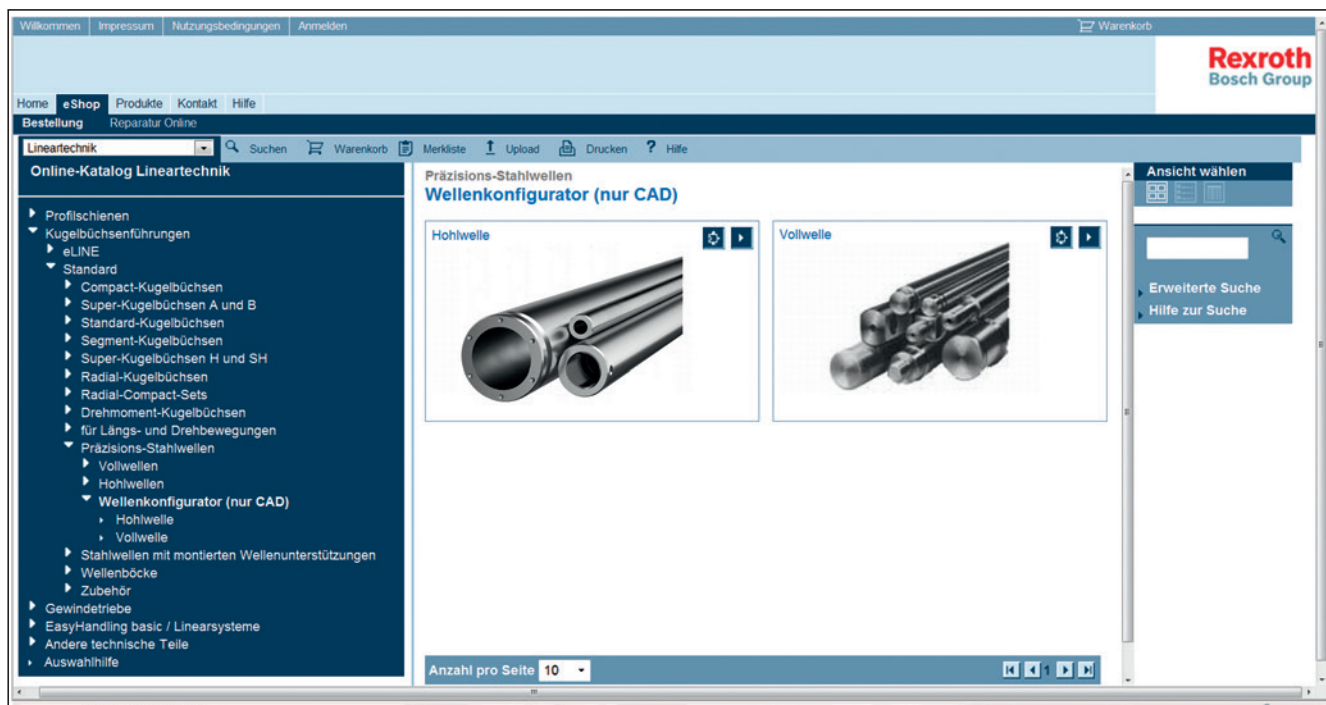


Precision steel shafts and shaft end machining

## Product overview

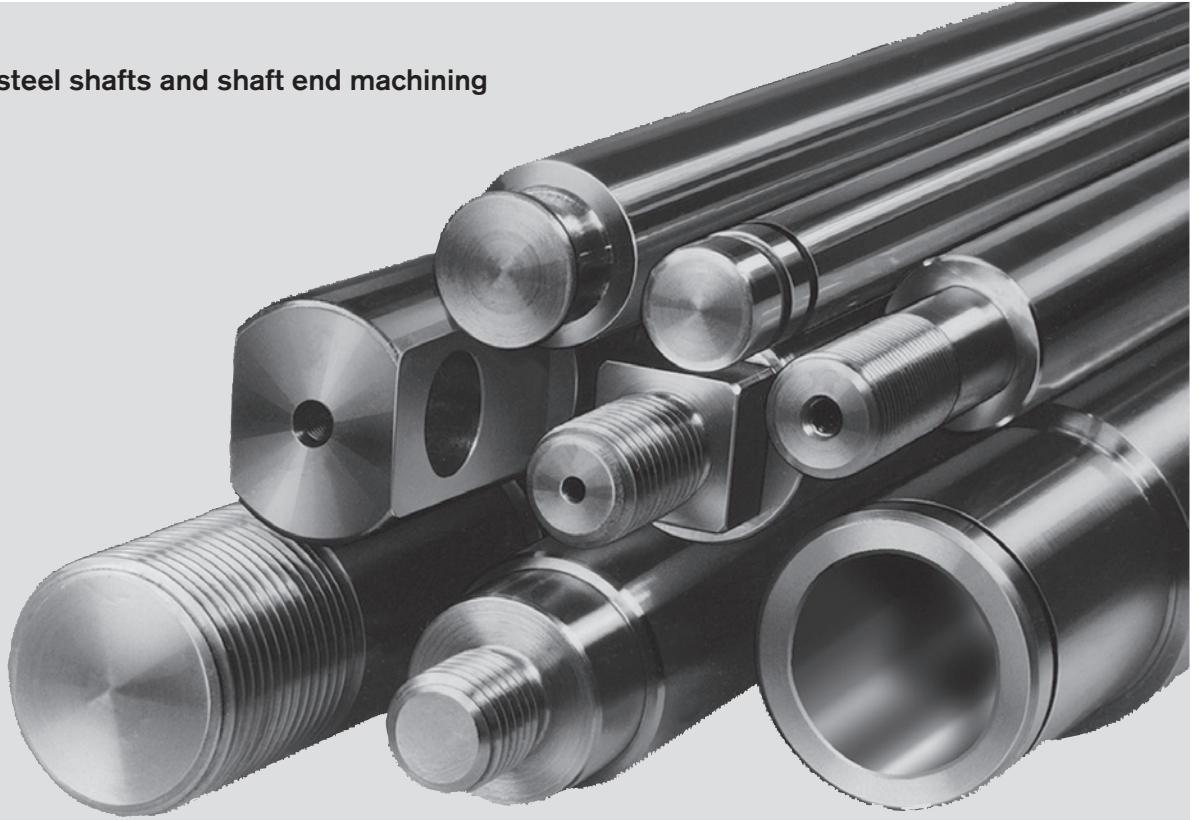
### The benefits

- Induction-hardened and polished
- Solid or hollow shafts
- Various tolerances
- Heat-treated, stainless or hard chrome-plated steel
- Cut to size
- Chamfered to protect linear bushing seals
- Fully machined to customer drawings
- Use as guide shafts for linear bushings
- Use as rollers, pistons and axes



Use the shaft configuration tool to request machined shafts.  
[www.boschrexroth.com/shaft-configuration](http://www.boschrexroth.com/shaft-configuration)

## Precision steel shafts and shaft end machining



Precision steel shafts

# Overview

## Dimensions

Shaft Ø d  (mm)	Part numbers for solid shafts		Max. usable Length  (mm)	X46Cr13		Max. usable Length  (mm)	X90CrMoV18		Max. usable Length  (mm)
	Heat-treated Cf53 h6 <sup>1)</sup>	h7 <sup>1)</sup>		h6 <sup>1)</sup>	h7 <sup>1)</sup>		h6 <sup>1)</sup>	h7 <sup>1)</sup>	
3	R1000 003 00	–	400	–	–	–	R1000 003 20	–	400
4	–	–	–	R1000 004 30	R1000 004 31	3,450	–	–	–
5	R1000 005 00	R1000 005 01	3,900	R1000 005 30	R1000 005 31	3,450	–	–	–
6	R1000 006 00	R1000 006 01	5,650	R1000 006 30	R1000 006 31	3,450	–	–	–
8	R1000 008 00	R1000 008 01	5,900	R1000 008 30	R1000 008 31	5,900	–	–	–
10	R1000 010 00	R1000 010 01	5,900	R1000 010 30	R1000 010 31	3,450	–	–	–
12	R1000 012 00	R1000 012 01	5,900	R1000 012 30	R1000 012 31	5,900	R1000 012 20	R1000 012 21	5,900
14	R1000 014 00	R1000 014 01	5,900	R1000 014 30	R1000 014 31	5,900	–	–	–
15	R1000 015 00	R1000 015 01	5,900	–	–	–	–	–	–
16	R1000 016 00	R1000 016 01	5,900	R1000 016 30	R1000 016 31	5,900	R1000 016 20	R1000 016 21	5,900
18	R1000 018 00	R1000 018 01	5,900	–	–	–	–	–	–
20	R1000 020 00	R1000 020 01	5,900	R1000 020 30	R1000 020 31	5,900	R1000 020 20	R1000 020 21	5,900
22	R1000 022 00	R1000 022 01	5,900	–	–	–	–	–	–
24	R1000 024 00	R1000 024 01	5,900	–	–	–	–	–	–
25	R1000 025 00	R1000 025 01	5,900	R1000 025 30	R1000 025 31	5,900	R1000 025 20	R1000 025 21	5,900
30	R1000 030 00	R1000 030 01	5,900	R1000 030 30	R1000 030 31	5,900	R1000 030 20	R1000 030 21	5,900
32	R1000 032 00	R1000 032 01	5,900	–	–	–	–	–	–
35	R1000 035 00	R1000 035 01	5,900	–	–	–	–	–	–
38	R1000 038 00	R1000 038 01	5,900	–	–	–	–	–	–
40	R1000 040 00	R1000 040 01	5,900	R1000 040 30	R1000 040 31	5,900	R1000 040 20	R1000 040 21	5,900
45	R1000 045 00	R1000 045 01	5,900	–	–	–	–	–	–
50	R1000 050 00	R1000 050 01	5,900	R1000 050 30	R1000 050 31	5,900	R1000 050 20	R1000 050 21	5,900
55	R1000 055 00	R1000 055 01	5,900	–	–	–	–	–	–
60	R1000 060 00	R1000 060 01	5,900	R1000 060 30	R1000 060 31	5,900	R1000 060 20	R1000 060 21	5,900
70	R1000 070 00	R1000 070 01	5,900	–	–	–	–	–	–
80	R1000 080 00	R1000 080 01	5,900	R1000 080 30	R1000 080 31	5,900	R1000 080 20	R1000 080 21	5,900
100	R1000 100 00	R1000 100 01	5,900	–	–	–	–	–	–
110	R1000 110 00	R1000 110 01	5,900	–	–	–	–	–	–

1) Other tolerances upon request

Shaft Ø d  (mm)	Part numbers for solid shafts Hard chrome-plated Cf53				Part numbers for hollow shafts Heat-treated C60; size Ø 8, Ø 10, Ø 16: 100Cr6			Hard chrome-plated Cf53	
	h6	Max. usable Length (mm)	h7	Max. usable Length (mm)	h6	h7	Max. usable Length	h7	Max. usable Length
3	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-
8	-	-	-	-	R1001 008 10	-	1,000	-	-
10	-	-	-	-	R1001 010 10	-	1,000	-	-
12	R1000 012 60	5,350	R1000 012 61	5,350	R1001 012 10	R1001 012 11	5,900	-	-
14	R1000 014 60	5,350	R1000 014 61	5,350	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-
16	R1000 016 60	6,350	R1000 016 61	6,350	R1001 016 10	R1001 016 11	2,000	-	-
18	-	-	-	-	-	-	-	-	-
20	R1000 020 60	6,450	R1000 020 61	6,450	R1001 020 10	R1001 020 11	5,900	-	-
22	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-
25	R1000 025 60	6,850	R1000 025 61	6,850	R1001 025 10	R1001 025 11	5,900	R1001 025 41	5,900
30	R1000 030 60	6,850	R1000 030 61	6,850	R1001 030 10	R1001 030 11	5,900	R1001 030 41	5,900
32	-	-	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-	-	-
38	-	-	-	-	-	-	-	-	-
40	R1000 040 60	6,850	R1000 040 61	6,850	R1001 040 10	R1001 040 11	5,900	R1001 040 41	5,900
45	-	-	-	-	-	-	-	-	-
50	R1000 050 60	6,850	R1000 050 61	6,850	R1001 050 10	R1001 050 11	5,900	R1001 050 41	5,900
55	-	-	-	-	-	-	-	-	-
60	R1000 060 60	6,850	R1000 060 61	6,850	R1001 060 10	R1001 060 11	5,900	R1001 060 41	5,900
70	-	-	-	-	-	-	-	-	-
80	R1000 080 60	6,850	R1000 080 61	6,850	R1001 080 10	R1001 080 11	5,900	R1001 080 41	5,900
100	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-



Precision steel shafts

## Ordering information

### Heat-treated solid steel shafts

As part of a linear guide, the role of the shaft places strict requirements on the materials used.

We offer the ideal shaft material for any diameter range.

Extremely consistent surface hardness and hardness depth combine with outstanding purity, consistent structure and balanced grading for extraordinarily long service life under rolling loads.

Available diameters (mm)	Ø d (mm)	Lengths (m)
3, 5, 6, 8, 10, 12, 14, 15, 16, 18, 20, 22,	3	0.4
24, 25, 30, 32, 35, 38, 40, 45, 50, 55, 60,	5 and 6	5.8
70, 80, 100, 110	8 and higher	6.1

Solid shafts with shaft diameters 20 mm to 8 m in length available upon request.

Sections combine for longer overall lengths.

Linear bushings roll over seams with ease.

Materials	Hardness
Cf53	Min. 60 HRC

Material number	
h6 tolerance	R1000 xxx 00
h7 tolerance	R1000 xxx 01

xxx = diameter in mm

#### Ordering example

Solid shaft, Ø = 25, h7, heat-treated steel, 460 mm long

**Material number:**  
**R1000 025 01, 460 mm**

### ISO 683-17/EN 10088 stainless steel solid shafts

The right choice for applications where corrosion resistance and cleanliness are critical, e.g., in the food industry, semiconductor production and medical equipment. X 90 CrMoV 18 is more resistant to lactic acid than X 46 Cr 13.

Materials	Available diameters (mm)
X 46 Cr 13	4, 5, 6, 8, 10, 12, 14, 16, 20, 25, 30, 40, 50, 60, 80
X 90 CrMoV 18	3, 12, 16, 20, 25, 30, 40, 50, 60, 80

Ø d (mm)	Lengths (m)
3	0.4
4 – 10	3.6
12 – 80	6.1

Sections combine for longer overall lengths.

Linear bushings roll over seams with ease.

Materials	Hardness
X 46 Cr 13	Min. 54 HRC
X 90 CrMoV 18	Min. 55 HRC

Material number for X 46 Cr 13	
h6 tolerance	R1000 0xx 30
h7 tolerance	R1000 0xx 31

Material number for X 90 CrMoV 18	
h6 tolerance	R1000 0xx 20
h7 tolerance	R1000 0xx 21

xx = diameter in mm

#### Ordering example:

Solid shaft, Ø = 16, h6, stainless steel X 46 Cr 13, 350 mm long

**Material number:**  
**R1000 016 30, 350 mm**

### Materials

	Code	Material no.
Heat-treated steel Solid shaft	Cf53	1.1213
	C60	1.0601
ISO 683-17/EN 10088 stainless steel	X 46 Cr 13	1.4034
	X 90 CrMoV 18	1.4112

## Solid shafts, hard chrome-plated

Optimal shaft surface corrosion protection on outer diameter.

Available diameters (mm)	
12, 14, 16, 20, 25, 30, 40, 50, 60, 80	

Ø d (mm)	Lengths (m)
12, 14	5.35
16	6.35
20 – 80	6.85

Sections combine for longer overall lengths. Linear bushings roll over seams with ease.

Materials	Hardness
Cf53, C60	Min. 60 HRC (about 700 HV)
Chrome plating (about 10 µm thick)	About 1,000 HV

Material number	
h6 tolerance	R1000 0xx 60
h7 tolerance	R1000 0xx 61

xx = diameter in mm

**Ordering example:**  
Solid shaft, Ø = 30, h7, hard chrome-plated, 480 mm long  
**Material number:**  
**R1000 030 61, 480 mm**

## Heat-treated hollow steel shafts

Hollow shafts allow for electrical wiring, or liquid or gaseous media. Hollow shafts are also often used to save weight. The material is seamlessly rolled. The inner diameters are unmachined.

Available diameters (mm)		
Outer	Inner (approx.)	
8		3.0
10		4.0
12		4.0
16		8.0
20		14.0
25		14.0
30		19.0
40		26.5
50		29.6
60		36.5
80		57.4

Ø d (mm)	Max. lengths (m)
8, 10	1.0
16	2.0
12 and 20 – 80	6.1

Materials	Hardness
C60	Min. 60 HRC

Material number	
h6 tolerance	R1001 xxx 10
h7 tolerance	R1001 xxx 11

xxx = outer diameter in mm

**Ordering example:**  
Hollow shaft, Ø = 80, h7, 3,600 mm long  
**Material number:**  
**R1001 080 11, 3600 mm**

## Hollow shafts, hard chrome-plated

Hollow shafts are hard chrome-plated on the outer diameter. Max. length: 6.1 m

Available diameters (mm)		
Outer	Inner (approx.)	
25		14.0
30		19.0
40		26.5
50		29.6
60		36.5
80		57.4

Materials	Hardness
C60	Min. 60 HRC (about 700 HV)
Chrome plating About 10 µm thick	About 1,000 HV

Material number	
h7 tolerance	R1001 0xx 41

xx = outer diameter in mm

**Ordering example:**  
Hollow shaft, Ø = 40, h7, hard chrome-plated, 2000 mm long  
**Material number:**  
**R1001 040 41, 2000 mm**