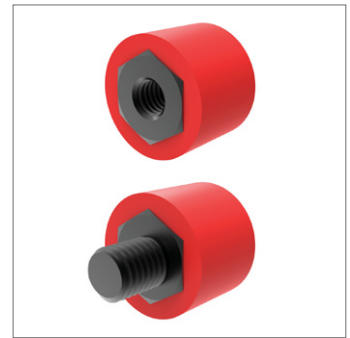
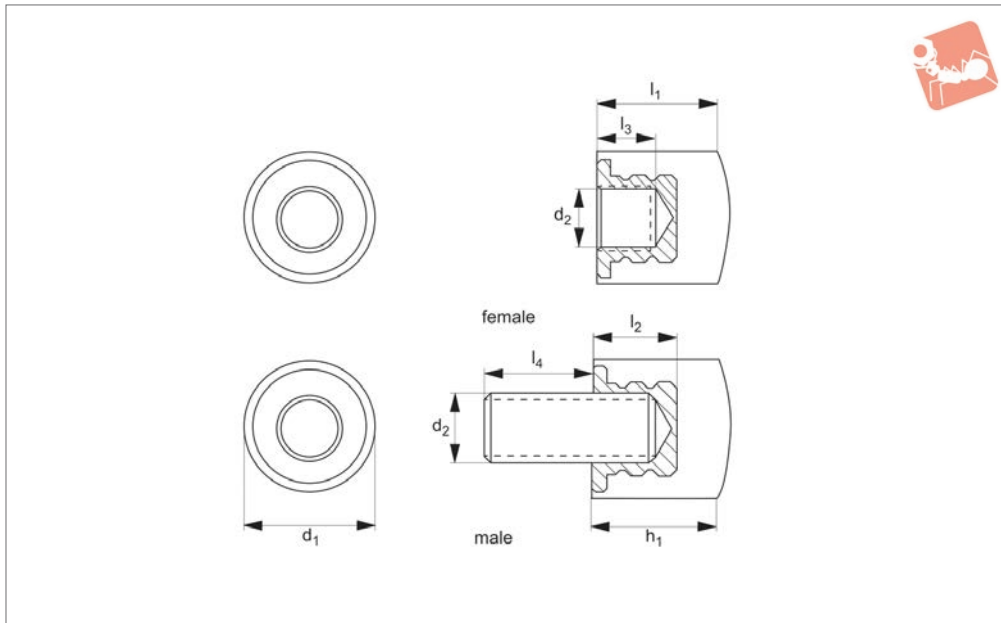




# Metric Bumpers - Round male and female

## Rollers & Bumpers



**60880**

ROLLERS & BUMPERS

### Material

**Black Neoprene:** flame and weather resistant. Resists: oil, ozone and gasoline. Temperature resistance: -5°C to +93°C (shortly +120°C).

**Urethane:** highly abrasion resistant, high strength and load bearing. High elonga-

tion and hardness. Resists ozone and oxygen. Temperature resistance: -18°C to +93°C (shortly +120°C).

### Technical Notes

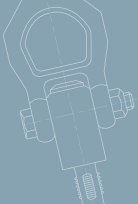
Bumpers are moulded to solid steel cores. They are used to guard, stop, align, posi-

tion, or protect parts through stages of manufacturing.

### Tips

All dimensions metric.

Order No.	Material	Type	$l_1$	$d_1$	$d_2$	$l_2$	$l_3$	$l_4$	Durometer	Duro. urethane
60880.W0411	Neoprene	Female	16	19	M 6 x 1,00	9.0	6	-	70	80
60880.W0412	Neoprene	Female	16	19	M 8 x 1,25	9.0	6	-	70	80
60880.W0413	Neoprene	Female	32	32	M10 x 1,50	19.0	13	-	40	80
60880.W0414	Neoprene	Female	32	32	M10 x 1,25	19.0	13	-	40	80
60880.W0415	Neoprene	Female	32	32	M12 x 1,75	19.0	13	-	40	80
60880.W0416	Neoprene	Female	32	32	M12 x 1,25	19.0	13	-	40	80
60880.W0417	Neoprene	Female	32	32	M16 x 2,00	19.0	13	-	40	80
60880.W0418	Neoprene	Female	42	45	M16 x 2,00	22.5	16	-	40	80
60880.W0419	Neoprene	Female	57	57	M20 x 2,50	35.0	26	-	40	80
60880.W0420	Neoprene	Female	57	57	M24 x 3,00	35.0	25	-	40	80
60880.W0615	Neoprene	Male	32	32	M10 x 1,50	19.0	-	15	40	80
60880.W0616	Neoprene	Male	32	32	M10 x 1,50	19.0	-	30	40	80
60880.W0617	Neoprene	Male	32	32	M12 x 1,75	19.0	-	15	40	80
60880.W0618	Neoprene	Male	19	32	M12 x 1,75	19.0	-	30	40	80
60880.W0619	Neoprene	Male	32	32	M16 x 2,00	19.0	-	15	40	80
60880.W0620	Neoprene	Male	32	32	M16 x 2,00	19.0	-	30	40	80
60880.W0621	Neoprene	Male	42	45	M16 x 2,00	22.5	-	15	40	80
60880.W0622	Neoprene	Male	42	45	M16 x 2,00	22.5	-	30	40	80
60880.W0451	Urethane	Female	16	19	M 6 x 1,00	9.0	6	-	70	80
60880.W0452	Urethane	Female	16	19	M 8 x 1,25	9.0	6	-	70	80
60880.W0453	Urethane	Female	32	32	M10 x 1,50	19.0	13	-	40	80
60880.W0454	Urethane	Female	32	32	M10 x 1,25	19.0	13	-	40	80
60880.W0455	Urethane	Female	32	32	M12 x 1,75	19.0	13	-	40	80
60880.W0456	Urethane	Female	32	32	M12 x 1,25	19.0	13	-	40	80
60880.W0457	Urethane	Female	32	32	M16 x 2,00	19.0	13	-	40	80
60880.W0458	Urethane	Female	42	45	M16 x 2,00	22.5	16	-	40	80
60880.W0459	Urethane	Female	57	57	M20 x 2,50	35.0	25	-	40	80
60880.W0460	Urethane	Female	57	57	M24 x 3,00	35.0	25	-	40	80
60880.W0635	Urethane	Male	32	32	M10 x 1,50	19.0	-	15	40	80
60880.W0636	Urethane	Male	32	32	M10 x 1,50	19.0	-	30	40	80
60880.W0637	Urethane	Male	32	32	M12 x 1,75	19.0	-	15	40	80



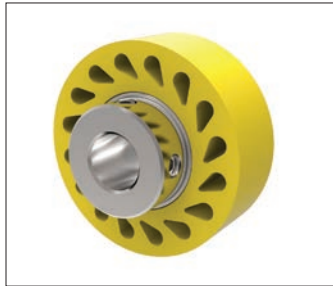
Order No.	Material	Type	l <sub>1</sub>	d <sub>1</sub>	d <sub>2</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	Durometer	Duro. urethane
<b>60880.W0638</b>	Urethane	Male	19	32	M12 x 1,75	19.0	-	30	40	80
<b>60880.W0639</b>	Urethane	Male	32	32	M16 x 2,00	19.0	-	15	40	80
<b>60880.W0640</b>	Urethane	Male	32	32	M16 x 2,00	19.0	-	30	40	80
<b>60880.W0641</b>	Urethane	Male	42	45	M16 x 2,00	22.5	-	15	40	80
<b>60880.W0642</b>	Urethane	Male	42	45	M16 x 2,00	22.5	-	30	40	80



### Product overview



**Solid rollers** - have a smooth surface and a solid body



**Durasoft rollers** - have a smooth contact surface with teardrop holes to allow greater roller compression under load.



**Finned rollers** - are grooved and provide self-cleaning as dirt, debris and liquid pass under the contact surface of the roller.

### Durability levels



20 durometer:  
Stiff foam rubber



35 durometer:  
Pencil rubber top



60 durometer:  
Car tyre

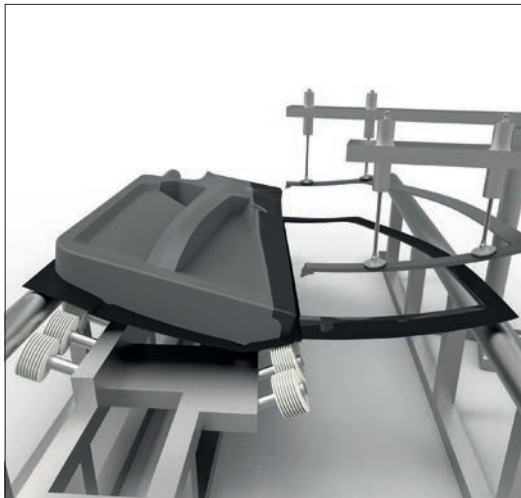


80 durometer:  
Skateboard wheel



90 durometer:  
Hockey puck

### Applications



Rollers are used in car manufacturing to guide and align doors during bonding and curing applications



Bumpers have found their way into commercial exercise equipment to provide protection and stability during use.



## Materials colour guide and properties

### Nitrile and neoprene

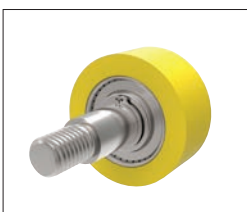


Nitrile - one colour



Neoprene - one colour

### Urethane



35 Durometer (Yellow)



60 Durometer (Blue)



80 Durometer (Red)



95 Durometer (Orange)

### Material properties

Base Elastomer	Chemical Name	Advantages	Disadvantages	Max. Temp	Min. Temp
Nitrile	Nitrile Butadiene	Resistant to petroleum, oil, alcohol & abrasion.	Affected by degreaser solvents.	Continuous 79°C Intermittent 107°C	-51°C
Neoprene	Chloroprene	Flame and weather resistant. Resistant to Petroleum, oil, ozone & high temp.	Affected by phosphate hydraulic fluids, aromatic hydrocarbons.	Continuous 93°C Intermittent 121°C	-40°C
Urethane	Di-Isocyanate Polyurethane	Highest abrasion resistance, strength & load bearing. High elongation, hardness. Resistance to Ozone & Oxygen.	Affected by ether, esters, acid, aromatics, alkalis.	Continuous 93°C Intermittent 121°C	-54°C

Property:	Nitrile	Neoprene	Urethane	
Tensile Strength	✓ ✓	✓ ✓ ✓	✓ ✓ ✓ ✓	
Ozone Resistance	✓	✓ ✓	✓ ✓ ✓ ✓	
Cut Resistance	✓ ✓	✓ ✓ ✓	✓ ✓ ✓ ✓	
Abrasion Resistance	✓ ✓	✓ ✓ ✓	✓ ✓ ✓ ✓	
Resistance To:	Nitrile	Neoprene	Urethane	
Compression Set	✓ ✓	✓ ✓ ✓	✓ ✓ ✓	
ASTM #1 Oil	✓ ✓ ✓ ✓	✓ ✓	✓ ✓ ✓ ✓	
ASTM #2 Oil	✓ ✓ ✓ ✓	✓ ✓	✓ ✓ ✓ ✓	
Reference Fuel B	✓ ✓ ✓	✓ ✓	✓ ✓ ✓ ✓	
Ketones: MEK	✓	✓ ✓	✓	
Aromatics: Toluene	✓ ✓ ✓	✓	✓ ✓ ✓ ✓	
Aliphatics: Hexane	✓ ✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓ ✓	
Ethyl Acetate	✓	✓ ✓ ✓	✓	
Cellosolve	✓ ✓	✓ ✓ ✓ ✓	✓	
Methylene Chloride	✓	✓	✓ ✓ ✓ ✓	
Trichloroethylene	✓	✓	✓ ✓ ✓ ✓	
Diethylene Glycol	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓	✓ ✓ ✓	
Isopropyl Alcohol	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	
Caustics: 10% NaOH	✓ ✓ ✓	✓ ✓ ✓	✓	
Acids: H2SO4	✓ ✓	✓ ✓ ✓	✓	
Excellent	✓ ✓ ✓ ✓	Good ✓ ✓ ✓	Fair ✓ ✓	Poor ✓



The tables below show the maximum theoretical radius loads that can be applied to the respective bearings. Refer to individual product tables to identify bearing type supplied with roller.

Bearing Type	Inside diameter (inches)	Outside diameter (inches)	Width (inches)	Load (Kg)	Speed (rpm)
A - Standard Double	.313/.317	.870/.875	.498/.502	55	50
				36	100
				24	250
				20	500
B - Standard Single	.500/.505	1.245/1.250	.370/.380	119	50
				79	100
				51	250
				47	500
C - Standard Double	.500/.505	1.245/1.250	.745/.755	192	50
				128	100
				83	250
				70	500

### Standard bearings

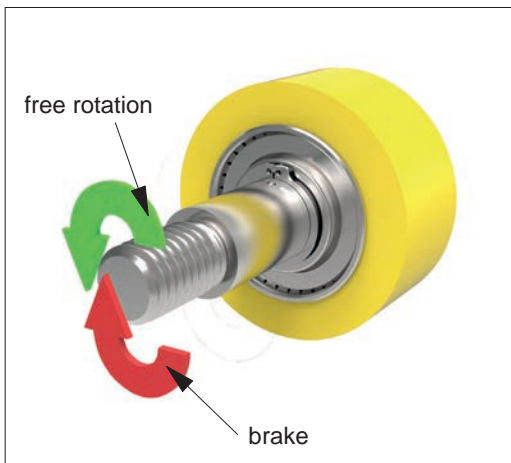
With the calculations above, typical life is approximately 2500 hours.

Bearing Type	Inside diameter (inches)	Outside diameter (inches)	Width (inches)	Load (Kg)	Speed (rpm)
H	.3745/.3750	.6245/.6255	.865/.875	167	33
				146	50
				116	100
				85	250
I	.6245/.6250	.8745/.8755	.990/1.000	277	33
				242	50
				192	100
				142	250

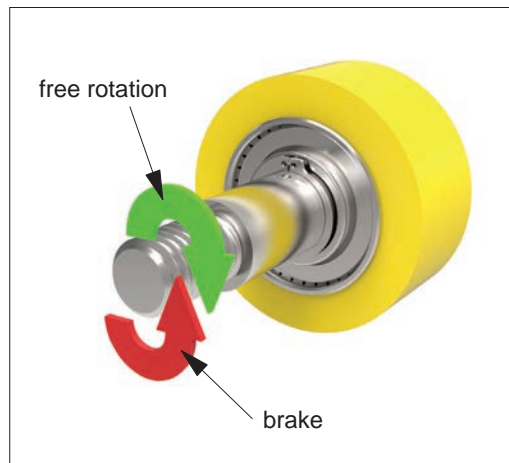
### Clutch bearings

With the calculations above, typical life is approximately 1,000,000 revolutions or 500 hours. The bearings are shielded and pre-lubricated for life with grease.

A clutch roller can only be used in one direction, as shown. See data table for clutch direction of particular part.



Left clutch bearing



Right clutch bearing