

# Осевые игольчатые подшипники, сборки роликов с сепаратором, опорные шайбы

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## Product overview

### Axial needle roller and cage assemblies, washers, axial needle roller bearings

#### Axial needle roller and cage assemblies

AXK



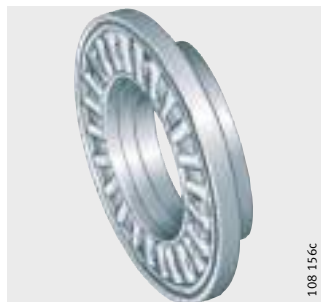
#### Axial bearing washers

AS



#### Axial needle roller bearings With centring spigot

AXW



#### Other products

AX



## Axial needle roller and cage assemblies, washers, axial needle roller bearings



### Features Axial needle roller and cage assemblies

Axial needle roller and cage assemblies AXK correspond to DIN 5 405-2. They comprise plastic or metal axial cages with integral needle rollers and have a very low axial section height. The cage assemblies can support high axial forces in one direction. Radial loads must be supported by separate means. Axial needle roller and cage assemblies require hardened and ground running surfaces as a raceway.

### Axial bearing washers

Axial bearing washers AS are punched, through hardened, polished and suitable for use as shaft or housing locating washers. They correspond to DIN 5 405-3 and are suitable for use with axial needle roller and cage assemblies AXK. These washers are suitable for use where the adjacent machine part is unhardened but is sufficiently rigid and geometrically accurate.

### Axial needle roller bearings

Axial needle roller bearings AXW are units comprising axial needle roller and cage assemblies AXK and axial bearing washers with centring spigot. They can be combined with drawn cup needle roller bearings with open ends or with closed end, and with needle roller bearings. The running surface for the needle roller and cage assembly must be hardened and ground.

### Operating temperature

Needle roller and cage assemblies and needle roller bearings with plastic cage are suitable for operating temperatures from  $-20\text{ }^{\circ}\text{C}$  to  $+120\text{ }^{\circ}\text{C}$ .

### Cages

Cage assemblies with a plastic cage have the suffix TV.

### Suffixes

Suffixes for available designs: see table.

### Available designs

| Suffixes         | Description                                                     | Design                       |
|------------------|-----------------------------------------------------------------|------------------------------|
| TV <sup>1)</sup> | Plastic cage made from glass fibre reinforced polyamide 66      | Standard                     |
| RR               | Corrosion-resistant design, with Corrotect <sup>®</sup> plating | Special design <sup>2)</sup> |

<sup>1)</sup> Axial needle roller and cage assemblies with plastic cage: see dimension table.

<sup>2)</sup> Available by agreement.

### Other products

Axial needle roller bearings are available in a special range with two raceways in various sizes; see Technical Publication API 18.

## Axial needle roller and cage assemblies, washers, axial needle roller bearings

### Design and safety guidelines

Axial bearing washers AS must always be fully supported on their entire abutment surface.

The abutment shoulders should be rigid, flat and perpendicular to the axis of rotation.

### Running surfaces

Radial cage running surfaces should be precision machined and resistant to wear,  $R_a 0,8$  ( $R_z 4$ ).

Raceways for axial needle roller and cage assemblies should be precision machined and resistant to wear:

- raceway hardness 58 HRC to 64 HRC
- hardening depth  $R_{ht} \geq 140 \cdot D_W / R_{p0,2}$ 
  - $R_{ht}$ , hardening depth in mm
  - $D_W$ , rolling element diameter in mm
  - $R_{p0,2}$ , proof stress in  $N/mm^2$
- roughness  $R_a 0,2$  ( $R_z 1$ )
- raceway dimensions  $E_a$  and  $E_b$  according to the dimension table must be observed
- runout tolerances to ISO tolerance grade IT 5, for special requirements to IT 4, in relation to the inside diameter of the cage assemblies ( $D_{c1}$ ) must be observed.

### Tolerances for shaft and housing bore

If axial needle roller bearings AXW are combined with drawn cup needle roller bearings or machined needle roller bearings, the same tolerances must be selected for the housing bore on the centring spigot as for the radial bearings.

### Housing bore and shaft tolerances

| Bearing component |                            | Shaft tolerance | Bore tolerance   |
|-------------------|----------------------------|-----------------|------------------|
| AXK               | Guided on shaft            | h8              | –                |
| AS                | As housing locating washer | Clear of shaft  | H9               |
|                   | As shaft locating washer   | h8              | Clear of housing |

### Speeds

#### Caution!

The limiting speeds  $n_G$  given in the dimension tables for AXK and AXW are for oil lubrication.

With grease lubrication, the permissible value is 25% of the value given in the table. Higher speeds may be possible by agreement.

### Minimum axial load

A minimum axial load  $F_{a \min}$  according to the formula must be applied.

$$F_{a \min} = 0,0005 \cdot C_{0a} + k_a \left( \frac{C_{0a} \cdot n}{10^8} \right)^2$$

$F_{a \min}$  Minimum axial load

$k_a$  –

Factor for determining the minimum load;  $k_a = 3$

$C_{0a}$  Basic static load rating, axial

$n$  Speed.

### Orientation of washers

Axial bearing washers AS are suitable as raceways on both sides.

## Accuracy Tolerances for bearing components

Tolerances for bearing components: see table and *Figure 1*.

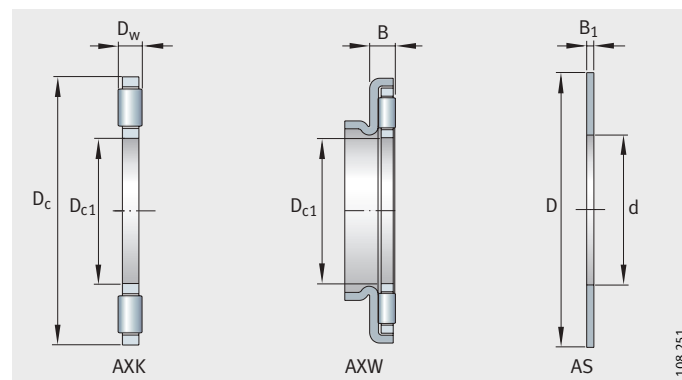
The diameter sort tolerance of the needle rollers in the axial needle roller and cage assembly AXK is 2  $\mu\text{m}$ .

Axial bearing washers AS match themselves to the accuracy of the contact surface. They are flat under a minimum concentric load of 200 N.



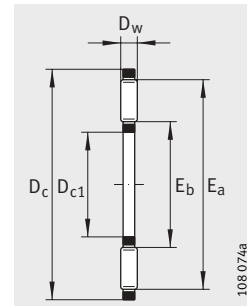
### Tolerances

| Series | Bore     |           | Outside diameter |           | Height |               |
|--------|----------|-----------|------------------|-----------|--------|---------------|
|        |          | Tolerance |                  | Tolerance |        | Tolerance     |
| AXK    | $D_{c1}$ | E12       | $D_c$            | c13       | $D_w$  | -0,01 mm      |
| AXW    | $D_{c1}$ | E12       | —                | —         | B      | -0,2 mm       |
| AS     | d        | E13       | D                | e13       | $B_1$  | $\pm 0,05$ mm |



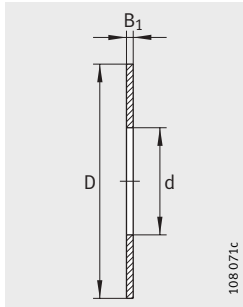
*Figure 1*  
Bearing components

## Axial needle roller and cage assemblies Axial bearing washers



AXK

| Dimension table · Dimensions in mm      |                  |                       |                  |                    |                   |                |                |
|-----------------------------------------|------------------|-----------------------|------------------|--------------------|-------------------|----------------|----------------|
| Axial needle roller and cage assemblies |                  | Axial bearing washers |                  | Dimensions         |                   |                |                |
| Designation                             | Mass<br>m<br>≈ g | Designation           | Mass<br>m<br>≈ g | D <sub>c1</sub> /d | D <sub>c</sub> /D | D <sub>w</sub> | B <sub>1</sub> |
| AXK0414-TV                              | 0,7              | AS0414                | 1                | 4                  | 14                | 2              | 1              |
| AXK0515-TV                              | 0,8              | AS0515                | 1                | 5                  | 15                | 2              | 1              |
| AXK0619-TV                              | 1                | AS0619                | 2                | 6                  | 19                | 2              | 1              |
| AXK0821-TV                              | 2                | AS0821                | 2                | 8                  | 21                | 2              | 1              |
| AXK1024                                 | 3                | AS1024                | 3                | 10                 | 24                | 2              | 1              |
| AXK1226                                 | 3                | AS1226                | 3                | 12                 | 26                | 2              | 1              |
| AXK1528                                 | 4                | AS1528                | 3                | 15                 | 28                | 2              | 1              |
| AXK1730                                 | 4                | AS1730                | 4                | 17                 | 30                | 2              | 1              |
| AXK2035                                 | 5                | AS2035                | 5                | 20                 | 35                | 2              | 1              |
| AXK2542                                 | 7                | AS2542                | 7                | 25                 | 42                | 2              | 1              |
| AXK3047                                 | 8                | AS3047                | 8                | 30                 | 47                | 2              | 1              |
| AXK3552                                 | 10               | AS3552                | 9                | 35                 | 52                | 2              | 1              |
| AXK4060                                 | 16               | AS4060                | 12               | 40                 | 60                | 3              | 1              |
| AXK4565                                 | 18               | AS4565                | 13               | 45                 | 65                | 3              | 1              |
| AXK5070                                 | 20               | AS5070                | 14               | 50                 | 70                | 3              | 1              |
| AXK5578                                 | 28               | AS5578                | 18               | 55                 | 78                | 3              | 1              |
| AXK6085                                 | 33               | AS6085                | 22               | 60                 | 85                | 3              | 1              |
| AXK6590                                 | 35               | AS6590                | 24               | 65                 | 90                | 3              | 1              |
| AXK7095                                 | 60               | AS7095                | 25               | 70                 | 95                | 4              | 1              |
| AXK75100                                | 61               | AS75100               | 27               | 75                 | 100               | 4              | 1              |
| AXK80105                                | 63               | AS80105               | 28               | 80                 | 105               | 4              | 1              |
| AXK85110                                | 67               | AS85110               | 29               | 85                 | 110               | 4              | 1              |
| AXK90120                                | 86               | AS90120               | 39               | 90                 | 120               | 4              | 1              |
| AXK100135                               | 104              | AS100135              | 50               | 100                | 135               | 4              | 1              |
| AXK110145                               | 122              | AS110145              | 55               | 110                | 145               | 4              | 1              |
| AXK120155                               | 131              | AS120155              | 59               | 120                | 155               | 4              | 1              |
| AXK130170                               | 205              | AS130170              | 65               | 130                | 170               | 5              | 1              |
| AXK140180                               | 219              | AS140180              | 79               | 140                | 180               | 5              | 1              |
| AXK150190                               | 232              | AS150190              | 84               | 150                | 190               | 5              | 1              |
| AXK160200                               | 246              | AS160200              | 89               | 160                | 200               | 5              | 1              |



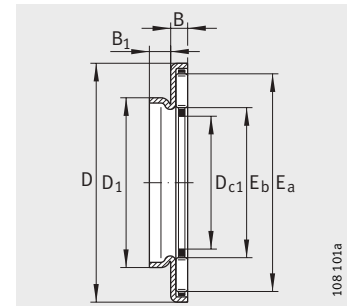
AS



| Raceway dimensions |       | Basic load ratings |                        | Fatigue limit load | Limiting speed             | Reference speed            |
|--------------------|-------|--------------------|------------------------|--------------------|----------------------------|----------------------------|
| $E_b$              | $E_a$ | dyn.<br>$C_a$<br>N | stat.<br>$C_{0a}$<br>N | $C_{ua}$<br>N      | $n_G$<br>$\text{min}^{-1}$ | $n_B$<br>$\text{min}^{-1}$ |
| 5                  | 13    | 4 400              | 8 000                  | 940                | 21 400                     | 14 900                     |
| 6                  | 14    | 4 750              | 9 200                  | 1 070              | 20 500                     | 13 000                     |
| 7                  | 18    | 6 800              | 15 500                 | 1 580              | 18 800                     | 10 800                     |
| 9                  | 20    | 7 800              | 19 400                 | 1 970              | 17 700                     | 8 800                      |
| 12                 | 23    | 9 200              | 25 500                 | 2 500              | 16 900                     | 7 400                      |
| 14                 | 25    | 9 900              | 29 000                 | 2 850              | 15 200                     | 6 500                      |
| 17                 | 27    | 11 300             | 36 000                 | 3 600              | 13 400                     | 5 100                      |
| 19                 | 29    | 11 900             | 39 500                 | 3 950              | 12 300                     | 4 600                      |
| 22                 | 34    | 13 100             | 46 500                 | 4 750              | 10 500                     | 4 350                      |
| 29                 | 41    | 14 700             | 58 000                 | 5 900              | 8 600                      | 3 850                      |
| 34                 | 46    | 16 300             | 70 000                 | 7 100              | 7 500                      | 3 200                      |
| 39                 | 51    | 17 800             | 81 000                 | 8 300              | 6 600                      | 2 800                      |
| 45                 | 58    | 28 000             | 114 000                | 11 800             | 5 800                      | 2 440                      |
| 50                 | 63    | 30 000             | 128 000                | 13 300             | 5 200                      | 2 170                      |
| 55                 | 68    | 32 000             | 143 000                | 14 800             | 4 800                      | 1 950                      |
| 60                 | 76    | 38 000             | 186 000                | 20 300             | 4 350                      | 1 780                      |
| 65                 | 83    | 44 500             | 234 000                | 26 500             | 3 950                      | 1 590                      |
| 70                 | 88    | 46 500             | 255 000                | 28 500             | 3 700                      | 1 470                      |
| 74                 | 93    | 54 000             | 255 000                | 26 500             | 3 500                      | 1 430                      |
| 79                 | 98    | 55 000             | 265 000                | 28 000             | 3 300                      | 1 350                      |
| 84                 | 103   | 56 000             | 280 000                | 29 500             | 3 100                      | 1 280                      |
| 89                 | 108   | 58 000             | 290 000                | 30 500             | 2 950                      | 1 220                      |
| 94                 | 118   | 73 000             | 405 000                | 44 500             | 2 750                      | 1 120                      |
| 105                | 133   | 91 000             | 560 000                | 58 000             | 2 450                      | 980                        |
| 115                | 143   | 97 000             | 620 000                | 63 000             | 2 260                      | 890                        |
| 125                | 153   | 102 000            | 680 000                | 68 000             | 2 090                      | 810                        |
| 136                | 167   | 133 000            | 840 000                | 75 000             | 1 920                      | 760                        |
| 146                | 177   | 138 000            | 900 000                | 79 000             | 1 800                      | 710                        |
| 156                | 187   | 143 000            | 960 000                | 82 000             | 1 690                      | 660                        |
| 166                | 197   | 148 000            | 1 020 000              | 86 000             | 1 600                      | 620                        |

## Axial needle roller bearings

With centring spigot

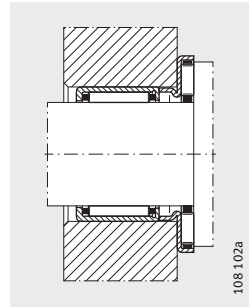


AXW

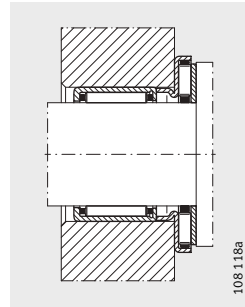
| Dimension table · Dimensions in mm |           |            |       |    |     |       |                    |       |                    |                   |                                |                         |                          |
|------------------------------------|-----------|------------|-------|----|-----|-------|--------------------|-------|--------------------|-------------------|--------------------------------|-------------------------|--------------------------|
| Designation                        | Mass<br>m | Dimensions |       |    |     |       | Raceway dimensions |       | Basic load ratings |                   | Fatigue limit load<br>$C_{ua}$ | Limiting speed<br>$n_G$ | Reference speed<br>$n_B$ |
|                                    |           | $D_{c1}$   | $D_1$ | D  | B   | $B_1$ | $E_b$              | $E_a$ | dyn.<br>$C_a$      | stat.<br>$C_{0a}$ |                                |                         |                          |
|                                    | ≈ g       |            |       |    |     |       |                    |       | N                  | N                 | N                              | min <sup>-1</sup>       | min <sup>-1</sup>        |
| AXW10                              | 8,3       | 10         | 14    | 27 | 3,2 | 3     | 12                 | 23    | 9 200              | 25 500            | 2 500                          | 15 600                  | 8 300                    |
| AXW12                              | 9,1       | 12         | 16    | 29 | 3,2 | 3     | 14                 | 25    | 9 900              | 29 000            | 2 850                          | 14 000                  | 7 300                    |
| AXW15                              | 10        | 15         | 21    | 31 | 3,2 | 3,5   | 17                 | 27    | 11 300             | 36 000            | 3 600                          | 12 500                  | 5 800                    |
| AXW17                              | 11        | 17         | 23    | 33 | 3,2 | 3,5   | 19                 | 29    | 11 900             | 39 500            | 3 950                          | 11 500                  | 5 300                    |
| AXW20                              | 14        | 20         | 26    | 38 | 3,2 | 3,5   | 22                 | 34    | 13 100             | 46 500            | 4 750                          | 9 900                   | 4 900                    |
| AXW25                              | 20        | 25         | 32    | 45 | 3,2 | 4     | 29                 | 41    | 14 700             | 58 000            | 5 900                          | 8 200                   | 4 250                    |
| AXW30                              | 22        | 30         | 37    | 50 | 3,2 | 4     | 34                 | 46    | 16 300             | 70 000            | 7 100                          | 7 200                   | 3 600                    |
| AXW35                              | 27        | 35         | 42    | 55 | 3,2 | 4     | 39                 | 51    | 17 800             | 81 000            | 8 300                          | 6 400                   | 3 100                    |
| AXW40                              | 39        | 40         | 47    | 63 | 4,2 | 4     | 45                 | 58    | 28 000             | 114 000           | 11 800                         | 5 600                   | 2 700                    |
| AXW45                              | 43        | 45         | 52    | 68 | 4,2 | 4     | 50                 | 63    | 30 000             | 128 000           | 13 300                         | 5 100                   | 2 400                    |
| AXW50                              | 49        | 50         | 58    | 73 | 4,2 | 4,5   | 55                 | 68    | 32 000             | 143 000           | 14 800                         | 4 700                   | 2 160                    |

<sup>1)</sup> Dimensions for axial bearing washers AS, for drawn cup needle roller bearings with open ends, drawn cup needle roller bearings with open end and needle roller bearings: see corresponding product section.

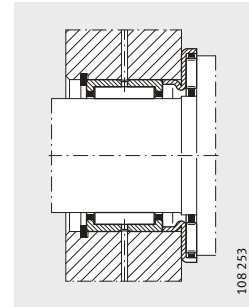
Combination with  
radial needle  
roller bearings



AXW with HK



AXW with AS  
and HK



AXW with NK, NKS,  
RNA49, RNA69



**Combination with drawn cup needle roller bearings with open ends,  
drawn cup needle roller bearings with closed end and with needle roller bearings**

Designation

| AS     | HK                                                                 | HK...-RS                                                           | BK                                                                  | NK, NKS,<br>RNA49, RNA69<br>Needle<br>roller bearings <sup>1)</sup> | NKI, NKIS,<br>NA49, NA69<br>Needle<br>roller bearings <sup>1)</sup> |
|--------|--------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------|
|        | Drawn cup<br>needle roller bearing<br>with open ends <sup>1)</sup> | Drawn cup<br>needle roller bearing<br>with open ends <sup>1)</sup> | Drawn cup<br>needle roller bearing<br>with closed end <sup>1)</sup> |                                                                     |                                                                     |
| AS1024 | HK1010, HK1012                                                     | –                                                                  | BK1010, BK1012                                                      | NK7/10TV                                                            | –                                                                   |
| –      | HK1015                                                             | –                                                                  | BK1015                                                              | NK7/12TV                                                            | –                                                                   |
| AS1226 | HK1210                                                             | –                                                                  | BK1210                                                              | NK9/12TV                                                            | NKI6/12TV                                                           |
| –      | –                                                                  | –                                                                  | –                                                                   | NK9/16TV                                                            | NKI6/16TV                                                           |
| AS1528 | HK1512, HK1516                                                     | HK1514-RS                                                          | BK1512, BK1516                                                      | –                                                                   | –                                                                   |
| –      | HK1522-ZW                                                          | –                                                                  | –                                                                   | –                                                                   | –                                                                   |
| AS1730 | HK1712                                                             | –                                                                  | –                                                                   | NK15/16, NK15/20                                                    | –                                                                   |
| AS2035 | HK2012, HK2016                                                     | HK2018-RS                                                          | BK2016                                                              | NK18/16, NK18/20                                                    | –                                                                   |
| –      | HK2020                                                             | –                                                                  | BK2020                                                              | –                                                                   | –                                                                   |
| –      | HK2030-ZW                                                          | –                                                                  | –                                                                   | –                                                                   | –                                                                   |
| AS2542 | HK2512, HK2516                                                     | HK2518-RS                                                          | –                                                                   | NK24/16, NK24/20                                                    | NKI20/16                                                            |
| –      | HK2520, HK2526                                                     | –                                                                  | BK2520, BK2526                                                      | NKS20                                                               | NKI20/20                                                            |
| –      | HK2538-ZW                                                          | –                                                                  | BK2538-ZW                                                           | –                                                                   | –                                                                   |
| AS3047 | HK3012, HK3016                                                     | HK3018-RS                                                          | BK3012, BK3016                                                      | NK28/20, NK28/30                                                    | NA4904                                                              |
| –      | HK3020, HK3026                                                     | –                                                                  | BK3020, BK3026                                                      | NKS 24                                                              | NA6904                                                              |
| –      | HK3038-ZW                                                          | –                                                                  | BK3038-ZW                                                           | RNA4904, RNA6904                                                    | –                                                                   |
| AS3552 | HK3512, HK3516                                                     | HK3518-RS                                                          | –                                                                   | NK32/20, NK32/30                                                    | NKIS20, NA4905                                                      |
| –      | HK3520                                                             | –                                                                  | BK3520                                                              | NKS28                                                               | NA6905                                                              |
| –      | –                                                                  | –                                                                  | –                                                                   | RNA4905, RNA6905                                                    | NKI28/20 NKI28/30                                                   |
| AS4060 | HK4012, HK4016                                                     | HK4018-RS                                                          | –                                                                   | NK37/20, NK37/30                                                    | NKIS25, NA4906                                                      |
| –      | HK4020                                                             | –                                                                  | BK4020                                                              | NKS32                                                               | NA6906                                                              |
| –      | –                                                                  | –                                                                  | –                                                                   | RNA4906, RNA6906                                                    | NKI32/20                                                            |
| –      | –                                                                  | –                                                                  | –                                                                   | –                                                                   | NKI32/30                                                            |
| AS4565 | HK4516, HK4520                                                     | HK4518-RS                                                          | BK4520                                                              | NK42/20, NK42/30                                                    | NKIS30                                                              |
| –      | –                                                                  | –                                                                  | –                                                                   | NKS37                                                               | NA49/32                                                             |
| –      | –                                                                  | –                                                                  | –                                                                   | RNA49/32, RNA69/32                                                  | NA69/32                                                             |
| AS5070 | HK5020, HK5025                                                     | HK5022-RS                                                          | –                                                                   | NKS43                                                               | NKIS35                                                              |



## По вопросам продаж и поддержки обращайтесь:

|                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Алматы (727)345-47-04<br>Ангарск (3955)60-70-56<br>Архангельск (8182)63-90-72<br>Астрахань (8512)99-46-04<br>Барнаул (3852)73-04-60<br>Белгород (4722)40-23-64<br>Благовещенск (4162)22-76-07<br>Брянск (4832)59-03-52<br>Владивосток (423)249-28-31<br>Владикавказ (8672)28-90-48<br>Владимир (4922)49-43-18<br>Волгоград (844)278-03-48<br>Вологда (8172)26-41-59<br>Воронеж (473)204-51-73<br>Екатеринбург (343)384-55-89 | Иваново (4932)77-34-06<br>Ижевск (3412)26-03-58<br>Иркутск (395)279-98-46<br>Казань (843)206-01-48<br>Калининград (4012)72-03-81<br>Калуга (4842)92-23-67<br>Кемерово (3842)65-04-62<br>Киров (8332)68-02-04<br>Коломна (4966)23-41-49<br>Кострома (4942)77-07-48<br>Краснодар (861)203-40-90<br>Красноярск (391)204-63-61<br>Курск (4712)77-13-04<br>Курган (3522)50-90-47<br>Липецк (4742)52-20-81 | Магнитогорск (3519)55-03-13<br>Москва (495)268-04-70<br>Мурманск (8152)59-64-93<br>Набережные Челны (8552)20-53-41<br>Нижний Новгород (831)429-08-12<br>Новокузнецк (3843)20-46-81<br>Ноябрьск (3496)41-32-12<br>Новосибирск (383)227-86-73<br>Омск (3812)21-46-40<br>Орел (4862)44-53-42<br>Оренбург (3532)37-68-04<br>Пенза (8412)22-31-16<br>Петрозаводск (8142)55-98-37<br>Псков (8112)59-10-37<br>Пермь (342)205-81-47 | Ростов-на-Дону (863)308-18-15<br>Рязань (4912)46-61-64<br>Самара (846)206-03-16<br>Санкт-Петербург (812)309-46-40<br>Саратов (845)249-38-78<br>Севастополь (8692)22-31-93<br>Саранск (8342)22-96-24<br>Симферополь (3652)67-13-56<br>Смоленск (4812)29-41-54<br>Сочи (862)225-72-31<br>Ставрополь (8652)20-65-13<br>Сургут (3462)77-98-35<br>Сыктывкар (8212)25-95-17<br>Тамбов (4752)50-40-97<br>Тверь (4822)63-31-35 | Тольятти (8482)63-91-07<br>Томск (3822)98-41-53<br>Тула (4872)33-79-87<br>Тюмень (3452)66-21-18<br>Ульяновск (8422)24-23-59<br>Улан-Удэ (3012)59-97-51<br>Уфа (347)229-48-12<br>Хабаровск (4212)92-98-04<br>Чебоксары (8352)28-53-07<br>Челябинск (351)202-03-61<br>Череповец (8202)49-02-64<br>Чита (3022)38-34-83<br>Якутск (4112)23-90-97<br>Ярославль (4852)69-52-93 |
| <b>Россия</b> +7(495)268-04-70                                                                                                                                                                                                                                                                                                                                                                                               | <b>Казахстан</b> +7(727)345-47-04                                                                                                                                                                                                                                                                                                                                                                    | <b>Беларусь</b> +(375)257-127-884                                                                                                                                                                                                                                                                                                                                                                                           | <b>Узбекистан</b> +998(71)205-18-59                                                                                                                                                                                                                                                                                                                                                                                    | <b>Киргизия</b> +996(312)96-26-47                                                                                                                                                                                                                                                                                                                                        |

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