DUST REMOVAL SYSTEM SUBMITTALS

Steel

- Self-contained drilling systems (TE 4A/6A DRS + DRS-M)
- Rotary hammers with DRS-S
- Combihammers with DRS-Y
- Hollow drill bits
- Core drilling
- Vacuums

HILTI SUBMITTAL PACKAGE OSHA 1926.1153 TABLE 1, SECTION vii:

Handheld and stand-mounted drills (including impact and rotary hammer drills)

Current Hilti self-contained dust collection systems:
DRS 4-A
DRS 6-A
DRS-M

For instructions on how to assemble these systems, please refer to the Hilti North America Youtube page

Onboard systems

TABLE 1 REQUIREMENTS

These systems fall under table 1, **section vii: handheld and stand-mounted drills (including impact and rotary hammer drills)**. In order to be table 1 compliant, the below requirements must be met:

- Use drill equipped with commercially available shroud or cowling with dust collection system
- Operate and maintain tool in accordance with manufacturer‘s instructions to minimize dust emissions
- Dust collector must provide the air flow recommended by the tool manufacturer, or greater
- Have a filter with 99% or greater efficiency and a filter-cleaning mechanism

Note: Vacuum must be equipped with a HEPA-filter when cleaning holes

Table 1 states that no respirator is required if the above controls are fully and properly implemented.

Equipment / Task	Engineering and work practice control methods	Required respiratory protections and minimum Assigned Protection Factor (APF)	
		≤ 4 hours / shift	> 4 hours / shift
Handheld and stand-mounted drills (including impact and rotary hammer drills)	Use drill equipped with commercially available shroud or cowling with dust collection system. Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.		
	• When used outdoors	None	None
	• When used indoors or in an enclosed area	None	None

Check below to see how your system can be compliant with 1926.1153. To verify the generation of your tool, check the rating plate, or call Hilti at 800-879-8000 with your serial number.

DRS module name	Tool name and generation	DRS system item number	Method of compliance
DRS 4-A	TE 4-A gen 1	n/a	Exposure assessment
	TE 4-A gen 2	2098490**	Objective data*
		2177080	Objective data* / Table 1
DRS 6-A	TE 6-A gen 1	n/a	Exposure assessment
	TE 6-A gen 2	n/a	Exposure assessment
	TE 6-A gen 3	2040914	Objective data
	TE 6-A gen 4	2172902	Objective data* / Table 1
		2098511**	Objective data*
DRS-M	TE 6 / 6-S / 7 / 7-C / TE 7-A	267769	Objective data*

*See Hilti’s published Objective Data — if not applicable to a specific application, exposure assessment is required.
**Can be upgraded to table 1 compliance through purchase of the compliant filter box

SYSTEM OVERVIEW

Self-contained dust-collection systems are systems that fit on the tool and do not require a separate stand-alone vacuum to collect dust. Hilti currently offers the below systems with this configuration:

Tool	Accessory	Vacuum
Rotary hammer TE 4-A 18 or TE 4-A 22	Dust removal system TE DRS 4-A	
Rotary hammer TE 6-A 36	Dust removal system TE DRS 6-A	
Rotary hammer TE 7 or TE 7-C	Dust removal system TE DRS-M	

Note: previous generations of tools may have different item numbers or nomenclature. Check with your local Hilti representative or product instruction manual to verify

OSHA 29 CFR §1926.1153
RESPIRABLE SILICA DUST EXPOSURE

Hilti TE 4-A/6-A with on-board dust removal system (DRS)

Hilti has performed testing of the above system to determine the operator's respirable silica dust exposure in accordance with EN 50632-1 and EN 50632-2-6[1]. Testing was performed under the following conditions:

- Room size: 7.8m x 7.8m x 3.3m Closed — no air exchange
- Drilled hole dimensions: ø5/8" x 2"
- Test duration: 1 hour
- Total holes drilled: 75
- Drilling orientation: overhead
- Base material: concrete
- Sampler: 10 l/min GSP pump, FSP sampler, ISO 7708-compliant, 5 µm filter
- Air sample volume collected during test: 600 liters
- Dust collection receptacle on tool emptied every 8 holes drilled

DRS module items 2098490 (TE 4A gen 2) and 2172902 (TE 6A gen 4) only

Results:

Time-Weighted Average Respirable Silica Dust Exposure[2,3]	**45 µg/m³**

1 Exception: EN 50632-2-6 specifies drilling one hundred twenty ø16mm x 50mm holes at a 15° downward-from-horizontal position.
2 The silica content of base materials varies. As a result, the silica content in respirable dust samples also varies. The above-published exposure value is based on a 20% silica content applied to the total respirable dust measurement. Measured average silica content during testing was 13.8%.
3 Exposure value represents the time-weighted average (TWA) over the 1-hour test period. Due to the test being conducted in a closed, non-ventilated room, this TWA exposure value would increase if the test duration was extended under the same conditions.
4 These test results can be applied for modules used with previous generations of tools.

HOW TO UTILIZE HILTI “OBJECTIVE DATA”

29 CFR §1926.1153(d)(2)(ii)

Performance option

Hilti has conducted testing to establish the respirable silica dust exposure (exposure level), associated with the use of various Hilti tool systems. These tests were performed in accordance with EN 50632, except the specific work configuration may vary to provide more versatile data and better address U.S. practices. The purpose of the testing was to generate “Objective Data” to be used as part of the exposure assessment requirements of 29 CFR §1926.1153(d)(2)(ii).

Per the EN standard, testing was performed for 1 hour in a 200m^3 closed, non-ventilated room. Under these conditions, exposure levels increase over time. The exposure values published in Hilti’s Objective Data represent the average over the 1-hour test period (1-hour TWA)[1]. Meaning the TWA started at zero, rose to the published 1-hour value, and would continue to rise if the test were continued.

There are several underlying concepts important to applying the Objective Data to any case-specific assessment:

1. More/less work performed in a given time period will increase/decrease the exposure level.
2. Larger/smaller room size will decrease/increase the exposure level.
3. Air exchange decreases exposure levels. Specifically, a 100% air-exchange every hour (either by the work moving to a discrete area, or via sufficient air movement), means Hilti’s published 1-hour TWA exposure level is expected to conservatively represent a steady-state TWA. The conceptual basis is two-fold: air exchange would inherently reduce the published “closed room” exposure value. And sufficient air exchange to “reset” the environment every hour would keep the exposure values at that level. For reference, a typical 20”, 2500 CFM box fan would introduce 100% new air volume in Hilti’s test chamber (7,200 ft^3), every 3 minutes[2].
4. The OSHA 50 µg/m^3 Permissible Exposure Limit (PEL), is based on an 8-hour TWA. This means the exposure level as an 8-hour TWA is ≤50 µg/m^3; a 4-hour TWA is ≤100 µg/m^3 (assuming no exposure for the remainder of the shift); a 2-hour TWA is ≤200 µg/m3 (assuming no exposure for the remainder of the shift) etc. (time [hours] x exposure level [µg/m^3] ≤ 400).

Hilti’s published Objective Data states the amount of work performed during the 1-hour test (“1-hour work”). Therefore, the respirable silica dust exposure level in any case-specific situation is expected to be below the 8-hour TWA PEL in the following conditions[3]:

- An employee performing ≤ “1-hour work” during a shift.
- An employee performing ≤ “1-hour work” in an hour, then moving to another discrete area and performing ≤ “1-hour work” in an hour, etc., throughout an entire shift.
- An employee performing ≤ “1-hour work” each hour, in an environment with sufficient airexchange to prevent accumulation of airborne dust.

1 Hilti’s published Objective Data incorporates a silica content of 20% of the total respirable dust measurement. Site-specific silica content varies. OSHA Docket No. OSHA-2010-0034, reviewed 588 respirable dust samples from construction tasks, finding the silica content varied from <1%-50%, with an average of 9.1%.
2 Note introduction/exhaust of 100% air volume does not necessarily correlate to a 100% air exchange.
3 As long as: (1) Hilti’s published Objective Data exposure level is ≤50 µg/m3; (2) work is performed in a room with volume ≥ 200m3, and/or having adequate ventilation; and (3) site-specific respirable silica content is ≤20% of total respirable dust.

HOW TO USE THE TABLE 1 SOLUTION

Cordless rotary hammer

TE DRS OSHA

Hilti developed TE DRS dust collection system with a filter cleaning mechanism and 99% filter efficiency, compliant with OSHA 1926.1153, Table 1. The TE DRS-4-A dust box is compatible with the TE DRS-4-A and TE DRS-4-A (T1) only. The TE DRS-6-A dust box is compatible with the TE DRS-6-A and TE DRS-6-A (T1) only.

Set-up

1. Empty the TE DRS dust box, and clean and inspect the filter.

2. Attach the TE DRS module to the rotary hammer.

3. Start TE DRS vacuum by pressing tool's control switch.

4. Verify proper operation of the TE DRS vacuum, including suction at the extraction head.
    - Check for damage or leaks in the dust box, hose, and extraction head.
    - Make sure the hose extends/retracts freely.

Drilling

1. Start drilling, and allow the TE DRS to reach full speed before beginning to drill.
    - Hold the rotary hammer perpendicular to the work surface and keep the extraction head in contact with the work surface.

2. To maximize dust collection, after the hole is drilled, slowly withdraw bit from the hole, and keep the rotary hammer running until the bit is fully withdrawn.

Cleaning and maintenance

- Empty the dust box after every 5 in^3 of hole drilling (e.g. after 8-10 holes 5/8 in x 2 in (16 mm x 50 mm)).
- After every 3 in^3 of hole drilling (e.g. after 5 holes ⌀ ½ in depth 3 in (⌀12 mm x 76 mm)) or if suction performance decreases push the button of the cleaning mechanism 5 times in each direction.
- To minimize dust emission, either use a vacuum to clean the dust box or place the dust box in a plastic bag keeping it closed as much as possible.
- Replace the filter if the dust debris cannot be removed, or if there are any tears or leaks in the filter.
- If more-than-usual dust is emitted during drilling, inspect the TE DRS system, and clean/inspect the dust box and filter.

HILTI SUBMITTAL PACKAGE OSHA 1926.1153 TABLE 1, SECTION vii

Section vii: Handheld and stand-mounted drills (including impact and rotary hammer drills)

Current Hilti rotary hammers that use a DRS-S shroud:
TE 2 (and 2-S)
TE 3-C
TE 7
TE 4-A 22
TE 6-A 36
TE 7-C
TE 30 (and 30-C)
TE 40-AVR
TE 50-AVR
TE 60-AVR
TE 60-ATC/AVR
TE 70-AVR
TE 70-ATC/AVR
TE 80-ATC/AVR

For instructions on how to assemble these systems, please refer to the Hilti North America Youtube page

DRS-S

TABLE 1 REQUIREMENTS

These systems fall under table 1, **section vii: handheld and stand-mounted drills (including impact and rotary hammer drills).** In order to be table 1 compliant, the below requirements must be met:

- Use drill equipped with commercially available shroud or cowling with dust collection system
- Operate and maintain tool in accordance with manufacturer‘s instructions to minimize dust emissions
- Dust collector must provide the air flow recommended by the tool manufacturer, or greater
- Have a filter with 99% or greater efficiency and a filter-cleaning mechanism

Note: Vacuum must be equipped with a HEPA-filter when cleaning holes

Table 1 states that no respirator is required if the above controls are fully and properly implemented.

Equipment / Task	Engineering and work practice control methods	Required respiratory protections and minimum Assigned Protection Factor (APF)	
		≤ 4 hours / shift	> 4 hours / shift
Handheld and stand-mounted drills (including impact and rotary hammer drills)	Use drill equipped with commercially available shroud or cowling with dust collection system. Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.		
	• When used outdoors	None	None
	• When used indoors or in an enclosed area	None	None

Check below to see how your system can be compliant with 1926.1153 Table 1. To verify the generation of your tool, check the rating plate, or call Hilti at 800-879-8000 with your serial number.

DRS module name	Tool name and generation	Vacuums (can use any)	Method of compliance
TE 2 series TE 3-C series TE 7 series TE 4-A 22 TE 6-A 36 TE 30 series TE 30-A 36 TE 40-AVR	**DRS-S (Item number 340602)**	VC 125-6 VC 125-9 VC 20-U VC 40-U VC 40-UE VC 150-6 X VC 150-10 X VC 150-6 XE VC 150-10 XE VC 300-17 X	All table 1 compliant
TE 50-AVR TE 60 series TE 70 series TE 80-ATC/AVR	**Depth gauge* and DRS-S required**		

*The correct depth gauge will depend on your model of tool. For questions, check your instruction manual or call Hilti at 800-879-8000.

SYSTEM OVERVIEW

Hilti rotary hammers with a DRS-S are table 1 compliant through use of a dust collection shroud hooked up to a vacuum that meets table 1 requirements. This shroud attaches to the depth gauge on the tool, and must be purchased separately for tools with an SDS-max connection. Any Hilti rotary hammer with a depth gauge will be table 1 compliant with the DRS-S if a Hilti vacuum is used. Hilti currently offers the below systems with this configuration:

Tool	Accessory	Vacuum (use any)
TE 2 and TE 2-S	DRS-S	VC 125-6
TE 3-C		VC 125-9
TE 7 and TE 7-C		VC 20-U
TE 4-A 22		VC 150-6 X
TE 6-A 36		VC 150-6 XE
TE 7-A		VC 40-U
TE 30 and TE 30-C		VC 150-10 X
TE 30-A 36		VC 40-UE
TE 40-AVR		VC 150-10 XE
		VC 300-17 X

Note: previous generations of tools may have different item numbers or nomenclature. Check with your local Hilti representative or product instruction manual to verify

Tool	Accessory	Vacuum (use any)
TE 50-AVR		VC 125-6
TE 60-AVR	Depth gauge (sold separately)	VC 20-U
TE 60-ATC/AVR	DRS-S	VC 150-6 XE
TE 70-AVR		VC 150-10 X
TE 70-ATC/AVR		VC 150-10 XE
TE 80-ATC/AVR		VC 125-9
		VC 150-6 X
		VC 40-U
		VC 40-UE
		VC 300-17 X

Note: previous generations of tools may have different item numbers or nomenclature. Check with your local Hilti representative or product instruction manual to verify

DRILLING — ROTARY HAMMER DRILLS AND COMBI-HAMMERS

TE Dust Control — OSHA

Hilti developed drilling dust collection systems with a shroud, to be attached to a Hilti vacuum with a filter cleaning mechanism and 99% filter efficiency, compliant with OSHA 1926.1153, Table 1.

Set-up

1. Attach the appropriate dust collection shroud to the drill.
2. Insert the bit. Rotate the bit in the chuck until you hear a clicking noise to verify that the bit is firmly inserted into the chuck.
3. Choose the correct collector based on the system and insert being used.
4. Set the proper depth using the depth gauge mechanism on the shroud. This will either be a depth gauge rod (DRS-Y, hollow drill bits) or a set of tabbed stops (DRS 4-A/6-A/M, DRS-S)
5. Verify that the bit is flush or below the surface of the dust collection device. Note that for the DRS-Y, with 24” bits, the bit will extend approximately 1” beyond the shroud.
6. Make sure that drilling shroud extends and retracts freely.
7. Start vacuum.
8. Verify proper operation of the dust collection system, including suction at the extraction head.
    - Check for damage or leaks in the vacuum, hose, and extraction head.
    - See instructions for vacuum.

Drilling

1. Start the vacuum before beginning to drill.
    - Hold the drill perpendicular to the work surface and keep the extraction head in contact with the work surface.
2. To maximize dust collection, after the hole is drilled, slowly withdraw bit from the hole, and keep the drill running until the bit is fully withdrawn.

Cleaning and maintenance

- See instructions for vacuum.

HILTI SUBMITTAL PACKAGE OSHA 1926.1153 TABLE 1, SECTION x AND SECTION vii

Section x: Jackhammers and handheld powered chipping tools

Section vii: Handheld and stand-mounted drills (including impact and rotary hammer drills)

Current Hilti SDS-max rotary hammers that use a DRS-Y shroud:
TE 50-AVR
TE 60-AVR
TE 60-ATC/AVR
TE 70-AVR
TE 70-ATC/AVR
TE 80-ATC/AVR

For instructions on how to assemble these systems, please refer to the Hilti North America Youtube page

DRS-Y

DBS • 08/17

TABLE 1 REQUIREMENTS

These systems fall under table 1, **section x: jackhammers and handheld powered chipping tools and section vii: handheld and stand-mounted drills (including impact and rotary hammer drills).** In order to be table 1 compliant, the below requirements must be met:

WET **Options for chiseling applications**		DRY **Options for drilling or chiseling applications**
• Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact	OR	• Use tool equipped with commercially available shroud or cowling with dust collection system • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions • Dust collector must provide the air flow recommended by the tool manufacturer, or greater • Have a filter with 99% or greater efficiency and a filter-cleaning mechanism

Note: Vacuum must be equipped with a HEPA-filter when cleaning holes

Table 1 requires a respirator to be worn in certain environments based on the time of the application. Check below to see when an APF 10 respirator must be worn.

Equipment / Task	Engineering and work practice control methods	Required respiratory protections and minimum Assigned Protection Factor (APF)	
		≤ 4 hours / shift	> 4 hours / shift
Handheld and stand-mounted drills (including impact and rotary hammer drills)	Use drill equipped with commercially available shroud or cowling with dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.		
	• When used outdoors	None	None
	• When used indoors or in an enclosed area	None	None
Jackhammers and handheld powered chipping tools	Use tool with water deliery system that supplies a continuous stream or spray of water at the point of impact.		
	• When used outdoors	None	APF 10
	• When used indoors or in an enclosed area	APF 10	APF 10
	OR		
	Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.		
	• When used outdoors	None	APF 10
	• When used indoors or in an enclosed area	APF 10	APF 10

Check below to see how your system can be compliant with 1926.1153 Table 1. To verify the generation of your tool, check the rating plate, or call Hilti at 800-879-8000 with your serial number. To check fit of the DRS-Y with older tool generations, check the sticker on the inside of the case on the DRS-Y, or refer to the instruction manual.

Tool models*	Accessory	Vacuums (can use any)	Method of compliance
TE 50 **TE 50-AVR** **TE 60** **TE 60-AVR** **TE 60-ATC/AVR** **TE 70-AVR** **TE 70-ATC/AVR** **TE 80-ATC/AVR**	**DRS-Y** **(Item number 2055718)**	VC 125-6 VC 125-9 VC 20-U VC 40-U VC 40-UE VC 150-6 X VC 150-10 X VC 150-6 XE VC 150-10 XE VC 300-17 X	All table 1 compliant

SYSTEM OVERVIEW

Hilti SDS-max rotary hammers are table 1 compliant for both drilling and chiseling applications through use of a dust collection shroud hooked up to a vacuum that meets table 1 requirements. Hilti currently offers the below systems with this configuration:

Tool	Accessory	Vacuum (use any)
 TE 50-AVR		 VC 125-6 VC 125-9
 TE 60-AVR		
 TE 60-ATC/AVR		
 TE 70-AVR	TE DRS-Y	
 TE 70-ATC/AVR		
 TE 80-ATC/AVR		

Note: previous generations of tools may have different item numbers or nomenclature. Check with your local Hilti representative or product instruction manual to verify

TABLE 1 REQUIREMENTS

These systems fall under table 1, **section vii: handheld and stand-mounted drills (including impact and rotary hammer drills)**. In order to be table 1 compliant, the below requirements must be met:

- Use drill equipped with commercially available shroud or cowling with dust collection system
- Operate and maintain tool in accordance with manufacturer‘s instructions to minimize dust emissions
- Dust collector must provide the air flow recommended by the tool manufacturer, or greater
- Have a filter with 99% or greater efficiency and a filter-cleaning mechanism

Note: Vacuum must be equipped with a HEPA-filter when cleaning holes. No HEPA filter needed when utilizing Hilti hollow drill bits within a Hilti SafeSet system

Table 1 states that no respirator is required if the above controls are fully and properly implemented.

Equipment / Task	Engineering and work practice control methods	Required respiratory protections and minimum Assigned Protection Factor (APF)	
		≤ 4 hours / shift	> 4 hours / shift
Handheld and stand-mounted drills (including impact and rotary hammer drills)	Use drill equipped with commercially available shroud or cowling with dust collection system. Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.		
	• When used outdoors	None	None
	• When used indoors or in an enclosed area	None	None

Check below to see how your system can be compliant with 1926.1153 Table 1.

Tool models	Accessory	Vacuums (can use any)	Method of compliance
TE 2 series **TE 3-C series** **TE 7 series** **TE 4-A 22** **TE 6-A 36** **TE 30 series** **TE 40-AVR**	**Any TE-CD drill bit**	VC 125-6 VC 125-9 VC 20-U VC 40-U VC 40-UE VC 150-6 X VC 150-10 X VC 150-6 XE VC 150-10 XE VC 300-17 X	All table 1 compliant
TE 50-AVR **TE 60 series** **TE 70 series** **TE 80-ATC/AVR**	**Any TE-YD drill bit**		

SYSTEM OVERVIEW

Hilti rotary hammers with a hollow drill bit are table 1 compliant through use of a hollowed out drill bit hooked up to a vacuum that meets table 1 requirements. Hilti currently offers the below systems with this configuration:

Tool	Accessory	Vacuum (use any)
TE 2-A 18	TE-CD hollow drill bits	VC 125-6
TE 2 and TE 2-S		VC 125-9
TE 3-C		VC 20-U
TE 7 and TE 7-C		VC 150-6 X
TE 4-A 22		VC 150-6 XE
TE 6-A 36		VC 40-U
TE 7-A		VC 150-10 X
TE 30 and TE 30-C		VC 40-UE
TE 30-A 36		VC 150-10 XE
TE 40-AVR		VC 300-17 X

Note: previous generations of tools may have different item numbers or nomenclature. Check with your local Hilti representative or product instruction manual to verify

Tool	Accessory	Vacuum (use any)
TE 50-AVR		VC 125-6
TE 60-AVR		VC 20-U
TE 60-ATC/AVR	TE-YD hollow drill bits	VC 150-6 XE
TE 70-AVR		VC 150-10 X
TE 70-ATC/AVR		VC 150-10 XE
TE 80-ATC/AVR		VC 125-9
		VC 150-6 X
		VC 40-U
		VC 40-UE
		VC 300-17 X

Note: previous generations of tools may have different item numbers or nomenclature. Check with your local Hilti representative or product instruction manual to verify

HILTI SUBMITTAL PACKAGE OSHA 1926.1153 TABLE 1, SECTIONS vi AND vii

Section vi: rig-mounted core saws or drills

Section vii: handheld and stand-mounted drills (including impact and rotary hammer drills)

Current Hilti handheld and rig-mounted core drills
DD EC-1
DD 110
DD 120
DD 150-U
DD 160
DD 200
DD 250
DD 350
DD 500

For instructions on how to assemble these systems, please refer to the Hilti North America Youtube page

DBS • 08/17

TABLE 1 REQUIREMENTS

These systems fall under either table 1, **section vi: handheld and stand-mounted drills (including impact and rotary hammer drills)** or **section vii: handheld and stand-mounted drills (including impact and rotary hammer drills)**. In order to be table 1 compliant, the below requirements must be met:

Section vi

- Use tool equipped with integrated water delivery system that supplies water to cutting surface
- Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions

OR

Section vii

- Use drill equipped with commercially available shroud or cowling with dust collection system
- Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions
- Dust collector must provide the air flow recommended by the tool manufacturer, or greater
- Have a filter with 99% or greater efficiency and a filter-cleaning mechanism

Table 1 states that no respirator is required if the above controls are fully and properly implemented.

Equipment / Task	Engineering and work practice control methods	Required respiratory protections and minimum Assigned Protection Factor (APF)	
		≤ 4 hours / shift	> 4 hours / shift
(vi) Rig-mounted core saws or drills	Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
(vii) Handheld and stand-mounted drills (including impact and rotary hammer drills)	Use drill equipped with commercially available shroud or cowling with dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.		
	• When used outdoors	None	None
	• When used indoors or in an enclosed area	None	None

Check below to see how your system can be compliant with 1926.1153 Table 1. To verify the generation of your tool, check the rating plate, or call Hilti at 800-879-8000 with your serial number.

<table>
<tr><th>Tool name</th><th colspan="2">Accessory (any one)</th><th>Method of compliance</th></tr>
<tr><td>DD EC-1 (rig mounted)
DD 120
DD 150-U (rig mounted)
DD 160
DD 200
DD 250
DD 350
DD 500</td><td colspan="2">DWP 10 (365595)
Gardena connector with supplied water (4297)</td><td rowspan="2">all table 1</td></tr>
<tr><td>DD 110
DD 120
DD 150-U
DD 160</td><td>Any DD-X LM corebit*</td><td>Vacuums (can use any)
VC 125-6
VC 125-9
VC 20-U
VC 40-U
VC 40-UE
VC 150-6 X
VC 150-10 X
VC 150-6 XE
VC 150-10 XE
VC 300-17 X</td></tr>
<tr><td>DD EC-1 handheld
DD 110
DD 150-U</td><td colspan="2">DWP 10 (365595)
Gardena connector with supplied water (4297)</td><td>Exposure assessment</td></tr>
</table>

*Hilti's interpretation is that dust control core bits with a vacuum are categorized under table 1 section vii: handheld and stand-mounted drills (including impact and rotary hammer drills).

SYSTEM OVERVIEW

Core drills from Hilti comply either through use of a water delivery system or a shrouded core bit hooked up to a Hilti vacuum. Hilti currently offers the below systems with this configuration:

Tool	Accessory
DD EC-1 (rig mounted)	DWP 10 handheld water pump
DD 120	Any gardena connector with a supplied water attached to Hilti tool
DD 150-U (rig mounted)	
DD 160	
DD 200	
DD 250	
DD 350	
DD 500	

Note: previous generations of tools may have different item numbers or nomenclature. Check with your local Hilti representative or product instruction manual to verify. Table 1 does not address handheld core drills being used wet. For this reason, the only way to comply with handheld wet core drilling is to utilize objective data or exposure assessment procedures.

Tool	Accessory	Vacuum (use any)

DD 110-D

DD 120

DD 150-U (handheld)

DD 150-U (rig mounted)

DD 160

Any DD-X LM core drill bit **

VC 125-6

VC 125-9

VC 20-U

VC 150-6 X

VC 150-6 XE

VC 40-U

VC 150-10 X

VC 40-UE

VC 150-10 XE

VC 300-17 X

DD 110-D*

DD 150-U (handheld)*

DWP 10 handheld water pump

Any gardena connector with a supplied water attached to Hilti tool

* Table 1 does not address handheld core drills being used wet. For this reason, the only way to comply with handheld wet core drilling is to utilize objective data or exposure assessment procedures.

** Hilti interprets dust control coring systems as being in table 1, section vii “handheld and stand mounted drills (including impact and rotary hammers)

CORING — WET

DIA Dust Control — OSHA

Hilti developed diamond coring systems are equipped with a water connection which is to be attached to a pressurized water source. When rig-mounted, these systems are compliant with OSHA 1926.1153, Table 1.

Set-up

1. If required, attach the drill stand to the drilling surface using the appropriate anchoring accessories.
2. Attach the water source to the tool.
3. Insert the bit and ensure its tightened by turning the chuck to the closed position.
4. Turn on the water.
5. Verify you have the appropriate amount of water for the application. Verify the water delivery system operates properly with no leaks, delivering water freely inside the bit.
    - See instructions for core machines.

Drilling

1. Start the water before beginning to drill.
2. Begin drilling, applying the required amount of pressure.
3. Adjust water flow rate to minimize visible dust.

Cleaning and maintenance

- See instructions for core rigs.

Clean-up of slurry before it dries can help minimize secondary exposure. Ensure that cleanup and disposal of concrete slurry is done in accordance with relevant state/local regulations.

CORING — DRY CORING

DIA Dust Control — OSHA

Hilti developed dry diamond core drills and bits to be attached to a Hilti vacuum with a filter cleaning mechanism and 99% filter efficiency. Hilti considers these coring applications to fit in, and be in compliance with, OSHA 1926.1153, Table 1, (vii) handheld and stand-mounted drills (including impact and rotary hammer drills).

Set-up

1. If using as rig-mounted, attach the drill stand to the drilling surface using the appropriate anchoring accessories.
2. Attach the vacuum hose to the drill's vacuum hose connector.
3. Insert the bit and ensure its tightened by turning the chuck to the closed position.
4. Start vacuum.
5. Verify proper operation of the dust collection system, including suction at the end of the bit.
    - Check for damage or leaks in the vacuum, hose, and hose connector.
    - See instructions for vacuum.

Drilling

1. Start the vacuum before beginning to drill.
2. Begin drilling, applying the required amount of pressure.
3. To maximize dust collection, after the hole is drilled, slowly withdraw bit from the hole, and keep the drill and vacuum running until the bit is fully withdrawn.

Cleaning and maintenance

- See instructions for vacuum.

HILTI VACUUM PORTFOLIO

Supporting information

For instructions on how to assemble these systems, please refer to the Hilti North America Youtube page

VC 125

VC 150

VC 300

CONTENTS

Statements of compliance. 53–54
HEPA certification for VC 125, 150, and 300 series vacuums 55–57
HEPA certification for VC 20, 40 series vacuums 58–67
Supplemental instructions. 68–72

DBS • 08/17

June 23, 2017

Statement on features of Hilti VC 20, 40, 150, and 300 series vacuums:

Regarding OSHA 29 CFR Part 1926 §1153, please note that the Hilti VC 20-U, VC 40-U, VC 40-UE, VC 150-6 X, VC 150-6 XE, VC 150-10 X, VC 150-10 XE, and VC 300-17 X vacuums all meet the following requirements given in Table 1:

- **99% or greater filter efficiency**
- **self-cleaning filter mechanism**
- **provide the below cubic feet per minute (cfm) of suction**
  - **VC 20-U and 40-U: 129 cfm**
  - **VC 150 series: 150 cfm**
  - **VC 300 series: 300 cfm**
- **a HEPA filter is available**

When used in conjunction with the corresponding Hilti tools and dust removal systems meeting the listed Table 1 requirements, you will have a compliant system as specified in the regulation.

Please contact your local Hilti representative with any additional questions. For additional clarification, please refer to 29 CFR Part 1926 §1153.

Sincerely,

Hilti product team

Hilti, Inc.
5400 South 122nd East Avenue
Tulsa, OK 74146

1-800-879-8000
www.hilti.com

June 23, 2017

Statement on features of Hilti VC 125 series vacuums:

Regarding OSHA 29 CFR Part 1926 §1153, please note that the Hilti 125-6 and 125-9 vacuums all meet the following requirements given in Table 1:

- **99% or greater filter efficiency**
- **Manual filter mechanism**
- **provide 125 cfm**
- **a HEPA filter is available**

When used in conjunction with the corresponding Hilti tools and dust removal systems meeting the listed Table 1 requirements, you will have a compliant system as specified in the regulation.

Please contact your local Hilti representative with any additional questions. For additional clarification, please refer to 29 CFR Part 1926 §1153.

Sincerely,

Hilti product team

Hilti, Inc.
5400 South 122nd East Avenue
Tulsa, OK 74146

1-800-879-8000
www.hilti.com

ENV SERVICES, INC.
4758 RESEARCH DRIVE
SAN ANTONIO, TX 78240
800-690-3368 / 210-690-3646 FAX

SERVICE WORK ORDER

WORK ORDER NO: 312-146996

CUST PO#:CREDIT CARD

Bill To: TX3592

HILTI INC.
P.O. BOX 21148
ATT: ACCOUNTS PAYABLE
TULSA, OK 74121
FRANK HIERONYMUS
918-671-2349

Service Location: TX3592-002

HILTI INC.
3701 ROYAL LANE
SUITE 100
IRVING, TX 75063 972-403-5887
FRANK HIERONYMUS
FRANK.HIERONYMUS@HILTI.COM

SERVICE SCHEDULE DATE: _____
SCHEDULE ADMIN: 204 **TECH:** 611
CUSTOMER NOTES / INSTRUCTIONS:

WO OPEN DATE 06-Jun-17
WORKGROUP: _____

SERVICE REQUESTED: TEST AND CERTIFICATION **BILLING TYPE:** _____

DETAIL OF SERVICES

Item #	Asset #	Description of Services	Location
1		ONSITE CERTIFICATION TESTING OF 7 NEW VACUUMS FOR COMPLIANCE WITH HEPA ** PLEASE NOTE THAT THE DAY RATE APPLIES TO THE TESTING LISTED IN THE LINE ITEMS BELOW**	
2		ONSITE CERTIFICATION TEST AND CERTIFICATION - NEW VACUUM ITEM NUMBER: 2167143 DESCTIPTION: VC 300-17X FLOW RATE: 300 CU FT/MIN	
3		ONSITE CERTIFICATION TEST AND CERTIFICATION - NEW VACUUM ITEM NUMBER: 2167144 DESCTIPTION: VC 150-6XE FLOW RATE: 150 CU FT/MIN	
4		ONSITE CERTIFICATION TEST AND CERTIFICATION - NEW VACUUM ITEM NUMBER: 2167145 DESCTIPTION: VC 150-10XE FLOW RATE: 150 CU FT/MIN	
5		ONSITE CERTIFICATION TEST AND CERTIFICATION - NEW VACUUM ITEM NUMBER: 2167146 DESCTIPTION: VC 150-6XE FLOW RATE: 150 CU FT/MIN	
6		ONSITE CERTIFICATION	

CUSTOMER SIGNATURE : _____ **TECH SIGNATURE:** _____

DATE : _____ **DATE :** 16 Jun 2017

ENV SERVICES, INC.
4758 RESEARCH DRIVE
SAN ANTONIO, TX 78240
800-690-3368 / 210-690-3646 FAX

SERVICE WORK ORDER

WORK ORDER NO: 312-146996

CUST PO#:CREDIT CARD

Bill To: TX3592

HILTI INC.
P.O. BOX 21148
ATT: ACCOUNTS PAYABLE
TULSA, OK 74121
FRANK HIERONYMUS
918-671-2349

Service Location: TX3592-002

HILTI INC.
3701 ROYAL LANE
SUITE 100
IRVING, TX 75063 972-403-5887
FRANK HIERONYMUS
FRANK.HIERONYMUS@HILTI.COM

DETAIL OF SERVICES

Item #	Asset #	Description of Services	Location
		TEST AND CERTIFICATION - NEW VACUUM ITEM NUMBER: 2167147 DESCTIPTION: VC 150-10XE FLOW RATE: 150 CU FT/MIN	
7		ONSITE CERTIFICATION TEST AND CERTIFICATION - NEW VACUUM ITEM NUMBER: 2167148 DESCTIPTION: VC 125-6 FLOW RATE: 125 CU FT/MIN	
8		ONSITE CERTIFICATION TEST AND CERTIFICATION - NEW VACUUM ITEM NUMBER: 2167149 DESCTIPTION: VC 125-9 FLOW RATE: 125 CU FT/MIN	

CUSTOMER SIGNATURE : _____ **TECH SIGNATURE:** _____

DATE : _____ **DATE :** 16 Jun 2017

dba ENV Services Testing and Certification, Inc.
2880 Bergey Road, Suite K
Hatfield, PA 19440
(800) 345-6094

Test Report Number
TX3592-002
Inventory Number
WO#312-146996

SERVICE REPORT

Customer: HILTI INC.
Address: 3701 ROYAL LANE
SUITE 100
IRVING, TEXAS 75063

Contact: FRANK HIERONYMUS
Telephone: 972/403-5887

ENV Services Technician: JERRY MAXWELL
Test Date: 16-Jun-17
Test Frequency: ONE TIME ONLY
Equipment Manufacturer: CUSTOM
Model Number: VARIOUS SEE WO.
Serial Number: SEE WO.
Type: VACUUM UNITS
Location: WAREHOUSE

Testing and Certification: The purpose of field testing this equipment is to assess whether it is functioning as designed in compliance with manufacturer's specifications, NIH specifications, NSF Standard #49, or other specifications which may apply. We perform all test procedures in accordance with these standards and as detailed in ENV Services Protocols, applicable copies of which are available on request. Our testing and certification apply only to the equipment and do not signify approval of the use of any hazardous agents or operational procedures.

SERVICE SUMMARY

	PASS	FAIL	N/A
OVERALL CERTIFICATION	[X]	[ ]	[ ]

COMMENTS AND RECOMMENDATIONS

hepa leak test completed on item numbers 2167143, 2167144, 2167145, 2167146, 2167147, 2167148, and 2167149. All passed.

Customer Signature _____
FRANK HIERONYMUS
PLEASE PRINT NAME

Serviced by: Jerry Maxwell
Date: 16-Jun-17

HEPA VACUUM TEST REPORT

Prepared for:

HILTI Inc.
7250 North Dallas Parkway
Plano, TX 75024

Models: VC20U, VC40U, VC40U /outlet

Attention:

Frank Hieronymus
918-712-2349

Date(s) Tested:

7/13/15

Field Service Technician(s):

Ken Waterhouse

4758 Research Drive
San Antonio, TX 78240
(210) 690-3368
Fax (210) 690-3646

HEPA LEAK TESTING OF HILTI HEPA VACUUM UNITS
BENCH TESTING FOR AEROSOL PENETRATION

Setup

Each Vacuum is setup with an internal prefilter bag placed in the base of the bucket and a HEPA filter placed below the motor
Airflow enteres the intake and is them passed through the prefilter bag and then is siphoned up throu the HEPA filter and then discharged
through lovers on the right an left sife of the vacuum housing
Procedure:
Following guidelines within Reference Standard; IES-RP-CC-0034.1
HEPA and ULPA Filter Leak Tests.
A large bag was placed over the outlet side of the Vacuum unit
The Intake airflow was measured with a Velocity meter set for CFM Calculation (135 CFM)
A calculated concentration was followed using an aerosol challenge for >10 microbrams per liter of PAO Aerosol
The Aerosol Photometer was set at a sensitivity of 50 micrograms, and the test proceeded by insertion of aerosol in the intake and sampling the outflow of the air filling the collection bag.
No leakage greater than .005% was detected

Test Setup showing Aerosol Generator on right HILTI VC20U Vacuum in middle with catch bag attached, and Aerosol Photometer on the left

Ken Waldrop
Technician Manager 13 JUL 15

Conclusions:
All Models passed the aerosol penetration leak test of no leakage greater than .005% penetration detected.

See Certificates

Test Equipment Used:

Tec Services Inc. Aerosol Photometer
Model # PH.-5
Serial # 2027
Calibration Date: 29JUN2015

ATI Model 6B Aerosol Generator
6 Nozzle
S# 26536

Velocity Meter
TSI
Model # 9535
S# T95351514002

Certificate No.: ENV/0615-497-5501
Procedure No.: WI0299000

PRO-LAB

Control No.: 01263

UNIT UNDER TEST

Manufacturer: TSI
Model No.: 9535
Serial No.: T95351514002
Cust. Ref. No.: 01263
Description: AIR VELOCITY METER
Date Rec'd: 6/3/2015
Condition Rec'd: GOOD

SUBMITTED BY

Customer: ENV SERVICES, INC (REGION I)
2880 BERGEY RD
HATFIELD, PA 19440

P.O. #: ENV/610

Precal: OUT OF SPEC **Final:** IN SPEC

A2LA ACCREDITED
Calibration Laboratory
CERT#1591.01

CALIBRATION CERTIFICATE

All calibrations are performed by qualified personnel using instrumentation, procedures and methods which guarantee specifications claimed are reliable. When specified, all calibrations are performed in accordance with current ISO/IEC 17025, ANSI/NCSL Z-540-1, MIL-STD-45662A, and ENV/Pro-Lab Quality Manual - Rev 5. Standards used are traceable to The National Institute of Standards and Technology (NIST). Expanded uncertainties are calculated using methods described in the Guide to the Expression of Uncertainty of Measurement (GUM) utilizing a coverage factor of K=2 (95% confidence) and kept on file at Pro-Lab. At a minimum, standards are selected with an uncertainty of 25% or better, where possible. This certificate and/or data shall not be reproduced except in full, without the written permission of Pro-Lab Management.

Standards Used

Asset #	Description	Certificate Number	Date Due
1064	DUAL CAPACITANCE MANOMETER	ENV/0515-480-5015	5/31/2016
1208	PRESSURE TRANSDUCER	ENV/0515-480-5013	5/31/2016
00985	REFERENCE THERMOMETER	ENV/0314-481-5572A	6/30/2015
986	RTD PROBE	ENV/0314-481-2316	6/30/2015

Temperature: 23.0 C
Humidity: 54.6 % RH
Approved By: Michael Blahut

E-Signed 11-Jun-2015 11:05 AM

Date Tested: 11-Jun-2015
Date Due: 30-Jun-2016
Calibrated By: David Andreas
Calibration Technician
E-Signed 11-Jun-2015 8:37 AM

-- A DIVISION OF ENV SERVICES, INC. --
2880 BERGEY ROAD SUITE K - HATFIELD, PA 19440-1742 - (800) 992-9108 - FAX (215) 822-6522

Certificate No.: ENV/0615-497-5501
Procedure No.: WI0299000

PRO-LAB

Control No.: 01263
Page 2 of 2

UNIT UNDER TEST

Manufacturer: TSI
Model No.: 9535
Serial No.: T95351514002
Cust. Ref. No.: 01263
Description: AIR VELOCITY METER
Date Rec'd: 6/3/2015
Condition Rec'd: GOOD

SUBMITTED BY

Customer: ENV SERVICES, INC (REGION I)
2880 BERGEY RD
HATFIELD, PA 19440

P.O. #: ENV/610

Precal: OUT OF SPEC **Final:** IN SPEC

A2LA ACCREDITED
Calibration Laboratory
CERT#1591.01

CALIBRATION DATA

Note: Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Velocity Description	Standard	As Found	Final	Min.	Max.
FPM	30	31	31	27	33
FPM	70	73	73	67	73
FPM	100	103	103	97	103
FPM	150	154	154	145	155
FPM	325	335	335	315	335
FPM	650	652	652	630	670
FPM	1000	1001	1001	970	1030
FPM	1500	1484	1484	1455	1545
FPM	2500	2452	2452	2425	2575
FPM	4500	4543	4543	4425	4575
FPM	5900	5904	5904	5723	6077

TEMPERATURE Description	Standard	As Found	Final	Min.	Max.
Deg F	73.5	74.6	73.5	73.0	74.0 A

Certificate No.: ENV/0615-478-14854
Procedure No.: MFR

PRO-LAB

Control No.: 01289
Page 1 of 2

UNIT UNDER TEST

Manufacturer:	TEC SERVICES
Model No.:	PH-5
Serial No.:	2027
Cust. Ref. No.:	01289
Description:	PHOTOMETER
Date Rec'd:	6/19/2015
Condition Rec'd:	GOOD

SUBMITTED BY

Customer:	ENV SERVICES, INC (REGION I)
	2880 BERGEY RD
	HATFIELD, PA 19440
P.O. #:	ENV/600
Precal:	IN SPEC
Final:	IN SPEC

A2LA ACCREDITED
Calibration Laboratory
CERT#1591.01

CALIBRATION CERTIFICATE

All calibrations are performed by qualified personnel using instrumentation, procedures and methods which guarantee specifications claimed are reliable. When specified, all calibrations are performed in accordance with current ISO/IEC 17025, ANSI/NCSL Z-540-1, MIL-STD-45662A, and ENV/Pro-Lab Quality Manual - Rev 5. Standards used are traceable to The National Institute of Standards and Technology (NIST). Expanded uncertainties are calculated using methods described in the Guide to the Expression of Uncertainty of Measurement (GUM) utilizing a coverage factor of K=2 (95% confidence) and kept on file at Pro-Lab. At a minimum, standards are selected with an uncertainty of 25% or better, where possible. This certificate and/or data shall not be reproduced except in full, without the written permission of Pro-Lab Management.

Standards Used

Asset #	Description	Certificate Number	Date Due
0152	MULTIMETER	52-VEN-2477095	4/30/2016
00173	MASS FLO METER	ENV/0914-497-191	6/30/2015

Temperature:	22.0 C	Date Tested:	29-Jun-2015
Humidity:	35.0% RH	Date Due:	30-Jun-2016
Approved By:	Michael Blahut	Calibrated By:	William Leas, Jr.
			Calibration Technician
	E-Signed 30-Jun-2015 1:12 PM		E-Signed 29-Jun-2015 2:08 PM

-- A DIVISION OF ENV SERVICES, INC. --
2880 BERGEY ROAD SUITE K - HATFIELD, PA 19440-1742 - (800) 992-9108 - FAX (215) 822-6522

Certificate No.: ENV/0615-478-14854
Procedure No.: MFR

PRO-LAB

Control No.: 01289
Page 2 of 2

UNIT UNDER TEST

Manufacturer: TEC SERVICES
Model No.: PH-5
Serial No.: 2027
Cust. Ref. No.: 01289
Description: PHOTOMETER
Date Rec'd: 6/19/2015
Condition Rec'd: GOOD

SUBMITTED BY

Customer: ENV SERVICES, INC (REGION I)
2880 BERGEY RD
HATFIELD, PA 19440

P.O. #: ENV/600

Precal: IN SPEC **Final:** IN SPEC

A2LA ACCREDITED
Calibration Laboratory
CERT#1591.01

CALIBRATION DATA

Specifications obtained from: TEC SERVICES MODEL PH-5 PHOTOMETER USER MANUAL.

Note: Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

DC VOLTAGES

Description	Standard	As Found	Final	Min.	Max.
V (V1)	5.15	5.14	5.14	5.10	5.20
V (V2)	12.00	12.00	12.00	11.00	13.00
V (V3)	-12.00	-12.00	-12.00	-12.50	-11.50
V (V4)	24.00	24.00	24.00	23.50	24.50

SAMPLE FLOW

Description	Standard	As Found	Final	Min.	Max.
CFM	1.00	1.00	1.00	0.90	1.10

FUNCTIONAL TEST

Description	Standard	As Found	Final	Min.	Max.
SCANNING PROBE		PASS	PASS		
UPSTREAM RESPONSE + CLEAR TO ZERO		PASS	PASS		
DOWN STREAM RESPONSE + CLEAR TO ZERO		PASS	PASS		

Certificate of Compliance

HILTI VC20U HEPA Vacuum Unit

Hilti, Inc.
7250 North Dallas Parkway
Plano, TX 75024

On this Date: 7/13/12015

Testing conducted in accordance with IES RP-CC-002 & Following guidelines within Reference Standard; IES-RP-CC-0034.1

Conducted by: ENV Services, Inc.
4758 Research Dr.
San Antonio, TX 78240

Administered By : Ken Waterhouse

Certificate of Compliance

HILTI VC40U HEPA Vacuum Unit

Hilti, Inc.
7250 North Dallas Parkway
Plano, TX 75024

On this Date: 7/13/12015

Testing conducted in accordance with IES RP-CC-002 & Following guidelines within Reference Standard; IES-RP-CC-0034.1

Conducted by: ENV Services, Inc.
4758 Research Dr.
San Antonio, TX 78240

Administered By : Ken Waterhouse

Certificate of Compliance

HILTI VC40U/Outlet HEPA Vacuum Unit

Hilti, Inc.
7250 North Dallas Parkway
Plano, TX 75024

On this Date: 7/13/12015

Testing conducted in accordance with IES RP-CC-002 & Following guidelines within Reference Standard; IES-RP-CC-0034.1

Conducted by: ENV Services, Inc.
4758 Research Dr.
San Antonio, TX 78240

Administered By : Ken Waterhouse

VACUUM CLEANER

VC 125 / 150 / 300 OSHA

Hilti developed a vacuum cleaner system with a filter cleaning mechanism and a >99% filter efficiency, compliant with many of the OSHA 1926.1153, Table 1 specified controls.

Set-up

1. Put a filter into the filter compartment. Decide which filter depending on your applications. See filter section for further information.
2. Put filter bag into the tank. Decide which filter bag depending on your applications. See filter bag section for further information.
3. Put hose into head and attach it to the adaptor of the tool. See tool manual for further information on correct adaptor.
4. Plug vacuum cleaner in socket.
5. Start vacuum cleaner by turning control switch on. Verify proper operation of vacuum cleaner.
   - head on correct and sealed
   - no kinks/breaks/plugs in hose
   - check for normal suction at hose end
   - nothing blocking exhaust port
   - For VC 20/40/150/300, verify the automatic filter cleaning mechanism is turned on, and operating (audible thumping every ~15 seconds).
6. Start running the tool only when vacuum cleaner is on.
7. Turn vacuum cleaner off after tool is turned off.

Cleaning and maintenance

1. For VC 125, push manual filter cleaning button every 3 to 5 minutes depending on application, and whenever there is a noticeable change in suction or dust collection..
2. Filter and filter bag needs to be cleaned and exchanged regularly. See filter and filter bag section for further information.

UNIVERSAL FILTER-BAGS / PLASTIC BAGS

	Plastic Bag	Universal Bag
Applications	• For dry and wet applications • Will not increase lifetime of filter, no pre-filtering	• For dry applications • Virtually dustless recycling / emptying • Pre-filter, will increase lifetime of filter
How to put bag in vacuum	1. Remove head from tank 2. Put bag into the tank 3. Check that holes are within the vacuum cleaner when installed and that the plastic bag doesn't overlap clamp area 4. Put head back on tank and close clamps properly	1. Remove head from tank 2. Put bag into the tank 3. Connect flange of filter bag to the adapter 4. Put head back on tank and close clamps
Disposal guidelines	• Recycle bag when it is full • Tie off or seal paper/fleece bags. Twist plastic bags. Roll bucket to nearest sealed receptacle and transfer bag to garbage. • To be recycled normally (dispose of bag according to local regulations)	• Close cap when bag is full or needs to be recycled • Dispose of bag according to local regulations.

DO'S AND DON'TS WITH UNIVERSAL FILTER-BAGS / PLASTIC BAGS

	Plastic Bag	Universal Bag
Do's	• Dispose of bag when it is full	• Use filter bags for all dry applications - Increases lifetime of your tool - Increase lifetime of your filter • Dispose of bag when it is full • Mandatory for all wood applications • Connect flange of filter bag properly into adapter
Don'ts	• Fill plastic bag to completely full, it can rip apart • Overlap the clamp area with the plastic bag	• Shake full filter-bag - Dust can exit - Bag can rip apart • Use bag for wet applications

DO'S AND DON'TS WITH FILTERS

Do's

- Clean filter with automatic filter cleaning (close hose for a 3-5 cycles)
- Power cleaning: Remove hose, close inlet for 3-5 automatic filter cleaning cycles
- Use performance filters (PTFE) in order to have a longer lifetime of your tool, longer lifetime of the filter and less blockage of the filter
- Filter sealing needs to be properly installed
- During filter change, clean up filter frame and sealing area
- Check filter condition before starting an application

Don'ts

- Mix dry and wet applications. Filter used for wet applications needs to be exchanged or dried before using it for dry applications
- Manually cleaning the filter, it will be damaged -> a damaged or missing filter can lead to a broken turbine since dust can enter (reduces lifetime of vacuum cleaner)
  - Banging against the wall
  - Cleaning with high-pressured air
  - Use water jet / air pressure jet to clean the filter
  - Use sharp things e.g. wrench etc. to clean the filter
- Use vacuum cleaner without a filter

FILTER CLEANING AND EXCHANGE

Filter needs to be cleaned when:

- Feeling of less suction power
  - Clean filter with automatic filter cleaning
- Dust is coming out of the vacuum cleaner. Indication that filter is broken or blocked
- Visual check shows that filter needs to be cleaned

Filter needs to be exchanged when:

- Dust is coming out of the vacuum cleaner. Indication that filter is broken or blocked
- Even after cleaning the filter, suction power is insufficient
- Visual check shows that filter needs to be exchanged due to a high volume of dust near or inside the filter

Hilti, Inc. (U.S.) 1-800-879-8000
en español 1-800-879-5000
www.hilti.com

Hilti (Canada) Corporation 1-800-363-4458
www.hilti.com

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