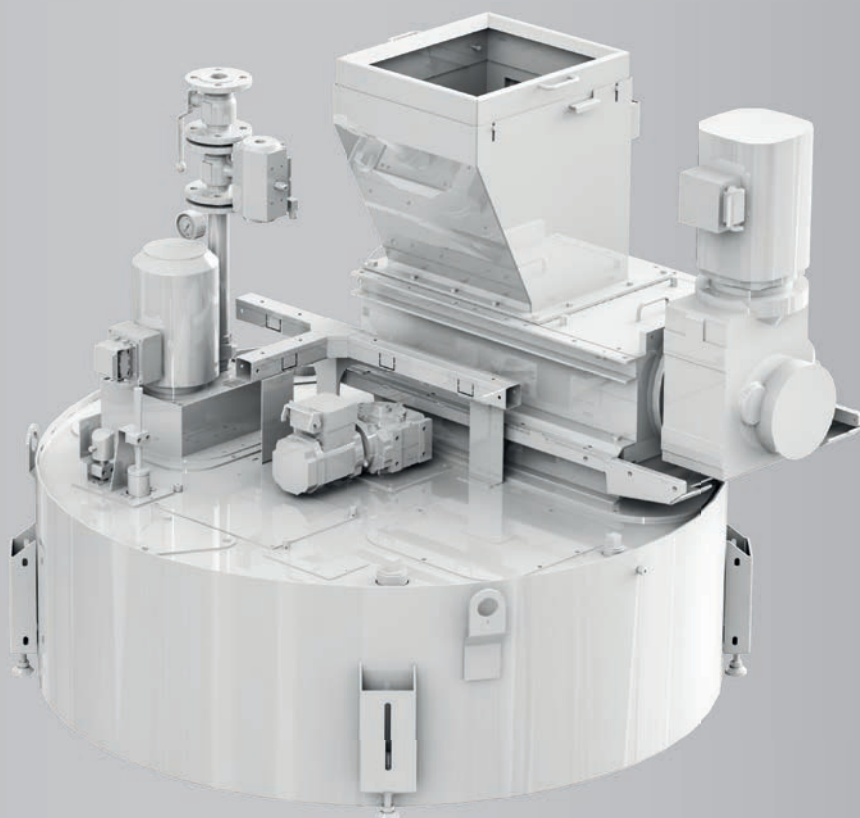


Pump-back stations R

KNOLL
.It works

Issue 05-2024



Selection matrix 3

Provided pump-back stations 4

 Pump-back station RKR..... 5

 Pump-back station RHV 6

 Pump-back station RSR 7

Integrated pump-back stations 8

 Pump-back station RIK..... 9

 Pump-back station RKH 10

 Pump-back station RRH 11

Abbreviations

KSS = Cooling lubricant(s)

Selection matrix

	Pump-back station	RKR	RKR with chip reducer	RIK	RIK with chip reducer	RHV	RHV with chip reducer	RSR	RKH	RRH
Requirements										
• Short chips < 30 mm, free-flowing		●	○	●	○	●	○	●	●	●
• Small to medium quantities of chips and KSS										
• Short chips < 30 mm, free-flowing		●	○	●	○	○	○	●	●	○
• Large quantities of chips and KSS										
• Short chips < 30 mm, clump-forming		○	●	○	●	○	●	○	○	○
• Small to medium quantities of chips and KSS										
• Short chips < 30 mm, clump-forming		○	●	○	●	○	○	○	○	○
• Large quantities of chips and KSS										
• Longer chips > 30 mm, individual chips forming clumps		○	●	○	●	○	●	○	○	○
• Small to medium quantities of chips and KSS										
• Longer chips > 30 mm, individual chips forming clumps		○	●	○	●	○	○	○	○	○
• Large quantities of chips and KSS										

●

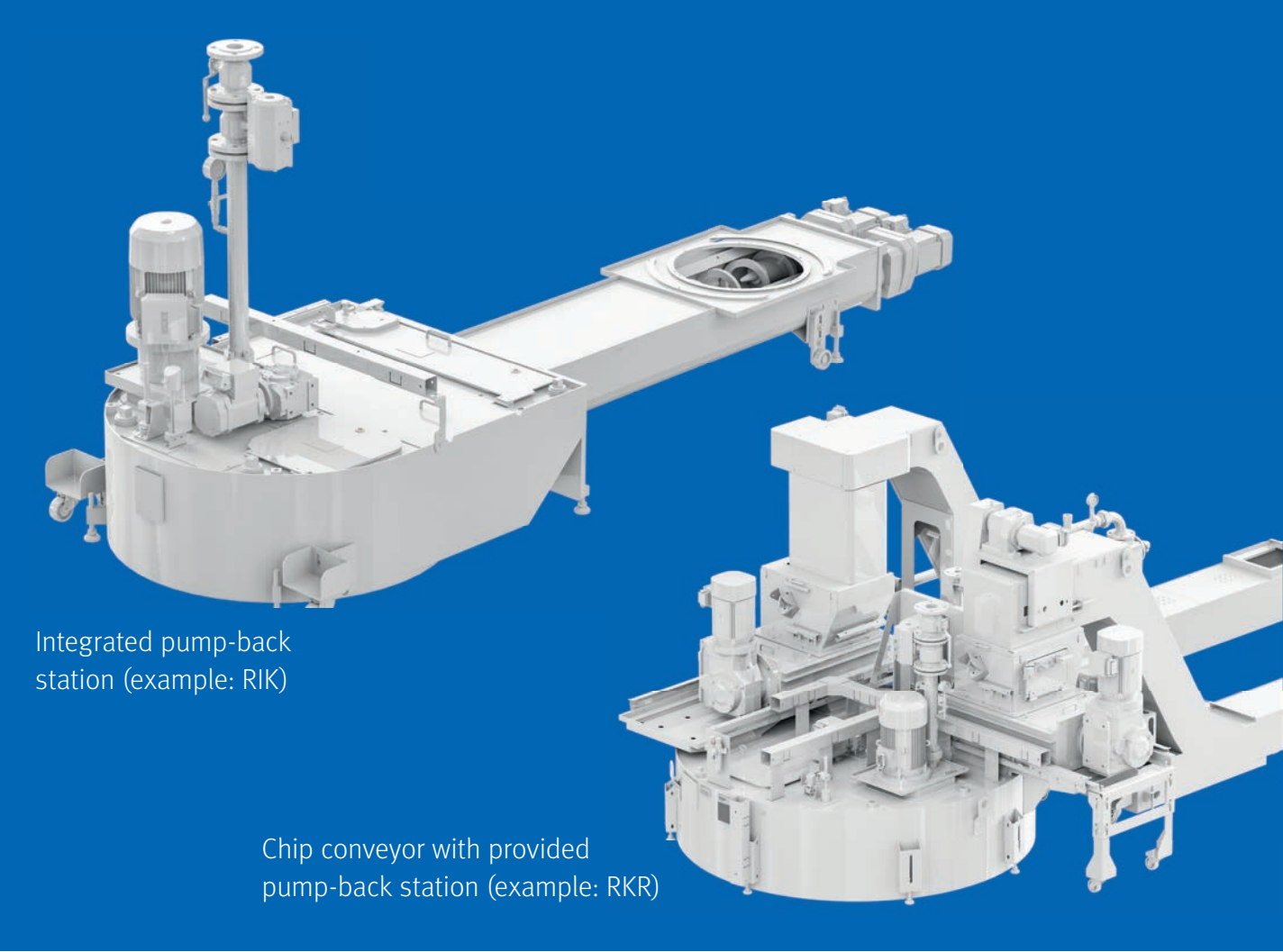
 suitable

○

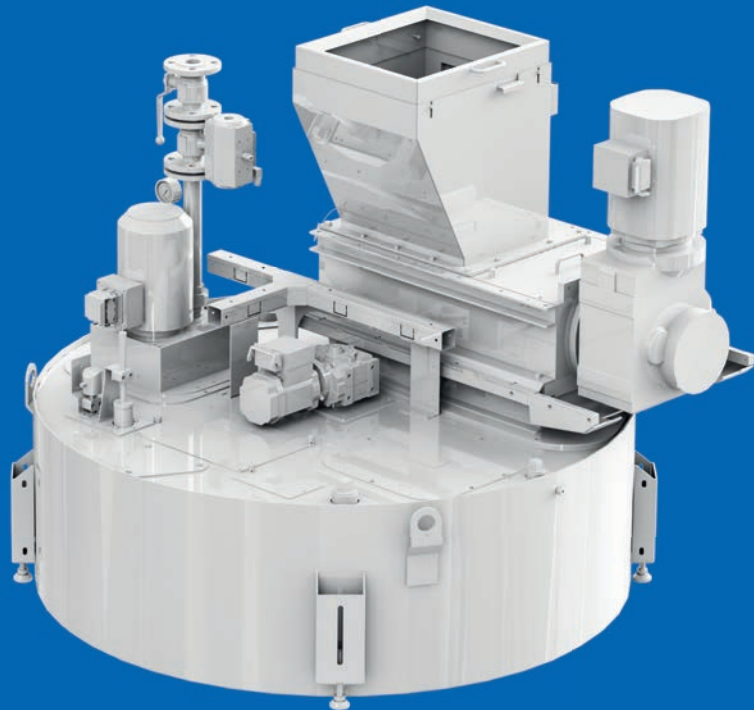
 conditionally suitable

○

 not suitable



Provided pump-back stations



Properties

Fully automatic cooling lubricant and chip conveyance
Variable height
Chip reducer can be retrofitted
Maintenance areas outside the machine
As an option with transport rollers

Benefits

No manual intervention required
Adaptation to customer conveyors
Adaptation to expanded requirements
Easy accessibility
High mobility

Application

Provided pump-back stations are conveyor systems for placement on single machines and transfer lines. They are used for the unmanned transport of chips and cooling lubricant from the processing machine to a separator/filter. Cooling lubricants and chips that result during the cutting of materials such as steel, cast iron or aluminium are particularly suitable.

Combination options

- For further requirements, we can combine pump-back stations provided on request with
- Chip reducers to achieve pumpable chips
 - Chip conveyors for discharging chips from the machine
 - Centralised separator/filter systems for cleaning the cooling lubricant and supplying the machines
 - Suction stations for further transport of the chips to the central system and the container station
 - Centrifuges and briquetting systems for further treatment of the chips

Main functions

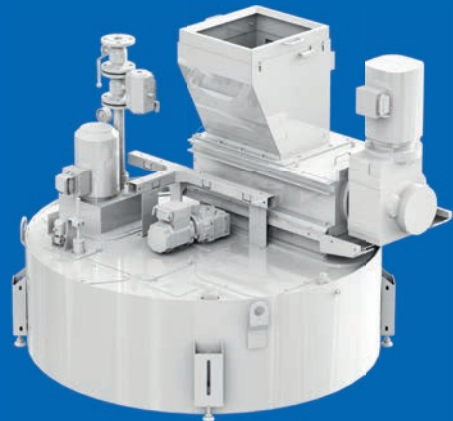
1. Picking up medium to large quantities of chips via a feed hopper
2. Drawing in and reducing the size of the chips through the chip reducer (optional) and feeding them into the pump-back tank
3. Dosing the chip/cooling lubricant mixture to the return flow pump by means of a circular scraper
4. Transporting the chip/cooling lubricant mixture through the return flow pump to the separator/filter system

Equipment

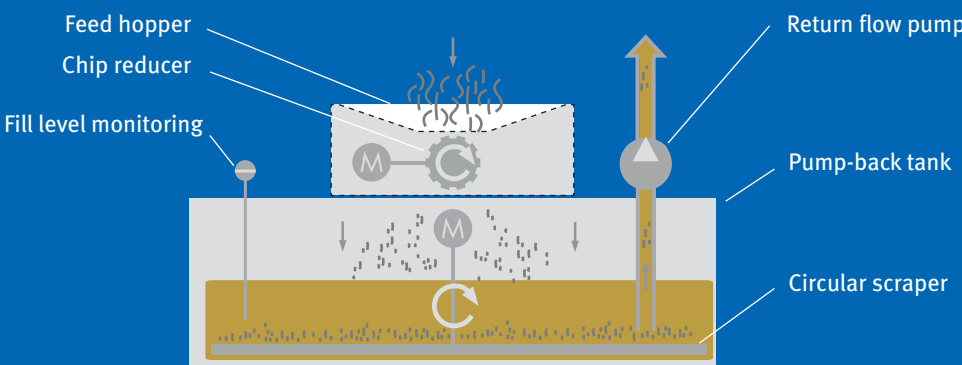
Circular scraper	●
Return flow pump	●
Level monitoring	●
Connection pipework with fittings	●
Control unit	○
Chip reducer	○
Feed hopper	○

● Basic equipment ○ Optional

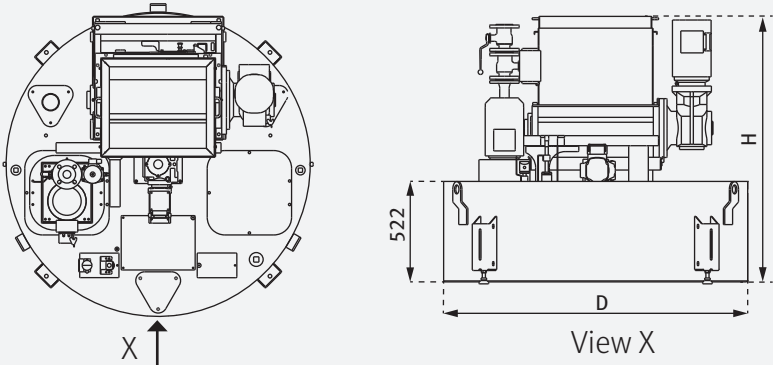
Pump-back station RKR



Diagram



Technical specifications



Type	Feed quantity [l/min]		D [mm]	H [mm]	Chip reducer	
	Emulsion	Oil			Type ZV	Type ZVD
RKR 1200	400	300	1150	1380	400-J	400-J
RKR 1600	800	500	1550	1380/1300	400-J/600-J	400-J/600-J
RKR 2000	1600	1000	1950	1400/1300	400-J/600-J	400-J/600-J

Pump-back station RHV

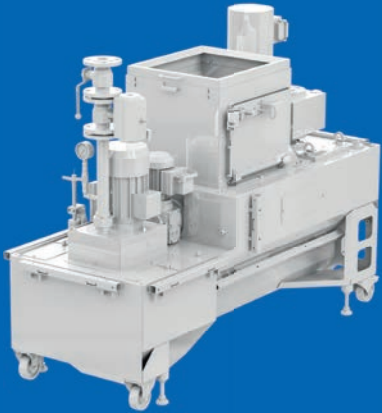
Main functions

1. Picking up small to medium quantities of chips via a feed hopper
2. Transporting the chips to the chip reducer using a worm conveyor
3. Drawing in and reducing the size of the chips through the chip reducer (optional) and feeding them into the pump-back tank
4. Dosing the chip/cooling lubricant mixture to the return flow pump by means of a worm conveyor
5. Transporting the chip/cooling lubricant mixture through the return flow pump to the separator/filter system

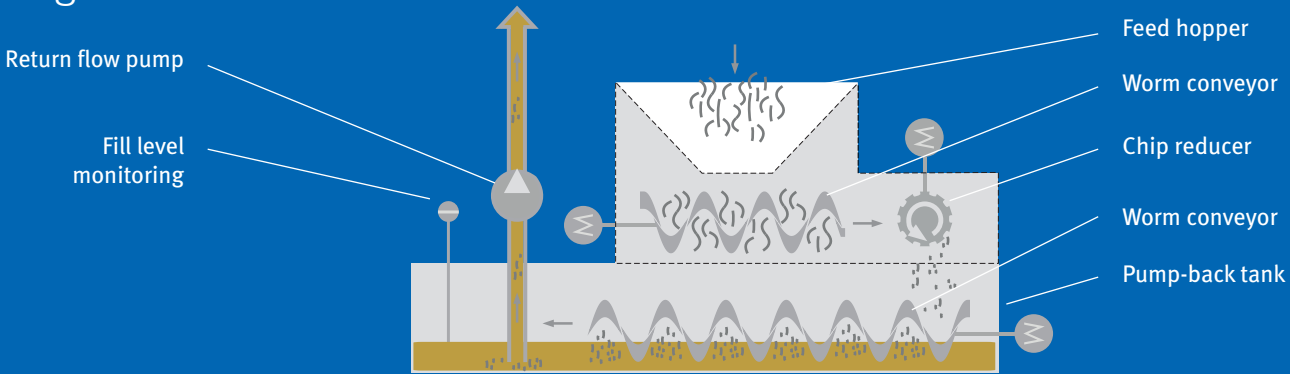
Equipment

Worm conveyors	●
Return flow pump	●
Connection pipework with fittings	●
Level monitoring	●
Control unit	○
Chip reducer ZHV	○
Feed hopper	○

● Basic equipment ○ Optional



Diagram



Technical specifications

Type	Feed quantity [l/min]		Throughput [kg/h]	L [mm]	L1 [mm]	H [mm]	Chip reducer ZHV
	Emulsion	Oil					
RHV 500	250	150	Al/St up to 30 / 60	1720	500	1100	350-J

Main functions

1. Tangential inflow of the dirt medium with small quantities of short chips into the pump-back tank
2. Transport of the chip/cooling lubricant mixture through the return flow pump to the separator/filter system

Equipment

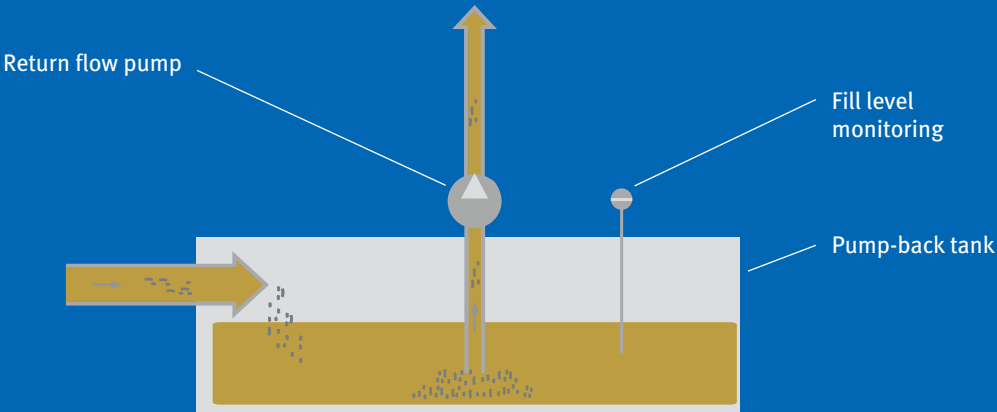
Return flow pump	●
Level monitoring	●
Connection pipework with fittings	●
Control unit	○

● Basic equipment ○ Optional

Pump-back station RSR



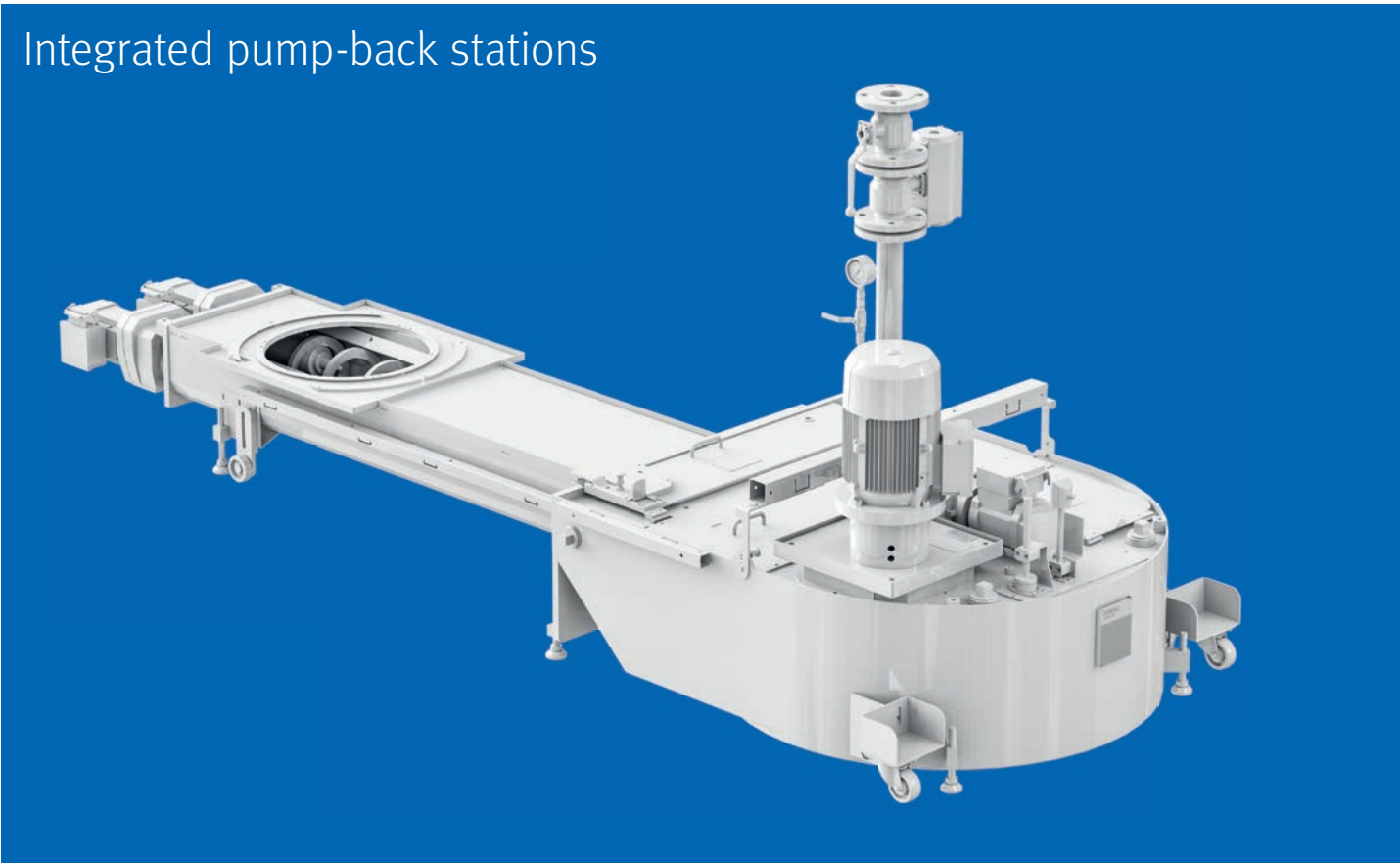
Diagram



Technical specifications

Type	Feed quantity [l/min]		D [mm]	DN [mm]
	Emulsion	Oil		
RSR 600	150	100	600	100
RSR 800	250	200	800	100
RSR 1000	450	300	1000	150

Integrated pump-back stations



Properties

Fully automatic cooling lubricant and chip transport	No manual intervention required
Compact design due to machine integration	Occupies little space outside the machine
Low overall height	Ideal for automation systems
Chip reducer can be retrofitted	Adaptation to expanded requirements
Customised conveyor trough	Chip holder can be adapted to machine
Maintenance areas outside the machine	Easy accessibility

Benefits

Application

Integrated pump-back stations are compact conveyor systems for integration into a machine bed. The main purpose of the unit is to automatically transport small to medium quantities of chips and cooling lubricant from the machine tool to a separator/filter. This construction unites the characteristics of conventional solutions from chip conveyors and separate pumping stations into a combined unit. Cooling lubricants and chips that result during the cutting of materials such as steel, cast iron or aluminium are particularly suitable.

Combination options

- For further requirements, we can combine integrated pump-back stations on request with
- Chip reducers to achieve pumpable chips
 - Centralised separator/filter systems for cleaning the cooling lubricant and supplying the machines
 - Suction stations for further transport of the chips to the central system and the container station
 - Centrifuges and briquetting systems for further treatment of the chips

Main functions

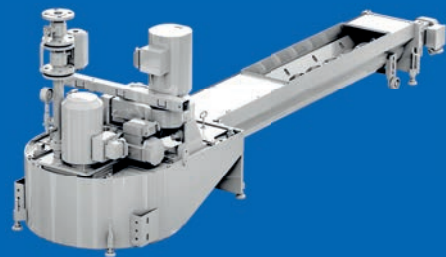
1. Collecting the chips and cooling lubricant in the worm trough
2. Transporting the chips to the chip reducer using a worm conveyor(s)
3. Drawing in and reducing the size of the chips through the chip reducer (optional) and feeding them into the pump-back tank
4. Dosing the chip/cooling lubricant mixture to the return flow pump by means of a circular scraper
5. Transporting the chip/cooling lubricant mixture through the return flow pump to the separator/filter system

Equipment

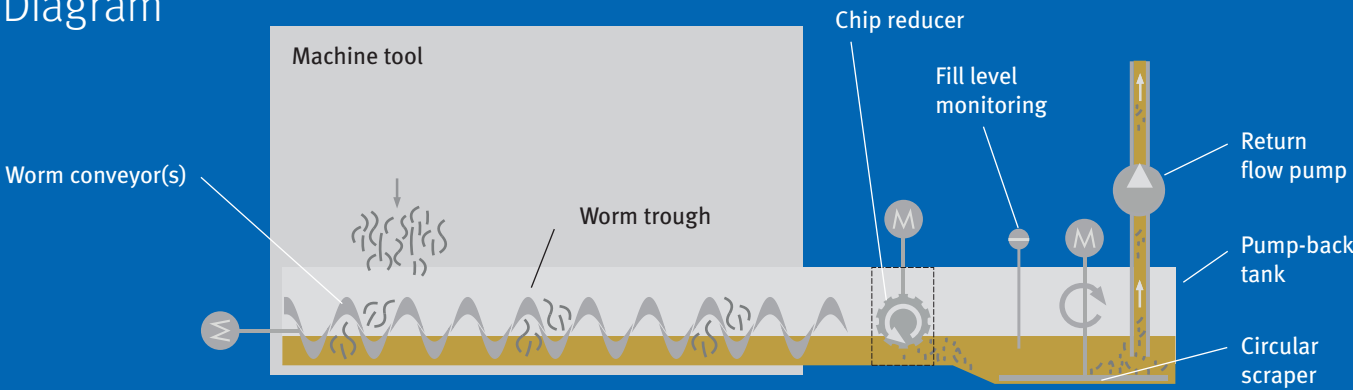
Circular scraper	●
Worm conveyor(s)	●
Return flow pump	●
Level monitoring	●
Connection pipework with fittings	●
Control unit	○
Chip reducer	○
Worm drive via cardan shaft	○

● Basic equipment ○ Optional

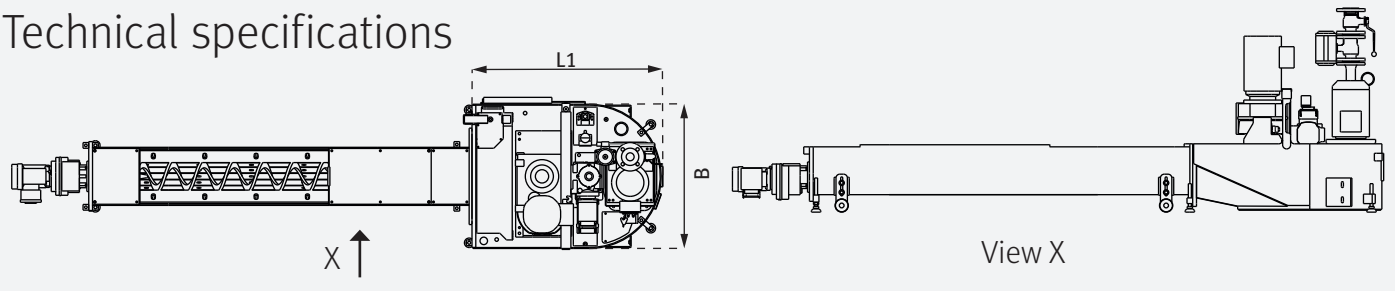
Pump-back station RIK



Diagram



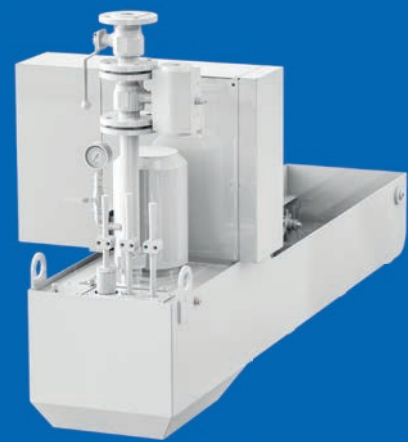
Technical specifications



Type	Feed quantity [l/min]		Delivery rate Al/St [kg/h]	L1 [mm]	B [mm]	Chip reducer
	Emulsion	Oil				
RIK 750	250	180	up to 30/60	1000	760	ZHV 350-J*
RIK 1000	450	350	up to 30/60 up to 60/120	1090	1040	ZHV 350-J* ZH 600-J**

*RIK version with one worm, **RIK version with two worms

Pump-back station
RKH



Main functions

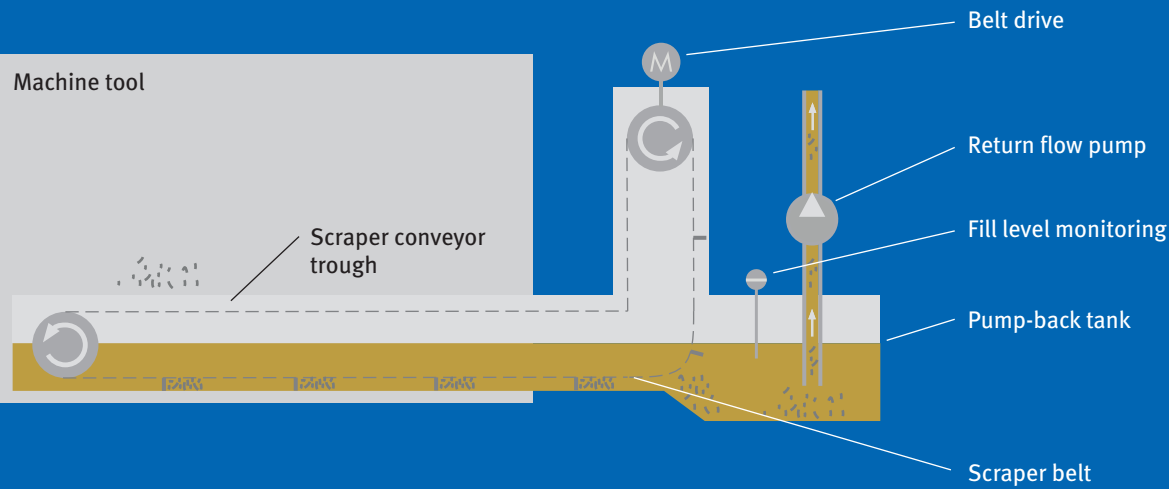
- 1. Collecting the short chips and cooling lubricant in the scraper conveyor trough
- 2. Transport of the chips by means of a scraper conveyor into the pump-back tank to the return flow pump
- 3. Transporting the chip/cooling lubricant mixture through the return flow pump to the separator/filter system

Equipment

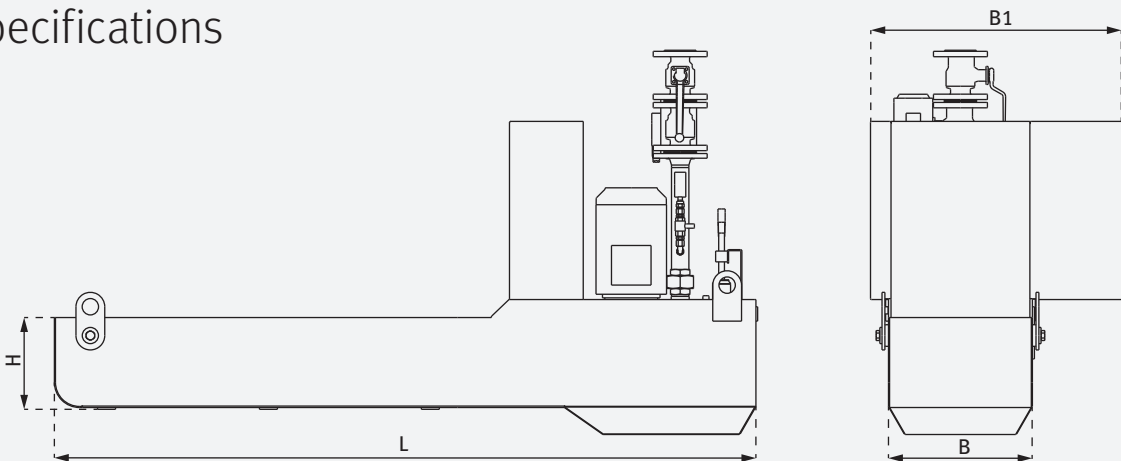
Scraper belt	●
Return flow pump	●
Level monitoring	●
Connection pipework with fittings	●
Control unit	○

● Basic equipment ○ Optional

Diagram



Technical specifications



Type	Chain pitch	B [mm]	B1 [mm]	H [mm]	L _{max} [m]
RKH	40	400-450-500-600	B+300	>140	9

Main functions

- 1. Collection of small quantities of short chips together with cooling lubricant in the trough
- 2. Transporting the chips with the aid of a gradient and flushing into the pump-back tank to the return flow pump
- 3. Transporting the chip/cooling lubricant mixture through the return flow pump to the separator/filter system

Equipment

Scavenging nozzles	●
Return flow pump	●
Level monitoring	●
Connection pipework with fittings	●
Control unit	○

● Basic equipment ○ Optional

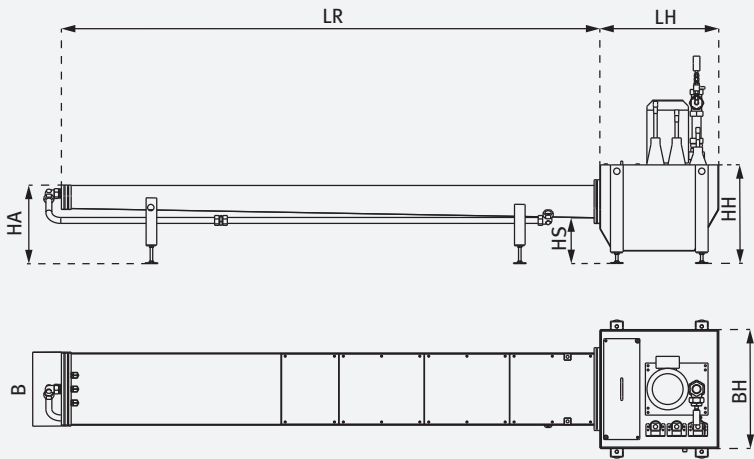
Pump-back station
RRH



Diagram



Technical specifications



Type	Mass flow	Volume flow	LR [mm]	LH [mm]	B [mm]	BH [mm]	HA [mm]	HS [mm]	HH [mm]
RRH 200	0-35 kg/h	250 l/min	Max. 3000	560	200	560	560	150	440
RRH 260					260				
RRH 300					300				
RRH 340					340				
RRH 400	30-70 kg/h	550 l/min	Max.3000	660	400	710	660	150	440
RRH 450					450				
RRH 500					500				
RRH 600					600				

KNOLL Maschinenbau GmbH

Schwarzachstraße 20

DE-88348 Bad Saulgau

Tel. +49 7581 2008-0

Fax +49 7581 2008-90140

info.itworks@knoll-mb.de

www.knoll-mb.com

