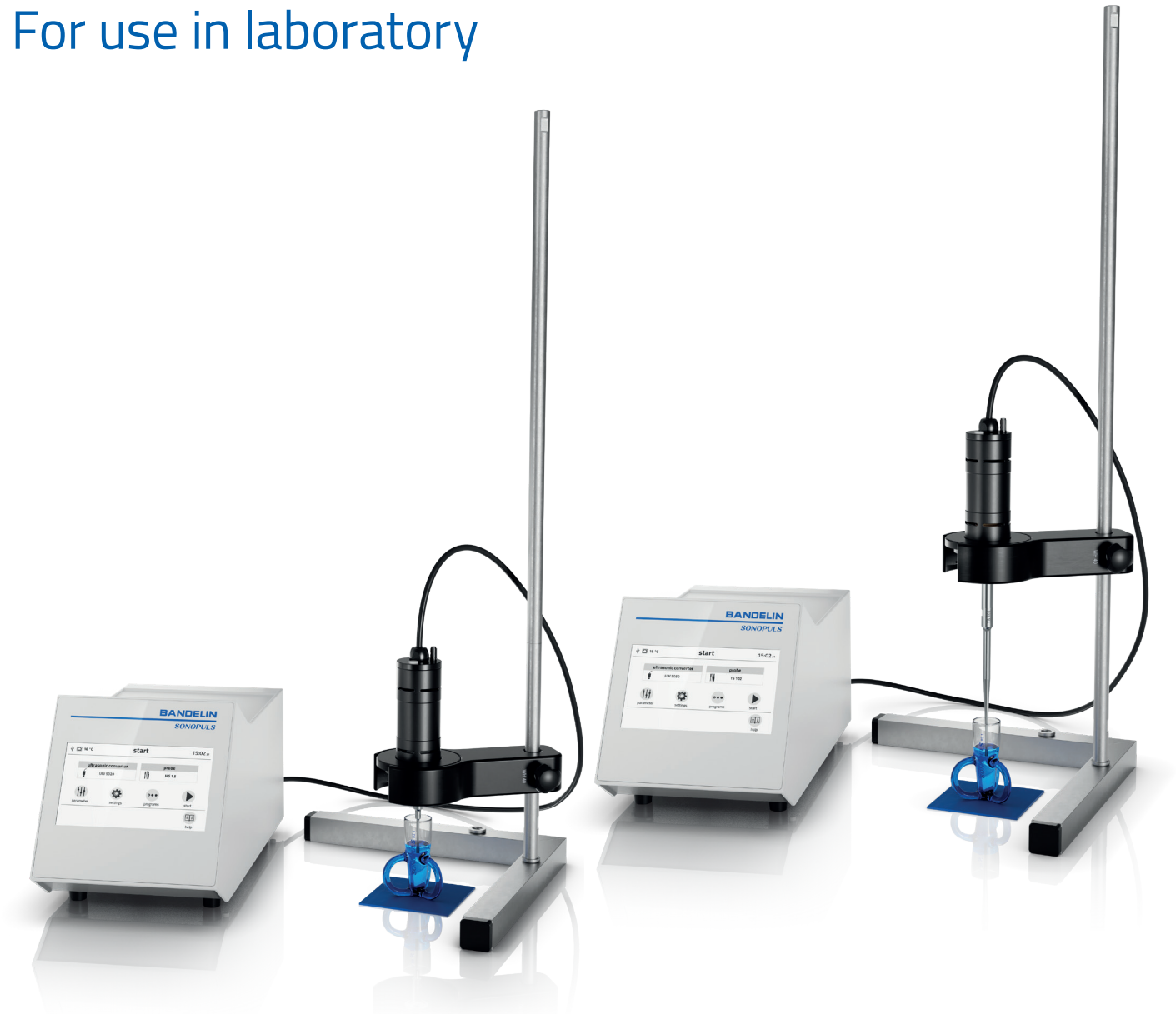
BANDELIN

SONOPULS
HD 5020 and HD 5050
Ultrasonic homogenisers

For use in laboratory



BANDELIN – Specialist of ultrasound in laboratory

SONOPULS ultrasonic homogenisers are in demand worldwide and a must for many laboratories.
The first SONOPULS ultrasonic homogeniser from our company was sold in 1964. Almost 60 years experience - that is what BANDELIN stands for.

Training courses for our sales partners and practice-oriented seminars with our users ensure a constant exchange of experience. In the process, new applications are constantly being developed. The constantly growing application database - a result of this cooperation - offers the new user great support in the selection of equipment.
In the further development of our homogenisers, we not only focus on today's customer needs, but also have future requirements in mind. The functionality of the units is always in the foreground.

We can react quickly to special customer requests: Development and production under one roof, short decision-making paths and proximity to the customer make this possible.

SONOPULS ultrasonic homogenisers deliver high amplitudes with the same electrical power by optimally adapting all components. Regardless of changing conditions in the sample to be sonicated, e.g. viscosity, the amplitude remains constant. This guarantees reproducible results.

BANDELIN is the only supplier where an ultrasonic generator can be combined with different ultrasonic transducers. This means that an upgrade from laboratory scale to pilot plant scale does not require the purchase of a completely new unit.

All probes and booster horns are equipped with fixed threaded pins. The advantage is obvious: quick and easy assembly with the given tools - no further aids are required!

Would you like to convince yourself of the advantages of a SONOPULS ultrasonic homogeniser?
We would be happy to offer you a unit with suitable accessories for a test setting.

BANDELIN – Ultraschall since 1955

Company portrait

We are a family-owned company located in Berlin and meanwhile run in the third generation, specialised in development, manufacturing and sales of ultrasonic devices, the corresponding accessories and application-specific cleaning agents and disinfectants.

A wide vertical range of manufacture, modern production lines and a motivated staff guarantee a high quality of the products. Our devices contribute to the success of our customers in the laboratory, medical, dental, pharmaceutical, industrial, craft as well as service.

As early as 1955, our company began developing and manufacturing high-performance ultrasonic devices. The constant expansion of the product range and a sharp rise in sales led to an expansion of the production area in 1985. In 1992, ultrasonic homogenisers and controllable, power-constant ultrasonic generators were introduced to the market.
The period from 1996 to 2004 was characterised by the development and production of innovative ultrasonic baths and immersible transducers as well as tube reactors for industrial applications. In the following years, BANDELIN's product range was expanded by new laboratory ultrasonic devices.

After the introduction of the ultrasonic bath for simultaneous cleaning and rinsing of MIC instruments, a further development was launched in 2016 for robotic instruments.

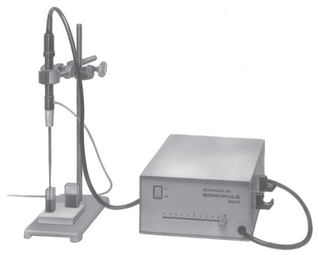
Today, the reputation of our brands SONOREX, SONOPULS, SONOMIC and TRISON stand for the high quality awareness of our employees and is equated in expert circles with ultrasound.
The most important product groups include:

SONOREX	– ultrasonic baths and reactors
SONOPULS	– ultrasonic homogenisers
SONOMIC	– ultrasonic baths for rinsable MIC and standard instruments
TRISON	– ultrasonic baths for robotic-, rinsable MIS and standard instruments
TICKOPUR	– cleaning agents
STAMMOPUR	– cleaning agents and disinfectants

We are innovation leaders in the development of ultrasonic devices and new areas of application. In the past we have registered 79 patents / utility models as well as 68 trade brands. Our participation in various committees in the development of new standards and guidelines serve to ensure the highest standards for ultrasonic applications.

As the only complete supplier of ultrasonic devices, accessories, disinfectants and cleaning agents with approvals and certifications according to ISO 9001 and ISO 13485, BANDELIN is the market leader.
Over one million units have already been delivered to our customers.

Production of the first ultrasonic homogenisers with tube technology **SONOREX HE 1**



Product launch of ultrasonic homogenisers **SD 9**

SONOPULS HD

SONOPULS series 2000

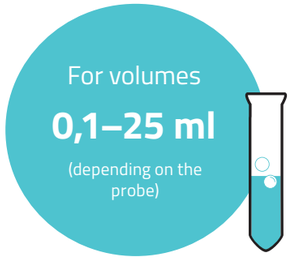
SONOPULS series 3000

SONOPULS series 4000

SONOPULS series 5000

SONOPULS HD 5020
Ultrasonic homogeniser 40 kHz und 20 W

The HD 5020 is ideally suited for the gentle sonication of the smallest sample volumes of 0.1 – 25 ml at 40 kHz with probes with diameters of 1.5 - 2.5 mm. The generator produces power of up to 20 W.



Ready-to-use set:

Ultrasonic nominal power max. 20 W
- Ultrasonic generator GM 5000
- Ultrasonic converter UW 5020
- Probe MS 1.5, Ø 1,5 mm (for volumes 0,1–10 ml)

Code No.
15020 – EU plug CEE 7/7
15020-GB – GB plug BS 1363
15020-CH – CH plugSEV 1011: T12
15020-1 – US plug NEMA 5-15

Hint:
Low noise level compared to the more more powerful homogenisers.

Sample vessels:

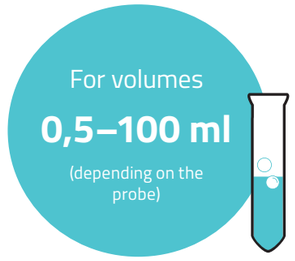
- PCR tubes
- Cryotubes
- Reaction cups

Ultrasonic generator	GM 5000
l × w × d [mm]	380 × 195 × 215
Ultrasonic converter	UW 5020
Ø × l [mm]	50 × 150
Available probe dia. [mm]	1,5 / 2,0 / 2,5

MS 1.5 MS 2.0 MS 2.5

SONOPULS HD 5050
Ultrasonic homogeniser 20 kHz und 50 W

The HD 5050 is particularly suited for the gentle sonication of smaller sample volumes of 0.5 – 100 ml at 20 kHz and probes with a diameter of 2 – 9 mm. Here, the generator operates with a power of up to 50 W.



Ready-to-use set:

Ultrasonic nominal power max. 50 W
- Ultrasonic generator GM 5000
- Ultrasonic converter UW 5050
- Probe TS 102, Ø 2 mm (for volumes 0,5–20 ml)

Code No.
15050 – EU plug CEE 7/7
15050-GB – GB plug BS 1363
15050-CH – CH plug SEV 1011: T12
15050-1 – US plug NEMA 5-15

Sample vessels:

- PCR tubes
- Cryotubes
- Reaction cups

Ultrasonic generator	GM 5000
l × w × d [mm]	380 × 195 × 215
Ultrasonic converter	UW 5050
Ø × l [mm]	50 × 185
Available probe dia. [mm]	2 / 3 / 4,5 / 6 / 9

TS 102 TS 103 TS 104 TS 106 TS 109

SONOPULS series HD 5000
Ultrasonic converter

Switch

There is a switch on the ultrasonic converter. It can be used to switch the ultrasound operation on/off and to control a hand-held pulsation. There is also a connection socket on the ultrasonic converter for the use of a temperature sensor to monitor the sample temperature.

Connection for temperature sensor TM 5000

For temperature monitoring, the temperature sensor is connected to the socket provided, which is otherwise covered with a dust cap. A temperature display appears on the generator, allowing the user to record the temperature at any time. If the limit temperature is exceeded, a warning signal may sound and/or the process may be automatically aborted.

Ultrasonic converter UW 5020

Temperature sensor TM 5000

Ultrasonic converter UW 5020

Operating frequency:
40 kHz

Dimension:
Ø 50 × 150 mm

Cable length:
2,5 m

Code No. 3738

Ultrasonic converter UW 5050

Operating frequency:
20 kHz

Dimension:
Ø 50 × 185 mm

Cable length:
2,5 m

Code No. 3739

SONOPULS series HD 5000
Ultrasound generator

Ultrasound generator in easy-care, robust plastic housing with a connection for all SONOPULS ultrasonic converters from the HD 5000 series, and a recessed handle for easy transportation and setup on the laboratory bench.

The modern 7" touch display provides an intuitive, user-friendly operation.
The adjustment of the setpoints for amplitude, pulsation and time, and the display of the actual values, allow for reproducibility of the results.

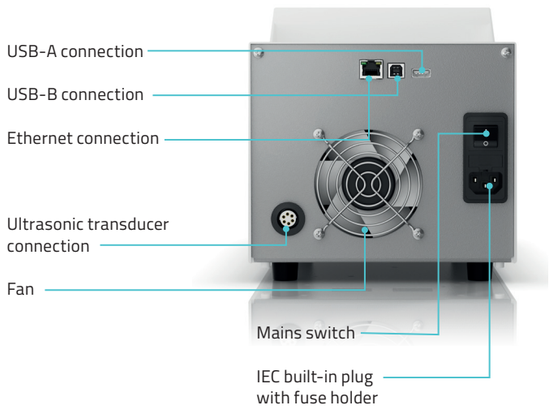
Ultrasound generator GM 5000

Applicable for:
- UW 5020 / UW 5050

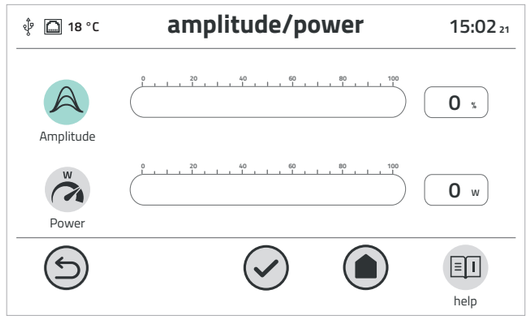
Further information:
- External dimensions (l × w × h): 380 × 195 × 215 mm
- Mains cable, pluggable: 2 m
- Mains connection: 90-250 V ~, 50/60 Hz

Front side

Back side

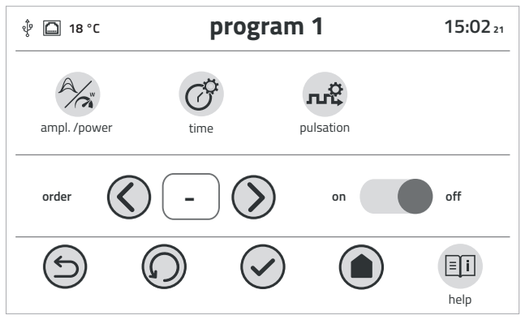


Operating concept / Display



Amplitude and power setting

Amplitude setting in 1% steps (in the range of 10–100%) for all probes. Alternative power control in watts is also possible via a slider or a numerical input. The display of the actual values allows for a continuous process control.

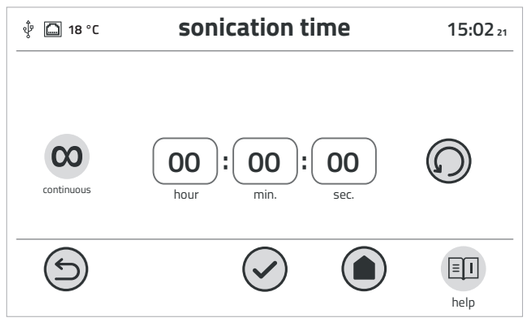


Data memory

Saving of recurring processes as a program, to start them conveniently and quickly at the push of a switch. Up to 8 programs can also be combined and played automatically and successively, in any order.

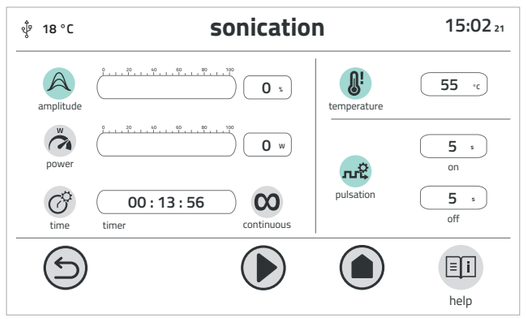
Time setting and sequence

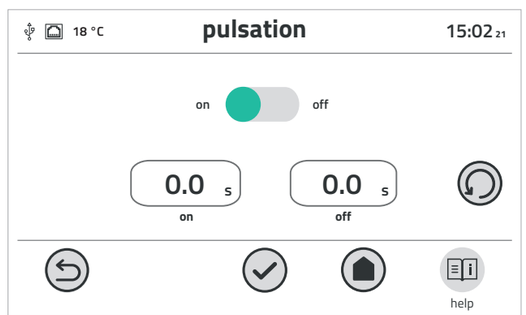
Selectable time settings: Timer (countdown) or continuous operation (up to 99 h: 59 min: 59 s). The elapsed time is displayed in continuous mode while the remaining time is displayed in timer mode.



Process display

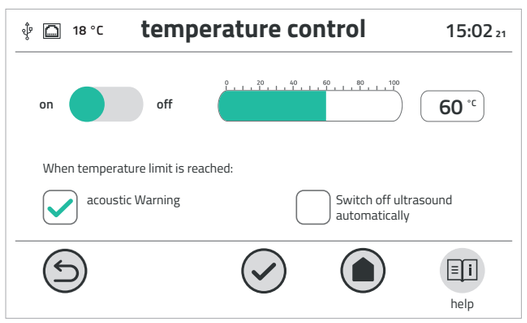
Display and control of all set parameters of the running program during operation, including the remaining running time or elapsed time.





Pulsation

The pulse interval can be individually adjusted in 0.5 steps for the safe sonication of temperature-sensitive samples. The desired sonication time and the pause can be set independently of each other in the range of 0.5–600 s.



Temperature monitoring

The optional TM 5000 temperature sensor ensures continuous monitoring of the sample temperature. When the limit temperature is reached, a warning signal appears or the ultrasound is immediately switched off, depending on your preference.

Help

If an error occurs, it is shown on the display. Help screens provide step-by-step instructions on how to solve a problem.


BANDELIN
SONOPULS
18 °C
start
15:02
ultrasonic converter
UW 5020
probe
MS 1.5
parameter
settings
programs
start
help
BANDELIN
SONOPULS
18 °C
start
ultrasonic converter
UW 5050
15:02
probe
TS 102
parameter
settings
programs
start
help
TICKOPUR
Universal-Reiniger
WH 40
TS 102

SONOPULS
Processing vessels for direct sonication

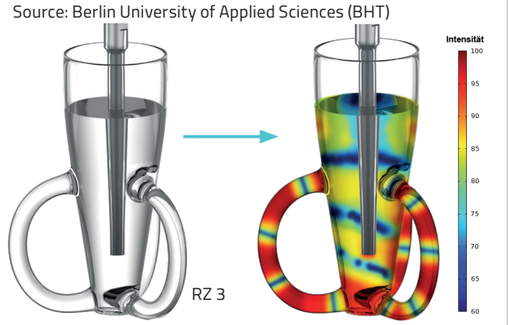
During direct sonication, the probe is immersed in the sample to be sonicated. The advantage of this method is the very high energy input as compared to indirect sonication. All glass containers are made of borosilicate glass.

The material has very good chemical and temperature resistance and is therefore very well suited for laboratory use. The cleaning and/or disinfection can be performed using appropriate preparations, in an ultrasonic bath or in a cleaning and disinfection device. The glass is autoclavable.

Rosette cells RZ

The rosette cells allow for a uniform and intensive sonication of liquid media. The ultrasound pressure presses the sample against the bottom of the vessel and then through the three lateral arms, enabling it to circulate well. The result is a continuous mixing of the medium. When placing the rosette cells in an ice bath, the contents are effectively cooled due to the enlarged glass surface and the good circulation.

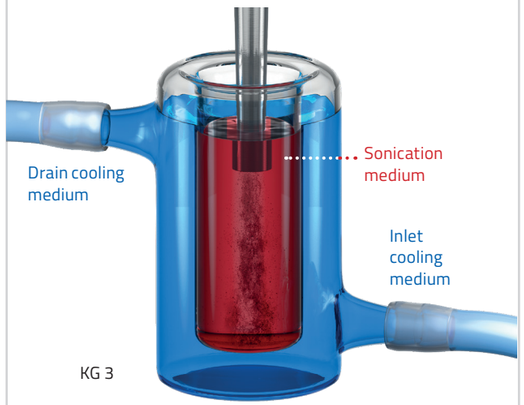
Intensity distribution
(distance between probe tip and vessel bottom = 3 cm)
Source: Berlin University of Applied Sciences (BHT)



Cooling vessel KG

During sonication mechanical energy is converted into heat (through internal friction in the liquid), and thus to a more or less pronounced heating of the samples. Cooling of the medium may therefore become necessary for temperature-sensitive samples.
The sample containers can be placed e.g. in an ice bath. However, by doing so the immersion depth of the probe will not be visible. The KG cooling vessels with cooling jacket for connection to an external cooler are a better alternative. They enable a controlled temperature control during sonication.

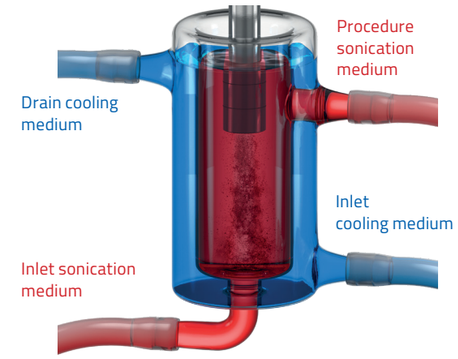
The cooling medium is pumped through the cooling jacket in a circuit with the help of a thermostat. This makes it possible to react quickly to a temperature increase.



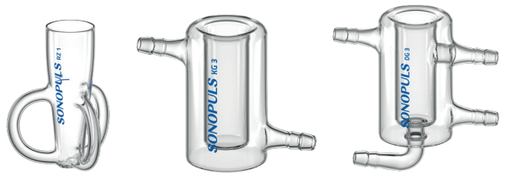
Flow-through vessels DG

With cooling jacket. Continuous sonication of samples in flow of up to 30 l/h is possible.
The cooling jacket allows for temperature control by liquid coolant during the sonication.

The cooling medium is pumped through the cooling jacket in a circuit with the help of a thermostat. This allows a quick reaction to an increase in temperature. The sonication medium is directed directly against the sound-emitting surface of the horn.



Type	RZ 1	KG 3	DG 3
For probe diameter [mm]	2–3	2–13	2–13
For HD	4050/4100/4200//5050		
Min. volume [ml]	20	20	Max. Flow rate [l/h]
Max. volume [ml]	25	20	5,6
Diameter inside [mm]	27	55	20
Depth [mm]	80	3	55
Code No.	3606	536	538



RZ 1 KG 3 DG 3

Cell disruption, homogenisation or mixing of very small volumes simply and reliably at the touch of a switch with the SONOPULS HD 5020. The higher ultrasonic frequency of 40 kHz and a lower amplitude prevent foaming or splashing of the sample despite the very small volume during sonication.

Reaction Cup

Cooling with crushed ice

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
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