


= Safety

Keep this document and give it to the end user of the cylinder if necessary!

1. Application

These spares kits are suitable for the LINTRA®-cylinder- series ./45000, ./46000 und ./146000

2. Spares kit contents

See separate exploded drawings



3. Cylinder disassembly

The cylinder must be depressurized. Remove all connection pipes. Strictly observe the safety advice in the operating instructions M/P74045.

3.1 Cylinder with internal guide

Version ./46016 and ./146016

- loosen sleeves (33) and remove top cover (32)
- remove closer (19)
- loosen set screws from the end covers (27) both sides
- remove cover strip (9) from profile barrel (4)
- loosen screws (25) and remove end covers (1, 2) from both side of the profile barrel (4)
- slide yoke (5) completely out of the profile barrel (4)
- remove seal strip (8)

Version ./46020 and ./146020

- loosen screws (37) on one side of the top cover
- push bolts (38) out of the top cover (36)
- remove clip (6) both sides
- remove cover strip (9) from the profile barrel
- loosen screws (29) and remove end covers (1, 2) from both sides of the profile barrel
- slide yoke (5) completely out of the profile barrel (4)
- remove seal strip (8)

Version ./146025 to ./146063

- loosen screw (26) and remove top cover (37)
- release clamping lever (25) both sides
- remove cover strip (9) from the profile barrel
- loosen screws (29) and remove end covers (1, 2) from both sides of the profile barrel
- slide yoke (5) completely out of the profile barrel (4)
- remove seal strip (8)

Version ./46025 to ./46063

Version ./46080 and ./146080

- loosen screw (26) and remove top cover (37)
- remove side wipers (21) and closer (19)
- remove clip (6) both sides
- remove cover strip (9) from the profile barrel
- loosen screws (29) and remove end covers (1, 2) from both sides of the profile barrel
- slide yoke (5) completely out of the profile barrel (4)
- remove seal strip (8)

3.2 Cylinder with external guide

Version ./46116 and ./146116

- loosen screws (10, 28, and 29) pull guide rails (10) out of the guide bridge (31)
- remove guide bridge and closer (19)
- loosen set screws (27) on both side of end covers (1, 2)
- remove cover strip (9) from profile barrel (4)
- loosen screws (25) and remove end covers (1, 2) from both side of the profile barrel (4)
- slide yoke (5) completely out of the profile barrel (4)
- remove seal strip (8)

Version ./46120 and ./146120

- loosen screws (31, 32) pull guide rails (10) and pressure bars (23) out of the guide bridge (34)
- remove guide bridge and closer (19)
- remove clip (6) both sides
- remove cover strip (9) from profile barrel (4)
- loosen screws (29) and remove end covers (1, 2) from both side of the profile barrel (4)
- slide yoke (5) completely out of the profile barrel (4)
- remove seal strip (8)

Version ./146125 to ./146163

- loosen screws (31, 32) pull guide rails (10) and pressure bars (23) out of the guide bridge (37)
- remove guide bridge (37) and shim ring (26) and put it aside
- release clamping lever (25) both sides
- remove cover strip (9) from profile barrel (4)
- loosen screws (29) and remove end covers (1, 2) from both side of the profile barrel (4)
- slide yoke (5) completely out of the profile barrel (4)
- remove seal strip (8)

Version ./46125 to ./46163

Version ./46180 and ./146180

- loosen screws (26, 31, and 32) pull guide rails (10) and pressure bars (23) out of the guide bridge (34)
- remove guide bridge (37)
- remove side wiper (21) and closer assy (19)
- remove clip (6) both sides
- remove cover strip (9) from profile barrel (4)
- loosen screws (29) and remove end covers (1, 2) from both side of the profile barrel (4)
- slide yoke (5) completely out of the profile barrel (4)
- remove seal strip (8)

3.3 Cylinder with roller guide

Version ./46225 to ./46263

- loosen coned screws (26) and slide carriage (43) away from the yoke (5)
- remove side wiper (21) and closer assy (19)
- remove clip (6) both sides
- remove cover strip (9) from profile barrel (4)
- loosen screws (29) and remove end covers (1, 2) from both side of the profile barrel (4)
- slide yoke (5) completely out of the profile barrel (4)
- remove seal strip (8)

Version ./146225 to ./146263

- remove clamping lever (25) both sides
- loosen screws (29) and remove end covers (1, 2) from both side of the profile barrel (4)

- slide carriage (43) with yoke (5) completely out of the profile barrel (4)
- Remove shim ring (26) and yoke (5) and put it aside
- remove cover strip (9) and seal strip (8)



4 Cleaning

- remove all old seals, o-rings, wipers and other wear parts
- clean individual parts like profile barrel, yoke, carriage etc.

5 Cylinder assembly

5.1 Preparation

- place new o-rings, seals and all individual parts in the right position
- apply a thin film of grease to the inter surface of the profile barrel and seal surface of the seal strip.

Lightly grease the space within the strip divider. Fill the chambers of piston with grease.

Apply grease to the piston seals, cushion seals and o-rings as well. (Grease is supplied with the spares kit)

5.2 Assembly of internal guide

Version ./46016 und ./146016

- Thread the seal strip (8) in the yoke (5) and push into the profile barrel (4) in doing so, position the seal strip in such a way that equal lengths of the strip protrude out of both ends.
- press one end cover into the profile barrel and secure it uniformly with screws (25)
- slide yoke to the other end of the profile barrel
- remove any excess grease
- install the second end cover as described above
- Thread cover strip (9) over the yoke and through the end covers
- insert clamping plate (21) on one side and tighten the set screws, so fixing the cover and seal strip together and clamping them to the end cover
- insert new closer (19) onto the yoke (5)
- slide yoke back to approx. 30mm from the opposite end of the tube
- mount top cover on the yoke and secure it with sleeve (33)
- insert second clamping plate (21) on the other end cover
- simultaneously tensioning the seal and cover strip, then fix the strips with the clamping plate (21) and set screws (27) as described above

Version ./46020 und ./146020

- Thread the seal strip (8) in the yoke (5) and push into the profile barrel (4) in doing so, position the seal strip in such a way that equal lengths of the strip protrude out of both ends.
- press one end cover into the profile barrel and secure it uniformly with screws (29)
- slide yoke to the other end of the profile barrel
- remove any excess grease
- install the second end cover as described above
- Thread cover strip (9) over the yoke and through the end covers
- insert clamping plate (25) and clip (6) on one side and tighten the set screws, so fixing the cover and seal strip together and clamping them to the end cover

- slide yoke back to approx. 30mm from the opposite end of the tube
- insert closer (19) into the top cover (36)
- mount top cover onto the yoke and secure it with bolts (37) and screws (33)
- insert second clamping plate (25) and clip (6) on the other end cover
- simultaneously tensioning the seal and cover strip, then fix the strips with the set screws(30) as described above

Version ./146025 to ./146063

- Thread the seal strip (8) in the yoke (5) and push into the profile barrel(4) in doing so, position the seal strip in such a way that equal lengths of the strip protrude out of both ends.
- press one end cover into the profile barrel and secure it uniformly with screws (29)
- slide yoke to the other end of the profile barrel
- remove any excess grease
- install the second end cover as described above
- Thread cover strip (9) over the yoke and through the end covers
- insert clamping lever (25) on one side and depress the lever to secure it
- slide yoke back to approx. 30mm from the opposite end of the tube
- mount top cover on the yoke and secure it with screws (26)
- insert second clamping lever (25) on the other end cover
- simultaneously tensioning the seal and cover strip and secure them using the clamping lever

Version ./46025 to ./46063

Version ./46080 and ./146080

- Thread the seal strip (8) in the yoke (5) and push into the profile barrel(4) in doing so, position the seal strip in such a way that equal lengths of the strip protrude out of both ends.
- press one end cover into the profile barrel and secure it uniformly with screws (29)
- slide yoke to the other end of the profile barrel
- remove any excess grease
- install the second end cover as described above
- Thread cover strip (9) over the yoke and through the end covers
- insert clamping plate (25) and clip(6) on one side and tighten the set screws, so fixing the cover and seal strip together and clamping them to the end cover
- slide yoke back to approx. 30mm from the opposite end of the tube
- mount closer (19) and side wipers (21)
- mount top cover (37) onto the yoke and secure it with screws (26)
- insert second clamping plate (25) and clip (6) on the other end cover
- simultaneously tensioning the seal and cover strip, then fix the strips with the set screws(30) as described above



Attention:

Excessive tension on the strips increases wear unnecessarily!

5.3 Assembly of the external guide

Version ./46116 and ./146116

- Thread the seal strip (8) in the yoke (5) and push into the profile barrel (4) in doing so, position the seal strip in such a way that equal lengths of the strip protrude out of both ends.
- press one end cover into the profile barrel and secure it uniformly with screws (25)
- slide yoke to the other end of the profile barrel
- remove any excess grease
- install the second end cover as described above
- Thread cover strip (9) over the yoke and through the end covers
- insert clamping plate (21) on one side and tighten the set screws, so fixing the cover and seal strip together and clamping them to the end cover
- insert new closer (19) onto the yoke (5)
- slide yoke back to approx. 30mm from the opposite end of the tube
- Place the preassembled guide bridge onto the yoke
- slide the guide rails (10) flush with the front edge of the guide bridge
- secure the guide rails with the set screws (29)
- connect guide bridge and yoke with screws (28)
- insert second clamping plate (21) on the other end cover
- simultaneously tensioning the seal and cover strip, then fix the strips with the clamping plate(21) and set screws(27) as described above

Typ ./46120 and ./146120

- Thread the seal strip (8) in the yoke (5) and push into the profile barrel(4) in doing so, position the seal strip in such a way that equal lengths of the strip protrude out of both ends.
- press one end cover into the profile barrel and secure it uniformly with screws (29)
- slide yoke to the other end of the profile barrel
- remove any excess grease
- install the second end cover as described above
- Thread cover strip (9) over the yoke and through the end covers
- insert clamping plate (25) and clip(6) on one side and tighten the set screws, so fixing the cover and seal strip together and clamping them to the end cover
- slide yoke back to approx. 30mm from the opposite end of the tube
- mount new closer (19) onto the guide bridge
- mount guide bridge (34) on the yoke
- slide the guide rails (10) and pressure bars (23) from both side, flush with the front edge of the guide bridge
- secure the guide rails with the countersunk screws (32)
- insert second clamping plate (25) and clip (6) on the other end cover
- simultaneously tensioning the seal and cover strip, then fix the strips with the set screws (30) as described above

Version ./146125 and ./146163

- Thread the seal strip (8) in the yoke (5) and push into the profile barrel(4) in doing so, position the seal strip in such a way that equal

- lengths of the strip protrude out of both ends.
- press one end cover into the profile barrel and secure it uniformly with screws (29)
- slide yoke to the other end of the profile barrel
- remove any excess grease
- install the second end cover as described above
- Thread cover strip (9) over the yoke and through the end covers
- mount clamping lever (25) on one side of the end cover and clip it in position
- slide yoke back to approx. 30mm from the opposite end of the tube
- apply a thin film of grease to the edge of the shim ring (26) and insert it in the groove of the yoke
- Place the preassembled guide bridge on the yoke and shim ring
- slide the guide rails (10) and pressure bars (23) from both side, flush with the front edge of the guide bridge
- secure the guide rails with the countersunk screws (32)
- insert second clamping lever (25) on the other end cover
- simultaneously tensioning the seal and cover strip, then fix the strips with the clamping lever (25)

Version ./46125 to ./46180

Version ./146180

- Thread the seal strip (8) in the yoke (5) and push into the profile barrel(4) in doing so, position the seal strip in such a way that equal lengths of the strip protrude out of both ends.
- press one end cover into the profile barrel and secure it uniformly with screws (29)
- slide yoke to the other end of the profile barrel
- remove any excess grease
- install the second end cover as described above
- Thread cover strip (9) over the yoke and through the end covers
- insert clamping plate (25) and clip (6) on one side and tighten the set screws, so fixing the cover and seal strip together and clamping them to the end cover
- slide yoke back to approx. 30mm from the opposite end of the tube
- mount closer assy (19) and side wiper (21) at the yoke
- slide the guide rails (10) and pressure bars (23) from both side, flush with the front edge of the guide bridge
- secure the guide rails with the countersunk screws (32)
- slide guide bridge over the yoke
- press the coned bushes with a bolt (7) onto the yoke
- insert the coned screws (26) and couple guide bridge and yoke together
- insert second clamping plate (25) and clip (6) on the other end cover
- simultaneously tensioning the seal and cover strip, then fix the strips with the set screws (30) as described above



Attention:

Excessive tension on the strips increases wear unnecessarily!

5.4 Montage Rollenführung

Version ./46225 to ./46263

- Thread the seal strip (8) in the yoke (5) and push into the profile barrel(4) in doing so, position the seal strip in such a way that equal lengths of the strip protrude out of both ends.
- press one end cover into the profile barrel and secure it uniformly with screws (29)
- slide yoke to the other end of the profile barrel
- remove any excess grease
- install the second end cover as described above
- Thread cover strip (9) over the yoke and through the end covers
- insert clamping plate (25) and clip (6) on one side and tighten the set screws, so fixing the cover and seal strip together and clamping them to the end cover
- slide yoke back to approx. 30mm from the opposite end of the tube
- mount closer assy (19) and side wiper(21) at the yoke
- place preassembled roller carriage (43) onto the Y-guide rails
- use am SW6 respectively SW8 allen key to turn the cam bolts (46) left or right, depending on the position of the rollers (46, 51) until reaching a noticeable reduction in play (observe the symmetrical position of the roller carriage relative to the profile barrel)
- tighten the nuts (47) (pre-adjustment of guide play)
- slide roller carriage over the yoke
- press the coned bushes with a bolt (7) onto the yoke
- insert the coned screws (26) and couple guide bridge and yoke together
- insert second clamping plate (25) and clip (6) on the other end cover
- simultaneously tensioning the seal and cover strip , then fix the strips with the set screws (30) as described above

Version ./146225 to ./146263

- Thread the seal strip (8) in the yoke (5) and feed it approx. 15mm into the profile barrel (4)
- place the cover strip (9) in the recess on the yoke and fit it into profile barrel
- to facilitate the installation, apply a thin film of grease to the edge of the shim ring (26) and place it in the recess available on the carriage
- place preassembled roller carriage (43) onto the Y-guide rails and engage it with the shim ring (26) into the yoke
- push both, carriage- and yoke subassembly into the barrel
- adjust the seal- and cover strip in such a way that equal lengths protrude from both ends
- press one end cover into the profile barrel and secure it uniformly with screws (29)
- mount clamping lever (25) on the end cover and clip it into position
- slide the yoke in front of the opposite end of the profile barrel and remove the excess grease
- mount the second end cover as described above
- slide yoke back to approx. 30mm from the opposite end of the tube
- use am SW6 respectively SW8 allen key to

- turn the cam bolts (46) left or right, depending on the position of the rollers (46, 51) until reaching a noticeable reduction in play (observe the symmetrical position of the roller carriage relative to the profile barrel)
- tighten the nuts (47) (pre-adjustment of guide play)
- insert second clamping lever (25) on the other end cover
- simultaneously tensioning the seal and cover strip , then fix the strips with the clamping lever (25)



Attention:

Excessive tension on the strips increases wear unnecessarily!

6 Adjustment of guide play

To carry out an eventually necessary adjustment of guide play in case of external or roller guides, please follow the instructions below

6.1 Adjustment for external guide

- screw the set screws (28, 31) into the guide bridge (31, 34, 37) until the point when it can only just be moved
- use a rubber mallet to tap lightly along both sides of the guide bridge to allow the guide rails(10) to fit into the V-grooves of the profile barrel and into the grooves of the guide bridge
- screw the set screws back in until reaching a minimum amount of play

6.2 Adjustment for roller guide

- use am SW6 respectively SW8 allen key to turn the cam bolts (46) left or right, depending on the position of the rollers (46, 51) until reaching a noticeable reduction in play (observe the symmetrical position of the roller carriage relative to the profile barrel)
- tighten the nuts (47)
- check that the carriage can move freely by moving it in both directions. If necessary, repeat the adjustment process described above

7 Functional test and leak test

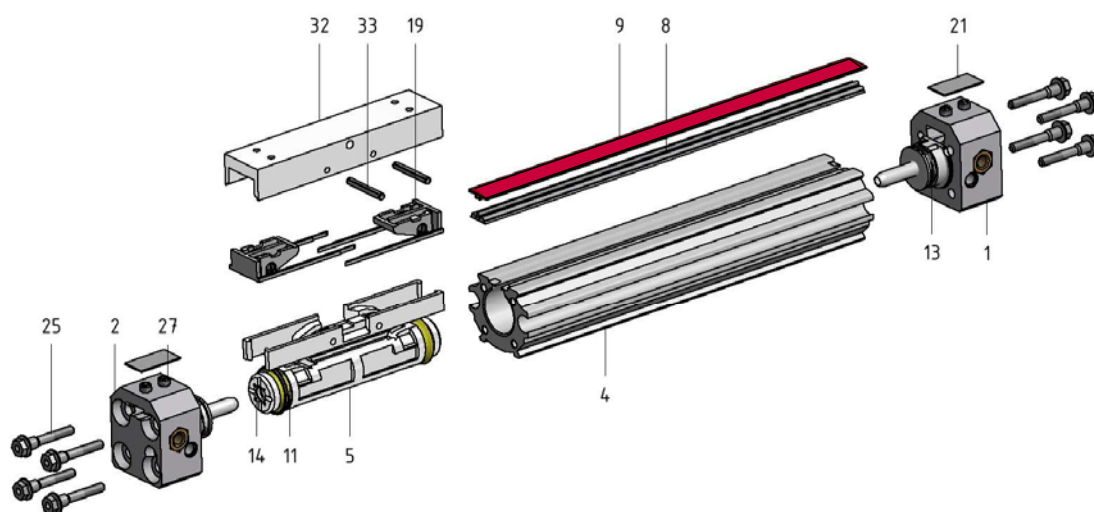
- Move the yoke together with top cover, guide bridge or roller carriage by hand to both end positions to check that the seal and cover strip "zip" together properly
- Pressurize the cylinder and move the yoke approx. 20 times back and forth to test for leak.
- If a leak is detected on the seal strip, extend it by approx. 15mm in longitudinal direction. In doing so, the outer edge of the seal strip should still be located in front of the outer edge of the end cover.
(The total leak rate at an operating pressure of 6 bar should not exceed 80 cm³/min.)

8. Company address

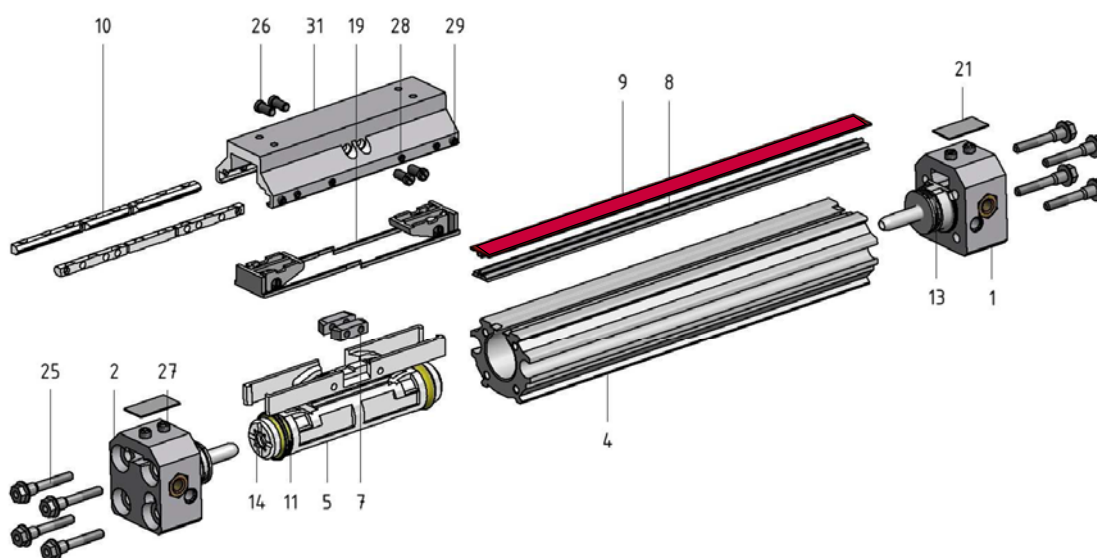
If you have further question, please contact:
Norgren GmbH
Postfach 1120, D-46515 Alpen
Bruckstraße 93, D-46519 Alpen
Tel: +49 2802 49 0
Fax: +49 2802 49 356
www.imi-precision.com

./46016, ./146016, Ø 16

Spares kit including seal and cover strip



./46116, ./146116, Ø 16



Position	Pieces	Description
8	1	Seal strip
9	1	Cover strip
11	2	Piston seal
14	2	Cushion seal (O-Ring)
13	2	O-Ring (End cover)
	2	O-Ring (End cover - cushion sleeve)
19	2	Closer
21	4	Guide rail
	1	Grease 25ml
	1	Instructions

Saleable spare kits

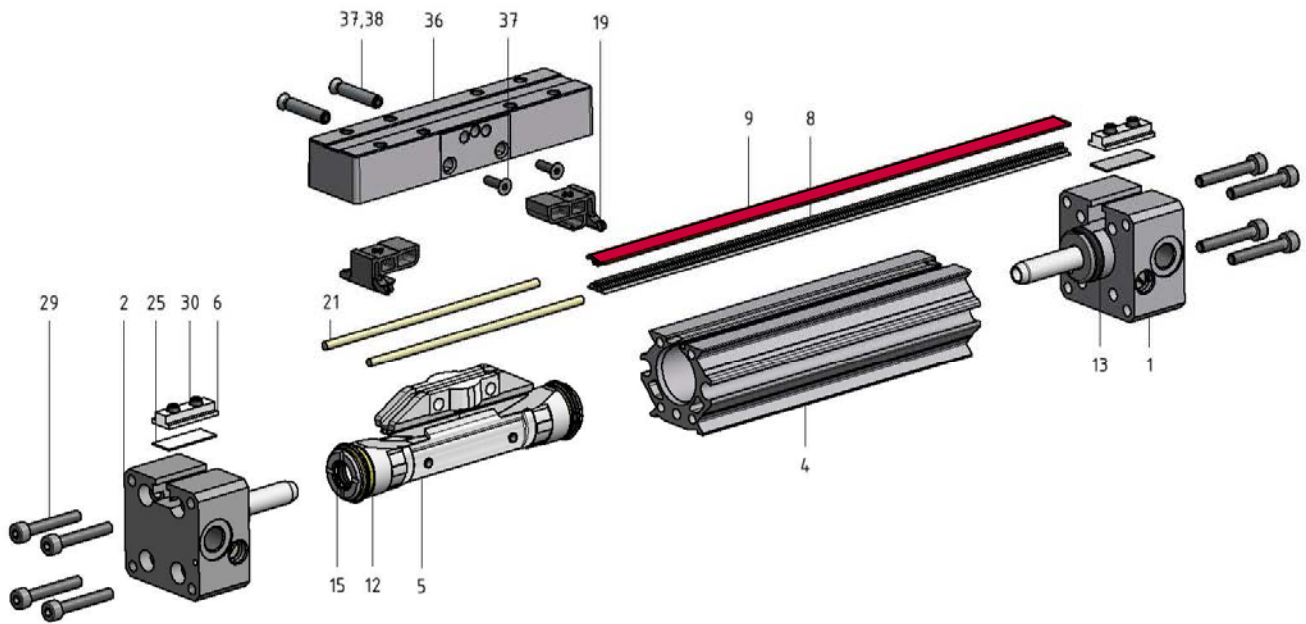
QA/146016/88/1000

QA/146016/88/3000

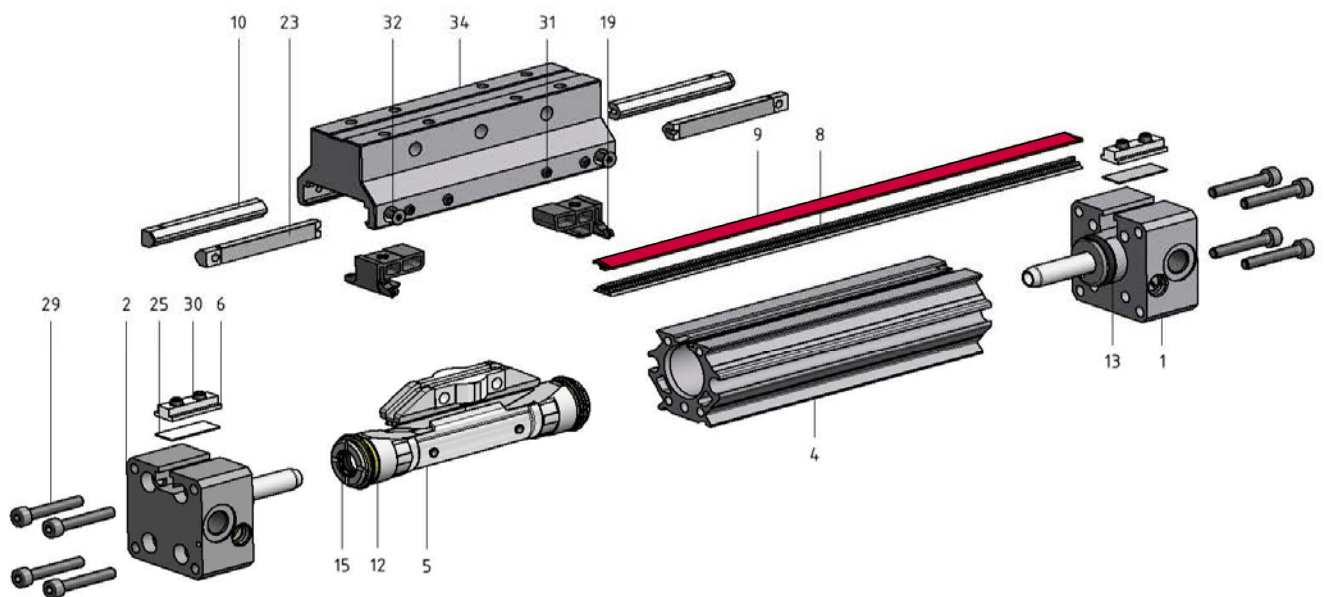
QA/146016/88/8500

./45720 *), ./46020, ./146020, Ø 20

Spares kit including seal and cover strip



./45020 *), ./46120, ./146120, Ø 20



Position	Pieces	Description
8	1	Seal strip
9	1	Cover strip
12	2	Piston seal
15	2	Cushion seal
13	2	O-Ring
21	2	Plastic strip
19	2	Closer
10	8	Guide rail
23	8	Pressure bar
	1	Grease 25ml
	1	Instructions

Saleable spare kits

QA/146020/88/1000

QA/146020/88/3000

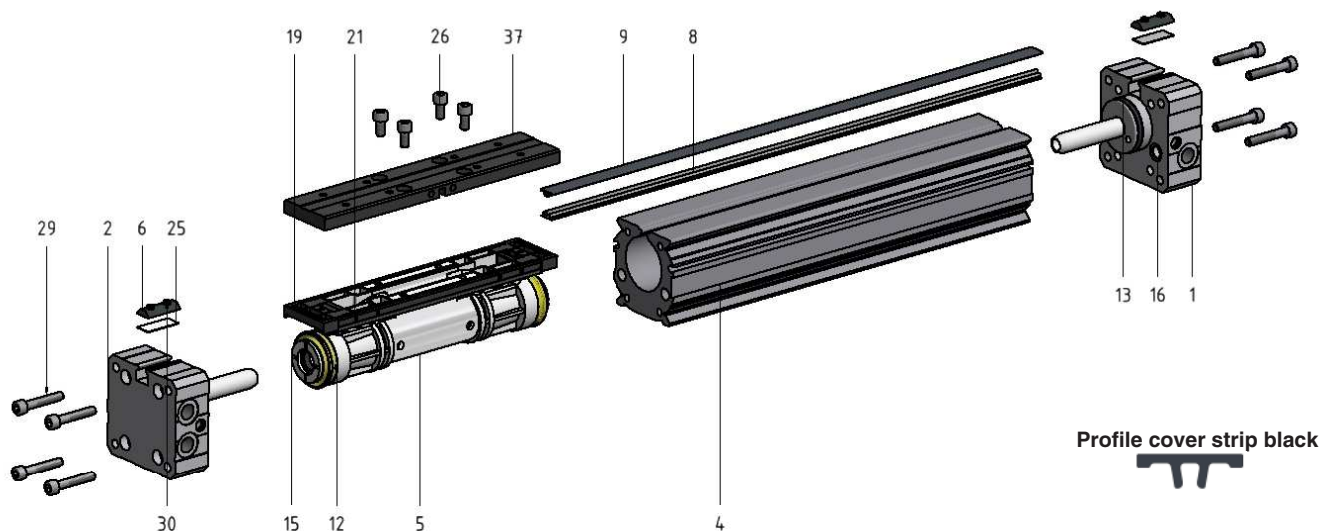
QA/146020/88/8500

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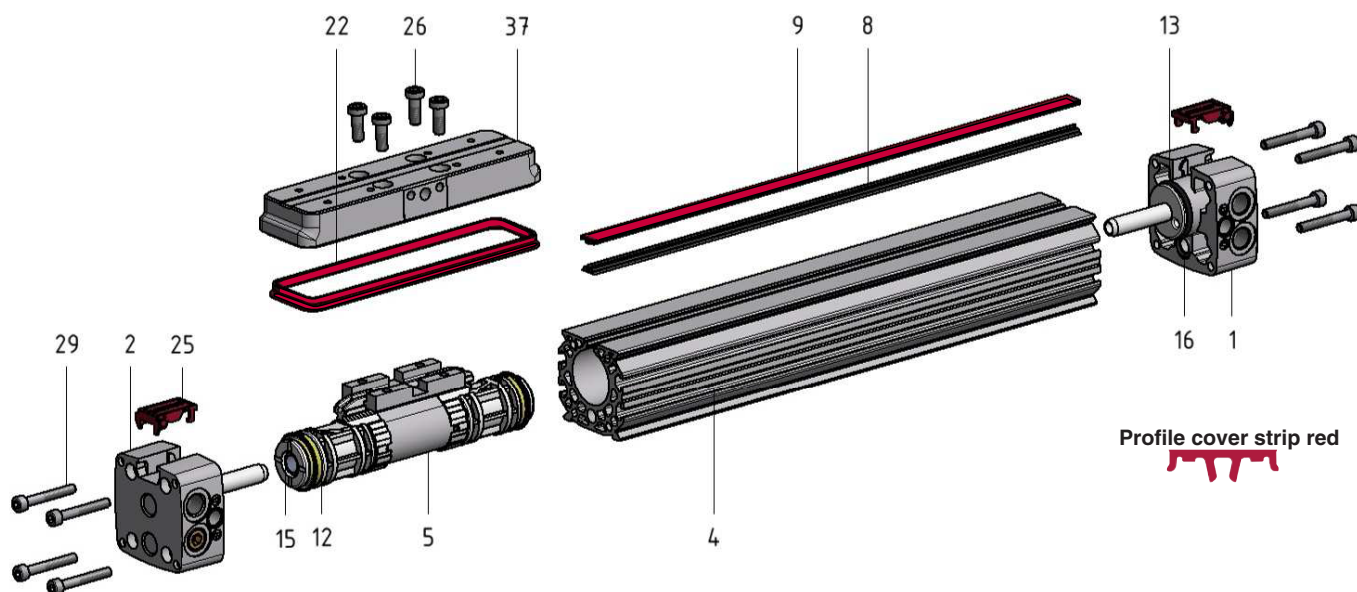
*) For queries about ./45720 serie please contact our technical service

./45725 - ./45763 *), ./46025 - ./46063, Ø 25-63

Spares kit including seal and cover strip



./146025 - ./146063, Ø 25-63



Position	Pieces	Description
8	1	Seal strip
9	1	Cover strip
12	2	Piston seal
15	2	Cushion seal (O-Ring)
22	2	Wiper
13	2	O-Ring
16	2	O-Ring
25	2	Clamping lever
26	2	Shim ring
10	8	Guide rail
23	8	Pressure bar
	1 or 2	Grease 25ml
	1	Instructions

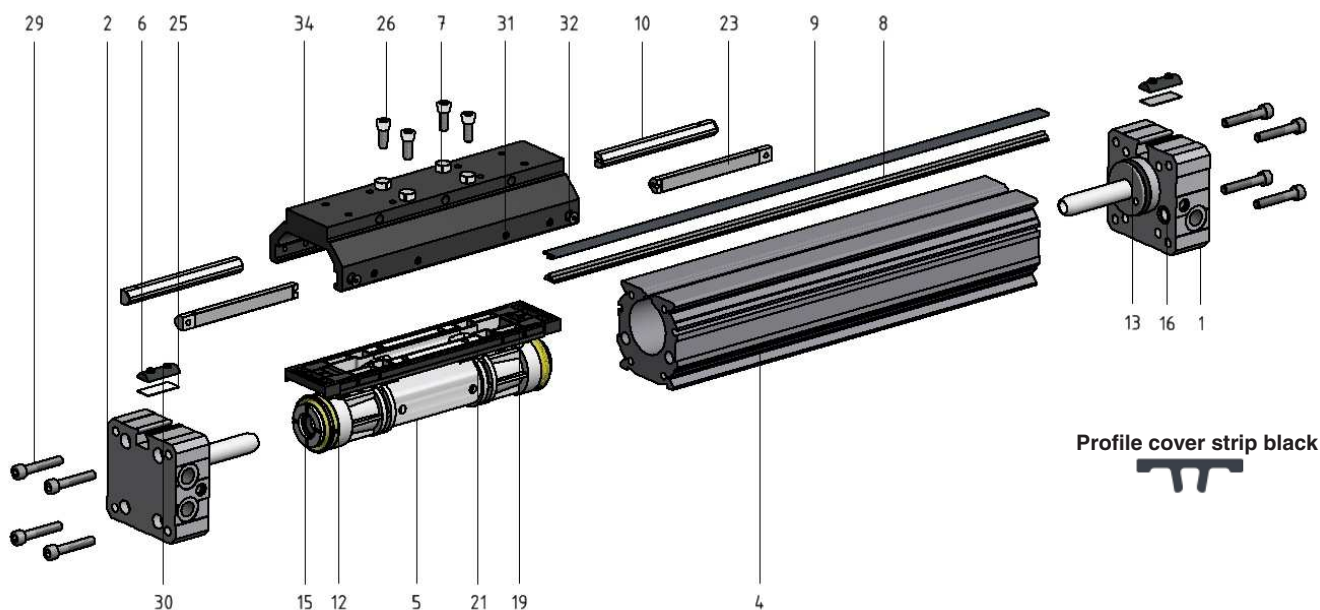
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Note:

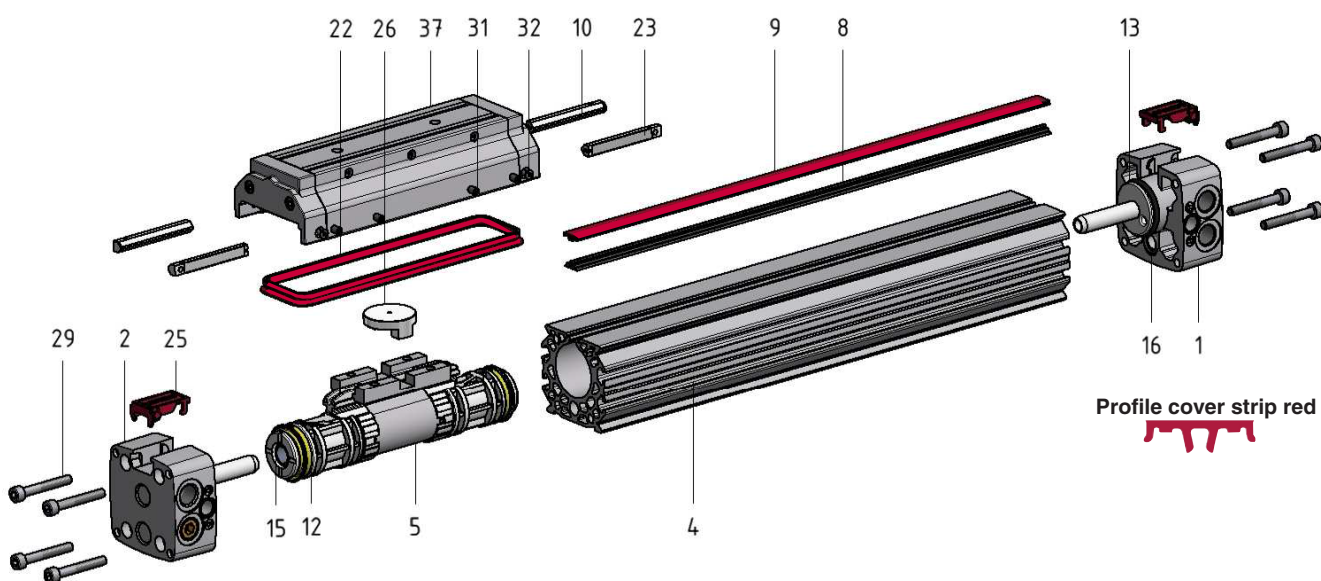
*) For queries about ./45725/46763 series please contact our technical service

./45025 - ./45063 *), ./46125 - ./46163, Ø 25-63

Spares kit including seal and cover strip



./146125 - ./146163, Ø 25-63



Position	Pieces	Description
8	1	Seal strip
9	1	Cover strip
12	2	Piston seal
15	2	Cushion seal (O-Ring)
22	2	Wiper
13	2	O-Ring
16	2	O-Ring
25	2	Clamping lever
26	2	Shim ring
10	8	Guide rail
23	8	Pressure bar
	1 or 2	Grease 25ml
	1	Instructions

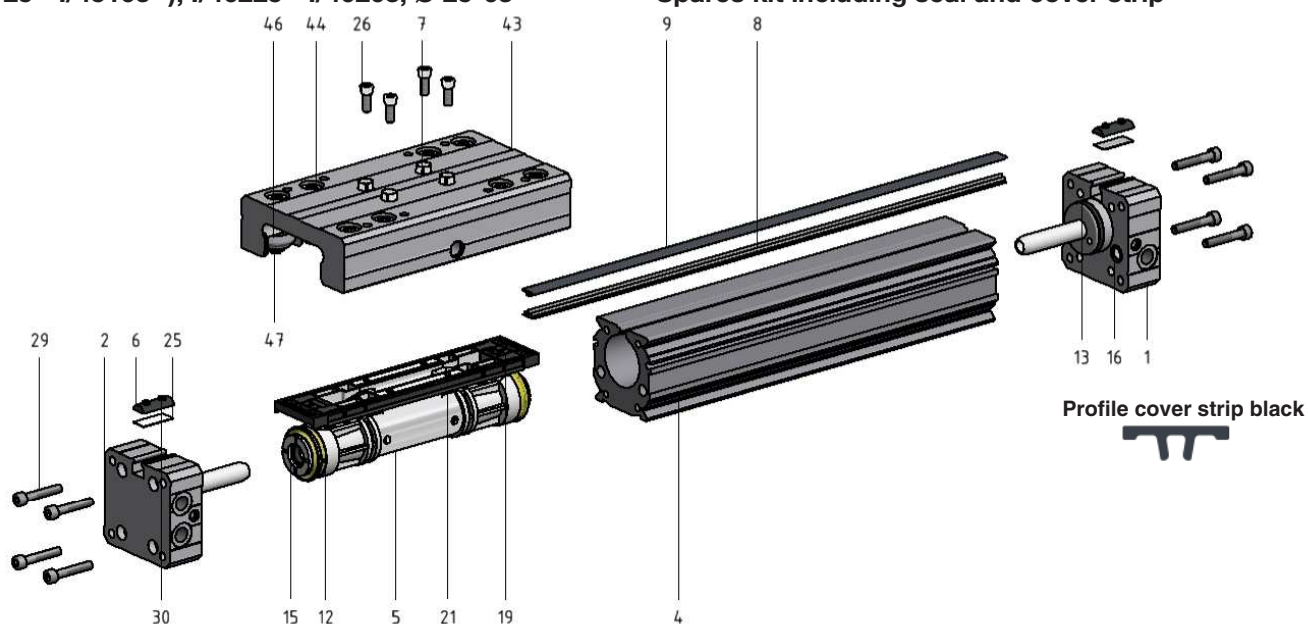
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QA/146040/88/3000	
QA/146040/88/8500	

Note:

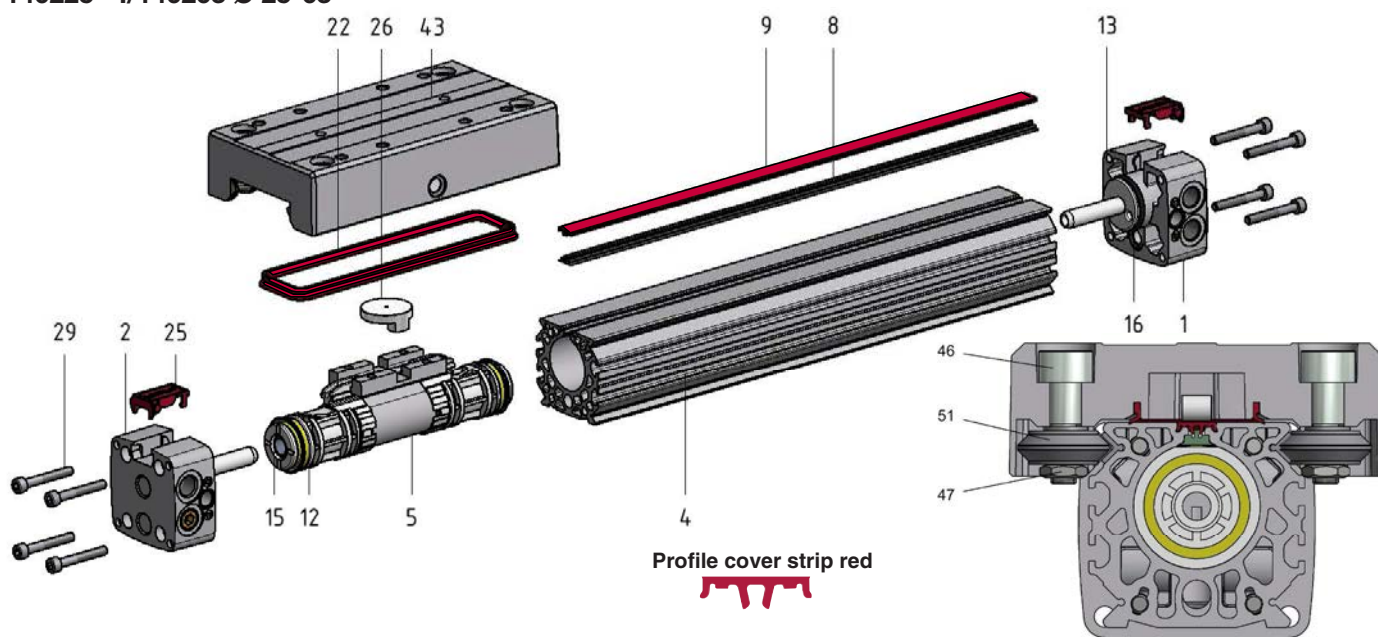
*) For queries about ./45025/46063 series please contact our technical service

./45125 - ./45163 *), ./46225 - ./46263, Ø 25-63

Spares kit including seal and cover strip



./146225 - ./146263 Ø 25-63



Position	Pieces	Description
8	1	Seal strip
9	1	Cover strip
12	2	Piston seal
15	2	Cushion seal (O-Ring)
22	2	Wiper
13	2	O-Ring
16	2	O-Ring
25	2	Clamping lever
26	2	Shim ring
10	8	Guide rail
23	8	Pressure bar
	1 or 2	Grease 25ml
	1	Instructions

Saleable spare kits

QA/146025/88/1000	QA/146050/88/1000
QA/146025/88/3000	QA/146050/88/3000
QA/146025/88/8500	QA/146050/88/8500
QA/146032/88/1000	QA/146063/88/1000
QA/146032/88/3000	QA/146063/88/3000
QA/146032/88/8500	QA/146063/88/8500
QA/146040/88/1000	
QA/146040/88/3000	
QA/146040/88/8500	

Additional saleable spare parts

Bearing [34] M/P41674 (for Ø25, 32mm 4 pieces per carriage)

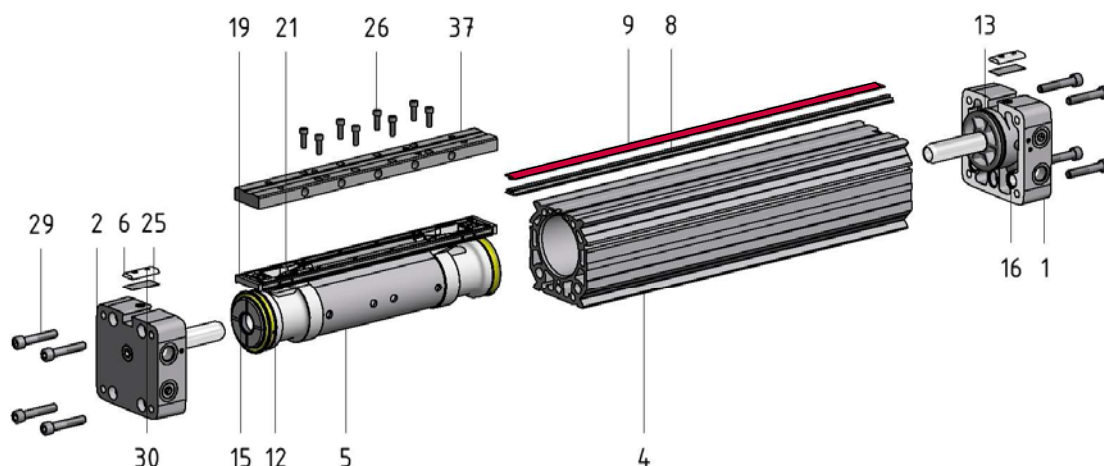
Bearing [34] M/P34558 (for Ø40, 50, 63mm 8 pieces per carriage)

Note:

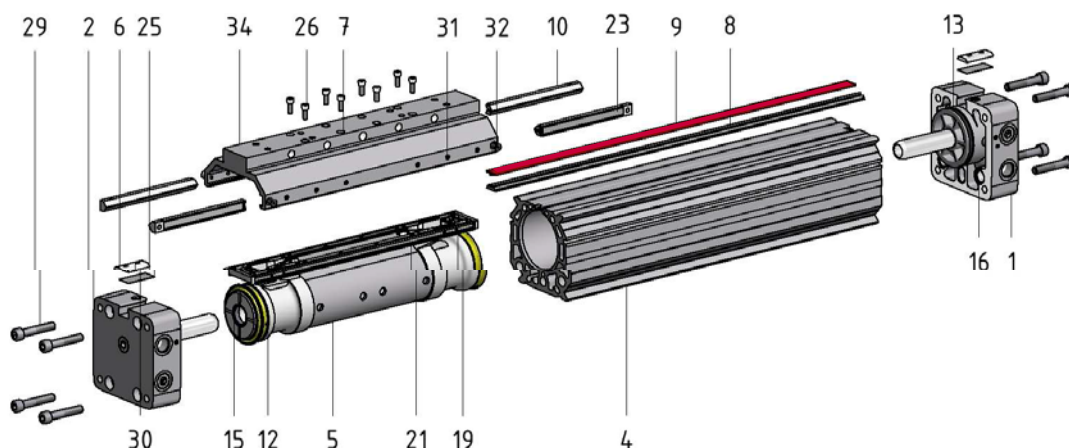
*) For queries about ./45125/46163 series please contact our technical service

./46080 , ./146080, Ø 80

Spares kit including seal and cover strip



./46180 , ./146180, Ø 80



Position	Pieces	Description
8	1	Seal strip
9	1	Cover strip
12	2	Piston seal
15	2	Cushion seal (O-Ring)
13	2	O-Ring
16	2	O-Ring
19	2	Closer
10	8	Guide rail
23	8	Pressure bar
	2	Grease 25ml
	1	Instructions

Saleable spare kits
QA/146080/88/1000
QA/146080/88/3000
QA/146080/88/5500