

Technical Laboratories in Knitting

Machine categories in the knitting lab

- **Weft Knitting Machines**
 - Flat automatic
 - Flat manual
 - Circular large diameter
 - Circular small diameter
- **Warp Knitting Machines**
 - Tricot
 - Raschel
 - Raschel manual
 - Circular small diameter
- Circular manual
- Other Machines
- Stab protection Test Facility
- Friction Test Facility

Knitting Lab – Automatic Flat Knitting Machines

Manufacturer	Type	Gauge	Width	Remarks
<u>Stoll</u>	CMS 340 TC	E 6.2	72“	Knit & Wear
<u>Stoll</u>	CMS 520 C	E 3 3L	50“	
<u>Stoll</u>	CMS ADF 16	E 3,5.2	50“	multigauge
<u>Stoll</u>	IBOM/B	E 10	71“	
<u>Harry Lucas</u>	FSM-1K-1s	E10	18“	Rechts/Rechts

Knitting Lab – Automatic Flat Knitting

Machine parameter:

- Stoll CMS 340 TC
- Gauge E 6.2
- Width 72"
- 4 knitting systems
- Knit and Wear



Knitting Lab – Automatic Flat Knitting

Machine parameter:

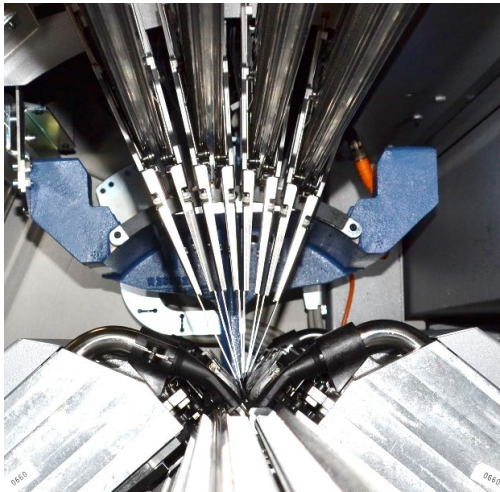
- Stoll CMS 520 C
- Gauge E 3 3L
- Width 50"
- 2 knitting systems



Knitting Lab – Automatic Flat Knitting

Machine parameter:

- Stoll CMS ADF 16
- Gauge E 3,5.2
- Width 50"
- 3 knitting systems



Knitting Lab – Motorized Flat Knitting

Machine parameter:

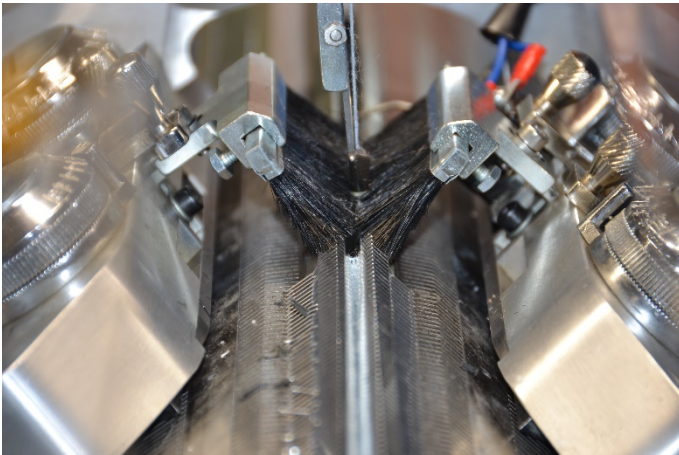
- Stoll IBOM/B
- Gauge E 10
- Width 71"
- 1 knitting system



Knitting Lab – Motorized Flat Knitting

Machine parameter:

- Harry Lucas FSM-1K-1s
- Gauge E 10
- Width 18"
- 1 knitting system



Knitting Lab – Flat - Manual Knitting Machines

Manufacturer	Type	Gauge	Width	Remarks
Stoll	IBO	E 4	2x 100cm , 1 x 80cm	Flat knitting machine
Stoll	IBO	E 5	100cm	Flat knitting machine
Stoll	IBO	E 6	100cm, 120cm	Flat knitting machine
Stoll	IBO	E 7	120cm	Flat knitting machine
<u>Stoll</u>	IBO	E 10	100cm	Flat knitting machine
<u>Stoll</u>	FAL	E 5	120cm	Flat knitting machine
<u>C.F.Popp</u>		E 1,5	110cm	Flat knitting machine
<u>Universal</u>		E 4	100cm	Flat knitting machine
Universal		E 5	100cm	Flat knitting machine

Knitting Lab – Flat Knitting – Manual Operation

Machine parameter:

- Stoll IBO
- Gauge E 10
- Width 100 cm
- Double (RR)



Knitting Lab – Flat Knitting – Manual Operation

Machine parameter:

- Stoll FAL
- Gauge E 5
- Width 120 cm
- Purl (LL)



Knitting Lab – Flat Knitting – Manual Operation

Machine parameter:

- C. F. Popp
- Gauge E 1,5
- Width 110 cm
- Double (RR)



Knitting Lab – Flat Knitting – Manual Operation

Machine parameter:

- Universal
- Gauge E 4
- Width 100 cm
- Double (RR)

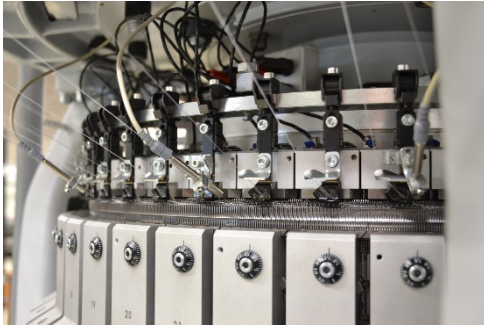


Knitting Lab – Circular Knitting Machines

large diameter

Manufacturer	Type	Gauge	Feeds	Ø	Remarks
<u>Mayer & Cie</u>	OVJA 1.6 EE 3/2WT	E 16	48	30"	3-way electronic Jacquard in dial and cylinder
<u>Terrot</u>	UP 372	E 18	72	30"	3-way mechanical Jacquard
<u>Mayer & Cie</u>	Relanit 4	E 28	84	26"	Single Jersey, 4 track needle selection
<u>Mayer & Cie</u>	FV 2.0	E 10	29	14"	Double Jersey
<u>Mayer & Cie</u>	IV 2.0	E 18	28	15"	Interlock
<u>Mayer & Cie</u>	MPU 1.6 Plush	E 20	42	26"	Single Jersey, 4 track needle selection

Knitting Lab – Circular Knitting – Large Diameter



Machine parameter:

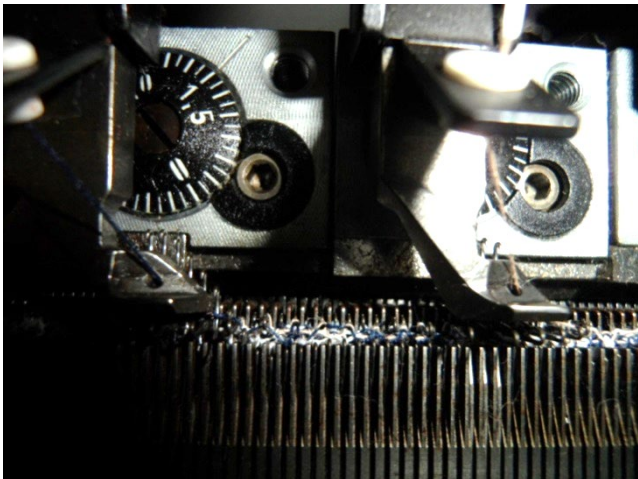
- Mayer & Cie OVJA 1.6 EE 3/2WT
- Gauge E 16
- Ø 30"
- 48 feeds
- 3-way electronic Jacquard in dial and cylinder
- Double jersey (Rib)



Knitting Lab – Circular Knitting – Large Diameter

Machine parameter:

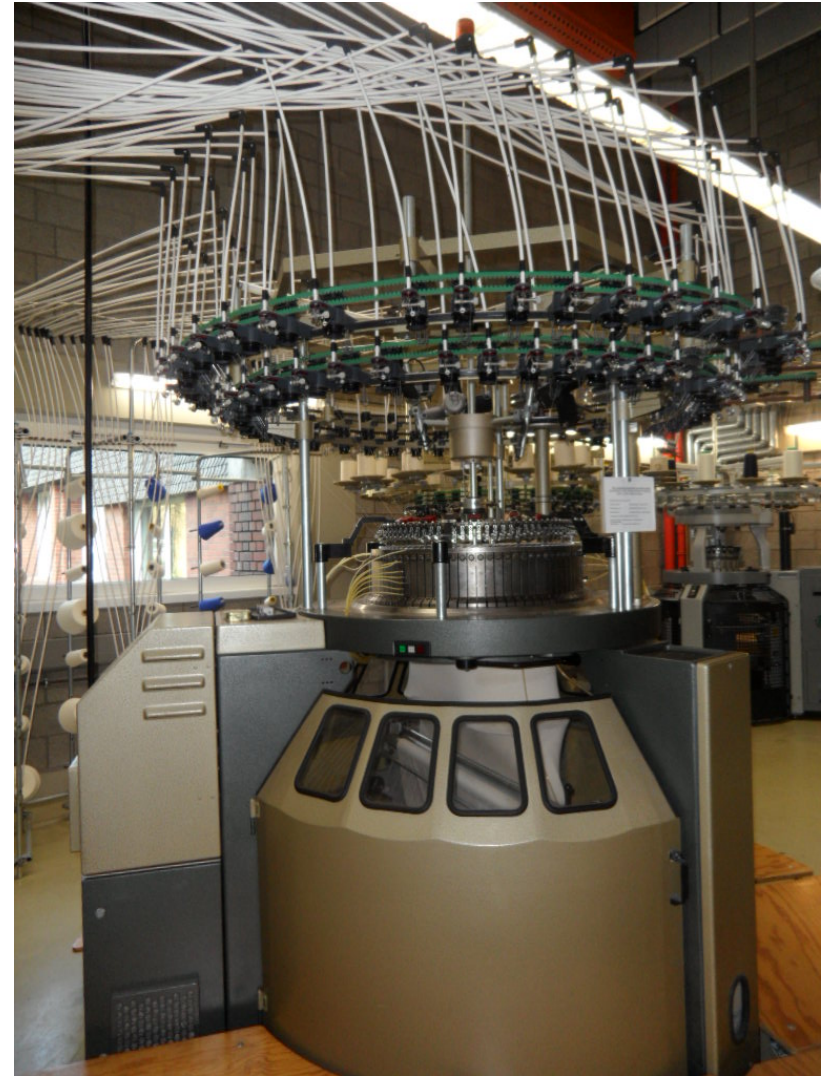
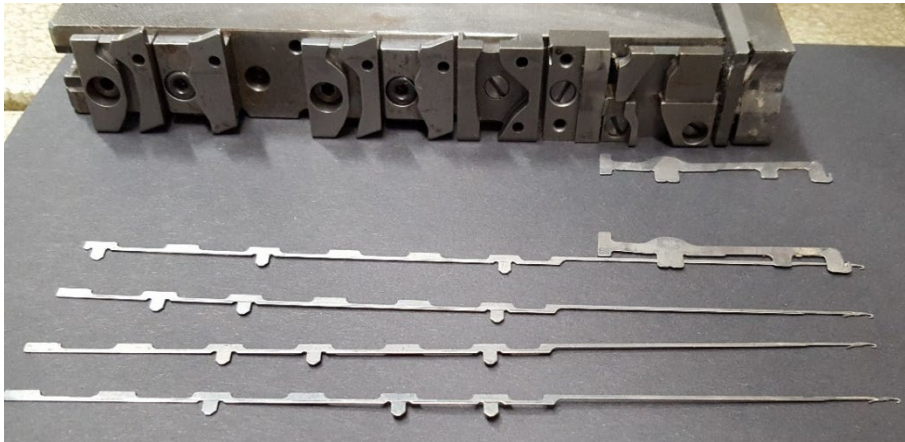
- Terrot UP 372
- Gauge E 18
- Ø 30"
- 72 feeds
- Max 40 rpm
- 3-way mechanical Jacquard
- Double jersey (Rib)



Knitting Lab – Circular Knitting – Large Diameter

Machine parameter:

- Mayer & Cie Relanit 4
- Gauge E 28
- Ø 26"
- 84 feeds
- max 40 rpm
- Single Jersey (RL)
- 4 track needle selection



Knitting Lab – Circular Knitting – Large Diameter

Machine parameter:

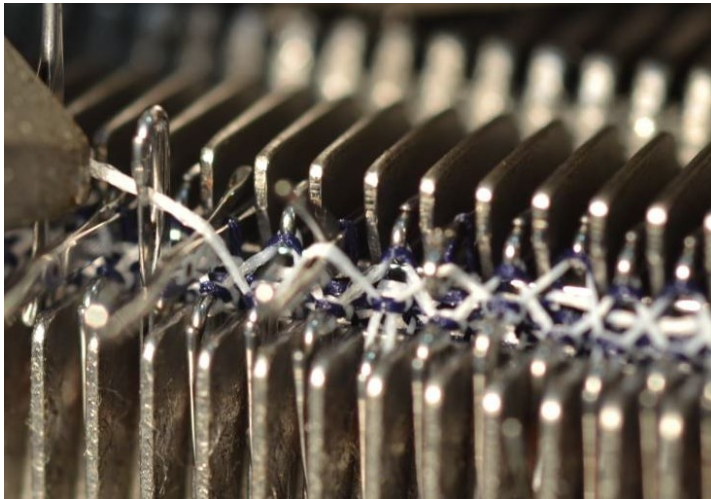
- Mayer & Cie FV 2.0
- Gauge E 10
- Ø 14"
- 29 feeds
- max 79 rpm
- Double Jersey (Rib)
- 2 track needle selection



Knitting Lab – Circular Knitting – Medium Diameter

Machine parameter:

- Mayer & Cie IV 2.0
- Gauge E 18
- Ø 15"
- 28 feeds
- Max 70 rpm
- Interlock



Knitting Lab – Circular Knitting – Large Diameter

Machine parameter:

- Mayer & Cie MPU 1.6 Plush
- Gauge E 20, Ø 26"
- 42 feeds
- 4 track needle selection
- Single jersey (RL)
- Plush, terry, fleece



Knitting Lab – Circular Knitting Machines

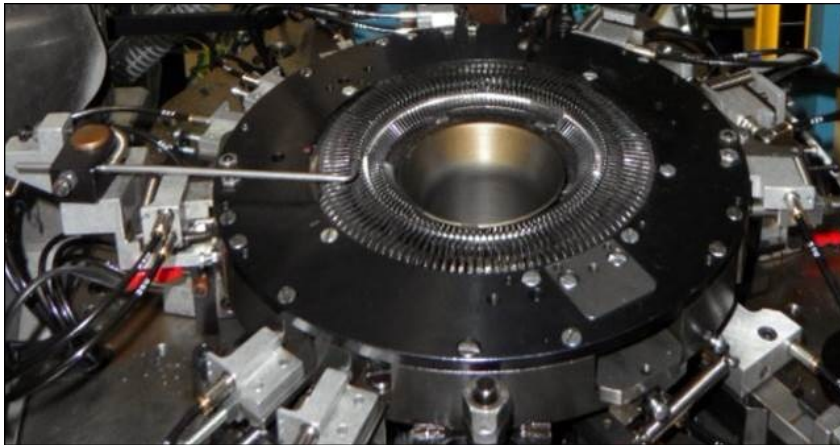
small diameter

Manufacturer	Type	Gauge	Feeds	Ø	Remarks
<u>BUSI-GIOVANNI</u>	Idea Twin Layer	E 10	1+4Mu	4“	Sock machine
<u>Harry Lucas</u>	RR2-4S-ELHA	E 8	4	5,5“	
<u>Foster</u>	VA	E 6	1	4,75“	Manual
<u>Heumann</u>	Favorite	E 6	1	4,75“	Manual

Knitting Lab – Circular Knitting – Small Diameter

Machine parameter:

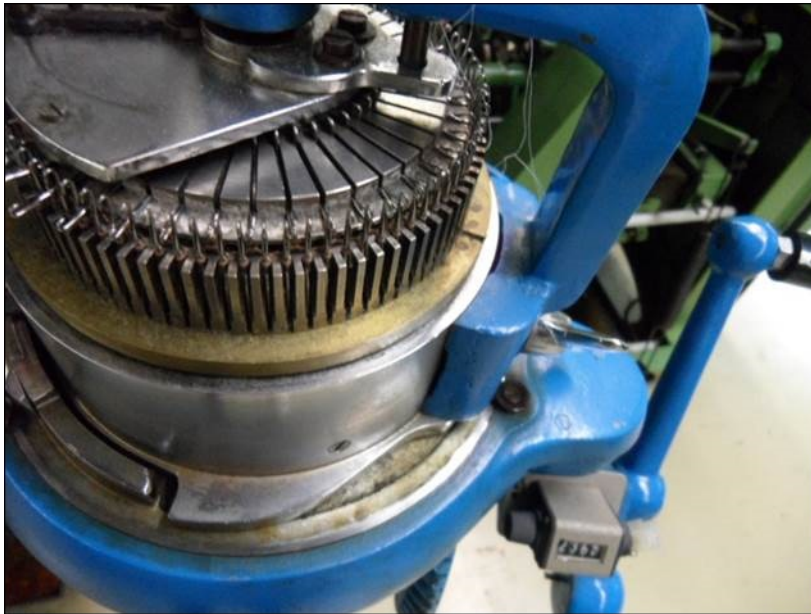
- BUSI Idea Twin Layer
- Gauge E 10
- Ø 4"
- 1 knitting feed
- 4 pattern feeds
- Max 220 rpm



Knitting Lab – Circular Knitting – Manual Operation

Machine parameter:

- Foster FA
- Gauge E 6
- Ø 4,75"
- manual



Knitting Lab – Circular Knitting – Manual Operation

Machine parameter:

- Heumann Favorite
- Gauge E 6
- Ø 4,75"
- manual



Knitting Lab - Tricot Machines

Manufacturer	Type	Gauge	Width	Remarks
<u>Karl Mayer</u>	KS 4	E 28	42"	Tricot
<u>Karl Mayer</u>	KL 4	E 28	22"	Tricot, bearded needles
<u>LIBA</u>	Copcentra 2	E 28	42"	Tricot

Knitting Lab - Tricot Machines

Machine parameter:

- Karl Mayer KS 4
- Gauge E 28
- Width 42"
- 4 guide bars
- Single Jersey (RL)
- compound needles



Machine parameter:

- Karl Mayer KL 4
- Gauge E 28
- Width 22"
- 4 guide bars
- Single Jersey (RL)
- bearded needles



Knitting Lab - Tricot Machines

Machine parameter:

- LIBA Copcentra 2
- Gauge E 28
- Width 42"
- 2 guide bars
- Single Jersey (RL)
- compound needles



Knitting Lab - Raschel Machines

Manufacturer	Type	Gauge	Width	Remarks
<u>Karl Mayer</u>	RS 4 MSU	E 18	77"	Magazine storage
<u>Karl Mayer</u>	MRS 10	E 18	50"	Multi bar
<u>Karl Mayer</u>	RML 6F	E 18	50"	Fall plate
<u>Karl Mayer</u>	DR 7 E-ST	E 18	25"	Double needle bar
<u>Karl Mayer</u>	RML 6	E 12	22"	Lab-scale
<u>Harry Lucas</u>	Vepa E	E 5	8"	2 guide rings, cut/draw unit
<u>Schlafhorst</u>		E 4	6"	Manual single needle bar
<u>Schlafhorst</u>		E 4	6"	Manual double needle bar

Knitting Lab - Raschel Machines

Machine parameter:

- Karl Mayer RS 4 MSU
- Gauge E 18 (ER 36)
- Width 77"
- 4 guide bars
- Magazine storage
- Single Jersey (RL)
- latch needles



Machine parameter:

- Karl Mayer MRS 10
- Width 50"
- Gauge E 18 (ER 36)
- Single Jersey (RL)
- latch needles
- 2 ground bars, 8 pattern bars



Knitting Lab - Raschel Machines

Machine parameter:

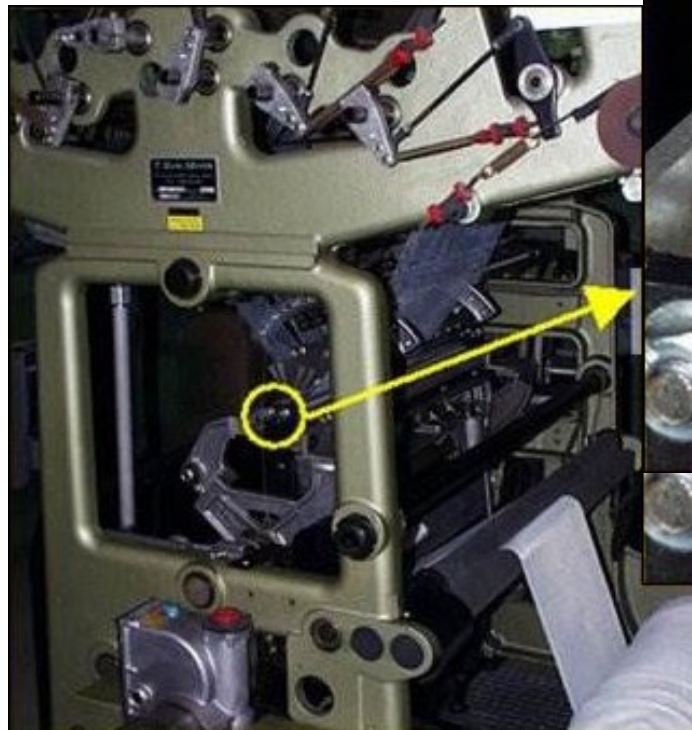
- Karl Mayer RML 6 F
- Gauge E 18 (ER 36)
- Width 50"
- 3 ground bars,
3 in front of fall plate
- Fall plate technique
- Single Jersey (RL)
- latch needles



Knitting Lab - Raschel Machines

Machine parameter:

- Karl Mayer DR 7 E-ST
- Gauge E 18 (ER 36)
- Width 25"
- 7 guide bars
- Double needle bar
- Double (RR)
- latch needles



Knitting Lab - Raschel Machines

Machine parameter:

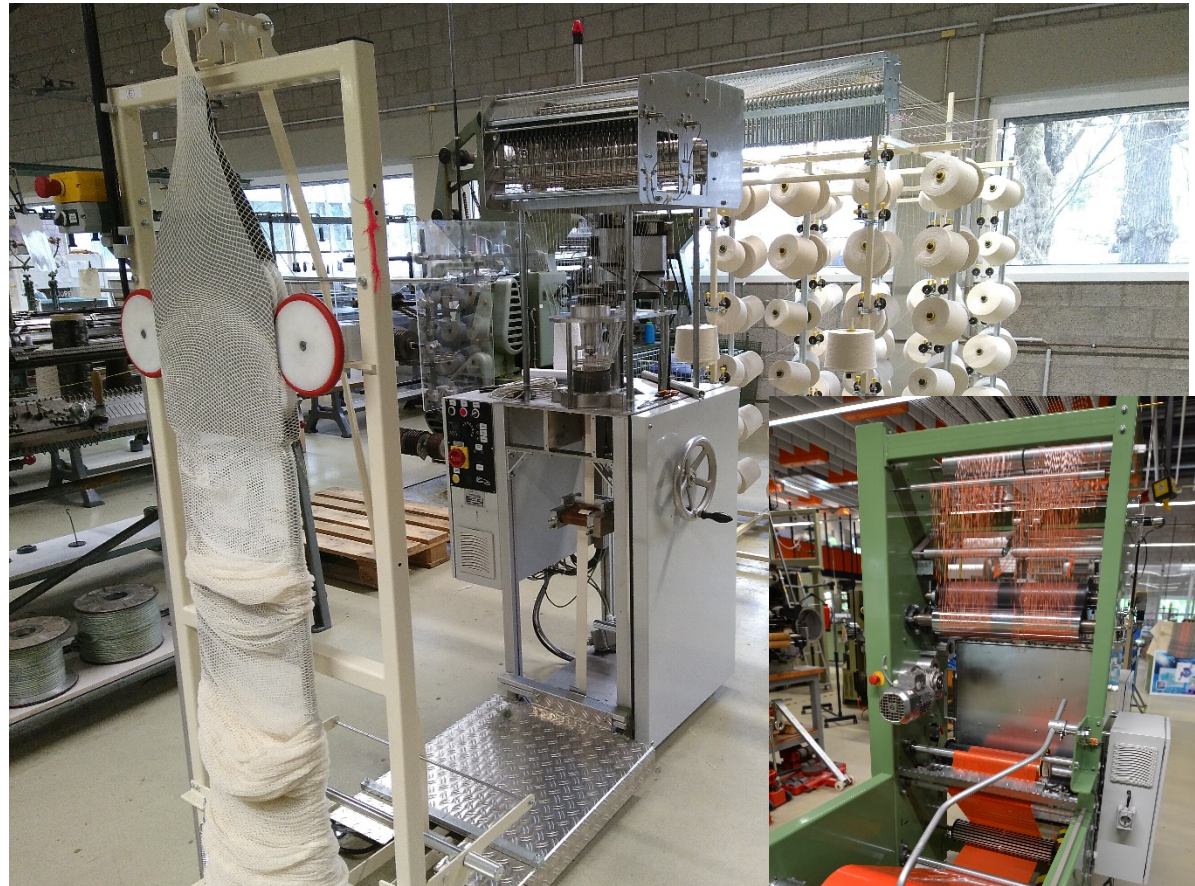
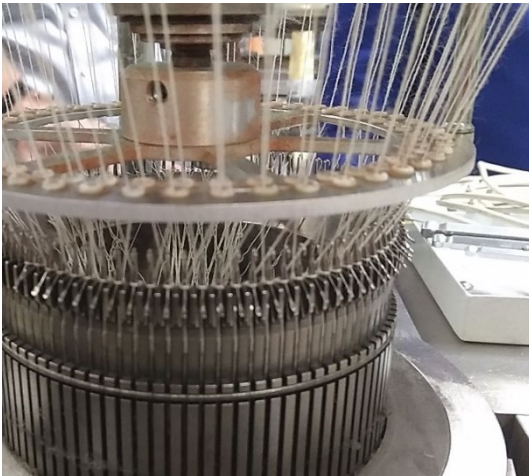
- Karl Mayer RML 6
- Gauge E 12 (ER 24)
- Width 22"
- 6 guide bars
- Single Jersey (RL)
- latch needles



Knitting Lab – Warp Knitting Circular small diameter

Machine parameter:

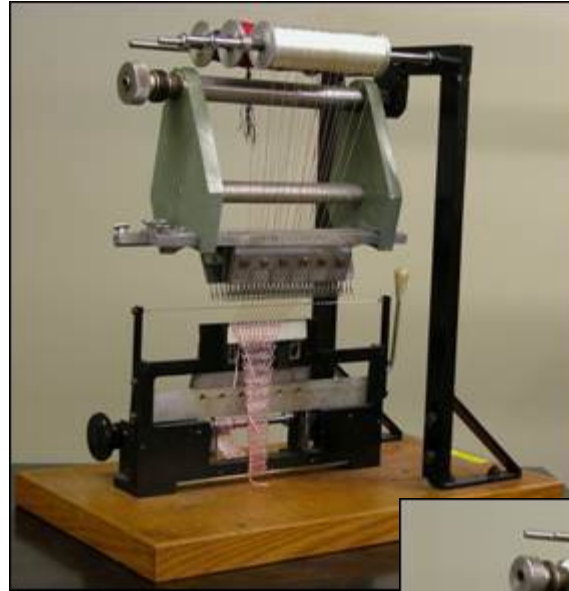
- Harry Lucas Vepa E + Cut/Draw Unit
- Diameter 8"
- 2 guide rings
- 120 needles (Gauge 5)



Knitting Lab - Raschel Machines - Manual

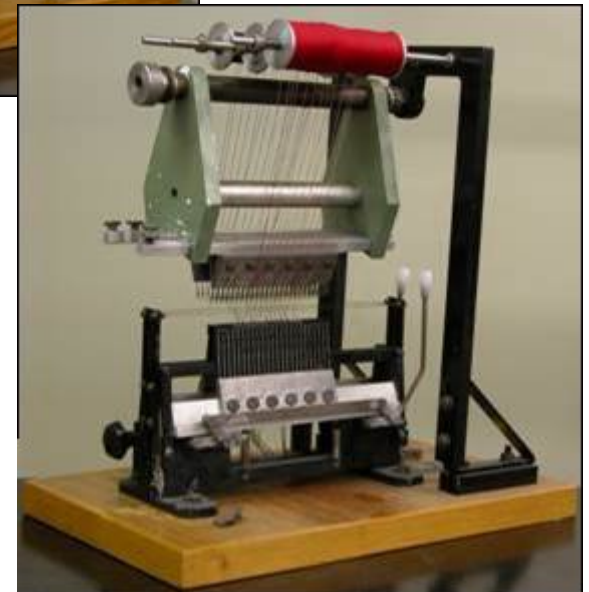
Machine parameter:

- Schlafhorst manual
- Gauge E 4 (ER 8)
- Width 6"
- 4 guide bars, single needle bar (10 machines available)



Machine parameter:

- Schlafhorst manual
- Gauge E 4 (ER 8)
- Width 6"
- 4 guide bars, double needle bar (2 machines available)



Other Machines

Stab Protection Test Facility

Manufacturer	Knife manufacturer	type	Remarks
<u>Inhouse construction</u>	Wenger	PB/1	According to VPAM
	Böker	Magnum	440 Stainless Steel

Friction Test Facility

Manufacturer	Speed	Sensors	Remarks
<u>Inhouse construction</u>	30 m/sec – 300 m/sec	2	Under modification

Other Machines – Stab Protection Test Facility

Machine parameter:

- Max drop height 23,62"
- Max impact energy 14,75 Joule

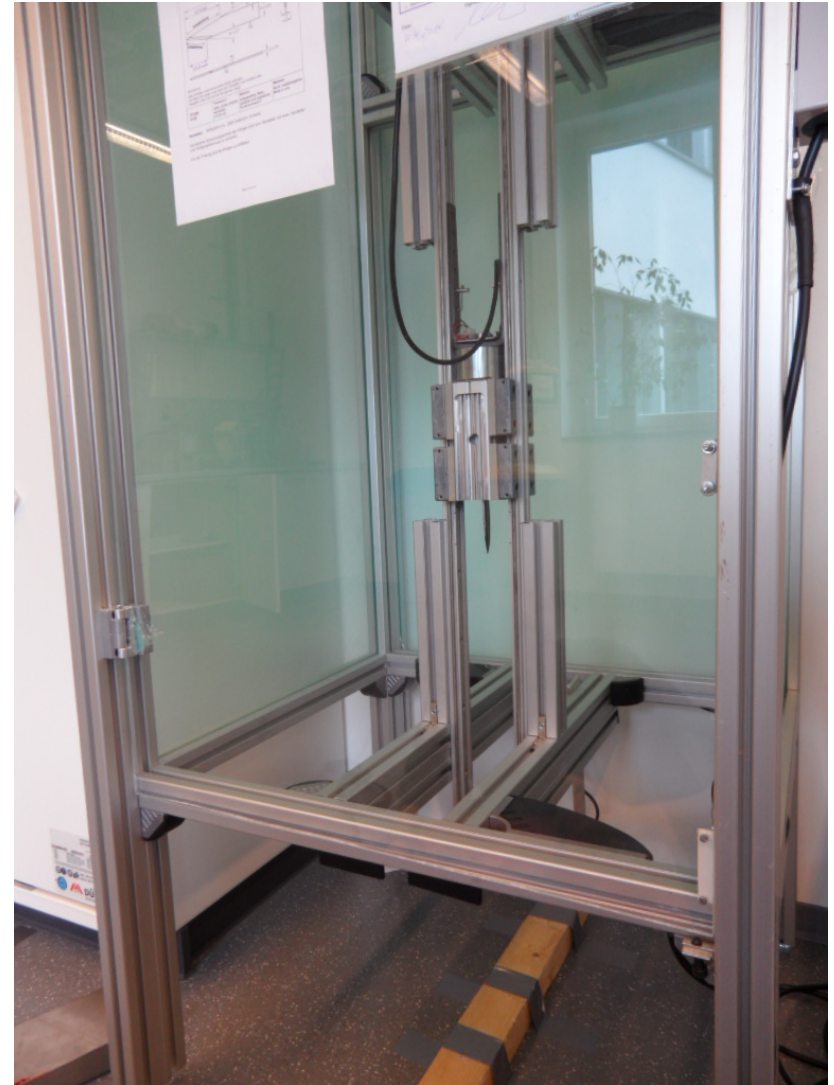
Wenger Knife parameter:

- According to VPAM P1/B
- Cold rolled steel
- Roughness < 0,05 mm on whole length

Plasticine



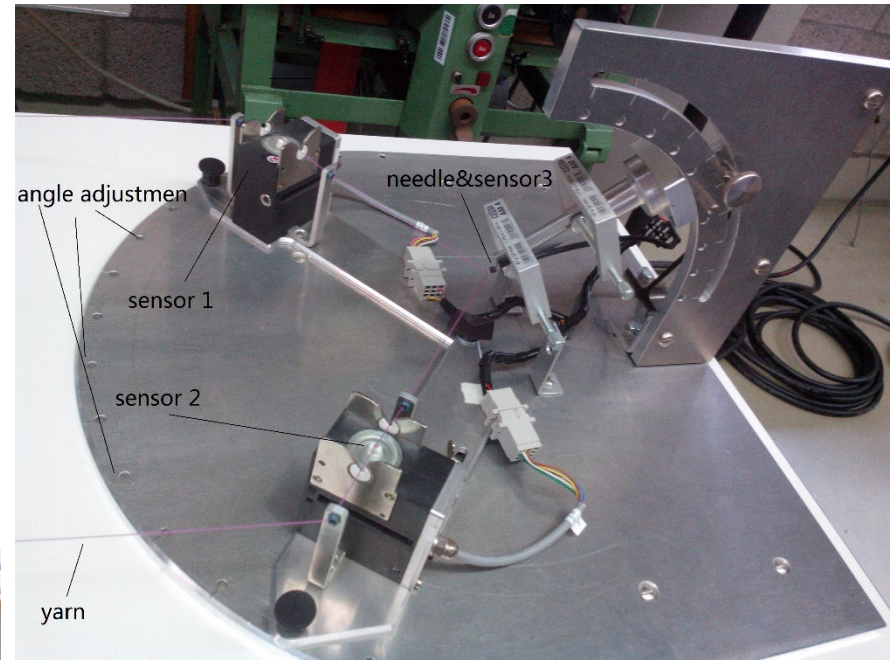
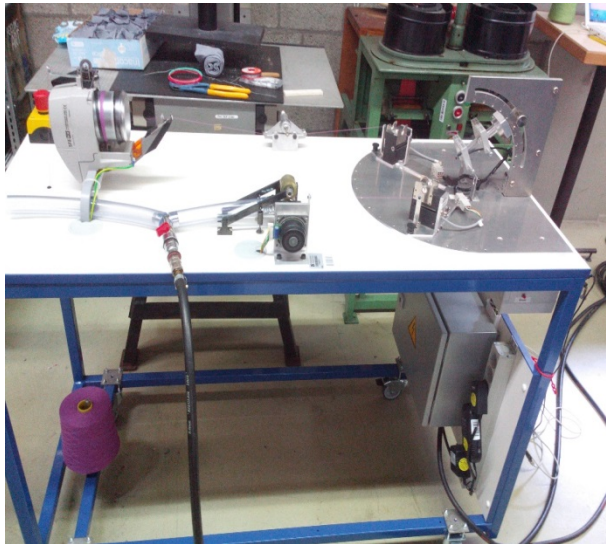
Knives



Other Machines – Friction Test Facility

Machine parameter:

- Speed 33 m/sec - 300 m/sec
- 2 yarn tension sensors before and after friction unit
- Tension measure up to 200 Hz
- Temperature measuring instrument



Prof. Dr. Marcus O. Weber
Webschulstr. 31
41065 Mönchengladbach
+49 2161 186 6033
Marcus.Weber@hs-niederrhein.de