Chilling Technology

- *technology for free-flowing bulk materials*
- *grain chilling technology*
- *drying technology*
- *warm air heater*
- *bulkstorage technology*
- *conveying technology*

business worldwide

Chillers

for a chemical-free conservation

www.goldsaat.com

goldsaat®
AGRARTECHNIK

The economic way of quality control of grain.

Experiences of many decades in preserving grain by chilling finds expression in **chillers of series 404-S** of consistently logical design. Maximum operational safety and innovative constructional features characterise this chiller.

The complete unit consists of:

- noise damping
- *granotherm*-device
- capacity controlled compressor operation
- *granosafe*-compensator
- safety control at low temperatures
- highes protection against corrosion through galvanized steel sheet and multiple varnish
- single switching for aeration at winter operation
- TÜV[1]-approval at the factory
- hour meter and spare filter mats
- U-tube for survey of counter pressure in the bulk and of processing air
- transport device
- water-tight CEE-plug with coupling
- pre-device for *coolstop*
- flexible cold air tube with patented claps

fig. 1: Operating panel of the control unit

fig. 2:
Double exchange connection

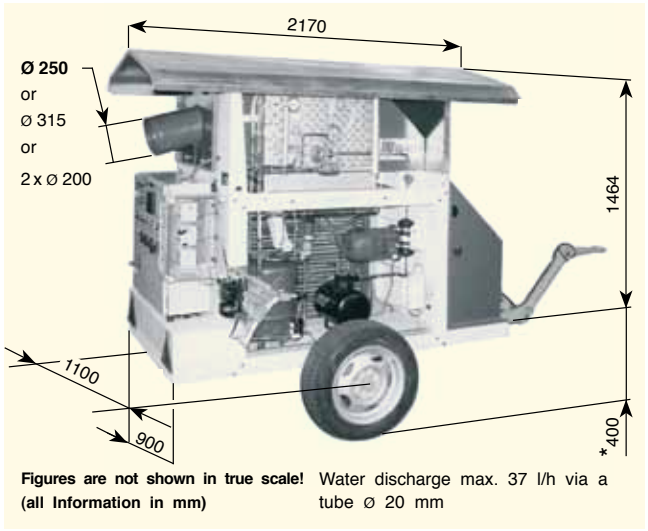
Design features:

- Microprocessor controlled ***thermplus***-AKSR-control
- Swiss precision (AGROMATIC) and German know-how (***goldsaat***) realized into grain chilling technology.
- **Reheat adjustment** up to 9 K (°C), independent of the ambient temperature
- **Operating capacity** of the unit between - 4 °C and + 40 °C ambient temperature.
- **Chilling air** stepless adjustable between + 2 °C and + 17 °C independent of weather conditions.
- **Operation** not only according to inblow temperature but also according to sorption moisture (water activity of the grain).
- **Function sequences** not to be affected by high counter pressure of the bulk (silo).
- Highest possible **air flow** at lowest possible power demand.
- **Integrated self-checking** for the unit and the electronics as well as bulk survey at *coolstop*.
- ***granoplus***-air conditioning control.

[1] German Technical Control Board

Chiller **GK 40/NHDe-404 -** (energy-efficiency in areas of application with low performance-demands)

Equipment size:



Figures are not shown in true scale! (all Information in mm) Water discharge max. 37 l/h via a tube ø 20 mm

*(200) with standard transport device!

Weight: 490 kg (with standard transport device)
Filter mat: 440 x 650 mm
Noise level: 77 dB (A), (average level at 1 m distance)
TÜV[1)]-approval: not required

Chilling capacity:

45 t/d (normal capacity in summertime) up to **70 t/d** (limit capacity)
Condition:
At 22 °C ambient temperature, 50 % rel. air humidity and 17,5 % grain moisture, **45 tons** of grain are chilled to 10 °C, within 24 hours, inclusive 2 K (°C) *granotherm* reheat.

Cooling capacity:

12.200 W (10.500 kcal/h)
at 0/30 °C evaporation/condensation temperature

Fan capacity:

at a total installation counter pressure of:

1.000 Pa	(102 mm wg):	**1.920 m³/h**
2.000 Pa	(204 mm wg):	**1.560 m³/h**
2.500 Pa	(255 mm wg):	**1.260 m³/h**
Volume flow of the axial-fan (at a rotating-frequency of 1500 min^{-1}):		**5.800 m³/h**

Control of GK 40/NHDe-404:

Cold air temperatur is controled by an automatic regulator and air flow throttle valve. The reheat-safety-circuit *granosafe* is beeing regulatet by an electronic thermostat.

The reheat *granotherm* is controlable by handwheel. As an option, the reheat can also be controled electronicaly.

Highest efficiency by capacity steps via bypass-cooling-valve. All versions of *coolstop* (see Accessories), such as survey of warehouses or silo bins, can be connected.

Temperature pre-setting:

+ 2 °C up to + 17 °C at the front panel control. Ambient and inblowing temperature are displayed.

Reheat:

0 up to 9 K (°C) is to be selected by a Handwheel. Upon request, the reheat scale can be equipped with a control knob for temperature or water activity.

Electrical data:

Type of current: 380...420 V - 3 phases - 50 HZ

Power consumption:

6,5 kW
Power supply by built-on CEE plug 32 A, IP 65. Coupling is supplied loose.

Single values:
Compressor 3,3 kW;
cold air fan 2,2 kW;
condenser fan 0,65 kW,
pressostatically controlled direct start.

Fluctuation range:
High-voltage current: **± 10 %**, control current: **± 50 %**

Scope of supply:

The **Chiller GK 40/NHDe-404** is a complete unit. Our scope of supply includes a. o. (for details, we refer to our quotation):

3 m of cold air tube, Ø 250 mm, and 2 tensioning belts.

Transport device with two swivel castors. Two filter mats, hour meter, CEE plug 32 A with coupling and **noise protection at the suction filter**.

Zubehör:*

Protective roof: consisting of consoles and the roof itself.

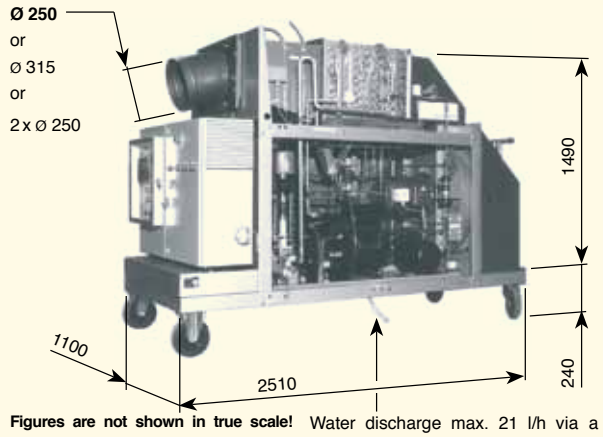
***coolstop*:** for survey and automatic finishing the cooling operation, available in simple design - f.e. warehouse chilling - or as intelligent unit - f.e. for integration into the existing silo measuring unit.

Exchange connection:
for a pipe system of 250 mm diameter.

Double exchange connection:
For simultaneous chilling of two inblowing points, a double exchange connection with 2 connections of Ø 200 mm can be used, instead of a connection system with Y-pipe and 2 flexible tubes. (see fig. 2)

Chiller **GK 80/404-S**

Equipment size:



Figures are not shown in true scale! (all Information in mm)

Water discharge max. 21 l/h via a tube ø 16 mm (5/8")

Weight: 900 kg (with standard transport device)
965 kg (with air tires)
Filter mat: 600 x 620 mm
Noise level: 69 dB (A), (average level at 7 m distance)
TÜV[1)]-approval: not required

Chilling capacity:

90 t/d (normal capacity in summertime) up to **125 t/d** (limit capacity)
Condition:
At 22 °C ambient temperature, 50 % rel. air humidity and 16 % grain moisture, **90 tons** of grain are chilled to 10 °C, within 24 hours, inclusive 2 K (°C) *granotherm* reheat.

Cooling capacity:

32.300 W (24.680 kcal/h)
at 0/30 °C evaporation/condensation temperature

Fan capacity:

at a total installation counter pressure of:

1.000 Pa	(102 mm wg):	**3.660 m³/h**
2.000 Pa	(204 mm wg):	**3.300 m³/h**
3.000 Pa	(306 mm wg):	**2.880 m³/h**
4.000 Pa	(408 mm wg):	**2.160 m³/h**

Control of GK 80/404-S (fig. 1):

Closed circuit microprocessor control, with memory for device and installation data; watchdog. Programmable by keyboard; display for parameters and working data. All methodic processes, like *granosafe*, *granotherm* and *granoplus* are functionally integrated into the control procedure.

Highest efficiency by two capacity steps and motoric refrigerant dosing.
All versions of *coolstop* (see Accessories), such as survey of warehouses or silo bins, can be connected.

Temperature pre-setting:

+ 2 °C up to + 17 °C at the front panel control. Ambient and inblowing temperature are displayed.

Reheat:

0 up to 9 K (°C) inclusive of *granoplus*, to be selected at the front panel control. Upon request, the reheat scale can be equipped with a control knob for temperature or water activity.

Electrical data:

Type of current: 380...420 V - 3 phases - 50 HZ

Power consumption:
14,4 kW *without granoplus*
20,4 kW *with granoplus*
Power supply by built-on CEE plug 63 A, IP 66.
Coupling is supplied loose.

Single values:
Compressor with PW-start 7,5 kW;
cold air fan 5,5 kW with star-delta start;
condenser fan 2 x 0,65 kW,
pressostatically controlled direct start.

Fluctuation range:
High-voltage current: **± 10 %**, control current: **± 50 %**

Scope of supply:

The **Chiller GK 80/404-S** is a complete unit. Our scope of supply includes a. o. (for details, we refer to our quotation):

3 m of cold air tube, Ø 315 mm or Ø 250 mm, including 2 tensioning belts (depending on the existing or scheduled channel system). Transport device with each two fixed castors and two swivel castors with brake and drawbar.

Two filter mats, hour meter, CEE plug 63 A with coupling and **noise protection at the suction filter**.

Accessories:*

Protective roof: consisting of consoles and the roof itself.

***coolstop*:** for survey and automatic finishing the cooling operation, available in simple design - f.e. warehouse chilling - or as intelligent unit - f.e. for integration into the existing silo measuring unit.

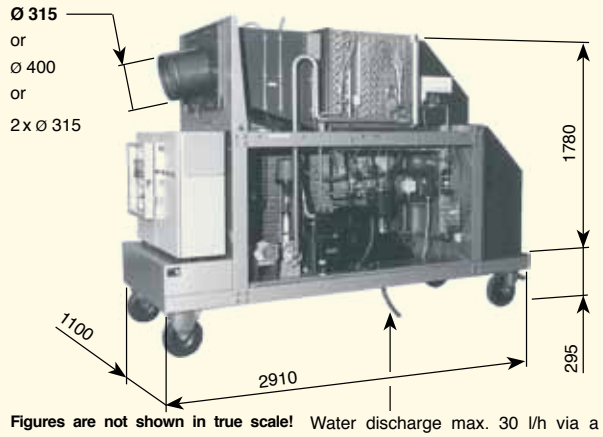
Exchange connection:
for a pipe system of 315 mm diameter.

Double exchange connection:
For simultaneous chilling of two inblowing points, a double exchange connection with 2 connections of Ø 250 mm can be used, instead of a connection system with Y-pipe and 2 flexible tubes. (see fig. 2)

Noise protection:
For reducing the noise level, the muffling mantle PST (refer 1056) is available.

Chiller **GK 160/404-S**

Equipment size:



Figures are not shown in true scale! (all Information in mm)

Water discharge max. 30 l/h via a tube Ø 16 mm (5/8")

Weight: 1.230 kg (with stand. transport device)
1.445 kg (with air tires)
Filter mat: 660 x 820 mm, 2 pieces
Noise level: 70 dB (A), (average level at 7 m distance)
TÜV[1)]-approval: in our factory

Chilling capacity:

115 t/d (normal capacity in summertime) up to **180 t/d** (limit capacity)
Condition:
At 22 °C ambient temperature, 50 % rel. air humidity and 16 % grain moisture, **115 tons** of grain are chilled to 10 °C, within 24 hours, inclusive 2 K (°C) *granotherm* reheat.

Cooling capacity:

47.100 W (40.459 kcal/h)
at 0/30 °C evaporation/condensation temperature

Fan capacity:

at a total installation counter pressure of:

1.000 Pa	(102 mm wg):	**5.300 m³/h**
2.000 Pa	(204 mm wg):	**4.800 m³/h**
3.000 Pa	(306 mm wg):	**4.200 m³/h**
4.000 Pa	(408 mm wg):	**3.500 m³/h**

Control of GK 160/404-S (fig. 1):

Closed circuit microprocessor control, with memory for device and installation data; watchdog. Programmable by keyboard; display for parameters and working data. All methodic processes, like *granosafe*, *granotherm* and *granoplus* are functionally integrated into the control procedure.

Highest efficiency by two capacity steps and motoric refrigerant dosing.
All versions of *coolstop* (see Accessories), such as survey of warehouses or silo bins, can be connected.

Temperature pre-setting:

+ 2 °C up to + 17 °C at the front panel control. Ambient and inblowing temperature are displayed.

Reheat:

0 up to 9 K (°C) inclusive of *granoplus*, to be selected at the front panel control. Upon request, the reheat scale can be equipped with a control knob for temperature or water activity.

Electrical data:

Type of current: 380...420 V - 3 phases - 50 HZ

Power consumption:
20,0 kW *without granoplus*
32,0 kW *with granoplus*
Power supply by built-on CEE plug 63 A, IP 66.
Coupling is supplied loose.

Single values:
Compressor with PW-start 11 kW;
cold air fan 7,5 kW with star-delta start;
condenser fan 2 x 0,65 kW,
pressostatically controlled direct start.

Fluctuation range:
High-voltage current: **± 10 %**, control current: **± 50 %**

Scope of supply:

The **Chiller GK 160/404-S** is a complete unit. Our scope of supply includes a. o. (for details, we refer to our quotation):

3 m of cold air tube, Ø 315 mm or Ø 400 mm, including 2 tensioning belts (depending on the existing or scheduled channel system). Transport device with each two fixed castors and two swivel castors with brake and drawbar.

Two filter mats, hour meter, CEE plug 63 A with coupling and **noise protection at the suction filter**.

Accessories:*

Protective roof: (see Chiller GK 80/404-S)

***coolstop*:** (see Chiller GK 80/404-S)

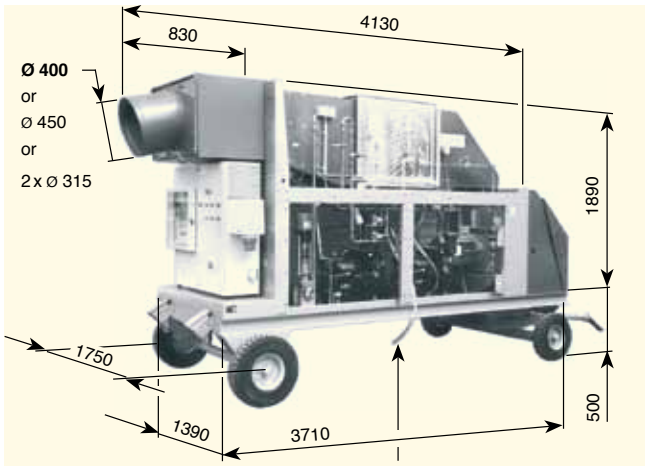
Exchange connection:
for a pipe system of 450 mm diameter.

Double exchange connection:
For simultaneous chilling of two inblowing points, a double exchange connection with 2 connections of Ø 315 mm can be used, instead of a connection system with Y-pipe and 2 flexible tubes. (see fig. 2)

Noise protection: (see Chiller GK 80/404-S)

Chiller **GK 240/404-S**

Equipment size:



Figures are not shown in true scale! **(all Information in mm)**

Water discharge max. 37 l/h via a tube Ø 20 mm

Weight: 2.300 kg (with two axles, drawbar and air tires)
Filter mat: 1000 x 1020 mm, 2 pieces
Noise level: 69 dB (A), (average level at 7 m distance)
TÜV[1)]-approval: in our factory

Chilling capacity:

170 t/d (normal capacity in summertime) up to **250 t/d** (limit capacity)
Condition:
At 22 °C ambient temperature, 50 % rel. air humidity and 16 % grain moisture, **170 tons** of grain are chilled to 10 °C, within 24 hours, inclusive 2 K (°C) *granotherm* reheat.

Cooling capacity:

65.600 W (56.350 kcal/h)
at 0/30 °C evaporation/condensation temperature

Fan capacity:

at a total installation counter pressure of:

1.000 Pa	(102 mm wg):	**7.200 m³/h**
2.000 Pa	(204 mm wg):	**6.670 m³/h**
3.000 Pa	(306 mm wg):	**5.500 m³/h**
4.000 Pa	(408 mm wg):	**4.200 m³/h**
4.500 Pa	(459 mm wg):	**3.000 m³/h**

Control of GK 240/404-S (fig. 1):

Closed circuit microprocessor control, with memory for device and installation data; watchdog. Programmable by keyboard; display for parameters and working data. All methodic processes, like *granosafe*, *granotherm* and *granoplus* are functionally integrated into the control procedure.

Highest efficiency by two seperate refrigerating circuits, four capacity steps and motoric refrigerant dosing. All versions of *coolstop* (see Accessories), such as survey of warehouses or silo bins, can be connected.

Temperature pre-setting:

+ 2 °C up to + 17 °C at the front panel control. Ambient and inblowing temperature are displayed.

Reheat:

0 up to 9 K (°C) inclusive of *granoplus*, to be selected at the front panel control. Upon request, the reheat scale can be equipped with a control knob for temperature or water activity.

Electrical data:

Type of current: 380...420 V - 3 phases - 50 HZ

Power consumption:
29,9 kW *without granoplus*
42 kW *with granoplus*
Power supply by built-on CEE plug 125 A, IP 66.
Coupling is supplied loose

Einzelwerte:
Compressor with PW-start 2 x 7,5 kW;
cold air fan 11 kW with star-delta start;
condenser fan 2 x 1,9 kW,
pressostatically controlled direct start.

Fluctuation range:
High-voltage current: **± 10 %**, control current: **± 50 %**

Scope of supply:

The **Chiller GK 240/404-S** is a complete unit. Our scope of supply includes a. o. (for details, we refer to our quotation):

3 m of cold air tube, Ø 450 mm, and 2 tensioning belts. Transport device for max. 6 km/h with fail-safe air chamber wheels, mounted on steel rims, incl. stearing ring and drawbar as well as 2 fixing wedges.

Two filter mats, hour meter, CEE plug 125 A with coupling and **noise protection at the suction filter and the cold air socket**.

Accessories:*

Protective roof: consisting of consoles and the roof itself.

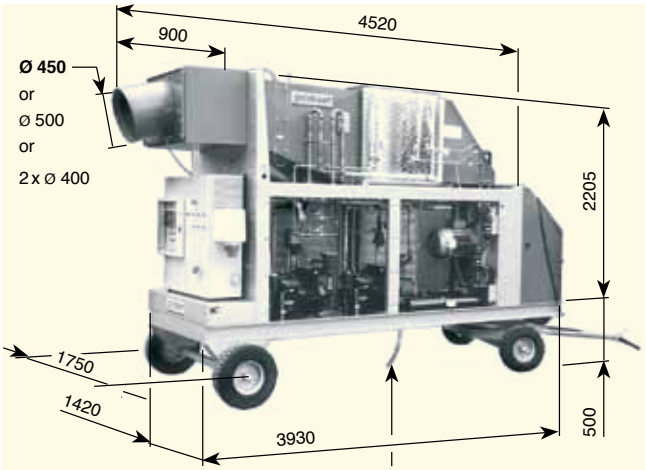
***coolstop*:** for survey and automatic finishing the cooling operation, available in simple design - f.e. warehouse chilling - or as intelligent unit - f.e. for integration into the existing silo measuring unit.

Exchange connection:
for a pipe system of 500 mm diameter.

Double exchange connection:
For simultaneous chilling of two inblowing points, a double exchange connection with 2 connections of Ø 315 mm or Ø 400 mm can be used, instead of a connection system with Y-pipe and 2 flexible tubes. (see fig. 2)

Chiller **GK 320/404-S**

Equipment size:



Figures are not shown in true scale! (all Information in mm)

Water discharge max. 44 l/h via a tube ø 20 mm

Weight: 2.600 kg (with two axles, drawbar and air tires)
Filter mat: 1000 x 1020 mm, 2 pieces
Noise level: 71 dB (A), (average level at 7 m distance)
TÜV[1)]-approval: in our factory

Chilling capacity:

250 t/d (normal capacity in summertime) up to **350 t/d** (limit capacity)
Condition:
At 22 °C ambient temperature, 50 % rel. air humidity and 16 % grain moisture, **250 tons** of grain are chilled to 10 °C, within 24 hours, inclusive 2 K (°C) *granotherm* reheat.

Cooling capacity:

94.200 W (69.660 kcal/h)
at 0/30 °C evaporation/condensation temperature

Fan capacity:

at a total installation counter pressure of:

1.000 Pa	(102 mm wg):	**10.200 m³/h**
2.000 Pa	(204 mm wg):	**9.400 m³/h**
3.000 Pa	(306 mm wg):	**8.550 m³/h**
4.000 Pa	(408 mm wg):	**7.150 m³/h**
5.000 Pa	(510 mm wg):	**5.400 m³/h**

Control of GK 320/404-S (fig. 1):

Closed circuit microprocessor control, with memory for device and installation data; watchdog. Programmable by keyboard; display for parameters and working data. All methodic processes, like *granosafe*, *granotherm* and *granoplus* are functionally integrated into the control procedure.

Highest efficiency by two seperate refrigerating circuits, four capacity steps and motoric refrigerant dosing. All versions of *coolstop* (see Accessories), such as survey of warehouses or silo bins, can be connected.

Temperature pre-setting:

+ 2 °C up to + 17 °C at the front panel control. Ambient and inblowing temperature are displayed.

Reheat:

0 up to 9 K (°C) inclusive of *granoplus*, to be selected at the front panel control. Upon request, the reheat scale can be equipped with a control knob for temperature or water activity.

Electrical data:

Type of current: 380...420 V - 3 phases - 50 HZ

Power consumption:
43,2 kW *without granoplus*
63,2 kW *with granoplus*
Power supply by built-on CEE plug 125 A, IP 66.
Coupling is supplied loose.

Single values:
Compressor with PW-start 2 x 11 kW;
cold air fan 15 kW with star-delta start;
condenser fan 2 x 3,1 kW,
pressostatically controlled direct start.

Fluctuation range:
High-voltage current: **± 10 %**, control current: **± 50 %**

Scope of supply:

The **Chiller GK 320/404-S** is a complete unit. Our scope of supply includes a. o. (for details, we refer to our quotation):

3 m of cold air tube, Ø 500 mm, and 2 tensioning belts. Transport device for max. 6 km/h with fail-safe air chamber wheels, mounted on steel rims, incl. stearing ring and drawbar as well as 2 fixing wedges.

Two filter mats, hour meter, CEE plug 125 A with coupling and **noise protection at the suction filter and the cold air socket**.

Accessories:*

Protective roof: (see Chiller GK 240/404-S)

***coolstop*:** (see Chiller GK 240/404-S)

Exchange connection:
for a pipe system of 500 mm diameter.

Double exchange connection:
For simultaneous chilling of two inblowing points, a double exchange connection with 2 connections of Ø 400 mm or Ø 315 mm can be used, instead of a connection system with Y-pipe and 2 flexible tubes. (see fig. 2)

- *technology for free-flowing bulk materials*
- *grain chilling technology*
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- *warm air heater*
- *bulkstorage technology*
- *conveying technology*

business worldwide

Grain:
cleaning, drying and chilling

goldsaat®
AGRARTECHNIK

Conveying Technology:
Gentle conveying of pourable goods

Drying Technology:
biological and economical ideal to ensure your profits.

Chilling Technology:
for a chemical-free conservation

Cleaning Technology:
SIVO UL - available for capacities of 20 - 200 t per hour

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For many decades, goldsaat has been operating successfully in the area of cleaning, drying, and cooling technology. We offer you an extensive range of products and accessories!

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- **warm air dryers**
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- **high cell exhaust fans**
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- **grain silo duct systems**
- **ventilation systems with and without temperature difference control**

Our products and expertise will ensure and preserve the quality of your harvest!

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