WS ORK – TUDY

Munthof 11
NL-5551 XG Valkenswaard
The Netherlands
Tel. +31-40.2046048

WORK-FACTOR

K.v.K. 17223044
Website www.work-factor.nl

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WS ORK – TUDY WS Tip 152 30 September 2018

COST CONTROL IN WAREHOUSE AND STORE (note 75e) (Part 1)

O&E Information Centre, September 1986 – P. van Witzier

CONTENTS

Chapter 9. Standards and Time Standards

Before the work content of the functions and activities described in chapters 7 and 8 is determined, this chapter first gives a description of the standards on which this is based. For a description of the Work Study techniques from Industrial Engineering with the aid of which these standards are determined, see Work Study Cahier no. 6.
It should be pointed out here that no standards are determined from “behind the desk” but in so far as activities could not be measured using Work-Factor techniques, all the standards were not only measured and determined in practice on the shop floor but were also tried out there with regard to their practicability and feasibility.
Deviations relating to the work content can only be explained by differences in the local situation to which they relate. It is therefore wise to find out exactly whether the variable elements and factors are really correctly adapted. These will be clearly indicated in the Work Content Sheets in the next chapter.
An explanation of the composition of the mechanical aids as mentioned in the Standards Sheet (see also Appendix 11) at the end of this chapter, will be given here.
The times required have been determined with the cooperation of a variety of employees in the warehouse who carried out the activities, using the “old, familiar stopwatch”, taking account of the speed and efficiency with which these activities were carried out as regards the pure “man-time” (Bedaux Method). A combination of “man-time” and “machine-time” is virtually always involved, particularly when mechanical aids are used.

Standards Times for Truck Handling

1a. Forklift Truck, Electrical - FLT, 1,000 kg on block stack
Allowance has always been made for a 90^{o} turn both in picking up and setting down a pallet. An extra time of 3 sec. is needed for each 90^{o} turn while driving. As regards driving speed, there is a slight difference between driving with and without a load, but for the sake of simplicity an average driving time of 0,6 sec./meter has been used in the calculation. A precondition here, of course, is that the floor is of a suitable quality for driving on. In some factories outside the Netherlands this will not always be the case and a new average driving time will have to be determined at the relevant location. This also applies in situations where there are many obstacles, such as truck traffic in assembly departments.
The load being carried can also be a limiting factor, of course. This should also be looked at from case to case.
Three levels have been taken into account for both picking up and setting down: ground level (0 meter), a block stack of two pallets, a block stack of three pallets up to 3,6 metres.

N.B. These times do not apply to placing pallets accurately one on top of the other with corner supports. The necessary additional time for this is 30%.

The following elements are included in picking up:
1. Driving the forklift truck up to the rack etc. (possibly with a turn) after the straight transport path.
2. Straightening up and then inserting the two forks.
3. Lifting the pallet plus load slightly and tilting them backwards.
4. Reversing with the load over at least a pallet length (or pallet width), possibly with a turn.

The following elements are included in setting down a pallet:
1. Driving the forklift truck up to the rack etc. after a straight transport path (if necessary with a turn).
2. Straightening up and inserting the pallet plus load.
3. Tilting the forks forward slightly to the horizontal position.
4. If necessary, additional straightening up.
5. Setting down the pallet and then removing the forks, if necessary with a turn.

1b. Forklift Truck, Electric - FLT, 1000 kg in Pallet Racks
The handling here is the same, only it requires slightly more time because the accuracy with which the pallets have to be placed on the spars of the rack is greater than that required when placing it on a block stack.

2a. Reach Truck, Electric - RTE, 1000 kg, on Block Stack
The extra time here compared with a forklift truck is due to extending and retracting the telescopic arm. The great advantage of this truck is the short turning circle which means that an aisle width of 2,5 me-

tres is sufficient, as compared with the aisle width of 3 metres required for a normal forklift truck. In addition, the cross-wise seating permits a better view when both picking up and setting down a pallet, as well as during travel, when the view is not hampered by a complete pallet and it is not necessary to “twist around” when reversing as with a normal forklift truck.

2b. Reach Truck, Electric - RTE, 1000 kg, in Pallet Racks
Here again there is a difference in time because of the difference between a Block Stack and picking up and setting down pallets in Pallet Racks.

3. Clamping Truck, Electric - CTE, 2500 kg, on Block Stack
This relates to a clamping truck which is capable of clamping non-palletised goods such as Washing Machines, Tumble Dryers, Refrigerators, Freezers, TV sets in blocks of 4-6-8-12 and setting them down in Block Stacks.
The times stated here include opening and closing the clamps.
The following times apply to all Forklift trucks:

for mounting - starting	: 6 sec.
for stopping - dismounting	: 6 sec.

4. Electric Pallet Truck - EPT
Six seconds each are required for the combination of stopping plus dismounting and the combination of mounting plus starting the truck.
The elements for picking up and setting down pallets are practically the same as those for the forklift truck, except that the backward tilting and forward tilting are omitted here. In this case, too, the driving time applies to a floor of suitable quality and without too many obstacles, e.g. as in production departments. Because of its manoeuvrability the truck operates very quickly.

5. Hand Pallet Truck - HPT
Here again allowance is made for the fact that during picking up and setting down a 90° turn is generally included. The driving time is practically twice that taken by an electric pallet truck since it depends on the operator’s walking speed. An average of approx. 4 seconds is needed to stop, i.e. to brake, the hand pallet truck. The same average time is needed to get it up to normal speed again. The distance that may be covered in these two operations must not be regarded as a transport path, particularly if in fact a 90° turn is necessary immedi ately after picking up a pallet.
The transport path here should be thought of as the displacement of the centre of the pallet from the situation it is in on the location (in the horizontal plane) to the situation it is in after it bas been set down again (e.g. in the packing area). The same, of course, also applies to the forklift truck and the electric pallet truck.
Practically the same elements apply to picking up and setting down in the case of the hand pallet truck as those of the other “trucks”, except that in this case a number of pump strokes with the toe-bar to “raise” the pallet and operation of the tumbler switch to “lower” the pallet again are included here.

6. Standards relating to Trucks
The following frequently occurring activities can also be presented as standards.

The description is self-explanatory. With regard to the lifting and lowering time of Forklift Trucks per metre heights of over 3.6 m and 5.4 m can be extrapolated for the standards. These times are averages for the forklift trucks made by Lansing, Still and Yale.

Differences may occur with each make and type of Truck. Where variations occur, it is therefore wise to measure the time required per metre yourself, which s very easy to do.
Preparing and putting away pallets manually naturally also applies to Hand Pallet Trucks since this is done regardless of the type of Truck concerned.

Times are Normal Times, NT.

INDUSTRIAL ENGINEERING	STANDARDS PHYS. DISTRIBUTION	PHYSICAL & CLERICAL HANDLING © N.V. PHILIPS EINDHOVEN 1986

1 FORKLIFT TRUCK ELECTRIC, FLT

1.800 kg
time in sec.

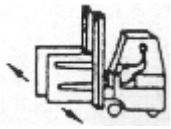
	Class	1	2	3
	Lifting height m	0	1,8	3,6
ON BLOCK STACK				
1	Picking up +90° turn	8	10	18
2	Setting down +90° turn	6	11	22
IN PALLET RACKS				
3	Picking up +90° turn	8	15	24
4	Setting down +90° turn	10	17	27
5	While driving +90° turn			3
Driving time: 0,6 sec./ meter				

2 REACH TRUCK ELECTRIC, RTE

1.500 kg
time in sec.

	Class	1	2	3
	Lifting height m	0	1,8	3,6
ON BLOCK STACK				
1	Picking up +90° turn	13	14	20
2	Setting down +90°turn	13	15	25
IN PALLET RACKS				
3	Picking up +90° turn	13	18	25
4	Setting down +90°turn	13	20	30
5	While driving +90° turn			3
Driving time: 0,6 sec./ meter				

3 CLAMP TRUCK ELECTRIC, CTE



2.500 kg
time in sec

	Class	1	2	3	4
	Lifting height m	0	1,8	3,6	5,4
ON BLOCK STACK					
1	Picking up +90° turn	8	17	21	30
2	Setting down +90° turn	8	17	21	30
IN PALLET RACKS					
3	Picking up +90° turn				
4	Setting down +90° turn				
5	While driving +90° turn				3
Driving time: 0,6 sec./ meter					

4 ELECTRIC PALLET TRUCK, EPT

time in seconds

1	Mounting + starting	6
2	Stopping + dismounting	
3	Picking up + 90° turn	8
4	Setting down + 90° turn	10
5	While driving + 90° turn	3
Driving time: 0,5 sec. / meter		

5 HAND PALLET TRUCK, HPT

time in seconds

1	Starting	4
2	Stopping	
3	Picking up + 90° turn	8
4	Setting down + 90° turn	6
5	While driving + 90° turn	3
Driving time: 1 sec./ meter		

6 STANDARDS FORKLIFT TRUCK

		time in sec.
1	Mounting Forklift truck	6,0
2	Dismounting Forklift truck	6,0
3	Picking up empty pallet (stack)	10,0
4	Setting down empty pallet (stack)	10,0
5	Setting down pallet in row	4,0
6	Lifting time per meter	3,9
7	Lowering time per meter	2,7
8	Preparing empty pallet (hand)	10,0
9	Putting away empty pallet (hand)	10,0

7 DOCUMENTS

			time in sec.
1	Receive and arrange sequence		15
2	Remove from stack (top)		1,5
3	Remove from below magnet or from between strapping		2,5
4	Read and keep	Location no.	1,0
5	in mind on	No. of items	1,0
6	order line:	Type no. (12 nc)	2,0
7	Compare order	Location no.	2,0
8	line & identity with	No. of items	2,0
9	e.g. label on box	Type no. (12 nc)	4,0
10	Tick order line “V”		2,0

7 DOCUMENTS

		time in sec.
11	Initial order line (2)	4,0
12	Place under magnet	2,0
13	Insert between stopping	2,5
14	Place in envelope and close	6,0
15	Separate 2 doc. per set:	3,5
16	Sort by sequence of last digit per document:	6,0
17	Take-open-close and put away stamp pad	4,5
18	Take stamp - hang up	2,5
19	Stamp document per item:	2,0
20	Take ball-point and put it away in breast pocket	3,0

8 ORDER PICKING

			time in sec.
1	Restacking or order picking for boxes Lighting D.A.P. Audio/Video	small boxes light	2,6
2		average box	5,0
3		large or heavy	7,0
4		very heavy	12,0
5	Ditto for M.D.A.	small Refr./TV	12,0
6		tumble dryer	15,0
7		large Refrig.	22,0
8		large TV/wash.m	32,0

9 CHECKING THE NUMBER

		time in sec
1	Count boxes on Complete pallet per box:	0,3
2	Count and place indication on composite pallet per box:	1,2
3	Count single items in box per item:	0,3
4	Count single items on table per item:	1,2

Part 2 will be published in the next WS Tip.

Voor reacties naar
G. de Vrij
Secr.: Stichting Work-Study / WORK-FACTOR Raad / WFGD
Tel: +31.40.2046048
E-mail: work-study@onsmail.nl of info@work-factor.nl
Website: www.work-factor.nl

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