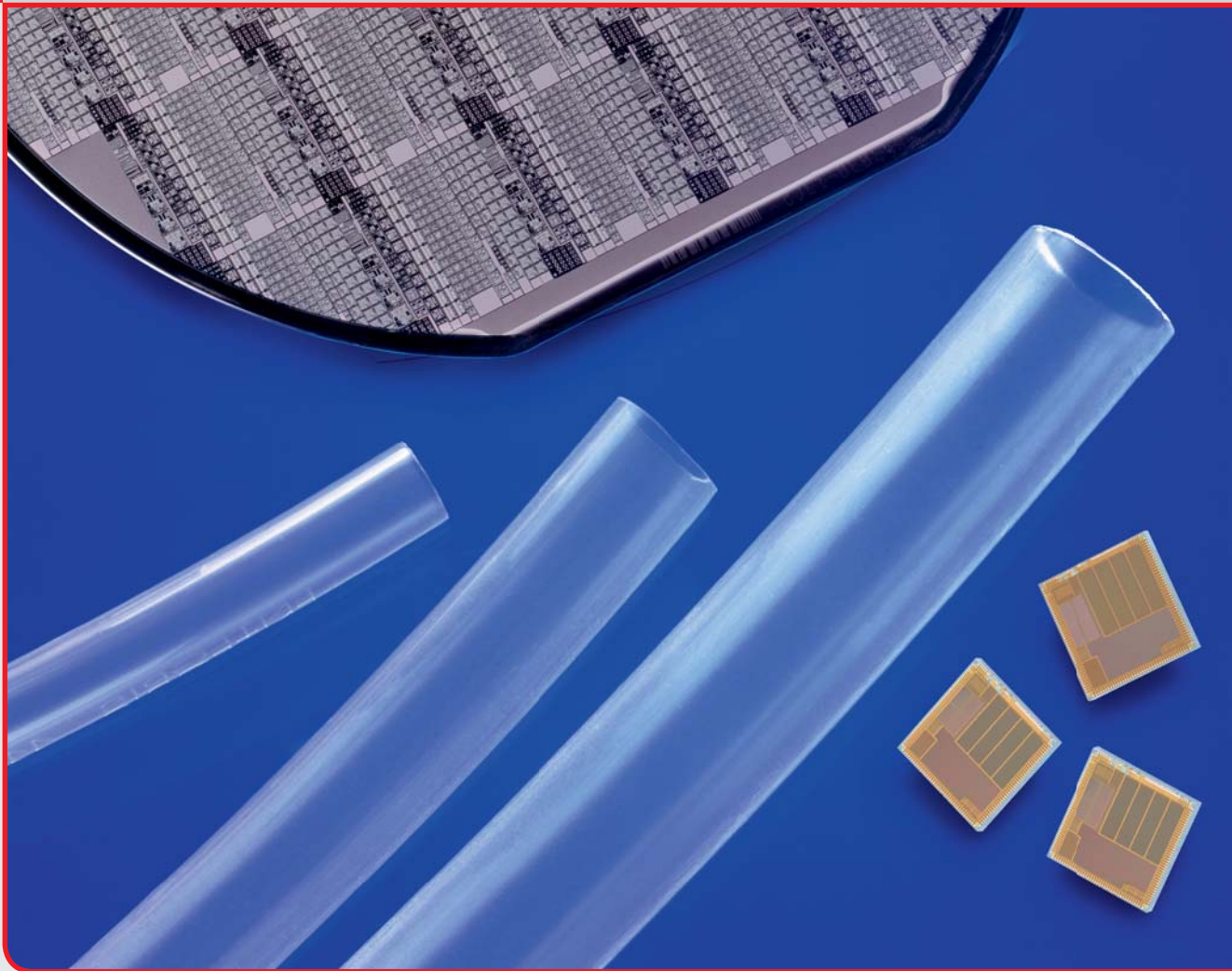
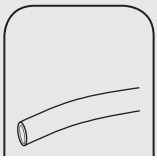


TubeStar®

High Purity PFA Tubing

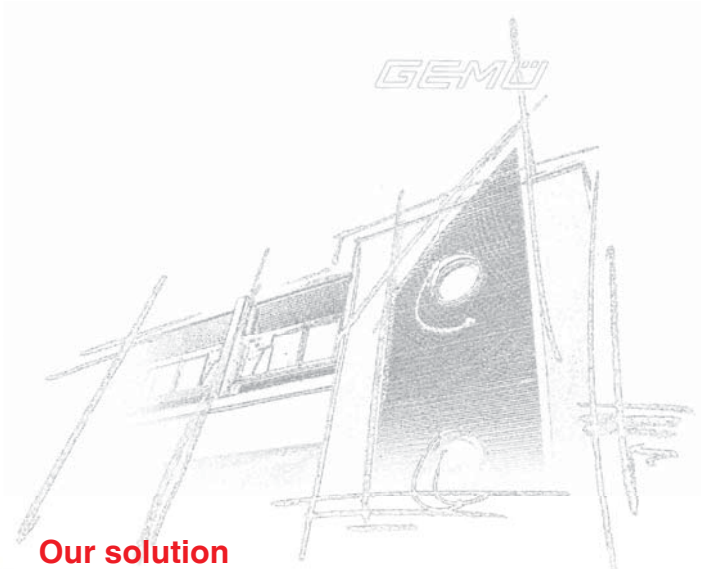
Product overview and technical data





Synergy effects used and translated into practice - *TubeStar®*

GEMÜ has combined many years of experience in the manufacture of High Purity PFA Valves, with the expertise of a leading producer of Fluoropolymer tubing and the result is *TubeStar®*.



Your applications

- Chemical distribution systems
- Process equipment
- Wet benches
- Cleaning and etching installations

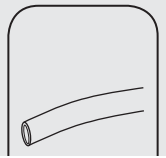
Our solution

A product range of High Purity PFA tubing for the transport of ultra high purity chemicals - *TubeStar®*.

A further addition to the GEMÜ High Purity range:
TubeStar® PFA tubes.



- Excellent chemical and physical properties
- Ultra pure
- Temperature resistant -70°C to 260°C (-158°F to 500°F)
- Very good pressure resistance
- Teflon® PFA 450 HP (DuPont)
- Values of dynamic leach out tests are below "SEMI 57"
- High transparency
- Good flexural fatigue strength



Range and dimensions



- Tube types**

Tube in HP quality

Other tube types on request

- Tube sizes**

1/4", 3/8", 1/2", 3/4", 1", 1 1/4"

Tubes with metric dimensions and inch tubes with thin wall thickness are available on request.

- Raw materials**

Teflon® PFA 450 HP (DuPont)

Other raw materials on request

- Packing units**

All tube sizes are available as 10, 20, 50 and 100m spools.

Straight tube pieces (6m) available.

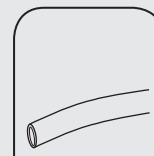
Other lengths (e.g. 3m, 5m) on request.

PFA tube with standard wall thickness

Size	ID		OD		Nominal sizes	Wall thickness		Bend radius	
	Inch	mm	Inch	mm		Code	Inch	mm	Inch
1/4"	0.156	3.97	0.250	6.35	4	0.047	1.19	1.5	40
3/8"	0.251	6.38	0.375	9.52	6	0.062	1.57	2.0	50
1/2"	0.376	9.55	0.500	12.7	8	0.062	1.57	2.3	60
3/4"	0.626	15.9	0.750	19.05	12	0.062	1.57	9.0	230
1"	0.876	22.25	1.000	25.4	16	0.062	1.57	11.0	280
1 1/4"	1.126	28.61	1.250	31.75	20	0.075	1.90	16.0	400

Tolerances

Size	ID		Tolerances		Wall thickness		Tolerances	
	Inch	mm	Inch	mm	Inch	mm	Inch	mm
1/4"	0.250	6.35	±0.004	±0.102	0.047	1.19	±0.004	±0.102
3/8"	0.375	9.52	±0.004	±0.102	0.062	1.57	±0.005	±0.127
1/2"	0.500	12.7	±0.005	±0.127	0.062	1.57	±0.005	±0.127
3/4"	0.750	19.05	±0.005	±0.127	0.062	1.57	±0.005	±0.127
1"	1.000	25.4	±0.005	±0.127	0.062	1.57	±0.005	±0.127
1 1/4"	1.250	31.75	±0.007	±0.20	0.075	1.90	±0.007	±0.200



Order data

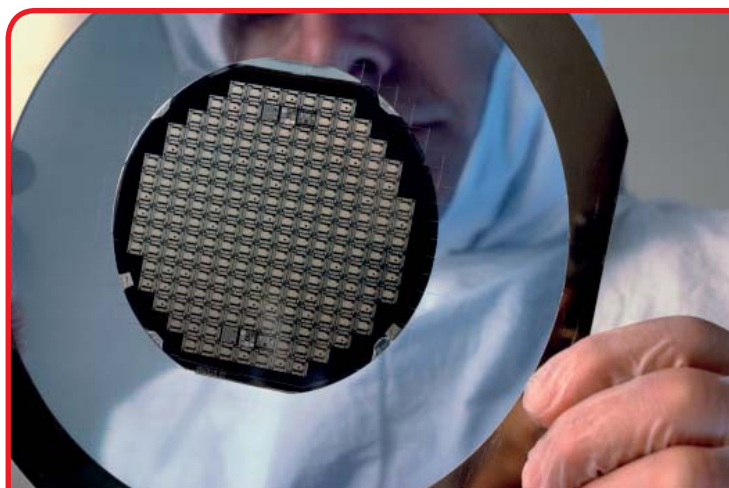
Outside diameter		Code	Delivery form		Code
1/4"	(6.35 mm)	4	Spool		C
3/8"	(9.52 mm)	6	6M lengths		S
1/2"	(12.70 mm)	8			
3/4"	(19.05 mm)	12			
1"	(25.40 mm)	16			
1 1/4"	(31.75 mm)	20			

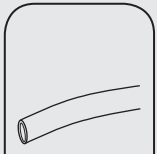
Wall thickness		Code	Tube length		Code
1.19 mm		047	6 m (in straight lengths only Code S)		6M
1.57 mm		062	10 m		10M
1.90 mm		075	20 m		20M
			50 m		50M
			100 m		100M

Material		Code	High Purity Design		Code
PFA, Perfluoralkoxy		30	High Purity		HP

Raw material		Code
450 HP DuPont		U

Order example	TU	16	062	30	U	C	50M	HP
Tube type	TU							
Outside diameter (Code)		16						
Wall thickness (Code)			062					
Material (Code)				30				
Raw material (Code)					U			
Delivery form (Code)						C		
Tube length (Code)							50M	
High Purity Design (Code)								HP



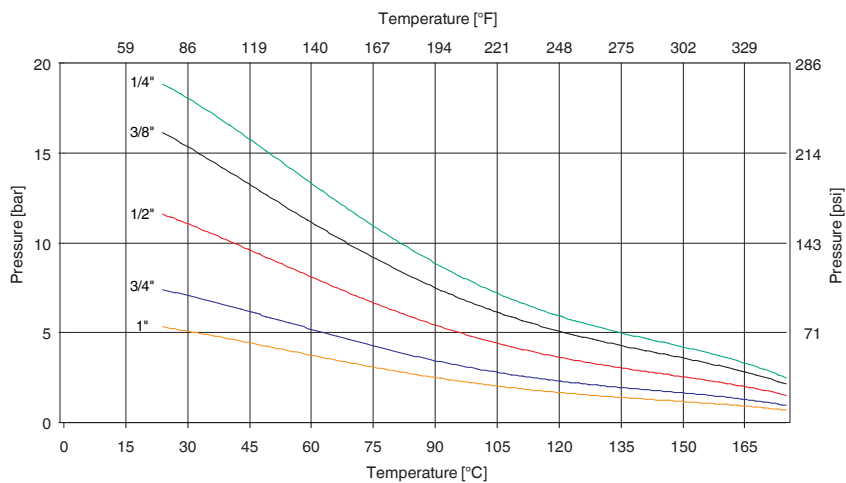


Examinations, test procedures, results

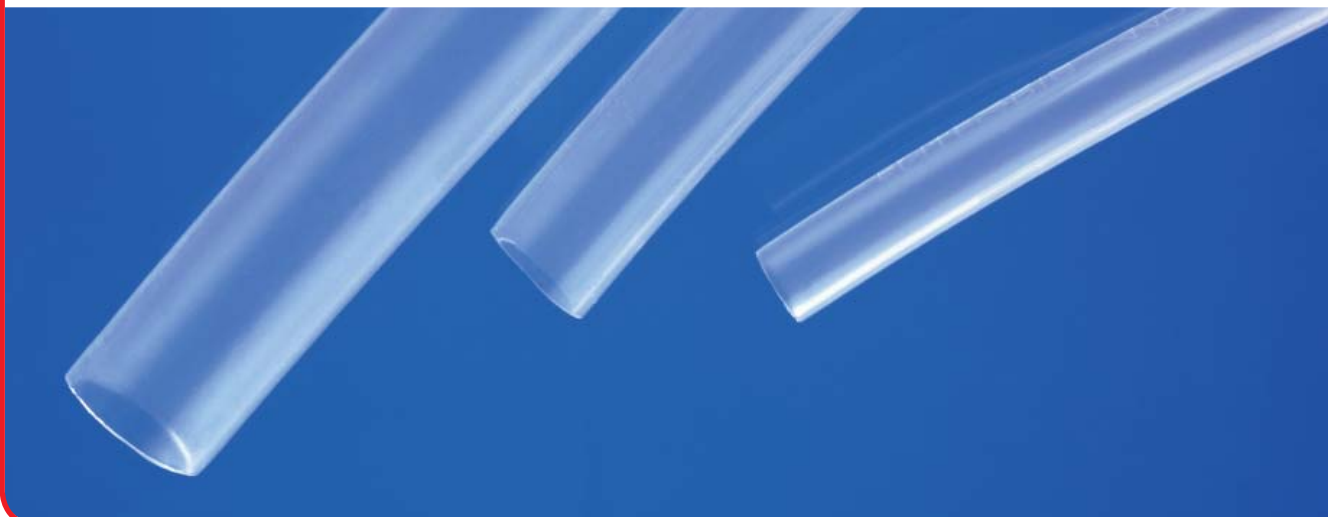
Extraction of PFA tubes according to SEMI F 57

Examination results		
Element	Semi 57 Maximum values ($\mu\text{g}/\text{m}^2$)	GEMÜ TubeStar® ($\mu\text{g}/\text{m}^2$)
Ca	30	0
Cr	1	0.53
Cu	15	0.34
Fe	5	0.17
K	15	0.18
Na	15	0.43
Zn	10	9.25
Al	10	0.36

Pressure/Temperature diagram



The values of 1" and 1 1/4" (not shown) only deviate slightly. Specified values on request.





GEMÜ[®] VALVES, MEASUREMENT
AND CONTROL SYSTEMS

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