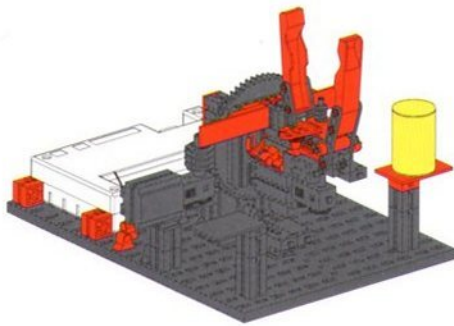


Industry Robots



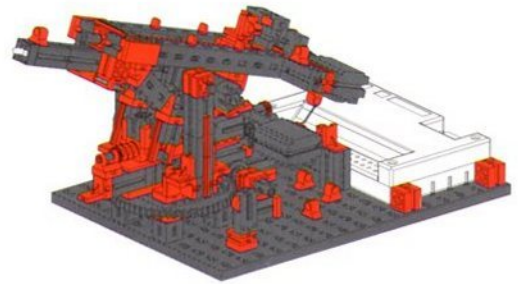
fischertechnik[®] [®]

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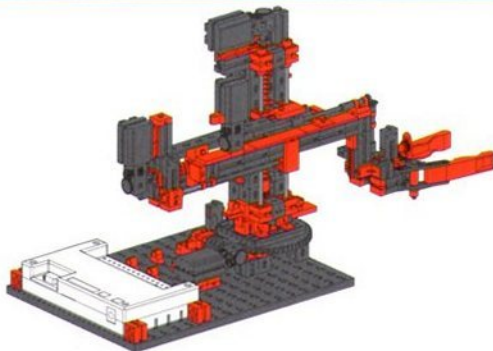
Rob 1
Schwenkroboter / Swivel robot /
Robot pivotant / Draairobot / robot orientable /
robot orientabile

6



Rob 2
Schweißroboter / Welding robot /
Robot soudeur / Lasrobot / robot de soldadura /
robot per saldatura

12



Rob 3
Säulenroboter / Column type robot /
Robot à montant / Zuilrobot / robot de columnas /
robot a colonna


18



Rob 4
Knickarmroboter / Kink-arm robot / Robot à bras
articulé / Knikarmrobot / robot de brazo plegable /
robot a braccio pieghevole

28

Einzerteilübersicht
Spare parts list
Liste des pièces détachées

	10497 5x		31848 8x
	31010 4x		31915 2x
	31011 4x		31982 22x
	31030 1x		31983 2x
	31032 1x		32064 21x
	31036 1x		32293 4x
	31060 11x		32316 4x
	31061 13x		32321 2x
	31078 4x		32330 4x
	31082 4x		32850 6x
	31336 24x		32870 2x
	31337 24x		32879 16x
	31390 1x		32881 23x
	31391 1x		32882 8x
	31426 4x		32985 1x
	31436 8x		35049 3x
	31602 1x		35057 2x
	31667 2x		35061 2x
	31707 4x		35062 2x

Onderdelenoverzicht
Lista da piezas
Lista dei pezzi

	35063 2x		36035 1x
	35064 1x		36227 2x
	35065 4x		36293 6x
	35072 1x		36323 12x
	35073 4x		36324 1x
	35112 1x		36334 5x
	35113 1x		36370 2x
	35389 2x		36443 1x
	35696 2x		36819 4x
	35799 1x		36912 2x
	35945 2x		36913 4x
	35969 18x		36914 10x
	35971 4x		36920 4x
	35972 2x		36922 2x
	35973 1x		36950 10x
	35975 2x		36952 4x
	35977 1x		36973 4x
	35978 2x		37157 4x
	35981 1x		37232 2x

Einzelteilübersicht
Spare parts list
Liste des pièces détachées

	37237 24x		37783 8x
	37238 5x		37858 2x
	37384 1x		37869 1x
	37468 10x		37925 2x
	37527 2x		37926 6x
	37679 17x		38216 1x

Onderdelenoverzicht
Lista da piezas
Lista dei pezzi

	38240 9x		38260 1x
	38241 2x		38423 10x
	38242 3x		38428 6x
	38245 2x		38464 2x
	38246 9x		
	38249 2x		

Montagen
Mountings
Montages

Montage's
Montajes
Indicazione di montaggio

1

1 x 20 cm
 2 x 30 cm
 7 x 60 cm
 1 x 70 cm
 1 x 100 cm

2

3

4

1 x 20 cm
 2 x 30 cm
 7 x 60 cm
 1 x 70 cm
 1 x 100 cm

1

2

2x

1

4x

2

1

4x

2

1

2

1

2x

2

- Alle Einzelteile, insbesondere bewegliche Teile sind falls notwendig zu warten und zu reinigen.
- All components, especially moving parts, should be maintained and cleaned as necessary.
- Toutes les pièces détachées et en particulier les pièces mobiles, sont, si nécessaire, à entretenir et à nettoyer.
- Achtung
Verletzungsgefahr an Bauteilen mit funktionsbedingten scharfen Kanten und Spitzen!
- Caution
Be careful not to hurt yourself on components with sharp or pointed edges!
- Attention
Risque de blessure sur les éléments comportant des arêtes et pointes vives indispensables au bon fonctionnement!

- Alle onderdelen, vooral de bewegende delen, kunnen, indien noodzakelijk, onderhouden en gereinigd worden.
- Es necesario limpiar y mantener en buen estado todas las diferentes piezas – especialmente las piezas móviles.
- Provvedere all'occorrenza alla manutenzione e alla pulizia di tutti i particolari, specialmente le parti mobili.
- Let op
U kunt zich bezeren aan bouwstenen met scherpe randen of punten!
- Attenzione
Esiste il pericolo di lesione con i pezzi di costruzione che hanno bordi e punte spigolosi necessari per la funzionalità del pezzo!
- Precaución
Peligro de heridas ocasionadas por componentes puntiagudos o de cantos afilados que estén en funcionamiento!

■ Software und Interface

Beispielprogramme für LLWin 2.10

Für die Modelle Rob1 bis Rob4 dieses Baukastens sind auf CD-ROM Beispielprogramme für LLWin 2.10 vorhanden. Sie stehen im Verzeichnis LLWin\Deutsch\Industry bzw. LLWin\English\Industry. Die Programme können aus LLWin 2.10 heraus von der CD-ROM gelesen werden. Das Verzeichnis "Industry" kann aber auch komplett in das LLWin Verzeichnis auf die Festplatte kopiert werden.

Software LLWin 2.10, Art.-Nr. 30407, Intelligent Interface Art.-Nr. 30402 oder Interface Art.-Nr. 30520 sowie Stromversorgung (9V DC, Energy Set Art.-Nr. 30182) sind zusätzlich erforderlich.

Teach-In Programme

Für die Modelle Rob2, Rob3 und Rob4 gibt es darüberhinaus auf der CD-ROM Teach-In-Programme zur einfachen Programmierung und komfortablen Steuerung dieser Modelle. Die Programme werden aus dem Unterverzeichnis TeachIn mit Setup auf die Festplatte installiert. Die Teach-In-Software enthält eine Hilfe-Datei, die die Handhabung des Programms ausführlich erläutert.

Systemvoraussetzungen für Teach-In-Programme:

Pentium 90MHz / Windows 95 oder Windows NT, Intelligent Interface Art.-Nr. 30402 sowie Stromversorgung (9V DC, Energy Set Art.-Nr. 30182) zusätzlich erforderlich.

■ Software and interface

Exemplary programmes for LLWin 2.10

For Rob1 up to Rob4 models of this modular kit, exemplary programmes for LLWin 2.10 are available on the CD-ROM. They are stored either in the LLWin\Deutsch\Industry or in the LLWin\English\Industry directory. The programmes can be read from the CD-ROM in the case of LLWin 2.10. The "Industry" directory, however, can be copied completely into the LLWin directory on the hard-disk.

The following are additionally required: Software LLWin 2.10, Art. No. 30407, Intelligent Interface, Art. No. 30402 or Interface, Art. No. 30520 and power supply (9V DC, Energy Set, Art. No. 30182).

Teach-In programmes

For Rob2, Rob3 and Rob4 models, Teach-In-programmes for simple programming and comfortable control of the models are available on the CD-ROM. The programmes are installed on the hard disk through the set-up programme in the TeachIn subdirectory. The TeachIn software contains a Help file that explains detailed handling of the programme.

System requirements for TeachIn programmes:

Pentium 90MHz/ Windows 95 or Windows NT, Additionally required are Intelligent Interface, Art. No. 30402 and power supply (9V DC, Energy Set, Art. No. 30182).

■ Logiciel et interface

Exemples de programmes pour LLWin 2.10

Pour les modèles Rob1 à Rob4 de ce kit, des exemples de programmes pour LLWin 2.10 sont fournis sur la CD-ROM. Ils se trouvent dans le répertoire LLWin\Deutsch\Industry resp. LLWin\English\Industry. Les programmes peuvent être chargés de LLWin 2.10 à partir de la CD-ROM. Le répertoire «Industry» peut être toutefois copiés dans sa totalité dans le répertoire LLWin du disque dur.

Le logiciel LLWin 2.10, réf. 30407, l'interface intelligente réf. 30402 ou l'interface réf. 30520, ainsi que l'alimentation (9V DC, Energy Set réf. 30182), sont également requis.

Programmes d'apprentissage

Pour les modèles Rob2, Rob3 et Rob4, il existe également sur la CD-ROM des programmes d'apprentissage permettant une programmation simple et une commande confortable de ces modèles. Les programmes sont installés sur le disque dur depuis le répertoire TeachIn, au moyen du programme Setup. Le logiciel d'apprentissage comprend un fichier d'aide qui explique en détail la manipulation du programme.

Configuration de système requise pour les programmes d'apprentissage: Pentium 90MHz / Windows 95 ou Windows NT,

L'interface intelligente réf. 30402 et l'alimentation (9V DC, Energy Set réf. 30182) sont également requises.

■ Software en interface

Voorbeeldprogramma's voor LLWin 2.10

Voor de modellen Rob1 t/m Rob4 van deze bouwdoos zijn op de CD-ROM voorbeeldprogramma's voor LLWin 2.10. opgenomen. Deze staan in de directory LLWin\Nederlands\Industry, resp. LLWin\English\Industry. De programma's kunnen vanuit LLW in 2.10 van de CD-ROM worden ingelezen. De directory "Industry" kan ook volledig in de LLWin directory op de vaste schijf worden gekopieerd.

Software LLWin 2.10, art.-nr. 30407, Intelligent Interface art.-nr. 30402 of Interface art.-nr. 30520 alsmede stroomvoorziening (9V DC, Energy Set art.-nr. 30182) zijn extra noodzakelijk.

Teach-In programma's

Voor de modellen Rob2, Rob3 en Rob4 staan er bovendien op de CD-ROM Teach-In-programma's voor het op eenvoudige wijze programmeren en de comfortabele besturing van deze modellen. De programma's worden vanuit de subdirectory TeachIn met behulp van Setup op de vaste schijf geïnstalleerd. De Teach-In-software bevat een Help-bestand, dat het gebruik van het programma uitvoerig verklaart.

Systeemvereisten Teach-In-programma's:

Pentium 90MHz / Windows 95 of Windows NT, Intelligent Interface art.-nr. 30402 alsmede stroomvoorziening (9V DC, Energy Set art.-nr. 30182) zijn extra noodzakelijk.

■ Software e interface

Ejemplo de programas para LLWin 2.10

Para los modelos Rob1 - Rob4 de este conjunto, se dispone en el CD-ROM de programas ejemplares para LLWin 2.10 que se encuentran en el directorio LLWin\Deutsch\Industry o LLWin\English\Industry. Los programas pueden cargarse del LLWin 2.10 existente en el CD-ROM. De todos modos, el directorio "Industry" también puede ser copiado completamente al directorio LLWin del disco duro.

Se precisa además del software LLWin 2.10, art. n° 30407, el Intelligent Interface art. n° 30402 o el Interface art. n° 30520 así como de alimentación de corriente (9V CC, Energy Set art. n° 30182).

Programas Teach-In

Para los modelos Rob2, Rob3 y Rob4 existen además de ello en el CD-ROM programas Teach-In que permiten una simple programación y un control confortable de estos modelos. Los programas se instalan del subdirectorío TeachIn por medio de Setup al disco duro. El software Teach-In contiene un archivo de ayuda que explica muy de cerca el manejo del programa.

Condiciones del sistema para programas Teach-In:

Se precisa además de Pentium 90MHz / Windows 95 o Windows NT, Intelligent Interface art. n° 30402 así como alimentación de corriente (9V CC, Energy Set art. n° 30182).

■ Software e interfaccia

Esempi di programmi per LLWin 2.10

Per i modelli Rob1 fino a Rob4 di questa costruzione modulare, sono disponibili sul CD-ROM esempi di programmi per LLWin 2.10. Essi si trovano nell'indirizzo LLWin\Deutsch\Industry oppure LLWin\English\Industry. I programmi si possono leggere dal CD-ROM da LLWin 2.10. L'indirizzo "Industry" si può anche copiare completamente nell'indirizzo LLWin sul disco fisso.

Supplementarmente sono necessari Software LLWin 2.10, art. no. 30407, Intelligent Interface art. no. 30402 oppure Interface art. no. 30520 nonché l'alimentazione di corrente (9V DC, Energy Set, art. no. 30182).

Programmi Teach-In

Per i modelli Rob2, Rob3 e Rob4 sono inoltre disponibili programmi Teach-In su CD-ROM per la programmazione facile e il comando confortevole di questi modelli. Questi programmi si installano con setup dal sottodirettorio TeachIn sul disco fisso. Il software Teach-In comprende un file d'aiuto descrittivo dettagliatamente l'uso del programma.

Presupposti necessari per l'impiego dei programmi Teach-In:

Pentium 90MHz / Windows 95 oppure Windows NT, Inoltre occorrono Intelligent Interface art. no. 30402 nonché l'alimentazione di corrente (9V DC, Energy Set art. no. 30182).

■ Fernsteuerung mit IR Control Set 30344

Die Roboter können außer über den PC auch mit dem IR CONTROL SET Art.-Nr. 30344 manuell ferngesteuert werden. Die Motoren der Modelle werden dazu an die Ausgänge des IR-Empfängers angeschlossen. Die Taster werden nicht benötigt. Da an einen IR-Empfänger maximal 3 Motoren angeschlossen werden können, benötigt man für die Roboter mit 4 Motoren den zusätzlichen "Empfänger 2", Art.-Nr. 30183, der die Steuerung von bis zu 6 Motoren ermöglicht.

■ Remote control with IR Control Set 30344

The robots can manually also be remote-controlled through the IR CONTROL SET, Art. No. 30344, besides the PC means. The motors of the models are connected to the outputs of the IR-receiver. The buttons are not needed. Since an IR-receiver with a maximum of 3 motors can be connected, one additionally needs a "Receiver 2," Art. No. 30183 for robots with 4 motors facilitating the control of up to 6 motors.

■ Télécommande avec IR Control Set 30344

Les robots sont commandés par ordinateur PC, mais ils peuvent également être télécommandés manuellement avec le IR CONTROL SET réf. 30344. Les moteurs des différents modèles sont pour ce faire connectés aux sorties du récepteur IR. Les boutons-poussoirs ne sont pas utilisés. Comme au maximum 3 moteurs peuvent être connectés à un récepteur IR, un «récepteur 2» réf. 30183 est nécessaire pour les robots à 4 moteurs. Ce récepteur permet la commande de 6 moteurs au maximum.

■ Afstandsbesturing met IR Control Set 30344

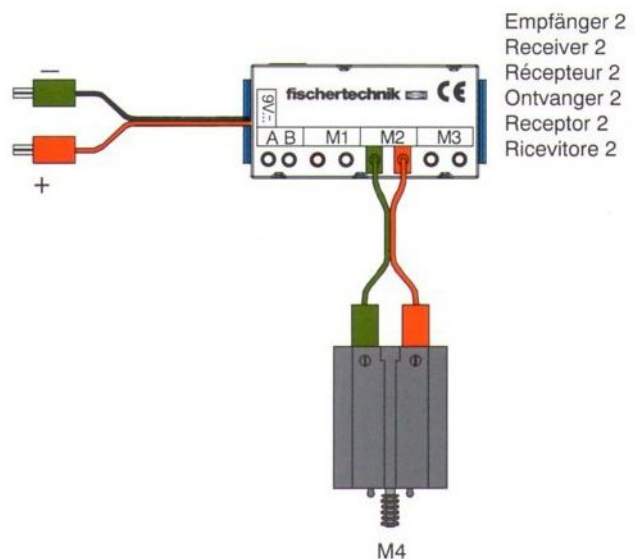
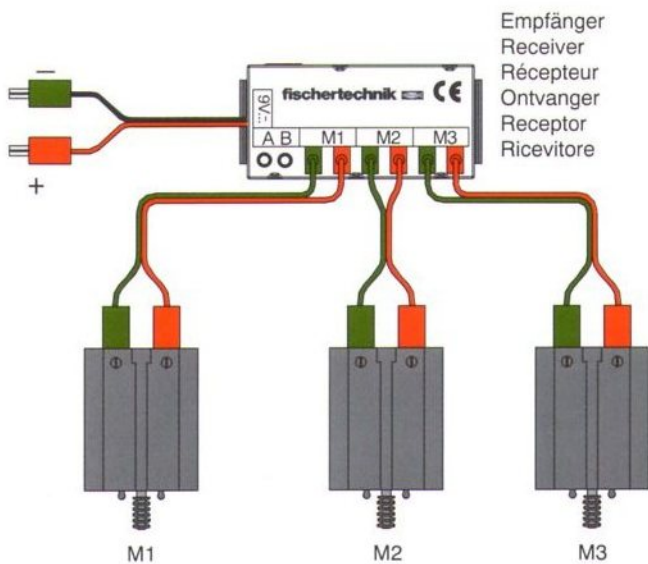
De robots kunnen naast de PC ook via de IR CONTROL SET art.-nr. 30344 manueel en op afstand bestuurd worden. De motoren van de modellen moeten daartoe op de uitgangen van de IR-ontvanger worden aangesloten. De toetsen worden niet gebruikt. Omdat aan een IR-ontvanger maximaal 3 motoren aangesloten kunnen worden, is er voor de robots met 4 motoren een extra "Ontvanger 2", art.-nr. 30183 noodzakelijk, die de besturing van maximaal 6 motoren mogelijk maakt.

■ Mando a distancia con IR Control Set 30344

Los robots también pueden ser controlados manualmente a distancia, aparte de con el ordenador, utilizando un IR CONTROL SET art. n° 30344. Los motores de los modelos se conectan para ello a las salidas del receptor de infrarrojos. Los pulsadores no son necesarios. Puesto que en cada receptor de infrarrojos pueden conectarse como máximo 3 robots, se precisa para los robots con 4 motores adicionalmente un "receptor 2", art. n° 30183 que permite controlar hasta 6 motores.

■ Telecomando con IR Control Set 30344

I robots oltre che attraverso PC si possono telecomandare anche manualmente con IR CONTROL SET art. no. 30344. I motori dei modelli si devono in questo caso collegare alle uscite del ricevitore IR. I tastatori non sono necessari. Visto che ad un ricevitore IR si possono collegare al massimo tre motori, per i robots con quattro motori occorre supplementamente un "Ricevitore 2", art. no. 30183, che permette il comando di fino a sei motori.

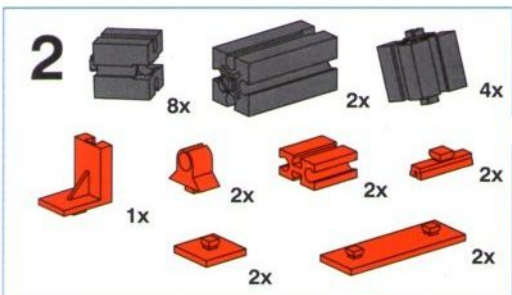
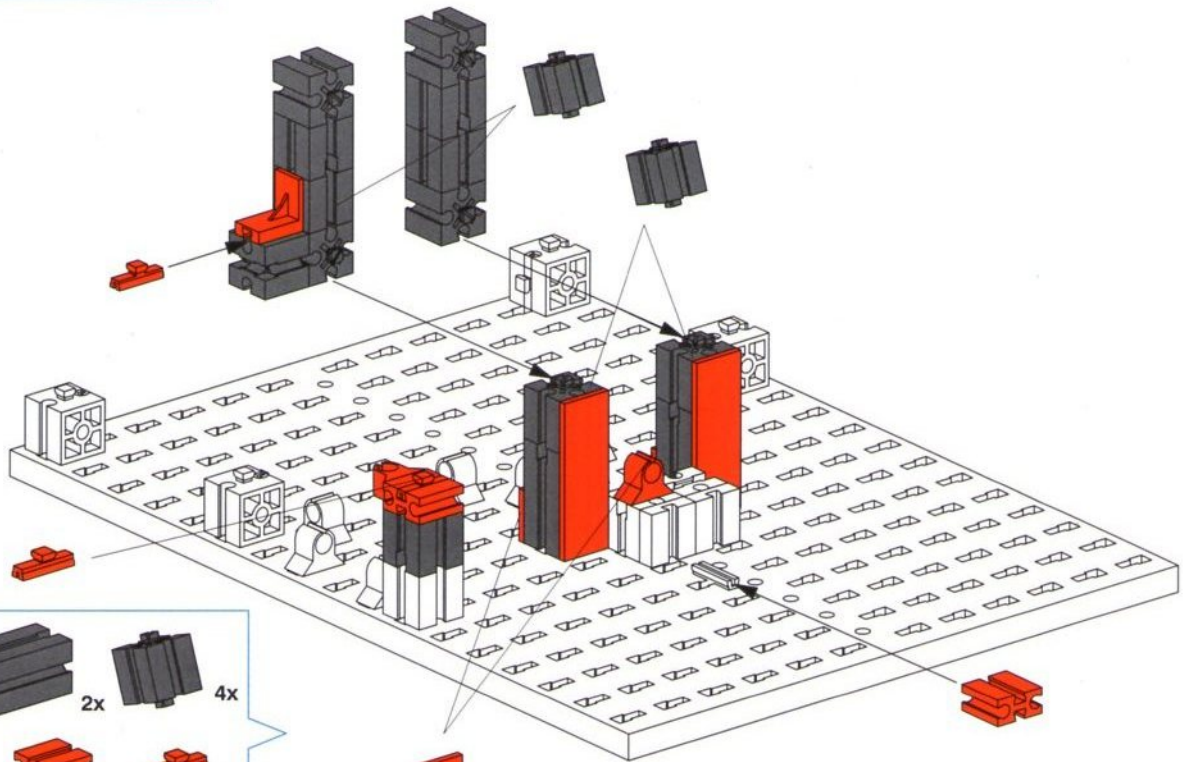
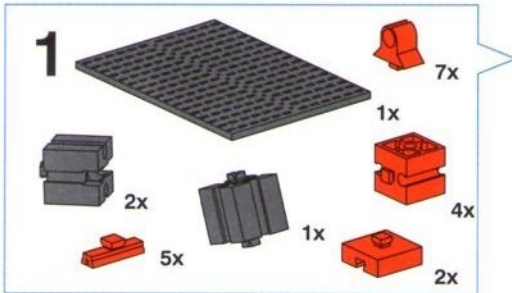
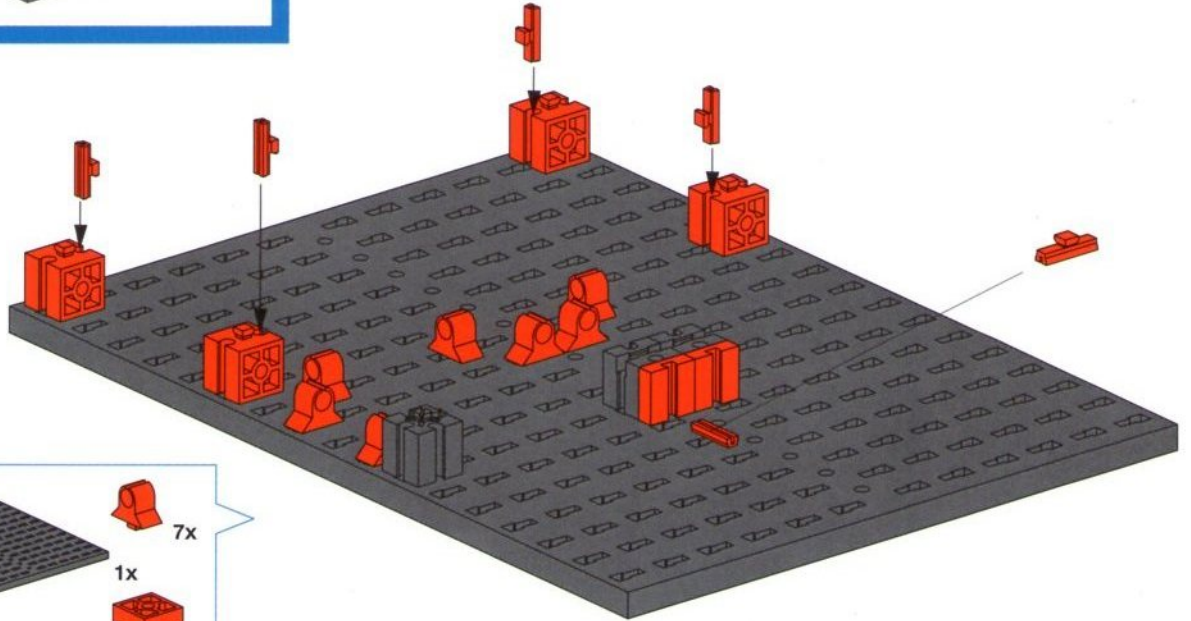
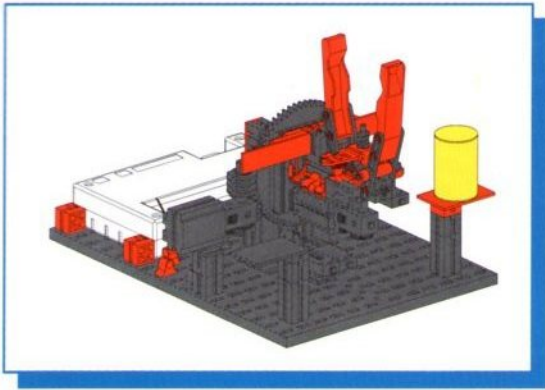


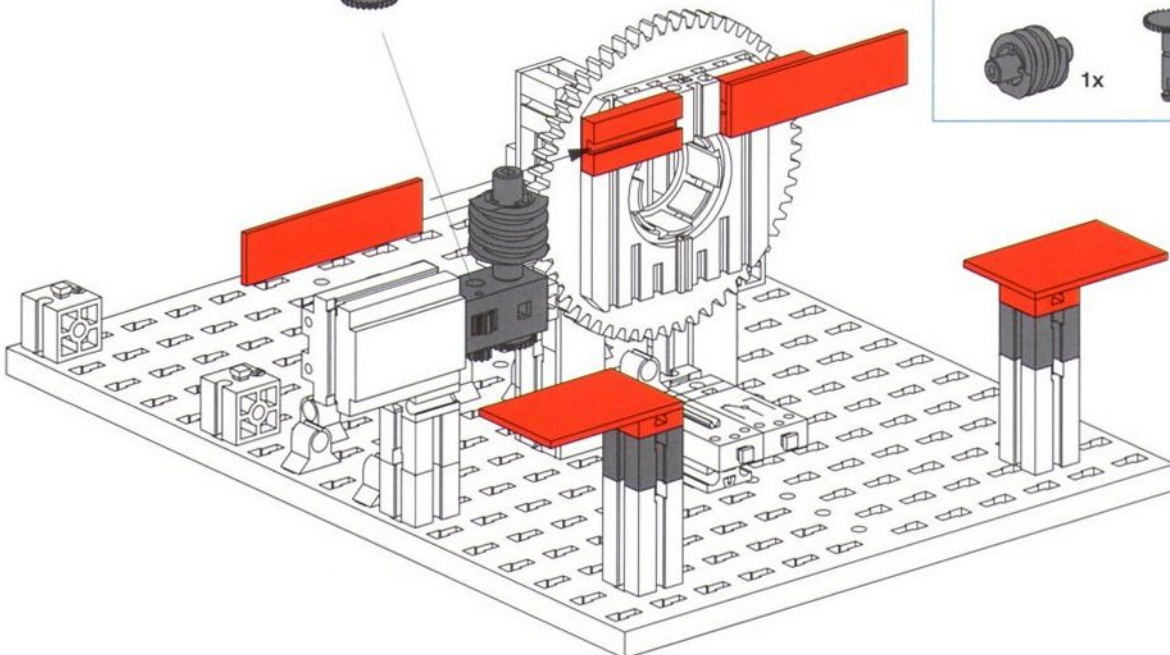
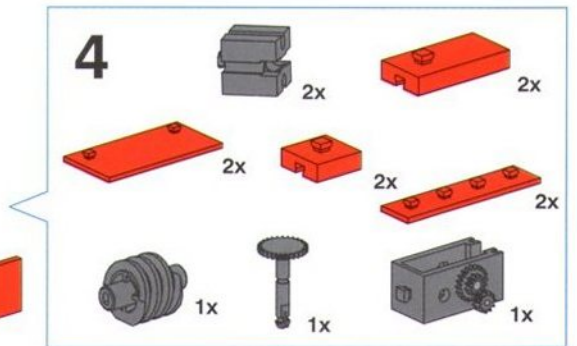
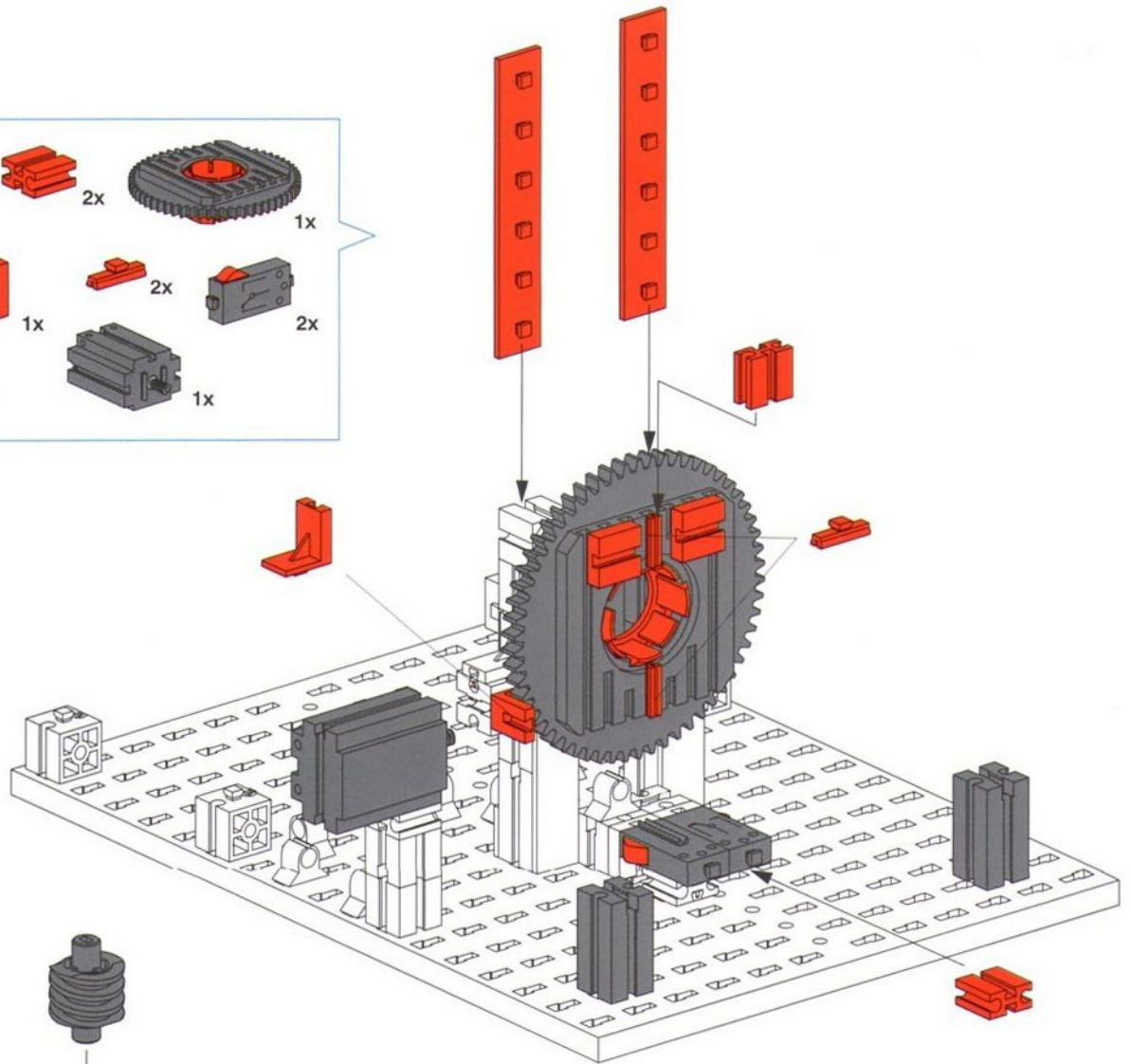
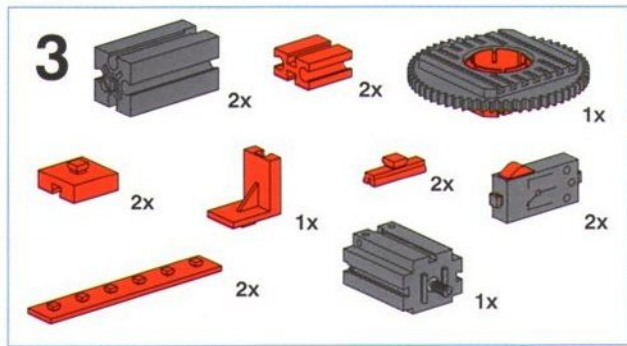
Rob 1

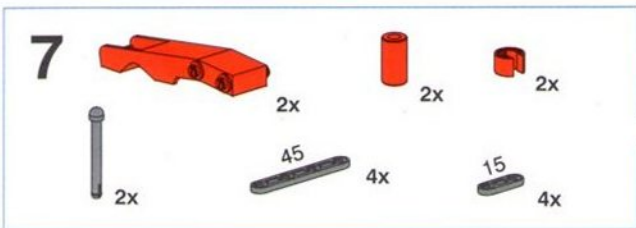
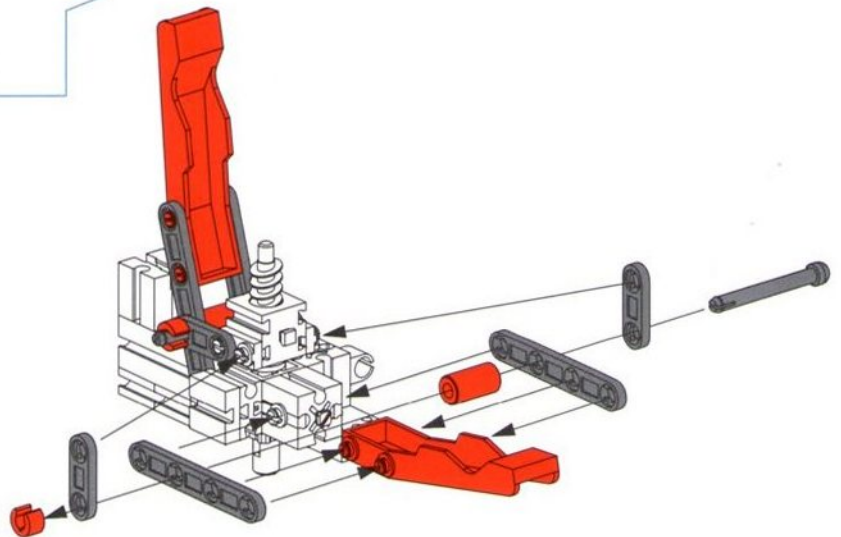
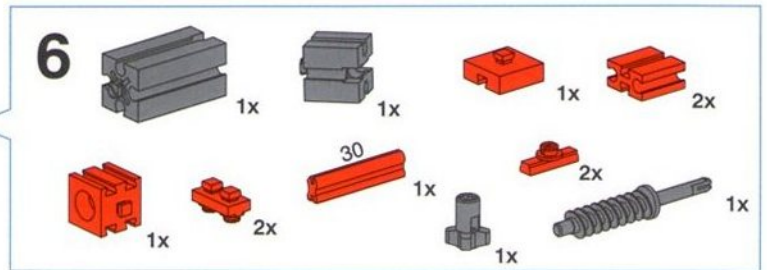
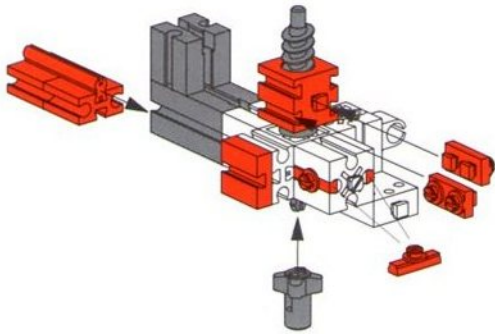
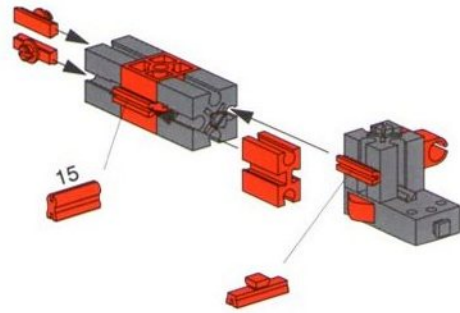
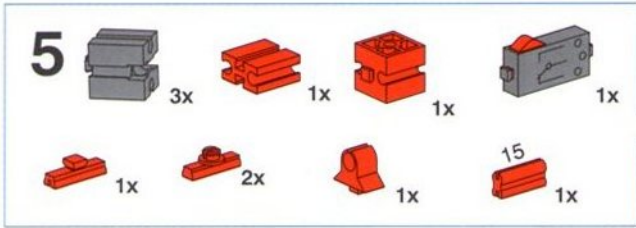
Schwenkroboter
Swivel robot

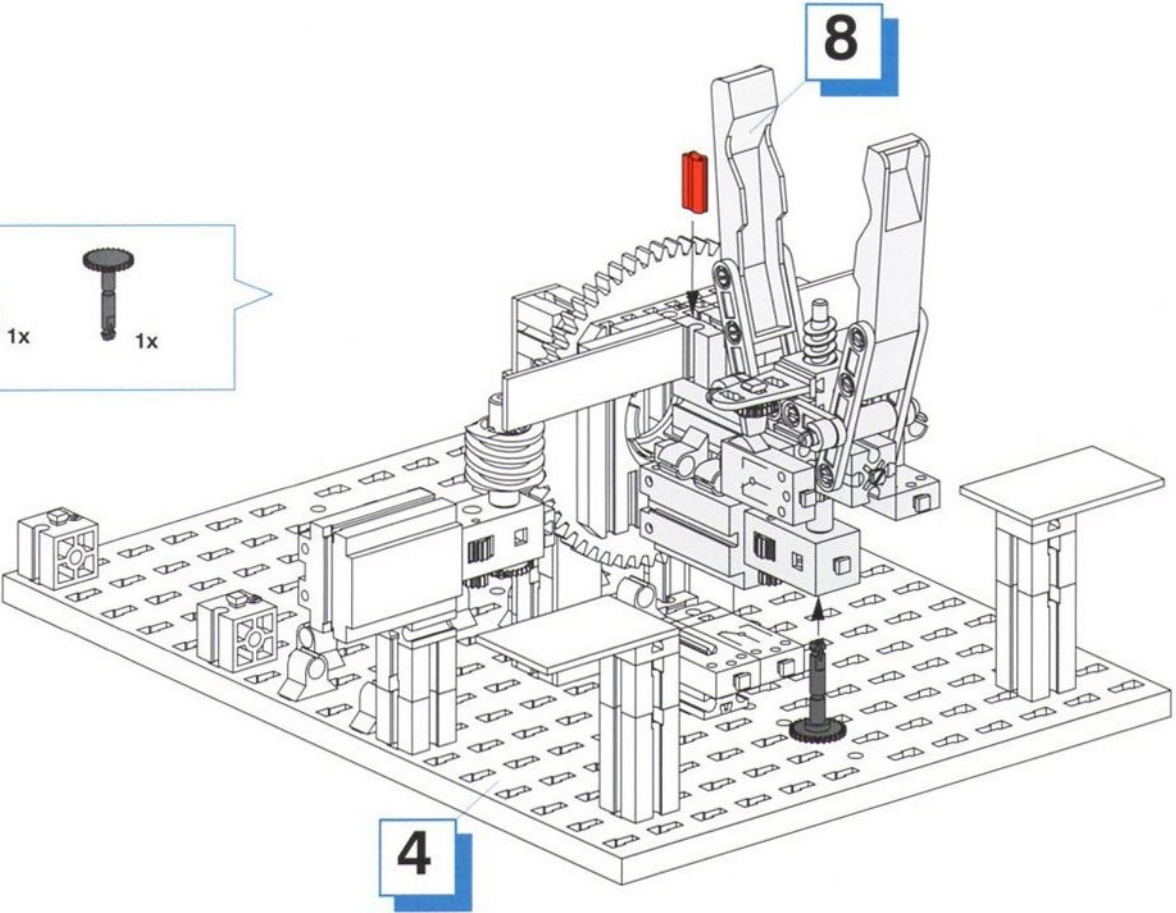
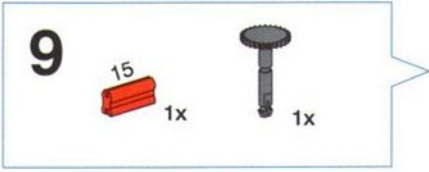
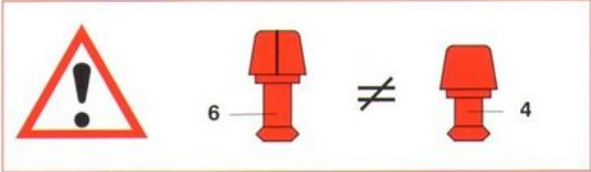
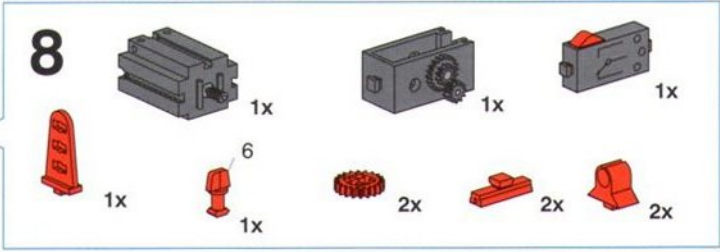
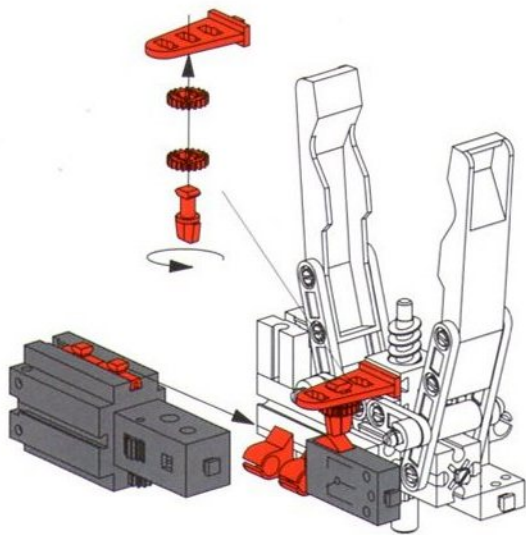
Robot pivotant
Draairobot

Robot orientable
Robot orientabile

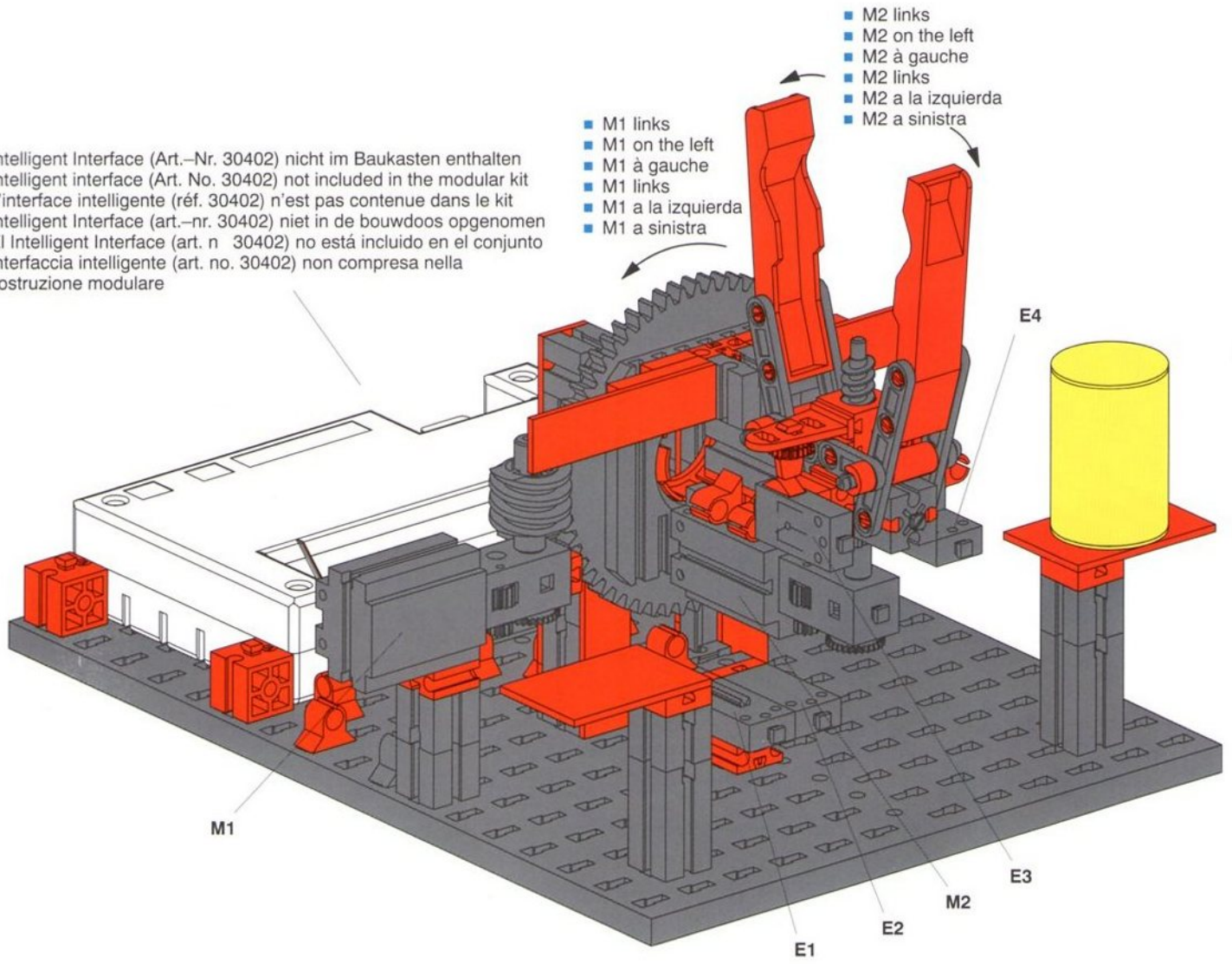




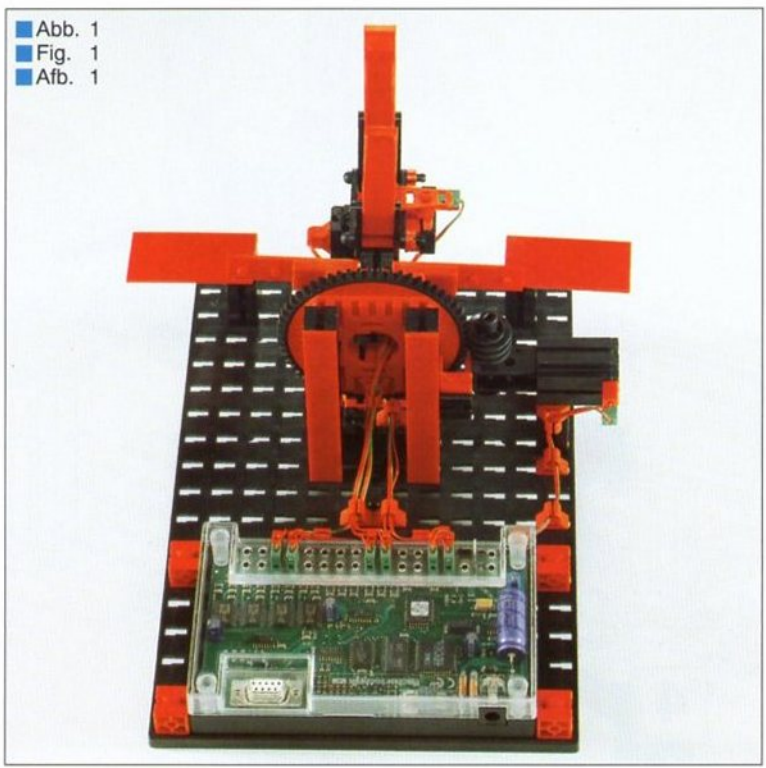




- Intelligent Interface (Art.-Nr. 30402) nicht im Baukasten enthalten
- Intelligent interface (Art. No. 30402) not included in the modular kit
- L'interface intelligente (réf. 30402) n'est pas contenue dans le kit
- Intelligent Interface (art.-nr. 30402) niet in de bouwdoos opgenomen
- El Intelligent Interface (art. n. 30402) no está incluido en el conjunto
- Interfaccia intelligente (art. no. 30402) non compresa nella costruzione modulare

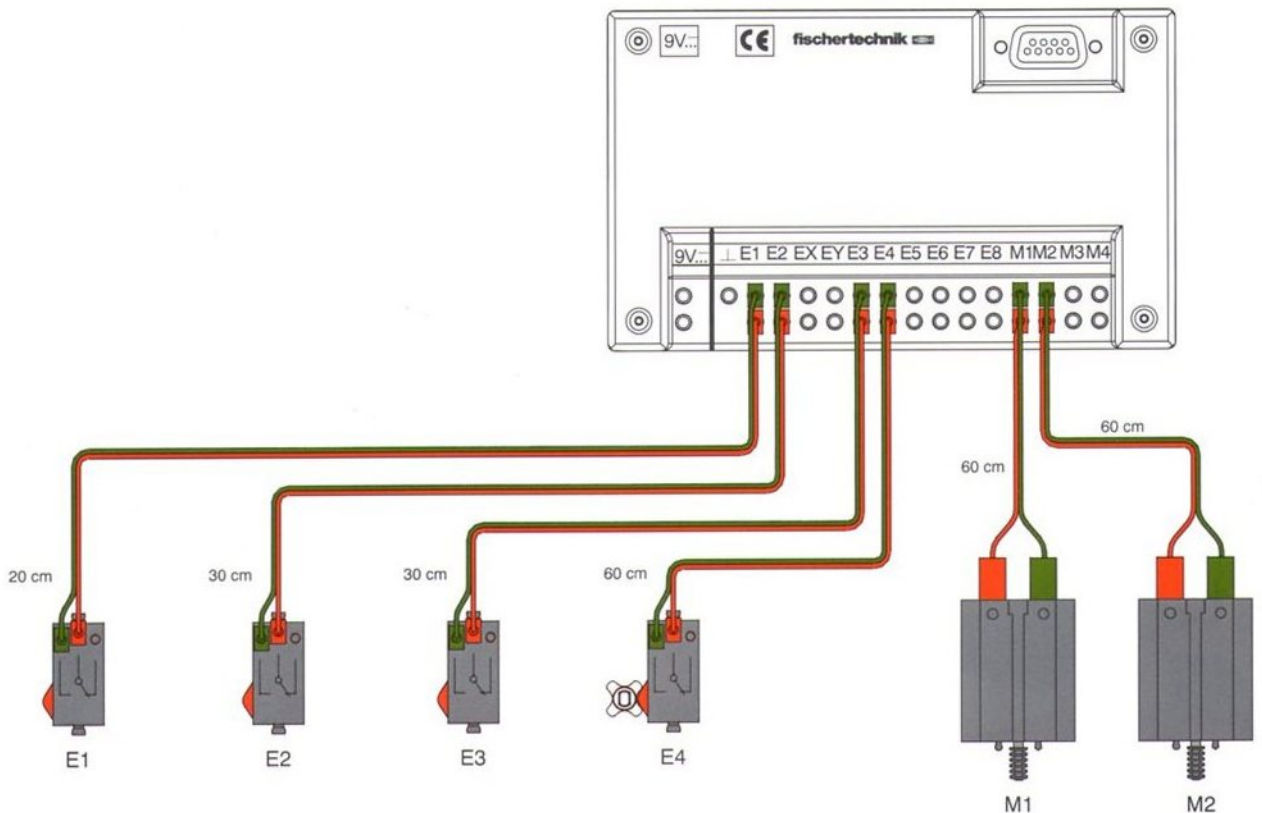


- M2 links
- M2 on the left
- M2 à gauche
- M2 links
- M2 a la izquierda
- M2 a sinistra
- M1 links
- M1 on the left
- M1 à gauche
- M1 links
- M1 a la izquierda
- M1 a sinistra



- Abb. 1
- Fig. 1
- Afb. 1

- Software und Interface siehe Seite 4
- Software and interface see Page 4
- Logiciel et interface voir page 4
- Software en interface zie pagina 4
- Software e interface ver la página 4
- Software e interfaccia vedi pagina 4



■ Verkabelung

Die Motoren und Taster müssen wie im Schaltplan beschrieben angeschlossen werden. Dabei ist zu beachten, daß die Kabel sehr sorgfältig so verlegt werden, daß der Roboter beim Schwenken in seinem Arbeitsraum durch die Kabel nicht beeinträchtigt wird. Dazu bringt man den Roboter in die auf der Abb. 1 dargestellte Position (Motor und Getriebe aushängen, Achsen manuell bewegen). Dann werden die Kabel entsprechend dieser Abbildung durch die dafür vorgesehenen Kabelhalter geführt und mit den beiliegenden weißen Papierdrahtbändern gebündelt.

Drehrichtung der Motoren

Vor dem Starten der Softwareprogramme muß mit Hilfe der Interface-Diagnose überprüft werden, ob sich die Motoren in die vorgeschriebene Richtung drehen. Gegebenenfalls müssen die Motoren umgepolt werden.

■ Cabling

Motors and buttons must be connected as shown in the cable layout plan. In doing so, it must be ascertained that the cable is laid out very carefully so that the robot is not impaired by the cable when swivelling within its work space. In this manner, the robot is brought into the position depicted in the Fig. X (hang out the motor or gearbox, move the axes manually). The cables are guided according to this figure, by means of the cable holder for this purpose, and then bundled with the attached white paper-wire bands.

Rotational direction of motors

Prior to starting the software programmes and with the help of interface diagnosis, it must be checked whether or not the motors rotate in the specified direction. If necessary, the motors must be commutated.

■ Câblage

Les moteurs et les palpeurs doivent être connectés comme décrit dans le schéma des connexions. Il convient de veiller, ce faisant, à ce que les câbles soient posés avec le plus grand soin de telle manière qu'ils ne gênent pas le robot quand il pivote sur l'espace de travail. Pour ce faire, amener le robot dans la position illustrée à la fig. X (débrancher le moteur et l'engrenage, déplacer manuellement les axes). Les câbles sont alors guidés, conformément à l'illustration, dans les porte-câbles prévus à cet effet et réunis en faisceau au moyen des bandes de papier métal blanches jointes.

Sens de rotation des moteurs

Avant de démarrer les logiciels, il convient de vérifier, à l'aide du diagnostic d'interface, si les moteurs tournent dans le bon sens. Le cas échéant, la polarité des moteurs doit être inversée.

■ Bedrading

De motoren en toetsen moeten zoals beschreven in het schakelplan aangesloten worden. Let er daarbij op, dat de draden zeer zorgvuldig en zodanig worden gelegd, dat de robot bij het draaien in zijn axiradius niet door de bedrading wordt gehinderd. De robot hiervoor in de op de afb. X weergegeven positie brengen (motor en aandrijving uitnemen, assen met de hand bewegen). Daarna de bedrading overeenkomstig deze afbeelding door de hiervoor speciaal bedoelde draadhouders leiden en met de bijgeleverde witte papieren binddraadjes bundelen.

Draairichting van de motoren

Voor het starten van het softwareprogramma moet met behulp van de interface-diagnose gecontroleerd worden of de motoren in de gewenste richting draaien. Eventueel moeten de motoren omgepold worden.

■ Cableado

Los motores y los sensores deben conectarse de la forma descrita en el diagrama de circuitos. Para ello debe procurarse tender los cables con esmero, de forma que el robot al girar no se vea limitado en su alcance por los cables. Para ello se coloca el robot a la posición indicada en la figura X (descolgar el motor o el engranaje y desplazar los ejes manualmente). Seguidamente se pasan los cables según este dibujo a través de las sujeciones previstas para ello y se reúnen con las cintas de alambre y papel blanco suministradas.

Sentido de giro de los motores

Antes de poner en marcha los programas del software, debe comprobarse con la ayuda del diagnóstico del interface si los motores giran en el sentido correcto. En caso necesario hay que cambiar los polos de los motores.

■ Cablaggio

Allacciare i motori e i tastatori come descritto nello schema elettrico. I cavi devono venire collegati accuratamente per evitare che essi non ostacolino il movimento del robot nel suo campo di lavoro. Portare allo scopo il robot nella posizione illustrata nella fig. X (sganciare il motore o il riduttore, muovere gli assi manualmente). Fare quindi passare i cavi attraverso gli appositi portacavi come descritto in questa figura e legarli insieme con i nastri di filo di ferro rivestiti di carta.

Senso di rotazione dei motori

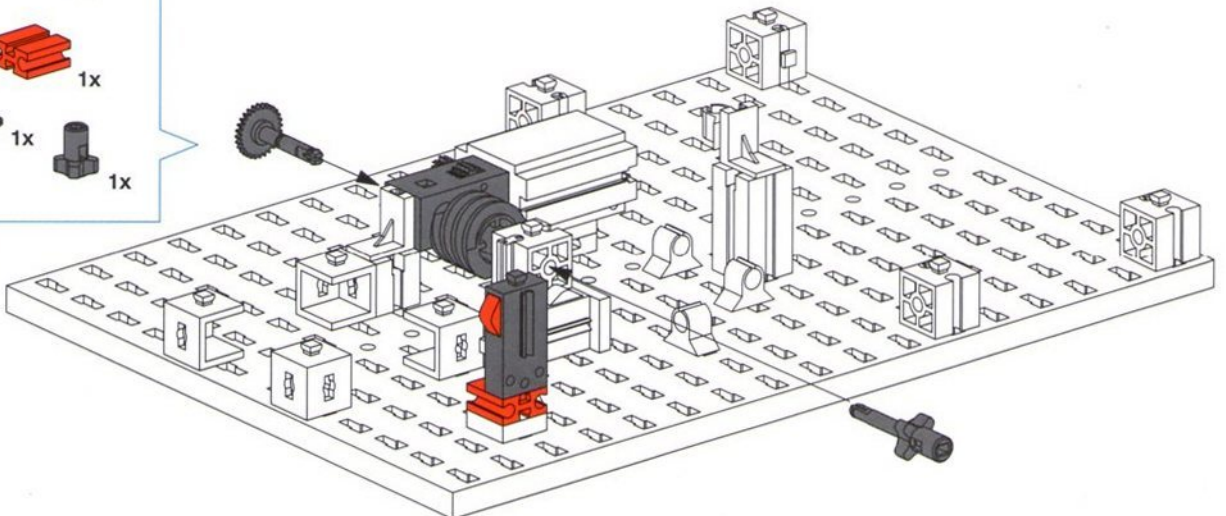
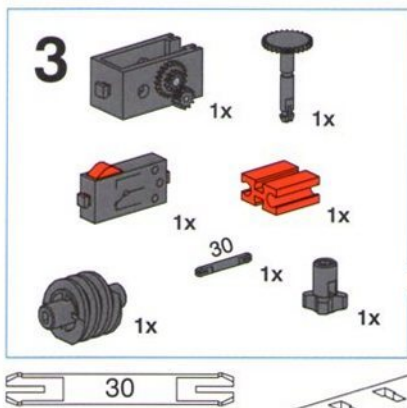
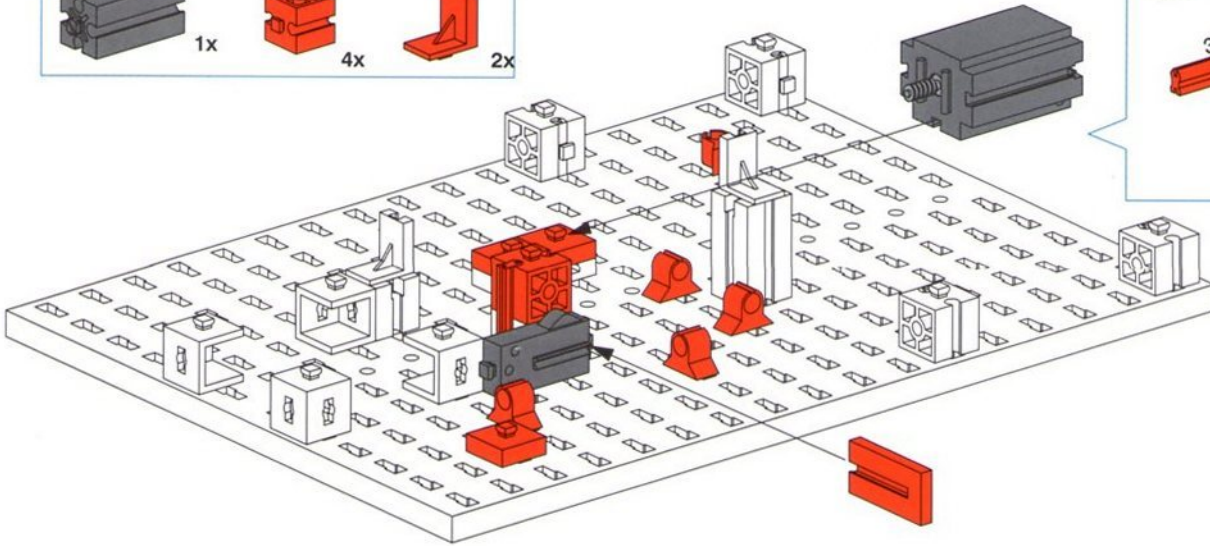
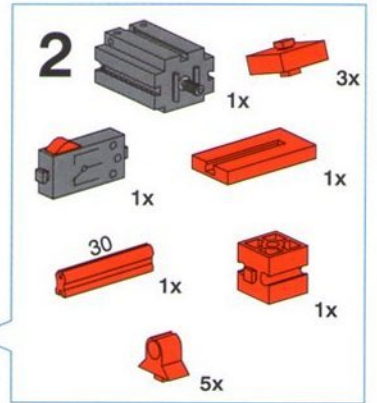
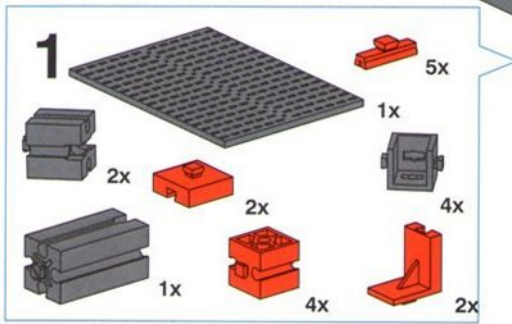
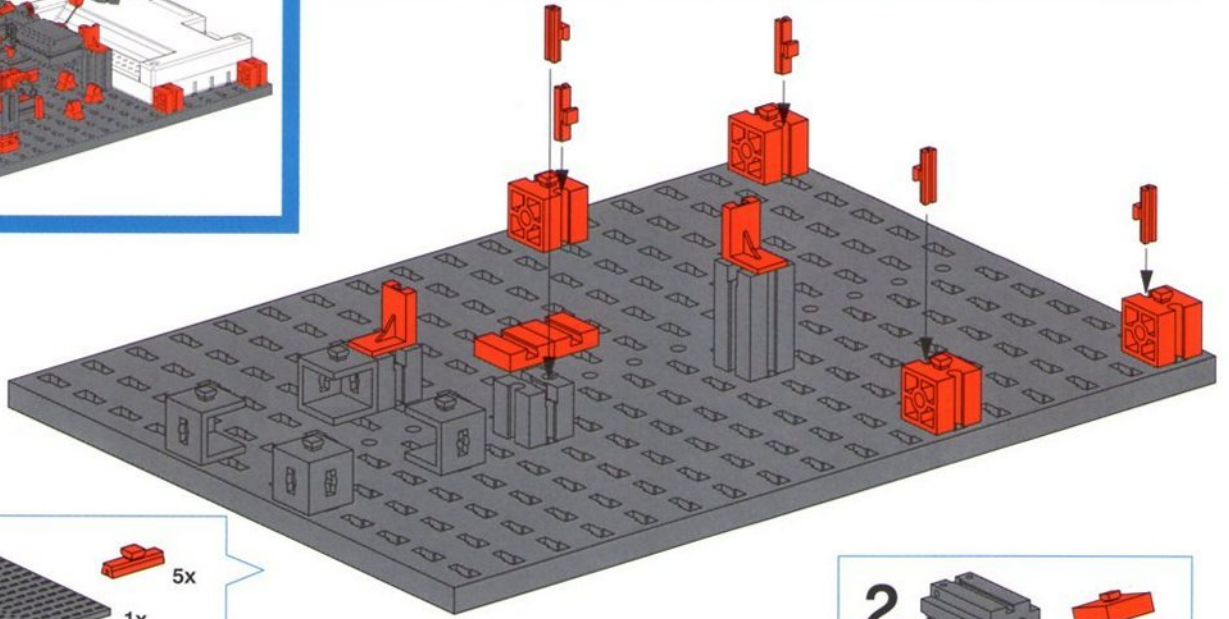
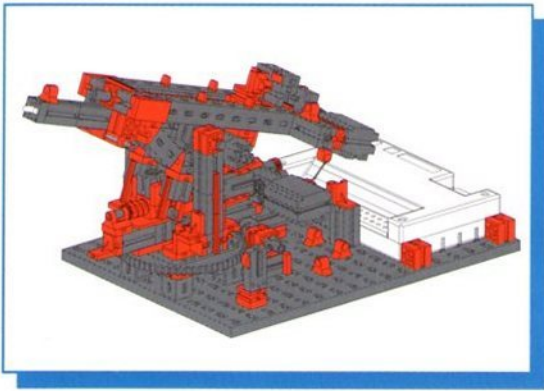
Prima di avviare i programmi software, verificare con l'ausilio dell'interfaccia diagnostica se i motori girano nel senso prestabilito. Se necessario si deve invertire la polarità dei motori.

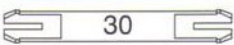
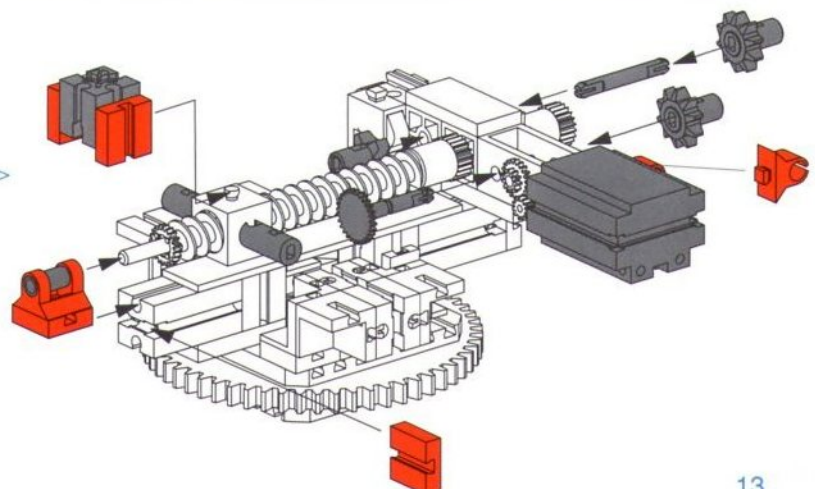
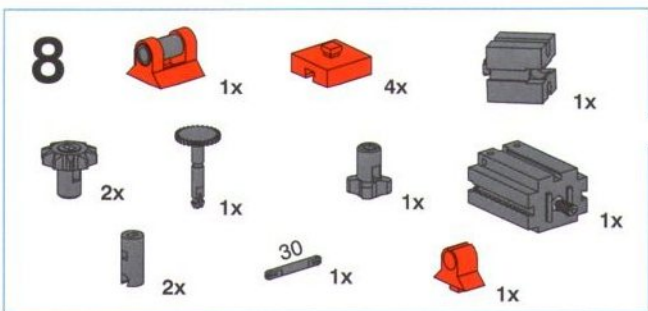
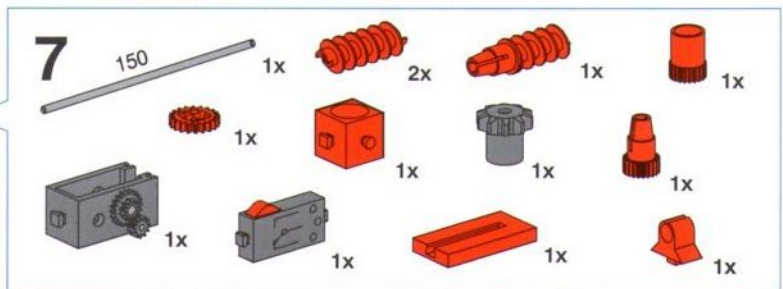
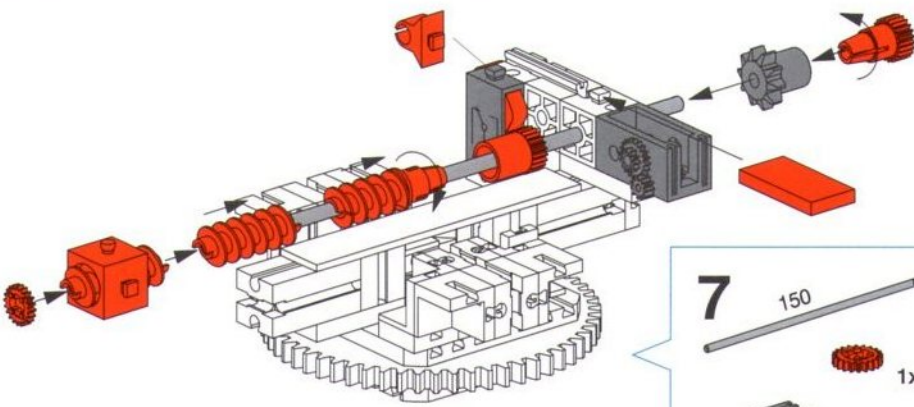
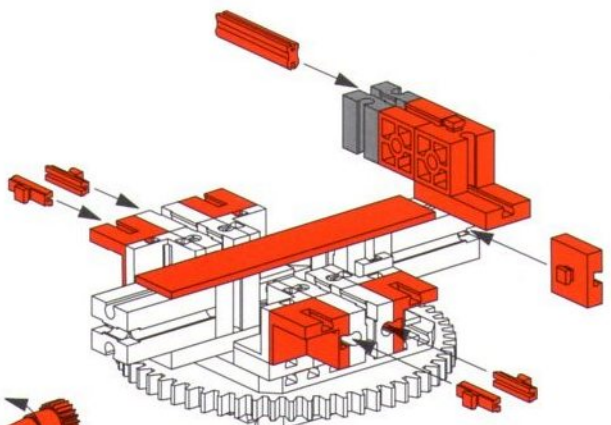
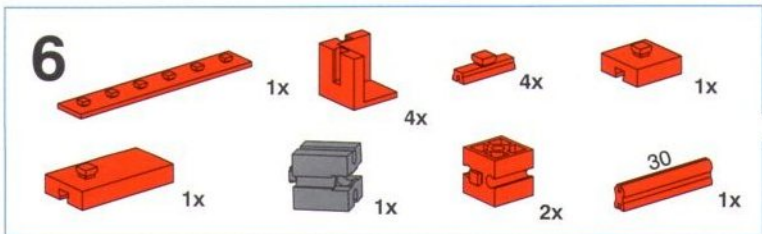
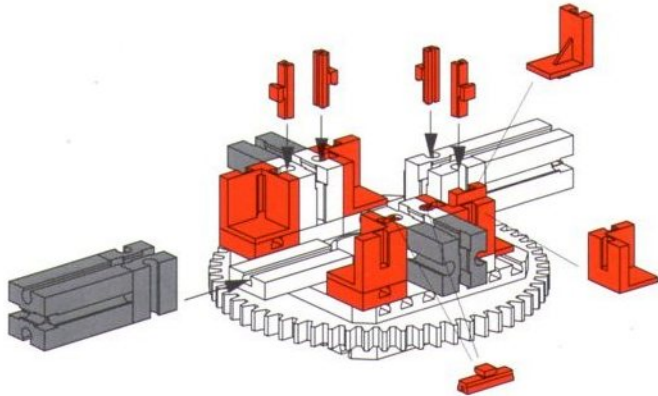
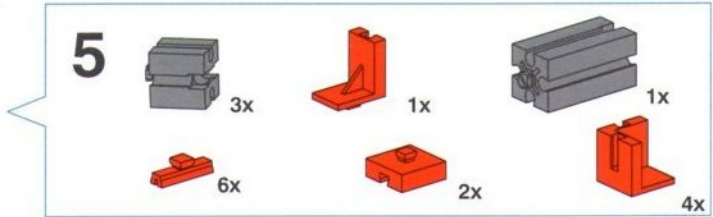
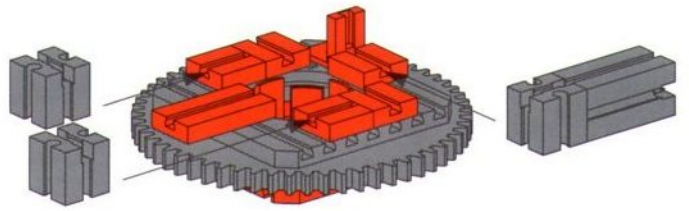
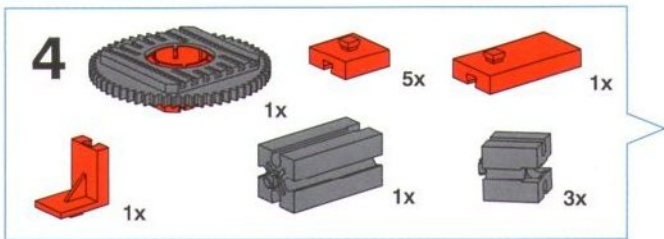
Rob 2

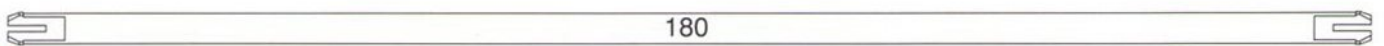
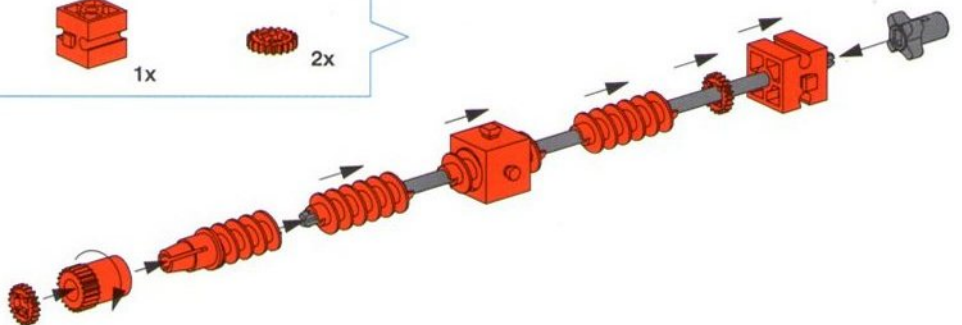
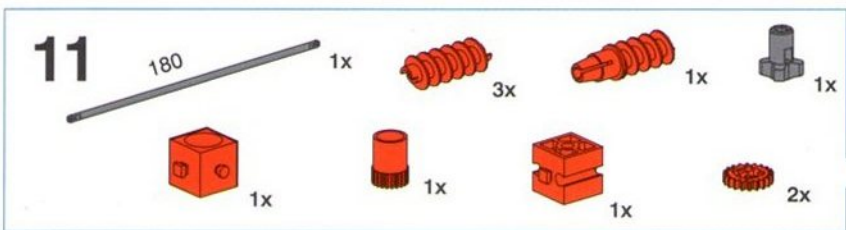
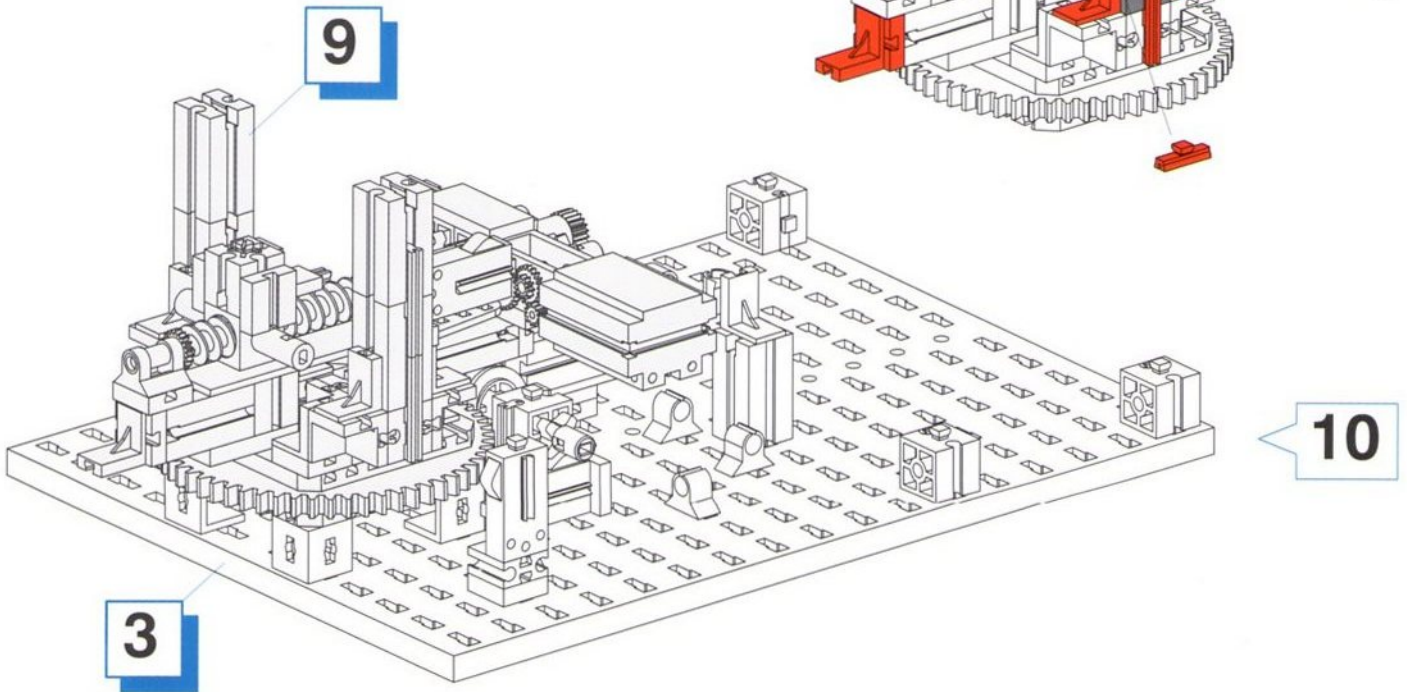
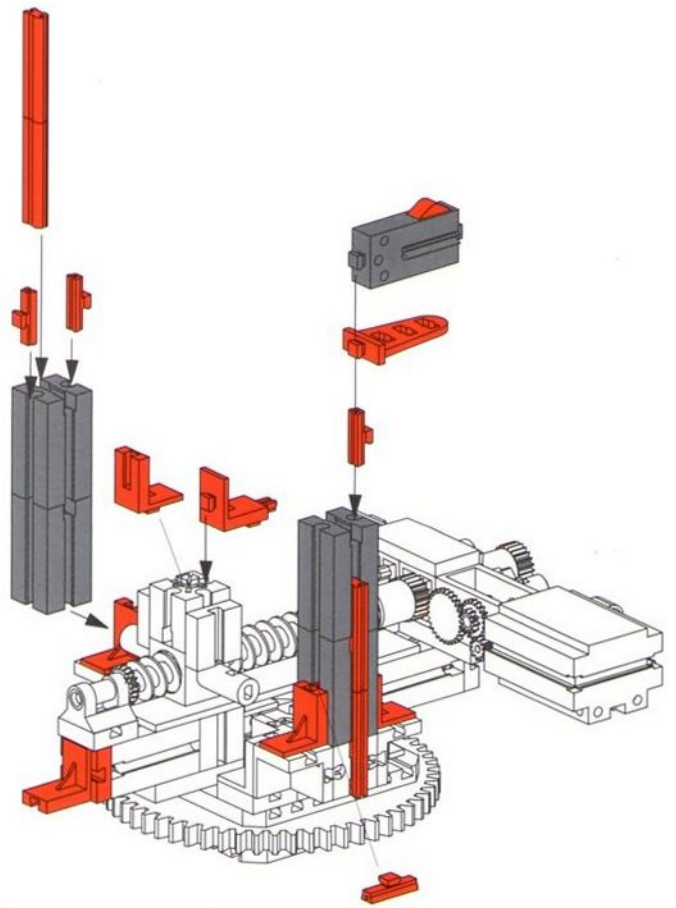
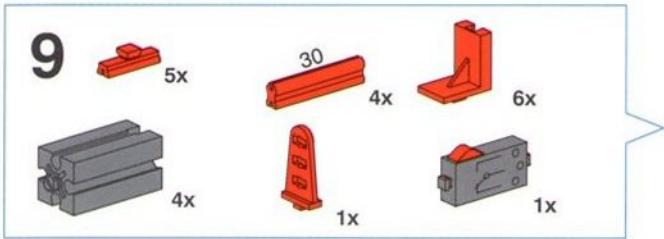
Schweißroboter
Welding robot

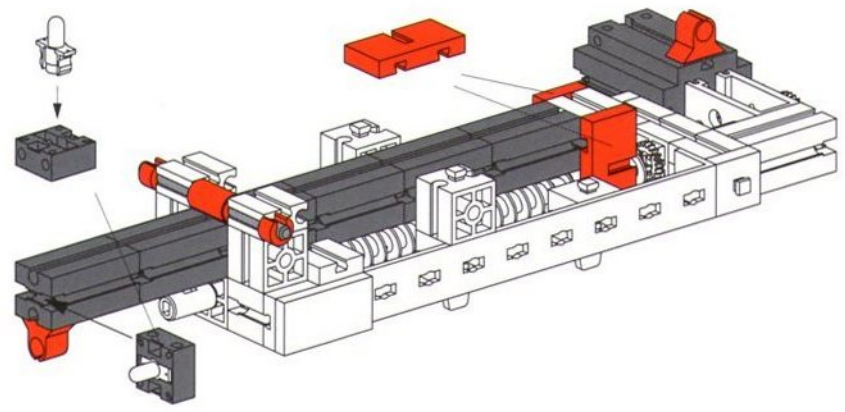
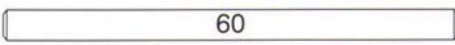
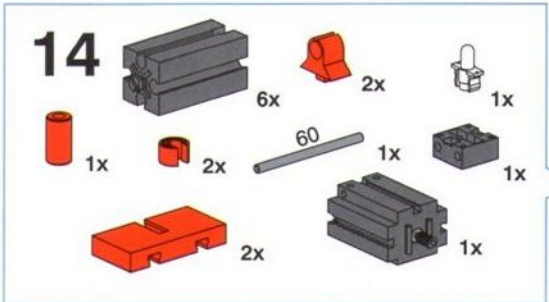
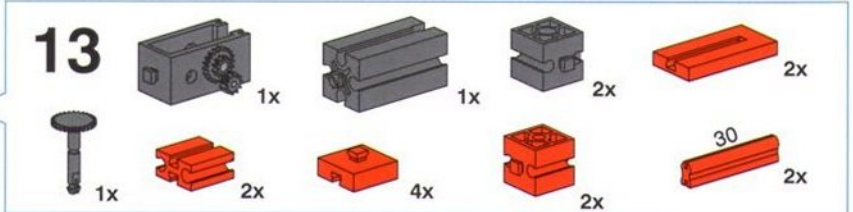
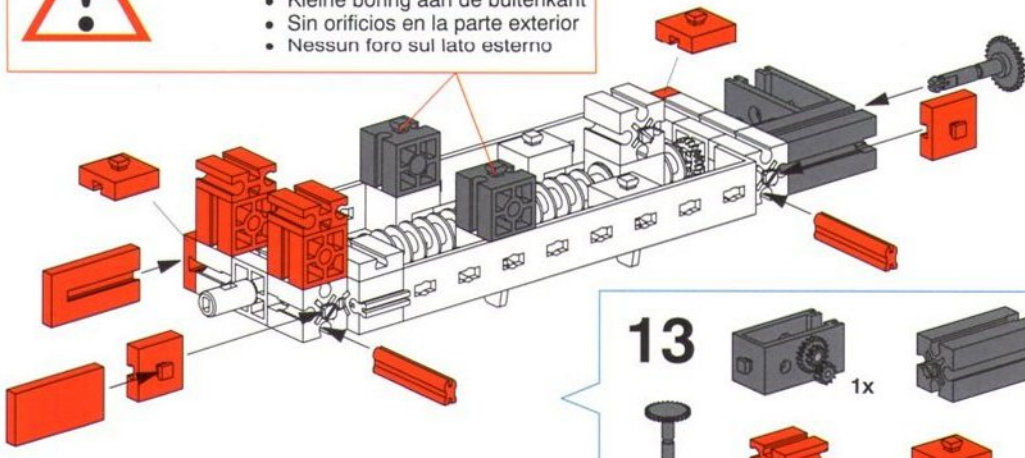
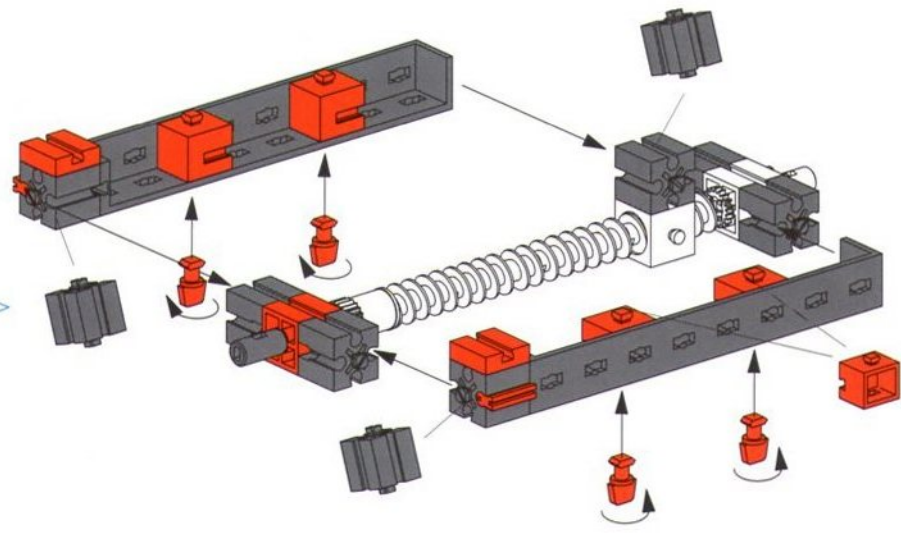
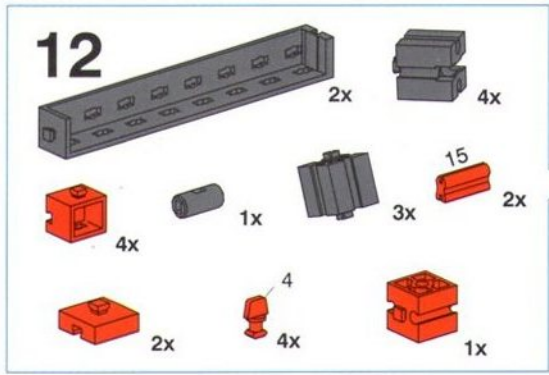
Robot soudeur
Lasrobot

Robot de soldadura
Robot per soldatura



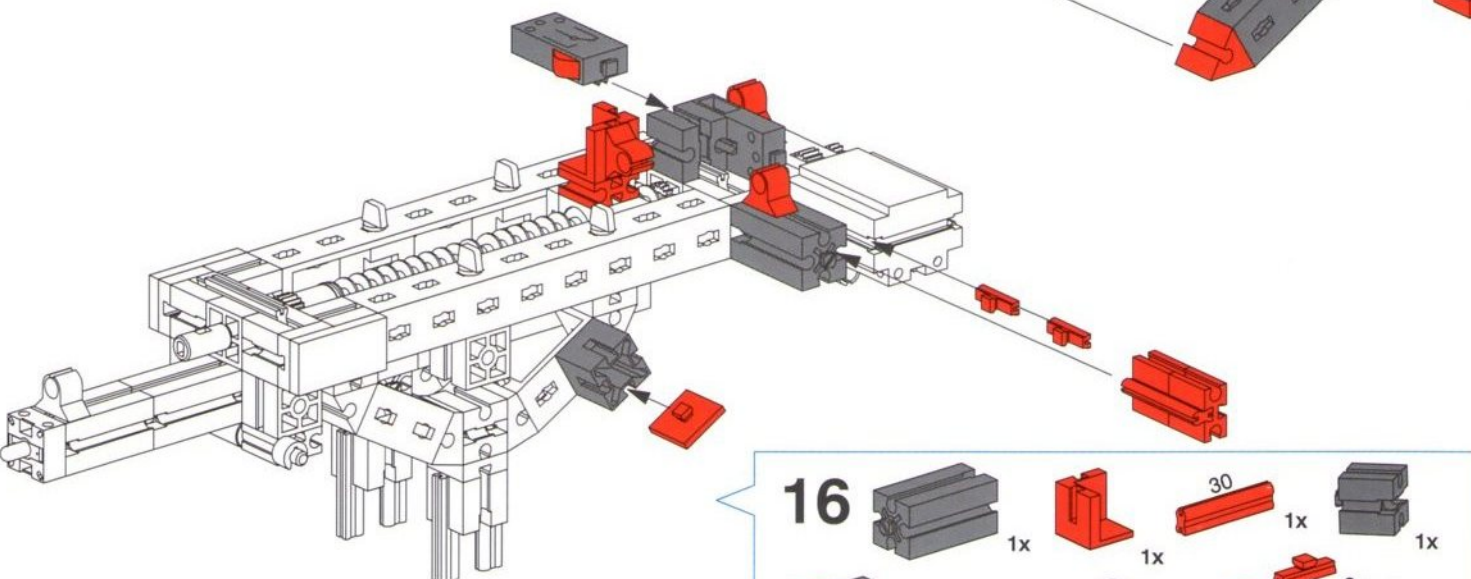
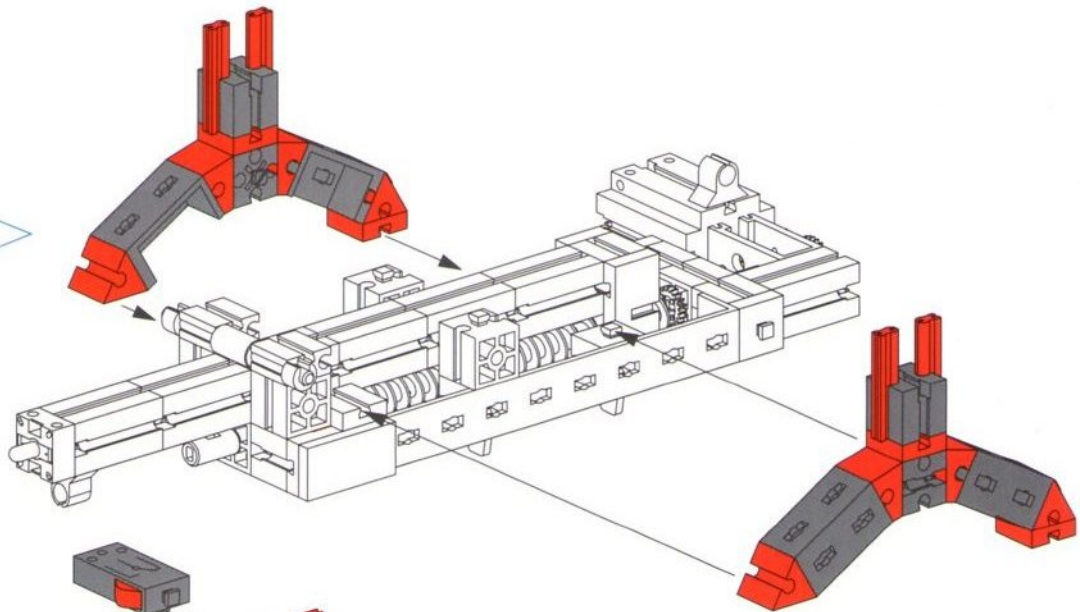






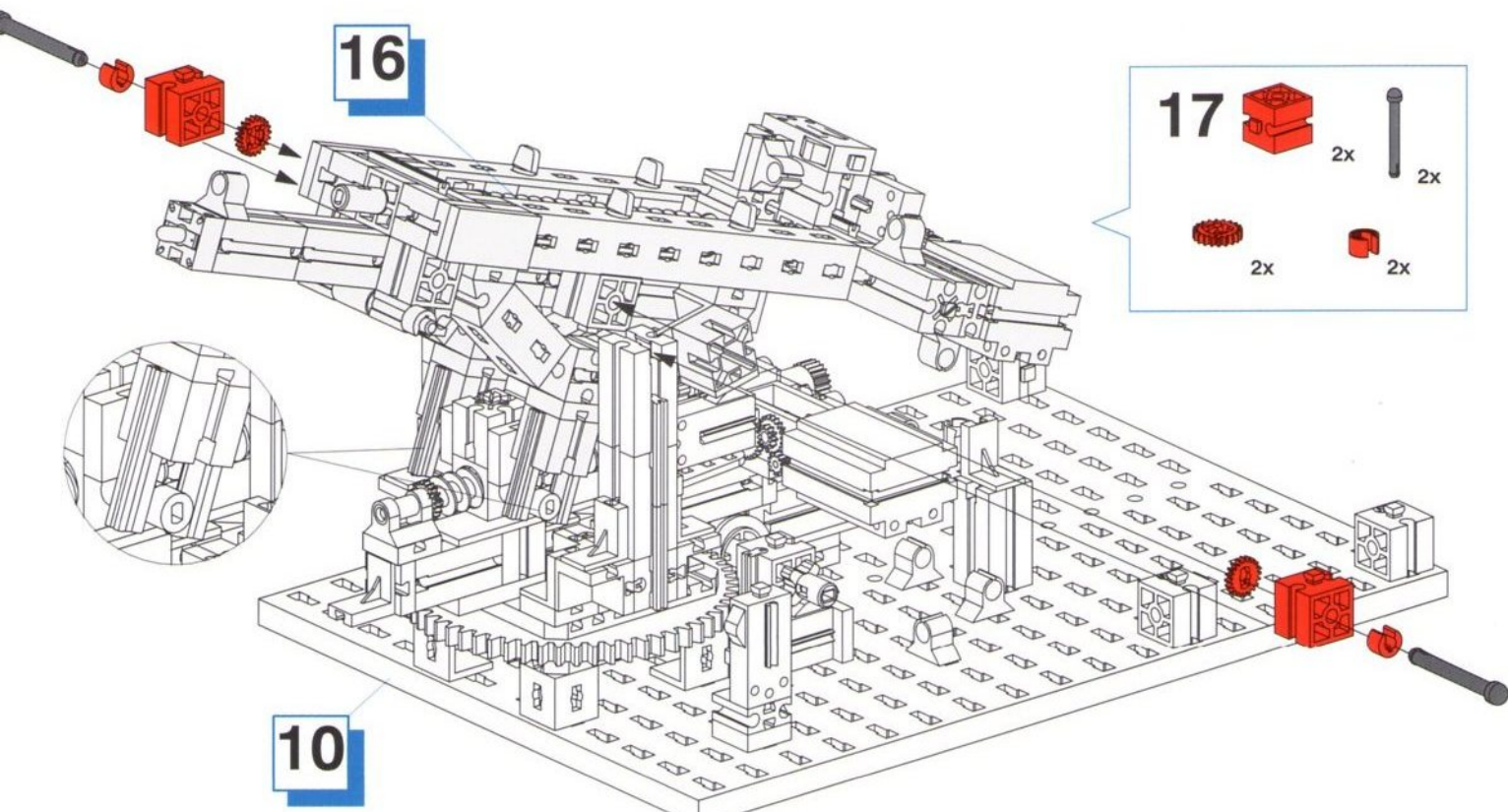
15

- 60° 4x
- 30° 4x
- 30 4x
- 4x
- 4x



16

- 1x
- 1x
- 30 1x
- 1x
- 1x
- 2x
- 1x
- 1x
- 3x
- 3x
- 2x

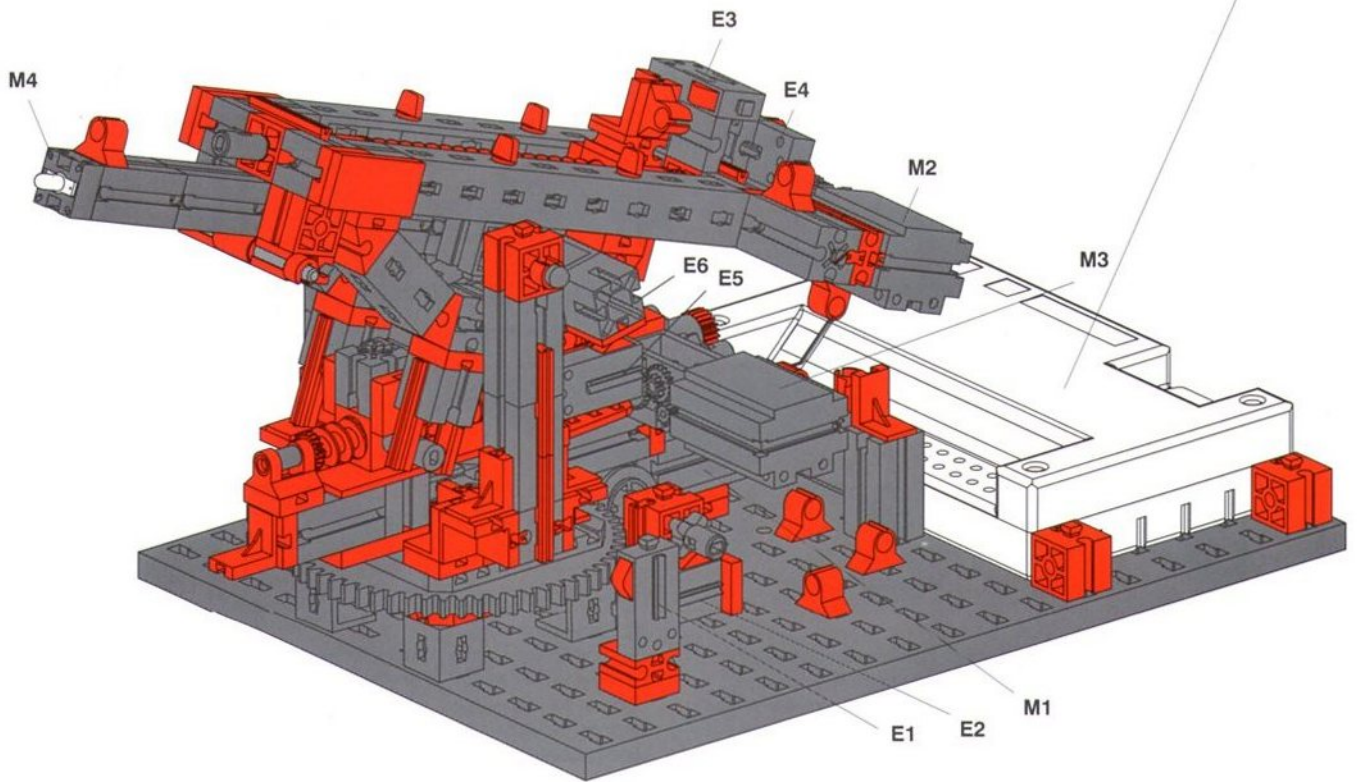


17

- 2x
- 2x
- 2x
- 2x

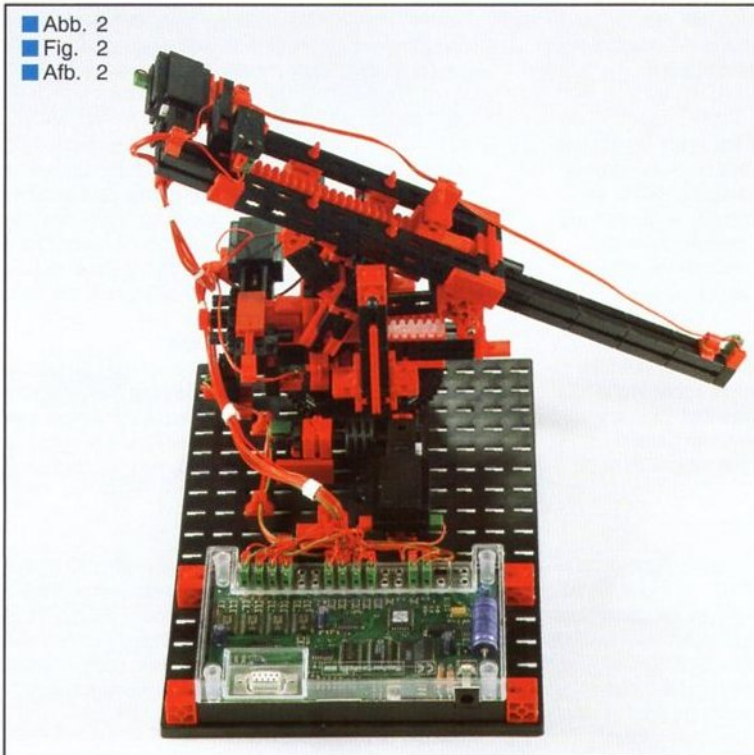
10

- Intelligent Interface (Art.-Nr. 30402) nicht im Baukasten enthalten
- Intelligent interface (Art. No. 30402) not included in the modular kit
- L'interface intelligente (réf. 30402) n'est pas contenue dans le kit
- Intelligent Interface (art.-nr. 30402) niet in de bouwdoos opgenomen
- El Intelligent Interface (art. n° 30402) no está incluido en el conjunto
- Interfaccia intelligente (art. no. 30402) non compresa nella costruzione modulare



- Software und Interface siehe Seite 4
- Software and interface see Page 4
- Logiciel et interface voir page 4
- Software en interface zie pagina 4
- Software e interface ver la página 4
- Software e interfaccia vedi pagina 4

- Abb. 2
- Fig. 2
- Afb. 2

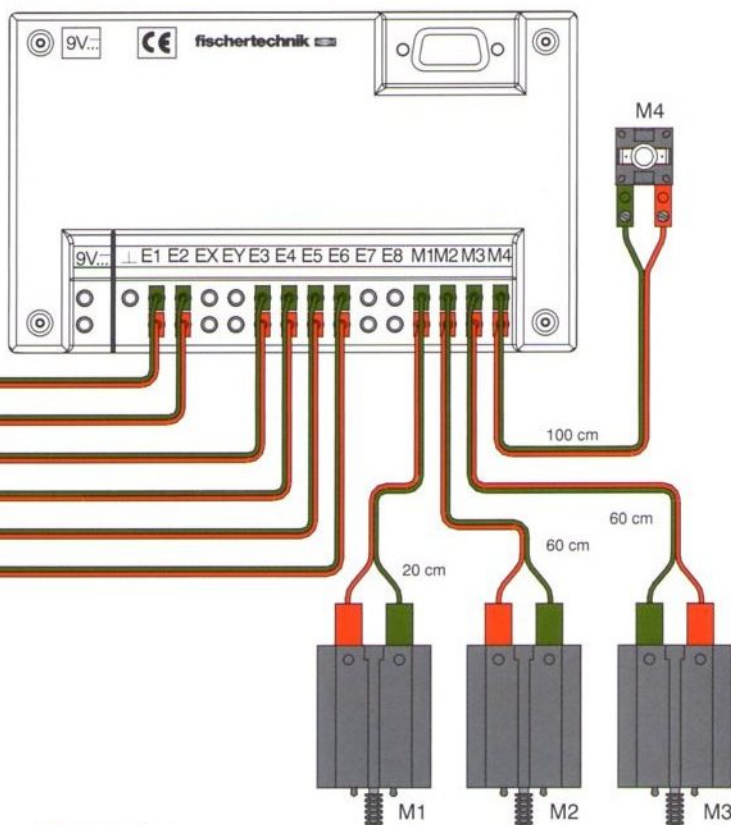


Schaltplan
Circuit diagram

Plan électrique
Schakelschema

Diagrama de circuitos
Schema elettrico

Motor Motor Moteur Motor Motor Motore	Endschalter end switch interrupteur de fin de course eindschakelaar interruptor de final de carrera fincorsa	Impulszähler pulses counter compteur d'impulsions impulsteller contador de impulsos contatore impulsivi
M1	E1	E2
M2	E3	E4
M3	E5	E6



■ Verkabelung

Die Motoren und Taster müssen wie im Schaltplan beschrieben angeschlossen werden. Dabei ist zu beachten, daß die Kabel sehr sorgfältig so verlegt werden, daß der Roboter beim Schwenken in seinem Arbeitsraum durch die Kabel nicht beeinträchtigt wird. Dazu bringt man den Roboter in die auf der Abb. 2 dargestellte Position (Motor und Getriebe aushängen, Achsen manuell bewegen). Dann werden die Kabel entsprechend dieser Abbildung durch die dafür vorgesehenen Kabelhalter geführt und mit den beiliegenden weißen Papierdrahtbändern gebündelt.

Drehrichtung der Motoren

Vor dem Starten der Softwareprogramme muß mit Hilfe der Interface-Diagnose überprüft werden, ob sich die Motoren in die vorgeschriebene Richtung drehen. Drehrichtung "Links" bedeutet bei jedem Motor, daß sich die jeweilige Achse des Roboters in ihre Ausgangsposition, also auf den Endschalter zu, bewegt. Gegebenenfalls müssen die Motoren umgepolt werden.

■ Cabling

Motors and buttons must be connected as shown in the cable layout plan. In doing so, it must be ascertained that the cable is laid out very carefully so that the robot is not impaired by the cable when swivelling within its work space. In this manner, the robot is brought into the position depicted in the Fig. 2 (hang out the motor or gearbox, move the axes manually). The cables are guided according to this figure, by means of the cable holder for this purpose, and then bundled with the attached white paper-wire bands.

Rotational direction of motors

Prior to starting the software programmes and with the help of interface diagnosis, it must be checked whether or not the motors rotate in the specified direction. The "Left" rotational direction means that for every motor, the respective axis of the robot traverses towards its datum position, thus, towards the end switch. If necessary, the motors must be commutated.

■ Câblage

Les moteurs et les palpeurs doivent être connectés comme décrit dans le schéma des connexions. Il convient de veiller, ce faisant, à ce que les câbles soient posés avec le plus grand soin de telle manière qu'ils ne gênent pas le robot quand il pivote sur l'espace de travail. Pour ce faire, amener le robot dans la position illustrée à la fig. 2 (débrancher le moteur et l'engrenage, déplacer manuellement les axes). Les câbles sont alors guidés, conformément à l'illustration, dans les porte-câbles prévus à cet effet et réunis en faisceau au moyen de bandes de papier métal blanches jointes.

Sens de rotation des moteurs

Avant de démarrer les logiciels, il convient de vérifier, à l'aide du diagnostic d'interface, si les moteurs tournent dans le bon sens. Un sens de rotation vers la «gauche» signifie pour chaque moteur que l'axe respectif du robot se déplace dans sa position de départ, c.-à-d. en direction de l'interrupteur de fin de course. Le cas échéant, la polarité des moteurs doit être inversée.

■ Bedrading

De motoren en toetsen moeten zoals beschreven in het schakelplan aangesloten worden. Let er daarbij op, dat de draden zeer zorgvuldig en zodanig worden gelegd, dat de robot bij het draaien in zijn axiradius niet door de bedrading wordt gehinderd. De robot hiervoor in de op de afb. 2 weergegeven positie brengen (motor en aandrijving uitnemen, assen met de hand bewegen). Daarna de bedrading overeenkomstig deze afbeelding door de hiervoor speciaal bedoelde draadhouders leiden en met de bijgeleverde witte papieren binddraadjes bundelen.

Draairichting van de motoren

Voor het starten van het softwareprogramma moet met behulp van de interface-diagnose gecontroleerd worden of de motoren in de gewenste richting draaien. Draairichting "links" betekent dat bij iedere motor de betreffende as van de robot in de uitgangpositie, dus naar de eindschakelaar toe beweegt. Eventueel moeten de motoren omgepold worden.

■ Cableado

Los motores y los sensores deben conectarse de la forma descrita en el diagrama de circuitos. Para ello debe procurarse tender los cables con esmero, de forma que el robot al girar no se vea limitado en su alcance por los cables. Para ello se coloca el robot a la posición indicada en la figura 2 (descolgar el motor o el engranaje y desplazar los ejes manualmente). Seguidamente se pasan los cables según este dibujo a través de las sujeciones previstas para ello y se reúnen con las cintas de alambre y papel blanco suministradas.

Sentido de giro de los motores

Antes de poner en marcha los programas del software, debe comprobarse con la ayuda del diagnóstico del interface si los motores giran en el sentido correcto. Sentido de giro a la "izquierda" significa en cada motor que el eje correspondiente del robot se desplaza a la posición de partida, es decir, hacia el interruptor de final de carrera. En caso necesario hay que cambiar los polos de los motores.

■ Cablaggio

Allacciare i motori e i tastatori come descritto nello schema elettrico. I cavi devono venire collegati accuratamente per evitare che essi non ostacolino il movimento del robot nel suo campo di lavoro. Portare allo scopo il robot nella posizione illustrata nella fig. 2 (sganciare il motore o il riduttore, muovere gli assi manualmente). Fare quindi passare i cavi attraverso gli appositi portacavi come descritto in questa figura e legarli insieme con i nastri di filo di ferro rivestiti di carta.

Senso di rotazione dei motori

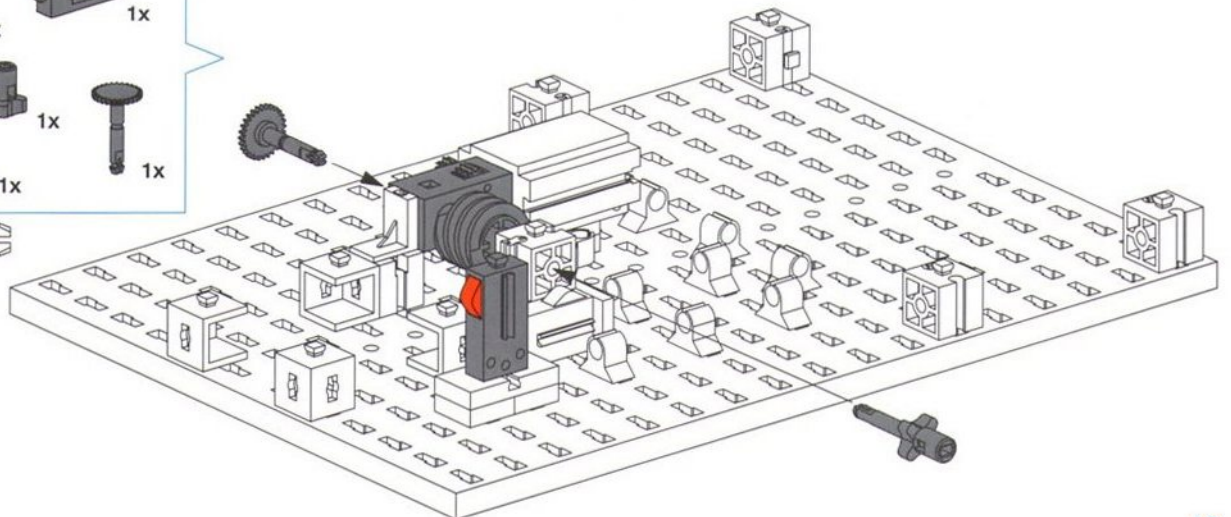
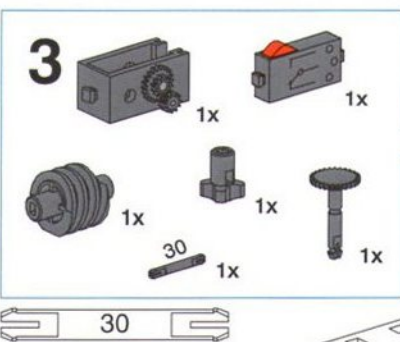
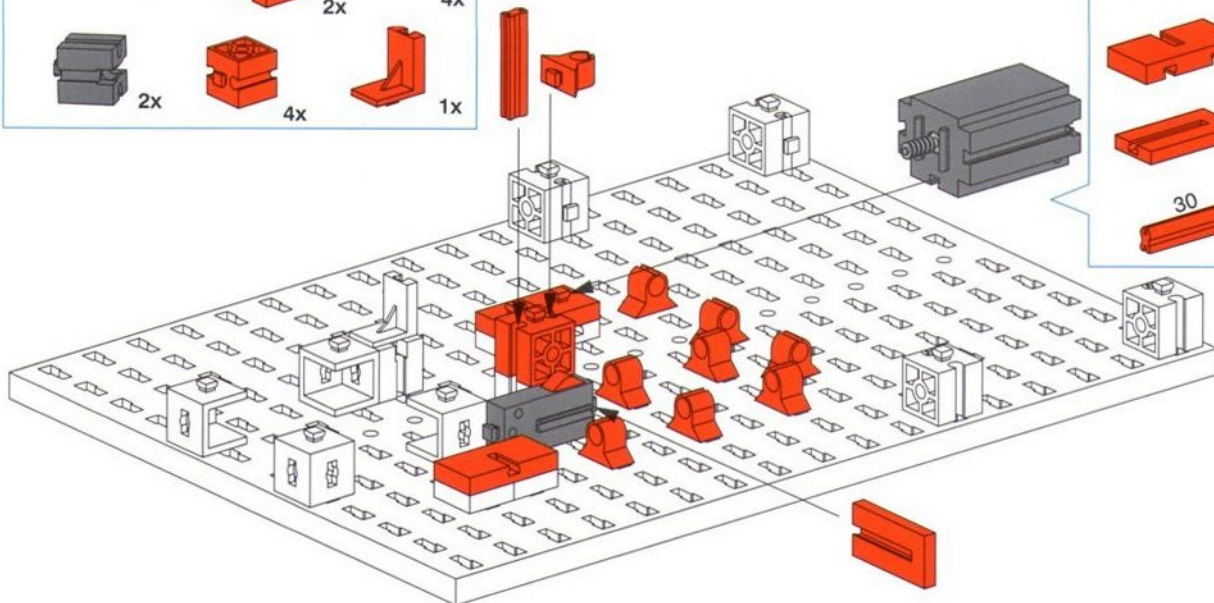
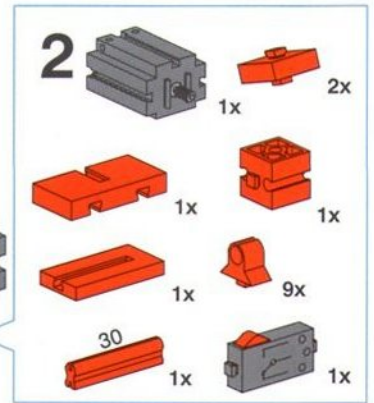
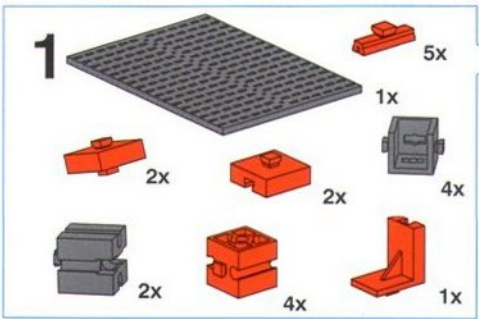
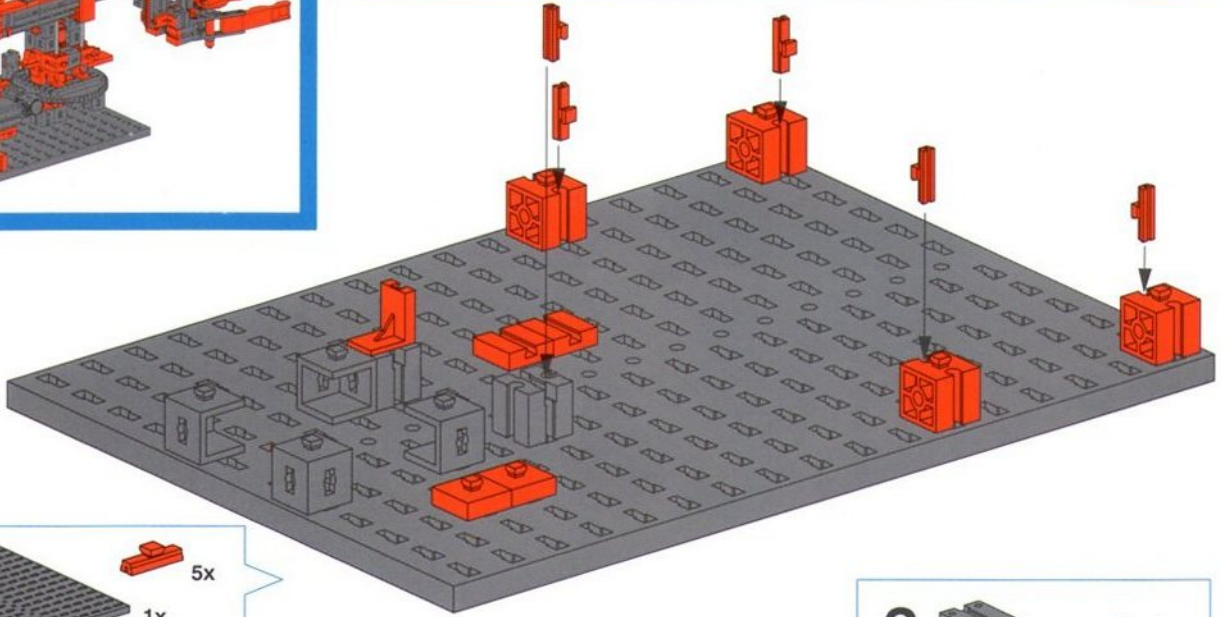
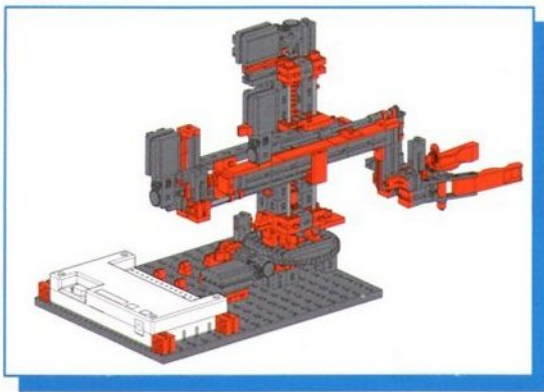
Prima di avviare i programmi software, verificare con l'ausilio dell'interfaccia diagnosi se i motori girano nel senso prestabilito. Senso di rotazione "antiorario" significa per ogni motore, che il rispettivo asse del robot si muove nella sua posizione d'uscita, cioè in direzione del fincorsa. Se necessario si deve invertire la polarità dei motori.

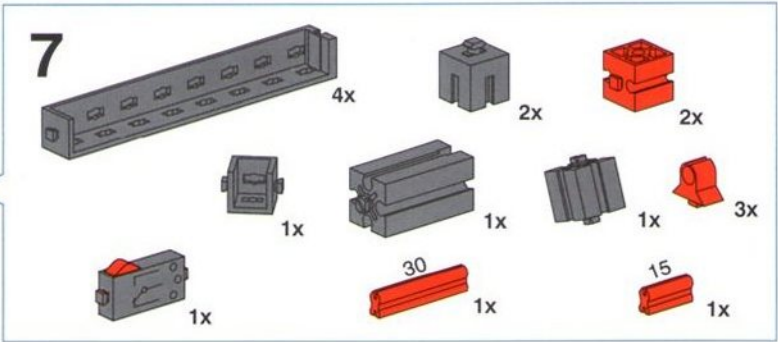
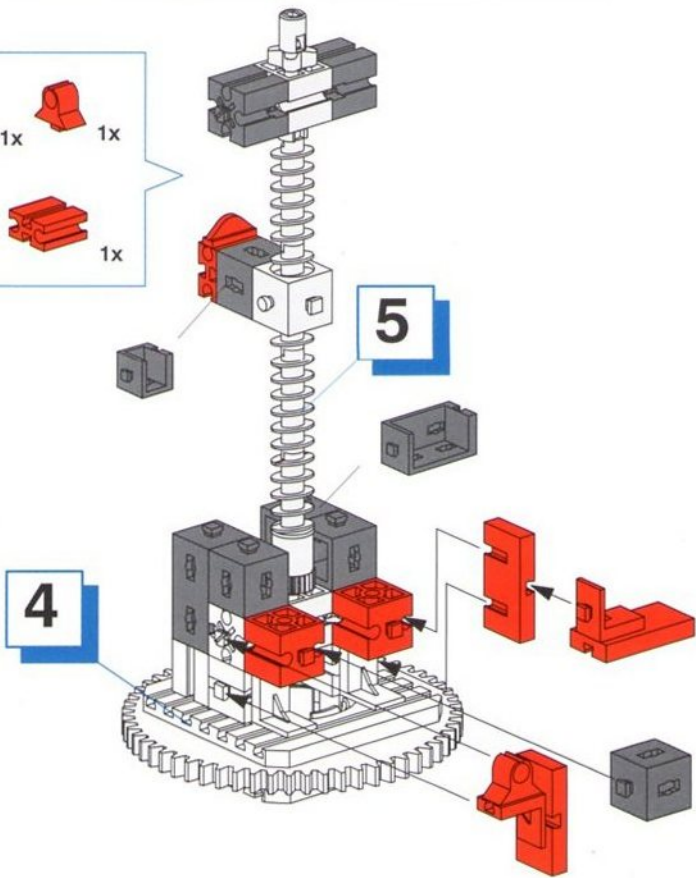
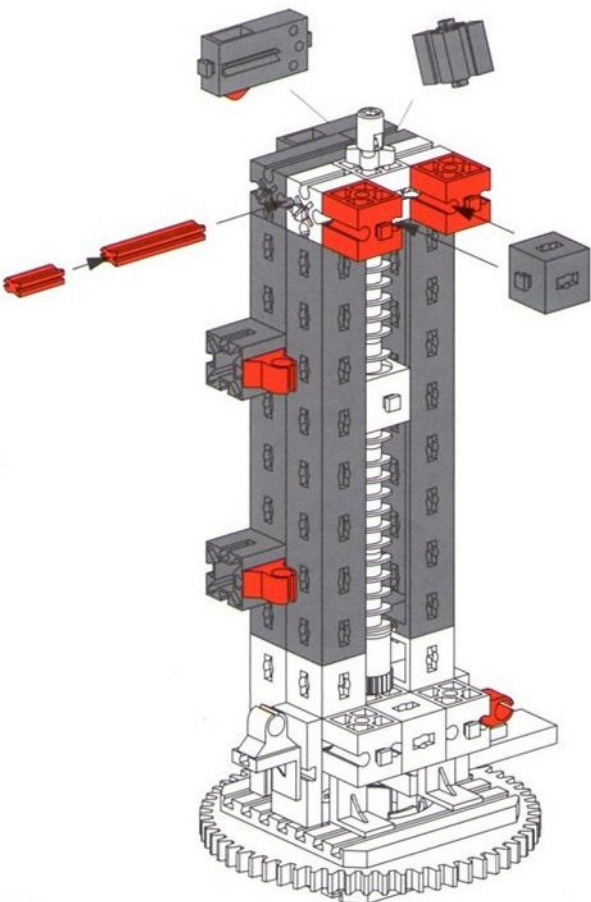
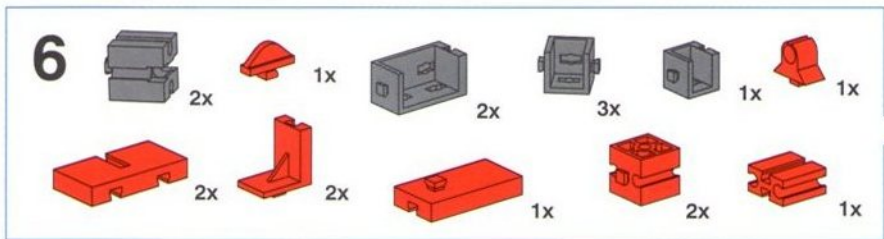
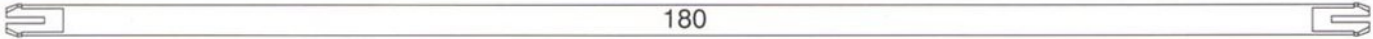
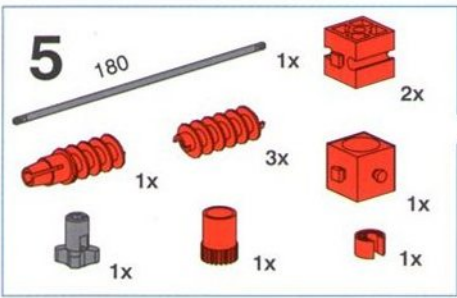
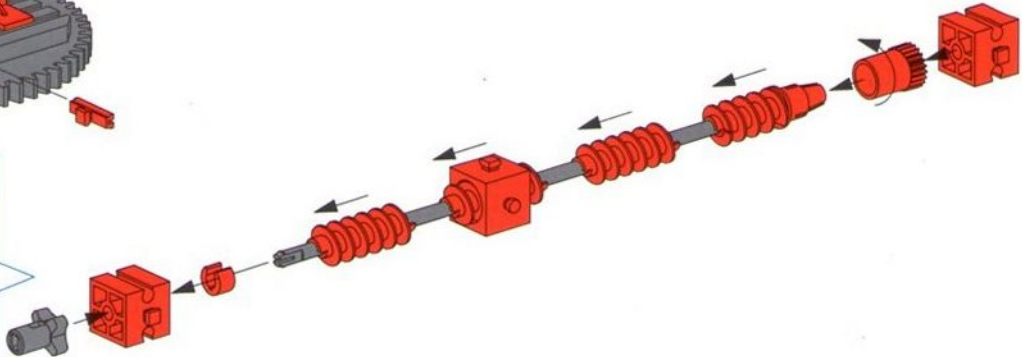
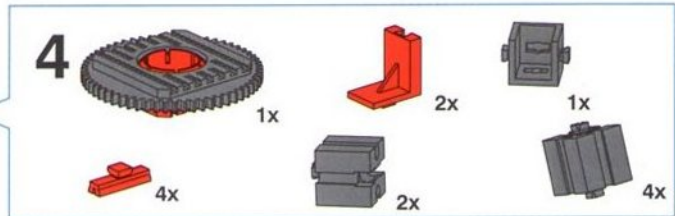
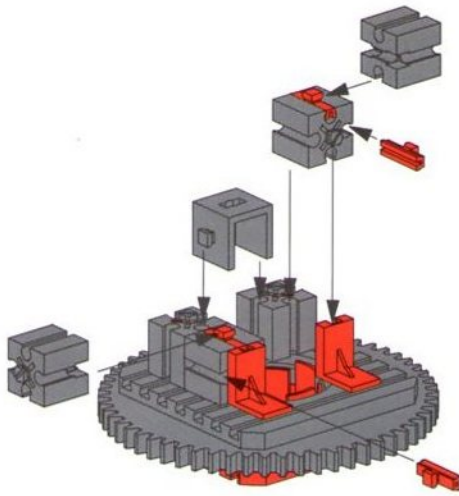
Rob 3

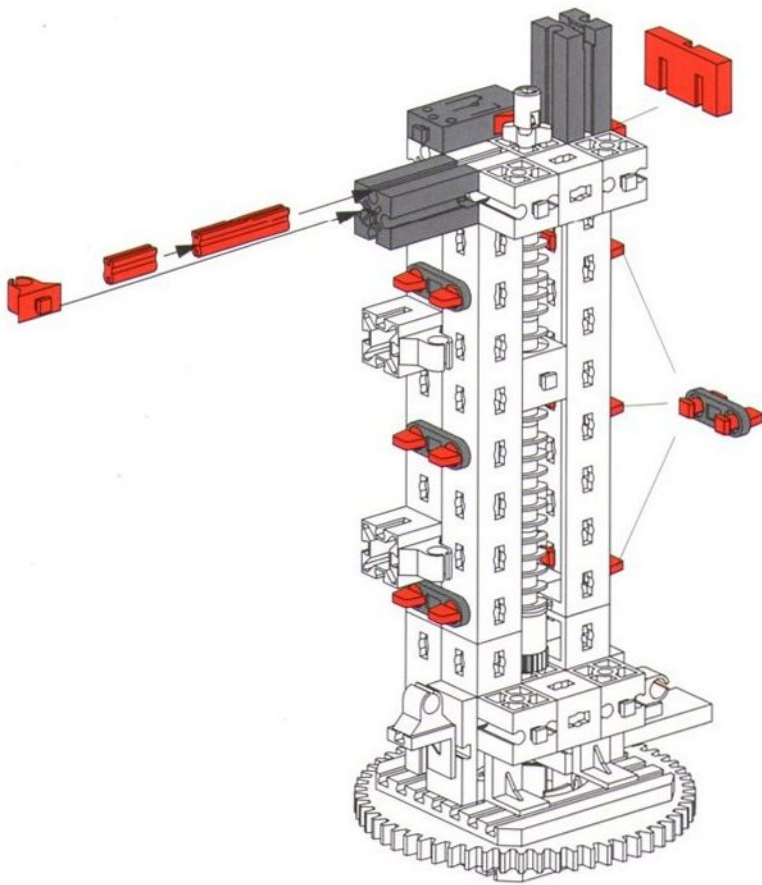
Säulenroboter
Column type robot

Robot à montent
Zuilrobot

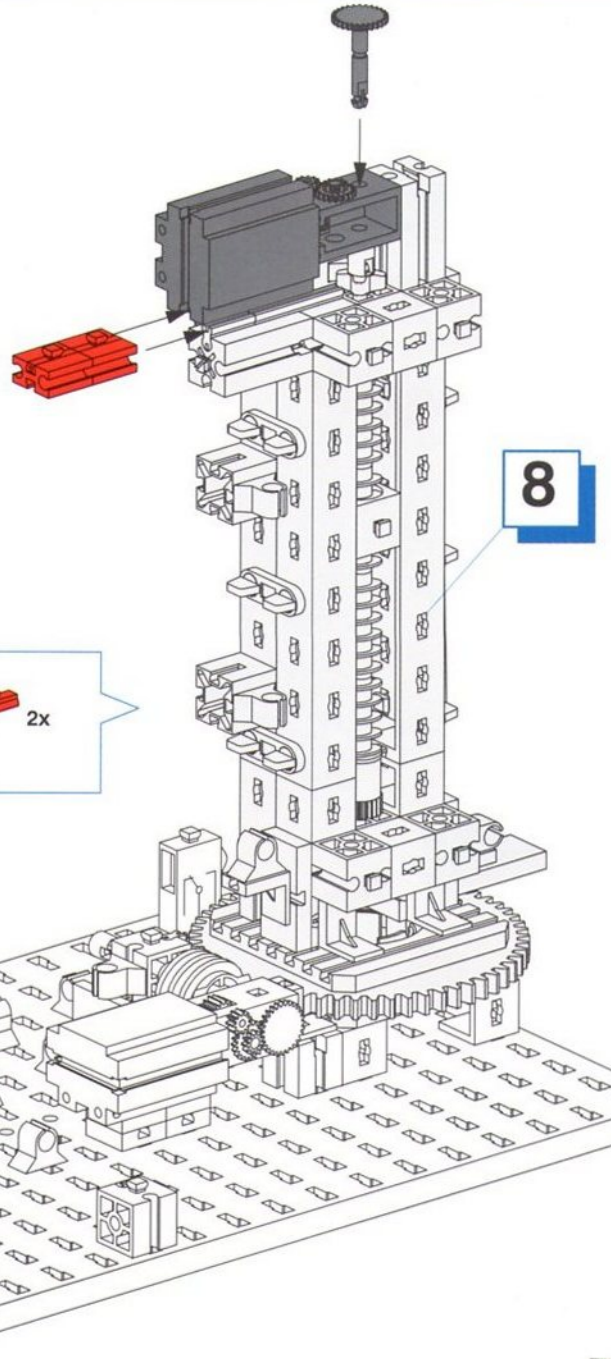
Robot de columnas
Robot a colonna



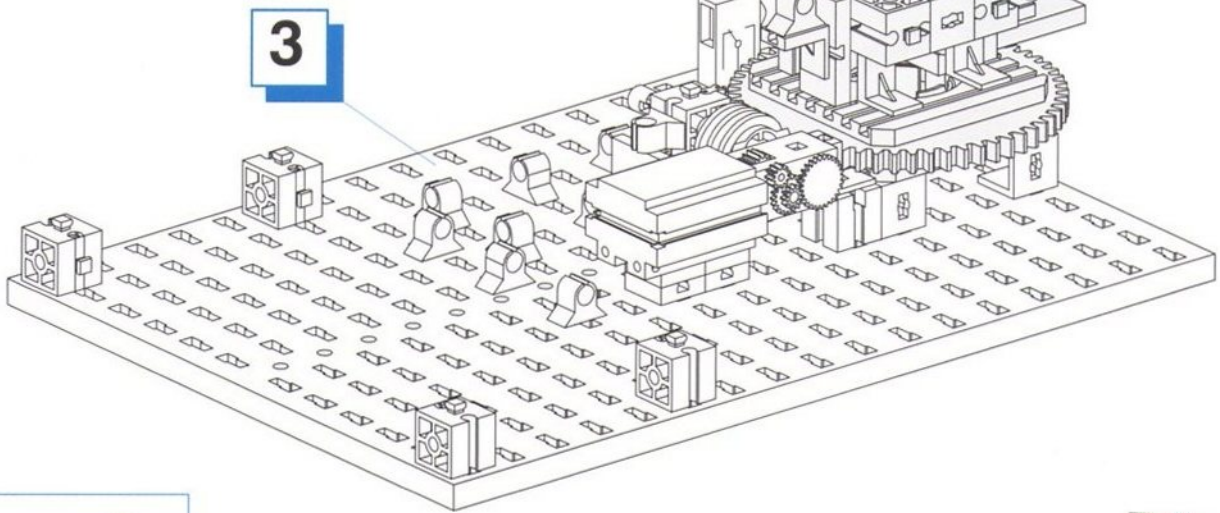




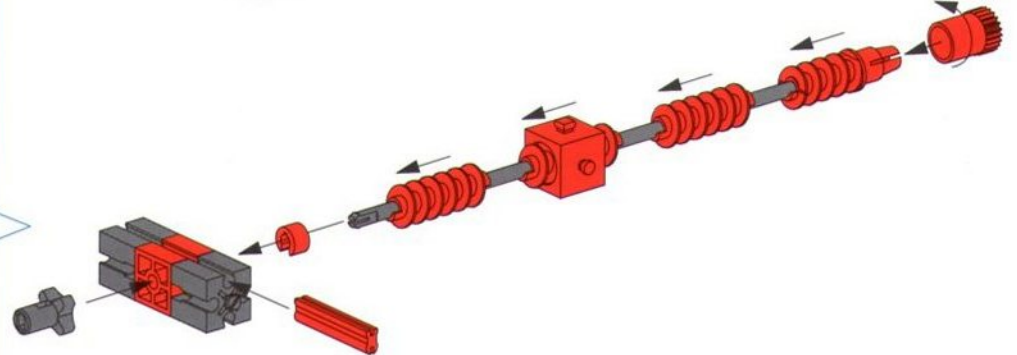
- 8**
- Grey axle 2x
 - Red axle 1x
 - Grey axle 1x
 - Black bush 15 6x
 - Red bush 4 12x
 - Red axle 30 1x
 - Red axle 15 1x
 - Red bush 1x

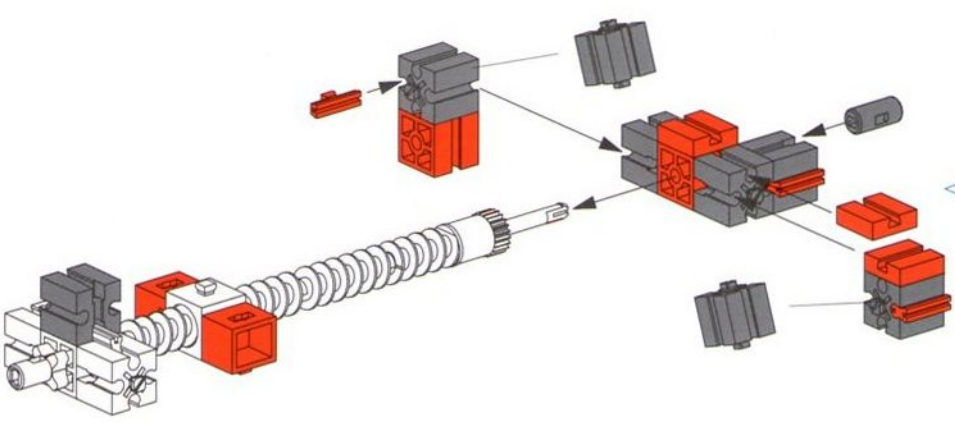


- 9**
- Grey axle 1x
 - Grey axle 1x
 - Black bush 15 1x
 - Red axle 2x
 - Red axle 2x



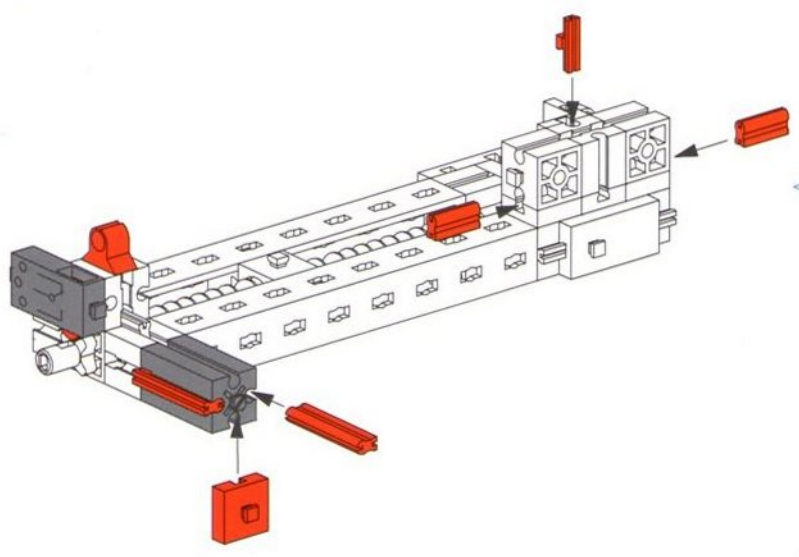
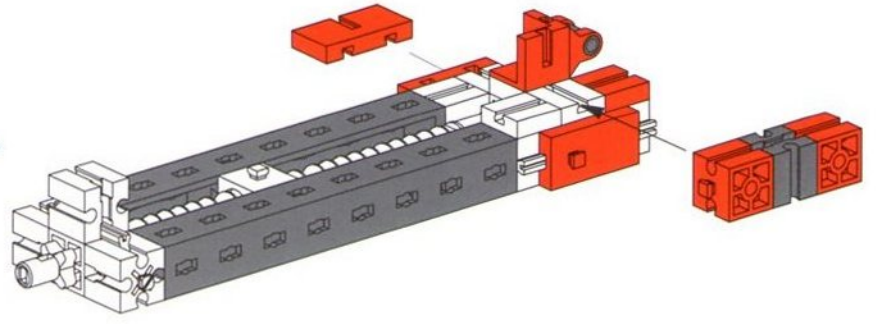
- 10**
- Black axle 180 1x
 - Grey bush 1x
 - Red bush 1x
 - Red bush 1x
 - Grey bush 2x
 - Red bush 3x
 - Red bush 1x
 - Red bush 1x
 - Red bush 1x
 - Red bush 30 1x





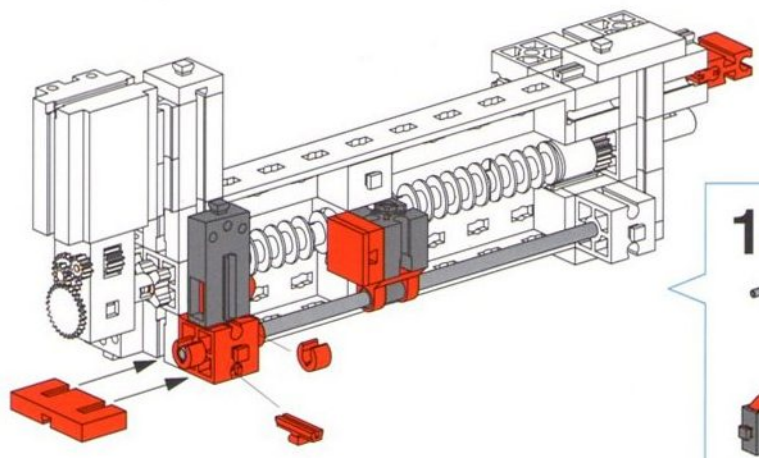
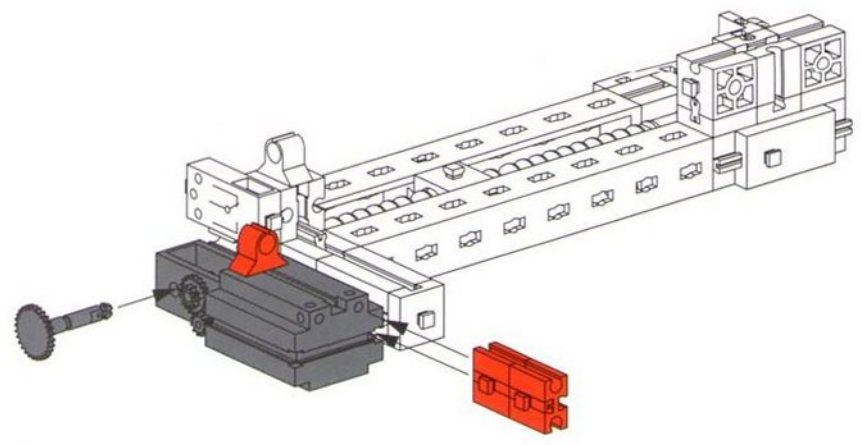
- 11**
- 4x [Grey 1x2 Technic Pin]
 - 2x [Grey 1x2 Technic Pin]
 - 2x [Red 1x2 Technic Pin]
 - 2x [Red 1x2 Technic Pin]
 - 3x [Red 1x2 Technic Pin]
 - 1x [Grey 1x2 Technic Pin]
 - 15 [Red 1x2 Technic Pin]
 - 2x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]

- 12**
- 2x [Grey 1x12 Technic Beam]
 - 1x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 2x [Red 1x2 Technic Pin]



- 13**
- 1x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 1x [Grey 1x2 Technic Pin]
 - 30 [Red 1x2 Technic Pin]
 - 2x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 15 [Red 1x2 Technic Pin]
 - 2x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]

- 14**
- 1x [Grey 1x2 Technic Pin]
 - 1x [Grey 1x2 Technic Pin]
 - 1x [Grey 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 2x [Red 1x2 Technic Pin]
 - 2x [Red 1x2 Technic Pin]

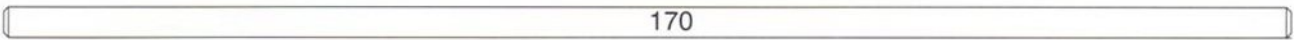
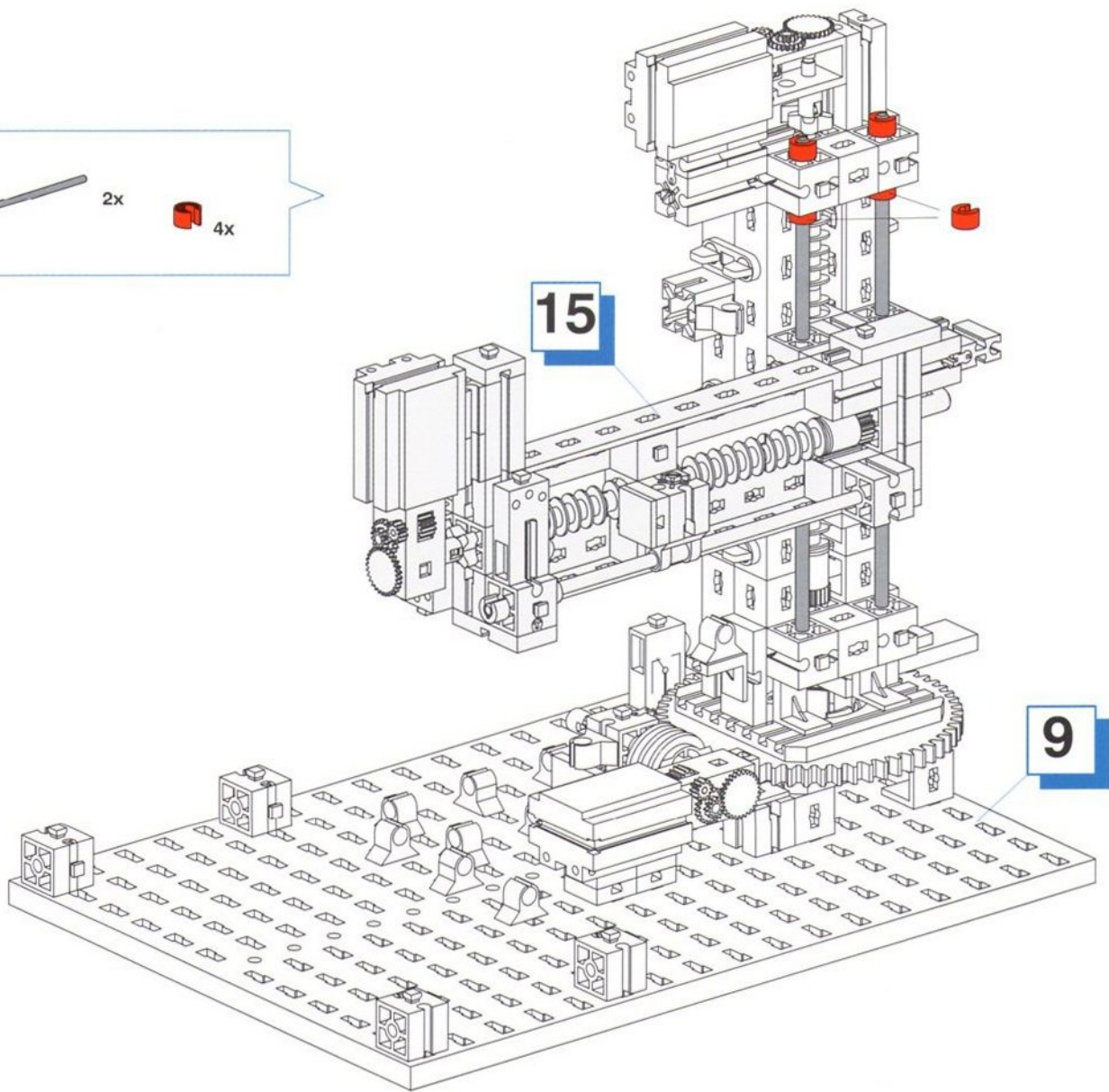


- 15**
- 150 [Grey Axle]
 - 1x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 2x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
 - 1x [Red 1x2 Technic Pin]
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 - 1x [Red 1x2 Technic Pin]

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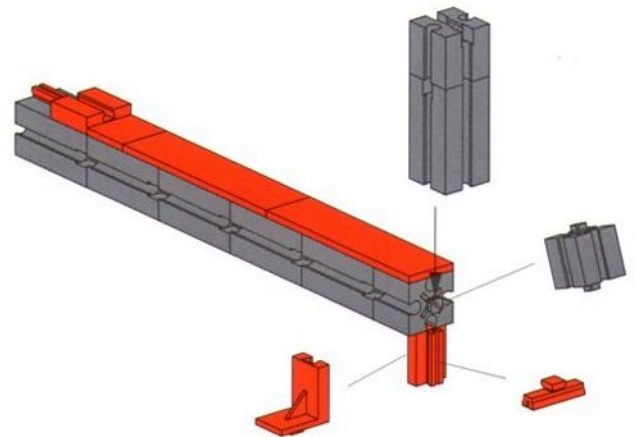
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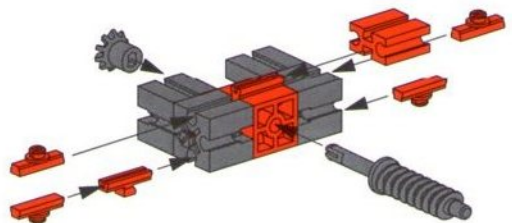
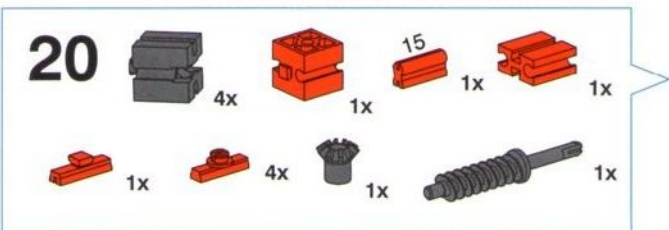
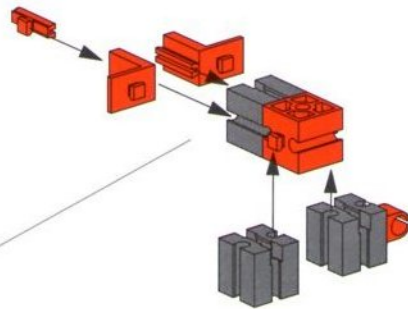
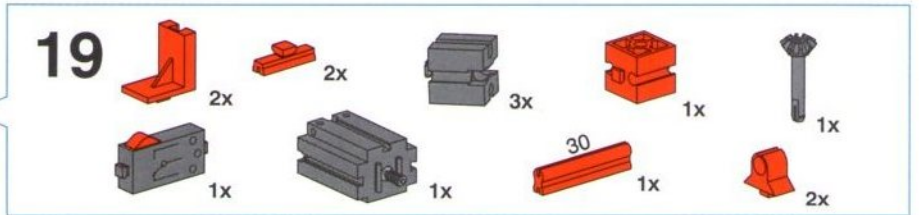
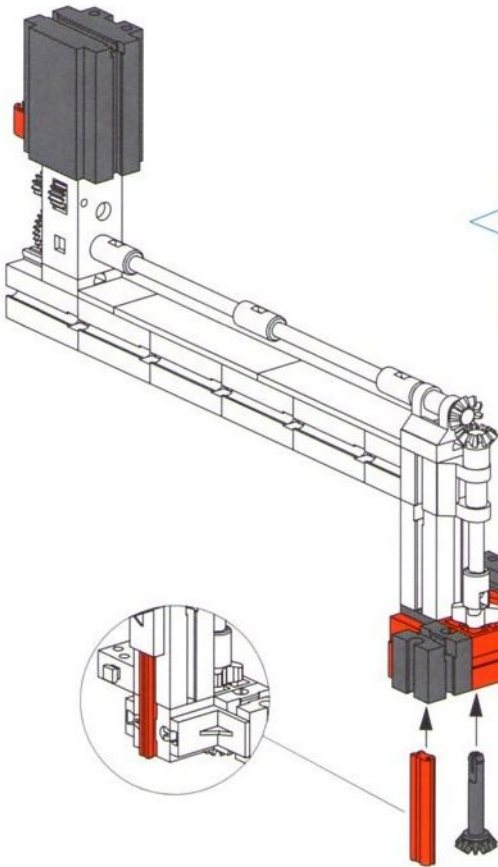
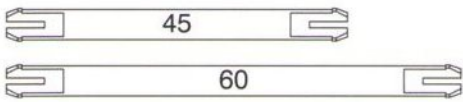
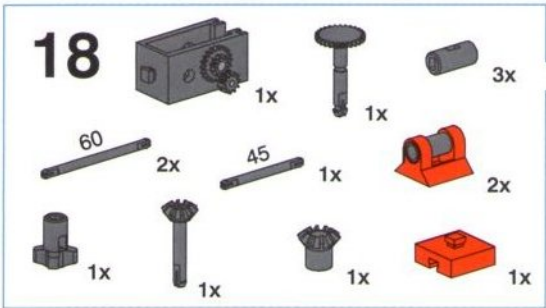
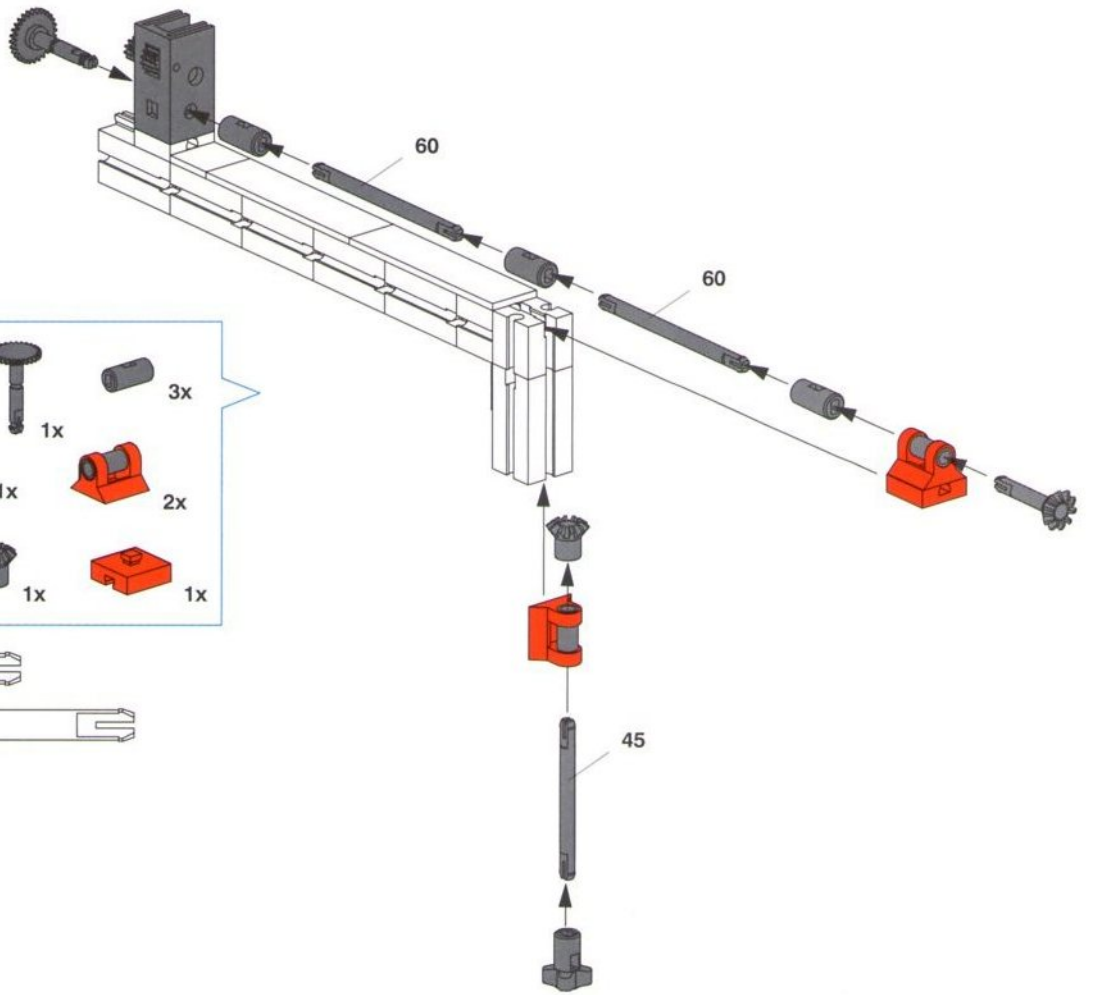
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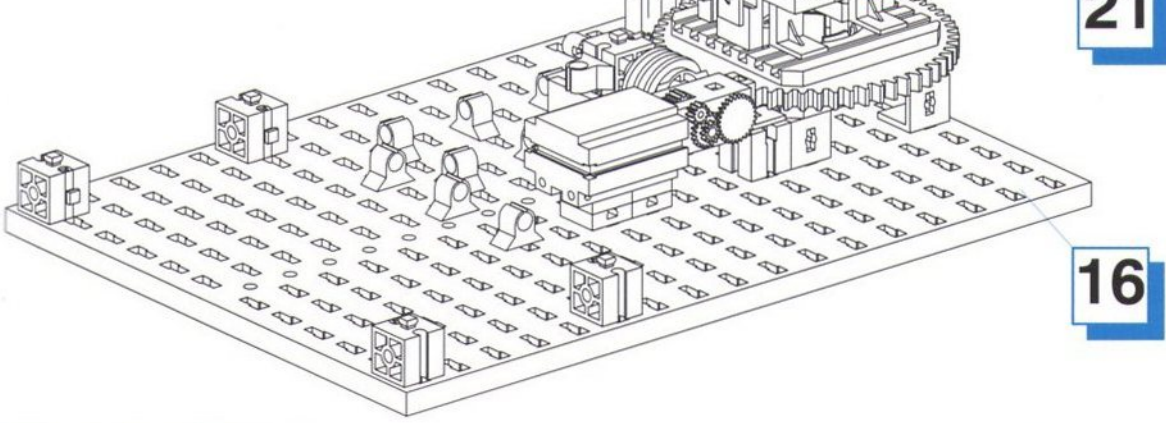
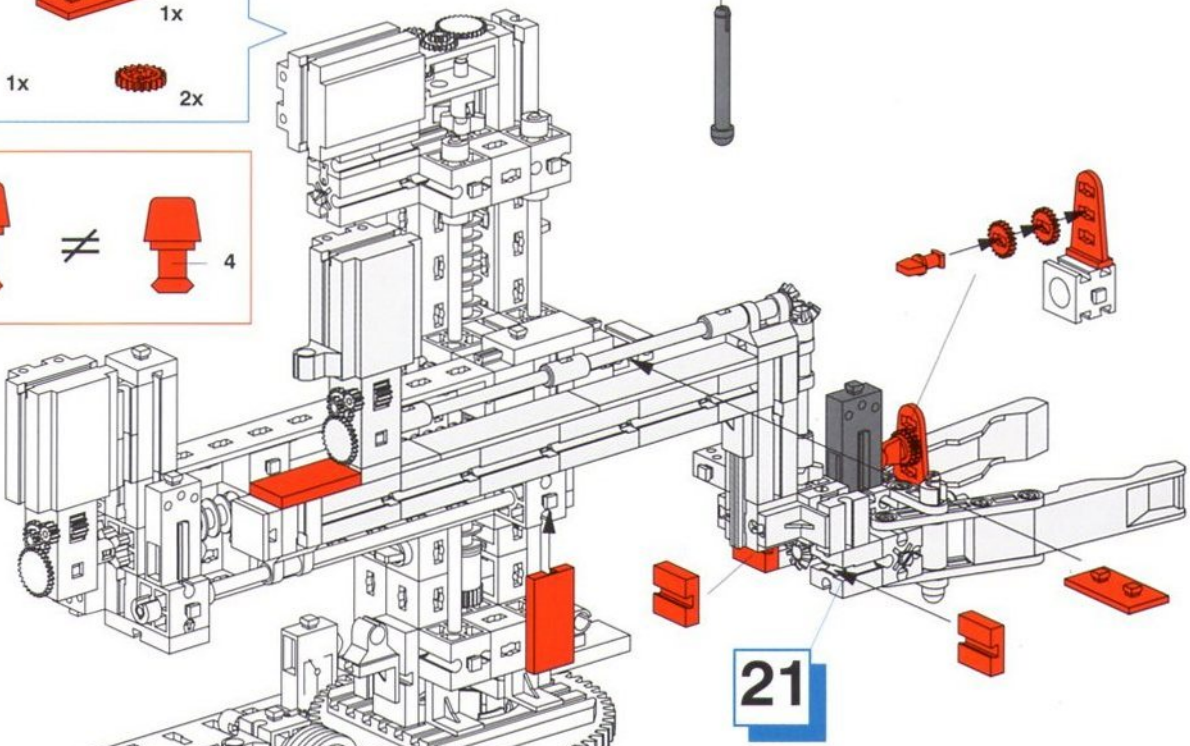
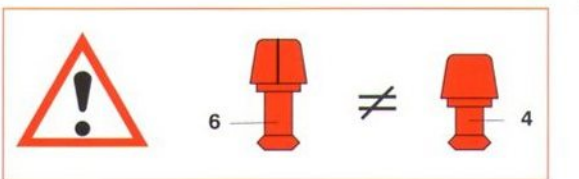
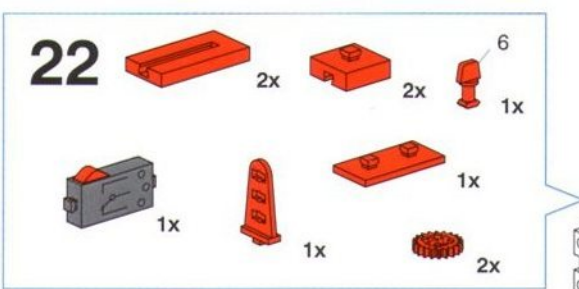
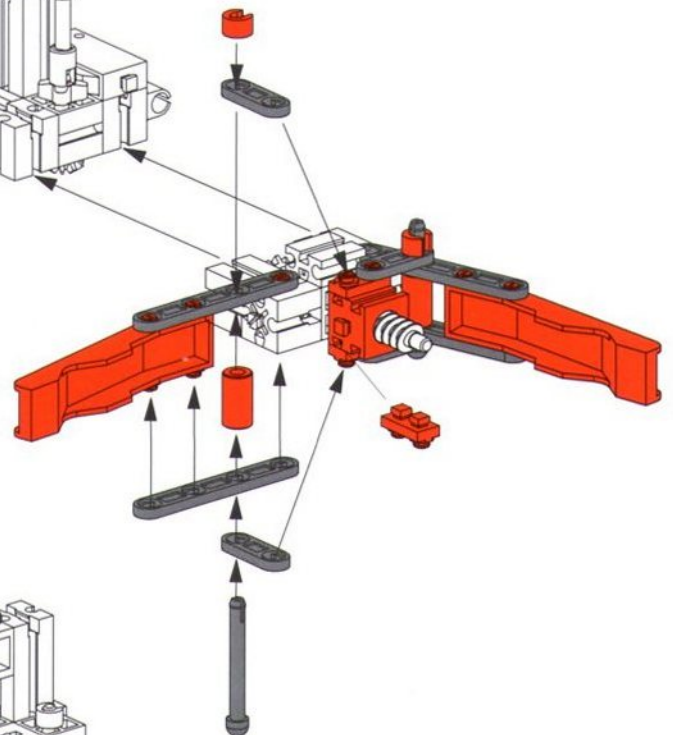
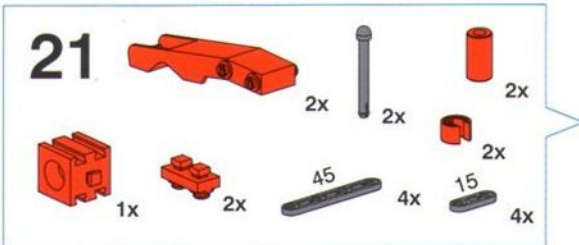
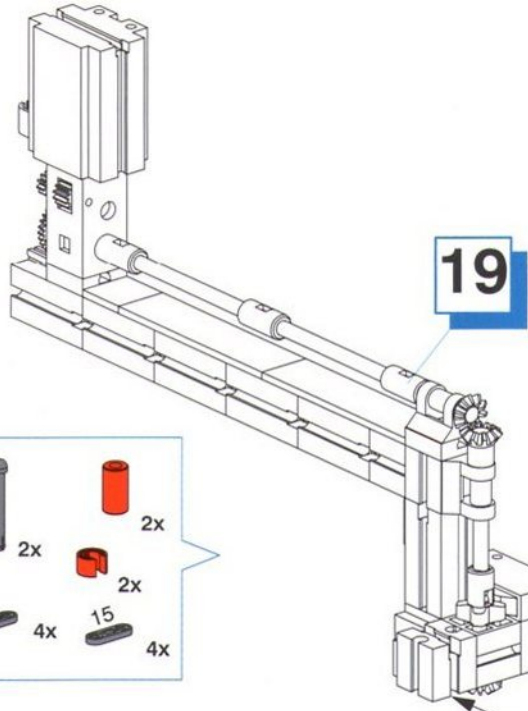


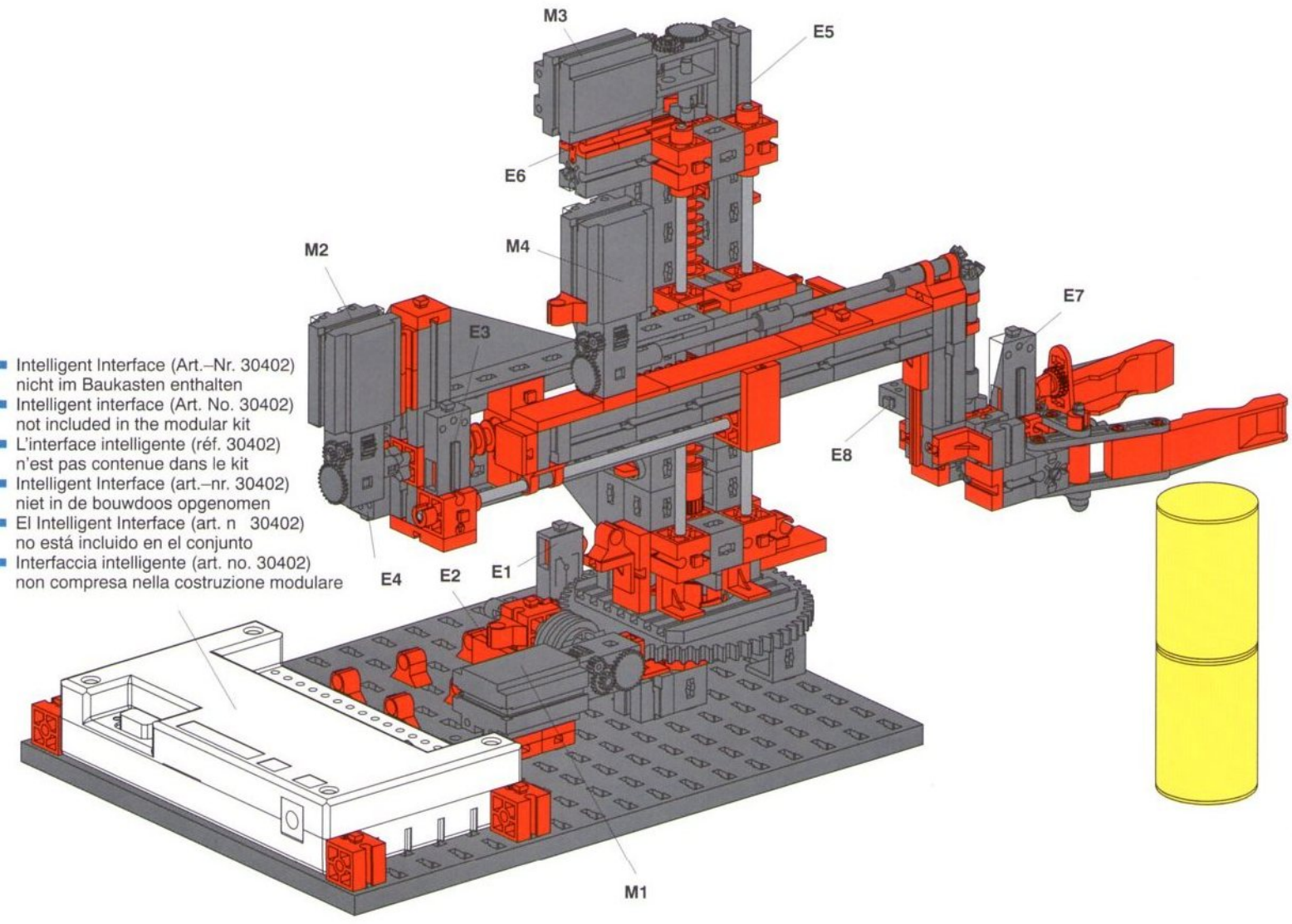
17

6x 1x 1x
 2x 1x 1x
 1x 1x 15 1x

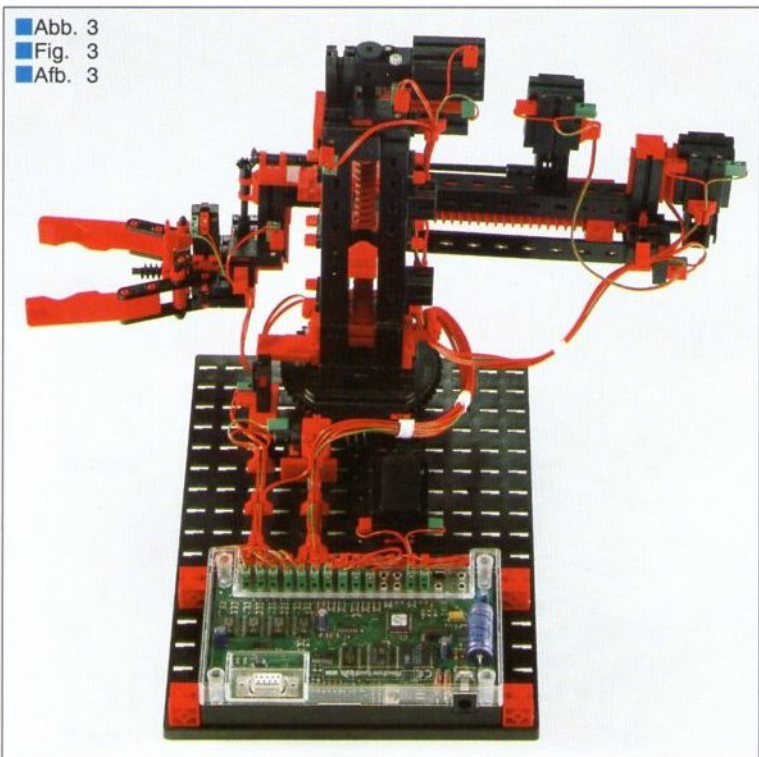








- Intelligent Interface (Art.-Nr. 30402) nicht im Baukasten enthalten
- Intelligent interface (Art. No. 30402) not included in the modular kit
- L'interface intelligente (réf. 30402) n'est pas contenue dans le kit
- Intelligent Interface (art.-nr. 30402) niet in de bouwdoos opgenomen
- El Intelligent Interface (art. n. 30402) no está incluido en el conjunto
- Interfaccia intelligente (art. no. 30402) non compresa nella costruzione modulare



■ Abb. 3
 ■ Fig. 3
 ■ Afb. 3

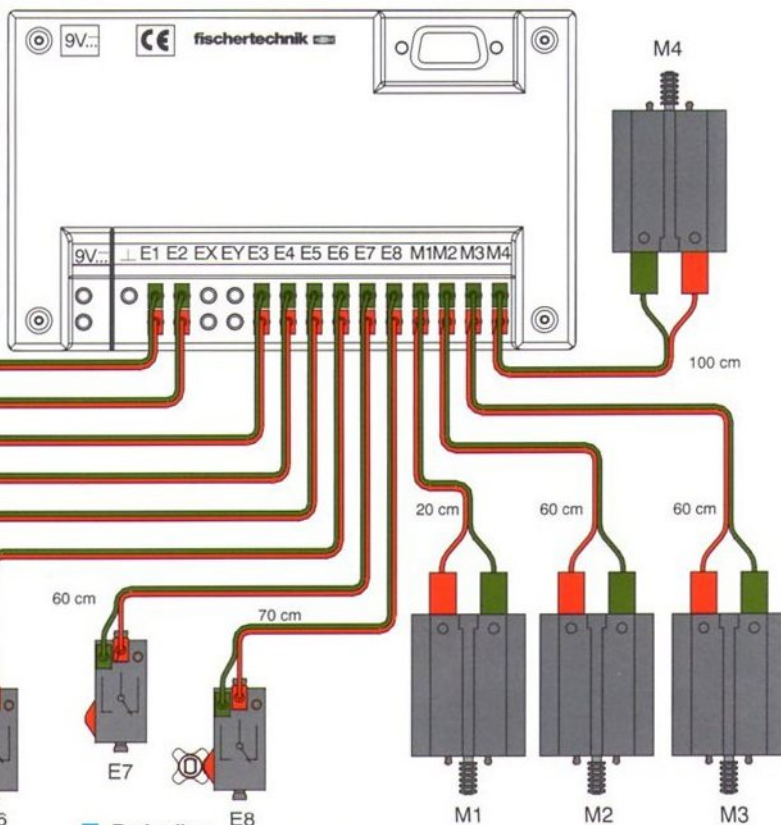
- Software und Interface siehe Seite 4
- Software and interface see Page 4
- Logiciel et interface voir page 4
- Software en interface zie pagina 4
- Software e interface ver la página 4
- Software e interfaccia vedi pagina 4

Schaltplan
Circuit diagram

Plan électrique
Schakelschema

Diagrama de circuitos
Schema elettrico

Motor Motor Moteur Motor Motor Motore	Endschalter end switch interrupteur de fin de course eindschakelaar interruptor de final de carrera finecorsa	Impulszähler pulses counter compteur d'impulsions impulsteller impulsteller contador de impulsos contatore impulsivi
M1	E1	E2
M2	E3	E4
M3	E5	E6
M4	E7	E8



■ Verkabelung

Die Motoren und Taster müssen wie im Schaltplan beschrieben angeschlossen werden. Dabei ist zu beachten, daß die Kabel sehr sorgfältig so verlegt werden, daß der Roboter beim Schwenken in seinem Arbeitsraum durch die Kabel nicht beeinträchtigt wird. Dazu bringt man den Roboter in die auf der Abb. 3 dargestellte Position (Motor und Getriebe aushängen, Achsen manuell bewegen). Dann werden die Kabel entsprechend dieser Abbildung durch die dafür vorgesehenen Kabelhalter geführt und mit den beiliegenden weißen Papierdrahtbändern gebündelt.

Drehrichtung der Motoren

Vor dem Starten der Softwareprogramme muß mit Hilfe der Interface-Diagnose überprüft werden, ob sich die Motoren in die vorgeschriebene Richtung drehen. Drehrichtung "Links" bedeutet bei jedem Motor, daß sich die jeweilige Achse des Roboters in ihre Ausgangsposition, also auf den Endschalter zu, bewegt. Gegebenenfalls müssen die Motoren umgepolt werden.

■ Cabling

Motors and buttons must be connected as shown in the cable layout plan. In doing so, it must be ascertained that the cable is laid out very carefully so that the robot is not impaired by the cable when swivelling within its work space. In this manner, the robot is brought into the position depicted in the Fig. 3 (hang out the motor or gearbox, move the axes manually). The cables are guided according to this figure, by means of the cable holder for this purpose, and then bundled with the attached white paper-wire bands.

Rotational direction of motors

Prior to starting the software programmes and with the help of interface diagnosis, it must be checked whether or not the motors rotate in the specified direction. The "Left" rotational direction means that for every motor, the respective axis of the robot traverses towards its datum position, thus, towards the end switch. If necessary, the motors must be commutated.

■ Câblage

Les moteurs et les palpeurs doivent être connectés comme décrit dans le schéma des connexions. Il convient de veiller, ce faisant, à ce que les câbles soient posés avec le plus grand soin de telle manière qu'ils ne gênent pas le robot quand il pivote sur l'espace de travail. Pour ce faire, amener le robot dans la position illustrée à la fig. 3 (décrocher le moteur et l'engrenage, déplacer manuellement les axes). Les câbles sont alors guidés, conformément à l'illustration, dans les porte-câbles prévus à cet effet et réunis en faisceau au moyen des bandes de papier métal blanches jointes.

Sens de rotation des moteurs

Avant de démarrer les logiciels, il convient de vérifier, à l'aide du diagnostic d'interface, si les moteurs tournent dans le bon sens. Un sens de rotation vers la «gauche» signifie pour chaque moteur que l'axe respectif du robot se déplace dans sa position de départ, c.-à-d. en direction de l'interrupteur de fin de course. Le cas échéant, la polarité des moteurs doit être inversée.

■ Bedrading

De motoren en toetsen moeten zoals beschreven in het schakelplan aangesloten worden. Let er daarbij op, dat de draden zeer zorgvuldig en zodanig worden gelegd, dat de robot bij het draaien in zijn axiradius niet door de bedrading wordt gehinderd. De robot hiervoor in de op de aft. 3 weergegeven positie brengen (motor en aandrijving uitnemen, assen met de hand bewegen). Daarna de bedrading overeenkomstig deze afbeelding door de hiervoor speciaal bedoelde draadhouders leiden en met de bijgeleverde witte papieren binddraadjes bundelen.

Draairichting van de motoren

Voor het starten van het softwareprogramma moet met behulp van de interface-diagnose gecontroleerd worden of de motoren in de gewenste richting draaien. Draairichting "links" betekent dat bij iedere motor de betreffende as van de robot in de uitgangspositie, dus naar de eindschakelaar toe beweegt. Eventueel moeten de motoren omgepold worden.

■ Cableado

Los motores y los sensores deben conectarse de la forma descrita en el diagrama de circuitos. Para ello debe procurarse tender los cables con esmero, de forma que el robot al girar no se vea limitado en su alcance por los cables. Para ello se coloca el robot a la posición indicada en la figura 3 (descolgar el motor o el engranaje y desplazar los ejes manualmente). Seguidamente se pasan los cables según este dibujo a través de las sujeciones previstas para ello y se reúnen con las cintas de alambre y papel blanco suministradas.

Sentido de giro de los motores

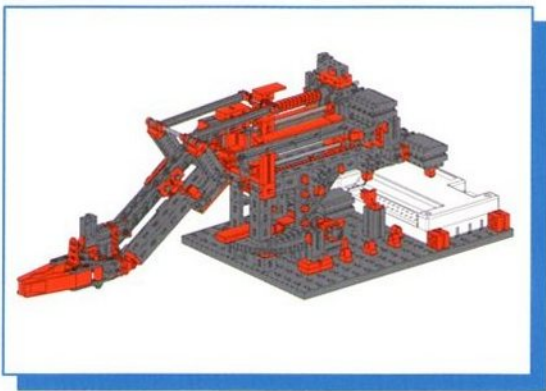
Antes de poner en marcha los programas del software, debe comprobarse con la ayuda del diagnóstico del interface si los motores giran en el sentido correcto. Sentido de giro a la "izquierda" significa en cada motor que el eje correspondiente del robot se desplaza a la posición de partida, es decir, hacia el interruptor de final de carrera. En caso necesario hay que cambiar los polos de los motores.

■ Cablaggio

Allacciare i motori e i tastatori come descritto nello schema elettrico. I cavi devono venire collegati accuratamente per evitare che essi non ostacolino il movimento del robot nel suo campo di lavoro. Portare allo scopo il robot nella posizione illustrata nella fig. 3 (sganciare il motore o il riduttore, muovere gli assi manualmente). Fare quindi passare i cavi attraverso gli appositi portacavi come descritto in questa figura e legarli insieme con i nastri di filo di ferro rivestiti di carta.

Senso di rotazione dei motori

Prima di avviare i programmi software, verificare con l'ausilio dell'interfaccia diagnosi se i motori girano nel senso prestabilito. Senso di rotazione "antiorario" significa per ogni motore, che il rispettivo asse del robot si muove nella sua posizione d'uscita, cioè in direzione del finecorsa. Se necessario si deve invertire la polarità dei motori.

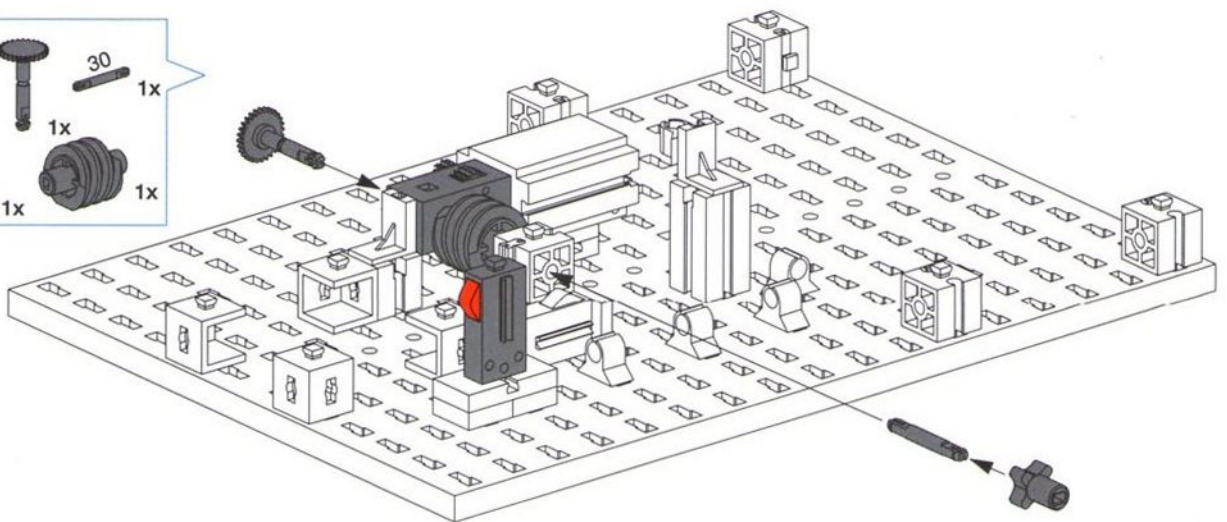
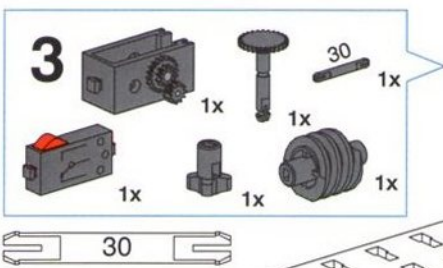
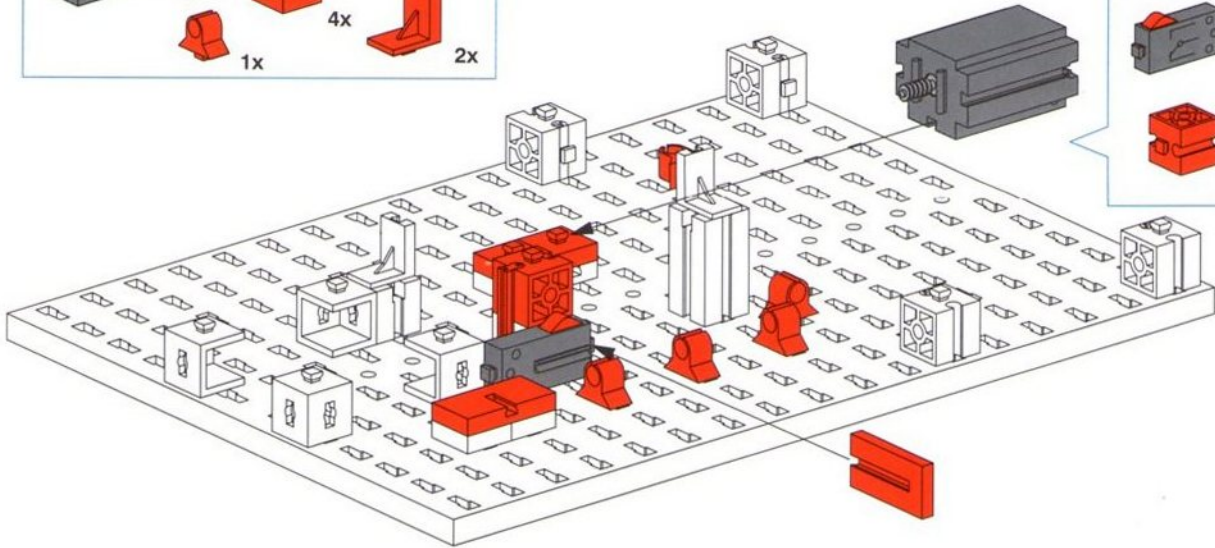
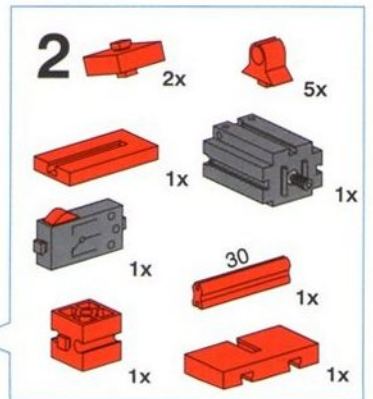
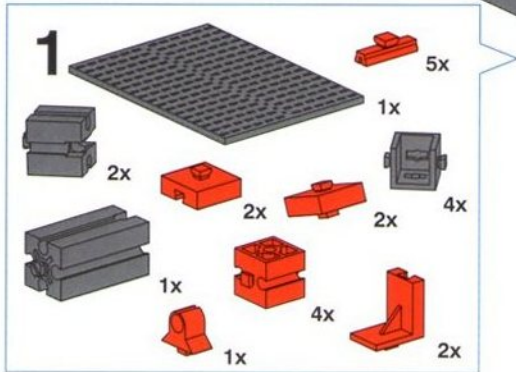
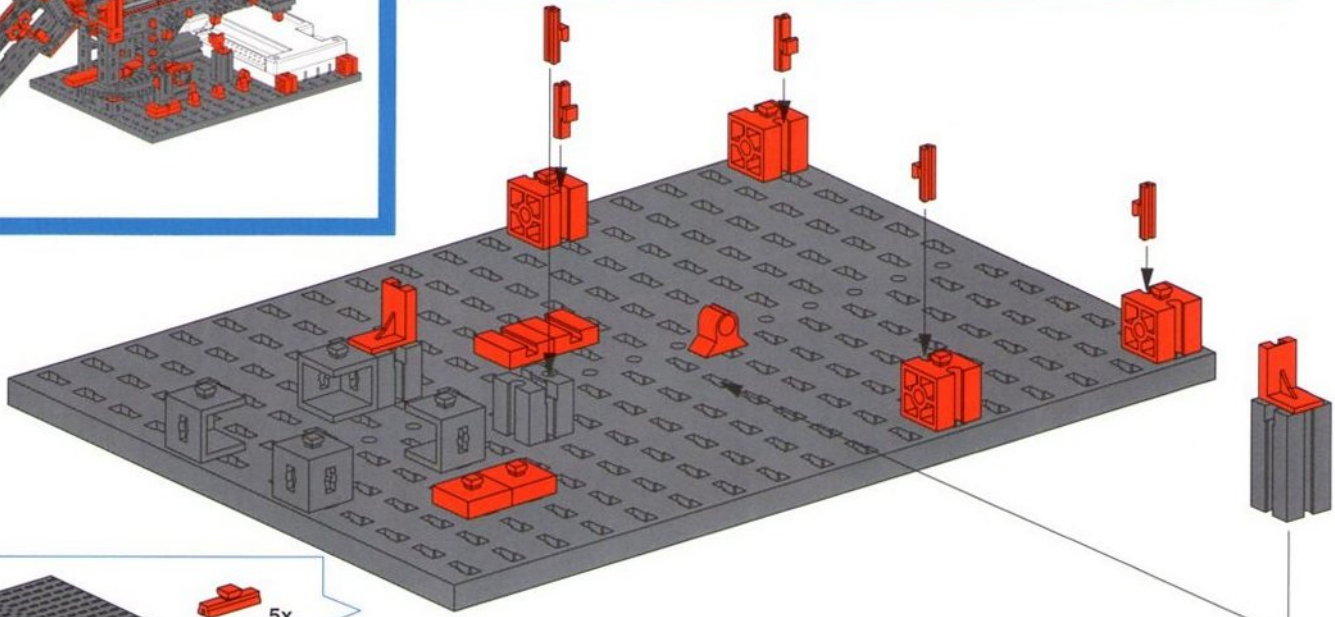


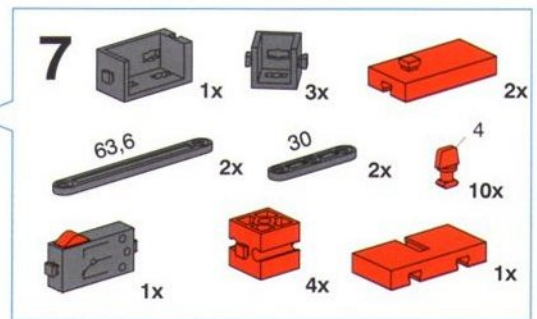
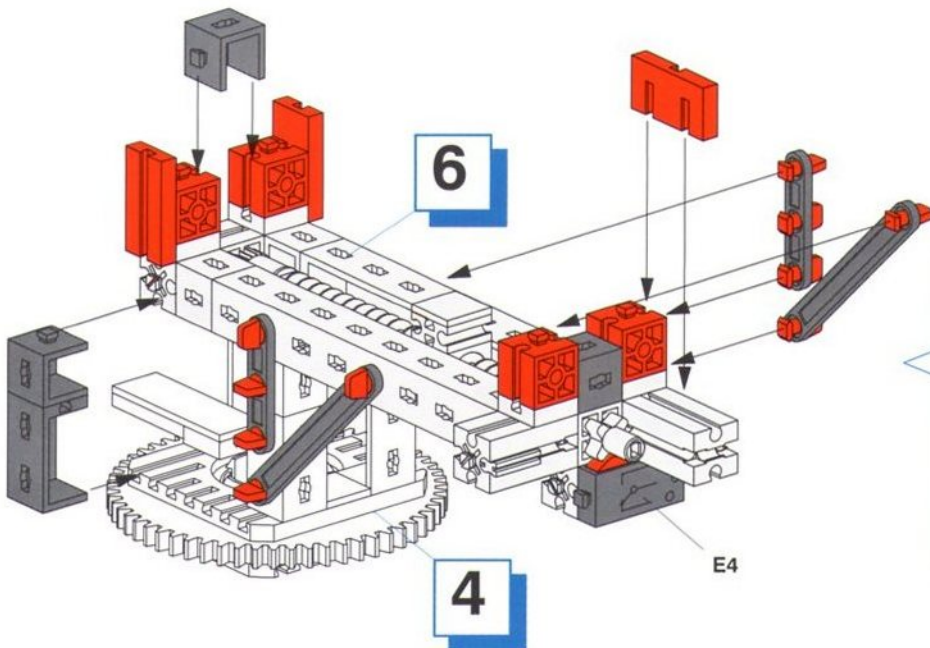
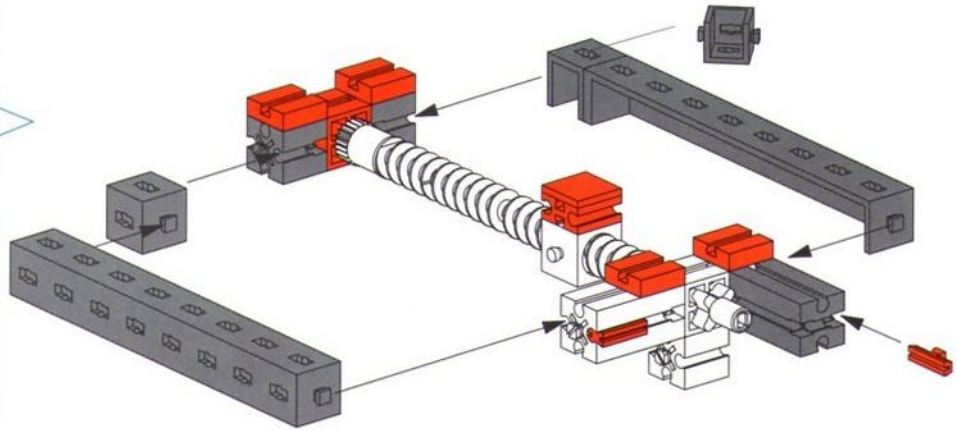
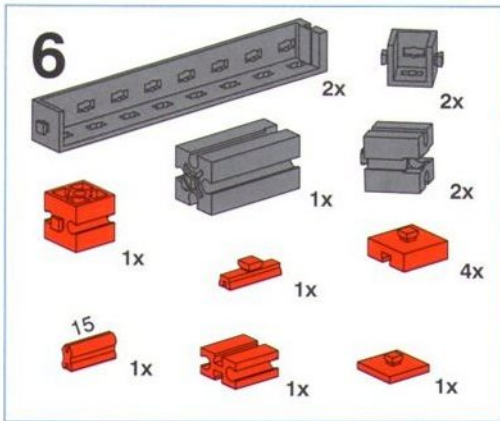
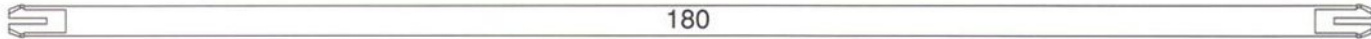
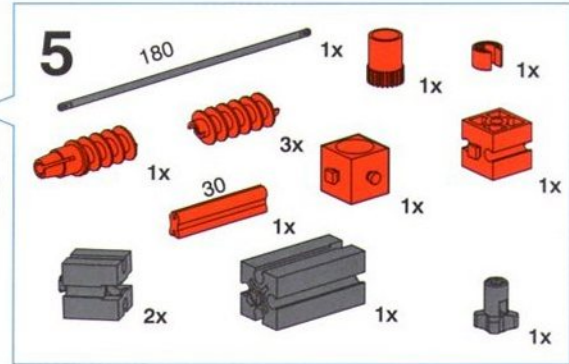
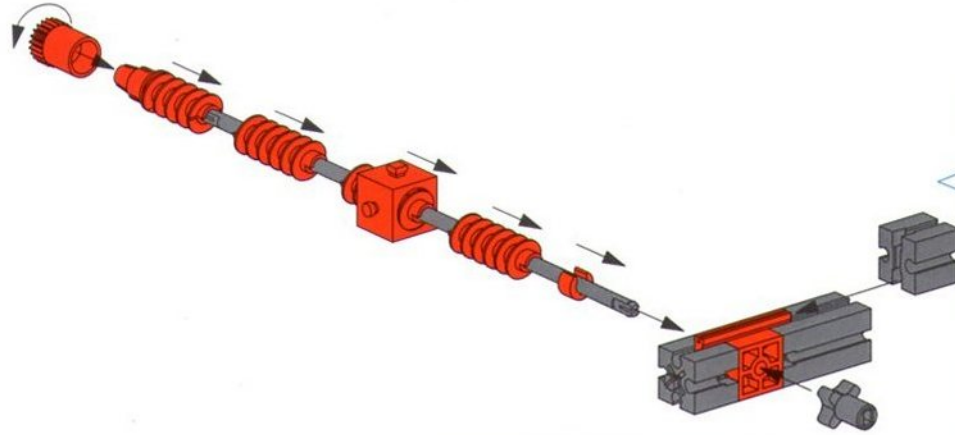
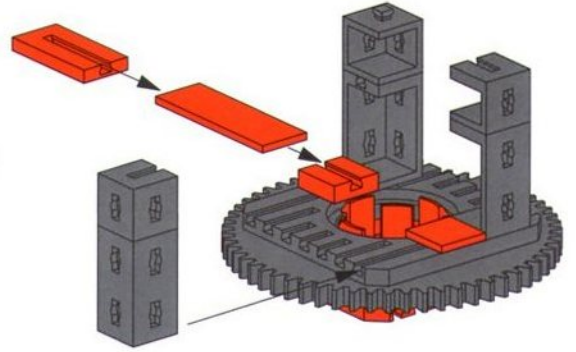
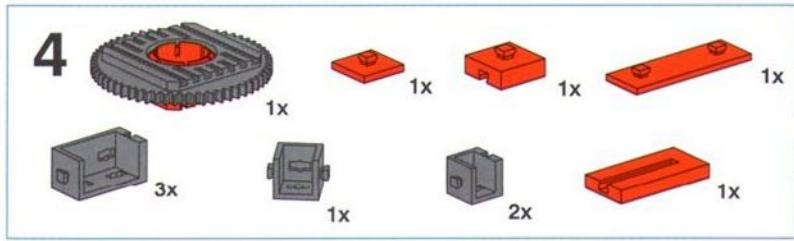
Rob 4

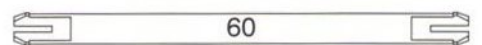
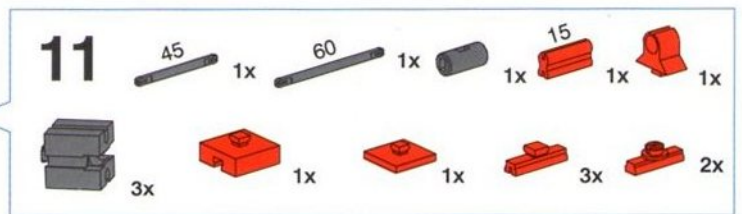
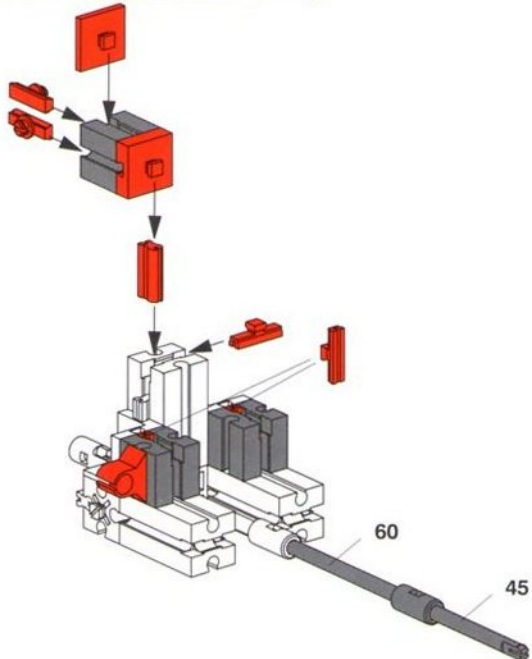
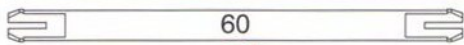
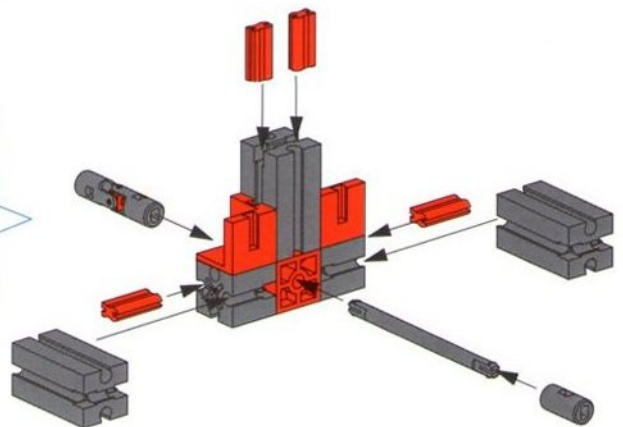
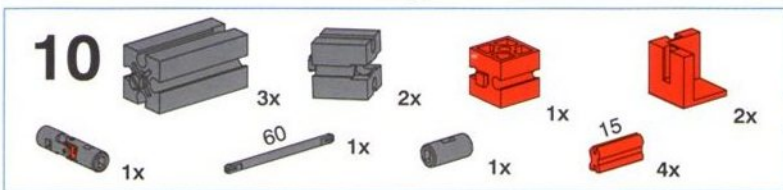
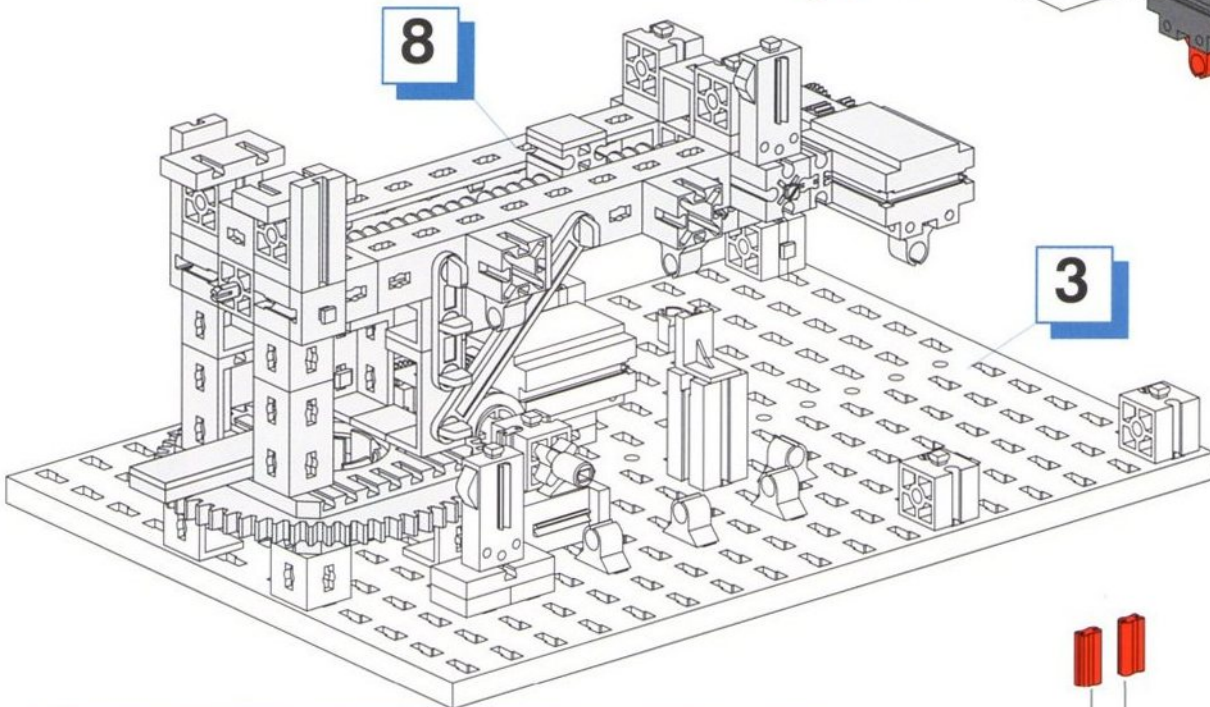
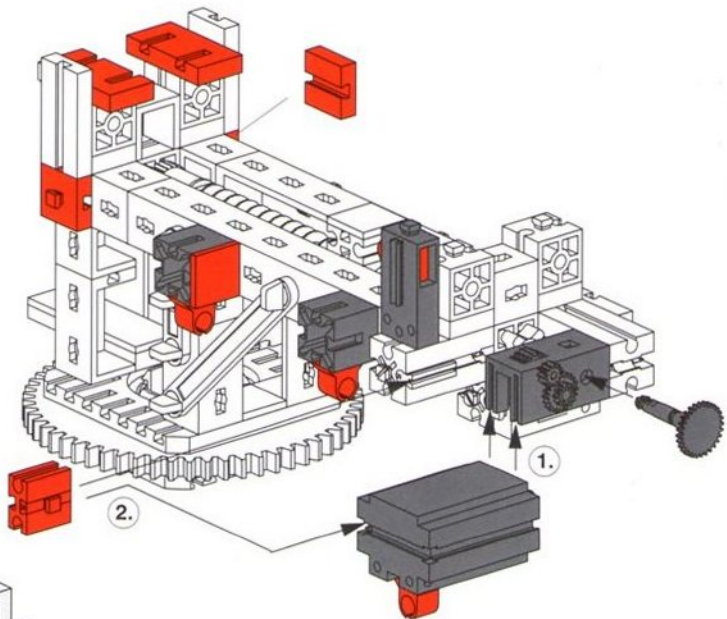
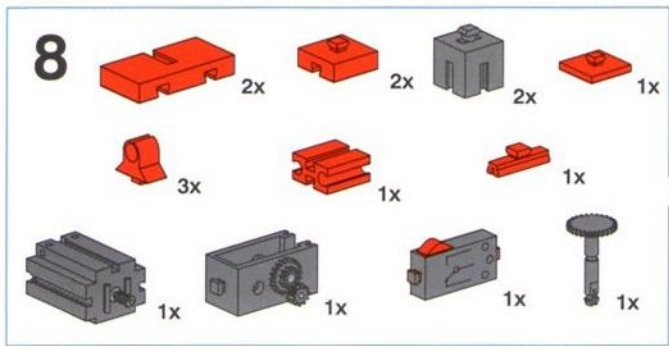
Knickarmroboter
Kink-arm robot

Robot à bras articulé
Knikarmrobot

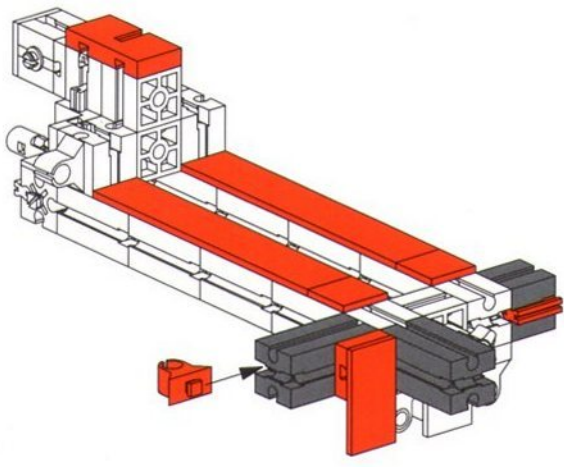
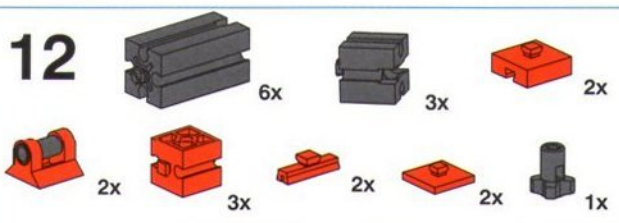
Robot de brazo plegable
Robot a braccio pieghevole



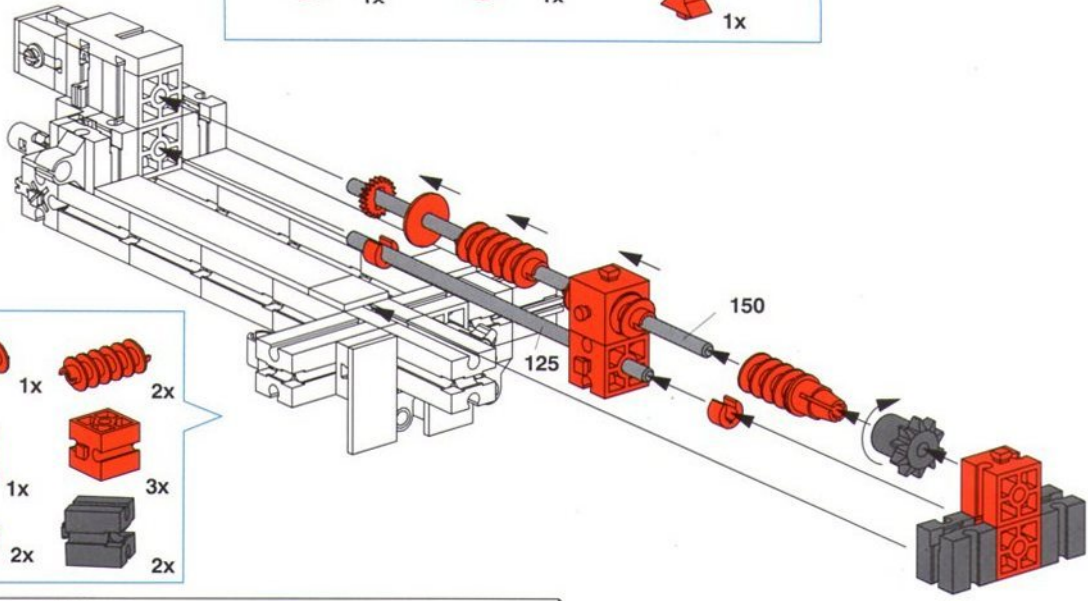
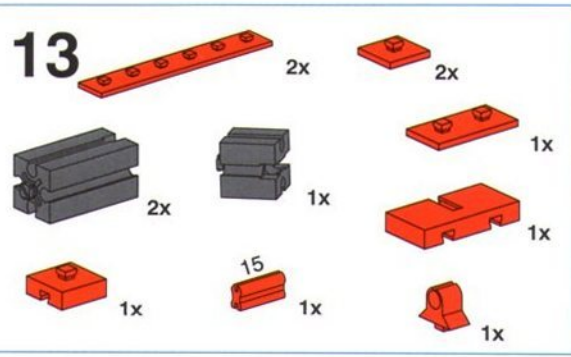




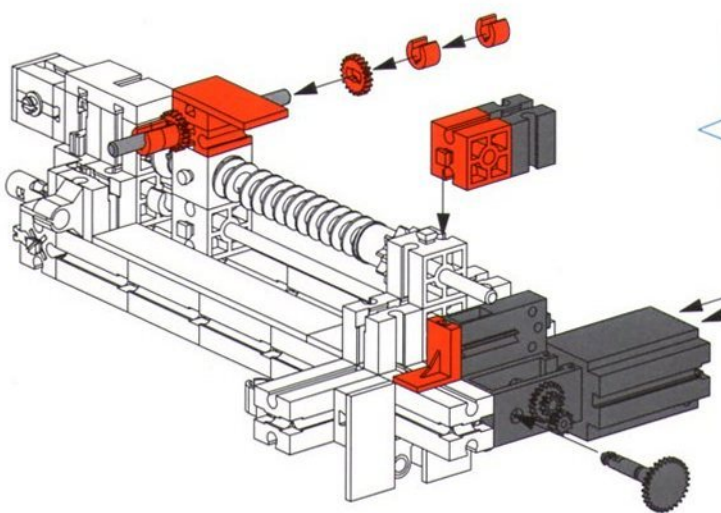
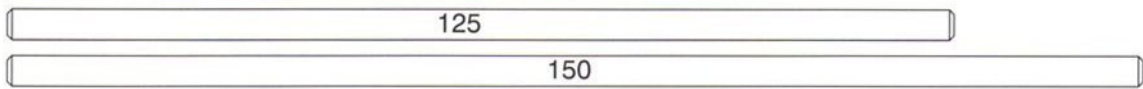
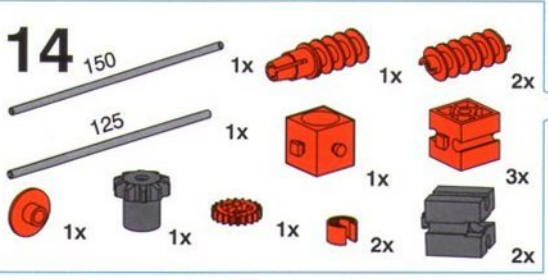
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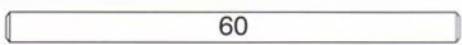
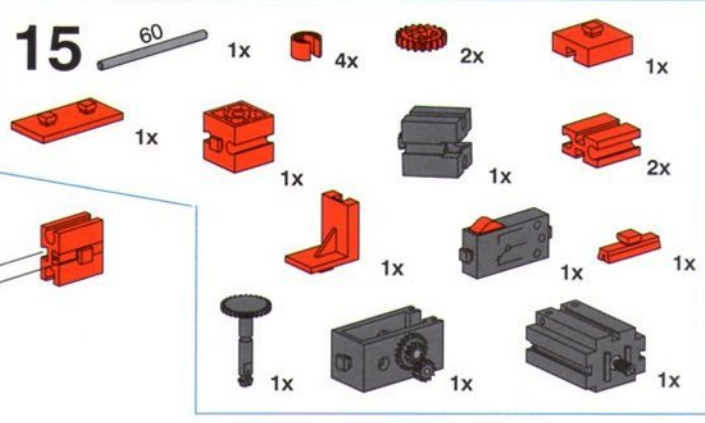
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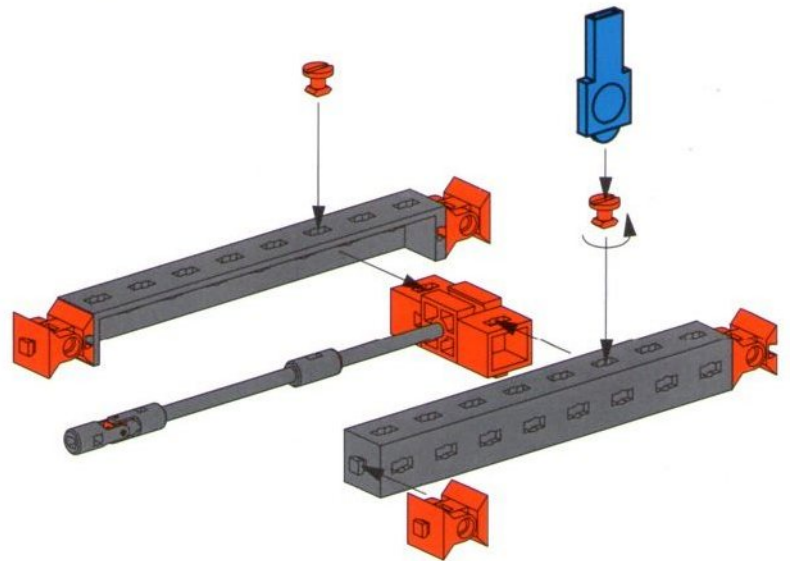
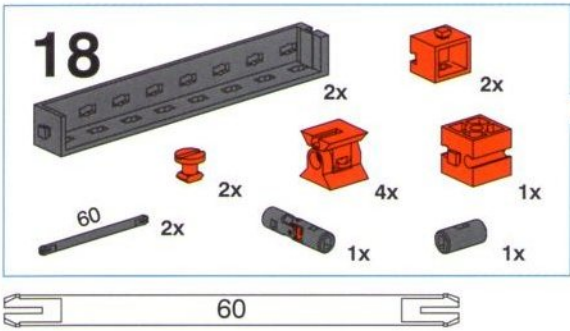
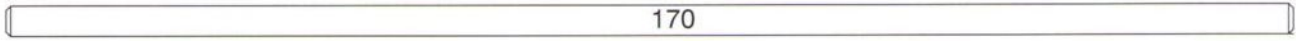
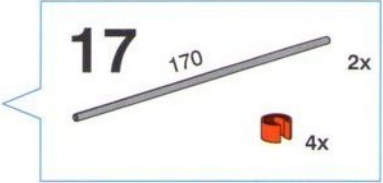
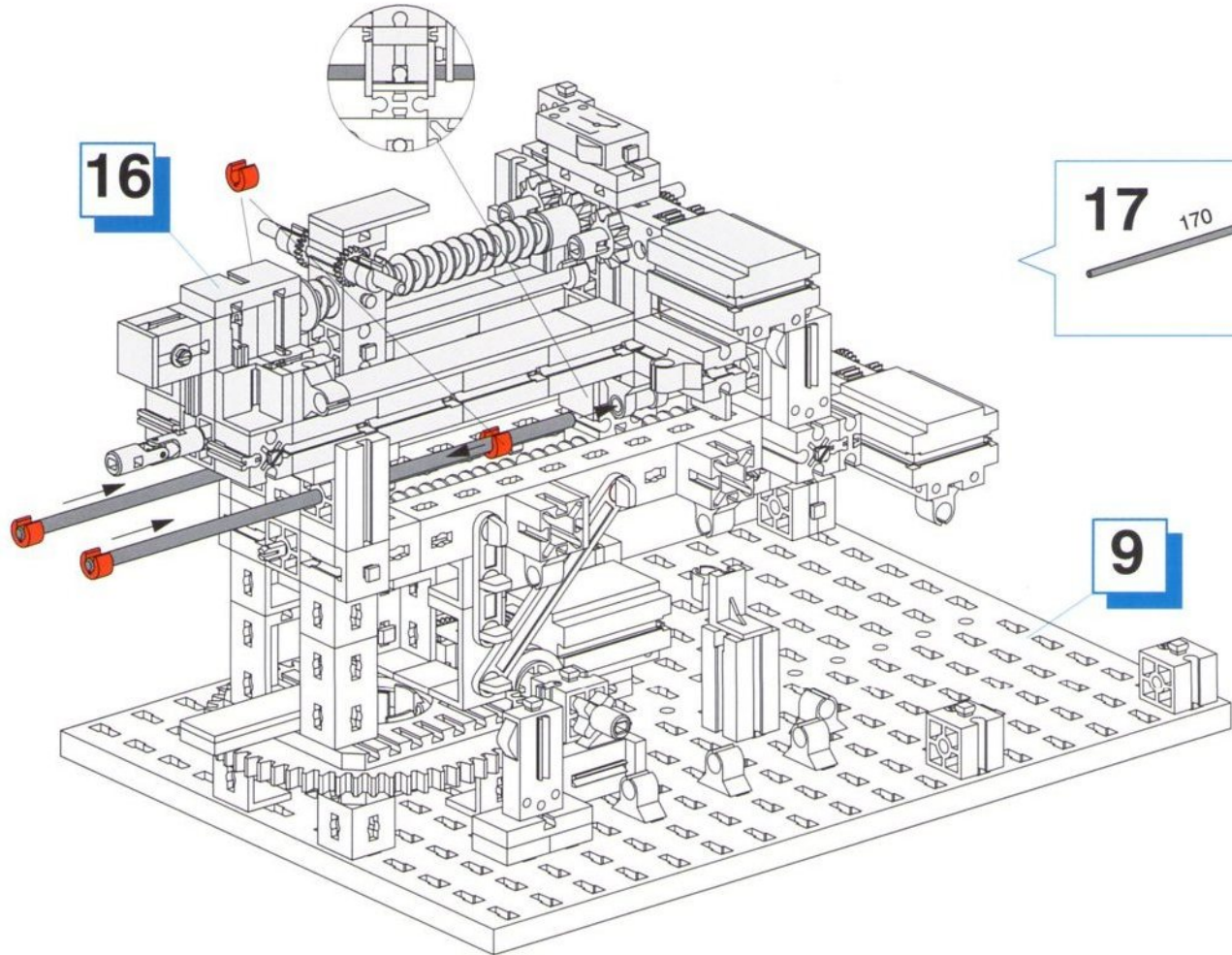
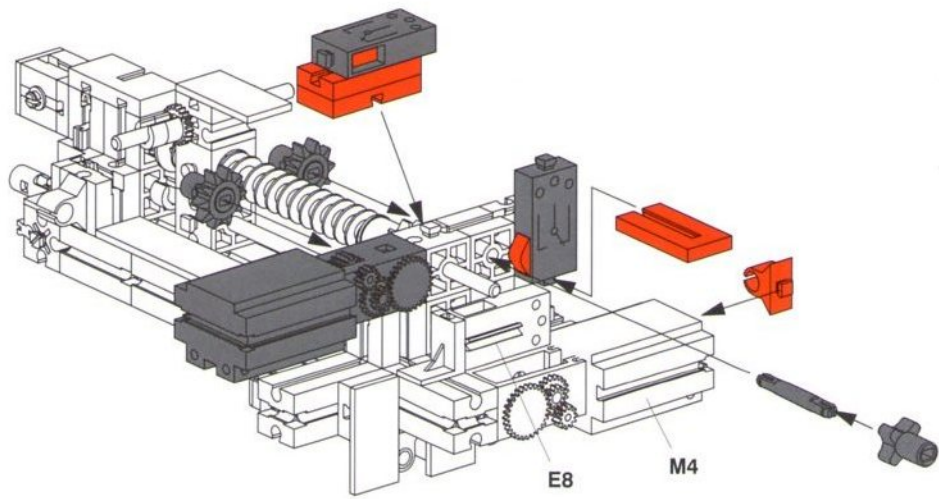
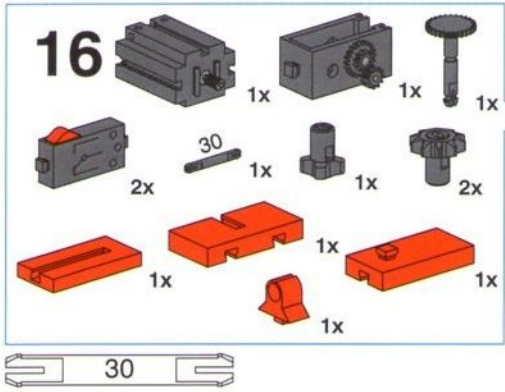


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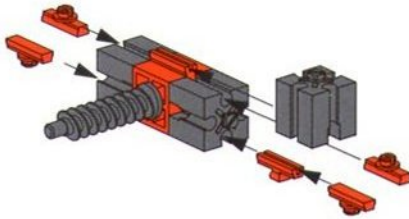
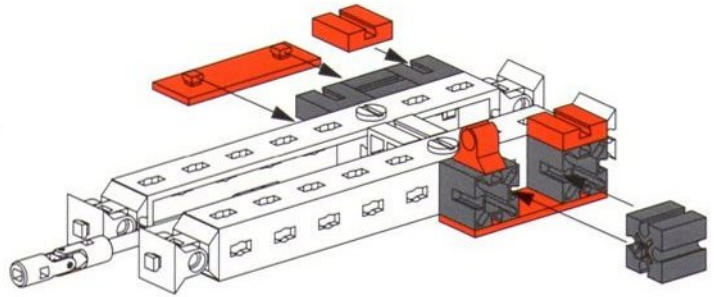
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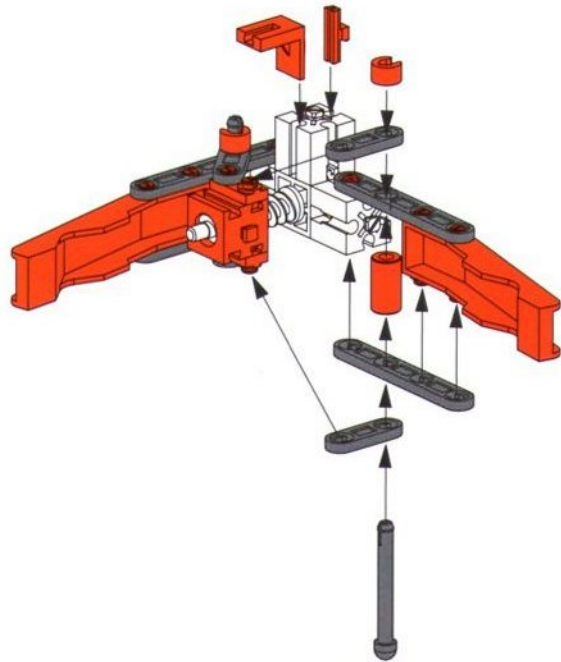
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- 2x Orange Technic Beam 1x5
- 4x Grey Technic Connector
- 2x Grey Technic Connector
- 2x Orange Technic Connector
- 1x Orange Technic Connector



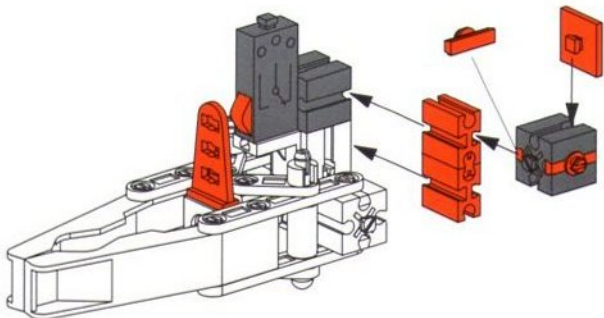
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- 3x Grey Technic Connector
- 1x Orange Technic Connector
- 1x Orange Technic Beam 1x5
- 1x Orange Technic Connector
- 4x Orange Technic Connector
- 1x Grey Technic Axle



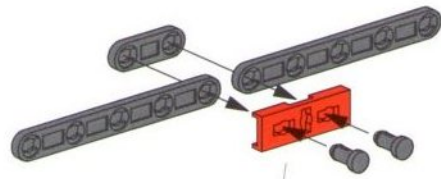
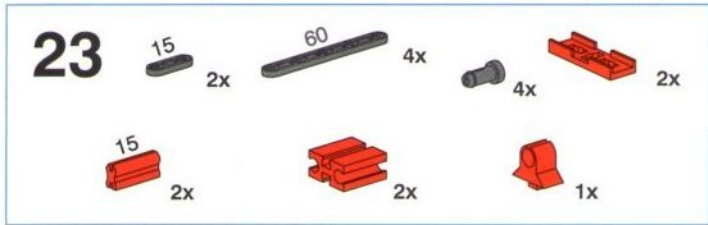
21

- 2x Orange Technic Beam 1x5
- 1x Orange Technic Connector
- 2x Orange Technic Connector
- 4x Grey Technic Axle (length 15)
- 4x Grey Technic Axle (length 45)
- 2x Grey Technic Axle
- 2x Orange Technic Connector
- 2x Orange Technic Connector
- 1x Orange Technic Connector
- 1x Orange Technic Connector

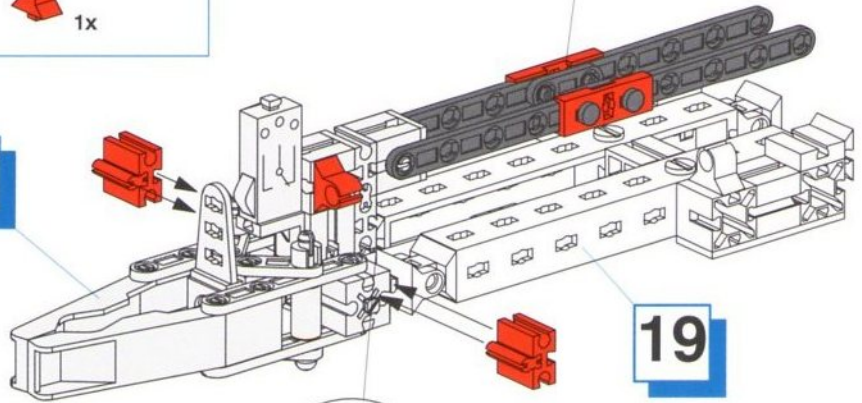


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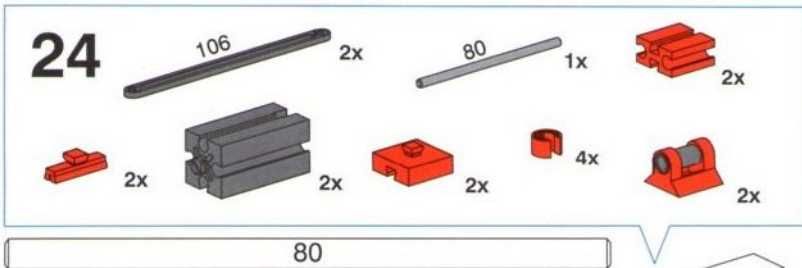
- 1x Orange Technic Connector
- 2x Grey Technic Connector
- 1x Grey Technic Connector
- 1x Orange Technic Beam 1x5
- 2x Orange Technic Connector
- 2x Orange Technic Connector
- 1x Orange Technic Connector



22

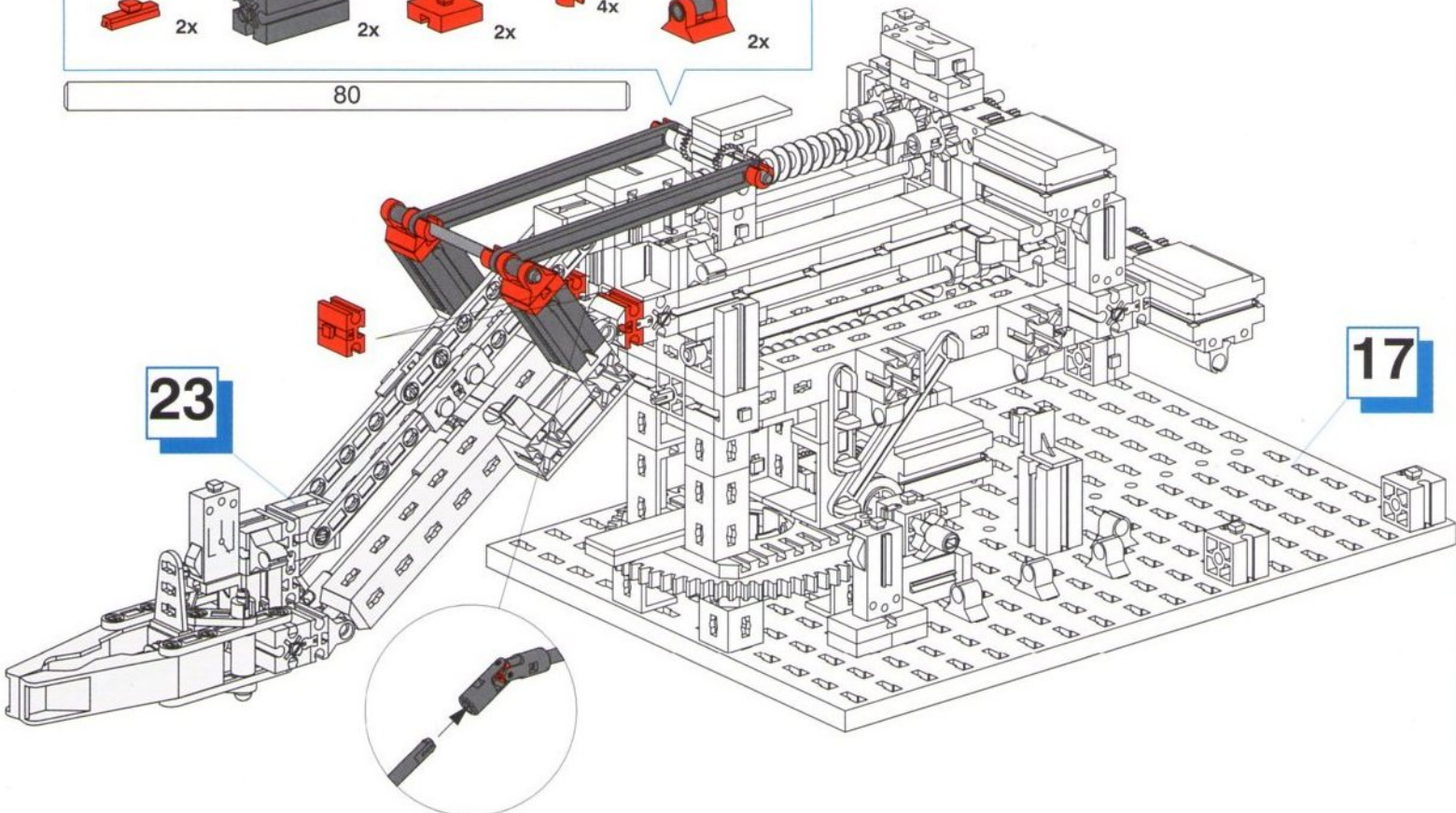


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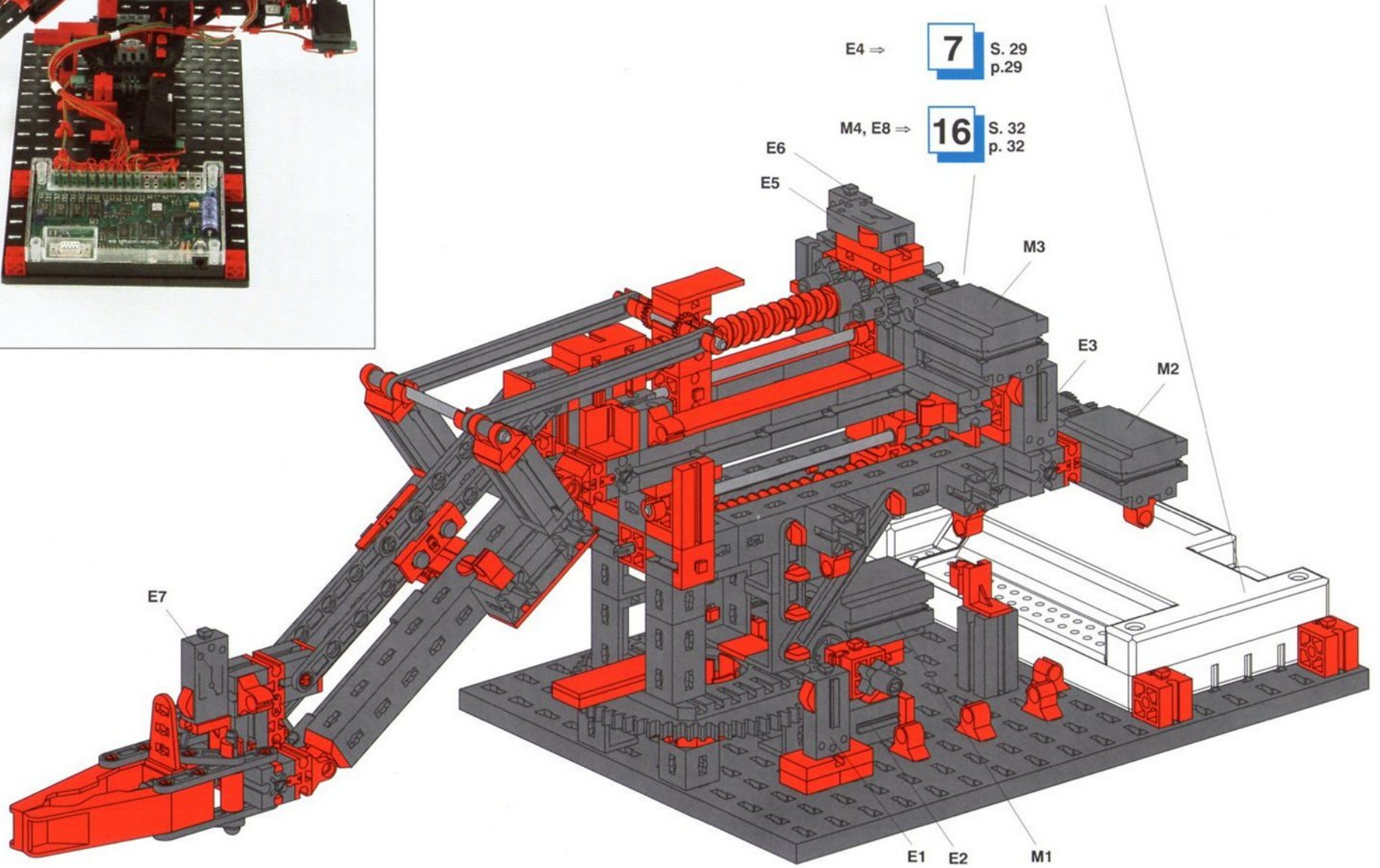
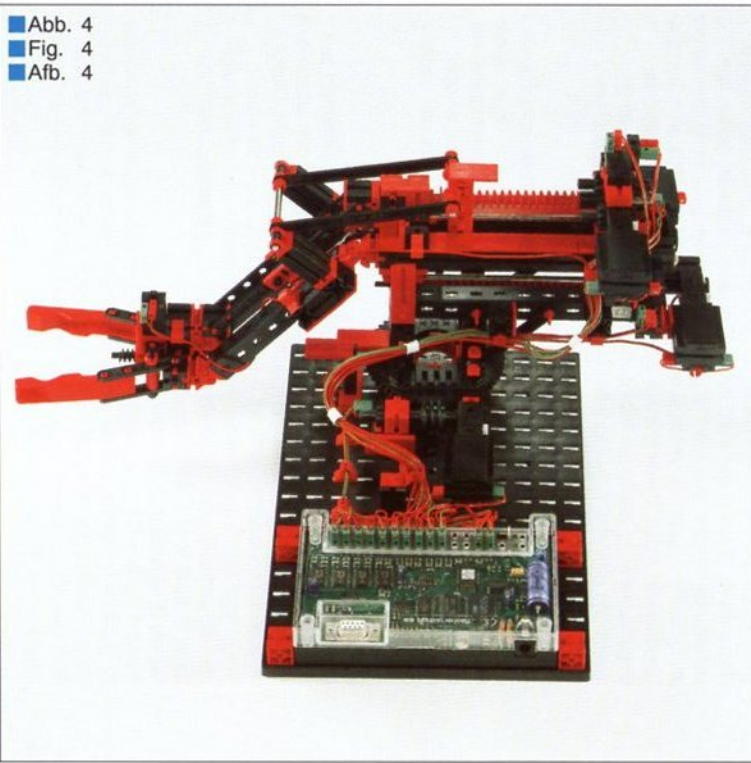
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■ Abb. 4
 ■ Fig. 4
 ■ Afb. 4

- Software und Interface siehe Seite 4
- Software and interface see Page 4
- Logiciel et interface voir page 4
- Software en interface zie pagina 4
- Software e interface ver la página 4
- Software e interfaccia vedi pagina 4

- Intelligent Interface (Art.-Nr. 30402) nicht im Baukasten enthalten
- Intelligent interface (Art. No. 30402) not included in the modular kit
- L'interface intelligente (réf. 30402) n'est pas contenue dans le kit
- Intelligent Interface (art.-nr. 30402) niet in de bouwdoos opgenomen
- El Intelligent Interface (art. n. 30402) no está incluido en el conjunto
- Interfaccia intelligente (art. no. 30402) non compresa nella costruzione modulare

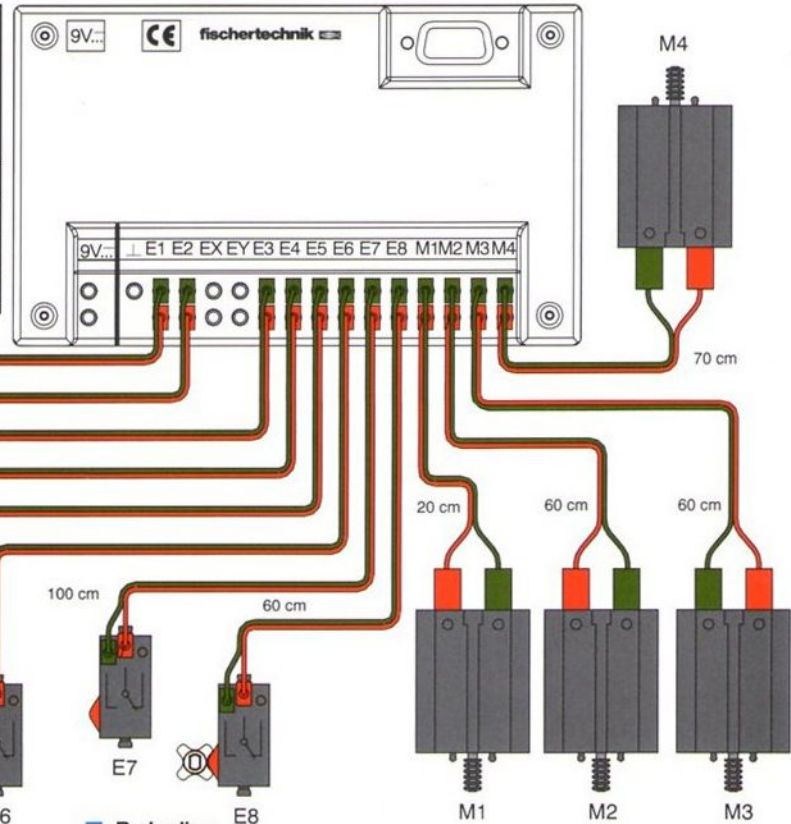


Schaltplan
Circuit diagram

Plan électrique
Schakelschema

Diagrama de circuitos
Schema elettrico

Motor Motor Moteur Motor Motor Motore	Endschalter end switch interrupteur de fin de course eindschakelaar interruptor de final de carrera finecorsa	Impulszähler pulses counter compteur d'impulsions impulsteller contador de impulsos contatore impulsivi
M1	E1	E2
M2	E3	E4
M3	E5	E6
M4	E7	E8



Verkabelung

Die Motoren und Taster müssen wie im Schaltplan beschrieben angeschlossen werden. Dabei ist zu beachten, daß die Kabel sehr sorgfältig so verlegt werden, daß der Roboter beim Schwenken in seinem Arbeitsraum durch die Kabel nicht beeinträchtigt wird. Dazu bringt man den Roboter in die auf der Abb. 4 dargestellte Position (Motor und Getriebe aushängen, Achsen manuell bewegen). Dann werden die Kabel entsprechend dieser Abbildung durch die dafür vorgesehenen Kabelhalter geführt und mit den beiliegenden weißen Papierdrahtbändern gebündelt.

Drehrichtung der Motoren

Vor dem Starten der Softwareprogramme muß mit Hilfe der Interface-Diagnose überprüft werden, ob sich die Motoren in die vorgeschriebene Richtung drehen. Drehrichtung "Links" bedeutet bei jedem Motor, daß sich die jeweilige Achse des Roboters in ihre Ausgangsposition, also auf den Endschalter zu, bewegt. Gegebenenfalls müssen die Motoren umgepolt werden.

Cabling

Motors and buttons must be connected as shown in the cable layout plan. In doing so, it must be ascertained that the cable is laid out very carefully so that the robot is not impaired by the cable when swivelling within its work space. In this manner, the robot is brought into the position depicted in the Fig. 4 (hang out the motor or gearbox, and move the axes manually). The cables are guided according to this figure, by means of the cable holder for this purpose, and then bundled with the attached white paper-wire bands.

Rotational direction of motors

Prior to starting the software programmes and with the help of interface diagnosis, it must be checked whether or not the motors rotate in the specified direction. The "Left" rotational direction means that for every motor, the respective axis of the robot traverses towards its datum position, thus, towards the end switch. If necessary, the motors must be commutated.

Câblage

Les moteurs et les palpeurs doivent être connectés comme décrit dans le schéma des connexions. Il convient de veiller, ce faisant, à ce que les câbles soient posés avec le plus grand soin de telle manière qu'ils ne gênent pas le robot quand il pivote sur l'espace de travail. Pour ce faire, amener le robot dans la position illustrée à la fig. 4 (débrancher le moteur et l'engrenage, déplacer manuellement les axes). Les câbles sont alors guidés, conformément à l'illustration, dans les porte-câbles prévus à cet effet et réunis en faisceau au moyen des bandes de papier métal blanches jointes.

Sens de rotation des moteurs

Avant de démarrer les logiciels, il convient de vérifier, à l'aide du diagnostic d'interface, si les moteurs tournent dans le bon sens. Un sens de rotation vers la «gauche» signifie pour chaque moteur que l'axe respectif du robot se déplace sans sa position de départ, c.-à-d. en direction de l'interrupteur de fin de course. Le cas échéant, la polarité des moteurs doit être inversée.

Bedrading

De motoren en toetsen moeten zoals beschreven in het schakelplan aangesloten worden. Let er daarbij op, dat de draden zeer zorgvuldig en zodanig worden gelegd, dat de robot bij het draaien in zijn axiradius niet door de bedrading wordt gehinderd. De robot hiervoor in de op de afb. 4 weergegeven positie brengen (motor en aandrijving uitnemen, assen met de hand bewegen). Daarna de bedrading overeenkomstig deze afbeelding door de hiervoor speciaal bedoelde draadhouders leiden en met de bijgeleverde witte papieren binddraadjes bundelen.

Draairichting van de motoren

Voor het starten van het softwareprogramma moet met behulp van de interface-diagnose gecontroleerd worden of de motoren in de gewenste richting draaien. Draairichting "links" betekent dat bij iedere motor de betreffende as van de robot in de uitgangspositie, dus naar de eindschakelaar toe beweegt. Eventueel moeten de motoren omgepooled worden.

Cableado

Los motores y los sensores deben conectarse de la forma descrita en el diagrama de circuitos. Para ello debe procurarse tender los cables con esmero, de forma que el robot al girar no se vea limitado en su alcance por los cables. Para ello se coloca el robot a la posición indicada en la figura 4 (descolgar el motor o el engranaje y desplazar los ejes manualmente). Seguidamente se pasan los cables según este dibujo a través de las sujeciones previstas para ello y se reúnen con las cintas de alambre y papel blanco suministradas.

Sentido de giro de los motores

Antes de poner en marcha los programas del software, debe comprobarse con la ayuda del diagnóstico del interface si los motores giran en el sentido correcto. Sentido de giro a la "izquierda" significa en cada motor que el eje correspondiente del robot se desplaza a la posición de partida, es decir, hacia el interruptor de final de carrera. En caso necesario hay que cambiar los polos de los motores.

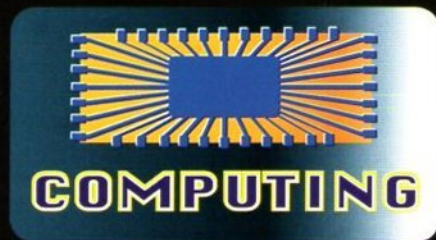
Cablaggio

Allacciare i motori e i tastatori come descritto nello schema elettrico. I cavi devono venire collegati accuratamente per evitare che essi non ostacolino il movimento del robot nel suo campo di lavoro. Portare allo scopo il robot nella posizione illustrata nella fig. 4 (sganciare il motore o il riduttore, muovere gli assi manualmente). Fare quindi passare i cavi attraverso gli appositi portacavi come descritto in questa figura e legarli insieme con i nastri di filo di ferro rivestiti di carta.

Senso di rotazione dei motori

Prima di avviare i programmi software, verificare con l'ausilio dell'interfaccia diagnosi se i motori girano nel senso prestabilito. Senso di rotazione "antiorario" significa per ogni motore, che il rispettivo asse del robot si muove nella sua posizione d'uscita, cioè in direzione del finecorsa. Se necessario si deve invertire la polarità dei motori.

Industry Robots



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