

Stichting Work-Study, de Work-Factor Raad en de WFGD willen een platform bieden aan Work-Factor gebruikers, arbeidsanalisten, cost engineers en industrial engineers om problemen, oplossingen, ideeën en tips te bespreken. Daartoe zullen we regelmatig een WS Tip sturen aan “WF-leden” en geïnteresseerden.

Mocht dit bericht niet op het juiste adres aankomen stuur het dan door naar geïnteresseerden en laat ons dat weten.

## **COST CONTROL IN WAREHOUSE AND STORE (note 75e)**

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

### **Part 2**

#### Standard times for Physical and Clerical Handling

In addition to clear-cut standards for handling with Trucks and Pallets, there are a number of handling activities which are so uniform in pattern that fixed and generally applicable standards can also be set for them.

Notes to these standards:

#### 7. Documents

**el.1:** This means, for example, the Reception Group Leader or the Dispatcher. Placing in sequence means sorting to some extent without really placing by number as in el.16.

**el.7:** This relates to a location number, number of items or type number read e.g. on the label of a box; keep this in mind/memory; then reading the same item on an order line and comparing this with the item already read and in memory and deciding whether both items are the same.

**el.19:** This does not mean, for example, putting on postage stamps as at the post office, but placing a clearly legible stamp on a particular place on a document.

#### 8. Order picking

**el.1:** The time of sec 2,6 secs per box is an average because of the fact that 2 or 3 boxes can generally be taken at a time.

Example: Incandescent lamps, halogen lamps, infra-red lamps.

**el.2:** Example: mirror reflector lamps, SP-PL, incandescent lamp luminaires.

**el.3:** This time serves as an example per box of fluorescent lamps; outdoor lighting lamps.

**el.4:** Example: luminaires for indoor and outdoor lighting, ballasts, boxes of batteries.

**el.5:** This applies to a whole range of products; as regards TVs, only the smaller types.

**el.6:** Other examples: spin dryer, but also the large type of loudspeaker enclosures and complete HiFi racks, although these belong to the main articles in the Audio group.

**el.7:** This time seems short, but refrigerators of this type are never stacked two-high, but always on the ground, so they need not be lifted but are pushed onto the pallet by two-and-fro tilting movements at the bottom edge. (Note the correct side where this is permitted, i.e. the side where a sack truck is permitted).

**el.8:** A large TV must be lifted since the pallet or clamp consists of two layers.

Times are Normal Times, NT.

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

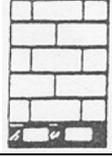
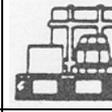
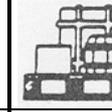
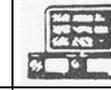
10. HANDLING BOX - SINGLE ITEM			time in sec
1	Cut open outer box, open flaps		16
2	Remove inner box	First box	10
3		Each subsequent	6
4	Cut open inner box, open flaps		12
5	Remove items	First item	8
6		Each subsequent	3

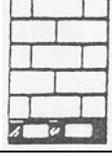
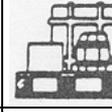
11. PALLET HANDLING			time in sec
1	Mark pallet with chalk with name or number		15
2	Ditto with stick-on label		20
3	Wind rope round boxes on pallet, per rope		45
4	Wrap stretch foil round pallet, per rope, manually		108
5	Walk with hpt or order pick truck per meter		1
6	Walk freely per meter		0,8

12. PACKING			time in sec
1	Making an existing box smaller (height)		30
2	Fold new box from flat board, stick down bottom	small	15
3		average	25
4		large	40
5	Place parts in box	First item	6
6		2 items	8
7		3 items	12
8	Put filling material in box		15
9	Fold box shut and stick down lid	small	12

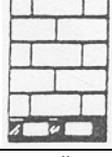
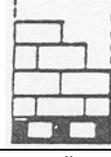
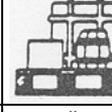
12. PACKING			time in sec
10	Fold box shut and stick down lid	average	20
11		large	35

13. LABELS			time in sec
1	Stick on self-adhesive label		5.0
2	Separate, with brush and adhesive-single		9.5
3	Separate, with brush and adhesive-series		2.0

14. INCOMING - QUANTITY + NC INSPECTION							min x 1.15, calculated form Normal Times													
No sorting							Including sorting													
1 Compl. pallet	2 Incompl. pallet	3 Composite plt.	4 Incompl. box	5 Composite plt.	6 Standard box	7 Incomplete box														
							per pallet	0.2	per pallet	0.3	per pallet	1.6	per pallet	1.3	per pallet	6.3	per box	0.35	per box	1.3

15. OUTGOING QUANT. + NC INSP.						min x 1.15, from NT's					
1 Compl. pallet	2 Incompl. pallet	3 Composite plt.									
											*
per pallet	0.35	per pallet	0.5	per pallet	1.2						

\*) min. x 1.20, calculated from Normal Times

16. PACKING, AFTER OR SIMULTANEOUSLY WITH CHECKING												min x 1.15, calculated form Normal Times					
1 Compl. pallet	2 Incompl. pallet	3 Composite plt.	4 Standard box	5 Incomplete box	6 Single items												
											*						
per pallet	0.6	per pallet	0.6	per pallet	2.8	per box	0.12	per box	2	per box	2						

9. Check on number

**el.1:** This involves counting all the same boxes which are the same as the one for which the type has been checked on the label, or only the number of boxes per pallet.

**el.2:** These are boxes of different sizes which are grouped together on one pallet as regards type, but are mixed up as a group. To ensure a proper check these must be indicated e.g. by a chalk mark, hence the additional time as compared with el.1.

**el.3:** This relates to a number of boxes (inner boxes) or articles which are clearly distinguishable from each other and are grouped in a regular pattern.

**el.4:** These are single items which are mixed up in an irregular pattern and which have to be pushed aside one by one to count them.

10. Handling boxes and single items

**el.1** and **el.4:** These apply to an average box, in which respect and care must be taken to avoid damaging the inner packing and the products in the box with the knife.

**el.2:** The first inner box is generally difficult to remove.

**el.3:** There is generally more room to remove each subsequent box.

**el.5:** This relates to a separate product with its own single-item packing, e.g. 100 incandescent lamps per outer box, in which there are five inner boxes with 20 lamps each.

11. Pallet handling

**el.1:** On cardboard boxes which are not used as de luxe boxes. (Firm's name, number of Shipping Order, number of boxes serial number of pallet (in the case of more than one pallet)

**el.2:** On smooth white cardboard boxes.

**el.3:** To bind each layer more firmly together and promote the stability of the stack on the pallet.

**el.4:** This is done with a hand wrapping machine containing foil so that the operator can walk around the pallet until a sufficient number of cross windings have been applied to ensure a firm binding and give adequate stability for external transport.

12. Packing

**el.1:** This involves making a cut on the four corners of the box and folding the sides with the existing flaps of the lid inwards.

**el.2:** These times are based on sticking down using pre-coated adhesive tape that first has to be moistened with a wet roller before it torn off the roll itself . Plastic tape is quicker, but does not adhere so well to rough, lumpy cardboard which is subject to some tension after being folded shut.

**el.3 to 7:** These apply to boxes with all-round dimensions of 34x40x60 cm and products of 10x20x20 cm. Much more time or much less time, respectively, applies to the box for a large TV or a small box for Elcoma components such as a few resistors or semiconductors etc.

For these it is much better to make separate Work Content Sheets in order to ensure sufficient accuracy.

Yet another point is whether packing takes place on a packing table specially equipped for this or during an inspection in the Customer Lane. Apart from the fact that in the latter case it is first necessary to walk to and from a packing table, it still makes a great difference.

13. Labels

**el.1:** Relates to a label which can be peeled off a base and not a label from which a protective cover the size of the label has first to be removed.

**el.3:** Relates to boxes, e.g. on a pallet which can be coated with adhesive with a brush in advance and can be labelled in series, the labels then being smoothed down with a light brush stroke so that they remain firmly attached. Picking up and putting away the pot of adhesive and brush are included, as in element 2.

**14a Inspection Incoming Quantity + NC**

In these standards the necessary time is expressed in minutes x 1,15.

For the constituent items see the explanatory note in the next chapter on Work Content Sheets:

Complete pallet	131
Incomplete pallet	132
Composite pallet	133
Non - sorting	
Incomplete box	135

**14b Including sorting**

When the composite pallet is sorted, the times in minutes shown apply to a standard box and an incomplete box, see Work Content Sheets:

Composite pallet	134
Incomplete box	135

**15. Outgoing Goods, time in min x 1,15**

The standards shown apply to the outgoing goods. For the Work Content Sheets see

Complete pallet	411
Incomplete pallet	412
Composite pallet	413

**16. Packing (after or simultaneously with checking)**

The reader should refer to the following Work Content Sheets for this too:

Complete pallet	511
Incomplete pallet	511
Composite pallet	512
Standard box	513
Incomplete box	521
Single items	521

Although, as already stated, these standards too are based on a uniform pattern as regards the necessary "handling" for these operations, you can clearly see on going through the next chapter what other factors sometimes have an influence on this. And since these can vary from store to store, it is best first to look at the relevant Work Content Sheets to see whether the conditions mentioned here also apply in your situation. If that is not, or is only partly the case, the factors which apply in that particular situation can be introduced fairly easily and in this way the new Standard which is valid for that situation can be calculated in this way.

The above applies to standards 14 and 16 presented here.

The Work Content Sheets which will be discussed in the next chapter have been drawn up using standards 14 to 16.

The Work Content Sheets themselves are presented in Appendix 12 "WORK CONTENT SHEETS".

**An example is shown below.**

Voor reacties naar

G. de Vrij

Secr.: Stichting Work-Study / WORK-FACTOR Raad / WFGD

Tel: +31.40.2046048

E-mail: [work-study@onsmail.nl](mailto:work-study@onsmail.nl) of [info@work-factor.nl](mailto:info@work-factor.nl)

Website: [www.work-factor.nl](http://www.work-factor.nl)

