

Sonic drilling equipment

Product introduction



Meet the difference



CRS-V at work at an environmental site in France taking samples and installing 2" monitoring wells. The CRS-V is a compact but very strong sonic drill perfect for working in confined spaces as it is only 1.7m / 5.57' wide.

Introduction

For over 100 years quality, reliability and innovation are deeply anchored in to our company DNA. In these 100 years the family owned company has grown from village forge to international operating company with customers on all continents.

Eijkelkamp SonicSampDrill products are the result of industry changing innovations and designed by people that carry the same standards and values as our company DNA. We are proud of our innovations of the past. For the future we seek to stretch boundaries and are committed to continual improvement.

Eijkelkamp SonicSampDrill products will increase productivity. Not just by our unique sonic drilling method, but also due to product field training in your local environment. Our product line is designed to be safer and more ergonomic than the industry standard. High quality components are designed and selected for our products to insure product reliability. All drill rigs are put through a series of field tests before leaving our factory. This will ensure that our drilling rigs can handle the challenges that you are facing out in the field; making the impossible possible.

This catalog will bring you the Eijkelkamp SonicSampDrill product line.

Are you ready to meet the difference in sonic drilling?

Content

5 Our method of drilling

6 Sonic drill rigs

- 7 SmallRotoSonic
- 9 SRS PL
- 11 CompactRotoSonic
- 13 CRS Mito8
- 15 MidRotoSonic
- 17 LargeRotoSonic

19 Sonic Samplers

- 21 SONIC Sampler selection
- 23 Aqualock
- 24 Single Wall Core barrel
- 26 Dual Wall Core barrel

28 Sonic Tooling

- 30 G Series tooling
- 31 Tooling 3x5x7 and 4x6x8x10
- 33 Sonic Wireline
- 35 Sonic CPT
- 37 Drilltracker
- 39 ManipAll

© 2017, SonicSampDrill, daughter company of Royal Eijkelkamp. Issued in own management. All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or in any other way without the prior written consent of the publisher.

www.sonicsampdrill.com



CRS XL sampling for bauxite in Suriname, South America. Taking 4" core samples up to maximum 50m / 164' depth.

Our method of drilling

The Eijkelkamp SonicSampDrill drilling technique uses high frequency resonant technology. During drilling the resonant energy is transferred down the drill string to the drill bit, while simultaneously rotating the drill string making it possible to go through harder materials. Eccentrics inside the sonic drill head generate the resonant energy. The sonic driller controls the resonant and rotation energy to match the formation being penetrated. This results in a reduction of soil resistance and thereby high penetration rates. Sonic drilling is suited for penetration of (very) soft, mixed and harder formations (all overburden types) as well provides a highly undisturbed sample. It will also provide the highest recovery percentage possible.

The Eijkelkamp SonicSampDrill drilling method is the smartest drilling technique for all overburden formations!

Feel the sonic vibe!

Added value of Eijkelkamp SonicSampDrill products:

- **Speed** The Eijkelkamp SonicSampDrill drilling method can not be beaten by conventional overburden sampling and drilling techniques. Double or triple production rates are very common, giving you a quicker return on investment.
- **Clean** Sonic drilling can reduce waste by up to 70% compared to conventional overburden drilling methods.
- **Superior sample quality** Sampling with the unique Eijkelkamp SonicSampDrill method will provide an almost undisturbed sample with high recovery rate. The sample is accurate through most formation.
- **Project reliability** The Eijkelkamp SonicSampDrill method reduces the risk of project failure due to unknown geological surprises. The possibility to drill and sample almost all formations - even rock layers and boulders - helping ensure that your project is on time and within budget.

- **Superior well installation** Sonic drilling causes minimal disturbance to the surrounding borehole wall. The ability to sonic back out of the borehole allows a better seal between the outer wall and your well.
- **Minimal deviation** Eijkelkamp SonicSampDrill method uses a linear resonance and cuts through obstacles. This results in a borehole with < 1% deviation. No deviation will result in more accurate geological information. This will also make it the perfect drilling solution for geo-construction applications.

Eijkelkamp SonicSampDrill product applications:

- Mineral exploration
- Environmental drilling and sampling
- Geotechnical sampling and testing
- Geo-construction drilling
- Seismic drilling
- Geothermal drilling



SRS ML drilling 181mm / 7,1/4" till a depth of 22 meters / 72' for the installation of dewatering filters in Amsterdam, The Netherlands.

SmallRotoSonic Rigs



Who says bigger is always better? Meet the SmallRotoSonic!

The SmallRotoSonic is designed for drilling and sampling of overburden formations with a typical depth of 50m/164ft. The worlds smallest RotoSonic uses high frequency sonic vibrations combined with rotation for drilling. This compact SmallRotoSonic is an easy to use sonic drilling rig, whereby the crawler model is available in a short and long stroke drill mast. Drilling with the SmallRotoSonic is fast, clean and will bring superb quality of soil samples!

The SmallRotoSonic is available as:

- SRS ML Long Stroke crawler mounted drilling rig with SmallRotoSonic drill head
- SRS ML Short Stroke crawler mounted drilling rig with SmallRotoSonic drill head
- SRS-T mast with SmallRotoSonic drill head
- SRS-P mast with SmallRotoSonic drill head. This unit comes with a separated Hydraulic Power Pack (HPP)

Recommended tooling:

- GP63, GP88, GP100
- GG46 injection tooling
- 3" x 5" x 7" heavy duty tooling for telescopic sampling and installations

Recommended samplers:

- AquaLock50 and AquaLock70
- GD3 SingleWall Core barrel
- CB68 DualWall Core barrel

Applications include:

- Environmental drilling and sampling
- Mineral exploration
- Geotechnical sampling and testing
- Seismic shot hole drilling
- Geo construction drilling

The SRS PL is a true 150 Hz RotoSonic rig, the smallest and most powerful sonic rig on the globe. The replacement technology for Auger, Direct push and cable tool. Why? Very cost effective, fast and clean drilling is now reality!



NEW: SmallRotoSonic PL (SRS PL)



SRS PL: Multi-purpose sonic rig

The SmallRotoSonic PL (SRS PL) excels through capturing the powerful sonic force in an extraordinarily small and manoeuvrable package. Why use direct push when 150 Hz RotoSonic delivers faster and better results and provides extremely undisturbed samples.

- Mineral sampling
- Environmental exploration
- Geotechnical sampling and testing
- Geo-constructional drilling
- Seismic drilling
- Customized solutions

Optionals

- SPT auto drop hammer with blow counter on control panel
- SPX40 hose pump *Metric:* 114 l/min @ 9.6 bar *Imperial:* 30 gpm @ 140 psi
- Safety cage
- Casing or drill rod storage depends on diameter and length
- Special low clearant mast upon request

CRS XL MAX mounted on a Mercedes 6x6 truck. Geotechnical sampling and testing in Switzerland.



CompactRotoSonic rigs



Meet the multi-purpose sonic rig.

The CompactRotoSonic is the rig of choice for all overburden drilling activities with a typical depth of 75m/246ft. It is very fast and efficient in (soft) alluvial soils and due to the simultaneous rotation, with sonic resonance, it can handle mixed formations like no other drilling product available in the market! The CompactRotoSonic is designed for drilling and sampling of all overburden and hard formations (boulders and rock layers). It will provide a high quality sample with full recovery of all difficult to sample formations.

With an additional 4-speed rotary head the CRS DUO will be the ideal exploration rig. The CompactRotoSonic head is used for overburden and the intersection to bedrock. Once firmly in hard bedrock you can continue with conventional wire line diamond coring using the 4-speed rotary head. This will provide the most cost effective drilling technique for both overburden and hard bedrock.

The CompactRotoSonic is available as:

- CRS crawler or truck mounted drilling rig with CompactRotoSonic drill head with optional casing manipulator
- CRS DUO crawler or truck mounted drilling rig with CompactRotoSonic drill head and

- additional 4-speed rotary head
- CRS-T mast with CompactRotoSonic drill head and 3-point linkage
- CRS-P mast with CompactRotoSonic drill head. This unit comes with a separate Hydraulic Power Pack (HPP)

Recommended tooling:

- GG46 and GP100Tr for injection and installation
- 3" x 5" x 7" heavy duty tooling for telescopic sampling and installations

Recommended samplers:

- AquaLock70 and AquaLock100
- 3" SingleWall Core barrel, 4" SingleWall Core barrel
- CB68 DualWall Core barrel, 3.5" DualWall Core barrel

Applications include:

- Environmental drilling and sampling
- Mineral exploration
- Geotechnical sampling and testing
- Seismic shot hole drilling
- Geo construction drilling
- Geothermal drilling



Hydraulic foundation drilling rig, agile and sturdy, suitable for heavy works, with an excellent manoeuvrability thanks to the FRASTE articulation system.

CRS MITO8



Sonic foundation drilling rig, agile and sturdy, suitable for heavy works, with an excellent manoeuvrability thanks to the articulation system. Hi-tech components and innovative construction techniques make CRS MITO8 highly reliable and efficient. The powerful engine and the high-performances hydraulic system, allow to obtain exceptional results for its weight class in the execution of micro piles, tie bars, reinforced columns by jet grouting technique. CRS MITO8 can be equipped with a wide range of accessories, making it able to operate in any type of rotation drilling or roto-percussion drilling.

Optionals

- Winch
- Wire line winch
- Triplex pump
- Foam pump
- Washing pump
- Mast extension
- Interlocking guard
- Pulling cylinders
- Drilling data recorder
- LED lighting
- Air pre-filter cyclon engine
- Screw pump
- Electronic inclinometer
- Remote control
- Bit load control system
- Auxiliary hydraulic external prearrangement
- Steel crawler carrier
- Rubber pads for steel crawler carrier



MRS XL MAX.
 A multipurpose sonic drill, besides sonic drilling this rig can be applied for DTH, mud rotary and CPT testing.

MidRotoSonic rigs



Combining power and precision.

For overburden drilling jobs that will require the very best of a machine we offer the MidRotoSonic with a typical depth of 175m/575ft. This drilling rig will deliver the performance needed for drilling deeper or larger diameters. It uses high frequency sonic vibrations combined with rotation. The MidRotoSonic is designed for drilling and sampling of all overburden and hard formations (boulders and rock layers).

With the optional additional 4-speed rotary head the MidRotoSonic will be the ideal exploration rig. The sonic is used for overburden and the intersection to bedrock. Once firmly in the bedrock you can continue with conventional diamond coring. This will provide the most cost effective drilling technique for both overburden and hard bedrock.

The MidRotoSonic is available as:

- MRS XL crawler mounted drilling rig with LargeSonic 50K drill head with optional casing manipulator

- MRS DUO crawler or truck mounted drilling rig with LargeSonic 50K drill head and additional 4-speed rotary head
- MRS-P LargeSonic 50K drill head with separated Hydraulic Power Pack (HPP)

Recommended tooling:

- 4" x 6" x 8" x 10" tooling system for telescopic sampling and installations

Recommended samplers:

- AquaLock100
- 4" SingleWall Core barrel, 6" SingleWall Core barrel
- 3.5" DualWall Core barrel, 5" DualWall Core barrel

Applications include:

- Environmental drilling and sampling
- Mineral exploration
- Geotechnical sampling and testing
- Seismic shot hole drilling
- Geothermal drilling
- Geo construction drilling



The beast of the east. The LRS arctic has been specially designed to cope with working temperatures up to -60C / -76F. An inside working temperature of +15C / 59F is maintained.

LargeRotoSonic rigs



For the most challenging conditions: the LargeRotoSonic!

For deep drilling and sampling projects we offer the LargeRotoSonic with a typical depth of 400m/1300ft. This drilling rig has optimum power output combined with more stability. It uses high frequency sonic vibrations combined with rotation. The LargeRotoSonic is designed for drilling and sampling of all overburden and hard formations (boulders and rock layers).

The LargeRotoSonic is available as:

- LRS crawler mounted drilling rig with LargeSonic 50K drill head with optional casing manipulator
- LRS DUO crawler or truck mounted drilling rig with LargeSonic 50K drill head and additional 4-speed rotary head

Recommended tooling:

- 4" x 6" x 8" x 10" tooling system for telescopic sampling and installations

Recommended samplers:

- AquaLock100
- 4" SingleWall Core barrel, 6" SingleWall Core barrel
- 3.5" DualWall Core barrel, 5" DualWall Core barrel

Applications include:

- Environmental drilling and sampling
- Mineral exploration
- Geotechnical sampling and testing
- Seismic shot hole drilling
- Geothermal drilling
- Geo construction drilling





Sonic Samplers



Contaminated saturated sands. Sampled with AquaLock 70



Contaminated sand with gravel. Sampled with AquaLock 70



Railway sample 180mm. Sampled with CB 8" Single Wall Core Barrel



Hard consolidated clay going over in very soft clay. Sampled with CB4" Single Wall Core Barrel



Granite Boulder. Sampled with CB 3.5" Dual Wall Core Barrel



Permafrost, sand and gravel. Sampled with CB8 SingleWall Core barrel



Metric	Rig	type	Max frequency	Output dynamic force	Rotation speed	Rotation torque clockwise	Rotation torque counter clockwise	Head tilt max	Type of damper / buffer	Max max hydr. pressure on sonic	Mass of drill head	Pull up force in combination with sonic	pull down force in combination with sonic	Pull up force static	Pull down force static	Drilling under angle driving direction	Dicular driving direction
			Hz	kN	rpm	Nm @ bar	Nm @ bar	degr	type	bar	kg	daN	daN	daN	daN	degr	degr
1	SmallRotoSonic	SRS	0-150	100 kN	100	1.200@150	1.400@172	65	rubber 2x	210	230	2.500	2.500	6.000	4.000	45	10
2	CompactRotoSonic	CRS-HO	0-150	150 kN	120	2.650@185	3.000@210	70	rubber 4x	230	600	5.000	5.000	10.000	5.500	45	10
3	MidRotoSonic	MRS	0-150	227 kN	140	5.605@240	7.200@310	90	air cushion	310	1.200	10.000	10.000	10.000	10.000	80	10
4	LargeRotoSonic	LRS	0-150	227 kN	92	8.900@275	10.000@310	90	air cushion	310	1.250	10.000	10.000	10.000	10.000	80	10

Imperial	Rig	type	Hz	k lbf	rpm	ft-lbf @ psi	ft-lbf @ psi	degr	type	psi	lbf	lbf	lbf	lbf	lbf	degr	degr
			Hz	k lbf	rpm	ft-lbf @ psi	ft-lbf @ psi	degr	type	psi	lbf	lbf	lbf	lbf	lbf	degr	degr
1	SmallRotoSonic	SRS	0-150	22.5 k lbf	100	885@2.175	1.030@2.500	65	rubber 2x	3.045	517	5.620	5.620	13.500	9.000	45	10
2	CompactRotoSonic	CRS-HO	0-150	33.8 k lbf	120	1.955@2.680	2.210@3.045	70	rubber 4x	3.335	1.350	11.240	11.240	22.480	12.400	45	10
3	MidRotoSonic	MRS	0-150	50 k lbf	140	4.134@3.480	5.315@4.495	90	air cushion	5.000	2.700	22.480	22.480	22.480	22.480	80	10
4	LargeRotoSonic	LRS	0-150	50 k lbf	92	6.565@3.990	7.375@4.495	90	air cushion	5.000	2.800	22.480	22.480	22.480	22.480	80	10

Full recovery, high quality samples.

Eijkelpamp SonicSampDrill offers a full range of the smart and effective sampling systems for all overburden formations. From saturated alluvial soils to difficult to sample mixed formations with boulders and even rock.

Eijkelpamp SonicSampDrill sampling systems:

- AquaLock
- SingleWall CoreBarrel
- DualWall CoreBarrel

Sampling applications:

- Environmental investigation
- Geotechnical sampling
- Mineral exploration
- Archeological investigation

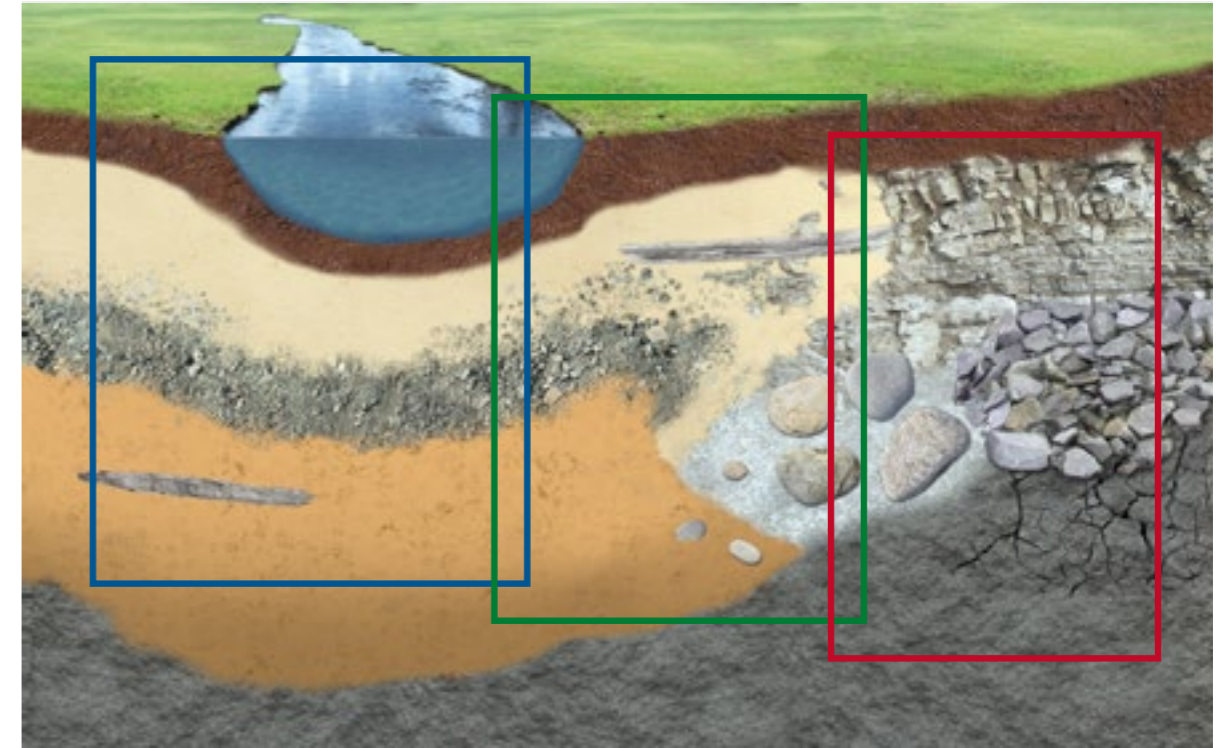
The appropriate sonic sampler for the formation will provide a high quality, full recovery sample.

SRS-F-T-P	CRS-V-F-Tr-P	MRS-F-Tr-P	LRS-F-Tr-P
SRS PL Crawler mounted	CRS XL / V Crawler mounted	MRS XL Crawler mounted	LRS FS250 Crawler mounted
SRS ML Crawler mounted	CRS MITO8 Crawler mounted	MRS MITO100 Crawler mounted	LRS TR Truck mounted
SRS T Tractor mounted	CRS T Tractor mounted	MRS TR Truck mounted	LRS P Mast and Hydraulic Power Pack
SRS P Mast and Hydraulic Power Pack	CRS TR Truck mounted	MRS P Mast and Hydraulic Power Pack	
	CRS P Mast and Hydraulic Power Pack		





Sonic Sampler selection



Sampling and Coring in the Overburden												
From Soft to Middle Hard and Harder geologies												
Sampling of saturated sands, clays and small hard layers			Coring in middle hard geologies no possibility of using water for flushing and cooling				Coring in harder geologies possibility of using water for flushing and cooling					

Dimensions coring shoes max (there are more smaller ID's available)

OD in mm-inch	72-2.84	96-3.78	123-4.84	104-4.08	125-5.18	176-6.93	220-8.65	103-4.06	126-4.96	175-6.9	225-8.9
ID in mm-inch	46-1.81	65-2.59	95-3.74	76-3.08	102-4.02	144-5.67	190-7.5	65-2.56	89-3.5	120-4.7	165-6.5

Nr	Drill rods	Dims tool joint Rod + Casing				Aqualock 50	Aqualock 70	Aqualock 100	Single wall CoreBarrel 2"	Single wall CoreBarrel 4"	Single wall CoreBarrel 4"	Single wall CoreBarrel 6"	Single wall CoreBarrel 8"	Dual wall CoreBarrel 68	Dual wall CoreBarrel 5"	Dual wall CoreBarrel 6.7"
		OD mm	ID mm	OD "	ID "											
1a	GG46	60	25	2.36	0.98											
1b	GP63	63	40	2.48	1.58	x										
2	GP88	88	65	3.46	2.56		x									
3	GP100TR	107	75	4.13	2.99			x								
4	GD3	76	44	2.99	1.73		x		x				x			
5	GD4.5	114	83	4.49	3.27						x	x			x	x

Over-casing possibilities using Samplers and CoreBarrel systems																
Nr	Casings	OD mm	ID mm	OD "	ID "											
1	GP100															
2	GP100TR	107	75	4.13	2.99	x										
3	GP114	114	80	4.49	3.15											
4	GP168	168	134	6.61	3.40											
5	GD5.5	142	107	5.59	4.21		x		x				x			
6	GD65/8 light	168	127	6.61	5.00			x		x				x		
7	GD65/8 heavy	168	127	6.61	5.00											
8	GD7	182	152	7.17	5.98											
9	GD85/8	219	181	8.62	7.13										x	
10	GD103/4	273	232	10.75	9.13											x
11	GD123/4	324	283	12.75	11.13											

Soft overburden

Sample with AquaLock sampler.

- Perfect for alluvial formations like: (heaving) sands, gravel, clay and peat
- No casing needed. If the hole collapses the AquaLock piston will push collapsed material aside.
- A casing can be used if bore hole is not allowed to collapse (due to contamination)
- Water pressure will be used to extrude sample in liner, foil tube or gutter.
- Best sampler for slurry / water beds sediments

Note: The AquaLock is not suited for hard formations and hard boulders.

Medium hard Overburden

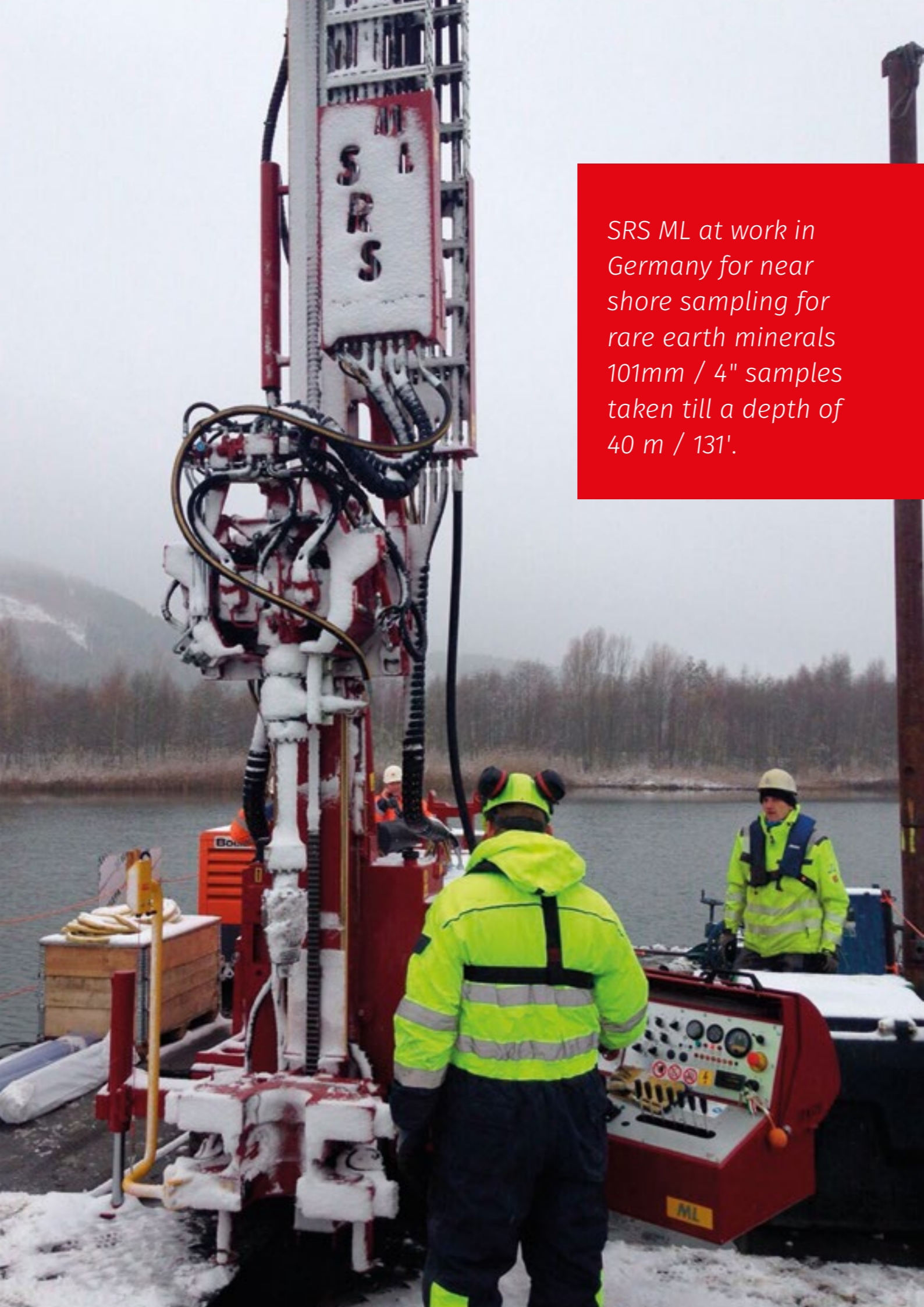
Sample with SingleWall Core barrel

- Formations like: compacted alluvial, pebbles, cobbles and small (soft) boulders, construction debris and landfills.
- Take different layers in one sample
- Possibility to switch to Dual Wall Core Barrel once a hard layer occurs and a medium is needed to wash away the cuttings.
- Possibility to perform SPT tests in-between sampling.

Hard overburden and soft bedrock

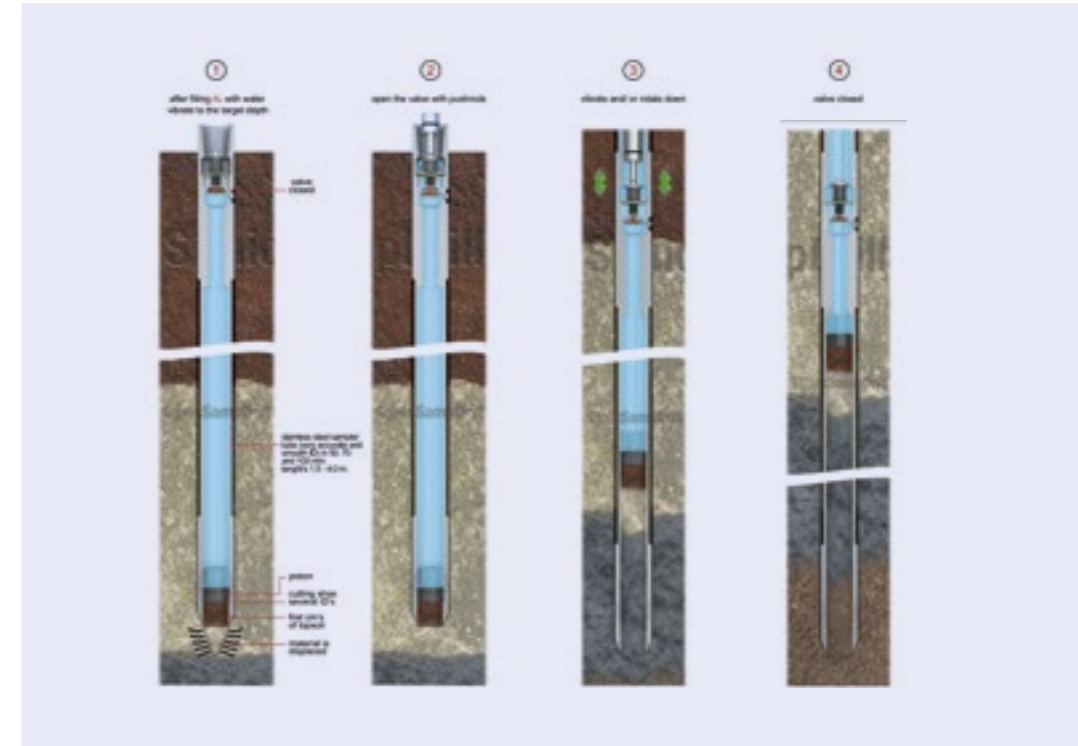
Sample with DualWall CoreBarrel

- Formations like sandstone, limestone, shale, basalt, moraine etc.
- Perfect sample of overburden to bedrock intersection.
- Sampler is the best choice for hard layers and bigger boulders, even surrounded by soft alluvial formations!
- Take different layers in one sample
- Front discharge ring bit for consistent (hard) formations with no sediments.
- Side discharge ring bit for mixed formations that include sediments.
- Possibility to perform SPT tests in-between sampling.



SRS ML at work in Germany for near shore sampling for rare earth minerals 101mm / 4" samples taken till a depth of 40 m / 131'.

Aqualock 50 Tooling



AquaLock piston sampler

Soil sampling using the AquaLock piston sampler collects high-quality core in a variety of conditions, even loose sand and saturated sediments typically difficult to collect with standard techniques. The AquaLock is available in 3 different diameters to match your requirements. The barrels are made of stainless steel and are comprised of a valve operated drive head, internal floating piston and a choice of cutting shoes and ring bits for differing lithologic conditions. Samples can be extruded into PVC liners, polyethylene foil tube, plastic gutters or a core box.

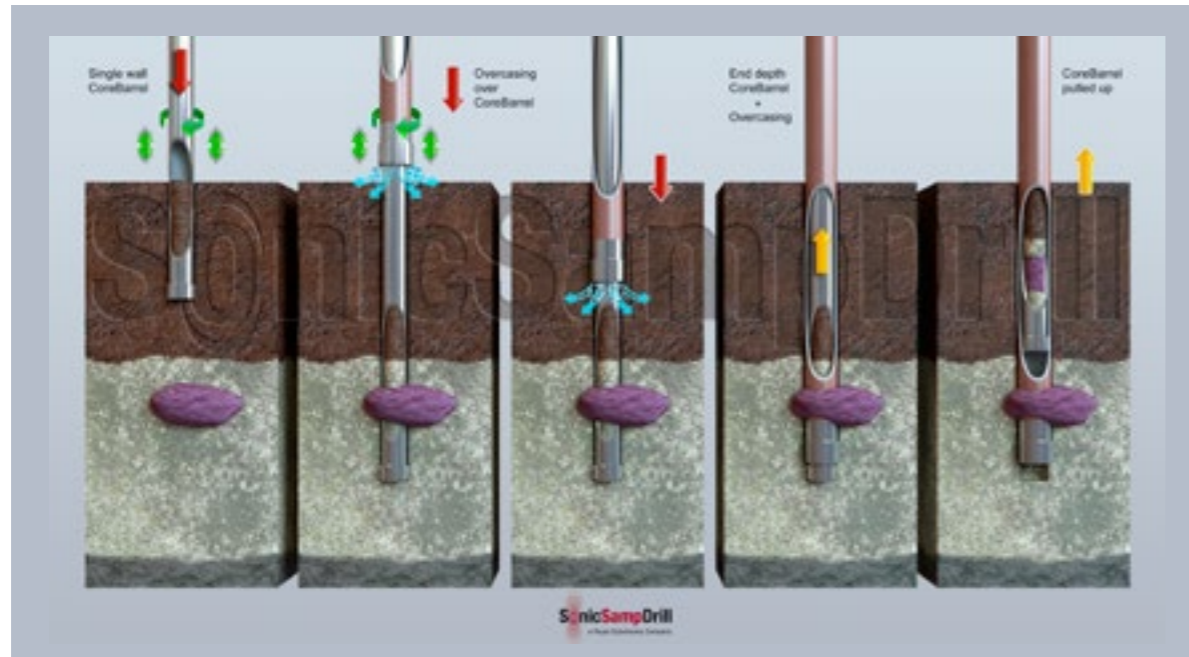
AquaLock patents:

- US 6.695.075
- EU 1154076
- NL 1015147

AquaLock benefits:

- Improve sample quality and recovery in unconsolidated alluvial soils
- Reduce the costs per sample meter
- Fast and accurate
- No waste
- No casing needed
- Off shore sampling

Single wall core barrel



For dry sampling of overburden formations.

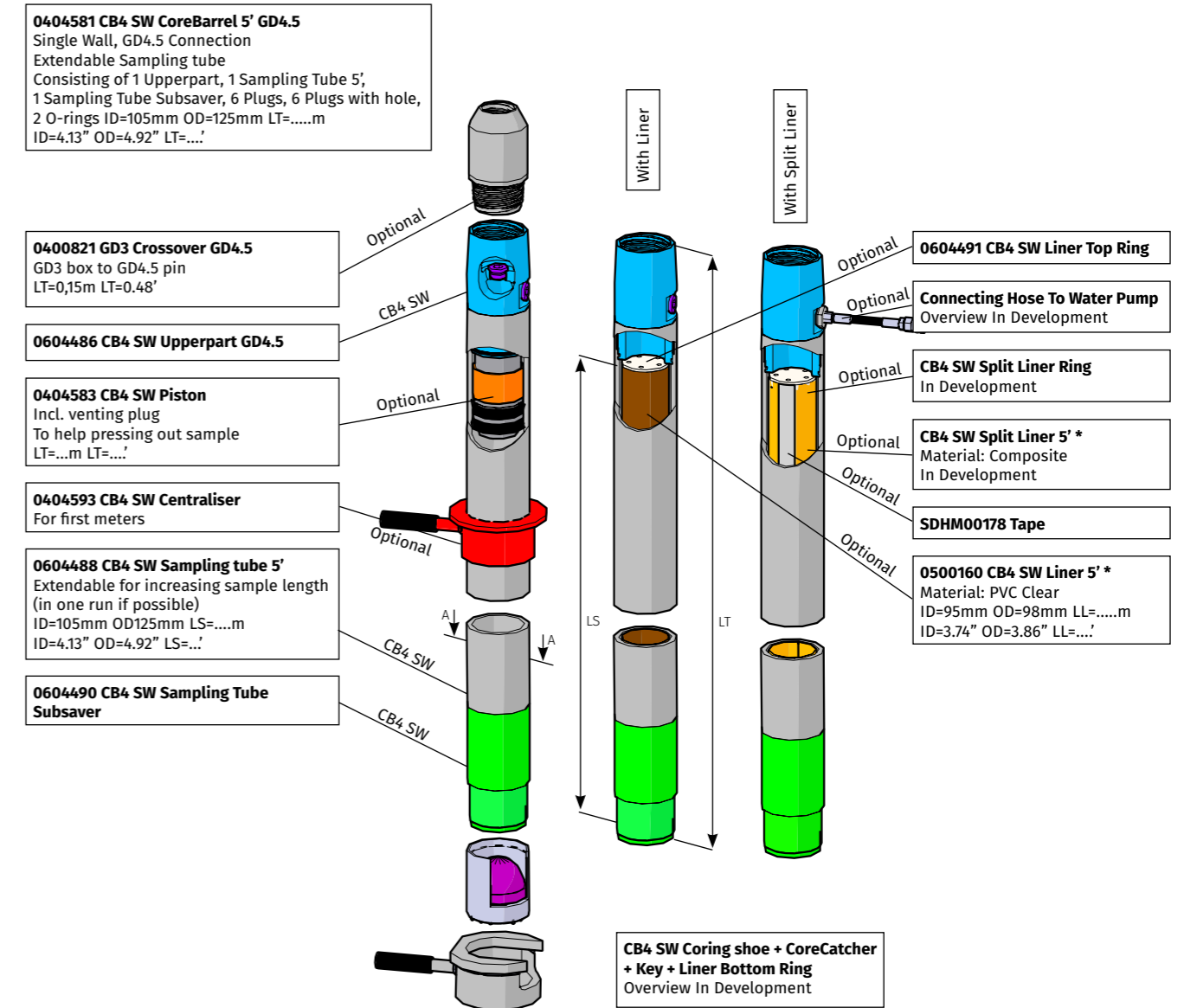
SingleWall Core Barrel sampler

The SingleWall core barrel sampler is designed to take high-quality samples in a broad spectrum of formations. It will work best in harder alluvial and mixed formations. It can even handle small boulders and hard layers. Sampling is performed dry. A casing makes sure that the borehole does not collapse when retracting the sampler. The SingleWall Core barrel is available in 4 different diameters to match your requirements. Cores can be sampled straight in the core barrel or directly into a liner. The sample can be extruded into polyethylene foil tube, plastic gutters or a core box.

SingleWall core barrel benefits:

- Improve sample quality and recovery in mixed formation
- Sample without the use of water
- Fast and accurate
- A monitoring well can be installed directly after sampling through the casing
- Very accurate sample of an overburden intersection going over into bedrock

Principles and overview Single Wall Corebarrels



Type CB	Drill rod type	Over casing	OD		ID		Corebarrel 2m LS		Corebarrel 5' LS		Corebarrel 10' LS		Crossover type to smaller drill rod	Piston length **		Liner Y/N	Split Liner Y/N	Corebox Y/N	Foil tube Y/N
			mm	inch	mm	inch	m	feet	m	feet	m	feet		m	feet				
CB2 SW	GP63	GP100TR	70	2.76	50	1.97							NA			Y		Y	Y
CB3 SW	GD3	GD5.5	95,25	3.75	76	3							NA			Y		Y	Y
CB4 SW	GD4.5	GD6.5/8	125	4.92	105	4.13							GD3			Y		Y	Y
CB4.5 SW	GD4.5	GD7	140	5.51	120	4.72	2,2	7.22	1,68	5.51	3,35	10.99	GD3	NA		Y		Y	Y
CB6 SW	GD4.5	GD8.5/8	175	6.89	150	5.91	2,2	7.22	1,68	5.51	3,35	10.99	NA	NA		Y		N	N
CB8 SW	GD6.5/8	GD10.3/4	220	8.66	200	7.87	2,2	7.22	1,68	5.51	3,35	10.99	GD4.5	NA		Y		N	N

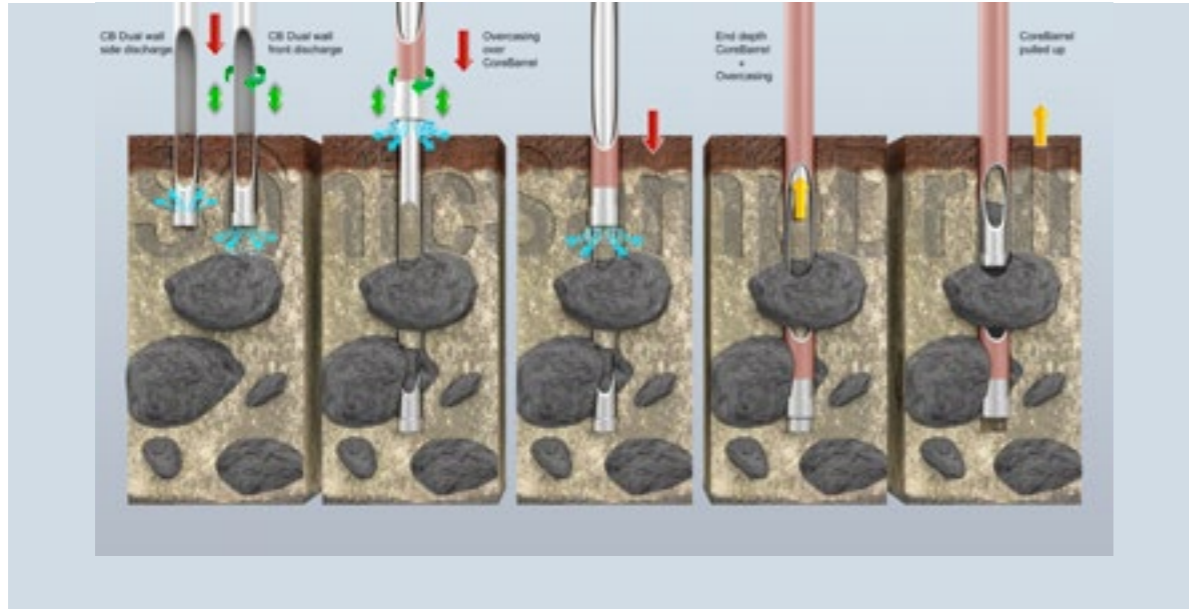
CB = CoreBarrel
OD = Outer Diameter
ID = Inner Diameter

SW = Single Wall
NA = Not Applicable
GD or GP = Type of thread

LT = Length Total
LL = Liner Length
LS = Length of Sample (including 10% overflow possibility)

In development

Dual wall core barrel



Meet the difference in mixed and harder formations.

DualWall Core barrel

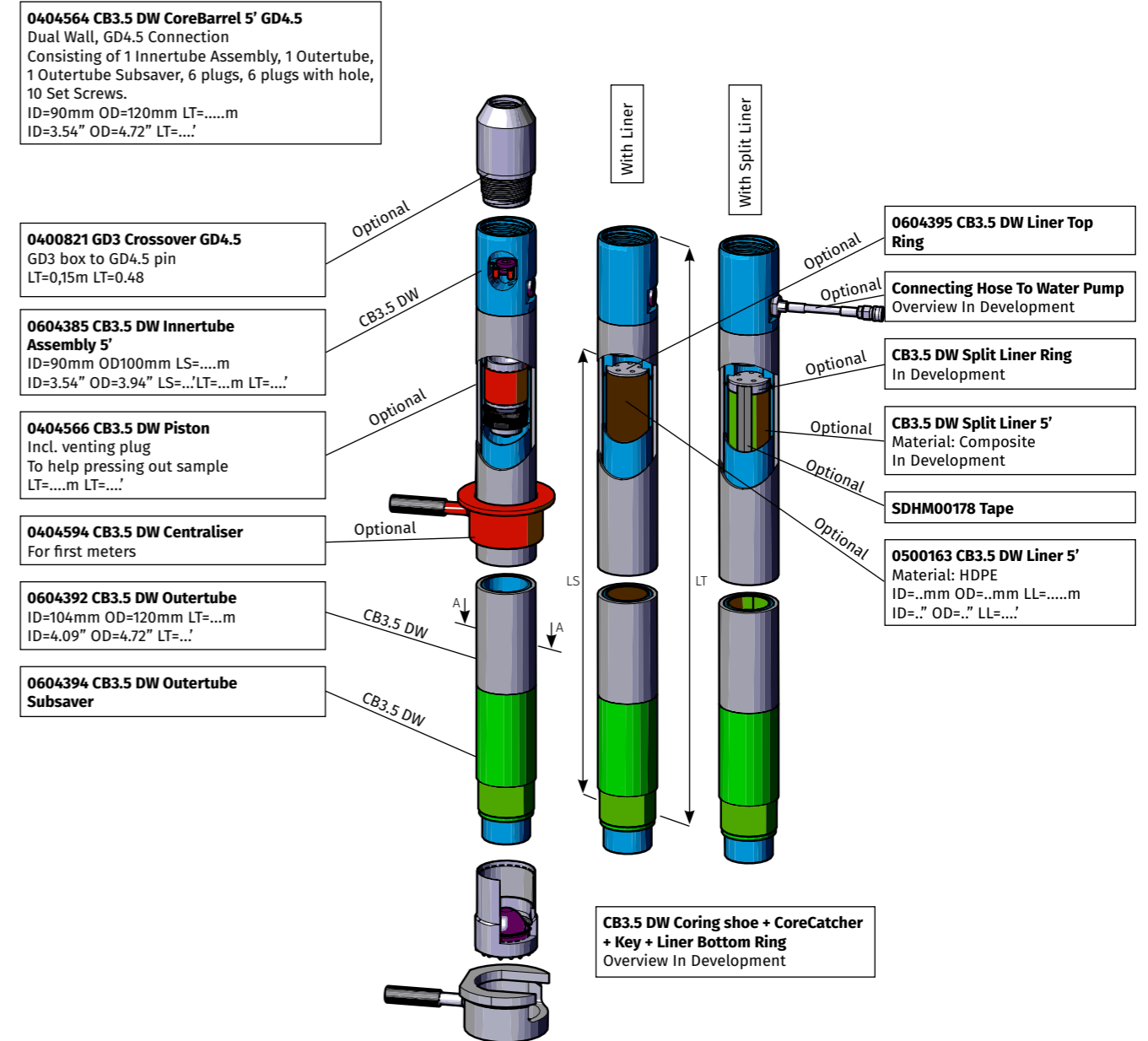
The DualWall core barrel sampler is designed to take high-quality samples in formations which are normally a nightmare. It will work best in formations that contain harder layers or boulders. It can even handle very soft alluvial formations going over into a hard material. The sampler has an annular space in the barrel that makes it possible to use a medium without washing away the fine material. For ring bit selection there is a front or side discharge available. The front discharge is used in homogeneous hard formations. The side discharge version is designed for mixed formations, it will prevent that fine material is flushed away. A casing makes sure that the borehole does not collapse when emptying the sampler. The DualWall Core barrel is available

in 3 different diameters to match your requirements. Cores will be sampled straight in the core barrel. The sample can be extruded into polyethylene foil tube, plastic gutters or core box.

DualWall core barrel benefits:

- Improve sample quality and recovery in harder and mixed formations
- Do not flush away the fine material in a sample
- Do not miss any layer!
- A monitoring well can be installed directly after sampling through the casing
- No deviation in formations with boulders and hard layers
- Very accurate sample of overburden intersection going over into hard bedrock

Principles and overview Dual Wall Corebarrels



Type CB	Drill rod type	Over casing	OD		ID		Corebarrel 2m LS		Corebarrel 5' LS		Corebarrel 10' LS		Crossover type to smaller drill rod	Piston length**		Liner Y/N	Split Liner Y/N	Corebox Y/N	Foil tube Y/N
			mm	inch	mm	inch	m	feet	m	feet	m	feet		m	feet				
CB68 DW	GD3	GD5.5	95	3.74	68	2.68							NA	Y	Y	Y		Y	Y
CB3.5 DW	GD4.5	GD6.5/8	120	4.72	90	3.54							GD3	Y	Y	Y		Y	Y
CB5 DW	GD6.5/8	GD8.5/8	170	6.69	125	4.92	2,2	7.22	1,68	5.51	3,35	10.99	GD4.5	NA	Y			N	N
CB6.7 DW	GD6.5/8	GD10.3/4	220	8.66	170	6.69	2,2	7.22	1,68	5.51	3,35	10.99	GD4.5	NA	Y			N	N

CB = CoreBarrel
OD = Outer Diameter
ID = Inner Diameter

SW = Single Wall
NA = Not Applicable
GD or GP = Type of thread

LT = Length Total
LL = Liner Length
LS = Length of Sample (including 10% overflow possibility)

In development

Sonic tooling



Meet the difference in quality Sonic Tooling.

Eijkelpamp SonicSampDrill offers a full range sonic tooling. The tooling is made of high quality steel to cope with the high frequency sonic vibrations. For the smaller models we designed a set of basic tooling; the G-series tooling. These are suited for soft to medium hard formations

For drilling companies that require the best tooling quality we can offer the GD tooling models that is available as 3x5x7 and 4x6x8x10 tooling series. The GD tooling system is designed for all types of geology, from soft to hard rock.

Sonic Applications

- Sampling of overburden including soft weathered rock and boulders
- Sampling of water
- Sampling of soil gas
- Installation drilling
- Injection drilling
- Geo-construction drilling
- Bomb detection drilling
- Special and customised applications

GG / GP series

- GP46 • GP63
- GP88 • GP100
- GP114 • GP168

GD series

- 3 x 5 x 7
- 4 x 6 x 8 x 10

CompactRotoSonic working at an abandoned oil refinery installing 101mm / 4" monitoring wells



G Series tooling



Tooling 3x5x7 and 4x6x8x10



Sonic Tooling System

Sonic drill rod

	Tool joint		Lost cone		Drill rig type				
	ID (mm)	OD (mm)	ID (inch)	OD (inch)	OD (mm)	OD (inch)	CS	SRS/CRS	MRS/LRS
GG46	25	60	0.98	2.36	70	2.76	xx	xx	
GP63	40	63	1.58	2.48	70	2.76	xx	xx	
GP88	65	88	2.56	3.46	100	3.94	xx	xx	
GP100Tr	75	107	2.99	4.13	125	4.92		xx	

Sonic drill rod

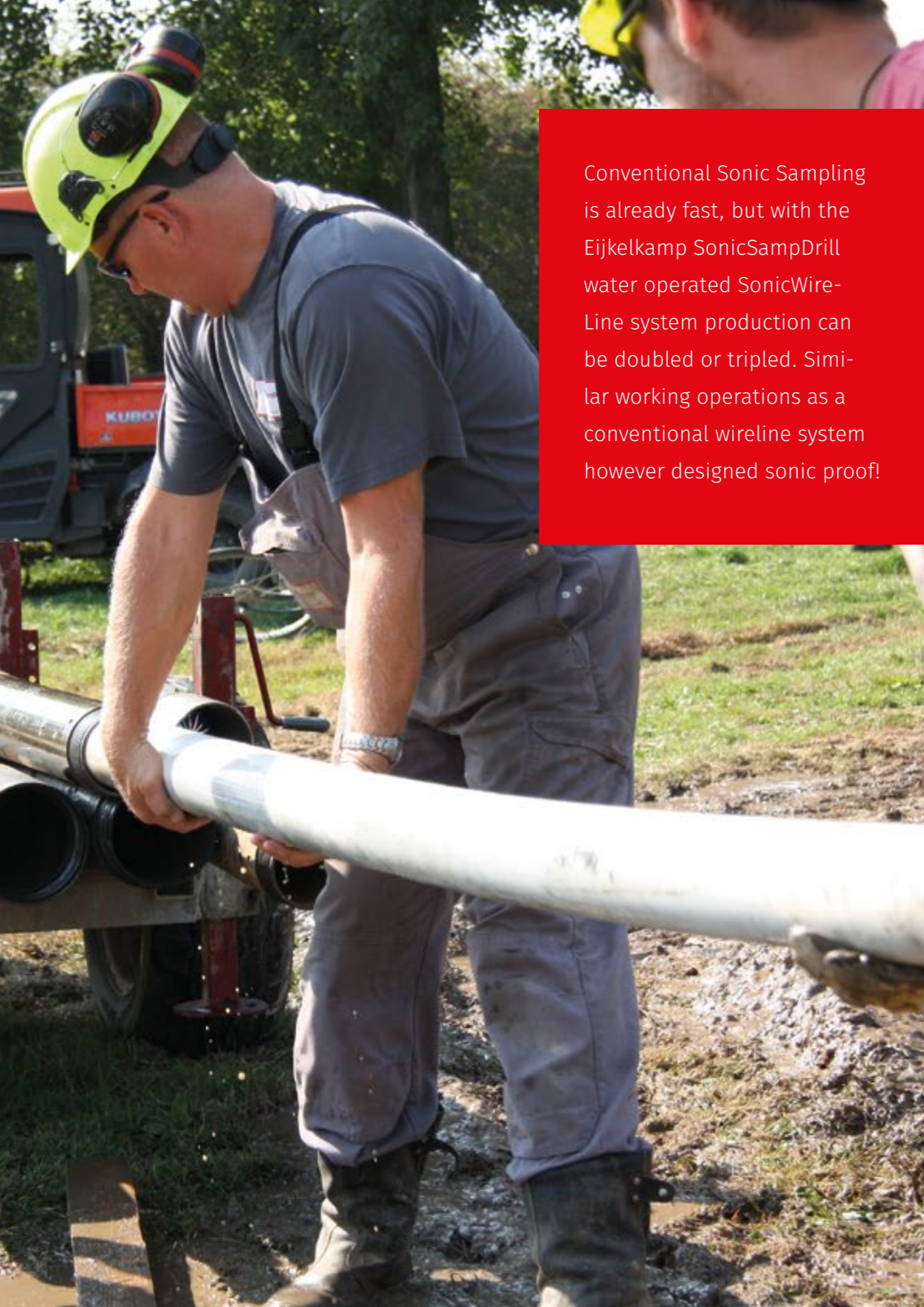
	Tool joint		Lost cone		Drill rig type				
	ID (mm)	OD (mm)	ID (inch)	OD (inch)	OD (mm)	OD (inch)	CS	SRS/CRS	MRS/LRS
GP100	77	102	3.03	4.02	125	4.92	xx		
GP100Tr	75	107	2.99	4.13	125	4.92	xx	xx	
GP114	80	114	3.15	4.49	126	4.96		x	x
GP168	127	168	3.40	6.61	200	7.87"			x



Sonic Tooling System.

Sonic drill rod	Tool joint		Lost cone		Drill rig type			
	ID (mm)	OD (mm)	ID (inch)	OD (inch)	OD (mm)	OD (inch)	SRS/CRS	MRS/LRS
GD3	44	76	1.73	2.99	100	3.94	xx	
GD4 1/2	83	114	3.27	4.49	127	5.00		xx

Sonic drill rod	Tool joint		Lost cone		Drill rig type			
	ID (mm)	OD (mm)	ID (inch)	OD (inch)	OD (mm)	OD (inch)	SRS/CRS	MRS/LRS
GD5 1/2	107	142	4.21	5.59	150	5.91	xx	
GD6 5/8	127	168	5.00	6.61	180	7.09	Light wall	Heavy wall
GD7	152	182	5.98	7.17	195	7.68	xx	
GD8 5/8	181	219	7.13	8.62	240	9.45	Light wall	Heavy wall
GD10 3/4	232	273	9.13	10.75	300	11.81	Light wall	Heavy wall
GD12						On request	Light wall	Heavy wall



Conventional Sonic Sampling is already fast, but with the Eijkelkamp SonicSampDrill water operated SonicWire-Line system production can be doubled or tripled. Similar working operations as a conventional wireline system however designed sonic proof!

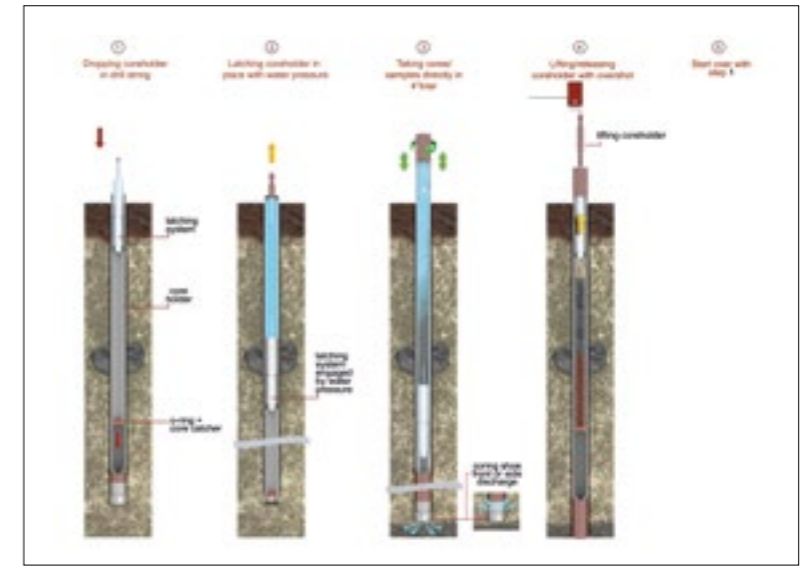
SonicWireLine System



Water pressure engaged SonicWireLine system



Overshot



Taking core samples in liners without the use of drill rods

SonicWireLine allows you to take 101mm / 4" core samples in liners without the use of drill rods. This revolutionary development will increase sampling production 2 to 3 times quicker with a high percentage of core recovery. The SonicWireLine and core barrel are pumped to the target depth where it locks in place with water pressure. Locking into place is secured and monitored by the water pressure gauge. A conventional overshot is used to unlock and retrieve the SonicWireLine and core barrel back to surface. Eijkelkamp SonicSampDrill has come up with something new: The SonicWireLine system. This can be used to take samples without tripping in and out of the drill string over and over again. The drill string stays in the ground. With a winch system, the sample is taken up. This will shorten the period of sampling, increase productivity and lower your cost per meter.

What's so special about it?

WireLine systems have been known for a long time, these conventional systems can only be used with rotation. With sonic drilling, you

rotate and vibrate simultaneously. The mechanical clamping devices in conventional wireline systems are not strong enough for sonic vibrations. It took a lot of innovative solutions to withstand these sonic powers! Our SonicWireLine is sonic proof and easy to use (you can also use the system without sonic vibrations).

Benefits Eijkelkamp SonicSampDrill's SonicWireLine System

- Shorter drilling time
- Pumped to end depth
- Water pressure locking controlled
- Clean working

In the future there is a possibility to use the SonicWireLine System as a tool carrier (eg. during drillingprocess change coring bit without installing drill string, installing measuring tools, etcetera).



Are SonicSampDrill's sonic rigs multi purpose? Absolutely! Nowadays full CPT packages available including add on 10T / 22.000 LBS, 20T / 44.000 LBS CPT apparatus. Our clients have already achieved CPT measurements up to 130 m / 426'.

Sonic Cone Penetration Testing



Combine Sonic drilling with CPT

Eijkelkamp SonicSampDrill presents SonicCPT. With SonicCPT two technologies are combined to create the ultimate geotechnical testing method for overburden formations; sonic drilling with Cone Penetration Testing. With SonicCPT it is possible to add sonic vibrations to the CPT process when needed. This will make it possible to push through layers that provide too much friction for conventional CPT. The electrical cone can even measure tip pressure and sleeve friction while sonic vibrations are engaged! After using a software programme the sonic influence will be filtered out.

SonicCPT and CPT with a Sonic Rig SonicCPT will make CPT jobs easier, cheaper and more successful! Abandoning job sites due to refusal will be something from the past in many cases! The combination of CPT and a sonic rig will take away most uncertainty of using CPT in all alluvial ground. In worst case scenario it is possible to predrill through real hard layers, set a casing and continue with CPT. A Sonic rig with the SonicCPT option can be used for multiple jobs. This will save on mobilization and extra overhead costs when both are needed at the same job. SonicCPT also makes it possible to reduce the rig size.

A lighter rig for CPT can be used till depths where a big CPT rig has refusal and even make it possible to get to greater depths. As a result of the integration of both systems, you now have an efficient tool for obtaining both geotechnical and environmentally technical data as well as the possibility to take soil or groundwater samples. The simple plug-and-play system contains a SonicCPT cone, rods and cable. For logging there is a logging box and depth encoder. All data can be real time registered at a laptop.

Available products

- SonicCPT electrical cone, measuring:
 - Tip resistance (qc)
 - Sleeve friction (fs)
 - Deviation in two directions
- CPT Logging equipment, data logger, depth encoder
- Cables
- Electrical cones available for static CPT:
 - CPT cone
 - CPTu Pore pressure cone (u1-u3)
 - Video cone
 - Magnetic field detection cone
- Ground anchors for light drill rigs
- Software

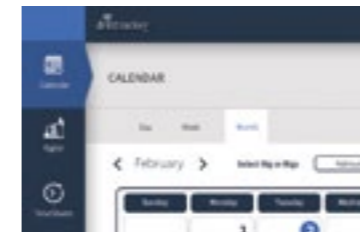




Making drilling management effortless

- *Save time*
- *Save money*
- *Save the hassle*

Drilltracker



Bringing you and your rigs into the future of drilling

All Job information, Rig information, Client information accessible with the click of a button. No need to sift through paperwork or emails. Instant recall of past bookings & logs. Drillers can log into drilltracker.com onsite, complete drilling logs and then they can be accessed immediately from the office for invoicing.

Drilltracker is an online based software designed to help drilling businesses keep track of jobs, rigs & clients.

Forged out of the need to bring drilling out of the paper based past and into the paperless future, it has proven itself a winner with over 7,500 jobs/events logged over the past 4 years in its testing stage.

From booking a job and tracking its progress with colour coded displays for a quick visual reference, to preparing and storing drillers logs and manual invoices.

Drilltracker is able to quickly recall any job, drillers log and manual invoice. Saving time pointlessly wasted on going through boxes of stored files.

Start with drilltracker!

- Bookings
- Drilling Logs
- Client Lists
- Rig Lists
- Manual Invoicing
- Staff Time Sheets



ManipAll 200 and 300



ManipAll 200

ManipAll Rod & Casing Handlers

The ManipAll 200 and 300, built to fit modular on the SmallRotoSonic, CompactRotoSonic, MidRotoSonic and LargeRotoSonic. It will give your team the edge over the competition. It will bring higher productivity, better ergonomics and safety. The ManipAll can be

operated by one person.

- Increase productivity
- Safer working environment
- Large diversity of casings possible
- Extensive magnetic force
- All tools handled by 1 person

ManipAll 200	Metric	Imperial
Application	SRS ML & CRS rigs	SRS ML & CRS rigs
Mass	600 kg	1,323 lbs
Reach min./max.	2,552 mm / 3,179 mm	8' 4 1/2" / 10' 5 1/2"
Lift height min./max.	-50 mm / 2100 mm	-2" / 6' 10 4/8"
Power supply		
Hydraulic pressure min.	10 l/min @ 200 bar	2,6 gpm @ 2,900 psi
Electric max.	12 V/24 V; 15A@12V / 7,5 A@24V	12 V/24 V; 15A@12V / 7,5 A@24V
Capacity		
Weight capacity max.	100 kg	220 lbs
Length casing min./max.	1500 - 2000 mm	5ft
Diameter casing		
Magnet	Yes	Yes
Magnetise force	1,800 kg	3968 lbs



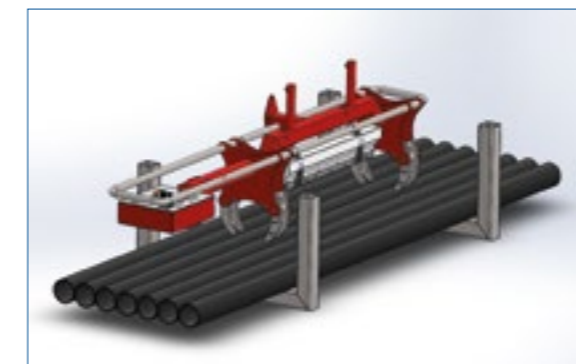
ManipAll 300



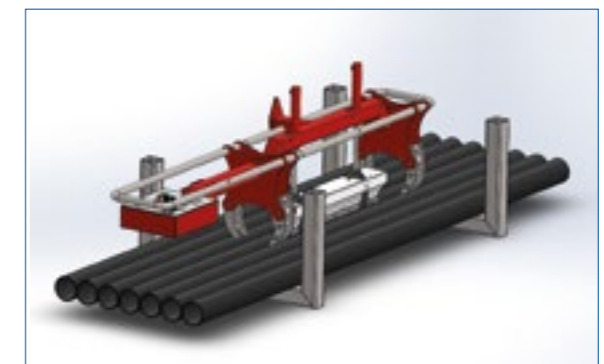
ManipAll 300



ManipAll 300	Metric	Imperial
Rig Type	CRS, MRS and LRS	CRS, MRS and LRS
Mass	980 kg	2,160 lbs
Reach min. / max.	3.050 / 4.100 mm	10' / 13' 5½"
Lift height min. / max.	-344 mm / 3.275 mm	-1'1½" / 10' 9"
Power supply		
Hydraulic pressure min.	15 l/min @ 200 bar	3 gpm @ 2,900 psi
Electric max. / Current max.	24 V / 10 A	24 V / 10 A
Capacity		
Weight capacity max.	300 kg	660 lbs
Length casing min. / max.	3.000 mm	39" / 157"
Diameter casing		
Small grippers min. / max.	75 / 275 mm	3' / 10¾"
Large grippers min. / max.	114 / 325 mm	4½" / 12¾"
Magnet		
Magnetise force	2.072 kg	4,568 lbs



ManipAll 300 in position above



Magnet lowered hydraulically



Magnet retracted into reach of grippers



ManipAll 300 grippers closed



Eijkelkamp SonicSampDrill worldwide



Contact

• **Emergency Support Number**
+31 313 800 967

© 2018, SonicSampDrill, daughter company of Royal Eijkelkamp. Issued in own management. All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or in any other way without the prior written consent of the publisher.

Service support outside of regular business hours and during public holidays. Note: Regular support hours are from Monday till Friday
 7.30 a.m. - 4.30 p.m. CET or
 1.30 a.m. - 10.30 a.m. EST

Eijkelkamp SonicSampDrill

Uitmaat 8
 6987 ER Giesbeek
 The Netherlands
 T +31 313 880 201
 E info@sonicsampdrill.com
 I www.sonicsampdrill.com

Eijkelkamp North America

9230 Globe Center Drive
 Suite 110
 Morrisville, NC 27560
 T 800-603-5708
 E info@eijkelkamp-usa.com
 I www.eijkelkamp-usa.com



Eijkelkamp SonicSampDrill BV

Uitmaat 8

6987 ER Giesbeek

The Netherlands

T +31 313 880 201

E info@sonicsampdrill.com

I www.sonicsampdrill.com

Eijkelkamp North America

9230 Globe Center Drive

Suite 110

Morrisville, NC 27560

T 800-603-5708

E info@eijkelkamp-usa.com

I www.eijkelkamp-usa.com

Meet the difference