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Testing. Advising. Assuring.

Title:

The Fire Resistance
Performance of Timber
Doorsets Incorporating
Häfele Stainless Steel Lever
Handle Furniture

WF Assessment Report No:

195595 Issue 3

Prepared for:

Häfele GmbH & Co KG

Postfach 12 37,
D-72192 Nagold,
Germany.

Date:

23rd July 2010

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	3
Introduction	4
Assumptions	4
Proposals	4
Basic Test Evidence	5
Assessed Performance	5
Conclusions	7
Validity	7
Summary of Primary Supporting Data	8
Declaration by Häfele GmbH & Co KG	9
Signatories	10
Annex A – Approved Furniture	11

Executive Summary

Objective	This report considers the fire resistance performance of single-acting timber based doorsets, when fitted with Häfele stainless steel lever handle furniture, as referenced later in this report.
Report Sponsor	Häfele GmbH & Co KG
Address	Postfach 12 37, D-72192 Nagold, Germany.
Summary of Conclusions	Should the recommendations given in this report be followed, it can be concluded that previously fire tested (or assessed by Exova Warringtonfire) timber doorsets which have achieved 30 or 60 minutes integrity in accordance with BS 476: Part 22: 1987 or BS EN 1634-1, as discussed in this report, may be fitted with Häfele stainless steel lever handle furniture as detailed in Annex A, without detracting from the overall integrity performance (and insulation where relevant) of the doorset.
Valid until	1 st August 2015

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Introduction

This report considers the fire resistance performance of single-acting timber based doorsets, when fitted with Häfele stainless steel lever handle furniture, as referenced later in this report.

The proposed doorsets are required to provide a fire resistance performance of 30 or 60 minutes integrity, and where applicable insulation, with respect to BS 476: Part 22: 1987 or BS EN 1634-1 when incorporating the proposed handle furniture.

FTSG

The data referred to in the supporting data section has been considered for the purpose of this appraisal which has been prepared in accordance with the Fire Test Study Group Resolution No. 82: 2001.

Assumptions

Supporting wall

It is also assumed that the construction of the wall, which supports the proposed doorsets, will have been the subject of a separate test and the performance of the wall is such that it will not influence the performance of the doorset for the required period.

Clearance gaps

Door leaf to frame clearance gaps can have a significant effect on the overall fire performance of a doorset. It is therefore assumed that the leaf to leaf and leaf to frame clearance gaps will not exceed those measured for the relevant fire tested doorset. In addition, it is assumed that the door leaves will be in the closed and latched position.

Doorset details

The proposed handle furniture will always be used in combination with a lock/latch and it is therefore assumed that the tested doorset will have been tested or assessed when incorporating a latch/lock.

It is assumed that the proposed handle furniture will be fitted to timber based doorsets which have previously been shown to be capable of providing 30 or 60 minutes integrity and insulation, where applicable, the critical aspects of the door construction are detailed later in this report.

The lock or latch with which the handle furniture is to be fitted shall have been previously proven by fire test (or assessed by Exova Warringtonfire) as suitable for inclusion within the relevant 30 or 60 minute door construction.

Proposals

It is proposed that previously fire tested (or assessed by Exova Warringtonfire) timber doorsets which have achieved 30 or 60 minutes integrity and, where applicable, insulation performance, as discussed later in this report, may be fitted with Häfele stainless steel lever handle furniture, in accordance with recommendations given in this report, without detracting from the overall performance of the doorset.

It is also proposed that the doorsets may be of single or double-leaf configuration. The details and references of the proposed ranges of handle furniture are detailed within Annex A.

Basic Test Evidence

WF Test Report No. 193154

The test referenced WF Test Report No. 193154 and briefly described in the supporting data section of this report, describes a test conducted in accordance with BS EN 1634-1: 2008 which included two single-acting, single-leaf timber based doorsets referenced as Doorset A and Doorset B.

Doorset A was fitted with a Euro profile mortise sashlock referenced '911.02.143' complete with stainless steel return to door lever handles on roses and stainless steel escutcheons referenced 'PHD 4170'.

Doorset B was also fitted with a Euro profile mortise sashlock referenced '911.02.143' complete with stainless steel lever handles on roses and stainless steel escutcheons referenced 'PHD 4172'.

The test demonstrated the ability of the doorsets to provide 23 and 21 minutes integrity and insulation performances respectively.

Assessed Performance

General

Fire doors often incorporate locking/latching devices either to retain the doorset in the closed position during a fire or simply for keeping the doorset closed/locked in normal use.

The introduction of a lock/latch case into a timber based leaf can increase the risk of localised integrity failure, via either the mortise removing enough leaf material that premature burn through can occur, or by interruption of the intumescent seals around the leaf perimeter.

This appraisal does not however consider the implications of installing a specific lock, within a specific timber fire door construction and only considers the influence of the handle furniture. The suitability of the door leaf and latch/lock must have been demonstrated by separate test/assessment evidence.

The test reference above is cited to demonstrate the performance of the tested lever handle sets in contribution to the overall fire performance of the doorset to which they are fitted. Although integrity failures were recorded after 21 minutes to Doorset B and 23 minutes to Doorset A, review of the test report shows clearly that these failures were not attributable to the performance or presence of the lever handle furniture or the locksets to which they were fitted.

Doorsets A and B were selected as typical 60 and 30 minute timber based door constructions. The test continued for a period of 33 minutes for Doorset B, at which time it was sealed off to allow the test to continue for the 60 minute doorset, with no instance of integrity failure either at, or around the area of the lockset and lever handles. The test continued for a total duration of 66 minute. Again with no failure of integrity either at, or around the area of the lockset and lever handles.

The test is therefore considered to provide suitable evidence of the positive performance of the tested lever handle sets when fitted to timber based 30 and 60 minute fire resistant doorsets.

Levers and escutcheons

The various designs of lever handles are supplied complete with either escutcheon plates to suit euro profile lock cylinders, escutcheon plates to suit tradition lever locks or bathroom indicators with turn release. The tested lever handle sets included euro profile escutcheons. All of the lever handles within the range can be considered equal in terms of their likely performance as they utilise the same means of attachment to the door leaf, the same rose construction and are of an all metal (predominantly stainless steel) construction differing only in the aesthetics of their appearance. All escutcheons are surface mounted and are not considered to have any influence on the performance of the doorset and are therefore considered acceptable without further discussion.

Bathroom indicators

The lever sets referenced 'WC', or for the HL Series indicated in the part number as 'xxx.93.xxx', are for use with bathroom locks where the dead bolt is actuated by a thumb turn. These sets are provided with a thumb turn spindle and indicator. Again the turn and indicator components are of a stainless steel construction with a mild steel spindle. The indicator's display disc is the only non-metallic component being of thin (<1 mm) plastic material. The size and amount of material in the disc is not considered of significance in terms of the likelihood of it causing and issue with the performance of the components or detrimental effect on the performance of the doorset to which it is fitted.

HL17 & HL18 knobs

The HL17 and HL18 models are both single fixed knob on rose assemblies. They are non-operable for use in conjunction with an operable knob or lever handle on the other side of the door. They differ from one another only in shape; HL17 is flat square whereas the HL18 is flat round. Both knobs are manufactured from grade 304 stainless steel.

The knob assemblies come complete with a captive 8 mm spindle and attach by means of through bolting with 2no. 3 mm diameter bolts and sockets with additional screw fixings through the under-rose into the face of the door leaf. In terms of their construction, materials and method of installation, the knobs are considered to be sufficiently similar to the tested lever handle assemblies such that they may be positively assessed in terms of their contribution to the performance of doorset as described in this report.

Suitable doorsets As this appraisal is intended to be used on a general basis and not restricted to any particular manufacturer of fire doors, the following points are given to enable the lever furniture to be used safely.

The following requirements of the doorset and latch/lock are however considered to be essential:

- The doorset shall be of a timber construction and must have provided the required 30 or 60 minute integrity performance when tested at a UKAS accredited laboratory in accordance with BS 476: Part 22: 1987 or EN 1634-1, be assessed for the required period by Exova Warringtonfire or be CERTIFIRE approved for the required period.
- The tested/assessed doorset as described above must have been tested or assessed in the required configuration i.e. number of leaves and action.
- The tested doorset must have incorporated the required lock/latch or have been assessed by Exova Warringtonfire /approved by CERTIFIRE to be suited to including the lock/latch for the required period. Alternatively the lock/latch may be detailed in an Exova Warringtonfire assessment or CERTIFIRE approval to be suitable for use with the proposed door for the required period.

Conclusions

Previously fire tested (or assessed by Exova Warringtonfire) timber doorsets which have achieved 30 or 60 minutes integrity in accordance with BS 476: Part 22: 1987 or BS EN 1634-1, as discussed in this report, may be fitted with Häfele stainless steel lever handle furniture as detailed in Annex A, without detracting from the overall performance of the doorset.

Validity

This assessment is issued on the basis of test data and information available at the time of issue. If contradictory evidence becomes available to Exova Warringtonfire the assessment will be unconditionally withdrawn and Häfele GmbH & Co KG will be notified in writing. Similarly the assessment is invalidated if the assessed construction is subsequently tested because actual test data is deemed to take precedence over an expressed opinion. The assessment is valid initially for a period of five years i.e. until 1st August 2015, after which time it is recommended that it be returned for re-appraisal.

The appraisal is only valid provided that no other modifications are made to the tested construction other than those described in this report.

Summary of Primary Supporting Data

WF Test Report No. 193154

Test report relating to the performance of two fully insulated, single-acting, single-leaf, timber doorsets incorporating various items of building hardware, when subjected to a test in accordance with BS EN 1634-1: 2008 to determine their fire resistance performance.

Both doorsets had overall dimensions of 2085 mm high by 995 mm wide and incorporated a timber door leaf of overall dimensions 2040 mm high by 926 mm wide. Doorset A incorporated a door leaf nominally 54 mm thick, whilst Doorset B incorporated a nominally 44 mm thick door leaf.

Doorset A was fitted with a Euro profile mortise sashlock referenced '911.02.143' complete with stainless steel return to door lever handles on roses and stainless steel escutcheons referenced 'PHD 4170'. A second electronic lockset referenced 'Startec DT Lite' was also fitted to the doorset.

Doorset B was also fitted with a Euro profile mortise sashlock referenced '911.02.143' complete with stainless steel lever handles on roses and stainless steel escutcheons referenced 'PHD 4172'. A second electronic lockset referenced 'Startec DT Lite' was also fitted to the doorset.

Both doorsets were positioned such that their leaves opened towards the heating conditions of the test.

The specimens satisfied the test requirements for the following periods:

		Doorset A	Doorset B
Integrity	Sustained Flames	23 minutes	21 minutes
	Gap Gauge	66 minutes*	33 minutes [#]
	Cotton Pad	23 minutes	21 minutes
Insulation		23 minutes	21 minutes

[#] Doorset sealed off at this time. * The test duration.

The test was discontinued after a period of 66 minutes.

Test date : 27th May 2010

Test sponsor : Häfele GmbH & Co KG

Declaration by Häfele GmbH & Co KG

We the undersigned confirm that we have read and complied with the obligations placed on us by the UK Fire Test Study Group Resolution No. 82: 2001.

We confirm that the component or element of structure, which is the subject of this assessment, has not to our knowledge been subjected to a fire test to the Standard against which the assessment is being made.

We agree to withdraw this assessment from circulation should the component or element of structure be the subject of a fire test to the Standard against which this assessment is being made.

We are not aware of any information that could adversely affect the conclusions of this assessment.

If we subsequently become aware of any such information we agree to cease using the assessment and ask Exova Warringtonfire to withdraw the assessment.

Signed:

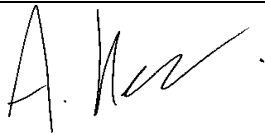
For and on behalf of:

Signatories



Responsible Officer

D Forshaw* - Technical Consultant



Approved

A Kearns* - Technical Manager

* For and on behalf of Exova Warringtonfire.

Report Issued: 23rd July 2010

The assessment report is not valid unless it incorporates the declaration duly signed by the applicant.

Issue 2: Inclusion of the HL Series of lever handles 23/05/13

Issue 3: Inclusion of HL17 & HL18 fixed knobs and inclusion of additional references for previously assessed lever handle with different logo marking 13/08/13

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Annex A – Approved Furniture

vorauss. Häfele Modell	Abbildung	reservierte Häfele Artikel-Nr.	Häfele Artikelbezeichnung
PDH4170		903.91.276	BB-GARN. 8 EDST.MATT
		903.92.276	PZ-GARN. 8 EDST.MATT
		903.93.276	WC-GARN. 8 EDST.MATT
PDH4171		903.91.076	BB-GARN. 8 EDST.MATT
		903.92.076	PZ-GARN. 8 EDST.MATT
		903.93.076	WC-GARN. 8 EDST.MATT
		903.91.077	BB-GARN. 8 EDST.POL.
		903.92.077	PZ-GARN. 8 EDST.POL.
		903.93.077	WC-GARN. 8 EDST.POL.
		903.91.078	BB-GARN. 8 EDST.POL.MESSF.PVD
		903.92.078	PZ-GARN. 8 EDST.POL.MESSF.PVD
		903.93.078	WC-GARN. EDST.POL.MESSF.PVD 8
PDH4172		903.91.092	BB-GARN. 8 EDST.MATT
		903.92.092	PZ-GARN. 8 EDST.MATT
		903.93.092	WC-GARN. 8 EDST.MATT
		903.91.093	BB-GARN. 8 EDST.POL.
		903.92.093	PZ-GARN. 8 EDST.POL.
		903.93.093	WC-GARN. 8 EDST.POL.
		903.91.094	BB-GARN. 8 EDST.POL.MESSF.PVD
		903.92.094	PZ-GARN. 8 EDST.POL.MESSF.PVD
903.93.094	WC-GARN. EDST.POL.MESSF.PVD 8		
PDH4173		903.91.096	BB-GARN. 8 EDST.MATT
		903.92.096	PZ-GARN. 8 EDST.MATT
		903.93.096	WC-GARN. 8 EDST.MATT
		903.91.097	BB-GARN. 8 EDST.POL.
		903.92.097	PZ-GARN. 8 EDST.POL.
		903.93.097	WC-GARN. 8 EDST.POL.
		903.91.098	BB-GARN. 8 EDST.POL.MESSF.PVD
		903.92.098	PZ-GARN. 8 EDST.POL.MESSF.PVD
903.93.098	WC-GARN. EDST.POL.MESSF.PVD 8		









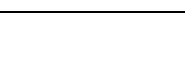
Annex A continued

vorauss. Häfele Modell	Abbildung	reservierte Häfele Artikel-Nr.	Häfele Artikelbezeichnung
PDH4174		903.91.114	BB-GARN. 8 EDST.MATT
		903.92.114	PZ-GARN. 8 EDST.MATT
		903.93.114	WC-GARN. 8 EDST.MATT
		903.91.115	BB-GARN. 8 EDST.POL.
		903.92.115	PZ-GARN. 8 EDST.POL.
		903.93.115	WC-GARN. 8 EDST.POL.
PDH4175		903.91.154	BB-GARN. 8 EDST.MATT
		903.92.154	PZ-GARN. 8 EDST.MATT
		903.93.154	WC-GARN. 8 EDST.MATT
		903.91.155	BB-GARN. 8 EDST.POL.
		903.92.155	PZ-GARN. 8 EDST.POL.
		903.93.155	WC-GARN. 8 EDST.POL.
PDH4176		903.91.157	BB-GARN. 8 EDST.MATT
		903.92.157	PZ-GARN. 8 EDST.MATT
		903.93.157	WC-GARN. 8 EDST.MATT
		903.91.158	BB-GARN. 8 EDST.POL.
		903.92.158	PZ-GARN. 8 EDST.POL.
		903.93.158	WC-GARN. 8 EDST.POL.
		903.91.159	BB-GARN. 8 EDST.POL.MESSF.PVD
		903.92.159	PZ-GARN. 8 EDST.POL.MESSF.PVD
PDH4177		903.91.172	BB-GARN. 8 EDST.MATT
		903.92.172	PZ-GARN. 8 EDST.MATT
		903.93.172	WC-GARN. 8 EDST.MATT
		903.91.173	BB-GARN. 8 EDST.POL.
		903.92.173	PZ-GARN. 8 EDST.POL.
		903.93.173	WC-GARN. 8 EDST.POL.
		903.91.174	BB-GARN. 8 EDST.POL.MESSF.PVD
		903.92.174	PZ-GARN. 8 EDST.POL.MESSF.PVD
PDH4178		903.91.192	BB-GARN. 8 EDST.MATT
		903.92.192	PZ-GARN. 8 EDST.MATT
		903.93.192	WC-GARN. 8 EDST.MATT
		903.91.193	BB-GARN. 8 EDST.POL.
		903.92.193	PZ-GARN. 8 EDST.POL.
		903.93.193	WC-GARN. 8 EDST.POL.
		903.91.194	BB-GARN. 8 EDST.POL.MESSF.PVD
		903.92.194	PZ-GARN. 8 EDST.POL.MESSF.PVD
903.93.194	WC-GARN. 8 EDST.POL.MESSF.PVD		









Annex A continued

vorauss. Häfele Modell	Abbildung	reservierte Häfele Artikel-Nr.	Häfele Artikelbezeichnung
PDH4179		903.91.257	BB-GARN. 8 EDST.MATT
		903.92.257	PZ-GARN. 8 EDST.MATT
		903.93.257	WC-GARN. 8 EDST.MATT
		903.91.258	BB-GARN. 8 EDST.POL.
		903.92.258	PZ-GARN. 8 EDST.POL.
		903.93.258	WC-GARN. 8 EDST.POL.
		903.91.259	BB-GARN. 8 EDST.POL.MESSF.PVD
		903.92.259	PZ-GARN. 8 EDST.POL.MESSF.PVD
		903.93.259	WC-GARN. 8 EDST.POL.MESSF.PVD
PDH4180		903.91.336	BB-GARN. 8 EDST.POL./MATT
		903.92.336	PZ-GARN. 8 EDST.POL./MATT
		903.93.336	WC-GARN. 8 EDST.POL./MATT
PDH4181		903.91.352	BB-GARN. 8 EDST.MATT
		903.92.352	PZ-GARN. 8 EDST.MATT
		903.93.352	WC-GARN. 8 EDST.MATT
		903.91.353	BB-GARN. 8 EDST.POL.
		903.92.353	PZ-GARN. 8 EDST.POL.
		903.93.353	WC-GARN. 8 EDST.POL.
		903.91.354	BB-GARN. 8 EDST.POL.MESSF.PVD
		903.92.354	PZ-GARN. 8 EDST.POL.MESSF.PVD
903.93.354	WC-GARN. 8 EDST.POL.MESSF.PVD		









Annex A continued

Model #	Finish	Satin	Polish	Description	Unit	Image	Remark
	Version						
EHK-HL01	CB set	903.91.358	903.91.359	SS304 1.0T tube lever handle with escutcheon & spindle, including fixing material.	Pair		w without logo
	PC set	903.92.358	903.92.359				
	WC set	903.93.358	903.93.359				
EHK-HL02	CB set	903.91.116	903.91.117	SS304 1.0T tube lever handle with escutcheon & spindle, including fixing material.	Pair		w without logo
	PC set	903.92.116	903.92.117				
	WC set	903.93.116	903.93.117				
EHK-HL03	CB set	903.91.177	903.91.178	SS304 1.0T tube lever handle with escutcheon & spindle, including fixing material.	Pair		w without logo
	PC set	903.92.177	903.92.178				
	WC set	903.93.177	903.93.178				
EHK-HL04	CB set	903.91.452	903.91.453	SS304 1.0T tube lever handle with escutcheon & spindle, including fixing material.	Pair		w without logo
	PC set	903.92.452	903.92.453				
	WC set	903.93.452	903.93.453				
EHK-HL05	CB set	903.91.372	903.91.373	SS304 1.0T tube lever handle with escutcheon & spindle, including fixing material.	Pair		w without logo
	PC set	903.92.372	903.92.373				
	WC set	903.93.372	903.93.373				
EHK-HL06	CB set	903.91.374	903.91.375	SS304 1.0T tube lever handle with escutcheon & spindle, including fixing material.	Pair		w without logo
	PC set	903.92.374	903.92.375				
	WC set	903.93.374	903.93.375				
EHK-HL07	CB set	903.91.195	903.91.196	SS304 hollow lever handle with escutcheon & spindle, including fixing material.	Pair		w without logo
	PC set	903.92.195	903.92.196				
	WC set	903.93.195	903.93.196				
EHK-HL08	CB set	903.91.378	903.91.379	SS304 solid lever handle with escutcheon & spindle, including fixing material.	Pair		w without logo
	PC set	903.92.378	903.92.379				
	WC set	903.93.378	903.93.379				
EHK-HL09	CB set	903.91.197	903.91.198	SS304 casting lever handle with escutcheon & spindle, including fixing material.	Pair		w without logo
	PC set	903.92.197	903.92.198				
	WC set	903.93.197	903.93.198				
EHK-HL10	CB set	903.91.233	903.91.234	SS304 hollow lever handle with escutcheon & spindle, including fixing material.	Pair		w without logo
	PC set	903.92.233	903.92.234				
	WC set	903.93.233	903.93.234				









Annex A continued

Model #	Finish		Description	Unit	Image	Remark	
	Version	Satin					Polish
EHK-HL11	CB set	903.91.235	903.91.236	SS304 casting lever handle with escutcheon & spindle, including fixing material.	Pair		without logo
	PC set	903.92.235	903.92.236				
	WC set	903.93.235	903.93.236				
EHK-HL12	CB set	903.91.252	903.91.253	SS304 solid lever handle with escutcheon & spindle, including fixing material.	Pair		without logo
	PC set	903.92.252	903.92.253				
	WC set	903.93.252	903.93.253				
EHK-HL13	CB set	903.91.292	903.91.293	SS304 casting lever handle with escutcheon & spindle, including fixing material.	Pair		without logo
	PC set	903.92.292	903.92.293				
	WC set	903.93.292	903.93.293				
EHK-HL14	CB set	903.91.434	903.91.435	SS304 solid lever handle with escutcheon & spindle, including fixing material.	Pair		without logo
	PC set	903.92.434	903.92.435				
	WC set	903.93.434	903.93.435				
EHK-HL15	CB set	903.91.296	903.91.297	SS304 hollow lever handle with escutcheon & spindle, including fixing material.	Pair		without logo
	PC set	903.92.296	903.92.297				
	WC set	903.93.296	903.93.297				
EHK-HL16	CB set	903.91.442	903.91.443	SS304 casting lever handle with escutcheon & spindle, including fixing material.	Pair		without logo
	PC set	903.92.442	903.92.443				
	WC set	903.93.442	903.93.443				
EHK-HL17	Single fixing knob set	903.70.040	903.70.041	SS304 hollow fixing knob with round rose, w/o escutcheon, including fixing material.	PC		without logo
EHK-HL18	Single fixing knob set	903.70.042	903.70.043	SS304 hollow fixing knob with round rose, w/o escutcheon, including fixing material.	PC		without logo











Annex A continued

Model #	Finish Version	Satin	Polish	Description	Unit	Image	Remark
EHK-HL01	CB set	903.91.556	903.91.557	SS304 1.0T tube lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.556	903.92.557				
	WC set	903.93.556	903.93.557				
EHK-HL02	CB set	903.91.566	903.91.567	SS304 1.0T tube lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.566	903.92.567				
	WC set	903.93.566	903.93.567				
EHK-HL03	CB set	903.91.576	903.91.577	SS304 1.0T tube lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.576	903.92.577				
	WC set	903.93.576	903.93.577				
EHK-HL04	CB set	903.91.586	903.91.587	SS304 1.0T tube lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.586	903.92.587				
	WC set	903.93.586	903.93.587				
EHK-HL05	CB set	903.91.596	903.91.597	SS304 1.0T tube lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.596	903.92.597				
	WC set	903.93.596	903.93.597				
EHK-HL06	CB set	903.91.606	903.91.607	SS304 1.0T tube lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.606	903.92.607				
	WC set	903.93.606	903.93.607				
EHK-HL07	CB set	903.91.616	903.91.617	SS304 hollow lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.616	903.92.617				
	WC set	903.93.616	903.93.617				
EHK-HL08	CB set	903.91.626	903.91.627	SS304 solid lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.626	903.92.627				
	WC set	903.93.626	903.93.627				
EHK-HL09	CB set	903.91.636	903.91.637	SS304 casting lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.636	903.92.637				
	WC set	903.93.636	903.93.637				
EHK-HL10	CB set	903.91.646	903.91.647	SS304 hollow lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.646	903.92.647				
	WC set	903.93.646	903.93.647				









Annex A continued

Model #	Finish	Satin	Polish	Description	Unit	Image	Remark
	Version						
EHK-HL11	CB set	903.91.656	903.91.657	SS304 casting lever handle with escutcheon & spindle, including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.656	903.92.657				
	WC set	903.93.656	903.93.657				
EHK-HL12	CB set	903.91.666	903.91.667	SS304 solid lever handle with escutcheon & spindle, including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.666	903.92.667				
	WC set	903.93.666	903.93.667				
EHK-HL13	CB set	903.91.676	903.91.677	SS304 casting lever handle with escutcheon & spindle, including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.676	903.92.677				
	WC set	903.93.676	903.93.677				
EHK-HL14	CB set	903.91.686	903.91.687	SS304 solid lever handle with escutcheon & spindle, including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.686	903.92.687				
	WC set	903.93.686	903.93.687				
EHK-HL15	CB set	903.91.696	903.91.697	SS304 hollow lever handle with escutcheon & spindle, including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.696	903.92.697				
	WC set	903.93.696	903.93.697				
EHK-HL16	CB set	903.91.716	903.91.717	SS304 casting lever handle with escutcheon & spindle, including fixing material.	Set		With HAFELE laser logo on the handle.
	PC set	903.92.716	903.92.717				
	WC set	903.93.716	903.93.717				
EHK-HL17	Single fixing knob set	903.70.124	903.70.125	SS304 hollow fixing knob with round rose, w/o escutcheon, including fixing material.	Set		With HAFELE laser logo on the handle.
EHK-HL18	Single fixing knob set	903.70.126	903.70.127	SS304 hollow fixing knob with round rose, w/o escutcheon, including fixing material.	Set		With HAFELE laser logo on the handle.

Annex A continued

Model #	Finish	Satin	Polish	Description	Unit	Image	Remark
	Version						
EHK-HL01	CB set	903.91.179	903.91.180	SS304 1.0T tube lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.179	903.92.180				
	WC set	903.93.179	903.93.180				
EHK-HL02	CB set	903.91.238	903.91.239	SS304 1.0T tube lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.238	903.92.239				
	WC set	903.93.238	903.93.239				
EHK-HL03	CB set	903.91.314	903.91.315	SS304 1.0T tube lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.314	903.92.315				
	WC set	903.93.314	903.93.315				
EHK-HL04	CB set	903.91.316	903.91.317	SS304 1.0T tube lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.316	903.92.317				
	WC set	903.93.316	903.93.317				
EHK-HL05	CB set	903.91.332	903.91.333	SS304 1.0T tube lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.332	903.92.333				
	WC set	903.93.332	903.93.333				
EHK-HL06	CB set	903.91.334	903.91.335	SS304 1.0T tube lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.334	903.92.335				
	WC set	903.93.334	903.93.335				
EHK-HL07	CB set	903.91.456	903.91.457	SS304 hollow lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.456	903.92.457				
	WC set	903.93.456	903.93.457				
EHK-HL08	CB set	903.91.464	903.91.465	SS304 solid lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.464	903.92.465				
	WC set	903.93.464	903.93.465				
EHK-HL09	CB set	903.91.466	903.91.467	SS304 casting lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.466	903.92.467				
	WC set	903.93.466	903.93.467				
EHK-HL10	CB set	903.91.474	903.91.475	SS304 hollow lever handle with escutcheon & spindle,including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.474	903.92.475				
	WC set	903.93.474	903.93.475				

Annex A continued

Model #	Finish		Description	Unit	Image	Remark	
	Version	Satin					Polish
EHK-HL11	CB set	903.91.476	903.91.477	SS304 casting lever handle with escutcheon & spindle, including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.476	903.92.477				
	WC set	903.93.476	903.93.477				
EHK-HL12	CB set	903.91.490	903.91.491	SS304 solid lever handle with escutcheon & spindle, including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.490	903.92.491				
	WC set	903.93.490	903.93.491				
EHK-HL13	CB set	903.91.492	903.91.493	SS304 casting lever handle with escutcheon & spindle, including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.492	903.92.493				
	WC set	903.93.492	903.93.493				
EHK-HL14	CB set	903.91.494	903.91.495	SS304 solid lever handle with escutcheon & spindle, including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.494	903.92.495				
	WC set	903.93.494	903.93.495				
EHK-HL15	CB set	903.91.496	903.91.497	SS304 hollow lever handle with escutcheon & spindle, including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.496	903.92.497				
	WC set	903.93.496	903.93.497				
EHK-HL16	CB set	903.91.516	903.91.517	SS304 casting lever handle with escutcheon & spindle, including fixing material.	Set		With HAFELE laser logo on the rose.
	PC set	903.92.516	903.92.517				
	WC set	903.93.516	903.93.517				
EHK-HL17	Single fixing knob set	903.70.120	903.70.121	SS304 hollow fixing knob with round rose, w/o escutcheon, including fixing material.	Set		With HAFELE laser logo on the rose.
EHK-HL18	Single fixing knob set	903.70.122	903.70.123	SS304 hollow fixing knob with round rose, w/o escutcheon, including fixing material.	Set		With HAFELE laser logo on the rose.