

SSAB RD[®] Pile wall





Expertise in steel and foundation construction

SSAB is one of the leading suppliers of steel foundation structures in Europe. Our domestic market includes the Nordic countries and the Baltic Sea Region, but owing to our effective logistics we are also able to deliver solutions for demanding projects elsewhere in Europe.

SSAB is your skilled partner. The solutions we offer are economically competitive and technically advanced. They are based on versatile expertise and responsible operating procedures. For us, partnership with the customer means not only commitment to high reliability and promptness of delivery but also consulting in the design and implementation stage, if required.

The RD® pile wall is SSAB's retaining wall solution based on RD® piles. The RD pile wall is specially designed for challenging conditions, for instance, for faster implementation of retaining walls and other foundation structures. You can always find the correct pile size and steel grade from SSAB's extensive RD pile and steel grade range, which allows you to implement a retaining wall or foundation structure with the best overall economy for all soil conditions and loading situations. By selecting SSAB's delivery package you will also get all other steel components, systems and overall solutions for your project's foundation engineering with ease from one supplier.



RD® pile wall and applications

General principle

The RD pile wall is based on SSAB's spirally or longitudinally welded steel pipe piles and connectors attached by welding at the mill. The piles are drilled by the concentric drilling method. The connectors of the steel pipe piles have been especially developed for the purpose by SSAB. The matching dimensions of ring bits and connectors allow installing RD pile walls by drilling through stones and boulders and even into the bedrock, if necessary. A larger than normal ring bit is used to drill a hole larger than the outer diameter of the pile in soil, stones and bedrock.

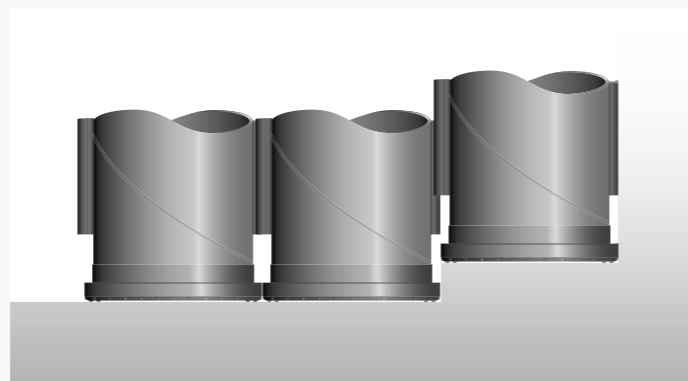


Figure 1. Principle of the RD® pile wall.

Permanent structures

The RD pile wall is best suited for permanent structures that require high vertical and horizontal load-bearing resistance. RD pile walls can also be installed reliably under challenging conditions, whereby the solution brings considerable savings in construction time and produces an end result of good overall economy. RD pile walls may even completely eliminate the need to build temporary retaining walls.

Temporary structures

As a construction-period retaining wall structure the RD pile wall is particularly suitable for challenging soil conditions where the implementation of conventional retaining wall structures is difficult or impossible.

Horizontally loaded structures

The RD pile wall is an excellent solution for projects that require a higher bending stiffness and resistance than conventional

sheet pile walls can offer. An RD pile wall built using large diameter RD piles provides high bending stiffness and resistance.

Vertically loaded structures

If the piles are extended to bedrock, the vertical loadbearing capacity of the RD pile wall is very high. Thus the structure can act as a horizontally loaded wall subject to earth pressure and a foundation structure able to bear high vertical loads at the same time.

RD[®] pile wall products

Piles used in the RD[®] pile wall

Pile sizes from RD220 to RD1200 can be used in the RD pile wall. The piles are delivered in exact design lengths and with beveled ends, if necessary. The pile sizes available for the RD pile wall are presented in Table 1.

Steel grades of piles

Several SSAB made steel grades all the way from S355J2H to high strength S550J2H can be used for RD pile walls. The selection of the steel grade has a marked impact on the structural resistance of the pile wall. Selecting a stronger steel grade such as S550J2H often allows using piles of smaller diameter or wall thickness. Available steel grades are presented in Table 1. The chemical and mechanical properties of the steel grades are presented in Table 2.

Connector types

In the RD pile wall the pile pipes are attached to each other by connectors. Adjacent piles are always interlocked using a pair of connectors, a narrow and a wide one.

SSAB's RM/RF connectors and the integrated injection channel ensure the water tightness of the bottom of the RD pile wall and its rigid contact with rock without separate injection pipes.

The SSAB RM/RF connectors can be used with pile sizes RD220 to RD1200.



Figure 2. SSAB RM/RF connectors.

Table 1. Pile sizes and steel grades available for RD pile walls, weights include pile pipe and RM/RF connectors.

Pile	Diameter [mm]	Weight [kg/m]								
		Wall thickness [mm]								
		10	12,5	14,2	16	18	20	21	22	23
RD220	219.1	65.7	77.8							
RD270	273.0	79.0	94.4							
RD320	323.9	91.5	110.1							
RD400	406.4	111.9	135.5							
RD500	508.0	136.9	166.8	187.0	208.2					
RD600	610.0	162.1	198.3	222.7	248.5	276.9				
RD700	711.0	187.0	229.4	258.1	288.3	321.7	354.9			
RD800	813.0	212.1	260.9	293.8	328.6	367.0	405.2	424.3	443.3	462.2
RD900	914.0	237.0	292.0	329.2	368.4	411.8	455.0	476.6	498.1	519.5
RD1000	1016.0	262.2	323.4	364.9	408.7	457.1	505.4	529.4	553.4	577.3
RD1200	1220.0	312.5	386.3	436.4	489.2	547.7	606.0	635.1	664.1	693.1

- Steel grades S460MH and S550J2H
- Steel grades S355J2H, S440J2H and S550J2H
- Steel grades S355J2H and S440J2H
- Check availability from SSAB sales

Table 2. Chemical and mechanical properties of steel grades

Steel grade	Carbon equivalent	Chemical composition, max.				Mechanical properties				
	CEV max [%]	C [%]	Mn [%]	P [%]	S [%]	f _y min [MPa]	f _u [MPa]	A ₅ min [%]	T [°C]	Impact strength KV min [J]
S355J2H	0.45	0.22	1.6	0.03	0.03	355	470-630	20	-20	27
S440J2H	0.45	0.16	1.6	0.02	0.02	440	490-630	17	-20	27
S460MH	0.46	0.16	1.7	0.035	0.03	460	530-720	17	-20	40
S550J2H	0.47	0.12	1.9	0.02	0.02	550	605-760	14	-20	27

Production, quality control and delivery terms of products

Production and quality control

SSAB follows in its operations procedures that comply with the requirements of ISO 9001 quality management system and ISO 14001 environmental management system. Quality management systems ensure the functioning of processes from raw materials procurement to delivery of the end product to the customer.

SSAB steel pipe piles are made of the high grade steel produced at the company's own steel works. Large diameter (≥RD400) steel pipe piles are manufactured by spiral welding and small diameter piles (≤RD320) by longitudinal welding.

Connectors are welded simultaneously to both sides of RD piles on an automated production line. Special attention has been paid to control of deformations of steel pipes due to the welding of connectors.

The steel piles used in SSAB's RD pile wall are CE marked products and they have been granted an European technical assessment ETA 12/0526.

Technical delivery conditions

The technical delivery conditions of piles comply with standard EN 10219-1. Dimensions and tolerances comply with standard EN 10219-2. A material certificate in accordance with EN 10204 type 3.1 for the pile material is provided.



SSAB is a Nordic and US-based steel company that builds a stronger, lighter and more sustainable world through value added steel products and services. Working with our partners, SSAB has developed SSAB Fossil-free™ steel and plans to reinvent the value chain from the mine to the end customer, largely eliminating carbon dioxide emissions from our own operations. SSAB Zero™, a largely carbon emission-free steel based on recycled steel, further strengthens SSAB's leadership position and our comprehensive, sustainable offering independent of the raw material. SSAB has employees in over 50 countries and production facilities in Sweden, Finland and the US. SSAB is listed on Nasdaq Stockholm and has a secondary listing on Nasdaq Helsinki. Join us on our journey!

www.ssab.com, [Facebook](#), [Instagram](#), [LinkedIn](#), [X](#) and [YouTube](#).

DISCLAIMER

The data and commentary in this document is for general information purposes only. It is provided without warranty of any kind. SSAB Europe Oy (or any of its affiliates) shall not be held responsible for any errors, omissions or misuse of any of the enclosed information and hereby disclaims any and all liability resulting from the ability or inability to use the information contained within. Anyone making use of this material does so at his/her own risk. In no event will SSAB Europe Oy (or any of its affiliates) be held liable for any damages including lost profits, lost savings or other incidental or consequential damages arising from use of or inability to use the information contained within. The size range and technical properties of SSAB piles as well as the content of this document are subject to modifications without notice.

Copyright © 2024 SSAB. All rights reserved. SSAB and SSAB brand names are registered trademarks of SSAB.

SSAB

Harvialantie 420
FI13300 Hämeenlinna, Finland

Tel. +358 20 5911

www.ssab.com/infra

The SSAB logo is rendered in a bold, dark blue, sans-serif font. The letters 'S', 'S', and 'A' are connected, and the 'B' is separate. The logo is positioned in the bottom right corner of the page.