GRIP MASTER

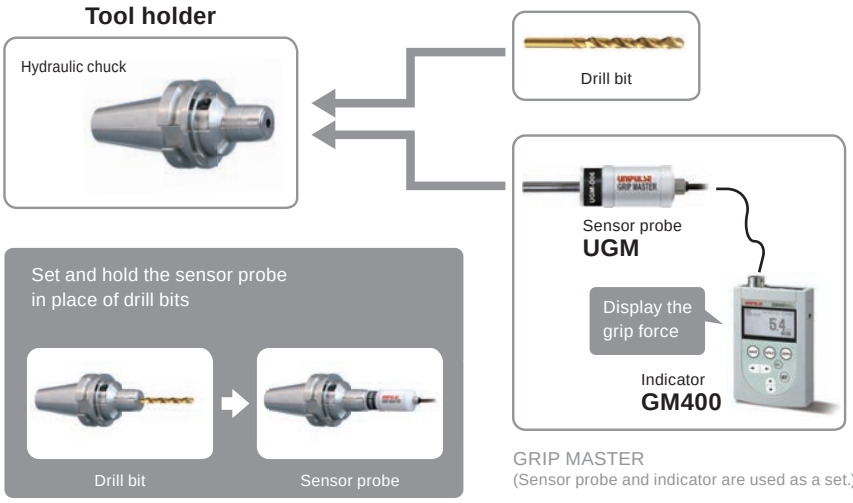
GRIP FORCE CHECKER

Quantifies gripping force
Daily management tool
to support precision machining

GRIP MASTER is a tool to quantify grip force in metalworking, while measuring and managing a stabilized metalworking process. Grip force of drill bits or work can be properly managed, preventive maintenance of machine tools, improvement of machining quality are made possible. Huge line up of sensor probe from ϕ4 to ϕ32 are available, besides that various functions such as memory function ensures an easy management of grip force.

Safe and easy inspection with quantified grip force

Grip force of tool holders can be easily checked by simply inserting and gripping the sensor probe by a tool holder.



GRIP MASTER
(Sensor probe and indicator are used as a set.)

A variety of sensor probe product lines

Wide range of the sensor probes are available.

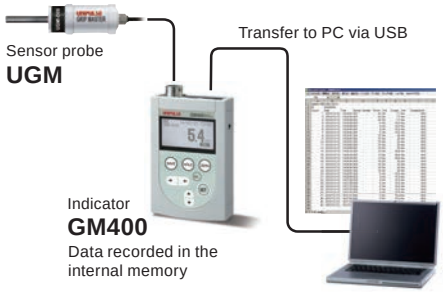
ϕ4 to ϕ32 supported

No calibration required

Information of the sensor is stored in the memory of sensor probe itself. There is no need to enter information for calibration each time when sensor probe is changed.

Easy data recording by pressing "SAVE" button

Measurement data will be recorded with date and time when "SAVE" button is pressed. Recorded data can be easily exported to PC via USB interface.



Carrying case

Carrying case included

Multi-storage carrying case (sold separately)

UGM-CC

Did you know that tool holders also have lifespan?

It does not mean that the same grip force is applied always, even if tools are set in a usual way.

Gripping force of tool holders changes over time due to wear and over use. Especially, gripping force of a hydraulic chuck declines over time depending on usage.

Then, if not enough grip force is applied, it may lower machining accuracy and may cause damage on products, lowering productivity a lot.

By checking the grip force of tool holder, you can…

1) check if enough force is applied to hold bits
2) detect deterioration of tool holders in advance

Prevent damage and problems during metalworking process!

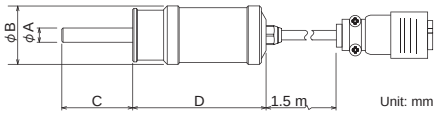
UGM: sensor probe

Specifications

Model	UGM-D04	UGM-D05	UGM-D06	UGM-D07	UGM-D08	UGM-D10	UGM-D12	UGM-D16	UGM-D20	UGM-D25	UGM-D32
Diameter	4 mm	5 mm	6 mm	7 mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm	32 mm
Rated capacity (Grip pressure)	140.4 Mpa	79.6 Mpa	124.3 Mpa	106.6 Mpa	93.3 Mpa	101.6 Mpa	83.8 Mpa	91.8 Mpa	108.5 Mpa	83.0 Mpa	86.5 Mpa
Rated capacity (Grip force) *1	10 kN	10 kN	20 kN	20 kN	20 kN	40 kN	40 kN	60 kN	100 kN	150 kN	200 kN
Calculated slipping torque at R.C. *2	15.0 Nm	18.8 Nm	45.0 Nm	52.5 Nm	60.0 Nm	150.0 Nm	180.0 Nm	360.0 Nm	750.0 Nm	1406.3 Nm	2400.0 Nm
Sensing length	17 mm	24 mm	25.6 mm	25.6 mm	25.6 mm	37.6 mm	38 mm	39 mm	44 mm	69 mm	69 mm
Maximum safe overload	120% R.C.										
Safe temperature range	+10 to +40℃										
Cable	ϕ3 shielded cable 1.5 m connector included								ϕ5 shielded cable 1.5 m connector included		
Material	Sensor probe: stainless Cover: polyacetal (it cannot be removed.)										
Weight (excluding cable)	Approx. 100 g	Approx. 100 g	Approx. 100 g	Approx. 100 g	Approx. 100 g	Approx. 120 g	Approx. 150 g	Approx. 220 g	Approx. 360 g	Approx. 800 g	Approx. 1000 g

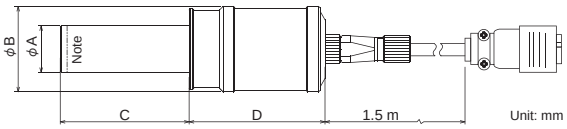
*1 Grip Force (N) = Grip Pressure (Pa) × (Radiuss (m) × Sensing Length (m)) / 3
*2 Slip Torque (N·m) = Grip Force (N) × 3 × Radius (m) × Friction Coefficient (0.25)

External dimensions (ϕ4, ϕ5, ϕ6, ϕ7, ϕ8, ϕ10, ϕ12, ϕ16)



Unit: mm

External dimensions (ϕ20, ϕ25, ϕ32)



Unit: mm

Note:
The tip (5 mm from the end) of ϕ25 and ϕ32 probes is slightly tapered, and the diameter is smaller.

Model	ϕA	B	C	D
UGM-D04	ϕ4	24.5	27	56
UGM-D05	ϕ5		27	
UGM-D06	ϕ6		33	
UGM-D07	ϕ7		34	
UGM-D08	ϕ8		34	
UGM-D10	ϕ10		44	
UGM-D12	ϕ12		44	
UGM-D16	ϕ16	30.5	45	
UGM-D20	ϕ20	36.5	55	58
UGM-D25	ϕ25	44.5	78.5	60.5
UGM-D32	ϕ32	46.5	85.5	56.5

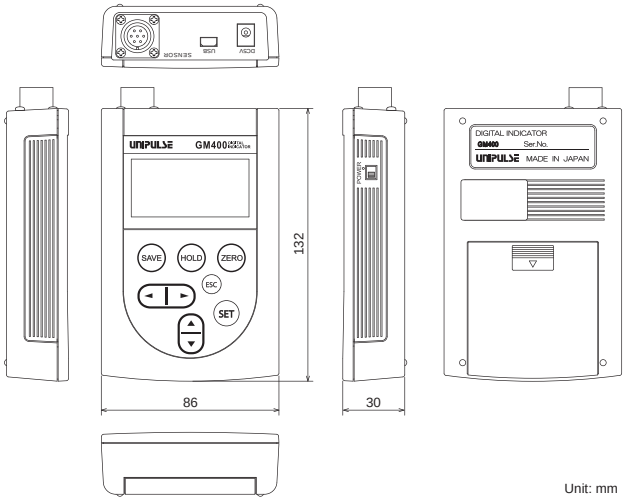
GM400: indicator

Specifications

Model		GM400
Analog	A/D converter	80 times/sec.
Display	Display unit	128 × 64 dot black and white LCD
	Display value	2 decimal places + sign
	Display contents	Switchable numeric display (grip pressure / grip force / slip torque)
Recorder	Recording function	Record when [SAVE] is pressed
	Recording media	Internal memory
	Recording method	Texts in CSV format
	Recorded data	ID, sensor number, date and time, indicated value/reading (grip pressure / grip force / torque), unit, and temperature
	Memory for recorded data	8000 data
Function	Hold	Sample / peak
General specifications	Internal power supply	AA alkaline batteries or nickel metal hydride batteries (4 pcs.)
	External power supply	AC adapter for 100 Vac (sold separately)
	Max. continuous operating time	Approx. 30 hours (when backlight is off)
	Operating conditions	Temperature: +10 to +40℃ Humidity: 80% RH or less (non-condensing)
	External dimensions	86(W) × 132(H) × 30(D) mm (not including protrusions)
	Weight	Approx. 290 g (including the 95 g weight of battery)

* Please note that there are possibilities of individual differences in a color tone on display devices such as LEDs, fluorescent display tubes and LCDs due to manufacturing process or production lots.

External dimensions



Unit: mm

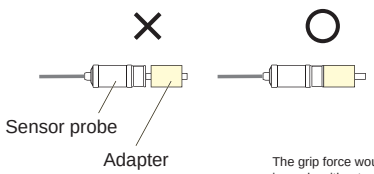
Adapter

Recommended adapters

UGM diameter	Rated capacity	Length of sensor	Diameter of adapter										Length of adapter
			ϕ5	ϕ6	ϕ7	ϕ8	ϕ10	ϕ12	ϕ16	ϕ20	ϕ25	ϕ32	
ϕ4	10 kN	27				○	◎	◎	○				22
ϕ5	10 kN	27					○	◎	◎	○			22
ϕ6	20 kN	33					○	◎	◎	○			28
ϕ7	20 kN	34						○	◎	◎	○		29
ϕ8	20 kN	34						○	◎	◎	○		29
ϕ10	40 kN	44							○	◎	◎	○	39
ϕ12	40 kN	44								○	◎	◎	39
ϕ16	60 kN	45									○	◎	40
ϕ20	100 kN	55										○	50
ϕ25	150 kN	78.5											72
ϕ32	200 kN	85.5											80

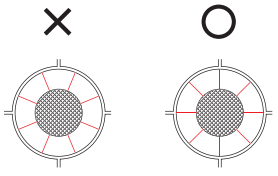
◎ Recommended
○ Please discuss with our sales representatives
* For blank spaces or unspecified diameters, please consult with our sales representatives.

Use adapter with caution



Please insert the sensor probe entirely into the adapter.

The grip force would be different when measurement is made without adapter and with adapter, however there's no difference in repeatability.



Please ensure that the slit position of chuck and adapter is matched before using.