SAS
Stressteel, Inc.

ANP SELFDRILLING HOLLOWBAR SYSTEM (SHS)

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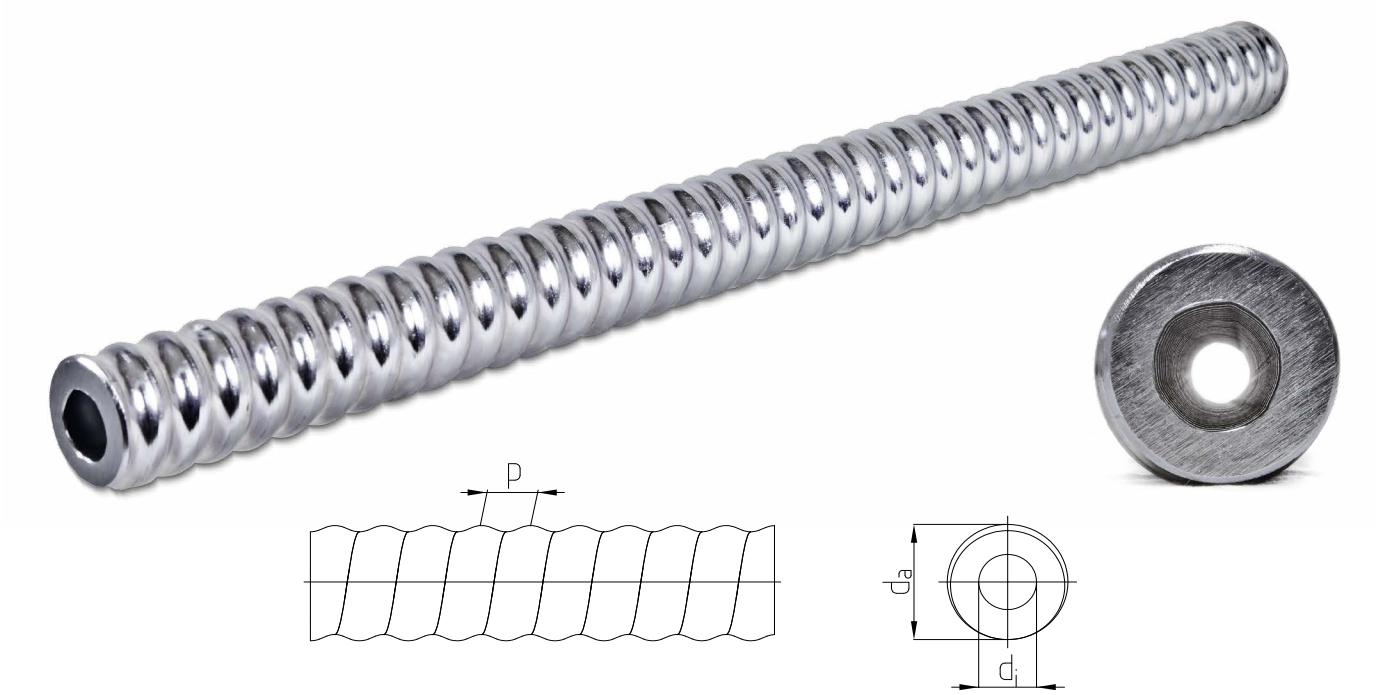


round thread R Ø 32 - 51 mm
cold rolled - left hand thread

type Ø	[mm]	*R32	*R32	*R32	*R32	*R32	*R38	R38	*R51	R51
parameter	[mm]	H 0210-32	H 0250-32	H 0280-32	H 0360-32	H 0400-32	H 0420-38	H 0500-38	H 0630-51	H 0800-51
d_a	[in]	1,22	1,22	1,22	1,22	1,22	1,50	1,50	1,97	1,97
d_i	[in]	0,79	0,75	0,69	0,57	0,43	0,87	0,73	1,30	1,14
p	[in]	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50
S_0	[in^2]	0,51	0,57	0,67	0,79	0,88	0,99	1,15	1,44	1,78
m	[lbs/ft]	1,70	1,90	2,30	2,70	3,00	3,40	3,90	4,90	6,00
F_{yk} ($F_{0,2k}$)	[kips]	38	43	52	63	74	79	90	119	142,00
F_{tk}	[kips]	47	56	63	81	90	94	112	142	180,00

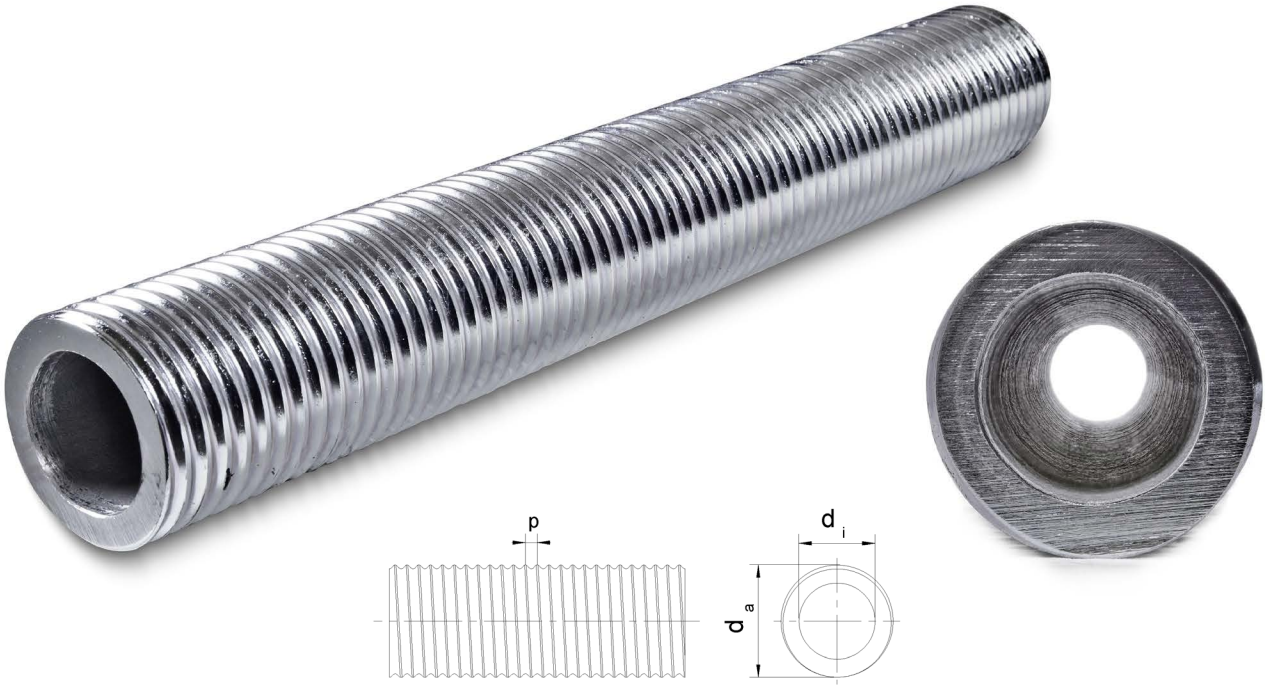
R-thread Ø 32 - 38 mm according to ISO 10208

R-thread Ø 51 mm according to factory standard

in stock

**available upon request*

ANP SELFDRILLING HOLLOWBAR SYSTEM (SHS)



trapezoidal thread T Ø 64 - 108 mm
cold rolled - right hand thread

type Ø	[mm]	*T64	T64	*T76	T76	*T76	T108
parameter	[mm]	H 1000-64	H 1200-64	H 1400-76	H 1600-76	H 1800-76	H 2400-108
d_a	[in]	2,52	2,52	3,03	3,03	3,03	4,25
d_i	[in]	1,65	1,52	2,13	2,03	1,87	3,25
p	[in]	0,32	0,32	0,32	0,32	0,32	0,32
S_0	[in^2]	2,28	2,67	3,13	3,52	3,89	5,50
m	[lbs/ft]	7,70	9,10	10,60	12,00	13,20	18,70
F_{yk} ($F_{0,2k}$)	[kips]	180	214	243	270	315	400
F_{tk}	[kips]	225	270	315	360	405	540

T-thread Ø 64 - 108 mm according to factory standard

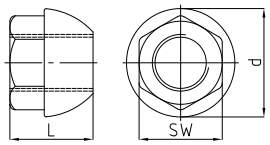
in stock

**available upon request*

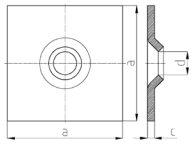
ACCESSORIES

SHS SYSTEM

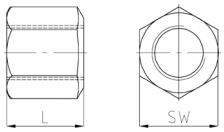
dome nut 55°



domed plate



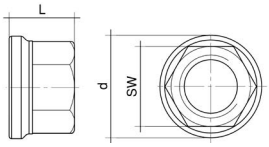
hex nut flat bull nose



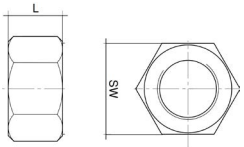
type Ø [mm]	parameter	SW x d x L [in]	[lbs]	a x c x d [in]	[lbs]	SW x L [in]	[lbs]
		H 2001		HAC		H 2002 / H 2963	
32	H0210-32	1,81 x 2,36 x 1,81	0,99	5,91 x 0,31 x 1,22	3,08	1,81 x 1,97	0,88
32	H0250-32	1,81 x 2,36 x 1,81	0,99	5,91 x 0,31 x 1,22	3,08	1,81 x 1,97	0,88
32	H0280-32	1,81 x 2,36 x 1,81	0,99	7,87 x 0,39 x 1,38	6,82	1,81 x 1,97	0,88
32	H0360-32	1,81 x 2,36 x 1,81	0,99	7,87 x 0,39 x 1,38	8,14	1,81 x 1,97	0,88
32	H0400-32	-	-	7,87 x 0,39 x 1,38	8,14	1,81 x 1,97	0,88
38	H0420-38	2,17 x 2,76 x 2,17	1,32	7,87 x 0,47 x 1,61	8,14	2,17 x 1,97	1,32
38	H0500-38	2,17 x 2,76 x 2,17	1,32	7,87 x 0,47 x 1,61	8,14	2,17 x 1,97	1,32
51	H0630-51	2,95 x 3,54 x 2,76	3,52	7,87x 0,59 x 2,09	9,90	2,95 x 2,76	3,52
51	H0800-51	2,95 x 3,54 x 2,76	3,52	7,87 x 0,79 x 2,09	12,98	2,95 x 2,76	3,52
64	H1000-64	-	-	-	-	3,35 x 2,76	4,18
64	H1200-64	-	-	-	-	3,35 x 2,76	4,18
76	H1400-76	-	-	-	-	3,94 x 3,15	6,49
76	H1600-76	-	-	-	-	3,94 x 3,15	6,49
76	H1800-76	-	-	-	-	3,94 x 3,15	6,49
108	H2400-108	-	-	-	-	5,12 x 3,94	13,53

SHS SYSTEM

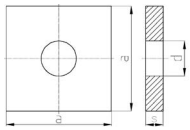
hexnut



lock nut



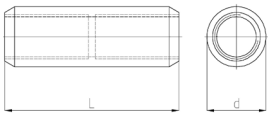
pile head plate flat



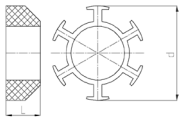
type Ø [mm]	parameter	SW x d x L [in]	[lbs]	SW x L [in]	[lbs]	a x s x d [in]	[lbs]
		H 2163		H 2040		HAC	
32	H0210-32	-	-	-	-	3,94 x 0,59 x 1,38	2,42
32	H0250-32	-	-	-	-	4,33 x 0,79 x 1,38	3,74
32	H0280-32	-	-	-	-	4,33 x 0,79 x 1,38	3,74
32	H0360-32	-	-	-	-	4,72 x 0,98 x 1,38	5,72
32	H0400-32	-	-	-	-	4,72 x 0,98 x 1,38	5,72
38	H0420-38	2,17 x 2,99 x 1,97	2,00	2,17 x 1,38	1,19	5,51 x 0,98 x 1,61	7,92
38	H0500-38	2,17 x 2,99 x 1,97	2,00	2,17 x 1,38	1,19	5,51 x 0,98 x 1,61	7,92
51	H0630-51	2,95 x 3,90 x 2,76	4,95	2,95 x 1,77	2,86	6,30 x 0,98 x 2,09	10,12
51	H0800-51	2,95 x 3,90 x 2,76	4,95	2,95 x 1,77	2,86	7,09 x 1,18 x 2,09	15,62
64	H1000-64	3,35 x 4,29 x 2,76	3,08	3,35 x 1,77	3,08	7,87 x 1,18 x 2,64	20,68
64	H1200-64	3,35 x 4,29 x 2,76	3,08	3,35 x 1,77	3,08	7,87 x 1,38 x 2,64	24,20
76	H1400-76	3,94 x 4,96 x 3,15	4,51	1,97 x 3,94	4,51	7,87 x 1,57 x 3,15	27,50
76	H1600-76	3,94 x 4,96 x 3,15	4,51	1,97 x 3,94	4,51	8,66 x 1,77 x 3,15	37,40
76	H1800-76	3,94 x 4,96 x 3,15	4,51	1,97 x 3,94	4,51	9,45 x 1,77 x 3,15	44,66
108	H2400-108	5,12 x 5,83 x 3,94	6,82	5,12 x 2,36	6,82	11,02 x 1,97 x 4,41	67,32

SHS SYSTEM

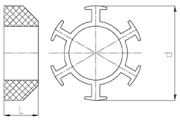
coupler



spacer PE



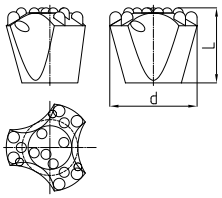
Spacer steel



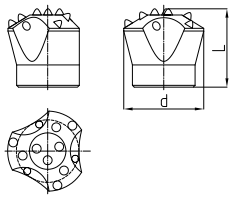
type Ø [mm]	parameter	d x L [in]	[lbs]	L x d [in]	[lbs]	L x d [in]	[lbs]
		H 3003		H 5085		H 5086	
32	H0210-32	1,65 x 4,92	1,54	0,98 x 2,76	0,07	-	-
32	H0250-32	1,65 x 4,92	1,54	0,98 x 2,76	0,07	-	-
32	H0280-32	1,65 x 4,92	1,54	0,98 x 2,76	0,07	-	-
32	H0360-32	1,65 x 4,92	1,54	0,98 x 2,76	0,07	-	-
32	H0400-32	1,65 x 5,91	1,78	0,98 x 2,76	0,07	-	-
38	H0420-38	2,01 x 6,42	2,86	0,98 x 3,54	0,09	1,38 x 2,76	1,32
38	H0500-38	2,01 x 6,42	2,86	0,98 x 3,54	0,09	1,38 x 2,76	1,32
51	H0630-51	2,52 x 7,09	3,96	0,98 x 4,33	0,11	1,57 x 3,35	3,52
51	H0800-51	2,52 x 7,09	3,96	0,98 x 4,33	0,11	1,57 x 3,35	3,52
64	H1000-64	2,99 x 6,30	4,18	-	-	1,57 x 4,92	4,18
64	H1200-64	2,99 x 6,30	4,18	-	-	1,57 x 4,92	4,18
76	H1400-76	3,74 x 7,09	12,10	1,97 x 5,51	0,22	1,97 x 5,51	6,49
76	H1600-76	3,74 x 7,09	12,10	1,97 x 5,51	0,22	1,97 x 5,51	6,49
76	H1800-76	3,74 x 7,09	12,10	1,97 x 5,51	0,22	1,97 x 5,51	6,49
108	H2400-108	5,00 x 8,66	14,08	-	-	2,36 x 6,69	13,53

SHS SYSTEM

hardened button bit ES



button bit with TC inserts ESS

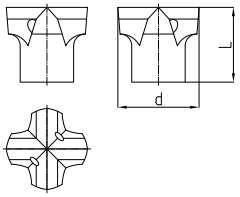


type Ø [mm]	parameter	d [in]	[lbs]	d [in]	[lbs]
		ES		ESS	
32	-	2,01	1,10	2,01	1,10
38	-	2,99	2,64	2,99	2,64
38	-	3,54	3,74	3,54	3,74
51	-	3,54	-	2,99	3,08
51	-	3,94	3,96	3,54	3,96
51	-	4,53	4,40	3,94	6,60
51	-	-	-	4,53	7,92
51	-	-	-	5,91	9,90
64/76	-	5,12	-	5,12	-
64/76	-	6,69	13,20	7,09	13,20

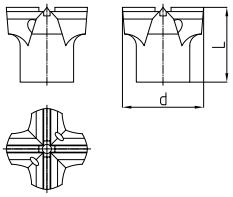
ACCESSORIES

SHS SYSTEM

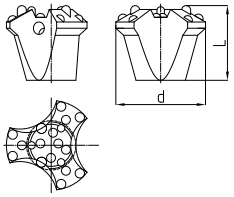
cross bit EX



cross bit with TC inserts EXX



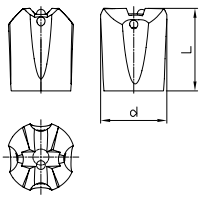
hardened button bit with drop-center ES-DC



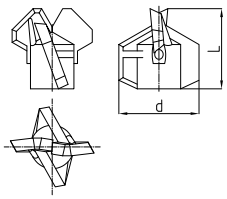
type Ø [mm]	parameter	d [in]	[lbs]	d [in]	[lbs]	d [in]	[lbs]
		EX		EXX		ES-DC	
32	-	2,01	0,88	2,01	1,85	-	-
38	-	2,99	2,64	2,99	2,86	-	-
38	-	3,54	2,42	3,54	2,64	-	-
51	-	2,99	2,64	2,99	3,08	4,53	4,40
51	-	3,54	2,42	3,54	2,64	-	-
51	-	-	-	4,53	2,97	-	-
64 / 76	-	5,12	9,46	5,12	9,46	-	-

SHS SYSTEM

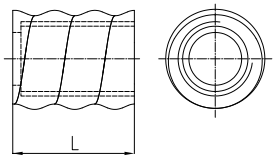
X-DRILL BIT EXS



clay bit EW



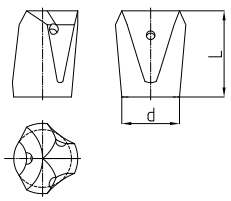
drill bit adapter



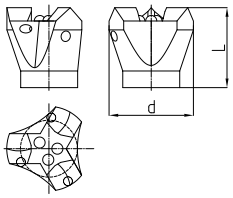
type Ø [mm]	parameter	d [in]	[lbs]	d [in]	[lbs]	L [in]	[lbs]
		EXS		EW		H 4901-38/-51	
32	-	4,53	4,40	2,99	1,54	1,57	0,22
32	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-
38	-	-	-	3,94	2,42	-	-
38	-	-	-	4,53	2,64	-	-
51	-	-	-	5,12	4,62	1,77	0,66
51	-	-	-	5,91	5,28	-	-
51	-	-	-	6,89	5,94	-	-
64 / 76	-	-	-	5,12	-	-	-
64 / 76	-	-	-	5,91	-	-	-
64 / 76	-	-	-	6,89	-	-	-
64 / 76	-	-	-	7,87	-	-	-

SHS SYSTEM

arc-shaped drill bit EC



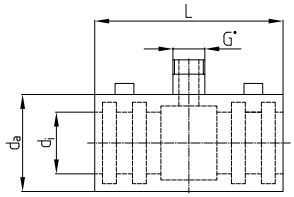
hardened cross drill bit EY-DC



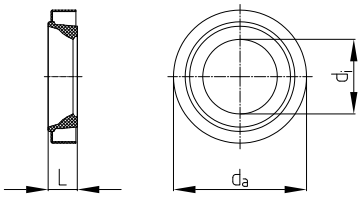
type Ø [mm]	parameter	d [in]	[lbs]	d [in]	[lbs]
		EC		EY-DC	
32	-	2,01	0,88	2,99	2,20
38	-	-	-	2,99	1,98
38	-	-	-	3,54	2,42
51	-	4,53	5,06	3,54	3,96

SHS SYSTEM

grouting and flushing head



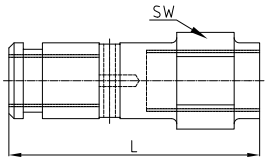
sealing (4 pcs. per head)



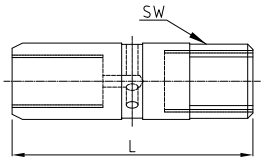
type Ø [in]	parameter	di x da x L [in]	[lbs]	di x da x L [in]	[lbs]
		-		-	
-	flushing shaft 61	2,44 x 2,72 x 4,49	5,28	2,40 x 2,72 x 0,28	0,02
-	flushing shaft 75	2,99 x 4,25 x 7,09	9,02	2,95 x 3,54 x 0,39	0,02
-	flushing shaft100	3,98 x 5,31 x 7,09	13,64	3,94 x 4,72 x 0,47	0,09

SHS SYSTEM

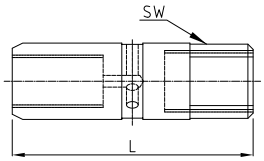
flushing shaft 61



flushing shaft 75



flushing shaft100



type Ø [mm]	parameter	A** x L x SW [in]	[lbs]	A** x L x SW [in]	[lbs]	A** x L x SW [in]	[lbs]
		Filetage		Filetage		Filetage	
32	-	T 1,77 x 9,02 x 2,36	10,12	R 1,50 x 11,81 x 2,56	17,82	H 2,17 x 12,01 x 3,15	30,80
32	-	R 1,50 x 9,02 x 2,36	10,12	T 1,77 x 11,81 x 2,56	17,82	H 2,25 x 12,01 x 3,54	30,14
32	-	R 1,26 x 9,02 x 2,36	10,12	R 2,01 x 11,81 x 2,56	17,16	H 2,17 x 12,01 x 3,15	30,36
38	-	T 1,77 x 9,02 x 2,36	9,68	R 1,50 x 11,81 x 2,56	17,82	H 2,25 x 12,01 x 3,54	29,70
38	-	R 1,50 x 9,02 x 2,36	9,68	T 1,77 x 11,81 x 2,56	17,38	H 2,17 x 12,01 x 3,15	-
38	-	R 1,26 x 9,02 x 2,36	10,12	R 2,01 x 11,81 x 2,56	16,94	H 2,25 x 12,01 x 3,54	-

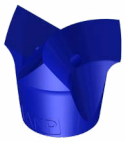
*** hammer site, left hand thread (right hand thread on request*

** thread joint available for 1“, 1 1/2“ und 2“*

DELIVERY PROGRAM DRILLBITS

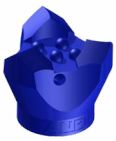
SHS **SYSTEM**

	R 32	R 38	R 51	RR 64	RR 76	RR 108
EC Ø 51	x					
EC Ø 115		x				
EY-DC Ø 76	x	x				
EY-DC Ø 90		x	x			
EX Ø 51	x					
EX Ø 76		x	x			
EX Ø 90		x	x			
EX Ø 115			x	x		
EX Ø 130				x	x	
EX Ø 150						x
EX Ø 175					x	
EX Ø 200						x
EXX Ø 51	x					
EXX Ø 76		x	x			
EXX Ø 90		x	x			
EXX Ø 115			x	x		
EXX Ø 130				x	x	
EXX Ø 150						x
EXX Ø 175					x	
EXX Ø 200						x
EXS Ø 51	x					
ES Ø 51	x					
ES Ø 76		x				
ES Ø 90		x	x			
ES Ø 100			x			
ES Ø 115			x			
ES Ø 130				x		
ES Ø 170				x		
ES-DC Ø 115						
ESS Ø 51	x					
ESS Ø 76		x				
ESS Ø 90		x	x			
ESS Ø 100			x			
ESS Ø 115			x	x		
ESS Ø 130				x	x	
ESS Ø 150						x
ESS Ø 175					x	
ESS Ø 200						x
EW Ø 115	x					
EW Ø 130		x	x			
EW Ø 150		x	x			
EW Ø 175		x		x		
EW Ø 210				x	x	
EW Ø 250					x	



ARC-SHAPED DRILL BIT EC

- hardened, triple edged drill bit
- universal drill bit for cohesive soils, mixed soils, weak sedimentary rock, medium limestone
- SPT 0-50



TRI CRESCENT DRILL BIT EY-DC

- hardened, triple edged with drop center
- improved directional stability
- universal drill bit for cohesive soils, mixed soils, weak sedimentary rock, medium limestone
- SPT 0-55

CROSS BIT EX

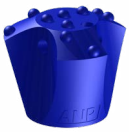
- hardened drill bit
- universal drill bit for loose gravel, weak sedimentary rock, medium limestone
- UCS 100 MN/mm²

CROSS BIT EXX

- drill bit with TC-inserts
- for hard rock and concrete obstacles
- UCS 100 MN/mm²

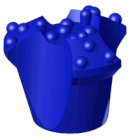
X-DRILL BIT EXS

- hardened drill bit with button bit
- for fractured and weak rock, soft and dry mudstone, loose gravel, weak sedimentary rock, medium limestone
- SPT 0-55
- hardened, trip



BUTTON BIT ES

- hardened button bit
- for fractured and weak rock, soft and dry mudstone
- SPT 0-55
- hardened, triple edged drill bit

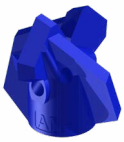


BUTTON BIT ES-DC

- hardened, button drill bit
- improved directional stability
- for fractured and weak rock, soft and dry mudstone
- SPT 0-55

BUTTON BIT ESS

- button bit with TC-buttons
- for fractured, hard rock
- UCS 80 MN/mm²
- hardened, triple edged drill bit



CLAY BIT EW

- four hardened cross-blades
- Retroflush and sideflush
- for soft cohesive soils
- SPT 0-50

TECHNICAL FEATURES HOLLOWBAR NAILS

Hollow-bar nails consist of three main components: the nail head, the steel tendon – including coupler and lost drill bit – and the grout body. The steel tendon is a hollow steel bar with coldrolled round thread and can therefore be cut or joined at any desired point.

FEATURES:

- Nationally approved system with internal and external quality control
- Well suited to transport and assembly conditions thanks to delivery in parts with couplers
- A wide selection of drill bits allows use in a wide range of soil types
- Simple to adapt to required length on site, e.g. with varying geological conditions by using partial sections with couplers
- Excellent bond between SHS-bar and cement mortar thanks to threaded ribs
- Can be closely matched to the required loads thanks to wide range of cross-sections
- Facilitates rapid construction progress since drilling, installation and injection of the nail are carried out in a single operation

TYPES AVAILABLE:

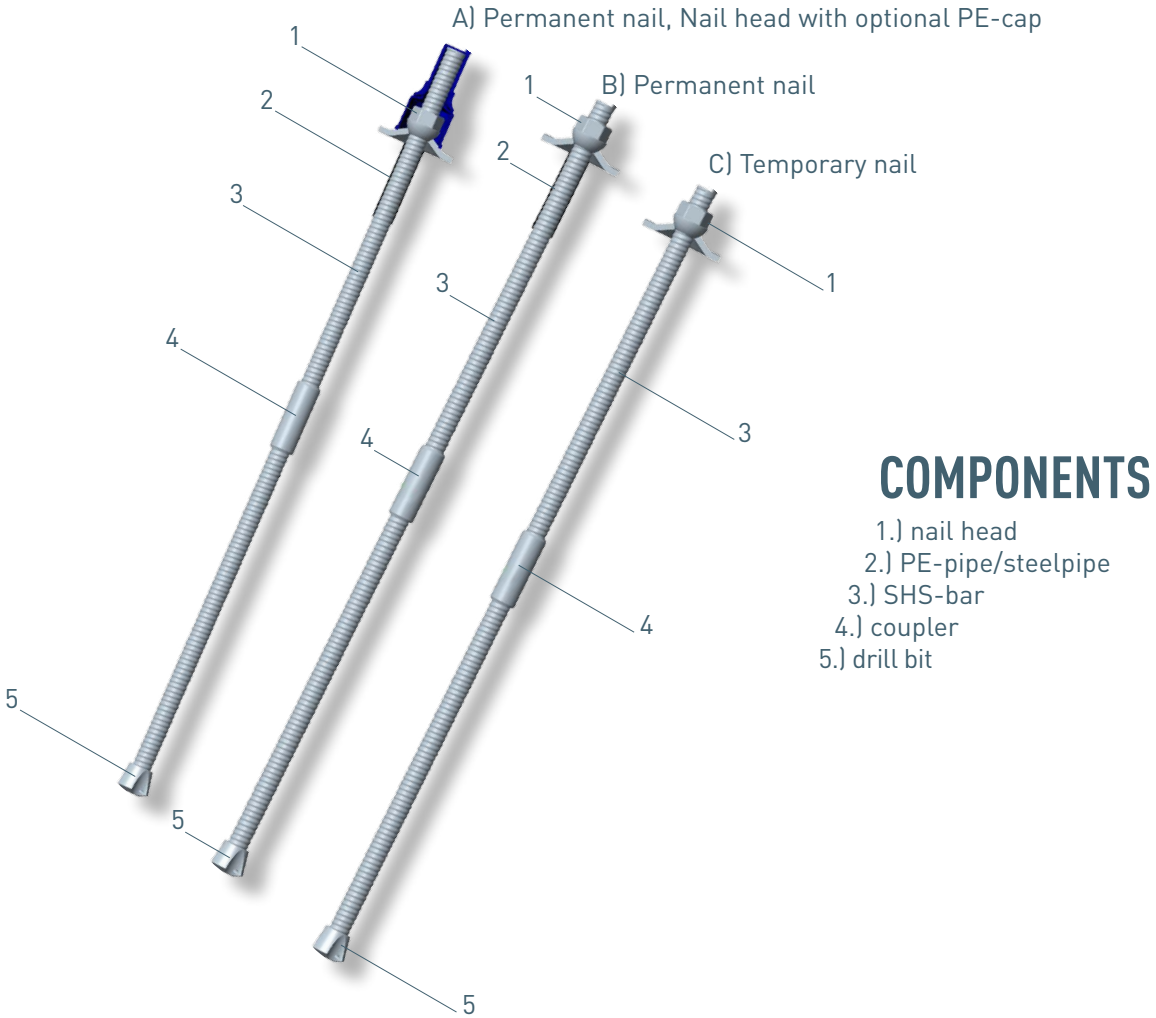
Temporary nails

- Temporary nails (service life up to 2 years)

Permanent nails

- Permanent nails, untreated, allowing for a soil-dependent corrosion rate (service life up to 50 years)
- Permanent nails, hot-dip galvanised, allowing for a soil-dependent corrosion rate (service life up to 50 years)

COMPONENTS OF HOLLOWBAR NAILS



COMPONENTS

1.) nail head
2.) PE-pipe/steelpipe
3.) SHS-bar
4.) coupler
5.) drill bit

SHS SYSTEM TECHNICAL FEATURES HOLLOWBAR PILES

Hollow-bar piles consist of three main components: the pile head, the steel tendon or compression member - including coupler and lost drill bit - and the grout body.

The steel tendon or compression member is a hollow steel bar with a coarse, cold rolled round thread and can therefore be cut or joined at any desired point.

FEATURES:

- Nationally approved system with internal and external quality control
- Well suited to transport and assembly conditions as delivered in parts with couplers
- A wide selection of drill bits allows use in a wide range of soil types
- Simple to adapt to required length on site, e.g. with varying geological conditions by using partial sections with couplers
- Excellent bond between SHS-bar and cement mortar thanks to threaded ribs
- Can be closely matched to the required loads thanks to wide range of cross-sections
- Facilitates rapid construction progress since drilling, installation and injection of the pile are carried out in a single operation

TYPES AVAILABLE:

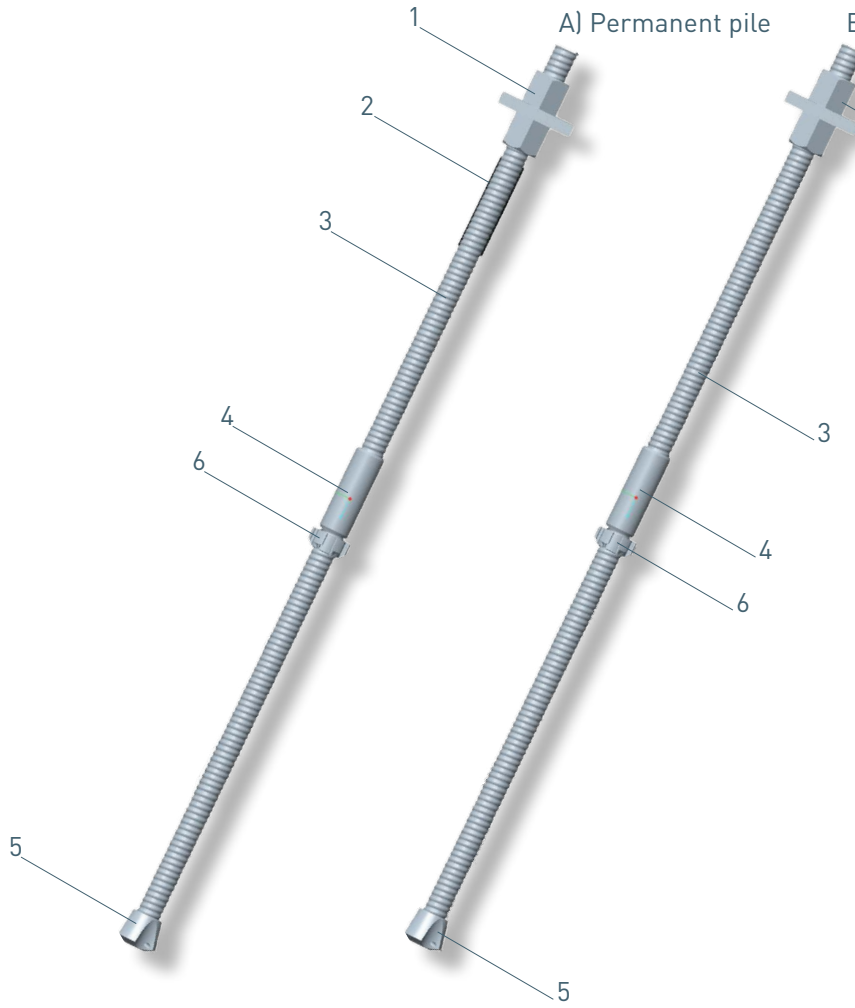
Temporary piles

- Temporary piles (service life up to 2 years)

Permanent piles (service life up to 50 years)

- Permanent piles, untreated, allowing for a soil-dependent corrosion rate (service life up to 50 years)
- Permanent piles, hot-dip galvanised, allowing for a soil-dependent corrosion rate (service life up to 50 years)

COMPONENTS OF HOLLOWBAR PILES



COMPONENTS

1.) pile head
2.) PE-pipe/ steelpipe
3.) SHS-bar
4.) coupler
5.) drill bit
6.) spacer

HOLLOWBAR

SHS **SYSTEM**

yield stress / ultimate stress areas of application	type-ø	yield load	ultimate load	cross section area	weight	elongation
		[kips]	[kips]	[in²]	[lbs/ft]	A_{gt} [%]
hollow bar						
Geotechnics 	**H0210-32**	38,22	47,21	0,51	1,75	
	H0250-32	42,71	56,20	0,57	1,95	
	H0280-32	51,71	62,95	0,67	2,28	
	H0360-32	62,95	80,93	0,79	2,69	
	H0400-32	74,19	89,92	0,88	2,96	
	H0420-38	78,68	94,42	1,01	3,43	
	H0500-38	89,92	112,40	1,15	3,90	
tunneling / mining 	**H0630-51**	119,15	141,63	1,44	4,91	5,0
	H0800-51	141,63	179,85	1,77	6,05	
	H1000-64*	168,61	224,81	2,36	7,59	
	H1200-64*	202,33	269,77	2,80	8,87	
	H1400-76	241,67	310,24	3,24	10,55	
	H1600-76	269,77	359,69	3,70	11,63	
	H1800-76	337,21	427,14	3,91	13,30	
	H2400-108*	415,90	562,02	5,66	18,21	

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