

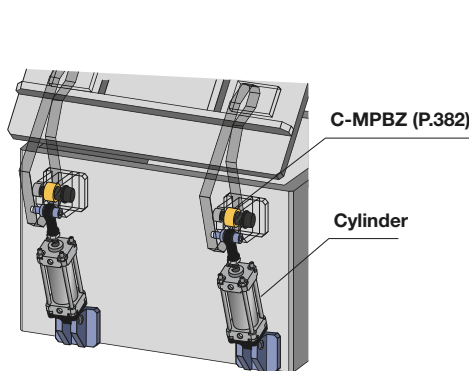
Oil Free Bushings - Copper Alloy C-VALUE Products Overview

Features of C-VALUE Products

① Standards for Medium Precision Requirement

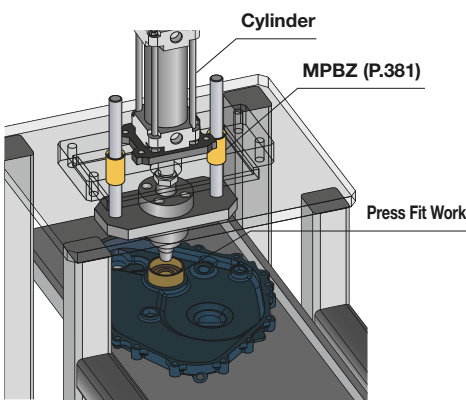
- Use the C-VALUE Products for medium precision requirements including the simple positioning guides as the manual work fixtures.
- Use the existing products for use requiring high-precision linear/rotary motions.

<C-VALUE Products> Welding Fixtures to secure the work manually



The C-VALUE Product selected for mid-to-low precision requirement.

<Existing Products> Press Fit Fixture requiring the high positioning precision



The existing product selected for high-precision requirement.

② Redesigning Dimension Precision

- **C-VALUE Products are priced lower than existing products, which was achieved by redesigning the product specifications to improve production yields.**

We have redesigned the tolerance range of the I.D. (dr)/O.D. (D)/Full Length (L)/Flange Dia. (H)/Shoulder Thickness (t) respectively for the medium precision requirements based on the existing products.

(Straight) Dimension Precision Comparison Table

I.D. dr	Tolerance		Outer Dia. D	Tolerance		Overall Length L	Tolerance
	Existing MPBZ	C-VALUE C-MPBZ		Existing MPBZ	C-MPBZ		
8	+0.028	+0.033	12	+0.018	+0.024	-0.1 -0.3	+0.1 -0.5
10	+0.013	+0.008	14	+0.007	+0.003		
12			18				
13	+0.034	+0.039	19				
15	+0.016	+0.011	21	+0.021	+0.027		
16			22	+0.008	+0.004		
18			24				
20			28				
25	+0.041	+0.046	33				
30	+0.020	+0.015	38	+0.025	+0.031		
35			44	+0.009	+0.005		
40	+0.050	+0.055	50				
40	+0.025	+0.020	62				
50				+0.030 +0.011	+0.036 +0.007		

(Flanged) Dimension Precision Comparison Table

I.D. dr	Tolerance		Outer Dia. D	Tolerance		Overall Length L	Tolerance	Flange Dia. H	Tolerance	Flange Thickness t	Tolerance
	Existing MPFZ	C-VALUE C-MPFZ		Existing MPFZ	C-MPFZ						
8	+0.040	+0.045	12	+0.034	+0.040	-0.1 -0.3	+0.1 -0.5	0 -0.1	+0.1 -0.2	±0.2	±0.5
10	+0.025	+0.020	14	+0.023	+0.019						
12			18								
13	+0.050	+0.055	19								
15	+0.032	+0.027	21	+0.041	+0.047						
16			22	+0.028	+0.024						
18			24								
20			30								
25	+0.061	+0.065	35								
30	+0.040	+0.035	40	+0.050	+0.056						
35			45	+0.034	+0.030					±0.3	±0.8
40	+0.075	+0.080	50								
40	+0.050	+0.047	60								
50				+0.060 +0.041	+0.066 +0.037						

* The basic shape and structure of the C-VALUE Products are equivalent to those of the existing products.

③ Quality Assurance

MISUMI conducts quality inspections and delivers products within the catalog specification values.
You can save time of the design change or parts adjustments caused by a deviation of the dimension specifications.

Cautions on Designing and Assembly

[Housing Dia. Tolerance]

The recommended housing tolerance of C-VALUE Products are the H7 tolerance just like the existing products. Refer to the following table when you design/assembly the housings.

(Straight) Housing Dia. Tolerance

Inner Dia. dr	Existing Products MPBZ		C-VALUE Products C-MPBZ		Customer Design	
	Outer Dia. D	Tolerance m6	Outer Dia. D	Tolerance	Housing Dia.	Tolerance H7
8	12		12		12	
10	14	+0.018 +0.007	14	+0.024 +0.003	14	+0.018 0
12	18		18		18	
13	19		19		19	
15	21	+0.021 +0.008	21	+0.027 +0.004	21	+0.021 0
16	22		22		22	
18	24		24		24	
20	28		28		28	
25	33		33		33	
30	38	+0.025 +0.009	38	+0.031 +0.005	38	+0.025 0
35	44		44		44	
40	50		50		50	
50	62	+0.030 +0.011	62	+0.036 +0.007	62	+0.030 0

Inner Dia. dr	Existing Products MPFZ		C-VALUE Products C-MPFZ		Customer Design	
	Outer Dia. D	Tolerance r6	Outer Dia. D	Tolerance	Housing Dia.	Tolerance H7
8	12		12		12	
10	14	+0.034 +0.023	14	+0.040 +0.019	14	+0.018 0
12	18		18		18	
13	19		19		19	
15	21	+0.041 +0.028	21	+0.047 +0.024	21	+0.021 0
16	22		22		22	
18	24		24		24	
20	30		30		30	
25	35		35		35	
30	40	+0.050 +0.034	40	+0.056 +0.030	40	+0.025 0
35	45		45		45	
40	50		50		50	
50	60	+0.060 +0.041	60	+0.066 +0.037	60	+0.030 0

[Combination Shaft Tolerance]

- Select the recommended shaft diameter tolerance of C-VALUE Products according to your needs in the same way you do with the existing products.
g6 : Medium Precision (Intermittent Operation) f8 : Medium Precision (Continuous Operation) d8 : Mid-to-low Precision (Medium Load) e7 : Mid-to-low Precision (Low Load)
- 1.6a (63s) or less is recommended for the surface roughness of the shaft.

Quality Assurance

We conduct quality inspections prior to shipping for both C-VALUE Products and existing MISUMI Oil Free Bushings. The products we deliver conform to the catalog specification values.

I.D. dim. Inspection	O.D. dim. Inspection	Full Length dim. Inspection	External dim. Inspection