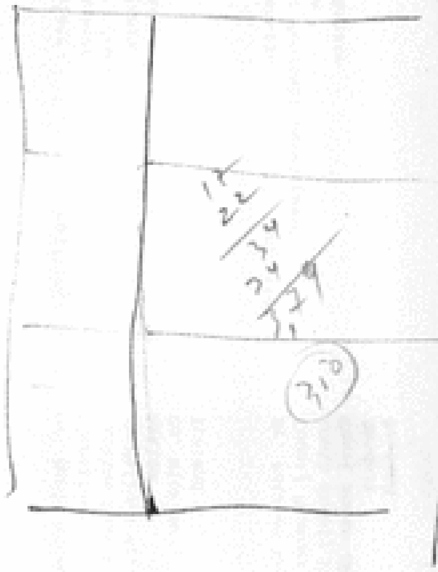
UNIVERSIDADE DO PORTO

REITORIA

PASTA N.º 1.050



Farmacologia (Prof. Serafim)

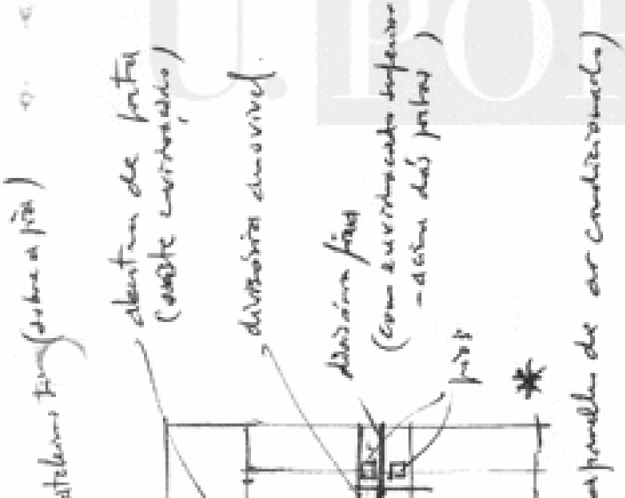
— ao fundo do corredor
Gabinete Prof. Walter Oswald (pintura)

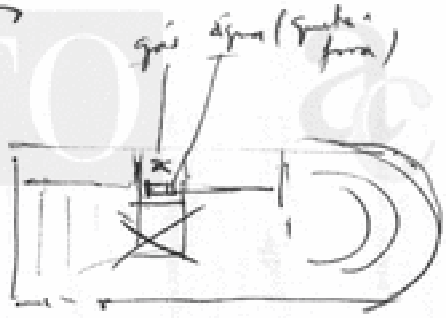
Fisiologia

— humidade ao fundo do corredor
— pintura de lambrim " "

— Hospital de cães (Bretão)
— Tampa da conduta da sala de Reuniões.

Sala de Trabalhos práticos





— 25 cadeiras de palmatória
— 2 mesas quadradas (1,00 x 1,00) c/ tampo em fórmica e estrutura metálica.
* — lambrim em tinta vitrificada com 1,30m de altura.
— 1 écran de projecções
— 1 quadro negro c/ cavalete
* — Iluminação fluorescente

Mr. M. Ferris
Tipperary (SR) County Council
Rosanna
Tipperary
Ireland
C83/1399

Mr. Edward Hynes
Chairman
Meath County Council
County Hall, Navan
County Meath
Ireland
C83/1414

Mr. Reggie Lawlor
Member of Co. Co
Kildare Co. Council
St. Mary's, Naas,
Co. Kildare
Ireland
C83/1321

Mr. John McCoy
County Councillor
Limerick County Council
County Buildings
O'Connell St.
Limerick
Ireland
C83/1330

Mr. Patrick Fullam
Councillor
Meath County Council
County Hall, Navan
County Meath
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C83/1412

Mr. Francis Kavanagh
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County Hall, Navan
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Member of Mayo Co. Council
Department of Education
Toomore
Foxford
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C83/1361

Mr. Joseph Gallagher
Councillor
Dundalk Urban District Council
Town Hall
Dundalk
Co. Louth
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C83/1350

Mr. Thomas Keenan
Chairman Laois County Council
Marian Place
Portlaoise
Rep. of Ireland
C83/1187

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Co. Carlow
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Co. Kildare
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C83/1320

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County Wicklow
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Mr. James Miley
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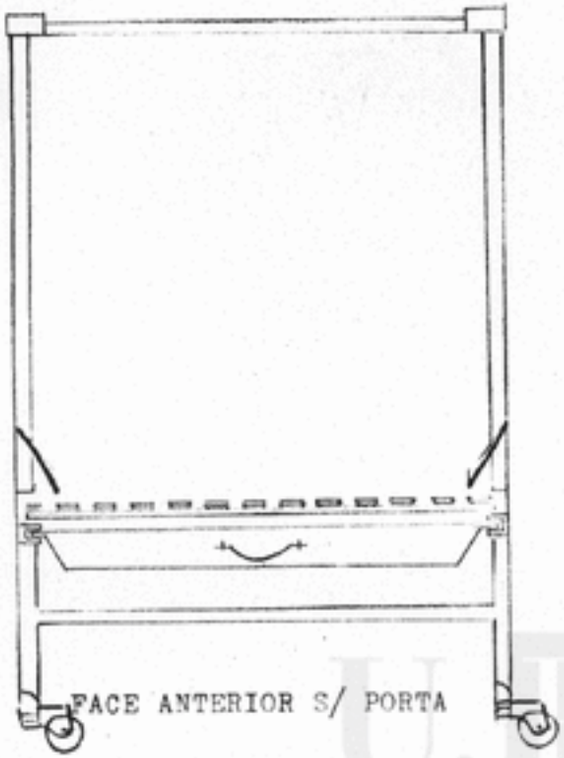
Brockagh, Glendalough, Bray
County Wicklow
C83/1260

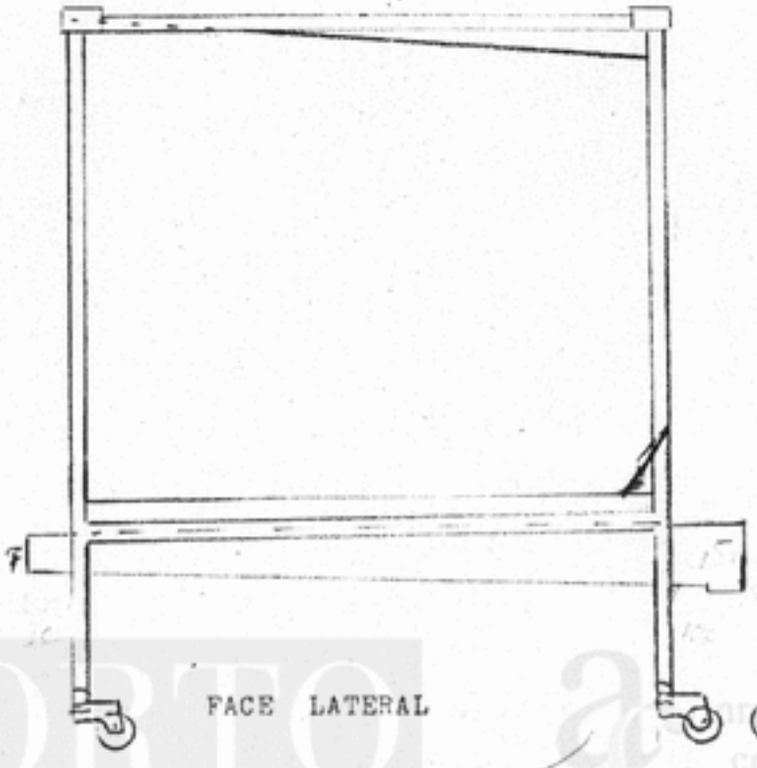
JOÃO NENO DA COSTA ROMÃO /
Funcionário BIOTERIO
Instituto Gulbenkian Ciencia
Oeiras Telef. 243 0707

Rua Diogo Cão, 16 - 4.º D Telef. 63 83 26 1300 LISBOA

GAIOLA MÓVEL PARA CÃES

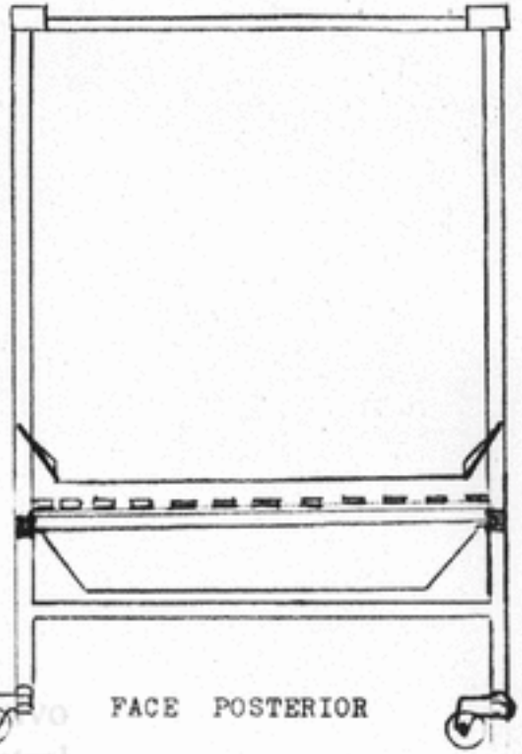


FACE ANTERIOR S/ PORTA

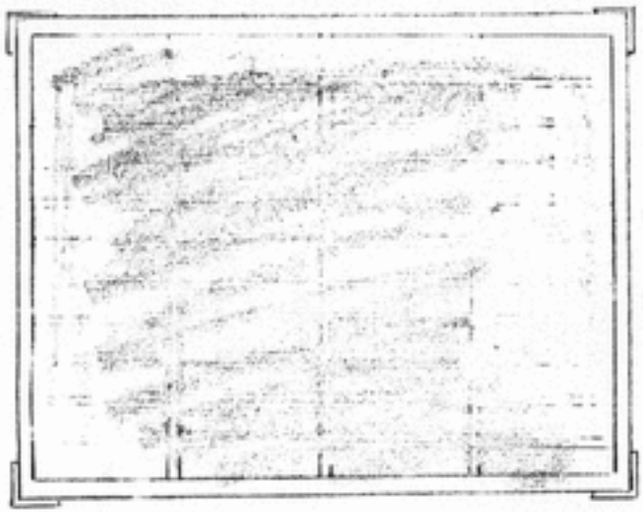


FACE LATERAL

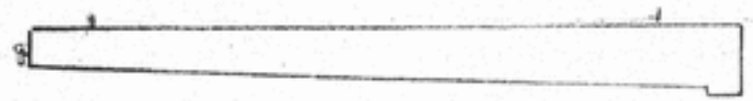
1.000 cm +



FACE POSTERIOR



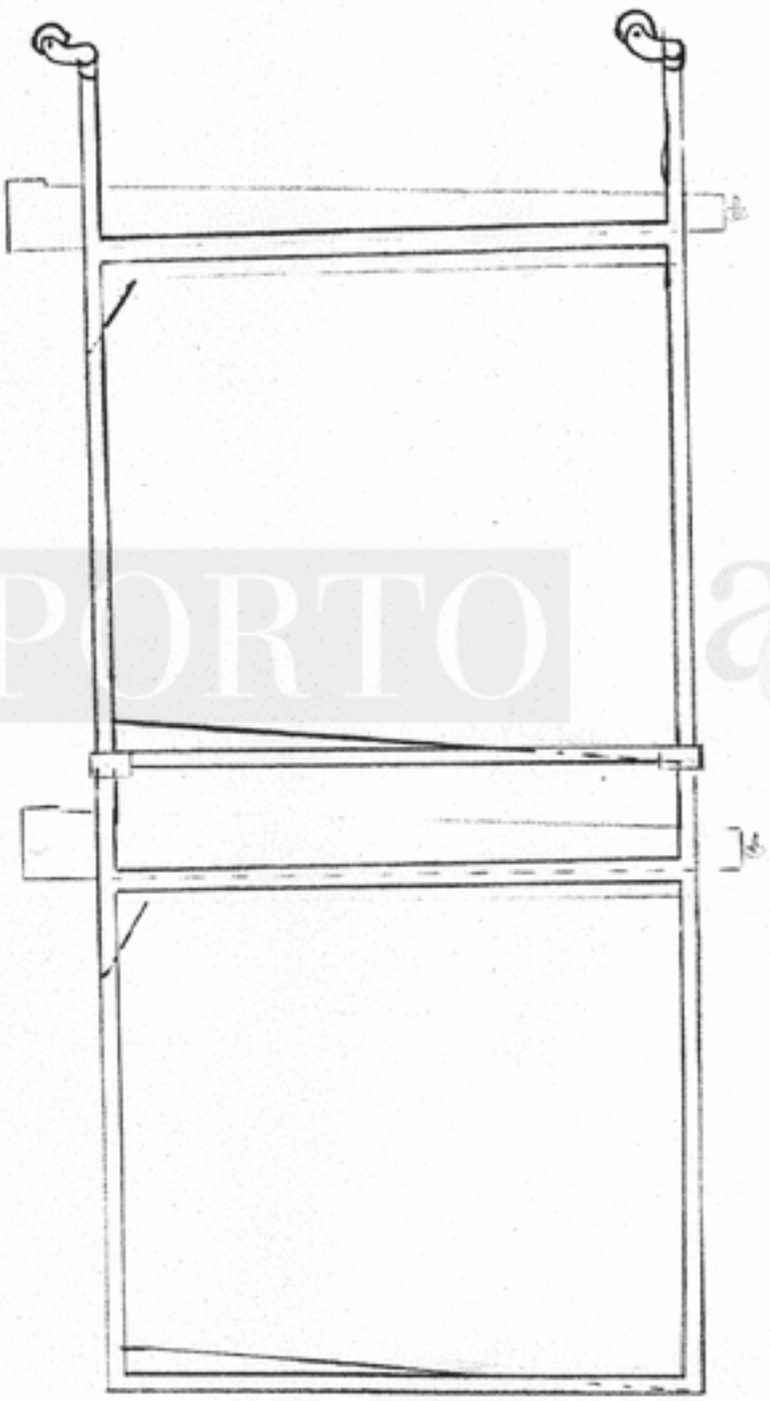
FACE SUPERIOR



a alterar
deverá ficar a
parte da frente

FACE LATERAL DO TABULEIRO

1/10



EBECO

E. BECKER & CO. GMBH
Hermannstraße 2 – 8
D-4620 Castrop-Rauxel · Germany
Phone: 02305 – 72031 · Telex 8229544

ANIMAL CAGES
ANIMAL LABORATORY EQUIPMENT

List of contents

List of contents

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ANIMAL CAGES
ANIMAL LABORATORY EQUIPMENT

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EBECO

E. BECKER & CO GMBH

Equipment for feeding up animals and laboratory

Since establishing of our firm in 1948 we have been manufacturing cages for animals. Shortly afterwards we added cages for experimental animals. The result of year long development and fertile collaboration with the customers (pharmaceutical industry, scientific institutes and animal-breeding firms) you find in this catalogue.

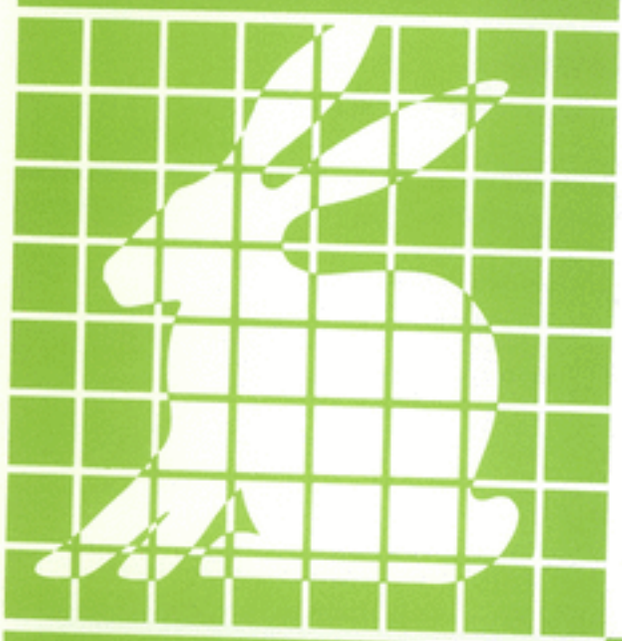
We offer you the following **service:**

- **we inform you about new developments,**
- **we set up plans for exhibition** and inform you about the number of animals in the experimental animal-keeping, considering the species, number, utilization of space and the daily work by drawings and by exact calculation,
- if desired we **give you the names** of institutes and firms near you, which use our equipment.

Our products give you the following **advantages:**

- **best constructions** on the base of practical experience,
- our racks and sets with its cages and lids bring **order and clearness** to your animal-laboratory. This gives you the possibility to work reasonably,
- our **racks and sets** can extensively be equipped with **automatic** control regarding watering and draining.

From the beginning we influenced form and design of the cages and covers, which is your profit, if you buy our equipment.



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M I m. DST I, F 30

M II m. DÜ II, F 30

M III m. DÜ III, F 75

M IV m. DST IV, F 75

1.0 Animal cages for mice, rats, hamsters, guinea pigs a.s.o.

1.1 Animal cages made of Makrolon

Short indication: M

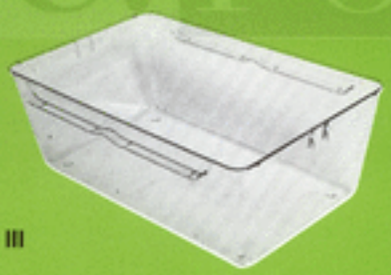
Order number: see table pages 3

For the experimental breeding of animals and animal experiments in general, **Makrolon** (Polycarbonate) provides an **optimal combination** of properties, that cannot be revalled by any other plastic:

- **is is transparent**
- **proof against fracture and heavy blows**
- **low heat conductivity**
- **light weight**
- **formstability** at high temperatures:
  - can be autoclaved at 118 to 120 °C
  - can be sterilized with hot air up to 120 °C
- **no adverse physiological effects**
- **can be stacked**

If your Makrolon cages are properly treated and looked after, this will result in longer durability.

However no unlimited durability can be expected because of the extrem high requirements by cleaning, disinfection and sterilization.



M III

1.2 Animal cages made of Polypropylen

Short indication: P

Order number: see table page 3

Cages from **Polypropylen** are chosen, it not so high requirements are exprected concerning the durability and usability. They have the following attributes:

- **non-transparent, milky**
- **proof against fracture and heavy blows**
- **keeps in form at temperatures to 70 ° C**
- **no adverse physiological effects**
- **can be stacked**

P IV

1.0 Experimental cages for small animals

Size of cage / type		I			II			III			IV			III dbr		
length × width top exterior	mm	235 × 135			260 × 200			420 × 260			590 × 380			420 × 570		
length × width bottom interior	mm	215 × 100			220 × 160			375 × 210			550 × 330			370 × 510		
height	mm	130			140			150			200			150		
floor area	cm^2	200			350			800			1815			1890		
average number of animals corresponding to weight and utilization of the animals		4 mice 1 rat 2 hamsters			8 mice 2 rats 3 hamsters			18 mice 5 rats 2 guinea pigs			40 mice 18 rats 5 guinea pigs			50 mice 20 rats 6 guinea pigs		
		order no.	short indication	weight kg	order no.	short indication	weight kg	order no.	short indication	weight kg	order no.	short indication	weight kg	order no.	short indication	weight kg
Makrolon-cage	M	01.0001	M I	0.30	01.0002	M II	0.46	01.0003	M III	1.02	01.0004	M IV	2.17	–	–	–
Polypropylen-cage	P	–	–	–	01.0102	P II	0.31	01.0103	P III	0.68	01.0104	P IV	1.48	–	–	–
Polystyrol-cage	PES	–	–	–	01.0202	PES II	0.05	01.0203	PES III	0.07	–	–	–	–	–	–
Sheet metal-cage	BK	–	–	–	01.3022	BK II*	1.14	01.3023	BK III*	1.68	01.3024	BK IV*	3.55	–	–	–
Sheet metal-cage with wire bottom	BKL	–	–	–	01.3037	BKL II*	1.12	01.3038	BKL III*	1.63	01.3039	BKL IV*	3.30	–	–	–
Sheet metal-cage with front and bottom made of wire	BKFL	–	–	–	01.3032	BKFL II*	1.09	01.3033	BKFL III*	1.57	01.3034	BKFL IV*	3.12	–	–	–
Wire-cage	DK	–	–	–	01.3012	DK II	0.75	01.3013	DK III	1.30	01.3014	DK IV	2.25	01.3018	DK III dbr	2.01

* only when ordered, not in stock

cages of sheet made only of stainless steel

for cages of wire only reference number for type made of stainless steel is valid for type chromium-plated Order-No. 01.2 . . .

PES II

PES III

1.3 Animal cages made of Polystyrol

Short indication: PES

Order number.: see table page 3

These cages are for **single use** if series of experiments with toxic components, rays or something like that are made. They can be used either as **inserts for cages made of Makrolon-, Polypropylen-, sheet or wire,** (0,8 mm P.S.) **or for single arrangement on tables or shelves** (1,4 mm P.S.), when at the beginning the thickness of the sheet is chosen correspondently. In any case they can be used with covers of correspondent size.

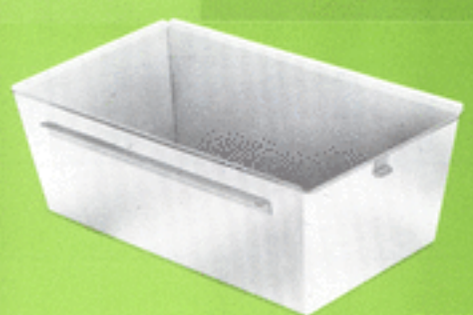
Polystyrol is slightly **transparent** and **easily inflammable.** So after use the cages can easily be destroyed by burning. No poisenous gas or acid will be produced by burning.

1.4 Animal cages made of sheet

Short indication:

BK	Cages of sheet
BKL	Cages of sheet with running bottom made of wire
BKFL	Cages of sheet with front and running bottom made of wire

Order number.: see table page 3

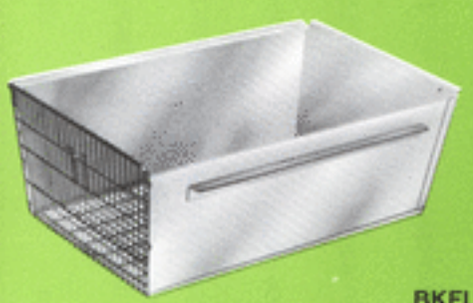


BK III

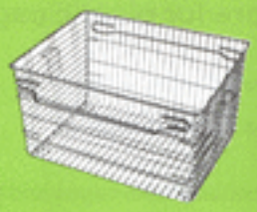
These cages are produced of **stainless steel,** thickness of sheet 0,7 mm, material number 1.4301. In their dimensions they correspond to the cages made of plastics and can be used together with normal covers. Their **high quality guarantees high stability, retaining form and temperature stability and long duration of life.**

Cages of sheet are used for breeding and keeping mice, rats and guinea-pigs and as litter cages for mice and rats.

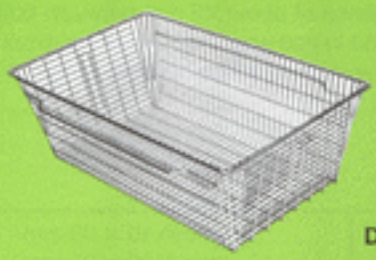
Please, attention that **racks with bins for droppings** must be used, if you choose cages with bottoms of wire.



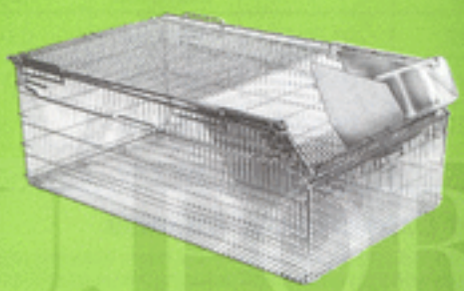
BKFL III



DK II



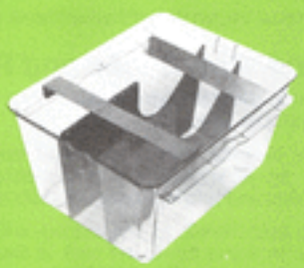
DK III



DK IV m. DST IV, F 75

DK III dbr m. DÖ III dbr, F 75

ZA III



KT 2

1.5 Animal cages made of wire

Short indication: DK

Order number: see table page 3

Wire cages are often used instead of the plastic cages, especially for **long-duration experiments.** The wire cages match the dimensions of the plastic cages, so that the lids can be used for both wire and plastic cages.

The clear width of the elded wire **meshes is about 8 mm,** so that even young animals cannot escape. Wire cages should be kept out of drafts as far as possible.

The **racks for wire** cages always have places to fit **droppings trays.**

We only have wire-clothed cages from **stainless steel** in stock. If desired, wire-clothed cages are deliverable in chromium-plated designs, but only in larger numbers.

1.6 Riser for cages type III

Short indication: ZA III

Order number: 01.3008

Weight: circa 1,05 kg

The riser increase **the clear** height of **type III cages by about 5 cm.** The riser is suitable if one is keeping larger rodents, for example, fully grown rats and, above all, guinea pigs. The riser fits on the top of the cages. Every lid of type III fits on the riser.

1.7 Divider for animal cages

Short indication:	KT 1	KT 2	KT 3
Order number:	01.3001	01.3002	01.3003

By inserts the cages can be parted and so by using standardized elements it is possible, **to keep small rodents separatly and to save space.** Stainless steel which fit to the form of the cage an lid and which are kept to distance by nose sheets, separate the cage in the **longitudinal expansion** in divisions of about the same bottom area (2 at type I and 3 at type II and III). In each division a drinking-bottle can be installed in the lid-rack and the food is placed around the drinking cap.

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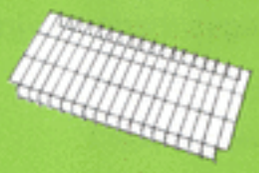
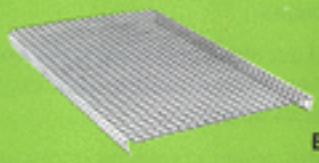


EB 1/30



EB 3/10

1.8 Insert-Floors for plastic cages

Short indication: see following table

Order number: see following table

Insert-floors lie on the bottom of the cages and their dimensions therefore match the sorresponding cages. They are made of stainless steel.

They have a distance of about 20 mm between bottom of the cage and tread and in that way, they prevent a direct contact of the experimental animals with litter and droppings.

Insert-floors	mesh 10 × 10 mm			mesh 10 × 30 mm mesh 10 × 20 mm		
	order-No.	short indication	weight kg	order-No.	short indication	weight kg
for cages typ I	01.3046	EB 1/10	0.12	01.3041	EB 1/30	0.09
for cages typ II	01.3047	EB 2/10	0.17	01.3042	EB 2/30	0.15
for cages typ III	01.3048	EB 3/10	0,37	01.3043	EB 3/30	0.32
for cages typ IV				01.3044	EB 4/20	0.78

Use and Maintenance of Makrolon® Cages for Experimental Animals

Care: Use an ample amount of bedding capable of absorbing the excrements of the animals and replace it often enough according to the number of animal kept. The cages can be indentified with lettered adhesive tapes or with crayons. Residues can be removed with ethyl alcohol. Never use any other solvents. Inscriptions made with felt-point pens can in most cases not be removed and may attack the surface. The cages can also be indentified by attaching tags to the lids.

Cleaning: We recommend our special cleaner

BEROL 25 S

with disinfecting effect. This cleaner on the basis of acidity dissolves urine stone and removes feces as carefully as possible. **Doses:** for manual cleaning 5 %, for one-chamber washing apparatus 1 %, for two - or more chamber washing apparatus 0,8% for prewashing and main-washing and 0,2 % for re-washing (1 % = 1 litre of BEROL 25 S for 100 litres of water). BEROL 25 S does not contain any hydrochloric acid, does not foarm and is therefore especially suitable for washing apparatus.
If you wash the cages frequently, use softened water to help prevent a whithish grey layer from forming on the MAKROLON®.

Disinfection: If you intend to disinfect the cages additionally, remember that solutions of disinfectants may have an adverse effect upon the life of MAKROLON® depending upon their composition. Desinfectants derived from phenol, for instance, have such an adverse effect. In cases of doubt, apply to the manufacturer.
Always make sure that wetted with disinfectants are never heated.

Sterilization: Cages should not be sterilized while containing clean or contaminated bedding Thermal sterilization may cause substances to be released from the bedding which may cause irreparable damage to the surface of the cages and to the structure of MAKROLON®, forming whitish layers on the bottom and walls of the cage, inducing cracks and fissures particularly in the corners, and reducing the resistance to fracture and impacts.

Chemical Sterilization: MAKROLON® can be chemically sterilized without any damage by using 2% peracetic acid. (Observe safety regulations when handling peracetic acid!).

Hot Air Sterilization: PAG® cages for experimental animals are sufficiently stable up to temperatures of about 120 deg. C. At temperatures above 130 deg. C, the MAKROLON® components are subject to deformation by their own weight, particularly when they are stacked. The local occurrence of hot spots by far exceeding 130 deg. C is a drawback frequently observed with hot air sterilization. This can be eliminated by installing the control thermometer in the hot air outlet.

Sterilization by Steam: PAG® cages may be autoclaved at temperatures from 118 to 120 deg. C. Stacks in heights of more than 80 cm should be avoided as this would impose an excessive load on the bottom cages during the sterilization process.
Accurate and fast-acting temperature controls and a reliable supply of steam must be available if the cages are to be satisfactorily sterilized with steam. A frequent drawback is the carry-over of alkaline corrosion inhibitors, such as sodium liquor and calcium carbonates, etc. from the boiler feed water by an excessive steam flow rate.
Alkaline substances may destroy the plastic material and calcium carbonate may cause dull, whitish layers on the surface of the cages.

MAKROLON® = registered trademark of Farbenfabrik Bayer AG.

Recomendation for the Use and Care of Wire Lids and Wire Cages and Racks

Lids and cages made of **stainless steel** become expedient with our special cleaner

BEROL 25 S

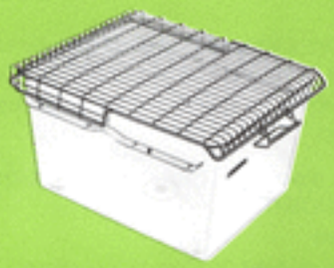
treat. If possible, all other lids and cages made of wire or sheet metal should be washed in a washing machine should be washed in a washing machine to which Pril detergent is added. After washing in the machine, the lids and wire cages, in particular, should be placed in a hotair machine or dried in some other way to prevent remaining moisture causing rust at the wire junctions. To remove hardened urine, it is best to use a steamjet apparatus. In the case of Nirosta parts, weak acids can also be used.

The racks can be be cleaned with a steam-jet apparatus without any addition. If such an apparatus is not available, hot water to which Pril has been added and bristle brushes should be used.

The racks can also be autoclaved, as the castors withstand the temperature in autoclaves. In some firms, the rack is then put into autoclave upsidedown to prevent a possible deformation of the castors.

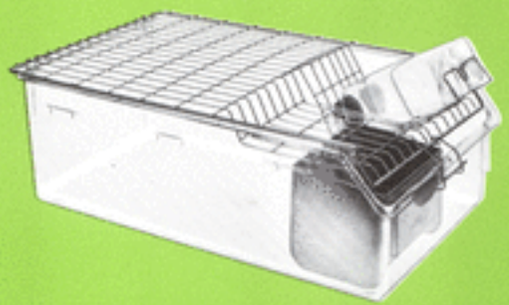
E. BECKER & CO GMBH

DÜ II e m. M II, F 30



DÜ II o R m. M II

DST III MS m. M III, F 75



DST IV MS m. M IV, F 75, FU IV

All **drop on lids, standard lids** and **tensioned lids** have following specialities:

Foods loss is very largely eliminated by the special form of the food crib.

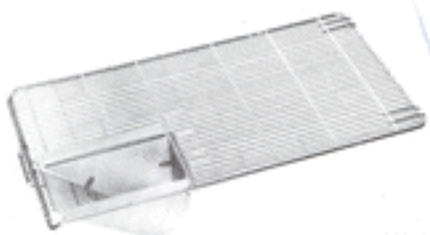
The cribs in the lids end at **metal sheets at both sides.** This prevents the food being soiled by excrements.

Each **lids** with **continous food crib** is supplied with a **dividing sheet of** metal, that prevents the animals from gnawing the Makrolon-Bottle. This sheet of metal separates the food and drinking bottle compartments.

The **Nirosta lids** are made of stainless chromium-nickel steel, material-No. 1.431. These lids are electropolished after production and offer the best protection against rust for years. The Nirosta lids can be recommended, since they are more economic in the long run despite their price.

The **galvanized lids** have a zinc film of about 20 µ. They are subsequently chromaded to provide better rust protection. The galvanized lids are very cheap and provide adequate surface protection.

The **chromium-plated lids** are plated by the duplex-nickel-chromium process. This process is used to achieve specially pore-free nickel films. In the process different nickel films are deposited in two separate galvanizing baths to provide exceptionally good resistance to corrosion. The resistance to corrosion is further increased by an additional chromium film. The total coating is about 20 µ. This process guarantees a particularly resistant surface.



DST III e

DSP III / 2

2.0 Lids for animal cages made of plastic, sheet metal and wire

Sizes of lid / type	I			II			III			IV			III dbr		
Dimensions mm	240 × 140			265 × 205			425 × 265			600 × 390			570 × 420		
	order no.	short indication	weight kg	order no.	short indication	weight kg	order no.	short indication	weight kg	order no.	short indication	weight kg	order no.	short indication	weight kg
2.1 Lids with continuous food cribs															
Standard lids	02.3411	DST I	0.34	02.3412	DST II	0.43	02.3413	DST III	0.89	02.3414	DST IV	1.44	–	–	–
Drop on lids	–	–	–	02.3512	DÜ II	0.47	02.3513	DÜ III	0.93	–	–	–	02.3518	DÜ III dbr	1.49
Tensioned lids	–	–	–	02.3612	DSP II	0.43	02.3613	DSP III	0.76	02.3614*	DSP IV	1.42	02.3618*	DSP III dbr	1.22
Dividing metal sheet	02.3401	TB I	0.07	02.3402	TB II	0.07	02.3403	TB III	0.08	02.3404	TB IV	0.13	02.3403	TB III	0.08
2.2 Lids with crib on one side															
Standard lids	–	–	–	02.3422*	DST IIe	0.48	02.3423	DST IIIe	0.84	–	–	–	–	–	–
Drop on lids	–	–	–	02.3522	DÜ IIe	0.51	02.3523*	DÜ IIIe	0.88	–	–	–	–	–	–
Tensioned lids	–	–	–	02.3622*	DSP IIe	0.47	02.3623*	DSP IIIe	0.77	–	–	–	–	–	–
2.3 Lids without food and drinking cribs															
Standard lids	02.3431	DST I oR	0.24	02.3432*	DST II oR	0.32	02.3433*	DST III oR	0.76	02.3434*	DST IV oR	1.11	–	–	–
Drop on lids	–	–	–	02.3532	DÜ II oR	0.35	02.3533	DÜ III oR	0.80	–	–	–	02.3538*	DÜIIIdbroR	1.32
Tensioned lids	–	–	–	02.3632*	DSP II oR	0.30	02.3633*	DSP III oR	0.70	02.3634*	DSP IV oR	1.06	–	–	–
2.4 Special lids															
Standard lids for guinea pigs	–	–	–	–	–	–	02.3416	DST III MS	0.67	02.3424	DST IV MS	1.05	–	–	–
Tensioned lids with 2 food cribs	–	–	–	–	–	–	02.3643	DSP III/2	0.85	–	–	–	–	–	–

Only order number for type made of stainless steel
for type made of galvanized Order-No. 02.1...
for type made of chromium-plated Order-No. 02.2...

* = not in stock, manufacturing only if larger numbers are ordered

3.0 Racks for animal cages made of plastic, sheet metal or wire

Short indication: see table page 11

Order number: see table page 11

It has proved extremely convenient to arrange the animal cages made of plastic, sheet metal or wire in racks.

The **racks on castors** are particularly advantageous, offering **great flexibility for reorganiziation.**

Our galvanized or stainless steel racks are made of tube and section iron. They have following advantages:

space-saving accommodation

good accessibility to the cages, thereby saving of time for feeding and carrying out of experiments

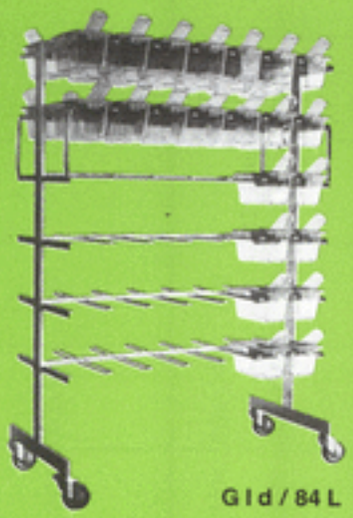
castors made of neoprene. This means that the complete rack can be **autoclaved.**

The racks are fitted with **castors 100 m Ø.** If requested, castors 125 mm ∅ or standers can be supplied at additional costs.

Moreover the racks can be equipped with **distance-castors** which prevent d damaging of walls and doors in operation.

All the racks for animals cages made of plastic, sheet metal or wire have the same **length, circa 1.230 mm,** and the same **height, circa 1.780 mm.** The depth depends on the cage type.

The difference between the racks for cages made of plastic, sheet metal or wire is that the racks for cages made of plastic and sheet metal with closed bottom always have 6 or 7 storeys, while the racks for cages made of sheet metal or wire with running bottom have only 5 storeys. In this case there is an additional space between each storey to fit droppings trays.



G Id / 84 L

G IIe / 30 R

G IIIe / 24 L

G IIId / 48 R

G IVe / 18 R

3.0 Mobile racks for animal cages made of plastic, sheet metal or wire

length = 1230 mm height = 1780 mm

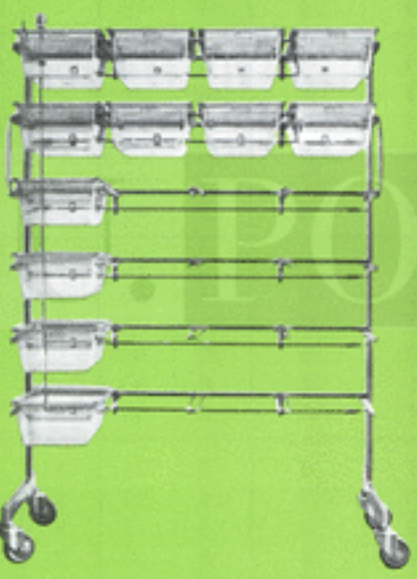
			short indication type	order no. galva-nized	order no. stainless steel	depth mm	weight kg	numbers of storeys	cage per storey	cage total	droppings trays per storey	droppings trays total
rack for cages with closed bottom	one-sided	type L	GI e/49 L	03.1171	03.3171	500	41	7	7	49	–	–
			GI e/42 L	03.1161	03.3161	500	37	6	7	42	–	–
			GII e/35 L	03.1172	03.3172	500	40	7	5	35	–	–
			GII e/30 L	03.1162	03.3162	500	36	6	5	30	–	–
			GIIIe/28 L	03.1173	03.3173	500	41	7	4	28	–	–
			GIIIe/24 L	03.1163	03.3163	500	37	6	4	24	–	–
			GIVe/18 L*	03.1164	03.3164	650	49	6	3	18	–	–
		type R	GI e/49 R*	03.1071	03.3071	450	39	7	7	49	–	–
			GII e/42 R*	03.1061	03.3061	450	36	6	7	42	–	–
			GII e/35 R*	03.1072	03.3072	450	38	7	5	35	–	–
			GII e/30 R	03.1062	03.3062	450	35	6	5	30	–	–
			GIIIe/28 R*	03.1073	03.3073	450	40	7	4	28	–	–
			GIIIe/24 R	03.1063	03.3063	450	36	6	4	24	–	–
			GIVe/18 R	03.1064	03.3064	600	49	6	3	18	–	–
	double-sided	type L	GI d/98 L	03.1176	03.3176	560	54	7	14	98	–	–
			GI d/84 L	03.1166	03.3166	560	48	6	14	84	–	–
			GII d/70 L	03.1177	03.3177	560	51	7	10	70	–	–
			GII d/60 L	03.1167	03.3167	560	46	6	10	60	–	–
			GIII d/56 L	03.1178	03.3178	800	66	7	8	56	–	–
			GIII d/48 L	03.1168	03.3168	800	59	6	8	48	–	–
		type R	GI d/98 R*	03.1076	03.3076	570	61	7	14	98	–	–
			GI d/84 R	03.1066	03.3066	570	55	6	14	84	–	–
			GII d/70 R*	03.1077	03.3077	570	57	7	10	70	–	–
			GII d/60 R	03.1067	03.3067	570	52	6	10	60	–	–
			GIII d/56 R*	03.1078	03.3078	800	71	7	8	56	–	–
			GIII d/48 R	03.1068	03.3068	800	64	6	8	48	–	–
rack for cages with wire bottom	one-sided	type L	GDK II e/25 L	03.1352	03.3352	500	54	5	5	25	1	5
			GDK IIIe/20 L	03.1353	03.3353	500	60	5	4	20	2	10
			GDK IVe/15 L*	03.1354	03.3354	650	72	5	3	15	3	15
			GDKIIIedbr/10L*	03.1359	03.3359	500	54	5	2	10	2	10
		type R	GDK IIe/25 R*	03.1252	03.3252	450	54	5	5	25	1	5
			GDK IIIe/20 R	03.1253	03.3253	450	59	5	4	20	2	10
			GDK IVe/15 R	03.1254	03.3254	600	71	5	3	15	3	15
			GDK IIIedbr/10R	03.1259	03.3259	450	53	5	2	10	2	10
	double-sided	type L	GDK II d/50 L	03.1357	03.3357	560	64	5	10	50	2	10
			GDK IIId/40 L*	03.1358	03.3358	800	78	5	8	40	4	20
		type R	GDK II d/50 R*	03.1257	03.3257	570	71	5	10	50	2	10
			GDK III d/40 R*	03.1258	03.3258	800	84	5	8	40	4	20

*Not in stock, manufacturing only if larger numbers are ordered.

Type L = stands made of tube 60/20 mm welded in L- or ⊥-form respectively.
Type R = stands made of tube 30/15 mm welded in frame-form respectively.

GDK III d/50 L

GDK III e/20 R



G III e/24 L aT

Makrolon-cage
with round loop

3.1 Racks with automatic watering-installation for cages made of plastics, plate and wire for small animals

Short indication: like normal skeletons with addition aT, for example G II d/70 L aT

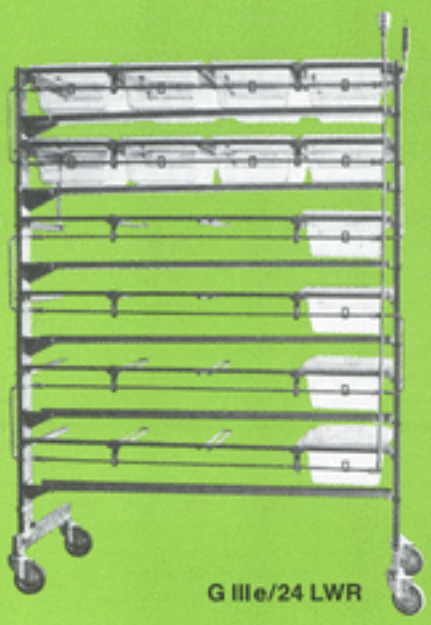
Order number: like normal skeletons (see schedule page 11) however number 83 in front instead of 03, for example 83.3177

Skeletons for cages made of plastics, plates and wire according to 03 can be equipped with automatic watering installation, by this the installation of watering bottles made of makrolon is not necessary. **Cages made of plastics** get a **round** or **long loop** at the front side covered with stainless steel, cages made of plates get a perforation at the corresponding place. The **watering conduits** made of **stainless steel** with welded **watering nipples** made of **stainless steel** are installed at the rear in one-sided skeletons, in double-sided skeletons they are in the middle, and that horizontally. The connection from floor to floor at the front side of the skeletons is made by chrome-plated angle pipes and short straight pipes.

At the highest point of the watering pipe an **evacuation-valve** is installed. Nearly in the level of the upper watering pipe a **bilaterally closing connection** of plastics is installed for connecting the watering pipe to the circular conduit or to the supply conduit. The connection stops the flow of water.

The watering valves work with a pressure of about 0.3 bar. This pressure must be adjusted by a **pressure reducing valve** in the supply conduit.

In addition to the pressure-regulating valve we recommend to install a **filter for gathering fibres** at the beginning of the supply conduit. This filter shall prevent the infiltration of suspended substance or foreign substance in the very sensible watering valves for avoiding leakage.



G IIIe/24 LWR

UG-L

Object	short indication	order no. galvanized	order no. stainless steel	weight kg
2 L-stands, mobile	UG-L	03.1110	03.3110	7,4
Frame for 7 cages type I	A 7/1	03.1111	03.3111	3,5
Frame for 5 cages type II	A 5/2	03.1112	03.3112	3,3
Frame for 4 cages type III	A 4/3	03.1113	03.3113	4,3
Frame for 3 cages type IV	A 3/4	03.1114	03.3114	5,0
Frame for 2 cages type III bdr	A 2/3	03.1115	03.3115	2,8
Frame for 2 droppings trays 580 × 450 mm	AKo	03.1119	03.3119	4,1

3.2 Racks with automatic watering installation and dropping gutter for cages made of plastics, plates and wire for small animals

Short indication: like normal skeletons however with addition WR, for example G II d/70 L WR

Order number: like normal skeletons (see schedule page 11) however number 93 in front instead of 03, for example 93.3177

If the **watering valve leaks** or if the experimental animals lie one on the other and the stem of the watering valve is pushed up by one of the animals there is the danger in the night or in unwatched periods that closed cages (cages of plastics or plates) run full of water and the animals get drowned. By that test-series become useless or wrong. To prevent that the ends of the watering nipples are not in the cage, but in a short distance before the cage, but so near that the animals can still reach the watering nipples from the cages, which reasonably have **long loops.** Then the **dropping water must be caught by a gutter fixed** under the watering nipples and it is **drained to a vertical pipe** at the front of the skeleton. A dropping gutter is necessary because of the construction of the cages, for without gutter the dropping water would fall into the cages which are one floor lower, when this arrangement is used.

3.3 Movable universal skeletons for cages made of plastics, plates and wire for small animals

Short indication: UG, see as per margin

Order number: UG, see as per margin

Dimensions: length: about 1,230 mm
depth: about 600 mm
height: about 1,780 mm

2 **morable L-skeletons** are combined to each other by **cage-frames** corresponding to your choice and in the same realization as the normal skeletons. As the cage-frames are screwed, they can be changed to frames of other cage-types at any time. That means there is the possibility to **arrange frames of different cage types** in movable universal skeletons **at the same time.** Please inform us in your order about the desired kind of cages for the universal skeleton.

If connected cages are desired, **six floors** of cages can be arranged when the floor distance is 250 mm. If the cages are open at the bottom, the floor distance must be 300 mm and only **5 floors** are possible because for **droppings trays** and the **frames for** the **droppings trays.**

3.5 Static Universal Skeletons, Wall-Construction for cages made of plastic, sheet metal and wire for small animals

Short indication: WK see schedule
Order number: see schedule
Dimensions: length each field about 1800 mm
depth depending on the size of cage
heigh wall-bars about 1700 mm

The big advantage of a wall construction consists in **a free space under the skeleton** for easier cleaning ot the floor.

U-bars with a rectangular perforation in intervals of 50 mm are fixed a ratcheting gauge of 1180 mm vertically to the wall. The perforation is so wide, that two cage-frames of side by side fields can be put in. For better **air-circulation and cleaning** the U-bars have a distance of about 50 mm from the wall. For compensation of unevennesses of the wall the lower **distance-holder** of the U-bars can be **regulated in height.**

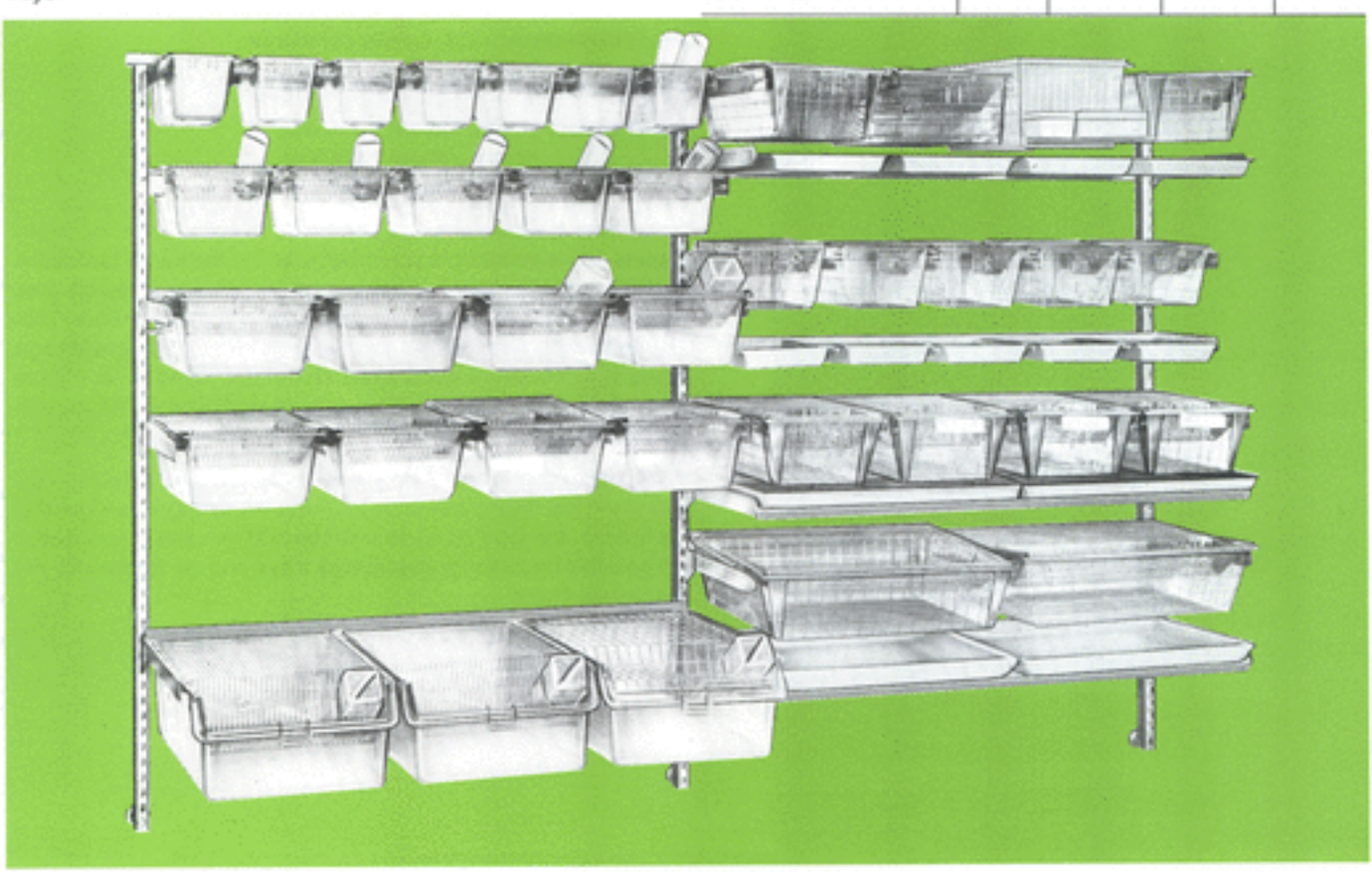
In the **choise of the cage-frames** for cages of type I-IV from plastic, sheet metal or wire you are **free at** the starting equipment of if you eventually want to change equipment later that means, you can put – like in the movable universal **skeleton-different types of cages in one wall-construction.** If sheet metal cages with running bottom and wire cages are used, you must think of the frame for droppings trays.

The **ratcheting gauge of the rectangular perforation** of the U-bars causes a **floor-distance** for the cage-frames of 250 mm and 300 mm, last gauge is especially for cages with droppings trays.

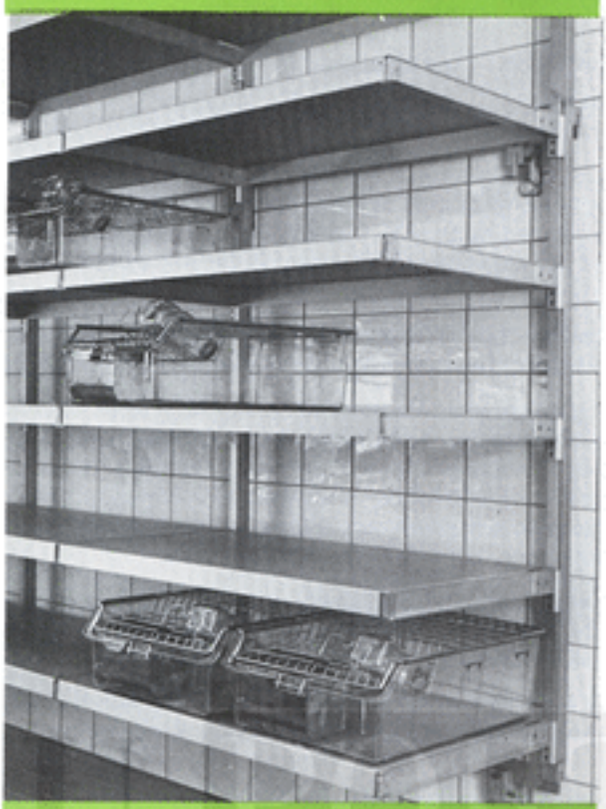
The universal skeleton, which can be delivered in galvanized or in stainless steel, can be equipped with an **automatic watering installation.** This watering installation, however, is no more varaible in relation to the frame for different types of cages, if installed.

If the construction or bearing strength of the walls doesn't allow a clamping of the bars to the wall, stands from perforated rectangular pipes can be put in, too, if the galvanized type is used.

article	short indication	order no. galvanized	order no. stainless steel	weight kg
perforated U-bar	WKU	03.1120	03.3120	3.4
frame for 7 cages type I	WKR 7	03.1121	03.3121	4.0
frame for 5 cages type II	WKR 5	03.1122	03.3122	3.8
frame for 4 cages type III	WKR 4	03.1123	03.3123	4.8
frame for 3 cages type IV	WKR 3	03.1124	03.3124	5.5
frame for 2 cages type III dbr	WKR 2	03.1125	03.3125	3.3
frame for 2 droppings trays 580 × 450 mm	WKK	03.1129	03.3129	4.6



3.6 Universal Rack of Aluminium



Short indication: WGA

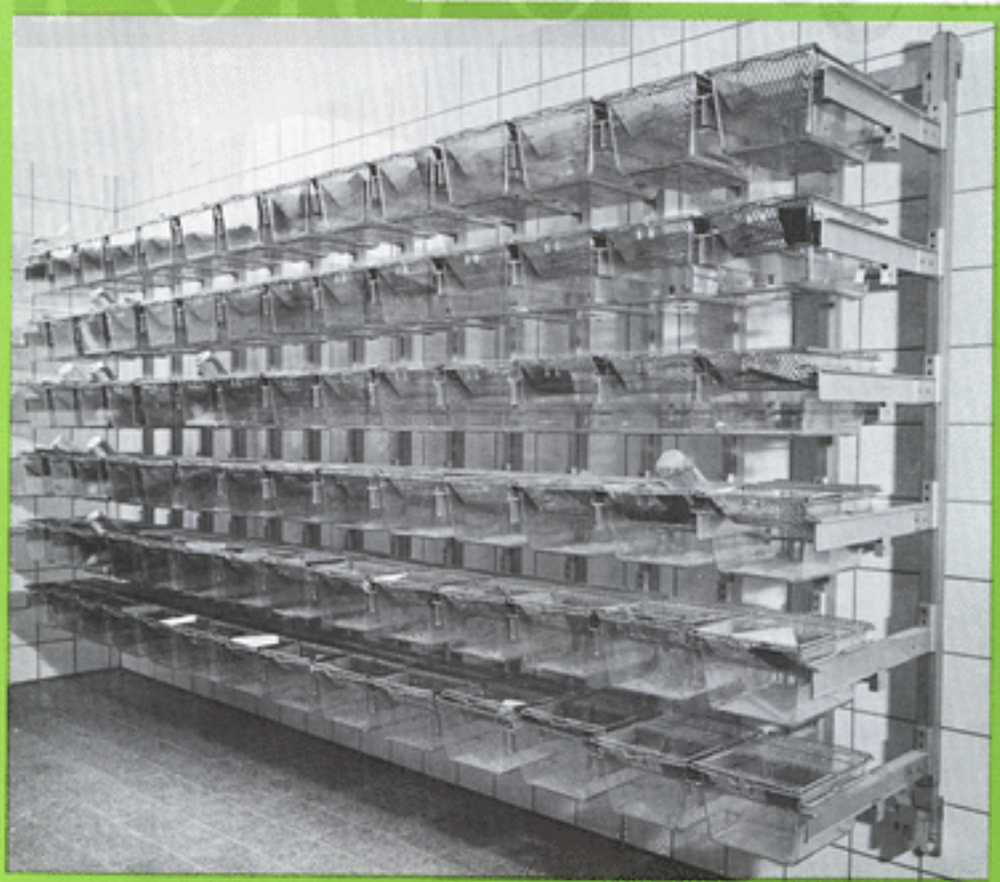
The rack consits of extruded profiles of armour-aluminium with a surface of tarnished aluminium protective coating.

Brackets are fixed to the wall at the top and at the bottom for taking up flat iron bars which run horizontally. Vertical profile girders, which can infinitely variably be moved to the sides and are fastened by set screws in the desired interval, can be set on these flat iron bars. These profile girders take up the supporting arms of double-T-shapes, whereby the double-T-shapes can again be moved infinitely variably in the height. By choosing double-T-shapes with a web-height of 50 mm and a breadth of 30 mm it is possible to hang in cages and droppings trays. The length of the supporting arms depends on the sizes of the cages, but should not exceed 600 mm.

Because of the universal adjustability of the profile girders and supporting arms it is possible to arrange racks for each possible type and size of cages. Furthermore there is the possibility to arrange supporting plates so that a shelf which is movable in the height can be made of this.

The whole rack has enough distance to the wall, so that an incontestable cleaning and disinfection of the wall is given.

The flat iron bars and supporting arms are full-shapes, the vertical profile girders are hollow shapes, which are locked at the top and at the bottom by aluminium moulded pieces.



4.0 Animal cages for guinea pigs and rabbits

Short indication: see table page 17
Order number: see table page 17

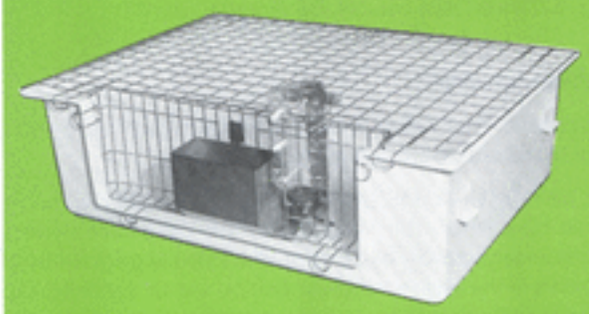
The cages, which are specified here, are **inserted in corresponding supports of frames or sets.** The upper side is open and they are covered by sheets or wire-lattices, which belong to the frames. If specially ordered, the cover of the single cage can be made by a wire cover, which belongs then to the cage.

The **breeding cage MZK 80/25 for guinea pigs,** which mostly gets a wire-lattice because of its small height, has a closed bottom.

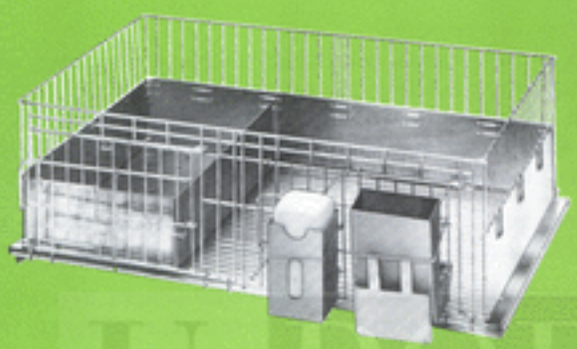
For saving space, when stored for transport and for cleaning in the washing machine the metal cages (stainless steel) are either collapsible by hinge-joints or can conically by stacked. The back-walls and the side-walls of the collapsible cages are made of sheet till half the height and above made of wire. The conical cages have three shut sides.

Double cages, which are especially used for breeding, can be divided by a **dividing wall.** When used as breeding cage, **litter boxes** can be inserted.

All cages have in common, that a fodder-chest and watering divices can be installed in the front as wire-lattice, mostly with door.

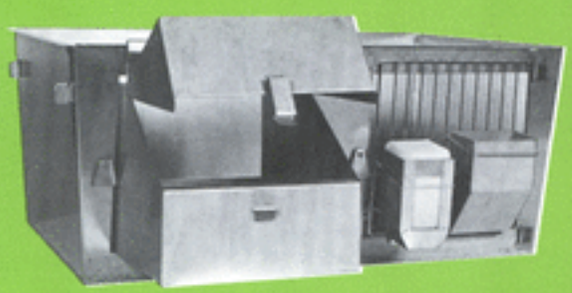


MZK 80/25



K 300/4 with littering box WK 1

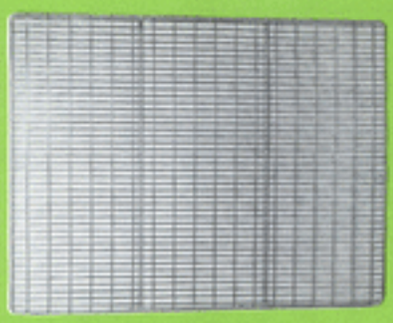
K 38/35



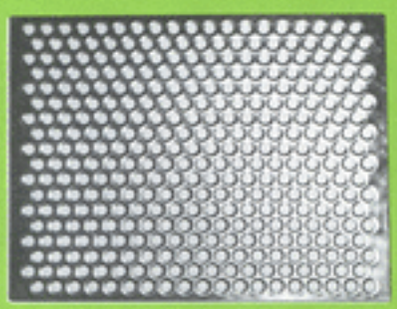
K 85/40 with littering box WK 2

4.0 Cages for guinea pigs and rabbits

object			short indication	order no.	material	dimensions B length mm	T depth mm	H height mm	F area of bottom cm^2	weight w. bottom of perforated sheet	application for	note
cage for guinea pigs	X		M 300/8	04.3010	stainless steel	380	520	300	2000	5,6	holding	back-wall and side-walls are made of sheet metal ½ the height and above made of wire, front-lattice with 1 door, and openings to take 1 drinking devices TE and 1 feeder FUKA
cage for guinea pigs	X		M 300/4	04.3020	stainless steel	870	520	300	4520	10,2	holding and breeding	same as M 300/8, however with 2 doors and openings, with 1 partition wall
cage for guinea pigs		X	MZK 80/25	04.4106	glass-fibre reinforced polyester resin	810	610	250	4700	7,0	breeding	closed bottom, front lattice and cover lattice, holder for drinking bottle
cages for rabbits	X		K 300/8	04.3011	stainless steel	380	520	300	2000	5,6	holding	same as M 300/8
cage for rabbits	X		K 300/4	04.3021	stainless steel	870	520	300	4520	10,2	holding and breeding	same as M 300/4
cage for rabbits	X		K 400/6	04.3012	stainless steel	380	520	400	2000	6,4	holding	same as M 300/8
cage for rabbits	X		K 400/3	04.3022	stainless steel	870	520	400	4520	11,8	holding and breeding	same as M 300/4
cage for rabbits		X	K 38/35	04.3116	stainless steel	440 380	610 520	350	2000	7,3	holding	3 shut sides, front-lattice with 1 door and openings to take 1 drinking devices TE and 1 feeder FUKA
cage for rabbits		X	K 47/40	04.3119	stainless steel	580 470	610 510	400	2500	8,1	holding	same as K 38/35
cage for rabbits		X	K 85/40	04.3128	stainless steel	920 850	580 510	400	4500	15,6	holding and breeding	same as K 38/35, however with 2 doors and opening, with 1 partition wall
rabbit-metabolism-cage		X	K 38/35 St.	04.3117	stainless steel	440 380	610 520	350	2000	9,9	metabolism	same as K 38/35, without door, front-lattice are made of sheet metal ⅔ the height, with draining funnel



Bottom of round wire



Bottom of perforated sheet

Bottom of flat wire

Bottoms for cages:

All cages, which are made of stainless steel, have **bottoms of perforated sheets, round or flat wires,** which can be pushed in or intercalated. The desired construction is to be specified, when ordered.

Normal construction for guinea pigs cages:

a) **Bottom of round wire,** width of mesh 10 × 30 mm,
wire of frame 6 mm ∅
wires mesh 2 mm ∅

Normal construction for rabbits cages:

b) **Bottom of perforated sheet** with staggered countersunk perforation of 18 mm ∅

Alternativ constructions:

c) **Bottom of round wire,** width of mesh 12 × 30 mm,
wire of frame 6 mm ∅
wires mesh 2 mm ∅

d) **Bottom of round wire,** width of mesh 14 × 30 mm
wire of frame 6 mm ∅
wires mesh 2 mm ∅

e) **Bottom of flat wire,** width of mesh 10 × 90 mm
wire of frame 6 mm ∅
flat wire 8 × 2 mm

f) **Bottom of flat wire,** width of mesh 10 × 90 mm
wire of frame 6 mm ∅
flat wire 4 × 2 mm

All bottoms are produced only of **stainless steel.**

KB 47/6

KB 300/8

5.0 Batteries for guinea pigs and rabbits cages

In batteries several cages for guinea pigs and rabbits are arranged side by side and one upon the other. These batteries can be movable rack or stationary arrangements. They can be equipped for manual operation, but also for fully automatic operation such as automatic watering and feeding the animals, timed cleaning etc. In the case of inquiries and orders your detaillled wishes are required.

The batteries can be supplied with racks in standard steel, galvanized or in stainless steel. Normally the movable batteries are in stock or can be delivered at short notice. Stationary batteries are only manufactured, when ordered.

GM/5

MB 300/4

5.1 Mobile batteries with cages for guinea pigs and rabbits

Short indication: see table page 21

Order number: see table page 21

The side-supports, cage-supports and the supports for the droppings-trays of the mobile racks are constructed of rectangular pipes and angle irons. The supports of the droppings-trays are the cover for the lower cages in a distance of about 25 mm and therefore they are equipped with a wide-meshed wire-lattice. For covering the cages of the highest floor covering sheets are supplied with the racks.

The mobility of the racks is achieved by 4 castors of 100 mm ∅. If requested castors with 125 mm ∅ or setscrews can be delivered for extra costs.

The necessary accessories for the racks and cages you find in the table on page 97.

5.2 Mobile batteries with automatic watering and cages for guinea pigs and rabbits

Short indication: like batteries in table page 21 with addition aT for example KB 38/6 aT

Order number: like batteries in table page 21 with 85 in front instead of 05 for example 85.3116

All batteries can also be equipped instead of watering devices or watering bottles with an **automatic watering.**

In the **watering pipes of stainless steel** on the back-side of the rack one or two watering valves TRV1 or TRV4 – depending on the size and number of the animals – are installed. Upon request watering-places for biting TRV 7 can be installed. The cages have corresponding openings for the watering valves.

The water flows through a connection, which shuts both sides automatically. The pressure of the water must be reduced before entering in the system. It is recommended, to add a pressure reducing valve to the watersupply network or to the battery. The blocking of the watering valves should be prevented by adding devices for retaining filaments in the supply network.

KB 38/6 aT

5.3 Movable batteries with metabolism cages for rabbits

Short indication: KB 38/6 St

Order number: 05.1117 for galvanized rack
05.3117 for rack of stainless steel

The metabolism-cages are completely shut in the lower half, so that all urine flows into the draining funnels under the cages and can be collected in a box. For retaining the droppings a wire net with the width of 4 × 4 mm is inserted in the draining funnel.

KB 38/6 St

5.1 Mobile batteries with cages for guinea pigs and rabbits

object	short indi-cation	order no. rack galvanized	order no. rack stainless steel	numbers of cages	dimensions B length mm	dimensions T depth with and without access. mm	dimensions H height mm	weight for compl. battery kg	accessories
Guinea pig-battery	MB 300/8	05.1010	05.3010	8	950	550 700	1800	120	8 drinking devices TE, 8 feeders FUKA, 8 droppings trays KSB 2 or KKP 2
Guinea pig-battery	MB 300/4	05.1020	05.3020	4	950	550 700	1800	102	same as MB 300/8
Guinea pig-breeding-battery	GM/5	05.1106	05.3106	5	860	630	1940	75	5 front-lattice, 5 feeders FU MZK, 5 holder for drinking bottle F 75, 5 drinking bottles F 75 TGK, 5 coverings
Guinea pig-breeding-battery	GM/10	05.1107	05.3107	10	1700	630	1940	134	same as GM/5, however 10 piece
Rabbit-battery	KB 300/8	05.1011	05.3011	8	950	550 700	1800	120	same as MB 300/8
Rabbit-battery	KB 300/4	05.1021	05.3021	4	950	550 700	1800	102	same as MB 300/8, for breeding with littering boxes
Rabbit-battery	KB 400/6	05.1012	05.3012	6	950	550 700	1800	100	same as MB 300/8, however 6 pieces
Rabbit-battery	KB 400/3	05.1022	05.3022	3	950	550 700	1800	87	same as MB 300/8, however 6 pieces, for breeding with littering boxes
Rabbit-battery	KB 38/6	05.1116	05.3116	6	1000	600 700	1800	99	6 drinking devices TE, 6 feeders FUKA, 6 droppings trays KSB 2 or KKP 2
Rabbit-battery	KB 38/9	05.1126	05.3126	9	1480	600 700	1800	135	same as KB 38/6, however 9 pieces
Rabbit-battery	KB 47/6	05.1119	05.3119	6	1200	600 700	1800	108	same as KB 38/6 however 6 droppings trays KSB 3
Rabbit-battery	KB 47/9	05.1129	05.3129	9	1770	600 700	1800	146	same as KB 38/6, however 9 droppings trays KSB 3,
Rabbit-battery	KB 85/3	05.1128	05.3128	3	1000	600 700	1800	99	6 drinking devices TE, 6 feeders FUKA, 6 droppings trays KKP 2, for breeding with littering boxes
Rabbit-metabolism-battery	KB 38/6 St.	05.1117	05.3117	6	1000	600 700	1800	120	6 drinking devices FH 75/1-TK, 6 feeders FUKA, 6 droppings trays KSB 2 or KKP 2

Batteries with automatic watering installation: like normal batteries with addition aT (for example MB 300/8 aT) and order number like normal batteries however number 85 in front instead of 05 (for example 85.1010)

5.6 Stationary batteries with conveyor belt of paper for clearing the cages of guinea pigs and rabbits

Short indication: e. g. Pe3-18 K 400/3 aT
or Pd3-42 K 38/35 aT

Order number: without

The short indication specifies if it is a one-sided (e) (wall) or a double-sided (d) battery, how many floors the battery has and how many cages of a certain type can be inserted.

Corresponding its space every battery can be put together concerning its capacity with the help of the following table. There is specified that basic units take up 4 small or 2 large cages (double cages) on every floor and side.

The rack of a battery with conveyor belt of paper for clearing the cage consits of a robust **profile-tube construction** and according to your wishes it can be delivered of galvanized standard steel or stainless steel. In any case the **guide-sheets** for the paper conveyor-belt as well as the **draining funnel** and possibly the **boxes for the droppings** are made of stainless steel.

The three main elements of the battery are:

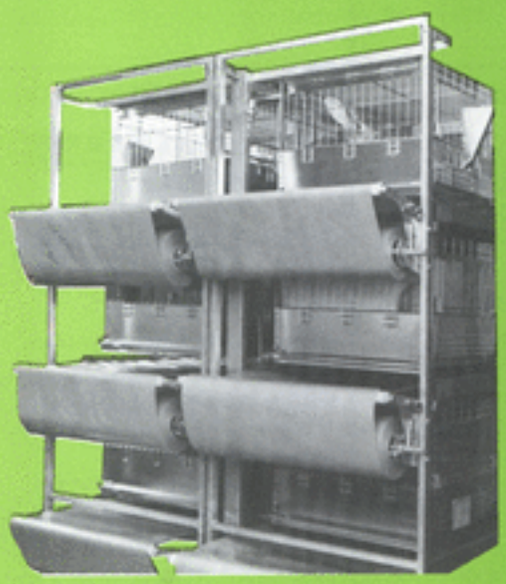
- **unrolling station** (clean side)
- **rolling up station** with draining funnels
- **additional elements** for taking up the cages

On the clean side the paper rolls are taken up by unrolling pins. From there the paper strip is pulled over guide-pulleys to the guide-sheets and it is inserted in the slitlike rolling up pins. The draining funnels are arranged in such a way that the urine and droppings which fall from the paper conveyor belt reach the drains or a box for droppings by their dead weight. In the box for droppings urine and droppings can be parted from each other and only the urine flows to the drains. The guide-sheets for the paper conveyor-belt are the cover for the corresponding lower cages. The cages of the highest floor are covered by a sheet (galvanized or stainless steel) arranged on the rack.

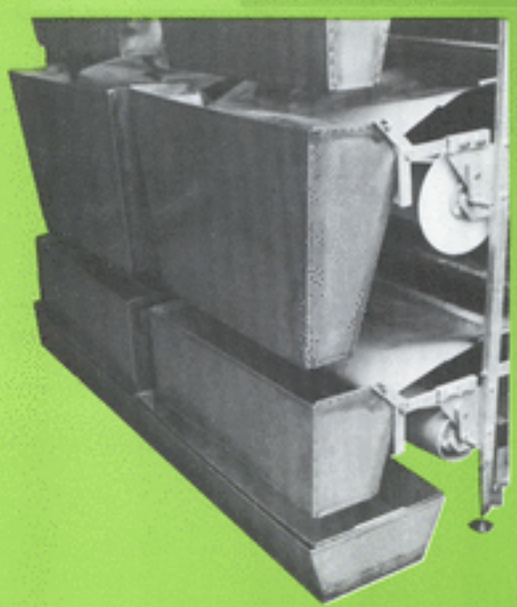
Batteries with conveyor belt of paper are equipped with **automatic watering** nearly exclusively. The watering pipes of the one-sided battery are fixed on the wallside and the watering pipes of the double-sides battery are fixed in the middle. For every single cage one watering valve is planned and for every double cage two watering valves are planned. The watering pipes and the watering valves are made of **stainless steel** and their construction is similar to those of the movable racks with automatic watering (see 5.2)

Accessories: cages, feeders, paper rolls, possibly devices for taking up filaments and pressure reducing valve

If you pay attention to the measurements you can also use batteries with paper conveyor-belt clearing for wire-cages and makrolon or sheet metal-cages of different size with open bottom. Depending on the measurements of the cages more than 4 floors are possible.



Pd 3 – 36 K 400/3 aT



Pd 3 – 36 K 400/3 aT

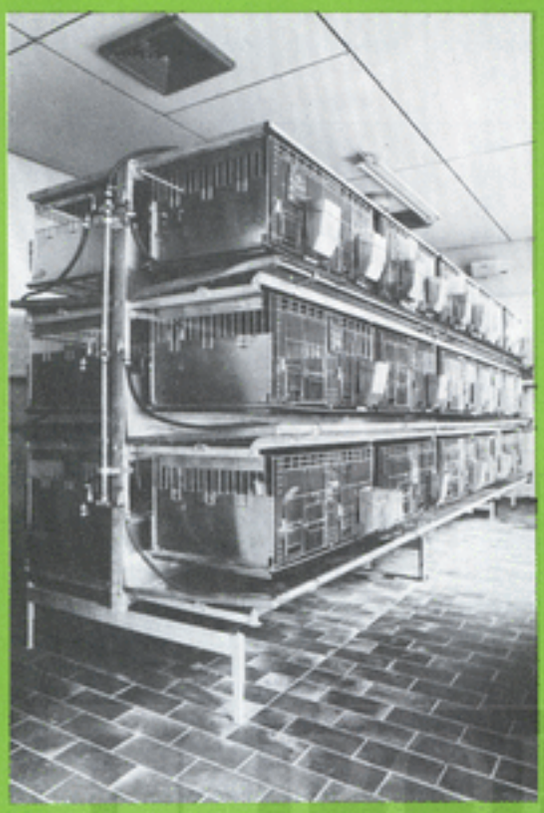
Stationary batteries with conveyor belt of paper

for cage-type	A	B	width			depth		height
			basic unit mm	1/1 additional unit mm	1/2 additional unit mm	one-sided mm	double-sided mm	mm
M 300/8	4	4	3.000	1.880	940	750	1.450	1.900
M 300/4	2	4	3.000	1.880	940	750	1.450	1.900
K 300/8	4	4	3.000	1.880	940	750	1.450	1.900
K 300/4	2	4	3.000	1.880	940	750	1.450	1.900
K 400/6	4	3	3.000	1.880	940	750	1.450	1.900
K 400/3	2	3	3.000	1.880	940	750	1.450	1.900
K 38/35	4	3	3.000	1.880	940	800	1.550	1.800
K 47/40	3	3	2.920	1.800	900	800	1.550	1.900
K 85/40	2	3	3.100	1.980	990	800	1.550	1.900

A = number of cages per unit and storey
B = number of storey

Purpose-battery with conveyor belt of paper with makrolon-cages type M II with wire bottom for small rodents

5.7 Stationary batteries with flushing (flushing clearing) for cages of guinea pigs and rabbits



Wd 3 – 30 K 400/3 aT

Wd 5 – DK III aT

Short indication: e.g. We 4-20 K 300/4 aT
or Wd 3-48 K 47/40

Order number: without

For batteries with flushing there are the same conditions concerning the short indication and the number of animals, which is specified in 5.6 with regard to the battery with conveyor-belt of paper clearing.

Flushing batteries can be constructed with an incline to one head-side, to both head-sides or to the middle, depending on the length of battery and the arrangement of the drainings.

According to your wishes the racks of a robust **profile-tube-construction** can be delivered of galvanized standard steel or stainless steel. The **sheets for the droppings, draining funnels** and **boxes for the droppings** are made of stainless steel anyway. The sheets for the droppings, which have an incline to the backside and which are higher there have a **flushing pipe** at the front.
So you can choose if the flushing is slight or strong when clearing the cage. Droppings, urine and flushing water flow to a **draining pit** on the head-side of the battery and from there into the drains or into a draining box, where the droppings can be retained.
For improving the cleaning possibilities we deliver a washing brush with the basic unit. It is fixed to a handle and prepared for water connection.

The sheets for the droppings are the cover for the corresponding lower cages at the same time. The cages of the highest floor are covered by a sheet galvanized or stainless steel arranged on the rack.

Regarding the automatic watering the same is valid, which is specified in 5.6 concerning the battery with conveyor-belt of paper clearing.

Accessories: cages, feeders, possibly devices for taking up filaments and pressure reducing valve

If you pay attention to the measurements you can also use batteries with paper conveyor-belt clearing for wire-cages and makrolon or sheet metal-cages of different size with open bottom. Depending on the measurements of the cages more than 4 floors are possible.

Stationary batteries with flushing

for cage-type	A	B	width basic unit mm	width 1/1 additional unit mm	width 1/2 additional unit mm	depth one-sided mm	depth double-sided mm	height mm
M 300/8	4	4	2.400	1.880	940	750	1.450	1.900
M 300/4	2	4	2.400	1.880	940	750	1.450	1.900
K 300/8	4	4	2.400	1.880	940	750	1.450	1.900
K 300/4	2	4	2.400	1.880	940	750	1.450	1.900
K 400/6	4	3	2.400	1.880	940	750	1.450	1.900
K 400/3	2	3	2.400	1.880	940	750	1.450	1.900
K 38/35	4	3	2.400	1.880	940	800	1.550	1.800
K 47/40	3	3	2.320	1.800	900	800	1.550	1.900
K 85/40	2	3	2.500	1.980	990	800	1.550	1.900

A = number of cages per unit and storey
B = number of storey

Wd 5 – DK III aT

5.8 Stationary batteries with clearing by a slider for cages of guinea pigs and rabbits

Short indication: e.g. Se 3-24 K 400/6 aT
or Se 3-60 K 300/8 aT

Order number: without

Concerning the short designation and the number of animals see introduction of stationary battery with conveyor belt of paper clearing in 5.6.

Arrangements with slider clearing are the best **possiblities for automatic clearing.**

After opening a water typ for wetting the sheets for the droppings (wetting the droppings) and after pushing one of the push-button switches **a slider with a felt strip** moves up and down the **gutter for the droppings.** The slider is driven by an **electric motor,** a roll and a rope. It pushes the water, the droppings and the urine in the **retaining funnels** and **the drains** on both head-sides of the battery. This process can also be started by a **watch** and the clearing is automatically executed in certain, regulated periods. Clearing 4-6 times in 24 hours can be regarded as sufficient. Construction material and design of the slider arrangement for clearing are similar to the conveyor belt of paper arrangement.

Accessories: cages, feeders, possibly devices for taking up filaments and pressure reducing valve

Slider arrangements for clearing are also possible for makrolon- and sheet metal-cages with open bottom and wire-cages. The number of the floors depends on the height of the cages.

Se 4 – 36 K 400/3 aT

Se 4 – 36 K 400/3 aT with service car

Stationary batteries with clearing by slider

for cage-type	A	B	width basic unit mm	width 1/1 additional unit mm	width 1/2 additional unit mm	depth one-sided mm	depth double-sided mm	height mm
M 300/8	4	4	3.000	1.880	940	800	1.500	2.000
M 300/4	2	4	3.000	1.880	940	800	1.500	2.000
K 300/8	4	4	3.000	1.880	940	800	1.500	2.000
K 300/4	2	4	3.000	1.880	940	800	1.500	2.000
K 400/6	4	3	3.000	1.880	940	800	1.500	2.000
K 400/3	2	3	3.000	1.880	940	800	1.500	2.000
K 38/35	4	3	3.000	1.880	940	850	1.600	1.900
K 47/40	3	3	2.920	1.800	900	850	1.600	2.000
K 85/40	2	3	3.100	1.980	990	850	1.600	2.000

A = number of cages per unit and storey
B = number of storey

Se 4 – K 400/6 aT, purpose-battery with service car

KAKÄ 1

B-KAKÄ 1

B-KAKÄ 2

6.0 Cages for cats, batteries for cats and pens for cats

6.1 Cages for cats for single keeping, can be stacked

Short indication: KAKÄ 1

Order number: 06.3811

Dimensions of the cage:

width about	500 mm
depth about	700 mm
height of living space about	500 mm
total height about	650 mm

The cage **is constructed of angle iron.** It is shut on the **back wall** and on the right side. The left **side wall** is constructed of metal sheet in the lower part and at half height of a wire-lattice like in the upper cover. The **door** fixed by hinges is shut by a **gravity catch.** Feeding and drinking dishes are hung in the wire netting of the door. A **sitting board** of plastics (PVC) is arranged in front of the back wall of the cage.

The **running bottom** of flat wire 8 × 2 mm has a gap on one side, thus the droppings of the cat can directly fall into the iserted box for droppings.

The cage made of **stainless steel** has edges for stacking and can be stacked one upon the other up to three times.

6.2 Battery for cat-cages KAKÄ 1

Short indication: B-KAKÄ 1

Order number: 06.3841

Dimensions:

width about	1120 mm
depth about	750 mm
height about	1700 mm

The **rack** for 4 cages is a hot-galvanized **construction of sectional pipes,** mobility is achieved by 4 castors of 100 mm ∅ or 125 mm ∅, two of them can be fixed.

6.3 Battery with cat-cages KAKÄ 2

Short indication: B-KAKÄ 2

Order number: 06.3842

Dimensions of the cages:

width about	700 mm
depth about	500 mm
height about	400 mm

Dimensions of the rack:

width about	1560 mm
depth aboute	600 mm
height about	1750 mm

The **rack,** movable by 4 castors 100 mm ∅, made of **sectional pipes,** hot-galvanized, can take up **6 cages** and **6 droppings trays,** each made of stainless steel. The **narrow side** and the **back wall** of each cage are made of metal sheet, the **lid** is made of a wire-latice with mesh width 100 × 30 mm. The **front** consisting of frame and vertical bars has got a wide **door** at the inner side of which **drinking and feeding dishes** can be hooked in by holding divices.

The **running bottom** made of flat wire 8 × 2 mm with a gap-width of 10 mm has got a corner for droppings. In the left third of the cage a board for sitting made of plastics (PVC) can be arranged about 200 mm above the running bottom.

Cat pens with traversable running bottoms

6.4 Cat pens

Cat pens have been constructed and produces in different shapes. It is impossible to describe **all possible variations.** We therefore want to point out a few facts that should be considered when planning.

Keeping on bottom or keeping on running bottom made of profiles, wire, to walk on or not,

sliding or easy adjustable partition walls,

arranging of sleeping box,

toys,

sand pit or sand-box for droppings,

material for bottom, side walls, front, sleeping-boxes etc.,

arrangement of feeding and drinking dishes.

Please inform us about your assignment and available rooms, we shall submit our proposals.

Cat pens with traversable running bottoms

7.0 Cages and units for dogs

7.1 Cage for dogs HK 1

Short indication: HK 1

Order number: 06.3701

Dimensions:

width about	920 mm
depth about	810 mm
height of living space about	800 mm
total height about	1140 mm

The stainless steel cage, **movable** by 4 castors of 100 mm ∅, is closed at 3 sides and at the top by **metal sheet.** The **door** made of **bars** is fixed to the cage by hingers and is shut by a gravity catch. In the lower third of the door there are apertures for the folding and in their end-position lockable **feeding and drinking dishes.**

Alternatively the cage can be equipped with an **automatic watering** TRV 8 (Lixit).

The sliding running **bottom** is made of round bars (6 mm) with a gape-width of 19 mm. The **droppings trays** are also insertable.

For **metabolic experiments** cages are supplied with a close meshed wire bottom above the tub for droppings to separate droppings and urine.

If there is little room available, two cages (order number 06.3721) can be stacked by removing the castors of one cage.

HK 1

7.2 Cages for dogs HK 2

Short indication: HK 2

Order number: 06.3702

Dimensions:

width about	950 mm
depth about	1000 mm
height of living space about	800 mm
total height about	1200 mm

This **cage** is made of **stectional pipes** with spot-welded walls of metal sheet and a wire mesh as cover. **Door, feeding and drinking dishes** are the same as described under 7.1. The cage is movable by 4 **castors** of 100 mm ∅.

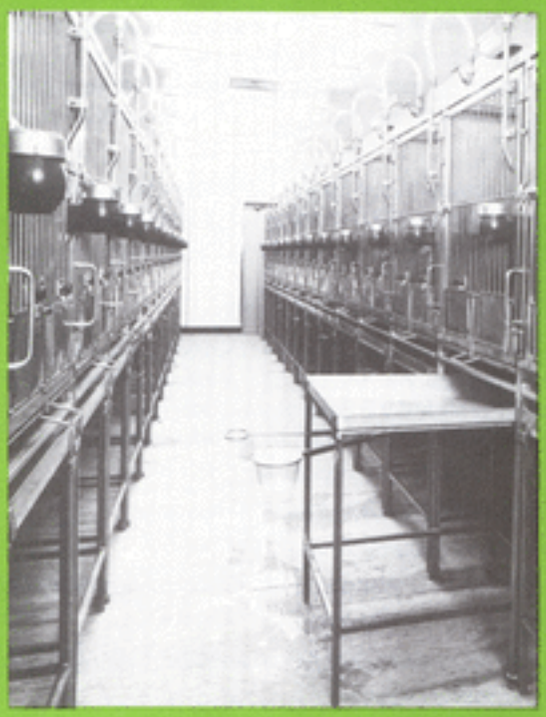
The insertable running **bottom** consists of canted **sheet profiles spot-welded** in angled frame to give the dogs a large area for treading. The gap-width of 15 mm makes a troublefree falling through of droppings possible.

The insertable **droppings tray** has got a drain to one side.

This cage for dogs with an additional wire bottom is suitable for **metabolic experiments** as well as cage HK 1. If there is only little room available, it is also possible to stack two cages (order number 06.3722).

All material used for this cage are made of **stainless steel.**

HK 2



7.3 Boxes and units for dogs

In order to give **dogs** more moving space in desired intervals at **maximum utilization of space** and to make **contact** possible with other animals, boxes that are arranged side by side are connected in such a way, that you get a **passage** when removing the bolt. Thus the dogs get a larger living and playing area at the same time. The pictures show such an unit.

Each single cage is supplied with devices for **metabolic experiments,** e. g. with **a meter** for the **quantity of water,** which is installed in the pipes to the drinking valves. Under the drinking valves tubs are installed for catching the water and measuring the water which is not lapped up.

Such units are made of stainless steel.

Units for **single and group keeping in boxes** are also produced.

The **front** gratings with doors and tiltable feeding dishes are made of **bars.** The **partition walls** can be totally closed or made of bars in the upper part. As material for the partition walls **metal sheets** (galvanized or stainless steel), **plastics** or slabs made of **eternite** can be used. The **back walls** of the boxes mostly are the walls of the room.

Units for single and group keeping in boxes with devices for metabolic experiments

EBECO

E. BECKER & CO GMBH

You can use **cement-floor** of the building as **running bottom,** possible with installed warmed sleeping place, or you can put in duckboards made of **round and profile bars** – stainless steel –. For cleaning the boxes the duckbords are to be turned up to the sides.

If boxes with a space to run about situated in the open are desired, double swinging shutters have to be installed in the **communicating doors** leading outside or in the back walls made of bricks.
The shutters are also supplied by our firm.

Boxes for interior rooms are almost exclusively supplied with an **automatic watering.** You should use drinking dishes made of stone or stainless steel if the units are out doors.
If you are interested in our **offers,** please **inform us** about:

- Size and number of single boxes,
- room dimensions, with drawing, if possible,
- desired kind of partition walls,
- possibilities for anchoring parts of construction in the walls,
- desired kind of running bottom,
- material for front lattice, partition walls and running bottoms,
- desired kind of watering,
- narrow passages in the building for the transport of large elements.

Dog units wit a space by double swinging shutters, running botton

8.0 Cages for pigs and wethers

8.1 Cage for minipigs

		MPK 1	MPK 2
Short indication:			
Order number:	hot galvanized	06.1751	06.1752
	stainless steel	06.3751	06.3752
Dimensions about:	length	800 mm	1000 mm
	width	300 mm	400 mm
	height of running bottom	270 mm	270 mm
	height of living space	560 mm	560 mm
	total height	830 mm	830 mm

Cages for minipigs with **front** and **side walls** of **wire-lattice** with 2.5 and 6 mm ∅ wires, welded in frames of angle iron, are constructed in the modular-design principle and can be stacked. A **tiltable through** is fixed at the front. The **back wall** is of metal sheet and can be removed as easily as the cover which is designed as wire-lattice.

MPK 1

The spot welded wire-lattice as running bottom with wires of 3.1 mm ∅ has a mesh width of about 20 × 30 mm. A **catching tub** is inserted under the running bottom, where a narrow meshed **wire-bottom** can be put in to retain the urine and droppings for **metabolic experiments.** The tub with wire-bottom and the tiltable trough are of stainless steel anyway, the other parts are hot galvanized in full bath or of stainless steel.

Upon request an **automatic watering** installation can be planned. Furthermore there is the possibility to supply these cages with castors.

8.2 Cage for wethers

Short indication:	HMK	
Order number:	06.1771	
Dimensions:	width about	675 mm
	length without food-rack about	1150 mm
	length with food-rack about	1500 mm
	height of running bottom about	600 mm
	total height about	1450 mm

The cage for wethers is produced in strong **profile-pipe construction.** To put the animals in, the **back wall** sheet hung in weth a decline to the urine drain has to be taken out. The **front** of the cage has an opening for reaching the **water-bucket** and an aperture for the **hay and food rack,** that can be hung on. Solid or pulverized food can also be given in the lower part of the rack. The **side walls** of wire-lattices one side is designed as **sliding door** to be able, to fasten the urine dish of non-rigid PVC to the wether for **metabolic experiments.**

HMK

The **running bottom** of the cage is a strong wire-lattice with a gap in the front part for the draining flexible tube of the urine dish. A **small tub** for catching rests of fodder is inserted in the cage under the running bottom at the front and a **bigger one** in the rear part of the cage for gathering the droppings. The parts of the cages for wethers are of steel, hot galvanized, the catching tubs of stainless steel.

For transport the wether-cage can be provided with castors. Wether cages can be joined to **double cages** (order number 06.1776). In that case the partition walls between the two cages consists of metal sheet instead of a mat.

9.0 Cages for monkeys

9.1 Cages for small primates

(Gerbil, Tupaia, Marmoset etc.)

Short indication:	PRK 1	PRK 2	PRK 3	PRK 4	PRK 5
Order number:	06.3901	06.3902	06.3903	06.3904	06.3905
Dimensions:					
width mm	500	500	500	500	500
depth mm	500	500	500	750	750
height mm	500	750	1000	750	1000

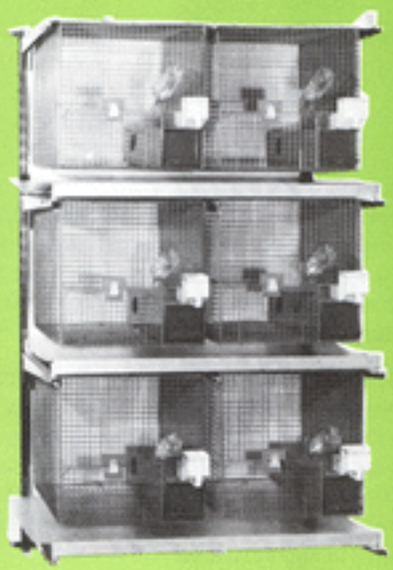
As shown in the pictures, cages for small primates were delivered and can be delivered in different designs and dimensions.

General constructions features:

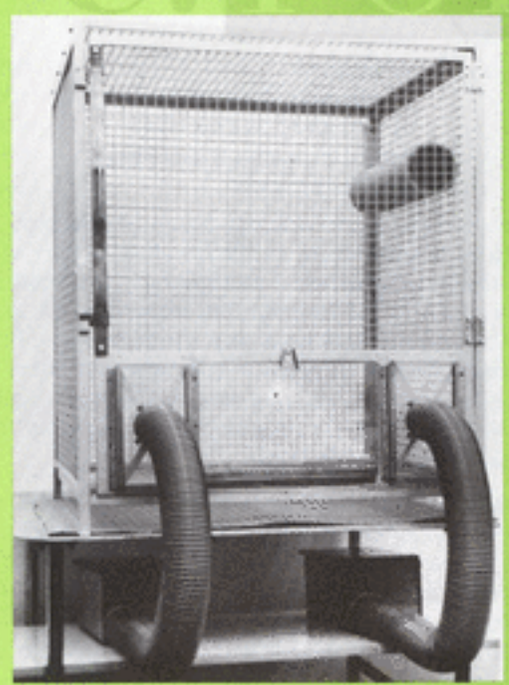
Cages either have hinges or can be put together for space-saving **strage** or for the washing-machine or they have **fixed walls.** In any case **front, bottom, lid** and **one side wall** are made of **wire mats** with 5 or 6 mm frame wires and 2 mm filling wires, that are welded to mats of 20 × 20 mm mesh width or upon request of 20 × 30 mm mesh width. Mainly with regard to hinged cages the **second side wall** and the **back wall** can also be made of **wire mats;** if a prevention of sight and touch to the adjacent cage is intended, they may be composed of **metal sheet.**

In the **front** of the cage a **door** is installed to let the animals in, which can be shut either by a carabine hook or a turning lock. A **second door** can be situated in the front, in a side wall or in the lid. This door enables either the **installation** of a **hiding box** with bar into the cages or its insertion into the guide beads fitted to the door opening.

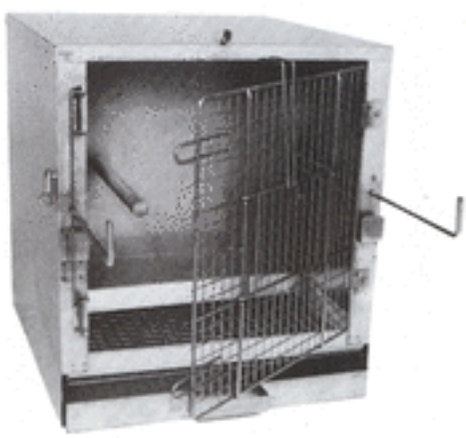
When using a **feeding** dish situated in **front** of the cage, an **opening** is located in the front, to be able to reach through to the feeding dish. There can also be an opening for a feeding dish, that projects into the cage and can be filled outside the cage.



Cage for Tupaia PRK 1



Breeding cage for primates



Cage for primates with squeeze wall

E. BECKER & CO GMBH

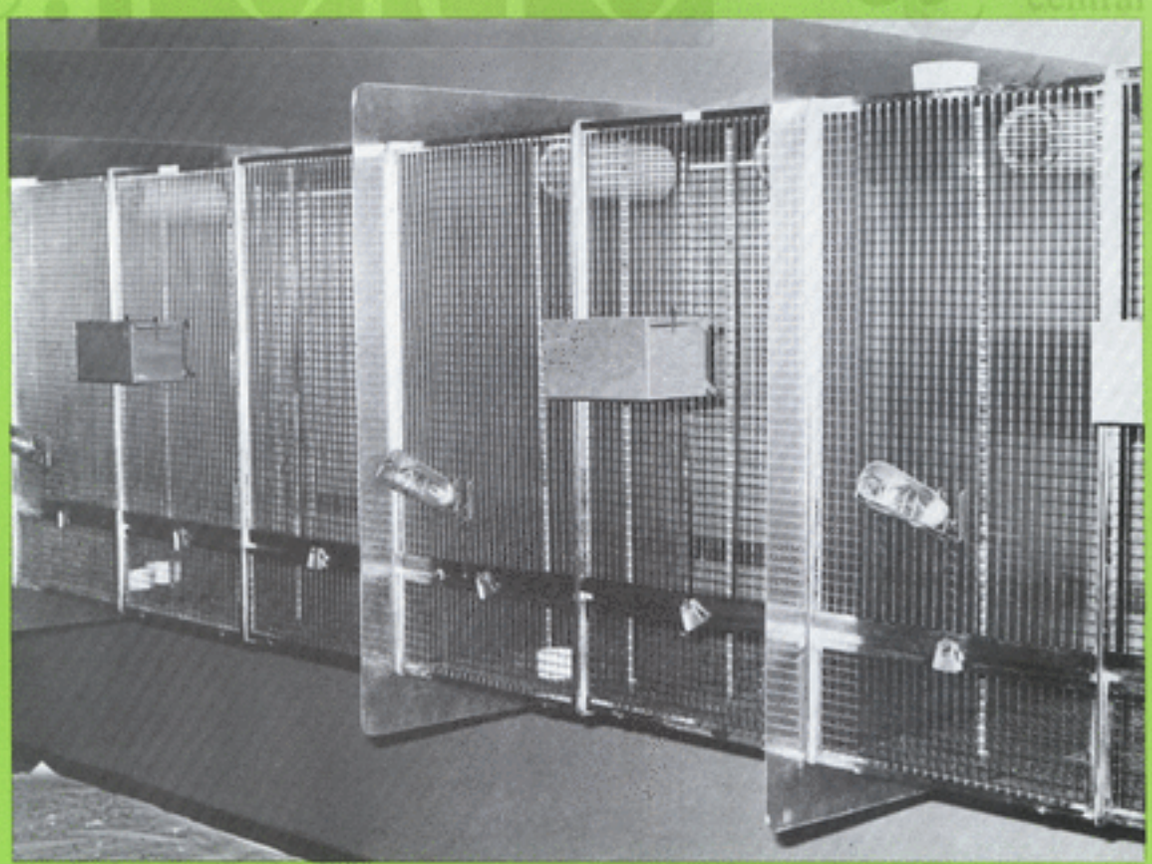
Cages for marmoset

The primates are **watered** by **watering bottles,** to be hung on the front side. The watering cap of the watering bottle has got a pipe of 3.5 cm length which projects into the cage. If an **automatic watering** is desired, the back wall gets an opening for the insertion of a drinking valve.

The cages can be alternatively equipped with **bars** for **sitting** and for **droppings.**

The **cages** are **put into movable** or **wall racks** by suspension beads that are spot-welded to the sides or by hooks installed at the back wall. Under the cages there can be boxes for droppings or sheets for a paper belt.

The **material** for cages, hiding box and feeding dish is **stainless steel,** in exeptional cases it can be standard steel covered with rilsan.



Cages for small primates

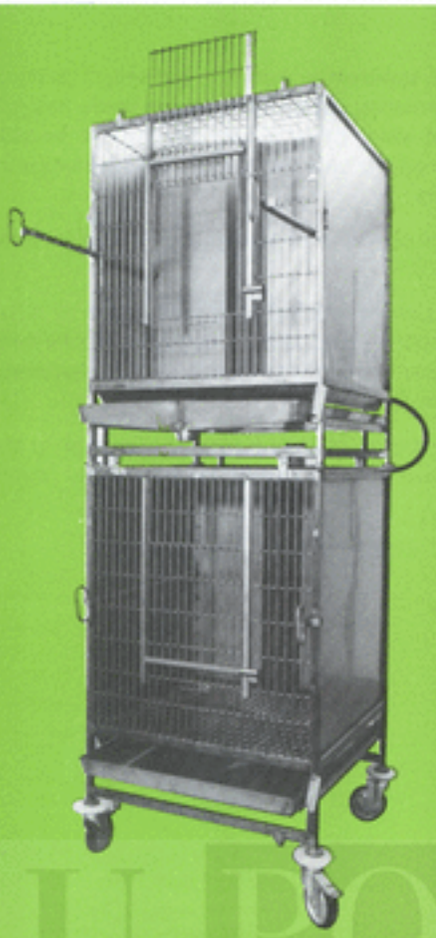
9.2 Cages for monkeys

The requirements applying to **monkey cages** and their designs are so numerous that until now no standardization has taken place. The illustrations shown here which are explained below only show a few of the **design examples.** Please inform us of your problem and we will be pleased to send you a suitable quotation.

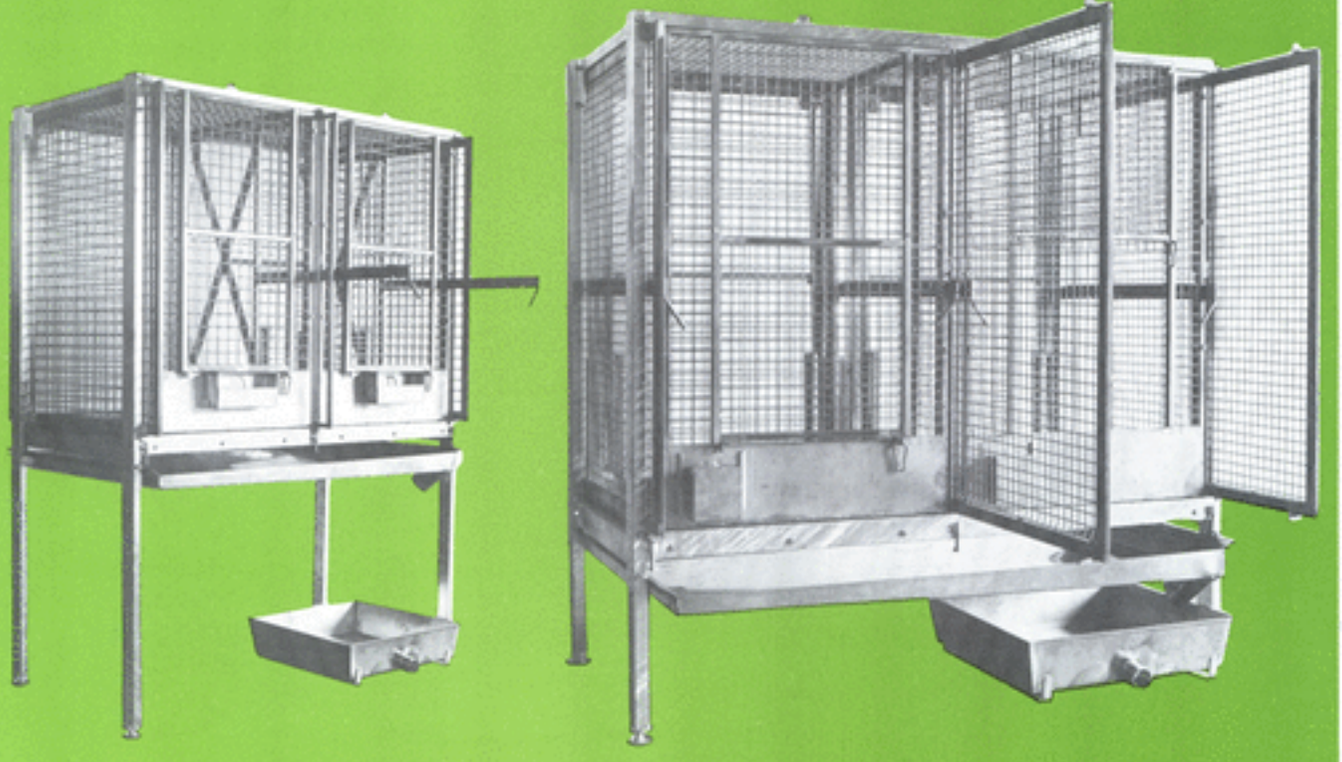
The first monkey cages illustrated with living space dimensions of **710 mm wide, 710 mm depth and 800 mm height** are made entirely of stainless steel. The cage has a sliding rear wall, insertable droppings tray with drain and drinking bottle or automatic watering installation.

The vertical sliding door can secured absolutley by a special closure. In bottom position the feed container is also protected from being thrown out by the door.

The **double cages** shown below with **living space** dimensions for the **single cage** of **W = 700 mm, D = 700 mm** and **H = 1000 mm** can be placed side by side in any quantity with suitable rack facilities. They are distinguished primarily by the fact that all parts such as **top, back, pull-out back and floor are inserted without screw fastenings** and are therefore readily dismantled for cleaning.



Cages for monkeys, made of stainless wire



Cages for monkeys, component parts inserted without screw fastenings

E. BECKER & CO GMBH

Cage for monkeys with closed side walls and pull-out back

Only the front is bolted to the frame, thus locating the above mentioned cage parts. The **push-in sides** and **partitions projecting** at the **front** and **back** can consist of **framed wire mats, makrolon, plastic or sheet metal panels.**

As regards securing the vertical sliding door and feed container the same applies as to the above mentioned cage. The cages can be fitted with sliding and lockable back panel. A **box** to **catch** the **solids** and with connection to the drainage system for disposing of the liquids is located underneath the **droppings tray** drain.

Cages and droppings trays are of stainless steel, the frame is either hot galvanized or of stainless steel.

In the case of the third monkey cage illustrated here with living space dimensions of **W = 850 mm, D = 800 mm and H = 900 mm** which is hung in a two-tier **rack with droppings trays** and central drainage, the sides, the back and the top are closed. For improved ventilation of the cage the sides have a large number of holes drilled in them in the top third. As regards the other features the same applies as before.

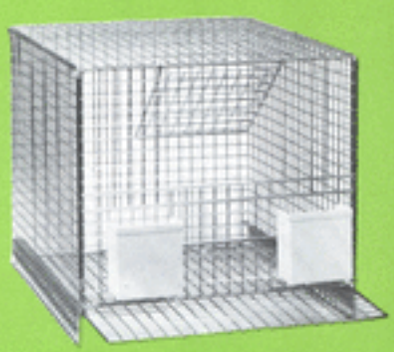
Watering of the monkeys can in all cases be provided by means of a suspended **watering bottle** suitably protected from being thrown out or **automatically** by means of a **watering valve** (TRV 6). If required the cages can also be fitted with a perch.

Battery with cages for monkeys

KÜK III

KÜK III dbr with rack

HB



TAK 1

10.0 Cages for poultry

10.1 Cages for chicken type III

Short indication: KÜK III
Order number: 01.3016
Dimensions: above 420 × 265 mm
bottom 380 × 225 mm
height 200 mm

The **feed and watering container** is attached to the **front with adjustable feeding grille.** On the **back** there is a **flap** through which the animals can be taken out without having to remove feed and watering container. The 8 mm mesh **bottom** is detachable. The cage is fitted with a DÜ III oR lid.

Cage, bottom, top and feed container are of stainless steel, the watering container is plastic.

Rack GDK III e/20 R accommodates 20 of these cages (see pages 11 and 12) with 10 KKP 1 or KSB 1 droppings trays.

Chick cages KÜK III are intended for chicks up to 4 weeks old.

10.2 Cages for chicken type III double-width

Short indication: KÜK III dbr
Order-number: 01.3019
Dimensions: above 580 × 440 mm
bottom 530 × 380 mm
height 260 mm

Design as for chick cages KÜK III. Instead of a flat top this cage has a **lid** which is raised approximately 50 mm. Each cage has a **feed container** which extends over the entire front. Drinking water supply is by **means of a polyester resin watering** trough which is attached to the appropriate tier of each rack.

Rack GDK III dbr e/8 R accommodates 8 KÜK III dbr chick cages as well as 8 KKP 1 or KSB 1 droppings trays.

10.3 Hens-Cages-battery

Short indication: HB
Order number: 05.1400 galvanized
05.3400 stainless steel
Dimensions of the cages: width 365 mm, depth 450 mm, height according to hanging of the bottom 320 – 400 mm
Dimensions of the rack: width 1150 mm, depth 700 mm, height 1950 mm

In the **three tier** battery **3 cages** each with **two divisions** are mounted on top of one another so that a total of **9 hens** can be accommodated.

The cages have on the **front** and **back** for each bay inward opening **swing doors** through which the animals can be inserted and removed. In front of each cage is attached a **feed container** with feeding grille to prevent feed loss and a plastic **watering container.** Underneath the cages in the frame there is a continuous **droppings tray** for each tier. If required the battery can be equipped with **automatic nipple watering,** the watering containers being deleted.

Rack, cages, droppings trays and feed containers can be supplied in galvanized or stainless steel form.

10.4 Cages for pigeons

Short indication: TAK 1
Order number: 06.3760
Dimensions: width 400 mm, depth 450 mm, height of living space 350 mm, total height 410 mm

The cage is made from 2.0 and 4.6 mm diameter wire and has a mesh size of approx. 20 × 20 mm. In the **front** is fitted an approx. 175 mm × 175 mm inward opening **swing door.** Two stainless steel feed and watering containers are attached to the openings provided for the purpose. The **bottom** is detachable.

Finish: **stainless steel.**

If required **racks** can be supplied to accommodate these cages.

URIMAX L with rack

11.0 Metabolism cages

11.1 Metabolism cages for mice, rats and guinea pigs

Short indication:	URIMAX N for short term experiments	URIMAX L for long term experiments
Order number:	01.3150	01.3151
Dimensions:		
cage height	155 mm	155 mm
diameter interior	200 mm	200 mm
funnel height	230 mm	230 mm
Accessories	–	feed and watering devices

The **URIMAX N** metabolic cage is a **round wire cage** of close wire mesh with a detachable **lid** and two **bottoms,** all parts being of stainless steel. The **12 × 12 mm wide mesh** bottom allows droppings to fall through. If they should be retained the **2.5 × 2.5 mm mesh** bottom is fitted.

The **URIMAX L** metabolic cage which is also a round wire cage of spot welded wire mat with looped on top has cut outs for **feed and watering devices.** The **bottom** has a **mesh width of 11 × 23 mm.** This cage is suitable for long term experiments.

Both cages are placed on a **plastic funnel** whose outlet has **channels** to **guide the urine** into a **special side outlet.** Here the urine is collected in a container. **Droppings and feed** remnants drop through the **main drainage tube** into another vessel.

To accommodate 12 metabolic cages there is the **GURI rack** where the funnels of the cages are located in **perspex plates** and for collection of droppings and storage of urine collection vessels **KK 2 droppings trays** are fitted.

11.2 Metabolism cage for rats

Short indication:	M 2 ST
Order number:	01.3152
Dimensions:	base and overall extension 200 × 240 mm
	upper protruding part with feeding and watering equipment 220 × 400 mm
	overall height 530 mm
	living space for the rat as Marolon cage type II (see table page 3)

For extremely complicated research on animals of short or long duration, especially quantitative experiments.

Secure separation and collection of excrements and urine, far-reaching prevention of mixture of excrements, urine and food, secure measurement of absorbed and secreted substances without losses.

The construction of the cage economizes space, its arrangement is clear and it can easily be dismantled. One can combine various units to batteries when using appropriate stands.

All parts of the cage are made of **stainless steel.** The living space of the rat is a reconstructed **Makrolon cage type II.**

M 2 ST

12.0 Other cages

12.1 Universal cage

UK

Short indication: UK

Order number: o6.1740 galvanized
06.3740 stainless steel

Dimensions:		
	length	800 mm
	width	460 mm
	height	750 mm

The cage with **hinged top** and **door** on the **front** is collapsible. In the door there are openings to accommodate a **feed** and a **watering container.** Underneath the **bottom** a **droppings tray** is inserted. Feed and watering container as well as droppings tray are supplied in all cases in stainless steel.

The very robust cage is made up of 5 and 6 mm diameter frame wires and 3.1 mm diameter filler wires.

Suitable for: transporting and keeping dogs, cats, geese, ducks etc.

12.2 Large transporting cage

400/6 Tr

Short indication: 400/6 Tr

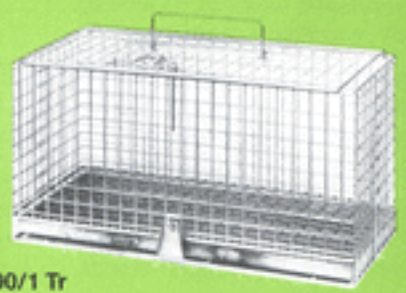
Order number: 06.3748

Dimensions:		
	length	500 mm
	width	420 mm
	height	450 mm

This cage is a modified K 400/6 rabbit cage as described on catalogue pages 16 to 17. The cage has **two carrying handles** and a **hinged top.** In the **front** it has a **door** with opening for **FUKA feed container** and **TE watering** device. Underneath the **bottom a KKP 1 droppings tray** is inserted. The entire cage is made of stainless steel.

Suitable for: transporting small dogs, cats, rabbits, geese, ducks, hens etc.

12.3 Small transporting cage



200/1 Tr

Short indication: 200/1 Tr

Order number: 06.1745 galvanized
06.3745 stainless steel

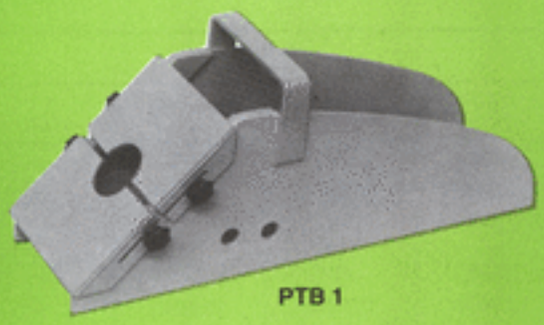
Dimensions:		
	length	450 mm
	width	220 mm
	height	230 mm

The cage consists of 20 × 20 mm mesh wire grille and has a **hinged top** with **carrying handles.** Under the **bottom a droppings tray** is inserted.

Suitable for: transporting rabbits, guinea pigs, rats, pigeons, hens etc.

12.4 Pyrogen experiment boxes for rabbits

12.41 Plastic pyrogen experiment box



PTB 1

Short indication: PTB 1

Order number: 06.2001

The pyrogen experiment box with carrying handle is made from **polypropylene.** To **hold** the **rabbit** in **position** there are adjustable, detachable **slides** on the **front** through which the head of the rabbit can be inserted.

PTB 2

12.42 Stainless steel pyrogen experiment box

Short indication: PTB 2

Order number: 06.2002

With this pyrogen experiment box the head of the **rabbit** can also be held in position if required by **inserting** a **transverse** rod in the **front** of the box. If the transverse rod is not inserted the head of the animal is free to move.

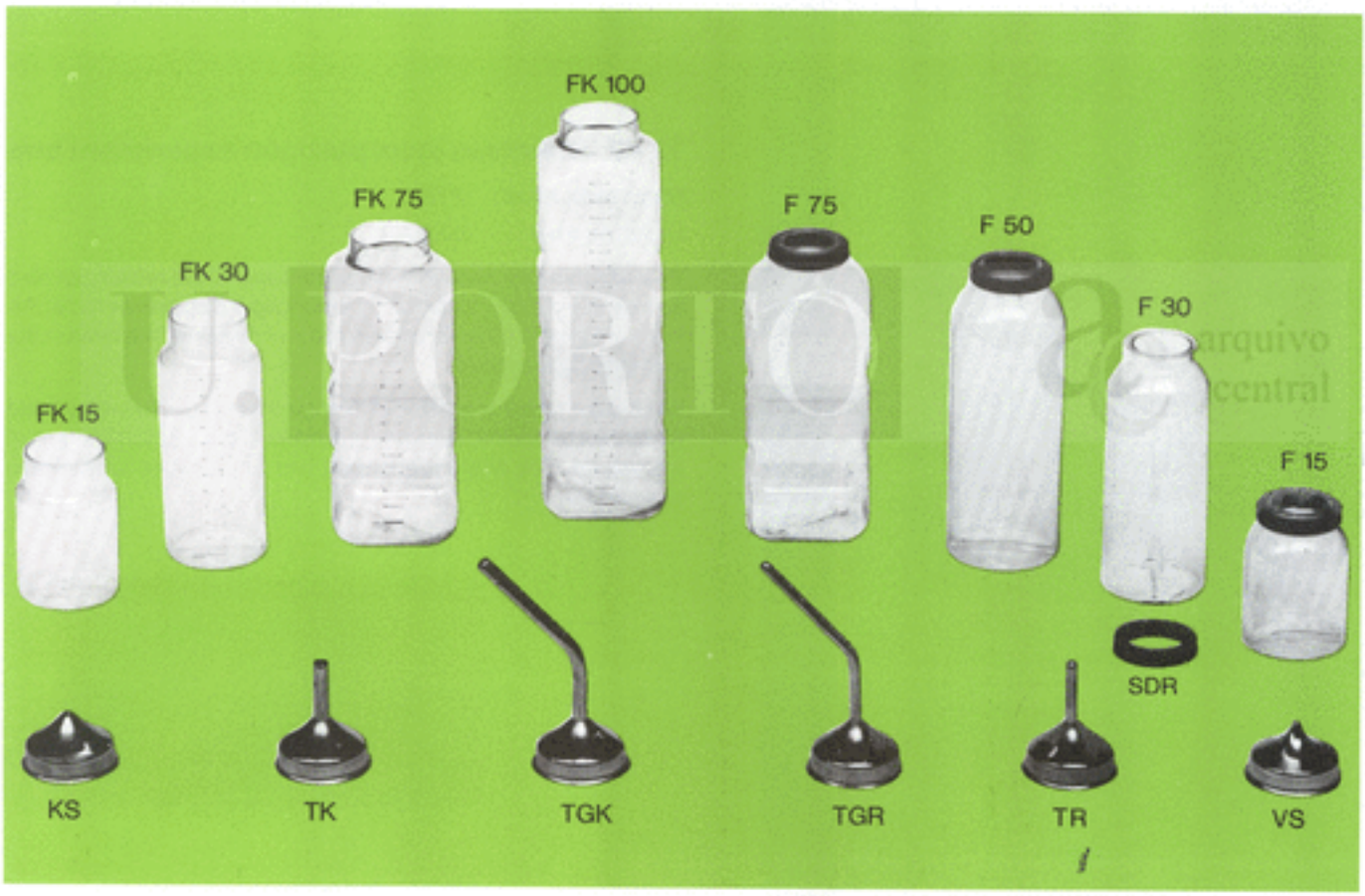
To hold the rabbit in position at the rear there is a sheet metal slide which can be moved along on a notched fixture to suit the size of the animal. The sheet metal slide has an aperture for insertion of sensors.

13.0 Accessories for cages

13.10 Drinking bottles made of Makrolon

		0,15 l 150 ml	0,30 l 300 ml	0,50 l 500 ml	0,75 l 750 ml	1,0 l 1000 ml
Drinking bottle for silicone rubber sealing ring	Short indication:	F 15	F 30	F 50	F 75	–
	Order number:	12.5001	12.5002	12.5003	12.5004	–
to them Silicone rubber sealing ring	Short indication:.	SDR	SDR	SDR	SDR	–
	Order number:	12.5000	12.5000	12.5000	12.5000	–
Drinking bottle with conical neck	Short indication:	FK 15	FK 30	–	FK 75	FK 100
	Order number:	12.5006	12.5007	–	12.5008	12.5009

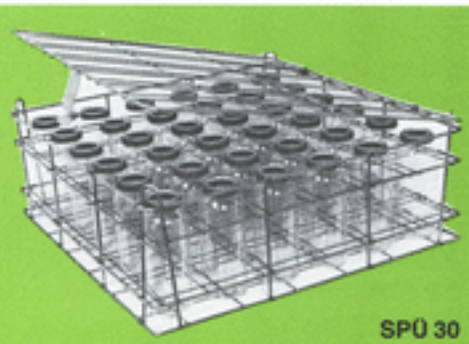
Drinking bottles and silicone rubber sealing rings are autoclaved to 120 °C.



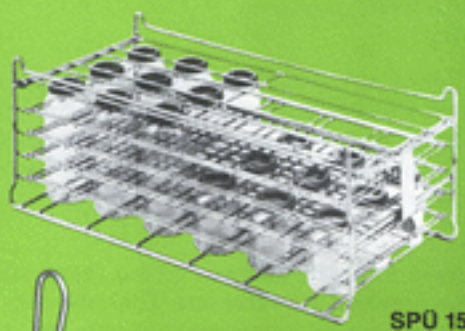
13.11 Drinking caps made of stainless steel

	conical cap	drawn out nipple	35 mm long drinking tube	35 mm long drinking tube	110 mm curved drinking tube	110 mm curved drinking tube
Boring mm:	0,6	0,6	1,0	ball closure	1,0	ball closure
Short indication:	KS	VS	TR	TK	TGR	TGK
Order number:	12.5010	12.5020	12.5030	12.5040	12.5060	12.5070

All drinking caps fit to drinking bottles F and FK.



SPÜ 30



SPÜ 15-30

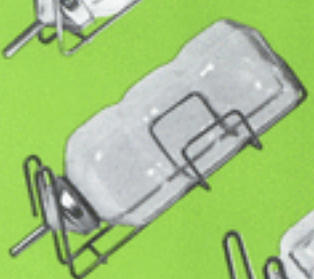
Ö 2

Ö 1

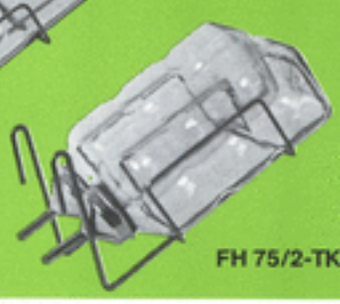
TE

FH 75/3-TGK

FH 30/1-TK



FH 75/1-TK



FH 75/2-TK

13.12 Baskets for transporting and washing

Short indication:	Order number:	Dimensions about length × width × height	Maximum number of makrolon bottles
SPÜ 30	12.5085	480 × 480 × 190 mm	36 piece 300 ml
SPÜ 75	12.5086	480 × 480 × 190 mm	36 piece 750 ml
SPÜ 15-30	12.5083	510 × 270 × 200 mm	18 piece 150 or 300 ml
SPÜ 50-75	12.5084	510 × 270 × 200 mm	18 piece 500 or 750 ml

The **baskets** for **transporting** water bottles can also be used for **washing** the bottles in washing machines. They are made of **stainless steel** and have a **hinged lid.**

13.13 Openers for makrolon bottles

Short indication:	Order: number:
Ö 1	12.5091
Ö 2	12.5092

All the **watering caps of makrolon bottles** can be **lifted off** with the openers. **Opener Ö 1** is used to open bottles held in the hand whilst **opener Ö 2** can be used to open bottles standing in the basket after the lid of the bottle washing basket has been opened.

The openers should be used in all cases for watering caps with tube to prevent breaking off the drinking tubes.

13.14 Drinking devices and holder for makrolon bottles

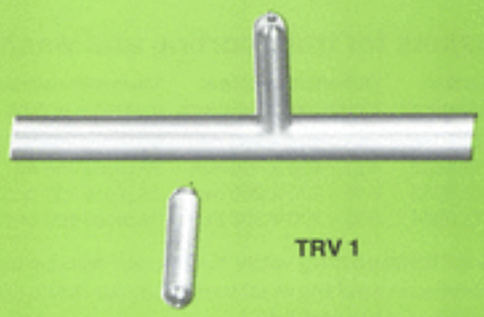
Short indication:	Order number:	
TE	12.5050	Container and 1 litre plastic bottle.
FH 75/3-TGK	12.5118	Holder with vertical 750 ml makrolon bottle and watering cap with curved drinking tube and ball closure.
FH 75/1-TR	12.5111	
FH 75/1-TK	12.5112	Holders with inclined makrolon bottles
FH 75/2-TR	12.5115	and watering caps with 35 mm long
FH 75/2-TK	12.5116	drinking tube with TR hole or TK ball
FH 30/1-TR	12.5113	closure.
FH 30/1-TK	12.5114	

TE: The TE watering unit consists of a **stainless steel container** and a **1 litre plastic bottle** facing downwards. A hole on the bottle neck always allows as much water to flow into a small dish of the container as is consumed.

FH: These are stainless steel **wire bottle holders** suspended in front of the cages with **makrolon bottles and watering caps.** The number specifies the bottle content (300 or 750 ml). The watering bottles can be inserted and removed without removing the bottle holder from the cage.

The **FH 75/3-TGK** bottle holder is used mainly on **MZK 80/25** guinea-pig breeding cages.

FH 75/1 and **FH 30/1** signify **1 watering bottle per holder, FH 75/2** and **FH 30/2** signify **2 watering bottles per holder.**

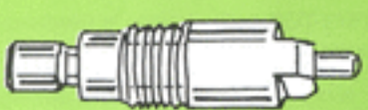


TRV 1

TRV 4

TRV 6

TRV 7



TRV 9

13.15 Drinking valves for automatic watering installation

Short indication:	Order number:	Use for:
TRV 1	12.5061	mouse, hamster, rat, guinea pig
TRV 4	12.5064	guinea pig, rabbit
TRV 6	12.5066	monkey
TRV 7	12.5067	dog
TRV 9	12.5069	poultry

All **watering valves** are of **stainless steel.** They are **welded** (TRV 1) or **screwed into** suitable **watering pipes.** Watering valves TRV 1 and TRV 9 operate at a water pressure of approx. 0.25 bar whilst the other watering valves can be used with a water pressure up to approx. 0.8 bar.

TRV 1: The **valve stem** has a **thread** on the **front end** onto which is **screwed** the **valve cap.** The valve cap with an inserted **spring** holds the **valve needle** with the **seal** against the **seat face** of the **valve stem.** The other side of the valve needle projects through the hole in the valve cap. When the **valve needle** is **moved by the animal** the **seal face** is released and **allows water to emerge.**

TRV 4 – TRV 7: Operate on the same principle as TRV 1. At the **valve inlet opening** there is in addition a small **strainer** to hold back **impurities** which cause minor valve **leaks.** In all cases the supply lines should be properly cleaned before inserting the valves.

TRV 9: With this valve the **valve stem** is forced against the **seal face** by **gravity** and **water pressure.** The valve can only be used in a **vertical position,** that is to say with the outlet at the bottom and is only intended for chickens, chicks etc.

DMI

FF 30

13.16 Pressure reducing valve

Short indication: DMI

Order number: 12.5096

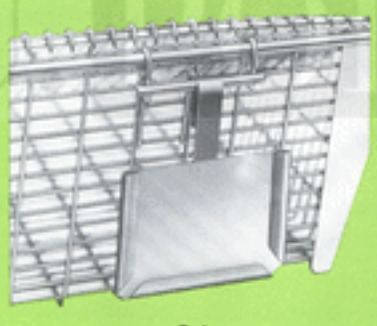
The **pressure reducing valve** is designed for fitment in the **supply line** to racks and batteries with **automatic watering system.** The pressure is adjustable from 0 – 1.6 bar.

13.17 Liquid filter

Short indication: FF 30

Order number: 12.5098

A **polypropylene liquid filter** should additionally be fitted to the supply lines of **automatic watering systems.** It is equipped with a **filter cylinder** which **holds back** all **solid impurities** to be found in tap water which can lead to watering valve leakage.



S 1

S 3 without imprint

S 3 with imprint

13.20 Identification plates

13.21 Identification plates made of stainless steel

Short indication:	Order number:	Dimensions about: breadth × height
S 1	10.4501	80 × 60 mm
S 2	10.4502	130 × 75 mm
S 6	10.4506	150 × 115 mm
S 7	10.4507	110 × 75 mm

The identification plates are manufactured from **stainless steel** and are designed for **use** with **insertable cards.**

13.22 Identification plates made of plastic

Short indication: S 3

Order number: 10.4503

Dimensions about: 105 × 65 mm

These identification tags are made of **PVC thermoplastic** and can be marked with either wax crayon or felt-tipped pen. Markings can subsequently be erased with alcohol or activator.

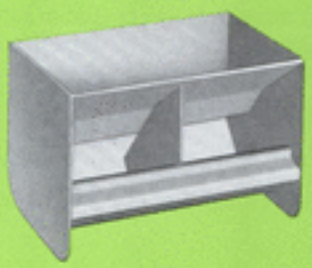
13.40 Feed containers

short indication	order no.	dimensions breadth × depth × height, eating position breadth × depth × height, total	capacity	fodder sort	use for cage type animal
FU R1	08.3701	100 × 60 × 60 mm 100 × 75 × 140 mm	0.14 kg 0.3 l	meal	cages type II – III mouse, hamster, rat
FU R2	08.3702	same as FU R1, however 2 eating positions	same as FU R1	meal	same as FU R1
FU R3	08.3703	same as FU R1, however 3 eating positions	same as FU R1	meal	same as FU R1
FU R5	08.3705	100 × 45 × 45 mm 100 × 80 × 140 mm	0.24 kg 0.5 l	meal	same as FU R1
FU M3	08.3713	85 × 130 × 40 mm 85 × 150 × 145 mm	0.50 kg 0.7 l	pellets	cages type III guinea pigs
FU M4	08.3714	145 × 125 × 40 mm 145 × 125 × 120 mm	0.86 kg 1.2 l	pellets	cages type IV guinea pigs
FU MZK	08.3724	165 × 50 × 55 mm 165 × 125 × 170 mm	1.28 kg 1.8 l	pellets	MZK 80/25 guinea pigs
FU KA	08.3721	125 × 80 × 50 mm 125 × 160 × 190 mm	1.14 kg 1.6 l	pellets	cages for guinea pigs and rabbits
FU KZ	08.3728	140 mm ∅, 50 mm height	0.40 kg 0.5 l	mash, water	cages for cats
FU TR1	08.3740	250 × 150 × 130 mm 250 × 150 × 145 mm	2.90 kg 4.1 l	pellets, mash, water	cages for dogs and minipigs
FU AF	08.3730	235 × 55 × 65 mm 235 × 55 × 110 mm	0.57 kg 0.8 l	pellets	cages for monkeys

FU R2

FU R5

FU M3



FU M4

All **feed containers** are manufactured from **stainless steel** and are designed in such a way that feed loss is reduced to a minimum.

FU R1 – FU R3 are equipped with a **movable insert** and a **wire grille** with a mesh size of 10 × 10 mm. The insert presses down on the **feed** as the latter is consumed.

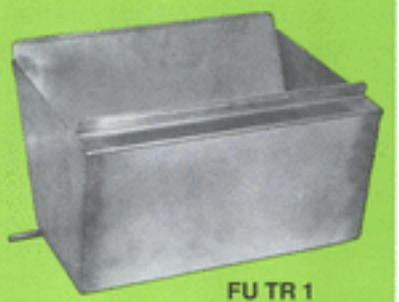
FU R5 is equipped with a **swing-type wire grille** with a mesh size of 6 × 6 mm, through which the feed descends in pace with the rate of consumption.

FU M3 - FU M4 and **FU MZK** have been specially developed for guinea pigs. Loss of feed is largely prevented by the inwardly sloping baffle of the feed container.

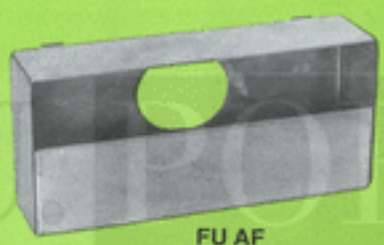
FU MZK

FU KA

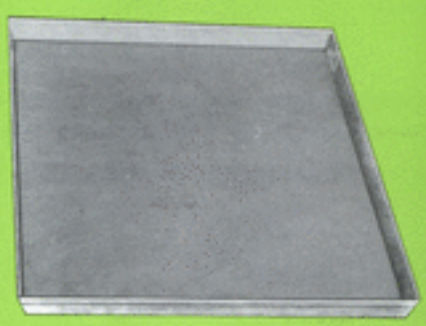
FU KZ



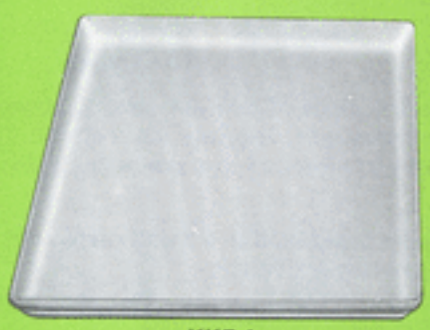
FU TR 1



FU AF



KSB 1



KKP 1

FU KA Can be used in conjunction with all guinea pig and rabbit cages (see catalogue, page 93), except MZK 80/25.

FU KZ This round feed and watering dish can, with suitable holding brackets, be used in cat cages and enclosures.

FU TR 1 Tilting trough for dog and minipig cages.

FU AF Feed container specially designed for monkeys, provided with a reach-through opening on the side facing the cage.

13.50 Droppings trays
13.51 Droppings trays made of stainless steel

Short indication:	Order number:	Dimensions: b × d × h	Use for:
KSB 1	09.4201	450×580×40 mm	GDK III
KSB 2	09.4202	450×680×40 mm	KB and MB, without KB 47
KSB 3	09.4203	550×680×40 mm	KB 47/6, KB 47/9
KSB 4	09.4204	380×670×40 mm	GDK IV
KSB 5	09.4205	1175×325×40 mm	GDK II

The droppings trays are manufactured from 0.8 mm thick stainless steel sheet.

13.52 Droppings trays made of fibre-glass reinforced polyester resin

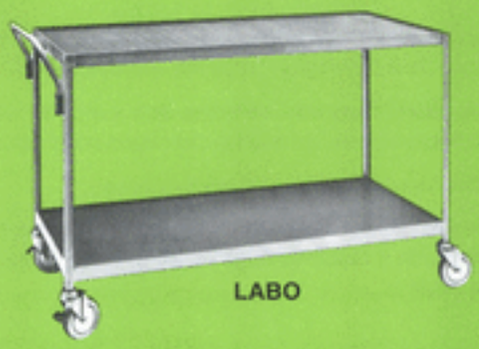
Short indication:	Order number:	Dimensions: b × d × h	Use for:
KKP 1	09.4211	450×580×40 mm	GDK III
KKP 2	09.4212	450×680×40 mm	KB and MB, without KB 47

Droppings trays made of fibre-glass reinforced polyester resin are light, impact-resistant and can be autoclaved up to 120 °C.

13.53 Droppings trays made of polystyrene

Short indication:	Order number:	Dimensions: b × d × h	Use for:
KK 2	09.4217	220×300×45 mm	cages type II, GURI
KK 3	09.4218	285×460×45 mm	cages type III
KK 4	09.4219	380×670×45 mm	cages type IV

These are individual droppings trays which can be hung in normal supporting racks. This means that racks for cages with closed bottoms can also be used for cages with wire mesh bottoms. These droppings trays are used mainly in conjunction with universal racks.



LABO

ABSA

FTW

FVB

14.0 Transporters

14.1 Laboratory trolley

Short indication: LABO
Order number: 11.1701
Dimensions table-top about: length 1200 mm, breadth 575 mm, height 830 mm

The trolley frame is fully hot-galvanized and is provided with a handle at the front end. The two tiers of the trolley are available either in laminated hardwood board (Order No. 11.1701) or stainless steel sheet (Order No. 11.1702). Similarly, the laboratory trolley can be supplied entirely in stainless steel (Order No. 11.3702).

The trolley is mounted on 4 swivel castors 125 mm in diameter, of which two are provided with brakes.

14.2 Waste collecting trolley

Short indication: ABSA
Order number: 11.1707
Dimensions table-top about: length 1200 mm, breadth 575 mm, height 1020 mm

The top tray has a built-in waste chute which is provided with a clamping ring for the purpose of attaching a waste bag which then rests on the bottom tray. The trays are of stainless steel whilst the trolley frame is available either in galvanized steel (Order No. 11.1707) or stainless steel (Order No. 11.3707). The swivel castors have a diameter of 125 mm, two of which are provided with brakes.

14.3 Trolley for feed sacks

Short indication: FTW
Order number: 11.1711
Dimensions about: breadth 680 mm, depth: 580 mm, height 860 mm

The feed sack transport trolley runs on 4 swivel castors of 125 mm diameter and consists of a tubular frame with wire basket.

Available either in galvanized or stainless steel finish (Order No. 11.3711).

14.4 Feed storage bin

Short indication: FVB
Order number: 11.3721
Dimensions: breadth 500 mm, depth 500 mm, height: 1280 mm, inner height 1000 mm
Capacity about: 100 kg pellets

The food storage bin, made of stainless steel, is strongly constructed and guarantees a dry and clean stock of food. The food can be taken easily by means of a nozzle at the bottom of the storage bin.

The food storage bin is mounted on 4 swivel castors 100 mm ∅, of which two are provided with brakes.

15.0 Animal operating tables

15.1 Operating table for mice

Short indication: OPM

Order number: 13.5580

Dimensions of **operating plate 80 × 140 mm,** made of chromium plated brass, with **spring-loaded head support, tail clips** and **4 paw clamps.** The operating plate is movable in all directions by a ball-and-socket joint on a circular stand base.

OPM

15.2 Operating table for rats and guinea pigs

Short indication: OPR

Order number: 13.5581

The **operating table 140 × 280 mm** is made of **chromium plated brass. Paw clamps** with locking spring for rapid and reliable positioning of experimental animal. The paw clamps are movable in longitudinal and transverse slots. The table top can be moved into any desired position by means of a heavy ball joint. Heavy cast iron tripod base. With fully **adjustable head support** with **nose ring** and **ether mask.**

OPR

15.3 Operating table for rabbits, cats and small dogs

Short indication: OPK

Order number: 13.5582

The **operating table** in dimensions **440 × 650 mm** is made of **stainless steel.** 4 telescopic feet provide adjustment of height and of slope angle. A rod-frame system and clamps around the table allow fixing of the animal by means of belts. **Built-in heating,** 220 V, for **heating** the **plate** up to about 30 to 32 °C.

OPK

BEROL 25 S

16.0 Cleaners

16.1 Cleaner BEROL 25 S

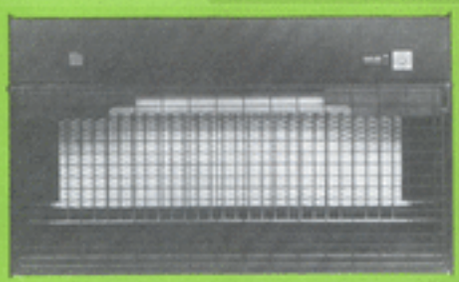
Short indication: BEROL 25 S

Order number: 40.1001

BEROL 25 S is a **special cleaner** on the **basis of acidity** with **disinfecting effect.** BEROL 25 S is especially suitable for **cages made of Makrolon** as well for **cages and lids made of stainless steel.** It **dissolves urine stone** and **removes feces** as carefully as possible. It does not contain any hydrochloric acid, does not foam and is therefore especially suitable for washing apparatus.

BEROL 25 S is deliverable in cans with a contents of 12 or 30 kg.

Doses: for manual cleaning up to 10 % BEROL 25 S
for one-chamber washing apparatus 1 % BEROL 25 S
for two- or more chamber washing apparatus
for prewashing and main washing 0,8 % BEROL 25 S
for re-washing 0,2 % BEROL 25 S
(1 % = 1 litre BEROL 25 S for 100 litres of water)



Professional HL

17.0 Flying insect exterminater

17.1 KATLAN Flying insect exterminater

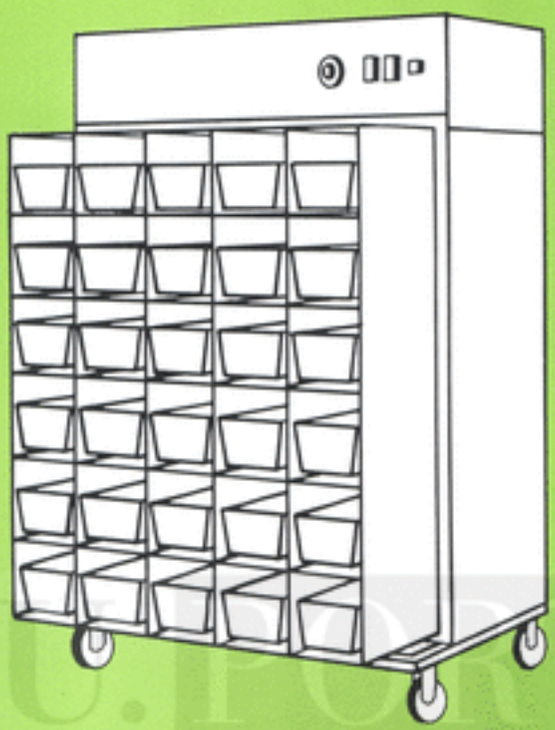
Short indication:	Professional HL	Senator HL
Order number:	40.3001	40.3002
Specification:		
Rated voltage	220 V, 50 Hz	220 V, 50 Hz
Power rating	65 W	100 W
Degree of protection	class I	class II
Type of protection	rainproof, radio suppressed	rainproof, radio suppressed
Voltage at UV reflector	4,000 V/15 mA	4,000 V/15 mA
Approx. dimensions:	width 720 mm depth 190 mm height 440 mm	width 830 mm depth 240 mm height 560 mm

Senator HL

The electrical flying insect exterminaters operate with special UV fluorescent lamps. Insect pests are killed off in a flash by high voltage within the effective range of the light sources and the UV Diamond reflectors.

18.0 Laminar-Flow-Cabinet

Short indication:	Order No.:	Dimensions: Width x Depth x Height (incl. frontal honeycomb structure)	for accomodating:
LFS 1	13.5521	1310x 850x1980 mm	42 Type I Cages
LFS 2	13.5522	1310x 850x1980 mm	30 Type II Cages
LFS 3	13.5523	1310x1070x1980 mm	24 Type III Cages
LFS 4	13.5524	1310x1250x1980 mm	18 Type IV Cages



LFS 2

Technical Data:

Prefilter	2 Z-cells 395 x 495 x 47 mm
HOSCH-Filter	2 with 1525 x 610 x 150 mm
Power consumption	approx. 0.3 W
Electric connection	220 V, 50 Hz
Weight	approx. 140 kg

The laminar flow cabinet is a **dust** and **germ free air filter device,** in which **low turbulence displacement flow air** is supplied through the **honeycomb structure** fitted at the front.

Via a **prefilter** an intake fan sucks in impure **room air,** which is then supplied to the **high-capacity suspended particle air filter (HOSCH)** with a minimum rate of precipitation of **99.99 %** for particle sizes of **0.3** µ. The downstream frontal honeycomb structure is thus subjected to an air flow of 0.45 m/s. This thus prevents the entry of dust particles from the impure vicinity.

The **air flow** is **monitored** by **two display units** which continuously indicate when the prefilter has to be renewed, and whether the actual speed of 0.45 m/s is obtained in the purified room area. This function only applies when all honeycombs are equipped with cages. The **radial blower** is infinitely **variable via a control transformer.**

The frontal honeycomb structure can be supplied with types I-IV cages as required, and can be exchanged quite simply. The HOSCH-filter can be exchanged by removal of the frontal honeycomb structure. If required a removable work top can be fitted in the frontal honeycomb structure.

All parts are made of **stainless steel** (with the exception of the electrical equipment and the filter).

União de Bancos Portugueses - Sá da Bandeira - Porto
Banco Fonsecas & Burnay - Sá da Bandeira - Porto
Banco Português do Atlântico - Gonçalo Cristóvão - Porto
Banco Pinto & Sotto Mayor - Ceuta - Porto
Lloyds Bank International - Av. Aliados - Porto

ventarco

VENTILAÇÃO E AR CONDICIONADO, LIMITADA

Sede: Largo Dr. Tito Fontes, 119 - 4.º A - 4000 Porto - Tels. 313411 - 319567 - 383869 - 383889

TELEX: 26788 VENTAR P

Dep. Tec., Fab., Compras e Armz.: Tv. Monte de S. João, 152/168 - 4200 Porto - Tels. 498282 - 489502

ESTUDOS
PROJECTOS
FABRICO
INSTALAÇÕES

Não foi recepção lugar a dado que mais foi efeito de contrato muito.

À

DIRECÇÃO GERAL DAS CONSTRUÇÕES ESCOLARES NORTE
Rua Julio Dinis 826/4º
4000 PORTO

Sua referência	Sua comunicação de	Nossa referência	Apartado 675 - 4011 Porto-Portugal
		CG/JA/AP	22 Janeiro 1986

ASSUNTO:

27/1/86 Eng. Amaro Vasconcelos Neves

Amigos e Senhores,

Com a presente vimos junto de V.Exªs. fazer referencia à empreitada de Remodelaçãode Rede de Agua e Esgotos nos Serviços de Fisiologia Farmacologia Médica da Faculdade de Medecina da universidade do Porto.

Dado que a referida obra se encontra concluida muito agradeceriamos de V/parte, caso não vejam impedimentos,o favor de nos remeter documento comprovativo da recepção provisória.

Sem outro assunto de momento e agradecendo desde já rápidas noticias subscrevemo-nos com a nossa mais elevada estima e consideração,

MINISTÉRIO DA HABITAÇÃO E OBRAS PÚBLICAS E TRANSPORTES
DIRECÇÃO-GERAL DAS CONSTRUÇÕES ESCOLARES
DIRECÇÃO DAS CONSTRUÇÕES ESCOLARES DO NORTE
ENTRADA 23 JAN. 1986
N.º 33 Proc. DIV

De V.Exªs.
Atentamente,

3/2/86

Ex.mo Aguiar

Nada tenho a opor
à reclamação provisória

3/2/86

Ribeiro da
Silva

Suponho que
pode ser feita
a recepção
queria dizer
alguma
coisa

[illegible]

MINISTERIO DO EQUIPAMENTO SOCIAL
DIRECÇÃO-GERAL DAS CONSTRUÇÕES ESCOLARES
DIRECÇÃO DAS CONSTRUÇÕES ESCOLARES DO NORTE
S. R.

À
VENTARCO - Ventilação e Ar Condicionado,
Lda
Largo Dr. Tito Fontes, 119-4º
4 000 PORTO

-3. JAN. 1986

Sua referência
Sua comunicação de
Nossa referência
Ofício n.º 7 12

Rua Júlio Dinis, 826, 4.º - Telef. 691815/691838
4000 PORTO - Portugal

ASSUNTO: "Obras de remodelação da rede de água e esgotos nos serviços de fisiologia e farmacologia médica da Faculdade de Medicina da U.P."

Levo ao conhecimento de V. Exªs que se encontra em pagamento na secção de finanças junto do Banco de Portugal nesta cidade, a autorização nº 14938 de esc: 1 482 164$ 50, referente à situação nº única, do qual se anexa cópia do respectivo auto de medição.

Com os melhores cumprimentos.

O DIRECTOR DE SERVIÇOS

(Júlio Amaral de Carvalho)

NOTA: - A importância terá de ser recebida impreterivelmente até 31 de Janeiro de 1986.

113124302
R65012114700

MINISTERIO DO EQUIPAMENTO SOCIAL
DIRECÇÃO-GERAL DAS CONSTRUÇÕES ESCOLARES

Direcção de Serviços Regionais de Construções Escolares do Norte

Imposto de Transacções
REGULARIZADO

O INTERESSADO FEZ PROVA DE QUE TEM A SUA SITUAÇÃO CONTRIBUTIVA REGULARIZADA PERANTE A PREVIDÊNCIA.

AUTO DE VISTORIA E MEDIÇÃO DE TRABALHOS

Empreitada Obras de remodelação da rede de água e esgotos nos serviços de Fisiologia e Farmacologia médica da Faculdade de Medicina da U.P.

Única Situação

Aos trinta dias do mês de Novembro mil novecentos e oitenta e cinco

compareceram no local onde estão sendo executados os trabalhos que constituem a empreitada acima designada, adjudicada a VENTARCO - Ventilação e Ar Condicionado, Lda , por proposta autorizada p/desp. de 13.9.85 do SubdirectorGeral; Conta Nº 500296561

por contrato n.º ..... / D. G. C. E. Registo n.º ..... / 8.ª Deleg. de ..... de ..... de 197..

na importância de Esc. 1 489 613$00 visado pelo Tribunal de Contas em .....

o Engº Técnico - Renato Ribeiro da Silva
Representante

e o adjudicatário .....

a fim de, em harmonia com as condições do programa do concurso e condições gerais do respectivo caderno de encargos, procederem ao exame e medição dos trabalhos, tendo verificado que se encontram executadas as quantidades de trabalhos que constam nas folhas de medição de trabalhos anexas rubricadas pelos intervenientes;

CÓDIGO	DESIGNAÇÃO (RESUMO)	Importâncias totais
	Valor dos trabalhos realizados	1 489 613$00

DESCONTOS:

	-$-	
0,5 °/o para garantia	7 448$50	
°/o para C. G. de Aposentações		
		7 448$50
Importância líquida a receber		1 482 164$50

Importa na quantia de Um milhão quatrocentos e oitenta e nove mil seiscentos e treze escudos.

/CM

E nada mais havendo a tratar se lavrou o presente auto que depois de lido e julgado conforme, vai ser assinado pelo funcionário que nele tomou parte e pelo adjudicatário.

O representante da Direcção-Geral .....

O adjudicatário .....

Visto
Em 4 / 12 / 1985
O Director

Declaro: Enviei os selos em 21/10/85

A D. Géni. pediu 6 selos fiscais para a prof. 363. — Ventarco

17.10.85

MINISTÉRIO DO EQUIPAMENTO SOCIAL
DIRECÇÃO-GERAL DAS CONSTRUÇÕES ESCOLARES
S. R DIRECÇÃO DAS CONSTRUÇÕES ESCOLARES DO NORTE

A Firma:
Ventarco-Ventilação e Ar Condicionado, Ldª
Largo Dr. Tito Fontes, 119-4º
4000 PORTO

23. SET. 1985

Sua referência	Sua comunicação de	Nossa referência Ofício n.º 5577	Rua João Dinis, 826, 4.º - Telef. 691815/691838 4000 PORTO - Portugal

ASSUNTO: "Empreitada de Obras de Remodelação da rede de Água e Esgotos nos Serviços de Fiscalização e Farmacologia Médica da Faculdade de Medicina da Universidade do Porto".

Comunica-se a V. Exas. que por despacho de 13 / 9 / 85 de Exmº Sr. Subdirector-Geral da D.G.C.E. foi autorizada a vossa proposta, no valor de Esc.: 1 489 613$00, para execução da (o) empreitada/~~fornecimento~~ em epígrafe.

Com os melhores cumprimentos.

O ENGENHEIRO DIRECTOR,

(Júlio Amaral de Carvalho)

MINISTÉRIO DO EQUIPAMENTO SOCIAL
DIRECÇÃO-GERAL DAS CONSTRUÇÕES ESCOLARES
S. R. DIRECÇÃO DAS CONSTRUÇÕES ESCOLARES DO NORTE

AUTORIZO
Por delegação de Sua Excelência o Secretário de Estado das Obras Públicas
13/9/85
O Subdirector-Geral
A. Lousa Viana

DESPACHO
EXPEDIENTE GERAL
ADJUDICATÁRIA
CONTABILIDADE
TÉCNICO RESPONSÁVEL
CEN 13/07/85
O Director

Engº. T. Ribeiro da Silva

SECÇÃO DE EXPEDIENTE GERAL E ARQUIVO
ENVIADA FOTOCÓPIA
A CN e UC
16/9/85

O Director-Geral
28 8 85
O Director de Serviços

PROPOSTA Nº 363 /CEN

Porto, 5.JUL.1985

Liquidado em 3/12/85

ASSUNTO: "1 13 12 44 01-Empreitada de Obras de Remodelação da rede de Agua e Esgotos nos Serviços de Fiscalização e Farmacologia Médica da Faculdade de Medicina da Universidade do Porto"

—Capº 50 Div.12 C.E11 47 00. 1 489 613$00

Por ser necessário e urgente realizar as obras em epígrafe, elaborou-se o orçamento anexo na importância de Esc;1 379 374$00 que me permito apresentar à apreciação de V.Exª.

Dada a necesidade premente da realização das obras e na persuação que o referido orçamento mereça aprovação,promoveu esta Direcção nos termos da alinea a) do nº 1 do artº 5º do Decreto lei nº 211/79 de 12 de Julho, a abertura de um concurso limitado, em 14,6,85 entre firmas de comprovada idoneidade e capacidade técnica,abaixo mencionadas,para adjudicação da empreitada com o prazo de

12/9/85

90 dias:

-Rost & Janus,Sucurs,Lda
-Nunes Correia-Indústrias Térmicas do Norte,Lda
-Ventarco-Ventilação e Ar Condicionado,Lda

tendo sido recebidas as seguintes propostas:

-Rost & Janus,Sucurs,Lda.....1 584 121$00
-Nunes Correia-Industrias Térmicas do Norte,Lda....1 558 705$00
-Ventarco-Ventalação e Ar condicionado,Lda.....1 489 613$00

Da análise das propostas apresentadas,afigura-se que é de aceitar a proposta da firma Ventarco-Ventilação e Ar condicionado,Lda no valor de Esc:-- 1 489 613$00 porque:

-Oferece o preço mais baixo,embora ligeiramente superior ao preço base,mas que se considera insignificante.
-Obedece ao caderno de Encargos
-Obriga o titular a concluir a empreitada no prazo estipulado.
-Tem demonstrado, noutras obras por si realizadas,possuir qualidade que garantem a boa execução desta.

Tem-se pois, a honra de sugerir a V.Exª que a empreitada seja adjudicada à firma Ventarco-Ventilação e Ar Condicionado,Lda, pela importância de Esc: 1 489 613$00 com dispensa de contrato escrito ao abrigo da disposição legal atrás citada, com as alterações que lhe foram introduzidas pelo Decreto Lei nº 227/85 de 4 de Julho.

A verba de Esc: 1 489 613$00 prevista para o ano em curso tem cabimento nas disponibilidades da rubrica orçamental em referência.

MINISTÉRIO DA HABITAÇÃO E OBRAS PÚBLICAS
DIRECÇÃO-GERAL DAS CONSTRUÇÕES ESCOLARES
DIRECÇÃO DOS SERVIÇOS DE ADMINISTRAÇÃO
REPARTIÇÃO DOS SERVIÇOS ADMINISTRATIVOS
ENTRADA 12 SET. 1985
SECÇÃO EXPEDIENTE GERAL E ARQUIVO
Liv. 3 Fol. 447 N.º 6591
P.º N.º

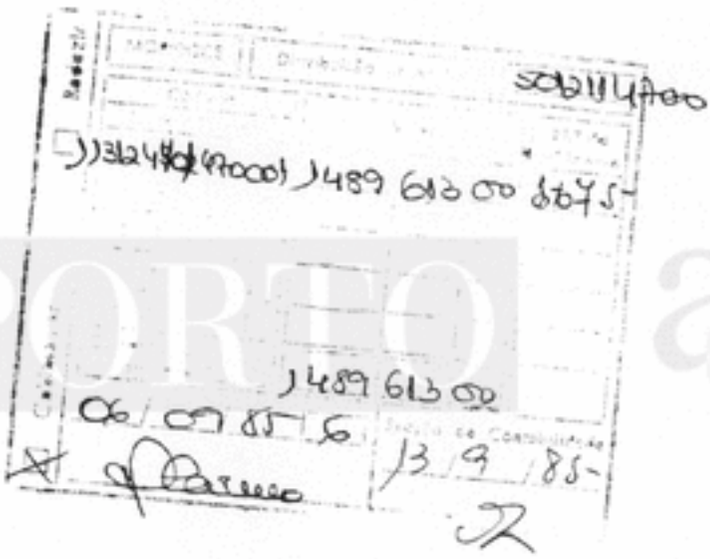
O ENGENHEIRO DIRECTOR

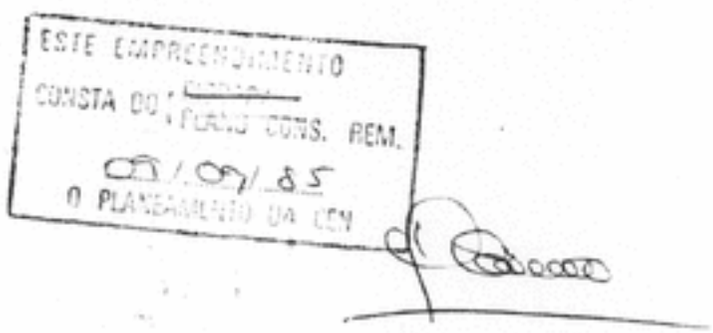
(Júlio Amaral de Carvalho)

E xmo.Senhor
ENG.DIRECTOR GERAL DAS CONSTRUÇÕES ESCOLARES
LISBOA
RS/CR

MINISTÉRIO DA HABITAÇÃO E OBRAS PÚBLICAS
DIRECÇÃO-GERAL DAS CONSTRUÇÕES ESCOLARES
DIRECÇÃO DAS CONSTRUÇÕES ESCOLARES DO NORTE
ENTRADA 17 SET. 1985
N.º Proc.

SECÇÃO DE EXPEDIENTE GERAL E ARQUIVO
ENTRADA 13 SET. 1985





PROPOSTA Nº 363 /CEN Porto, 5.JUL.1985

ASSUNTO: "1 13 12 43 02-Empreitada de Obras de Remodelação da rede de Agua e Esgotos nos Serviços de Fiscalização e Farmacologia Médica da Faculdade de Medicina da Universidade do Porto"

—Cap.º 50 Div.12 . C.E11 47 00. 1 489 613$00

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90 dias:

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-Ventarco-Ventilação e Ar Condicionado,Lda

tendo sido recebidas as seguintes propostas:

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-Nunes Correia-Industrias Térmicas do Norte,Lda....1 558 705$00
-Ventarco-Ventalação e Ar condicionado,Lda.....1 489 613$00

Da análise das propostas apresentadas,afigura-se que é de aceitar a proposta da firma Ventarco-Ventilação e Ar condicionado,Lda no valor de Esc:-- 1 489 613$00 porque:

-Oferece o preço mais baixo,embora ligeiramente superior ao preço base,mas que se considera insignificante.
-Obedece ao caderno de Encargos
-Obriga o titular a concluir a empreitada no prazo estipulado.
-Tem demonstrado, noutras obras por si realizadas,possuir qualidade que garantem a boa execução desta.

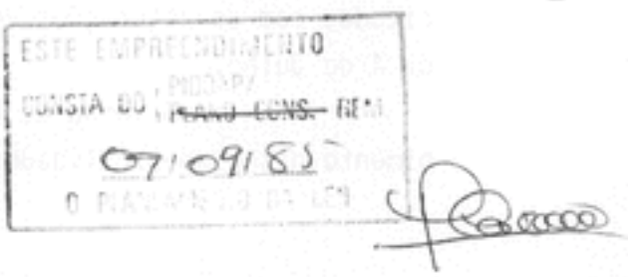
Tem-se pois, a honra de sugerir a V.Exª que a empreitada seja adjudicada à firma Ventarco-Ventilação e Ar Condicionado,Lda, pela importância de Esc: 1 489 613$00 com dispensa de contrato escrito ao abrigo da disposição legal atrás citada, com as alterações que lhe foram introduzidas pelo Decreto Lei nº 227/85 de 4 de Julho.

A verba de Esc: 1 489 613$00 prevista para o ano em curso tem cabimento nas disponibilidades da rubrica orçamental em referência.

O ENGENHEIRO DIRECTOR

(Júlio Amaral de Carvalho)

E xmo.Senhor
ENG.DIRECTOR GERAL DAS CONSTRUÇÕES ESCOLARES
LISBOA
RS/CR



DIRECÇÃO-GERAL DAS CONSTRUÇÕES ESCOLARES

PIDDAC/85

INFORMAÇÃO PARA CONTROLE DO PLANO E ORÇAMENTO

1 - O valor da proposta escalonada para o corrente ano tem cabimento no saldo da rubrica orçamental respectiva de (a) 125 244 442$00 ~~contos~~.

2 - O valor da proposta excede em _____ contos o valor do saldo por cabimentar na rubrica orçamental respectiva (a) _____ contos.
Oferece-se como contrapartida uma redução de (b) _____ contos.

O Director

(a)-Indicar o saldo existente.

(b)-Indicar a empreitada ou fornecimento do mesmo ou de outro empreendimento onde se propõe a redução.

Proj. 363/EN de 05/07/85 de esc. 1489 613$00
Obras de remodelação de rede de água e esgotos dos Serviços de Fiscalização e Farmacologia - Polícia de Seg. Pública de J.P.

MINISTÉRIO DAS OBRAS PÚBLICAS

DIRECÇÃO-GERAL DAS CONSTRUÇÕES ESCOLARES

PIDDAC/85

INFORMAÇÃO PARA CONTROLE DO PLANO E ORÇAMENTO

1 - O valor da proposta escalonada para o corrente ano tem cabimento no saldo da rubrica orçamental respectiva de (a) 166781 243$00 ~~contos~~.

2 - O valor da proposta excede em ______________ contos o valor do saldo por cabimentar na rubrica orçamental respectiva (a) ______________ contos.

Oferece-se como contrapartida uma redução de (b) ______________ contos.

O Director

[signature]

(a)-Indicar o saldo existente.

(b)-Indicar a empreitada ou fornecimento do mesmo ou de outro empreendimento onde se propõe a redução.

Prop 363/SEU de 15/07/86 d orc: 1489.613$00 Obras de remodelação da rede de água quente aos Serviços de Fisiologia e Farmacologia Médica da Faculdade de Medicina do U.P.

União de Bancos Portugueses - Sá da Bandeira - Porto
Banco Fonsecas & Burnay - Sá da Bandeira - Porto
Banco Português do Atlântico - Gonçalo Cristóvão - Porto
Banco Pinto & Sotto Mayor - Ceuta - Porto
Lloyds Bank International - Av. Aliados - Porto

ventarco
VENTILAÇÃO E AR CONDICIONADO, LIMITADA

Sede: Largo Dr. Tito Fontes, 119 - 4.º A - 4000 Porto - Tels. 313411 - 319567 - 383869 - 383889
Dep. Tec., Fab., Compras e Armz.: Tv. Monte de S. João, 152/168 - 4200 Porto - Tels. 498282 - 489502

TELEX: 26788 VENTAR P

04/6/85

A
DIRECÇÃO DAS CONSTRUÇÕES ESCOLARES NORTE
RUA JULIO DINIS, 826-4º
4000 PORTO

ESTUDOS
PROJECTOS
FABRICO
INSTALAÇÕES

Sua referência	Sua comunicação de	Nossa referência	Apartado 675 - 4011 Porto-Portugal
		OR/116/DIV.3/CR	12.JUNHO.1985

ASSUNTO:

P R O P O S T A

VENTARCO - VENTILAÇAO E AR CONDICIONADO, LDA., com sede no Largo Dr. Tito Fontes 119-4º no Porto, titular dos Alvarás de Empreiteiros de Obras Públicas nºs:

9062 - 7ª Subcategoria "Ventilação, Aquecimento e Condicionamento de Ar" da VI Categoria "Instalações Eléctricas e Mecânicas" - Classe 4 - Obras de valor até 100.000.000$00

9063 - 8ª subcategoria - "Equipamentos" da VI Categoria "Instalações Eléctricas e Mecânicas" - Classe 4 - Obras de valor até ESC: 100.000.000$00.

11135 - 9ª Subcategoria "Canalizações e Instalações dos respectivos dispositivos de utilização" da I Categoria - "Construção Civil" - Classe 3 - Obras de valor até 50.000.000$00

11136 - 6ª Subcategoria - "Instalações de Iluminação, Sinalização, etc". da VI Categoria "Instalações Eléctricas e Mecânicas" Classe 4 - Obras de valor até 100.000.000$00.

.../...

Depois de ter tomado conhecimento do objecto da empreitada de "REMODELAÇÃO DA REDE DE AGUA QUENTE NOS SERVIÇOS DE FISIOLOGIA E FARMACOLOGIA MEDICA DA FACULDADE DE MEDICINA DA UNIVERSIDADE DO PORTO, a que se refere o convite datado de 3 de Junho de 1985, obriga-se a executar a referida empreitada, de harmonia com o Caderno de Encargos, pela quantia de ESC:1.489.613$00 (UM MILHÃO, QUATROCENTOS E OITENTA E NOVE MIL SEISCENTOS E TREZE ESCUDOS), conforme a lista de preços unitários apensa a esta proposta e que dela faz parte integrante e no prazo de 90 dias.

Mais declara que renuncia a foro especial e se submete em tudo o que respeitar à execução do seu contrato, ao que se achar prescrito na legislação portuguesa em vigor.

Proto, 12 de Junho de 1985

VENTARCO
PORTO

Designação dos trabalhos	Quantidades	Preços		Importâncias	
		Mão de obra	Materiais	Mão de obra	Materiais
EMPREITADA DE REMODELAÇÃO DA REDE DE AGUA QUENTE NOS SERVIÇOS DE FISIOLOGIA E FARMACOLOGIA MÉDICA, DA FACULDADE DE MEDICINA DA UNIVERSIDADE DO PORTO .					
CAPITULO UNICO					
Artº 1º- Fornecimento e montagem de um termoacumulador eléctrico para reaquecimento da água, c/ a capacidade de 650 lts. construido em chapa de aço com posterior galvanização devidamente isolado e revestido.	1 un.				151.200$00
Artº 2º- Fornecimento e montagem de um electroacelerador de retorno de água quente a instalar junto ao termoacumulador.	1 un.				31.760$00
Artº 3º- Substituição de válvulas de passagem com os diâmetros seguintes:					
Ø 1 1/2"	3 un.		3.290$00		9.870$00
Ø 1"	2 un.		2.080$00		4.160$00
Artº 4º-Idem, idem de válvula de retenção com Ø 1 1/2"	1 un.				2.880$00
ARtº 5º- Ligações eléctricas ou equipamento instalado, incluindo todos os trabalhos e material necessário	1 un				63.720$00

Mod 16 585

Designação dos trabalhos	Quantidades	Preços Mão de obra	Preços Materiais	Importâncias Mão de obra	Importâncias Materiais
Artº 6º- Fornecimento e montagem de tubo de ferro galvanizado da série média DIN 2440, incluindo acessórios roscados:					
Ø 1 1/1"	145,00 ml		1.231$00		178.495$00
Ø 1"	18,00 ml		916$00		16.488$00
Ø 3/4"	36,00 ml		730$00		26.280$00
Artº 7º- Isolamento da tubagem com manta de lã mineral de 30 mm de espessura de 70 kg/m3, revestida a chapa galvanizada nº 22 incluindo pintura.					
Ø 1 1/2"	145,00 ml		1.620$00		234.900$00
Ø 1"	18,00 ml		1.370$00		24.660$00
Artº 8º-Desmontar e remover todo o material existente a substituir, p/ fora da área da Faculdade.	1 un				324.000$00
Artº 9º- Execução de todos os trabalhos de construção civil inerentes à montagem e desmontagem do material de aquecimento incluindo todos os remates e pinturas necessárias.	1 un				367.200$00
Artº 10º-Ensaios hidraulicos e de funcionamento da canalização	un.				54.000$00
					1.489.613$00

Porto, 12 de Junho de 1985

PORTO

Mod.14/BAP

ventarco

VENTILAÇÃO E AR CONDICIONADO, LDA.

Sede - L. Dr. Tito Fontes, 119 - 4.º Apart. 675 4011 PORTO CODEX Telex. VENTAR P
Telefones 313411 - 319567 - 383869 - 383889

Fábrica e Armazéns — Trav. Monte de S. João, 150 e Rua Álvaro Castelões, 489
4200 PORTO Telefones 498282 - 489502

PROPOSTA PARA A EMPREITADA DE "REMODELAÇÃO DA
REDE DE AGUA QUENTE NOS SERVIÇOS DE FISIOLOGIA
E FARMACOLOGIA MEDICA DA FACULDADE DE MEDICINA
DA UNIVERSIDADE DO PORTO".

À

DIRECÇÃO DE SERVIÇOS REGIONAL DE
CONSTRUÇÕES ESCOLARES DO NORTE
RUA JULIO DINIS, 826-4º
4000 PORTO

ROST & JANUS. SUCC.S LDA.

RUA BARÃO DE FORRESTER, 914
4000 PORTO

P R O P O S T A

ROST & JANUS,SUCCS.,LDA., com sede na Rua Barão de Forrester, nº. 914 no PORTO e Filial na Rua D.Pedro V,nº. 21 em LISBOA, titular do alvará de empreiteiros de obras públicas nº.4.128 e classificados na 7ª Subcategoria da VI Categoria e na 2ª Classe (Subclasse A), depois de ter tomado conhecimento do objecto da empreitada de "REMODELAÇÃO DA REDE DE ÀGUA QUENTE NOS SERVIÇOS DE FISIOLOGIA E FARMACOLOGIA MÉDICA DA FACULDADE DE MEDICINA DA UNIVERSIDADE DO PORTO", a que se refere o convite datado de 3 de Junho de 1985, obriga-se a executar a referida empreitada, de harmonia com o Caderno de Encargos, pela quantia de BSC:- 1.584.121$00 (UM MILHÃO QUINHENTOS E OITENTA E QUATRO MIL CENTO E VINTE E UM ESCUDOS) conforme a lista de preços unitários apensa a esta proposta e que dela faz parte integrante, e no prazo de 90 dias.

Mais declara que renúncia a foro especial e se submete, em tudo o que respeitar à execução do seu contrato, ao que se achar prescrito na legislação portuguesa em vigor.

Porto, 14 de Junho de 1985

ROST & JANUS, SUCCS., LDA.

ROST & JANUS, SUCC.ˢ LDA.

RUA BARÃO DE FORRESTER, 914
4000 PORTO

P R O P O S T A

ROST & JANUS,SUCCS.,LDA., com sede na Rua Barão de Forrester, nº. 914 no PORTO e Filial na Rua D.Pedro V,nº. 21 em LISBOA, titular do alvará de empreiteiros de obras públicas nº.4.128 e classificados na 7ª Subcategoria da VI Categoria e na 2ª Classe (Subclasse A), depois de ter tomado conhecimento do objecto da empreitada de "REMODELAÇÃO DA REDE DE ÀGUA QUENTE NOS SERVIÇOS DE FISIOLOGIA E FARMACOLOGIA MÉDICA DA FACULDADE DE MEDICINA DA UNIVERSIDADE DO PORTO", a que se refere o convite datado de 3 de Junho de 1985, obriga-se a executar a referida empreitada, de harmonia com o Caderno de Encargos, pela quantia de ESC:- 1.584.121$00 (UM MILHÃO QUINHENTOS E OITENTA E QUATRO MIL CENTO E VINTE E UM ESCUDOS) conforme a lista de preços unitários apensa a esta proposta e que dela faz parte integrante, e no prazo de 90 dias.

Mais declara que renúncia a foro especial e se submete, em tudo o que respeitar à execução do seu contrato, ao que se achar prescrito na legislação portuguesa em vigor.

Porto, 14 de Junho de 1985

ROST & JANUS, SUCCS., LDA.
Gerente

ROST & JANUS, SUCC.ˢ LDA.
PORTO

ORÇAMENTO

DESIGNAÇÃO	Quant.	PREÇOS		IMPORTÂNCIAS	
		MÃO DE OBRA	MATERIAIS	MÃO DE OBRA	MATERIAIS
EMPREITADA DE REMODELAÇÃO DA REDE DE ÁGUA QUENTE NOS SERVIÇOSDE FISIOLOGIA E FARMACOLOGIA MEDICA, DA FACULDADE DE MEDICINA DA UNIVERSIDADE DO PORTO					
CAPÍTULO ÚNICO					
Artº.1º.- Fornecimento e montagem de um termoacumulador eléctrico para reaquecimento da água, com a capacidade de 650 litros, construído em chapa de aço com posterior galvanização, devidamente isolado e revestido.	1				161.000$00
Artº.2º.- Fornecimento e montagem de um electroacelerador de retorno de água quente a instalar junto ao termoacumulador.	1				31.820$00
Artº.3º.- Substituição de válvulas de passagem com os diâmetros seguintes:					
∅ 1 1/2"	3		3.510$00		10.530$00
∅ 1"	2		2.215$00		4.430$00
Artº.4º.- Idem,idem de válvula de retenção com ∅ 1 1/2"	1				3.060$00
Artº.5º.- Ligações eléctricas ou equipamento instalado,incluindo todos os trabalhos e material necessário.	1				67.850$00
Artº.6º.- Fornecimento e montagem de tubo de ferro galvanizado da série média DIN 2440,incluindo acessórios roscados:					
∅ 1 1/2" ml	145		1.310$00		189.950$00
∅ 1" ml	18		976$00		17.568$00
∅ 3/4" ml	36		778$00		28.008$00

ROST & JANUS, SUCC.ˢ LDA.
PORTO

ORÇAMENTO

DESIGNAÇÃO	Quant.	PREÇOS		IMPORTÂNCIAS	
		MÃO DE OBRA	MATERIAIS	MÃO DE OBRA	MATERIAIS
Artº.7º.- Isolamento da tubagem com manta de lã mineral de 30 mm de espessura 70 Kg/m3, revestida a chapa galvanizada nº.22, incluindo pintura.					
∅ 1 1/2" ml	145		1.725$00		250.125$00
∅ 1" ml	18		1.460$00		26.280$00
Artº.8º.- Desmontar e remover todo material existente a substituir, para fora da àrea da Faculdade.	1				345.000$00
Artº.9º.- Execução de todos os trabalhos de construção civil inerentes à montagem e desmontagem do material de aquecimento incluindo todos os remates e pinturas necessárias.	1				391.000$00
Artº.10º.- Ensaios hidraulicos e de funcionamento da canalização.	1				57.500$00
					ESC:- 1.584.121$00

ROST & JANUS, SUCC.ˢ LDA.
PORTO

Folha N.º 1

ORÇAMENTO

DESIGNAÇÃO	Quant.	PREÇOS		IMPORTÂNCIAS	
		MÃO DE OBRA	MATERIAIS	MÃO DE OBRA	MATERIAIS
EMPREITADA DE REMODELAÇÃO DA REDE DE ÁGUA QUENTE NOS SERVIÇOSDE FISIOLOGIA E FARMACOLOGIA MEDICA, DA FACULDADE DE MEDICINA DA UNIVERSIDADE DO PORTO					
CAPÍTULO ÚNICO					
Artº.1º.- Fornecimento e montagem de um termoacumulador eléctrico para reaquecimento da água, com a capacidade de 650 litros, construído em chapa de aço com posterior galvanização, devidamente isolado e revestido.	1				161.000$00
Artº.2º.- Fornecimento e montagem de um electroacelerador de retorno de água quente a instalar junto ao termoacumulador.	1				31.820$00
Artº.3º.- Substituição de válvulas de passagem com os diâmetros seguintes:					
ø 1 1/2"	3		3.510$00		10.530$00
ø 1"	2		2.215$00		4.430$00
Artº.4º.- Idem,idem de válvula de retenção com ø 1 1/2"	1				3.060$00
Artº.5º.- Ligações eléctricas ou equipamento instalado,incluindo todos os trabalhos e material necessário.	1				67.850$00
Artº.6º.- Fornecimento e montagem de tubo de ferro galvanizado da série média DIN 2440,incluindo acessórios roscados:					
ø 1 1/2" ml	145		1.310$00		189.950$00
ø 1" ml	18		976$00		17.568$00
ø 3/4" ml	36		778$00		28.008$00

ORÇAMENTO

DESIGNAÇÃO	Quant.	PREÇOS		IMPORTÂNCIAS	
		MÃO DE OBRA	MATERIAIS	MÃO DE OBRA	MATERIAIS
Artº.7º.-Isolamento da tubagem com manta de lã mineral de 30 mm de espessura 70 Kg/m3,revestida a chapa galvanizada nº.22, incluindo pintura.					
ø 1 1/2" ml	145		1.725$00		250.125$00
ø 1" ml	18		1.460$00		26.280$00
Artº.8º.-Desmontar e remover todo material existente a substituir, para fora da àrea da Faculdade.	1				345.000$00
Artº.9º.-Execução de todos os trabalhos de construção civil inerentes à montagem e desmontagem do material de aquecimento incluindo todos os remates e pinturas necessárias.	1				391.000$00
Artº.10º.-Ensaios hidraulicos e de funcionamento da canalização.	1				57.500$00
				ESC:-	1.584.121$00

rost & janus, succs. lda.

RUA BARÃO DE FORRESTER, 914
APARTADO 1352
4201 PORTO CODEX

À
DIRECÇÃO-GERAL DAS CONSTRUÇÕES ESCOLARES

PROPOSTA PARA A EMPREITADA DE :

"REMODELAÇÃO DA REDE DE ÀGUA QUENTE NOS SERVIÇOS DE FISIOLOGIA E FARMACOLOGIA MÉDICA DA FACULDADE DE MEDICINA DA UNIVERSIDADE DO PORTO"

NUNES CORREIA - INDÚSTRIAS TÉRMICAS DO NORTE, LDA.

RUA DA FIRMESA, 482 4000 PORTO
TELEFONES 28034 29448
TELEX 26144 NUCOR P

14/6/85

AGENTES DE:

Carrier

PRIMEIRA MARCA MUNDIAL EM AR CONDICIONADO

INSTALADORES DE:

Aquecimento central
Refrigeração
Ar Condicionado
Ventilação
Hidráulica
Mecânica
Contra Incêndios
Instalações Sanitárias
Queimadores de Óleo
Etc

ARMAZENISTAS DE:

Tubos e Acessório
Materiais referentes às suas diversas actividades
Válvulas e Torneiras
Material de Vapor
Purgadores
Redutores de Pressão
Aparelhos de medida
Aparelhos de Controle
Humidificadores
Caldeiras de ar quente
Estufas Industriais
Bombas
Etc

ORÇAMENTO Nº. 2.186

P R O P O S T A

NUNES CORREIA - INDÚSTRIAS TÉRMICAS DO NORTE, LIMITADA, com séde na Rua da Firmeza, nº. 482, no Porto, titular do Alvará de Empreiteiro de Obras Públicas nº. 12.053, da 9ª. Subcategoria, da I Categoria, 3ª. Classe, depois de ter tomado conhecimento do objecto da empreitada de "REMODELAÇÃO DA REDE DE ÁGUA QUENTE NOS SERVIÇOS DE FISIOLOGIA E FARMACOLOGIA MÉDICA DA FACULDADE DE MEDICINA DA UNIVERSIDADE DO PORTO", a que se refere o Convite datado de 3 de Junho de 1985, obriga-se a executar a referida empreitada, de harmonia com o Caderno de Encargos, pela quantia de:

Esc.1.558.705$00= (UM MILHÃO QUINHENTOS E CINQUENTA E OITO MIL SETECENTOS E CINCO ESCUDOS),

conforme a lista de preços unitários apensa a esta proposta e que dela faz parte integrante, no prazo de 90 dias.

Mais declara que renuncia a foro especial e se submete, em tudo o que respeitar à execução do seu contrato, ao que se achar prescrito na legislação portuguesa em vigor.

Porto, 12 de Junho de 1985

NUNES CORREIA-Indústrias Térmicas do Norte, Lda.
A GERÊNCIA

Nunes Correia-Indústrias Térmicas do Norte, Ldª.
RUA FIRMEZA, 482
TELEFONE 28034
— PORTO —

MF/PM
544-85

mod 1 285

DESIGNAÇÃO DOS TRABALHOS	QUANTIDADES	Preço unitário	TOTAL
EMPREITADA DE REMODELAÇÃO DA REDE DE AGUA QUENTE NOS SERVIÇOS DE FISIOLOGIA E FARMACOLOGIA MEDICA, DA FACULDADE DE MEDICINA DA UNIVERSIDADE DO PORTO			19/6/80
CAPITULO UNICO			
Art.1º.- Fornecimento e montagem de um termoacumulador eléctrico para reaquecimento da água, com a capacidade de 650 litros, construído em chapa de aço com posterior galvanização, devidamente isolado e revestido.	1 un.		158.200$00
Art.2º.-Fornecimento e montagem de um electroacelerador de retorno de água quente a instalar junto ao termoacumulador.	1 un.		33.230$00
Art.3º.-Substituição de válvulas de passagem com os diâmetros seguintes:			
Ø 1 1/2"	3 un.	3.450$00	10.350$00
Ø 1"	2 un.	2.180$00	4.360$00
Art.4º.-Idem, idem de válvula de retenção com Ø 1 1/2".	1 un.		3.010$00
Art.5º.-Ligações eléctricas ou equipamento instalado, incluindo todos os trabalhos e material necessário.	1 un.		66.670$00
Art.6º.-Fornecimento e montagem de tubo de ferro galvanizado da série			

DESIGNAÇÃO DOS TRABALHOS	QUANTIDADES	Preço unitário	TOTAL
média DIN 2440, incluindo acessórios roscados:			
Ø 1 1/1"	145,00 ml	1.288$00	186.760$00
Ø 1".	18,00 ml	960$00	17.280$00
Ø 3/4"	36,00 ml	765$00	27.540$00
Art.7º.-Isolamento da tubagem com manta de lã mineral de 30 mm de espessura 70 Kg/m3, revestida a chapa galvanizada nº. 22, incluindo pintura.			
Ø 1 1/2"	145,00 ml	1.695$00	245.775$00
Ø 1"	18,00 ml	1.435$00	25.830$00
Art.8º.-Desmontar e remover todo material existente a substituir, para fora da área da Faculdade.	1 un.		339.000$00
Art.9º.-Execução de todos os trabalhos de construção civil inerentes à montagem e desmontagem do material de aquecimento incluindo todos os remates e pinturas necessárias.	1 un.		384.200$00
Art.10º.-Ensaios hidráulicos e de funcionamento da canalização.	1 un.		56.500$00
		TOTAL ESC.	1.558.705$00

Porto, 31 de Maio de 1985

Nunes Correia-Indústrias Térmicas do Norte, Lda.
RUA FIRMEZA, 482
TELEFONE 28034
— PORTO —

NUNES CORREIA-Indústrias Térmicas do Norte, Lda.
A GERÊNCIA

Nunes Correia - Indústrias Térmicas do Norte, Lda.

AQUECIMENTO — AR CONDICIONADO — VENTILAÇÃO — REFRIGERAÇÃO — SANITÁRIAS — ELECTRICIDADE

RUA FIRMEZA, 482 4000 PORTO

TELEFONES 28034 / 29448

PROPOSTA PARA A EMPREITADA DE "REMODELAÇÃO DA REDE DE AGUA QUENTE NOS SERVIÇOS DE FISIOLOGIA E FARMACOLOGIA MÉDICA DA FACULDADE DE MEDICINA DA UNIVERSIDADE DO PORTO".

- -

DIRECÇÃO DE SERVIÇOS REGIONAL DE
CONSTRUÇÕES ESCOLARES DO NORTE
Rua Júlio Dinis, 826-4º
4000 P O R T O

Ministério da Habitação, Obras Públicas e Transportes

DIRECÇÃO-GERAL DAS CONSTRUÇÕES ESCOLARES

DIRECÇÃO DAS CONSTRUÇÕES ESCOLARES DO NORTE

EMPREITADA DE REMODELAÇÃO DA REDE DE AGUA QUENTE NOS SERVIÇOS DE FISIOLOGIA E FARMACOLOGIA MEDICA, DA FACULDADE DE MEDICINA DA UNIVERSIDADE DO PORTO

MEMORIA DESCRITIVA E JUSTIFICATIVA

Refere-se o orçamento anexo, aos trabalhos a realizar nos sectores de Farmacologia e Fisiologia Médica e, referem-se à substituição da rede de distribuição de água quente naqueles Serviços, totalmente obstruída e junto da Assessoria já podre, e essencialmente constam do seguinte:

- Fornecimento e assentamento de um termoacumulador eléctrico;
- Fornecimento e montagem de um electroacelerador de retorno;
- Substituição de válvulas de passagem e retenção;
- Fornecimento e montagem de tubos de ferro galvanizado nos diâmetros de 1 1/2", 1" e 3/4".
- Isolamento de toda a tubagem montada, com manta de lã de vidro mineral de 30 mm de espessura, revestida a chapa galvanizada nº. 22 devidamente pintada;
- Desmontar e remover todo o material existente e irrecuperável para fora da área da Faculdade.

Importam estes trabalhos no montante de esc.: 1 379 374$00 (um milhão, trezentos e setenta e nove mil, trezentos e setenta e quatro escudos)

Porto, 31 de Maio de 1985

O ENGENHEIRO TECNICO PRINCIPAL,

(Renato Ribeiro da Silva)

VISTO
em 5 / 7 / 1985
O ENG.º DIRECTOR

RS/MV

EMPREITADA DE REMODELAÇÃO DA REDE DE ÁGUA QUENTE NOS SERVIÇOS DE FISIOLOGIA E FARMACOLOGIA MÉDICA, DA FACULDADE DE MEDICINA DA UNIVERSIDADE DO PORTO

CADERNO DE ENCARGOS

Art.1º.- Definição da empreitada

A presente empreitada diz respeito às obras de remodelação da rede de água quente a levar a efeito na ~~Escola~~ Faculdade de Medicina da U.P..
Os trabalhos serão executados de acordo com as peças escritas e patentes no orçamento do concurso, bem como a de alguns pormenores que porventura haja necessidade de se fornecer se algum dos concorrentes ou posteriormente o adjudicatário o exigirem para o esclarecimento de dúvidas. O prazo de execução é de 90 dias.

Art.2º.- Os trabalhos serão por medição. O concorrente obriga-se a apresentar com a sua proposta a relação dos preços unitários que serviram de base à sua elaboração, incluindo a quantidade de trabalhos e as importâncias parciais e totais.
Pelos referidos preços, serão pagos os respectivos trabalhos realizados.

Art.3º.- O adjudicatário obriga-se a pagar à entidade fornecedora a água consumida, pelo valor da factura acrescida dos encargos usuais para o que terá de instalar um contador diferencial.

Art.4º.- O adjudicatário é responsável pelos prejuízos e danos que eventualmente venha a causar no edifício ou a terceiros obrigando-se a substituir e a refazer as partes danificadas.

Art.5º.- Os trabalhos deverão ser conduzidos por forma a não prejudicarem o normal funcionamento dos serviços da Escola, cumprindo um programa de trabalhos a apresentar pelo adjudicatário após prévia reunião no local da obra, com a Fiscalização e o Conselho Directivo da Escola, para definição de prioridades e escalonamento em tempo da execução da mesma.

Em cada espaço de aula e de circulação, ou por sectores do edifício, os trabalhos serão realizados de forma contínua, sem interrupção na intervenção das diversas artes, devendo o citado programa prever o correspondente período de intervenção em função do prazo da empreitada.

Art.6º.- Todos os trabalhos terão de ser executados dentro das boas normas da construção; os materiais a aplicar serão de 1ª. qualidade; terá de ser feita limpeza nas zonas que, por circunstâncias de trabalho, fiquem sujas.
Devem ser executados em obediência aos regulamentos e normas de construção em vigor nomeadamente as prescritas no Decreto-Lei nº: 41 821 (Regulamento de Segurança do Trabalho).

Art.7º.- A demolição a que alguns artigos se referem deve ser executada com o máximo cuidado de modo a não prejudicar o que se mantém e ainda a procurar ao máximo aproveitar os materiais demolidos.

Art.8º.- Todos os entulhos provenientes das demolições e das restantes obras serão retirados pelo adjudicatário da área do edifício sem direito a qualquer indemnização pela realização do trabalho.

Art.9º.- O adjudicatário fica obrigado a cumprir a legislação em vigor no que diz respeito a salários mínimos.

Art.10º.-A modalidade de revisão de preços prevista neste caderno de encargos é a preconizada no art. 3º. do Decreto-Lei nº. 273-B/75 de 3 de Junho, com as alterações que lhe foram introduzidas pelo Decreto-Lei nº. 540/75 de 27 de Setembro.

Art.11º.-Disposição final

Esta empreitada é regulada pelo Decreto-Lei nº. 48 871 de 19.2.69, em que define o regime jurídico para as empreitadas de obras públicas.

Porto, 31 de Maio de 1985

O ENGENHEIRO TÉCNICO PRINCIPAL,

(Renato Ribeiro da Silva)

VISTO
em 5/7/1985
O ENG.º DIRECTOR

RS/MV

DESIGNAÇÃO DOS TRABALHOS	QUANTIDADES	PREÇOS UNITÁRIOS	IMPORTANCIAS
EMPREITADA DE REMODELAÇÃO DA REDE DE AGUA QUENTE NOS SERVIÇOS DE FISIOLOGIA E FARMACOLOGIA MEDICA, DA FACULDADE DE MEDICINA DA UNIVERSIDADE DO PORTO			
CAPITULO ÚNICO			
Art.1º.- Fornecimento e montagem de um termoacumulador eléctrico para reaquecimento da água, com a capacidade de 650 litros, construído em chapa de aço com posterior galvanização, devidamente isolado e revestido.	1 un.	140 000$00	140 000$00
Art.2º.-Fornecimento e montagem de um electroacelerador de retorno de água quente a instalar junto ao termoacumulador.	1 un.	29 400$00	29 400$00
Art.3º.-Substituição de válvulas de passagem com os diâmetros seguintes:			
∅ 1 1/2"	3 un.	3 050$00	9 150$00
∅ 1"	2 un.	1 925$00	3 850$00
Art.4º.-Idem, idem de válvula de retenção com ∅ 1 1/2".	1 un.	2 660$00	2 660$00
Art.5º.-Ligações eléctricas ou equipamento instalado, incluindo todos os trabalhos e material necessário.	1 un.	59 000$00	59 000$00
Art.6º.-Fornecimento e montagem de tubo de ferro galvanizado da série			

DESIGNAÇÃO DOS TRABALHOS	QUANTIDADES	PREÇOS UNITÁRIOS	IMPORTÂNCIAS
média DIN 2440, incluindo acessórios roscados:			
Ø 1 1/1"	145,00 ml	1 140$00	165 300$00
Ø 1"	18,00 ml	849$00	15 282$00
Ø 3/4"	36,00 ml	677$00	24 372$00
Art.7º.-Isolamento da tubagem com manta de lã mineral de 30 mm de espessura 70 Kg/m3, revestida a chapa galvanizada nº. 22, incluindo pintura.			
Ø 1 1/2"	145,00 ml	1 500$00	217 500$00
Ø 1"	18,00 ml	1 270$00	22 860$00
Art.8º.-Desmontar e remover todo material existente a substituir, para fora da área da Faculdade.	1 un.	300 000$00	300 000$00
Art.9º.-Execução de todos os trabalhos de construção civil inerentes à montagem e desmontagem do material de aquecimento incluindo todos os remates e pinturas necessárias.	1 un.	340 000$00	340 000$00
Art.10º.-Ensaios hidráulicos e de funcionamento da canalização.	1 un.	50 000$00	50 000$00
			1 379 374$00

Porto, 31 de Maio de 1985

O ENGENHEIRO TECNICO PRINCIPAL,

(Renato Ribeiro da Silva)

VISTO
em 5/7/1985
O ENG.º DIRECTOR

RS/MV

S. R.

MINISTÉRIO DA EDUCAÇÃO E CIÊNCIA

DIRECÇÃO-GERAL DO ENSINO BÁSICO

ESCOLA PREPARATÓRIA DE FELGUEIRAS – 249

R. Rebelo de Carvalho – Telef. 922146

4610 FELGUEIRAS

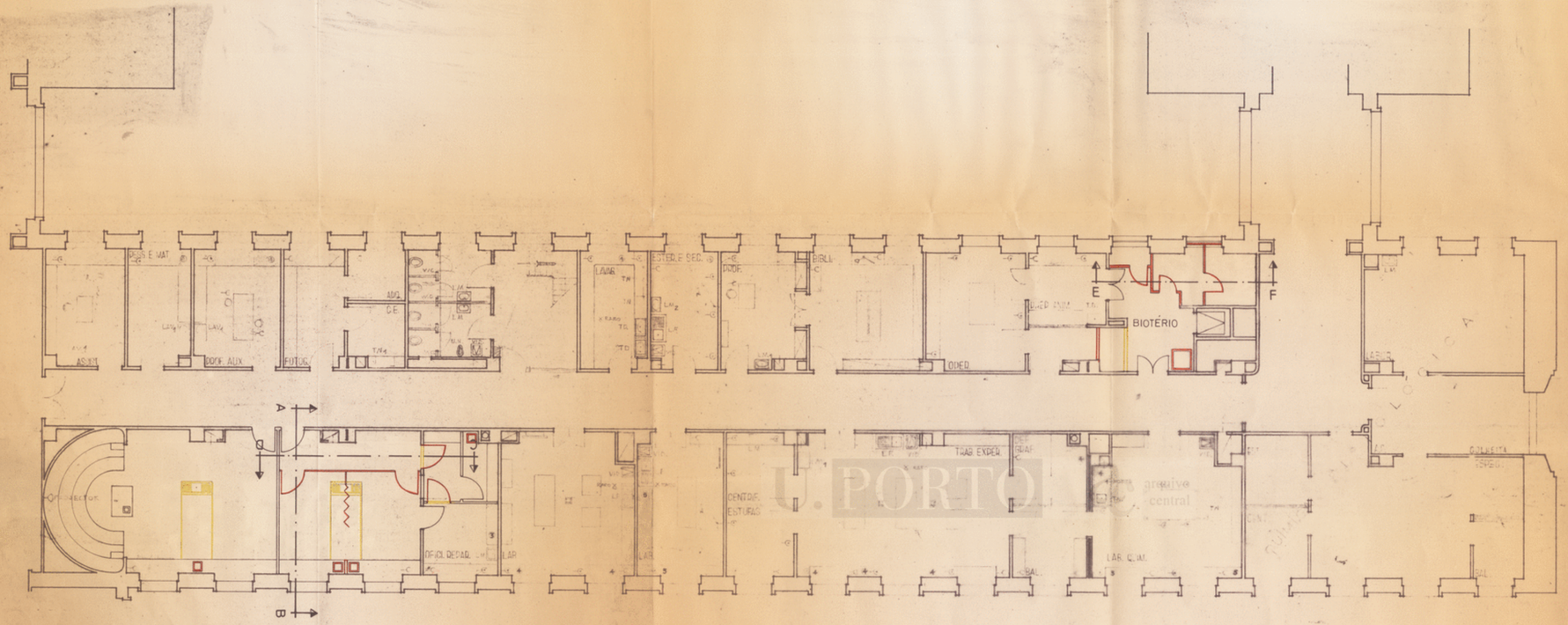
D E C L A R A Ç Ã O

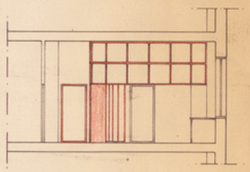
O Conselho Directivo desta Escola declara para os efeitos julgados convenientes que depois das reparações das deficiências verificadas e comunicadas ao senhor Neto (fiscal da parte civil), nos meses de Inverno, neste momento não há deficiências de vulto na parte civil da construção.

FELGUEIRAS E ESCOLA PREPARATORIA EM 14 DE JUNHO DE 1985.

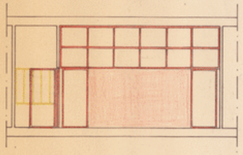
O PRESIDENTE DO CONSELHO DIRECTIVO,

(FRANCISCO ANTONIO DA CUNHA FERREIRA ALVES)

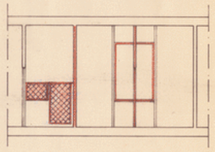




CORTE A-B



CORTE C-D



CORTE E-F

AC-1050-1

PROJECTOU	datas	SUBSTITUI	N.º MATRIZ
DESENHOU A. Gomes	DESENHO 11/3/86	SUBSTITUIDO	N.º PROCESSO
VISTO	PROJECTO	ALTERADO	N.º ARQUIVO
VISTO-ENG.º DIRECTOR			

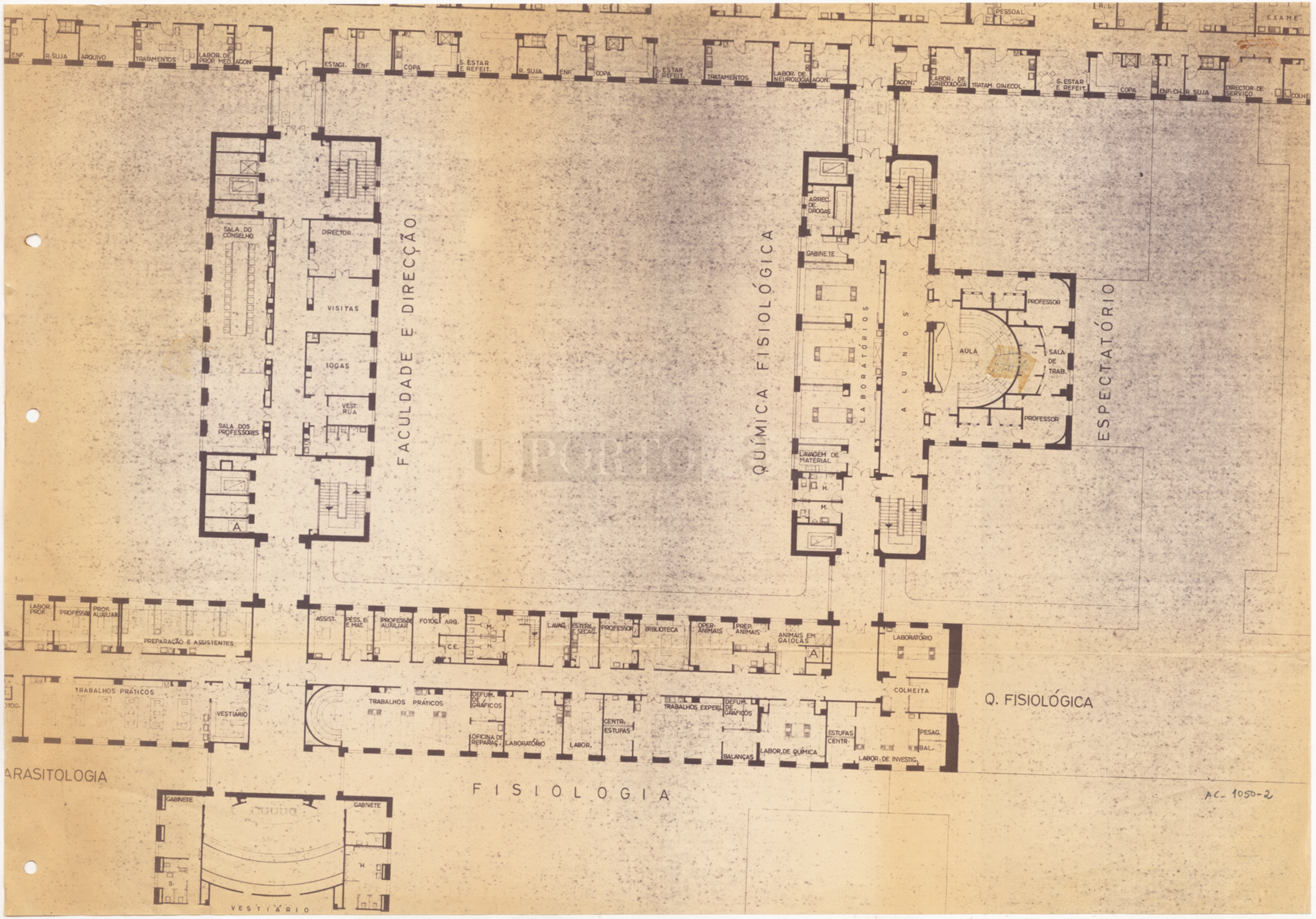
M.O.P. DIRECÇÃO GERAL DAS CONSTRUÇÕES ESCOLARES
Direcção das Construções Escolares do Norte

UNIVERSIDADE DO PORTO
FACULDADE DE MEDICINA

DISTRITO
CONCELHO
FREGUESIA
NÚCLEO

escala 1/100

REMODELAÇÃO DO SECTOR DA FISIOLOGIA


ENF.
R. SUJA
ARQUIVO
TRATAMENTOS
LABOR. DE PROP. MED. AGON.
ESTAGI.
ENF.
COPA
S. ESTAR E REFEIT.
R. SUJA
ENF.
COPA
S. ESTAR E REFEIT.
TRATAMENTOS
LABOR. DE NEUROLOGIA
AGON.
PESSOAL
AGON.
LABOR. DE GINECOLOGIA
TRATAM. GINECOL.
S. ESTAR E REFEIT.
COPA
ENF. CH.
R. SUJA
DIRECTOR DE SERVIÇO
COLHE
EXAME
SALA DO CONSELHO
DIRECTOR
VISITAS
IOGAS
VEST. RUA
SALA DOS PROFESSORES
A
FACULDADE E DIRECÇÃO
ARREC. DE DROGAS
GABINETE
LABORATÓRIOS
ALUNOS
AULA
PROFESSOR
SALA DE TRAB.
PROFESSOR
ESPECTATÓRIO
LAVAGEM DE MATERIAL
H.
M.
QUÍMICA FISIOLÓGICA
LABOR. PROF.
PROFESSOR
PROF. AUXILIAR
PREPARAÇÃO E ASSISTENTES
ASSIST.
PESS. E MAT.
PROFESSOR AUXILIAR
FOTOG.
ARG.
C.E.
LAVAG.
ESTERIL. E SECAG.
PROFESSOR
BIBLIOTECA
OPER. ANIMAIS
PREP. ANIMAIS
ANIMAIS EM GAIOLAS
A
LABORATÓRIO
COLHEITA
Q. FISIOLÓGICA
TRABALHOS PRÁTICOS
VESTIÁRIO
TRABALHOS PRÁTICOS
DEFUM. DE GRÁFICOS
OFICINA DE REPARAÇ.
LABORATÓRIO
LABOR.
CENTR. ESTUFAS
TRABALHOS EXPERI.
DEFUM. DE GRÁFICOS
BALANÇAS
LABOR. DE QUÍMICA
ESTUFAS CENTR.
PESAG.
BAL.
LABOR. DE INVESTIG.
ARASITOLOGIA
FISIOLOGIA
GABINETE
GABINETE
H
S.
VESTIÁRIO
AC-1050-2

AC-950-2

Pé direito ≃ 3,45 m