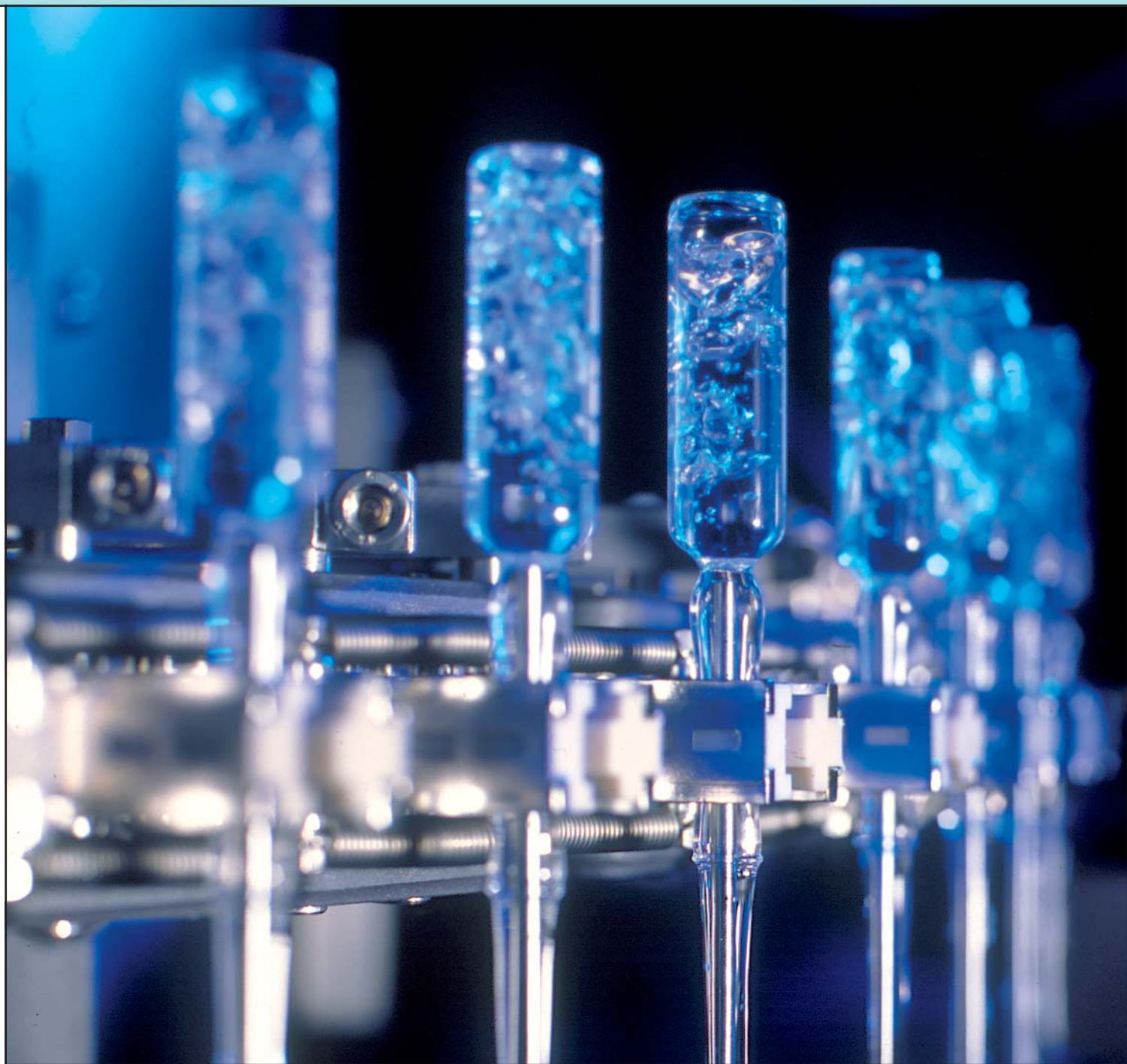




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Universal washing machines RRN/RRU



RRN washing machines



RRN/RRU series:

- Application-suited execution for ampoules, vials, dental cartridges and syringe barrels with a comprehensive size range.
- With or without ultrasonic cleaning.
- Fast size change.
- Nominal output according to number of filling points and container size from 66 - 600 minute⁻¹.
- Low-noise and gentle container singularization.
- Container infeed and outfeed executed at an angle or inline.

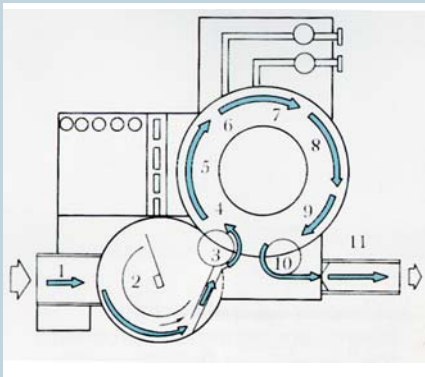
RRN washing machines:

Reliable cleaning of self-stable containers, loading via rotary table, large size and output range.

RRN machines are designed for cleaning self-stable containers for which ultrasonic cleaning is not necessary. Feed is effected via a charging plate with a diameter of up to 1000 mm. In this case the containers are singularized into individual tracks and fed via an infeed star to the conveying grippers of the cleaning star. Immersion of needles down to the container bottom – optimum cleaning due to shower-head spraying needles for vials.

RRN principle of functioning:

- 1 Infeed table
- 2 Infeed plate
- 3 Infeed starwheel
- 4 Transfer of the containers via prism grippers and pivoting through 180°
- 5-8 Washing stations
- 9 Pivoting back
- 10 Outfeed starwheel
- 11 Traying off



RRN with infeed plate

RRN washing stations:

- Inner and outer cleaning by spraying with recirculated water
- Blowing-out with compressed air
- Spraying with fresh water
- Blowing-out with compressed air
- Siliconizing (additional unit)



RRU ultrasonic washing machines

For every container type the intensive and absolutely reliable cleaning process.

Ultrasonic cleaning process:

Ultrasonic cleaning is recommendable for specific containers, this being conditional on the process.

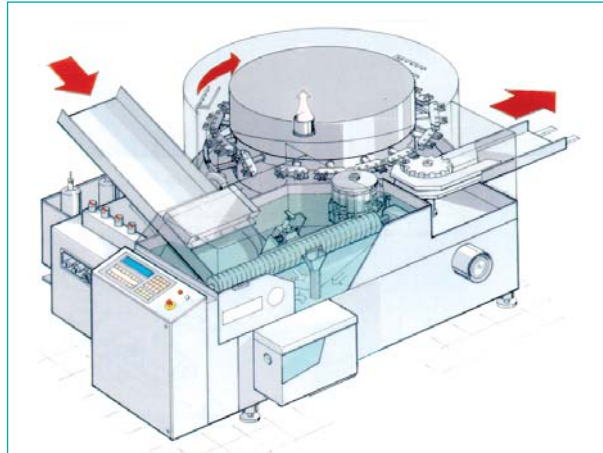
- Container loading directly from the pack via an inclined infeed magazine or a conveyor belt (additional unit).
- Following inundation the tightly compacted containers are guided via an ultrasonic transducer plate and are exposed to sonic waves from below. Any particles present on the inner walls are thereby released.
- Container transport and singularization is effected by a continuous motion feed scroll, which transfers the containers into the rotary gripper transport system.

For the benefit of reliable and economical production:

- Easy cleaning
- Higher cleaning quality due to ultrasonic preprocessing
- Hermetically sealed separation of drive and washing section
- All media-conducting parts made of 316L stainless steel
- GMP-suited pipework with consistent surface quality
- Spraying range with inclined trough base for complete draining of residual water
- Low-noise and gentle container singularization
- Save and precise conveyance
- Engineered for low wear
- High-quality surface in the washing section.



RRU with inclined infeed magazine



RRU ultrasonic washing machine



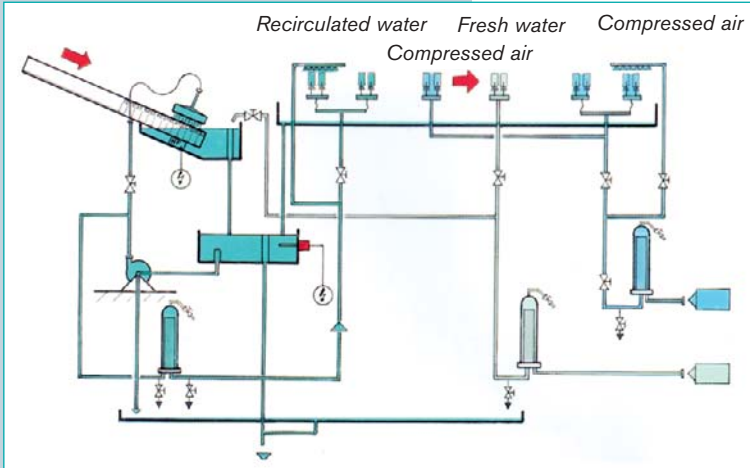
The cleaning process

Standard spraying schematic, ultrasonic washing machine

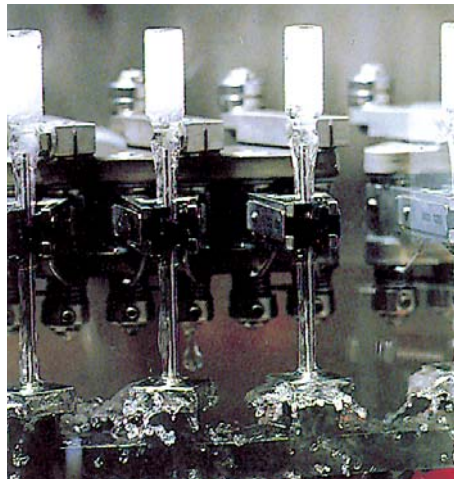
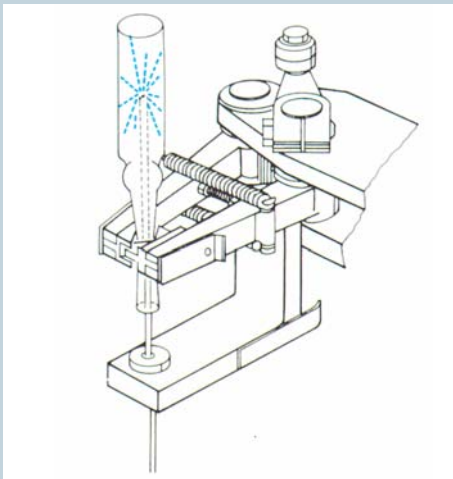
The cleaning process:
A proven system for intensive and pharmaceutical-suited cleaning.

For the benefit of pharmaceutical-suited, economical production:

- Highest cleaning quality
- Execution with number of cleaning stations according to output and product-related cleaning process
- Washing process is validatable
- Gentle container singularization with continuous motion feed scroll in the ultrasonic bath (RRU)
- Through-conveyance by means of continuously revolving gripper turret
- Containers picked up by grippers
- Uniform and precise alignment of spraying needles with containers
- Containers precleaned inside and outside with recirculated water
- Blowing-out with compressed air
- Cleaning with fresh water
- Blowing-out with compressed air
- Siliconizing, if required (additional unit)



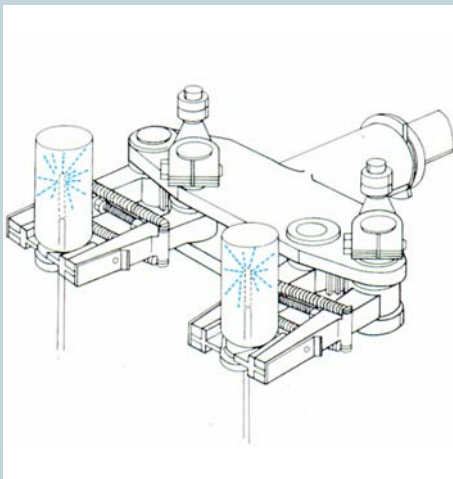
Needle centering for dependable immersion of the spray needles into ampoules (additional device).



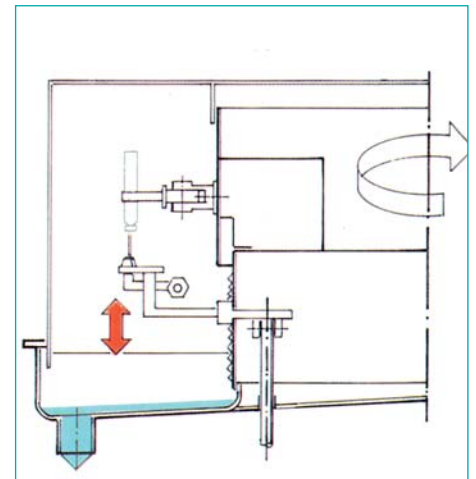
Pressure indicator



Transport gripper for vials



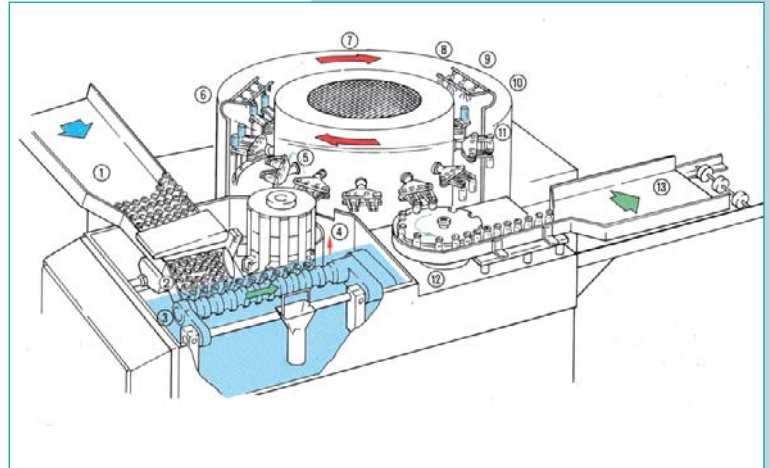
Spraying range with inclined trough base for complete draining of residual water



The revolving gripper transport system

RRU function principles:

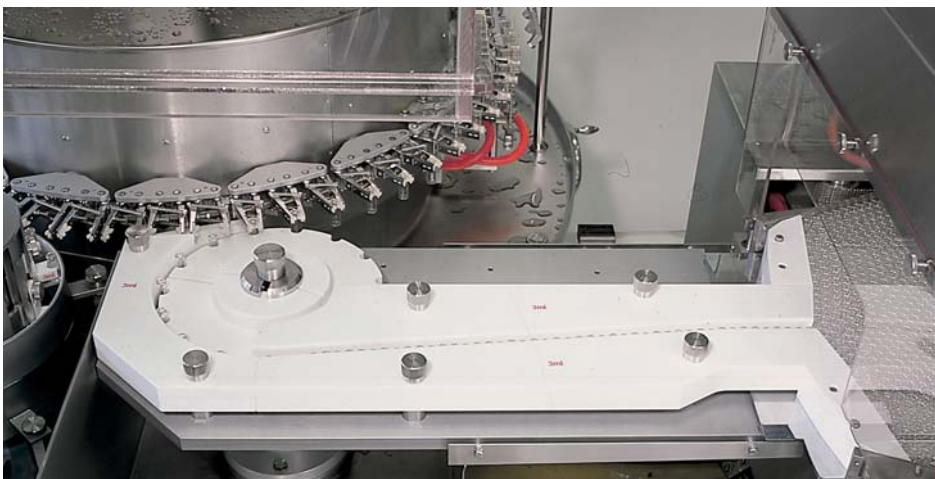
- 1 Inclined magazine
- 2 Ultrasonic crystal plate
- 3 Feed scroll
- 4 Transfer elevator
- 5 Container transfer via transport grippers
- 6-10 Washing stations
- 11 Pivoting back the containers through 80°
- 12 Outfeed starwheel
- 13 Traying off or transfer to downstream sterilizing tunnel



Revolving gripper transport system



Transfer from the transport grippers into the outfeed system



RRU 3123 – Washing machine for cartridges



Machine structure

- Container loading via an inclined infeed magazine or a conveyor belt (additional unit)
- Gentle singularization with continuous motion rotary feed scroll in the ultrasonic bath (RRU)
- Through-conveyance by means of continuously revolving gripper turret
- Containers picked up by grippers
- Uniform and precise alignment of spraying needles with containers
- Containers precleaned inside and outside with recirculated water
- Blowing-out with compressed air
- Cleaning with fresh water
- Siliconizing by fogging with two-component nozzle (additional unit)
- Blowing-out with compressed air
- Container discharge via toothed belt (additional unit).

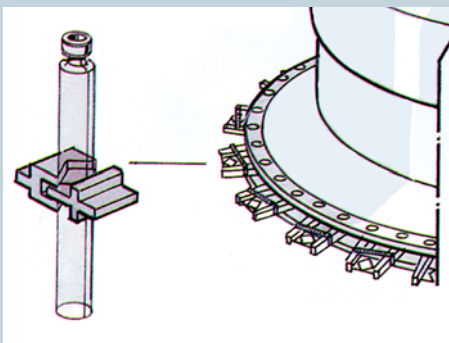
Cleaning stations



Cartridges loaded into the conveying system



Safe gripper transfer via grippers



RRN – washing machine for syringe barrels

Syringe barrels – detraying, infeed, washing, siliconizing and placing into pucks for further processing.



Inserting the syringe barrel into the puck (additional device)



Syringe barrels are thoroughly cleaned inside and outside (jetting needles immerse into the syringe body)



Syringe barrel compact line: Detraying of syringe barrels, cleaning, sterilizing, filling, closing, traying-off



Additional devices

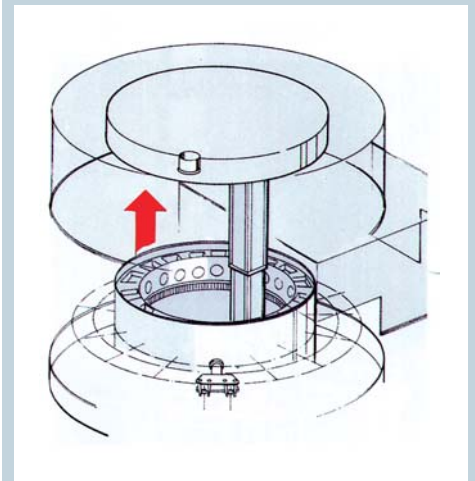
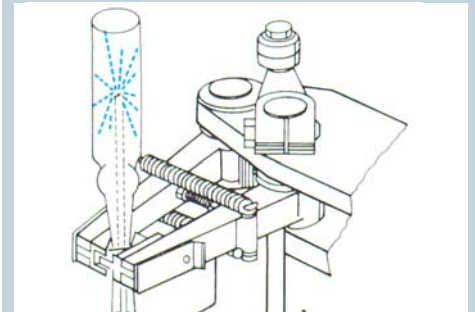
Additional devices:

- Pneumatic cover guard lifting device, due to which operation by 1 person is possible
- Intermittent fresh-water spraying for the purpose of saving water
- Intermittent blowing-out for purpose of saving compressed air
- Needle centering for dependable immersion of the spray needles when processing ampoules
- Siliconizing station for inner siliconization
- Vapour extraction system
- Drainage tap for taking microbiological water samples
- Operability check for the ultrasonic generator
- Pressure monitoring of the spraying stations
- Electric flow heater for water supplied onsite.
- Preliminary filter and fine filter devices for the cleaning media
- Pressure boosting pump for water supplied onsite.

Pneumatic cover guard lifting device



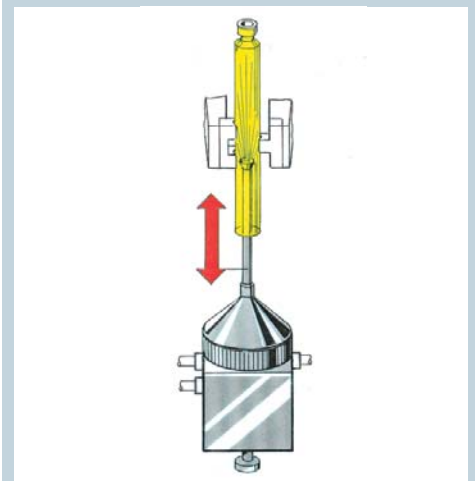
Needle centering in case of ampoule processing



Standard-filter unit



Siliconizing station



Additional devices

Sizeparts

Traying off the containers via a conveyor belt



Container discharge via toothed belt as transfer to the sterilizing tunnel



Transfer to one downstream sterilizing tunnel



Recirculating pump station



Recirculating pump station

Container sizepart set complete (RRN)



Sizeparts for discharge via toothed belt



Sizeparts

Additional devices:

- Inclined infeed belt
- Container discharge via toothed belt
- Pump recirculation station for supply of the spray stations, with heated pump-recirculated water, considerably reducing the water consumption.
The container is integrated into the machine, being easy to access and clean.
- Transfer to one downstream sterilizing tunnel (compact line).

Overview machine series

Washing machine	Max. container-Ø	Max. container height	Max. throughput/h
RRN 2010	78	180	4000
RRN 2020	52	110	8000
RRN 3023	95	230	6000
RRN 3043	52	110	12000
RRN 3044	66	140	12000
RRN 3063	32	65	18000
RRN 3064	43	75	18000
RRN 3084	32	75	24000
RRU 2020	52	128	8000
RRU 3043	52	128	12000
RRU 3044	52	145	12000
RRU 3063	32	85	18000
RRU 3064	43	145	18000
RRU 3084	30	145	24000
RRU 3103	14	100	30000
RRU 3123	11	100	36000

All dimensions in mm

Subject to technical modifications.

The illustrations and drawings contained in this leaflet are intended for general information only. For definite specifications and data please ask for our quotation.



BOSCH

Robert Bosch GmbH
Geschäftsbereich Verpackungstechnik
Produktbereich Pharma flüssig
Blaufelder Straße 45
D-74564 Crailsheim

Postfach 14 54
D-74554 Crailsheim

Telephone +49 79 51 40 2-1
Fax +49 79 51 40 2-2 58
E-mail: vt@boschpackaging.com
Internet: <http://www.bosch.de/vm>

Robert Bosch Ltda.
Tecnologia de Embalagem
Rua Dr. Rubens Gomes Bueno, 478
04730-901 São Paulo-SP/Brasil
Telephone ++55 11 5547 5709
++55 11 5547 5831
Fax ++55 11 5547 5906
<http://www.bosch.de/vm>
E-mail: vtbr@boschpackaging.com

Bosch Packaging Technology K.K.
Hatchobori NF Bldg., 4F
2-21-6, Hatchobori
Chuo-ku
Tokyo 104 0032
Japan
Telephone +81 3 3206 2821
Fax +81 3 3206 2822
E-mail: vtjp@boschpackaging.com

Bosch Packaging Technology NA
Pharmaceutical
8700 Wyoming Ave. N
Minneapolis, MN 55445-1836
USA
Telephone +1 763 424 4700
Fax +1 763 493 6711
E-mail: pharm-na@boschpackaging.com
Internet: <http://www.boschpackaging.com>