

JIS

JAPANESE INDUSTRIAL STANDARD

**Automated storage and
retrieval system — Vocabulary**

JIS B 8941—1991



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Automated storage and retrieval
system-Vocabulary

B 8941-1991

1. Scope

This Japanese Industrial Standard specifies terms and definitions relating to automated storage and retrieval systems to handle the freight mainly of pallets in packaging unit out of system composed of steel structure rack, stacker crane and pickup/delivery station to handle freight in packaging unit (hereafter referred to as "unit load").

2. Classification

Terms shall be classified into classes as follows:

- (1) General
- (2) Stacker crane
- (3) Rack
- (4) Control
- (5) Operation and information processing

3. Terms and definitions

Terms and definitions shall be as follows:

Further, for informative reference the corresponding English is shown.

Remarks 1. The part of term shown in () may be omitted.

2. Numerals shown in () after the term in the sentence of definition indicates the number of term in this Standard.

(1) General

(a) Terms relating to uses

No.	Terms (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
1001	原材料倉庫	GENZAI RYŌ SŌKO	The storage system to store the raw material, material, etc. to be used for manufacturing for a short period.	raw materials storage system	
1002	部品倉庫	BUHIN SŌKO	The storage system to store the parts for a short period in the working and assembling process.	parts storage system	
1003	工程間倉庫	KŌTEIKAN SŌKO	The storage system to store the incomplete products for a short period in order to regulate the demand and supply during process. Remarks: It is called also the processing goods storage system.	in process storage system	
1004	製品倉庫	SEIHIN SŌKO	The storage system to store the completed products for a short period until shipping.	finished goods storage system	
1005	流通倉庫	RYŪTŪ SŌKO	The storage system for the purpose of the storage of business commodities in the distribution process or of the sorting for shipping.	in distribution storage system (depot)	

(b) Terms relating to layout of storage system

No.	Terms (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
1101	ホームポジション	HŌMU POZISYON	At the specific position to be the reference of stacker crane (2001) usually, it coincides with the storage and retrieval station (1102).	home position	
1102	入出庫ステーション	NYŪSYUKKO SUTEISYON	The place to perform delivery of freight of stacker crane (2001) in order to carry out storage and retrieval to racking (3001).	storage and retrieval station	
1103	片側入出庫方式	KATAGAWA NYŪ-SYUKKO HŌSIKI	The type to provide the storage and retrieval station (1102) at one end of the travelling path of stacker crane (Refer to Attached Fig. 1).	one side home position type	
1104	両側入出庫方式	RYŌGAWA NYŪ-SYUKKO HŌSIKI	The type to provide the storage and retrieval station (1102) at both ends of the travelling path of stacker crane (Refer to Attached Fig. 1).	both sides home position type	
1105	中間入出庫方式	CHŪKAN NYŪSHUKKO HŌSIKI	The type to provide the storage and retrieval station (1102) at the intermediate of travelling path of stacker crane (Refer to Attached Fig. 1).	middle home position type	
1106	直線レール方式	TYOKUSEN RERU HŌSIKI	The type of travelling path where the travelling path of stacker crane is composed of only straight lines.	straight travelling type	

No.	Terms (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
1107	Uターンレール方式	U TĀN RĒRU HŌSIKI	The type of travelling path where the end of travelling path of stacker crane set in parallel condition is connected in arc shape (Refer to Attached Fig. 1).	U-turn travelling type	
1108	トラバース方式	TORABĀSA HŌSIKI	The type of travelling path where the end of travelling path of stacker crane set in parallel condition is connected by traverser (Refer to Attached Fig. 1). Remarks: The traverser means the facility to travel the stack or crane to an adjacent rack.	aisle transfer type	

(c) Terms relating to storage type

No.	Terms (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
1201	シングルストレージ	SINGURU SUTOREĒZI	The type of rack storage to store one pallet in depth direction of rack opening.	single deep storage	
1202	ダブルストレージ	DABURU SUTOREĒZI	The type of rack storage to store two pallets in depth direction of rack opening.	double deep storage, two deep storage	
1203	マルチストレージ	MARUTI SUTOREĒZI	The type of rack storage constructed so as to store many loads in depth direction of rack opening.	multiple deep storage	

(2) Stacker cranes

(a) Terms relating to classification

No.	Terms (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
2001	スタッククレーン	SUTAKKA KURĒN	The generic name of cranes to lade the unit load on rack opening (3004) and to transport to retrieving stand.	stacker crane	
2002	人荷昇降式スタッククレーン (じんかしやうこうしき ——)	ZINKA SYŌKŌSIKI SUTAKKA KURĒN	The stacker crane (2001) in which the position of riding operation is on the hoisting frame and the operator rises and lowers together with the load.	movable cabin type stacker crane	
2003	荷昇降式スタッククレーン (にしやうこうしき——)	NI SYŌKŌSIKI SUTAKKA KURĒN	The stacker crane (2001) in which the position of riding operation is under the main frame and the operator does not move and rises and lowers together with the load.	fixed cabin type stacker crane	
2004	シングルリーチ式スタッククレーン	SINGURU RĪTISIKI SUTAKKA KURĒN	The stacker crane (2001) in which only one unit load is performed with storing and retrieval by the fork gear (2107).	single-reach type stacker crane	
2005	ダブルリーチ式スタッククレーン	DABURU RĪTISIKI SUTAKKA KURĒN	The stacker crane (2001) to perform the storing and retrieval of each one unit of the loads having double depth (3104) in rectangular direction to the travelling direction according to the fork gear (2107).	double-reach type stacker crane	
2006	ツインフォーク式スタッククレーン	TUIN HŌKU SIKI SUTAKKA KURĒN	The stacker crane (2001) capable of performing storing and retrieval of two loads individually with providing the two unit fork gear (2107).	twin-fork type stacker crane	

(b) Terms relating to structure

No.	Terms (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
2101	主枠	SYU WAKU	The main structural body to compose the stacker crane (2001).	main frame	
2102	荷台ガイドレール	NIDAI GAIDO RĒRU	The rail to be provided along the main frame (2101) to stabilize the rising and lowering of hoisting frame (2103).	guide rail	
2103	荷台	NIDAI	The frame to rise and lower along the main frame (2101).	hoisting frame	
2104	走行レール	SŌKŌ RĒRU	The rail for travelling of stacker crane (Refer to Attached Fig. 8).	travelling rail	
2105	走行ガイド	SŌKŌ GAIDO	The guide for travelling of stacker crane (Refer to Attached Fig. 8).	travelling guide rail	
2106	運転室 (台)	UNTEN SITU (DAI)	The cab where the operating table of stacker crane is set. Remarks: That not formed with the cab is called operating step.	operating cab Remarks: operating step	
2107	フォーク装置	HŌKU SŌTI	The gear to lade the load and to place in storage or retrieve the load from the hoisting frame (2103) to rack opening (3004) or the like.	fork gear	
2108	昇降装置	SYŌKŌ SŌTI	The gear to make raising and lowering of hoisting frame (2103).	hoist gear	
2109	走行装置	SŌKŌ SŌTI	The gear to travel the stacker crane body.	travel gear	

No.	Terms (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
2110	落下防止装置	RAKKA BŌSI SŌTI	The safety device to control automatically the lowering of hoisting frame (2103) and the operating cab (2106) in case where the hoisting wire rope or chain is cut.	safety catcher	
2111	荷崩れ検出装置 (にくずれ—)	NIKUZURE KENSYUTU SŌTI	The safety device to detect a collapsed load during operation or the moving of load to the position other than the normal position.	abnormality detection device for load position	
2112	逸走防止装置	ISSŌ BŌSI SŌTI	The apparatus to prevent travel/hoisting from travel or hoisting ends. Remarks: It is called also the end part automatic stopping apparatus.	limitation of travel/hoisting movement	
2113	二重格納防止装置	NIZYŪ KAKUNŌ BŌSI SŌTI	The apparatus to confirm automatically the existence of load of objective rack opening at storing time.	double occupation detector	
2114	フェースガード	HĒSU GĀDO	The protective frame to be provided for the purpose to prevent the touching of operator during operation to the rack opening (3004).	face guard	
2115	ヘッドガード	HEDDO GĀDO	The protective frame to be provided above the head of the operator in order to protect the human body from falling objects.	overhead guard	

(c) Terms relating to dimensions

No.	Terms (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
2201	クレーン全高	KURĒN ZENKŌ	The dimension from the upper end of travelling rail up to the upper end of stacker crane body (Refer to Attached Fig. 2). Remarks: It is expressed by symbol H .	overall crane height	
2202	クレーン全長	KURĒN ZENTYŌ	The maximum dimension between the maximum protrusions of body in travelling direction of stacker crane (Refer to Attached Fig. 2). Remarks: It is expressed by symbol L .	overall crane length	
2203	クレーン全幅	KURĒN ZENHABA	The dimension between the maximum protrusions of body in the rectangular direction to the travelling direction of stacker crane (Refer to Attached Fig. 2). Remarks: It is expressed by symbol W .	overall crane width	
2204	ホイールベース	HOĪRU BĒSU	The central dimension between the travelling wheels of stacker crane (Refer to Attached Fig. 2). Remarks: It is expressed by symbol W_b .	wheel base	
2205	レール高さ	RĒRU TAKASA	The dimension from the floor surface up to the upper end of travelling rail (Refer to Attached Fig. 2). Remarks: It is expressed by symbol R_h .	rail height	

No.	Terms (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
2206	フォーク下縁高さ	HŌKU KAGEN TAKASA	The dimension between the upper end of fork at lower limit of lift and the floor surface of storage system (Refer to Attached Fig. 2). Remarks: It is expressed by symbol l_{ld} .	forking lower limit height	
2207	揚程	YŌTEI	The stroke in up and down direction of load (Refer to Attached Fig. 2). Remarks: It is expressed by symbol H_s .	lift	
2208	フォークストローク	HŌKU SUTORŌKU	The length of stroke of fork (Refer to Attached Fig. 2). Remarks: It is expressed by symbol F_s .	forking stroke	

(d) Terms relating to performance.

No.	Term (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
2301	つり上げ荷重	TURIAGE KAZYŪ	The maximum load capable of loading corresponding to the structure and materials of stacker crane (2001).	hoisting load	
2302	定格荷重	TEIKAKU KAZYŪ	The load of hoisting load (2301) subtracted by the weight of hoisting accessory (pallet weight + maximum load).	rated load	

No.	Terms (Japanese character)	Reading	Definition	Informative reference English equivalent
2303	車輪荷重	SYARIN KAZYŪ	The vertical load to be applied to one wheel.	wheel load
2304	定格速度	TEIKAKU SOKUDO	The maximum speed of each motion at the rated load (2302).	rated speed
2305	走行	SŌKŌ	The travelling of stacker crane (2001).	travelling
2306	昇降	SYŌKŌ	The hoisting and lowering of load.	hoisting
2307	フォークキング	HŌKINGU	The pickup/delivery of load by the fork.	forking
2308	停止精度	TEISI SEIDO	The size of deviation at the specified stopping position in travelling (2305) of stacker crane (2001), hoisting (2306) and forking (2307).	stopping deviation

(e) Terms relating to capacity

No.	Term (Japanese character)	Reading	Definition	Informative reference English equivalent
2401	入出庫能力	NYŪSYUKKO NŌRYOKU	The number of pickup/delivery unit loads per unit time.	movement capacity
2402	サイクルタイム	SAIKURU TAIMU	The reciprocating time required for transport from the specified position to the specified position relative to the various reference motions.	cycle time

No.	Terms (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
2403	入庫サイクル	NYŪKO SAIKURU	The reference motion for storage.	operating duty cycle of storage	
2404	出庫サイクル	SYUKKO SAIKURU	The reference motion for retrieval.	operating duty cycle of retrieval	
2405	単一サイクル	TAN'ITI SAIKURU	The reference motion of either storage or retrieval. Remarks: The reference motion cycle time of single cycle is the time required for performing one motion of storage (or retrieval) by stacker crane, in the case of storage, it means the motion time(s) from the storage position through load receiving, rack middle, occupation until returning to the storage position, and in the case of retrieval, it means the motion time(s) from the retrieval position through the rack middle, load receiving, retrieval position until the retrieval (Refer to Attached Fig. 3).	single cycle	