BRAND SAFWAY

Infrastructure

INFRA-KIT

INFRA-KIT is a modular system for infrastructure projects. It offers maximum flexibility with a minimal number of required system parts.

- Overview of INFRA-KIT applications
- Technical data
- Product advantages
- Applications
  - Incremental launching
  - Parapet Traveller
  - Parapet Bracket
  - Tunnel construction
  - Hammerhead Bracket
  - General usage
- Engineering-Services

more safety
more productivity

HÜNNEBECK FORMWORK SOLUTIONS
BY BRAND SAFWAY

INFRA-KIT
Overview of applications

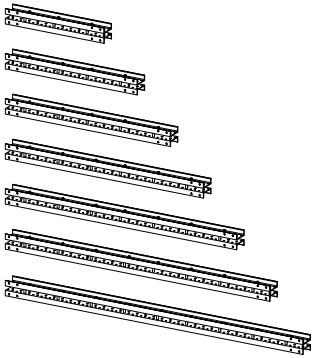
Maximum flexibility with a minimal number of required system parts

Applications based on the INFRA-KIT modular system

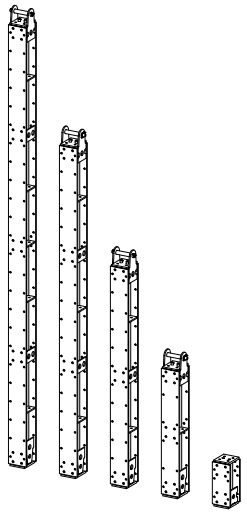
Heavy duty shoring

Parapet traveller

Parapret Bracket



INFRA-KIT beams and walers



Applications in cooperation with Strukturas

Tunnel construction

Incremental launching

Form traveller

Movable scaffolding system

INFRA-KIT
Technical data

Successful infrastructure projects with the modular INFRA-KIT system; greatest flexibility with just a few components.

INFRA-KIT L waler	For light applications
Fields of application	Tunnel construction; bridge and civil construction
Lengths of walers	62,5 | 75 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 cm
Waler connectors	Connectors to walers or spindles with or without additional spindle connection
Bolts	Load dependent Ø 16 and Ø 20
Spindle lengths	Spindles for light and heavy loads available; from 50 cm to 480 cm in different extension lengths
Corrosion protection	Fully galvanised
Accessories	Connection options to side protection systems, scaffold tubes and wheels

INFRA-KIT M waler	For moderately heavy applications
Fields of application	Tunnel construction; bridge and civil construction
Lengths of walers	150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 cm
Waler connectors	Connectors to walers or spindles with or without additional spindle connection
Bolts	Load dependent Ø 20 and Ø 25
Spindle lengths	Spindles for light and heavy loads available; from 50 cm to 480 cm in different extension lengths
Corrosion protection	Fully galvanised
Accessories	Connection options to side protection systems, scaffold tubes and wheels

INFRA-KIT
Technical data

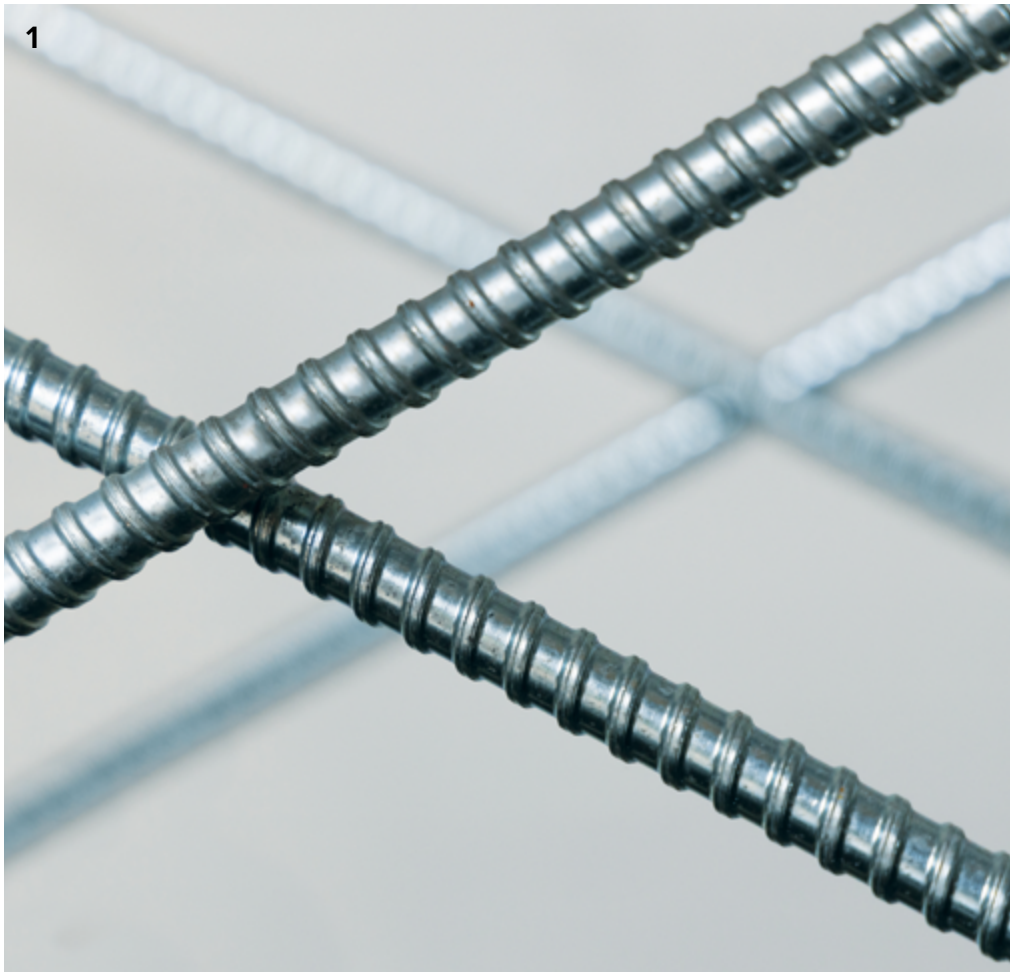
INFRA-KIT H beam	Heavy-duty shoring
Fields of application	Tunnel construction; bridge and civil construction
Main beam lengths	62 I 175 I 300 I 450 I 600 cm
Lengths of load-bearing frame props	50 I 75 I 100 I 150 I 200 cm
Load	Up to 210 kN load capacity per support
Beam connections	Beam joint with connecting bolts (18% flexural strength) Beam joint with screws (37% bending strength) Beam joint with beam joint plate and screws (83%) Butt plate joint with screws
Vertical supports	Load-bearing frame prop I INFRA-KIT beam I MkII soldiers I MODEX HD Tower
Support connections	Prop jack-2 I Pin-jointed base plate
Spindle range	0 cm – 30 cm I resp. 0 cm – 60 cm (with two prop jacks)
Angular compensation	0° to 10°
Application above ground	1.0 – 16.0 m (higher with separate structural analysis)
Corrosion protection	Fully galvanised
Accessories	Centring bar and clip I abutment clamping device I beam clamp I walkway bracket and post I wall strut

INFRA-KIT
Work safely

› Diagonal bracing with tie rods ensures stability (1)

› Using high grade steel and hot dip galvanised steel ensure long serviceable life and stability (2)

› Standard walkway brackets such as PROTECTO or MODEX side protection keep workers safe



INFRA-KIT
Work productively

› Economical infrastructure construction with only a few system components and minimal planning; expensive special configurations not required

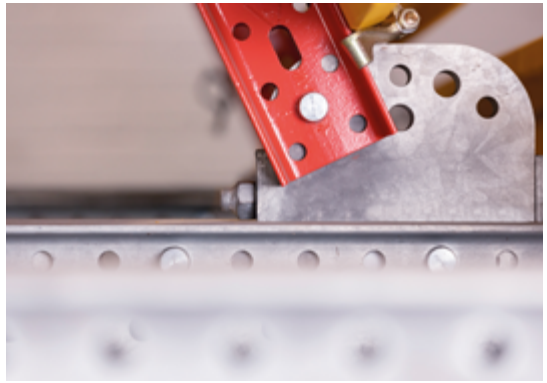
› Pre-assembly possible, increasing efficiency in tight spaces

› Just right for every application: Beams of different lengths available for all three load classes

› Plug connectors ensure quick and simple assembly

› Easy to insert tie rods for bracing

› Base jack can divert high loads; minimal material required



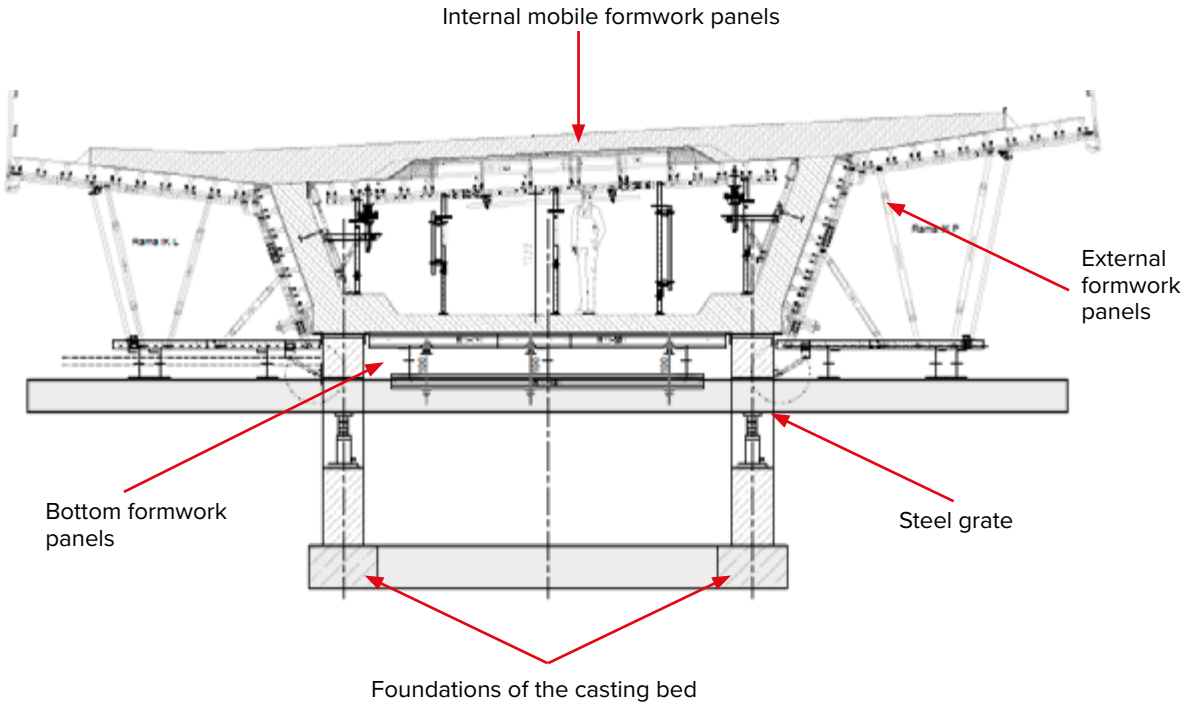
INFRA-KIT
Incremental launching

With the incremental launching method, the superstructure is concreted in long segments in a stationary formwork (the casting bed) behind the abutment. The segments are then pushed forward using hydraulic cylinders and cables on pillars which were casted earlier.

For project-specific erection of the casting bed, the INFRA-KIT modular system in combination with H20 girders and the PROTECTO fall protection system is perfectly suited. For abutments and piers, the Hünnebeck systems for wall formwork and access solutions are suitable, as well as the PROTECTO fall protection system.

Scope of application of the incremental launching method

- Long bridges (over 150-200 m), with a constant cross-section, straight or in a constant curve.
- When crossing natural obstacles like rivers, deep ravines, etc.
- When construction takes place in unstable ground conditions.



INFRA-KIT
Incremental launching

Work safely

› High level of occupational safety by using the PROTECTO fall protection system

› Robust and durable system components thanks to hot-dip galvanisation

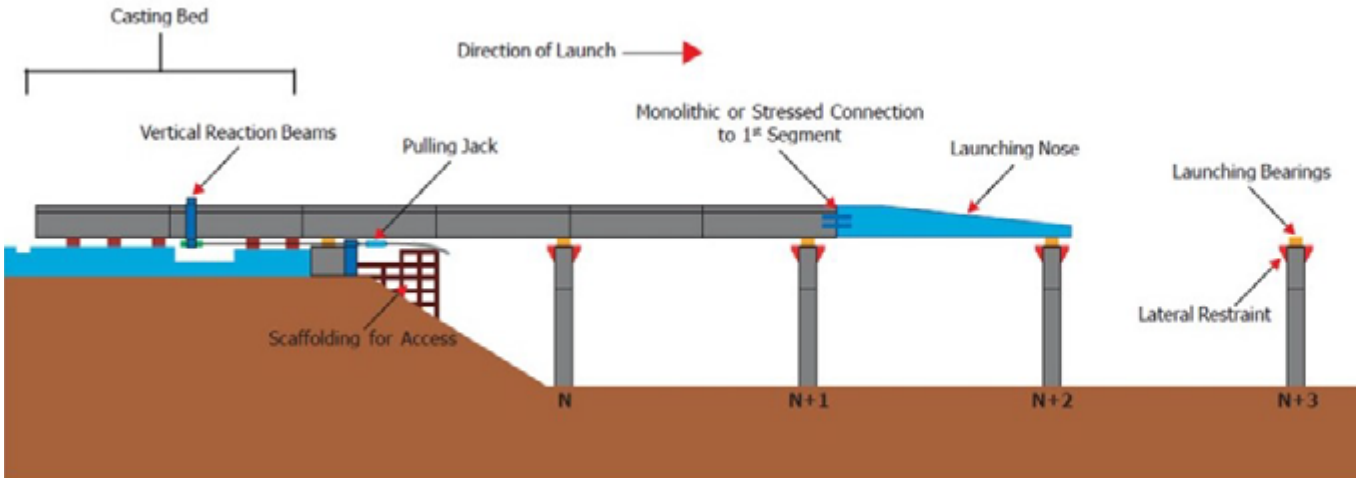
Work productively

› Quick stripping possible

› Less material required

› Reduced logistical effort throughout the construction process

› Standard solutions for rent – hardly any special construction required



1. The casting bed preparation
2. The formwork assembly
3. The launching nose assembly
4. Concreting of the first segment
5. Pushing the first segment forward
6. Concreting of the next segment
7. Pushing the next segment forward
8. Pushing of the entire bridge superstructure to the final position

INFRA-KIT
Parapet Traveller

Variable-use parapet traveller for the efficient production or renovation of parapets. Can be used for any bridge length, any bridge radius and also for special geometries.

Product description	Parapet traveller for bridge construction
Rail profiles	U-profiles; width adjustable according to application
Spindle struts	Any size possible from 50 – 480 cm
Lengths of scaffold tubes	50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 550 | 600 cm
Couplers	Rigid, swivel and half couplers
Lengths of walers	**INFRA-KIT M** 150 | 200 | 250 | 300 | 350 | 400 | 450 | 550 | 600 cm **INFRA-KIT L** 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 550 cm
Weights	**INFRA-KIT M** 73.84 – 298.3 kg = Ø 185.9 kg/running metre **INFRA-KIT L** 25.45 – 142.12 kg = Ø 78.68 kg/running metre
Load transfer	Loads are transferred via the IK jack (180 kN). Heavy-duty fixed and swivel castors 30 kN/60 kN
Beam connections	Numerous different adapters available. All adapters can be bolted together
Corrosion protection	Fully galvanised
Accessories	Wheel connection, heavy-duty fixed castors, heavy-duty swivel castors, jack, PROTECTO/MODEX side protection system

INFRA-KIT
Parapet Traveller

Work safely

› The traveller is moved on stable fixed and swivel castors on U-steel profiles.

› Robust and durable system components thanks to hot-dip galvanisation.

› High level of occupational safety by using PROTECTO or MODEX side protection

Work productively

› Quick assembly and disassembly: Pre-assembly possible.

› Bolting of the adapters substantially reduces time-consuming screwing.

› Anchoring to the structure not required

› Operation in a few seconds allows rapid work progress

› High load capacity for optimum system utilization

› Flexible arrangement of beams and spindles thanks to numerous adjustment options. Traveller can therefore be adapted to any parapet.

› Continuously perforated U-beams for installing the fasteners at any point. Formwork can be used at any desired angle.

› Can also be used as a demolition traveller.

INFRA-KIT
Parapet Bracket

The INFRA-KIT Parapet Bracket is a cantilever formwork system and the proper system to engineer any kind of parapet bracket solutions.

The INFRA-KIT Parapet Bracket system is versatile and utilises less equipment than a traditional underslung arrangement. It can adapt to any kind of geometry to suit the steel girders, precast concrete beams or cast in situ bridge decks.

INFRA-KIT
Parapet Bracket

Work safely

› Equipped with handrail protection by using PROTECTO or MODEX

› Clean and smooth working area

› Possibility to strike from top

› Robust and durable

Work productively

› Off site assembly and lifting in units possible

› Possibility to adapt the shape and loads

› Simple connection details; assembly using pin connection

› Spindles and waler easy to adjust and fit

› Multiple ways of anchoring:
- › Beam bracket
- › Anchor bracket
- › Custom anchoring

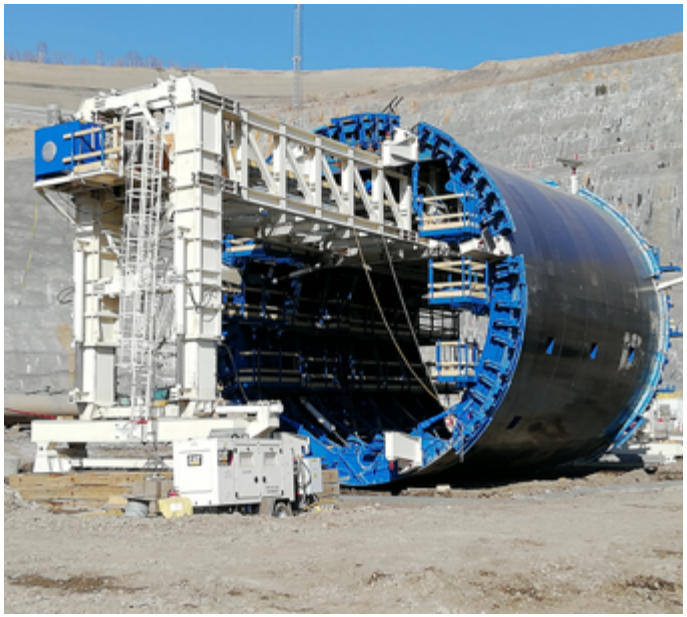
› Complete galvanized system, including mechanical components

INFRA-KIT
Tunnel construction

Variable-use tunnel carriers for the efficient production of cut and cover or mining tunnels
Our Infrastructure Competence Centre provides comprehensive solutions for any type of tunnel construction. With our experienced engineers, working together globally to find the best solution for you, we have completed numerous tunnel construction projects with various structures and shapes and in different countries all around the world. All Hünnebeck tunnelling solutions are based on one system: the modular INFRA-KIT system, allowing a maximum of flexibility with a minimal number of required system parts.

With our systems, we support all kinds of tunnel construction methods:

- Open cut, monolithic and partly monolithic
- Mine
- Cut and cover construction method
- Special construction methods



Many of the applications can be achieved with standard materials, which keeps costs low.

Hünnebeck also has vast experience with customised tunnel solutions; moreover, we can provide prototype machines adapted to the project's needs.

Customised equipment is usually equipped with hydraulic jacks and spindles with external vibrators, a concrete distributor and an electrical or hydraulic repositioning system. A single remote control can be designed to move and operate the formwork as requested.

INFRA-KIT
Hammerhead Bracket

The heavy-duty bracket is a cantilever formwork system specially designed for massive cantilevered or inclined structures. The heavy-duty bracket system is composed of H20 or aluminum beams with horizontal support frames and the INFRA-KIT system. The combination of these systems can adapt to the most difficult shapes and geometries being a preferred solution to shape hammerheads.

Work safely

› High level of occupational safety by using PROTECTO or MODEX side protection

› Clean and smooth working area

› Robust and durable

› Small number of simple installation steps are quickly learned

Work productively

› Rental ready to use solution

› Quick assembly and disassembly

› Offsite assembly and lifting in units possible

› With various sizes and adaptations to the shapes and loads

› Complex architecture easily accommodated with zero or limited special construction

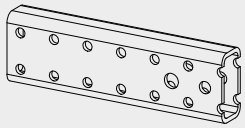
INFRA-KIT

**On the following pages you will find excerpts from our user manuals.
The complete instructions are available at www.huennebeck.com.**

Application & use

Connecting 2no. Walers L – without spindle connectors (with IK Waler Connector Flex L)

Components needed:

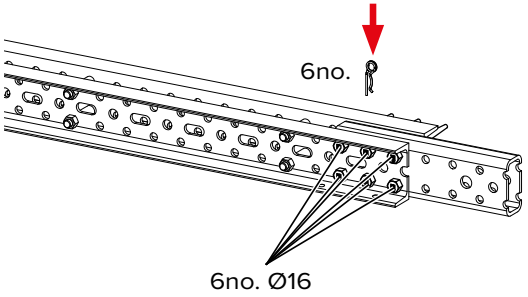


1no. IK Waler Connector Flex L
(code:608490)

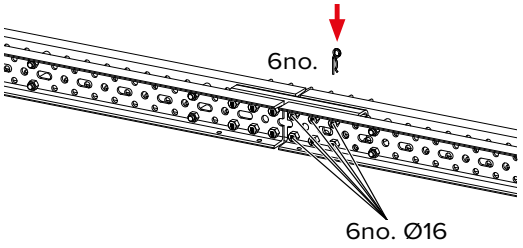
12no. IK Pins Ø16
(code:608816)

12no. Spring Cotter Pins 4
(code:173776)

Step 1 Insert the IK Waler Connector Flex L into the first Waler L and fasten with 6no. IK Pins Ø16. Secure the IK Pins with the Spring Cotter Pins.

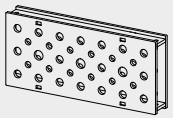


Step 2 Slide the second waler over the IK Waler Connector Flex L and fasten with 6no. IK Pins Ø16. Secure the IK Pins with the Spring Cotter Pins.



Perpendicular connection of IK Walers M

Components needed:

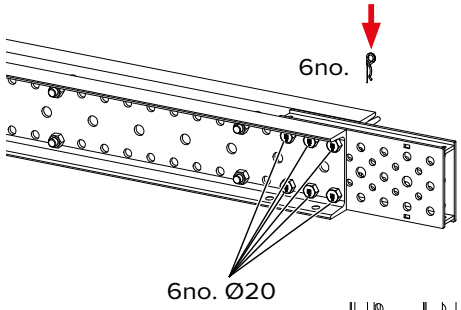


1no. IK Waler Connector Flex M
(code:608485)

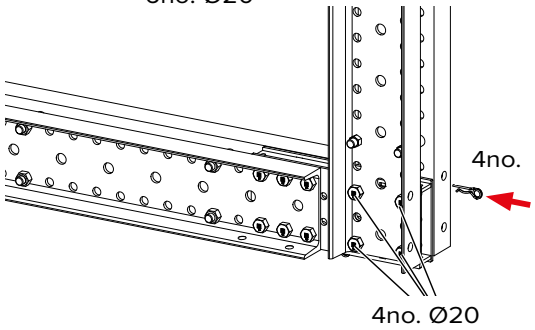
10no. IK Pins Ø20
(code:608820)

10no. Spring Cotter Pins 4
(code:173776)

Step 1 Insert the IK Waler Connector Flex M into the first Waler M and fasten with 6no. IK Pins Ø20. Secure the IK Pins with the Spring Cotter Pins.



Step 2 Slide the second Waler M onto the IK Waler Connector Flex M at a right angle to the first IK Waler and fasten with 4no. IK Pins Ø20. Secure the IK Pins with the Spring Cotter Pins.



INFRA-KIT
Application & use

Connecting Walers on top of one another

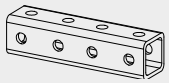
Two Walers L can be connected one on top of the other, parallel or crosswise using, the IK Adapter L.

The following Walers can be connected to one another using the IK Adapter M/L.

- 2no. Walers M on top of each another, parallel or crosswise
- 1no. Waler L on 1no. Waler M, parallel or crosswise

Connecting 2no. Walers

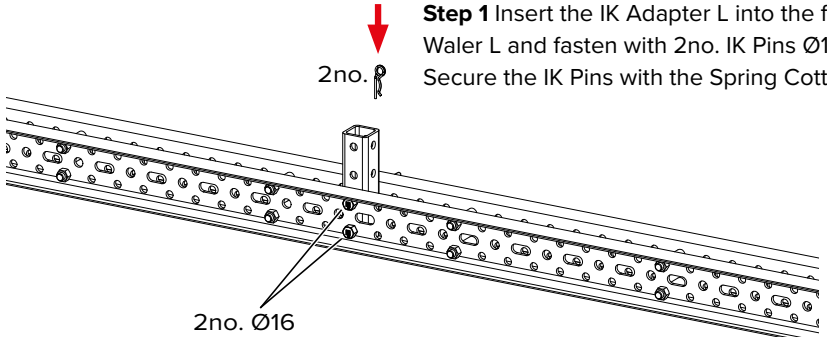
Components needed:



1no. IK Adapter L
(code:608480)

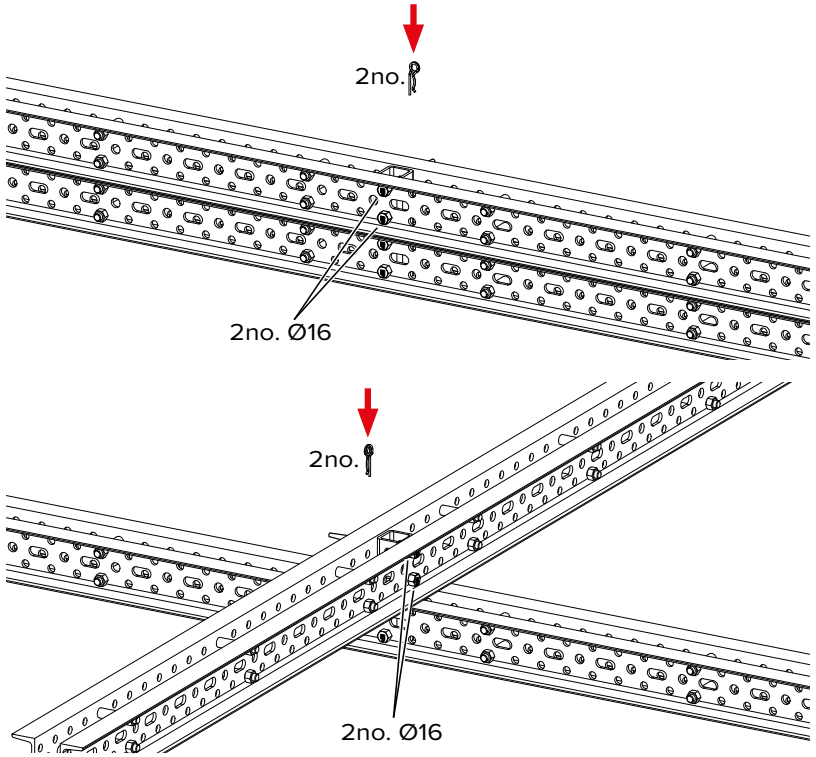
4no. IK Pins Ø16
(code:608816)

4no. Spring Cotter Pins 4
(code:173776)



Step 1 Insert the IK Adapter L into the first Waler L and fasten with 2no. IK Pins Ø16. Secure the IK Pins with the Spring Cotter Pins.

Step 2 Slide the second Waler L over the IK Adapter L, parallel or crosswise. Use 2no. IK Pins Ø16 to secure the IK Waler L. Secure the IK Pins with the Spring Cotter Pins.

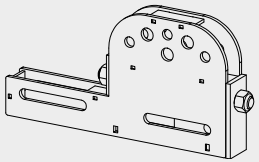


INFRA-KIT
Application & use

Connecting IK Walers L and M

Attaching the IK Adjustable Connector to an IK Waler L

Components needed:

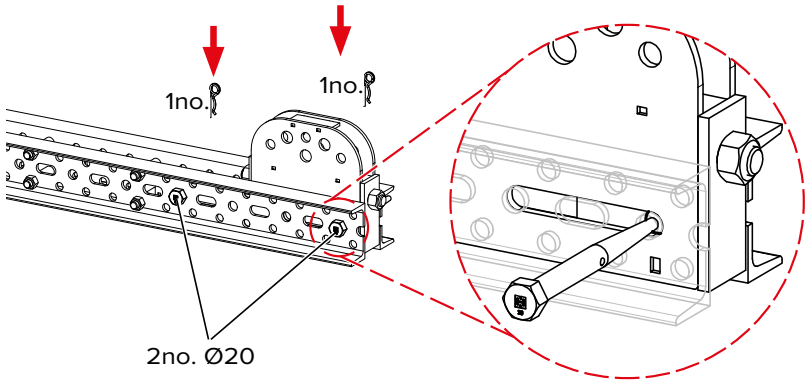


1no. IK Adjustable Connector
(code:608850)

3no. IK Pins Ø20
(code:608820)

3no. Spring Cotter Pins 4
(code:173776)

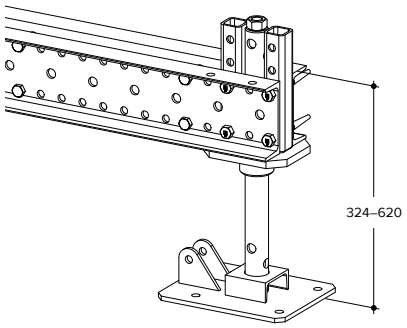
Step 1 Slide the IK Adjustable Connector into the Waler L and fasten with 2no. IK Pins Ø20. Secure the IK Pins with the Spring Cotter Pins.



Attaching jacks and bases

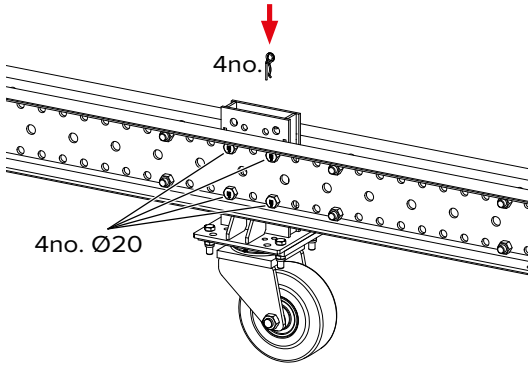
The IK Jacks are used to securely position the INFRA-KIT assemblies on the ground and adjust the height.

The IK Wheel Connector and the Heavy-duty Castors can be used to create mobile INFRA-KIT assemblies. Use the IK Jacks to raise and lower the assemblies.



Attaching the Heavy-duty Castors to IK Wheel Connector L/M

Step 1 Slide the IK Wheel Connector into the Waler M and fasten with 2no. IK Pins Ø20. Secure the IK Pins with the Spring Cotter Pins.



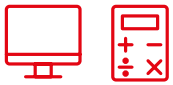
INFRA-KIT
Engineering-Services

Phase 1

We analyse the situation.

Phase 2

We develop the technical drawings and supply the required quantity list.



Phase 3

We plan and implement the realisation.

Phase 4

We assist with project finalisation.

We can design the most complex projects on your behalf quickly and thoroughly. Starting with the ground plan and facade dimensions, we produce the required structural drawings, determine the precise quantities of materials and supply all the required quantity lists.

We help in finding the right safety and access solution. Transparency, flexibility, cost-effectiveness and safety are a matter of course for us and an integral part of our corporate philosophy.

Whatever it takes! We assist you throughout complex construction projects including the engineering of one-off structures. Our mission at all times is to protect you from any unnecessary risks and help you arrive at the best-possible results in every respect.

Application & use

- Tunnel construction
- Bridge and civil construction
- Renovation
- Heavy-duty towers
- Temporary passages
- Solid slabs

INFRA-KIT®
integrates with

- PROTECTO side protection
- MODEX side protection
- Load-bearing frame prop

If you would like to find out more, take a look at our **Video**.

more safety
more productivity

HÜNNEBECK FORMWORK SOLUTIONS
BY BRAND SAFWAY

BRAND SAFWAY

Why BrandSafway?

Unique combination of expertise & resources

We are part of **BrandSafway**, a leading global provider of access, specialised services and forming & shoring solutions to the industrial, commercial and infrastructure end markets. With more than 340 branches all over the world, we provide support for ongoing maintenance as well as for refurbishment needs and new construction plans.

As one strong team, we support our customers:

- **Brand Energy & Infrastructure Services** is one of the world's largest industrial services specialists;
- **Brand Access Solutions** is the UK's largest full-service provider of scaffolding and access systems;
- **Hünnebeck** stands for safe and highly efficient formwork, scaffolding and safety technology.

More about BrandSafway

› best in class safety performance

› specialty team of ~40,000 People

› 30,000+ customers ... and growing

› ~340 locations in 25 Countries

› revenues of nearly ~$5b

› assets & equipment worth ~$4.2b

BRAND ENERGY & INFRASTRUCTURE SERVICES

HÜNNEBECK FORMWORK SOLUTIONS BY BRANDSAFWAY

BRAND ACCESS SOLUTIONS BY BRANDSAFWAY

SGB BY BRANDSAFWAY

Aluma SYSTEMS BY BRANDSAFWAY

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