

# M1J, MF-003, MF-007, MR, MR1K

## Датчики протока поршневого типа

### GHM MESSTECHNIK



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# Flow Indicator M1J



- No electrical supply required
- Individually calibrated display range
- Compact design

### Characteristics

A piston fitted with a magnet is pushed through the medium against the force of a spring. This activates the pointer of the measuring device by means of a magnetic coupling. Because of the hermetic separation from the medium, the display unit cannot be soiled by the medium.

### Technical data

<b>Switch</b>	without	
<b>Nominal width</b>	DN 8..25	
<b>Process connection</b>	female thread G 1/4..G 1 (further process connections available on request)	
<b>Display range</b>	0.4..60 l/min	for details see table "Ranges"
<b>Pressure loss</b>	0.4..1.4 bar at Q <sub>max</sub> .	
<b>Q<sub>max</sub></b>	to 80 l/min	
<b>Tolerance</b>	±5 % of full scale value	
<b>Pressure resistance</b>	PN 200 bar	
<b>Media temperature</b>	-20..+120 °C	
<b>Ambient temperature</b>	-20..+70 °C	
<b>Media</b>	water (oils, gases and aggressive media available on request)	
<b>Electrical data</b>	none	
<b>Materials medium-contact</b>	<i>Brass construction:</i> CW614N nickelled, CW614N, 1.4310, hard ferrite, NBR	<i>Stainless steel construction:</i> 1.4571, 1.4404, 1.4310, hard ferrite PTFE-coated, FKM
<b>Non-medium-contact materials</b>	Acrylic, NBR	
<b>Weight</b>	see table "Dimensions and weights"	
<b>Installation location</b>	Standard: horizontal inwards flow from the left; other installation positions are possible; the installation position affects the display range.	

### Ranges

Details in the table correspond to horizontal inwards flow with increasing flow rate.

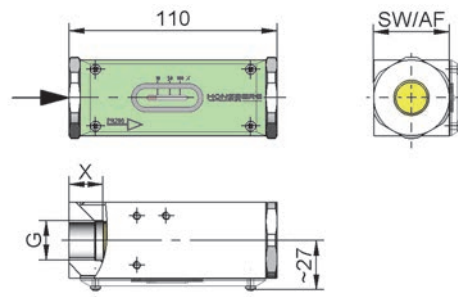
Scaling is via a 10..100 % display.

Display range l/min H <sub>2</sub> O	Q <sub>max</sub> . recommended	Pressure loss bar at Q <sub>max</sub> H <sub>2</sub> O
0.4 - 4	10	0.6
1.0 - 10	20	
2.0 - 20	30	0.4
3.0 - 30	40	
4.0 - 40	60	0.8
6.0 - 60	80	1.4

Special ranges are available.

### Dimensions and weights

	G	Types	SW	X	Weight kg
<b>Brass</b>	G 1/4	M1J-008GM	40	15	1.2
	G 3/8	M1J-010GM			
	G 1/2	M1J-015GM		18	1.1
	G 3/4	M1J-020GM			1.0
	G 1	M1J-025GM			
<b>Stainless steel</b>	G 1/4	M1J-008GK	41	15	1.2
	G 3/8	M1J-010GK			
	G 1/2	M1J-015GK		18	1.1
	G 3/4	M1J-020GK			1.0
	G 1	M1J-025GK			



### Handling and operation

- Include straight calming section of 5 x DN in inlet and outlet
- If the media are dirty, install a filter  
(use magnetic filter for ferritic components)

### Ordering code

M1       
**J** -

<b>1. Display</b>	J	with frontal measurement display J
<b>2. Nominal width</b>		
	008	DN 8 - G 1/4
	010	DN 10 - G 3/8
	015	DN 15 - G 1/2
	020	DN 20 - G 3/4
	025	DN 25 - G 1
<b>3. Process connection</b>		
	G	female thread
<b>4. Connection material</b>		
	M	brass
	K	stainless steel
<b>5. Display range H<sub>2</sub>O for horizontal inwards flow</b>		
	004	0.4 - 4 l/min
	010	1.0 - 10 l/min
	020	2.0 - 20 l/min
	030	3.0 - 30 l/min
	040	4.0 - 40 l/min
	060	6.0 - 60 l/min

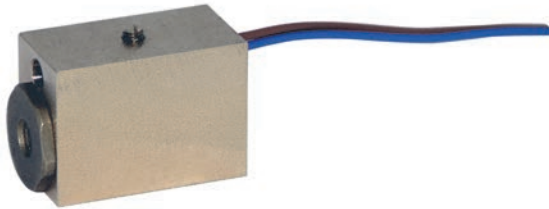
### Options

- Special ranges/special scaling
- Temperature display 0..120 °C
- Reinforced piston

### Ordering information

- Specify direction of flow, medium, and display range.
- For oils. State viscosity, temperature and designation (e.g. ISO VG 68) (enquire about display range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request display range)

# Flow Switch MF-003



- Compact construction
- Monitoring of small quantities of air/gas

### Characteristics

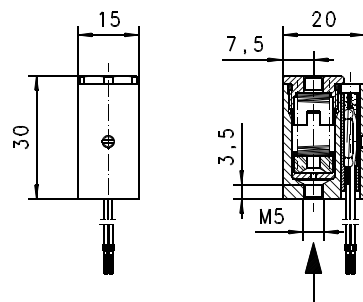
Mechanical flow switch for gaseous media, with magnetic triggering of a reed switch. Robust construction in brass.

### Technical data

<b>Switch</b>	reed switch
<b>Nominal width</b>	DN 3
<b>Process connection</b>	female thread M5 (further process connections available on request)
<b>Switching value</b>	selectable between 1..100 NI/min (air 1 bar abs. 0 °C) The switching point is suitable for horizontally decreasing flows.
<b>Q<sub>max.</sub></b>	100 l/min
<b>Tolerance</b>	±15 % of full scale value
<b>Pressure resistance</b>	PN 6 bar
<b>Media temperature</b>	-20..+80 °C
<b>Ambient temperature</b>	-20..+70 °C
<b>Medium</b>	gas
<b>Wiring</b>	normally opened ( n.o.) no. 0.372
<b>Switching voltage</b>	max. 125 V AC
<b>Switching current</b>	max. 0.5 A
<b>Switching capacity</b>	max. 10 VA

<b>Protection class</b>	2 - safety insulation
<b>Ingress protection</b>	IP 65
<b>Electrical connection</b>	2 wires 170 mm
<b>Materials medium-contact</b>	CW614N, 1.4310, hard ferrite, NBR
<b>Non-medium-contact materials</b>	PVC
<b>Weight</b>	0.06 kg
<b>Installation location</b>	Standard: horizontal inwards flow; other installation positions are possible; the installation position affects the switching point.

### Dimensions



### Handling and operation

- Include straight calming section of 5 x DN in inlet and outlet.
- If the media are dirty, install a filter (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switch on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.

### Ordering code

MF - 

1.	003
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2.	G
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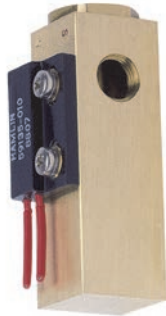
3.	M
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<b>1. Nominal width</b>	003	DN 3 - M5
<b>2. Process connection</b>	G	female thread
<b>3. Connection material</b>	M	brass

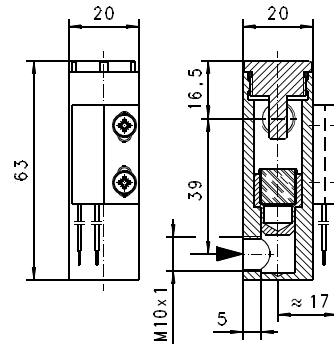
### Ordering information

- Specify direction of flow, medium, and switching value.
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request switching values).

## Flow Switch MF-007



### Dimensions

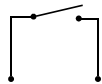


- Monitoring of small flows

### Characteristics

Mechanical flow switch for water, with magnetic triggering of a reed switch. Robust construction in brass.

### Technical data

<b>Switch</b>	reed switch
<b>Nominal width</b>	DN 7
<b>Process connection</b>	female thread M10x1 (further process connections available on request)
<b>Switching value</b>	selectable between 0.05..1 l/min H <sub>2</sub> O The switching value is suitable for vertical decreasing flows from below.
<b>Q<sub>max.</sub></b>	2 l/min
<b>Tolerance</b>	±15 % of full scale value
<b>Pressure resistance</b>	PN 6 bar
<b>Media temperature</b>	-20..+80 °C
<b>Ambient temperature</b>	-20..+70 °C
<b>Media</b>	water
<b>Wiring</b>	normally opened ( n.o.) no. 0.453
	
<b>Switching voltage</b>	max. 120 V AC
<b>Switching current</b>	max. 0.5 A
<b>Switching capacity</b>	max. 10 VA
<b>Protection class</b>	2 - safety insulation
<b>Ingress protection</b>	IP 65
<b>Electrical connection</b>	2 wires 300 mm
<b>Materials medium-contact</b>	CW614N, hard ferrite, NBR
<b>Non-medium-contact materials</b>	PTFE, CW614N nickelled, 1.4305
<b>Weight</b>	0.06 kg
<b>Installation location</b>	vertical inwards flow from below.

### Handling and operation

- Include straight calming section of 5 x DN in inlet and outlet
- Include a filter if the media are dirty (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switch on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.

### Ordering code

MF - 

1.	007
2.	G
3.	M

<b>1. Nominal width</b>	007	DN 7 - M10x1
<b>2. Process connection</b>	G	female thread
<b>3. Connection material</b>	M	brass

### Ordering information

- Specify direction of flow, medium, and switching value.

## Flow Switch MR

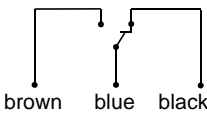


- High switching power
- Compact design

### Characteristics

Mechanical flow switch, for fluid or gaseous media, with spring-supported piston and magnetic triggering of a reed switch. Robust construction in brass or stainless steel.

### Technical data

<b>Switch</b>	reed switch	
<b>Nominal width</b>	DN 8.0.25	
<b>Process connection</b>	female thread G 1/4..G 1 (further process connections available on request)	
<b>Switching range</b>	0.4..60 l/min	for details see table "Ranges"
<b>Pressure loss</b>	0.4..1.9 bar at Q <sub>max.</sub>	
<b>Q<sub>max.</sub></b>	to 80 l/min	
<b>Tolerance</b>	±5 % of full scale value	
<b>Pressure resistance</b>	PN 200 bar (with optional display O1 G 1/4..G 3/4 PN 90)	
<b>Media temperature</b>	-20..+120 °C	
<b>Ambient temperature</b>	-20..+70 °C	
<b>Media</b>	water (oils, gases and aggressive media available on request)	
<b>Wiring</b>	transformer no. 0.213	
<b>Switching voltage</b>	max. 250 V AC	
<b>Switching current</b>	max. 1.5 A	
<b>Switching capacity</b>	max. 50 VA	
<b>Protection class</b>	2 - safety insulation	
<b>Ingress protection</b>	IP 65	
<b>Electrical connection</b>	cable 2.5 m (others cable lengths available on request)	
<b>Materials medium-contact</b>	Brass construction: CW614N nickelled, 1.4301, 1.4310, hard ferrite, NBR	Stainless steel construction: 1.4305, 1.4571, 1.4301, 1.4310, hard ferrite PTFE-coated, FKM
<b>Non-medium-contact materials</b>	PA, PVC	
<b>Weight</b>	see table "Dimensions and weights"	
<b>Installation location</b>	Standard: horizontal inwards flow from the left; other installation positions are possible; the installation position affects the switching point and range.	

### Ranges

For switching ranges, the details in the table correspond to horizontal inwards flow and decreasing flow rate; for display ranges they correspond to horizontal inwards flow and increasing flow rate.

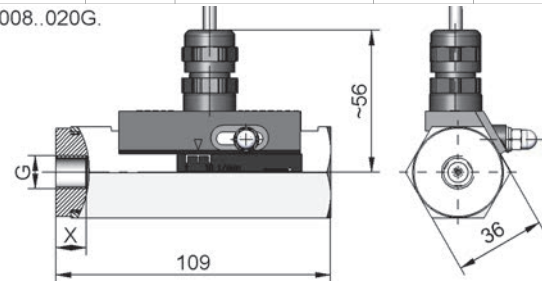
Switching range l/min H <sub>2</sub> O	Optionally Display range l/min H <sub>2</sub> O	Q <sub>max.</sub> recommended	Pressure loss bar at Q <sub>max.</sub> H <sub>2</sub> O
0.4 - 4	0.5 - 5	10	0.4
1.0 - 10	1.0 - 12	20	0.9
5.0 - 20	5.0 - 25	30	0.7
10.0 - 40	5.0 - 40	60	1.9
20.0 - 60	20.0 - 60	80	1.6

Special ranges are available.

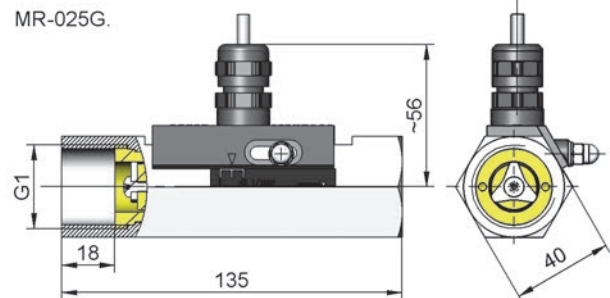
### Dimensions and weights

	G	Types	X	Weight kg
<b>Brass</b>	G 1/4	MR-008GM	12	0.9
	G 3/8	MR-010GM		
	G 1/2	MR-015GM	18	1.2
	G 3/4	MR-020GM		
<b>Stainless steel</b>	G 1	MR-025GM	12	0.9
	G 1/4	MR-008GK		
	G 3/8	MR-010GK	18	0.8
	G 1/2	MR-015GK		
	G 3/4	MR-020GK		
	G 1	MR-025GK		1.1

MR-008..020G.



MR-025G.



### additional weights for options

Display O1 / Z1 0.04 kg

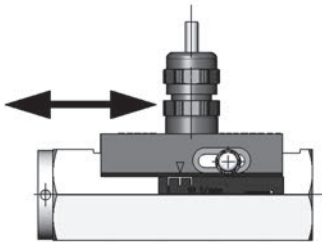
### Handling and Operation

#### Note

- Install straight calming section of 5 x DN in inlet and outlet.
- Include a filter if the media are dirty (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switch on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.

#### Adjustment

If it is necessary to set the switching value, the switching head can be adjusted lengthways. When the switching value is reached, the switching unit is fixed in place by fastening bolts.



### Ordering code

MR  1.  2.  3. **G** 4.  5.

1. Display options	
-	no mechanical display
O1-	with measurement display at side O1
2. Nominal width	
008	DN 8 - G 1/4
010	DN 10 - G 3/8
015	DN 15 - G 1/2
020	DN 20 - G 3/4
025	DN 25 - G 1
3. Process connection	
G	female thread
4. Connection material	
M	brass
K	stainless steel
5. Switching range H <sub>2</sub> O for horizontal inwards flow	
004	0.4 - 4 l/min
010	1.0 - 10 l/min
020	5.0 - 20 l/min
040	10.0 - 40 l/min
060	20.0 - 60 l/min



MRO1-

### Options

- Switching values for oil or gas
- Special values
- Connection for round plug connector M12x1
- Additional switching head
- Damping for gas monitoring
- Rhodium contact 250 V AC, 0.5 A, 30 VA

### Ordering information

- Specify direction of flow, medium, and switching range.
- For viscous media specify viscosity, temperature, and medium (e.g. ISO VG 68) (enquire about switching range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request switching range).

### Flow Switch MR1K-

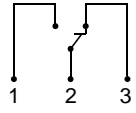
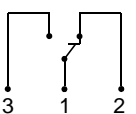


- High switching power
- Compact design

#### Characteristics

Mechanical flow switch, for fluid or gaseous media, with spring-supported piston and magnetic triggering of a reed switch. Robust construction in brass or stainless steel.

#### Technical data

<b>Switch</b>	reed switch	
<b>Nominal width</b>	DN 8..25	
<b>Process connection</b>	female thread G 1/4..G 1 (further process connections available on request)	
<b>Switching range</b>	0.4..60 l/min	for details see table "Ranges"
<b>Pressure loss</b>	0.4..1.4 bar at Q <sub>max.</sub>	
<b>Q<sub>max.</sub></b>	to 80 l/min	
<b>Tolerance</b>	±5 % of full scale value	
<b>Pressure resistance</b>	PN 200 bar optionally PN 500 bar	
<b>Media temperature</b>	-20..+120 °C optionally -20..+150 °C	
<b>Ambient temperature</b>	-20..+70 °C	
<b>Media</b>	water (oils, gases and aggressive media available on request)	
<b>Wiring</b>	changeover no. 0.213  optionally changeover no. 0.282  optionally red or red / green diode in the DIN 43650-A plug	
<b>Switching voltage</b>	max. 250 V AC	
<b>Switching current</b>	max. 1.5 A	
<b>Switching capacity</b>	max. 50 VA	
<b>Protection class</b>	2 - safety insulation	
<b>Ingress protection</b>	IP 65	
<b>Electrical connection</b>	plug DIN 43650-A / ISO 4400, optionally round plug connector M12x1, 4-pole	

<b>Materials medium-contact</b>	<i>Brass construction:</i> CW614N nickelled, CW614N, 1.4310, hard ferrite, NBR	<i>Stainless steel construction:</i> 1.4571, 1.4404, 1.4310, hard ferrite PTFE-coated, FKM
<b>Non-medium-contact materials</b>	PA, CW614N, NBR	
<b>Weight</b>	see table "Dimensions and weights"	
<b>Installation location</b>	Standard: horizontal inwards flow from the left; other installation positions are possible; the installation position affects the switching point and range.	

#### Ranges

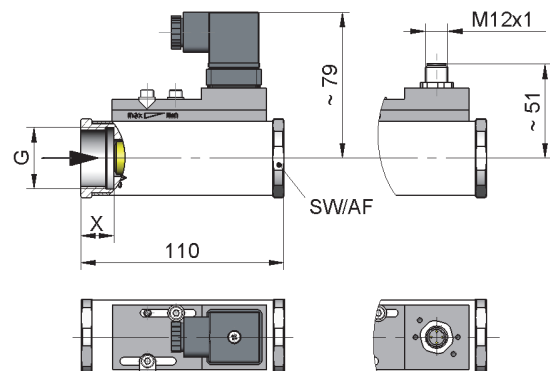
For switching ranges, the details in the table correspond to horizontal inwards flow and decreasing flow rate; for display ranges they correspond to horizontal inwards flow and increasing flow rate.

Switching range l/min H <sub>2</sub> O	Display range l/min H <sub>2</sub> O		Q <sub>max.</sub> recommended	Pressure loss bar at Q <sub>max.</sub> H <sub>2</sub> O
	O / O1	J		
0.4 - 4	0.5 - 5	0.4 - 4	10	0.6
1.0 - 10	1.0 - 12	1.0 - 10	20	
2.0 - 20	2.0 - 23	2.0 - 20	30	0.4
3.0 - 30	3.0 - 34	3.0 - 30	40	
4.0 - 40	4.0 - 45	4.0 - 40	60	0.8
6.0 - 60	6.0 - 65	6.0 - 60	80	
			80	1.4

Special ranges are available.

#### Dimensions and weights

	G	Types	SW	X	Weight kg
<b>Brass</b>	G 1/4	MR1K-008GM	40	15	1.3
	G 3/8	MR1K-010GM			
	G 1/2	MR1K-015GM		18	1.2
	G 3/4	MR1K-020GM			
	G 1	MR1K-025GM			
<b>Stainless steel</b>	G 1/4	MR1K-008GK	41	15	1.2
	G 3/8	MR1K-010GK			
	G 1/2	MR1K-015GK		18	1.1
	G 3/4	MR1K-020GK			
	G 1	MR1K-025GK			



#### Additional weights for options

Additional switching head	0.09 kg	Display O	0.09 kg
Display O1	0.04 kg	Display J	0.02 kg



### Handling and Operation

#### Note

- Include straight calming section of 5 x DN in inlet and outlet
- Include a filter if the media are dirty (use magnetic filter for ferritic components).
- It must be ensured that the values given for voltage, current, and power are not exceeded.
- When switch on, a load must be connected in series.
- The electrical details apply to ohmic loads. Capacitive, inductive and lamp loads must be operated using a protective circuit.

#### Adjustment

If it is necessary to set the switching value, the switching head can be adjusted lengthways. When the switching value is reached, the switching unit is fixed in place by fastening bolts.



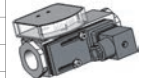
### Ordering code

MR1K  1.  2.  3. **G** 4.  5.

1. Display options	
-	no mechanical display
O1-	with measurement display at side O1
O-	with measurement display at side O
J-	with frontal measurement display J
2. Nominal width	
008	DN 8 - G 1/4
010	DN 10 - G 3/8
015	DN 15 - G 1/2
020	DN 20 - G 3/4
025	DN 25 - G 1
3. Process connection	
G	female thread
4. Connection material	
M	brass
K	stainless steel
5. Switching range H <sub>2</sub> O for horizontal inwards flow	
004	0.4 - 4 l/min
010	1.0 - 10 l/min
020	2.0 - 20 l/min
030	3.0 - 30 l/min
040	4.0 - 40 l/min
060	6.0 - 60 l/min



MR1KO1



MR1KO



MR1KJ

### Options

- Signal lamp red or red / green in the plug DIN 43650-A
- Connection for round plug connector M12x1
- Reinforced piston
- Additional switching head
- High pressure model PN 500 (only if made of brass)
- Damping for gas monitoring
- Rhodium contact 250 V AC, 0.5 A, 30 VA
- Switching values for oil or gas
- Special values
- Temperature display 0..120 °C

### Ordering information

- Specify direction of flow, medium, and switching range.
- For viscous media specify viscosity, temperature, and medium (e.g. ISO VG 68) (enquire about switching range).
- For gases, state pressure (relative or absolute), temperature and medium (e.g. air) (request switching range).

Архангельск (8182)63-90-72	Иваново (4932)77-34-06	Липецк (4742)52-20-81	Пенза (8412)22-31-16	Ставрополь (8652)20-65-13
Астана (7172)727-132	Ижевск (3412)26-03-58	Магнитогорск (3519)55-03-13	Пермь (342)205-81-47	Сургут (3462)77-98-35
Астрахань (8512)99-46-04	Иркутск (395)279-98-46	Москва (495)268-04-70	Ростов-на-Дону (863)308-18-15	Тверь (4822)63-31-35
Барнаул (3852)73-04-60	Казань (843)206-01-48	Мурманск (8152)59-64-93	Рязань (4912)46-61-64	Томск (3822)98-41-53
Белгород (4722)40-23-64	Калининград (4012)72-03-81	Набережные Челны (8552)20-53-41	Самара (846)206-03-16	Тула (4872)74-02-29
Брянск (4832)59-03-52	Калуга (4842)92-23-67	Нижний Новгород (831)429-08-12	Санкт-Петербург (812)309-46-40	Тюмень (3452)66-21-18
Владивосток (423)249-28-31	Кемерово (3842)65-04-62	Новокузнецк (3843)20-46-81	Саратов (845)249-38-78	Ульяновск (8422)24-23-59
Волгоград (844)278-03-48	Киров (8332)68-02-04	Новосибирск (383)227-86-73	Севастополь (8692)22-31-93	Уфа (347)229-48-12
Вологда (8172)26-41-59	Краснодар (861)203-40-90	Омск (3812)21-46-40	Симферополь (3652)67-13-56	Хабаровск (4212)92-98-04
Воронеж (473)204-51-73	Красноярск (391)204-63-61	Орел (4862)44-53-42	Смоленск (4812)29-41-54	Челябинск (351)202-03-61
Екатеринбург (343)384-55-89	Курск (4712)77-13-04	Оренбург (3532)37-68-04	Сочи (862)225-72-31	Череповец (8202)49-02-64
				Ярославль (4852)69-52-93

Киргизия (996)312-96-26-47    Казахстан (772)734-952-31    Таджикистан (992)427-82-92-69