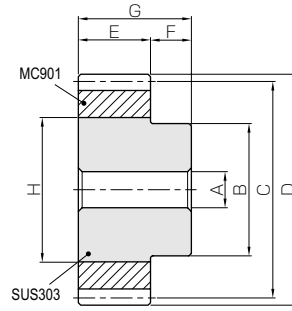




Specifications	
Precision grade	JIS grade N9 (JIS B1702-1: 1998) JIS grade 5 (JIS B1702: 1976)
Gear teeth	Standard full depth
Pressure angle	20°
Material	MC901 with SUS303 core
Heat treatment	—
Tooth hardness	115 ~ 120HRR



S1

Catalog No.	Module	No. of teeth	Shape	Bore	Hub dia.	Pitch dia.	Outside dia.	Face width	Hub width	Total length	Metal core dia.
				A _{H7}	B	C	D	E	F	G	H
PU1-30	m1	30	S1	8	20	30	32	10	10	20	20
PU1-35		35	S1	8	25	35	37	10	10	20	25
PU1-40		40	S1	10	25	40	42	10	10	20	28
PU1-50		50	S1	10	30	50	52	10	10	20	34
PU1-60		60	S1	10	40	60	62	10	10	20	45
PU1-80		80	S1	10	40	80	82	10	10	20	45
PU1.5-30	m1.5	30	S1	10	30	45	48	15	12	27	30
PU1.5-35		35	S1	10	33	52.5	55.5	15	12	27	36
PU1.5-40		40	S1	10	40	60	63	15	12	27	45
PU1.5-50		50	S1	12	40	75	78	15	12	27	45
PU1.5-60		60	S1	12	50	90	93	15	12	27	55
PU1.5-80		80	S1	12	60	120	123	15	12	27	85
PU2-20	m2	20	S1	10	22	40	44	20	14	34	22
PU2-25		25	S1	10	30	50	54	20	14	34	30
PU2-30		30	S1	10	35	60	64	20	14	34	35
PU2-35		35	S1	12	40	70	74	20	14	34	45
PU2-40		40	S1	15	55	80	84	20	14	34	60
PU2-50		50	S1	15	60	100	104	20	14	34	65
PU2-60	60	S1	15	60	120	124	20	14	34	85	

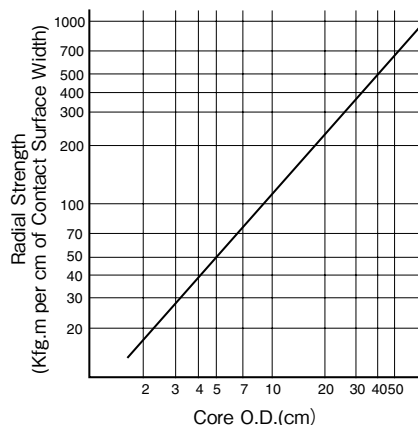
[Caution on Product Characteristics]

- ① Significant variations in temperature or humidity can cause dimensional changes in plastic gears (MC Nylon gears), including bore size (H8 when produced), tooth diameter, and backlash. Please see the section "Design of Plastic Gears" in the technical reference (Page 597).
- ② The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see page 35 for more details.
- ③ When the core O.D. is the same as the hub diameter, you may see some serration on the hub. There is no effect on the strength of the gear.
- ④ Without lubrication, using plastic gears in pairs may generate heat and dilation. It is recommended to mate with steel gears.
- ⑤ The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.

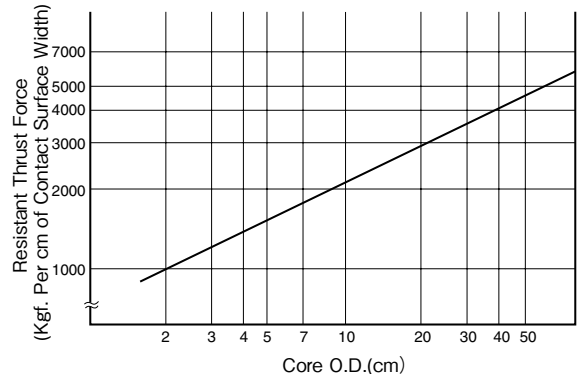
Definition of Holding Strength and Safety Factor

① The holding strength between the metal core and the molded plastic material is a function of the contact area. The relationship between the core outside diameter and the radial strength (torque) is shown on the left, while the relationship between the core diameter and the resistant thrust force is shown on the right.

Relationship between radial strength and core diameter



Relationship between resistant thrust force and core diameter



Allowable torque (N·m)	Allowable torque (kgf·m)	Backlash (mm)	Weight (kg)	Catalog No.
Bending strength	Bending strength			
1.03	0.10	0~0.34	0.046	PU1-30 PU1-35 PU1-40 PU1-50 PU1-60 PU1-80
1.25	0.13	0~0.34	0.074	
1.48	0.15	0~0.34	0.081	
1.96	0.20	0~0.34	0.13	
2.41	0.25	0~0.36	0.22	
3.34	0.34	0~0.36	0.25	
3.46	0.35	0~0.38	0.15	PU1.5-30 PU1.5-35 PU1.5-40 PU1.5-50 PU1.5-60 PU1.5-80
4.22	0.43	0~0.40	0.20	
5.00	0.51	0~0.40	0.31	
6.60	0.67	0~0.40	0.33	
8.14	0.83	0~0.40	0.51	
11.26	1.15	0~0.42	1.00	
4.91	0.50	0~0.42	0.10	PU2-20 PU2-25 PU2-30 PU2-35 PU2-40 PU2-50 PU2-60
6.54	0.67	0~0.42	0.20	
8.20	0.84	0~0.44	0.28	
10.0	1.02	0~0.44	0.41	
11.9	1.21	0~0.44	0.70	
15.7	1.60	0~0.44	0.88	
19.3	1.97	0~0.46	1.28	

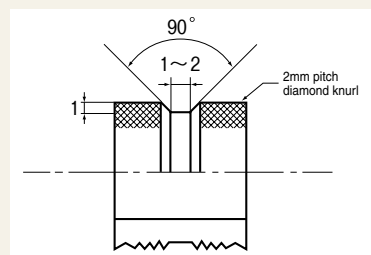
[Caution on Secondary Operations]

- ① Please read "Caution on Performing Secondary Operations" (Page 36) when performing modifications and/or secondary operations for safety concerns. Haguruma Kobo, the KHK's system for quick modification of KHK stock gears is also available.
- ② Even though the holding strength at the material interface is designed to be stronger than the teeth, a secondary operation may weaken the holding strength.
- ③ Plastic gears are susceptible to the effects of temperature and moisture. Dimensional changes may occur while performing secondary operations and during post-machining operations.

■ How is MC nylon fused to the metal core

This method is superior to other conventional methods such as bolting, shrink fitting and bonding.

- ① Outline of the procedure
The surface of the core material is rolled with a 2mm pitch diamond knurl. Then one or more grooves (1 to 2mm wide and 1mm deep) are cut as shown below. The metal surface is treated prior to casting nylon in a mold.



- ② Advantage of MC nylon with metal core

1. Wide temperature range.
There are examples of wheel use in furnaces at 130 to 140° C.
2. Good dimensional stability
Since nylon is fused to the whole outer surface of the metal hub, dimensional change is very small even under temperature variations.
3. Good appearance
Elimination of bolts and nuts provides a cleaner physical appearance.

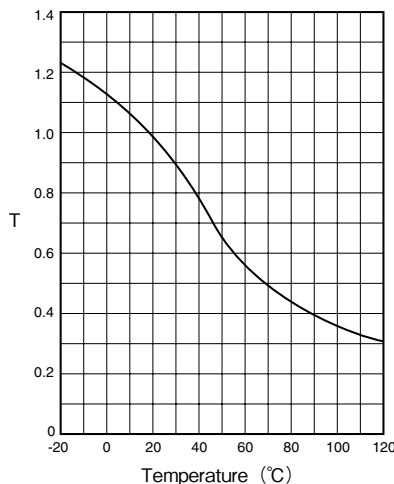
- ② When the ambient temperature rises, obtain the temperature compensation factor, T, from the chart on the right. Also, use a safety factor of 4 to 5 in the calculation.

$$T_{al} = T_{max} \times \frac{1}{\text{Safety Factor}} \times T$$

Where

- T_{al} : Allowable Holding Strength at the contact surface
- T_{max} : Maximum Holding Strength - Find from the charts on the left.
- T : Temperature Compensation Factor

■ Ambient temperature compensation factor T



* Data supplied by Japan Polypenco Limited.