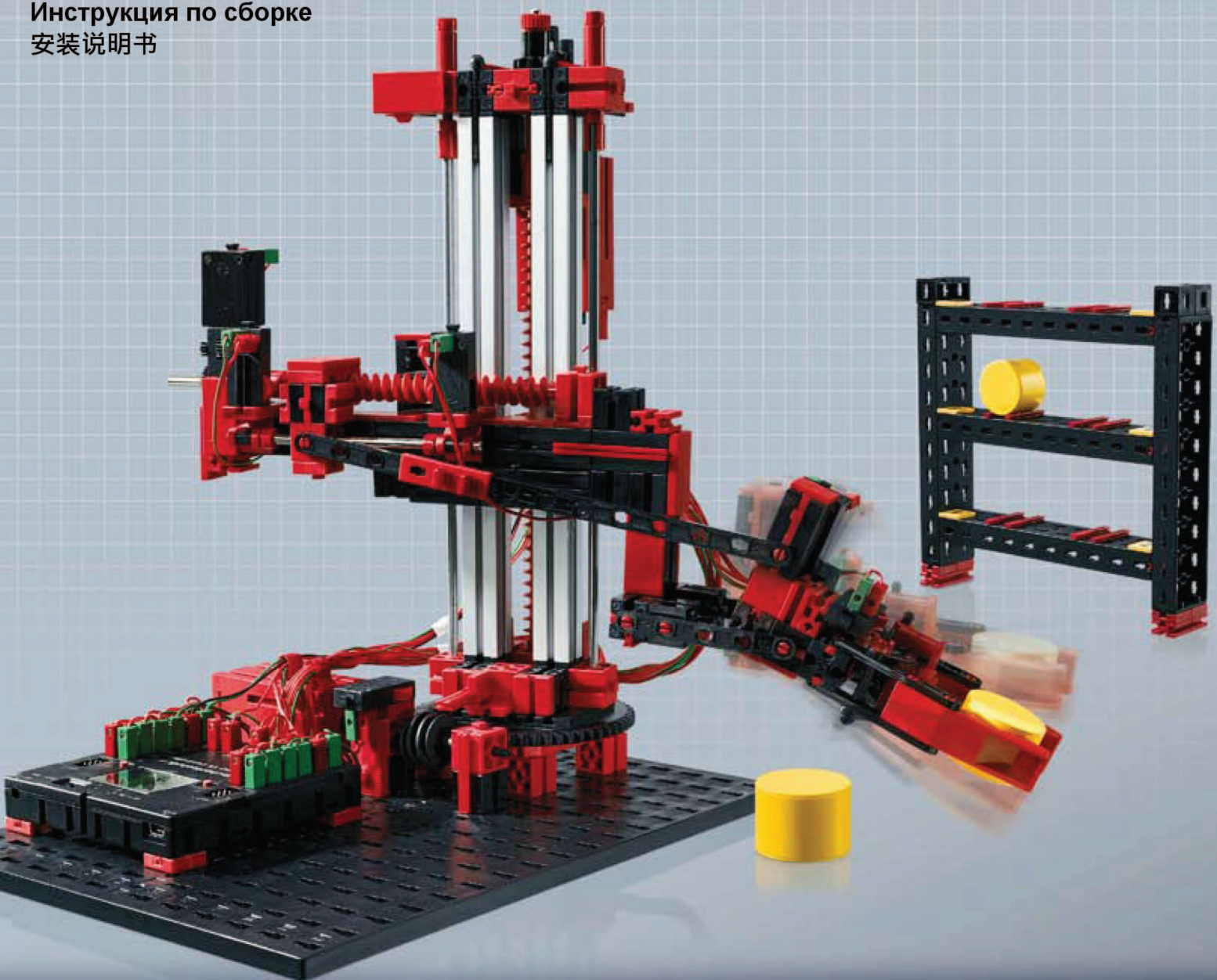




fischertechnik 

COMPUTING

Bauanleitung
Assembly instruction
Instructions de montage
Bouwhandleiding
Instrucciones de construcción
Manual de montagem
Istruzioni di montaggio
Инструкция по сборке
安装说明书



ROBO TX Automation Robots

4 MODELS
4 MODELS

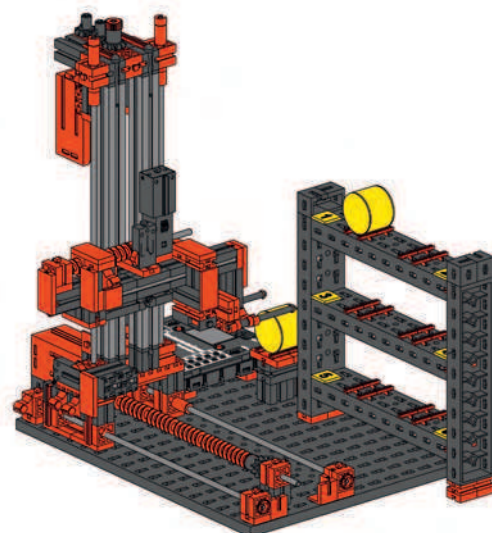
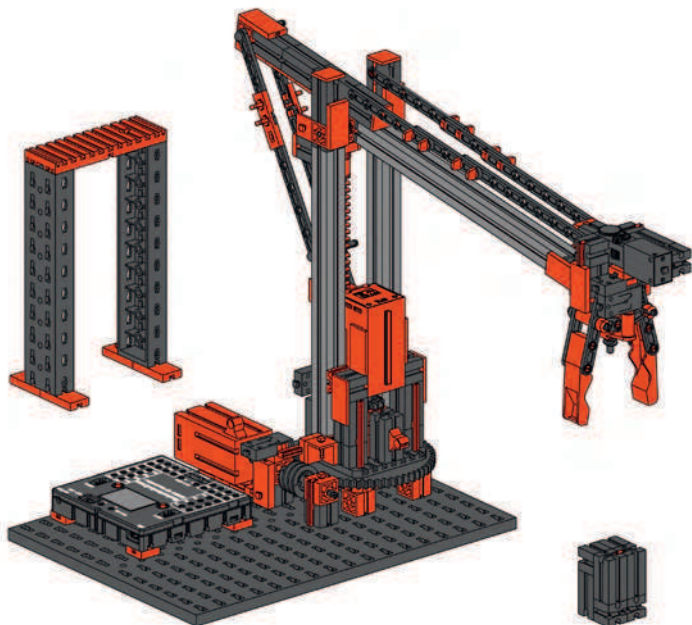
Inhalt Contents Contenu

Inhoud Contenido Conteúdo

Contenuto Содержание 目录

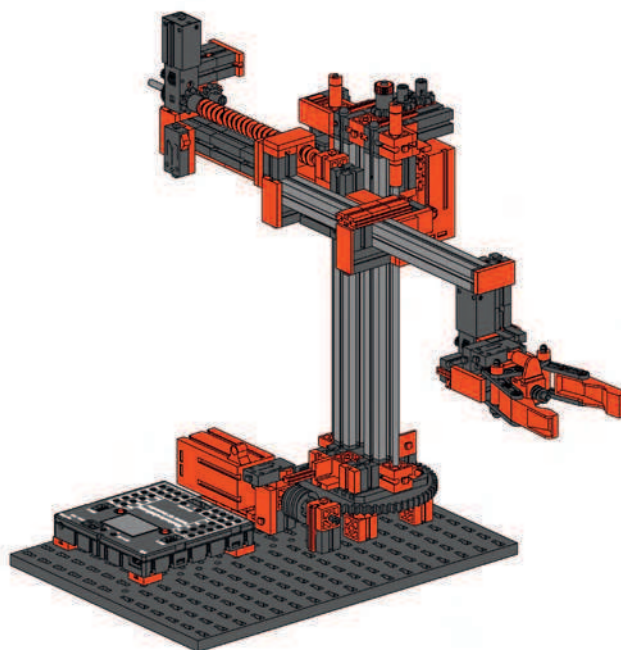
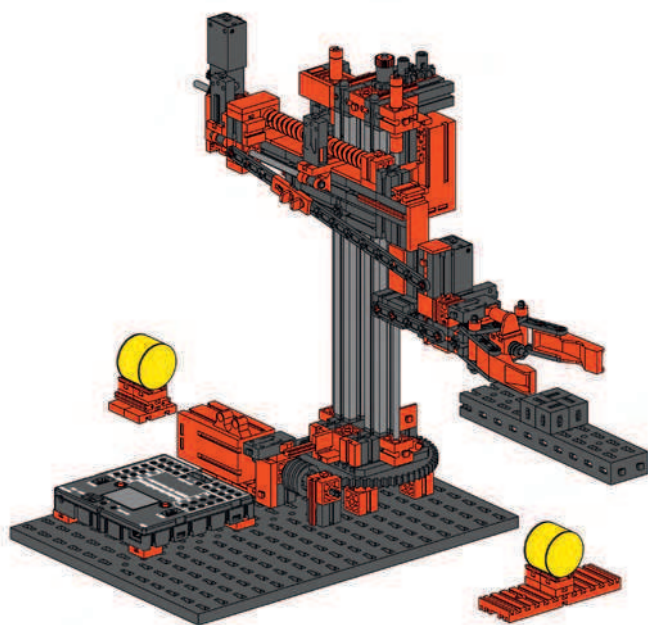
Einzelteilübersicht / Spare parts list / Liste des pièces détachées / Onderdelenoverzicht / Lista da piezas / Resumo de peça individual /
Singoli componenti / Перечень деталей / 零件概览 2

Montagetips / Tips for assembly / Tuyaux pour le montage / Montagetips / Consejos para el montaje / "Dicas" para montagem /
Consigli per il montaggio / Советы по сборке / 装配建议 3



Greifroboter / Gripper robot / Robot à grappin / Griprobot /
Robot manipulador / Robô de garras / Robot con braccio /
Робот-манипулятор / 抓件机器人 5

Hochregal / High bay storage rack / Rayonnage haut /
Stellingmagazijn / Almacén elevado / Depósito de
prateleira alta / Magazzino alto / Высотный
стеллажный склад / 高货架仓库 14



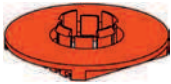
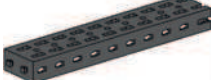
Schwenkgreifer / Pivoting gripper / Grappin basculant /
Zwenkgriper / Pinza oscilante / Garras rotativas /
Pinza orientabile / Поворотный захват /
回转抓爪 27

3-Achs-Roboter / 3-axis robot / Robot à 3 axes /
3-assige robot / Robot de 3 ejes / Robô de 3 eixos /
Robot a 3 assi / Трёхосный робот / 3 轴机器 39

Einzelteilübersicht
Spare parts list
Liste des pièces détachées

	10 497 6 x
	31 021 1 x
	31 023 2 x
	31 031 1 x
	31 032 1 x
	31 036 1 x
	31 058 1 x
	31 060 15 x
	31 061 8 x
	31 063 1 x
	31 078 2 x
	31 082 1 x
	31 226 3 x
	31 330 5 x
	31 336 22 x
	31 337 26 x
	31 390 1 x

Onderdelenoverzicht
Lista da piezas
Resumo de peça individual

	31 391 1 x
	31 426 1 x
	31 436 5 x
	31 668 2 x
	31 707 6 x
	31 848 12 x
	31 915 2 x
	31 982 73 x
	31 983 6 x
	32 064 21 x
	32 330 12 x
	32 854 5 x
	32 859 1 x
	32 870 4 x
	32 879 18 x
	32 881 18 x
	32 882 12 x

Singoli componenti
Перечень деталей
零件概览

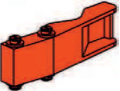
	36 035 1 x
	36 323 12 x
	36 334 5 x
	36 443 1 x
	36 819 4 x
	36 913 6 x
	36 914 4 x
	36 922 6 x
	36 952 3 x
	37 157 2 x
	37 237 25 x
	37 468 17 x
	37 679 11 x
	37 783 6 x
	37 858 3 x
	37 925 4 x
	37 926 11 x

Einzelteilübersicht
Spare parts list
Liste des pièces détachées

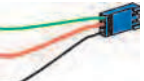
	38 216 2 x
	38 236 6 x
	38 240 7 x
	38 241 6 x
	38 242 1 x

Onderdelenoverzicht
Lista da piezas
Resumo de peça individual

	38 246 6 x
	38 416 2 x
	38 428 2 x
	38 464 1 x
	38 543 2 x

	38 546 4 x
	107 355 3 x
	107 436 6 x
	113 853 2 x
	135 484 2 x

Singoli componenti
Перечень деталей
零件概览

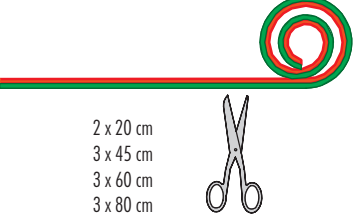
	137 096 2 x
	137 125 2 x
	143 289 2 x
	143 389 1 x

Montagetipps
Tips for assembly
Tuyaux pour le montage

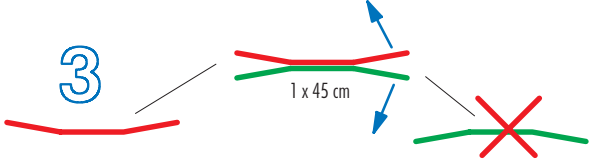
Kabel und Stecker
Plugs and cables
Fiches et des câbles

Stekkers en cables
Enchufes en cables
Cabos e contatos

Cavi e connettori
Провода и штекеры
电缆和插头

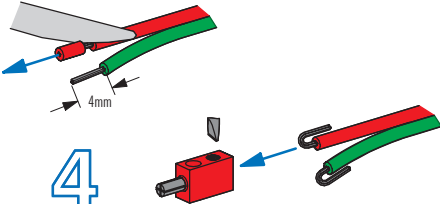
1 

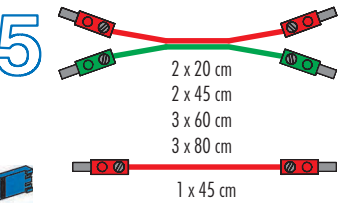
2 

3 

Montagetips
Consejos para el montaje
"Dicas" para montagem

Consigli per il montaggio
Советы по сборке
装配建议

4 

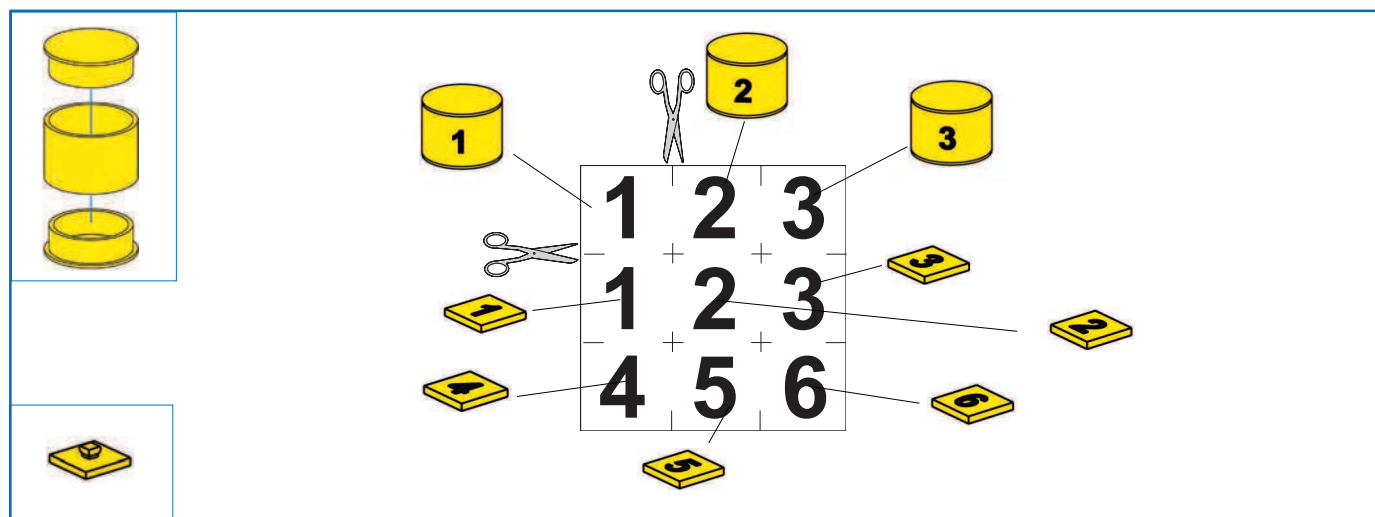
5 

2 x 20 cm
3 x 45 cm
3 x 60 cm
3 x 80 cm

1 x 45 cm

2 x

0 3cm

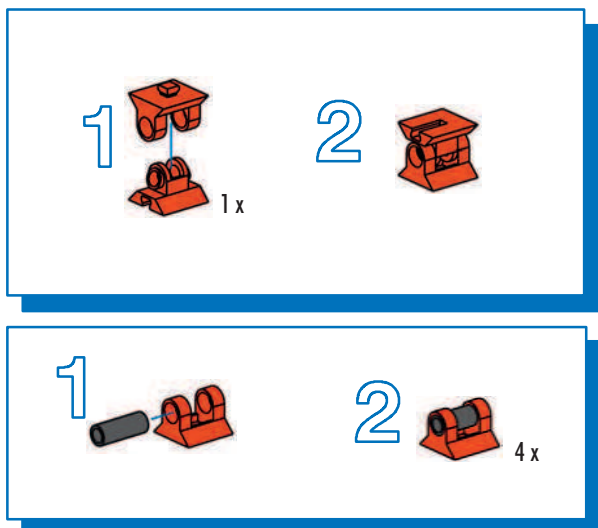


1 2 3

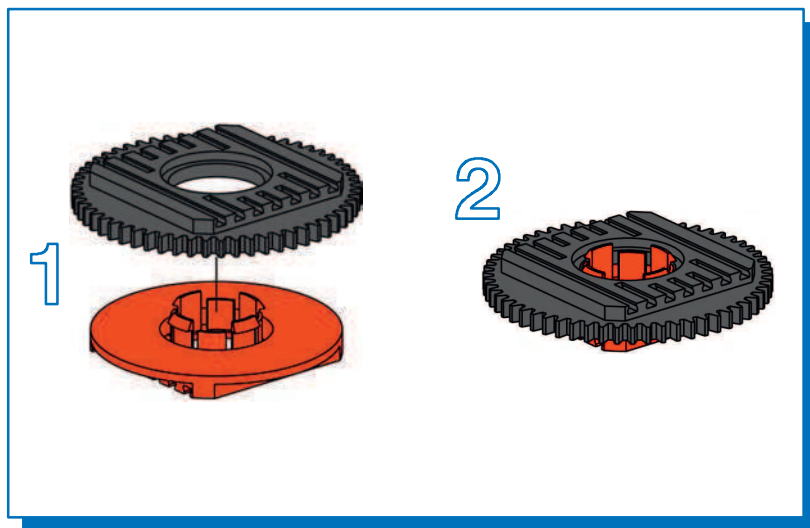
1 2 3

4 5 6

Montagetipps Tips for assembly Tuyaux pour le montage



Montagetips Consejos para el montaje "Dicas" para montagem



Consigli per il montaggio Советы по сборке 装配建议

Sicherheitshinweise Safety Information Consignes de sécurité

- Die Anschlussklemmen dürfen nicht kurzgeschlossen werden.
- Drähte nicht in Steckdose einführen!
- Ladegerät regelmäßig auf Schäden überprüfen. Bei einem Schaden darf das Ladegerät bis zur vollständigen Reparatur nicht mehr verwendet werden.
- Do not short circuit the connecting terminals!
- Do not insert the wires into an outlet!
- Regularly inspect battery charger for damage. If the battery charger has been damaged, it should not be used further until fully repaired.
- Il est interdit de court-circuiter les bornes de raccordement.
- Contrôlez régulièrement le chargeur en vue d'éventuelles détériorations.
- En cas de détérioration, il est interdit d'utiliser le chargeur jusqu'à ce qu'il ait été intégralement réparé.

Veiligheidsrichtlijnen Indicaciones de seguridad Observações sobre segurança

- De aansluitklemmen mogen niet worden kortgesloten.
- Geen draden in de contactdoos steken!
- Laadtoestel regelmatig controleren op schade. Bij schade mag het laadtoestel niet meer gebruikt worden tot het volledig hersteld is.
- Los bornes de conexión no pueden ser puestos en cortocircuito.
- No introducir hilos en la toma de corriente!
- Comprobar con regularidad si el cargador presenta daños. En caso de presentar daños, el cargador no debe volver a ser utilizado hasta que esté completamente reparado.
- Os terminais de conexão não devem ser curto-circuitados.
- Nunca introduzir fios na tomada!
- Verificar regularmente se o carregador apresenta danos. Em caso de dano, o carregador não deverá ser utilizado enquanto não estiver plenamente consertado.

Informazioni per la sicurezza Указания по технике безопасности 安全指南

- I morsetti di allacciamento non devono essere cortocircuitati.
- Non inserire i fili nella presa elettrica.
- Controllare periodicamente se il caricabatterie presenta dei danni. In caso di danni, il caricabatterie non deve più essere utilizzato fino alla riparazione.
- Не замыкайте накоротко соединительные клеммы.
- Не вставляйте в розетку провода!
- Регулярно проверяйте зарядное устройство на отсутствие повреждений. При наличии повреждений использовать зарядное устройство до выполнения его полного ремонта не разрешается.
- 接线柱不允许被短路。
- 禁止将金属丝插入插座！
- 经常检查充电器是否有损坏情况。如果充电器有损，直到完全修好为止不可以再使用。

- 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.
- 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.
- Caso necessário, todas as peças individuais, especialmente peças móveis, tem que ser submetidas à manutenção e ser limpas.
- 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 o pointes vives indispensables au bon fonctionnement!
- Let op
- U kunt zich bezemen 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!

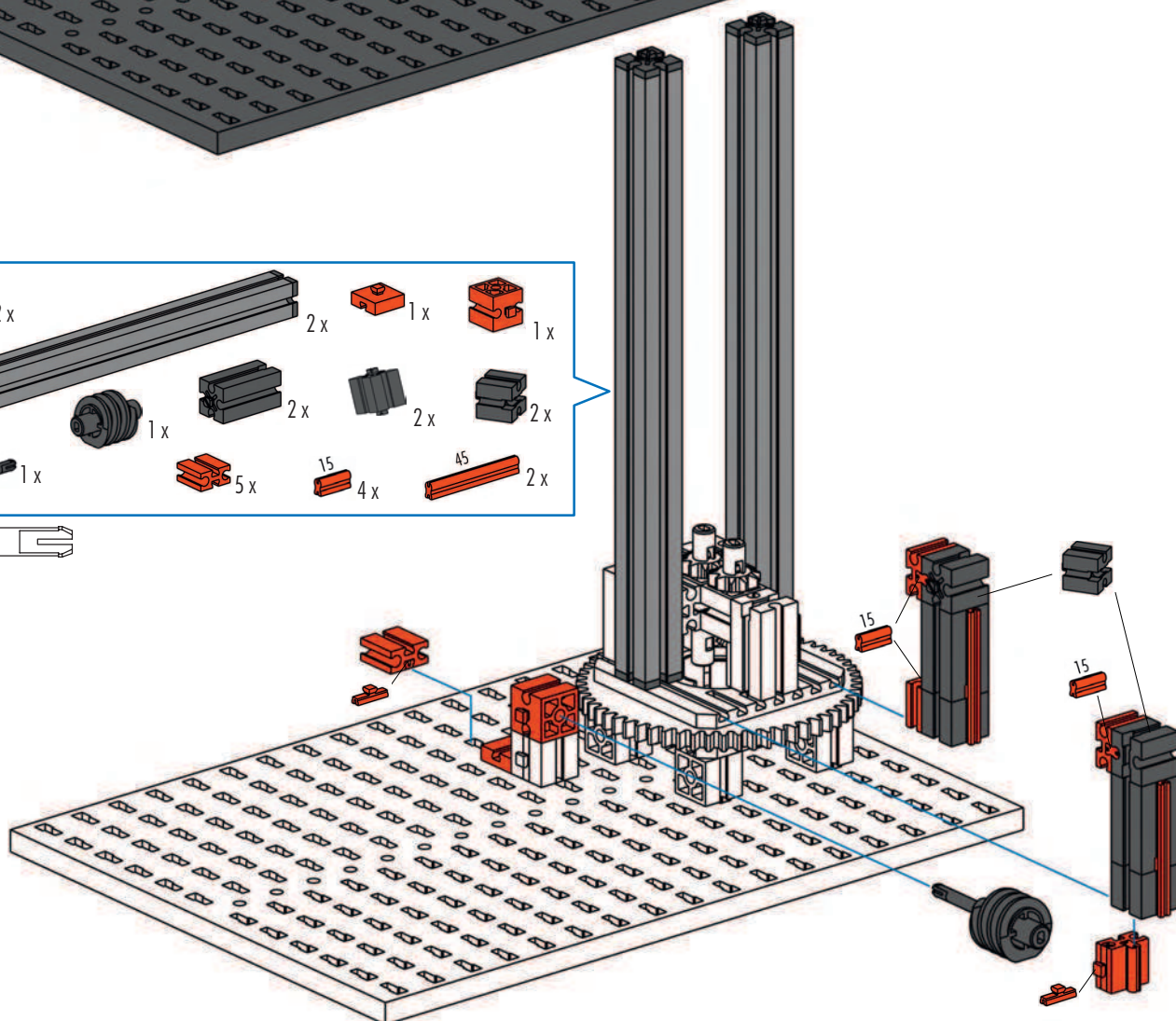
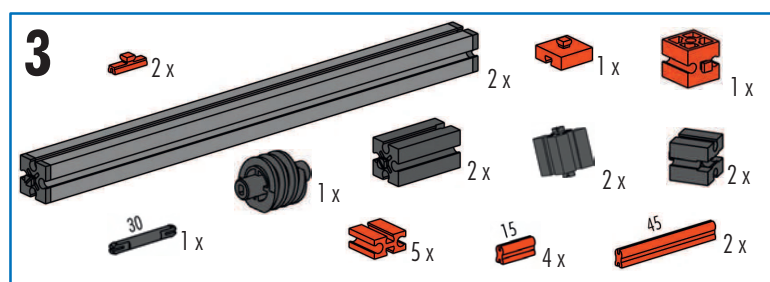
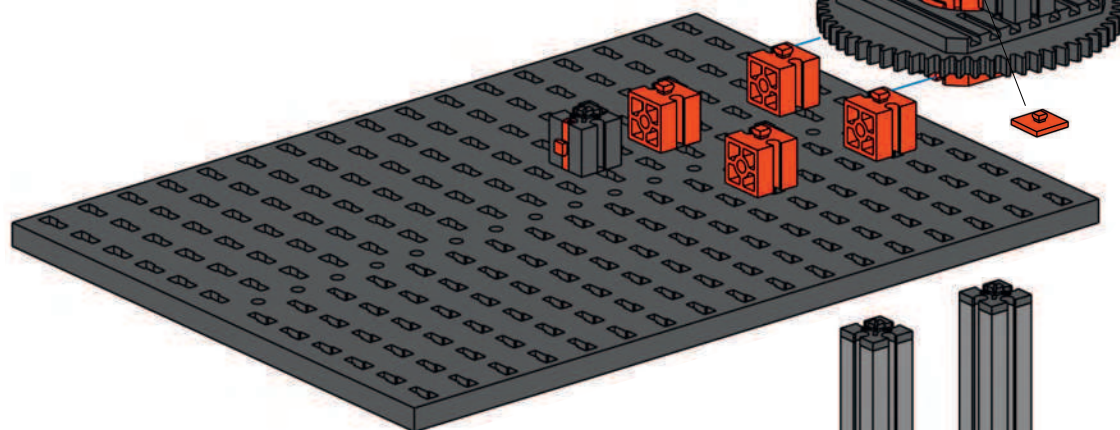
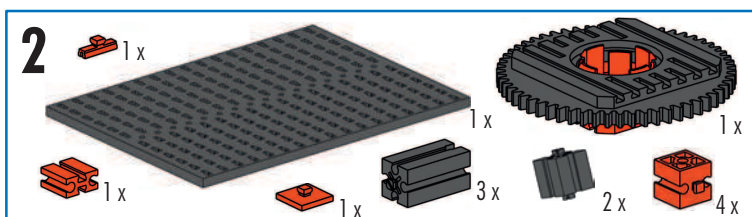
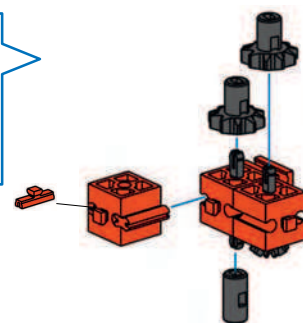
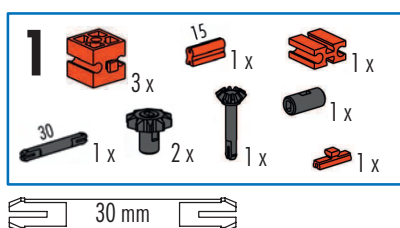
- Se necessario, tutti i singoli componenti, soprattutto le parti mobili, si devono eventualmente sottoporre a manutenzione e pulizia.
- Все детали, особенно подвижные, требуют ухода и чистки.
- 必要时应保养和清洁所有零件，尤指运动部件。
- Atenção
- Perigo de ferimentos em peças componentes com cantos vivos e pontas obrigatórias para o funcionamento!
- Attenzione
- Pericolo di lesioni dovute a componenti con spigoli vivi e punte per motivi funzionali!
- Будьте осторожны
- Об острые края деталей и и наконечники можно порезаться!
- 注意
- 因功能需要而带有锋利的棱边和尖角的部件可能会带来受伤危险！

- Alle elektrischen Bauteile (Motoren, Lampen, ROBO TX Controller) dürfen ausschließlich an Stromversorgungen von fischertechnik angeschlossen werden.
- No electrical components (motors, lamps, ROBO TX Controller) are to be connected to any other power supply than that provided by fischertechnik.
- Tous les composants électriques (moteurs, lampes, ROBO TX Controller) ne doivent être branchés aux alimentations électriques uniquement que par la société fischertechnik.
- Alle elektrische componenten (motoren, lampen, ROBO TX Controller) mogen uitsluitend op stroomvoorzieningen van fischertechnik worden aangesloten.
- Todos los componentes eléctricos (motores, luces, ROBO TX Controller) deben conectarse a la alimentación de corriente de la técnica Fischer exclusivamente.
- Todas as peças componentes elétricas (motores, lâmpadas, ROBO TX Controller) só podem ser exclusivamente conectadas em abastecimentos de corrente da Fischertechnik.
- Tutti i componenti elettrici (motori, lampadine, ROBO TX Controller) devono essere collegati esclusivamente ad alimentatori fischertechnik.
- Все электрические детали (электромоторы, лампочки.) можно подключать только к источникам электропитания от fischertechnik.
- 只允许将所有电气部件 (传感器, 电机) 与慧鱼技术产品的电源装置相连接

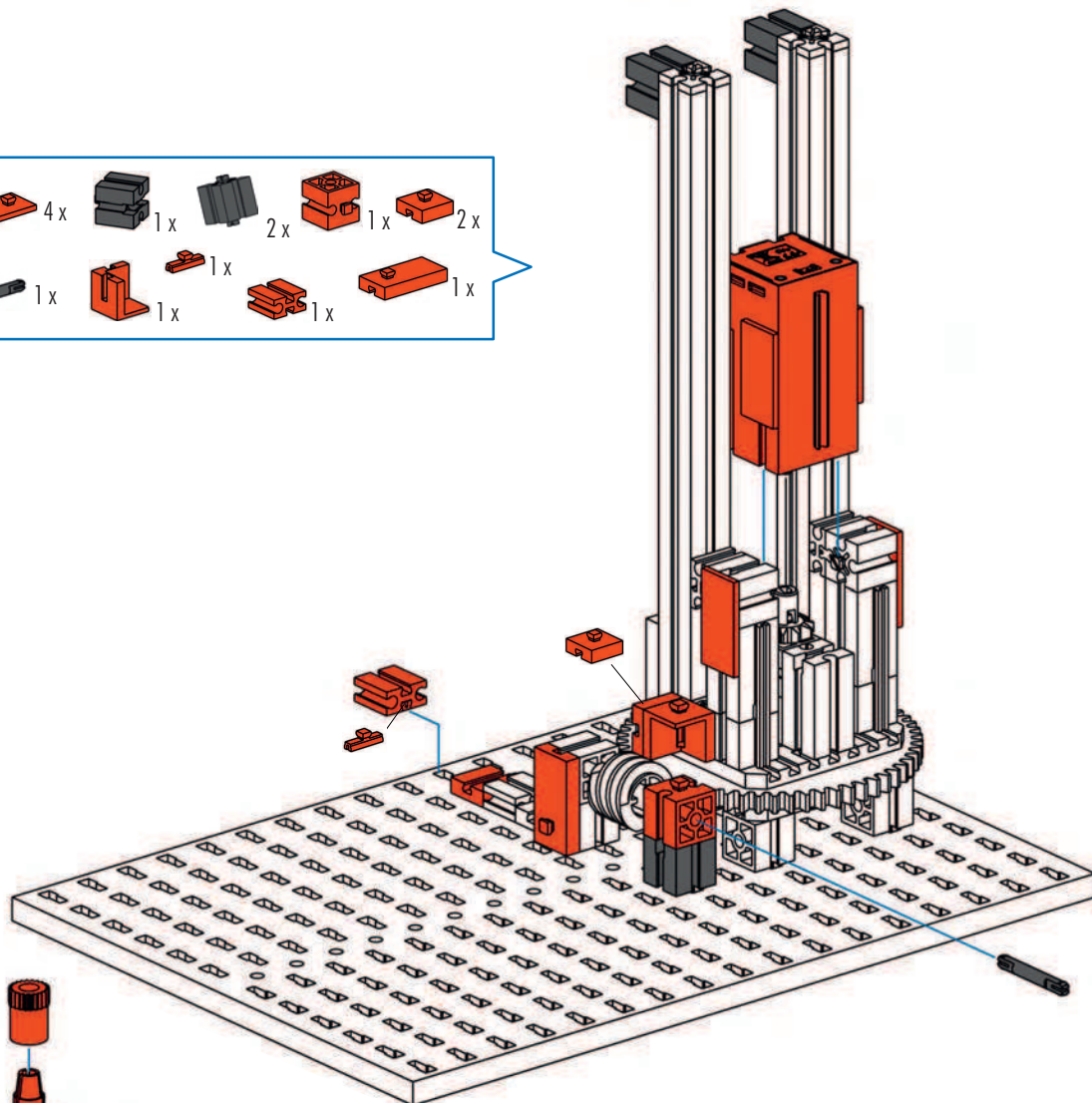
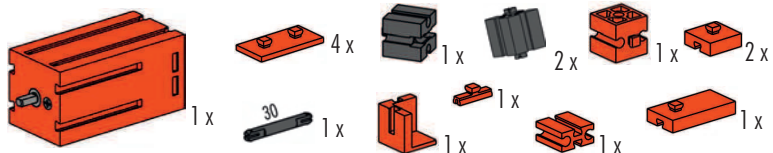


Griprobot
Robot manipulador
Robô de garras

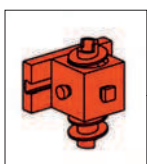
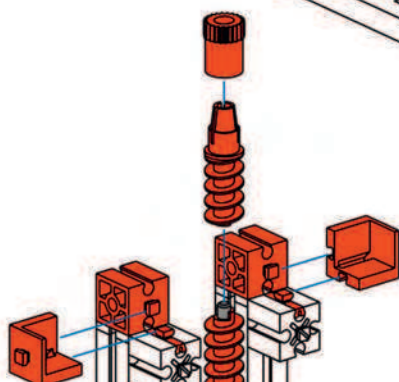
Robot con braccio
Робот-манипулятор
抓件机器人



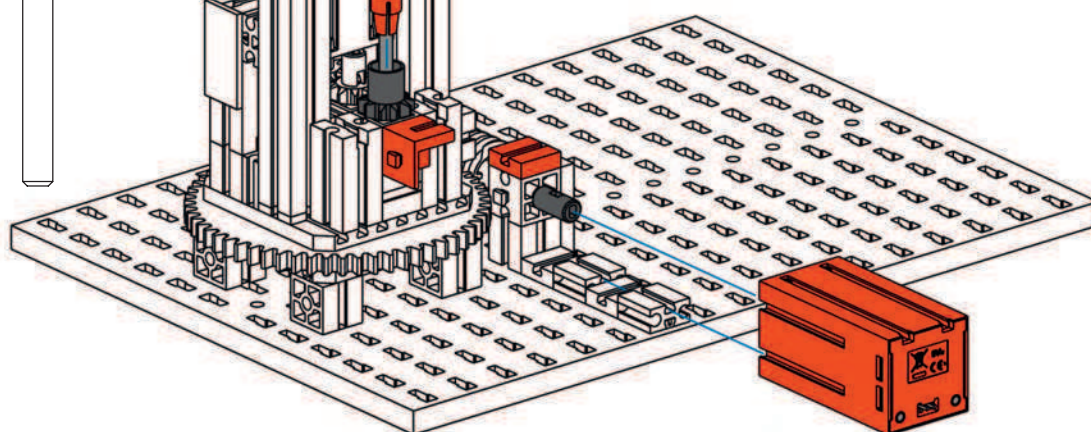
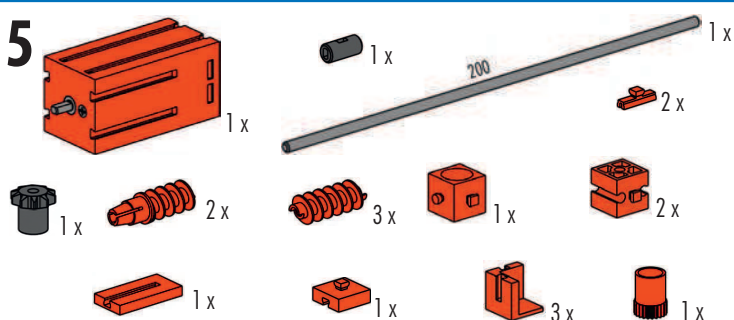
4

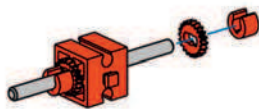


200 mm



5





6



1 x



1 x



2 x



2 x

60 mm

6

7



2 x



1 x



1 x



1 x



1 x



3 x



1 x

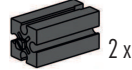


2 x



1 x

8



2 x



2 x



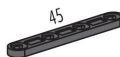
2 x



1 x



2 x



2 x



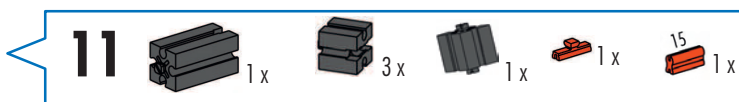
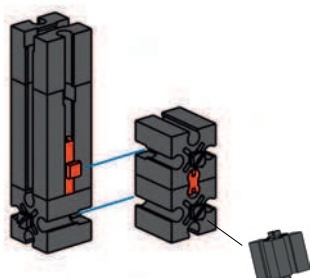
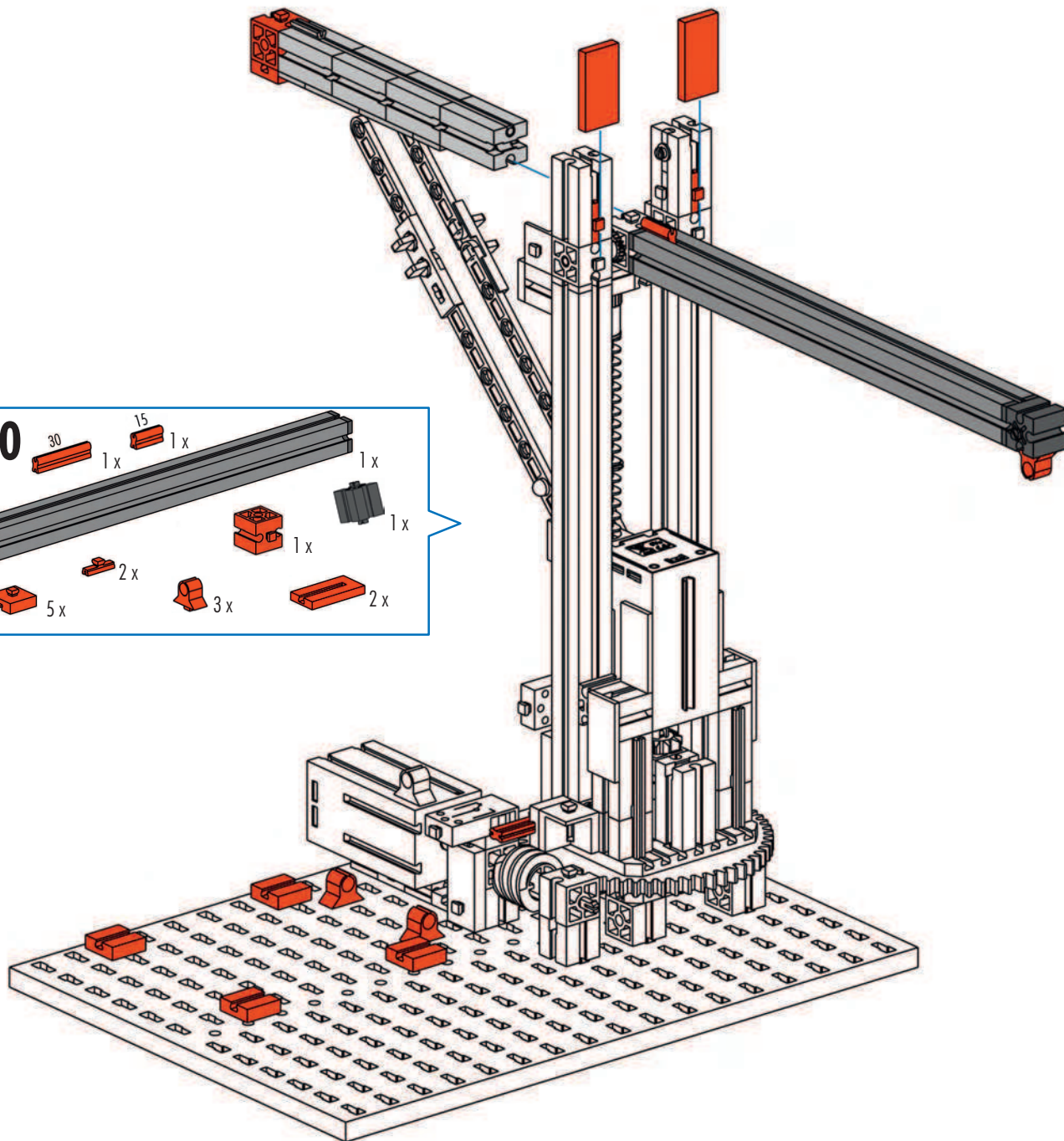
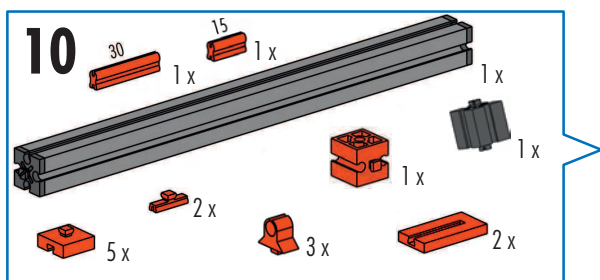
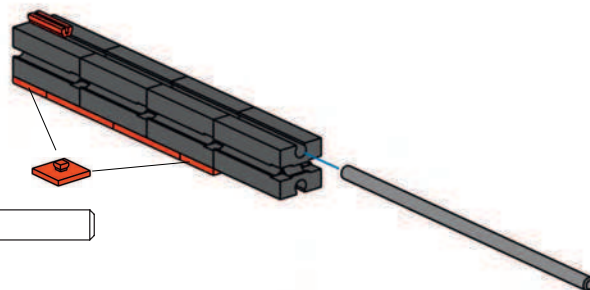
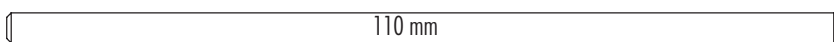
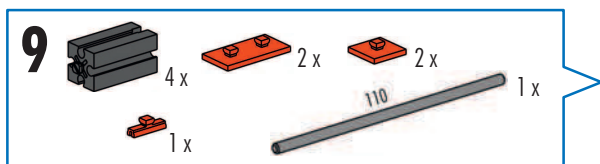
2 x

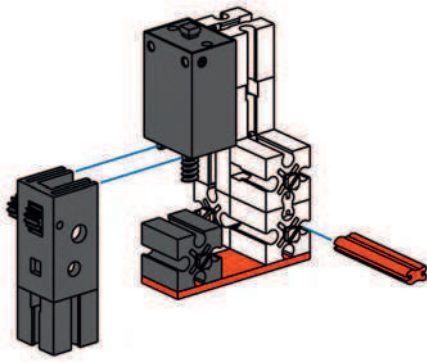


2 x

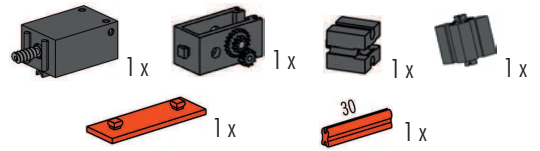


4 x

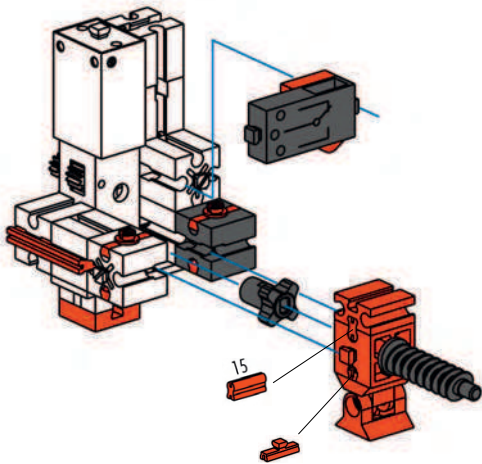
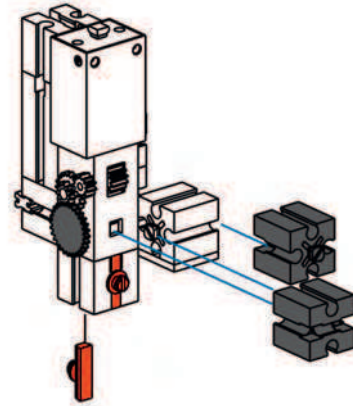




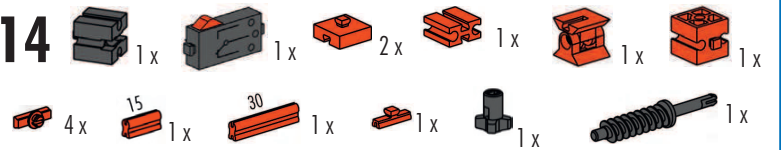
12



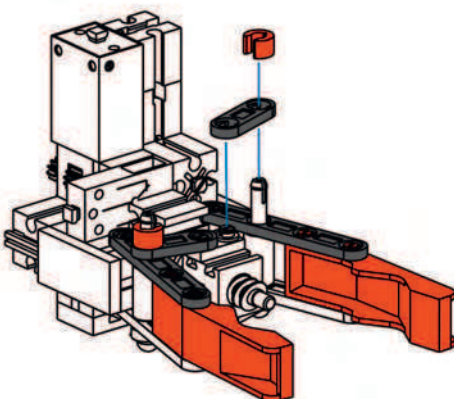
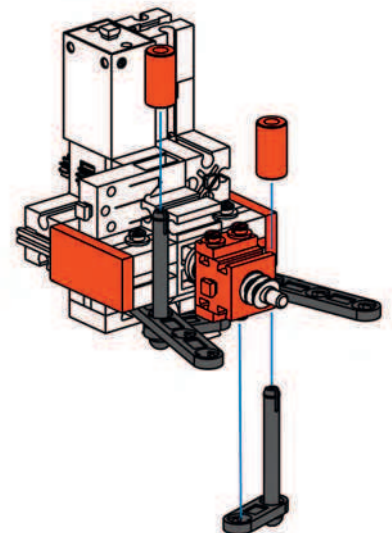
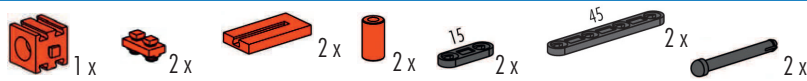
13



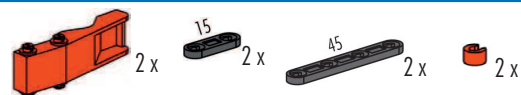
14

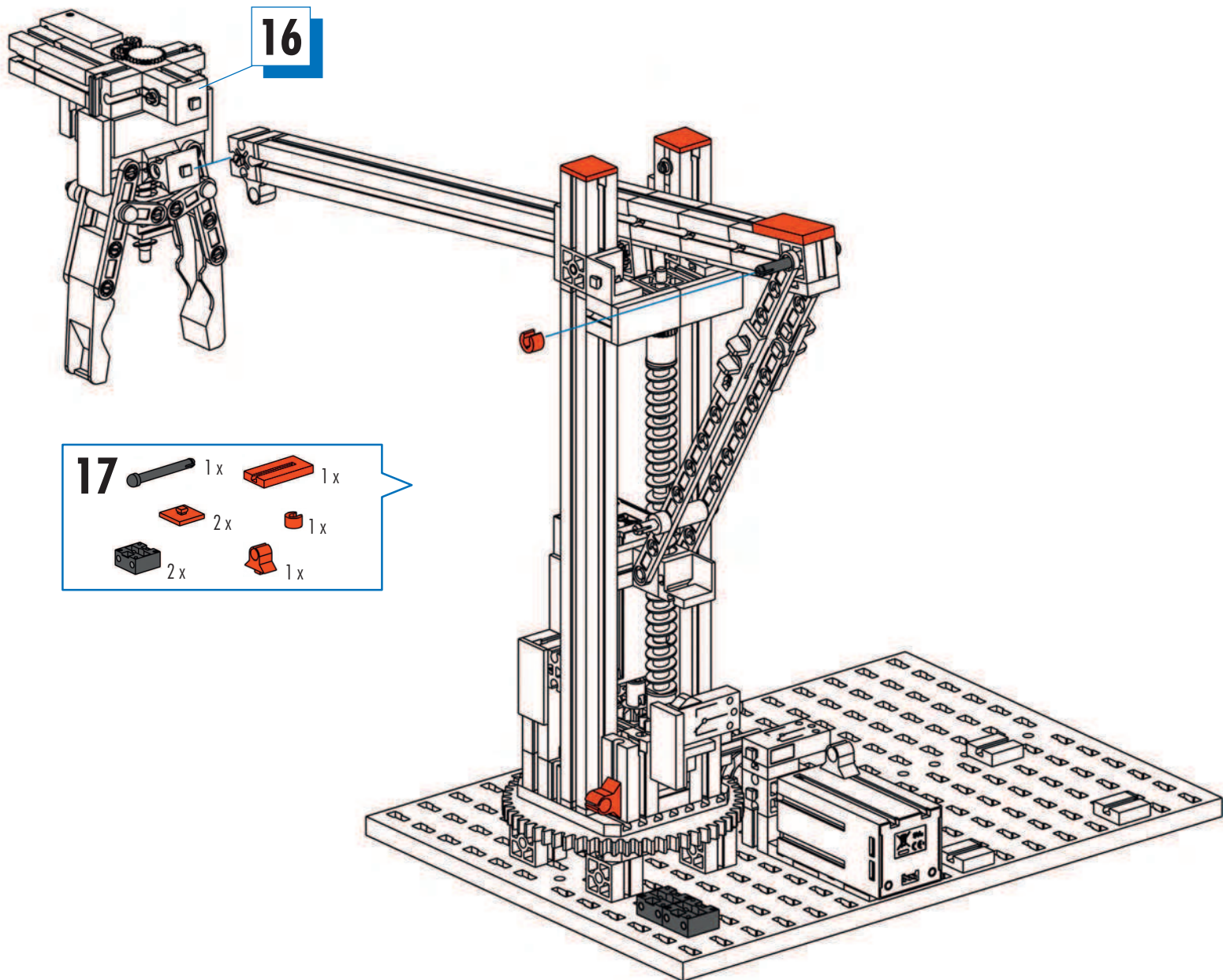


15

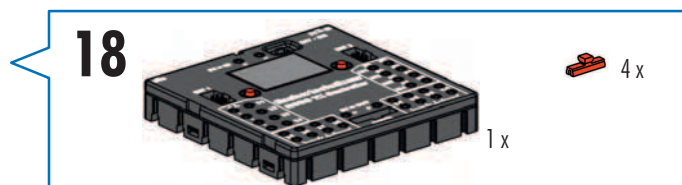
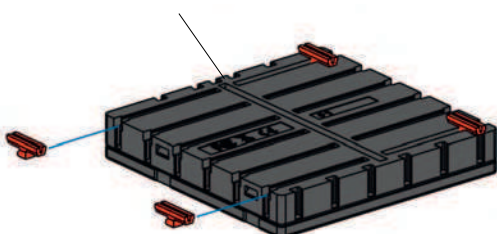


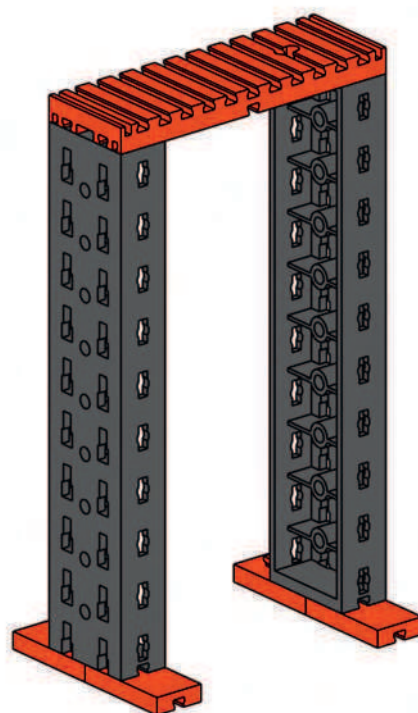
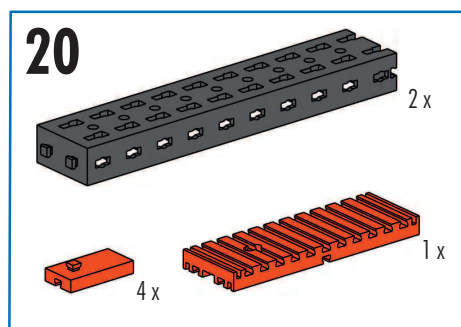
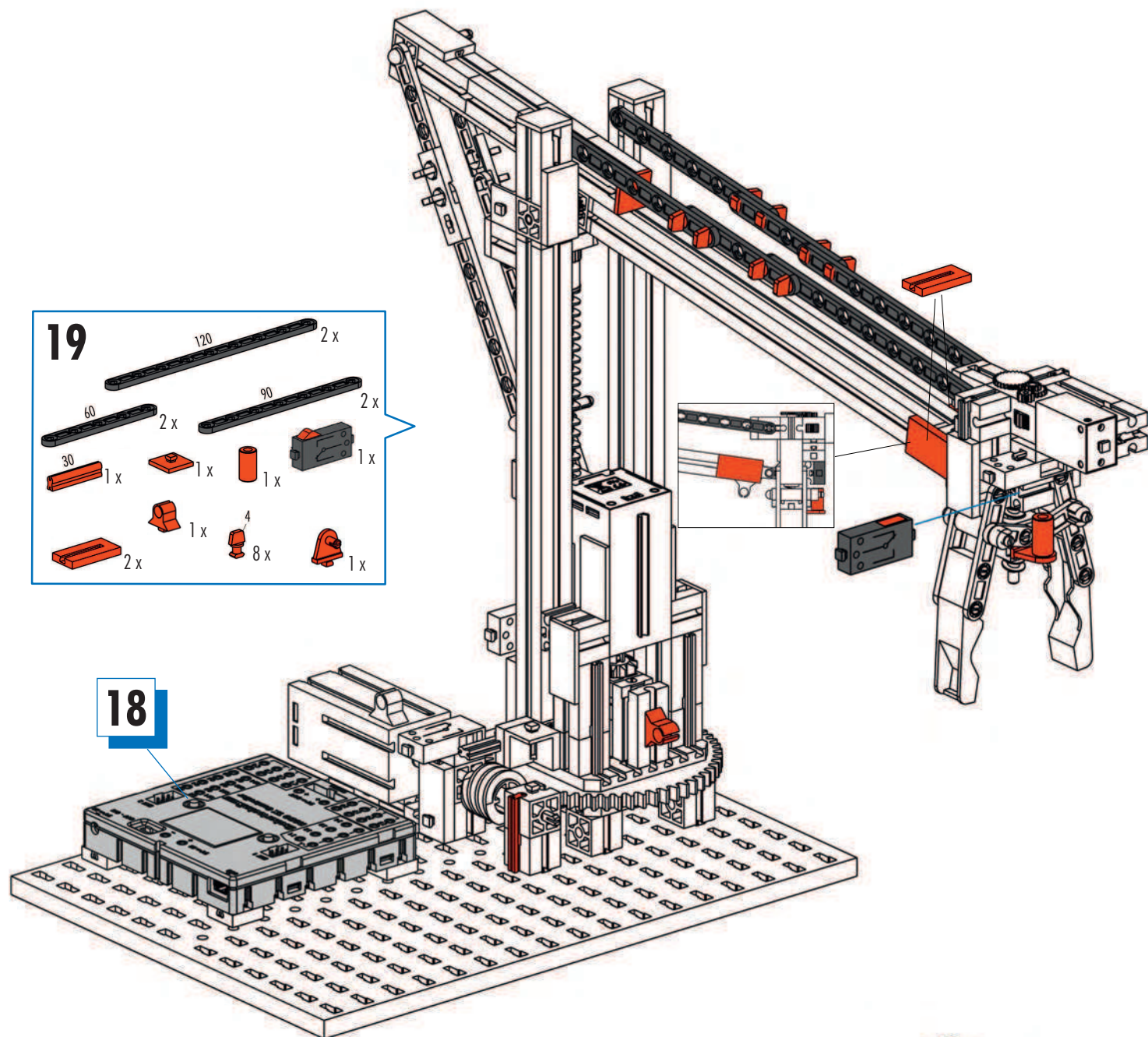
16



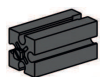


- ROBO TX Controller (Art.-Nr. 500 995) nicht im Baukasten enthalten
- ROBO TX Controller (Art.-Nr. 500 995) not included in the modular kit
- ROBO TX Controller (Art.-Nr. 500 995) n'est pas contenue dans le kit
- ROBO TX Controller (Art.-Nr. 500 995) niet in de bouwdoos opgenomen
- ROBO TX Controller (Art.-Nr. 500 995) no está incluido en el conjunto
- ROBO TX Controller (Art.-Nr. 500 995) não contido no sistema de construção por blocos
- ROBO TX Controller (Art.-Nr. 500 995) non incluso nella scatola di montaggio
- ROBO TX Controller (Art.-Nr. 500 995) не входит в комплект конструктора
- ROBO TX Controller (Art.-Nr. 500 995) 不包含在组件





21



4 x

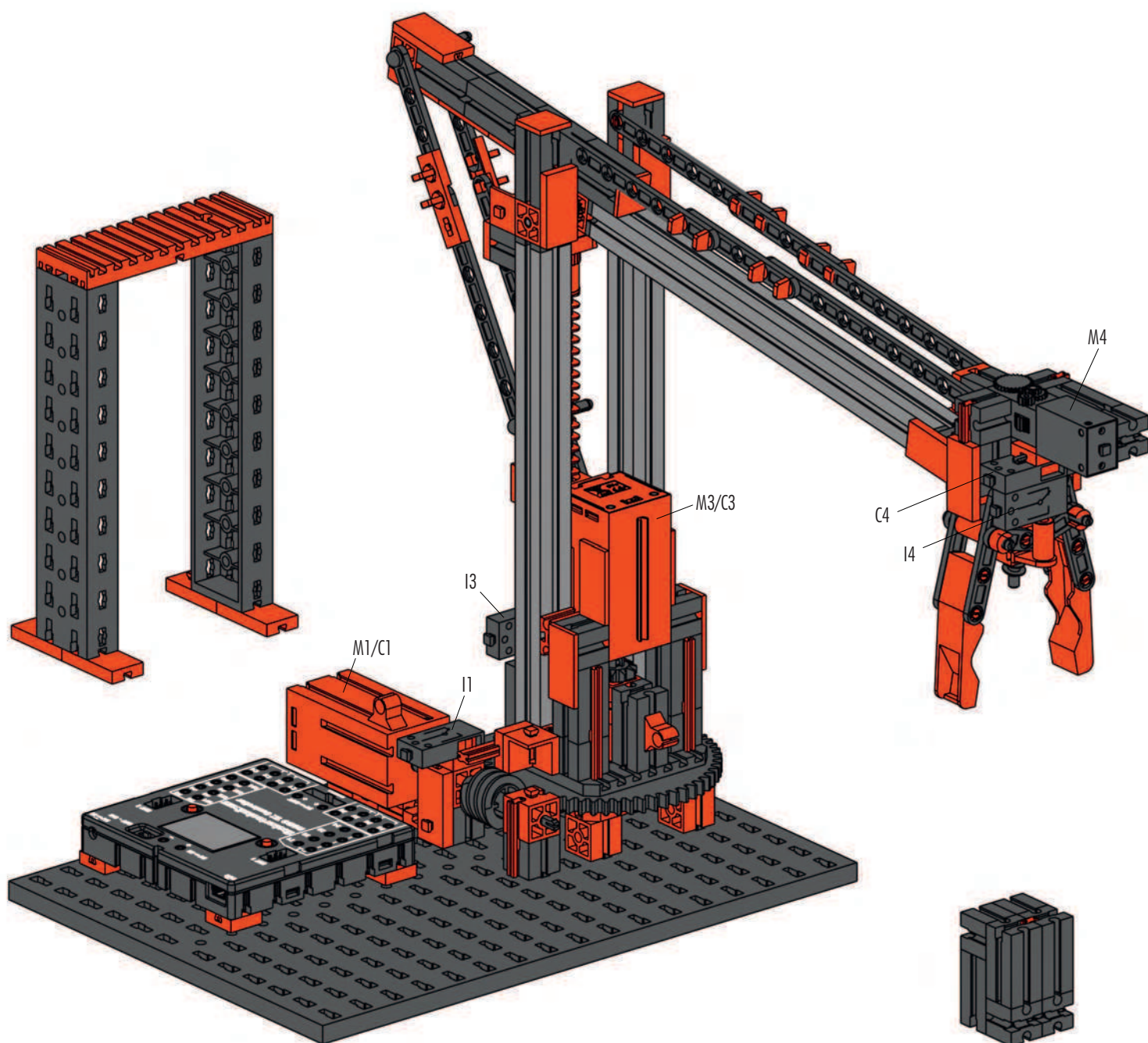
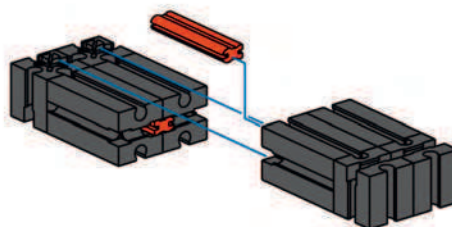


4 x



30

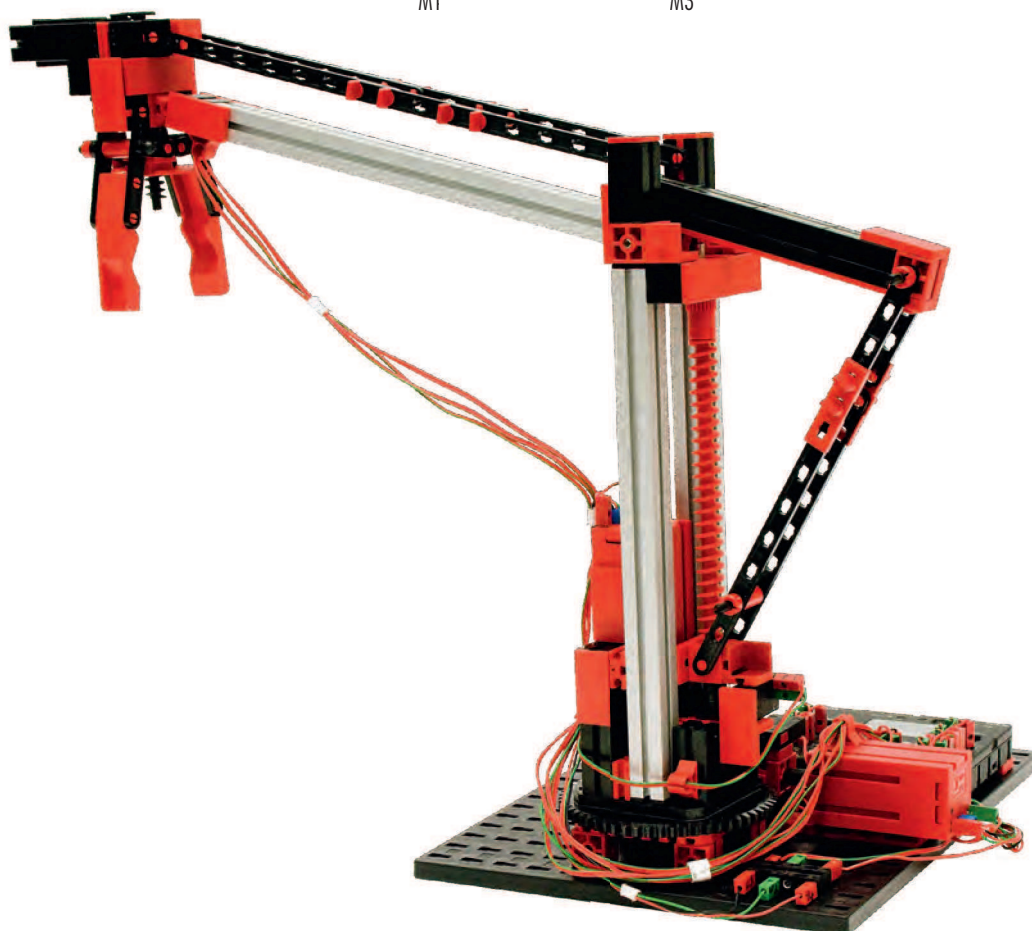
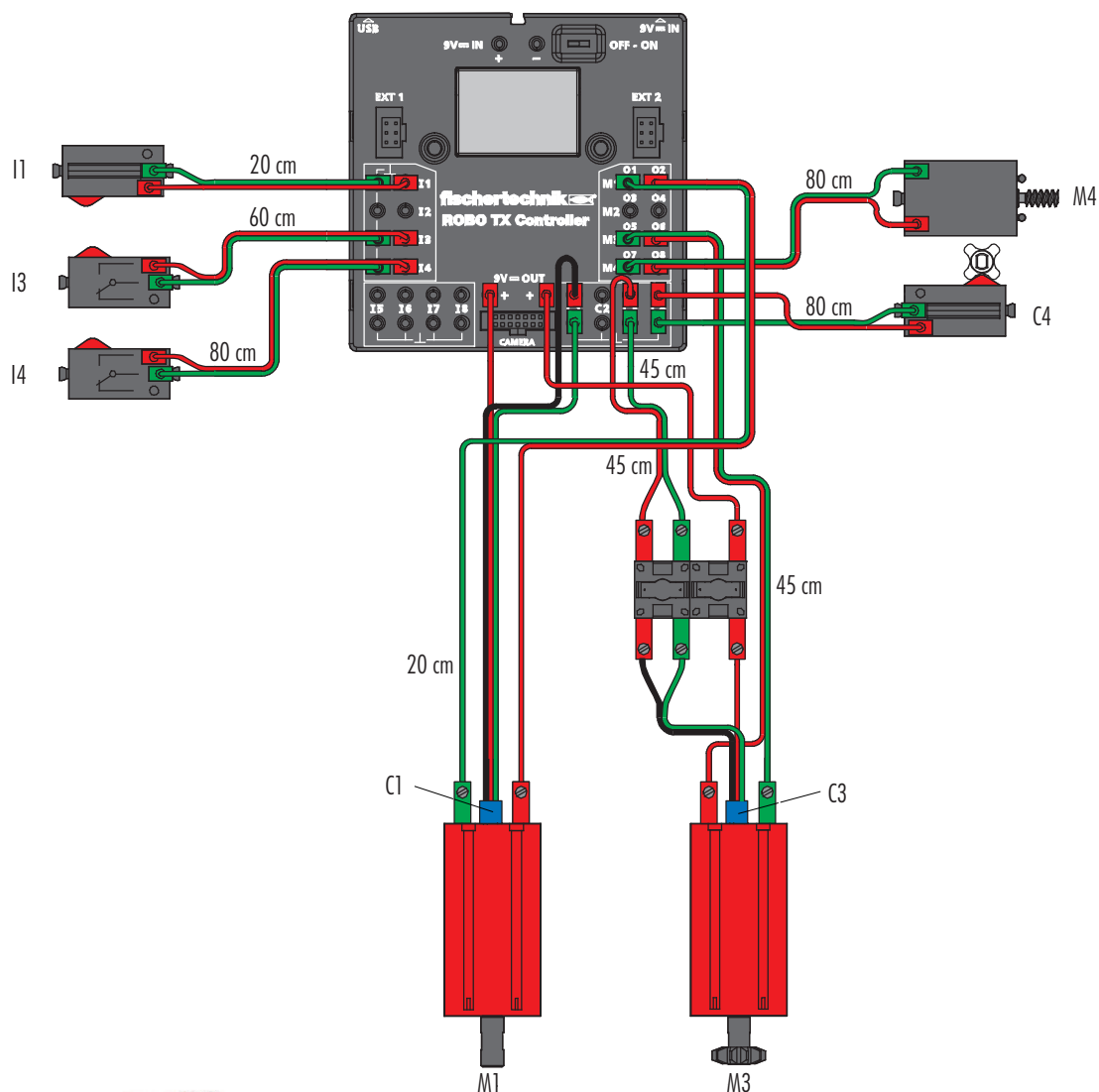
2 x

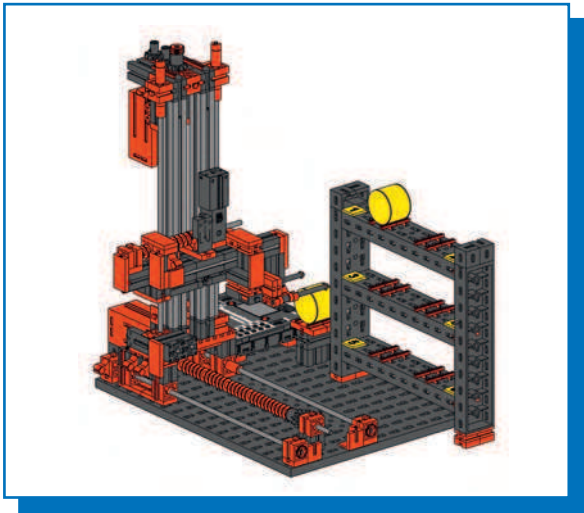


Schaltplan
Circuit diagram
Plan électrique

Schakelschema
Diagrama de circuitos
Plano elétrico de ligação

Schema elettrico
Схема подключения
电路图

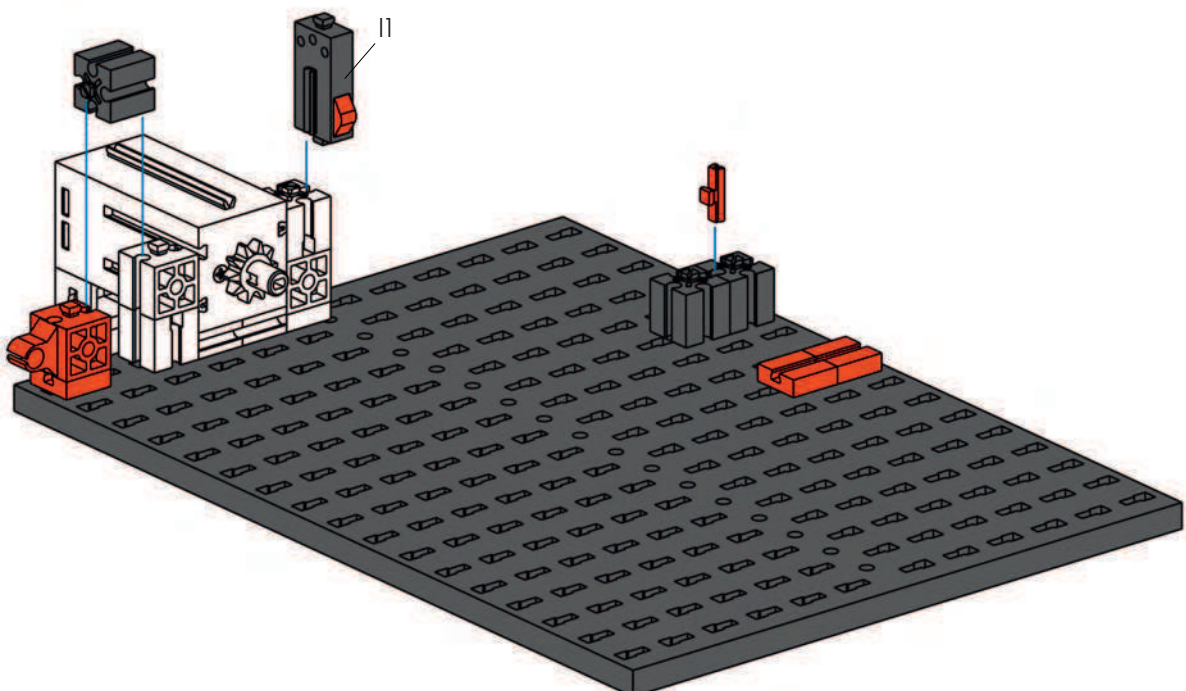
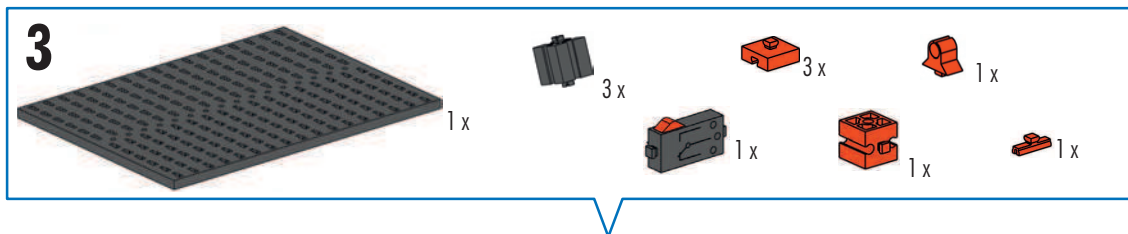
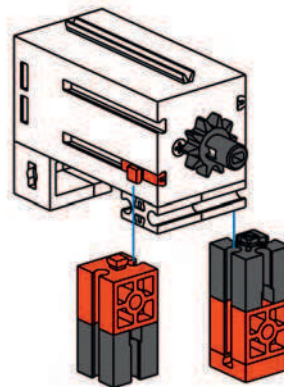
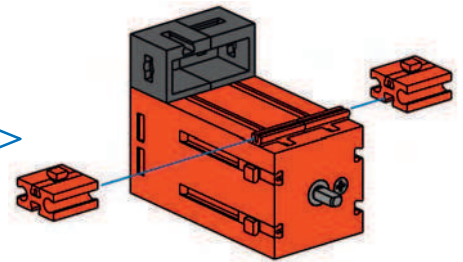
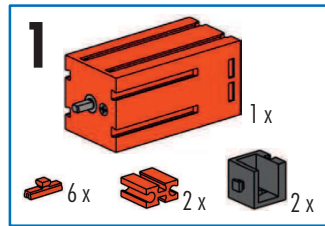


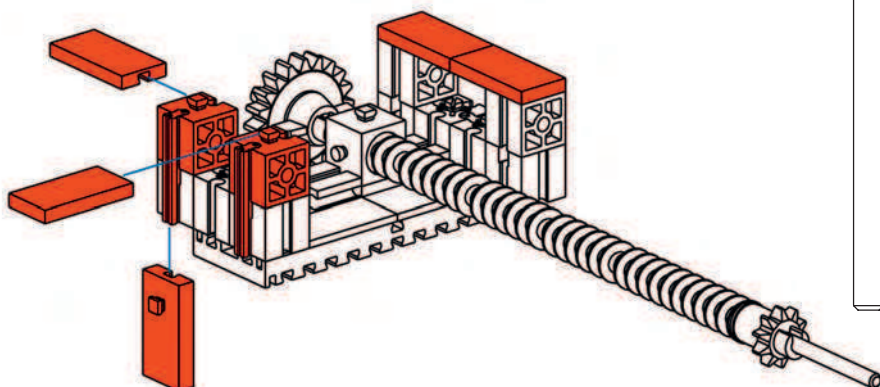
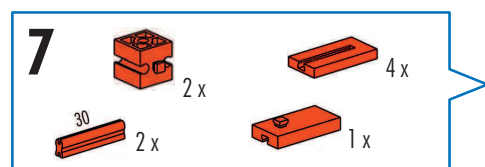
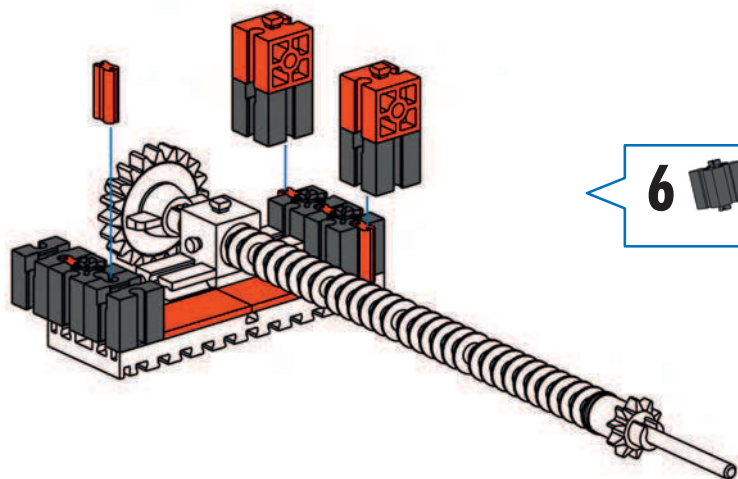
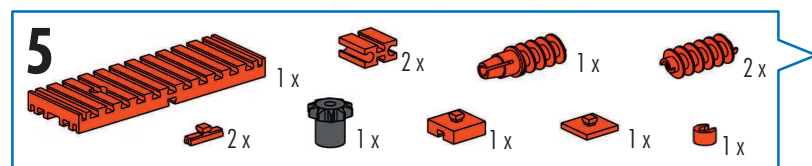
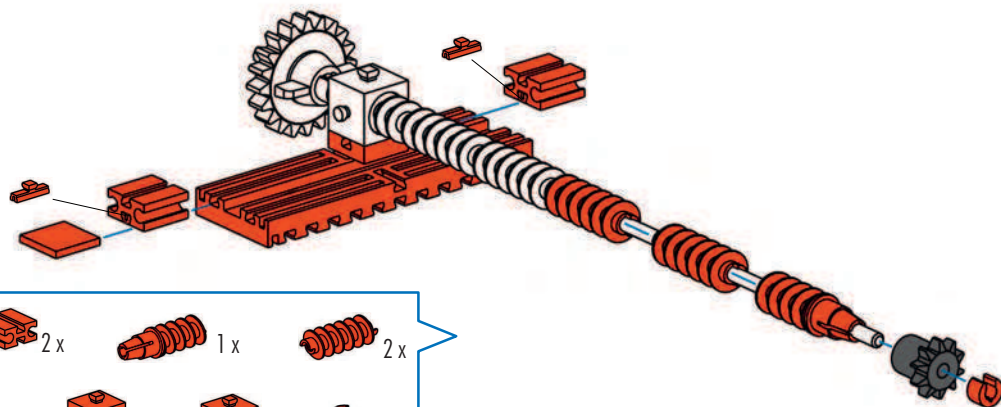
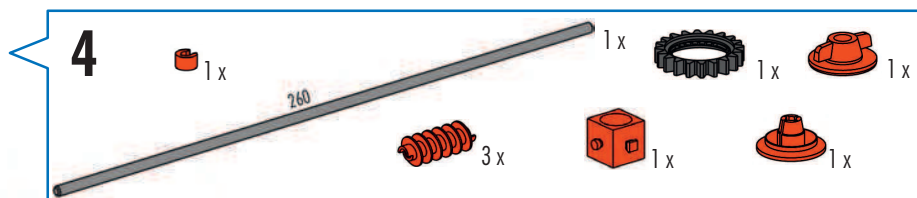
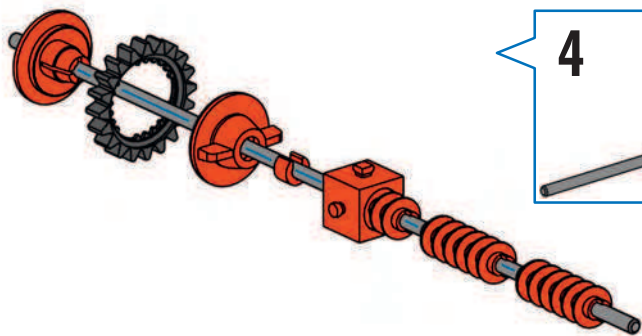


Hochregal
High bay storage rack
Rayonnage haut

Stellingmagazijn
Almacén elevado
Depósito de prateleira
alta

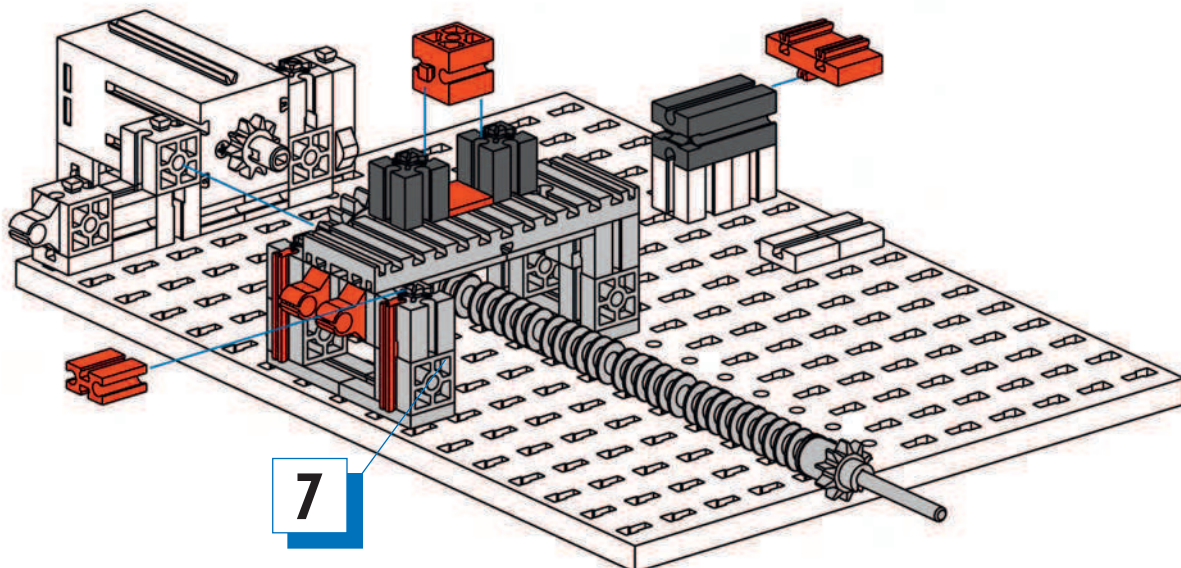
Magazzino alto
Высотный
стеллажный склад
高货架仓库



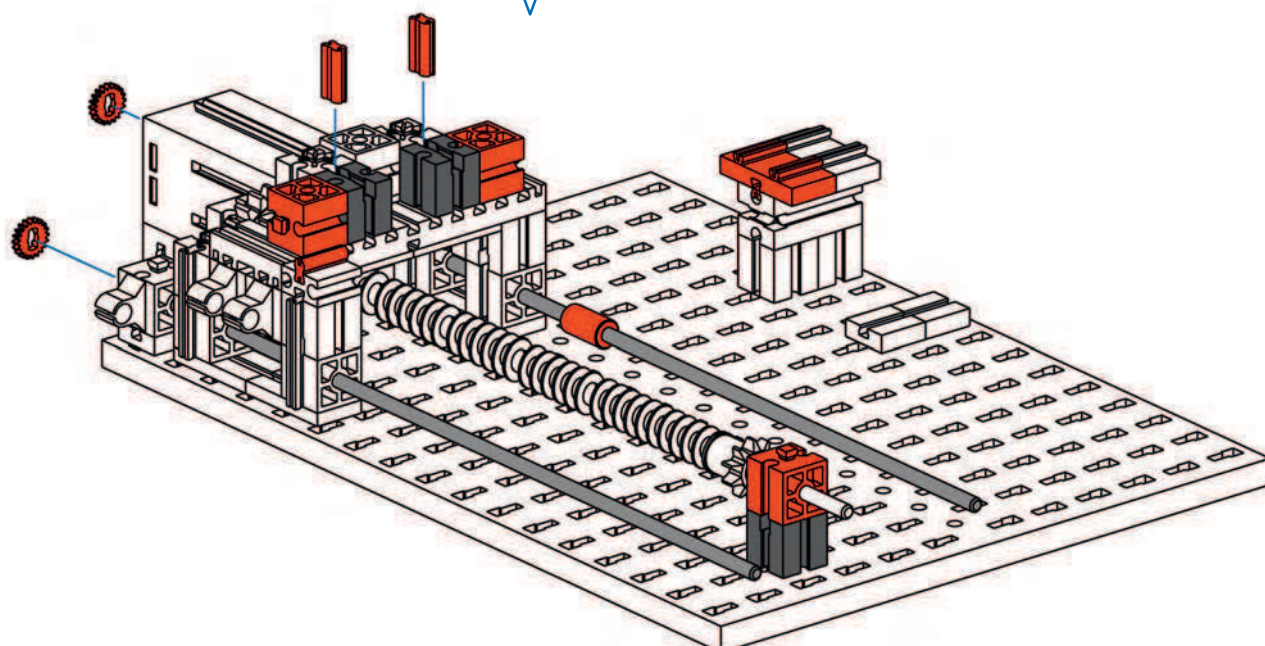


260 mm

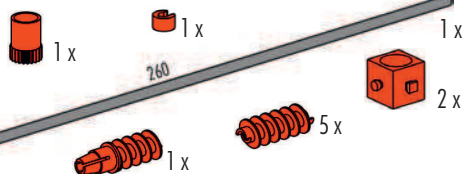
- 8**
- 1x
 - 2x
 - 1x
 - 1x
 - 1x
 - 1x
 - 1x
 - 2x
 - 3x
 - 2x



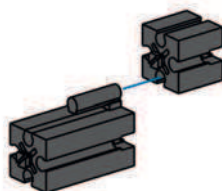
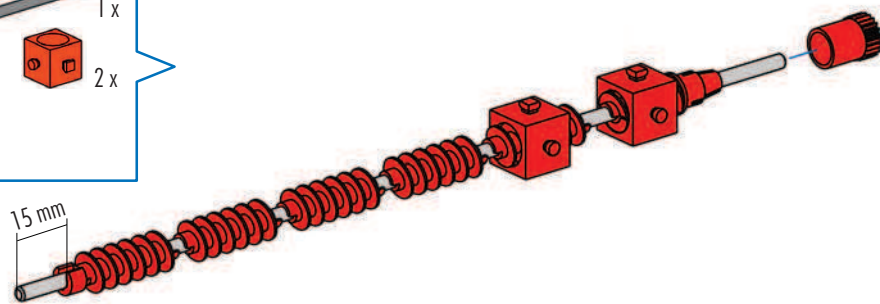
- 9**
- 1x
 - 2x
 - 2x
 - 1x
 - 3x
 - 3x
 - 3x
 - 3x



10



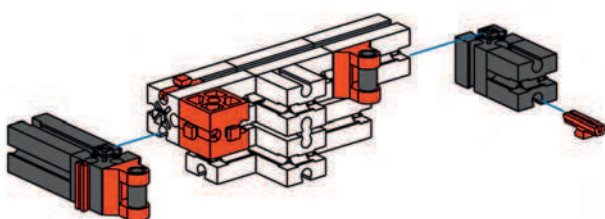
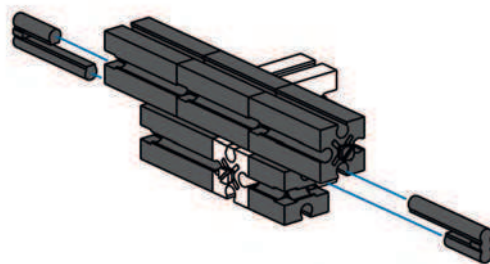
15 mm



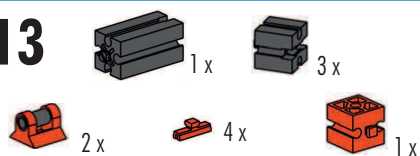
11



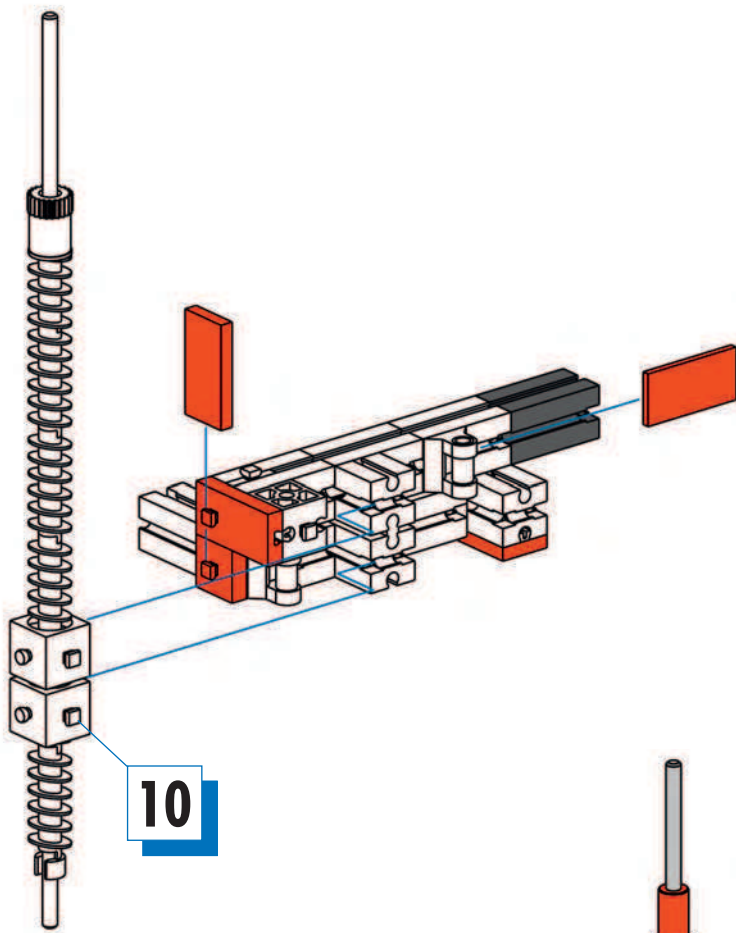
12



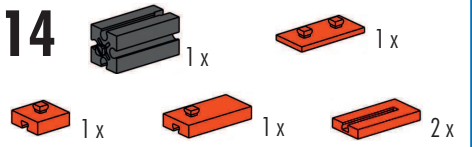
13



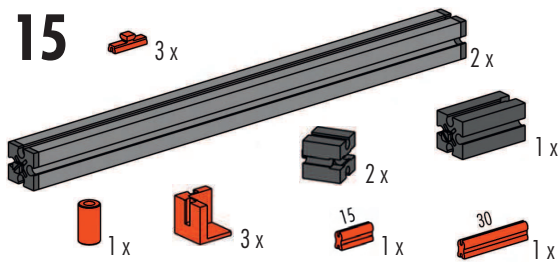
260 mm



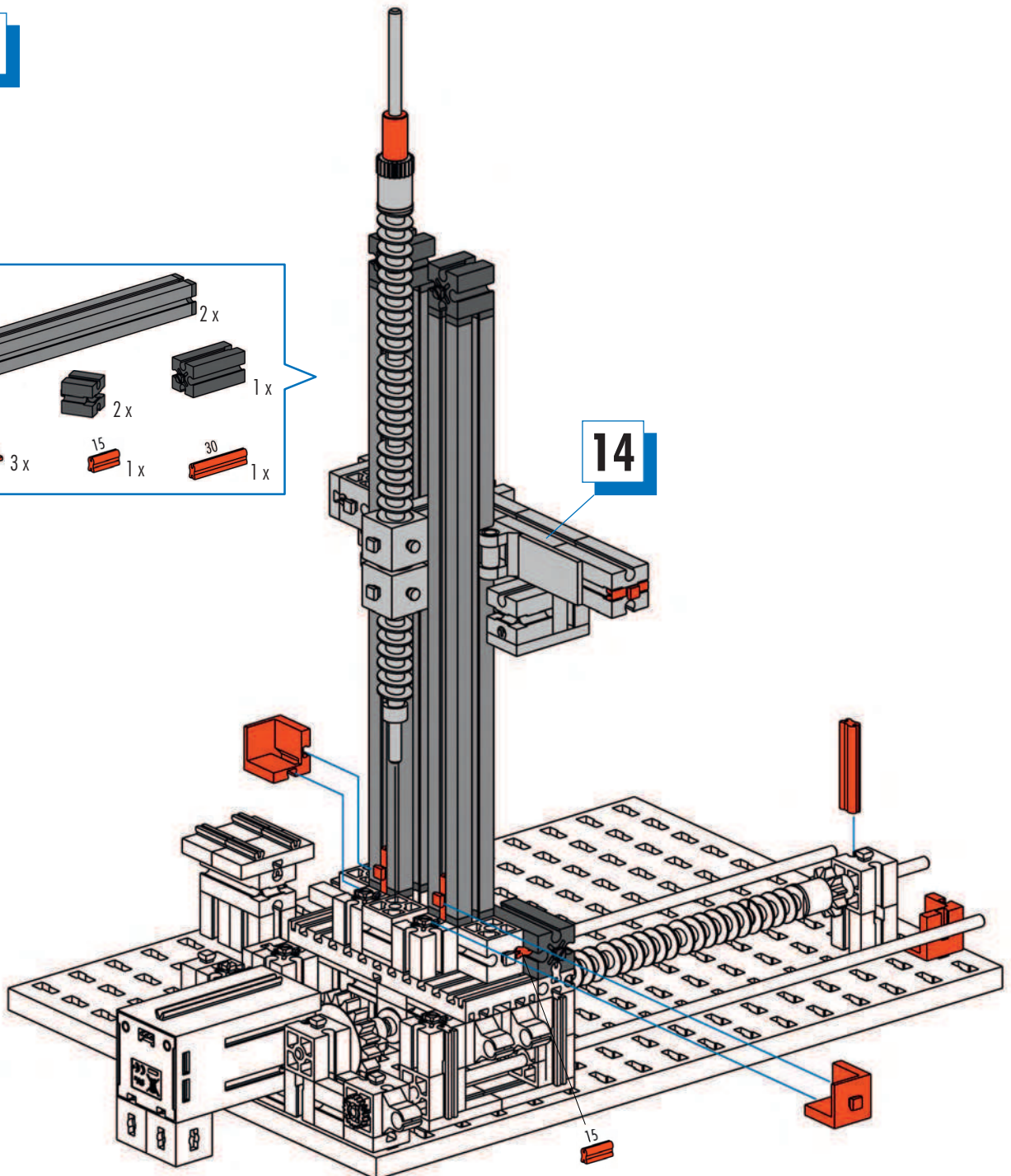
14



15

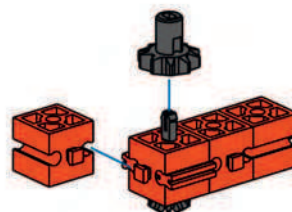


14



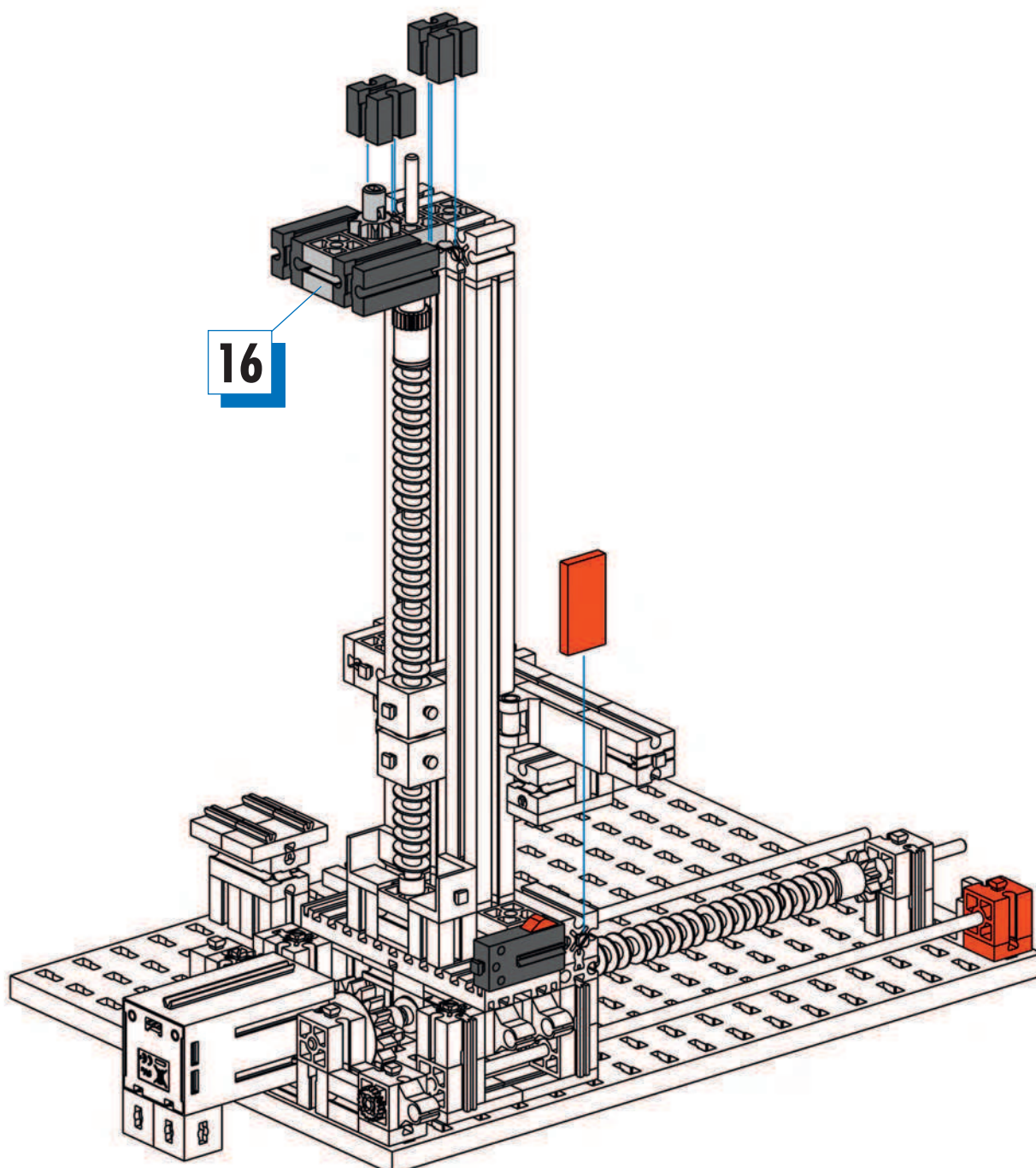
16

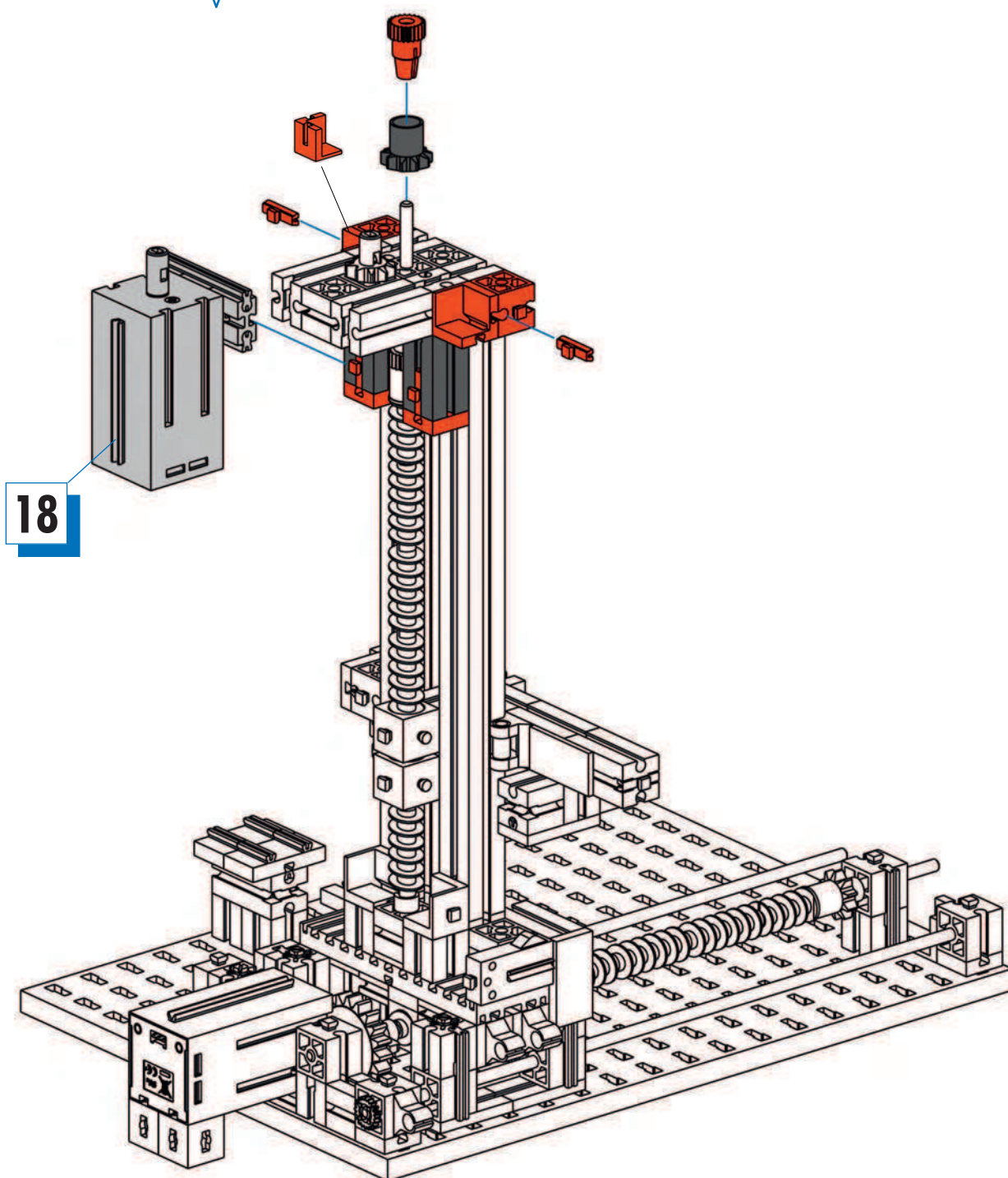
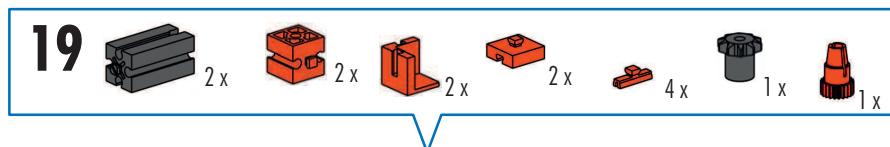
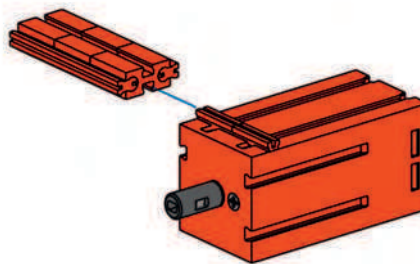
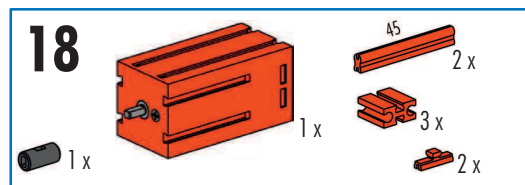
 4x
 1x
 1x
 15
 2x



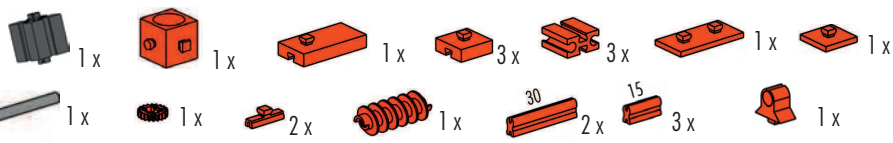
17

 2x
 2x
 1x
 1x
 1x
 1x





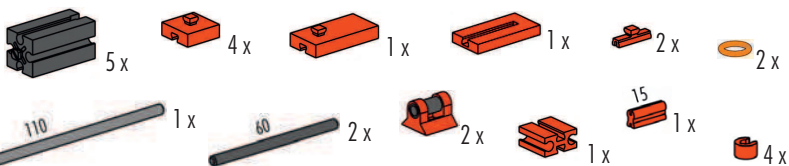
22



60 mm

21

23



110 mm

60 mm

24



2 x



1 x



3 x



2 x

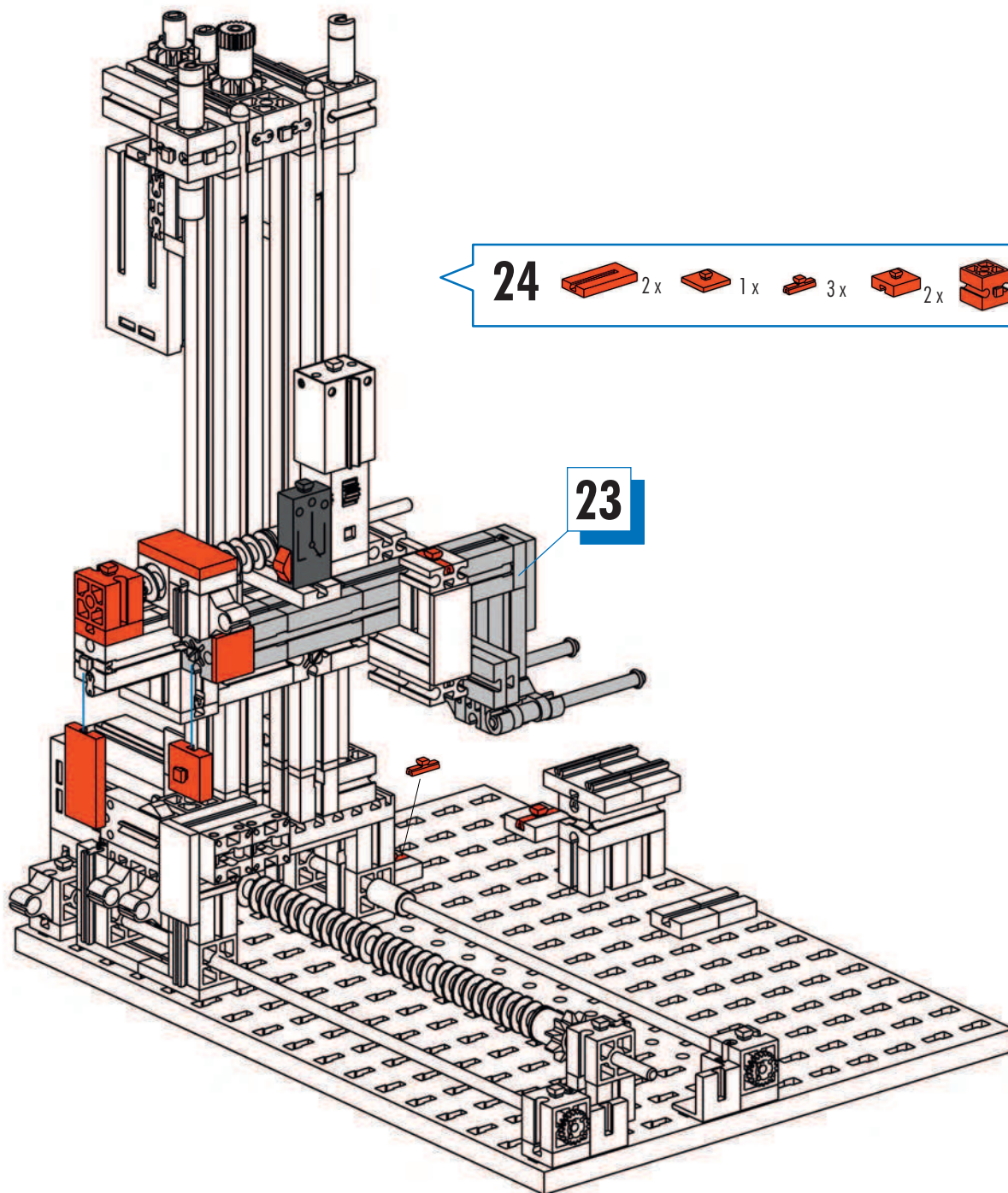


1 x



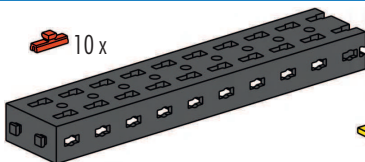
1 x

23



25

10 x



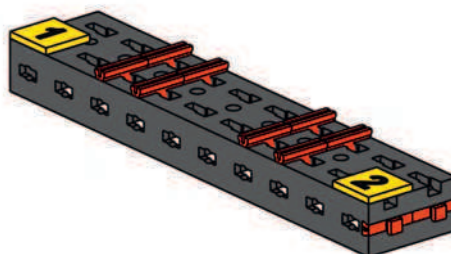
1 x



1 x

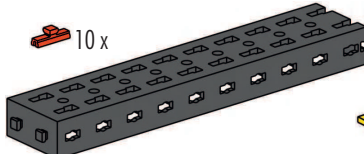


1 x



26

10 x



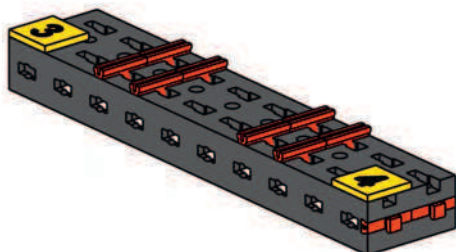
1 x



1 x

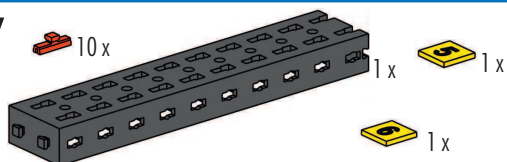


1 x

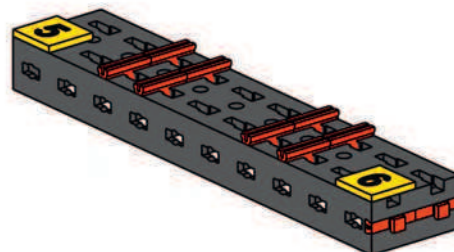
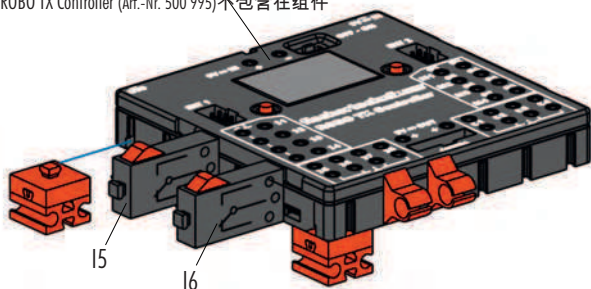


27

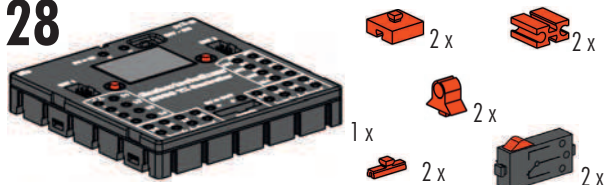
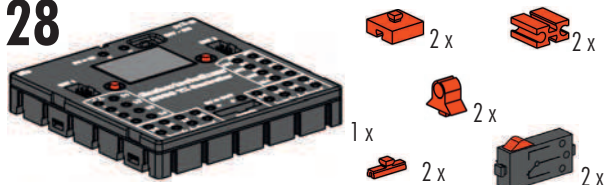
10 x



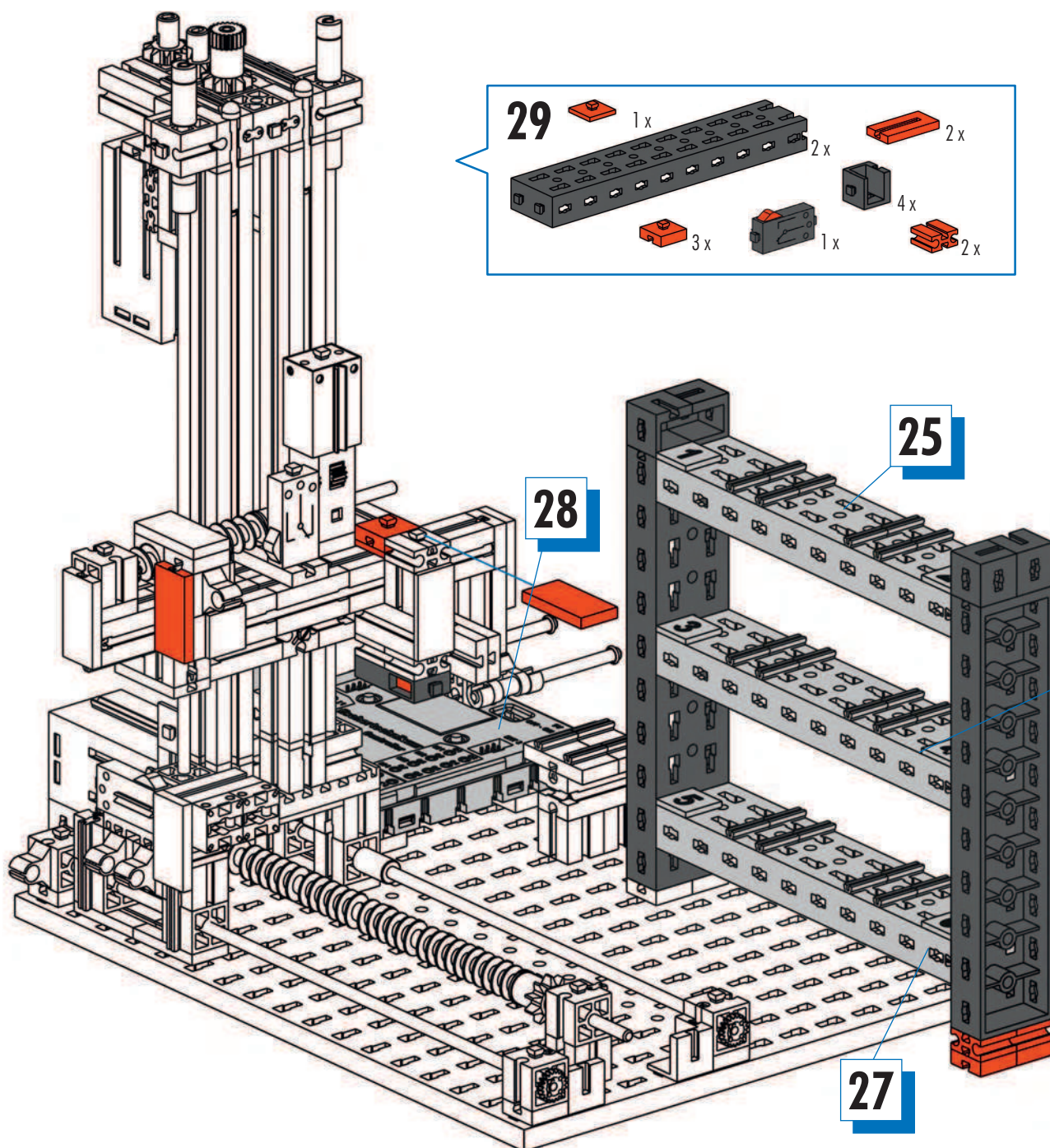
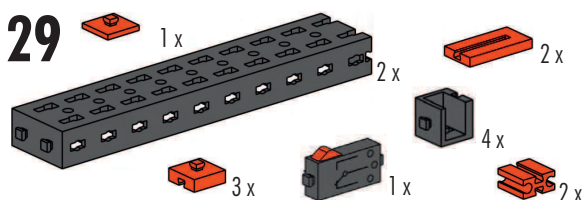
- ROBO TX Controller (Art.-Nr. 500 995) nicht im Baukasten enthalten
- ROBO TX Controller (Art.-Nr. 500 995) not included in the modular kit
- ROBO TX Controller (Art.-Nr. 500 995) n'est pas contenue dans le kit
- ROBO TX Controller (Art.-Nr. 500 995) niet in de bouwdoos opgenomen
- ROBO TX Controller (Art.-Nr. 500 995) no está incluido en el conjunto
- ROBO TX Controller (Art.-Nr. 500 995) não contido no sistema de construção por blocos
- ROBO TX Controller (Art.-Nr. 500 995) non incluso nella scatola di montaggio
- ROBO TX Controller (Art.-Nr. 500 995) не входит в комплект конструктора
- ROBO TX Controller (Art.-Nr. 500 995) 不包含在组件

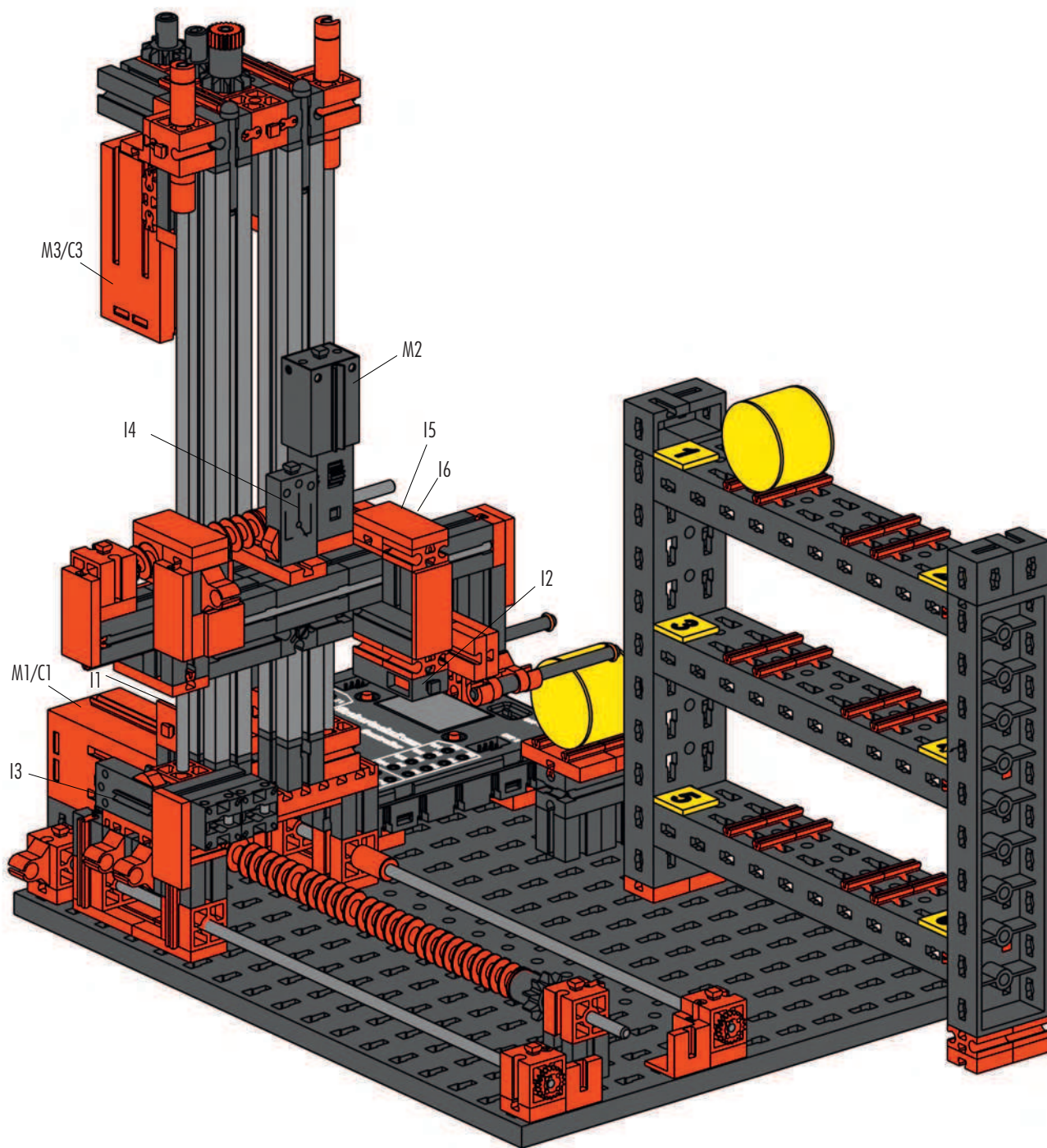


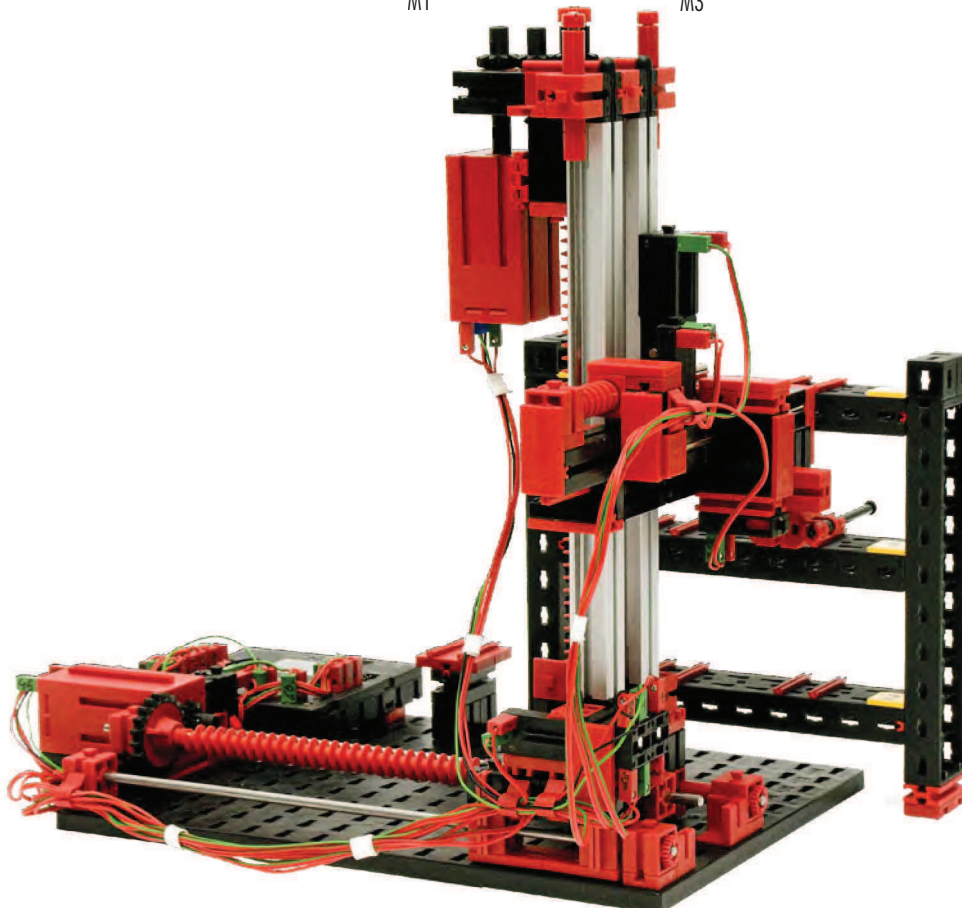
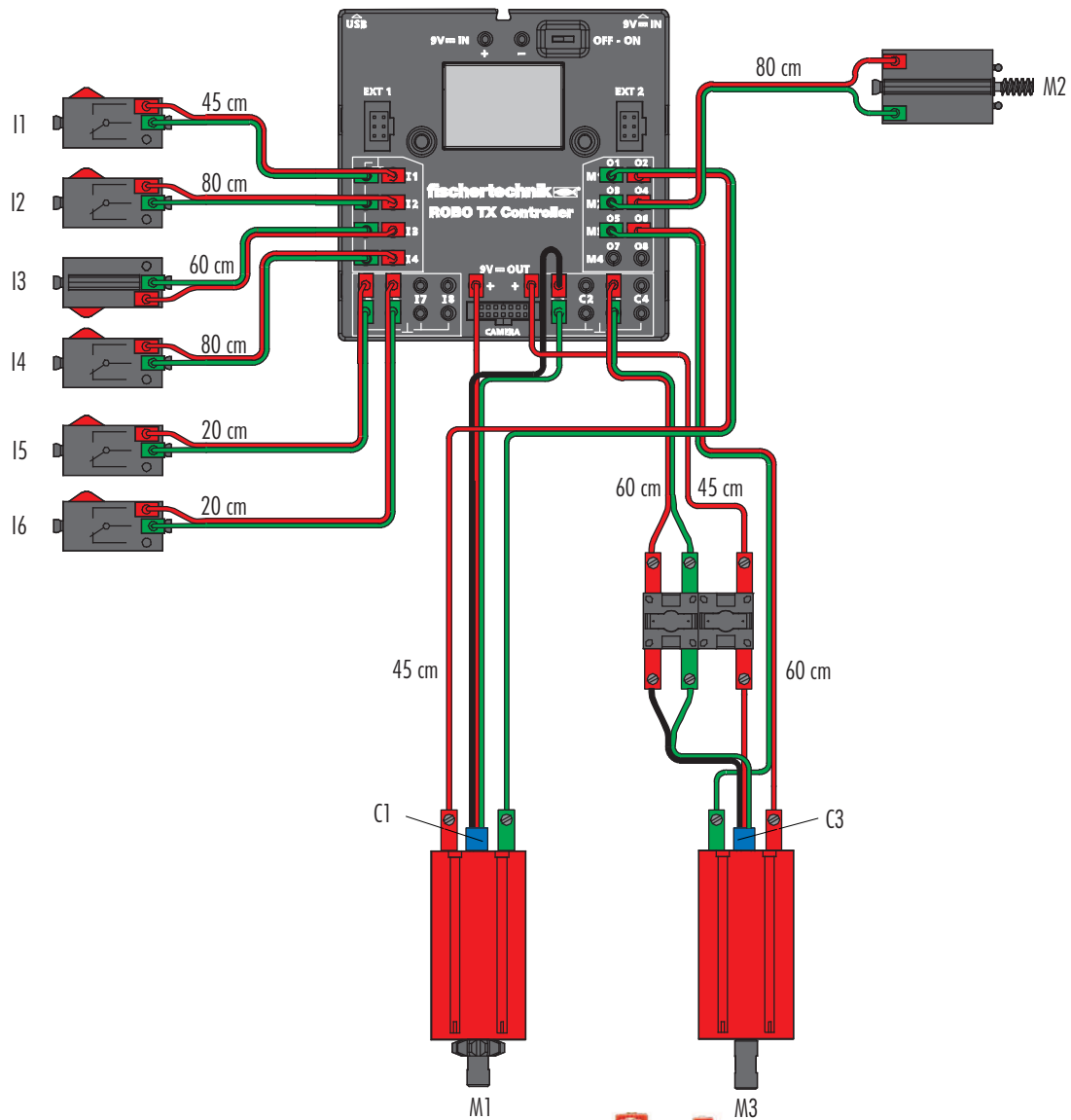
28

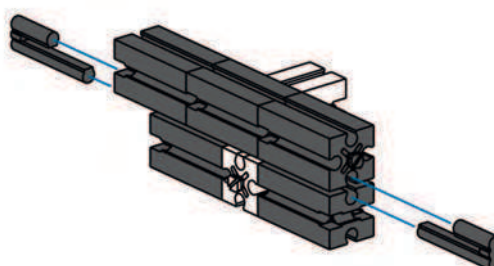
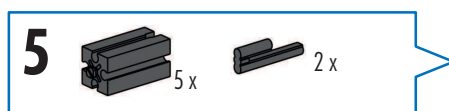
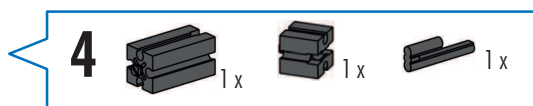
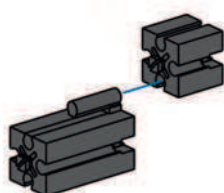
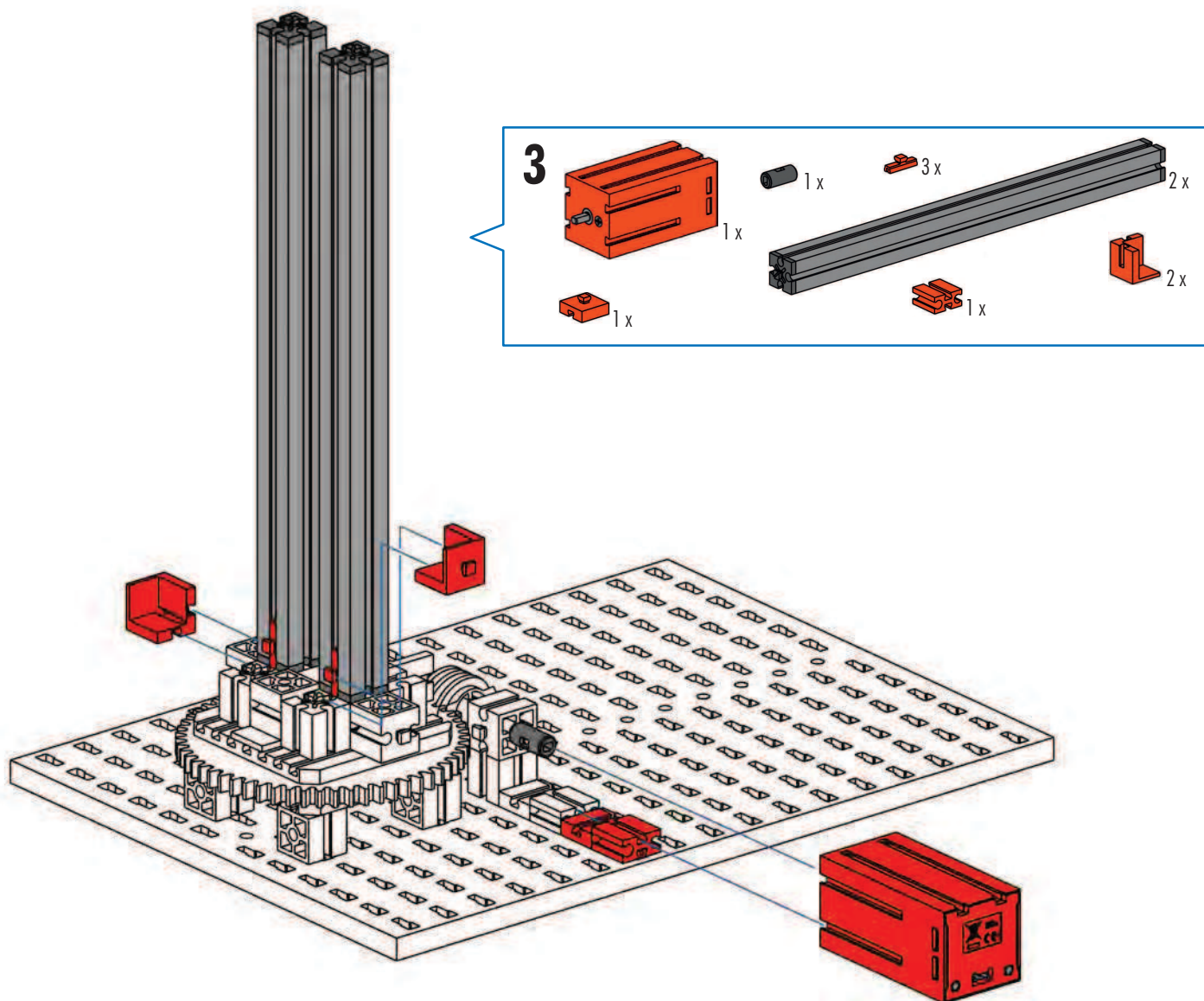


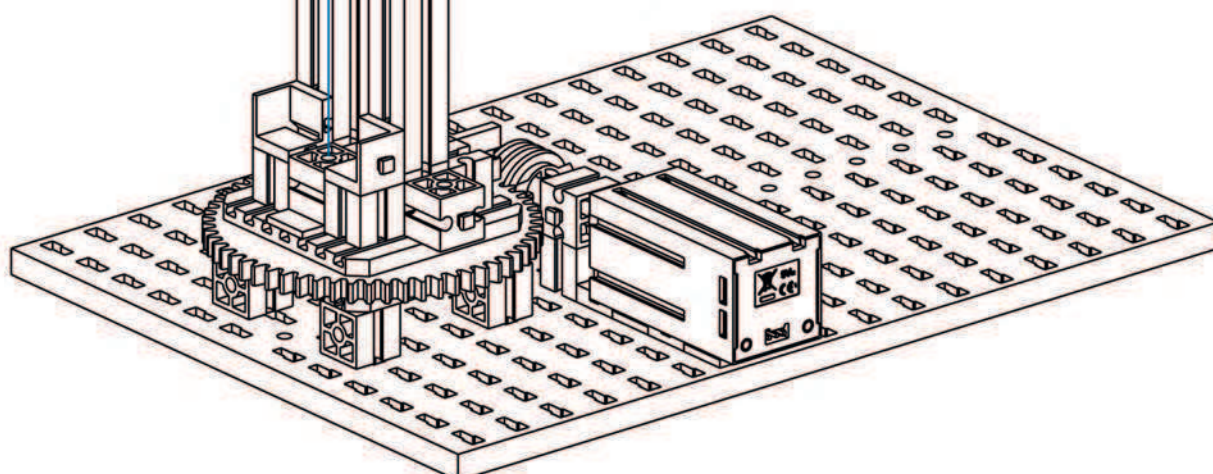
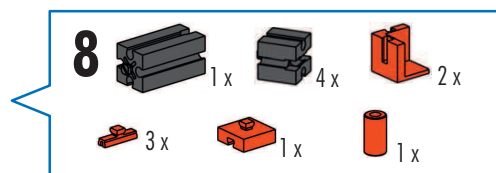
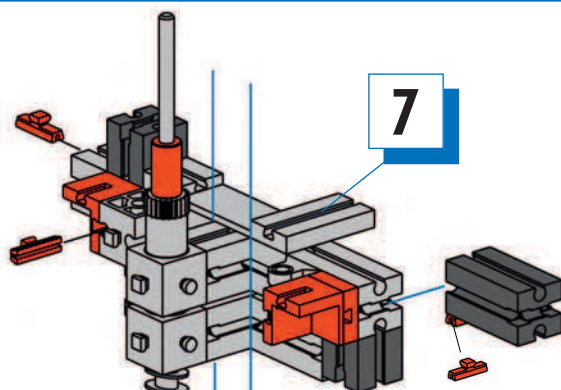
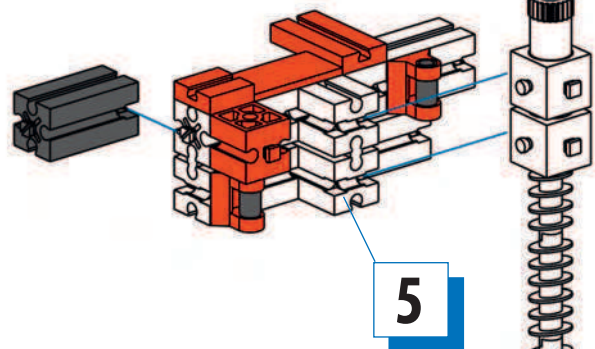
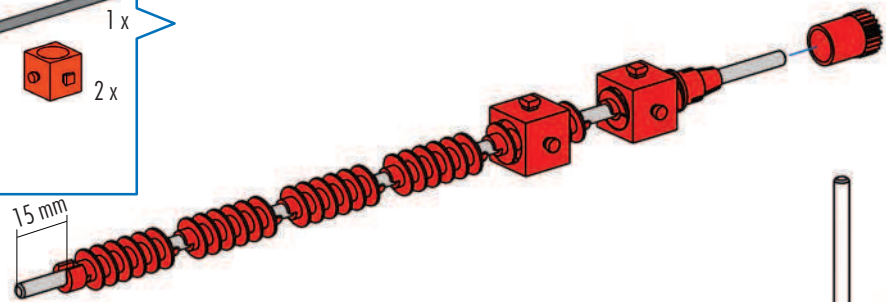
29







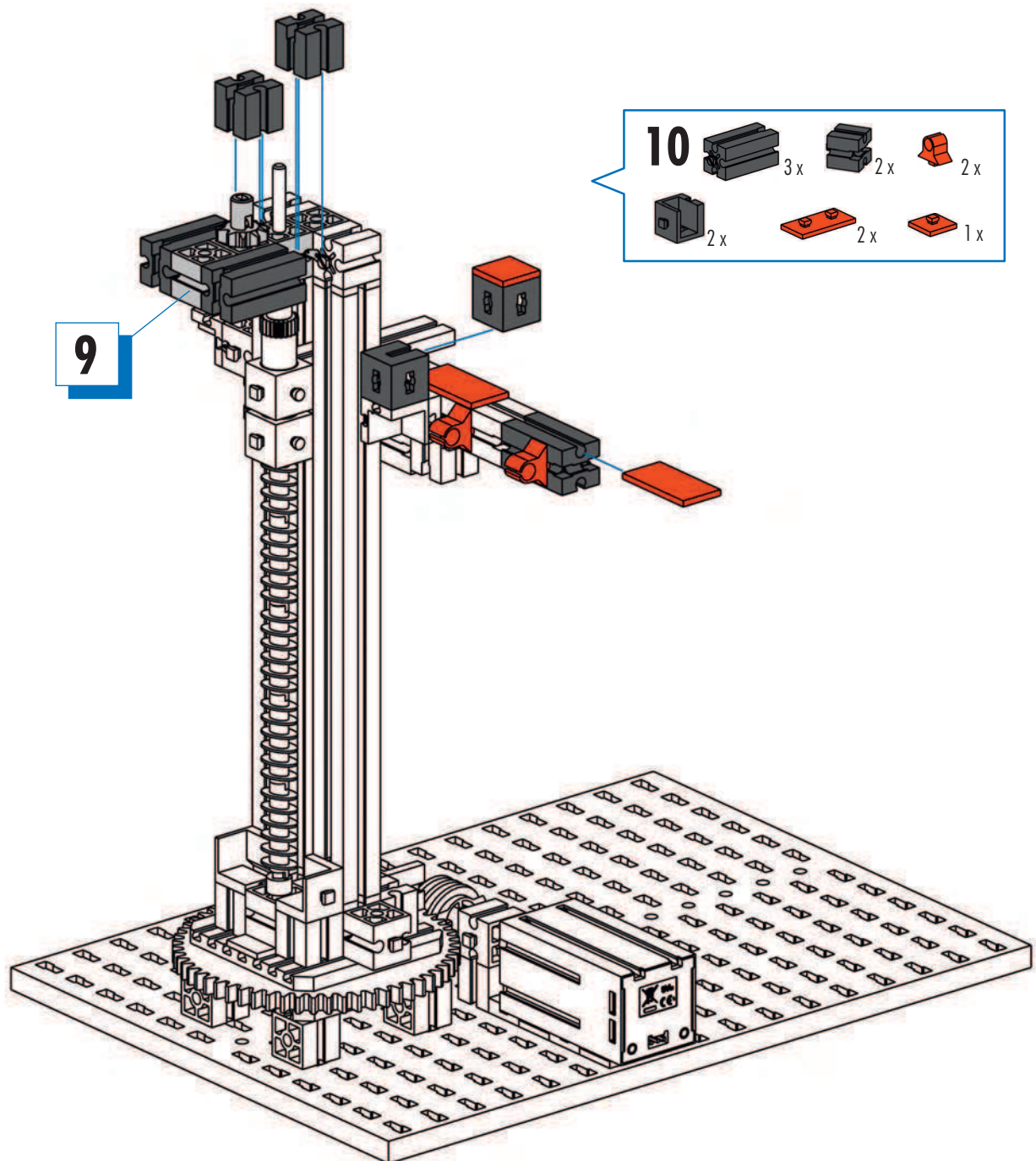
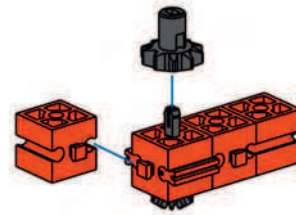


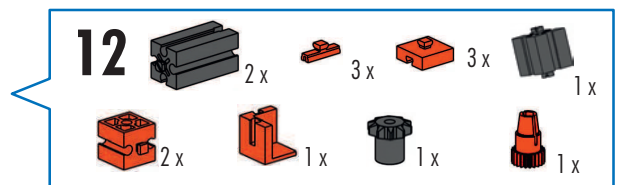
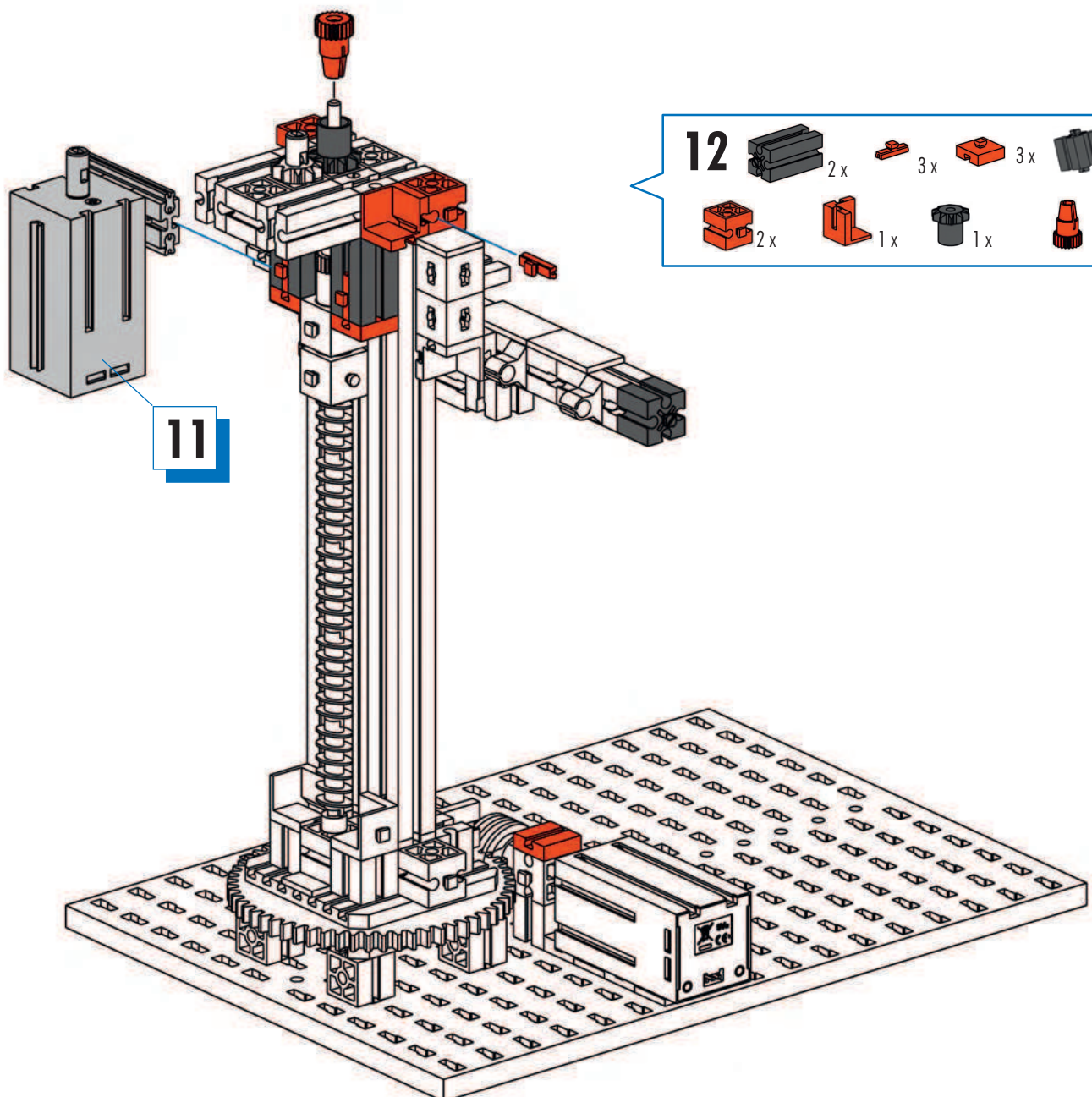
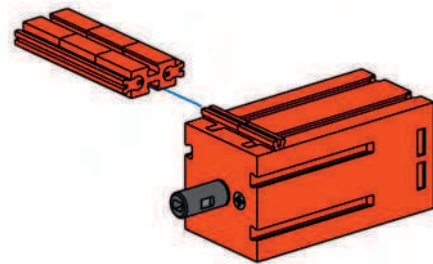
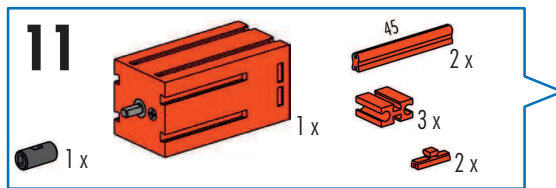


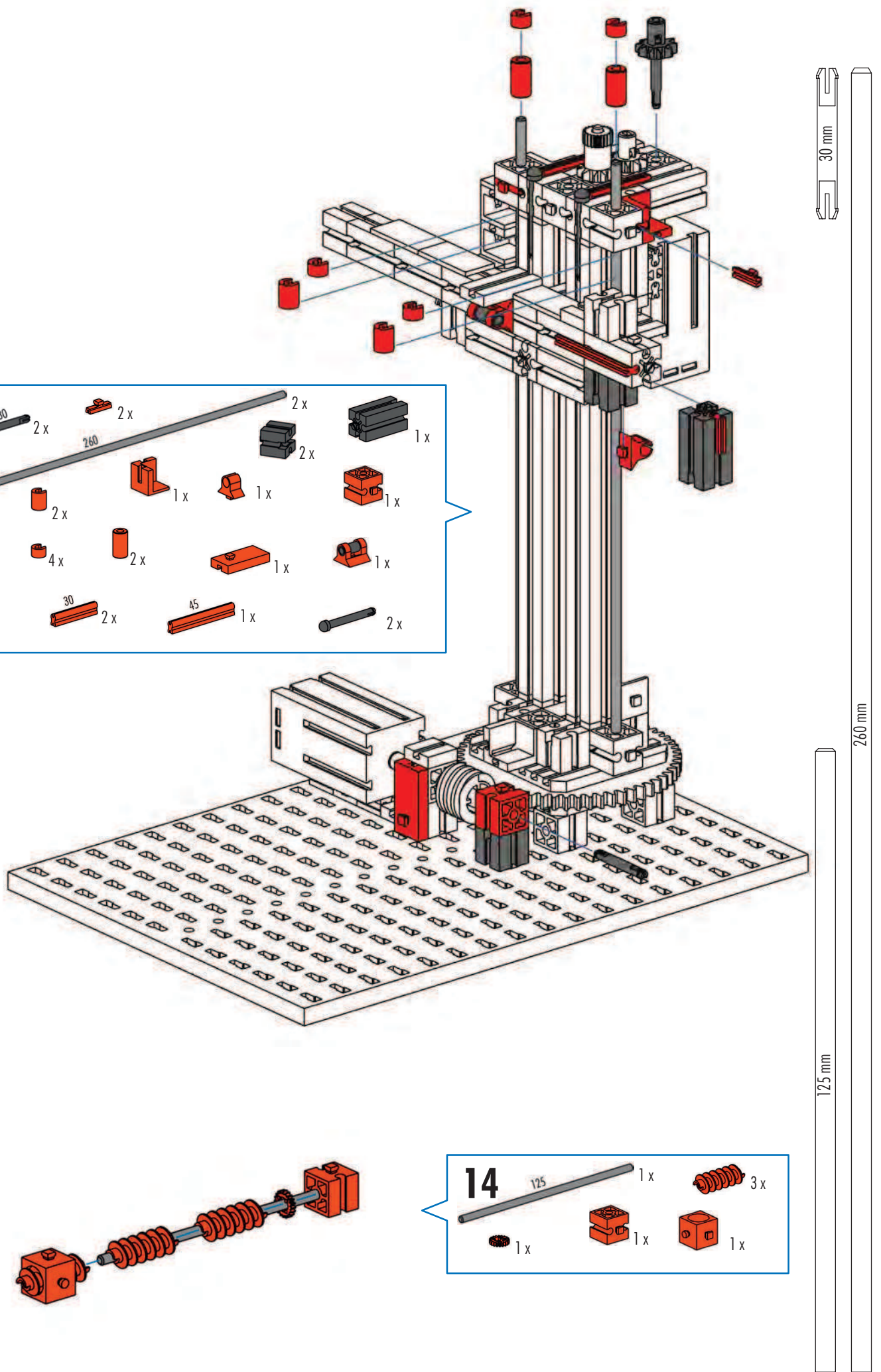
29

9

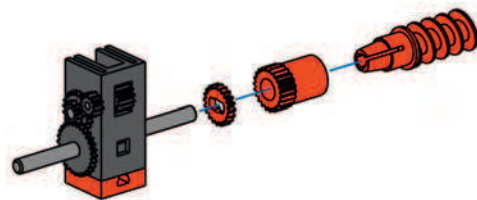
- 4x
- 1x
- 1x
- 15 2x



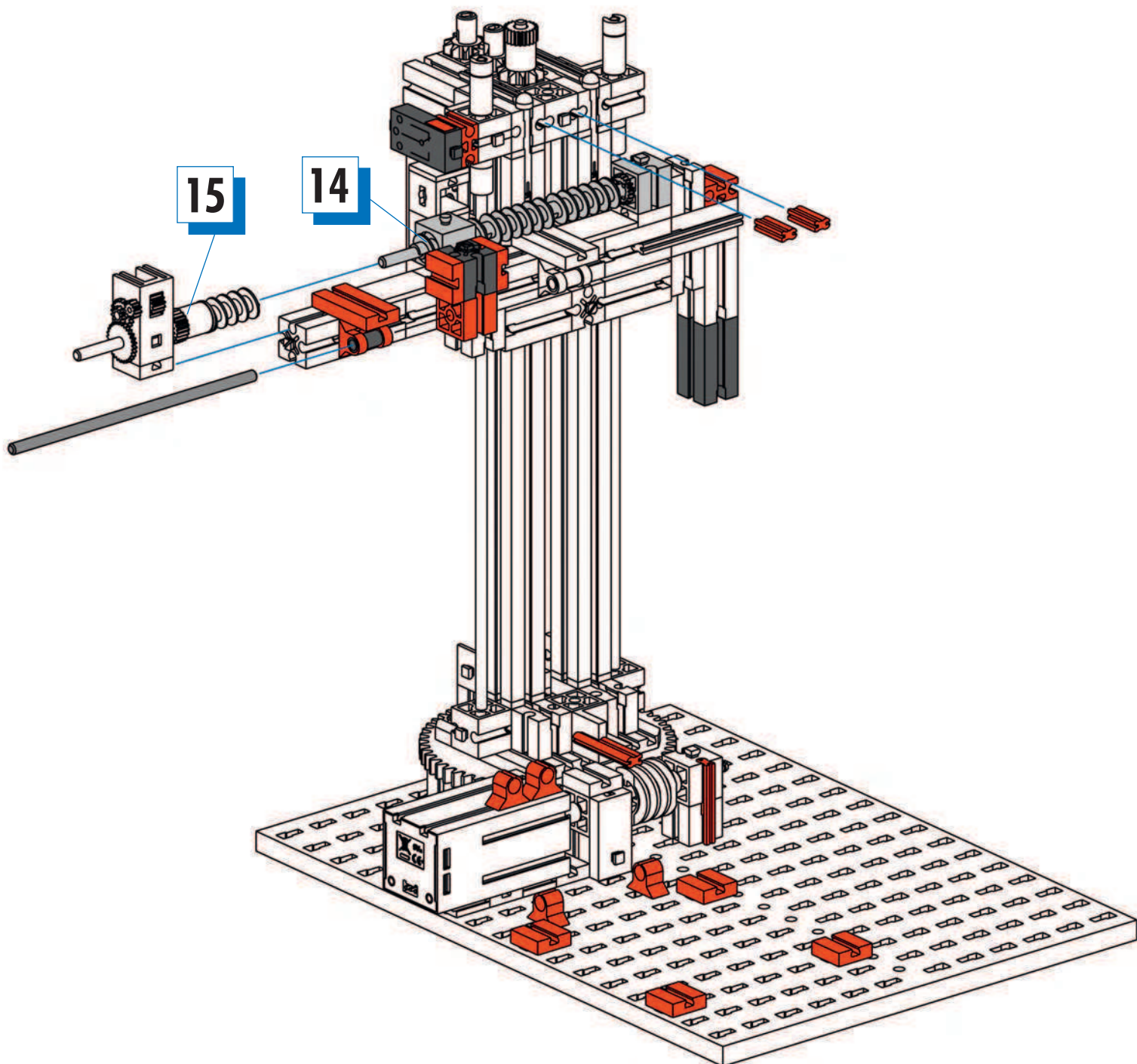
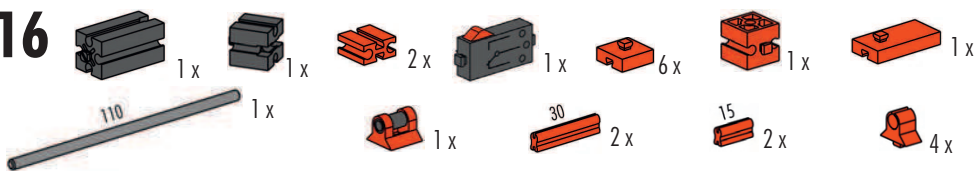




15

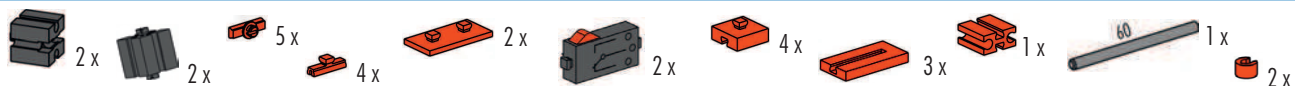


16

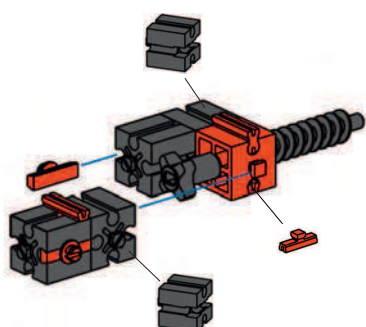
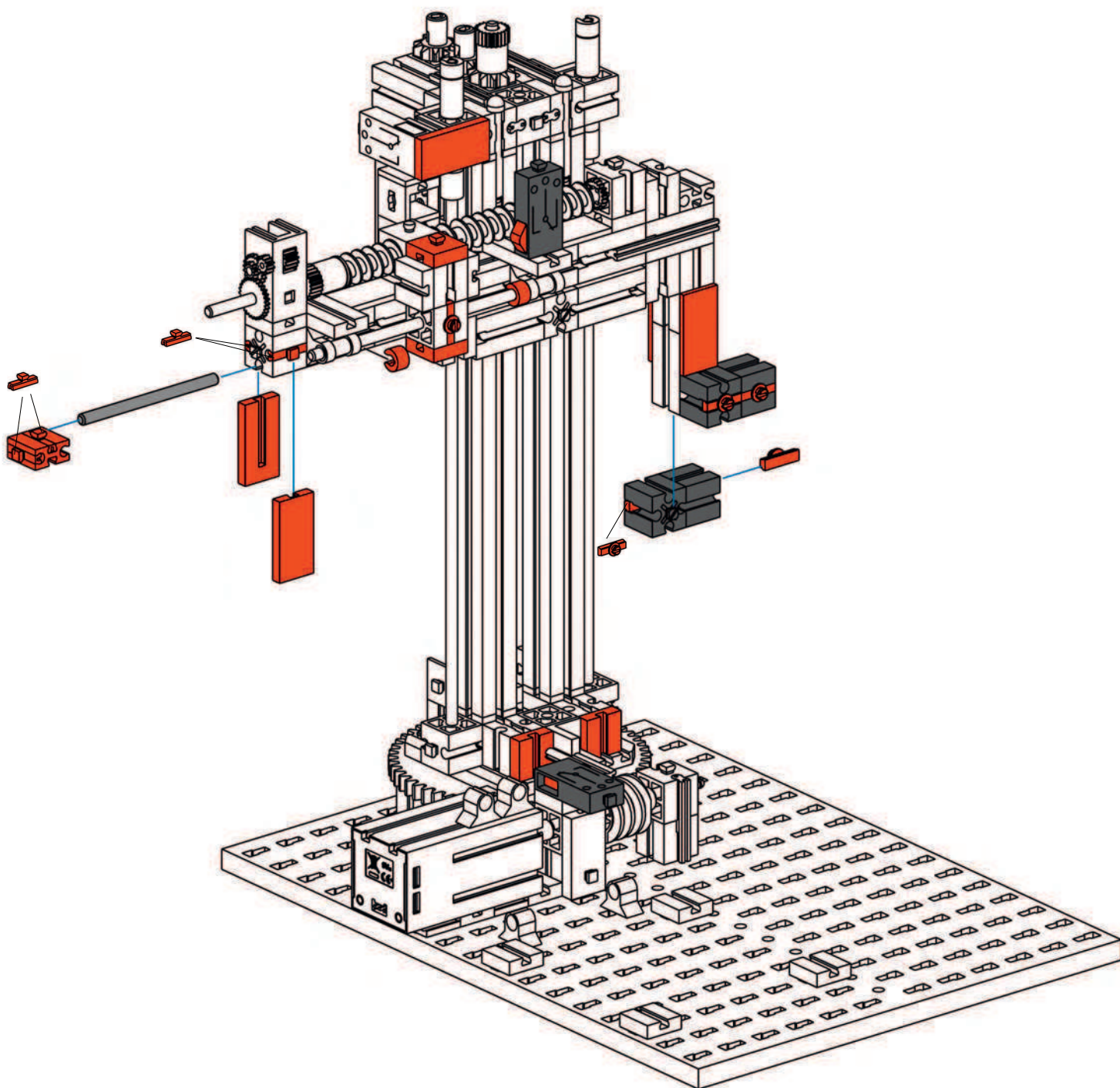


110 mm

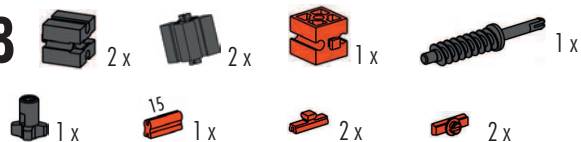
17

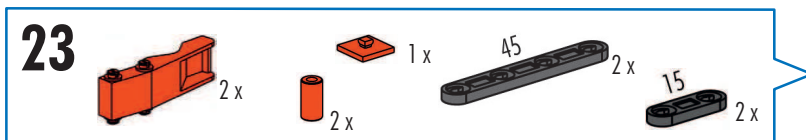
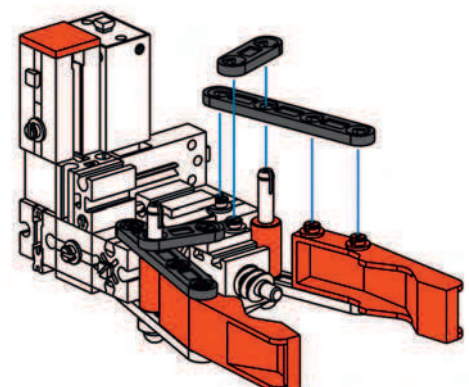
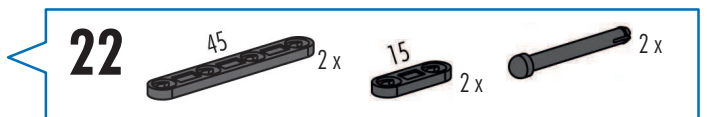
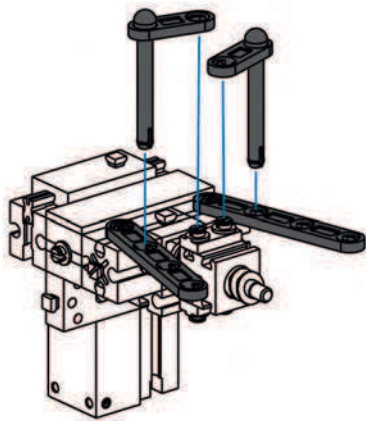
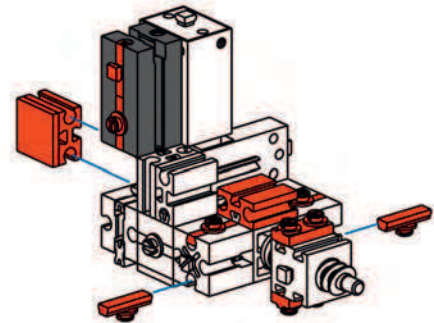
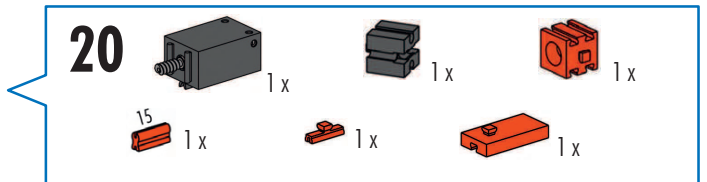
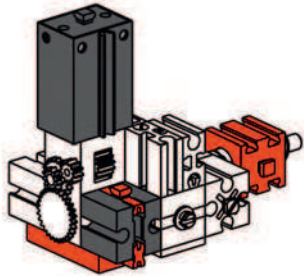
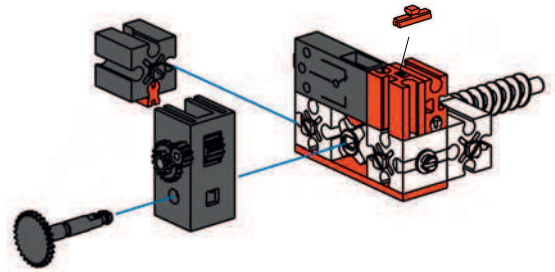
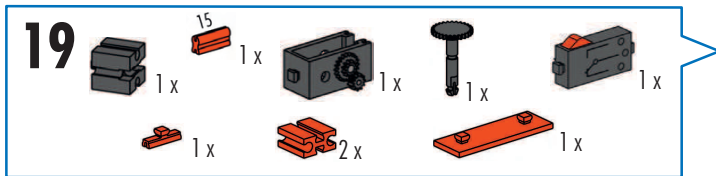


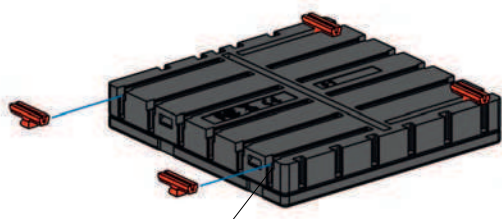
60 mm



18

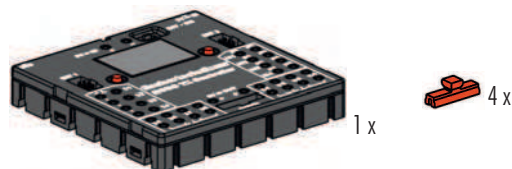






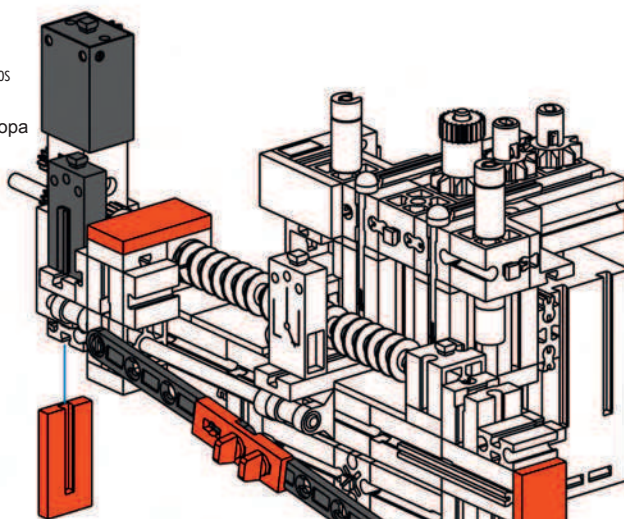
- ROBO TX Controller (Art.-Nr. 500 995) nicht im Baukasten enthalten
- ROBO TX Controller (Art.-Nr. 500 995) not included in the modular kit
- ROBO TX Controller (Art.-Nr. 500 995) n'est pas contenu dans le kit
- ROBO TX Controller (Art.-Nr. 500 995) niet in de bouwdoos opgenomen
- ROBO TX Controller (Art.-Nr. 500 995) no está incluido en el conjunto
- ROBO TX Controller (Art.-Nr. 500 995) não contido no sistema de construção por blocos
- ROBO TX Controller (Art.-Nr. 500 995) non incluso nella scatola di montaggio
- ROBO TX Controller (Art.-Nr. 500 995) не входит в комплект конструктора
- ROBO TX Controller (Art.-Nr. 500 995) 不包含在组件

24



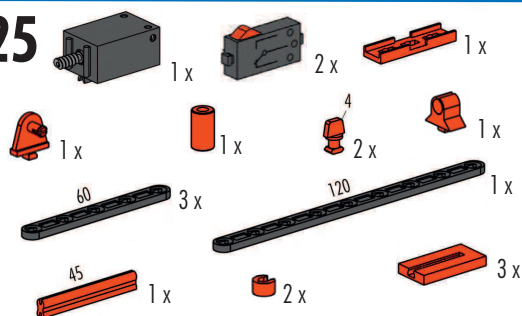
1 x

4 x



23

25



1 x

2 x

1 x

1 x

1 x

2 x

1 x

60

3 x

120

1 x

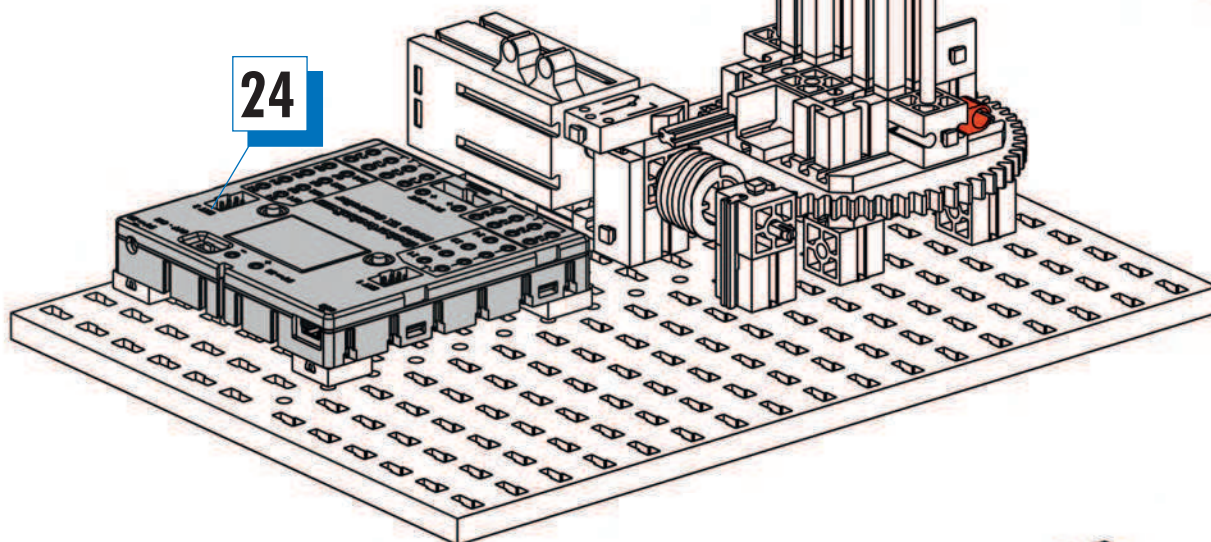
45

1 x

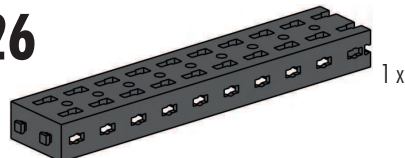
2 x

3 x

24

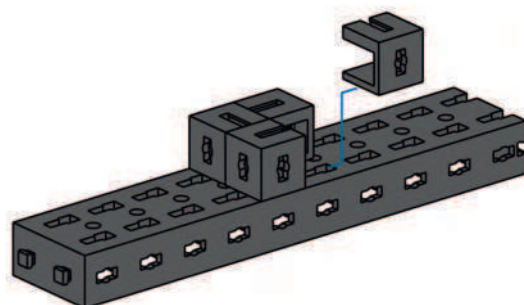


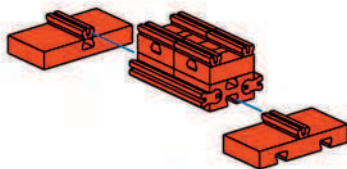
26



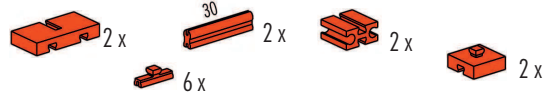
1 x

4 x

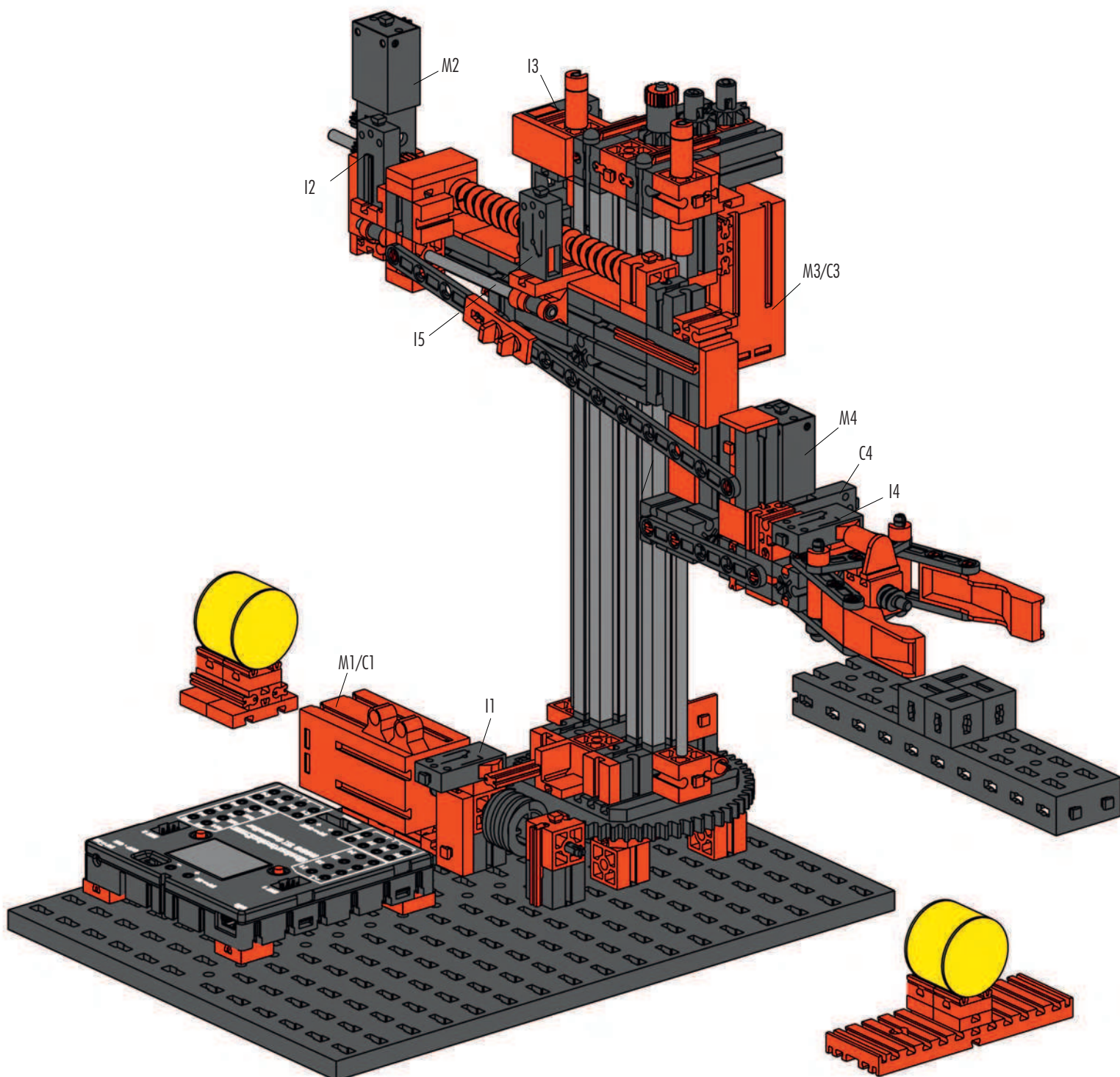
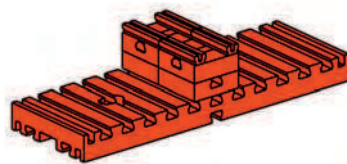
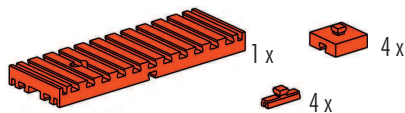




27



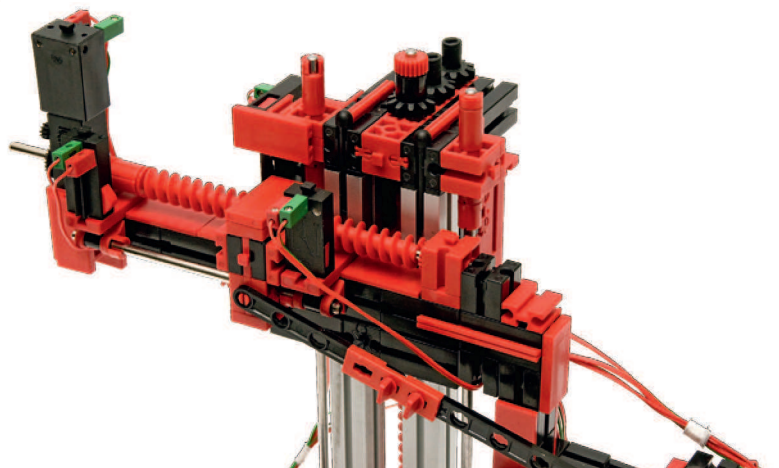
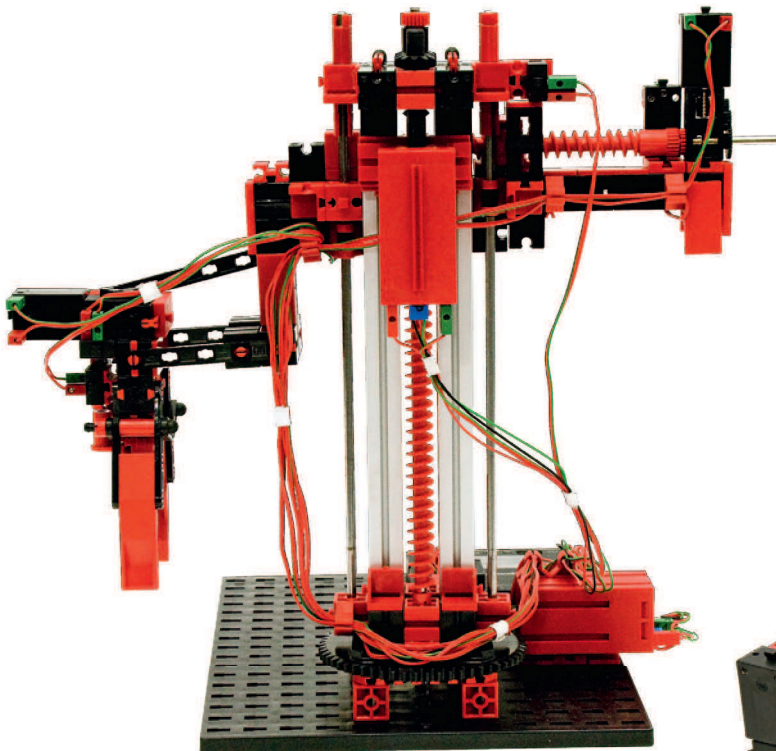
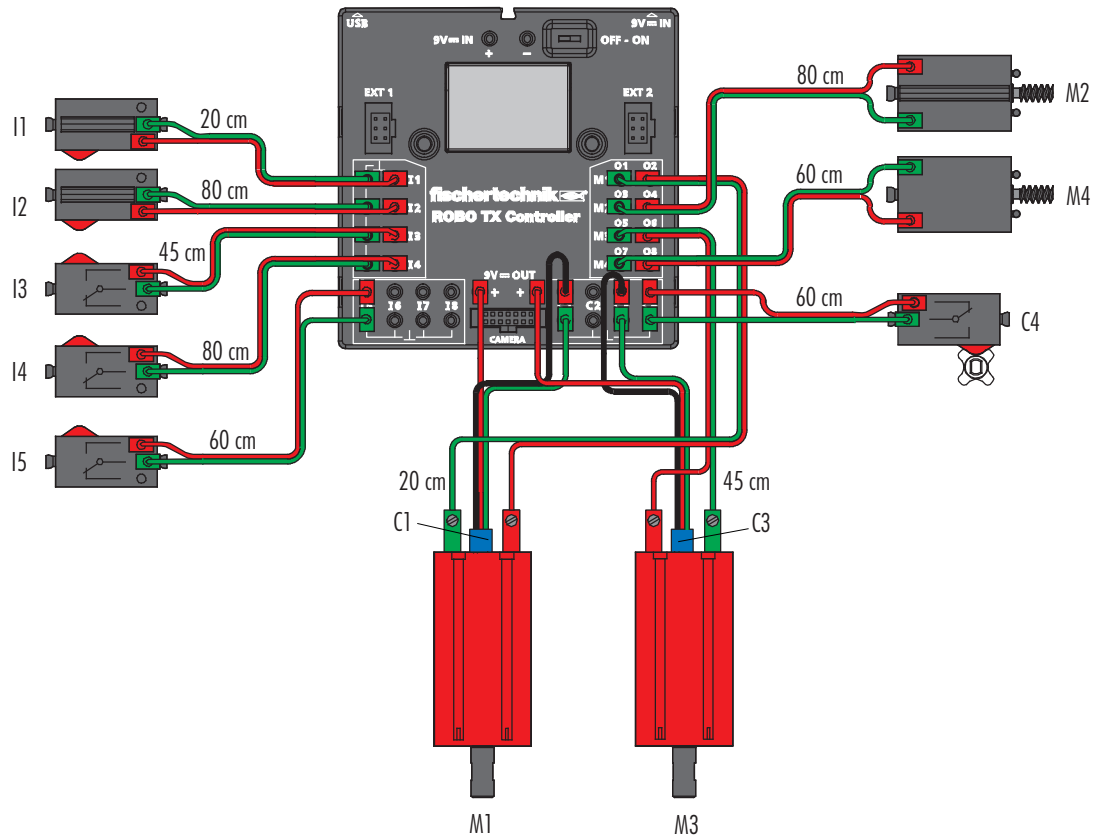
28

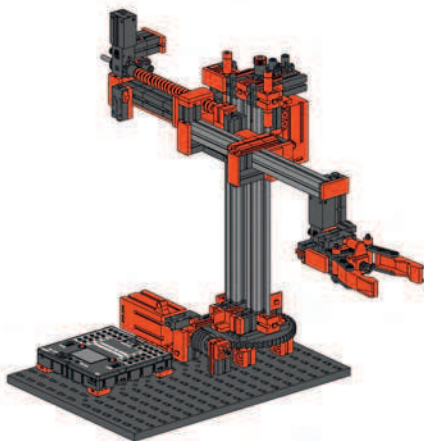


Schaltplan
Circuit diagram
Plan électrique

Schakelschema
Diagrama de circuitos
Plano elétrico de ligação

Schema elettrico
Схема подключения
电路图

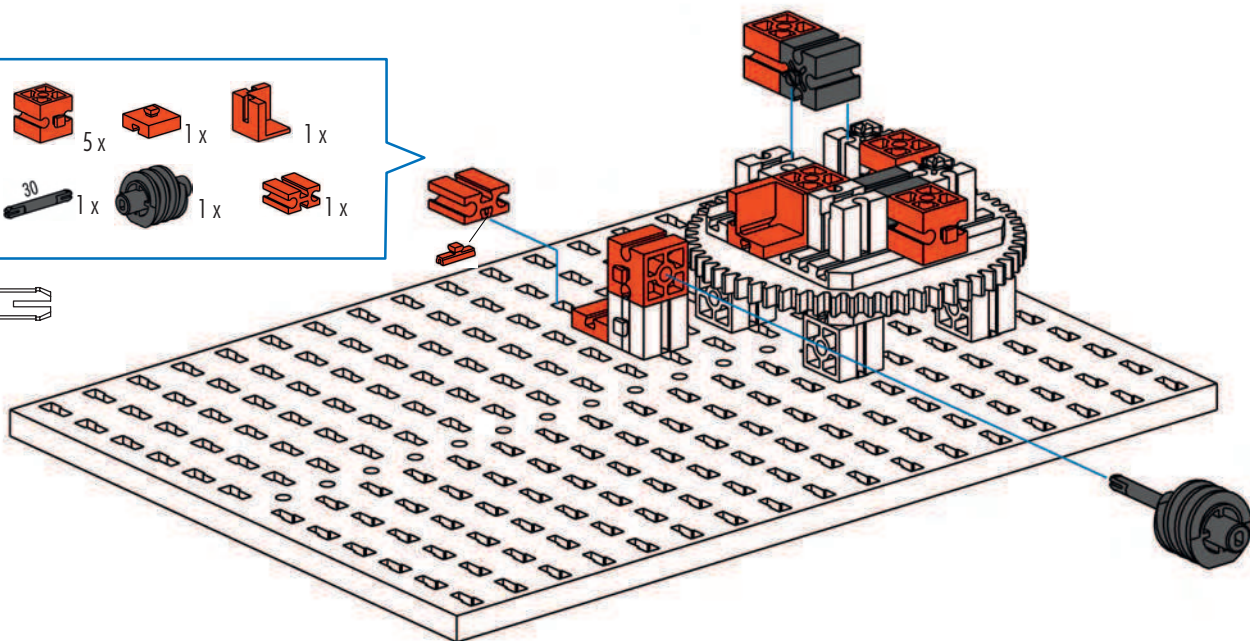
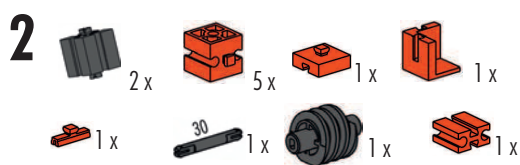
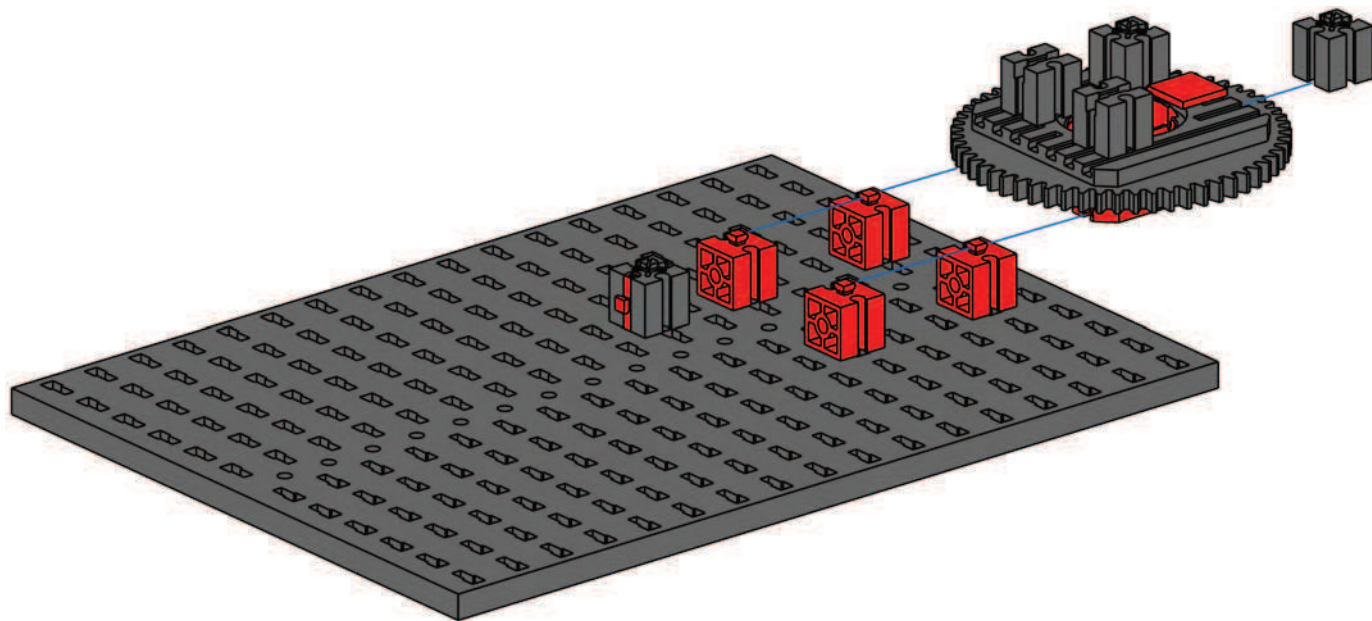
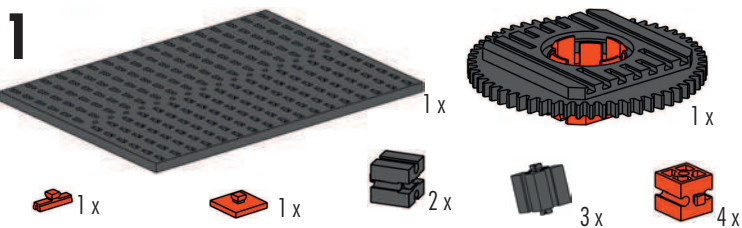


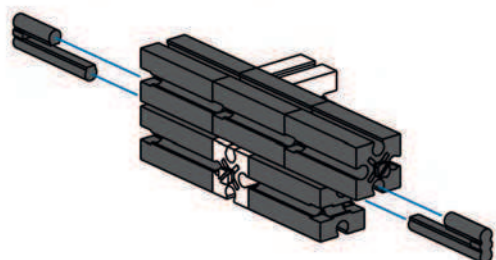
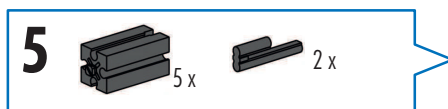
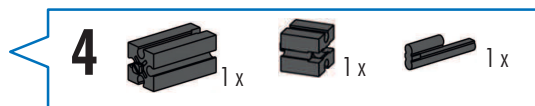
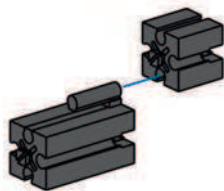
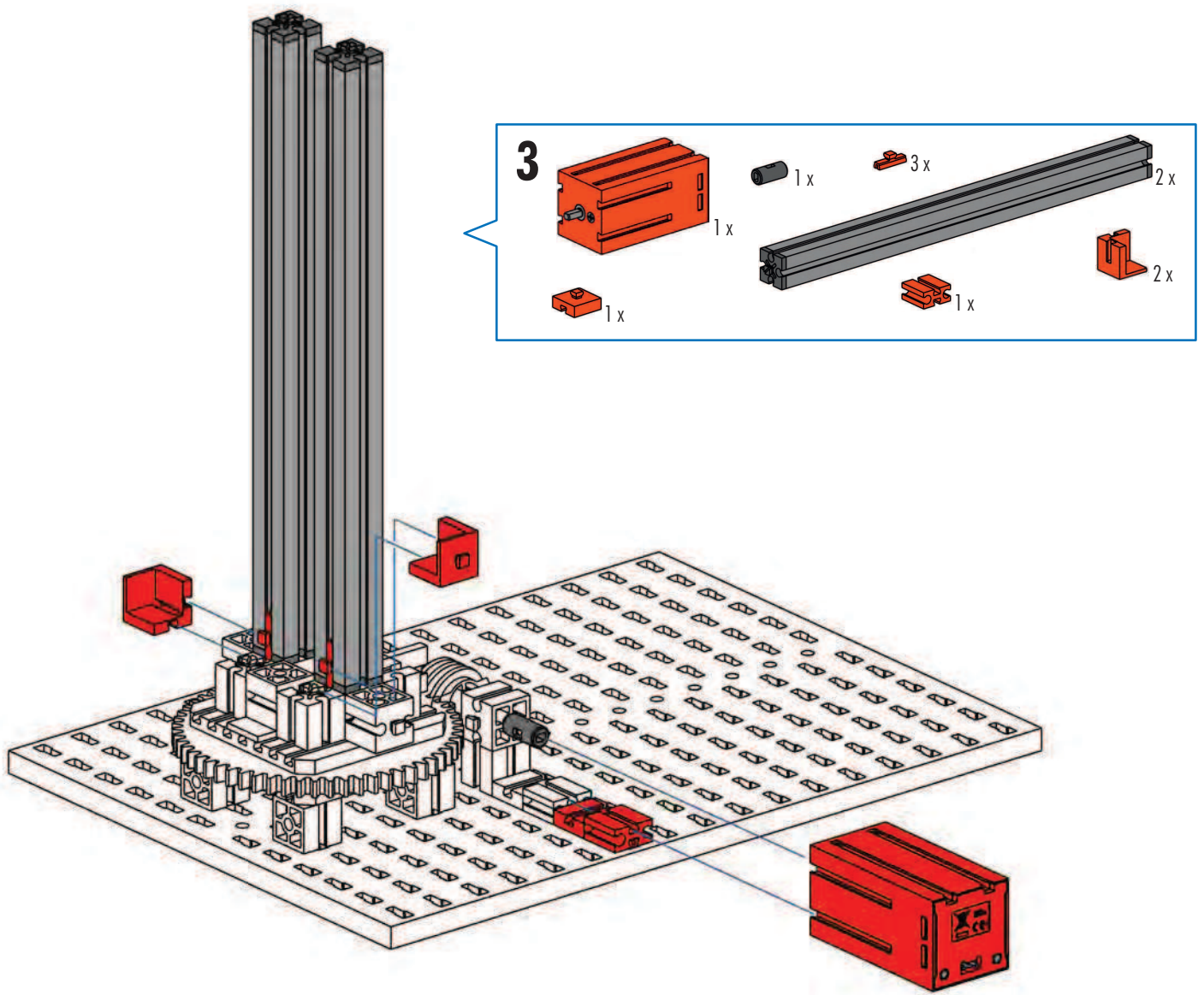


3-Achs-Roboter
3-axis robot
Robot à 3 axes

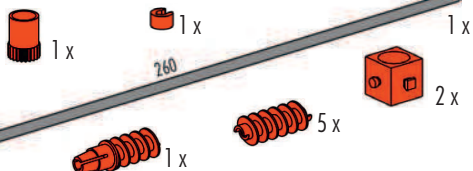
3-assige robot
Robot de 3 ejes
Robô de 3 eixos

Robot a 3 assi
Трёхосный робот
3 轴机器人





6



15 mm

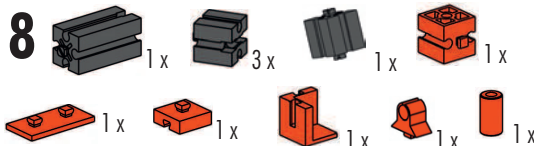
7



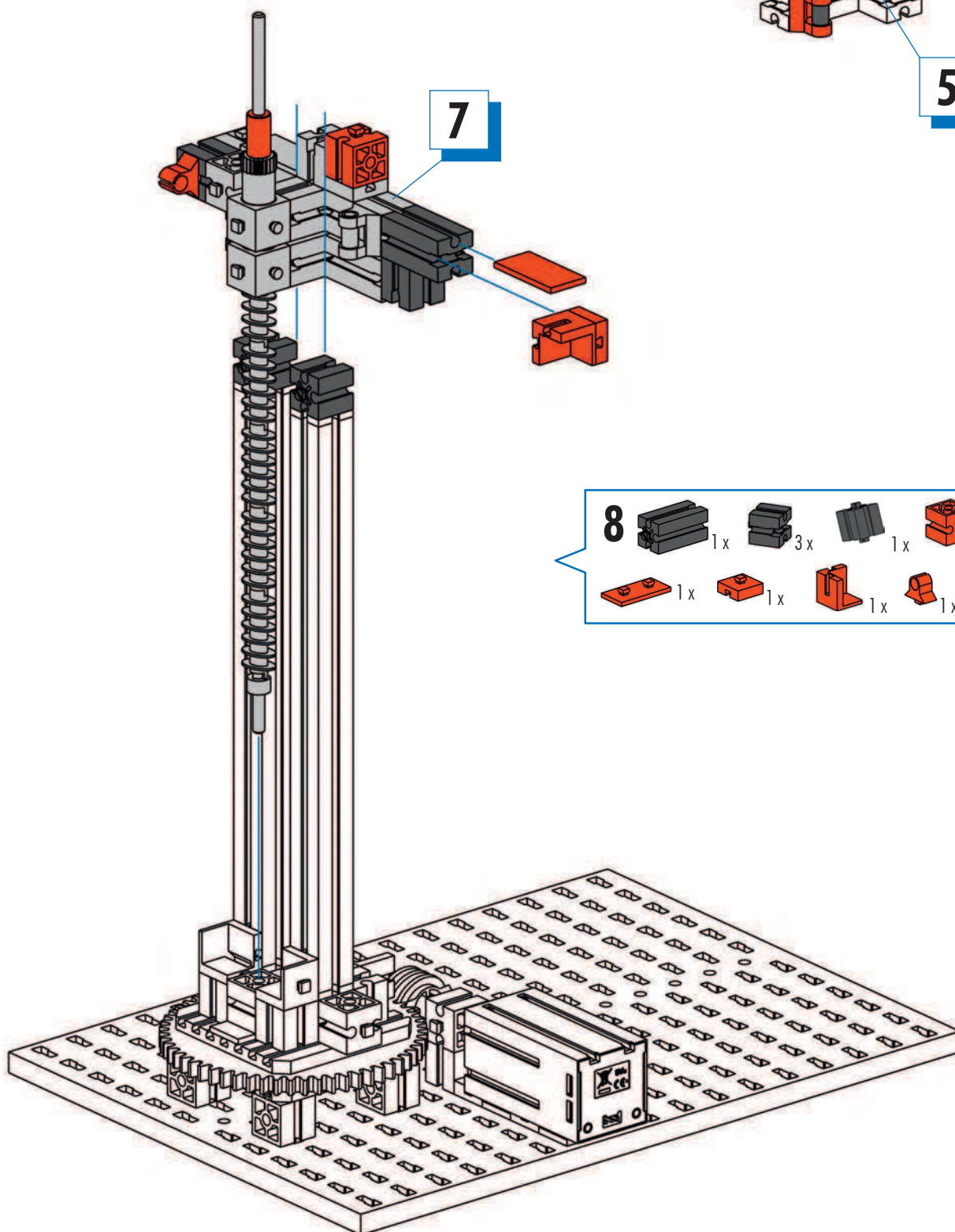
5

7

8

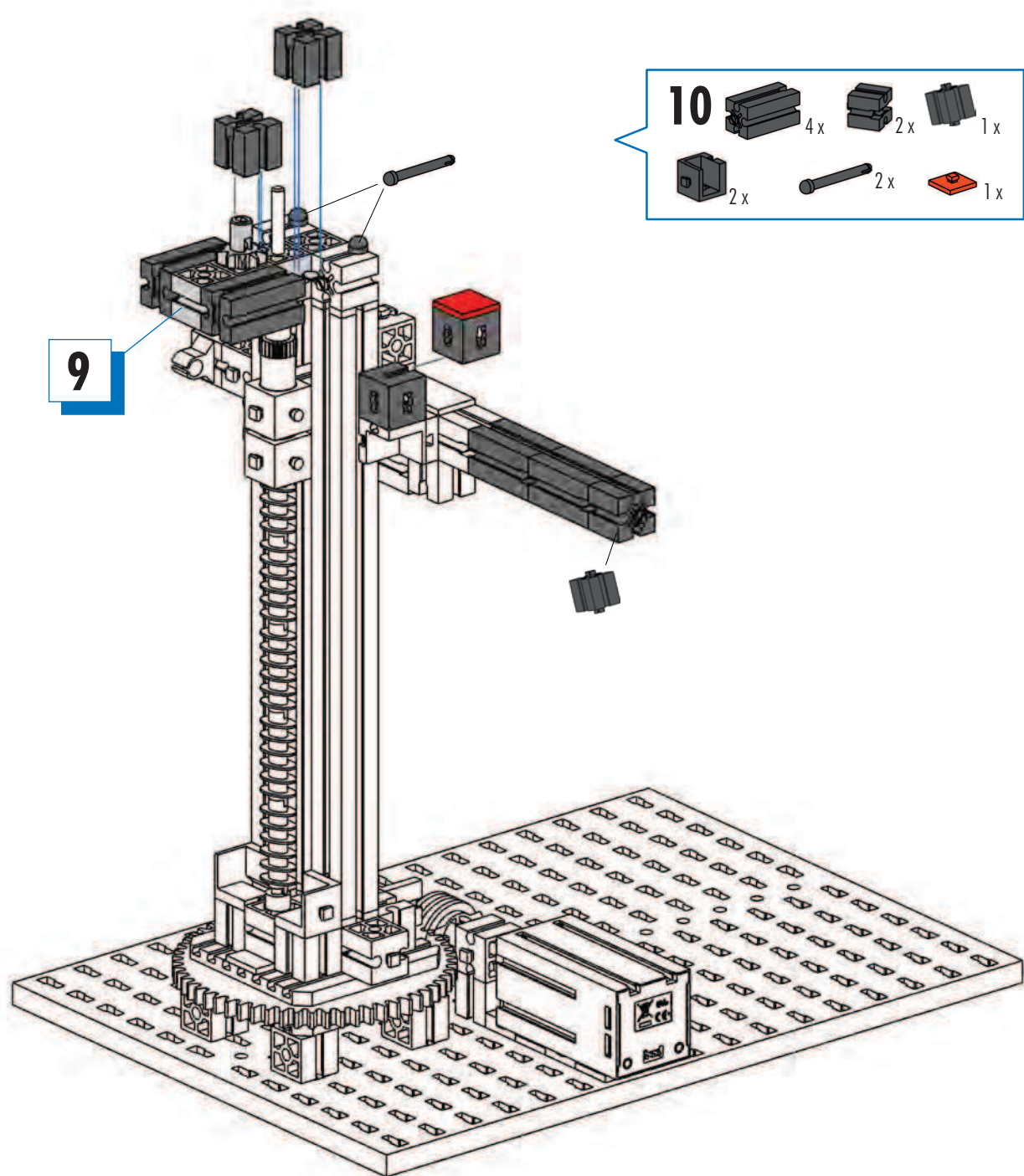
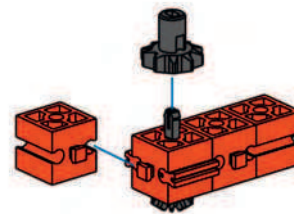


260 mm



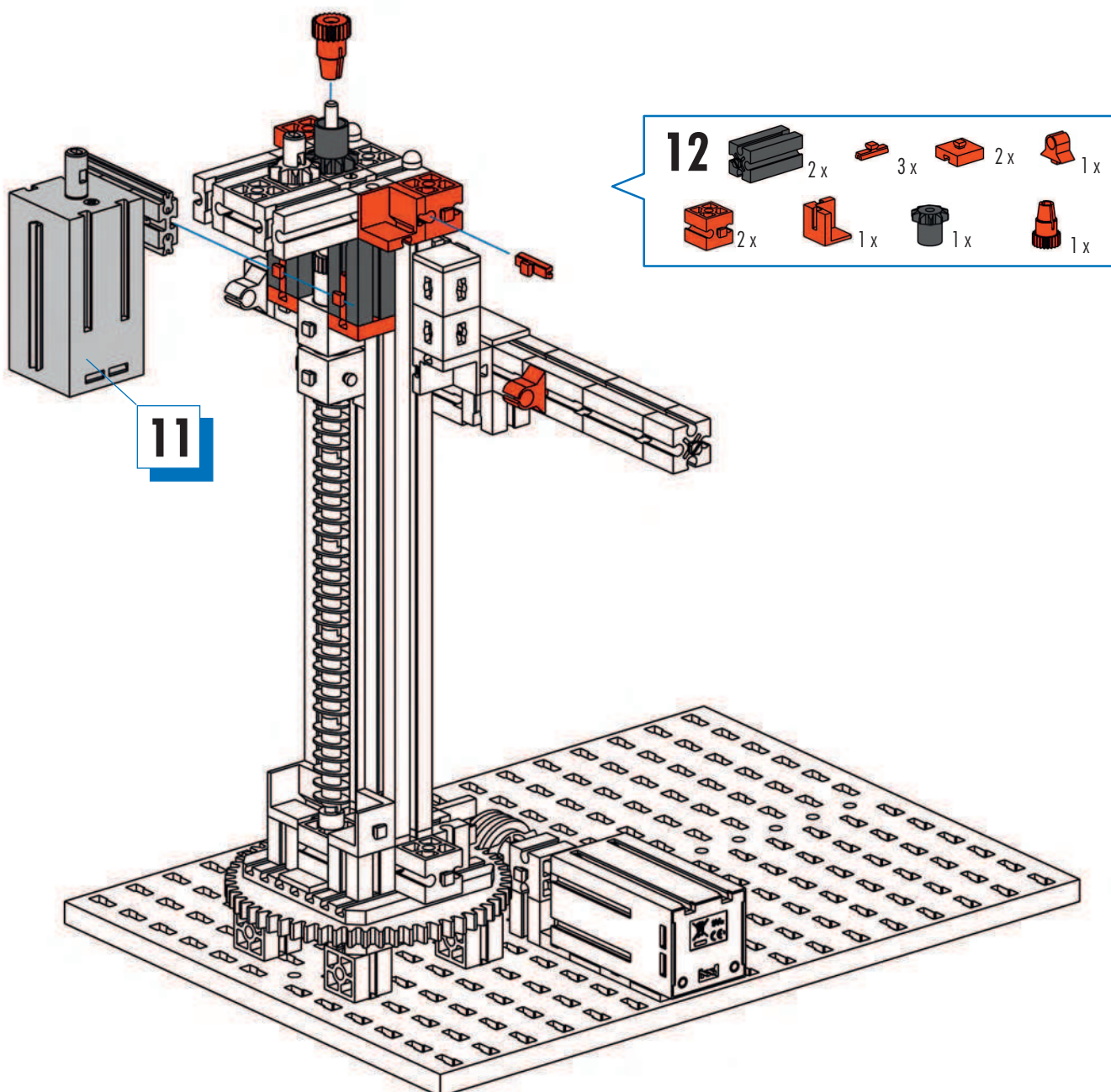
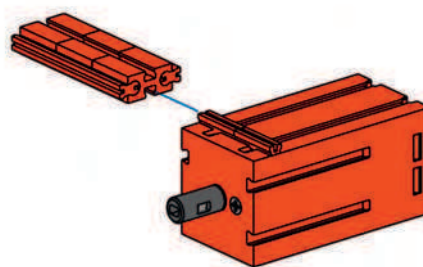
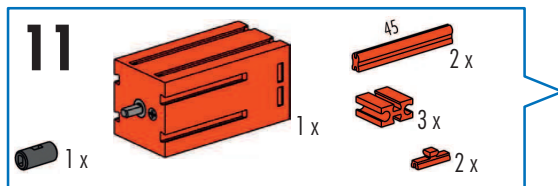
9

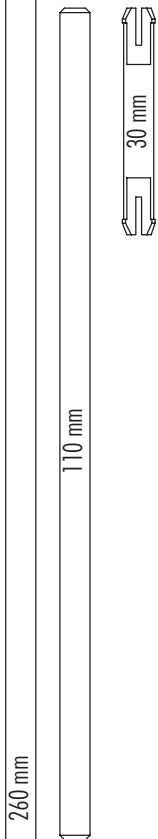
- 4x
- 1x
- 1x
- 15 2x

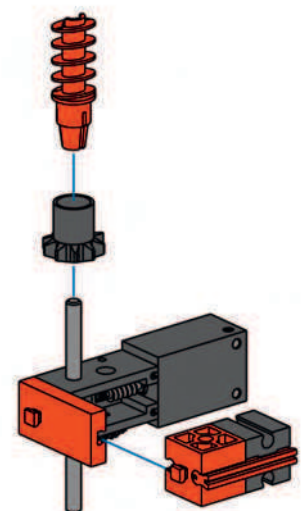
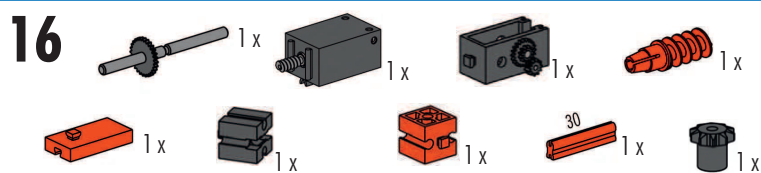
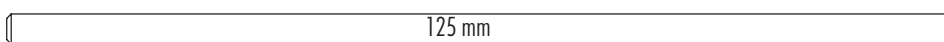
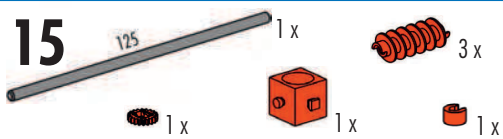
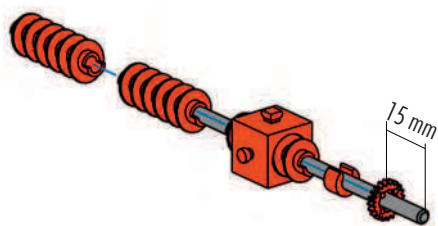
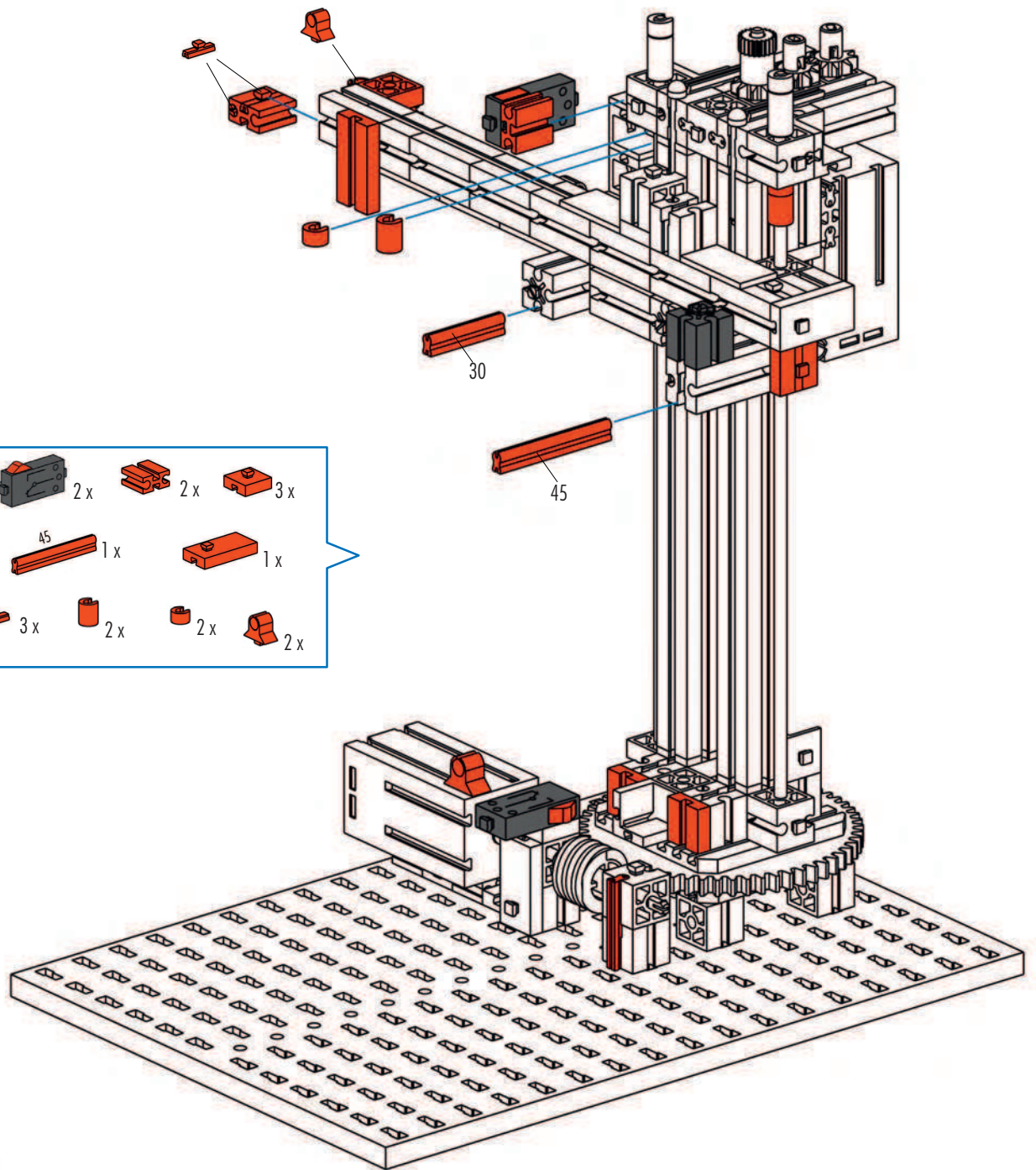


10

- 4x
- 2x
- 1x
- 2x
- 2x
- 1x



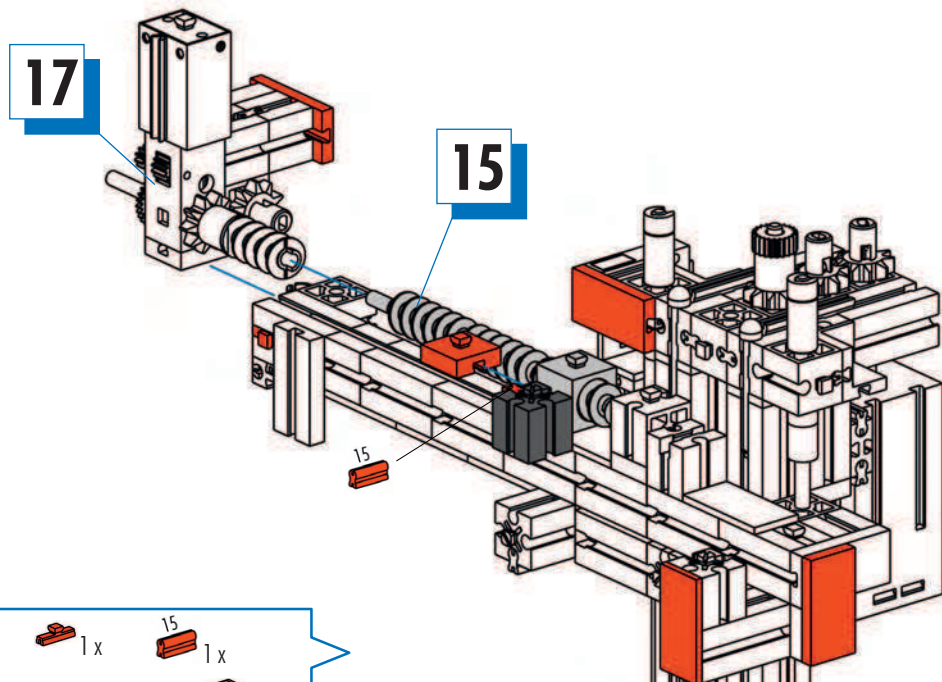
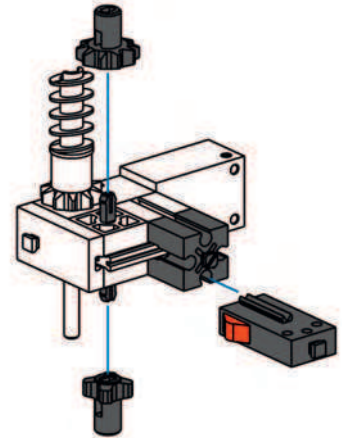
[illegible]



17

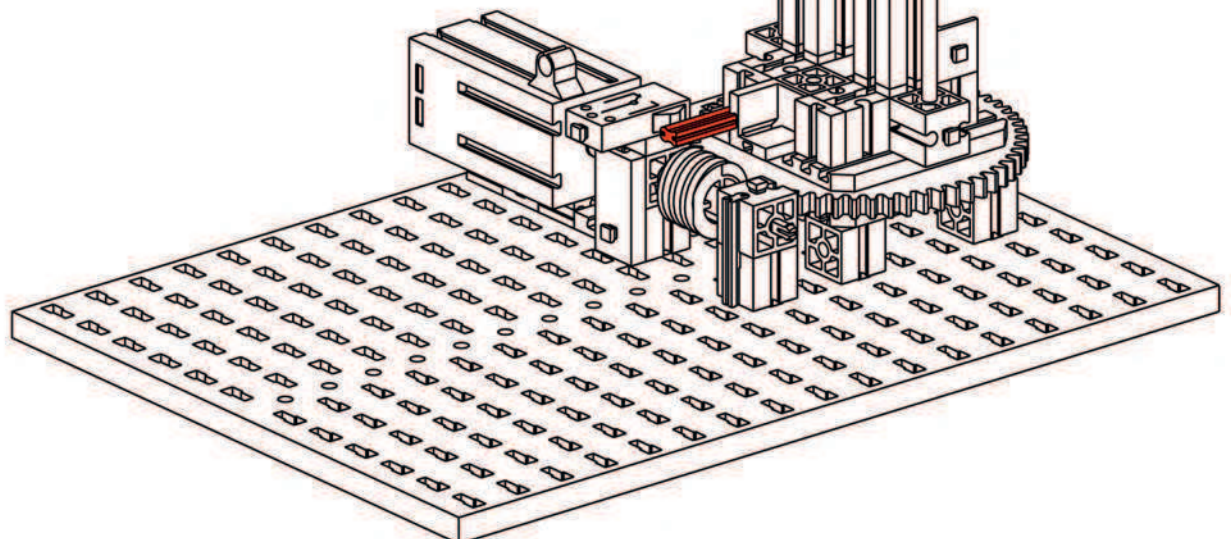
 1x
  1x
  1x
  1x
  30 1x

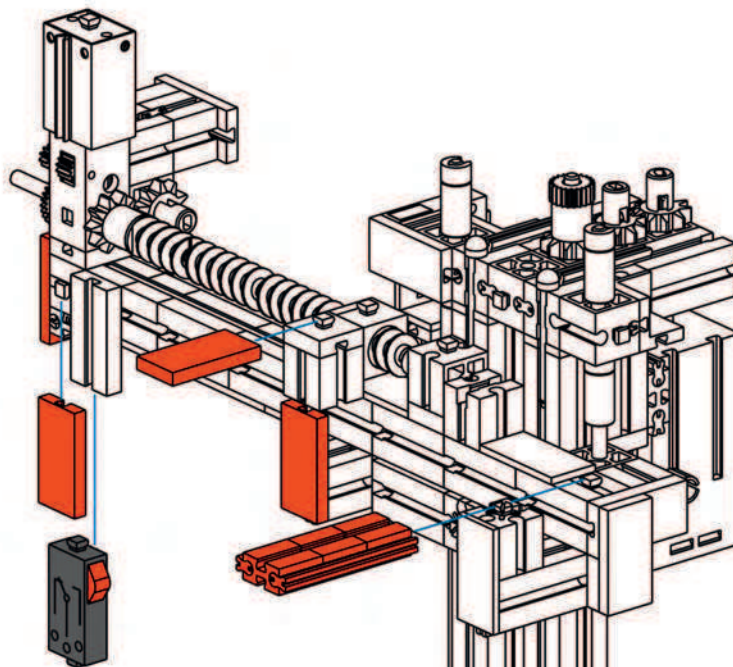
30 mm



18

 1x
  30 1x
  1x
  15 1x
  1x
  1x
  1x





19



1 x



4 x



4 x



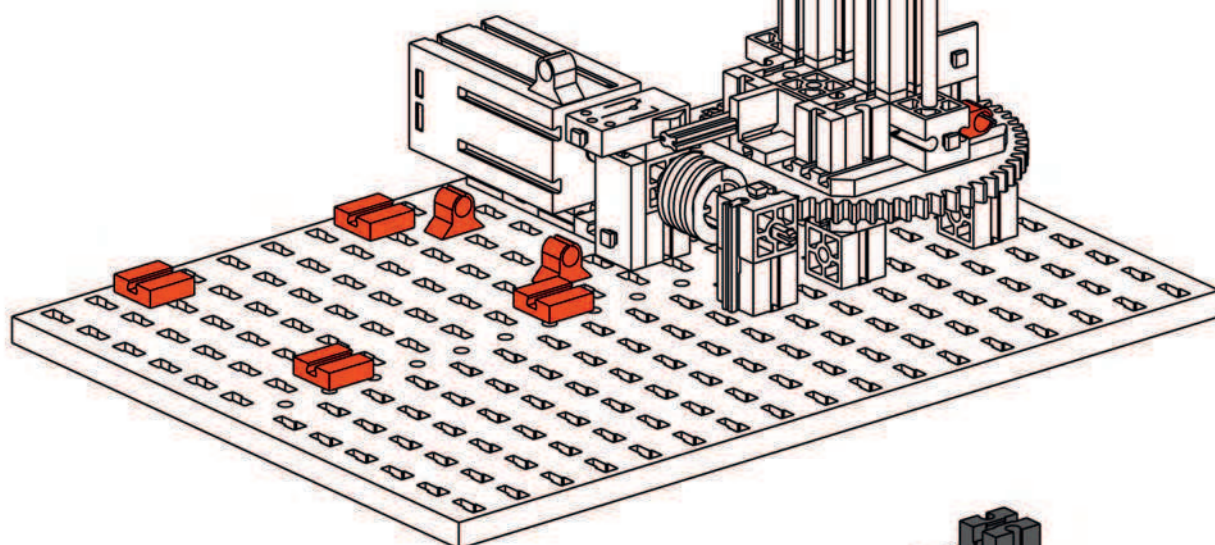
2 x



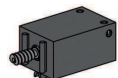
3 x



3 x



20



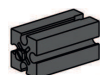
1 x



1 x



1 x



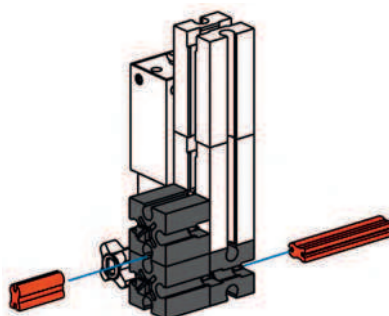
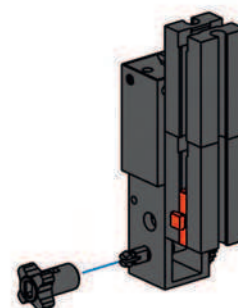
2 x



1 x



1 x



21



2 x



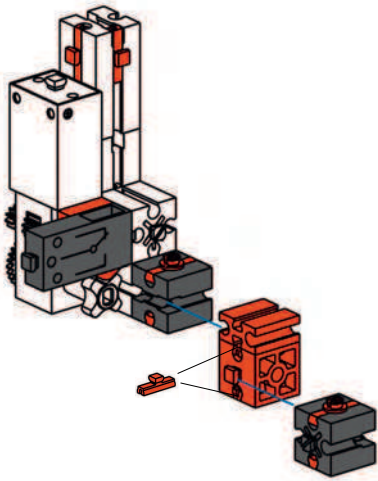
1 x



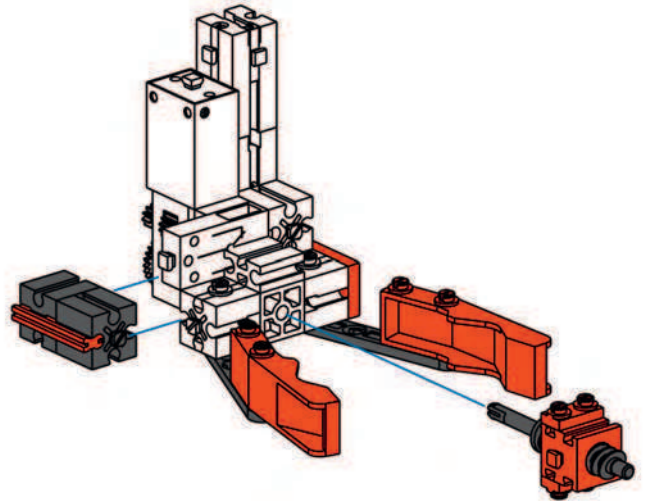
1 x



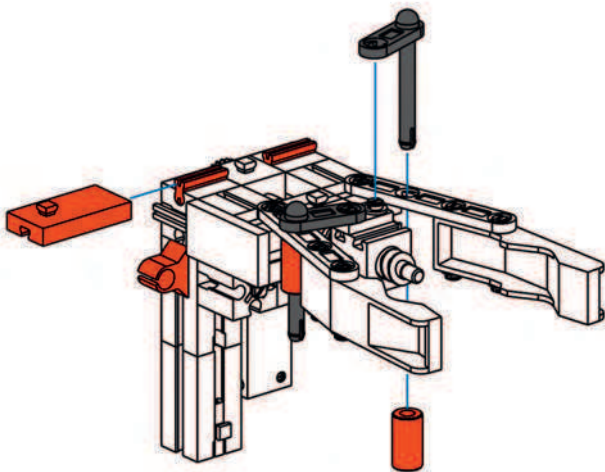
1 x



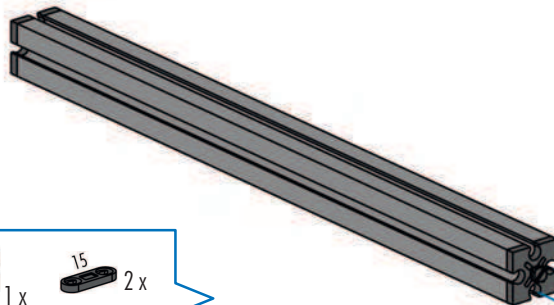
- 22**
- 1 x [Grey 1x3 Technic Beam]
 - 2 x [Grey 1x2 Technic Beam]
 - 1 x [Red 1x2 Technic Beam]
 - 1 x [Red 1x1 Technic Pin]
 - 1 x [Red 1x2 Technic Beam]
 - 4 x [Red 1x1 Technic Pin]
 - 4 x [Red 1x1 Technic Pin]



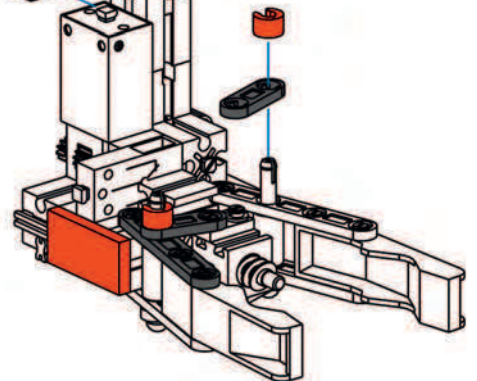
- 23**
- 1 x [Grey 1x2 Technic Beam]
 - 1 x [Grey 1x2 Technic Beam]
 - 1 x [Red 1x3 Technic Beam]
 - 2 x [Red 1x2 Technic Beam]
 - 2 x [Red 1x1 Technic Pin]
 - 1 x [Red 1x2 Technic Beam]
 - 1 x [Red 1x1 Technic Pin]
 - 1 x [Red 1x2 Technic Beam]
 - 2 x [Red 1x1 Technic Pin]
 - 1 x [Red 1x2 Technic Beam]
 - 2 x [Red 1x1 Technic Pin]

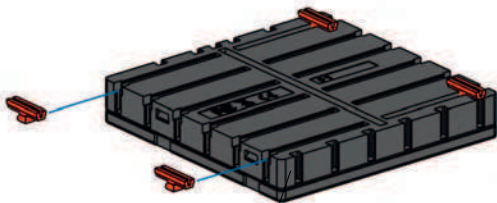


- 24**
- 1 x [Red 1x2 Technic Beam]
 - 2 x [Red 1x1 Technic Pin]
 - 2 x [Red 1x1 Technic Pin]
 - 2 x [Red 1x1 Technic Pin]
 - 2 x [Red 1x1 Technic Pin]
 - 1 x [Red 1x1 Technic Pin]

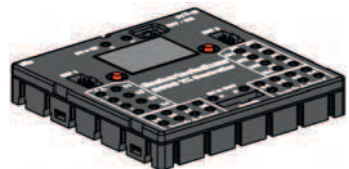


- 25**
- 1 x [Red 1x2 Technic Beam]
 - 1 x [Red 1x2 Technic Beam]
 - 2 x [Red 1x1 Technic Pin]
 - 2 x [Red 1x1 Technic Pin]
 - 2 x [Red 1x1 Technic Pin]
 - 2 x [Red 1x1 Technic Pin]





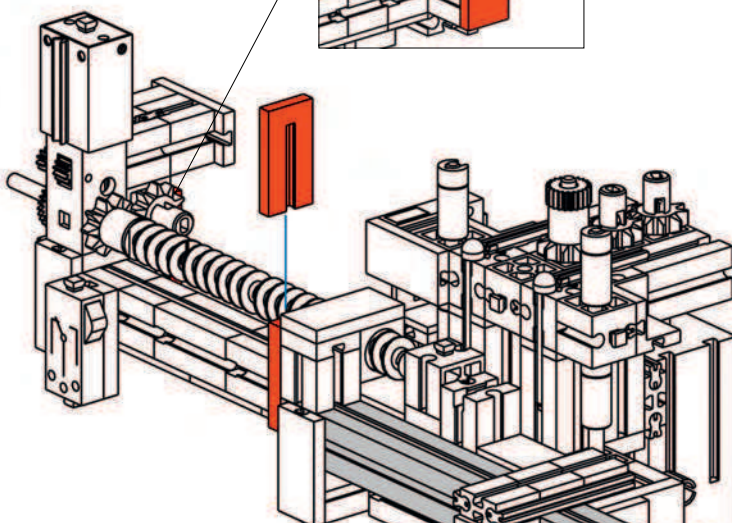
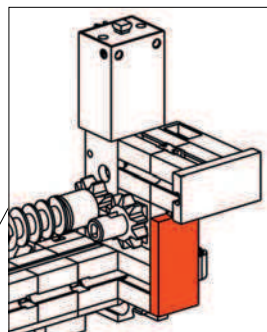
26



4 x

1 x

- ROBO TX Controller (Art.-Nr. 500 995) nicht im Baukasten enthalten
- ROBO TX Controller (Art.-Nr. 500 995) not included in the modular kit
- ROBO TX Controller (Art.-Nr. 500 995) n'est pas contenue dans le kit
- ROBO TX Controller (Art.-Nr. 500 995) niet in de bouwdoos opgenomen
- ROBO TX Controller (Art.-Nr. 500 995) no está incluido en el conjunto
- ROBO TX Controller (Art.-Nr. 500 995) não contido no sistema de construção por blocos
- ROBO TX Controller (Art.-Nr. 500 995) non incluso nella scatola di montaggio
- ROBO TX Controller (Art.-Nr. 500 995) не входит в комплект конструктора
- ROBO TX Controller (Art.-Nr. 500 995) 不包含在组件



27



1 x



1 x



1 x

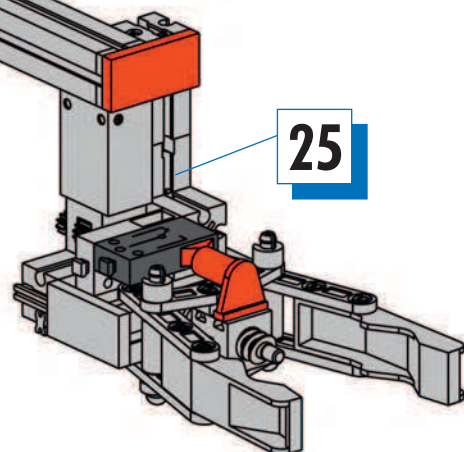


3 x

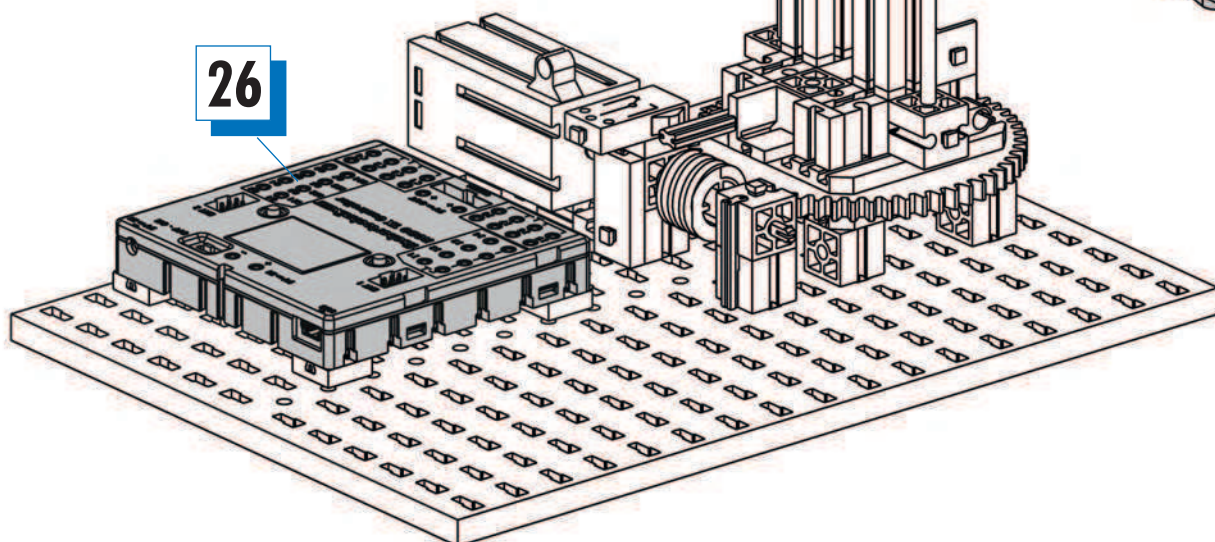


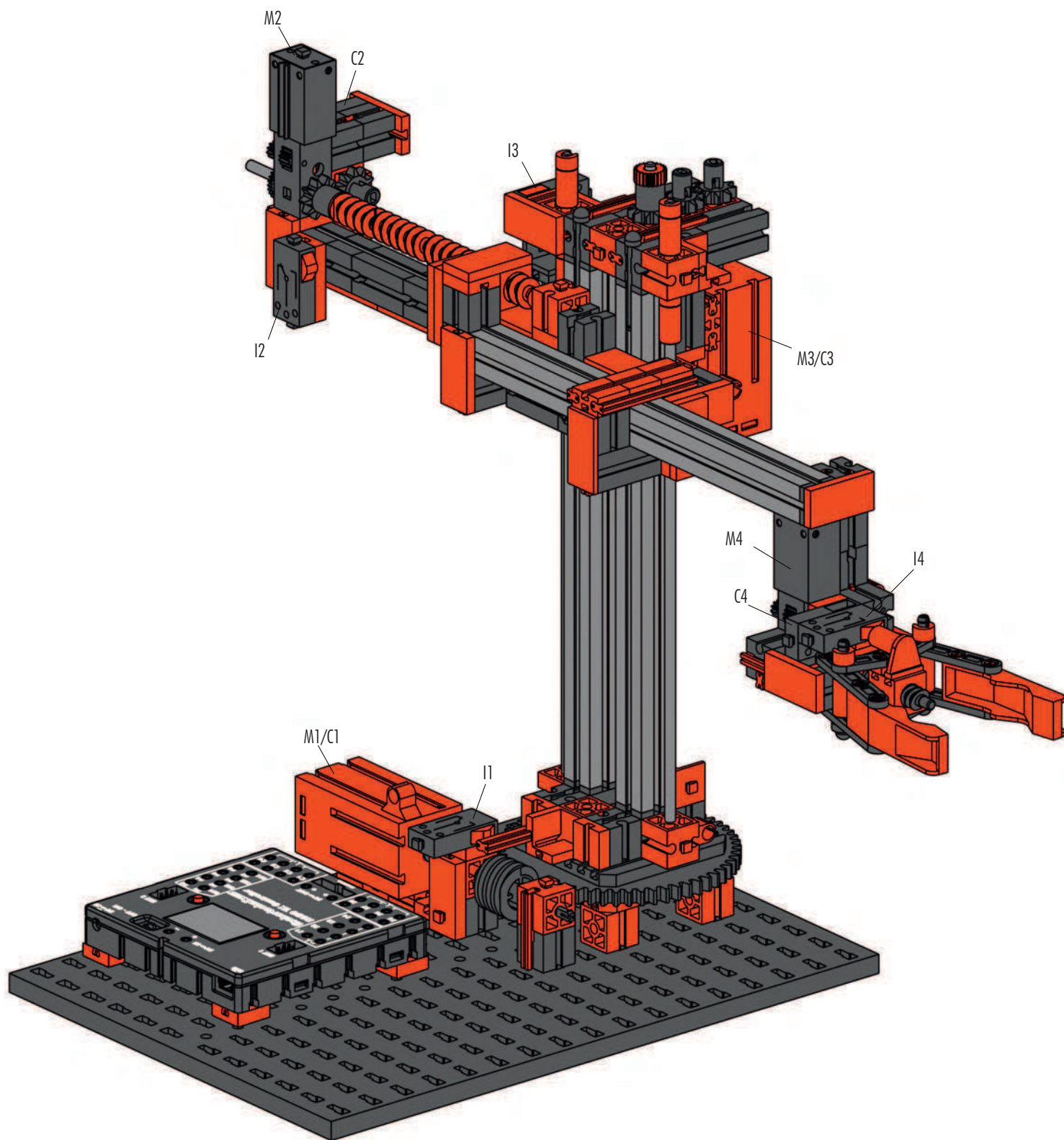
1 x

25



26





Schaltplan
Circuit diagram
Plan électrique

Schakelschema
Diagrama de circuitos
Plano elétrico de ligação

Schema elettrico
Схема подключения
电路图

