

This Soremag sheet summarizes, for everyday shop use, the principles of standards ISO 1101 and ISO 6123/3 as applied to rubber rollers. Form tolerances bound the permissible deviation between a roller's actual surface and its ideal geometry; dimensional tolerances set the range within which the covered roller is deemed compliant. The characteristics below concern rubber-covered rollers.

TERMINOLOGY — CONVENTIONS

CYLINDRICITY

The surface of the rubber roller must remain contained between two coaxial cylinders 0.1 mm apart.



COAXIALITY

The axis of the covered roller linked to the tolerance frame must lie within a cylindrical zone 0.08 mm in diameter, coaxial with reference axis A-B.



RUNOUT

Over one full revolution of the roller about reference axis A, the radial runout measured in each plane must not exceed 0.05 mm.



STANDARDS & TOLERANCES

The dimensional tolerances of rubber-covered rollers are governed by standard **ISO 6123/3**, which defines 6 precision classes:

XXP Very high precision

XP High precision

P Precision

H Very good quality

Q Quality

N Not specified

Soremag works to standard classes P and XP. Depending on the application — finishing or industrial — Soremag may select a different class without affecting the function or performance of the roller; where no class is specified (N), Soremag applies the tolerance best suited to the intended use.

DIAMETER TOLERANCES

Rollers with length/Ø ratio below 15

(roller rigidity assumed sufficient)

Shore A hardness	XXP	XP	P	H	Q	N
< 50	—	—	—	H	Q	N
50 to 70	—	—	P	H	Q	N
71 to 99	—	XP	P	H	Q	N
≥ 100	XXP	XP	P	H	Q	N
Covered roller Ø (mm)	Diameter tolerances (mm)					
Ø < 40	±0.04	±0.06	±0.10	±0.15	±0.30	±0.50
40 < Ø < 63	±0.05	±0.07	±0.15	±0.20	±0.30	±0.60
63 < Ø < 100	±0.06	±0.09	±0.15	±0.25	±0.40	±0.70
100 < Ø < 160	±0.07	±0.11	±0.2	±0.30	±0.50	±0.90
160 < Ø < 250	±0.08	±0.14	±0.25	±0.40	±0.60	±1.10
250 < Ø < 400	±0.11	±0.18	±0.30	±0.50	±0.80	±1.40
400 < Ø < 630	±0.14	±0.23	±0.40	±0.65	±1.10	±1.80
Ø > 630	—*	±0.50	±0.75	±1.25	±2.00	±3.00

* Tolerance to be agreed between the parties.

Rollers with length/Ø ratio between 15 and 25

(roller rigidity assumed sufficient)

Shore A hardness	XXP	XP	P	H	Q	N
< 50	—	—	—	H	Q	N
50 to 70	—	—	P	H	Q	N
71 to 99	—	XP	P	H	Q	N
≥ 100	XXP	XP	P	H	Q	N
Covered roller Ø (mm)	Diameter tolerances (mm)					
Ø < 40	±0.06	±0.10	±0.15	±0.30	±0.50	±0.80
40 < Ø < 63	±0.07	±0.15	±0.20	±0.30	±0.60	±1.00
63 < Ø < 100	±0.09	±0.15	±0.25	±0.40	±0.70	±1.20
100 < Ø < 160	±0.11	±0.20	±0.30	±0.50	±0.90	±1.50
160 < Ø < 250	±0.14	±0.25	±0.40	±0.60	±1.10	±1.80
250 < Ø < 400	±0.18	±0.30	±0.50	±0.80	±1.40	±2.30
400 < Ø < 630	±0.23	±0.40	±0.65	±1.10	±1.80	±3.00
Ø > 630	±0.50	±0.75	±1.25	±2.00	±3.00	±5.00

For rollers with a length/diameter ratio above 25, or with insufficient rigidity, tolerances are set by mutual agreement between Soremag and the customer.

The tolerance split may be shifted either way: for example, a ±0.8 interval can equally be written +0.40/-1.20, +1.60/0 or 0/-1.6, etc.

RUNOUT & CYLINDRICITY TOLERANCES

Runout tolerances

Shore A hardness	XP	P	H	Q	N
< 50	–	–	H	Q	N
50 to 70	–	P	H	Q	N
71 to 99	–	P	H	Q	N
≥ 100	XP	P	H	Q	N
Covered roller Ø (mm)	Runout tolerances (mm)				
Ø < 40	0.01	0.02	0.04	0.08	0.15
40 < Ø < 63	0.02	0.03	0.06	0.10	0.18
63 < Ø < 100	0.03	0.04	0.08	0.13	0.20
100 < Ø < 160	0.03	0.05	0.10	0.17	0.25
160 < Ø < 250	0.03	0.06	0.12	0.20	0.30
250 < Ø < 400	0.04	0.07	0.14	0.23	0.35
400 < Ø < 630	0.04	0.08	0.18	0.30	0.45
Ø > 630	0.05	0.10	0.25	0.35	0.55

Runout defined in the "Terminology — Conventions" section. Values refer to the diameter of the finished rubber roller: body diameter + 2 × covering thickness.

Cylindricity tolerance

Shore A hardness	XXP	XP	P	H	Q
< 50	–	–	–	H	Q
50 to 70	–	–	P	H	Q
71 to 99	–	XP	P	H	Q
≥ 100	XXP	XP	P	H	Q
Covered roller Ø (mm)	Cylindricity tolerances (mm)				
Ø < 40	0.01	0.02	0.04	0.08	0.15
40 < Ø < 63	0.02	0.03	0.06	0.10	0.18
63 < Ø < 100	0.03	0.04	0.08	0.13	0.20
100 < Ø < 160	0.03	0.05	0.10	0.17	0.25
160 < Ø < 250	0.03	0.06	0.12	0.20	0.30
250 < Ø < 400	0.04	0.07	0.14	0.23	0.35
400 < Ø < 630	0.04	0.08	0.18	0.30	0.45
Ø > 630	0.05	0.10	0.25	0.35	0.55

Cylindricity defined in the "Terminology — Conventions" section. Values refer to the diameter of the finished rubber roller: body diameter + 2 × covering thickness.

SOREMAG STANDARD CLASSES: P AND XP

Depending on the application (finishing or industrial), Soremag may deviate from the class without impairing roller performance; where no class is specified (class N), the tolerance suited to the use is applied. Rubber-roller tolerances established per ISO 6123/3, referred to the finished roller diameter. Non-contractual document — indicative values. Contact Soremag for a recommendation suited to your roller and application.