



Casing advancement systems

Symmetrix & Elemex – product catalogue and selection guide







TerraRoc casing advancement systems

We have a long tradition of supplying geotechnical engineers with a wide range of equipment and services. Our products offer consists of rigs, grouting solutions, site investigation tools, DTH hammers and a full rage of high performance casing advancement systems.

All our products are designed to minimize downtime and to maximize your productivity and profitability. When we are needed, we will quickly be at your site thanks to our worldwide TerraRoc organization. Just contact your local TerraRoc representative.

Content

Casing advancement systems	5
Applications	6
Drilling methods	8
DTH or Tophammer.....	8
Casing types.....	9
Permanent or Retrievable casing.....	9
Models	10
Symmetrix and Elemex.....	10
New generation	10
System components.....	11
Product selection guide	12
Finding the specifications.....	14
Production designation code	14
The casing dimensions	14
Products listed by casing diameter.....	15
Casing outer diameter 76,2 mm (3") – 114,3 mm (4 1/2")	15
Casing outer diameter 114,3 mm (4 1/2").....	16
Casing outer diameter 127,0 mm (5") – 139,7 mm (5 1/2").....	17
Casing outer diameter 139,7 mm (5 1/2")	18
Casing outer diameter 152,4 mm (6").....	19
Casing outer diameter 168,3 mm (6 5/8").....	20
Casing outer diameter 168,3 mm (6 5/8") – 177,8 mm (7").....	21
Casing outer diameter 177,8 mm (7") – 193,7 mm (7 5/8").....	22
Casing outer diameter 193,7 mm (7 5/8") – 219,1 mm (8 5/8").....	23
Casing outer diameter 219,1 mm (8 5/8").....	24
Casing outer diameter 244,5 mm (9 5/8").....	25
Casing outer diameter 254,0 mm (10") – 273,0 mm (10 3/4").....	26
Casing outer diameter 273,0 mm (10 3/4").....	27
Casing outer diameter 323,9 mm (12 3/4")	28
Casing outer diameter 323,9 mm (12 3/4")	29
Casing outer diameter 355,6 mm (14") – 406,4 mm (16").....	30
Casing outer diameter 406,4 mm (16").....	31
Casing outer diameter Casing 508,0 mm (20").....	32
Casing outer diameter 609,6 mm (24").....	33
Casing outer diameter 609,6 mm (24") – 711,2 mm (28").....	34
Casing outer diameter 711,2 mm (28").....	35
Casing outer diameter 812,8 mm (32")	36
Casing outer diameter 914,4 mm (36").....	37
Casing outer diameter 1016 mm (40") – 1219 mm (48")	38



Casing advancement systems

Casing advancement systems, or drilled casings, are today's preferred method for drilling in difficult ground conditions, for example, where there are boulders or loose formations. This catalogue guides you to the right solution based on your requirements.

What is a Casing Advancement System?

The Casing Advancement System is a drilling method that casing and drilling occurs at the same time. Installing the casing when you are drilling minimizes the hole collapsing risk and enables contractors to perform their work faster with higher quality. The system adds value whether the mission is to install foundation, support elements or simply case the hole in collapsing formation.

Where do we use Casing Advancement System?

As much as 90% of the land surface of the earth is covered with loose,



unconsolidated material. When drilling in so-called overburden, the conditions are often challenging with risk for collapsing walls, hole deviations and failure to reach design depth or bedrock.

How to select a Casing Advancement System?

Selecting the right system depends on several factors including the ground conditions and application. This catalogue will guide you to select most suitable product for different application scenarios.

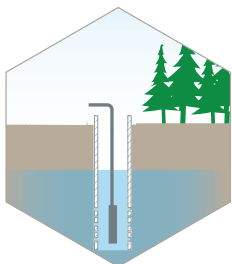
Applications

Casing advancement systems can be used in a wide range of applications where you need to drill in difficult ground conditions. The following are examples of the most common applications.



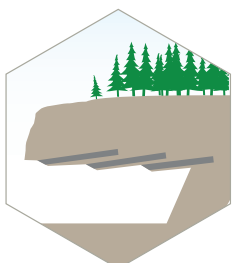
Geothermal well drilling

Geothermal heating of houses are increasingly popular due to both economical advantages as well as environmental concerns. Casing advancement systems are often used to drill the holes through the overburden, keeping the hole open during installation of the heat exchange system and minimizing the impact on surrounding structures.



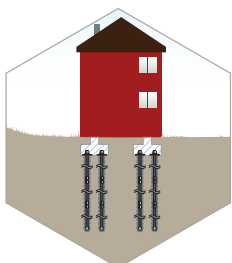
Water well drilling

Water well drilling is common in urban, developed areas where the well must be drilled quickly with minimum impact on the surroundings. In this application the casing advancement systems are commonly used to case the overburden section of the water well.



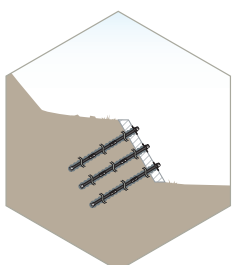
Pipe roofing

Pipe roofing is a method to pre-reinforce the ground ahead of a tunnel face to ensure that excavation can proceed safely. A steel casing is installed in an umbrella pattern around the excavation line, forming a protective arch under which the tunnel can advance.



Foundation work

On the foundation projects its popular to use casing advancement systems for both friction and end bearing piles. The casings can be used as a structural element of the pile or as temporary solution to keep the hole open while installing bearing elements.



Anchoring

Tieback anchors, or ground anchors, are common all over the world. They are typically installed to provide support for slopes or other structures. They can be installed in combination with a retaining wall structure, as individual or systematic support.

Every casing advancement project has its challenges, whether deep or shallow holes, sensitivity or productivity demands. The casing advancement systems from TerraRoc offer a spectrum of solutions to meet any project demands in the most efficient way.



Drilling methods & system components

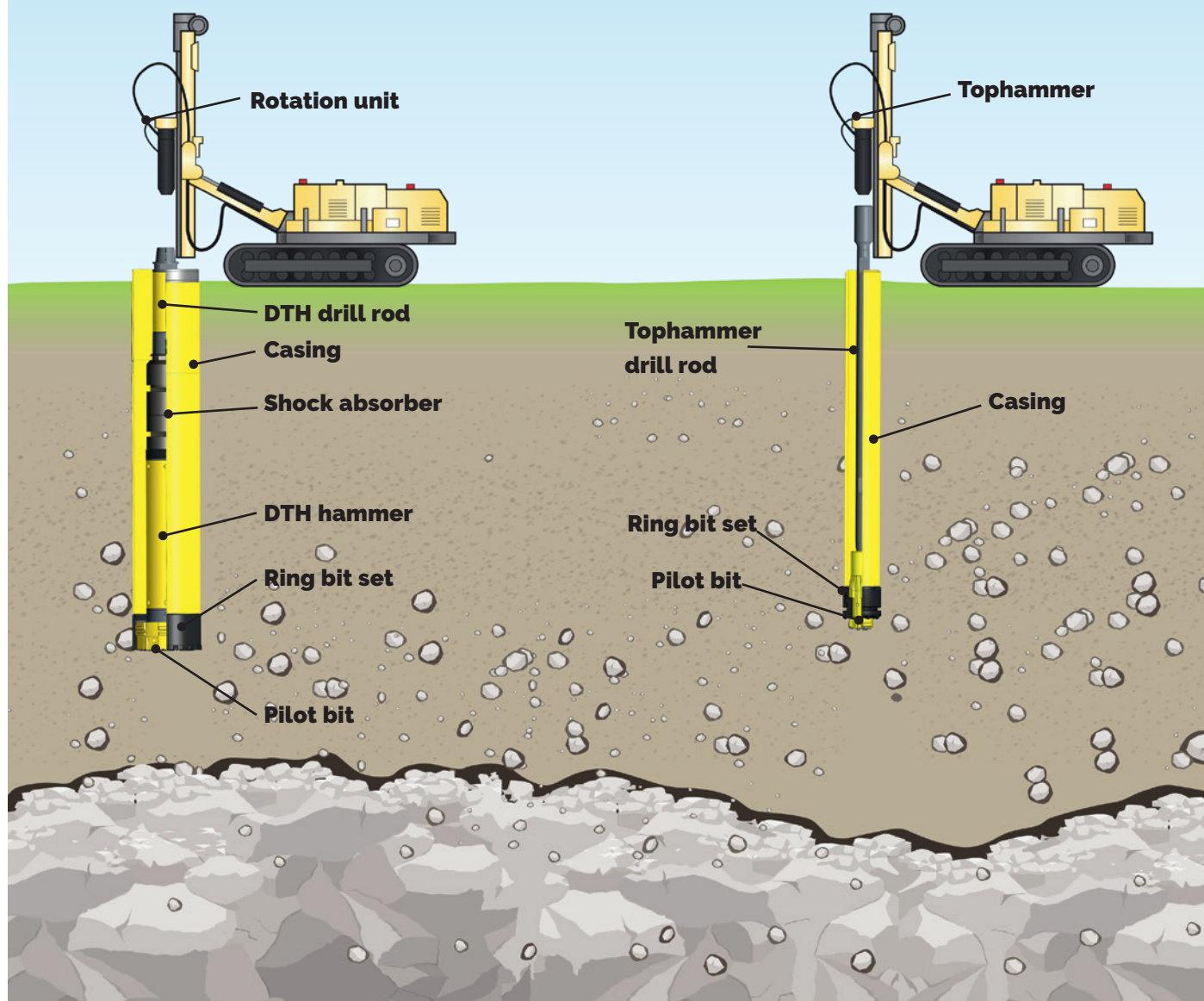
TerraRoc casing advancement systems are available in versions for Top-hammer or down-the-hole (DTH) drilling. The selected drilling method depends on the diameter drilled, depth of the hole and the driller's preferred equipment.

DTH

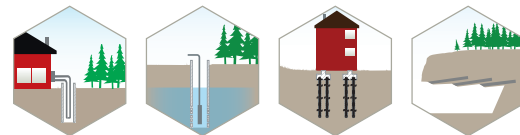
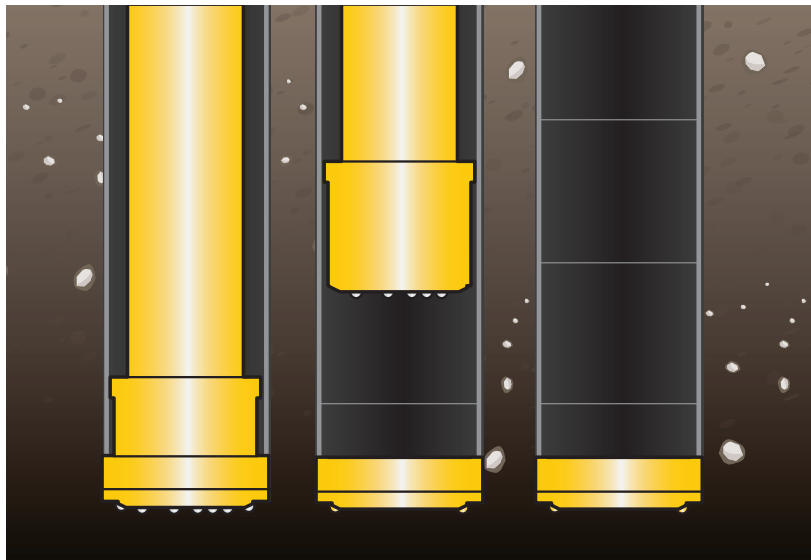
DTH is a common method used to drill deep holes with great accuracy. It is suitable to use for straight piling or well drilling that requires the high performance needed for drilling large and deep holes. DTH systems are available in the diameters 114,3–1 219 mm.

Tophammer

Tophammer drilling is a fast and efficient method for drilling shorter holes, straight or inclined. It is primarily used for smaller diameter holes in overburden drilling, such as anchoring piles or micropiles. Tophammer systems are available in the diameters 76,2–139,7 mm.

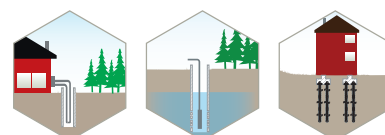
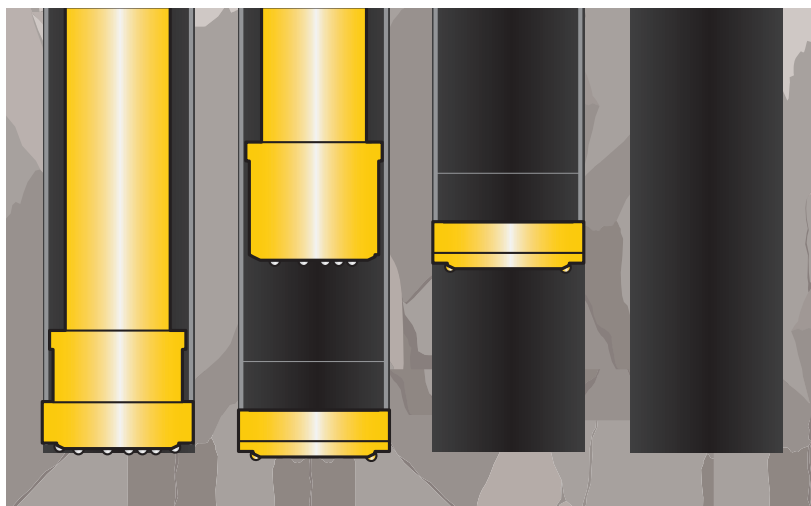


Casing types



Permanent casing

There are different applications where the permanent casing is the preferred choice, the most common are water wells, geothermal wells, foundation works and pipe roofing. In water and thermal wells the casing is used as sacrificial element just to keep the hole open. In foundation works, the permanent casing can work as bearing structure of the pile, as sacrificial element to protect the pile against corrosion or just to keep the hole open.



Retrievable casing

A retrievable casing is used when the casing only is needed during the drilling process, that is when it is used to keep the hole open during drilling and not used as support in the finished structure. This is a cost effective solution for eg. piles and anchoring, since the casing is retrieved from the hole and reused.

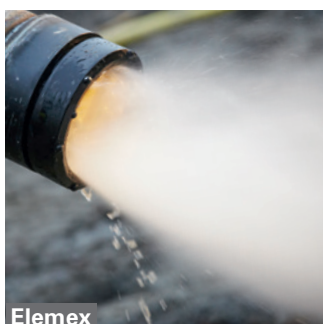
Models

The casing advancement systems are available either as a solitary ring bit or as a ring bit set. The Symmetrix and Elemex systems are part of a total overburden drilling solution from TerraRoc. They work well in both DTH and Tophammer drilling, and your choice depends primarily on the drilling conditions on site.



Symmetrix – productivity and precision

Symmetrix is a versatile solution for overburden drilling where ground conditions are difficult, time is limited and precision is crucial. Whether used in ground with big boulders, inclined competent layers or hard bedrock, Symmetrix drills until the required depth is reached. The system drills more quickly and accurately than any other method available today. The unique design of Symmetrix provides reliable results, which saves contractors money.



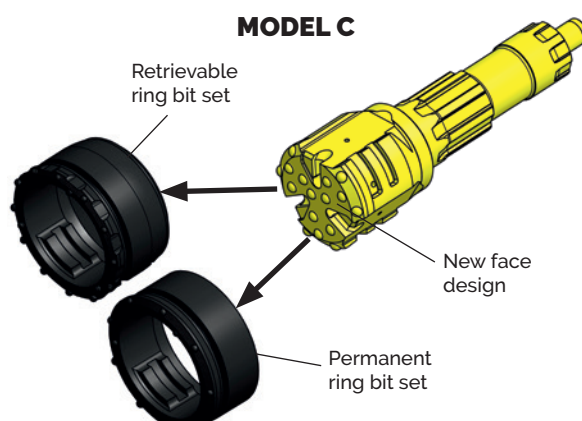
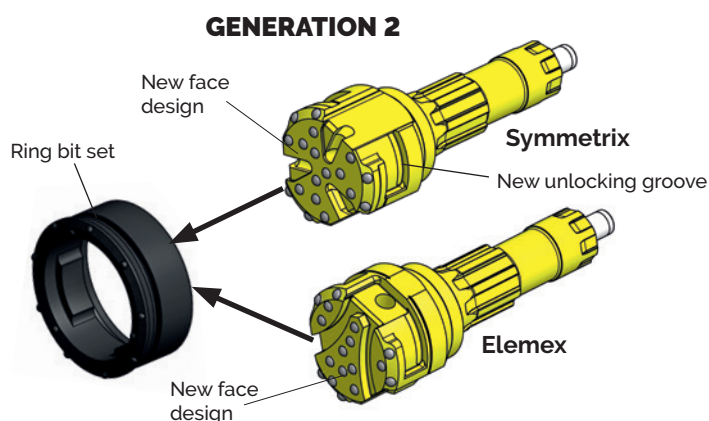
Elemex – for improved air control

The Elemex Casing Advancement System is the preferred system for minimizing the risk of settlements in surrounding structures. The unique design of the pilot bit directs the air over the drill bit surface reducing the air leakage into the ground. The directed air flushing enables the driller to be in full control of the drilling process.

Features and benefits for the Generation 2 and the model C

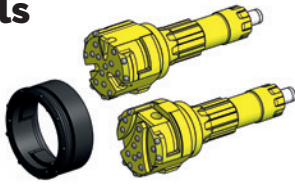
TerraRoc have been continuously improving the Casing Advancement System. Today we have developed two new concepts for Symmetrix and Elemex. With Generation 2 we found a way to allow both Symmetrix and Elemex pilot bits to use the same ring bit set and Model C allows both permanent and retrievable ring bit sets to use the same pilot bit. With this new concepts TerraRoc will turn the product selection easier.

The new face design (patent pending) of the Symmetrix and Elemex pilot bits improves the flushing of the cuttings and makes the penetration rate even better than before, especially in clay and sand formations. When changing the pilot bits you only need one ring bit set for both pilot bits, and you will save time as well as money. This is an extra advantage when sensitive ground is encountered.



System components

Models



The system is designed for short holes and is available with both thin and thick casing wall. You can use the same ring bit for Symmetrix and Elemex pilot bit.

Benefits:

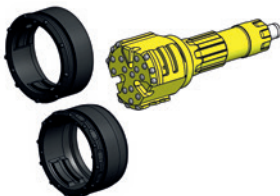
- The Generation 2 provides higher flexibility and lower investment cost, due to the possibility to use the same ring bit set with both Symmetrix and Elemex pilot bit.
- New face design (patent pending) gives you higher performance even in clay and sand formations.
- New locking design makes locking and unlocking easier.
- Pile load bearing capacity is ensured, now our ring bits can be used as a part of pile structure after drilling.



This system is designed specifically for pipe roofing and Tophammer applications.

Benefits:

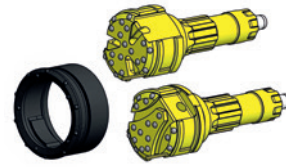
- Specially designed for Tophammer applications.
- Well known, robust and productive design.



The model C is designed to use the same pilot for both permanent and retrievable ring bit sets as well as to use the same ring bit set for Symmetrix and Elemex pilot bit. The Symmetrix pilot bit can be used to drill shallow rock sockets below the casings.

Benefits:

- Higher flexibility for different types of applications
- Drill through feature is standard for both permanent and retrievable applications with Symmetrix pilot bit.
- New face design (patent pending) gives you higher performance even in clay and sand formations.
- Pile load bearing capacity is ensured, now our ring bits can be used as a part of pile structure after drilling.



Our most durable system, designed for deep holes. You can use the same ring bit for Symmetrix and Elemex pilot bit.

Benefits:

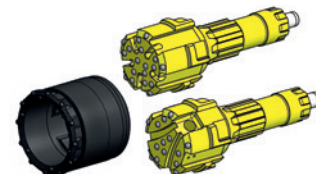
- The Generation 2 of the W model is redesigned to increase durability.
- The Generation 2 provides higher flexibility and lower investment cost, due to the possibility to use the same ring bit set with both Symmetrix and Elemex pilot bit.
- New face design (patent pending) gives you higher performance even in clay and sand formations.
- New locking design makes locking and unlocking easier.



The system is designed for short holes and is available with both thin and thick casing wall. You can use the same ring bit for both Symmetrix and Elemex pilot bit.

Benefits:

- Specially designed to reduce the cost in certain types of permanent applications.
- New face design (patent pending) gives you higher performance even in clay and sand formations.
- Pile load bearing capacity is ensured, now our ring bits can be used as a part of pile structure after drilling.



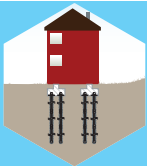
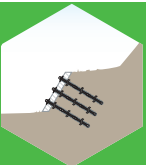
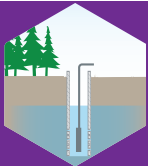
A retrievable system with a unique design that enables a large inner diameter. You can use the same ring bit for Symmetrix and Elemex pilot bit.

Benefits:

- The Generation 2 provides higher flexibility and lower investment cost, due to the possibility to use the same ring bit set with both Symmetrix and Elemex pilot bit.
- It is specially designed for retrievable applications with smaller OD and bigger ID for the ring bit.

Product selection guide

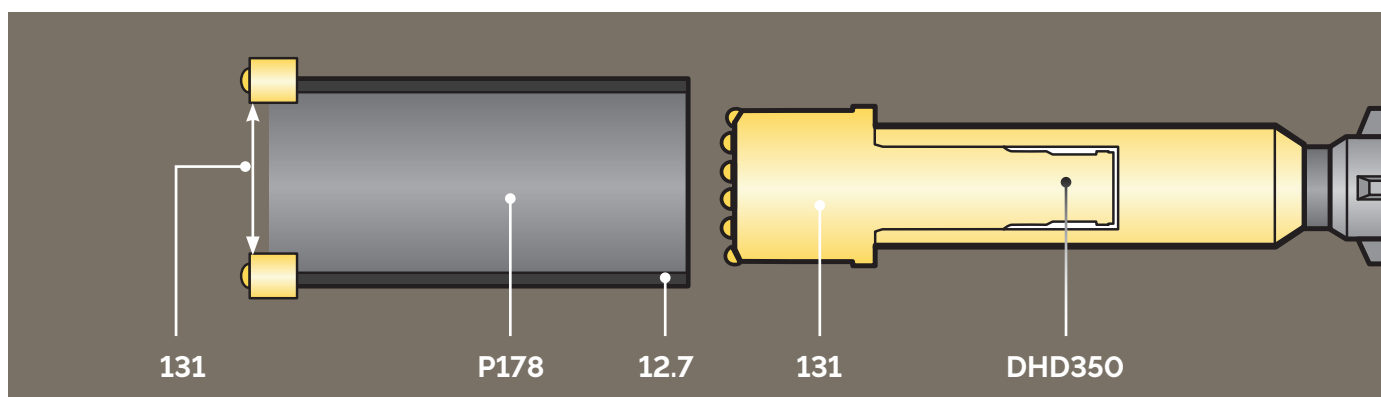
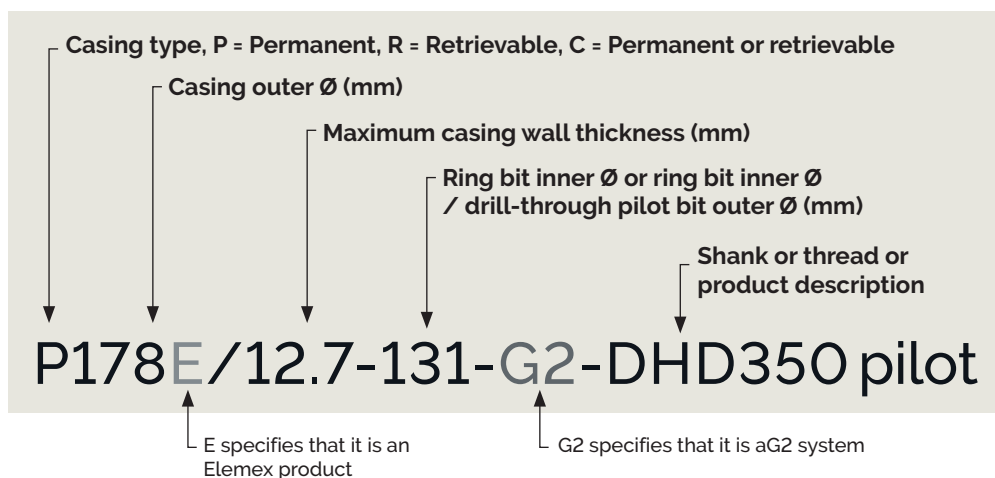
The matrix below will help you to select the appropriate model of Casing Advancement System for your application. The color codes used in the matrix are also found in the tables in the catalogue for your convenience.

		APPLICATIONS					
		Geothermal Well drilling	Water well drilling	Pipe Roofing	Large Foundations	Small Foundations	Anchoring
Permanent casing	Ring bit set						
							
	Separate ring bit						
Permanent & retrievable casing	Ring bit set						
Retrievable casing	Ring bit set						

DESCRIPTION	SYMMETRIX	ELEMEX	MODEL
The system is designed for short holes and is available with both thin and thick casing wall.	✓	✓	V
Our most durable system, designed for deep holes.	✓	✓	W
The system is designed specifically for pipe roofing and Tophammer applications.	✓		T
Cost efficient system with a separate ring bit for installation of permanent casings when there is no need to drill below the casing.	✓	✓	SE
The system is designed to allow to use the same pilot bit either with permanent or retrievable ring bit set. The Symmetrix pilot bit can be used to drill shallow rock sockets below the casings.	✓	✓	C
A retrievable system with a unique design that enables a large inner diameter.	✓	✓	N

Product designation code

The designation code makes it easy to identify the key parameters of the system. This makes it easier to find the right system or parts of it.



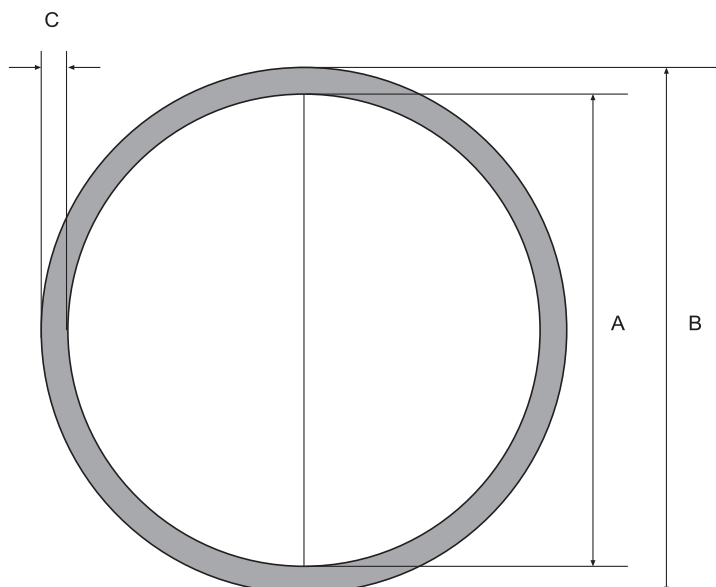
The casing dimensions are defined by:

a) Inner diameter

b) Outer diameter

c) Wall thickness

The dimensions are important and must be taken into account when selecting the right product. The content of the catalogue is organized by casing outer diameter. The maximum wall thickness is defined for all systems.



CASING OUTER DIAMETER 76,2 MM (3") – 114,3 MM (4 1/2")

CASING 76,2 MM (3") PERMANENT, TOPHAMMER

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
T	S	P76/8-41-R32	58	2.26	1,0	8092402214	P76/8-41-ring bit set	8,0	0.31	41	1.61	88	3.46	1,5	8092402215

CASING 88,9 MM (3 1/2") PERMANENT, TOPHAMMER

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
T	S	P89/8-54-T38	70	2.76	3,5	8092400954	P89/8-54-ring bit set	8,0	0.31	54	2.13	100	3.94	2,0	8092400976

CASING 101,6 MM (4") PERMANENT, TOPHAMMER

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
T	S	P102/8-65-T38	84	3.31	4,5	8092402721	P102/8-65-ring bit set	8,0	0.31	65	2.56	114	4.49	2,5	8092402722

CASING 114,3 MM (4 1/2") PERMANENT, TOPHAMMER

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
T	S	P114/10-75-T38	93	3.65	6,0	8092401737	P114/10-75-ring bit set	10,0	0.39	75	2.95	129	5.08	4,0	8092401735

CASING 114,3 MM (4 1/2") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
T	S	P114/8-75-COP34	93	3.65	8,0	8092402155	P114/10-75-ring bit set	8,0	0.31	75	2.95	129	5.08	4,0	8092401735
		P114/8-75-DHD3.5	93	3.65	8,0	8092402156									

V The system is designed for short holes and is available with both thin and thick casing wall.

T The system is designed specifically for pipe roofing and Tophammer applications.

C The system is design to allow to use same pilot bit either with permanent ring bit set or retrievable ring bit set. The Symmetrix pilot bit can be used to drill shallow rock sockets below the casings.

W Our most durable system, designed for deep holes.

SE Cost efficient system with separate ring bit for installation of permanent casings when there is no need to drill below the casing.

N A retrievable system with a unique design that enables a large inner diameter.

CASING OUTER DIAMETER 114,3 MM (4 1/2")

CASING 114,3 MM (4 1/2") PERMANENT AND RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 						Ring bit set   							
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
C	S	C114/8-81/92-DHD3.5 pilot	92,0	3.62	6,3	8092403663	P114/8-81/92-ring bit set	8,0	0.31	81,0	3.19	130,0	5.12	2,5	8092403661
							R114/8-81/92-ring bit set	8,0	0.31	81,0	3.19	130,0	5.12	2,9	8092403662

CASING 114,3 MM (4 1/2") RETRIEVABLE, TOPHAMMER

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
N	S	R114/10-81-G2-R32	92	3.61	4,0	8092403524	R114/10-81-G2-ring bit set	10,0	0.39	81	3.23	122	4.8	4,5	8092403513
		R114/10-81-G2-T45	92	3.61	4,0	8092403525									

CASING 114,3 MM (4 1/2") RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
N	S	R114/10-81-G2-DHD3.5 pilot	92	3.61	7,0	8092403512	R114/10-81-G2-ring bit set	10,0	0.39	81	3.23	122	4.80	4,5	8092403513
	E	R114E/10-81-G2- DHD3.5 pilot	92	3.61	7,0	8092440433									

CASING 114,3 MM (4 1/2") PERMANENT, TOPHAMMER

Model	Symmetrix/ Elemex	Pilot bit 					Casing shoe 					Ring bit  						
		Designa- tion code	Pilot bit Outer ø		Weight	Product number	Designa- tion code	Casing wall max thickness		Weight	Product number	Designa- tion code	Ring bit Inner ø		Pilot bit Outer ø		Weight	Product number
			mm	inch				mm	inch				mm	inch	mm	inch		
SE	S	P114/10-65-G2-T45 pilot	92,6	3.65	4,0	8092403722	P114/10-65-G2-casing shoe	10,0	0.39	0,7	8092403678	P114/10-65-G2-ring bit	65,6	2.58	124	4,88	1,5	8092403677
							P114/8-65-G2-casing shoe	8,0	0.31	0,8	8092403717							

CASING 114,3 MM (4 1/2") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Casing shoe 					Ring bit  						
		Designa- tion code	Pilot bit Outer ø		Weight	Product number	Designa- tion code	Casing wall max thickness		Weight	Product number	Designa- tion code	Ring bit Inner ø		Pilot bit Outer ø		Weight	Product number
			mm	inch				mm	inch				mm	inch	mm	inch		
SE	S	P114/8-65-G2-COP34 pilot	92,6	3.65	6,1	8092403716	P114/10-65-G2-casing shoe	10,0	0.39	0,7	8092403678	P114/10-65-G2-ring bit	65,6	2.58	124	4,88	1,5	8092403677
		P114/10-65-G2-DHD3.5 pilot	92,6	3.65	5,8	8092403676	P114/8-65-G2-casing shoe	8,0	0.31	0,8	8092403717							

CASING 127,0 MM (5") RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
N	S	R127/10-95-G2-COP34	105	4.13	9,0	8092403518	R127/10-95-G2-ring bit set	10,0	0.39	95	3.74	136	5.35	6,0	8092403863
		R127/10-95-G2-DHD3.5 pilot	105	4.13	9,0	8092403860									
	E	R127E/10-95-G2- DHD3.5 pilot	105	4.13	9,0	8092440412									

CASING 139,7 MM (5 1/2") PERMANENT, TOPHAMMER

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
V	S	P140/10-100-G2-T45	116,6	4.59	6,0	8092403843	P140/10-100-G2-ring bit set	10,0	0.39	100	3.9	169	6.30	3,5	8092403632

V The system is designed for short holes and is available with both thin and thick casing wall.

T The system is designed specifically for pipe roofing and Tophammer applications.

C The system is design to allow to use same pilot bit either with permanent ring bit set or retrievable ring bit set. The Symmetrix pilot bit can be used to drill shallow rock sockets below the casings.

W Our most durable system, designed for deep holes.

SE Cost efficient system with separate ring bit for installation of permanent casings when there is no need to drill below the casing.

N A retrievable system with a unique design that enables a large inner diameter.

CASING OUTER DIAMETER 139,7 MM (5 1/2")

CASING 139,7 MM (5 1/2") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
V	S	P140/10-100-G2-DHD340 pilot	116,6	4.59	11,1	8092403631	P140/10-100-G2-ring bit set	10,0	0.39	100	3.9	160	6.3	5,1	8092403632
	E	P140E/10-100-G2-DHD340 pilot	116,6	4.59	11,2	8092440473									
V	S	P140/5-115-G2-DHD340 pilot	127,5	5.02	12,6	8092403602	P140/5-115-G2-ring bit set	5,0	0.20	116,4	4.58	160	6.30	4,2	8092403604
		P140/5-115-G2-COP44G pilot	127,5	5.02	13,1	8092403603									
	E	P140E/5-115-G2-DHD340 pilot	127,5	5,02	12,8	8092440452									
		P140E/5-115-G2-COP44G pilot	127,5	5,02	13,3	8092440453									
W	S	P140/5.5-115-G2-DHD340 pilot	126,8	4,99	12,0	8092403613	P140/5.5-115-ring bit set	5,5	0.22	115,8	4.56	169	6.65	6,8	8092403615
		P140/5.5-115-G2-COP44G pilot	126,8	4,99	12,0	8092403614									

CASING 139,7 MM (5 1/2") PERMANENT & RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 						Ring bit set   							
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
C	S	C140/10-100/114-DHD340 pilot	114	4.49	10,9	8092403688	P140/10-100/114-ring bit set	10,0	0.39	100	3.94	158	6.22	4,2	8092403689
							R140/10-100/114-ring bit set	10,0	0.39	100	3.94	154	6.06	4,4	8092403820

CASING 139,7 MM (5 1/2") RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
N	S	R140/10-104-G2-DHD340	116	4.57	12,5	8092403478	R140/10-104-G2-ring bit set	10,0	0.39	104	4,09	147	5.79	7,0	8092403479
		R140/10-104-G2-QL40	116	4.57	12,5	8092403519									
	E	R140E/10-104-G2-DHD340 pilot	116	4.57	12,5	8092440410									

CASING 139,7 MM (5 1/2") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Casing shoe 					Ring bit  						
		Designa- tion code	Pilot bit Outer ø		Weight	Product number	Designa- tion code	Casing wall max thickness		Weight	Product number	Designa- tion code	Ring bit Inner ø		Pilot bit Outer ø		Weight	Product number
			mm	inch				mm	inch				mm	inch	mm	inch		
SE	S	P140/10-85-G2-DHD340 pilot	117	4.61	10,3	8092403670	P140/10-85-G2-casing shoe	10,0	0.39	1,0	8092403672	P140/10-85-G2-ring bit	85,0	3.35	149,4	5.88	1,9	8092403671
		P140/10-85-G2-COP44G pilot	117	4.61	10,8	8092403723												
	E	P140E/10-85-G2-DHD340 pilot	117	4.61	10,7	8092440493	P140E/8-85-G2-casing shoe	8,0	0.31	1,1	8092403724	P140E/10-85-G2-ring bit	85,0	3.35	149,4	5.88	3,5	8092440494
		P140E/10-85-G2-COP44G pilot	117	4.61	11,2	8092440513												

CASING 152,4 MM (6") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
V	S	P152/5.5-126-G2-DHD340 pilot	139,0	5.47	14,8	8092403635	P152/5.5-126-G2-ring bit set	5,5	0.22	126,0	4.96	170	6.69	4,2	8092403637
		P152/5.5-126-G2-COP44G pilot	139,0	5.47	15,3	8092403636									
	E	P152E/5.5-126-G2-DHD340 pilot	139,0	5.47	15,0	8092440470									
		P152E/5.5-126-G2-COP44G pilot	139,0	5.47	15,5	8092440471									

CASING 152,4 MM (6") RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
N	S	R152/10-116-G2-DHD340	127	5.01	16,0	8092403480	R152/10-116-G2-ring bit set	10,0	0.39	116	4.57	160	6.30	9,0	8092403481
	E	R152E/10-116-G2-DHD340 pilot	127	5.01	16,0	8092440414									

V The system is designed for short holes and is available with both thin and thick casing wall.

T The system is designed specifically for pipe roofing and Tophammer applications.

C The system is design to allow to use same pilot bit either with permanent ring bit set or retrievable ring bit set. The Symmetrix pilot bit can be used to drill shallow rock sockets below the casings.

W Our most durable system, designed for deep holes.

SE Cost efficient system with separate ring bit for installation of permanent casings when there is no need to drill below the casing.

N A retrievable system with a unique design that enables a large inner diameter.

CASING OUTER DIAMETER 168,3 MM (6 5/8")

CASING 168,3 MM (6 5/8") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
V	S	P168/12.7-123-G2-DHD350 pilot	141	5.55	19,2	8092403633	P168/12.7-123-G2-ring bit set	12,7	0.50	123	4.84	190	7.48	7,1	8092403634
		P168/12.7-123-G2-QL50 pilot	141	5.55	19,0	8092403638									
	E	P168E/12.7-123-G2-DHD350 pilot	141	5.55	19,4	8092440474									
W	S	P168/6-140-G2-DHD350 pilot	153	6.02	21,0	8092403616	P168/6-140-G2-ring bit set	6,0	0.24	141,4	5.57	196	7.72	8,1	8092403618
		P168/6-140-G2-QL50 pilot	153	6.02	20,8	8092403617									
	E	P168E/6-140-G2-DHD350 pilot	153	6.02	21,3	8092440460									
		P168E/6-140-G2-QL50 pilot	153	6.02	21,1	8092440461									
V	S	P168/5.5-140-G2-DHD350 pilot	155	6.10	21,9	8092403605	P168/5.5-140-G2-ring bit set	5,5	0.22	142	5.59	190	7.48	5,6	8092403606
		P168/5.5-140-G2-QL50 pilot	155	6.10	21,7	8092403611									
	E	P168E/5.5-140-G2-DHD350 pilot	155	6.10	22,2	8092440454									
		P168E/5.5-140-G2-QL50 pilot	155	6.10	22,0	8092440458									

CASING 168,3 MM (6 5/8") PERMANENT & RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
C	S	P168/12.7-123/139-DHD350 pilot	139	5.47	19,4	8092403690	P168/12.7-123/139-ring bit set	12,7	0.50	124	4.88	186,2	7.33	5,6	8092403691
		P168/12.7-123/139-QL50 pilot	139	5.47	19,2	8092403766	R168/12.7-123/139-ring bit set	12,7	0.50	124	4.88	182,4	7.18	6,0	8092403821

CASING 168,3 MM (6 5/8") RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
N	S	R168/10-132-G2-DHD350	143	5.63	25,0	8092403482	R168/10-132-G2-ring bit set	10,0	0.39	132	5.20	177	6.97	11,5	8092403483
		R168/10-132-G2-QL50	143	5.63	25,0	8092403520									
	E	R168E/10-132-G2-DHD350 pilot	143	5.63	25,0	8092440416									
		R168E/10-132-G2-QL50 pilot	143	5.63	25,0	8092440436									

CASING 168,3 MM (6 5/8") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Casing shoe 					Ring bit  						
		Designa- tion code	Pilot bit Outer ø		Weight	Product number	Designa- tion code	Casing wall max thickness		Weight	Product number	Designa- tion code	Ring bit Inner ø		Pilot bit Outer ø		Weight	Product number
			mm	inch				mm	inch				mm	inch	mm	inch		
SE	S	P168/12.7-107-G2-DHD350 pilot	140	5.51	18,5	8092403673	P168/12.7-107-G2-casing shoe	12,7	0.50	1,5	8092403675	P168/12.7-107-G2-ring bit	107	4.21	178	7.01	2,7	8092403674
		P168/12.7-107-G2-QL50 pilot	140	5.51	18,3	8092403725	P168/10-107-G2-casing shoe	10,0	0.39	1,7	8092403726							
							P168/8-107-G2-casing shoe	8,0	0.31	2,0	8092403730							
SE	E	P168E/12.7-107-G2-DHD350 pilot	140	5.51	18,9	8092440496	P168/12.7-107-G2-casing Shoe	12,7	0.50	1,5	8092403675	P168E/12.7-107-G2-ring bit	107	4.21	178	7.01	5,2	8092440497
							P168/10-107-G2-casing shoe	10,0	0.39	1,7	8092403726							
							P168/8-107-G2-casing shoe	8,0	0.31	2,0	8092403730							

CASING 177,8 MM (7") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
V	S	P178/12.7-131-G2-DHD350 pilot	150,0	5.91	21,0	8092403654	P178/12.7-131-G2-ring bit set	12,7	0.50	131	5.16	200	7.87	7,7	8092403655
		P178/12.7-131-G2-QL50 pilot	150,0	5.91	20,9	8092403657									
	E	P178E/12.7-131-G2-DHD350 pilot	150,0	5.91	21,3	8092440475									
W	S	P178/7-153-G2-DHD360 pilot	162,2	6.39	29,2	8092403619	P178/7-153-G2-ring bit set	7,0	0,28	153,4	6,04	200	7,87	7,3	8092403621
		P178/7-153-G2-QL60 pilot	162,2	6.39	28,2	8092403620									
	E	P178E/7-153-G2-DHD360 pilot	162,2	6.39	29,4	8092440462									
		P178E/7-153-G2-QL60 pilot	162,2	6.39	28,3	8092440463									

V The system is designed for short holes and is available with both thin and thick casing wall.

T The system is designed specifically for pipe roofing and Tophammer applications.

C The system is design to allow to use same pilot bit either with permanent ring bit set or retrievable ring bit set. The Symmetrix pilot bit can be used to drill shallow rock sockets below the casings.

W Our most durable system, designed for deep holes.

SE Cost efficient system with separate ring bit for installation of permanent casings when there is no need to drill below the casing.

N A retrievable system with a unique design that enables a large inner diameter.

CASING OUTER DIAMETER 177,8 MM (7") – 193,7 MM (7 5/8")

CASING 177,8 MM (7") RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
N	S	R178/10-141-G2-DHD350	153	6.01	30,0	8092403486	R178/10-141-G2-ring bit set	10,0	0.39	141	5.55	187	7.36	13	8092403487
		R178/10-141-G2-QL50	153	6.01	30,0	8092403521									
	E	R178E/10-141-G2-DHD350 pilot	153	6.01	30,0	8092440417									
		R178E/10-141-G2-QL50	153	6.01	30,0	8092440437									

CASING 193,7 MM (7 5/8") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
V	S	P194/12.7-147-G2-DHD360 pilot	166	6.54	32,7	8092403609	P194/12.7-147-G2-ring bit set	12,7	0.50	147	5.79	220	8.66	9,5	8092403610
		P194/12.7-147-G2-QL60 pilot	166	6.54	31,6	8092403639									
	E	P194E/12.7-147-G2-DHD360 pilot	166	6.54	33,0	8092440476									
V	S	P194/5.5-165-G2-DHD360 pilot	180	7.09	36,4	8092403607	P194/5.5-165-G2-ring bit set	5,5	0.22	167	6.57	220	8.66	7,2	8092403608
		P194/5.5-165-G2-QL60 pilot	180	7.09	35,4	8092403612									
	E	P194E/5.5-165-G2-DHD360 pilot	180	7.09	36,8	8092440455									
		P194E/5.5-165-G2-QL60 pilot	180	7.09	35,7	8092440459									

CASING 193,7 MM (7 5/8") PERMANENT & RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
C	S	C194/12.7-148/165-DHD360 pilot	165	6.50	32,8	8092403733	P194/12.7-148/165-ring bit set	12,7	0.50	148	5.83	214	8.43	7,5	8092403734
		C194/12.7-148/165-QL60 pilot	165	6.50	31,7	8092403822	R194/12.7-148/165-ring bit set	12,7	0.50	148	5.83	209	8.23	7,6	8092403740

CASING 193,7 MM (7 5/8") RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
N	S	R194/12.7-154-G2-DHD360	167	6.56	35,0	8092403488	R194/12.7-154-G2-ring bit set	12,7	0.50	154	6.06	203	7.99	14,0	8092403489
		R194/12.7-154-G2-QL60	167	6.56	35,0	8092403522									
	E	R194E/12.7-154-G2-DHD360	167	6.56	35,0	8092440418									

CASING 219,1 MM (8 5/8") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
V	S	P219/12.7-171-G2-DHD360 pilot	190	7.48	39,1	8092403649	P219/12.7-171-G2-ring bit set	12,7	0.50	171	6.73	246	9.69	11,2	8092403648
	E	P219E/12.7-171-G2-DHD360 pilot	190	7.48	39,3	8092440477									
W	S	P219/6.5-190-G2-DHD360 pilot	202	7.95	40,8	8092403622	P219/6.5-190-G2-ring bit set	6,5	0.26	190,4	7.50	246	9.69	11,5	8092403624
		P219/6.5-190-G2-QL60 pilot	202	7.95	39,8	8092403623									
	E	P219E/6.5-190-G2-DHD360 pilot	202	7.95	41,0	8092440464									
		P219E/6.5-190-G2-QL60 pilot	202	7.95	40,0	8092440465									

CASING 219,1 MM (8 5/8") RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
N	S	R219/12.7-175-G2-DHD360 pilot	190	7.48	45,0	8092403484	R219/12.7-175-G2-ring bit set	12,7	0.50	175	6.89	227	8.95	18,6	8092403485
		R219/12.7-175-G2-QL60	190	7.48	45,0	8092403523									
	E	R219E/12.7-175-G2-DHD360 pilot	190	7.48	45,0	8092440415									
		R219E/12.7-175-G2-QL60	190	7.48	45,0	8092440438									

V The system is designed for short holes and is available with both thin and thick casing wall.

T The system is designed specifically for pipe roofing and Tophammer applications.

C The system is design to allow to use same pilot bit either with permanent ring bit set or retrievable ring bit set. The Symmetrix pilot bit can be used to drill shallow rock sockets below the casings.

W Our most durable system, designed for deep holes.

SE Cost efficient system with separate ring bit for installation of permanent casings when there is no need to drill below the casing.

N A retrievable system with a unique design that enables a large inner diameter.

CASING OUTER DIAMETER 219,1 MM (8 5/8")

CASING 219,1 MM (8 5/8") PERMANENT & RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
C	S	C219/12.7-171/188-DHD360 pilot	188	7.40	37,1	8092403692	P219/12.7-171/188-ring bit set	12,7	0.50	171	6.73	240	9.45	9,4	8092403693
		C219/12.7-171/188-QL60 pilot	188	7.40	36,0	8092403823	R219/12.7-171/188-ring bit set	12,7	0.50	171	6.73	233	9.17	8,9	8092403824

CASING 219,1 MM (8 5/8") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Casing shoe 					Ring bit  						
		Designa- tion code	Pilot bit Outer ø		Weight	Product number	Designa- tion code	Casing wall max thickness		Weight	Product number	Designa- tion code	Ring bit Inner ø		Pilot bit Outer ø		Weight	Product number
			mm	inch				mm	inch				mm	inch	mm	inch		
SE	S	P219/12.7-151-G2-DHD360 pilot	190	7.48	37,7	8092403679	P219/12.7-151-G2-casing shoe	12,7	0.50	2,4	8092403681	P219/12.7-151-G2-ring bit	151	5.94	230	9.06	4,3	8092403680
		P219/12.7-151-G2-QL60 pilot	190	7.48	36,6	8092403731	P219/10-151-G2-casing shoe	12,7	0.50	2,7	8092403735	P219/12.7-151-G2-OD277 Ring	151	5.94	277	10.91	8,6	8092403732
							P219/8-151-G2-casing shoe	8,0	0.31	3,0	8092403812							
SE	E	P219E/12.7-151-G2-DHD360 pilot	190	7.48	38,6	8092440499	P219/12.7-151-G2-casing shoe	12,7	0.50	2,4	8092403681	P219E/12.7-151-G2-ring bit	151	5.94	230	9.06	8,5	8092440500
		P219E/12.7-151-G2-QL60 pilot	190	7.48	37,5	8092440514	P219/10-151-G2-casing shoe	10,0	0.39	2,7	8092403735							
							P219/8-151-G2-casing shoe	8,0	0.31	3,0	8092403812							

CASING 244,5 MM (9 5/8") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
V	E	P245E/12.7-200-G2-DHD380 pilot	216	8.50	63,2	8092440472	P245/12.7-200-G2-ring bit set	12,7	0.50	199	7.83	269,6	10.61	12,0	8092403656
	S	P245/12.7-200-G2-DHD380 pilot	216	8.50	63,0	8092403660									

CASING 244,5 MM (9 5/8") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Casing shoe 					Ring bit  						
		Designa- tion code	Pilot bit Outer ø		Weight	Product number	Designa- tion code	Casing wall max thickness		Weight	Product number	Designa- tion code	Ring bit Inner ø		Pilot bit Outer ø		Weight	Product number
			mm	inch				mm	inch				mm	inch	mm	inch		
SE	S	P245/12.7-171-G2-DHD380 pilot	213	8.39	59,3	8092403685	P245/12.7-171-G2-casing shoe	12,7	0.50	3,0	8092403687	P245/12.7-171-G2-ring bit	171	6.73	257,8	10.15	6,3	8092403686
		P245/12.7-171-G2-QL80 pilot	213	8.39	59,3	8092403736	P245/10-171-G2-casing shoe	10,0	0.39	3,5	8092403737							
							P245/8-171-G2-casing shoe	8,0	0.31	3,7	8092403738							
SE	E	P245E/12.7-171-G2-DHD380 pilot	213	8.39	60,4	8092440502	P245/12.7-171-G2-casing shoe	12,7	0.50	3,0	8092403687	P245E/12.7-171-G2-ring bit	171	6.73	257,8	10.15	11,6	8092440503
		P245E/12.7-171-G2-QL80 pilot	213	8.39	60,4	8092440515	P245/10-171-G2-casing shoe	10,0	0.39	3,5	8092403737							
							P245/8-171-G2-casing shoe	8,0	0.31	3,7	8092403738							

V The system is designed for short holes and is available with both thin and thick casing wall.

T The system is designed specifically for pipe roofing and Tophammer applications.

C The system is design to allow to use same pilot bit either with permanent ring bit set or retrievable ring bit set. The Symmetrix pilot bit can be used to drill shallow rock sockets below the casings.

W Our most durable system, designed for deep holes.

SE Cost efficient system with separate ring bit for installation of permanent casings when there is no need to drill below the casing.

N A retrievable system with a unique design that enables a large inner diameter.

CASING OUTER DIAMETER 254,0 MM (10") – 273,0 MM (10 3/4")

CASING 254,0 MM (10") RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
N	S	R254/12.7-207-G2-DHD380 pilot	223	8.79	70,0	8092403492	R254/12.7-207-G2-ring bit set	12,7	0.50	207	8.15	266	10.47	20,0	8092403493
	E	R254E/12.7-207-G2-DHD380 pilot	223	8.79	70,0	8092440420									

CASING 273,0 MM (10 3/4") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer $\varnothing$		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner $\varnothing$		Ring bit Outer $\varnothing$		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
W	S	P273/8-240-G2-DHD380 pilot	254	10.0	75,6	8092403625	P273/8-240-G2-ring bit set	8,0	0.31	240,2	9.46	303	11.93	17,6	8092403627
		P273/8-240-G2-QL80 pilot	254	10.0	75,7	8092403626									
	E	P273E/8-240-G2-DHD380 pilot	254	10.0	75,9	8092440466									
		P273E/8-240-G2-QL80 pilot	254	10.0	76,0	8092440467									
V	S	P273/12.7-227-G2-DHD380 pilot	245	9.65	79,0	8092403650	P273/12.7-227-G2-ring bit set	12,7	0.50	228	8.98	302	11.89	14,9	8092403651
		P273/12.7-227-G2-QL80 pilot	245	9.65	79,1	8092403729									
	E	P273E/12.7-227-G2-DHD380 pilot	245	9.65	77,1	8092440478									

CASING 273,0 MM (10 3/4") RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer $\varnothing$		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner $\varnothing$		Ring bit Outer $\varnothing$		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
N	S	R273/12.7-226-G2-DHD380 pilot	242	9.54	100	8092403494	R273/12.7-226-G2-ring bit set	12,7	0.50	226	8.90	285	11.22	30,0	8092403495
	E	R273E/12.7-226-G2-DHD380 pilot	242	9.54	100	8092440421									

CASING 273,0 MM (10 3/4") PERMANENT & RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
C	S	C273/12.7-222/241-DHD380 pilot	240,6	9.47	72,6	8092403694	P273/12.7-222/241-ring bit set	12,7	0.50	222,6	8,76	295,6	11.64	14,6	8092403695
		C273/12.7-222/241-QL80 pilot	240,6	9.47	72,5	8092403825	R273/12.7-222/241-ring bit set	12,7	0.50	222,6	8.76	288,6	11.36	13,8	8092403826

CASING 273,0 MM (10 3/4") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Casing shoe 					Ring bit  						
		Designa- tion code	Pilot bit Outer ø		Weight	Product number	Designa- tion code	Casing wall max thickness		Weight	Product number	Designa- tion code	Ring bit Inner ø		Pilot bit Outer ø		Weight	Product number
			mm	inch				mm	inch				mm	inch	mm	inch		
SE	S	P273/12.7-201-G2-DHD380 pilot	241	9.49	79,0	8092403718	P273/12.7-201-G2-casing shoe	12,7	0.50	3,5	8092403720	P273/12.7-201-G2-ring bit	201	7.91	288	11.34	7,5	8092403719
		P273/12.7-201-G2-QL80 pilot	241	9.49	72,6	8092403739	P273/10-201-G2-casing shoe	10,0	0.39	3,9	8092403741							
							P273/8-201-G2-casing shoe	8,0	0.31	4,2	8092403742							
SE	E	P273E/12.7-201-G2-DHD380 pilot	241	9.49	74,3	8092440504	P273/12.7-201-G2-casing shoe	12,7	0.50	3,5	8092403720	P273E/12.7-201-G2-ring bit	201	7.91	288	11.34	13,8	8092440505
		P273E/12.7-201-G2-QL80 pilot	241	9.49	74,2	8092440516	P273/10-201-G2-casing shoe	10,0	0.39	3,9	8092403741							
							P273/8-201-G2-casing shoe	8,0	0.31	4,2	8092403742							

V The system is designed for short holes and is available with both thin and thick casing wall.

T The system is designed specifically for pipe roofing and Tophammer applications.

C The system is design to allow to use same pilot bit either with permanent ring bit set or retrievable ring bit set. The Symmetrix pilot bit can be used to drill shallow rock sockets below the casings.

W Our most durable system, designed for deep holes.

SE Cost efficient system with separate ring bit for installation of permanent casings when there is no need to drill below the casing.

N A retrievable system with a unique design that enables a large inner diameter.

CASING OUTER DIAMETER 323,9 MM (12 3/4")

CASING 323,9 MM (12 3/4") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
W	S	P324/10-282-G2-DHD380 pilot	298	11.73	99,3	8092403628	P324/10-282-G2-ring bit set	10,0	0.39	282	11.10	350	13.78	22,9	8092403630
		P324/10-282-G2-QL80 pilot	298	11.73	99,5	8092403629									
		P324/10-282-G2-QLX100 pilot	298	11.73	126,5	8092403644									
	E	P324E/10-282-G2-DHD380 pilot	298	11.73	99,4	8092440468									
		P324E/10-282-G2-QL80 pilot	298	11.73	99,5	8092440469									
		P324E/10-282-G2-QLX100 pilot	298	11.73	126,4	8092440456									
V	S	P324/12.7-273-G2-DHD380 pilot	292	11.50	97,2	8092403652	P324/12.7-273-G2-ring bit set	12,7	0.50	273	10.75	352,6	13.88	18,9	8092403653
		P324/12.7-273-G2-QLX100 pilot	292	11.50	124, 2	8092403767									
	E	P324E/12.7-273-G2-DHD380 pilot	292	11.50	97,0	8092440479									
		P324E/12.7-273-G2-QLX100 pilot	292	11.50	124,0	8092440495									

CASING 323,9 MM (12 3/4") PERMANENT & RETRIEVBABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
C	S	C324/12.7-273/291-DHD380 pilot	291,4	11.47	97,7	8092403696	P324/12.7-273/291-ring bit set	12,7	0.50	273,4	10.76	346,4	13.64	17,3	8092403697
		C324/12.7-273/291-QL80 pilot	291,4	11.47	97,6	8092403827	R324/12.7-273/291-ring bit set	12,7	0.50	73,4	10.76	343	13.50	17,5	8092403829
		C324/12.7-273/291-QLX100 pilot	291,4	11.47	124,6	8092403828									

CASING 323,9 MM (12 3/4") RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
N	S	R324/12.7-273-G2-DHD380 pilot	272	10.72	150	8092403551	R324/12.7-273-G2-ring bit set	12,7	0.50	273	10.75	338	13.31	10,72	8092403547
		R324/12.7-273-G2-SD10 pilot	272	10.72	150	8092403552									

CASING 323,9 MM (12 3/4") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Casing shoe 					Ring bit  						
		Designa- tion code	Pilot bit Outer ø		Weight	Product number	Designa- tion code	Casing wall max thickness		Weight	Product number	Designa- tion code	Ring bit Inner ø		Pilot bit Outer ø		Weight	Product number
			mm	inch				mm	inch				mm	inch	mm	inch		
SE	S	P324/12.7-254-G2-DHD380 pilot	291	11.46	99,2	8092403682	P324/12.7-254-G2-casing shoe	12,7	0.50	4,3	8092403684	P324/12.7-254-G2-ring bit	254	10.0	377	13.27	9,1	8092403683
		P324/12.7-254-G2-QL80 pilot	291	11.46	99,2	8092403743	P324/10-254-G2-casing shoe	10,0	0.39	4,8	8092403749							
		P324/12.7-254-G2-QLX100 pilot	291	11.46	126,2	8092403747	P324/8-254-G2-casing shoe	8,0	0.31	5,2	8092403750							
SE	E	P324E/12.7-254-G2-DHD380 pilot	291	11.46	101,2	8092440506	P324/12.7-254-G2-casing shoe	12,7	0.50	4,3	8092403684	P324E/12.7-254-G2-ring bit	254	10,0	377	13.27	17,0	8092440507
		P324E/12.7-254-G2-QL80 pilot	291	11.46	101,2	8092440517	P324/10-254-G2-casing shoe	10,0	0.39	4,8	8092403749							
		P324E/12.7-254-G2-QLX100 pilot	291	11.46	101,2	8092440518	P324/8-254-G2-casing shoe	8,0	0.31	5,2	8092403750							

V The system is designed for short holes and is available with both thin and thick casing wall.

T The system is designed specifically for pipe roofing and Tophammer applications.

C The system is design to allow to use same pilot bit either with permanent ring bit set or retrievable ring bit set. The Symmetrix pilot bit can be used to drill shallow rock sockets below the casings.

W Our most durable system, designed for deep holes.

SE Cost efficient system with separate ring bit for installation of permanent casings when there is no need to drill below the casing.

N A retrievable system with a unique design that enables a large inner diameter.

CASING OUTER DIAMETER 355,6 MM (14") – 406,4 MM (16")

CASING 355,6 MM (14") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
W	S	P356/12.7-310-QL120	326	12.83	210	8092402561	P356/12.7-310-ring bit set	12,7	0.50	310	12.20	377	14.84	25,6	8092402106
		P356/12.7-310- Numa100	326	12.83	210	8092402105									
W	E	P356E/12.7-310-QL120	326	12,83	210	8092440191	P356/12.7-310-ring bit set	12,7	0.50	310	12.20	377	14.84	31,3	8092440193
		P356E/12.7-310- Numa100	326	12,83	210	8092440192									

CASING 406,4 MM (16") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
V	S	P406/12.7-356-G2-DHD112 pilot	375	14.76	196	8092403699	P406/12.7-356-G2-ring bit set	12,7	0.50	356	14.02	434	17.09	22,6	8092403700
		P406/12.7-356-G2-QL120 pilot	375	14.76	225,8	8092403701									
	E	P406E/12.7-356-G2-DHD112 pilot	375	14.76	196	8092440485									

CASING 406,4 MM (16") PERMANENT & RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 						Ring bit set   							
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
C	S	C406/16-348/368- QL120 pilot	368	14.49	217,7	8092403702	P406/16-348/368-ring bit set	16,0	0.63	348	13.70	431	16.97	26,1	8092403703
		C406/16-348/368- DHD112 pilot	368	14.49	188,6	8092403842	R406/16-348/368-ring bit set	16,0	0.63	348	13.70	428	16.85	28,1	8092403830

CASING 406,4 MM (16") RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit					Ring bit set								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
N	S	R406/12.7-352-G2-QL120 pilot	370	14.57	260	8092403568	R406/12.7-352-G2-ring bit set	12,7	0.50	352	13.86	420	16.54	79,8	8092403569

CASING 406,4 MM (16") PERMANENT, DTH

Model	Symmetrix/El-emex	Pilot bit 					Casing shoe 					Ring bit  											
		Designa- tion code	Pilot bit Outer ø		Weight	Product number	Designa- tion code	Casing wall max thickness		Weight	Product number	Designa- tion code	Ring bit Inner ø		Pilot bit Outer ø		Weight	Product number					
			mm	inch				mm	inch				mm	inch	mm	inch							
SE	S	P406/16-328-G2-DHD112 pilot	370	14.57	197	8092403744	P406/16-328-G2-casing shoe	16,0	0.63	6,1	8092403746	P406/16-328-G2-ring bit	328	12.91	418	16.46	12,3	8092403745					
							P406/12.7-328-G2-casing shoe	12,7	0.50	6,9	8092403755												
		P406/16-328-G2-QL120 pilot	370	14.57	226,3	8092403754	P406/10-328-G2-casing shoe	10,0	0.39	7,5	8092403756								P406/8-328-G2-casing shoe	8,0	0.31	8,1	8092403795
SE	E	P406E/16-328-G2-DHD112 pilot	370	14.57	200,2	8092440521	P406/16-328-G2-casing shoe	16,0	0.63	6,1	8092403746	P406E/16-328-G2-ring bit	328	12.91	418	16,46	22,8	8092440510					
							P406/12.7-328-G2-casing shoe	12,7	0.50	6,9	8092403755												
		P406E/16-328-G2-QL120 pilot	370	14.57	229,4	8092440509	P406/10-328-G2-casing shoe	10,0	0.39	7,5	8092403756								P406/8-328-G2-casing shoe	8,0	0.31	8,1	8092403795

V

The system is designed for short holes and is available with both thin and thick casing wall.

T

The system is designed specifically for pipe roofing and Tophammer applications.

C

The system is design to allow to use same pilot bit either with permanent ring bit set or retrievable ring bit set. The Symmetrix pilot bit can be used to drill shallow rock sockets below the casings.

W

Our most durable system, designed for deep holes.

SE

Cost efficient system with separate ring bit for installation of permanent casings when there is no need to drill below the casing.

N

A retrievable system with a unique design that enables a large inner diameter.

CASING OUTER DIAMETER CASING 508,0 MM (20")

CASING 508,0 MM (20") PERMANENT & RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
C	S	C508/16-447/468-QL120 pilot	468	18.43	330,7	8092403764	P508/16-447/468-ring bit set	16,0	0.63	447	17.60	533	20.98	39,4	8092403765
	E	C508E/16-447/468-QL120 pilot	468	18.43	330,6	8092440524	R508/16-447/468-ring bit set	16,0	0.63	447	17.60	533	20.98	39,7	8092403831

CASING 508,0 MM (20") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Casing shoe 					Ring bit  						
		Designa- tion code	Pilot bit Outer ø		Weight	Product number	Designa- tion code	Casing wall max thickness		Weight	Product number	Designa- tion code	Ring bit Inner ø		Pilot bit Outer ø		Weight	Product number
			mm	inch				mm	inch				mm	inch	mm	inch		
SE	S	P508/16-426-G2-QL120 pilot	470	18.50	336,2	8092403751	P508/16-426-G2-casing shoe	16,0	0.63	8,8	8092403753	P508/16-426-G2-ring bit	426	16.77	518	20.39	16,7	8092403752
							P508/12.7-426-G2-casing shoe	12,7	0.50	10	8092403758							
		P508/16-426-G2-QL200 pilot	470	18.50	390	8092403757	P508/10-426-G2-casing shoe	10,0	0.39	10,9	8092403761							
							P508/8-426-G2-casing shoe	8,0	0.31	11,7	8092403796							
SE	E	P508E/16-426-G2-QL120 pilot	470	18.50	392,8	8092440511	P508/16-426-G2-casing shoe	16,0	0.63	8,8	8092403753	P508E/16-426-G2-ring bit	426	16.77	518	20.39	31,1	8092440512
							P508/12.7-426-G2-casing shoe	12,7	0.50	10	8092403758							
							P508/10-426-G2-casing shoe	10,0	0.39	10,9	8092403761							
							P508/8-426-G2-casing shoe	8,0	0.31	11,7	8092403796							

CASING 609,6 MM (24") PERMANENT & RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
C	S	C610/16-545/568-QL200 pilot	568	22,36	486,5	8092403704	P610/16-545/568-ring bit set	16,0	0,63	545	21,46	638	25,12	53,5	8092403705
	E	C610E/16-545/568-QL200 pilot	568	22,36	486,3	8092440486	R610/16-545/568-ring bit set	16,0	0,63	545	21,46	633	24,92	55,6	8092403832

CASING 609,6 MM (24") RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
Z	E	R610E/12.7-555-G2-QL200 pilot	553	21.77	550	8092440443	R610/12.7-555-G2-ring bit set	12,7	0.50	555	21.85	637	25.08	132	8092403553
		R610E/12.7-555-G2-N180 pilot	553	21.77	550	8092440449									

V The system is designed for short holes and is available with both thin and thick casing wall.

T The system is designed specifically for pipe roofing and Tophammer applications.

C The system is design to allow to use same pilot bit either with permanent ring bit set or retrievable ring bit set. The Symmetrix pilot bit can be used to drill shallow rock sockets below the casings.

W Our most durable system, designed for deep holes.

SE Cost efficient system with separate ring bit for installation of permanent casings when there is no need to drill below the casing.

N A retrievable system with a unique design that enables a large inner diameter.

CASING OUTER DIAMETER 609,6 MM (24") – 711,2 MM (28")

CASING 609,6 MM (24") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Casing shoe 					Ring bit  						
		Designa- tion code	Pilot bit Outer ø		Weight	Product number	Designa- tion code	Casing wall max thickness		Weight	Product number	Designa- tion code	Ring bit Inner ø		Pilot bit Outer ø		Weight	Product number
			mm	inch				mm	inch				mm	inch	mm	inch		
SE	S	P610/16-527-G2-QL200 pilot	571	22.48	504.6	8092403759	P610/16-527-G2-casing shoe	16,0	0.63	11,2	8092403714	P610/16-527-G2-ring bit	527	20.75	622	24.49	21,2	8092403760
							P610/14.2-527-G2-casing shoe	14,0	0.55	12,1	8092403762							
							P610/12.7-527-G2-casing shoe	12,7	0.50	12,6	8092403763							
							P610/10-527-G2-casing shoe	10,0	0.39	14,1	8092403797							
							P610/8-527-G2-casing shoe	8,0	0.31	15,1	8092403798							
SE	E	P610E/16-527-G2-QL200 pilot	571	22.48	548	8092440491	P610/16-527-G2-casing shoe	16,0	0.63	11,2	8092403714	P610E/16-527-G2-ring bit	527	20.75	622	24.49	36,9	8092440492
							P610/14.2-527-G2-casing shoe	14,0	0.55	12,1	8092403762							
							P610/12.7-527-G2-casing shoe	12,7	0.50	12,6	8092403763							
							P610/10-527-G2-casing shoe	10,0	0.39	14,1	8092403797							
							P610/8-527-G2-casing shoe	8,0	0.31	15,1	8092403798							

CASING 711,2 MM (28") PERMANENT & RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
C	S	C711/19-640/663-QL200S pilot	663	26.10	880,4	8092403706	P711/19-640/663-ring bit set	19,0	0.75	640	25.20	739	29.09	68,6	8092403707
	E	C711/E19-640/663-QL200S pilot	663	26.10	873,2	8092440487	R711/19-640/663-ring bit set	19,0	0.75	640	25.20	730	28.74	69,5	8092403833

CASING 711,2 MM (28") PERMANENT, DTH

Model	Symmetrix/El-emex	Pilot bit 					Casing shoe 					Ring bit  						
		Designa-tion code	Pilot bit Outer ø		Weight	Product number	Designa-tion code	Casing wall max thickness		Weight	Product number	Designa-tion code	Ring bit Inner ø		Pilot bit Outer ø		Weight	Product number
			mm	inch				mm	inch				mm	inch	mm	inch		
SE	S	P711/16-619-G2-QL200S pilot	669	26.34	898,1	8092403771	P711/16-619-G2-casing shoe	16,0	0.63	15,7	8092403773	P711/16-619-G2-ring bit	619	24.37	728	28.66	33,4	8092403772
							P711/14.2-619-G2-casing shoe	14,0	0.55	16,6	8092403799							
							P711/12.7-619-G2-casing shoe	12,7	0.50	17,4	8092403800							
							P711/10-619-G2-casing shoe	10,0	0.39	18,8	8092403801							
							P711/8-619-G2-casing shoe	8,0	0.31	19,9	8092403802							
SE	E	P711E/16-619-G2-QL200S pilot	669	26.34	905	8092440519	P711/16-619-G2-casing shoe	16,0	0.63	15,7	8092403773	P711E/16-619-G2-ring bit	619	24.37	728	28.66	59,6	8092440520
							P711/14.2-619-G2-casing shoe	14,0	0.55	16,6	8092403799							
							P711/12.7-619-G2-casing shoe	12,7	0.50	17,4	8092403800							
							P711/10-619-G2-casing shoe	10,0	0.39	18,8	8092403801							
							P711/8-619-G2-casing shoe	8,0	0,31	19,9	8092403802							

V

The system is designed for short holes and is available with both thin and thick casing wall.

T

The system is designed specifically for pipe roofing and Tophammer applications.

C

The system is design to allow to use same pilot bit either with permanent ring bit set or retrievable ring bit set. The Symmetrix pilot bit can be used to drill shallow rock sockets below the casings.

W

Our most durable system, designed for deep holes.

SE

Cost efficient system with separate ring bit for installation of permanent casings when there is no need to drill below the casing.

N

A retrievable system with a unique design that enables a large inner diameter.

CASING OUTER DIAMETER 812,8 MM (32")

CASING 812,8 MM (32") PERMANENT & RETRIEABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
C	S	P813/20-736/762-QL200S pilot	762	30.0	1074,2	8092403710	P813/20-736/762-ring bit set	20,0	0.79	736	28.98	839	33.03	82,0	8092403711
	E	P813/20-736/762-QL200S pilot	762	30.0	1063,3	8092440488	R813/20-736/762-ring bit set	20,0	0.79	736	28.98	832	32.76	84,8	8092403721

CASING 812,8 MM (32") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Casing shoe 					Ring bit  						
		Designa- tion code	Pilot bit Outer ø		Weight	Product number	Designa- tion code	Casing wall max thickness		Weight	Product number	Designa- tion code	Ring bit Inner ø		Pilot bit Outer ø		Weight	Product number
			mm	inch				mm	inch				mm	inch	mm	inch		
SE	S	P813/20-708-G2-QL200S pilot	760	29,92	1143,6	8092403774	P813/20-708-G2-casing shoe	20,0	0.79	24,1	8092403776	P813/20-708-G2-ring bit	708	27.87	830	32.68	45,2	8092403775
							P813/16-708-G2-casing shoe	16,0	0.63	26,3	8092403803							
							P813/14.2-708-G2-casing shoe	14,0	0.55	27,3	8092403804							
							P813/12.7-708-G2-casing shoe	12,7	0.50	28,1	8092403777							
							P813/10-708-G2-casing shoe	10,0	0.39	29,5	8092403805							
							P813/8-708-G2-casing shoe	8,0	0.31	30,5	8092403806							
SE	E	P813E/20-708-G2-QL200S pilot	760	29,92	1121,3	8092440522	P813/20-708-G2-casing shoe	20,0	0.79	24,1	8092403776	P813/20-708-G2-ring bit	708	27,87	830	32,68	80,5	8092440523
							P813/16-708-G2-casing shoe	16,0	0.63	26,3	8092403803							
							P813/14.2-708-G2-casing shoe	14,0	0.55	27,3	8092403804							
							P813/12.7-708-G2-casing shoe	12,7	0.50	28,1	8092403777							
							P813/10-708-G2-casing shoe	10,0	0.39	29,5	8092403805							
							P813/8-708-G2-casing shoe	8,0	0.31	30,5	8092403806							

CASING 914,4 MM (36") PERMANENT & RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer ø		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner ø		Ring bit Outer ø		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
C	S	C914/20-831/862- QL200S pilot	862	33.94	1531	8092403788	P914/20-831/862-ring bit set	20,0	0.79	831	32.72	942	37.09	96,8	8092403789
							R914/20-831/862-ring bit set	20,0	0.79	831	32.72	936	36.85	98,6	8092403834

CASING 914,4 MM (36") PERMANENT, DTH

Model	Symmetrix/El- emex	Pilot bit 					Casing shoe 					Ring bit  						
		Designa- tion code	Pilot bit Outer ø		Weight	Product number	Designa- tion code	Casing wall max thickness		Weight	Product number	Designa- tion code	Ring bit Inner ø		Pilot bit Outer ø		Weight	Product number
			mm	inch				mm	inch				mm	inch	mm	inch		
SE	S	P914/20- 806-G2- QL200S pilot	862	33,94	1531	8092403778	P914/20- 806-G2- casing shoe	20,0	0.79	27,0	8092403780	P914/20- 806-G2- ring bit	808	31,81	932	36,69	54,6	8092403779
							P914/16- 806-G2- casing shoe	16,0	0.63	30,0	8092403781							
							P914/14.2- 806-G2- casing shoe	14,2	0.56	31,3	8092403807							
							P914/12.7- 806-G2- casing shoe	12,7	0.50	32,4	8092403782							
							P914/10- 806-G2- casing shoe	10,0	0.39	34,5	8092403808							
							P914/8- 806-G2- casing shoe	8,0	0.31	36,0	8092403809							

V The system is designed for short holes and is available with both thin and thick casing wall.

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C The system is design to allow to use same pilot bit either with permanent ring bit set or retrievable ring bit set. The Symmetrix pilot bit can be used to drill shallow rock sockets below the casings.

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N A retrievable system with a unique design that enables a large inner diameter.

CASING OUTER DIAMETER 1016 MM (40") – 1219 MM (48")

CASING 1016 MM (40") PERMANENT & RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer $\varnothing$		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner $\varnothing$		Ring bit Outer $\varnothing$		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
C	S	C1016/20-931/962-QL200S pilot	962	37.87	1678,3	8092403790	P1016/20-931/962-ring bit set	20,0	0.79	931	36.65	1044	41.10	109,8	8092403791
		C1016/20-931/962-QL300 pilot	962	37.87	2031,8	8092403792	R1016/20-931/962-ring bit set	20,0	0.79	931	36.65	1037	40.83	113,8	8092403835

CASING 1219 MM (48") PERMANENT & RETRIEVABLE, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Ring bit set   								
		Designation code	Pilot bit Outer $\varnothing$		Weight	Product number	Designation code	Casing wall max thickness		Ring bit Inner $\varnothing$		Ring bit Outer $\varnothing$		Weight	Product number
			mm	inch				mm	inch	mm	inch	mm	inch		
C	S	C1219/20-1132/1165-QL300S pilot	1165	45,87	3685,7	8092403793	P1219/20-1132/1165-ring bit set	20,0	0.79	1132	44.57	1250	49.21	140	8092403794
							R1219/20-1132/1165-ring bit set	20,0	0.79	1132	44.57	1243	48.94	143	8092403836

CASING 1219 MM (48") PERMANENT, DTH

Model	Symmetrix/ Elemex	Pilot bit 					Casing shoe 					Ring bit  						
		Designa- tion code	Pilot bit Outer ø		Weight	Product number	Designa- tion code	Casing wall max thickness		Weight	Product number	Designa- tion code	Ring bit Inner ø		Pilot bit Outer ø		Weight	Product number
			mm	inch				mm	inch				mm	inch	mm	inch		
SE	S	P1219/20-1106-G2-QL300S pilot	1166	45,91	2852	8092403783	P1219/20-1106-G2-casing shoe	20,0	0.79	40,3	8092403785	P1219/20-1106-G2-ring bit	1103	43,43	1233	48.54	134	8092403784
							P1219/16-1106-G2-casing shoe	16,0	0.63	44,0	8092403786							
							P1219/14.2-1106-G2-casing shoe	14,2	0.56	45,6	8092403810							
							P1219/12.7-1106-G2-casing shoe	12,7	0.50	47,0	8092403787							
							P1219/10-1106-G2-casing shoe	10,0	0.39	49,3	8092403811							

V

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T

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