



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.

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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.

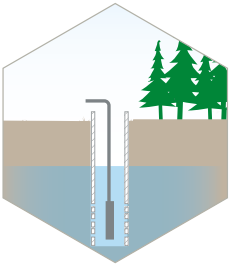
Applications

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.



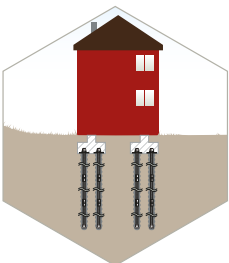
Water well drilling

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.



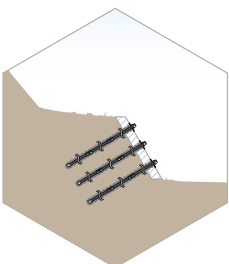
Pipe roofing

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

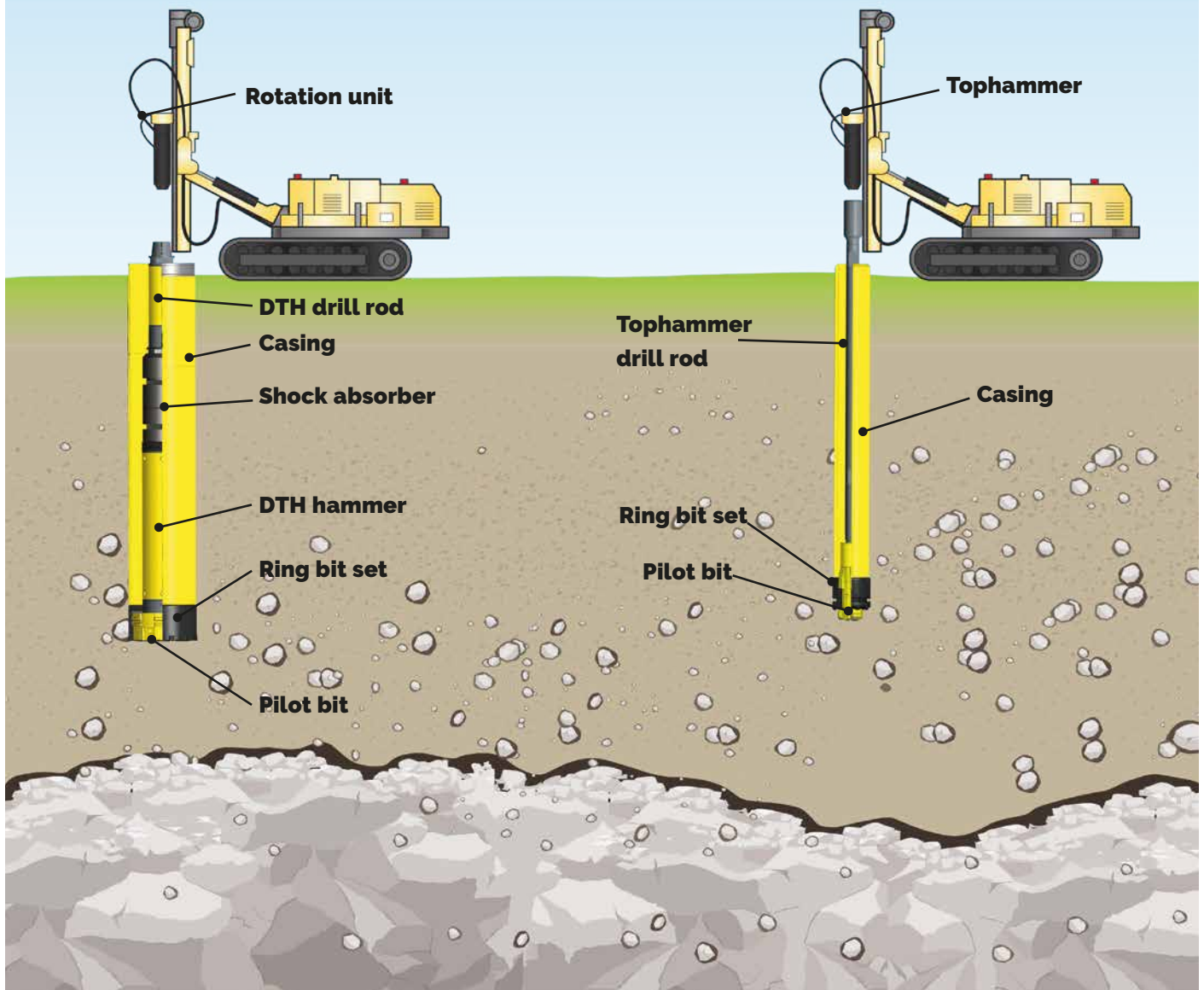
TerraRoc casing advancement systems are available in versions for Top-hammer or down-the-hole (DTH) drilling. The selected drilling method depends on the diameter drilled, depth of the hole and the driller's preferred equipment.

DTH

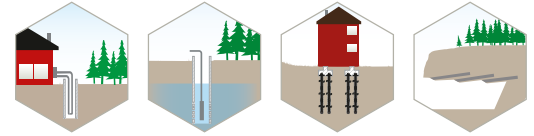
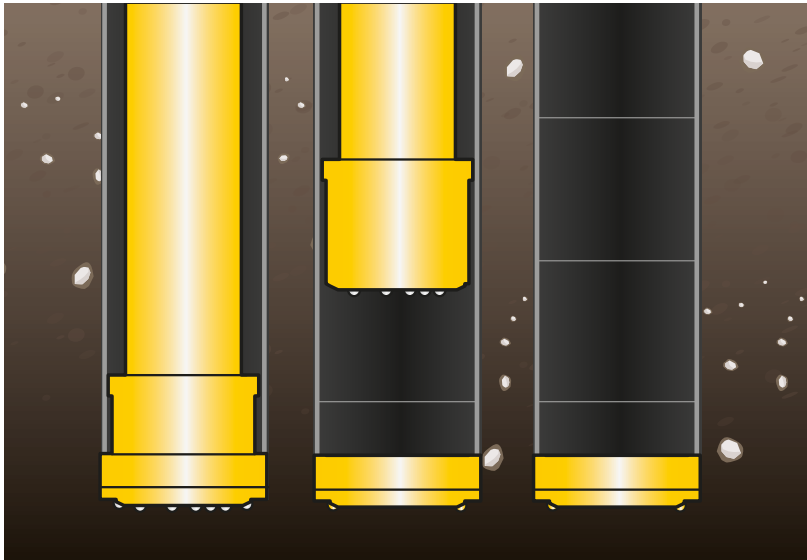
DTH is a common method used to drill deep holes with great accuracy. It is suitable to use for straight piling or well drilling that requires the high performance needed for drilling large and deep holes. DTH systems are available in the diameters 114,3–1 219 mm.

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.

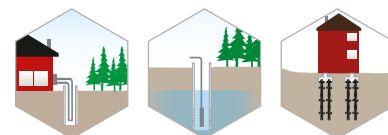
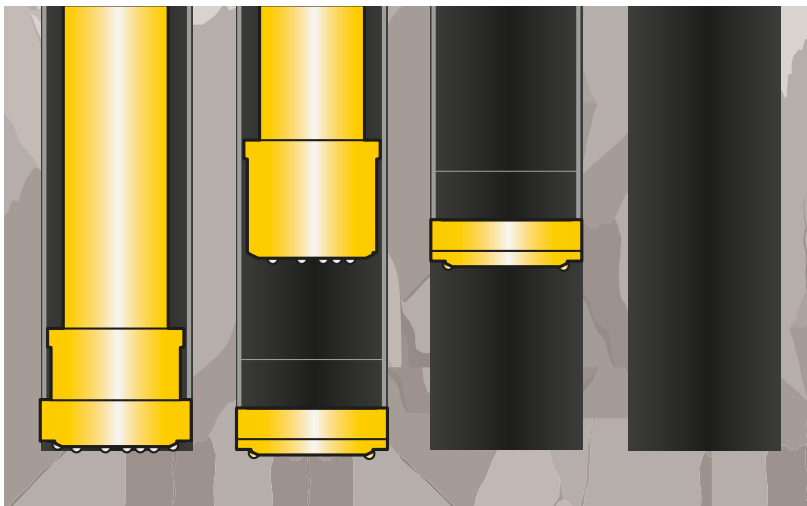


Casing types



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.



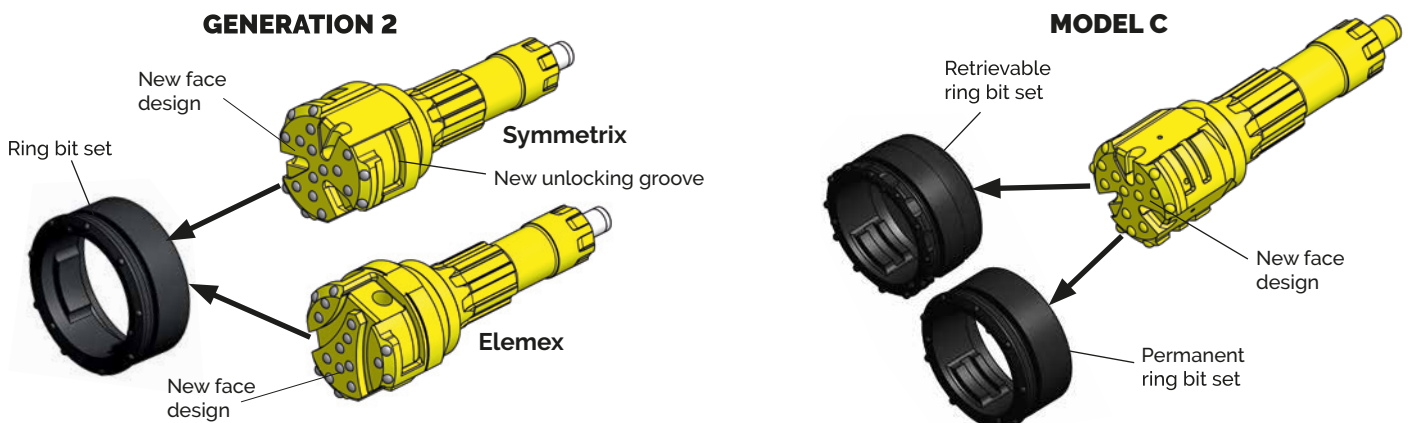
Elemex – for improved air control

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

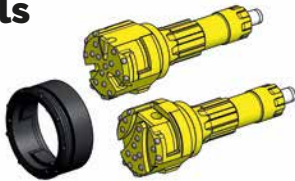
TerraRoc have been continuously improving the Casing Advancement System. Today we have developed two new concepts for Symmetrix and Elemex. With Generation 2 we found a way to allow both Symmetrix and Elemex pilot bits to use the same ring bit set and Model C allows both permanent and retrievable ring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




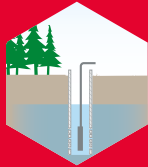
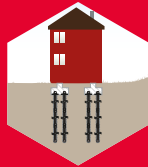


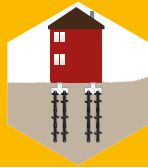

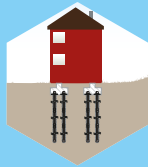
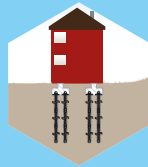


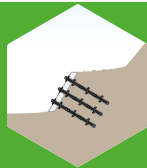

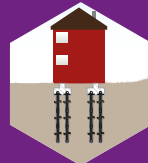

A retrievable system with a unique design that enables a large inner diameter. You can use the same ring bit for Symmetrix and Elemex pilot bit.

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

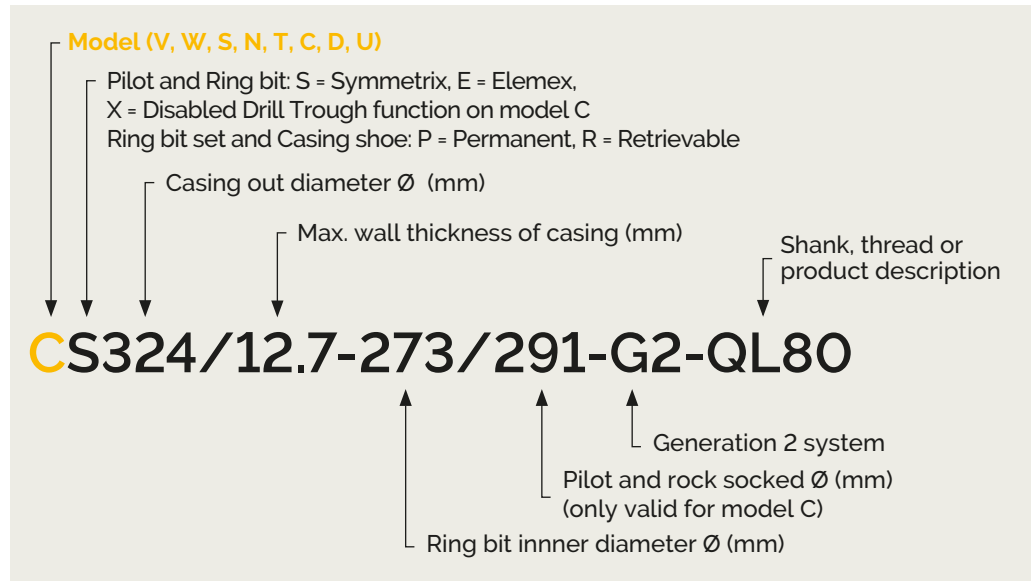
The matrix below will help you to select the appropriate model of Casing Advancement System for your application. The color codes used in the matrix are also found in the tables in the catalogue for your convenience.

| | | 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.



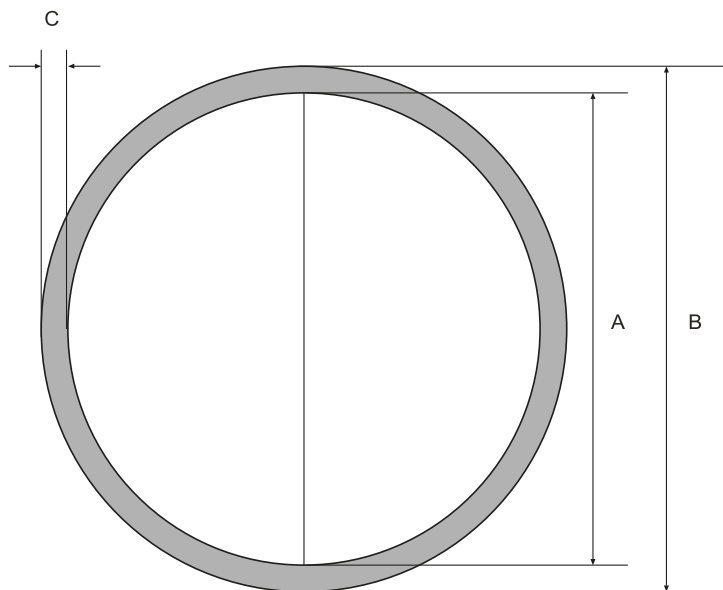
The casing dimensions are defined by:

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 | TS76/8-41-R32 | 58 | 2.26 | 1,0 | 8092402214 | TP76/8-41-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 | TS89/8-54-T38 | 70 | 2.76 | 3,5 | 8092400954 | TP89/8-54-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 | TS102/8-65-T38 | 84 | 3.31 | 4,5 | 8092402721 | TP102/8-65-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 | TS114/10-75-T38 | 93 | 3.65 | 6,0 | 8092401737 | TP114/10-75-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 | TS114/8-75-COP34 | 93 | 3.65 | 8,0 | 8092402155 | TP114/10-75-ring bit set | 8,0 | 0.31 | 75 | 2.95 | 129 | 5.08 | 4,0 | 8092401735 |
| | | TS114/8-75-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 | CS114/8-81/92-DHD3.5 pilot | 92,0 | 3.62 | 6,3 | 8092403663 | CP114/8-81/92-ring bit set | 8,0 | 0.31 | 81,0 | 3.19 | 130,0 | 5.12 | 2,5 | 8092403661 |
| | | | | | | | CR114/8-81/92-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 | | |
| Z | S | NS114/10-81-G2-R32 | 92 | 3.61 | 4,0 | 8092403524 | NR114/10-81-G2-ring bit set | 10,0 | 0.39 | 81 | 3.23 | 122 | 4.8 | 4,5 | 8092403513 |
| | | NS114/10-81-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 | | |
| Z | S | NS114/10-81-G2-DHD3.5 pilot | 92 | 3.61 | 7,0 | 8092403512 | NR114/10-81-G2-ring bit set | 10,0 | 0.39 | 81 | 3.23 | 122 | 4.80 | 4,5 | 8092403513 |
| | E | NE114/10-81-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  | | | | | | | | |
|-------|----------------------|---|-------------------|------|--------|---|----------------------------|---------------------------|------|--|----------------|-------------------------|------------------|------|-------------------|------|--------|----------------|
| | | Designation code | Pilot bit Outer ø | | Weight | Product number | Designation code | Casing wall max thickness | | Weight | Product number | Designation code | Ring bit Inner ø | | Pilot bit Outer ø | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | | | | mm | inch | mm | inch | | |
| SE | S | SS114/10-65-G2-T45 pilot | 92,6 | 3.65 | 4,0 | 8092403722 | SP114/10-65-G2-casing shoe | 10,0 | 0.39 | 0,7 | 8092403678 | SS114/10-65-G2-ring bit | 65,6 | 2.58 | 124 | 4.88 | 1,5 | 8092403677 |
| | | | | | | | SP114/8-65-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   | | | | | | |
|-------|----------------------|---|-------------------|------|--------|----------------|---|---------------------------|------|--------|----------------|--|------------------|------|-------------------|------|--------|----------------|
| | | Designation code | Pilot bit Outer ø | | Weight | Product number | Designation code | Casing wall max thickness | | Weight | Product number | Designation code | Ring bit Inner ø | | Pilot bit Outer ø | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | | | | mm | inch | mm | inch | | |
| SE | S | SS114/8-65-G2-COP34 pilot | 92,6 | 3.65 | 6,1 | 8092403716 | SP114/10-65-G2-casing shoe | 10,0 | 0.39 | 0,7 | 8092403678 | SS114/10-65-G2-ring bit | 65,6 | 2.58 | 124 | 4,88 | 1,5 | 8092403677 |
| | | SS114/10-65-G2-DHD3.5 pilot | 92,6 | 3.65 | 5,8 | 8092403676 | SP114/8-65-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 | NS127/10-95-G2-COP34 | 105 | 4.13 | 9,0 | 8092403518 | NR127/10-95-G2-ring bit set | 10,0 | 0.39 | 95 | 3.74 | 136 | 5.35 | 6,0 | 8092403863 |
| | | NS127/10-95-G2-DHD3.5 pilot | 105 | 4.13 | 9,0 | 8092403860 | | | | | | | | | |
| | E | NE127/10-95-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 | VS140/10-100-G2-T45 | 116,6 | 4.59 | 6,0 | 8092403843 | VP140/10-100-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



Ring bit sets for interlocked pile walls can be found on page 39 for various sizes

| 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 | VS140/10-100-G2-DHD340 pilot | 116,6 | 4.59 | 11,1 | 8092403631 | VP140/10-100-G2-ring bit set | 10,0 | 0.39 | 100 | 3.9 | 160 | 6.3 | 5,1 | 8092403632 |
| | E | VE140/10-100-G2-DHD340 pilot | 116,6 | 4.59 | 11,2 | 8092440473 | | | | | | | | | |
| V | S | VS140/5-115-G2-DHD340 pilot | 127,5 | 5.02 | 12,6 | 8092403602 | VP140/5-115-G2-ring bit set | 5,0 | 0.20 | 116,4 | 4.58 | 160 | 6.30 | 4,2 | 8092403604 |
| | | VS140/5-115-G2-COP44G pilot | 127,5 | 5.02 | 13,1 | 8092403603 | | | | | | | | | |
| | E | VE140/5-115-G2-DHD340 pilot | 127,5 | 5.02 | 12,8 | 8092440452 | | | | | | | | | |
| | | VE140/5-115-G2-COP44G pilot | 127,5 | 5.02 | 13,3 | 8092440453 | | | | | | | | | |
| W | S | WS140/5.5-115-G2-DHD340 pilot | 126,8 | 4.99 | 12,0 | 8092403613 | WP140/5.5-115-ring bit set | 5,5 | 0.22 | 115,8 | 4.56 | 169 | 6.65 | 6,8 | 8092403615 |
| | | WS140/5.5-115-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 | CS140/10-100/114-DHD340 pilot | 114 | 4.49 | 10,9 | 8092403688 | CP140/10-100/114-ring bit set | 10,0 | 0.39 | 100 | 3.94 | 158 | 6.22 | 4,2 | 8092403689 |
| | | | | | | | CR140/10-100/114-ring bit set | | | | | | | | |



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 | | |
| Z | S | NS140/10-104-G2-DHD340 | 116 | 4.57 | 12,5 | 8092403478 | NR140/10-104-G2-ring bit set | 10,0 | 0.39 | 104 | 4.09 | 147 | 5.79 | 7,0 | 8092403479 |
| | | NS140/10-104-G2-QL40 | 116 | 4.57 | 12,5 | 8092403519 | | | | | | | | | |
| | E | NE140/10-104-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  | | | | | | |
|-------|----------------------|---|-------------------|------|--------|----------------|---|---------------------------|------|--------|----------------|--|------------------|------|-------------------|------|--------|----------------|
| | | Designation code | Pilot bit Outer ø | | Weight | Product number | Designation code | Casing wall max thickness | | Weight | Product number | Designation code | Ring bit Inner ø | | Pilot bit Outer ø | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | | | | mm | inch | mm | inch | | |
| SE | S | SS140/10-85-G2-DHD340 pilot | 117 | 4.61 | 10,3 | 8092403670 | SP140/10-85-G2-casing shoe | 10,0 | 0.39 | 1,0 | 8092403672 | SS140/10-85-G2-ring bit | 85,0 | 3.35 | 149,4 | 5.88 | 1,9 | 8092403671 |
| | | SS140/10-85-G2-COP44G pilot | 117 | 4.61 | 10,8 | 8092403723 | | | | | | | | | | | | |
| | E | SE140/10-85-G2-DHD340 pilot | 117 | 4.61 | 10,7 | 8092440493 | SP140/8-85-G2-casing shoe | 8,0 | 0.31 | 1,1 | 8092403724 | SE140/10-85-G2-ring bit | 85,0 | 3.35 | 149,4 | 5.88 | 3,5 | 8092440494 |
| | | SE140/10-85-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 | VS152/5.5-126-G2-DHD340 pilot | 139,0 | 5.47 | 14,8 | 8092403635 | VP152/5.5-126-G2-ring bit set | 5,5 | 0.22 | 126,0 | 4.96 | 170 | 6.69 | 4,2 | 8092403637 |
| | | VS152/5.5-126-G2-COP44G pilot | 139,0 | 5.47 | 15,3 | 8092403636 | | | | | | | | | |
| | E | VE152/5.5-126-G2-DHD340 pilot | 139,0 | 5.47 | 15,0 | 8092440470 | | | | | | | | | |
| | | VE152/5.5-126-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 | NS152/10-116-G2-DHD340 | 127 | 5.01 | 16,0 | 8092403480 | NR152/10-116-G2-ring bit set | 10,0 | 0.39 | 116 | 4.57 | 160 | 6.30 | 9,0 | 8092403481 |
| | E | NE152/10-116-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



Ring bit sets for interlocked pile walls can be found on page 39 for various sizes

| 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 | VS168/12.7-123-G2-DHD350 pilot | 141 | 5.55 | 19,2 | 8092403633 | VP168/12.7-123-G2-ring bit set | 12,7 | 0.50 | 123 | 4.84 | 190 | 7.48 | 7,1 | 8092403634 |
| | | VS168/12.7-123-G2-QL50 pilot | 141 | 5.55 | 19,0 | 8092403638 | | | | | | | | | |
| | E | VE168/12.7-123-G2-DHD350 pilot | 141 | 5.55 | 19,4 | 8092440474 | | | | | | | | | |
| W | S | WS168/6-140-G2-DHD350 pilot | 153 | 6.02 | 21,0 | 8092403616 | WP168/6-140-G2-ring bit set | 6,0 | 0.24 | 141,4 | 5.57 | 196 | 7.72 | 8,1 | 8092403618 |
| | | WS168/6-140-G2-QL50 pilot | 153 | 6.02 | 20,8 | 8092403617 | | | | | | | | | |
| | E | WE168/6-140-G2-DHD350 pilot | 153 | 6.02 | 21,3 | 8092440460 | | | | | | | | | |
| | | WE168/6-140-G2-QL50 pilot | 153 | 6.02 | 21,1 | 8092440461 | | | | | | | | | |
| V | S | VS168/5.5-140-G2-DHD350 pilot | 155 | 6.10 | 21,9 | 8092403605 | VP168/5.5-140-G2-ring bit set | 5,5 | 0.22 | 142 | 5.59 | 190 | 7.48 | 5,6 | 8092403606 |
| | | VS168/5.5-140-G2-QL50 pilot | 155 | 6.10 | 21,7 | 8092403611 | | | | | | | | | |
| | E | VE168/5.5-140-G2-DHD350 pilot | 155 | 6.10 | 22,2 | 8092440454 | | | | | | | | | |
| | | VE168/5.5-140-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 | CS168/12.7-123/139-DHD350 pilot | 139 | 5.47 | 19,4 | 8092403690 | CP168/12.7-123/139-ring bit set | 12,7 | 0.50 | 124 | 4.88 | 186,2 | 7.33 | 5,6 | 8092403691 |
| | | CS168/12.7-123/139-QL50 pilot | 139 | 5.47 | 19,2 | 8092403766 | CR168/12.7-123/139-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 | NS168/10-132-G2-DHD350 | 143 | 5.63 | 25,0 | 8092403482 | NR168/10-132-G2-ring bit set | 10,0 | 0.39 | 132 | 5.20 | 177 | 6.97 | 11,5 | 8092403483 |
| | | NS168/10-132-G2-QL50 | 143 | 5.63 | 25,0 | 8092403520 | | | | | | | | | |
| | E | NE168/10-132-G2-DHD350 pilot | 143 | 5.63 | 25,0 | 8092440416 | | | | | | | | | |
| | | NE168/10-132-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   | | | | | | |
|-------|----------------------|---|-------------------|------|--------|----------------|---|---------------------------|------|--------|----------------|--|------------------|------|-------------------|------|--------|----------------|
| | | Designation code | Pilot bit Outer ø | | Weight | Product number | Designation code | Casing wall max thickness | | Weight | Product number | Designation code | Ring bit Inner ø | | Pilot bit Outer ø | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | | | | mm | inch | mm | inch | | |
| SE | S | SS168/12.7-107-G2-DHD350 pilot | 140 | 5.51 | 18,5 | 8092403673 | SP168/12.7-107-G2-casing shoe | 12,7 | 0.50 | 1,5 | 8092403675 | SS168/12.7-107-G2-ring bit | 107 | 4.21 | 178 | 7.01 | 2,7 | 8092403674 |
| | | SS168/12.7-107-G2-QL50 pilot | 140 | 5.51 | 18,3 | 8092403725 | SP168/10-107-G2-casing shoe | 10,0 | 0.39 | 1,7 | 8092403726 | | | | | | | |
| | | | | | | | SP168/8-107-G2-casing shoe | 8,0 | 0.31 | 2,0 | 8092403730 | | | | | | | |
| SE | E | SE168/12.7-107-G2-DHD350 pilot | 140 | 5.51 | 18,9 | 8092440496 | SP168/12.7-107-G2-casing Shoe | 12,7 | 0.50 | 1,5 | 8092403675 | SE168/12.7-107-G2-ring bit | 107 | 4.21 | 178 | 7.01 | 5,2 | 8092440497 |
| | | | | | | | SP168/10-107-G2-casing shoe | 10,0 | 0.39 | 1,7 | 8092403726 | | | | | | | |
| | | | | | | | SP168/8-107-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 | VS178/12.7-131-G2-DHD350 pilot | 150,0 | 5.91 | 21,0 | 8092403654 | VP178/12.7-131-G2-ring bit set | 12,7 | 0.50 | 131 | 5.16 | 200 | 7.87 | 7,7 | 8092403655 |
| | | VS178/12.7-131-G2-QL50 pilot | 150,0 | 5.91 | 20,9 | 8092403657 | | | | | | | | | |
| | E | VE178/12.7-131-G2-DHD350 pilot | 150,0 | 5.91 | 21,3 | 8092440475 | | | | | | | | | |
| W | S | WS178/7-153-G2-DHD360 pilot | 162,2 | 6.39 | 29,2 | 8092403619 | WP178/7-153-G2-ring bit set | 7,0 | 0,28 | 153,4 | 6,04 | 200 | 7,87 | 7,3 | 8092403621 |
| | | WS178/7-153-G2-QL60 pilot | 162,2 | 6.39 | 28,2 | 8092403620 | | | | | | | | | |
| | E | WE178/7-153-G2-DHD360 pilot | 162,2 | 6.39 | 29,4 | 8092440462 | | | | | | | | | |
| | | WE178/7-153-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 | NS178/10-141-G2-DHD350 | 153 | 6.01 | 30,0 | 8092403486 | NR178/10-141-G2-ring bit set | 10,0 | 0.39 | 141 | 5.55 | 187 | 7.36 | 13 | 8092403487 |
| | | NS178/10-141-G2-QL50 | 153 | 6.01 | 30,0 | 8092403521 | | | | | | | | | |
| | E | NE178/10-141-G2-DHD350 pilot | 153 | 6.01 | 30,0 | 8092440417 | | | | | | | | | |
| | | NE178/10-141-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 | VS194/12.7-147-G2-DHD360 pilot | 166 | 6.54 | 32,7 | 8092403609 | VP194/12.7-147-G2-ring bit set | 12,7 | 0.50 | 147 | 5.79 | 220 | 8.66 | 9,5 | 8092403610 |
| | | VS194/12.7-147-G2-QL60 pilot | 166 | 6.54 | 31,6 | 8092403639 | | | | | | | | | |
| | E | VE194/12.7-147-G2-DHD360 pilot | 166 | 6.54 | 33,0 | 8092440476 | | | | | | | | | |
| V | S | VS194/5.5-165-G2-DHD360 pilot | 180 | 7.09 | 36,4 | 8092403607 | VP194/5.5-165-G2-ring bit set | 5,5 | 0.22 | 167 | 6.57 | 220 | 8.66 | 7,2 | 8092403608 |
| | | VS194/5.5-165-G2-QL60 pilot | 180 | 7.09 | 35,4 | 8092403612 | | | | | | | | | |
| | E | VE194/5.5-165-G2-DHD360 pilot | 180 | 7.09 | 36,8 | 8092440455 | | | | | | | | | |
| | | VE194/5.5-165-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 | CS194/12.7-148/165-DHD360 pilot | 165 | 6.50 | 32,8 | 8092403733 | CP194/12.7-148/165-ring bit set | 12,7 | 0.50 | 148 | 5.83 | 214 | 8.43 | 7,5 | 8092403734 |
| | | CS194/12.7-148/165-QL60 pilot | 165 | 6.50 | 31,7 | 8092403822 | CR194/12.7-148/165-ring bit set | 12,7 | 0.50 | 148 | 5.83 | 209 | 8.23 | 7,6 | 8092403740 |



CASING OUTER DIAMETER 193,7 MM (7 5/8") – 219,1 MM (8 5/8")

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



Ring bit sets for interlocked pile walls can be found on page 39 for various sizes

| 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 | NS194/12.7-154-G2-DHD360 | 167 | 6.56 | 35,0 | 8092403488 | NR194/12.7-154-G2-ring bit set | 12,7 | 0.50 | 154 | 6.06 | 203 | 7.99 | 14,0 | 8092403489 |
| | | NS194/12.7-154-G2-QL60 | 167 | 6.56 | 35,0 | 8092403522 | | | | | | | | | |
| | E | NE194/12.7-154-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 | VS219/12.7-171-G2-DHD360 pilot | 190 | 7.48 | 39,1 | 8092403649 | VP219/12.7-171-G2-ring bit set | 12,7 | 0.50 | 171 | 6.73 | 246 | 9.69 | 11,2 | 8092403648 |
| | S | VS219/12.7-171-G2-QL60 pilot | 190 | 7.48 | 39,1 | 8092403768 | | | | | | | | | |
| | E | VE219/12.7-171-G2-DHD360 pilot | 190 | 7.48 | 39,3 | 8092440477 | | | | | | | | | |
| W | S | WS219/6.5-190-G2-DHD360 pilot | 202 | 7.95 | 40,8 | 8092403622 | WP219/6.5-190-G2-ring bit set | 6,5 | 0.26 | 190,4 | 7.50 | 246 | 9.69 | 11,5 | 8092403624 |
| | | WS219/6.5-190-G2-QL60 pilot | 202 | 7.95 | 39,8 | 8092403623 | | | | | | | | | |
| | E | WE219/6.5-190-G2-DHD360 pilot | 202 | 7.95 | 41,0 | 8092440464 | | | | | | | | | |
| | | WE219/6.5-190-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 | NS219/12.7-175-G2-DHD360 pilot | 190 | 7.48 | 45,0 | 8092403484 | NR219/12.7-175-G2-ring bit set | 12,7 | 0.50 | 175 | 6.89 | 227 | 8.95 | 18,6 | 8092403485 |
| | | NS219/12.7-175-G2-QL60 | 190 | 7.48 | 45,0 | 8092403523 | | | | | | | | | |
| | E | NE219/12.7-175-G2-DHD360 pilot | 190 | 7.48 | 45,0 | 8092440415 | | | | | | | | | |
| | | NE219/12.7-175-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 | CS219/12.7-171/188-DHD360 pilot | 188 | 7.40 | 37,1 | 8092403692 | CP219/12.7-171/188-ring bit set | 12,7 | 0.50 | 171 | 6.73 | 240 | 9.45 | 9,4 | 8092403693 |
| | | CS219/12.7-171/188-QL60 pilot | 188 | 7.40 | 36,0 | 8092403823 | CR219/12.7-171/188-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  | | | | | | | | |
|-------|----------------------|---|-------------------|------|--------|---|-------------------------------|---------------------------|------|--|----------------|----------------------------|------------------------------|------|-------------------|------|--------|----------------|
| | | Designation code | Pilot bit Outer ø | | Weight | Product number | Designation code | Casing wall max thickness | | Weight | Product number | Designation code | Ring bit Inner ø | | Pilot bit Outer ø | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | | | | mm | inch | mm | inch | | |
| SE | S | SS219/12.7-151-G2-DHD360 pilot | 190 | 7.48 | 37,7 | 8092403679 | SP219/12.7-151-G2-casing shoe | 12,7 | 0.50 | 2,4 | 8092403681 | SS219/12.7-151-G2-ring bit | 151 | 5.94 | 230 | 9.06 | 4,3 | 8092403680 |
| | | SS219/12.7-151-G2-QL60 pilot | 190 | 7.48 | 36,6 | 8092403731 | SP219/10-151-G2-casing shoe | 10,0 | 0.50 | 2,7 | 8092403735 | | SS219/12.7-151-G2-OD277 Ring | 151 | 5.94 | 277 | 10.91 | 8,6 |
| | | | | | | | SP219/8-151-G2-casing shoe | 8,0 | 0.31 | 3,0 | 8092403812 | | | | | | | |
| SE | E | SE219/12.7-151-G2-DHD360 pilot | 190 | 7.48 | 38,6 | 8092440499 | SP219/12.7-151-G2-casing shoe | 12,7 | 0.50 | 2,4 | 8092403681 | SE219/12.7-151-G2-ring bit | 151 | 5.94 | 230 | 9.06 | 8,5 | 8092440500 |
| | | SE219/12.7-151-G2-QL60 pilot | 190 | 7.48 | 37,5 | 8092440514 | SP219/10-151-G2-casing shoe | 10,0 | 0.39 | 2,7 | 8092403735 | | | | | | | |
| | | | | | | | SP219/8-151-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 | S | VS245/12.7-200-G2-DHD380 pilot | 216 | 8.50 | 63,0 | 8092403660 | VP245/12.7-200-G2-ring bit set | 12,7 | 0.50 | 199 | 7.83 | 269,6 | 10.61 | 12,0 | 8092403656 |
| | E | VE245/12.7-200-G2-DHD380 pilot | 216 | 8.50 | 63,2 | 8092440472 | | | | | | | | | |

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

| Model | Symmetrix/ Elemex | Pilot bit  | | | | Casing shoe  | | | | Ring bit  | | | | | | | | |
|-------|----------------------|---|-------------------|------|--------|---|-------------------------------|---------------------------|------|--|----------------|----------------------------|------------------|------|-------------------|-------|--------|----------------|
| | | Designation code | Pilot bit Outer ø | | Weight | Product number | Designation code | Casing wall max thickness | | Weight | Product number | Designation code | Ring bit Inner ø | | Pilot bit Outer ø | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | | | | mm | inch | mm | inch | | |
| SE | S | SS245/12.7-171-G2-DHD380 pilot | 213 | 8.39 | 59,3 | 8092403685 | SP245/12.7-171-G2-casing shoe | 12,7 | 0.50 | 3,0 | 8092403687 | SS245/12.7-171-G2-ring bit | 171 | 6.73 | 257,8 | 10.15 | 6,3 | 8092403686 |
| | | SS245/12.7-171-G2-QL80 pilot | 213 | 8.39 | 59,3 | 8092403736 | SP245/10-171-G2-casing shoe | 10,0 | 0.39 | 3,5 | 8092403737 | | | | | | | |
| | | | | | | | SP245/8-171-G2-casing shoe | 8,0 | 0.31 | 3,7 | 8092403738 | | | | | | | |
| SE | E | SE245/12.7-171-G2-DHD380 pilot | 213 | 8.39 | 60,4 | 8092440502 | SP245/12.7-171-G2-casing shoe | 12,7 | 0.50 | 3,0 | 8092403687 | SE245/12.7-171-G2-ring bit | 171 | 6.73 | 257,8 | 10.15 | 11,6 | 8092440503 |
| | | SE245/12.7-171-G2-QL80 pilot | 213 | 8.39 | 60,4 | 8092440515 | SP245/10-171-G2-casing shoe | 10,0 | 0.39 | 3,5 | 8092403737 | | | | | | | |
| | | | | | | | SP245/8-171-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



Ring bit sets for interlocked pile walls can be found on page 39 for various sizes

| 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 | S | NS254/12.7-207-G2-DHD380 pilot | 223 | 8.79 | 70,0 | 8092403492 | NR254/12.7-207-G2-ring bit set | 12,7 | 0.50 | 207 | 8.15 | 266 | 10.47 | 20,0 | 8092403493 |
| | E | NE254/12.7-207-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 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 | WS273/8-240-G2-DHD380 pilot | 254 | 10.0 | 75,6 | 8092403625 | WP273/8-240-G2-ring bit set | 8,0 | 0.31 | 240,2 | 9.46 | 303 | 11.93 | 17,6 | 8092403627 |
| | | WS273/8-240-G2-QL80 pilot | 254 | 10.0 | 75,7 | 8092403626 | | | | | | | | | |
| | E | WE273/8-240-G2-DHD380 pilot | 254 | 10.0 | 75,9 | 8092440466 | | | | | | | | | |
| | | WE273/8-240-G2-QL80 pilot | 254 | 10.0 | 76,0 | 8092440467 | | | | | | | | | |
| V | S | VS273/12.7-227-G2-DHD380 pilot | 245 | 9.65 | 79,0 | 8092403650 | VP273/12.7-227-G2-ring bit set | 12,7 | 0.50 | 228 | 8.98 | 302 | 11.89 | 14,9 | 8092403651 |
| | | VS273/12.7-227-G2-QL80 pilot | 245 | 9.65 | 79,1 | 8092403729 | | | | | | | | | |
| | E | VE273/12.7-227-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 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 | S | NS273/12.7-226-G2-DHD380 pilot | 242 | 9.54 | 100 | 8092403494 | NR273/12.7-226-G2-ring bit set | 12,7 | 0.50 | 226 | 8.90 | 285 | 11.22 | 30,0 | 8092403495 |
| | E | NE273/12.7-226-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 | CS273/12.7-222/241-DHD380 pilot | 240,6 | 9.47 | 72,6 | 8092403694 | CP273/12.7-222/241-ring bit set | 12,7 | 0.50 | 222,6 | 8,76 | 295,6 | 11.64 | 14,6 | 8092403695 |
| | | CS273/12.7-222/241-QL80 pilot | 240,6 | 9.47 | 72,5 | 8092403825 | CR273/12.7-222/241-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  | | | | | | | | |
|-------|----------------------|---|-------------------|------|--------|---|-------------------------------|---------------------------|------|--|----------------|----------------------------|------------------|------|-------------------|-------|--------|----------------|
| | | Designation code | Pilot bit Outer ø | | Weight | Product number | Designation code | Casing wall max thickness | | Weight | Product number | Designation code | Ring bit Inner ø | | Pilot bit Outer ø | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | | | | mm | inch | mm | inch | | |
| SE | S | SS273/12.7-201-G2-DHD380 pilot | 241 | 9.49 | 79,0 | 8092403718 | SP273/12.7-201-G2-casing shoe | 12,7 | 0.50 | 3,5 | 8092403720 | SS273/12.7-201-G2-ring bit | 201 | 7.91 | 288 | 11.34 | 7,5 | 8092403719 |
| | | SS273/12.7-201-G2-QL80 pilot | 241 | 9.49 | 72,6 | 8092403739 | SP273/10-201-G2-casing shoe | 10,0 | 0.39 | 3,9 | 8092403741 | | | | | | | |
| | | | | | | SP273/8-201-G2-casing shoe | 8,0 | 0.31 | 4,2 | 8092403742 | | | | | | | | |
| SE | E | SE273/12.7-201-G2-DHD380 pilot | 241 | 9.49 | 74,3 | 8092440504 | SP273/12.7-201-G2-casing shoe | 12,7 | 0.50 | 3,5 | 8092403720 | SE273/12.7-201-G2-ring bit | 201 | 7.91 | 288 | 11.34 | 13,8 | 8092440505 |
| | | SE273/12.7-201-G2-QL80 pilot | 241 | 9.49 | 74,2 | 8092440516 | SP273/10-201-G2-casing shoe | 10,0 | 0.39 | 3,9 | 8092403741 | | | | | | | |
| | | | | | | SP273/8-201-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



Ring bit sets for interlocked pile walls can be found on page 39 for various sizes

| 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 | WS324/10-282-G2-DHD380 pilot | 298 | 11.73 | 99,3 | 8092403628 | WP324/10-282-G2-ring bit set | 10,0 | 0.39 | 282 | 11.10 | 350 | 13.78 | 22,9 | 8092403630 |
| | | WS324/10-282-G2-QL80 pilot | 298 | 11.73 | 99,5 | 8092403629 | | | | | | | | | |
| | | WS324/10-282-G2-QLX100 pilot | 298 | 11.73 | 126,5 | 8092403644 | | | | | | | | | |
| | E | WE324/10-282-G2-DHD380 pilot | 298 | 11.73 | 99,4 | 8092440468 | | | | | | | | | |
| | | WE324/10-282-G2-QL80 pilot | 298 | 11.73 | 99,5 | 8092440469 | | | | | | | | | |
| | | WE324/10-282-G2-QLX100 pilot | 298 | 11.73 | 126,4 | 8092440456 | | | | | | | | | |
| V | S | VS324/12.7-273-G2-DHD380 pilot | 292 | 11.50 | 97,2 | 8092403652 | VP324/12.7-273-G2-ring bit set | 12,7 | 0.50 | 273 | 10.75 | 352,6 | 13.88 | 18,9 | 8092403653 |
| | | VS324/12.7-273-G2-QLX100 pilot | 292 | 11.50 | 124,2 | 8092403767 | | | | | | | | | |
| | E | VE324/12.7-273-G2-DHD380 pilot | 292 | 11.50 | 97,0 | 8092440479 | | | | | | | | | |
| | | VE324/12.7-273-G2-QLX100 pilot | 292 | 11.50 | 124,0 | 8092440495 | | | | | | | | | |





CASING 323,9 MM (12 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 | CS324/12.7-273/291-DHD380 pilot | 291,4 | 11.47 | 97,7 | 8092403696 | CP324/12.7-273/291-ring bit set | 12,7 | 0.50 | 273,4 | 10.76 | 346,4 | 13.64 | 17,3 | 8092403697 |
| | | CS324/12.7-273/291-QL80 pilot | 291,4 | 11.47 | 97,6 | 8092403827 | | | | | | | | | |
| | | CS324/12.7-273/291-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 | | |
| Z | S | NS324/12.7-273-G2-DHD380 pilot | 272 | 10.72 | 150 | 8092403551 | NR324/12.7-273-G2-ring bit set | 12,7 | 0.50 | 273 | 10.75 | 338 | 13.31 | 10,72 | 8092403547 |
| | | NS324/12.7-273-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   | | | | | | | | |
|-------|----------------------|---|-------------------|-------|--------|---|-------------------------------|---------------------------|------|--|----------------|----------------------------|------------------|------|-------------------|-------|--------|----------------|
| | | Designation code | Pilot bit Outer ø | | Weight | Product number | Designation code | Casing wall max thickness | | Weight | Product number | Designation code | Ring bit Inner ø | | Pilot bit Outer ø | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | | | | mm | inch | mm | inch | | |
| SE | S | SS324/12.7-254-G2-DHD380 pilot | 291 | 11.46 | 99,2 | 8092403682 | SP324/12.7-254-G2-casing shoe | 12,7 | 0.50 | 4,3 | 8092403684 | SS324/12.7-254-G2-ring bit | 254 | 10.0 | 377 | 13.27 | 9,1 | 8092403683 |
| | | SS324/12.7-254-G2-QL80 pilot | 291 | 11.46 | 99,2 | 8092403743 | SP324/10-254-G2-casing shoe | 10,0 | 0.39 | 4,8 | 8092403749 | | | | | | | |
| | | SS324/12.7-254-G2-QLX100 pilot | 291 | 11.46 | 126,2 | 8092403747 | SP324/8-254-G2-casing shoe | 8,0 | 0.31 | 5,2 | 8092403750 | | | | | | | |
| SE | E | SE324/12.7-254-G2-DHD380 pilot | 291 | 11.46 | 101,2 | 8092440506 | SP324/12.7-254-G2-casing shoe | 12,7 | 0.50 | 4,3 | 8092403684 | SE324/12.7-254-G2-ring bit | 254 | 10.0 | 377 | 13.27 | 17,0 | 8092440507 |
| | | SE324/12.7-254-G2-QL80 pilot | 291 | 11.46 | 101,2 | 8092440517 | SP324/10-254-G2-casing shoe | 10,0 | 0.39 | 4,8 | 8092403749 | | | | | | | |
| | | SE324/12.7-254-G2-QLX100 pilot | 291 | 11.46 | 101,2 | 8092440518 | SP324/8-254-G2-casing shoe | 8,0 | 0.31 | 5,2 | 8092403750 | | | | | | | |

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

Ring bit sets for interlocked pile walls can be found on page 39 for various sizes

| 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 | WS356/12,7-310-G2-QLX100 Pilot | 326 | 12.83 | 143 | 8092403977 | WS356/12,7-310-G2-Ring Bit Set | 12,7 | 0.50 | 310 | 12.20 | 383 | 15.08 | 28 | 8092403959 |
| | | WS356/12,7-310-G2-Numa100 Pilot | 326 | 12.83 | 140 | 8092403980 | | | | | | | | | |

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 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 | VS406/12.7-356-G2-DHD112 pilot | 375 | 14.76 | 196 | 8092403699 | VP406/12.7-356-G2-ring bit set | 12,7 | 0.50 | 356 | 14.02 | 434 | 17.09 | 22,6 | 8092403700 |
| | | VS406/12.7-356-G2-QL120 pilot | 375 | 14.76 | 225,8 | 8092403701 | | | | | | | | | |
| | E | VE406/12.7-356-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 | CS406/16-348/368-QL120 pilot | 368 | 14.49 | 217,7 | 8092403702 | CP406/16-348/368-ring bit set | 16,0 | 0.63 | 348 | 13.70 | 431 | 16.97 | 26,1 | 8092403703 |
| | | CS406/16-348/368-DHD112 pilot | 368 | 14.49 | 188,6 | 8092403842 | CR406/16-348/368-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 | NS406/12.7-352-G2-QL120 pilot | 370 | 14.57 | 260 | 8092403568 | NR406/12.7-352-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/EI- emex | Pilot bit  | | | | Casing shoe  | | | | Ring bit  | | | | | | | | |
|-------|-----------------------|---|-------------------|-------|--------|---|-------------------------------|---------------------------|------|--|----------------|--------------------------|------------------|-------|-------------------|-------|--------|----------------|
| | | Designation code | Pilot bit Outer ø | | Weight | Product number | Designation code | Casing wall max thickness | | Weight | Product number | Designation code | Ring bit Inner ø | | Pilot bit Outer ø | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | | | | mm | inch | mm | inch | | |
| SE | S | SS406/16-328-G2-DHD112 pilot | 370 | 14.57 | 197 | 8092403744 | SP406/16-328-G2-casing shoe | 16,0 | 0.63 | 6,1 | 8092403746 | SS406/16-328-G2-ring bit | 328 | 12.91 | 418 | 16.46 | 12,3 | 8092403745 |
| | | | | | | | SP406/12.7-328-G2-casing shoe | 12,7 | 0.50 | 6,9 | 8092403755 | | | | | | | |
| | | SS406/16-328-G2-QL120 pilot | 370 | 14.57 | 226,3 | 8092403754 | SP406/10-328-G2-casing shoe | 10,0 | 0.39 | 7,5 | 8092403756 | | | | | | | |
| | | | | | | | SP406/8-328-G2-casing shoe | 8,0 | 0.31 | 8,1 | 8092403795 | | | | | | | |
| SE | E | SE406/16-328-G2-DHD112 pilot | 370 | 14.57 | 200,2 | 8092440521 | SP406/16-328-G2-casing shoe | 16,0 | 0.63 | 6,1 | 8092403746 | SE406/16-328-G2-ring bit | 328 | 12.91 | 418 | 16,46 | 22,8 | 8092440510 |
| | | | | | | | SP406/12.7-328-G2-casing shoe | 12,7 | 0.50 | 6,9 | 8092403755 | | | | | | | |
| | | SE406/16-328-G2-QL120 pilot | 370 | 14.57 | 229,4 | 8092440509 | SP406/10-328-G2-casing shoe | 10,0 | 0.39 | 7,5 | 8092403756 | | | | | | | |
| | | | | | | | SP406/8-328-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")

Ring bit sets for interlocked pile walls can be found on page 39 for various sizes

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 | CS508/16-447/468-QL120 pilot | 468 | 18.43 | 330,7 | 8092403764 | CP508/16-447/468-ring bit set | 16,0 | 0.63 | 447 | 17.60 | 533 | 20.98 | 39,4 | 8092403765 |
| | E | CE508/16-447/468-QL120 pilot | 468 | 18.43 | 330,6 | 8092440524 | CR508/16-447/468-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  | | | | | | | | |
|-------|----------------------|---|-------------------|-------|--------|---|-------------------------------|---------------------------|------|--|----------------|--------------------------|------------------|-------|-------------------|-------|--------|----------------|
| | | Designation code | Pilot bit Outer ø | | Weight | Product number | Designation code | Casing wall max thickness | | Weight | Product number | Designation code | Ring bit Inner ø | | Pilot bit Outer ø | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | | | | mm | inch | mm | inch | | |
| SE | S | SS508/16-426-G2-QL120 pilot | 470 | 18.50 | 336,2 | 8092403751 | SP508/16-426-G2-casing shoe | 16,0 | 0.63 | 8,8 | 8092403753 | SS508/16-426-G2-ring bit | 426 | 16.77 | 518 | 20.39 | 16,7 | 8092403752 |
| | | | | | | | SP508/12.7-426-G2-casing shoe | 12,7 | 0.50 | 10 | 8092403758 | | | | | | | |
| | | SS508/16-426-G2-QL200 pilot | 470 | 18.50 | 390 | 8092403757 | SP508/10-426-G2-casing shoe | 10,0 | 0.39 | 10,9 | 8092403761 | | | | | | | |
| | | | | | | | SP508/8-426-G2-casing shoe | 8,0 | 0.31 | 11,7 | 8092403796 | | | | | | | |
| SE | E | SE508/16-426-G2-QL120 pilot | 470 | 18.50 | 392,8 | 8092440511 | SP508/16-426-G2-casing shoe | 16,0 | 0.63 | 8,8 | 8092403753 | SE508/16-426-G2-ring bit | 426 | 16.77 | 518 | 20.39 | 31,1 | 8092440512 |
| | | | | | | | SP508/12.7-426-G2-casing shoe | 12,7 | 0.50 | 10 | 8092403758 | | | | | | | |
| | | | | | | | SP508/10-426-G2-casing shoe | 10,0 | 0.39 | 10,9 | 8092403761 | | | | | | | |
| | | | | | | | SP508/8-426-G2-casing shoe | 8,0 | 0.31 | 11,7 | 8092403796 | | | | | | | |

Ring bit sets for interlocked pile walls can be found on page 39 for various sizes

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 | CS610/16-545/568-QL200 pilot | 568 | 22,36 | 486,5 | 8092403704 | CP610/16-545/568-ring bit set | 16,0 | 0,63 | 545 | 21,46 | 638 | 25,12 | 53,5 | 8092403705 |
| | E | CE610/16-545/568-QL200 pilot | 568 | 22,36 | 486,3 | 8092440486 | CR610/16-545/568-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 | NE610/12.7-555-G2-QL200 pilot | 553 | 21.77 | 550 | 8092440443 | NR610/12.7-555-G2-ring bit set | 12,7 | 0.50 | 555 | 21.85 | 637 | 25.08 | 132 | 8092403553 |
| | | NE610/12.7-555-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





Ring bit sets for interlocked pile walls can be found on page 39 for various sizes

| Model | Symmetrix/ Elemex | Pilot bit  | | | | | Casing shoe  | | | | | Ring bit   | | | | | | |
|-------|----------------------|---|-------------------|-------|--------|----------------|---|---------------------------|------|--------|----------------|--|------------------|-------|-------------------|-------|--------|----------------|
| | | Designation code | Pilot bit Outer ø | | Weight | Product number | Designation code | Casing wall max thickness | | Weight | Product number | Designation code | Ring bit Inner ø | | Pilot bit Outer ø | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | | | | mm | inch | mm | inch | | |
| SE | S | SS610/16-527-G2-QL200 pilot | 571 | 22.48 | 504.6 | 8092403759 | SP610/16-527-G2-casing shoe | 16,0 | 0.63 | 11,2 | 8092403714 | SS610/16-527-G2-ring bit | 527 | 20.75 | 622 | 24.49 | 21,2 | 8092403760 |
| | | | | | | | SP610/14.2-527-G2-casing shoe | 14,0 | 0.55 | 12,1 | 8092403762 | | | | | | | |
| | | | | | | | SP610/12.7-527-G2-casing shoe | 12,7 | 0.50 | 12,6 | 8092403763 | | | | | | | |
| | | | | | | | SP610/10-527-G2-casing shoe | 10,0 | 0.39 | 14,1 | 8092403797 | | | | | | | |
| | | | | | | | SP610/8-527-G2-casing shoe | 8,0 | 0.31 | 15,1 | 8092403798 | | | | | | | |
| SE | E | SE610/16-527-G2-QL200 pilot | 571 | 22.48 | 548 | 8092440491 | SP610/16-527-G2-casing shoe | 16,0 | 0.63 | 11,2 | 8092403714 | SE610/16-527-G2-ring bit | 527 | 20.75 | 622 | 24.49 | 36,9 | 8092440492 |
| | | | | | | | SP610/14.2-527-G2-casing shoe | 14,0 | 0.55 | 12,1 | 8092403762 | | | | | | | |
| | | | | | | | SP610/12.7-527-G2-casing shoe | 12,7 | 0.50 | 12,6 | 8092403763 | | | | | | | |
| | | | | | | | SP610/10-527-G2-casing shoe | 10,0 | 0.39 | 14,1 | 8092403797 | | | | | | | |
| | | | | | | | SP610/8-527-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 | CS711/19-640/663-QL200S pilot | 663 | 26.10 | 880,4 | 8092403706 | CP711/19-640/663-ring bit set | 19,0 | 0.75 | 640 | 25.20 | 739 | 29.09 | 68,6 | 8092403707 |
| | E | CE711/19-640/663-QL200S pilot | 663 | 26.10 | 873,2 | 8092440487 | CR711/19-640/663-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/EI-emex | Pilot bit  | | | | | Casing shoe  | | | | Ring bit   | | | | | | | |
|-------|-------------------|---|-------------------|-------|--------|----------------|---|---------------------------|------|--------|--|--------------------------|------------------|-------|-------------------|-------|--------|----------------|
| | | Designation code | Pilot bit Outer ø | | Weight | Product number | Designation code | Casing wall max thickness | | Weight | Product number | Designation code | Ring bit Inner ø | | Pilot bit Outer ø | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | | | | mm | inch | mm | inch | | |
| SE | S | SS711/16-619-G2-QL200S pilot | 669 | 26.34 | 898,1 | 8092403771 | SP711/16-619-G2-casing shoe | 16,0 | 0.63 | 15,7 | 8092403773 | SS711/16-619-G2-ring bit | 619 | 24.37 | 728 | 28.66 | 33,4 | 8092403772 |
| | | | | | | | SP711/14.2-619-G2-casing shoe | 14,0 | 0.55 | 16,6 | 8092403799 | | | | | | | |
| | | | | | | | SP711/12.7-619-G2-casing shoe | 12,7 | 0.50 | 17,4 | 8092403800 | | | | | | | |
| | | | | | | | SP711/10-619-G2-casing shoe | 10,0 | 0.39 | 18,8 | 8092403801 | | | | | | | |
| | | | | | | | SP711/8-619-G2-casing shoe | 8,0 | 0.31 | 19,9 | 8092403802 | | | | | | | |
| SE | E | SE711/16-619-G2-QL200S pilot | 669 | 26.34 | 905 | 8092440519 | SP711/16-619-G2-casing shoe | 16,0 | 0.63 | 15,7 | 8092403773 | SE711/16-619-G2-ring bit | 619 | 24.37 | 728 | 28.66 | 59,6 | 8092440520 |
| | | | | | | | SP711/14.2-619-G2-casing shoe | 14,0 | 0.55 | 16,6 | 8092403799 | | | | | | | |
| | | | | | | | SP711/12.7-619-G2-casing shoe | 12,7 | 0.50 | 17,4 | 8092403800 | | | | | | | |
| | | | | | | | SP711/10-619-G2-casing shoe | 10,0 | 0.39 | 18,8 | 8092403801 | | | | | | | |
| | | | | | | | SP711/8-619-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 & RETRIEVABLE, DTH

Ring bit sets for interlocked pile walls can be found on page 39 for various sizes



| 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 | CS813/20-736/762-QL200S pilot | 762 | 30.0 | 1074,2 | 8092403710 | CP813/20-736/762-ring bit set | 20,0 | 0.79 | 736 | 28.98 | 839 | 33.03 | 82,0 | 8092403711 |
| | E | CE813/20-736/762-QL200S pilot | 762 | 30.0 | 1063,3 | 8092440488 | CR813/20-736/762-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  | | | | | | | |
|-------|----------------------|---|-------------------|-------|--------|----------------|---|---------------------------|------|--------|--|--------------------------|------------------|-------|-------------------|-------|--------|----------------|
| | | Designation code | Pilot bit Outer ø | | Weight | Product number | Designation code | Casing wall max thickness | | Weight | Product number | Designation code | Ring bit Inner ø | | Pilot bit Outer ø | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | | | | mm | inch | mm | inch | | |
| SE | S | SS813/20-708-G2-QL200S pilot | 760 | 29,92 | 1143,6 | 8092403774 | SP813/20-708-G2-casing shoe | 20,0 | 0.79 | 24,1 | 8092403776 | SS813/20-708-G2-ring bit | 708 | 27,87 | 830 | 32,68 | 45,2 | 8092403775 |
| | | | | | | | SP813/16-708-G2-casing shoe | 16,0 | 0.63 | 26,3 | 8092403803 | | | | | | | |
| | | | | | | | SP813/14.2-708-G2-casing shoe | 14,0 | 0.55 | 27,3 | 8092403804 | | | | | | | |
| | | | | | | | SP813/12.7-708-G2-casing shoe | 12,7 | 0.50 | 28,1 | 8092403777 | | | | | | | |
| | | | | | | | SP813/10-708-G2-casing shoe | 10,0 | 0.39 | 29,5 | 8092403805 | | | | | | | |
| | | | | | | | SP813/8-708-G2-casing shoe | 8,0 | 0.31 | 30,5 | 8092403806 | | | | | | | |
| SE | E | SE813/20-708-G2-QL200S pilot | 760 | 29,92 | 1121,3 | 8092440522 | SP813/20-708-G2-casing shoe | 20,0 | 0.79 | 24,1 | 8092403776 | SE813/20-708-G2-ring bit | 708 | 27,87 | 830 | 32,68 | 80,5 | 8092440523 |
| | | | | | | | SP813/16-708-G2-casing shoe | 16,0 | 0.63 | 26,3 | 8092403803 | | | | | | | |
| | | | | | | | SP813/14.2-708-G2-casing shoe | 14,0 | 0.55 | 27,3 | 8092403804 | | | | | | | |
| | | | | | | | SP813/12.7-708-G2-casing shoe | 12,7 | 0.50 | 28,1 | 8092403777 | | | | | | | |
| | | | | | | | SP813/10-708-G2-casing shoe | 10,0 | 0.39 | 29,5 | 8092403805 | | | | | | | |
| | | | | | | | SP813/8-708-G2-casing shoe | 8,0 | 0.31 | 30,5 | 8092403806 | | | | | | | |

Ring bit sets for interlocked pile walls can be found on page 39 for various sizes

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

| Model | Symmetrix/ Elemex | Pilot bit  | | | | | Ring bit set  | | | | | | | | |
|-------|----------------------|---|--------------------------|-------|--------|----------------|---|---------------------------|------|-------------------------|-------|-------------------------|-------|--------|----------------|
| | | Designation code | Pilot bit Outer σ | | Weight | Product number | Designation code | Casing wall max thickness | | Ring bit Inner σ | | Ring bit Outer σ | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | mm | inch | mm | inch | | |
| C | S | CS914/20-831/862-QL200S pilot | 862 | 33.94 | 1531 | 8092403788 | CP914/20-831/862-ring bit set | 20,0 | 0.79 | 831 | 32.72 | 942 | 37.09 | 96,8 | 8092403789 |
| | | | | | | | CR914/20-831/862-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/ Elemex | Pilot bit  | | | | | Casing shoe  | | | | Ring bit  | | | | | | | |
|-------|----------------------|---|--------------------------|-------|--------|----------------|---|---------------------------|------|--------|--|--------------------------|-------------------------|-------|--------------------------|-------|--------|----------------|
| | | Designation code | Pilot bit Outer σ | | Weight | Product number | Designation code | Casing wall max thickness | | Weight | Product number | Designation code | Ring bit Inner σ | | Pilot bit Outer σ | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | | | | mm | inch | mm | inch | | |
| SE | S | SS914/20-806-G2-QL200S pilot | 862 | 33,94 | 1531 | 8092403778 | SP914/20-806-G2-casing shoe | 20,0 | 0.79 | 27,0 | 8092403780 | SS914/20-806-G2-ring bit | 808 | 31,81 | 932 | 36,69 | 54,6 | 8092403779 |
| | | | | | | | SP914/16-806-G2-casing shoe | 16,0 | 0.63 | 30,0 | 8092403781 | | | | | | | |
| | | | | | | | SP914/14.2-806-G2-casing shoe | 14,2 | 0.56 | 31,3 | 8092403807 | | | | | | | |
| | | | | | | | SP914/12.7-806-G2-casing shoe | 12,7 | 0.50 | 32,4 | 8092403782 | | | | | | | |
| | | | | | | | SP914/10-806-G2-casing shoe | 10,0 | 0.39 | 34,5 | 8092403808 | | | | | | | |
| | | | | | | | SP914/8-806-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.

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 1016 MM (40") – 1219 MM (48")

Ring bit sets for interlocked pile walls can be found on page 39 for various sizes




CASING 1016 MM (40") 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 | CS1016/20-931/962-QL200S pilot | 962 | 37.87 | 1678,3 | 8092403790 | CP1016/20-931/962-ring bit set | 20,0 | 0.79 | 931 | 36.65 | 1044 | 41.10 | 109,8 | 8092403791 |
| | | CS1016/20-931/962-QL300 pilot | 962 | 37.87 | 2031,8 | 8092403792 | CR1016/20-931/962-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 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 | CS1219/20-1132/1165-QL300S pilot | 1165 | 45,87 | 3685,7 | 8092403793 | CP1219/20-1132/1165-ring bit set | 20,0 | 0.79 | 1132 | 44.57 | 1250 | 49.21 | 140 | 8092403794 |
| | | | | | | | CR1219/20-1132/1165-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  | | | | | | | | |
|-------|----------------------|---|-------------------|-------|--------|---|---------------------------------|---------------------------|------|--|----------------|----------------------------|------------------|-------|-------------------|-------|--------|----------------|
| | | Designation code | Pilot bit Outer ø | | Weight | Product number | Designation code | Casing wall max thickness | | Weight | Product number | Designation code | Ring bit Inner ø | | Pilot bit Outer ø | | Weight | Product number |
| | | | mm | inch | | | | mm | inch | | | | mm | inch | mm | inch | | |
| SE | S | SS1219/20-1106-G2-QL300S pilot | 1166 | 45,91 | 2852 | 8092403783 | SP1219/20-1106-G2-casing shoe | 20,0 | 0.79 | 40,3 | 8092403785 | SS1219/20-1106-G2-ring bit | 1103 | 43,43 | 1233 | 48.54 | 134 | 8092403784 |
| | | | | | | | SP1219/16-1106-G2-casing shoe | 16,0 | 0.63 | 44,0 | 8092403786 | | | | | | | |
| | | | | | | | SP1219/14.2-1106-G2-casing shoe | 14,2 | 0.56 | 45,6 | 8092403810 | | | | | | | |
| | | | | | | | SP1219/12.7-1106-G2-casing shoe | 12,7 | 0.50 | 47,0 | 8092403787 | | | | | | | |
| | | | | | | | SP1219/10-1106-G2-casing shoe | 10,0 | 0.39 | 49,3 | 8092403811 | | | | | | | |

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.

RING BIT SET FOR INTERLOCKED PILE-WALL

| Ring bit set  | | | | | | | | |
|--|---------------------------|-------|-----------------------|--------|-----------------------|--------|-------------|----------------|
| Designation code | Casing wall max thickness | | Ring bit Inner ϕ | | Ring bit Outer ϕ | | Weight (kg) | Product number |
| | mm | inch | mm | inch | mm | inch | | |
| VP140/5-115-G2-OD180-RB Set | 5 | 0.2 | 115 | 4.52 | 180 | 7.09 | 5 | 8092403959 |
| VP168/12.7-123-G2-OD226-RB Set | 12.7 | 0.5 | 123 | 4.843 | 226 | 8.898 | 9.5 | 8092403963 |
| VP219/12.7-171-G2-OD277-RB Set | 12.7 | 0.5 | 171 | 6.732 | 277 | 10.906 | 13.9 | 8092403859 |
| VP273/12.7-227-G2-OD330 -RB Set | 12.7 | 0.5 | 227 | 8.937 | 330 | 12.992 | 15.4 | 8092403899 |
| VP324/12.7-273-G2-OD382-RB Set | 12.7 | 0.5 | 273 | 10.748 | 382 | 15.039 | 22.6 | 8092403991 |
| VP406/12.7-356-G2-OD462-RB Set | 12.7 | 0.5 | 356 | 14.016 | 462 | 18.189 | 26.8 | 8092403884 |
| CP508/16-447/468-OD564-RB Set | 16 | 0.63 | 447 | 17.598 | 564 | 22.205 | 46.5 | 8092403770 |
| CP610/16-545/568-OD667-RB Set | 16 | 0.63 | 545 | 21.457 | 667 | 26.26 | 63.5 | 8092403888 |
| CP711/20-638/660-OD767 RB Set | 20 | 0.787 | 638 | 25.118 | 767 | 30.197 | 82 | 8092403990 |
| CP813/20-736/762-OD868-RB Set | 20 | 0.787 | 736 | 28.976 | 865 | 34.055 | 92.4 | 8092403951 |
| CP914/20-831/862-OD968-RB Set | 20 | 0.787 | 831 | 32.717 | 966 | 38.032 | 107 | 8092403952 |
| CP1016/20-931/962-OD1067 Set | 20 | 0.787 | 931 | 36.653 | 1067 | 42.008 | 120.3 | 8092403898 |



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Roanoke, Virginia, 24019
USA