



A Division of TBAS Inc.

hoschung

**WINTER ROAD
MAINTENANCE EQUIPMENT**

TECHNOLOGY DRIVEN ROAD MAINTENANCE EQUIPMENT

OPTIWET - Ultimate wet/dry/mix material distribution

VPAD - Multi-functional user control system

THERMOMAT - On-board conditions monitoring

SPREADERS - Eight models serving every environment and industry

JETBROOM - Complete surface maintenance

SNOW BOOSTER - Powerful and compact

GFS - Active road weather warning system

BORRMA-WEB - GPS road management software system

FAST/MICRO-FAST - Fixed automated spray technology

**TECHNOLOGY THAT MAXIMIZES PERFORMANCE,
IMPROVES SAFETY AND SAVES MONEY.**



Spread pattern monitored on display



Due to its modular design, the **Vpad** stands for high flexibility with or without snowplow control unit attached. Display available with graphic or linear design, with or without voice input and output. Control panel as a single compact unit or separate as keyboard and display. Always corresponding to service requirements.



Complex functions, easily controllable - a target which has been consequently achieved by Vpad. Due to its ergonomic design and acoustic feedback of set values it is almost possible to work with eyes shut make operator stress and safety a priority.

GPS GSM SDM
SMS



During operation, the **ThermoMAT** measures continuously (several times per second) the road surface temperature.

- | | | |
|---|---|--|
| <p>Economic efficiency</p> <ul style="list-style-type: none"> → Long term studies of ThermoMAT use have shown a reduction potential for thawing agents of up to 30% with an average of 20%. → The high savings potential results in shortest amortization times for ThermoMAT. | <p>Ecology</p> <ul style="list-style-type: none"> → Due to optimized spreading densities resulting in lowered thawing agent use road waste water and roadside green are discharged. Salt resources are preserved. | <p>Security</p> <ul style="list-style-type: none"> → By application of a "secured spreading density" traffic safety on the road is increased. → Due to simple spreading stage selection road maintenance personnel is largely discharged and may concentrate better to traffic situation. |
|---|---|--|

ThermoMAT

INNOVATIVE COMPONENTS



**Plastic
- an ideal
material for
best media
flow**

1. Frequency controlled spiral auger

- Agitator fingers cut salt clusters
- Constant feeding flow
- Continuous agent flow with smallest amounts
- No plugging or clustering in spreading system

2. Inlay distribution head

- Geometric design
- Entry zone guides salt centralized into humidification system

3. Humidification via brine valve

- Radial arranged spray valves for homogenous modification
- Humidification as early as possible
- Integral humidification of salt with brine

4. Elbow tube

- Focussing of salt/brine mixture by opposing flow direction
- Constant feeding towards falling tube independent of distribution head position

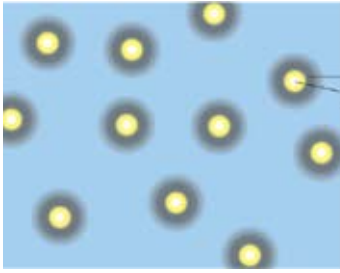
5. Mouth piece

- For centralized feeding with defined impact position at spinner disc as presupposition for an optimal lateral distribution
- Secure flow due to micro vibration of weak material

6. Spinner disc

- even cone for a soft flow of agent to spinner blades
- Upwards curved spinner disc towards the outside for focussing of spreading agent
- two different blade lengths for an even distribution of spreading agent

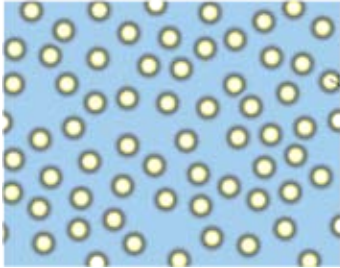
THE INTELLIGENT TECHNICAL SOLUTION



LOW density

FS-Adaptive meets different road surface conditions:

With low densities, it is important to spread with higher amount of brine to achieve a better humidification and thus a better surface adhesion of salt. FS-Adaptive automatically considers this.



HIGH density

In case of higher densities, high thawing action. For example, lower amount of brine is required. FS-Adaptive automatically considers this too.



AUTOMATIC SPREADING WIDTH STABILIZATION

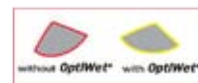
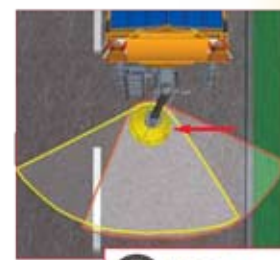
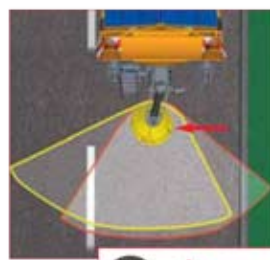
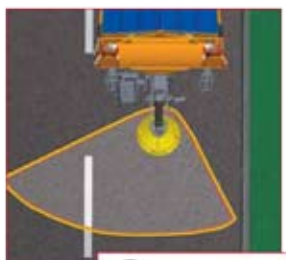
Spreading width is automatically adjusted to match vehicle speed with salt mass flow differences. The result is perfect flow patterns at all vehicle speeds.

AUTOMATIC DISTRIBUTOR HEAD ADJUSTMENT

OptiWet assures a uniform spreading pattern in the complete range of velocities as well as pattern direction with an automatic distributor head adjustment. The new high speed remote distributor head performs these adjustments within parts of a second.

Variable brine addition dependent of salt mass flow creates an optimal humidification of salt grain.

PERFECT SPREADING PATTERN AT ANY SPEED



TECHNOLOGY THAT CREATES MATERIAL USE SAVINGS UP TO 30%



INTELLIGENT MOBILE SPREADING

The future of spreading technology

With the **IMS** series, a completely new generation of spreaders has been introduced: from the hopper's low centre of gravity and high torsive strength, the pre-prepared fixing points for all demounting systems to the intelligent **OptiWet** distribution system - the **IMS** series represents an innovative, automated and mobile spreading technology.

Single chamber spreader **IMS-E**

The IMS E is the perfect spreader for all truck series. Its outfitted with latest IMS (Intelligent Mobile Spreading) spreading technology. User-friendly and reliable, the IMS E gets perfect symmetric spreading patterns at all times. Adequate stand-systems simplifies the disposal.

Technical data:

Hopper capacity	2.7 m ³ to 10.0 m ³
Brine tank	1720 l to 3440 l
Spreading width	2 to 8 m or 3 to 12 m
Dosage (g/m ²)	

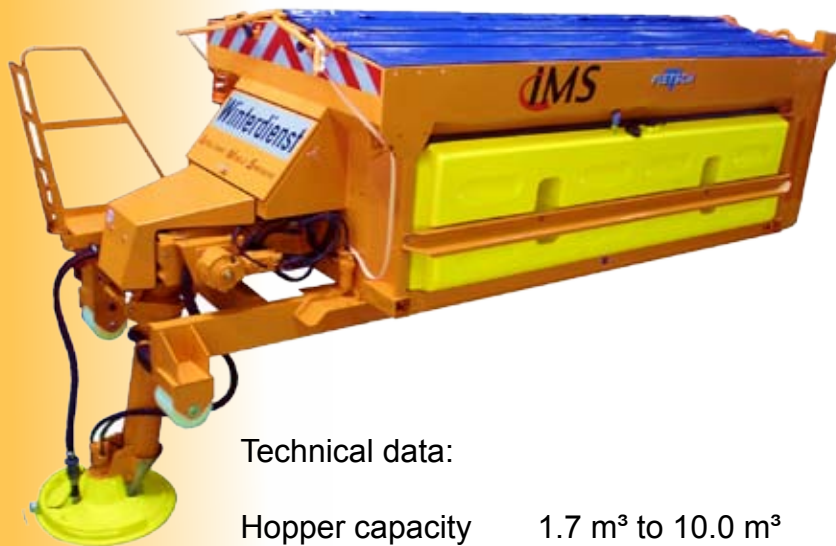
Spiral auger with programmable spreading-levels

Salt:	0-40
Abrasive agents:	0-300



Belt spreader **IMS-B**

- Independent feeding system due to exchangeable belt system
- Belt quality selected for complete spreader lifetime
- Belt system with maintenance free bearings and support rollers, capsuled ball bearings, no grease points
- Free selection of hopper volume due to different overlapping hopper lengths for best weight distribution
- Additional positioning possibility of belt feeder in the hopper for perfect centre of gravity adaptation, in various lengths
- best weight balance with perfect load
- low vertical centre of gravity
- equipped with professional technology from our best proven modular system
- Use of best proven spreader components for economic spreading with most exact dosage and highest precision
- Short static hopper emptying
- All versions of installations and drives possible



Technical data:

Hopper capacity	1.7 m ³ to 10.0 m ³
Brine tank	1080 l to 3440 l
Spreading width	2 to 8 m or 3 to 12 m
Dosage (g/m ²)	

Spiral auger with programmable spreading-levels

Salt:	0-40
Abrasive agents:	0-300



Flat Bed spreader **IMS-F**

The IMS F characterizes through its extremely flat design and is therefore predestinated for all truck series and Unimogs. The hopper design with its vertical front and rear panels is specially adapted for being used with only one spiral auger.

Technical data:

Hopper capacity	2.7 m ³ to 10.0 m ³
Brine tank	1720 l to 3440 l
Spreading width	2 to 8 m or 3 to 12 m
Dosage (g/m ²)	

Spiral auger with programmable

Spreading-levels

Salt: 0-40

Abrasive agents: 0-300



Junior spreader **IMS-J**

The small flat bed spreader IMS J has been designed for small trucks, narrow-gauge vehicles, multi-purpose carriers and Unimogs. The flat construction allows a perfect handling and an excellent rear-view.

Technical data:

Hopper capacity	1.0 m ³ to 2.0 m ³
Brine tank	560 l to 700 l
Spreading width	1 to 6 m or 2 to 8 m
Dosage (g/m ²)	

Open auger with programmable spreading-levels

Salt: 0-40

Abrasive agents: 0-300



Open Auger spreader **IMS-W**

The light weight IMS W fits for small trucks, narrow-gauge vehicles, small multi-purpose carriers, Unimogs and forklifts and can in addition be mounted on the Kupper-Weisser trailer with self-drive.

Technical data:

Hopper capacity	0.5 m ³ to 2.3 m ³
Brine tank	260 l to 860 l
Spreading width	1 to 6 m or 2 to 8 m
Dosage (g/m ²)	

Open auger with programmable spreading-levels

Salt:	0-40
Abrasive agents:	0-300



3 Point spreader **IMS-P**

The IMS P is the spreader for any tractor with a 3-point attachment. The hopper design allows full integration of a wet salt device. Regulated drives and road-connected spreading turn the IMS P into a complete urban spreader.

Technical data:

Hopper capacity	1.0 m ³ to 2.0 m ³
Brine tank	550 l to 775 l
Spreading width	1 to 6 m or 2 to 8 m
Dosage (g/m ²)	

Opposite direction spiral auger with programmable spreading-levels

Salt:	0-40
Abrasive agents:	0-300



Trailer spreader **IMS-Trailer**

The IMS trailer is available in an IMS E version with an auger or in an IMS B version with a belt. The IMS trailer has been designed for flexible winter maintenance. It's highly economical and reliable. The tool-free level adjustment of the towing bar enables a use of various towing units.

Technical data:

Hopper capacity 2.7 m³ to 4.0 m³
 Brine tank 1720 l to 2240 l
 Spreading width 2 to 8 m or 3 to 12 m
 Dosage (g/m²)

Spiral auger or conveyor belt with
 Programmable spreading-levels
 Salt: 0-40
 Abrasive agents: 0-300



Junior Trailer



Dumpster spreader **STA AK**

The dumpster truck STA AK is suited for fast load and unload during winter service. The pick-up of the chains are normated and need no separate adjustment.

Technical data:

Hopper capacity 3.0 m³ to 6.0 m³
 Brine tank 1480 l
 Spreading width 2 to 8 m or 3 to 12 m
 Dosage (g/m²)

Spiral auger with programmable
 spreading-levels

Salt: 0-40
 Abrasive agents: 0-300



ROLL-tec

Rapid demounting system

Design

- Bolt-on demounting system for easy and efficient change of equipment
- Spreader-integrated frame, lowering centre of gravity by approx. 100mm
- Load capacity
- Light-weight design: 6 ton
- Heavy-weight design: 12 ton / 16 ton
- ROLL-tec I:
 - Front-supports stored in spreader frame, rear-supports removable, fitted with roller-wheels
- ROLL-tec II:
 - Front-supports and rear-supports stored in spreader frame, rear-supports easily movable by means of pneumatic springs, additionally equipped with two five-compartment lamps to German StVZO



Roll-off system

- By raising the tipper-platform the weight of the spreader is shifted onto the Roll-tec's rear supports and the frontal steel roller
- As soon as the lorry is driven forward, the spreader rolls off the platform and the roll-tec's front-supports move out assisted by pneumatic springs. The front-supports are then safely locked in position with pins. Mounting of spreader onto chassis platform is done in a similar way.

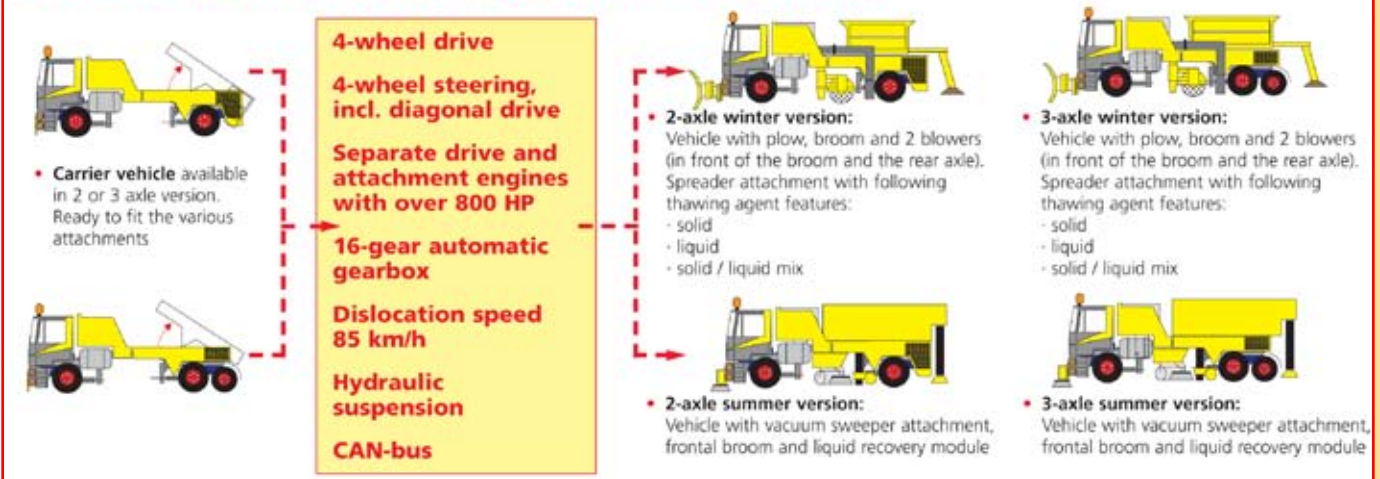
Lateral guide system

- 4x lateral, adjustable guides gliding inside tipper platform sides
- Automatic centering of spreader to longitudinal axis of lorry on both mounting and demounting
- Additional function as lateral impact reduction during operation



**JET
BROOM**®

Overview of the Jetbroom, highway and road version

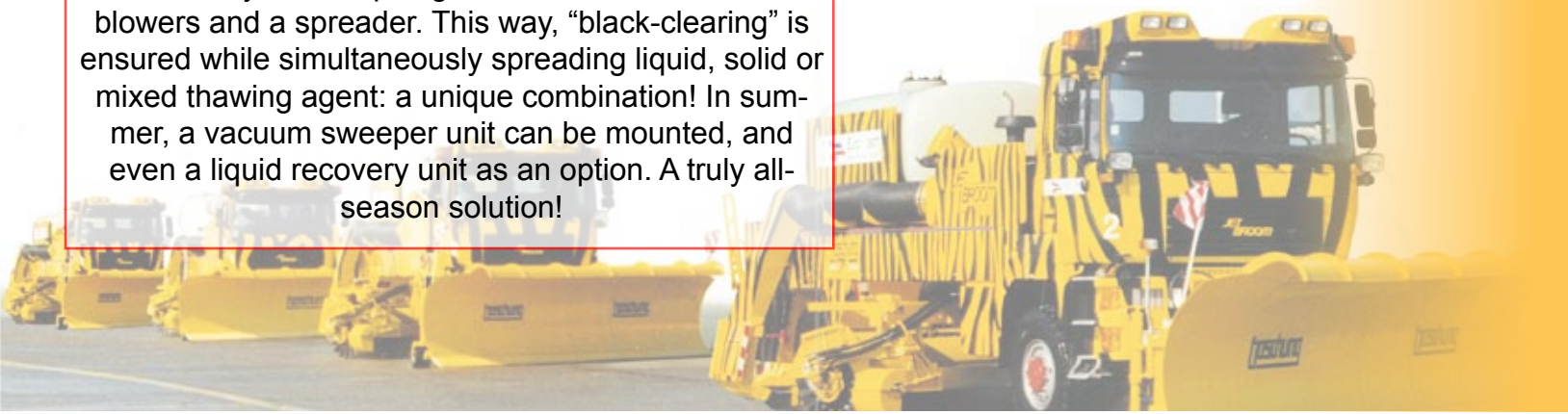


High performance maintenance vehicle for highways and roads

Marcel Boschung AG's Jetbroom offers an optimal solution for the ever-increasing expectations of winter maintenance personnel for roads and highways.

The compact basic vehicle - based on an in-house design - is equipped with 2 engines (one for traction, the other for attachments), which together deliver more than 800 HP. As a multifunctional machine, it accepts a variety of equipment. For winter maintenance, this is mainly a snow plow, a broom, a turbine with 2 blowers and a spreader. This way, "black-clearing" is ensured while simultaneously spreading liquid, solid or mixed thawing agent: a unique combination! In summer, a vacuum sweeper unit can be mounted, and even a liquid recovery unit as an option. A truly all-season solution!

PLOW...
BLOW...
SWEEP...
BLOW..
SPREAD
in a single pass



Snow Booster



The Snow booster is an ultra-modern and powerful snow blower. On-going further development of the vehicle means that the Snow booster has attained an unrivalled level of performance, safety and ease of use. With its impressive snow clearance capacity of up to 2,600 tones per hour, the Snow booster is the perfect solution for regions requiring intensive winter maintenance.

Inclination of the aggregate 8° front, Ø-drum: 900 / 1100 mm

Operated with Vpad, Joystick with integrated front and rear drive (single-hand operated)

Rotating ejection chute, projection stream adjustable through 4 flap system

Excellent rear view through integrated camera



Inclination of the aggregate left/right ± 10° Widths: 2100 / 2300 / 2500 mm

Mechanical axles with differential lock – high ground clearance, massive chassis

Tire equipment normal or large

Easy access from both sides through sliding door on the back

GFS 3000

(Active Warning System)



The AWS model uses the Boschung active measurement technology. This unique and patented process creates a warning system in advance of active weather and icing conditions, providing the operation centre with lead time to react.

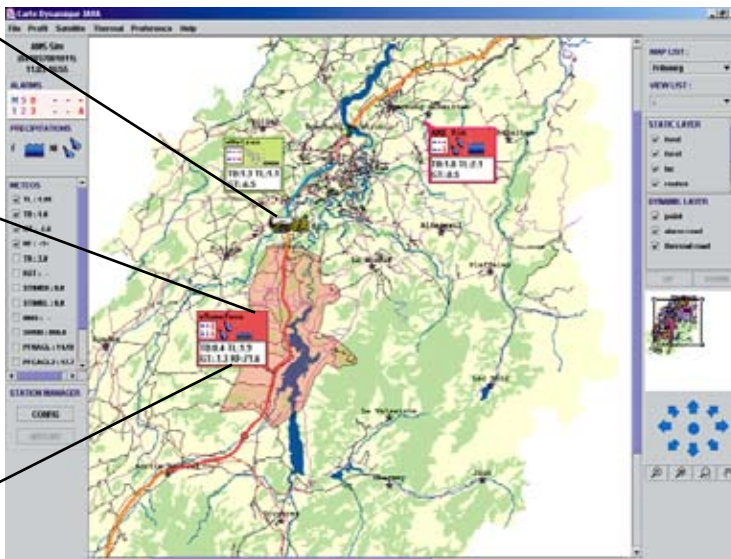
Communications are available through phone line, GSM, Radio, Rs485 and TCP/IP.



- Pavement Temperature
- Air Temperature
- Humidity
- Water Thickness
- Freezing Point
- Salt Factor
- Ice Type
- Forecasting
- Measured Ice Warning
- Measured Freezing Point Warning
- Visibility
- Wind Speed
- Others

Borrma-web

(Road Management)



A true, real-time tool allowing Road Managers the ability to recognize current and future problems and react with critical information and statistics to ensure safety and productivity.

Prediction of dangerous, weather-related Road Conditions!

- Combination of local measurements and weather forecasts
- Advanced data integration to support decisions
- Visualization of predicted road conditions for optimal planning of resources and operations
- Detailed prediction and alerts for each Road Weather Segment
- Clear display of all important elements, such as maps, Road Weather Stations (GFS), Fixed Automated Spray Technology (FAST), vehicle operations data and location, road conditions etc. for real-time, predicted, and past data
- Ideal support for Winter Maintenance Managers in operations and data management

FAST

(Fixed Automated Spray Technology)



The de-icing agent is sprayed onto the road surface through spray discs in the road surface or through spray nozzles at the side of the road.

In cost-benefit analyses, the TMS achieves a very high cost effectiveness factor.

In the event of an ice hazard, the spraying process can be activated in combination with an ice early warning system. With various spraying programmes or multiple spraying operations, the system can be perfectly adapted to suit the prevailing conditions.

Micro-FAST **(Active Warning System)**

The patented Micro-FAST high-pressure fine spraying system consists of a 100 meters long strip with built-in nozzle bodies which, as a general rule, are installed at 5-metre intervals. By applying the necessary pressure, the de-icing agent is evenly distributed onto the road surface in the form of an invisible spray mist.

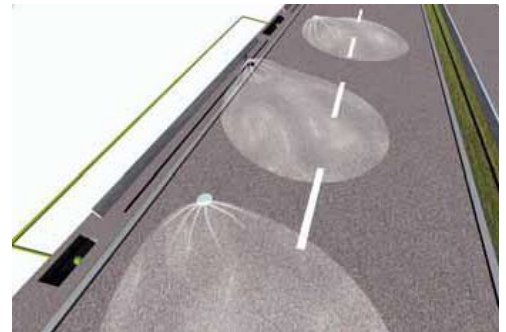


Check valves are incorporated into the nozzle bodies in order to prevent the ingestion of dirt. As a result, the system is virtually maintenance-free.

In the event of an ice hazard, the spraying process can be activated in combination with an ice early warning system. The spraying period can be adjusted as required (from 30 seconds to 3 minutes), thus ensuring that the optimum amount of de-icing agent is applied. With various spraying programmes, a number of spray nozzles or multiple spraying operations, the system can be perfectly adapted to suit the existing conditions.

Over several decades, the Boschung fixed automated spray technology (FAST) has proved its worth as a stationary winter maintenance equipment. Many years of experience and ongoing development have resulted in a system solution which operates safely and ecologically.

The system is embedded into the road surface and the valve units with all the active elements are installed by the roadside.





Sleeping Giant Enterprises is the Canadian distributor for Boschung AG. The Boschung line of high quality, advanced technology equipment is rapidly generating a loyal following in Canada. With units in Toronto, Montreal, St. John's and Thunder Bay,

Boschung is saving customers money while improving services. The Boschung line of surface maintenance equipment has been a prominent name in Europe for over 40 years.

At SGE, we are committed to expanding sales and service of Boschung product lines into the municipal/provincial roads maintenance markets as well as private industries such as landscaping, forestry, mining, commercial properties and more.

boschung

Operating for over 60 years, Boschung is a leader in European road maintenance equipment manufacturing, specializing in new technologies that produce the most advanced equipment for all client needs.



- Snow clearing, Jetbroom
- Airport de-icing
- Fixed automated spray technology
- Ice early-warning system
- Rubber removal
- Surface condition management



- Snow plows & snow blowers
- Spreaders
- Fixed de-icing
- Black-ice warning system
- Surfaces cleaning, sweepers
- Automatic Vehicle Location



- Snow clearing, snow plows
- Spreaders
- FAST
- RWIS
- Vehicle data recording
- Surfaces cleaning



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