

Propping

Using Allround Scaffolding

Technical Brochure

The universal system for
everyday and engineered
scaffolding solutions

General construction approval
Z-8.22-64

Certification according to
DIN ISO 9001/EN 29 001
by TÜV-CERT

WorkCover registered
AS/NZS 1576
Standard compliant



Allround Scaffolding®

Ingenious. Strong. Limitless.

Layher®

More Possibilities. The Scaffolding System.

Faster. Stronger. Safer. More Profitable.



Introduction

Layher's Allround scaffolding makes an ideal propping system:

- being both a scaffolding and a propping system it is economic and versatile
- it has extremely high strength capacity values, is self supporting and is quick to install

Allround in standard configurations up to six metres in height is rated for the following permissible loadings:

- with lifts of 2.0 metres - up to **45 kN** per standard
- with lifts of 1.5 metres - up to **60 kN** per standard
- with lifts of 1.0 metres - up to **70 kN** per standard

(see Tables 3a & 3b on pages 8-9 for details)

Permissible loadings can be increased considerably further by:

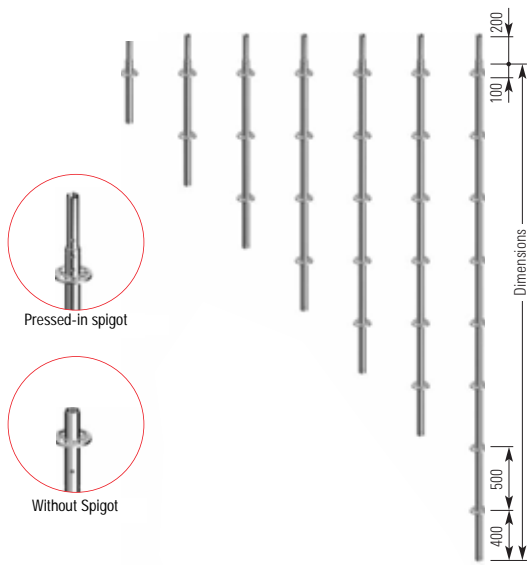
- using Layher's reinforced base jacks and head jacks (U-heads)
- additional bracing (ledgers and diagonals), and/or
- joining standards with our unique twin wedge couplers

For example, a single 1.09 m x 1.09 m heavy duty Allround tower can support loads of close to **700kN** (see example on pages 11-12) or even higher.

Appropriate static calculations should be performed to prove the appropriate configuration of Allround components for each individual situation.



Required components for propping



Vertical standards



Spigot



Special Bolt



Double wedge head coupler



Base collar, extended



Base collar



Heavy duty
4 way base collar



Base plate 60



Base plate 80
reinforced

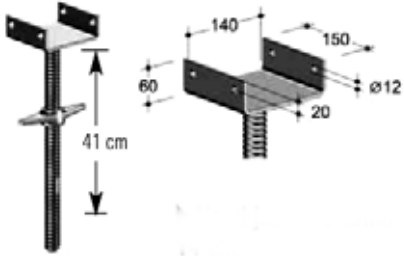


Swivelling base plate
80 reinforced

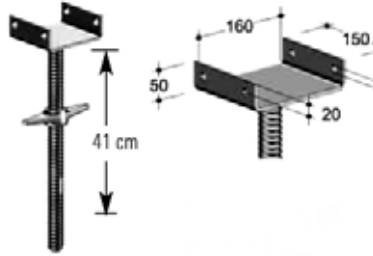


Heavy duty
base jack

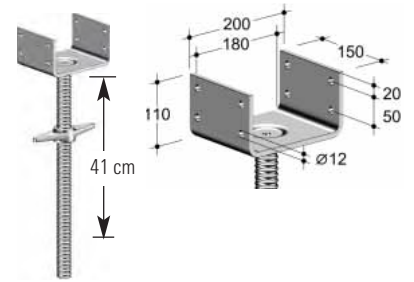
Required components for propping



Head jack 60, solid 14 cm



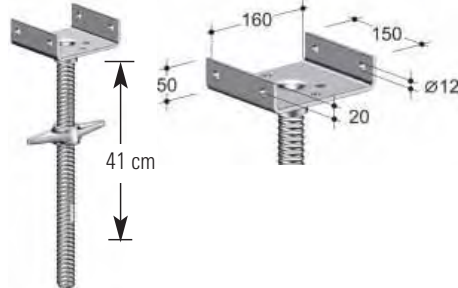
Head jack 60, solid 16 cm



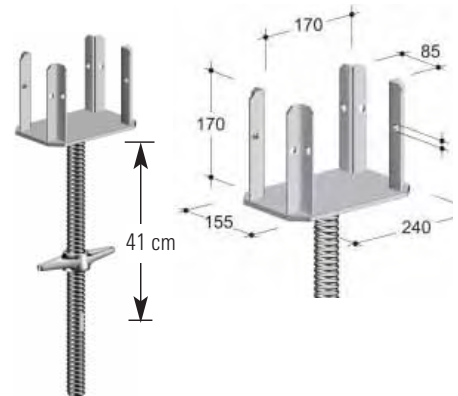
Head jack 60, solid 18 cm



Heavy duty fork head



Swivelling head jack 60, solid



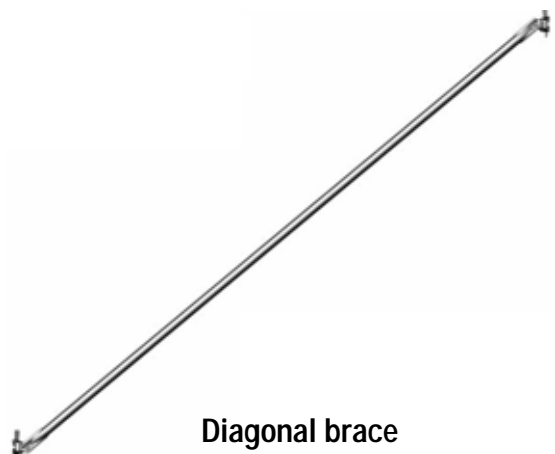
Crosshead spindle 60, solid



Ledger



Heavy duty 4 way head collar



Diagonal brace

Heavy duty towers and columns

In applications where the load-bearing capacities of traditional falsework towers are exceeded, it is possible to use the **heavy duty towers and columns** using Allround scaffolding.

Heavy duty spindles fit into specially designed heavy-duty top and bottom collars. This grouping of the standards allows a large increase in the capacity over individual standards. An extremely high load-bearing capacity is achieved by combining four Allround standards.

This support can be used in a number of arrangements with various load-bearing capacities: a heavy duty tower or a heavy duty column. These arrangements can be further expanded by using Layher Allround standard components to cater for a vast variety of irregularly shaped areas.

Figure 4a Heavy Duty Tower

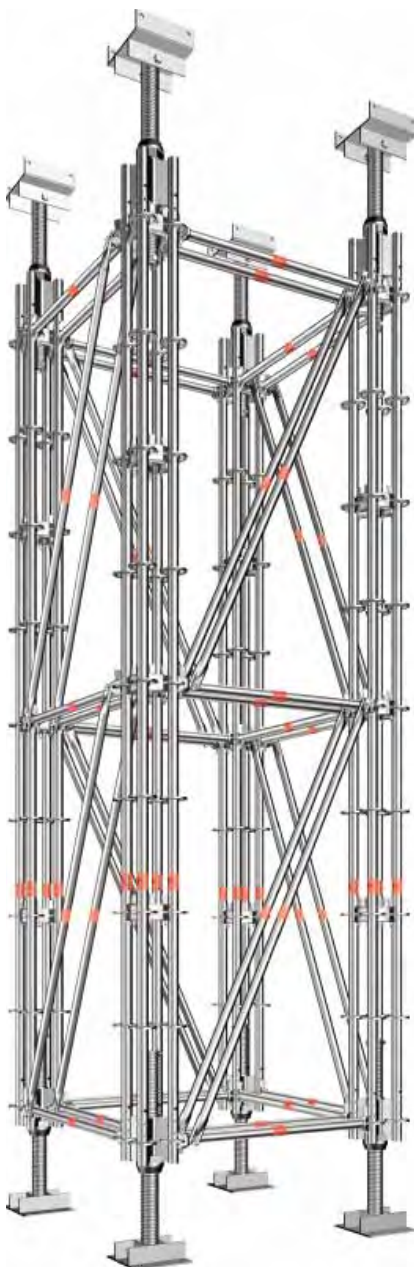
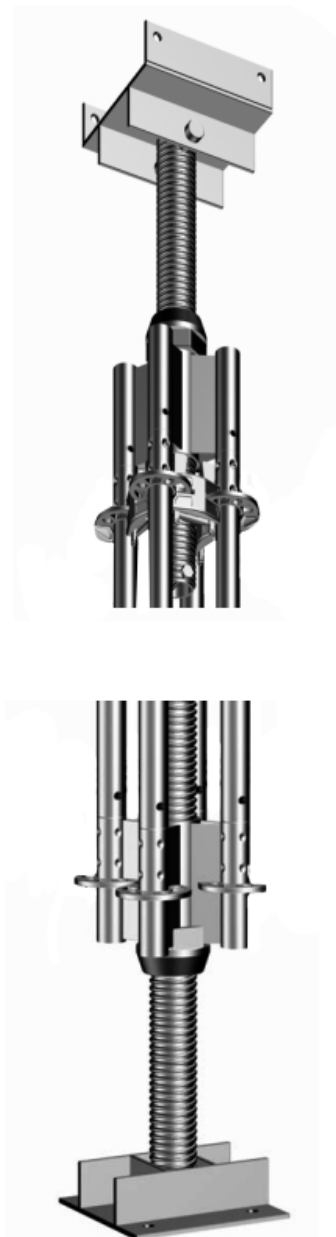


Figure 4a Heavy Duty Column



Overhang for walkways and soffits

The **Layher Allround** support structures can be extended quite simply with the use of base collars or 0.50 m standards and diagonal bracing.

Depending on the floor thickness and the position of the soffit, one or two diagonals for each base collar or 0.5 m standard are normally sufficient for a walking platform (Figure 12a).

A walking platform should be at least 60 cm wide and be fitted with toe boards and guard rails.

If longer standards and several diagonal braces are used, the Allround overhang can carry much higher loads (Figure 12b). For such overhangs static calculations are required.

Figure 12a

Extending the Allround support structure with single diagonal bracing

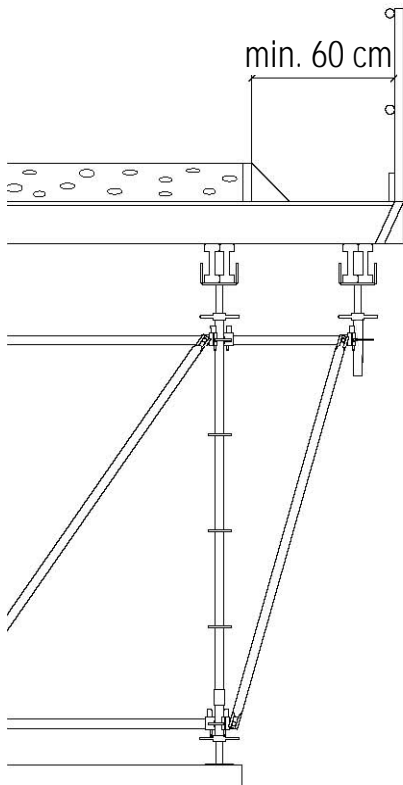
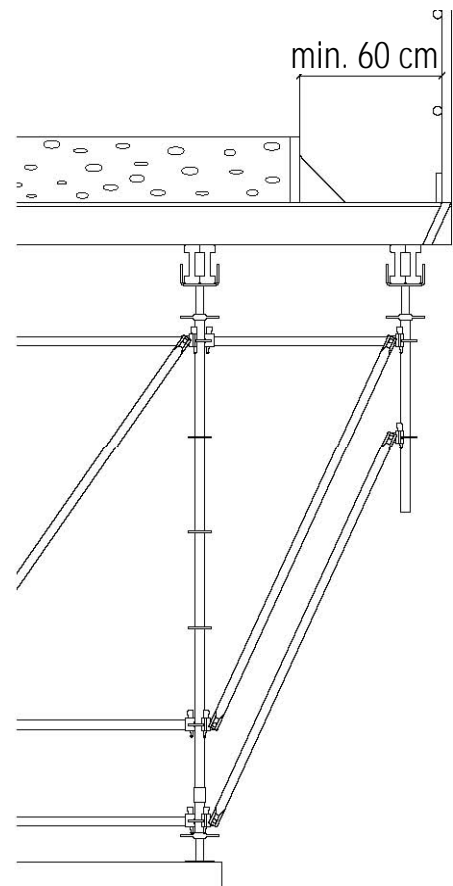


Figure 12b

Extending the Allround support structure with double diagonal bracing



0.50m standard without spigot (2604.050) or base collar (2602.000)

Multiple support levels

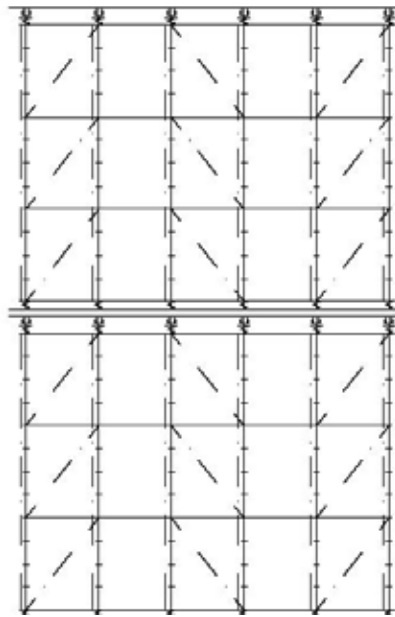
After initial set a poured concrete floor takes time to reach its maximum strength.

When there are multiple levels of support scaffolding, the support structure of floors that are not fully cured will also have to carry part of the load of the floor(s) and support structure above.

Depending on how fast construction takes place, the total load on the lowest support structure could increase to more than the weight of two floors above.

Where multiple levels are to be poured in a construction process a suitably qualified engineer should be consulted.

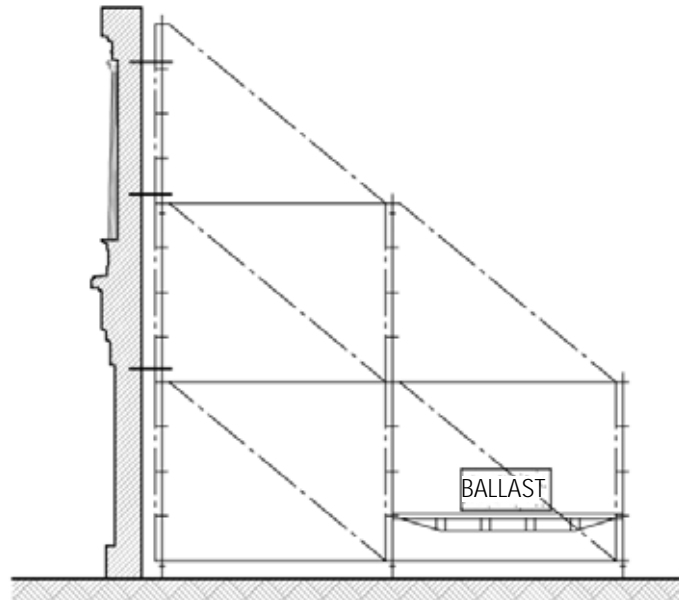
Figure 13
Multiple levels
of Allround
support structures



Supporting a free-standing façade with Allround scaffolding

Figure 16

Example of scaffold for free-standing façade

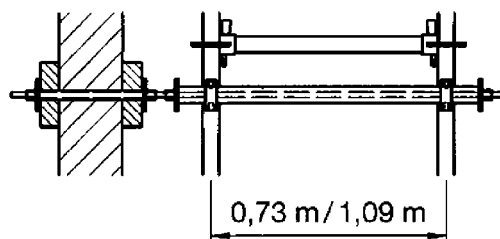
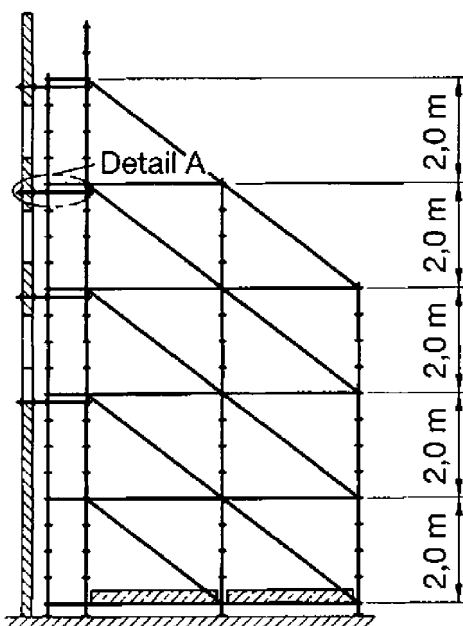


Allround scaffolding may support a free-standing façade, for example during renovation of historic buildings. The scaffold must be able to withstand the resulting wind loads and stabilisation loads. Individual static calculations are required.

The scaffold must be tied into the façade as shown in the example in the diagram below (Figure 17).

Figure 17

Tying the scaffold into a free-standing façade



Supporting scaffolds for free-standing walls and façades

In order to guarantee their stability, propping scaffolds must be equipped with ballast.

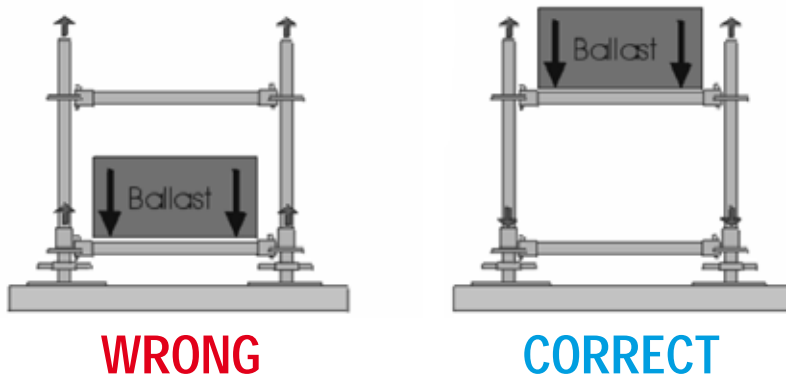
Always use allround standards with bolt-in spigots!

The amount and kind of the ballast depend mainly on the:

- height of the wall
- available space at the base in order to widen the scaffold
- climatic conditions (→ dynamic wind pressure)

Figure 14

Correct placement of Ballast

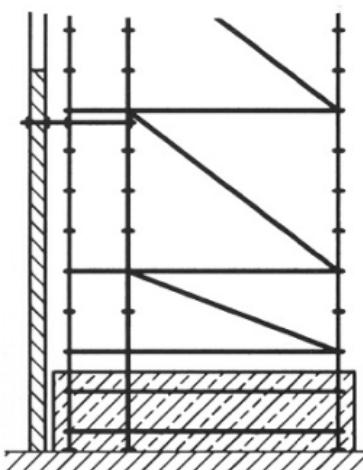


- do not load the ballast on the base collar level (no tension can be transferred) (see Figure 14 above).
- don't use fluid or grainy ballast.
- carry out a static investigation.

If the load capacity of the decks, standards or transoms has been reached (due to wind, dead load of scaffolding and ballast) then the standards may be embedded in a concrete foundation (see Figure 15 below).

Figure 15

Embedding vertical standards in concrete foundations



Propping using Layher Allround Scaffolding

◀ **Faster**

- ▶ Superior system technology
- ▶ Shorter assembly time
- ▶ Shorter dismantling time
- ▶ Lower labour costs

◀ **Stronger**

- ▶ Verified high load bearing capacity
- ▶ Eight connection points on each node
- ▶ Significantly less weight than other systems
- ▶ Lower transport costs

◀ **Safer**

- ▶ Certified consistent quality
- ▶ ISO 9001 TÜV certified
- ▶ AS/NZS 1576 standard compliant
- ▶ Stable structure from base out

◀ **More profitable**

- ▶ Components can be used for propping or general scaffolding
- ▶ Increase available uses for your equipment
- ▶ Give clients a wider range of services
- ▶ Greater revenue

Save time. Save money.

Faster. Stronger. Safer. More Profitable.

