 vessels	-	Maran Tankers Management, Greece	2017s	Daewoo Shipbuilding & Marine Engineering
	Dec	114,000 tons products carriers	2 vessels	-	Sea Tankers Group	2017. September	Daehan Shipbuilding
2016	Feb	158,000 DWT oil products carriers	2 vessels	-	Ditas Shipping, Turkey	2018s	Hyundai Heavy Industries
	May	40,000 DWT products carriers	2 vessels	-	Greece ship owner	-	Hyundai Mipo Dockyard
		159,000 DWT oil tankers	2 vessels	-	AMPTC, Kuwait	2018s	Hyundai Heavy Industries
	Jun	75,000 tons product carriers	4 vessels	USD 170 million	Tsakos, Greece	The first of 2018	Sungdong Shipbuilding & Marine Engineering
		180,000m³ LNG carriers	2 vessels	USD 400 million	SK E&S, Korea	The first of 2019	Hyundai Heavy Industries
		50,000 tons bulk carrier	1 vessels	-	Ilshin Marine Transport, Korea	The end of 2017	Hyundai Mipo Dockyard
	Jul	31,000 tons Car ferry	1 vessels	-	Weidong Ferry	The end of 2018	Hyundai Mipo Dockyard
	Sep	180,000m³ LNG carriers	2 vessels	USD 367 million	Europe ship owner	-	Samsung Heavy Industries
	Oct	2,800 ton convoy	1 vessel	USD 297 million	Korean Navy	The end of 2020	Daewoo Shipbuilding & Marine Engineering
		2,600 ton frigates	2 vessels	USD 324 million	Department of National Defense, Philippines	2020s	Hyundai Heavy Industries
		Patrol killer medium	3 vessels	USD 173 million	Korean DAPA	2019s	Hanjin Heavy Industries & Construction
		157,000 DWT oil tankers	2 vessels	USD 220 million	Viken, Norway	-	Samsung Heavy Industries
		113,000 DWT oil tankers	2 vessels				

	Oct	157,000 DWT oil tankers	3 vessels	USD 170 million	Nordic American Tankers Limited, Norway	-	Samsung Heavy Industries
	Dec	14,500 TEU container ships	4 vessels	USD 700 million	IRISL, Iran	2th quarter 2018	Hyundai Heavy Industries
		49,000 tons products carriers	6 vessels				Hyundai Mipo Dockyard
		LNG Bunkering Vessel	1 vessel	-	Bernhard Schulte, Germany	The end of 2018	Hyundai Mipo Dockyard
2017	Jan	114,000 tons product carriers	2 vessels	-	SFL, France	3th quarter of 2019	Daehan Shipbuilding
		50,000 tons oil tankers	1 vessel	-	Fukujin Kisen, Japan	-	Hyundai Mipo Dockyard
	Feb	RO-RO Ship	2 vessels	USD 117.8 million	CLdN, Luxembourg	The first of 2017	Hyundai Mipo Dockyard
		50,000 DWT product carriers	1 vessel	-	Greece ship owner	-	Hyundai Mipo Dockyard
		300,000 DWT VLCCs	2 vessels	-	Enesel, Greece	The end of 2018	Hyundai Heavy Industries
	Mar	173,400m³ LNG carriers	2 vessels	-	Europe ship owner	The end of 2019	Daewoo Shipbuilding & Marine Engineering
		114,000 tons oil tankers	4 vessels	USD 240 million	Sovcomflot, Russia	3th quarter of 2018	Hyundai Samho Heavy Industries
		21,000m³ LPG carriers	2 vessels	-	Solvang ASA, Norway	2019s	Hyundai Samho Heavy Industries
	Apr	VLCCs	1 vessel	-	Neda Maritime, Greece	2019s	Hyundai Samho Heavy Industries
		318,000 tons VLCCs	3 vessels	USD 250 million	Maran Tankers Management, Greece	2018s	Daewoo Shipbuilding & Marine Engineering
	May	300,000 DWT VLCCs	2 vessels	-	Sentek Marine, Singapore	The first of 2019	Hyundai Samho Heavy Industries
		VLCCs	4 vessels	-	Oceania ship owner	The first of 2019	Samsung Heavy Industries
		11,200 DWT product oil & chemical tanker	3 vessels	-	Korea ship owner	The end of 2018	STX Offshore & Shipbuilding
		7,500m³ LNG carriers	2 vessels	USD 100 million	Korea Line, Korea	The end of 2019	Samsung Heavy Industries
	Jun	114,000 DWT oil tankers	2 vessels	-	Metrostar Management, Greece	The end of 2018	Daehan Shipbuilding
		RO-RO Ship	2 vessels	USD 117.8 million	CLdN, Luxembourg	The end of 2019	Hyundai Mipo Dockyard
	Jul	318,000 tons VLCCs	4 vessels	-	Maran Tankers Management, Greece	-	Daewoo Shipbuilding & Marine Engineering
	Aug	84,000m³ LPG carriers	2 vessels	-	Vitol	The first of 2019	Hyundai Heavy Industries
	Sep	300,000 tons VLCCs	5 vessels	USD 420 million	Hyundai Merchant Marine, Korea	The first of 2019	Daewoo Shipbuilding & Marine Engineering
		81,000 DWT bulk carriers	4 vessels	USD 120 million	Bahri, Saudi Arabia	The first of 2020	Hyundai Mipo Dockyard
		325,000 tons VLCCs	10 vessels	USD 800 million	Polaris Shipping, Korea	The first of 2021	Hyundai Heavy Industries
	Oct	325,000 tons VLCCs	5 vessels	USD 400 million	Polaris Shipping, Korea	The first of 2021	Hyundai Heavy Industries
	Dec	LNG carriers	1 vessel	-	Greece, Maran Gas Maritime	-	Daewoo Shipbuilding & Marine Engineering
		300,000 DWT VLCCs	1 vessel	-	Greece, Enesel	-	Hyundai Heavy Industries
		300,000 DWT VLCCs	1 vessel	-	Korea, Hyundai Glovis	-	Hyundai Heavy Industries
		VLCCs	1 vessel	-	Greece, Aeolos	-	Daewoo Shipbuilding & Marine Engineering
		180,000m³ LNG carriers	1 vessel	USD 190 million	-	-	Samsung Heavy Industries
2018	Jan	174,000m³ LNG carriers	1 vessels	-	Russia, Sovcomflot	2020s	Hyundai Samho Heavy Industries
	Feb	170,000m³ LNG carriers	2 vessels	USD 370 million	-	The first of 2020	Daewoo Shipbuilding & Marine Engineering
		84,000m³ VLGCs	3 vessels	USD 220 million	KOTC, Kuwait	2019s	Hyundai Heavy Industries
		12,000 TEU container ships	8 vessels	USD 770 million	Asian ship owner	The first of 2021	Samsung Heavy Industries
	Mar	173,400m³ LNG carriers	2 vessels	USD 370 million	Oceania ship owner	The first of 2021	Daewoo Shipbuilding & Marine Engineering
		180,000m³ LNG carriers	1 vessel	-	-	-	Samsung Heavy Industries
	Apr	VLCCs	2 vessels	USD 260 million	Korea Line, Korea	The end of 2019	Daewoo Shipbuilding & Marine Engineering
		VLCCs	1 vessel		Europe ship owner	The end of 2019	
		VLCCs	2 vessels	-	U.S.A ship owner	First quarter of 2020	Daewoo Shipbuilding & Marine Engineering
		174,000m³ LNG Carriers	2 vessels	USD 370 million	-	July and October 2020	Samsung Heavy Industries
	Jun	152,700 DWT tankers	4 vessels	USD 360 million	Singapore, AET	-	Samsung Heavy Industries
		173,400m³ LNG carrier	1 vessel	USD 370 million	Greece, Alpha Gas S.A.	The first of 2020	Daewoo Shipbuilding & Marine Engineering
			2 vessels		-		
	Jul	173,400m³ LNG carriers	1 vessel	-	Norway, Seatankers Management	2020s	Daewoo Shipbuilding & Marine Engineering

*Note : Based on the press release and public announcements of each shipyards, internal estimation of Monthly KORSHIP (estimation until Aug 15, 2018)

Offshore plant orders awarded to domestic shipyards in 2011-2017

Data		Type	Number of vessel	Amount	Ship owner	Delivery	Shipyard
2011	Jul	Drillship	2 vessels	USD 1.1225 billion	Maersk, Denmark	July 2014	Samsung Heavy Industries
	Aug	LNG-FSRU	1 vessel	USD 280 million	Excelerate Energy, U.S.A	First quarter of 2014	Daewoo Shipbuilding & Marine Engineering
	Sep	Semi-submersible Rig	2 units	USD 1.1 billion	Songa Offshore, Norway	Second hallf of 2014	Daewoo Shipbuilding & Marine Engineering
		Well Intervention Vessel	2 vessels	USD 420 million	Eide Marine Services AS, Norway	2013	STX Finland
		Drillship	1 vessel	KRW 600 billion	Noble Drilling, U.S.A	Second half of 2014	Hyundai Heavy Industries
	Oct	Fixed Offshore Platform	-	USD 1.4 billion	Chevron, U.S.A	Second half of 2014	Daewoo Shipbuilding & Marine Engineering
		Drillship	1 unit	USD 550 million	Offshore drilling company, Americas	-	Daewoo Shipbuilding & Marine Engineering
		Platform Supply Vessel	1 unit	-	Troms Offshore Supply AS, Norway	First half of 2013	STX OSV
		Offshore Plant Module	2 units	-	-	From 2013 to 2014	STX OSV
		Platform Supply Vessel	4 units	KRW 2 trillion	Island Offshore, Norway	Consecutively from the 3rd quarter	of 2013 to the 1st quarter of 2014
	Nov	Pipe Laying Support Vessel	2 units	USD 500 million	Odebrecht, Brazil	August of 2014	Daewoo Shipbuilding & Marine Engineering
	Dec	Offshore facilities (Gas platform and various facilities)	-	USD 900 million	Major multinational oil companies	2nd half of 2014	Hyundai Heavy Industries
2012	Jan	CPF (Central Processing Facility)	-	KRW 2.6 trillion	INPEX, Australia	4th quarter of 2015	Samsung Heavy Industries
		Semi-submersible rig	1 unit	USD 620 million	Odfjell, Norway	by mid 2014	Daewoo Shipbuilding & Marine Engineering
	Feb	LNG-FSRU	-	-	Hoegh, Norway	-	Hyundai Heavy Industries
	Mar	Offshore Platform	1 unit	USD 560 million	DONG E&P A/S, Danish	April 2015	Daewoo Shipbuilding & Marine Engineering
		FPSO	1 unit	USD 2.0 billion	INPEX, Australia	April 2016	Daewoo Shipbuilding & Marine Engineering
	Apr	Drillship	1 vessel	USD 645 million	Ensco plc	Third quarter 2014	Samsung Heavy Industries
	May	Semi-submersible Drilling Rig	2 units	USD 1.1 billion	Songa Offshore, Norway	Mid 2015	Daewoo Shipbuilding & Marine Engineering
		Drillship	1 vessel	USD 600 million	Seadrill, Norway	Second half of 2014	Samsung Heavy Industries
		Drillship	1 vessel	USD 655 million	Diamond Offshore Drilling Limited., U.S.A	4th quarter of 2014	Hyundai Heavy Industries
	Jun	Semi-submersible drilling rig	1 unit	USD 700 million	Fred Olsen Energy, Norway	March 2015	Hyundai Heavy Industries
		LNG-FPSO	1 unit	-	Petroliam Nasional Berhad, Malaysia	June 2015	Daewoo Shipbuilding & Marine Engineering
	Jul	Drillship	1 vessel	USD 645 million	Ensco plc	-	Samsung Heavy Industries
		Gas Compression Platform	1 unit	USD 420 million	(Letter of Award)	Second half of 2015	Hyundai Heavy Industries
	Aug	LNG-FSRU	8 vessels	-	Excelerate, U.S.A	Between early 2015~2017	Daewoo Shipbuilding & Marine Engineering
	Sep	Drillship	1 vessel	USD 620 million	Rowan, U.S.A	First half of 2015	Hyundai Heavy Industries
		Drillship	1 vessel	USD 623 million	-	-	Samsung Heavy Industries
	Oct	Drillship	4 vessels	USD 2.06 billion	Transocean, U.S.A	One-by-one from mid 2015	Daewoo Shipbuilding & Marine Engineering
		Drillship	1 vessel	USD 560 million	Atwood Oceanics, U.S.A	-	Daewoo Shipbuilding & Marine Engineering
		LNG-FSRU	1 vessel	USD 270 million	Hoegh LNG, Norway	First half of 2015	Hyundai Heavy Industries
	Nov	Drillship	1 vessel	USD 700 million	-	2nd half of 2015	STX Offshore & Shipbuilding
	Dec	offshore platform (Top side)	1 unit	USD 1.77 billion	Statoil, Norway	The end of 2016	Daewoo Shipbuilding & Marine Engineering
2013	Jan	Gas Production Platform (topside)	1 unit	USD 1.1 billion	Statoil, Norway	Mar 2016	Hyundai Heavy Industries
		LNG-FSRU	1 vessel	-	BW Maritime, Singapore	2015	Samsung Heavy Industries
	Mar	Floating Production Unit (FPU)	1 unit	USD 1.3 billion	Total, France	First half of 2016	Hyundai Heavy Industries
		Tension Leg Platform (TLP)	1 unit	USD 700 million	Total, France	First half of 2015	Hyundai Heavy Industries
	Apr	FPSO	1 unit	USD 1.9 billion	Chevron, U.S.A	-	Hyundai Heavy Industries
	May	Semi-Submersible Drilling Rig	1 unit	USD 750 million	Diamond Offshore, U.S.A	Nov of 2015	Hyundai Heavy Industries

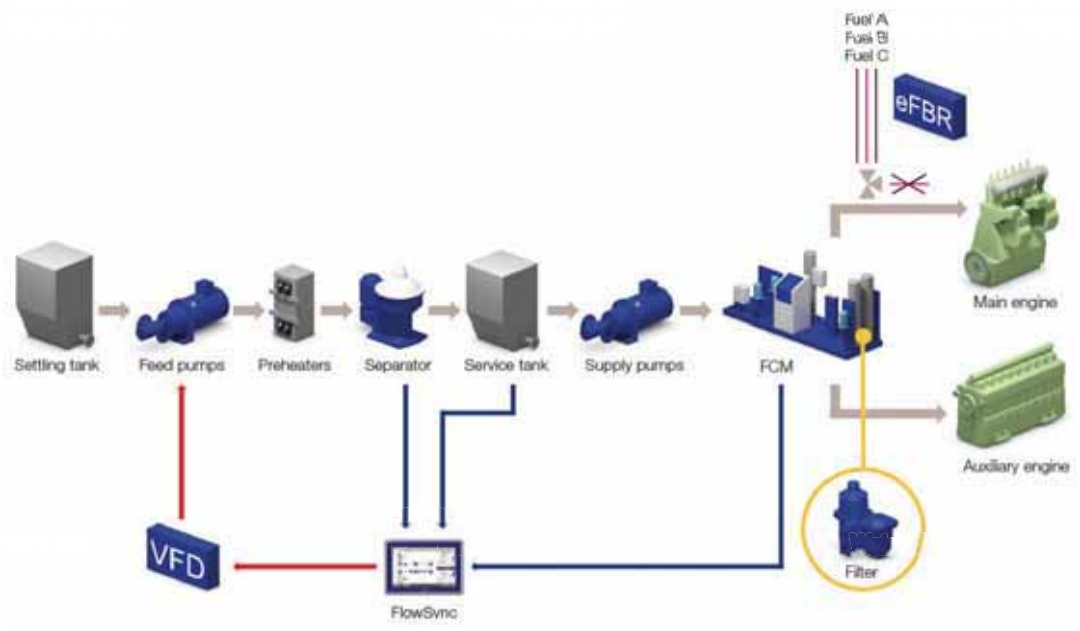
	Jun	Ultra-deepwater Drillship	1 unit	USD 515 million	Ensco, United Kingdom	Third quarter of 2015	Samsung Heavy Industries
		FPSO	1 unit	USD 3.0 billion	Nigeria	Second half of 2017	Samsung Heavy Industries
		Jack-up Rig	2 units	USD 1.3 billion	Statoil, Norway	-	Samsung Heavy Industries
	Jul	Ultra-deepwater Drillship	2 units	USD 600 million	Seadrill, Norway	Second half of 2015	Samsung Heavy Industries
		Semi-Submersible Rig	1 vessel	USD 718 million	Stena, Sweden	First half of 2016	Samsung Heavy Industries
		Ultra-deepwater Drillship	1 unit	USD 570 million	Atwood Oceanics, U.S.A	The end of 2015	Daewoo Shipbuilding & Marine Engineering
	Sep	Drillship	1 unit	USD 550 million	-	Dec of 2015	Samsung Heavy Industries
		Ultra-deepwater Drillship	1 unit	USD 600 million	Ocean Rig, Greece	Dec of 2015	Samsung Heavy Industries
		Jack-up Rig	1 unit	USD 530 million	Maersk Drilling, Denmark	The middle of 2016	Daewoo Shipbuilding & Marine Engineering
	Oct	Drillship	2 vessels	USD 1.24 billion	-	Second half of 2015	Daewoo Shipbuilding & Marine Engineering
		Drillship	1 vessel	USD 520 million	Transocean, U.S.A	The middle of 2016	Daewoo Shipbuilding & Marine Engineering
		LNG-FSRU	1 unit	-	Gas Sayago (Joint venture)	Sep of 2016	Daewoo Shipbuilding & Marine Engineering
	Dec	LNG-FSRU	1 unit	-	BW Maritime, Singapore	Early 2016	Samsung Heavy Industries
		LNG-FSRU	1 unit	-	Mitsui OSK Line, Japan	The middle of 2016	Daewoo Shipbuilding & Marine Engineering
2014	Feb	LNG-FPSO	1 unit	USD 1.45 billion	Petroliam Nasional Berhad, Malaysia	2018	Samsung Heavy Industries
	Apr	Drillship	2 vessels	USD 1.29 billion	Oceania	First half of 2017	Samsung Heavy Industries
	Jul	Central Processing Platform	2 units	USD 700 million	Hess E&P Malaysia, Malaysia	The end of 2016	Hyundai Heavy Industries
		Fixed offshore platform	4 units	USD 1.94 billion	ADMA-OPCO, UAE	The end of 2019	Hyundai Heavy Industries
	Nov	Fixed Offshore Platform & Submarine Cable	4 units	USD 1.9 billion	ADMA-OPCO	Second half of 2019	Hyundai Heavy Industries
		Offshore Platform	1 unit	USD 700 Million	Royal Dutch Shell	-	Samsung Heavy Industries
		FPU	1 unit		-	-	
2015	Jun	Offshore Platform	2 unit	USD 1.06 billion	Statoil, Norway	The end of 2018	Samsung Heavy Industries
	Jul	FLNG	3 unit	USD 4.7 billion	Royal Dutch-Shell	-	Samsung Heavy Industries
2016	Dec	LNG-FSRU	1 unit	USD 587 million	Maran Gas Maritime, Greece	First half of 2020	Daewoo Shipbuilding & Marine Engineering
2017	Jan	FPU	1 unit	USD 1.27 billion	British Petroreum, United Kingdom	Augst of 2020	Samsung Heavy Industries
		FSRU	1 unit	USD 230 million	Hoegh LNG, Norway	May of 2019	Samsung Heavy Industries
		FSRU	1 unit	USD 230 million	Hoegh LNG, Norway	4th quarter of 2018	Hyundai Heavy Industries
	Feb	FSRU	1 unit	-	Turkey	-	Hyundai Heavy Industries
	Jun	FLNG	1 unit	USD 2.50 billion	ENI, Italy	-	Samsung Heavy Industries
	Aug	FSRU	1 unit	USD 230 million	Swan Energy, India	First half of 2020	Hyundai Heavy Industries
	Oct	LNG-FSRU	1 unit	KRW 250 billion	Marubeni-Sojitz-Pertamina Consortium	-	Samsung Heavy Industries
	Dec	LNG-FSRU	1 unit	-	Maran Gas Maritime, Greece	-	Daewoo Shipbuilding & Marine Engineering
	Jul	173,400㎥ LNG carriers	1 unit	-	Maran Gas Maritime, Greece	The frist of 2021	Daewoo Shipbuilding & Marine Engineering

*Note : Based on the press release and public announcements of each shipyards, internal estimation of Monthly KORSHIP (estimation until Aug 15, 2018)

New Product

Alfa Laval is optimizing the entire fuel line to address 2020 fuel challenges

Alfa Laval



Alfa Laval has a unique depth of expertise in marine fuel treatment, encompassing not just fuel separators but the whole chain from bunker tank to engine. As onboard operations change in response to fuel sulphur regulations, the company is optimizing and updating the technologies in its portfolio to meet the new challenges. The result will be improved engine protection and increased energy efficiency, despite more varied and less predictable fuels.

With the global sulphur cap taking in effect in 2020, onboard fuel handling will become more complicated than ever before. “There will be many options for compliance and every vessel will have to choose the route that makes most sense for their operation,” explains Serdar Sengun, Global Sales Manager Marine Separation, Alfa Laval. “No matter what customers choose, it will have dramatic implications for the fuel line. But Alfa Laval is taking a complete and forward-thinking approach to fuel line optimization.”

-TEL: +46-8-5306-5574
-http://www.alfalaval.com

GTMaritime launches SeaMail solution optimised for smaller vessels

GTMaritime

GTMaritime, the specialist in providing communication solutions and services to the maritime industry has launched SeaMail - a new intuitive and cost-effective email solution that is specifically optimised for smaller vessels such as barges, fishing vessels, inland cruisers and leisure craft. Utilising SeaMail's efficiencies, small vessels can communicate easily with the shore while reducing their costly satellite bandwidth usage, saving up to 80% on their satellite airtime.

SeaMail provides benefits such as simple email management, shoreside management of emails and a simple installation procedure. It has also been designed and optimised for use over satellites, dealing with high latency circuits and multiple connection management, making communications efficient and more cost-effective. As SeaMail has been specifically designed for maritime industry use, it also resumes data transfer from the point of interruption if there is a break in communications.

GTMaritime understands that essential emails are no longer only accessed via a desktop computer, so the innovative SeaMail is designed to be wholly compatible with tablets and mobile devices, allowing crew to access business emails when and where required. SeaMail is also compatible with all satellite communications including VSAT, Inmarsat, Iridium, Thuraya, GSM and local WIFI. Its ability to operate independently of airtime providers allows customers to use SeaMail with their choice of maritime airtime provider. All users receive the specialist, Maritime-specific service benefits that come as standard with all GTMaritime products including 24/7 365 technical support from highly experienced engineers.

-TEL: +44-(0)-818-9181-925
-http://www.GTMaritime.com

New Product

ABB launches next-generation DP system, paving the way towards autonomous shipping

ABB

The ABB Ability™ Marine Pilot Control dynamic positioning (DP) system, unveiled at the maritime trade fair SMM, simplifies ship maneuvering with an intuitive touchscreen-based user interface and enables safer, more efficient ship operations.

With its user-centric design, ABB Ability™ Marine Pilot Control reduces the workload on automating navigational tasks and allows bridge officers to focus holistically on the overall control and positioning of the ship. The system integrates seamlessly with existing onboard equipment and ensures ease of installation and maintenance, adding significant "bridge-to-propeller" value for the shipowners.

One of the key benefits of the new system is that it allows the operator to switch to joystick control for maneuvering the vessel at any speed and all the way to docking. ABB Ability™ Marine Pilot Control employs algorithms that calculate the optimal way of executing a command for controlling the vessel in any operational situation. The overall safety of the operation is increased as the crew is able to maintain full situational awareness, rather than having to focus on changing control modes.

The system has obtained Lloyd's Register's (LR) Approval in Principle (AiP) certificate, announced at SMM. LR is a leading international provider of classification, compliance and consultancy services to the marine industry.

-TEL: +47-45132617
-http://www.abb.com

Engine Displays from Oceanic Systems now support increased choice of engines

Oceanic Systems

Oceanic Systems (UK) Ltd has just increased the menu of engine manufacturers which can be selected to present on the company's sleek single-screen Multiple Engine Displays. These provide a selection of up to 16 inboard and 16 outboard engine manufacturers, an increased capacity which now doubles the choice of engines and provides boat builders with much greater flexibility.

Oceanic Systems' 4161 Multiple Engine Display and the 4166 Dual Engine Display are the primary choice for vessels worldwide due to their ease of configurability and supersharp graphics.

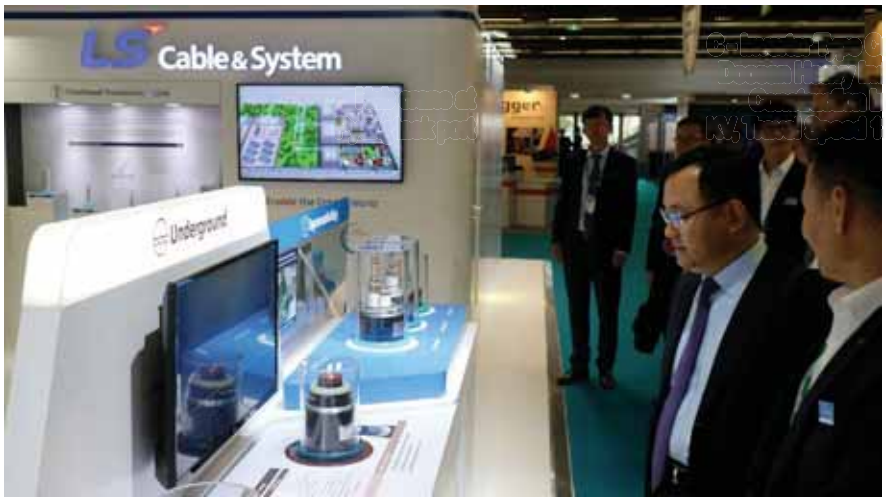
Both models use a simple switch setting to select from a menu of leading inboard or outboard engine manufacturers. The displays also contain a number of unassigned switch positions for future engines to be added. The current inboard choice includes Caterpillar, Cummins, FPT, John Deere, MAN, MTU, Seatek, Volvo and Yanmar while Evinrude, Honda, Mercury, Suzuki, and Yamaha are the outboard choices. The displays also present the selected engine manufacturer's error codes to fully comply with the engine manufacturer's warranty.

With their advanced functionality and appearance the Engine Displays are the preferred choice to replace older single engine displays. These displays are enhanced by Oceanic Systems' cutting edge BlackGlass screens, adding elegance where installed. The colour displays are sunlight readable and dimmable, making them suitable for all marine environments.

-TEL: +44-(0)-7774-623539
-http://www.clearlinecommunications.co.uk

LS전선, 세계에서 가장 얇은 대용량 송전 케이블 선보여

LS전선



LS전선(대표 명노현)은 지난 프랑스 파리에서 열린 CIGRE(시그레, 국제 대전력망 기술협의회) 전시에서 세계에서 가장 얇은 500kV급 송전 케이블을 비롯, 해저와 HVDC(고압직류송전) 케이블 등 최신 제품들을 대거 선보였다. 500kV급은 현재 상용화된 가장 높은 전압의 지중 케이블이다. LS전선은 케이블 지름을 기존 제품 대비 5% 이상 줄임으로써 생산과 운반, 포설에 용이하게 했다. 송전 용량이 클수록 케이블 크기가 굵어지기 때문에 송전 용량을 늘리면서 크기는 줄이는 것이 전선 업계에서는 기술력의 척도가 된다.

LS전선의 해저 케이블 라인업과 세계 최초로 공인인증을 받은 HVDC 케이블 역시 많은 관심을 받았다. LS전선은 수백 km의 심해를 연결하는 장거리용부터 해상풍력발전에 특화된 제품에 이르기까지 다양한 해저 케이블 기술을 확보했다.

HVDC는 전기를 생산 단가가 낮은 지역에서 높은 지역으로 보낼 수 있는 기술로 최근 한국과 일본, 러시아와 중국의 전력망을 잇는 동북아 슈퍼그리드의 핵심 기술로도 주목받고 있다.

총회의 'CEO 미팅' 참석차 현장을 찾은 명노현 LS전선 대표는 "이번 총회는 LS전선이 전세계적으로 3~4개 업체만이 갖고 있는 최신 기술들을 선보임으로써 명실상부한 글로벌 최고 수준의 전선 회사임을 업계 전문가들로부터 인정받는 장이 되었다"고 말했다.

-TEL: +82-2-2189-9280
-http://www.lscns.co.kr

New Product

로크웰 오토메이션, 제조 기업의 생산성 향상을 위한 GuardLink 안전 시스템 국내 출시

로크웰 오토메이션

Rockwell Automation

산업 자동화 및 정보 솔루션 선도 기업 로크웰 오토메이션은 새로운 안전 기반 통신 프로토콜 알렌브래들리 가드마스터 가드링크 (Allen-Bradley Guardmaster GuardLink) 안전시스템을 국내에 공식 출시했다고 발표했다. 가드링크 기술은 안전 기반 통신 프로토콜로, 작업자들이 장비 진단을 효과적으로 하고 생산 중단 시간을 감소시켜 생산성을 향상할 수 있게 해준다. 가드링크 기술이 적용된 스마트 안전 장치는 보다 향상된 정보, 성능, 유연성을 제공하며, 기업이 장비 및 공장 전반의 안전성과 효율을 높이는데 기여한다.

기존에는 안전 장치들이 별도의 안전 입력에 배선되어, 배선 시 상당한 양의 작업이 요구되었고, 잠재적인 고장 위험도 있었다. 그 뿐 아니라, 직렬 연결 배선을 하여 모니터링 하는 경우 각 장치의 상태 정보를 각 장치의 보조 출력으로부터받아 별도의 리모트 I/O 카드 등에 연결해야 하는 불편함이 있었다. GuardLink를 이용하면, M12 커넥터를 이용해 연결하여 안전 장치의 직렬 연결이 용이하고, 별도의 배선 없이 제어기에서 Ethernet/IP 통신을 통해 각 장치의 진단 정보에 쉽게 액세스할 수 있다. 이 시스템은 링크 당 최대 장치 32대까지 단일의 4핀 케이블로 연결하여 안전, 진단, 원격 리셋 및 잠금/잠금 해제 명령을 제공한다. 더불어, 배선 작업이 최대 38% 감소되어설치 비용과 시간이 대폭 절감된다.

이번에 발표된 가드링크 기술은 알렌브래들리 가드마스터 안전 릴레이와 컴포넌트에 완전하게 통합되어, 사용자들이 최소 비용으로 스마트 안전회로를 구성하고, 전체 안전 시스템의 상태 정보에 액세스할 수 있도록 해준다. 가드링크 기술로 지원되는스마트 탭을 통해 안전 장치를 연결하고 가드마스터 안전 릴레이로 표준 케이블을 연결할 수 있기 때문에 필드 기기인 라이트 커튼과 가드 도어부터 비상 정지 스위치 수준까지, 시스템에 대한 가시성도 크게 향상된다.

로크웰 오토메이션 코리아의 아키텍처&소프트웨어(A&S) 사업부 이종두 과장은 "산업용 사물인터넷(Industrial Internet of Things, IIoT)을 갖춘 진정한 커넥티드 엔터프라이즈는 조직 내 플랫폼과 장치들 전반에서 실시간 제어와 정보를 활용할 수 있어야 하며, 사용자들에게 적시에 올바른 정보를 올바른 형식으로 액세스할 수 있는 역량을 제공해야한다."며 "이번에 발표한 가드링크는 기계 및 공장 전반에 향상된 안전성 및 효율성을 제공하여 국내 기업의 제조 생산성 향상과 디지털 전환을 지원할 것."이라고 전했다.

아울러, 가드링크 안전 시스템은 Rockwell Software Studio 5000에 있는 사전 설정된 태그 이름들을 통해 Logix 플랫폼과 완전하게 통합된다. 또한, 디자인과 배선 작업이 간소화되어, 플러그 앤 플레이 방식으로 쉽게 설치가 가능하다.

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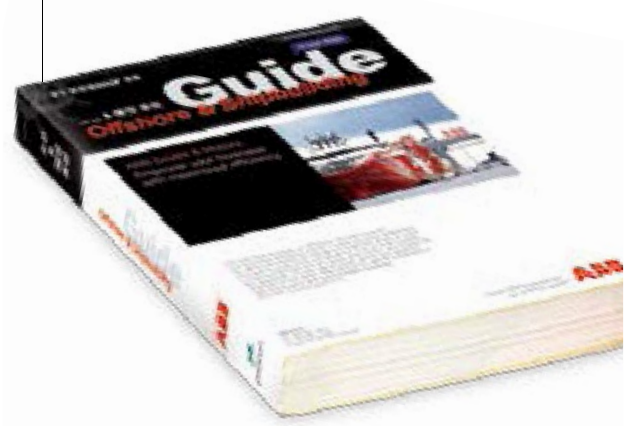

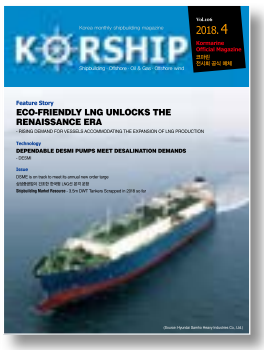

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