



Hilti HDA Undercut Anchor

Submission Folder

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Undercut anchor HDA-T



BASE MATERIALS

- Concrete (cracked)
- Concrete (uncracked)

APPLICATIONS

- Safety-relevant, heavy-duty fastenings for all dynamic loading (shock, seismic and fatigue) in cracked or uncracked concrete, including applications in nuclear power plants
- Fastenings to support heavy pipes, safety barriers, industrial machines, crane rails, dorm structures, crash barriers, roof fixings, elevator tracks, bridge retrofiting etc.

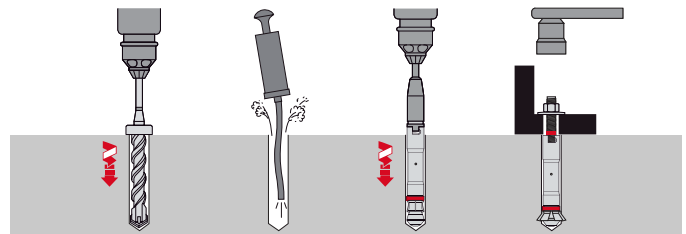
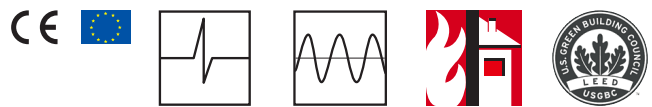
ADVANTAGES

- Self-undercutting facilitates fast and reliable installation without the need for a separate undercutting tool or additional operations
- Combines the advantages of a post-installed mechanical anchor, i.e. flexibility and immediate loading, with the performance of a cast-in-place headed stud
- Close spacing and small edge distance thanks to low expansion forces

Approvals

BZS/shock	BZS D 09-601 for HDA self-cutting undercut anchor
ETA	ETA 99/0009 for HDA self-cutting undercut anchor (ETAG 001-03, Option 1)

Approvals and test reports may apply to selected products only. Please refer to the documents for details.



These are abbreviated instructions which may vary according to the application.

Technical data

Material composition	(Galvanized) Bolt: steel, 8.8 grade, zinc-plated (min. 5 µm); (Sherardized) Bolt, 8.8 grade, sherardized (min. 53 µm); (Stainless steel) Steel, A4 (SS316)
Head configuration	Externally threaded
Type of fastening	Through-fastening
IBC compliance	IBC 2003, IBC 2006, IBC 2009, IBC 2012
Additional product information	Meets approval requirements when installed using the specified stop drill bit, setting tool and rotary hammer

Technical data

Recommended load (kN), non-cracked concrete at 25N/mm², safety factor(γ)=3

Model	Size	M10	M12	M16	M20
HDA-T/ HDA-TF	Tensile Load, Nrec	15.3	22.3	42.0	64.0
	Shear Load, Vrec	21.7	26.7	46.7	68.3
HDA-TR	Tensile Load, Nrec	15.3	22.3	42.0	-
	Shear Load, Vrec	23.7	29.0	50.7	-

Recommended load (kN), cracked concrete at 25N/mm², safety factor(γ)=3

Model	Size	M10	M12	M16	M20
HDA-T/ HDA-TF	Tensile Load, Nrec	8.3	11.7	25.0	31.7
	Shear Load, Vrec	21.7	26.7	46.7	68.3
HDA-TR	Tensile Load, Nrec	8.3	11.7	25.0	-
	Shear Load, Vrec	23.7	29.0	50.7	-

Remarks:

- 1) All the data applies to no edge distance, spacing and other influences
- 2) HDA M20: only available in galvanized 5 µm version
- 3) For detail design method and cracked concrete information, please refer to Fastening Technology Manual

HDA-T (Galvanized min. 5µm)



Order Now



Ordering designation	Anchor size	Anchor length	Drill bit diameter	Drilling depth	Anchorage depth	Max. fixture thickness at standard embedment depth	Base plate clearance hole	Required tightening torque	Sales pack quantity	Item number
HDA-T M10x100/20	M10	150 mm	20 mm	127 mm	100 mm	20 mm	21 mm	50 Nm	12 pc	331545 ¹⁾
HDA-T M12x125/30	M12	190 mm	22 mm	163 mm	125 mm	30 mm	23 mm	80 Nm	8 pc	331548
HDA-T M12x125/50	M12	210 mm	22 mm	183 mm	125 mm	50 mm	23 mm	80 Nm	8 pc	331549 ¹⁾
HDA-T M16x190/40	M16	275 mm	30 mm	243 mm	190 mm	40 mm	32 mm	120 Nm	4 pc	331552
HDA-T M16x190/60	M16	295 mm	30 mm	263 mm	190 mm	60 mm	32 mm	120 Nm	4 pc	331553 ¹⁾
HDA-T M20x250/50	M20	360 mm	37 mm	316 mm	250 mm	50 mm	40 mm	300 Nm	2 pc	339267 ¹⁾
HDA-T M20x250/100	M20	410 mm	37 mm	366 mm	250 mm	100 mm	40 mm	300 Nm	2 pc	339268 ¹⁾

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

HDA-TF (Sherardized 53µm)



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Ordering designation	Anchor size	Anchor length	Drill bit diameter	Drilling depth	Anchorage depth	Max. fixture thickness at standard embedment depth	Base plate clearance hole	Required tightening torque	Sales pack quantity	Item number
HDA-TF M10x100/20	M10	150 mm	20 mm	127 mm	100 mm	20 mm	21 mm	50 Nm	12 pc	412903 ¹⁾
HDA-TF M12x125/30	M12	190 mm	22 mm	163 mm	125 mm	30 mm	23 mm	80 Nm	8 pc	412904 ¹⁾
HDA-TF M12x125/50	M12	210 mm	22 mm	183 mm	125 mm	50 mm	23 mm	80 Nm	8 pc	412905 ¹⁾
HDA-TF M16x190/40	M16	275 mm	30 mm	243 mm	190 mm	40 mm	32 mm	120 Nm	4 pc	339364 ¹⁾
HDA-TF M16x190/60	M16	295 mm	30 mm	263 mm	190 mm	60 mm	32 mm	120 Nm	4 pc	339365 ¹⁾

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative.

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HDA-TR (Stainless steel A4)



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Ordering designation	Anchor size	Anchor length	Drill bit diameter	Drilling depth	Anchorage depth	Max. fixture thickness at standard embedment depth	Base plate clearance hole	Required tightening torque	Sales pack quantity	Item number
HDA-TR M10x100/20	M10	150 mm	20 mm	127 mm	100 mm	20 mm	21 mm	50 Nm	12 pc	339351 ¹⁾
HDA-TR M12x125/30	M12	190 mm	22 mm	163 mm	125 mm	30 mm	23 mm	80 Nm	8 pc	339352
HDA-TR M12x125/50	M12	210 mm	22 mm	183 mm	125 mm	50 mm	23 mm	80 Nm	8 pc	339353
HDA-TR M16x190/40	M16	275 mm	30 mm	243 mm	190 mm	40 mm	32 mm	120 Nm	4 pc	339354 ¹⁾
HDA-TR M16x190/60	M16	295 mm	30 mm	263 mm	190 mm	60 mm	32 mm	120 Nm	4 pc	339355 ¹⁾

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative.

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Undercut anchor HDA-P



BASE MATERIALS

- Concrete (cracked)
- Concrete (uncracked)

APPLICATIONS

- Safety-relevant, heavy-duty fastenings for all dynamic loading (shock, seismic and fatigue) in cracked or uncracked concrete, including applications in nuclear power plants
- Fastenings to support heavy pipes, safety barriers, industrial machines, crane rails, dorm structures, crash barriers, roof fixings, elevator tracks, bridge retrofitting etc.

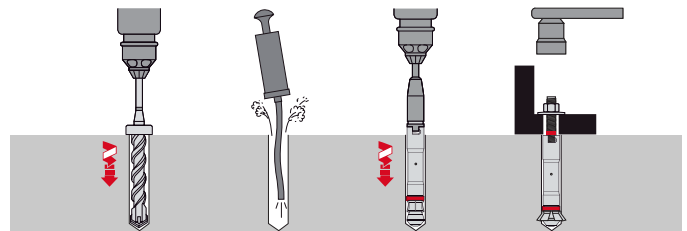
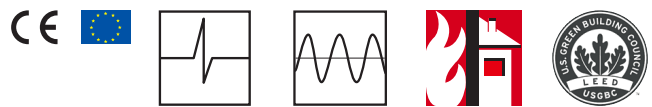
ADVANTAGES

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Approvals

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Approvals and test reports may apply to selected products only. Please refer to the documents for details.



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Technical data

Material composition	(Galvanized) Bolt: steel, 8.8 grade, zinc-plated (min. 5 µm); (Sherardized) Bolt, 8.8 grade, sherardized (min. 53 µm); (Stainless steel) Steel, A4 (SS316)
Head configuration	Externally threaded
Type of fastening	Pre-fastening
IBC compliance	IBC 2003, IBC 2006, IBC 2009, IBC 2012
Additional product information	Meets approval requirements when installed using the specified stop drill bit, setting tool and rotary hammer

Technical data

Recommended load (kN), non-cracked concrete at 25N/mm², safety factor(γ)=3

Model	Size	M10	M12	M16	M20
HDA-P/ HDA-PF	Tensile Load, Nrec	15.3	22.3	42.0	64.0
	Shear Load, Vrec	7.3	10.0	20.7	30.7
HDA-PR	Tensile Load, Nrec	15.3	22.3	42.0	-
	Shear Load, Vrec	7.7	11.3	21.0	-

Recommended load (kN), cracked concrete at 25N/mm², safety factor(γ)=3

Model	Size	M10	M12	M16	M20
HDA-P/ HDA-PF	Tensile Load, Nrec	8.3	11.7	25.0	31.7
	Shear Load, Vrec	7.3	10.0	20.7	30.7
HDA-PR	Tensile Load, Nrec	8.3	11.7	25.0	-
	Shear Load, Vrec	7.7	11.3	21.0	-

Remarks:

- 1) All the data applies to no edge distance, spacing and other influences
- 2) HDA M20: only available in galvanized steel version
- 3) For detail design method and cracked concrete information, please refer to Fastening Technology Manual

HDA-P (Galvanised min. 5µm)



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Ordering designation	Anchor size	Anchor length	Drill bit diameter	Drilling Depth	Anchorage depth	Max. fixture thickness at standard embedment depth	Base plate clearance hole	Required tightening torque	Sales pack quantity	Item number
HDA-P M10x100/20	M10	150 mm	20 mm	107 mm	100 mm	20 mm	12 mm	50 Nm	12 pc	331544 ¹⁾
HDA-P M12x125/30	M12	190 mm	22 mm	133 mm	125 mm	30 mm	14 mm	80 Nm	8 pc	331546 ¹⁾
HDA-P M12x125/50	M12	210 mm	22 mm	133 mm	125 mm	50 mm	14 mm	80 Nm	8 pc	331547 ¹⁾
HDA-P M16x190/40	M16	275 mm	30 mm	203 mm	190 mm	40 mm	18 mm	120 Nm	4 pc	331550 ¹⁾
HDA-P M16x190/60	M16	295 mm	30 mm	203 mm	190 mm	60 mm	18 mm	120 Nm	4 pc	331551 ¹⁾
HDA-P M20x250/50	M20	360 mm	37 mm	266 mm	250 mm	50 mm	22 mm	300 Nm	2 pc	339265 ¹⁾
HDA-P M20x250/100	M20	410 mm	37 mm	266 mm	250 mm	100 mm	22 mm	300 Nm	2 pc	339266 ¹⁾

¹⁾ This is a non-stock item. For detailed lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

HDA-PF (Sherardized 53µm)



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Ordering designation	Anchor size	Anchor length	Drill bit diameter	Drilling Depth	Anchorage depth	Max. fixture thickness at standard embedment depth	Base plate clearance hole	Required tightening torque	Sales pack quantity	Item number
HDA-PF M10x100/20	M10	150 mm	20 mm	107 mm	100 mm	20 mm	12 mm	50 Nm	12 pc	412900 ¹⁾
HDA-PF M12x125/30	M12	190 mm	22 mm	133 mm	125 mm	30 mm	14 mm	80 Nm	8 pc	412901 ¹⁾
HDA-PF M12x125/50	M12	210 mm	22 mm	133 mm	125 mm	50 mm	14 mm	80 Nm	8 pc	412902 ¹⁾
HDA-PF M16x190/40	M16	275 mm	30 mm	203 mm	190 mm	40 mm	18 mm	120 Nm	4 pc	339359 ¹⁾
HDA-PF M16x190/60	M16	295 mm	30 mm	203 mm	190 mm	60 mm	18 mm	120 Nm	4 pc	339360 ¹⁾

¹⁾ This is a non-stock item. For detailed lead time information please contact your Hilti representative.

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HDA-PR (Stainless steel A4)



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Ordering designation	Anchor size	Anchor length	Drill bit diameter	Drilling Depth	Anchorage depth	Max. fixture thickness at standard embedment depth	Base plate clearance hole	Required tightening torque	Sales pack quantity	Item number
HDA-PR M10x100/20	M10	150 mm	20 mm	107 mm	100 mm	20 mm	12 mm	50 Nm	12 pc	339346 ¹⁾
HDA-PR M12x125/30	M12	190 mm	22 mm	133 mm	125 mm	30 mm	14 mm	80 Nm	8 pc	339347 ¹⁾
HDA-PR M12x125/50	M12	210 mm	22 mm	133 mm	125 mm	50 mm	14 mm	80 Nm	8 pc	339348 ¹⁾
HDA-PR M16x190/40	M16	275 mm	30 mm	203 mm	190 mm	40 mm	18 mm	120 Nm	4 pc	339349 ¹⁾
HDA-PR M16x190/60	M16	295 mm	30 mm	203 mm	190 mm	60 mm	18 mm	120 Nm	4 pc	339350 ¹⁾




¹⁾ This is a non-stock item. For detailed lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

HDA SETTING EQUIPMENT




HDA-P/T



Anchor  description	TE-C Connection		TE-Y Connection		Stop drill bit  description	Setting tool  description
	TE 30-C-AVR	TE 40	TE 60-ATC / AVR	TE 70-ATC / AVR		
HDA-P 20-M10x100/20	■	■			TE-C-HDA-B 20x100	TE-C-HDA-ST 20 M10
			■		TE-Y-HDA-B 20x100	TE-Y-HDA-ST 20 M10
HDA-T 20-M10x100/20	■	■			TE-C-HDA-B 20x120	TE-C-HDA-ST 20 M10
			■		TE-Y-HDA-B 20x120	TE-Y-HDA-ST 20 M10
HDA-P 22-M12x125/30	■	■			TE-C-HDA-B 22x125	TE-C-HDA-ST 22 M12
			■		TE-Y-HDA-B 22x125	TE-Y-HDA-ST 22 M12
HDA-T 22-M12x125/30	■	■			TE-C-HDA-B 22x155	TE-C-HDA-ST 22 M12
			■		TE-Y-HDA-B 22x155	TE-Y-HDA-ST 22 M12
HDA-P 22-M12x125/50	■	■			TE-C-HDA-B 22x125	TE-C-HDA-ST 22 M12
			■		TE-Y-HDA-B 22x125	TE-Y-HDA-ST 22 M12
HDA-T 22-M12x125/50	■	■			TE-C-HDA-B 22x175	TE-C-HDA-ST 22 M12
			■		TE-Y-HDA-B 22x175	TE-Y-HDA-ST 22 M12
HDA-P 30-M16x190/40				■	TE-Y-HDA-B 30x190	TE-Y-HDA-ST 30 M16
HDA-T 30-M16x190/40				■	TE-Y-HDA-B 30x230	
HDA-P 30-M16x190/60				■	TE-Y-HDA-B 30x190	
HDA-T 30-M16x190/60				■	TE-Y-HDA-B 30x250	
HDA-P 37-M20x250/50				■	TE-Y-HDA-B 37x250	TE-Y-HDA-ST 37 M20
HDA-T 37-M20x250/50				■	TE-Y-HDA-B 37x300	
HDA-P 37-M20x250/100				■	TE-Y-HDA-B 37x250	
HDA-T 37-M20x250/100				■	TE-Y-HDA-B 37x350	

HDA-PF/TF



Anchor  description	TE 30-C-AVR	TE 40	max impact energy		Stop drill bit  description	Setting tool  description
			TE 60-ATC / AVR	TE 70-ATC / AVR		
HDA-PF 20-M10x100/20	■	■			TE-C-HDA-B 20x100	TE-C-HDA-ST 20 M10
			■		TE-Y-HDA-B 20x100	TE-Y-HDA-ST 20 M10
HDA-TF 20-M10x100/20	■	■			TE-C-HDA-B 20x120	TE-C-HDA-ST 20 M10
			■		TE-Y-HDA-B 20x120	TE-Y-HDA-ST 20 M10
HDA-PF 22-M12x125/30	■	■			TE-C-HDA-B 22x125	TE-C-HDA-ST 22 M12
			■		TE-Y-HDA-B 22x125	TE-Y-HDA-ST 22 M12
HDA-TF 22-M12x125/30	■	■			TE-C-HDA-B 22x155	TE-C-HDA-ST 22 M12
			■		TE-Y-HDA-B 22x155	TE-Y-HDA-ST 22 M12
HDA-PF 22-M12x125/50	■	■			TE-C-HDA-B 22x125	TE-C-HDA-ST 22 M12
			■		TE-Y-HDA-B 22x125	TE-Y-HDA-ST 22 M12
HDA-TF 22-M12x125/50	■	■			TE-C-HDA-B 22x175	TE-C-HDA-ST 22 M12
			■		TE-Y-HDA-B 22x175	TE-Y-HDA-ST 22 M12
HDA-PF 30-M16x190/40				■	TE-Y-HDA-B 30x190	TE-Y-HDA-ST 30 M16
HDA-TF 30-M16x190/40				■	TE-Y-HDA-B 30x230	
HDA-PF 30-M16x190/60				■	TE-Y-HDA-B 30x190	
HDA-TF 30-M16x190/60				■	TE-Y-HDA-B 30x250	

HDA-PR/TR

HDA-PR 20-M10x100/20	■	■			TE-C-HDA-B 20x100	TE-C-HDA-ST 20 M10
			■		TE-Y-HDA-B 20x100	TE-Y-HDA-ST 20 M10
HDA-TR 20-M10x100/20	■	■			TE-C-HDA-B 20x120	TE-C-HDA-ST 20 M10
			■		TE-Y-HDA-B 20x120	TE-Y-HDA-ST 20 M10
HDA-PR 22-M12x125/30	■	■			TE-C-HDA-B 22x125	TE-C-HDA-ST 22 M12
			■		TE-Y-HDA-B 22x125	TE-Y-HDA-ST 22 M12
HDA-TR 22-M12x125/30	■	■			TE-C-HDA-B 22x155	TE-C-HDA-ST 22 M12
			■		TE-Y-HDA-B 22x155	TE-Y-HDA-ST 22 M12
HDA-PR 22-M12x125/50	■	■			TE-C-HDA-B 22x125	TE-C-HDA-ST 22 M12
			■		TE-Y-HDA-B 22x125	TE-Y-HDA-ST 22 M12
HDA-TR 22-M12x125/50	■	■			TE-C-HDA-B 22x175	TE-C-HDA-ST 22 M12
			■		TE-Y-HDA-B 22x175	TE-Y-HDA-ST 22 M12
HDA-PR 30-M16x190/40				■	TE-Y-HDA-B 30x190	TE-Y-HDA-ST 30 M16
HDA-TR 30-M16x190/40				■	TE-Y-HDA-B 30x230	
HDA-PR 30-M16x190/60				■	TE-Y-HDA-B 30x190	
HDA-TR 30-M16x190/60				■	TE-Y-HDA-B 30x250	

Stop drill bit TE-C-HDA-B



SDS plus



APPLICATIONS

- Drilling HDA anchor holes to the defined depth

ADVANTAGES

- Ensures consistent hole depth for proper installation of HDA undercut anchors

Technical data

Dispenser, setting tool, accessory, tester type	Stop drill bits
Insert connection end	TE-C (SDS-plus)

Ordering designation	Drill bit diameter	Connection end	Sales pack quantity	Item number
TE-C-HDA-B 20x100	20 mm	TE-C	1 pc	332089 ¹⁾
TE-C-HDA-B 20x120	20 mm	TE-C	1 pc	332090 ¹⁾
TE-C-HDA-B 22x125	22 mm	TE-C	1 pc	402050 ¹⁾
TE-C-HDA-B 22x155	22 mm	TE-C	1 pc	402056
TE-C-HDA-B 22x175	22 mm	TE-C	1 pc	402060 ¹⁾

¹⁾ This is a non-stock item. For detailed lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Related products on page

Consumables 209-212

Stop drill bit TE-Y-HDA-B



SDS max



APPLICATIONS

- Drilling HDA anchor holes to the defined depth

ADVANTAGES

- Ensures consistent hole depth for proper installation of HDA undercut anchors

Technical data

Dispenser, setting tool, accessory, tester type	Stop drill bits
Insert connection end	TE-Y (SDS-max)

Ordering designation	Connection end	Sales pack quantity	Item number
TE-Y-HDA-B 30x190	TE-Y	1 pc	332097 ¹⁾
TE-Y-HDA-B 30x230	TE-Y	1 pc	332098
TE-Y-HDA-B 30x250	TE-Y	1 pc	332099
TE-Y-HDA-B 37x250	TE-Y	1 pc	339270 ¹⁾
TE-Y-HDA-B 37x300	TE-Y	1 pc	339271
TE-Y-HDA-B 37x350	TE-Y	1 pc	339272 ¹⁾
TE-Y-HDA-B 22x125	TE-Y	1 pc	402055 ¹⁾
TE-Y-HDA-B 22x155	TE-Y	1 pc	402058 ¹⁾
TE-Y-HDA-B 22x175	TE-Y	1 pc	402062 ¹⁾

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Setting tool TE-C-HDA-ST



SDS plus



APPLICATIONS

- Setting tool required for the automatic self-undercutting operation with the HDA undercut anchor

ADVANTAGES

- Ensures fast, consistent and reliable setting of the HDA undercut anchor

Technical data

Dispenser, setting tool, accessory, tester type	Setting tools
Insert connection end	TE-C (SDS-plus)

Ordering designation	Connection end	Sales pack quantity	Item number
TE-C-HDA-ST 20-M10	TE-C	1 pc	331843
TE-C-HDA-ST 22-M12	TE-C	1 pc	331844

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Setting tool TE-Y-HDA-ST



SDS max



APPLICATIONS

- Setting tool required for the automatic self-undercutting operation with the HDA undercut anchor

ADVANTAGES

- Ensures fast, consistent and reliable setting of the HDA undercut anchor

Technical data

Dispenser, setting tool, accessory, tester type	Stop drill bits
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Ordering designation	Connection end	Sales pack quantity	Item number
TE-Y-HDA-ST 20-M10	TE-Y	1 pc	287133 ¹⁾
TE-Y-HDA-ST 22-M12	TE-Y	1 pc	287134
TE-Y-HDA ST 30-M16	TE-Y	1 pc	331846
TE-Y-HDA-ST 37-M20	TE-Y	1 pc	339269

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Disassembly tool – for easy removal of HDA undercut anchors TE-C-HDA-RT



APPLICATIONS

- Tool for the removal of HDA undercut anchors

ADVANTAGES

- Fast, easy anchor removal

Technical data

Dispenser, setting tool, accessory, tester type	Other accessories
Insert connection end	TE-C (SDS-plus)

Ordering designation	Sales pack quantity	Item number
TE-C-HDA-RT 20-M10	1 pc	333433 ¹⁾
TE-C-HDA-RT 22-M12	1 pc	333434 ¹⁾
TE-C-HDA-RT 30-M16	1 pc	333435 ¹⁾
TE-C-HDA-RT 37-M20	1 pc	339273 ¹⁾

¹⁾ This is a non-stock item. For detailed lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Filling set



APPLICATIONS

- Applications in which shear loads need to be taken up directly (gap filled with HIT-HY 200)

ADVANTAGES

- Optimal load transfer through special washer and filling of annular gap
- Through-fastening is possible
- Easy handling, even with multiple fastening points

Technical data

Dispenser, setting tool, accessory, tester type	Other accessories
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Ordering designation	Anchor size	Material	Sales pack quantity	Item number
Filling set M8	M8	Galvanised	50 pc	2127787 ¹⁾
Filling set M10	M10	Galvanised	50 pc	2127788 ¹⁾
Filling set M12	M12	Galvanised	16 pc	2127789 ¹⁾
Filling set M8 A4 stnls.	M8	Stainless steel A4	50 pc	2127893 ¹⁾
Filling set M10 A4 stnls.	M10	Stainless steel A4	50 pc	2127894 ¹⁾
Filling set M12 A4 stnls.	M12	Stainless steel A4	16 pc	2127895 ¹⁾
Filling set M16 A4 stnls.	M16	Stainless steel A4	24 pc	2127896 ¹⁾

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

HDA Undercut anchor

Ultimate-performance undercut anchor for dynamic loads

Anchor version

Benefits



HDA-P
HDA-PR
HDA-PF
Anchor for pre-setting (M10-M20)

- Self undercutting (without special undercutting tool)
- Low expansion force (small edge distance / spacing)
- Performance of a headed stud
- Complete system (anchor, stop drill bit, setting tool, drill hammer)



HDA-T
HDA-TR
HDA-TF
Anchor for through-fasting (M10-M20)

- Setting mark on anchor for installation control (easy and safe)
- Completely removable
- Suitable for all dynamic loads; seismic^{a)} C1 and C2, shock and fatigue

Base material

Load conditions



Uncracked concrete



Cracked concrete (Tension zone)



Static/
quasi-static



Seismic
ETA-C1, C2



Fatigue



Shock



Fire
resistance

Installation conditions

Other information



Hammer drilled holes



Small edge distance and spacing



Performance of a headed stud



European Technical Assessment



CE conformity



PROFIS Anchor design software



Nuclear power plant approval



**A4
316**

Corrosion resistance

Approvals / certificates

Description	Authority / Laboratory	No. / date of issue
European Technical Assessment ^{b)}	CSTB, Paris	ETA-99/0009 / 2015-01-06
ICC-ES report incl. seismic ^{c)}	ICC evaluation service	ESR 1546 / 2014-02-01
Shockproof fastenings in civil defence installations	Federal Office for Civil Protection, Bern	BZS D 09-601/ 2009-10-21
Nuclear power plants	DIBt, Berlin	Z-21.1-1987 / 2014-07-22
Fatigue loading	DIBt, Berlin	Z-21.1-1693 / 2013-07-29
Fire test report	IBMB, Braunschweig	UB 3039/8151-CM / 2001-01-31
Assessment report (fire)	Warringtonfire	WF 327804/A 2013-07-10

a) Please contact your Hilti representative for seismic resistance data

b) All data for HDA-P / HDA-PR / HDA-T / HDA-TR given in this section according to ETA-99/0009, issue 2015-01-06. Sherarized versions HDA-PF / HDA-TF are not covered by the approvals.

c) Please contact your Hilti representative for more details on Technical Data according to ICC

Recommended general notes

* The below clauses based on Hilti product qualifications are for references only. Selection of clauses by the engineer shall be based on the specific application needs. Please contact Hilti's technical team for further details.

- Self-cutting undercut through-fastening and/or presetting anchor for use in cracked and un-cracked concrete
- The anchor shall have European Technical Assessment (ETA); evaluating performance in cracked and un-cracked concrete and seismic conditions
- Anchor shall conform to shock proof fastening according to Swiss Federal Office for Civil Protection (FOCP) or equivalent authority
- Anchor shall have corrosion resistance of min. 5µm galvanization
- Anchor shall have corrosion resistance of A4 stainless steel
- Anchor shall be installed as per the manufacturer's approved procedure and equipment
- Correct anchor setting should be verifiable with a "setting mark" through visual inspection after installation
- Anchor shall be completely removable using removal system provided by manufacturer.
- The recommended tension load of the anchor should not be less than __kN in cracked concrete with concrete strength at 25N/mm² (including overall global safety factor=3)
- Effective anchorage depth of the anchor should not exceed __mm

Basic loading data (for a single anchor)

All data in this section applies to:

- Static and quasi-static loading
- Correct setting (see setting instruction)
- No edge distance and spacing influence
- **Steel** failure
- Minimum base material thickness
- Concrete C 20/25, $f_{ck,cube} = 25 \text{ N/mm}^2$. Concrete strength influence factor can be applied if concrete grade > C20/25, when steel failure does not govern.

Effective anchorage depth

Anchor size	M10	M12	M16	M20
Eff. Anchorage depth h_{ef} [mm]	100	125	190	250

Characteristic resistance

Anchor size	M10	M12	M16	M20 ^{a)}	
Non-cracked concrete					
Tension N_{Rk}	HDA-P / HDA-T HDA-PF / HDA-TF ^{b)} [kN]	46	67	126	192
	HDA-PR / HDA-TR	46	67	126	-

Cracked concrete					
Tension N_{Rk}	HDA-P / HDA-T HDA-PF / HDA-TF ^{b)} [kN]	25	35	75	95
	HDA-PR / HDA-TR	25	35	75	-

Non-cracked and cracked concrete																
Shear V_{Rk}	HDA-T / HDA-TF ^{b)}	$t_{fix,min}$ [mm]	10≤	15≤	10≤	15≤	20≤	15≤	20≤	25≤	30≤	35≤	20≤	25≤	40≤	55≤
		$t_{fix,max}$	<15	≤20	<15	<20	≤50	<20	<25	<30	<35	≤60	<25	<40	<55	≤100
	V_{Rk} [kN]	65 ^{a)}	70	80	80	100	140c)	140	155	170	190	205	205	235	250	
	HDA-TR	$t_{fix,min}$ [mm]	10≤	15≤	10≤	15≤	20≤	30≤	15≤	20≤	25≤	35≤	-			
		$t_{fix,max}$	<15	≤20	<15	<20	<30	≤50	<20	<25	<35	≤60	-			
	V_{Rk} [kN]	71 ^{a)}	71	87	87	94	109	152	152	158	170	-				
HDA-P / HDA-PF ^{b)}	[kN]	22	30			62			92							
	HDA-PR	23	34			63			-							

- HDA M20 is only available in galvanized 5µm version.
- HDA-PF and HDA-TF anchors are not covered by ETA-99/0009.
- With use of centering washer (t=5mm) only.

Design resistance^{a)}

Anchor size		M10	M12	M16	M20 ^{b)}												
Non-cracked concrete																	
Tension N_{Rk}	HDA-P / HDA-T HDA-PF / HDA-TF ^{c)} [kN]	30,7	44,7	84,0	128,0												
	HDA-PR / HDA-TR	28,8	41,9	78,8	-												
Cracked concrete																	
Tension N_{Rd}	HDA-P / HDA-T HDA-PF / HDA-TF ^{c)} [kN]	16,7	23,3	50,0	63,3												
	HDA-PR / HDA-TR	16,7	23,3	50,0	-												
Non-cracked and cracked concrete																	
Shear V_{Rk}	HDA-T / HDA-TF ^{c)}	$t_{fix,min}$ [mm]	10≤	15≤	10≤	15≤	20≤	15≤	20≤	25≤	30≤	35≤	20≤	25≤	40≤	55≤	
		$t_{fix,max}$	<15	≤20	<15	<20	≤50	<20	<25	<30	<35	≤60	<25	<40	<55	≤100	
		V_{Rk} [kN]	43,3 ^{d)}	46,7	53,3 ^{d)}	53,3	66,7	93,3 ^{d)}	93,3	103,3	113,3	126,7	136,7	136,7 ^{d)}	156,7	166,7	
	HDA-TR	$t_{fix,min}$ [mm]	10≤	15≤	10≤	15≤	20≤	30≤	15≤	20≤	25≤	35≤					
		$t_{fix,max}$	<15	≤20	<15	<20	<30	≤50	<20	<25	<35	≤60					
		V_{Rk} [kN]	53,4 ^{d)}	53,4	65,4 ^{d)}	65,4	70,7	82,0	114,3 ^{d)}	114,3	118,8	127,8					
HDA-P / HDA-PF ^{c)} [kN]	17,6			24,0			49,6			73,6							
HDA-PR	17,3			25,6			47,4			-							

- a) Includes material partial factor according to ETA-99/0009, issue 2015-01-06
- b) HDA M20 is only available in galvanized 5µm version.
- c) HDA-PF and HDA-TF anchors are not covered by ETA-99/0009.
- d) With use of centering washer (t=5mm) only.

Recommended loads^{a)}

Anchor size		M10	M12	M16	M20 ^{b)}												
Non-cracked concrete																	
Tension N_{Rk}	HDA-P / HDA-T HDA-PF / HDA-TF ^{c)} [kN]	15,3	22,3	42	64												
	HDA-PR / HDA-TR	15,3	22,3	42	-												
Cracked concrete																	
Tension N_{Rec}	HDA-P / HDA-T HDA-PF / HDA-TF ^{c)} [kN]	8,3	11,7	25	31,7												
	HDA-PR / HDA-TR	8,3	11,7	25	-												
Non-cracked and cracked concrete																	
Shear V_{Rec}	HDA-T / HDA-TF ^{c)}	$t_{fix,min}$ [mm]	10≤	15≤	10≤	15≤	20≤	15≤	20≤	25≤	30≤	35≤	20≤	25≤	40≤	55≤	
		$t_{fix,max}$	<15	≤20	<15	<20	≤50	<20	<25	<30	<35	≤60	<25	<40	<55	≤100	
		V_{Rk} [kN]	21,7 ^{d)}	23,3	26,7	26,7	33,3	46,7 ^{d)}	46,7	51,7	56,7	63,3	68,3	68,3	78,3	83,3	
	HDA-TR	$t_{fix,min}$ [mm]	10≤	15≤	10≤	15≤	20≤	30≤	15≤	20≤	25≤	35≤					
		$t_{fix,max}$	<15	≤20	<15	<20	<30	≤50	<20	<25	<35	≤60					
		V_{Rk} [kN]	23,7 ^{d)}	23,7	29	29	31,3	36,3	50,7	50,7	52,7	56,7					
HDA-P / HDA-PF ^{c)} [kN]	7,3		10		20,7		30,7										
HDA-PR	7,7		11,3		21		-										

- a) Includes global safety factor of 3.0
- b) HDA M20 is only available in galvanized 5µm version.
- c) HDA-PF and HDA-TF anchors are not covered by ETA-99/0009.
- d) With use of centering washer (t=5mm) only.

Materials

Mechanical properties of HDA

Anchor size	HDA-P / HDA-PF / HDA-T / HDA-TF				HDA-PR / HDA-TR		
	M10	M12	M16	M20 ^{a)}	M10	M12	M16
Anchor bolt							
Nominal tensile strength f_{uk} [N/mm ²]	800	800	800	800	800	800	800
Yield strength f_{yk} [N/mm ²]	640	640	640	640	600	600	600
Stressed cross-section A_s [mm ²]	58,0	84,3	157	245	58,0	84,3	157
Moment of resistance W_{el} [mm ³]	62,3	109,2	277,5	540,9	62,3	109,2	277,5
Characteristic bending resistance without sleeve $M_{Rk,s}^0$ ^{b)} [Nm]	60	105	266	519	60	105	266
Anchor sleeve							
Nominal tensile strength f_{uk} [N/mm ²]	850	850	700	550	850	850	700
Yield strength f_{yk} [N/mm ²]	600	600	600	450	600	600	600

a) HDA M20 is only available in galvanized 5µm version

b) The recommended bending moment of the HDA anchor bolt may be calculated from $M_{rec} = MR_{d,s} / \gamma_F = M_{Rk,s} / (\gamma_{MS} \cdot \gamma_F) = (1,2 \cdot W_{el} \cdot f_{yk}) / (\gamma_{MS} \cdot \gamma_F)$, where the partial safety factor for bolts of strength 8.8 is $\gamma_{MS} = 1,25$, for A4-80 equal to 1,33 and the partial safety factor for action may be taken as $\gamma_F = 1,4$. In case of HDA-T/-TR/-TF the bending capacity of the sleeve is neglected, only the capacity of the bolt is taken into account.

Material quality

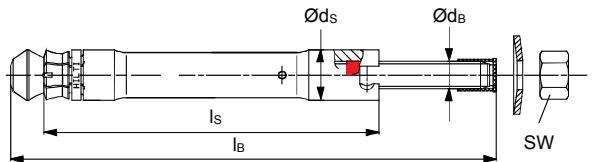
Part	Material
HDA-P / HDA-T	
Sleeve:	Machined steel with brazed tungsten carbide tips, galvanized to min. 5 µm
Bolt M10 - M16:	Cold formed steel, strength 8.8, galvanized to min. 5 µm
Bolt M20:	Cone machined, rod strength 8.8, galvanized to min. 5 µm
Washer M10-M16:	Spring washer, galvanized or coated
Washer M20:	Washer, galvanized
Centering washer	Machined steel
HDA-PR / HDA-TR	
Sleeve:	Machined stainless steel with brazed tungsten carbide tips
Bolt M10 - M16:	Cone/rod: machined stainless steel
Washer	Spring washer stainless steel
Centering washer	Machined steel
HDA-PF-TF	
Sleeve:	Machined steel with brazed tungsten carbide tips, sherardized
Bolt M10 - M16:	Cold formed steel, strength 8.8, sherardized

Anchor dimensions ^{a)}

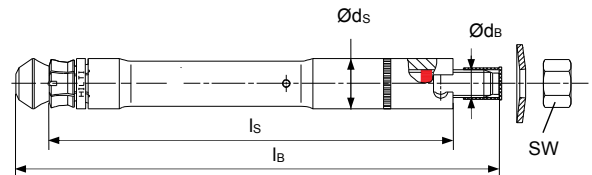
Anchor size		HDA -P / HDA-PR / HDA-T / HDA-TR / HDA-PF / HDA-TF							
		M10		M12		M16		M20	
		x100/20	x125/30	x125/50	x190/40	x190/60	x250/50	x250/100	
Length code letter		I	L	N	R	S	V	X	
Total length of bolt	l_b [mm]	150	190	210	275	295	360	410	
Diameter of bolt	d_b [mm]	10	12		16		20		
Anchor sleeve									
HDA-P	l_s [mm]	100	125	125	190	190	250	250	
HDA-T	l_s [mm]	120	155	175	230	250	300	350	
Max. diameter of sleeve	d_s [mm]	19	21		29		35		
Washer diameter	d_w [mm]	27,5	33,5		45,5		50		
Width across flats	S_w [mm]	17	19		24		30		

a) Please refer to the product catalogue on the Hilti Hong Kong website for standard portfolio

HDA-P/PR



HDA-T/TR

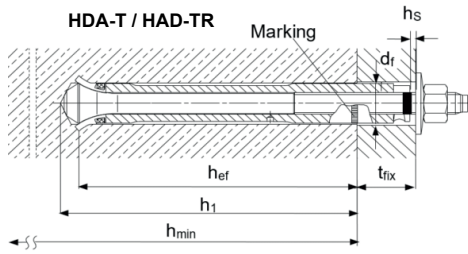
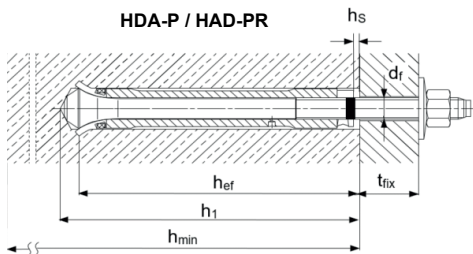


Setting information

Setting details

Anchor size	HDA-P / HDA-PR / HDA-T / HDA-TR								
	M10		M12		M16		M20		
	x100/20	x125/30	x125/50	x190/40	x190/60	x250/50	x250/100		
Length code letter	I	L	N	R	S	V	X		
Nominal drill bit diameter	[mm] 20		22		30		37		
Cutting diameter of drill bit	$d_{cut,min}$	[mm] 20,10		22,10		30,10		37,15	
	$d_{cut,max}$	[mm] 20,55		22,55		30,55		37,70	
Depth of drill hole	$h_1 \geq$	[mm] 107		133		203		266	
Anchorage depth	h_{ef}	[mm] 100		125		190		250	
Sleeve recess	$h_{s,min}$	[mm] 2		2		2		2	
	$h_{s,max}$	[mm] 6		7		8		8	
Torque moment	T_{inst}	[Nm] 50		80		120		300	
For HDA-P/-PR/-PF									
Clearance hole	d_f	[mm] 12		14		18		22	
Minimum base material thickness	h_{min}	[mm] 180		200		270		350	
Fixture thickness	$t_{fix,min}$	[mm] 0		0		0		0	
	$t_{fix,max}$	[mm] 20		30		50		40	
For HDA-T/-TR/-TF									
Clearance hole	d_f	[mm] 21		23		32		40	
Minimum base material thickness	h_{min}	[mm] 200- t_{fix}		230- t_{fix}		250- t_{fix}		310- t_{fix}	
Min. fixture thickness									
Tension load only!	$t_{fix,min}$	[mm] 10		10		15		20	
Shear load without use of centering washer	$t_{fix,min}$	[mm] 15		15		20		25	
Shear load - with use of centering washer	$t_{fix,min}^a$	[mm] 10		10		15		20	
Max. fixture thickness	$t_{fix,max}$	[mm] 20		30		50		40	

a) With use of centering washer ($t=5mm$) only

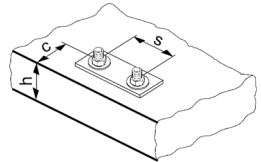


Setting parameters

Anchor size	HDA-P / HDA-PR / HDA-T / HDA-TR						
	M10		M12		M16		M20
	x100/20	x125/30	x125/50	x190/40	x190/60	x250/50	x250/100
Minimum spacing s_{min} [mm]	100	125	125	190	190	250	250
Minimum edge distance c_{min} [mm]	80	100	100	150	150	200	200
Critical spacing for splitting failure $s_{cr,sp}$ [mm]	300	375	375	570	570	750	750
Critical edge distance for splitting failure $c_{cr,sp}$ [mm]	150	190	190	285	285	375	375
Critical spacing for concrete cone failure $s_{cr,N}$ [mm]	300	375	375	570	570	750	750
Critical edge distance for concrete cone failure $c_{cr,N}$ [Nm]	150	190	190	285	285	375	375

For spacing (edge distance) smaller than critical spacing (critical edge distance) the design loads have to be reduced.

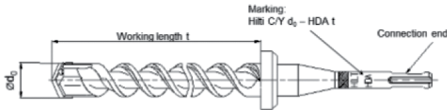
Critical spacing and critical edge distance for splitting failure apply only for non-cracked concrete. For cracked concrete only the critical spacing and critical edge distance for concrete cone failure are decisive.



Stop drill bits for HDA

The stop drill is required in order to achieve the correct hole depth.

The setting system (tool and setting tool) is required for transferring the specific energy for the undercutting process.



Anchor	Stop drill bit with TE-C (SDS plus) connection end	Stop drill bit with TE-Y (SDS max) connection end	Nominal working length t [mm]	Drill bit diameter d ₀ [mm]
HDA-P/ HDA-PF/ HDA-PR M10x100/20	TE-C-HDA-B 20x100	TE-Y-HDA-B 20x100	107	20
HDA-T/ HDA-TF/ HDA-TR M10x100/20	TE-C-HDA-B 20x120	TE-Y-HDA-B 20x120	127	20
HDA-P/ HDA-PF/ HDA-PR M12x125/30	TE-C HDA-B 22x125	TE-Y HDA-B 22x125	133	22
HDA-P/ HDA-PF/ HDA-PR M12x125/50	TE-C HDA-B 22x125	TE-Y HDA-B 22x125	133	22
HDA-T/ HDA-TF/ HDA-TR M12x125/30	TE-C HDA-B 22x155	TE-Y HDA-B 22x155	163	22
HDA-T/ HDA-TF/ HDA-TR M12x125/50	TE-C HDA-B 22x175	TE-Y HDA-B 22x175	183	22
HDA-P/ HDA-PF/ HDA-PR M16 x190/40		TE-Y HDA-B 30x190	203	30
HDA-P/ HDA-PF/ HDA-PR M16 x190/60		TE-Y HDA-B 30x230	243	30
HDA-T/ HDA-TF/ HDA-TR M16x190/40		TE-Y HDA-B 30x230	243	30
HDA-T/ HDA-TF/ HDA-TR M16x190/60		TE-Y HDA-B 30x250	263	30
HDA-P M20 x250/50		TE-Y HDA-B 37x250	266	37
HDA-P M20 x250/100		TE-Y HDA-B 37x250	266	37
HDA-T M20x250/50		TE-Y HDA-B 37x300	316	37
HDA-T M20x250/100		TE-Y HDA-B 37x350	366	37

Stop drill bits for HDA

The stop drill is required in order to achieve the correct hole depth.

The setting system (tool and setting tool) is required for transferring the specific energy for the undercutting process.

Anchor	TE 25 ^{a)} TE 24 ^{a)}	TE 30-A36	TE 35	TE 40 TE 40 AVR	TE 56 TE 56-ATC	TE 60 TE 60-ATC	TE 70 TE 70-ATC	TE 75	TE 76 TE 76-ATC	TE 80-ATC TE 80-ATC AVR	Setting tool
HDA-P/ HDA-T M10x100/20	■	■		■	■	■					TE-C-HDA-ST 20 M10
											TE-Y-HDA-ST 20 M10
HDA-P/ HDA-T M12x125/30 HDA-P/ HDA-T M12x125/50	■	■		■	■	■					TE-C-HDA-ST 22 M12
											TE-Y-HDA-ST 22 M12
HDA-P/ HDA-T M16x190/40 HDA-P/ HDA-T M16x190/60							■	■	■	■	TE-Y-HDA-ST 30 M16
							■				TE-Y-HDA-ST 37 M20

a) 1st gear

Anchor	TE 25 ^{a)} TE 24 ^{a)}	TE 30-A36	TE 35	TE 40 TE 40 AVR	TE 56 TE 56-ATC	TE 60 TE 60-ATC	TE 70 TE 70-ATC	TE 75	TE 76 TE 76-ATC	TE 80-ATC TE 80-ATC AVR	Setting tool
HDA-PR/ HDA-TR M10x100/20	■	■	■	■	■	■					TE-C-HDA-ST 20 M10
											TE-Y-HDA-ST 20 M10
HDA-PR/ HDA-TR M12x125/30 HDA-PR/ HDA-TR M12x125/50	■	■	■	■	■	■					TE-C-HDA-ST 22 M12
											TE-Y-HDA-ST 22 M12
HDA-PR/ HDA-TR M16x190/40 HDA-PR/ HDA-TR M16x190/60							■	■	■	■	TE-Y-HDA-ST 30 M16

a) 1st gear

Anchor	TE 25 ^{a)} TE 24 ^{a)}	TE 30-A36	TE 35	TE 40 TE 40 AVR	TE 56 TE 56-ATC	TE 60 TE 60-ATC	TE 70 TE 70-ATC	TE 75	TE 76 TE 76-ATC	TE 80-ATC TE 80-ATC AVR	Setting tool
HDA-PF/ HDA-TF M10x100/20		■	■	■		■					TE-C-HDA-ST 20 M10
HDA-PF/ HDA-TF M12x125/30 HDA-PF/ HDA-TF M12x125/50		■	■	■		■					TE-C-HDA-ST 22 M12
											TE-Y-HDA-ST 30 M16

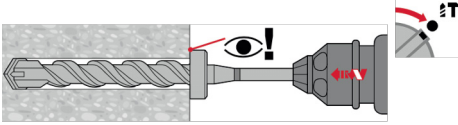
a) 1st gear

Setting instructions

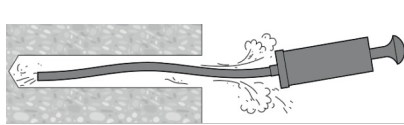
*For detailed information on installation see instruction for use given with the package of the product.

HDA-P/-PR/-PF (prepositioning)

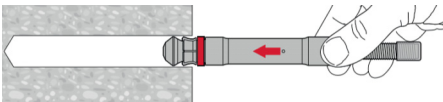
1. Drilling



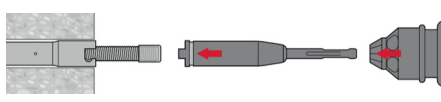
2. Cleaning



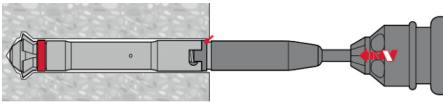
3. Inserting the anchor by hand



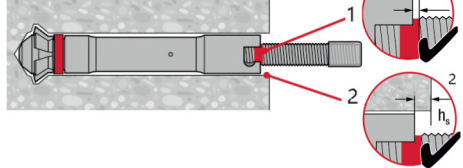
4. Applying hammerdrill



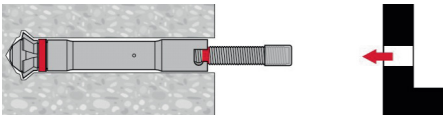
5. Applying hammer drill



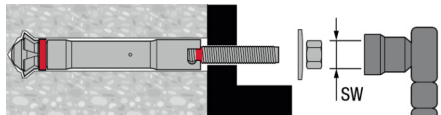
6. Checking



7. Attaching the fixture

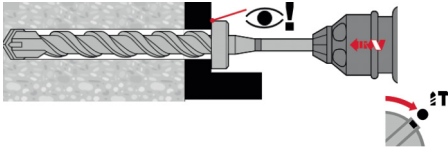


8. Attaching the belonging washer

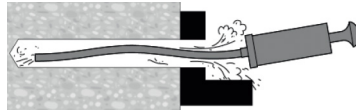


HDA-/-TR / -TF (post-positioning)

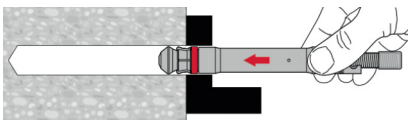
1. Drilling



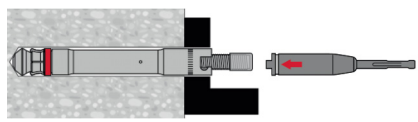
2. Cleaning



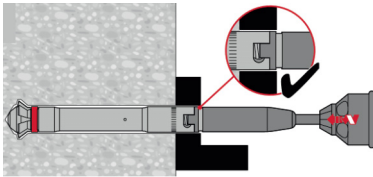
3. Inserting the anchor by hand



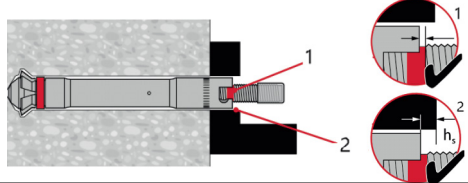
4. Applying hammerdrill



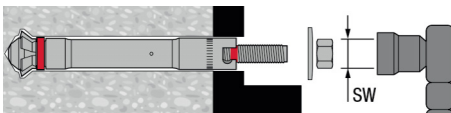
5. Checking



6. Checking



7. Attaching the belonging washer



Attn. : To whom it may concern

Date : 26 September 2023
Ref. : 114/FP/DY/23

Subject : Country of Origin- Hilti HDA Undercut Anchor

Dear Sir / Madam,

Enclosed please find the information of Hilti HDA Undercut Anchor.

Brand Name : Hilti

Model Name : Hilti HDA Undercut Anchor

Manufacturer : Hilti Corporation

Address of Manufacturer : FL-9494, Principality of Liechtenstein.

Manufacturer Contact Person : Dennis Yeung

Supplier : Hilti (Hong Kong) Ltd

Address of Supplier : 701-704, 7/F, Tower A, Manulife Financial Centre,
223 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

Supplier Contact Person : Dennis Yeung (+852 9723 4621)

Country of Origin : Hungary

Should you have further questions, please do not hesitate to contact our Technical Representatives, Customer Service Hotline at 8228-8118, or email us at hksales@hilti.com.

Yours faithfully,



Dennis Yeung
Head of Product Leadership Strategy, F&P

