2024년 2분기

세계 컨테이너 항만 서비스 지표

PORT SERVICE INDICATORS

발행일 2024년 9월 25일 | **편집·발행인** 김종덕 원장 | **발행처** 한국해양수산개발원 항만연구본부 항만수요분석연구실
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선석 생산성 03
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항만 서비스 지표는 전 세계 컨테이너 항만의 경쟁력을 비교할 수 있는 대표 지표를 분석하여
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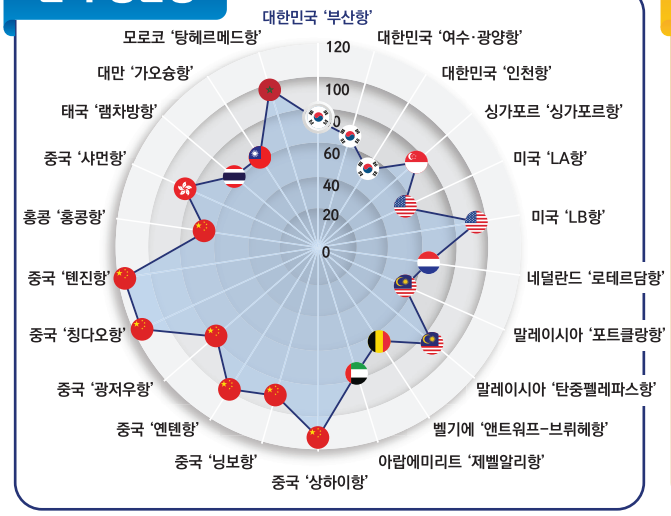
주요 항만 결과 요약

(전체 선형 기준)

선석 생산성

(회/시간)



순선석 생산성

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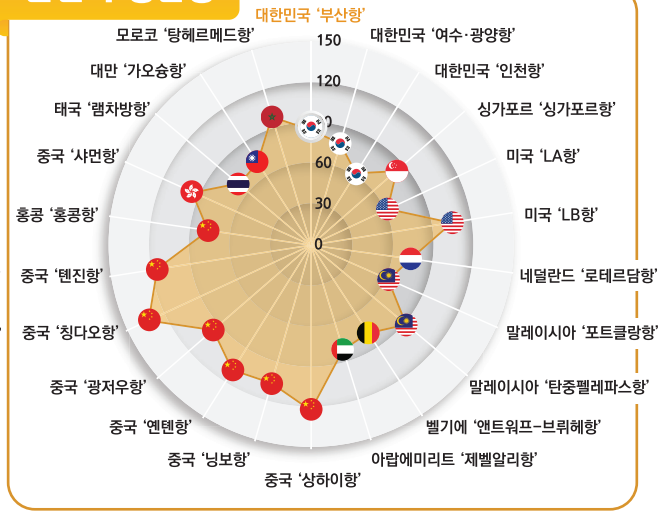
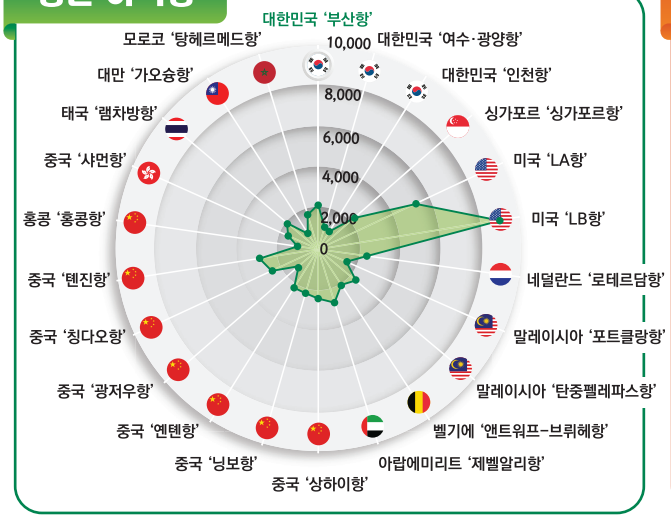


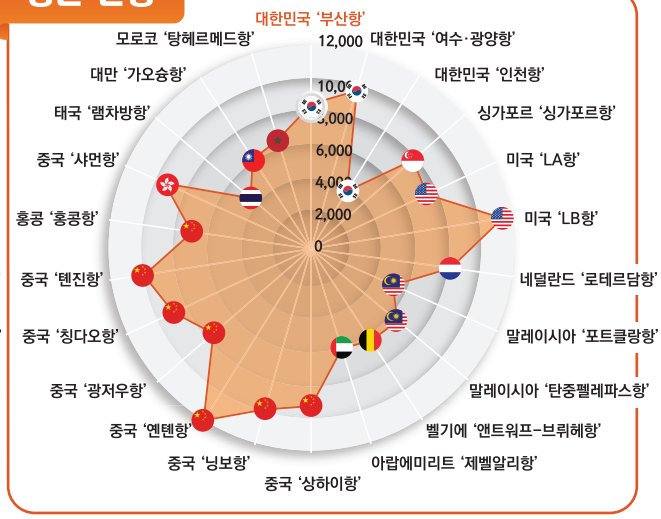
평균 하역량

(VAN)



평균 선형

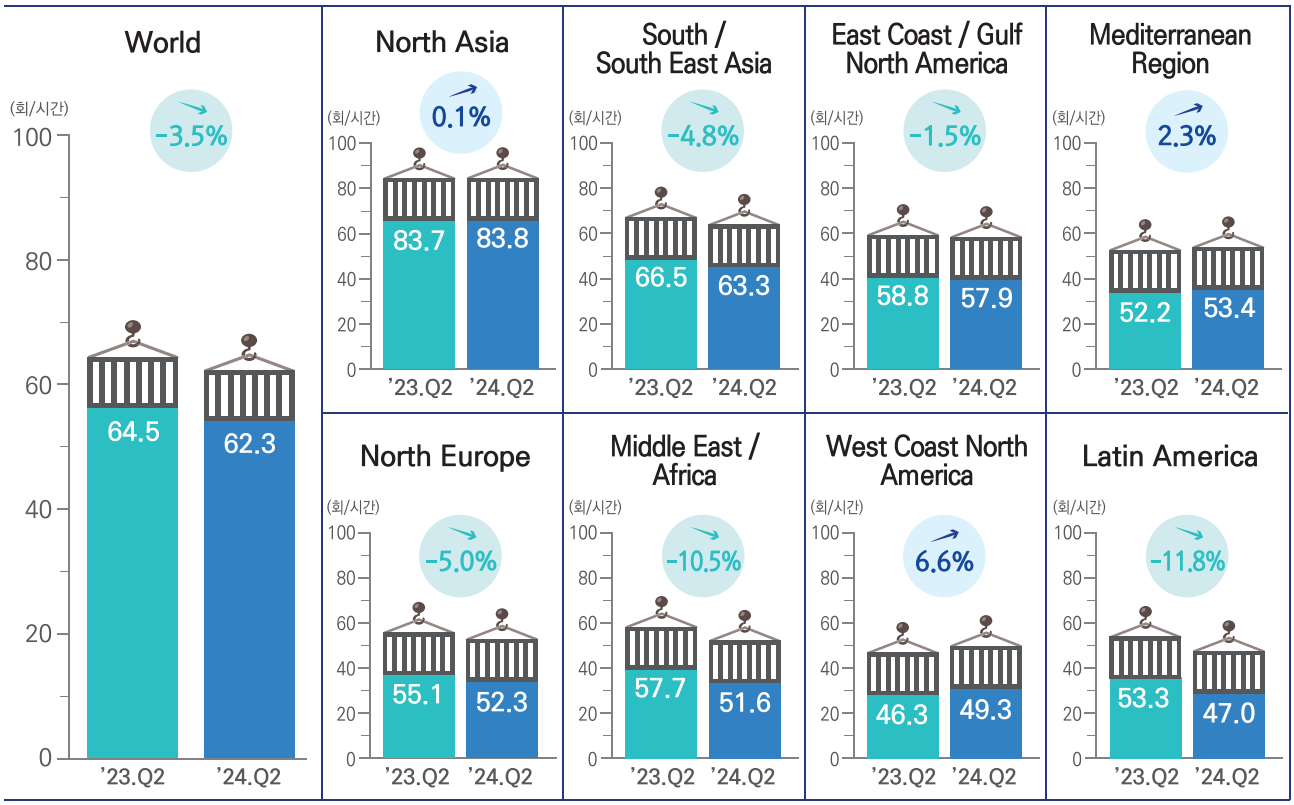
(TEU)



* 주 : 국내 주요 컨테이너 처리항만 및 2023년 기준 컨테이너 상위 20위 항만 대상

선석 생산성 Berth Productivity

지역별 (전체 선형)



순위	지역	선석 생산성(회/시간)					전년 동기 대비	순위				
		'23.Q2	'23.Q3	'23.Q4	'24.Q1	'24.Q2		'23.Q2	'23.Q3	'23.Q4	'24.Q1	'24.Q2
1	North Asia	83.7	82.4	83.1	83.3	83.8	↑0.1%	1	1	1	1	1
2	South/South East Asia	66.5	67.9	68.2	66.5	63.3	↓4.8%	2	2	2	2	2
3	East Coast/Gulf North America	58.8	57.8	56.8	54.8	57.9	↓1.5%	3	3	4	3	3
4	Mediterranean Region	52.2	50.1	53.5	51.8	53.4	↑2.3%	7	7	5	6	4
5	North Europe	55.1	53.7	52.6	52.8	52.3	↓5.0%	5	5	6	5	5
6	Middle East/Africa	57.7	57.4	56.9	54.2	51.6	↓10.5%	4	4	3	4	6
7	West Coast North America	46.3	43.6	47.1	47.0	49.3	↑6.6%	8	8	8	8	7
8	Latin America	53.3	51.4	48.0	48.7	47.0	↓11.8%	6	6	7	7	8
	World	64.5	63.5	63.5	62.8	62.3	↓3.5%	–	–	–	–	–

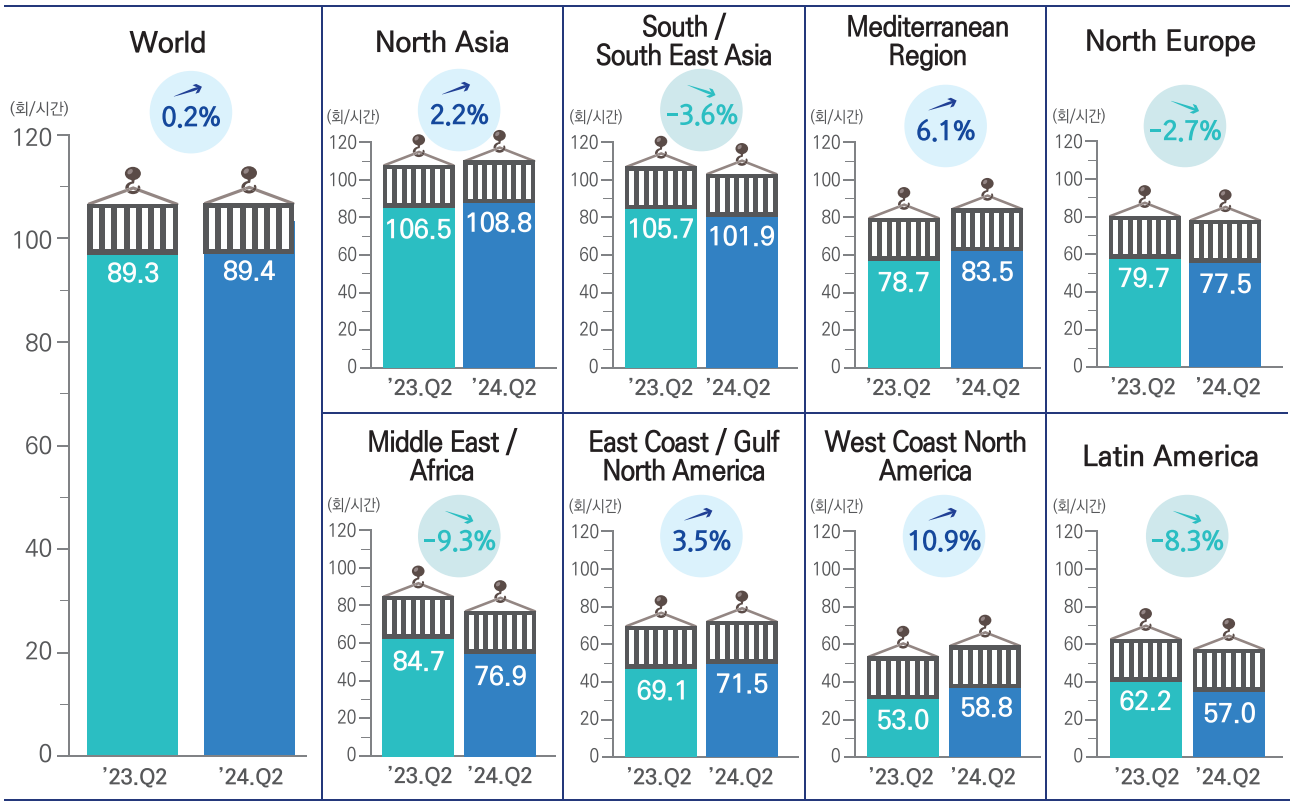
자료 : IHS Markit, 항만수요예측센터 분석

주 : 전 세계 약 400여개 항만의 샘플 데이터를 기반으로 함

- '24년 2분기 전체 선형의 전 세계 선석생산성은 62.3회/hr로 전년 동기 대비 3.5% 하락, 전 분기 대비 0.8% 감소하면서 5분기 연속 감소세를 기록함
- 특히 남/동남아시아 지역 및 중동/아프리카 지역의 선석생산성이 전 분기 대비 4% 이상 하락하면서 전체 생산성에 영향을 미침

선석 생산성 Berth Productivity

지역별 (8,000TEU 이상)



순위	지역	선석 생산성(회/시간)					전년 동기 대비	순위				
		'23.Q2	'23.Q3	'23.Q4	'24.Q1	'24.Q2		'23.Q2	'23.Q3	'23.Q4	'24.Q1	'24.Q2
1	North Asia	106.5	106.0	106.9	106.1	108.8	↑2.2%	1	2	2	2	1
2	South/South East Asia	105.7	108.6	112.1	110.4	101.9	↓3.6%	2	1	1	1	2
3	Mediterranean Region	78.7	78.1	82.7	82.0	83.5	↑6.1%	5	5	4	3	3
4	North Europe	79.7	78.8	76.8	78.5	77.5	↓2.7%	4	4	5	5	4
5	Middle East/Africa	84.7	89.4	84.4	80.3	76.9	↓9.3%	3	3	3	4	5
6	East Coast/Gulf North America	69.1	68.6	67.9	66.4	71.5	↑3.5%	6	6	6	6	6
7	West Coast North America	53.0	51.0	54.2	55.6	58.8	↑10.9%	8	8	8	8	7
8	Latin America	62.2	59.0	56.4	59.1	57.0	↓8.3%	7	7	7	7	8
	World	89.3	88.6	88.8	89.0	89.4	↑0.2%	–	–	–	–	–

자료 : IHS Markit, 항만수요예측센터 분석
주 : 전 세계 약 400여개 항만의 샘플 데이터를 기반으로 함

- **8,000TEU 이상 선형의 전 세계 선석생산성은 89.4회/hr로 전년 동기 대비 0.2%, 전 분기 대비 0.5% 증가하면서 전체 선형에서와 달리 4분기 연속 증가세를 기록함**
- **북미동안 및 북미서안 지역에서의 선석생산성이 전 분기 대비 각각 7.7%, 5.8% 증가하면서 생산성 증가를 견인함**

선석 생산성 Berth Productivity

국가별 (전체 선형)

순위	국가	'24.Q2	'23.Q2	증감률
1위	오만	102.3	113.7	-10.1%
2위	중국	96.9	95.7	1.2%
3위	모로코	89.3	81.0	10.3%
4위	카타르	83.6	77.7	7.6%
5위	아랍에미레이트	80.6	96.4	-16.4%
6위	베트남	79.0	78.2	1.1%
7위	사우디아라비아	77.3	79.1	-2.2%
8위	인도	76.8	83.2	-7.7%
9위	싱가포르	76.5	80.1	-4.5%
10위	말레이시아	72.9	71.9	1.4%
11위	대한민국	72.3	74.7	-3.2%
12위	바레인	69.1	59.4	16.3%
13위	스리랑카	68.4	79.9	-14.4%
14위	이집트	67.7	59.9	13.0%
15위	홍콩	67.3	66.9	0.6%
16위	파키스탄	65.8	55.7	18.2%
17위	네덜란드	65.6	71.8	-8.7%
18위	벨기에	64.6	67.8	-4.8%
19위	페루	64.1	64.8	-1.1%
20위	폴란드	61.2	57.9	5.7%

자료 : IHS Markit, 항만수요예측센터 분석
주 : 전 세계 약 400여개 항만의 샘플 데이터를 기반으로 함

- '24년 2분기 전체 선형의 국가별 선석생산성 상위 20위 중 대한민국은 전년 동기 대비 3.2% 감소한 72.3회/hr를 기록하면서 11위를 기록함
- 상위 20개 국가 중 10개 국가는 전년 동기 대비 감소세를 기록하였으며, 10개 국가는 증가세를 기록함
- 오만(-10.1%), 아랍에미레이트(-16.4%), 스리랑카(-14.4%), 모로코(+10.3%), 바레인(+16.3%), 이집트(+13.0%), 파키스탄(+18.2%) 등이 두 자릿수 이상 증감세를 기록함

선석 생산성 Berth Productivity

국가별 (8,000TEU 이상)

순위	국가	'24.Q2	'23.Q2	증감률
1위	모로코	128.6	118.8	8.3%
2위	말레이시아	121.2	128.9	-5.9%
3위	중국	121.0	113.1	7.0%
4위	폴란드	117.7	109.6	7.4%
5위	베트남	116.1	109.7	5.8%
6위	아랍에미레이트	101.3	111.9	-9.5%
7위	싱가포르	100.3	119.2	-15.9%
8위	오만	99.8	123.6	-19.3%
9위	네덜란드	98.5	108.1	-8.9%
10위	인도	98.2	101.9	-3.6%
11위	스리랑카	97.4	100.6	-3.2%
12위	이집트	90.2	76.0	18.6%
13위	덴마크	88.9	102.0	-12.9%
14위	대한민국	86.3	87.9	-1.8%
15위	홍콩	85.8	80.2	6.9%
16위	카타르	84.8	75.6	12.1%
17위	벨기에	84.3	84.9	-0.7%
18위	슬로베니아	80.9	64.3	25.7%
19위	스페인	79.2	82.1	-3.5%
20위	사우디아라비아	77.8	86.2	-9.8%

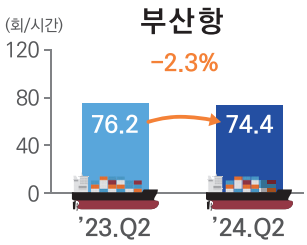
자료 : IHS Markit, 항만수요예측센터 분석
주 : 전 세계 약 400여개 항만의 샘플 데이터를 기반으로 함

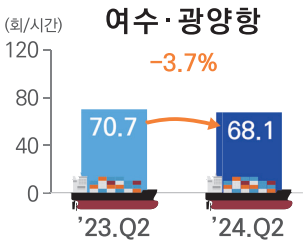
- 8,000TEU 이상 선형의 경우 대한민국은 전년 동기 대비 1.8% 감소한 86.3회/hr를 기록하면서 14위를 기록함
- 상위 20개 국가 중 8개 국가는 전년 동기 대비 증가세를 기록하였으며 12개 국가는 감소세를 기록함
- 특히 싱가포르(-15.9%), 오만(-19.3%), 덴마트(-12.9%)에서 감소세가 두드러지게 나타남

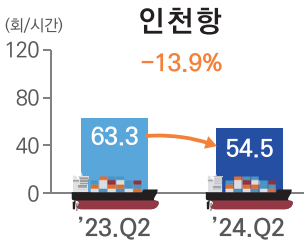
선석 생산성 Berth Productivity

항만별 (전체 선형)

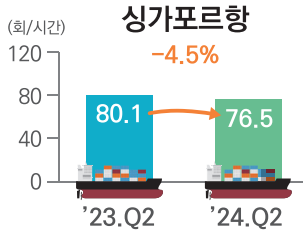
국내 주요 항만 선석 생산성

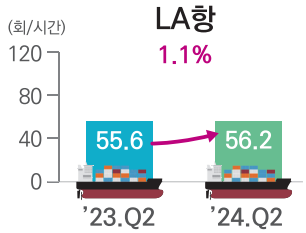


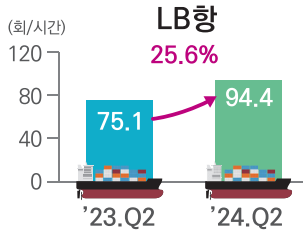


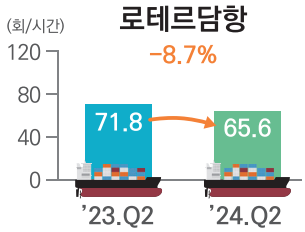


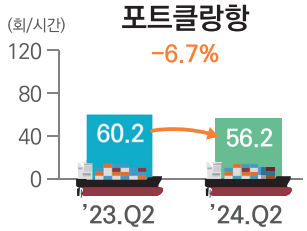
세계 주요 항만 선석생산성

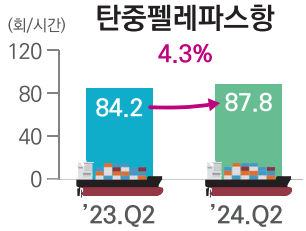


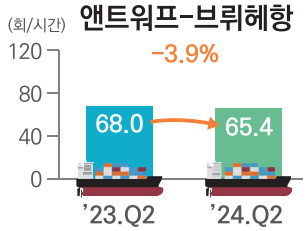


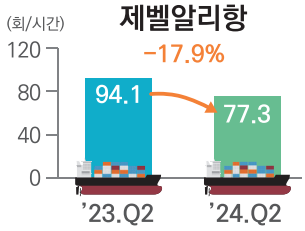


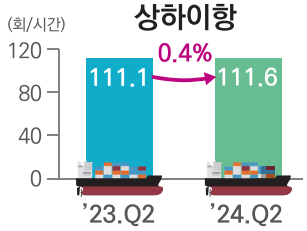


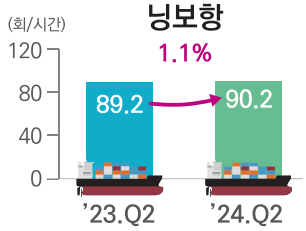


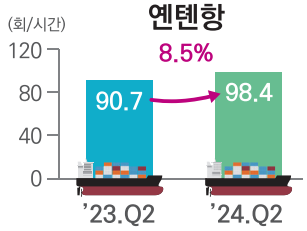


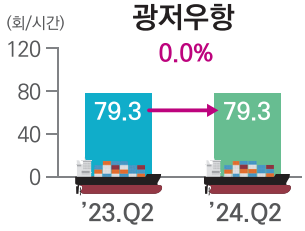


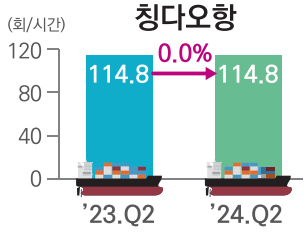


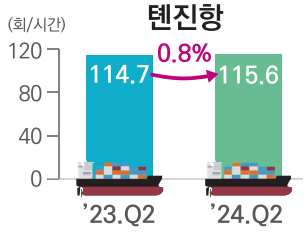


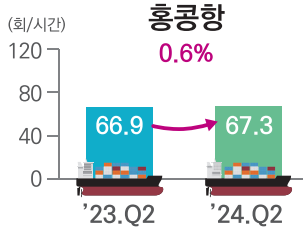


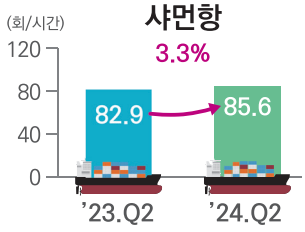


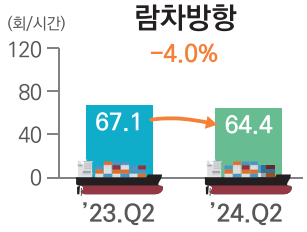


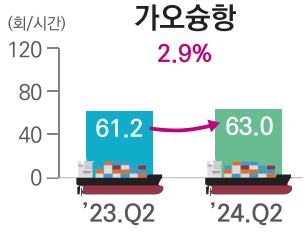


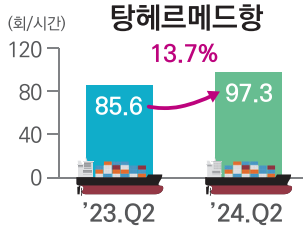










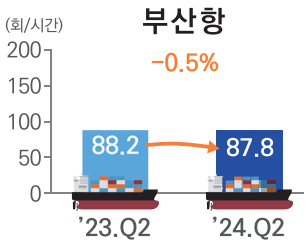


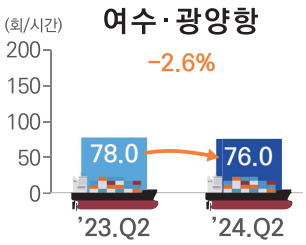
- '24년 2분기 국내 주요 항만의 전체 선형 선석생산성은 부산항(-2.3%), 광양항(-3.7%), 인천항(-13.9%) 모두 전년 동기 대비 감소함
- 세계 주요 항만의 경우 제벨알리항이 전년 동기 대비 17.9% 큰 폭으로 감소한 반면, LB항은 같은 기간 25.6% 크게 증가

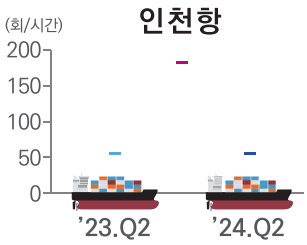
선석 생산성 Berth Productivity

항만별 (8,000TEU 이상)

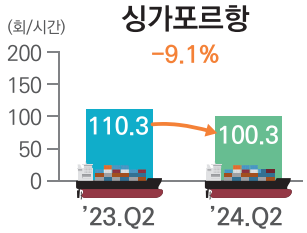
국내 주요 항만 선석 생산성

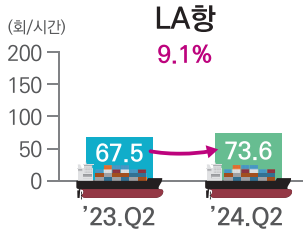


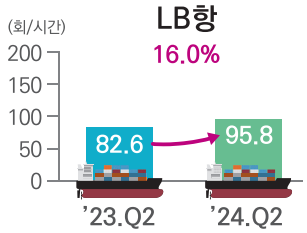


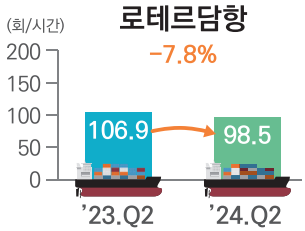


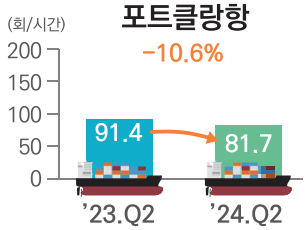
세계 주요 항만 선석생산성

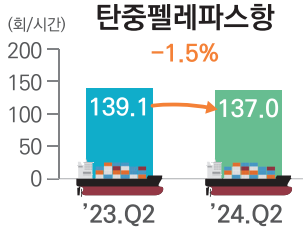


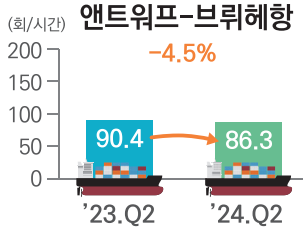


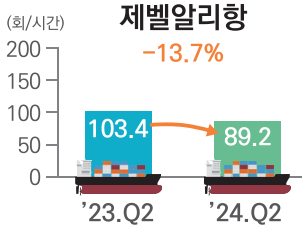


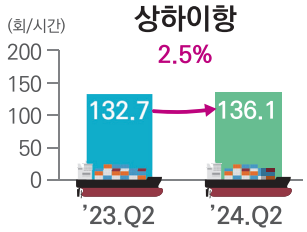


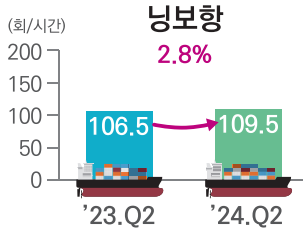


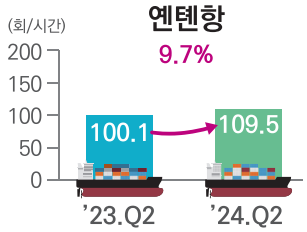


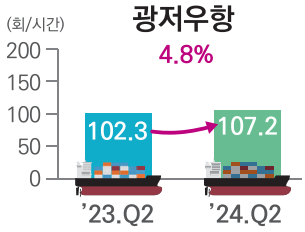


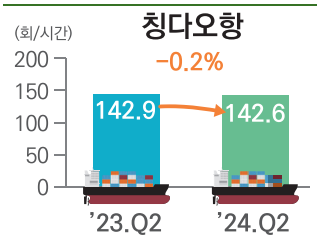


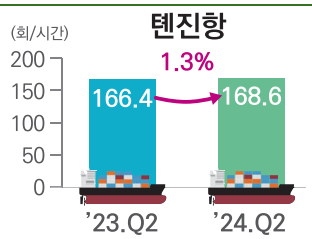


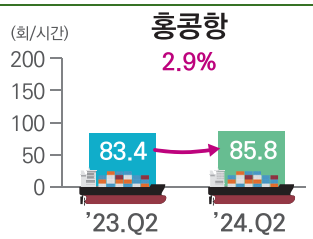


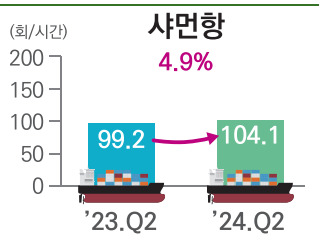


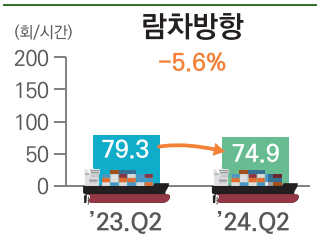


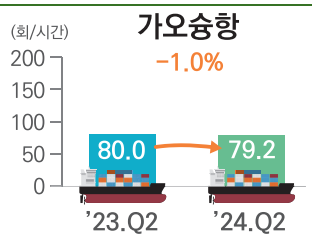


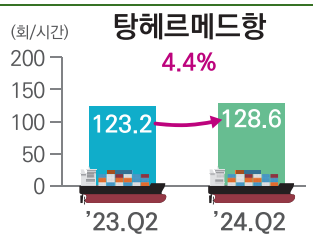










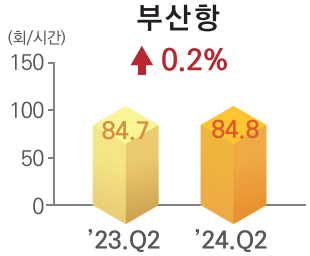


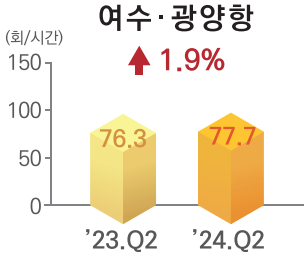
- 국내 주요 항만의 8,000TEU 이상 선형의 선석생산성은 **부산항(-0.5%), 광양항(-2.6%) 모두 전년 동기 대비 감소세를 기록**함
- 전체 선형에서와 마찬가지로 세계 주요 항만의 경우 **제벨알리항이 전년 동기 대비 13.7%로 크게 감소**하였으며, **LB항은 같은 기간 16.0% 큰 폭으로 증가**함

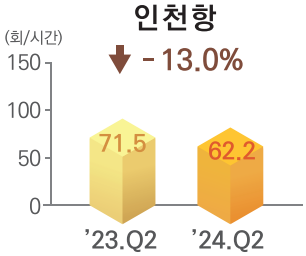
순선석 생산성 Net Berth Productivity

항만별 (전체 선형)

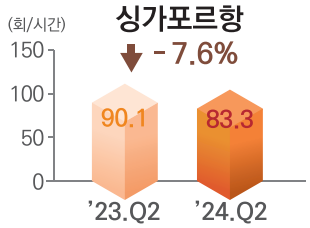
국내 주요 항만의 순선석 생산성

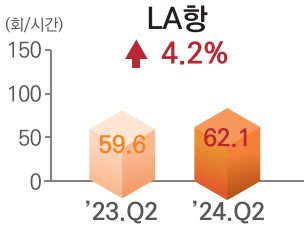


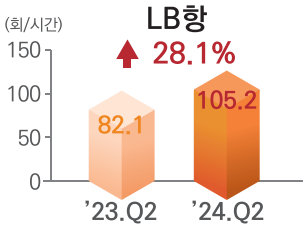


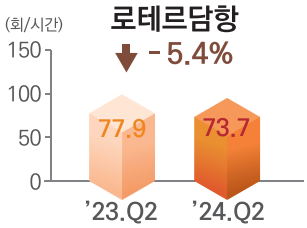


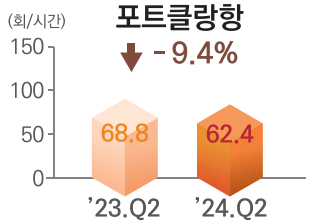
세계 주요 항만의 순선석 생산성

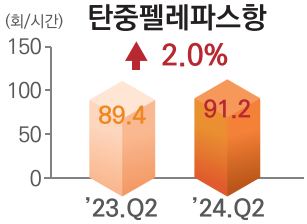


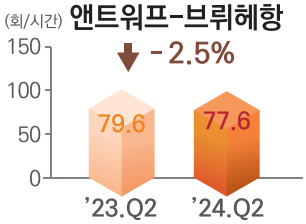


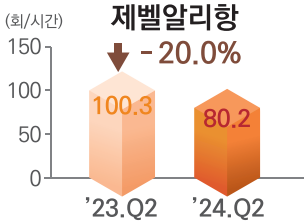


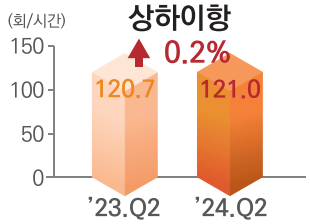


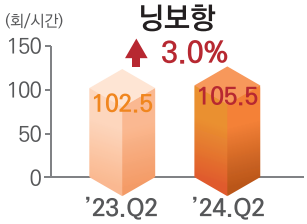


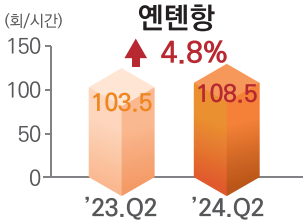


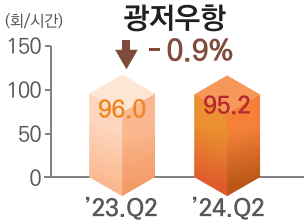


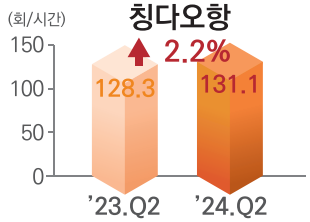


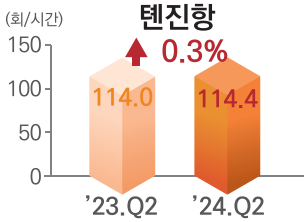


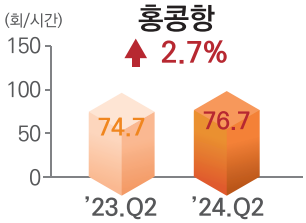


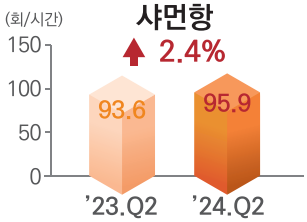


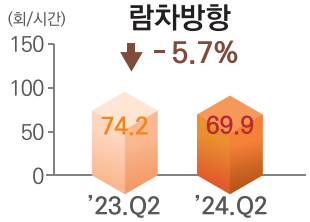


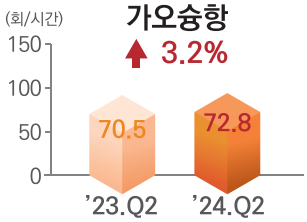


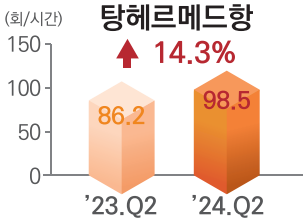










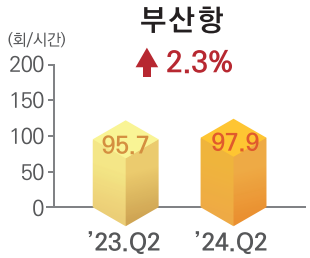


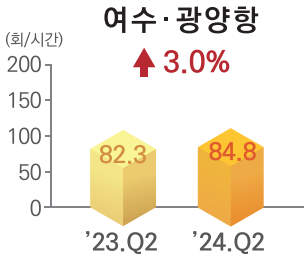
- '24년 2분기 국내 주요 항만의 전체 선형 순선석 생산성은 부산항(+0.2%), 광양항(+1.9%)은 전년 동기 대비 증가하였으나, 인천항(-13.0%)은 같은 기간 감소세를 기록함
- 세계 주요 항만의 경우 제벨알리항(-20.0%), LB항(+28.1%), 탕헤르메드항(+14.3%)이 두 자릿수 이상 증감세를 기록함

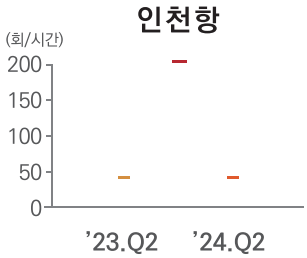
순선석 생산성 Net Berth Productivity

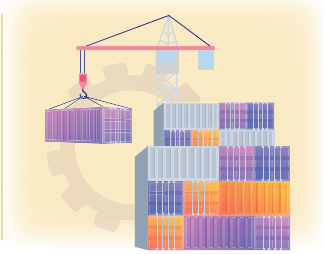
항만별 (8,000TEU 이상)

국내 주요 항만의 순선석 생산성

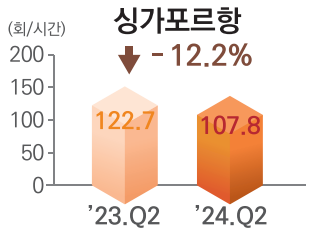


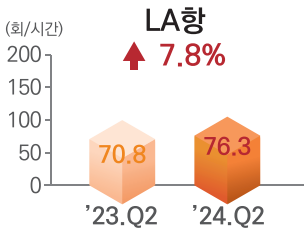


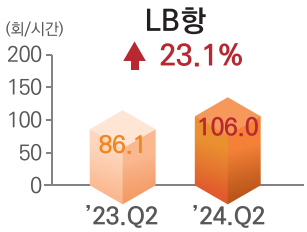


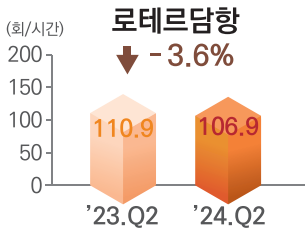


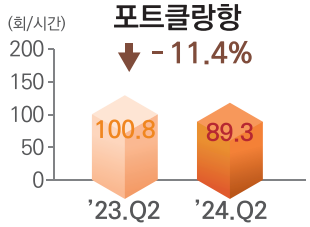
세계 주요 항만의 순선석 생산성

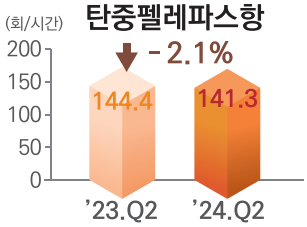


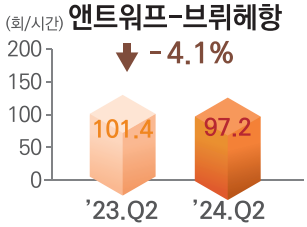


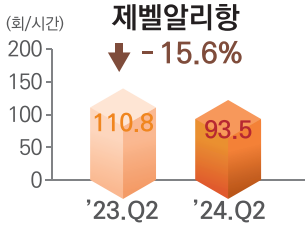


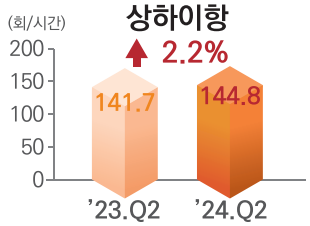


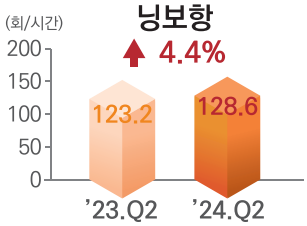


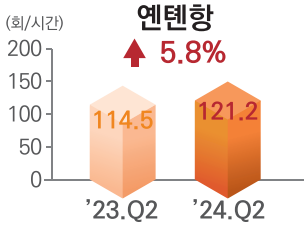


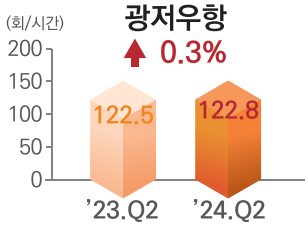


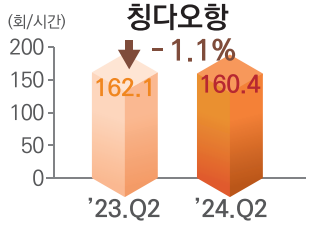


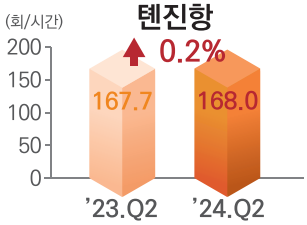


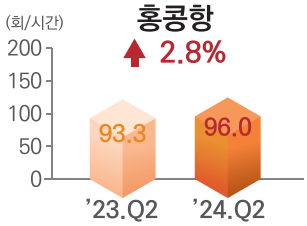


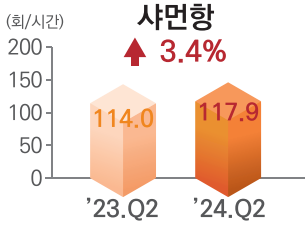


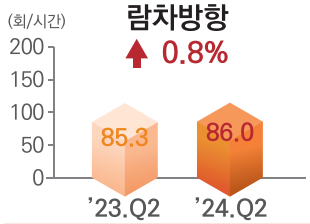


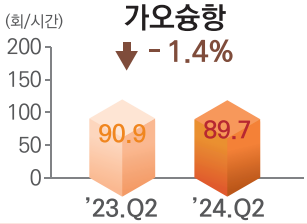


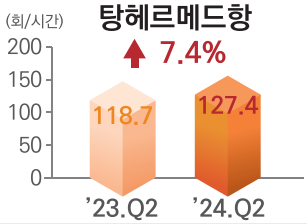










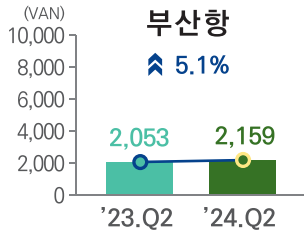


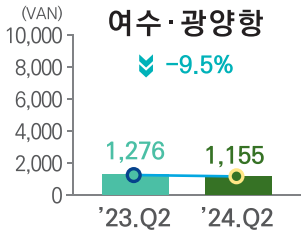
- 국내 주요 항만의 8,000TEU 이상 선형의 순선석 생산성은 부산항(+2.3%), 광양항(+3.0%) 모두 전년 동기 대비 증가세를 기록함
- 세계 주요 항만의 경우 싱가포르항(-12.2%), 포트클랑항(-11.4%), 제벨알리항(-15.6%), LB항(+23.1%) 이 두 자릿수 이상 증감세를 기록함

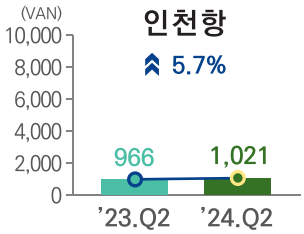
평균 하역량 Average Container Throughput

항만별 (전체 선형)

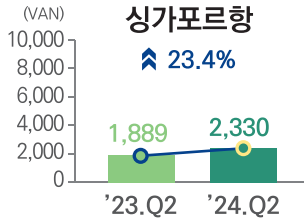
국내 주요 항만 평균 하역량

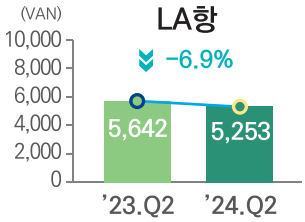


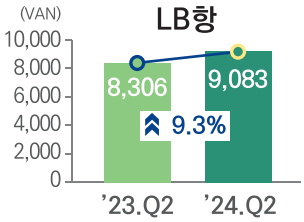


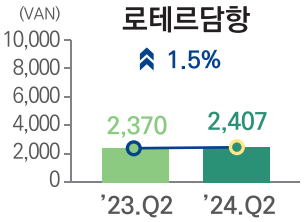


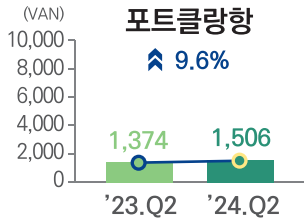
세계 주요 항만 평균 하역량

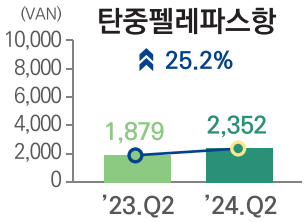


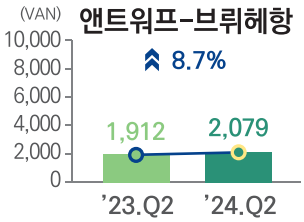


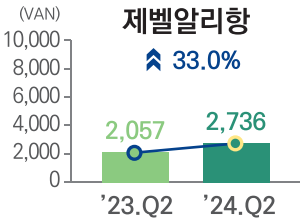


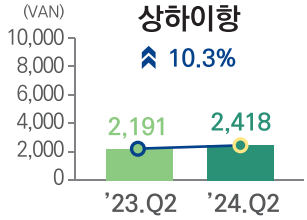


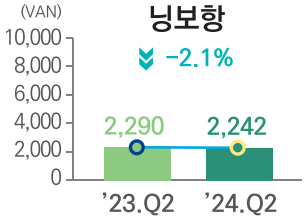


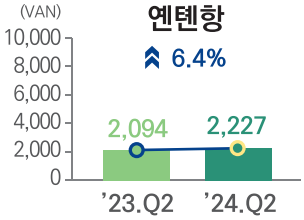


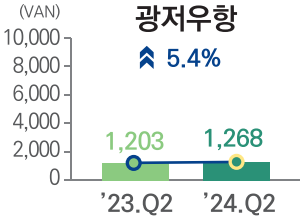


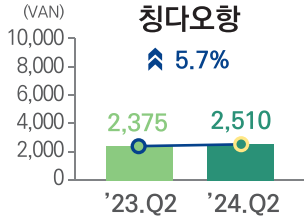


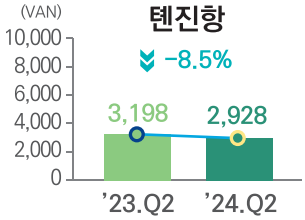


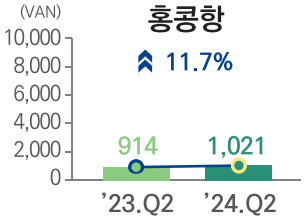


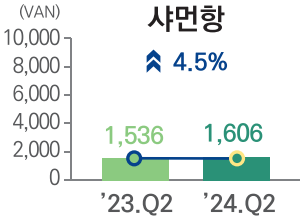


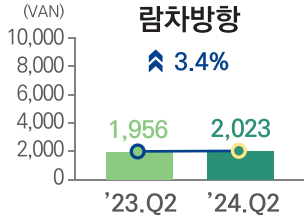


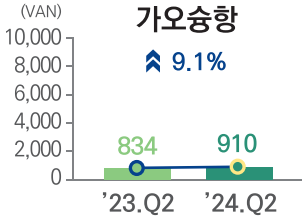


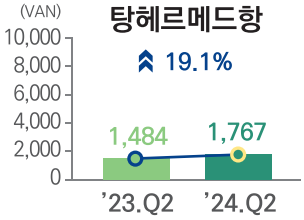










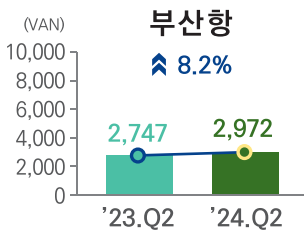


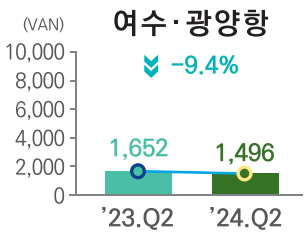
- '24년 2분기 국내 주요 항만의 전체 선형 기준 평균 하역량은 부산항(+5.1%), 인천항(+5.7%)은 전년 동기 대비 증가하였으나, 광양항(-9.5%)은 감소세를 기록함
- 세계 주요 항만 19개 항만 중 LA항(-6.9%), 닝보항(-2.1%), 톈진항(-8.5%) 등 3개 항만만이 전년 동기 대비 감소세를 기록하였으며, 대부분 증가세를 기록함

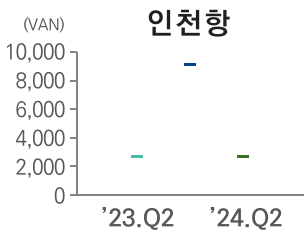
평균 하역량 Average Container Throughput

항만별 (8,000TEU 이상)

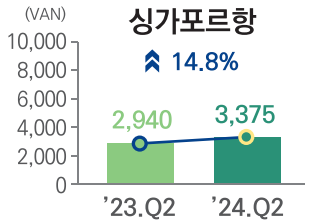
국내 주요 항만 평균 하역량

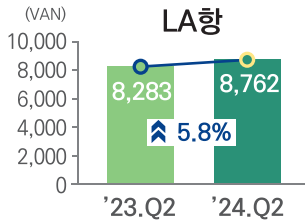


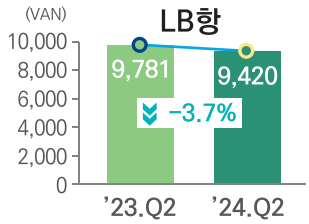


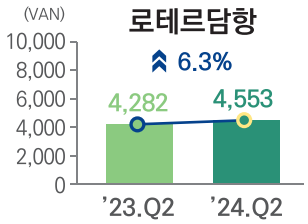


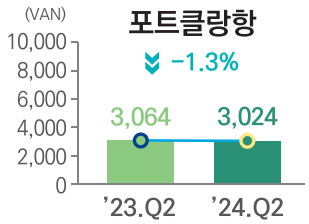
세계 주요 항만 평균 하역량

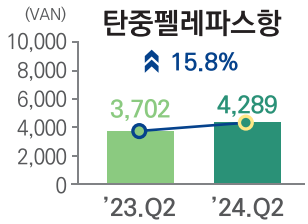


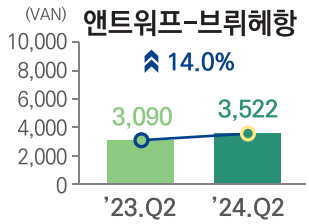


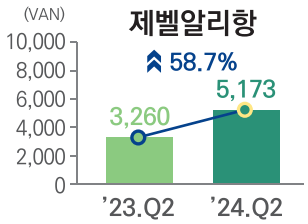


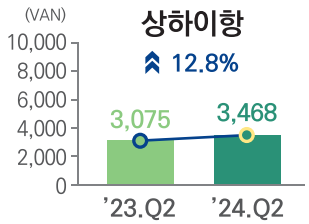


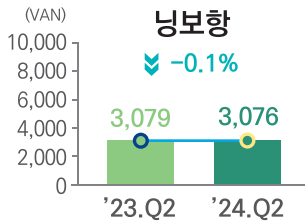


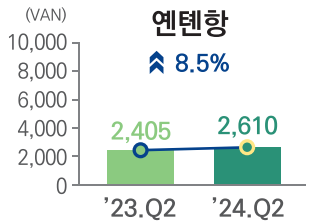


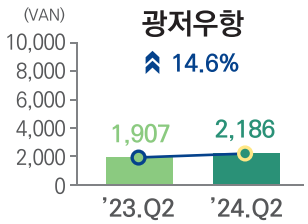


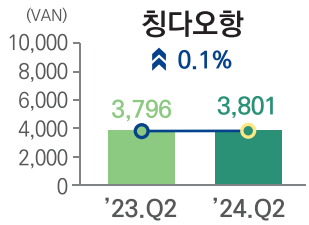


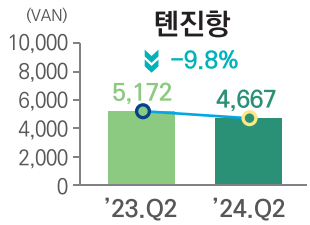


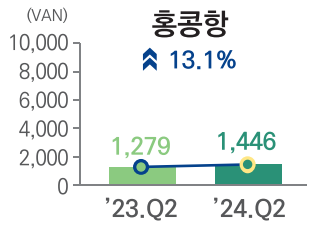


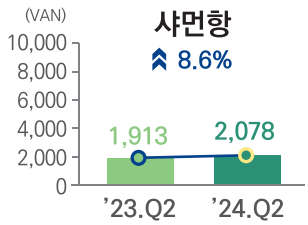


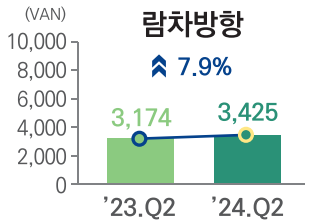


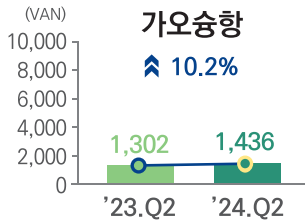


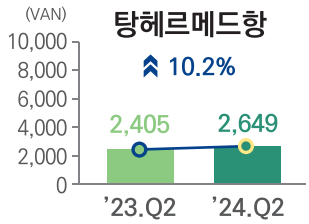












- 국내 주요 항만의 8,000TEU 이상 선형 기준 평균 하역량은 부산항(+8.2%)은 전년 동기 대비 증가세를 기록하였으나, 광양항(-9.4%) 감소세를 기록함
- 세계 주요 항만 19개 항만 중 LB항(-3.7%), 포트클랑항(-1.3%), 닝보항(-0.1%), 톈진항(-9.8%) 등 4개 항만만이 감소세를 기록하였으며, 대부분 증가세를 기록함

평균 선형 Average Vessel Size

항만별 (전체 선형)

국내 주요 항만 평균 선형

항만	변화율	'24.Q2	'23.Q2
부산항	-2.3%	8,461	8,661
여수·광양항	-7.7%	9,699	10,511
인천항	-5.7%	3,998	4,237

세계 주요 항만 평균 선형

항만	변화율	'24.Q2	'23.Q2
싱가포르항	7.0%	7,888	7,373
LA항	-10.5%	7,460	8,336
LB항	7.0%	11,361	10,620
로테르담항	-5.2%	8,279	8,734
포트클랑항	-1.1%	5,273	5,333
탄중펠레파스항	2.6%	6,612	6,446
앤트워프-브뤼헤항	-2.6%	6,434	6,608
제벨알리항	-13.1%	6,108	7,033
상하이항	-0.6%	9,216	9,273
닝보항	0.5%	9,806	9,755
옌톈항	0.0%	11,938	11,944
광저우항	-10.1%	7,568	8,413
칭다오항	4.3%	8,903	8,540
톈진항	-2.8%	10,027	10,327
홍콩항	8.2%	7,085	6,547
샤먼항	-1.8%	9,239	9,410
람차방항	-10.3%	4,653	5,186
가오슝항	1.7%	6,199	6,093
탕헤르메드항	10.0%	6,666	6,062

- '24년 2분기 국내 주요 항만의 평균 선형은 부산항(-2.3%), 광양항(-7.7%), 인천항(-5.7%) 모두 전년 동기 대비 감소세를 기록함
- 세계 주요 항만 19개 항만 중 11개 항만이 전년 대비 평균 선형이 감소하였으며, 특히 LA항(-10.5%), 제벨알리항(-13.1%), 광저우항(-10.1%), 람차방항(-10.3%)이 두 자릿수 이상 감소세를 기록함

평균 선형 Average Vessel Size

항만별 (8,000TEU 이상)

국내 주요 항만 평균 선형

항만	증감률	'24.Q2	'23.Q2
부산항	↗ 0.3%	12,628	12,585
여수·광양항	↘ -7.7%	13,029	14,109
인천항	-	-	-

세계 주요 항만 평균 선형

항만	증감률	'24.Q2	'23.Q2
싱가포르항	↗ 4.2%	13,889	13,333
LA항	↘ -5.9%	10,577	11,235
LB항	↘ -2.8%	11,666	12,000
로테르담항	↘ -0.6%	15,409	15,499
포트클랑항	↗ 0.5%	13,269	13,208
탄중펠레파스항	↘ -1.5%	13,920	14,133
앤트워프-브뤼헤항	↗ 4.0%	13,157	12,649
제벨알리항	↗ 0.8%	13,025	12,919
상하이항	↗ 0.8%	13,765	13,655
닝보항	↗ 2.9%	13,466	13,084
옌톈항	↗ 2.1%	14,256	13,958
광저우항	↘ -1.5%	14,088	14,299
칭다오항	↘ -2.2%	13,868	14,184
톈진항	↘ -4.7%	16,576	17,385
홍콩항	↗ 8.5%	12,640	11,647
샤먼항	↘ -0.6%	12,713	12,792
람차방항	↗ 0.7%	12,136	12,050
가오슝항	↗ 6.3%	13,372	13,045
탕헤르메드항	↗ 0.6%	13,074	12,997

- 국내 주요 항만의 8,000TEU 이상 선형 기준 평균 선형은 부산항(+0.3%)은 전년 동기 대비 증가하였으나, 광양항(-7.7%)은 감소세를 기록함
- 세계 주요 항만의 8,000TEU 이상 선형 기준 평균 선형은 전반적으로 증감률의 폭이 크게 나타나지는 않았으나 홍콩항이 전 분기에 이어 전년 동기 대비 8.5%로 가장 큰 증가율을 기록함

부 록

서비스 지표 정의

선석 생산성 (Berth Productivity)

선석 접안 당 컨테이너 양적하 횟수를 나타낸 지표(총 양적하 횟수/선석 접안시간)

$$BP(k) = \frac{\sum_{i=1}^{n} \frac{CM_i}{ST_i}}{n}$$

$BP(k)$ = k항의 선석 생산성(Berth Productivity)
i = 컨테이너선 척수(i = 1,2,3,...,n)
ST_i = i 컨테이너선의 양적하 시간
CM_i = i 컨테이너선에서 처리된 총 컨테이너 작업량(Moves)
k = 컨테이너 항만(k = 1,2,3,....,m)

순선석 생산성 (Net Berth Productivity)

접안된 선박의 하역작업 개시 시간부터 작업종료까지의 크레인 총 작업시간당 컨테이너 양적하 횟수를 나타낸 지표 (총 양적하 횟수/크레인 총 작업시간)

$$NBP(k) = \frac{\sum_{i=1}^{n} \frac{CM_i}{NST_i}}{n}$$

$NBP(k)$ = k항의 순선석 생산성(Net Berth Productivity)
i = 컨테이너선 척수(i = 1,2,3,...,n)
NST_i = i 컨테이너선의 총 크레인 작업 시간
CM_i = i 컨테이너선에서 처리된 총 컨테이너 작업량(Moves)
k = 컨테이너 항만(k = 1,2,3,....,m)

평균 하역량 (Average Container Throughput)

컨테이너선 1척 당 평균 컨테이너 하역 물량을 나타냄 (VAN)

$$ACT(k) = \frac{\sum_{i=1}^{n_i} CM_i}{n}$$

$ACT(k)$ = k항의 컨테이너선 평균 하역량(Average Vessel Size)
i = 컨테이너선 척수(i = 1,2,3,...,n)
CM_i = i 컨테이너선에서 처리된 총 컨테이너 작업량(Moves)
k = 컨테이너 항만(k = 1,2,3,....,m)

평균 선형 (Average Vessel Size)

항만을 입출항하는 컨테이너선의 평균 크기를 나타냄 (TEU)

$$AVS(k) = \frac{\sum_{i=1}^{n} VS_i}{n}$$

$AVS(k)$ = k항의 컨테이너선 평균 선형(Average Vessel Size)
i = 컨테이너선 수(i = 1,2,3,...,n)
VS_i = i 컨테이너선의 선형
k = 컨테이너 항만(k = 1,2,3,....,m)

부 록

서비스 지표 산정방법

IHS Markit 원자료에서 아래의 조건을 만족하는 선박을 대상으로 선석생산성, 순선석생산성, 평균 하역량, 평균선형을 산정함

1) 컨테이너선 선형이 최소 150TEU 이상인 선박
2) 컨테이너 작업물량이 300TEU 이상인 선박
3) 선석 접안시간 최소 1시간 이상인 선박
4) 위의 3가지 조건을 동시에 충족하면서 연간 52회 (1년=52주, 주 1항차) 샘플이 있는 항만을 대상으로 함

UNGP(United Nations Global Platform) 에서 제공하는 exactEarth 실시간 AIS 데이터를 활용하여 대기시간 산정

1) 컨테이너부두에 실제로 정박한 선박의 정박지 대기시간만을 산정
2) 부두 및 정박지의 시설 위치는 AIS 데이터와 함께 World Port Index, IHS Markit Ports & Terminals Guide, Google Earth 등을 종합적으로 활용하여 파악

연구책임자

최석우 항만수요분석연구실장

연구진

하태영 항만수요분석연구실 연구위원
이기열 항만수요분석연구실 연구위원
이수영 항만수요분석연구실 전문연구원
이화섭 항만수요분석연구실 전문연구원
신정훈 항만수요분석연구실 전문연구원
이나영 항만수요분석연구실 전문연구원
김영훈 항만수요분석연구실 전문연구원
조성현 항만수요분석연구실 연구원

감 리

김근섭 항만연구본부 본부장

세계 컨테이너 **항만 서비스 지표** 2024년 2분기

발행일 2024년 9월 25일
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