

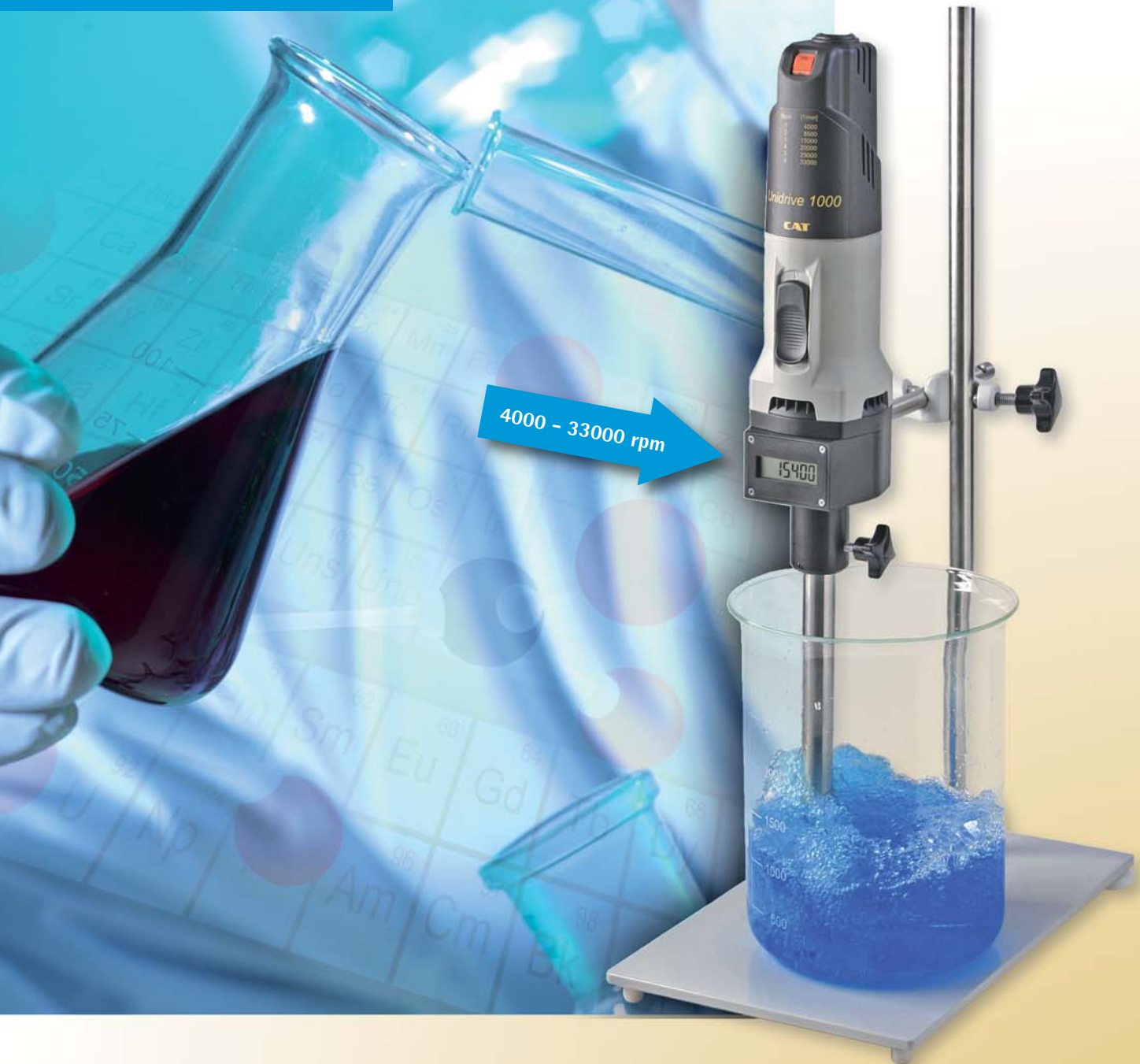


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# CAT

Ingenieurbüro  
M. Zipperer GmbH

Build your Dispersing  
system by selecting a  
motor plus one Tool



4000 - 33000 rpm

*From marketing knowledge to real innovation*

# Homogenizers

Ingenieurbüro **CAT**  
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Unidrive D



X 360



**Ingenieurbüro CAT: For over 36 years your partner for innovation: Along with standard laboratory equipment we also manufacture high-quality dispensing systems.**

### 6 Drive units available to create your Ingenieurbüro CAT homogenizer system...

Ingenieurbüro CAT offers a range of 6 drive motors, from which are 5 supplied with variable speed control to start at low speed without splashing. They differ in size, weight, power and maximum speed. One of the five electronic drives have integral liquid-crystal speed displays and there is one air-driven unit for hazardous areas.

#### X 120

Hand-held or stand-mounted, high-speed drive motor for small volumes, from 0.2 ml to 1,500 ml. Electronically stabilized speed control for tools T 6 to T 17 (short time use), speed range from 10.000 to 33.000 rpm (230 Volt version), 5.000 to 32.000 rpm (115 Volt version). Power input 140 W. The support rod for mounting the drive unit to a stand is included.

Part No.

60404-00 (230 V)  
60404-01 (115 V)

#### X 360

This high-speed motor is best suited for fast, super-fine disintegration tasks. 350 watts power give 45.000 rpm, for volumes of 0.2 ml (T 6) to 2,000 ml (T/G 20).  
Optionally available for speed regulation: Speed Control P 1500.

60401-00 (230 V)  
60493-00

#### Unidrive X 1000D

This general-purpose 1,050 W drive unit for a host of dispersing tasks with a wide speed-range from 4.000 rpm to 33.000 rpm. The unit comes with an LCD. Suitable for volumes from 0.2 ml (T) to 5,000 ml (T/G 30).

60406-50 (230 V)  
60406-51 (115 V)

#### Unidrive X 1000

Same as above but without display.

60402-50 (230 V)  
60402-51 (115 V)

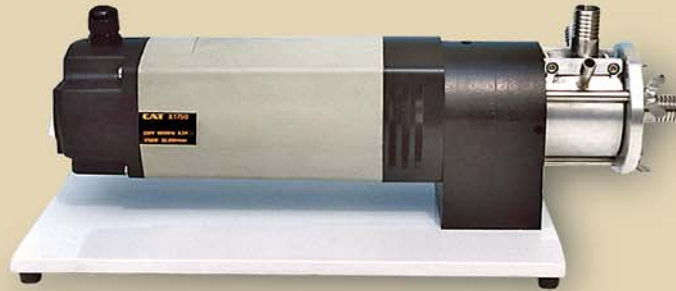
#### X 1740

Especially designed for heavy-duty laboratory and pilot plant tasks. This drive unit takes all dispersing shafts ideal for T/G 40. In combination with our flow-through chamber this DK 40 this units forms an In-line disperser. Speed range: 2.500 - 23.000 rpm.

60408-00 (230 V)  
60408-01 (115 V)



AX 60



DK 40



X 120

### XP 44

Compressed-air motor, maximum speed 44.000 rpm. For use with shafts T 6, T 10 and T 17 which gives a volume working range from 0.2 to 1,500 ml.

### Analytical Mill Attachment

For analysis, material testing and quality control of organic and inorganic substances of various hardness. Extremely rapid disintegration of the materials is possible by using the mill in combination with high maximum speed of the drive unit.

### The AX 60

Couples to the drive unit just the same way as the interchangeable shafts. The grinding assembly consists of two stainless steel chambers both with separate cooling ports. The mill attachment handles a variety of applications. Grinding capacity is 180 cc and the chambers seal completely, offering dust-free pulverization. Both grinding chambers have inlet/outlet ports which can be used with a refrigerant coolant, such as N 2. The blade of the analytical mill automatically disengages from the motor when the grinding chamber is opened.

There is a choice of interchangeable blades either in plain stainless steel, or, with carborundum inserts, for processing extra hard materials.

### Continuous-flow chambers

DK 30 and DK 40 stainless steel flow-through chambers fit the G 20, G 30 shafts and the G 40 head with ceramic seals. In-line units work according to the rotor-stator principle with high share rates. Extremely fine distribution of solid particles (suspensions) and liquids (emulsions) in a basic liquid is achieved by the combined effect of different particle reduction effects using this system. Pressure-rated for 0.7 to 2 bar.

### Flow-rates related to water:

- DK 30 (with G 20 shaft) 30 litres per minute,
- DK 30 (with G 30 shaft) 50 litres per minute,
- DK 40 (with G 40 head) 80 litres per minute,

### Accessories:

For a safe and successful operation with these drive units you require in addition to the drive and dispersing tool also stand, boss head and strap for fixing the test vessel.

Part No.

60417-00

60409-00

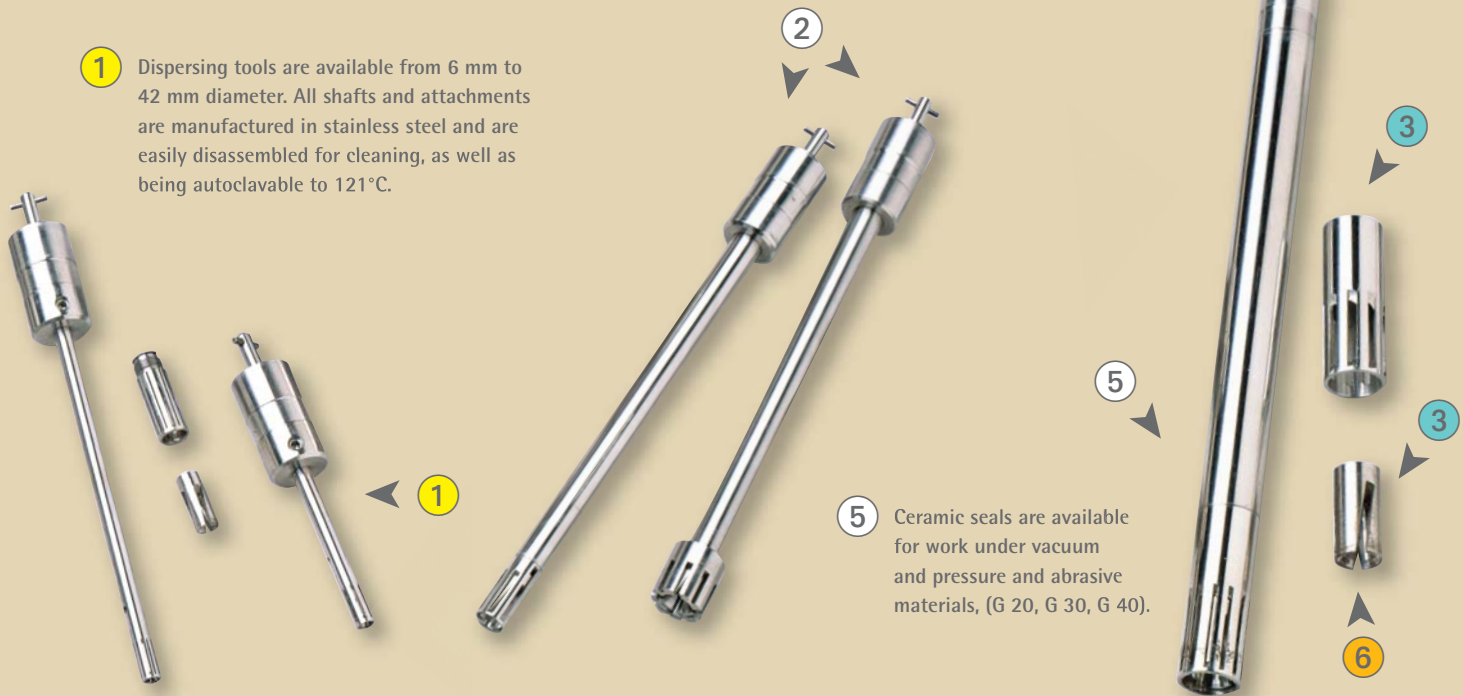
60428-00

60428-00

60429-00

2 All dispersing shafts have the same coupling system, enabling all the drive motors to accept any choice of suitable shafts.

1 Dispersing tools are available from 6 mm to 42 mm diameter. All shafts and attachments are manufactured in stainless steel and are easily disassembled for cleaning, as well as being autoclavable to 121°C.



5 Ceramic seals are available for work under vacuum and pressure and abrasive materials, (G 20, G 30, G 40).

A great number of fluid mixing problems cannot be solved even using the best possible traditional stirring method. Some solid, liquid or gaseous phase media require a dispersing means to dissolve or disintegrate into another media.

**There are three different forms of dispersing:**

- When dispersing gas in a liquid as high a mass transfer as possible is to be achieved. (Example: Foam)
- Dispersing of firm particles in a liquid for instance is found with the distribution of pigments in emulsion paints and lacquers.
- Dispersing of two not mixable liquids is found e.g. in the polymerization or with the production of emulsions. An example for polymer dispersion is rubber latex. Very well known examples for a water in oil emulsion is butter and for an oil in water emulsion mayonnaise.

With the rotor-stator principle of Ingenieurbüro CAT, the stirring medium is subjected to a combination of mechanical shearing and sonic energy.

The slanted slots in the rotor grasp the medium and forcibly draw it into the working area between the rotor and stator, thus causing induced high frequency pulses to interact vertically and horizontally. This turbulence intensifies the dispersion and produces optimum mixing of the suspension.

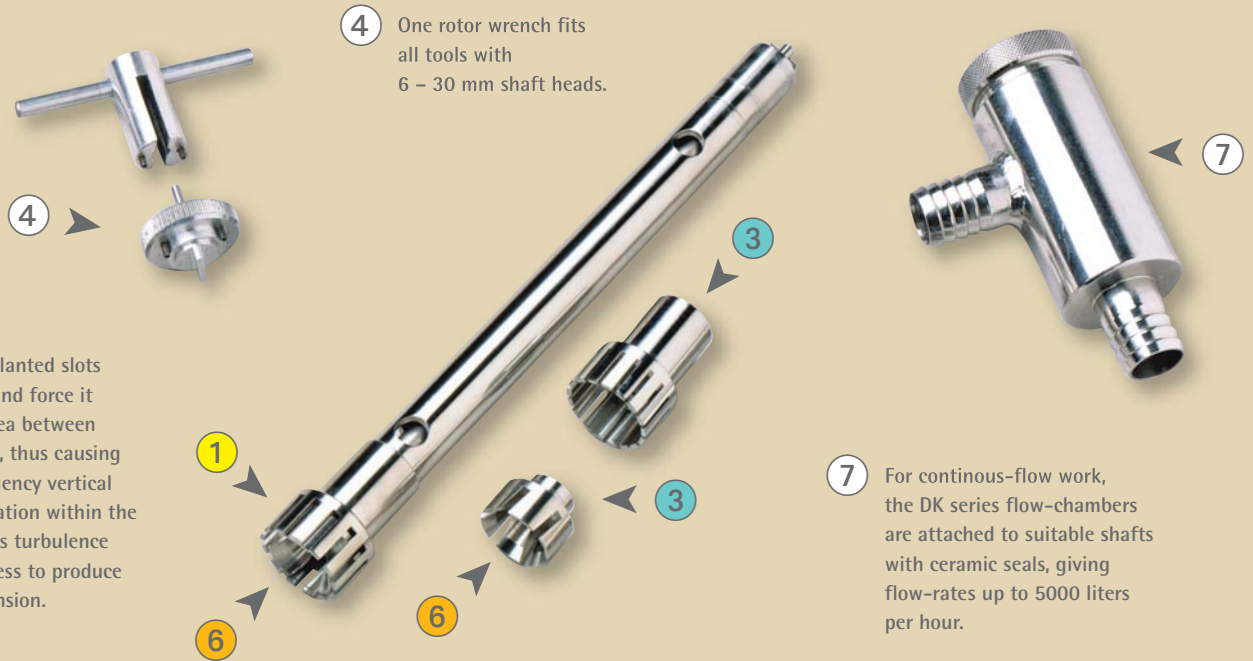
The Ingenieurbüro CAT dispersing systems use very powerful electric drive units to be combined with homogenizing tools, offering exchangeable rotors and stators. Hence different tasks can be solved by using Ingenieurbüro CAT homogenizing systems.

Please feel free to download our homogenizing questionnaire at [www.cat-ing.de](http://www.cat-ing.de) which helps to recommend the most suitable system for your application.



**3** Our exchangeable rotors and stators allow you to treat coarse-grade media down to fine suspensions, without changing the dispersing shaft.

**Special knife generators available for stringy and fibrous materials.**



**4** One rotor wrench fits all tools with 6 – 30 mm shaft heads.

**6** The rotor's unique slanted slots grasp the medium and force it into the working area between the rotor and stator, thus causing induced, high-frequency vertical and horizontal pulsation within the dispersing head. This turbulence intensifies the process to produce the optimum suspension.

**7** For continuous-flow work, the DK series flow-chambers are attached to suitable shafts with ceramic seals, giving flow-rates up to 5000 liters per hour.

**Application table:** Please ask for our homogenising questionnaire which can be the basic for our free of charge offer.

Volume	Dispersing tools <sup>1,2)</sup>	Teeth per Rotor/Stator				Stator/Rotor				Maximum Speed		Shafts		Part No.
		viscous		fine		stator		rotor		(Circumferencial speed)		diam (mm)	length (mm)	
		rotor	stator	rotor	stator	outer ø	inner ø	outer ø	air gap	m/sec	with drive			
1 - 50	T 6/T 6 lang	2	7	4	11	6	4,2	4	0,1	9,5	- X 360	6	105/170	60420/60410
1 - 250	T 10	2	7	4	15	10	8,15	7,5	0,3	17,5	- X 360	10	205	60421
5 - 1000	T 17	2	9	6	13	17	13,3	12,5	0,4	29,5	- X 360	10	205	60426
10 - 2000	T 20/G 20	2	9	6	13	20	16	15	0,5	35,4	- X 360	20	265	60422/60423
30 - 5000	T 30/G 30	3	13	6	17	30	26	25	0,5	32,7	- X 1030	20	255	60424/60425
100 - 20000	T 40/G 40	4	13	8	23	40	35	33	1	40,8	- X 1740	20	360	60414/60415

<sup>1)</sup> When placing an order, please add one of the following capital letters to the Ingenieurbüro CAT Part No. of the tools:

V = medium viscosity, N = low viscosity, F = fine viscosity, M = Knife version

<sup>2)</sup> T denotes ETFE bearing, G denotes ceramic seals

Please turn page to find a detailed illustration of combination possibilities.



Zertifiziertes  
QM-System  
DIN EN ISO 9001:2000  
Zertifikat Nr. 02039



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Build your dispersing system by selecting a motor plus one tool

# Unidrive Unidrive D

## X 360

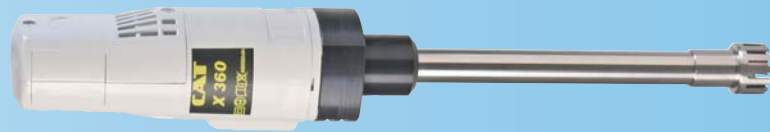
## X 120



**T 6** 0,2 ml - 50 ml (Part No.: 60420)

**T 10** 10 ml - 100ml (Part No.: 60421)

**T 17** 250 ml - 1.500 ml (Part No.: 60426)



**T 6** 0,2 ml - 50 ml (Part No.: 60420)

**T 10** 10 ml - 100ml (Part No.: 60421)

**T 17** 250 ml - 1.500 ml (CAT No.: 60426)



0,2ml - 1.500ml  
5.000 - 32.000 rpm (115V)  
10.000 - 33.000 rpm (230V)

**T 6** 0,2 ml - 50 ml (Part No.: 60420)

**T 10** 10 ml - 100ml (Part No.: 60421)

**T 17** 250 ml - 1.500 ml (Part No.: 60426)

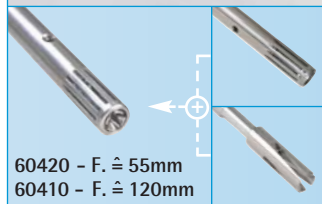
## Shafts

**T 6/T 6 lang**

**T 10**

**T 17**

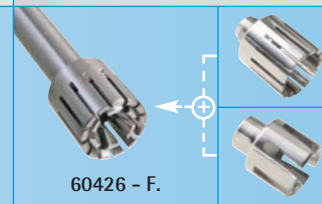
**fine F**  
F-rotor + F-stator  
= F-generator



60420 - F.  $\hat{=}$  55mm  
60410 - F.  $\hat{=}$  120mm



60421 - F.



60426 - F.

**low viscosity N**  
F-rotor + V-stator  
= N-generator



60420 - N.  $\hat{=}$  55mm  
60410 - N.  $\hat{=}$  120mm

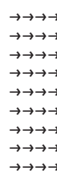


60421 - N.



60426 - N.

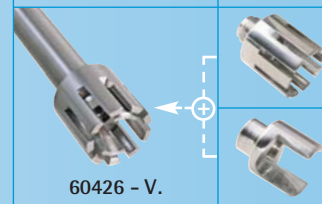
**viscous V**  
V-rotor + V-stator  
= V-generator



60420 - V.  $\hat{=}$  55mm  
60410 - V.  $\hat{=}$  120mm



60421 - V.



60426 - V.

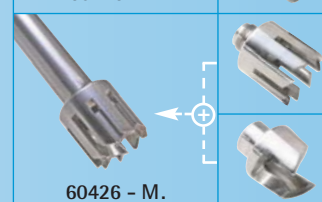
**knife M**  
M-rotor + M-stator  
= M-generator



60420 - M.  $\hat{=}$  55mm  
60410 - M.  $\hat{=}$  120mm



60421 - M.



60426 - M.





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# X 1740



5.000 - 20.000 ml  
2.500 - 23.000 rpm

**G 40 - 20.000 ml** (Part No.: 60415-..)

**T 40 - 20.000 ml** (Part No.: 60414-..)

## X 1740

High-power, heavy-duty drive motor with electronic speed control, 1700 watts for 40 mm tool

60408-00 (230 V)

60408-01 (115 V)

## Unidrive X 1000

Powerful drive motor, built-in speed control for all dispersing tools below up to 30 mm

60402-50 (230 V)

60402-51 (115 V)

## Unidrive X 1000D

Same as above but with digital display of rpm

60406-50 (230 V)

60406-51 (115 V)

## X 360

Drive motor, 350 watts, high speed motor, speed control separately available

60401-00 (230 V)

## X 120

Hand-held, high speed drive motor for small volumes electronically stabilized speed control for tools up to 17 mm

60404-00 (230 V)

60404-01 (115 V)

0,2ml - 5.000ml  
4.000 - 33.000 rpm

**G 20** 250 ml - 2.000 ml (Part No.: 60423-..)

**G 30** 500 ml - 5.000 ml (Part No.: 60425-..)

**T 20** 250 ml - 2.000 ml (Part No.: 60422-..)

**T 30** 500 ml - 5.000 ml (Part No.: 60424-..)

0,2ml - 2.000ml  
45.000 rpm

**G 20** 250 ml - 2.000 ml (Part No.: 60423-..)

**T 20** 250 ml - 2.000 ml (Part No.: 60422-..)



**T** = Shaft with ETFE bearing. This shaft type is used for standard application. (For liquid media like water, oil, etc.)

**G** = Shaft with slide seal ring. This shaft type is excellent for applications with aggressive respectively abrasive media and when pressure is applied.





Zertifiziertes  
QM-System  
DIN EN ISO 9001:2000  
Zertifikat Nr. 020206

# Product Overview

No. 8HO.GE.E/A



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