

Scope



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Dear valued partners
and prospective customers,

Welcome to my first PERI scope for Singapore. It is with great pleasure and a sense of pride that I sit here in Singapore to write this surrounded by a great team dedicated to the success of PERI Singapore.

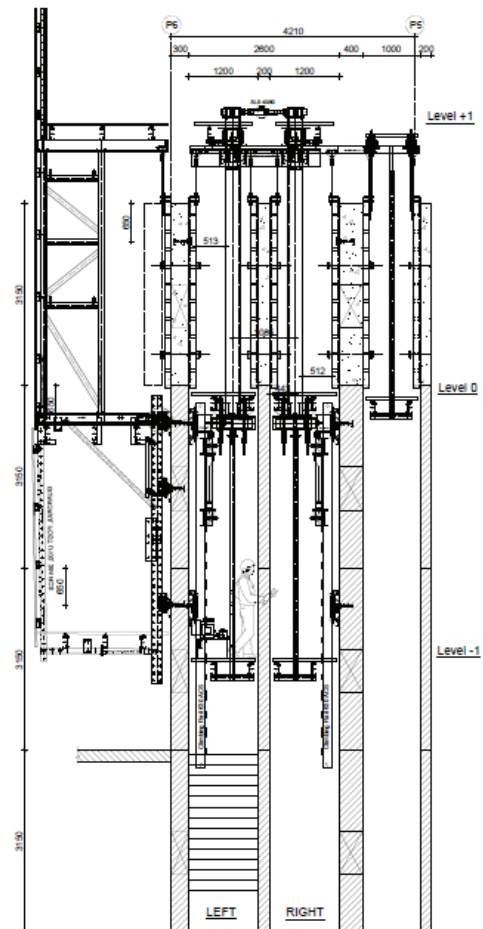
Having recently returned from the PERI Global team conference where our road map to 2025 was laid out, it is an exciting time to be working for PERI and a time that I believe where PERI will have the greatest influence on the construction industry since its humble beginnings back in 1969. PERI are working on some innovative products to be released over the coming years. On the back of new product releases like DUO, the light weight wall and slab system made of techno polymer a revolution is coming to the formwork and scaffold industry lead by PERI.

As many would know the construction industry in Singapore is going through a challenging phase with a decline in work over recent times. Whilst this means a tighter market for everyone, there are still significant opportunities for those who can think smarter and find innovative ways to solve to todays problems. PERI recognise these challenges and are well placed to assist our customers with intelligent outside the box thinking and innovative ideas and solutions to make your construction site safer and more productive.

In the attached pages of the PERI scope you will find many innovative and smart solutions with our valued partners from the construction industry in Singapore. I hope you enjoy reading about them as much as our dedicated team did in providing these innovative solutions.

Sincerely,

Nicolas Dunn
Managing Director, PERI Asia Pte Ltd



Section drawing of ACS OMEGA used in a narrow space.



Contractor
Kimly Construction Pte Ltd
Field Service
PERI Asia Pte Ltd



**Mr Yuan Long Sheng,
Senior Project Manager:**
“We have been using PERI products since 2007. Our productivity on the jobsite improved as the systems, especially GRIDFLEX, are easy to handle. We save a lot of labour and time with PERI.”

Fast - Productive - Safe working environment Commonwealth Towers, Singapore

Commonwealth Towers is a 99-year leasehold condominium property located at Commonwealth Avenue in District D03 with 43-Storey and 845 units.

For the first time in Singapore, the Self-Climbing system ACS-P Platform is used at both corewalls.

With the ACS-P support, high-rise building cores, tower-like structures

with generously-sized storage and working areas are able to be constructed in advance.

Due to the authority requirement in constructing of a staircase shelter, a 1.2 m wide staircase is designed by ACS OMEGA system to realize assembling and striking of TRIO Panel in a narrow space.

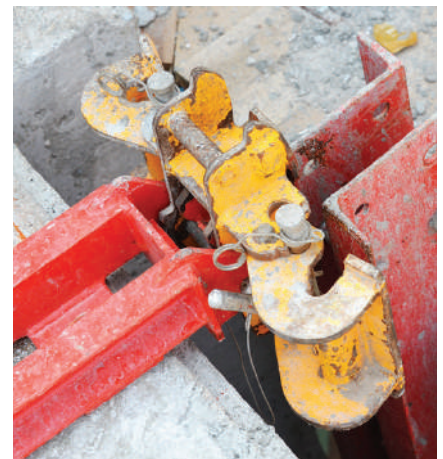
The RCS-P system supports the perimeter of the wall and slab edge as it provides a complete edge protection and gap-free protection for work carried out on the building shell floors.



RCS Climbing Platform applied to the 43-Storey condominium.



RCS-P provides protection from falling.





Contractor
Woh Hup (Private) Limited
Field Service
PERI Asia Pte Ltd



**Mr Thian Hung Ming,
Senior Site Manager:**

“The DUO system is very flexible and we save a lot of labor and costs for a crane due to its light weight. A further advantage is that the use of DUO does not cause any noise and assembly is very easy. Our cycles are faster and we have always been meeting our deadlines. We will definitely use DUO again in future.”

PERI DUO has proven its excellent characteristics

Sims Urban Oasis, Singapore

Located at the junction of Sims Drive and Aljunied Road, Sims Urban Oasis is a 99-year leasehold residence representing the best in city-edge living. The excellent connectivity makes life easy and convenient.

Sims Urban Oasis features lush greenery that stretches into the horizon, providing a wide space for outdoor activities. Three statuesque structures extend skyward, offering a priceless panorama of Singapore's skyline. Sims Urban Oasis sets the standard for future properties.

DUO - 3 in 1. PERI's new lightweight formwork has proven its excellent characteristics at the construction. It is universally applicable and allows efficient forming of walls, columns and slabs by using a minimum number of system components. Core components of DUO are panels including replaceable formlining and couplers to connect the panels.

Simple handling allows a very high productivity on site. Almost all operations can be carried out without any tools. Due to its low weight, cranes are not necessarily needed as the largest panel weighs less than 25 kg. Hence the application of DUO saves valuable time and high costs.

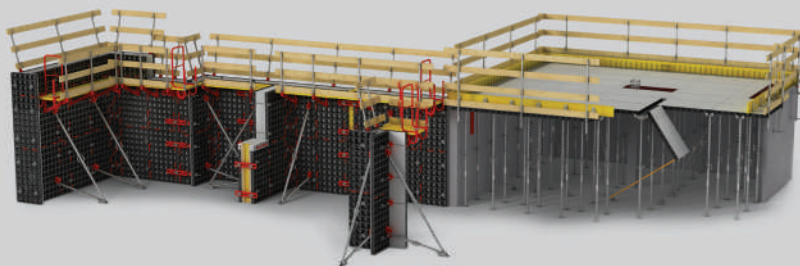
Another advantage of DUO is the significant reduction of construction noise. As the new product is made of the polytech material, disturbing construction noise is minimized. Residents benefit from a noise reduced extension of their urban district; a definitely plus for the Sims Urban Oasis project which is located in the centre of a vivid living area.

The use of the innovative formwork system could speed up the construction cycle on site. With DUO on Sims Urban Oasis, jobs could be completed ahead their datelines.



DUO Wall, Column and Slab Formwork

Universally applicable. Ergonomic in all aspects.



Universally applicable

Flexible forming of walls, columns and slabs using only one system

Ergonomic in all aspects

Low weight, crane-free handling and intuitive application

Easy replacement of formlining

Quick maintenance with just a few screws - without requiring special skills



Versatility is the special advantage of the system. The panels can be utilized for forming walls, columns and slabs.



No DUO system component weighs more than 25 kg, making DUO a real hand-set formwork system than can be handled without a crane.



The shape of the DUO Connector and the panel openings allow only one single installation option.

Versatile PERI System for chemical companies

JTC Chemical Hub, Singapore

Contractor

Tat Hin Builders Pte Ltd

Field Service

PERI Asia Pte Ltd



Platforms of CB 240 Climbing Systems.



A trolley and winch facilitates the movement of PERI PD8 Tableform.



PD8 Tableforms with trolleys.

JTC Chemicals Hub at Tuas South is a development for chemical companies that carry out manufacturing, blending and distribution activities including chemicals classified as dangerous goods.

JTC Chemical Hub consists of Block A and Block B. Construction for Block B has started in October 2015 and will approximately be completed in February 2016. PERI systems were used for building slabs, lift cores and columns.

With the PERI VARIO GT 24 Column Formwork, a wide range of cross-section dimensions and concreting heights can be shuttered without any time-consuming adjustment work. With the floor to floor height being 9 m at Block A, PERI VARIO GT 24 Column Formwork was used to cast a 9 m high column. Subsequent floor to floor heights are 6 m. The formwork could be reused by simply removing the 3 m layer of the column to cast 6 m tall column.

Together with Tat Hin Builders, PERI managed the challenge of casting the water tank at Block B having a 600 x 600 mm opening after casting the whole structure. Therefore the PERI UP Rosett Shoring Tower system was used due to the ability to be disassembled to small parts which easily could be removed through the manhole opening.

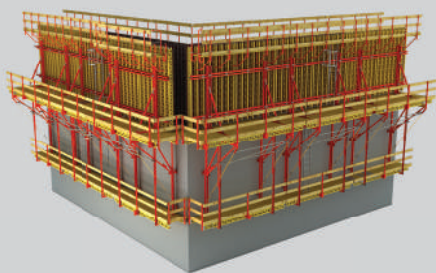
The ST 100 Stacking Tower system supports the cantilever roof slab. It is erected from the 3rd story until the roof. Assembly is fast as the system consists of 5 components only. They can be simply fitted together without any pins and connectors.

The PD8 Tableform is used for a beam and slab support in Block B while in Block A, MULTIPROP Tables are used for slab support. The PERI trolley facilitates fast moving of PD8 Tableform on site.



CB 240 Climbing Systems

Safe working conditions with wall formwork at all heights



CB 240

Bracket width 2.40 m with carriage (75 cm retraction distance), strong-back and adjustable brace.

- As shoring to support anchored wall formwork according to DIN EN 12812, alternatively, purely as working scaffold
- Type static for formwork heights up to 5.40 m
- Can be used with VARIO GT 24, TRIO, MAXIMO and RUNDFLEX wall formwork systems
- Crane-movable units consisting of formwork and scaffolding
- Finishing platform with ladder provide access to the wall
- Optional equipment with wind bracing which prevents tipping inwards

The CB Climbing System provides safe working conditions with wall formwork at all heights. The well thought-out design combines easy handling with a fast moving procedure and problem-free adjustment to suit different building shapes.

Strong

High load-bearing capacity of the brackets allows the formation of large scaffold units

Time-saving

Platform including formwork movable in only one crane lift

Safe

Completely free of tripping hazards in front of and behind the formwork

An all-purpose system for an underground MRT Station

Bright Hill MRT Station, Singapore



Contractor
Main Contractor
Penta-Ocean Construction Co. Ltd
Sub Contractor
Civil Tech Pte Ltd
Field Service
PERI Asia Pte Ltd

Bright Hill is a future underground MRT Station of the new Thomson-East Coast Line in Singapore. The 30 km long Thomson Line will enhance the rail connectivity in the north-south region of Singapore to the Central Business District (CBD) and Marina Bay.

Due to the nature of the skin walls, SB Brace Frames with VARIO GT 24 Girder Wall Formwork are used for the construction. As SB Brace Frames are very versatile, using the combination of both SB Brace Frames and VARIO GT 24 Wall Formwork, does not required form ties.

SB Brace Frames



SB Brace Frames transfer the fresh concrete pressure into the sub-structure and foundations during single-sided concreting of structural elements. It can be used with all PERI wall formwork systems. In addition, SB Brace Frames can be used as horizontal heavy-duty brackets.



SB Brace Frames and VARIO GT 24 Wall Formwork for casting of walls.



Casting of wall formwork of height up to 6.5 m.

A collaborative solution of PERI Formwork System and PERI Engineers

German European School Singapore, Singapore



Contractor
Tiong Aik Construction Pte Ltd
Field Service
PERI Asia Pte Ltd



VARIO GT 24 Column Formwork can be adapted to suit every cross section and concreting height.



PERI UP Rosett Table are adaptable to suit almost all geometries and loads.

German European School Singapore (GESS) is an independent international school in Singapore. With two existing campus, both campus will be combined into a one purpose-built school with brand new facilities that are designed for the future generations. The new GESS campus consists of both Educational and Sports blocks.

VARIO GT 24 Column Formwork systems are used for the columns as they are capable of assembling in any size and height.

To support the slab and beam, PERI UP, PD8 Table Formwork and ST100 Stacking Tower are used for a fast and easy assembly.

PD8 Table System

The proven shoring system for large loads

PERI PD8 stands for the solution with large units and high clearances. With the help of flexibly used system components, the application as shoring or stair tower as well as slab table is economical.



Simple

Standard connecting parts, same frame

Huge

Used as slab table for high clearances and in large movable units

High load-bearing capacity

As shoring tower for heights over 20 m and loads more than 60 kN

High

As stair tower up to 100 m high

- Modular system for the erection of scaffolding structures as slab tables, shoring towers or stair towers
- With just two frame sizes and two spindles along with large spindling lengths, cover all heights from 1.55 m onwards
- As shoring tower up to 21.30 m high and for loads up to 62 kN
- Can be erected as stair tower up to 100 m high with units pre-assembled on the ground
- Flexibly adapted using few system components as slab table

PERI offers a wide range of formwork and scaffolds

3M Factory, Singapore



Contractor
Top Pave Pte Ltd
Field Service
PERI Asia Pte Ltd



**Mr Cheong Weng Wah,
Project Director:**

“The product itself is rigid, safe to use and easy to assemble. The back-up services by the PERI Engineering Department and the on-site advice by the Formwork Instructor is very good. We would recommend PERI to any other contractors.”

3M, a multinational manufacturer, plans to expand its 100,000-square-metre manufacturing plant in Tuas.

PERI offered a wide range of formwork and scaffold for many applications on site. The construction cycle was accelerated by the easy handling of the high quality products from Germany whereas professional local-on-site-support by PERI Formwork Instructors enhanced safety and professionalism in material handling.

For the construction of the lift shaft, PERI provided the VARIO GT 24 and CB Climbing platform.

The CB Climbing platform was used for supporting large-sized wall formwork. The climbing unit consists of a working platform, brackets with formwork carriage and storage-backs supporting the formwork. It can be hoisted very quickly to the next level by crane for the consecutive casts.

VARIO GT 24 is a solution consisting of formwork girders, steel walers and formlining. It can be adapted to suit every concreting height and required fresh concrete pressure.

PD8 Table systems offer large spindle extension lengths. Therefore, it is a

very cost-effective solution. The shoring can be quickly adapted to suit different slab heights. Table systems allow our customers to re-use the unit without dismantling for further cast.

Thus the assembly time is reduced.

The PERI UP Tower served as safe scaffolding and easy access was guaranteed. Assembly and dismantling always took place with protection and the user was secure in every position.



PERI offers a wide and colorful range of formwork and scaffolds for many applications.



Easy transportation of PD 8 Table Forms.



PD 8 Table forms speed up the construction cycle.

Productive and flexible systems

JTC nanoSpace, Singapore

Contractor

Kienta Engineering
Construction Pte Ltd

Field Service

PERI Asia Pte Ltd



Mr Goh Chong Wei, Assist. Project Manager:

“PERI is a well-known company. We have used PERI systems on several projects because the products are easy to use, durable and flexible. They fulfilled our requirements. We would certainly use PERI systems again for future project.”

JTC nanoSpace @ Tampines is Singapore's first multi-tenanted cleanroom development to support growth in the niche semiconductor sector.

The 4-Storey RC structure has a dimension of 27 m high, 74 m width and 76 m long. The total duration for superstructuring of the building would take around 6 months.

A combination of PD8 Table, PERI UP and ST 100 Shoring systems are used to support the slab and beam of the infrastructure.

For concreting the columns of the building, VARIO GT 24 Column

Formwork system was utilized.

The project uses VARIO GT 24 Wall Formwork system and in combination with CB 240/160 Climbing Formwork system for core wall construction.

The durability and flexibility of PERI systems have all helped to fulfilled the customer's requirements.





PERI UP Flex Working Scaffold
 Extremely flexible work scaffold for a wide range of applications



With PERI UP Flex, safe working platforms can be realized at any height. With the continuous metric system grid of all components and the possibility of changing the direction of the decks, the modular scaffolding can be optimally adapted to suit virtually any local conditions. With the self-securing ledger connection on the rosett and the integrated protection against lifting in the decking, PERI UP Flex can be mounted extremely quickly. During use, the end-to-end guardrails and yellow toe board as well as the slip-resistant decks ensure a high degree of working safety.

Very Stable

Load capacity is increased and weight is reduced due to the rectangular waler cross-section.

Smooth working levels

Work areas can be completely covered without gaps thanks to the metric system grid, and wall junctions can be modified smoothly without planking.

Extremely safe

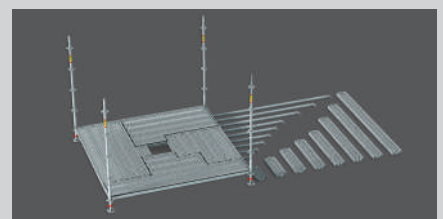
The slip-resistant, galvanised steel panels lock automatically against lifting. No extra measures are required to secure the panels.



The rosett on the standard allows for connections up to 45°. The nodes at spacings of 50 cm also provide connection possibilities in all directions.



The "Gravity Lock" facilitates fast assembly of the modular scaffolding: by inserting the wedge head into the hole and then locks.



Decking can be flexibly installed in two directions without causing tripping hazards. All components are based on a 25 cm module. This ensures adaptability to any geometry; no gap will be wider than 25 cm.

A special designed PERI UP platform to support TBM

TBM Platform, Singapore



PERI products resist high pressure on the construction site. The dismantling of the TBM was carried out on top of the temporary platform of PERI.



SLS Spindles transfer the horizontal force into the wall.



Break through of TBM.

Contractor
Ed. Züblin AG – Singapore Branch
Field Service
PERI Asia Pte Ltd

Advanced Sewer system, a special designed PERI UP platform supports the TBM (Tunnel Boring Machine) which consists of 3 parts. After the vertical break through it was lowered on a support frame which was located on top of the PERI platform to be disconnected and lifted up by a mobile crane (21 m). The total weight of the TBM was 81 tons.



Mr Peerapat Sipongsai, Project Engineer / Mr Jittinong Hitmongsong, Site Engineer:
“Assembling and dismantling of PERI products is very easy and the quality is very good. The PERI Formwork Instructor being on site is a great benefit for us.”

Flexibility of PERI systems reduce construction time

Cold Storage, Singapore

Contractor

MA BUILDERS PTE LTD /
PING TAN CONSTRUCTION PTE LTD

Field Service

PERI Asia Pte Ltd

The integrated Cold Storage and Warehouse located in the Jurong Industrial Estate is one of the major frozen food logistic hubs in Singapore. The industrial building provides 5 stories of office space next to the storage area. The maximum height of the building is 40 m and the duration of the construction period was 8 months.

The project at Jurong Cold Store required tie-beams in between columns which were cast at the height of up to 35.55 m. With the PERI UP Rosett system safe access for workers was ensured to install decks and side formworks of these beams.

There was a drop of 1.2 m on the first storey and the slab tableforms had to provide minimal efforts for reassembly when shifting to the next floors. The PD8 system helped to minimize labor contribution because bottom frames of the towers could easily be added or removed.

Detailed drawings provided by PERI Engineers, showed all the sequences of working with formwork equipment at all levels providing sufficient information about additional parts required at each level.

The use of CB 240 Climbing System saved valuable time during constructions as the complete unit including platform and formwork can be moved in one single crane lift. It provides safe working conditions at all heights.

VARIO Column Formwork contributes to the optimization of the working cycle as the system is continuously variable and therefore allows casting different heights of column sizes in minimum time.



Rosett node.



PERI UP Rosett shoring system managed to carry loads of 1.2 m-deep beams at height of 35.55 m.



Mr Casey Chin, Project Manager:

“We have been working many years close with PERI. The flexibility of PERI systems saved us a lot of time during erection and dismantling period. They provided well elaborated drawings and excellent support in logistics that enabled us to meet our deadlines”

A self climbing system for industrial building

Warehouse at Jalan Besut, Singapore



Contractor
Nam Aik Builders Pte Ltd
Field Service
PERI Asia Pte Ltd



**Mr Yeong Chung Kong,
Project Manager:**

“We have make a good choice of choosing PERI for our project as the PERI systems we used are fast, convenient and better workable than using the conventional formwork.”

Hock Seng Heng Transport & Trading Pte Ltd is a local establish company that offers a wide range of logistics products and services located at No. 9 Jalan Besut. This is a redevelopment project for a heavy vehicle maintenance and refuelling warehouse to make space for the new 5-Storey high warehouse that will be completed by February 2018.

Due to the large driveway space that is required for the heavy vehicles, the warehouse is constructed close to the

edge of the plot of land. With just 1.5 m away from the neighbour’s plot, a combination of CB 240 and CB 160 Climbing Formwork systems do not fit the criteria as it will encroach into the neighbour’s area. Hence, PERI offers an optimal overall solution for the liftcores with both CB 240 Climbing Formwork and RCS Rail Climbing system.

PERI RCS Rail Climbing Formwork system were put to good use as it combines the advantages of different

systems in a modular system to makes the easy adaption to site-specific requirements possible. As for CB 240 Climbing Formwork system, it provides safe working conditions with wall formwork at all heights. Hence, both self climbing systems enable lesser crane time. In addition, PD8 Beam Tables provide support as back propping for the precast plank installation and also topping up concrete casting.



An overview of the PD8 Table system being used to support the beam of the warehouse.



A liftcore for both cargo and passengers lift were seen using the PERI CB 240 Climbing Formwork system.



An upclose view of CB 240 Climbing Formwork system in the background and VARIO GT 24 Column Formwork system in the foreground.

PERI - The Service Provider

We offer more than just products

The broadrange of PERI equipment and systems offer the perfect solution for every requirement. However, the PERI range of services goes far beyond the likes of production, and system equipment sales and rental.



Technical Solution

Due to our engineer's in-depth understanding of the needs of our customers, they are able to develop the best project-related solutions for them. These services include, if required, static calculations as well as assembly plans for special formwork. Although 90% of the formwork project requirements can be covered using standard equipment from the broad PERI product range, a special construction is, however, sometimes more cost-effective and it is exactly here that the engineers apply their expertise with great effect.



Logistics

PERI has the world's largest rental equipment pool that supplies its customers reliably, fast and with a high level of flexibility. "Just in time" deliveries and return deliveries - according to the particular construction schedule.

For very large material requirements, the local team works closely with other logistics locations thus ensuring an optimal delivery service to the construction sites.



On-Site Support

PERI formwork instructors provide an extensive professional on-site briefing. This means that any improper handling can be avoided and the risk of accidents are greatly reduced. Using the systems even more efficiently accelerates the construction progress.

The photos used in this brochure feature certain situations at particular moments on various construction sites. Additional images, e.g. regarding safety and anchor details, cannot always be considered as conclusive or final. These are subject to the risk assessment carried out by the contractor.

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