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## Parflange® 50 WorkCenter

Efficient production machine for  
O-Lok® and Triple-Lok® connections



ENGINEERING YOUR SUCCESS.

A close-up, angled view of the Parker Parflange 50 WorkCenter machine. The machine is primarily grey with a prominent yellow stripe running horizontally across the front panel. The top section is open, revealing the internal mechanical components, including a complex tooling assembly with various metal parts and a central rotating mechanism. The Parker logo, consisting of a stylized 'P' in a black box followed by the word 'Parker' in white, is visible on the front panel. The background is a solid yellow color.

**UP TO DATE**

# Parflange® 50

## Improved quality In serial production

The Parflange® 50 WorkCenter is the top-of-the-range machine for orbital flaring & flanging of O-Lok® and Triple-Lok® tube assemblies. It combines the practical E02-FORM F3 WorkCenter concept with the proven Parflange® technology.

Due to the robust design and the precise process control, the Parflange® 50 WorkCenter achieves consistent high quality results and high productivity. Machine housing, cycle programming and all operating elements are designed for good ergonomics, optimum workflow and highest security. The compact Parflange® unit and the compact housing allow the forming of small and complex tube bends. Maximum tool lifetime is achieved by the automatic lubrication system as well as easy visibility and accessibility of the tooling area. The integrated tool compartments and designated space for bins for nuts and sleeves make it comfortable and efficient to work with the Parflange® 50.

Therefore, the Parflange® 50 is ideal for serial production, particularly in tube manipulation for mobile hydraulics. Due to the WorkCenter concept, it is also perfectly suited for project work in shipyards and special machining industry, such as paper mills, transfer centers or hydraulic presses.



Efficient production of high-quality hydraulic tube assemblies at:

- ▶ Professional tube manipulators
- ▶ "Mobile" OEM's (construction machinery, agricultural vehicles, forestry equipment)
- ▶ Machine tool industry (milling machines, transfer lines)
- ▶ Heavy machine industry (hydraulic presses, steel mills,...)
  - ▶ Shipbuilding, marine and offshore industry
- ▶ Paper processing



# Parflange® 50 BASIC WorkCenter concept

The tooling area is open to allow short and complex tube bends. Quick and convenient tool change is possible.

The tooling area is visible and illuminated. Insertion of Parflange® sleeves and condition monitoring of tools are easy.

When the doors are opened, the machine body turns into a WorkCenter for production of O-Lok® and Triple-Lok® tube assemblies. All tools are available for rapid and convenient machine setup and tool change.



O-Lok®

Triple-Lok®

On top of the machine cover, there are special platforms for standard bins. Large quantities of nuts and sleeves are available for continuous mass production.

The Parflange® 50 uses the same process, which has been proven in millions of connections in preceding machine generations, such as Parflange® 1040



High speed



Fix sleeve



Total quality



Automated process

No adjustment necessary



Safe & easy

▶ Efficient production

▶ Excellent vibration resistance

▶ High and consistent quality

▶ Cycle is initiated by insertion of tube

▶ Transport on wheels, by forklift and crane

- ▶ Illuminated tooling area
- ▶ Integrated tool compartment
- ▶ Designated space for storage of bins (nuts and sleeves)
- ▶ Automatic tool lubrication
- ▶ Parflange® process proven millions of times

# Parflange® 50 PRO

## Professional mass production

WorkCenter is  
equipped with automatic  
feeder for O-Lok® Parflange®  
sleeves

Feeder can be switched OFF  
for small quantities and  
Triple-Lok®

Side drawer for removal of  
chips, dirt, lubricant and  
lost components

Robust drive and  
heat management for  
continuous production





O-Lok® Parflange® sleeves are filled into feeder rails

Feeder rails available for different O-Lok® Sizes

Safety cover is operated automatically



High speed



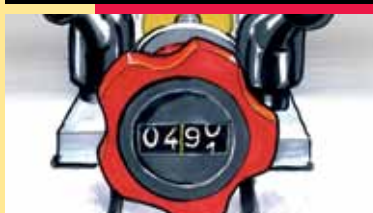
Automatic sleeve insertion



Total quality



Automated process

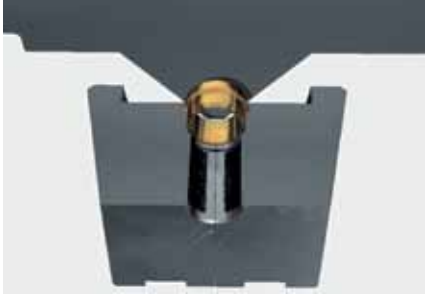


Easy setup

- ▶ Efficient mass production
- ▶ Automatic loading of O-Lok® sleeves into clamping dies
- ▶ High and consistent quality
- ▶ Operator is only handling tubes...
- ▶ ...and re-filling O-Lok® sleeves from times to times

- ▶ Easy feeder setup
- ▶ Ideal for O-Lok® mass production
- ▶ Like 50 BASIC when feeder switched off for Triple-Lok®

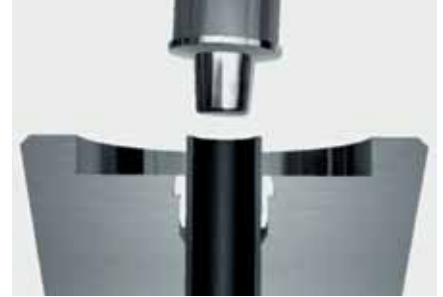
## The Parflange®-process



For O-Lok®, the sleeve is placed into clamping dies first



Tube is inserted into the tools until it firmly touches the stop at the end



After starting the process, the dies clamp the tube and the flanging pin starts the orbital movement and the forward stroke



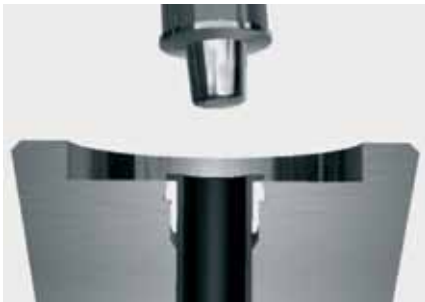
While moving, the front pin expands the tube wall from the inside



As soon as the flat working surface of the pin contacts the tube end, the flanging process begins



The front surface is continuously rolled and compressed. From the inside, the tube surface is slightly expanded to clamp the sleeve



As soon as the defined flange contour is achieved, the orbital movement stops and the pin withdraws



The tube end is released and can be taken out of the machine



The connection is ready for assembly

## The Parflange® technology

Flanging with Parflange® eliminates the need for welding or brazing of the sleeve to the tube end, and thus gives reduced process costs and flexibility to produce small batch quantities economically.

With the Parflange® process, the tube to sleeve attachment is achieved mechanically during an orbital cold forming process with a Parflange® machine. The process progressively flares then flanges the tube. The final dwell action in the cycle ensures that the seal surface produced is

smooth and flat, and also eliminates springback effects in the material.

This flange provides both the holding power and sealing surface (eliminating the braze joint, and hence, a potential leak path found with brazed sleeve attachment). The only sealing point is between the fitting body and the tube flange face via the high durometer O-ring.

The flanging process is very fast and requires very little cleaning prior to or after flanging. Thus, the process enhances the integrity of the joint and

reduces cost.

The Parflange® process utilises an orbital cold flow forming process to produce a flat, smooth, rigidly supported 90° sealing surface on the tube end. The process progressively flares then flanges the tube.

The Parflange® process conforms to the requirements for mechanical tube forming shown in the SAE J1453 standard, and has been specified after extensive testing by the majority of the large mobile equipment manufacturers.



## Parflange® advantages over brazing or welding

**Faster and lower cost** 9 to 12 times the speed of comparable induction brazing. **Flexibility** Small batch quantities are practical due to short tool change times.

### **Simple tube preparation**

The Parflange® process does not require any special pre- or post-flange cleaning of the tube and sleeve.

**Safety** Unlike brazing, the Parflange® process does not require any flux, braze alloy, post braze cleaner or rust inhibitor. An environmentally safe lubricant applied to the flanging pin is the only additive associated with the Parflange®.

**Environment** The Parflange® process is environmentally clean and safe. It

does not require open flame or any form of heating. Additionally, there is no emission of hazardous fumes, as is typical with welding and brazing.

**Energy** The Parflange® process uses only a fraction of the energy needed for welding or brazing.

**Corrosion resistance** The Parflange® process accommodates the use of plated or unplated components (i.e. tube and sleeve). Thus, the high costs of electro-plating assemblies after fabrication is eliminated by using pre-plated tube.

### **Excellent surface quality**

The Parflange® process eliminates the potential leak path present at the braze or weld joint.



Bins can be stored on top platforms

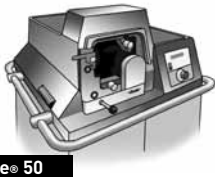


Easy refill of tool lubricant

## Features and benefits

1. **Cost saving** – Compared to welding or brazing, orbital flanging is much less time consuming. Special tube preparation and finishing are not necessary. Flanging uses only a fraction of the energy needed for brazing or welding.
2. **Zinc plated tubing** – The Parflange® process allows the use of zinc-plated tubing. The cost for cleaning post process plating, or painting can be saved.
3. **High tool lifetime** – The Parflange® 50 machine is equipped with an automatic lubrication device. The operator does not have to lubricate the tools ensure long pin life.
4. **Use of existing tools** – All existing Parflange® tools (M40 dies and B30/B40 pins) fit into the new machine generation.
5. **WorkCenter concept** – When the doors are opened, the machine body turns into a WorkCenter for production of O-Lok® and Triple-Lok® tube assemblies. All tools are available for rapid and convenient machine setup and tool change.
6. **Low-cost mass production** – The machine can be ordered with an automated sleeve feeder. The Parflange® 50 then is the perfect solution for low-cost mass production.
7. **Universal** – The Parflange® 50 can do 37° flaring for Triple-Lok® connectors and flange tubes for O-Lok® fittings (ORFS). Parflange® tools cover metric tube from 6 to 50 mm O.D. and inch tube from 1/4 to 2" O.D.
8. **Flange Seal** – The Parflange® 50 is also capable for the innovative Flange Seal connection, which contributes to reduce component cost and assembly time.
9. **Heavy duty** – The rigid machine design allows use for mass production of even large stainless steel tube connections.
10. **Process/Product concept** – Parflange® machines are especially designed to match O-Lok®, Triple-Lok® and SAE-flange standards. Machine, tools and products are fine-tuned for reliable performance.
11. **Superior sealing performance** – The Parflange® process achieves a sealing surface of unique surface quality and mechanical strength.
12. **Superior vibration resistance** – Unlike conventional flaring, the Parflange® process results in a rigid connection of the O-Lok® sleeve on the tube-end. Parflange®/ O-Lok® connections perform much better under reversed bending stress conditions.
13. **Efficient** – The short cycle time and the automatic process allow efficient mass production.
14. **Quality** – Tube clamping, tool control and even lubrication is fully automated so that high and consistent quality results are achieved without manual adjustments.
15. **Easy to use** – The clamping and flanging process is fully automated. Manual tool manipulation is not required. The process is initiated by pushing the tube end into the tooling.
16. **Bin holder** – The top surface is designed to store two standard bins for fitting nuts and Parflange® sleeves. Everything is easy to reach for the operator.
17. **Illuminated tooling area** – Insertion of Parflange® sleeves and condition monitoring of tools is easy.
18. **Practical lubricant refill** – The container for tool lubricant is easily accessible by a hatch on the machine side.
19. **Side drawer** – Chips, dirt and dropped components like Parflange® sleeves can be removed by a small drawer. This allows to keep the working area clear and avoid jamming of moving parts.
20. **Clean** – The Parflange® process is environmentally clean and safe. As no heat or chemicals are used, hazards from fumes or heat do not occur.
21. **Perfect for project work** – After finishing a piping project, the machine can be put aside. Tools don't get lost and dirty. For the next project, the machine just needs to be transported to the new side and unfolded into the WorkCenter. This is particularly useful for piping projects in shipyards, paper mills, offshore platforms or steel mills.
22. **Ready to go** – The Parflange® WorkCenter is delivered including all necessary details like electrical plug, operator manual, short instruction pictograms on machine housing and dimensional charts for tube preparation.
23. **New Generation** – The Parflange® 50 WorkCenter replaces the Parflange® 1040 machine, which has been successful in the market for more than 12 years.

Parflange® 50 process instructions



Parflange® 50

O-Lok® flanging

- Preferred method
- Most efficient method
- Parflange® recommended
- Tube selection and tube preparation see CAT 4100
- For machine details see operation manual
- Final fitting installation acc. to CAT 4100



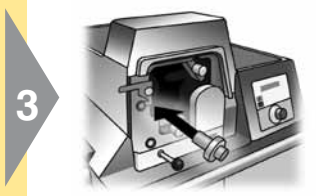
1

- Tube selection and tube preparation according to specifications
- Calculate tube length reduction by Parflange® and minimum straight length
- Tube end must be deburred and clean



2

- Parflange® machines:
- Select flaring pin according to tube dimensions
  - Use special "SS" pin for stainless steel tube
  - Pin must be clean and free of wear, damage and metal particles
  - Keep flaring pin clean



3

- Insert pin into machine
- ⚠ Machine must be deactivated for tool change (Hydraulic OFF)



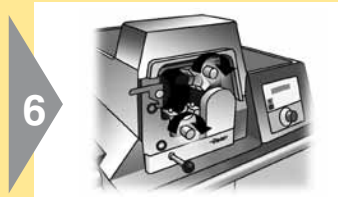
4

- Select flanging dies according to tube dimensions
- Use special "SS" dies for stainless steel tube to avoid contact corrosion
- Grip surface must be clean and free of wear
- Use only genuine Parker tooling for flanging O-Lok®



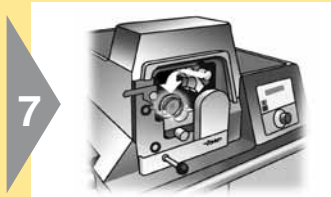
5

- Place the dies in the die housing
- Die with 2 pins in lower position
- ⚠ Machine must be deactivated for tool change (Hydraulic OFF)



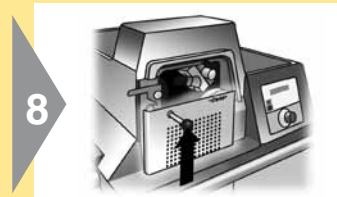
6

- Fix clamping dies



7

- 50 BASIC: Place sleeve in lower die half
- 50 PRO: Fill feeder rail with O-Lok® sleeves



8

- Close cover to start machine cycle
- Clamping dies will pre-close
- Cover opens automatically

Checking the flange



9

- Slide nut onto tube before flanging!
- Open threads towards machine



10

- Parflange® process is automatically started by pushing tube end into the tube stop
- Hold tube firmly
- After Parflanging, tube is released automatically
- 50 PRO: Next sleeve is loaded automatically



1

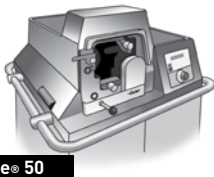
- Clean flange for inspection
- ⚠ Check sealing surface for cracks, burrs, scratches and pitting



2

- Dimensional check of the flare
- Flare O.D. should be close to but not exceed outside sleeve diameter
- Flare O.D. should not be less than smaller diameter of front of sleeve
- When in doubt, measure

Parflange® 50 process instructions



Parflange® 50

Triple Lok® 37° Flaring

- Preferred method
- Most efficient method
- Tube selection and tube preparation see CAT 4100
- For machine details see operation manual
- Final fitting installation acc. to CAT 4100



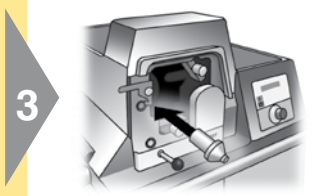
1

- Tube selection and tube preparation according to specifications
- Calculate tube length reduction by Parflange® and minimum straight length
- Tube end must be deburred and clean



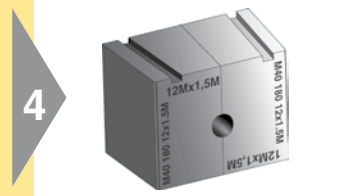
2

- Parflange® machines:
- Select flaring pin according to tube dimensions
  - Use special "SS" pin for stainless steel tube
  - Pin must be clean and free of wear, damage and metal particles
  - Keep flaring pin clean



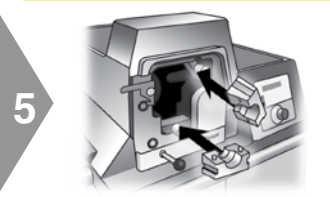
3

- Insert pin into machine
- ⚠ Machine must be deactivated for tool change (Hydraulic OFF)



4

- Select flanging dies according to tube dimensions
- Use special "SS" dies for stainless steel tube to avoid contact corrosion
- Grip surface must be clean and free of wear
- Use only genuine Parker tooling for flanging Triple-Lok®



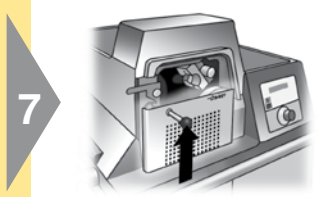
5

- Place the dies in the die housing
- Die with 2 pins in lower position
- ⚠ Machine must be deactivated for tool change (Hydraulic OFF)



6

- Fix clamping dies



7

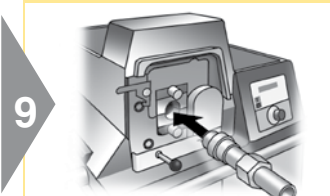
- Close cover to start machine cycle
- Clamping dies will pre-close
- Cover opens automatically



8

- Slide nut and sleeve as shown onto the tube end

Checking the flare



9

- Parflange process is automatically started by pushing tube end into the tube stop
- Hold tube firmly
- After Parflanging, tube is released automatically



1

- Clean flare for inspection
- ⚠ Check sealing surface for cracks, burrs, scratches and pitting



2

- Dimensional check of the flare
- Flare O.D. should be close to but not exceed outside sleeve diameter
- Flare O.D. should not be less than smaller diameter of front of sleeve
- When in doubt, measure



- To check measurements see CAT 4100

## Parflange® 50

### Technical description 50 BASIC:

The Parflange® 50 is a production WorkCenter for orbital flaring and flanging of high pressure tube connections. The unique feature of the Parflange® process is that the deformation of the tube end is achieved by rolling rather than by just pushing a tool into the tube end.

The Parflange® machine smoothly compresses the tube material and achieves a high strength joint with a polished surface of the tube end. O-Lok® and SAE flange sleeves are firmly fixed onto the tube end, resulting in a very rigid high-pressure tube connection.

The Parflange® 50 is the heavy-duty, mass production WorkCenter of the Parflange® machine programme. It is recommended for industrial

production of all sizes Triple-Lok® and O-Lok® tube connections. Maximum tube capacity is 50 mm / 2" tube O.D.

The powerful drive and the fast, automatic process allow short cycle times for efficient production. Its advantage is the quick and easy change of tooling and the simple operation without manual adjustments or programming. Tube clamping and tool lubrication are done automatically.

The Parflange® 50 comes ready to be used. Parflange® tools have to be purchased separately. For each tube dimension, special clamping dies and Parflange® pins are required. The machine can be moved on wheels, by forklift truck and crane. For basic use, just an electrical power supply is



### Machine specification 50 BASIC:

Purpose:	180° Flanging for O-Lok® and 37° Flaring for Triple-Lok®
Process:	Orbital flaring and flanging according to Parflange® process
Design:	WorkCenter for industrial production
Tube material:	Steel and stainless steel tube
Tube diameter:	Metric: 6 to 50 mm Inch: 1/4" to 2"
Min. U-bend:	120 mm
Maximum capacity:	Steel tube (ST 37, ST52, . . . ) Metric: 38 × 5 / 50 x 3mm (tube O.D. × wall thickness) Inch: 2" × 0.120 Stainless steel tube (1.4571, 316, . . . ) Metric: 38 × 4 mm Inch: 1½" × 0.156
Tube specification:	Fully annealed seamless cold drawn or welded and redrawn precision tube
Operation:	Automatic clamping, automatic flanging/flaring
Speed:	5-8 sec. flanging time / 15-20 sec. total cycle time
Economic production quantity:	max. 500 flarings per day
Tools:	Flaring pin B30 ... or B40 ..., Clamping dies M40 ...
Tool compartments:	10 die sets, 10 pins
Tool clamping:	Automatic
Tool lubrication:	Automatic lubrication device
Lubricant:	EO-NIROMONT (filled when delivered)
Hydraulic oil:	HLP 46 (filled when delivered)
Installation:	Electrical power
Dimensions:	700 x 840 x 1035 mm
Platform for bins:	2 platforms, 300 x 500 mm, max. 5 kg each
Weight:	380 kg
Electrical power:	400 V, 3 Phase, 50 Hz, 4.5 kW
Transport options:	On wheels, by forklift truck, lifting attachments

## Parflange® 50

### Technical description 50 PRO:

For industrial mass production of O-Lok® connections, special machines Parflange® 50 PRO with O-Lok® sleeve feeder are available. This sleeve feeding device increases the productivity, particularly of high volume – single tube dimension jobs.

In “Feeder ON – mode”, O-Lok® sleeves just need to be inserted into feeder rails. First cycle start is initiated by manually closing the safety cover. Then, all following cycles are started by pushing the tube into the pre-clamped dies. All other machine activities, like tube clamping, flanging, tube release, insertion of O-Lok® sleeves into dies, pre-clamping of dies and the operation of safety cover run fully automatic. The operator just is handling the tubes and refilling the

sleeve-feeder from times to times with O-Lok® sleeves.

In “Feeder OFF – mode”, the Parflange® 50 PRO operates like the Parflange® 50 BASIC without O-Lok® sleeve feeder. This mode is useful for maximum size flexibility and Triple-Lok® assembly. For quick changeover and safety reasons, the O-Lok® sleeve feeder is just switched OFF but not be removed from the Parflange® 50 PRO WorkCenter.

For operation of O-Lok® PRO machines, compressed air supply is required, even when sleeve feeder is not used.



### Machine specification 50 PRO:

Specific differences of Parflange® 50 PRO versus Parflange® 50 BASIC

Design:	Parflange® 50 with additional O-Lok® sleeve feeder
Normal Operation:	Same as Parflange® 50 BASIC when feeder is switched off
Feeder Operation:	Work-cycle is initiated by inserting tube end Automatic clamping, automatic flanging/flaring Automatic insertion of O-Lok® sleeves into dies Automatic operation of safety cover Automatic pre-clamping of dies
Manual operation:	like Parflange® 50 BASIC
Cycle time:	5-8 sec. flanging time / approx. 15 to 20 sec. total cycle time
Economic production quantity:	max. 1200 flarings per day
Tools:	Same tools as Parflange® 50 BASIC
Feeder:	Feeder is delivered in separate box and must be firmly attached to machine. Feeder can be switched ON and OFF but must not be removed.
Feeder rails:	Feeder rail kits must be ordered separately for each O-Lok® sleeve size.
Feeder setup:	Installation of matching rail kit by knurled nuts and adjustment of scale wheel according to chart
Installation:	Electrical power, for feeder type machines: compressed air supply (6 bar)
Dimensions:	700 x 840 x 2030 mm
Weight:	410 kg

**Ordering**

Type	Order code
Parflange® 50 Basic machine Ready to use, including operation manual, filled with hydraulic oil and lubricant Without Parflange® tools Basic machine Europe version (not prepared for O-Lok® sleeve feeder)	
Purchase: EU-Version US-Version	1050EU400VBASIC 10US440V60HZBASIC
Leasing (2 year hire purchase)	1050BASICLEASEFEE
Rent (monthly)	1050BASICRENTFEE

Type	Order code
Parflange® 50 PRO machine Europe version including O-Lok® sleeve feeder without feeder rails	
Purchase: EU-Version US-Version	1050EU400VPRO 10US440V60HZPRO
Leasing (2 year hire purchase)	1050PROLEASEFEE
Rent (monthly)	not available

Sleeve feeder rails for Parflange® 50 PRO	Tube OD	Order code
O-Lok® sleeve feeding rail	6mm / ¼"	1050/RAIL04
O-Lok® sleeve feeding rail	8,10mm / 3/8"	1050/RAIL06
O-Lok® sleeve feeding rail	12mm / 1/2"	1050/RAIL08
O-Lok® sleeve feeding rail	14,15,16mm / 5/8"	1050/RAIL10
O-Lok® sleeve feeding rail	18,20mm / 3/4"	1050/RAIL12
O-Lok® sleeve feeding rail	22,25mm / 1"	1050/RAIL16
O-Lok® sleeve feeding rail	28,30,32mm / 1¼"	1050/RAIL20
O-Lok® sleeve feeding rail	35,38mm / 1½"	1050/RAIL24

50 promotion leaflet	4391-2 via Parker catalogue service EMDC
50 operating manual UK/DE/FR/IT/ES	1050/MANUAL
Standard preventive maintenance	1050/INSPECTION
Tool lubricant refill qty: 1L	LUBSS
Replacement cartridge for spindle lubrication	1050/22900001801

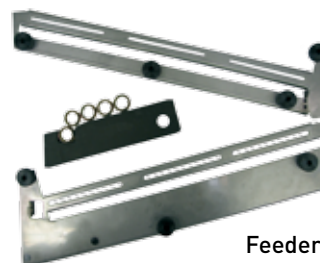
Parflange® machines and feeders are shipped in special containers which should be kept for future transports to avoid damage. Please don't dispose the transport boxes!



Parflange® 50 BASIC



Parflange® 50 PRO for mass production of O-Lok® assemblies

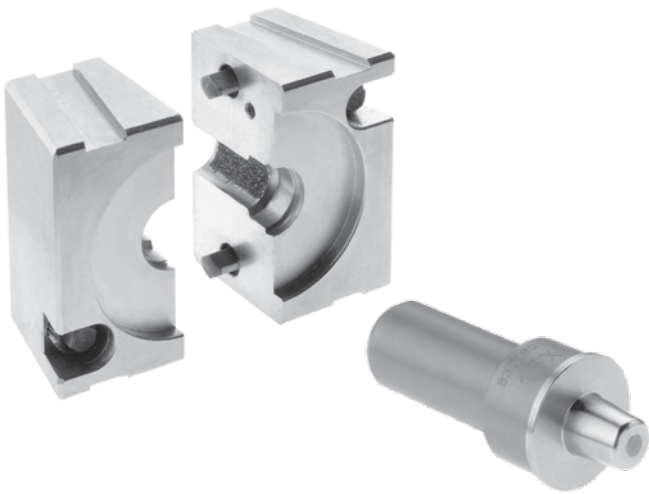


Feeder rail kits are available for each O-Lok® size

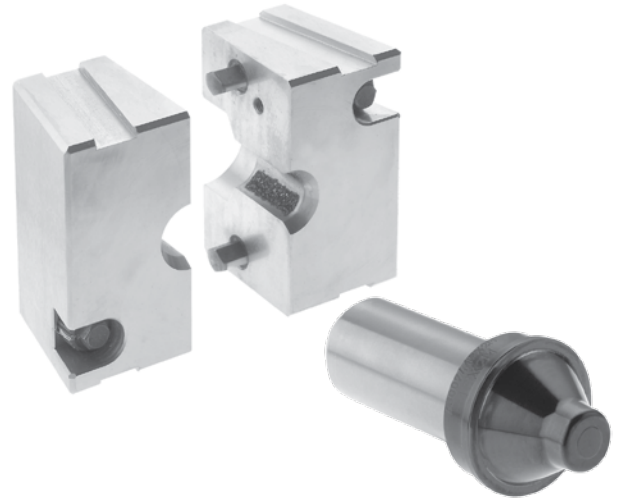


High-Performance lubricant for Parflange®

Parflange® tool selection



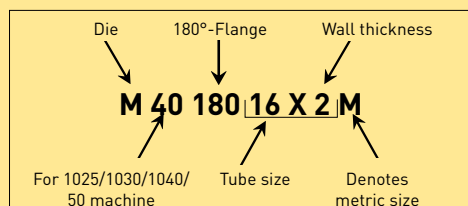
Parflange® tools for O-Lok®



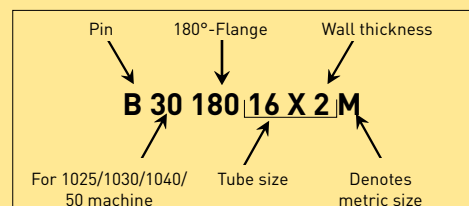
Parflange® tools for Triple-Lok®

Tooling for metric tubing

Metric die numbering system

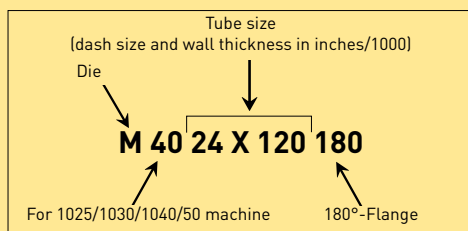


Metric pin numbering system

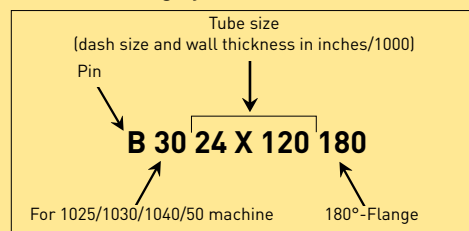


Tooling for inch tubing

Die numbering system



Pin numbering system



Parflange® tools for stainless steel tubes have different dimensions and are specially coated. These tools are marked with suffix "SS".

# Parker Worldwide

**AE – UAE, Dubai**  
Tel: +971 4 8127100  
parker.me@parker.com

**AR – Argentina, Buenos Aires**  
Tel: +54 3327 44 4129

**AT – Austria, Wiener Neustadt**  
Tel: +43 (0)2622 23501-0  
parker.austria@parker.com

**AT – Eastern Europe, Wiener Neustadt**  
Tel: +43 (0)2622 23501 900  
parker.easteurope@parker.com

**AU – Australia, Castle Hill**  
Tel: +61 (0)2-9634 7777

**AZ – Azerbaijan, Baku**  
Tel: +994 50 2233 458  
parker.azerbaijan@parker.com

**BE/LU – Belgium, Nivelles**  
Tel: +32 (0)67 280 900  
parker.belgium@parker.com

**BR – Brazil, Cachoeirinha RS**  
Tel: +55 51 3470 9144

**BY – Belarus, Minsk**  
Tel: +375 17 209 9399  
parker.belarus@parker.com

**CA – Canada, Milton, Ontario**  
Tel: +1 905 693 3000

**CH – Switzerland, Etoy**  
Tel: +41 (0)21 821 87 00  
parker.switzerland@parker.com

**CL – Chile, Santiago**  
Tel: +56 2 623 1216

**CN – China, Shanghai**  
Tel: +86 21 2899 5000

**CZ – Czech Republic, Klecany**  
Tel: +420 284 083 111  
parker.czechrepublic@parker.com

**DE – Germany, Kaarst**  
Tel: +49 (0)2131 4016 0  
parker.germany@parker.com

**DK – Denmark, Ballerup**  
Tel: +45 43 56 04 00  
parker.denmark@parker.com

**ES – Spain, Madrid**  
Tel: +34 902 330 001  
parker.spain@parker.com

**FI – Finland, Vantaa**  
Tel: +358 (0)20 753 2500  
parker.finland@parker.com

**FR – France, Contamine s/Arve**  
Tel: +33 (0)4 50 25 80 25  
parker.france@parker.com

**GR – Greece, Athens**  
Tel: +30 210 933 6450  
parker.greece@parker.com

**HK – Hong Kong**  
Tel: +852 2428 8008

**HU – Hungary, Budapest**  
Tel: +36 1 220 4155  
parker.hungary@parker.com

**IE – Ireland, Dublin**  
Tel: +353 (0)1 466 6370  
parker.ireland@parker.com

**IN – India, Mumbai**  
Tel: +91 22 6513 7081-85

**IT – Italy, Corsico (MI)**  
Tel: +39 02 45 19 21  
parker.italy@parker.com

**JP – Japan, Tokyo**  
Tel: +81 (0)3 6408 3901

**KR – South Korea, Seoul**  
Tel: +82 2 559 0400

**KZ – Kazakhstan, Almaty**  
Tel: +7 7272 505 800  
parker.easteurope@parker.com

**MX – Mexico, Apodaca**  
Tel: +52 81 8156 6000

**MY – Malaysia, Shah Alam**  
Tel: +60 3 7849 0800

**NL – The Netherlands, Oldenzaal**  
Tel: +31 (0)541 585 000  
parker.nl@parker.com

**NO – Norway, Asker**  
Tel: +47 66 75 34 00  
parker.norway@parker.com

**NZ – New Zealand, Mt Wellington**  
Tel: +64 9 574 1744

**PL – Poland, Warsaw**  
Tel: +48 (0)22 573 24 00  
parker.poland@parker.com

**PT – Portugal, Leca da Palmeira**  
Tel: +351 22 999 7360  
parker.portugal@parker.com

**RO – Romania, Bucharest**  
Tel: +40 21 252 1382  
parker.romania@parker.com

**RU – Russia, Moscow**  
Tel: +7 495 645-2156  
parker.russia@parker.com

**SE – Sweden, Spånga**  
Tel: +46 (0)8 59 79 50 00  
parker.sweden@parker.com

**SG – Singapore**  
Tel: +65 6887 6300

**SK – Slovakia, Banská Bystrica**  
Tel: +421 484 162 252  
parker.slovakia@parker.com

**SL – Slovenia, Novo Mesto**  
Tel: +386 7 337 6650  
parker.slovenia@parker.com

**TH – Thailand, Bangkok**  
Tel: +662 717 8140

**TR – Turkey, Istanbul**  
Tel: +90 216 4997081  
parker.turkey@parker.com

**TW – Taiwan, Taipei**  
Tel: +886 2 2298 8987

**UA – Ukraine, Kiev**  
Tel: +380 44 494 2731  
parker.ukraine@parker.com

**UK – United Kingdom, Warwick**  
Tel: +44 (0)1926 317 878  
parker.uk@parker.com

**US – USA, Cleveland**  
Tel: +1 216 896 3000

**VE – Venezuela, Caracas**  
Tel: +58 212 238 5422

**ZA – South Africa, Kempton Park**  
Tel: +27 (0)11 961 0700  
parker.southafrica@parker.com

## European Product Information Centre

Free phone: 00 800 27 27 5374  
(from AT, BE, CH, CZ, DE, EE, ES, FI, FR, IE,  
IL, IS, IT, LU, MT, NL, NO, PT, SE, SK, UK)

## US Product Information Centre

Free phone: 1-800-27 27 537

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