

**FAC**  
**- the universal construction kit**



## THE FAC UNIVERSAL CONSTRUCTION KIT —

### — *What it is*

A self-contained set of selected standard elements which are easily assembled into a variety of working models for experimental and demonstration purposes, or for performing specialized tests.

- ① It permits the building of frameworks and carrying structures within a wide range of sizes, and is capable of supporting very heavy loads.
- ② It is possible to place the components of a model at any specified point in the framework for precision work.
- ③ The kit contains a wide assortment of the most current machine elements, including power transmitting parts, such as gears, shaftings and bearings, and they are of such quality to guarantee long term operation.
- ④ Although the parts make the kits universal, they are not so great that the set becomes unwieldy.
- ⑤ The prototypes and models built with the kit look realistic and not like something made out of a toy kit.

### — *The advantages of FAC*

- ① The FAC kit allows the designer, from the very birth of an idea, to test it out by »thinking directly in terms of mechanism«, making it easier to develop the idea into a workable design, readjusting it where necessary as it progresses toward its ultimate form — the ideal instrument for all designers to whom space thinking is second nature.
- ② The cost involved in preparing custom-built parts, and the time lost in waiting for them, are eliminated; this is a great asset particularly in those cases where the preliminary tests indicate that changes of the original model are necessary, causing parts to be redesigned or discarded altogether.
- ③ Specialized apparatus for use in research, development, and testing laboratories may be designed and built without waiting and at a price which is but a fraction of what a custom-designed equipment would cost.
- ④ A FAC working model does away with detailed and long-drawn-out explanations, as it gives a direct visual interpretation of the principles involved. By virtue of its power of illustration, it is the ideal basis for discussions within a team working on a new design, and the most convincing means of winning over associates and customers to the idea.
- ⑤ When no longer needed, the model is easily dismantled by unskilled personnel, the parts sorted into the case and available for use in other models.
- ⑥ Maximum construction potential with the minimum number of parts.
- ⑦ Saving of time and money because FAC enables you to make prototypes and models cheaply, without having first to design the article and put it down on a drawing board. Rough sketches are usually sufficient for an intelligent person to construct a model. With a FAC kit it is possible immediately to make a prototype of some new idea, without having to wait for the fitting shop to make it, and with the wide variety of parts it is seldom necessary to make special parts.

## THE FAC SYSTEM

A universal construction kit must be built up on the basis of strict standardization of parts and dimensions — only then will it attain the maximum constructive potential with a reasonable number of parts.

The leading principle of FAC is the use of round rods and beams which are assembled into a framework by clamping them together. The idea of clamping is by no means new, but its possibilities as a mounting expedient have never been more forcibly put in evidence than in the FAC system.

This mounting principle affords several distinct advantages: there are no limitations as to size of the supporting structures; the small components may be mounted at any desired point along the framework members; and by proper design, the framework may be made to carry very heavy loads.

These are very important considerations for a kit to be used in industrial research and experiment work, and have prompted the design of all other parts in the kit along industrial principles.

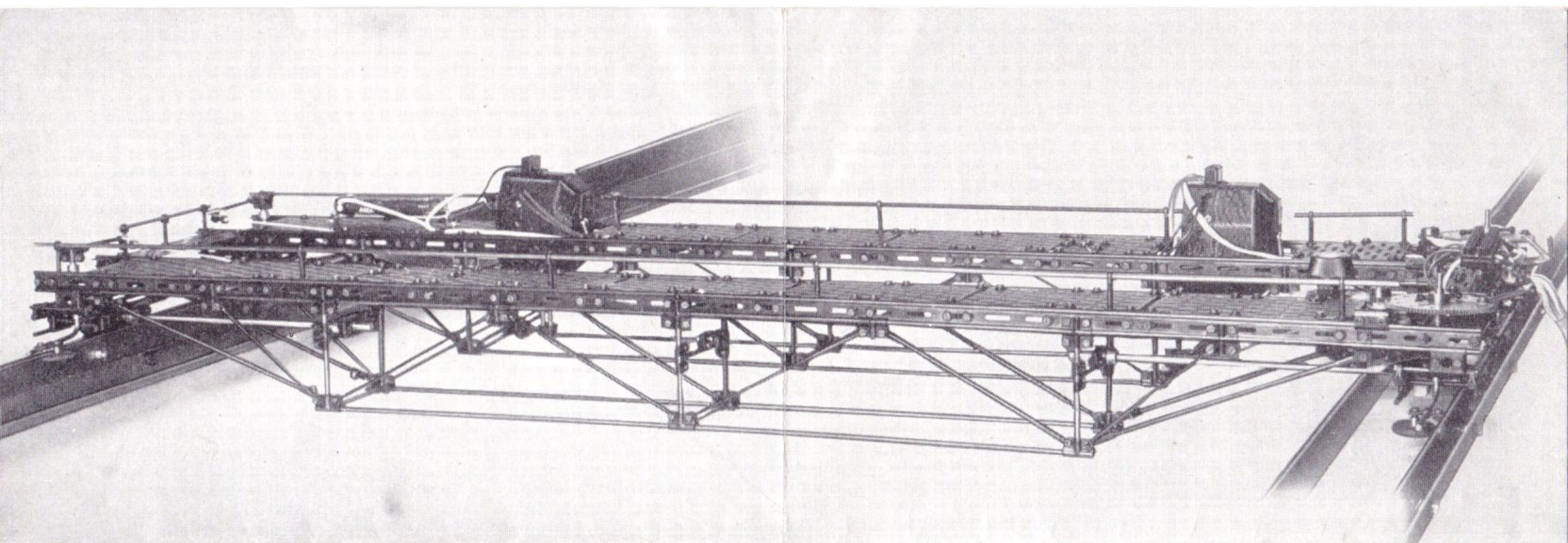
Maximum flexibility is obtained through the adoption of a 7 mm modulus system for all parts constituting the framework, and all other elements have been strictly standardized to conform with this system. All screws used, and all threaded parts, have the same size of thread, metric M3, all rods are 4 mm dia., all shafting either 4 or 6 mm dia.

There are a number of cases where the use of the relatively large clamps would be detrimental to the general appearance of the model, and where a smaller type of connecting elements is required. This applies particularly for crank mechanisms, crossheads, various types of linkages etc. To provide for this exigency, a complete line of small threaded parts, male and female, has been incorporated with the FAC system; these include a variety of bushes, sleeves, rings, eye-bolts, studs, collars, rods with threaded ends etc., made possible by the difference in diameter between rods and screws. Through this joint use of bolting and clamping, it is possible to build very compact and gracefully fashioned models, which are confusingly like custom-made equipment where there are no restrictions imposed on proportions.

## THE INSTRUCTIONAL VALUE OF FAC —

Schools, Technical Colleges and Universities find FAC a very useful medium to demonstrate construction and engineering parts. Working models are of great value to students and apprentices to enable them to grasp essential parts immediately.





*Model of overhead travelling crane built by ASEA.*

**The pictures on this page show two models built with FAC and referred to in the following testimonials:**

... We have found FAC an extremely valuable help for building operating models of new designs for overhead travelling cranes. Because of the ease with which a FAC model can be rearranged to suit a new idea, several alternative executions could be tried out. The tests have demonstrated the superiority of FAC in providing a clear illustration of the working principles of a new machine, and this fact has been largely instrumental in arriving at the ultimate design of the crane. Moreover, it might be added that the personnel engaged in building and trying out the model considered the work great fun.

Västerås, Aug. 10, 1956

A S E A

*J. Götzlinger*

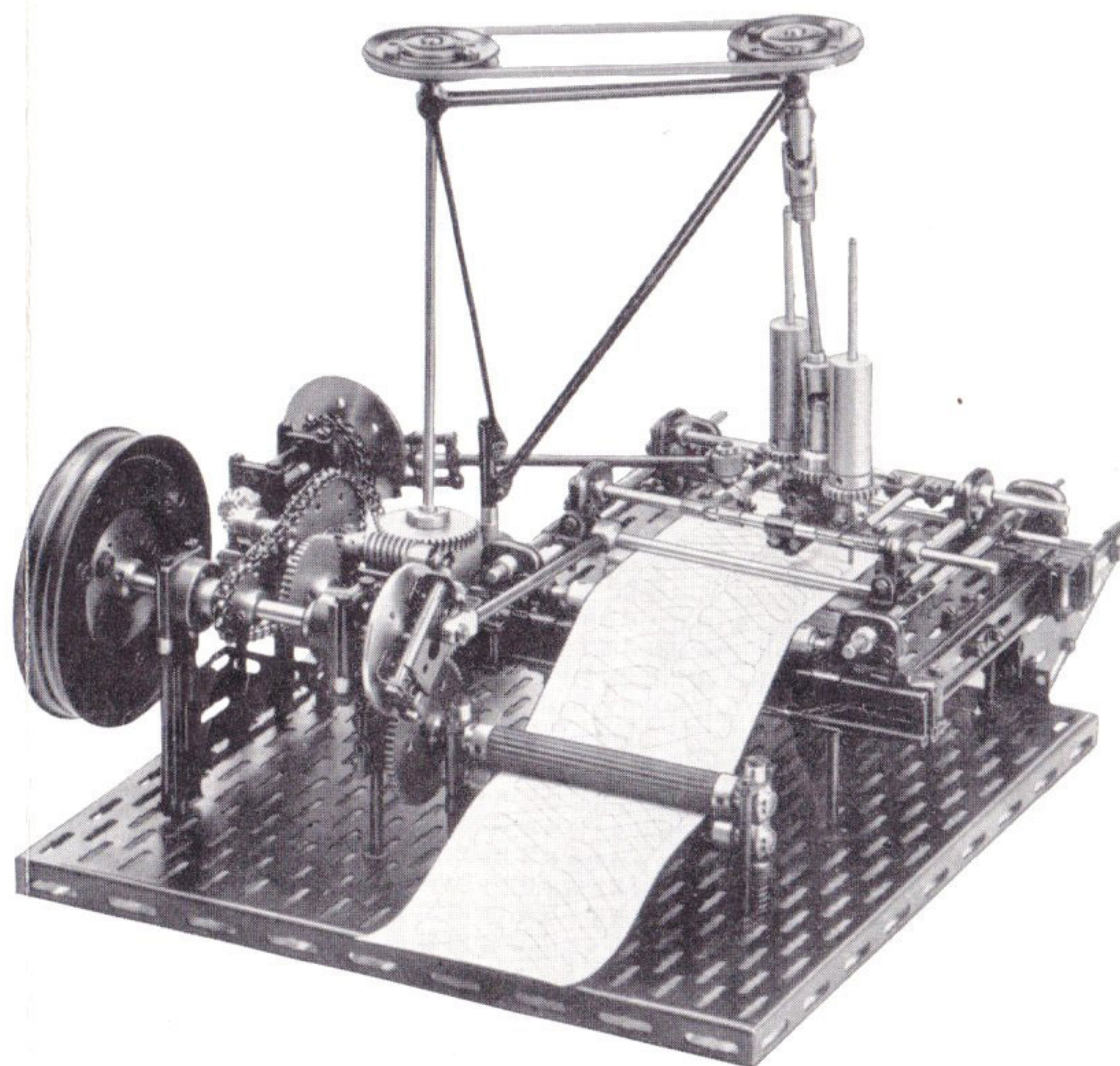
... For the purpose of carrying out tests regarding the properties of a new make of ball-point pen, a testing machine was needed to subject the pens to accelerated wear in order to simulate the wear occurring in actual use. To save time and expense, it was decided to build the machine from parts out of a FAC set, and it has in every way performed to expectation.

Stockholm, Aug. 11, 1956

The Swedish Materials Testing Institute

*Otto Forsman*

Director-in-Chief



*Machine for testing ball-point pens.*

P. T. O.



## FAC X1



### FAC X1 — (Minor Industrial Kit)

In composing the kit, emphasis was placed on designs with numerous moving parts and, therefore, the top section of the case contains a rich assortment of gears and other special machine elements. As a foundation for future enlargement, this set satisfies high demands on completeness and variety. The FAC instruction manual goes with the case.

Size of case:  $27\frac{1}{2}'' \times 15'' \times 2\frac{3}{4}''$ . 700×380×70 mm.  
Weight of set: 24.7 lbs. 11,2 kg.

### FAC X2 — (Major Industrial Kit)

This very complete set was specially composed to meet industrial requirements. It contains some 5000 parts chosen according to frequency calculations, i.e. the numbers of individual parts are in the proportions characteristic of the majority of FAC designs. The wooden case contains three tiers, the middle one being a separate case holding coupling elements, screws, nuts and other small items. This subdivision of the case makes for greater ease in finding the desired part when assembling a piece of machinery. The FAC instruction manual goes with the case.

Size of case:  $27\frac{1}{2}'' \times 15'' \times 4\frac{1}{8}''$ . 700×380×105 mm.  
Weight of set: 41.5 lbs. 18,8 kg.

## FAC X2



### FAC SUPPLEMENTS

All FAC parts are available separately.

### FAC MANUAL

has been compiled as an instruction book for the FAC system. It describes typical constructions and shows how to build with FAC, but it does not contain detailed descriptions of actual models. Certain typical constructions, such as gearboxes and differentials, are, however, treated in somewhat greater detail. Using the manual for guidance, to understand the FAC principles of construction, the FAC system can be quickly adapted to individual requirements.



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# MARK SYLWAN AKTIEBOLAG

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Masterprint  
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**FAC**

*Made in Sweden*