

CIMAP

BALLS AND ROLLERS

Balls diameters and mass steel
Rollers and needles

- Materials
- Cylindrical rollers
- Special profile rollers
- Needles
- Pin and axles

RANGE OF PRODUCT AND SIZES

BALLS: DIAMETER AND MASS (STEEL)

Diameter		Mass per unit g	Balls per 1 kg	Diameter		Mass per unit g	Balls per 100 kg	Diameter		Mass per unit g	Balls per 100 kg
mm	inches			mm	inches			mm	inches		
0,3	-	0,00011	9 090 910	11	-	5,47	18 279	31,75	1 1/4"	132	760
0,396	1/64"	0,00026	3 846 154	11,112	7/16"	5,64	17 732	32	-	135	742
0,5	-	0,00051	1 960 784	11,5	-	6,25	15 997	33	-	148	677
0,794	1/32"	0,00206	485 437	11,509	29/64"	6,27	15 959	33,338	1 5/16"	152	657
1	-	0,00411	243309	11,906	15/32"	6,94	14 416	34	-	162	619
1,191	3/64"	0,00694	144 092	12	-	7,10	14 080	34,925	1 3/8"	175	571
1,5	-	0,01387	72 098	12,303	31/64"	7,65	13 065	35	-	176	567
1,588	1/16"	0,0165	60 606	12,5	-	8,03	12 457	36	-	192	521
1,984	5/64"	0,0321	31 153	12,7	1/2"	8,42	11 877	36,512	1 7/16"	200	500
2	-	0,0329	30 395	13	-	9,03	11 074	38	-	226	443
2,381	3/32"	0,0555	18 018	13,494	17/32"	10,10	9 902	38,1	1 1/2"	227	440
2,5	-	0,0642	15 576	13,5	-	10,11	9 888	39,688	1 9/16"	257	389
2,778	7/64"	0,0881	11 351	14	-	11,28	8 866	40	-	263	380
3	-	0,111	9 009	14,288	9/16"	11,99	8 341	41,275	1 5/8"	289	346
3,175	1/8"	0,132	7 576	15	-	13,87	7 209	42,862	1 11/16"	324	309
3,5	-	0,176	5 682	15,081	19/32"	14,1	7 093	44,45	1 3/4"	361	277
3,572	9/64"	0,187	5 348	15,875	5/8"	16,4	6 081	45	-	375	267
3,969	5/32"	0,257	3 891	16	-	16,8	5940	46,038	1 13/16"	401	249
4	-	0,263	3 802	16,5	-	18,5	5 416	47,625	1 7/8"	444	225
4,366	11/64"	0,342	2 924	16,669	21/32"	19,0	5 253	49,212	1 15/16"	490	204
4,5	-	0,375	2 667	17	-	20,2	4 952	50	-	514	195
4,762	3/16"	0,444	2 252	17,462	11/16"	21,9	4 569	50,8	2"	539	186
5	-	0,514	1 946	18	-	24,0	4 172	53,975	2 1/8"	646	155
5,5	-	0,684	1 462	18,256	23/32"	25,0	3 999	55	-	684	146
5,556	7/32"	0,705	1 418	19	-	28,2	3 547	57,15	2 1/4"	767	130
5,953	15/64"	0,867	1 153	19,05	3/4"	28,4	3 519	60	-	888	113
6	-	0,888	1 126	19,844	25/32"	32,1	3 113	60,325	2 3/8"	902	111
6,35	1/4"	1,05	950	20	-	32,9	3 041	63,5	2 1/2"	1052	95
6,5	-	1,13	886	20,5	-	35,4	2 824	65	-	1129	89
6,747	17/64"	1,26	792	20,638	13/16"	36,1	2 768	66,675	2 5/8"	1218	82
7	-	1,41	709	21	-	38,1	2 627	69,85	2 3/4"	1401	71
7,144	9/32"	1,50	667	21,431	27/32"	40,5	2 472	70	-	1410	71
7,5	-	1,73	577	22	-	43,8	2 285	73,025	2 7/8"	1601	62
7,541	19/64"	1,76	567	22,225	7/8"	45,1	2 216	75	-	1734	58
7,938	5/16"	2,06	486	23,019	29/32"	50,1	1 995	76,2	3"	1819	55
8	-	2,10	475	23,812	15/16"	55,5	1 802	80	-	2104	48
8,5	-	2,52	396	24	-	56,8	1 761	82,55	3 1/4"	2312	43
8,731	11/32"	2,74	366	25	-	64,2	1 558	85	-	2524	40
9	-	3,00	334	25,4	1"	67,4	1 484	88,9	3 1/2"	2888	35
9,128	23/64"	3,13	320	26	-	72,2	1 385	90	-	2996	33
9,525	3/8"	3,55	282	26,988	1 1/16"	80,8	1 238	95	-	3524	28
9,922	25/64"	4,01	249	28	-	90,2	1 109	95,25	3 3/4"	3552	28
10	-	4,11	243	28,575	1 1/8"	95,9	1043	100	-	4110	24
10,319	13/32"	4,52	221	30	-	111	901	101,6	4"	4311	23
10,5	-	4,76	210	30,162	1 3/16"	113	887	120	-	7103	14

- Steel density : 7,85 kg/dm³
- Other sizes on request

RANGE OF PRODUCT AND SIZES

ROLLERS AND NEEDLES

1- MATERIALS

- 100Cr6/52100/GCr15/SUJ2 - chrome steel/bearing steel
- AISI 420C stainless steel
- Special steels : S2...

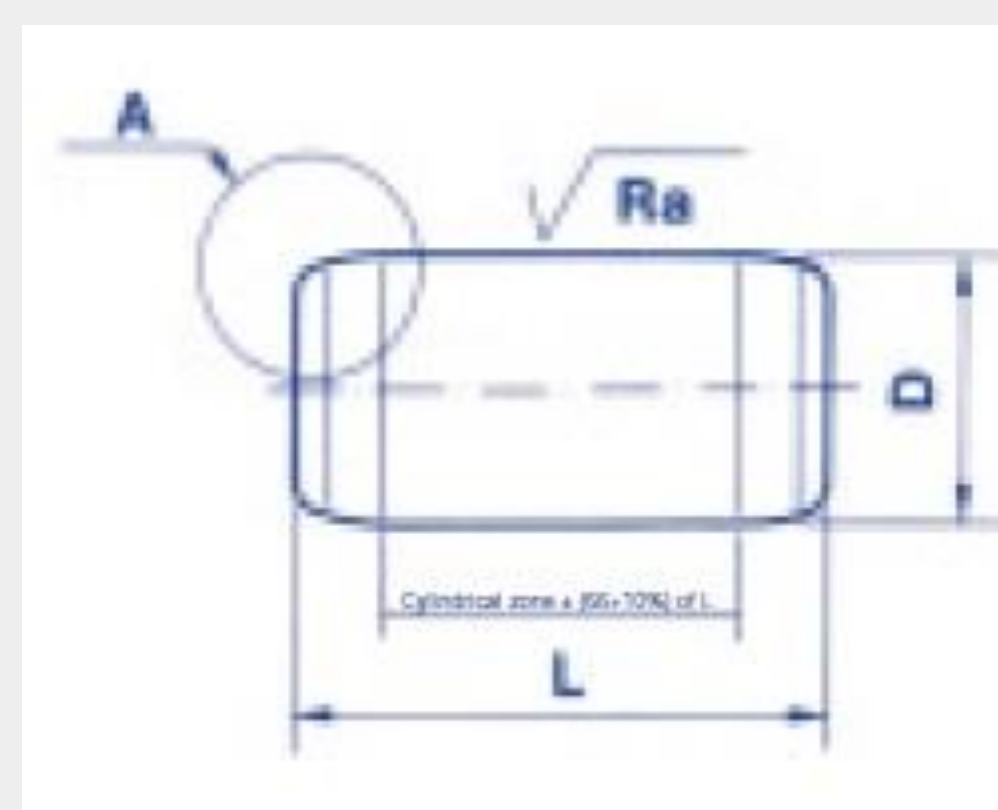
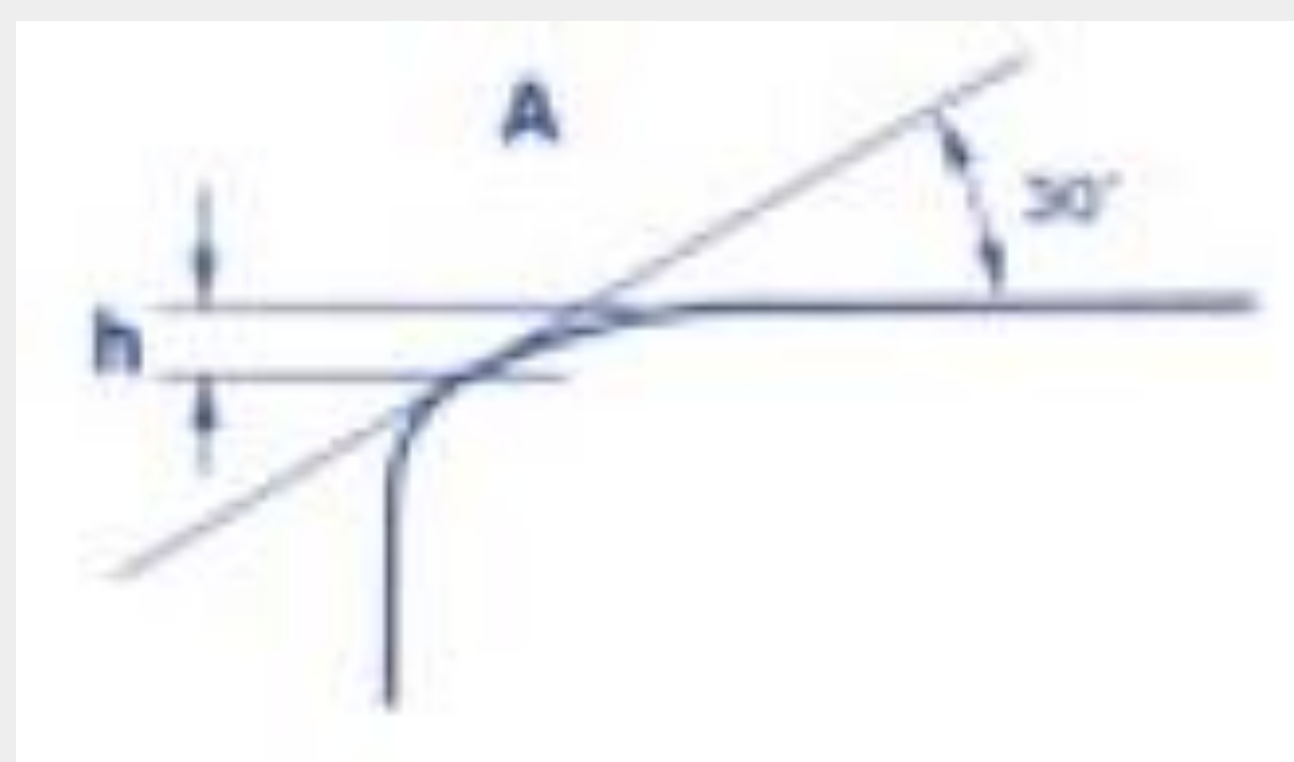
2- CYLINDRICAL ROLLERS

- End faces grinded or not
- Diameter sorting per micron possible
- Range of dia. = 2,5 to 50 mm - Range of length = 2,5 to 100 mm

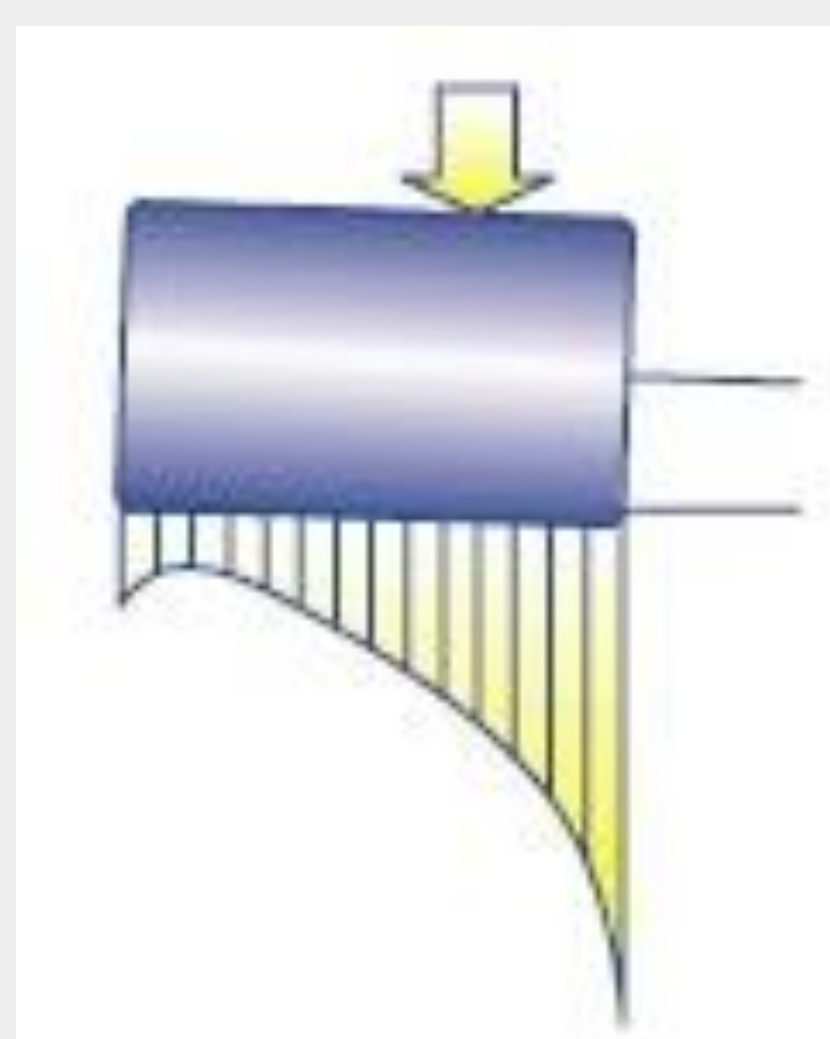


3- SPECIAL PROFIL ROLLERS

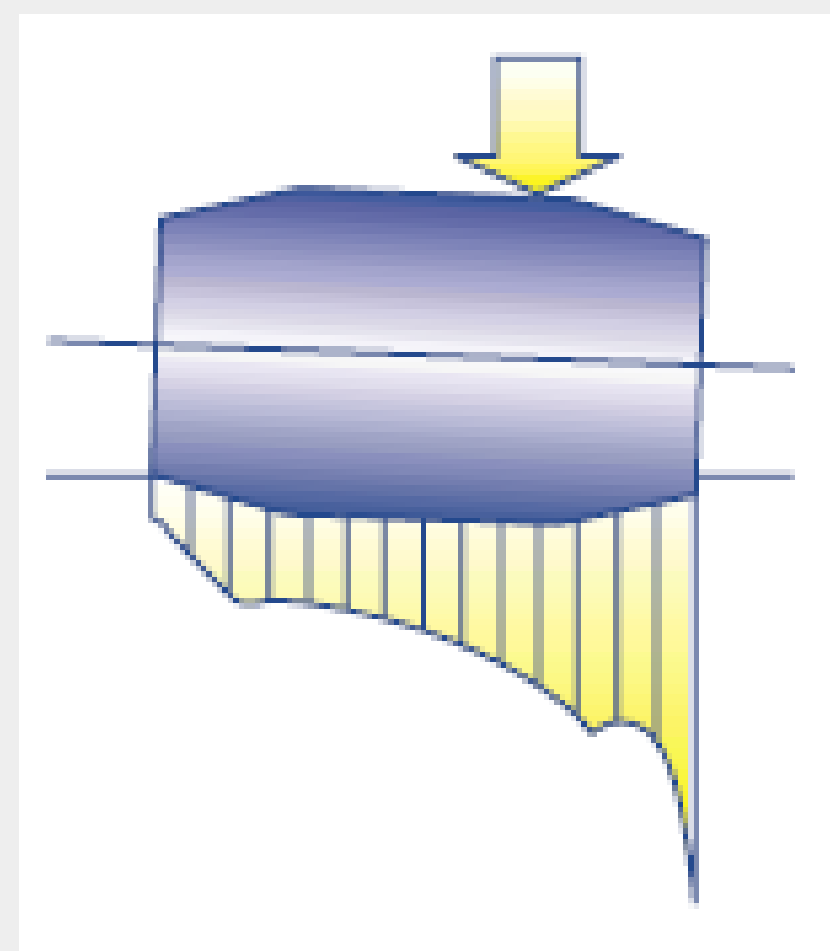
- Cylindrical rounded (ZB)
Increased performance compared with cylindrical profile.



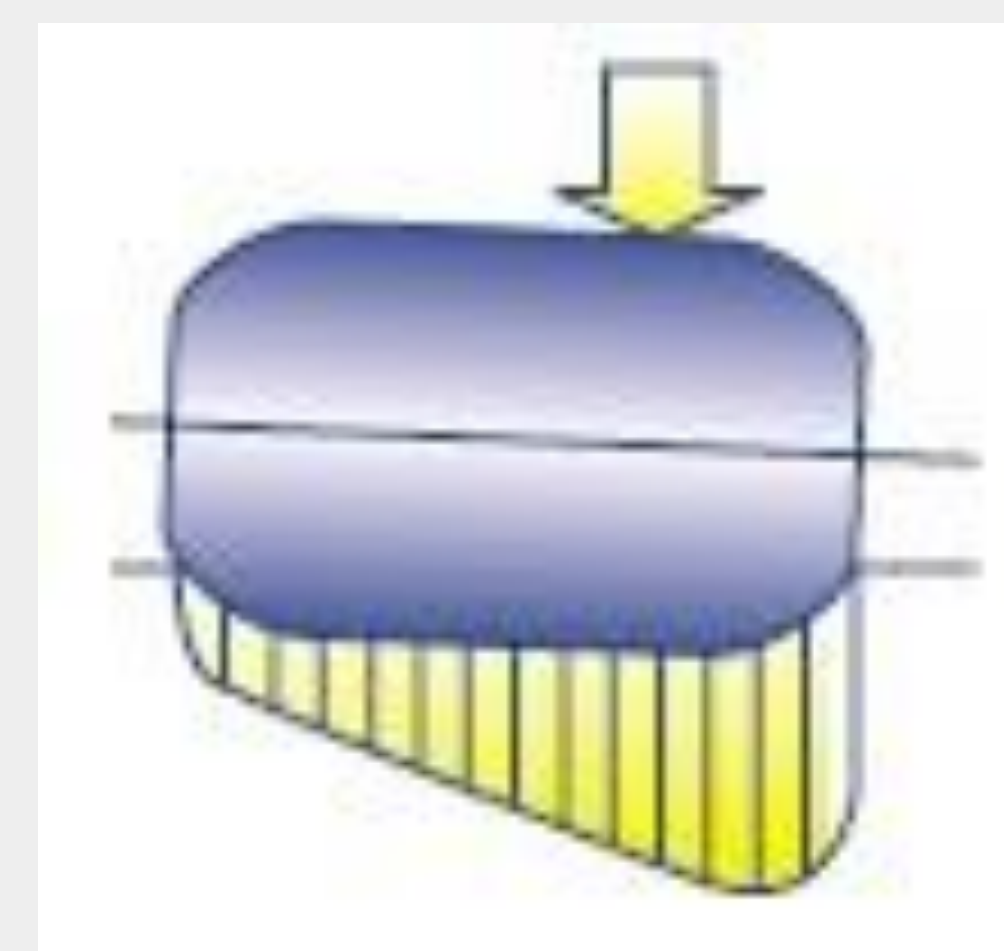
- Logarithmic profile = close to ZB, but with more continuous shape
Increased performance compared to ZB



Cylindrical



ZB



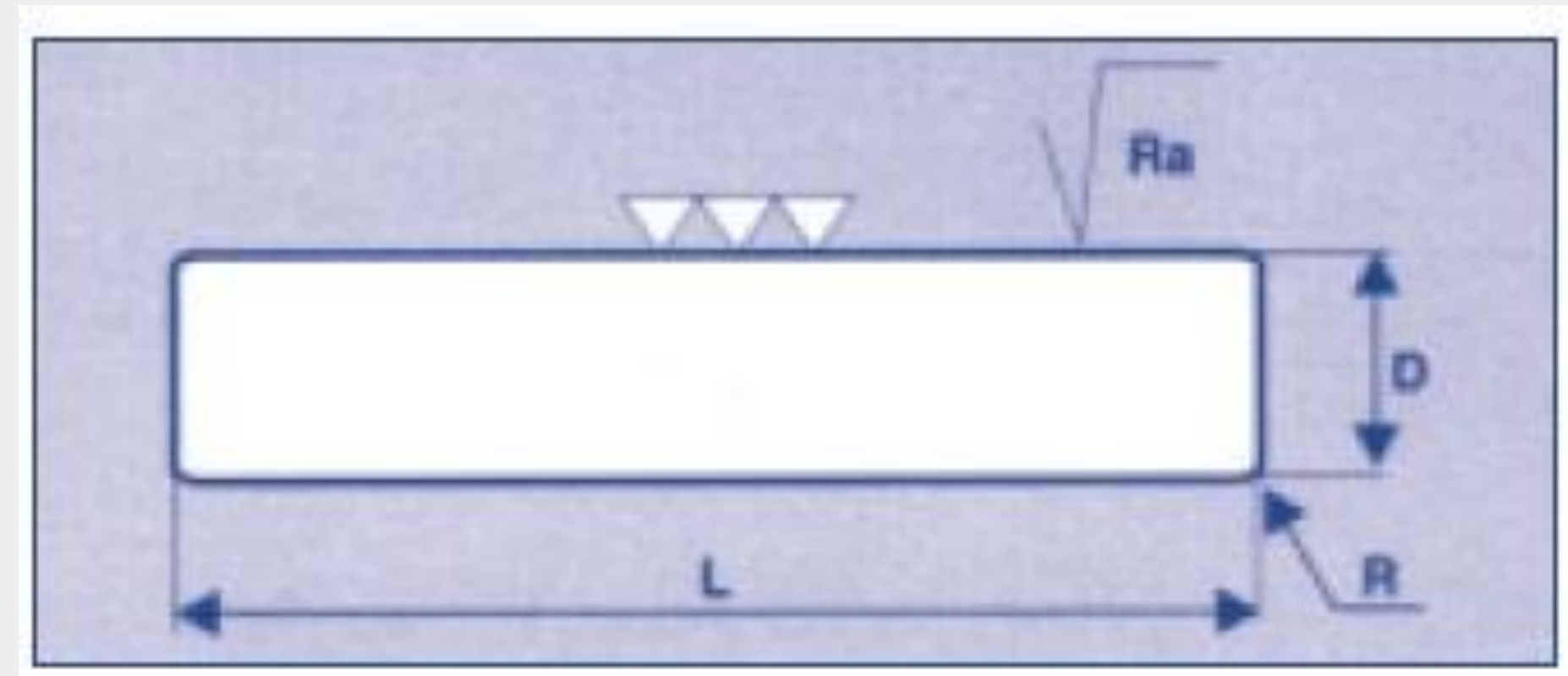
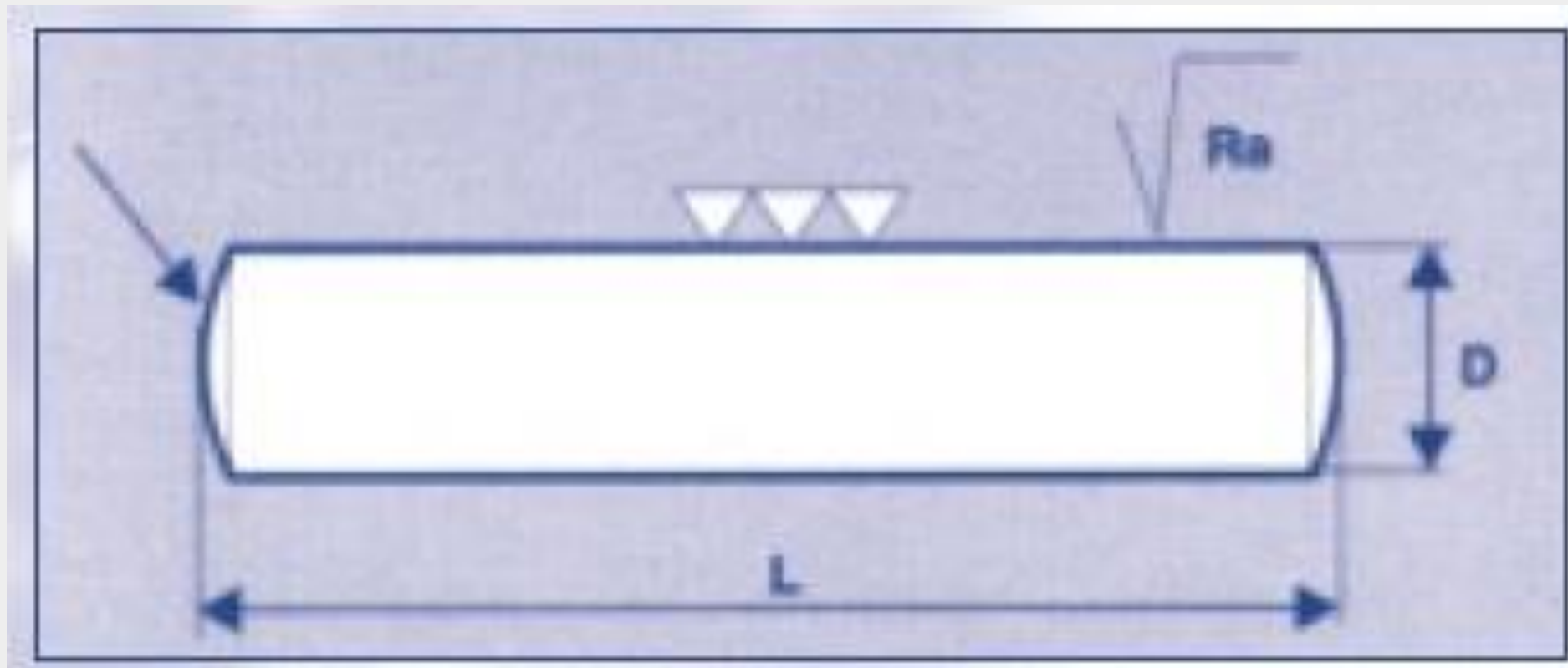
Logarithmic

- Other profiles on request
- Supperlaping on diameters : surface roughness with $RA < 0,04\mu$

RANGE OF PRODUCTS AND SIZES

ROLLERS AND NEEDLES

4- NEEDLES

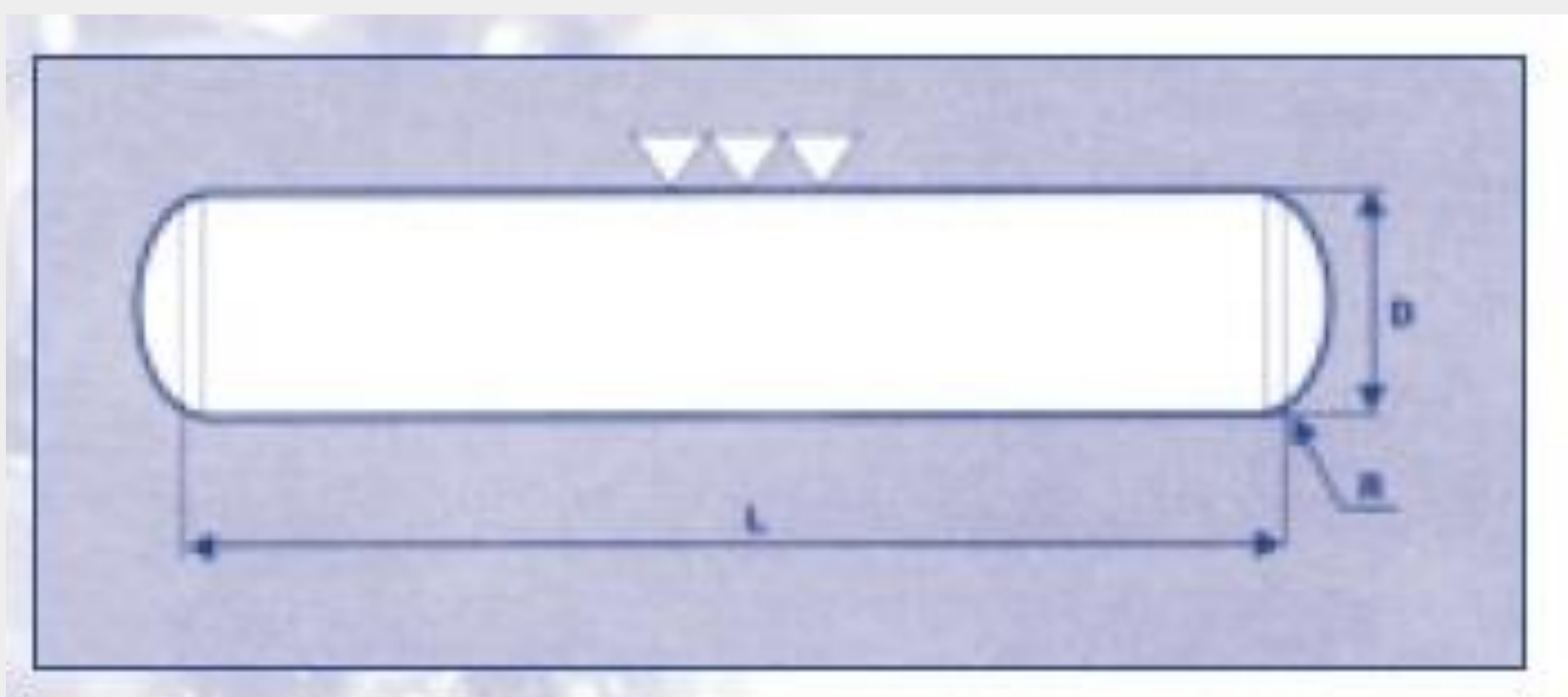


Range of dia. = 1 to 7 mm

range of length = 2,8 to 59,8 mm

Tolerances	Tol. \varnothing	Sorting level	length	circularity	Roughness (Ra)
G5	8 μ	5 μ	H 13	$\leq 2,5 \mu$	$\leq 0,20 \mu$
G3	8 μ	3 μ	H 13	$\leq 1,5 \mu$	$\leq 0,15 \mu$
G2	8 μ	2 μ	H 13	$\leq 1 \mu$	$\leq 0,10 \mu$

5- PINS AND AXELS



Range of dia. = 2 to 6 mm
Range of length = 5 to 100 mm