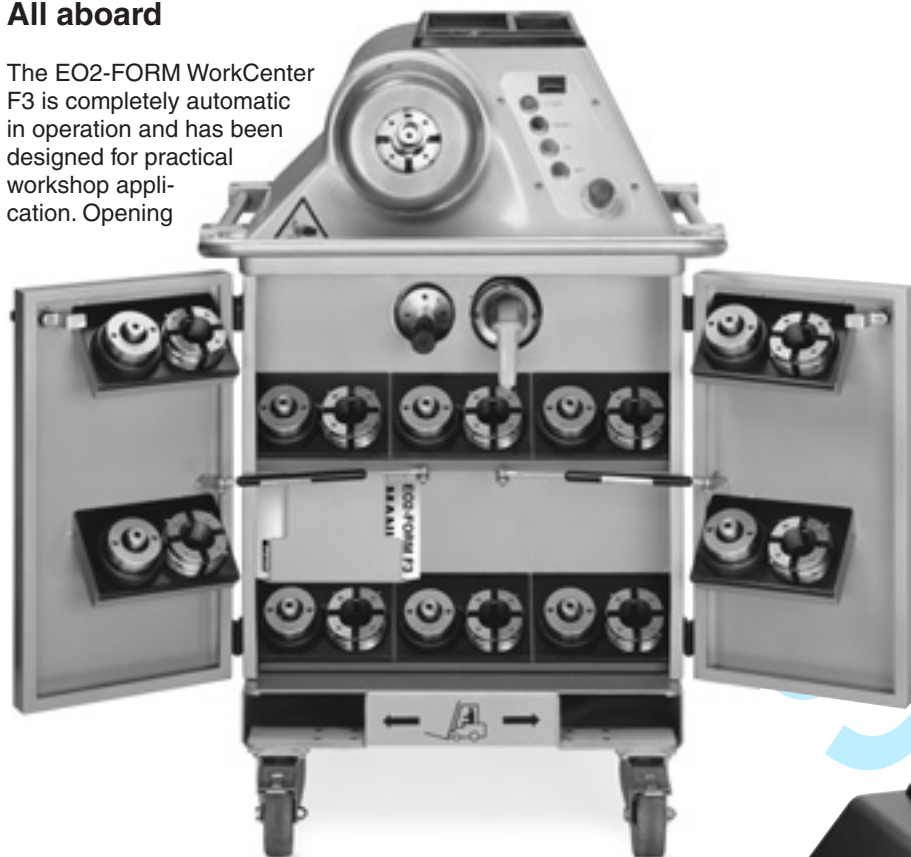


The EO2-FORM WorkCenter F3

All aboard

The EO2-FORM WorkCenter F3 is completely automatic in operation and has been designed for practical workshop application. Opening



the doors turns the machine into a totally equipped WorkCenter. The tool storage area is located in the front – the tools are neatly laid out and easily viewed. No other workbenches or tool racks are required. Special convenient-to-handle tools make the machine setups and tool changes easier. Thanks to automatic tool recognition, the operator has only to press the start button, whereupon the tube is formed into the correct shape in one pass. This means that EO2-FORM connections are extremely simple to manufacture. The EO2-FORM F3 is so reliable because of its powerful hydraulic drive and robust forming tools.

- Workshop machine for universal use
- 6 to 38/42 mm tube OD
- Cycle time approx. 20 seconds
- Especially advantageous for: Hydraulic presses, cranes and lifts, heavy machinery, shipbuilding, off-shore and hydraulic steelworks

The EO2-FORM WorkCenter PRO22

Mass production without tears

The EO2-FORM WorkCenter PRO22 is based on proven EO2-FORM technology and was specially designed for the economic production of EO2-FORM tube fittings. Compared with the EO2-FORM F3 WorkCenter, the PRO22 production machine works considerably more efficiently and can machine tighter tube bends. Because of its powerful drive and efficient cooling, continuous mass production on a shift-work basis is provided for. In addition, the machine is especially quiet and vibration-free in operation.

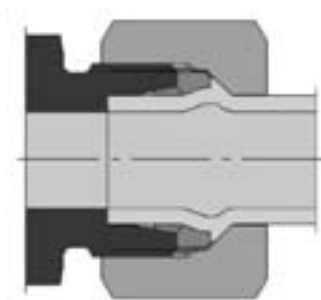
Small to medium tubes from 6 to 22 mm can be accommodated on the new machine. The compact assembly head enables even tight tube bends to be machined.

- Production machine for economical and fail-safe manufacturing
- 6 to 22 mm tube OD
- Cycle time approx. 6 seconds
- Advantageous for applications such as: manufacturers of agricultural machinery, construction machines, trucks, fork lift trucks and other mass-produced hydraulic equipment



Technical Data	
Machine	EO2-FORM F3 and PRO22
Designated use	Cold forming of tube ends for tube connections
Method	Axial swaging
Suitable for	EO tube fittings to DIN EN ISO 8434-1
	Hose Connections to DIN 71550
Tube specification	
Steel tubing	E235 / ST37.4; E355 / ST52.4
Stainless steel tubing	1.4571
Other materials	CuNiFe, duplex and others on request
Boiler tube	Tubes for turbine construction on request
Tools	Interchangeable
Forming die sets	"MF3" single part forming die sets, one type for each tube OD
Forming pin	"BF3" forming pin with inner mandrel, one type each per tube OD, wall thickness and material
Function	
Tool change	Manual
Setting	Automatic tool recognition and pressure setting
Tube clamping	Hydraulic
Forming	Hydraulic
Controls	Automatic sequence: after pressing START button: Clamp – form – withdraw – unclamp
Environmental conditions	
Working temperature	+10 ... +50°C
Relative humidity	Msc. 90%, non-condensing

EO2-FORM F3 WorkCenter



Type	EO2-FORM F3	EO2-FORM PRO22
Specifications		
Type	Universal workshop machine	Powerful production machine
Design	WorkCenter	WorkCenter
Application	Alternative to welding	Efficient mass production
Weight	Approx. 330 kg	Approx. 375 kg
Dimensions (BxLxH)	800 (open: 1,300)x660x1,150	800 (open: 1,300)x1,130x1,200
Electrical supply	400 V, 50 Hz, 3 phase 230 V, 50 Hz, 3 phase 440 V, 60 Hz, 3 phase	400 V, 50 Hz, 3 phase
Electric motor drive rating	4 kW	4 kW
Oil cooler	Optional	Standard
Performance data		
Steel tube	6x1 ... 38x7/42x4	6x1 ... 20x2/22x2
Stainless steel tube	6x1 ... 38x5/42x3	6x1 ... 20x2/22x2
Minimum width U-bend	Approx. 135 mm	Approx. 100 mm
Cycle time	15–20 sec.	Ca. 6 sec.
Economic production quantity	Max. 100 formings/hour Max. 200 forming/hour (with oil cooler)	Max. 600 formings/hour
Applications	Ideal for project and workshop tasks, small batches and on-site installations. Tubes of all sizes.	Economic mass production of small to medium tube dimensions

Features, advantages and benefits

1. **Process / Product concept** – The EO2-FORM technology is not a stand-alone machine or a new fitting system. It is a product extension of the EO-2 range which has existed since 1993. Exactly the same, proven seal elements are used.
2. **Workcenter concept** – All tools, handling devices, lubricants and the operator manual are well organised inside the machine. Once the doors are opened, the machine turns into a stand-alone workcenter for tube preparation. On the top shelf, there are practical compartments for rules, pens, lubricant and standard EO-boxes with nuts and sealing rings. No additional workbenches or shelves for tooling are required.
3. **Easy operation** – One single START-button is all that needs to be operated to run a forming cycle completely. No “zero position” or “reset” activities have to be performed in-between two forming cycles. For efficient mass production, a foot switch is available. A label on the machine head shows all operation steps in pictograms and all important dimensions in charts.
4. **Easy tool change** – An ergonomic, pistol-like device allows quick and easy change of the one-piece clamping die set without opening the forming head or even touching the tools. Another handle speeds up the setup process of the forming pin in the bayonet mechanism.
5. **Easy handling** – Standard tools and one set of EO-2 sealing rings are suitable for all common hydraulic tube dimensions. No special sleeves are required for thin wall or small diameter tube.
6. **Well organised** – All tools and accessories are well organised in a practical compartment inside the machine housing. Nothing gets dirty, lost or confused.
7. **Easy transport** – The machine is equipped with heavy duty wheels so that it can be moved around by

one person without hard work or additional equipment. Special attachments for crane and forklift truck transport are standard. A reeling serves as handle, protection and attachment for fixing belts when transported by truck. Tools and all accessories are safely and cleanly stored inside.

8. **Easy logistics** – EO2-FORM uses the same components as EO-2. Special sets of nuts and sealing rings can be ordered with one part number (FORM ...). This reduces ordering effort and contributes to achieve availability with optimum inventory.
9. **Stainless steel capabilities** – Forming pins for stainless steel tubes are specially designed for optimum forming results and surface coated for maximum lifetime. All forming pins for stainless steel tube are marked with a blue dot. Clamping dies can be used for both, steel and stainless steel tube.
10. **Approved functional system** – EO2-FORM has been on market for years. It is approved for use in shipbuilding, offshore industry, hydraulic water lock systems, press and crane manufacturing, heavy mobile equipment and general machine building. EO2-FORM is tested and approved from authorities like German Lloyd, DNV or from end-users like Daimler-Chrysler.
11. **Cost saving** – Compared to welding or brazing, EO2-FORM is much less time consuming. Special tube preparation and finishing are not necessary. Cold forming uses only a fraction of the energy needed for brazing or welding.
12. **Superior vibration resistance** – The EO2-FORM process achieves a smooth structural transformation of the tube wall. There are no sharp edges or notches to reduce the vibration resistance.
13. **Superior mechanical strength** – The working contact area of the EO2-FORM connection is the flat front surface of the metal support ring which is made of heat-treated, high-strength steel or stainless steel.

This provides superior mechanical strength without settling, loosening or need for re-tightening.

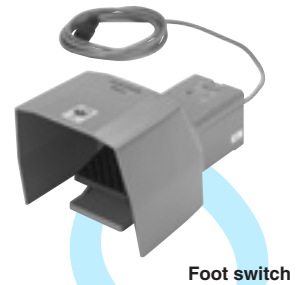
14. **Universal** – The EO2-FORM machine can cold-form all common steel and stainless steel tube materials for hydraulic pipework. Even exotic materials such as Cu-NiFe or Duplex can be formed. EO2-FORM tools cover metric tube sizes from 6 to 42 mm OD.
15. **Short tube ends** – The compact clamping device and special dies are suitable for machining complex tube bends.
16. **Noise/energy loss reduction** – The EO2-FORM process results in a smooth inner contour of the tube. Minimum pressure drop, heat and noise is created. No hidden corners allow the accumulation of air, dirt or other sources of trouble.
17. **Clean** – The EO2-FORM process is environmental clean and safe. As no heat is used, hazards from fumes or heat do not occur.
18. **Zinc plated tubing** – The EO2-FORM process allows the use of zinc-plated tubing. The costs of cleaning or painting are saved.
19. **Quality** – Tube clamping and tool functions are fully automated. Proper joint geometry and seal dimensions are achieved by using standard EO-2 sealing rings. Therefore high and consistent quality is achieved without manual adjustment.
20. **Proven Technology** – Since 1993, millions of EO-2 fittings have operated worldwide under heavy duty conditions, providing leak-free hydraulic systems.
21. **No restrictions** – The process allows to use EO-2 elastomeric sealing technology even for applications where bite-type connectors are not permitted by safety standards, for example hydraulic presses, cranes, lifts or ship canal systems locks.

F3 Forming machine for EO2-FORM high pressure tube connections

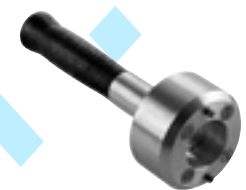
Machine Type	Order code F3	Order code PRO22
EO2-FORM basic unit for forming tube ends, ready to operate with magnetic gripper, holder and operator's handbook, but without tools, packed in a special transportation box		
Universal EO2-FORM F3 machine Tube OD 6-38/42 mm 400 V, 50 Hz, 3 phase 230 V, 50 Hz, 3 phase 440 V, 60 Hz, 3 phase Rental (monthly usage) Leasing (24 leasing rate)	EO2FORMF3400V EO2FORMF3230V EO2FORMF3440V EO2FORMF3RENTFEE EO2FORMF3LEASEFEE	
Production machine EO2-FORM PRO22 Tube OD 6-20/22 mm 400 V, 50 Hz, 3 phase Rental (monthly usage) Leasing (24 leasing rate)		EO2FORM400VPRO EO2FORMPRORENTFEE EO2FORMPROLEASEFEE
Accessories Type	Order code F3	Order code PRO22
Lubrication for forming pin: 0.25 L bottle EO-NIROMONT 1L re-fill pack EO-NIROMONT	EONIROMONTFLUESSX LUBSS	EONIROMONTFLUESSX LUBSS
Oil cooler kit	F3/COOLERKIT	included
Foot switch	F3/FOOTSWITCH	F3/FOOTSWITCH
Magnetic gripper for forming pin	F3/PINHOLDER	F3/PINHOLDER
Holder for forming die set	F3/DIEHOLDER	F3/DIEHOLDER
Clamping segments for die set	F3/DIECLAMP	F3/DIECLAMP
Clamping segment spring \varnothing 8 mm	F3/DIECLAMPSRING8	F3/DIECLAMPSRING8
Clamping segment spring \varnothing 12 mm	F3/DIECLAMPSRING12	F3/DIECLAMPSRING12
Operation manual: UK, DE, FR, IT, SWE	4033	EO2FORMPRO/MANUAL
Standard preventive maintenance	EO2FORMF3/INSPECTION	EO2FORMF3/INSPECTION

EO2-FORM F3 machines are shipped in special containers which should be kept for future transports to avoid damage. Please don't dispose the transport boxes!

Machine housing Type	Order code F3	Order code PRO22
Top machine cover	F3/HEADCOVER	F3PRO/08836014
Top tray	F3/TOPTRAY	F3/TOPTRAY
Door lock for tool compartment	F3/DOORLOCK	F3/DOORLOCK
Door hinge	F3/DOORHINGE	F3/DOORHINGE
Shock absorber for doors	F3/DOORSRING	F3/DOORSRING
Tool tray for inner tool compartment (top), 6x	F3/TOOLTRAYIN	F3/TOOLTRAYIN
Tool tray for inner tool compartment (bottom), 6x	F3/0883611	F3/0883611
Tool tray for tool compartment in doors, 2x	F3/TOOLTRAYDOOR	F3/TOOLTRAYDOOR
Die insert for tool tray (use screw M6)	F3/TOOLTRAYDIE	F3/TOOLTRAYDIE
Holder for magnetic gripper	F3/PINHOLDERTRAY	F3/PINHOLDERTRAY
Holder for holder	F3/DIEHOLDERTRAY	F3/DIEHOLDERTRAY
Plastic guide for forklift (use screw M6)	F3/FORKGUIDE	F3/FORKGUIDE
Front wheel with lock	F3/FRONTWHEEL	F3/FRONTWHEEL
Rear wheel	F3/BACKWHEEL	F3/BACKWHEEL



Foot switch



Magnetic gripper for forming pin



Holder for forming die set



Oil cooler kit

Assembly tooling

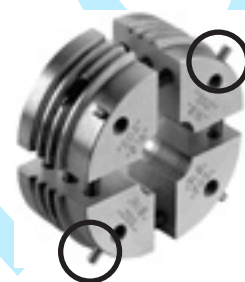
Sticker Type	Order code F3	Order code PRO22
EO2-FORM door label	F3/STICKERPARKER	F3PRO/STICKERPARKER
Short instructions on side	F3/STICKERINSTRUC	F3PRO/STICKERINSTRUC
Lubrication on front	F3/STICKERLUB	F3/STICKERLUB
Crane attachment (1 piece)	F3/STICKERCRANE	F3/STICKERCRANE
Forklift on front	F3/STICKERFORK	F3/STICKERFORK

Operation panel Type	Order code F3	Order code PRO22
Front panel counter	F3/FRONTCOUNTER	F3/FRONTCOUNTER
"START" switch (black with symbol)	F3/STARTSWITCH	F3/STARTSWITCH
"RESET" switch (blue)	F3/RESETSWITCH	F3/RESETSWITCH
"ON" switch (green)	F3/ONSWITCH	F3/ONSWITCH
"OFF" switch (red)	F3/OFFSWITCH	F3/OFFSWITCH
Emergency stop switch (red)	F3/STOPSWITCH	F3/STOPSWITCH

Tool Components Type	Order code F3	Order code PRO22
Bayonet bolt for forming pin	F2/PINBOLT	F2/PINBOLT
Screw for clamping die segments	F3/DIESCREW	F3/DIESCREW
Spare part kit for clamping die set (4x Pin Ø4, 4x Spring Ø8, 4x Spring Ø12, 4x Screws)	F3/DIEKIT	F3/DIEKIT



Pin for forming pin



Pin for clamping die set

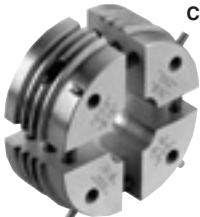


F3 Forming machine for EO2-FORM high pressure tube connections

Clamping die set MF3EO-2		Forming pin BF3EO-2	
Tube O.D. Ø	Clamping dies for steel and stainless steel tubes Order code	Forming pin for steel tubes Order code	Forming pin for stainless steel tubes Order code ¹⁾²⁾
06-L/S	MF3EO206	BF3EO206X1S BF3EO206X1.5S BF3EO206X2S	BF3EO206X1SS BF3EO206X1.5SS
08-L/S	MF3EO208	BF3EO208X1S BF3EO208X1.5S BF3EO208X2S BF3EO208X2.5S	BF3EO208X1SS BF3EO208X1.5SS
10-L	MF3EO210	BF3EO210LX1S BF3EO210LX1.5S BF3EO210LX2S	BF3EO210LX1SS BF3EO210LX1.5SS BF3EO210LX2SS
10-S	MF3EO210	BF3EO210SX1.5S BF3EO210SX2S BF3EO210SX3S	BF3EO210SX1.5SS BF3EO210SX2SS
12-L	MF3EO212	BF3EO212LX1.5S BF3EO212LX2S	BF3EO212LX1.5SS BF3EO212LX2SS
12-S	MF3EO212	BF3EO212SX1.5S BF3EO212SX2S BF3EO212SX3S	BF3EO212SX1.5SS BF3EO212SX2SS
15-L	MF3EO215	BF3EO215X1S BF3EO215X1.5S BF3EO215X2S	BF3EO215X1.5SS BF3EO215X2SS
16-S	MF3EO216	BF3EO216X2S BF3EO216X2.5S BF3EO216X3S	BF3EO216X2SS BF3EO216X2.5SS BF3EO216X3SS

F3 Forming machine for EO2-FORM high pressure tube connections

Tube O.D. Ø	Clamping dies for steel and stainless steel tubes Order code	Ø × s	Forming pin for steel tubes Order code	Forming pin for stainless steel tubes Order code ¹⁾²⁾
18-L	MF3EO218	18×1.5 18×2.0	BF3EO218X1.5S BF3EO218X2S	BF3EO218X1.5SS BF3EO218X2SS
20-S	MF3EO220	20×2.0 20×2.5 20×3.0 20×3.5	BF3EO220X2S BF3EO220X2.5S BF3EO220X3S BF3EO220X3.5S	BF3EO220X2SS BF3EO220X2.5SS BF3EO220X3SS BF3EO220X3.5SS
22-L	MF3EO222	22×1.5 22×2.0	BF3EO222X1.5S BF3EO222X2S	BF3EO222X1.5SS BF3EO222X2SS
25-S	MF3EO225	25×2.0 25×2.5 25×3.0 25×4.0	BF3EO225X2S BF3EO225X2.5S BF3EO225X3S BF3EO225X4S	BF3EO225X2SS BF3EO225X2.5SS BF3EO225X3SS BF3EO225X4SS
28-L	MF3EO228	28×2.0	BF3EO228X2S	BF3EO228X2SS
30-S	MF3EO230	30×3.0 30×4.0 30×5.0	BF3EO230X3S BF3EO230X4S BF3EO230X5S	BF3EO230X3SS BF3EO230X4SS BF3EO230X5SS
35-L	MF3EO238	35×2.0 35×3.0	BF3EO235X2S BF3EO235X3S	BF3EO235X2SS BF3EO235X3SS
38-S	MF3EO242	38×3.0 38×4.0 38×5.0 38×6/7	BF3EO238X3S BF3EO238X4S BF3EO238X5S BF3EO238X6+7S	BF3EO238X3SS BF3EO238X4SS BF3EO238X5SS BF3EO238X6+7SS
42-L		42×2.0 42×3.0	BF3EO242X2S BF3EO242X3S	BF3EO242X2SS BF3EO242X3SS

Tools for hose connection DIN 71550

				
Tube O.D. Ø	Clamping dies for steel and stainless steel tubes Order code	Ø × s	Forming pin for steel tubes Order code	Forming pin for stainless steel tubes Order code ¹⁾²⁾
10	MF3EO210	10x1.5	BF3DIN7155010X1.5S	
12	MF3EO212	12x1.5	BF3DIN7155012X1.5S	BF3DIN7155012X1.5SS
15	MF3EO215	15x2.0	BF3DIN7155015X2S	
18	MF3EO218	18x1.5	BF3DIN7155018X1.5S	
20	MF3EO220	20x2.5	BF3DIN7155020X2.5S	
22	MF3EO222	22x1.5	BF3DIN7155022X1.5S	BF3DIN7155022X1.5SS
25	MF3EO225	25x2.0	BF3DIN7155025X2S	BF3DIN7155025X2SS
28	MF3EO228	28x1.5 28x2.0	BF3DIN7155028X1.5S	BF3DIN7155028X1.5SS BF3DIN7155028X2SS
30	MF3EO230	30x1.5		BF3DIN7155030X1.5SS
32	MF3EO232	32x1.5	BF3DIN7155032X1.5S	
35	MF3EO235	35x2.0		BF3DIN7155035X2SS

Tool compatibility: **Italic** = Tools for EO2-FORM F3 WorkCenter
Regular = Tools for EO2-FORM F3 and PRO22 WorkCenter

Tool lifetime

Assembly tools are subject of wear and must be regularly (max. 50 assemblies) cleaned and checked (Checking instructions see chapter E). Worn out tools can cause dangerous assembly failures and must be replaced in time. Average tool lifetime is approx. 5000 cycles when properly used. Maximum lifetime can be achieved by following factors:

Please select clamping die and forming pin according to tube dimension and material.

1) All forming pins for stainless steel tubing are marked with a blue dot on front surface.

2) Stainless steel tools are TiN coated.

Clamping die sets which are only used for stainless steel tubes should be marked with the blue dot sticker to avoid use with steel tube.

- Regular cleaning and checking
- Clean and corrosion-protected storage
- Proper de-burring and cleaning of tube end
- Proper tool selection and operation
- Use of specified lubricant

Flaring tools for Triple-Lok® tubes

Flaring tool selection guide





Manual flaring devices are available for on-site assembly and field repair of Triple-Lok® tube connections.

Manual flaring tools range from simple impact flarers to handpump-operated workshop devices. Flaring result and fitting performance depends strongly on the skill and effort of operator. Hand flaring tools are not recommended for efficient industrial production.

Features, advantages and benefits of hand flaring tools

- 1. Flexible** – Manual flaring tools are portable and do not need any power supply. Therefore they are ideal for on-site assembly and field repair.
- 2. Special** – Each device has been especially developed to match Parker Triple-Lok® standards. The tube connections will fit properly without rework.

How to select the ideal flaring device for your application:

	Hand flaring tools 1004/210A	Impact flaring tool	EO-KARRYFLARE	Parflare ECO
				
Assembly method				
Triple-Lok®	impact flaring	impact flaring	conventional flaring	conventional flaring
O-Lok®	not suitable	not suitable	not suitable	not suitable
Tube specification				
Material	copper, steel	copper, steel, stainless steel	steel, stainless steel	steel, stainless steel
Dimension metric tube	6 to 16 mm (1004)	6 to 38 mm	6 to 38/42 mm	6 to 38/42 mm
Dimension inch tube	1/8" to 5/8" (210A)	1/4" to 1 1/2"	1/4" to 1 1/2"	1/4" to 1 1/2"
Min. U-bend	depending on vice	depending on vice	65 mm	70 mm
Tools				
Clamping dies	one device	vice block	Flaring die M15 ... (same dies used EOMAT)	Flaring die M15 ... (same dies used EOMAT)
Flaring pin	integral part of device	pin plus hammer	integral part of device	integral part of device
Operation				
Flaring	hammer impact	hammer impact	handpump	electro-hydraulic
Process control	manual	manual	pressure according to chart	pressure according to chart
Tube clamping	manual clamping	manual	automatic clamping	automatic clamping
Specifications				
Design	flaring device for use in vice	Hand tools for use in vice	portable desktop	portable desktop
Weight	approx. 1.5 kg	–	approx. 29 kg	approx. 30 kg
Dimension (WxLxH)	–	–	750x360x260 mm	750x360x300 mm
Performance				
Overall cycle time	approx. 1–3 min	approx. 1–3 min	approx. 30–60 sec.	approx. 15–20 sec.
Economic production quantity:	10 flarings per week	10 flarings per week	max. 50 flarings per day	max. 100 flarings per day
Quality	dependant on operator	dependant on operator	controlled process	controlled process
Application	on-site repair jobs only; Limited to small dimensions. Limited to single assemblies, not for industrial production, emergency repairs until industrial flared tube is available for replacement.		Efficient for on-site flaring of small quantities not for mass production	portable machine for repair and workshop

Manual flaring tools for Triple-Lok® tubes

These 37° flaring tools are for use with copper, aluminum alloy, and thin wall steel or stainless steel tubes. A vice block is clamped together with the tube end into a vicener. Flaring pin is used with a hammer. Separate tooling sets for each tube size in metric and inch dimensions are available.

These hand tools are suitable for small on-site repair jobs. They are not suitable for thick-wall tubing and industrial production. A rigid vice must be available at the assembly site.

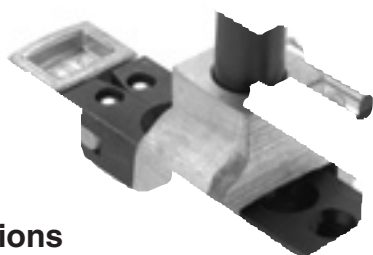
Features, advantages and benefits

1. **Light** – Hand flaring tools can be used at any assembly site where a proper workshop is not available
2. **Quick** – Hand flaring tools can be used for temporary repair until a proper spare tube has been made by machine

Applications

- Field repair of agricultural and construction vehicles
- Small, local repair workshops
- Mobile repair service

Combination impact flarer 1004 for small dimension metric tube



Specifications

Design: Hand flaring tool for small on-site repair jobs
Operation: Flaring pin Impact
37° Flaring: Triple-Lok® connection – ISO 8434-2/ SAE J514
Tube material: copper, aluminum and low carbon steel
Tube diameter: 6 to 16 mm metric tube
Wall thickness: max 15% of tube O.D.
Requirements: Rigid vice and hammer
Performance: Overall cycle time 1–3 min
Economic production quantity: 10 flarings per week

Operation

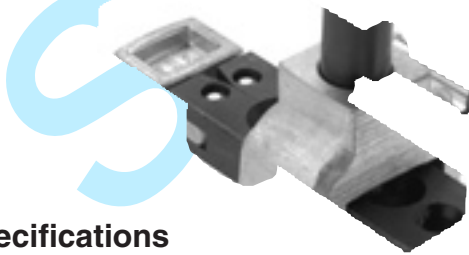
1. Clamp tube end flush in block halves
2. Clean and lubricate tube end and flaring pin
3. Form the flare by a few sharp hammer blows
4. Release vice and unclamp tube

See chapter E for detailed instructions on Triple-Lok® assembly

Ordering

Type	Order code
Combination impact flarer Complete device including Combination dies and pin	1004-74M
Tool lubricant 0.25L bottle	EONIROMONTFLUESSX

Combination impact flarer 210A for small dimension inch tube



Specifications

Design: Hand flaring tools for small on-site repair jobs
Operation: Flaring pin Impact
37° Flaring: Triple-Lok® connection – ISO 8434-2/ SAE J514
Tube material: copper, aluminum and low carbon steel
Tube diameter: 1/8" to 5/8" inch
Wall thickness: max 15 % of tube-O.D.
Requirements: Rigid vice and hammer
Performance: Overall cycle time 1–3 min
Economic production quantity: 10 flarings per week

Operation

1. Clamp tube end flush in block halves
2. Clean and lubricate tube end and flaring pin
3. Form the flare by a few sharp hammer blows
4. Release vice and unclamp tube

See chapter E for detailed instructions on Triple-Lok® assembly

Ordering

Type	Order code
Combination impact flarer Complete device including Combination dies and pin	210A
Tool lubricant 0.25L bottle	EONIROMONTFLUESSX

Impact flaring tools for metric and inch tube



Specifications

Design: Hand flaring tools for small on-site repair jobs

Operation: Impact flaring pin

37° Flaring: Triple-Lok® connection – ISO 8434-2/ SAE J514

Tube material: copper, aluminum, steel and stainless steel tube

Tube diameter: 6 to 38 mm/1/4" to 1 1/2"

Wall thickness: max 15% of tube O.D., max 10% of tube O.D. for tubes larger 20 mm tube O.D.

Requirements: Rigid vice and hammer

Performance: Overall cycle time 1–3 min

Economic production quantity: 10 flarings per week

Operation

1. Clamp tube end flush in block halves
2. Clean and lubricate tube end and flaring pin
3. Form the flare by a few sharp hammer blows
4. Use pre-flaring pin for tube O.D. 20 mm/3/4" and larger
5. Release vice and unclamp tube

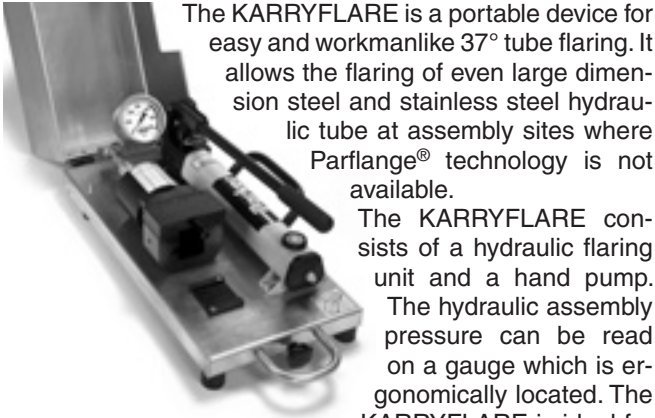
See chapter E for detailed instructions on Triple-Lok® assembly

Tools for metric tube			
Tube-O.D. mm	Pre-flaring pin Order code	Flaring Order code	Vice block Order code
06		P17408	M27406
08		P17408	M05742
10		P17408	M27410
12		P17414	M27412
14		P17414	M27414
15		P17414	M27415
16		P17414	M27416
18		P17418	M27418
20	P1E	P17418	M27420
22	P1E	P17422	M14742
25	P1E	P17422	M27425
30	P1E	P17432	M27430
32	P1E	P17432	M27432
38	P1E	P17438	M24742

Tools for inch tube			
Tube-O.D. inch	Pre-flaring pin Order code	Flaring Order code	Vice block Order code
1/4"		P17408	M04742
5/16"		P17408	M05742
3/8"		P17408	M06742
1/2"		P17414	M08742
5/8"		P17414	M10742
3/4"	P1E	P17418	M12742
7/8"	P1E	P17422	M14742
1"	P1E	P17422	M16742
1 1/4"	P1E	P17432	M20742
1 1/2"	P1E	P17438	M24742

Type	Order code
Tool lubricant 0.25L bottle	EONIROMONTFLUOSSX

KARRYFLARE Portable flaring device for Triple-Lok®



Catalogue 4100-9/UK

Parflare ECO

Mobile flaring machine for Triple-Lok® hydraulic fittings



Parflare ECO Economical – Simple – Safe

A full fledged Triple-Lok® fitting flaring machine at an economical price. The Parflare ECO is a mobile machine that flares tubes to 37° for Parker Triple-Lok® hydraulic fittings. This electro-hydraulic machine is simple to operate, with the flaring pressure being set via a digital display. The machine is simple to use, rugged and easy to transport. Because of these features, the Parflare ECO is the ideal machine for hydraulic service technicians.

Application areas:

For the repair and maintenance of hydraulic tubing systems in both workshop and field operations.

Advantages for the service technician:

- professional flaring
- energy and time savings due to the electric drive
- simple operation
- portable and light
- rugged and mobile

Purchasing advantages:

- inexpensive
- economical mode of operation
- existing tooling can be used
- unbeatable price-to-performance ratio

The machine is perfectly suited to regular use, but not to high volume production.

Technical Data	
Application:	Flaring tubes for Parker Triple-Lok® hydraulic connectors
Procedure:	Axial forming with flaring pin
Flaring:	37° to DIN EN ISO 8434-2
Tube material:	Steel and stainless steel tubing
Tube diameter:	6 to 42 mm / ¼" to 1 ½"
Minimum width U-bend:	70 mm
Speed:	15 to 20 sec. cycle time/approx. 20 to 30 sec. total cycle time
Economical production quantity:	max. 100 assemblies per day
Dimensions:	750x360x300 mm
Weight:	30 kg
Electrical power rating:	EU Version: 230 V single phase 50 Hz 700 W US Version: 110 V single phase 60 Hz 700 W

Type	Order code
Parflare ECO basic machine, ready to operate, including operator's handbook, without tools	EU Version: PARFLAREECO230V US Version: PARFLAREECO110V
Brochure	BUL/4048/DE via Parker catalogue Service EMDC
Operator's handbook UK/DE/FR/IT/ES	PARFLAREECO/MANUAL
Standard preventive maintenance	PARFLAREECO/INSP
Pressure chart sticker	PARFLAREECO/CHART
Standard flaring pin 6–38 mm, with O-ring	KARRYFLARE/FPIN
Special flaring pin 42 mm, with O-ring	KARRYFLARE/FPIN42

Operation:

For detailed assembly instructions, see our fittings technology handbook, chapter E. For safety information, see machine operating manual.

1. Insert die valves and close cover
2. Set the recommended flaring pressure in accordance with the chart on the display
3. Insert tube with retaining nut and sleeve
4. Push START button and keep depressed
5. Keep a firm hold of the tube throughout the complete flaring procedure
6. The flaring procedure is finished when the cylinder has returned back to its start position
7. Flaring inspection and final assembly should be in accordance with the assembly handbook


Tool lifetime

Assembly tools are subject to wear and must be regularly (max. 50 assemblies) cleaned and checked (Checking instructions see chapter E). Worn out tools can cause dangerous assembly failures and must be replaced in time. Average tool lifetime is approx. 5000 cycles when properly used. Maximum lifetime can be achieved by following factors:


- Regular cleaning and checking
- Clean and corrosion-protected storage
- Proper de-burring and cleaning of tube end
- Proper tool selection and operation
- Use of specified lubricant


Parflare ECO mobile flaring machine for Triple-Lok® hydraulic fittings

Pressure chart

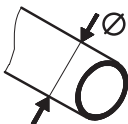


Parflare ECO



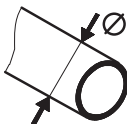


Tube-O.D.



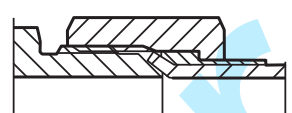
Ø (mm)

Tube-O.D.



Ø (inch)

Triple-Lok®



P (bar)

6	1/4	20
8	5/16	25
10	3/8	35
12	1/2	35
14		45
15		60
16	5/8	60
18	3/4	70
20		95
22	1	95
25	1 1/4	110
28		130
30	1 1/2	140
35		165
38		180
42		200

37° flaring tools for KARRYFLARE device and PARFLARE ECO, EOMAT UNI, II and III



Flaring die set M1574



Flaring fixture must be installed on EOMAT UNI II/III

Flaring dies for metric tube	
Tube O.D. mm	Order code
6	M157406-1
8	M157408-1
10	M157410-1
12	M157412
14	M157414
15	M157415
16	M157416
18	M157418
20	M157420
22	M157422
25	M157425
28	M157428
30	M157430
32	M157432
35	M157435
38	M157438
42	M157442

Flaring dies for inch tube	
Tube O.D. inch	Order code
3/16"	M037415-1
1/4"	M047415-1
5/16"	M157408-1
3/8"	M067415-1
1/2"	M087415
5/8"	M107415
3/4"	M127415
7/8"	M147415
1"	M167415
1 1/4"	M207415
1 1/2"	M157438

Flaring diameters acc. to ISO 8434-2/SAE J514 for Triple-Lok®. Not suitable for metric flare adapters.

The flaring pin for the KARRYFLARE and Parflare ECO is integrated in the device. For the EOMAT UNI the flaring pins are in the EOMAT flaring fixture (EOMATBOERDEL BX).

Flaring dies are **not** interchangeable with Parflange® tools for 1025/1040/50-machines.

Tool lifetime

Assembly tools are subject of wear and must be regularly (max. 50 assemblies) cleaned and checked (Checking instructions see chapter E). Worn out tools can cause dangerous assembly failures and must be replaced in time. Average tool lifetime is approx. 5000 cycles when properly used. Maximum lifetime can be achieved by following factors:

- Regular cleaning and checking
- Clean and corrosion-protected storage
- Proper de-burring and cleaning of tube end
- Proper tool selection and operation
- Use of specified lubricant

Assembly machines for O-Lok® and Triple-Lok®

Parflange® machine selection guide

Parflange® 1025 and Parflange® 50 are orbital flaring machines designed to cold-form 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® sleeves are firmly fixed onto the tube end, resulting in a very rigid high-pressure tube connection.



Features, advantages and benefits

- 1. Superior sealing performance** – The Parflange® process achieves a sealing surface of unique surface quality and mechanical strength.
- 2. 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.
- 3. Easy to use** – No programming or adjustments necessary. High quality results are consistently achieved without manual adjustments.
- 4. Cost saving** – Compared to brazing or welding, orbital flanging is much less time consuming. Special tube preparation and finishing are not necessary.

sary. Flanging uses only a fraction of the energy needed for brazing or welding.

- 5. Clean** – The Parflange® process is environmental clean and safe. As no heat or chemicals are used, hazards from fumes or heat do not occur.
- 6. Zinc plated tubing.** The Parflange® process allows the use of zinc-plated tubing. The cost for cleaning, post process plating or painting is saved.
- 7. Process/Product concept** – Parflange® machines are especially designed to match Parker O-Lok® and Triple-Lok® standards. Machine, tools and products are fine-tuned for reliable performance.
- 8. Proven technology** – For more than 10 years, hundreds of Parflange® machines have operated worldwide under heavy duty workshop conditions.

How to select the ideal Parflange® Machine for your application:

Machine selection chart	Parflange® 1025		Parflange® 50	
				
Assembly method Triple-Lok® O-Lok®	Orbital flaring 37° Orbital flanging 180°		Orbital flaring 37° Orbital flanging 180°	
Tube specification Material Dimension metric tube Dimension inch tube Min. U-bend	Steel, Stainless Steel 6 to 25 mm 1/4" to 1" 140 mm		Steel, Stainless Steel 6 to 50 mm 1/4" to 2" 120 mm	
Tools Clamping dies Flaring/flanging pin	special Parflange® tools M40 ... (old: M30 ...) B30 ...		special Parflange® tools M40 ... B30 ...	
Operation Setting Standard sleeve feeding Optional sleeve feeding Tube clamping Flanging/Flaring Process control	automatic adjustment manual loading not available manual clamping automatic drive semi automatic		automatic adjustment manual loading O-Lok® sleeve feeder hydraulic clamping automatic drive fully automatic	
			BASIC	PRO
Specifications Design Weight Dimension (W x L x H)	desktop approx. 85 kg 390x670x460 mm		stand-alone approx. 380 kg 700x840x1035 mm	stand-alone approx. 410 kg 700x840x2030 mm
Performance Version Voltage Overall cycle time Economic production quantity	1.5 kW 400 V 3 Phase approx. 50 secs. max. 100 per day	1.1 kW 230 V 1 Phase approx. 60 secs. max. 50 per day	4.5 kW 400 V 3 Phase approx. 15 secs. max. 500 per day	4.5 kW 400 V 3 Phase approx. 15 secs. max. 1200 per day
Application	Ideal for projects and workshop use and maintenance High quality result No mass production	on-site repair jobs where 3phase power supply is not available	Efficient production machine for low-cost and high-quality assembly	Efficient mass production machine for low-cost and high-quality assembly

Parflange® 1025 workshop machine for O-Lok® and Triple-Lok®



The Parflange® 1025 machine is designed to cold-form high pressure tube connections for O-Lok® and Triple-Lok® connection. It uses the Parflange® orbital flaring process. The Parflange® 1025 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 1025 is the smallest machine of the Parflange® machine programme. It is recommended for low-volume assembly jobs of small to medium tube dimensions. Maximum tube capacity is 25 x 4 mm/1" (steel tube) and 25 x 2.5 mm/1" stainless steel tube (3 Phase version). Its advantage is the quick and easy change of tooling and the simple operation without manual adjustments or programming. The machine is transportable so that it can be moved to any assembly site with electrical power supply.

The Parflange® 1025 comes ready to be used. Parflange® tools are purchased separately. For each tube dimension, special clamping dies and Parflange® pins are required.

Specifications

Purpose:	180° flanging for O-Lok® and 37° flaring for Triple-Lok®
Process:	Orbital flaring and flanging according to Parflange® process

Design:	Desktop machine for workshop use
Tube material:	steel and stainless steel tube
Tube diameter:	metric: 6 to 25 mm Inch: ¼ to 1"
Maximum capacity:	Steel tube 25x4/1"x0.120 (tube O.D. x wall thickness) Stainless steel tube 25x2/1"x0.095
Min. U-bend:	140 mm
Tube specification:	fully annealed seamless cold drawn or welded precision tube
Performance:	
Overall cycle time	1.5 kW: 50 sec; 1.1 kW: 60 sec
Economic production quantity	1.5 kW: max. 100; 1.1 kW: max. 50
Operation:	Manual clamping, automatic flanging/flaring
Cycle time:	approx. 15 to 20 secs.
Tools:	Flaring pin B30 ... and clamping dies M40 ...
Tool clamping:	Manual, by eccentric lever
Tool lubrication:	Automatic lubrication device
Lubricant:	EO-NIROMONT LUBSS (filled when delivered)
Hydraulic oil:	HLP 23 0.5L (filled when delivered)
Installation:	rigid workbench and electrical power supply required
Dimensions:	390x670x460 mm
Weight:	85 kg

Features, advantages and benefits

1. **Superior sealing performance** – The Parflange® process achieves a sealing surface of unique surface quality and mechanical strength.
2. **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.
3. **Easy to use** – No programming or adjustments necessary. High quality results are consistently achieved without manual adjustments.
4. **Quality** – Machine setting, tool control and even lubrication are fully automated so that high and consistent quality results are achieved without manual adjustments.
5. **Small bending radii** – The compact clamping device and special dies are suitable for flanging short tube ends.
6. **Cost saving** – Compared to brazing or welding, 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.
7. **Clean** – The Parflange® process is environmental clean and safe. As no heat or chemicals are used, hazards from fumes or heat do not occur.
8. **Zinc plated tubing** – The Parflange® process allows the use of zinc-plated tubing. The cost for cleaning or painting can be saved.
9. **High tool lifetime** – The Parflange® 1025 machine is equipped with an automatic lubrication device. The tools will not wear rapidly if the operator does not lubricate regularly.
10. **Process/Product concept** – Parflange® machines are especially designed to match Parker O-Lok® and Triple-Lok® standards. Machine, tools and products are fine-tuned for reliable performance.
11. **Proven technology** – Since more than 10 years, hundreds of Parflange® machines have operated worldwide under heavy duty workshop conditions.

Applications

Workshop use, project work, plant maintenance, on-site assembly.

Not for efficient mass production

Ordering

Type	Order code
Parflange® 1025 Basic machine Ready to use, Including operating manual, Filled with hydraulic oil and lubricant Without Parflange® tools	1025-380VTRI50 1025-220VMONO50
Basic machine 400 V, 3 Phase, 50 Hz	
Basic machine 230 V, 1 Phase, 50 Hz	
1025 promotion leaflet UK	4390/UK
1025 promotion leaflet DE	4390/DE
1025 operating manual UK/DE/FR/IT	1025/MANUAL
Standard preventive maintenance	1025/INSPECTION

Parflange® machines are shipped in a special container which should be kept for all transports to avoid damage.

Spare parts

Type	Order code
Tool lubricant qty: 1L EO-NIROMONT	LUBSS
Drive belt	1025/028Polyv
Came guide and with screw	1025/0281031
Hydraulic tank seal kit	1025/0281042
Lubrication kit	1025/0281200

Parflange® 50 WorkCenter



Bins can be stored on top platforms



Easy refill of tool lubricant

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 EO2-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.

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.

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 BASIC WorkCenter

Technical description 50 BASIC WorkCenter:

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® sleeves are firmly fixed onto the tube end, resulting in a robust and vibration-resistant 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 required.



Machine specification 50 BASIC WorkCenter:

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, ST 52, ...) Metric: 38x5/50x3 mm (tube O.D. x wall thickness) Inch: 2"x0.120 Stainless steel tube (1.4571, 316, ...) Metric: 38x4 mm Inch: 1 1/2"x0.156
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:	700x840x1035 mm
Platform for bins:	2 platforms, 300x500 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 PRO WorkCenter

Technical description 50 Pro WorkCenter:

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 WorkCenter:

Specific differences of Parflange® 50 Pro versus Parflange® 50 Basic

Design:	Parflange® 50 with additional O-Lok® sleeve feeder	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.
Normal Operation:	Same as Parflange® 50 Basic when feeder is switched off	Feeder rails:	Feeder rail kits must be ordered separately for each O-Lok® sleeve size.
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	Feeder setup:	Installation of matching rail kit by knurled nuts and adjustment of scale wheel according to chart
Manual operation:	like Parflange® 50 Basic	Installation:	Electrical power, for feeder type machines: compressed air supply (6 bar)
Cycle time:	5–8 sec. flanging time/approx. 15 to 20 sec. total cycle time	Dimensions:	700×840×2030 mm
Economic production quantity:	max. 1200 flarings per day	Weight:	410 kg
Tools:	Same tools as Parflange® 50 BASIC		

Parflange® 50 Ordering

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



Parflange®
50 BASIC

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

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

Sleeve feeder rails for Parflange® 50 Pro	Tube O.D.	Order code
O-Lok® sleeve feeding rail	6 mm/¼"	1050/RAIL04
O-Lok® sleeve feeding rail	8, 10 mm/⅜"	1050/RAIL06
O-Lok® sleeve feeding rail	12 mm/½"	1050/RAIL08
O-Lok® sleeve feeding rail	14, 15, 16 mm/⅝"	1050/RAIL10
O-Lok® sleeve feeding rail	18, 20 mm/¾"	1050/RAIL12
O-Lok® sleeve feeding rail	22, 25 mm/1"	1050/RAIL16
O-Lok® sleeve feeding rail	28, 30, 32 mm/1¼"	1050/RAIL20
O-Lok® sleeve feeding rail	35, 38 mm/1½"	1050/RAIL24



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

50 promotion leaflet	4391-1 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 EO-NIROMONT	LUBSS
Replacement cartridge for spindle lubrication	1050/22900001801



High-Performance lubricant
for Parflange®

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!!!

Tooling for Parflange® machines

Machine and tool selection



Parflange® 1025



Parflange® 50

Parflange® 1025 machines flanging capacity for O-Lok®

Tube material	220 V 1.1 kW	380 V 1.5 kW
	Max. tube size mm (inch)	
Steel ST37	25x4 (1"×0.120)	25x4 (1"×0.120)
Stainless steel 304L/316L*	25x2.5 (1"×0.95)	25x2.5 (1"×0.95)
Steel ST52	25x4 (1"×0.120)	25x4 (1"×0.120)

Parflange® 50 machines flanging capacity for O-Lok®

Tube material	Max. tube size mm (inch)
Steel ST37	38x5/50x3 (2×0.120)
Steel ST52	38x4 (1 1/2×0.156)
Stainless steel 304L/316L*	38x4 (1 1/2×0.156)

Parflange® 1025 machines flaring capacity for Triple-Lok®

Tube material	Elect. power of machine	
	220 V 1.1 kW	380 V 1.5 kW
Max. tube size mm (inch)		
Steel ST37	25x3 (1"×0.120)	25x3 (1"×0.120)
Stainless steel 304L/316L*	25x3 (1"×0.120)	25x3 (1"×0.120)
Steel TU 52 B	25x3 (1"×0.120)	25x3 (1"×0.120)
Stainless steel Duplex (or PW 400)	Not recommended	25x2.5 (1×0.95)

Parflange® 50 machines flaring capacity for Triple-Lok®

Tube material	Elect. power of machine
	220/380 V 4.5 kW
Max. tube size mm (inch)	
Steel TU 37 B	38x4/42x3 (1 1/2×0.120)
Steel TU 52 B	38x4/42x3 (1 1/2×0.120)
Stainless steel 304L/316L*	38x4/42x3 (1 1/2×0.120)
Stainless steel Duplex (or PW 400)	38x3.6

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

Parflange® tool identification



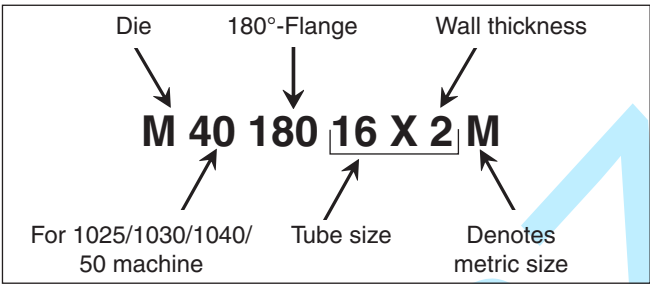
Parflange® tools for O-Lok®



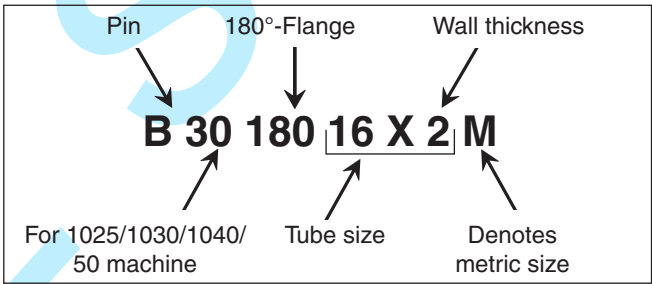
Parflange® tools for Triple-Lok®

Tooling for metric tubing

Metric die numbering system

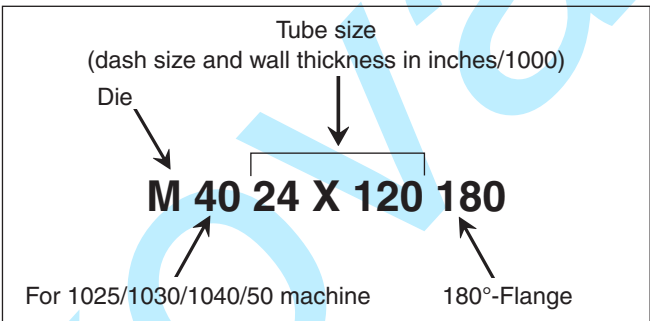


Metric pin numbering system

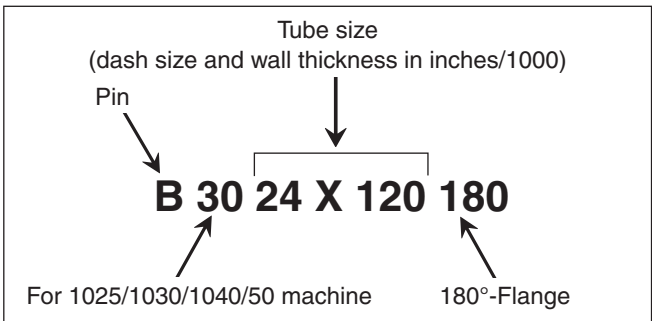


Tooling for inch tubing

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".

Tool lifetime

Assembly tools are subject of wear and must be regularly (max. 50 assemblies) cleaned and checked (Checking instructions see chapter E). Worn out tools can cause dangerous assembly failures and must be replaced in time. Average tool lifetime is approx. 5000 cycles when properly used. Maximum lifetime can be achieved by following factors:

- Regular cleaning and checking
- Clean and corrosion-protected storage
- Proper de-burring and cleaning of tube end
- Proper tool selection and operation
- Use of specified lubricant

Parflange® tools for O-Lok®

Parflange® tooling – Order codes for Parflange® 50/1040/1030/1025

90°-Flange-tool-selection (Metric tube)

Tube size mm	Steel tube		Stainless steel tube	
	Flange pin Order code	Flange die Order code	Flange pin Order code	Flange die Order code
06×1.0	B3018006X1M	M4018006X1M		
06×1.5	B3018006X1.5M	M4018006X1.5M		
08×1.0	B3018008X1M	M4018008X1M	B3018008X1MSS	M4018008X1MSS
08×1.5	B3018008X1.5M	M4018008X1.5M	B3018008X1.5MSS	M4018008X1.5MSS
10×1.0	B3018010X1M	M4018010X1M	B3018010X1MSS	M4018010X1MSS
10×1.5	B3018010X1.5M	M4018010X1.5M	B3018010X1.5MSS	M4018010X1.5MSS
10×2.0	B3018010X2M	M4018010X2M		
12×1.0	B3018012X1M	M4018012X1M	B3018012X1MSS	M4018012X1MSS
12×1.5	B3018012X1.5M	M4018012X1.5M	B3018012X1.5MSS	M4018012X1.5MSS
12×2.0	B3018012X2M	M4018012X2M		
15×1.0			B3018015X1MSS	M4018015X1MSS
15×1.5	B3018015X1.5M	M4018015X1.5M		
15×2.0	B3018015X2M	M4018015X2M		
16×1.5	B3018016X1.5M	M4018016X1.5M	B3018016X1.5MSS	M4018016X1.5MSS
16×2.0	B3018016X2M	M4018016X2M	B3018016X2MSS	M4018016X2MSS
16×2.5	B3018016X2.5M	M4018016X2.5M		
18×1.5	B3018018X1.5M	M4018018X1.5M		
18×2.0	B3018018X2M	M4018018X2M		
20×2.0	B3018020X2M	M4018020X2M	B3018020X2MSS	M4018020X2MSS
20×2.5	B3018020X2.5M	M4018020X2.5M		
20×3.0	B3018020X3M	M4018020X3M		
22×2.0	B3018022X2M	M4018022X2M		
22×2.5	B3018022X2.5M	M4018022X2.5M		
25×2.5	B3018025X2.5M	M4018025X2.5M	B3018025X2.5MSS	M4018025X2.5MSS
25×3.0	B3018025X3M	M4018025X3M		
28×2.0	B3018028X2M	M4018028X2M		
28×2.5	B3018028X2.5M	M4018028X2.5M		
30×2.0	B3018030X2M	M4018030X2M		
30×3.0	B3018030X3M	M4018030X3M	B3018030X3MSS	M4018030X3MSS
30×4.0	B3018030X4M	M4018030X4M		
32×3.0	B3018032X3M	M4018032X3M		
32×4.0	B3018032X4M	M4018032X4M		
35×3.0	B3018035X3M	M4018035X3M		
38×3.0	B3018038X3M	M4018038X3M		
38×4.0	B3018038X4M	M4018038X4M		

Tools for tube dimensions which are not listed must be inquired at Parker.

Bold = Standard dimensions
Regular = Non standard dimensions

90°-Flange-tool-selection (Inch tube)

Tube size inch	Steel tube	
	Flange pin Order code	Flange die Order code
1/4×0.035	B3004X035180	M4004X035180
1/4×0.049	B3004X049180	M4004X049180
3/8×0.035	B3006X035180	M4006X035180
3/8×0.049	B3006X049180	M4006X049180
3/8×0.065	B3006X065180	M4006X065180
1/2×0.035	B3008X035180	M4008X035180
1/2×0.049	B3008X049180	M4008X049180
1/2×0.065	B3008X065180	M4008X065180
5/8×0.065	B3010X065180	M4010X065180
5/8×0.083	B3010X083180	M4010X083180
3/4×0.065	B3012X065180	M4012X065180
3/4×0.083	B3012X083180	M4012X083180
3/4×0.095	B3012X095180	M4012X095180
3/4×0.120	B3012X120180	M4012X120180
1×0.065	B3016X065180	M4016X065180
1×0.095	B3016X095180	M4016X095180
1 1/4×0.120	B3020X120180	M4020X120180

Further tools for Inch tubing are available from Parker TFD Columbus!

Tool lifetime

Assembly tools are subject of wear and must be regularly (max. 50 assemblies) cleaned and checked (Checking instructions see chapter E). Worn out tools can cause dangerous assembly failures and must be replaced in time. Average tool lifetime is approx. 5000 cycles when properly used. Maximum lifetime can be achieved by following factors:

- Regular cleaning and checking
- Clean and corrosion-protected storage
- Proper de-burring and cleaning of tube end
- Proper tool selection and operation
- Use of specified lubricant

Parflange® tools for Triple-Lok®

Metric tube

Tube size mm	Steel tube		Stainless steel tube	
	Flare pin Order code	Flare die Order code	Flare pin Order code	Flare die Order code
06×1.0 06×1.5	B3007406X1M B3007406X1.5M	M4007406M M4007406M	B3007406X1MSS	M4007406M
08×1.0 08×1.5	B3007408X1M B3007408X1.5M	M4007408M M4007408M	B3007408X1MSS B3007408X1.5MSS	M4007408M M4007408M
10×1.0 10×1.5	B3007410X1M B3007410X1.5M	M4007410M M4007410M	B3007410X1MSS B3007410X1.5MSS	M4007410M M4007410M
12×1.0 12×1.5 12×2.0	B3007412X1M B3007412X1.5M B3007412X2M	M4007412M M4007412M M4007412M	B3007412X1.5MSS	M4007412M
15×1.5 15×2.0	B3007415X1.5M B3007415X2M1	M4007415M M4007415M	B3007415X1.5MSS	M4007415M
16×1.5 16×2.0	B3007416X1.5M B3007416X2M	M4007416M M4007416M	B3007416X2MSS	M4007416M
18×1.5 18×2.0	B3007418X1.5M B3007418X2M	M4007418M M4007418M	B3007418X1.5MSS	M4007418M
20×2.0 20×2.5	B3007420X2M B3007420X2.5M	M4007420M M4007420M	B3007420X2MSS B3007420X2.5MSS	M4007420M M4007420M
22×1.5 22×2.0 22×2.5	B3007422X1.5M B3007422X2M B3007422X2.5M	M4007422M M4007422M M4007422M	B3007422X1.5MSS	M4007422M
25×2.0 25×3.0	B3007425X2M B3007425X3M	M4007425M M4007425M	B3007425X2.5MSS	M4007425M
28×2.0 28×2.5	B3007428X2M B3007428X2.5M	M4007428M M4007428M		
30×3.0	B3007430X3M	M4007430M	B3007430X3MSS	M4007430M
32×3.0	B3007432X3M	M4007432M		
35×3.0	B3007435X3M	M4007435M		
38×3.0 38×4.0	B3007438X3M B3007438X4M	M4007438M M4007438M	B3007438X4MSS	M4007438M
42×3.0 42×4.0	B3007442X3M B3007442X4M	M4007442M M4007442M		

Tools for tube dimensions which are not listed must be inquired at Parker.

Bold = Standard dimensions
Regular = Non standard dimensions

Inch tube

Tube size inch	Steel tube	
	Flange pin Order code	Flange die Order code
1/4×0.049	B3004X049074	M4004074
3/8×0.049	B3006X049074	M4006074
3/8×0.065	B3006X065074	M4006074
1/2×0.065	B3008X065074	M4008074
5/8×0.065	B3010X065074	M4010074
5/8×0.095	B3010X095074	M4010074
3/4×0.095	B3012X095074	M4012074
1×0.109	B3016X109074	M4016074
1 1/4×0.120	B3020X120074	M4020074

Further tools for Inch tubing are available from Parker TFD Columbus!

Tool lifetime

Assembly tools are subject of wear and must be regularly (max. 50 assemblies) cleaned and checked (Checking instructions see chapter E). Worn out tools can cause dangerous assembly failures and must be replaced in time. Average tool lifetime is approx. 5000 cycles when properly used. Maximum lifetime can be achieved by following factors:

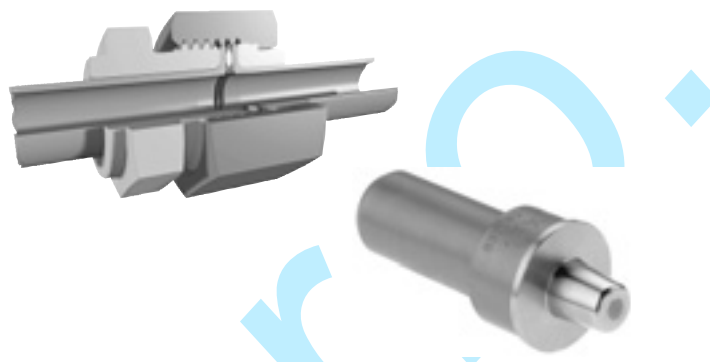
- Regular cleaning and checking
- Clean and corrosion-protected storage
- Proper de-burring and cleaning of tube end
- Proper tool selection and operation
- Use of specified lubricant

Parflange® tools for Flange Seal

Flange dies and Parflange® pins for machines 50/1040/1030/1025 steel tube



Clamping die set M ... 180



Parflange® pin B ... 180

Metric tube

Tube size (O.D. x wall thickness) mm	Flange pin Order code	Flange die Order code
06x1.0	B3018006X1M	M4018006X1MLHP
08x1.0 08x1.5	B3018008X1M B3018008X1.5M	M4018008X1MLHP M4018008X1.5MLHP
10x1.0 10x1.5 10x2.0	B3018010X1M B3018010X1.5M B3018010X2M	M4018010X1MLHP M4018010X1.5MLHP M4018010X2MLHP
12x1.0 12x1.5	B3018012X1M B3018012X1.5M	M4018012X1MLHP M4018012X1.5MLHP
16x2.0	B3018016X2M	M4018016X2MLHP
20x2.5	B3018020X2.5M	M4018020X2.5MLHP
25x2.5 25x3.0	B3018025X2.5M B3018025X3M	M4018025X2.5MLHP M4018025X3MLHP

Tools for tube dimensions which are not listed must be inquired at Parker.

Inch tube

Tube size (O.D. x wall thickness) Inch	Flange pin Order code	Flange die Order code
1/4x0.035 1/4x0.049	B3004X035180 B3004X049180	M4004X035180LHP M4004X049180LHP
3/8x0.049 3/8x0.065	B3006X049180 B3006X065180	M4006X049180LHP M4006X065180LHP
1/2x0.049 1/2x0.065 1/2x0.083	B3008X049180 B3008X065180 B300810X083180	M4008X049180LHP M4008X065180LHP M4008X083180LHP
5/8x0.065	B301010X065180	M4010X065180LHP
5/8x0.083	B301010X083180	M4010X083180LHP
3/4x0.065 3/4x0.083	B3012X065180 B3012X083180	M4012X065180LHP M4012X083180LHP
1x0.095	B3016X095180	M4016X095180LHP

Tool lifetime

Assembly tools are subject of wear and must be regularly (max. 50 assemblies) cleaned and checked (Checking instructions see chapter E). Worn out tools can cause dangerous assembly failures and must be replaced in time. Average tool lifetime is approx. 5000 cycles when properly used. Maximum lifetime can be achieved by following factors:

- Regular cleaning and checking
- Clean and corrosion-protected storage
- Proper de-burring and cleaning of tube end
- Proper tool selection and operation
- Use of specified lubricant

Lubricants

EO-NIROMONT lubricant for fitting assembly

EO-NIROMONT lubricant for flaring and forming tools

EO-NIROMONT are high performance lubricants specifically designed for the assembly of tube connections. They facilitate tightening using a low-torque when assembling joints by hand. In machine assembly, the use of EO-NIROMONT ensures that maximum tool-life is achieved. In forming processes, such as Parflange® or EO2-FORM, smooth and error-free sealing surfaces can be produced. Special additives prevent cold welding when working with stainless steel.

As opposed to when using Parker high performance lubricants, experience shows that the use of standard commercially available lubricants tend to lead to problems such as cold welding of forming tools, particularly when processing stainless steel tube.

Parker high performance lubricants – EO-NIROMONT – are offered in different containers and viscosities so that you can purchase the appropriate product in a suitable container to meet your needs:

Liquid lubricant, plastic bottle (item: EONIROMONTFLUESSX)
Parker high performance lubricant for the lubrication of threads, progressive rings and for all cold forming processes like Parflange® or EO2-FORM. The handy plastic bottle means that it can be applied directly where the lubrication is needed. EO-NIROMONT liquid should always be available at every assembly point where hydraulic connections are being made.

Liquid lubricant, refill package (item: LUBSS)
Parker high performance lubricant for all cold forming processes like Parflange® or EO2-FORM. Its viscosity means that it is for use in automatic lubrication devices installed in Par-

flange machines. Absolutely essential for mechanical cold forming of stainless steel tubes.

Paste lubricant, tin (Item: EONIROMONTPASTX)
Parker high performance lubricant for the lubrication of the threads of the pre-assembly tool VOMO. The paste is economical and provides durable thread lubrication. Not suited for use with forming tools, as dust and swarf will stick to it.

Features, advantages and benefits of NIROMONT lubricant:

- 1. **Highly effective** – EO-NIROMONT dramatically reduces assembly effort. This helps to prevent fitting failure resulting from insufficient assembly.
- 2. **Cost saving** – Tools in assembly machines will last much longer, resulting in high-quality tube forming with excellent sealing surface.
- 3. **No cold welding** – Cold welding of stainless steel threads is impossible when EO-Niromont is properly applied.
- 4. **Liquid** – Penetrates even small gaps.
- 5. **Paste** – Stays in place for a while. Ideal for application on pre-assembly tools.
- 6. **Compatible** – EO-NIROMONT and LUBSS do not effect fitting surfaces or seal materials.



EO-NIROMONT



LUBSS

Ordering

Type	Order code
EO-NIROMONT Assembly lubricant paste (130 g)	EONIROMONTPASTX
EO-NIROMONT Assembly lubricant liquid (250 cc)	EONIROMONTFLUESSX
EO-NIROMONT Forming tool lubricant refill (1 L)	LUBSS