rigid

QCC

...and Versions SD/EX

made of Stainless Steel

HIGH VISCOSITY DRUM PUMPS

Eccentric Screw Pumps for highly viscous liquids

The right pump for

- **fixed applications**
- **mobile applications**
- **easy to clean for multiple applications**
- **operating in hazardous locations**

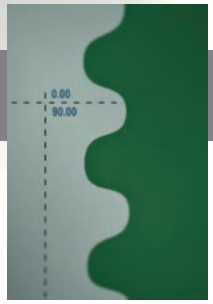
grün-pumpen

take out, what's in.

grün High Viscosity Pumps go along with you through thick and thin

High viscosity pumps in operation...

with paint, glue and in hazardous locations



special thread for easy handling and perfect cleaning

grün-pumpen
take out, what's in.

A stepped programm for a wide choise of applications

4 versions of the pump for mounting inside and outside drums and containers

Version rigid
dedicated for fixed applications

: motor and pump fixed coupled
: easy to handle with spring balancer (lifting device)
: special thread for simple disassembly (service, cleaning)
: less parts, competitive price

Version QCC (Quick Change Coupling)
ideal for mobile applications

: simple motor and pump seperation
: easy handling of motor and pump (separated)
: no spring balancer (lifting device) necessary
: one motor suitable for different pumps
: special thread for simple disassembly (service, cleaning)

Version SD (Simple Disassembly)
functional design for frequent disassembly (service, cleaning)

: simple motor and pump separation
: separable drive shaft for easy cleaning and service in multiple applications
: easy disassembly of the pump without tools or training
: special thread for simple disassembly (service, cleaning)

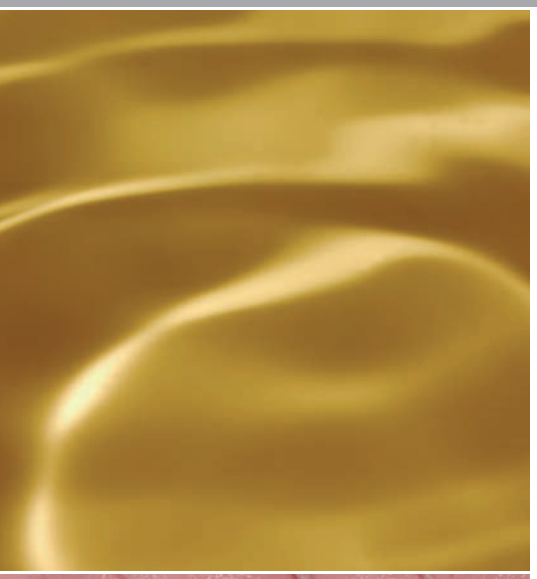
Version EX (Explosion proof)
with safe use in hazardous locations

: Ex-proof certification ATEX
: certification for highly combustible liquids
: simple motor and pump separation
: special thread for simple disassembly (service, cleaning)

HIGH VISCOSITY DRUM PUMPS

Eccentric Screw Pumps made of Stainless Steel for highly viscous liquids

Ord.-No.



Reference values for the right pump

Liquid	Viscosity	Temp.	Gasket	Stator	Rotation speed	Q max
	mPas	°C			rpm	l/min
honey	2.500	40 °C	MS*	NBR	900	50
liquid soap	4.000	20 °C	MS	NBR	900	50
fruit concentrates	1.600	20 °C	MS	NBR	900	50
glucose	20.000	35 °C	MS	NBR	900	50
glycerin	1.500	20 °C	MS	NBR	900	50
hand cream	8.000	20 °C	MS	NBR	900	50
resins	10.000	20 °C	MS	PTFE	900	50
jam, marmelade	8.500	20 °C	MS	NBR	900	50
cosmetics	20.000		MS	PTFE	900	50
paint	10.000		MS	PTFE	900	50
glue	4.000	20 °C	SB**	NBR	900	50
molasse	100.000		SB	NBR	300	5
mineral oil	10.000		MS	NBR	900	50
vegetable oil	2.000	20 °C	MS	NBR	900	50
polyole	60.000	20 °C	SB	NBR	500	14
shampoos	3.000	20 °C	MS	NBR	900	50
paste	50.000		MS	NBR	500	14
tomato purree	4.000	20 °C	MS	NBR	900	50
tomato ketchup	1.500	20 °C	MS	NBR	900	50
tooth paste	>70.000	40	SB	PTFE	300	5

* MS: mechanical seal

** SB: stuffing box

Description

Application

Advantages

Price

Recommendation

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take out, what's in.

Motor-Pump with safing bracket SB	Motor-Pump rigid coupled	Motor-Pump with quick change coupling (QCC)	Pump for simple disassambly (SD)	Pump with Ex-Certification
652-.....	650-.....	651-.....	654-.....	653-.....
Light version of the eccentric pump, disconnection of motor-pump by moving the safing bracket	Motor-pump is one fixed coupled unit	Motor-Pump with QCC coupled, motor-pump separable without tools, patent-registered solution	Design like QCC, additional separable drive shaft for quick pump disassembly, no tools needed, extreme short overall length possible	ATEX Ex II 1/2 G c IIB T4, design like QCC, additional universal-joint shaft, PTFE-Stator and MS adapted to Ex-requirements
Low flow rate, medium viscosities, mobile operation, for frequent drum change, using one motor and several pumps	Fixed installation in containers and facilities, seldom moving the pump (weight)	Mobile operation of the pump, frequent moving of the pump, one motor for several pumps	Application like QCC additional frequent disassembly of the pump (cleaning, service, etc), cleaning in washing machines, special applications outside of drums, containers, tanks	Application like QCC additional operation in hazardous locations, pumping highly combustible liquids
Light weight pump and motor, quick disconnection of the motor, start/stop switch with integrated overload protection, typical style of drum pumps	short overall length above the pressure outlet, less parts, long time service intervals	Quick separable motor, no spring balancer (lifting device) necessary, easy and safe handling of motor and pump, compliance with employment protection (weight)	Advantages like QCC, additional no tools needed for disassembly, quick disassembly, no specialist knowledge needed, safe in cleaning process, wetted components fit for washing machines, high flexibility	Advantages like QCC, certified for operation in hazardous locations
Ideal for smaller quantities and higher pressure ranges than a centrifugal drum pump	If the pump is seldom moved, if spring balancer (lifting device) is available, for fixed installation in industrial equipment	Perfect for mobile applications in drums and containers, frequent lifting out of the drum, simple handling important for daily usage	Ideal version, if easy cleaning and simple disassembly are the main requirements in the application.	Obligatory for pumping highly combustible liquids, operation in hazardous locations

652-... solid fixed in the drum hole with drum adapter stainless steel

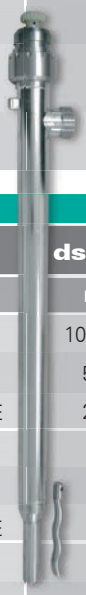
650-, 651-, 653-, 654-... ready for the use with mounting bracket and overload protection switch (includes start/stop function, cable and plug), solid fixed in the drum hole with adapter stainless steel

Attention: use Ex-protection switch, equipotential cable

Important accessories see page 8

Tecnical specificatoins of eccentric screw pumps ds

Type		ds 8.1	ds 20.1	ds 40.1	ds 40.2	ds 80.1
capacity (max)	l/min	15	15	25	25	50
delivery head (max)	bar	4	6	6	10	6
viscosity (max)	mPas	5.000	100.000	100.000	100.000	80.000
materials (pump)		tube, drive shaft, rotor made of SS 1.4571				
tube length (L)	mm	1000 / 1200	1000	1000	1100	1100
tube diameter (D)	mm	40	54	54	54	54
discharge thread	OT	1 1/4"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
weight	kg	4	8	8	8	8
max. temperature	NBR	80				
	PTFE	140				
materials (seal)	o-ring	FPM	FPM			
mechanical seal subject to rotation	MS	carbon, ceramic	HM/HM			
mechanical seal EX subject to rotation	MS	–	carbon/chrome-nickel			
stuffing box independent of the rotation	SB	–	PTFE-graphite			
stator materials		NBR light, PTFE				



Typ		ds 8.1		ds 20.1		ds 40.1		ds 40.2		ds 80.1	
		MS		MS	SB	MS	SB	MS	SB	MS	SB
ord.-no 652-000**X**	L	1000	1200								
bayonet coupling	NBR	5	6	-	-	-	-	-	-	-	-
	PTFE	2	3	-	-	-	-	-	-	-	-
ord.-no				650-	650-	650-	650-	650-	650-	650-	650-
rigid	NBR			0300	0304	0301	0305	0302	0306	0303	0307
	PTFE			0316	0320	0317	0321	0318	0322	0319	0323
ord.-no				651-	651-	651-	651-	651-	651-	651-	651-
QCC	NBR			0001	0005	0002	0006	0003	0007	0004	0008
	PTFE			0009	0013	0010	0014	0011	0015	0012	0016
ord.-no				654-	654-	654-	654-	654-	654-	654-	654-
SD	NBR			0001	0005	0002	0006	0003	0007	0004	0008
	PTFE			0009	0013	0010	0014	0011	0015	0012	0016
ord.-no				653-	653-	653-	653-	653-	653-	653-	653-
Ex:	PTFE			0001	-	0002	-	0003	-	0004	-

Other type-sizes on demand, submersible length individual available, discharge thread on customers requests available

1 Capacity - rotation

Capacity depending on the rotation

1/min	l/min	l/min	l/min	l/min
2800	15			
1400	8			
900		15	25	50
700		11	19	39
500		6	14	27
300		4	8	16
	ds 8.1	**ds 20.1**	**ds 40.1/ 40.2**	**ds 80.1**

2 Viscosity - rotation - motor power

Rotation depending on the viscosity of eccentric screw pump type ds 40.1

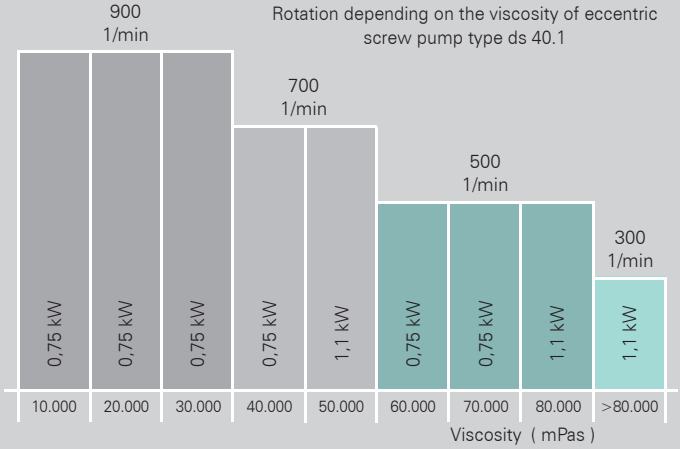
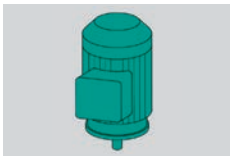
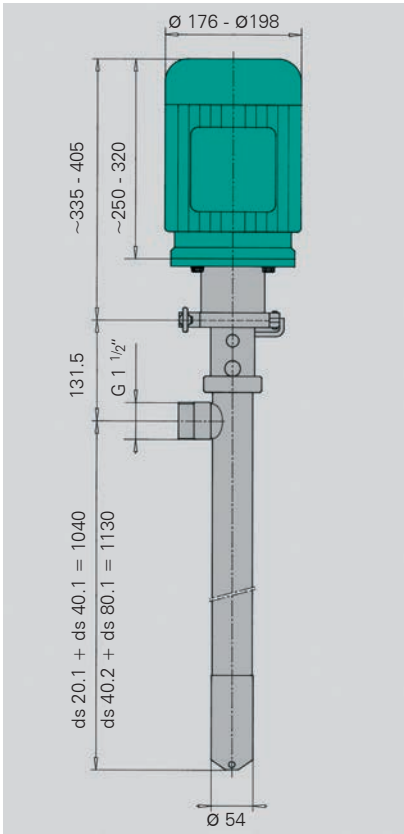


Table for the motor choise

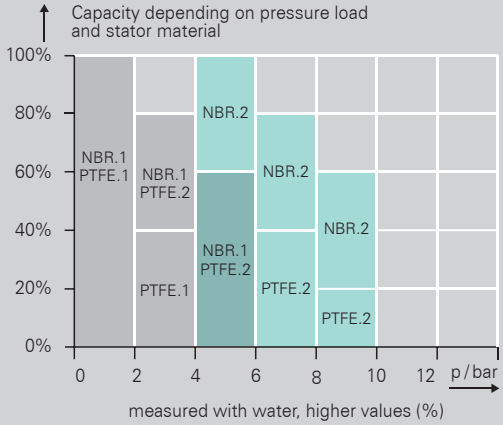
		gear-motor											
	rotation (rpm)	300		500		700		900		1400		2800	
motor type	power	ord.-no		ord.-no		ord.-no		ord.-no		ord.-no		ord.-no	
IP55, 50 Hz with terminal box	kW / V / phases		kg		kg		kg		kg		kg		kg
safing bracket										500-		500-	
on/off protection switch	0,37+0,55/ 230 / 1									0073	7	0044	7
without protection switch	0,37 / 230/400 / 3									0051	7	0039	7
ridgid		550-		550-		530-		530-					
without protection switch	0,37 / 230/400	0041	14	0044	14	0101	13						
	0,55 / 230/400	0042	17	0045	17	0102	16	0106	14				
	0,75 / 230/400	0043	18	0046	18	0103	20	0107	16				
	1,1 / 230/400					0104	23	0108	21				
	1,5 / 230/400					0105	25	0109	24				
QCC, SD		550-		550-		530-		530-					
without protection switch	0,37 / 230/400	0017	14	0020	14	0036	13						
	0,55 / 230/400	0018	17	0021	17	0037	16	0047	14				
	0,75 / 230/400	0019	18	0022	18	0038	20	0040	16				
	1,1 / 230/400					0039	23	0041	21				
	1,5 / 230/400					0088	25	0042	24				
Ex II 2 G Ex e II T3						530-		530-					
without protection switch	0,65 / 230/400					0043	26	0051	14				
	0,95 / 230/400					0044	31	0045	20				
	1,35 / 230/400					0095	28	0046	27				
QCC,compressed air								520-					
D4	0,6							0009	10				
D6	1,1							0010	14				





Single phase induction motor with on/off overload protection switch. The right combination for medium viscous fluids with all advantages of a quick change coupling by the safing bracket.

3 Pressure load - capacity



Eccentric screw pumps in operation

The hydraulic performance of eccentric screw pumps can be influenced by the drive. The capacity variation is nearly po-roportional to the motor speed variation (s. table 1). Increasing viscosity reduces the flowability of the liquid. By reducing the motor speed the pump can be adjusted to the liquid (s. table 2). Low rotation prevents damage from highly viscous liquids

Theoratically the flow rate of the eccentric screw pump is independent of the discharge load. But in practise we see that depending on the discharge load. The leakage gap between rotor and stator grows with an increasing discharge load (s. table 3).

The characteristics in table 3 are measured with water. Increasing viscosity reduces the influence of the discharge load. For sizing the right pump you must consider the the relation of capacity and pressure load.

The way to the right motor drive

In table 2 you see the motors with power (kW) and rotation (rpm) related to the viscosity for the pump size 40.1.

For the **smaller** type 20.1 you can choose a motor one power level **lower**.

For the **bigger** types 40.2 and 80.1 you must choose a motor one power level **higher**.

Important accessories for the eccentric screw pumps

Wall fastening for applications in suction mode outside of drums and containers

Tripod for applications outside of drums and containers with positive suctionhead

Hose connector
with wing nut
IT 1 ½" ND 32 or ND 38

Drum adapter for solid fixing in the drum OT 2" d=52 mm

Foot strainer keeps particels away

Overload protection switch ready-for-use

More useful accessories see pricelist and on demand

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