

INSPECTION-REPORT

about pressure- and leak tests of tube fittings

Geschäftsbereich
Werkstoff- und
Schweißtechnik

Institut für
Technische Physik

Product: tube fittings with ferrule

Costumer: Parcom Ventile und Fittings Ges.m.b.H.
2345 Brunn am Gebirge

Manufacturer: Parker Hannifin plc., Barnstaple/GB
Swagelok Co., Ohio/USA

Model/type: A-lok; Swagelok
dimension, diameter of tubes: see following table and enclosures

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+43 1 / 610 91-0
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SCHAURITSCH
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Task: The purpose of the tests was to proof the tightness and stability also when using parts of both manufacturers.

Technical requirements: according to order

Date of examination: Oct. 16th, 1996
Location of examination: TÜV Österreich, Vienna Testing Center

Akkreditierte
Prüfstelle,
Überwachungsstelle,
Zertifizierungs- und
Kalibrierstelle

Notified Body 0408

Delivered samples and documents:

Vereinsitz und
Geschäftsführung:
A-1015 Wien
Krugerstraße 16
Tel.: +43 1/514 07-0
Fax: DW 240
eMail:office@tuev.or.at

Geschäftsstellen in
Dornbirn, Eisenstadt,
Graz, Innsbruck,
Klagenfurt, Linz,
Salzburg, Wels und
Wien

Tochtergesellschaften
in Athen, Budapest,
München und Wien

Bankverbindungen:
CA 0066-28978/00
BA 220-101-949/00
GiroCredit 00540
PSK 7072.756

version	model/type	dimension of tubes	arrangement
1	A-lok	6 mm x 1 mm 10 mm x 1,5 mm 12 mm x 1,5 mm	A,A,A,A,A,A,A,A,A,A,A,A, A,A
2	Swagelok	6 mm x 1 mm 10 mm x 1,5 mm 12 mm x 1,5 mm	S,S,S,S,S,S,S,S,S,S,S,S,S
3	Swagelok / A-lok	6 mm x 1 mm 10 mm x 1,5 mm 12 mm x 1,5 mm	S,A,A,A,S,S,S,A,S,S,A,S,A,A,S
4	A-lok / Swagelok	6 mm x 1 mm 10 mm x 1,5 mm 12 mm x 1,5 mm	A,S,A,S,A,S,A,S,S,A,A,S,S,A, A

In the costumers letter from Oct. 4th, 1996 (see enclosure) the requirements for the helium-leak test (proof of tightness to a detection limit of 4×10^{-9} mbarl/s) and also for the final burst test (tightness of the tube fittings up to the burst pressure of the tubes) were defined.

Performed measurements and test results:

After assembling these testpipes, using pipes and tube fittings supplied and prepared for assembling by the costumer, in presence of an inspector of the undersigned testing center a helium-leak-test (detection limit of 4×10^{-9} mbarl/s) and also a burst test with water (results see enclosure) were performed

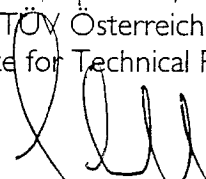
The tests have demonstrated, that

- the leakage rate of all tube fittings of the examined test pipes was below the detection limit of 4×10^{-9} mbarl/s.
- none of the tube fittings got leaky or was removed from the pipe before reaching the burst pressure. The test specimens bursted in all cases in the area of the tubes.
- using tube fittings of both manufacturers at once has no negative influence on the tightness and stability of the test assembly.

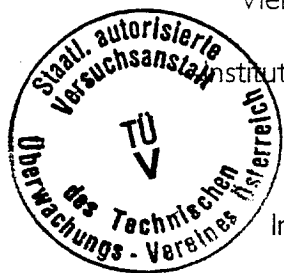
On the basis of these results there is no objection against using tube fittings of both manufacturers in one pipe systeme at once.

Vienna, April 17th, 1997

TÜV Österreich
Institute for Technical Physics



Ing. G. Schauritsch



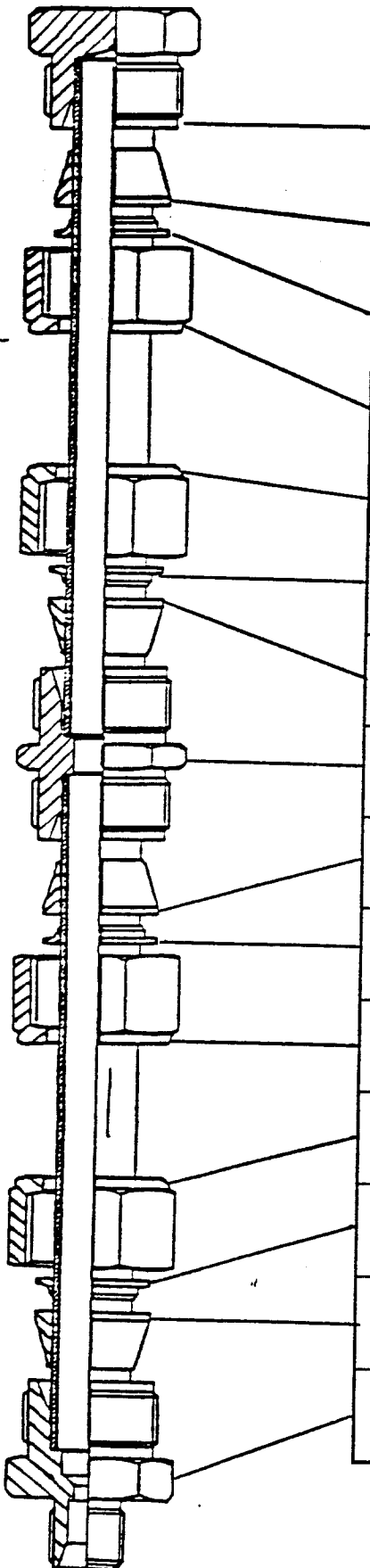
enclosures

TÜV-TEST

Version 1, 6mm

Rohrdimension: 6mm x 1mm

$< 4 \times 10^{-9}$ mbar 1/sec

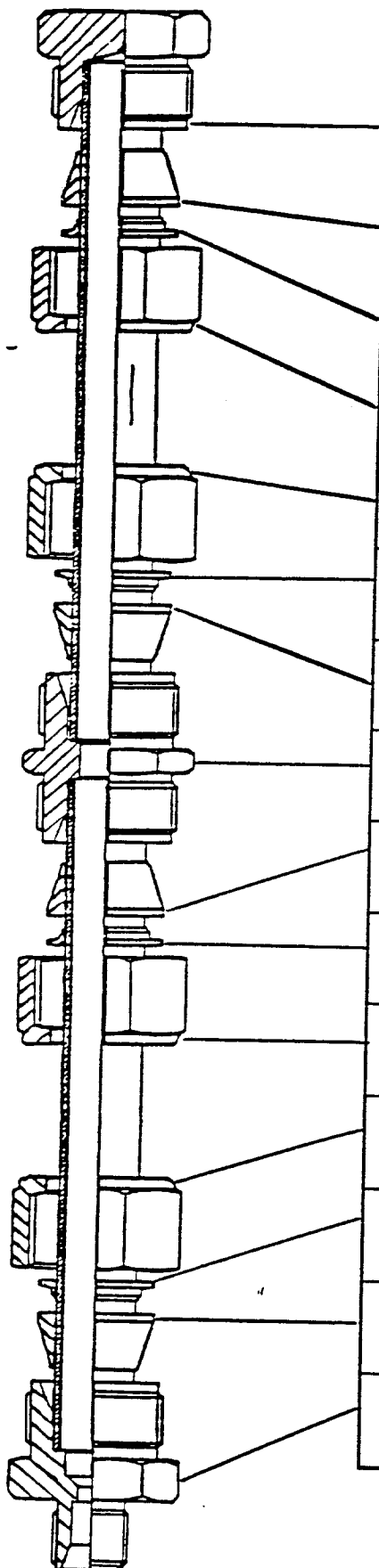


Fabrikat	He-Lecktest	Berstversuch
A-lok	↑	
A-lok		
A-lok		
A-lok		
A-lok		
A-lok		
A-lok		
A-lok		
A-lok		
A-lok	satisfied	1850 bar
A-lok		pipe crack in longitudinal direction
A-lok		
A-lok		
A-lok	↓	

TÜV-TEST

Version 2, 6mm

Rohrdimension: 6mm x 1mm



Fabrikat	He-Lecktest	Berstversuch
SW	↑	
SW		
SW		
SW	satisfied	1720 bar
SW		pipe crack in longitudinal direction
SW		
SW		
SW		
SW		
SW		
SW		
SW		
SW	↓	

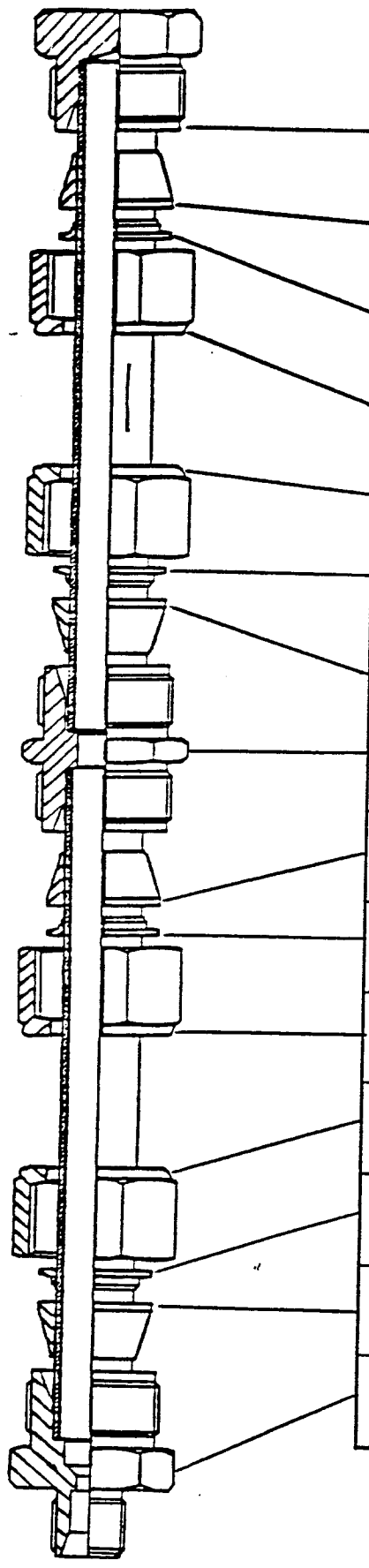
$<4 \times 10^{-9}$ mbar l/sec

TÜV-TEST

Version 3, 6mm

Rohrdimension: 6mm x 1mm

24×10^{-9} mbar 1/sec



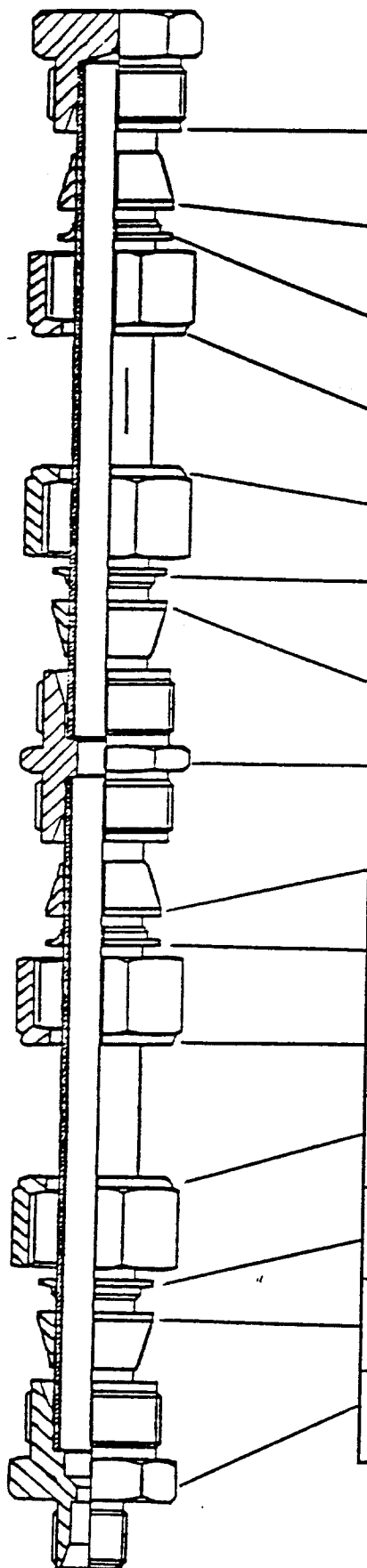
Fabrikat	He-Lecktest	Berstversuch
SW	↑	
A-lok		
A-lok		
A-lok	satisfied	1850 bar
SW		pipe crack in longitudinal direction
SW		
SW		
A-lok		
SW		
SW		
A-lok		
SW		
A-lok		
A-lok		
SW	↓	

TÜV-TEST

Version 4, 6mm

Rohrdimension: 6mm x 1mm

$< 4 \times 10^{-9}$ mbar l/sec



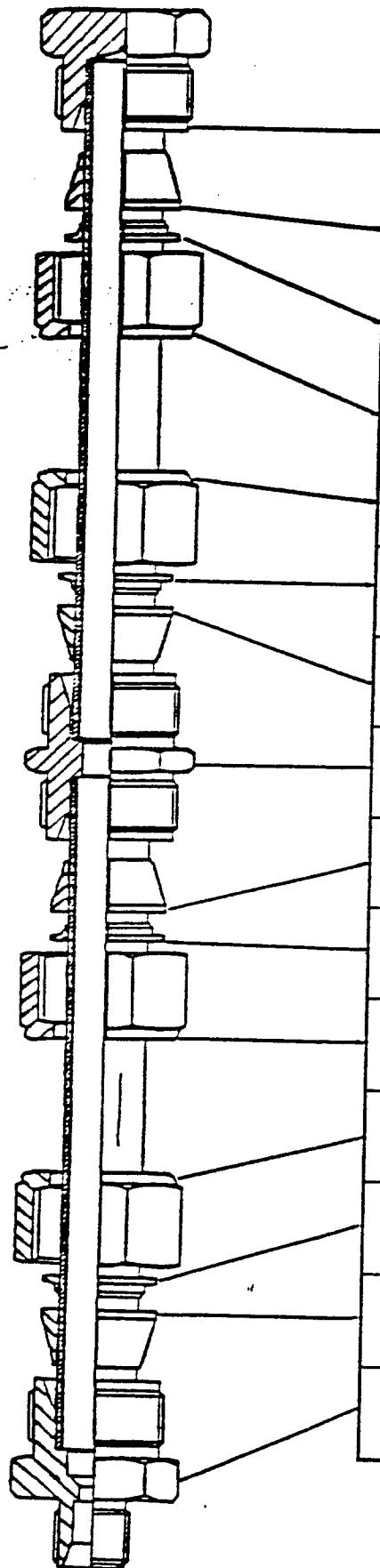
Fabrikat	He-Lecktest	Berstversuch
A-lok	↑	
SW		
A-lok		
SW	satisfied	1850 bar
A-lok		pipe crack in longitudinal direction
SW		
A-lok		
SW		
SW		
A-lok		
A-lok		
SW		
SW		
A-lok		
A-lok	↓	

TÜV-TEST

Version 1, 10mm

Rohrdimension: 10mm x 1,5mm

$< 4 \times 10^{-9}$ mbar l/sec



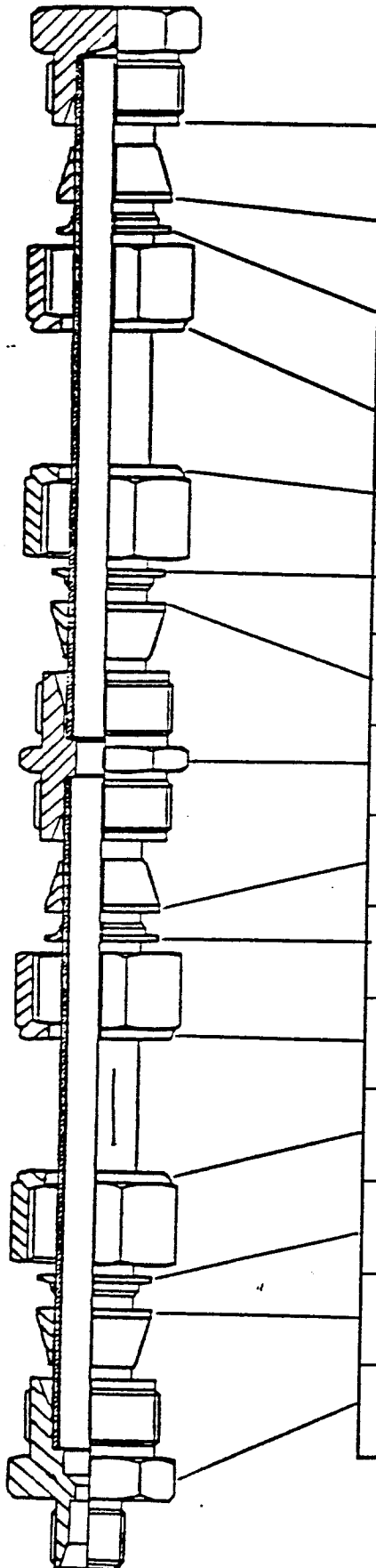
Fabrikat	He-Lecktest	Berstversuch
A-lok	↑	
A-lok		
A-lok		
A-lok		
A-lok		
A-lok		
A-lok		
A-lok		
A-lok		
A-lok	satisfied	1405 bar
A-lok		pipe crack in longitudinal direction
A-lok		
A-lok		
A-lok	↓	

TÜV-TEST

Version 3, 10mm

Rohrdimension: 10mm x 1,5mm

$< 4 \times 10^{-9}$ mbar 1/sec



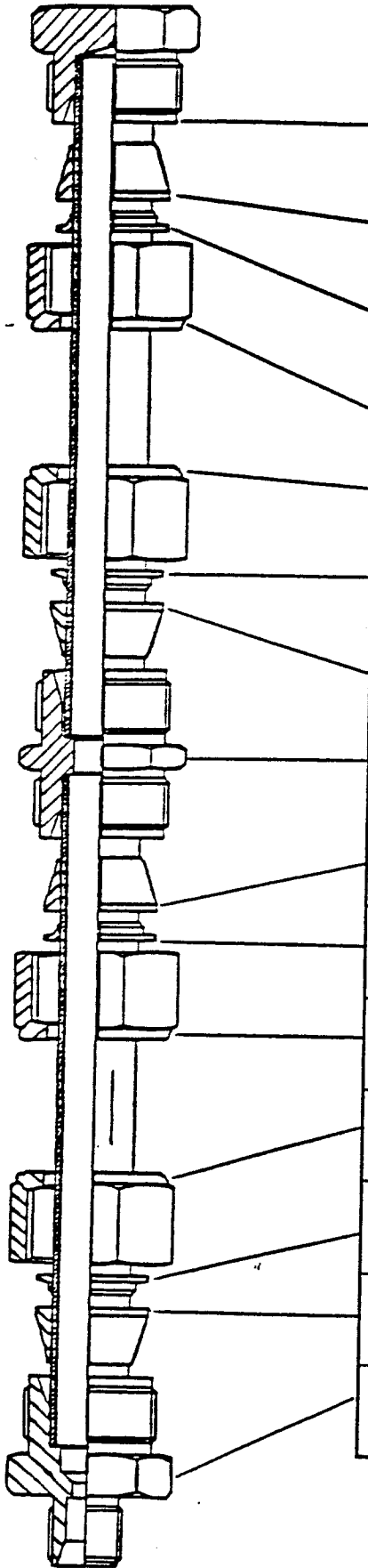
Fabrikat	He-Lecktest	Berstversuch
SW	↑	
A-lok		
A-lok		
A-lok		
SW		
SW		
SW		
A-lok		
SW		
SW		
A-lok	satisfied	1415 bar
SW		pipe crack in longitudinal direction
A-lok		
A-lok		
SW	↓	

TÜV-TEST

Version 4, 10mm

Rohrdimension: 10mm x 1,5mm

$< 4 \times 10^{-9}$ mbar l/sec



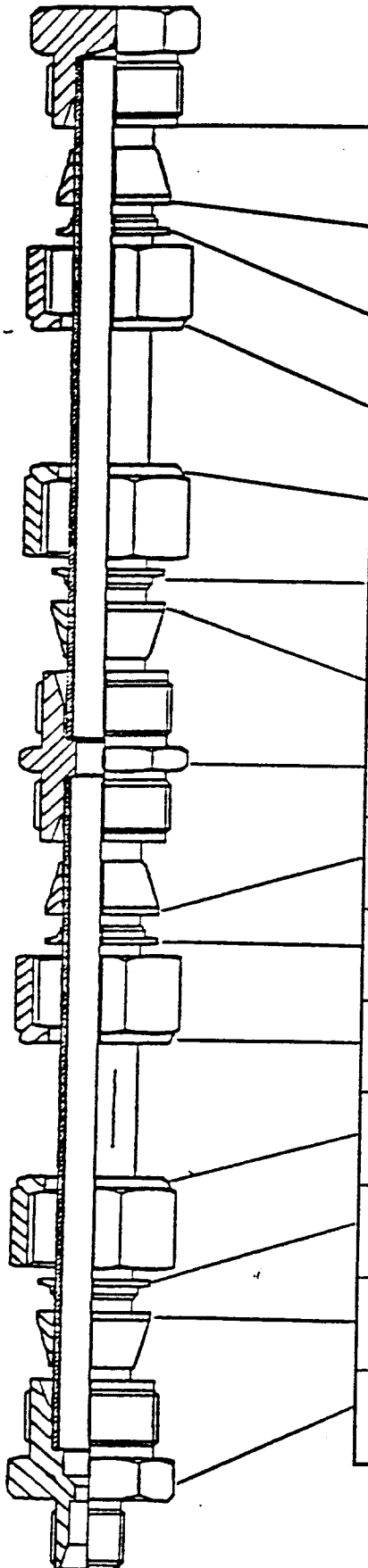
Fabrikat	He-Lecktest	Berstversuch
A-lok	↑	
SW		
A-lok		
SW		
A-lok		
SW		
A-lok		
SW		
SW		
A-lok		
A-lok	satisfied	1395 bar
SW		pipe crack in longitudinal direction
SW		
A-lok		
A-lok	↓	

TÜV-TEST

Version 1, 12mm

Rohrdimension: 12mm x 1,5mm

$< 4 \times 10^{-9}$ mbar 1/sec



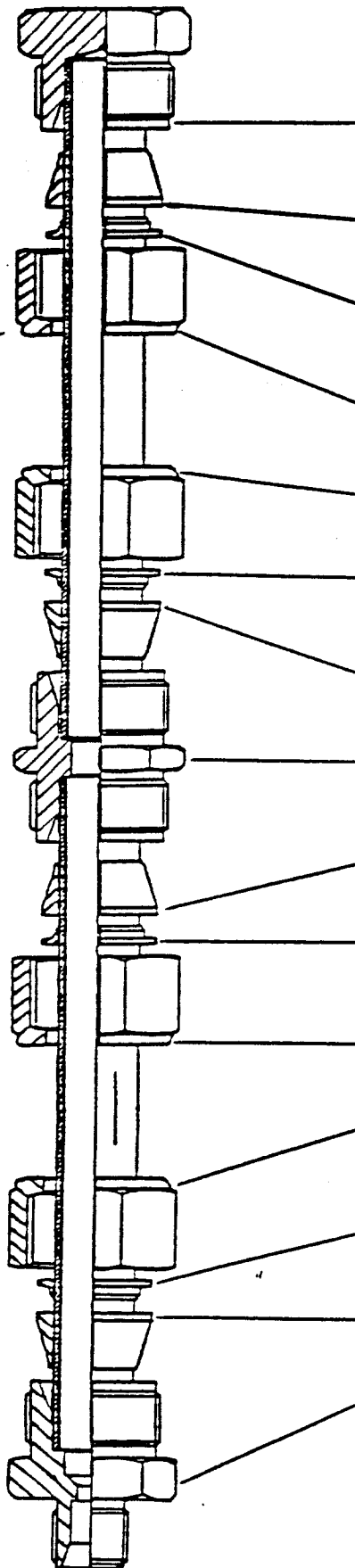
Fabrikat	He-Lecktest	Berstversuch
A-lok	↑	
A-lok		
A-lok		
A-lok		
A-lok		
A-lok		
A-lok		
A-lok		
A-lok		
A-lok	satisfied	1295 bar
A-lok		pipe crack in longitudinal direction
A-lok		
A-lok		
A-lok	↓	

TÜV-TEST

Version 3, 12mm

Rohrdimension: 12mm x 1,5mm

$< 4 \times 10^{-9}$ mbar 1/sec



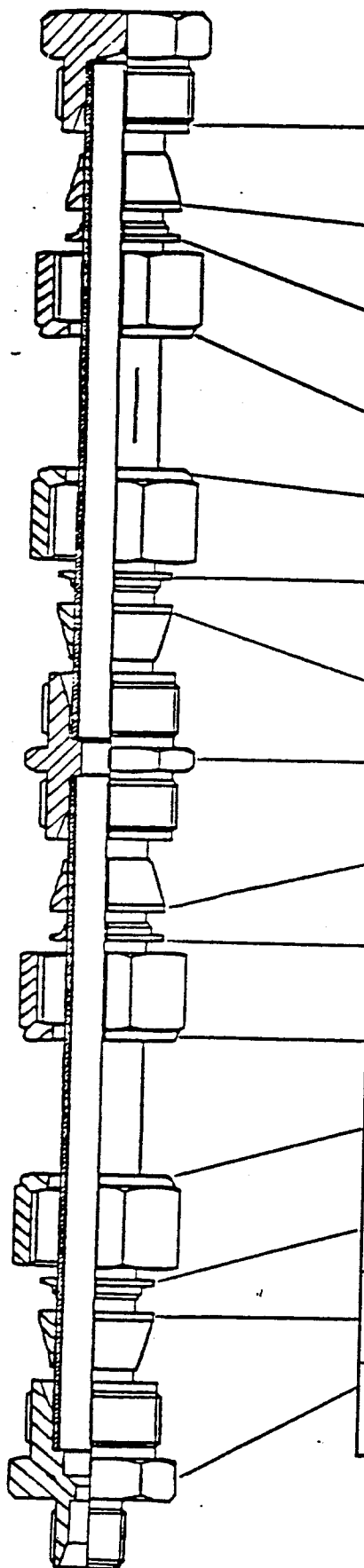
Fabrikat	He-Lecktest	Berstversuch
SW	↑	
A-lok		
A-lok		
A-lok		
SW		
SW		
SW		
A-lok		
SW		
SW		
A-lok	satisfied	1300 bar
SW		pipe crack in longitudinal direction
A-lok		
A-lok		
SW	↓	

TÜV-TEST

Version 4, 12mm

Rohrdimension: 12mm x 1,5mm

$<4 \times 10^{-9}$ mbar 1/sec



Fabrikat	He-Lecktest	Berstversuch
A-lok	↑	
SW		
A-lok		
SW	satisfied	1290 bar
A-lok		pipe crack in longitudinal direction
SW		
A-lok		
SW		
SW		
A-lok		
A-lok		
SW		
SW		
A-lok		
A-lok	↓	